CHAPTER

27

FLIGHT CONTROLS

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FLIGHT CONTROLS

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27-CONTENTS		
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7	Feb 15/2009	
8	Feb 15/2009	
9	Feb 15/2008	
10	Feb 15/2008	
11	Jun 15/2008	
12	Jun 15/2008	
13	Feb 15/2009	
14	Feb 15/2009	
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O 26	Jun 15/2009	
27	Feb 15/2008	
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35	Jun 15/2008	
36	Jun 15/2008	
27-CONTENTS (cont)		
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O 70	Jun 15/2009	
71	Oct 15/2008	
72	Feb 15/2009	
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74	Feb 15/2008	
75	Feb 15/2008	
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914	Feb 15/2009	
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27-09-14		
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202	Oct 10/2007	
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204	Oct 10/2007	
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206	Oct 10/2007	

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237	Feb 15/2009	
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244	Feb 15/2008	
245	Oct 10/2007	
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27-09-17		
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202	Oct 10/2003	
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204	BLANK	
27-09-21		
401	Oct 15/2008	
402	Oct 10/2005	
403	Jun 10/2005	
404	Oct 10/2003	
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R 407	Jun 15/2009	
O 408	Jun 15/2009	
O 409	Jun 15/2009	
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503	Feb 10/2006	
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506	Feb 10/2006	
27-09-31		
401	Oct 10/2003	
402	Oct 10/2005	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2003	
406	Feb 15/2009	
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408	Feb 10/2006	
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410	Feb 10/2006	
27-09-31		
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502	Oct 10/2005	
27-09-45		
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405	Jun 10/2006	
406	Oct 10/2006	
407	Oct 10/2006	
408	Feb 15/2009	
409	Feb 15/2009	
410	Jun 10/2007	
27-09-51		
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407	Oct 10/2007	
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405	Jun 10/2005	
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27-09-61		
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27-09-71		
501	Feb 15/2009	

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512	Feb 15/2009	
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515	Feb 15/2009	
516	Feb 15/2009	
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R 518	Jun 15/2009	
519	Feb 15/2009	
520	Feb 15/2009	
521	Oct 10/2005	
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523	Oct 10/2005	
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540	Feb 15/2009	
27-09-71 (cont)		
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543	Oct 10/2005	
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553	Feb 15/2009	
554	Jun 10/2007	
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27-11-00		
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27-11-00		
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507	Feb 15/2009	
508	Feb 15/2009	
509	Feb 15/2009	
510	Feb 15/2009	
511	Feb 15/2009	
512	Feb 15/2009	
513	Oct 10/2003	
514	Jun 15/2008	
R 515	Jun 15/2009	
516	Oct 10/2003	
517	Jun 15/2008	
518	Oct 10/2006	
R 519	Jun 15/2009	
R 520	Jun 15/2009	
521	Feb 10/2007	
522	Feb 10/2007	
523	Oct 10/2003	
524	Jun 10/2007	
525	Jun 15/2008	
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527	Feb 15/2009	
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529	Feb 10/2007	
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536	Feb 10/2007	
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538	Feb 10/2007	
539	Feb 15/2009	
540	Feb 15/2009	
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568	Feb 15/2009	
569	Feb 15/2009	
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603	Feb 15/2009	
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27-11-11		
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413	Oct 10/2003	
414	Feb 15/2009	
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419	Feb 10/2004	
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606	Oct 10/2003	
27-11-14		
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27-11-21		
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407	Feb 15/2009	
408	Feb 15/2009	
409	Oct 10/2003	
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27-11-21		
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602	Jun 10/2007	
603	Oct 10/2003	
604	Oct 10/2003	
605	Oct 10/2003	
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27-11-31		
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405	Oct 10/2003	
R 406	Jun 15/2009	
O 407	Jun 15/2009	
O 408	Jun 15/2009	
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602	Jun 10/2005	
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604	Oct 10/2003	
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403	Oct 10/2003	
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408	Oct 15/2008	
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410	Oct 15/2008	
27-11-51		
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407	Oct 10/2003	
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410	Oct 10/2006	
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27-11-71		
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519	Feb 15/2009	

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541	Feb 15/2009	
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558	Feb 15/2009	
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R 414	Jun 15/2009	
R 415	Jun 15/2009	
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27-21-11 (cont)		
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27-21-17		
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27-21-24		
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27-21-24		
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27-21-31		
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27-21-41		
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403	Oct 10/2003	
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406	Oct 10/2003	
407	Feb 15/2008	
408	Jun 15/2008	
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410	BLANK	
27-21-51		
401	Oct 10/2006	
402	Oct 10/2006	
403	Jun 10/2004	
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406	Jun 10/2004	
407	Jun 10/2004	
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409	Jun 10/2004	
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412	Jun 10/2004	
413	Jun 10/2004	
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416	Jun 10/2004	
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419	Oct 10/2006	
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421	Jun 10/2004	
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27-21-51		
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602	Oct 10/2003	
27-21-61		
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403	Jun 10/2005	
404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
27-21-61 (cont)		
407	Oct 10/2003	
408	Feb 15/2009	
409	Oct 10/2003	
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411	Jun 15/2008	
412	Jun 15/2008	
27-21-61		
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602	Feb 10/2006	
603	Feb 10/2006	
604	Jun 10/2007	
605	Jun 10/2007	
606	Feb 15/2009	
607	Feb 15/2009	
608	Feb 10/2006	
27-21-71 Config 1		
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402	Jun 10/2007	
403	Jun 10/2007	
404	Jun 10/2007	
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407	Jun 15/2008	
408	Jun 15/2008	
409	Jun 15/2008	
410	BLANK	
27-21-71 Config 2		
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403	Feb 15/2009	
404	Feb 15/2009	
405	Feb 15/2009	
406	Feb 15/2009	
407	Feb 15/2009	
408	Feb 15/2009	
27-21-82		
401	Oct 10/2006	
402	Oct 10/2006	
403	Jun 10/2005	
27-21-82 (cont)		
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405	Jun 10/2005	
406	Jun 10/2005	
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409	Oct 10/2006	
410	Oct 10/2006	
411	Oct 10/2007	
412	Oct 10/2007	
27-21-87		
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402	Oct 10/2003	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2006	
406	Oct 10/2006	
407	Jun 10/2005	
408	BLANK	
27-21-91 Config 1		
401	Jun 10/2007	
402	Jun 10/2007	
403	Jun 10/2007	
404	Jun 10/2007	
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406	Jun 10/2007	
407	Jun 10/2007	
408	Jun 10/2007	
409	Jun 15/2008	
410	Jun 10/2007	
411	Jun 10/2007	
412	Jun 10/2007	
413	Jun 10/2007	
414	Jun 10/2007	
415	Jun 10/2007	
416	Jun 10/2007	
417	Jun 15/2008	
418	Jun 10/2007	
27-21-91 Config 2		
401	Feb 15/2009	

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27-21-91 Config 2 (cont)		
402	Feb 15/2009	
403	Feb 15/2009	
404	Feb 15/2009	
405	Feb 15/2009	
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409	Feb 15/2009	
410	Feb 15/2009	
411	Feb 15/2009	
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413	Feb 15/2009	
414	Feb 15/2009	
415	Feb 15/2009	
416	Feb 15/2009	
417	Feb 15/2009	
418	BLANK	
27-21-94		
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202	Oct 10/2003	
203	Oct 10/2003	
204	Oct 10/2003	
205	Oct 10/2003	
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207	Oct 10/2005	
208	Jun 15/2008	
209	Oct 10/2007	
210	Oct 10/2005	
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27-21-95		
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402	Feb 15/2009	
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404	Feb 15/2009	
405	Feb 15/2009	
406	BLANK	
27-31-00		
201	Feb 15/2009	
27-31-00 (cont)		
202	Oct 10/2005	
203	Oct 10/2003	
204	Oct 10/2003	
205	Oct 10/2006	
206	Feb 15/2008	
207	Oct 10/2007	
208	Oct 10/2006	
209	Oct 10/2006	
210	Oct 10/2006	
211	Feb 15/2008	
212	Oct 10/2007	
213	Oct 10/2007	
214	Feb 15/2009	
215	Feb 15/2009	
216	Feb 15/2009	
217	Oct 10/2006	
218	Feb 15/2009	
219	Feb 15/2009	
220	Feb 15/2009	
27-31-00		
501	Feb 15/2009	
502	Jun 15/2008	
503	Feb 15/2009	
504	Oct 10/2006	
505	Feb 15/2009	
506	Feb 15/2009	
507	Feb 15/2008	
508	Feb 15/2009	
509	Feb 15/2009	
510	Feb 15/2009	
511	Feb 15/2009	
512	Feb 15/2009	
513	Feb 15/2009	
514	Feb 15/2009	
515	Feb 15/2009	
516	Oct 10/2006	
517	Oct 10/2006	
518	Oct 10/2006	
519	Oct 10/2006	
27-31-00 (cont)		
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521	Oct 10/2006	
522	Oct 10/2007	
523	Oct 10/2007	
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541	Oct 10/2006	
542	Feb 15/2009	
543	Feb 15/2009	
R 544	Jun 15/2009	
R 545	Jun 15/2009	
546	Feb 15/2009	
547	Oct 10/2006	
548	Oct 10/2006	
549	Oct 10/2006	
550	Oct 10/2006	
551	Oct 15/2008	
552	Oct 15/2008	
553	Oct 10/2006	
554	Oct 10/2006	
555	Oct 15/2008	
556	Jun 10/2007	
557	Jun 10/2007	
558	Jun 10/2007	

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27-31-00 (cont)		
559	Jun 10/2007	
560	Jun 10/2007	
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567	Feb 15/2009	
568	Feb 15/2009	
569	Feb 15/2009	
570	Feb 15/2009	
571	Feb 15/2009	
572	Feb 15/2009	
573	Feb 15/2009	
574	Feb 15/2009	
575	Feb 15/2009	
576	Oct 10/2006	
577	Feb 15/2009	
578	Feb 15/2009	
579	Feb 15/2009	
580	Feb 15/2009	
581	Feb 15/2009	
582	Feb 15/2009	
583	Feb 15/2009	
584	Feb 15/2009	
585	Feb 15/2009	
586	Feb 15/2009	
587	Feb 15/2009	
588	Oct 10/2007	
589	Oct 10/2007	
R 590	Jun 15/2009	
591	Jun 15/2008	
592	Jun 15/2008	
593	Jun 15/2008	
594	Jun 15/2008	
595	Jun 15/2008	
596	Jun 15/2008	
597	Jun 15/2008	
27-31-00 (cont)		
598	Feb 15/2009	
598.1	Jun 15/2008	
598.2	Jun 15/2008	
598.3	Jun 15/2008	
598.4	Oct 10/2007	
598.5	Feb 15/2009	
598.6	Jun 15/2008	
598.7	Feb 15/2009	
598.8	Feb 15/2009	
598.9	Jun 15/2008	
R 598.10	Jun 15/2009	
R 598.11	Jun 15/2009	
598.12	Oct 10/2007	
598.13	Oct 10/2007	
598.14	Oct 10/2007	
598.15	Oct 10/2007	
598.16	Oct 10/2007	
598.17	Oct 10/2007	
598.18	Oct 10/2007	
598.19	Oct 10/2007	
598.20	Feb 15/2009	
598.21	Oct 10/2007	
598.22	Feb 15/2009	
598.23	Feb 15/2009	
598.24	Feb 15/2009	
598.25	Oct 10/2007	
598.26	BLANK	
27-31-11		
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402	Oct 10/2006	
403	Oct 10/2006	
404	Feb 15/2009	
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409	Feb 10/2006	
410	Feb 10/2006	
411	Feb 10/2006	
27-31-11 (cont)		
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413	Feb 10/2006	
414	Feb 10/2006	
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417	Feb 10/2006	
418	Feb 10/2006	
419	Feb 15/2009	
R 420	Jun 15/2009	
O 421	Jun 15/2009	
O 422	Jun 15/2009	
O 423	Jun 15/2009	
O 424	Jun 15/2009	
O 425	Jun 15/2009	
O 426	Jun 15/2009	
O 427	Jun 15/2009	
428	Feb 10/2006	
429	Oct 10/2006	
430	Oct 10/2006	
431	Feb 10/2006	
432	Feb 10/2006	
433	Feb 10/2006	
434	Jun 15/2008	
435	Jun 15/2008	
436	Jun 15/2008	
437	Jun 15/2008	
438	BLANK	
27-31-14		
401	Oct 10/2006	
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403	Oct 10/2006	
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410	Oct 10/2003	
411	Feb 15/2009	

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27-31-14		
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27-31-17		
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R 208	Jun 15/2009	
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R 211	Jun 15/2009	
212	Jun 15/2008	
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27-31-20		
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502	Feb 15/2009	
27-31-20 (cont)		
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27-31-31		
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27-31-32		
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608	Feb 15/2009	
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612	Feb 15/2009	
613	Feb 15/2009	
614	Feb 15/2009	
615	Feb 15/2009	
616	Feb 15/2009	
617	Feb 15/2009	
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27-31-34		
O 401	Jun 15/2009	
R 402	Jun 15/2009	
27-31-34 (cont)		
R 403	Jun 15/2009	
O 404	Jun 15/2009	
R 405	Jun 15/2009	
O 406	Jun 15/2009	
O 407	Jun 15/2009	
R 408	Jun 15/2009	
O 409	Jun 15/2009	
O 410	Jun 15/2009	
R 411	Jun 15/2009	
O 412	Jun 15/2009	
R 413	Jun 15/2009	
R 414	Jun 15/2009	
O 415	Jun 15/2009	
O 416	Jun 15/2009	
O 417	Jun 15/2009	
O 418	Jun 15/2009	
R 419	Jun 15/2009	
R 420	Jun 15/2009	
R 421	Jun 15/2009	
O 422	Jun 15/2009	
27-31-34		
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602	Feb 15/2009	
603	Jun 10/2007	
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606	Jun 10/2007	
27-31-35		
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27-31-37		
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404	Oct 10/2003	

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27-31-37 (cont)		
405	Oct 10/2003	
406	Oct 10/2003	
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27-31-41		
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408	Oct 10/2006	
409	Feb 10/2006	
410	Oct 10/2006	
27-31-41		
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602	Jun 15/2008	
603	Feb 10/2006	
604	Feb 10/2006	
27-31-51		
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403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2003	
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407	Oct 10/2006	
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27-31-54		
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27-31-54 (cont)		
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410	Oct 10/2006	
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412	Oct 10/2006	
27-31-61		
401	Oct 10/2006	
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403	Jun 10/2004	
404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
407	Oct 10/2003	
408	Oct 10/2003	
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411	Oct 10/2003	
412	Feb 15/2009	
413	Feb 15/2009	
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602	Feb 15/2009	
27-31-64		
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27-31-64		
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27-31-67		
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403	Oct 10/2003	
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405	Jun 15/2008	
406	Oct 10/2006	
27-31-71		
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403	Oct 10/2006	
404	Jun 10/2004	
405	Jun 10/2004	
406	Oct 10/2005	
407	Oct 10/2005	
408	Jun 10/2007	
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416	Oct 10/2006	
27-31-74		
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R 407	Jun 15/2009	
408	Oct 10/2006	
27-31-81		
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27-31-91		
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413	Oct 15/2008	
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27-31-91		
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603	Oct 10/2003	
604	Oct 10/2003	
605	Oct 10/2003	
606	BLANK	
27-31-94		
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404	Feb 10/2005	
405	Feb 15/2009	
406	Feb 15/2009	
407	Feb 10/2007	

Subject/Page	Date	COC
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509	Feb 15/2009	
510	Feb 15/2009	
511	Feb 15/2009	
512	Feb 15/2009	
513	Feb 15/2009	
514	Feb 15/2009	
27-32-21		
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404	Oct 15/2008	
27-32-31		
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402	Jun 15/2008	
403	Oct 10/2003	
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27-32-42		
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27-41-00		
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502	Feb 15/2009	
503	Oct 10/2007	

Subject/Page	Date	COC
27-41-00 (cont)		
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525	Oct 15/2008	
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546	Feb 15/2009	
547	Feb 15/2009	
548	Feb 15/2009	
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550	Feb 15/2009	
551	Feb 15/2009	
552	Feb 15/2009	
553	Feb 15/2009	
554	Feb 15/2009	
27-41-11		
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406	Feb 10/2007	
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408	Feb 10/2007	
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412	Feb 10/2007	
413	Feb 10/2007	
414	Feb 10/2007	
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417	Feb 10/2007	
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419	Oct 15/2008	
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426	Jun 15/2008	
27-41-21		
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R 403	Jun 15/2009	
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27-41-31		
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405	Jun 10/2004	
406	Jun 10/2004	
407	Jun 10/2004	
408	Jun 10/2004	
409	Jun 10/2004	
410	Jun 10/2004	
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413	Jun 15/2008	
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415	Oct 15/2008	
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27-41-41		
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405	Oct 10/2003	
406	Oct 10/2003	
407	Oct 10/2003	
408	Feb 15/2009	
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410	Jun 10/2007	
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413	Oct 10/2006	
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27-41-41		
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27-41-51		
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27-41-61		
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27-41-71		
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403	Oct 10/2003	
404	Oct 10/2003	
405	Feb 15/2009	
406	Oct 15/2008	
27-41-71		
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27-41-81		
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406	Oct 10/2003	
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416	Feb 15/2009	
417	Feb 15/2009	
418	Feb 15/2009	
419	Feb 15/2009	
420	Feb 15/2009	
27-41-81		
601	Feb 15/2009	
602	Feb 15/2009	
603	Feb 15/2009	
604	Feb 10/2005	
605	Feb 10/2005	
606	Feb 15/2008	
607	Feb 15/2008	
608	Feb 10/2005	
609	Feb 10/2005	
610	Feb 10/2005	
611	Feb 10/2005	
612	Feb 10/2005	
613	Feb 10/2005	
614	Feb 10/2005	
615	Feb 10/2005	
616	Feb 10/2005	
27-41-82		
401	Feb 15/2009	
402	Oct 15/2008	
403	Feb 15/2009	
404	Jun 10/2004	
405	Jun 10/2004	
406	Oct 10/2003	
407	Oct 10/2003	
408	Oct 10/2003	
409	Oct 10/2003	
410	Oct 10/2003	
411	Feb 10/2007	
412	Feb 15/2009	
413	Feb 15/2009	
414	Jun 15/2008	

Subject/Page	Date	COC
27-41-82 (cont)		
415	Feb 15/2009	
416	Feb 15/2009	
417	Oct 15/2008	
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27-41-91		
401	Oct 10/2003	
402	Oct 10/2003	
403	Oct 10/2003	
404	BLANK	
27-41-91		
501	Feb 15/2009	
502	Feb 15/2009	
503	Feb 15/2009	
504	BLANK	
27-41-94		
401	Oct 10/2003	
402	Oct 10/2003	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2006	
406	Jun 10/2007	
407	Oct 10/2003	
408	BLANK	
27-41-94		
501	Jun 10/2007	
502	Feb 15/2009	
503	Feb 15/2009	
504	Jun 10/2007	
505	Jun 10/2007	
506	Jun 10/2007	
507	Jun 10/2007	
508	Jun 10/2007	
509	Jun 10/2007	
510	Jun 10/2007	
511	Feb 15/2009	
512	Jun 10/2007	
513	Jun 10/2007	
514	BLANK	

Subject/Page	Date	COC
27-41-97		
401	Oct 10/2003	
402	Oct 10/2003	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2003	
406	BLANK	
27-41-97		
501	Feb 15/2009	
502	Feb 15/2009	
27-41-98		
401	Feb 15/2009	
402	Feb 15/2009	
403	Jun 15/2008	
404	Feb 15/2009	
405	Feb 15/2009	
406	Feb 15/2009	
27-41-98		
501	Jun 15/2008	
502	Feb 15/2009	
503	Jun 15/2008	
504	Oct 15/2008	
505	Oct 15/2008	
506	Feb 15/2009	
507	Jun 15/2008	
508	Feb 15/2009	
509	Jun 15/2008	
510	Jun 15/2008	
27-51-00		
201	Feb 15/2008	
202	Jun 10/2004	
203	Oct 10/2003	
204	Oct 10/2003	
205	Oct 10/2003	
206	Feb 15/2008	
207	Feb 15/2008	
208	Feb 15/2008	
209	Feb 15/2008	
210	Oct 15/2008	
211	Jun 15/2008	

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27-51-00 (cont)		
212	Oct 10/2003	
213	Oct 10/2003	
214	Oct 10/2003	
215	Oct 15/2008	
216	Oct 10/2007	
217	Oct 10/2007	
218	Oct 10/2003	
219	Jun 15/2008	
220	Jun 15/2008	
221	Oct 10/2003	
222	Oct 10/2003	
223	Oct 10/2003	
224	Oct 10/2003	
225	Oct 10/2003	
226	BLANK	
27-51-00		
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502	Jun 10/2007	
503	Jun 10/2007	
504	Oct 10/2003	
505	Oct 10/2003	
506	Oct 10/2003	
R 507	Jun 15/2009	
O 508	Jun 15/2009	
509	Jun 15/2008	
510	Jun 15/2008	
511	Jun 15/2008	
512	Jun 15/2008	
513	Jun 15/2008	
514	Jun 15/2008	
515	Jun 15/2008	
516	Jun 15/2008	
517	Jun 15/2008	
518	Jun 15/2008	
519	Jun 15/2008	
520	Oct 10/2003	
521	Oct 10/2003	
522	Oct 10/2003	
523	Oct 10/2003	
27-51-00 (cont)		
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525	Oct 10/2003	
526	Oct 10/2003	
527	Jun 15/2008	
R 528	Jun 15/2009	
O 529	Jun 15/2009	
O 530	Jun 15/2009	
O 531	Jun 15/2009	
O 532	Jun 15/2009	
O 533	Jun 15/2009	
534	Feb 15/2009	
535	Feb 15/2009	
536	Feb 15/2009	
537	Feb 15/2009	
538	Oct 10/2003	
539	Oct 10/2003	
540	Oct 10/2003	
541	Feb 15/2009	
542	Feb 15/2009	
543	Feb 15/2009	
544	Oct 10/2006	
545	Oct 10/2006	
546	Feb 15/2009	
547	Oct 10/2006	
548	Feb 15/2009	
549	Feb 15/2009	
550	Feb 15/2009	
551	Feb 15/2009	
552	Feb 15/2009	
553	Feb 15/2009	
554	Feb 15/2009	
555	Feb 15/2009	
556	Feb 15/2009	
557	Feb 15/2009	
558	Feb 15/2009	
559	Feb 15/2009	
560	Feb 15/2009	
R 561	Jun 15/2009	
562	Feb 15/2009	
27-51-00 (cont)		
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564	Feb 15/2009	
27-51-00		
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602	Feb 15/2009	
603	Oct 10/2003	
604	Feb 15/2009	
605	Feb 15/2009	
606	Feb 15/2009	
607	Jun 10/2006	
608	Jun 10/2006	
609	Jun 10/2006	
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611	Jun 10/2006	
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613	Jun 10/2006	
614	Jun 10/2006	
615	Jun 10/2006	
616	Jun 10/2006	
617	Jun 10/2006	
618	Jun 10/2006	
27-51-01		
401	Jun 10/2005	
402	Feb 10/2005	
403	Oct 10/2003	
404	Feb 15/2009	
405	Feb 15/2009	
406	Oct 10/2006	
27-51-02		
401	Oct 10/2003	
402	Jun 15/2008	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
407	Oct 15/2008	
408	Jun 15/2008	
409	Jun 15/2008	
410	Oct 15/2008	

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27-51-02 (cont)		
411	Jun 15/2008	
412	Jun 15/2008	
413	Jun 15/2008	
414	Oct 10/2007	
27-51-02		
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402	Jun 15/2008	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 15/2008	
406	Oct 15/2008	
27-51-06		
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202	Jun 15/2008	
203	Oct 10/2003	
204	Oct 10/2003	
205	Oct 10/2003	
206	Jun 15/2008	
207	Jun 15/2008	
208	Jun 15/2008	
209	Jun 15/2008	
210	Oct 10/2003	
211	Oct 10/2003	
212	Oct 10/2003	
213	Feb 15/2009	
214	Feb 15/2009	
215	Oct 10/2003	
216	Oct 10/2003	
27-51-08		
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402	Jun 15/2008	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2003	

Subject/Page	Date	COC
27-51-08 (cont)		
406	Oct 10/2003	
407	Oct 10/2003	
408	Jun 15/2008	
409	Jun 15/2008	
410	Jun 15/2008	
27-51-08		
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502	Jun 15/2008	
503	Jun 15/2008	
504	Jun 15/2008	
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506	Oct 10/2003	
507	Oct 10/2003	
508	Oct 10/2003	
509	Oct 10/2003	
510	Oct 10/2003	
27-51-11		
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402	Jun 15/2008	
403	Jun 15/2008	
404	Feb 15/2009	
405	Oct 10/2003	
406	Oct 10/2003	
407	Oct 10/2003	
408	Oct 10/2003	
409	Oct 10/2003	
410	Oct 10/2003	
411	Feb 10/2006	
R 412	Jun 15/2009	
R 413	Jun 15/2009	
O 414	Jun 15/2009	
O 415	Jun 15/2009	
O 416	Jun 15/2009	
O 417	Jun 15/2009	
O 418	Jun 15/2009	
419	Oct 15/2008	
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421	Oct 15/2008	
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Subject/Page	Date	COC
27-51-11		
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O 502	Jun 15/2009	
O 503	Jun 15/2009	
O 504	Jun 15/2009	
O 505	Jun 15/2009	
O 506	Jun 15/2009	
O 507	Jun 15/2009	
O 508	Jun 15/2009	
O 509	Jun 15/2009	
O 510	Jun 15/2009	
O 511	Jun 15/2009	
512	Oct 15/2008	
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514	Oct 15/2008	
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531	Oct 15/2008	
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27-51-12		
401	Jun 15/2008	
402	Jun 15/2008	
403	Oct 10/2003	
404	Oct 10/2003	
405	Jun 10/2005	
406	Oct 10/2003	

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410	Feb 15/2009	
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412	Jun 15/2008	
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419	Oct 10/2003	
420	Oct 10/2003	
27-51-12		
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27-51-13		
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O 407	Jun 15/2009	
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409	Oct 10/2003	
410	Oct 10/2003	
R 411	Jun 15/2009	
412	Oct 15/2008	
27-51-13		
601	Oct 10/2003	
602	Oct 10/2003	

Subject/Page	Date	COC
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604	Oct 10/2003	
605	Oct 10/2003	
606	Oct 10/2003	
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608	Oct 10/2003	
609	Oct 10/2003	
610	Oct 10/2003	
27-51-14		
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408	Oct 10/2003	
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412	Feb 15/2009	
413	Feb 15/2009	
414	Feb 15/2009	
415	Oct 10/2003	
416	Oct 10/2003	
27-51-15		
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406	Oct 10/2003	
407	Feb 15/2009	
408	Feb 15/2009	
409	Feb 15/2009	
410	Feb 15/2009	
411	Oct 15/2008	
412	Oct 15/2008	
413	Jun 10/2007	

Subject/Page	Date	COC
27-51-15 (cont)		
414	Jun 10/2007	
415	Oct 10/2007	
416	Jun 10/2007	
417	Feb 15/2009	
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419	Feb 15/2009	
420	Oct 15/2008	
27-51-15		
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602	Oct 10/2003	
603	Oct 10/2003	
604	Oct 10/2003	
605	Oct 10/2003	
606	Oct 10/2003	
607	Oct 10/2003	
608	Oct 10/2003	
609	Oct 10/2003	
610	Oct 10/2003	
27-51-16		
401	Jun 15/2008	
402	Oct 10/2003	
R 403	Jun 15/2009	
404	Feb 15/2009	
405	Feb 15/2009	
406	BLANK	
27-51-18		
401	Jun 15/2008	
402	Oct 10/2003	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
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408	Feb 15/2009	
409	Jun 15/2008	
410	Feb 15/2009	
411	Feb 15/2009	
412	Feb 15/2009	
413	Feb 15/2009	

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27-51-18		
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27-51-21		
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408	Oct 10/2003	
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411	Feb 10/2006	
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413	Feb 15/2009	
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27-51-21		
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507	Feb 15/2009	

Subject/Page	Date	COC
27-51-21 (cont)		
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510	Oct 10/2003	
511	Oct 10/2003	
512	Oct 10/2003	
513	Oct 10/2003	
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515	Oct 10/2003	
516	Oct 10/2003	
517	Oct 10/2003	
518	Oct 10/2003	
519	Oct 10/2003	
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27-51-22		
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407	Oct 10/2003	
408	Oct 10/2003	
R 409	Jun 15/2009	
O 410	Jun 15/2009	
411	Jun 15/2008	
412	Jun 15/2008	
R 413	Jun 15/2009	
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416	Oct 10/2003	
417	Oct 10/2003	
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419	Oct 10/2003	
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27-51-22		
601	Oct 10/2003	
602	Oct 10/2003	
603	Oct 10/2003	
604	Oct 10/2003	

Subject/Page	Date	COC
27-51-22 (cont)		
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607	Oct 10/2003	
608	Oct 10/2003	
27-51-23		
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404	Oct 10/2003	
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409	Feb 15/2009	
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411	Feb 15/2009	
412	Feb 15/2009	
413	Oct 15/2008	
414	Oct 15/2008	
415	Oct 15/2008	
416	Oct 15/2008	
417	Feb 15/2009	
418	Oct 15/2008	
419	Oct 15/2008	
420	Feb 15/2009	
27-51-23		
601	Oct 10/2003	
602	Oct 10/2003	
603	Oct 10/2003	
604	Oct 10/2003	
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609	Oct 10/2003	
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613	Oct 10/2003	

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27-51-23 (cont)		
614	Oct 10/2003	
615	Oct 10/2003	
616	Oct 10/2003	
27-51-24		
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405	Oct 10/2003	
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407	Feb 15/2009	
408	Feb 15/2009	
409	Oct 15/2008	
410	Oct 10/2003	
411	Oct 10/2003	
412	Oct 10/2003	
27-51-25		
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402	Jun 15/2008	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
R 407	Jun 15/2009	
408	Feb 15/2009	
R 409	Jun 15/2009	
410	Feb 15/2009	
411	Feb 15/2009	
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413	Oct 15/2008	
414	Oct 15/2008	
415	Oct 15/2008	
416	Oct 15/2008	
R 417	Jun 15/2009	
418	Feb 15/2009	
R 419	Jun 15/2009	
420	Feb 15/2009	
27-51-25		
601	Oct 10/2003	

Subject/Page	Date	COC
27-51-25 (cont)		
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603	Oct 10/2003	
604	Oct 10/2003	
605	Oct 10/2003	
606	Oct 10/2003	
R 607	Jun 15/2009	
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609	Oct 10/2003	
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27-51-26		
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405	Oct 10/2003	
R 406	Jun 15/2009	
407	Jun 15/2008	
408	Jun 15/2008	
R 409	Jun 15/2009	
410	Jun 15/2008	
411	Oct 10/2003	
412	Oct 10/2003	
413	Oct 10/2003	
414	Oct 10/2003	
27-51-28		
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404	Oct 10/2003	
405	Oct 10/2003	
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R 408	Jun 15/2009	
O 409	Jun 15/2009	
410	Feb 15/2009	
411	Feb 15/2009	
R 412	Jun 15/2009	
413	Feb 15/2009	
414	Feb 15/2009	

Subject/Page	Date	COC
27-51-28 (cont)		
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417	Oct 10/2003	
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419	Oct 10/2003	
420	Oct 10/2003	
421	Oct 10/2003	
R 422	Jun 15/2009	
O 423	Jun 15/2009	
424	Feb 15/2009	
425	Feb 15/2009	
R 426	Jun 15/2009	
427	Feb 15/2009	
428	Feb 15/2009	
429	Feb 15/2009	
430	BLANK	
27-51-28		
R 501	Jun 15/2009	
O 502	Jun 15/2009	
O 503	Jun 15/2009	
O 504	Jun 15/2009	
O 505	Jun 15/2009	
506	Oct 10/2003	
507	Oct 10/2003	
508	Oct 10/2003	
509	Oct 10/2003	
R 510	Jun 15/2009	
O 511	Jun 15/2009	
O 512	Jun 15/2009	
O 513	Jun 15/2009	
O 514	Jun 15/2009	
515	Oct 10/2003	
516	Oct 10/2003	
517	Oct 10/2003	
518	Oct 10/2003	
27-51-31		
401	Oct 10/2003	
402	Jun 10/2005	
403	Oct 10/2003	

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405	Oct 10/2003	
406	Oct 10/2003	
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413	Feb 15/2009	
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417	Feb 15/2009	
418	Feb 15/2009	
419	Feb 15/2009	
420	Feb 15/2009	
27-51-32		
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602	Feb 15/2009	
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27-51-41		
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406	Feb 15/2009	
407	Oct 10/2003	
408	Oct 10/2003	
R 409	Jun 15/2009	
410	Oct 15/2008	
411	Feb 15/2009	
412	Feb 15/2009	
413	Oct 15/2008	
414	Oct 15/2008	
415	Oct 10/2003	
416	Oct 10/2003	
417	Feb 15/2009	
418	Feb 15/2009	
419	Oct 10/2003	
420	Oct 10/2003	
R 421	Jun 15/2009	
422	Oct 15/2008	
423	Feb 15/2009	
424	Feb 15/2009	
27-51-42		
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404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
407	Feb 15/2009	
27-51-42 (cont)		
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414	Oct 10/2003	
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417	Jun 15/2008	
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27-51-42		
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603	Jun 10/2004	
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607	Feb 15/2009	
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609	Feb 15/2009	
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27-51-51		
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413	Feb 15/2009	
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418	Jun 15/2008	
419	Jun 15/2008	
420	Feb 15/2009	
421	Jun 15/2008	
422	Jun 15/2008	
423	Jun 15/2008	
424	BLANK	
27-51-51		
501	Oct 10/2003	
502	Oct 10/2003	
503	Feb 10/2005	
504	Oct 10/2003	
505	Oct 10/2003	
506	Oct 10/2003	
27-51-52		
401	Jun 15/2008	
402	Jun 15/2008	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 15/2008	
406	Jun 15/2008	
27-51-53		
401	Jun 15/2008	
402	Jun 15/2008	
403	Oct 10/2003	
404	Oct 10/2003	
405	Feb 15/2009	
406	Jun 15/2008	
27-51-55		
401	Jun 15/2008	
R 402	Jun 15/2009	
403	Oct 10/2003	
404	Oct 10/2003	
405	Feb 15/2009	
R 406	Jun 15/2009	
407	Oct 15/2008	
408	BLANK	

Subject/Page	Date	COC
27-51-56		
401	Jun 15/2008	
402	Jun 15/2008	
403	Oct 10/2003	
404	Oct 10/2003	
405	Feb 15/2009	
406	Jun 15/2008	
27-51-57		
401	Oct 10/2006	
402	Jun 15/2008	
403	Oct 10/2003	
404	Feb 15/2009	
405	Jun 15/2008	
406	BLANK	
27-51-58		
401	Oct 10/2006	
402	Jun 15/2008	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
R 407	Jun 15/2009	
O 408	Jun 15/2009	
O 409	Jun 15/2009	
410	Jun 15/2008	
411	Oct 10/2003	
412	Oct 10/2003	
413	Oct 10/2003	
R 414	Jun 15/2009	
O 415	Jun 15/2009	
416	Jun 15/2008	
417	Jun 15/2008	
418	Jun 10/2004	
419	Jun 10/2004	
420	Jun 10/2004	
421	Feb 15/2009	
422	Feb 15/2009	
27-51-59		
401	Jun 15/2008	
402	Jun 15/2008	

Subject/Page	Date	COC
27-51-59 (cont)		
403	Oct 10/2003	
404	Oct 10/2003	
405	Feb 15/2009	
406	Jun 15/2008	
27-51-61		
401	Oct 10/2003	
402	Oct 15/2008	
403	Feb 15/2009	
404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
407	Feb 15/2009	
408	Oct 10/2003	
409	Oct 10/2003	
410	Oct 10/2003	
411	Oct 10/2003	
412	Oct 15/2008	
R 413	Jun 15/2009	
R 414	Jun 15/2009	
O 415	Jun 15/2009	
416	Feb 15/2009	
R 417	Jun 15/2009	
O 418	Jun 15/2009	
27-51-62		
401	Jun 15/2008	
402	Feb 15/2009	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2003	
406	Feb 15/2009	
407	Oct 10/2003	
408	Oct 10/2003	
409	Oct 10/2003	
R 410	Jun 15/2009	
411	Feb 15/2009	
412	Oct 15/2008	
27-51-63		
401	Oct 10/2003	
402	Feb 10/2007	

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27-51-63 (cont)		
403	Jun 15/2008	
404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
407	Oct 10/2003	
408	Oct 15/2008	
409	Jun 15/2008	
410	Jun 15/2008	
27-51-63		
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502	Oct 15/2008	
503	Oct 15/2008	
504	Feb 15/2009	
505	Oct 15/2008	
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507	Oct 15/2008	
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509	Jun 10/2007	
510	Jun 10/2007	
511	Jun 10/2007	
512	Jun 10/2007	
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514	Jun 10/2007	
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516	Jun 10/2007	
517	Jun 10/2007	
518	Jun 10/2007	
27-51-65		
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402	Jun 15/2008	
403	Oct 10/2003	
404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
R 407	Jun 15/2009	
408	Feb 15/2009	
409	Oct 15/2008	
410	Oct 15/2008	
411	Oct 15/2008	

Subject/Page	Date	COC
27-51-65 (cont)		
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27-51-65		
R 501	Jun 15/2009	
502	Oct 15/2008	
503	Oct 15/2008	
504	Oct 10/2003	
505	Oct 10/2003	
506	Oct 10/2003	
507	Oct 10/2003	
508	BLANK	
27-51-65		
R 801	Jun 15/2009	
802	Jun 15/2008	
803	Jun 15/2008	
804	Oct 10/2003	
805	Oct 10/2003	
806	Oct 10/2003	
27-58-01		
401	Jun 10/2005	
402	Jun 15/2008	
403	Oct 15/2008	
404	Jun 15/2008	
405	Jun 15/2008	
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407	Jun 15/2008	
408	Oct 15/2008	
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27-58-01		
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502	Oct 10/2003	
503	Oct 10/2003	
504	Oct 10/2003	
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506	Oct 10/2003	
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Subject/Page	Date	COC
27-58-02		
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402	Oct 10/2003	
403	Feb 15/2009	
404	Jun 10/2007	
405	Jun 10/2007	
406	BLANK	
27-59-00		
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502	Oct 15/2008	
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507	Oct 10/2003	
508	Oct 10/2003	
509	Oct 10/2003	
510	Oct 10/2003	
511	Oct 10/2003	
512	Oct 15/2008	
513	Oct 15/2008	
514	Oct 15/2008	
515	Oct 10/2003	
516	Oct 10/2003	
27-59-01		
201	Oct 10/2003	
202	Oct 10/2003	
203	Oct 10/2003	
204	Oct 10/2003	
205	Oct 15/2008	
206	Feb 10/2004	
207	Oct 10/2003	
208	Oct 10/2003	
209	Oct 10/2003	
210	Oct 15/2008	
211	Feb 10/2004	
212	Oct 10/2003	
213	Oct 10/2003	
214	Oct 10/2003	
215	Oct 15/2008	

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27-59-01 (cont)		
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217	Jun 10/2005	
218	Oct 10/2003	
219	Oct 10/2003	
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221	Jun 15/2008	
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207	Feb 15/2009	
208	Feb 15/2009	
209	Oct 10/2003	
210	Oct 10/2003	
211	Oct 15/2008	
212	Jun 15/2008	
213	Jun 15/2008	
214	Jun 15/2008	
215	Oct 10/2003	
216	Oct 10/2003	
217	Feb 15/2009	
218	Feb 15/2009	
219	Feb 15/2009	
220	Feb 15/2009	
221	Oct 10/2003	
222	Oct 10/2003	
223	Oct 15/2008	
224	Jun 15/2008	
225	Oct 10/2003	
226	BLANK	
27-61-00		
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202	Oct 10/2003	
203	Oct 10/2003	
204	Feb 15/2008	
27-61-00 (cont)		
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206	Oct 10/2003	
207	Oct 10/2003	
208	Jun 15/2008	
209	Feb 15/2008	
210	Oct 10/2007	
27-61-00		
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502	Oct 10/2003	
503	Feb 15/2009	
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506	Oct 10/2006	
507	Oct 10/2006	
508	Oct 10/2006	
509	Oct 10/2006	
510	Jun 10/2007	
511	Oct 10/2003	
512	Oct 10/2003	
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517	Oct 10/2006	
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519	Oct 10/2003	
520	Oct 10/2003	
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523	Jun 10/2007	
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525	Jun 10/2004	
526	Jun 10/2004	
527	Jun 10/2004	
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529	Feb 15/2009	
530	Feb 15/2009	
531	Jun 10/2007	
532	Jun 10/2007	
27-61-00 (cont)		
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535	Jun 10/2007	
536	Jun 10/2007	
537	Jun 10/2007	
R 538	Jun 15/2009	
R 539	Jun 15/2009	
540	Feb 15/2009	
541	Feb 15/2009	
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543	Feb 15/2009	
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549	Feb 15/2009	
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564	Feb 15/2009	
565	Feb 15/2009	
566	Feb 15/2009	
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570	Oct 15/2008	
571	Oct 15/2008	

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27-61-00 (cont)		
572	Oct 15/2008	
573	Oct 15/2008	
574	Oct 15/2008	
575	Feb 15/2009	
576	Feb 15/2009	
27-61-00		
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602	Feb 15/2008	
603	Feb 15/2009	
604	Feb 15/2008	
27-61-04		
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407	Jun 15/2008	
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27-61-11		
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403	Jun 10/2005	
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408	Oct 10/2003	
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411	Oct 10/2003	
R 412	Jun 15/2009	
O 413	Jun 15/2009	
O 414	Jun 15/2009	
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27-61-12		
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27-61-12		
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27-61-15		
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404	Oct 10/2003	
405	Oct 10/2003	
406	Oct 10/2003	
407	Jun 15/2008	
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27-61-21		
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27-61-31		
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27-61-31 (cont)		
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602	Oct 10/2003	
603	Oct 10/2003	
604	Oct 10/2003	
27-61-41		
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402	Oct 10/2006	
403	Oct 10/2003	
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407	Oct 10/2003	
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27-61-41		
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603	Oct 10/2003	
604	Oct 10/2003	
27-61-41		
801	Oct 10/2003	
802	BLANK	
27-61-51		
401	Jun 10/2007	

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27-61-51 (cont)		
402	Feb 15/2009	
403	Jun 10/2007	
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405	Feb 15/2009	
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407	Feb 15/2009	
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27-61-51		
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602	Oct 10/2003	
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604	Oct 10/2003	
605	Oct 10/2003	
606	Oct 10/2003	
27-61-61		
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407	Oct 10/2006	
408	Feb 15/2009	
409	Oct 15/2008	
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27-62-00		
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207	Oct 10/2003	
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210	Oct 10/2007	
27-62-00		
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502	Feb 15/2009	
27-62-00 (cont)		
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505	Feb 15/2009	
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509	Oct 10/2006	
510	Oct 10/2006	
511	Oct 10/2006	
512	Feb 15/2009	
513	Feb 15/2009	
514	Feb 15/2009	
515	Feb 15/2009	
516	Feb 15/2009	
517	Feb 15/2009	
518	Feb 15/2009	
519	Oct 10/2006	
520	Oct 10/2006	
521	Oct 10/2006	
522	Oct 10/2006	
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526	Oct 10/2006	
527	Oct 10/2006	
528	Oct 10/2006	
529	Oct 10/2006	
530	Oct 10/2006	
531	Feb 10/2007	
532	Jun 15/2008	
533	Oct 10/2006	
534	Jun 15/2008	
535	Jun 15/2008	
536	Oct 10/2007	
537	Oct 10/2007	
538	Oct 10/2007	
539	Oct 10/2006	
540	Oct 10/2006	
541	Oct 10/2006	
27-62-00 (cont)		
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543	Oct 15/2008	
544	Feb 15/2009	
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546	Feb 15/2009	
547	Feb 15/2009	
548	Oct 10/2007	
549	Oct 10/2007	
550	Oct 10/2007	
551	Oct 10/2007	
552	Feb 15/2009	
553	Oct 10/2007	
554	Oct 10/2007	
555	Oct 10/2007	
556	Oct 10/2007	
557	Oct 10/2007	
558	Oct 10/2007	
559	Oct 10/2007	
560	Feb 15/2009	
561	Feb 15/2009	
562	Feb 15/2009	
563	Feb 15/2009	
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565	Feb 15/2009	
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567	Feb 15/2009	
568	Feb 15/2009	
569	Feb 15/2009	
570	Feb 15/2009	
571	Feb 15/2009	
572	Feb 15/2009	
573	Feb 15/2009	
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575	Feb 15/2009	
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579	Feb 15/2009	
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605	Feb 15/2009	
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R 408	Jun 15/2009	
O 409	Jun 15/2009	
O 410	Jun 15/2009	
411	Oct 15/2008	
412	Oct 15/2008	
27-62-15		
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404	Oct 10/2003	
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407	Feb 15/2009	
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27-62-21		
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27-62-22		
R 401	Jun 15/2009	
402	Jun 10/2007	
403	Jun 10/2007	
27-62-22 (cont)		
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413	Oct 10/2006	
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417	Oct 10/2006	
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420	Feb 15/2009	
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423	Feb 15/2009	
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27-62-31		
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404	Oct 10/2003	
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27-62-33		
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408	Feb 10/2007	
R 409	Jun 15/2009	
R 410	Jun 15/2009	
411	Oct 15/2008	
412	Oct 15/2008	
27-62-33		
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27-62-35		
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27-62-37		
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406	Oct 10/2007	
407	Jun 10/2006	
408	Jun 10/2006	
27-62-41		
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27-62-61		
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402	Feb 15/2008	
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404	Feb 15/2009	
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R 407	Jun 15/2009	
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27-62-61		
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502	Feb 15/2008	
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506	Oct 10/2006	
507	Feb 15/2008	
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509	Jun 15/2008	
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511	Oct 10/2006	
512	Jun 10/2006	
513	Jun 10/2006	
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515	Feb 15/2009	
516	Feb 15/2009	
27-62-71		
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27-62-71 (cont)		
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403	Oct 10/2003	
404	Oct 10/2003	
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406	Jun 15/2008	
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408	Feb 15/2009	
27-62-91		
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402	Jun 10/2005	
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27-62-94		
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215	Feb 15/2009	
216	Feb 15/2009	
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27-81-11		
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27-81-41		
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27-81-81		
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Trim Control Switches Installation TASK 27-11-94-400-802			405	HAP ALL
Rudder Trim Indicator Removal TASK 27-11-94-000-803			406	HAP ALL
Rudder Trim Indicator Installation TASK 27-11-94-400-803			407	HAP ALL
RUDDER AND RUDDER TRIM CONTROL SYSTEM - MAINTENANCE PRACTICES	27-21-00		201	HAP ALL
Rudder Hydraulic System A, B, or Standby Pressurization TASK 27-21-00-800-801			201	HAP ALL
Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization TASK 27-21-00-840-801			204	HAP ALL
Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby TASK 27-21-00-800-802			204	HAP ALL
Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal TASK 27-21-00-840-802			212	HAP ALL
RUDDER AND RUDDER TRIM CONTROL SYSTEM - ADJUSTMENT/TEST	27-21-00	1	501	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Forward Quadrant Adjustment TASK 27-21-00-820-806-001		1	501	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Pedals Adjustment TASK 27-21-00-820-807-001		1	509	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Control Cables RA and RB Adjustment TASK 27-21-00-820-808-001		1	511	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Control Rod for Main Rudder Power Control Unit Adjustment TASK 27-21-00-820-809-001		1	520	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253

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Control Rod for Standby Rudder Power Control Unit Adjustment TASK 27-21-00-820-810-001		1	531	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Pedal Adjustment and Limit Travel Test TASK 27-21-00-700-813-001		1	534	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Hinge Bearing and PCU Bearing Freeplay TASK 27-21-00-700-814-001		1	537	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Centering Test TASK 27-21-00-700-815-001		1	541	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Pedal Forces Test TASK 27-21-00-700-816-001		1	543	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Travel Test TASK 27-21-00-700-817-001		1	547	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Standby Rudder Power Control Unit Deadband Test TASK 27-21-00-700-818-001		1	548	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Trim System Test TASK 27-21-00-700-819-001		1	550	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Wheel to Rudder Interconnect System Test TASK 27-21-00-700-820-001		1	551	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Authority Limiter Test TASK 27-21-00-700-821-001		1	553	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Main Rudder PCU Internal Hydraulic Leakage Test TASK 27-21-00-700-822-001		1	556	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Hinge Friction Test TASK 27-21-00-700-823-001		1	566	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253

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RUDDER AND RUDDER TRIM CONTROL SYSTEM - ADJUSTMENT/TEST	27-21-00	2	501	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Forward Quadrant Adjustment TASK 27-21-00-820-806-002		2	501	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Pedals Adjustment TASK 27-21-00-820-807-002		2	509	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Control Cables RA and RB Adjustment TASK 27-21-00-820-808-002		2	511	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Control Rod for Main Rudder Power Control Unit Adjustment TASK 27-21-00-820-809-002		2	526	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Control Rod for Standby Rudder Power Control Unit Adjustment TASK 27-21-00-820-810-002		2	540	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Pedal Adjustment and Limit Travel Test TASK 27-21-00-700-813-002		2	544	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Hinge Bearing and PCU Bearing Freeplay TASK 27-21-00-700-814-002		2	547	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

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Rudder Centering Test TASK 27-21-00-700-815-002		2	550	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Pedal Forces Test TASK 27-21-00-700-816-002		2	552	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Travel Test TASK 27-21-00-700-817-002		2	557	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Standby Rudder Power Control Unit Deadband Test TASK 27-21-00-700-818-002		2	558	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Trim System Test TASK 27-21-00-700-819-002		2	560	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Wheel to Rudder Interconnect System Test TASK 27-21-00-700-820-002		2	561	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Hinge Friction Test TASK 27-21-00-700-821-002		2	563	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Main Rudder PCU Internal Hydraulic Leakage Test TASK 27-21-00-700-822-002		2	565	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

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Rudder Override Operational Test TASK 27-21-00-700-823-002		2	574	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Main PCU Force Fight Monitor Test TASK 27-21-00-700-824-002		2	577	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
RUDDER - REMOVAL/INSTALLATION	27-21-11		401	HAP ALL
Rudder Removal TASK 27-21-11-000-801			401	HAP ALL
Rudder Installation TASK 27-21-11-400-801			414	HAP ALL
RUDDER INDEX PLATE - REMOVAL/ INSTALLATION	27-21-17		401	HAP ALL
Rudder Index Plate Removal TASK 27-21-17-000-801			401	HAP ALL
Rudder Index Plate Installation TASK 27-21-17-400-801			403	HAP ALL
STANDBY RUDDER POWER CONTROL UNIT - REMOVAL/INSTALLATION	27-21-24		401	HAP ALL
Standby Rudder Power Control Unit Removal TASK 27-21-24-000-801			401	HAP ALL
Standby Rudder Power Control Unit Installation TASK 27-21-24-400-801			405	HAP ALL
STANDBY RUDDER POWER CONTROL UNIT - INSPECTION/CHECK	27-21-24		601	HAP ALL
Standby Ruddder Power Control Unit (with Hydraulic Power on) General Visual Inspection TASK 27-21-24-210-801			601	HAP ALL

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RUDDER PEDALS - REMOVAL/ INSTALLATION	27-21-31		401	HAP ALL
Rudder Pedals Removal TASK 27-21-31-000-801			401	HAP ALL
Rudder Pedals Installation TASK 27-21-31-400-801			409	HAP ALL
RUDDER PEDAL ADJUSTMENT CRANK - REMOVAL/INSTALLATION	27-21-41		401	HAP ALL
Rudder Pedal Adjustment Crank Removal TASK 27-21-41-000-801			401	HAP ALL
Rudder Pedal Adjustment Crank Installation TASK 27-21-41-400-801			407	HAP ALL
RUDDER FORWARD QUADRANT - REMOVAL/INSTALLATION	27-21-51		401	HAP ALL
Rudder Forward Quadrant Removal TASK 27-21-51-000-801			401	HAP ALL
Rudder Forward Quadrant Installation TASK 27-21-51-400-801			417	HAP ALL
RUDDER FORWARD QUADRANT - INSPECTION/CHECK	27-21-51		601	HAP ALL
Rudder Mechanical Control Path Inspection TASK 27-21-51-210-801			601	HAP ALL
RUDDER AFT QUADRANT - REMOVAL/ INSTALLATION	27-21-61		401	HAP ALL
Rudder Aft Quadrant Removal TASK 27-21-61-000-801			401	HAP ALL

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RUDDER AFT QUADRANT - INSPECTION/ CHECK	27-21-61		601	HAP ALL
Rudder Aft Quadrant Detail Visual Inspection TASK 27-21-61-210-801			601	HAP ALL
Ruddder Aft Quadrant General Visual Inspection TASK 27-21-61-210-802			608	HAP ALL
RUDDER CONTROL TORQUE TUBE - REMOVAL/INSTALLATION	27-21-71	1	401	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Control Torque Tube Removal TASK 27-21-71-000-803-001		1	401	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
Rudder Control Torque Tube Installation TASK 27-21-71-400-803-001		1	406	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
RUDDER CONTROL TORQUE TUBE - REMOVAL/INSTALLATION	27-21-71	2	401	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Control Torque Tube Removal TASK 27-21-71-000-802-002		2	401	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Rudder Control Torque Tube Installation TASK 27-21-71-400-802-002		2	406	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

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MAIN RUDDER POWER CONTROL UNIT - REMOVAL/INSTALLATION	27-21-91	1	401	HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253
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Main Rudder Power Control Unit Removal TASK 27-21-91-000-803-002		2	401	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Main Rudder Power Control Unit Installation TASK 27-21-91-400-803-002		2	408	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
Main Rudder PCU Load Limiter Solenoid Valve Removal TASK 27-21-91-000-806-002		2	412	HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253
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Elevator Feel Shift Module - Installation TASK 27-31-20-400-801			406	HAP ALL; AIRPLANES WITH ELEVATOR FEEL SHIFT MODULE
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Outboard Flap Outboard Support Aft Fairing Installation TASK 27-51-28-400-802			411	HAP ALL
Outboard Flap Inboard Support Forward Fairing Removal TASK 27-51-28-000-803			415	HAP ALL
Outboard Flap Inboard Support Forward Fairing Installation TASK 27-51-28-400-803			422	HAP ALL
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SPEED BRAKE REFUSED TAKEOFF (RTO) SWITCH - REMOVAL/INSTALLATION	27-62-32		401	HAP ALL
Speed Brake Refused Takeoff (RTO) Switch Removal TASK 27-62-32-000-801			401	HAP ALL
Speed Brake Refused Takeoff (RTO) Switch Installation TASK 27-62-32-400-801			405	HAP ALL
Speed Brake Refused Takeoff (RTO) Switch Adjustment TASK 27-62-32-400-802			405	HAP ALL
AUTOSTOW ACTUATOR - REMOVAL/ INSTALLATION	27-62-33		401	HAP 001-013, 015-023, 101-999; AIRPLANES WITH WINGLETS AND THE 50% DETENT ON THE SPEEDBRAKE LEVER (WITH AUTOSTOW ACTUATOR)
Speed Brake Autostow Actuator Removal TASK 27-62-33-000-801			401	HAP 001-013, 015-023, 101-999; AIRPLANES WITH WINGLETS AND THE 50% DETENT ON THE SPEEDBRAKE LEVER (WITH AUTOSTOW ACTUATOR)

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Speedbrake Autostow Actuator Cam Assembly Removal TASK 27-62-33-000-802			410	HAP 001-013, 015-023, 101-999; AIRPLANES WITH WINGLETS AND THE 50% DETENT ON THE SPEEDBRAKE LEVER (WITH AUTOSTOW ACTUATOR)
Speed Brake Autostow Actuator Cam Assembly Installation TASK 27-62-33-400-802			411	HAP 001-013, 015-023, 101-999; AIRPLANES WITH WINGLETS AND THE 50% DETENT ON THE SPEEDBRAKE LEVER (WITH AUTOSTOW ACTUATOR)

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Speedbrake Autostow Actuator - Functional Test TASK 27-62-33-010-801			501	HAP 001-013, 015-023, 101-999; AIRPLANES WITH WINGLETS AND THE 50% DETENT ON THE SPEEDBRAKE LEVER (WITH AUTOSTOW ACTUATOR)
Speedbrake Autostow Actuator Automatic Ground Test TASK 27-62-33-820-801			512	HAP 001-013, 015-023, 101-999; AIRPLANES WITH WINGLETS AND THE 50% DETENT ON THE SPEEDBRAKE LEVER (WITH AUTOSTOW ACTUATOR)
Speedbrake Autostow Actuator Rod End Adjustment TASK 27-62-33-820-802			514	HAP 001-013, 015-023, 101-999; AIRPLANES WITH WINGLETS AND THE 50% DETENT ON THE SPEEDBRAKE LEVER (WITH AUTOSTOW ACTUATOR)

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Speedbrake Autostow Actuator Tension Spring Adjustment TASK 27-62-33-820-803			516	HAP 001-013, 015-023, 101-999; AIRPLANES WITH WINGLETS AND THE 50% DETENT ON THE SPEEDBRAKE LEVER (WITH AUTOSTOW ACTUATOR)
SPEED BRAKE ARMED SWITCH AND SPEED BRAKE HANDLE POSITION SWITCH - REMOVAL/INSTALLATION	27-62-34		401	HAP ALL
Speed Brake Armed Switch and Speed Brake Handle Position Switch Removal TASK 27-62-34-000-801			401	HAP ALL
Speed Brake Armed Switch and Speed Brake Handle Position Switch Installation TASK 27-62-34-400-801			405	HAP ALL
Speed Brake Armed Switch and Speed Brake Handle Position Switch Adjustment TASK 27-62-34-400-802			405	HAP ALL
AUTO SPEED BRAKE MODULE - REMOVAL/INSTALLATION	27-62-35		401	HAP ALL
Auto Speed Brake Module Removal TASK 27-62-35-000-801			401	HAP ALL
Auto Speed Brake Module Installation TASK 27-62-35-400-801			403	HAP ALL
SPEED BRAKE LEVER POSITION SENSOR - REMOVAL/INSTALLATION	27-62-37		401	HAP ALL
Speed Brake Lever Position Sensor Removal TASK 27-62-37-000-801			401	HAP ALL
Speed Brake Lever Position Sensor Installation TASK 27-62-37-400-801			405	HAP ALL

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Speed Brake Lever Position Sensor Adjustment TASK 27-62-37-400-802			406	HAP ALL
Speed Brake Lever Position Sensor Adjustment (Alternate Method) TASK 27-62-37-400-803			407	HAP ALL
GROUND SPOILER CONTROL VALVE - REMOVAL/INSTALLATION	27-62-41		401	HAP ALL
Ground Spoiler Control Valve Removal TASK 27-62-41-000-801			401	HAP ALL
Ground Spoiler Control Valve Installation TASK 27-62-41-400-801			405	HAP ALL
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Ground Spoiler Interlock Valve Cable Removal TASK 27-62-51-000-801			410	HAP ALL
Ground Spoiler Interlock Valve Cable Installation TASK 27-62-51-400-801			411	HAP ALL
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Ground Spoiler Interlock Valve Removal TASK 27-62-61-000-801			401	HAP ALL

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Ground Spoiler Interlock Valve Proximity Sensor Removal TASK 27-62-61-000-802			410	HAP ALL
Ground Spoiler Interlock Valve Proximity Sensor Installation TASK 27-62-61-400-803			410	HAP ALL
Ground Spoiler Interlock Valve Pressure Switch Removal TASK 27-62-61-000-803			411	HAP ALL
Ground Spoiler Interlock Valve Pressure Switch Installation TASK 27-62-61-400-804			411	HAP ALL
Speed Brake Ground Proximity Sensor Removal TASK 27-62-61-000-804			412	HAP 037-054
Speed Brake Ground Proximity Sensor Installation TASK 27-62-61-400-809			412	HAP 037-054
GROUND SPOILER INTERLOCK VALVE - ADJUSTMENT/TEST	27-62-61		501	HAP ALL
Ground Spoiler Interlock Valve Functional Test - Jacking Method TASK 27-62-61-400-805			501	HAP ALL
Ground Spoiler Interlock Valve Functional Test - Rigging Tool Method TASK 27-62-61-400-808			506	HAP ALL
Ground Spoiler Interlock Valve Proximity Sensor Functional Test TASK 27-62-61-400-806			510	HAP ALL
Ground Spoiler Interlock Valve Pressure Switch Functional Test TASK 27-62-61-400-807			512	HAP ALL

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Inboard Ground Spoiler Actuator Removal TASK 27-62-71-000-801			401	HAP ALL
Inboard Ground Spoiler Actuator Installation TASK 27-62-71-400-801			405	HAP ALL
Inboard Ground Spoiler Acutator Test TASK 27-62-71-000-802			407	HAP ALL
OUTBOARD GROUND SPOILER - REMOVAL/ INSTALLATION	27-62-91		401	HAP ALL
Outboard Ground Spoiler Removal TASK 27-62-91-000-801			401	HAP ALL
Outboard Ground Spoiler Installation TASK 27-62-91-400-801			407	HAP ALL
Outboard Ground Spoiler Test TASK 27-62-91-000-802			409	HAP ALL
OUTBOARD GROUND SPOILER ACTUATOR - REMOVAL/INSTALLATION	27-62-94		401	HAP ALL
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Outboard Ground Spoiler Actuator Installation TASK 27-62-94-400-801			406	HAP ALL
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Outboard Ground Spoiler Actuator Inspection TASK 27-62-94-200-801			601	HAP ALL
LEADING EDGE FLAP AND SLAT CONTROL SYSTEM - MAINTENANCE PRACTICES	27-81-00		201	HAP ALL
Deactivate the Leading Edge Flaps and Slats TASK 27-81-00-040-801			201	HAP ALL
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Leading Edge Flap and Slat System Operation With Primary Control TASK 27-81-00-860-801			212	HAP ALL
Leading Edge Flap and Slat System Operation With Alternate Control TASK 27-81-00-860-802			213	HAP ALL
Leading Edge Flaps and Slats Extension TASK 27-81-00-860-803			215	HAP ALL
Leading Edge Flaps and Slats Retraction TASK 27-81-00-860-804			215	HAP ALL
Leading Edge Flap and Slat Locks Installation TASK 27-81-00-480-801			216	HAP ALL
Leading Edge Flap and Slat Locks Removal TASK 27-81-00-080-801			221	HAP ALL
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Leading Edge Flaps Adjustment TASK 27-81-00-820-801			501	HAP ALL

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Leading Edge Flap and Slat System Standby Actuation Operational Test TASK 27-81-00-710-801			556	HAP ALL
Leading Edge Flap and Slat Timing Test in the Standby Mode TASK 27-81-00-700-803			558	HAP ALL
Leading Edge Cruise Depressurization Test TASK 27-81-00-730-801			561	HAP ALL
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Leading Edge Flap and Slat Actuators and Actuation Mechanism Inspection TASK 27-81-00-210-801			601	HAP ALL
LEADING EDGE FLAPS - REMOVAL/ INSTALLATION	27-81-11		401	HAP ALL
Leading Edge Flap Removal TASK 27-81-11-000-801			401	HAP ALL

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LEADING EDGE FLAP - INSPECTION/CHECK	27-81-11		601	HAP ALL
Leading Edge Flap Inspection TASK 27-81-11-200-801			601	HAP ALL
LEADING EDGE SLAT - REMOVAL/ INSTALLATION	27-81-21		401	HAP ALL
Leading Edge Slat Removal TASK 27-81-21-000-801			401	HAP ALL
Leading Edge Slat Installation TASK 27-81-21-400-801			416	HAP ALL
LEADING EDGE FLAP ACTUATOR - REMOVAL/INSTALLATION	27-81-31		401	HAP ALL
Leading Edge Flap Actuator Removal TASK 27-81-31-000-801			401	HAP ALL
Leading Edge Flap Actuator Installation TASK 27-81-31-400-801			407	HAP ALL
LEADING EDGE FLAP ACTUATOR - INSPECTION/CHECK	27-81-31		601	HAP ALL
Leading Edge Flap Actuator Inspection TASK 27-81-31-200-801			601	HAP ALL
LEADING EDGE SLAT ACTUATOR - REMOVAL/INSTALLATION	27-81-41		401	HAP ALL
Leading Edge Slat Actuator Removal TASK 27-81-41-000-801			401	HAP ALL
Leading Edge Slat Actuator Installation TASK 27-81-41-400-801			411	HAP ALL
LEADING EDGE SLAT ACTUATOR - INSPECTION/CHECK	27-81-41		601	HAP ALL
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LE Uncommanded Motion (UCM) or LE Cruise Depressurization Valve Removal TASK 27-81-52-000-801			401	HAP ALL
LE Uncommanded Motion (UCM) or LE Cruise Depressurization Valve Installation TASK 27-81-52-400-801			405	HAP ALL
LEADING EDGE FLAP AND SLAT HYDRAULIC FUSE - REMOVAL/ INSTALLATION	27-81-61		401	HAP ALL
Leading Edge Flap and Slat Hydraulic Fuse Removal TASK 27-81-61-000-801			401	HAP ALL
Leading Edge Flap and Slat Hydraulic Fuse Installation TASK 27-81-61-400-801			405	HAP ALL
Flap and Slat Hydraulic Fuses (System B) Reset TASK 27-81-61-860-801			406	HAP ALL
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LEADING EDGE FLAP FLOW LIMITING VALVE - REMOVAL/INSTALLATION	27-81-71		401	HAP ALL
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Leading Edge Flap Flow Limiting Valve Installation TASK 27-81-71-400-801			404	HAP ALL

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Leading Edge Flap and Slat Control Valve Installation TASK 27-81-81-400-801			406	HAP ALL
LEADING EDGE FLAP AND SLAT CONTROL VALVE - ADJUSTMENT/TEST	27-81-81		501	HAP ALL
Leading Edge Flap and Slat Control Valve Adjustment TASK 27-81-81-820-801			501	HAP ALL
LEADING EDGE STANDBY SHUTOFF VALVE - MAINTENANCE PRACTICES	27-81-91		201	HAP ALL
Leading Edge Standby Shutoff Valve Removal TASK 27-81-91-000-801			201	HAP ALL
Leading Edge Standby Shutoff Valve Installation TASK 27-81-91-400-801			205	HAP ALL
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LEADING EDGE AUTOSLAT SYSTEM - ADJUSTMENT/TEST	27-83-00		501	HAP ALL
Autoslat System Indicator Light - Functional Test TASK 27-83-00-720-801			501	HAP ALL

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Autoslat Control Valve Removal TASK 27-83-21-000-801			401	HAP ALL
Autoslat Control Valve Installation TASK 27-83-21-400-801			404	HAP ALL
LEADING EDGE FLAP AND SLAT POSITION INDICATING SYSTEM - ADJUSTMENT/ TEST	27-88-00		501	HAP ALL
Operational Test - Leading Edge Flap and Slat Position Indicating System TASK 27-88-00-710-801			501	HAP ALL
LEADING EDGE FLAP AND SLAT PROXIMITY SENSOR - REMOVAL/ INSTALLATION	27-88-11		401	HAP ALL
Leading Edge Slat Proximity Sensor Removal TASK 27-88-11-000-801			401	HAP ALL
Leading Edge Slat Proximity Sensor Installation TASK 27-88-11-400-801			411	HAP ALL
Leading Edge Flap Proximity Sensor Removal TASK 27-88-11-000-802			416	HAP ALL
Leading Edge Flap Proximity Sensor Installation TASK 27-88-11-400-802			421	HAP ALL

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Leading Edge Flap and Slat Proximity Sensor Test TASK 27-88-11-700-801			501	HAP ALL

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FLIGHT CONTROLS - DDG MAINTENANCE PROCEDURES

1. General

A. This procedure has maintenance tasks for the Master Minimum Equipment List (MMEL) maintenance requirements as shown in the Dispatch Deviations Procedures Guide (DDPG). These tasks are used to prepare the airplane for flight with certain systems/components inoperative.

B. This procedure also has the tasks that put the airplane back to its usual condition.

C. These are the tasks for the components in the flight controls system:

(1) MMEL 27-4 (DDPG) Preparation - Leading Edge Flap/Slat Position Light Systems Inoperative

(2) MMEL 27-4 (DDPG) Restoration - Leading Edge Flap/Slat Position Light Systems Inoperative

(3) MMEL 27-7 (DDPG) Preparation - Auto Spoiler System Inoperative

(4) MMEL 27-7 (DDPG) Restoration - Auto Spoiler System Inoperative

(5) MMEL 27-10 (DDPG) Preparation - FEEL DIFF PRESS Light Inoperative

(6) MMEL 27-10 (DDPG) Restoration - FEEL DIFF PRESS Light Inoperative

(7) MMEL 27-11 (DDPG) Preparation - AUTO SLAT FAIL Light Inoperative

(8) MMEL 27-11 (DDPG) Restoration - AUTO SLAT FAIL Light Inoperative

(9) MMEL 27-12 (DDPG) Preparation - Auto Slat System Inoperative

(10) MMEL 27-12 (DDPG) Restoration - Auto Slat System Inoperative

(11) MMEL 27-13 (DDPG) Preparation - Stall Warning System Inoperative

(12) MMEL 27-13 (DDPG) Restoration - Stall Warning System Inoperative

(13) MMEL 27-14 (DDPG) Preparation - Rudder Trim Indicator Inoperative

(14) MMEL 27-14 (DDPG) Restoration - Rudder Trim Indicator Inoperative

(15) MMEL 27-16 (DDPG) Preparation - SPEEDBRAKES EXTENDED Light Inoperative

(16) MMEL 27-16 (DDPG) Restoration - SPEEDBRAKES EXTENDED Light Inoperative

HAP 001-013, 015-023, 101-999

(17) MMEL 27-20 (DDPG) Preparation - Speed Brake Load Alleviation (Autostow) System Inoperative

(18) MMEL 27-20 (DDPG) Restoration - Speed Brake Load Alleviation (Autostow) System Inoperative

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

(19) MMEL 27-21 (DDPG) Preparation - STBY RUD ON Light Inoperative

(20) MMEL 27-21 (DDPG) Restoration - STBY RUD ON Light Inoperative

HAP ALL

TASK 27-00-00-040-801

2. MMEL 27-4 (DDPG) Preparation - Leading Edge Flap/Slat Position Light Systems Inoperative

(Figure 901)

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the leading edge (LE) flap and slat position light systems inoperative on the center panel or with one light inoperative on the center and annunciator panels.

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B. References

Reference	Title
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Leading Edge Flap/Slat Position Light Inoperative Only on the Center Panel

SUBTASK 27-00-00-020-001

(1) Remove the bulbs from the applicable lights on the center instrument panel, P2-2.

SUBTASK 27-00-00-930-001

(2) Attach an INOP placard to the applicable lights.

SUBTASK 27-00-00-930-002

(3) Make one of these placards which shows the LE flap and slat positions:

(a) If the flap positions are between 1 thru 5, make this placard:

1) LE slats in EXT position; LE flaps in FULL EXT position.

(b) If the flap positions are between 10 thru 40, attach this placard:

1) LE slats in FULL EXT position; LE flaps in FULL EXT position.

SUBTASK 27-00-00-930-003

(4) Attach the applicable flap and slat position placard near the LE device annunciator panel, P5-12.

E. One Leading Edge Flap/Slat Position Light Inoperative on the Forward and Annunciator Panels

SUBTASK 27-00-00-210-001

(1) Make sure the indications of the LE slats 4 and 5 are not inoperative.

NOTE: It is not easy to see the positions of the LE slats 4 and 5 from the flight deck. Thus, the indications for the LE slats 4 and 5 are not permitted to be inoperative.

SUBTASK 27-00-00-860-001

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize the hydraulic system B to 2900-3100 psi. To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-00-00-710-001

(3) Do a check of the operation of the two stall warning systems:

(a) Push the stall warning test switches No. 1 and 2.

(b) Make sure the stick shakers operate satisfactory.

(c) If the stick shakers do not operate satisfactory, then do these steps;

1) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	7	C01208	STALL WARN ASYM MODE

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2) Push the stall warning test switches No. 1 and 2.

3) Make sure the stick shakers operate satisfactory.

(4) Do the following task, MMEL 27-4 (DDPG) Restoration - Leading Edge Flap/Slat Position Light Systems Inoperative, TASK 27-00-00-440-801.

——————— END OF TASK ———————

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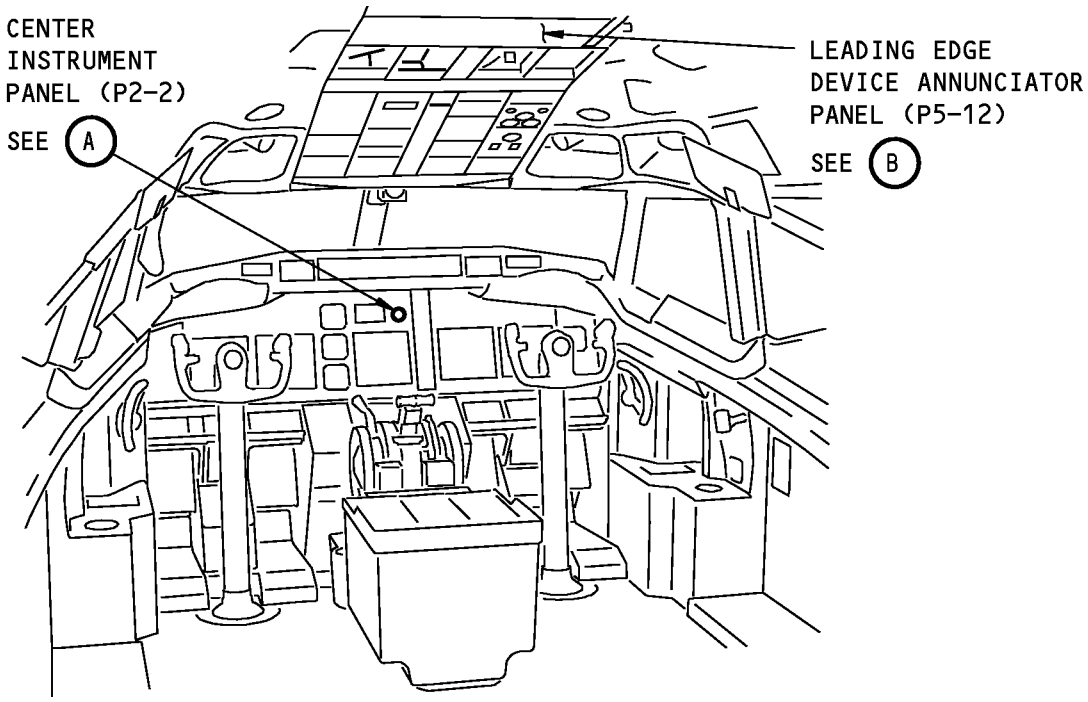
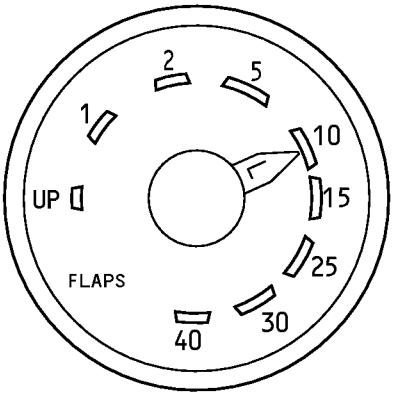


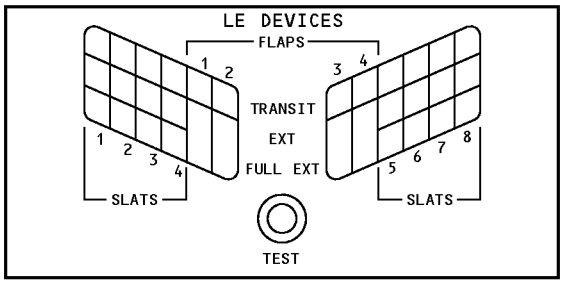
FLIGHT COMPARTMENT



LE FLAPS TRANSIT A	LE FLAPS EXT G

CENTER INSTRUMENT PANEL (P2-2)

A



LEADING EDGE DEVICE
ANNUNCIATOR PANEL (P5-12)

B

Leading Edge Flap and Slat Position Light Location
Figure 901/27-00-00-990-801

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TASK 27-00-00-440-801

3. MMEL 27-4 (DDPG) Restoration - Leading Edge Flap/Slat Position Light Systems Inoperative

(Figure 901)

A. General

(1) This task puts the airplane back to its usual condition after operation with the leading edge (LE) flap/slat position light systems inoperative.

B. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-00-00-960-001

(1) Replace the bulbs from the applicable lights.

SUBTASK 27-00-00-810-001

(2) If the LE flap/slat position light was not the problem, then do these steps to correct the fault:

(a) Find the fault code or description of the fault that occurred.

(b) If you find a fault code, then do these steps:

1) Go to the Fault Code Index in the applicable chapter of the FIM and find the fault code.

NOTE: The first two digits of the fault code is the FIM chapter.

2) Find the task number on the same line as the fault code.

3) Go to the task in the FIM and do the steps in the task.

(c) If you find a description of the fault, then do these steps:

1) Go to the Observed Fault List at the beginning of the FIM and find the best description for the fault.

2) Find the task number on the same line as the fault description.

3) Go to the task in the FIM and do the steps in the task.

SUBTASK 27-00-00-930-004

(3) Remove the INOP placard from the applicable lights.

SUBTASK 27-00-00-930-005

(4) Remove the placard that has the LE flap and slat positions.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-00-00-860-043

(1) If you open the circuit breaker, then do this step:

(a) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	7	C01208	STALL WARN ASYM MODE

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SUBTASK 27-00-00-860-044

(2) Remove power from hydraulic system B. To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

TASK 27-00-00-040-802

4. MMEL 27-7 (DDPG) Preparation - Auto Spoiler System Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the auto spoiler system inoperative.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-00-00-010-001

(1) Open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-00-00-930-006

(2) Attach an AUTO SPOILER INOP placard to the speed brake control lever.

——————— END OF TASK ———————

TASK 27-00-00-440-802

5. MMEL 27-7 (DDPG) Restoration - Auto Spoiler System Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the auto spoiler system inoperative.

B. References

Reference	Title
27-62-00-710-801	Speed Brake Control System Operational Test (P/B 501)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-00-00-710-002

(1) Make sure the speed brake control system is operational, do this task: Speed Brake Control System Operational Test, TASK 27-62-00-710-801.

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SUBTASK 27-00-00-860-004

(2) Remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-00-00-810-002

(3) Correct the fault:

(a) Find the fault code or description of the fault that occurred.

(b) If you find a fault code, then do these steps:

1) Go to the Fault Code Index in the applicable chapter of the FIM and find the fault code.

NOTE: The first two digits of the fault code is the FIM chapter.

2) Find the task number on the same line as the fault code.

3) Go to the task in the FIM and do the steps in the task.

(c) If you find a description of the fault, then do these steps:

1) Go to the Observed Fault List at the beginning of the FIM and find the best description for the fault.

2) Find the task number on the same line as the fault description.

3) Go to the task in the FIM and do the steps in the task.

SUBTASK 27-00-00-930-007

(4) Remove the AUTO SPOILER INOP placard from the speed brake control lever.

——————— END OF TASK ———————

TASK 27-00-00-040-803

6. MMEL 27-10 (DDPG) Preparation - FEEL DIFF PRESS Light Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the FEEL DIFF PRESS light on the forward overhead panel inoperative.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
SPL-1674	Assembly - Adapter, Control Wheel, Torque and Force Test (Part #: C27060-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F72867-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1742	Regulator - Air Pressure, Elevator Feel Computer (Part #: F72928-58, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: F72928-62, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: F72928-63, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1100	Gauge - Push/Pull, Dial, 0-50 Lb Capacity

D. Consumable Materials

Reference	Description	Specification
G00252	Film, Plastic Sheeting, Polyethylene	L-P-512
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

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(Continued)

Reference	Description	Specification
G02219	Tape - Yellow Vinyl Adhesive, Scotch Brand No.471, 1.5 Inches (38.1 mm) Wide	
G02443	Tape - Barricade, Non-Adhesive, Orange, 3 (76 mm) Inches Wide, 4 mils (0.102 mm) Thick, "REMOVE BEFORE FLIGHT"	
G02447	Tag - Red Paper, "PITOT PROBES COVERED" - 3 inches (76.2 mm) Wide, 6 inches (152.4 mm) Long	

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
323	Vertical Fin - Front Spar To Rear Spar

F. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

G. Feel System Test

SUBTASK 27-00-00-860-005

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-00-00-860-006

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-00-00-860-007

(3) Use the STAB TRIM switches to set the stabilizer to 4 units of trim.

SUBTASK 27-00-00-010-002

(4) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-00-00-390-001

(5) Apply a seal to the drain hole in each pitot probe on the vertical fin. Use vinyl adhesive Scotch Brand No.471 tape, G02219 and black polyethylene sheet film, G00252, to cover and seal the drain holes.

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SUBTASK 27-00-00-950-001

CAUTION: WHENEVER AN OPENING IS COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. ENGINES SHOULD NOT BE OPERATED WITH COVERS IN PLACE. THE COVERS CAN COME OFF AND CAUSE DAMAGE THE ENGINES.

(6) Attach a "PITOT PROBES COVERED" tag, G02447 that has "PITOT PROBES COVERED" printed on it in black letters, to the top of the left control wheel in the flight deck with wire.

WARNING: WHEN THE DRAIN HOLES ARE COVERED, MAKE SURE THAT CONDITION IS VISIBLE FROM THE GROUND. IN ADDITION, ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT DECK AS A REMINDER THAT THE STATIC PORTS ARE COVERED. FAILURE TO OBSERVE AND REMOVE COVERINGS OVER STATIC PORTS BEFORE FLIGHT CAN CAUSE LARGE ERRORS IN AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS. THIS CAN LEAD TO LOSS OF SAFE FLIGHT.

(a) Put one end of a 4-foot or longer piece of the orange barricade barricade tape, G02443, over the black polyethylene sheet covering the drain holes of the pitot probes and secure the upper edge with a 5-inch strip of the adhesive Scotch Brand No.471 tape, G02219.

NOTE: Smooth the 3M No. 471 yellow vinyl adhesive tape on the airplane surface to make sure the bond is satisfactory.

(b) To make sure it is visible from the ground, the orange barricade barricade tape, G02443 should be allowed to stream down through this access door:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-00-00-020-002

(7) Remove the drain plugs from the systems A and B pitot lines.

NOTE: The systems A and B pitot lines are below the elevator feel computer.

SUBTASK 27-00-00-480-001

(8) Install the regulator, SPL-1742 or equivalent air data model test set, COM-1914:

(a) Connect the pressure gage lines from the regulator, SPL-1742 or equivalent air data model test set, COM-1914 to the drain holes of the pitot lines.

CAUTION: MAKE SURE THAT THE PITOT PROBE HAS NO ADDITIONAL WEIGHT ON IT FROM THE TEST HOSE. THE PROBE CAN BEND OR TWIST OUT OF TOLERANCE.

(b) Connect the pressure lines from the regulator, SPL-1742 or equivalent air data model test set, COM-1914 to the pitot probes on the vertical fin.

SUBTASK 27-00-00-790-001

(9) Do a check for pressure leakage in the feel pitot system:

CAUTION: DO NOT INCREASE THE PRESSURE TO MORE THAN 6 PSI (474 KNOTS KCAS) DURING THE TEST. IF THE PRESSURE IS MORE THAN 6 PSI, IT CAN CAUSE DAMAGE TO THE ELEVATOR FEEL COMPUTER.

(a) Operate the regulator, SPL-1742 or equivalent air data model test set, COM-1914 to pressurize the pitot system to 5.0 +/- 0.1 psi (437 +/- 4 knots).

(b) Set the shutoff valve in the regulator, SPL-1742 or equivalent air data model test set, COM-1914 to the OFF position.

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(c) Make sure the pressure does not decrease more than 0.3 psi (12 knots) during a 2 minute time.

(d) Operate the regulator, SPL-1742 or equivalent air data model test set, COM-1914 to decrease the pressure to zero.

SUBTASK 27-00-00-730-001

(10) Do a test of control column force:

(a) Make sure the FLT CONTROL A and B switches on the flight controls panel, P5-3 are in the ON position.

CAUTION: DO NOT INCREASE THE PRESSURE TO MORE THAN 6 PSI (474 KNOTS KCAS) DURING THE TEST. IF THE PRESSURE IS MORE THAN 6 PSI, IT CAN CAUSE DAMAGE TO THE ELEVATOR FEEL COMPUTER.

(b) Operate the regulator, SPL-1742 or equilavent air data model test set, COM-1914 to pressurize the pitot systems to 2.47 +/- 0.05 psi (315 +/- 3 knots).

(c) Install a piece of the Scotch Flatback Masking Tape 250, G00270 on the tail cone along the direction of the right elevator trailing edge travel.

(d) Attach the adapter, SPL-1674 to the captain's control column.

(e) Move the captain's control column lightly to put the elevator system in the neutral position.

1) Attach DO-NOT-OPERATE tags on the control columns.

(f) Make a mark of the neutral position of the elevator trailing edge on the Scotch Flatback Masking Tape 250, G00270.

1) Use this mark of the neutral position as reference.

(g) Remove the DO-NOT-OPERATE tags from the control columns.

(h) Move the captain's control column aft with a push/pull gauge (0-50 lbs), STD-1100 to set the elevator trailing edge to 1.20 +/- 0.05 inches (30.5 +/- 1.3 millimeters) up from the neutral position.

1) Make sure the force to hold the control column at this position is 38.0 +/- 4.0 pounds (169.0 +/- 17.8 newtons).

(i) Move the captain's control column forward with a push/pull gauge (0-50 lbs), STD-1100 to set the elevator trailing edge to 1.20 +/- 0.05 inches (30.5 +/- 1.3 millimeters) down from the neutral position.

1) Make sure the force to hold the control column at this position is 38.0 +/- 4.0 pounds (169.0 +/- 17.8 newtons).

(j) Set the FLT CONTROL A switch to the OFF position and FLT CONTROL B switch to the ON position.

(k) Move the captain's control column aft with a push/pull gauge (0-50 lbs), STD-1100 to set the elevator trailing edge to 1.20 +/- 0.05 inches (30.5 +/- 1.3 millimeters) up from the neutral position.

1) Make sure the force to hold the control column at this position is 38.0 +/- 4.0 pounds (169.0 +/- 17.8 newtons).

(l) Move the captain's control column forward with a push/pull gauge (0-50 lbs), STD-1100 to set the elevator trailing edge to 1.20 +/- 0.05 inches (30.5 +/- 1.3 millimeters) down from the neutral position.

1) Make sure the force to hold the control column at this position is 38.0 +/- 4.0 pounds (169.0 +/- 17.8 newtons).

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-00-00-080-001

(1) Remove the adapter, SPL-1674 and control column assembly protractor, SPL-1680 from the captain's control column.

SUBTASK 27-00-00-080-002

(2) Remove the Scotch Flatback Masking Tape 250, G00270.

SUBTASK 27-00-00-080-003

(3) Remove the vinyl adhesive Scotch Brand No.471 tape, G02219 and black polyethylene sheet film, G00252, used to cover and seal the drain holes, and the 4-foot or longer piece of the orange barricade barricade tape, G02443 from the drain hole in each pitot probe.

SUBTASK 27-00-00-080-004

(4) Remove the regulator, SPL-1742 or equivalent air data model test set, COM-1914:

(a) Disconnect the pressure lines of the regulator, SPL-1742 or equivalent air data model test set, COM-1914 from the two pitot probes.

(b) Disconnect the pressure gage lines of the regulator, SPL-1742 or equivalent air data model test set, COM-1914 from the drain holes.

SUBTASK 27-00-00-420-001

(5) Install the drain plugs to the systems A and B pitot lines.

SUBTASK 27-00-00-410-001

(6) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-00-00-860-008

(7) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-00-00-930-008

(8) Attach a LIGHT INOP placard to the FEEL DIFF PRESS light.

———————— END OF TASK ————————

TASK 27-00-00-440-803

7. MMEL 27-10 (DDPG) Restoration - FEEL DIFF PRESS Light Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the FEEL DIFF PRESS light on the flight controls panel inoperative.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-00-00-960-002

(1) Replace the FEEL DIFF PRESS light.

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SUBTASK 27-00-00-810-003

(2) If the FEEL DIFF PRESS light was not the problem, then do these steps to correct the fault:

(a) Find the fault code or description of the fault that occurred.

(b) If you find a fault code, then do these steps:

1) Go to the Fault Code Index in the applicable chapter of the FIM and find the fault code.

NOTE: The first two digits of the fault code is the FIM chapter.

2) Find the task number on the same line as the fault code.

3) Go to the task in the FIM and do the steps in the task.

(c) If you find a description of the fault, then do these steps:

1) Go to the Observed Fault List at the beginning of the FIM and find the best description for the fault.

2) Find the task number on the same line as the fault description.

3) Go to the task in the FIM and do the steps in the task.

SUBTASK 27-00-00-930-009

(3) Remove the LIGHT INOP placard from the FEEL DIFF PRESS light.

——————— END OF TASK ———————

TASK 27-00-00-040-804

8. MMEL 27-11 (DDPG) Preparation - Auto Slat Fail Light System Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with an AUTO SLAT light on the forward annunciator panel inoperative.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Procedure

SUBTASK 27-00-00-010-003

(1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-00-00-740-001

(2) Do the EXISTING FAULTS test on the SMYD BITE:

(a) Push the ON/OFF switch.

NOTE: The display will show EXISTING FAULTS?

(b) Push the YES switch.

1) Make sure the display shows NO FAULTS.

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(c) Push the MENU switch to return to the EXISTING FAULTS? display.

(d) Push the ON/OFF switch to turn the SMYD display off.

SUBTASK 27-00-00-410-002

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-00-00-930-010

(4) Attach a LIGHT INOP placard to the AUTO SLAT FAIL light.

——————— END OF TASK ———————

TASK 27-00-00-440-804

9. MMEL 27-11 (DDPG) Restoration - Auto Slat Fail Light System Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with an auto slat fail light on the forward annunciator panel inoperative.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-00-00-740-002

(1) Correct the fault.

(a) Find the fault code or description of the fault that occurred.

(b) If you find a fault code, then do these steps:

1) Go to the Fault Code Index in the applicable chapter of the FIM and find the fault code.

NOTE: The first two digits of the fault code is the FIM chapter.

2) Find the task number on the same line as the fault code.

3) Go to the task in the FIM and do the steps in the task.

(c) If you find a description of the fault, then do these steps:

1) Go to the Observed Fault List at the beginning of the FIM and find the best description for the fault.

2) Find the task number on the same line as the fault description.

3) Go to the task in the FIM and do the steps in the task.

SUBTASK 27-00-00-210-002

(2) Make sure the AUTOSLAT FAIL LIGHT comes on when the light switch is pushed then goes off when released.

SUBTASK 27-00-00-930-011

(3) Remove the LIGHT INOP placard from the AUTO SLAT FAIL light.

——————— END OF TASK ———————

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TASK 27-00-00-040-805

10. MMEL 27-12 (DDPG) Preparation - Auto Slat System Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with an auto slat system inoperative.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-00-00-040-001

(1) Do these steps to deactivate the applicable auto slat system:

(a) For the number 1 auto slat system,

Open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

(b) For the number 2 auto slat system,

Open this circuit breaker and install safety lock:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2

SUBTASK 27-00-00-930-012

(2) Attach a placard near the AUTO SLAT FAIL light which states - ONE AUTO SLAT SYSTEM INOP.

SUBTASK 27-00-00-210-003

(3) Do these steps to make sure that the other auto slat system and AUTO SLAT FAIL light operates normally:

(a) Push the MASTER CAUTION light switch.

1) Make sure the AUTO SLAT FAIL, FLT CONT, and MASTER CAUTION lights come on.

(b) Push the MASTER CAUTION light switch.

1) Make sure the AUTO SLAT FAIL, FLT CONT, and MASTER CAUTION lights go off.

——————— END OF TASK ———————

TASK 27-00-00-440-805

11. MMEL 27-12 (DDPG) Restoration - Auto Slat System Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with an auto slat system inoperative.

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B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-00-00-440-001

(1) Close the auto slat system circuit breakers:

(a) For the number 1 auto slat system,

Remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

(b) For the number 2 auto slat system,

Remove the safety lock and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2

SUBTASK 27-00-00-810-004

(2) Correct the fault.

(a) Find the fault code or description of the fault that occurred.

(b) If you find a fault code, then do these steps:

1) Go to the Fault Code Index in the applicable chapter of the FIM and find the fault code.

NOTE: The first two digits of the fault code is the FIM chapter.

2) Find the task number on the same line as the fault code.

3) Go to the task in the FIM and do the steps in the task.

(c) If you find a description of the fault, then do these steps:

1) Go to the Observed Fault List at the beginning of the FIM and find the best description for the fault.

2) Find the task number on the same line as the fault description.

3) Go to the task in the FIM and do the steps in the task.

SUBTASK 27-00-00-210-004

(3) Verify that the auto slat systems and AUTO SLAT FAIL light operates normally:

(a) Push the MASTER CAUTION light switch.

1) Make sure the AUTO SLAT FAIL, FLT CONT, and MASTER CAUTION lights come on.

(b) Push the MASTER CAUTION light switch.

1) Make sure the AUTO SLAT FAIL, FLT CONT, and MASTER CAUTION lights go off.

SUBTASK 27-00-00-930-013

(4) Remove the ONE AUTO SLAT SYSTEM INOP placard from the AUTO SLAT FAIL light.

END OF TASK

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TASK 27-00-00-040-806

12. MMEL 27-13 (DDPG) Preparation - Stall Warning System Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with a stall warning system inoperative.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-00-00-040-002

(1) Do these steps to deactivate the failed stall warning system:

(a) For the number 1 stall warning system,

Open these circuit breakers and install safety locks:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	4	C01392	STICK SHAKER LEFT
E	6	C01205	SMYD-1 SNSR EXC AC

(b) For the number 2 stall warning system,

Open these circuit breakers and install safety locks:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC
B	6	C01393	STICK SHAKER RIGHT

SUBTASK 27-00-00-930-014

(2) Attach a placard on the test switch associated with the inoperative stall warning system which states - NO. 1 or NO. 2 STALL WARNING SYSTEM INOP.

SUBTASK 27-00-00-740-003

(3) Do these steps to make sure that the other stall warning system operates normally:

(a) Push and hold the applicable STALL WARNING TEST switch on the stall warning test module (P5-18 panel).

(b) Make sure the control column shaker operates.

(c) Release the switch.

(d) Make sure the control column shaker stops.

END OF TASK

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TASK 27-00-00-440-806

13. MMEL 27-13 (DDPG) Restoration - Stall Warning System Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with a stall warning system inoperative.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-00-00-440-002

(1) Close the stall warning system circuit breakers:

(a) For the number 1 stall warning system,

Remove the safety locks and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	4	C01392	STICK SHAKER LEFT
E	6	C01205	SMYD-1 SNSR EXC AC

(b) For the number 2 stall warning system,

Remove the safety locks and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC
B	6	C01393	STICK SHAKER RIGHT

SUBTASK 27-00-00-810-005

(2) Correct the fault.

(a) Find the fault code or description of the fault that occurred.

(b) If you find a fault code, then do these steps:

1) Go to the Fault Code Index in the applicable chapter of the FIM and find the fault code.

NOTE: The first two digits of the fault code is the FIM chapter.

2) Find the task number on the same line as the fault code.

3) Go to the task in the FIM and do the steps in the task.

(c) If you find a description of the fault, then do these steps:

1) Go to the Observed Fault List at the beginning of the FIM and find the best description for the fault.

2) Find the task number on the same line as the fault description.

3) Go to the task in the FIM and do the steps in the task.

SUBTASK 27-00-00-740-004

(3) Do these steps to make sure that the stall warning systems operate normally:

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(a) Push and hold the NO. 1 STALL WARNING TEST switch on the stall warning test module (P5-18 panel).

(b) Make sure the pilot's control column shaker operates.

(c) Release the switch.

(d) Make sure the control column shaker stops.

(e) Push and hold the NO. 2 STALL WARNING TEST switch on the stall warning test module (P5-18 panel).

(f) Make sure the first officer's control column shaker operates.

(g) Release the switch.

(h) Make sure the control column shaker stops.

SUBTASK 27-00-00-930-015

(4) Remove the STALL WARNING SYSTEM INOP placard from the STALL WARNING TEST switch.

——————— END OF TASK ———————

TASK 27-00-00-040-807

14. MMEL 27-14 (DDPG) Preparation - Rudder Trim Indicator Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the rudder trim indicator inoperative.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-00-00-860-009

(1) Pressurize rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-00-00-040-003

(2) Do a test of the rudder trim actuator:

(a) Turn the rudder trim knob to the NOSE LEFT position.

(b) Make sure the captain's left rudder pedal moves forward and right rudder pedal moves aft.

(c) Turn the rudder trim knob to the NOSE RIGHT position.

(d) Make sure the captain's left rudder pedal moves aft and right rudder pedal moves forward.

SUBTASK 27-00-00-710-003

(3) Do a test of the rudder trim centering:

(a) Turn the rudder trim knob until the captain's rudder pedals are aligned with each other.

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(b) Make sure the rudder is in the neutral position.

1) If it is necessary, move the captain's rudder pedals lightly to set the rudder to the neutral position.

SUBTASK 27-00-00-930-016

(4) Attach a INDICATOR INOP placard to the rudder trim indicator.

SUBTASK 27-00-00-860-010

(5) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

TASK 27-00-00-440-807

15. MMEL 27-14 (DDPG) Restoration - Rudder Trim Indicator Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the rudder trim indicator inoperative.

B. References

Reference	Title
27-11-94-000-803	Rudder Trim Indicator Removal (P/B 401)
27-11-94-400-803	Rudder Trim Indicator Installation (P/B 401)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-00-00-960-003

(1) Replace the rudder trim indicator.

These are the tasks:

Rudder Trim Indicator Removal, TASK 27-11-94-000-803,

Rudder Trim Indicator Installation, TASK 27-11-94-400-803.

SUBTASK 27-00-00-810-006

(2) If the rudder trim indicator was not the problem, then do these steps to correct the fault:

(a) Find the fault code or description of the fault that occurred.

(b) If you find a fault code, then do these steps:

1) Go to the Fault Code Index in the applicable chapter of the FIM and find the fault code.

NOTE: The first two digits of the fault code is the FIM chapter.

2) Find the task number on the same line as the fault code.

3) Go to the task in the FIM and do the steps in the task.

(c) If you find a description of the fault, then do these steps:

1) Go to the Observed Fault List at the beginning of the FIM and find the best description for the fault.

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2) Find the task number on the same line as the fault description.

3) Go to the task in the FIM and do the steps in the task.

SUBTASK 27-00-00-930-017

(3) Remove the INDICATOR INOP placard from the rudder trim indicator.

——————— END OF TASK ———————

TASK 27-00-00-040-808

16. MMEL 27-16 (DDPG) Preparation - SPEEDBRAKES EXTENDED Light Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the SPEEDBRAKES EXTENDED indicator light inoperative.

B. References

Reference	Title
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-00-00-860-011

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the speed brake hydraulic systems A and B. To pressurize them, do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-00-00-040-004

(2) Do a test of the Speedbrake actuator:

(a) Put the Speedbrake handle in the DOWN position.

NOTE: The spoilers will move down during this step.

(b) Make sure the flight and ground spoilers are all down.

(c) Put the Speedbrake handle in the FLIGHT DETENT.

NOTE: The spoilers will move up during this step.

(d) Make sure the flight and ground spoilers deploy.

(e) Put the Speedbrake handle in the DOWN position.

NOTE: The spoilers will move down during this step.

(f) Make sure the flight and ground spoilers are all down.

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WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(g) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

(h) Move both thrust levers beyond 60 degrees.

(i) Make sure the Takeoff Configuration Warning Horn does not sound.

(j) Move the thrust levers to idle.

SUBTASK 27-00-00-930-018

(3) Attach an INDICATOR INOP placard to the Speedbrakes Extended indicator.

SUBTASK 27-00-00-860-012

(4) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

TASK 27-00-00-040-809

17. MMEL 27-16 (DDPG) Restoration - SPEEDBRAKES EXTENDED Light Inoperative

A. General

(1) This task gives the maintenance steps which restore the airplane for flight when the SPEEDBRAKES EXTENDED light has been inoperative.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-00-00-860-013

(1) Replace the SPEEDBRAKES EXTENDED indicator light.

SUBTASK 27-00-00-860-014

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-00-00-860-015

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-00-00-860-016

(4) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
D	2	C01045	AFCS SYS A FCC DC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	3	C01046	AFCS SYS B FCC DC
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-00-00-860-017

(5) Simulate air mode with the PSEU BITE. To simulate, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 27-00-00-860-018

(6) Move the flaps to the 15 unit position.

SUBTASK 27-00-00-860-019

(7) Move the speed brake lever to the ARMED position.

NOTE: The spoilers will move up during this step.

SUBTASK 27-00-00-860-020

(8) Make sure the SPEEDBRAKES EXTENDED light is off.

SUBTASK 27-00-00-860-021

(9) Move the speed brake lever 0.6 inch aft from the ARMED detent.

NOTE: The spoilers will move up during this step.

SUBTASK 27-00-00-860-022

(10) Make sure the SPEEDBRAKES EXTENDED light turns on.

SUBTASK 27-00-00-860-023

(11) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-00-00-860-024

(12) Make sure the SPEEDBRAKES EXTENDED light is off.

SUBTASK 27-00-00-860-025

(13) Move the flaps to the 15 unit position.

SUBTASK 27-00-00-860-026

(14) Make sure the SPEEDBRAKES EXTENDED light turns on.

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SUBTASK 27-00-00-860-027

(15) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 27-00-00-860-028

(16) Make sure the SPEEDBRAKES EXTENDED light turns off.

SUBTASK 27-00-00-860-029

(17) Simulate air mode with the PSEU BITE. To simulate, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 27-00-00-860-030

(18) Make sure the SPEEDBRAKES EXTENDED light turns on.

SUBTASK 27-00-00-860-031

(19) Move the speed brake lever to the ARMED position.

SUBTASK 27-00-00-860-032

(20) Make sure the SPEEDBRAKES EXTENDED light turns off.

SUBTASK 27-00-00-860-033

(21) Move the speed brake lever to the DOWN position.

NOTE: The spoilers will move down during this step.

SUBTASK 27-00-00-860-034

(22) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-00-00-860-035

(23) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-00-00-860-036

(24) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
D	2	C01045	AFCS SYS A FCC DC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	3	C01046	AFCS SYS B FCC DC
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-00-00-930-019

(25) Remove the INDICATOR INOP placard from the SPEEDBRAKES EXTENDED indicator.

———————— END OF TASK ————————

HAP 001-013, 015-023, 101-999

TASK 27-00-00-040-812

18. MMEL 27-20 (DDPG) Preparation - Speed Brake Load Alleviation (Autostow) System Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the Speed Brake Load Alleviation (Autostow) System inoperative.

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B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-00-00-865-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

SUBTASK 27-00-00-866-001

(2) Move the speed brake handle from the down and locked position to the full up position.

(a) Make sure the speed brake lever forces are normal.

SUBTASK 27-00-00-490-001

(3) Attach a placard showing the appropriate flight restrictions.

(a) Airspeed can not exceed 265 KIAS.

(b) Maximum severe turbulent air penetration speed is 265 KIAS or 0.76 Mach, whichever is lower.

HAP 101-999

(c) Takeoff weight does not exceed 143,500 lb (65,091 kg).

HAP 001-013, 015-023

(d) Takeoff weight does not exceed 155,500 lb (70,534 kg).

HAP 001-013, 015-023, 101-999

SUBTASK 27-00-00-040-006

(4) Do this task: MMEL 27-7 (DDPG) Preparation - Auto Spoiler System Inoperative, TASK 27-00-00-040-802.

——————— END OF TASK ———————

TASK 27-00-00-440-808

19. MMEL 27-20 (DDPG) Restoration - Speed Brake Load Alleviation (Autostow) System Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the Speed Brake Load Alleviation (Autostow) System inoperative.

B. References

Reference	Title
27-62-33-010-801	Speedbrake Autostow Actuator - Functional Test (P/B 501)
FIM 27-32 TASK 801	Stall Management Yaw Damper BITE Procedure

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C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-00-00-865-002

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

SUBTASK 27-00-00-090-001

(2) Remove the flight restrictions placard.

SUBTASK 27-00-00-440-003

(3) Do this task: MMEL 27-7 (DDPG) Restoration - Auto Spoiler System Inoperative, TASK 27-00-00-440-802.

SUBTASK 27-00-00-720-001

(4) Do this task: Speedbrake Autostow Actuator - Functional Test, TASK 27-62-33-010-801.

SUBTASK 27-00-00-740-005

(5) Do this task: FIM 27-32 TASK 801.

———————— END OF TASK ————————

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253; AIRPLANES WITH 'STBY RUD ON' LIGHT ON THE P5-3 PANEL

TASK 27-00-00-040-810

20. MMEL 27-21 (DDPG) Preparation - STBY RUD ON Light Inoperative

A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the STBY RUD ON indicator light inoperative (illuminated).

(2) The STBY RUD ON indicator light is located on the P5-3 overhead panel.

B. References

Reference	Title
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

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HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253; AIRPLANES WITH 'STBY RUD ON' LIGHT ON THE P5-3 PANEL (Continued)

(Continued)

Zone	Area
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-00-00-860-037

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the speed brake hydraulic systems A and B. To pressurize them, do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-00-00-200-001

(2) Do these steps:

(a) Make sure that the LOW PRESSURE A and B lights on the P5-3 panel are not illuminated.

(b) Push the captain's left rudder pedal forward until it touches the stop and hold for 10 seconds.

(c) Release the captain's left rudder pedal.

(d) Push the captain's right rudder pedal forward until it touches the stop and hold for 10 seconds.

(e) Release the captain's right rudder pedal.

(f) Make sure that the STBY RUD ON light is illuminated.

SUBTASK 27-00-00-860-042

(3) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	15	C01628	FLIGHT CONTROL FORCE FIGHT MON

SUBTASK 27-00-00-200-002

(4) Make sure that the STBY RUD ON light is not illuminated.

SUBTASK 27-00-00-040-005

(5) Do a test of the rudder travel test:

(a) Set the FLT CONTROL A switch on the P5-3 panel to the ON position and FLT CONTROL B switch to the OFF position.

(b) Push the captain's left rudder pedal forward until it touches the stop and hold.

1) Measure the rudder travel.

2) Make sure that the dimension is more than 26 inches rudder trailing edge left.

3) Release the captain's left rudder pedal.

(c) Push the captain's right rudder pedal forward until it touches the stop and hold.

1) Measure the rudder travel.

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2) Make sure that the dimension is more than 26 inches rudder trailing edge right.

3) Release the captain's right rudder pedal.

(d) Set the FLT CONTROL B switch on the P5-3 panel to the ON position and FLT CONTROL A switch to the OFF position.

(e) Push the captain's left rudder pedal forward until it touches the stop and hold.

1) Measure the rudder travel.

2) Make sure that the dimension is more than 26 inches rudder trailing edge left.

3) Release the captain's left rudder pedal.

(f) Push the captain's right rudder pedal forward until it touches the stop and hold.

1) Measure the rudder travel.

2) Make sure that the dimension is more than 26 inches rudder trailing edge right.

3) Release the captain's right rudder pedal.

SUBTASK 27-00-00-930-020

(6) Attach an INDICATOR INOP placard to the STBY RUD ON indicator on the P5-3 panel.

SUBTASK 27-00-00-860-039

(7) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

TASK 27-00-00-040-811

21. MMEL 27-21 (DDPG) Restoration - STBY RUD ON Light Inoperative

A. General

(1) This task puts the airplane back to its usual condition after operation with the STBY RUD ON indicator light inoperative (illuminated).

(2) The STBY RUD ON indicator light is located on the P5-3 overhead panel.

B. References

Reference	Title
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

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D. Procedure

SUBTASK 27-00-00-860-040

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	15	C01628	FLIGHT CONTROL FORCE FIGHT MON

SUBTASK 27-00-00-860-041

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize the speed brake hydraulic systems A and B. To pressurize them, do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-00-00-810-007

(3) Do a check of the STBY RUD ON light:

(a) Set the FLT CONTROL A and B switches on the P5-3 panel to the ON positions.

(b) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

(c) Move the flap control lever to the 1-unit detent position.

(d) Make sure that the STBY RUD ON light is not illuminated.

(e) Set the FLT CONTROL A switch on the P5-3 panel to the STDBY RUD position.

(f) Make sure that the STBY RUD ON light is illuminated.

(g) Set the FLT CONTROL A switch on the P5-3 panel to the OFF position.

(h) Make sure that the STBY RUD ON light is not illuminated.

(i) Set the FLT CONTROL B switch on the P5-3 panel to the STDBY RUD position.

(j) Make sure that the STBY RUD ON light is illuminated.

(k) Set the FLT CONTROL B switch on the P5-3 panel to the OFF position.

(l) Make sure that the STBY RUD ON light is not illuminated.

(m) Set the FLT CONTROL A and B switches on the P5-3 panel to the ON positions.

(n) Make sure that the STBY RUD ON light is not illuminated.

(o) Move the flap control lever to the UP detent position.

(p) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

(q) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

SUBTASK 27-00-00-930-021

(4) Remove the INDICATOR INOP placard from the STBY RUD ON indicator on the P5-3 panel.

END OF TASK

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FLIGHT CONTROLS CABLES - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) The identification and assembly specifications of the control cable

(2) The rigging of the control cables.

TASK 27-09-14-860-801

2. Control Cables Identification and Assembly Specifications

A. References

Reference	Title
20-10-91-000-801	Control Cables Removal (P/B 401)
20-10-91-400-801	Control Cables Installation (P/B 401)
27-11-00-700-804	Control Wheel Centering Check (P/B 501)
27-11-00-700-805	Aileron Control Wheel Force Test (P/B 501)
27-11-00-700-809	Aileron Travel Test (P/B 501)
27-11-00-730-801	Aileron Trim Response Test (P/B 501)
27-11-00-820-801	Aileron Cables Adjustment (P/B 501)
27-21-00-700-815-001	Rudder Centering Test (P/B 501)
27-21-00-700-815-002	Rudder Centering Test (P/B 501)
27-21-00-700-816-001	Rudder Pedal Forces Test (P/B 501)
27-21-00-700-816-002	Rudder Pedal Forces Test (P/B 501)
27-21-00-700-817-001	Rudder Travel Test (P/B 501)
27-21-00-700-817-002	Rudder Travel Test (P/B 501)
27-21-00-820-808-001	Rudder Control Cables RA and RB Adjustment (P/B 501)
27-21-00-820-808-002	Rudder Control Cables RA and RB Adjustment (P/B 501)
27-31-00-700-804	Elevator Travel Limit - Test (P/B 501)
27-31-00-700-808	Control Column Travel and Centering - Test (P/B 501)
27-31-00-700-809	Control Column Power Force - Test (P/B 501)
27-31-00-710-801	Elevator and Elevator Trim Control System - Operational Test (P/B 501)
27-31-00-820-801	Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment (P/B 501)
27-41-00-700-801	Stabilizer Manual Trim and Trim Indicator Test (P/B 501)
27-41-00-700-802	Horizontal Stabilizer Trim Control System Friction Test (P/B 501)
27-41-00-700-803	Stabilizer Electric Trim System Test (P/B 501)
27-41-00-700-804	Stabilizer Trim Wheel Free Movement Test (P/B 501)
27-41-00-700-806	Stabilizer Clutch Friction System Test (P/B 501)
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)
27-51-00-720-803	Alternate Flap Control System Functional Test (P/B 501)
27-51-00-730-801	Trailing Edge Flap System Test (P/B 501)
27-51-00-820-801	Trailing Edge Flap Control System Adjustment (P/B 501)
27-61-00-000-801	Flight Spoiler System Test (Alternate Method) (P/B 501)
27-61-00-000-803	Flight Spoiler System Test (Recommended Method) (P/B 501)
27-61-00-820-801	Spoiler Control Cables Adjustment (P/B 501)
27-62-00-710-801	Speed Brake Control System Operational Test (P/B 501)
27-62-00-800-803	Speed Brake Lever Friction Test (P/B 501)
27-62-00-820-802	Speed Brake Control Cable Adjustment (P/B 501)

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(Continued)

Reference	Title
27-62-34-400-802	Speed Brake Armed Switch and Speed Brake Handle Position Switch Adjustment (P/B 401)

B. Control Cables Identification and Assembly Specifications

SUBTASK 27-09-14-960-001

(1) If it is necessary to replace the cables, do the removal and installation procedures of the control cables. These are the tasks:
- Control Cables Removal, TASK 20-10-91-000-801
- Control Cables Installation, TASK 20-10-91-400-801.

SUBTASK 27-09-14-700-001

(2) If you replaced the aileron control cables, do these tasks:
- Aileron Cables Adjustment, TASK 27-11-00-820-801
- Aileron Trim Response Test, TASK 27-11-00-730-801
- Aileron Travel Test, TASK 27-11-00-700-809
- Control Wheel Centering Check, TASK 27-11-00-700-804
- Aileron Control Wheel Force Test, TASK 27-11-00-700-805

(3) If you replaced the rudder control cables, do these tasks:
- Rudder Control Cables RA and RB Adjustment, TASK 27-21-00-820-808-001 or Rudder Control Cables RA and RB Adjustment, TASK 27-21-00-820-808-002
- Rudder Travel Test, TASK 27-21-00-700-817-001 or Rudder Travel Test, TASK 27-21-00-700-817-002
- Rudder Centering Test, TASK 27-21-00-700-815-001 or Rudder Centering Test, TASK 27-21-00-700-815-002
- Rudder Pedal Forces Test, TASK 27-21-00-700-816-001 or Rudder Pedal Forces Test, TASK 27-21-00-700-816-002

(4) If you replaced the elevator control cables, do these tasks:
- Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment, TASK 27-31-00-820-801
- Elevator and Elevator Trim Control System - Operational Test, TASK 27-31-00-710-801
- Elevator Travel Limit - Test, TASK 27-31-00-700-804
- Control Column Travel and Centering - Test, TASK 27-31-00-700-808
- Control Column Power Force - Test, TASK 27-31-00-700-809

(5) If you replaced the trailing edge flap control cables, do these tasks:
- Trailing Edge Flap Control System Adjustment, TASK 27-51-00-820-801
- Trailing Edge Flap System Test, TASK 27-51-00-730-801
- Alternate Flap Control System Functional Test, TASK 27-51-00-720-803

(6) If you replaced the inboard trailing edge flap/aft flap drive cables, do this task:
- SUBTASK 27-51-14-820-001

(7) If you replaced the horizontal stabilizer control cables, do these tasks:
- Stabilizer Control Cable and Chain Adjustment, TASK 27-41-00-820-801
- Stabilizer Manual Trim and Trim Indicator Test, TASK 27-41-00-700-801
- Horizontal Stabilizer Trim Control System Friction Test, TASK 27-41-00-700-802

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- Stabilizer Electric Trim System Test, TASK 27-41-00-700-803
- Stabilizer Trim Wheel Free Movement Test, TASK 27-41-00-700-804
- Stabilizer Clutch Friction System Test, TASK 27-41-00-700-806

(8) If you replaced the spoiler control cables, do these tasks.
- Spoiler Control Cables Adjustment, TASK 27-61-00-820-801
- Flight Spoiler System Test (Recommended Method), TASK 27-61-00-000-803
- Flight Spoiler System Test (Alternate Method), TASK 27-61-00-000-801

(9) If you replaced the ground speed brake control cables, do these tasks:
- Speed Brake Control Cable Adjustment, TASK 27-62-00-820-802
- Speed Brake Armed Switch and Speed Brake Handle Position Switch Adjustment, TASK 27-62-34-400-802
- Speed Brake Lever Friction Test, TASK 27-62-00-800-803
- Speed Brake Control System Operational Test, TASK 27-62-00-710-801

SUBTASK 27-09-14-860-001

(10) Identify and make control cable assemblies for the following flight control systems, as necessary:
- Figure 201
- Figure 202
- Figure 203
- Figure 204
- Figure 205
- Figure 206
- Figure 207
- Figure 208.

SUBTASK 27-09-14-860-002

(11) Swage control cables with dies for the next larger size AN standard terminals for all BACT14A terminals.

——————— END OF TASK ———————

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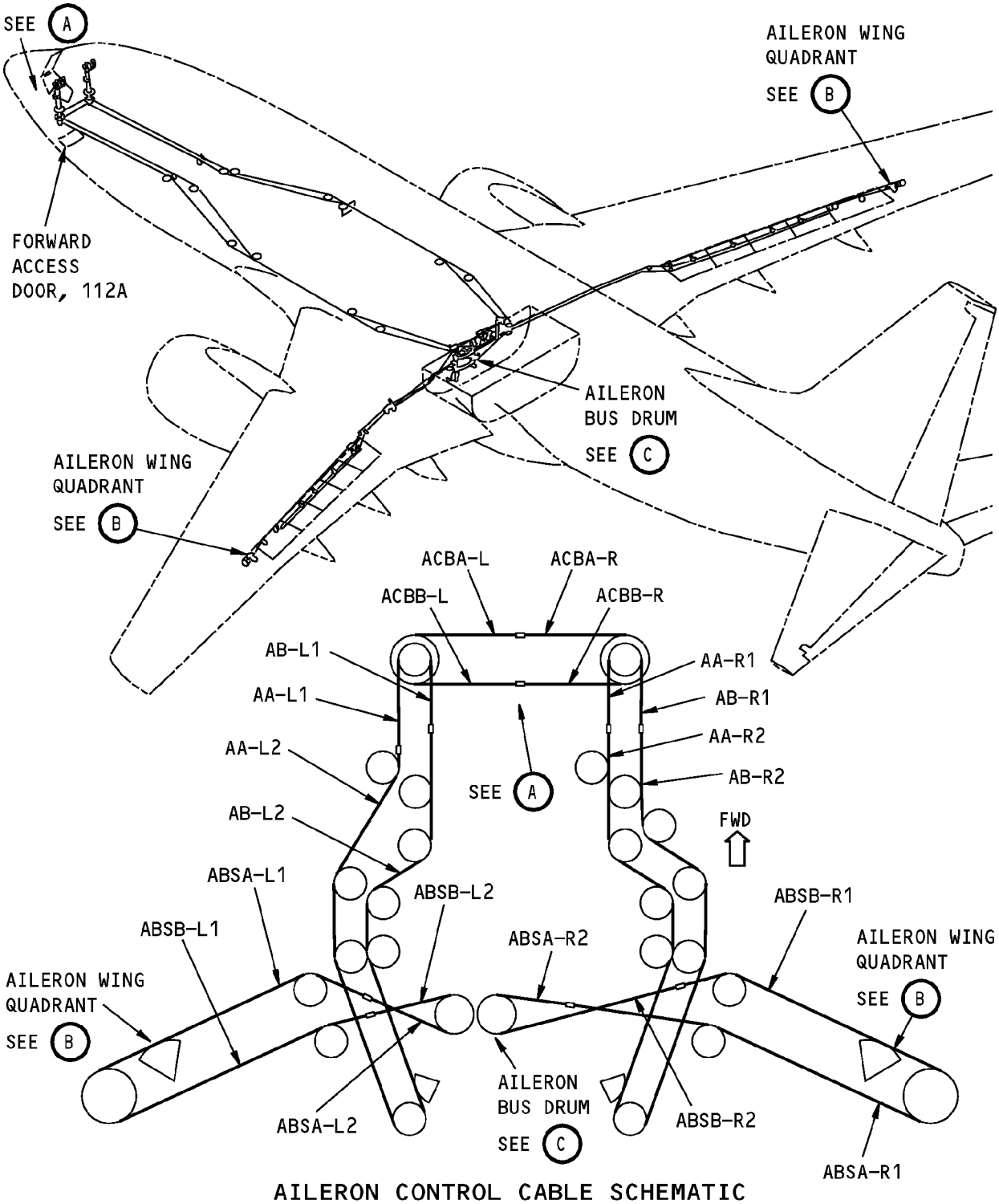

AILERON CONTROL CABLE SCHEMATIC

Aileron Control Cables
Figure 201 (Sheet 1 of 7)/27-09-14-990-801

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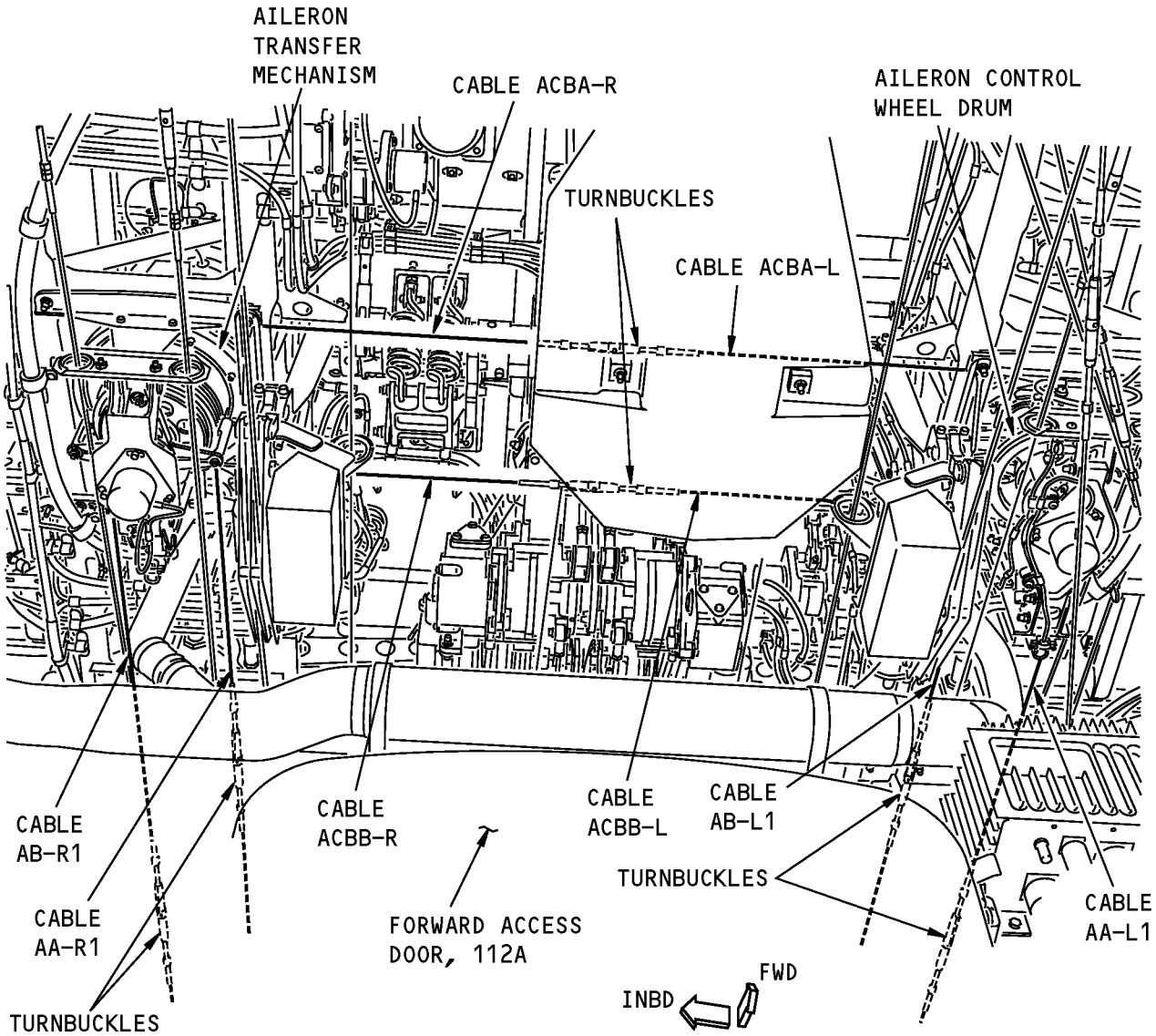

Aileron Control Cables
Figure 201 (Sheet 2 of 7)/27-09-14-990-801

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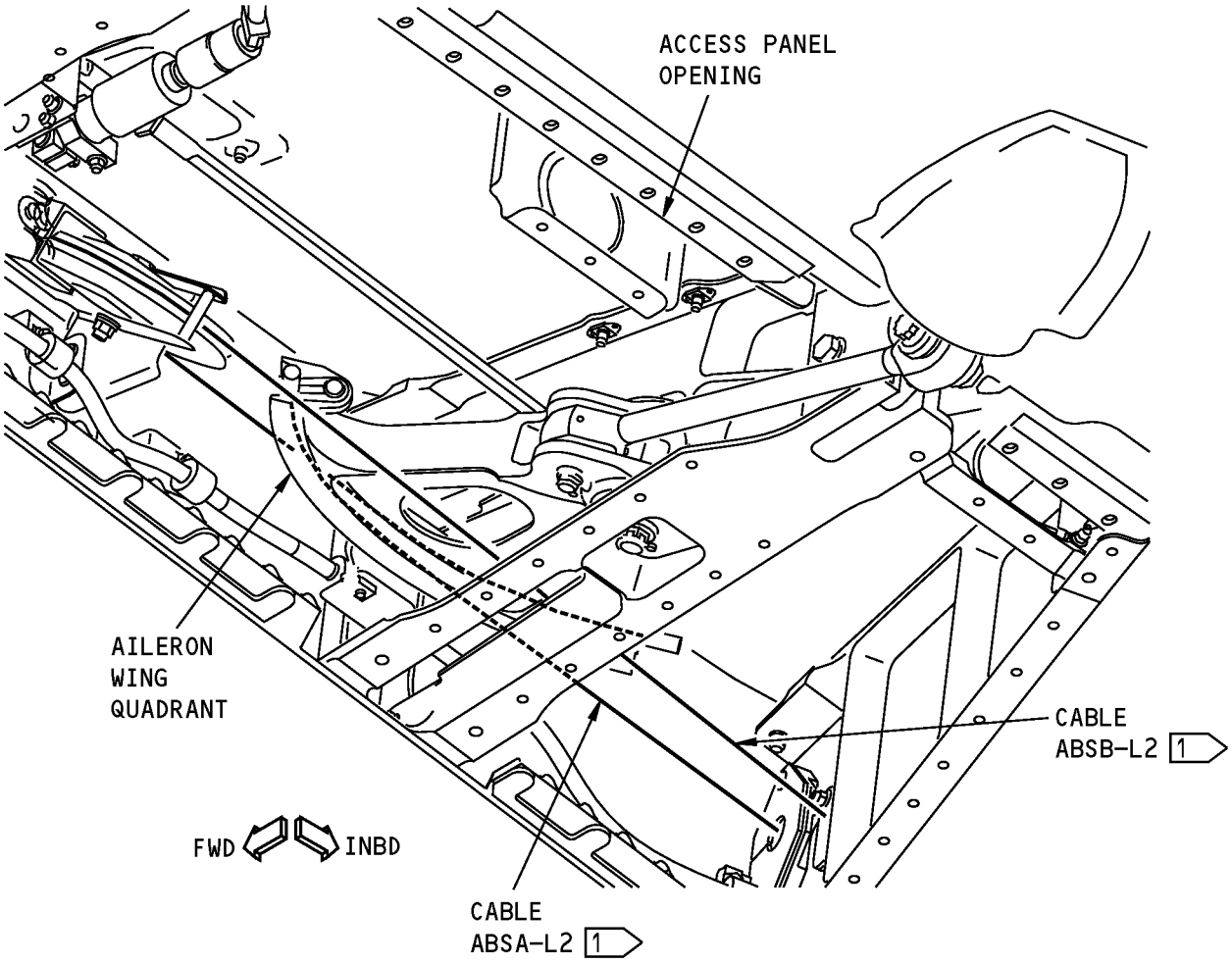

LEFT AILERON WING QUADRANT
(RIGHT AILERON WING QUADRANT IS EQUIVALENT)

B

1 FOR THE RIGHT AILERON WING QUADRANT,
INSTALL CABLE ABSB-R1 BELOW CABLE ABSA-R1.

Aileron Control Cables
Figure 201 (Sheet 3 of 7)/27-09-14-990-801

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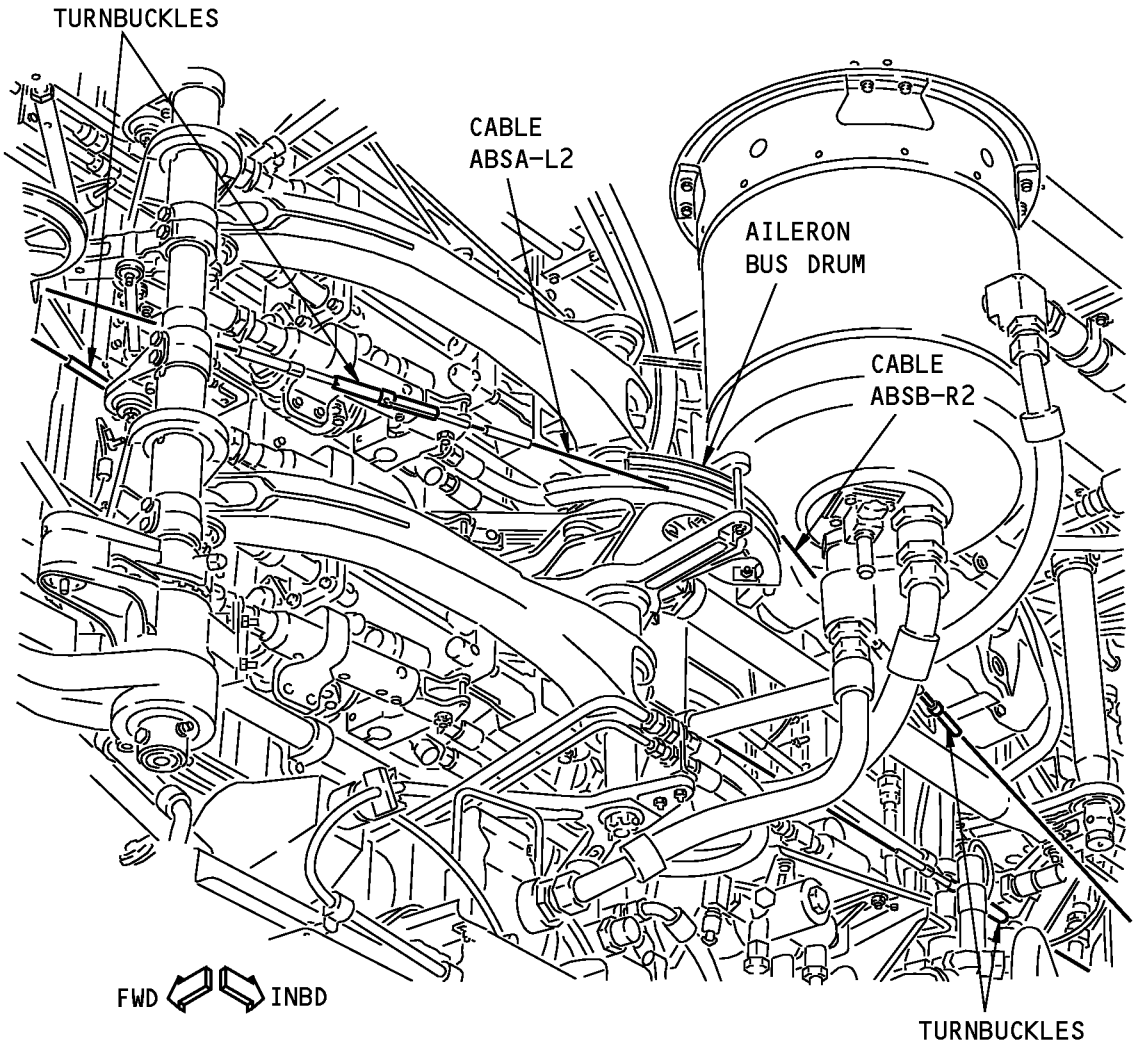

AILERON BUS DRUM
(MAIN LANDING GEAR WHEEL WELL)

C

G28686 S0006568466_V2

Aileron Control Cables
Figure 201 (Sheet 4 of 7)/27-09-14-990-801

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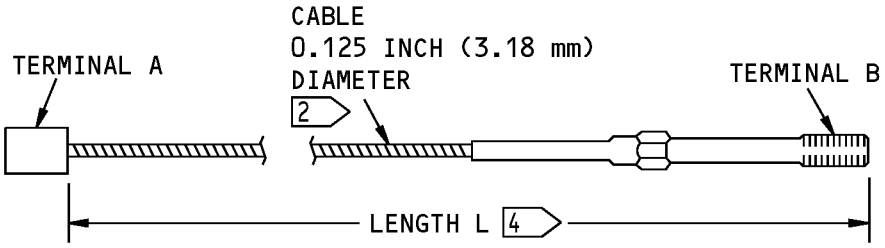
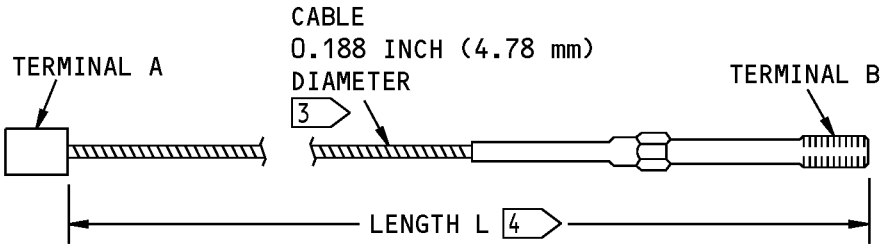
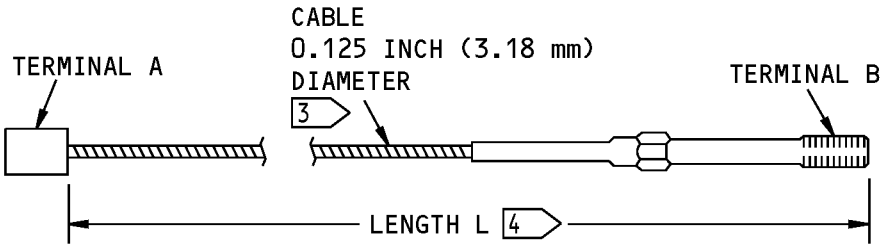


AA-L1, AA-L2, AA-R1, AA-R2,
AB-L1, AB-L2, AB-R1, AB-R2



ABSA-L1, ABSA-L2, ABSA-R1, ABSA-R2,
ABSB-L1, ABSB-L2, ABSB-R1, ABSB-R2



ACBA-L, ACBA-R, ACBB-L, ACBB-R

2 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19

3 CABLE CONSTRUCTION IS CARBON STEEL:
MIL-W-83420, TYPE 1, COMPOSITION A (ZINC), 7 X 19

4 MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

Aileron Control Cables
Figure 201 (Sheet 5 of 7)/27-09-14-990-801

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CABLE NAME	LENGTH L [4] INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B
AA-L1 AA-L2	38.5 ±0.12 (978 ±3) 671.8 ±0.25 (17,064 ±6)	BACT14A BACT14A	MS21260L4RH MS21260L4LH
AA-R1 AA-R2	26.2 ±0.12 (665 ±3) 651.2 ±0.25 (16,540 ±6)	BACT14A BACT14A	MS21260L4LH MS21260L4RH
AB-L1 AB-L2	26.2 ±0.12 (665 ±3) 652.3 ±0.25 (16,568 ±6)	BACT14A BACT14A	MS21260L4LH MS21260L4RH
AB-R1 AB-R2	38.5 ±0.12 (978 ±3) 672.0 ±0.25 (17,069 ±6)	BACT14A BACT14A	MS21260L4RH MS21260L4LH
ABSA-L1 ABSA-L2	439.8 ±0.20 (11,171 ±5) 18.4 ±0.12 (467 ±3)	BACT14A BACT14A	MS21260L6LH MS21260L6RH
ABSA-R1 ABSA-R2	462.9 ±0.20 (11,758 ±5) 35.4 ±0.12 (899 ±3)	BACT14A BACT14A	MS21260L6LH MS21260L6RH
ABSB-L1 ABSB-L2	466.9 ±0.20 (11,859 ±5) 21.7 ±0.12 (551 ±3)	BACT14A BACT14A	MS21260L6RH MS21260L6LH
ABSB-R1 ABSB-R2	449.9 ±0.20 (11,427 ±5) 17.4 ±0.12 (442 ±3)	BACT14A BACT14A	MS21260L6RH MS21260L6LH
ACBA-L	32.1 ±0.12 (815 ±3)	BACT14A	MS21260S4LH
ACBA-R	32.1 ±0.12 (815 ±3)	BACT14A	MS21260S4RH
ACBB-L	32.1 ±0.12 (815 ±3)	BACT14A	MS21260S4RH
ACBB-R	32.1 ±0.12 (815 ±3)	BACT14A	MS21260S4LH

TABLE A

[4] MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

Aileron Control Cables
Figure 201 (Sheet 6 of 7)/27-09-14-990-801

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CABLE NAME	LENGTH L [4] INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B
AA-L1 AA-L2	38.5 ±0.12 (978 ±3) 553.6 ±0.25 (14,061 ±6)	BACT14A BACT14A	MS21260L4RH MS21260L4LH
AA-R1 AA-R2	26.2 ±0.12 (666 ±3) 533.6 ±0.25 (13,546 ±6)	BACT14A BACT14A	MS21260L4LH MS21260L4RH
AB-L1 AB-L2	26.2 ±0.12 (666 ±3) 534.5 ±0.25 (13,576 ±6)	BACT14A BACT14A	MS21260L4LH MS21260L4RH
AB-R1 AB-R2	38.5 ±0.12 (978 ±3) 553.7 ±0.25 (14,069 ±6)	BACT14A BACT14A	MS21260L4RH MS21260L4LH
ABSA-L1 ABSA-L2	439.8 ±0.20 (11,171 ±5) 18.4 ±0.12 (467 ±3)	BACT14A BACT14A	MS21260L6LH MS21260L6RH
ABSA-R1 ABSA-R2	462.9 ±0.20 (11,758 ±5) 35.4 ±0.12 (899 ±3)	BACT14A BACT14A	MS21260L6LH MS21260L6RH
ABSB-L1 ABSB-L2	466.9 ±0.20 (11,859 ±5) 21.7 ±0.12 (551 ±3)	BACT14A BACT14A	MS21260L6RH MS21260L6LH
ABSB-R1 ABSB-R2	449.9 ±0.20 (11,427 ±5) 17.4 ±0.12 (442 ±3)	BACT14A BACT14A	MS21260L6RH MS21260L6LH
ACBA-L	32.1 ±0.12 (815 ±3)	BACT14A	MS21260S4LH
ACBA-R	32.1 ±0.12 (815 ±3)	BACT14A	MS21260S4RH
ACBB-L	32.1 ±0.12 (815 ±3)	BACT14A	MS21260S4RH
ACBB-R	32.1 ±0.12 (815 ±3)	BACT14A	MS21260S4LH

TABLE A

[4] MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

Aileron Control Cables
Figure 201 (Sheet 7 of 7)/27-09-14-990-801

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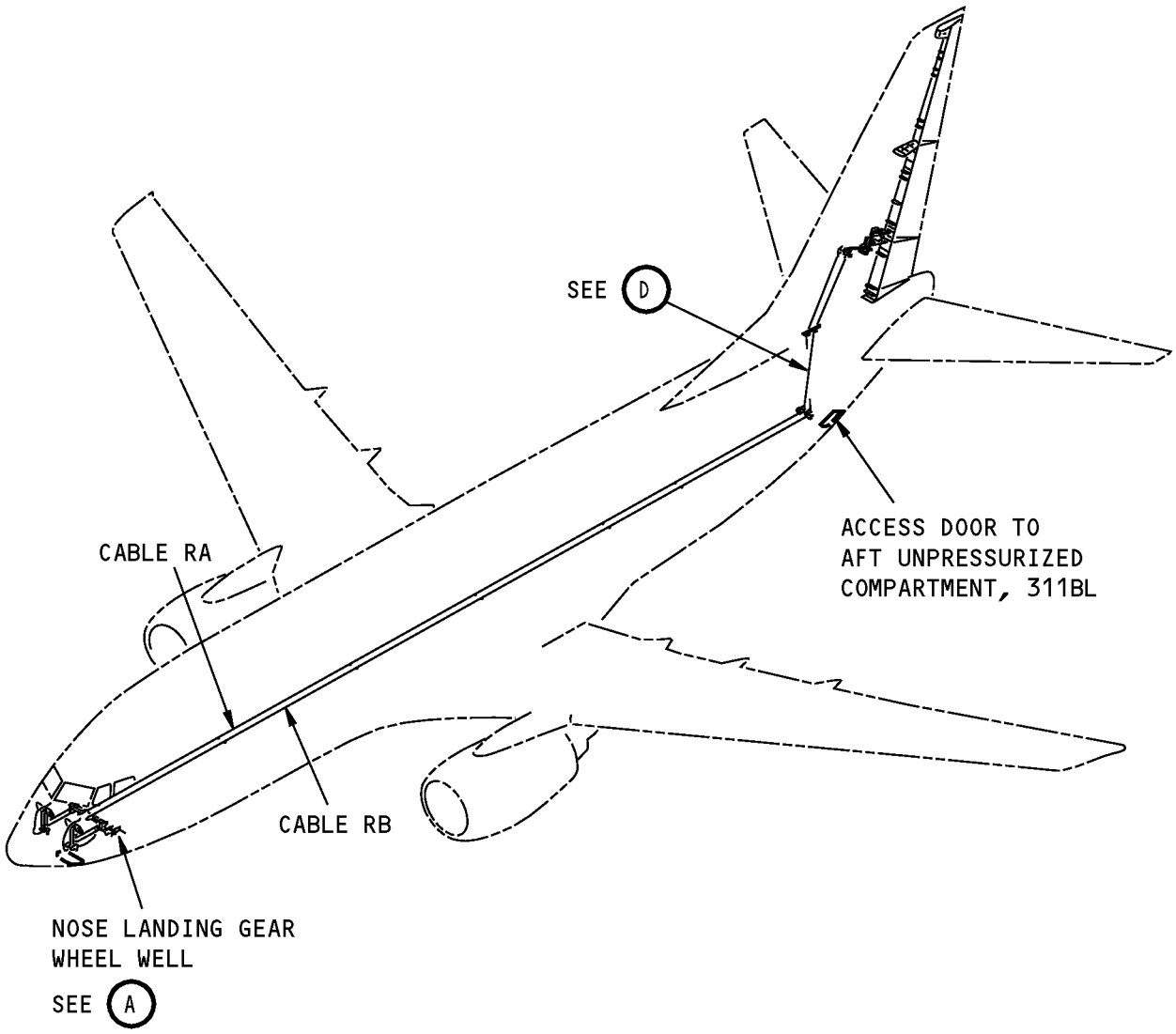

Rudder Control Cables
Figure 202 (Sheet 1 of 6)/27-09-14-990-802

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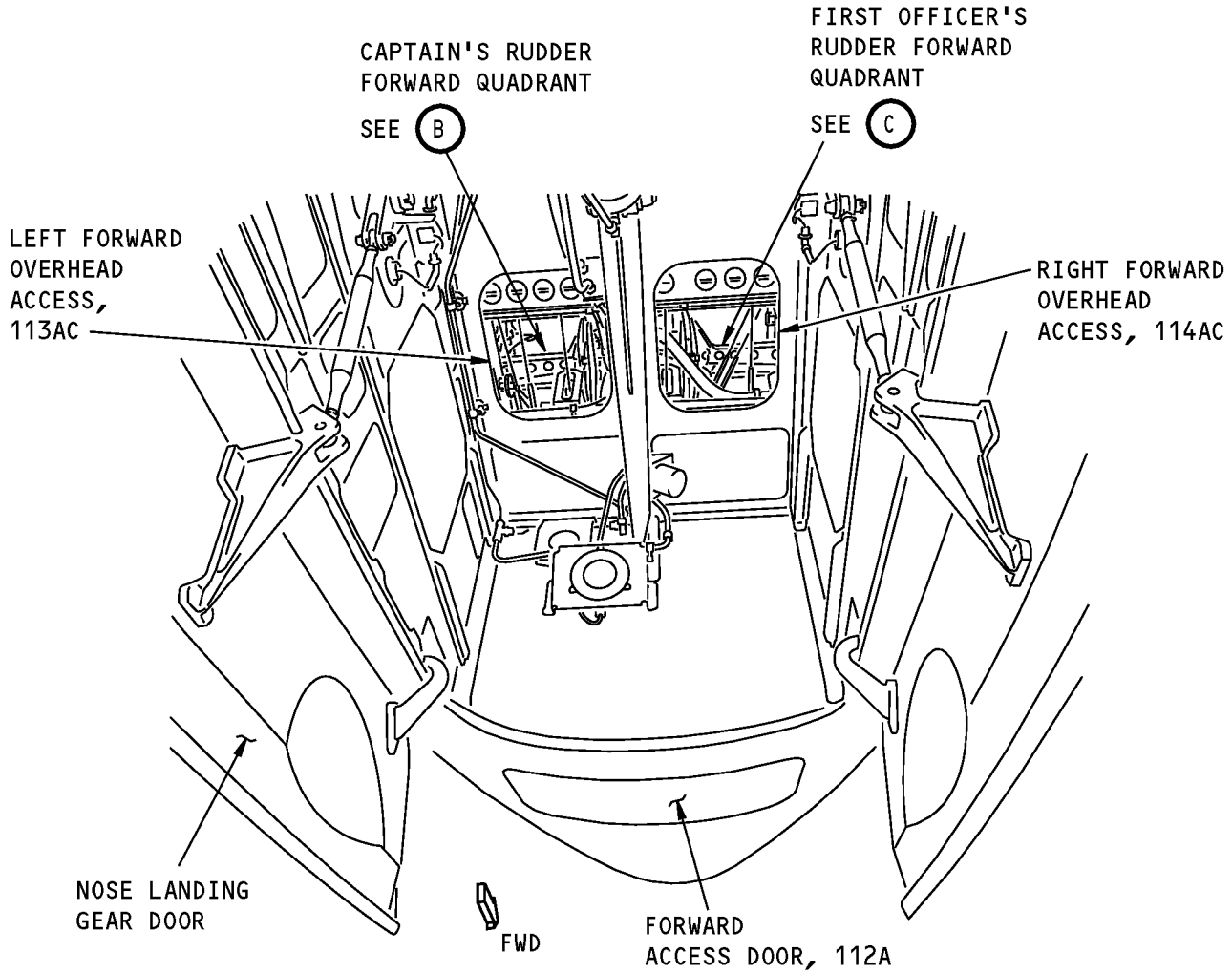

NOSE LANDING GEAR WHEEL WELL
A

Rudder Control Cables
Figure 202 (Sheet 2 of 6)/27-09-14-990-802

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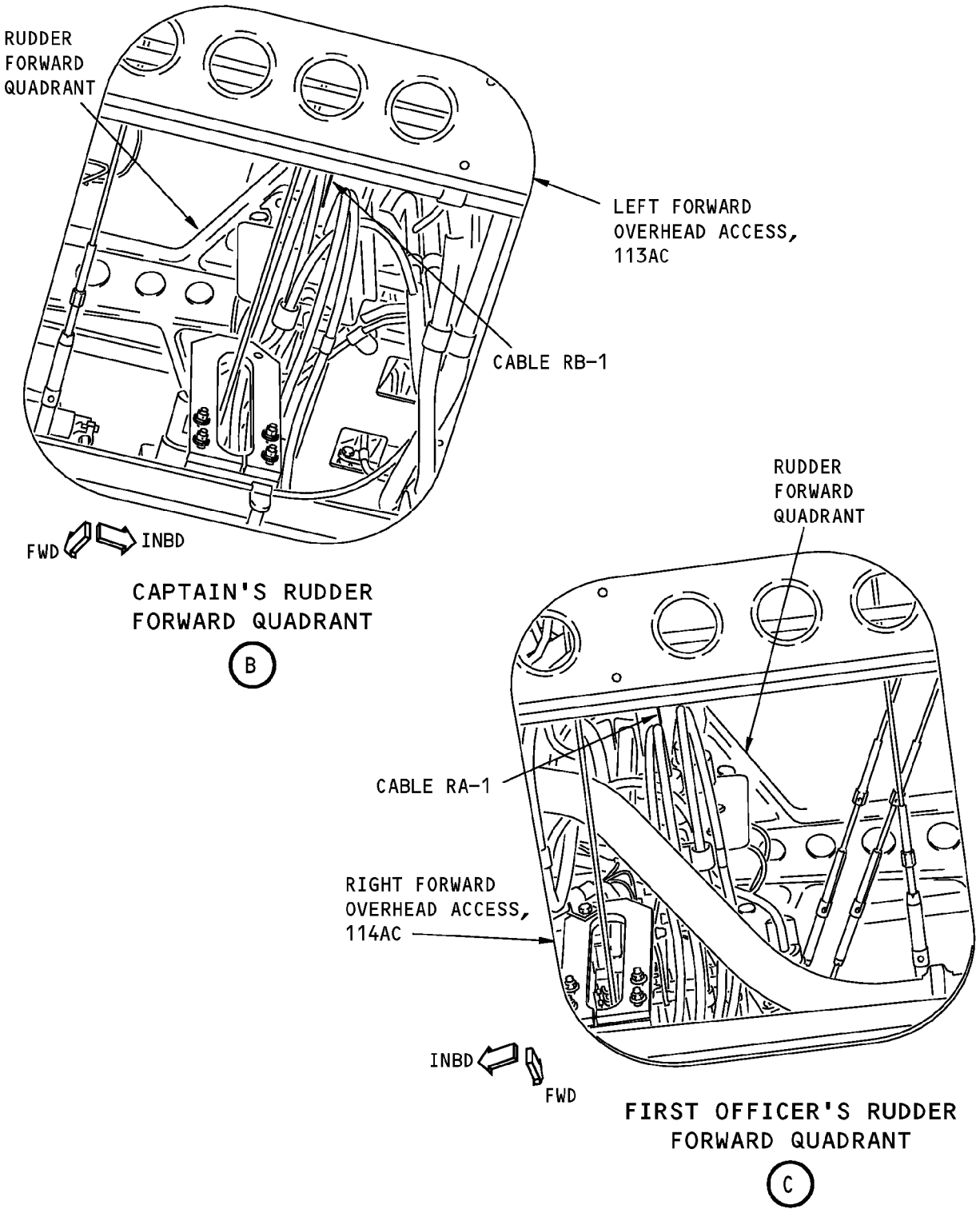

Rudder Control Cables
Figure 202 (Sheet 3 of 6)/27-09-14-990-802

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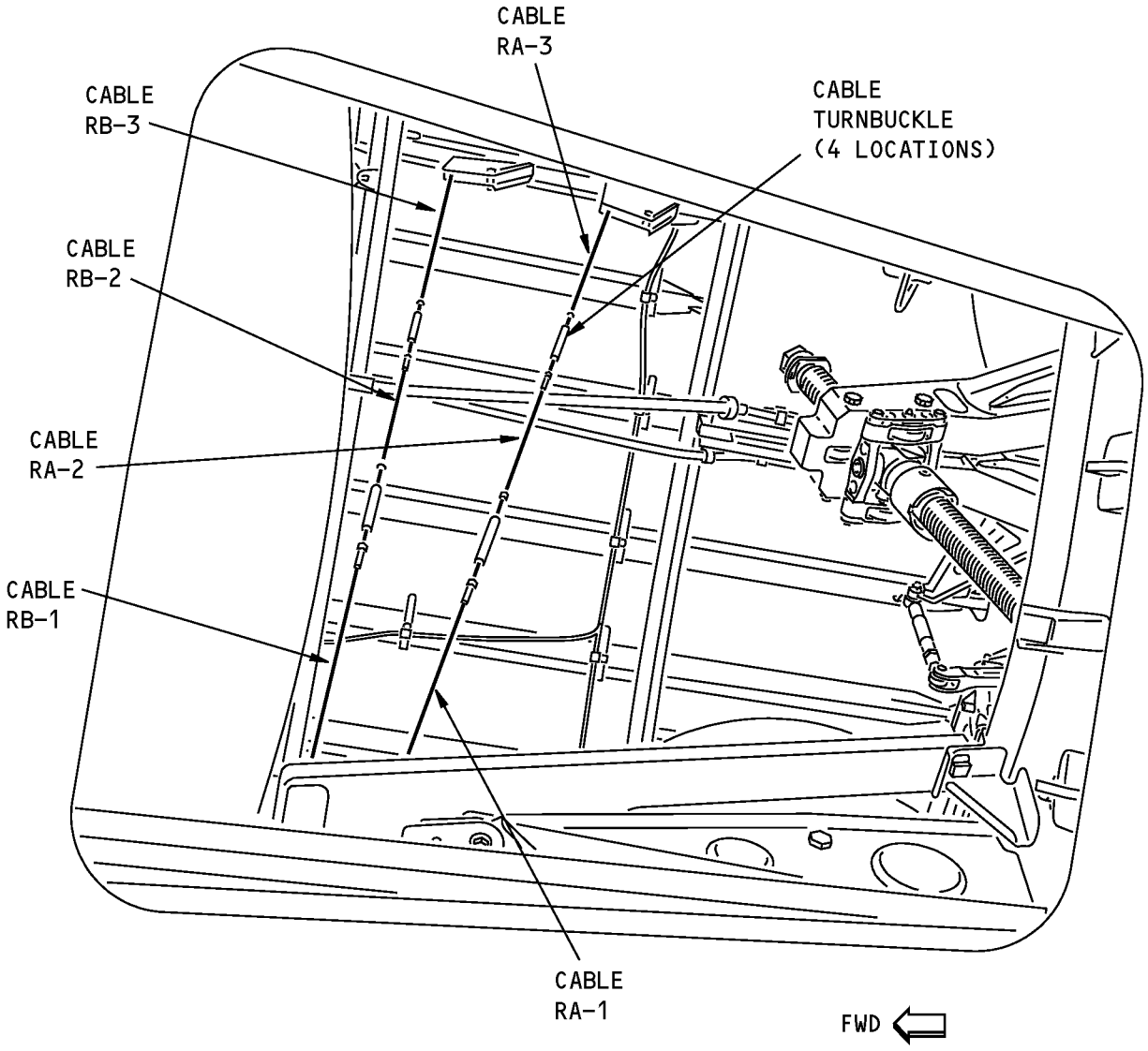

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

(D)

Rudder Control Cables
Figure 202 (Sheet 4 of 6)/27-09-14-990-802

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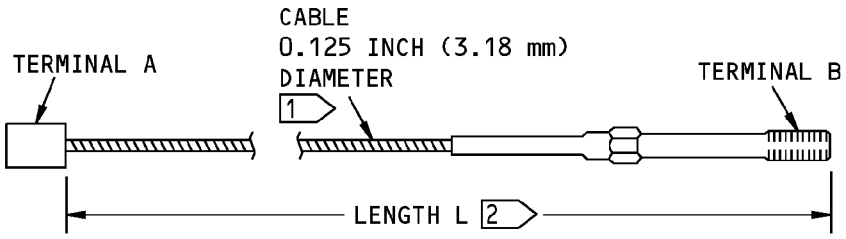
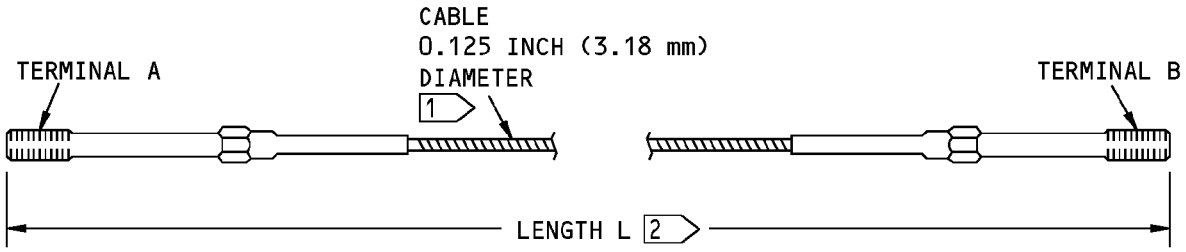


RA-1, RA-3, RB-1, RB-3



RA-2, RB-2

CABLE NAME		LENGTH L 2 INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B
RIGHT SIDE	RA-1	1272.5 ±0.50 (32,321 ±13)	BACT14A	MS21260L4RH
	RA-2	18.8 ±0.12 (478 ±3)	MS21260L4RH	MS21260L4LH
	RA-3	111.0 ±0.12 (2,819 ±3)	BACT14A	MS21260L4LH
LEFT SIDE	RB-1	1265.2 ±0.50 (32,136 ±13)	BACT14A	MS21260L4LH
	RB-2	18.8 ±0.12 (478 ±3)	MS21260L4RH	MS21260L4LH
	RB-3	123.7 ±0.12 (3,142 ±3)	BACT14A	MS21260L4RH

TABLE A

1 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19

2 MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

Rudder Control Cables
Figure 202 (Sheet 5 of 6)/27-09-14-990-802

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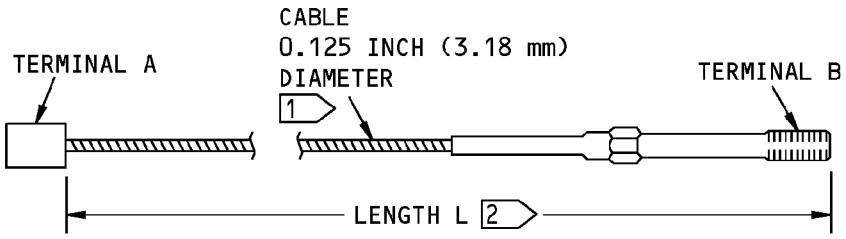
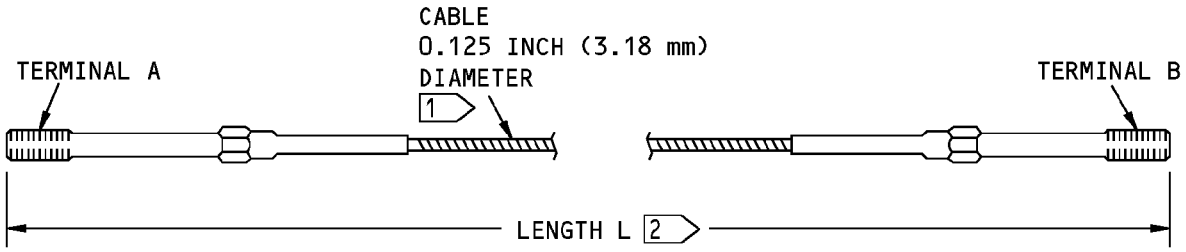


RA-1, RA-3, RB-1, AND RB-3



RA-2 AND RB-2

CABLE NAME		LENGTH L 2 INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B
RIGHT SIDE	RA-1	1042.5 ±0.38 (26,479 ±13)	BACT14A	MS21260L4RH
	RA-2	18.8 ±0.12 (478 ±3)	MS21260L4RH	MS21260L4LH
	RA-3	111.0 ±0.12 (2,819 ±3)	BACT14A	MS21260L4LH
LEFT SIDE	RB-1	1035.2 ±0.38 (26,294 ±13)	BACT14A	MS21260L4LH
	RB-2	18.8 ±0.12 (478 ±3)	MS21260L4RH	MS21260L4LH
	RB-3	123.7 ±0.12 (3,142 ±3	BACT14A	MS21260L4RH

TABLE A

1 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19

2 MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

Rudder Control Cables
Figure 202 (Sheet 6 of 6)/27-09-14-990-802

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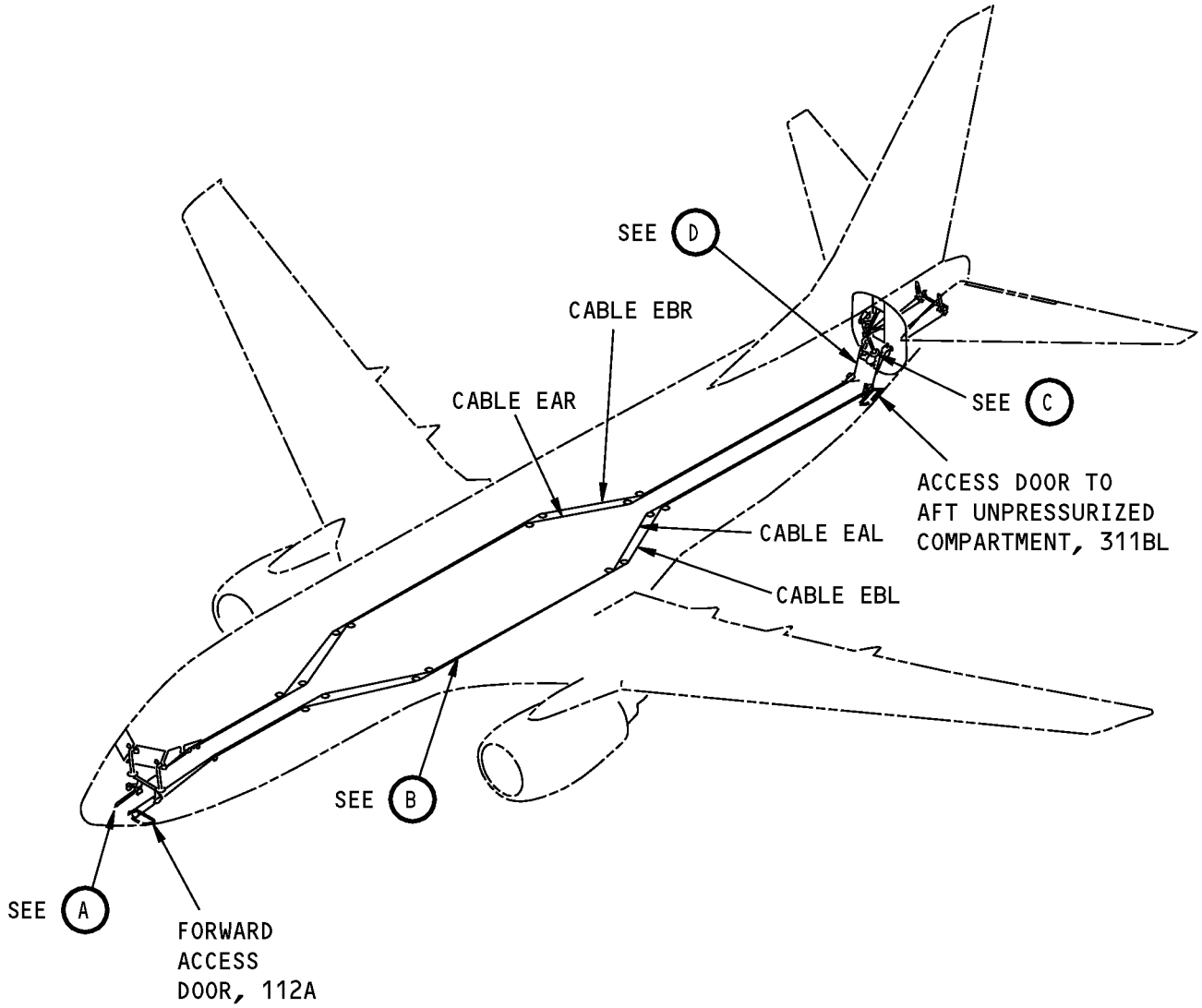

Elevator Control Cables
Figure 203 (Sheet 1 of 9)/27-09-14-990-803

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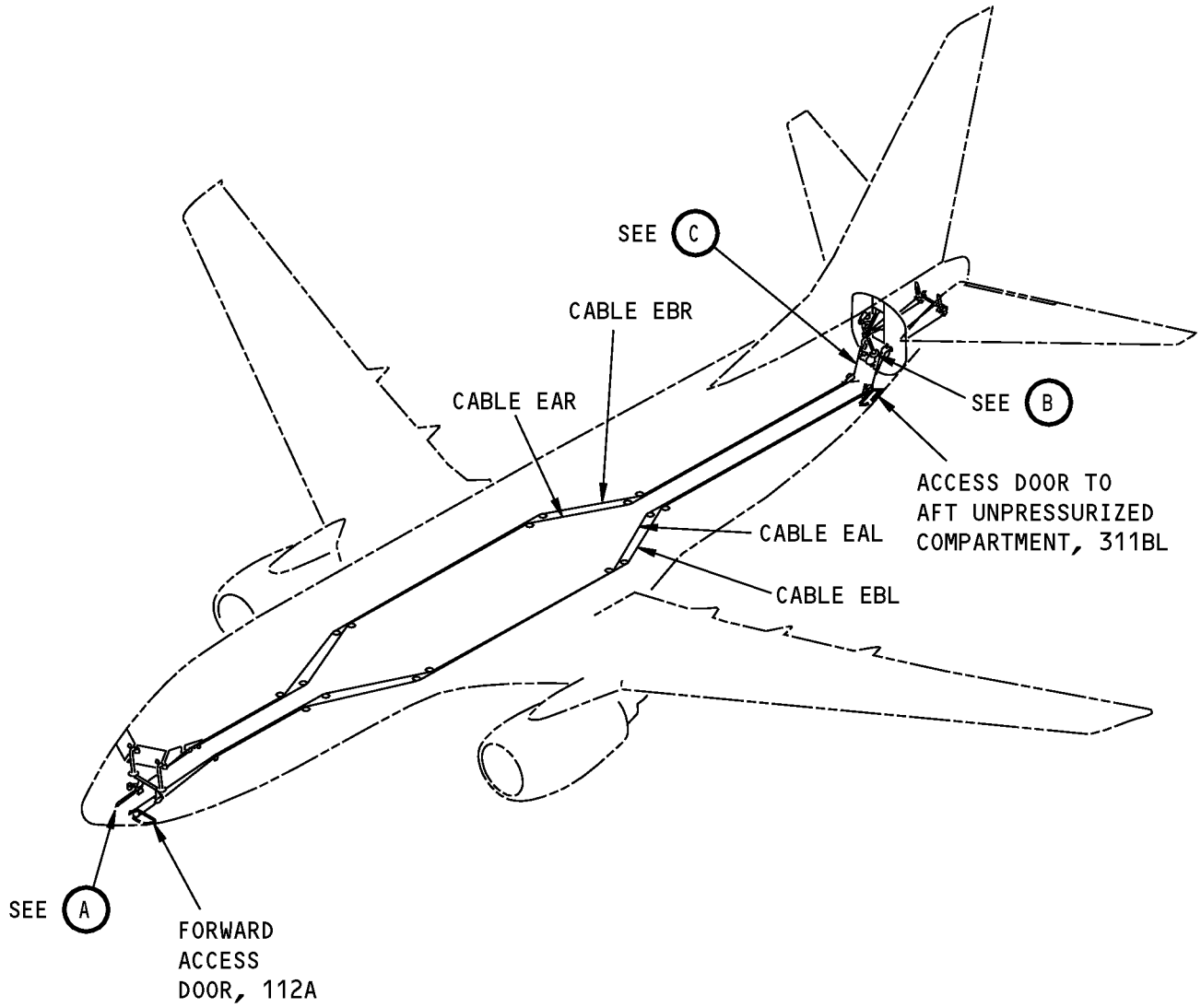

Elevator Control Cables
Figure 203 (Sheet 2 of 9)/27-09-14-990-803

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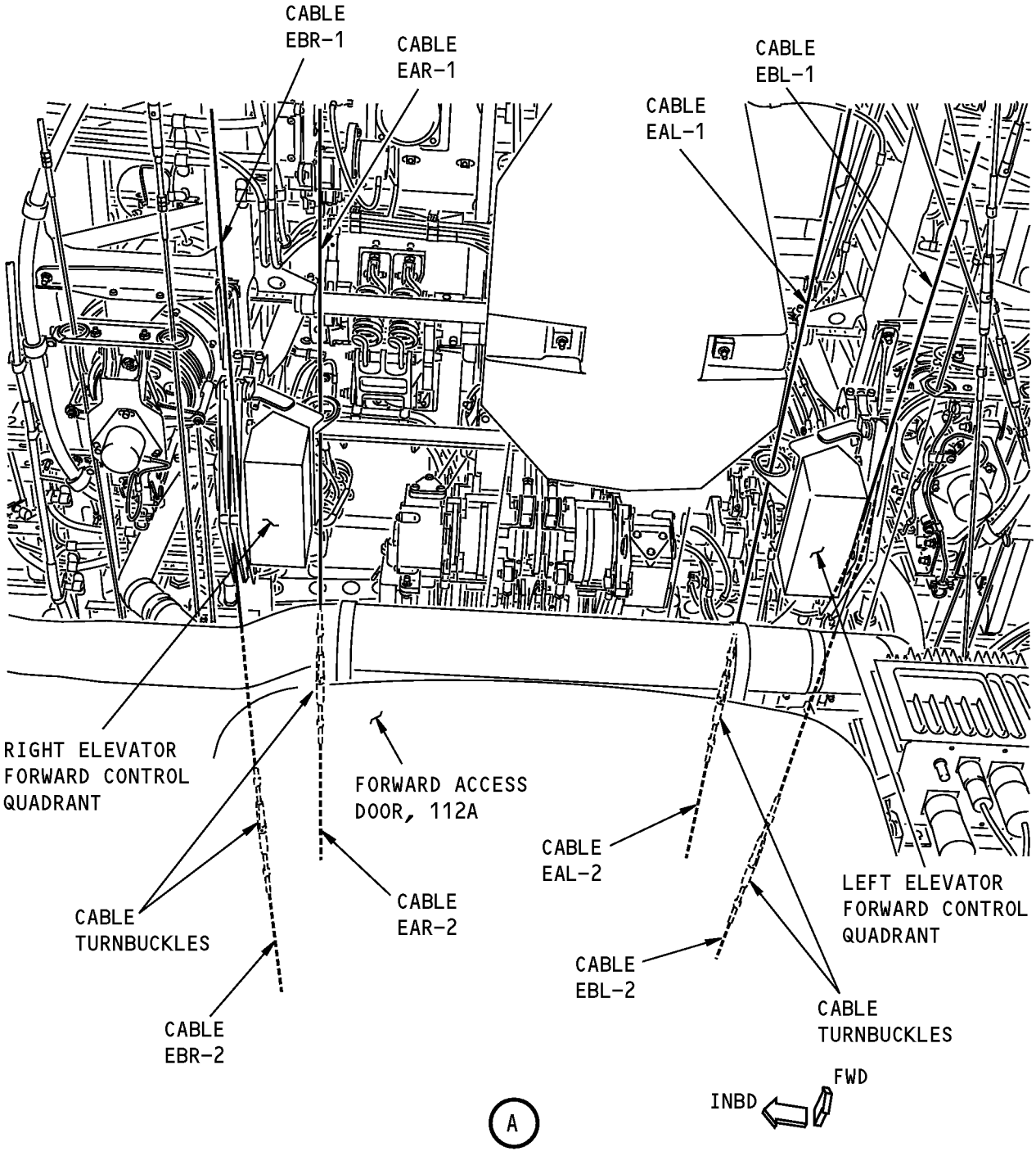

Elevator Control Cables
Figure 203 (Sheet 3 of 9)/27-09-14-990-803

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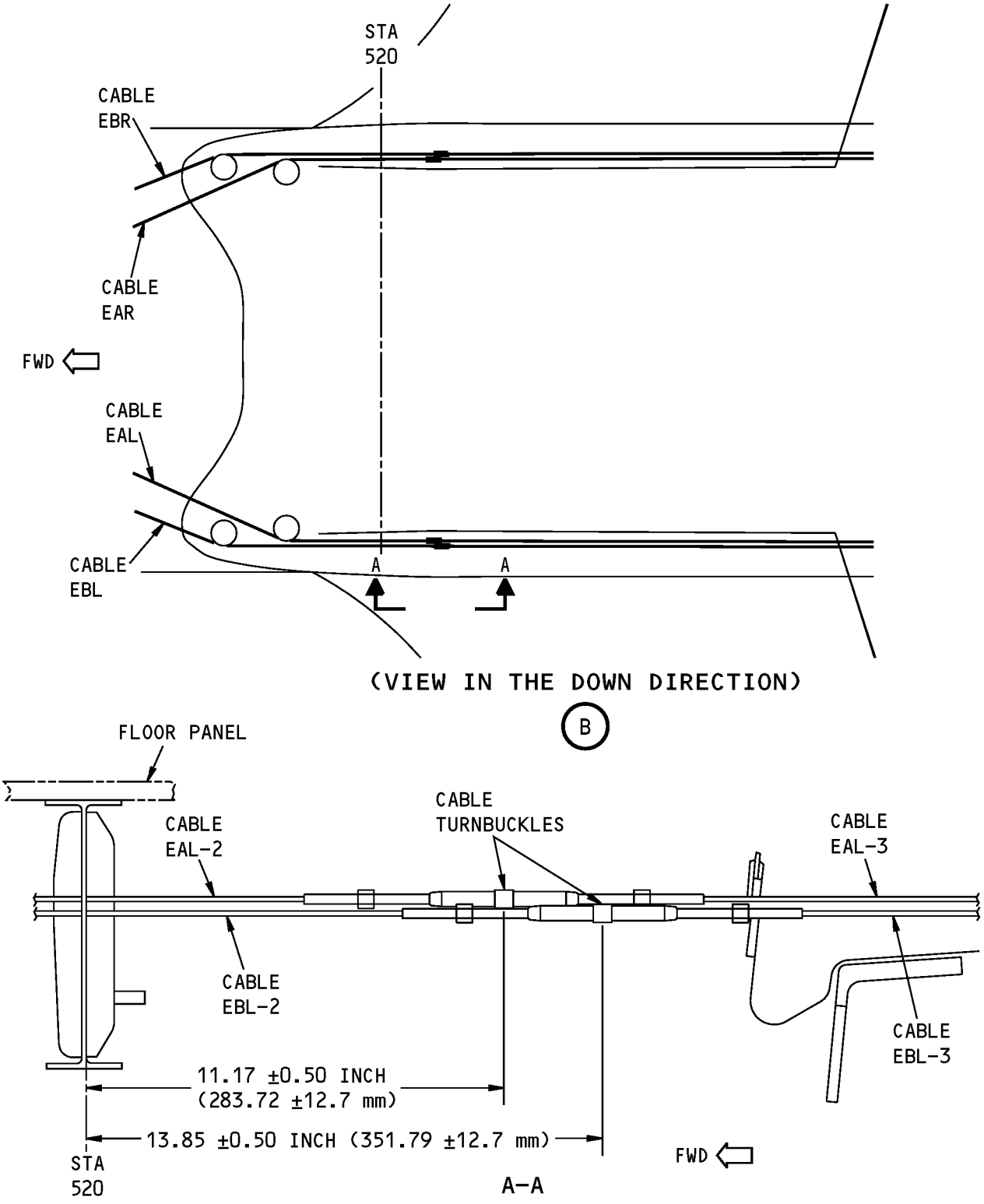

Elevator Control Cables
Figure 203 (Sheet 4 of 9)/27-09-14-990-803

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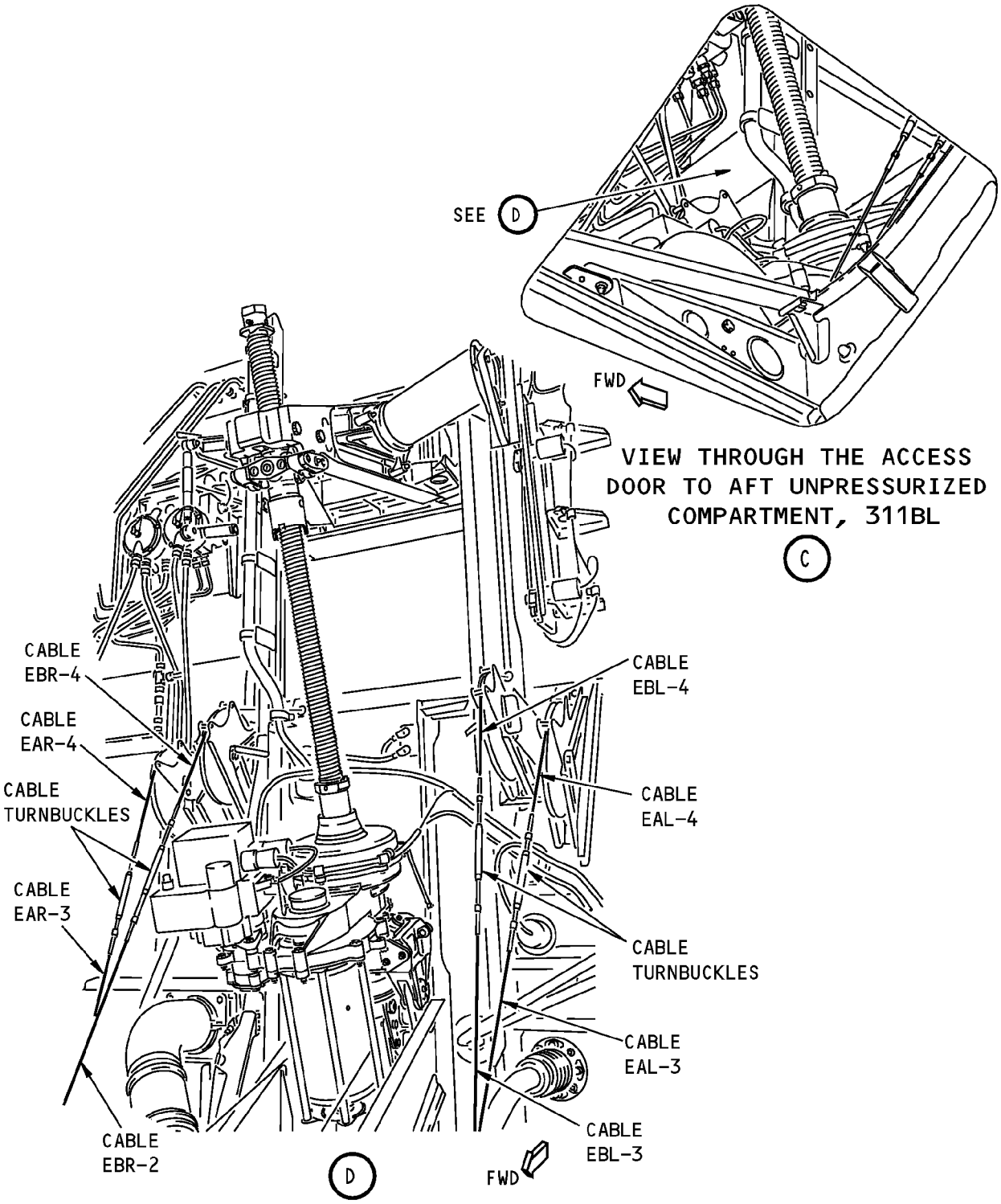

Elevator Control Cables
Figure 203 (Sheet 5 of 9)/27-09-14-990-803

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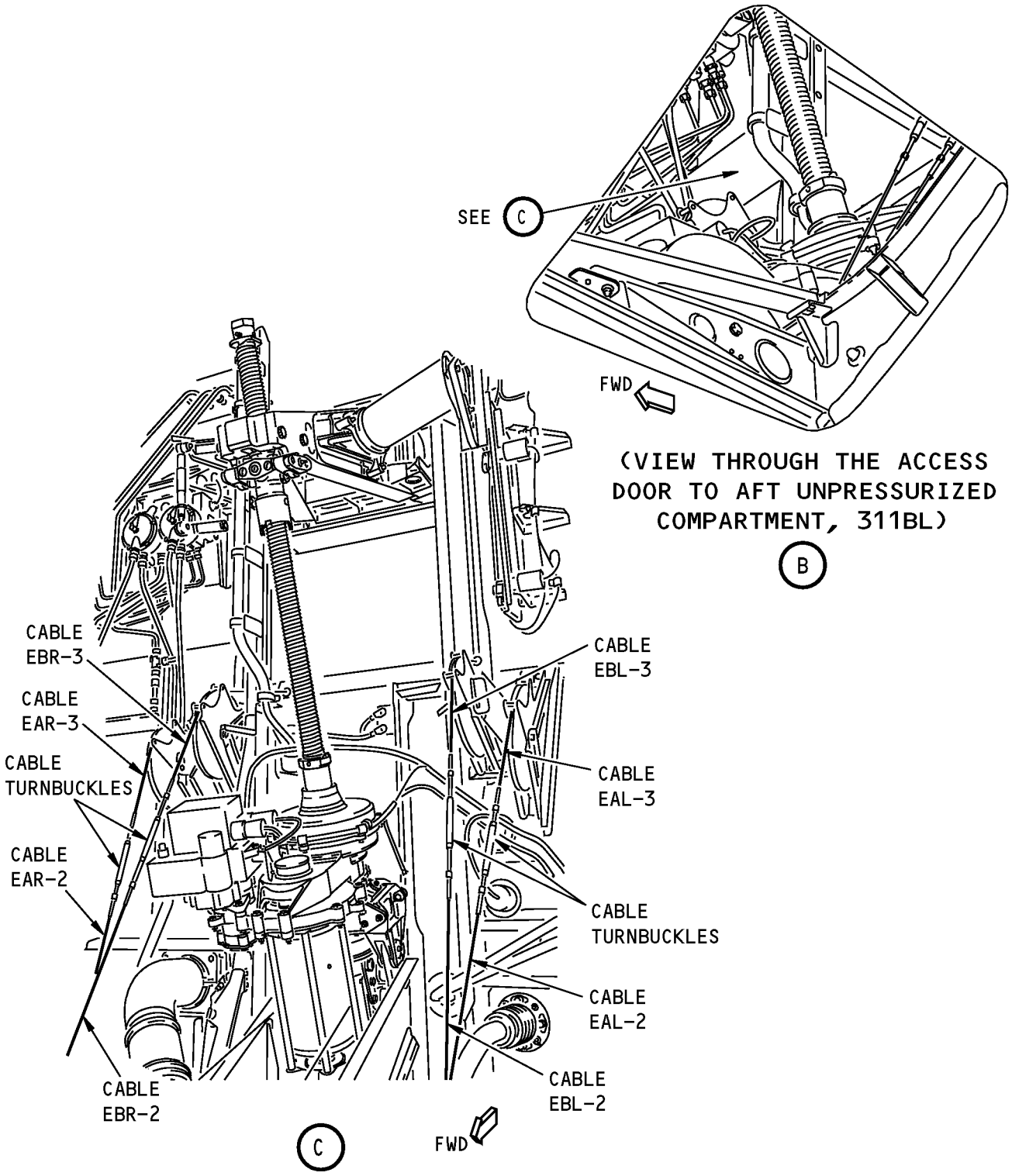

Elevator Control Cables
Figure 203 (Sheet 6 of 9)/27-09-14-990-803

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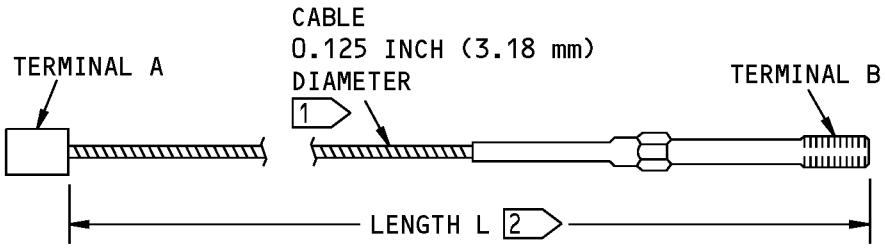
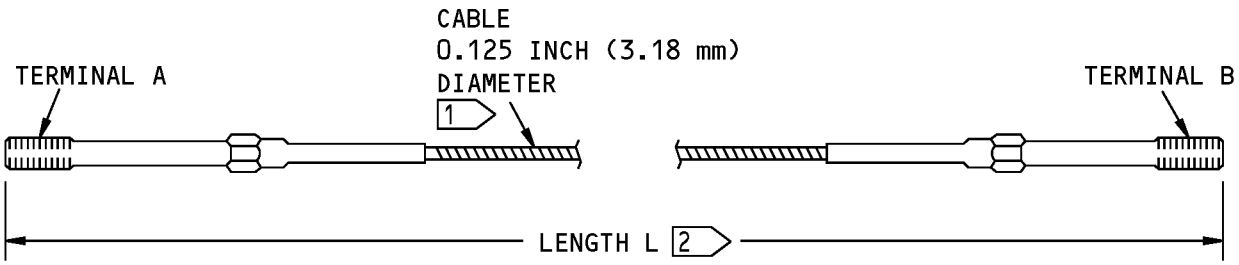


EAL-1, EAL-3, EAR-1, EAR-3, EBL-1, EBL-3, EBR-1, AND EBR-3



EAL-2, EAR-2, EBL-2, AND EBR-2

CABLE NAME		LENGTH L 2 INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B
LEFT SIDE	EAL-1	97.6 ±0.12 (2,479 ±3)	BACT14A	MS21260L4LH
	EAL-2	384.9 ±0.20 (9,776 ±5)	MS21260L4RH	MS21260L4LH
	EAL-3	668.6 ±0.25 (16,982 ±6)	MS21260L4RH	MS21260L4RH
	EAL-4	102.8 ±0.12 (2,611 ±3)	BACT14A	MS21260L4LH
RIGHT SIDE	EAR-1	97.6 ±0.12 (2,479 ±3)	BACT14A	MS21260L4LH
	EAR-2	384.9 ±0.20 (9,776 ±5)	MS21260L4RH	MS21260L4LH
	EAR-3	668.6 ±0.25 (16,982 ±6)	MS21260L4RH	MS21260L4RH
	EAR-4	102.8 ±0.12 (2,611 ±3)	BACT14A	MS21260L4LH
LEFT SIDE	EBL-1	31.5 ±0.12 (800 ±3)	BACT14A	MS21260L4RH
	EBL-2	377.8 ±0.20 (9,596 ±5)	MS21260L4RH	MS21260L4LH
	EBL-3	666.7 ±0.25 (16,934 ±6)	MS21260L4LH	MS21260L4LH
	EBL-4	102.1 ±0.12 (2,593 ±3)	BACT14A	MS21260L4RH
RIGHT SIDE	EBR-1	31.5 ±0.12 (800 ±3)	BACT14A	MS21260L4RH
	EBR-2	377.8 ±0.20 (9,596 ±5)	MS21260L4RH	MS21260L4LH
	EBR-3	666.7 ±0.25 (16,934 ±6)	MS21260L4LH	MS21260L4LH
	EBR-4	102.1 ±0.12 (2,593 ±3)	BACT14A	MS21260L4RH

TABLE A

1 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19

2 MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

Elevator Control Cables
Figure 203 (Sheet 7 of 9)/27-09-14-990-803

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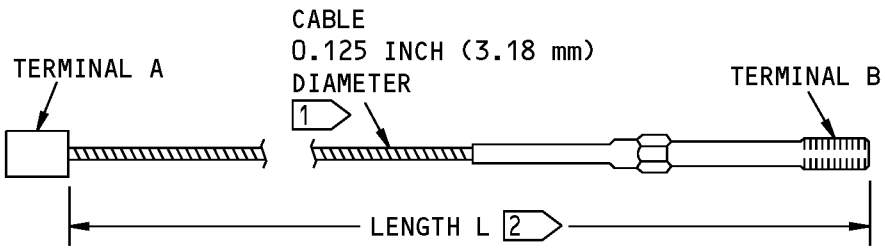
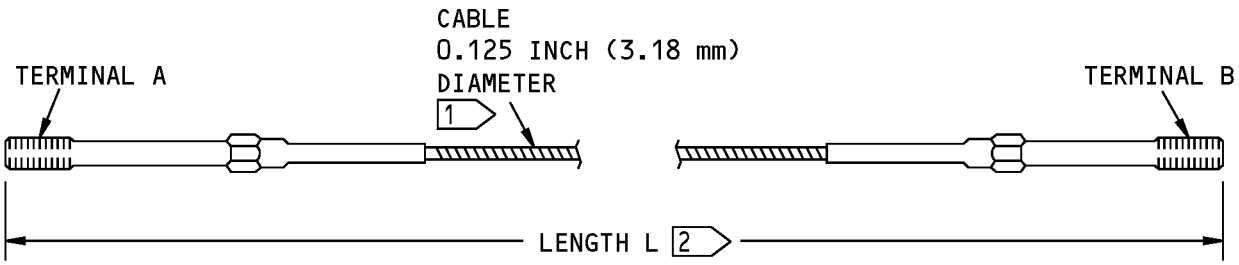


EAL-1, EAL-3, EAR-1, EAR-3, EBL-1, EBL-3, EBR-1, EBR-3



EAL-2, EAR-2, EBL-2, EBR-2

CABLE NAME		LENGTH L 2 INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B
LEFT SIDE	EAL-1	97.6 ±0.12 (2,479 ±3)	BACT14A	MS21260L4LH
	EAL-2	1284.4 ±0.38 (19,812 ±9)	MS21260L4RH	MS21260L4RH
	EAL-3	102.8 ±0.12 (2,611 ±3)	BACT14A	MS21260L4LH
RIGHT SIDE	EAR-1	97.6 ±0.12 (2,479 ±3)	BACT14A	MS21260L4LH
	EAR-2	1284.4 ±0.38 (19,812 ±9)	MS21260L4RH	MS21260L4RH
	EAR-3	102.8 ±0.12 (2,611 ±3)	BACT14A	MS21260L4LH
LEFT SIDE	EBL-1	31.5 ±0.12 (800 ±3)	BACT14A	MS21260L4RH
	EBL-2	1276.5 ±0.38 (19,771 ±9)	MS21260L4LH	MS21260L4LH
	EBL-3	102.1 ±0.12 (2,593 ±3)	BACT14A	MS21260L4RH
RIGHT SIDE	EBR-1	31.5 ±0.12 (800 ±3)	BACT14A	MS21260L4RH
	EBR-2	1276.5 ±0.38 (19,771 ±9)	MS21260L4LH	MS21260L4LH
	EBR-3	102.1 ±0.12 (2,593 ±3)	BACT14A	MS21260L4RH

TABLE A

1 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19

2 MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

Elevator Control Cables
Figure 203 (Sheet 8 of 9)/27-09-14-990-803

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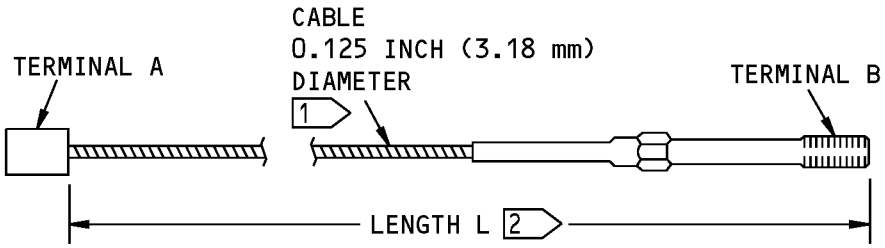
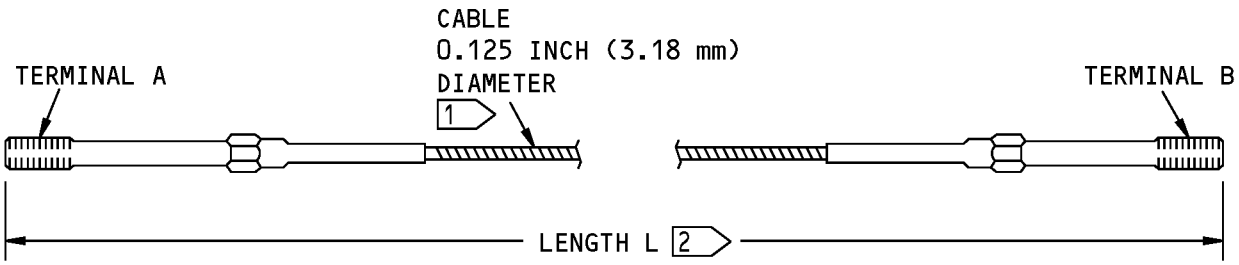


EAL-1, EAL-3, EAR-1, EAR-3, EBL-1, EBL-3, EBR-1, EBR-3



EAL-2, EAR-2, EBL-2, EBR-2

CABLE NAME		LENGTH L 2 INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B
LEFT SIDE	EAL-1	97.6 ±0.12 (2,479 ±3)	BACT14A	MS21260L4LH
	EAL-2	502.2 ±0.25 (12,756 ±6)	MS21260L4RH	MS21260L4LH
	EAL-3	780.0 ±0.38 (19,812 ±9)	MS21260L4RH	MS21260L4RH
	EAL-4	102.8 ±0.12 (2,611 ±3)	BACT14A	MS21260L4LH
RIGHT SIDE	EAR-1	97.6 ±0.12 (2,479 ±3)	BACT14A	MS21260L4LH
	EAR-2	502.2 ±0.25 (12,756 ±6)	MS21260L4RH	MS21260L4LH
	EAR-3	780.0 ±0.38 (19,812 ±9)	MS21260L4RH	MS21260L4RH
	EAR-4	102.8 ±0.12 (2,611 ±3)	BACT14A	MS21260L4LH
LEFT SIDE	EBL-1	31.5 ±0.12 (800 ±3)	BACT14A	MS21260L4RH
	EBL-2	495.8 ±0.25 (12,593 ±6)	MS21260L4RH	MS21260L4LH
	EBL-3	778.4 ±0.38 (19,771 ±9)	MS21260L4LH	MS21260L4LH
	EBL-4	102.1 ±0.12 (2,593 ±3)	BACT14A	MS21260L4RH
RIGHT SIDE	EBR-1	31.5 ±0.12 (800 ±3)	BACT14A	MS21260L4RH
	EBR-2	495.8 ±0.25 (12,593 ±6)	MS21260L4RH	MS21260L4LH
	EBR-3	778.4 ±0.38 (19,771 ±9)	MS21260L4LH	MS21260L4LH
	EBR-4	102.1 ±0.12 (2,593 ±3)	BACT14A	MS21260L4RH

TABLE A

1 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19

2 MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

Elevator Control Cables
Figure 203 (Sheet 9 of 9)/27-09-14-990-803

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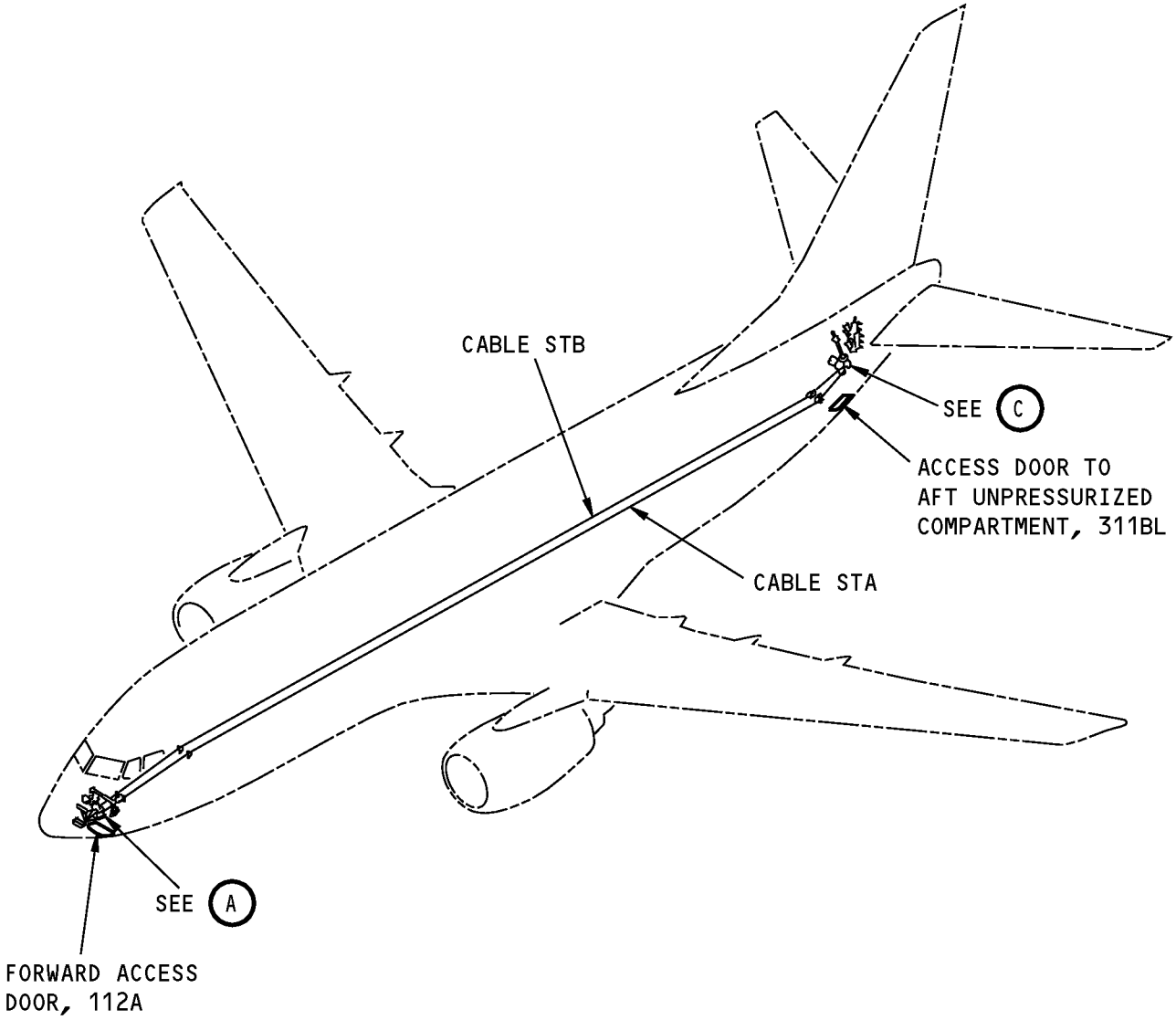

Stabilizer Control Cables
Figure 204 (Sheet 1 of 7)/27-09-14-990-804

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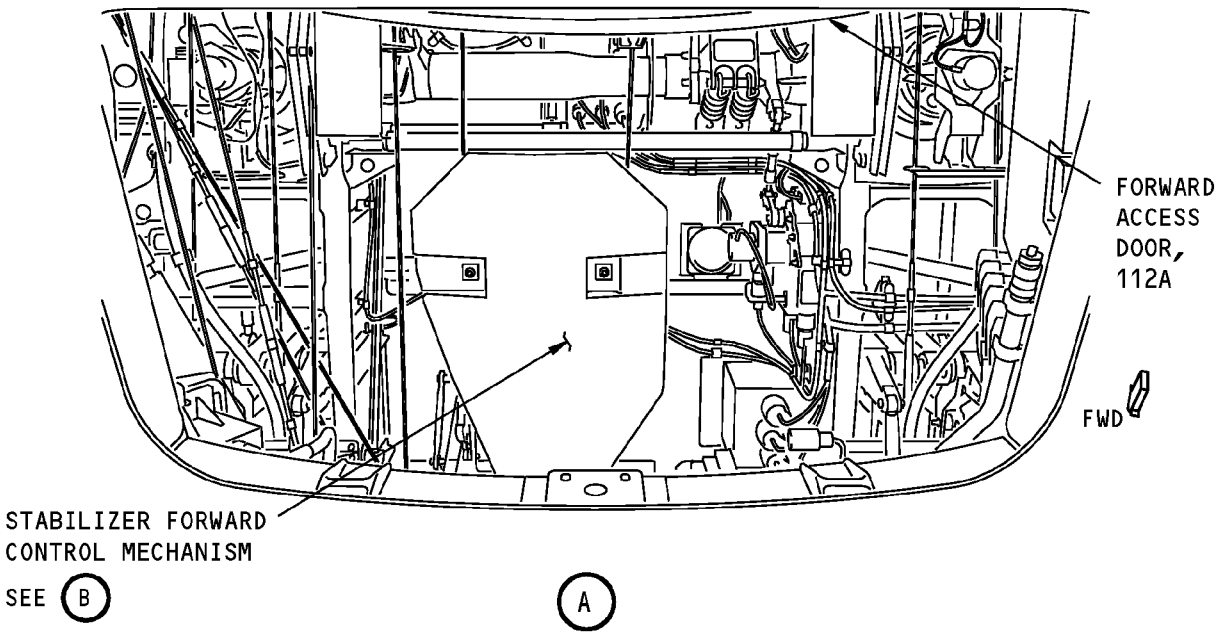

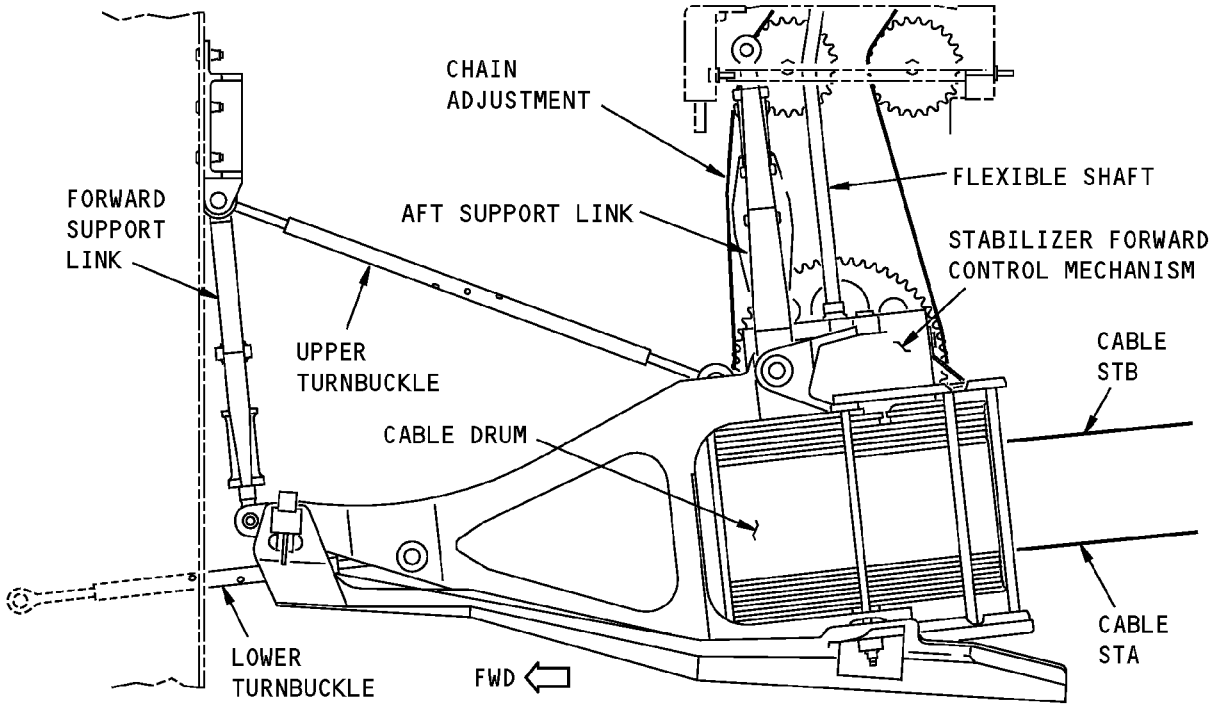

STABILIZER FORWARD CONTROL MECHANISM

B

Stabilizer Control Cables
Figure 204 (Sheet 2 of 7)/27-09-14-990-804

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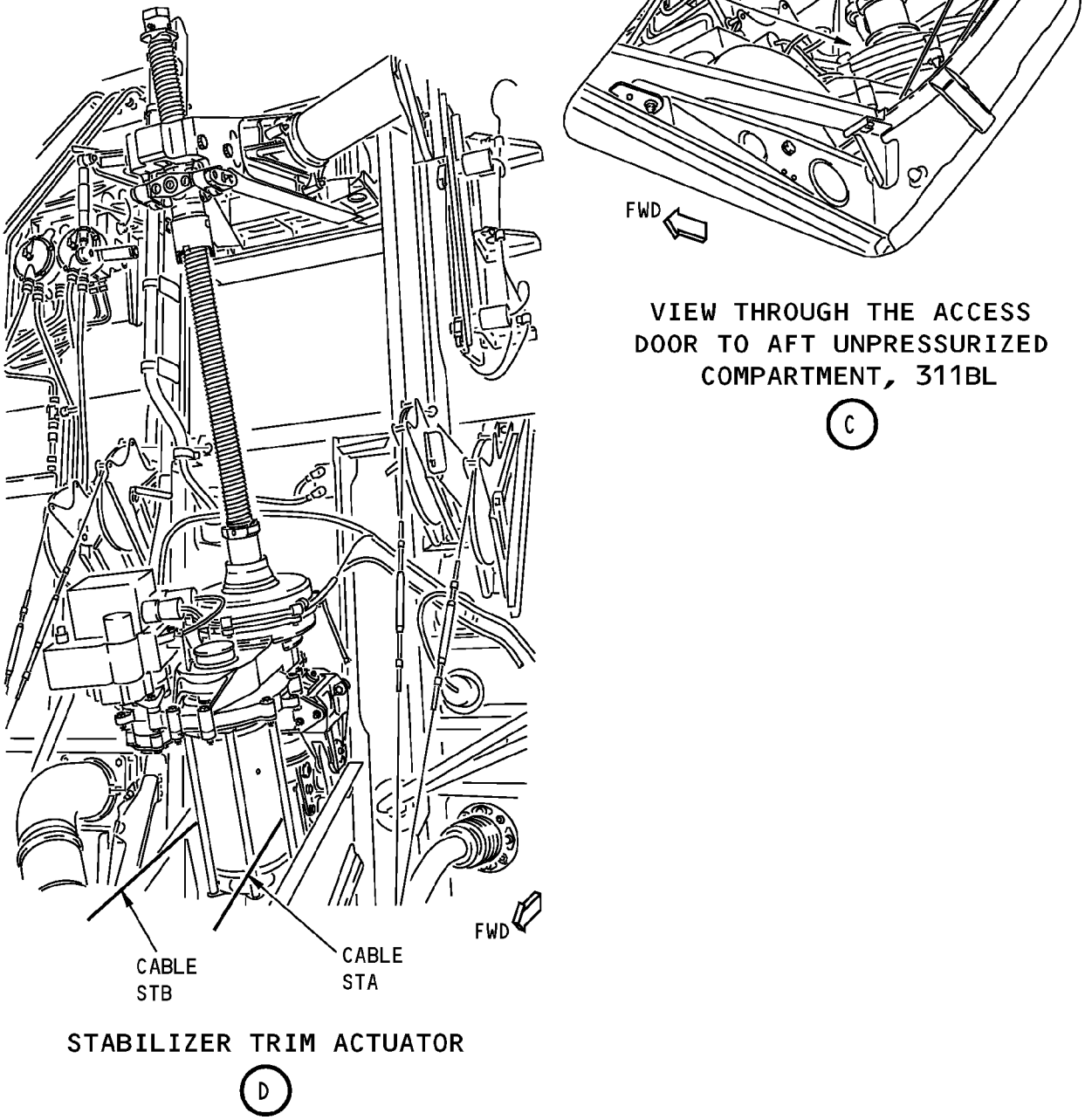

Stabilizer Control Cables
Figure 204 (Sheet 3 of 7)/27-09-14-990-804

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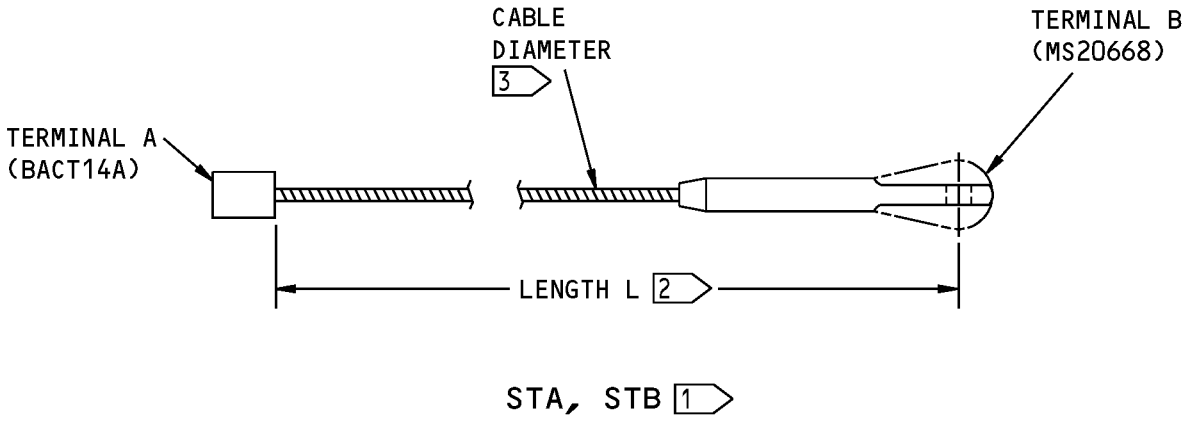

1 CABLE CONSTRUCTION IS CARBON STEEL: BMS 7-265, TYPE 1, (TIN OVER ZINC), 7 X 19.

2 MEASURE CABLE LENGTH WITH A LOAD OF 140 ±5 POUNDS (623 ±22 NEWTONS) OF FORCE. SEE TABLE A.

3 MEASURE THE NEW CABLE DIAMETER AT 3 PLACES AND AVERAGE. THIS CABLE DIAMETER MEASUREMENT SHOULD NOT BE TAKEN WHILE THE CABLE IS UNDER LOAD.

Stabilizer Control Cables
Figure 204 (Sheet 4 of 7)/27-09-14-990-804

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CABLE DIAMETER 3	CABLE LENGTH L INCHES (METERS) 2	
	STA (LEFT)	STB (RIGHT)
0.125	1969.55 ±0.50 (50.027 ±0.013)	1956.02 ±0.50 (49.683 ±0.013)
0.126	1969.69 ±0.50 (50.030 ±0.013)	1956.16 ±0.50 (49.686 ±0.013)
0.127	1969.83 ±0.50 (50.034 ±0.013)	1956.30 ±0.50 (49.690 ±0.013)
0.128	1969.97 ±0.50 (50.037 ±0.013)	1956.44 ±0.50 (49.694 ±0.013)
0.129	1970.11 ±0.50 (50.041 ±0.013)	1956.58 ±0.50 (49.697 ±0.013)
0.130	1970.25 ±0.50 (50.044 ±0.013)	1956.72 ±0.50 (49.701 ±0.013)
0.131	1970.39 ±0.50 (50.048 ±0.013)	1956.86 ±0.50 (49.704 ±0.013)
0.132	1970.53 ±0.50 (50.051 ±0.013)	1957.00 ±0.50 (49.708 ±0.013)
0.133	1970.67 ±0.50 (50.055 ±0.013)	1957.14 ±0.50 (49.712 ±0.013)
0.134	1970.81 ±0.50 (50.059 ±0.013)	1957.28 ±0.50 (49.715 ±0.013)
0.135	1970.95 ±0.50 (50.062 ±0.013)	1957.42 ±0.50 (49.718 ±0.013)
0.136	1971.09 ±0.50 (50.066 ±0.013)	1957.56 ±0.50 (49.722 ±0.013)
0.137	1971.23 ±0.50 (50.069 ±0.013)	1957.70 ±0.50 (49.726 ±0.013)
0.138	1971.37 ±0.50 (50.073 ±0.013)	1957.84 ±0.50 (49.729 ±0.013)
0.139	1971.51 ±0.50 (50.076 ±0.013)	1957.98 ±0.50 (49.733 ±0.013)

TABLE A

Stabilizer Control Cables
Figure 204 (Sheet 5 of 7)/27-09-14-990-804

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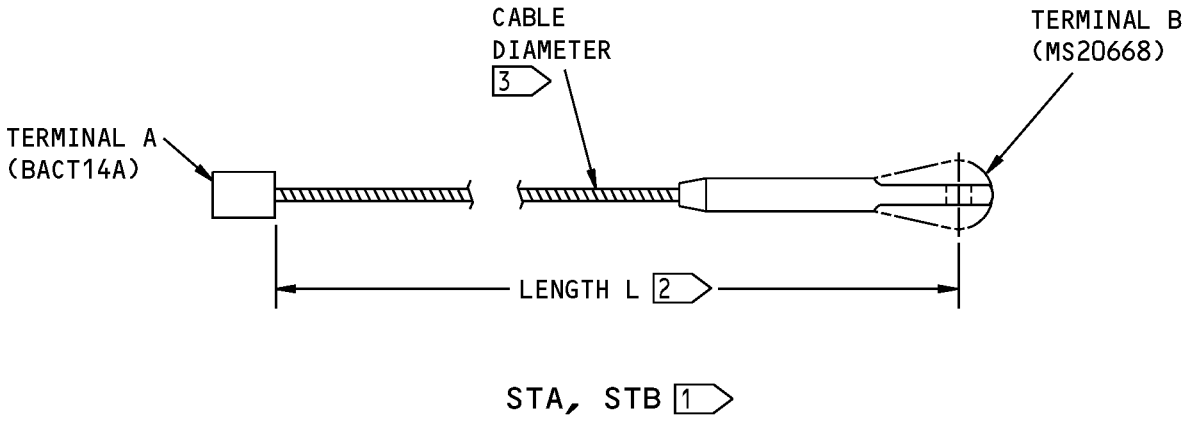

1 CABLE CONSTRUCTION IS CARBON STEEL: BMS 7-265, TYPE 1, (TIN OVER ZINC), 7 X 19.

2 MEASURE CABLE LENGTH WITH A LOAD OF 140 ±5 POUNDS (623 ±22 NEWTONS) OF FORCE. SEE TABLE A.

3 MEASURE THE NEW CABLE DIAMETER AT 3 PLACES AND AVERAGE. THIS CABLE DIAMETER MEASUREMENT SHOULD NOT BE TAKEN WHILE THE CABLE IS UNDER LOAD.

Stabilizer Control Cables
Figure 204 (Sheet 6 of 7)/27-09-14-990-804

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CABLE DIAMETER 3	CABLE LENGTH L INCHES (METERS) 2	
	STA (LEFT)	STB (RIGHT)
0.125	2199.55 ±0.50 (55.869 ±0.013)	2186.02 ±0.50 (55.525 ±0.013)
0.126	2199.69 ±0.50 (55.872 ±0.013)	2186.16 ±0.50 (55.528 ±0.013)
0.127	2199.83 ±0.50 (55.876 ±0.013)	2186.30 ±0.50 (55.532 ±0.013)
0.128	2199.97 ±0.50 (55.879 ±0.013)	2186.44 ±0.50 (55.536 ±0.013)
0.129	2200.11 ±0.50 (55.883 ±0.013)	2186.58 ±0.50 (55.539 ±0.013)
0.130	2200.25 ±0.50 (55.886 ±0.013)	2186.72 ±0.50 (55.543 ±0.013)
0.131	2200.39 ±0.50 (55.890 ±0.013)	2186.86 ±0.50 (55.546 ±0.013)
0.132	2200.53 ±0.50 (55.893 ±0.013)	2187.00 ±0.50 (55.550 ±0.013)
0.133	2200.67 ±0.50 (55.897 ±0.013)	2187.14 ±0.50 (55.553 ±0.013)
0.134	2200.81 ±0.50 (55.901 ±0.013)	2187.28 ±0.50 (55.557 ±0.013)
0.135	2200.95 ±0.50 (55.904 ±0.013)	2187.42 ±0.50 (55.560 ±0.013)
0.136	2201.09 ±0.50 (55.907 ±0.013)	2187.56 ±0.50 (55.564 ±0.013)
0.137	2201.23 ±0.50 (55.911 ±0.013)	2187.70 ±0.50 (55.568 ±0.013)
0.138	2201.37 ±0.50 (55.915 ±0.013)	2187.84 ±0.50 (55.571 ±0.013)
0.139	2201.51 ±0.50 (55.918 ±0.013)	2187.98 ±0.50 (55.575 ±0.013)

TABLE A

Stabilizer Control Cables
Figure 204 (Sheet 7 of 7)/27-09-14-990-804

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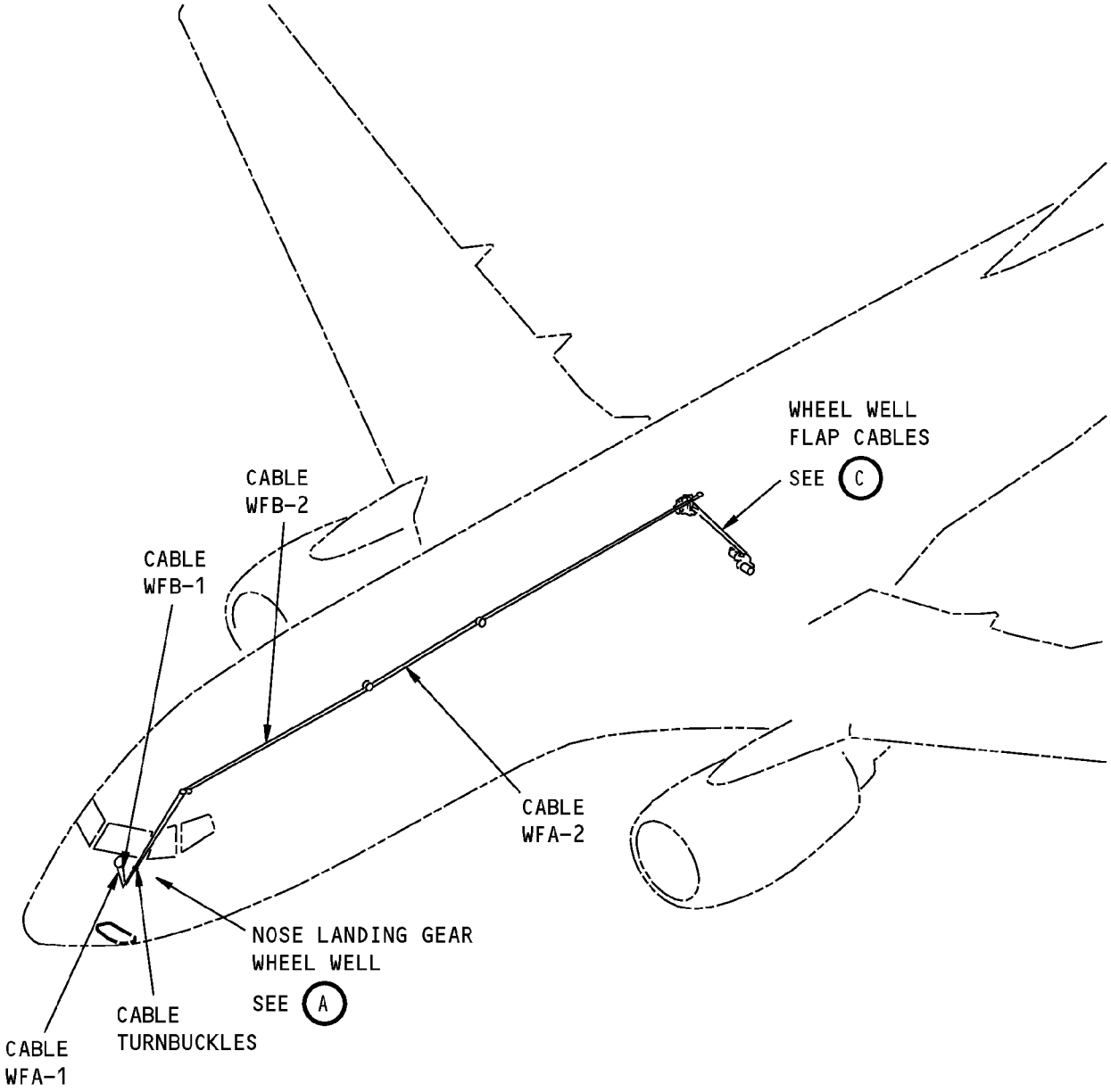

Trailing Edge Flap Control Cables
Figure 205 (Sheet 1 of 6)/27-09-14-990-805

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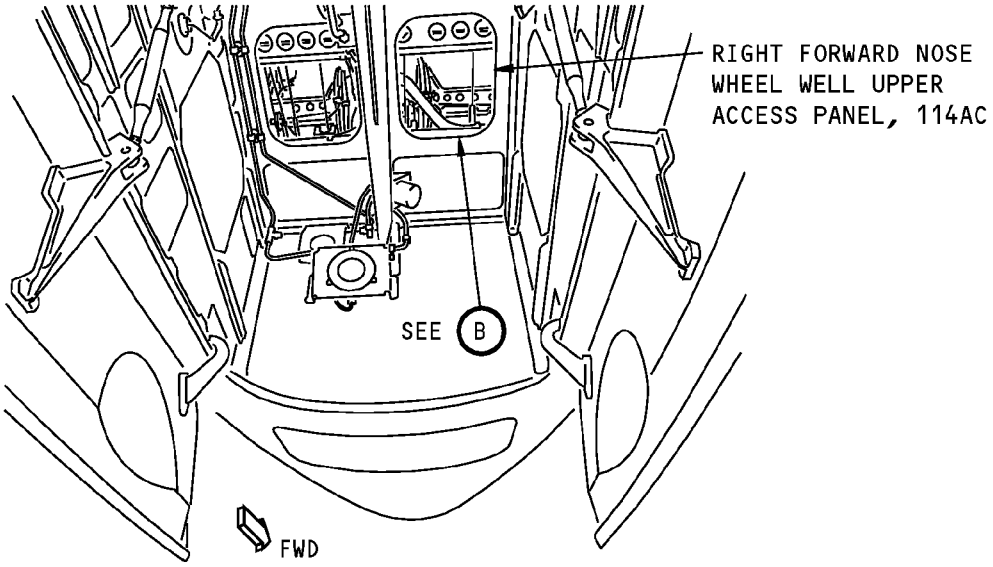
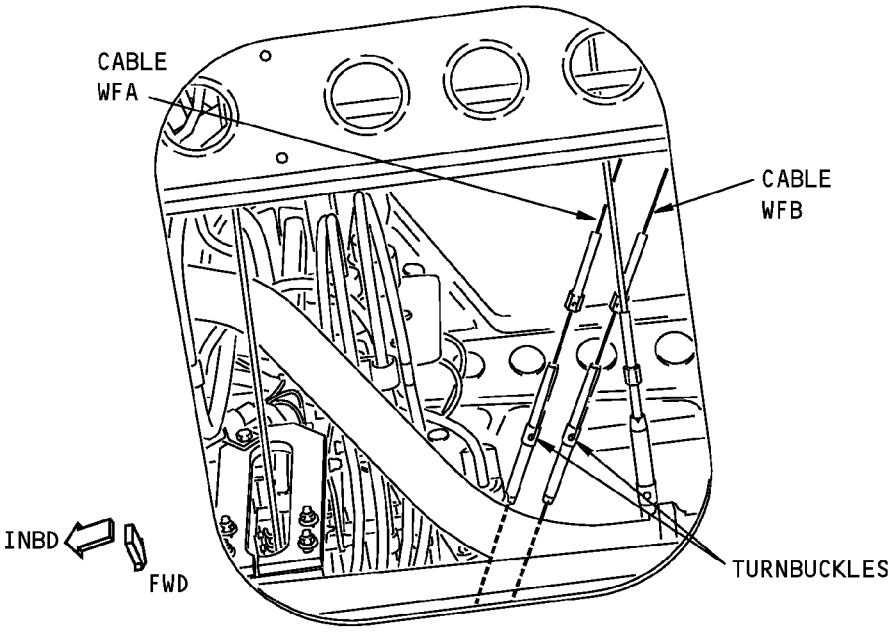


NOSE LANDING GEAR WHEEL WELL

A



VIEW THROUGH RIGHT FORWARD NOSE WHEEL WELL
UPPER ACCESS PANEL, 114AC

B

Trailing Edge Flap Control Cables
Figure 205 (Sheet 2 of 6)/27-09-14-990-805

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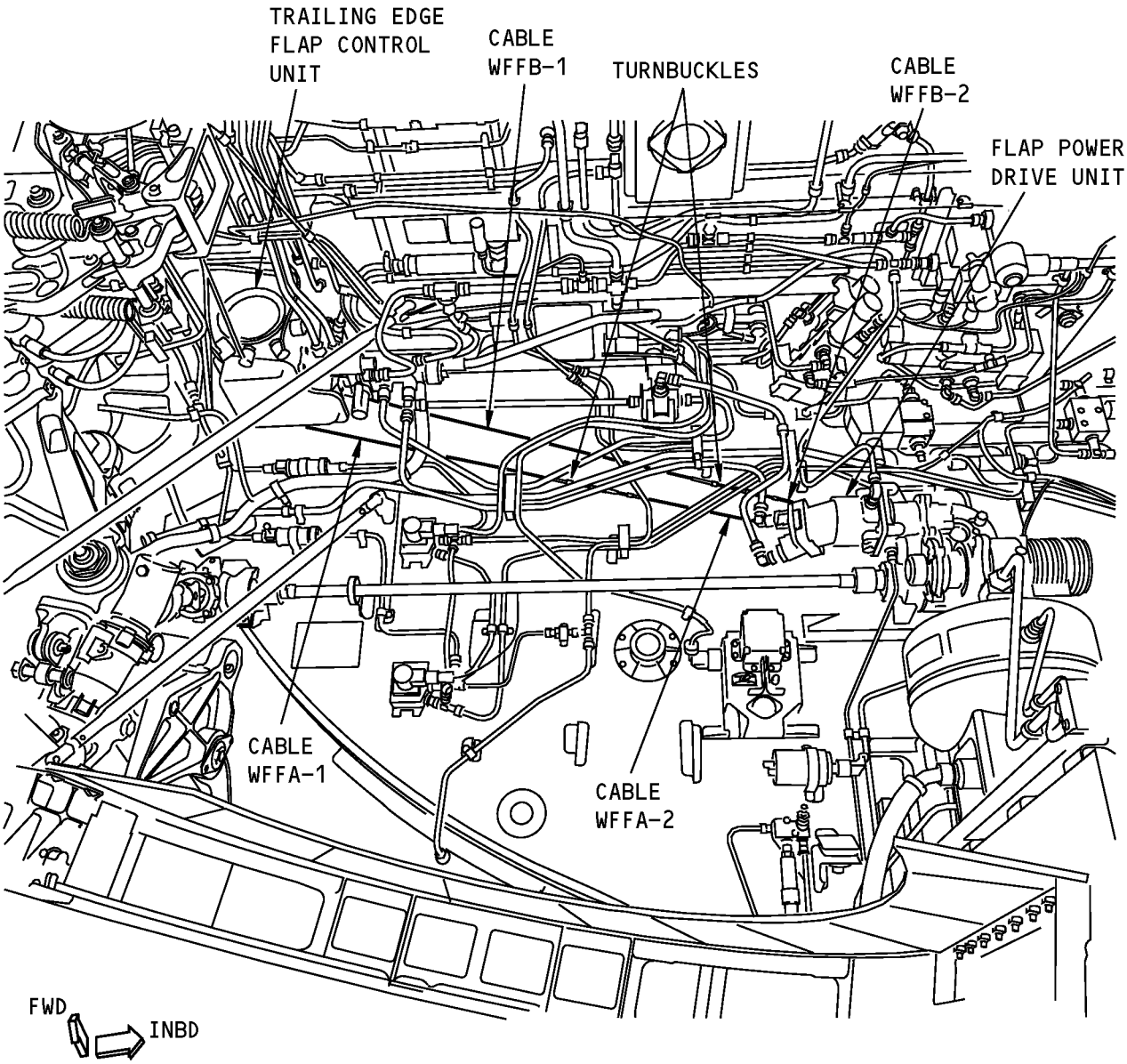

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

C

Trailing Edge Flap Control Cables
Figure 205 (Sheet 3 of 6)/27-09-14-990-805

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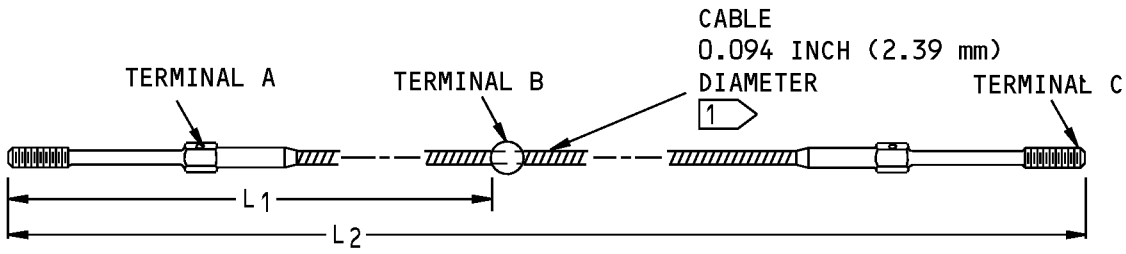
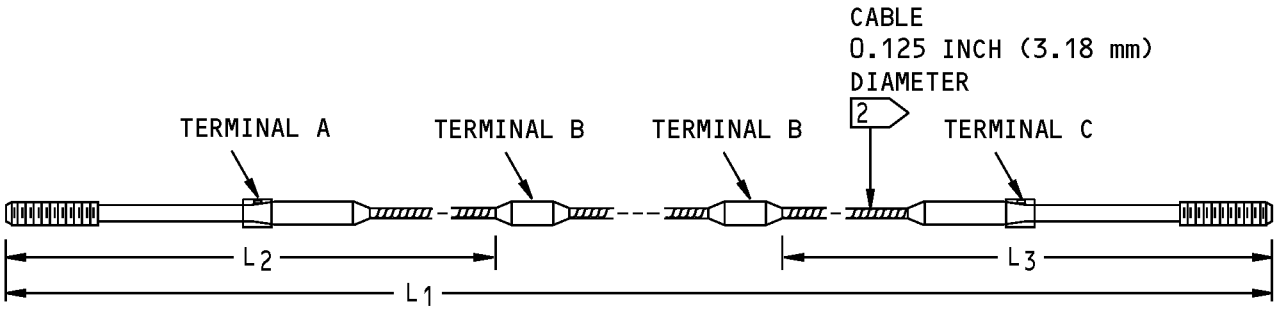
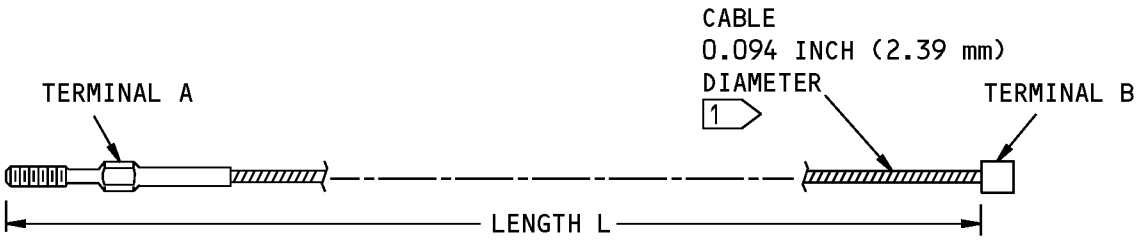


WFA-1, WFB-1



WFA-2, WFB-2



WFFA-1, WFFA-2,
WFFB-1, WFFB-2

1 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 7

2 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19

Trailing Edge Flap Control Cables
Figure 205 (Sheet 4 of 6)/27-09-14-990-805

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CABLE NAME	LENGTH L [3] INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B	TERMINAL C
WFA-1, WFB-1	L_1 - 41.5 ±0.12 [4] (1,054 ±3) L_2 - 84.8 ±0.25 [4] (2,154 ±6)	MS21260L3LH	BACT14B3	MS21260L3RH
WFA-2, WFB-2	L_1 - 1407.8 (35,758) [3] L_2 - 712.4 (18,095) [3] L_3 - 695.4 (17,663) [3]	69-38195-2	BACT14A4	69-38195-1
WFFA-1	30.4 (772) [4]	BACT14A3	MS21260S3RH	
WFFB-1	32.9 (836) [4]	BACT14A3	MS21260S3RH	
WFFA-2 WFFB-2	46.8 (1,189) [4]	BACT14A3	MS21260S3LH	

TABLE A

[1] CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 7

[2] CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19

[3] MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

[4] MEASURE CABLE WITH A LOAD OF 20 ±3 POUNDS (89 ±13 NEWTONS).

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Trailing Edge Flap Control Cables
Figure 205 (Sheet 5 of 6)/27-09-14-990-805

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CABLE NAME	LENGTH L INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B	TERMINAL C
WFA-1, WFB-1	L_1 - 41.5 ±0.12 [4] (1,054 ±3) L_2 - 84.5 ±0.25 [4] (2,146 ±6)	MS21260L3LH	BACT14B3	MS21260L3RH
WFA-2, WFB-2	L_1 - 1171.8 (29,764) [3] L_2 - 594.4 (15,098) [3] L_3 - 577.4 (14,666) [3]	69-38195-2	BACT14A4	69-38195-1
WFFA-1	30.4 (772) [4]	BACT14A3	MS21260S3RH	
WFFB-1	32.9 (836) [4]	BACT14A3	MS21260S3RH	
WFFA-2 WFFB-2	46.8 (1,189) [4]	BACT14A3	MS21260S3LH	

TABLE A

[3] MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

[4] MEASURE CABLE WITH A LOAD OF 20 ±3 POUNDS (89 ±13 NEWTONS).

Trailing Edge Flap Control Cables
Figure 205 (Sheet 6 of 6)/27-09-14-990-805

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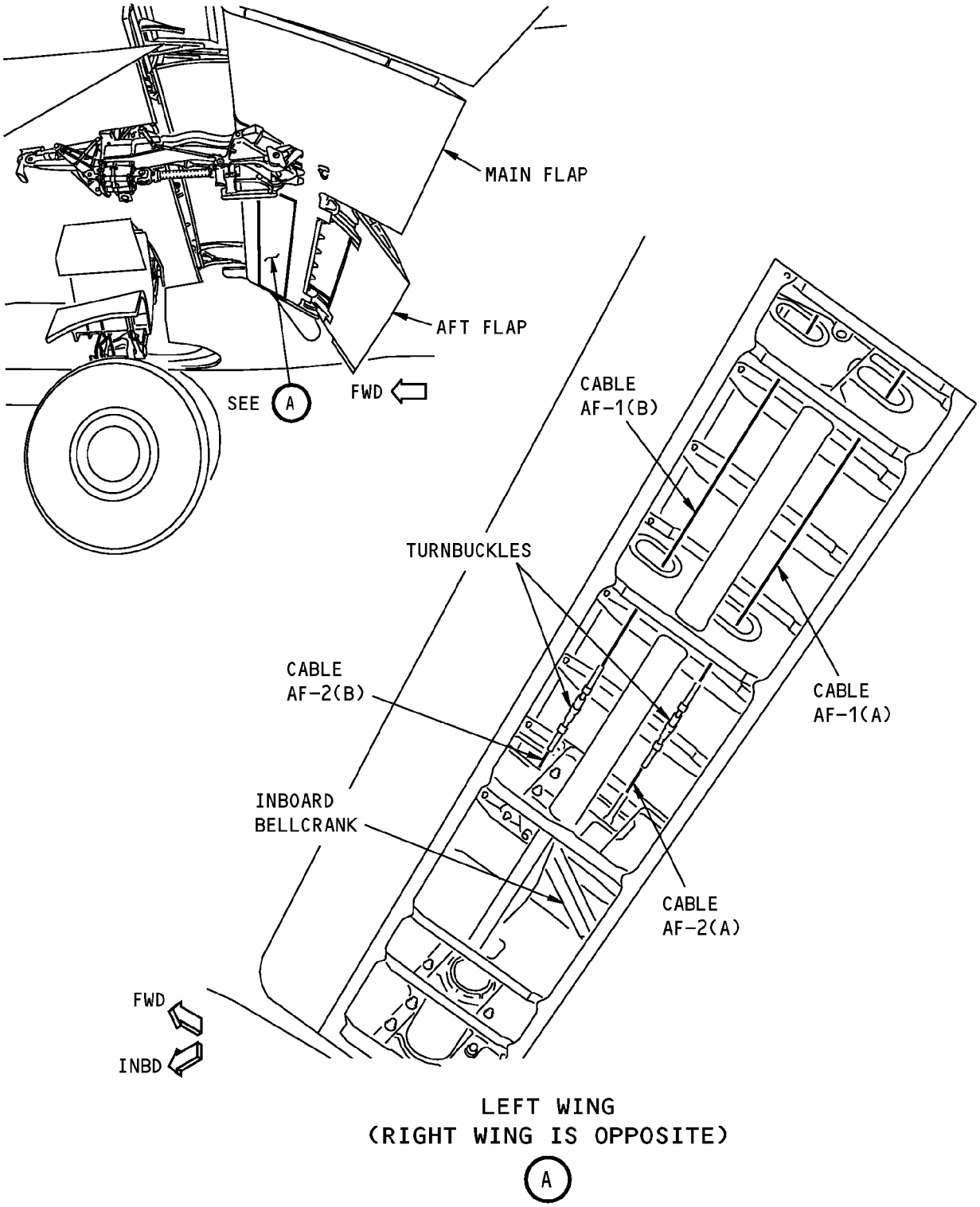

Aft Flap Drive Cables
Figure 206 (Sheet 1 of 2)/27-09-14-990-806

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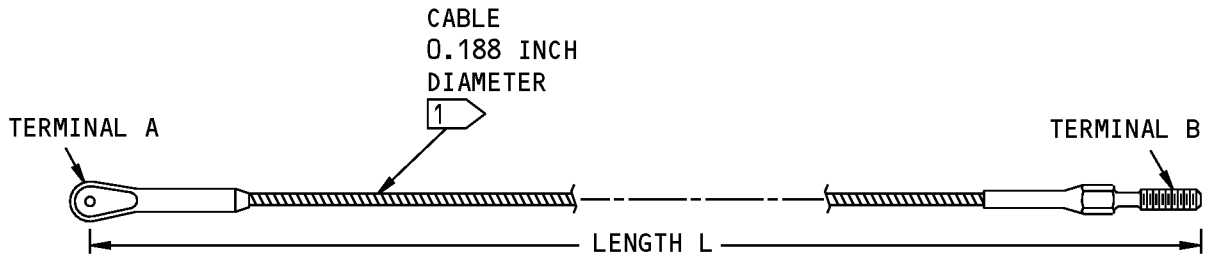

AF-1(A), AF-1(B),
AF-2(A), AF-2(B)

CABLE NAME	LENGTH L 2 (INCHES)	TERMINAL A	TERMINAL B
AF-1(A) AF-1(B)	47.3384	113A2641-1	MS21260S6RH
AF-2(A) AF-2(B)	10.6360	113A2641-1	MS21260S6LH

TABLE A

1 CABLE CONSTRUCTION IS CORROSION RESISTANT STEEL:
MIL-W-83420, COMPOSITION B, 7 X 19

2 MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS.

Aft Flap Drive Cables
Figure 206 (Sheet 2 of 2)/27-09-14-990-806

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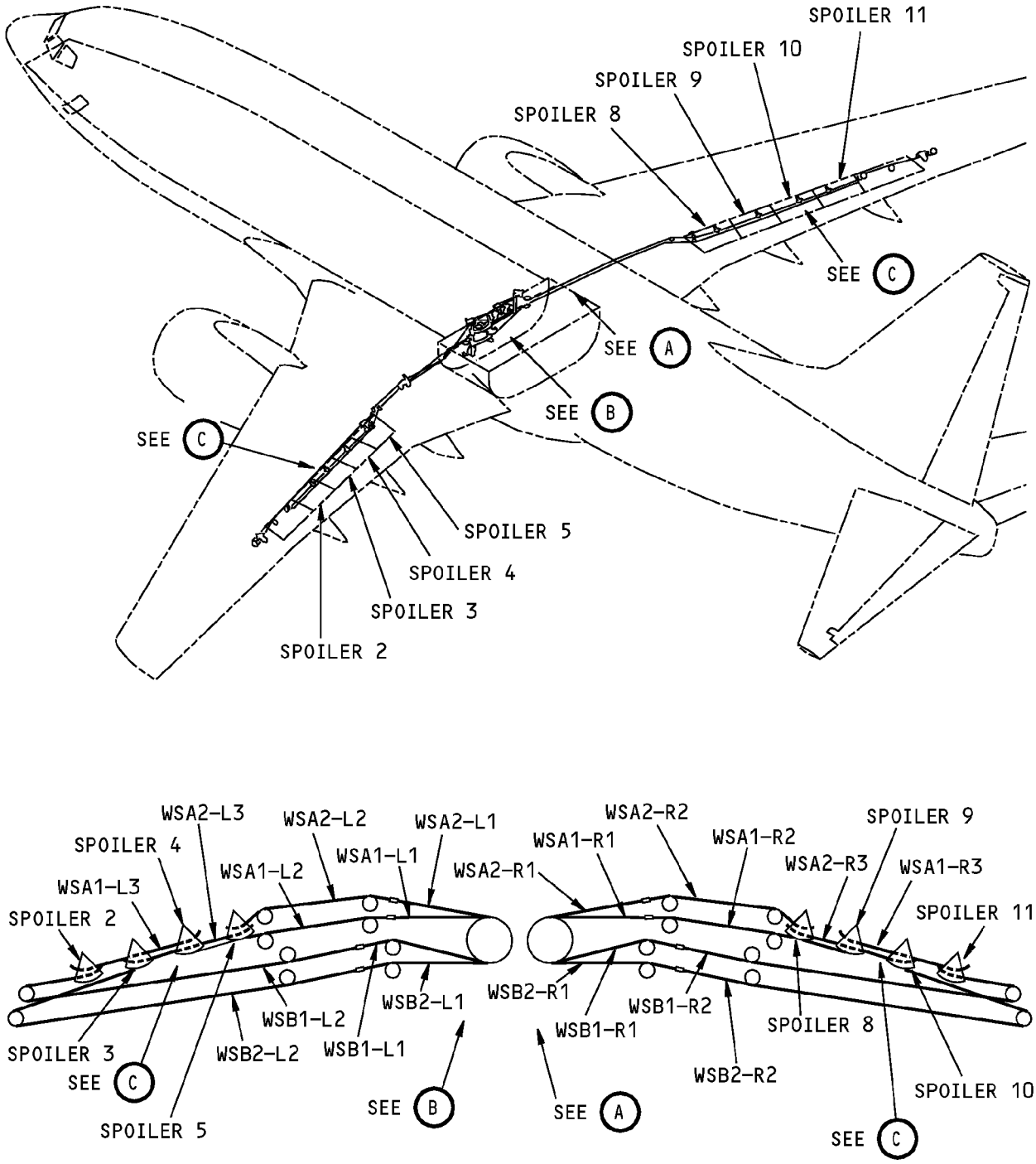

SPOILER CONTROL CABLE SCHEMATIC

Spoiler Control Cables
Figure 207 (Sheet 1 of 5)/27-09-14-990-807

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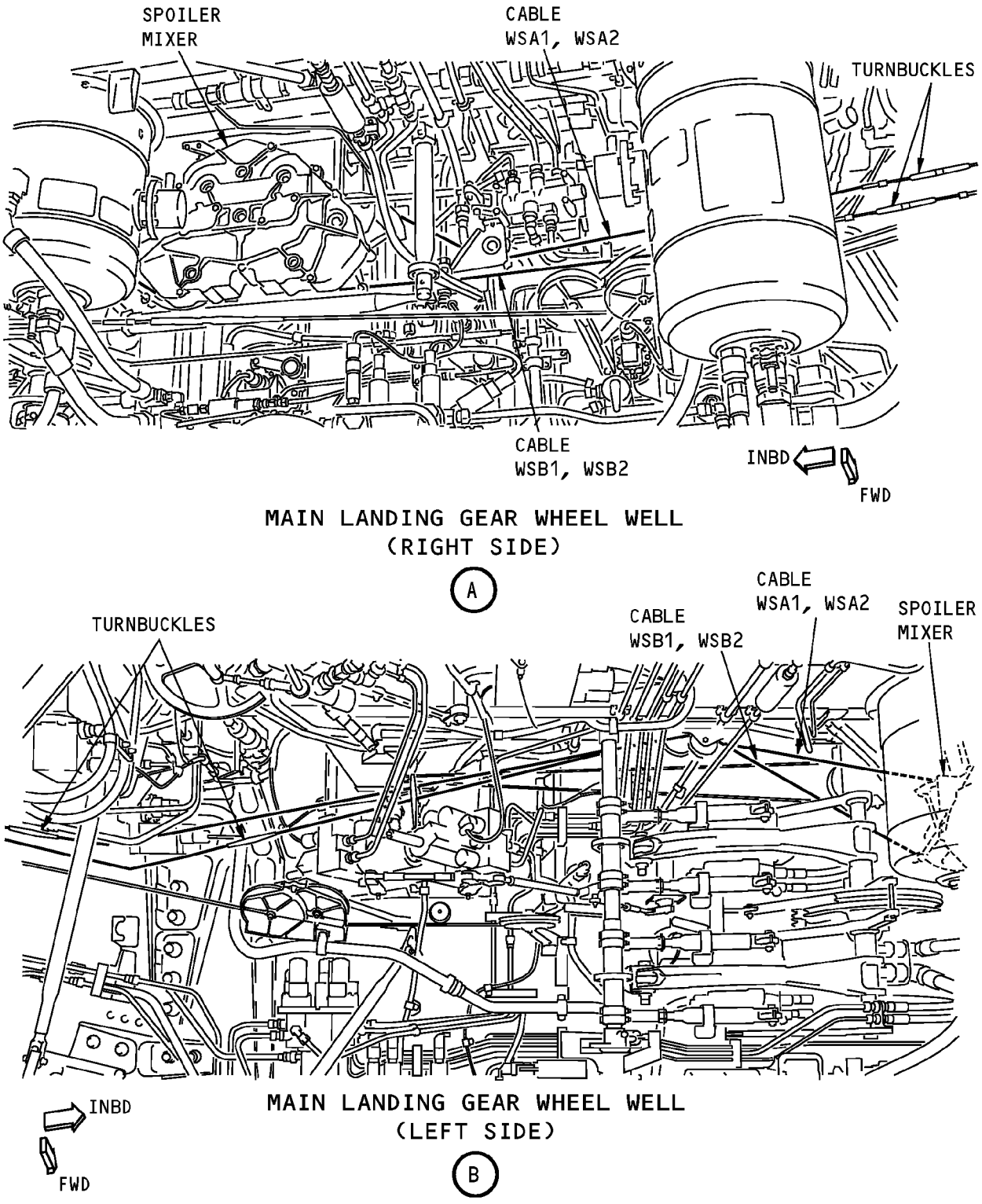

Spoiler Control Cables
Figure 207 (Sheet 2 of 5)/27-09-14-990-807

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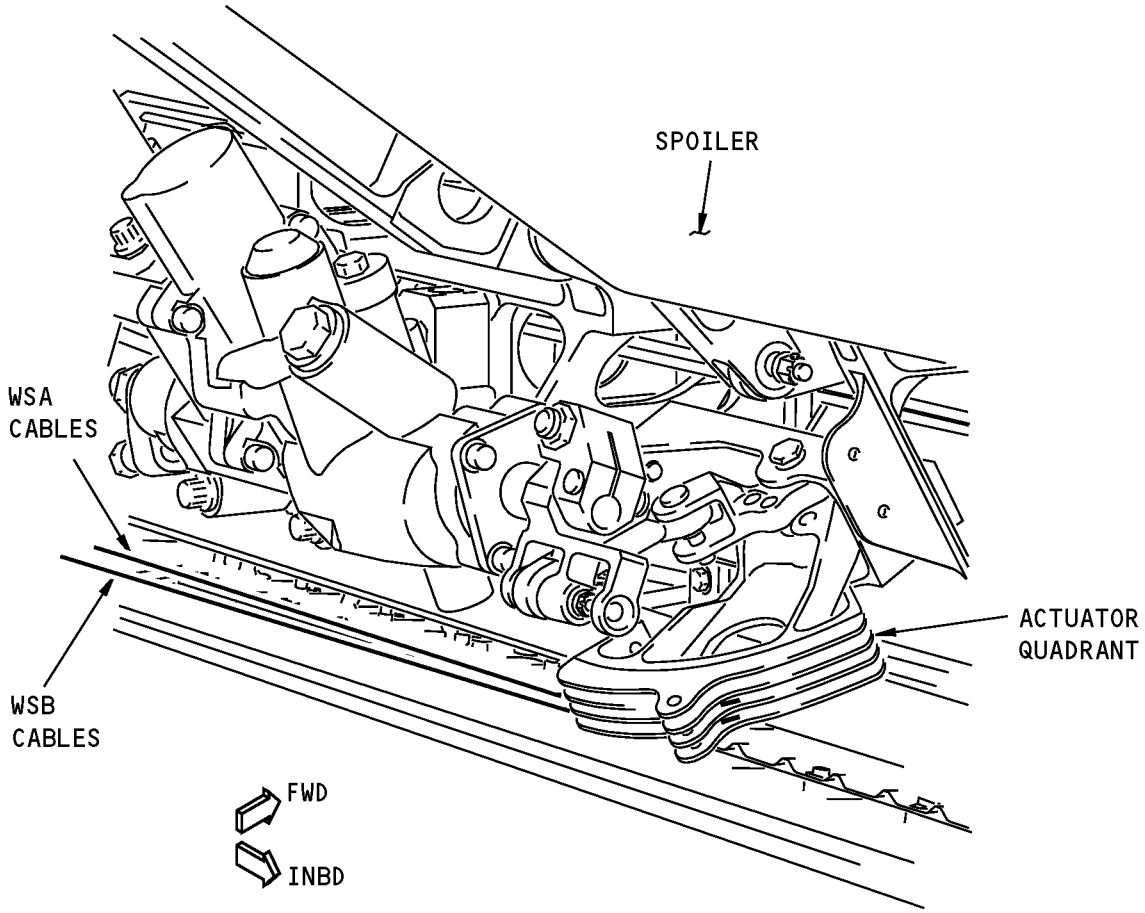

FLIGHT SPOILER ACTUATOR QUADRANT
(EXAMPLE)

C

Spoiler Control Cables
Figure 207 (Sheet 3 of 5)/27-09-14-990-807

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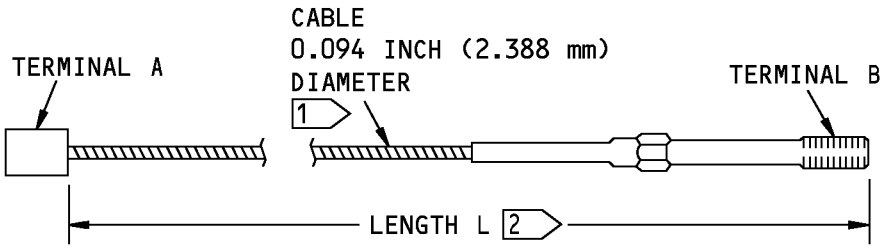
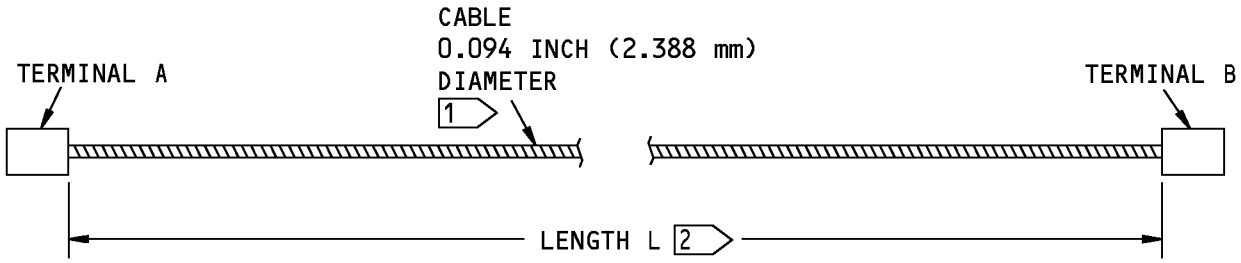


WSA1-L1, WSA1-L2, WSA1-R1, WSA1-R2,
WSA2-L1, WSA2-L2, WSA2-R1, WSA2-R2,
WSB1-L1, WSB1-L2, WSB1-R1, WSB1-R2,
WSB2-L1, WSB2-L2, WSB2-R1, WSB2-R2



WSA1-L3, WSA1-R3, WSA2-L3, WSA2-R3

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Spoiler Control Cables
Figure 207 (Sheet 4 of 5)/27-09-14-990-807

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CABLE NAME		LENGTH L INCHES (METERS) 2	TERMINAL A	TERMINAL B
LEFT SIDE	WSA1-L1	68.20 ±0.12 (1.732 ±0.003)	BACT14A	MS21260L3RH
	WSA1-L2	212.60 ±0.12 (5.400 ±0.003)	BACT14A	MS21260L3LH
	WSA1-L3	77.10 ±0.12 (1.958 ±0.003)	BACT14A	BACT14A
RIGHT SIDE	WSA1-R1	52.00 ±0.12 (1.321 ±0.003)	BACT14A	MS21260L3LH
	WSA1-R2	215.80 ±0.12 (5.481 ±0.003)	BACT14A	MS21260L3RH
	WSA1-R3	77.00 ±0.12 (1.956 ±0.003)	BACT14A	BACT14A
LEFT SIDE	WSA2-L1	93.20 ±0.12 (2.367 ±0.003)	BACT14A	MS21260L3LH
	WSA2-L2	144.30 ±0.12 (3.665 ±0.003)	BACT14A	MS21260L3RH
	WSA2-L3	89.90 ±0.12 (2.283 ±0.003)	BACT14A	BACT14A
RIGHT SIDE	WSA2-R1	38.30 ±0.12 (0.973 ±0.003)	BACT14A	MS21260L3RH
	WSA2-R2	187.80 ±0.12 (4.770 ±0.003)	BACT14A	MS21260L3LH
	WSA2-R3	89.10 ±0.12 (2.263 ±0.003)	BACT14A	BACT14A
LEFT SIDE	WSB1-L1	91.30 ±0.12 (2.319 ±0.003)	BACT14A	MS21260L3RH
	WSB1-L2	355.20 ±0.20 (9.022 ±0.005)	BACT14A	MS21260L3LH
RIGHT SIDE	WSB1-R1	46.80 ±0.12 (1.189 ±0.003)	BACT14A	MS21260L3LH
	WSB1-R2	355.50 ±0.20 (9.030 ±0.005)	BACT14A	MS21260L3RH
LEFT SIDE	WSB2-L1	63.90 ±0.12 (1.623 ±0.003)	BACT14A	MS21260L3LH
	WSB2-L2	406.20 ±0.20 (10.317 ±0.005)	BACT14A	MS21260L3RH
RIGHT SIDE	WSB2-R1	78.30 ±0.12 (1.989 ±0.003)	BACT14A	MS21260L3RH
	WSB2-R2	348.00 ±0.20 (8.839 ±0.005)	BACT14A	MS21260L3LH

TABLE A

1 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 7

2 MEASURE CABLE WITH A LOAD OF 20 ±3 POUNDS (9.1 ±1.4 kg).

Spoiler Control Cables
Figure 207 (Sheet 5 of 5)/27-09-14-990-807

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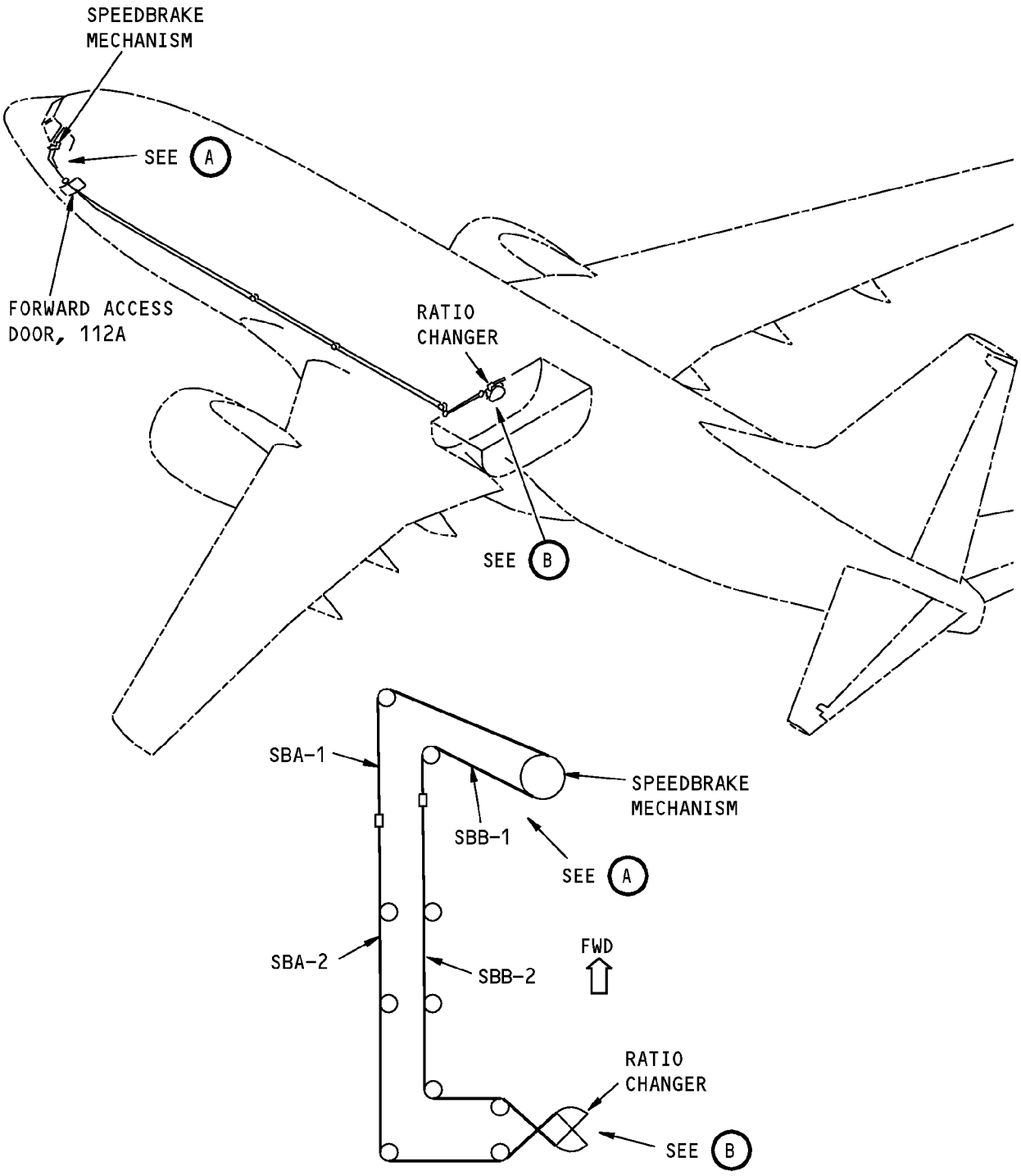

SPEEDBRAKE CONTROL CABLE SCHEMATIC

Speedbrake Control Cables
Figure 208 (Sheet 1 of 5)/27-09-14-990-808

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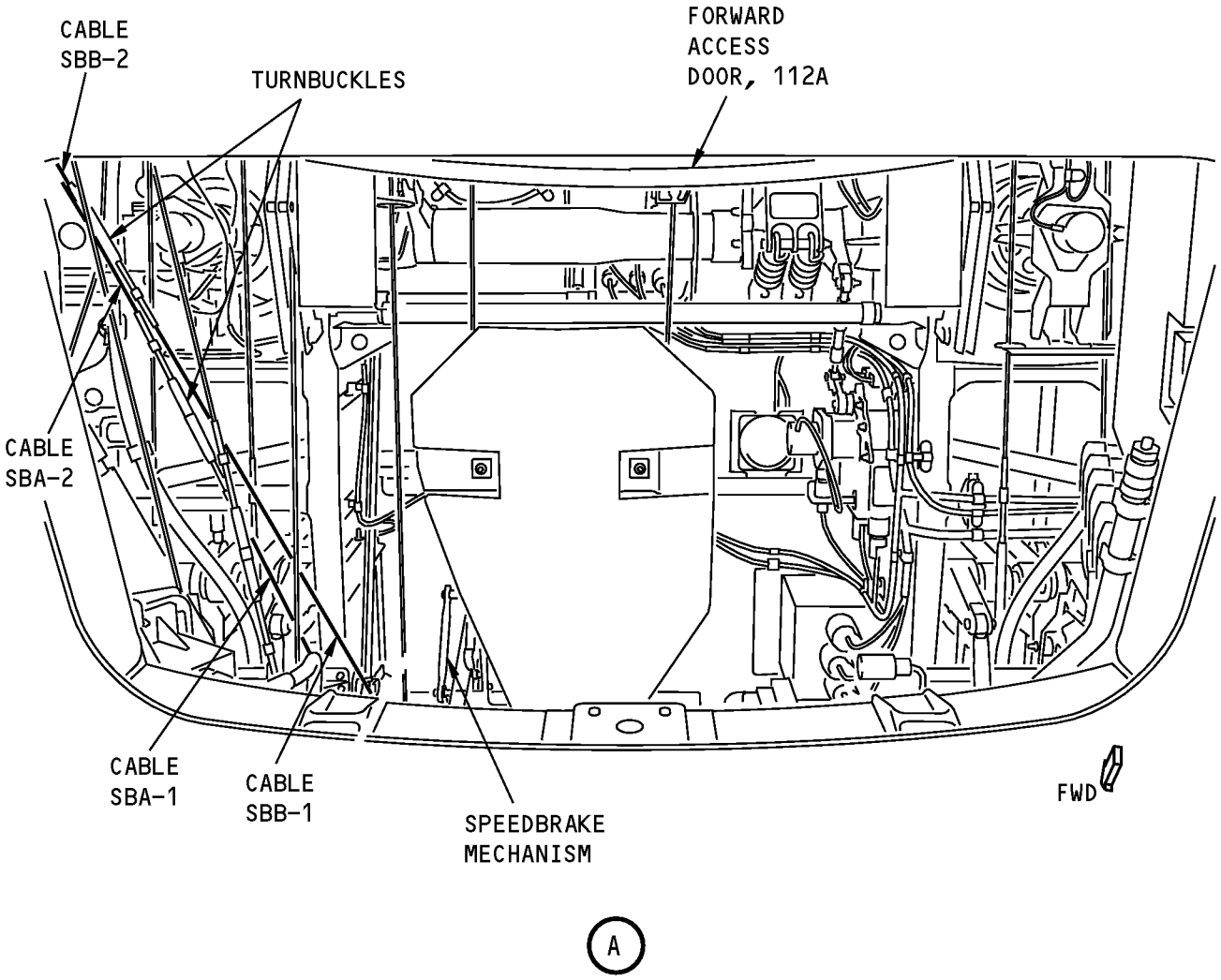

Speedbrake Control Cables
Figure 208 (Sheet 2 of 5)/27-09-14-990-808

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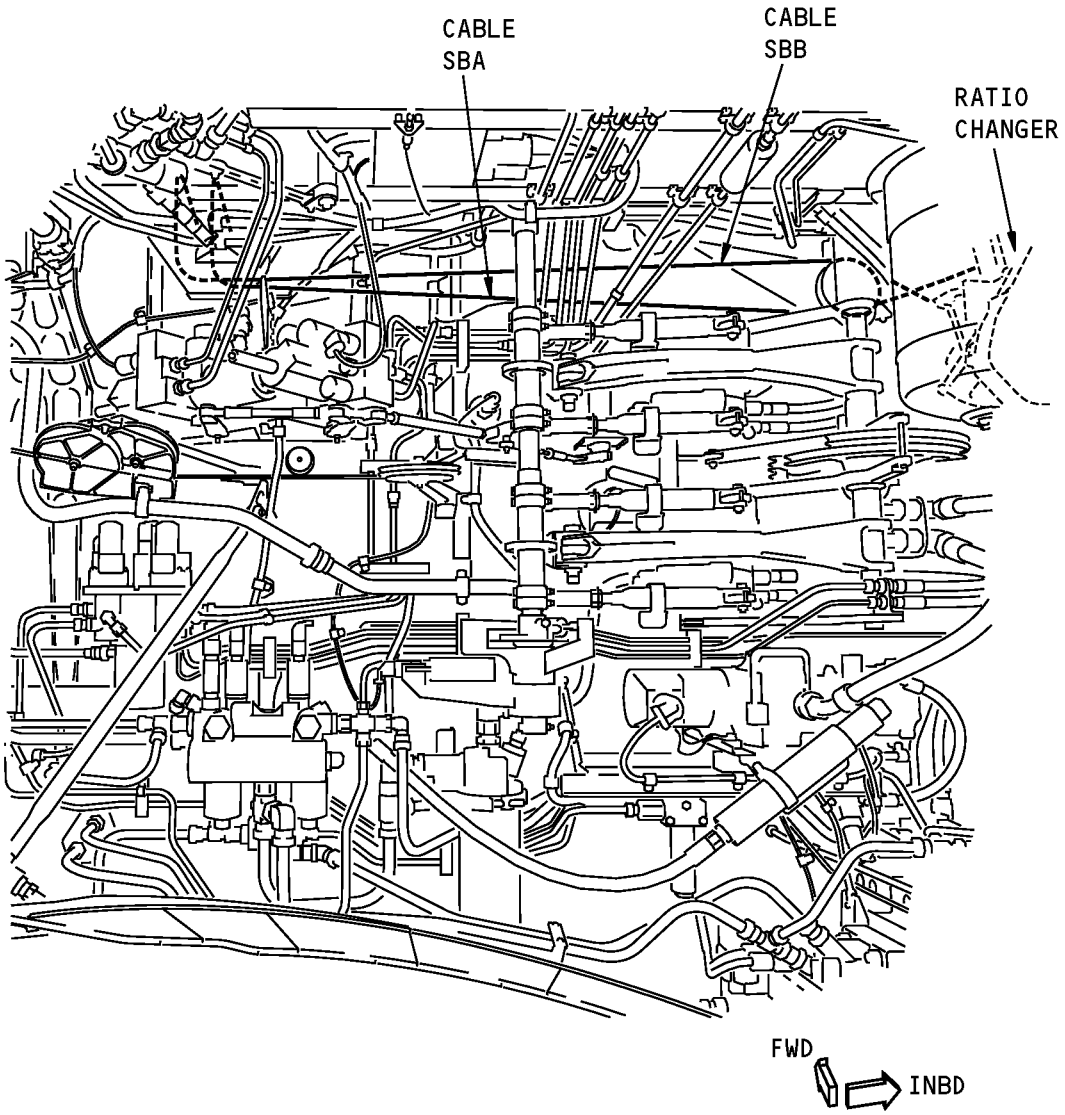

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)

B

Speedbrake Control Cables
Figure 208 (Sheet 3 of 5)/27-09-14-990-808

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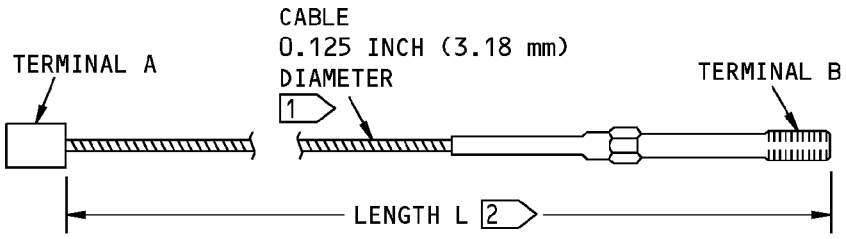

SBA-1, SBA-2, SBB-1, SBB-2

CABLE NAME	LENGTH L 2 INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B
SBA-1 SBB-1	39.2 ±0.12 (996 ±3) 45.0 ±0.12 (1,143 ±3)	BACT14A BACT14A	MS21260L4RH MS21260L4LH
SBA-2 SBB-2	612.2 ±0.25 (15,550 ±6) 605.3 ±0.25 (15,375 ±6)	BACT14A BACT14A	MS21260L4LH MS21260L4RH

TABLE A

1 CABLE CONSTRUCTION IS CARBON STEEL:
BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19.

2 MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

Speedbrake Control Cables
Figure 208 (Sheet 4 of 5)/27-09-14-990-808

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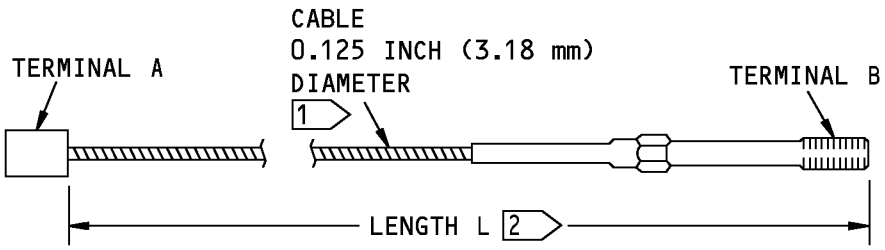

SBA-1, SBA-2, SBB-1, SBB-2

CABLE NAME	LENGTH L 2 INCHES (MILLIMETERS)	TERMINAL A	TERMINAL B
SBA-1 SBB-1	39.2 ±0.12 (996 ±3) 45.0 ±0.12 (1,143 ±3)	BACT14A BACT14A	MS21260L4RH MS21260L4LH
SBB-2 SBA-2	723.3 ±0.38 (18,372 ±10) 730.2 ±0.38 (18,547 ±10)	BACT14A BACT14A	MS21260L4RH MS21260L4LH

TABLE A

1 CABLE CONSTRUCTION IS CARBON STEEL: BMS 7-265, TYPE 1, COMPOSITION A (TIN OVER ZINC), 7 X 19

2 MEASURE CABLE WITH A LOAD OF 40 ±3 POUNDS (178 ±13 NEWTONS).

Speedbrake Control Cables
Figure 208 (Sheet 5 of 5)/27-09-14-990-808

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TASK 27-09-14-820-801

3. Control Cables - Rigging

A. References

Reference	Title
27-11-00-820-801	Aileron Cables Adjustment (P/B 501)
27-21-00-820-808-001	Rudder Control Cables RA and RB Adjustment (P/B 501)
27-21-00-820-808-002	Rudder Control Cables RA and RB Adjustment (P/B 501)
27-31-00-820-801	Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment (P/B 501)
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)
27-51-00-820-801	Trailing Edge Flap Control System Adjustment (P/B 501)
27-51-14-400-801	Inboard Aft Flap Actuating Mechanism Installation (P/B 401)
27-61-00-820-801	Spoiler Control Cables Adjustment (P/B 501)
27-62-00-820-802	Speed Brake Control Cable Adjustment (P/B 501)

B. Adjust the Control Cables

SUBTASK 27-09-14-820-001

(1) To adjust the the aileron cable system, do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

SUBTASK 27-09-14-820-002

(2) To adjust the rudder cable system, do this task: Rudder Control Cables RA and RB Adjustment, TASK 27-21-00-820-808-001 or Rudder Control Cables RA and RB Adjustment, TASK 27-21-00-820-808-002.

SUBTASK 27-09-14-820-003

(3) To adjust the elevator cable system, do this task: Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment, TASK 27-31-00-820-801.

SUBTASK 27-09-14-820-004

(4) To adjust the stabilizer cable system, do this task: Stabilizer Control Cable and Chain Adjustment, TASK 27-41-00-820-801.

SUBTASK 27-09-14-820-005

(5) To adjust the trailing edge flaps cable system, do this task: Trailing Edge Flap Control System Adjustment, TASK 27-51-00-820-801.

SUBTASK 27-09-14-820-006

(6) To adjust the trailing edge flap boom cables, do this task: Inboard Aft Flap Actuating Mechanism Installation, TASK 27-51-14-400-801.

SUBTASK 27-09-14-820-007

(7) To adjust the spoiler cable system, do this task: Spoiler Control Cables Adjustment, TASK 27-61-00-820-801.

SUBTASK 27-09-14-820-008

(8) To adjust the speed brake cable system, do this task: Speed Brake Control Cable Adjustment, TASK 27-62-00-820-802.

——————— END OF TASK ———————

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FLIGHT CONTROL CABLES AIR PRESSURE SEALS - MAINTENANCE PRACTICES

1. General

A. This procedure gives the location of the air pressure seals for the control cables of the flight control systems.

TASK 27-09-17-860-801

2. Location of the Flight Control Cables Air Pressure Seals

(Figure 201)

A. References

Reference	Title
20-10-04-000-801	Control Cable Air Seal Removal (P/B 401)
20-10-04-400-801	Control Cable Air Seal Installation (P/B 401)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

C. Location of the FLight Control Cables Air Pressure Seals

SUBTASK 27-09-17-860-001

(1) Find the air pressure seals (Table 201).

Table 201/27-09-17-993-802

Cable System	Number of Seals	Location	Access Panel Number
Left Elevator Cables	2	Aft Pressure Bulkhead	311BL
Right Elevator Cables	2	Aft Pressure Bulkhead	311BL
Rudder Cables	2	Aft Pressure Bulkhead	311BL
Stabilizer Trim Cables	2	Aft Pressure Bulkhead	311BL
Speed Brake Cables	2	Left Wheel Well Ceiling	Wheel Well

SUBTASK 27-09-17-960-001

(2) If it is necessary to remove the seals, do this task: Control Cable Air Seal Removal, TASK 20-10-04-000-801.

SUBTASK 27-09-17-960-002

(3) If it is necessary to install the seals, do this task: Control Cable Air Seal Installation, TASK 20-10-04-400-801.

END OF TASK

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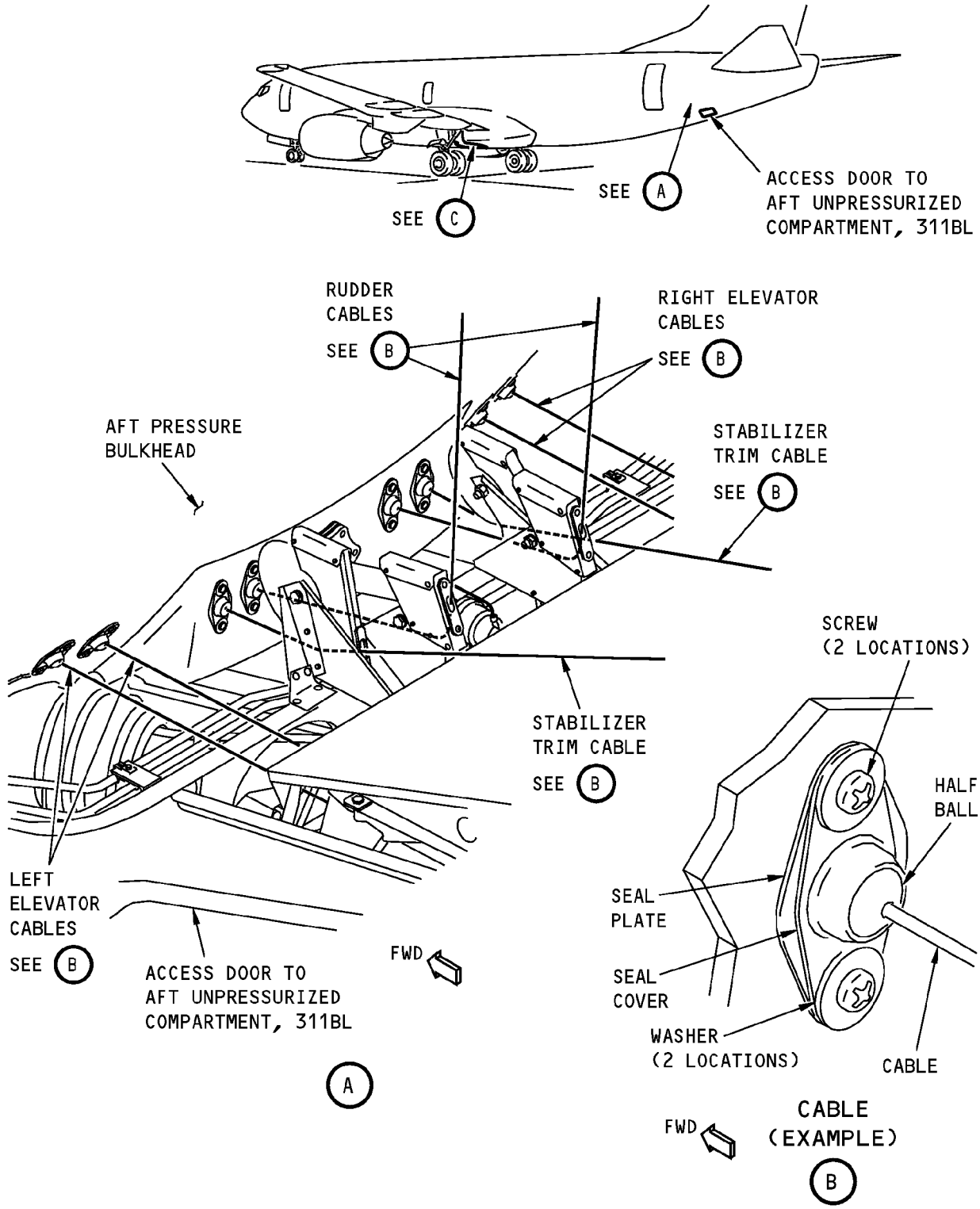

Flight Control Cable Air Pressure Seals
Figure 201 (Sheet 1 of 2)/27-09-17-990-801

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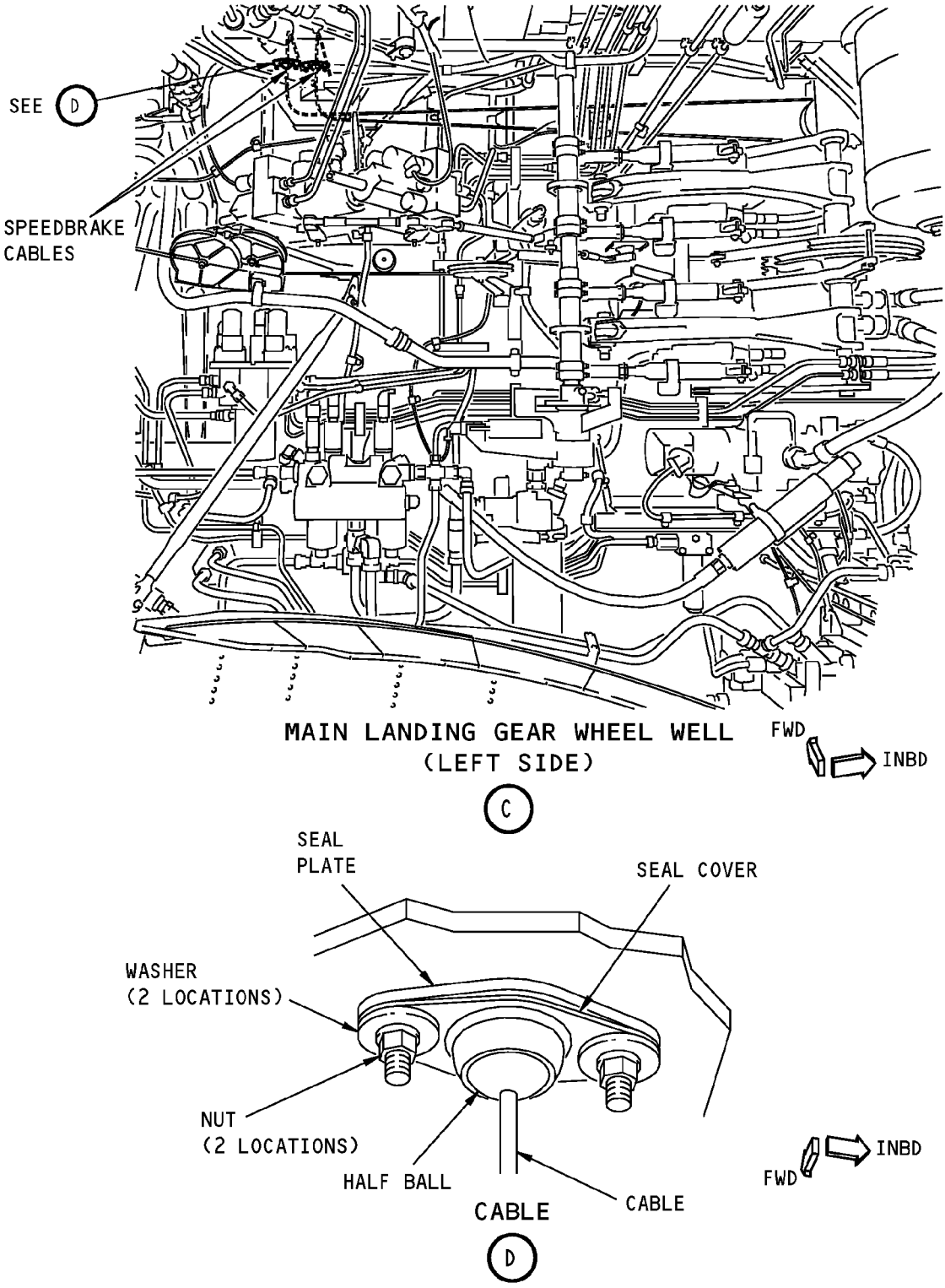

Flight Control Cable Air Pressure Seals
Figure 201 (Sheet 2 of 2)/27-09-17-990-801

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FLIGHT CONTROLS HYDRAULIC MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

NOTE: Do not install Flight Control Module 65-44891-7 with serial number 8726 thru 8936. These FCMs has compensators, 10-60560-3, with serial number 20478A thru 20717A installed. These compensators are prohibited by AD 2002-19-51, Rev.1.

(1) A removal of the flight controls hydraulic module

(2) An installation of the flight controls hydraulic module.

B. The flight controls hydraulic module is referred to as the "hydraulic module" in this procedure.

C. There are two hydraulic modules installed on the airplane. The hydraulic module for the hydraulic system A is found in the left main wheel well. The hydraulic module for the hydraulic system B is found in the right main wheel well.

D. Each hydraulic module contains these components:

(1) A check valve

(2) A low pressure warning switch

(3) A compensator cartridge

(4) A spoiler shutoff valve

(5) A flight controls shutoff valve.

TASK 27-09-21-000-801

2. Flight Controls Hydraulic Module Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

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D. Prepare for the Removal

SUBTASK 27-09-21-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-09-21-860-005

(2) If there is power on hydraulic systems A and B, remove hydraulic power. To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-09-21-860-006

(3) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-09-21-860-007

(4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

E. Flight Controls Hydraulic Module Removal

SUBTASK 27-09-21-020-001

(1) Remove the hydraulic module [1]:

(a) Disconnect the electrical connectors [18], [14] and [13] from the spoiler shutoff valve [16], the flight controls shutoff valve [17], and the low pressure warning switch [15].

(b) Use a container 5 gallon (19 liters) hydraulic fluid resistant container, STD-1110 to catch hydraulic fluid that drains from the hydraulic module [1].

(c) Disconnect the hydraulic tubing from the hydraulic module [1].

(d) Remove the bolts [6] and washers [7] to disconnect the hydraulic module [1] from the top mounting bracket.

(e) Remove the bolts [8] and washers [9] to disconnect the hydraulic module [1] from the bottom mounting bracket.

(f) Remove the hydraulic module [1] from the airplane.

SUBTASK 27-09-21-420-001

(2) Install protective caps on the ends of the hydraulic tubing.

SUBTASK 27-09-21-020-002

(3) If you install a new hydraulic module [1], do these steps:

(a) Remove the unions [3] and packings [2] in ports 1, 2, 5 from the hydraulic module [1]. Discard the packings.

(b) Remove the unions [5] and packings [4] in ports 4 and 7 from the hydraulic module [1]. Discard the packings.

(c) Remove the check valve [10] and packing [4] in port 3 from the hydraulic module [1]. Discard the packings.

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(d) Remove the reducer [11] and packing [12] in port 6 from the hydraulic module [1]. Discard the packings.

SUBTASK 27-09-21-420-002

(4) Install protective caps in the open ports of the hydraulic module [1].

——————— END OF TASK ———————

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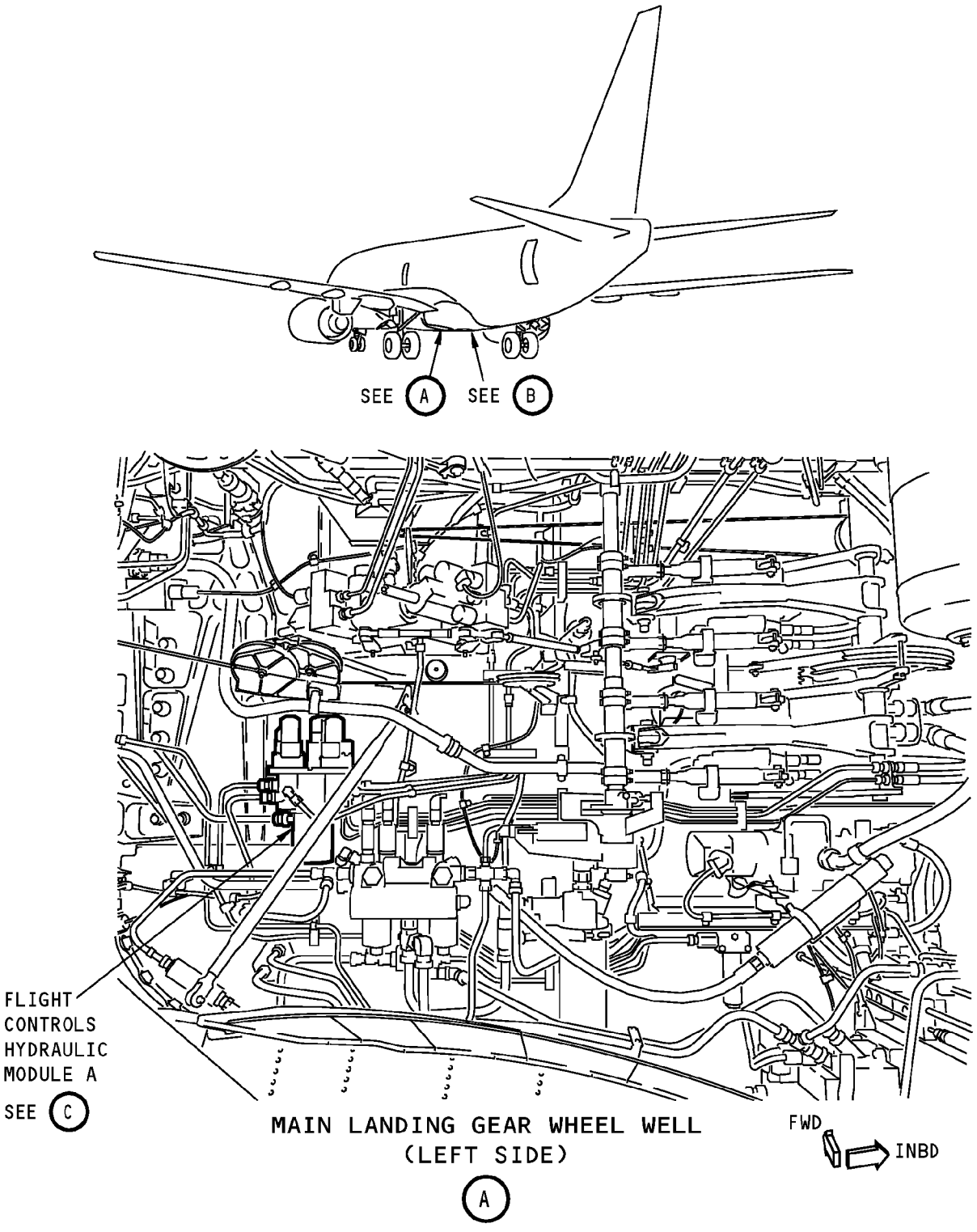

Flight Controls Hydraulic Module Installation
Figure 401 (Sheet 1 of 3)/27-09-21-990-803

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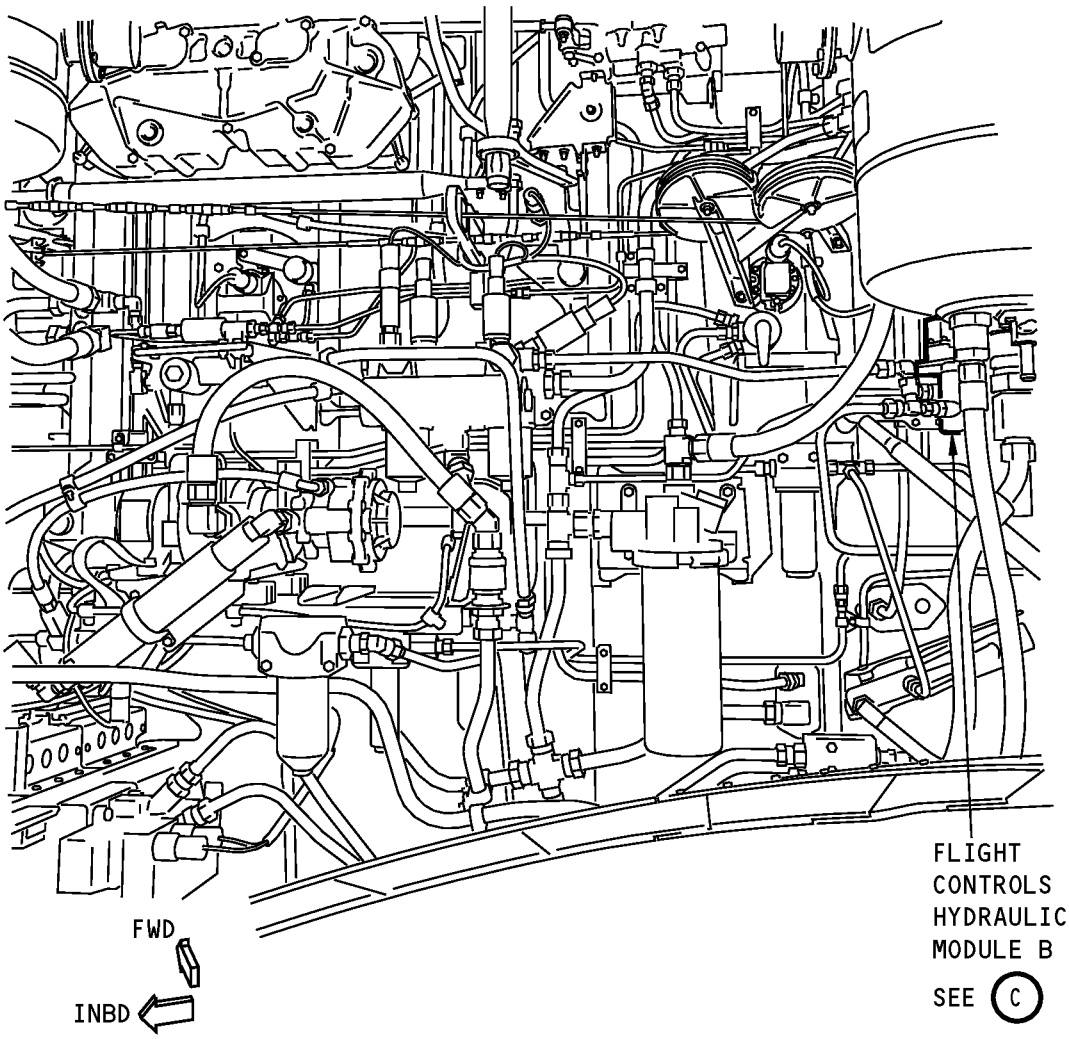

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

B

Flight Controls Hydraulic Module Installation
Figure 401 (Sheet 2 of 3)/27-09-21-990-803

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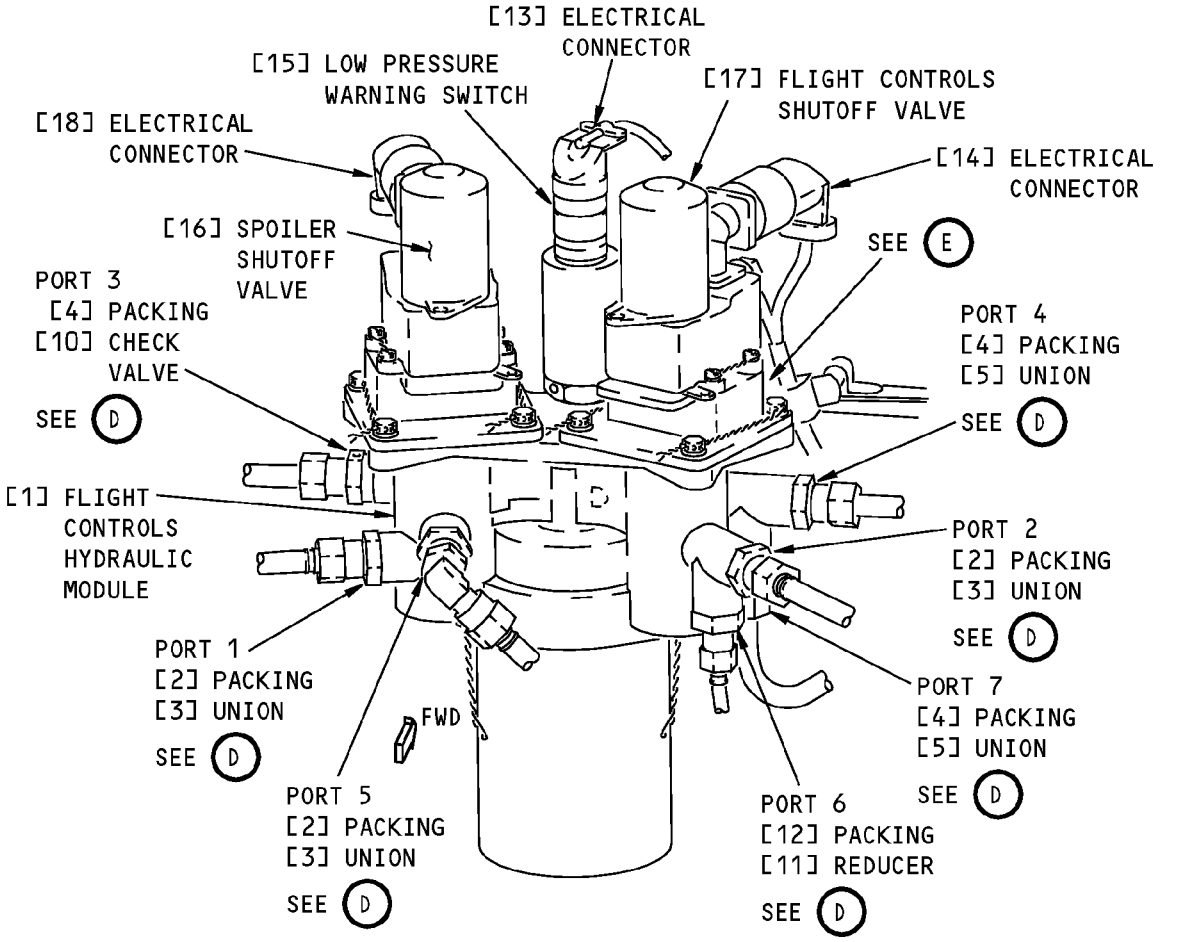
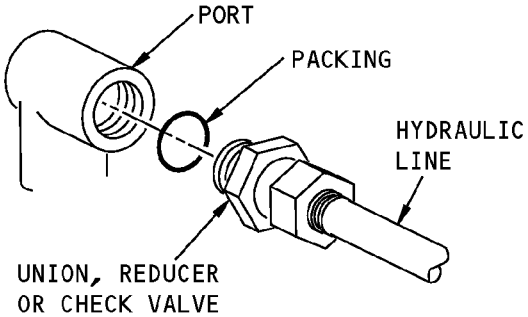


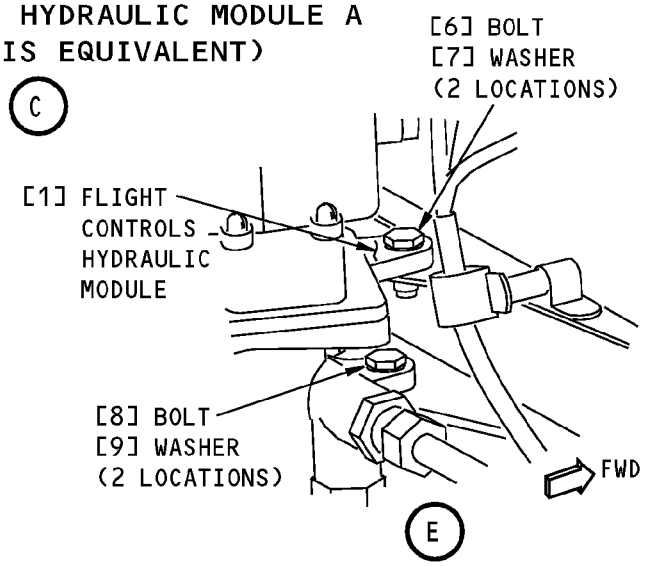
FLIGHT CONTROLS HYDRAULIC MODULE A
(MODULE B IS EQUIVALENT)

C



(EXAMPLE)

D



E

Flight Controls Hydraulic Module Installation
Figure 401 (Sheet 3 of 3)/27-09-21-990-803

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TASK 27-09-21-400-801

3. Flight Controls Hydraulic Module Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-09-21-700-801	Flight Controls Hydraulic Module Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Module	27-09-00-01-010	HAP 001-013, 015-026, 028-030
		27-09-21-01-020	HAP ALL
		27-09-21-01-160	HAP ALL
2	Packing	27-09-21-01-045	HAP ALL
		27-09-21-01-185	HAP ALL
4	Packing	27-09-21-01-045	HAP ALL
		27-09-21-01-185	HAP ALL
12	Packing	27-09-21-01-045	HAP ALL
		27-09-21-01-185	HAP ALL

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Flight Controls Hydraulic Module Installation

NOTE: Do not install Flight Control Module 65-44891-7 with serial number 8726 thru 8936. These FCMs has compensators, 10-60560-3, with serial number 20478A thru 20717A installed. These compensators are prohibited by AD 2002-19-51, Rev.1.

SUBTASK 27-09-21-020-003

(1) Remove protective caps from the open ports of the hydraulic module [1].

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SUBTASK 27-09-21-420-003

(2) If they are not installed, install the unions [3], unions [5], reducer [11], packings [2], packings [4], and packing [12] on the hydraulic module [1]:

(a) Apply MCS 352B fluid, D00054 (recommended) or fluid, D00153 (alternative) to the unions [3], unions [5], reducer [11] and new packings [2], new packings [4], and new packing [12].

(b) Install the new packings [2] and unions [3] in ports 1, 2, 5 on the hydraulic module [1].

(c) Install the new packings [4] and unions [5] in ports 4 and 7 on the hydraulic module [1].

(d) Install the new packing [4] and check valve [10] in port 3 on the hydraulic module [1].

1) Install the check valve [10] with the free flow arrow pointed away from the hydraulic module [1].

(e) Install the new packing [12] and reducer [11] in port 6 on the hydraulic module [1].

SUBTASK 27-09-21-020-004

(3) Remove the protective caps from the hydraulic tubing.

SUBTASK 27-09-21-420-004

(4) Install the hydraulic module [1]:

(a) Put the hydraulic module [1] on its mounting bracket.

(b) Connect the hydraulic module [1] to the top mounting bracket with the bolts [6] and washers [7].

(c) Connect the hydraulic module [1] to the bottom mounting bracket with the bolts [8] and washers [9].

(d) Connect the hydraulic tubing to the hydraulic module [1].

(e) Before you connect the electrical connectors [18], [13] and [14], examine the connectors for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(f) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(g) Apply the D5026NS or ZC-026 compound, G50171 to the connectors (SWPM 20-60-03).

(h) Connect the electrical connectors [18], [13] and [14] to the spoiler shutoff valve [16], the flight controls shutoff valve [17], and the low pressure warning switch [15].

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-21-860-008

(1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-09-21-610-001

(2) If it is necessary to service the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

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SUBTASK 27-09-21-730-001

(3) Do this task: Flight Controls Hydraulic Module Test, TASK 27-09-21-700-801.

——————— END OF TASK ———————

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FLIGHT CONTROLS HYDRAULIC MODULE - ADJUSTMENT/TEST

1. General

A. There is one task in this procedure which is the test of the flight controls hydraulic module.

B. The flight controls hydraulic module is referred to as the "hydraulic module" in this procedure.

C. The hydraulic module for hydraulic system A is found in the left main wheel well. The hydraulic module for hydraulic system B is found in the right main wheel well.

TASK 27-09-21-700-801

2. Flight Controls Hydraulic Module Test

A. General

(1) In this procedure, the two hydraulic modules [1] are tested at the same time.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 27-09-21-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-09-21-860-002

(2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	14	C00316	INDICATOR MASTER DIM SECT 4

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SUBTASK 27-09-21-860-003

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) To pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

E. Flight Controls Hydraulic Module Test

SUBTASK 27-09-21-720-001

(1) Do the test of the hydraulic module [3]:

(a) Make sure the two FLT CONTROL switches, on the P5-3 Flight Controls panel, are in the ON position (Figure 501).

(b) Make sure the two SPOILER switches, on the P5-3 Flight Controls panel, are in the ON position.

(c) Make sure the manual override levers [4] of the spoiler shutoff valve [1] and flight controls shutoff valve [2] on the two hydraulic modules [3] are in position 1 (Figure 502).

(d) Operate the aileron control wheel, control column, and rudder pedal sets to bleed the hydraulic system.

(e) Make sure there is no leakage of hydraulic fluid at the hydraulic modules [3].

(f) Set the two SPOILER switches to the OFF position.

(g) Make sure the manual override lever [4] of the spoiler shutoff valve [1] on the two hydraulic modules [3] is in position 2.

(h) Turn the aileron control wheel.

(i) Make sure the spoilers do not operate.

(j) Set the two FLIGHT CONTROL switches to the OFF position.

(k) Make sure the manual override lever [4] of the flight controls shutoff valve [2] on the two hydraulic modules [3] is in position 2.

(l) Make sure the two LOW PRESSURE warning lights, on the P5-3 Flight Controls panel, come on.

(m) Set the two FLIGHT CONTROL switches to the ON position.

(n) Make sure the two LOW PRESSURE warning lights go off.

(o) Set the two SPOILER switches to the ON position.

SUBTASK 27-09-21-860-004

(2) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-09-21-210-001

(3) Make sure the LOW PRESSURE lights come on.

SUBTASK 27-09-21-210-002

(4) Make sure the master warning and caution lights and the flight controls warning light come on.

END OF TASK

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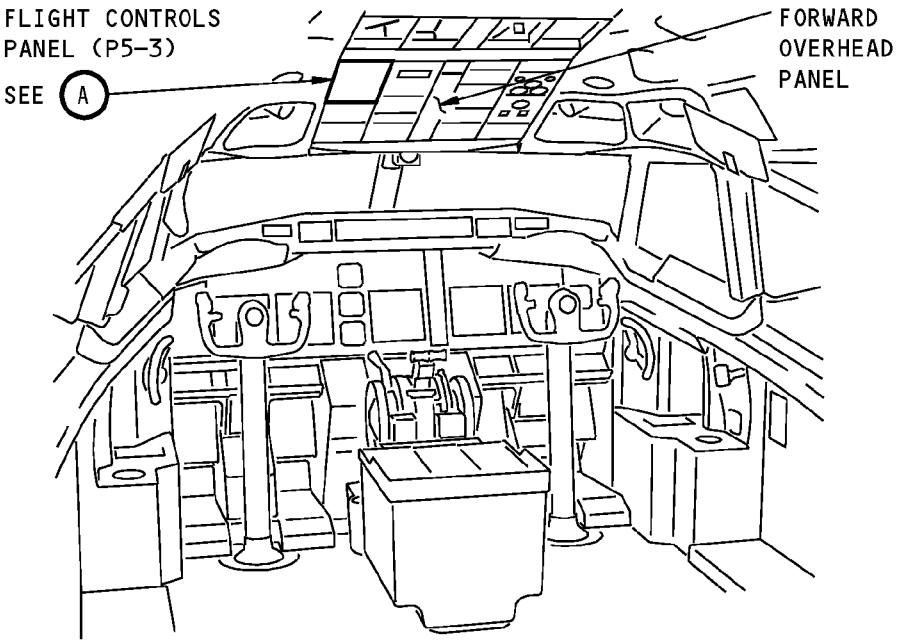
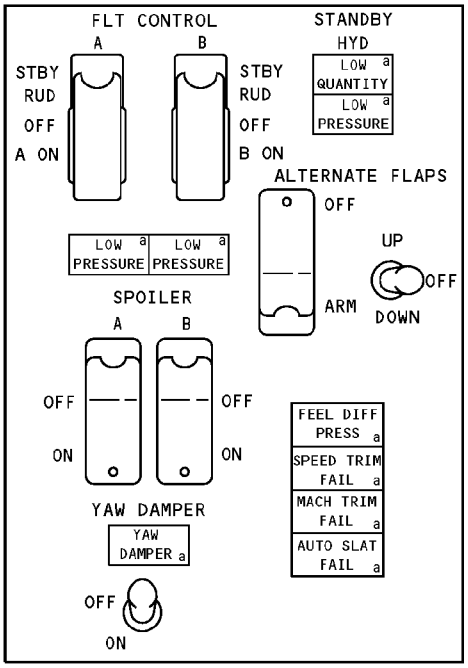


FLIGHT COMPARTMENT



FLIGHT CONTROLS PANEL (P5-3)

A

Flight Controls Panel
Figure 501/27-09-21-990-801

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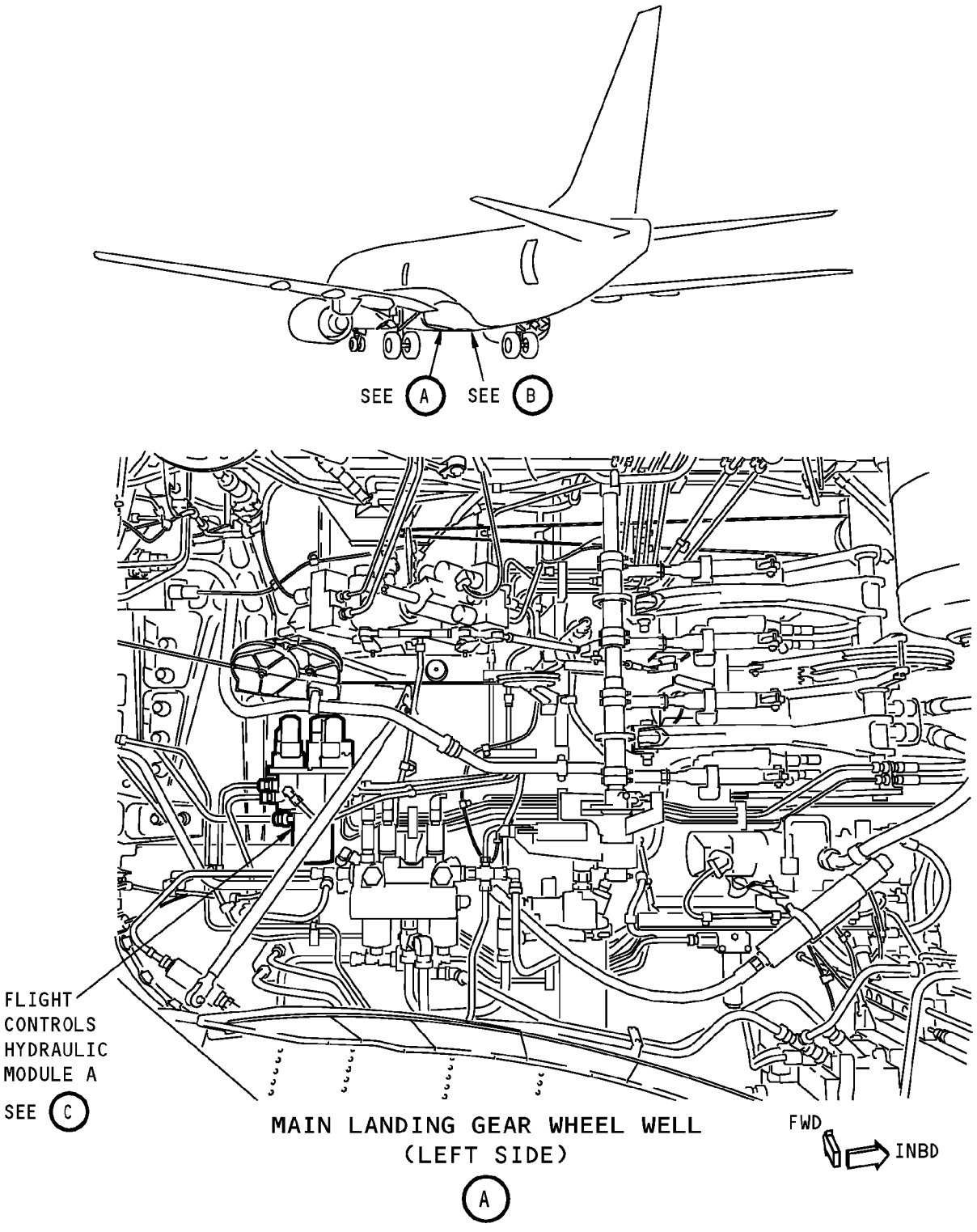

Flight Controls Shutoff Valve Test
Figure 502 (Sheet 1 of 3)/27-09-21-990-802

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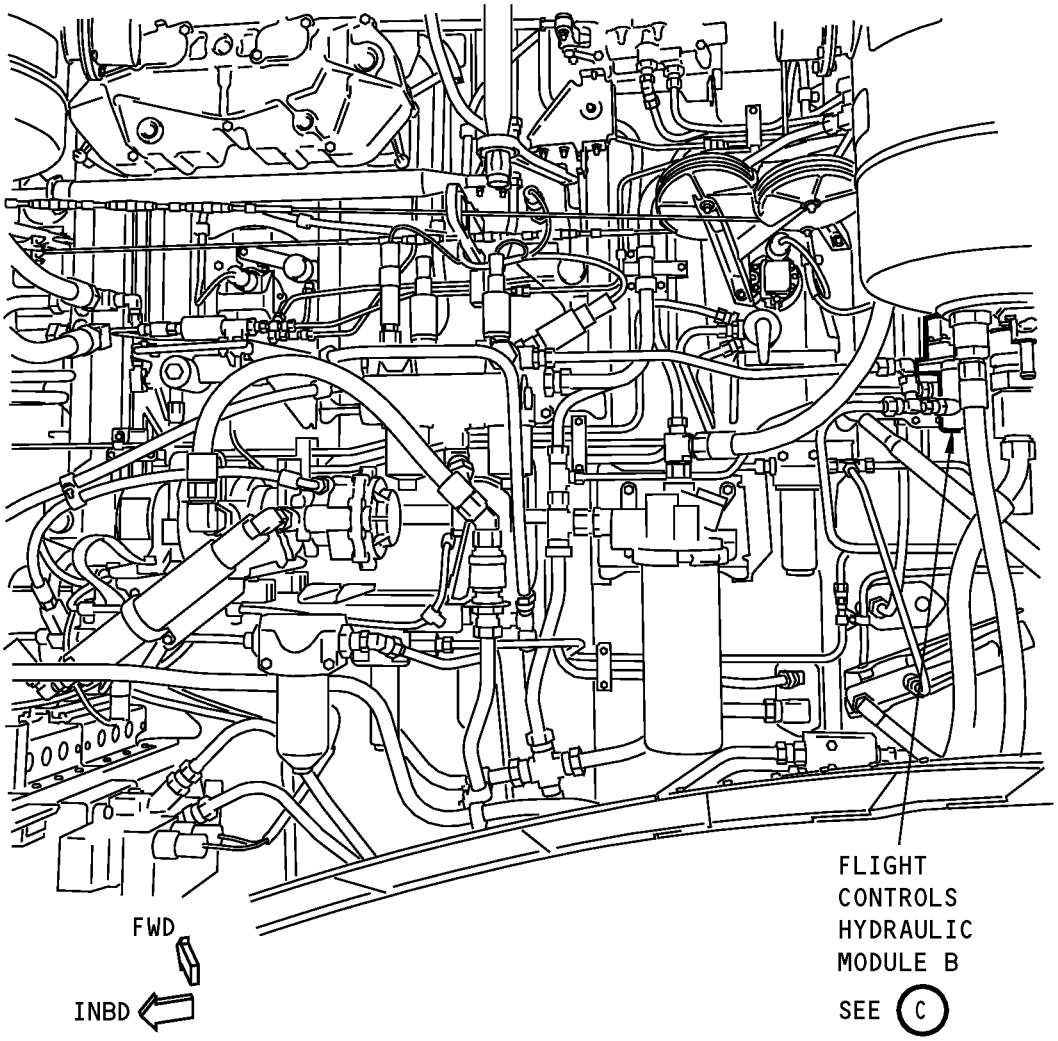

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

B

Flight Controls Shutoff Valve Test
Figure 502 (Sheet 2 of 3)/27-09-21-990-802

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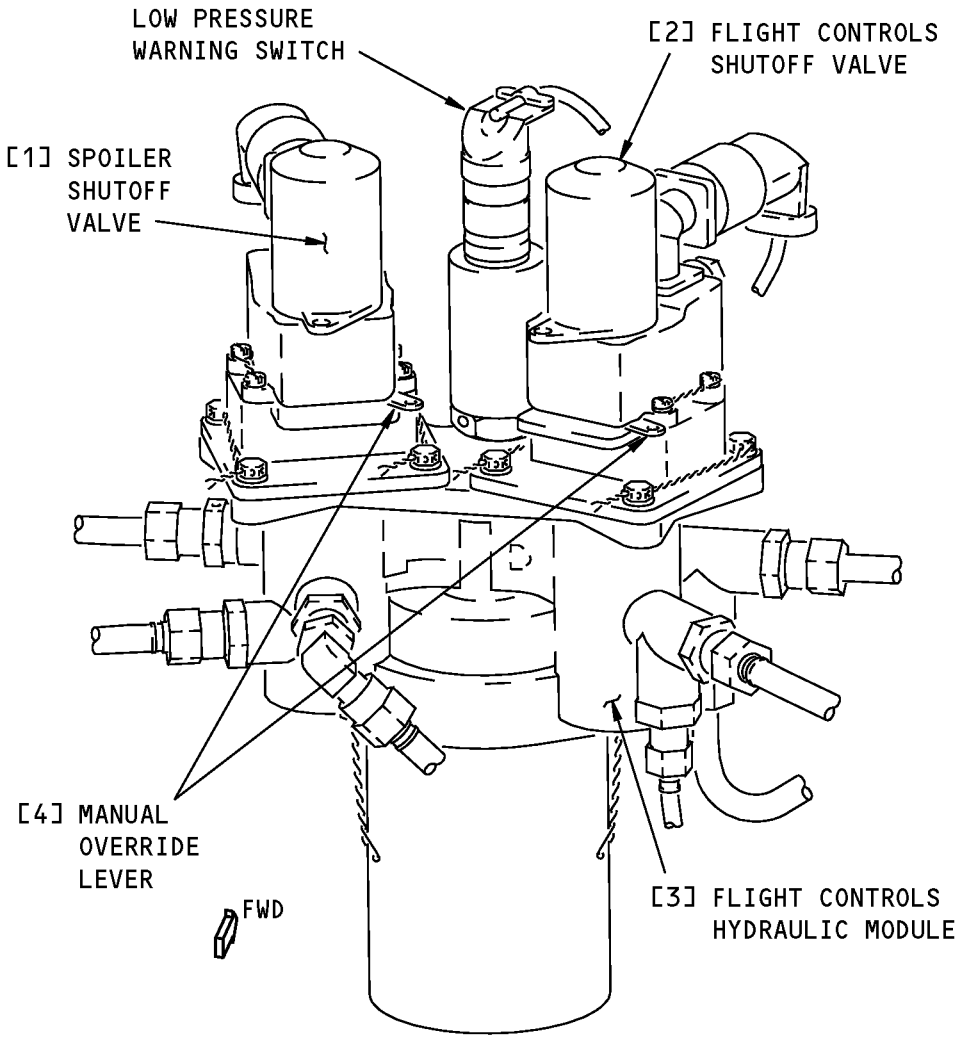

FLIGHT CONTROLS HYDRAULIC MODULE A
(MODULE B IS EQUIVALENT)

C

Flight Controls Shutoff Valve Test
Figure 502 (Sheet 3 of 3)/27-09-21-990-802

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FLIGHT CONTROLS SHUTOFF VALVE AND VALVE MOTOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flight controls shutoff valve assembly (the valve and the valve motor)

(2) An installation of the flight controls shutoff valve assembly (the valve and the valve motor)

(3) A removal of the flight controls shutoff valve motor

(4) An installation of the flight controls shutoff valve motor.

B. The flight controls shutoff valve is part of the flight controls hydraulic module. The hydraulic module for the hydraulic system A is found in the left main wheel well. The hydraulic module for the hydraulic system B is found in the right main wheel well.

C. The flight controls shutoff valve is referred to as the "valve" and the flight controls shutoff valve motor is referred to as the "valve motor" in this procedure.

D. You can replace the valve motor with the valve installed in the flight controls hydraulic module.

TASK 27-09-31-000-801

2. Flight Controls Shutoff Valve Removal

(Figure 401)

A. General

(1) This task is the removal of the flight controls shutoff valve assembly, which contains the motor and the valve.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1154	Container - 5 Gallon (19 Liters)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

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E. Prepare for the Removal

SUBTASK 27-09-31-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-09-31-860-001

(2) If there is power on hydraulic system A or B, remove hydraulic power. For applicable hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

NOTE: Remove power from hydraulic system A for the left shutoff valve. Remove power from hydraulic system B for the right shutoff valve.

SUBTASK 27-09-31-860-002

(3) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-09-31-860-013

(4) If you remove the left shutoff valve:

Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-09-31-860-003

(5) If you remove the right shutoff valve:

Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

F. Flight Controls Shutoff Valve Removal

SUBTASK 27-09-31-020-001

(1) Remove the valve [8]:

(a) Disconnect the electrical connector [1] from the valve motor [6].

(b) Remove the four bolts [2] and washers [3] that attach the valve [8] to the hydraulic module housing [5].

(c) Put a 5 gallon (19 liter) container, STD-1154 below the valve [8] to catch hydraulic fluid.

(d) Carefully lift the valve [8] straight up to remove it from the hydraulic module housing [5]. Discard the removed packings.

(e) Put a cover on the hydraulic module housing [5] to keep contamination out of the open valve hole.

——————— END OF TASK ———————

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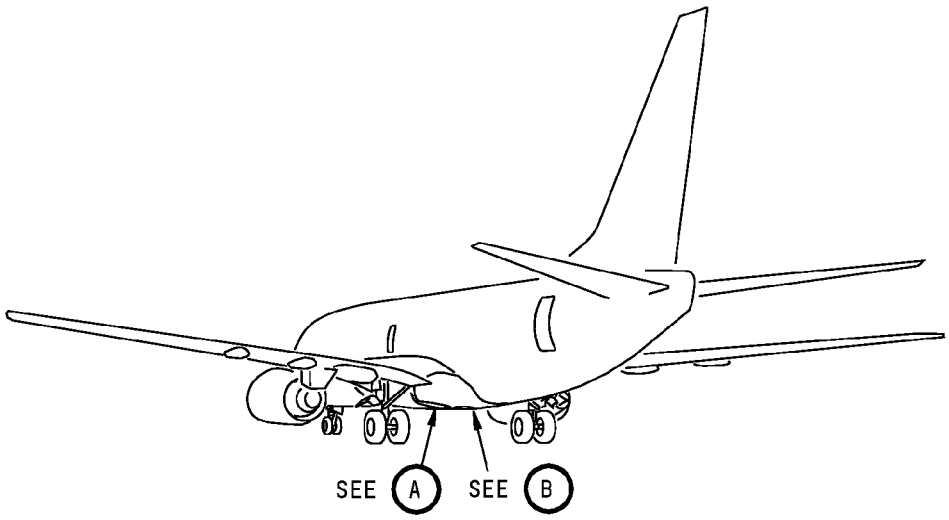

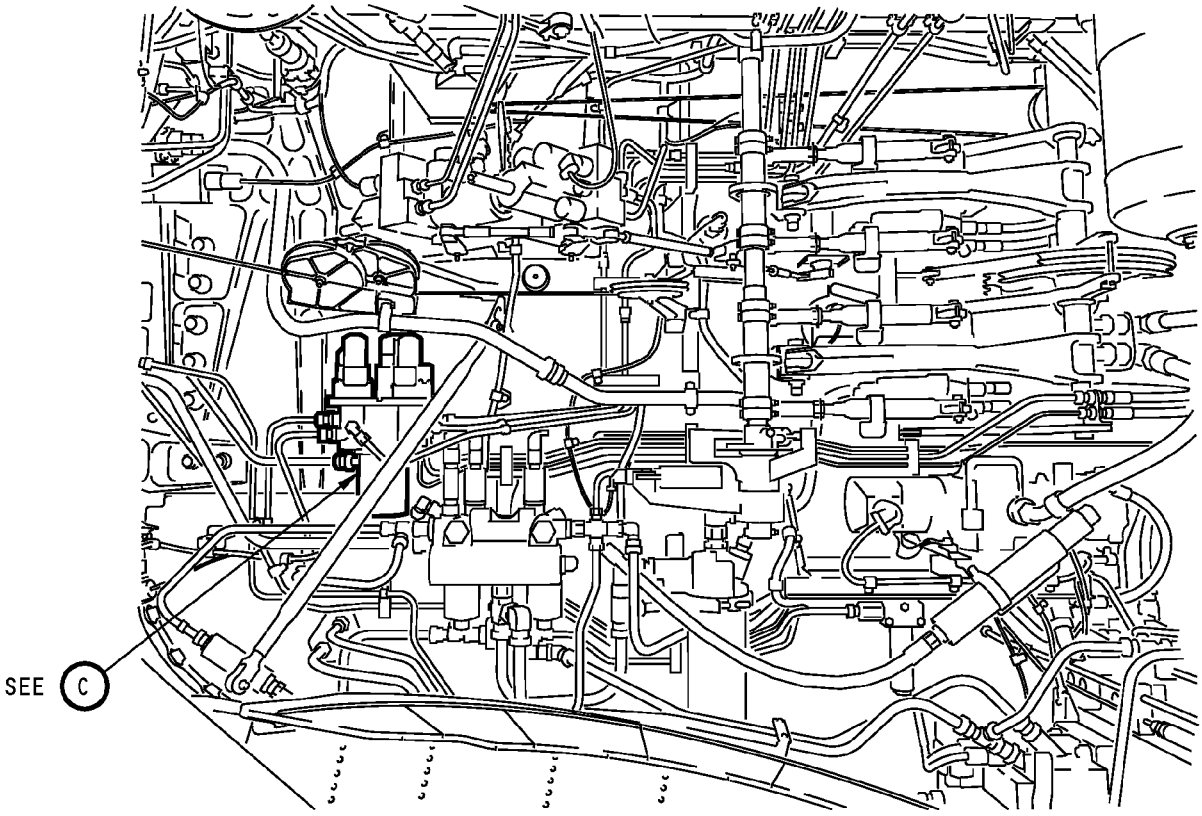

Flight Controls Shutoff Valve Installation
Figure 401 (Sheet 1 of 3)/27-09-31-990-801

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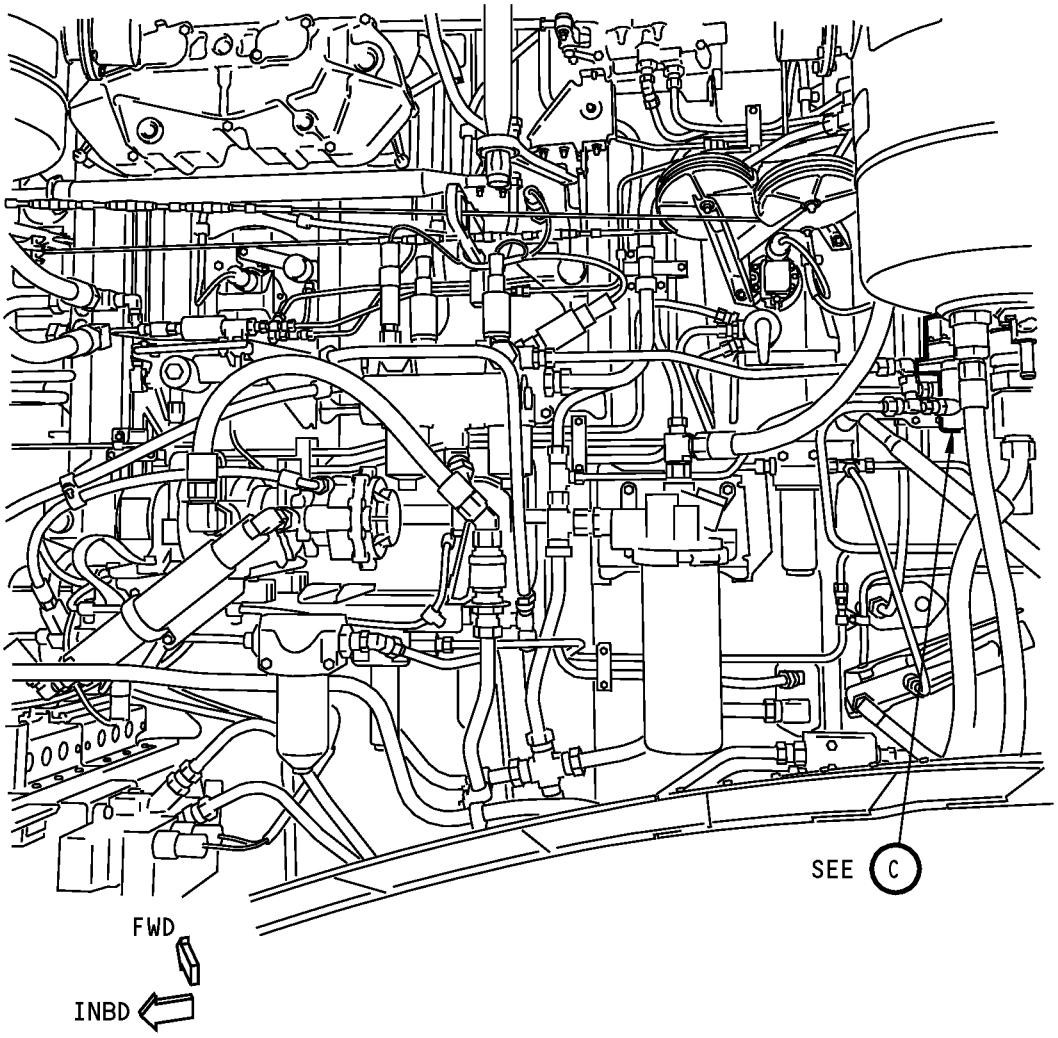

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

B

Flight Controls Shutoff Valve Installation
Figure 401 (Sheet 2 of 3)/27-09-31-990-801

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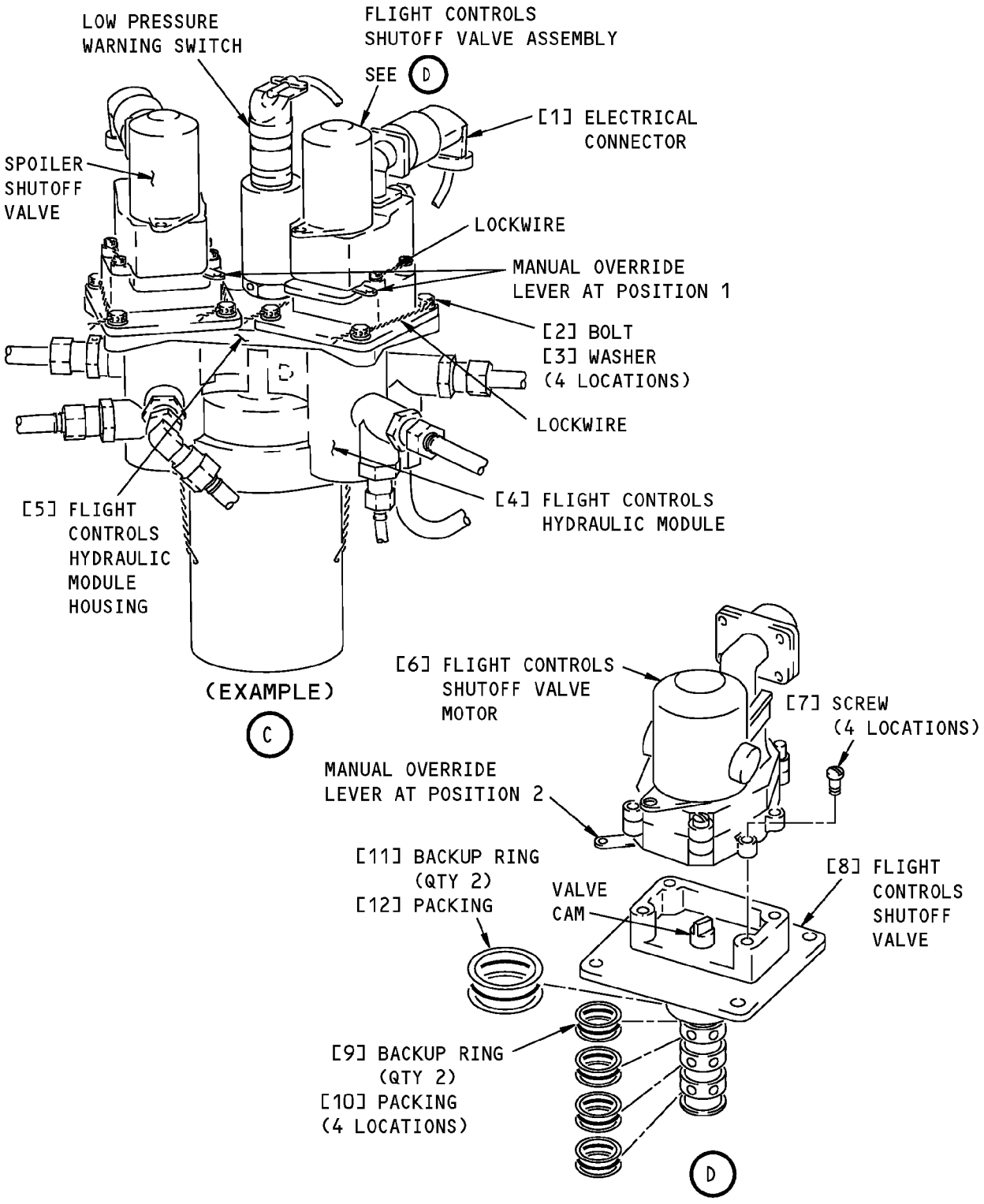

Flight Controls Shutoff Valve Installation
Figure 401 (Sheet 3 of 3)/27-09-31-990-801

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TASK 27-09-31-400-801

3. Flight Controls Shutoff Valve Installation

(Figure 401)

A. General

(1) This task is the installation of the flight controls shutoff valve assembly, which contains the motor and the valve.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-09-31-710-801	Flight Controls Shutoff Valve Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜C32 (QQ-N-281)
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
12	Packing	27-09-21-01-105	HAP ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Flight Controls Shutoff Valve Installation

SUBTASK 27-09-31-420-001

(1) If they are not installed, install the packings [12], backup rings [11], packings [10] and backup rings [9]:

(a) Apply MCS 352B fluid, D00054 (preferred) or fluid, D00153 (alternative) to the packings [12], backup rings [11], packings [10] and backup rings [9].

(b) Install the packings [12], backup rings [11], packings [10] and backup rings [9] on the valve [8].

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SUBTASK 27-09-31-420-002

(2) Install the valve [8]:

(a) Carefully install the valve [8] in the hydraulic module housing [5].

(b) Install the bolts [2] and washers [3] to attach the valve [8] to the hydraulic module housing [5].

(c) Tighten the bolts [2] to 30-40 pound-inches (3.4-4.5 newton-meters).

(d) Install the lockwire, G01912 on the four bolts [2].

(e) Before you connect the electrical connector [1], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(f) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(g) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(h) Connect the electrical connector [1] to the valve motor [6].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-31-860-014

(1) If you removed the left shutoff valve:

Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-09-31-860-004

(2) If you removed the right shutoff valve:

Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-09-31-610-001

(3) If it is necessary to service the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 27-09-31-730-001

(4) Do this task: Flight Controls Shutoff Valve Test, TASK 27-09-31-710-801.

——————— END OF TASK ———————

TASK 27-09-31-000-802

4. Flight Controls Shutoff Valve Motor Removal

(Figure 401)

A. General

(1) You can remove the valve motor with the valve installed in the flight controls hydraulic module.

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B. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Removal

SUBTASK 27-09-31-480-002

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-09-31-860-015

(2) If you removed the left motor:

Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-09-31-860-005

(3) If you removed the right motor:

Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

E. Flight Controls Shutoff Valve Motor Removal

SUBTASK 27-09-31-020-002

(1) Remove the valve motor [6]:

(a) Disconnect the electrical connector [1] from the valve motor [6].

(b) Set the manual override lever on the valve motor [6] to position 2.

(c) Remove the screws [7] that attach the valve motor [6] to the valve [8].

(d) Remove the valve motor [6] from the valve [8].

END OF TASK

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TASK 27-09-31-400-802

5. Flight Controls Shutoff Valve Motor Installation

(Figure 401)

A. General

(1) You can install the valve motor with the valve installed in the flight controls hydraulic module.

B. References

Reference	Title
27-09-31-710-801	Flight Controls Shutoff Valve Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Flight Controls Shutoff Valve Motor Installation

SUBTASK 27-09-31-420-003

(1) Install the valve motor [6]:

(a) Make sure the manual override lever on the valve motor [6] is set to position 2.

(b) Set the valve motor [6] on the valve [8]

(c) Engage the valve motor [6] with the valve cam.

(d) Install the four screws [7].

(e) Install the lockwire, G01912 on the screws [7].

(f) Before you connect the electrical connector [1], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(g) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(h) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(i) Connect the electrical connector [1] to the valve motor [6].

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F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-31-860-006

(1) Set the manual override lever on the valve motor [6] to position 1.

SUBTASK 27-09-31-860-016

(2) If you removed the left motor:

Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-09-31-860-007

(3) If you removed the right motor:

Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-09-31-730-002

(4) Do this task: Flight Controls Shutoff Valve Test, TASK 27-09-31-710-801.

———————— END OF TASK ————————

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FLIGHT CONTROLS SHUTOFF VALVE - ADJUSTMENT/TEST

1. General

A. This procedure has the task to do a test of the flight controls shutoff valve.

TASK 27-09-31-710-801

2. Flight Controls Shutoff Valve Test

A. General

(1) The flight controls shutoff valve is part of the flight controls hydraulic module. The hydraulic module for the hydraulic system A is found in the left main wheel well. The hydraulic module for the hydraulic system B is found in the right main wheel well.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 27-09-31-860-008

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-09-31-860-009

(2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-09-31-860-010

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) To pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

E. Do a Test of the Flight Controls Shutoff Valve

SUBTASK 27-09-31-710-001

(1) Do a test of flight controls shutoff valve:

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(a) Make sure the FLT CONTROL switches on the flight controls panel, P5, are in the ON position.

(b) Make sure the manual override lever on the flight controls shutoff valve motor is in position 1 for hydraulic systems A and B.

(c) Operate the aileron control wheel to bleed air from the hydraulic system lines and components.

1) Make sure there is no leakage of hydraulic fluid at the flight control hydraulic modules.

(d) Operate the aileron control wheel, control column, and rudder pedals.

1) Make sure the ailerons, elevators, and rudder operate satisfactory.

(e) Set the FLT CONTROL switches to the OFF position.

1) Make sure the manual override lever on the flight controls shutoff valve motor is in position 2 for hydraulic systems A and B.

(f) Operate the rudder pedals.

NOTE: The rudder must not operate hydraulically, but the rudder pedals will operate manually. Some rudder surface movement can occur if the pedal input is large enough to mechanically displace the PCU actuating piston. Full rudder authority may be available.

1) Make sure the force to operate the rudder pedals is higher now than when you set the FLT CONTROLS switches to the ON position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-31-860-011

(1) Set the FLT CONTROL switches to the ON position.

SUBTASK 27-09-31-860-012

(2) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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FLIGHT CONTROLS PANEL (P5-3) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flight controls panel, referred to as the flight controls module assy [1]

(2) An installation of the flight controls panel.

B. The flight controls panel (P5-3) is on the captain's overhead panel. The flight controls panel has the lights and switches used by the primary and auxiliary flight control system hydraulic supply valves.

TASK 27-09-45-000-801

2. Flight Controls Panel Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Removal

SUBTASK 27-09-45-860-001

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 27-09-45-860-002

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	6	C01429	YAW DAMPER IND
D	2	C01045	AFCS SYS A FCC DC
D	6	C01354	YAW DAMPER 2 DC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF
B	3	C01046	AFCS SYS B FCC DC
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	12	C00132	MASTER CAUTION ANNUNCIATOR BUS 1
B	13	C00131	MASTER CAUTION ANNUNCIATOR BAT
D	12	C00310	INDICATOR MASTER DIM BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2

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Row	Col	Number	Name
E	14	C00316	INDICATOR MASTER DIM SECT 4

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

D. Procedure

SUBTASK 27-09-45-020-001

(1) Remove the flight controls :module assy [1]

(a) Loosen the quarter-turn fasteners [2] that hold the flight controls module assy [1].

(b) Lower the flight controls module assy [1].

(c) Disconnect the electrical connectors from the flight control module assy [1].

(d) Remove the flight controls module assy [1].

END OF TASK

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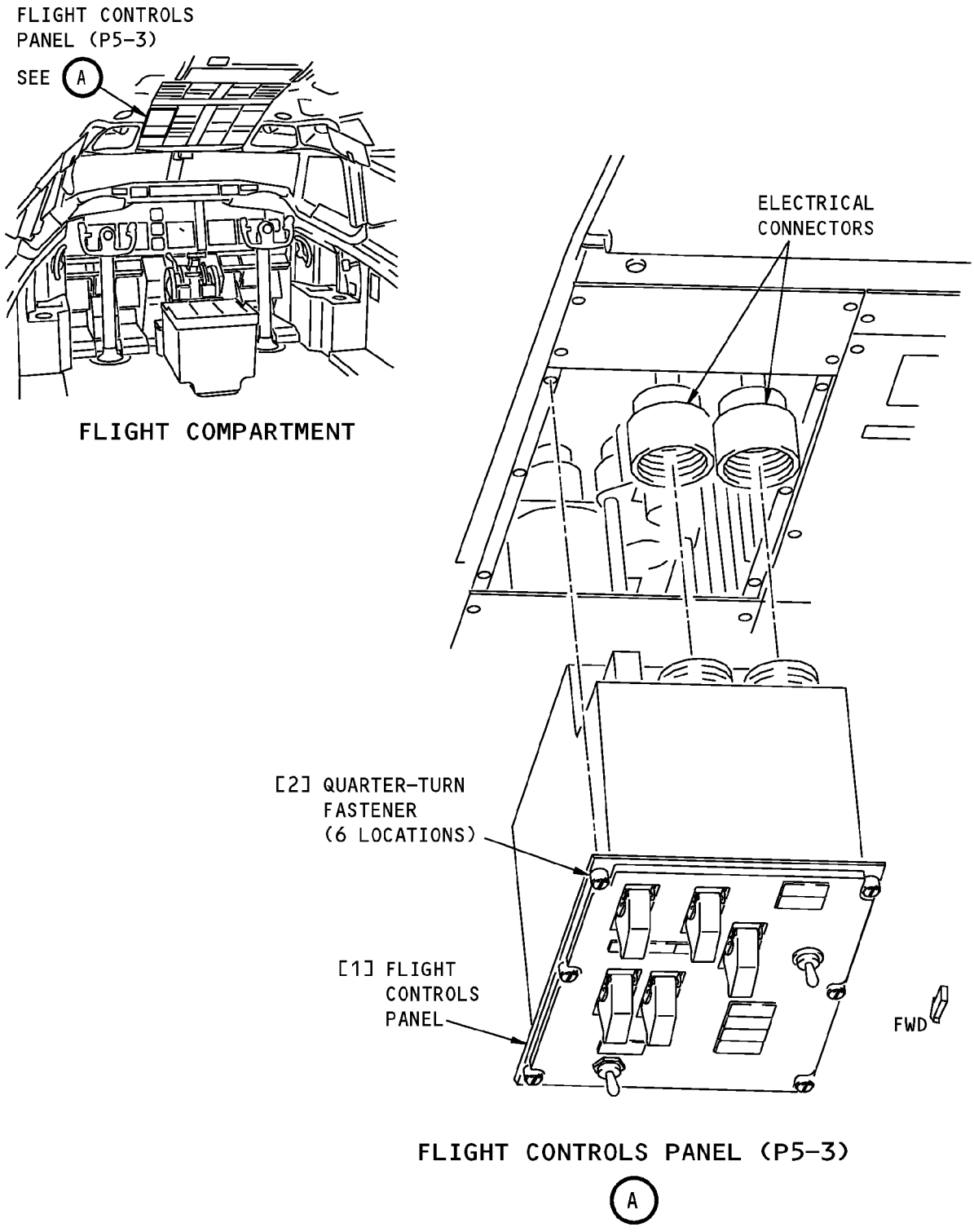

Flight Controls Panel (P5-3) Installation
Figure 401/27-09-45-990-801

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TASK 27-09-45-400-801

3. Flight Controls Panel Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-09-45-420-001

(1) Install the flight controls module assy [1]:

(a) Connect the electrical connectors to the flight control module assy [1].

NOTE: Make sure that the connectors match the mates on the flight control module assy [1].

(b) Push the flight controls module assy [1] into the captain's overhead panel.

(c) Install the screws [2] that hold the flight controls module assy [1].

SUBTASK 27-09-45-860-003

(2) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	6	C01429	YAW DAMPER IND
D	2	C01045	AFCS SYS A FCC DC
D	6	C01354	YAW DAMPER 2 DC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF
B	3	C01046	AFCS SYS B FCC DC
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

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F/O Electrical System Panel, P6-3

Row	Col	Number	Name
B	12	C00132	MASTER CAUTION ANNUNCIATOR BUS 1
B	13	C00131	MASTER CAUTION ANNUNCIATOR BAT
D	12	C00310	INDICATOR MASTER DIM BAT
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2
E	14	C00316	INDICATOR MASTER DIM SECT 4

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
F	10	C01283	GENERATOR CONT UNIT 1
F	11	C01284	GENERATOR CONT UNIT 2

SUBTASK 27-09-45-860-004

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-09-45-710-006

(4) Do this test of the hydraulic system valve control:

(a) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	15	C01401	LANDING GEAR AIR/GND RELAY

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: With these circuit breakers open the standby pump and the alternate flap drive motor will not operate.

(b) Make sure these switches on the module assy [1] are in the OFF position:

1) FLT CONTROL A, and FLT CONTROL B
2) SPOILER A, and SPOILER B
3) ALTERNATE FLAPS arm switch
4) ALTERNATE FLAPS control switch

(c) Do this test of the control of the system A and system B flight control hydraulic valves from the module assy [1]:

NOTE: The flight control hydraulic valves are installed on the left and right sides of the forward bulkhead of the landing gear wheel well.

1) Move the FLT CONTROL A switch to the ON position.
   a) Make sure the system A flight control valve moves to position 1.
   b) Make sure the system B flight control valve does not move (stays in position 2).
2) Move the FLT CONTROL B switch to the ON position.

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a) Make sure the system B flight control valve moves to position 1.

3) Move the FLT CONTROL A switch to the OFF position.

a) Make sure the system A flight control valve moves to position 2.

b) Make sure the system B flight control valve does not move (stays in position 1).

4) Move the FLT CONTROL B switch to the OFF position.

a) Make sure the system B flight control valve moves to position 2.

(d) Do this test of the control of the system A and system B spoiler hydraulic valves from the module assy [1]:

NOTE: The spoiler hydraulic valves are installed on the left and right sides of the forward bulkhead of the landing gear wheel well.

1) Move the SPOILER A switch to the ON position.

a) Make sure the system A spoiler valve moves to position 1.

b) Make sure the system B spoiler valve does not move (stays in position 2).

2) Move the SPOILER B switch to the ON position.

a) Make sure the system B spoiler valve moves to position 1.

3) Move the SPOILER A switch to the OFF position.

a) Make sure the system A spoiler valve moves to position 2.

b) Make sure the system B spoiler valve does not move (stays in position 1).

4) Move the SPOILER B switch to the OFF position.

a) Make sure the system B spoiler valve moves to position 2.

(e) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	15	C01401	LANDING GEAR AIR/GND RELAY

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
F	2	C01449	STANDBY HYDRAULIC PUMP

NOTE: If you will perform the "Test of the hydraulic system indications and lights" next, do not close the STANDBY HYDRAULIC PUMP circuit breaker on the P92 panel.

SUBTASK 27-09-45-710-001

(5) Do this test of the hydraulic system indications and lights:

(a) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
F	2	C01449	STANDBY HYDRAULIC PUMP

(b) Move the FLT CONTROL A and B switches to the ON position.

1) Make sure the FLT CONTROL - LOW PRESSURE A and B lights are ON.

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(c) Move the ALTERNATE FLAPS arm switch to the ARM position.

1) Make sure the STANDBY HYD - LOW PRESSURE light is ON.

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(d) Use the electric motor pumps to pressurize hydraulic systems A and B. To pressurize them, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

1) Make sure the FLT CONTROL - LOW PRESSURE A and B lights are OFF.

(e) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
F	2	C01449	STANDBY HYDRAULIC PUMP

1) Make sure the STANDBY HYD - LOW PRESSURE light is OFF.

(f) Remove the power from hydraulic systems A and B. To remove the power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(g) Move the ALTERNATE FLAPS arm switch to the OFF position.

(h) Do this test of the STANDBY HYD - LOW QUANTITY light:

1) Open this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	14	C00316	INDICATOR MASTER DIM SECT 4

2) Disconnect the electrical connector D678 from the standby system reservoir switch S49.

NOTE: The standby system reservoir is on the keel beam in the main wheel well.

3) Connect a jumper wire between pins 1 and 2 on electrical connector D678.

4) Close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	14	C00316	INDICATOR MASTER DIM SECT 4

5) Make sure the STANDBY HYD - LOW QUANTITY light is ON.

6) Open this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	14	C00316	INDICATOR MASTER DIM SECT 4

7) Remove the jumper wire from electrical connector D678.

8) Connect the electrical connector D678 on the standby system reservoir switch S49.

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9) Close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	14	C00316	INDICATOR MASTER DIM SECT 4

10) Make sure the STANDBY HYD - LOW QUANTITY light is OFF.

SUBTASK 27-09-45-710-002

(6) Do a test of the lights on the module assy [1]:

NOTE: Some lights might be ON.

(a) Move and hold the LIGHTS switch on the P2 Main Panel to the TEST position.

1) Make sure these lights are ON:

a) STANDBY HYD - LOW QUANTITY

b) STANDBY HYD - LOW PRESSURE

c) FLT CONTROL - LOW PRESSURE A

d) FLT CONTROL - LOW PRESSURE B

e) FEEL DIFFERENTIAL PRESS

f) SPEED TRIM FAIL

g) MACH TRIM FAIL

h) AUTO SLAT FAIL

i) YAW DAMPER

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

j) STBY RUD ON

HAP ALL

(b) Move the LIGHTS switch back to BRT.

SUBTASK 27-09-45-710-003

(7) Do a test of the YAW DAMPER light for the yaw damper system:

(a) Align the ADIRS. To align the ADIRS, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

(b) Make sure the FLT CONTROL B switch is ON.

(c) Turn the YAW DAMPER switch to ON.

1) Make sure the light for the YAW DAMPER goes off.

(d) Turn the YAW DAMPER switch to OFF.

1) Make sure the light for the YAW DAMPER comes on.

SUBTASK 27-09-45-710-005

CAUTION: MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

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(CAUTION PRECEDES)

(8) Do this test of the alternate control system for the leading edge flaps and slats and the trailing edge flaps:

(a) Make sure the flap control lever is in the FLAP UP detent.

NOTE: If the flap control lever is not in the FLAP UP detent, the flaps and slats might extend when hydraulic pressure is applied.

(b) Set the FLT CONTROL B switch to STBY RUD.

1) Make sure the STANDBY HYD - LOW PRESSURE light comes on momentarily, and then goes off.

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

2) Make sure the STBY RUD ON light on the P5-3 panel is illuminated.

HAP ALL

(c) Set the ALTERNATE FLAPS arm switch to ARM.

1) Make sure the leading edge flaps and slats and the trailing edge flaps do not extend.

WARNING: MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE FLAPS AND SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE TRAILING EDGE FLAP ALTERNATE FLAP DRIVE UNIT IS LIMITED TO 4 MINUTES OPERATION AND 25 MINUTES OFF. FAILURE TO DO THIS CAN CAUSE DAMAGE TO THE DRIVE UNIT.

(d) Move the ALTERNATE FLAPS control switch to the DOWN position.

1) Make sure the leading edge flaps and slats and the trailing edge flaps extend.

NOTE: It is not necessary to fully extend the trailing edge flaps.

(e) Move the ALTERNATE FLAPS control switch to the UP position.

1) Make sure the trailing edge flaps retract.

NOTE: It is not necessary to fully retract the trailing edge flaps with alternate control.

(f) Move the ALTERNATE FLAPS ARM switch to the OFF position.

(g) Supply hydraulic pressure to system B. To supply hydraulic pressure, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

1) Make sure the trailing edge flaps fully retract.

2) Make sure the leading edge flaps and slats fully retract.

(h) Move the FLT CONTROL B switch to the OFF position.

(i) Move the ALTERNATE FLAPS ARM switch to the ARM position.

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1) Make sure the STANDBY HYD - LOW PRESSURE light is off.

(j) Move the ALTERNATE FLAPS ARM switch to the OFF position.

(k) Move the FLT CONTROL B switch to the ON position.

D. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-45-860-006

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 27-09-45-860-007

(2) If it is necessary, remove hydraulic power. To remove hydraulic power from systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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COMPENSATOR CARTRIDGE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the compensator cartridge

(2) An installation of the compensator cartridge.

HAP 001-013, 015-026, 028-030

B. The compensator cartridge is part of the flight controls hydraulic module. The flight controls hydraulic module for hydraulic system A is found in the left main wheel well. The flight controls hydraulic module for hydraulic system B is found in the right main wheel well.

NOTE: Do not install 10-60560-3 Compensator on Flight Control Module if the Compensator has serial number 20478A to 20717A (Ref: AD 2002-19-51, Rev.1).

HAP 001-013, 015-026, 028-030; AIRPLANES WITH 65-44891-1 THRU -7 FCM

TASK 27-09-51-000-801

2. Compensator Cartridge Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1154	Container - 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Removal

SUBTASK 27-09-51-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

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SUBTASK 27-09-51-860-001

(2) If there is power on hydraulic system A or B, remove hydraulic power. For the applicable system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

NOTE: Remove power from hydraulic system A if you remove the compensator cartridge in the left main wheel weel. Remove power from hydraulic system B if you remove the compensator cartridge in the right main wheel weel.

SUBTASK 27-09-51-860-002

(3) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

E. Compensator Cartridge Removal

SUBTASK 27-09-51-020-001

(1) Remove the compensator cartridge [1]:

(a) Put a 5 gallon (19 liter) container, STD-1154 below the compensator cartridge [1] to catch hydraulic fluid that drains from the compensator cartridge [1].

(b) Remove the compensator cartridge [1] from the flight controls hydraulic module. Discard the removed packings.

(c) Put a cover on the hydraulic module housing [4] to keep contamination out of the open port.

———————— END OF TASK ————————

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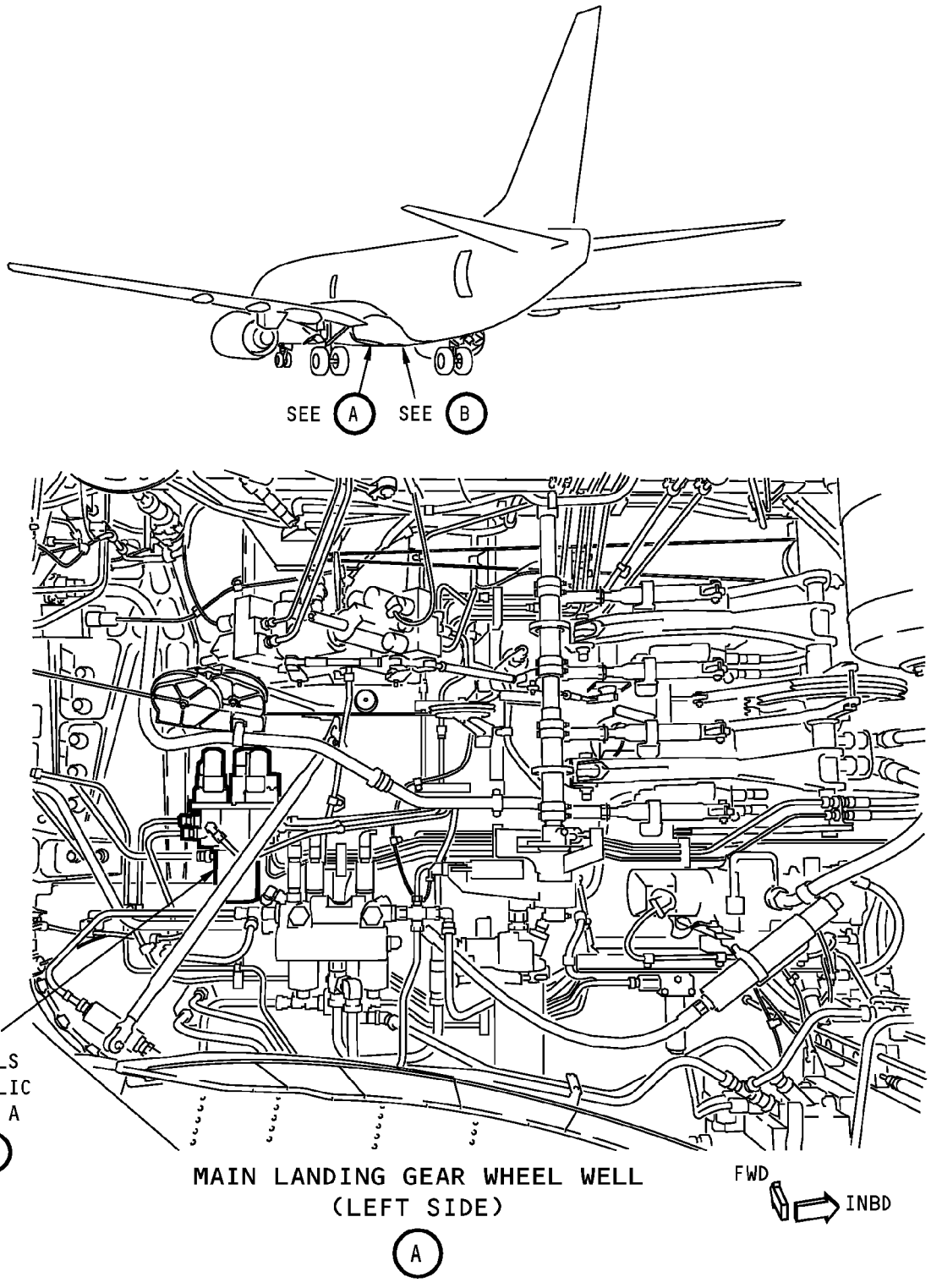

Compensator Cartridge Installation
Figure 401 (Sheet 1 of 3)/27-09-51-990-801

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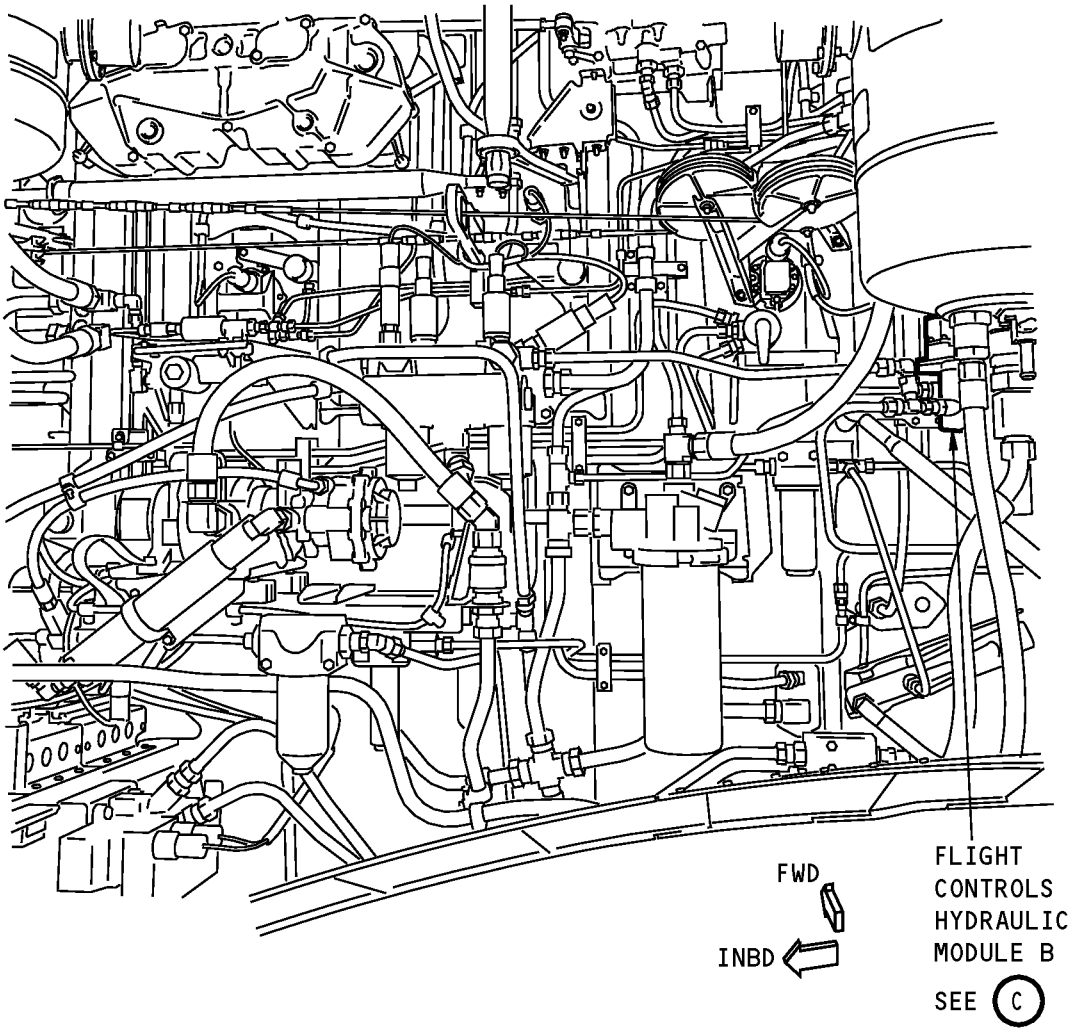

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

B

Compensator Cartridge Installation
Figure 401 (Sheet 2 of 3)/27-09-51-990-801

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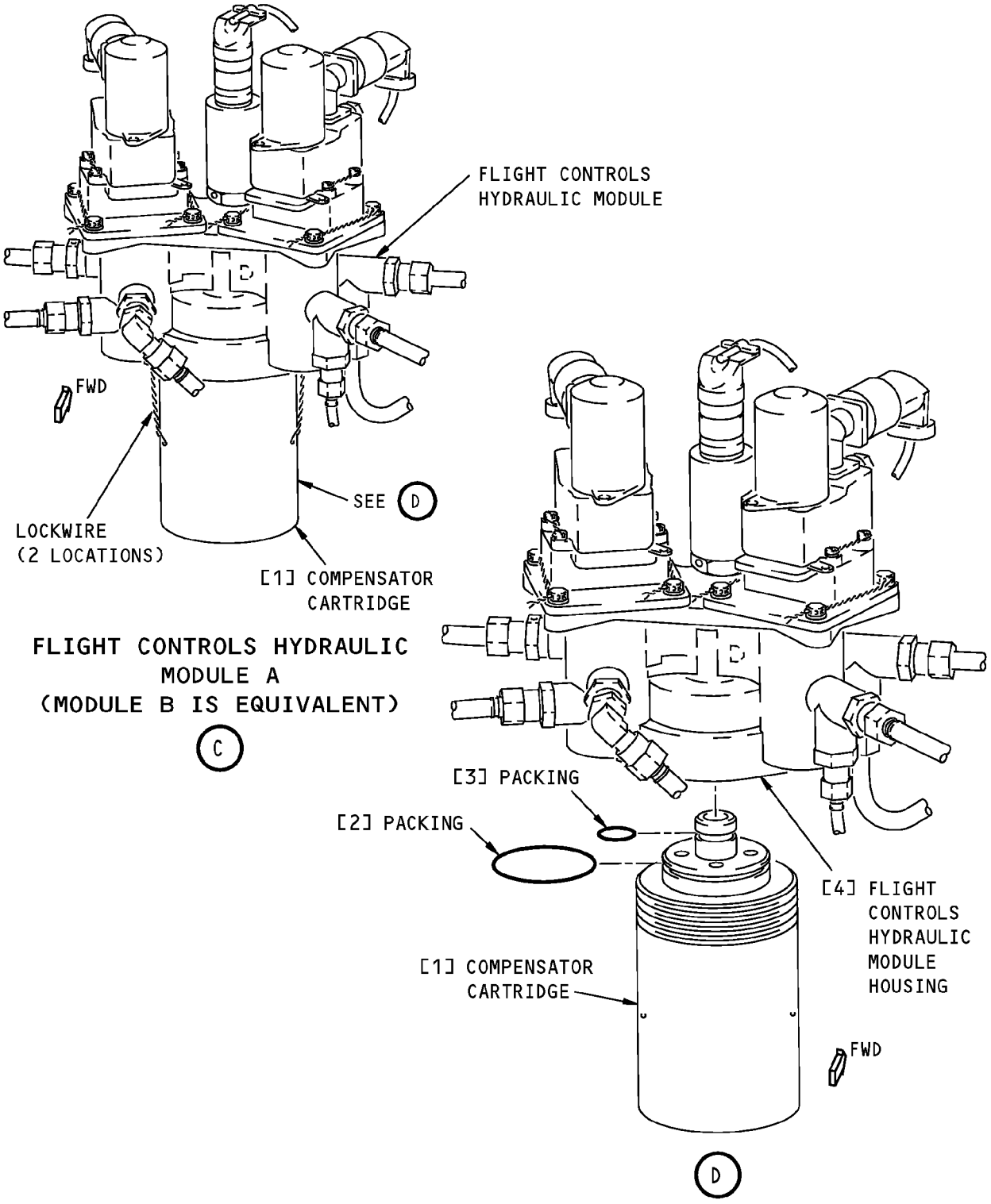

Compensator Cartridge Installation
Figure 401 (Sheet 3 of 3)/27-09-51-990-801

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TASK 27-09-51-400-801

3. Compensator Cartridge Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-01-860-801	Hydraulic Reservoirs Pressurization (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜C32 (QQ-N-281)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Compensator Cartridge Installation

SUBTASK 27-09-51-420-001

(1) If they are not installed, install the packings [2] and [3].

(a) Apply MCS 352B fluid, D00054 (recommended) or fluid, D00153 (alternative) to the new packings [2] and [3].

(b) Install the packings [2] and [3] on the compensator cartridge [1].

SUBTASK 27-09-51-420-002

(2) Install the compensator cartridge [1]:

NOTE: Do not install 10-60560-3 Compensator on Flight Control Module if the Compensator has serial number 20478A thru 20717A (Ref: AD 2002-19-51, Rev.1).

(a) Install the compensator cartridge [1] on the flight controls hydraulic module housing [4].

(b) Tighten the compensator cartridge [1] by hand until the compensator cartridge [1] bottoms in the housing.

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(c) Install the lockwire, G01912.

SUBTASK 27-09-51-860-003

(3) Do this task: Hydraulic Reservoirs Pressurization, TASK 29-11-01-860-801 or Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

SUBTASK 27-09-51-860-004

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the applicable hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: Pressurize hydraulic system A if you replace the compensator cartridge in the left main wheel weel. Pressurize hydraulic system B if you replace the compensator cartridge in the right main wheel weel.

SUBTASK 27-09-51-860-005

(5) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-09-51-860-006

(6) Make sure the applicable FLT CONTROL A or B switch, on the P5-3 Flight Controls panel, is set to the ON position.

SUBTASK 27-09-51-790-001

(7) Operate the aileron control wheel, control column, and rudder pedals to bleed the hydraulic system.

(a) Make sure there is no leakage of the hydraulic fluid at the compensator cartridge [1].

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-51-860-007

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-09-51-610-001

(2) If it is necessary to service the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

———————— END OF TASK ————————

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LOW PRESSURE WARNING SWITCH - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the low pressure warning switch

(2) An installation of the low pressure warning switch.

B. The low pressure warning switch is referred to as the "pressure switch" in this procedure.

C. The pressure switch is part of the flight controls hydraulic module. One flight controls hydraulic module each is installed in the hydraulic systems A and B. The hydraulic module for hydraulic system A is found in the left main wheel well. The hydraulic module for hydraulic system B is found in the right main wheel well.

TASK 27-09-61-000-801

2. Low Pressure Warning Switch Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Low Pressure Warning Switch Removal

SUBTASK 27-09-61-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-09-61-860-001

(2) Make sure hydraulic power is not supplied to systems A and B. If it is necessary, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

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SUBTASK 27-09-61-860-002

(3) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-09-61-860-004

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	14	C00316	INDICATOR MASTER DIM SECT 4

SUBTASK 27-09-61-020-001

(5) Disconnect the electrical connector [4] from the pressure switch [3].

SUBTASK 27-09-61-020-002

(6) Remove the pressure switch [3]:

(a) Use a 5 gallon (19 liters) hydraulic fluid resistant container, STD-1110 to catch hydraulic fluid that drains from the pressure switch [3].

(b) Remove the pressure switch [3] from the hydraulic module [5]. Discard the removed packing.

(c) Put a cover on the hydraulic module housing to keep unwanted material out of the open port.

———————— END OF TASK ————————

TASK 27-09-61-400-801

3. Low Pressure Warning Switch Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-09-61-700-801	Low Pressure Warning Switch Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange~able & intermixable with Type V)
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~C32 (QQ-N-281)
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

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C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Low Pressure Warning Switch Installation

SUBTASK 27-09-61-420-001

(1) If they are not installed, install the backup rings [1] and the packing [2] on the pressure switch [3].

(a) Apply MCS 352B fluid, D00054 (recommended) or fluid, D00153 (alternative) to the backup rings [1] and new packing [2].

(b) Put the backup rings [1] and new packing [2] in their position on the pressure switch [3].

SUBTASK 27-09-61-420-002

(2) Install the pressure switch [3]:

(a) Install the pressure switch [3] on the hydraulic module [5].

(b) Tighten the pressure switch [3] to 50-200 pound-inches (5.6-22.6 newton-meters).

(c) Install a lockwire, G01912 on the pressure switch [3] and the nearest bolt.

SUBTASK 27-09-61-420-003

(3) Do the following steps to connect the electrical connector [4]:

(a) Before you connect the electrical connector [4], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(b) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(c) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(d) Connect the electrical connector [4] to the pressure switch [3].

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-61-860-005

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	14	C00316	INDICATOR MASTER DIM SECT 4

SUBTASK 27-09-61-610-001

(2) If servicing is necessary for hydraulic system A and B reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

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SUBTASK 27-09-61-710-001

(3) Do this task: Low Pressure Warning Switch Test, TASK 27-09-61-700-801.

——————— END OF TASK ———————

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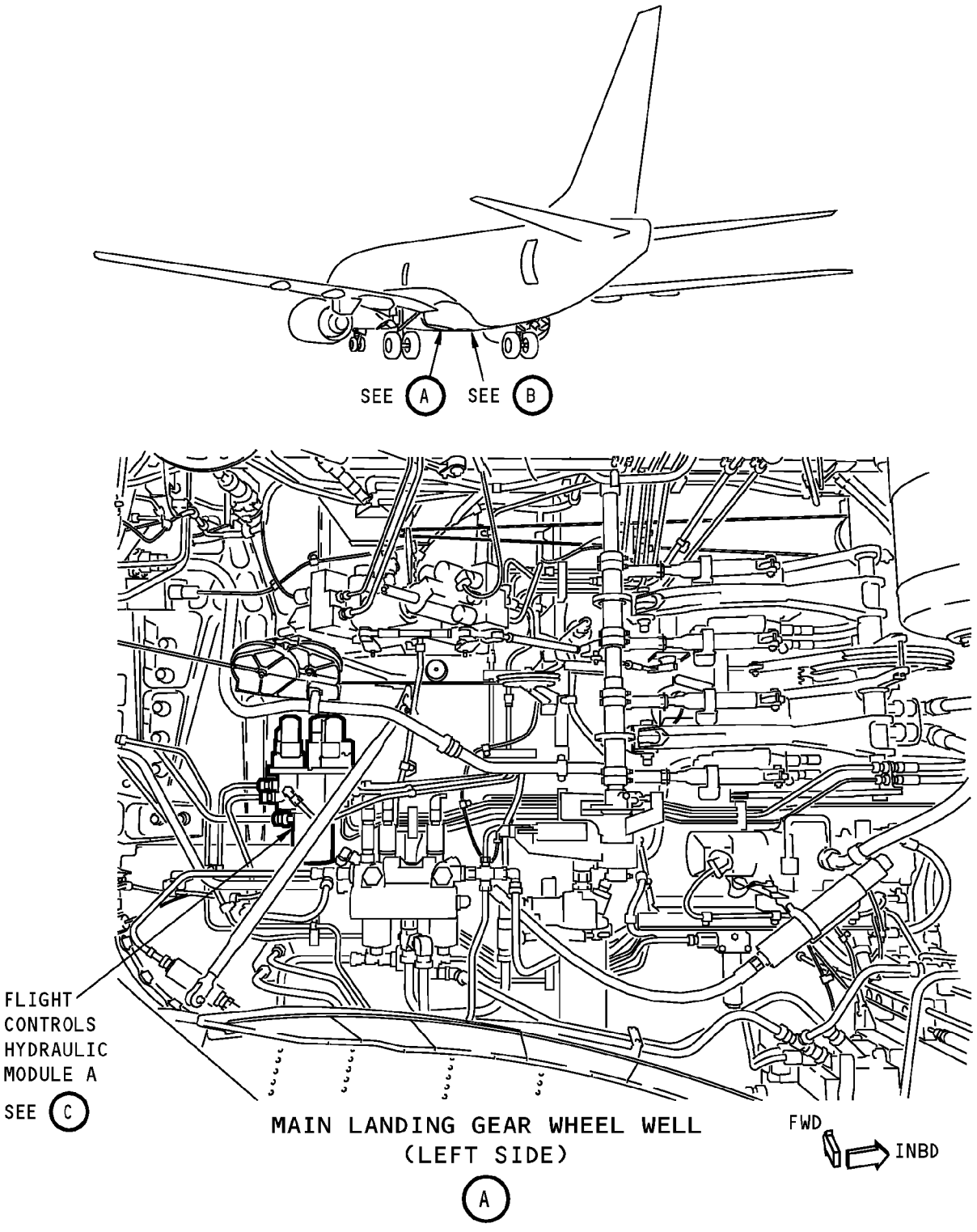

Low Pressure Warning Switch Installation
Figure 401 (Sheet 1 of 3)/27-09-61-990-801

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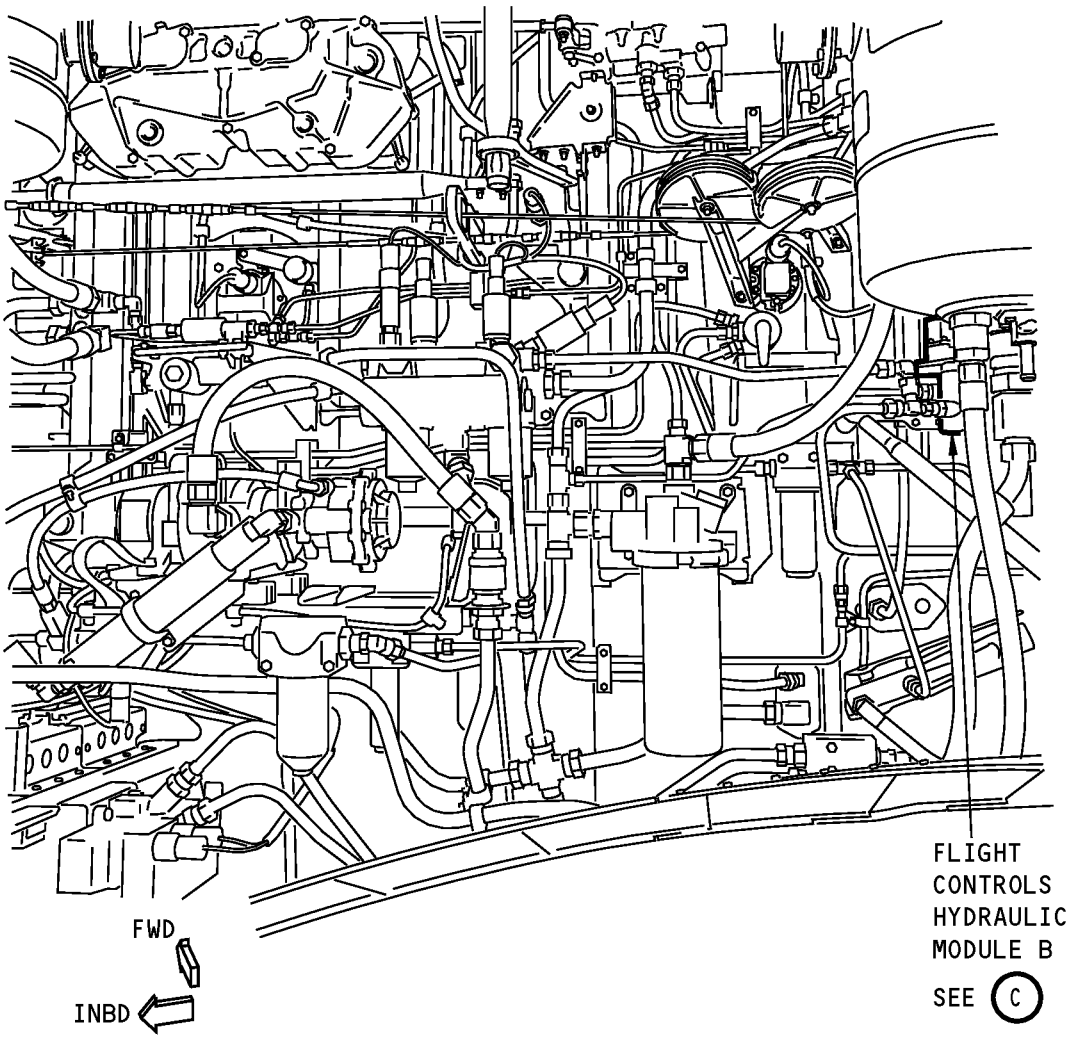

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

B

Low Pressure Warning Switch Installation
Figure 401 (Sheet 2 of 3)/27-09-61-990-801

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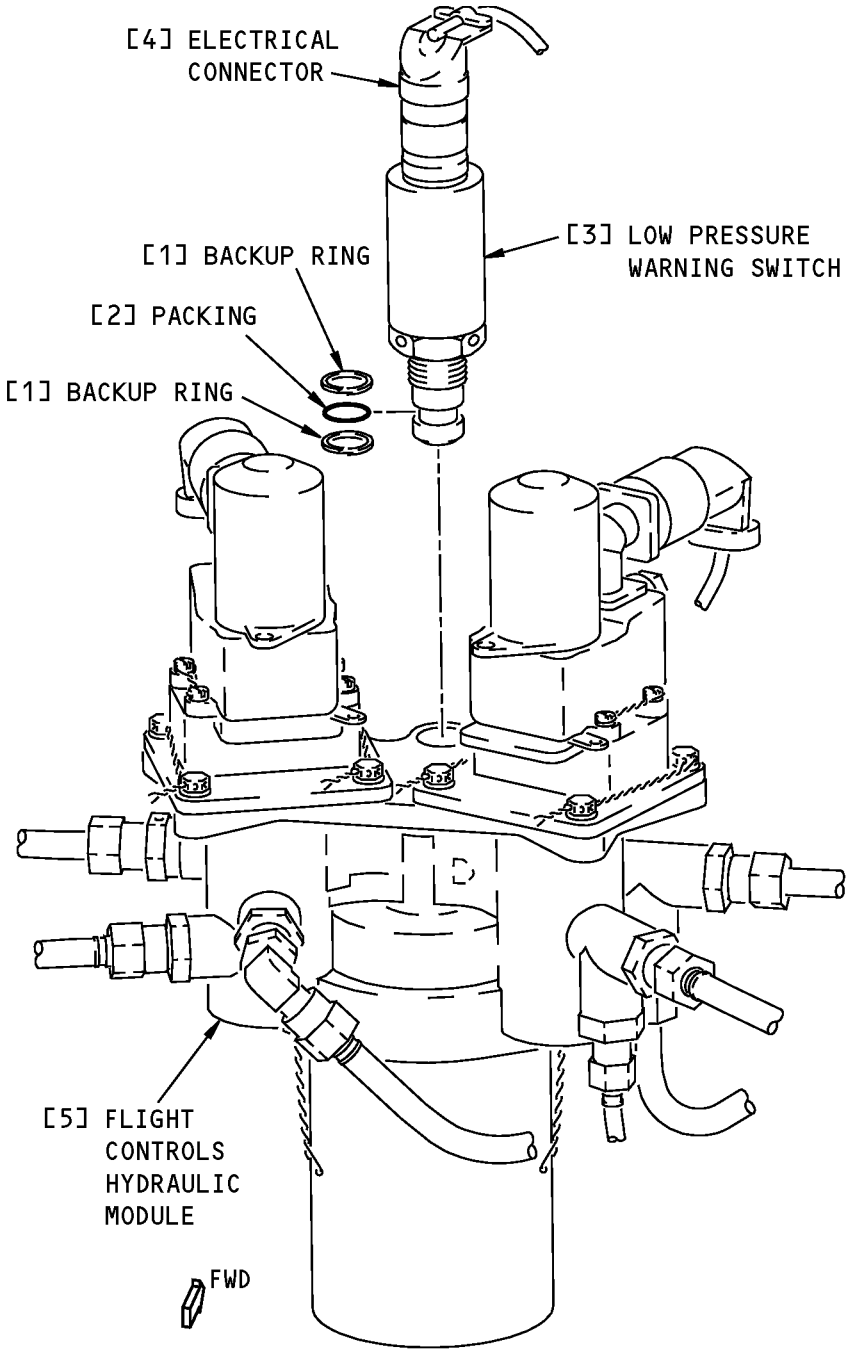

FLIGHT CONTROLS HYDRAULIC MODULE A
(MODULE B IS EQUIVALENT)

C

Low Pressure Warning Switch Installation
Figure 401 (Sheet 3 of 3)/27-09-61-990-801

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LOW PRESSURE WARNING SWITCH - ADJUSTMENT/TEST

1. General

A. This procedure contains the test of the low pressure warning switch.

B. The low pressure warning switch is part of the flight controls hydraulic module. The flight controls hydraulic module for hydraulic system A is found in the left main wheel well. The flight controls hydraulic module for hydraulic system B is found in the right main wheel well.

TASK 27-09-61-700-801

2. Low Pressure Warning Switch Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Test

SUBTASK 27-09-61-480-002

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-09-61-860-003

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

D. Do a Test of the Low Pressure Warning Switch

SUBTASK 27-09-61-710-002

(1) Do a test of the low pressure warning switch:

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) To pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(b) Operate the aileron control wheel, the control column, and the rudder pedals to bleed the hydraulic system.

(c) Make sure that there is no leakage of hydraulic fluid at the flight controls hydraulic module.

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(d) Make sure the LOW PRESSURE light on the forward overhead panel, P5, is not on.

(e) Remove pressure from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(f) Make sure the LOW PRESSURE light comes on.

(g) Make sure the MASTER CAUTION and the FLT CONT lights on the lightshield panel, P7, are on.

——————— END OF TASK ———————

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FLIGHT CONTROLS TRIM CORRECTION - ADJUSTMENT/TEST

1. General

A. This procedure contains these tasks:

(1) The adjustment of the trailing edge flaps for lateral trim

(2) The adjustment of the aileron balance tab to equalize lateral manual reversion forces

(3) The speed brake trim adjustment for rolloff discrepancy correction

(4) The rudder trim adjustment for power on discrepancy correction

(5) The rudder trim adjustment for power off discrepancy correction

(6) The flight controls adjustment record

B. Make sure the control system components are correctly adjusted when you measure the trim necessary for level flight.

C. To measure the lateral trim error you must do a test flight with the flight profile detailed in the task.

D. It is not necessary to adjust the lateral trim if the aileron and rudder trim necessary to keep level flight are within the limits shown in the table found in the task below:

TASK 27-09-71-820-801

2. Trailing Edge Flap Adjustment for Lateral Trim

A. General

(1) This task supplies the data necessary to adjust the trailing edge flaps to decrease the aileron trim necessary for straight and level flight during cruise, and with the trailing edge flaps extended.

(2) It is necessary to adjust the lateral trim if the aileron and rudder trim necessary to keep level flight are not in the limits shown in (Table 501).

NOTE: There are no specific limits or requirements for lateral trim outside of the flight test profile below. It is acceptable at other flight conditions to observe different trim settings from those specified.

Table 501/27-09-71-993-811 Lateral Trim Limits

Flight Condition	Aileron Trim	Rudder Trim	Airspeed	Altitude (feet)
Cruise (Flaps UP/Gear Up)	0.75 unit	0.5 unit	.78 mach	37,000 or higher
Low Speed (Flaps UP/Gear Up)	0.75 unit	0.75 unit	250 kias	10,000 to 17,000
Flaps Extended to 1 unit (Gear Up)	1.0 unit *[1]	1.0 unit	Flaps 1 Maneuver Speed	10,000 to 17,000
Flaps Extended to 15 units, Landing Gear Extended	1.0 unit *[1] *[2]	1.0 unit	Flaps 15 Maneuver Speed	10,000 to 17,000
Flaps Extended to 40 units, Landing Gear Extended	1.3 unit *[2]	1.0 unit	Vref + 5	10,000 to 17,000

*[1] The aileron trim change between flap positions 1 and 15 must be less than 1.0 unit.

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*[2] The aileron trim change between flap positions 15 and 40 must be less than 1.4 units. An aileron trim requirement shift from side to side is acceptable, provided it is withing the limit of 1.4 units.

(3) There are six methods available to adjust the lateral trim.

(a) You can change the shims at the aft end of the carriages on the outboard flap to correct lateral trim during cruise.

NOTE: This method will have an effect on the lateral trim with the flaps extended.

(b) You can change length of the bellcranks on the aft flap drive for the outboard flap to correct lateral trim with the flaps extended.

NOTE: This method has the most effect with the flaps extended to the 40 unit position. There is no effect on the lateral trim with the flaps retracted, and a small effect with the flaps extended to 1 and 15 unit positions.

(c) You can change the position of the carriage roller cartridges on the inboard flap to correct lateral trim for all flight conditions.

NOTE: This method will have a significant effect on the lateral trim with the flaps extended and retracted.

(d) You can change the position of the bullnose seal on the inboard main flap. If the bullnose seals are not symmetric between the left and right wings, the airflow past the seals can cause lateral trim errors with the flaps extended to 40-units. This airflow can cause the aftflap bellcrank adjustment to be not effective.

NOTE: This method will have an effect on the lateral trim with the flaps fully extended and with the change in the lateral trim between the 15-unit and 40-unit positions.

HAP 028-054, 101-999

(e) You can install or remove a Formed in Place Gasket (FIPG) on the torque tube door adjacent to the upper panel assembly. The FIPG stops air flow from the wheel well to the upper surface of the inboard flap. A change to the FIPG can be used when the trim requirement with the flaps extended is large, and the other methods have not been effective.

NOTE: This method will have an effect on the lateral trim with the flaps fully extended and with the change in the lateral trim between the 15-unit and 40-unit positions.

HAP ALL

(f) You can install asymmetric seals on the inboard main flap upper and lower surfaces. Asymmetric seals between the flap and the wing to body fairing will permit some airflow with the flaps extended. A change to the seal can be used when the change in the trim requirement between flaps 15 and flaps 40 units is large, and the other methods have not been effective.

NOTE: This method will have an effect on the lateral trim with the flaps fully extended and with the change in the lateral trim between the 15-unit and 40-unit positions.

(4) You can do more than one of the adjustments to correct for lateral trim problems. The charts shown in this task are for single adjustments. The results shown in the charts can be added together if you do multiple adjustments.

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B. References

Reference	Title
27-11-00-820-805	Do A Check of the Aileron System Adjustment (P/B 501)
27-21-00-700-815-001	Rudder Centering Test (P/B 501)
27-21-00-700-815-002	Rudder Centering Test (P/B 501)
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
27-51-21-820-801	Outboard Trailing Edge Flap Adjustment (P/B 501)
27-51-22-400-801	Outboard Aft Flap Installation (P/B 401)
27-51-28-820-801	Outboard Flap Outboard Support Fairing Adjustment (P/B 501)
27-51-28-820-802	Outboard Flap Inboard Support Fairing Adjustment (P/B 501)
27-61-00-820-803	Flight Spoiler Adjustment (P/B 501)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
53-51-21-000-801	Aft Wing To Body Fairing Panel Removal (P/B 401)
53-51-21-400-801	Aft Wing To Body Fairing Panel Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D50039	Lubricant - PTFE Release Agent - Miller-Stephenson MS-122RB (Replaces MS 122 N/C02 Lubricant)	
G50636	Lubricant - PTFE Release Agent - Miller-Stephenson MS-122RA	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
79	Pin	27-51-13-02-150	HAP 001-013, 015-026, 028-030
		27-51-13-02-380	HAP 001-013, 015-026, 028-030
		27-51-13-02A-126	HAP 031-054, 101-999
88	Pin	27-51-13-02-470	HAP 001-013, 015-026, 028-030
		27-51-13-02A-126	HAP 031-054, 101-999

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
543	Left Wing - Fairing Flap Support No. 2
544	Left Wing - Fairing Flap Support No. 1
567	Left Wing - Outboard Flap
643	Right Wing - Fairing Flap Support No. 7

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(Continued)

Zone	Area
644	Right Wing - Fairing Flap Support No. 8
667	Right Wing - Outboard Flap

F. Access Panels

Number	Name/Location
194BL	Flap Track Lubrication Panel - Aft
194BR	Flap Track Lubrication Panel - Aft
194CL	Aft Wing To Body Fairing Panel
194CR	Aft Wing To Body Fairing Panel

G. Find the Necessary Flap Adjustment

SUBTASK 27-09-71-820-001

(1) Do a check of these other systems to make sure they are not the cause of the lateral trim error:

(a) Make sure the ailerons are adjusted correctly. To check the ailerons, do this task: Do A Check of the Aileron System Adjustment, TASK 27-11-00-820-805.

NOTE: Make sure the aileron downrig is symmetric between the left and right aileron in the limit of 0.10 inch (2.54 mm).

(b) Make sure the rudder is adjusted correctly. To check the rudder, do this task: Rudder Centering Test, TASK 27-21-00-700-815-001 or Rudder Centering Test, TASK 27-21-00-700-815-002.

(c) Make sure the outboard trailing edge flaps and aft flaps are adjusted correctly:

1) For the outboard trailing edge flaps, do this task: Outboard Trailing Edge Flap Adjustment, TASK 27-51-21-820-801.

2) For the outboard aft flap, do this task: Outboard Aft Flap Installation, TASK 27-51-22-400-801.

NOTE: Make sure the main flap to aft flap mismatch trailing edge dimensions are in the limits.

(d) Make sure the inboard trailing edge flaps are adjusted correctly, do this task: Inboard Trailing Edge Flap Adjustment, TASK 27-51-11-820-801.

NOTE: Make sure the torque tube door is sealed correctly. If the torque tube door is not sealed near the flap leading edge when the flaps are extended, lateral trim problems can occur.

HAP 001-013, 015-026

(e) Make sure the fairing assembly on the inboard side of the inboard upper fixed trailing edge panel is sealed correctly against the side of body panel.

HAP ALL

(f) Make sure the spoilers are adjusted correctly. To check the spoilers, do this task: Flight Spoiler Adjustment, TASK 27-61-00-820-803.

NOTE: Make sure the spoilers on the left and right wings are adjusted symmetrically.

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SUBTASK 27-09-71-750-001

(2) Do a test flight to find the lateral trim necessary for straight and level flight for all flight conditions:

NOTE: Use the captains control wheel to determine the trim limits. One unit of aileron trim is equal to six degrees of control wheel rotation.

NOTE: There are no specific limits or requirements for lateral trim outside of this flight test profile. It is acceptable at other flight conditions to observe different trim settings from those specified.

(a) To find the aileron trim necessary during cruise, fly with these conditions:

1) Flight speed: Approximately 0.78 mach.
2) Altitude: 37,000 feet or higher.
3) Fuel load: Balanced in the limit of 150 pounds (68 kilograms).
4) Throttles: Balanced thrust in the limit of 1 percent N1 difference, with autothrottles OFF.
5) Autopilot engaged with in HDG SEL, with the wings level.

(b) Apply rudder trim to get zero heading change.

(c) Disengage the autopilot.

(d) Apply aileron trim to keep the wings level and maintain zero heading change.

(e) Write down the amount and direction of aileron trim necessary to maintain straight and level flight.

NOTE: This is the trim for the Cruise condition.

(f) To find the aileron trim necessary for low speed cruise, and with the flaps extended, fly with these conditions:

1) Altitude: Between 10,000 to 17,000 feet.
2) Fuel load: Balanced in the limit of 150 pounds (68 kilograms).
3) Throttles: Balanced thrust in the limit of 1 percent N1 difference, with autothrottles OFF.
4) Autopilot OFF.

(g) Fly at 250 kias, with the flaps retracted.

(h) Apply rudder trim to get zero heading change.

(i) Apply aileron trim to keep the wings level and maintain zero heading change.

(j) Write down the amount and direction of aileron trim necessary to maintain straight and level flight.

NOTE: This is the trim for the Low Speed.

(k) Change the airspeed to flaps 1 maneuvering speed, and extend the flaps to the 1-unit position.

(l) Apply aileron trim to keep the wings level and maintain zero heading change.

(m) Apply rudder trim to get zero heading change.

(n) Write down the amount and direction of aileron trim necessary to maintain straight and level flight.

NOTE: This is the trim for the flaps 1 unit.

(o) Change the airspeed to flaps 15 maneuvering speed, and extend the flaps to the 15-unit position, and extend the landing gear.

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(p) Apply aileron trim to keep the wings level and maintain zero heading change.

(q) Apply rudder trim to get zero heading change.

(r) Write down the amount and direction of aileron trim necessary to maintain straight and level flight.

NOTE: This is the trim for the flaps 15 units.

(s) Change the airspeed to Vref +5 knots, and extend the flaps to the 40-unit position.

(t) Apply aileron trim to keep the wings level and maintain zero heading change.

(u) Apply rudder trim to get zero heading change.

(v) Write down the amount and direction of aileron trim necessary to maintain straight and level flight.

NOTE: This is the trim for the flaps 40 units.

SUBTASK 27-09-71-800-001

(3) If the aileron trim necessary to maintain level flight is not in the limits shown in (Table 501) primarily for the cruise condition, then do the steps in Lateral Trim Correction for the Cruise Condition below.

SUBTASK 27-09-71-800-002

(4) If the aileron trim necessary to maintain level flight is not in the limits shown in (Table 501) primarily for the flaps extended to 40-units condition, then do the steps in Lateral Trim Correction for the Flaps Extended Condition below.

SUBTASK 27-09-71-800-004

(5) If the aileron trim necessary to maintain level flight is more than 1.5 units for most of the flight conditions shown in (Table 501), and the trim values are either left or right, then do the steps in Lateral Trim Correction for the Multiple Flight Conditions below.

SUBTASK 27-09-71-800-008

(6) If the aileron trim necessary to maintain level flight is not in the limits shown in (Table 501) for the flaps extended to 40-units condition, or the change in the trim between the 15-unit and 40-unit conditions is not in the limit, then make sure the inboard main flap bullnose seals are in the correct position. Do the steps in the Inboard Flap Bullnose Seal Position Adjustment below.

HAP 028-054, 101-999

SUBTASK 27-09-71-800-006

(7) If the aileron trim necessary to maintain level flight is not in the limits shown in (Table 501) for the flaps extended to 40-units condition, or the change in the trim between the 15-unit and 40-unit conditions is not in the limit, and the other adjustments have not been effective, then do the steps in Lateral Trim Correction with a Formed in Place Gasket (FIPG) below.

(a) The FIPG can affect the lateral trim at the 40-units flap condition by 0.6 to 1.0 units, when it is installed only on one side of the aircraft.

HAP ALL

SUBTASK 27-09-71-800-007

(8) If the change in the aileron trim necessary to maintain level flight between the 15-unit and 40-unit conditions is not in the limits shown in (Table 501), or if the flaps extended to 40-units condition is not in the limits, and the other adjustments have not been effective, then do the steps in Lateral Trim Correction with Asymmetric Main Flap Seals below.

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SUBTASK 27-09-71-800-005

(9) You can combine the adjustments, to adjust the lateral trim for low speed, flaps 1 unit, and flaps 15 unit conditions.

H. Lateral Trim Correction for the Cruise Condition

NOTE: Use these steps if the aileron trim necessary to keep level flight is not in the limits for the cruise condition. This change will also have some effect on the other flight conditions. This procedure changes the thickness of the shims on the carriages for the outboard flap.

SUBTASK 27-09-71-970-001

(1) Use the graphs to find the total shim thickness change necessary to correct the lateral trim error (Figure 501).

SUBTASK 27-09-71-970-002

(2) Find the thickness and the location of the shims that you will change:

NOTE: The thickness of the shims added on one wing added to the thickness of the shims removed from the other wing must be equal to the total shim thickness change. If it is possible, the total shim thickness change should be divided equally between the left and right wings. If the total shim change is 0.064 inch (1.625 mm) or less, you can change the shims in only one wing. The maximum permitted thickness of the shims on a carriage is 0.50 inch (12.7 mm). The minimum permitted thickness of the shims on a carriage is 0.0 inch. The nominal thickness of the shims on a carriage is 0.25 inch (6.35 mm).

(a) Flight test condition; Right Trim:

NOTE: Right aileron trim indicates a left wing heavy condition.

1) Add approximately 1/2 of the total shim thickness change to the carriages on the right outboard flap.

2) Remove approximately 1/2 of the total shim thickness change from the carriages on the left outboard flap.

(b) Flight test condition; Left Trim:

NOTE: Left aileron trim indicates a right wing heavy condition.

1) Add approximately 1/2 of the total shim thickness change to the carriages on the left outboard flap.

2) Remove approximately 1/2 of the total shim thickness change from the carriages on the right outboard flap.

SUBTASK 27-09-71-040-001

(3) Prepare to change the thickness of the shims on the carriages for the outboard flaps:

(a) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(b) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-09-71-820-002

(4) Change the thickness of the shims [5] at the aft link fitting on the inboard and outboard carriages (Figure 502):

NOTE: The change in the thickness of the shims [5] must be the same for the inboard carriage [11] and the outboard carriage [6] on a flap.

(a) At the outboard carriage [6], change the thickness of the shims [5]:

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1) Remove the nuts [4], washers [3] and bolts [2] that attach the aft link fitting [1] to the outboard carriage [6].
2) Add or remove shims [5] between the aft link fitting [1] and the outboard carriage [6] to get the correct shim thickness.
3) Apply sealant, A00247 to the mating surfaces of the shims [5].
4) Put the shims [5] in their location between the aft link fitting [1] and the outboard carriage [6].

   NOTE: The maximum total thickness of the shims [5] is 0.50 inch (12.7 mm). The minimum total thickness of the shims [5] is 0.00 inch.

5) Apply compound, C00913 to the shank and threads of the bolts [2].

   NOTE: Make sure the bolts [2] are the correct length for installation with the new shim thickness.

6) Install the bolts [2], washers [3] and nuts [4] that attach the aft link fitting [1] to the outboard carriage [6].

(b) At the inboard carriage [11], change the thickness of the shims [5]:

1) Remove the nuts [10], washers [9] and bolts [8] that attach the aft link fitting [7] to the inboard carriage [11].
2) Add or remove shims [5] between the aft link fitting [7] and the inboard carriage [11] to get the correct shim thickness.
3) Apply sealant, A00247 to the mating surfaces of the shims [5].
4) Put the shims [5] in their location between the aft link fitting [7] and the inboard carriage [11].

   NOTE: The maximum thickness of the shims [5] is 0.50 inch (12.7 mm). The minimum thickness of the shims [5] is 0.00 inch.

5) Apply compound, C00913 to the shank and threads of the bolts [8].
6) Install the bolts [8], washers [9] and nuts [10] that attach the aft link fitting [7] to the inboard carriage [11].

SUBTASK 27-09-71-940-001

(5) Put the airplane back to its usual condition:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Do a check of the fair and alignment of the aft flap [51] with the main flap. To check the fair and alignment, do this task: Outboard Aft Flap Installation, TASK 27-51-22-400-801.

   NOTE: Use a tolerance for the mismatch between the main flap and the aft flap of 0.00 ±0.030 inches (1.524 mm). This tolerance is smaller than the normal adjustment tolerance. This increases the effect of the lateral trim adjustment.

(d) Do a check of the clearances between the aft fairings, and the flap:

1) To check the outboard fairing on the outboard flap, do this task: Outboard Flap Outboard Support Fairing Adjustment, TASK 27-51-28-820-801.
2) To check the inboard fairing on the outboard flap, do this task: Outboard Flap Inboard Support Fairing Adjustment, TASK 27-51-28-820-802.

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(e) Do a check of the clearances between the spoilers and the flap. To check the clearances, do this task: Flight Spoiler Adjustment, TASK 27-61-00-820-803.

I. Lateral Trim Correction for the Flaps Extended Conditions

NOTE: Use these steps if the aileron trim necessary to keep level flight is not in the limits with the flaps extended. This change will primarily effect the trim at the flaps 40 position, with less effect at the other flap positions. This change will not have an affect on the lateral trim with the flaps retracted. This procedure uses the adjustment fitting to change the length of the bellcranks on the carriages for the outboard flap.

SUBTASK 27-09-71-970-003

(1) Use the graphs to find the total length change of the bellcrank [34] necessary to correct the lateral trim error with the flaps extended (Figure 503).

NOTE: You will use the nuts [32] on the adjustment fitting [31] at the end of the bellcrank [34] to change the length of the bellcrank [34].

SUBTASK 27-09-71-970-004

(2) Find the dimension and direction to adjust the nuts [32] for the adjustment fittings [31] on the bellcranks [34]:

NOTE: The number of turns of the nuts [32] for the adjustment fittings [31] on one wing should be the same, but in the opposite direction of the nuts [32] on the other wing.

(a) Flight test condition; Right Trim:

NOTE: Right aileron trim indicates a left wing heavy condition.

1) Decrease the length of the bellcranks on the right wing by the 1/2 the dimension shown in the graph.

2) Increase the length of the bellcranks on the left wing by the 1/2 the dimension shown in the graph.

(b) Flight test condition; Left Trim:

NOTE: Left aileron trim indicates a right wing heavy condition.

1) Decrease the length of the bellcranks on the left wing by the 1/2 the dimension shown in the graph.

2) Increase the length of the bellcranks on the right wing by the 1/2 the dimension shown in the graph.

SUBTASK 27-09-71-860-001

(3) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-09-71-040-002

(4) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-09-71-820-003

(5) Change the length of the bellcranks [34] on the inboard and outboard carriages (Figure 504):

NOTE: The change in the length of the bellcranks [34] must be the same for the inboard carriage and the outboard carriage on a flap in the limit of 0.05 inch (1.27 mm). It is important to adjust the aft pushrods [53] after you adjust the length of the bellcranks [34].

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(a) Turn the applicable nut [32] on the bellcrank [34] to change the position of the adjustment fitting [31].

NOTE: To increase the length of the bellcrank [34], loosen the lower nut [32] the distance shown in the graph. To decrease the length of the bellcrank [34], loosen the upper nut [32] the distance shown. One full turn of a nut [32] will change the length of the bellcrank [34] by 0.05 inch (1.27 mm). You can use the distance from the top of the bellcrank [34] to the bottom flange of the adjustment fitting [31] as a reference dimension.

(b) Move the adjustment fitting [31] in the bellcrank [34].

(c) Engage the locking washer [33] with the bellcrank [34].

(d) Tighten the other nut [32] to hold the adjustment fitting [31].

(e) Install lockwire on the nuts [32].

SUBTASK 27-09-71-820-004

(6) Adjust the aft pushrods [53] for the aft flap [51] (Figure 505):

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the trailing edge flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Measure the mismatch between the aft flap [51] and the main flap at the inboard and outboard ends of the aft flap [51].

(d) If the mismatch at the inboard and outboard ends of the aft flap [51] is not in the limit of 0.00 ±0.030 inches (1.524 mm), then adjust the length of the applicable aft pushrod [53]:

NOTE: The tolerance on the mismatch is smaller than the normal adjustment tolerance. This increases the effect of the lateral trim adjustment.

1) Loosen the nuts [52] on the aft pushrod [53].

2) Turn the applicable aft pushrod [53] until the mismatch is in the limit at the inboard and outboard ends of the aft flap [51].

NOTE: For each 1/4 turn of the aft pushrod [53], the trailing edge of the aft flap [51] will move approximately 0.04 inch (1.02 mm).

3) Tighten the nuts [52] on the aft pushrod [53].

4) Install lockwire on the nuts [52].

SUBTASK 27-09-71-940-002

(7) Put the airplane back to its usual condition:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

J. Lateral Trim Correction for Multiple Flight Conditions

NOTE: Use these steps if the aileron trim necessary to keep level flight is not in the limit for the cruise condition, and with the flaps extended. This adjustment is appropriate if all of the trim values are either left or right. This procedure changes the adjustment of the carriage roller cartridges on the inboard flap.

SUBTASK 27-09-71-970-009

(1) Find the total height change of the inboard flap necessary to correct the lateral trim error (Figure 506):

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(a) Use Graph A to find the total trailing edge height change necessary to correct the lateral trim error for the cruise condition.

(b) Use Graph B to make sure the height change from the previous step is appropriate to correct the lateral trim for the different airplane configurations.

NOTE: If it is appropriate, you can select a different height change.

SUBTASK 27-09-71-970-010

(2) Find the change to the position of the carriage roller cartridges necessary to correct the lateral trim error (Figure 506):

NOTE: The change to the carriage roller cartridges will change the height of the trailing edge of the inboard flap.

(a) Flight test condition; Right Trim:

NOTE: Right aileron trim indicates a left wing heavy condition.

1) Increase the height of the right trailing edge approximately 1/2 the total height change. This is a positive change to the eccentric.

2) Decrease the height of the left trailing edge approximately 1/2 the total height change. This is a negative change to the eccentric.

(b) Flight test condition; Left Trim:

NOTE: Left aileron trim indicates a right wing heavy condition.

1) Increase the height of the left trailing edge approximately 1/2 the total height change. This is a positive change to the eccentric.

2) Decrease the height of the right trailing edge approximately 1/2 the total height change. This is a negative change to the eccentric.

(c) Look at the carriage roller cartridges on the inboard flap to find the current position for the left wing and the right wing.

NOTE: It is necessary to keep the position of the cartridges on the inboard carriage the same as the cartridges on the outboard carriage.

(d) Use the carriage roller cartridge position change chart to find the new position for the left wing rollers and the right wing rollers:

1) Find the current carriage position in the left column of the chart.

2) Follow the row for the current position to the right until you find the approximate height change for that flap.

3) Follow that column up to find the new carriage position.

NOTE: The final carriage roller cartridge positions should not be more than ±60 degrees.

SUBTASK 27-09-71-480-002

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-09-71-860-012

(4) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

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SUBTASK 27-09-71-040-003

(5) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-09-71-010-002

(6) Remove these access panels on the wing to body fairing, do this task: Aft Wing To Body Fairing Panel Removal, TASK 53-51-21-000-801.

(a) On the left wing, open these access panels:

Number	Name/Location
194BL	Flap Track Lubrication Panel - Aft
194CL	Aft Wing To Body Fairing Panel

(b) On the right wing, open these access panels:

Number	Name/Location
194BR	Flap Track Lubrication Panel - Aft
194CR	Aft Wing To Body Fairing Panel

SUBTASK 27-09-71-820-013

(7) Change the position of the carriage roller cartridges on the inboard flap (Figure 507):

NOTE: It is necessary to keep the position of the cartridges on the inboard carriage the same as the cartridges on the outboard carriage.

CAUTION: DO NOT REMOVE MORE THAN ONE CARTRIDGE FROM THE CARRIAGE AT A TIME. YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(a) Adjust the cartridge [76] and cartridge [85] on the outboard carriage [72]:

NOTE: It is necessary to keep the position of the cartridges on the inboard carriage [72] the same as the cartridges on the outboard carriage [96].

1) Adjust the outboard cartridge [85]:

a) Remove the bolts [82], washers [93] and the rub block [92] from the retainer [83].

b) Remove the bolts [90] and washers [91] that attach the cartridge [54] to the outboard carriage [72].

c) Remove the cartridge [85] from the outboard carriage [72].

d) Loosen the nut [87] on the roller [86].

e) Turn the eccentric bushing [84] until the index marks [89] are in the correct position. You can turn the eccentric bushing in 15 degree increments.

f) Tighten the nut [87] on the roller [86] to 160-975 pound-inches (18.1 to 110.2 newton-meters).

g) Install the pin [88] in the nut [87].

h) Put the cartridge [85] in its position in the outboard carriage [72].

i) Install the bolts [90] and washers [91] to attach the cartridge [85].

j) Tighten the bolts [90] to 95-110 pound-inches (10.7 to 12.4 newton-meters).

k) Install lockwire between the bolts [90] and the retainer [83].

l) Put the rub block [92] in its position on the retainer [83] and install the bolts [82] and washers [93].

2) Adjust the inboard cartridge [78]:

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a) Remove the bolts [75] and washers [76] that attach the cartridge [78] to the outboard carriage [72].

b) Remove the cartridge [78] from the outboard carriage [72].

c) Loosen the nut [80] on the roller [81].

d) Turn the eccentric bushing [73] until the index marks [77] are in the correct position.

e) Tighten the nut [80] on the roller [81] to 160-975 pound-inches (18.1 to 110.2 newton-meters).

f) Install the pin [79] in the nut [80].

g) Put the cartridge [78] in its position in the outboard carriage [72].

h) Install the bolts [75] and washers [76] to attach the cartridge [78].

i) Tighten the bolts [75] to 95-110 pound-inches (10.7 to 12.4 newton-meters).

j) Install lockwire between the bolts [75].

CAUTION: DO NOT REMOVE MORE THAN ONE CARTRIDGE FROM THE CARRIAGE AT A TIME. YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Adjust the cartridges [78] on the inboard carriage [96]:

NOTE: Adjust the cartridges [78] one at a time. It is necessary to keep the position of the cartridges on the inboard carriage the same as the cartridges on the outboard carriage.

1) Remove the bolts [75] and washers [76] that attach the cartridge [78] to the inboard carriage [96].

2) Remove the cartridge [78] from the inboard carriage [96].

3) Loosen the nut [80] on the roller [81].

4) Turn the eccentric bushing [73] until the index marks [77] are in the correct position.

5) Tighten the nut [80] to 160-975 pound-inches (18.1 to 110.2 newton-meters).

6) Install the pin [79] in the nut [80].

7) Put the cartridge [78] in its position in the inboard carriage [96].

8) Install the bolts [75] and washers [76] to attach the cartridge [78].

9) Tighten the bolts [75] to 95-110 pound-inches (10.7 to 12.4 newton-meters).

10) Install lockwire between the bolts [75].

11) Adjust the other cartridge [78] on the inboard carriage [96].

SUBTASK 27-09-71-410-001

(8) Install these access panels on the wing to body fairing, do this task: Aft Wing To Body Fairing Panel Installation, TASK 53-51-21-400-801.

(a) On the left wing, close these access panels:

Number	Name/Location
194BL	Flap Track Lubrication Panel - Aft
194CL	Aft Wing To Body Fairing Panel

(b) On the right wing, close these access panels:

Number	Name/Location
194BR	Flap Track Lubrication Panel - Aft
194CR	Aft Wing To Body Fairing Panel

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SUBTASK 27-09-71-860-011

(9) If the trailing edge flaps are not in the 40-unit position, extend the trailing edge flaps:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-09-71-210-001

(10) With the flaps fully extended, make sure the full surface of the spring assembly [98] on the inboard carriage [96] touches the torque tube door [94] on the wing-to-body fairing and that it holds the door closed.

SUBTASK 27-09-71-820-014

(11) If the spring assembly [98] does not touch the torque tube door [94], or hold it closed, adjust the position of the spring assembly [98]:

(a) Loosen the bolts [95] and bolt [97] that hold the spring assembly [98] in its position.

(b) Move the spring assembly [98] until it touches the torque tube door [94].

(c) Tighten the bolts [95] and bolt [97].

SUBTASK 27-09-71-820-015

(12) Adjust the alignment of the inboard aft flap [99] with the inboard flap [71]:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(d) Measure the distance between the trailing edge of the aft flap [99] and the trailing edge of the upper cove panel [100] on the inboard flap [71].

NOTE: Measure the distance at the outboard end of the aft flap [99].

(e) If the distance at the outboard end is not in the limit of 9.2745 ±0.0600 inches (235.57 ±1.52 millimeters), then adjust the length of the aft flap drive rod [101]:

1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

2) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

4) Adjust the length of the aft flap drive rod [101]:

NOTE: For each 90 degree turn of the aft flap drive rod [101], the trailing edge of the aft flap will move 0.04 inches (1.02 millimeters).

a) Loosen the nuts [102] on the aft flap drive rod [101].

b) Adjust the length of the aft flap drive rod [101].

c) Tighten the nuts [102].

d) Install lockwire on the nuts [102].

5) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

6) Retract the flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

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7) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

8) Make sure the distance from the trailing edge of the aft flap [99] to the trailing edge of the upper cove panel [100] on the inboard flap [71] is in the limit.

SUBTASK 27-09-71-940-003

(13) Put the airplane back to its usual condition:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

K. Inboard Flap Bullnose Seal Position Adjustment

NOTE: Use these steps if the change in the aileron trim necessary to keep level flight with the flaps extended to 40-units condition is not in the limit. The compression of the bullnose seals should be symmetric for flaps 40 lateral trim. Asymmetric compression of the bullnose seals on the inboard flap can cause the aftflap bellcrank adjustment on the outboard flap to be not effective.

NOTE: The bullnose seals are not installed on adjustable retainers, therefore it is necessary to create shims to fit under the seals.

SUBTASK 27-09-71-970-018

(1) Find the appropriate thickness and location of the shims (Figure 508):

(a) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(b) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(c) On the left and right wings, measure and record the distance between the main flap structure, and the wing to body fairing.

NOTE: Measure the distance at the edge of the structure near the lower part of the bullnose seal.

(d) The difference between the two measurements is the approximate thickness of shim that is required.

NOTE: Do not install shims thicker than 0.25 inch.

(e) Flight test condition; Right Trim at the 40-unit flap condition:

NOTE: Right aileron trim indicates a left wing heavy condition.

1) Install the shim under the bullnose seal on the left main flap.

(f) Flight test condition; Left Trim at the 40-unit flap condition:

NOTE: Left aileron trim indicates a right wing heavy condition.

1) Install the shim under the bullnose seal on the right main flap.

(g) The effect of the shim on the lateral trim with the flaps in the 40-unit position will be approximately 0.4 units of trim for each 0.1 inch of shim added.

NOTE: For example, a 0.2 inch shim on the left bullnose seal will reduce the right lateral trim requirement by 0.8 units.

SUBTASK 27-09-71-860-015

(2) Retract the trailing edge flaps to the 15-unit position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

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SUBTASK 27-09-71-040-006

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-09-71-480-005

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-09-71-020-003

(5) Remove the bullnose seal [107] (Figure 507):

(a) Move the torque tube door [94] up and inboard to get access to the bullnose seal [107].

(b) Remove the bolts [108] and washers [109] that attach the bullnose seal [107] to the inboard flap [71].

(c) Remove the bullnose seal [107] from the inboard flap [71].

HAP 028-054, 101-999

SUBTASK 27-09-71-800-009

(6) Make a shim for the bullnose seal [107]:

(a) Trace the outline of the bullnose seal [107] on the shim material.

NOTE: The material for the shim is optional. Any normal shim material is acceptable, including non-metallic materials such as nylon.

(b) Cut out the shim material.

NOTE: Make sure the shim matches the shape of the bullnose seal [107] in the limit of +0.0/-0.1 inch.

(c) Drill holes in the shim material to match the holes in the bullnose seal [107].

HAP 001-013, 015-026

SUBTASK 27-09-71-800-012

(7) Make a shim for the bullnose seal [107]:

(a) Match the shim to the same shape as the raised area on the back of the seal plate (Figure 507).

NOTE: The material for the shim is optional. Any normal shim material is acceptable, including non-metallic materials such as nylon.

(b) Cut out the shim material.

(c) Drill holes in the shim material to match the holes in the bullnose seal [107].

HAP ALL

SUBTASK 27-09-71-420-003

(8) Install the bullnose seal [107] and the new shim:

(a) If the shim material is metallic, apply a layer of sealant, A00247 between the shim and the inboard flap [71].

(b) Put the bullnose seal [107] and the shim in their position on the inboard flap [71].

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(c) Install the bolts [108] and the washers [109] to attach the bullnose seal [107].

NOTE: Make sure the grip length of the bolts [108] is correct with the additional thickness due to the shims.

(d) Release the torque tube door [94], and allow it to close.

SUBTASK 27-09-71-940-006

(9) Put the airplane back to its usual condition:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

L. Lateral Trim Correction with a Formed in Place Gasket (FIPG)

HAP 028-054, 101-999

NOTE: Use these steps if the aileron trim necessary to keep level flight is not in the limit for the flaps extended to 40-units condition, or the change in the trim between the 15-unit and 40-unit conditions is not in the limit and the other adjustments have not been effective. This installs, or removes a Formed in Place Gasket (FIPG) on the torque tube door adjacent to the wing to body panels. The FIPG stops airflow from the wheel well to the upper flap surface.

SUBTASK 27-09-71-970-011

(1) Find the appropriate location to add or remove a Formed in Place Gasket (FIPG):

NOTE: The FIPG only has an affect on the lateral trim when it is installed on one side only.

(a) Determine whether the aircraft already has a FIPG installed on neither, one or both sides:

NOTE: The FIPG is a seal made of sealant, A00247 between the torque tube door [94], and the fixed upper panel [103].

HAP 028-030

1) The FIPG was initially installed on neither side of the aircraft, one may have been subsequently installed.

HAP 028-054, 101-999

2) Manually open the torque tube door [94].

3) Look at the torque tube door [94] and the fixed upper panel [103] to determine if a FIPG is there.

(b) Flight test condition; Right Trim at the 40-unit flap condition:

NOTE: Right aileron trim indicates a left wing heavy condition.

1) There should be an FIPG installed on the left side only.

a) If there are two FIPG's installed, remove the FIPG from the right side.

b) If there are no FIPG's installed, install an FIPG on the left side.

(c) Flight test condition; Left Trim at the 40-unit flap condition:

NOTE: Left aileron trim indicates a right wing heavy condition.

1) There should be an FIPG installed on the right side only.

a) If there are two FIPG's installed, remove the FIPG from the left side.

b) If there are no FIPG's installed, install an FIPG on the right side.

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HAP 028-054, 101-999 (Continued)

SUBTASK 27-09-71-480-003

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-09-71-860-013

(3) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

NOTE: It will be necessary to manually open the torque tube door [94].

SUBTASK 27-09-71-040-004

(4) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-09-71-020-001

(5) If it is necessary, remove an FIPG:

(a) Manually open the torque tube door [94].

(b) Remove all of the sealant, A00247 from the torque tube door surface, and the fixed upper panel [103].

(c) Release the torque tube door [94] to permit it to close.

SUBTASK 27-09-71-420-001

(6) If it is necessary, install an FIPG on the torque tube door [94]:

(a) Manually open the torque tube door [94].

(b) Apply MS-122RA release agent, G50636 or MS-122RB lubricant, D50039 to the fixed upper panel [103] in the area of the FIPG.

(c) Apply sealant, A00247 to the outboard side of the torque tube door [94] in the area of the FIPG, between the door and the fixed upper panel [103].

(d) Extend the trailing edge flaps to the 40-unit position to hold the torque tube door [94] in the closed position until the sealant, A00247 cures fully:

1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

2) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(e) Make sure there are no gaps in the area of the FIPG between the torque tube door [94] and the fixed upper panel [103].

SUBTASK 27-09-71-940-004

(7) Put the airplane back to its usual condition:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

HAP ALL

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M. Lateral Trim Correction with Asymmetric Main Flap Seals

HAP 028-054, 101-999

NOTE: Use these steps if the change in the aileron trim necessary to keep level flight between the 15-unit and 40-unit conditions is not in the limit, or if the limit for the flaps extended to 40-units condition is not in the limit and the other adjustments have not been effective. This installs seals that are asymmetric between the left and right wings on the upper and lower surface of the inboard main flap. The bullnose seals are not changed in this procedure.

HAP 001-013, 015-019

SUBTASK 27-09-71-800-010

(1) The upper and lower seals were originally 1.2 inch thick. They can be replaced by 0.7 inch seals.

HAP 020-026, 028-054, 101-999

SUBTASK 27-09-71-800-011

(2) The upper and lower seals were originally 0.7 inch thick. They can be replaced by 1.2 inch seals.

HAP 028-054, 101-999

SUBTASK 27-09-71-970-012

(3) Find the appropriate location to change the seals:

(a) Flight test condition; Right Trim at the 40-unit flap condition:

NOTE: Right aileron trim indicates a left wing heavy condition.

1) Replace the upper and lower seals with 1.2 inch seals on the left side.

(b) Flight test condition; Left Trim at the 40-unit flap condition:

NOTE: Left aileron trim indicates a right wing heavy condition.

1) Replace the upper and lower seals with 1.2 inch seals on the right side.

SUBTASK 27-09-71-480-004

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-09-71-860-014

(5) Extend the trailing edge flaps to the 30-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-09-71-040-005

(6) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-09-71-020-002

(7) Remove the existing seal [105]:

(a) Remove the screws [104] that attach the seal retainer [106] to the inboard flap [71].

(b) Remove the seal [105], and the seal retainer [106] from the inboard flap [71].

(c) Remove the lockwire that attaches the seal [105] to the retainer [106].

(d) Remove the seal [105] from the seal retainer [106].

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HAP 028-054, 101-999 (Continued)

SUBTASK 27-09-71-420-002

(8) Install the replacement seal [105]:

(a) Put the seal [105] on the seal retainer [106].

(b) Install the lockwire to attach the seal [105] to the retainer [106].

(c) Put the seal [105] and the seal retainer [106] in their position on the inboard flap [71].

(d) Install the screws [104] to attach the seal retainer [106].

SUBTASK 27-09-71-940-005

(9) Put the airplane back to its usual condition:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

HAP ALL

———————— END OF TASK ————————

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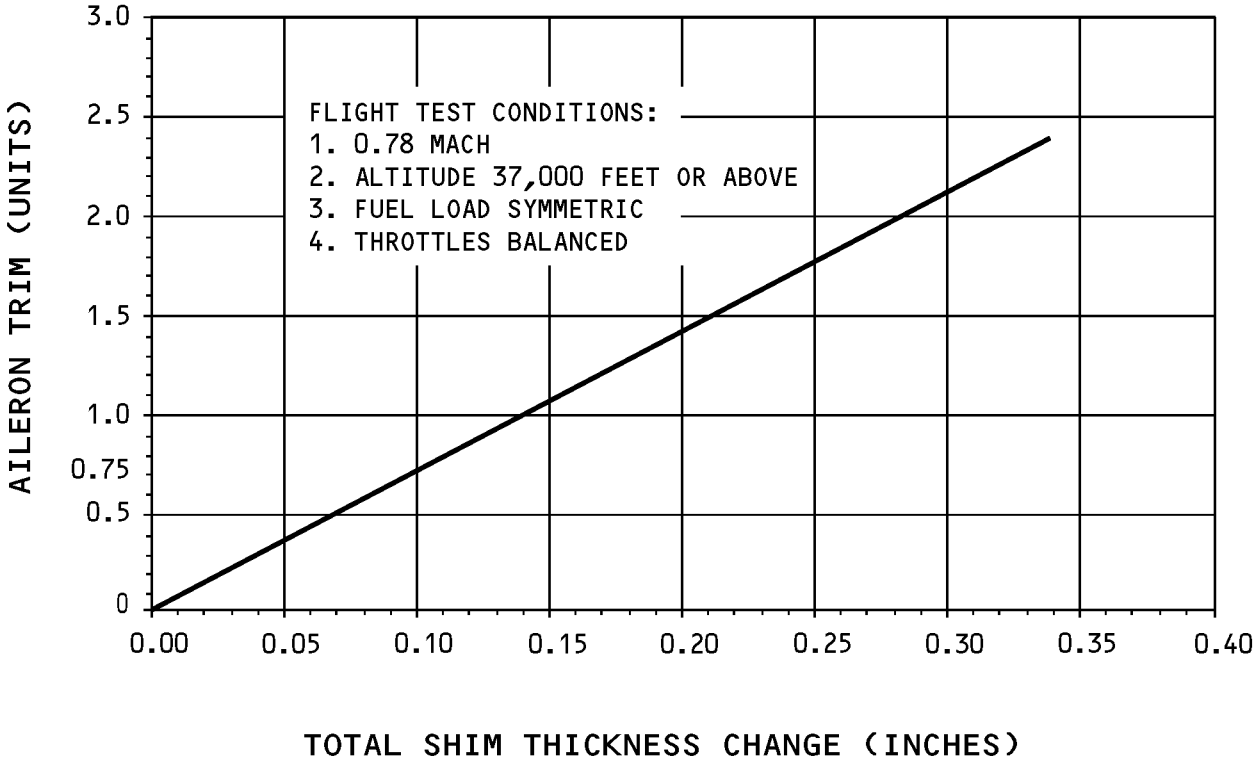

AILERON TRIM (UNITS) _____ RIGHT TRIM / LEFT TRIM

TOTAL SHIM THICKNESS CHANGE (INCHES) _____

SHIM CHANGE (INCHES) LEFT WING _____

RIGHT WING _____

Lateral Trim Correction for Cruise Condition
Figure 501 (Sheet 1 of 2)/27-09-71-990-801

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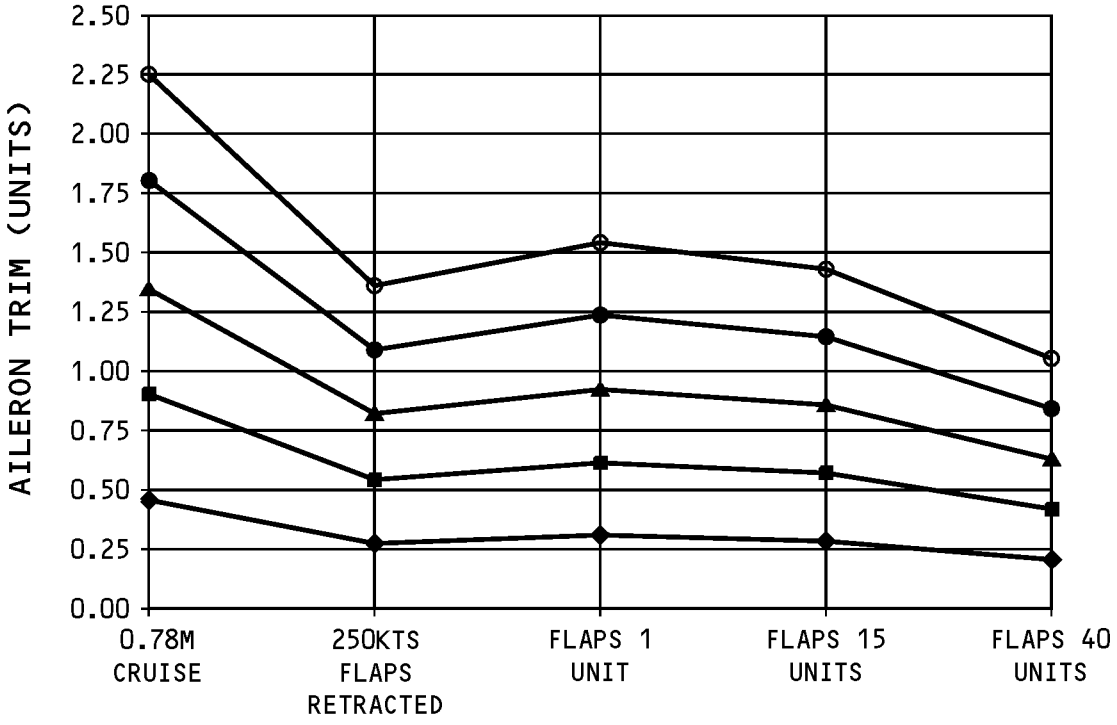

AILERON TRIM (UNITS) _____ RIGHT TRIM / LEFT TRIM

TOTAL SHIM THICKNESS CHANGE (INCHES) _____

SHIM CHANGE (INCHES) LEFT WING _____

RIGHT WING _____

Lateral Trim Correction for Cruise Condition
Figure 501 (Sheet 2 of 2)/27-09-71-990-801

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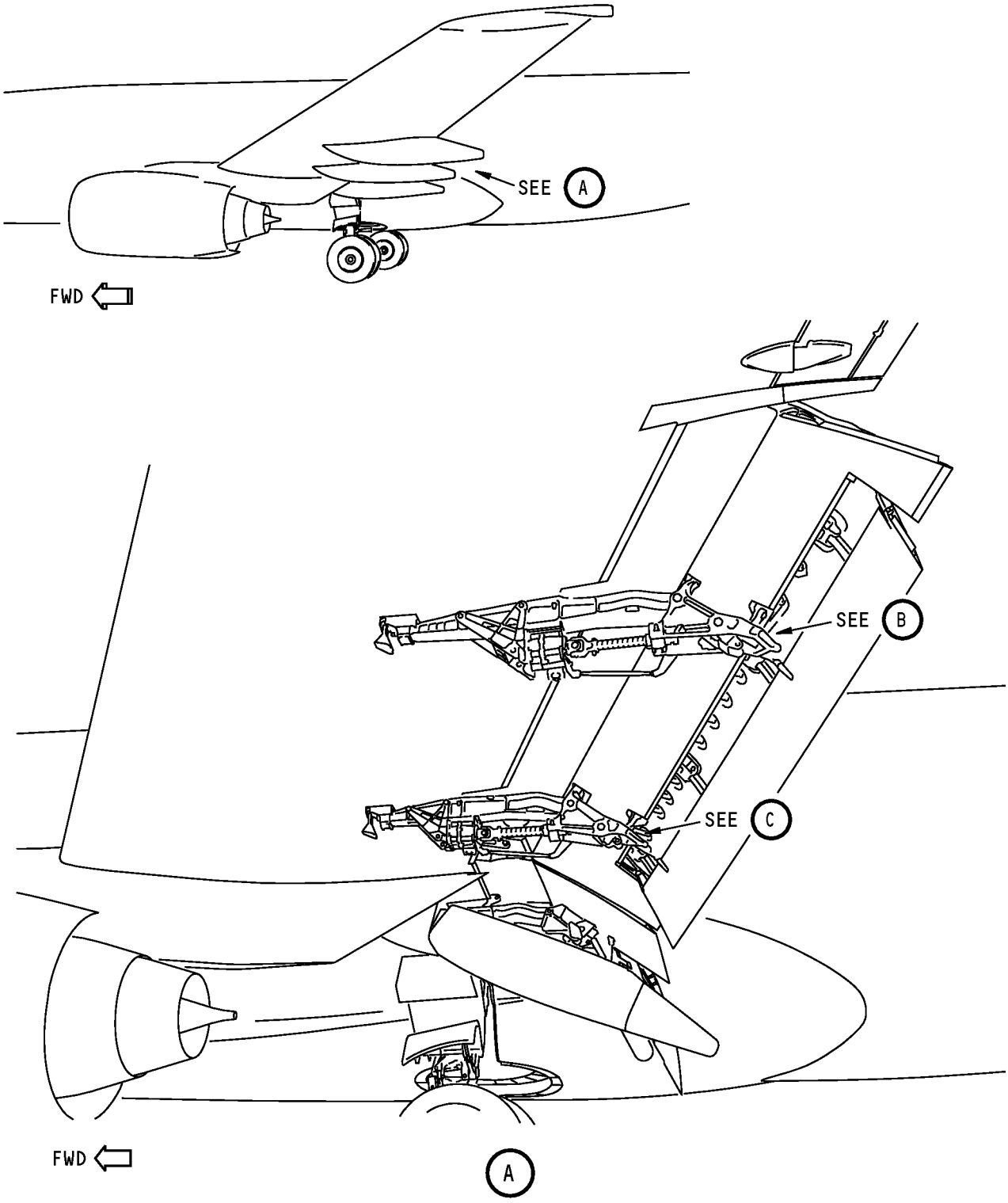

Outboard Flap Shim Thickness Change
Figure 502 (Sheet 1 of 2)/27-09-71-990-802

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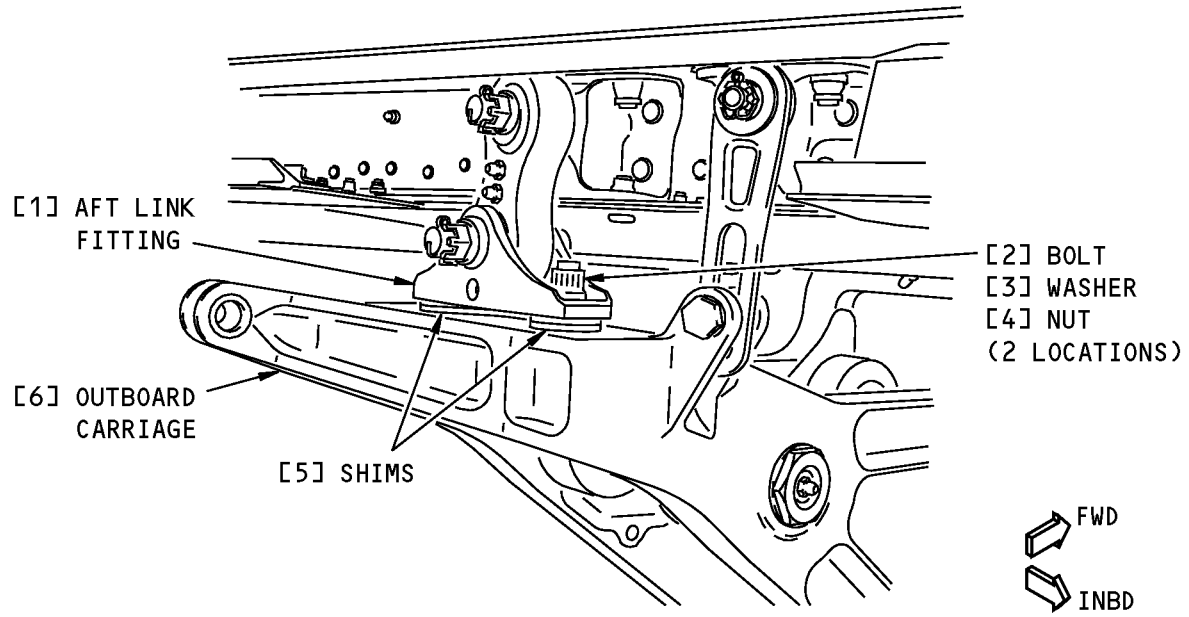

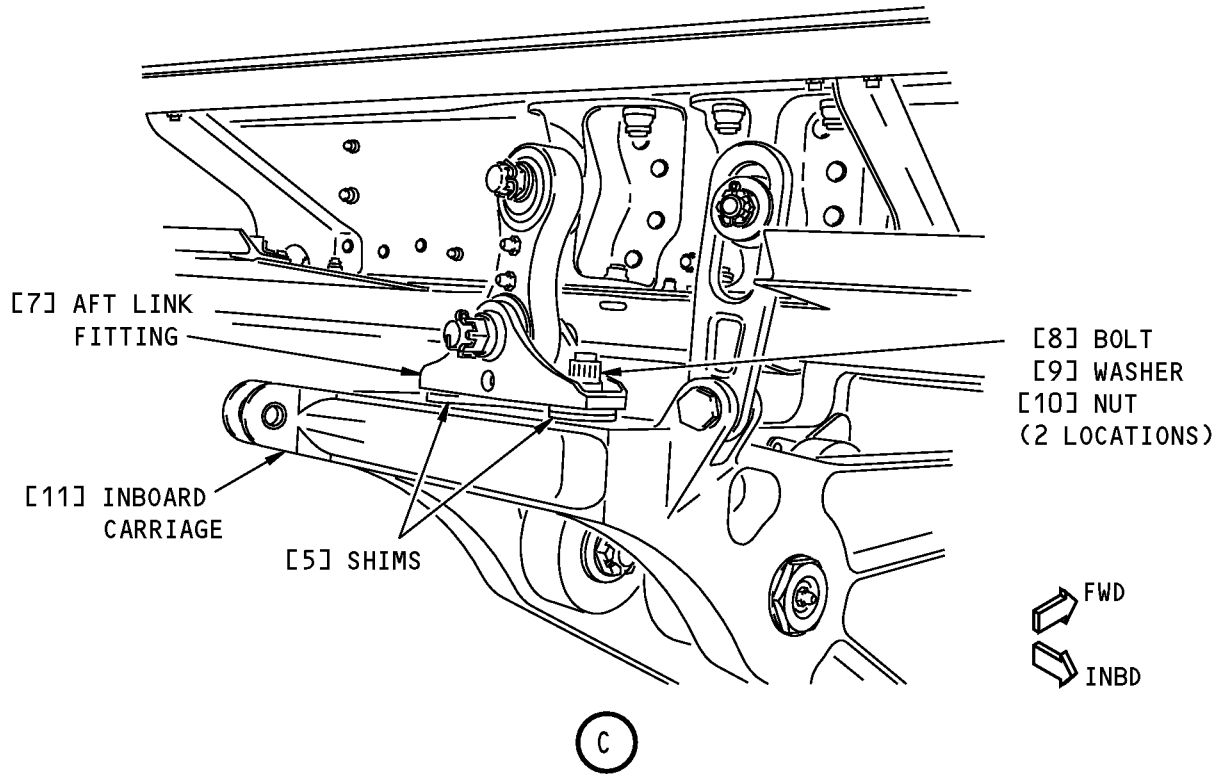

Outboard Flap Shim Thickness Change
Figure 502 (Sheet 2 of 2)/27-09-71-990-802

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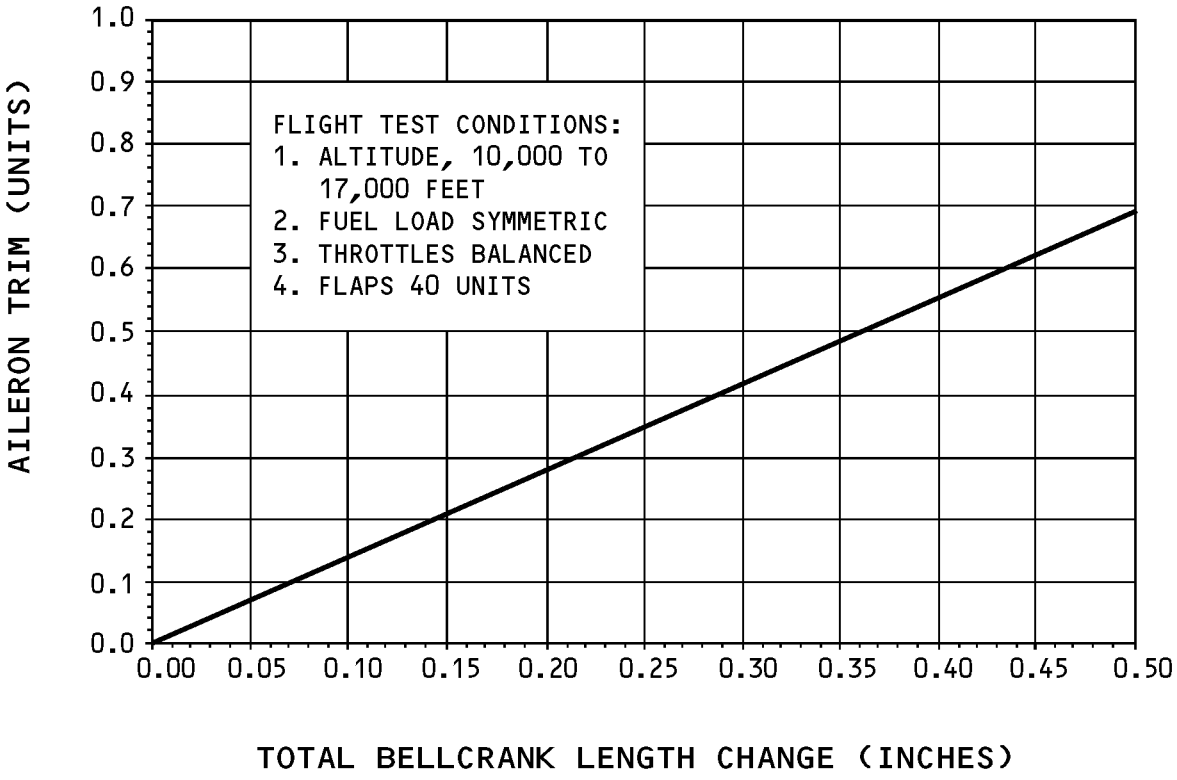

AILERON TRIM (UNITS) REQUIRED WITH FLAPS AT 40 UNITS _____ RIGHT TRIM / LEFT TRIM

TOTAL BELLCRANK LENGTH CHANGE _____

LEFT WING BELLCRANK LENGTH CHANGE _____

RIGHT WING BELLCRANK LENGTH CHANGE _____

Lateral Trim Correction for Flaps 40 Unit Conditions
Figure 503 (Sheet 1 of 2)/27-09-71-990-803

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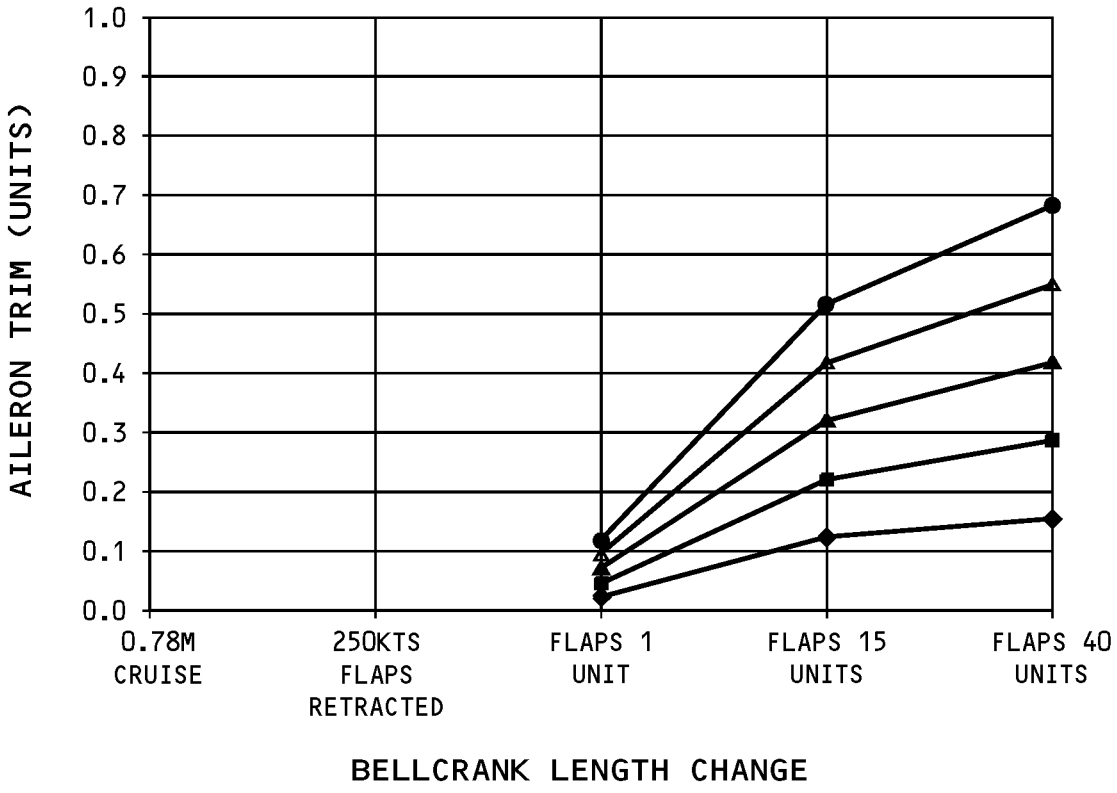

AILERON TRIM (UNITS) WITH FLAPS AT 40 UNITS _____ RIGHT TRIM / LEFT TRIM

TOTAL BELLCRANK LENGTH CHANGE _____

LEFT WING BELLCRANK LENGTH CHANGE _____

RIGHT WING BELLCRANK LENGTH CHANGE _____

Lateral Trim Correction for Flaps 40 Unit Conditions
Figure 503 (Sheet 2 of 2)/27-09-71-990-803

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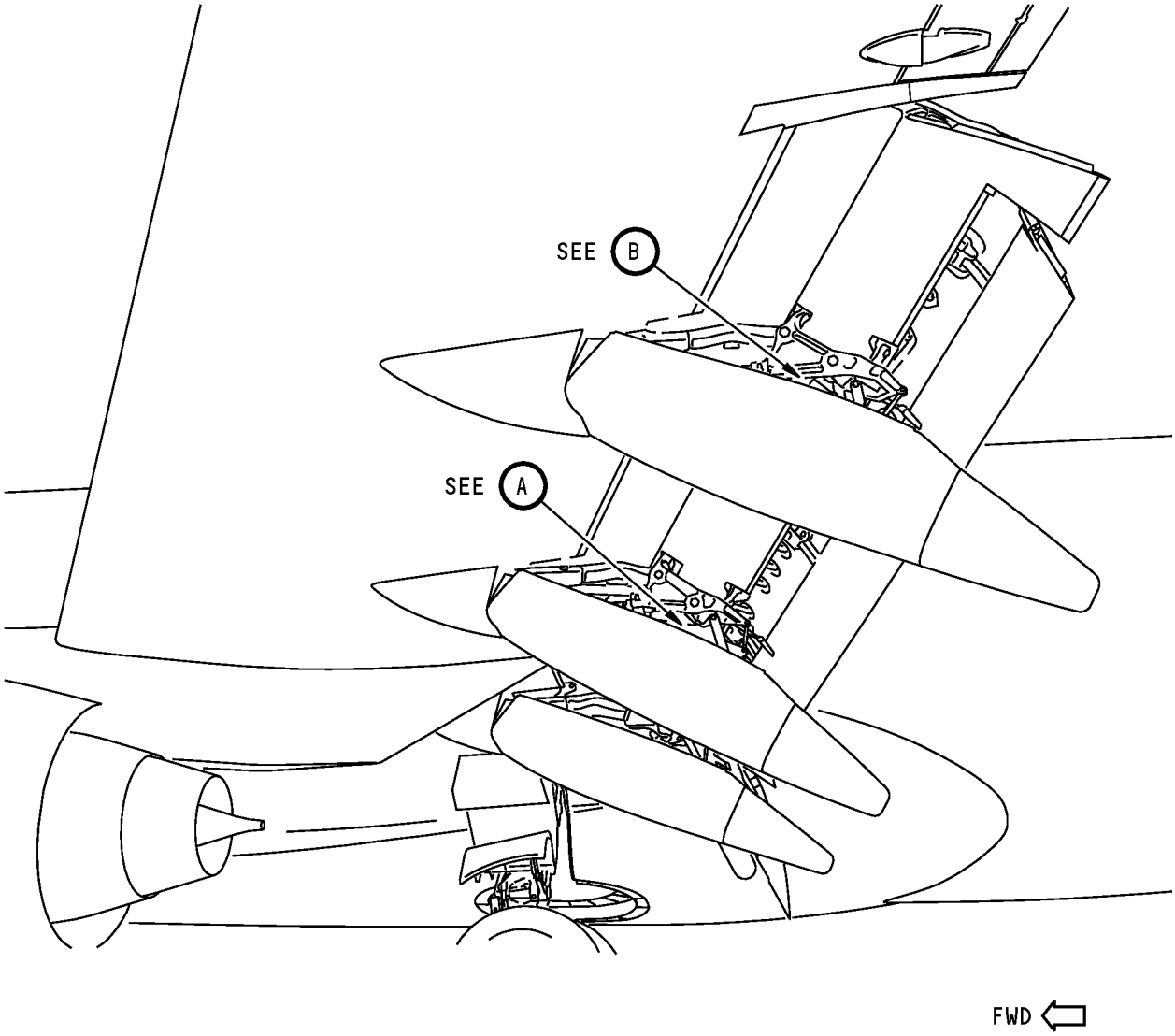

Outboard Aft Flap Bellcrank Adjustment
Figure 504 (Sheet 1 of 3)/27-09-71-990-804

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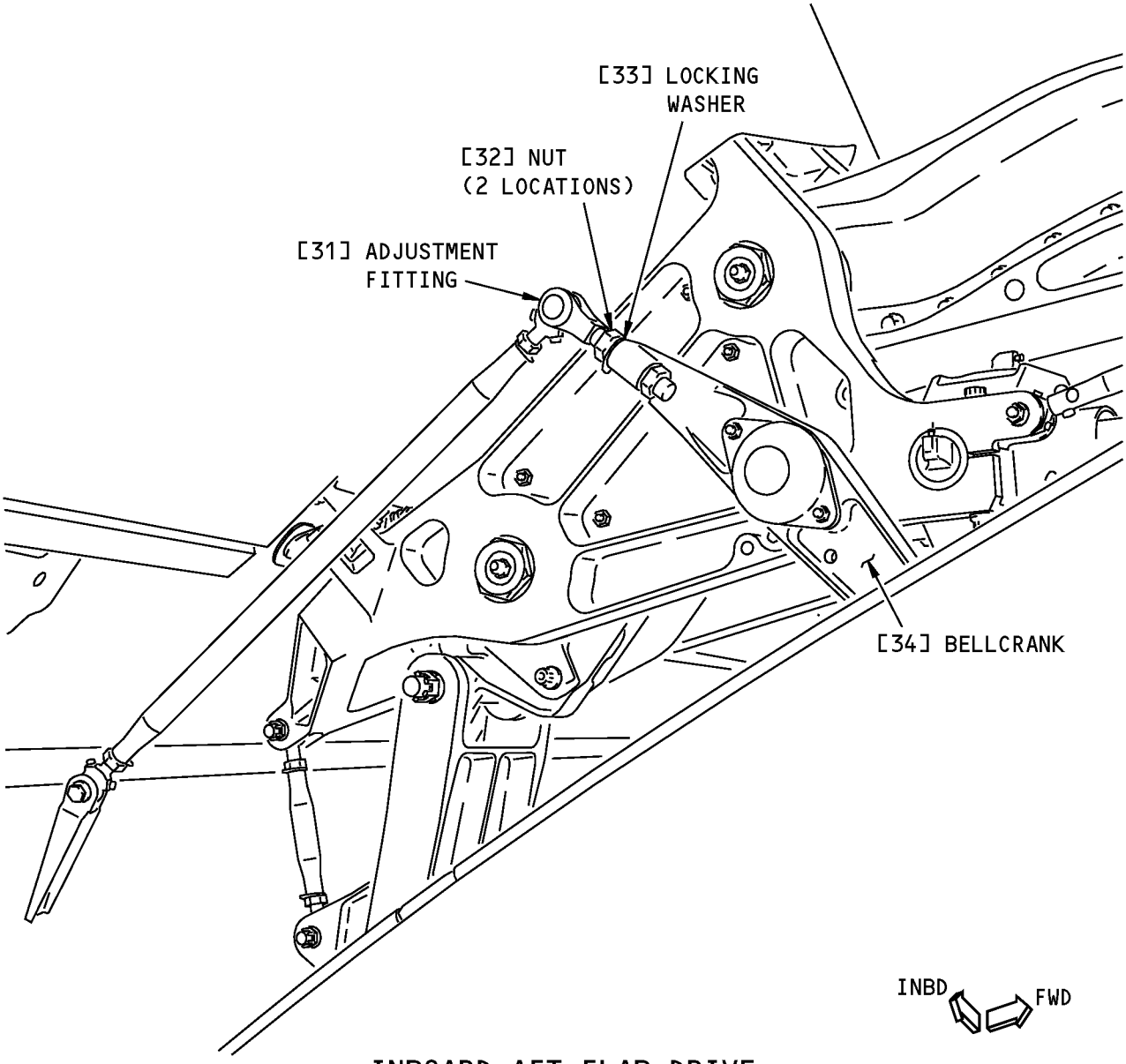

Outboard Aft Flap Bellcrank Adjustment
Figure 504 (Sheet 2 of 3)/27-09-71-990-804

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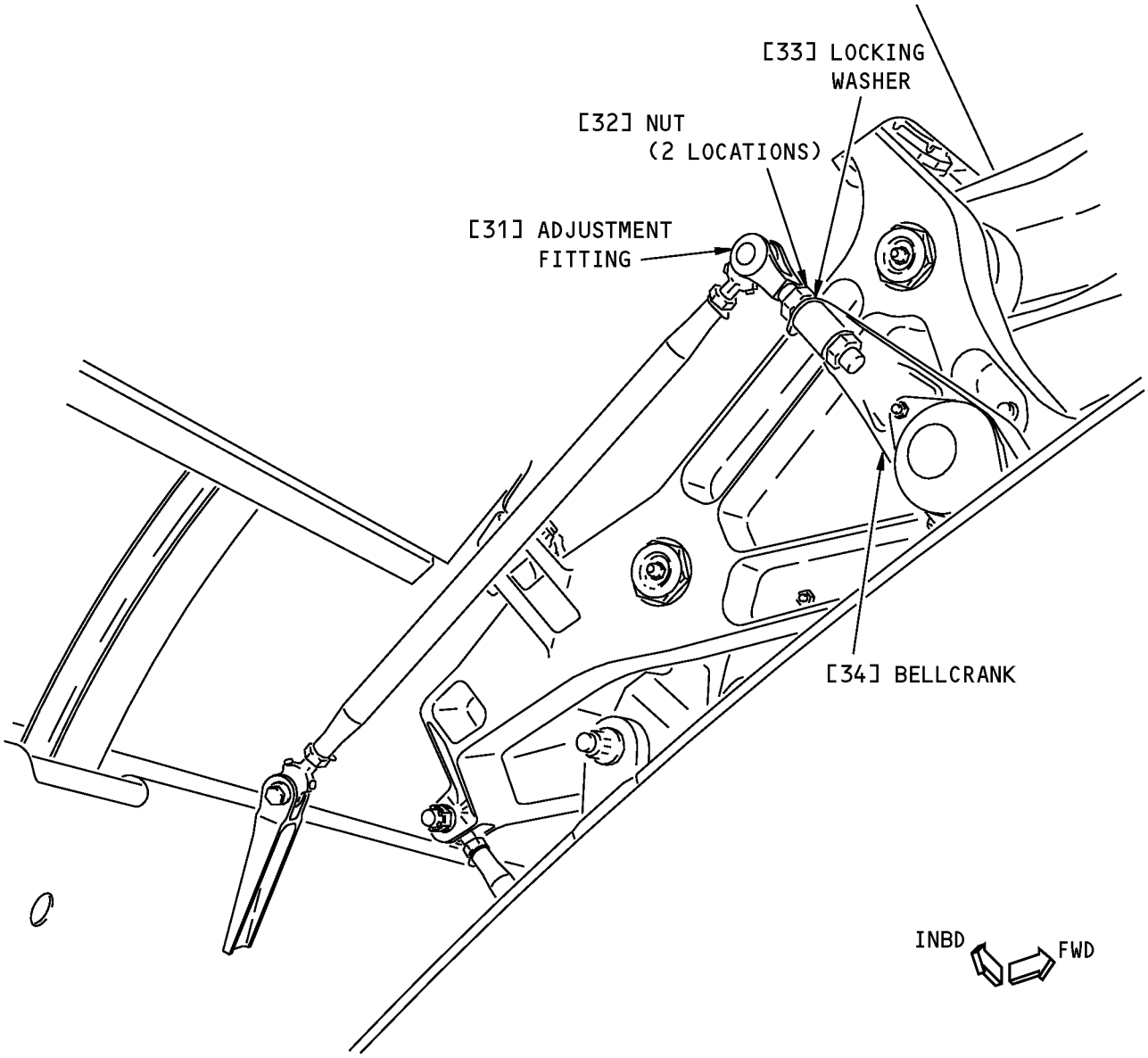

OUTBOARD AFT FLAP DRIVE

B

Outboard Aft Flap Bellcrank Adjustment
Figure 504 (Sheet 3 of 3)/27-09-71-990-804

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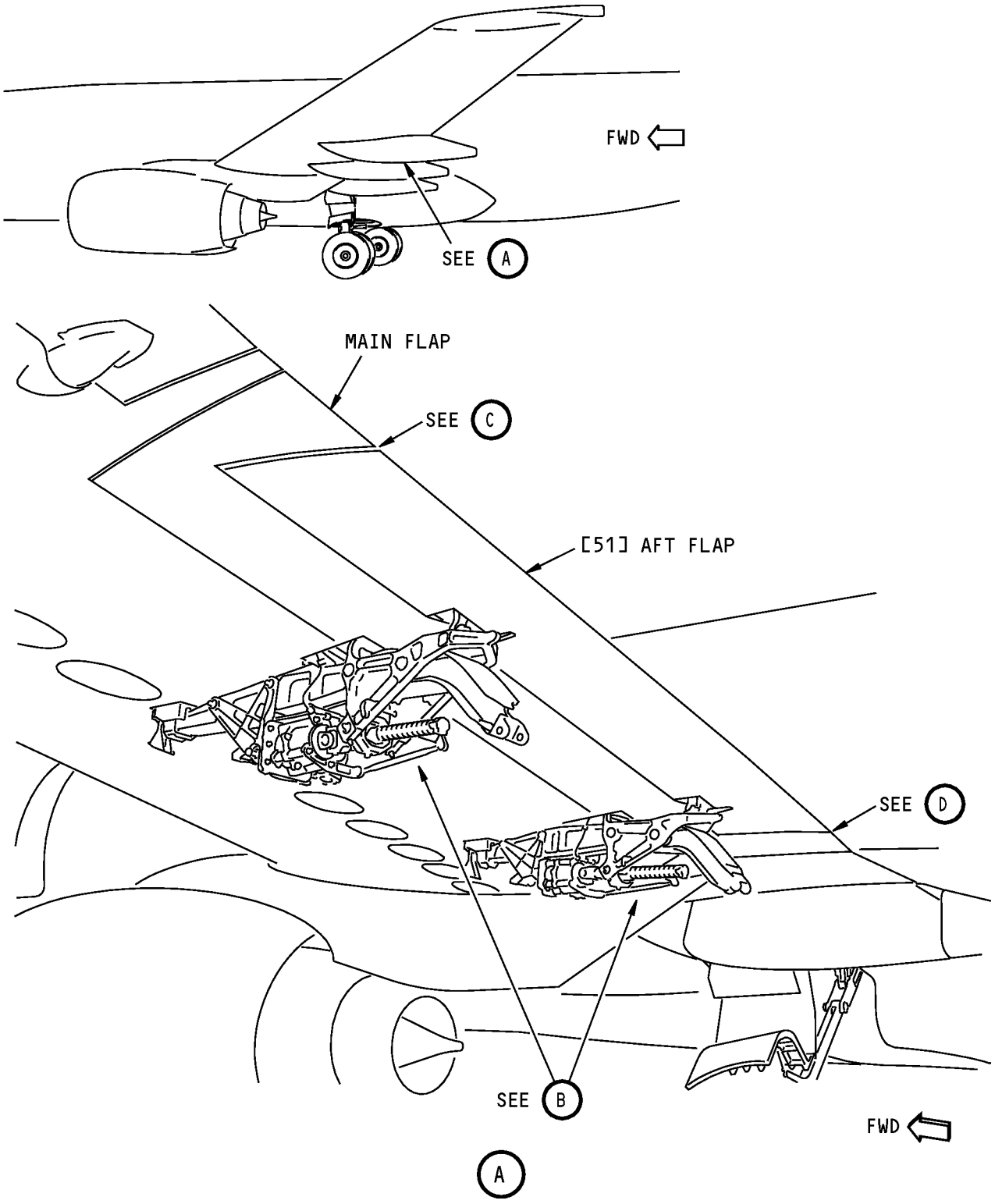

Aft Flap Pushrod Adjustment
Figure 505 (Sheet 1 of 2)/27-09-71-990-805

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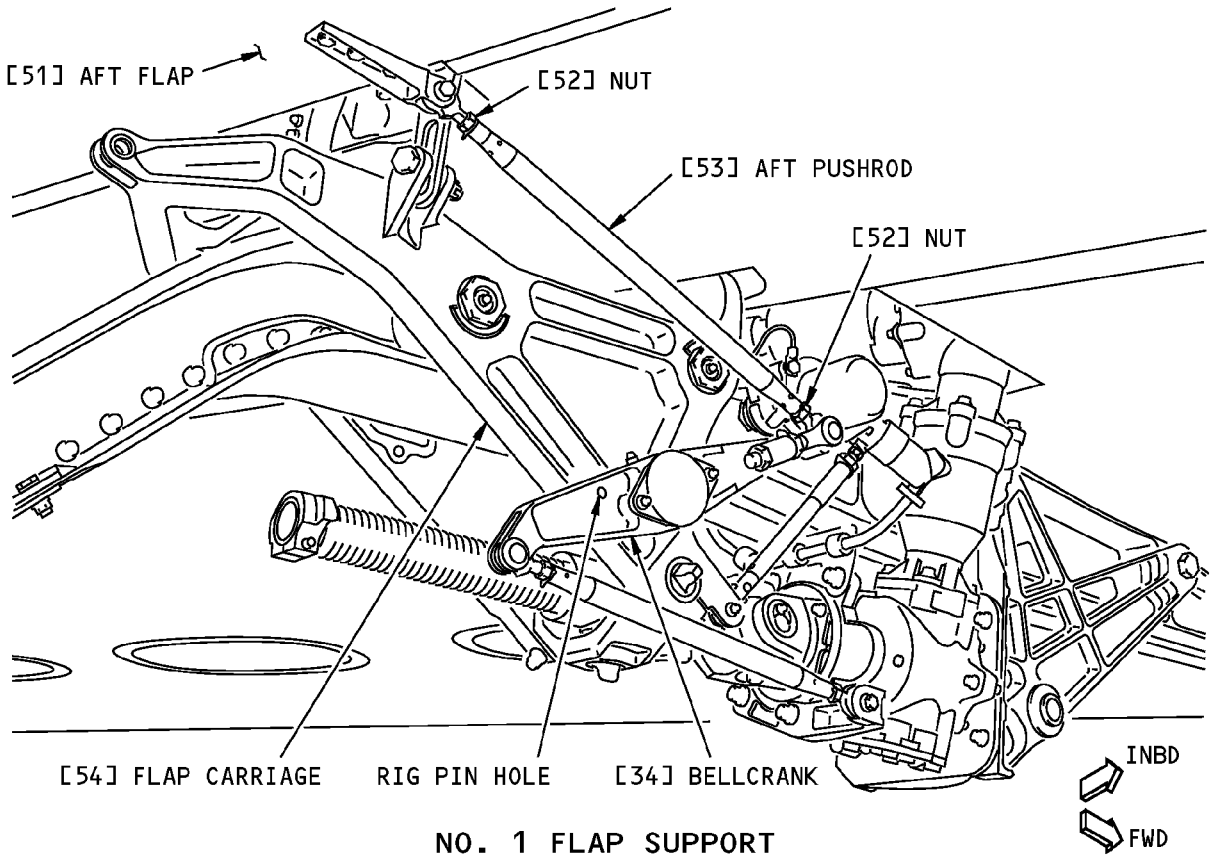
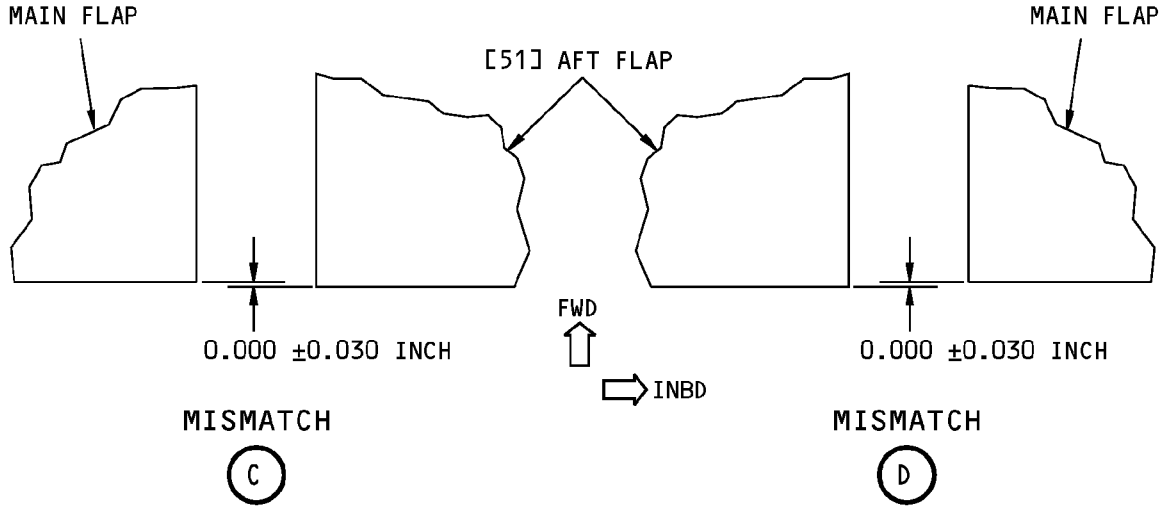


NO. 1 FLAP SUPPORT
(NO. 2 IS EQUIVALENT)

B



Aft Flap Pushrod Adjustment
Figure 505 (Sheet 2 of 2)/27-09-71-990-805

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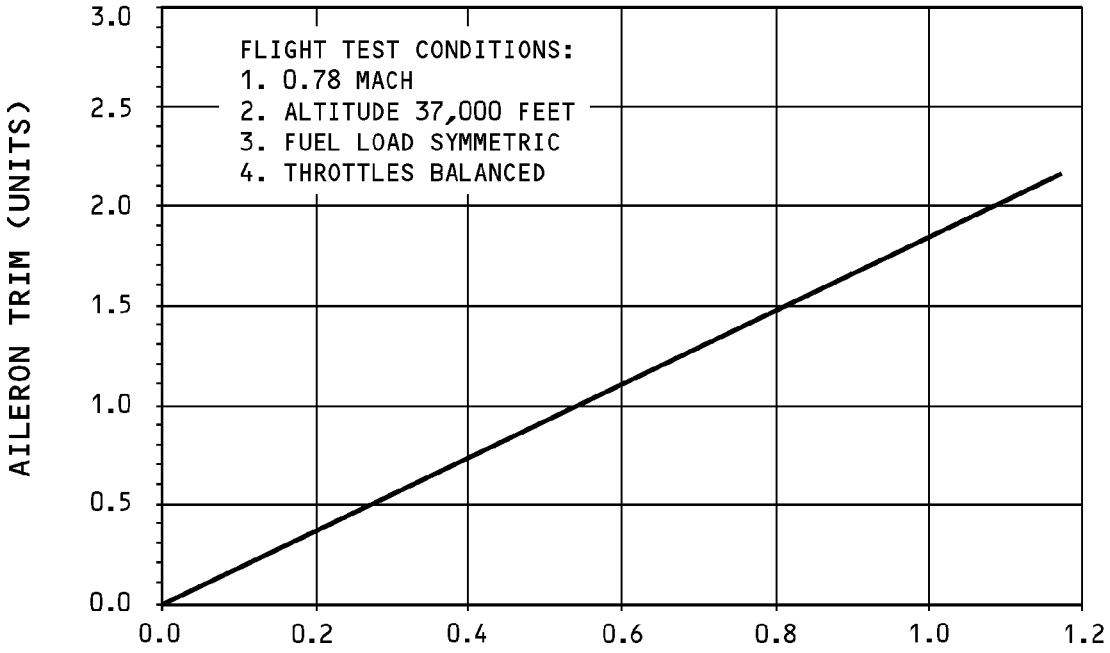
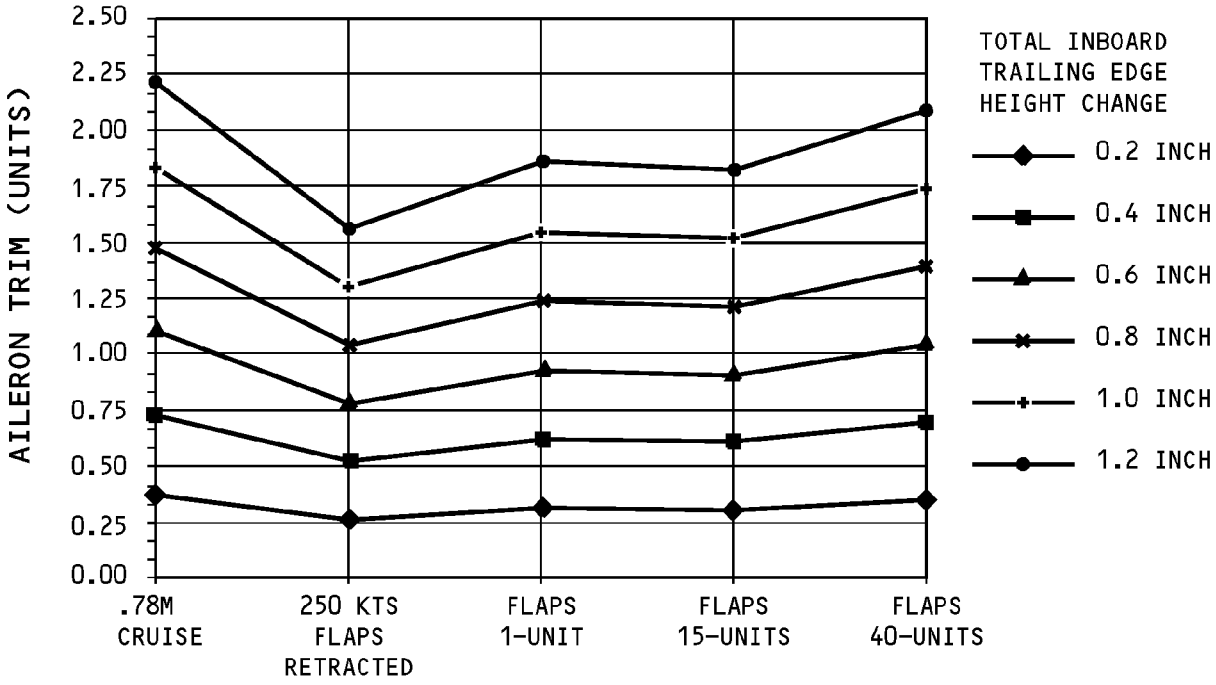


GRAPH A – TOTAL TRAILING EDGE HEIGHT CHANGE



GRAPH B – HEIGHT CHANGE EFFECT

Lateral Trim Correction for Multiple Flight Conditions
Figure 506 (Sheet 1 of 2)/27-09-71-990-807

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CURRENT POSITION	CHANGE TO:												
	90	75	60	45	30	15	0	-15	-30	-45	-60	-75	-90
90		0.00	-0.04	-0.11	-0.20	-0.30	-0.42	-0.54	-0.65	-0.74	-0.81	-0.84	-0.85
75	0.00		-0.04	-0.10	-0.19	-0.30	-0.42	-0.54	-0.65	-0.74	-0.80	-0.84	-0.84
60	0.04	0.04		-0.07	-0.16	-0.26	-0.38	-0.50	-0.61	-0.70	-0.77	-0.80	-0.81
45	0.11	0.10	0.07		-0.09	-0.20	-0.32	-0.44	-0.55	-0.64	-0.70	-0.74	-0.74
30	0.20	0.19	0.16	0.09		-0.11	-0.23	-0.35	-0.46	-0.55	-0.61	-0.65	-0.65
15	0.30	0.30	0.26	0.20	0.11		-0.12	-0.24	-0.35	-0.44	-0.50	-0.54	-0.54
0	0.42	0.42	0.38	0.32	0.23	0.12		-0.12	-0.23	-0.32	-0.38	-0.42	-0.42
-15	0.54	0.54	0.50	0.44	0.35	0.24	0.12		-0.11	-0.20	-0.26	-0.30	-0.30
-30	0.65	0.65	0.61	0.55	0.46	0.35	0.23	0.11		-0.09	-0.16	-0.19	-0.20
-45	0.74	0.74	0.70	0.64	0.55	0.44	0.32	0.20	0.09		-0.07	-0.10	-0.11
-60	0.81	0.80	0.77	0.70	0.61	0.50	0.38	0.26	0.16	0.07		-0.04	-0.04
-75	0.84	0.84	0.80	0.74	0.65	0.54	0.42	0.30	0.19	0.10	0.04		0.00
-90	0.85	0.84	0.81	0.74	0.65	0.54	0.42	0.30	0.20	0.11	0.04	0.00	

CARRIAGE ROLLER CARTRIDGE POSITION CHANGE

RIGHT TRIM

AILERON TRIM (UNITS) _____ LEFT TRIM

TOTAL INBOARD TRAILING EDGE FLAP HEIGHT CHANGE (INCHES) _____

INBOARD FLAP HEIGHT CHANGE LEFT WING (INCHES) _____

RIGHT WING (INCHES) _____

CARRIAGE POSITION:

CURRENT LEFT WING _____

RIGHT WING _____

NEW LEFT WING _____

RIGHT WING _____

Lateral Trim Correction for Multiple Flight Conditions
Figure 506 (Sheet 2 of 2)/27-09-71-990-807

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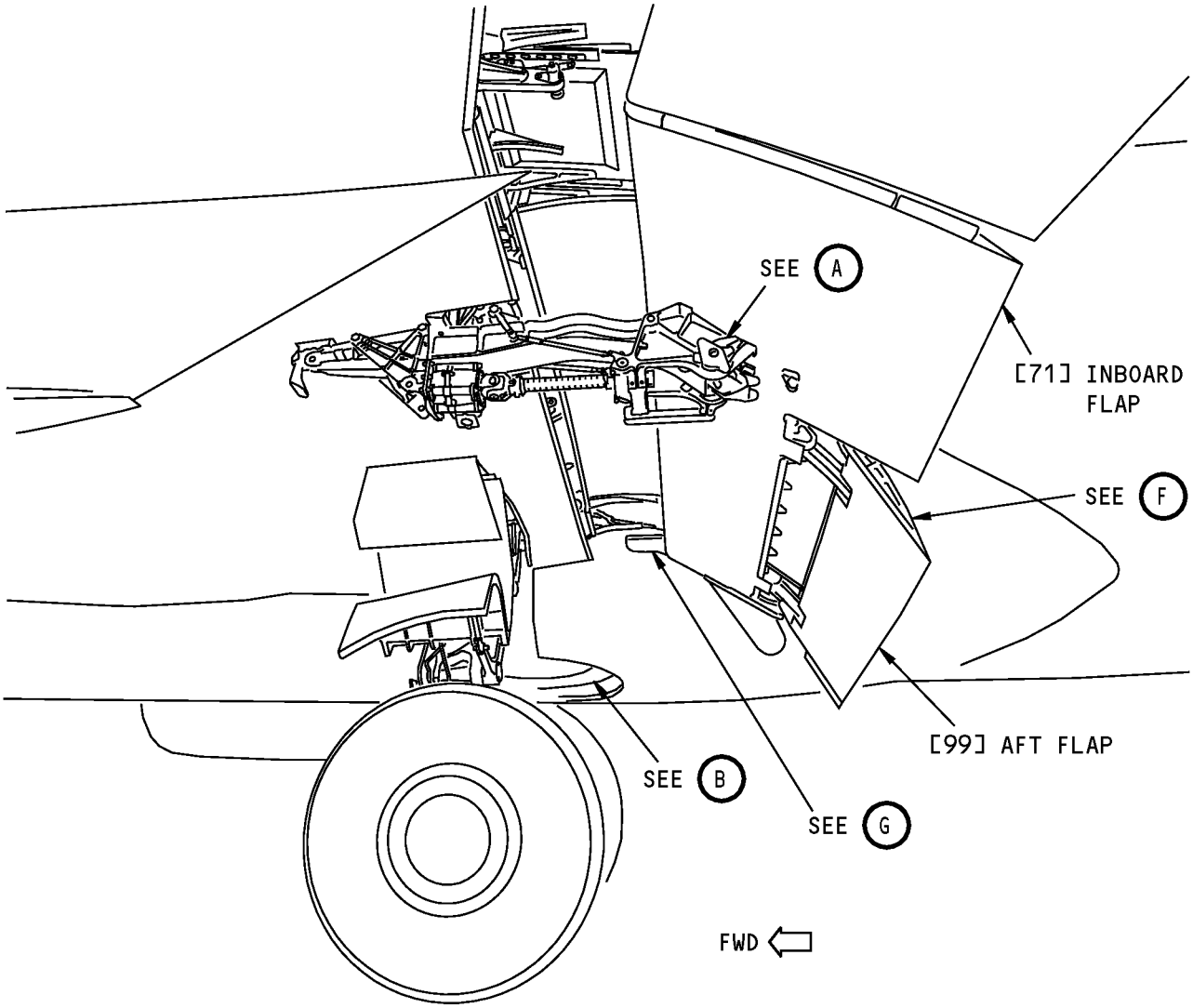

Inboard Trailing Edge Flap Adjustment
Figure 507 (Sheet 1 of 9)/27-09-71-990-808

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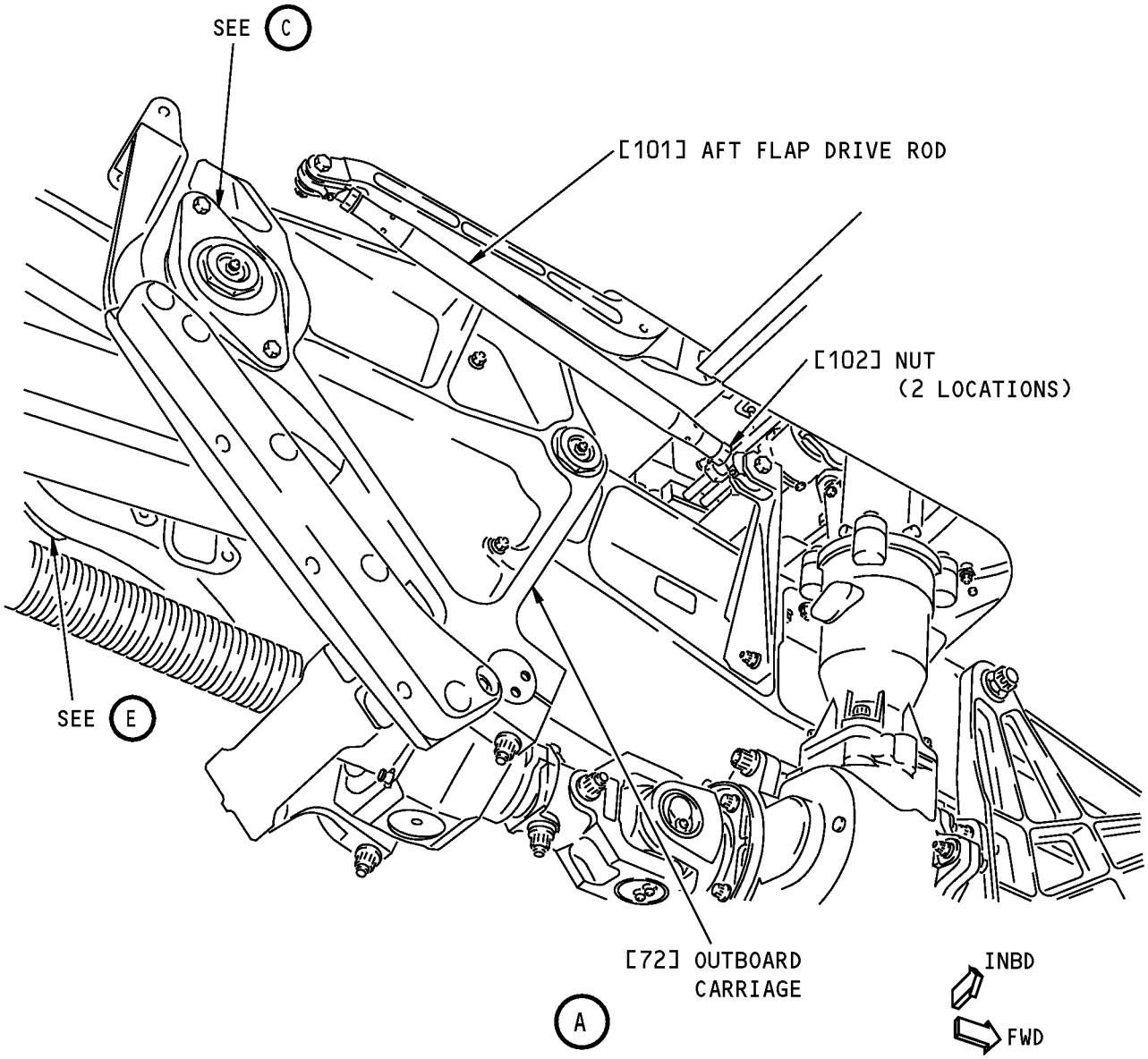

Inboard Trailing Edge Flap Adjustment
Figure 507 (Sheet 2 of 9)/27-09-71-990-808

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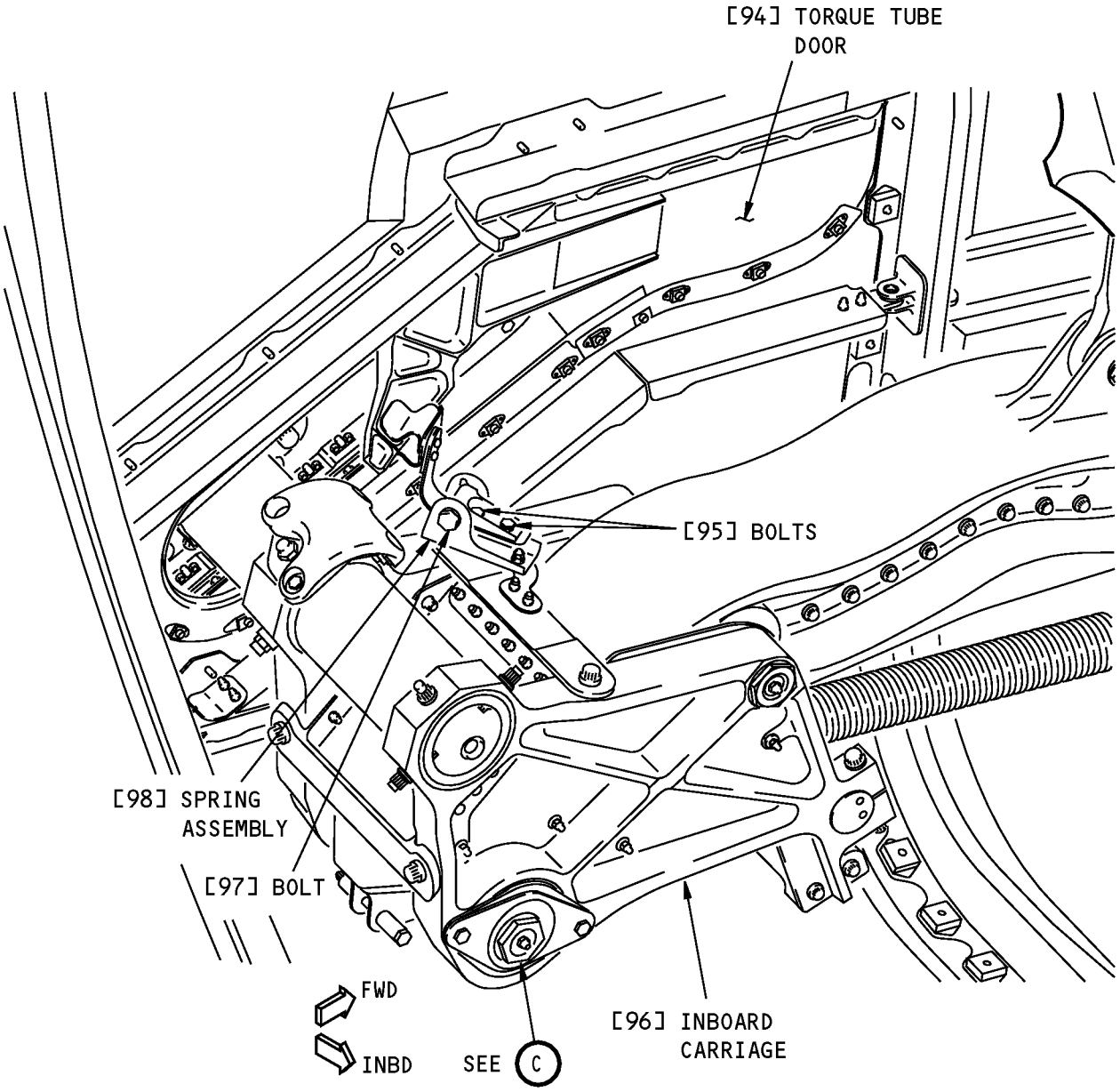

Inboard Trailing Edge Flap Adjustment
Figure 507 (Sheet 3 of 9)/27-09-71-990-808

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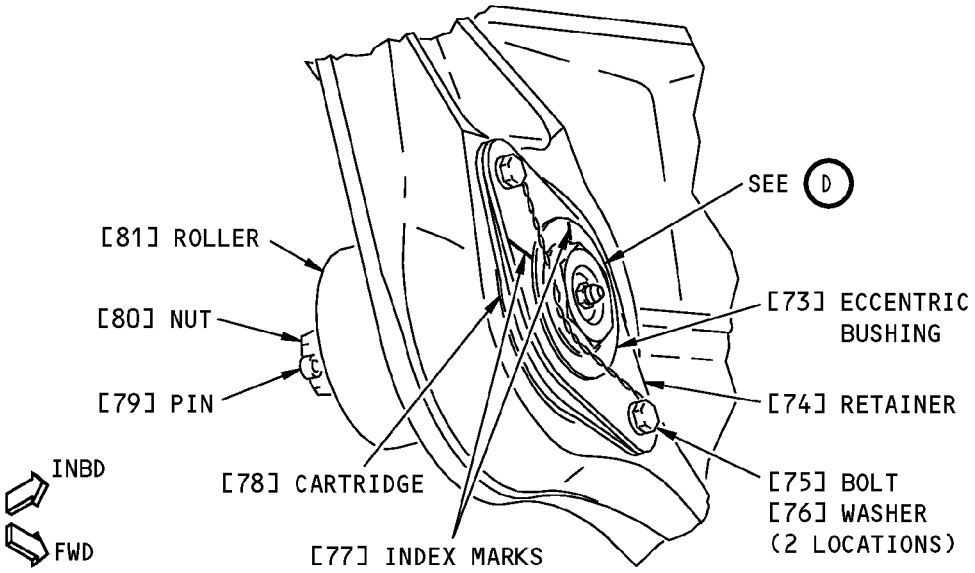
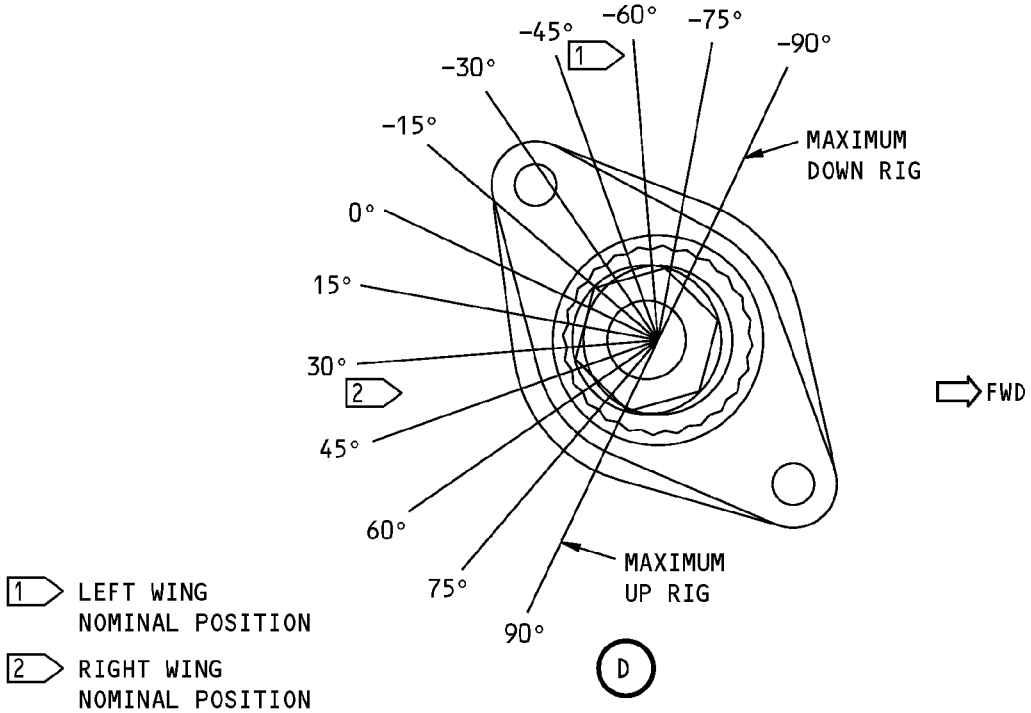


OUTBOARD CARRIAGE, INBOARD ROLLER CARTRIDGE
(INBOARD CARRIAGE ROLLERS ARE EQUIVALENT)

C



D

Inboard Trailing Edge Flap Adjustment
Figure 507 (Sheet 4 of 9)/27-09-71-990-808

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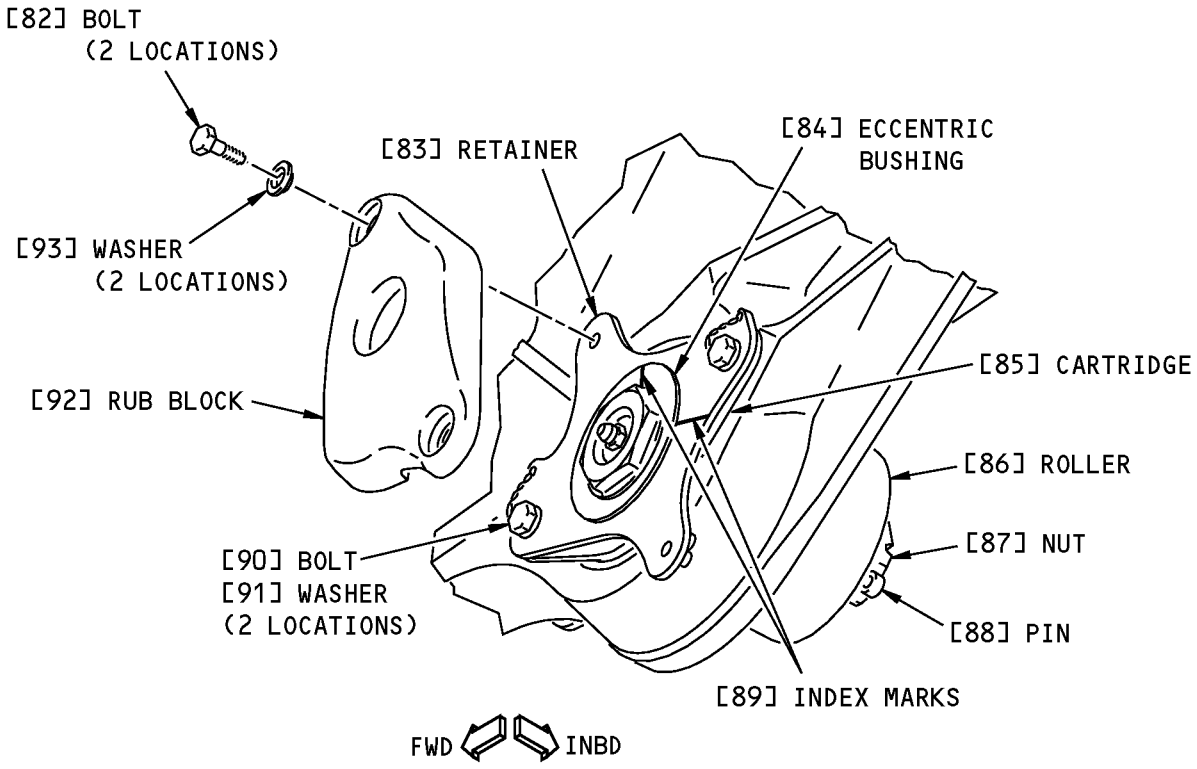

OUTBOARD CARRIAGE, OUTBOARD ROLLER CARTRIDGE

E

Inboard Trailing Edge Flap Adjustment
Figure 507 (Sheet 5 of 9)/27-09-71-990-808

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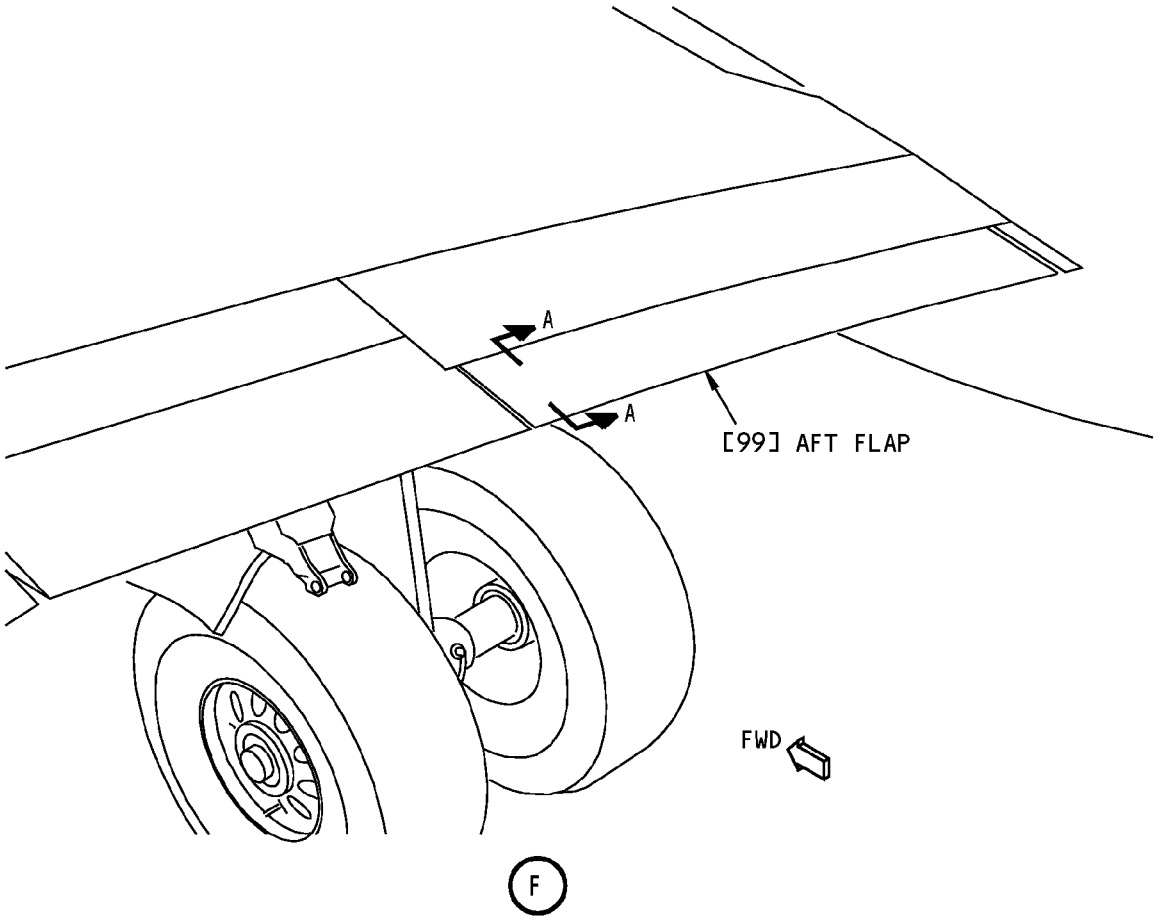

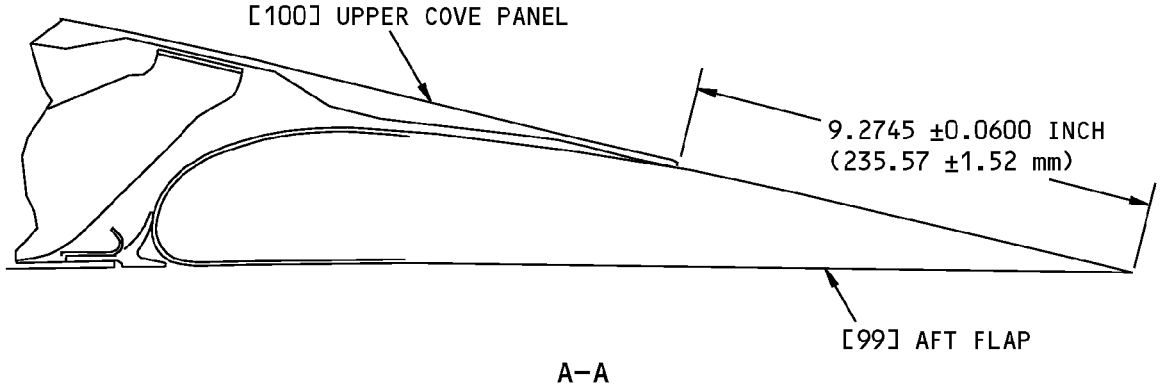

Inboard Trailing Edge Flap Adjustment
Figure 507 (Sheet 6 of 9)/27-09-71-990-808

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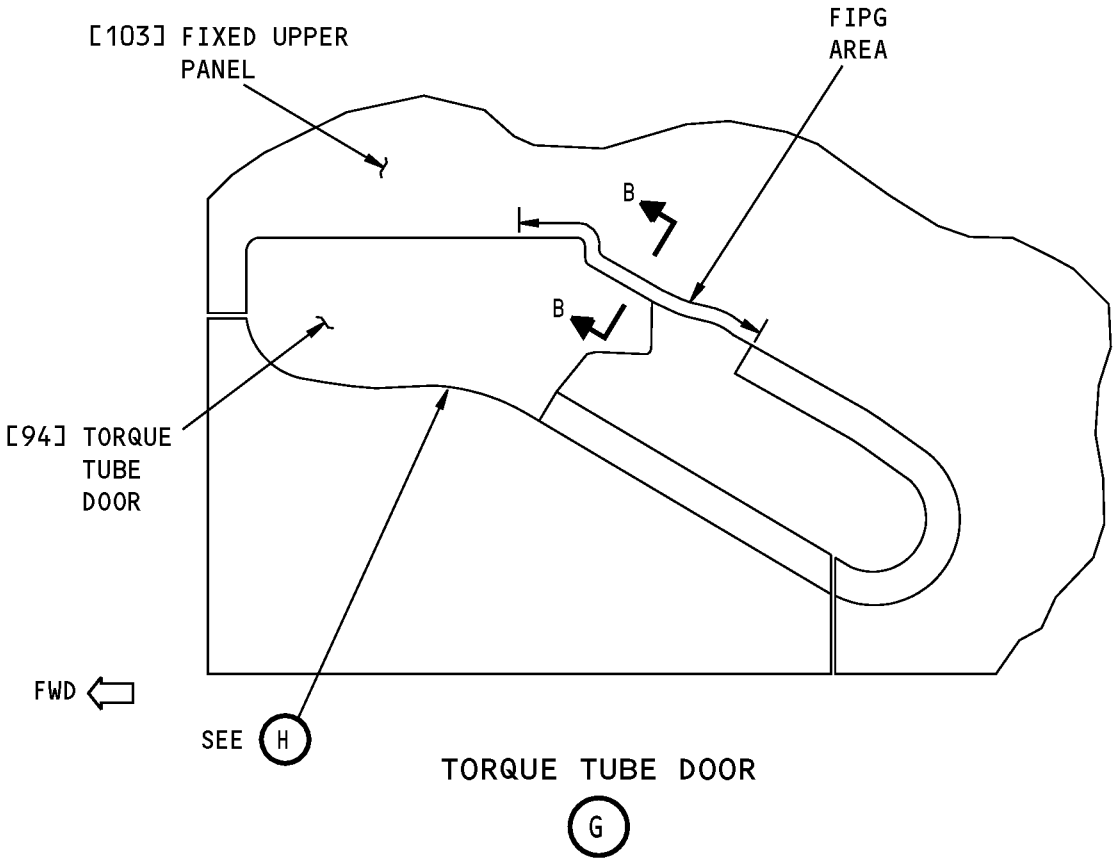

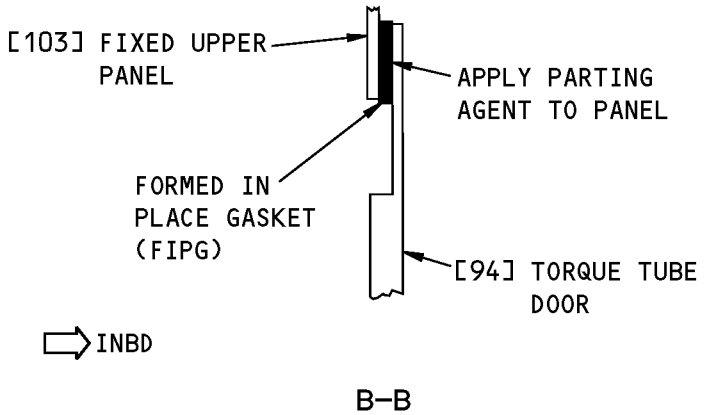

Inboard Trailing Edge Flap Adjustment
Figure 507 (Sheet 7 of 9)/27-09-71-990-808

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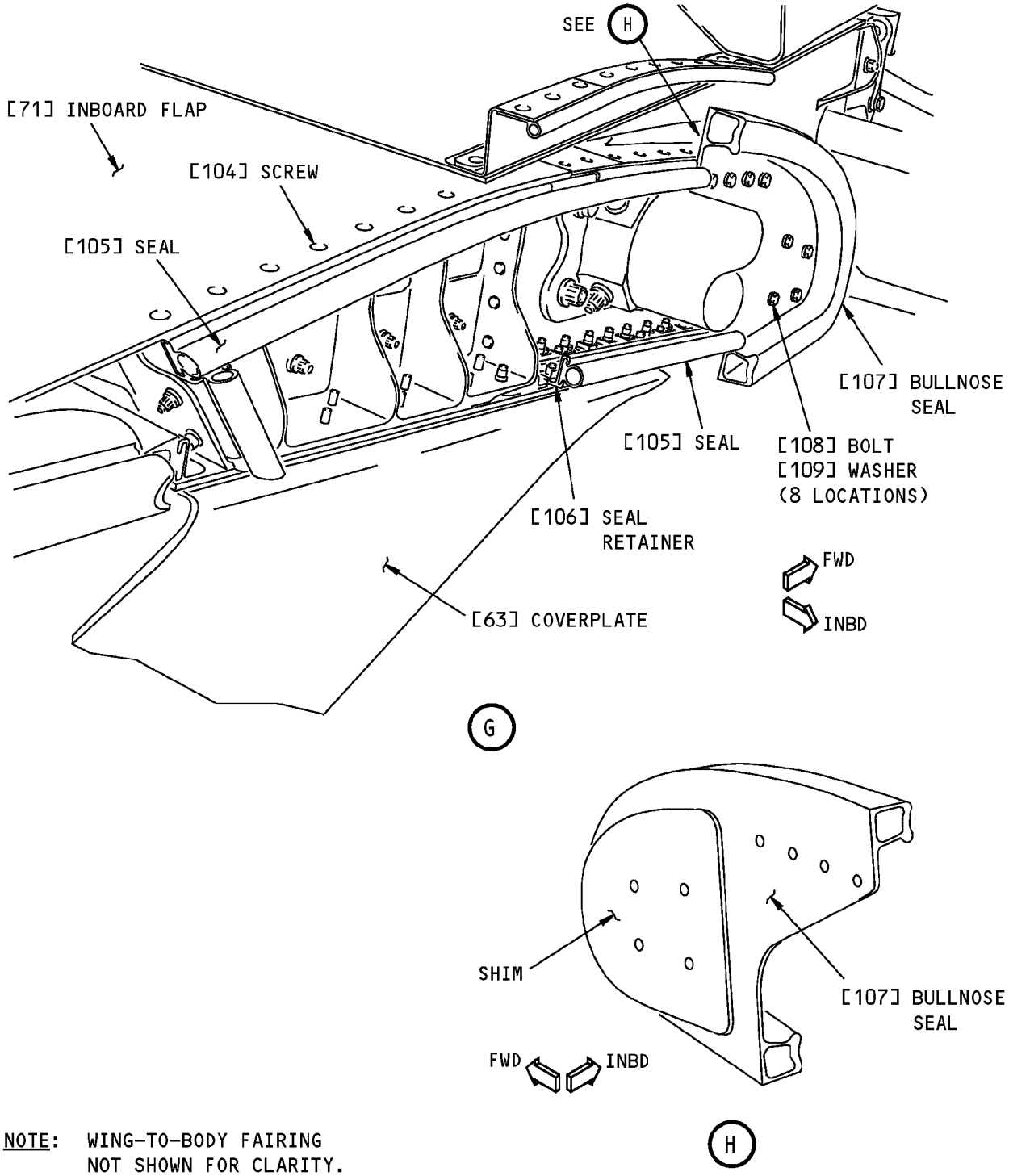

NOTE: WING-TO-BODY FAIRING
NOT SHOWN FOR CLARITY.

Inboard Trailing Edge Flap Adjustment
Figure 507 (Sheet 8 of 9)/27-09-71-990-808

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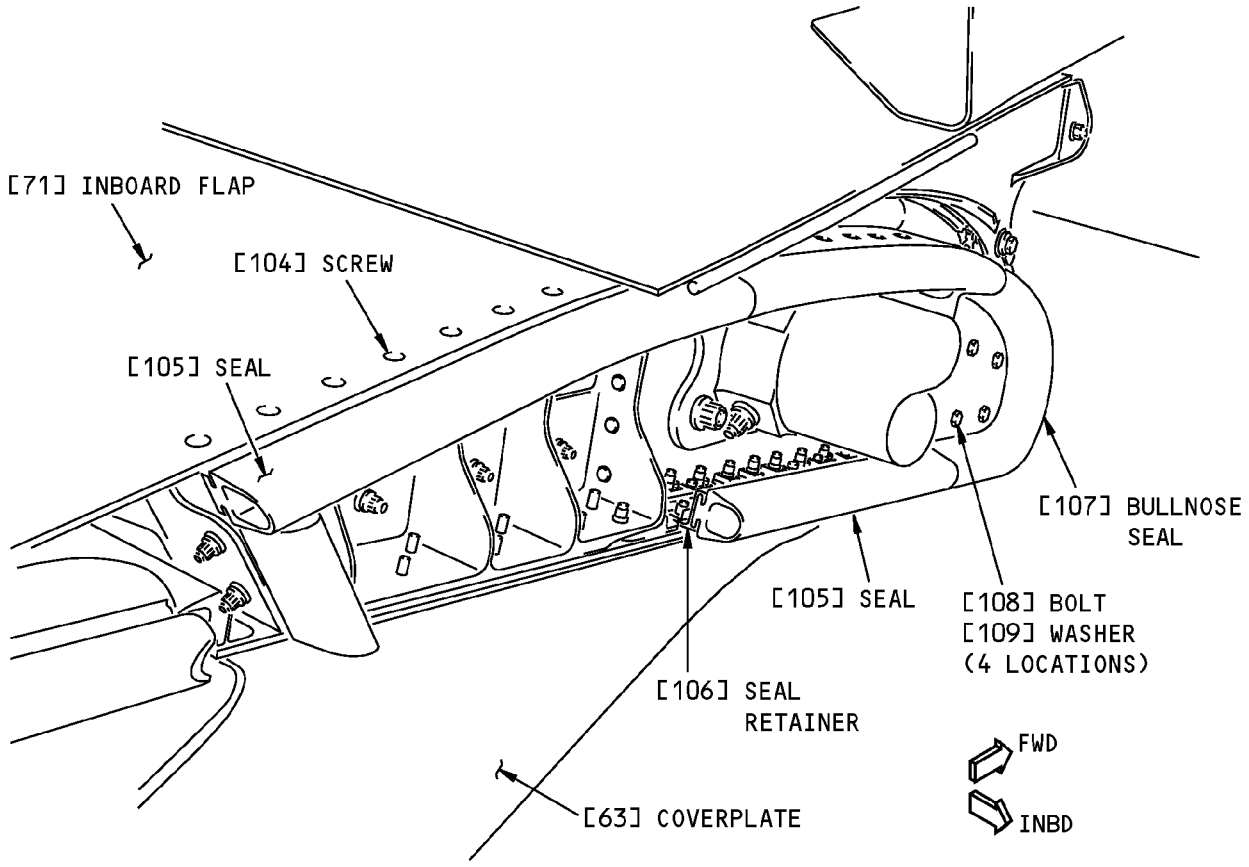

NOTE: WING-TO-BODY FAIRING
NOT SHOWN FOR CLARITY.

Inboard Trailing Edge Flap Adjustment
Figure 507 (Sheet 9 of 9)/27-09-71-990-808

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TASK 27-09-71-820-802

3. Aileron Balance Tab Adjustment to Equalize Lateral Manual Reversion Forces

A. General

(1) Use this procedure to adjust the aileron balance tab if the difference in the lateral manual reversion forces is more than the permitted 2 to 1 ratio.

(2) In this task the aileron tab control rods are referred to as the "control rods".

B. References

Reference	Title
27-11-00-700-803	Manual Reversion Control Friction Test (P/B 501)
27-11-00-820-802	Pogo and Power Control Unit (PCU) Adjustment (P/B 501)
27-11-00-820-803	Aileron Balance Tab Adjustment (P/B 501)
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

D. Prepare for the Adjustment

SUBTASK 27-09-71-860-002

(1) Make sure the aileron balance tab is correctly adjusted. To do a check of the adjustment of the aileron balance tab, do this task: Aileron Balance Tab Adjustment, TASK 27-11-00-820-803.

SUBTASK 27-09-71-860-003

(2) Make sure the aileron control wheel forces, with power off, are not more than the specified limits. To do a check of the aileron control wheel forces, do this task: Manual Reversion Control Friction Test, TASK 27-11-00-700-803.

SUBTASK 27-09-71-860-004

(3) Make sure the stop clearances at the quadrants of the power control unit are not out of tolerance. To do a check of the stop clearances, do this task: Pogo and Power Control Unit (PCU) Adjustment, TASK 27-11-00-820-802.

SUBTASK 27-09-71-860-005

(4) If the Flaps Up trim is more than 0.75 unit, make the trim correction first before you do the manual reversion correction. To adjust the trailing edge flap for lateral trim, do this task: Trailing Edge Flap Adjustment for Lateral Trim, TASK 27-09-71-820-801.

SUBTASK 27-09-71-860-006

(5) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

E. Aileron Balance Tab Adjustment To Equalize Lateral Manual Reversion Forces

SUBTASK 27-09-71-970-005

(1) Make a record of the force necessary to turn the control wheel approximately 30 degrees clockwise.

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SUBTASK 27-09-71-970-006

(2) Make a record of the force necessary to turn the control wheel approximately 30 degrees counterclockwise.

SUBTASK 27-09-71-970-007

(3) Divide the counterclockwise force by the clockwise force to get the force ratio.

SUBTASK 27-09-71-970-008

(4) Use the force ratio to find the correct length change for the control rod (Figure 508).

NOTE: For the left or right aileron balance tab, you must change the length of the control rods in sets. The adjustment of the two control rods must be the same amount. It is recommended that you split the adjustment equally between the left and right control rod sets.

(a) To correct high left forces (control wheel counterclockwise), do one of these steps:

1) Make the left control rod set shorter.
2) Make the right control rod set longer.
3) Make the left control rod set shorter and make the right control rod set longer.

(b) To correct high right forces (control wheel clockwise), do one of these steps:

1) Make the right control rod set shorter.
2) Make the left control rod set longer.
3) Make the right control rod set shorter and make the left control rod set longer.

SUBTASK 27-09-71-820-005

(5) Adjust the aileron balance tab [111] (Figure 509):

(a) Do these steps to gain access to the control rods [113]:

1) Move the aileron trailing edge to the down position.
2) Remove the bolts [122] that attach the forward removable fairing [123] to the aileron [112].
3) Remove the bolts [120] that attach the aft removable fairing [121] to the aileron balance tab [111].

(b) Loosen the jamnuts [124] and [126] on the control rods [113].

(c) Do these steps if coarse adjustment is necessary;

1) Remove the pins [119], nuts [118], washers [117], bushings [116], washers [115] and bolts [114] to disconnect the control rods [113] from the aileron balance tab [111].
2) Turn the rod ends on the control rods [113] for adjustment.

NOTE: One-half turn of the rod end lengthens the control rod 0.021 inch (0.53 millimeter). One-half turn of the rod end and the barrel [85] together changes the position of the tab trailing edge 0.025 inch (0.64 millimeter).

a) To raise the trailing edge of the aileron balance tab [111], lengthen the control rods [113].

b) To lower the trailing edge of the aileron balance tab [111], shorten the control rods [113].

3) Connect the control rods [113] to the aileron balance tab [111];

a) Install the bushings [116], washers [115] and [117], bolts [114] and nuts [118].

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b) If there is binding between the control rod [113] and the bolt [114] or deflection of the control rods [113], adjust the control rod length.

c) Make sure there is a minimum of 0.0150 inch (0.38 millimeter) gap between the bushing [116] and the washer [115].

d) Tighten the nuts [118] to 50-80 pound-inches (5.6-9.0 newton-meters).

e) Install the pins [119].

(d) Do these steps if fine adjustment is necessary:

1) Turn the barrel [125] on the control rods [113].

NOTE: One turn of the barrel lengthens the control rod 0.008 inch (0.20 millimeter).

a) To raise the trailing edge of the aileron balance tab [111], lengthen the control rods [113].

b) To lower the trailing edge of the aileron balance tab [111], shorten the control rods [113].

2) Make sure the threads cover the inspection holes in the barrel [125].

(e) Tighten the jamnuts [124] to 100-140 pound-inches (11.3-15.8 newton-meters).

(f) Tighten the jamnuts [126] to 80-100 pound-inches (9.0-11.3 newton-meters).

(g) Install the bolts [120] that attach the aft removable fairing [121] to the aileron balance tab [111].

(h) Install the bolts [122] that attach the forward removable fairing [123] to the aileron [112].

F. Put the Airplane Back To Its Usual Condition

SUBTASK 27-09-71-860-007

(1) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

——————— END OF TASK ———————

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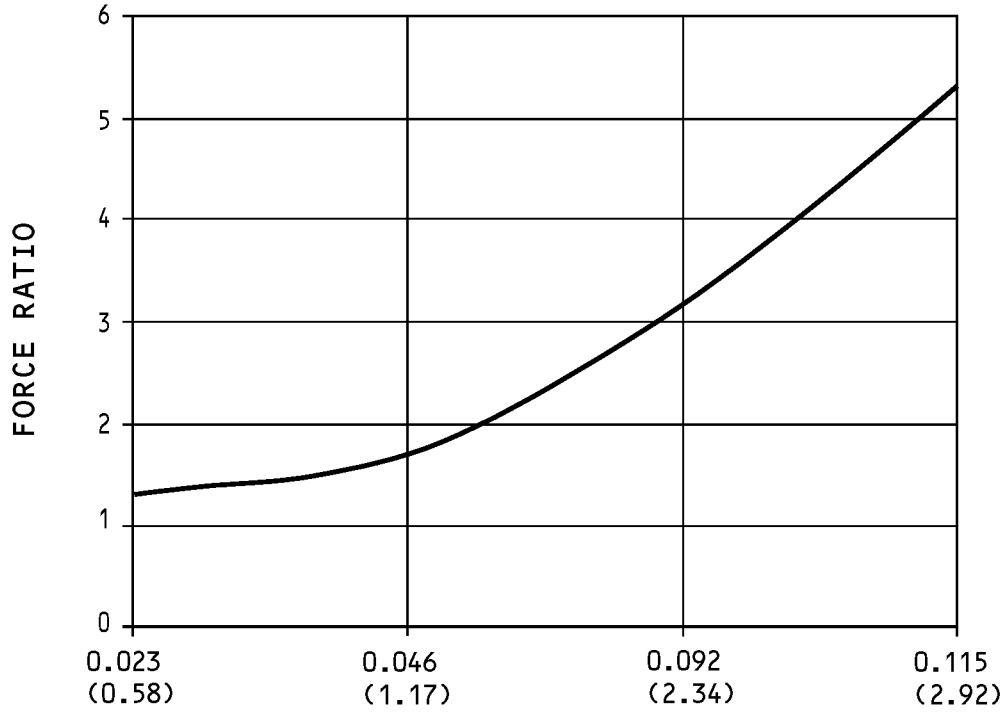

Manual Reversion Force Correction
Figure 508/27-09-71-990-809

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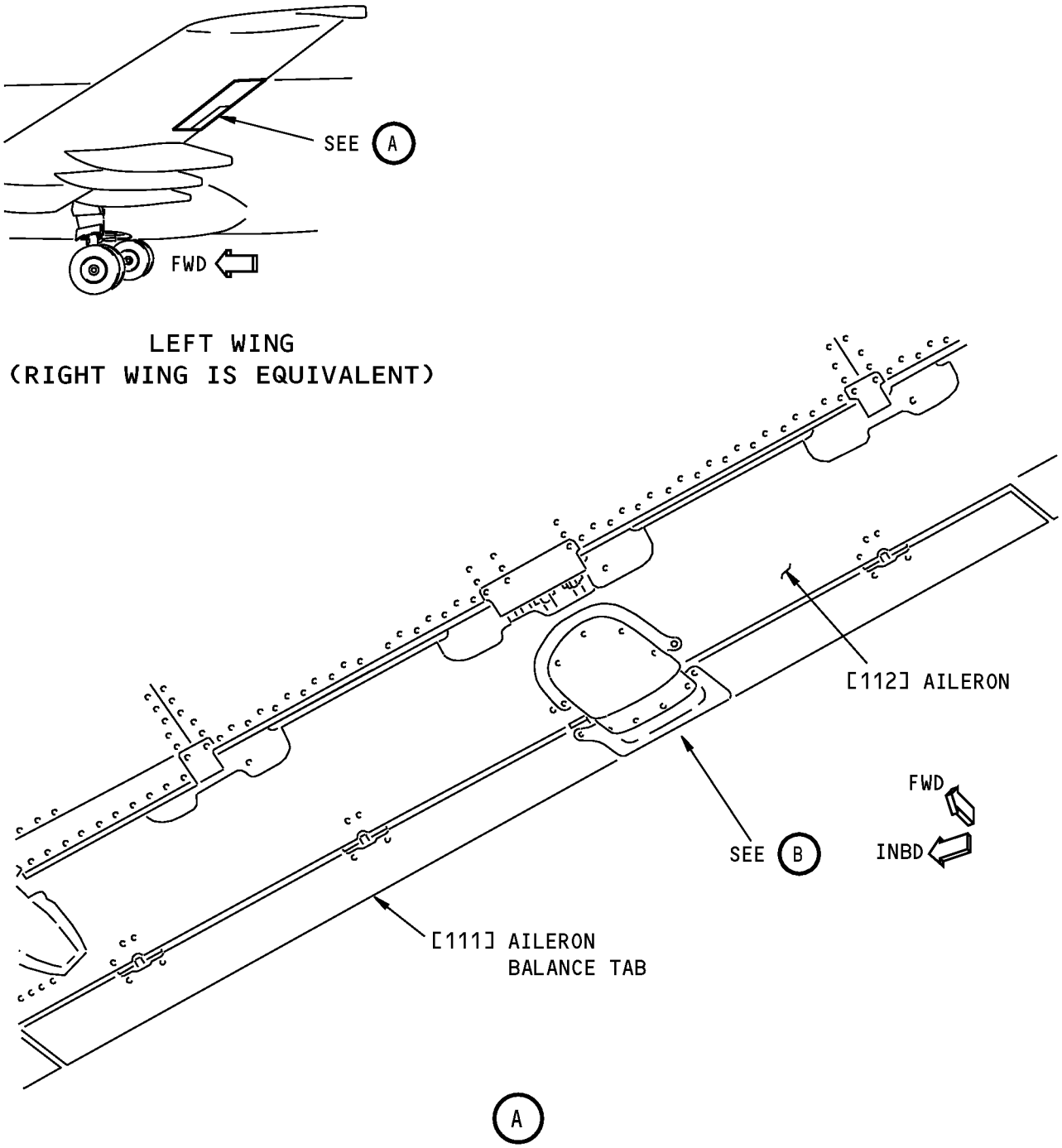

Aileron Balance Tab Adjustment
Figure 509 (Sheet 1 of 2)/27-09-71-990-810

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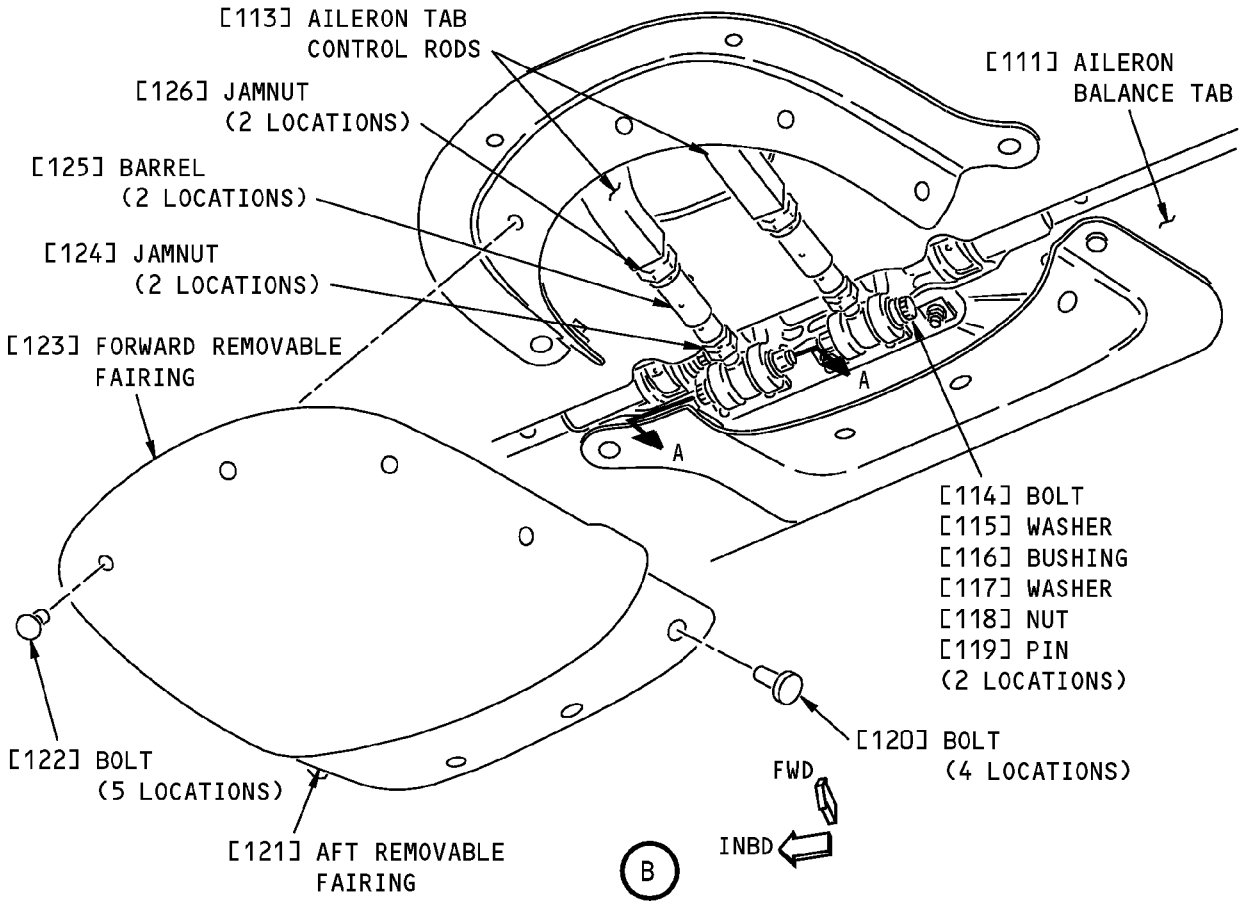

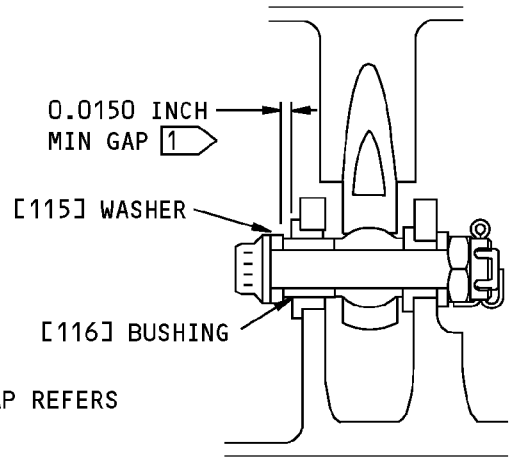

1 0.0150 INCH (0.38 mm) GAP REFERS TO HINGE 2 AND CONTROL ROD CONNECTIONS ONLY.

INBOARD AILERON TAB CONTROL ROD
(OUTBOARD AILERON TAB CONTROL ROD IS OPPOSITE)
A-A

Aileron Balance Tab Adjustment
Figure 509 (Sheet 2 of 2)/27-09-71-990-810

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TASK 27-09-71-820-803

4. Speed Brake Trim Adjustment for Rolloff Discrepancy Correction

A. References

Reference	Title
27-61-00-820-804	Spoiler Actuator Linkage Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)

C. Location Zones

Zone	Area
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

D. Procedure

SUBTASK 27-09-71-480-001

(1) Install the protractor, COM-1691 on the applicable pair of flight spoilers 2, 3, 4, 5, 8, 9, 10 and 11.

(a) Adjust the protractor, COM-1691 to zero.

SUBTASK 27-09-71-220-001

(2) Do a check for symmetry between spoiler pairs 2 and 11, 3 and 10, 4 and 9, and 5 and 8:

(a) Move the speed brake lever until the spoiler 2 is up 15 ±1 degrees.

(b) Make sure the spoiler 11 is symmetrical to a limit of 0.5 degrees.

(c) Do the same symmetry check for the other spoiler pairs.

SUBTASK 27-09-71-820-006

(3) If it is necessary to adjust the flight spoiler positions to get the optimize symmetry, do this task: Spoiler Actuator Linkage Adjustment, TASK 27-61-00-820-804.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-71-860-008

(1) Move the speed brake lever to the DOWN position.

SUBTASK 27-09-71-080-001

(2) Remove the protractor, COM-1691 from the spoilers.

END OF TASK

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TASK 27-09-71-860-801

5. Rudder Trim Adjustment for Power On Discrepancy Correction

A. General

(1) It is necessary to do the rudder power on discrepancy correction if the airplane does not meet the rudder trim requirements shown in the table found in this task (TASK 27-09-71-820-801).

B. References

Reference	Title
27-21-00-700-817-001	Rudder Travel Test (P/B 501)
27-21-00-700-817-002	Rudder Travel Test (P/B 501)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-820-809-001	Control Rod for Main Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-820-809-002	Control Rod for Main Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-820-810-001	Control Rod for Standby Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-820-810-002	Control Rod for Standby Rudder Power Control Unit Adjustment (P/B 501)

C. Location Zones

Zone	Area
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-09-71-860-009

(1) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-09-71-820-007

(2) Adjust the rudder trim:

(a) Trim until the rudder trim indicator is ±0.25 units of the position noted on the flight squawk.

(b) Loosen the two index plate screws on the tailcone.

(c) Put the index plate at a position where the two sides of the rudder trailing edge are within the width of the tab on the index plate.

(d) Tighten the index plate screws.

SUBTASK 27-09-71-820-008

(3) Use the rudder trim knob to set the trim to indicate zero.

(a) Make sure you can install the rig pin, R-5.

SUBTASK 27-09-71-860-010

(4) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

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SUBTASK 27-09-71-820-009

(5) Adjust the input of the main power control unit (PCU) to align the rudder with the new index position. To do this, do this task: Control Rod for Main Rudder Power Control Unit Adjustment, TASK 27-21-00-820-809-001 or Control Rod for Main Rudder Power Control Unit Adjustment, TASK 27-21-00-820-809-002.

SUBTASK 27-09-71-820-010

(6) Adjust the input of the standby PCU to align with the main PCU. To do this, do this task: Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-001 or Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-002.

SUBTASK 27-09-71-820-011

(7) Adjust the input of the rudder position sensor to align the rudder with the new index plate position.

SUBTASK 27-09-71-720-001

(8) Do this task: Rudder Travel Test, TASK 27-21-00-700-817-001 or Rudder Travel Test, TASK 27-21-00-700-817-002.

——————— END OF TASK ———————

TASK 27-09-71-860-802

6. Rudder Trim Adjustment for Power Off Discrepancy Correction

A. References

Reference	Title
27-21-00-820-810-001	Control Rod for Standby Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-820-810-002	Control Rod for Standby Rudder Power Control Unit Adjustment (P/B 501)

B. Location Zones

Zone	Area
320	Subzone - Vertical Fin and Rudder
325	Vertical Fin - Rudder

C. Procedure

SUBTASK 27-09-71-820-012

(1) Do a check of the standby rudder standby power control unit adjustment. To do this, do this task: Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-001 or Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-002.

——————— END OF TASK ———————

TASK 27-09-71-970-801

7. Flight Controls Adjustment Record

HAP 028-054, 101-999

NOTE: See Figure 510.

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HAP 001-013, 015-026

NOTE: See Figure 511.

HAP ALL

A. Location Zones

Zone	Area
190	Subzone - Wing-to-Body Fairing
300	Empennage
500	Left Wing
600	Right Wing

B. Procedure

SUBTASK 27-09-71-970-013

(1) You can use this figure to record the initial rigging condition of the flight control surfaces.

——————— END OF TASK ———————

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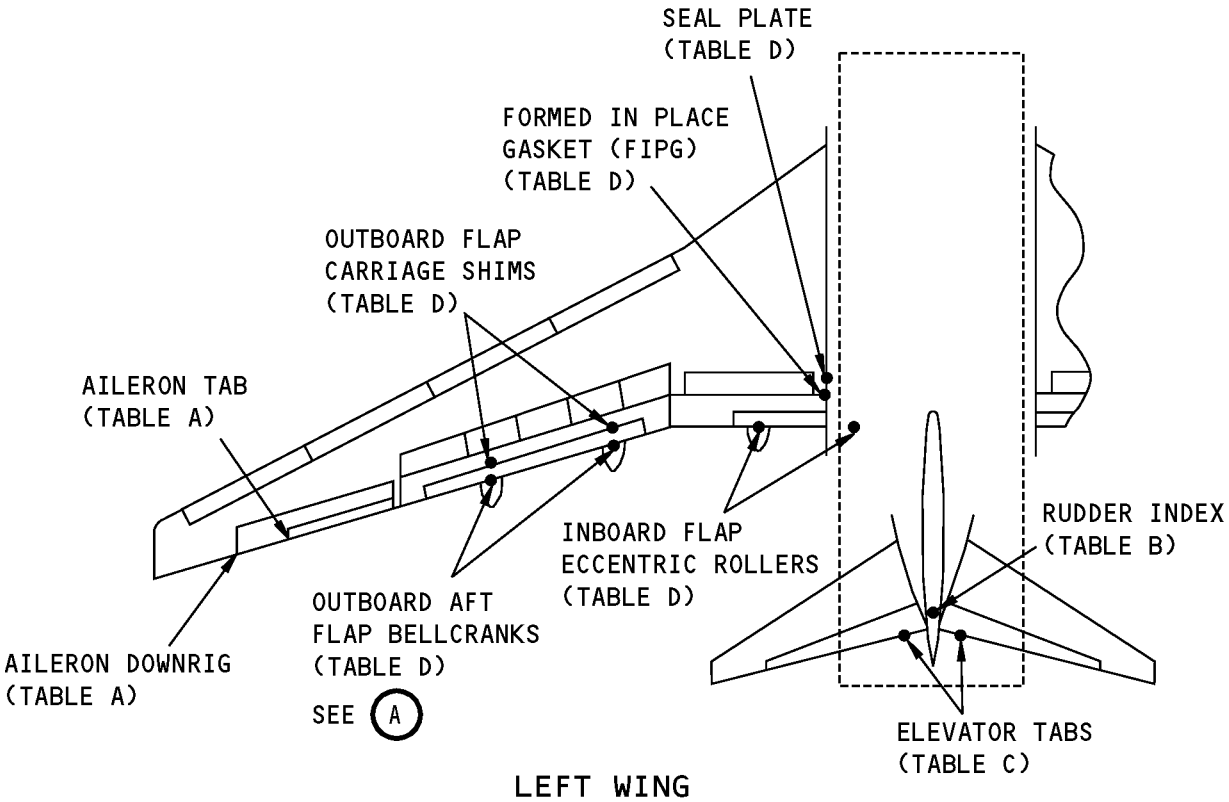
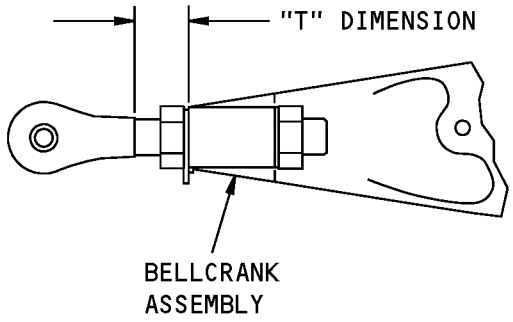


LEFT WING
(RIGHT WING IS OPPOSITE)



OUTBOARD AFT FLAP BELLCRANK

A

Flight Controls Surface Mismatch Record
Figure 510/27-09-71-990-812

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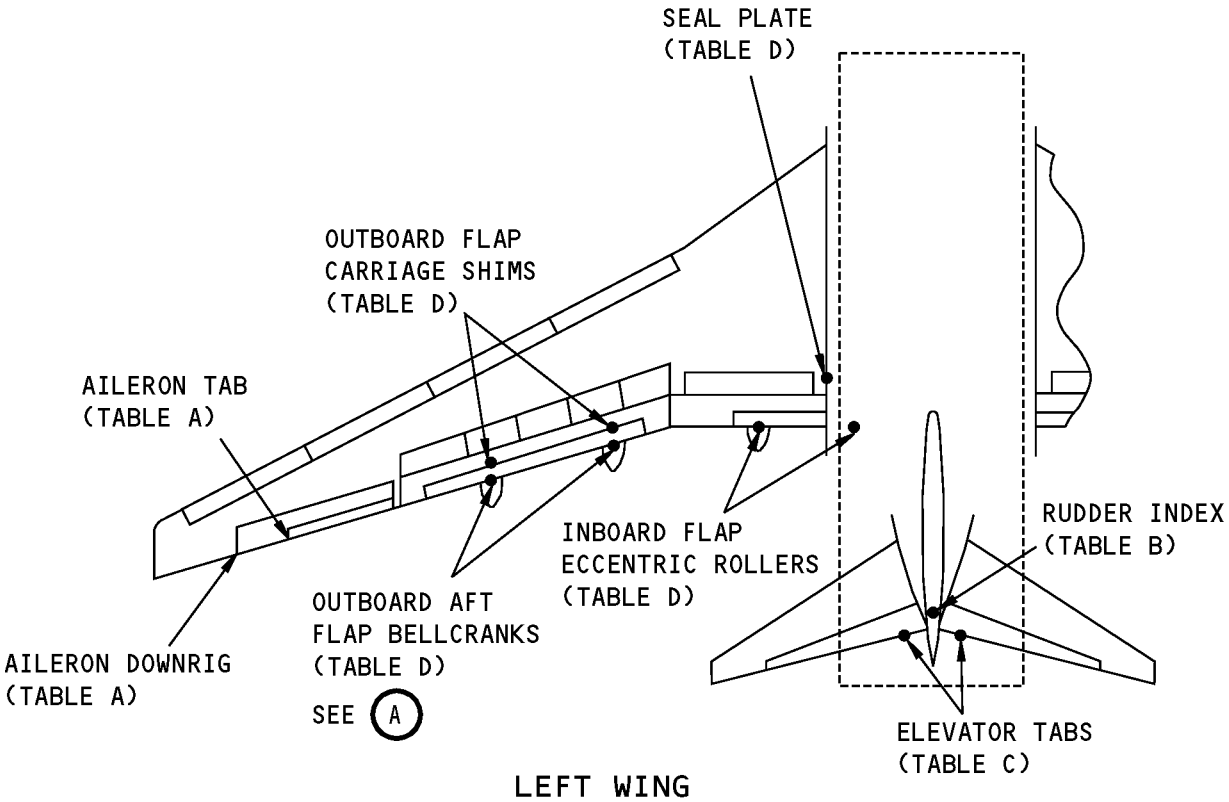
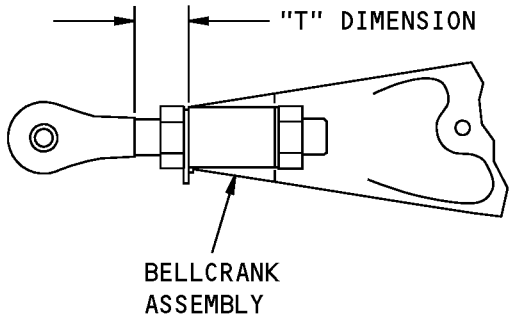


LEFT WING
(RIGHT WING IS OPPOSITE)



OUTBOARD AFT FLAP BELLCRANK

A

Flight Controls Surface Mismatch Record
Figure 511/27-09-71-990-817

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AILERONS		
AILERON DOWNRIG:	LHS_____	RHS_____
3 AILERON TAB:	LHS_____	RHS_____

TABLE A

RUDDER		
INDEX LOCATION TO APL ℄_____		
T.E. WITHIN INDEX	YES_____	NO_____
RUDDER TRIM_____		

TABLE B

ELEVATORS (TAB RIGGING LIMITS)
1 SET STAB = 4 UNITS (B = 39.89 ±0.01)_____
SET ELEV TO ALIGN WITH INDEX = ±0.04_____ (HYDRAULIC POWER OFF)
1 FINAL TAB SETTING PRIOR TO DELIVERY (+0.20/+0.50) LEFT_____ RIGHT_____

TABLE C

LATERAL TRIM CONFIGURATION			
SEAL PLATE:	LHS: 149A7330-_____	THICKNESS_____	NOT USED_____
	RHS: 149A7330-_____	THICKNESS_____	NOT USED_____
FORMED IN PLACE GASKET (FIPG):	LHS:	USED_____	NOT USED_____
	RHS:	USED_____	NOT USED_____
4 INBD FLAP ECCENTRIC ROLLER:	LHS OUTBD_____	LHS INBD_____	
	RHS OUTBD_____	RHS INBD_____	
OUTBD FLAP CARRIAGE SHIM:	LHS OUTBD_____	LHS INBD_____	
	RHS OUTBD_____	RHS INBD_____	
2 OUTBD AFT FLAP BELLCRANK "T":	LHS OUTBD_____	LHS INBD_____	
	RHS OUTBD_____	RHS INBD_____	

TABLE D

1 (+) INDICATES CONTROL SURFACE ABOVE TRAILING EDGE.
(–) INDICATES CONTROL SURFACE BELOW TRAILING EDGE.

2 MUST AGREE WITHIN ±0.050.

3 MEASURE AILERON TAB (ALL MODELS) AT OUTBOARD END OF TAB, WITH THE AILERON IN THE DOWNRIG POSITION.

4 ALL FOUR ECCENTRIC ROLLERS ON THE SAME FLAP MUST BE AT THE SAME POSITION.

Flight Controls Surface Mismatch Record
Figure 512/27-09-71-990-818

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AILERONS		
AILERON DOWNRIG:	LHS_____	RHS_____
3 AILERON TAB:	LHS_____	RHS_____

TABLE A

RUDDER		
INDEX LOCATION TO APL ℄_____		
T.E. WITHIN INDEX	YES_____	NO_____
RUDDER TRIM_____		

TABLE B

ELEVATORS (TAB RIGGING LIMITS)
1 SET STAB = 4 UNITS (B = 39.89 ±0.01)_____
SET ELEV TO ALIGN WITH INDEX = ±0.04_____ (HYDRAULIC POWER OFF)
1 FINAL TAB SETTING PRIOR TO DELIVERY (+0.20/+0.50) LEFT_____ RIGHT_____

TABLE C

LATERAL TRIM CONFIGURATION		
4 INBD FLAP ECCENTRIC ROLLER:	LHS OUTBD_____	LHS INBD_____
	RHS OUTBD_____	RHS INBD_____
OUTBD FLAP CARRIAGE SHIM:	LHS OUTBD_____	LHS INBD_____
	RHS OUTBD_____	RHS INBD_____
2 OUTBD AFT FLAP BELLCRANK "T":	LHS OUTBD_____	LHS INBD_____
	RHS OUTBD_____	RHS INBD_____

TABLE D

1 (+) INDICATES CONTROL SURFACE ABOVE TRAILING EDGE.
(–) INDICATES CONTROL SURFACE BELOW TRAILING EDGE.

2 MUST AGREE WITHIN ±0.050.

3 MEASURE AILERON TAB (ALL MODELS) AT OUTBOARD END OF TAB, WITH THE AILERON IN THE DOWNRIG POSITION.

4 ALL FOUR ECCENTRIC ROLLERS ON THE SAME FLAP MUST BE AT THE SAME POSITION.

Flight Controls Surface Mismatch Record
Figure 513/27-09-71-990-819

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FLIGHT CONTROLS SURFACES - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure contains these tasks:

(1) The inspection of the aileron and aileron tabs

(2) The inspection of the rudder

(3) The inspection of the elevator and elevator tab is now located in the AMM 27-31-32/601.

(4) The inspection of the horizontal stabilizer

(5) The inspection of the spoilers.

TASK 27-09-91-200-801

2. Aileron - Inspection

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-11-11-200-801	Aileron Inspection (P/B 601)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

Reference	Description
STD-753	Scale - Push/Pull, 0-25 pound (0-11 kilogram) Capacity, 1/4 pound (113 gram) Accuracy
STD-1238	Indicator - Dial
STD-1279	Mount - Device, Mounting, Holds the Dial Indicator

D. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Prepare for the Check

SUBTASK 27-09-91-860-001

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

F. Do a Check of the Aileron Freeplay

(Figure 601)

SUBTASK 27-09-91-220-001

(1) Do a freeplay check of one aileron with no movement of the opposite aileron or the control wheel:

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(a) Make sure the control wheel is at the center.

(b) Attach a mount, STD-1279, to the top wing structure (outboard of the aileron).

(c) Attach a dial indicator, STD-1238 to take measurements from the outboard corner of the aileron trailing edge.

(d) Put the plunger of the dial indicator, STD-1238 approximately 0.1 inch (3 millimeters) from the aileron trailing edge.

1) Adjust the dial indicator, STD-1238 to zero.

CAUTION: MAKE SURE YOU USE SUFFICIENT PADDING ON THE FORCE SCALE WHEN YOU APPLY FORCE TO THE CONTROL SURFACE. IF THERE IS NOT SUFFICIENT PADDING, YOU CAN CAUSE DAMAGE TO THE CONTROL SURFACE.

(e) With the push/pull scale 0-25 pound (0-11 kilogram), STD-753, push up with a force of approximately 5 pounds (22 newtons) (Figure 601).

NOTE: Apply the load to the aileron balance tab cutout rib (adjacent to the outboard edge of the aileron tab) and centered within 0.5 inch (13 millimeters) of the trailing edge.

1) Make a record of the travel shown on the dial indicator.

2) Slowly remove the force.

(f) Do not adjust the dial indicator, STD-1238.

CAUTION: MAKE SURE YOU USE SUFFICIENT PADDING ON THE FORCE SCALE WHEN YOU APPLY FORCE TO THE CONTROL SURFACE. IF THERE IS NOT SUFFICIENT PADDING, YOU CAN CAUSE DAMAGE TO THE CONTROL SURFACE.

(g) With the push/pull scale 0-25 pound (0-11 kilogram), STD-753, push down with a force of approximately 5 pounds (22 newtons) (Figure 601).

NOTE: Apply the load to the aileron balance tab cutout rib (adjacent to the outboard edge of the aileron tab) and centered within 0.5 inch (13 millimeters) of the trailing edge.

1) Make a record of the travel shown on the dial indicator.

2) Slowly remove the force.

(h) Make sure the total up and down freeplay of the aileron is not more than 0.100 inch (2.54 millimeters).

(i) Remove the dial indicator, STD-1238.

(j) Remove the mount, STD-1279.

(k) If the freeplay is not in the acceptable limits, do this task: Aileron Inspection, TASK 27-11-11-200-801.

SUBTASK 27-09-91-220-002

(2) Do the same freeplay check on the opposite aileron.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-91-860-002

(1) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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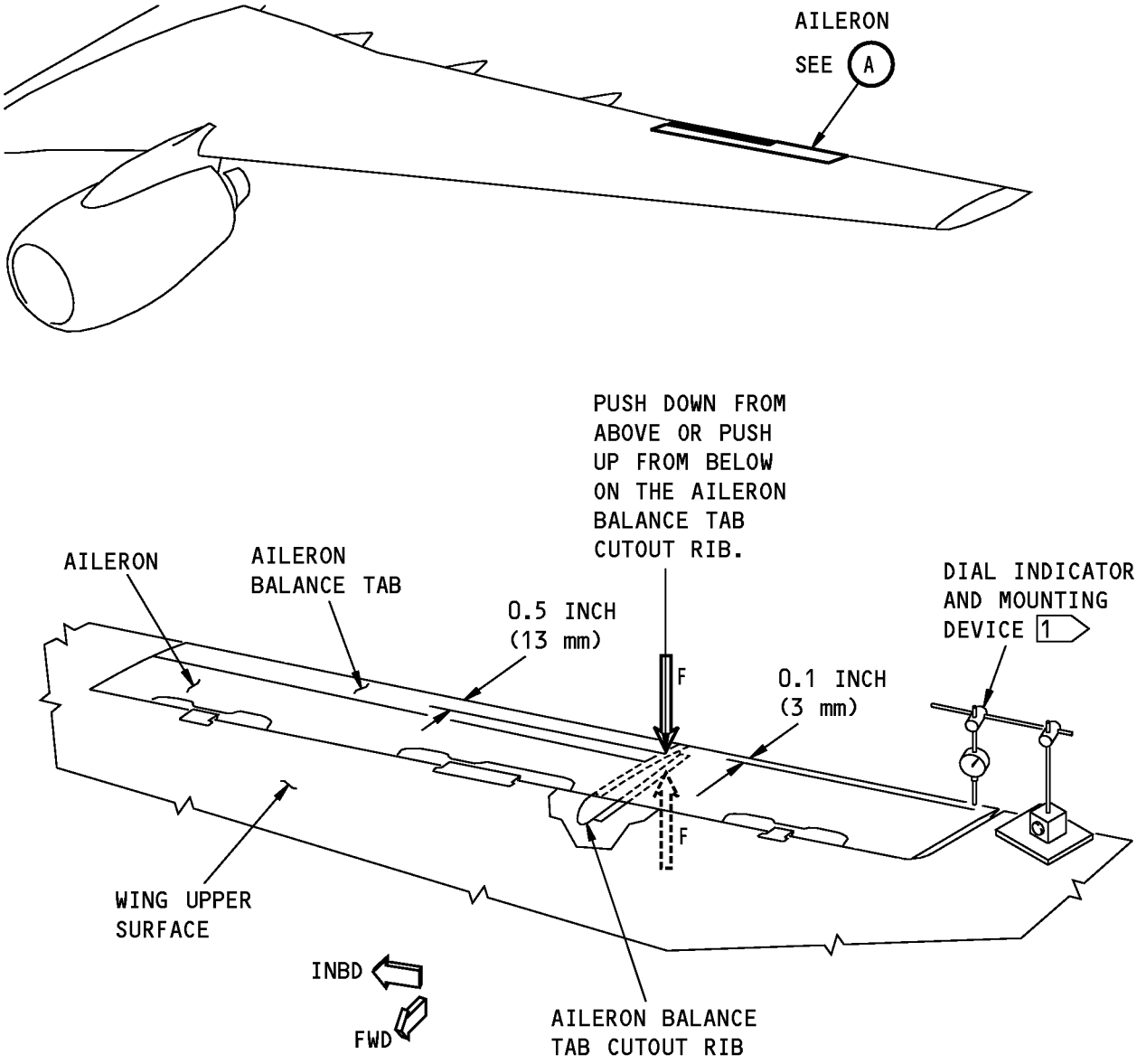

AILERON FREEPLAY CHECK SETUP

A

1 THE PLUNGER SHOULD BE 0.1 INCH (3mm) FORWARD OF THE TRAILING EDGE OF THE AILERON BALANCE TAB.

Aileron Freeplay Check
Figure 601/27-09-91-990-801

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TASK 27-09-91-200-806

3. Aileron Balance Tab Freeplay - Inspection

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-11-21-200-801	Aileron Balance Tab Inspection (P/B 601)
27-11-34-200-801	Aileron Tab Control Rods Inspection (P/B 601)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

Reference	Description
STD-753	Scale - Push/Pull, 0-25 pound (0-11 kilogram) Capacity, 1/4 pound (113 gram) Accuracy
STD-1107	Gauge - Feeler, 0.0 - 0.5 Inch, Readable to 1/1000th
STD-1238	Indicator - Dial
STD-1279	Mount - Device, Mounting, Holds the Dial Indicator
STD-1303	Caliper - Dial

D. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Prepare for the Check

SUBTASK 27-09-91-863-001

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, STABILIZER AND NOSE GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

F. Do a Check of the Aileron Balance Tab Freeplay

SUBTASK 27-09-91-220-021

(1) Do a freeplay check of one aileron balance tab with no movement of the aileron (Figure 602):

NOTE: Make sure that the aileron does not move while you perform this freeplay check of the balance tab. If the aileron moves, the reading on the indicator will not be accurate.

(a) Make sure the control wheel is at the center.

(b) Attach the mount, STD-1279, and dial indicator, STD-1238, to the top wing structure (Figure 602).

(c) Put the plunger of the dial indicator, STD-1238, approximately 0.1 inch (3 millimeters) forward of the trailing edge of the aileron balance tab directly at the tab control rod.

1) Adjust the dial indicator, STD-1238 to zero.

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CAUTION: PUT SUFFICIENT PADDING BETWEEN THE FORCE SCALE, AND THE CONTROL SURFACE TO PREVENT DAMAGE TO THE CONTROL SURFACE. THE FORCE SCALE CAN CAUSE DAMAGE TO THE CONTROL SURFACE.

(d) With the push/pull scale 0-25 pound (0-11 kilogram), STD-753, push up with a force of approximately 5 pounds (22 newtons) (Figure 602).

NOTE: Apply the force 0.25 inch (6.4 millimeters) from the trailing edge of the aileron balance tab, directly under the plunger of the dial indicator, STD-1238.

1) Make a record of the travel shown on the dial indicator, STD-1238.
2) Slowly remove the force.

(e) Do not adjust the dial indicator, STD-1238.

CAUTION: PUT SUFFICIENT PADDING BETWEEN THE FORCE SCALE, AND THE CONTROL SURFACE TO PREVENT DAMAGE TO THE CONTROL SURFACE. THE FORCE SCALE CAN CAUSE DAMAGE TO THE CONTROL SURFACE.

(f) Push down with a force of approximately 5 pounds (22 newtons). (Figure 602).

NOTE: Apply the force 0.25 inch (6.4 millimeters) from the trailing edge of the aileron balance tab, 0.5 inch (13 millimeters) or less from the plunger of the dial indicator, STD-1238

1) Make a record of the travel shown on the dial indicator, STD-1238.
2) Slowly remove the force.

(g) Add the up and down freeplay of the aileron balance tab to get the total up and down freeplay of the aileron balance tab.

1) Make sure the total up and down freeplay of the aileron balance tab is not more than 0.060 inch (1.52 millimeters).

(h) Remove the dial indicator, STD-1238.

(i) Remove the mount, STD-1279.

(j) Do these steps to make sure the axial play (inboard-outboard direction) of the aileron balance tab is not more than 0.040 inch (1.02 millimeter).

1) Hold the aileron balance tab around the trailing edge and with hand pressure, move it outboard.
2) Use a 0.0 - 0.5 Inch feeler gauge, STD-1107 or a dial caliper, STD-1303 to measure the clearance between the aileron and the outboard end of the aileron balance tab.
   a) Make a record of this clearance.
3) Hold the aileron balance tab around the trailing edge and with hand pressure, move it inboard.
4) Measure the clearance between the aileron and the outboard end of the aileron balance tab.
   a) Make a record of the clearance dimension.
5) Make sure the difference between the two measured clearances, or the axial play, is not more than 0.040 inch (1.02 millimeter).

(k) If the freeplay of the aileron balance tab is not in the acceptable limits, do these tasks:

- Aileron Balance Tab Inspection, TASK 27-11-21-200-801
- Aileron Tab Control Rods Inspection, TASK 27-11-34-200-801

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SUBTASK 27-09-91-220-022

(2) Do the same freeplay check on the aileron balance tab of the opposite aileron.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-91-864-001

(1) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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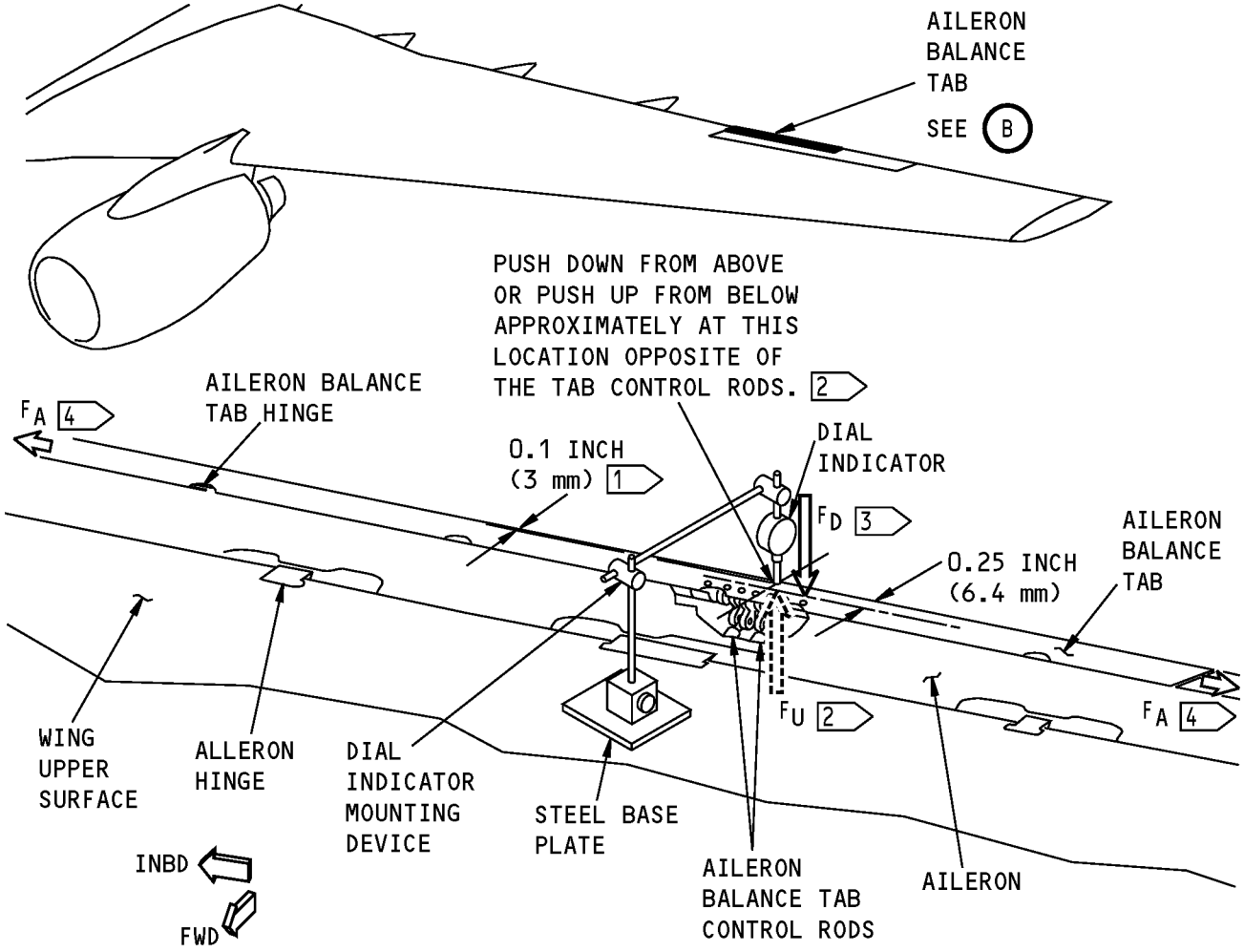

LEFT AILERON BALANCE TAB FREEPLAY CHECK
(RIGHT AILERON BALANCE TAB IS OPPOSITE)

B

1 THE PLUNGER SHOULD BE 0.1 INCH (3 mm) FORWARD OF THE TRAILING EDGE OF THE AILERON BALANCE TAB.

2 APPLY THE UPWARD FORCE, FU, 0.25 INCH (6.4 mm) FORWARD OF THE TRAILING EDGE OF THE AILERON BALANCE TAB, APPROXIMATELY UNDER THE PLUNGER OF THE DIAL INDICATOR.

3 APPLY THE DOWNWARD FORCE, FD, 0.25 INCH (6.4 mm) FORWARD OF THE TRAILING EDGE OF THE AILERON BALANCE TAB, 0.5 INCH (3 mm), OR LESS, FROM THE PLUNGER OF THE DIAL INDICATOR.

4 USE HAND PRESSURE TO MOVE THE AILERON OUTBOARD, THEN INBOARD TO DETERMINE THE AILERON BALANCE TAB AXIAL FREEPLAY.

Aileron Balance Tab Freeplay Check
Figure 602/27-09-91-990-810

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TASK 27-09-91-200-802

4. Rudder Inspection

A. General

(1) Use this task to do a check of the rudder control system freeplay.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

Reference	Description
STD-753	Scale - Push/Pull, 0-25 pound (0-11 kilogram) Capacity, 1/4 pound (113 gram) Accuracy
STD-1238	Indicator - Dial
STD-1278	Block - Loading, 1/8 Inch Thick, 3 Inch by 3 Inch Wood or Fiberglass Block with Pad to Prevent Damage to the Skin.
STD-1279	Mount - Device, Mounting, Holds the Dial Indicator

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

E. Procedure

SUBTASK 27-09-91-860-003

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACE BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-09-91-220-005

(2) Do the rudder hinge bearing and PCU bearing freeplay check (Figure 603);

(a) Make sure the rudder and rudder pedals are in the neutral position.

(b) Make sure the rudder trim indicator is at the zero unit of trim.

(c) Attach the dial indicator, STD-1238 with mount, STD-1279 at the lower end of the rudder trailing edge.

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CAUTION: DO NOT PUT MORE THAN 50 POUNDS (222 NEWTONS) ON THE RUDDER WHEN YOU MOVE THE RUDDER SURFACE BY AN EXTERNAL FORCE. YOU CAN CAUSE DAMAGE TO THE RUDDER.

(d) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder to the left side with a force of 12.0 +/- 4.0 pounds (53 +/- 17 newtons) and release slowly.

NOTE: Apply the force approximately 6-8 inches (150-200 millimeters) from the bottom of the trailing edge and 3 inches (80 millimeters) forward of the trailing edge.

1) Make a record of the rudder position on the dial indicator.

(e) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder to the right side with a force of 12.0 +/- 4.0 pounds (53 +/- 17 newtons) and release slowly.

NOTE: Apply the force approximately 6-8 inches (150-200 millimeters) from the bottom of the trailing edge and 3 inches (80 millimeters) forward of the trailing edge.

1) Make a record of the rudder position on the dial indicator, STD-1238.

(f) Make sure the difference between the left and right positions is not more than 0.05 inch (1.3 millimeters).

1) If the difference is more than 0.05 inch (1.3 millimeters), then replace the bearings on the rudder hinge or power control units.

(g) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder to the left side with a force of 12.0 +/- 4.0 pounds (53 +/- 17 newtons) and release slowly.

NOTE: Apply the force approximately 6-8 inches (150-200 millimeters) from the bottom of the trailing edge and 3 inches (80 millimeters) forward of the trailing edge.

1) Make a record of the rudder position on the dial indicator, STD-1238.

(h) Make sure the difference between the two left positions is not more than 0.03 inch (0.7 millimeter).

(i) Remove the dial indicator, STD-1238 from the rudder.

SUBTASK 27-09-91-860-004

(3) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

END OF TASK

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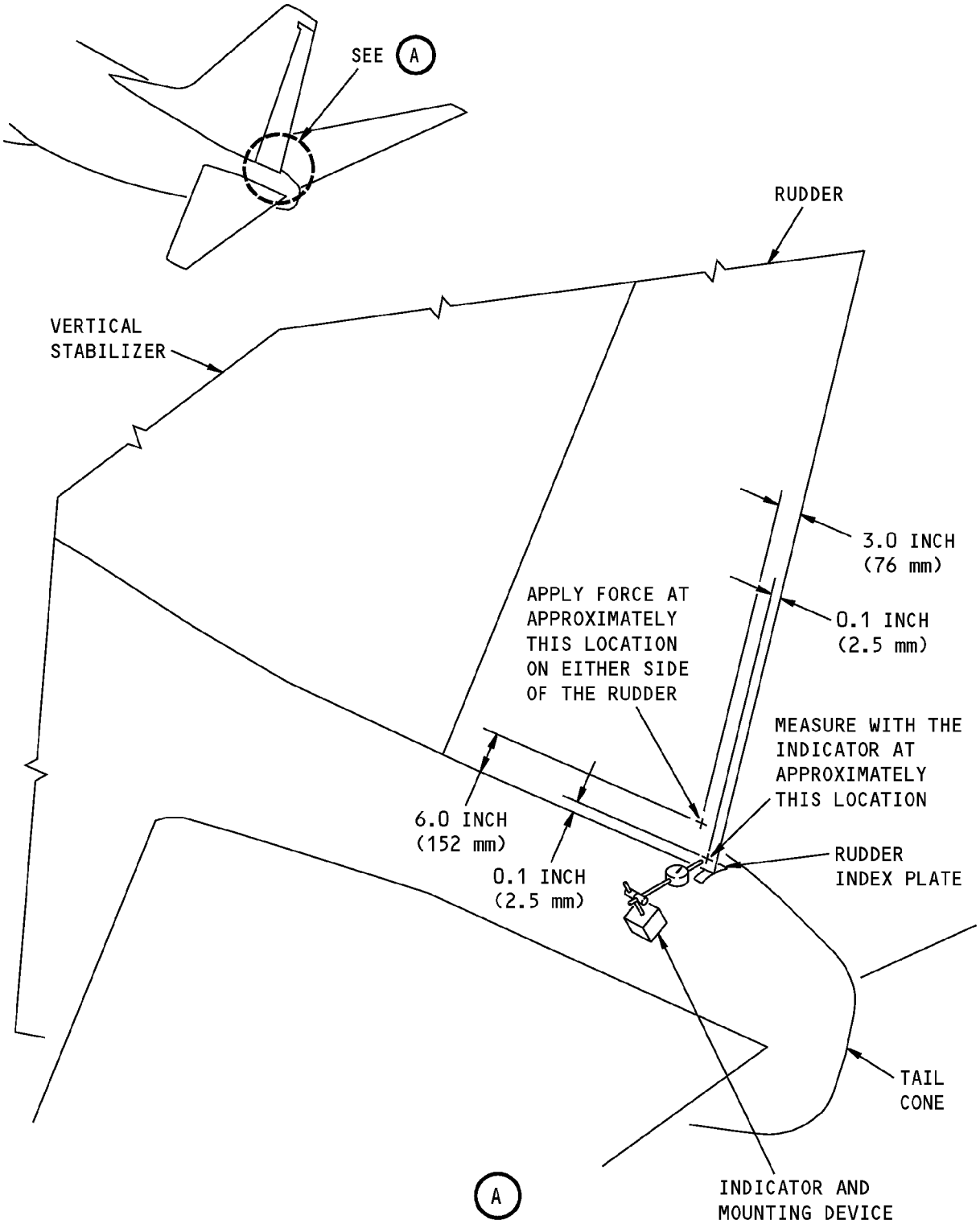

Rudder Hinge and PCU Bearing Freeplay Check
Figure 603/27-09-91-990-802

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TASK 27-09-91-200-804

5. Horizontal Stabilizer - Inspection

Figure 604

A. General

(1) This task is to calculate the freeplay of the horizontal stabilizer. The freeplay of the horizontal stabilizer is the total of the freeplay of the stabilizer jackscrew and the hinge mechanism.

(2) In this task, you can use two persons at 220 +/- 25 pounds (100 +/- 11 kilograms) each for applying the force, W, on the stabilizer. Measure and record the weight of each person and the total weight of the two persons. The difference between the two persons should be not more than 10 pounds (5 kilograms). Alternatively, you can use two weights, such as bars or shot.

NOTE: When recording the weights during this freeplay measurement task, the weights should be recorded in pounds and not in kilograms. When recording dial indicator measurements, inches should be recorded and not millimeters. The calculations for freeplay, X, Y, and Z use multipliers that are calculated using pounds and inches, not kilograms and millimeters. Using metric equivalents in the equations that determine freeplay values X, Y, and Z will cause the calculated freeplay values to be in error.

B. References

Reference	Title
27-41-81-000-801	Stabilizer Ball Nut and Jackscrew Gearbox Removal (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1238	Indicator - Dial
STD-1279	Mount - Device, Mounting, Holds the Dial Indicator

D. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
330	Subzone - Left Horizontal Stabilizer and Elevator
340	Subzone - Right Horizontal Stabilizer and Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Check

SUBTASK 27-09-91-010-002

(1) On the stabilizer trim actuator, do this task:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-09-91-480-001

(2) Set the stabilizer to 4 units of trim.

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G. Horizontal Stabilizer Inspection

SUBTASK 27-09-91-220-008

(1) Do a check of the freeplay for the hinge bearing of the stabilizer center section (Figure 604):

(a) Measure the freeplay of the left hinge bearing (X):

1) Attach an dial indicator, STD-1238 with a mount, STD-1279 to the left side of the fuselage at the rear spar connector of the stabilizer.

a) Make sure that the plunger of the dial indicator, STD-1238 pushes against the stabilizer lower surface at a minimum dial travel of 0.13 inch (3.2 millimeters).

2) Use the weight to slowly apply a force, ''W'', of 440 +/- 50 pounds (200 +/- 23 kilograms) to the outboard end of the left stabilizer above the front spar.

NOTE: When recording the weights during this freeplay measurement task, the weights should be recorded in pounds and not in kilograms. The calculation for freeplay, X, uses a multiplier that is calculated using pounds for a weight measurement, not kilograms. Using metric equivalents in the equation that determines the freeplay value X, will cause the calculated freeplay value to be in error.

a) Set the dial indicator, STD-1238 to zero.

3) Slowly remove the weight from the outboard end of the left stabilizer.

4) Apply weight to the outboard end of the right stabilizer above the front spar.

5) Write down the value from the dial indicator, STD-1238 reading as "D1".

NOTE: The values from the dial indicator should be recorded in inches, not in millimeters. The calculation for freeplay, X, uses a multiplier that is calculated using inches for a distance measurement, not millimeters. Using metric equivalents in the equation that determines the freeplay value X, will cause the calculated freeplay value to be in error.

6) Slowly remove the weight from the outboard end of the right stabilizer.

7) Calculate the freeplay of the left hinge bearing (X):

NOTE: Where D1 is the value on the dial indicator, STD-1238 and W is the weight applied to the stabilizer.

X = D1 - (W multiplied by 0.0000155)

a) If the "X" value is negative, then the "X" value is equal to zero.

(b) Measure the freeplay of the right hinge bearing (Y):

1) Attach an dial indicator, STD-1238 with a mount, STD-1279 to the right side of the fuselage at the rear spar connector of the stabilizer.

a) Make sure that the plunger of the dial indicator, STD-1238 pushes against the stabilizer lower surface at a minimum 0.13 inch (3.2 millimeters).

2) Set the dial indicator, STD-1238 to zero.

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3) Use the weight to slowly apply a force, ''W'', of 440 +/- 50 pounds (200 +/- 23 kilograms) to the outboard end of the right stabilizer above the front spar.

NOTE: When recording the weights during this freeplay measurement task, the weights should be recorded in pounds and not in kilograms. The calculation for freeplay, X, uses a multiplier that is calculated using pounds for a weight measurement, not kilograms. Using metric equivalents in the equation that determines the freeplay value X, will cause the calculated freeplay value to be in error.

a) Set the dial indicator, STD-1238 to zero.

4) Slowly remove the weight from the outboard end of the right stabilizer.

5) Apply weight to the outboard end of the left stabilizer above the front spar.

6) Record the value from the dial indicator, STD-1238 reading as "D2".

NOTE: The values from the dial indicator should be recorded in inches, not in millimeters. The calculation for freeplay, X, uses a multiplier that is calculated using inches for a distance measurement, not millimeters. Using metric equivalents in the equation that determines the freeplay value X, will cause the calculated freeplay value to be in error.

7) Slowly remove the weight from the outboard end of the left stabilizer.

8) Calculate the freeplay of the right hinge bearing (Y):

NOTE: Where D2 is the value on the dial indicator, STD-1238 and W is the force applied to the stabilizer.

Y = D2 - (W multiplied by 0.0000155)

a) If the "Y" value is negative, then the "Y" value is equal to zero.

SUBTASK 27-09-91-220-009

(2) Do a check of the freeplay for the stabilizer jackscrew (which is referred to as "Z"):

(a) Make sure the stabilizer is at 4 units of trim.

(b) Attach an dial indicator, STD-1238 with a mount, STD-1279 to the body station 1088 bulkhead structure.

1) Make sure that the plunger of the dial indicator, STD-1238 pushes against the stabilizer lower surface at a minimum dial travel of 0.13 inch (3.2 millimeters).

(c) Set the dial indicator, STD-1238 to zero.

(d) Measure the freeplay of the stabilizer jackscrew (Z):

1) Use the weight to slowly apply a force of 220 +/- 25 pounds (100 +/- 11 kilograms) each to the top surface of the left and right stabilizers, next to the fuselage along the stabilizer front spar (the total force is referred to as value "W").

2) Record the value from the dial indicator, STD-1238 reading as "D3".

3) Slowly remove the weight from the left and right stabilizers.

4) Calculate the freeplay of the stabilizer jackscrew (Z):

NOTE: Where D3 is the value on the dial indicator, STD-1238 and W is the force applied to the stabilizer.

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When recording the weights during this freeplay measurement task, the weights should be recorded in pounds and not in kilograms. When recording dial indicator measurements, inches should be recorded and not millimeters. The calculation for the stabilizer jackscrew freeplay Z uses multipliers that are calculated using pounds and inches, not kilograms and millimeters. Using metric equivalents in the equation that determines the freeplay value, Z, will cause the calculated freeplay values to be in error.

Z = (D3 multiplied by 1.25) - (W multiplied by 0.0000318)

a) If the "Z" value is negative, then the "Z" value is equal to zero.

SUBTASK 27-09-91-220-010

(3) Calculate the total freeplay of the horizontal stabilizer (which is referred to as "H"):

(a) Use the values X, Y, and Z to calculate H:

H = Z + [(X + Y)/2]

SUBTASK 27-09-91-220-011

(4) Do a check of the X, Y, Z, and H values:

(a) If the "X" value is more than 0.060 inch, then replace the left hinge bearing.

(b) If the "Y" value is more than 0.060 inch, then replace the right hinge bearing.

(c) If the "Z" value is more than 0.050 inch, then repair the stabilizer jackscrew (TASK 27-41-81-000-801).

(d) If the "H" value is more than 0.051 inch, replace the bearings of the stabilizer center section hinges.

1) If it is necessary, disassemble and adjust the stabilizer jackscrew (TASK 27-41-81-000-801).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-91-080-001

(1) Remove the dial indicator, STD-1238.

SUBTASK 27-09-91-080-002

(2) Remove the mount, STD-1279.

SUBTASK 27-09-91-410-002

(3) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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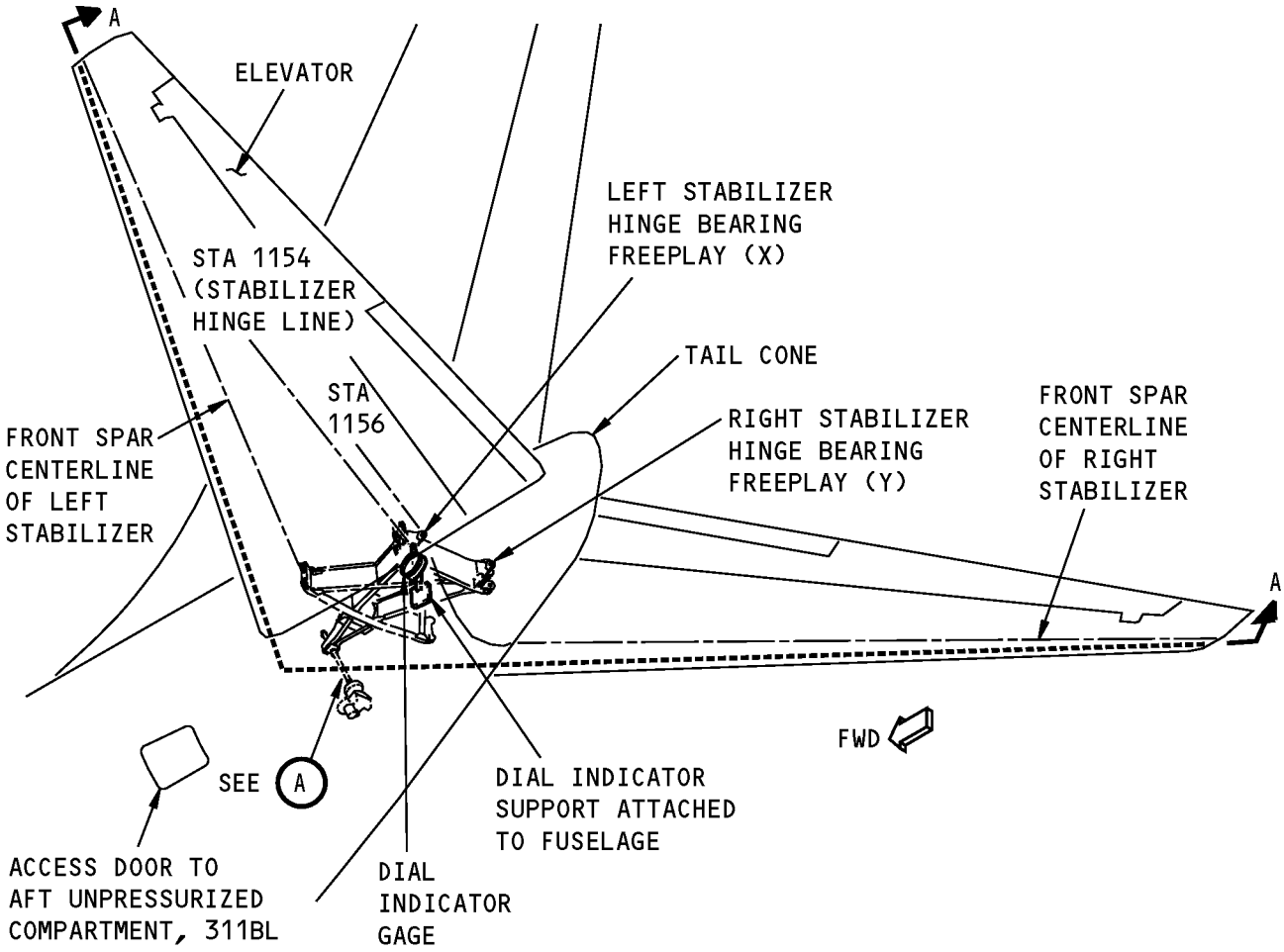

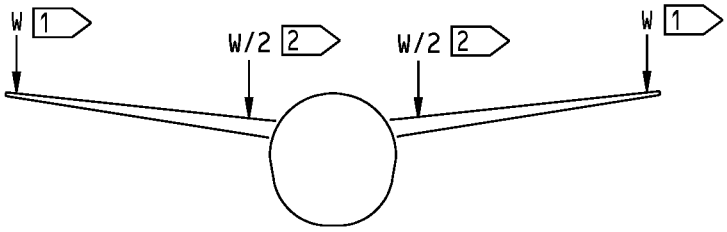

(LOOKING FORWARD FROM FRONT SPAR OF LEFT AND RIGHT STABILIZERS)
A–A

1 APPLY WEIGHT "W" ON THE OUTBOARD END OF THE STABILIZER ABOVE THE FRONT SPAR TO DETERMINE FREEPLAY AT THE LEFT AND RIGHT STABILIZER HINGE BEARINGS.

2 APPLY ONE HALF OF WEIGHT "W" NEXT TO THE FUSELAGE, ON TOP OF THE FRONT SPAR (ON LEFT AND RIGHT SIDES) TO DETERMINE THE STABILIZER JACKSCREW FREEPLAY.

Horizontal Stabilizer Freeplay Check
Figure 604 (Sheet 1 of 2)/27-09-91-990-804

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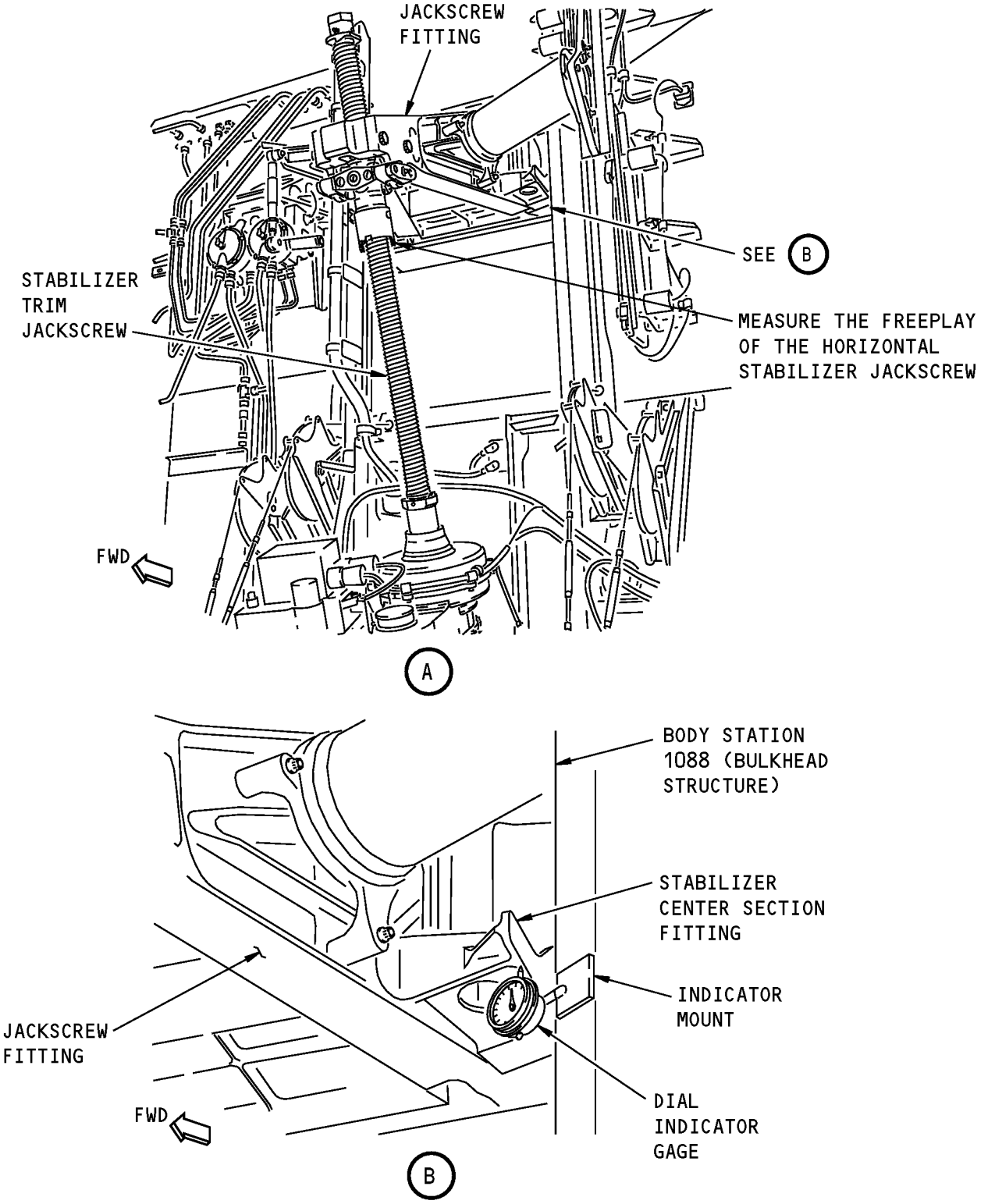

Horizontal Stabilizer Freeplay Check
Figure 604 (Sheet 2 of 2)/27-09-91-990-804

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TASK 27-09-91-200-805

6. Spoiler Inspection

A. References

Reference	Title
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
STD-1238	Indicator - Dial
STD-1279	Mount - Device, Mounting, Holds the Dial Indicator

C. Location Zones

Zone	Area
552	Left Wing - Spoiler No. 6
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
566	Left Wing - Spoiler No. 1
652	Right Wing - Spoiler No. 7
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11
666	Right Wing - Spoiler No. 12

D. Prepare for the Check

SUBTASK 27-09-91-860-011

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE TRAILING EDGE FLAPS AND THE LEADING EDGE FLAPS AND SLATS. THE FLAPS AND SLATS WILL EXTEND. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Extend the trailing edge flaps to the FLAP DOWN position with primary control. To extend the trailing edge flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

NOTE: You can do a check of the spoilers with hydraulic power on or off.

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SUBTASK 27-09-91-480-002

CAUTION: BE VERY CAREFUL WHEN YOU INSTALL THE MOUNT DEVICE. THE MOUNT DEVICE CAN CAUSE DAMAGE TO THE SPOILER IF YOU ARE NOT CAREFUL.

(2) Attach a mount, STD-1279 to the spoiler trailing edge.

(a) Adjust the dial indicator, STD-1238 to zero.

E. Spoiler Inspection

SUBTASK 27-09-91-220-012

(1) Do a check of the freeplay for spoilers No. 1, 2, 3, 4, 5, 8, 9, 10, 11 and 12 (Figure 605):

CAUTION: MAKE SURE YOU USE SUFFICIENT PADDING ON THE FORCE SCALE WHEN YOU APPLY FORCE TO THE CONTROL SURFACE. IF THERE IS NOT SUFFICIENT PADDING, YOU CAN CAUSE DAMAGE TO THE CONTROL SURFACE.

(a) Use a force gauge, COM-1557 and apply approximately a 21 pound (93 newtons) force 0.5 inch (13 millimeters) forward of the spoiler trailing edge and directly opposite of the power control actuator.

NOTE: The up force of approximately 21 pounds (93 newtons) consists of the spoiler panel weight of 16 pounds (7.3 kilograms) plus 5 pounds (22 newtons) push force.

(b) Measure the freeplay on the inboard edge of the spoiler not more than 0.5 inch (13 millimeters) from the trailing edge.

(c) Make sure the spoiler freeplay is not more than 0.10 inch (2.5 millimeters).

SUBTASK 27-09-91-220-013

(2) Do a check of the freeplay for spoilers No. 6 and 7 (graphite/composite):

CAUTION: MAKE SURE YOU USE SUFFICIENT PADDING ON THE FORCE SCALE WHEN YOU APPLY FORCE TO THE CONTROL SURFACE. IF THERE IS NOT SUFFICIENT PADDING, YOU CAN CAUSE DAMAGE TO THE CONTROL SURFACE.

(a) Use a force gauge, COM-1557 and apply an up force of approximately 32 pounds (142 newtons) 0.5 inch (13 millimeters) forward of the spoiler trailing edge and at the middle between the two spoiler power control actuators.

NOTE: The up force of approximately 32 pounds (142 newtons) consists of the spoiler panel weight of 27 pounds (120 newtons) plus 5 pounds (22 newtons) push force.

(b) Measure the freeplay on the inboard edge of the spoiler not more than 0.5 inch (13 millimeters) from the trailing edge.

(c) Make sure the spoiler freeplay is not more than 0.20 inch (5.0 millimeters).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-09-91-080-003

(1) Remove the dial indicator, STD-1238.

SUBTASK 27-09-91-080-004

(2) Remove the mount, STD-1279.

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SUBTASK 27-09-91-860-012

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE TRAILING EDGE FLAPS AND THE LEADING EDGE FLAPS AND SLATS. THE FLAPS AND SLATS WILL RETRACT. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Retract the trailing edge flaps with primary control. To retract the trailing edge flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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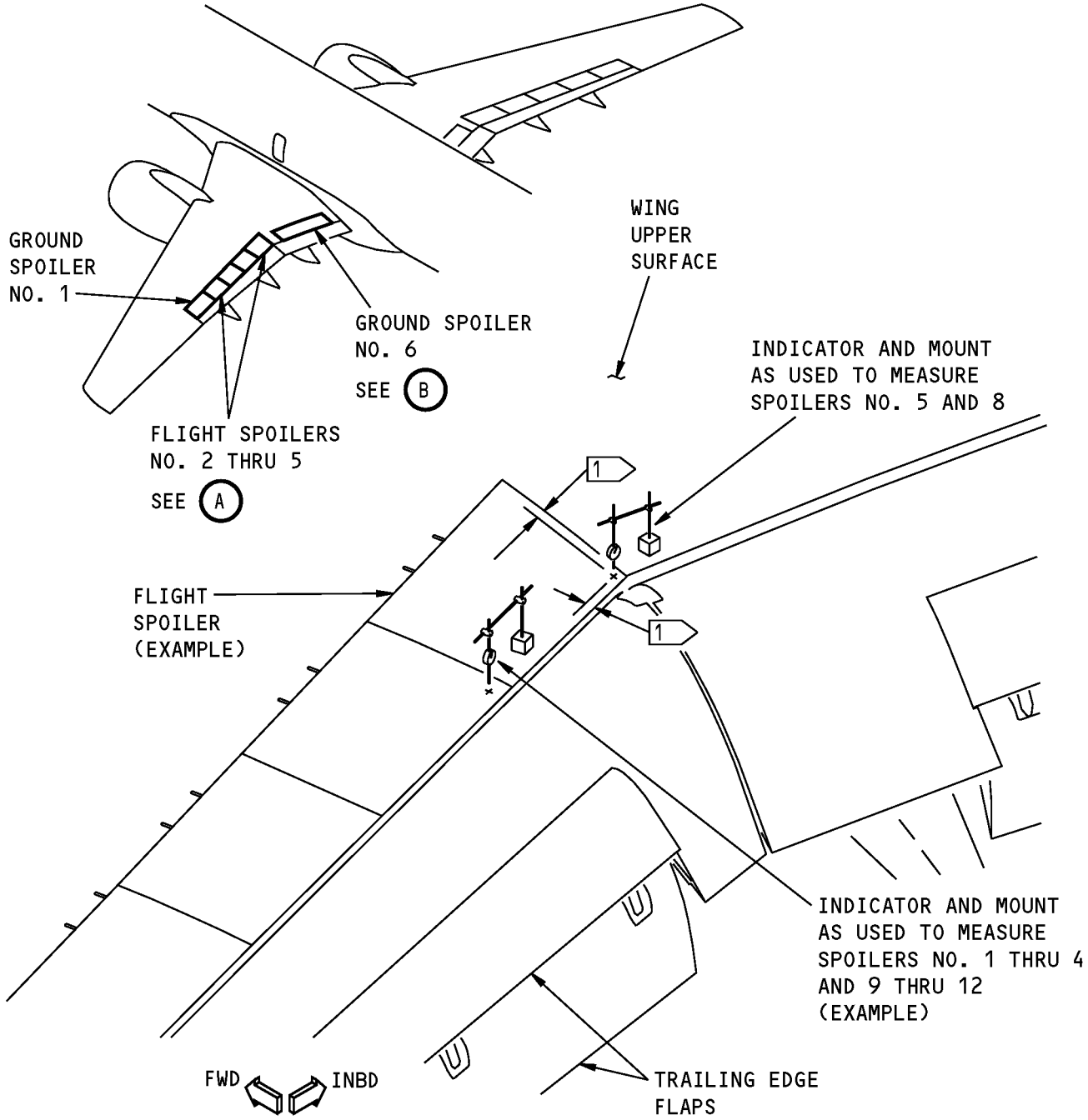

Flight and Ground Spoiler Freeplay Check
Figure 605 (Sheet 1 of 2)/27-09-91-990-805

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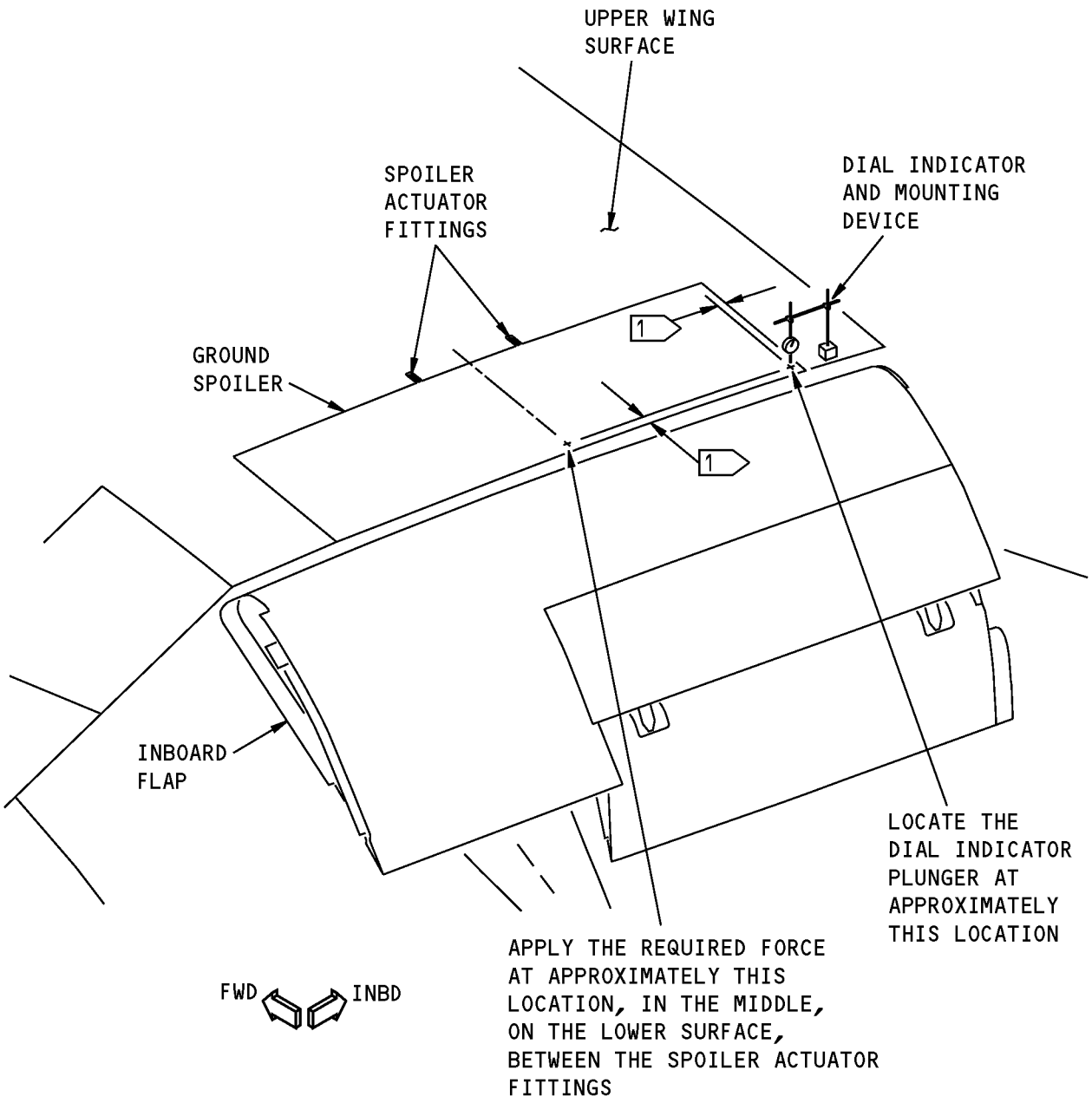

GROUND SPOILER NO. 6 FREEPLAY CHECK
(GROUND SPOILER NO. 7 IS OPPOSITE)

B

Flight and Ground Spoiler Freeplay Check
Figure 605 (Sheet 2 of 2)/27-09-91-990-805

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AILERON AND AILERON TRIM CONTROL SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal pressure from the aileron hydraulic systems A and B

(2) Put the aileron hydraulic systems A and B back to the condition before pressure removal.

TASK 27-11-00-860-801

2. Remove Pressure from the Aileron Hydraulic Systems A and B

(Figure 201)

A. General

(1) This procedure removes pressure from the aileron hydraulic systems A and B before you do maintenance on the aileron control system.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Remove Pressure from the Aileron Hydraulic Systems A and B

WARNING: YOU MUST REMOVE PRESSURE FROM THE AILERON HYDRAULIC SYSTEMS A AND B BEFORE YOU DO MAINTENANCE ON THE AILERON CONTROL SYSTEM. THIS IS TO PREVENT INJURY TO PERSONS, AND DAMAGE TO THE EQUIPMENT BECAUSE OF ACCIDENTAL OPERATION OF THE AILERONS.

SUBTASK 27-11-00-860-001

(1) Remove pressure from the aileron hydraulic systems A and B:

(a) Set the FLT CONTROL A and B switches on the forward overhead panel, P5, to the OFF position.

(b) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

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Row	Col	Number	Name
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

(c) Set the ELEC 2, HYD PUMPS A or ELEC 1, HYD PUMPS B switches on the forward overhead panel, P5, to the OFF position.

(d) Operate the rudder pedals to decrease the remaining hydraulic system pressure.

SUBTASK 27-11-00-480-001

(2) Install the lock, SPL-1675 on the flight controls shutoff valves for systems A and B:

(a) Disconnect the electrical connectors from the shutoff valves.

NOTE: The flight controls shutoff valve is part of the flight controls hydraulic module. The hydraulic module for hydraulic system A is found in the left main wheel well. The hydraulic module for hydraulic system B is found in the right main wheel well.

(b) Make sure the manual override levers on the shutoff valves moved to position 2.

(c) Install the lock, SPL-1675 on each shutoff valve.

1) Make sure to install the lockpins.

——————— END OF TASK ———————

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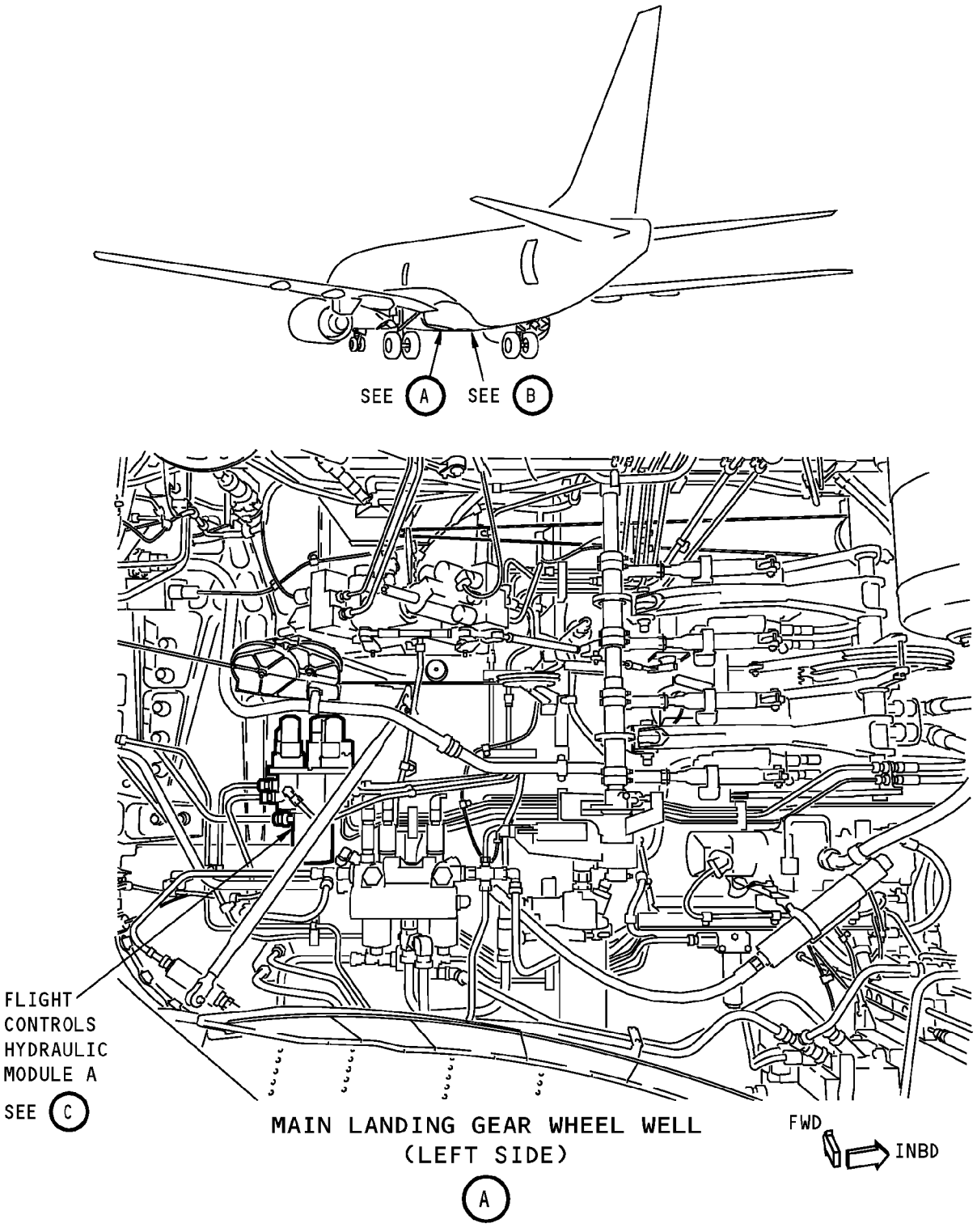

Flight Controls Hydraulic Module Lock Installation
Figure 201 (Sheet 1 of 3)/27-11-00-990-801

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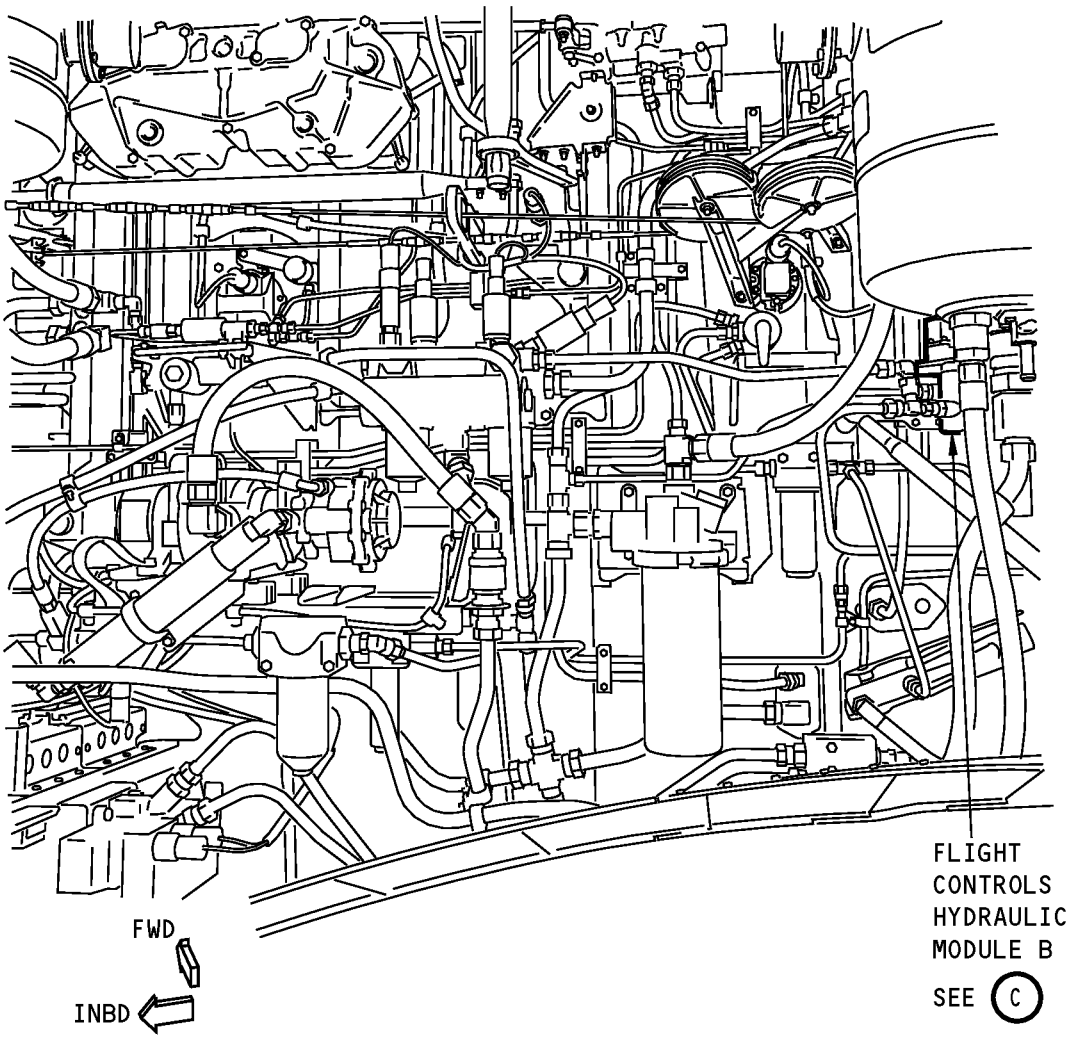

Flight Controls Hydraulic Module Lock Installation
Figure 201 (Sheet 2 of 3)/27-11-00-990-801

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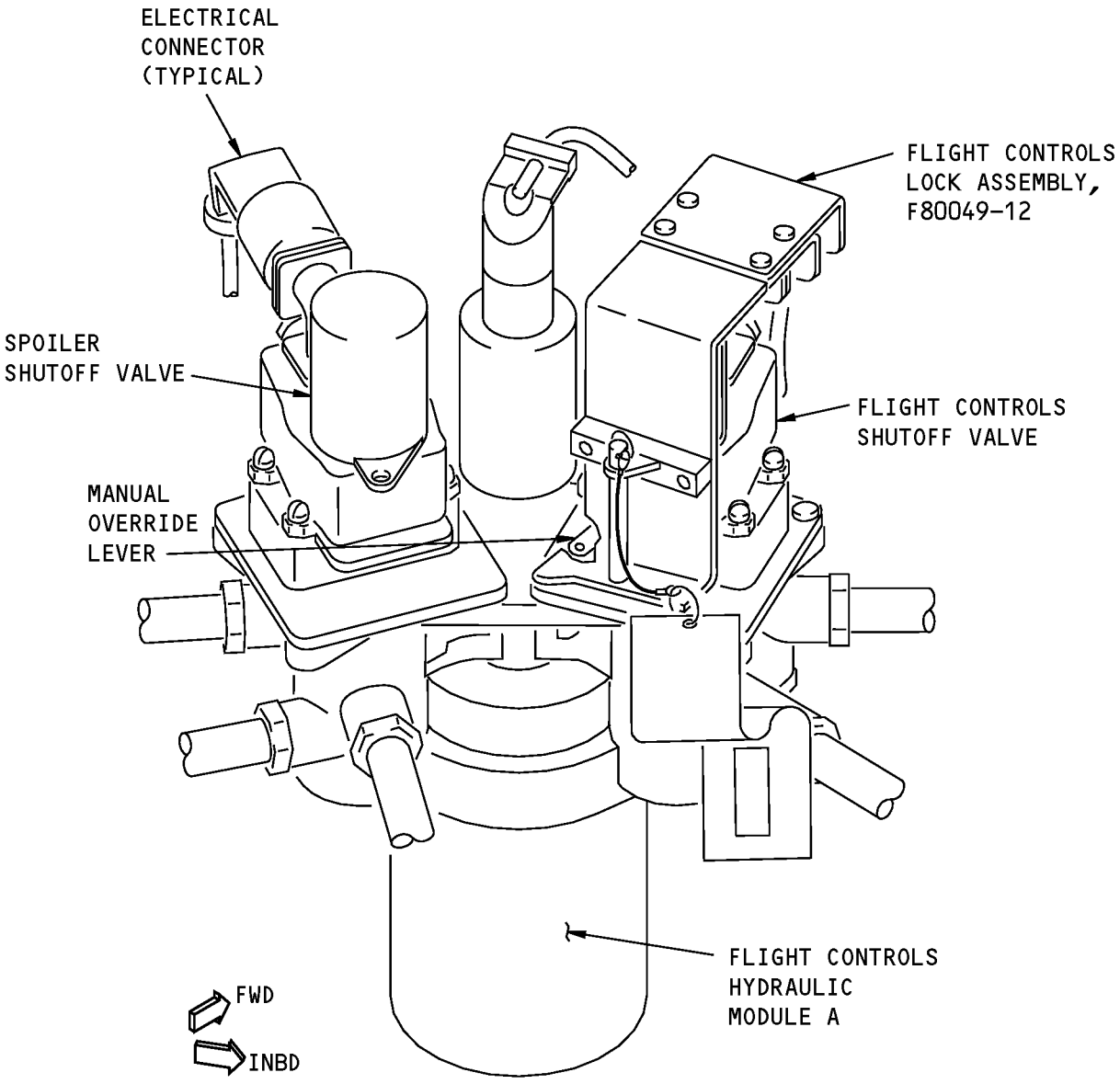

FLIGHT CONTROLS HYDRAULIC MODULE A
(MODULE B IS EQUIVALENT)

C

Flight Controls Hydraulic Module Lock Installation
Figure 201 (Sheet 3 of 3)/27-11-00-990-801

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TASK 27-11-00-860-802

3. Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal

(Figure 201)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal

SUBTASK 27-11-00-080-001

(1) Remove the lock, SPL-1675 from the flight controls shutoff valves for systems A and B:

(a) Remove the lock, SPL-1675 from the shutoff valves.

(b) Before you connect the electrical connectors, examine the connectors for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(c) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(d) Apply the D5026NS or ZC-026 compound, G50171 to the connectors (SWPM 20-60-03).

(e) Install electrical connectors on the shutoff valves.

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(f) Move the manual override levers on the shutoff valves to position 1.

SUBTASK 27-11-00-860-002

(2) Set the FLT CONTROL A and B switches on the forward overhead panel, P5, to the ON position.

SUBTASK 27-11-00-860-003

(3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-11-00-610-001

(4) If it is necessary to service the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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AILERON - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) An adjustment of the aileron cables

(2) An adjustment of the pogo and power control unit

(3) An adjustment of the aileron balance tab

(4) An adjustment of the aileron feel and centering unit

(5) A check of the aileron system adjustment

(6) A test of the aileron surface friction and motion

(7) A test of the first officer's control wheel lost motion

(8) A test of the manual reversion control friction

(9) A test of the aileron response (operation)

(10) A test of the control wheel centering check

(11) A test of the aileron control wheel force

(12) A test of the aileron trim response

(13) An operational test of the aileron spring cartridge and transfer mechanism

(14) A functional test of the aileron transfer mechanism

(15) A test of the control wheel travel stop

(16) A test of the control wheel travel interference

(17) A test of the aileron balance tab position

(18) A test of the aileron travel

(19) A functional test of the aileron power control unit (PCU) pogos

(20) A flight test to find and correct asymmetrical flight control forces

TASK 27-11-00-820-801

2. Aileron Cables Adjustment

A. General

(1) Before you do cable adjustment, permit a minimum of one hour at a constant ambient temperature of $\pm 5^{\circ}F$ ($\pm 2.8^{\circ}C$) for the airframe temperature to become stable.

(a) The cable tension values will not be correct when there are temperature differences along the cable run.

B. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

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C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1554	Tensiometer - Cable (40-600 LB) (Part #: ACM-600, Supplier: 13331, A/P Effectivity: 737-ALL) (Part #: T5-8008-106-00, Supplier: 0N8U4, A/P Effectivity: 737-ALL) (Part #: T60-1001-C9-1A, Supplier: 0N8U4, A/P Effectivity: 737-ALL)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1671	Straightedge - Control Wheel (Part #: SE27-0001, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Prepare for the Adjustment

SUBTASK 27-11-00-480-002

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-11-00-010-001

(2) If you adjust the cables AA and AB or cables ACBA and ACBB, open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-11-00-860-061

(3) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-00-480-003

(4) Use a 40 - 600 lb cable tensiometer, COM-1554 to get the tension measurement.

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G. Aileron Transfer Cables ACBA and ACBB Adjustment

SUBTASK 27-11-00-860-062

(1) Make sure the captain's and the first officer's control wheels are in the neutral position:

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(b) Operate the aileron trim switches on the control stand panel, P8, until you can freely install and remove the rig pin A/S-15, from the rig pin kit, SPL-1585 (Figure 501).

(c) Remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-11-00-480-004

(2) Attach the straightedge, SPL-1671 across the top ends of the two control wheels.

SUBTASK 27-11-00-820-020

(3) Make sure that one end of the First Officer's control wheel is no more than 0.20 inch (5.1 millimeters) from the straightedge, SPL-1671.

SUBTASK 27-11-00-820-001

(4) If you install new cables ACBA and ACBB, do these steps to adjust the cables (Figure 502):

(a) Adjust the cables until you can easily install and remove rig pin A/S-1A, from the rig pin kit, SPL-1585, in the aileron transfer mechanism (Figure 501).

(b) Tighten the turnbuckles on the cables to get the tension two times the specified cable rigging load for cables ACBA and ACBB (Table 501).

Table 501/27-11-00-993-809 Aileron Cable Rigging Load

Temperature °Fahrenheit (°Celsius)	Cable Rigging Load pounds (newtons)					
	AA & AB		ABSA & ABSB		ACBA & ACBB	
	High	Low	High	Low	High	Low
110 (43.3)	143 (636)	133 (592)	263 (1170)	253 (1125)	108 (480)	78 (347)
109 (42.8)	143 (636)	133 (592)	262 (1165)	252 (1121)	108 (480)	78 (347)
108 (42.2)	142 (632)	132 (587)	261 (1161)	251 (1117)	107 (476)	77 (343)
107 (41.6)	142 (632)	132 (587)	260 (1157)	250 (1112)	107 (476)	77 (343)
106 (41.1)	141 (627)	131 (583)	259 (1152)	249 (1108)	106 (472)	76 (338)
105 (40.6)	141 (627)	131 (583)	258 (1148)	248 (1103)	106 (472)	76 (338)
104 (40.0)	140 (623)	130 (578)	257 (1143)	247 (1099)	105 (467)	75 (334)
103 (39.4)	140 (623)	130 (578)	256 (1139)	246 (1094)	105 (467)	75 (334)
102 (38.9)	139 (618)	129 (574)	255 (1134)	245 (1090)	104 (463)	74 (329)
101 (38.3)	139 (618)	129 (574)	254 (1130)	244 (1085)	104 (463)	74 (329)
100 (37.8)	139 (618)	129 (574)	253 (1125)	243 (1081)	104 (463)	74 (329)

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(Continued)

Temperature °Fahrenheit (°Celsius)	Cable Rigging Load pounds (newtons)					
	AA & AB		ABSA & ABSB		ACBA & ACBB	
	High	Low	High	Low	High	Low
99 (37.2)	138 (614)	128 (569)	252 (1121)	242 (1076)	103 (458)	73 (325)
98 (36.7)	138 (614)	128 (569)	250 (1112)	240 (1068)	103 (458)	73 (325)
97 (36.1)	137 (609)	127 (565)	249 (1108)	239 (1063)	102 (454)	72 (320)
96 (35.6)	137 (609)	127 (565)	248 (1103)	238 (1059)	102 (454)	72 (320)
95 (35.0)	136 (605)	126 (560)	247 (1099)	237 (1054)	101 (449)	71 (316)
94 (34.4)	136 (605)	126 (560)	246 (1094)	236 (1050)	101 (449)	71 (316)
93 (33.9)	135 (601)	125 (556)	245 (1090)	235 (1045)	100 (445)	70 (311)
92 (33.3)	135 (601)	125 (556)	244 (1085)	234 (1041)	100 (445)	70 (311)
91 (32.8)	134 (596)	124 (552)	243 (1081)	233 (1036)	99 (440)	69 (307)
90 (32.2)	134 (596)	124 (552)	242 (1076)	232 (1032)	99 (440)	69 (307)
89 (31.7)	134 (596)	124 (552)	241 (1072)	231 (1028)	99 (440)	69 (307)
88 (31.1)	133 (592)	123 (547)	240 (1068)	230 (1023)	98 (436)	68 (302)
87 (30.6)	133 (592)	123 (547)	238 (1059)	228 (1014)	98 (436)	68 (302)
86 (30.0)	132 (587)	122 (543)	237 (1054)	227 (1010)	97 (431)	67 (298)
85 (29.4)	132 (587)	122 (543)	236 (1050)	226 (1005)	97 (431)	67 (298)
84 (28.9)	131 (583)	121 (538)	235 (1045)	225 (1001)	96 (427)	66 (294)
83 (28.3)	131 (583)	121 (538)	234 (1041)	224 (996)	96 (427)	66 (294)
82 (27.8)	130 (578)	120 (534)	233 (1036)	223 (992)	95 (423)	65 (289)
81 (27.2)	130 (578)	120 (534)	232 (1032)	222 (988)	95 (423)	65 (289)
80 (26.7)	130 (578)	120 (534)	231 (1028)	221 (983)	95 (423)	65 (289)
79 (26.1)	129 (574)	119 (529)	230 (1023)	220 (979)	94 (418)	64 (285)
78 (25.6)	129 (574)	119 (529)	229 (1019)	219 (974)	94 (418)	64 (285)
77 (25.0)	128 (569)	118 (525)	228 (1014)	218 (970)	93 (414)	63 (280)
76 (24.4)	128 (569)	118 (525)	227 (1010)	217 (965)	93 (414)	63 (280)
75 (23.9)	127 (565)	117 (520)	225 (1001)	215 (956)	92 (409)	62 (276)
74 (23.3)	127 (565)	117 (520)	224 (996)	214 (952)	92 (409)	62 (276)
73 (22.8)	126 (560)	116 (516)	223 (992)	213 (947)	91 (405)	61 (271)
72 (22.2)	126 (560)	116 (516)	222 (988)	212 (943)	91 (405)	61 (271)
71 (21.7)	125 (556)	115 (512)	221 (983)	211 (939)	90 (400)	60 (267)

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Temperature °Fahrenheit (°Celsius)	Cable Rigging Load pounds (newtons)					
	AA & AB		ABSA & ABSB		ACBA & ACBB	
	High	Low	High	Low	High	Low
70 (21.1)	125 (556)	115 (512)	220 (979)	210 (934)	90 (400)	60 (267)
69 (20.6)	125 (556)	115 (512)	219 (974)	209 (930)	90 (400))	60 (267)
68 (20.0)	124 (552)	114 (507)	218 (970)	208 (925)	89 (396)	59 (262)
67 (19.4)	124 (552)	114 (507)	217 (965)	207 (921)	89 (396)	59 (262)
66 (18.9)	123 (547)	113 (503)	216 (961)	206 (916)	89 (396)	59 (262)
65 (18.3)	123 (547)	113 (503)	215 (956)	205 (912)	89 (396)	59 (262)
64 (17.8)	123 (547)	113 (503)	214 (952)	204 (907)	88 (391)	58 (258)
63 (17.2)	122 (543)	112 (498)	212 (943)	202 (899)	88 (391)	58 (258)
62 (16.7)	122 (543)	112 (498)	211 (939)	201 (894)	88 (391)	58 (258)
61 (16.1)	121 (538)	111 (494)	210 (934)	200 (890)	87 (387)	57 (254)
60 (15.6)	121 (538)	111 (494)	209 (930)	199 (885)	87 (387)	57 (254)
59 (15.0)	120 (534)	110 (489)	208 (925)	198 (881)	87 (387)	57 (254)
58 (14.4)	120 (534)	110 (489)	207 (921)	197 (876)	87 (387)	57 (254)
57 (13.9)	120 (534)	110 (489)	206 (916)	196 (872)	86 (383)	56 (249)
56 (13.3)	119 (529)	109 (485)	205 (912)	195 (867)	86 (383)	56 (249)
55 (12.8)	119 (529)	109 (485)	204 (907)	194 (863)	86 (383)	56 (249)
54 (12.2)	118 (525)	108 (480)	203 (903)	193 (859)	85 (378)	55 (245)
53 (11.7)	118 (525)	108 (480)	202 (899)	192 (854)	85 (378)	55 (245)
52 (11.1)	118 (525)	108 (480)	201 (894)	190 (845)	85 (378)	55 (245)
51 (10.6)	117 (520)	107 (476)	199 (885)	189 (841)	84 (374)	54 (240)
50 (10.0)	117 (520)	107 (476)	198 (881)	188 (836)	84 (374)	54 (240)
49 (9.4)	116 (516)	106 (472)	197 (876)	187 (832)	84 (374)	54 (240)
48 (8.9)	116 (516)	106 (472)	196 (872)	186 (827)	84 (374)	54 (240)
47 (8.3)	116 (516)	106 (472)	195 (867)	185 (823)	83 (369)	53 (236)
46 (7.8)	115 (512)	105 (467)	194 (863)	184 (818)	83 (369)	53 (236)
45 (7.2)	115 (512)	105 (467)	193 (859)	183 (814)	83 (369)	53 (236)
44 (6.7)	114 (507)	104 (463)	192 (854)	182 (810)	82 (365)	52 (231)
43 (6.1)	114 (507)	104 (463)	191 (850)	181 (805)	82 (365)	52 (231)
42 (5.6)	114 (507)	104 (463)	190 (845)	180 (801)	82 (365)	52 (231)

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Temperature °Fahrenheit (°Celsius)	Cable Rigging Load pounds (newtons)					
	AA & AB		ABSA & ABSB		ACBA & ACBB	
	High	Low	High	Low	High	Low
41 (5.0)	113 (503)	103 (458)	189 (841)	179 (796)	82 (365)	52 (231)
40 (4.4)	113 (503)	103 (458)	188 (836)	178 (792)	81 (360)	51 (227)
39 (3.9)	112 (498)	102 (454)	186 (827)	176 (783)	81 (360)	51 (227)
38 (3.3)	112 (498)	102 (454)	185 (823)	175 (778)	81 (360)	51 (227)
37 (2.8)	111 (494)	101 (449)	184 (818)	174 (774)	80 (356)	50 (222)
36 (2.2)	111 (494)	101 (449)	183 (814)	173 (770)	80 (356)	50 (222)
35 (1.7)	111 (494)	101 (449)	182 (810)	172 (765)	80 (356)	50 (222)
34 (1.1)	110 (489)	100 (445)	181 (805)	171 (761)	80 (356)	50 (222)
33 (0.6)	110 (489)	100 (445)	180 (801)	170 (756)	79 (351)	49 (218)
32 (0)	109 (485)	99 (440)	179 (796)	169 (752)	79 (351)	49 (218)
31 (-0.6)	109 (485)	99 (440)	178 (792)	168 (747)	79 (351)	49 (218)
30 (-1.1)	109 (485)	99 (440)	177 (787)	167 (743)	78 (347)	48 (214)
29 (-1.7)	108 (480)	98 (436)	176 (783)	166 (738)	78 (347)	48 (214)
28 (-2.2)	108 (480)	98 (436)	174 (774)	164 (730)	78 (347)	48 (214)
27 (-2.8)	107 (476)	97 (431)	173 (770)	163 (725)	78 (347)	48 (214)
26 (-3.3)	107 (476)	97 (431)	172 (765)	162 (721)	77 (343)	47 (209)
25 (-3.9)	107 (476)	97 (431)	171 (761)	161 (716)	77 (343)	47 (209)
24 (-4.4)	106 (472)	96 (427)	170 (756)	160 (712)	77 (343)	47 (209)
23 (-5.0)	106 (472)	96 (427)	169 (752)	159 (707)	76 (338)	46 (205)
22 (-5.6)	105 (467)	95 (423)	168 (747)	158 (703)	76 (338)	46 (205)
21 (-6.1)	105 (467)	95 (423)	167 (743)	157 (698)	76 (338)	46 (205)
20 (-6.7)	105 (467)	95 (423)	166 (738)	156 (694)	76 (338)	46 (205)
19 (-7.2)	104 (463)	94 (418)	165 (734)	155 (689)	75 (334)	45 (200)
18 (-7.8)	104 (463)	94 (418)	164 (730)	154 (685)	75 (334)	45 (200)
17 (-8.3)	103 (458)	93 (414)	163 (725)	153 (681)	75 (334)	45 (200)
16 (-8.9)	103 (458)	93 (414)	161 (716)	151 (672)	74 (329)	44 (196)
15 (-9.4)	102 (452)	92 (409)	160 (712)	150 (667)	74 (329)	44 (196)
14 (-10.0)	102 (452)	92 (409)	159 (707)	149 (663)	74 (329)	44 (196)
13 (-10.6)	102 (452)	92 (409)	158 (703)	148 (658)	73 (325)	43 (191)

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Temperature °Fahrenheit (°Celsius)	Cable Rigging Load pounds (newtons)					
	AA & AB		ABSA & ABSB		ACBA & ACBB	
	High	Low	High	Low	High	Low
12 (-11.1)	101 (449)	91 (405)	157 (698)	147 (654)	73 (325)	43 (191)
11 (-11.7)	101 (449)	91 (405)	156 (694)	146 (649)	73 (325)	43 (193)
10 (-12.2)	100 (445)	90 (400)	155 (689)	145 (645)	73 (325)	43 (193)
9 (-12.8)	100 (445)	90 (400)	154 (685)	144 (641)	72 (320)	42 (187)
8 (-13.3)	100 (445)	90 (400)	153 (681)	143 (636)	72 (320)	42 (187)
7 (-13.9)	99 (440)	89 (396)	152 (676)	142 (632)	72 (320)	42 (187)
6 (-14.4)	99 (440)	89 (396)	151 (672)	141 (627)	71 (316)	41 (182)
5 (-15.0)	98 (436)	88 (391)	150 (667)	140 (623)	71 (316)	41 (182)
4 (-15.6)	98 (436)	88 (391)	148 (658)	138 (614)	71 (316)	41 (182)
3 (-16.1)	98 (436)	88 (391)	147 (654)	137 (609)	71 (316)	41 (182)
2 (-16.7)	97 (431)	87 (387)	146 (649)	136 (605)	70 (311)	40 (178)
1 (-17.2)	97 (431)	87 (387)	145 (645)	135 (601)	70 (311)	40 (178)
0 (-17.8)	96 (427)	86 (383)	144 (641)	134 (596)	70 (311)	40 (178)
-1 (-18.3)	96 (427)	86 (383)	143 (636)	133 (592)	69 (307)	39 (173)
-2 (-18.9)	95 (423)	85 (378)	142 (632)	132 (587)	69 (307)	39 (173)
-3 (-19.4)	95 (423)	85 (378)	141 (627)	131 (583)	69 (307)	39 (173)
-4 (-20.0)	95 (423)	85 (378)	140 (623)	130 (578)	69 (307)	39 (173)
-5 (-20.6)	94 (418)	84 (374)	139 (618)	129 (574)	68 (302)	38 (169)
-6 (-21.1)	94 (418)	84 (374)	138 (614)	128 (569)	68 (302)	38 (169)
-7 (-21.7)	93 (414)	83 (369)	137 (609)	127 (565)	68 (302)	38 (169)
-8 (-22.2)	93 (414)	83 (369)	135 (601)	125 (556)	67 (298)	37 (165)
-9 (-22.8)	93 (414)	83 (369)	134 (596)	124 (552)	67 (298)	37 (165)
-10 (-23.3)	92 (409)	82 (365)	133 (592)	123 (547)	67 (298)	37 (165)
-11 (-23.9)	92 (409)	82 (365)	132 (587)	122 (543)	67 (298)	37 (165)
-12 (-24.4)	91 (405)	81 (360)	131 (583)	121 (538)	66 (294)	36 (160)
-13 (-25.0)	91 (405)	81 (360)	130 (578)	120 (534)	66 (294)	36 (160)
-14 (-25.6)	91 (405)	81 (360)	129 (574)	119 (529)	66 (294)	36 (160)
-15 (-26.1)	90 (400)	80 (356)	128 (569)	118 (525)	65 (289)	35 (156)
-16 (-26.7)	90 (400)	80 (356)	127 (565)	117 (520)	65 (289)	35 (156)

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Temperature °Fahrenheit (°Celsius)	Cable Rigging Load pounds (newtons)					
	AA & AB		ABSA & ABSB		ACBA & ACBB	
	High	Low	High	Low	High	Low
-17 (-27.2)	89 (396)	79 (351)	126 (560)	116 (516)	65 (289)	35 (156)
-18 (-27.8)	89 (396)	79 (351)	125 (556)	115 (512)	64 (285)	34 (151)
-19 (-28.3)	89 (396)	79 (351)	124 (552)	114 (507)	64 (285)	34 (151)
-20 (-28.9)	88 (391)	78 (347)	122 (543)	112 (498)	64 (285)	34 (151)
-21 (-29.4)	88 (391)	78 (347)	121 (538)	111 (494)	64 (285)	34 (151)
-22 (-30.0)	87 (387)	77 (343)	120 (534)	110 (489)	63 (280)	33 (147)
-23 (-30.6)	87 (387)	77 (343)	119 (529)	109 (485)	63 (280)	33 (147)
-24 (-31.1)	86 (383)	76 (338)	118 (525)	108 (480)	63 (280)	33 (147)
-25 (-31.7)	86 (383)	76 (338)	117 (520)	107 (476)	62 (276)	32 (142)
-26 (-32.2)	86 (383)	76 (338)	116 (516)	106 (472)	62 (276)	32 (142)
-27 (-32.8)	85 (378)	75 (334)	115 (512)	105 (467)	62 (276)	32 (142)
-28 (-33.3)	85 (378)	75 (334)	114 (507)	104 (463)	62 (276)	32 (142)
-29 (-33.9)	84 (374)	74 (329)	113 (503)	103 (458)	61 (271)	31 (138)
-30 (-34.4)	84 (374)	74 (329)	112 (498)	102 454)	61 (271)	31 (138)
-31 (-35.0)	84 (374)	74 (329)	111 (494)	101 (449)	61 (271)	31 (138)
-32 (-35.6)	83 (369)	73 (325)	109 (485)	99 (440)	60 (267)	30 (133)
-33 (-36.1)	83 (369)	73 (325)	108 (480)	98 (436)	60 (267)	30 (133)
-34 (-36.7)	82 (365)	72 (320)	107 (476)	97 (431)	60 (267)	30 (133)
-35 (-37.2)	82 (365)	72 (320)	106 (472)	96 (427)	60 (267)	30 (133)
-36 (-37.8)	82 (365)	72 (320)	105 (467)	95 (423)	59 (262)	29 (129)
-37 (-38.3)	81 (360)	71 (316)	104 (463)	94 (418)	59 (262)	29 (129)
-38 (-38.9)	81 (360)	71 (316)	103 (458)	93 (414)	59 (262)	29 (129)
-39 (-39.4)	80 (356)	70 (311)	102 (454)	92 (409)	58 (258)	28 (125)
-40 (-40.0)	80 (356)	70 (311)	101 (449)	91 (405)	58 (258)	28 (125)

(c) Remove the straightedge, SPL-1671 from the control wheels.

(d) Operate the captain's control wheel for 20 times.

1) Do not turn the control wheel more than 100 degrees from the neutral position.

(e) Reduce the tension in the cables to get the specified cable rigging load for cables ACBA and ACBB (Table 501).

(f) Operate the captain's control wheel two to three times.

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(g) Put the captain's control wheel back to the neutral position.

1) Move the control wheel quickly back and forth about neutral to make sure it is in the center position.

SUBTASK 27-11-00-820-002

(5) If the cables ACBA and ACBB are not new, do these steps to adjust the cables:

(a) Remove the straightedge, SPL-1671 from the control wheels.

(b) Adjust the cables until you can easily install and remove rig pin A/S-1A, from the rig pin kit, SPL-1585, in the aileron transfer mechanism (Figure 501).

(c) Tighten the turnbuckles on the cables until you get the correct tension for cables ACBA and ACBB (Table 501).

(d) Operate the captain's control wheel two to three times.

(e) Put the captain's control wheel back to the neutral position.

1) Move the control wheel quickly back and forth about neutral to make sure it is in the center position.

SUBTASK 27-11-00-860-006

(6) Make sure you can easily install and remove the rig pins A/S-1 and A/S-1A, from the rig pin kit, SPL-1585, in the transfer mechanism (Figure 501).

(a) To adjust the cables for rig pin fit, loosen one cable and tighten the other cable the same amount.

SUBTASK 27-11-00-480-005

(7) Attach the straightedge, SPL-1671 on the captain's and first officer's control wheels.

(a) Make sure the top ends of the control wheels touch the straightedge, SPL-1671.

(b) Make sure that one end of the first officer's control wheel in no more than 0.20 inch (5.1 mm) from the straightedge, SPL-1671.

SUBTASK 27-11-00-860-007

(8) Measure the cable tensions.

(a) Make sure the tension for cables ACBA and ACBB is not out of tolerance (Table 501).

SUBTASK 27-11-00-480-006

(9) Install the turnbuckle clip locks.

H. Aileron Body Cables AA and AB Adjustment

SUBTASK 27-11-00-860-008

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-11-00-860-009

(2) Operate the aileron trim switches on the control stand panel, P8, until you can freely install and remove the rig pin A/S-15, from the rig pin kit, SPL-1585 (Figure 501).

SUBTASK 27-11-00-860-010

(3) Remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

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SUBTASK 27-11-00-210-001

(4) Make sure the centering cam follower roller is firmly in the cam detent Figure 505.

SUBTASK 27-11-00-820-003

(5) If you install new cables AA and AB, do these steps to adjust the cables (Figure 502):

(a) Adjust the cables until you can easily install and remove rig pins A/S-1 and A/S-1A, from the rig pin kit, SPL-1585, in the aileron transfer mechanism (Figure 501).

(b) Tighten the turnbuckles on the cables to get the tension two times the specified cable rigging load for cables AA and AB (Table 501).

(c) Operate the captain's control wheel for 20 times.

1) Do not turn the control wheel more than 100 degrees from the neutral position.

(d) Reduce the tension in the cables to get the specified cable rigging load for cables AA and AB (Table 501).

(e) Operate the captain's control wheel two to three times.

(f) Put the captain's control wheel back to the neutral position.

1) Move the control wheel quickly back and forth about neutral to make sure it is in the center position.

SUBTASK 27-11-00-820-004

(6) If the cables AA and AB are not new, do these steps to adjust the cables:

(a) Adjust the cables until you can easily install and remove rig pins A/S-1 and A/S-1A, from the rig pin kit, SPL-1585, in the aileron transfer mechanism (Figure 501).

(b) Tighten the turnbuckles on the cables to get the correct tension for cables AA and AB (Table 501).

(c) Operate the captain's control wheel two to three times.

(d) Put the captain's control wheel back to the neutral position.

1) Move the control wheel quickly back and forth about neutral to make sure it is in the center position.

SUBTASK 27-11-00-860-011

(7) Make sure you can easily install and remove these rig pins from the rig pin kit, SPL-1585 (Figure 501):

(a) Rig pin A/S-3 in the spoiler shaft

(b) Rig pin A/S-15 in the aileron trim actuator

(c) Rig pins A/S-1 and A/S-1A in the aileron transfer mechanism.

SUBTASK 27-11-00-820-015

(8) If you cannot easily install and remove the rig pin A/S-3, rig pin A/S-15, rig pin A/S-1 or rig pin A/S-1A, adjust the cables AA and AB:

NOTE: Do not adjust the cables ACBA and ACBB.

(a) Loosen the turnbuckle on one cable and tighten the turnbuckle on the other cable the same amount until you can easily install and remove the rig pin.

SUBTASK 27-11-00-860-063

(9) Measure the cable tensions.

(a) Make sure the tension for cables AA and AB is not out of tolerance (Table 501).

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SUBTASK 27-11-00-860-012

(10) Attach the straightedge, SPL-1671 on the captain's and first officer's control wheels.

(a) Make sure the top ends of the control wheels touch the straightedge, SPL-1671.

(b) Make sure that one end of the first officer's control wheel is no more than 0.20 inch (5.1 mm) from the straightedge, SPL-1671.

SUBTASK 27-11-00-420-001

(11) Install the turnbuckle clip locks.

I. Aileron Wing Cables ABSA and ABSB Adjustment

SUBTASK 27-11-00-820-016

(1) Make sure the pogos and power control unit is correctly adjusted before you do the wing cables adjustment. To do it, do this task: Pogo and Power Control Unit (PCU) Adjustment, TASK 27-11-00-820-802.

SUBTASK 27-11-00-480-007

(2) Install the rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum.

SUBTASK 27-11-00-820-005

(3) If you install new cables ABSA and ABSB, do these steps to adjust the cables (Figure 502):

(a) Tighten the turnbuckles on the cables to get the tension two times the specified rigging load for cables ABSA and ABSB (Table 501).

(b) Remove the rig pin A/S-4.

(c) Operate the captain's control wheel for 20 times.

1) Do not turn the control wheel more than 100 degrees from the neutral position.

(d) Reduce the tension in the cables to get the specified cable rigging load for cables ABSA and ABSB (Table 501).

(e) Operate the captain's control wheel two to three times.

(f) Put the captain's control wheel back to the neutral position.

1) Move the control wheel quickly back and forth about neutral to make sure it is in the center position.

SUBTASK 27-11-00-820-006

(4) If the cables ABSA and ABSB are not new, do these steps to adjust cables ABSA and ABSB:

(a) Tighten the turnbuckles until you get the specified cable rigging load for cables ABSA and ABSB (Table 501).

(b) Remove the rig pin A/S-4.

(c) Operate the captain's control wheel two to three times.

(d) Put the captain's control wheel back to the neutral position.

1) Move the control wheel quickly back and forth about neutral to make sure it is in the center position.

SUBTASK 27-11-00-480-022

(5) Install the rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum.

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SUBTASK 27-11-00-860-016

(6) Make sure the aileron is in the rig position (Figure 506).

NOTE: The aileron rig position is measured 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, inboard corner of the fixed lower panel, and 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, outboard corner of the aileron. At this location, the distance between the lower surface of the fixed lower panel and the lower surface of the aileron should be 0.38 ± 0.03 inch (9.65 ± 0.76 mm).

(a) If the aileron is not in the rig position, adjust the turnbuckles for each cable.

HAP 001-013, 015-026, 028-054

SUBTASK 27-11-00-860-088

(7) Make sure the aileron is in the rig position (Figure 506).

NOTE: The aileron rig position is measured 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, inboard corner of the fixed lower panel, and 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, outboard corner of the aileron. At this location, the distance between the lower surface of the fixed lower panel and the lower surface of the aileron should be 0.19 ± 0.03 inch (4.83 ± 0.76 mm).

(a) If the aileron is not in the rig position, adjust the turnbuckles for each cable.

HAP ALL

SUBTASK 27-11-00-860-017

(8) Measure the cable tensions.

(a) Make sure the tension for cables ABSA and ABSB is not out of tolerance (Table 501).

SUBTASK 27-11-00-420-002

(9) Install the turnbuckle clip locks.

SUBTASK 27-11-00-080-003

(10) Remove rig pin A/S-4.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-410-001

(1) If it is open, close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-11-00-860-019

(2) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

——————— END OF TASK ———————

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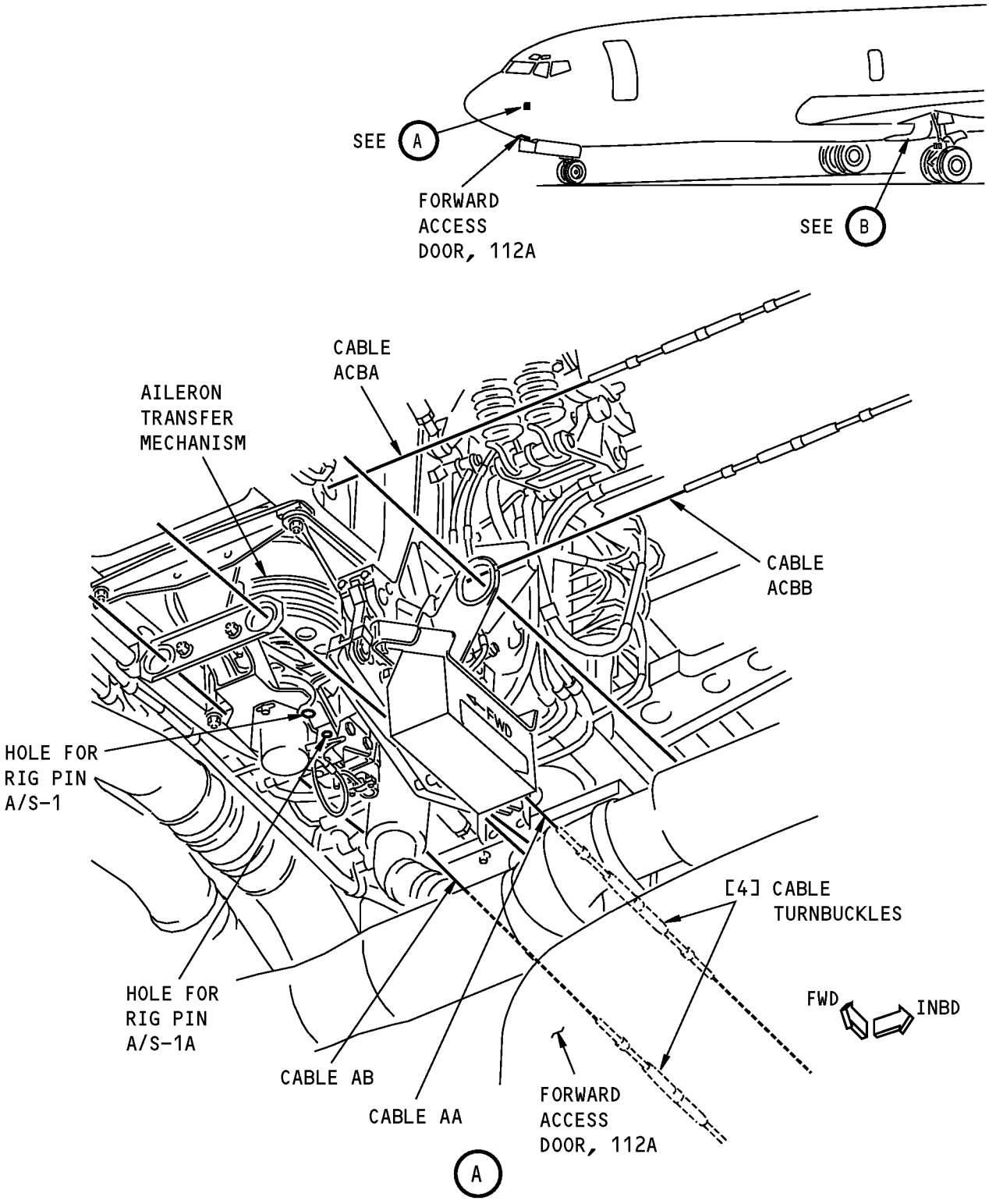

Rig Pin Location
Figure 501 (Sheet 1 of 3)/27-11-00-990-802

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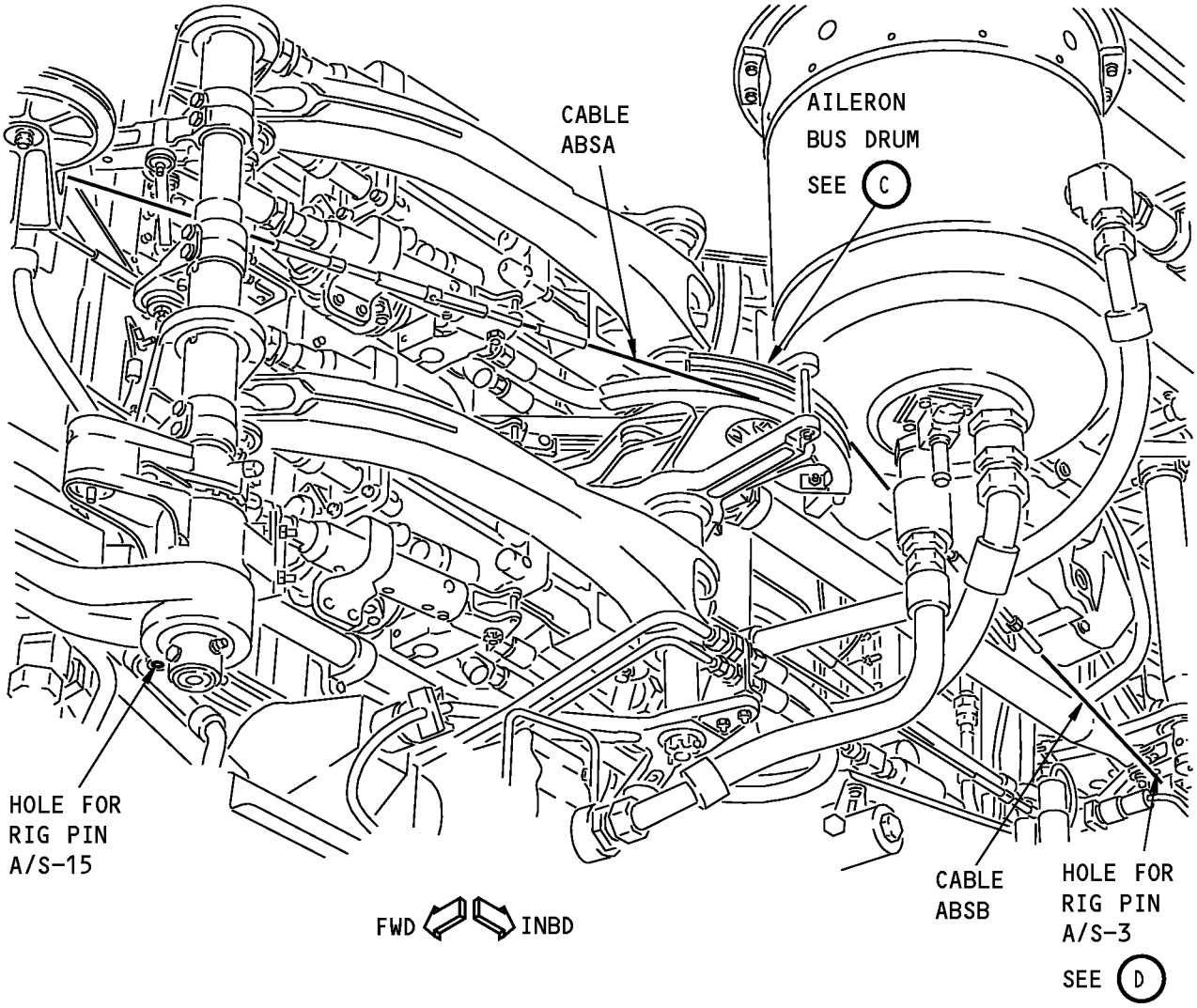

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Rig Pin Location
Figure 501 (Sheet 2 of 3)/27-11-00-990-802

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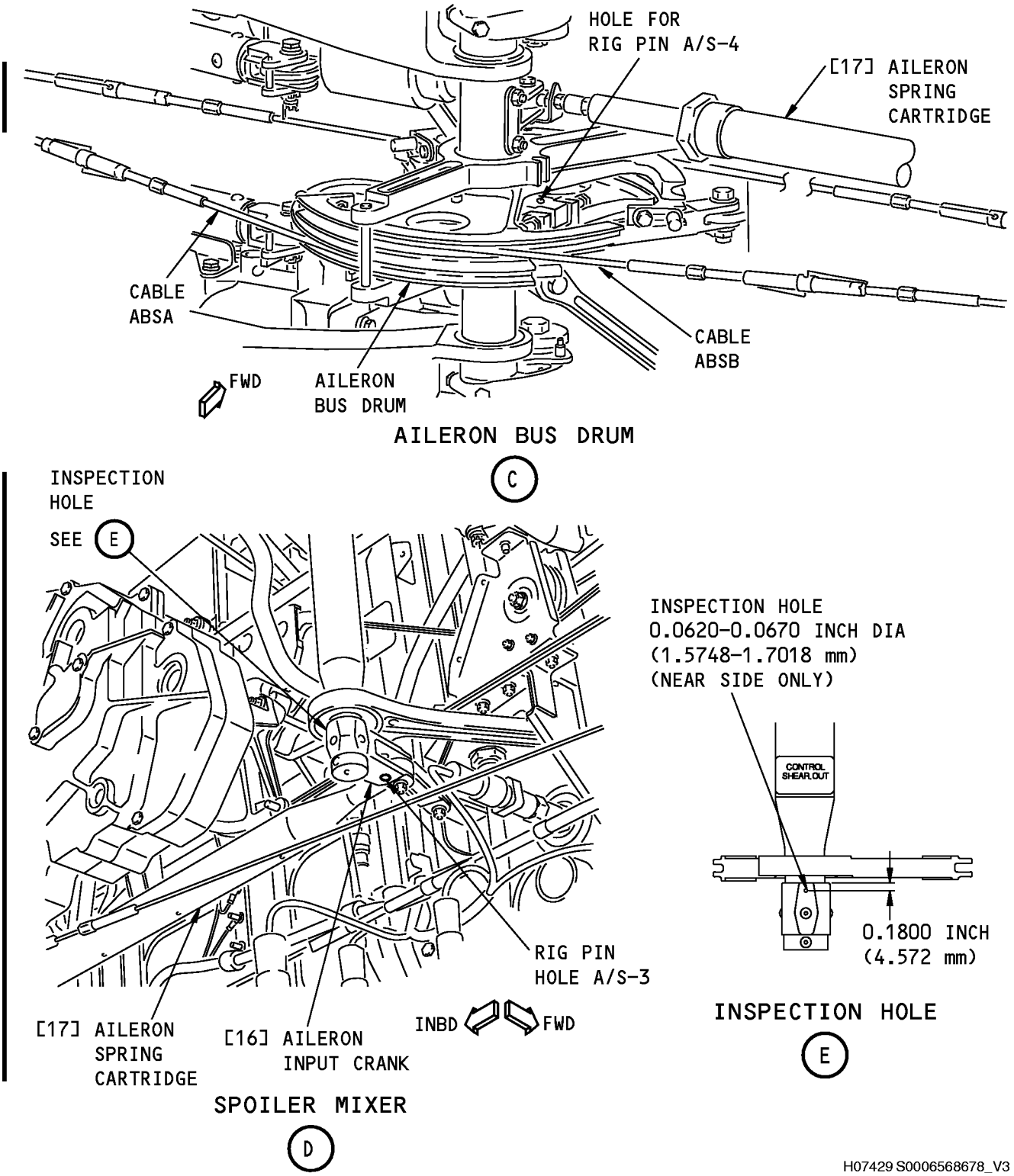

Rig Pin Location
Figure 501 (Sheet 3 of 3)/27-11-00-990-802

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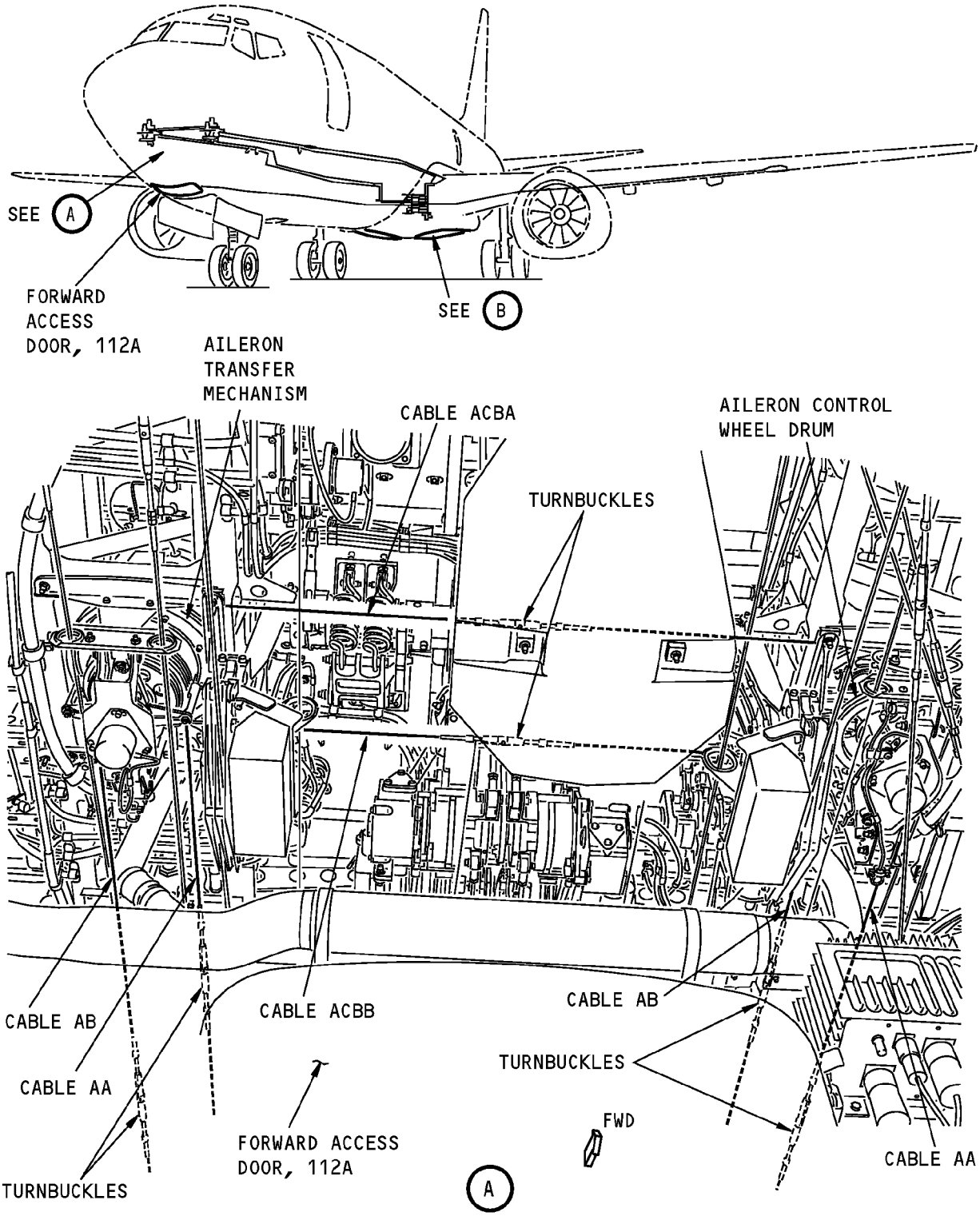

Aileron Cable Adjustment
Figure 502 (Sheet 1 of 2)/27-11-00-990-803

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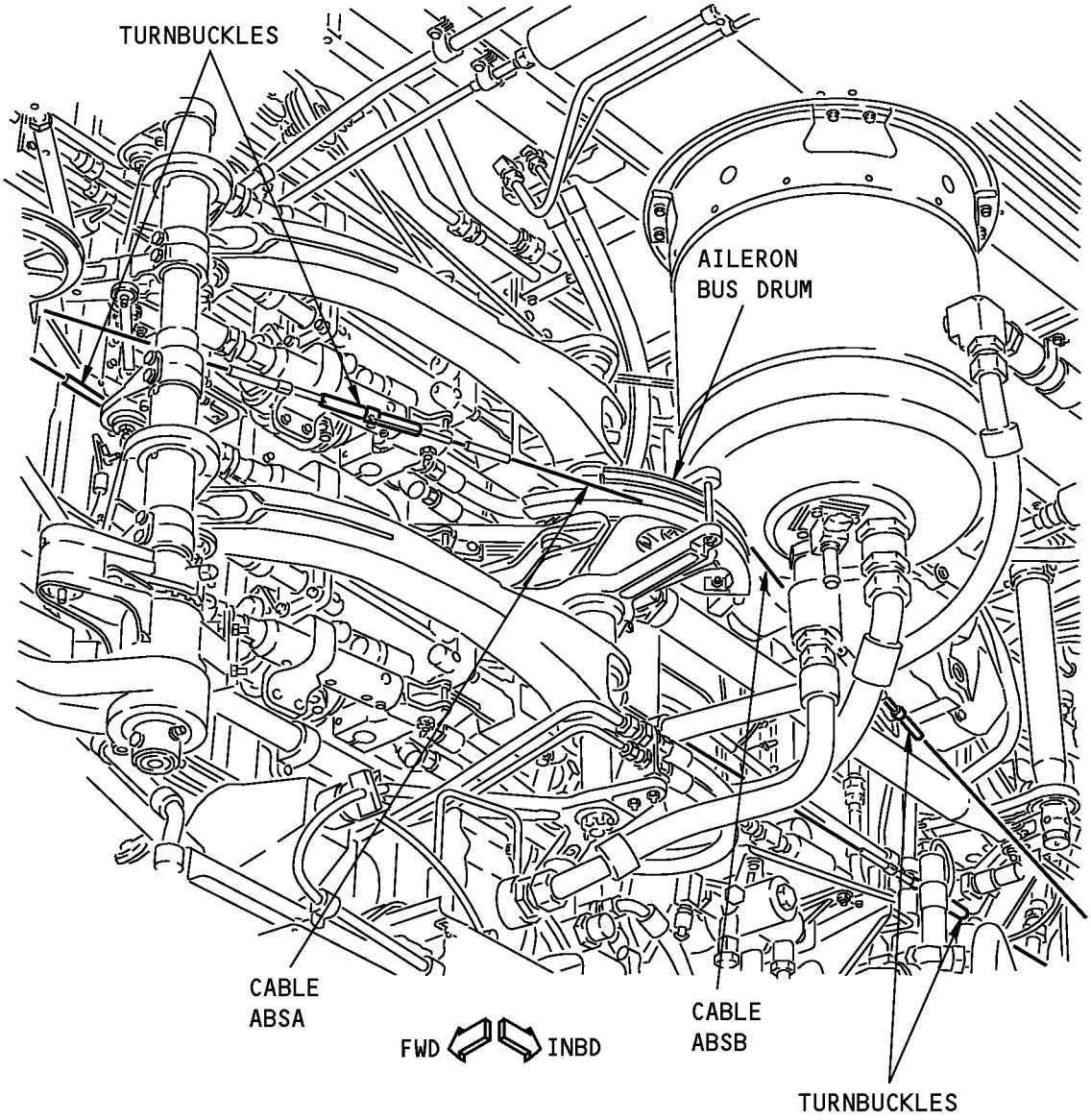

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Aileron Cable Adjustment
Figure 502 (Sheet 2 of 2)/27-11-00-990-803

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TASK 27-11-00-820-802

3. Pogo and Power Control Unit (PCU) Adjustment

A. References

Reference	Title
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)
G02436	Lockwire - Monel (0.040 In. Dia.)	NASM20995N~ C40

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Adjustment

SUBTASK 27-11-00-480-008

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-11-00-860-020

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) To pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-11-00-860-021

(3) Operate the aileron trim switches on the control stand panel, P8, until you can freely install and remove the rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron trim actuator (Figure 501).

SUBTASK 27-11-00-860-022

(4) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

F. Pogo and the Power Control Unit (PCU) Adjustment

SUBTASK 27-11-00-860-023

(1) Make sure you can freely install and remove the rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum (Figure 501).

SUBTASK 27-11-00-820-007

(2) If you cannot easily install and remove the rig pin A/S-4, adjust the pogos [1] in the specified sequence:

NOTE: When adjustment of the four pogos is necessary, make sure you follow these instructions in the specified sequence. Incorrect adjustment of the upper and lower pogos on system A or B PCU when adjusted in the opposite directions will cause the incorrect condition of 'free fit' of rig pin A/S 4.

(a) Disconnect the upper and lower pogos from system B PCU and the upper pogo from system A PCU.

1) Remove the pins [8], nuts [7], washers [6], bushings [5], washers [4] and bolts [3] to disconnect the four pogos [1] from the power control units.

(b) Adjust the lower (primary) pogo [1] on system A PCU:

NOTE: The initial length of the pogo (rod-end to rod-end) is approximately 13.78 inches (350.1 millimeters) and the drain holes are down.

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Pressurize hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

2) Loosen the locknut [2] on the pogo [1].

3) Turn the shaft in the barrel and left clevis to adjust the length of the pogo [1] until you can freely install and remove rig pin A/S-4 in the aileron bus drum.

4) Tighten the locknut [2] to 50-75 pound-inches (5.6-8.5 newton-meters).

5) Make sure you can freely install and remove rig pin A/S-4.

a) If it is necessary, adjust the lower pogo [1] on system A PCU again.

6) Remove power from hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

7) Make sure that the bushing flanges on the left hand clevis are pointed up, and the drain hole in the clevis barrel is pointed down, when the clevis is re-connected.

8) Install lockwire, G02436 on the locknut [2].

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(c) Adjust the lower (primary) pogo on system B PCU;

NOTE: You must adjust the lower pogo on system A PCU first before you adjust the lower pogo on system B PCU.

1) Install the bolt [3], washer [4], bushing [5], washer [6], nut [7] and pin [8] to connect the lower pogo to the system B PCU.

NOTE: The initial length of the pogo (rod-end to rod-end) is approximately 13.78 inches (350.0 millimeters).

a) Make sure the drain holes on the pogo [1] are down.

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

2) Pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

3) Loosen the locknut [2] on the pogo [1].

4) Turn the shaft in the barrel and the left clevis to adjust the length of the lower pogo [1] on system B PCU until you can easily install and remove rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum.

5) Tighten the locknut [2] to 50-75 pound-inches (5.6-8.5 newton-meters).

6) Make sure you can easily install the rig pin A/S-4 in the aileron bus drum.

a) If it is necessary, adjust the lower pogo [1] on system B PCU again.

7) Remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

8) Make sure the bushing flanges on the left hand clevis are pointed up, and the drain hole in the celvis barrel pointed down, when the clevis is re-connected.

9) Install lockwire, G02436 on the locknut [2].

(d) Adjust the upper (secondary) pogo [1] on system A PCU:

1) Loosen the locknut [2] on the pogo [1].

2) Turn the shaft in the barrel and left clevis to adjust the length of the upper pogo [1] until you can easily install the bolt [3].

a) Install the bolt [3] with the washer [4], bushing [5], washer [6], nut [7] and pin [8] to connect the upper pogo [1] to the system A PCU.

b) Make sure the drain holes on the pogo [1] are down.

3) Tighten the locknut [2] to 50-75 pound-inches (5.6-8.5 newton-meters).

4) Make sure the bolt [3] fits freely in its hole.

a) If it is necessary, adjust the upper pogo [1] on system A PCU again.

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WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

5) Pressurize hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

6) Make sure you can freely install and remove the rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum (Figure 501).

7) If you cannot freely install and remove the rig pin A/S-4, do these steps;

   a) Remove the pin [8], nut [7], washer [6], bushing [5], washer [4] and bolt [3] to disconnect the upper pogo [1] from the system A PCU.

   b) Adjust the length of the lower pogo [1] on system A PCU again until you can easily install and remove the rig pin A/S-4.

   c) Do the adjustment of the upper pogo [1] on system A PCU again from the beginning.

8) Remove power from hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

9) Install lockwire, G02436 on the locknut [2].

(e) Adjust the upper (secondary) pogo [1] on system B PCU:

1) Turn the shaft in the barrel and left clevis to adjust the length of the upper pogo [1] until you can easily install the bolt [3] in the PCU lever.

   a) Install the bolt [3] with washer [4], bushing [5], washer [6], nut [7] and pin [8] to connect the upper pogo [1] to the system B PCU.

   b) Make sure the drain holes on the pogo are down.

2) Tighten the locknut [2] to 50-75 pound-inches (5.6-8.5 newton-meters).

3) Make sure the bolt [3] fits freely in the hole.

   a) Adjust the upper pogo [1] on system B again if it is necessary.

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

4) Pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

5) Make sure you can easily install and remove the rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum (Figure 501).

6) If you cannot easily install and remove the rig pin A/S-4, do these steps;

NOTE: Do not adjust the upper or lower pogo on system B PCU. You can get free rig pin when the pogos are incorrectly adjusted in the opposite directions. Do not adjust the upper or lower pogo on system A PCU. You will misrig the system A PCU if you adjust the system A pogos.

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a) Remove the pins [8], nuts [7], washers [6], bushings [5], washers [4] and bolts [3] to disconnect the upper pogo [1] from the system B PCU.

b) Adjust the lower pogo [1] on system B PCU again until you can easily install and remove rig pin A/S-4, from the rig pin kit, SPL-1585.

c) Do the adjustment of the upper pogo [1] on system B PCU again from the beginning.

7) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

8) Make sure the left pogo clevis bushing flanges are pointed up, and the drain hole in the pogo barrel is pointed down, when the pogo is re-connected.

9) Install lockwire, G02436 on the locknut.

SUBTASK 27-11-00-480-009

(3) Install the rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum.

SUBTASK 27-11-00-480-010

(4) Install the rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron trim actuator.

SUBTASK 27-11-00-820-008

(5) Visually check that the valve arms on the upper and lower pogos for each PCU are at the center between the stops (Figure 503) (View C).

(a) If the valve arms are not at the center between the stops, adjust the four pogos [1] in the same specified sequence as above.

SUBTASK 27-11-00-820-009

(6) Make sure the gaps between the lug on the top aileron bus drum and the screws [12] on the bottom aileron bus drum is 0.04-0.06 inch (1.02-1.52 millimeters) (Figure 503) (View A-A).

(a) If the gap is out of tolerance, do these steps;

1) Remove the lockwire, G02436.

2) Loosen the nut [13].

3) Adjust the screw [12] until the gap is 0.04-0.06 inch (1.0-1.5 millimeters).

4) Install the lockwire, G02436 on the two screws [12] and nuts [13].

SUBTASK 27-11-00-820-010

(7) Make sure you can freely install and remove the rig pin A/S-3 from the rig pin kit, SPL-1585 (Figure 503).

(a) If you cannot freely install and remove rig pin A/S-3, adjust the aileron spring cartridge [11].

1) Loosen the checknuts [9] on the spring cartridge [11].

2) Adjust the length of the spring cartridge [11] until you can easily install and remove rig pin A/S-3.

a) Make sure the internal spring does not deflect.

b) Make sure there is no backlash.

3) Tighten the checknuts [9] on the spring cartridge [11] to 10-20 pound-inches (1.1-2.3 newton-meters).

4) Install lockwire, G01912 on the checknuts.

SUBTASK 27-11-00-080-004

(8) Remove rig pins A/S-15 and A/S-4.

END OF TASK

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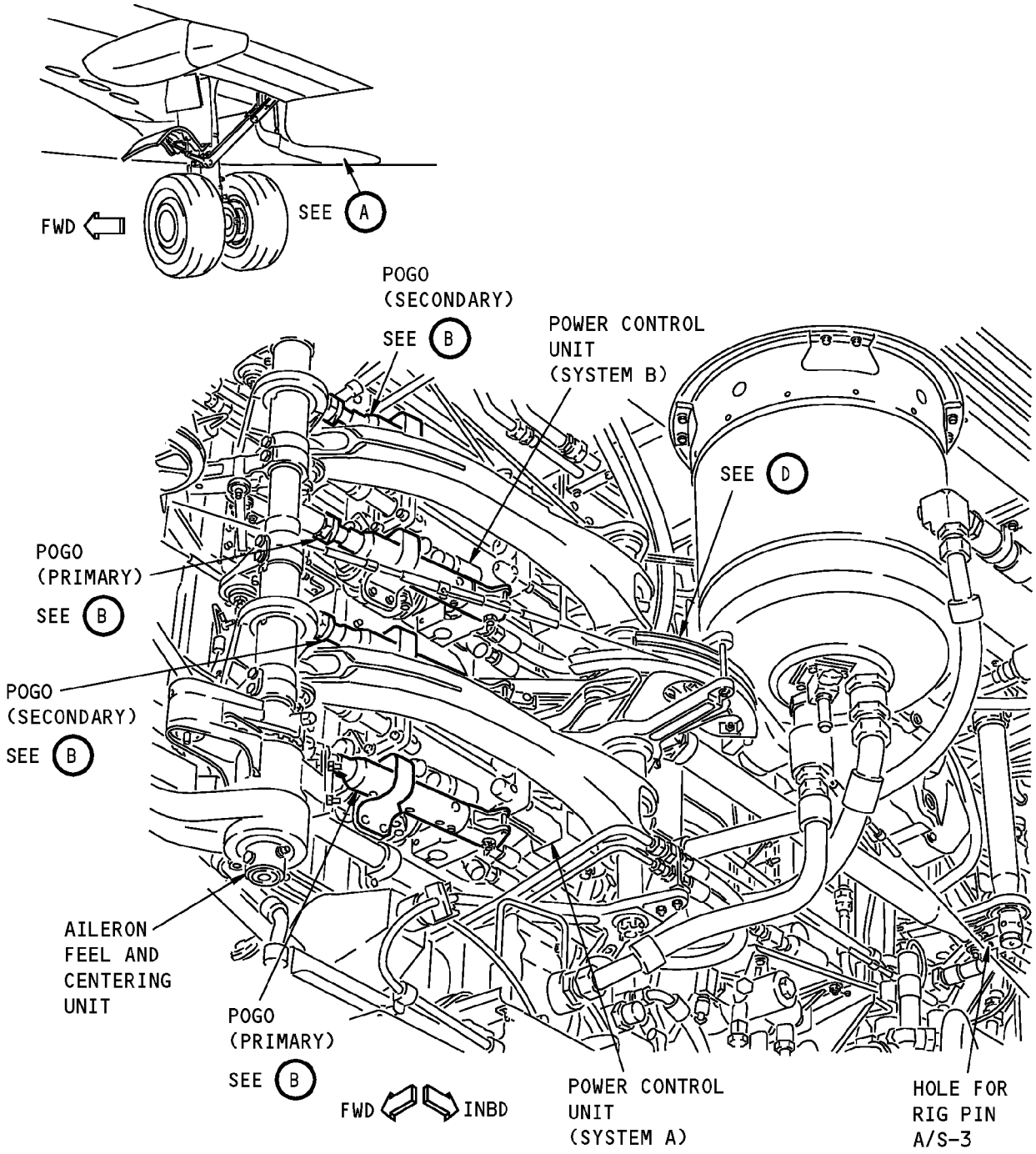

MAIN LANDING GEAR WHEEL WELL

A

Aileron Pogo and Power Control Unit Adjustment
Figure 503 (Sheet 1 of 3)/27-11-00-990-804

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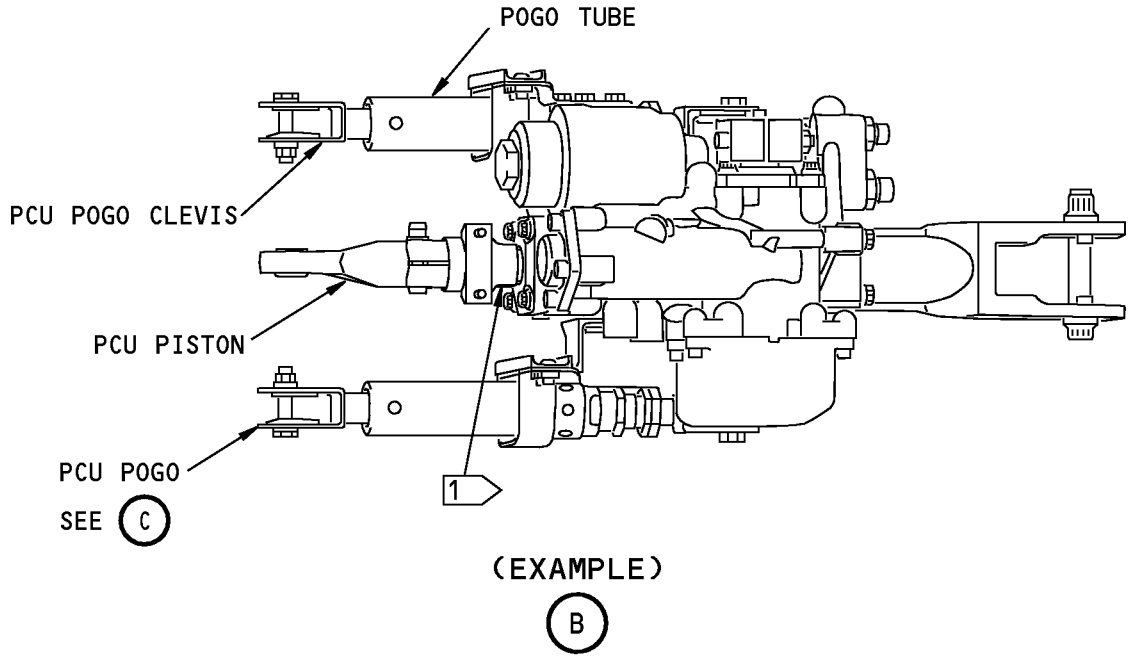
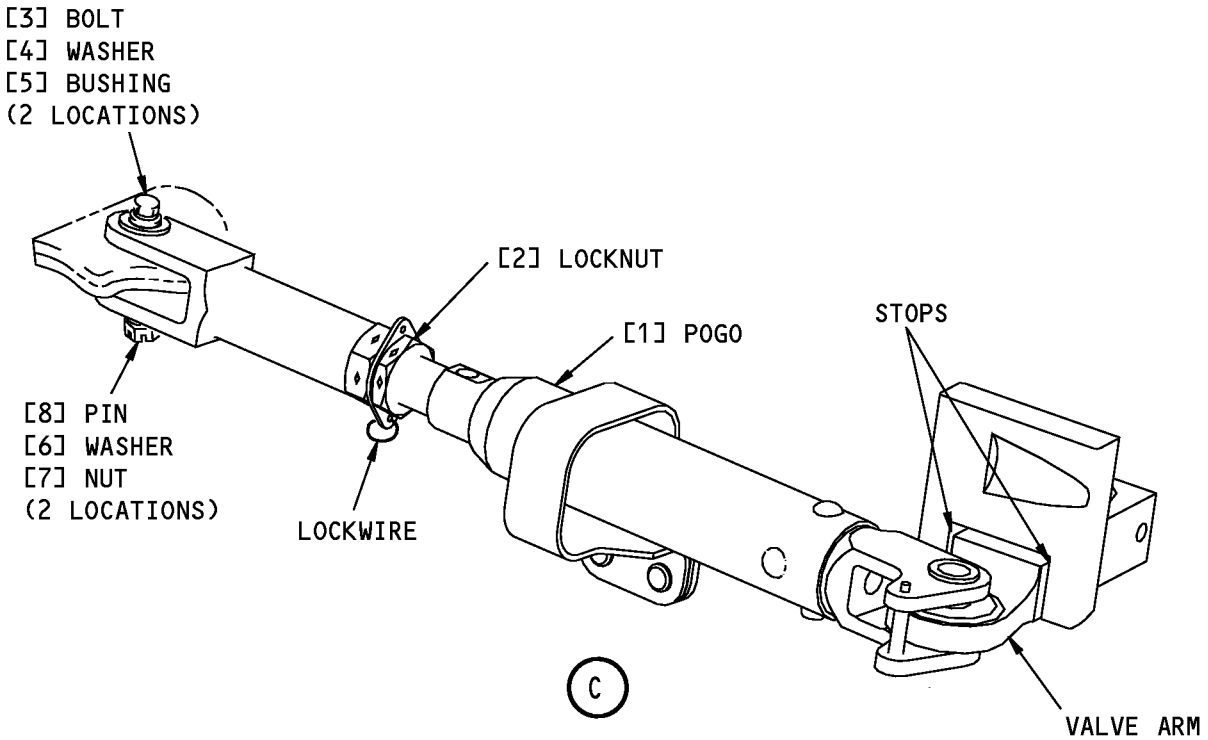


(EXAMPLE)

B



1 INSTALL THE PCU PISTON THIS DIRECTION IN ORDER TO AVOID LOCKWIRE.

Aileron Pogo and Power Control Unit Adjustment
Figure 503 (Sheet 2 of 3)/27-11-00-990-804

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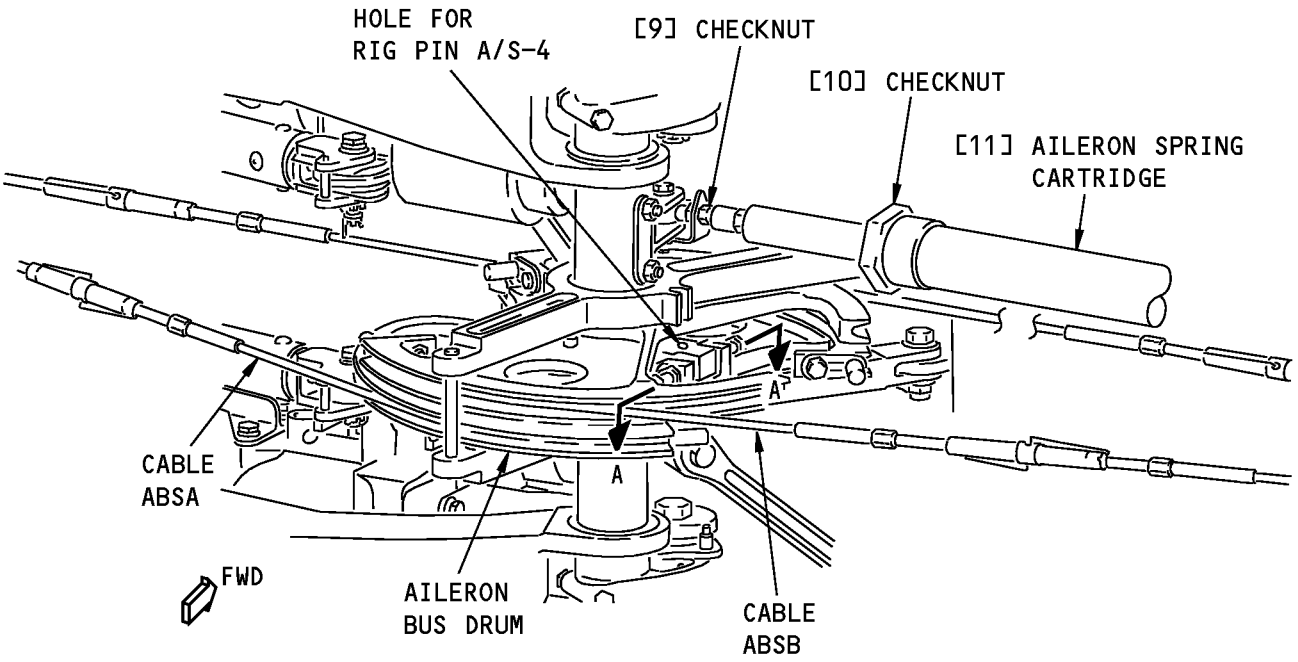
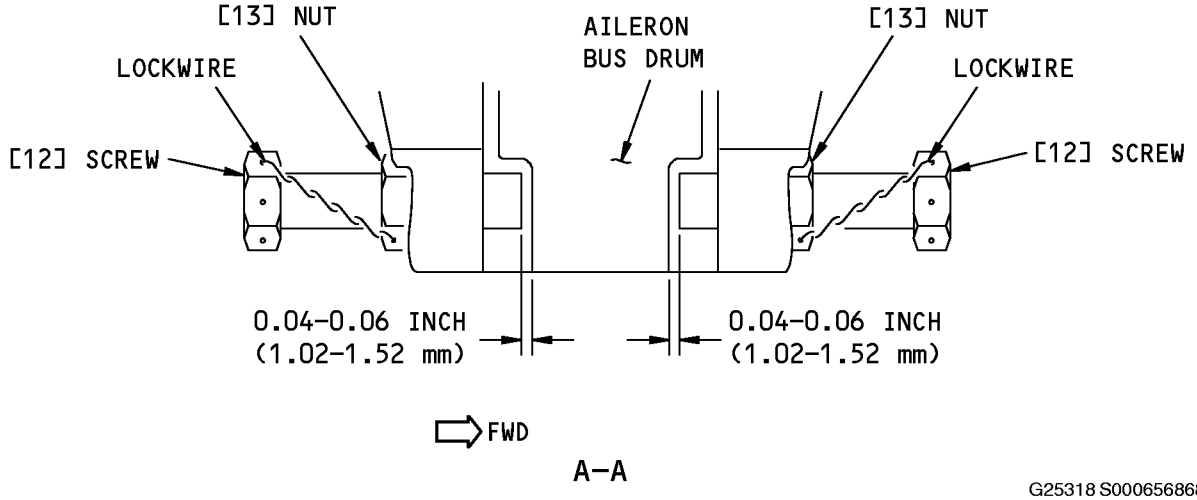


AILERON BUS DRUM

D



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Aileron Pogo and Power Control Unit Adjustment
Figure 503 (Sheet 3 of 3)/27-11-00-990-804

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TASK 27-11-00-820-803

4. Aileron Balance Tab Adjustment

(Figure 504)

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1682	Protractor - Aileron Tab Alignment (Part #: F80222-11, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

D. Prepare for Adjustment

SUBTASK 27-11-00-860-024

(1) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-00-480-026

(2) Install the protractor, SPL-1682.

E. Aileron Balance Tab Adjustment

NOTE: You can adjust the aileron balance tab [31] with the aileron [32] in the faired position or with the aileron [32] at the downrig position.

SUBTASK 27-11-00-820-017

(1) Do these steps to check the aileron balance tab [31] with the aileron [32] in the faired position:

(a) Align the lower surface of the aileron trailing edge flush with the lower trailing edge surface of the adjacent fixed wing structure to ±0.03 inch (±0.8 millimeter) at the outboard end of the aileron.

(b) Make sure that the outboard lower trailing edge surface of the aileron balance tab [31] aligns with the lower trailing edge surface of the aileron [32] to ±0.03 inch (±0.8 millimeter).

1) If this condition is not met, adjust the aileron balance tab [31].

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HAP 101-999

SUBTASK 27-11-00-220-001

(2) Do these steps to check the aileron balance tab [31] with the aileron [32] in the downrig position (Figure 506):

NOTE: The aileron rig position is measured 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, inboard corner of the fixed lower panel, and 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, outboard corner of the aileron. At this location, the distance between the lower surface of the fixed lower panel and the lower surface of the aileron should be 0.38 ± 0.03 inch (9.65 ± 0.76 mm).

(a) Measure the vertical distance between the lower surface of the aileron balance tab [31] to the lower surface of the aileron [32] at the outboard end of the aileron balance tab [31] (dimension A):

NOTE: You must measure the distance from the lower aft most points of the aileron balance tab [31] and the aileron [32].

1) Make sure the dimension A is 0.12 ±0.07 inch (3.05 ±1.78 millimeters).

(b) If the dimension A is out of tolerance, adjust the aileron balance tab [31].

HAP 001-013, 015-026, 028-054

SUBTASK 27-11-00-220-002

(3) Do these steps to check the aileron balance tab [31] with the aileron [32] in the downrig position (Figure 506):

NOTE: The aileron rig position is measured 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, inboard corner of the fixed lower panel, and 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, outboard corner of the aileron. At this location, the distance between the lower surface of the fixed lower panel and the lower surface of the aileron should be 0.19 ± 0.03 inch (4.83 ± 0.76 mm).

(a) Measure the vertical distance between the lower surface of the aileron balance tab [31] to the lower surface of the aileron [32] at the outboard end of the aileron balance tab [31] (dimension A):

NOTE: You must measure the distance from the lower aft most points of the aileron balance tab [31] and the aileron [32].

1) Make sure the dimension A is 0.060 ±0.07 inch (1.52 ±1.78 millimeters).

(b) If the dimension A is out of tolerance, adjust the aileron balance tab [31].

HAP ALL

SUBTASK 27-11-00-820-011

(4) Do these steps to adjust the aileron balance tab [31]:

(a) Move the aileron trailing edge to the down position.

(b) Remove the bolts [45] that attach the forward removable fairing [46] to the aileron.

(c) Remove the bolts [43] that attach the aft removable fairing [44] to the aileron balance tab [31].

(d) Loosen the jam nuts [47] and jam nuts [49] on the aileron tab control rods [33].

NOTE: You must adjust the two aileron tab control rods [33] the same amount.

(e) Do these steps if coarse adjustment is necessary:

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1) Remove the pins [42], nuts [41], washers [40], bushings [39], washers [38] and bolts [37] to disconnect the aileron tab control rods [33] from the aileron balance tab [31].

2) Turn the rod ends on the tab control rods [33] for adjustment.

NOTE: One-half turn of the rod end changes the position of the tab trailing edge 0.067 inch (1.7 millimeters). One-half turn of the rod end and the barrel [48] together changes the position of the tab trailing edge 0.080 inch (2.00 millimeters).

a) To raise the trailing edge of the aileron balance tab [31], lengthen the aileron tab control rods [33].

b) To lower the trailing edge of the aileron balance tab [31], shorten the aileron tab control rods [33].

3) Connect the aileron tab control rods [33] to the aileron balance tab [31].

a) Install the bushings [39], washers [38], washers [40], bolts [37] and nuts [41].

b) If there is binding between the aileron tab control rods [33] and the bolt [37], adjust the length of the aileron tab control rods [33].

c) Make sure there is a minimum of 0.0150 inch (0.38 millimeters) gap between the bushing [39] and the washer [38].

d) Tighten the nuts [41] to 50-80 pound-inches (5.6-9.0 newton-meters).

e) Install the pins [42].

(f) Do these steps if fine adjustment is necessary:

1) Turn the barrels [48] on the aileron tab control rods [33].

NOTE: One turn of the barrel, with the rod end fixed, changes the position of the tab trailing edge 0.027 inch (0.70 millimeters).

a) To raise the trailing edge of the aileron balance tab [31], lengthen the aileron tab control rods [33].

b) To lower the trailing edge of the aileron balance tab [31], shorten the aileron tab control rod [33].

2) Make sure the threads are visible in the inspection holes in the barrel [48].

(g) Tighten the jam nuts [47] to 100-140 pound-inches (11.3-15.8 newton-meters).

(h) Tighten the jam nuts [49] to 80-100 pound-inches (9.0-11.3 newton-meters).

(i) Install the bolts [43] that attach the aft removable fairing [44] to the aileron balance tab [31].

(j) Install the bolts [45] that attach the forward removable fairing [46] to the aileron.

SUBTASK 27-11-00-840-001

(5) Put the Airplane Back to Its Usual Condition

(a) Remove the protractor, SPL-1682.

(b) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-00-700-001

(6) Do this task: Flight Test to Find and Correct Asymmetrical Flight Control Forces, TASK 27-11-00-750-801.

NOTE: For each aileron tab, if both control rods [33] are adjusted, then flight test is necessary.

If only one rod is adjusted, and you can verify that the remaining rod had not been replaced or adjusted since the last flight test, then flight test is not necessary.

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If only one rod is adjusted, and you can not verify that the remaining rod had not been replaced or adjusted since the last flight test, then flight test is necessary.

END OF TASK

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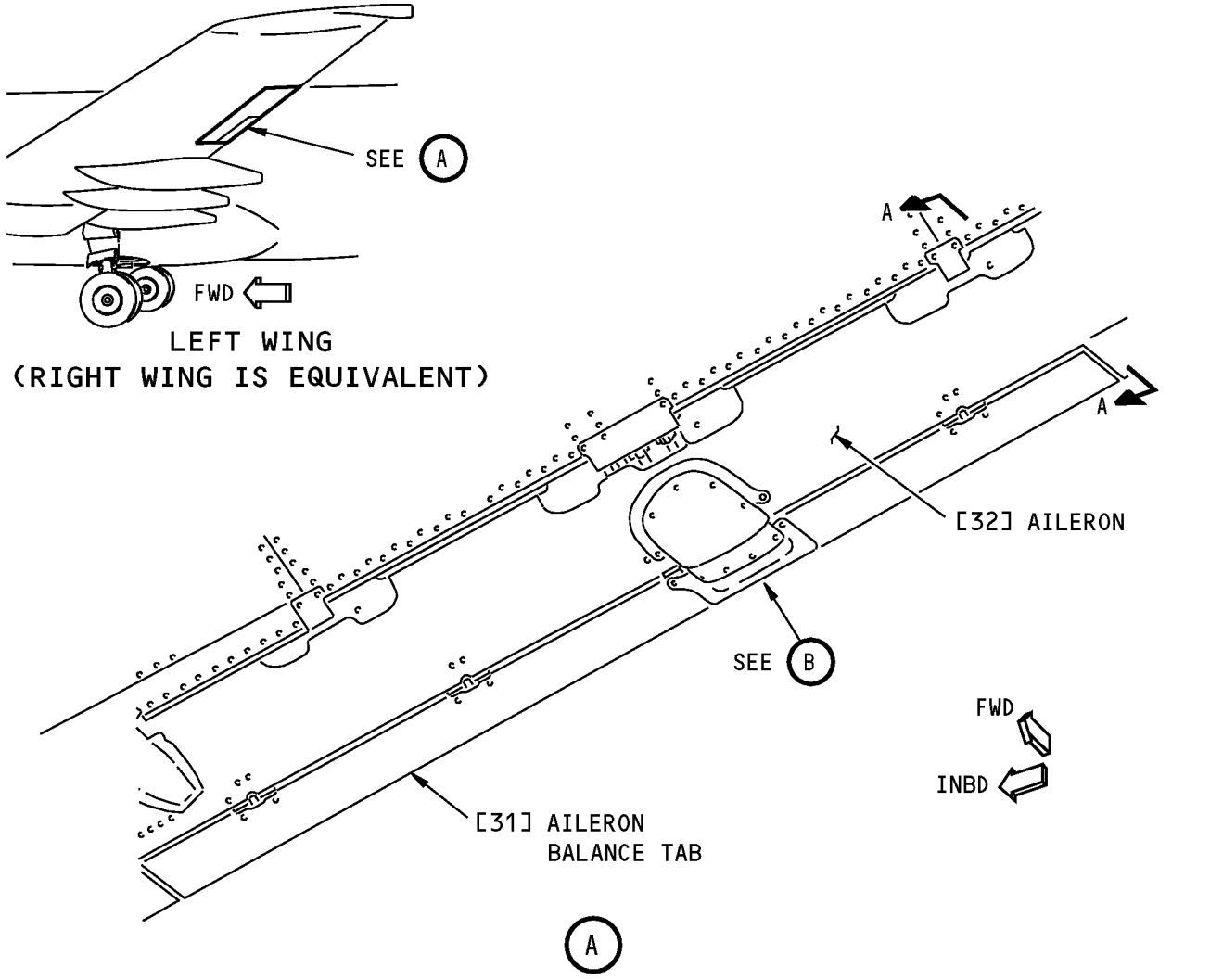

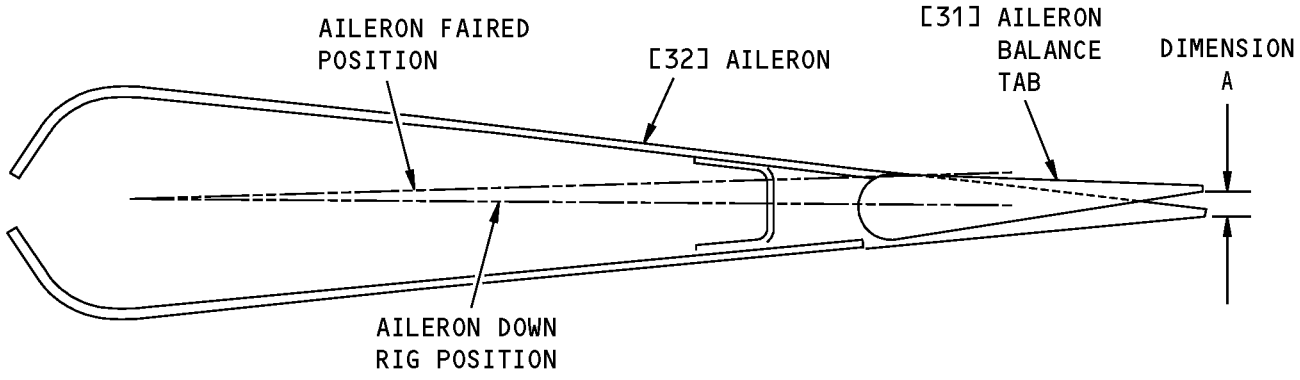

A–A

Aileron Balance Tab Adjustment
Figure 504 (Sheet 1 of 2)/27-11-00-990-805

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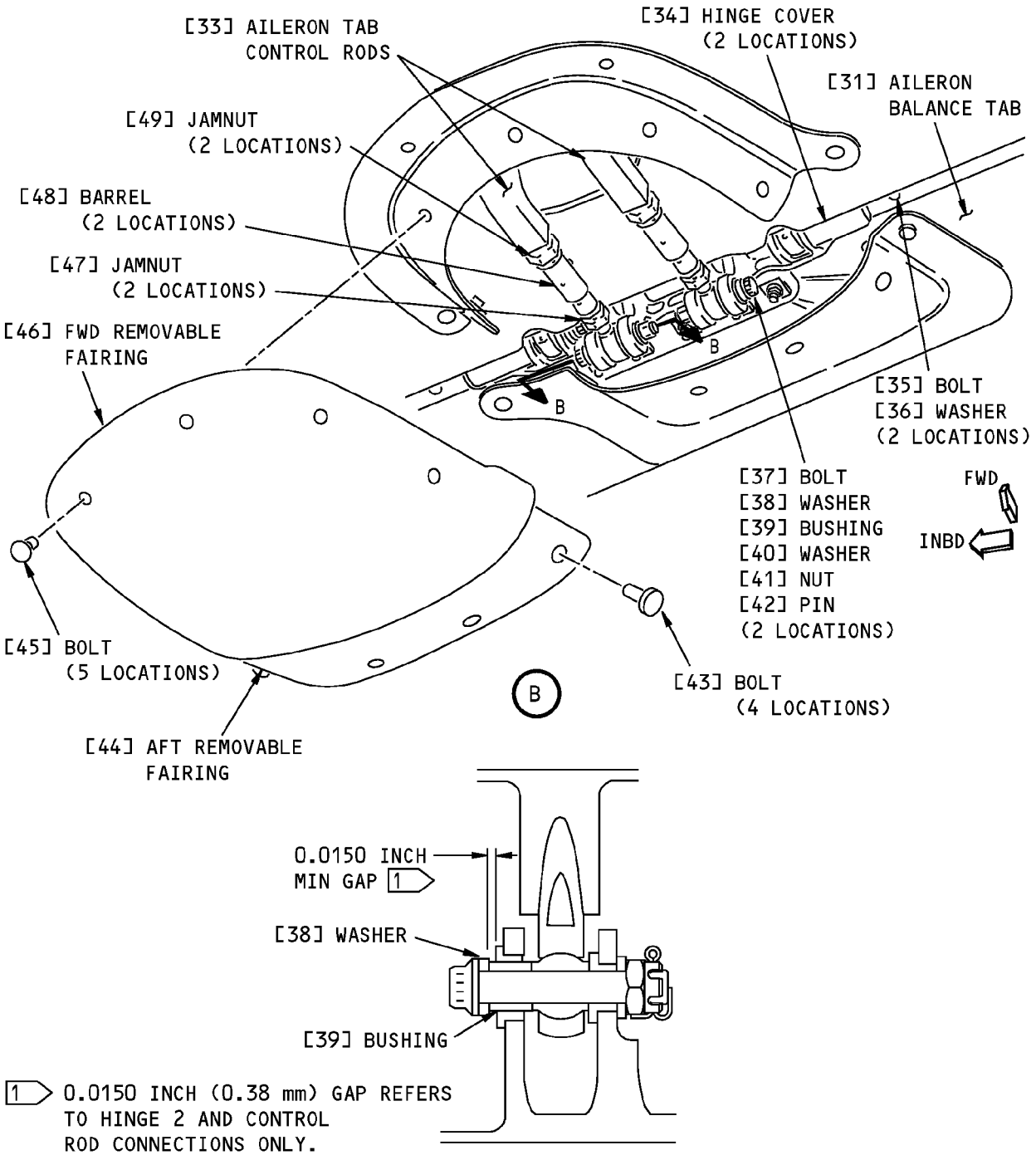

INBOARD AILERON TAB CONTROL ROD
(OUTBOARD AILERON TAB CONTROL ROD IS OPPOSITE)
B–B

Aileron Balance Tab Adjustment
Figure 504 (Sheet 2 of 2)/27-11-00-990-805

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TASK 27-11-00-820-804

5. Aileron Feel and Centering Unit Adjustment

(Figure 505)

A. General

(1) The aileron feel and centering unit is referred to as the "centering unit" in this task.

B. References

Reference	Title
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1674	Assembly - Adapter, Control Wheel, Torque and Force Test (Part #: C27060-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F72867-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-753	Scale - Push/Pull, 0-25 pound (0-11 kilogram) Capacity, 1/4 pound (113 gram) Accuracy

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

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E. Prepare for the Adjustment

SUBTASK 27-11-00-480-011

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-11-00-860-026

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-11-00-820-012

(3) Make sure the springs [63] on the feel and centering unit [61] are not loose.

(a) If the springs [63] are loose, tighten the nuts [65] on the eyebolts [66] until you see 4 to 5 threads beyond the nuts [65].

(b) Do not stretch the springs [63] from free length.

F. Aileron Feel and Centering Unit Adjustment

SUBTASK 27-11-00-860-027

(1) Shake the control wheels to make sure that the wheels are in the neutral position.

SUBTASK 27-11-00-710-001

(2) Do this task: Control Wheel Centering Check, TASK 27-11-00-700-804.

SUBTASK 27-11-00-970-001

(3) Measure the control wheel breakout force in the clockwise and counterclockwise directions:

(a) Install the adapter, SPL-1674 to the captain's control wheel.

NOTE: If the adapter is not available, put a tangent force to the captain's control wheel at a 6.5 inch (165 millimeters) radius.

(b) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 to the first officer's control wheel.

(c) Set the indicator on the control column assembly protractor, SPL-1680 to zero degrees.

(d) Turn the control wheel clockwise until the aileron starts to move.

1) Using a push/pull scale 0-25 pound (0-11 kilogram), STD-753. Make sure the force to turn the control wheel is not more than 29.0 pound-inches (3.2 newton-meters) or 4.5 pounds (20.0 newtons).

(e) Release the control wheel.

(f) Turn the control wheel counterclockwise until the aileron starts to move.

1) Using a push/pull scale 0-25 pound (0-11 kilogram), STD-753. Make sure the force to turn the control wheel is not more than 29.0 pound-inches (3.2 newton-meters) or 4.5 pounds (20.0 newtons).

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SUBTASK 27-11-00-820-021

(4) If the control wheels center properly, and breakout forces are within the limits above, then no adjustment is necessary.

SUBTASK 27-11-00-820-013

(5) If the control wheels are not in the center or the breakout forces are out of tolerance, adjust the tension of the springs [63] on the centering unit [61]:

(a) Hold the eyebolt [66] while you tighten or loosen the nut [65] in 1/2 turn increments.

NOTE: You must tighten the two eyebolts [66] equally. Tighten the eyebolts [66] to increase the spring forces. Loosen the eyebolts [66] to decrease the spring forces.

(b) Adjust the nut [65] until the force to turn the control wheel is not more than 29.0 pound-inches (3.3 newton-meters) or 4.5 pounds (20.0 newtons).

(c) Tighten the checknuts [64].

(d) Make sure the shaft [70] can turn freely.

SUBTASK 27-11-00-750-001

(6) After adjustment of breakout forces above, do the following steps to do a check of the breakout forces and make sure the control wheel is centered properly:

(a) Turn the control wheel clockwise until the aileron starts to move.

1) Make sure the force to turn the control wheel is not more than 29.0 pound-inches (3.3 newton-meters) or 4.5 pounds (20.0 newtons).

(b) Release the control wheel.

1) Make sure the control wheel goes back to the neutral position in 0.0 ±0.4 units of trim (2.4 degrees).

(c) Turn the control wheel counterclockwise until the aileron starts to move.

1) Make sure the force to turn the control wheel is not more than 29.0 pound-inches (3.3 newton-meters) or 4.5 pounds (20.0 newtons).

(d) Release the control wheel.

1) Make sure the control wheel goes back to the neutral position in 0.0 ±0.4 units of trim (2.4 degrees).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-080-006

(1) Remove the adapter, SPL-1674 from the captain's aileron control wheel.

SUBTASK 27-11-00-080-007

(2) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the first officer's control wheel.

SUBTASK 27-11-00-080-008

(3) Remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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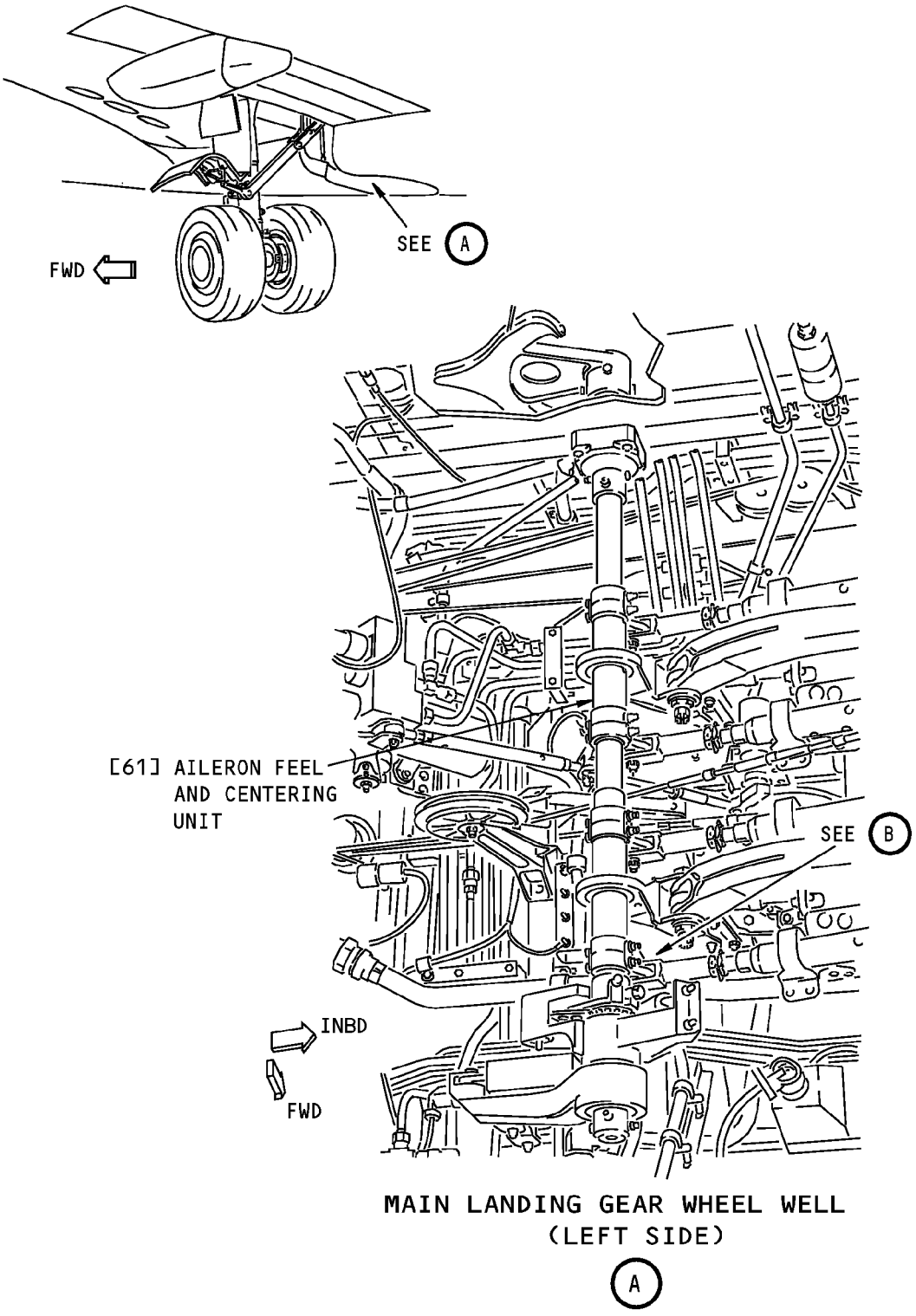

Aileron Feel and Centering Unit Adjustment
Figure 505 (Sheet 1 of 2)/27-11-00-990-806

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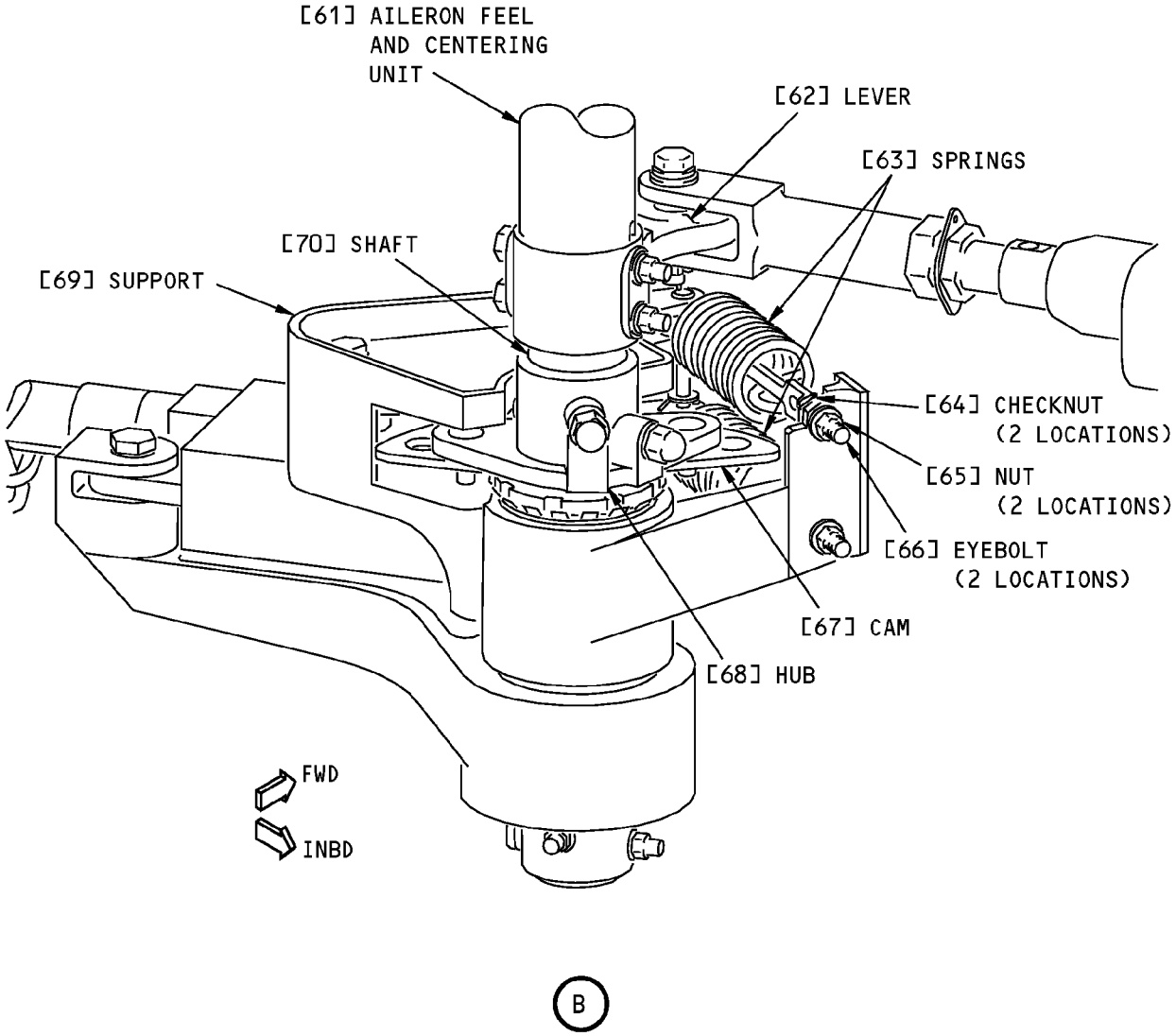

Aileron Feel and Centering Unit Adjustment
Figure 505 (Sheet 2 of 2)/27-11-00-990-806

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TASK 27-11-00-820-805

6. Do A Check of the Aileron System Adjustment

(Figure 506)

A. References

Reference	Title
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1671	Straightedge - Control Wheel (Part #: SE27-0001, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Prepare for the Check

SUBTASK 27-11-00-480-012

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

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SUBTASK 27-11-00-010-002

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

F. Do a Check of the Aileron System Adjustment

SUBTASK 27-11-00-820-014

(1) Do a check of the aileron system adjustment:

(a) Attach the straightedge, SPL-1671 on the captain's and first officer's control wheels.

(b) Make sure you can freely install rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum (Figure 501).

1) If you cannot freely install rig pin A/S-4, do this task: Pogo and Power Control Unit (PCU) Adjustment, TASK 27-11-00-820-802.

(c) Remove rig pin A/S-4 from the aileron bus drum.

(d) Remove the straightedge, SPL-1671 from the captain's and first officer's control wheels.

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WITH THE PRESSURIZATION OF A HYDRAULIC SYSTEM. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(e) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(f) Operate the aileron trim switches on the control stand panel, P8, until you can freely install and remove the rig pin A/S-15 from the rig pin kit, SPL-1585 (Figure 501).

(g) Make sure the captain's control wheel is the center of the neutral position.

1) Gently move the control wheel in the backlash band.

2) Make sure the center of the backlash band aligns with the protractor zero position.

(h) Make sure the index mark on the captain's control wheel aligns with the zero mark on the control column.

(i) Attach the straightedge, SPL-1671 on the captain's and first officer's control wheels.

(j) Make sure the top ends of the control wheels touch the straightedge, SPL-1671.

(k) Make sure that one end of the first officer's control wheel is no more than 0.20 inch (5.1 mm) from the straightedge, SPL-1671.

1) If the control wheels do not align, adjust the cables ACBA ACBB. To adjust the cables, do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

(l) Make sure you can freely install and remove these rig pins from the rig pin kit, SPL-1585 (Figure 501):

NOTE: Install these rig pins at the same time.

1) Rig pins A/S-1 and A/S-1A at the forward drum

2) Rig pin A/S-3 in the aileron input crank

3) Rig pin A/S-4 in the aileron bus drum

4) Rig pin A/S-15 in the aileron trim actuator.

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(m) If you cannot freely install and remove the above rig pins, adjust the cables AA and AB. To adjust the cables, do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

(n) Remove the straightedge, SPL-1671 from the captain's and first officer's control wheels.

WARNING: MAKE SURE PERSONS AND EQUPIMENT ARE CLEAR OF THE TRAILING EDGE FLAPS, THE LEADING EDGE FLAPS AND SLATS. THE FLAPS AND SLATS WILL EXTEND. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(o) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

HAP 101-999

(p) Make sure the aileron is in the rig position (Figure 506).

NOTE: The aileron rig position is measured 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, inboard corner of the fixed lower panel, and 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, outboard corner of the aileron. At this location, the distance between the lower surface of the fixed lower panel and the lower surface of the aileron should be 0.38 ± 0.03 inch (9.65 ± 0.76 mm).

HAP 001-013, 015-026, 028-054

(q) Make sure the aileron is in the rig position (Figure 506).

NOTE: The aileron rig position is measured 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, inboard corner of the fixed lower panel, and 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, outboard corner of the aileron. At this location, the distance between the lower surface of the fixed lower panel and the lower surface of the aileron should be 0.19 ± 0.03 inch (4.83 ± 0.76 mm).

1) If the aileron is not in the rig position, adjust the cables ABSA and ABSB. To adjust the cables, do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

HAP ALL

(r) Make sure the aileron balance tab aligns with the aileron:

1) Measure the distance between the rig position of the aileron balance tab [1] to the aileron lower surface (dimension A) at these three positions (Figure 504):

NOTE: You must measure from the lower aft most point of the aileron balance tab [1].

HAP 101-999

a) At the outboard end of the aileron balance tab, make sure the dimension A is 0.12 ±0.07 inch (3.1 ±1.8 millimeters) or 1.64 ±0.50 degrees.

b) At the middle point along the aileron balance tab, make sure the dimension A is 0.13 ±0.07 inch (3.3 ±1.8 millimeters) or 1.21 ±0.50 degrees.

c) At the inboard end of the aileron balance tab, make sure the dimension A is 0.14 ±0.07 inch (3.6 ±1.8 millimeters) or 0.68 ±0.50 degrees.

HAP 001-013, 015-026, 028-054

d) At the outboard end of the aileron balance tab, make sure the dimension A is 0.06 ±0.07 inch (1.5 ±1.8 millimeters) or 0.82 ±0.25 degrees.

e) At the middle point along the aileron balance tab, make sure the dimension A is 0.065 ±0.070 inch (1.7 ±1.8 millimeters) or 0.60 ±0.25 degrees.

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f) At the inboard end of the aileron balance tab, make sure the dimension A is 0.07 ±0.07 inch (1.8 ±1.8 millimeters) or 0.34 ±0.25 degrees.

HAP ALL

2) If the aileron balance tab does not align with the aileron, do this task: Aileron Balance Tab Adjustment, TASK 27-11-00-820-803.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-410-002

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-11-00-860-028

(2) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-11-00-860-029

(3) Remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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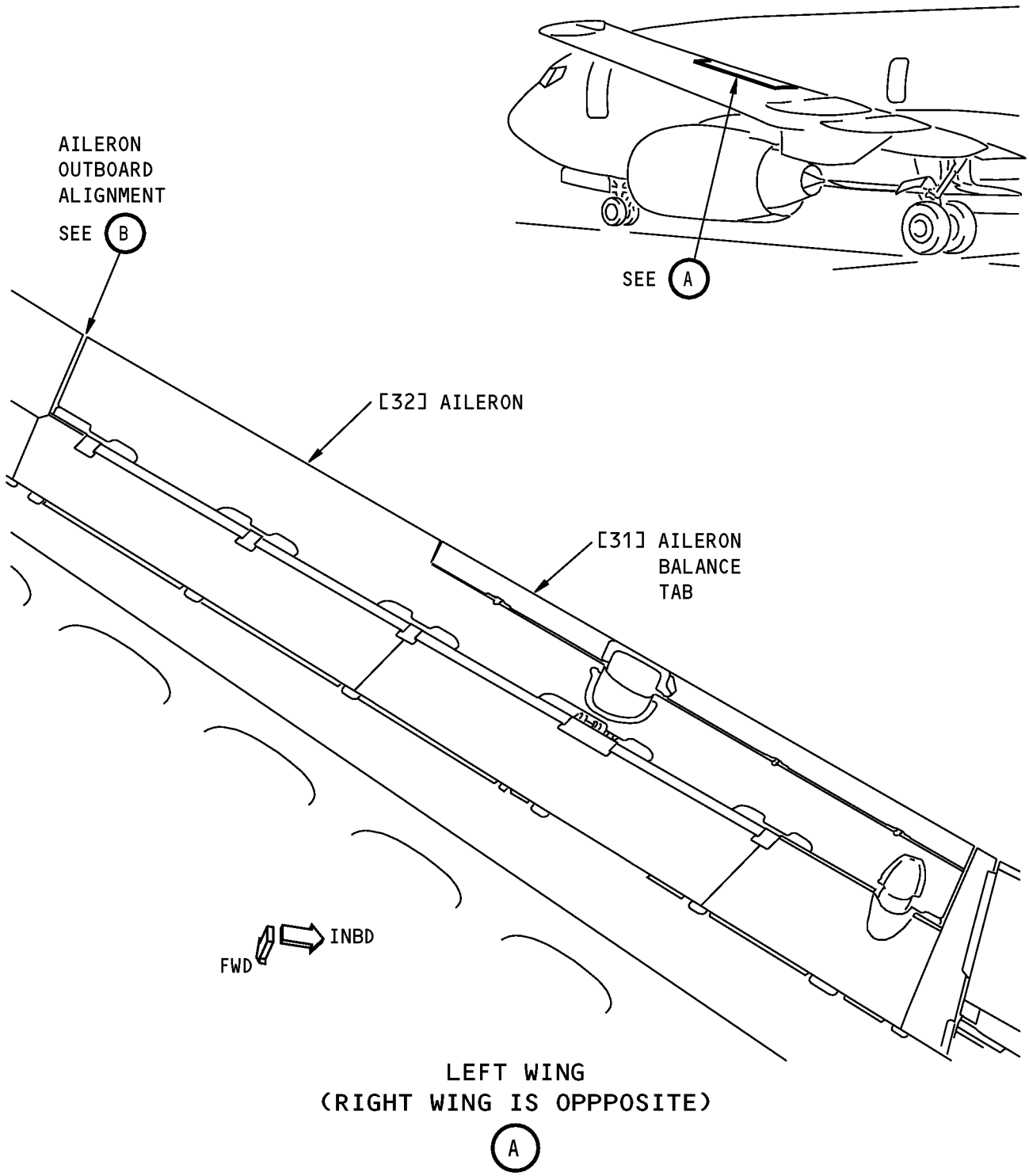

Aileron System Adjustment
Figure 506 (Sheet 1 of 3)/27-11-00-990-807

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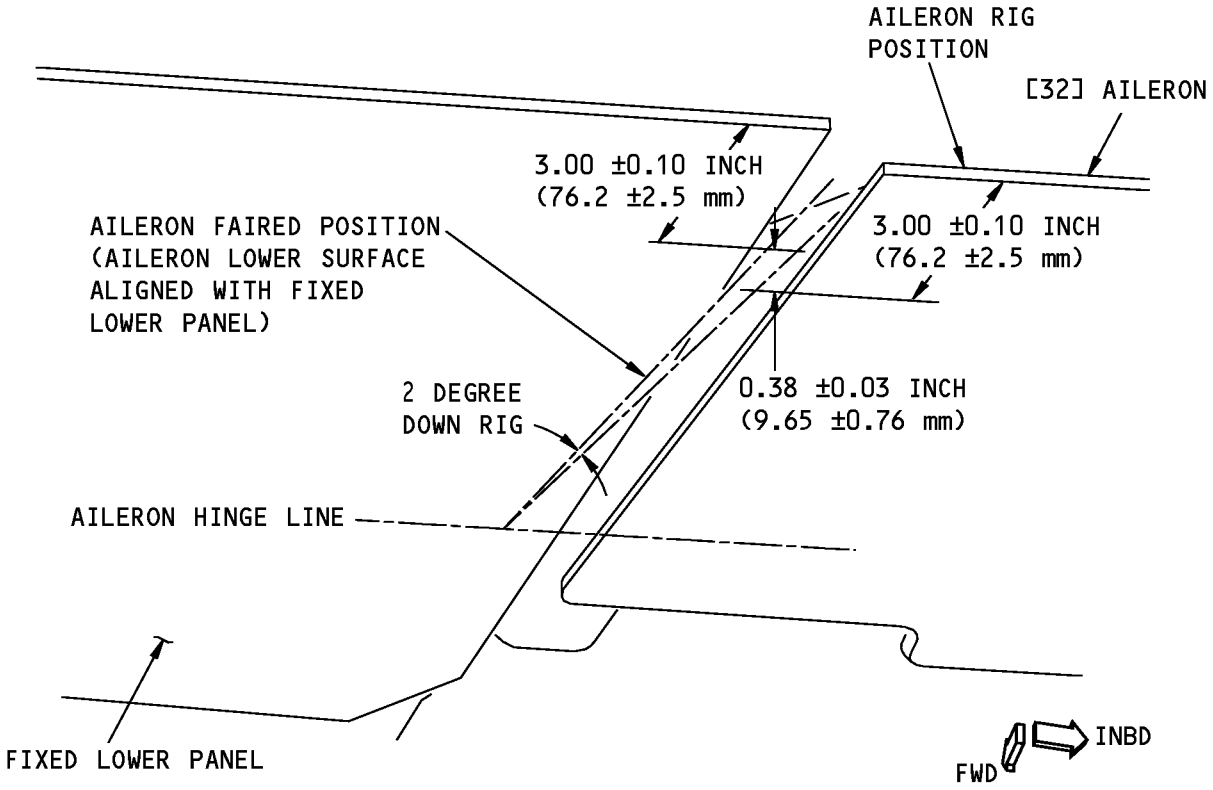

AILERON OUTBOARD ALIGNMENT

B

H48221 S0006568693_V3

Aileron System Adjustment
Figure 506 (Sheet 2 of 3)/27-11-00-990-807

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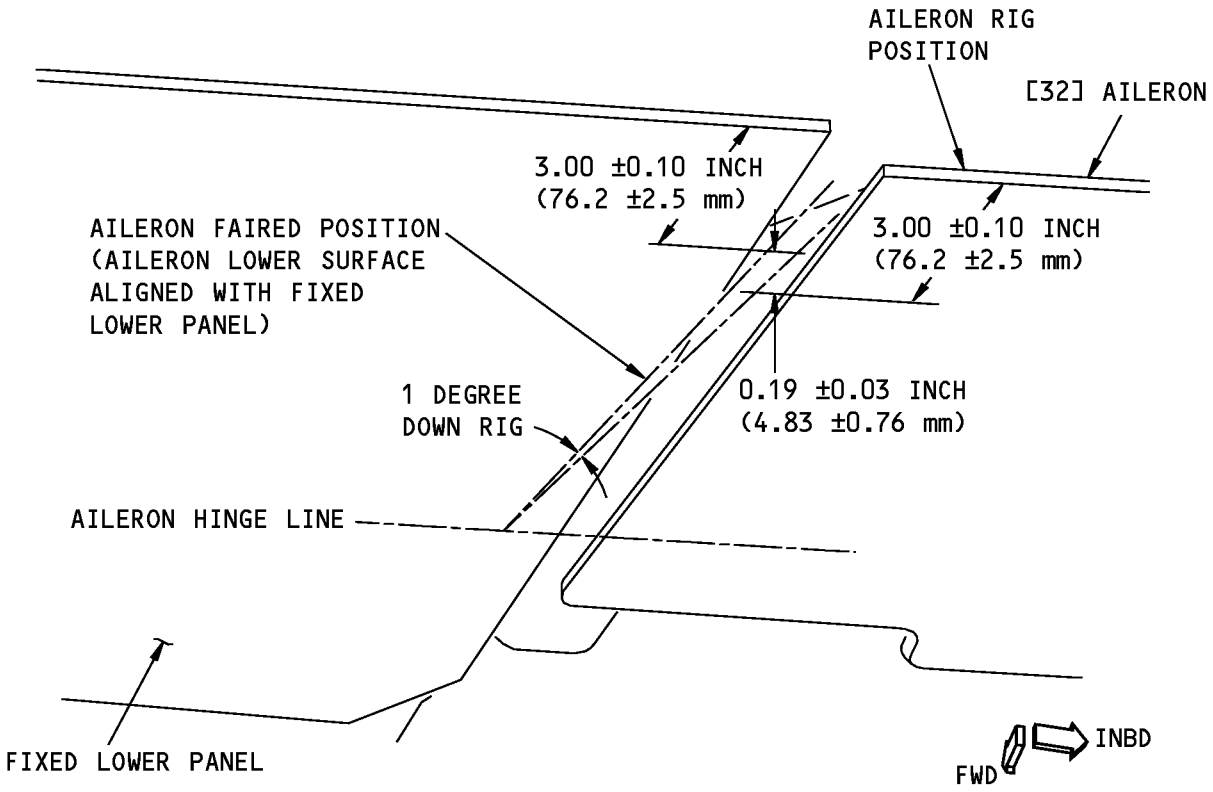

AILERON OUTBOARD ALIGNMENT

B

H48137 S0006568694_V3

Aileron System Adjustment
Figure 506 (Sheet 3 of 3)/27-11-00-990-807

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TASK 27-11-00-700-801

7. Aileron Surface Friction and Motion Test

(Figure 506, Figure 507)

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Test

SUBTASK 27-11-00-860-030

(1) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-00-020-001

(2) Disconnect the aileron control rod [81] from the aileron [32]. (Figure 507)

(a) Remove the pin [82], nut [83], washer [84], bushing [85], washer [88] and bolt [89] to disconnect the aileron control rod [81] from the aileron [32].

SUBTASK 27-11-00-860-099

(3) Make sure that the Flap Lever is in the up, retracted position.

D. Do a Test of the Aileron Friction and Motion

SUBTASK 27-11-00-720-001

(1) Do a test of the aileron friction and motion:

NOTE: During this test, the force is positive (+) if you need to push the aileron to get it to a specified position. The force is negative (-) if you need to hold the aileron to keep it at a specified position.

HAP 101-999

(a) Move the aileron surface to the rig position and release.

NOTE: The aileron rig position is measured 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, inboard corner of the fixed lower panel, and 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, outboard corner of the aileron. At this location, the distance between the lower surface of the fixed lower panel and the lower surface of the aileron should be 0.38 ± 0.03 inch (9.65 ± 0.76 mm) (Figure 506).

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HAP 001-013, 015-026, 028-054

(b) Move the aileron surface to the rig position and release.

NOTE: The aileron rig position is measured 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, inboard corner of the fixed lower panel, and 3.0 ± 0.10 inch (76.2 ± 2.5 mm) forward of the aft, outboard corner of the aileron. At this location, the distance between the lower surface of the fixed lower panel and the lower surface of the aileron should be 0.19 ± 0.03 inch (4.83 ± 0.76 mm) (Figure 506).

HAP ALL

(c) If the aileron moves away from the rig position, do these steps:

1) Hold the aileron at the rig position with a force scale at 8.75 ±0.50 inches (222.3 ±12.7 millimeters) aft of the hinge centerline and perpendicular to the aileron chord plane. (held negative (-) force)
2) Slowly apply or relax the force as it is necessary until the aileron moves up and down from the rig position.
   a) Measure the force that is necessary to move the aileron up (up positive (+) force).
   b) Measure the force that is necessary to move the aileron down (down positive (+) force).
3) Add the up force with the down force.

   NOTE: Add the forces with the same signs. Subtract forces with the opposite signs.
4) Make sure the total of the two values is not more than 5 pounds (22.2 newtons).

(d) If the aileron does not move away from the rig position, do these steps;

1) Slowly apply a force perpendicular to the aileron chord plane 8.75 ±0.5 inches (222.3 ±12.7 millimeters) aft of the hinge centerline.
2) Measure the force that is necessary to move the aileron up (up force).
3) Measure the force that is necessary to move the aileron down (down force).
4) Add the up force with the down force.

   NOTE: Add the forces with the same signs. Subtract forces with the opposite signs.
5) Make sure the total of the two forces is not more than 5 pounds (22.2 newtons).

(e) Measure the maximum positive force necessary to move the aileron to these specified positions:

1) Make sure that the aileron moves smoothly throughout its travel, and that there is no binding at the aileron hinges and seals.
2) Move the aileron from the rig position to the full down position.
3) Move the aileron from the full down position to the full up position.
4) Move the aileron from the full up position to the rig position.

(f) Make sure the force is not more than 13 pounds (58 newtons) for aileron down.

(g) Make sure the force is not more than 3 pounds for (13 newtons) aileron up.

(h) Measure the aileron travel before the aileron touches the wing structure at the upper and lower limits of travel.

NOTE: Apply only enough force to maintain contact while you measure the aileron travel.

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1) Make sure the aileron travels a minimum of 3.67 inches (93.2 millimeters) up before the aileron touches the structure.

2) Make sure the aileron travels a minimum of 3.15 inches (80.0 millimeters) down before the aileron touches the structure.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-020-002

(1) Connect the aileron control rod [81] to the aileron [32].

(a) Install the bushing [85], bolt [89], washer [88], washer [84], nut [83], and pin [82] to connect the aileron control rod [81] to the aileron.

SUBTASK 27-11-00-860-031

(2) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

——————— END OF TASK ———————

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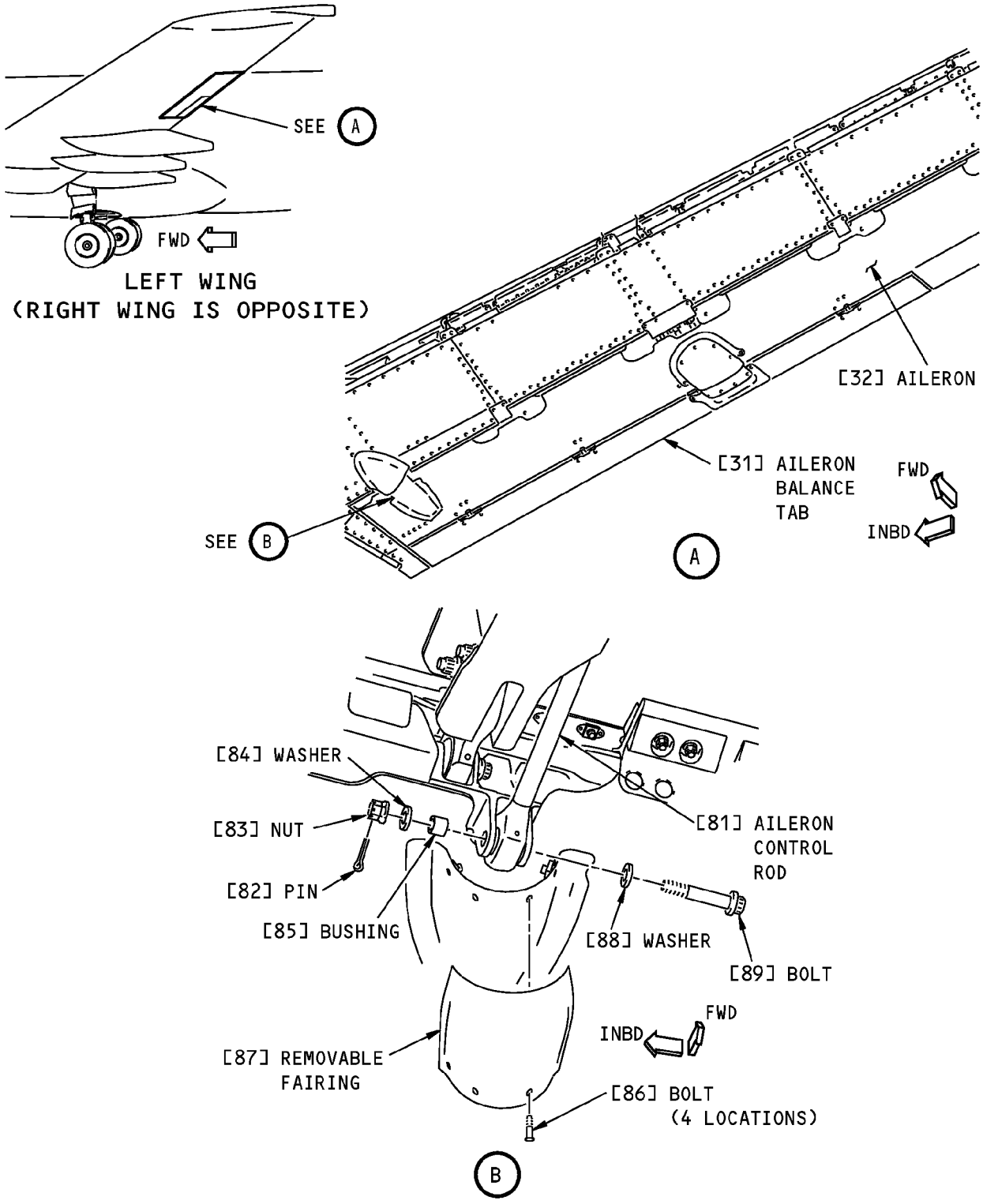

Aileron Surface Friction and Motion Test
Figure 507/27-11-00-990-808

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TASK 27-11-00-700-802

8. First Officer's Control Wheel Lost Motion Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Prepare for the Test

SUBTASK 27-11-00-860-032

(1) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-00-860-033

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-11-00-010-003

(3) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-11-00-860-034

(4) Make sure you can freely install and remove the rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron trim actuator (Figure 501).

SUBTASK 27-11-00-480-013

(5) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 to the first officer's control wheel.

(a) Set the indicator on the control column assembly protractor, SPL-1680 to zero degrees.

F. First Officer's Control Wheel Lost Motion Test

SUBTASK 27-11-00-720-002

(1) Do a lost motion test of the first officer's control wheel:

(a) Make sure you can freely install the rig pin A/S-3, from the rig pin kit, SPL-1585, in the aileron input crank (Figure 501).

(b) Turn the first officer's control wheel clockwise from the neutral position to the lost motion device stop.

1) Make sure the control wheel turns 12 ±1 degrees from the neutral position.

(c) Turn the first officer's control wheel counterclockwise from the neutral position to the lost motion device stop.

1) Make sure the control wheel turns 12 ±1 degrees from the neutral position.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-080-009

(1) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the first officer's control wheel.

SUBTASK 27-11-00-080-010

(2) Remove the rig pin A/S-3, from the rig pin kit, SPL-1585, from the pogo lever.

SUBTASK 27-11-00-860-035

(3) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-00-010-004

(4) Close this access panel:

Number	Name/Location
112A	Forward Access Door

——————— END OF TASK ———————

TASK 27-11-00-700-803

9. Manual Reversion Control Friction Test

A. General

(1) This procedure is a scheduled maintenance task.

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B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1674	Assembly - Adapter, Control Wheel, Torque and Force Test (Part #: C27060-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F72867-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1293	Wrench - Torque (100 Lb-In)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Prepare for the Test

SUBTASK 27-11-00-860-036

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-00-480-014

(2) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 to the first officer's control wheel.

SUBTASK 27-11-00-480-015

(3) Install the adapter, SPL-1674 to the captain's control wheel.

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SUBTASK 27-11-00-860-037

(4) Make sure the aileron trim system is at the center.

SUBTASK 27-11-00-860-038

(5) Set the control column assembly protractor, SPL-1680 to zero degrees.

F. Manual Reversion Control Friction Test

SUBTASK 27-11-00-730-001

(1) Do the manual reversion control friction test:

(a) Use the torque wrench (100 Lb-In), STD-1293 on the adapter, SPL-1674 to measure the force that is necessary to turn the captain's control wheels in the clockwise direction.

NOTE: If the adapter, SPL-1674 is not available, apply a tangent force to the captain's control wheel at 6.5 inch (165 millimeters) radius.

1) Turn the control wheel clockwise until the ailerons start to move.

a) Make sure the force is not more than 215 pound-inches (24.3 newton-meters) or 33.1 pounds (147.2 newtons).

2) Continue to turn the control wheel to 20 degrees.

a) Make sure the force is not more than 243 pound-inches (27.5 newton-meters) or 37.4 pounds (166.4 newtons).

3) Continue to turn the control wheel to 40 degrees.

a) Make sure the force is not more than 279 pound-inches (31.5 newton-meters) or 42.9 pounds (190.8 newtons).

4) Continue to turn the control wheel to 75 degrees.

a) Make sure the force is not more than 333 pound-inches (37.6 newton-meters) or 51.2 pounds (227.7 newtons).

(b) Measure the force that is necessary to turn the captain's control wheel in the counterclockwise direction.

NOTE: If the adapter, SPL-1674 is not available, apply a tangent force to the captain's control wheel at 6.5 inch (165 millimeters) radius.

1) Turn the control wheel counterclockwise until the ailerons start to move.

a) Make sure the force is not more than 215 pound-inches (24.3 newton-meters) or 33.1 pounds (147.2 newtons).

2) Continue to turn the control wheel to 20 degrees.

a) Make sure the force is not more than 243 pound-inches (27.5 newton-meters) or 37.4 pounds (166.4 newtons).

3) Continue to turn the control wheel to 40 degrees.

a) Make sure the force is not more than 279 pound-inches (31.5 newton-meters) or 42.9 pounds (190.8 newtons).

4) Continue to turn the control wheel to 75 degrees.

a) Make sure the force is not more than 333 pound-inches (37.6 newton-meters) or 51.2 pounds (227.7 newtons).

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-080-011

(1) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the first officer's control wheel.

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SUBTASK 27-11-00-080-012

(2) Remove the adapter, SPL-1674 from the captain's control wheel.

SUBTASK 27-11-00-860-089

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

TASK 27-11-00-710-801

10. Aileron Response (Operational) Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

C. Prepare for the Test

SUBTASK 27-11-00-860-039

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-00-860-040

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WITH THE PRESSURIZATION OF A HYDRAULIC SYSTEM. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

D. Do the Aileron Response Test

SUBTASK 27-11-00-710-002

(1) Do the aileron response test:

(a) Turn the aileron control wheel through full travel in each direction from the neutral position.

1) Make sure the ailerons can move smoothly through the full range of travel.

(b) Remove pressure from the hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(c) Turn the aileron control wheel clockwise from the neutral position.

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1) Make sure the trailing edges of the left aileron moves down and the aileron tab moves up.

2) Make sure the trailing edges of the right aileron moves up and the aileron tab moves down.

(d) Turn the aileron control wheel counterclockwise from the neutral position.

1) Make sure the trailing edges of the left aileron moves up and the aileron tab moves down.

2) Make sure the trailing edges of the right aileron moves down and the aileron tab moves up.

(e) Remove pressure from the hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(f) Pressurize the hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(g) Turn the aileron control wheel clockwise from the neutral position.

1) Make sure the trailing edges of the left aileron moves down and the aileron tab moves up.

2) Make sure the trailing edges of the right aileron moves up and the aileron tab moves down.

(h) Turn the aileron control wheel counterclockwise from the neutral position.

1) Make sure the trailing edges of the left aileron moves up and the aileron tab moves down.

2) Make sure the trailing edges of the right aileron moves down and the aileron tab moves up.

E. Put the Airplane Back to its Usual Condition

SUBTASK 27-11-00-860-041

(1) Remove pressure from the hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-11-00-860-090

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———————— END OF TASK ————————

TASK 27-11-00-700-804

11. Control Wheel Centering Check

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

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C. Prepare for the Check

SUBTASK 27-11-00-860-042

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-00-860-043

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WITH THE PRESSURIZATION OF A HYDRAULIC SYSTEM. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

D. Do the Centering Check

SUBTASK 27-11-00-720-003

(1) Do the centering check:

(a) Turn the captain's control wheel clockwise from the neutral position (zero units) to 6 units of trim.

(b) Turn the captain's control wheel back to 2 units of trim and release the control wheel.

(c) Make sure the control wheel goes back to the neutral position in 0.0 ±0.4 units of trim (±2.4 degrees).

(d) Turn the captain's control wheel counterclockwise from the neutral position (zero units) to 6 units of trim.

(e) Turn the captain's control wheel back to 2 units of trim and release the control wheel.

(f) Make sure the control wheel goes back to the neutral position in 0.0 ±0.4 units of trim (±2.4 degrees).

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-860-044

(1) Remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-11-00-860-091

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

TASK 27-11-00-700-805

12. Aileron Control Wheel Force Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

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B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1674	Assembly - Adapter, Control Wheel, Torque and Force Test (Part #: C27060-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F72867-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 27-11-00-860-045

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-00-860-046

(2) Make sure you can freely install and remove the rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron trim actuator.

SUBTASK 27-11-00-860-047

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF ALL FLIGHT CONTROL SURFACES, THE THRUST REVERSERS AND THE LANDING GEAR. THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS AND THE LANDING GEAR CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-11-00-480-016

(4) Install the adapter, SPL-1674 to the captain's control wheel.

NOTE: If the adapter is not available, put a tangent force to the captain's control wheel at a 6.5 inch (165 millimeters) radius.

SUBTASK 27-11-00-480-017

(5) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 to the first officer's control wheel.

E. Do a Test of the Control Wheel Force

SUBTASK 27-11-00-730-002

(1) Do a check of the control wheel force:

(a) Set the indicator on the control column assembly protractor, SPL-1680 to zero degrees.

(b) Turn the control wheel clockwise until the aileron starts to move.

1) Make sure the force to turn the control wheel is not more than 29.0 pound-inches (3.2 newton-meters) or 4.5 pounds (20.0 newtons).

(c) Continue to turn the control wheel clockwise to 5 degrees.

1) Make sure the force to turn the control wheel is not more than 35.5 pound-inches (4.0 newton-meters) or 5.5 pounds (24.4 newtons).

(d) Continue to turn the control wheel clockwise to 20 degrees.

1) Make sure the force to turn the control wheel is not more than 56.0 pound-inches (6.3 newton-meters) or 8.5 pounds (37.8 newtons).

(e) Continue to turn the control wheel clockwise to 40 degrees.

1) Make sure the force to turn the control wheel is not more than 89.5 pound-inches (10.1 newton-meters) or 14.0 pounds (62.2 newtons).

(f) Continue to turn the control wheel clockwise to 75 degrees.

1) Make sure the force to turn the control wheel is not more than 123.5 pound-inches (13.9 newton-meters) or 19.0 pounds (84.5 newtons).

(g) Release the control wheel.

1) Make sure the control wheel goes back to the neutral position.

(h) Turn the control wheel counterclockwise until the aileron starts to move.

1) Make sure the force to turn the control wheel is not more than 29.0 pound-inches (3.2 newton-meters) or 4.5 pounds (20.0 newtons).

(i) Continue to turn the control wheel counterclockwise to 5 degrees.

1) Make sure the force to turn the control wheel is not more than 35.5 pound-inches (4.0 newton-meters) or 5.5 pounds (24.4 newtons).

(j) Continue to turn the control wheel counterclockwise to 20 degrees.

1) Make sure the force to turn the control wheel is not more than 56.0 pound-inches (6.3 newton-meters) or 8.5 pounds (37.8 newtons).

(k) Continue to turn the control wheel counterclockwise to 40 degrees.

1) Make sure the force to turn the control wheel is not more than 89.5 pound-inches (10.1 newton-meters) or 14.0 pounds (62.2 newtons).

(l) Continue to turn the control wheel counterclockwise to 75 degrees.

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1) Make sure the force to turn the control wheel is not more than 123.5 pound-inches (13.9 newton-meters) or 19.0 pounds (84.5 newtons).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-080-013

(1) Remove the adapter, SPL-1674 from the captain's aileron control wheel.

SUBTASK 27-11-00-080-014

(2) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the first officer's control wheel.

SUBTASK 27-11-00-080-015

(3) Remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-11-00-860-092

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

TASK 27-11-00-730-801

13. Aileron Trim Response Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1674	Assembly - Adapter, Control Wheel, Torque and Force Test (Part #: C27060-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F72867-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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(Continued)

Reference	Description
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Aileron Trim Response Test

SUBTASK 27-11-00-860-048

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-00-860-049

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-11-00-860-050

(3) Make sure you can freely install and remove the rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron trim actuator.

SUBTASK 27-11-00-480-023

(4) Install the adapter, SPL-1674 to the captain's control wheel.

NOTE: If the adapter is not available, put a tangent force to the captain's control wheel at a 6.5 inch (165 millimeters) radius.

SUBTASK 27-11-00-480-024

(5) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 to the first officer's control wheel.

SUBTASK 27-11-00-730-003

(6) Do a test of the aileron trim response:

(a) Shake the captain's control wheel to put the aileron control system at the center.

(b) Make sure the pointer decal on the captain's and first officer's control wheels aligns with the aileron trim decal (zero unit) to a tolerance of 0.00 ±0.02 inches (0.00 ±0.5 millimeters).

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(c) At the same time, operate the aileron trim switches, on the control stand, in the LEFT WING DOWN direction until the trim actuator stops.

1) Measure the movement of the captain's and first officer's control wheels from the neutral position.

2) Make sure the two control wheels turn counterclockwise a minimum of 9.5 trim indicator units in 24 ±1 seconds.

NOTE: When reading control wheel position, make sure the control system is centered in the detent by shaking the control wheel.

(d) Move the control wheels to the zero unit position to a tolerance of 0.00 ±0.02 inches (0.0 ±0.5 millimeters).

(e) Shake the captain's control wheel to put the aileron control system at the center.

(f) At the same time, operate the aileron trim switches in the RIGHT WING DOWN direction until the trim actuator stops.

1) Measure the movement of the captain's and first officer's control wheels from the neutral position.

2) Make sure the two control wheels turn clockwise a minimum of 9.5 trim indicator units in 24 ±1 seconds.

NOTE: When reading control wheel position, make sure the control system is centered in the detent by shaking the control wheel.

(g) Move the aileron trim switches to make sure the aileron trim is at the RIGHT WING DOWN stop.

(h) Manually turn the captain's control wheel 105 degrees clockwise.

(i) Turn the captain's control wheel back to the neutral position.

(j) Turn and hold the captain's control wheel at 75 degrees counterclockwise.

1) Make sure the control wheel moves freely through travel.

2) Make sure the force to hold the control wheel is not more than 137 pound-inches (15.5 newton-meters) or 21 pounds (93.4 newtons) at 6.5 inches (165 millimeters) radius.

(k) Release the captain's control wheel.

1) Make sure the control wheel goes back to the trim position of 57 degrees minimum clockwise.

(l) At the same time, operate the aileron trim switches in the LEFT WING DOWN direction until the trim actuator stops.

1) Make sure the control wheel turns counterclockwise a minimum of 9.5 trim indicator units.

(m) Manually turn the captain's control wheel 105 degrees counterclockwise.

(n) Turn the captain's control wheel back to the neutral position.

(o) Turn and hold the captain's control wheel at 75 degrees clockwise.

1) Make sure the control wheel moves freely through travel.

2) Make sure the force to hold the control wheel is not more than 137 pound-inches (15.5 newton-meters) or 21 pounds (93.4 newtons) at 6.5 inches (165 millimeters) radius.

(p) Release the captain's control wheel.

1) Make sure the control wheel goes back to the trim position of 57 degrees minimum counterclockwise.

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(q) At the same time, operate the aileron trim switches to put the control wheels at approximately 0 units of trim.

(r) Operate one aileron trim switch in the LEFT WING DOWN direction then the RIGHT WING DOWN direction.

1) Make sure the control wheels do not move.

(s) Operate the other aileron trim switch in the LEFT WING DOWN direction then the RIGHT WING DOWN direction.

1) Make sure the control wheels do not move.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-080-018

(1) Remove the adapter, SPL-1674 from the captain's aileron control wheel.

SUBTASK 27-11-00-080-019

(2) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the first officer's control wheel.

SUBTASK 27-11-00-860-051

(3) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-11-00-860-093

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

TASK 27-11-00-710-802

14. Aileron Spring Cartridge and Transfer Mechanism Operational Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 27-11-00-860-064

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-11-00-860-065

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WITH THE PRESSURIZATION OF A HYDRAULIC SYSTEM. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-11-00-210-005

(3) Make sure the FLT CONTROL A and B switches, on the forward overhead panel P5, are ON.

SUBTASK 27-11-00-860-066

(4) Make sure that the aileron trim control system is at the neutral position.

E. Aileron Spring Cartridge and Transfer Mechanism Operational Test

SUBTASK 27-11-00-710-003

(1) Do the operational test of the spring cartridge and the transfer mechanism:

(a) Operate the two aileron trim switches to put the aileron control wheels to the neutral (zero unit) position.

(b) Shake the control wheel to center the aileron system.

(c) Turn the captain's control wheel fully clockwise and hold.

(d) Turn the first officer's control wheel counterclockwise through neutral and beyond 10 units left aileron, and return the control wheel to neutral.

1) After the initial breakout, the force required to continue wheel motion should increase steadily and smoothly.

Verify that there is no binding or sudden increase in the force required to turn the wheel.

2) Make sure the aileron spring cartridge extends and can move freely while you turn the control wheel.

(e) Turn the captain's control wheel fully counterclockwise and hold.

(f) Turn the first officer's control wheel clockwise through neutral and beyond 10 units right aileron, and return the control wheel to neutral.

1) After the initial breakout, the force required to continue wheel motion should increase steadily and smoothly.

Verify that there is no binding or sudden increase in the force required to turn the wheel.

2) Make sure the aileron spring cartridge compresses and can move freely while you turn the control wheel.

(g) Return the captain's control wheel to neutral.

(h) Insert a 0.0625 inch (1.6 mm) pin a minimum distance of .50 inch (12.7 mm) into the inspection hole in the aileron input crank (Fig. 501) to verify that the crank has not moved on the shaft and the shear rivets in the crank are not sheared.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-860-067

(1) Remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

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SUBTASK 27-11-00-860-094

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

TASK 27-11-00-700-806

15. Aileron Spring Cartridge and Transfer Mechanism Functional Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1674	Assembly - Adapter, Control Wheel, Torque and Force Test (Part #: C27060-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F72867-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

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E. Prepare for the Test

SUBTASK 27-11-00-860-052

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-00-860-053

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WITH THE PRESSURIZATION OF A HYDRAULIC SYSTEM. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-11-00-210-002

(3) Make sure the FLT CONTROL A and B switches, on the forward overhead panel P5, are ON.

SUBTASK 27-11-00-860-054

(4) Make sure you can freely install and remove the rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron trim actuator Figure 501.

SUBTASK 27-11-00-480-018

(5) Install the mount, SPL-1670, the control column assembly protractor, SPL-1680, and the adapter, SPL-1674 on the captain's control wheel.

NOTE: If the adapter, SPL-1674 is not available, apply a tangent force to the captain's control wheel at 6.5 inches (165 millimeters) radius.

F. Aileron Spring Cartridge and Transfer Mechanism Functional Test

SUBTASK 27-11-00-720-004

(1) Do the functional test of the aileron spring cartridge and transfer mechanism:

(a) Operate the two aileron trim switches to put the aileron control wheels to the neutral (zero unit) position.

(b) Shake the control wheel to center the aileron system.

(c) Hold the first officer's control wheel at the neutral position.

(d) Turn the captain's control wheel clockwise to 75 degrees from the neutral position.

1) Make sure the aileron spring cartridge [17] extends while you turn the control wheel.

2) Make sure the maximum breakout force is 436 pound-inches (49.2 newton-meters) or 67 pounds (298.0 newtons).

NOTE: The ''breakout'' force occurs when the captain's control wheel starts to move with the first officer's control wheel hold in the neutral position.

3) Make sure the maximum force at 75 degrees is 676 pound-inches (76.3 newton-meters) or 104 pounds (462.6 newtons).

(e) Turn the captain's control wheel counterclockwise to 75 degrees from the neutral position.

1) Make sure the aileron spring cartridge [17] compresses while you turn the control wheel.

2) Make sure the maximum breakout force is 436 pound-inches (49.2 newton-meters) or 67 pounds (298.0 newtons).

3) Make sure the maximum force at 75 degrees is 676 pound-inches (76.3 newton-meters) or 104 pounds (462.6 newtons).

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(f) Turn and hold the first officer's control wheel clockwise at 80 degrees from the neutral position.

(g) Turn the captain's control wheel counterclockwise until the transfer mechanism stops touch.

1) Make sure the captain's control wheel turns a minimum of 138 degrees from the starting position.

2) Make sure the transfer mechanism can move freely when you turn the control wheel.

(h) Turn and hold the first officer's control wheel counterclockwise at 80 degrees from the neutral position.

(i) Turn the captain's control wheel clockwise until the transfer mechanism stops touch.

1) Make sure the captain's control wheel turns a minimum of 138 degrees from the starting position.

2) Make sure the transfer mechanism can move freely when you turn the control wheel.

(j) Turn and hold the first officer's control wheel clockwise at 80 degrees from the neutral position.

(k) Turn the captain's control wheel counterclockwise 130 degrees from the starting position (80 degrees clockwise).

1) Make sure the aileron spring cartridge [17] extends and can move freely while you turn the control wheel.

2) Make sure the maximum force to turn the captain's control wheel is 1000 pound-inches (112.9 newton-meters) or 154 pounds (684.0 newtons).

(l) Turn and hold the first officer's control wheel counterclockwise at 80 degrees from the neutral position.

(m) Turn the first captain's control wheel clockwise 130 degrees from the starting position (80 degrees counterclockwise).

1) Make sure the aileron spring cartridge [17] compresses and can move freely while you turn the control wheel.

2) Make sure the maximum force to turn the captain's control wheel is 1000 pound-inches (112.9 newton-meters) or 154 pounds (684.0 newtons).

(n) Return both control wheels to neutral.

(o) Insert a 0.0625 inch (1.6 mm) pin a minimum distance of .50 inch (12.7 mm) into the inspection hole in the aileron input crank (Fig. 501) to verify that the crank has not moved on the shaft and the shear rivets in the crank are not sheared.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-860-055

(1) Remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-11-00-080-016

(2) Remove the adapter, SPL-1674, the mount, SPL-1670, and the control column assembly protractor, SPL-1680 from the captain's control wheel.

SUBTASK 27-11-00-860-095

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

END OF TASK

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TASK 27-11-00-700-807

16. Control Wheel Travel Stop Test

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Do a Test of the Control Wheel Travel Stop

SUBTASK 27-11-00-480-025

(1) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 on the first officer's control wheel.

(a) Set the indicator on the control column assembly protractor, SPL-1680 to zero degree.

SUBTASK 27-11-00-860-056

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-00-720-005

(3) Do the test of the control wheel travel stop:

(a) Turn the captain's control wheel clockwise until the control column stops touch.

1) Make sure the first officer's control wheel turns a minimum of 105 degrees.

NOTE: A minimum of 105 degrees control wheel travel is required for the captain's control wheel to touch the forward stop. This large deflection can be necessary for certain flight conditions in manual reversion.

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The system reaches the aft quadrant stop at approximately 90 degrees. Additional force will be necessary to stretch the control cable past 90 degrees until the control column stops touch.

(b) Turn the captain's control wheel counterclockwise until the control column stops touch.

1) Make sure the first officer's control wheel moves freely and turns a minimum of 105 degrees.

NOTE: Turn the control wheel 105 degrees clockwise to make sure the minimum travel requirements of the control wheel are met and that there are no obstructions in the control column and control wheel installations. A minimum of 105 degrees control wheel travel is required for the captain's control wheel to touch the forward stop. This large deflection can be necessary for certain flight conditions in manual reversion. The system reaches the aft stops at approximately 90 degrees. Apply additional force to turn the control wheel more than 90-95 degrees. The control cables stretch slightly when the control wheels are turned beyond 90 degrees.

SUBTASK 27-11-00-860-096

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 27-11-00-080-021

(5) Remove the control column assembly protractor, SPL-1680 and the mount, SPL-1670 from the first officer's control wheel.

———————— END OF TASK ————————

TASK 27-11-00-700-810

17. Control Wheel Travel Interference Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Control Wheel Travel Interference Test

SUBTASK 27-11-00-860-100

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-00-700-002

(2) Do the test of the control wheel travel interference:

(a) Hold the control column full forward and do the following steps:

1) Turn the control wheel to the full left (counterclockwise) position.

2) Make sure the control wheel travel is smooth through the full turn.

3) Turn the control wheel to the center position.

4) Turn the control wheel to the full right (clockwise) position.

5) Make sure the control wheel travel is smooth through the full turn.

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6) Turn the control wheel to the center position.

(b) Hold the control column full aft and do the following steps:

1) Turn the control wheel to the full left (counterclockwise) position.

2) Make sure the control wheel travel is smooth through the full turn.

3) Turn the control wheel to the center position.

4) Turn the control wheel to the full right (clockwise) position.

5) Make sure the control wheel travel is smooth through the full turn.

6) Turn the control wheel to the center position.

7) Return the control column to the neutral position.

SUBTASK 27-11-00-860-101

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

TASK 27-11-00-700-808

18. Aileron Balance Tab Position Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

C. Aileron Balance Tab Position Test

SUBTASK 27-11-00-860-057

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-00-720-006

(2) Do a test of the position of the aileron LEFT balance tab:

NOTE: For all aileron tab measurements in this test, measure the distances from the LOWER surface of the aileron tab at the tip of the trailing edge to the LOWER surface of the aileron at the tip of the trailing edge.

(a) Set the aileron at the rig position (Figure 506).

NOTE: The aileron rig position is when the outboard edge of the aileron upper surface is 0.49 ±0.03 inch (12.4 ±0.8 millimeters) below the adjacent fixed lower trailing edge surface.

(b) Measure the vertical distance from the tip of the outboard trailing edge of the aileron tab to the tip of the adjacent aileron trailing edge.

HAP 101-999

1) Make sure the distance is 0.12 ±0.07 inch (3.05 ±1.8 millimeter).

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HAP 001-013, 015-026, 028-054

2) Make sure the distance is 0.06 ±0.07 inch (1.5 ±1.8 millimeter).

HAP 101-999

(c) Manually move the aileron DOWN so that the tip of the outboard lower trailing edge of the aileron is 3.63 ±0.01 inches (92.2 ±0.25 millimeters) below the tip of the lower trailing edge of the adjacent fixed trailing edge surface.

HAP 001-013, 015-026, 028-054

(d) Manually move the aileron DOWN so that the tip of the outboard lower trailing edge of the aileron is 3.39 ±0.01 inches (86.1 ±0.25 millimeters) below the tip of the lower trailing edge of the adjacent fixed trailing edge surface.

HAP ALL

(e) Measure the distance from the tip of the lower surface of the aileron tab to the tip of the lower surface of the adjacent aileron trailing edge.

HAP 101-999

1) Make sure the aileron balance tab moves UP 0.92 ±0.01 inch (23.4 ±0.25 millimeters) .

HAP 001-013, 015-026, 028-054

2) Make sure the aileron balance tab moves UP 0.86 ±0.01 inch (21.8 ±0.25 millimeters) .

HAP 101-999

(f) Manually move the aileron UP so that the tip of the outboard lower trailing edge of the aileron is 4.35 ±0.01 inches (110.5 ±0.25 millimeters) above the tip of the lower trailing edge of the adjacent fixed trailing edge surface.

HAP 001-013, 015-026, 028-054

(g) Manually move the aileron UP so that the tip of the outboard lower trailing edge of the aileron is 4.59 ±0.01 inches (116.6 ±0.25 millimeters) above the tip of the lower trailing edge of the adjacent fixed trailing edge surface.

HAP ALL

(h) Measure the distance from the tip of the lower surface of the aileron tab to the tip of the lower surface of the adjacent aileron trailing edge.

HAP 101-999

1) Make sure the aileron balance tab moves DOWN 1.10 ±0.01 inch (27.9 ±0.25 millimeters) .

HAP 001-013, 015-026, 028-054

2) Make sure the aileron balance tab moves DOWN 1.16 ±0.01 inch (29.5 ±0.25 millimeters) .

HAP ALL

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SUBTASK 27-11-00-720-007

(3) Do a test of the position of the aileron RIGHT balance tab:

NOTE: For all aileron tab measurements in this test, measure the distances from the LOWER surface of the aileron tab at the tip of the trailing edge to the LOWER surface of the aileron at the tip of the trailing edge.

(a) Set the aileron at the rig position (Figure 506).

NOTE: The aileron rig position is when the outboard edge of the aileron upper surface is 0.49 ±0.03 inch (12.4 ±0.8 millimeters) below the adjacent fixed lower trailing edge surface.

(b) Measure the vertical distance from the tip of the outboard trailing edge of the aileron tab to the tip of the adjacent aileron trailing edge.

HAP 101-999

1) Make sure the distance is 0.12 ±0.07 inch (3.05 ±1.8 millimeter).

HAP 001-013, 015-026, 028-054

2) Make sure the distance is 0.06 ±0.07 inch (1.5 ±1.8 millimeter).

HAP 101-999

(c) Manually move the aileron DOWN so that the tip of the outboard lower trailing edge of the aileron is 3.63 ±0.01 inches (92.2 ±0.25 millimeters) below the tip of the lower trailing edge of the adjacent fixed trailing edge surface.

HAP 001-013, 015-026, 028-054

(d) Manually move the aileron DOWN so that the tip of the outboard lower trailing edge of the aileron is 3.39 ±0.01 inches (86.1 ±0.25 millimeters) below the tip of the lower trailing edge of the adjacent fixed trailing edge surface.

HAP ALL

(e) Measure the distance from the tip of the lower surface of the aileron tab to the tip of the lower surface of the adjacent aileron trailing edge.

HAP 101-999

1) Make sure the aileron balance tab moves UP 0.92 ±0.01 inch (23.4 ±0.25 millimeters) .

HAP 001-013, 015-026, 028-054

2) Make sure the aileron balance tab moves UP 0.86 ±0.01 inch (21.8 ±0.25 millimeters) .

HAP 101-999

(f) Manually move the aileron UP so that the tip of the outboard lower trailing edge of the aileron is 4.35 ±0.01 inches (110.5 ±0.25 millimeters) above the tip of the lower trailing edge of the adjacent fixed trailing edge surface.

HAP 001-013, 015-026, 028-054

(g) Manually move the aileron UP so that the tip of the outboard lower trailing edge of the aileron is 4.59 ±0.01 inches (116.6 ±0.25 millimeters) above the tip of the lower trailing edge of the adjacent fixed trailing edge surface.

HAP ALL

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(h) Measure the distance from the tip of the lower surface of the aileron tab to the tip of the lower surface of the adjacent aileron trailing edge.

HAP 101-999

1) Make sure the aileron balance tab moves DOWN 1.10 ±0.01 inch (27.9 ±0.25 millimeters) .

HAP 001-013, 015-026, 028-054

2) Make sure the aileron balance tab moves DOWN 1.16 ±0.01 inch (29.5 ±0.25 millimeters) .

HAP ALL

SUBTASK 27-11-00-860-097

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

TASK 27-11-00-700-809

19. Aileron Travel Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Prepare for the Test

SUBTASK 27-11-00-860-058

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-11-00-860-059

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THE CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR CAN MOVE SUDDENLY WITH THE PRESSURIZATION OF A HYDRAULIC SYSTEM. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-11-00-480-019

(3) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 to the captain's aileron control wheel.

D. Aileron Travel Test

SUBTASK 27-11-00-730-004

(1) Do a test of the aileron travel:

(a) Operate the captain's aileron control wheel through at least 6 full cycles then return the wheel to neutral position.

(b) Turn the captain's aileron control wheel more than 87 degrees counterclockwise from the neutral position and hold.

(c) Measure and record the distance between the outboard lower trailing edge of the aileron and the lower trailing edge of the adjacent fixed trailing structure for both the left and right ailerons.

HAP 101-999

1) Make sure the left aileron moves up 4.59 ±0.20 inch (116.6 ±5.1 millimeters).

2) Make sure the right aileron moves down 3.87 ±0.20 inch (98.3 ±5.1 millimeters).

HAP 001-013, 015-026, 028-054

3) Make sure the left aileron moves up 4.83 ±0.20 inch (122.7 ±5.1 millimeters).

4) Make sure the right aileron moves down 3.63 ±0.20 inch (92.2 ±5.1 millimeters).

HAP ALL

5) Make sure the aileron balance tab moves in the opposite direction to the aileron.

(d) Turn the captain's aileron control wheel more than 87 degrees clockwise from the neutral position and hold.

(e) Measure and record the distance between the outboard lower trailing edge of the aileron and the lower trailing edge of the adjacent fixed trailing structure for both the left and right ailerons.

HAP 101-999

1) Make sure the right aileron moves up 4.59 ±0.20 inch (116.6 ±5.1 millimeters).

2) Make sure the left aileron moves down 3.87 ±0.20 inch (98.3 ±5.1 millimeters).

HAP 001-013, 015-026, 028-054

3) Make sure the right aileron moves up 4.83 ±0.20 inch (122.7 ±5.1 millimeters).

4) Make sure the left aileron moves down 3.63 ±0.20 inch (92.2 ±5.1 millimeters).

HAP ALL

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5) Make sure the aileron balance tab moves in the opposite direction to the aileron.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-00-080-020

(1) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the captain's aileron control wheel.

SUBTASK 27-11-00-860-060

(2) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-11-00-860-098

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

TASK 27-11-00-720-801

20. Aileron Power Control Unit (PCU) Pogos - Functional Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this task to do a check of the force that is necessary to extend each pogo of the aileron power control unit (PCU).

(3) This task is applicable for the system A and B PCUs.

B. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1749	Tool - Lock Equipment, Aileron/Elevator PCU Input Rod (POGO) (Part #: C27066-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

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E. Procedure

SUBTASK 27-11-00-480-021

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-11-00-020-003

(2) Make sure you can freely install and remove rig pin A/S-15 in the aileron trim actuator.

SUBTASK 27-11-00-860-102

(3) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-11-00-280-002

(4) Do a functional test of the system A (lower) pogo:

(a) Install the tool, SPL-1749 on system A (lower) aileron PCU piston.

NOTE: Make sure that tool, SPL-1749 is installed correctly to prevent damage to the lockwire.

(b) Turn the Captain's control wheel clockwise from the neutral position until system A (lower) pogos extend.

NOTE: Approximately 100 pounds (444.9 newtons) force is necessary to turn the control wheel.

(c) Make sure the pogos extend approximately 0.20 inches (5.1 millimeters) minimum.

NOTE: Approximately 7 units of wheel required.

(d) Return the Captain's control wheel to the neutral position.

(e) Make sure that all four pogos retract to the original position.

(f) Remove the tool, SPL-1749 from the system A (lower) aileron PCU piston and install on system B (upper) aileron PCU piston.

NOTE: Make sure that tool, SPL-1749 is installed correctly to prevent damage to the lockwire.

SUBTASK 27-11-00-280-003

(5) Do a functional test of the system B (upper) pogo:

(a) Turn the Captain's control wheel clockwise from the neutral position until system B (upper) pogos extend.

NOTE: Approximately 100 pounds (444.9 newtons) force is necessary to turn the control wheel.

(b) Make sure that the pogos extend approximately 0.20 inches (5.1 millimeters) minimum.

NOTE: Approximately 7 units of wheel required.

(c) Return the Captain's control wheel to the neutral position.

(d) Make sure that the pogos retract to the original position.

(e) Remove the tool, SPL-1749 from the system B (upper) aileron PCU piston.

(f) Do this task, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

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SUBTASK 27-11-00-020-004

(6) Put the airplane back to its usual condition.

——————— END OF TASK ———————

TASK 27-11-00-750-801

21. Flight Test to Find and Correct Asymmetrical Flight Control Forces

A. General

(1) An aileron system flight test is necessary after these maintenance procedures:

(a) Installation of a replacement aileron.

(b) Installation of an aileron which was on-jig rebalanced (see Structure Repair Manual, Chapter 51, for maintenance actions which require aileron on-jig rebalancing).

(c) Removal or replacement of the aileron front spar hinge bearing nearest to the tab control rods.

(d) Installation of a replacement aileron front spar hinge bearing support fitting.

NOTE: Installation of new aileron hinge bearings (except the one nearest the tab control rods) does not make a flight test necessary if the original bearing support fittings are installed in their original locations.

(e) Installation of a replacement aileron rear spar tab hinge bearing support fitting.

NOTE: Installation of new tab hinge bearings does not make a flight test necessary if the original bearing support fittings are installed in their original locations.

(f) Installation of a replacement aileron balance tab or a repaired aileron balance tab with a non-flush surface patch.

NOTE: If you did the Aileron Balance Tab Adjustment, TASK 27-11-00-820-803 and both control rods were adjusted, then flight test is necessary. If only one rod was adjusted, and you can verify that the remaining rod had not been replaced or adjusted since the last flight test, then flight test is not necessary. If only one rod was adjusted, and you can not verify that the remaining rod had not been replaced or adjusted since the last flight test, then flight test is necessary

(g) Installation of a replacement front spar hinge of the aileron balance tab.

(h) Installation of replacement bushings on the aileron balance tab front spar hinge nearest the tab control rods.

(i) Installation of replacement tab control rods.

NOTE: For each aileron tab, if both control rods are adjusted, then flight test is necessary.

If only one rod is adjusted, and you can verify that the remaining rod had not been replaced or adjusted since the last flight test, then flight test is not necessary.

If only one rod is adjusted, and you can not verify that the remaining rod had not been replaced or adjusted since the last flight test, then flight test is necessary.

(j) Installation of the original tab control rods if you changed the adjusted lengths of the tab control rods.

(k) Installation of the original tab control rods if you also removed the aileron and/or aileron balance tab from the airplane.

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B. References

Reference	Title
27-09-71-820-802	Aileron Balance Tab Adjustment to Equalize Lateral Manual Reversion Forces (P/B 501)
27-21-00-820-810-001	Control Rod for Standby Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-820-810-002	Control Rod for Standby Rudder Power Control Unit Adjustment (P/B 501)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Prepare for the Test

SUBTASK 27-11-00-820-019

(1) Adjust the applicable system or systems before the flight test if you get these conditions:

(a) The aileron trim is more than 3/4 unit at cruise, 3/4 unit at 250 knots, or more than 1 unit other than cruise flight configuration.

(b) The rudder trim is more than 1/2 unit at cruise, 3/4 units at 250 knots, or 1 unit other than cruise configuration.

SUBTASK 27-11-00-210-006

(2) Make sure the airspeed is 250 knots.

SUBTASK 27-11-00-860-070

(3) Make sure the flight altitude is 10,000 to 17,000 feet.

SUBTASK 27-11-00-860-071

(4) Make sure the aileron trim is not more than 3/4 unit at cruise or 3/4 unit at 250 knots.

SUBTASK 27-11-00-860-072

(5) Make sure the rudder trim is not more than 1/2 unit at cruise or 3/4 unit at 250 knots.

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SUBTASK 27-11-00-860-073

(6) Make sure the flaps are up.

SUBTASK 27-11-00-860-074

(7) Make sure all persons are seated.

F. Procedure

SUBTASK 27-11-00-860-075

(1) Move the control wheel to the neutral position.

SUBTASK 27-11-00-860-076

(2) Set the SPOILER A and B switches to OFF.

SUBTASK 27-11-00-860-077

(3) Make sure that the FLT CONTROL A and FLT CONTROL B switches are ON.

SUBTASK 27-11-00-860-078

(4) Set the FLT CONTROL A switch to OFF.

NOTE: The airplane may pitch up or down during transition.

SUBTASK 27-11-00-860-079

(5) Carefully move the elevators, ailerons, and rudder.

(a) Make sure that the control forces and operation do not change.

SUBTASK 27-11-00-860-080

(6) Set the FLT CONTROL A switch to ON.

SUBTASK 27-11-00-860-081

(7) Set the FLT CONTROL B switch to OFF.

NOTE: The airplane may pitch up or down during transition.

SUBTASK 27-11-00-860-082

(8) Carefully move the elevators, ailerons, and rudder.

(a) Make sure that the control forces and operation do not change.

SUBTASK 27-11-00-860-083

(9) Set the FLT CONTROL B switch to STBY RUD.

SUBTASK 27-11-00-860-084

(10) Set the FLT CONTROL A switch to OFF.

NOTE: The airplane may pitch up or down during transition.

SUBTASK 27-11-00-280-004

(11) Make sure no large rolling movement and/or large pitch change occurs.

SUBTASK 27-11-00-750-002

(12) Do these steps to find and correct asymmetrical flight control forces:

(a) Trim the airplane with the rudder to keep wings level flight.

(b) Make sure that the rudder trim does not change by more than 2 units.

1) If the change is more than 2 units, do this task: Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-001 or Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-002.

2) If the standby rudder is in adjustment, do this task: Aileron Balance Tab Adjustment, TASK 27-11-00-820-803.

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(c) Make a note if there is a roll tendency.

(d) Turn the control wheel clockwise 30 degrees.

(e) Turn the control wheel counterclockwise 30 degrees.

(f) Make sure the control wheel forces are symmetrical.

1) If the control wheel forces are not symmetrical, measure the forces.

a) Use a force gauge, COM-1557 to push down on the right handgrip knob of the control wheel, until the wheel is turned 30 degrees clockwise.

b) Measure the control wheel force.

c) Use a force gauge, COM-1557 to push down on the left handgrip knob of the control wheel, until the wheel is turned 30 degrees counterclockwise.

d) Measure the control wheel force.

e) If the control wheel force in one direction is 2 or more times the force in the other direction, do this task: Aileron Balance Tab Adjustment to Equalize Lateral Manual Reversion Forces, TASK 27-09-71-820-802.

f) If the control wheel force in one direction is less than 2 times the force in the other direction, no action is necessary.

SUBTASK 27-11-00-860-085

(13) Set the FLT CONTROL B switch in OFF.

SUBTASK 27-11-00-860-086

(14) Set the FLT CONTROL A switch to STBY RUD.

SUBTASK 27-11-00-750-003

(15) Do all the steps to find and correct asymmetrical flight control forces again.

SUBTASK 27-11-00-860-087

(16) Set the SPOILER A and B, FLT CONTROL A and B switches back to ON.

——————— END OF TASK ———————

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AILERON AND AILERON TRIM CONTROL SYSTEM - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these inspection tasks:

(1) Aileron Mechanical Components from the Control Wheel to the Aileron PCU's.

(2) Aileron Mechanical Components from the Aileron PCU to the Aileron and the Flight Spoiler Mechanical Control Path.

TASK 27-11-00-210-801

2. Aileron Mechanical Components Inspection - Forward components

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Procedure

SUBTASK 27-11-00-010-005

(1) To get access to the aileron mechanical components, do this step:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-11-00-210-003

(2) Do a general visual inspection of the forward aileron mechanical components to include the following:

(a) control wheels,

(b) aileron control drum,

(c) bus drums.

END OF TASK

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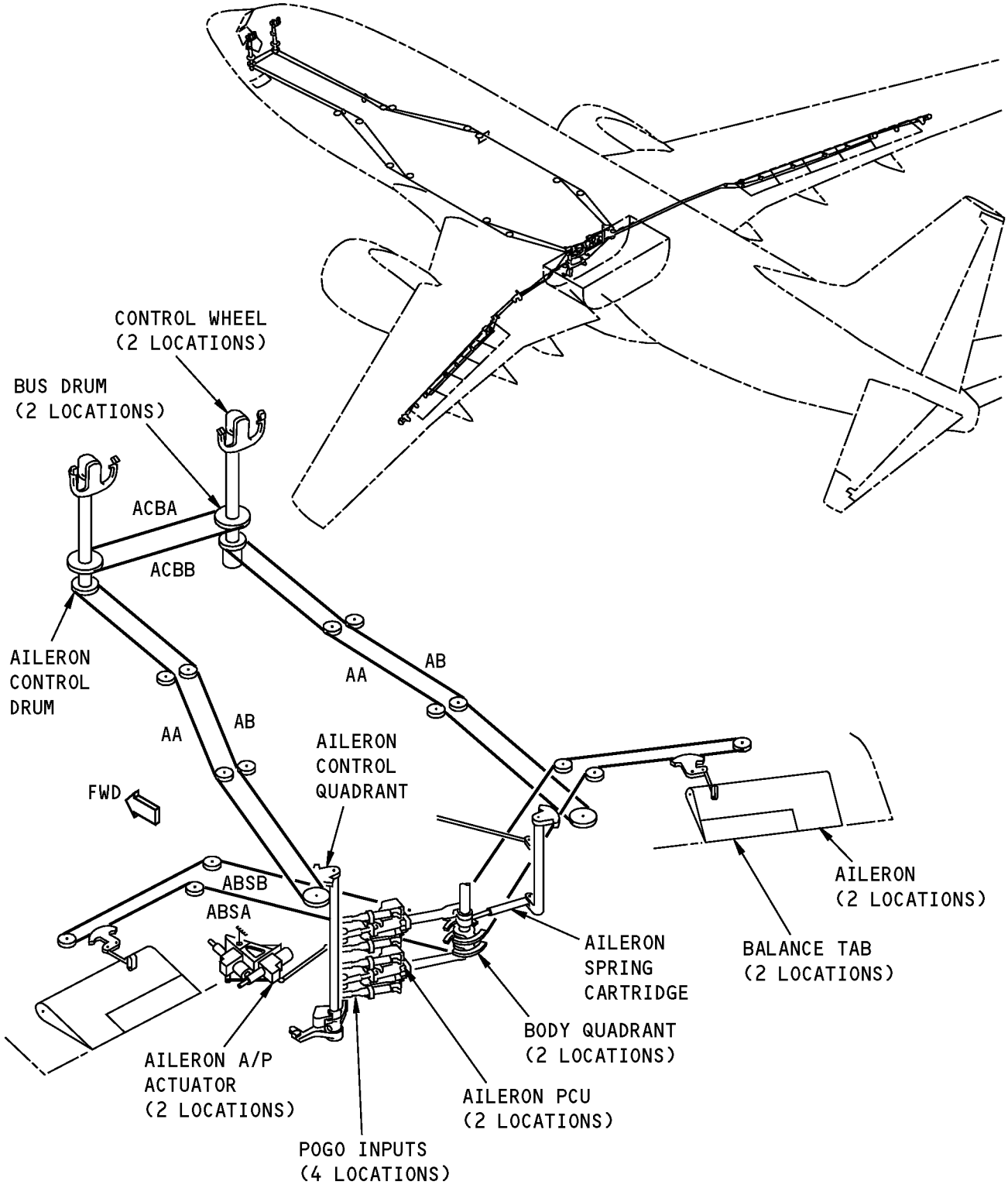

Aileron and Aileron Trim Control System
Figure 601/27-11-00-990-810

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TASK 27-11-00-210-802

3. Aileron Mechanical Components Inspection - from the Aileron PCUs to the Aileron and the Flight Spoiler Mechanical Control Path

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

C. Access Panels

Number	Name/Location
572BB	Lower Aileron, Actuator Rod Fairing - WBL 472.00
672BB	Lower Aileron, Actuator Rod Fairing - WBL 472.00

D. Procedure

SUBTASK 27-11-00-010-006

(1) Open these access panels to get access to the aileron mechanical components:

Number	Name/Location
572BB	Lower Aileron, Actuator Rod Fairing - WBL 472.00
672BB	Lower Aileron, Actuator Rod Fairing - WBL 472.00

SUBTASK 27-11-00-210-004

(2) Do a general visual inspection of all aileron mechanical components from the aileron PCUs to the aileron and the flight spoiler mechanical control path including the following:

(a) aileron PCUs,

(b) pogo inputs

SUBTASK 27-11-00-010-010

(3) Close these panels:

Number	Name/Location
572BB	Lower Aileron, Actuator Rod Fairing - WBL 472.00
672BB	Lower Aileron, Actuator Rod Fairing - WBL 472.00

END OF TASK

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AILERON - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron

(2) An installation of the aileron.

B. The aileron has the aileron assembly, the aileron balance tab and four aileron balance panels.

TASK 27-11-11-000-801

2. Aileron Removal

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
27-11-21-000-801	Aileron Balance Tab Removal (P/B 401)
27-11-34-000-801	Aileron Tab Control Rods Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2042	Sling - Aileron, Removal/Installation (Part #: C27055-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

D. Access Panels

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel
572AB	Lower Aileron, Hinge Cover - WBL 423.00
572CB	Lower Aileron, Hinge Cover - WBL 447.00
572DB	Lower Aileron, Hinge Cover - WBL 469.00
572FB	Lower Aileron, Hinge Cover - WBL 502.00
572GB	Lower Aileron, Hinge Cover - WBL 528.00
572HB	Lower Aileron, Hinge Cover - WBL 553.00
671BB	Lower Outboard Fixed Trailing Edge Access Panel
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel
672AB	Lower Aileron, Hinge Cover - WBL 423.00
672CB	Lower Aileron, Hinge Cover - WBL 447.00
672DB	Lower Aileron, Hinge Cover - WBL 469.00

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(Continued)

Number	Name/Location
672FB	Lower Aileron, Hinge Cover - WBL 502.00
672GB	Lower Aileron, Hinge Cover - WBL 528.00
672HB	Lower Aileron, Hinge Cover - WBL 553.00

E. Prepare for the Removal

SUBTASK 27-11-11-010-001

(1) Remove these access panels found on the lower panel of the outboard fixed trailing edge.

(a) On the left wing, open these access panels:

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel

(b) On the right wing, open these access panels:

Number	Name/Location
671BB	Lower Outboard Fixed Trailing Edge Access Panel
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

SUBTASK 27-11-11-010-002

(2) Remove these aileron access panels found on the lower wing surface adjacent to the leading edge of the aileron:

(a) On the left wing, open these access panels:

Number	Name/Location
572AB	Lower Aileron, Hinge Cover - WBL 423.00
572CB	Lower Aileron, Hinge Cover - WBL 447.00
572DB	Lower Aileron, Hinge Cover - WBL 469.00
572FB	Lower Aileron, Hinge Cover - WBL 502.00
572GB	Lower Aileron, Hinge Cover - WBL 528.00
572HB	Lower Aileron, Hinge Cover - WBL 553.00

(b) On the right wing, open these access panels:

Number	Name/Location
672AB	Lower Aileron, Hinge Cover - WBL 423.00
672CB	Lower Aileron, Hinge Cover - WBL 447.00
672DB	Lower Aileron, Hinge Cover - WBL 469.00
672FB	Lower Aileron, Hinge Cover - WBL 502.00
672GB	Lower Aileron, Hinge Cover - WBL 528.00
672HB	Lower Aileron, Hinge Cover - WBL 553.00

SUBTASK 27-11-11-860-001

(3) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

F. Aileron Removal

SUBTASK 27-11-11-480-001

(1) Remove the aileron and tab assembly [1] with the sling, SPL-2042 (Figure 401).

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(a) Install the sling, SPL-2042 on the aileron and tab assembly [1] (Figure 401).

1) At hinge 2, do these steps (Figure 402):

a) Remove the bolts [35], washers [14], radial seal retainer [37] and radial seal [39];

b) Remove the bolts [29], washers [14], radial seal retainer [33] and radial seal [31];

c) Remove and discard the pin [17]; retain the nut [18], washer [19], bushing [20], washer [21] and bolt [22].

2) At hinge 5, do these steps (Figure 402):

a) Remove the bolts [61], washers [14], and radial seal retainer [62];

b) Remove the bolts [52], washers [14], radial seal retainer [53] and radial seal [54];

c) Remove and discard the pin [55]; retain the nut [56], washer [57], bushing [58], washer [59], and bolt [60].

3) Attach the outboard C-bracket to the outboard clevis with the ball lock pin (Figure 401).

4) Attach the inboard C-bracket to the inboard clevis with the ball lock pin (Figure 401).

5) Put the sling in position around the trailing edge of the aileron and tab assembly [1] (Figure 401).

6) Attach the inboard clevis to hinge 5 with the attached ball lock pins (Figure 401).

7) Attach the outboard clevis to hinge 2 with the attached pins (Figure 401).

8) Lift the sling with a cable and hook to hold the aileron and tab assembly [1].

SUBTASK 27-11-11-020-007

(2) Remove the aileron and tab assembly [1] with the sling, SPL-2042 attached.

(a) At hinge 6, do these steps (Figure 402):

1) Remove the bolts [73] that attach the removable fairing [74] to the aileron and tab assembly [1];

2) Remove the removable fairing [74];

3) Remove and discard the pin [77]; retain the nut [78], washer [76], bushing [75], washer [72] and bolt [71] to disconnect the aileron control rod [67] from the aileron and tab assembly [1];

4) Remove the nut [82] and washer [83] to disconnect the bonding jumper [84] from the structure.

(b) At hinge 1, do these steps (Figure 402):

1) Remove the bolts [23], washers [14], radial seal retainer [24] and radial seal [25];

2) Remove the bolts [15], washers [14], radial seal retainer [16];

3) Remove the nut [11] and washer [12] to disconnect the bonding jumper [13] from the structure.

(c) At hinge 3, do these steps (Figure 402):

1) Remove the bolts [36], washers [14], radial seal retainer [38] and radial seal [40];

2) Remove the bolts [30], washers [14], radial seal retainer [34] and radial seal [32].

(d) At hinge 4, do these steps (Figure 402):

1) Remove the bolts [86], washers [14], radial seal [85] and radial seal retainer [87];.

2) Remove the bolts [43], washers [14], radial seal retainer [44] and radial seal [42];.

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3) Remove and discard the pins [45]; retain the nuts [46], washers [47], bushings [48], washers [49] and bolts [50] to disconnect the two tab control rods [41] from the forward fittings.

(e) Remove the hinge seals [7] from the balance panels [5]:

1) Remove the bolts [4], bolts [6], bolts [27], bolts [8] with collars [9] and balance weights [26];

2) Remove the bolts [3] and balance weights [28];

3) Remove the hinge seals [7] from the balance panels [5].

4) Remove and discard the pins [63]; retain the nuts [64], washers [65] (under the nut), and bolts [66] to remove the aileron and tab assembly [1] from the aileron balance panels [5].

NOTE: The washer under the bolt is bonded to the hinge half.

(f) At hinge 6, do this step:

1) Remove and discard the pin [81]; retain the nut [80], washer [79], bushing [68], washer [69], and bolt [70].

(g) At hinges 1, 3 and 4, do this step:

1) Remove and discard the pins [17]; retain the nuts [18], washers [19], bushings [20], washers [21], and bolts [22].

(h) Remove the aileron and tab assembly [1] from the structure.

SUBTASK 27-11-11-020-001

(3) Remove the aileron and tab assembly [1] without the sling, SPL-2042 (Figure 402).

(a) Disconnect aileron control rod [67] and bonding jumper [84].

1) At hinge 6, do these steps:

a) Remove the bolts [73] that attach the removable fairing [74] to the aileron and tab assembly [1];

b) Remove the removable fairing [74];

c) Remove and discard the pin [77]; retain the nut [78], washer [76], bushing [75], washer [72] and bolt [71] to disconnect the aileron control rod [67] from the aileron and tab assembly [1];

d) Remove the nut [82] and washer [83] and disconnect the bonding jumper [84] from the structure.

(b) Remove the radial seals and radial seal retainers to get access to the aileron hinge and control rods connections.

1) At hinge 1, do these steps:

a) Remove the bolts [23], washers [14] radial seal retainer [24] and the radial seal [25];

b) Remove the bolts [15], washers [14] and radial seal retainer [16];

c) Remove the nut [11] and washer [12] to disconnect the bonding jumper [13] from the structure.

2) At hinge 2, do these steps:

a) Remove the bolts [35], washers [14], radial seal retainer [37], and radial seal [39];

b) Remove the bolts [29], washers [14], radial seal retainer [33], and radial seal [31].

3) At hinge 3, do these steps:

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a) Remove the bolts [36], washers [14] radial seal retainer [38] and radial seal [40];

b) Remove the bolts [30], washers [14] radial seal retainer [34] and radial seal [32].

4) At hinge 4, do these steps:

a) Remove the bolts [86], washers [14], radial seal retainer [85] and the radial seal [87];

b) Remove the bolts [43], washers [14], radial seal retainer [44] and the radial seal [42];

c) Remove and discard the pins [45]; retain nuts [46], washers [47], bushings [48], washers [49] and bolts [50] to disconnect the two tab control rods [41] from the forward fittings.

5) At hinge 5, do these steps:

a) Remove the bolts [61], washers [14] and radial seal retainer [62];

b) Remove the bolts [52], washers [14], radial seal retainer [53] and radial seal [54].

(c) Remove the hinge seals [7] from the balance panels [5].

1) Remove the bolts [4], bolts [6], bolts [27], bolts [8] with collars [9] and balance weights [26].

2) Remove the bolts [3] and balance weights [28].

3) Remove the hinge seals [7] from the balance panels [5].

4) Remove and discard the pins [63]; retain the nuts [64], washers [65] (under the nut), and bolts [66] to remove the aileron and tab assembly [1] from the balance panels [5].

NOTE: The washer under the bolt is bonded to the hinge half.

(d) Hold the aileron and tab assembly [1] while you remove aileron and tab assembly [1] from the structure.

1) At hinges 1, 2, 3 and 4, remove and discard the pins [17]; retain the nuts [18], washers [19], bushings [20], washers [21], and bolts [22].

2) At hinge 5, remove and discard the pin [55]; retain the nut [56], washer [57], bushing [58], washer [59], and bolt [60].

3) At hinge 6, remove and discard the pin [81]; retain the nut [80], washer [79], bushing [68], washer [69], and bolt [70].

(e) Remove the aileron and tab assembly [1] from the structure.

SUBTASK 27-11-11-020-002

(4) If it is necessary to remove the aileron balance tab [2], do this task: Aileron Balance Tab Removal, TASK 27-11-21-000-801 or Aileron Tab Control Rods Removal, TASK 27-11-34-000-801.

END OF TASK

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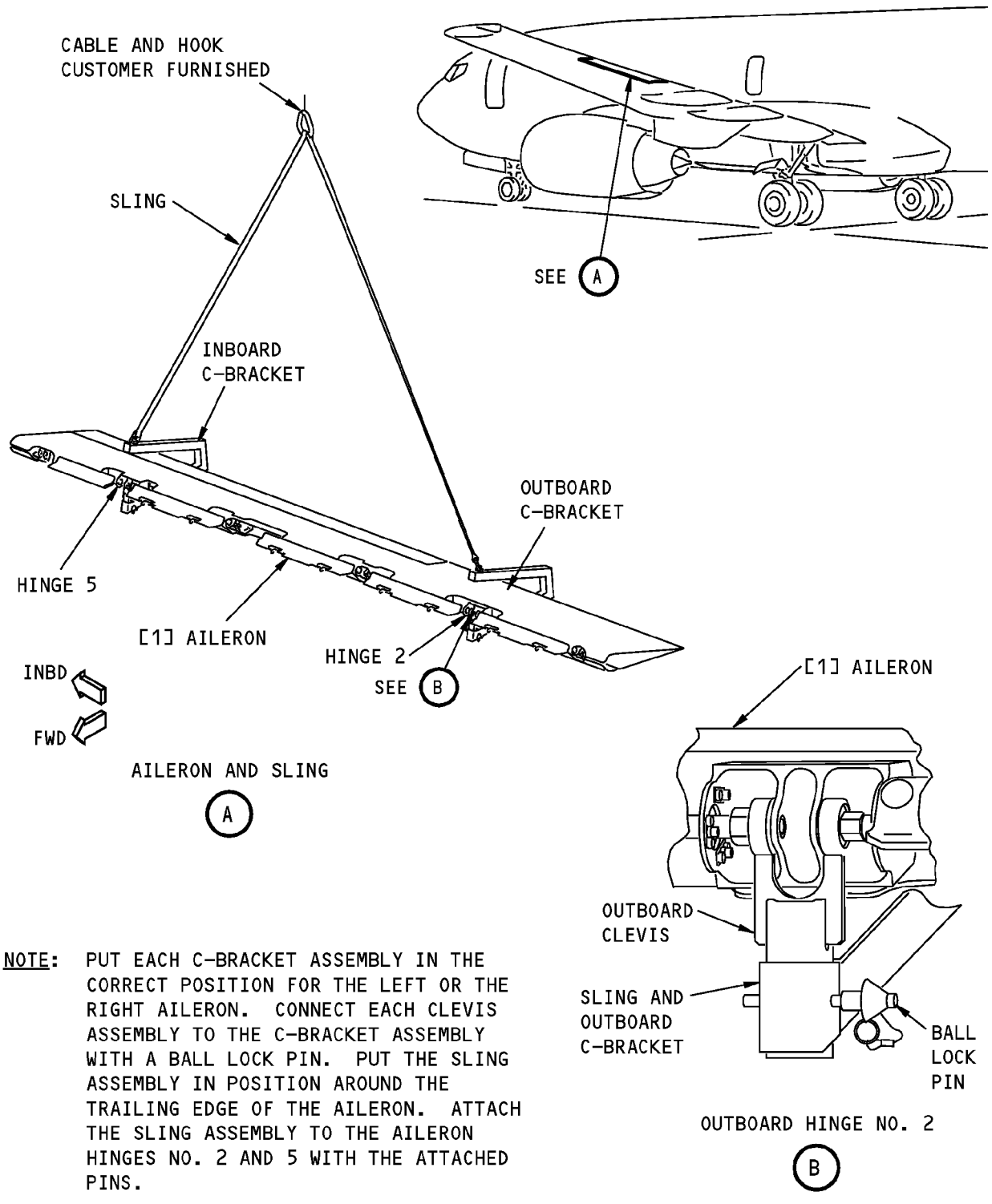

NOTE: PUT EACH C-BRACKET ASSEMBLY IN THE CORRECT POSITION FOR THE LEFT OR THE RIGHT AILERON. CONNECT EACH CLEVIS ASSEMBLY TO THE C-BRACKET ASSEMBLY WITH A BALL LOCK PIN. PUT THE SLING ASSEMBLY IN POSITION AROUND THE TRAILING EDGE OF THE AILERON. ATTACH THE SLING ASSEMBLY TO THE AILERON HINGES NO. 2 AND 5 WITH THE ATTACHED PINS.

Aileron and Sling Installation
Figure 401/27-11-11-990-801

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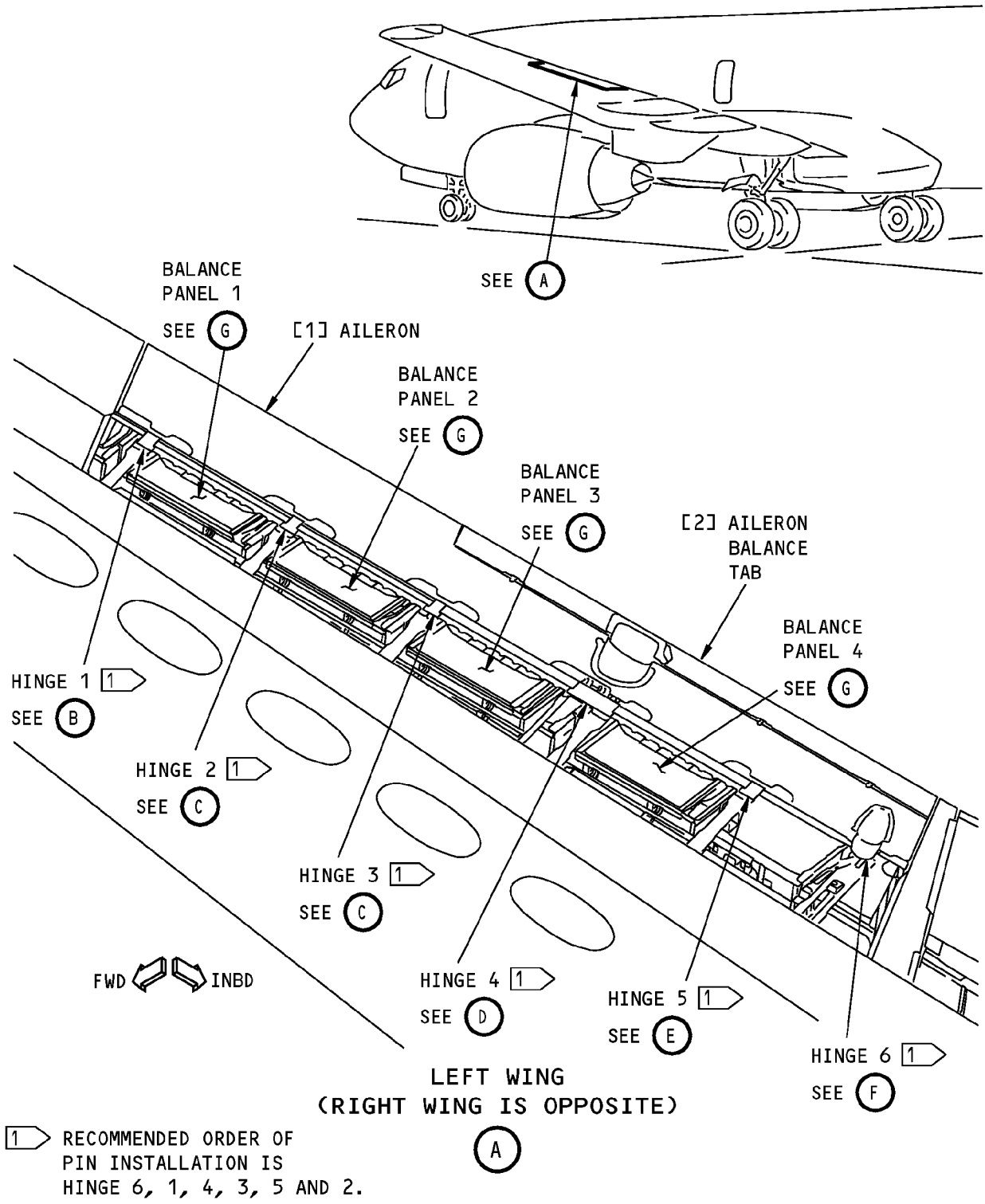

Aileron Installation
Figure 402 (Sheet 1 of 7)/27-11-11-990-802

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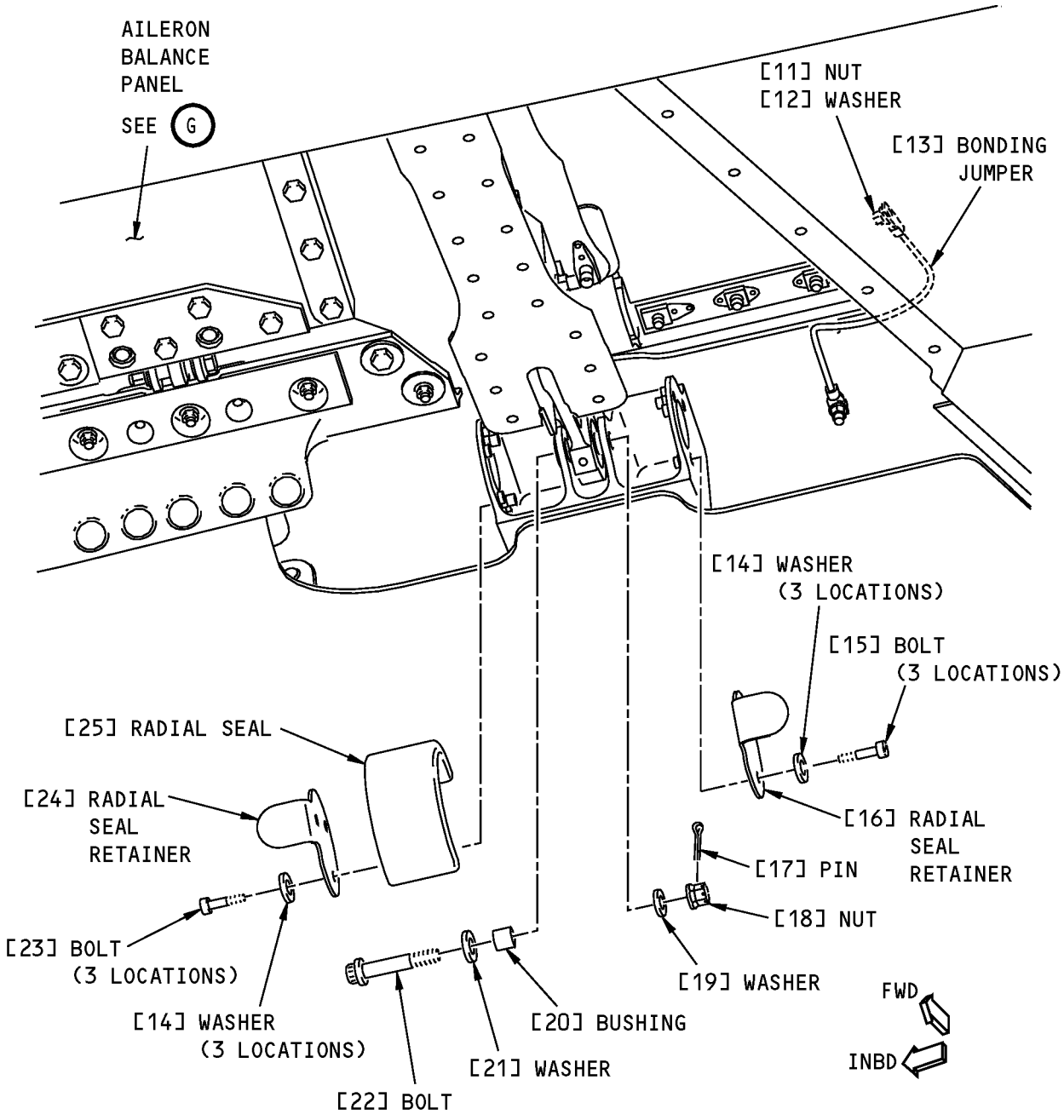

Aileron Installation
Figure 402 (Sheet 2 of 7)/27-11-11-990-802

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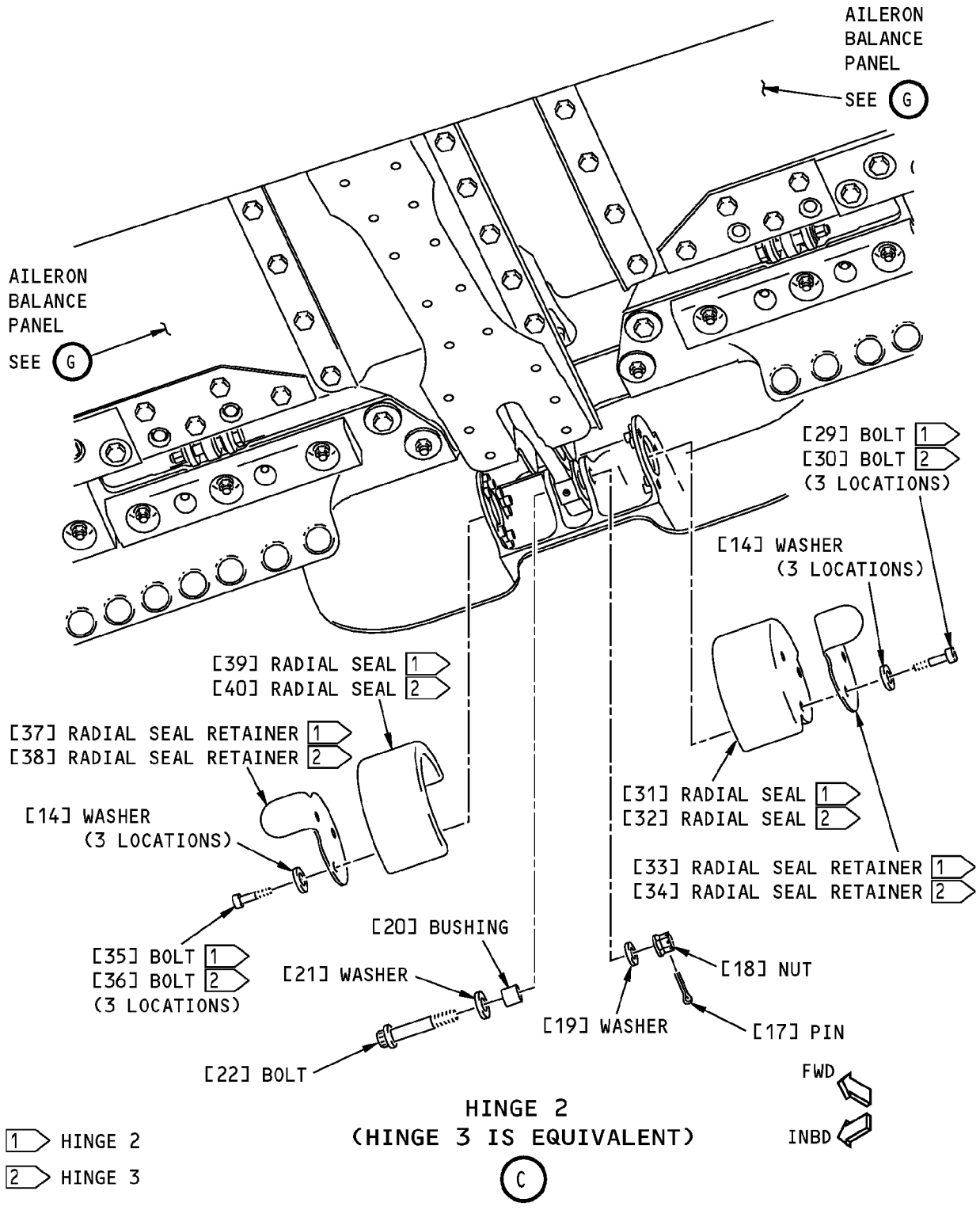

Aileron Installation
Figure 402 (Sheet 3 of 7)/27-11-11-990-802

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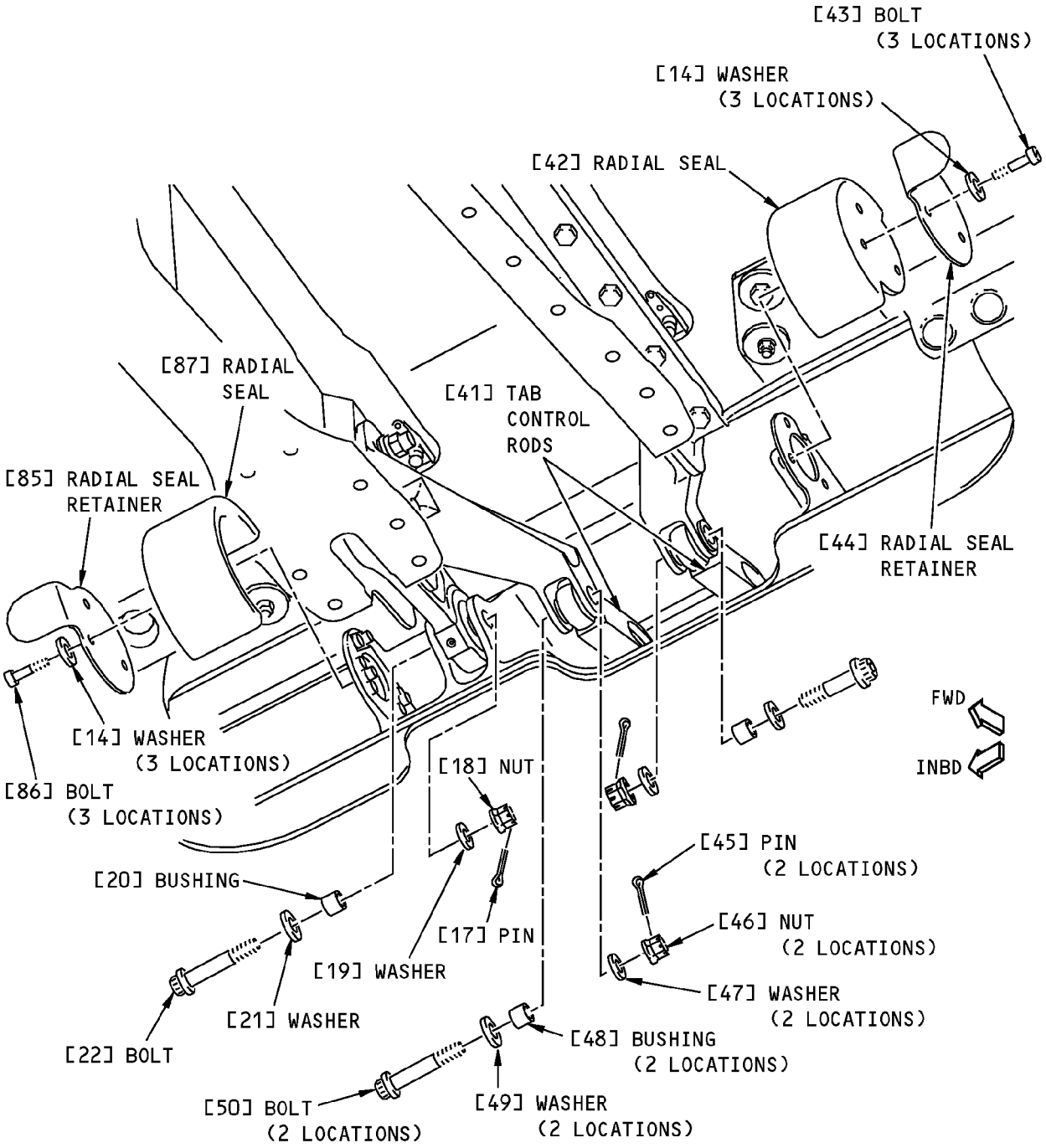

HINGE 4

D

Aileron Installation
Figure 402 (Sheet 4 of 7)/27-11-11-990-802

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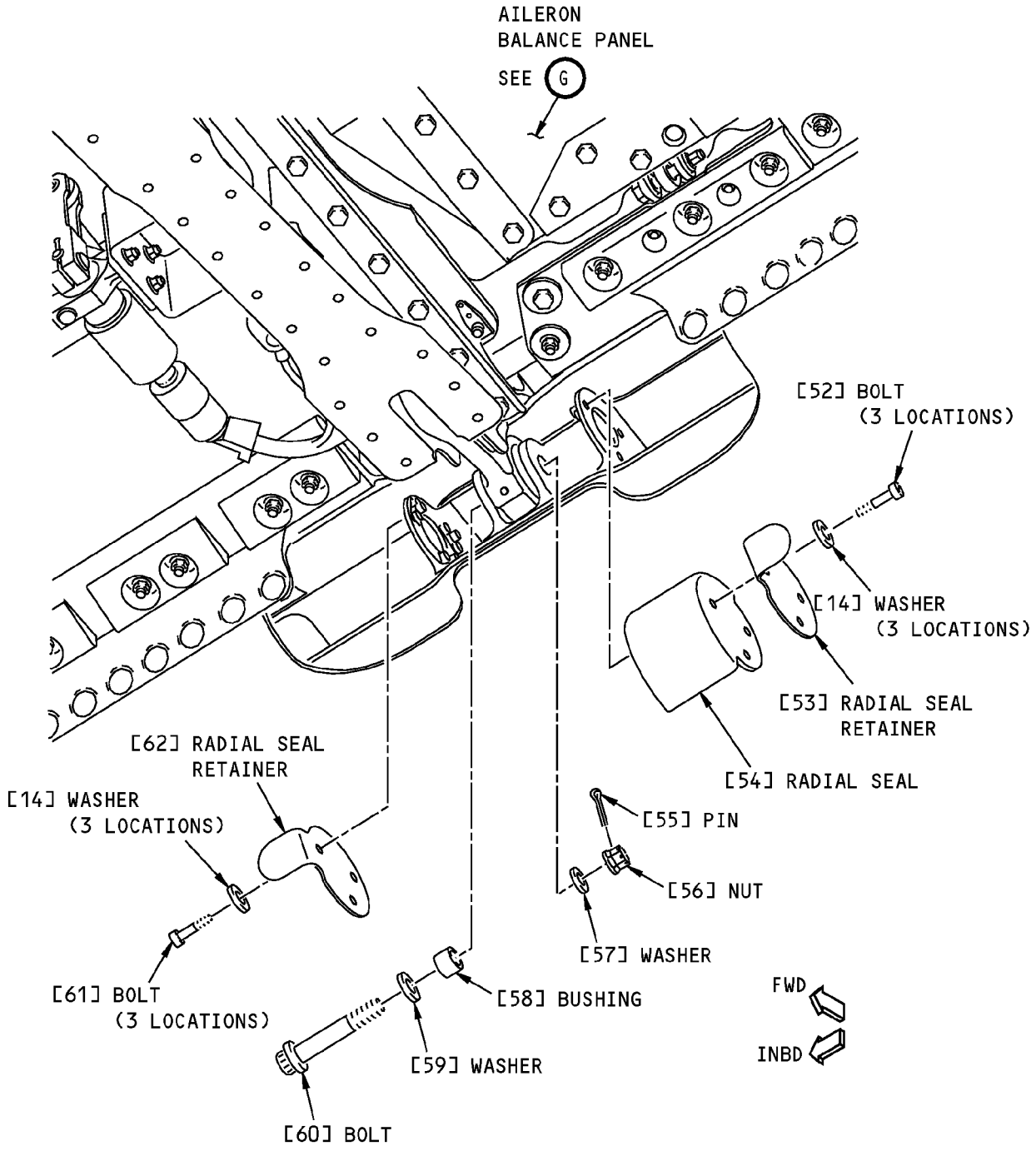

Aileron Installation
Figure 402 (Sheet 5 of 7)/27-11-11-990-802

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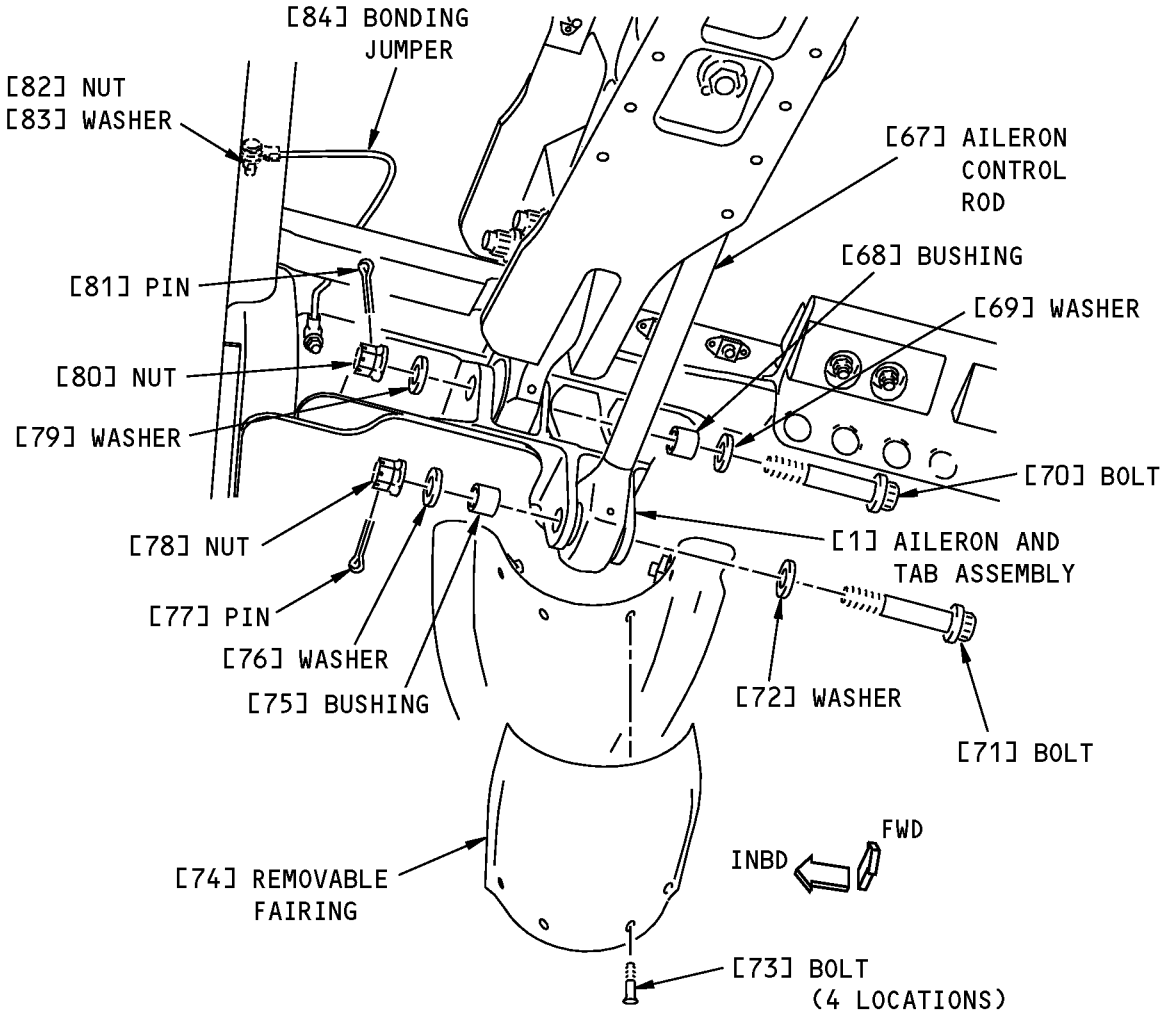

HINGE 6

F

Aileron Installation
Figure 402 (Sheet 6 of 7)/27-11-11-990-802

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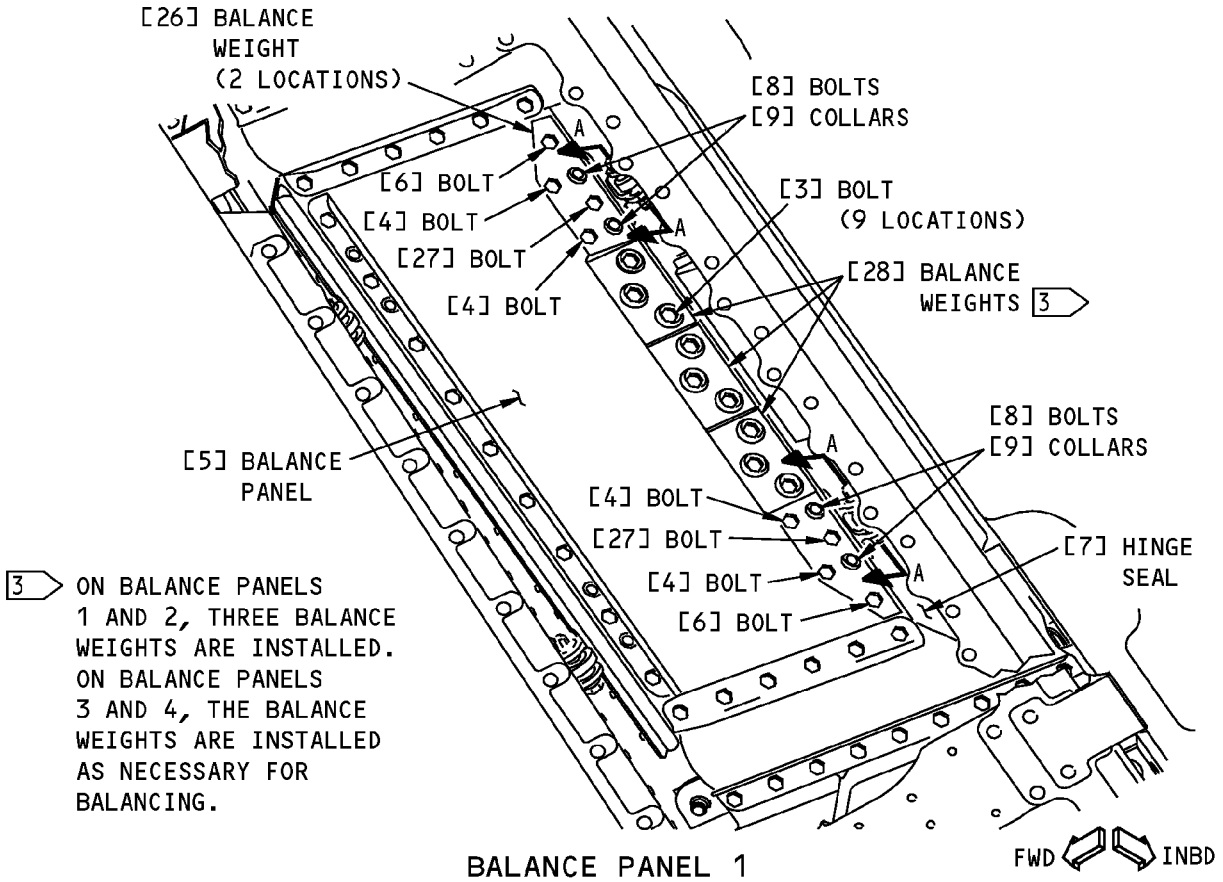
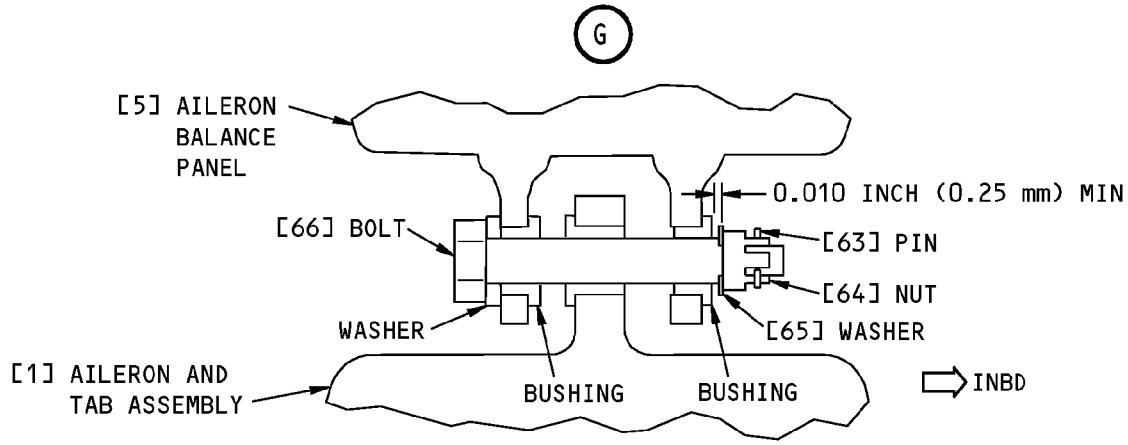


BALANCE PANEL 1
(BALANCE PANELS 2, 3, AND 4 ARE ALMOST THE SAME)



AILERON AND BALANCE PANEL CONNECTION
(OUTBOARD IS SHOWN, INBOARD IS OPPOSITE)
(EXAMPLE)
A–A

Aileron Installation
Figure 402 (Sheet 7 of 7)/27-11-11-990-802

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TASK 27-11-11-400-801

3. Aileron Installation

A. References

Reference	Title
27-11-00-710-801	Aileron Response (Operational) Test (P/B 501)
27-11-00-750-801	Flight Test to Find and Correct Asymmetrical Flight Control Forces (P/B 501)
27-11-00-820-803	Aileron Balance Tab Adjustment (P/B 501)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)
27-11-00-990-805	Figure: Aileron Balance Tab Adjustment (P/B 501)
27-11-11-200-801	Aileron Inspection (P/B 601)
27-11-21-400-801	Aileron Balance Tab Installation (P/B 401)
27-11-34-400-801	Aileron Tab Control Rods Installation (P/B 401)
SRM 51-60-01	Structural Repair Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2042	Sling - Aileron, Removal/Installation (Part #: C27055-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-753	Scale - Push/Pull, 0-25 pound (0-11 kilogram) Capacity, 1/4 pound (113 gram) Accuracy

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Aileron and tab assembly	57-60-00-01-165	HAP ALL

E. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

F. Access Panels

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel

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(Continued)

Number	Name/Location
572AB	Lower Aileron, Hinge Cover - WBL 423.00
572CB	Lower Aileron, Hinge Cover - WBL 447.00
572DB	Lower Aileron, Hinge Cover - WBL 469.00
572FB	Lower Aileron, Hinge Cover - WBL 502.00
572GB	Lower Aileron, Hinge Cover - WBL 528.00
572HB	Lower Aileron, Hinge Cover - WBL 553.00
671BB	Lower Outboard Fixed Trailing Edge Access Panel
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel
672AB	Lower Aileron, Hinge Cover - WBL 423.00
672CB	Lower Aileron, Hinge Cover - WBL 447.00
672DB	Lower Aileron, Hinge Cover - WBL 469.00
672FB	Lower Aileron, Hinge Cover - WBL 502.00
672GB	Lower Aileron, Hinge Cover - WBL 528.00
672HB	Lower Aileron, Hinge Cover - WBL 553.00

G. Aileron Installation

SUBTASK 27-11-11-220-001

(1) If you install used bolts, bushings, bearings or other components with worn areas, do this task: Aileron Inspection, TASK 27-11-11-200-801.

SUBTASK 27-11-11-420-001

(2) If you removed the aileron balance tab [2], do this task: Aileron Balance Tab Installation, TASK 27-11-21-400-801 or Aileron Tab Control Rods Installation, TASK 27-11-34-400-801.

SUBTASK 27-11-11-280-001

(3) Make sure the correct number of balance weights [28] are installed on the lower surface of the aileron balance panels 3 and 4 (SRM 51-60-01).

SUBTASK 27-11-11-400-001

(4) Install the aileron and tab assembly [1] with the sling, SPL-2042 (Figure 401, Figure 402).

(a) Make sure the sling, SPL-2042 is installed on the aileron and tab assembly [1]. If the sling, SPL-2042 is not installed, do these steps to install it (Figure 401):

1) Attach the outboard C-bracket to the outboard clevis with the ball lock pin (Figure 401)

2) Attach the inboard C-bracket to the inboard clevis with the ball lock pin (Figure 401)

3) Put the sling in position around the trailing edge of the aileron and tab assembly [1] (Figure 401)

4) Attach the inboard clevis to hinge 5 with the attached ball lock pins (Figure 401)

5) Attach the outboard clevis to hinge 2 with the attached ball lock pins (Figure 401)

6) Lift the sling with a cable and hook to hold the aileron and tab assembly [1] (Figure 401).

SUBTASK 27-11-11-420-005

(5) Install the aileron and tab assembly [1] on the hinges (Figure 402):

(a) Apply grease, D00633 to the outer diameters of all hinge bolts and bushings and inner diameters of bearings;

(b) Put the aileron and tab assembly [1] in position to install;

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(c) Align the hinges with the support fittings

(d) Connect the aileron and tab assembly [1] at hinge 6.

1) Install the bolt [70], washer [69], bushing [68], washer [79] and nut [80];

2) Tighten the nut [80] to 160-240 pound-inches (18.1-27.1 newton-meters);

NOTE: Tighten the nut [80] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [70].

3) Install the new pin [81].

(e) Connect the aileron and tab assembly [1], in the sequence that follows, at hinges 1, 4 and 3.

NOTE: To install the pin in hinge 4, hold the aileron from below.

1) Install the bolts [22], washers [21], bushings [20], washers [19] and nuts [18].

2) Tighten the nuts [18] to 50-80 pound-inches (5.6-9.0 newton-meters);

NOTE: Tighten the nut [18] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [22].

3) Install the new pins [17].

(f) Remove the sling, SPL-2042 from the aileron and tab assembly [1] (Figure 401).

1) Remove the outboard clevis from hinge 2;

2) Remove the inboard clevis from hinge 5;

3) Remove the sling, SPL-2042 from the trailing edge of the aileron [1];

4) Remove the ball lock pin and disconnect the outboard clevis from the outboard C-bracket;

5) Remove the ball lock pin and disconnect the inboard clevis from the inboard C-bracket.

(g) Connect the aileron and tab assembly [1] at hinge 5.

1) Install the bolt [60], washer [59], bushing [58], washer [57] and nut [56].

2) Tighten the nut [56] to 160-240 pound-inches (18.1-27.1 newton-meters).

NOTE: Tighten the nut [56] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [60].

3) Install the new pin [55].

(h) Connect the aileron and tab assembly [1] at hinge 2.

1) Install the bolts [22], washers [21], bushings [20], washers [19] and nuts [18];

2) Tighten the nuts [18] to 50-80 pound-inches (5.6-9.0 newton-meters);

NOTE: Tighten the nut [18] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [22].

3) Install the new pins [17].

(i) Align the aileron and tab assembly [1] with the balance panels [5].

1) Make sure the washer under the bolt is bonded to the hinge half.

a) If it is necessary, bond the washer to the hinge half with sealant, A00247.

2) Install the bolts [66], washers [65], nuts [64].

3) Tighten the nuts [64] to 25-35 pound-inches (2.8-4.0 newton-meters).

NOTE: Tighten the nut [64] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [66].

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4) Make sure the gap between the bushings and the washers [65] is 0.01 inch (0.25 millimeter) minimum.

5) Install the new pins [63].

(j) Attach the hinge seals [7] to the aileron balance panels [5].

1) Attach the hinge seals [7] to the aileron balance panels [5].

a) Make sure the correct number of balance weights [28] are installed on aileron balance panels 3 and 4 (SRM 51-60-01).

2) Apply compound, C00528 to bolts [3], [4], [6] and [27].

3) Install balance weights [28] with bolts [3].

4) Install balance weights [26] with the bolts [8] with collars [9], bolts [27], bolts [6], and bolts [4].

(k) At Hinge 4, Connect the tab control rods [41] to the forward fittings.

1) Install the bolts [50], washers [49], bushings [48], washers [47] and nuts [46].

2) Tighten the nuts [46] to 50-80 pound-inches (5.6 9.0 newton-meters).

NOTE: Tighten the nut [46] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [50].

3) Install the new pins [45].

4) At hinge 1, do these steps:

a) Install the radial seal retainer [16], washers [14] and bolts [15];

b) Install the radial seal [25], radial seal retainer [24], washers [14] and bolts [23];.

c) Connect the bonding jumper [13] with washer [12] and nut [11].

5) At hinge 2, do these steps:

a) Install the radial seal [31], radial seal retainer [33], washers [14] and bolts [29];

b) Install the radial seal [39], radial seal retainer [37], washers [14] and bolts [35].

6) At hinge 3, do these steps:

a) Install the radial seal [32], radial seal retainer [34], washers [14] and bolts [30];

b) Install the radial seal [40], radial seal retainer [38], washers [14] and bolts [36].

7) At hinge 4, do these steps:

a) Install the radial seal [42], radial seal retainer [44], washers [14] and bolts [43];

b) Install the radial seal [87], radial seal retainer [85], washers [14] and bolts [86].

8) At hinge 5, do these steps:

a) Install the radial seal [54], radial seal retainer [53], washers [14] and bolts [52];

b) Install the radial seal retainer [62], washers [14] and bolts [61].

SUBTASK 27-11-11-420-002

(6) Install the aileron and tab assembly [1] without the sling, SPL-2042 (Figure 401).

(a) Install the aileron and tab assembly [1] on the hinges:

1) Apply grease, D00633 to the outer diameters of all hinge bolts and bushings and inner diameters of bearing.

2) Put the aileron and tab assembly [1] in position to install.

3) Align the hinges with the support fittings.

4) Connect the aileron and tab assembly [1] at hinges 1, 2, 3 and 4.

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a) Install the bolts [22], washers [21], bushings [20], washers [19] and nuts [18].

b) Tighten the nuts [18] to 50-80 pound-inches (5.6-9.0 newton-meters).

NOTE: Tighten the nut [18] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [22].

c) Install the new pins [17].

5) Connect the aileron and tab assembly [1] to hinge 5.

a) Install the bolt [60], washer [59], bushing [58], washer [57] and nut [56].

b) Tighten the nut [56] to 160-240 pound-inches (18.1-27.1 newton-meters).

NOTE: Tighten the nut [56] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [60].

c) Install the new pin [55].

6) Connect the aileron and tab assembly [1] at hinge 6;

a) Install the bolt [70], washer [69], bushing [68], washer [79] and nut [80].

b) Tighten the nut [80] to 160-240 pound-inches (18.1-27.1 newton-meters).

NOTE: Tighten the nut [80] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [70].

c) Install the new pin [81].

(b) Align the aileron and tab assembly [1] with the aileron balance panels [5].

1) Make sure the washer under the bolt is bonded to the hinge half.

a) If it is necessary, bond the washer to the hinge half with sealant, A00247.

2) Install the bolts [66], washers [65], nuts [64].

3) Tighten the nuts [64] to 25-35 pound-inches (2.8-4.0 newton-meters).

NOTE: Tighten the nut [64] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [66].

4) Make sure the gap between the bushings and the washers [65] is 0.01 inch (0.25 millimeter) minimum.

5) Install the new pins [63].

(c) Attach the hinge seals [7] to the balance panels [5]:

1) Attach the hinge seals [7] to the balance panels [5].

a) Make sure the correct number of balance weights [28] are installed on balance panels 3 and 4 (SRM 51-60-01).

2) Apply compound, C00528 to bolts [3], [4], [6], and [27].

3) Install balance weights [28] with bolts [3].

4) Install balance weights [26] with the bolts [8] with collars [9], bolts [27], bolts [6], and bolts [4].

(d) Connect the tab control rods [41] to the forward fittings.

1) Install the bolts [50], washers [49], bushings [48], washers [47] and nuts [46].

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2) Tighten the nuts [46] to 50-80 pound-inches (5.6 9.0 newton-meters).

NOTE: Tighten the nut [46] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [50].

3) Install the pins [45].

(e) At hinge 1, do these steps:

1) Install the radial seal retainer [16], washers [14] and bolts [15];

2) Install the radial seal [25], radial seal retainer [24], washers [14] and bolts [23];

3) Connect the bonding jumper [13] with washer [12] and nut [11].

(f) At hinge 2, do these steps:

1) Install the radial seal [31], radial seal retainer [33], washers [14] and bolts [29];

2) Install the radial seal [39], radial seal retainer [37], washers [14] and bolts [35].

(g) At hinge 3, do these steps:

1) Install the radial seal [32], radial seal retainer [34], washers [14] and bolts [30];

2) Install the radial seal [40], radial seal retainer [38], washers [14] and bolts [36].

(h) At hinge 4, do these steps:

1) Install the radial seal [42], radial seal retainer [44], washers [14] and bolts [43];

2) Install the radial seal [87], radial seal retainer [85], washers [14] and bolts [86].

(i) At hinge 5, do theses steps:

1) Install the radial seal [54], radial seal retainer [53], washers [14] and bolts [52];

2) Install the radial seal retainer [62], washers [14] and bolts [61].

SUBTASK 27-11-11-720-001

(7) Do the aileron surface friction and motion test.

(a) With a push/pull scale 0-25 pound (0-11 kilogram), STD-753, measure the force at 8.75 +/- 0.25 inch (222.25 +/- 6.35 millimeters) aft of the hinge centerline and perpendicular to the aileron chord plane.

(b) Write down the (positive) forces necessary to move each aileron through the neutral position.

(c) Write down the (negative) forces necessary to prevent movement of the aileron through the neutral position.

(d) Add these forces together.

(e) Make sure the result is not more than 5 pounds (22.2 newtons).

1) If the result is more than 5 pounds (22.2 newtons), do these checks;

a) Make sure that all the hinge bolts are sufficiently lubricated.

b) Make sure the torque values of the hinge bolts are as specified.

(f) Measure the force necessary to move the aileron through full travel in each direction, then back to the neutral position.

NOTE: The movement of the aileron must be free and smooth.

1) Apply the force perpendicular to the aileron chord plane 8.75 +/- 0.25 inches (222.25 +/- 6.35 millimeters) aft of the aileron hinge line.

2) Make sure the maximum force is not more than 13 pounds (57.8 newtons) for aileron down and 3 pounds (13.3 newtons) for aileron up.

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SUBTASK 27-11-11-420-003

(8) Connect the aileron control rod [67] to the aileron [1].

(a) Put the aileron control rod [67] in its position;

(b) Install the bolt [71], washer [72], bushing [75], washer [76], nut [78] and new pin [77].

SUBTASK 27-11-11-420-004

(9) Install the removable fairing [74]:

(a) Connect the bonding jumper [84] with washer [83] and nut [82];

(b) Put the removable fairing [74] in its position;

(c) Install the bolts [73] to attach the removable fairing [74] to the aileron [1].

SUBTASK 27-11-11-280-002

(10) Use the aileron control wheel to manually operate the aileron through a minimum of two full cycles, to full travel.

(a) Make sure the aileron can move smoothly and freely.

SUBTASK 27-11-11-220-002

(11) Do a check of the aileron clearances and mismatch (Figure 403).

(a) Make sure the clearances for the upper and lower surfaces of the aileron and the fixed trailing edge are not out of tolerance.

1) At the support beams for the aileron balance panel, make sure the clearance is 0.350-0.500 inch (8.89-12.7 millimeters).

2) At the blade seals, make sure the clearance is 0.010-0.050 inch (0.25-1.27 milliters).

(b) Make sure the mismatch for the upper and lower surfaces of the aileron and the fixed trailing edge are not out of tolerance.

1) For the aileron outside of the wing contour, make sure the maximum mismatch is 0.100 inch (2.54 millimeters).

2) For the aileron inside of the wing contour, make sure the maximum mismatch is 0.050 inch (1.27 millimeters).

(c) Make sure the clearance at the inboard end of the aileron is 0.100-0.200 inch (2.54-5.08 millimeters).

(d) Make sure the clearance at the outboard end of the aileron is 0.250-0.350 inch (6.35-8.89 millimeters).

(e) Make sure the aileron balance tab aligns with the aileron:

1) Measure the distance between the rig position of the aileron balance tab [1] to the aileron lower surface (dimension A) at these three positions Figure 27-11-00-990-805.

NOTE: You must measure from the lower aft most point of the aileron balance tab [2].

a) At the outboard end of the aileron balance tab, make sure the dimension A is 0.06 ±0.07 inch (1.5 ±1.8 millimeters) or 0.82 ±0.25 degrees.

b) At the middle point along the aileron balance tab, make sure the dimension A is 0.065 ±0.070 inch (1.7 ±1.8 millimeters) or 0.60 ±0.25 degrees.

c) At the inboard end of the aileron balance tab, make sure the dimension A is 0.07 ±0.07 inch (1.8 ±1.8 millimeters) or 0.34 ±0.25 degrees.

2) If the aileron balance tab does not align with the aileron, do this task: Aileron Balance Tab Adjustment, TASK 27-11-00-820-803.

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SUBTASK 27-11-11-710-001

(12) Do this task: Aileron Response (Operational) Test, TASK 27-11-00-710-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-11-410-001

(1) Install these aileron access panels found on the lower wing surface adjacent to the leading edge of the aileron:

(a) For the left wing, close these access panels:

Number	Name/Location
572AB	Lower Aileron, Hinge Cover - WBL 423.00
572CB	Lower Aileron, Hinge Cover - WBL 447.00
572DB	Lower Aileron, Hinge Cover - WBL 469.00
572FB	Lower Aileron, Hinge Cover - WBL 502.00
572GB	Lower Aileron, Hinge Cover - WBL 528.00
572HB	Lower Aileron, Hinge Cover - WBL 553.00

(b) For the right wing, close these access panels:

Number	Name/Location
672AB	Lower Aileron, Hinge Cover - WBL 423.00
672CB	Lower Aileron, Hinge Cover - WBL 447.00
672DB	Lower Aileron, Hinge Cover - WBL 469.00
672FB	Lower Aileron, Hinge Cover - WBL 502.00
672GB	Lower Aileron, Hinge Cover - WBL 528.00
672HB	Lower Aileron, Hinge Cover - WBL 553.00

SUBTASK 27-11-11-410-002

(2) Install these access panels found on the lower panel of the outboard fixed trailing edge.

(a) On the left wing, close these access panels:

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel

(b) On the right wing, close these access panels:

Number	Name/Location
671BB	Lower Outboard Fixed Trailing Edge Access Panel
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

SUBTASK 27-11-11-860-002

(3) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-11-720-002

(4) If necessary, do this task: Flight Test to Find and Correct Asymmetrical Flight Control Forces, TASK 27-11-00-750-801.

(a) A flight test is necessary if the aileron you installed was not the one that you removed.

(b) A flight test is necessary if the aileron you installed was rebalanced.

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(c) If you removed and installed the same aileron, and no balance changes were made, a flight test is not necessary.

END OF TASK

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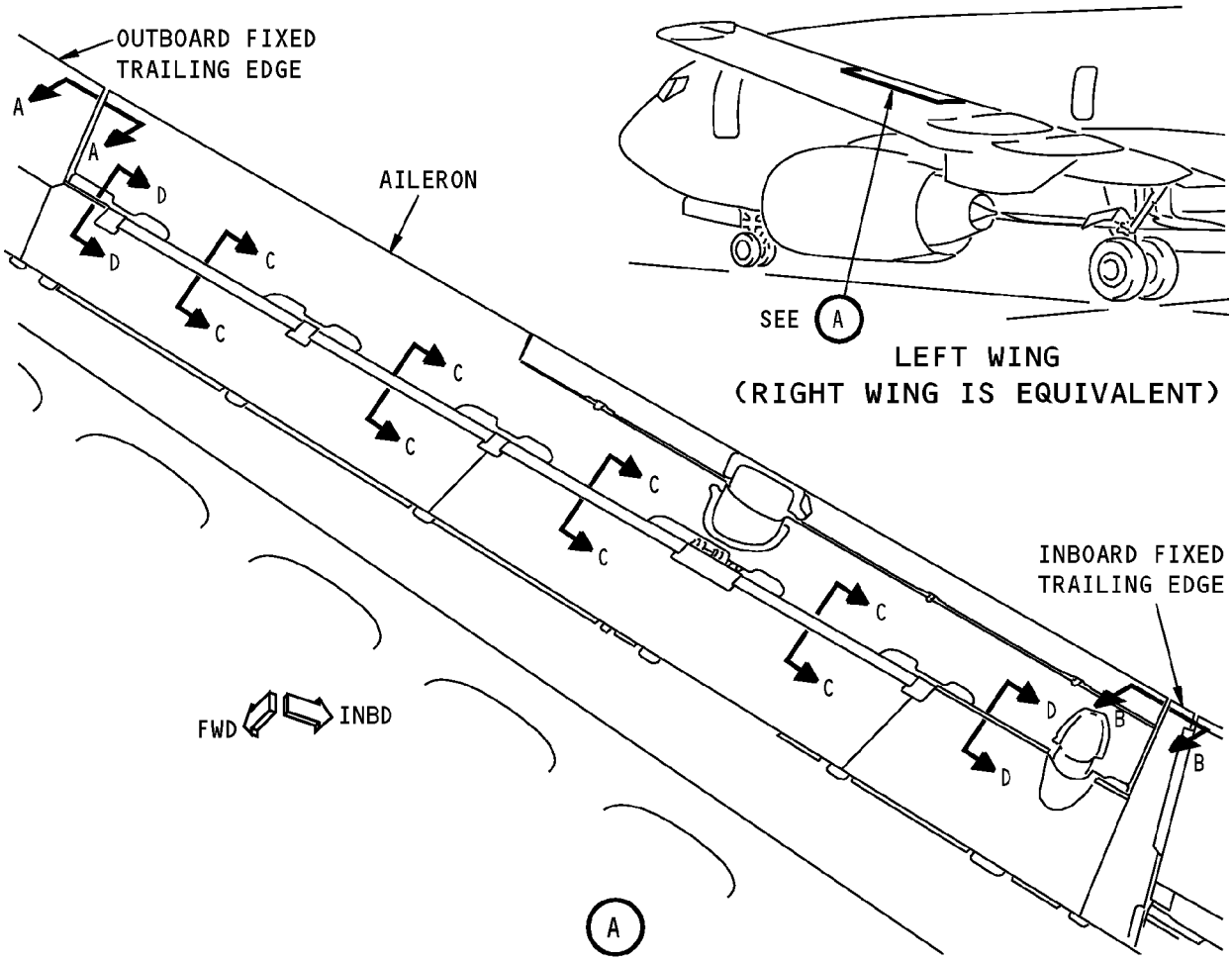
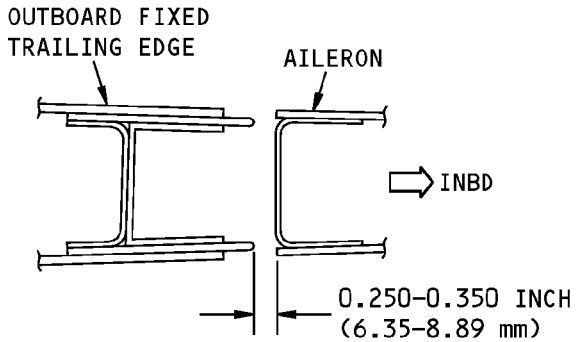
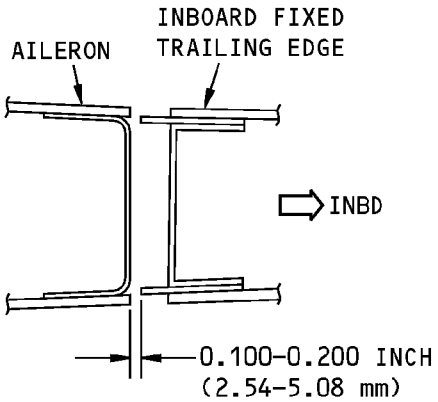




OUTBOARD END OF AILERON
A-A



INBOARD END OF AILERON
B-B

Aileron Clearance and Mismatch Requirements
Figure 403 (Sheet 1 of 3)/27-11-11-990-804

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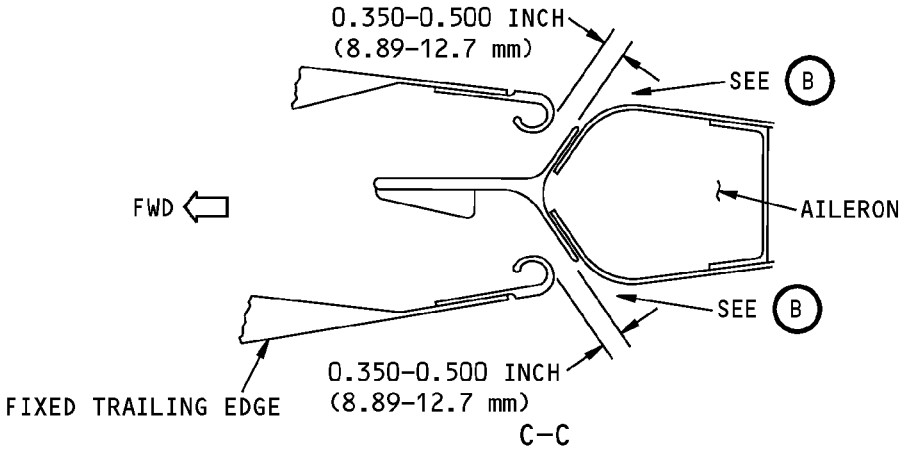
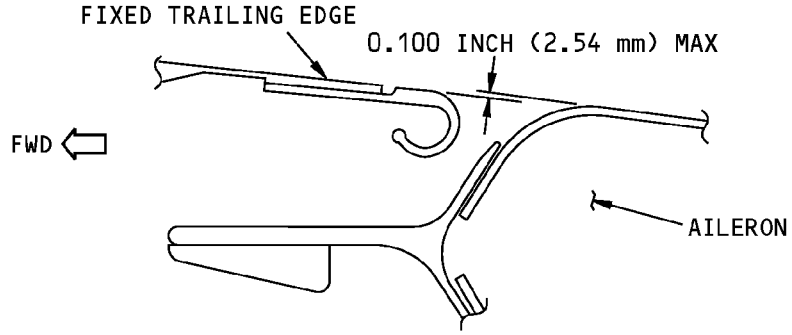
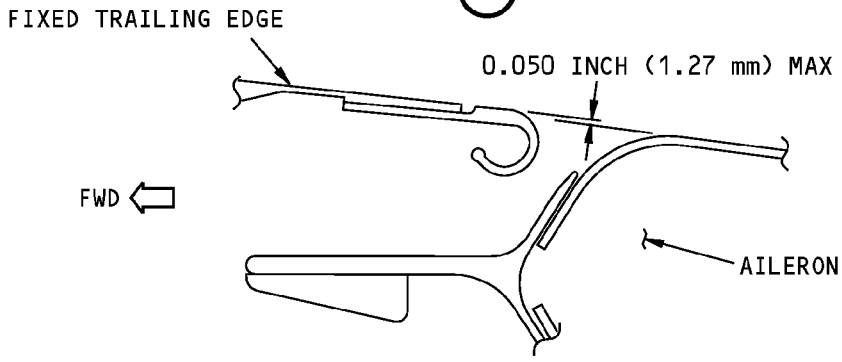




MISMATCH
(UPPER AND LOWER SURFACES)
(AILERON OUTSIDE OF WING CONTOUR)

B



MISMATCH
(UPPER AND LOWER SURFACES)
(AILERON INSIDE OF WING CONTOUR)

B

Aileron Clearance and Mismatch Requirements
Figure 403 (Sheet 2 of 3)/27-11-11-990-804

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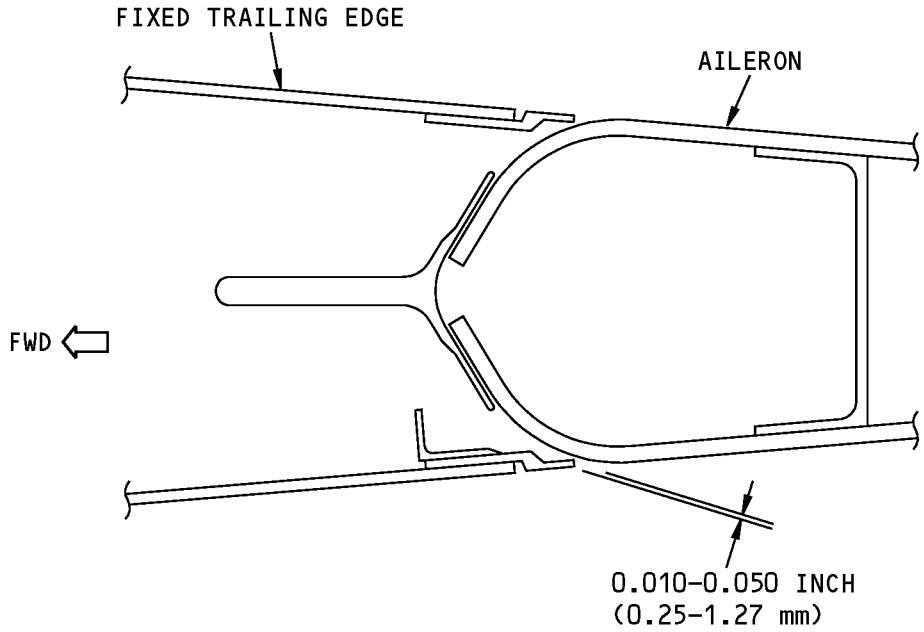

BLADE SEAL CLEARANCE
D–D

Aileron Clearance and Mismatch Requirements
Figure 403 (Sheet 3 of 3)/27-11-11-990-804

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AILERON - INSPECTION/CHECK

1. General

A. This procedure contains the task to do a check of the aileron hinge.

TASK 27-11-11-200-801

2. Aileron Inspection

(Figure 601)

A. General

(1) This task gives wear limits and repair data for the aileron hinge inspection.

B. References

Reference	Title
27-11-11-000-801	Aileron Removal (P/B 401)
27-11-11-400-801	Aileron Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Procedure

SUBTASK 27-11-11-020-003

(1) Do this task: Aileron Removal, TASK 27-11-11-000-801.

SUBTASK 27-11-11-020-004

(2) Use these tools to do a check for wear on the parts of the aileron hinge:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-11-11-020-005

(3) Examine the parts of the aileron PCU linkage for worn areas:

(a) Remove the parts you want to check.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are out of tolerance, replace or repair the parts if it is necessary.

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Table 601/27-11-11-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2525 in 6.4135 mm	0.0005 in
#1 BOLT	O.D.	0.2585 in 6.5659 mm	0.2595 in 6.5913 mm	0.2475 in 6.2865 mm	0.0127 mm
#2 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3773 in 9.5834 mm	0.0005 in
#2 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3728 in 9.4691 mm	0.0127 mm
#3 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2525 in 6.4135 mm	0.0005 in
#3 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	0.0127 mm
#4 BEARING	I.D.	0.2495 in 6.3373 mm	0.2500 in 6.3500 mm	0.2520 in 6.4008 mm	0.0000 in
#4 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	0.0000 mm
#5 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3778 in 9.5961 mm	0.0005 in
#5 BOLT	O.D.	0.3735 in 9.4869 mm	0.3745 in 9.5123 mm	0.3723 in 9.4564 mm	0.0127 mm
#6 BUSHING	I.D.	0.5620 in 14.2748 mm	0.5627 in 14.2926 mm	0.5645 in 14.3383 mm	0.0005 in
#6 BUSHING	O.D.	0.5610 in 14.2494 mm	0.5615 in 14.2621 mm	0.5595 in 14.2113 mm	0.0127 mm
#7 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3755 in 9.5377 mm	0.3777 in 9.5936 mm	0.0005 in

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#7 BOLT	O.D.	0.3735 in 9.4869 mm	0.3745 in 9.5123 mm	0.3723 in 9.4564 mm	0.0127 mm
#8 BEARING	I.D.	0.3745 in 9.5123 mm	0.3750 in 9.5250 mm	0.3772 in 9.5809 mm	0.0000 in
#8 BOLT	O.D.	0.3735 in 9.4869 mm	0.3745 in 9.5123 mm	0.3723 in 9.45642mm	0.0000 mm
#9 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3755 in 9.5377 mm	0.3777 in 9.5936 mm	0.0005 in
#9 BOLT	O.D.	0.3735 in 9.4869 mm	0.3745 in 9.5123 mm	0.3723 in 9.4564 mm	0.0127 mm
#10 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3778 in 9.5961 mm	0.0005 in
#10 BOLT	O.D.	0.3735 in 9.4869 mm	0.3745 in 9.5123 mm	0.3723 in 9.4564 mm	0.0127 mm
#11 BEARING	I.D.	0.3745 in 9.5123 mm	0.3750 in 9.5250 mm	0.3772 in 9.5809 mm	0.0000 in
#11 BOLT	O.D.	0.3735 in 9.4869 mm	0.3745 in 9.5123 mm	0.3723 in 9.4564 mm	0.0000 mm
#12 BUSHING	I.D.	0.5620 in 14.2748 mm	0.5627 in 14.2926 mm	0.5645 in 14.3383 mm	0.0005 in
#12 BUSHING	O.D.	0.5610 in 14.2494 mm	0.5615 in 14.2621 mm	0.5595 in 14.2113 mm	0.0127 mm

SUBTASK 27-11-11-020-006

(4) Do this task: Aileron Installation, TASK 27-11-11-400-801.

END OF TASK

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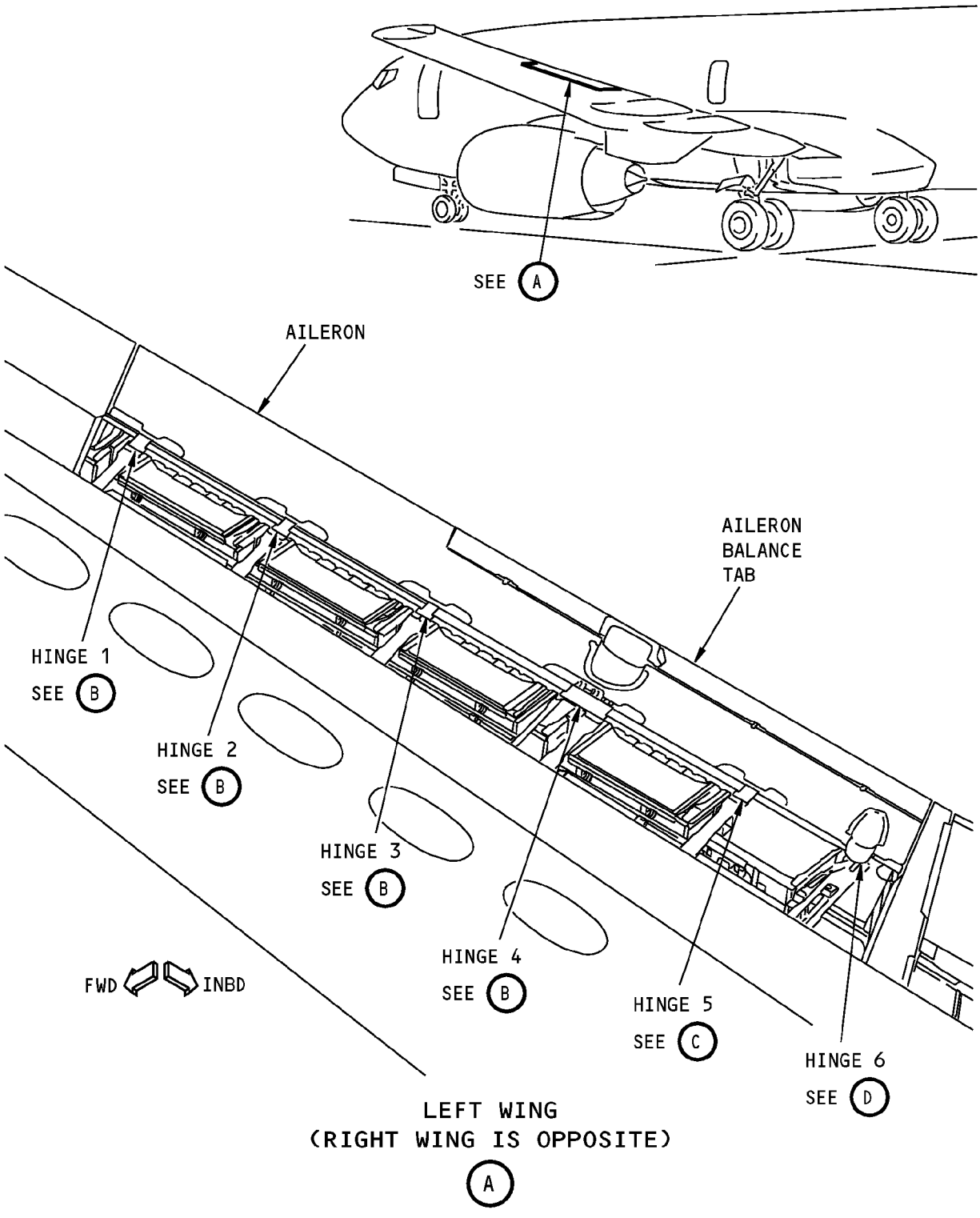

Aileron Wear Limits
Figure 601 (Sheet 1 of 3)/27-11-11-990-803

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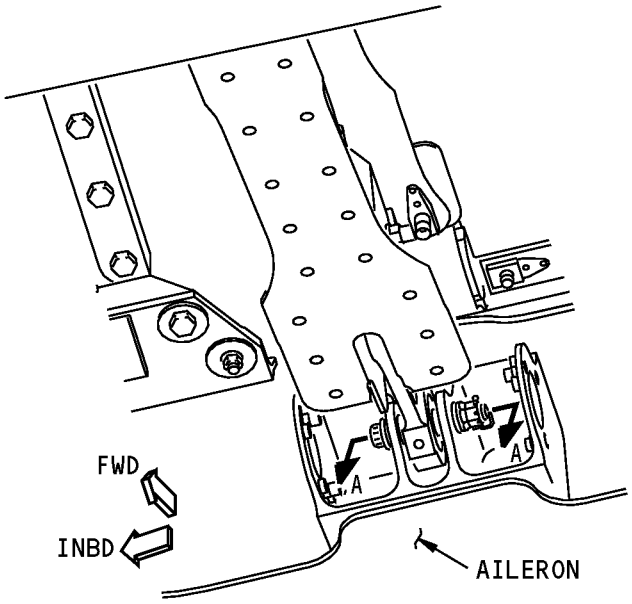
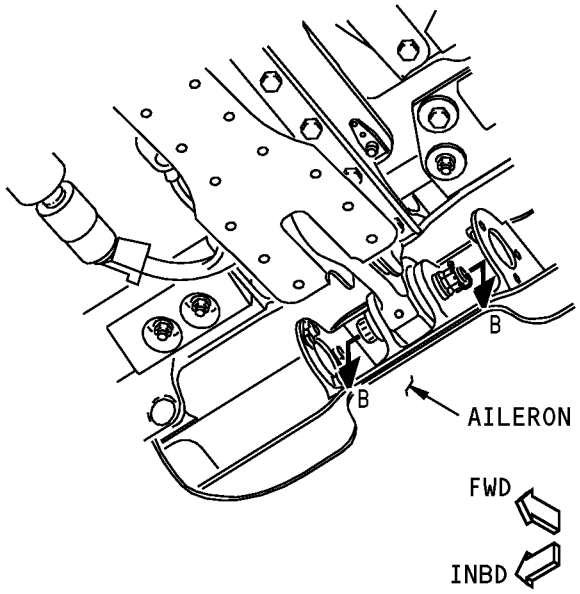


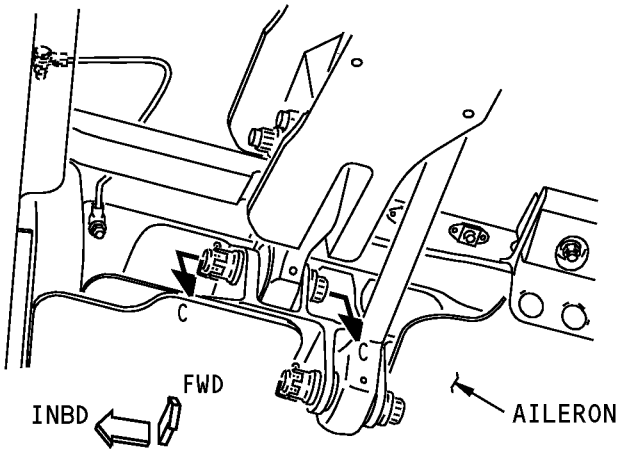
HINGE 1
(HINGES 2,3,4 ARE EQUIVALENT)

B



HINGE 5

C



HINGE 6

D

Aileron Wear Limits
Figure 601 (Sheet 2 of 3)/27-11-11-990-803

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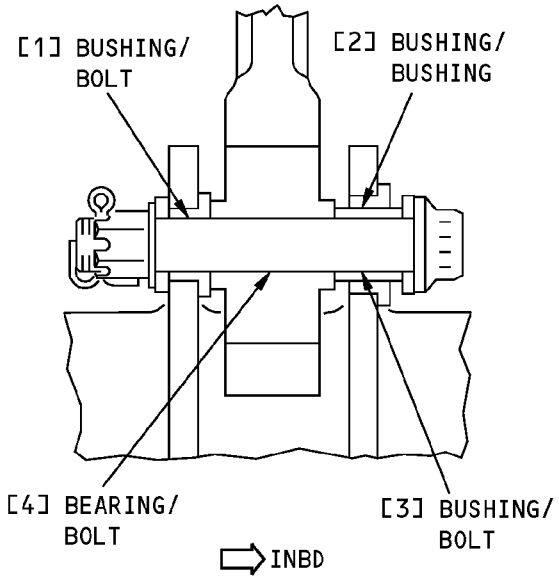
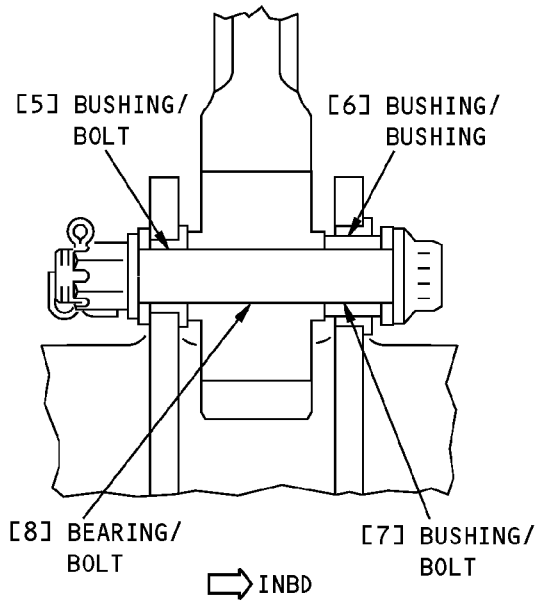
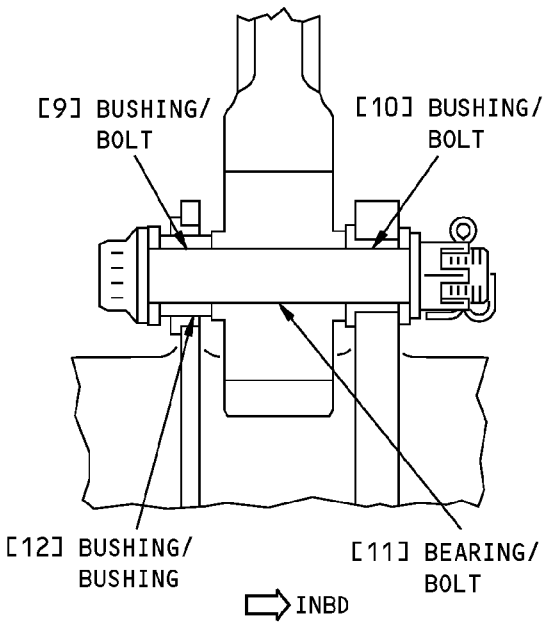


A–A



B–B



C–C

Aileron Wear Limits
Figure 601 (Sheet 3 of 3)/27-11-11-990-803

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AILERON POWER CONTROL UNIT LINKAGE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron power control unit linkage

(2) An installation of the aileron power control unit linkage.

B. The aileron power control unit linkage is referred to as the linkage [1] or linkage [2] in this procedure.

C. This procedure is applicable for system A and B linkages.

TASK 27-11-14-000-801

2. Aileron Power Control Unit Linkage Removal

(Figure 401)

A. References

Reference	Title
27-11-71-000-801	Aileron Power Control Unit Removal (P/B 401)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Removal

SUBTASK 27-11-14-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-11-14-020-001

(2) Do this task: Aileron Power Control Unit Removal, TASK 27-11-71-000-801.

D. Aileron Power Control Unit Linkage Removal

SUBTASK 27-11-14-020-002

(1) Remove the linkage [1] or linkage [2]:

(a) Disconnect cable ABSA [22] and cable ABSB [19] at the turnbuckles [3].

(b) Remove the nuts [18], washers [17], washers [16] and bolts [15] to remove the retaining plates [14] from the aileron bus drum [20].

(c) Disengage cable ABSA [22] and cable ABSB [19] from the aileron bus drum [20].

(d) Safety the disconnected cable ABSA [22] and cable ABSB [19] to secure them.

(e) Remove the cotter pin [6], washers [5] to remove the cable retention pins [4] between the support frames [7] and [21].

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(f) Remove the nuts [23] and screws [25] to disconnect the System B upper quadrant assembly from the System A lower quadrant assembly.

(g) For system A, do these steps:

1) Remove the nut [47], washer [46], washer [45] and bolt [44] to disconnect the diagonal support [39] from the structure.

2) Remove the nut [34], washer [33], washer [32] and bolt [31] to remove the diagonal support [39] from the support frame [21].

3) Remove the nuts [49] to remove the hydraulic fittings.

4) Remove the nut [30], washer [29], washer [28], bolt [27], nut [38], washer [37], washer [36], and bolt [35] to remove the support frame [21] from the structure.

(h) For system B, do these steps:

1) Remove the nut [12], washer [11], bushing [10], washer [9] and bolt [8] to disconnect the spring cartridge [13] at the inboard end;

2) Remove the nut [68], washer [69], bushing [70], shims [67], washer [72] and bolt [71] to disconnect the diagonal support [62] from the structure;

3) Remove the nut [55], washer [54], washer [53] and bolt [52] to remove the diagonal support [62] from the support assembly [56];

4) Remove the nut [30], washer [29], washer [28], bolt [27] and nut [66], washer [65], washer [64], bolt [63] to remove the support frame [7] from the structure.

(i) For system A, do these steps:

1) Remove the nuts [43], washers [42], washers [41] and bolts [40] to disconnect the support assembly [50] from the structure;

2) Remove the linkage [1] from the airplane.

(j) For system B, do these steps:

1) Remove the nuts [43], washers [42], washers [41] and bolts [40] to disconnect the support assembly [56] from the structure.

2) Remove the linkage [2] from the airplane.

——————— END OF TASK ———————

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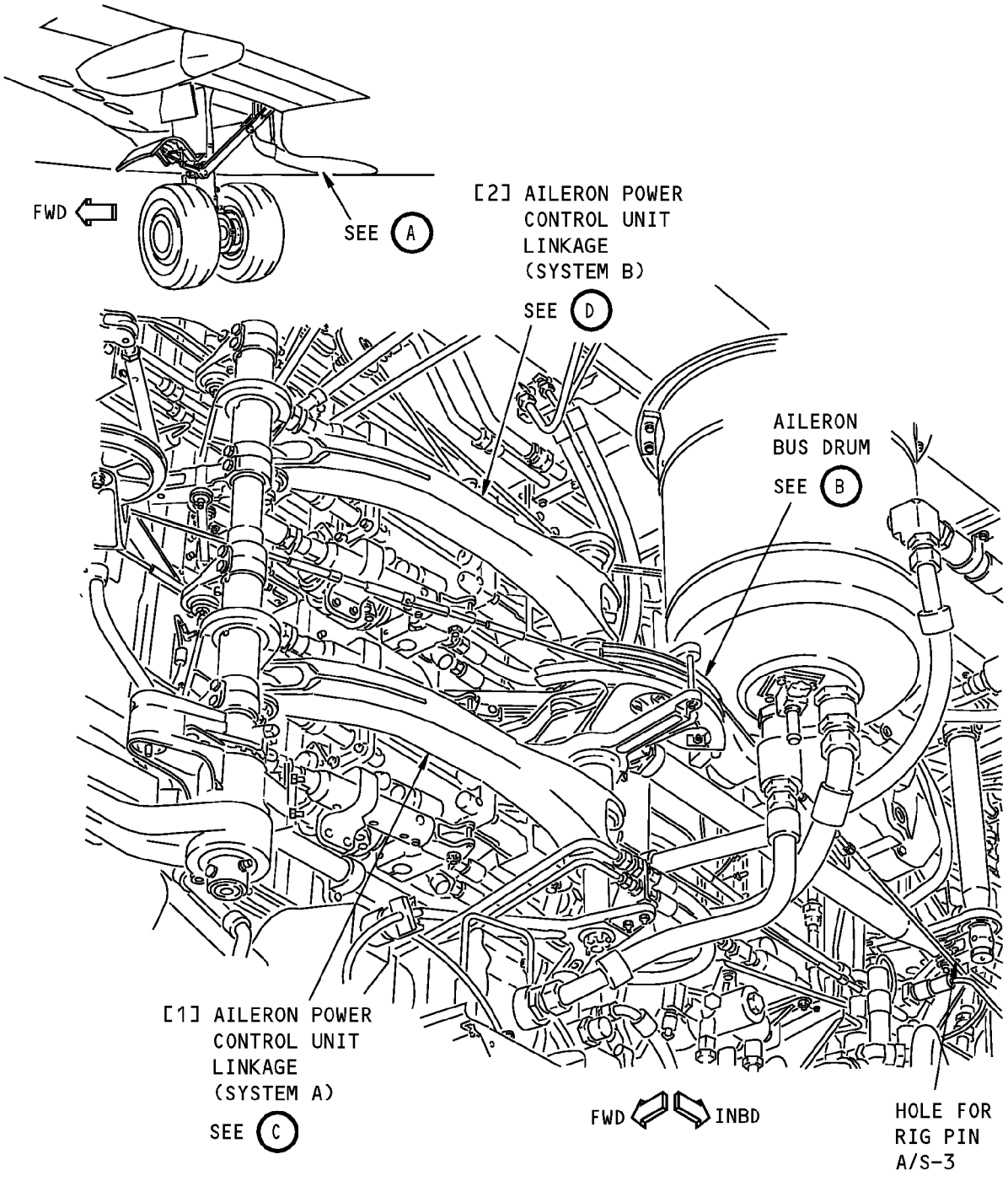

MAIN LANDING GEAR WHEEL WELL

A

Aileron Power Control Unit Linkage Installation
Figure 401 (Sheet 1 of 4)/27-11-14-990-801

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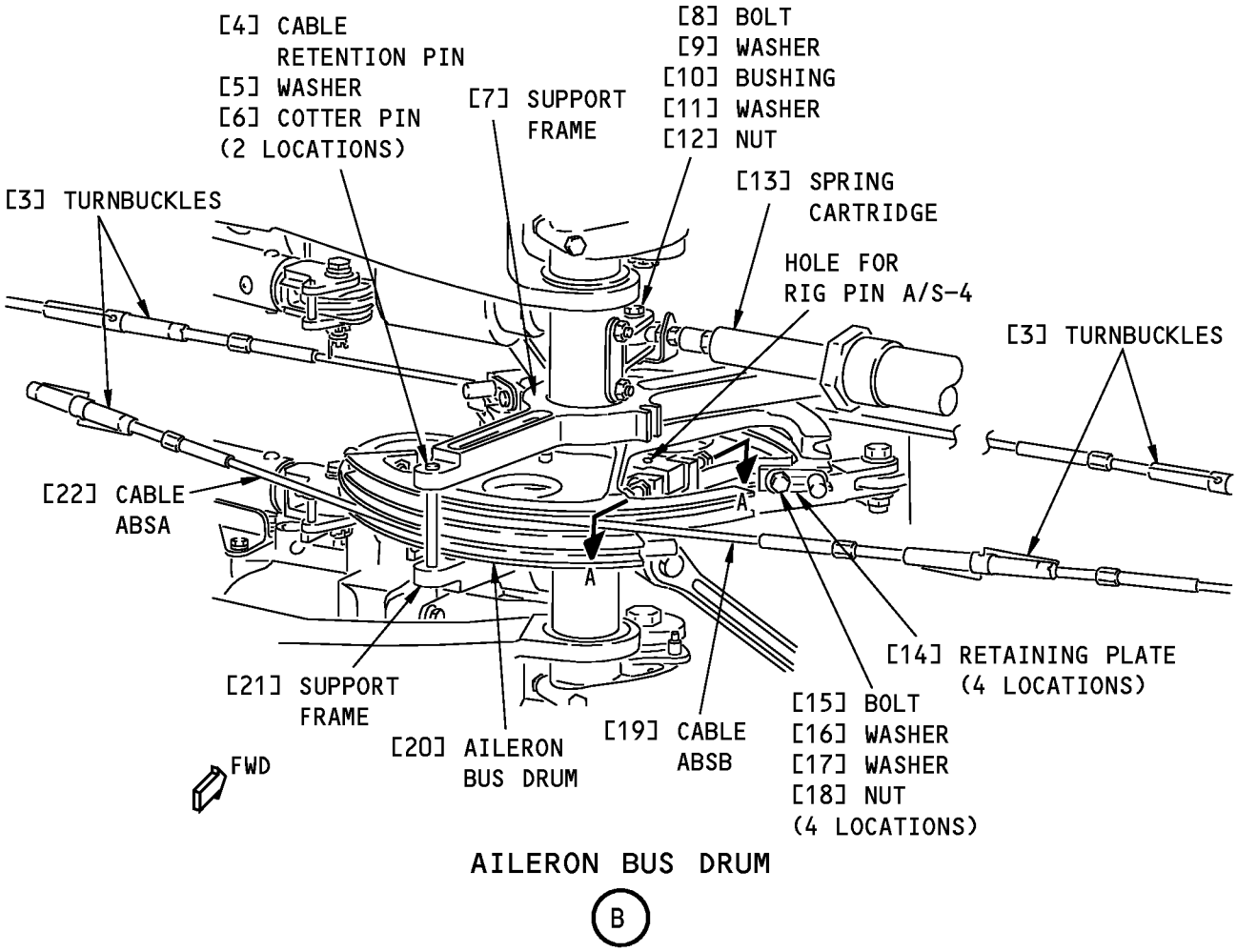

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Aileron Power Control Unit Linkage Installation
Figure 401 (Sheet 2 of 4)/27-11-14-990-801

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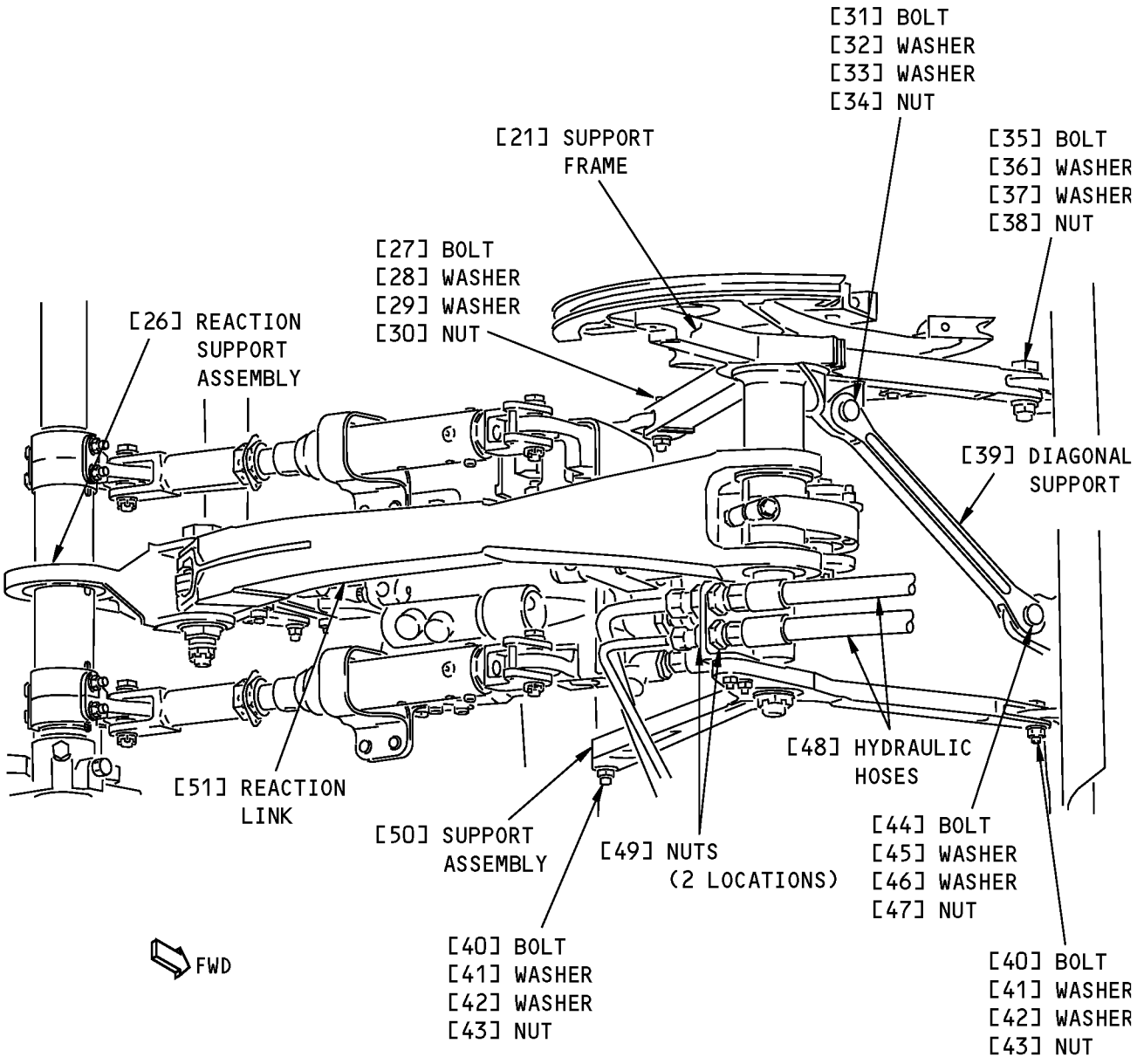

AILERON POWER CONTROL UNIT LINKAGE
(SYSTEM A)

C

Aileron Power Control Unit Linkage Installation
Figure 401 (Sheet 3 of 4)/27-11-14-990-801

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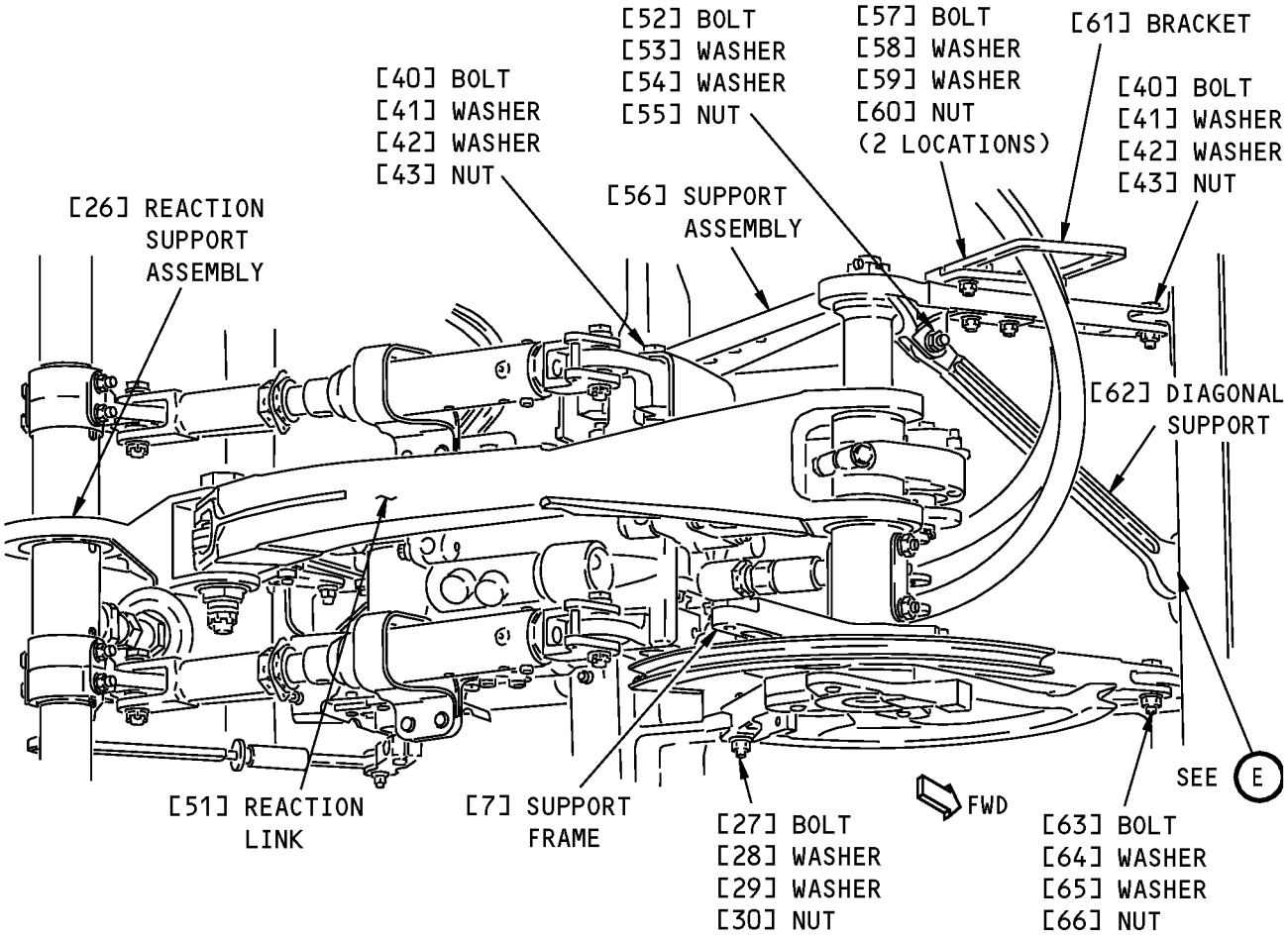
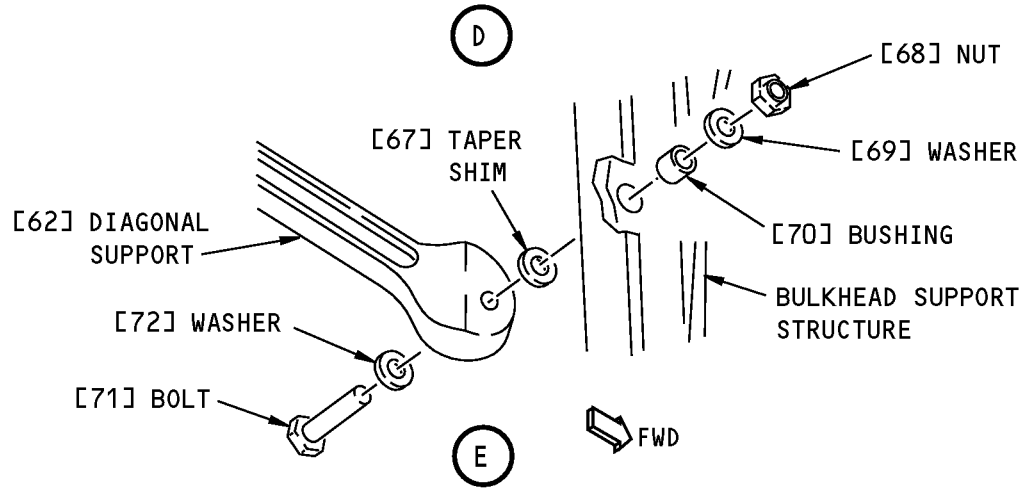


AILERON POWER CONTROL UNIT LINKAGE
(SYSTEM B)



Aileron Power Control Unit Linkage Installation
Figure 401 (Sheet 4 of 4)/27-11-14-990-801

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TASK 27-11-14-400-801

3. Aileron Power Control Unit Linkage Installation

(Figure 401)

A. References

Reference	Title
27-11-00-700-809	Aileron Travel Test (P/B 501)
27-11-00-820-801	Aileron Cables Adjustment (P/B 501)
27-11-71-400-801	Aileron Power Control Unit Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
G02436	Lockwire - Monel (0.040 In. Dia.)	NASM20995N˜ C40

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Aileron Power Control Unit Linkage Installation

(Figure 401)

SUBTASK 27-11-14-420-002

(1) Install the linkage [1] or linkage [2]:

(a) Put the linkage [1] or linkage [2] in its position.

(b) Apply sealant, A00247 to the bolts [40].

(c) Install the bolts [40], washers [41], washer [42] and nuts [43] to connect the support assembly [50] or [56] to the structure.

(d) For system A, do these steps;

1) Apply sealant, A00247 to the bolts [31], [44], [27] and [35].

2) Install the diagonal support [39] to the support frame [21] with bolt [31], washer [32], washer [33] and nut [34].

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3) Connect the diagonal support [39] to the structure with bolt [44], washer [45], washer [46] and nut [47].

4) Install the hydraulic fittings with nuts [49].

5) Install the bolt [27], washer [28], washer [29], nut [30] and bolt [35], washer [36], washer [37], nut [38] to connect the support frame [21] to the structure.

(e) For system B, do these steps;

1) Apply sealant, A00247 to the bolts [52], [71], [27] and [63], shims [67] and bushing [70].

2) Install the diagonal support [62] to the support assembly [56] bolt [52], washer [53], washer [54] and nut [55].

3) Install the diagonal support [62] to the structure with bolt [71], washer [72], shims [67], bushing [70], washer [69] and nut [68].

a) Install or remove the taper shim [67] as necessary to decrease the gap to 0.003 inch (0.07 millimeter) or less, between the diagonal support [62] and teh bulkhead support structure the diagonal support is atttached to..

4) Install the bolt [27], washer [28], washer [29], nut [30] and bolt [63], washer [64], washer [65], nut [66] to connect the support frame [7] to the structure.

(f) Install the cable retention pins [4], washers [5] and cotter pins [6].

1) Apply a maximum preload of 35 pound-inches (4.0 newton-meters) during installation.

SUBTASK 27-11-14-420-003

(2) Do this task: Aileron Power Control Unit Installation, TASK 27-11-71-400-801.

SUBTASK 27-11-14-420-004

(3) Install the screws [25] and nuts [23].

(a) Make sure the gap between the screw [25] and the aileron bus drum [20] is 0.04-0.06 inch (1.02-1.52 millimeters).

(b) Install the lockwire, G02436 with one continous twist on the two screws [25].

SUBTASK 27-11-14-480-002

(4) Install the rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum.

SUBTASK 27-11-14-480-003

(5) Install the rig pin A/S-3, from the rig pin kit, SPL-1585, in the right shaft of the aileron control quadrant.

SUBTASK 27-11-14-420-005

(6) For system B, install the bolt [8], washer [9], bushing [10], washer [11], and nut [12] to connect the spring cartridge [13] to the linkage [2].

SUBTASK 27-11-14-420-006

(7) Connect cable ABSA [22] and cable ABSB [19]:

(a) Connect cable ABSA [22] and cable ABSB [19] on the aileron bus drum [20].

1) Install the retaining plates [14] with bolts [15], washers [16], washers [17] and nuts [18].

(b) Connect cable ABSA [22] and cable ABSB [19] at the turnbuckles [3].

(c) Tighten the turnbuckles [3] but keep the cables tension at zero.

(d) Adjust cable ABSA [22] and cable ABSB [19]. To adjust cable ABSA [22] and cable ABSB [19], do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

(e) Install turnbuckles clip locks.

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SUBTASK 27-11-14-480-004

(8) Remove the rig pin A/S-3, from the rig pin kit, SPL-1585, from the right shaft of the aileron control quadrant.

SUBTASK 27-11-14-480-005

(9) Remove the rig pin A/S-4, from the rig pin kit, SPL-1585, from the aileron bus drum.

SUBTASK 27-11-14-710-001

(10) Do this task: Aileron Travel Test, TASK 27-11-00-700-809.

——————— END OF TASK ———————

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AILERON BALANCE TAB - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of an aileron balance tab

(2) An installation of an aileron balance tab.

B. This procedure is applicable for the left and right aileron balance tab.

TASK 27-11-21-000-801

2. Aileron Balance Tab Removal

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

C. Aileron Balance Tab Removal

SUBTASK 27-11-21-860-001

(1) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-21-020-001

(2) Remove the aileron balance tab assembly [2] (Figure 401):

(a) Remove the bolts [8] that attach the forward removable fairing [9] to the aileron [1].

1) Remove the forward removable fairing [9].

(b) Remove the bolts [6] that attach the aft removable fairing [7] to the aileron balance tab assembly [2].

1) Remove the aft removable fairing [7].

(c) Remove the pin [12], nuts [11], washers [13], bushings [16], washers [15], and bolts [14] that attach the aileron tab control rods [10] to the tab mast.

(d) Turn the trailing edge of the aileron balance tab assembly [2] up until you can see the bolts [3] that attach the hinge covers [5] to the nose cap.

(e) Remove the bolts [3] and washers [4].

(f) Remove the hinge covers [5].

(g) Disconnect the bonding jumpers [29] that are adjacent to the tab hinges No. 1 and No. 5.

1) Remove the nuts [32], washers [31], and bolts [30] to disconnect the bonding jumpers [29].

(h) Hold and remove the aileron balance tab assembly [2] from the aileron [1]:

1) Remove the pin [37], nuts [38], washers [39], bushings [36], bushings [35], washers [34], and bolts [33]. Discard the pin [37].

2) Remove the pin [22], nut [17], washer [21], bushing [18], washer [20], and bolt [19]. Discard the pin [22].

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3) Remove the pin [23], nut [28], washer [27], bushings [26], washer [25], and bolt [24]. Discard the pin [23].

(i) Carefully remove the aileron balance tab assembly [2] from the hinge assemblies.

(j) Remove the aileron balance tab assembly [2] from the aileron [1].

——————— END OF TASK ———————

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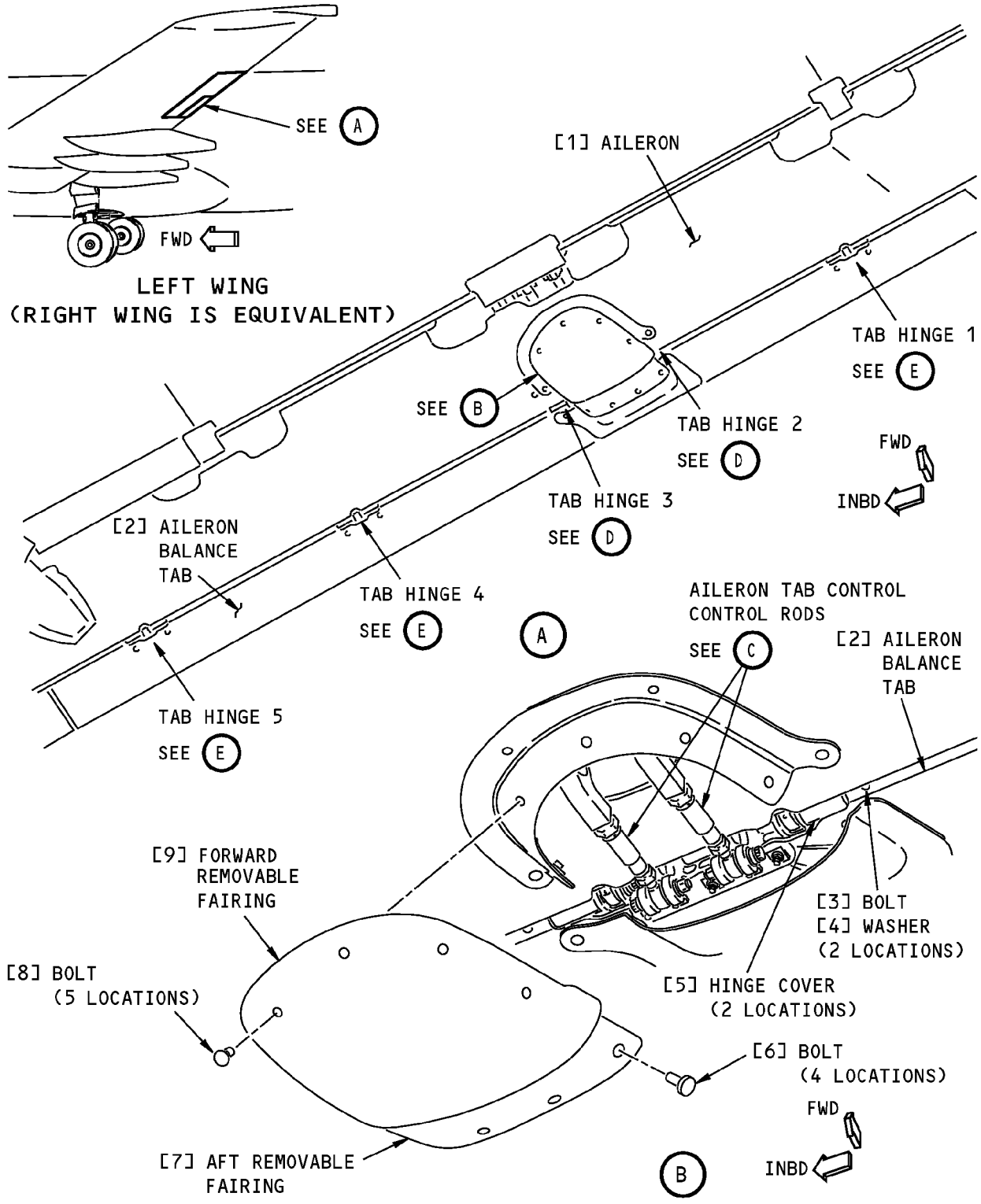

Aileron Balance Tab Installation
Figure 401 (Sheet 1 of 3)/27-11-21-990-801

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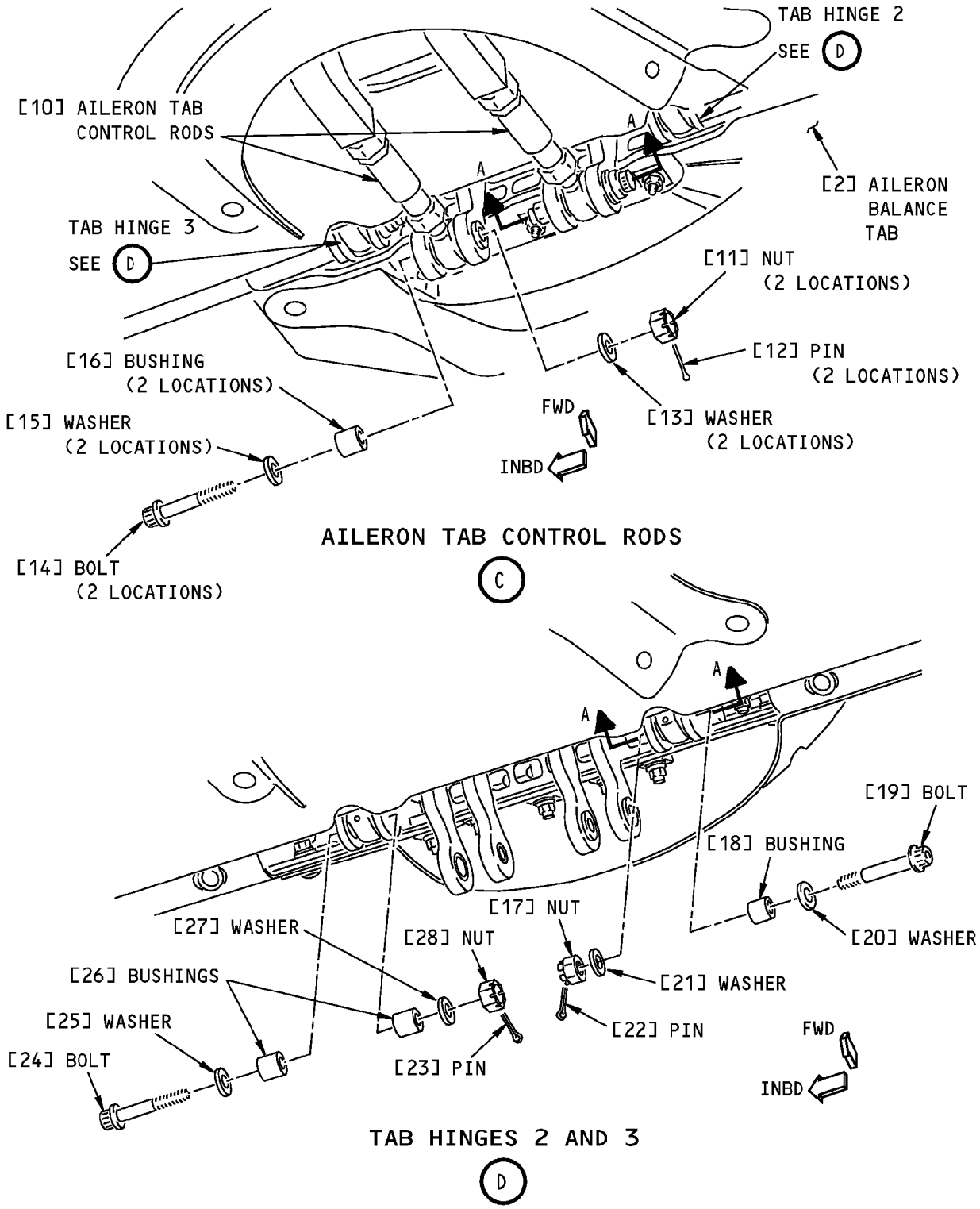

Aileron Balance Tab Installation
Figure 401 (Sheet 2 of 3)/27-11-21-990-801

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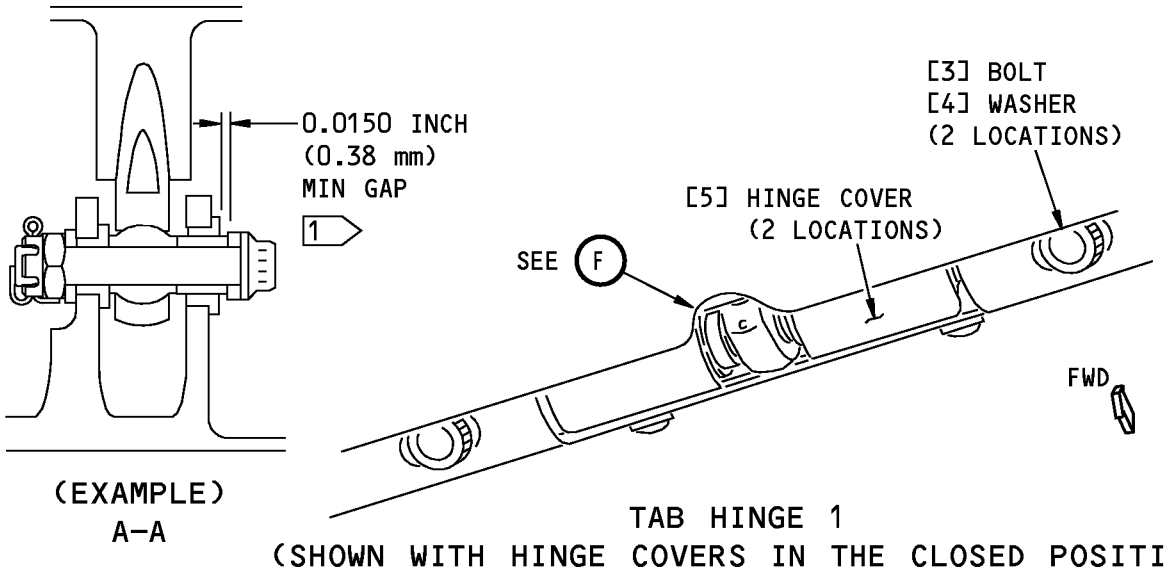
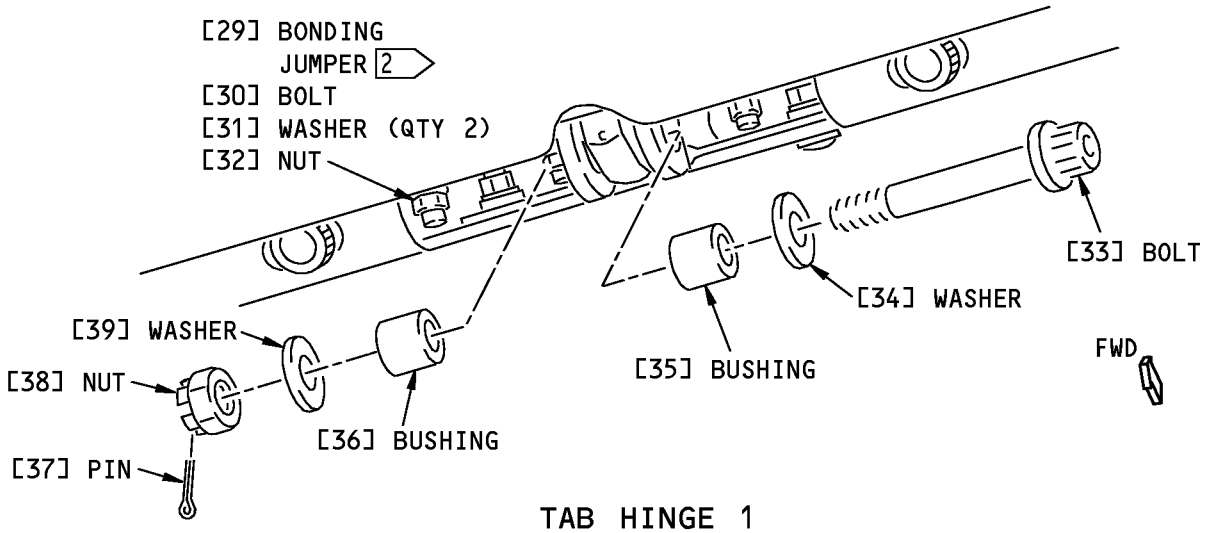


TAB HINGE 1
(SHOWN WITH HINGE COVERS IN THE CLOSED POSITION)
(TAB HINGES 4 AND 5 ARE EQUIVALENT)

E



TAB HINGE 1
(SHOWN WITH HINGE COVERS IN THE OPEN POSITION)
(TAB HINGES 4 AND 5 ARE EQUIVALENT)

F

1 > 0.0150 INCH (0.38 mm) GAP REFERS TO TAB HINGE 2 AND CONTROL ROD CONNECTIONS ONLY.

2 > BONDING JUMPERS ARE ON TAB HINGES 1 AND 5.

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Aileron Balance Tab Installation
Figure 401 (Sheet 3 of 3)/27-11-21-990-801

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TASK 27-11-21-400-801

3. Aileron Balance Tab Installation

A. References

Reference	Title
27-11-00-700-808	Aileron Balance Tab Position Test (P/B 501)
27-11-00-820-803	Aileron Balance Tab Adjustment (P/B 501)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)
27-11-21-200-801	Aileron Balance Tab Inspection (P/B 601)
SRM 51-60-03	Structural Repair Manual

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Tab assembly	27-11-21-01-100	HAP ALL
		27-11-21-01-105	HAP ALL
12	Pin	27-11-21-01-010	HAP ALL
		27-31-41-01-110	HAP ALL
22	Pin	27-11-21-01-060	HAP ALL
		27-31-41-01-110	HAP ALL
23	Pin	27-11-21-01-060	HAP ALL
		27-31-41-01-110	HAP ALL
37	Pin	27-11-21-01-060	HAP ALL
		27-31-41-01-110	HAP ALL

D. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Aileron Balance Tab Installation

SUBTASK 27-11-21-220-001

(1) If you install used bearings, bushings and bolts, do this task: Aileron Balance Tab Inspection, TASK 27-11-21-200-801.

SUBTASK 27-11-21-210-001

(2) Make sure the balance panels have the correct number of the tab adjust weights (Figure 402).

(a) If it is necessary, add or remove tab adjust weights (SRM 51-60-03).

SUBTASK 27-11-21-640-001

(3) Lubricate the hinge bearings, bushings [18], [26], [35], [36] and bolts [24], [19], [33] with grease, D00633 except on the threads (Figure 401).

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SUBTASK 27-11-21-420-001

(4) Install the aileron balance tab assembly [2]:

(a) Put the aileron balance tab assembly [2] in its position.

(b) Install the hinge fittings on the aileron balance tab assembly [2] with the fittings on the aileron [1].

1) Do these steps at tab hinges 1, 4, and 5:

a) Install the bolts [33], washers [34], bushings [35], bushings [36], washers [39], and nuts [38].

b) Tighten the nuts [38] to 50-80 pound-inches (5.6-9.0 newton-meters).

NOTE: Tighten the nuts [38] to the lower end of the torque range. Continue to tighten the nut until the first castellation aligns with the hole in the bolt [33].

c) Install a new pin [37].

2) Do these steps at tab hinges 3:

a) Install the bolt [24], washer [25], bushings [26], washer [27], and nut [28].

b) Tighten the nut [28] to 50-80 pound-inches (5.6-9.0 newton-meters).

NOTE: Tighten the nut [28] to the lower end of the torque range. Continue to tighten the nut until the first castellation aligns with the hole in the bolt [24].

c) Install a new pin [23].

3) Do these steps at tab hinge No. 2:

a) Install the bolt [19], washer [20], bushing [18], washer [21], and nut [17].

b) Make sure there is a minimum 0.0150 inch (0.38 millimeter) gap between the bushing and washer (Figure 401)(View A-A).

c) Tighten the nut [17] to 50-80 pound-inches (5.6-9.0 newton-meters).

NOTE: Tighten the nut [17] to the lower end of the torque range. Continue to tighten the nut until the first castellation aligns with the hole in the bolt [19].

d) Install a new pin [22].

(c) Install the bonding jumpers [29] at tab hinges No. 1 and No. 5:

1) Install bolts [30], washers [31], nuts [32].

2) Fillet seal the bonding jumper joints with sealant, A00247 or sealant, A02315.

(d) Install the hinge covers [5] to close the hinge bolt access areas.

1) Install the hinge covers [5] with washers [4] and bolts [3].

2) Make sure the washer [4] touches the aileron balance tab assembly [2] on a minimum of two edges.

3) Tighten the bolts [3] to 22-28 pound-inches (2.5-3.2 newton-meters).

(e) Connect the control rods [10] to the aileron balance tab assembly [2]:

1) Install bolts [14], washers [15], bushings [16], washers [13], and nuts [11].

a) Make sure there is a minimum 0.0150 inch (0.38 millimeter) gap between the bushing and washer [15] (Figure 401) (View A-A).

2) Tighten the nuts [11] to 50-80 pound-inches (5.6-9.0 newton-meters).

3) Install the pin [12].

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SUBTASK 27-11-21-420-002

(5) Install the bolts [6] to attach the aft removable fairing [7] to the aileron balance tab assembly [2].

SUBTASK 27-11-21-420-003

(6) Install the bolts [8] to attach the forward removable fairing [9] to the aileron [1].

(a) Apply sealant, A02315, to the upper edge of the forward removable fairing [9] to get aerodynamic smoothing.

SUBTASK 27-11-21-710-001

(7) Operate the aileron control wheel through full travel.

(a) Make sure the aileron balance tab assembly [2] moves freely in the opposite direction to the aileron [1].

SUBTASK 27-11-21-860-002

(8) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-21-820-001

(9) Do this task: Aileron Balance Tab Adjustment, TASK 27-11-00-820-803.

SUBTASK 27-11-21-730-001

(10) Do this task: Aileron Balance Tab Position Test, TASK 27-11-00-700-808.

——————— END OF TASK ———————

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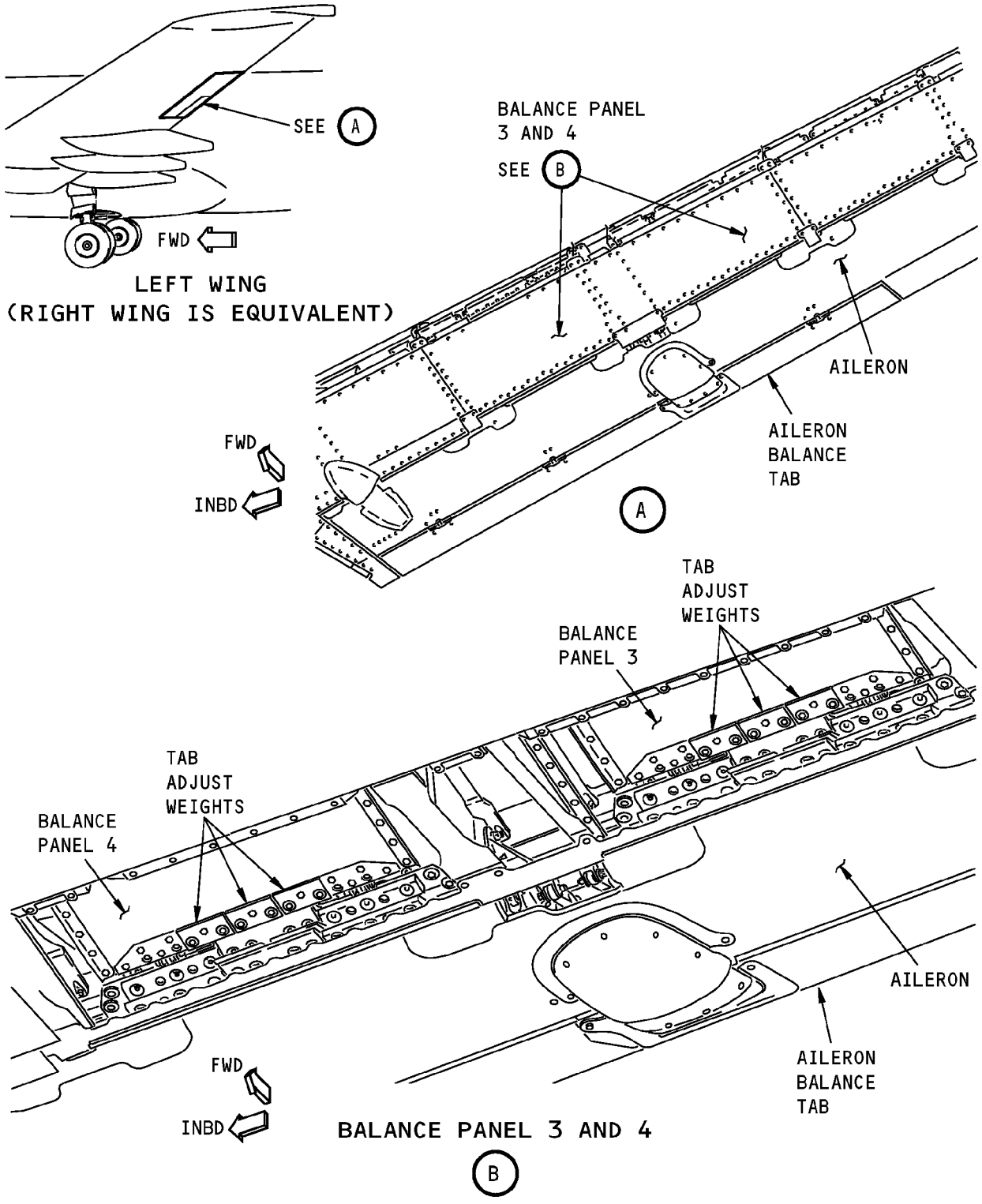

Aileron Balance Tab Adjust Weights Location
Figure 402/27-11-21-990-802

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AILERON BALANCE TAB - INSPECTION/CHECK

1. General

A. This procedure contains the task to do a check of the aileron balance tab.

TASK 27-11-21-200-801

2. Aileron Balance Tab Inspection

(Figure 601)

A. General

(1) This task gives wear limits and repair data for the aileron balance tab inspection.

B. References

Reference	Title
27-11-21-000-801	Aileron Balance Tab Removal (P/B 401)
27-11-21-400-801	Aileron Balance Tab Installation (P/B 401)
27-11-34-000-801	Aileron Tab Control Rods Removal (P/B 401)
27-11-34-400-801	Aileron Tab Control Rods Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Procedure

SUBTASK 27-11-21-020-002

(1) Do this task: Aileron Balance Tab Removal, TASK 27-11-21-000-801 or Aileron Tab Control Rods Removal, TASK 27-11-34-000-801.

SUBTASK 27-11-21-020-003

(2) Use these tools to do a check for wear on the parts of the aileron balance tab:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-11-21-020-004

(3) Examine the parts of the aileron balance tab for worn areas:

(a) Remove the parts you want to do a check.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are out of tolerance, replace or repair the parts.

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Table 601/27-11-21-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3773 in 9.5834 mm	0.0005 in 0.0127 mm
#1 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3728 in 9.4691 mm	
#2 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2525 in 6.4135 mm	0.0005 in 0.0127 mm
#2 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	
#3 BEARING	I.D.	0.2495 in 6.3373 mm	0.2500 in 6.3500 mm	0.2520 in 6.4008 mm	0.0000 in 0.0000 mm
#3 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	
#4 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3773 in 9.5834 mm	0.0005 in 0.0127 mm
#4 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3728 in 9.4691 mm	
#5 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2525 in 6.4135 mm	0.0005 in 0.0127 mm
#5 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	
#6 BEARING	I.D.	0.2495 in 6.3373 mm	0.2500 in 6.3500 mm	0.2520 in 6.4008 mm	0.0000 in 0.0000 mm
#6 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	
#7 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2525 in 6.4135 mm	0.0005 in

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#7 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	0.0127 mm
#8 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2525 in 6.4135 mm	0.0005 in
#8 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	0.0127 mm

SUBTASK 27-11-21-020-005

(4) Do this task: Aileron Balance Tab Installation, TASK 27-11-21-400-801 or Aileron Tab Control Rods Installation, TASK 27-11-34-400-801.

——————— END OF TASK ———————

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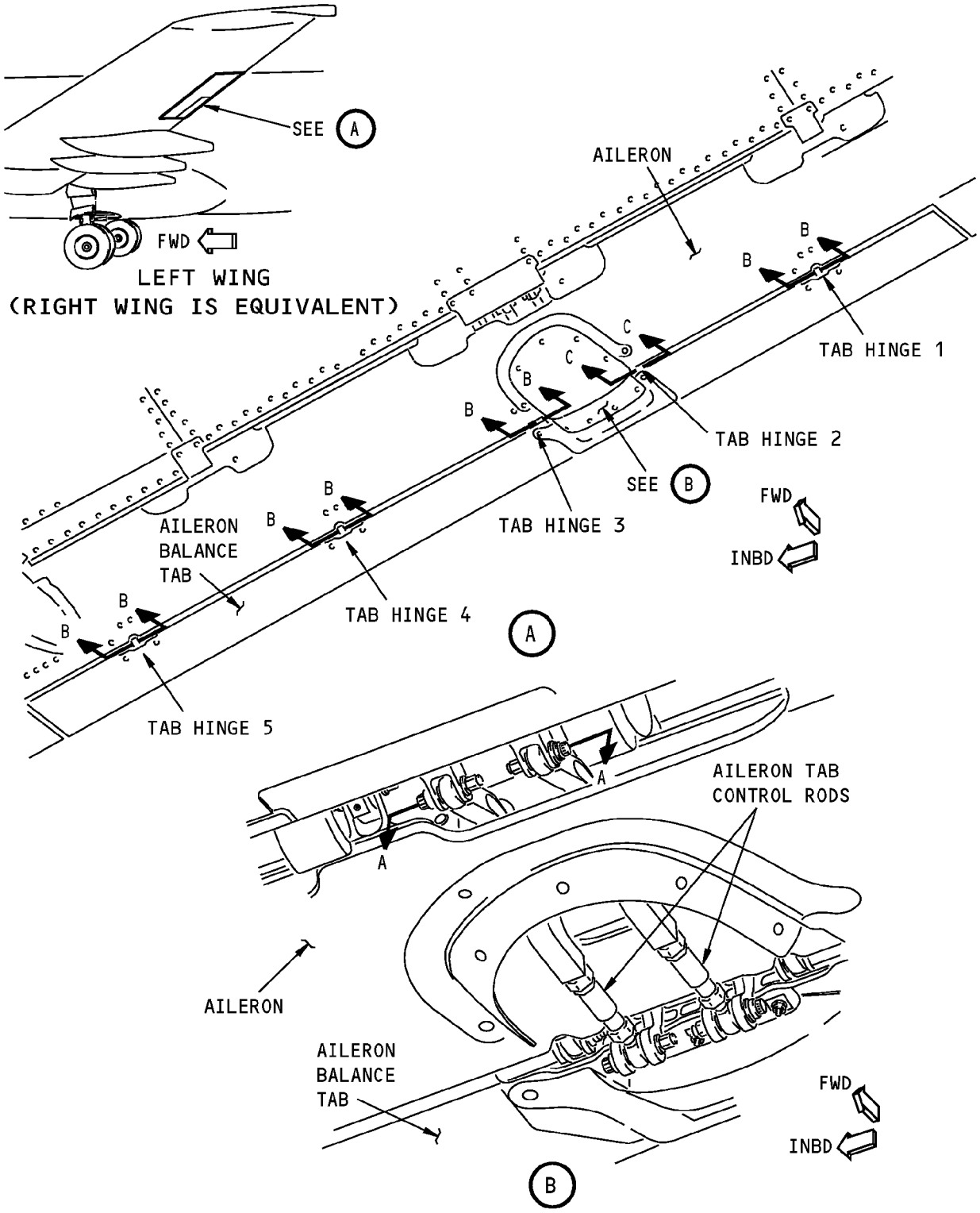

Aileron Balance Tab Wear Limits
Figure 601 (Sheet 1 of 2)/27-11-21-990-803

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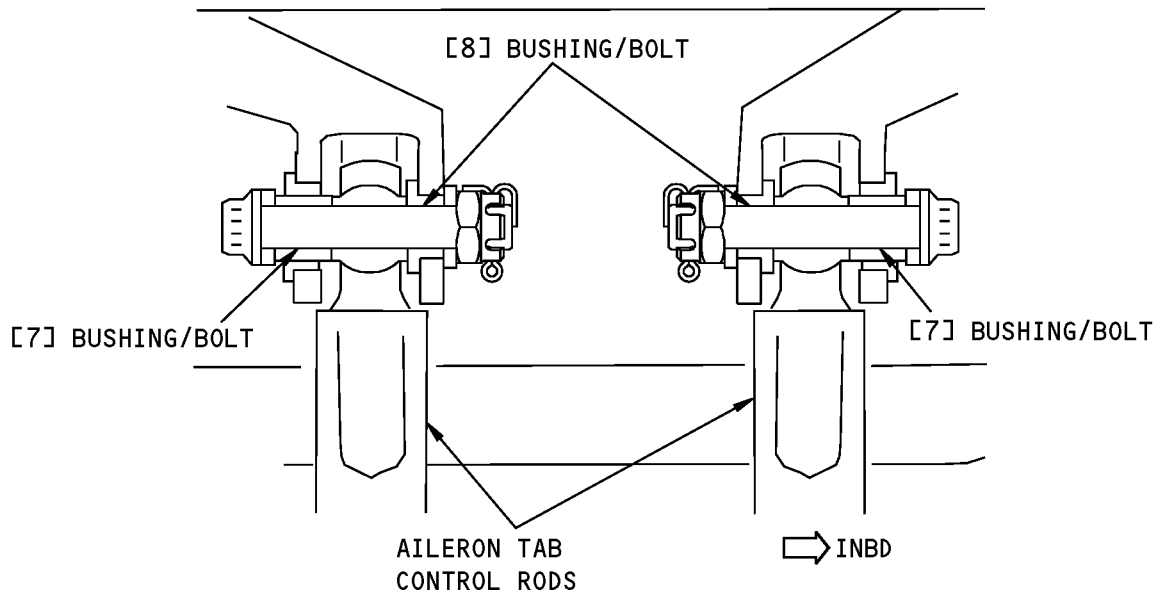
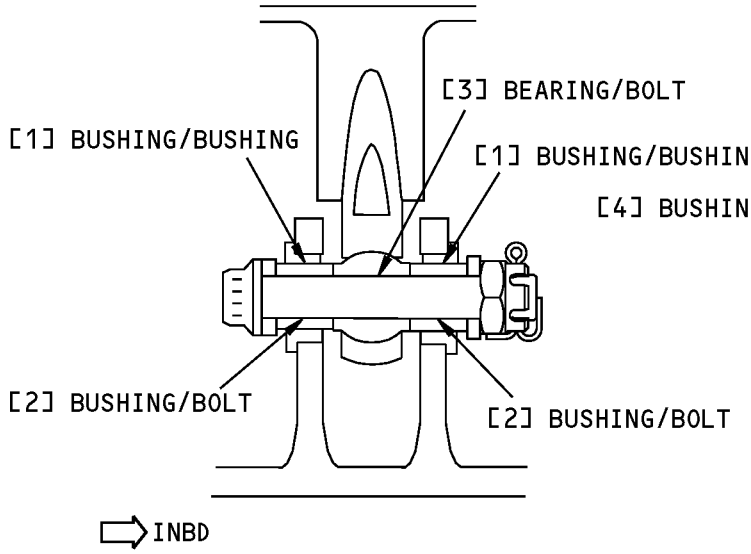
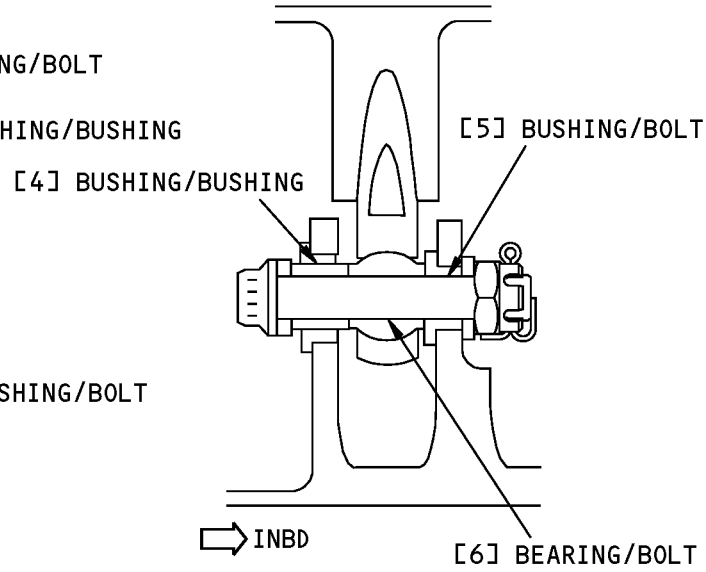


A–A



TAB HINGE 1
(TAB HINGES 3, 4, AND 5
ARE EQUIVALENT)
B–B



TAB HINGE 2
C–C

Aileron Balance Tab Wear Limits
Figure 601 (Sheet 2 of 2)/27-11-21-990-803

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AILERON WING QUADRANT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron wing quadrant

(2) An installation of the aileron wing quadrant.

TASK 27-11-24-000-801

2. Aileron Wing Quadrant Removal

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

D. Access Panels

Number	Name/Location
571AT	Upper Outboard Fixed Trailing Edge, Quadrant Bolt Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel
671AT	Upper Outboard Fixed Trailing Edge, Quadrant Bolt Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

E. Prepare for the Removal

SUBTASK 27-11-24-860-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

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SUBTASK 27-11-24-480-001

(2) Install the rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum.

SUBTASK 27-11-24-010-001

(3) Remove the applicable panel:

(a) On the left wing, open this access panel:

Number	Name/Location
571DB	Lower Outboard Fixed Trailing Edge Access Panel

(b) On the right wing, open this access panel:

Number	Name/Location
671DB	Lower Outboard Fixed Trailing Edge Access Panel

F. Aileron Wing Quadrant Removal

SUBTASK 27-11-24-020-001

(1) Remove the aileron wing quadrant assembly [9]:

(a) Disconnect cable ABSA [2] and cable ABSB [4] at the turnbuckles [1].

(b) Safety the disconnected cable ABSA [2] and cable cable ABSB [4].

(c) Remove the nuts [39], washers [38] and bolts [37] to remove the cable guard [36].

(d) Remove the nuts [8], washers [7], washers [6] and bolts [5] to remove the retaining plates [19] from the aileron wing quadrant assembly [9].

(e) Disengage cable ABSA [2] and cable ABSB [4] from the aileron wing quadrant assembly [9].

(f) Open the applicable access panel to get access to the bolt [23].

For the left wing, open this access panel:

Number	Name/Location
571AT	Upper Outboard Fixed Trailing Edge, Quadrant Bolt Access Panel

For the right wing, open this access panel:

Number	Name/Location
671AT	Upper Outboard Fixed Trailing Edge, Quadrant Bolt Access Panel

(g) Remove the bolt [31] and washer [32] to disconnect the aileron position transmitter rod from the aileron wing quadrant assembly [9].

(h) Remove the pin [13], nut [14], washer [15], bushing [12], washer [11] and bolt [10] to remove the aileron control rod [17] from the aileron [16]. Discard the pin [13].

(i) Disconnect the aileron wing quadrant assembly [9] from the aileron hinge support [18].

1) Remove pin [26], nut [27], washer [25], bushing [24], washer [35] and bolt [23] to disconnect the aileron wing quadrant assembly [9] from the aileron hinge support [18]. Discard the pin [26].

(j) Remove the aileron wing quadrant assembly [9].

(k) Disassemble the aileron wing quadrant assembly [9] if it is necessary;

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1) Remove the bushing [41], and bearings [40].

   NOTE: The top bearing [40] is swaged to the wing quadrant assembly [9].

2) Remove the pin [28], nut [29], washer [30], bushing [22], washer [21] and bolt [20] to disconnect the aileron control rod [17] from the aileron wing quadrant assembly [9]. Discard the pin [28].

——————— END OF TASK ———————

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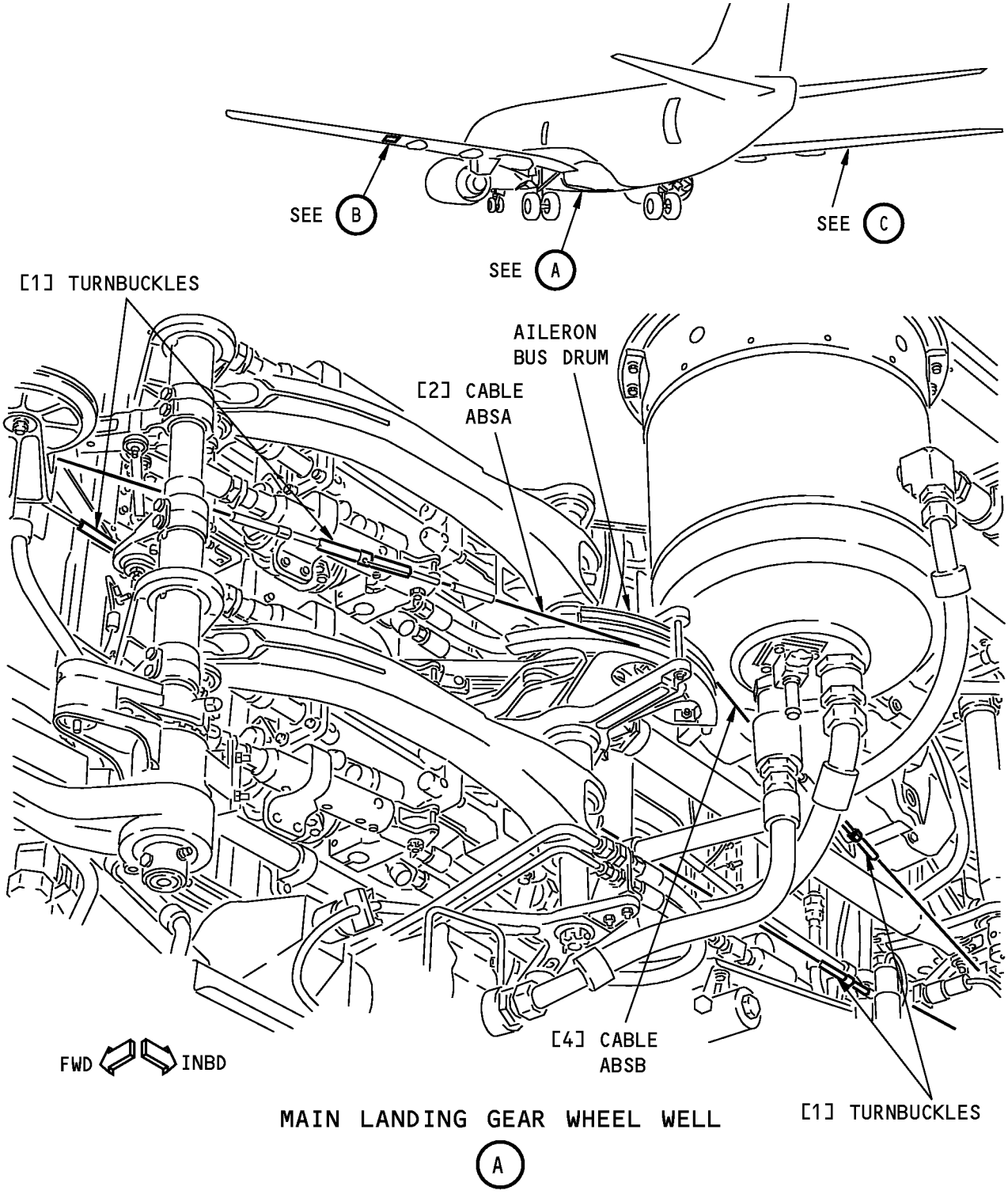

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Aileron Wing Quadrant Installation
Figure 401 (Sheet 1 of 5)/27-11-24-990-801

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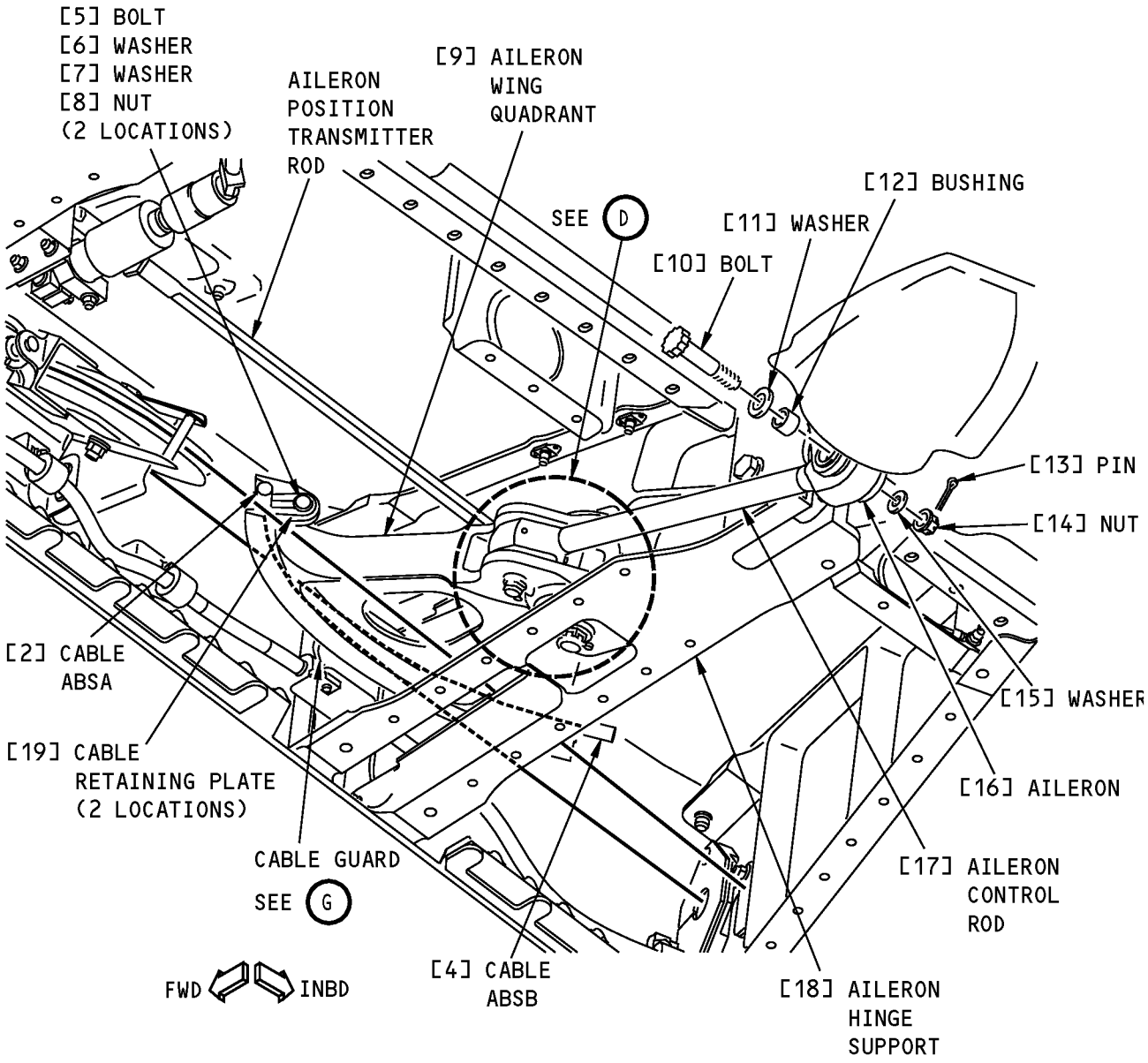

LEFT AILERON WING QUADRANT

B

Aileron Wing Quadrant Installation
Figure 401 (Sheet 2 of 5)/27-11-24-990-801

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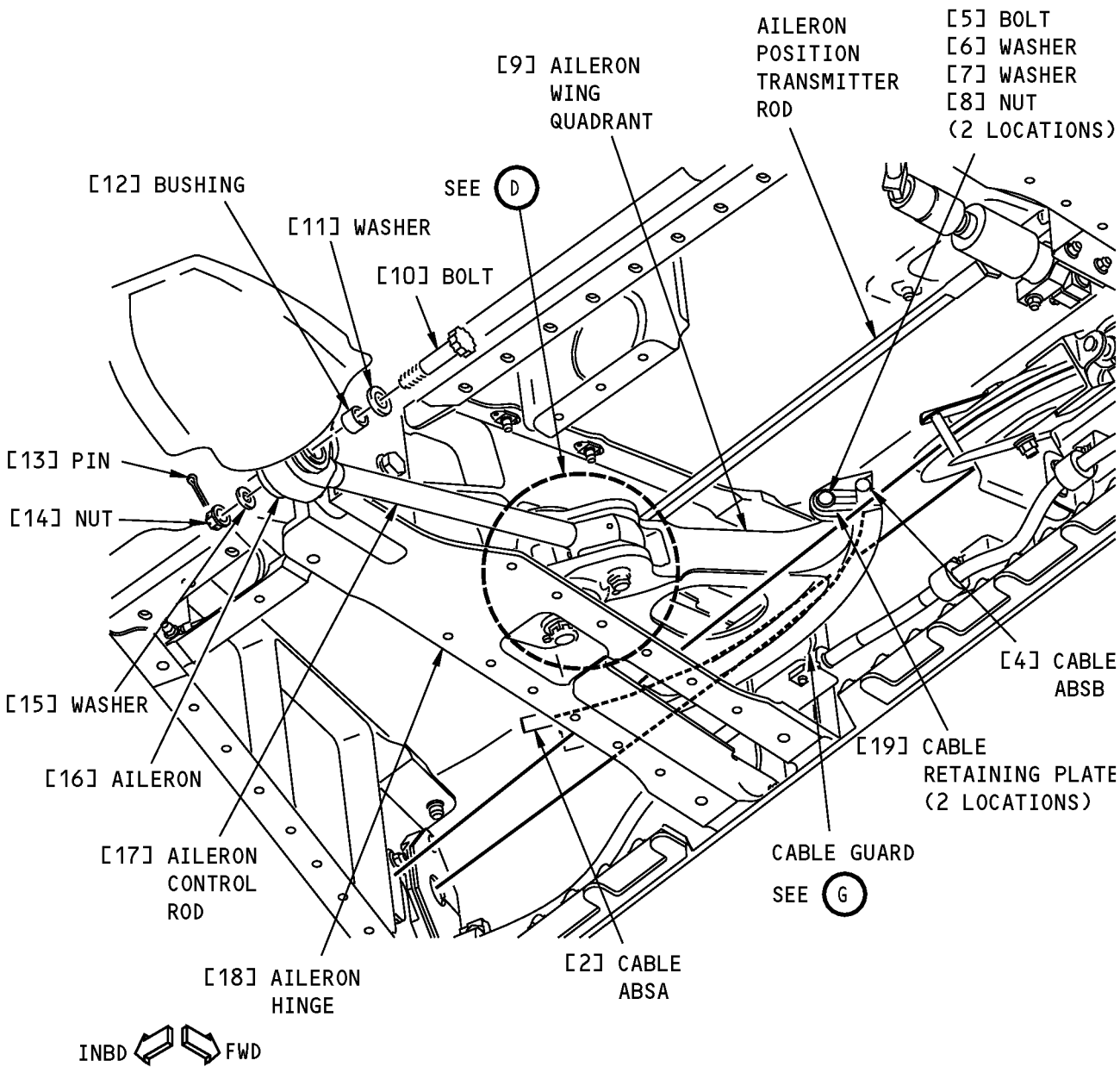

RIGHT AILERON WING QUADRANT

C

Aileron Wing Quadrant Installation
Figure 401 (Sheet 3 of 5)/27-11-24-990-801

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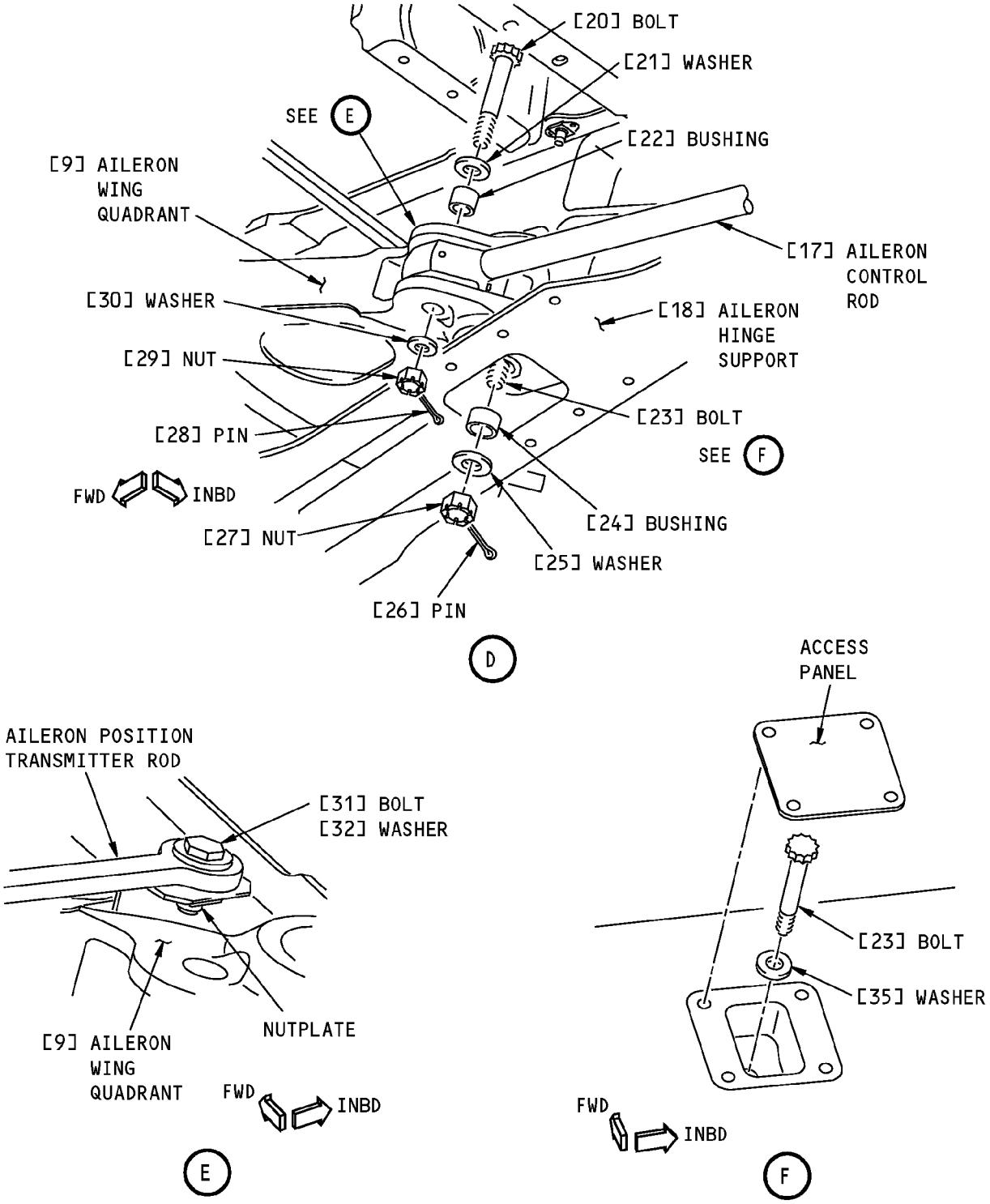

Aileron Wing Quadrant Installation
Figure 401 (Sheet 4 of 5)/27-11-24-990-801

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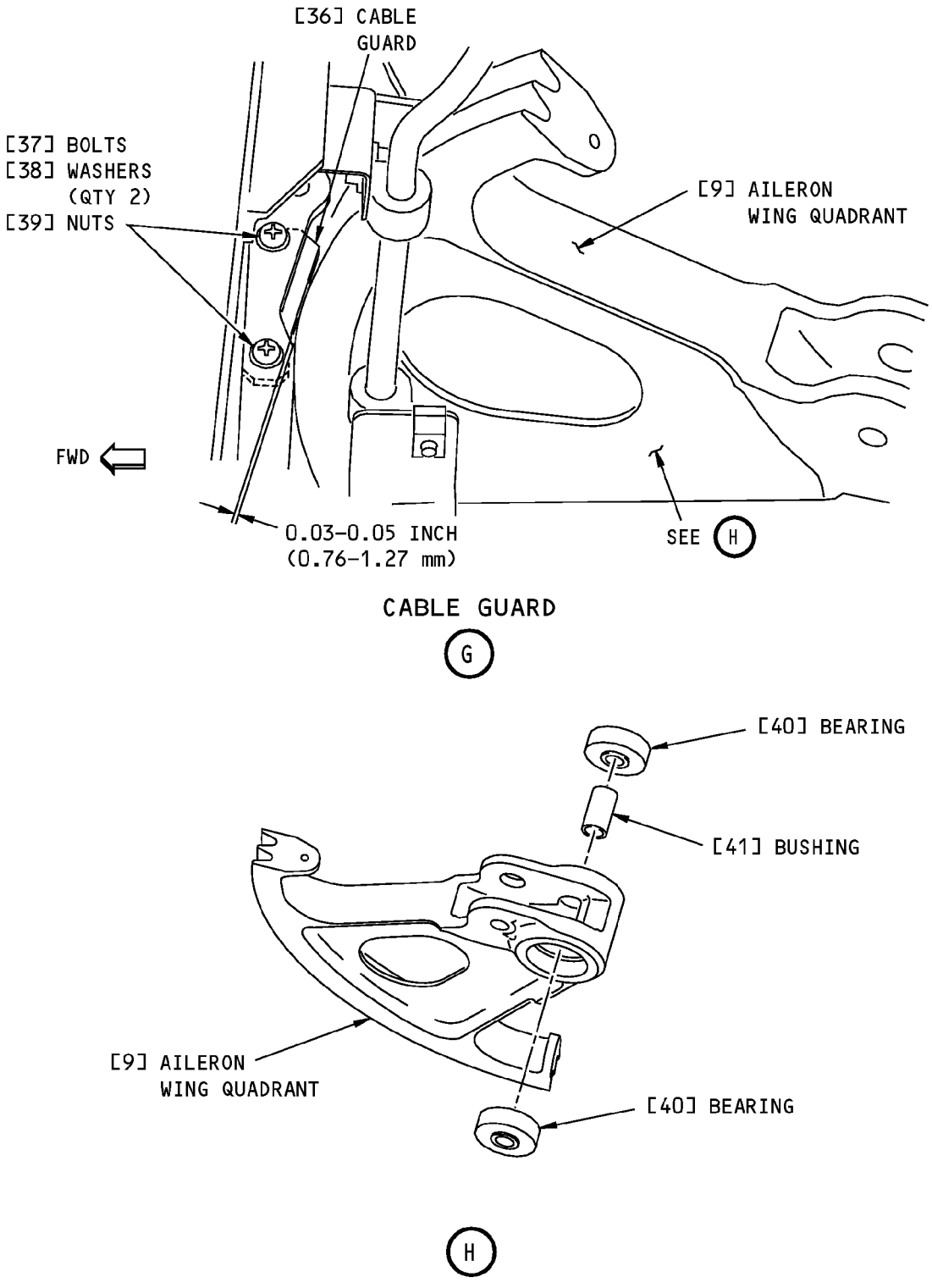

Aileron Wing Quadrant Installation
Figure 401 (Sheet 5 of 5)/27-11-24-990-801

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TASK 27-11-24-400-801

3. Aileron Wing Quadrant Installation

(Figure 401)

A. References

Reference	Title
27-11-00-700-809	Aileron Travel Test (P/B 501)
27-11-00-820-801	Aileron Cables Adjustment (P/B 501)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)
31-31-31-700-801	Aileron Position Transmitter Installation Test (P/B 401)
SOPM 20-50-03	Bearing and Bushing Replacement

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Quadrant assembly	27-11-24-01-085	HAP ALL
		27-11-24-01-090	HAP ALL
13	Pin	27-11-24-01-010	HAP ALL
		27-62-71-01-195	HAP ALL
26	Pin	27-11-24-01-010	HAP ALL
		27-62-71-01-195	HAP ALL
28	Pin	27-11-24-01-125	HAP ALL
		27-62-71-01-195	HAP ALL

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Access Panels

Number	Name/Location
571DB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

F. Aileron Wing Installation

SUBTASK 27-11-24-420-001

(1) Install the aileron wing quadrant assembly [9]:

(a) Assemble the aileron wing quadrant assembly [9] if it is necessary:

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1) Apply sealant, A00247 to the top bearing [40];
2) Roller swage the top bearing [40] (SOPM 20-50-03);
3) Apply compound, C00913 to the bottom bearing [40];
4) Install the bearings [40] and bushing [41] in the aileron wing quadrant assembly [9];
5) Install the bolt [20], washer [21], bushing [22], washer [30], nut [29] and new pin [28] to connect the aileron wing quadrant assembly [9] with the aileron control rod [17].

(b) Connect the aileron wing quadrant assembly [9] to the aileron hinge support [18].
1) Install the bolt [23], washer [35], bushing [24], washer [25] nut [27] and new pin [26].

(c) Install the bolt [10], washer [11], bushing [12], washer [15], nut [14], and new pin [13] to connect the aileron control rod [17] to the aileron [16].

(d) Install the bolt [31] and washer [32] to connect the aileron position transmitter rod to the aileron wing quadrant assembly [9]:
1) Make sure the aileron position transmitter rod is 17.01 inches (432.05 millimeters) from bolt center to bolt center;
2) If adjustment of the aileron position transmitter rod is necessary, do this task: Aileron Position Transmitter Installation Test, TASK 31-31-31-700-801.

(e) Put cable ABSA [2] (for the left wing) and cable ABSB [4] (for the right wing) in the bottom groove of the aileron wing quadrant assembly [9].

(f) Put cable ABSB [4] (for the left wing) and cable ABSA [2] (for the right wing) in the top groove of the aileron wing quadrant assembly [9].

(g) Install the cable terminations through the retaining plates [19].

(h) Install the retaining plates [19] with the bolts [5], washers [6], washers [7] and nuts [8].

(i) Install the cable guard [36] with bolts [37], washers [38] and nuts [39].
1) Adjust the cable guard [36] until the gap between the cable guard [36] and the aileron wing quadrant assembly [9] is 0.030-0.050 inch (0.76-1.27 millimeters).

(j) Connect cable ABSA [2] and cable ABSB [4] to the turnbuckles [1], but keep the cable tension at zero.

SUBTASK 27-11-24-820-001

(2) Adjust the tension of cable ABSA [2] and cable ABSB [4]. To adjust cable ABSA [2] and cable ABSB [4], do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

SUBTASK 27-11-24-860-002

(3) Close these access panels:

(a) On the left wing, close this access panel:

Number	Name/Location
571DB	Lower Outboard Fixed Trailing Edge Access Panel

(b) On the right wing, close this access panel:

Number	Name/Location
671DB	Lower Outboard Fixed Trailing Edge Access Panel

SUBTASK 27-11-24-860-003

(4) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

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SUBTASK 27-11-24-730-001

(5) Do this task: Aileron Travel Test, TASK 27-11-00-700-809.

END OF TASK

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AILERON BALANCE PANELS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron balance panel

(2) An installation of the aileron balance panel.

B. There are four aileron balance panels on each wing. This procedure is applicable for all the aileron balance panels.

TASK 27-11-31-000-801

2. Aileron Balance Panels Removal

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

C. Access Panels

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel
671BB	Lower Outboard Fixed Trailing Edge Access Panel
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

D. Prepare for the Removal

SUBTASK 27-11-31-860-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-31-010-001

(2) Remove the applicable access panels on the lower wing surface at the balance panel.

(a) For the left wing, open these access panels:

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel

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(b) For the right wing, open these access panels:

Number	Name/Location
671BB	Lower Outboard Fixed Trailing Edge Access Panel
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

E. Aileron Balance Panels Removal

SUBTASK 27-11-31-020-001

(1) Remove the balance panel assembly [22], balance panel assembly [23], balance panel assembly [24] or balance panel assembly [25]:

(a) Remove the bolts [1] and [14] to remove the seal retainers [27] and [30] from the aerodynamic seals [15].

(b) Write down the location and number of balance weights [11] installed on the balance panel assembly [24] or balance panel assembly [25].

(c) Remove the bolts [12] to remove the balance weights [11] from the hinge seal [29].

(d) Remove bolts [4], [5], [21] and bolts [2] with collars [3] to remove the balance weights [19] and hinge seal [29] from the aileron balance panel assembly [22], panel assembly [23], panel assembly [24] or panel assembly [25].

(e) Remove the bolts [16] and washers [17] to remove the seal retainer [18] from the hinge seal [20].

(f) Remove the pins [10], nuts [9], washers [8], washers [7] and bolts [6] to remove the balance panel assembly [22], balance panel assembly [23], balance panel assembly [24] or balance panel assembly [25] from the aileron. Discard the pin [10].

(g) Remove the pins [10], nuts [9], washers [8], washers [7] and bolts [26] to remove the balance panel assembly [22], balance panel assembly [23], balance panel assembly [24] or balance panel assembly [25] from the wing structure. Discard the pin [10].

——————— END OF TASK ———————

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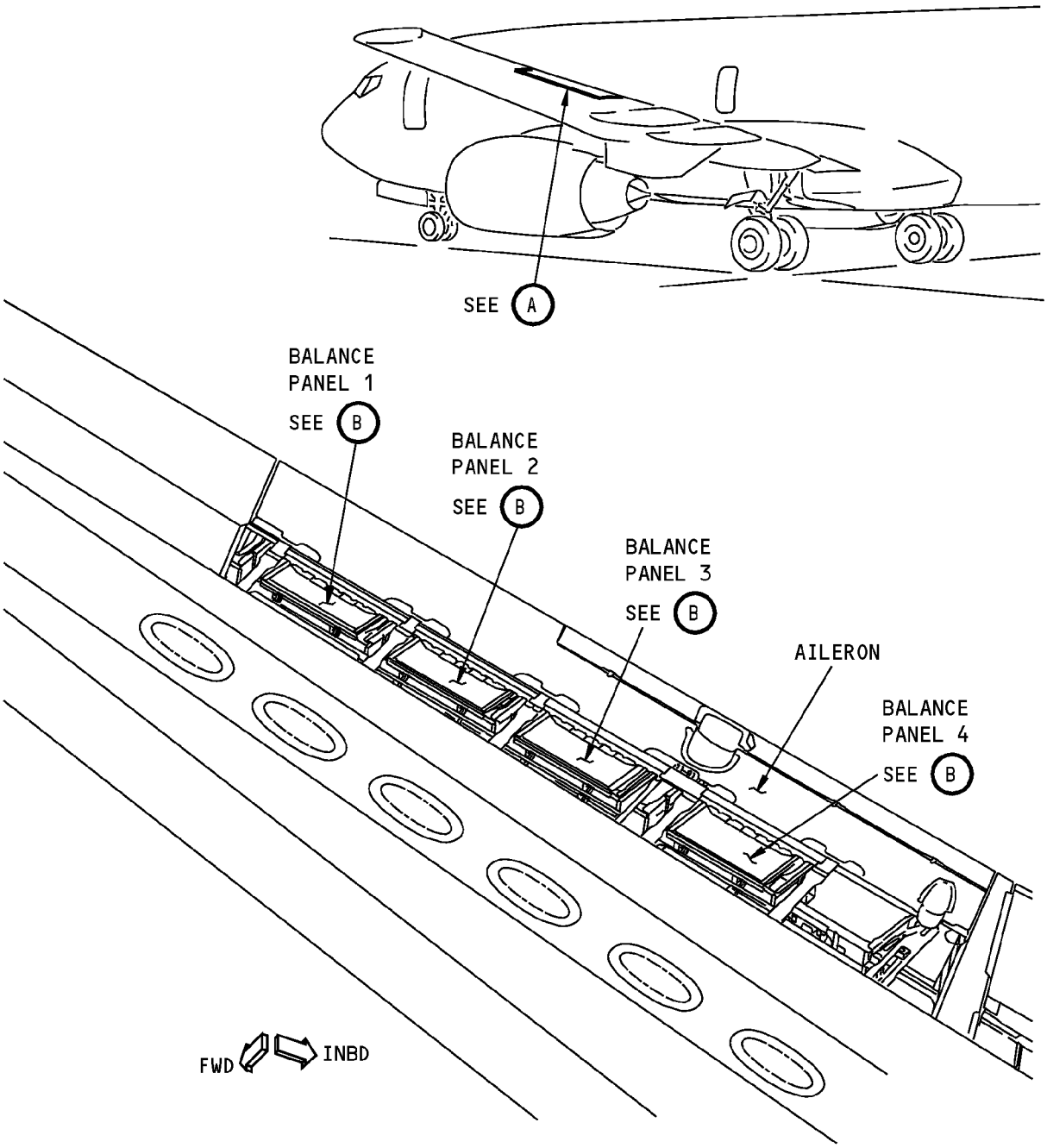

Aileron Balance Panel Installation
Figure 401 (Sheet 1 of 3)/27-11-31-990-801

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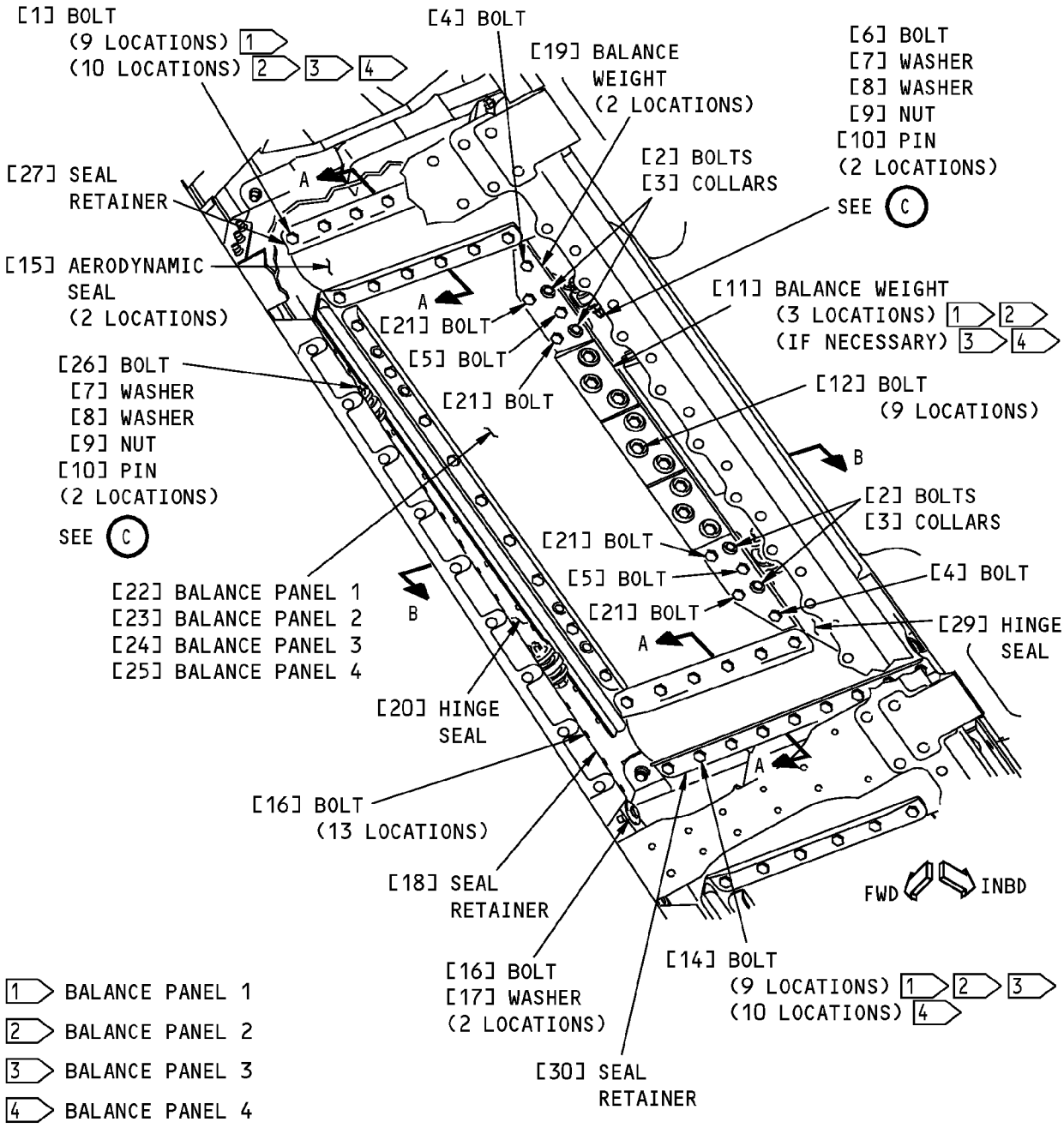

BALANCE PANEL 1
(BALANCE PANELS 2, 3, AND 4 ARE ALMOST THE SAME)

B

Aileron Balance Panel Installation
Figure 401 (Sheet 2 of 3)/27-11-31-990-801

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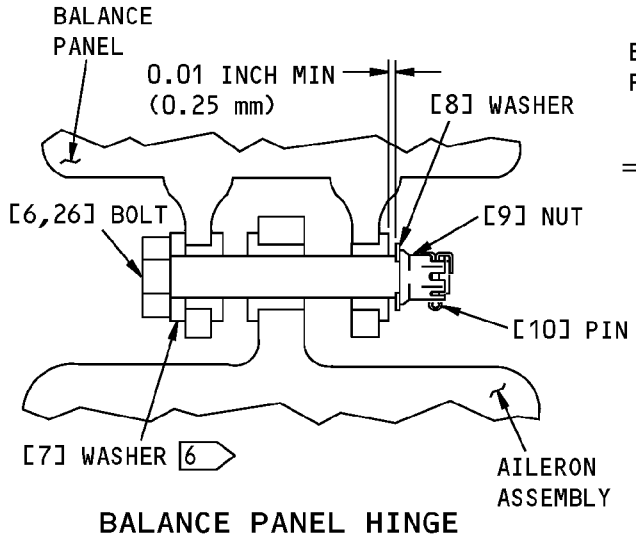
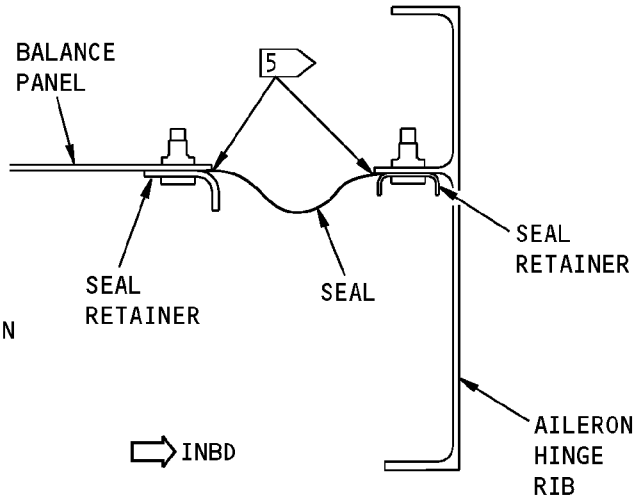
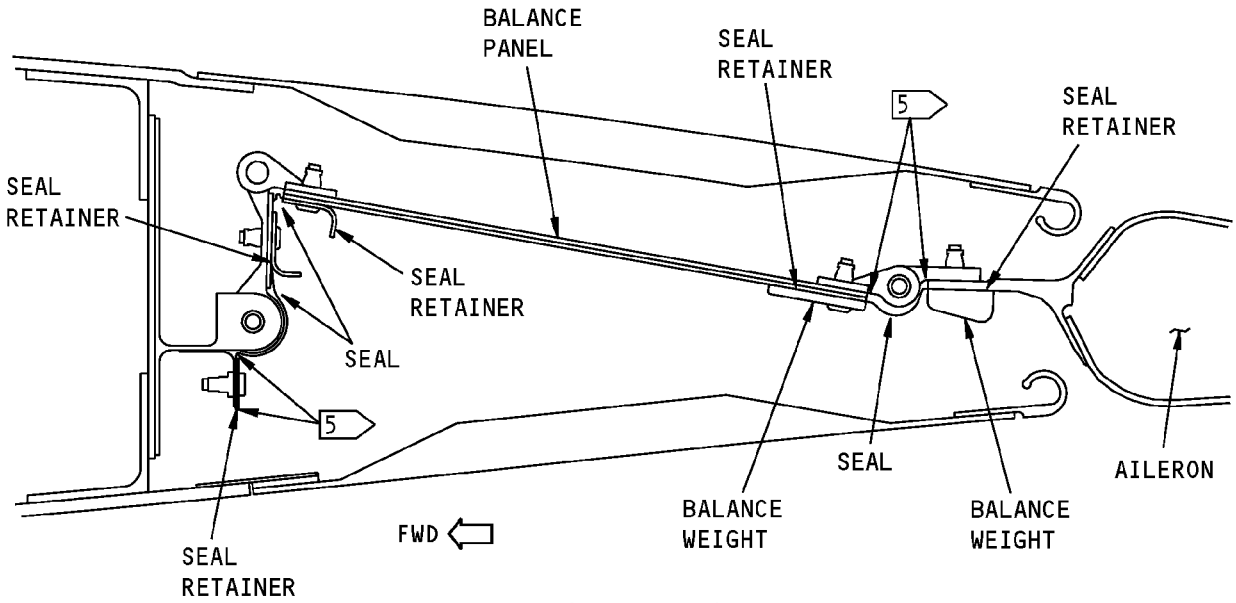


BALANCE PANEL HINGE
(EXAMPLE)
C



INBOARD SEAL IS SHOWN
(OUTBOARD SEAL IS OPPOSITE)
A–A



(EXAMPLE)
B–B

5 APPLY BMS 3-23 BY BRUSH TO ALL EDGES OF SEAL RETAINERS AND INTERFACE BETWEEN SEAL RETAINERS AND SEALS.

6 BOND WASHER TO HINGE HALF USING BMS 5-95 SEALANT.

Aileron Balance Panel Installation
Figure 401 (Sheet 3 of 3)/27-11-31-990-801

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TASK 27-11-31-400-801

3. Aileron Balance Panels Installation

(Figure 401)

A. References

Reference	Title
27-11-00-700-809	Aileron Travel Test (P/B 501)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)
27-11-31-210-801	Aileron Balance Panel Seals Visual Inspection (P/B 601)

B. Tools/Equipment

Reference	Description
STD-3911	Brush - Bristle, Medium Nylon

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
10	Pin	27-11-31-01-069	HAP ALL
		27-31-41-01-110	HAP ALL
22	Panel assembly	27-11-31-01-519	HAP ALL
		27-11-31-01-522	HAP ALL
23	Panel assembly	27-11-31-01-366	HAP ALL
		27-11-31-01-369	HAP ALL
24	Panel assembly	27-11-31-01-213	HAP ALL
		27-11-31-01-216	HAP ALL
25	Panel assembly	27-11-31-01-063	HAP ALL
		27-11-31-01-066	HAP ALL

E. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

F. Access Panels

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel
671BB	Lower Outboard Fixed Trailing Edge Access Panel

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(Continued)

Number	Name/Location
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

G. Aileron Balance Panels Installation

SUBTASK 27-11-31-220-001

(1) If you install used bolts, bushings or other components that have worn areas, do this task: Aileron Balance Panel Seals Visual Inspection, TASK 27-11-31-210-801.

SUBTASK 27-11-31-420-001

(2) Install the balance panel assembly [22], balance panel assembly [23], balance panel assembly [24] or balance panel assembly [25]:

(a) Install the bolts [26], washers [7], washers [8], and nuts [9] to attach the balance panel assembly [22], balance panel assembly [23], balance panel assembly [24] or balance panel assembly [25] to the wing structure.

(b) Tighten the nuts [9] to 25-35 pound-inches (2.8-4.0 newton-meters).

NOTE: Tighten the nut [9] to the lower end of the torque range. Continue to tighten the nut [9] until the next castellation aligns with the hole in the bolt [26].

1) Make sure the gap between the bushing face and the washer [8] under the nut [9] is 0.010 inch (0.25 millimeter) minimum after torque up.

(c) Install the pins [10].

(d) Make sure the washers [7] is bonded to the hinge half.

1) If it is necessary, bond the washers [7] to the hinge half with sealant, A00247.

(e) Install the bolts [6], washers [7], washers [8], and nuts [9] to attach the aileron balance panel assembly [22], panel assembly [23], panel assembly [24] or panel assembly [25] to the aileron.

(f) Tighten the nuts [9] to 25-35 pound-inches (2.8-4.0 newton-meters).

NOTE: Tighten the nut [9] to the lower end of the torque range. Continue to tighten the nut [9] until the next castellation aligns with the hole in the bolt [6].

1) Make sure the gap between the bushing face and the washer [8] under the nut [9] is 0.010 inch (0.25 millimeter) minimum after torque up.

(g) Install the pins [10].

(h) Make sure the aerodynamic seals [15], hinge seals [20] and [29] are not damaged.

(i) Install the seal retainer [18] to the hinge seal [20] with the bolts [16] and washers [17].

(j) Attach the hinge seal [29] to the balance panel assembly [22], balance panel assembly [23], balance panel assembly [24] or balance panel assembly [25].

(k) Install the balance weights [19] to the balance panel assembly with the bolts [4],[5],[21] and bolts [2] with collars [3].

1) Apply primer, C00259 to the holes of the balance weights [19].

2) Apply compound, C00528 to the bolts [2],[4], [5], and [21].

3) Tighten the bolts [2],[4],[5] and [21] to 35-50 pound-inches (4.0-5.0 newton-meters).

(l) Make sure there are the same number of balance weights [11] on the new balance panel assembly as on the removed balance panel assembly [24] or balance panel assembly [25].

(m) Install the balance weights [11] to the balance panel assembly with bolts [12].

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1) Apply primer, C00259 to the holes of the balance weights [11].
2) Apply compound, C00528 to the bolts [12].
3) Tighten the bolt [12] to 35-40 pound-inches (4.0-5.0 newton-meters)..

(n) Install the seal retainers [27] on the aerodynamic seals [15] with the bolts [1] and [14].

SUBTASK 27-11-31-600-001

(3) Use a medium nylon bristle brush, STD-3911 to apply corrosion inhibiting compound, G00009 to all edges of the seal retainers [18] and [27] and the interface between seal retainers [18] and [27] and the seals [15], [20] and [29].

SUBTASK 27-11-31-410-001

(4) Install the applicable access panels on the lower wing surface at the aileron balance panel.

(a) For the left wing, close these access panels:

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel

(b) For the right wing, close these access panels:

Number	Name/Location
671BB	Lower Outboard Fixed Trailing Edge Access Panel
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

SUBTASK 27-11-31-860-002

(5) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-31-710-001

(6) Do this task: Aileron Travel Test, TASK 27-11-00-700-809.

END OF TASK

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AILERON BALANCE PANEL - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. The procedure contains these tasks:

(1) A dimensional inspection of the aileron balance panel

(2) A visual inspection of the seals around the aileron balance panel.

TASK 27-11-31-220-801

2. Aileron Balance Panel Inspection

(Figure 601)

A. General

(1) This task gives wear limits and repair data for the aileron balance panel inspection.

B. References

Reference	Title
27-11-31-000-801	Aileron Balance Panels Removal (P/B 401)
27-11-31-400-801	Aileron Balance Panels Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Procedure

SUBTASK 27-11-31-020-002

(1) Do this task: Aileron Balance Panels Removal, TASK 27-11-31-000-801.

SUBTASK 27-11-31-020-003

(2) Use these tools to do a check for wear on the parts of the aileron balance panel:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-11-31-020-004

(3) Examine the parts of the aileron balance panel for worn areas:

(a) Remove the parts you want to do a check.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are out of tolerance, replace or repair the part.

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Table 601/27-11-31-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2515 in 6.3881 mm	0.0030 in
#1 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	0.0762 mm
#2 BUSHING	I.D.	0.2505 in 6.3627 mm	0.2515 in 6.3881 mm	0.2525 in 6.4135 mm	0.0040 in
#2 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	0.1016 mm
#3 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2515 in 6.3881 mm	0.0030 in
#3 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	0.0762 mm
#4 BUSHING	I.D.	0.2505 in 6.3627 mm	0.2515 in 6.3881 mm	0.2525 in 6.4135 mm	0.0040 in
#4 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	0.1016 mm

SUBTASK 27-11-31-020-005

(4) Do this task: Aileron Balance Panels Installation, TASK 27-11-31-400-801.

——————— END OF TASK ———————

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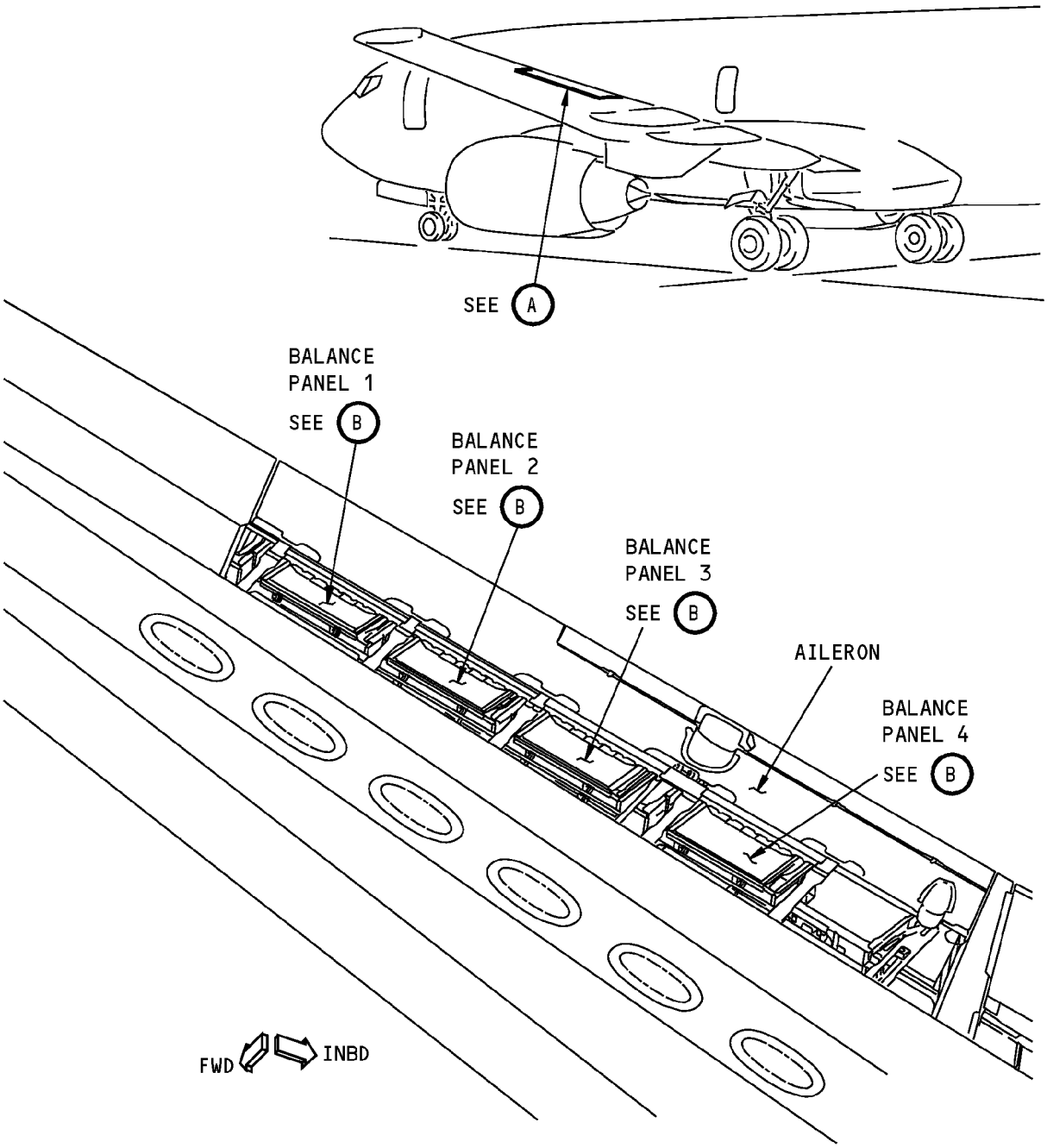

Aileron Balance Panel Wear Limits
Figure 601 (Sheet 1 of 2)/27-11-31-990-807

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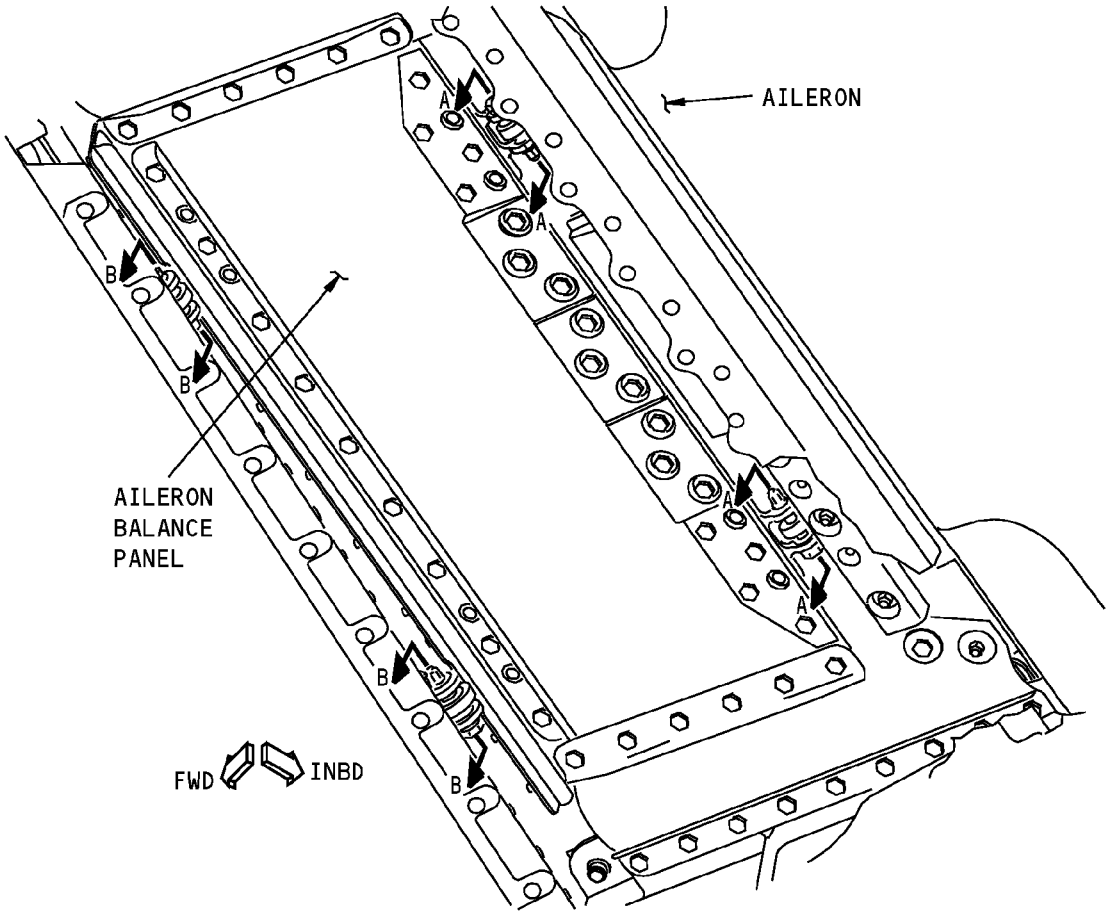
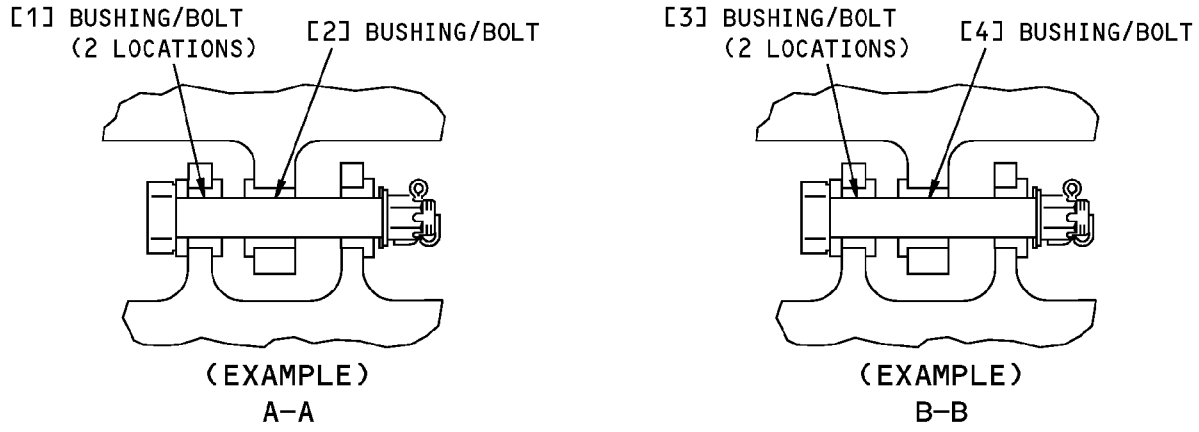


BALANCE PANEL 1
(BALANCE PANELS 2, 3, AND 4 ARE ALMOST THE SAME)

B



Aileron Balance Panel Wear Limits
Figure 601 (Sheet 2 of 2)/27-11-31-990-807

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TASK 27-11-31-210-801

3. Aileron Balance Panel Seals Visual Inspection

(Figure 602)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)

C. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

D. Access Panels

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel
671BB	Lower Outboard Fixed Trailing Edge Access Panel
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

E. Procedure

SUBTASK 27-11-31-860-003

(1) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-31-010-002

(2) Remove the applicable access panels on the lower wing surface at the balance panel.

(a) For the left wing, open these access panels:

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel

(b) For the right wing, open these access panels:

Number	Name/Location
671BB	Lower Outboard Fixed Trailing Edge Access Panel
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

SUBTASK 27-11-31-210-001

(3) Do a visual inspection of the seals around the aileron balance panel.

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(a) Make sure there are no creases, nicks, tears and punctures on the seals.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-31-840-001

(1) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-31-410-002

(2) Install the applicable access panels on the lower wing surface at the balance panel.

(a) For the left wing, close these access panels:

Number	Name/Location
571BB	Lower Outboard Fixed Trailing Edge Access Panel
571CB	Lower Outboard Fixed Trailing Edge Access Panel
571DB	Lower Outboard Fixed Trailing Edge Access Panel

(b) For the right wing, close these access panels:

Number	Name/Location
671BB	Lower Outboard Fixed Trailing Edge Access Panel
671CB	Lower Outboard Fixed Trailing Edge Access Panel
671DB	Lower Outboard Fixed Trailing Edge Access Panel

———————— END OF TASK ————————

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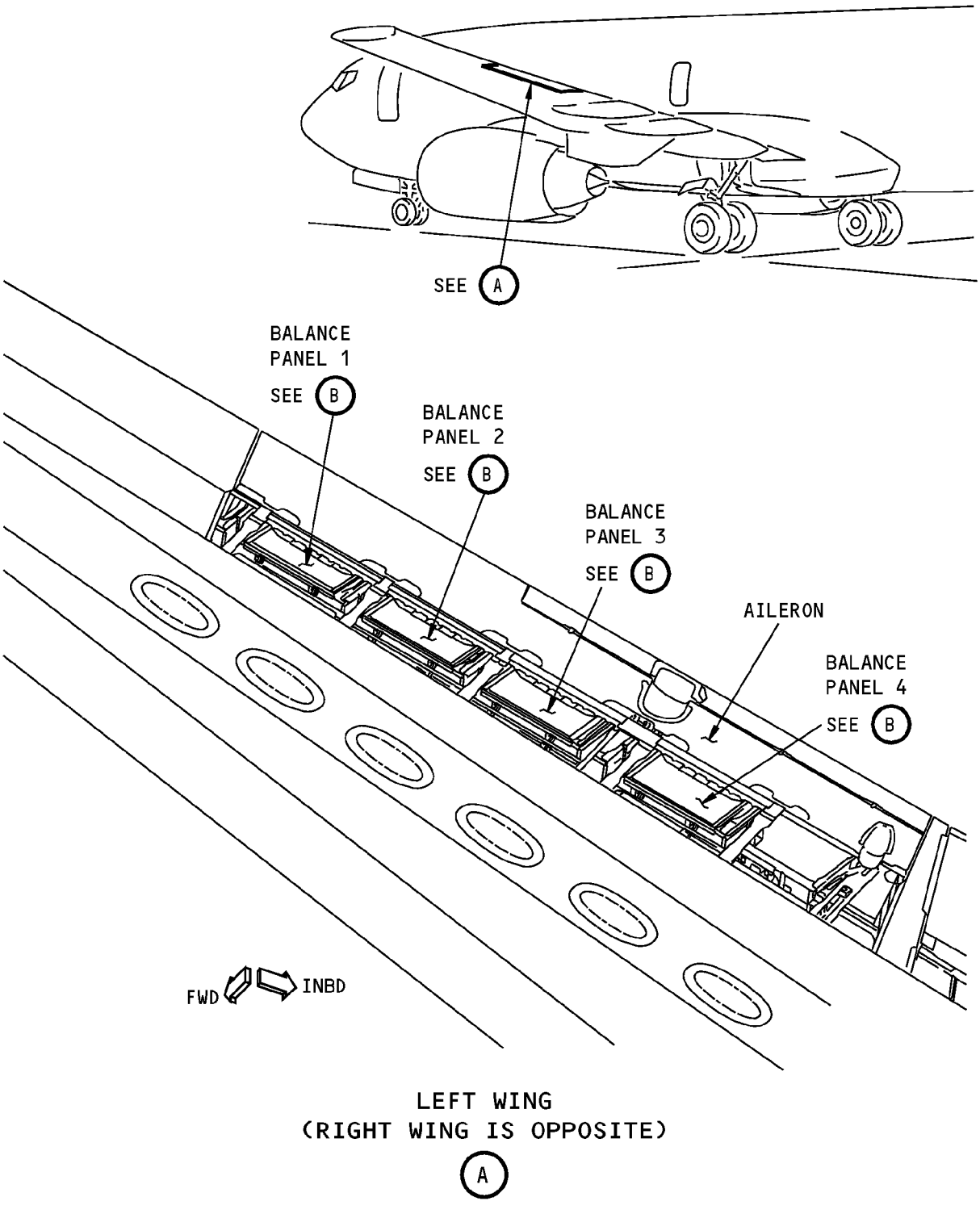

Aileron Balance Panel Seals Visual Inspection
Figure 602 (Sheet 1 of 3)/27-11-31-990-805

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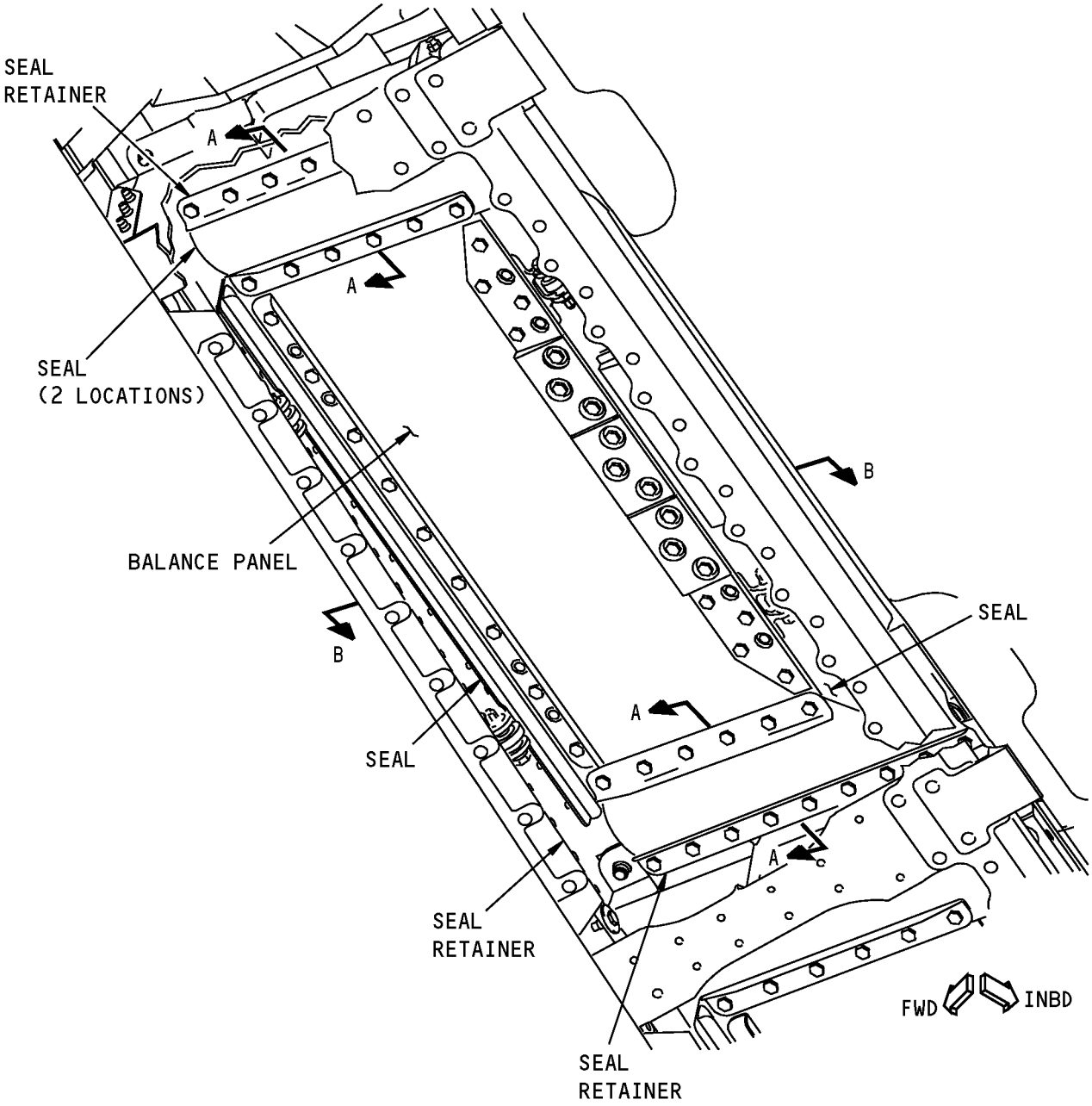

BALANCE PANEL 1
(BALANCE PANELS 2, 3, AND 4 ARE ALMOST THE SAME)

B

Aileron Balance Panel Seals Visual Inspection
Figure 602 (Sheet 2 of 3)/27-11-31-990-805

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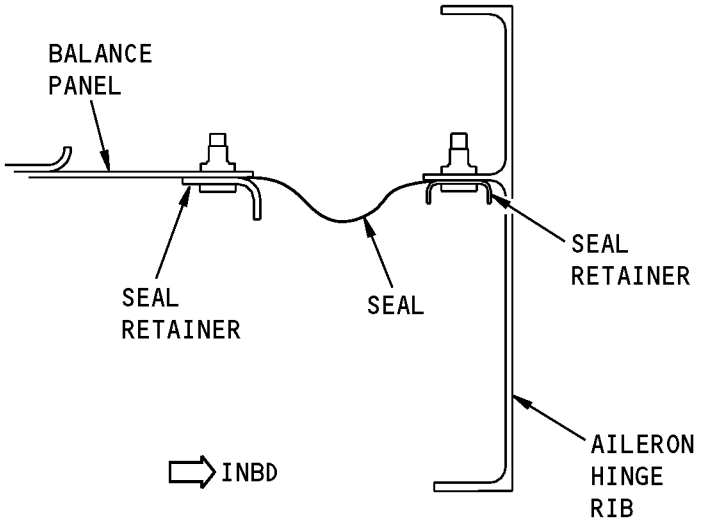
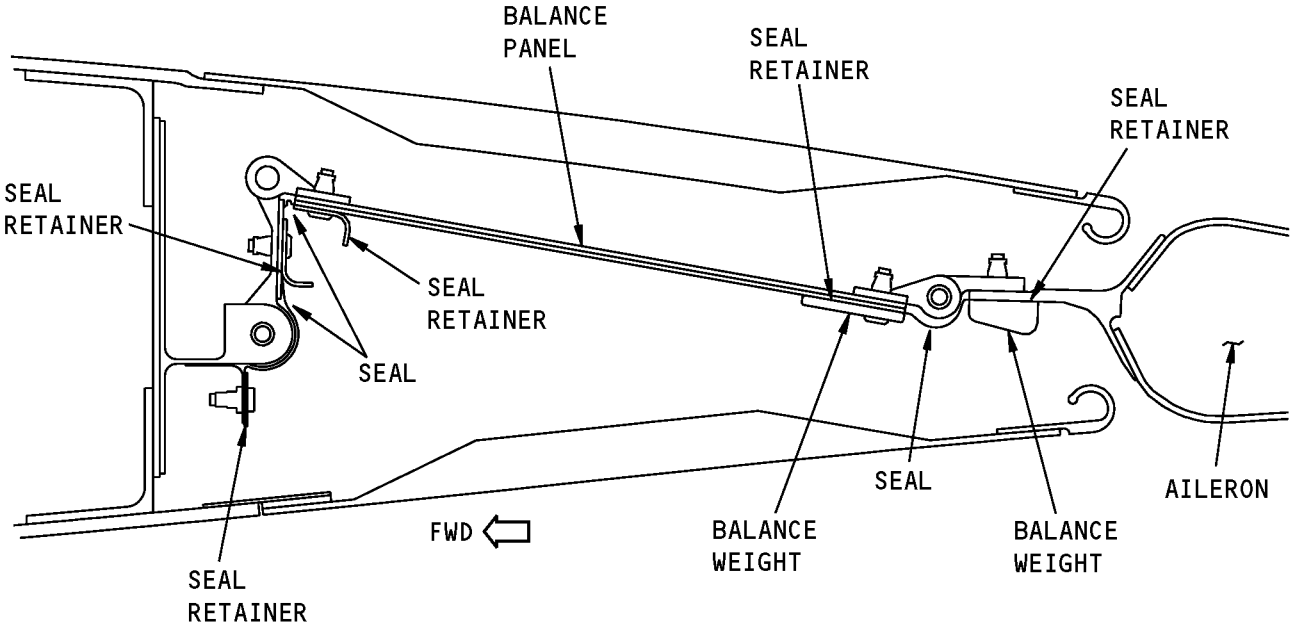


INBOARD SEAL IS SHOWN
(OUTBOARD SEAL IS OPPOSITE)
A–A



(EXAMPLE)
B–B

Aileron Balance Panel Seals Visual Inspection
Figure 602 (Sheet 3 of 3)/27-11-31-990-805

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AILERON TAB CONTROL RODS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of an aileron tab control rods

(2) An installation of the aileron tab control rods.

B. In this procedure the aileron tab control rods are referred to as the "control rods".

TASK 27-11-34-000-801

2. Aileron Tab Control Rods Removal

(Figure 401)

A. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

B. Access Panels

Number	Name/Location
571CB	Lower Outboard Fixed Trailing Edge Access Panel
572DB	Lower Aileron, Hinge Cover - WBL 469.00
572EB	Lower Aileron, Hinge Cover - WBL 481.00
671CB	Lower Outboard Fixed Trailing Edge Access Panel
672DB	Lower Aileron, Hinge Cover - WBL 469.00
672EB	Lower Aileron, Hinge Cover - WBL 481.00

C. Prepare for the Removal

SUBTASK 27-11-34-010-001

(1) Remove these access panels:

(a) On the left wing, open these access panels:

Number	Name/Location
571CB	Lower Outboard Fixed Trailing Edge Access Panel
572DB	Lower Aileron, Hinge Cover - WBL 469.00
572EB	Lower Aileron, Hinge Cover - WBL 481.00

(b) On the right wing, open these access panels:

Number	Name/Location
671CB	Lower Outboard Fixed Trailing Edge Access Panel
672DB	Lower Aileron, Hinge Cover - WBL 469.00
672EB	Lower Aileron, Hinge Cover - WBL 481.00

D. Aileron Tab Control Rods Removal

SUBTASK 27-11-34-020-001

(1) Remove the bolts [6] that attach the forward removable fairing [2] to the aileron [1].

(a) Remove the forward removable fairing [2].

SUBTASK 27-11-34-020-002

(2) Remove the bolts [4] that attach the aft removable fairing [3] to the aileron balance tab [5].

(a) Remove the aft removable fairing [3].

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SUBTASK 27-11-34-020-003

(3) Remove the control rod assembly [17]:

(a) Lift up the aileron trailing edge.

(b) Remove the bolts [13] and washers [14] that attach the radial seal [16] to the radial seal retainer [15] to the structure.

(c) Remove the radial seal [16] and radial seal retainer [15].

(d) Remove the pins [12], nuts [11], washers [10], bushings [9], washers [8] and bolts [7] that connect the control rod assembly [17] to the forward fittings. Discard the pins [12].

(e) Move the aileron trailing edge down.

(f) Remove the pins [12], nuts [11], washers [10], bushings [18], washers [8], and bolts [19] that connect the control rod assembly [17] to the tab mast. Discard the pins [12].

(g) Remove the control rod assembly [17] from the airplane.

SUBTASK 27-11-34-970-001

(4) Write down the length of the control rod assembly [17].

———————— END OF TASK ————————

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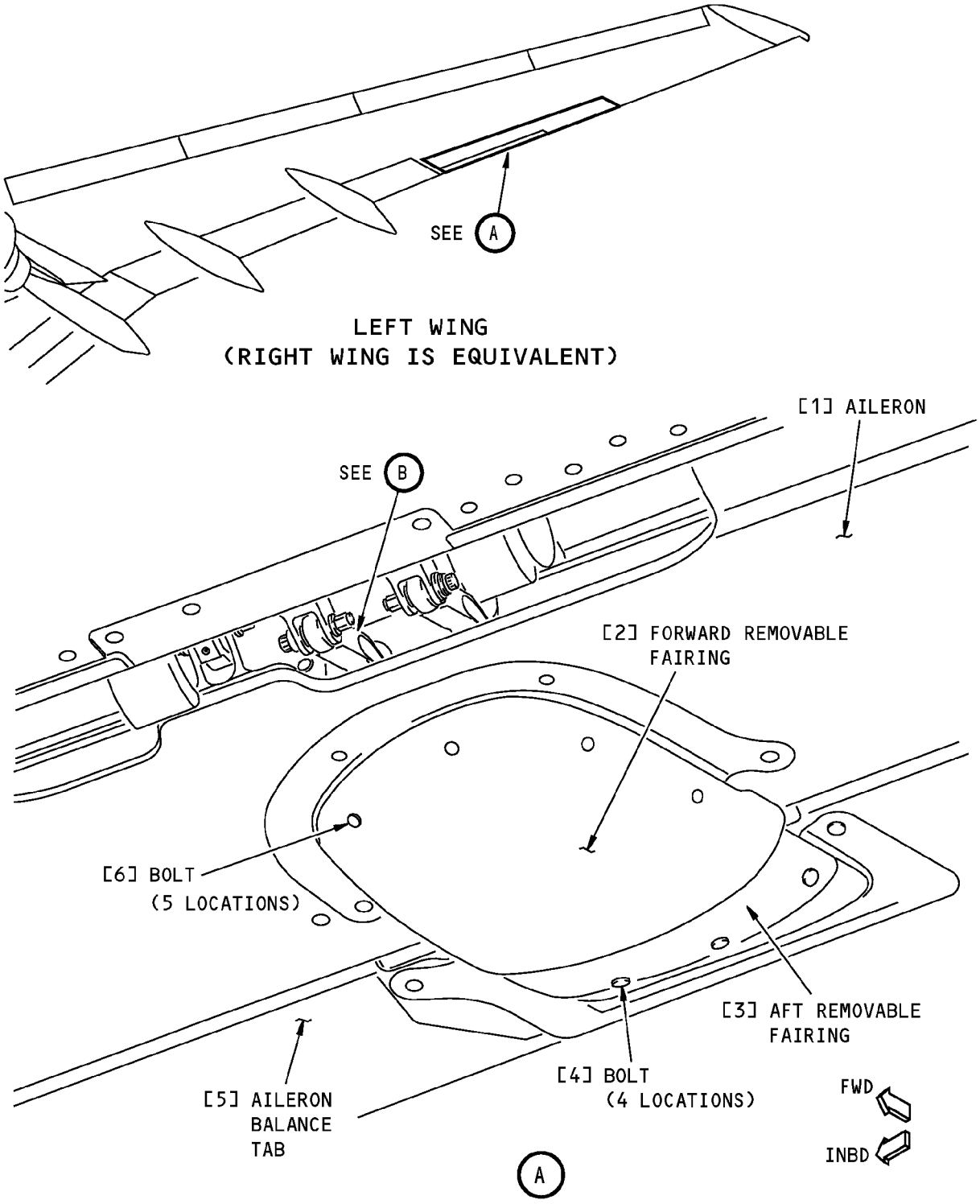

Aileron Tab Control Rods Installation
Figure 401 (Sheet 1 of 2)/27-11-34-990-801

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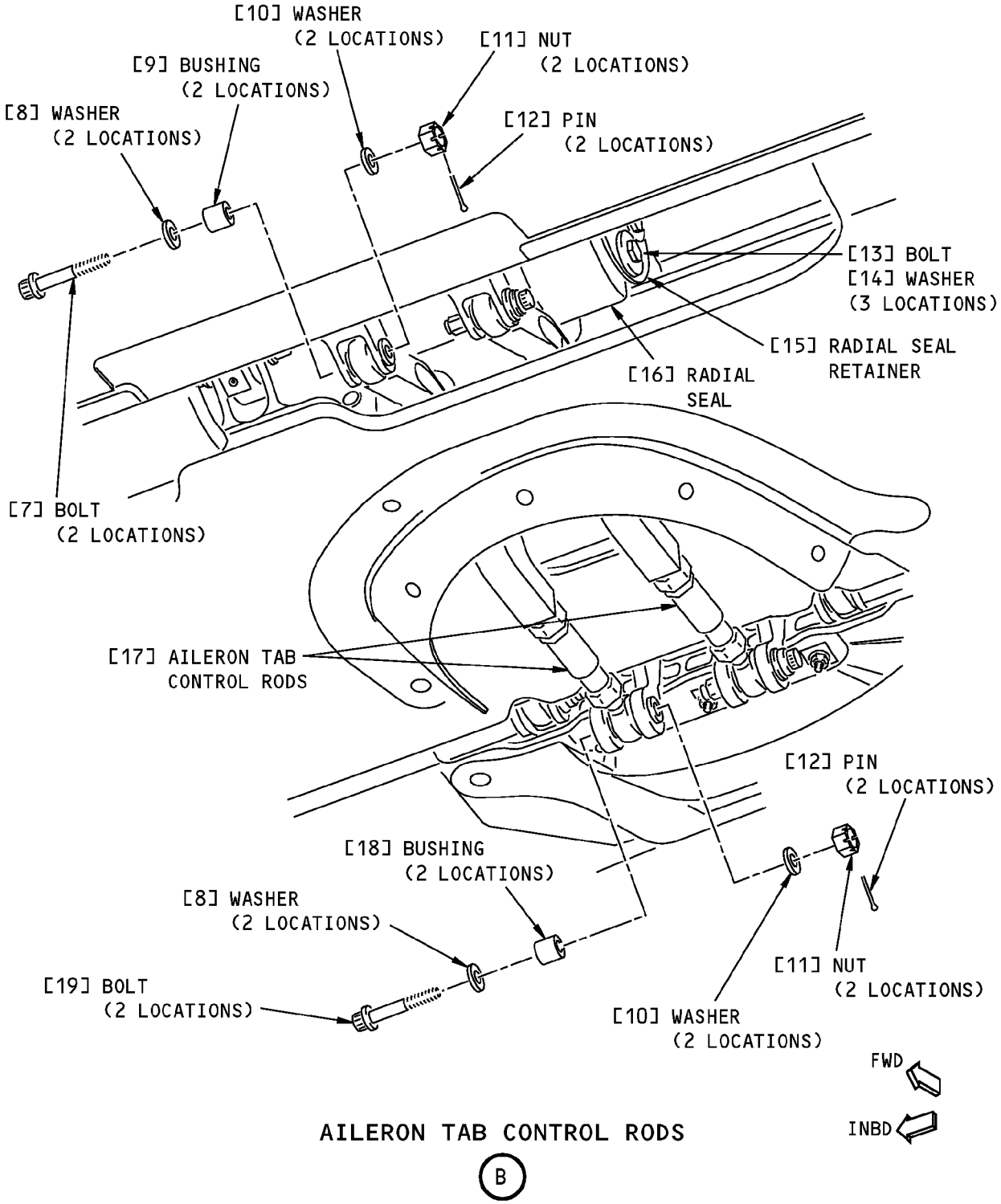

Aileron Tab Control Rods Installation
Figure 401 (Sheet 2 of 2)/27-11-34-990-801

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TASK 27-11-34-400-801

3. Aileron Tab Control Rods Installation

(Figure 401)

A. References

Reference	Title
27-11-00-750-801	Flight Test to Find and Correct Asymmetrical Flight Control Forces (P/B 501)
27-11-00-820-803	Aileron Balance Tab Adjustment (P/B 501)
27-11-34-200-801	Aileron Tab Control Rods Inspection (P/B 601)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
12	Pin	27-11-21-01-010	HAP ALL
17	Rod assembly	27-11-21-01-040	HAP ALL

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
572	Left Wing - Aileron
672	Right Wing - Aileron

D. Access Panels

Number	Name/Location
571CB	Lower Outboard Fixed Trailing Edge Access Panel
572DB	Lower Aileron, Hinge Cover - WBL 469.00
572EB	Lower Aileron, Hinge Cover - WBL 481.00
671CB	Lower Outboard Fixed Trailing Edge Access Panel
672DB	Lower Aileron, Hinge Cover - WBL 469.00
672EB	Lower Aileron, Hinge Cover - WBL 481.00

E. Prepare for installation

SUBTASK 27-11-34-220-001

(1) If you install used bolts, bushings, bearings or other components with worn areas, do this task: Aileron Tab Control Rods Inspection, TASK 27-11-34-200-801.

F. Aileron Tab Control Rods Installation

SUBTASK 27-11-34-420-001

(1) Install the control rod assembly [17]:

(a) Move the aileron trailing edge down.

(b) Put the two control rod assemblies [17] in position, align the rod ends with the attach fittings.

NOTE: The length of the control rod assembly [17] must be the same as those written down after the removal.

(c) Connect the control rod assembly [17] to the tab mast with the bolts [19], washers [8], bushings [18], washers [10], and nuts [11].

1) Adjust the length of the control rod assembly [17] if it is necessary.

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2) Tighten the nuts [11] to 50-80 pound-inches (5.6-9.0 newton-meters).

3) Install the new pins [12].

(d) Lift up the aileron trailing edge.

(e) Install the bolts [7], washers [8], bushings [9], washers [10] and nuts [11] to connect the control rod assembly [17] to the forward fittings.

1) Tighten the nut [11] to 50-80 pound-inches (5.6-9.0 newton-meters) until the next nut castellation aligns with the hole in the bolt.

2) Install the pins [12].

(f) Install the radial seal [16] and radial seal retainer [15] to the structure with the bolts [13] and washers [14].

SUBTASK 27-11-34-410-001

(2) Install these access panels:

(a) On the left wing, close these access panels:

Number	Name/Location
571CB	Lower Outboard Fixed Trailing Edge Access Panel
572DB	Lower Aileron, Hinge Cover - WBL 469.00
572EB	Lower Aileron, Hinge Cover - WBL 481.00

(b) On the right wing, close these access panels:

Number	Name/Location
671CB	Lower Outboard Fixed Trailing Edge Access Panel
672DB	Lower Aileron, Hinge Cover - WBL 469.00
672EB	Lower Aileron, Hinge Cover - WBL 481.00

SUBTASK 27-11-34-420-002

(3) Install the bolts [4] to attach the aft removable fairing [3] to the aileron balance tab [5].

SUBTASK 27-11-34-420-003

(4) Install the bolts [6] to attach the forward removable fairing [2] to the aileron [1].

SUBTASK 27-11-34-710-001

(5) Move the aileron control wheel through full travel.

(a) Make sure that the aileron tab moves freely.

SUBTASK 27-11-34-220-002

(6) Make sure the distance from the tab trailing edge to the extension of the aileron bottom surface is correct. To measure it, do this task: Aileron Balance Tab Adjustment, TASK 27-11-00-820-803.

SUBTASK 27-11-34-820-001

(7) Do this task: Flight Test to Find and Correct Asymmetrical Flight Control Forces, TASK 27-11-00-750-801.

——————— END OF TASK ———————

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AILERON TAB CONTROL RODS - INSPECTION/CHECK

1. General

A. This procedure contains the task to do an inspection of the aileron tab control rods.

TASK 27-11-34-200-801

2. Aileron Tab Control Rods Inspection

(Figure 601)

A. General

(1) This task gives wear limits and repair data for the aileron tab control rods inspection.

B. References

Reference	Title
27-11-21-000-801	Aileron Balance Tab Removal (P/B 401)
27-11-21-400-801	Aileron Balance Tab Installation (P/B 401)
27-11-34-000-801	Aileron Tab Control Rods Removal (P/B 401)
27-11-34-400-801	Aileron Tab Control Rods Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
572	Left Wing - Aileron
672	Right Wing - Aileron

E. Procedure

SUBTASK 27-11-34-020-004

(1) Do this task: Aileron Balance Tab Removal, TASK 27-11-21-000-801 or Aileron Tab Control Rods Removal, TASK 27-11-34-000-801.

SUBTASK 27-11-34-020-005

(2) Use these tools to do a check for wear on the parts of the aileron tab control rods:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-11-34-020-006

(3) Examine the parts of the aileron tab control rods for worn areas:

(a) Remove the parts you want to do a check.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are out of tolerance, replace or repair the parts.

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Table 601/27-11-34-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 ROD END BEARING	I.D.	0.2495 in 6.3373 mm	0.2500 in 6.3500 mm	0.2520 in 6.4008 mm	0.0000 in 0.0000 mm
#1 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	
#2 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3773 in 9.5834 mm	0.0005 in 0.0127 mm
#2 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3728 in 9.4691 mm	
#3 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2525 in 6.4135 mm	0.0005 in 0.0127 mm
#3 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	
#4 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2525 in 6.4135 mm	0.0005 in 0.0127 mm
#4 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2475 in 6.2865 mm	

SUBTASK 27-11-34-020-007

(4) Do this task: Aileron Balance Tab Installation, TASK 27-11-21-400-801 or Aileron Tab Control Rods Installation, TASK 27-11-34-400-801.

——————— END OF TASK ———————

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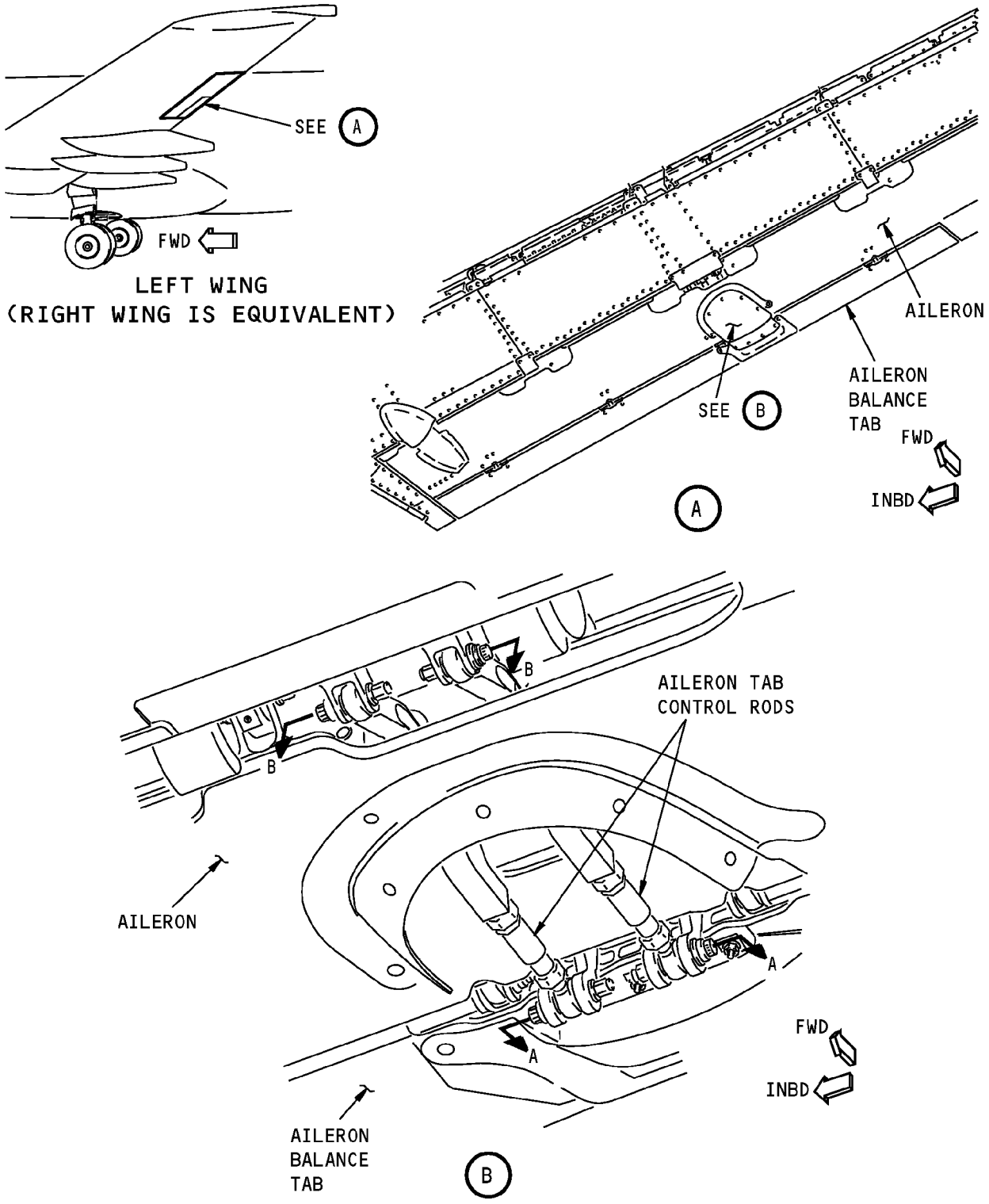

Aileron Tab Control Rods Wear Limits
Figure 601 (Sheet 1 of 2)/27-11-34-990-802

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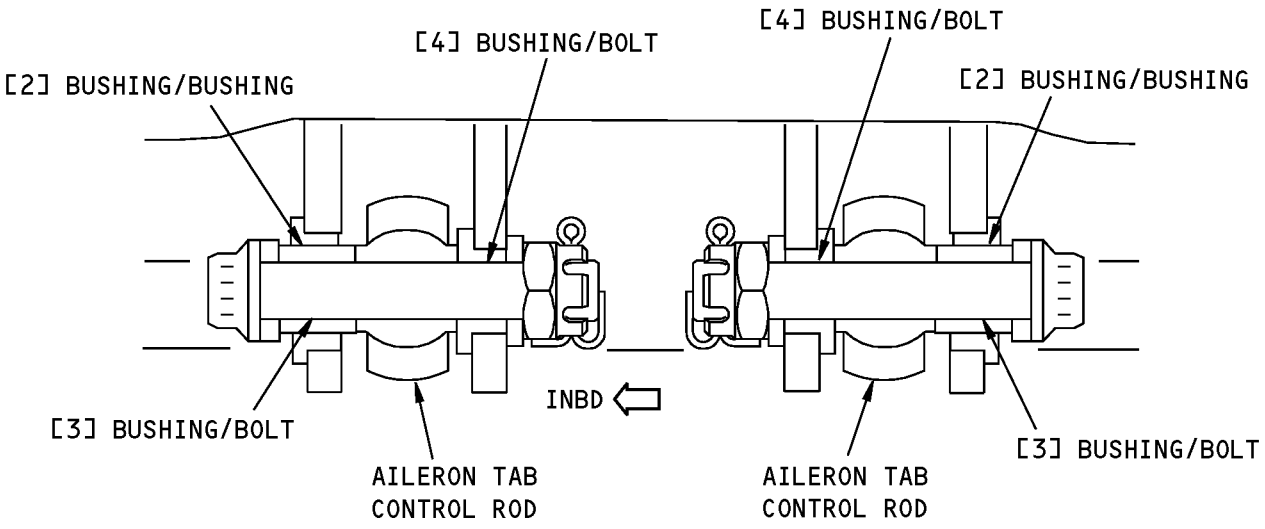
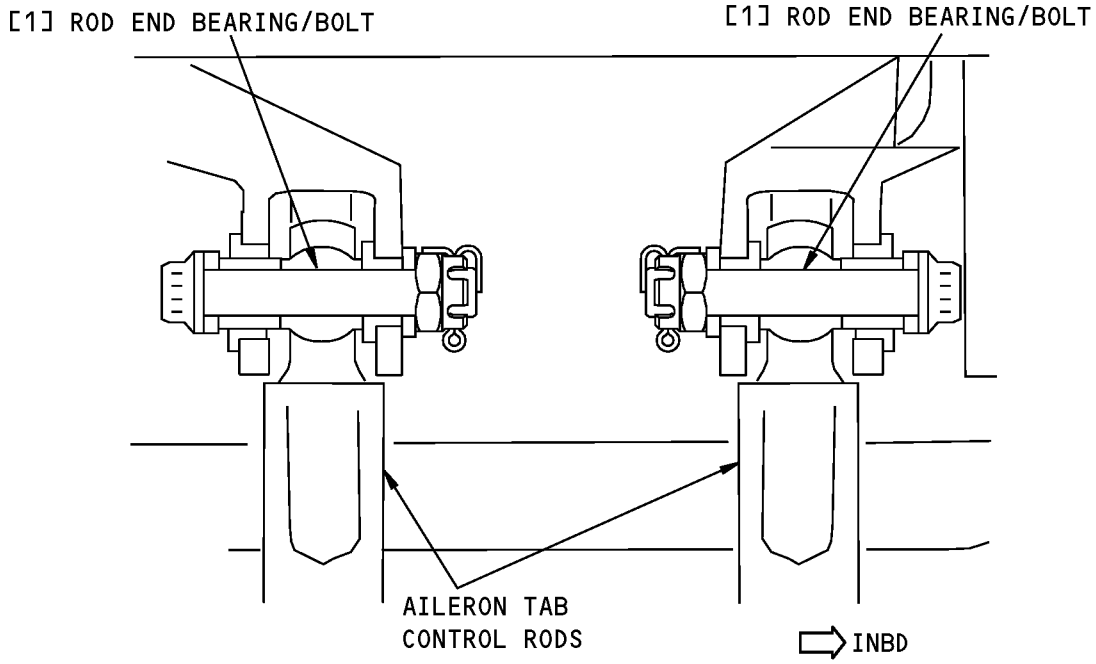


A–A



B–B

Aileron Tab Control Rods Wear Limits
Figure 601 (Sheet 2 of 2)/27-11-34-990-802

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AILERON CONTROL WHEEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron control wheel

(2) An installation of the aileron control wheel.

B. This procedure is applicable for the captain's and first officer's aileron control wheel.

TASK 27-11-41-000-801

2. Aileron Control Wheel Removal

A. References

Reference	Title
22-11-41-000-801	Autopilot Disengage Switch Removal (P/B 401)
23-51-04-000-801	Control Wheel PTT Switch Removal (P/B 401)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
27-41-97-000-801	Stabilizer Trim Control Switch Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Prepare for the Removal

SUBTASK 27-11-41-860-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-41-862-001

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 27-11-41-860-002

(3) Make sure the aileron control wheels [3] are in the neutral position.

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SUBTASK 27-11-41-010-001

(4) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-11-41-480-001

(5) Install the rig pin A/S-1 and A/S-1A, from the rig pin kit, SPL-1585, in the transfer mechanism (Figure 401).

SUBTASK 27-11-41-480-002

(6) Install the rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron feel and centering unit (Figure 401).

F. Aileron Control Wheel Removal

SUBTASK 27-11-41-020-001

(1) Remove the aileron control wheel [3] (Figure 402):

(a) Remove the screws [5] that attach the medallion [6] to the aileron control wheel [3].

(b) Remove the medallion [6] from the aileron control wheel [3].

(c) Remove the pin [10], nut [4], washer [8], washer [7], spacer [9] and bolt [11]. Discard the pin [10].

(d) Remove the screws [12], and washers [13] to remove the terminal cover [16].

(e) Remove the screws [19], washers [18] and washers [20] to disconnect the wires from the terminal block [17].

(f) Write down and make a mark of the configuration of the identified color wires.

(g) Remove the terminal block [17] from the hub of the wheel.

(h) Carefully remove the aileron control wheel [3] from the control column.

(i) Make a mark of the positions of the aileron control wheel [3] and the gear and sleeve assembly [1].

(j) Make a mark on the wire bundle to identify the clamp [15] location in the control wheel hub.

(k) Remove the screw [14] to remove the clamp [15] from the aileron control wheel [3].

(l) Carefully disengage the wire bundle from the aileron control wheel [3].

SUBTASK 27-11-41-020-002

(2) If you want to remove the stabilizer trim control switch, do this task: Stabilizer Trim Control Switch Removal, TASK 27-41-97-000-801.

SUBTASK 27-11-41-020-003

(3) If you want to remove the autopilot disengage switch, do this task: Autopilot Disengage Switch Removal, TASK 22-11-41-000-801.

SUBTASK 27-11-41-020-004

(4) If you want to remove the control wheel PTT switch, do this task: Control Wheel PTT Switch Removal, TASK 23-51-04-000-801.

——————— END OF TASK ———————

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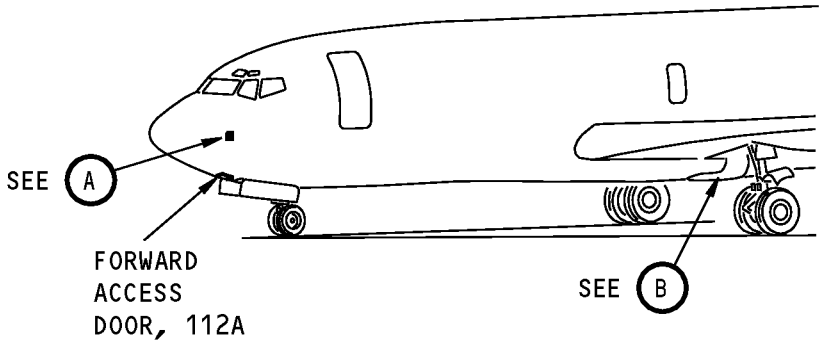

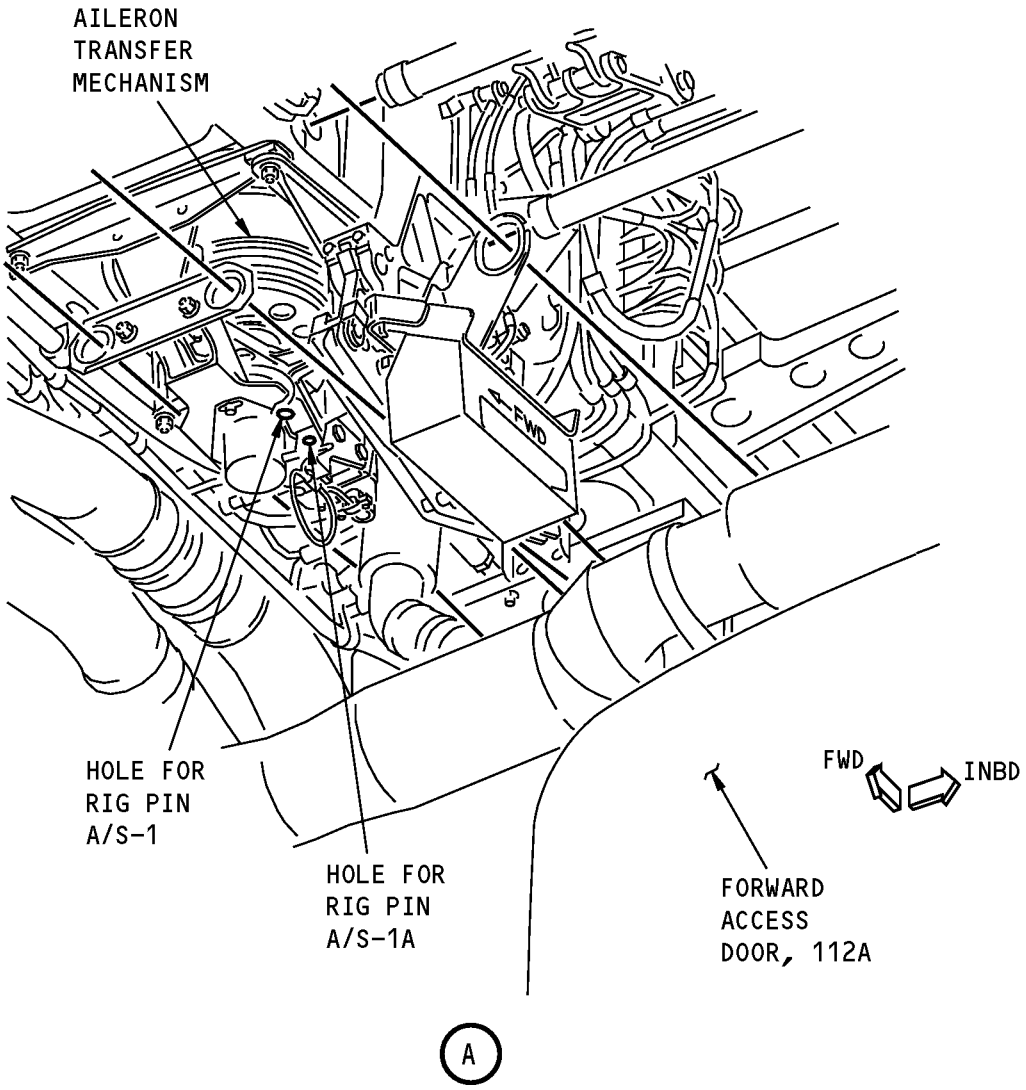

Rig Pin Installation
Figure 401 (Sheet 1 of 2)/27-11-41-990-801

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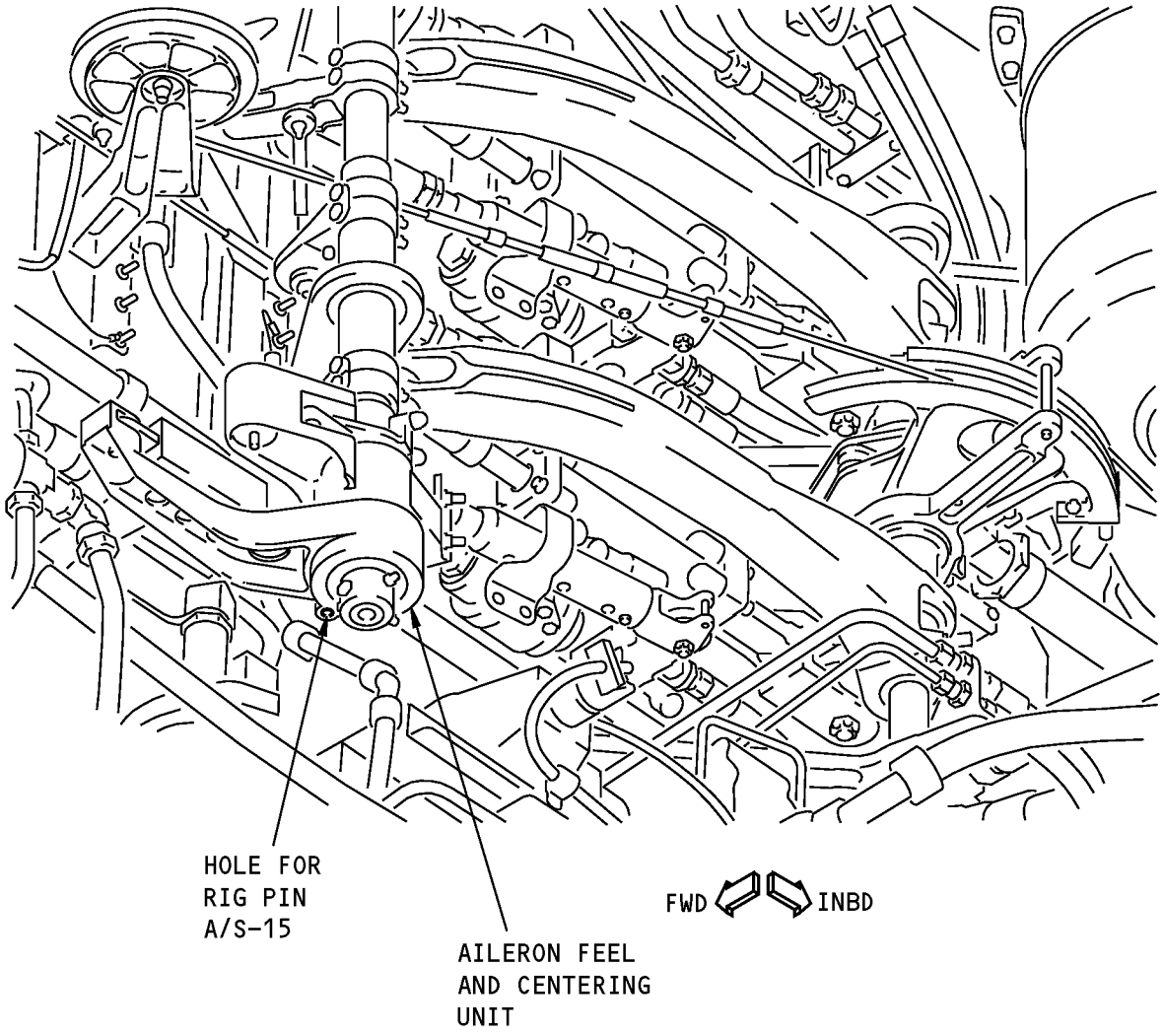

Rig Pin Installation
Figure 401 (Sheet 2 of 2)/27-11-41-990-801

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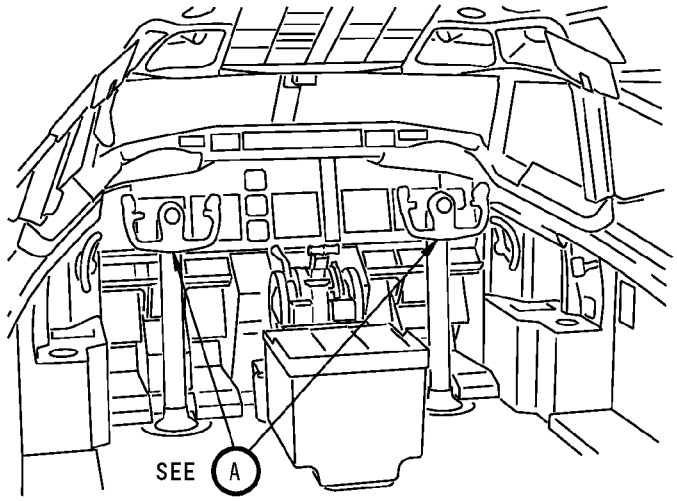
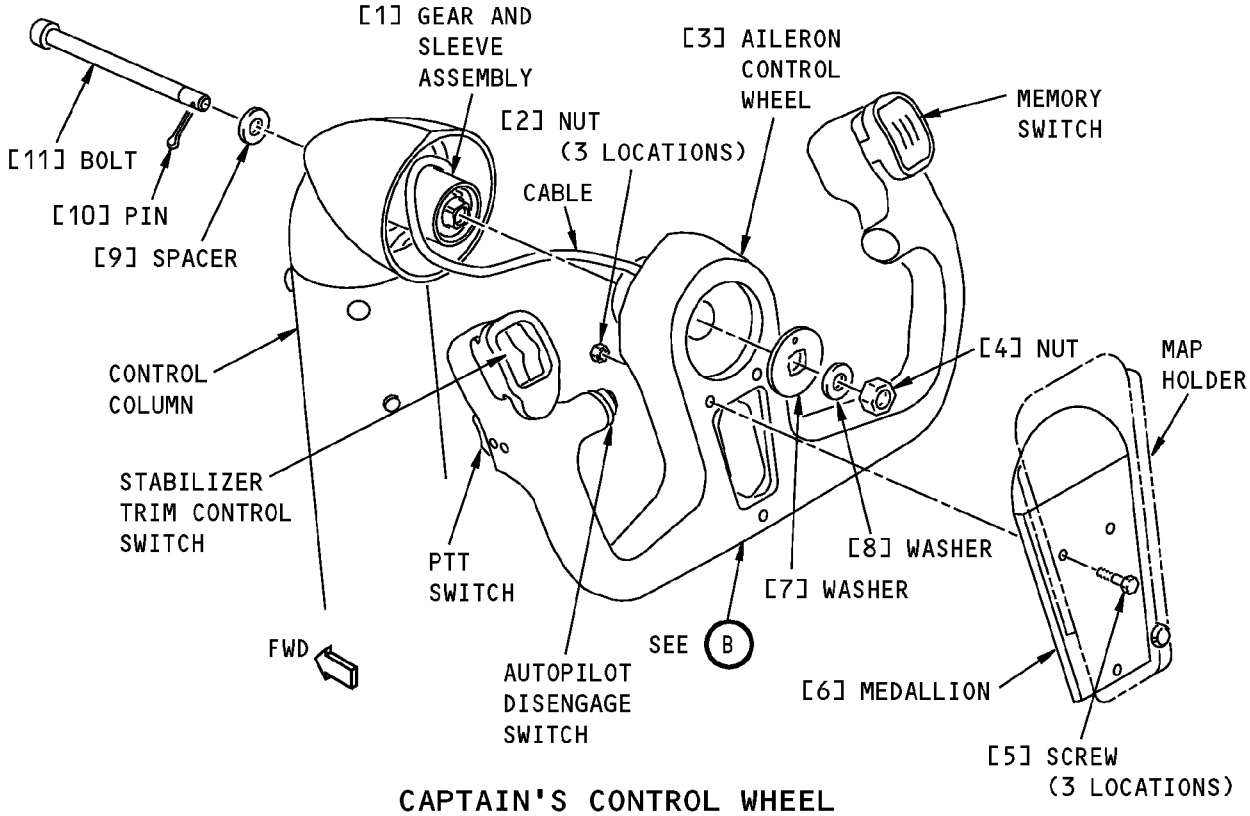


FLIGHT COMPARTMENT



CAPTAIN'S CONTROL WHEEL
(FIRST OFFICER'S CONTROL WHEEL IS OPPOSITE)

A

Aileron Control Wheel Installation
Figure 402 (Sheet 1 of 2)/27-11-41-990-802

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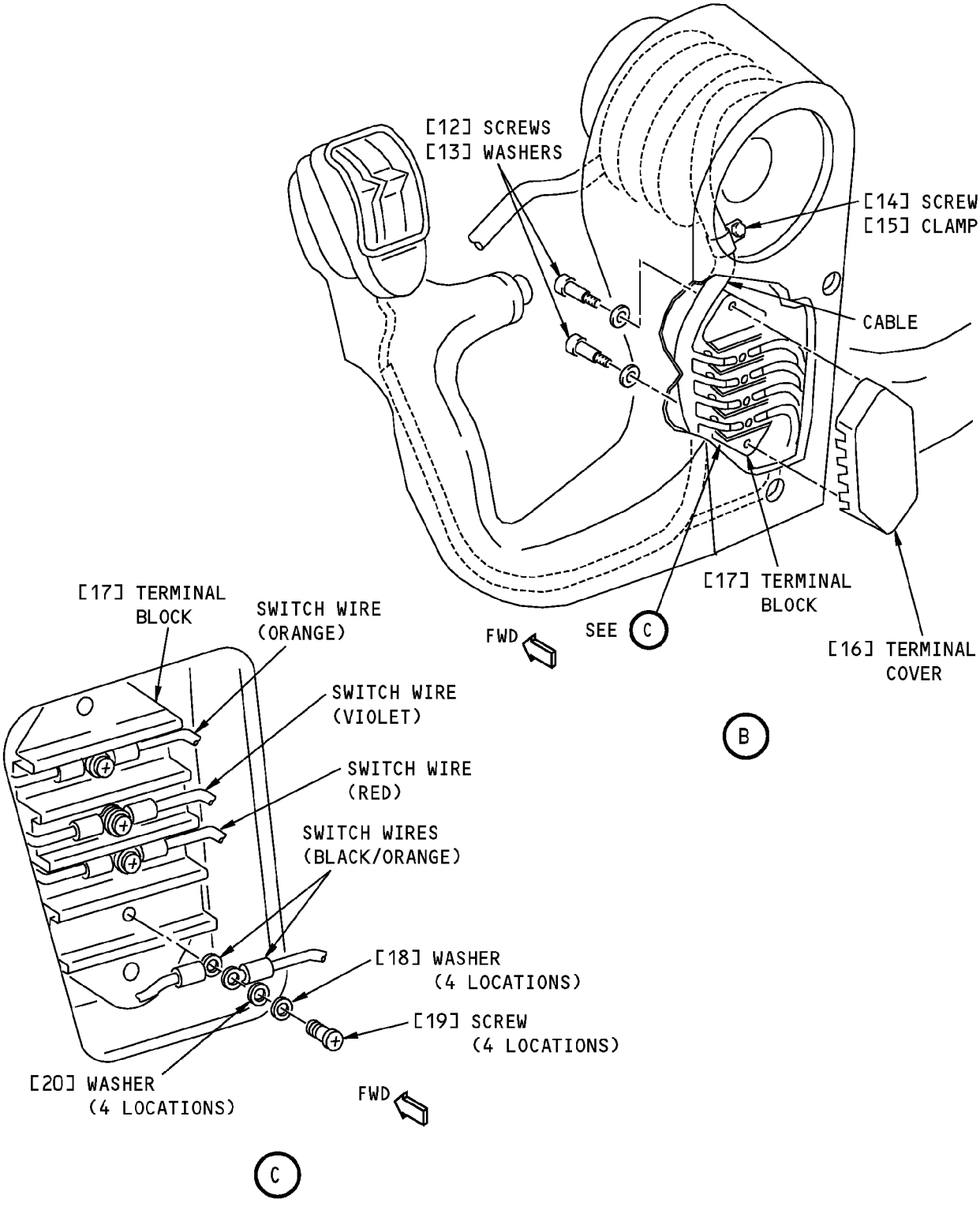

Aileron Control Wheel Installation
Figure 402 (Sheet 2 of 2)/27-11-41-990-802

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TASK 27-11-41-400-801

3. Aileron Control Wheel Installation

A. References

Reference	Title
22-11-41-400-801	Autopilot Disengage Switch Installation (P/B 401)
23-51-04-400-801	Control Wheel PTT Switch Installation (P/B 401)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)
27-41-97-400-801	Stabilizer Trim Control Switch Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1671	Straightedge - Control Wheel (Part #: SE27-0001, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1674	Assembly - Adapter, Control Wheel, Torque and Force Test (Part #: C27060-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F72867-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00900	Sealant - Silicone, RTV - Dow Corning 93-006-1	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Control wheel	27-31-51-03-055	HAP ALL
		27-31-51-03-201	HAP ALL

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E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Access Panels

Number	Name/Location
112A	Forward Access Door

G. Aileron Control Wheel Installation

SUBTASK 27-11-41-020-005

(1) If you removed the stabilizer trim control switch, do this task: Stabilizer Trim Control Switch Installation, TASK 27-41-97-400-801.

SUBTASK 27-11-41-020-006

(2) If you removed the autopilot disengage switch, do this task: Autopilot Disengage Switch Installation, TASK 22-11-41-400-801.

SUBTASK 27-11-41-020-007

(3) If you removed the control wheel PTT switch, do this task: Control Wheel PTT Switch Installation, TASK 23-51-04-400-801.

SUBTASK 27-11-41-420-001

(4) Install the aileron control wheel [3] (Figure 402):

(a) Install the terminal block [17] in the hub of the wheel.

(b) Install the screws [19], washers [18] and washers [20] to connect the terminals of the switch wires to the terminal block [17].

(c) Make sure the terminals of the switch wires are installed correctly.

(d) Attach the terminal cover [16] to the aileron control wheel [3] with washers [13] and screws [12].

(e) Apply Dow Corning 93-006-1 sealant, A00900 to the wire bundle and the control wheel splines.

(f) Use a wire leader to put the electrical wires in the aileron control wheel [3].

(g) Put a clamp [15] at the mark on the wire bundle.

CAUTION: MAKE SURE THE WIRE BUNDLE LENGTH IS CORRECT BETWEEN THE AILERON CONTROL COLUMN AND THE AILERON CONTROL WHEEL. THE AILERON CONTROL WHEEL CAN NOT MOVE FREELY IF THE WIRE BUNDLE IS NOT CORRECT. THIS CAN CAUSE DAMAGE TO THE WIRE BUNDLE INSIDE THE AILERON CONTROL WHEEL.

(h) Make sure the length of the wire bundle is approximately 27 inches (685.8 millimeters) between the clamp [15] in the aileron control wheel [3] and the hole in the housing.

(i) Make sure the aileron control wheel [3] moves an equal distance each direction from the neutral position.

(j) Install the clamp [15] with the screw [14] to hold the wire bundle to the aileron control wheel [3].

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(k) Wind the wire bundle four times around the control wheel hub.

NOTE: As you look forward into the control wheel upper cavity, wind the wire bundle counterclockwise for the captain's aileron control wheel. For the first officer's aileron control wheel, wind the wire bundle clockwise. Fig. 402, Detail (B).

(l) Engage the splines on the aileron control wheel [3] to the control column at the identified positions.

(m) Install the bolt [11], spacer [9], washer [7], washer [8] and nut [4].

(n) Tighten the nut [4] 85-140 pound-inches (9.6-15.8 newton-meters) until the next nut casstellation aligns with the hole in the bolt.

(o) Install the new pin [10].

SUBTASK 27-11-41-720-001

(5) Do a check of the operation of the aileron control wheel [3]:

(a) Make sure the captain's and the first officer's aileron control wheels [3] are in the neutral position.

(b) Put the straightedge, SPL-1671 across the top end of the aileron control wheels.

1) Make sure that one end of the first officer's aileron control wheel [3] is not farther than 0.20 inch (5.0 millimeters) from the straightedge.

(c) Remove the straightedge, SPL-1671 from the aileron control wheels.

(d) Install the adapter, SPL-1674 to the captain's control wheel.

(e) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 to the first officer's control wheel.

(f) Remove the rig pins A/S-1, A/S-1A and A/S-15 from the transfer mechanism (Figure 401).

CAUTION: DO NOT LET THE AILERON CONTROL WHEEL TURN MORE THAN 110 DEGREES IN EACH DIRECTION FROM NEUTRAL. IF THE AILERON CONTROL WHEEL TURNS MORE THAN 110 DEGREES, THIS CAN CAUSE CAUSE DAMAGE TO THE WIRE BUNDLE.

(g) Make sure the aileron control wheel [3] can turn 108 degrees in each direction from the neutral position.

(h) Make sure the aileron control wheel [3] moves freely and smoothly.

(i) Remove the adapter, SPL-1674 from the captain's control wheel.

(j) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the first officer's control wheel.

SUBTASK 27-11-41-861-001

(6) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-41-720-002

(7) Do a test of the electrical circuits for continuity changed during the replacement of the aileron control wheel [3].

SUBTASK 27-11-41-720-003

(8) Use the insulation tester to do a test of the terminal block [17] while you turn the aileron control wheel [3] from stop to stop.

(a) Do a test on the terminal block for resistance to ground, or wire to wire for a minimum insulation value of 100 megohms.

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SUBTASK 27-11-41-420-002

(9) Install the medallion.

(a) Install the medallion [6] on the aileron control wheel [3].

(b) Install the screws [5] that attach the medallion [6] to the aileron control wheel [3].

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-11-41-410-001

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-11-41-860-003

(2) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

——————— END OF TASK ———————

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AILERON CONTROL WHEEL DRUM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron control wheel drum

(2) An installation of the aileron control wheel drum.

B. The aileron control wheel drum is referred to as the "control wheel drum" in this procedure.

C. The control wheel drum is installed at the base of the captain's control column.

TASK 27-11-51-000-801

2. Aileron Control Wheel Drum Removal

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Prepare for the Removal

SUBTASK 27-11-51-010-001

(1) Open this access panel:

Number	Name/Location
112A	Forward Access Door

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SUBTASK 27-11-51-860-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-51-860-002

(3) Put the captain's and first officer's control wheels in the neutral position.

SUBTASK 27-11-51-480-001

(4) Install the rig pins A/S-1 and A/S-1A, from the rig pin kit, SPL-1585, in the aileron transfer mechanism.

(a) Make sure that the rig pin A/S-1 is fully in the aileron transfer mechanism.

(b) Hold the rig pin A/S-1 to make sure it does not fall out.

SUBTASK 27-11-51-480-002

(5) Install the rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron trim mechanism.

F. Aileron Control Wheel Drum Removal

SUBTASK 27-11-51-020-001

(1) Disconnect the cable ACBA [1] and cable ACBB [2] at the turnbuckles [3].

(a) Attach identification tags on the disconnected cables for easier assembly.

SUBTASK 27-11-51-020-002

(2) Disconnect the cable AA [4] and cable AB [6] at the turnbuckles [5].

(a) Attach identification tags on the disconnected cables for easier assembly.

SUBTASK 27-11-51-020-003

(3) Remove the cable guide [16] from the control wheel drum assembly [19].

(a) Remove the screws [17] from the cable guide [16].

(b) Remove the cable guide [16].

SUBTASK 27-11-51-020-004

(4) Remove the control wheel drum assembly [19]:

(a) Remove the screw [35] and clamp [37] that attach the rudder pedal adjustment crank to the control wheel drum assembly [19].

(b) Remove the screws [24], [27], [39] and clamps [26], [29] and [41].

(c) Disconnect the electrical connectors [15] and [30] from the roll force transducer [18].

(d) Remove the screws [31], washers [32] and nuts [34] to remove the wiring harness [38] from bracket on the control wheel drum assembly [19].

(e) Disconnect the electrical connector [33] from the aileron transmitter.

(f) Remove the nuts [14], washers [13], and bolts [12] that attach the control wheel drum assembly [19] to the airplane structure.

(g) Remove the nuts [11], washers [10], bolts [9] to remove the bracket [7].

(h) Move the control wheel drum assembly [19] down while, at the same time, you put the cable ACBA [1] and cable ACBB [2] through the openings.

(i) Remove the control wheel drum assembly [19] from the airplane structure.

END OF TASK

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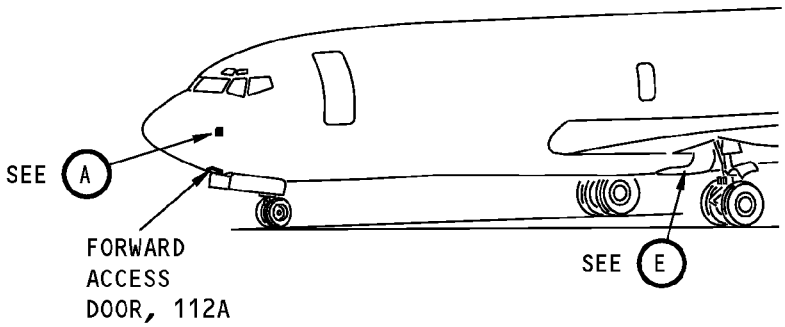

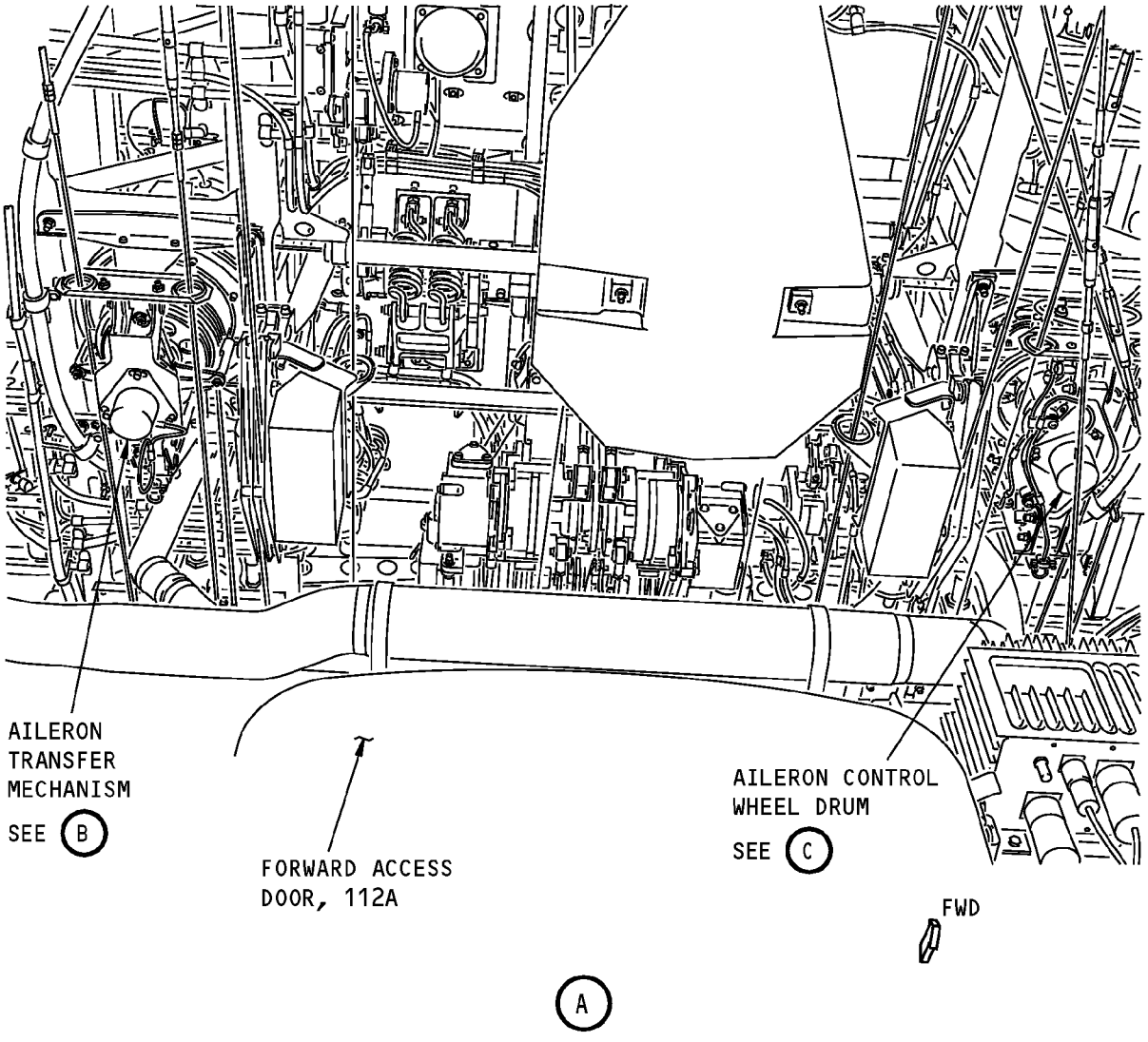

Aileron Control Wheel Drum Installation
Figure 401 (Sheet 1 of 5)/27-11-51-990-801

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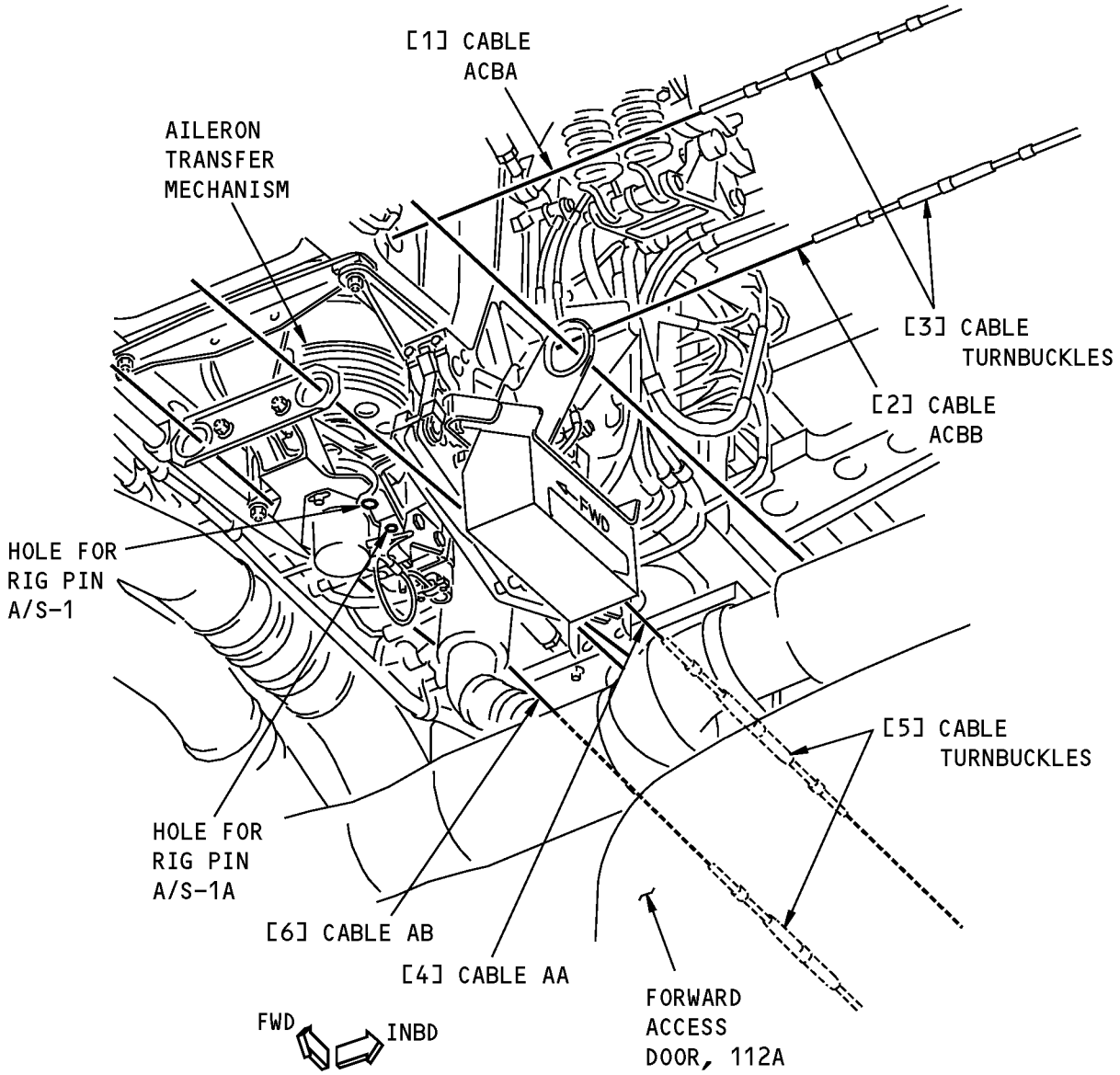

AILERON TRANSFER MECHANISM

B

Aileron Control Wheel Drum Installation
Figure 401 (Sheet 2 of 5)/27-11-51-990-801

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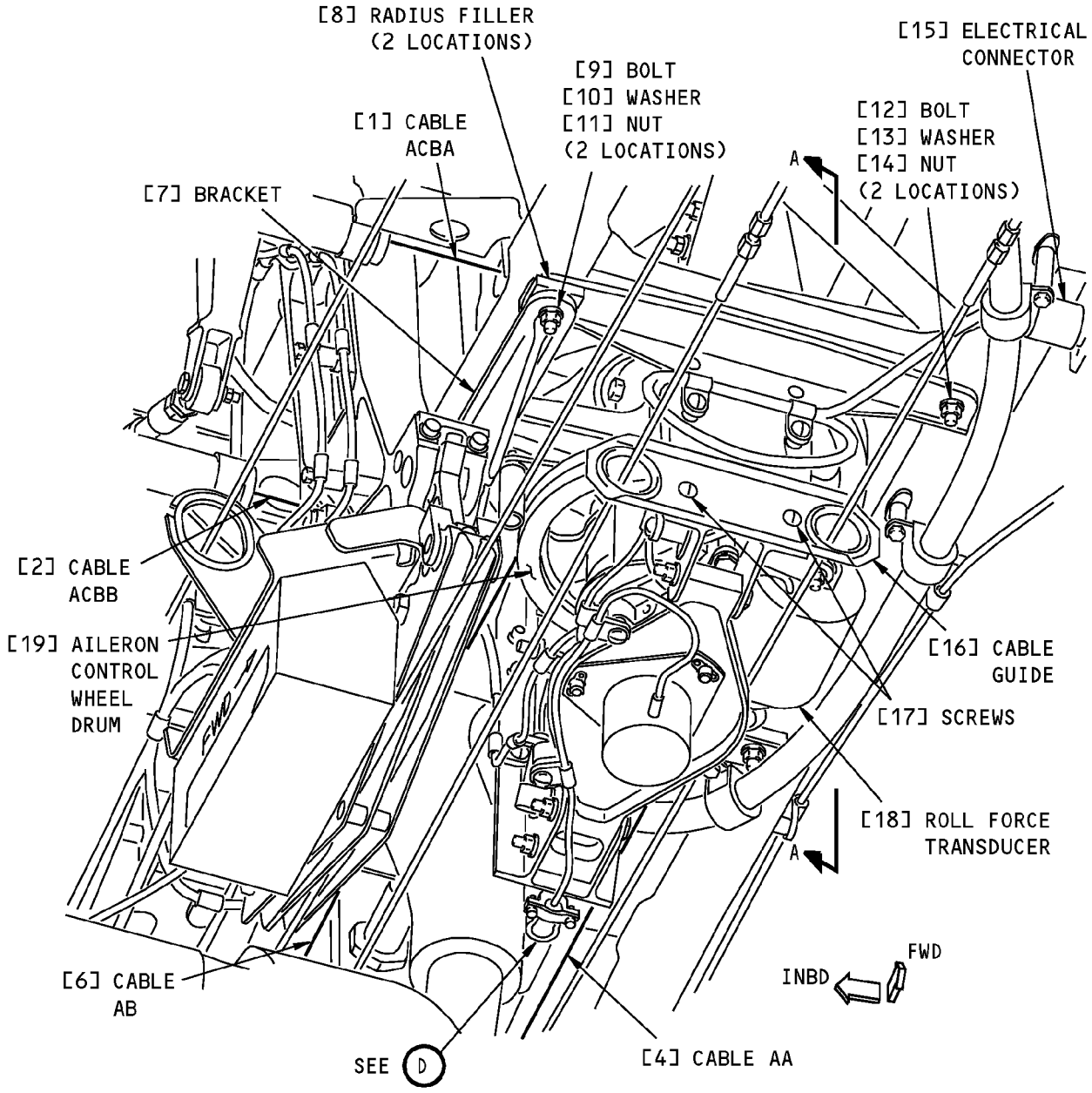

AILERON CONTROL WHEEL DRUM

C

Aileron Control Wheel Drum Installation
Figure 401 (Sheet 3 of 5)/27-11-51-990-801

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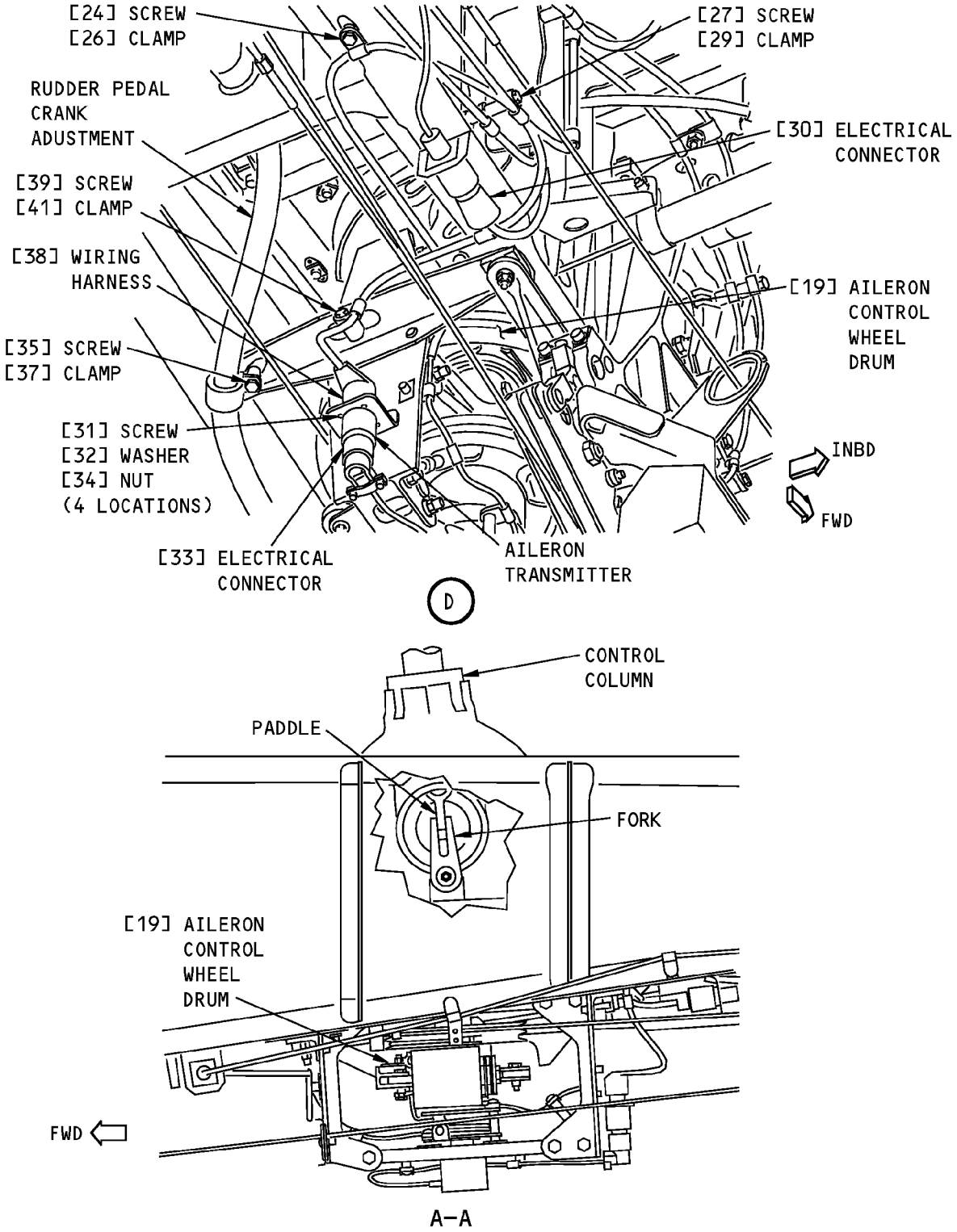

Aileron Control Wheel Drum Installation
Figure 401 (Sheet 4 of 5)/27-11-51-990-801

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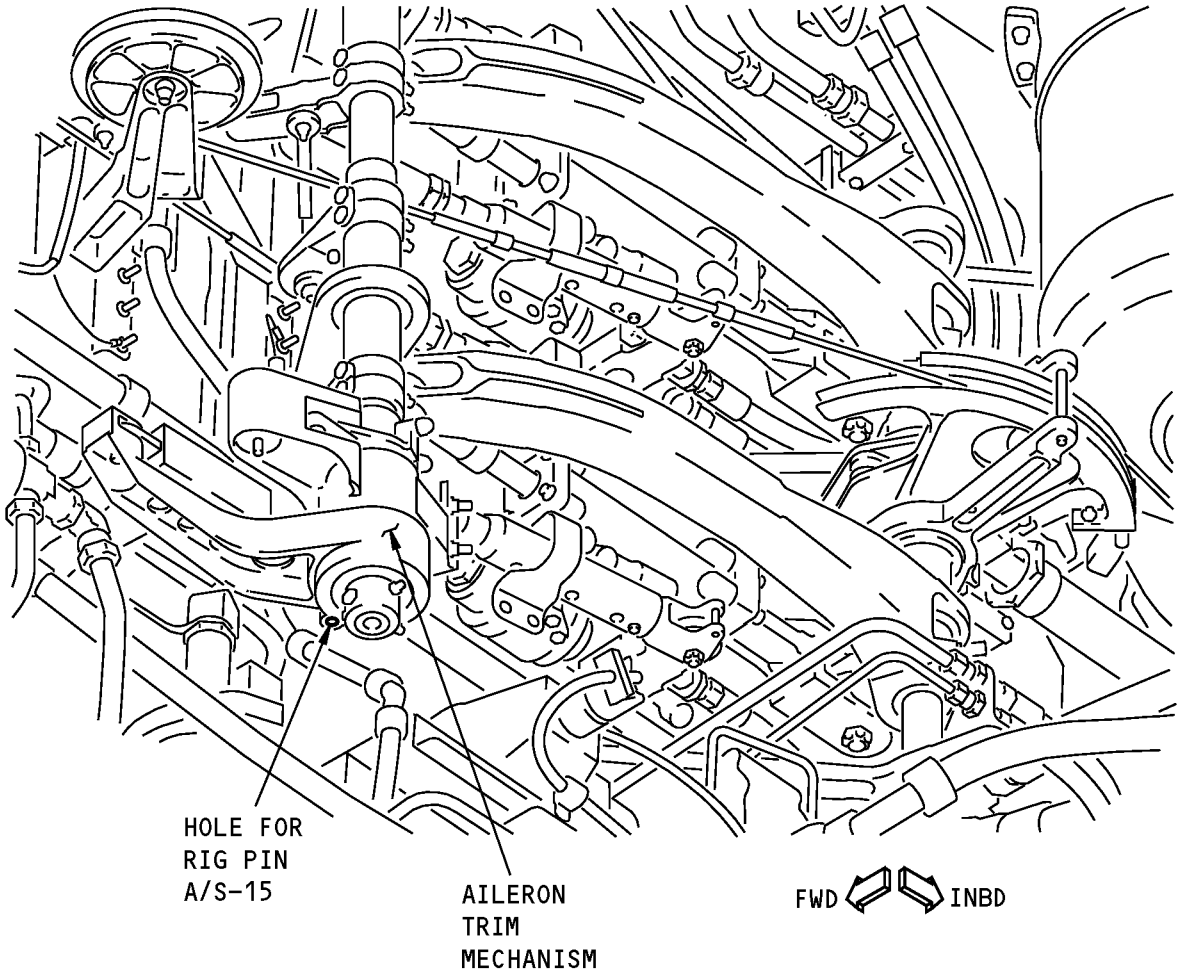

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)

E

Aileron Control Wheel Drum Installation
Figure 401 (Sheet 5 of 5)/27-11-51-990-801

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TASK 27-11-51-400-801

3. Aileron Control Wheel Drum Installation

(Figure 401)

A. References

Reference	Title
22-11-11-740-801	Roll Force Transducer Test (P/B 501)
27-11-00-700-802	First Officer's Control Wheel Lost Motion Test (P/B 501)
27-11-00-700-803	Manual Reversion Control Friction Test (P/B 501)
27-11-00-700-804	Control Wheel Centering Check (P/B 501)
27-11-00-700-805	Aileron Control Wheel Force Test (P/B 501)
27-11-00-700-807	Control Wheel Travel Stop Test (P/B 501)
27-11-00-710-801	Aileron Response (Operational) Test (P/B 501)
27-11-00-820-801	Aileron Cables Adjustment (P/B 501)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
19	Drum assembly	27-11-61-01-330	HAP ALL

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door

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F. Aileron Control Wheel Drum Installation

SUBTASK 27-11-51-210-001

CAUTION: MAKE SURE THAT IT IS THE SELF-LOCKING SHEAR NUT AND NOT THE TENSION TYPE SELF-LOCKING NUT THAT CONNECTS THE FORK TO THE CONTROL WHEEL DRUM. IF AN INCORRECT NUT IS INSTALLED, THE CAPTAIN'S CONTROL COLUMN CAN BECOME DISENGAGED FROM THE FORK, THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Make sure the fork is connected to the control wheel drum with correct self-locking shear nut.

NOTE: You must see a completed bolt chamfer at the end of the nut.

SUBTASK 27-11-51-210-002

(2) Make sure the fork is correctly engaged to the paddle on the control column.

SUBTASK 27-11-51-420-001

(3) Install the control wheel drum assembly [19]:

(a) Connect the cable AA [4] and cable AB [6] to the control wheel drum assembly [19].

(b) Put the end of cable ACBA [1] and cable ACBB [2] through the openings, and at the same time, put the control wheel drum assembly [19] in its position.

(c) Make sure the radius fillers [8] are bonded to the rib.

(d) Put the bracket [7] in its position with the FWD marking forward.

(e) Install the bracket [7] with the bolts [9], washers [10] and nuts [11].

(f) Install the bolts [12], washers [13], and nuts [14] to attach the control wheel drum assembly [19] to the airplane structure.

(g) Attach the wiring harness [38] to the control wheel drum assembly [19] with the screws [31], washers [32], and nuts [34].

(h) Connect the electrical connector [33] to the aileron transmitter.

(i) Connect the electrical connectors [15] and [30] to the roll force transducer [18].

(j) Install the clamps [26], [29] and [41] with screws [24], [27], and [39].

(k) Install the screw [35], and clamp [37] to attach the rudder pedal adjustment crank to the control wheel drum assembly [19].

SUBTASK 27-11-51-420-002

(4) Install the cable guide [16] to the control wheel drum assembly [19]:

(a) Put the cable guide [16] in its position.

(b) Install the screws [17] on the cable guide [16].

SUBTASK 27-11-51-420-003

(5) Connect the cable AA [4] and cable AB [6] at the turnbuckles [5].

(a) Remove the identification tags from the disconnected cables.

(b) Connect the cable AA [4] and cable AB [6] at the turnbuckles [5].

(c) Tighten the turnbuckles [5] to remove slack but keep the cable tension at zero.

SUBTASK 27-11-51-420-004

(6) Connect the cable ACBA [1] and cable ACBB [2] at the turnbuckles [3]:

(a) Remove the identification tags from the disconnected cables.

(b) Connect the cable ACBA [1] and cable ACBB [2] at the turnbuckles [3].

(c) Tighten the turnbuckles [3] to remove slack but keep the cable tension at zero.

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SUBTASK 27-11-51-080-001

(7) Remove the rig pin A/S-1 and A/S-1A, from the rig pin kit, SPL-1585, from the aileron transfer mechanism.

SUBTASK 27-11-51-080-002

(8) Remove the rig pin A/S-15, from the rig pin kit, SPL-1585, from the aileron trim mechanism.

SUBTASK 27-11-51-860-003

(9) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-51-820-001

(10) Adjust cables ACBA and ACBB and cables AA and AB. To adjust the cables, do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

SUBTASK 27-11-51-720-001

(11) Do this task: First Officer's Control Wheel Lost Motion Test, TASK 27-11-00-700-802.

SUBTASK 27-11-51-730-001

(12) Do this task: Manual Reversion Control Friction Test, TASK 27-11-00-700-803.

SUBTASK 27-11-51-710-001

(13) Do this task: Aileron Response (Operational) Test, TASK 27-11-00-710-801.

SUBTASK 27-11-51-720-002

(14) Do this task: Control Wheel Centering Check, TASK 27-11-00-700-804.

SUBTASK 27-11-51-720-003

(15) Do this task: Aileron Control Wheel Force Test, TASK 27-11-00-700-805.

SUBTASK 27-11-51-720-004

(16) Do this task: Control Wheel Travel Stop Test, TASK 27-11-00-700-807.

SUBTASK 27-11-51-710-002

(17) Do this task: Roll Force Transducer Test, TASK 22-11-11-740-801.

SUBTASK 27-11-51-410-001

(18) Close this access panel:

Number	Name/Location
112A	Forward Access Door

——————— END OF TASK ———————

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AILERON TRIM ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron trim actuator

(2) An installation of the aileron trim actuator.

TASK 27-11-54-000-801

2. Aileron Trim Actuator Removal

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Removal

SUBTASK 27-11-54-860-001

(1) Put the captain's and first officer's control wheels in the neutral position.

SUBTASK 27-11-54-860-002

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-54-480-001

(3) Install the rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron trim mechanism.

E. Aileron Trim Actuator Removal

SUBTASK 27-11-54-020-001

(1) Disconnect the electrical connector from the aileron trim actuator [1].

SUBTASK 27-11-54-020-002

(2) Remove the aileron trim actuator [1] from the aileron trim mechanism:

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(a) Remove the nut [11], bushing [10], washer [9], washer [8], and bolt [7].

(b) Remove the nut [2], bushing [3], washer [4], washer [5], and bolt [6].

(c) Remove the aileron trim actuator [1].

——————— END OF TASK ———————

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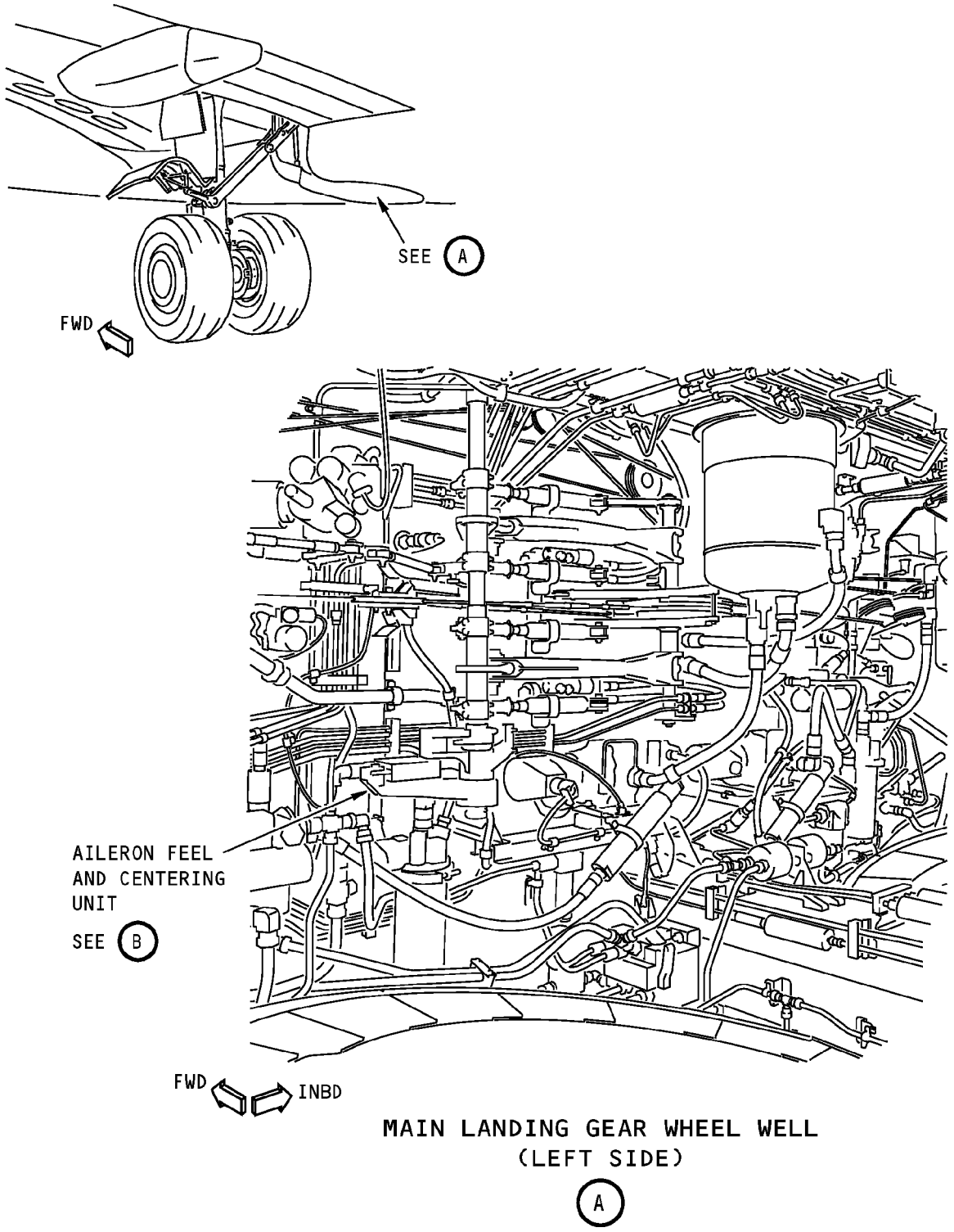

Aileron Trim Actuator Installation
Figure 401 (Sheet 1 of 2)/27-11-54-990-801

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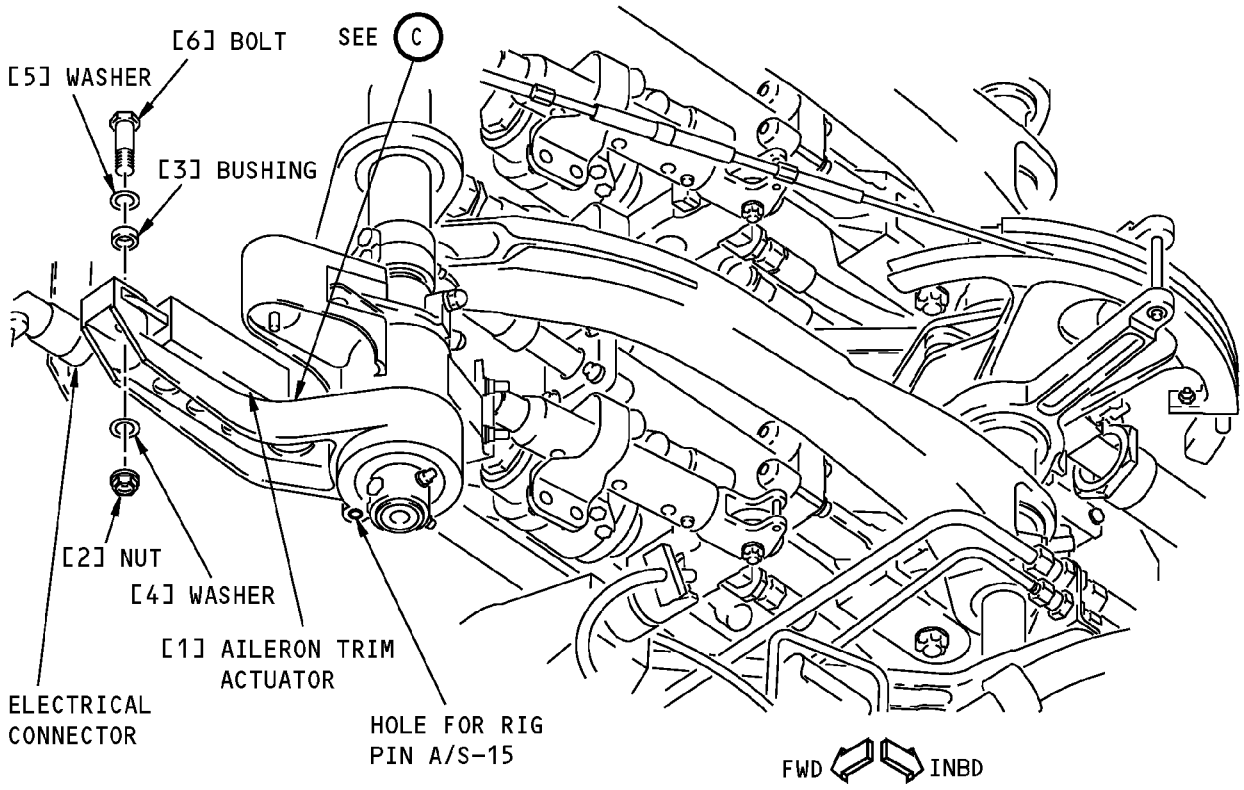

Aileron Trim Actuator Installation
Figure 401 (Sheet 2 of 2)/27-11-54-990-801

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TASK 27-11-54-400-801

3. Aileron Trim Actuator Installation

(Figure 401)

A. References

Reference	Title
27-11-00-730-801	Aileron Trim Response Test (P/B 501)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Aileron trim actuator	27-11-54-01-045	HAP ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Aileron Trim Actuator Installation

SUBTASK 27-11-54-420-001

(1) Install the aileron trim actuator [1]:

(a) Make sure that the rig pin A/S-15, from the rig pin kit, SPL-1585, is installed in the aileron trim mechanism.

(b) Put the aileron trim actuator [1] in position.

(c) Install the bolt [6], bushing [3], washer [5], washer [4], and nut [2].

(d) Install the bolt [7], bushing [10], washer [8], washer [9], and nut [11].

SUBTASK 27-11-54-420-002

(2) Do the following steps to connect the electrical connector:

(a) Before you connect the electrical connector, examine the connector for corrosion.

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WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(b) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(c) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(d) Connect the electrical connector to the aileron trim actuator [1].

SUBTASK 27-11-54-860-003

(3) Make sure the captain's and first officer's control wheels are in the neutral position.

SUBTASK 27-11-54-080-001

(4) Remove the rig pin A/S-15, from the rig pin kit, SPL-1585, from the aileron trim mechanism.

SUBTASK 27-11-54-860-004

(5) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-54-710-001

(6) Do this task: Aileron Trim Response Test, TASK 27-11-00-730-801.

END OF TASK

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AILERON TRANSFER MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron transfer mechanism

(2) An installation of the aileron transfer mechanism.

B. The aileron transfer mechanism is installed at the base of the first officer's control column.

TASK 27-11-61-000-801

2. Aileron Transfer Mechanism Removal

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right
730	Subzone - Left Main Landing Gear and Landing Gear Doors
740	Subzone - Right Main Landing Gear and Landing Gear Doors

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Prepare for the Removal

SUBTASK 27-11-61-010-001

(1) To get access to the aileron transfer mechanism, do this task:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

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SUBTASK 27-11-61-860-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-61-860-002

(3) Put the aileron control wheels in the neutral position.

(a) Make sure that the aileron trim switches are at the zero trim position.

NOTE: The aileron trim switches are installed on the aft electronic control panel, P8 in the flight compartment.

SUBTASK 27-11-61-480-001

(4) Install the rig pins A/S-1 and A/S-1A, from the rig pin kit, SPL-1585, in the aileron transfer mechanism.

(a) Make sure the rig pin A/S-1 is fully installed in the aileron transfer mechanism.

(b) Hold the two rig pins to make sure they do not fall out.

SUBTASK 27-11-61-480-002

(5) Install the rig pins A/S-3, from the rig pin kit, SPL-1585, in the right shaft of the aileron control quadrant.

SUBTASK 27-11-61-480-003

(6) Install the rig pins A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drums.

F. Aileron Transfer Mechanism Removal

SUBTASK 27-11-61-020-001

(1) Disconnect the cable ACBA [1] and ACBB [3] at the cable turnbuckles [2].

(a) Attach identification tags on the disconnected cables for easier assembly.

SUBTASK 27-11-61-020-002

(2) Disconnect the cable AA [5] and AB [6] at the cable turnbuckles [4].

(a) Attach identification tags on the disconnected cables for easier assembly.

SUBTASK 27-11-61-020-003

(3) Remove the cable guide [7] from the aileron transfer mechanism assembly [13]:

(a) Remove the nuts [21], washers [20], and bolts [19] from the cable guide [7].

(b) Remove the cable guide [7].

SUBTASK 27-11-61-020-004

(4) Remove the aileron transfer mechanism assembly [13]:

(a) Remove screw [17] and clamp [18] to remove the rudder pedal adjustment crank.

(b) Remove the nuts [16], washers [15] and screws [14] to remove the wiring harness [27] from the bracket.

(c) Remove the screw [25] and clamp [26] with the wiring harness [27] from the aileron transfer mechanism.

(d) Disconnect the electrical connector [29] from the aileron transmitter.

(e) Remove the nuts [24], washers [23], and bolts [22] that attach the aileron transfer mechanism assembly [13] to the airplane structure.

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(f) Remove the nuts [10], washers [9] and bolts [8] to remove the bracket [11].

(g) Move the aileron transfer mechanism assembly [13] down while you put the cables ACBA [1] and ACBB [3] through the openings.

END OF TASK

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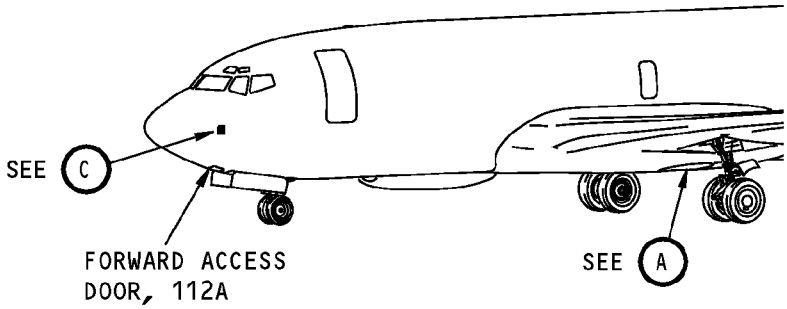

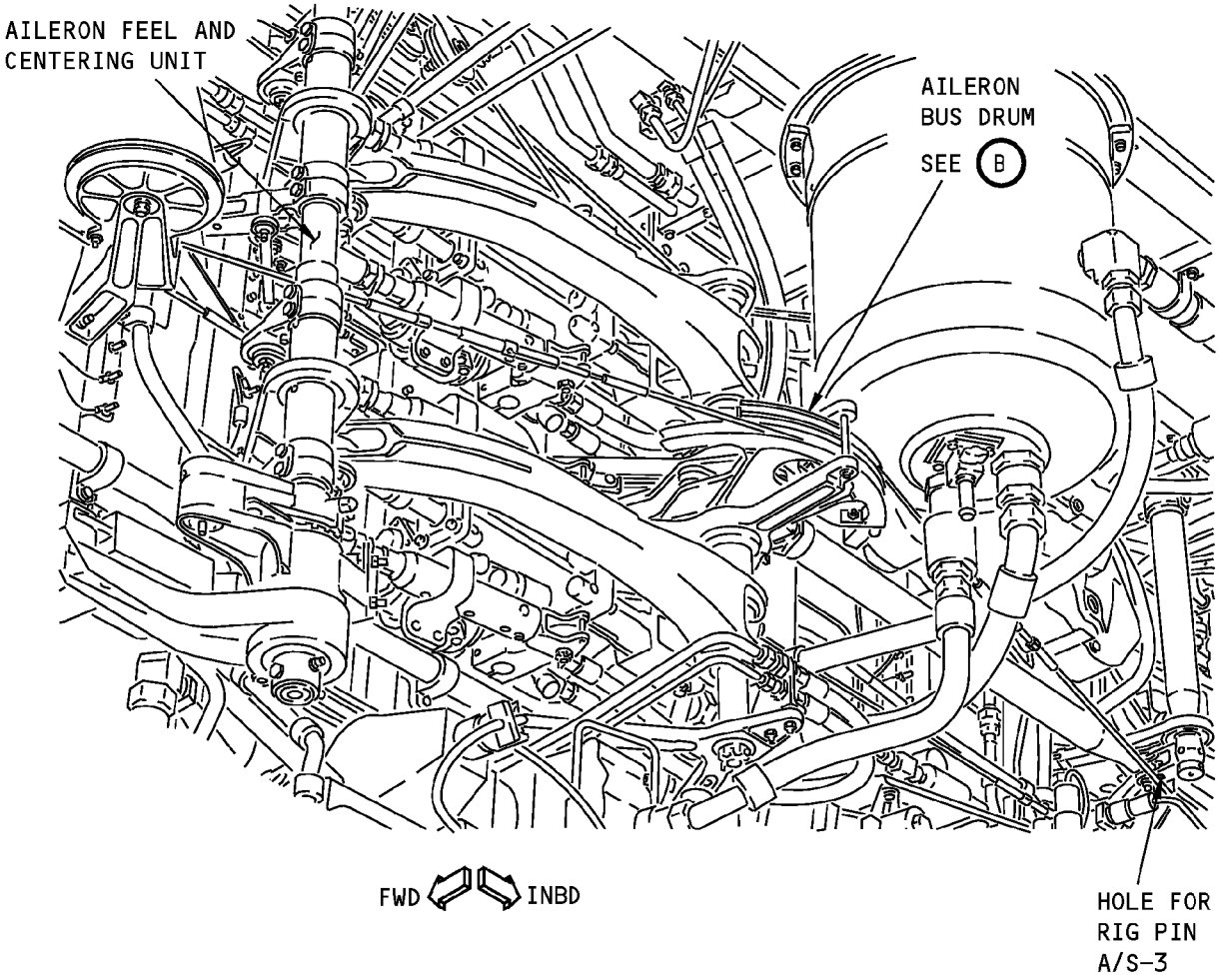

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)

A

Aileron Transfer Mechanism Installation
Figure 401 (Sheet 1 of 4)/27-11-61-990-801

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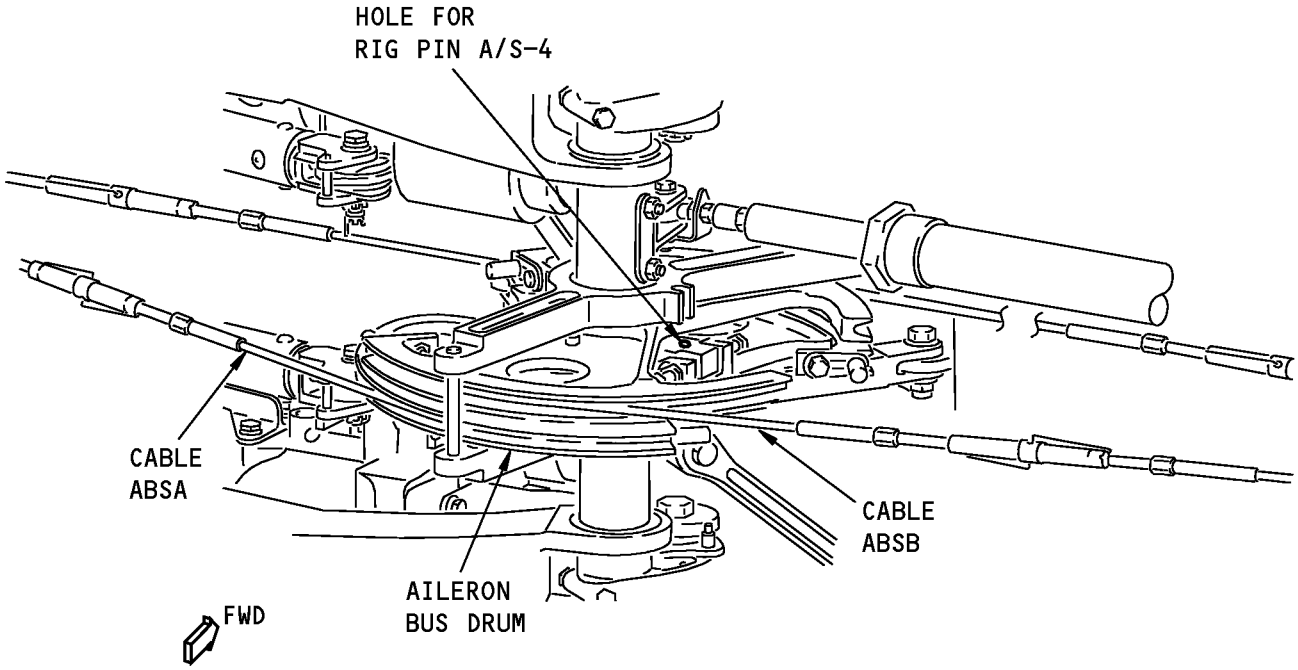

AILERON BUS DRUM

B

H07988 S0006568839_V2

Aileron Transfer Mechanism Installation
Figure 401 (Sheet 2 of 4)/27-11-61-990-801

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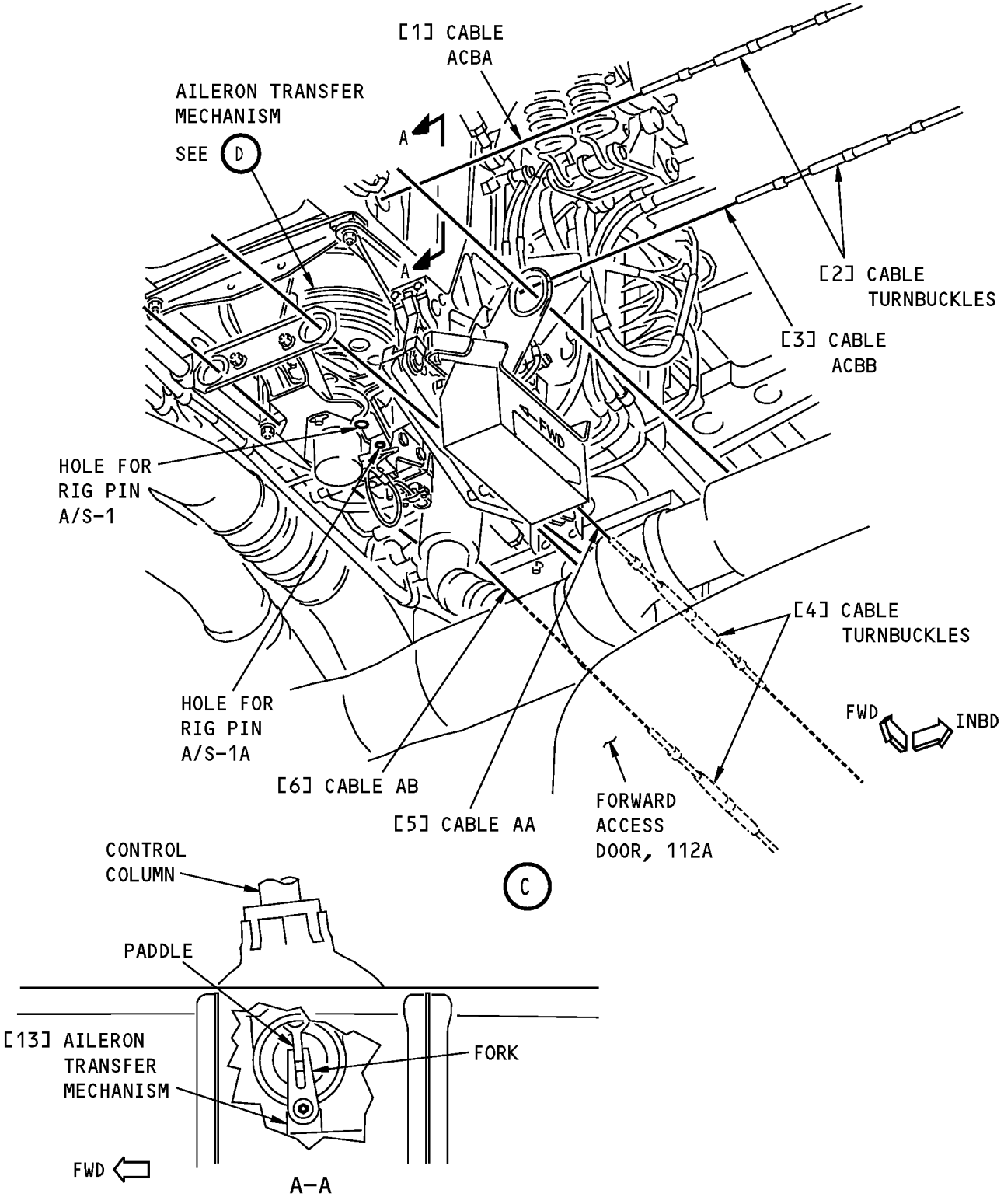

Aileron Transfer Mechanism Installation
Figure 401 (Sheet 3 of 4)/27-11-61-990-801

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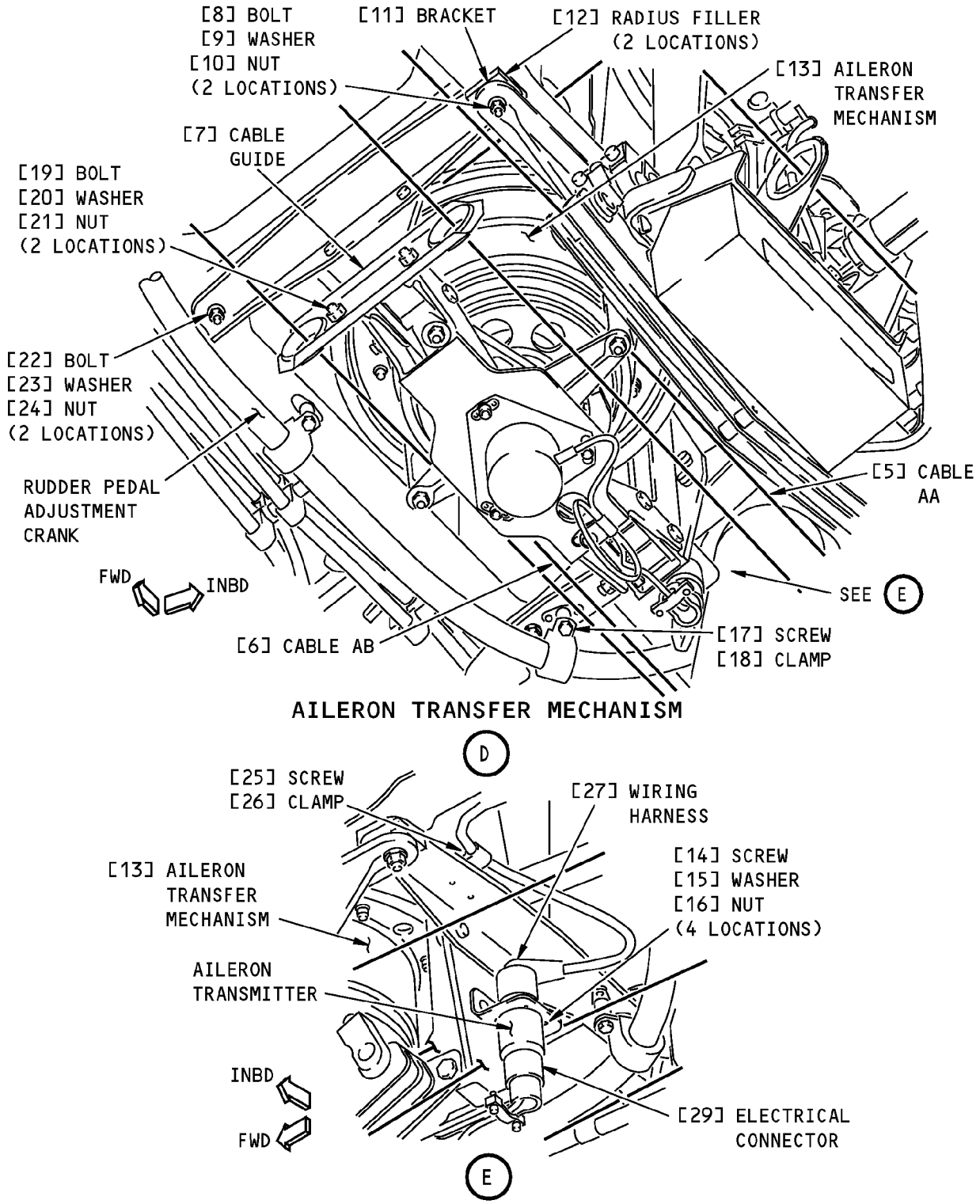

Aileron Transfer Mechanism Installation
Figure 401 (Sheet 4 of 4)/27-11-61-990-801

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TASK 27-11-61-400-801

3. Aileron Transfer Mechanism Installation

(Figure 401)

A. References

Reference	Title
27-11-00-700-802	First Officer's Control Wheel Lost Motion Test (P/B 501)
27-11-00-700-803	Manual Reversion Control Friction Test (P/B 501)
27-11-00-700-804	Control Wheel Centering Check (P/B 501)
27-11-00-700-805	Aileron Control Wheel Force Test (P/B 501)
27-11-00-700-806	Aileron Spring Cartridge and Transfer Mechanism Functional Test (P/B 501)
27-11-00-700-807	Control Wheel Travel Stop Test (P/B 501)
27-11-00-710-801	Aileron Response (Operational) Test (P/B 501)
27-11-00-820-801	Aileron Cables Adjustment (P/B 501)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
13	Transfer mechanism assembly	27-11-61-01-024	HAP ALL

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
730	Subzone - Left Main Landing Gear and Landing Gear Doors
740	Subzone - Right Main Landing Gear and Landing Gear Doors

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Aileron Transfer Mechanism Installation

SUBTASK 27-11-61-420-001

(1) Install the aileron transfer mechanism assembly [13]:

(a) Make sure the control column and the aileron transfer mechanism assembly [13] are engaged at their paddle and fork.

(b) Put the ends of the cable ACBA [1] and cable ACBB [3] through the openings while you put the aileron transfer mechanism assembly [13] in its position.

(c) Make sure the radius fillers [12] are bonded to the aileron transfer mechanism.

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(d) Install the bracket [11] with bolts [8], washers [9] and nuts [10].

1) Make sure the FWD mark on the bracket [11] points forward.

(e) Install the bolts [22], washers [23], and nuts [24] that attach the aileron transfer mechanism assembly [13] to the airplane structure.

(f) Install the nuts [16], washers [15] and screws [14] to attach the wiring harness [27] to the bracket on the aileron transfer mechanism assembly [13].

(g) Install the clamp [26] and screw [25] on the wiring harness [27] to the aileron transfer mechanism assembly [13].

(h) Connect the electrical connector [29] to the aileron transmitter.

(i) Install the screw [17] and clamp [18] to connect the rudder pedal adjustment crank to the aileron transfer mechanism assembly [13].

SUBTASK 27-11-61-420-002

(2) Install the cable guide [7] to the aileron transfer mechanism assembly [13]:

(a) Put the cable guide [7] in position.

(b) Install the bolts [19], washers [20], and nuts [21] on the cable guide [7].

SUBTASK 27-11-61-420-003

(3) Connect the cable ACBA [1] and cable ACBB [3] to the cable turnbuckles [2].

(a) Remove the identification tags from the disconnected cables.

(b) Connect the cable ACBA [1] and cable ACBB [3] to the cable turnbuckles [2].

(c) Tighten the cable turnbuckles [2] to remove slack but keep the cable tension at zero.

SUBTASK 27-11-61-420-004

(4) Connect the cable AA [5] and cable AB [6] to the cable turnbuckles [17].

(a) Remove the identification tags from the disconnected cables.

(b) Connect the cable AA [5] and cable AB [6] to the cable turnbuckles [4].

(c) Tighten the cable turnbuckles [4] to remove slack but keep the cables tension at zero.

SUBTASK 27-11-61-420-005

(5) Remove the rig pins A/S-1 and A/S-1A, from the rig pin kit, SPL-1585, from the aileron transfer mechanism assembly [13].

SUBTASK 27-11-61-080-001

(6) Remove the rig pins A/S-3, from the rig pin kit, SPL-1585, from the right shaft of the aileron control quadrant.

SUBTASK 27-11-61-080-002

(7) Remove the rig pins A/S-4, from the rig pin kit, SPL-1585, from the aileron bus drums.

SUBTASK 27-11-61-820-001

(8) Adjust the cable ACBA and cable ACBB, do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

SUBTASK 27-11-61-820-002

(9) Adjust the cable AA and cable AB, do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

SUBTASK 27-11-61-860-003

(10) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

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SUBTASK 27-11-61-730-001

(11) Do this task: First Officer's Control Wheel Lost Motion Test, TASK 27-11-00-700-802.

SUBTASK 27-11-61-730-002

(12) Do this task: Manual Reversion Control Friction Test, TASK 27-11-00-700-803.

SUBTASK 27-11-61-710-001

(13) Do this task: Aileron Response (Operational) Test, TASK 27-11-00-710-801.

SUBTASK 27-11-61-720-001

(14) Do this task: Control Wheel Centering Check, TASK 27-11-00-700-804.

SUBTASK 27-11-61-730-003

(15) Do this task: Aileron Control Wheel Force Test, TASK 27-11-00-700-805.

SUBTASK 27-11-61-720-002

(16) Do this task: Aileron Spring Cartridge and Transfer Mechanism Functional Test, TASK 27-11-00-700-806.

SUBTASK 27-11-61-730-004

(17) Do this task: Control Wheel Travel Stop Test, TASK 27-11-00-700-807.

SUBTASK 27-11-61-410-001

(18) Close this access panel:

Number	Name/Location
112A	Forward Access Door

——————— END OF TASK ———————

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AILERON TRANSFER MECHANISM - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has this inspection task:

(1) Aileron Transfer Mechanism

TASK 27-11-61-210-801

2. Aileron Transfer Mechanism Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Procedure

SUBTASK 27-11-61-010-002

(1) To get access to the aileron transfer mechanism, do this task:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-11-61-210-001

(2) Do a general visual inspection of the aileron transfer mechanism.

——————— END OF TASK ———————

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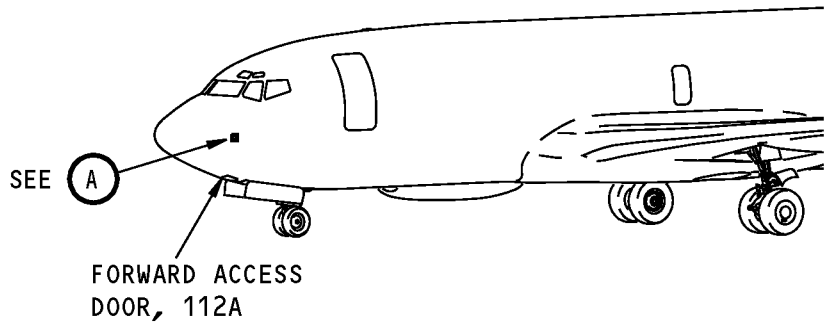

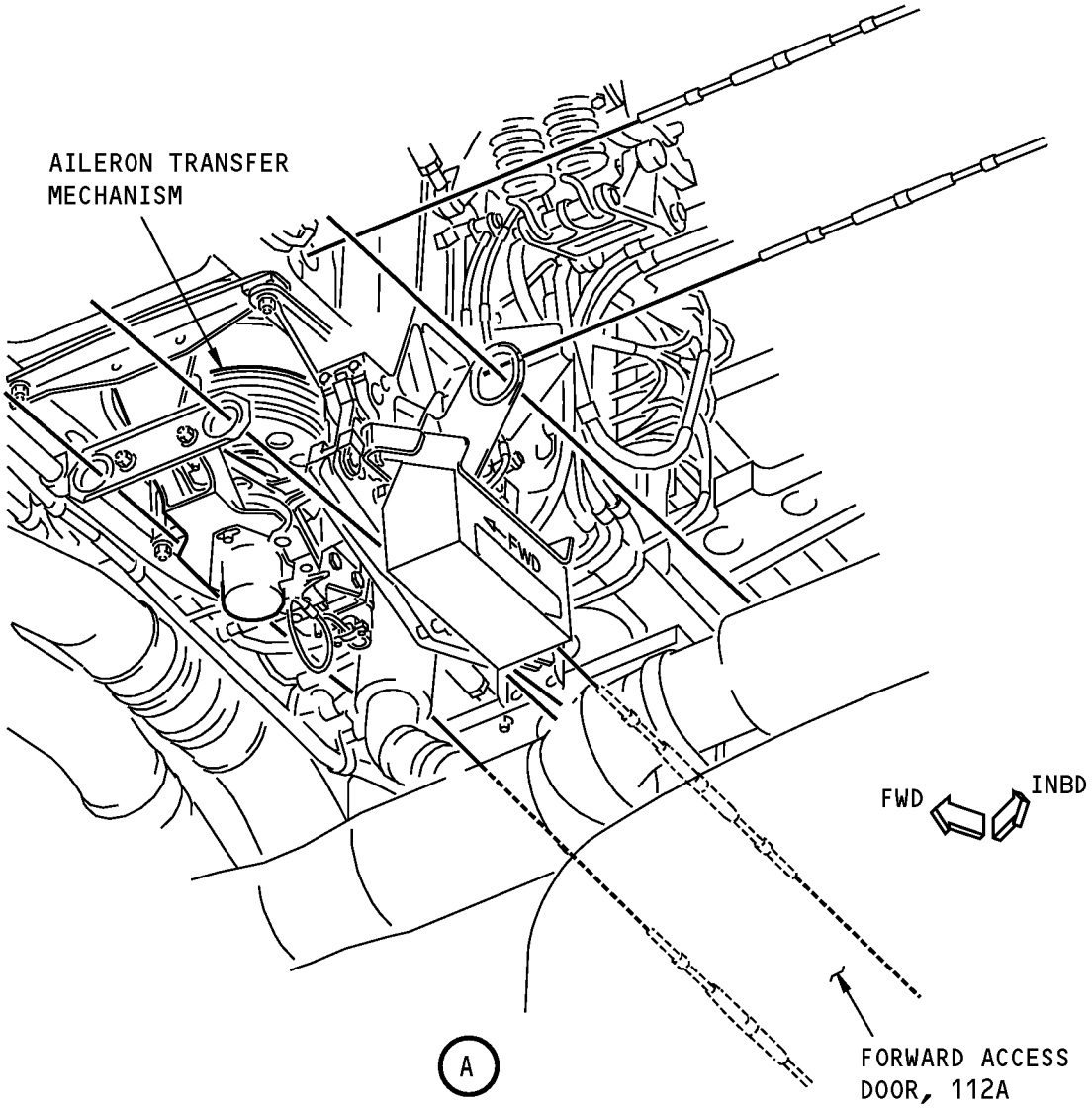

Aileron Transfer Mechanism Inspection
Figure 601/27-11-61-990-802

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AILERON POWER CONTROL UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron power control unit

(2) An installation of the aileron power control unit.

B. The aileron power control unit is referred to as the "power control unit" in this procedure.

C. The two power control units supply hydraulic power to the aileron. The power control unit at the bottom is connected to hydraulic system A. The power control unit at the top is connected to hydraulic system B.

D. This procedure is applicable for the power control units that are connected to hydraulic systems A and B.

TASK 27-11-71-000-801

2. Aileron Power Control Unit Removal

(Figure 401)

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

Reference	Description
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-11-71-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-11-71-860-001

(2) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

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E. Aileron Power Control Unit Linkage Removal

SUBTASK 27-11-71-020-001

(1) Disconnect the hydraulic lines [4] at the inlet and outlet ports of the power control unit assembly [1]. Use a 1 U.S.-gal (3.81 l) oil resistant container, STD-203 to contain any hydraulic fluid leakage. Discard the packing [2] and packing [6].

(a) Install the caps and plugs on the hydraulic lines [4] and ports.

SUBTASK 27-11-71-020-002

(2) Remove the power control unit assembly [1]:

(a) Remove the pin [13], nuts [12], washers [11], bushings [10], washers [9], and bolts [8] to disconnect the pogos [7] from the power control unit assembly [1]. Discard the pin [13].

(b) Remove the bolts [30], washers [31], bolt [32] and washer [33] to disconnect the bracket assemblies from the power control unit assembly [1].

(c) Remove the pin [23], nut [22], washer [21], nut [24], washers [25], bushings [26], washers [28], and bolt [14] to disconnect the power control unit assembly [1] from the reaction support assembly [27]. Discard the pin [23].

(d) Remove the nut [20], washer [19], washers [17], spacer [16] and bolt [15] to disconnect the safety link [18] from the reaction support assembly [27].

(e) Move the reaction link [29] aft to get access to the power control unit assembly [1].

(f) Remove the pin [37], nut [38], washer [39], washer [35], and bolt [34] to disconnect the power control unit assembly [1] from the output lever assembly [36]. Discard the pin [37].

(g) Remove the power control unit assembly [1].

———————— END OF TASK ————————

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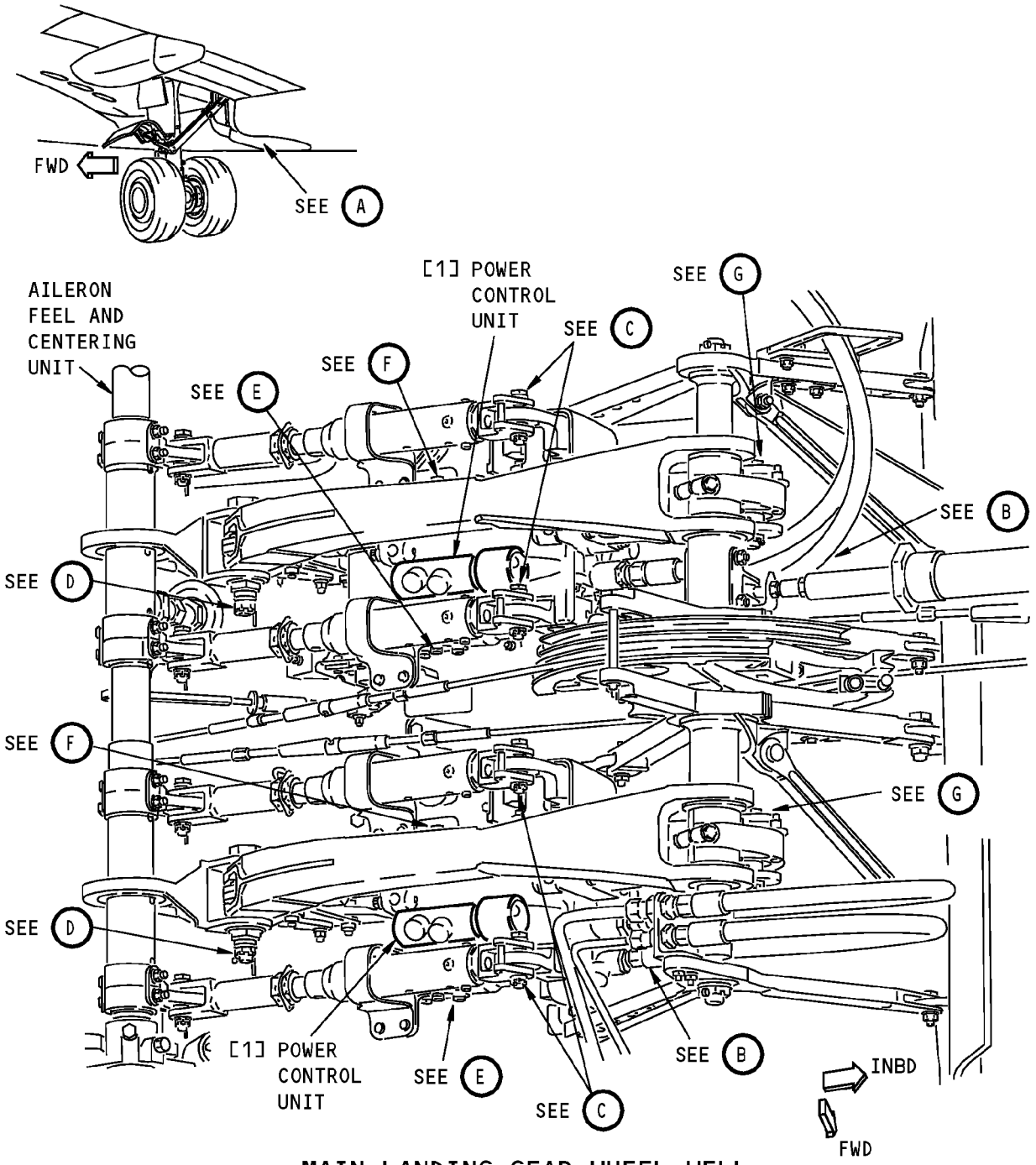

Aileron Power Control Unit Installation
Figure 401 (Sheet 1 of 4)/27-11-71-990-801

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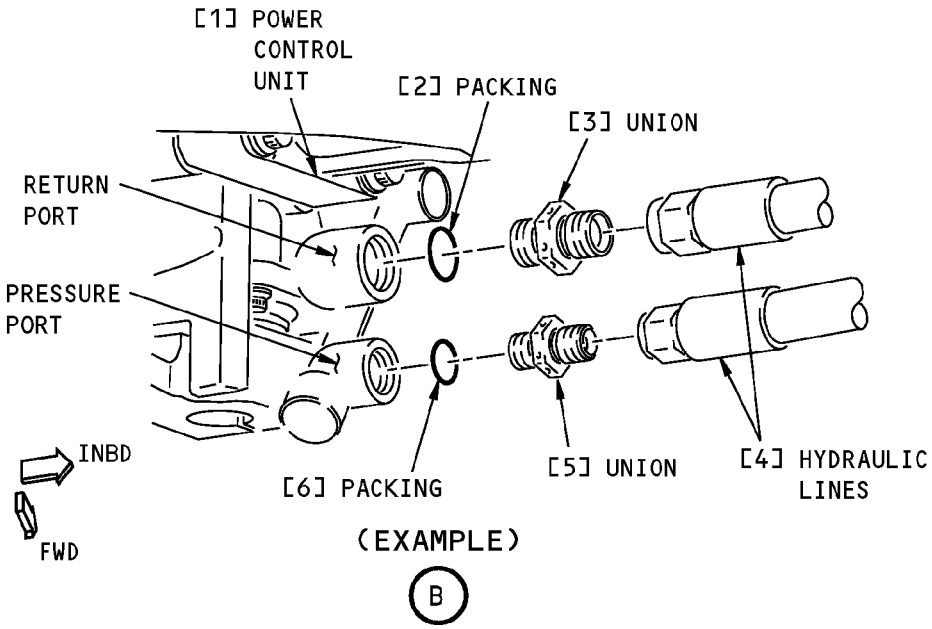

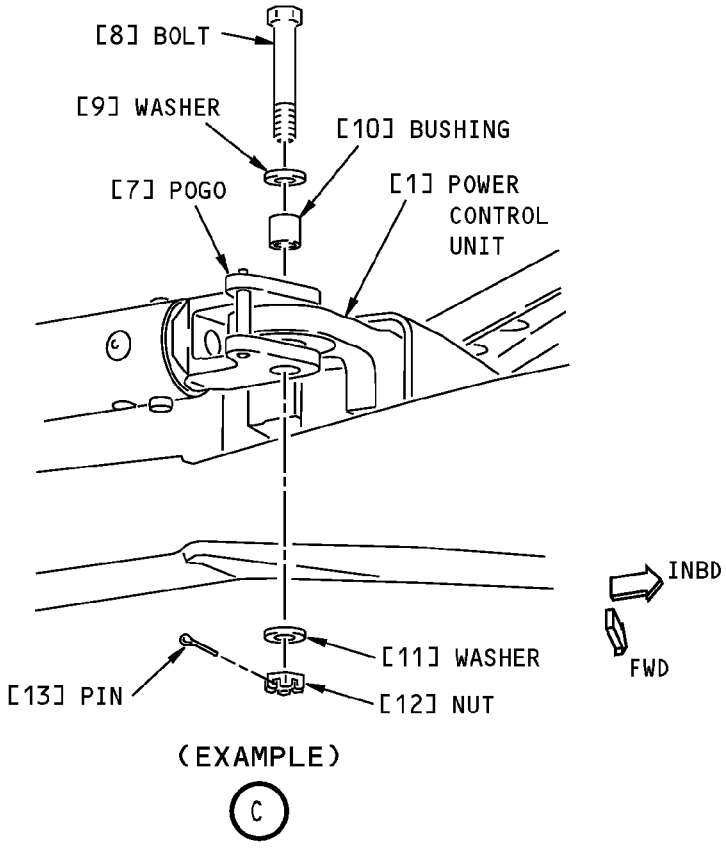

Aileron Power Control Unit Installation
Figure 401 (Sheet 2 of 4)/27-11-71-990-801

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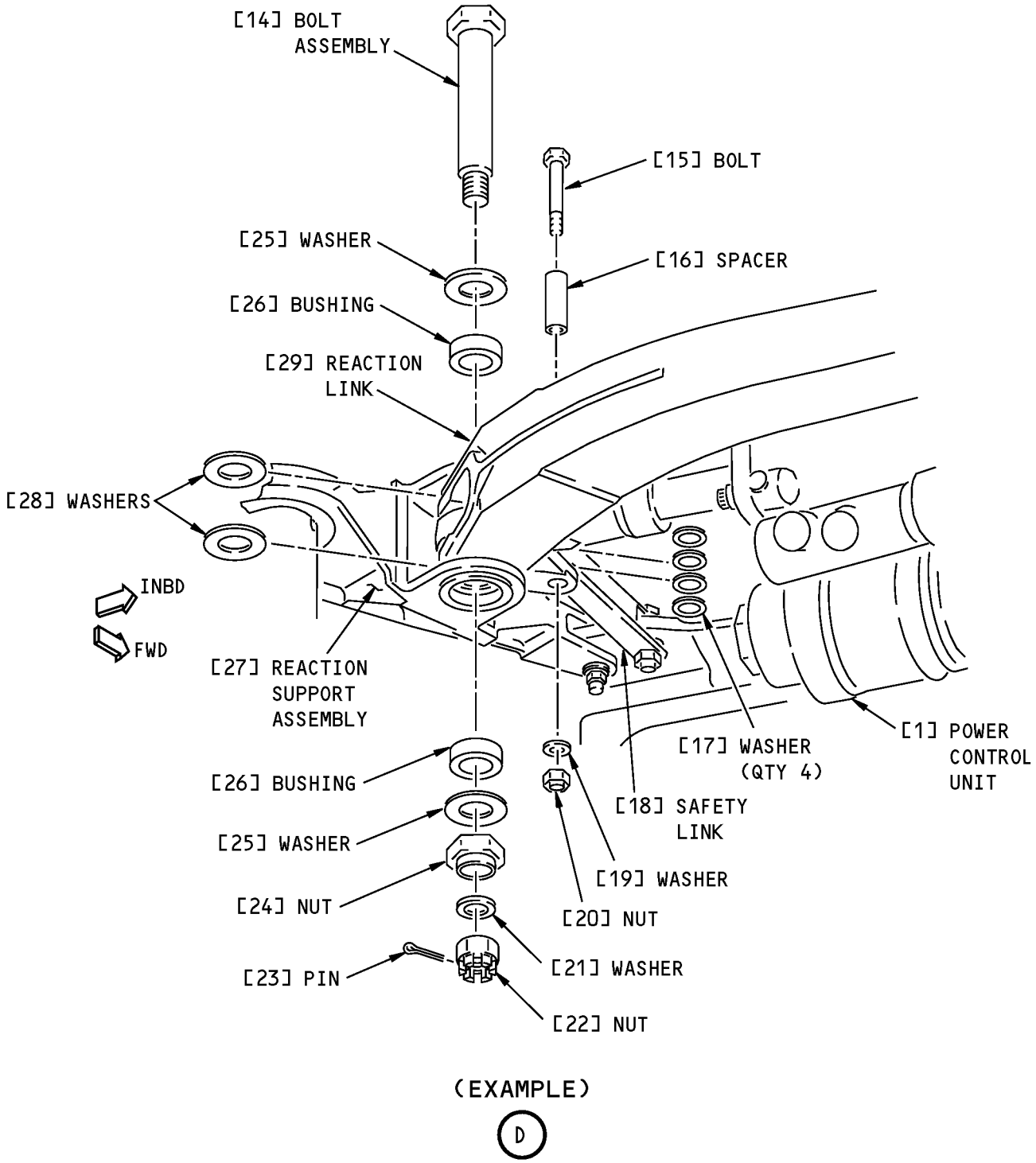

Aileron Power Control Unit Installation
Figure 401 (Sheet 3 of 4)/27-11-71-990-801

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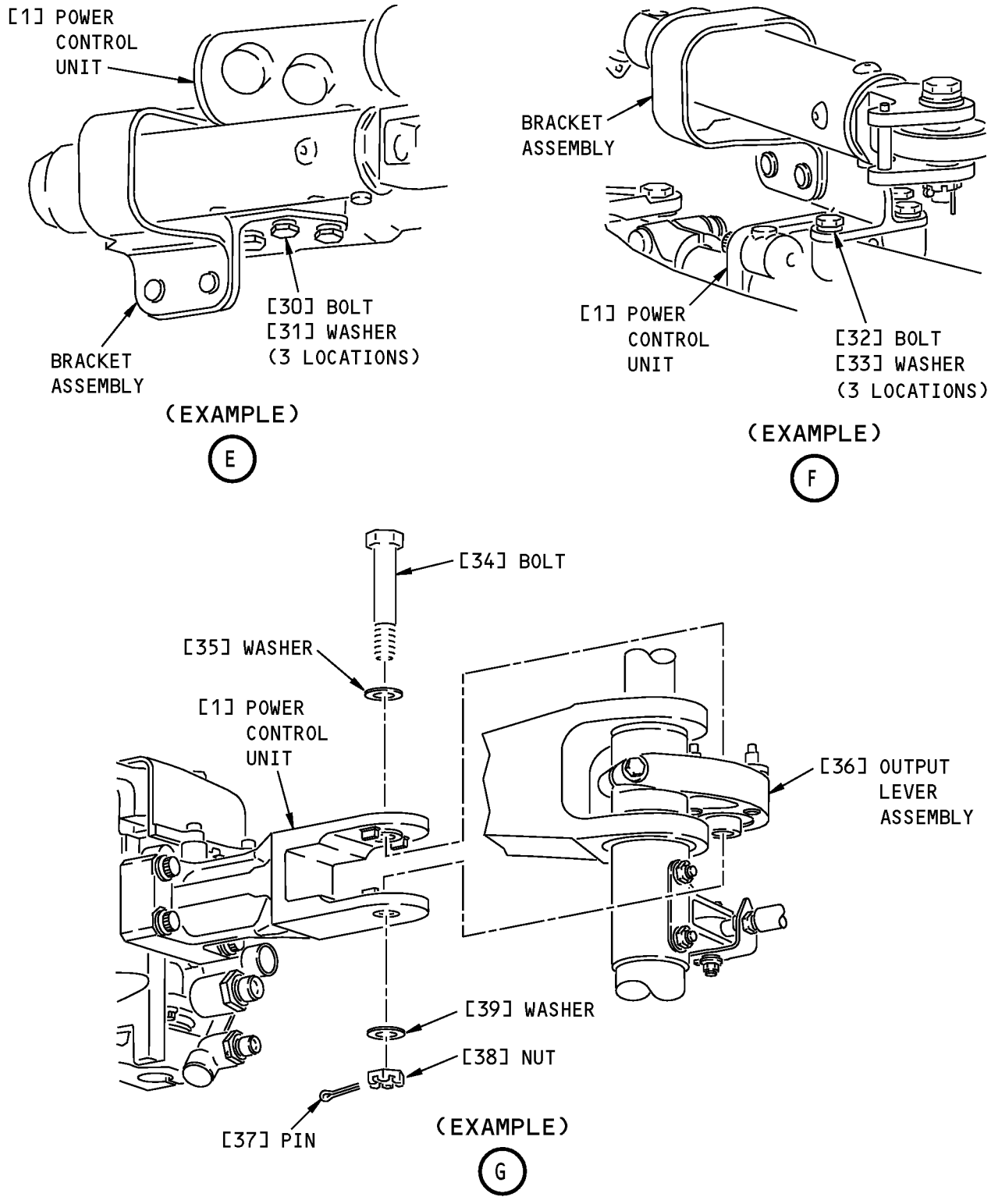

Aileron Power Control Unit Installation
Figure 401 (Sheet 4 of 4)/27-11-71-990-801

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TASK 27-11-71-400-801

3. Aileron Power Control Unit Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-11-00-700-809	Aileron Travel Test (P/B 501)
27-11-00-710-801	Aileron Response (Operational) Test (P/B 501)
27-11-00-820-802	Pogo and Power Control Unit (PCU) Adjustment (P/B 501)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Power control unit assembly	27-11-71-04-430	HAP 031-054, 101-999
		27-11-71-05-420	HAP 001-013, 015-026, 028-030
2	Packing	27-11-71-01-375	HAP 001-013, 015-026, 028-030
		27-11-71-06-530	HAP ALL
6	Packing	27-11-71-01-385	HAP 001-013, 015-026, 028-030
		27-11-71-06-535	HAP ALL
13	Pin	27-11-71-04-115	HAP 031-054, 101-999
		27-11-71-05-110	HAP 001-013, 015-026, 028-030
23	Pin	27-11-71-04-280	HAP 031-054, 101-999
		27-11-71-05-265	HAP 001-013, 015-026, 028-030
37	Pin	27-11-71-04-330	HAP 031-054, 101-999
		27-11-71-05-315	HAP 001-013, 015-026, 028-030

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E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Aileron Power Control Unit Installation

SUBTASK 27-11-71-420-001

(1) If they are not installed, install the union [3], union [5], new packing [2] and new packing [6]:

(a) Apply fluid, D00153 to the new packing [2] and new packing [6].

(b) Install the union [3], new packing [2] and union [5], new packing [6] in the ports on the power control unit assembly [1].

SUBTASK 27-11-71-860-002

(2) Make sure the power control unit assembly [1] is filled with fluid, D00153.

SUBTASK 27-11-71-820-002

(3) Remove the 1 U.S.-gal (3.81 l) oil resistant container, STD-203.

SUBTASK 27-11-71-420-002

(4) Install the power control unit assembly [1]:

(a) Put the power control unit assembly [1] in its position.

(b) Install the bolt [34], washer [35], washer [39] and nut [38] to connect the power control unit assembly [1] to the output lever assembly [36].

NOTE: Tighten the nut [38] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [34].

(c) Install the new pin [37].

(d) Move the reaction link [29] to put the power control unit assembly [1] between the fork end of the reaction link [29].

(e) Connect the power control unit assembly [1] to the reaction support assembly [27].

1) Install the bolt assembly [14], washers [25], bushings [26], washers [28] and nut [24].

2) Tighten the nut [24] to 300-350 pound-inches (33.9-39.5 newton-meters).

3) Install the washer [21], nut [22] and new pin [23].

NOTE: Tighten the nut [22] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt assy [14].

(f) Apply sealant, A00247 to the bolt [15] and spacer [16].

(g) Install the bolt [15], spacer [16], washers [17], washer [19] and nut [20] to connect the safety link [18] to the reaction support assemnbly [27].

(h) Connect the bracket assemblies to the power control unit assembly [1] with bolts [30], washers [31], bolt [32] and washer [33].

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(i) Connect the pogos [7] to the power control unit assembly [1] with bolts [8], washers [9], bushings [10], washers [11], nuts [12] and new pin [13].

NOTE: You must install the bolt [8] with the bolt head up. Tighten the nuts [12] to the lower end of the torque range. Continue to tighten the nuts until the next castellation aligns with the hole in the bolts [8].

SUBTASK 27-11-71-020-003

(5) Remove the caps and plugs from the hydraulic lines [4] and ports.

SUBTASK 27-11-71-420-003

(6) Connect the hydraulic lines [4] to the power control unit assembly [1].

SUBTASK 27-11-71-860-003

(7) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-11-71-860-004

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) To pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-11-71-860-005

(9) Operate the aileron control wheel to bleed the system.

SUBTASK 27-11-71-790-001

(10) Examine the connections of the power control unit assembly [1] for leaks.

SUBTASK 27-11-71-860-006

(11) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-11-71-860-007

(12) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-71-820-001

(13) Do this task: Pogo and Power Control Unit (PCU) Adjustment, TASK 27-11-00-820-802.

SUBTASK 27-11-71-710-001

(14) Do this task: Aileron Response (Operational) Test, TASK 27-11-00-710-801.

SUBTASK 27-11-71-730-001

(15) Do this task: Aileron Travel Test, TASK 27-11-00-700-809.

END OF TASK

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AILERON FEEL AND CENTERING UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron feel and centering unit

(2) An installation of the aileron feel and centering unit.

(3) A removal of the aileron feel and centering unit cam follower bearing.

(4) An installation of the aileron feel and centering unit cam follower bearing.

B. The aileron feel and centering unit is referred to as the "centering unit" in this procedure.

TASK 27-11-81-000-801

2. Aileron Feel and Centering Unit Removal

A. References

Reference	Title
25-22-00-000-801	Passenger Seat Removal (P/B 401)
25-27-15-000-801	Carpet Removal (P/B 401)
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
53-21-00-000-801	Passenger Cabin Floor Panel Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1671	Straightedge - Control Wheel (Part #: SE27-0001, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1112	Clamps - Stainless Steel, 8-9 Inch Adjustable

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

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D. Prepare for the Removal

SUBTASK 27-11-81-480-005

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-11-81-860-001

(2) Do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

SUBTASK 27-11-81-480-001

(3) With a 8-9 Inch adjustable stainless steel clamp, STD-1112, install the straightedge, SPL-1671 across the top ends of the two control wheels to keep the control wheels in the neutral position.

SUBTASK 27-11-81-210-001

(4) Make sure the aileron trim switches are at the zero trim position.

NOTE: The aileron trim switches are installed on the aft electronic control panel, P8, in the flight compartment.

SUBTASK 27-11-81-480-002

(5) Install the rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron trim mechanism (Figure 401).

SUBTASK 27-11-81-480-003

(6) Install the rig pin A/S-4, from the rig pin kit, SPL-1585, in the aileron bus drum (Figure 401).

SUBTASK 27-11-81-020-001

(7) Above the left main wheel well, do this task: Passenger Seat Removal, TASK 25-22-00-000-801.

SUBTASK 27-11-81-020-002

(8) Above the left main wheel well, do this task: Carpet Removal, TASK 25-27-15-000-801.

SUBTASK 27-11-81-020-009

(9) Above the left main wheel well, do this task: Passenger Cabin Floor Panel Removal, TASK 53-21-00-000-801.

E. Aileron Feel and Centering Unit Removal

SUBTASK 27-11-81-020-003

(1) Remove the centering unit [11] (Figure 402):

(a) Remove the pin [32], nuts [61], washers [33], nuts [34], washers [35], bushings [36], washers [37], and bolt assemblies [27] from the reaction links [29]. Discard the pin [32].

(b) Remove the nut [41], washer [42], washer [44] and bolt [45] to disconnect the autopilot actuator rod [43] from the centering unit [11].

(c) Remove the bolt [46] and washer [39] to remove the aileron position sensor rod [38] from the centering unit [11].

(d) Remove the pin [25], nuts [24], washers [23], bushings [21], washers [20], and bolts [19] to disconnect the pogos [22] from the lever assemblies [26]. Discard the pin [25].

(e) Disconnect the centering unit [11] from the airplane structure;

1) Remove the nut [16], washer [17], washers [18], bushing [12], washer [13], and bolt [14].

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2) Remove the nuts [16], washers [17], washers [31], bushings [28], washers [13] and bolts [14].

(f) Remove the aileron control quadrant [47] from the shaft;

1) Remove the cable AA [2] and cable AB [1] from the aileron control quadrant [47]:

a) Disconnect the left cable AA [2] and cable AB [1] at the turnbuckles;

b) Remove the nuts [59], washers [58], and bolts [57] to remove retaining plates [60] from the aileron control quadrant [47];

c) Remove the cable AA [2] and cable AB [1] from the aileron control quadrant [47];

d) Secure the disconnected cable AA [2] and cable AB [1] with clamps;

e) Attach identification tags to the disconnected cables for easier assembly.

2) Remove the nuts [51], washers [49], and bolts [48] to disconnect the aileron control quadrant [47] from the shaft.

3) Remove the aileron control quadrant [47] from the shaft.

(g) Remove the nuts [56], washers [55], washers [53] and bolts [52] to disconnect the bearing housing [54] from the pressure deck.

(h) Carefully lower and remove the centering unit [11].

——————— END OF TASK ———————

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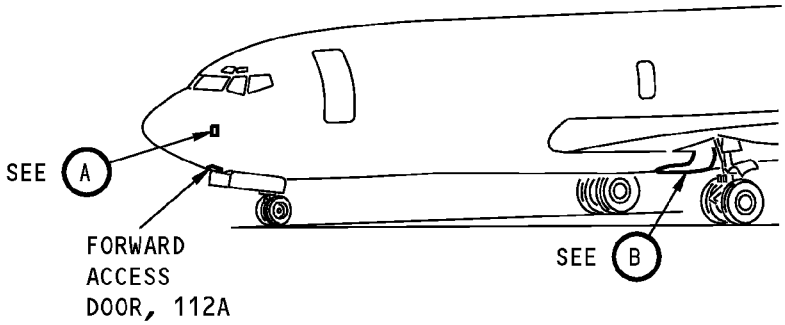

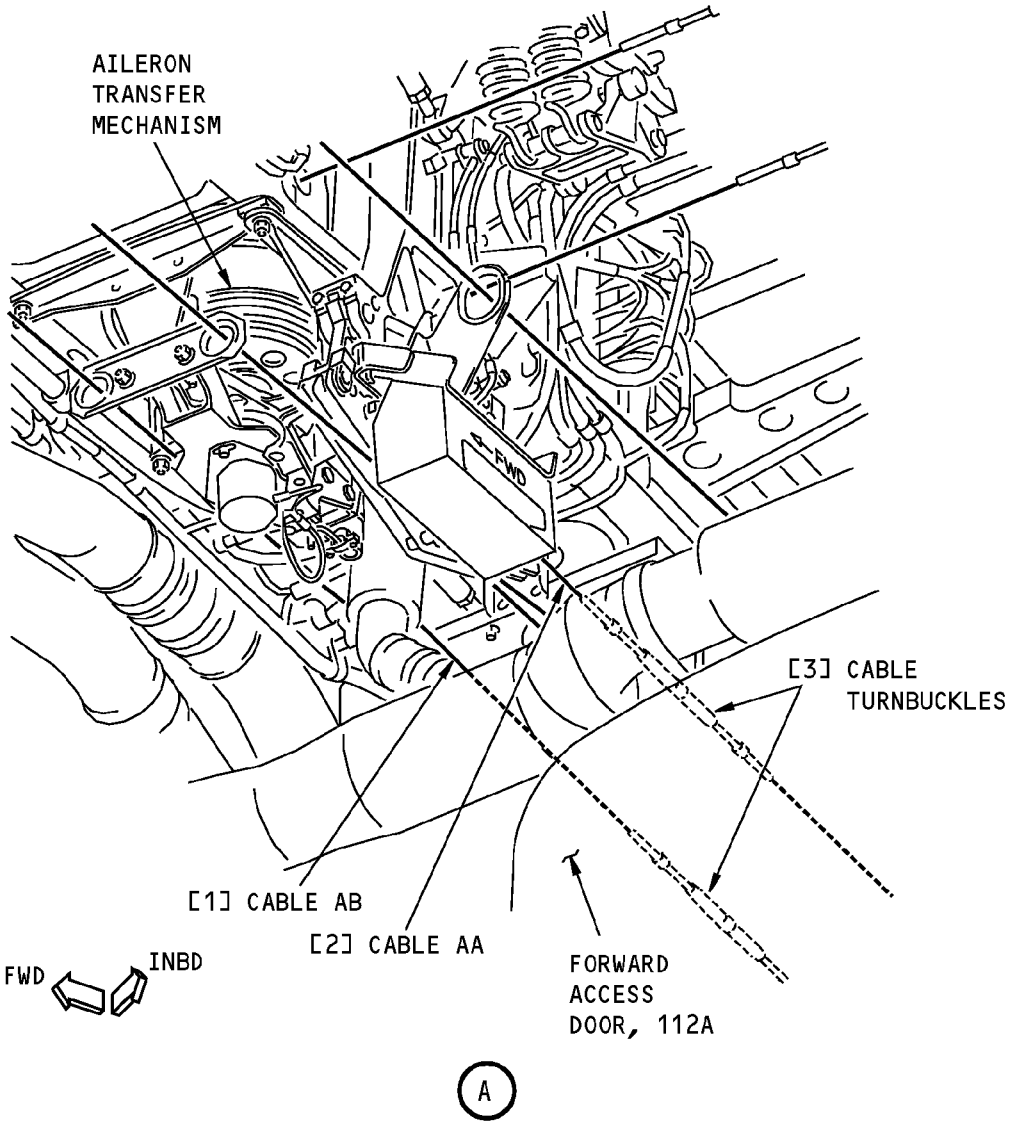

Rig Pin and Turnbuckle Location
Figure 401 (Sheet 1 of 2)/27-11-81-990-801

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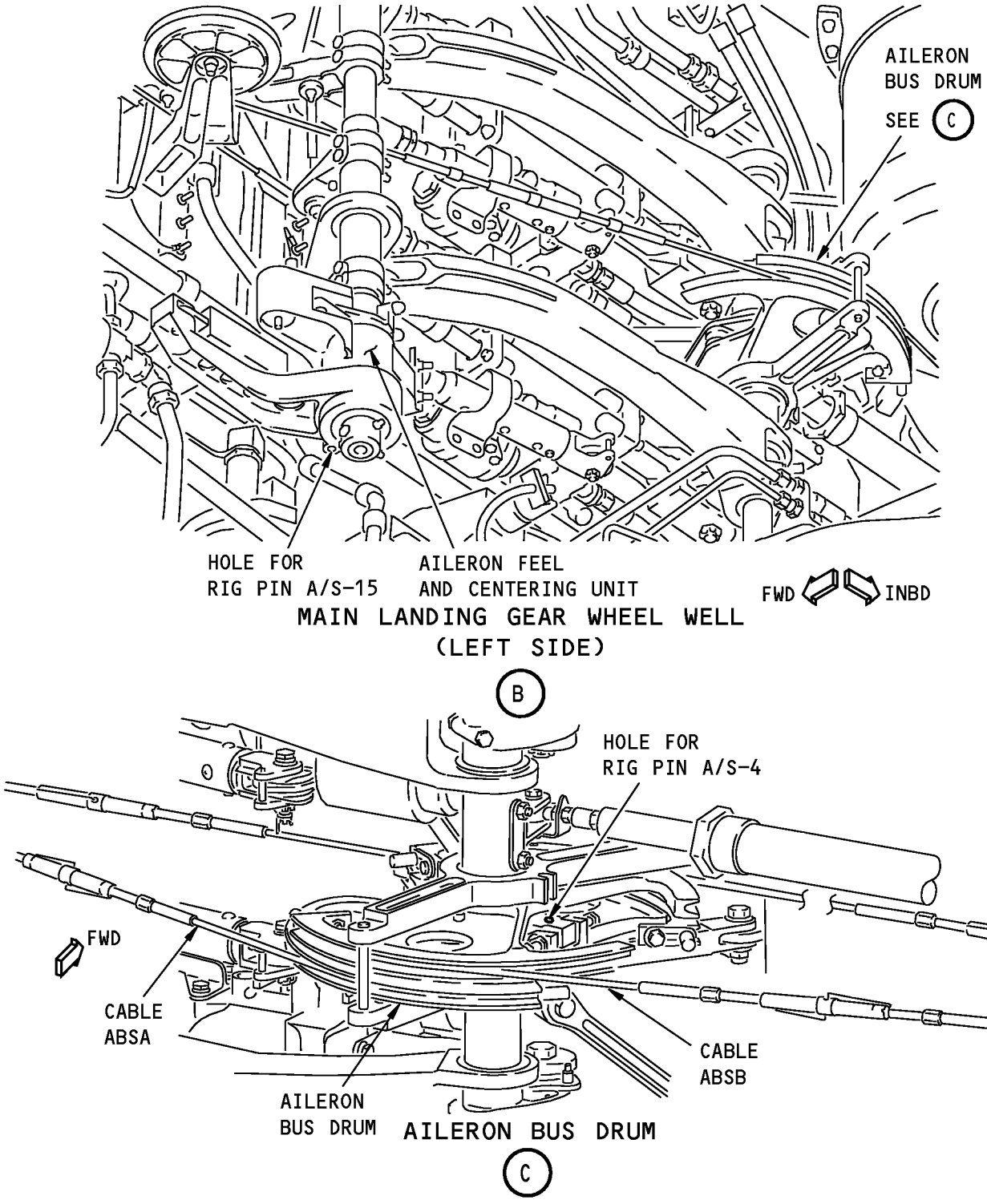

Rig Pin and Turnbuckle Location
Figure 401 (Sheet 2 of 2)/27-11-81-990-801

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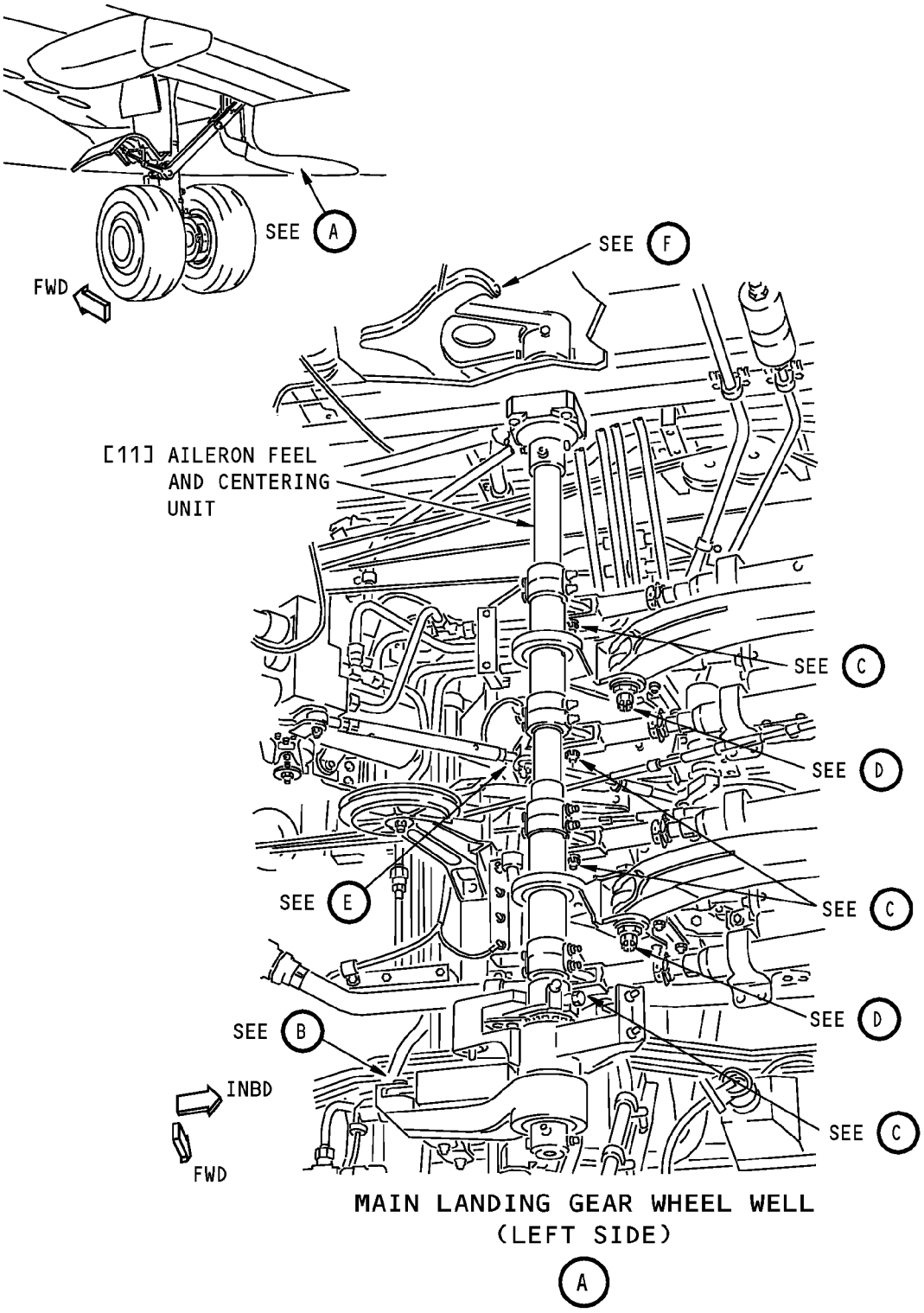

Aileron Feel and Centering Unit Installation
Figure 402 (Sheet 1 of 4)/27-11-81-990-802

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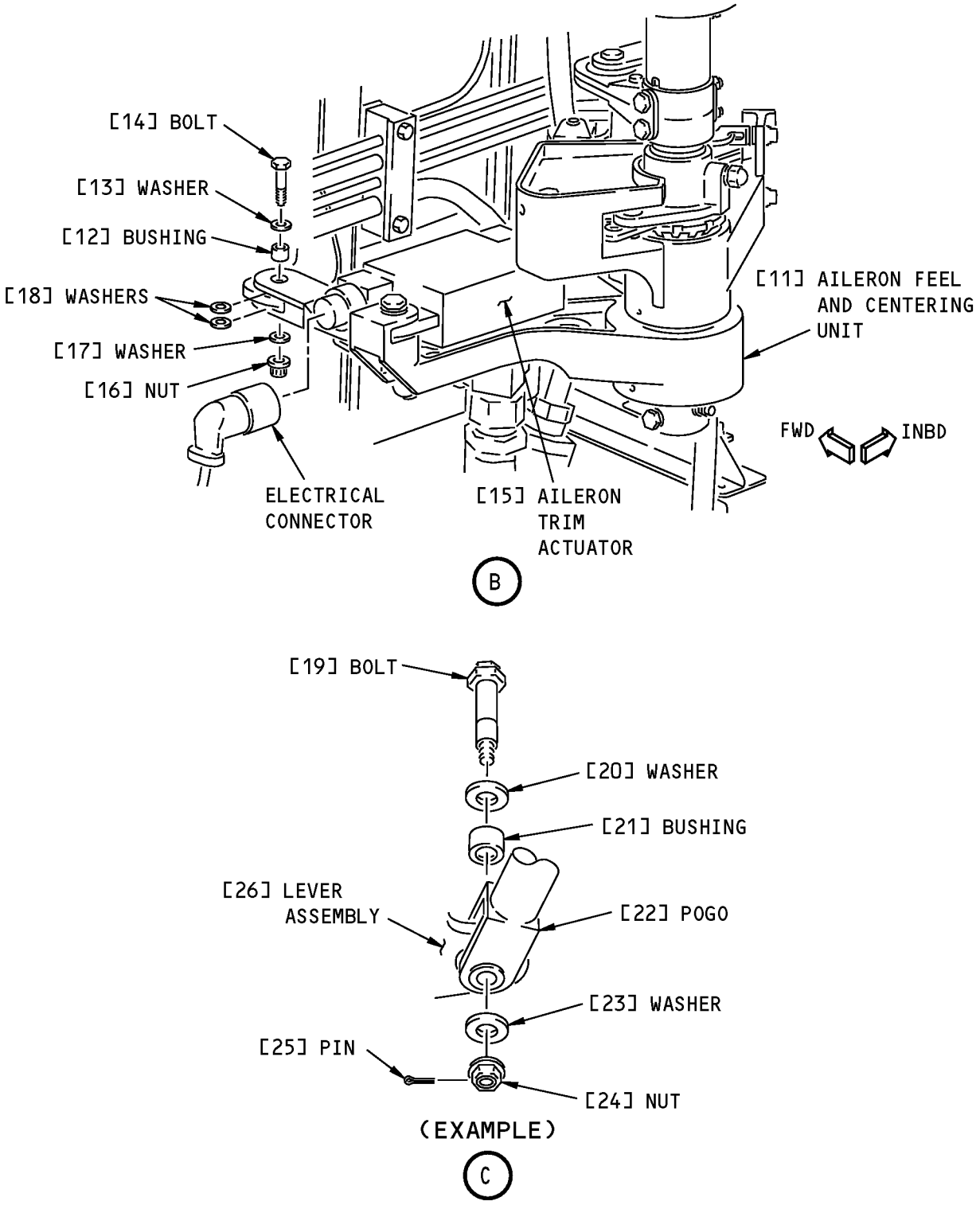

Aileron Feel and Centering Unit Installation
Figure 402 (Sheet 2 of 4)/27-11-81-990-802

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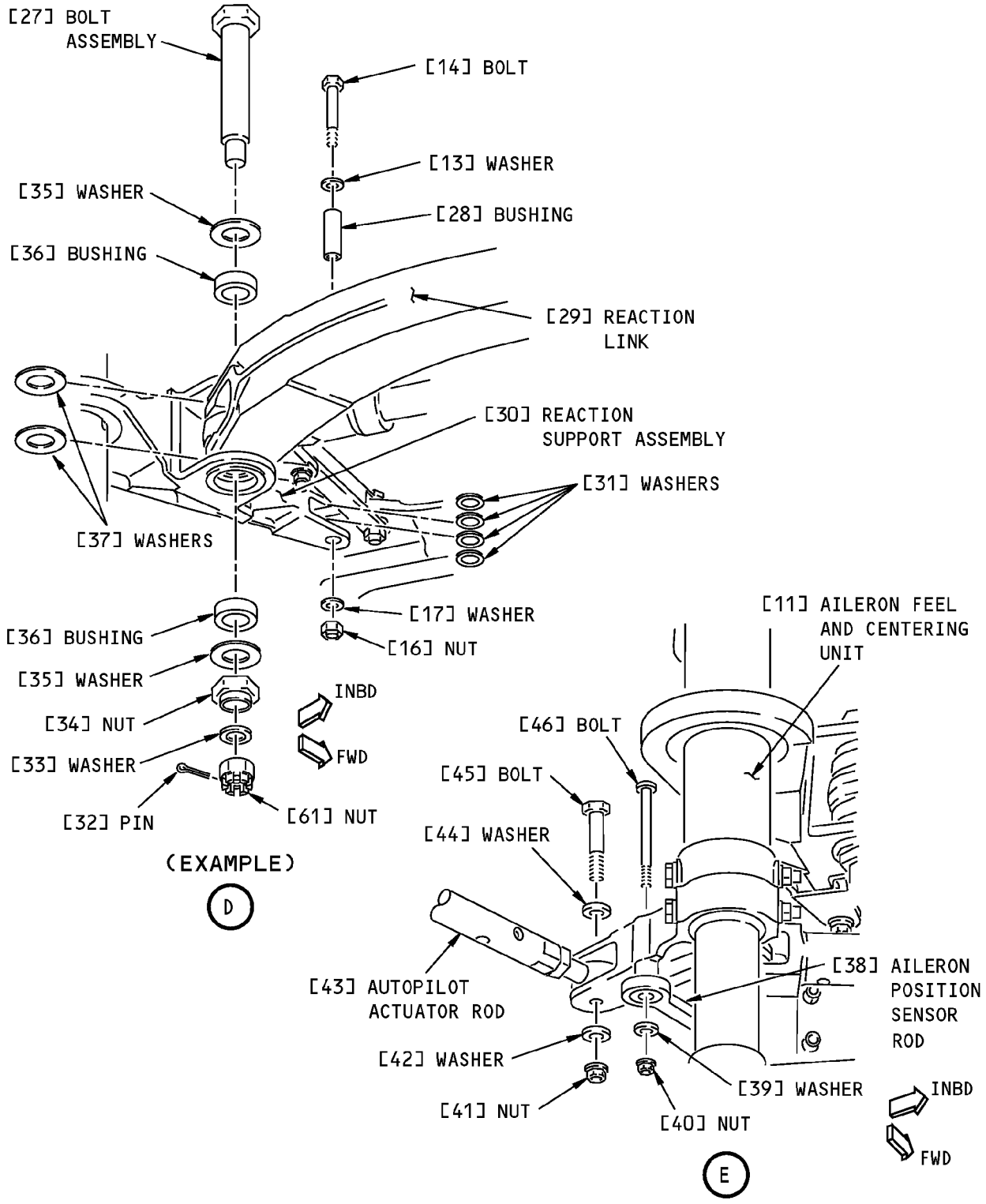

Aileron Feel and Centering Unit Installation
Figure 402 (Sheet 3 of 4)/27-11-81-990-802

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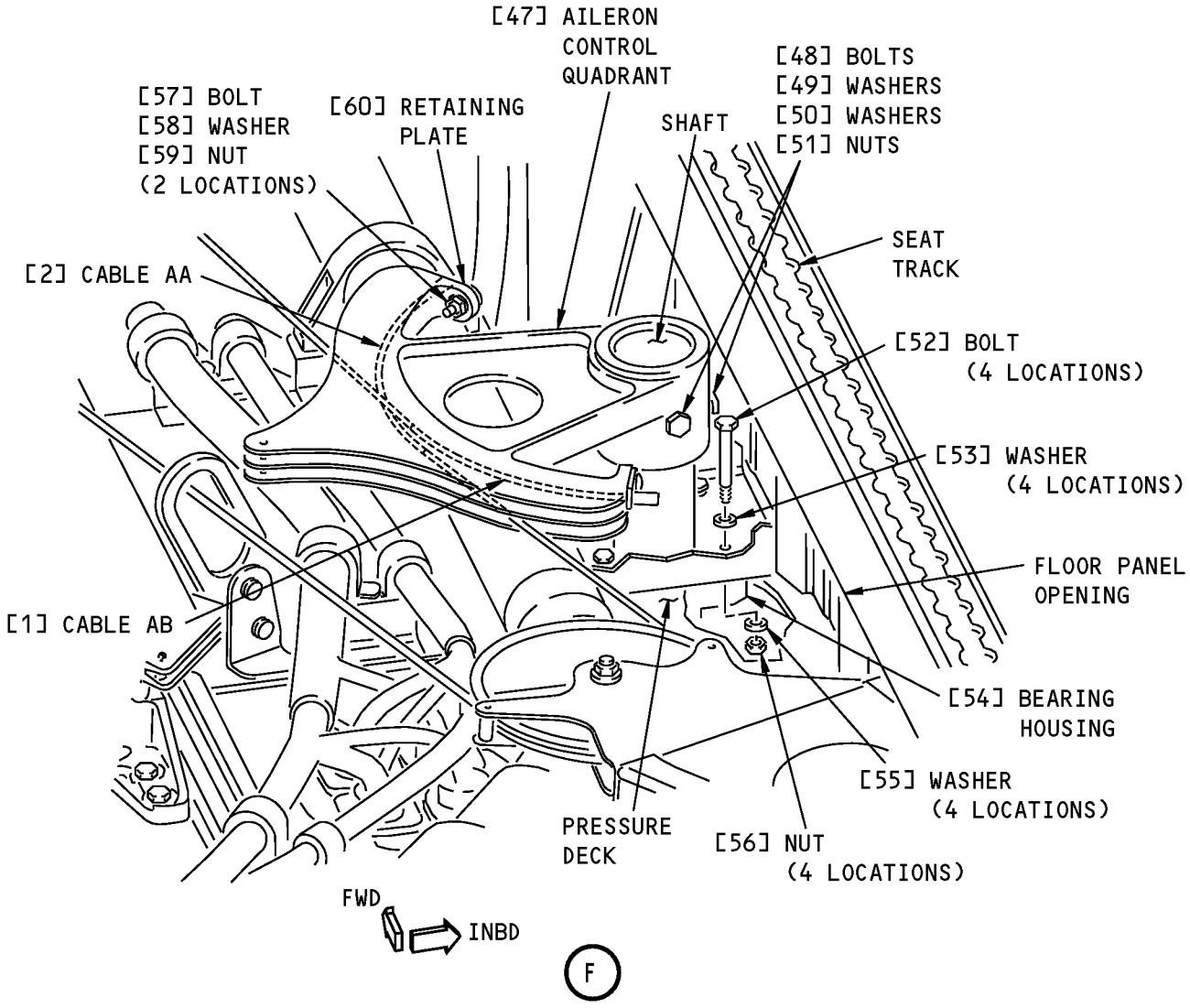

Aileron Feel and Centering Unit Installation
Figure 402 (Sheet 4 of 4)/27-11-81-990-802

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TASK 27-11-81-400-801

3. Aileron Feel and Centering Unit Installation

A. References

Reference	Title
22-11-25-820-801	Autopilot Aileron Actuator Adjustment (P/B 501)
22-11-29-820-801	Aileron Position Sensor Adjustment (P/B 501)
25-22-00-400-802	Passenger Seat Installation (P/B 401)
25-27-15-400-801	Carpet Installation (P/B 401)
27-11-00-700-803	Manual Reversion Control Friction Test (P/B 501)
27-11-00-700-805	Aileron Control Wheel Force Test (P/B 501)
27-11-00-700-809	Aileron Travel Test (P/B 501)
27-11-00-820-801	Aileron Cables Adjustment (P/B 501)
27-11-00-820-802	Pogo and Power Control Unit (PCU) Adjustment (P/B 501)
27-11-00-820-804	Aileron Feel and Centering Unit Adjustment (P/B 501)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)
51-31-00-390-804	Fillet Seal Application (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1671	Straightedge - Control Wheel (Part #: SE27-0001, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
25	Pin	27-11-71-04-115	HAP 031-054, 101-999
		27-11-71-05-110	HAP 001-013, 015-026, 028-030
32	Pin	27-11-71-04-280	HAP 031-054, 101-999
		27-11-71-05-265	HAP 001-013, 015-026, 028-030

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E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Aileron Feel and Centering Unit Installation

SUBTASK 27-11-81-420-001

(1) Install the centering unit [11] (Figure 402):

(a) If the aileron control quadrant [47] is attached to the new centering unit [11], remove the aileron control quadrant [47];

1) Remove and keep the nuts [51], washers [49], and bolts [48].

(b) Make sure the spherical race of the bearing housing [54] does not bind in the outer housing.

(c) Make sure the maximum torque to turn the bearing housing [54] around the shaft is 3-5 pound-inches (0.3-0.6 newton-meters).

(d) Apply a fillet seal between the bearing housing [54] and the pressure deck with sealant, A00247. To apply fillet seal, do this task: Fillet Seal Application, TASK 51-31-00-390-804.

(e) Put the centering unit [11] in position with the shaft through the pressure deck.

(f) Install the bolts [52], washers [53], washers [55] and nuts [56].

1) Tighten the nuts [56] to 20-25 pound-inches (2.3-2.8 newton-meters).

(g) Install the aileron control quadrant [47] on the shaft:

1) If it is necessary, apply sealant, A00247 on the disk of the aileron control quadrant;

2) Engage the aileron control quadrant [47] on the shaft;

a) Make sure the tip of the aileron control quadrant [47] points in the outboard direction;

3) Install the bolts [48], washers [49], washers [50], and nuts [51];

(h) Attach the reaction support assemblies [30] to the structure;

1) Install the bolts [14], washers [13], bushings [28], washers [31], washers [17] and nuts [16].

a) Install the washers [31] between the lug and the clevis.

NOTE: There must be a minimum of one washer [31] on each side of the lug.

2) Install the bolt [14], washer [13], bushing [12], washers [18], washer [17] and nut [16].

a) Install the washers [18] between the link and the lower surface of the lug.

(i) Connect the pogos [22] to the centering unit [11] with the bolts [19], washers [20], bushings [21], washers [23], nuts [24] and new pin [25].

1) Make sure to install the bolts [19] and bushings [21] with the head up.

(j) Make sure the top and bottom pogos [22] on each power control unit is at the center between the stops.

1) If it is necessary to adjust the pogos [22], do this task: Pogo and Power Control Unit (PCU) Adjustment, TASK 27-11-00-820-802.

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(k) Connect the autopilot actuator rod [43] with the bolt [45], washer [44], washer [42] and nut [41].

(l) Connect the aileron position sensor rod [38] with bolt [46], washer [39] and nut [40].

(m) Connect the reaction links [29] to the reaction support assemblies [30];

1) Install the bolt assemblies [27], washers [35], bushings [36], washers [37], and nuts [34].

2) Tighten the nuts [34] to to 300-350 pound-inches (33.9-39.5 newton-meters).

3) Install the washers [33], nuts [61] and new pin [32].

SUBTASK 27-11-81-420-002

(2) Connect the cable AA [2] and cable AB [1] to the aileron control quadrant [47].

(a) Remove the identification tags from the cable AA [2] and cable AB [1].

(b) Remove the clamps from the cable AA [2] and cable AB [1].

(c) Install the retaining plates [60] with bolts [57], washers [58], and nuts [59].

SUBTASK 27-11-81-420-003

(3) Connect the cable AA [2] and cable AB [2] to the turnbuckles.

(a) Tighten the turnbuckles but keep the cable tension at zero.

SUBTASK 27-11-81-820-001

(4) To adjust the tension of cables AA and AB, do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

SUBTASK 27-11-81-080-001

(5) Remove the clamp and the straightedge, SPL-1671 from the two aileron control wheels.

SUBTASK 27-11-81-480-004

(6) Make sure the rig pin A/S-15, from the rig pin kit, SPL-1585, goes through the two walls of the aileron trim mechanism.

SUBTASK 27-11-81-080-002

(7) Remove the rig pin A/S-4, from the rig pin kit, SPL-1585, from the aileron bus drum.

SUBTASK 27-11-81-400-001

(8) Do this task: Passenger Seat Installation, TASK 25-22-00-400-802.

SUBTASK 27-11-81-400-002

(9) Do this task: Carpet Installation, TASK 25-27-15-400-801.

SUBTASK 27-11-81-860-002

(10) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-81-820-002

(11) Do this task: Aileron Feel and Centering Unit Adjustment, TASK 27-11-00-820-804.

SUBTASK 27-11-81-820-005

(12) Do this task: Pogo and Power Control Unit (PCU) Adjustment, TASK 27-11-00-820-802.

SUBTASK 27-11-81-730-001

(13) Do this task: Aileron Control Wheel Force Test, TASK 27-11-00-700-805.

SUBTASK 27-11-81-730-002

(14) Do this task: Manual Reversion Control Friction Test, TASK 27-11-00-700-803.

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SUBTASK 27-11-81-730-003

(15) Do this task: Aileron Travel Test, TASK 27-11-00-700-809.

SUBTASK 27-11-81-820-003

(16) Do this task: Autopilot Aileron Actuator Adjustment, TASK 22-11-25-820-801.

SUBTASK 27-11-81-820-004

(17) Do this task: Aileron Position Sensor Adjustment, TASK 22-11-29-820-801.

——————— END OF TASK ———————

TASK 27-11-81-000-802

4. Cam Follower Bearing Removal

(Figure 403)

A. References

Reference	Title
27-11-00-860-801	Remove Pressure from the Aileron Hydraulic Systems A and B (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

C. Prepare for Removal

SUBTASK 27-11-81-490-001

WARNING: MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-11-81-864-001

(2) Make sure hydraulic pressure is removed. If necessary, do this task: Remove Pressure from the Aileron Hydraulic Systems A and B, TASK 27-11-00-860-801.

D. Cam Follower Bearing Removal

SUBTASK 27-11-81-030-001

(1) Loosen the nuts [70] to relieve the tension on the springs [72].

NOTE: Record the number of times you turn the nuts [70]. This will make it easier to adjust the centering unit after installation.

SUBTASK 27-11-81-020-010

(2) Remove the pins [75] from the pin [73].

SUBTASK 27-11-81-020-011

(3) Remove the pin [73] and washers [74] from the arm [85].

SUBTASK 27-11-81-030-002

(4) Disconnect the springs [72] from the eye bolts [71].

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SUBTASK 27-11-81-020-012

(5) Remove the pin [83], bolt [80], washer [81], and nut [82] from the arm [85] and support [86].

SUBTASK 27-11-81-020-013

(6) Remove the arm [85] from the support [86].

SUBTASK 27-11-81-020-014

(7) Remove the pin [79], bolt [76], washer [77], and nut [78] from the arm [85].

SUBTASK 27-11-81-020-015

(8) Remove the bearing [84] from the arm [85].

——————— END OF TASK ———————

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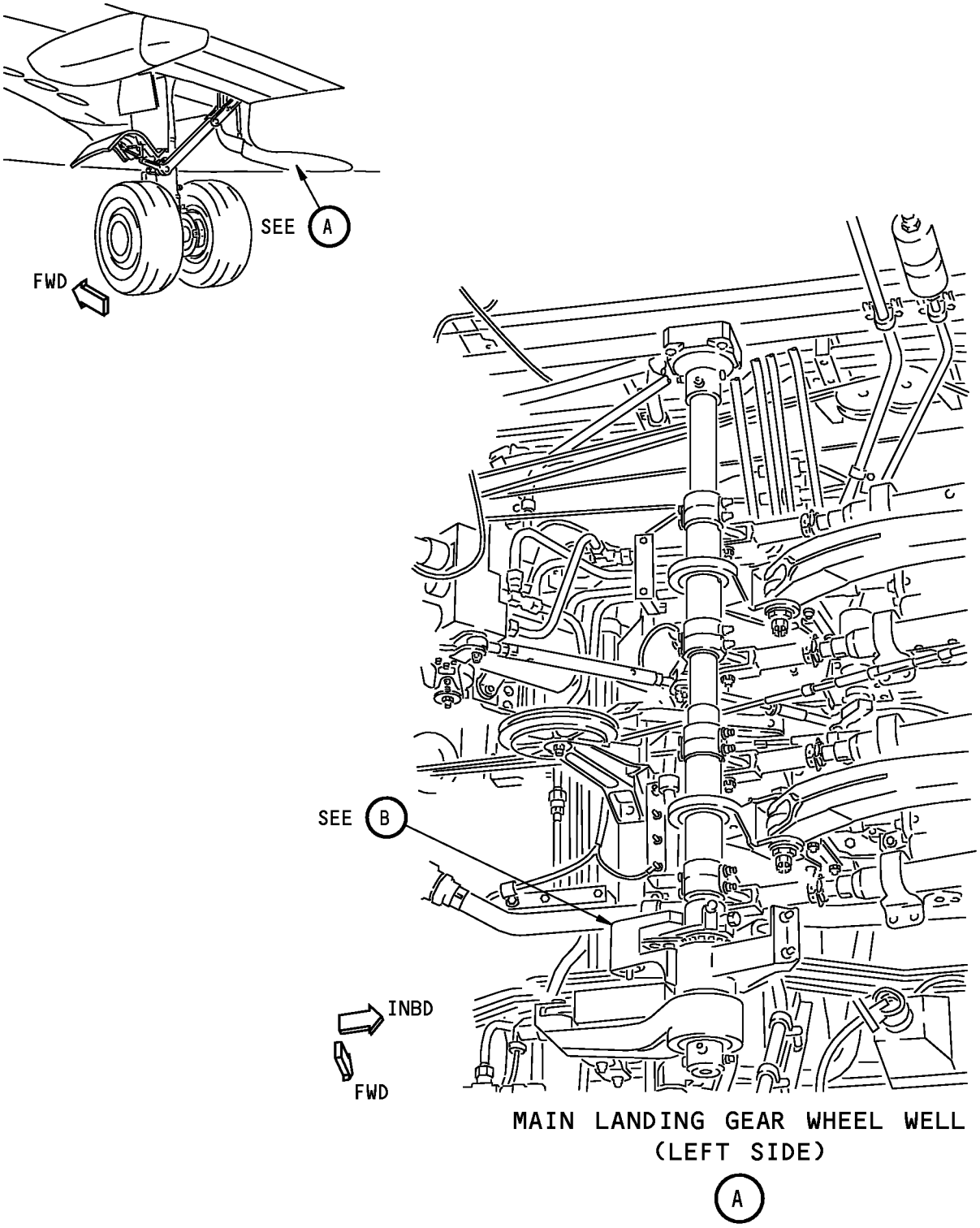

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Cam Follower Bearing Installation
Figure 403 (Sheet 1 of 2)/27-11-81-990-805

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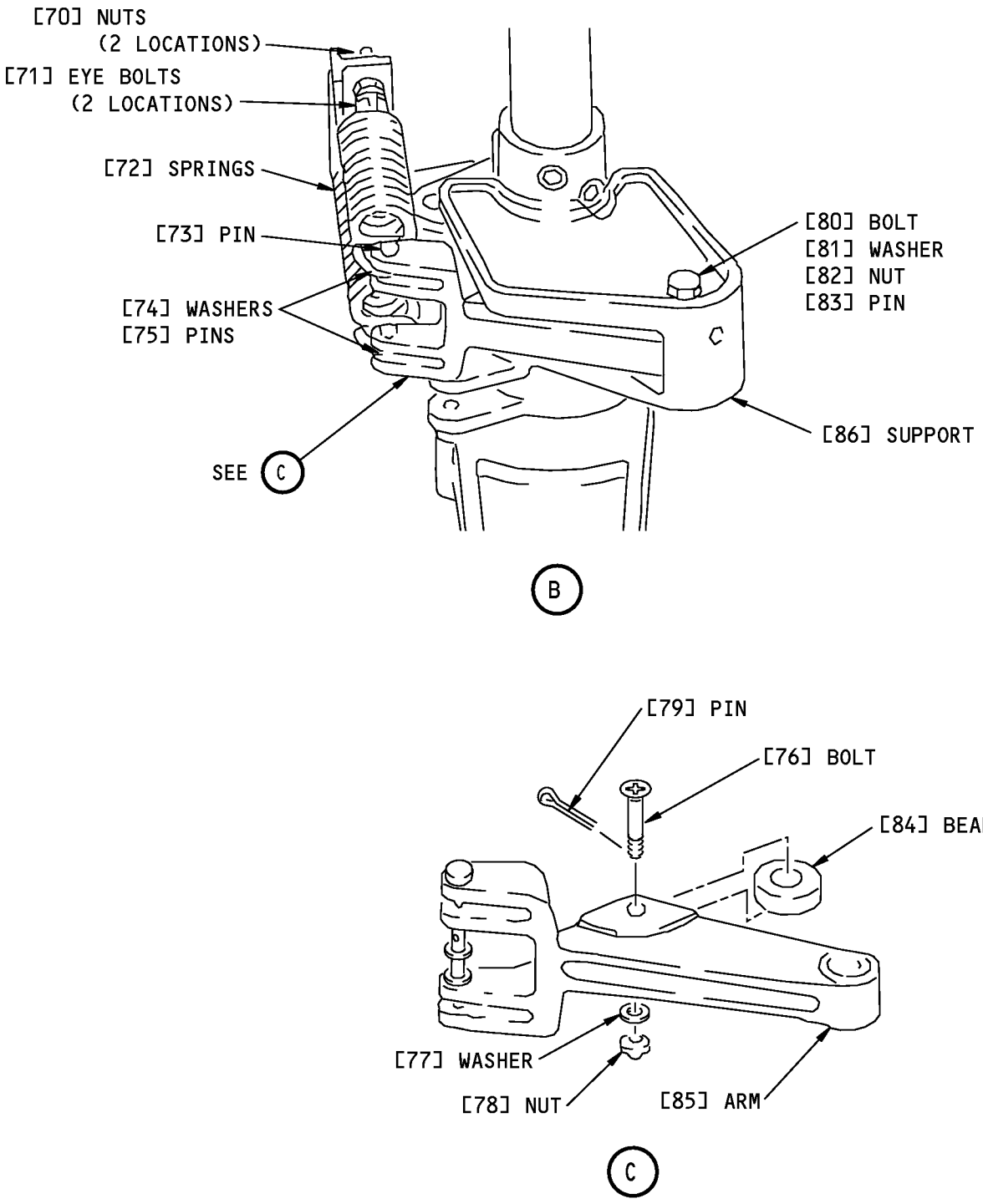

Cam Follower Bearing Installation
Figure 403 (Sheet 2 of 2)/27-11-81-990-805

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TASK 27-11-81-400-802

5. Cam Follower Bearing Installation

(Figure 403)

A. References

Reference	Title
27-11-00-700-803	Manual Reversion Control Friction Test (P/B 501)
27-11-00-700-805	Aileron Control Wheel Force Test (P/B 501)
27-11-00-700-809	Aileron Travel Test (P/B 501)
27-11-00-820-804	Aileron Feel and Centering Unit Adjustment (P/B 501)
27-11-00-860-802	Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

C. Installation of the Cam Follower Bearing

SUBTASK 27-11-81-420-004

(1) Put the bearing [84] in place in the arm [85] and install the bolt [76], washer [77], nut [78], and pin [79].

SUBTASK 27-11-81-420-005

(2) Put the arm [85] in place in the support [86] and install the bolt [80], washer [81], nut [82], and pin [83].

SUBTASK 27-11-81-430-001

(3) Connect the springs [72] to the eye bolts [71].

SUBTASK 27-11-81-420-006

(4) With the springs [72] in place, install the pin [73], washers [74], and pins [75] on the arm [85] so that the springs [72] are connected to the pin [73].

SUBTASK 27-11-81-430-002

(5) Tighten the nuts [70] to the pre-removal tension.

SUBTASK 27-11-81-212-001

(6) Make sure the bearing [84] is in the center of the cam in the support [86].

SUBTASK 27-11-81-863-001

(7) Do this task: Put the Aileron Hydraulic Systems A and B Back to the Condition Before Pressure Removal, TASK 27-11-00-860-802.

SUBTASK 27-11-81-820-006

(8) Do this task: Aileron Feel and Centering Unit Adjustment, TASK 27-11-00-820-804.

SUBTASK 27-11-81-720-001

(9) Do this task: Aileron Control Wheel Force Test, TASK 27-11-00-700-805.

SUBTASK 27-11-81-720-002

(10) Do this task: Manual Reversion Control Friction Test, TASK 27-11-00-700-803.

SUBTASK 27-11-81-720-003

(11) Do this task: Aileron Travel Test, TASK 27-11-00-700-809.

END OF TASK

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AILERON FEEL AND CENTERING UNIT - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure contains the task to do a visual inspection of the springs on the aileron feel and centering unit.

TASK 27-11-81-210-801

2. Aileron Feel and Centering Unit Springs Visual Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Procedure

SUBTASK 27-11-81-210-002

(1) Do a detail visual inspection of the springs on the aileron feel and centering unit.

(a) Examine the springs for correct installation.

(b) Examine the springs for damage.

END OF TASK

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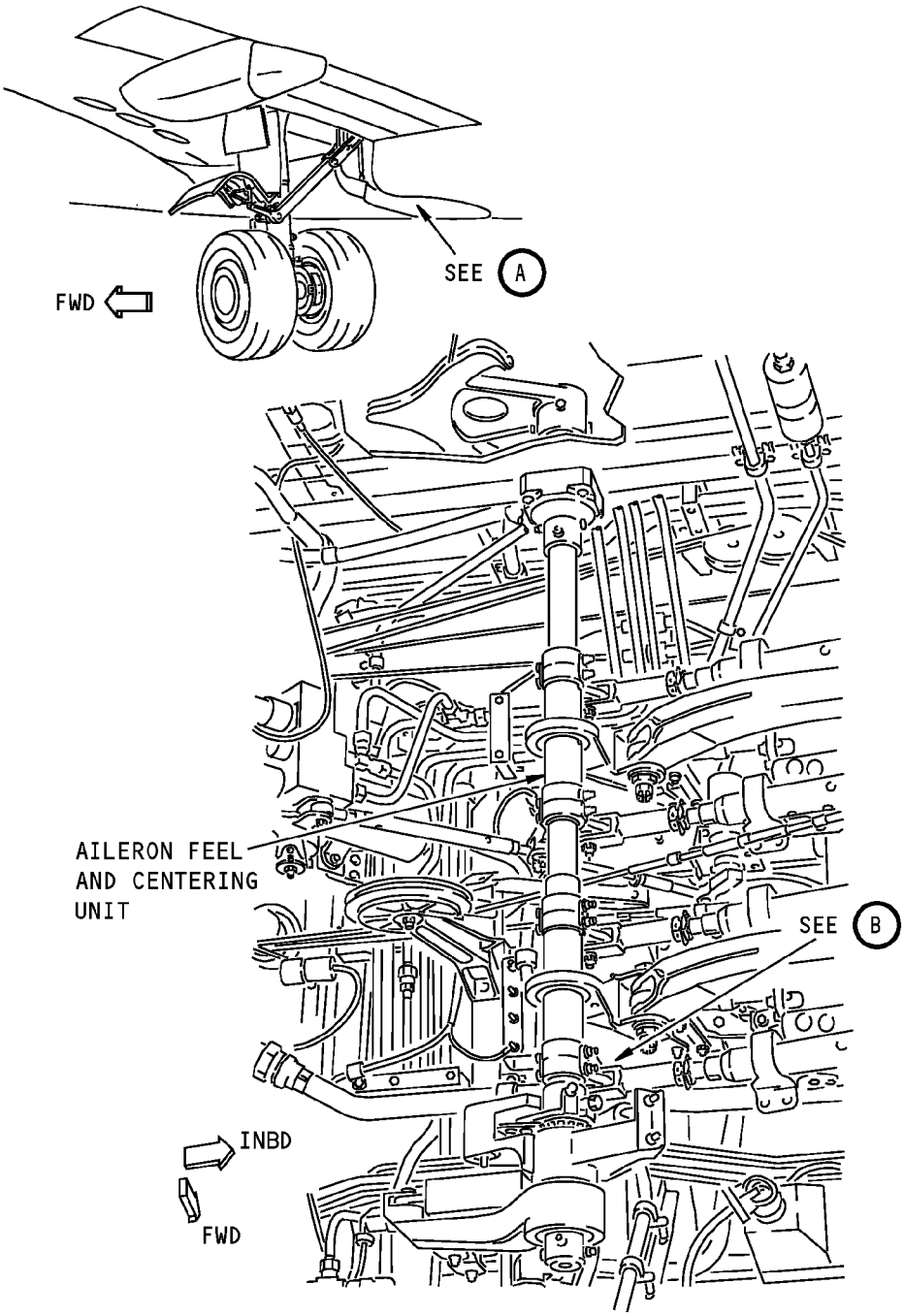

Aileron Feel and Centering Unit Spring Visual Inspection
Figure 601 (Sheet 1 of 2)/27-11-81-990-803

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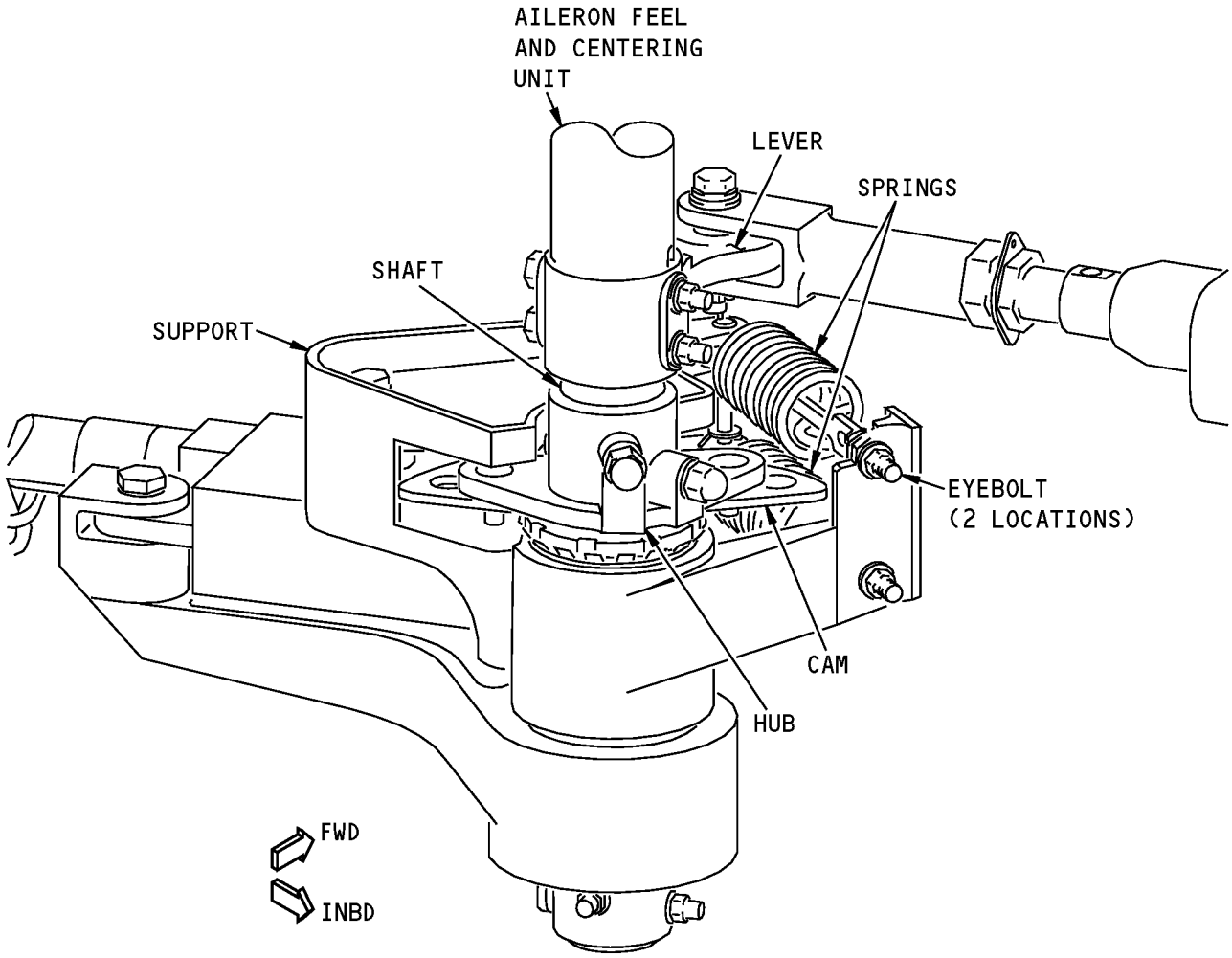

Aileron Feel and Centering Unit Spring Visual Inspection
Figure 601 (Sheet 2 of 2)/27-11-81-990-803

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AILERON/RUDDER TRIM CONTROL MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aileron and rudder trim control module

(2) An installation of the aileron and rudder trim control module

(3) A removal of the trim control switches

(4) An installation of the trim control switches

(5) A removal of the rudder trim indicator

(6) An installation of the rudder trim indicator

B. The aileron and rudder trim control module is referred to as the "trim control module assy" in this procedure.

TASK 27-11-94-000-801

2. Aileron and Rudder Trim Control Module Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Prepare for the Removal

SUBTASK 27-11-94-860-001

(1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	16	C00788	FLIGHT CONTROL TRIM IND RUD
D	18	C00786	FLIGHT CONTROL TRIM CONT AIL
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

C. Aileron and Rudder Trim Control Module Removal

SUBTASK 27-11-94-020-001

(1) Remove the trim control module assembly [22]:

(a) Remove the four fasteners [12] from the trim control module assembly [22].

(b) Lift the trim control module assembly [22] clear of the P8 panel.

(c) Disconnect the three electrical connectors from the trim control module assembly [22].

———————— END OF TASK ————————

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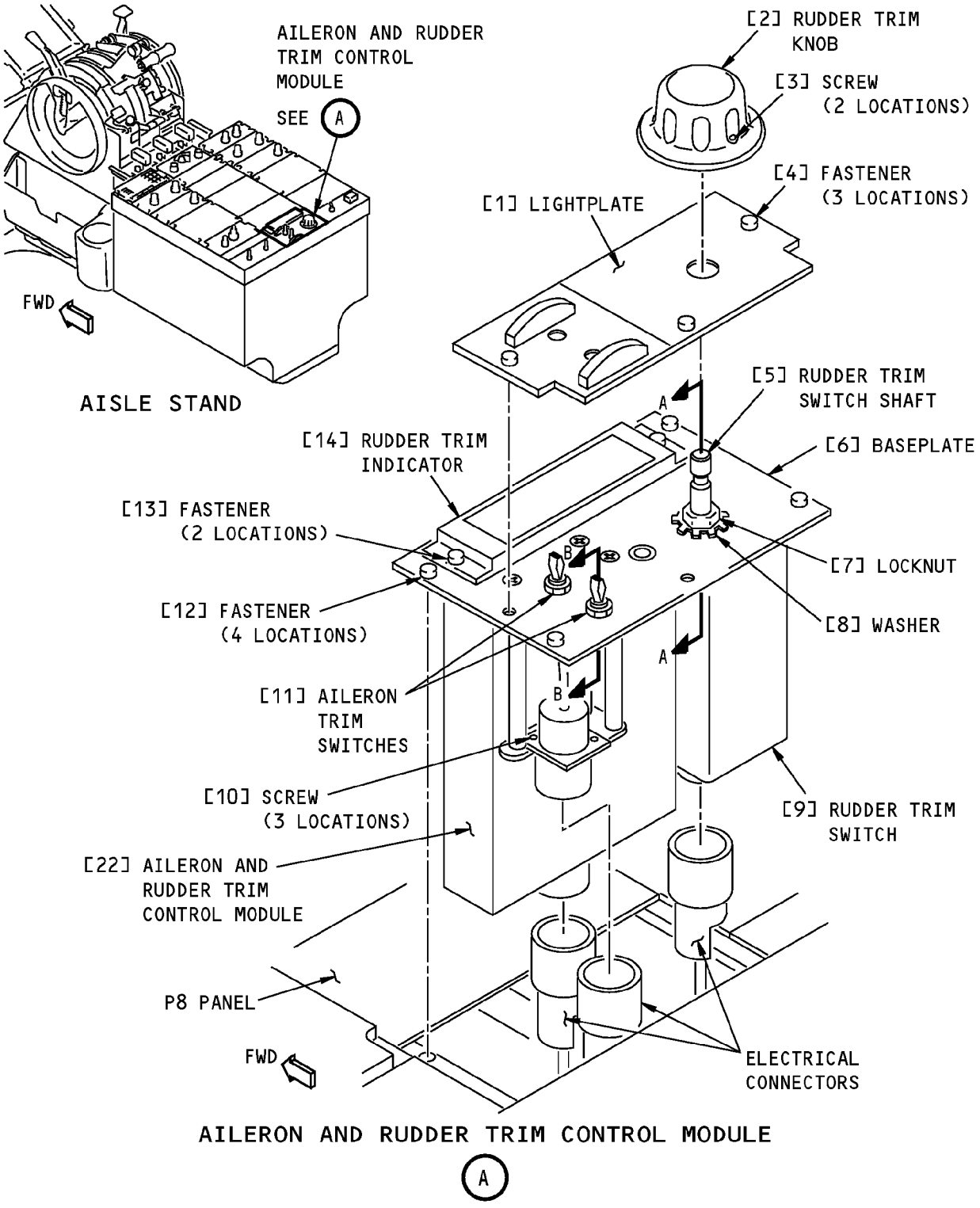

Aileron/Rudder Trim Control Module
Figure 401 (Sheet 1 of 2)/27-11-94-990-801

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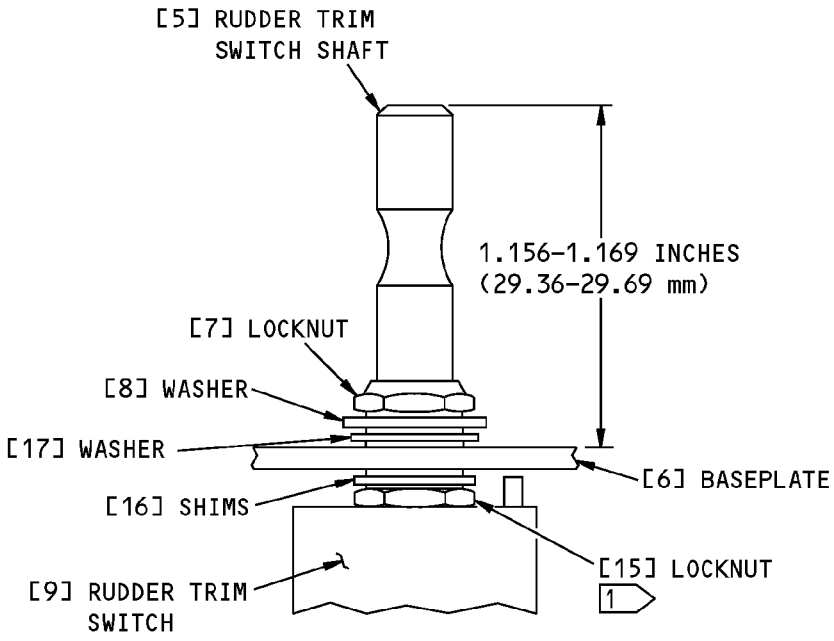
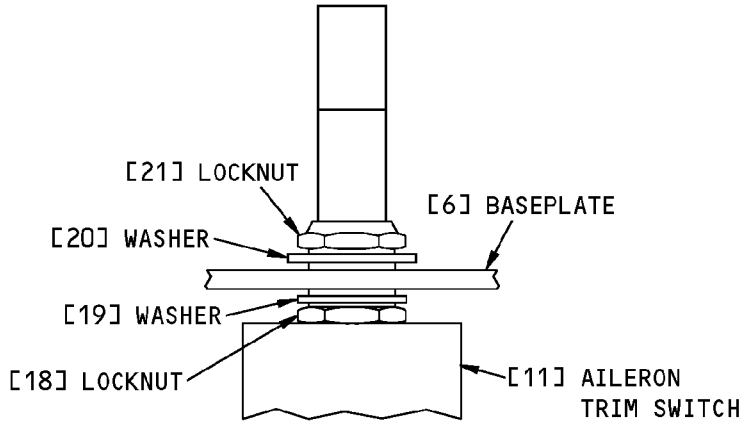


A-A



B-B

1 DO NOT CHANGE THIS LOCKNUT SETTING DURING THE SWITCH INSTALLATION OR ADJUSTMENT. IT IS POSSIBLE THAT THE SWITCH WILL NOT ALIGN IF YOU CHANGE THE LOCKNUT SETTING.

Aileron/Rudder Trim Control Module
Figure 401 (Sheet 2 of 2)/27-11-94-990-801

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TASK 27-11-94-400-801

3. Aileron and Rudder Trim Control Module Installation

(Figure 401)

A. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
22	Module assembly	27-11-94-01-039	HAP 001-013, 015-026, 028-030
		27-11-94-01B-055	HAP 001-013, 015-026, 028-030
		27-11-94-03-005	HAP 041, 047, 049, 050, 054, 107-999
		27-11-94-03G-005	HAP 031-040, 042-046, 048, 051-053, 101-106

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Aileron and Rudder Trim Control Module Installation

SUBTASK 27-11-94-420-001

(1) Install the trim control module assembly [22]:

(a) Connect the three electrical connectors to the trim control module assembly [22].

(b) Put the trim control module assembly [22] on the P8 panel.

(c) Install the four fasteners [12].

SUBTASK 27-11-94-860-002

(2) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	16	C00788	FLIGHT CONTROL TRIM IND RUD
D	18	C00786	FLIGHT CONTROL TRIM CONT AIL
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

——————— END OF TASK ———————

TASK 27-11-94-000-802

4. Trim Control Switches Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Prepare for the Removal

SUBTASK 27-11-94-020-002

(1) Do this task: Aileron and Rudder Trim Control Module Removal, TASK 27-11-94-000-801.

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C. Trim Control Switches Removal

SUBTASK 27-11-94-020-006

(1) Remove the rudder trim knob [2]:

(a) Loosen the screws [3] from the rudder trim knob [2].

(b) Remove the rudder trim knob [2] from the rudder trim switch shaft [5].

SUBTASK 27-11-94-020-007

(2) Remove the fasteners [4] to remove the lightplate [1].

SUBTASK 27-11-94-020-008

(3) Do these steps to remove the rudder trim switch [9]:

(a) Bend the tab down on the washer [8].

(b) Remove the locknut [7], washer [8], and washer [17] from the rudder trim switch shaft [5].

(c) Remove the rudder trim switch [9] from behind the baseplate [6].

(d) Remove the shims [16] from the rudder trim switch shaft [5].

1) Make sure the locknut [15] is installed on the rudder trim switch shaft [5].

NOTE: The locknut [15] is installed on the rudder trim switch shaft [5] with the correct torque value. For correct operation of the rudder trim switch [9], do not move the locknut [15].

SUBTASK 27-11-94-020-003

(4) Do these steps to remove the aileron trim switches [11]:

(a) Remove locknuts [21] and washers [20] from the aileron trim switches [11].

(b) Remove the aileron trim switches [11] from behind the baseplate [6].

(c) Remove the washers [19] and locknuts [18] from the aileron trim switches [11].

(d) Disconnect the electrical wires from the aileron trim switches [11].

END OF TASK

TASK 27-11-94-400-802

5. Trim Control Switches Installation

(Figure 401)

A. References

Reference	Title
27-11-00-730-801	Aileron Trim Response Test (P/B 501)
27-21-00-700-819-001	Rudder Trim System Test (P/B 501)
27-21-00-700-819-002	Rudder Trim System Test (P/B 501)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Trim Control Switches Installation

SUBTASK 27-11-94-420-006

(1) Do these steps to install the aileron trim switches [11]:

(a) Connect electrical wires on the aileron trim switches [11].

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(b) Install locknuts [18] and washers [19] on the aileron trim switches [11].

(c) Put the aileron trim switches [11] up through the baseplate [6].

(d) Install the washers [20] and locknuts [21] on the aileron trim switches [11].

SUBTASK 27-11-94-420-002

(2) Do these steps to install the rudder trim switch [9]:

(a) Install the shims [16] on the rudder trim switch [9].

1) Use the necessary number of shims [16] to get a dimension of 1.156-1.169 inch (29.36-29.69 millimeters) from the top of the baseplate [6] to the end of the rudder trim switch shaft [5].

(b) Put the rudder trim switch [9] up through the baseplate [6].

(c) Install the washer [17], washer [8] and locknut [7] on the rudder trim switch shaft [5].

(d) Tighten the locknut [7] to 36-40 pound-inches (4.1-4.5 newton-meters).

(e) Bend the tab on the washer [8] over the the flat of the locknut [7].

NOTE: Small deformation of the star washer [8] is permitted.

SUBTASK 27-11-94-420-007

(3) Install the lightplate [1] with fasteners [4].

SUBTASK 27-11-94-420-008

(4) Install the rudder trim knob [2]:

(a) Make sure the surfaces between the rudder trim knob [2] and the lightplate [1] are free of contaminates.

(b) Put the rudder trim knob [2] fully down on the rudder trim switch shaft [5].

(c) Make sure the rudder trim knob [2] is 0.010-0.050 inch (0.25-1.27 millimeters) from the top of the lightplate [1].

(d) Install the set screws [6] on the rudder trim knob [5].

(e) Tighten the set screws [6] on the rudder trim knob [5].

SUBTASK 27-11-94-420-004

(5) Do this task: Aileron and Rudder Trim Control Module Installation, TASK 27-11-94-400-801.

SUBTASK 27-11-94-730-001

(6) If you replace the rudder trim switch [9], do this task: Rudder Trim System Test, TASK 27-21-00-700-819-001 or Rudder Trim System Test, TASK 27-21-00-700-819-002.

SUBTASK 27-11-94-730-002

(7) If you replace the aileron trim switches [11], do this task: Aileron Trim Response Test, TASK 27-11-00-730-801.

——————— END OF TASK ———————

TASK 27-11-94-000-803

6. Rudder Trim Indicator Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

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B. Prepare for the Removal

SUBTASK 27-11-94-860-003

(1) Make sure the rudder is in the neutral position.

SUBTASK 27-11-94-860-004

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	16	C00788	FLIGHT CONTROL TRIM IND RUD
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

C. Rudder Trim Indicator Removal

SUBTASK 27-11-94-020-005

(1) Remove the rudder trim indicator [14]:

(a) Remove the fasteners [13] that connect the rudder trim indicator [14] to the baseplate [6].

(b) Disconnect the electrical connector from the rudder trim indicator [14].

(c) Remove the rudder trim indicator [14] from the baseplate [6].

——————— END OF TASK ———————

TASK 27-11-94-400-803

7. Rudder Trim Indicator Installation

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Rudder Trim Indicator Installation

SUBTASK 27-11-94-420-005

(1) Install the rudder trim indicator [14]:

(a) Connect the electrical connector to the rudder trim indicator [14].

(b) Put the rudder trim indicator [14] on the baseplate [6].

(c) Install the fasteners [13] to attach the rudder trim indicator [14] to the baseplate [6].

SUBTASK 27-11-94-860-005

(2) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	16	C00788	FLIGHT CONTROL TRIM IND RUD
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

SUBTASK 27-11-94-280-001

(3) Do a check to make sure the rudder trim indicator [14] is in the null position.

(a) With the rudder in the neutral position, make sure the the rudder trim indicator [14] is at the zero position.

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SUBTASK 27-11-94-820-001

(4) If the rudder trim indicator [14] is not at the null position, adjust the rudder trim indicator [14]:

(a) Remove the fasteners [13] that attach the rudder trim indicator [14] to the baseplate [6].

NOTE: Do not disconnect the electrical connector.

(b) Turn the adjustment screw on the bottom of the rudder trim indicator [14] until the indicator is at 0.0 ±0.1 unit.

(c) Install the rudder trim indicator [14] to the baseplate [6] with the fasteners [13].

——————— END OF TASK ———————

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RUDDER AND RUDDER TRIM CONTROL SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Rudder Hydraulic System A, B, or Standby Pressurization

(a) Use this task to pressurize either hydraulic system A or B, both hydraulic systems A and B, or to pressurize the standby hydraulic system.

(2) Put the Rudder Hydraulic Systems A, B, and Standby Back to the Condition Before the Pressurization

(3) Remove Pressure from the Rudder Hydraulic Systems A, B and Standby

(4) Put the Rudder Hydraulic Systems A, B, and Standby Back to Condition Before the Pressure Removal.

B. Hydraulic systems A, B, and standby must have pressure removed before maintenance is done on the rudder control system. This is to prevent injury to persons because of accidental operation of the control system while you do maintenance. You must be careful to put maintenance stands and equipment away from control surface travel.

C. Electric pump 1 pressurizes the hydraulic system B and electric pump 2 pressurizes the hydraulic system A. Electric pump 1 heat exchanger is installed in the fuel tank 2. Electric pump 2 heat exchanger is installed in the fuel tank 1.

D. This procedure operates the electric hydraulic system A or B pumps to pressurize the hydraulic systems A and B. Pressurization of the hydraulic systems with the engine-driven hydraulic pumps is not included in this procedure.

TASK 27-21-00-800-801

2. Rudder Hydraulic System A, B, or Standby Pressurization

(Figure 201)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

NOTE: This procedure supply the steps to pressurize either hydraulic system A or B, both systems A and B, or to pressurize the standby hydraulic system.

SUBTASK 27-21-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-21-00-860-002

CAUTION: DO NOT OPERATE THE SYSTEM A OR B HYDRAULIC PUMPS FOR MORE THAN TWO MINUTES WITHOUT FUEL IN THE FUEL TANKS. THE NO. 1 (FOR SYSTEM A) AND NO. 2 (FOR SYSTEM B) FUEL TANKS MUST HAVE A MINIMUM OF 250 GALLONS (1675 POUNDS/760 KILOGRAMS) OF FUEL IN THEM. IF THERE IS NOT SUFFICIENT FUEL IN THE FUEL TANKS, THE HYDRAULIC SYSTEMS WILL BECOME TOO HOT.

(2) Make sure the No. 1 and No. 2 fuel tanks each have 250 gallons (1675 pounds/760 kilograms) of fuel in them.

SUBTASK 27-21-00-210-001

(3) Make sure the hydraulic reservoirs are full. To fill the reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 27-21-00-860-065

(4) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-21-00-860-004

(5) Set the parking brake.

SUBTASK 27-21-00-480-001

WARNING: MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR BEFORE YOU PRESSURIZE THE HYDRAULIC SYSTEMS. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Install the ground lock assemblies in the nose gear. To install them, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-21-00-860-005

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Pressurize the rudder hydraulic system A, B or Standby (Figure 201):

(a) Set the ELEC 2, HYD PUMPS A or ELEC 1, HYD PUMPS B switch on the forward overhead panel to the ON position.

NOTE: Intermittent system A or B electric pump operation must be kept to a limit of five starts in a 5 minutes period. After the fifth start, operate the pump for more than 5 minutes or turn the pump off for a minimum of 5 minutes.

(b) For the hydraulic system A pressurization, set the FLT CONTROL A switch on the forward overhead panel to the ON position.

(c) For the hydraulic system B pressurization, set the FLT CONTROL B switch on the forward overhead panel to the ON position.

(d) For the standby hydraulic system, set the FLT CONTROL A or B switch on the forward overhead panel to the STDBY RUD position.

END OF TASK

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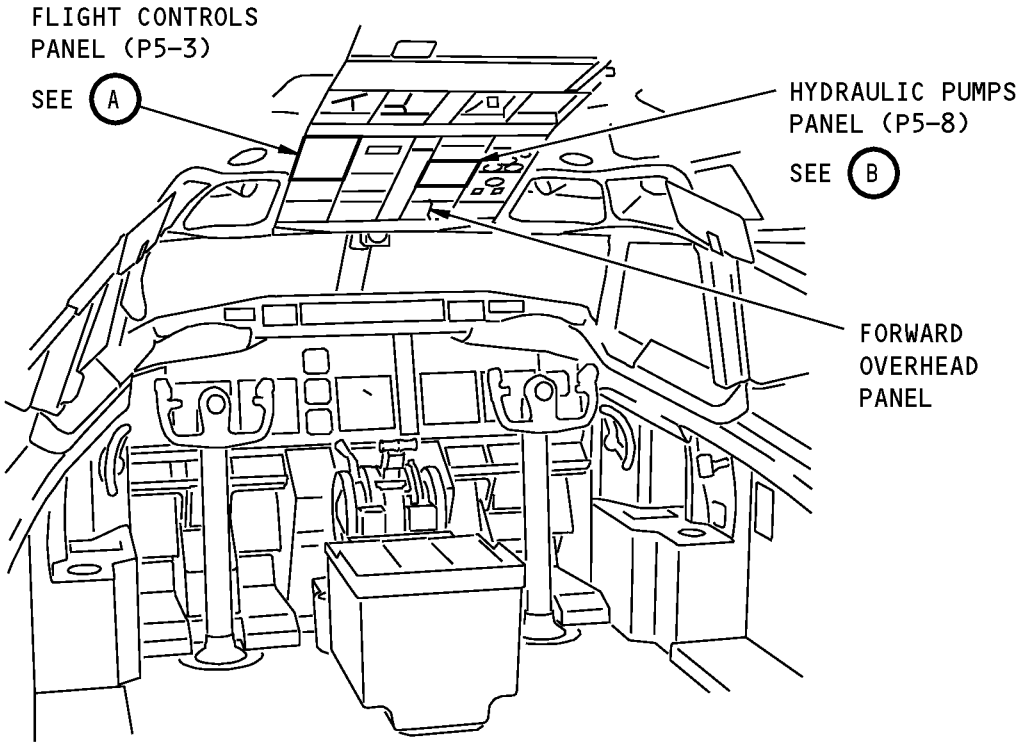
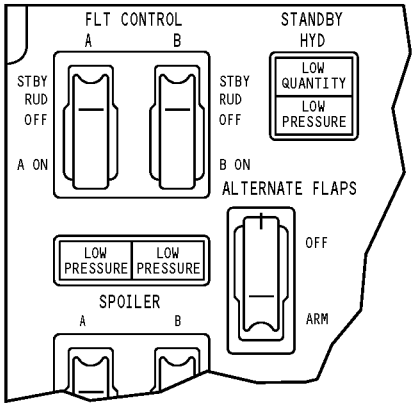
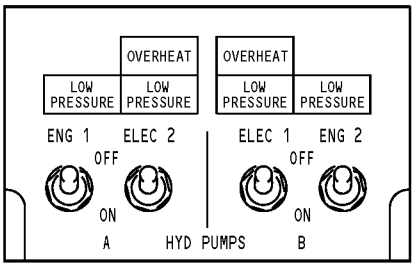


FLIGHT COMPARTMENT





FLIGHT CONTROLS PANEL (P5-3)

A

HYDRAULIC PUMPS PANEL (P5-8)

B

Rudder Power Control Switches
Figure 201/27-21-00-990-801

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TASK 27-21-00-840-801

3. Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization

(Figure 201)

A. References

Reference	Title
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 27-21-00-860-006

(1) Set the ELEC 2, HYD PUMPS A and the ELEC 1, HYD PUMPS B switches on the forward overhead panel to the OFF position.

SUBTASK 27-21-00-860-007

(2) Set the FLT CONTROL A and B switches on the forward overhead panel to the OFF position.

SUBTASK 27-21-00-080-001

(3) Remove the ground lock assemblies from the nose gear. To remove them, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

———————— END OF TASK ————————

TASK 27-21-00-800-802

4. Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby

(Figure 201, Figure 202, Figure 203)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1676	Assembly - Lock, Flight Controls (used with valve p/n 10-60710-2) (Part #: F80049-17, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Procedure

SUBTASK 27-21-00-860-008

(1) Set the FLT CONTROL A and B switches on the forward overhead panel to the OFF position.

SUBTASK 27-21-00-860-009

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-21-00-860-010

(3) Set the ELEC 2, HYD PUMPS A and the ELEC 1, HYD PUMPS B switches on the forward overhead panel to the OFF position.

SUBTASK 27-21-00-870-001

(4) Operate the rudder pedals or the control column to decrease the remaining hydraulic system pressure.

SUBTASK 27-21-00-860-011

(5) If it is necessary to open a hydraulic line, you must release pressure from the reservoir for the applicable hydraulic system. To release it, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-21-00-480-002

(6) Install the flight controls ground locks to the flight controls shutoff valves (Figure 202, Figure 203):

(a) Disconnect the electrical connector from the flight controls shutoff valve at the flight controls hydraulic modules A and B.

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(b) Disconnect the electrical connector from the standby flight controls shutoff valve at the standby flight controls hydraulic module.

(c) Put the manual override lever at the flight control A and B shutoff valves in the position 2 (OFF position). Leave the Standby valve in the position 1 (OFF position).

NOTE: In normal condition, the A and B valves are in position 1 (ON position) and the Standby valve is in position 1 (OFF position).

(d) Install the lock, SPL-1675 or lock, SPL-1676 on the three flight controls shutoff valves.

1) Install the lockpins.

END OF TASK

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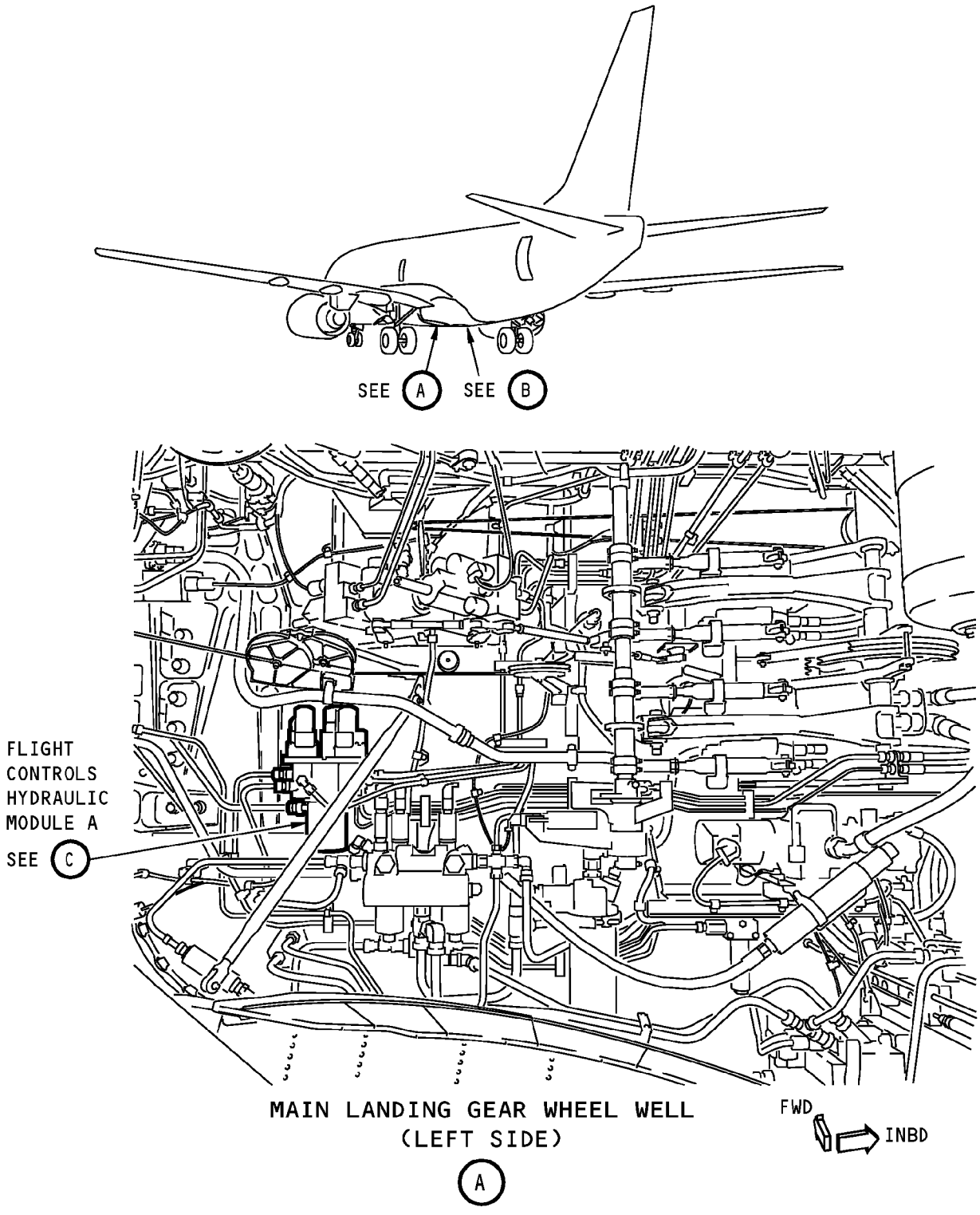

Flight Controls Hydraulic Module Lock Installation
Figure 202 (Sheet 1 of 3)/27-21-00-990-802

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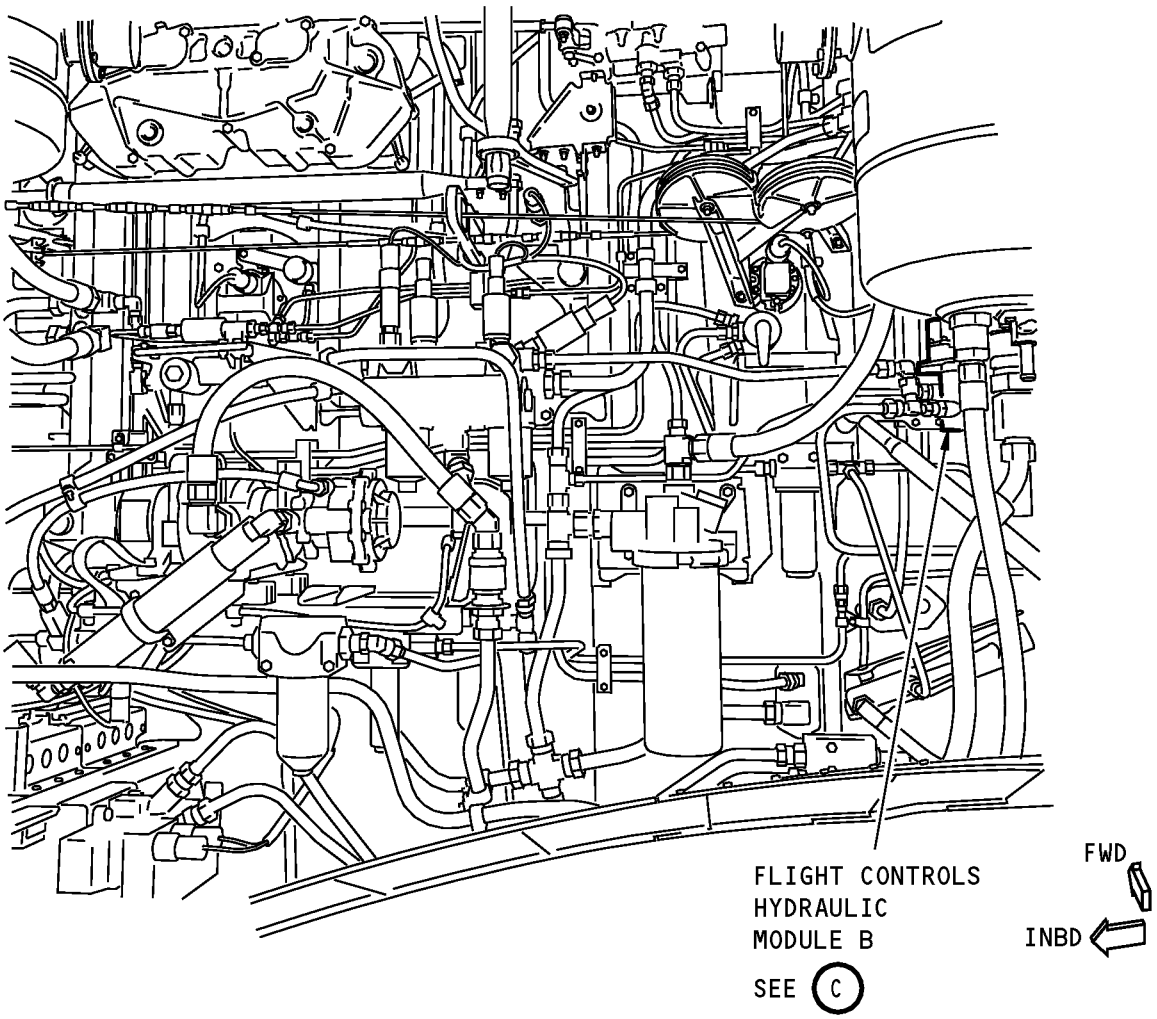

Flight Controls Hydraulic Module Lock Installation
Figure 202 (Sheet 2 of 3)/27-21-00-990-802

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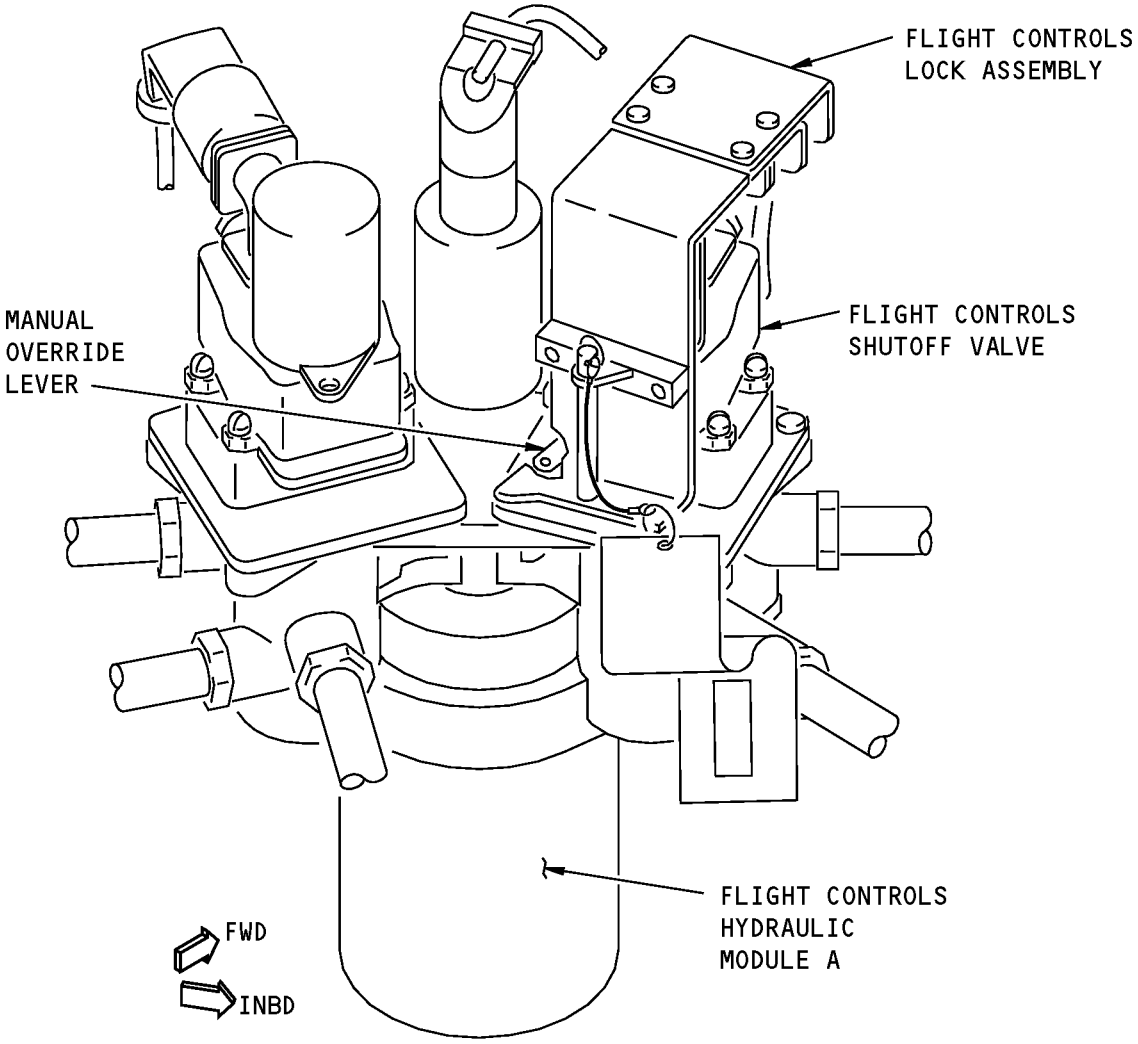

FLIGHT CONTROLS HYDRAULIC MODULE A
(MODULE B IS EQUIVALENT)

C

Flight Controls Hydraulic Module Lock Installation
Figure 202 (Sheet 3 of 3)/27-21-00-990-802

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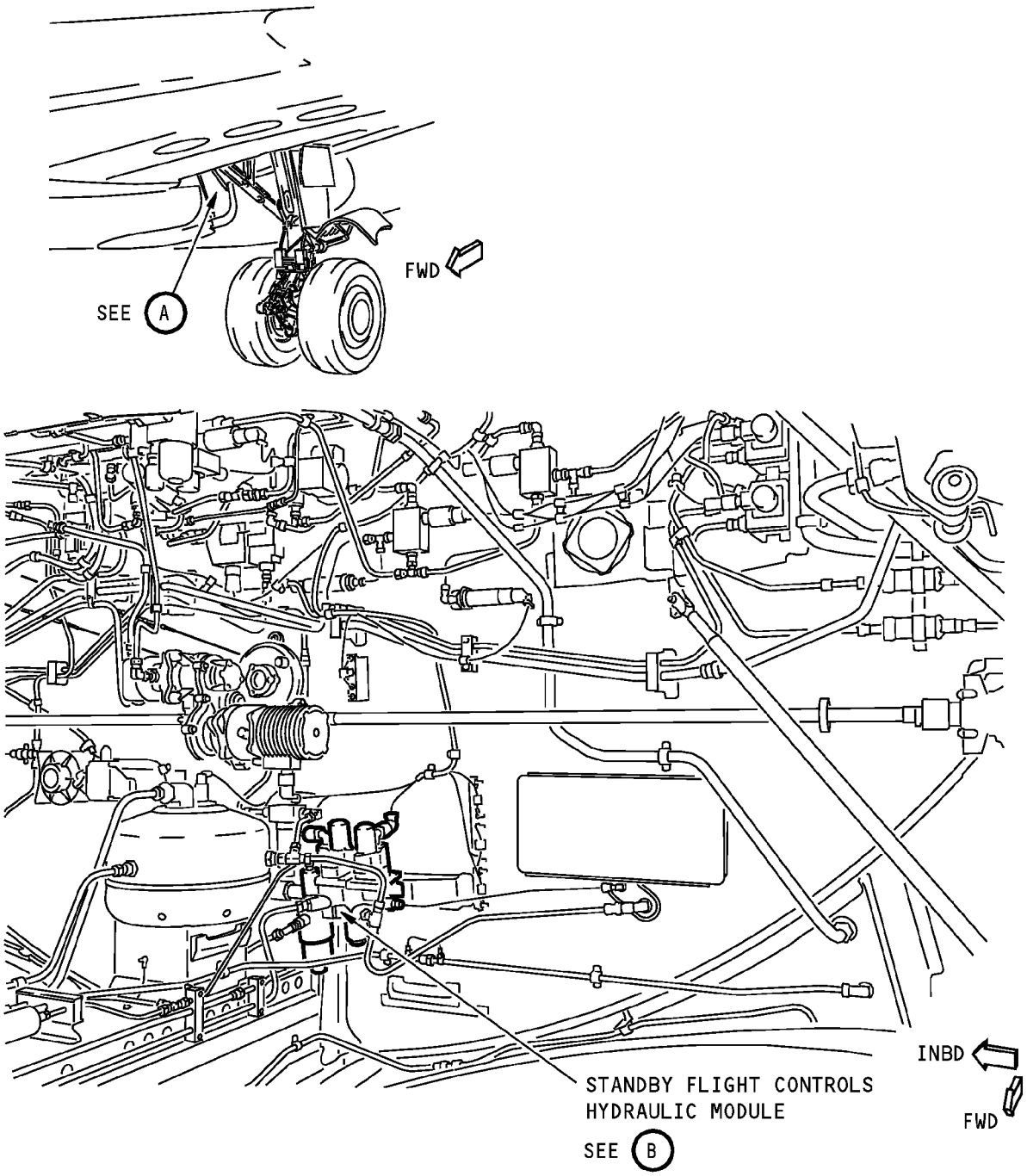

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)

A

Standby Flight Controls Hydraulic Module Lock Installation
Figure 203 (Sheet 1 of 2)/27-21-00-990-803

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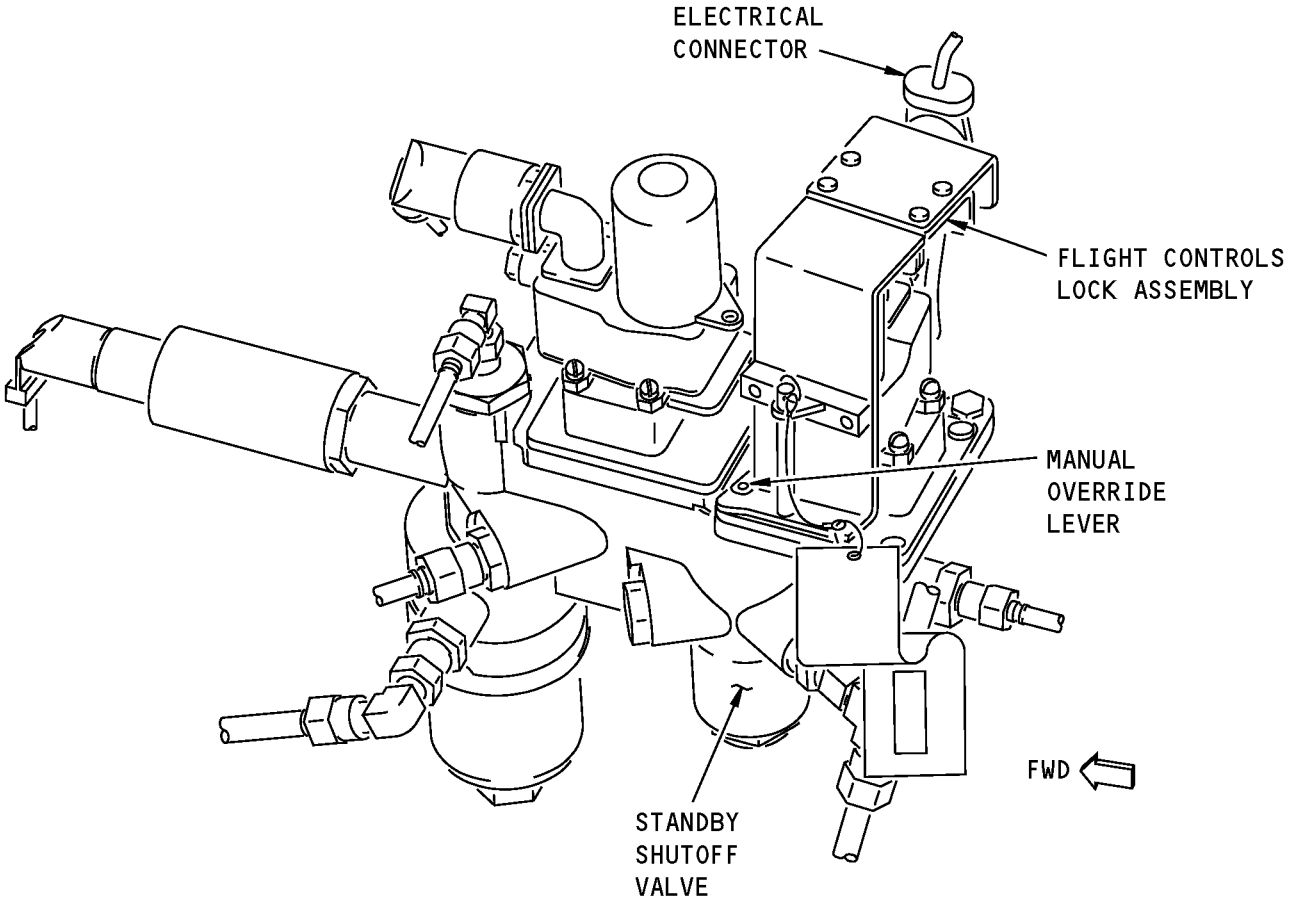

STANDBY FLIGHT CONTROLS HYDRAULIC MODULE

B

Standby Flight Controls Hydraulic Module Lock Installation
Figure 203 (Sheet 2 of 2)/27-21-00-990-803

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TASK 27-21-00-840-802

5. Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal

(Figure 201, Figure 202, Figure 203)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1676	Assembly - Lock, Flight Controls (used with valve p/n 10-60710-2) (Part #: F80049-17, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Procedure

SUBTASK 27-21-00-080-002

(1) Remove the flight control ground locks from the flight control shutoff valves (Figure 202, Figure 203):

(a) Remove the lockpins.

(b) Remove the lock, SPL-1675 or lock, SPL-1676 from the three flight controls shutoff valves.

(c) Put the manual override lever at the three flight controls shutoff valves A and B in the position 1 (ON position).

(d) Before you connect the electrical connector, examine the connector for corrosion.

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WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(e) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(f) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(g) Connect the electrical connector to the flight controls shutoff valve at the flight controls hydraulic modules A and B.

(h) Connect the electrical connector to the flight controls shutoff valve at the standby flight controls hydraulic module.

SUBTASK 27-21-00-860-012

(2) Set the FLT CONTROL A and B switches on the forward overhead panel to the ON position.

SUBTASK 27-21-00-860-013

(3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-21-00-860-014

(4) If it is necessary, fill the hydraulic reservoirs. To fill them, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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RUDDER AND RUDDER TRIM CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Rudder Forward Quadrant Adjustment - Use this task to adjust the rudder forward quadrant.

(2) Rudder Pedals Adjustment - Use this task to adjust the rudder pedals.

(3) Rudder Control Cables RA and RB Adjustment - Use this task to adjust the rudder control cables. This task also includes steps to adjust the rudder forward quadrant and rudder pedals.

(4) Control Rod for Main Rudder Power Control Unit Adjustment - Use this task to adjust the control rod for the main rudder power control unit.

(5) Control Rod for Standby Rudder Power Control Unit Adjustment - Use this test to adjust the control rod for the standby rudder power control unit.

(6) Rudder Pedal Adjustment and Limit Travel Test - Use this test make sure the rudder pedals can move through their full travel and the pedal adjustment crank operates correctly.

(7) Rudder Hinge Bearing and PCU Freeplay - Use this task to do a check of the freeplay of the rudder control system.

(8) Rudder Centering Test - Use this test to make sure the rudder is in its center position.

(9) Rudder Pedal Forces Test - Use this test to make sure the rudder pedals operate with the correct force.

(10) Rudder Travel Test - Use this test to make sure the rudder operates correctly.

(11) Standby Rudder Power Control Unit Deadband Test - Use this test to make sure the standby rudder power control unit is in the correct rigged position.

(12) Rudder Trim System Test - Use this test to make sure the rudder system operates correctly.

(13) Wheel to Rudder Interconnect System Test - Use this test to make sure the wheel to rudder function of the standby rudder power control unit operates correctly.

(14) Authority Limiter Test - Use this task to do a check of the rudder authority device which reduces the authority at the airspeeds where full authority is not required.

(15) Main Rudder PCU Internal Hydraulic Leakage Test - Use this task to do a check for excessive internal hydraulic leakage in the main rudder PCU (This task also include the "Authority Limiter Test").

(16) Rudder Hinge Friction Test - Use this task to do a check of the rudder hinge for excessive friction.

TASK 27-21-00-820-806-001

2. Rudder Forward Quadrant Adjustment

(Figure 501, Figure 502)

A. General

(1) Use this test to make sure the rudder forward quadrant is adjusted correctly. After you adjust the rudder forward quadrant, you must re-adjust the rudder pedals and control cables.

B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

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(Continued)

Reference	Title
32-51-00-820-802	Nose Wheel Steering System Adjustment (P/B 501)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel
317AL	Tail Cone Access Door

F. Prepare for the Test

SUBTASK 27-21-00-860-070-001

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-00-010-017-001

(2) Open these access doors:

Number	Name/Location
112A	Forward Access Door
317AL	Tail Cone Access Door

SUBTASK 27-21-00-010-018-001

(3) Open these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel

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G. Procedure

SUBTASK 27-21-00-710-070-001

(1) Do the rudder forward quadrant adjustment:

(a) Do these steps to set the jackshaft yoke to the middle position:

NOTE: The middle position of the jackshaft yoke is where the number of turns of the shaft from the full forward and full aft adjustment are the same.

1) Turn the rudder pedal adjustment crank to move the rudder pedals full forward.

2) Turn the rudder pedal adjustment crank to move the rudder pedals full aft. Record the number of turns.

3) Turn the rudder pedal adjustment crank half the recorded number of turns forward.

(b) Install the rig pin R-3 from the rig pin kit, SPL-1585 in the forward hole in the captain's rudder forward quadrant.

(c) Install the rig pin R-4 from the rig pin kit, SPL-1585 in the forward hole in the first officer's rudder forward quadrant.

(d) If you can not install rig pins R-3 or R-4, adjust the bus rod [6]:

1) Turn the turnbuckles to release the tension of rudder control cables RA and RB.

2) Remove the pin [5], nut [4], washer [3], spacers [2], bolt [1] to disconnect the bus rod [6] from rudder forward quadrant. Discard the pin [5].

3) Install the rig pin R-3 from the rig pin kit, SPL-1585 in the forward hole in the captain's rudder forward quadrant.

4) Install the rig pin R-4 from the rig pin kit, SPL-1585 in the forward hole in the first officer's rudder forward quadrant.

5) Adjust the bus rod [6] until you can install the bolt [1] through the rudder forward quadrant.

6) Install the spacers [2], washer [3], nut [4], and new pin [5].

7) If it is necessary, adjust the brake pushrods [12] to the nose wheel steering. To adjust them, do this task: Nose Wheel Steering System Adjustment, TASK 32-51-00-820-802.

(e) Make sure the clearance between the cable guard blocks and the rudder forward quadrants is 0.03 in. (0.76 mm) – 0.050 in. (1.27 mm) through full travel.

(f) Remove the rig pins R-3 and R-4.

(g) Remove the nut [50], washer [49], washer [48], and bolt assembly [47] to disconnect the standby rudder PCU control rod [34] from the rudder control torque tube [33].

(h) Remove the nut [45], washer [44], washer [43], and bolt assembly [42] to disconnect the main rudder PCU control rod [36] from the rudder control torque tube [33].

(i) Move the captain's rudder forward quadrant until you can install the rig pin R-3 in the aft rig pin hole.

(j) Make sure there is no clearance between the captain's forward quadrant and quadrant stop. Add or subtract shims as needed to bring the clearance to zero.

(k) Remove the rig pin R-3.

(l) Move the first officer's rudder forward quadrant until you can install the rig pin R-4 in the aft rig pin hole.

(m) Make sure there is no clearance between the first officer's forward quadrant and quadrant stop. Add or subtract shims as needed to bring the clearance to zero.

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(n) Remove the rig pin R-4.

(o) Connect the control rod [36] to the center crank [41].

1) Install the bolt assembly [42] with the bolt head end up and washer [43].

2) Tighten the outer bolt of the bolt assembly [42] to 70 in-lb (7.9 N·m) – 85 in-lb (9.6 N·m).

3) Install the washers [44] and nut [45].

CAUTION: DO NOT TIGHTEN THE OUTER BOLT OF THE BOLT ASSEMBLY [42] AFTER YOU TIGHTEN THE NUT [45]. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

4) Tighten the nut [45] to 25 in-lb (2.8 N·m) – 30 in-lb (3.4 N·m).

(p) Install the bolt assembly [47] with the bolt head end up, washer [48] (under bolt), washer [49] (under nut), and nut [50] to connect the control rod [34] to the upper crank [46].

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-820-006-001

(1) Do this task: Rudder Pedals Adjustment, TASK 27-21-00-820-807-001.

SUBTASK 27-21-00-820-007-001

(2) Do this task: Control Rod for Main Rudder Power Control Unit Adjustment, TASK 27-21-00-820-809-001.

SUBTASK 27-21-00-410-010-001

(3) Close these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel

SUBTASK 27-21-00-010-019-001

(4) Close these access doors:

Number	Name/Location
112A	Forward Access Door
317AL	Tail Cone Access Door

SUBTASK 27-21-00-860-071-001

(5) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

——————— END OF TASK ———————

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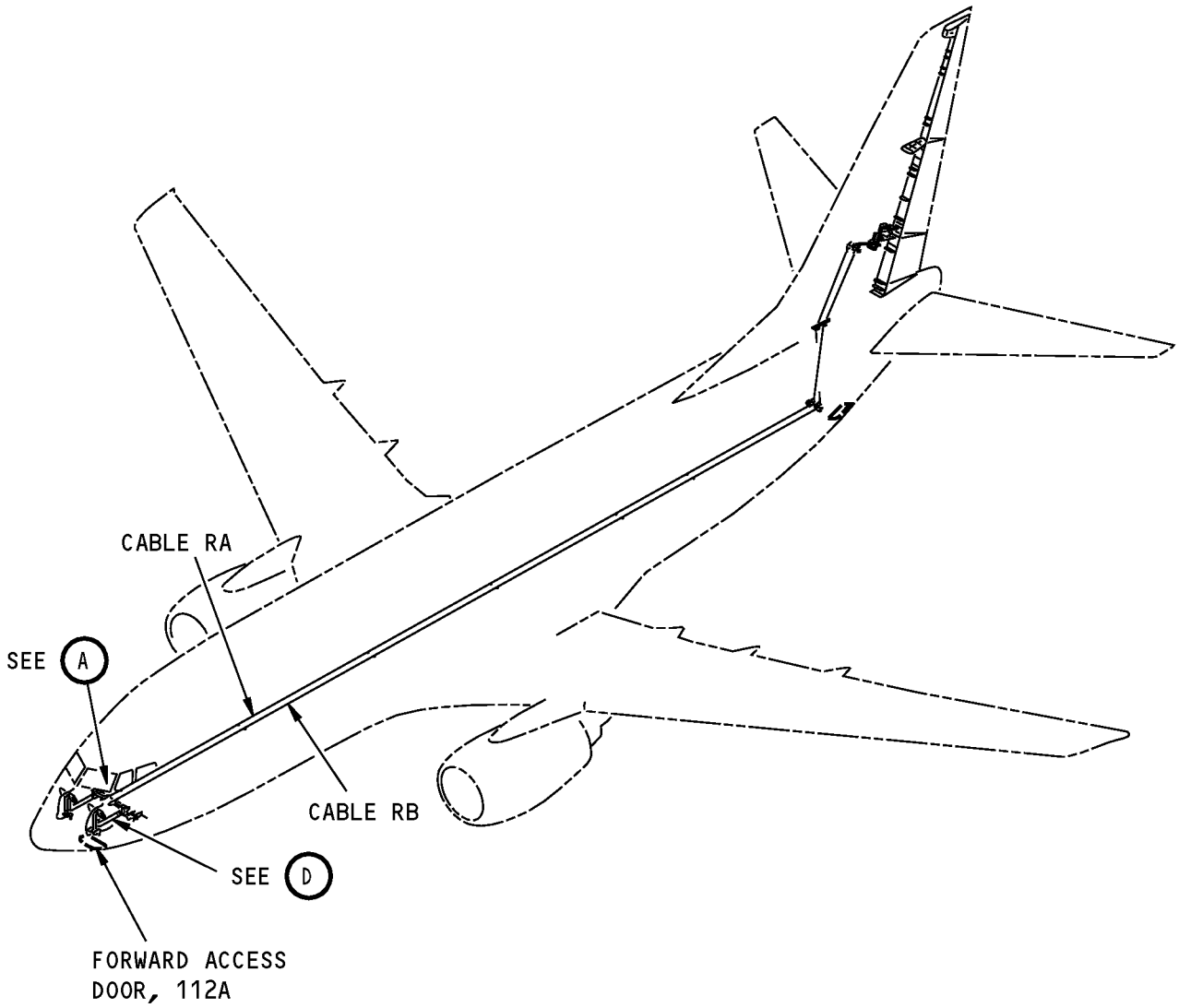

Rudder Control System Forward Components
Figure 501 (Sheet 1 of 4)/27-21-00-990-810-001

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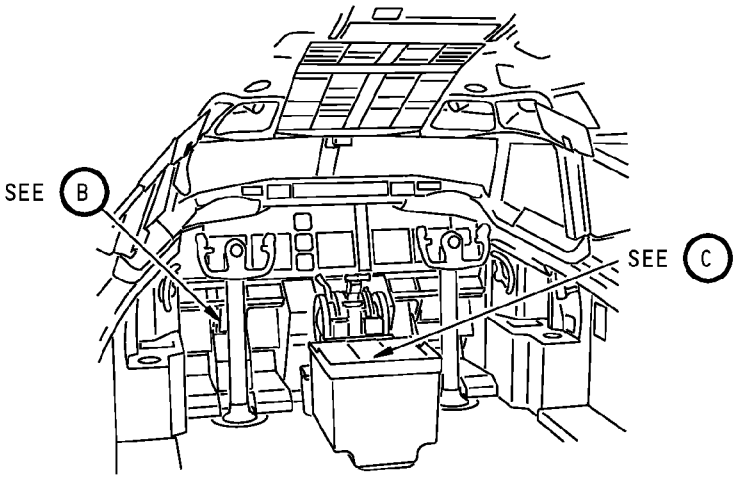
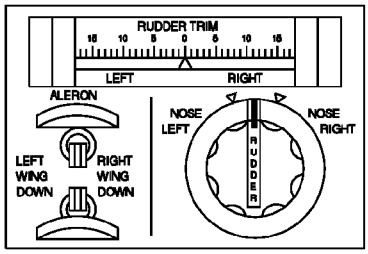


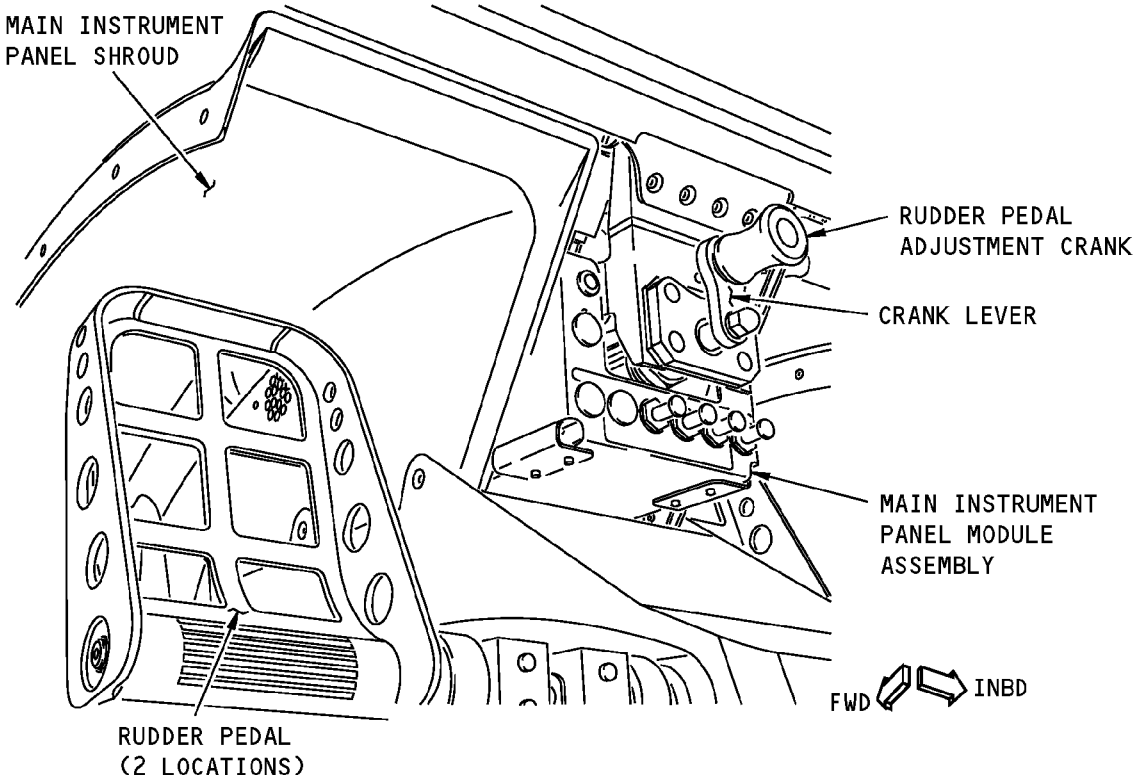
FLIGHT COMPARTMENT

A



AILERON AND RUDDER TRIM MODULE (P8)

C



(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

B

Rudder Control System Forward Components
Figure 501 (Sheet 2 of 4)/27-21-00-990-810-001

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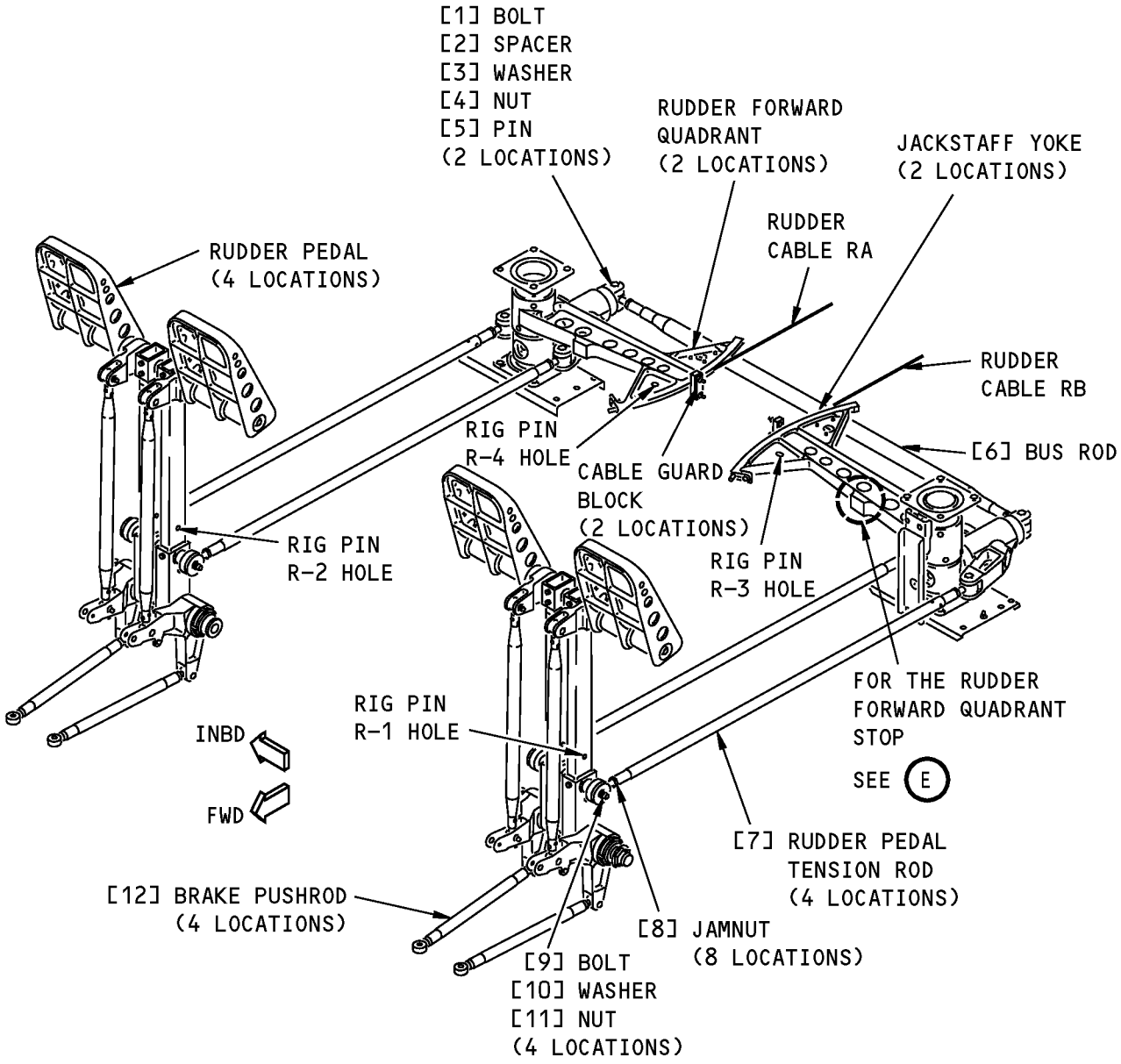

PEDAL SHAFTS AND FORWARD QUADRANTS

D

Rudder Control System Forward Components
Figure 501 (Sheet 3 of 4)/27-21-00-990-810-001

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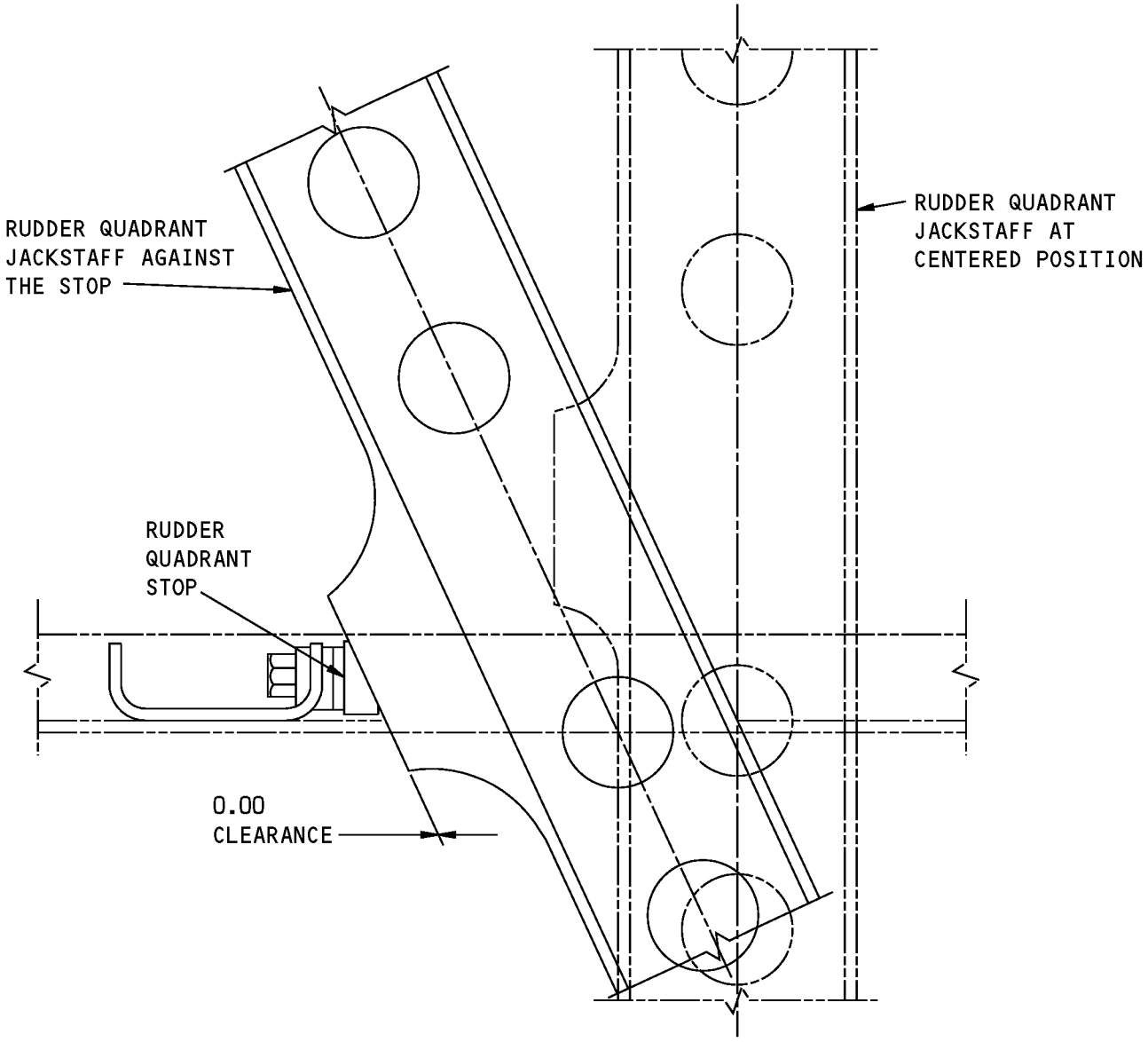

RUDDER QUADRANT STOP

E

Rudder Control System Forward Components
Figure 501 (Sheet 4 of 4)/27-21-00-990-810-001

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TASK 27-21-00-820-807-001

3. Rudder Pedals Adjustment

(Figure 501)

A. General

(1) Use this task to adjust the rudder pedals to the center position.

B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel
324CL	Vertical Fin, Access

F. Prepare for the Test

SUBTASK 27-21-00-860-072-001

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-00-010-020-001

(2) Open these access doors:

Number	Name/Location
112A	Forward Access Door
324CL	Vertical Fin, Access

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SUBTASK 27-21-00-010-021-001

(3) Open these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel

G. Procedure

SUBTASK 27-21-00-710-071-001

(1) Do the rudder pedals adjustment:

(a) Install the rig pin R-5 from the rig pin kit, SPL-1585 in the rudder feel and centering unit. (Figure 502)

(b) Install the rig pin R-3 from the rig pin kit, SPL-1585 in the captain's rudder forward quadrant. (Figure 501)

(c) Install the rig pin R-4 from the rig pin kit, SPL-1585 in the first officer's rudder forward quadrant.

(d) Do these steps to set the jackshaft yoke to the middle position:

NOTE: The middle position of the jackshaft yoke is where the number of turns of the shaft from the full forward and full aft adjustment are the same.

1) Turn the rudder pedal adjustment crank to move the rudder pedals full forward.

2) Turn the rudder pedal adjustment crank to move the rudder pedals full aft. Record the number of turns.

3) Turn the rudder pedal adjustment crank half the recorded number of turns forward.

(e) Make sure that you can install these rig pins from the rig pin kit, SPL-1585:

1) Rig pin R-1 on the captain's rudder pedals.

2) Rig pin R-2 on the first officer's rudder pedals.

(f) If you can not install the rig pins R-1 and R-2 freely, then do these steps:

1) Determine which pedal arm is out-of-line with the rigging pin hole.

a) If you have problem with installing rig pin R-1, then adjust the captain's side.

b) If you have problem with installing rig pin R-2, then adjust the first officer's side.

c) If you have problem with installing both rig pins R-1 and R-2, then adjust both sides.

2) Loosen both jamnuts [8] on the rudder pedal tension rods [7].

3) Remove the bolts [9], washers [10], and nuts [11] to disconnect the rudder pedal tension rods [7] at the forward end.

4) Adjust the length of rudder pedal tension rods [7] until you can install rig pin R-1 or R-2 easily.

a) Turn the rod end or rod body of the rudder pedal tension rod [7] as necessary to adjust the length.

b) Keep the lube fitting on the rudder pedal tension rod [7] down.

5) Install the bolts [9], washers [10], and nuts [11] to connect the rudder pedal tension rods [7].

6) Tighten the jamnuts [8].

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7) Make sure you can see the threads through the holes on the rudder pedal tension rods [7].

(g) Remove the rig pins R-1, R-2, R-3, R-4, and R-5.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-410-011-001

(1) Close these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel

SUBTASK 27-21-00-940-002-001

(2) Close these doors:

Number	Name/Location
112A	Forward Access Door
324CL	Vertical Fin, Access

SUBTASK 27-21-00-860-073-001

(3) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

——————— END OF TASK ———————

TASK 27-21-00-820-808-001

4. Rudder Control Cables RA and RB Adjustment

(Figure 501, Figure 502)

A. General

(1) Use this task to adjust the rudder control cables RA and RB. This task includes steps to adjust the rudder forward quadrant and rudder pedals.

(2) Before you do cable adjustment, permit a minimum of one hour at a constant ambient temperature of ± 5 degrees F (± 2.8 degrees C) for the airframe temperature to become stable.

(a) The cable tension values will not be correct when there are temperature differences along the cable run.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-09-17-860-801	Location of the Flight Control Cables Air Pressure Seals (P/B 201)
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1554	Tensiometer - Cable (40-600 LB) (Part #: ACM-600, Supplier: 13331, A/P Effectivity: 737-ALL) (Part #: T5-8008-106-00, Supplier: 0N8U4, A/P Effectivity: 737-ALL) (Part #: T60-1001-C9-1A, Supplier: 0N8U4, A/P Effectivity: 737-ALL)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
324	Vertical Fin - Rear Spar To Trailing Edge

E. Access Panels

Number	Name/Location
112A	Forward Access Door
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel
311BL	Stabilizer Trim Access Door
324AL	Vertical Fin, Aft Fin Access Door
324CL	Vertical Fin, Access

F. Prepare for the Adjustment

SUBTASK 27-21-00-860-074-001

(1) Make sure the rudder trim indicator is at the zero unit of trim.

SUBTASK 27-21-00-730-014-001

(2) Do this task: Rudder Pedal Adjustment and Limit Travel Test, TASK 27-21-00-700-813-001.

SUBTASK 27-21-00-860-075-001

(3) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-00-860-076-001

(4) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-21-00-860-077-001

(5) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

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SUBTASK 27-21-00-010-022-001

(6) Open these access doors:

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door
324CL	Vertical Fin, Access

SUBTASK 27-21-00-010-023-001

(7) Open these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel

SUBTASK 27-21-00-480-018-001

(8) Use a 40 - 600 lb cable tensiometer, COM-1554 to get the tension measurement.

G. Rudder Control Cables RA and RB Adjustment

SUBTASK 27-21-00-820-008-001

(1) If you install new rudder control cables RA and RB, then do these steps to stretch the cables:

(a) Operate the rudder trim indicator until you can install the rig pin R-5 in the rudder feel and centering unit easily.

(b) Adjust the turnbuckles in the cables RA and RB to get a tension of 300 ±20 lbf (1334 ±89 N) each.

1) Make sure you can install the rig pin R-3 from the rig pin kit, SPL-1585 freely in the captain's rudder forward quadrant.

(c) Remove the rig pins R-3 and R-5.

(d) Adjust the pressure seals at the aft pressure bulkhead with the control cables RA and RB. To adjust them, do this task: Location of the Flight Control Cables Air Pressure Seals, TASK 27-09-17-860-801.

(e) Make sure the cables RA and RB do not touch the pulley or the quadrant flanges for the total cable travel.

(f) Make sure the cables RA and RB are in less than 2 degrees of the plane of the pulley or the quadrant.

(g) Make sure you install the cables through the grommets in the structure.

(h) Make sure that the cables do not move from the neutral rig position.

(i) Make sure that the pulleys turn freely with sufficient clearance with the guards.

(j) Remove the nut [50], washer [49], washer [48], and bolt assembly [47] to disconnect the standby rudder PCU control rod [34] from the rudder control torque tube [33].

(k) Remove the nut [45], washer [44], washer [43], and bolt assembly [42] to disconnect the main rudder PCU control rod [36] from the rudder control torque tube [33].

(l) Move the rudder pedals 25 times through full travel.

(m) Connect the main rudder PCU control rod [36] to the center crank [41].

1) Install the bolt assembly [42] with the bolt head end up and washer [43].

2) Tighten the outer bolt of the bolt assembly [42] to 70 in-lb (7.9 N·m) – 85 in-lb (9.6 N·m).

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3) Install the washers [44] and nut [45].

CAUTION: DO NOT TIGHTEN THE OUTER BOLT OF THE BOLT ASSEMBLY [42] AFTER YOU TIGHTEN THE NUT [45]. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

4) Tighten the nut [45] to 25 in-lb (2.8 N·m) – 30 in-lb (3.4 N·m).

(n) Install the bolt assembly [47] with the bolt head end up, washer [48] (under bolt), washer [49] (under nut), and nut [50] to connect the standby rudder PCU control rod [34] to the upper crank [46].

SUBTASK 27-21-00-820-009-001

(2) Adjust the control cables RA and RB to their correct cable rigging tension:

(a) Install the rig pin R-5 from the rig pin kit, SPL-1585 in the rudder feel and centering unit.

(b) Adjust the turnbuckles in the cables RA and RB to get the cable tension as given in (Table 501):

Table 501/27-21-00-993-814-001 737-800 / 737-900 Rudder Cable Rigging Load

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
110 (43.3)	190 (86.1)	180 (81.6)	200 (90.7)
109 (43.8)	190 (86.1)	180 (81.6)	200 (90.7)
108 (42.2)	189 (85.7)	179 (81.2)	199 (90.3)
107 (41.7)	189 (85.7)	179 (81.2)	199 (90.3)
106 (41.1)	188 (85.3)	178 (80.7)	198 (89.8)
105 (40.5)	188 (85.3)	178 (80.7)	198 (89.8)
104 (40.0)	187 (84.8)	177 (80.3)	197 (89.3)
103 (39.4)	187 (84.8)	177 (80.3)	197 (89.3)
102 (38.9)	186 (84.4)	176 (79.8)	196 (88.9)
101 (38.3)	186 (84.4)	176 (79.8)	196 (88.9)
100 (37.8)	185 (83.9)	175 (79.3)	195 (88.4)
99 (37.2)	184 (83.5)	174 (78.9)	194 (88.0)
98 (36.7)	184 (83.5)	174 (78.9)	194 (88.0)
97 (36.1)	183 (83.0)	173 (78.5)	192 (87.5)
96 (35.5)	183 (83.0)	173 (78.5)	193 (87.5)
95 (35.0)	182 (82.5)	172 (78.0)	192 (87.1)
94 (34.4)	182 (82.5)	172 (78.0)	192 (87.1)
93 (33.9)	181 (82.1)	171 (77.6)	191 (86.6)
92 (33.3)	181 (82.1)	171 (77.6)	191 (86.6)
91 (32.8)	180 (81.6)	170 (77.1)	190 (86.2)
90 (32.2)	180 (81.6)	170 (77.1)	190 (86.2)
89 (31.7)	179 (81.2)	169 (76.7)	189 (85.7)

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(Continued)

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
88 (31.1)	179 (81.2)	169 (76.7)	189 (85.7)
87 (30.5)	178 (80.7)	168 (76.2)	188 (85.3)
86 (30.0)	178 (80.7)	168 (76.2)	188 (85.3)
85 (29.4)	177 (80.3)	167 (75.7)	187 (84.8)
84 (28.9)	177 (80.3)	167 (75.7)	187 (84.8)
83 (28.3)	176 (79.8)	166 (75.3)	186 (84.4)
82 (27.8)	176 (79.8)	166 (75.3)	186 (84.4)
81 (27.2)	175 (79.4)	165 (74.8)	185 (83.9)
80 (26.7)	175 (79.4)	165 (74.8)	185 (83.9)
79 (26.1)	174 (78.9)	164 (74.4)	184 (83.5)
78 (25.5)	174 (78.9)	164 (74.4)	184 (83.5)
77 (25.0)	173 (78.5)	163 (73.9)	183 (83.0)
76 (24.4)	173 (78.5	163 (73.9)	183 (83.0)
75 (23.9)	172 (78.0)	162 (73.5)	182 (82.5)
74 (23.3)	172 (78.0)	162 (73.5)	182 (82.5)
73 (22.8)	171 (77.6)	161 (73.0)	181 (82.1)
72 (22.2)	171 (77.6)	161 (73.0)	181 (82.1)
71 (21.7)	170 (77.1)	160 (72.6)	180 (81.6)
70 (21.1)	170 (77.1)	160 (72.6)	180 (81.6)
69 (20.5)	170 (77.1)	160 (72.6)	180 (81.6)
68 (20.0)	169 (76.7)	159 (72.1)	179 (81.2)
67 (19.4)	169 (76.7)	159 (72.1)	179 (81.2)
66 (18.9)	168 (76.2)	158 (71.7)	178 (80.7)
65 (18.3)	168 (76.2)	158 (71.7)	178 (80.7)
64 (17.8)	167 (75.7)	157 (71.2)	177 (80.3)
63 (17.2)	167 (75.7)	157 (71.2)	177 (80.3)
62 (16.7)	166 (75.3)	156 (70.8)	176 (79.8)
61 (16.1)	166 (75.3)	156 (70.8)	176 (79.8)
60 (15.5)	165 (74.8)	155 (70.3)	175 (79.4)
59 (15.0)	165 (74.8)	155 (70.3)	175 (79.4)
58 (14.4)	164 (74.4)	154 (69.8)	174 (78.9)
57 (13.9)	164 (74.4)	154 (69.8)	174 (78.9)

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(Continued)

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
56 (13.3)	163 (73.9)	153 (69.3)	173 (78.5)
55 (12.8)	163 (73.9)	153 (69.3)	173 (78.5)
54 (12.2)	162 (73.5)	152 (68.9)	172 (78.0)
53 (11.7)	162 (73.5)	152 (68.9)	172 (78.0)
52 (11.1)	161 (73.0)	151 (68.5)	171 (77.6)
51 (10.5)	161 (73.0)	151 (68.5)	171 (77.6)
50 (10.0)	160 (72.6)	150 (68.0)	170 (77.1)
49 (9.4)	160 (72.6)	150 (68.0)	170 (77.1)
48 (8.9)	159 (72.1)	149 (67.6)	169 (76.7)
47 (8.3)	159 (72.1)	149 (67.6)	169 (76.7)
46 (7.8)	158 (71.7)	148 (67.1)	168 (76.2)
45 (7.2)	158 (71.7)	148 (67.1)	168 (76.2)
44 (6.7)	157 (71.2)	147 (66.7)	167 (75.7)
43 (6.1)	157 (71.2)	147 (66.7)	167 (75.7)
42 (5.5)	156 (70.8)	146 (66.2)	166 (75.3)
41 (5.0)	156 (70.8)	146 (66.2)	166 (75.3)
40 (4.4)	155 (70.3)	145 (65.8)	165 (74.8)
39 (3.9)	155 (70.3)	145 (65.8)	165 (74.8)
38 (3.3)	154 (69.8)	144 (65.3)	164 (74.4)
37 (2.8)	154 (69.8)	144 (65.3)	164 (74.4)
36 (2.2)	153 (69.4)	143 (64.9)	163 (73.9)
35 (1.7)	153 (69.4)	143 (64.9)	163 (73.9)
34 (1.1)	152 (68.9)	142 (64.4)	162 (73.5)
33 (0.5)	152 (68.9)	142 (64.4)	162 (73.5)
32 (0.0)	151 (68.5)	141 (63.9)	161 (73.0)
31 (-0.5)	151 (68.5)	141 (63.9)	161 (73.0)
30 (-1.1)	150 (68.0)	140 (63.5)	160 (72.6)
29 (-1.7)	150 (68.0)	140 (63.5)	160 (72.6)
28 (-2.2)	149 (67.6)	139 (63.0)	159 (72.1)
27 (-2.8)	149 (67.6)	139 (63.0)	159 (72.1)
26 (-3.3)	148 (67.1)	138 (62.6)	158 (71.7)
25 (-3.9)	148 (67.1)	138 (62.6)	158 (71.7)

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(Continued)

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
24 (-4.4)	147 (66.7)	137 (62.1)	157 (71.2)
23 (-5.0)	147 (66.7)	137 (62.1)	157 (71.2)
22 (-5.5)	147 (66.7)	137 (62.1)	157 (71.2)
21 (-6.1)	146 (66.2)	136 (61.7)	156 (70.8)
20 (-6.7)	146 (66.2)	136 (61.7)	156 (70.8)
19 (-7.2)	145 (65.8)	135 (61.2)	155 (70.3)
18 (-7.8)	145 (65.8)	135 (61.2)	155 (70.3)
17 (-8.3)	144 (65.3)	134 (60.8)	154 (69.8)
16 (-8.9)	144 (65.3)	134 (60.8)	154 (69.8)
15 (-9.4)	143 (64.9)	133 (60.3)	153 (69.4)
14 (-10.0)	143 (64.9)	133 (60.3)	153 (69.4)
13 (-10.5)	142 (64.4)	132 (59.9)	152 (68.9)
12 (-11.1)	142 (64.4)	132 (59.9)	152 (68.9)
11 (-11.7)	141 (63.9)	131 (59.4)	151 (68.5)
10 (-12.2)	141 (63.9)	131 (59.4)	151 (68.5)
09 (-12.8)	140 (63.5)	130 (59.0)	150 (68.0)
08 (-13.3)	140 (63.5)	130 (59.0)	150 (68.0)
07 (-13.9)	139 (63.0)	129 (58.5)	149 (67.6)
06 (-14.4)	139 (63.0)	129 (58.5)	149 (67.6)
05 (-15.0)	138 (62.6)	128 (58.0)	148 (67.1)
04 (-15.5)	138 (62.6)	128 (58.0)	148 (67.1)
03 (-16.1)	137 (62.1)	127 (57.6)	147 (66.7)
02 (-16.7)	137 (62.1)	127 (57.6)	147 (66.7)
01 (-17.2)	136 (61.7)	126 (57.1)	146 (66.2)
00 (-17.8)	136 (61.7)	126 (57.1)	146 (66.2)
-01 (-18.3)	135 (61.2)	125 (56.7)	145 (65.8)
-02 (-18.9)	135 (61.2)	125 (56.7)	145 (65.8)
-03 (-19.4)	135 (61.2)	125 (56.7	145 (65.8)
-04 (-20.0)	134 (60.8)	124 (56.2)	144 (65.3)
-05 (-20.5)	134 (60.8)	124 (56.2)	144 (65.3)
-06 (-21.1)	133 (60.3)	123 (55.8)	143 (64.9)
-07 (-21.7)	133 (60.3)	123 (55.8)	143 (64.9)

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(Continued)

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
-08 (-22.2)	132 (59.9)	122 (55.3)	142 (64.4)
-09 (-22.8)	132 (59.9)	122 (55.3)	142 (64.4)
-10 (-23.3)	131 (59.4)	121 (54.9)	141 (64.0)
-11 (-23.9)	131 (59.4)	121 (54.9)	141 (64.0)
-12 (-24.4)	130 (59.0)	120 (54.4)	140 (63.5)
-13 (-25.0)	130 (59.0)	120 (54.4)	140 (63.5)
-14 (-25.5)	129 (58.5)	119 (54.0)	139 (63.0)
-15 (-26.1)	129 (58.5)	119 (54.0)	139 (63.0)
-16 (-26.7)	128 (58.0)	118 (53.5)	138 (62.6)
-17 (-27.2)	128 (58.0)	118 (53.5)	138 (62.6)
-18 (-27.8)	127 (57.6)	117 (53.0)	137 (62.1)
-19 (-28.3)	127 (57.6)	117 (53.0)	137 (62.1)
-20 (-28.9)	127 (57.6)	117 (53.0)	137 (62.1)
-21 (-29.4)	126 (57.1)	116 (52.6)	136 (61.7)
-22 (-30.0)	126 (57.1)	116 (52.6)	136 (61.7)
-23 (-30.5)	125 (56.7)	115 (52.2)	135 (61.2)
-24 (-31.1)	125 (56.7)	115 (52.2)	135 (61.2)
-25 (-31.7)	124 (56.2)	114 (51.7)	134 (60.8)
-26 (-32.2)	124 (56.2)	114 (51.7)	134 (60.8)
-27 (-32.8)	123 (55.8)	113 (51.2)	133 (60.3)
-28 (-33.3)	123 (55.8)	113 (51.2)	133 (60.3)
-29 (-33.9)	122 (55.3)	112 (50.8)	132 (59.9)
-30 (-34.4)	122 (55.3)	112 (50.8)	132 (59.9)
-31 (-35.0)	121 (54.9)	111 (50.3)	131 (59.4)
-32 (-35.5)	121 (54.9)	111 (50.3)	131 (59.4)
-33 (-36.1)	120 (54.4)	110 (49.9)	130 (59.0)
-34 (-36.7)	120 (54.4)	110 (49.9)	130 (59.0)
-35 (-37.2)	120 (54.4)	110 (49.9)	130 (59.0)
-36 (-37.8)	119 (54.0)	109 (49.4)	129 (58.5)
-37 (-38.3)	119 (54.0)	109 (49.4)	129 (58.5)
-38 (-38.9)	118 (53.5)	108 (49.0)	128 (58.0)
-39 (-39.4)	118 (53.5)	108 (49.0)	128 (58.0)

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(Continued)

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
-40 (-40.0)	117 (53.1)	107 (48.5)	127 (57.6)

(c) Make sure you can install these rig pins from the rig pin kit, SPL-1585 (Figure 501, Figure 502):

1) Rig pin R-3 in the captain's rudder forward quadrant.
2) Rig pin R-4 in the first officer's rudder forward quadrant.

(d) If you can not install the rig pins R-3 and R-4 freely, then do these steps:

1) Turn the turnbuckles to release the tension of the control cables RA and RB.
2) Remove the pin [5], nut [4], washer [3], spacer [2] and bolt [1] to disconnect one end of the bus rod [6] from rudder forward quadrant. Discard the pin [5].
3) Install the rig pins R-3 in the captain's rudder forward quadrant.
4) Install the rig pin R-4 in the first officer's rudder forward quadrant.
5) Adjust the bus rod [6] until you can install the bolt [1] easily.
6) Install the bolt [1], spacer [2], washer [3], nut [4], and new pin [5] to connect the bus rod [6] to the rudder forward quadrant.
7) Adjust the turnbuckles on the control cables RA and RB to get the correct tension as given in (Table 501).

(e) Do these steps to adjust the captain's and first officer's pedals to the neutral adjustment position:

NOTE: The middle position of the rudder pedals is where the number of turns of the shaft from the full forward and full aft adjustment are the same.

1) Turn the rudder pedal adjustment crank to move the rudder pedals full forward.
2) Turn the rudder pedal adjustment crank to move the rudder pedals full aft. Record the number of turns.
3) Turn the rudder pedal adjustment crank half the number of turns forward.

(f) Install these rig pins from the rig pin kit, SPL-1585:

1) Rig pin R-1 on the captain's rudder pedals.
2) Rig pin R-2 on the first officer's rudder pedals.

(g) If you can not install the rig pin R-1 or R-2 freely, then do these steps:

1) Loosen the jamnuts [8] from the applicable rudder pedal tension rod [7].

NOTE: If you can not install rig pin R-1 then adjust the captain's rudder pedal tension rods. If you can not install the rig pin R-2 then adjust the first officer's rudder pedal tension rods. You are only required to adjust the applicable rudder pedal tension rod that is out of rig.

2) Remove the nut [11], washer [10], bolt [9] from the forward end of the rudder pedal tension rod [7].
3) Adjust the rudder pedal tension rod [7] until you can install the applicable rig pin freely.
   a) Make sure that you keep the lube fitting on the rudder pedal tension rod [7] is in the down direction.
4) Install the bolt [9], washer [10], nut [11].

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5) Tighten the jamnuts [8].

(h) Do a check on the rudder forward quadrant bus rod [6] and the four rudder pedal tension rods [7]:

1) Make sure the rod ends cover at least 50 percent of the inspection holes at two end of the rods (10 locations).

(i) Remove the rig pin R-1, R-2, R-3, R-4, and R-5.

(j) Operate the rudder pedals through one full travel cycle.

1) Make sure the control cables RA and RB are at the correct tension as given in (Table 501).

(k) Install the locking clips on the turnbuckles.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-21-00-010-024-001

(1) Close these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel
324AL	Vertical Fin, Aft Fin Access Door

SUBTASK 27-21-00-010-025-001

(2) Close these access doors:

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door
324CL	Vertical Fin, Access

SUBTASK 27-21-00-860-078-001

(3) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

———————— END OF TASK ————————

TASK 27-21-00-820-809-001

5. Control Rod for Main Rudder Power Control Unit Adjustment

(Figure 502)

A. General

(1) Use this task to adjust the control rod for the main rudder power control unit (PCU).

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

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C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

E. Access Panels

Number	Name/Location
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

F. Prepare for the Adjustment

SUBTASK 27-21-00-860-079-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-21-00-010-026-001

(2) To get access to the main PCU, do this step:

Open this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-00-010-027-001

(3) to get access to the rudder feel and centering unit, do this step:

Open this access panel:

Number	Name/Location
324CL	Vertical Fin, Access

SUBTASK 27-21-00-860-080-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Pressurize the rudder hydraulic system B, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-081-001

(5) Make sure the rudder trim indicator is in the neutral position.

SUBTASK 27-21-00-480-019-001

(6) Install the rig pin R-5 from the rig pin kit, SPL-1585 in the rudder feel and centering unit.

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(a) Make sure you can install the rig pin R-5 freely with no movement of the rudder feel and centering unit output crank.

G. Control Rod for the Main PCU Adjustment

SUBTASK 27-21-00-710-072-001

(1) Adjust the control rod [36] of the main PCU:

(a) If the rudder trailing edge is greater than 0.50 in. (12.7 mm) from the neutral position, then do this coarse adjustment to the control rod [36]:

WARNING: MAKE SURE YOU SET THESE SWITCHES TO THE OFF POSITION BEFORE YOU DISCONNECT THE CONTROL ROD [36] FROM THE MAIN RUDDER PCU. THE CONTROL ROD [36] CAN MOVE QUICKLY AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Set the FLT CONTROL A and B switches to OFF.
2) Loosen the two checknuts [35] on the control rod [36].
3) Remove the nut [45], washer [44], washer [43], and bolt assembly [42] to disconnect the control rod [36] from the center crank [41] of the torque tube.
4) Turn the control rod end for half a turn relative to the sleeve [37]; and turn the sleeve [37] and the control rod end together for half a turn.

NOTE: The sum of half turn of each is equal to 0.80 in. (20.3 mm) at the rudder trailing edge.

5) Keep number of threads that you can see in the two parts are approximately same.
6) Install the bolt assembly [42] with the bolt head end up and washer [43] to connect the control rod [36] to the center crank [41].
7) Tighten the outer bolt of the bolt assembly [42] to 70 in-lb (7.9 N·m) – 85 in-lb (9.6 N·m).
8) Install the washers [44] and nut [45].

CAUTION: DO NOT TIGHTEN THE OUTER BOLT OF THE BOLT ASSEMBLY [42] AFTER YOU TIGHTEN THE NUT [45]. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

9) Tighten the nut [45] to 25 in-lb (2.8 N·m) – 30 in-lb (3.4 N·m).

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

10) Set the FLT CONTROL B to the ON position.

(b) If the rudder trailing edge is less than 0.50 in. (12.7 mm) from the neutral position, then do this fine adjustment to the control rod [36]:

1) Loosen the checknuts [35] on the control rod [36].
2) Turn the sleeve [37] until the two sides of the rudder trailing edge are in the width of the rudder index tab. (Figure 502)
3) Tighten the two checknuts [35].

(c) Make sure you see control rod end threads through the inspection holes on the control rod [36].

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H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-21-00-480-020-001

(1) Remove the rig pin R-5.

SUBTASK 27-21-00-820-010-001

(2) Do a check of the standby rudder PCU. If it is necessary, do this task: Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-001.

SUBTASK 27-21-00-860-082-001

(3) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

SUBTASK 27-21-00-410-012-001

(4) Close these access panels:

Number	Name/Location
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

SUBTASK 27-21-00-860-083-001

(5) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

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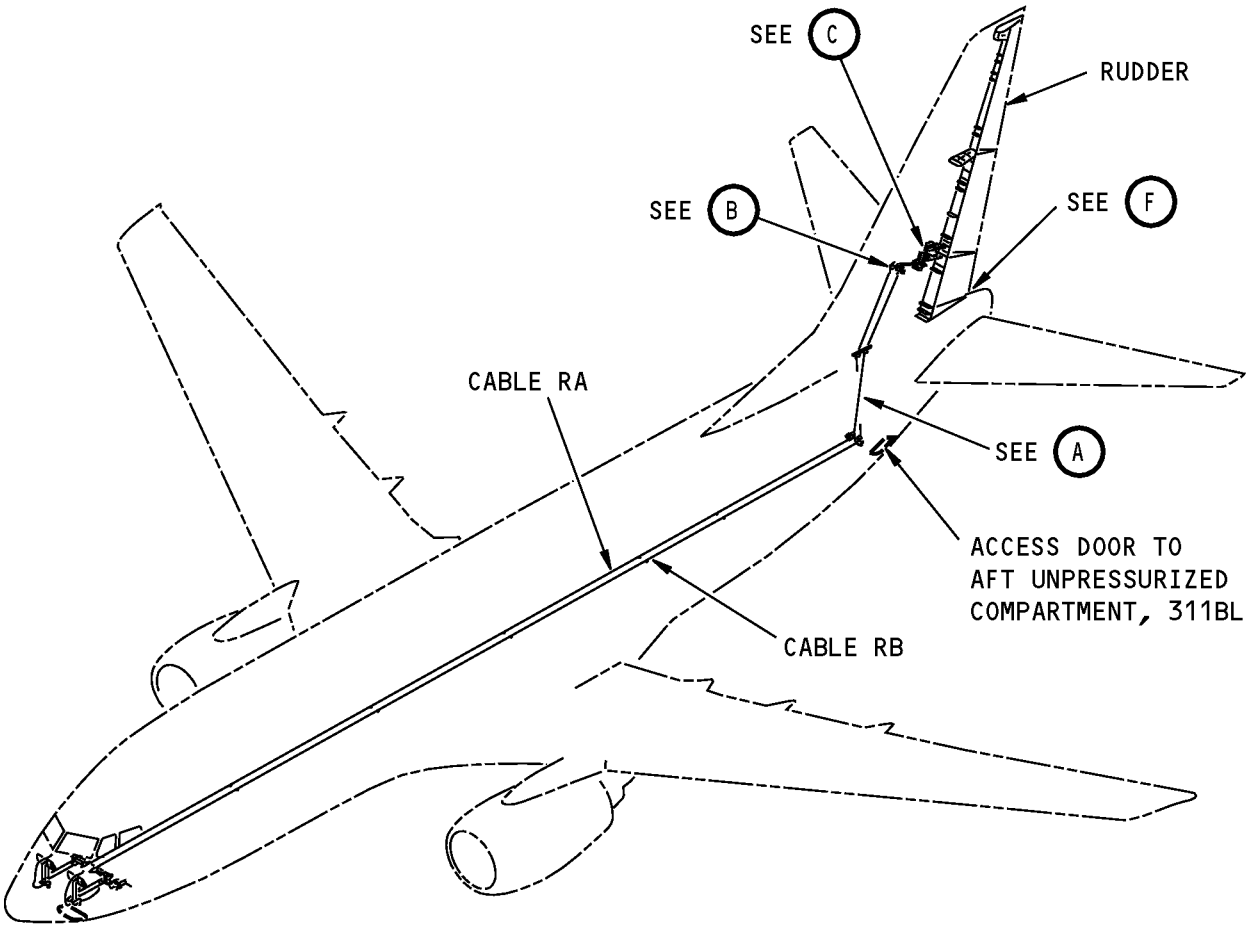

Rudder Control System Aft Components
Figure 502 (Sheet 1 of 7)/27-21-00-990-811-001

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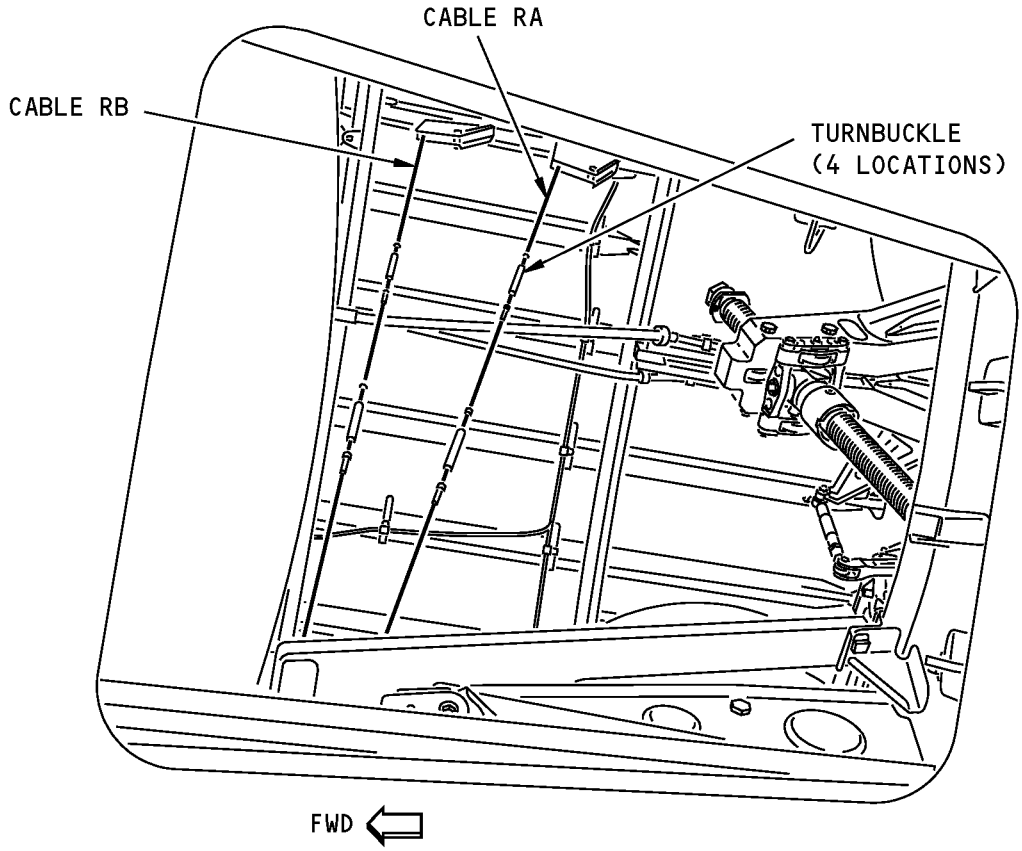

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Rudder Control System Aft Components
Figure 502 (Sheet 2 of 7)/27-21-00-990-811-001

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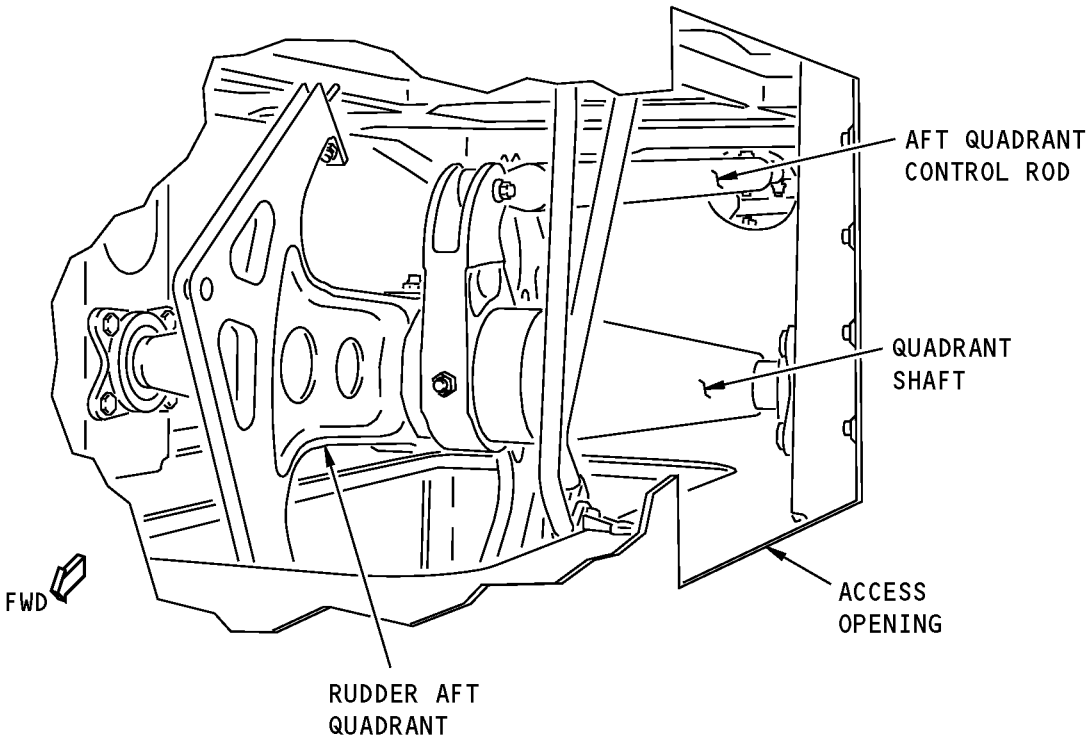

RUDDER AFT QUADRANT

B

Rudder Control System Aft Components
Figure 502 (Sheet 3 of 7)/27-21-00-990-811-001

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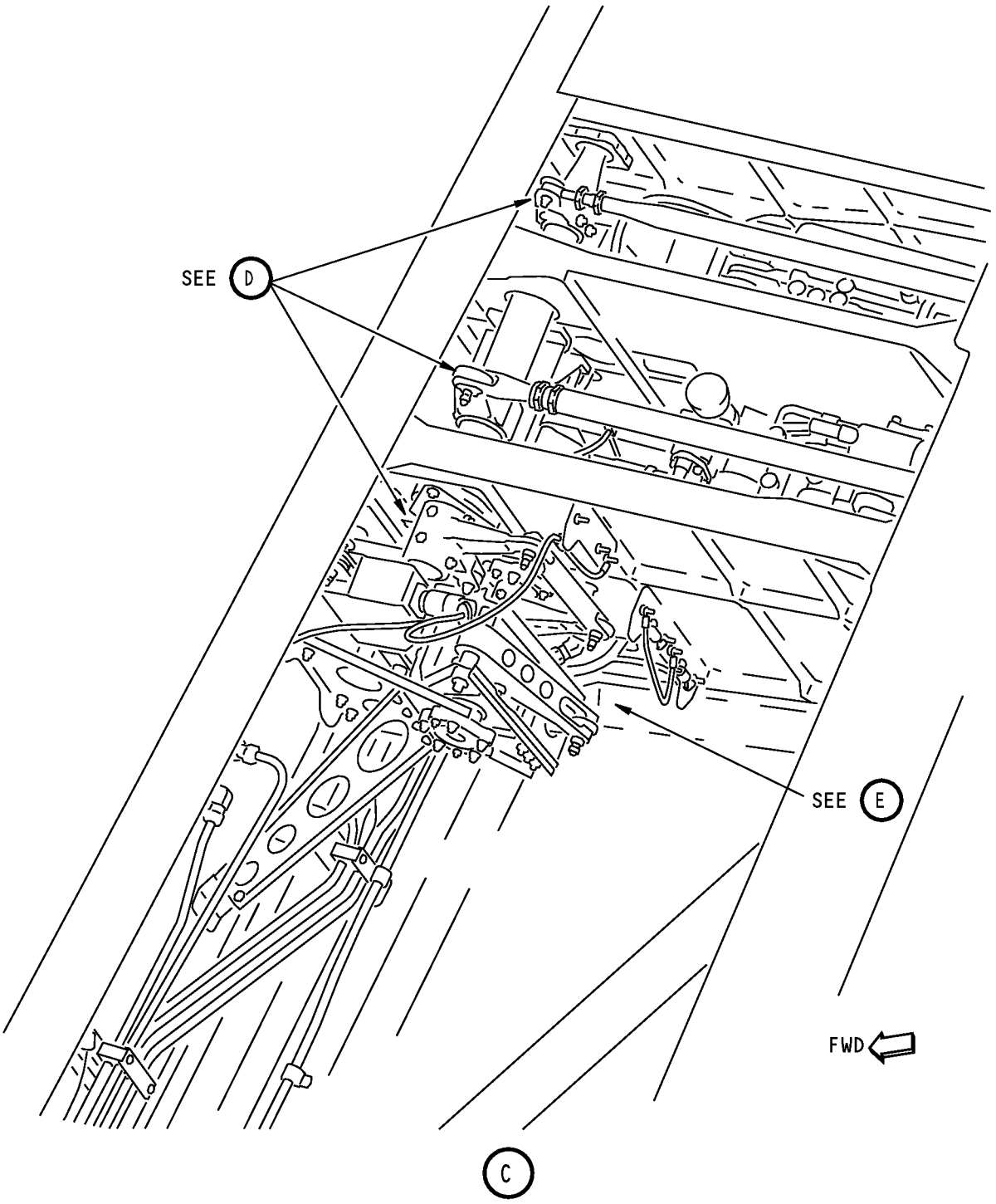

Rudder Control System Aft Components
Figure 502 (Sheet 4 of 7)/27-21-00-990-811-001

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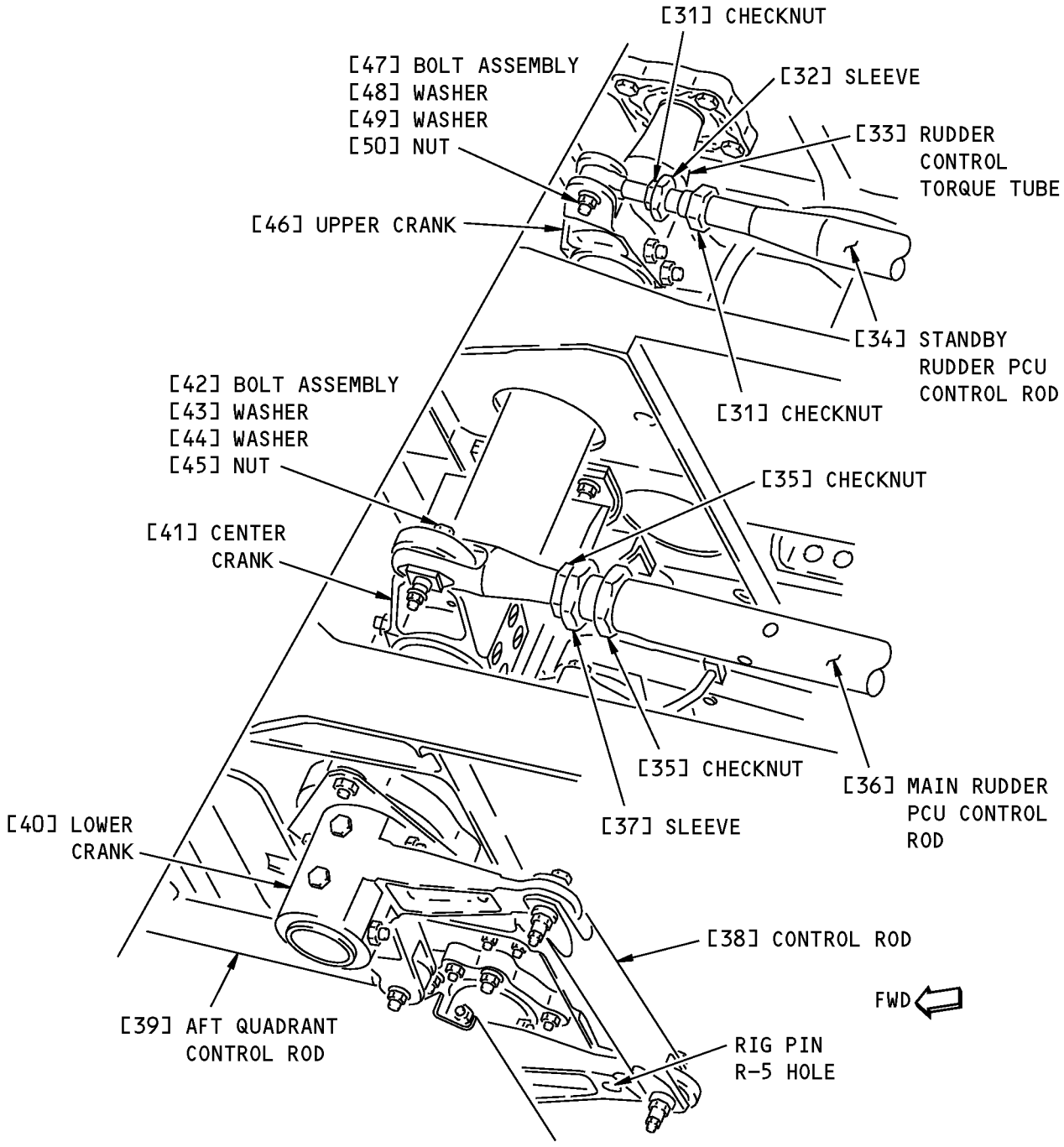

Rudder Control System Aft Components
Figure 502 (Sheet 5 of 7)/27-21-00-990-811-001

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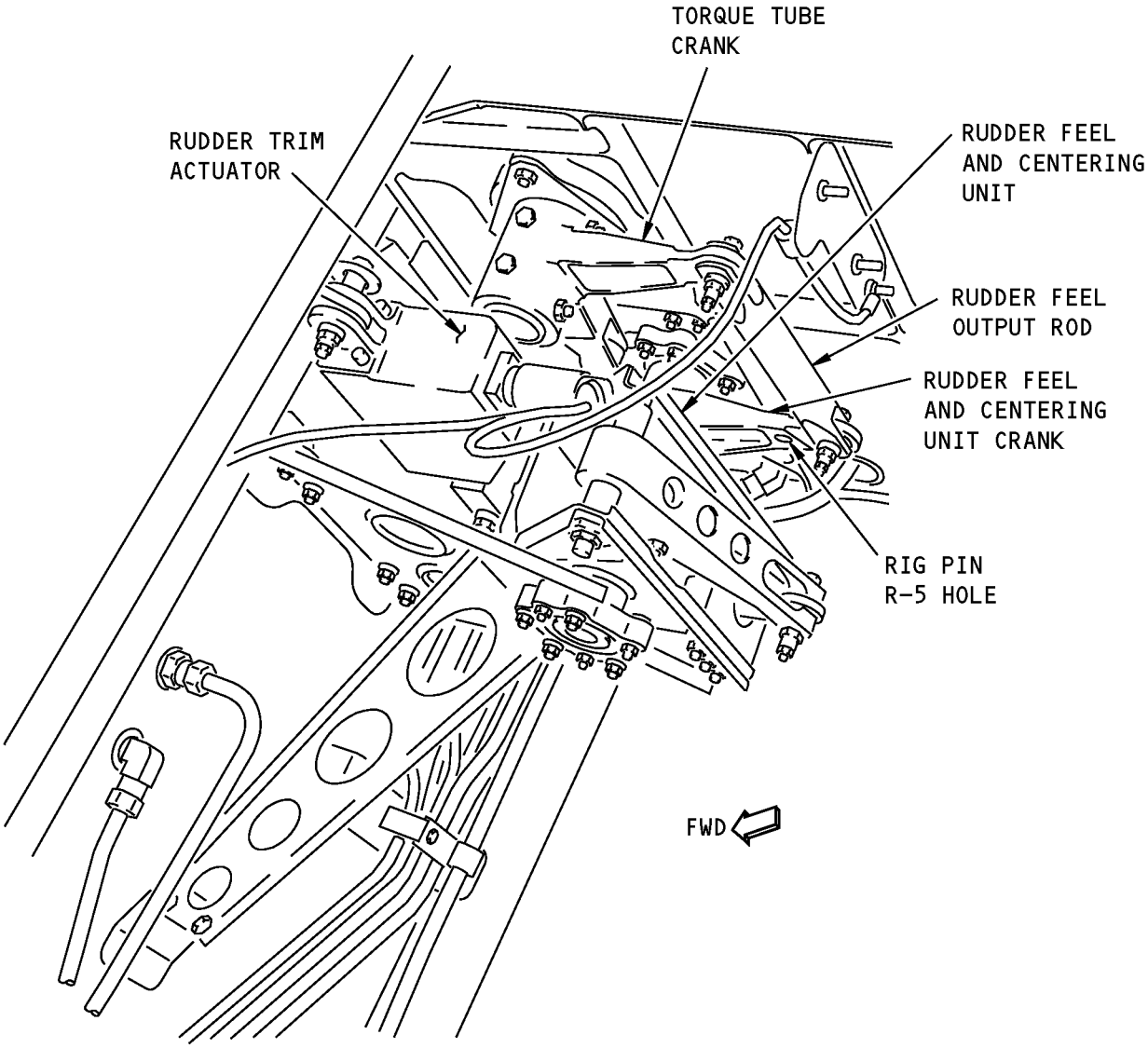

Rudder Control System Aft Components
Figure 502 (Sheet 6 of 7)/27-21-00-990-811-001

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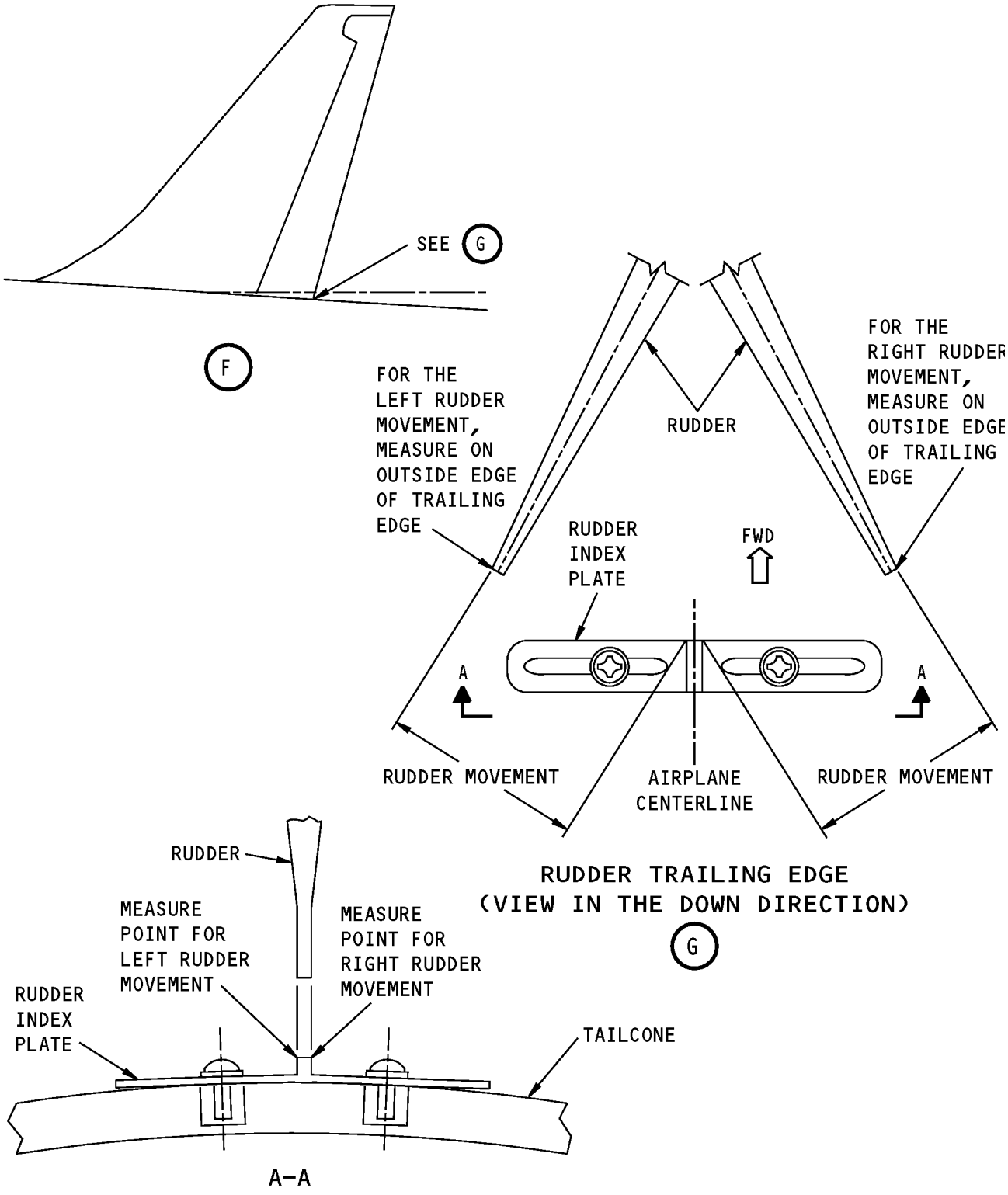

Rudder Control System Aft Components
Figure 502 (Sheet 7 of 7)/27-21-00-990-811-001

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TASK 27-21-00-820-810-001

6. Control Rod for Standby Rudder Power Control Unit Adjustment

(Figure 502)

A. General

(1) Use this task to adjust the control rod for the standby rudder power control unit (PCU). The rudder main PCU must be adjusted before you adjust the standby rudder PCU.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

E. Prepare for the Adjustment

SUBTASK 27-21-00-860-084-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-21-00-010-028-001

(2) To get access to the standby rudder PCU, do this step:

Open this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-00-010-029-001

(3) To get access to the rudder feel and centering unit, do this step:

Open this access panel:

Number	Name/Location
324CL	Vertical Fin, Access

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SUBTASK 27-21-00-860-085-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Pressurize the standby rudder hydraulic system. To pressurize it, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-086-001

(5) Move the rudder pedals through ten cycles to flush and bleed the standby rudder PCU.

SUBTASK 27-21-00-860-087-001

(6) Set the FLT CONTROL A and B switches to the ON position.

SUBTASK 27-21-00-860-088-001

(7) Make sure the rudder trim indicator is in the neutral position. (Figure 501)

SUBTASK 27-21-00-480-021-001

(8) Make sure you can install and remove the rig pin R-5 freely with no movement of the rudder feel and centering unit output crank.(Figure 502)

SUBTASK 27-21-00-860-168-001

(9) Align the ADIRS. To align the ADIRS, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801

F. Control Rod of the Standby Rudder PCU Adjustment

SUBTASK 27-21-00-710-073-001

(1) Adjust the control rod [34] of the standby rudder PCU:

(a) Set FLT CONTROL A and B switches to the STBY RUD position.

(b) Set the YAW DAMPER switch on the P5-3 overhead panel to the ON position.

1) Make sure the YAW DAMPER light goes out after approximately 2 seconds.

(c) Move the control wheel approximately 30 degrees clockwise.

1) Make sure the rudder moves to the right.

(d) Release the control wheel.

(e) Do these steps to initiate a zero yaw damper command output from the stall Management Yaw Damper No. 2 (SMYD No. 2), M1748:

NOTE: The SMYD No. 2 is installed on the E3-2 electrical equipment rack.

1) Push and release the ON/OFF button on the front BITE display of the SMYD No. 2.

2) Push and release the up arrow or down arrow button until the GROUND TEST shows on the display.

3) Push the YES button to get access to the ground test option.

4) Push and release the up arrow or down arrow button until the SERVO TEST? shows on the display.

5) Push the YES button to start the servo test.

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WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER. THE RUDDER CAN MOVE QUICKLY WHEN YOU PUSH THE "YES" BUTTON ON THE SMYD NO. 2. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

6) Push the YES button when the RUDDER CLEARED? shows on the display.

7) Push the YES button when the FLT CTRL A STBY? shows on the display.

8) Push the YES button when the FLT CTRL B STBY? shows on the display.

9) Push the YES button when YAW DMPR ENGAGED? shows on the display.

10) Push the YES button when the ZERO COMMAND? shows on the display.

NOTE: A yaw damper command value and LVDT position will show for 10 seconds each, then the END ZERO COMMAND? will show on the display. You can push the NO button to show these values again.

SUBTASK 27-21-00-820-031

(2) Do this adjustment to the standby rudder PCU control rod [34]:

(a) If the rudder trailing edge is greater than 0.50 in. (12.7 mm) from the neutral position, then do this coarse adjustment to the control rod [34]:

WARNING: MAKE SURE THAT YOU SET THESE SWITCHES TO THE OFF POSITION BEFORE YOU DISCONNECT THE CONTROL ROD FROM THE STANDBY RUDDER PCU. THE CONTROL ROD CAN MOVE QUICKLY AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

1) Set the FLT CONTROL A and B switches to OFF.

2) Loosen the two checknuts [31] on the control rod [34].

3) Remove the nut [50], washer [49], washer [48], and bolt [47] to disconnect the control rod [34] from the upper crank [46] of the torque tube [33].

4) Turn the control rod end for half a turn relative to the sleeve [32]; and turn the sleeve [32] and the control rod end together for half a turn.

NOTE: The sum of half turn of each is equal to 0.67 in. (17.0 mm) at the rudder trailing edge.

5) Keep number of threads that you can see in the two parts are approximately same.

6) Install the bolt assembly [47] with the bolt head end up, washer [48] (under bolt), washer [49] (under nut), and nut [50] to connect the control rod [34] to the upper crank [46].

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER. THE RUDDER CAN MOVE QUICKLY WHEN YOU PUSH THE 'YES' BUTTON ON THE SMYD NO. 2. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

7) Set the FLT CONTROL A and B switches to the STANDBY RUD position.

(b) If the rudder trailing edge is less than 0.50 in. (12.7 mm) from the neutral position, then do this fine adjustment to the control rod [34]:

1) Loosen the checknuts [31] on the control rod [34].

2) Turn the adjustable sleeve [32] until the two sides of the rudder trailing edge are in the width of the rudder index tab.

3) Tighten the two checknuts [31].

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(c) Do a check for minimum thread engagement of the rod. Make sure that you can see the rod from the inspection hole in the tube.

(d) Set the YAW DAMPER switch to the OFF position.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-480-022-001

(1) Remove the rig pin R-5.

SUBTASK 27-21-00-860-089-001

(2) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

SUBTASK 27-21-00-410-014-001

(3) Close these access panels:

Number	Name/Location
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

——————— END OF TASK ———————

TASK 27-21-00-700-813-001

7. Rudder Pedal Adjustment and Limit Travel Test

A. General

(1) Use this test to make sure the rudder pedals can move through their full travel and the pedal adjustment crank operates correctly.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-21-00-860-090-001

(1) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-730-027-001

(2) Do these steps to set the jackshaft yokes to the middle positions:

NOTE: The middle positions of the jackshaft yokes is where the number of turns of the shaft from the full forward and full aft adjustment are the same.

(a) Turn the rudder pedal adjustment cranks for both the captain and first officer to move the rudder pedals full forward.

(b) Turn the rudder pedal adjustment cranks to move the rudder pedals full aft.

1) Keep a record of number of turns.

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(c) Turn the rudder pedal adjustment cranks back half of the number of recorded turns to set the jackshaft yoke to the middle position.

(d) Make sure that you can install rig pins R-1 and R-2 easily.

(e) Remove the rig pins R-1 and R-2.

SUBTASK 27-21-00-730-015-001

(3) Do the captain's rudder pedal adjustment and the limit travel:

(a) Make sure the rudder trim indicator is at the zero unit of trim.

(b) Turn the rudder pedal adjustment crank to move the captain's pedals full forward.

(c) Push the captain's left pedal forward until it touches the stop and hold.

1) Measure the forward travel of the captain's left pedal from the middle position of the pedal adjustment.

2) Make sure the forward travel, which measured at the pedal pivot point is at a minimum of 6.58 in. (167.1 mm).

3) Release the captain's left pedal.

(d) Push the captain's right pedal forward until it touches the stop and hold.

1) Measure the forward travel of the captain's right pedal from the middle position of the pedal adjustment.

2) Make sure the forward travel, which measured at the pedal pivot point is at a minimum of 6.58 in. (167.1 mm).

3) Release the captain's right pedal.

(e) Push forward on both the captain's left and right pedals at the same time:

1) Apply approximately 2.5 pounds on each pedal simultaneously.

(f) Release both pedals.

(g) Turn the rudder pedal adjustment crank to move the captain's pedals to full aft position.

1) Turn the crank at a rate of one revolution (turn) per second.

(h) Make sure that the adjustment crank moves smooth and without any chatter.

(i) Push the captain's left pedal forward until it touches the stop and hold.

1) Measure the aft travel of the captain's right pedal from the middle position of the pedal adjustment.

2) Make sure the aft travel, which measured at the pedal pivot point is at a minimum of 6.61 in. (167.9 mm).

3) Release the captain's left pedal.

(j) Push the captain's right pedal forward until it touches the stop and hold.

1) Measure the aft travel of the captain's left pedal from the middle position of the pedal adjustment.

2) Make sure the aft travel, which measured at the pedal pivot point is at a minimum of 6.61 in. (167.9 mm).

3) Release the captain's right pedal.

(k) Turn the rudder pedal adjustment crank to move the captain's pedals to full forward position.

1) Turn the crank at a rate of one revolution (turn) per second.

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(l) Make sure that the adjustment crank only chattered slightly and there is no binding when the crank is turned.

NOTE: The tendency to chatter will increase as the rate of adjustment increases.

SUBTASK 27-21-00-730-016-001

(4) Do the first officer's rudder pedal adjustment and the limit travel:

(a) Make sure the rudder trim indicator is at the zero unit of trim.

(b) Turn the rudder pedal adjustment crank to move the first officer's pedals full forward.

(c) Push the first officer's left pedal forward until it touches the stop and hold.

1) Measure the forward travel of the first officer's left pedal from the middle position of the pedal adjustment.

2) Make sure the forward travel, which measured at the pedal pivot point is at a minimum of 6.58 in. (167.1 mm).

3) Release the first officer's left pedal.

(d) Push the first officer's right pedal forward until it touches the stop and hold.

1) Measure the forward travel of the first officer's right pedal from the middle position of the pedal adjustment.

2) Make sure the forward travel, which measured at the pedal pivot point is at a minimum of 6.58 in. (167.1 mm).

3) Release the first officer's right pedal.

(e) Push on both the first officer's left and right pedals at the same time:

1) Apply approximately 2.5 pounds on each pedal simultaneously.

(f) Release both pedals.

(g) Turn the rudder pedal adjustment crank to move the first officer's pedals to full aft position.

1) Turn the crank at a rate of one revolution (turn) per second.

(h) Make sure that the adjustment crank moves smooth and without any chatter.

(i) Turn the rudder pedal adjustment crank to move the first officer's pedals to full aft position.

(j) Push the first officer's left pedal forward until it touches the stop and hold.

1) Measure the aft travel of the first officer's right pedal from the middle position of the pedal adjustment.

2) Make sure the aft travel, which measured at the pedal pivot point is at a minimum of 6.61 in. (167.9 mm).

3) Release the first officer's left pedal.

(k) Push the first officer's right pedal forward until it touches the stop and hold.

1) Measure the aft travel of the first officer's left pedal from the middle position of the pedal adjustment.

2) Make sure the aft travel, which measured at the pedal pivot point is at a minimum of 6.61 in. (167.9 mm).

3) Release the first officer's right pedal.

(l) Turn the rudder pedal adjustment crank to move the first officer's pedals to full forward position.

1) Turn the crank at a rate of one revolution (turn) per second.

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(m) Make sure that the adjustment crank only chatters slightly and there is no binding when the crank is turned.

NOTE: The tendency to chatter will increase as the rate of adjustment increases.

SUBTASK 27-21-00-860-091-001

(5) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

TASK 27-21-00-700-814-001

8. Rudder Hinge Bearing and PCU Bearing Freeplay

(Figure 503)

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this task to check the freeplay of the rudder control system.

(3) This test will have two rudder left position readings. This will verify that the indicator does not move during the test.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

Reference	Description
STD-753	Scale - Push/Pull, 0-25 pound (0-11 kilogram) Capacity, 1/4 pound (113 gram) Accuracy
STD-1238	Indicator - Dial
STD-1278	Block - Loading, 1/8 Inch Thick, 3 Inch by 3 Inch Wood or Fiberglass Block with Pad to Prevent Damage to the Skin.
STD-1279	Mount - Device, Mounting, Holds the Dial Indicator

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

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E. Procedure

SUBTASK 27-21-00-860-092-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-730-017-001

(2) Do the rudder hinge bearing and PCU bearing freeplay:

(a) Make sure the rudder and rudder pedals are in the neutral position.

(b) Make sure the rudder trim indicator is at zero units of trim.

(c) Attach the dial dial indicator, STD-1238 with the mount, STD-1279 at the lower end of the rudder trailing edge.

CAUTION: USE A LOADING BLOCK AND DO NOT PUT MORE THAN 50 LBF (222 N) ON THE RUDDER WHEN YOU MOVE THE RUDDER SURFACE BY AN EXTERNAL FORCE. APPLY THE EXTERNAL FORCE APPROXIMATELY BETWEEN 6 TO 8 INCHES (150 TO 200 MILLIMETERS) FROM THE BOTTOM OF THE TRAILING EDGE AND APPROXIMATELY 3 INCHES (80 MILLIMETERS) FORWARD OF THE TRAILING EDGE. IF YOU DO NOT APPLY FORCE AT THIS LOCATION, YOU CAN CAUSE DAMAGE TO THE RUDDER.

(d) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder to the left side with a force of 12.0 ±4.0 lbf (53.4 ±17.8 N) and release slowly.

1) Measure the rudder position on the dial indicator.

a) Record this measurement as ''A''.

(e) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder to the right side with a force of 12.0 ±4.0 lbf (53.4 ±17.8 N) and release slowly.

1) Measure the rudder position on the dial indicator.

a) Record this measurement as ''B''.

(f) Make sure the difference between ''A'' and ''B'' is not more than 0.05 in. (1.3 mm).

1) If the difference is less than or equal to 0.05 in. (1.3 mm), then skip to the next step.

2) If the difference is more than 0.05 in. (1.3 mm), then do the following steps:

a) Remove the rudder hydraulic systems A and B. Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802

b) Remove and replace the worn parts of the rudder hinge or power control units

c) Repeat this test: Rudder Hinge Bearing and PCU Bearing Freeplay, TASK 27-21-00-700-814-001..

(g) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder to the left side with a force of 12.0 ±4.0 lbf (53.4 ±17.8 N) and release slowly.

NOTE: This check compares the two left positions to verify that the dial indicator did not move during the test. If the check shows that the dial indicator had moved, the test has to be repeated.

1) Measure the rudder position on the dial indicator.

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a) Record this measurement as ''C''.

(h) Make sure the difference between ''A'' and ''C'' is not more than 0.03 inch (0.7 millimeter).

1) If the difference is more than 0.03 in. (0.8 mm), repeat the freeplay check.

(i) Remove the dial indicator, STD-1238 from the rudder.

SUBTASK 27-21-00-860-093-001

(3) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

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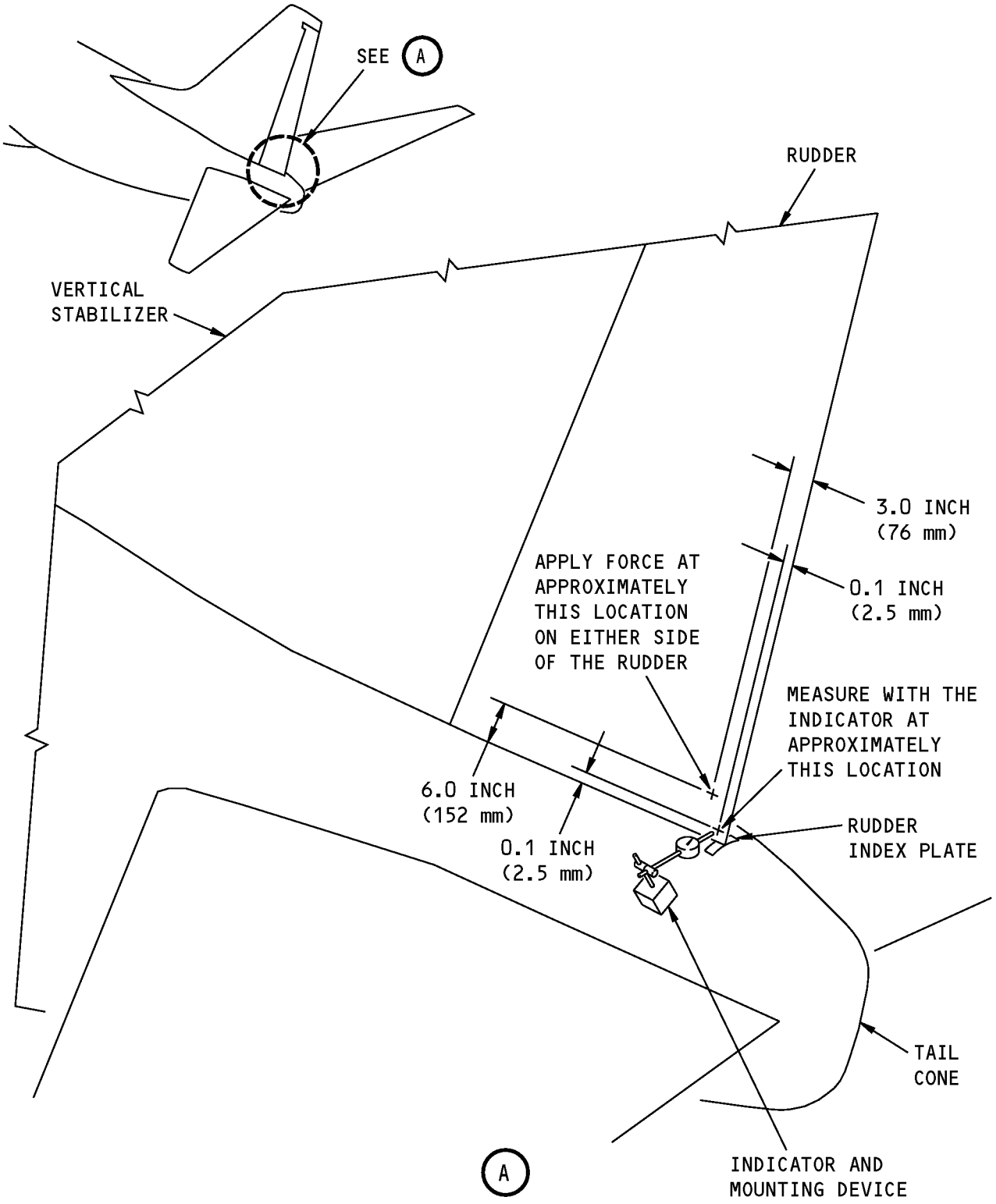

Rudder Hinge and PCU Bearing Freeplay Check
Figure 503/27-21-00-990-819-001

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TASK 27-21-00-700-815-001

9. Rudder Centering Test

A. General

(1) Use this test to make sure the rudder is in its center position.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-21-00-860-094-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-095-001

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-21-00-860-096-001

(3) Align the ADIRS. To align the ADIRS, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 27-21-00-730-018-001

(4) Do the test of the rudder centering test:

(a) Make sure the rudder is in the neutral position.

1) If it is necessary, move the rudder pedals lightly to set the rudder to the neutral position.

(b) Make sure that the rudder trim indicator is at 0.0 +/- 0.25 units of trim.

(c) Move the captain's left rudder pedal approximately 0.5 in. (12.7 mm) forward and release.

1) Make sure the rudder goes back to the neutral position.

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(d) Move the captain's right rudder pedal approximately 0.5 in. (12.7 mm) forward and release.

1) Make sure the rudder goes back to the neutral position.

(e) Set FLT CONTROL A and B switches to the STBY RUD position.

1) Make sure that the STANDBY HYD LOW PRESSURE light on the P5-3 panel extinguishes.

(f) Set the YAW DAMPER switch on the P5-3 overhead panel to the ON position.

(g) Do these steps to initiate a zero yaw damper command output from the stall Management Yaw Damper No. 2 (SMYD No. 2), M1748:

NOTE: The SMYD No. 2 is installed on the E3-2 electrical equipment rack.

1) Push and release the ON/OFF button on the front BITE display of the SMYD No. 2.
2) Push and release the up arrow or down arrow button until the GROUND TEST shows on the display.
3) Push the YES button to get access to the ground test option.
4) Push and release the up arrow or down arrow button until the SERVO TEST? shows on the display.
5) Push the YES button to start the servo test.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER. THE RUDDER CAN MOVE QUICKLY WHEN YOU PUSH THE "YES" BUTTON ON THE SMYD NO. 2. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

6) Push the YES button when the RUDDER CLEARED? shows on the display.
7) Push the YES button when the FLT CTRL A STBY? shows on the display.
8) Push the YES button when the FLT CTRL B STBY? shows on the display.
9) Push the YES button when YAW DMPR ENGAGED? shows on the display.
10) Push the YES button when the ZERO COMMAND? shows on the display.

NOTE: A yaw damper command value and LVDT position will show for 10 seconds each, then the END ZERO COMMAND? will show on the display. You can push the NO button to show these values again.

(h) Move the captain's left rudder pedal approximately 0.5 in. (12.7 mm) forward and release.

1) Make sure the rudder goes back to the neutral position.

(i) Move the captain's right rudder pedal approximately 0.5 in. (12.7 mm) forward and release.

1) Make sure the rudder goes back to the neutral position.

(j) Push and release the ON/OFF button on the SMYD No. 2.

SUBTASK 27-21-00-860-098-001

(5) Set the YAW DAMPER switch on the P5-3 overhead panel to the OFF position.

SUBTASK 27-21-00-860-099-001

(6) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 27-21-00-860-100-001

(7) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

END OF TASK

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TASK 27-21-00-700-816-001

10. Rudder Pedal Forces Test

(Figure 504)

A. General

(1) Use this test to make sure the rudder pedals operate with the correct forces.

NOTE: You must measure the forces with the pedal moving away from the neutral position. If the pedal moves more than the specified distances, you must repeat the test and start with the pedal at neutral position.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1681	Adapter - Force Check Tool, Rudder Pedal (Part #: F80212-30, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

E. Procedure

SUBTASK 27-21-00-860-101-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-730-019-001

(2) Do the test of the rudder pedal forces test:

(a) Set the captain's and first officer's rudder pedal adjustment cranks to the middle position. (Figure 501)

(b) Make sure the rudder pedals are in the neutral position.

(c) Install adapter, SPL-1681 on the captain's left rudder pedal.

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1) Push on the adapter, SPL-1681 until the rudder starts to move.
2) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 502):

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

Table 502/27-21-00-993-815-001

Angle from Horizontal	Multiplication Factor
0°	1.0
5°	1.0
10°	0.98
15°	0.97
20°	0.94
25°	0.91
30°	0.87
35°	0.82
40°	0.77
45°	0.71

3) Make sure the pedal force is no more than 18.0 lbf (80.1 N).
4) Push again on the adapter, SPL-1681 until the captain's left rudder pedal is 3.60 ±0.10 in. (91.4 ±2.6 mm) forward from the neutral position.
5) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 502).

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

6) Make sure the pedal force is between 60.0 lbf (266.9 N) to 82.0 lbf (364.8 N).
7) Remove the adapter, SPL-1681 from the captain's left pedal.

(d) Install adapter, SPL-1681 on the captain's right rudder pedal.

1) Push on the adapter, SPL-1681 until the rudder starts to move.
2) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 502).

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

3) Make sure the pedal force is no more than 18.0 lbf (80.1 N).
4) Push again on the adapter, SPL-1681 until the captain's right rudder pedal is 3.60 ±0.10 in. (91.4 ±2.6 mm) forward from the neutral position.
5) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 502).

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

6) Make sure the pedal force is between 60.0 lbf (266.9 N) to 82.0 lbf (364.8 N).
7) Remove the adapter, SPL-1681 from the captain's right pedal.

(e) Install adapter, SPL-1681 on the first officer's left rudder pedal.

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1) Push on the adapter, SPL-1681 until the rudder starts to move.
2) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 502).

   NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.
3) Make sure the pedal force is no more than 18.0 lbf (80.1 N).
4) Push again on the adapter, SPL-1681 until the first officer's left rudder pedal is 3.60 ±0.10 in. (91.4 ±2.6 mm) forward from the neutral position.
5) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 502).

   NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.
6) Make sure the pedal force is between 60.0 lbf (266.9 N) to 82.0 lbf (364.8 N).
7) Remove the adapter, SPL-1681 from the first officer's left pedal.

(f) Install adapter, SPL-1681 on the first officer's right rudder pedal.

1) Push on the adapter, SPL-1681 until the rudder starts to move.
2) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 502).

   NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.
3) Make sure the pedal force is no more than 18.0 lbf (80.1 N).
4) Push again on the adapter, SPL-1681 until the first officer's right rudder pedal is 3.60 ±0.10 in. (91.4 ±2.6 mm) forward from the neutral position.
5) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 502).

   NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.
6) Make sure the pedal force is between 60.0 lbf (266.9 N) to 82.0 lbf (364.8 N).
7) Remove the adapter, SPL-1681 from the first officer's right pedal.

SUBTASK 27-21-00-860-102-001

(3) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

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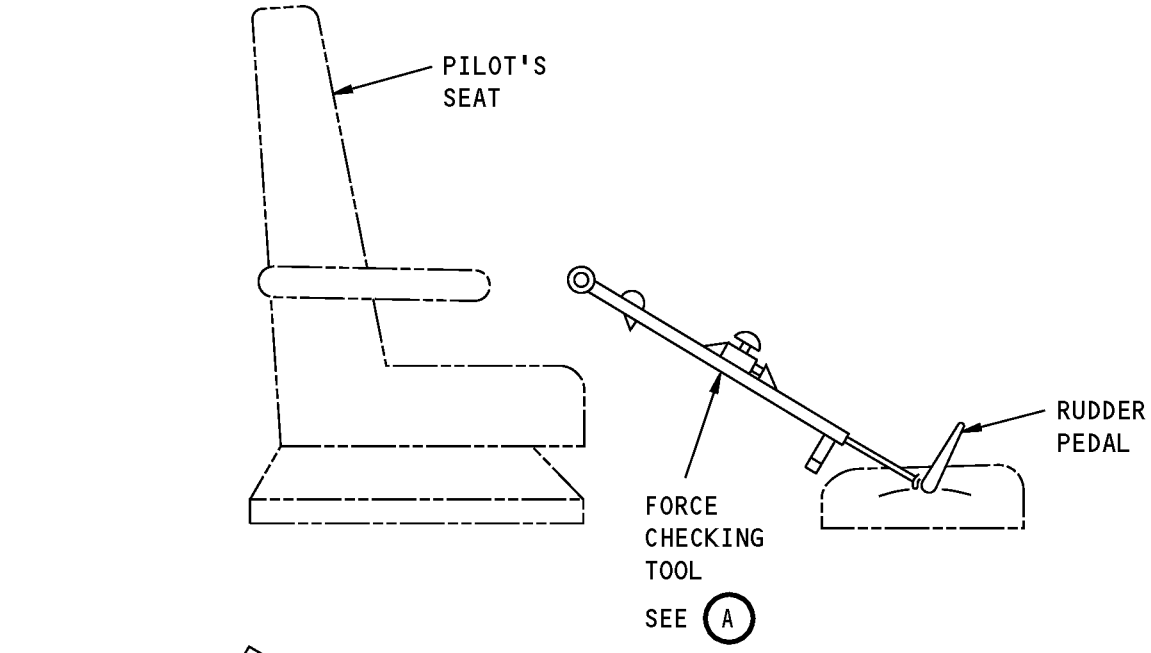

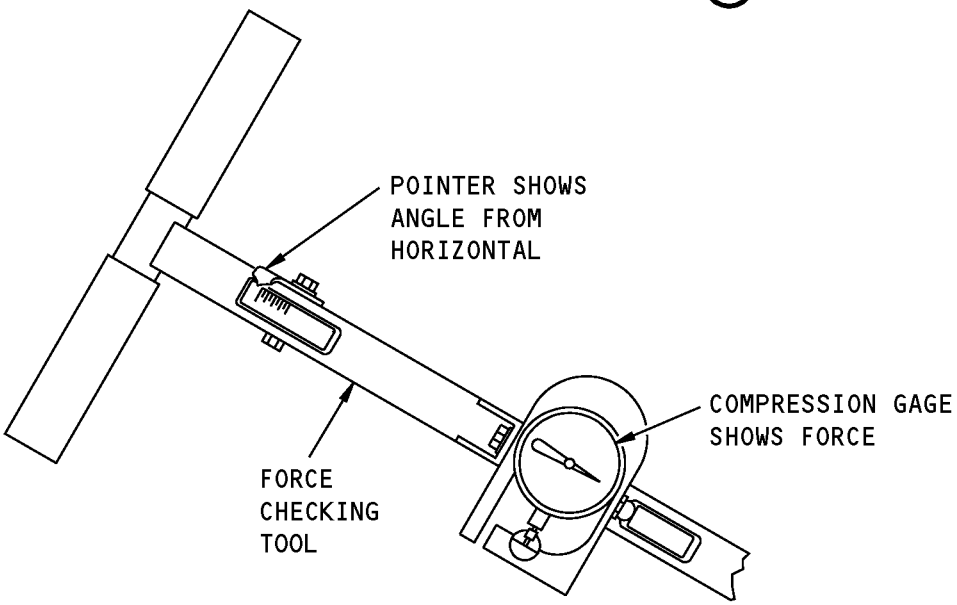

FORCE CHECKING TOOL
A

Rudder Pedal Force Checking Tool
Figure 504/27-21-00-990-812-001

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TASK 27-21-00-700-817-001

11. Rudder Travel Test

A. General

(1) Use this test to make sure the rudder operates correctly.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-21-00-860-103-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the rudder hydraulic systems A and B, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-730-020-001

(2) Do the test of the rudder travel test:

(a) Set the FLT CONTROL A switch to the ON position and FLT CONTROL B switch to the OFF position.

(b) Set the captain's and first officer's rudder pedal adjustment cranks to the middle position. (Figure 501)

(c) Make sure the rudder pedals are in the neutral position.

(d) Push and hold captain's left pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 ±0.91 in. (685.0 ±23.2 mm) (29.00 +/- 1.00 degrees) rudder trailing edge left.

3) Release the captain's left pedal.

(e) Push and hold the captain's right pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 ±0.91 in. (685.0 ±23.2 mm) (29.00 +/- 1.00 degrees) rudder trailing edge right.

3) Release the captain's right pedal.

(f) Set the FLT CONTROL B switch to the ON position and FLT CONTROL A switch to the OFF position.

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(g) Push and hold captain's left pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 ±0.91 in. (685.0 ±23.2 mm) (29.00 +/- 1.00 degrees) rudder trailing edge left.

3) Release the captain's left pedal.

(h) Push and hold the captain's right pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 ±0.91 in. (685.0 ±23.2 mm) (29.00 +/- 1.00 degrees) rudder trailing edge right.

3) Release the captain's right pedal.

(i) Set the FLT CONTROL B switch to the STBY position.

(j) Push and hold captain's left pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 ±0.91 in. (685.0 ±23.2 mm) (29.00 +/- 1.00 degrees) rudder trailing edge left.

3) Release the captain's left pedal.

(k) Push and hold the captain's right pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 ±0.91 in. (685.0 ±23.2 mm) (29.00 +/- 1.00 degrees) rudder trailing edge right.

3) Release the captain's right pedal.

SUBTASK 27-21-00-860-104-001

(3) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

TASK 27-21-00-700-818-001

12. Standby Rudder Power Control Unit Deadband Test

A. General

(1) Use this test to make sure the standby rudder power control unit (PCU) is in the correct rigged position.

NOTE: Make sure that the YAW DAMPER switch on the P5-3 overhead panel is in the OFF position.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

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(Continued)

Zone	Area
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-21-00-860-105-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the standby rudder hydraulic system. To pressurize it, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-106-001

(2) Move the rudder pedals through ten cycles to flush and bleed the standby rudder PCU.

SUBTASK 27-21-00-860-107-001

(3) Set the FLT CONTROL A and B switches to the ON position.

SUBTASK 27-21-00-730-021-001

(4) Do the test of the standby rudder PCU deadband test:

(a) Make sure the rudder is in the neutral position.

1) If it is necessary, move the rudder pedals lightly to put the rudder to the neutral position.

2) Make sure the rudder trim indicator is at 0.00 +/- 0.25 unit of trim.

(b) Set the FLT CONTROL A and B to the STANDBY RUD position.

(c) Use your hands to push the rudder to the right, then slowly remove the load.

1) Move your hands away from the rudder.

2) Measure the rudder right position from the center of the rudder trailing edge to the centerline of the index plate.

3) Record this measurement as A.

(d) Push the rudder by hands to the left, then slowly remove the load.

1) Move your hands away from the rudder.

2) Measure the rudder left position from the center of the rudder trailing edge to the centerline of the index plate.

3) Record this measurement as B.

(e) Make sure the difference between A and B is not greater than 0.2 in. (5 mm).

1) If the difference is greater than 0.2 in. (5 mm), do this task:Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-001.

SUBTASK 27-21-00-860-108-001

(5) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

END OF TASK

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TASK 27-21-00-700-819-001

13. Rudder Trim System Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to make sure the rudder trim system operates correctly.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-21-00-860-109-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize both rudder hydraulic systems A and B, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

NOTE: You need to pressurize both systems A and B for this task.

SUBTASK 27-21-00-730-022-001

(2) Do the test of the rudder trim system:

(a) Make sure the rudder is in the neutral position.

1) If it is necessary, move the rudder pedals lightly to put the rudder to the neutral position.

2) Make sure the rudder trim indicator is at 0.00 +/- 0.25 units of trim.

(b) Move the rudder trim knob to NOSE LEFT until the mark on the rudder trim knob is aligned with the indicator mark on the lightplate under the trim knob.

1) Make sure the rudder did not move.

(c) Move the rudder trim knob to NOSE RIGHT until the mark on the rudder trim knob is aligned with the indicator mark on the lightplate under the trim knob.

1) Make sure the rudder did not move.

(d) Move the rudder trim knob to NOSE RIGHT until the rudder trim indicator shows 10.0 +/- 0.25 units of trim.

1) Make sure the rudder moves 10.12 ±1.26 in. (257.0 ±32.1 mm) (10.74 +/- 1.35 degrees) to the right side.

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(e) Move the rudder trim knob to NOSE RIGHT until the rudder stops.

1) Make sure the rudder moves 16.89 ±0.93 in. (429.0 ±23.6 mm) (18.03 +/- 1.00 degrees) to the right side.

2) Make sure the rudder trim indicator is at least 15 units of trim.

(f) Move the rudder trim knob to NOSE LEFT until the rudder trim indicator shows 10.0 +/- 0.25 units of trim.

1) Make sure the rudder moves 10.12 ±1.26 in. (257.0 ±32.1 mm) (10.74 +/- 1.35 degrees) to the left side.

(g) Move the rudder trim knob to NOSE LEFT until the rudder stops.

1) Make sure the rudder moves 16.89 ±0.93 in. (429.0 ±23.6 mm) (18.03 +/- 1.00 degrees) to the left side.

2) Make sure the rudder trim indicator is at least 15 units of trim.

(h) Make sure the rudder trim knob operates smoothly and goes back to the center freely.

SUBTASK 27-21-00-860-110-001

(3) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

TASK 27-21-00-700-820-001

14. Wheel to Rudder Interconnect System Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to make sure the wheel to rudder function of the standby rudder power control unit (PCU) operates correctly.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

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D. Procedure

SUBTASK 27-21-00-860-162-001

(1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 27-21-00-860-111-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize the rudder hydraulic systems A and B, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-112-001

(3) Align the ADIRS. To align the ADIRS, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 27-21-00-860-113-001

(4) Make sure that the mode select switch on the inertial reference system (IRS) mode select unit (MSU) is set to the NAV position.

SUBTASK 27-21-00-860-114-001

(5) Move the flaps to a position other than up position. To move them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-21-00-730-023-001

(6) Do the test of the wheel to rudder interconnect system:

NOTE: The rudder will move pass the center position to the opposite direction when the control wheel returns to the neutral position. To return the rudder to the center position with the control wheel at neutral, you must set the YAW DAMPER switch on the overhead panel to the OFF position then back to the ON position.

(a) Make sure the rudder is in the neutral position.

1) Make sure the rudder trim indicator is at 0.0 +/- 0.25 unit of trim.

2) If it is necessary, move the rudder pedals lightly to put the rudder to the neutral position.

(b) Set the FLT CONTROL A and B switches, on the forward overhead panel, P5, to the STBY RUD position.

(c) Set the YAW DAMPER switch, on the forward overhead panel, P5, to the ON position.

(d) Rotate the captain's control wheel to the full left and hold.

1) Make sure the rudder moves 2.47 ±0.25 in. (62.74 ±6.35 mm) (2.4 +/- 0.3 degrees) to the left side.

(e) Put the captain's control wheel back to the neutral position.

(f) Rotate the captain's control wheel to the full right and hold.

1) Make sure the rudder moves from left to right.

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2) Make sure the rudder moves 2.47 ±0.25 in. (62.74 ±6.35 mm) (2.4 +/- 0.3 degrees) to the right side.

(g) Put the captain's control wheel back to the neutral position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-860-170-001

(1) Put the YAW DAMPER switch, on the P5 panel, in the OFF position.

SUBTASK 27-21-00-860-171-001

(2) Set the mode select IRS switches to the OFF position.

SUBTASK 27-21-00-860-172-001

(3) Return the flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804

SUBTASK 27-21-00-860-173-001

(4) Set the FLT CONTROL A and B switches, on the forward overhead panel, P5, to the OFF position.

SUBTASK 27-21-00-860-174-001

(5) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801

——————— END OF TASK ———————

TASK 27-21-00-700-821-001

15. Authority Limiter Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this task to do a check of the rudder authority device which reduces the authority at the airspeeds where full authority is not required.

B. References

Reference	Title
29-11-00-860-803	Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2531	Meter - Current, RMS (Part #: 321, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: 322, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: LH41A, Supplier: 15566, A/P Effectivity: 737-ALL) (Part #: MODEL 33, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: MODEL 36, Supplier: 89536, A/P Effectivity: 737-ALL)
COM-3837	Meter - Clamp (Part #: 321, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: 322, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: 80I-600A, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: LH41A, Supplier: 15566, A/P Effectivity: 737-ALL) (Part #: MODEL 33, Supplier: 89536, A/P Effectivity: 737-ALL)

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D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Procedure

SUBTASK 27-21-00-010-030-001

(1) To get access to the main equipment center, do this step:

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-21-00-800-004-001

WARNING: BE CAREFUL WHEN YOU ACCESS THE P91 AND P92 PANELS AND POWER IS SUPPLIED TO THE PANELS. THERE IS A POTENTIAL FOR ELECTRIC SHOCK HAZARD. POSSIBLE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Get access to the aft side of the power distribution panels P91 and P92.

NOTE: The power distribution panel P91 (or P92) is in the main equipment center.

SUBTASK 27-21-00-080-005-001

(3) For system A:

(a) Put one of the current meter, COM-2531 or clamp meter, COM-3837 around one of the three gray wires W6128-0504, -0505, or -0506 on connector D11456 (panel P92).

NOTE: You can also use the output of relay R317 (panel P92).

SUBTASK 27-21-00-080-006-001

(4) For system B:

(a) Put the other current meter, COM-2531 or clamp meter, COM-3837 around one of the three gray wires W5230-0504, -0505, or -0506 on connector D11428 (panel P91).

NOTE: You can also use the output of relay R318 (panel P91).

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SUBTASK 27-21-00-860-116-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Pressurize hydraulic systems A and B with an electric motor-driven pump (EMDP), do this task: Hydraulic System Pressurization with an Electric Motor-Driven Pump (EMDP), TASK 29-11-00-860-803.

SUBTASK 27-21-00-730-024-001

(6) Do the test of the authority limiter:

(a) Make sure the rudder pedal is in the neutral position.

(b) Keep a record of the amp values from both of the ammeters. These are referred to as Value 1.

(c) Push the captain's right rudder pedal until it touches the forward quadrant stop and hold.

(d) Keep a record of the amp values from both of the ammeters. These are referred to as Value 2.

(e) Calculate the difference between value 1 and value 2 of system A.

1) Make sure the absolute difference is less than 2.5 amps.

(f) Calculate the difference between value 1 and value 2 of system B.

1) Make sure the absolute difference is less than 2.5 amps.

(g) Engage the authority limiter.

NOTE: The command to engage the authority limiter remains active for only 75 seconds.

1) Push the ON/OFF button on the front panel of the flap/slat electronics unit (FSEU), on E shelf, to turn on the display.

NOTE: The display will show EXISTING FAULTS?

2) Select OTHER FUNCTNS? from the MAIN MENU on the FSEU. The display will show SET OUTPUTS?

3) Select SET OUTPUTS? from the OTHER FUNCTNS? menu. The display will show RUD PRES LIMIT?

4) Select RUD PRES LIMIT? from the SET OUTPUTS? menu. The display will show SET ON?

5) Select SET ON? from the RUD PRES LIMIT? menu. The display will show CMD ON, SET OFF?

(h) Keep a record of the amp value from the ammeter for system A only. This is referred to as Value 3.

(i) Calculate the difference between value 2 and value 3 of system A.

1) Make sure the absolute difference is greater than 0.5 amps.

(j) Release the captain's right rudder pedal.

(k) Repeat from step (a) using the captain's left rudder pedal.

SUBTASK 27-21-00-860-117-001

(7) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

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SUBTASK 27-21-00-480-023-001

(8) Remove the current meter, COM-2531 or clamp meter, COM-3837.

SUBTASK 27-21-00-410-016-001

(9) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

—————— END OF TASK ——————

TASK 27-21-00-700-822-001

16. Main Rudder PCU Internal Hydraulic Leakage Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this task to do a check for excessive internal hydraulic leakage for the main rudder PCU.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-32-00-740-803	Stall Management Yaw Damper (SMYD) BITE Test - Ground Test (P/B 501)
29-09-00-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-01-860-801	Hydraulic Reservoirs Pressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2531	Meter - Current, RMS (Part #: 321, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: 322, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: LH41A, Supplier: 15566, A/P Effectivity: 737-ALL) (Part #: MODEL 33, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: MODEL 36, Supplier: 89536, A/P Effectivity: 737-ALL)
COM-3837	Meter - Clamp (Part #: 321, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: 322, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: 80I-600A, Supplier: 89536, A/P Effectivity: 737-ALL) (Part #: LH41A, Supplier: 15566, A/P Effectivity: 737-ALL) (Part #: MODEL 33, Supplier: 89536, A/P Effectivity: 737-ALL)
SPL-1805	Test Box - Rudder Power Control Unit (Part #: C29002-17, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
324DR	Vertical Fin, Trailing Edge Access

F. Prepare for the Main Rudder PCU Check

SUBTASK 27-21-00-840-012-001

WARNING: MAKE SURE THE GROUND LOCKS ARE INSTALLED ON ALL OF THE LANDING GEAR. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Make sure the ground locks are installed at the nose and main landing gear. To install them, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-21-00-840-013-001

(2) Make sure that all cowls on the engine are closed.

SUBTASK 27-21-00-010-032-001

(3) To get access to the main electronics equipment compartment, do this step:

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-21-00-800-005-001

WARNING: BE CAREFUL WHEN YOU ACCESS THE P91 PANEL AND POWER IS SUPPLIED TO THE PANEL. THERE IS A POTENTIAL FOR ELECTRIC SHOCK HAZARD. POSSIBLE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Get access to the R318 relay for the system B EMDP on the aft side of the P91 power distribution panel.

NOTE: The P91 power distribution panel is in the main equipment center.

The pump 3-phase wire is also accessible in the wheel well area.

SUBTASK 27-21-00-480-024-001

(5) Put the current meter, COM-2531 or clamp meter, COM-3837 around one of the three wires from the R318 relay.

NOTE: Do not operate hand-held radio when you use the current meter.

The hand-held radio can cause inaccurate readings on the meter.

SUBTASK 27-21-00-480-025-001

(6) Install the test box, SPL-1805 on the rudder PCU.

(a) To gain access to the main rudder PCU, do this step:

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Open this access panel:

Number	Name/Location
324DR	Vertical Fin, Trailing Edge Access

(b) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

(c) Verify that all the toggle switches on the test box are in the OFF position.

(d) Disconnect the D291 connector from the rudder PCU.

(e) Connect the P1 connector of the test box to the rudder PCU.

(f) Connect the J1 connector of the test box to the D291 connector.

(g) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-00-860-161-001

(7) Make sure that both of the IRS switches on the P5 panel are in the NAV position.

(a) If you need to align the ADIRS, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801 or Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801

SUBTASK 27-21-00-860-118-001

(8) Cycle the flight contols to warm the hydraulic fluid.

(a) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

NOTE: If you use a ground cart for electrical power, it must supply a voltage of 114 to 116 volts ac at 400 +/- 5 Hz. Do not operate other electrical equipment during this test.

(b) Pressurize the system A and B hydraulic reservoirs. To pressurize it, do this task: Hydraulic Reservoirs Pressurization, TASK 29-11-01-860-801 or Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES. THE AILERONS, RUDDER, ELEVATOR, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(c) Pressurize the hydraulic systems A and B with the electric motor-driven pump. To pressurize them, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(d) Put the parking brakes on.

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(e) Put the FLT CONTROL A and B and SPOILER A and B switches, on the P5 panel, in the ON position.

(f) Cycle the flaps from up to 40 to up two times.

NOTE: The leading edge flaps and slats will also move.

(g) Cycle the rudder pedals ten times.

(h) Cycle the control wheel ten times.

(i) Cycle the control column ten times.

SUBTASK 27-21-00-860-119-001

(9) Do these steps to put the airplane in its initial condition:

(a) Put the reverse thrust levers in the STOWED position.

(b) Put the stabilizer trim in the green band.

NOTE: The stabilizer indicator is on the control stand.

(c) Set the aileron trim to zero.

NOTE: The aileron trim indicator is on the control wheel.

(d) Set the rudder trim to zero.

NOTE: The rudder trim indicator is on the P8 panel.

(e) Do these steps to turn off the antiskid system:

1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

(f) Put the YAW DAMPER switch, on the P5 panel, in the OFF position.

(g) Put the A/P ENGAGE switches, on the mode control panel (MCP), in the OFF position.

(h) Put the LANDING GEAR handle, on the P2 panel, in the OFF position.

(i) Put the SPEED BRAKE lever, on the control stand, in the DOWN position.

(j) Put the FLT CONTROL A and B and SPOILER A and B switches, on the P5 panel, in the OFF position.

(k) Set the flap control lever to 25 units and make sure that the flaps move.

(l) Open this circuit breaker and install safety tag:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
F	2	C01449	STANDBY HYDRAULIC PUMP

(m) Put the arm switch for the ALTERNATE FLAPS in the ARM position.

(n) Set the flap control lever to 40 units (the flaps will not move).

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G. Rudder PCU Internal Leakage Check (Hydraulic System B)

SUBTASK 27-21-00-710-074-001

(1) Put the FLT CONTROL B switch in the ON position.

NOTE: FLT CONTROL A must be in the OFF position.

SUBTASK 27-21-00-710-075-001

(2) Make sure the pressure in system B is a minimum of 2800 psi (19305 kPa).

SUBTASK 27-21-00-710-077-001

(3) Put the YAW Damper switch, on the P5 panel, in the ON position.

SUBTASK 27-21-00-710-078-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER AND THE PCU ACTUATORS. THE RUDDER AND PCU ACTUATORS MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Put the YAW DAMPER POWER switch, on the test box, SPL-1805, to the ON position.

NOTE: The red indicator light on the test box should come on.

The rudder might move slowly to the right or left as much as 3 degrees.

SUBTASK 27-21-00-710-079-001

(5) Put the RUDDER TRAVEL DIRECTION switch on the test box to the LEFT position.

NOTE: The green indicator light on the test box should come on and the rudder should move to the left unless it is already at the left position.

SUBTASK 27-21-00-710-080-001

(6) When the hydraulic flow becomes stable, record the amperage value from the ammeter as Value # 1: _____

SUBTASK 27-21-00-710-081-001

(7) Push the left rudder pedal until it touches the forward quadrant stop and hold.

SUBTASK 27-21-00-710-082-001

(8) When the hydraulic flow becomes stable, record the amperage value from the ammeter as Value # 2: _____

SUBTASK 27-21-00-710-083-001

(9) Put the left rudder pedal to the neutral position.

SUBTASK 27-21-00-710-084-001

(10) Calculate and record the difference in amperage values with this formula:

(a) Value # 2 minus Value # 1 : _____ (amps)

SUBTASK 27-21-00-710-085-001

(11) Make sure the difference in amperage values is between -0.7 amps and 1.5 amps.

SUBTASK 27-21-00-710-086-001

(12) If the difference in amperage values is not in the given range, replace the rudder PCU.

NOTE: After installation of the new PCU, continue the system B portion of this check.

SUBTASK 27-21-00-710-087-001

(13) Put the RUDDER TRAVEL DIRECTION switch on the test box to the RIGHT position.

NOTE: The green indicator light on the test box should come on and the rudder should move to the right.

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SUBTASK 27-21-00-710-088-001

(14) When the hydraulic flow becomes stable, record the amperage value from the ammeter as Value # 3: _____

SUBTASK 27-21-00-710-089-001

(15) Push the right rudder pedal until it touches the forward quadrant stop and hold.

SUBTASK 27-21-00-710-090-001

(16) When the hydraulic flow becomes stable, record the amperage value from the ammeter as Value # 4: _____

SUBTASK 27-21-00-710-091-001

(17) Put the right rudder pedal in the neutral position.

SUBTASK 27-21-00-710-092-001

(18) Calculate and record the difference in amperage values with this formula:

(a) Value # 4 minus Value # 3 : _____ (amps)

SUBTASK 27-21-00-710-093-001

(19) Make sure the difference in amperage values is between -0.7 amps and 1.5 amps.

SUBTASK 27-21-00-710-094-001

(20) If the difference in amperage values is not in the given range, replace the rudder PCU.

NOTE: After installation of the new PCU, continue the system B portion of this check.

SUBTASK 27-21-00-710-095-001

(21) Put the RUDDER TRAVEL DIRECTION switch, on the test box, SPL-1805, in the OFF position.

NOTE: The green indicator light on the test box should go off. The rudder might move slowly to the right or left as much as 3 degrees.

SUBTASK 27-21-00-710-096-001

(22) Put the YAW DAMPER POWER switch, on the test box, SPL-1805, to the OFF position.

NOTE: The red indicator light should go off.

H. Rudder PCU Internal Leakage Check (Hydraulic System A)

SUBTASK 27-21-00-800-006-001

WARNING: BE CAREFUL WHEN YOU ACCESS THE P92 PANEL AND POWER IS SUPPLIED TO THE PANEL. THERE IS A POTENTIAL FOR ELECTRIC SHOCK HAZARD. POSSIBLE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Get access to the R317 relay for the system A EMDP on the aft side of the P92 power distribution panel.

NOTE: The P92 power distribution panel is in the main electronics equipment compartment.

SUBTASK 27-21-00-480-026-001

(2) Put the current meter, COM-2531 or clamp meter, COM-3837 around one of the three wires that go forward from the R317 relay.

NOTE: Do not operate hand-held radio when you use the current meter.

The hand-held radio can cause inaccurate readings on the meter.

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SUBTASK 27-21-00-710-097-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER AND THE PCU ACTUATORS. THE RUDDER AND PCU ACTUATORS MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Put the FLT CONTROL A switch in the ON position.

NOTE: Make sure FLT CONTROL B switch is in the ON position.

SUBTASK 27-21-00-710-098-001

(4) Put the YAW DAMPER POWER switch, on the test box, SPL-1805, to the ON position.

NOTE: The red indicator light on the test box should come on. The rudder might move slowly to the right or left as much as 3 degrees.

SUBTASK 27-21-00-710-099-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER AND THE PCU ACTUATORS. THE RUDDER AND PCU ACTUATORS MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Put the RUDDER TRAVEL DIRECTION switch on the test box to the LEFT position.

NOTE: The green indicator light on the test box should come on and the rudder should move to the left unless it is already at the left position.

SUBTASK 27-21-00-710-100-001

(6) When the hydraulic flow becomes stable, record the amperage value from the ammeter as Value # 5: _____

SUBTASK 27-21-00-710-101-001

(7) Push the left rudder pedal until it touches the forward quadrant stop and hold.

SUBTASK 27-21-00-710-102-001

(8) When the hydraulic flow becomes stable, record the amperage value from the ammeter as Value # 6: _____

SUBTASK 27-21-00-710-103-001

(9) Put the left rudder pedal to the neutral position.

SUBTASK 27-21-00-710-104-001

(10) Calculate and record the difference in amperage values with this formula:

(a) Value # 6 minus Value # 5 : _____ (amps)

SUBTASK 27-21-00-710-105-001

(11) Make sure the difference in amperage values is between -0.7 amps and 1.5 amps.

SUBTASK 27-21-00-710-106-001

(12) If the difference in amperage values is not in the given range, replace the rudder PCU.

NOTE: After installation of a new rudder PCU, complete the system A portion of this check.

SUBTASK 27-21-00-710-107-001

(13) Engage the authority limiter.

NOTE: The command to engage the authority limiter remains active for only 75 seconds.

(a) Push the ON/OFF button on the front panel of the flap/slat electronics unit (FSEU), on E shelf, to turn on the display.

NOTE: The display will show EXISTING FAULTS?

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(b) Select OTHER FUNCTNS? from the MAIN MENU on the FSEU. The display will show SET OUTPUTS?

(c) Select SET OUTPUTS? from the OTHER FUNCTNS? menu. The display will show RUD PRES LIMIT?

(d) Select RUD PRES LIMIT? from the SET OUTPUTS? menu. The display will show SET ON?

(e) Select SET ON? from the RUD PRES LIMIT? menu. The display will show CMD ON, SET OFF?

SUBTASK 27-21-00-710-108-001

(14) Push the left rudder pedal until it touches the forward quadrant stop and hold.

SUBTASK 27-21-00-710-109-001

(15) When the hydraulic flow becomes stable, record the amperage value from the ammeter as Value # 7: _____

NOTE: Make sure that the authority limiter is still engaged.

SUBTASK 27-21-00-710-110-001

(16) Put the left rudder pedal to the neutral position.

SUBTASK 27-21-00-710-111-001

(17) Calculate and record the difference in amperage values with this formula:

(a) Value # 7 minus Value # 6 : _____ (amps)

SUBTASK 27-21-00-710-112-001

(18) Make sure the difference in amperage values is more than 0.5 amps.

SUBTASK 27-21-00-710-113-001

(19) If the difference in amperage values is not more than 0.5 amps, do a trouble-shooting on the authority limiter.

SUBTASK 27-21-00-710-114-001

(20) Make sure that the command to engage the authority limiter goes out.

NOTE: The command to engage the authority limiter remains active for 75 seconds.

SUBTASK 27-21-00-710-115-001

(21) Put the RUDDER TRAVEL DIRECTION switch on the test box to the RIGHT position.

NOTE: The green indicator light on the test box should go on and the rudder should move to the right.

SUBTASK 27-21-00-710-116-001

(22) When the hydraulic flow becomes stable, record the amperage value from the ammeter as Value # 8: _____

SUBTASK 27-21-00-710-117-001

(23) Push the right rudder pedal until it touches the forward quadrant stop and hold.

SUBTASK 27-21-00-710-118-001

(24) When the hydraulic flow becomes stable, record the amperage value from the ammeter as Value # 9: _____

SUBTASK 27-21-00-710-119-001

(25) Put the right rudder pedal in the neutral position.

SUBTASK 27-21-00-710-120-001

(26) Calculate and record the difference in amperage values with this formula:

(a) Value # 9 minus Value # 8: _____ (amps)

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SUBTASK 27-21-00-710-121-001

(27) Make sure the difference in amperage values is between -0.7 amps and 1.5 amps.

SUBTASK 27-21-00-710-122-001

(28) If the difference in amperage values is not in the given range, replace the rudder PCU.

NOTE: After installation of a new rudder PCU, complete the system A portion of this check.

SUBTASK 27-21-00-710-123-001

(29) Engage the authority limiter.

NOTE: The command to engage the authority limiter remains active for only 75 seconds.

(a) Push the ON/OFF button on the front panel of the flap/slat electronics unit (FSEU), on E shelf, to turn on the display.

NOTE: The display will show EXISTING FAULTS?

(b) Select OTHER FUNCTNS? from the MAIN MENU on the FSEU. The display will show SET OUTPUTS?

(c) Select SET OUTPUTS? from the OTHER FUNCTNS? menu. The display will show RUD PRES LIMIT?

(d) Select RUD PRES LIMIT? from the SET OUTPUTS? menu. The display will show SET ON?

(e) Select SET ON? from the RUD PRES LIMIT? menu. The display will show CMD ON, SET OFF?

SUBTASK 27-21-00-710-124-001

(30) Push the right rudder pedal until it touches the forward quadrant stop and hold.

SUBTASK 27-21-00-710-125-001

(31) When the hydraulic flow becomes stable, record the amperage value from the ammeter as Value # 10: _____

NOTE: Make sure that the authority limiter is still engaged.

SUBTASK 27-21-00-710-126-001

(32) Put the right rudder pedal to the neutral position.

SUBTASK 27-21-00-710-127-001

(33) Calculate and record the difference in amperage values with this formula:

(a) Value # 10 minus Value # 9 : _____ (amps)

SUBTASK 27-21-00-710-128-001

(34) Make sure the difference in amperage values is more than 0.5 amps.

SUBTASK 27-21-00-710-129-001

(35) If the difference in amperage values is not more than 0.5 amps, do a trouble-shooting on the authority limiter.

I. Put the Airplane Back to its Usual Condition

SUBTASK 27-21-00-710-130-001

(1) Put the RUDDER TRAVEL DIRECTION switch, on the test box, SPL-1805, in the OFF position.

NOTE: The green indicator light should go off. The rudder might move slowly to the right or left as much as 3 degrees.

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SUBTASK 27-21-00-710-131-001

(2) Put the YAW DAMPER POWER switch, on the test box, SPL-1805, to the OFF position.

NOTE: The red indicator light should go off.

SUBTASK 27-21-00-840-014-001

(3) Put the YAW DAMPER switch, on the P5 panel, in the OFF position.

SUBTASK 27-21-00-860-160

(4) Set the mode select IRS switches to the OFF position.

SUBTASK 27-21-00-840-015-001

(5) Set the flap control lever to 25 units.

SUBTASK 27-21-00-840-016-001

(6) Put the arm switch for the ALTERNATE FLAPS, on the P5 panel, in the OFF position.

SUBTASK 27-21-00-840-017-001

(7) Put the LANDING GEAR handle, on the P2 panel, in the DN position.

SUBTASK 27-21-00-840-018-001

(8) Set the flap control lever to UP.

NOTE: Wait for the flaps to move.

SUBTASK 27-21-00-840-019-001

(9) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-21-00-710-132-001

(10) Remove the test box, SPL-1805 from the rudder PCU.

(a) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

(b) Verify that all the toggle switches on the test box are in the OFF position.

(c) Disconnect the J1 connector of the test box from the D291 connector.

(d) Disconnect the P1 connector of the test box from the rudder PCU.

(e) Connect the D291 connector to the rudder PCU.

(f) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-00-865-001

(11) Remove the safety tag and close this circuit breaker:

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
F	2	C01449	STANDBY HYDRAULIC PUMP

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SUBTASK 27-21-00-840-020-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES. THE AILERONS, RUDDER, ELEVATOR, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(12) Pressurize the hydraulic systems A and B with the electric motor-driven pump. To pressurize them, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-21-00-740-002-001

(13) Do the stall management yaw damper (SMYD) servo test/sweep test for SMYD1 to ensure that the rudder PCU yaw damper is operational. To perform this test, do this task: Stall Management Yaw Damper (SMYD) BITE Test - Ground Test, TASK 27-32-00-740-803.

SUBTASK 27-21-00-840-021-001

(14) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-21-00-840-022-001

(15) Put the FLT CONTROL A and B switches, on the P5 panel, to the OFF position.

SUBTASK 27-21-00-410-017-001

(16) Close this access panel:

Number	Name/Location
324DR	Vertical Fin, Trailing Edge Access

SUBTASK 27-21-00-480-028-001

(17) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
A	16	C01345	LANDING GEAR AUTOBRAKE BITE CONT 2
A	18	C00583	LANDING GEAR AUTOBRAKE BITE CONT 1
E	16	C00196	LANDING GEAR ANTISKID INBD
E	18	C00195	LANDING GEAR ANTISKID OUTBD

SUBTASK 27-21-00-480-029-001

(18) Remove the current meter, COM-2531 or clamp meter, COM-3837.

SUBTASK 27-21-00-410-018-001

(19) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

TASK 27-21-00-700-823-001

17. Rudder Hinge Friction Test

Figure 503

A. General

(1) Use this test to verify that the rudder hinge friction is within limit.

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B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

C. Tools/Equipment

Reference	Description
STD-753	Scale - Push/Pull, 0-25 pound (0-11 kilogram) Capacity, 1/4 pound (113 gram) Accuracy
STD-1238	Indicator - Dial
STD-1278	Block - Loading, 1/8 Inch Thick, 3 Inch by 3 Inch Wood or Fiberglass Block with Pad to Prevent Damage to the Skin.
STD-1279	Mount - Device, Mounting, Holds the Dial Indicator

D. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

E. Procedure

SUBTASK 27-21-00-860-120-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If hydraulic pressure is powered, do this step to turn off hydraulic power:

(a) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-00-730-025-001

CAUTION: USE A LOADING BLOCK AND DO NOT PUT MORE THAN 50 LBF (222 N) ON THE RUDDER WHEN YOU MOVE THE RUDDER SURFACE BY AN EXTERNAL FORCE. APPLY THE EXTERNAL FORCE APPROXIMATELY AT BETWEEN 6 INCHES (162 MILLIMETERS) AND 18 IN. (457 MM) FROM THE BOTTOM OF THE TRAILING EDGE AND APPROXIMATELY 3 IN. (76 MM) FORWARD OF THE TRAILING EDGE. IF YOU DO NOT APPLY FORCE AT THIS LOCATION, YOU CAN CAUSE DAMAGE TO THE RUDDER

(2) Do the rudder hinge friction check:

NOTE: If the dial indicator is not available, you can use a ruler to measure the rudder trailing edge placement in this test.

(a) Make sure the rudder and rudder pedals are in the neutral position.

(b) Make sure the rudder trim indicator is at zero units of trim.

(c) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder fully to the left side.

1) Verify that there is no sign of binding, rough spots or excessive friction at any point of travel.

a) If binding or excessive friction exist, the bearings may be out of alignment, damaged or improperly installed. Correct this condition and repeat this check.

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(d) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder fully to the right side.

1) Verify that there is no sign of binding, rough spots or excessive friction at any point of travel.

a) If binding or excessive friction exist, the bearings may be out of alignment, damaged or improperly installed. Correct this condition and repeat this check.

(e) Attach the mount, STD-1279 on the tail cone.

(f) Place the pointer of the dial indicator, STD-1238 at the lower aft corner of the rudder trailing edge.

(g) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder 2.25 ±0.10 in. (5.72 ±0.26 cm) to the left side.

1) Verify that the force to move the rudder is less than 16.3 lbf (72.51 N).

(h) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder 2.25 +/- 0.1 inches (5.72 +/- 0.25 centimeters) to the right side.

1) Verify that the force to move the rudder is less than 16.3 lbf (72.51 N).

(i) Remove the dial indicator, STD-1238 and block, STD-1278 from the rudder.

——————— END OF TASK ———————

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RUDDER AND RUDDER TRIM CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Rudder Forward Quadrant Adjustment - Use this task to adjust the rudder forward quadrant.

(2) Rudder Pedals Adjustment - Use this task to adjust the rudder pedals.

(3) Rudder Control Cables RA and RB Adjustment - Use this task to adjust the rudder control cables. This task also includes steps to adjust the rudder forward quadrant and rudder pedals.

(4) Control Rod for Main Rudder Power Control Unit Adjustment - Use this task to adjust the control rod for the main rudder power control unit.

(5) Control Rod for Standby Rudder Power Control Unit Adjustment - Use this test to adjust the control rod for the standby rudder power control unit.

(6) Rudder Pedal Adjustment and Limit Travel Test - Use this test make sure the rudder pedals can move through their full travel and the pedal adjustment crank operates correctly.

(7) Rudder Hinge Bearing and PCU Freeplay - Use this task to do a check of the freeplay of the rudder control system.

(8) Rudder Centering Test - Use this test to make sure the rudder is in its center position.

(9) Rudder Pedal Forces Test - Use this test to make sure the rudder pedals operate with the correct force.

(10) Rudder Travel Test - Use this test to make sure the rudder operates correctly.

(11) Standby Rudder Power Control Unit Deadband Test - Use this test to make sure the standby rudder power control unit is in the correct rigged position.

(12) Rudder Trim System Test - Use this test to make sure the rudder system operates correctly.

(13) Wheel to Rudder Interconnect System Test - Use this test to make sure the wheel to rudder function of the standby rudder power control unit operates correctly.

(14) Rudder Hinge Friction Test - Use this task to do a check of the rudder hinge for excessive friction.

(15) Main Rudder PCU Internal Hydraulic Leakage Test - Use this task to do a check for excessive internal hydraulic leakage in the main rudder PCU.

(16) Rudder Override Operational Test - Use this task to verify that the override mechanisms on the torque tube are operational.

(17) Rudder Main PCU Force Fight Monitor Test - Use this task to verify that the STBY RUD ON light on the overhead panel P5-3 is functional.

TASK 27-21-00-820-806-002

2. Rudder Forward Quadrant Adjustment

(Figure 501)

A. General

(1) Use this test to make sure the rudder forward quadrant is adjusted correctly. After you adjust the rudder forward quadrant, you must re-adjust the rudder pedals and control cables.

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B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)
32-51-00-820-802	Nose Wheel Steering System Adjustment (P/B 501)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel
317AL	Tail Cone Access Door

F. Prepare for the Test

SUBTASK 27-21-00-860-070-002

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-00-010-017-002

(2) Open these access doors:

Number	Name/Location
112A	Forward Access Door
317AL	Tail Cone Access Door

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SUBTASK 27-21-00-010-018-002

(3) Open these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel

G. Procedure

SUBTASK 27-21-00-710-070-002

(1) Do the rudder forward quadrant adjustment:

(a) Do these steps to set the jackshaft yoke to the middle position:

NOTE: The middle position of the jackshaft yoke is where the number of turns of the shaft from the full forward and full aft adjustment are the same.

1) Turn the rudder pedal adjustment crank to move the rudder pedals full forward.

2) Turn the rudder pedal adjustment crank to move the rudder pedals full aft. Record the number of turns.

3) Turn the rudder pedal adjustment crank half the recorded number of turns forward.

(b) Install the rig pin R-3 from the rig pin kit, SPL-1585 in the forward hole in the captain's rudder forward quadrant.

(c) Install the rig pin R-4 from the rig pin kit, SPL-1585 in the forward hole in the first officer's rudder forward quadrant.

(d) If you can not install rig pins R-3 or R-4, adjust the bus rod [6]:

1) Turn the turnbuckles to release the tension of rudder control cables RA and RB.

2) Remove the pin [5], nut [4], washer [3], spacers [2], bolt [1] to disconnect the bus rod [6] from rudder forward quadrant. Discard the pin [5].

3) Install the rig pin R-3 from the rig pin kit, SPL-1585 in the forward hole in the captain's rudder forward quadrant.

4) Install the rig pin R-4 from the rig pin kit, SPL-1585 in the forward hole in the first officer's rudder forward quadrant.

5) Adjust the bus rod [6] until you can install the bolt [1] through the rudder forward quadrant.

6) Install the spacers [2], washer [3], nut [4], and new pin [5].

7) If it is necessary, adjust the brake pushrods [12] to the nose wheel steering. To adjust them, do this task: Nose Wheel Steering System Adjustment, TASK 32-51-00-820-802.

(e) Make sure the clearance between the cable guard blocks and the rudder forward quadrants is 0.030 in. (0.76 mm) – 0.050 in. (1.27 mm) through full travel.

(f) Remove the rig pins R-3 and R-4.

(g) Remove the nut [50], washer [49], washer [48], and bolt assembly [47] to disconnect the standby rudder PCU control rod [34] from the rudder control torque tube [33].

(h) Remove the nut [45], washer [44], washer [43], and bolt assembly [42] to disconnect the main rudder PCU control rod [36] from the rudder control torque tube [33].

(i) Move the captain's rudder forward quadrant until you can install the rig pin R-3 in the aft rig pin hole.

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(j) Make sure there is no clearance between the captain's forward quadrant and quadrant stop. Add or subtract shims as needed to bring the clearance to zero.

(k) Remove the rig pin R-3.

(l) Move the first officer's rudder forward quadrant until you can install the rig pin R-4 in the aft rig pin hole.

(m) Make sure there is no clearance between the first officer's forward quadrant and quadrant stop. Add or subtract shims as needed to bring the clearance to zero.

(n) Remove the rig pin R-4.

(o) Connect the control rod [36] to the center crank [41].

1) Install the bolt assembly [42] with the bolt head end up and washer [43].

2) Tighten the outer bolt of the bolt assembly [42] to 70 in-lb (7.9 N·m) – 85 in-lb (9.6 N·m).

3) Install the washers [44] and nut [45].

CAUTION: DO NOT TIGHTEN THE OUTER BOLT OF THE BOLT ASSEMBLY [42] AFTER YOU TIGHTEN THE NUT [45]. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

4) Tighten the nut [45] to 25 in-lb (2.8 N·m) – 30 in-lb (3.4 N·m).

(p) Install the bolt assembly [47] with the bolt head end up, washer [48] (under bolt), washer [49] (under nut), and nut [50] to connect the control rod [34] to the upper crank [46].

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-820-006-002

(1) Do this task: Rudder Pedals Adjustment, TASK 27-21-00-820-807-002.

SUBTASK 27-21-00-820-007-002

(2) Do this task: Control Rod for Main Rudder Power Control Unit Adjustment, TASK 27-21-00-820-809-002.

SUBTASK 27-21-00-410-010-002

(3) Close these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel

SUBTASK 27-21-00-010-019-002

(4) Close these access doors:

Number	Name/Location
112A	Forward Access Door
317AL	Tail Cone Access Door

SUBTASK 27-21-00-860-071-002

(5) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

——————— END OF TASK ———————

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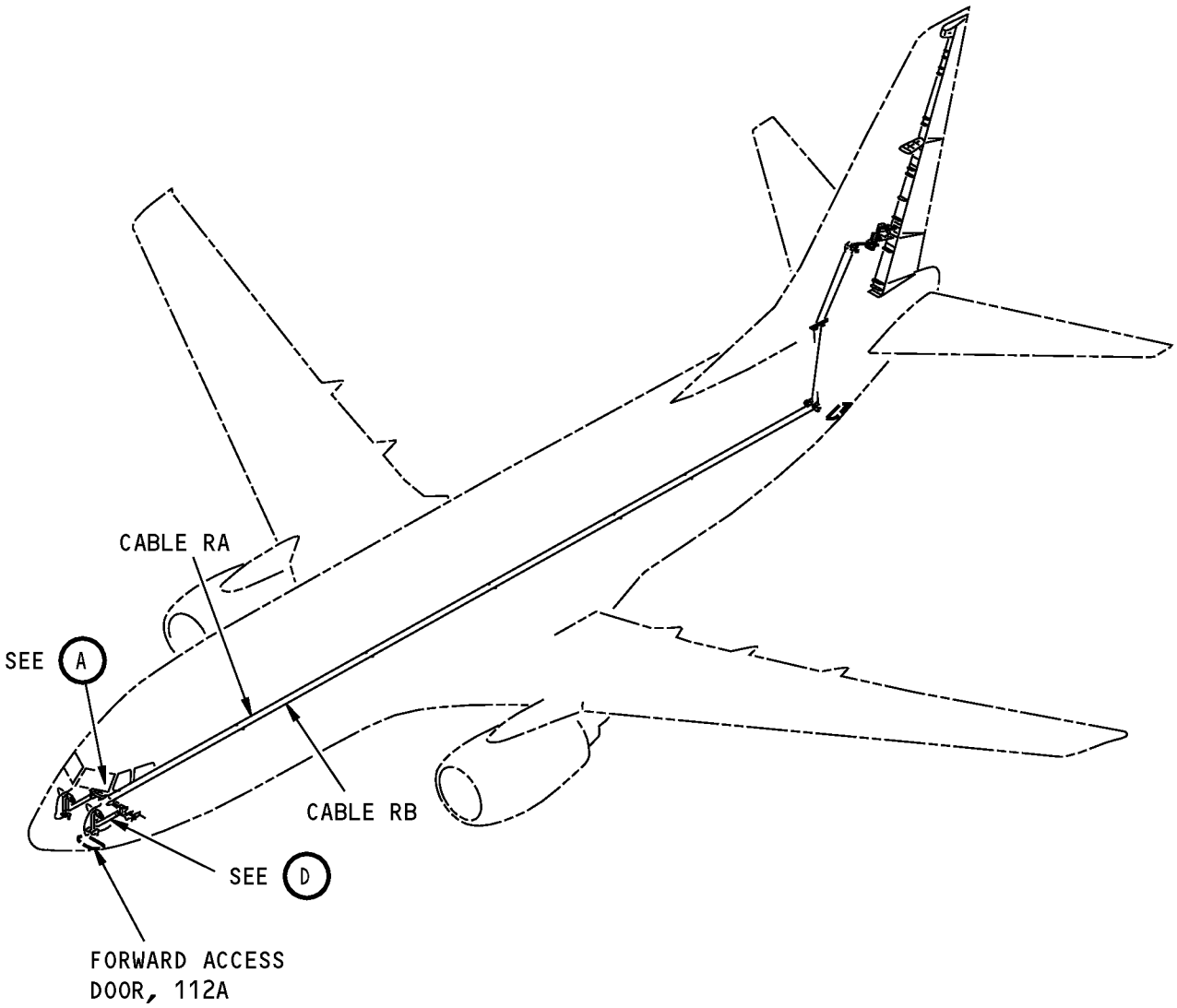

Rudder Control System Forward Components
Figure 501 (Sheet 1 of 4)/27-21-00-990-810-002

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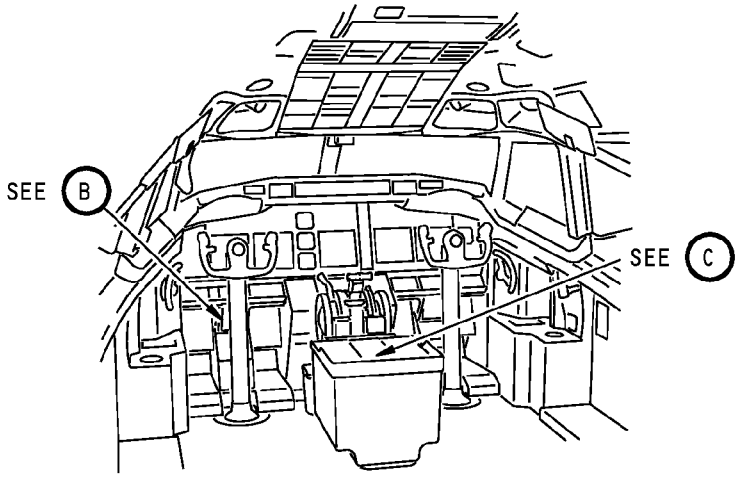
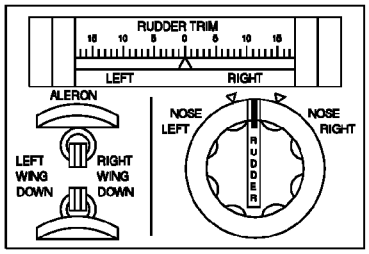


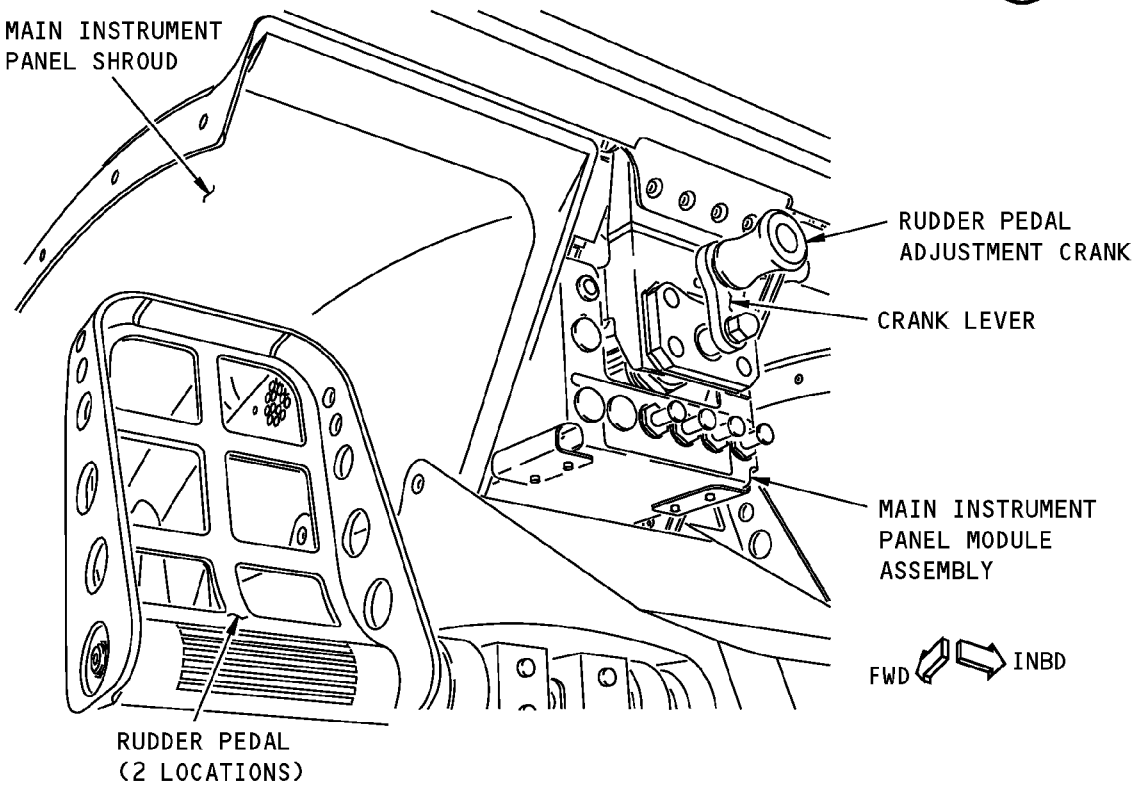
FLIGHT COMPARTMENT

A



AILERON AND RUDDER TRIM MODULE (P8)

C



(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

B

Rudder Control System Forward Components
Figure 501 (Sheet 2 of 4)/27-21-00-990-810-002

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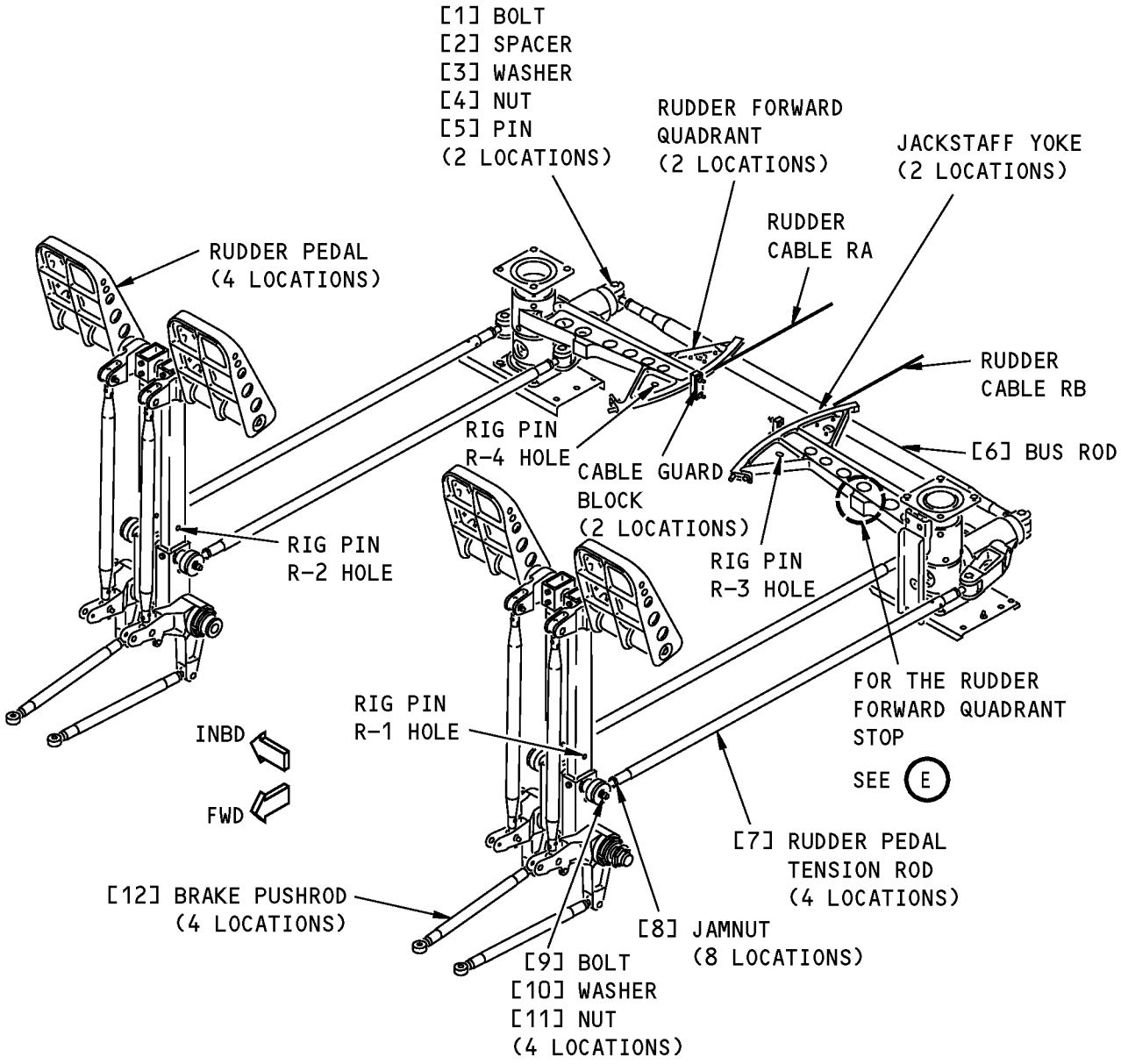

PEDAL SHAFTS AND FORWARD QUADRANTS

D

Rudder Control System Forward Components
Figure 501 (Sheet 3 of 4)/27-21-00-990-810-002

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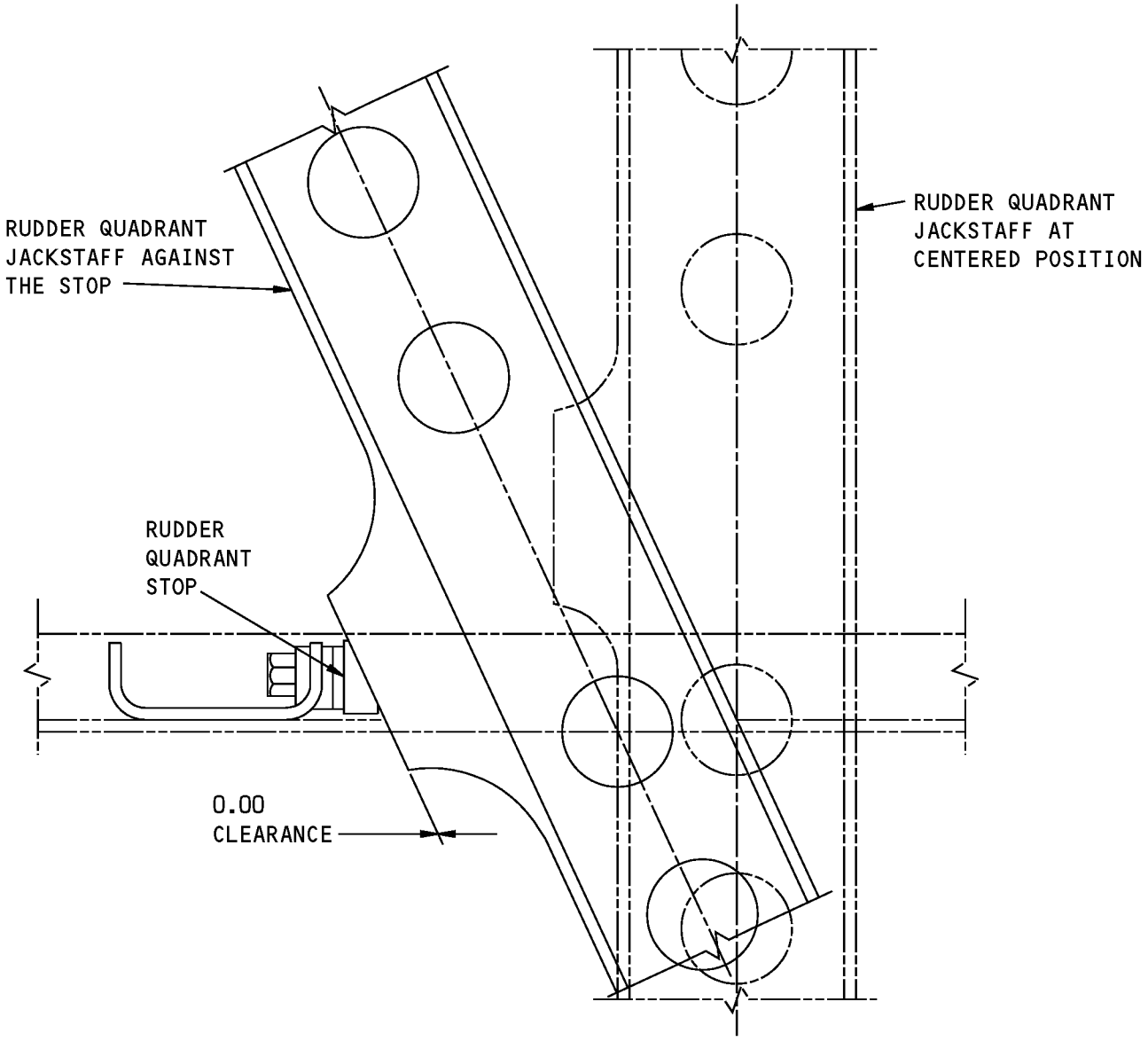

RUDDER QUADRANT STOP

E

Rudder Control System Forward Components
Figure 501 (Sheet 4 of 4)/27-21-00-990-810-002

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TASK 27-21-00-820-807-002

3. Rudder Pedals Adjustment

(Figure 501)

A. General

(1) Use this task to adjust the rudder pedals to the center position.

B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel
324CL	Vertical Fin, Access

F. Prepare for the Test

SUBTASK 27-21-00-860-072-002

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-00-010-020-002

(2) Open these access doors:

Number	Name/Location
112A	Forward Access Door
324CL	Vertical Fin, Access

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SUBTASK 27-21-00-010-021-002

(3) Open these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel

G. Procedure

SUBTASK 27-21-00-710-071-002

(1) Do the rudder pedals adjustment:

(a) Install the rig pin R-5 from the rig pin kit, SPL-1585 in the rudder feel and centering unit. (Figure 502)

(b) Install the rig pin R-3 from the rig pin kit, SPL-1585 in the captain's rudder forward quadrant. (Figure 502)

(c) Install the rig pin R-4 from the rig pin kit, SPL-1585 in the first officer's rudder forward quadrant.

(d) Do these steps to set the jackshaft yoke to the middle position:

NOTE: The middle position of the jackshaft yoke is where the number of turns of the shaft from the full forward and full aft adjustment are the same.

1) Turn the rudder pedal adjustment crank to move the rudder pedals full forward.

2) Turn the rudder pedal adjustment crank to move the rudder pedals full aft. Record the number of turns.

3) Turn the rudder pedal adjustment crank half the recorded number of turns forward.

(e) Make sure that you can install these rig pins from the rig pin kit, SPL-1585:

1) Rig pin R-1 on the captain's rudder pedals.

2) Rig pin R-2 on the first officer's rudder pedals.

(f) If you can not install the rig pins R-1 and R-2 freely, then do these steps:

1) Determine which pedal arm is out-of-line with the rigging pin hole.

a) If you have problem with installing rig pin R-1, then adjust the captain's side.

b) If you have problem with installing rig pin R-2, then adjust the first officer's side.

c) If you have problem with installing both rig pins R-1 and R-2, then adjust both sides.

2) Loosen both jamnuts [8] on the rudder pedal tension rods [7].

3) Remove the bolts [9], washers [10], and nuts [11] to disconnect the rudder pedal tension rods [7] at the forward end.

4) Adjust the length of rudder pedal tension rods [7] until you can install rig pin R-1 or R-2 easily.

a) Turn the rod end or rod body of the rudder pedal tension rod [7] as necessary to adjust the length.

b) Keep the lube fitting on the rudder pedal tension rod [7] down.

5) Install the bolts [9], washers [10], and nuts [11] to connect the rudder pedal tension rods [7].

6) Tighten the jamnuts [8].

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7) Make sure you can see the threads through the holes on the rudder pedal tension rods [7].

(g) Remove the rig pins R-1, R-2, R-3, R-4, and R-5.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-410-011-002

(1) Close these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel

SUBTASK 27-21-00-940-002-002

(2) Close these access doors:

Number	Name/Location
112A	Forward Access Door
324CL	Vertical Fin, Access

SUBTASK 27-21-00-860-073-002

(3) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

——————— END OF TASK ———————

TASK 27-21-00-820-808-002

4. Rudder Control Cables RA and RB Adjustment

(Figure 501)

A. General

(1) Use this task to adjust the rudder control cables RA and RB. This task includes steps to adjust the rudder forward quadrant and rudder pedals.

(2) Before you do cable adjustment, permit a minimum of one hour at a constant ambient temperature of ± 5 degrees F (± 2.8 degrees C) for the airframe temperature to become stable.

(a) The cable tension values will not be correct when there are temperature differences along the cable run.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-09-17-860-801	Location of the Flight Control Cables Air Pressure Seals (P/B 201)
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1554	Tensiometer - Cable (40-600 LB) (Part #: ACM-600, Supplier: 13331, A/P Effectivity: 737-ALL) (Part #: T5-8008-106-00, Supplier: 0N8U4, A/P Effectivity: 737-ALL) (Part #: T60-1001-C9-1A, Supplier: 0N8U4, A/P Effectivity: 737-ALL)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
324	Vertical Fin - Rear Spar To Trailing Edge

E. Access Panels

Number	Name/Location
112A	Forward Access Door
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel
311BL	Stabilizer Trim Access Door
324AL	Vertical Fin, Aft Fin Access Door
324CL	Vertical Fin, Access

F. Prepare for the Adjustment

SUBTASK 27-21-00-860-074-002

(1) Make sure the rudder trim indicator is at the zero unit of trim.

SUBTASK 27-21-00-730-014-002

(2) Do this task: Rudder Pedal Adjustment and Limit Travel Test, TASK 27-21-00-700-813-002.

SUBTASK 27-21-00-860-075-002

(3) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-00-860-076-002

(4) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-21-00-860-077-002

(5) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

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SUBTASK 27-21-00-010-022-002

(6) Open these access doors:

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door
324CL	Vertical Fin, Access

SUBTASK 27-21-00-010-023-002

(7) Open these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel

SUBTASK 27-21-00-480-018-002

(8) Use a 40 - 600 lb cable tensiometer, COM-1554 to get the tension measurement.

G. Rudder Control Cables RA and RB Adjustment

SUBTASK 27-21-00-820-008-002

(1) If you install new rudder control cables RA and RB, then do these steps to stretch the cables:

(a) Operate the rudder trim indicator until you can install the rig pin R-5 in the rudder feel and centering unit easily.

(b) Adjust the turnbuckles in the cables RA and RB to get a tension of 300 lbf (1334 N) ±20 lbf (89 N)3 each.

1) Make sure you can install the rig pin R-3 from the rig pin kit, SPL-1585 freely in the captain's rudder forward quadrant.

(c) Remove the rig pins R-3 and R-5.

(d) Adjust the pressure seals at the aft pressure bulkhead with the control cables RA and RB. To adjust them, do this task: Location of the Flight Control Cables Air Pressure Seals, TASK 27-09-17-860-801.

(e) Make sure the cables RA and RB do not touch the pulley or the quadrant flanges for the total cable travel.

(f) Make sure the cables RA and RB are in less than 2 degrees of the plane of the pulley or the quadrant.

(g) Make sure you install the cables through the grommets in the structure.

(h) Make sure that the cables do not move from the neutral rig position.

(i) Make sure that the pulleys turn freely with sufficient clearance with the guards.

(j) Remove the nut [50], washer [49], washer [48], and bolt assembly [47] to disconnect the standby rudder PCU control rod [34] from the rudder control torque tube [33].

(k) Remove the nut [45], washer [44], washer [43], and bolt assembly [42] to disconnect the main rudder PCU control rod [36] from the rudder control torque tube [33].

(l) Move the rudder pedals 25 times through full travel.

(m) Connect the main rudder PCU control rod [36] to the center crank [41].

1) Install the bolt assembly [42] with the bolt head end up and washer [43].

2) Tighten the outer bolt of the bolt assembly [42] to 70 in-lb (7.9 N·m) – 85 in-lb (9.6 N·m).

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3) Install the washers [44] and nut [45].

CAUTION: DO NOT TIGHTEN THE OUTER BOLT OF THE BOLT ASSEMBLY [42] AFTER YOU TIGHTEN THE NUT [45]. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

4) Tighten the nut [45] to 25 in-lb (2.8 N·m) – 30 in-lb (3.4 N·m).

(n) Install the bolt assembly [47] with the bolt head end up, washer [48] (under bolt), washer [49] (under nut), and nut [50] to connect the standby rudder PCU control rod [34] to the upper crank [46].

SUBTASK 27-21-00-820-029-002

(2) Adjust the control cables RA and RB to their correct cable rigging tension:

(a) Install the rig pin R-5 from the rig pin kit, SPL-1585 in the rudder feel and centering unit.

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(b) Adjust the turnbuckles in the cables RA and RB to get the cable tension as given in (Table 501):

Table 501/27-21-00-993-821-002 737-600 / 737-700 Rudder Cable Rigging Load

Temp Deg F (C)	Nominal Lbs (newtons)	Minimum Lbs (newtons)	Maximum Lbs (newtons)
110 (43.3)	170 (756)	160 (712)	180 (801)
109 (42.8)	170 (756)	160 (712)	180 (801)
108 (42.2)	169 (752)	159 (707)	179 (796)
107 (41.7)	169 (752)	159 (707)	179 (796)
106 (41.1)	168 (747)	158 (703)	178 (792)
105 (40.5)	168 (747)	158 (703)	178 (792)
104 (40.0)	167 (743)	157 (698)	177 (787)
103 (39.4)	167 (743)	157 (698)	177 (787)
102 (38.9)	166 (738)	156 (694)	176 (783)
101 (38.3)	166 (738)	156 (694)	176 (783)
100 (37.8)	165 (734)	155 (689)	175 (778)
99 (37.2)	164 (730)	154 (685)	174 (774)
98 (36.7)	164 (730)	154 (685)	174 (774)
97 (36.1)	163 (725)	153 (681)	173 (770)
96 (35.5)	163 (725)	153 (681)	173 (770)
95 (35.0)	162 (721)	152 (676)	172 (765)
94 (34.4)	162 (721)	152 (676)	172 (765)
93 (33.9)	161 (716)	151 (672)	171 (761)
92 (33.3)	161 (716)	151 (672)	171 (761)
91 (32.8)	160 (712)	150 (667)	170 (756)

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(Continued)

Temp Deg F (C)	Nominal Lbs (newtons)	Minimum Lbs (newtons)	Maximum Lbs (newtons)
90 (32.2)	160 (712)	150 (667)	170 (756)
89 (31.7)	159 (707)	149 (663)	169 (752)
88 (31.1)	159 (707)	149 (663)	169 (752)
87 (30.5)	158 (703)	148 (658)	168 (747)
86 (30.0)	158 (703)	148 (658)	168 (747)
85 (29.4)	157 (698)	147 (654)	167 (743)
84 (28.9)	157 (698)	147 (654)	167 (743)
83 (28.3)	156 (694)	146 (649)	166 (738)
82 (27.8)	156 (694)	146 (649)	166 (738)
81 (27.2)	155 (689)	145 (645)	165 (734)
80 (26.7)	155 (689)	145 (645)	165 (734)
79 (26.1)	154 (685)	144 (641)	164 (730)
78 (25.5)	154 (685)	144 (641)	164 (730)
77 (25.0)	153 (681)	143 (636)	163 (725)
76 (24.4)	153 (681)	143 (636)	163 (725)
75 (23.9)	152 (676)	142 (632)	162 (721)
74 (23.3)	152 (676)	142 (632)	162 (721)
73 (22.8)	151 (672)	141 (627)	161 (716)
72 (22.2)	151 (672)	141 (627)	161 (716)
71 (21.7)	150 (667)	140 (623)	160 (712)
70 (21.1)	150 (667)	140 (623)	160 (712)
69 (20.5)	150 (667)	140 (623)	160 (712)
68 (20.0)	149 (663)	139 (618)	159 (707)
67 (19.4)	149 (663)	139 (618)	159 (707)
66 (18.9)	148 (658)	138 (614)	158 (703)
65 (18.3)	148 (658)	138 (614)	158 (703)
64 (17.8)	147 (654)	137 (609)	157 (698)
63 (17.2)	147 (654)	137 (609)	157 (698)
62 (16.7)	146 (649)	136 (605)	156 (694)
61 (16.1)	146 (649)	136 (605)	156 (694)
60 (15.5)	145 (645)	135 (601)	155 (689)

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(Continued)

Temp Deg F (C)	Nominal Lbs (newtons)	Minimum Lbs (newtons)	Maximum Lbs (newtons)
59 (15.0)	145 (645)	135 (601)	155 (689)
58 (14.4)	144 (641)	134 (596)	154 (685)
57 (13.9)	144 (641)	134 (596)	154 (685)
56 (13.3)	143 (636)	133 (592)	153 (681)
55 (12.8)	143 (636)	133 (592)	153 (681)
54 (12.2)	142 (632)	132 (587)	152 (676)
53 (11.7)	142 (632)	132 (587)	152 (676)
52 (11.1)	141 (627)	131 (583)	151 (672)
51 (10.5)	141 (627)	131 (583)	151 (672)
50 (10.0)	140 (623)	130 (578)	150 (667)
49 (9.4)	140 (623)	130 (578)	150 (667)
48 (8.9)	139 (618)	129 (574)	149 (663)
47 (8.3)	139 (618)	129 (574)	149 (663)
46 (7.8)	138 (614)	128 (569)	148 (658)
45 (7.2)	138 (614)	128 (569)	148 (658)
44 (6.7)	137 (609)	127 (565)	147 (654)
43 (6.1)	137 (609)	127 (565)	147 (654)
42 (5.5)	136 (605)	126 (560)	146 (649)
41 (5.0)	136 (605)	126 (560)	146 (649)
40 (4.4)	135 (601)	125 (556)	145 (645)
39 (3.9)	135 (601)	125 (556)	145 (645)
38 (3.3)	134 (596)	124 (552)	144 (641)
37 (2.8)	134 (596)	124 (552)	144 (641)
36 (2.2)	133 (592)	123 (547)	143 (636)
35 (1.7)	133 (592)	123 (547)	143 (636)
34 (1.1)	132 (587)	122 (543)	142 (632)
33 (0.5)	132 (587)	122 (543)	142 (632)
32 (0.0)	131 (583)	121 (538)	141 (627)
31 (-0.5)	131 (583)	121 (538)	141 (627)
30 (-1.1)	130 (578)	120 (534)	140 (623)
29 (-1.7)	130 (578)	120 (534)	140 (623)

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(Continued)

Temp Deg F (C)	Nominal Lbs (newtons)	Minimum Lbs (newtons)	Maximum Lbs (newtons)
28 (-2.2)	129 (574)	119 (529)	139 (618)
27 (-2.8)	129 (574)	119 (529)	139 (618)
26 (-3.3)	128 (569)	118 (525)	138 (614)
25 (-3.9)	128 (569)	118 (525)	138 (614)
24 (-4.4)	127 (565)	117 (520)	137 (609)
23 (-5.0)	127 (565)	117 (520)	137 (609)
22 (-5.5)	127 (565)	117 (520)	137 (609)
21 (-6.1)	126 (560)	116 (516)	136 (605)
20 (-6.7)	126 (560)	116 (516)	136 (605)
19 (-7.2)	125 (556)	115 (512)	135 (601)
18 (-7.8)	125 (556)	115 (512)	135 (601)
17 (-8.3)	124 (552)	114 (507)	134 (596)
16 (-8.9)	124 (552)	114 (507)	134 (596)
15 (-9.4)	123 (547)	113 (503)	133 (592)
14 (-10.0)	123 (547)	113 (503)	133 (592)
13 (-10.5)	122 (543)	112 (498)	132 (587)
12 (-11.1)	122 (543)	112 (498)	132 (587)
11 (-11.7)	121 (538)	111 (494)	131 (583)
10 (-12.2)	121 (538)	111 (494)	131 (583)
09 (-12.8)	120 (534)	110 (489)	130 (578)
08 (-13.3)	120 (534)	110 (489)	130 (578)
07 (-13.9)	119 (529)	109 (485)	129 (574)
06 (-14.4)	119 (529)	109 (485)	129 (574)
05 (-15.0)	118 (525)	108 (480)	128 (569)
04 (-15.5)	118 (525)	108 (480)	128 (569)
03 (-16.1)	117 (520)	107 (476)	127 (565)
02 (-16.7)	117 (520)	107 (476)	127 (565)
01 (-17.2)	116 (516)	106 (472)	126 (560)
00 (-17.8)	116 (516)	106 (472)	126 (560)
-01 (18.3)	115 (512)	105 (467)	125 (556)
-02 (-18.7)	115 (512)	105 (467)	125 (556)

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(Continued)

Temp Deg F (C)	Nominal Lbs (newtons)	Minimum Lbs (newtons)	Maximum Lbs (newtons)
-03 (-19.4)	115 (512)	105 (467)	125 (556)
-04 (-20.0)	114 (507)	104 (463)	124 (552)
-05 (-20.5)	114 (507)	104 (463)	124 (552)
-06 (-21.1)	113 (503)	103 (458)	123 (547)
-07 (-21.7)	113 (503)	103 (458)	123 (547)
-08 (-22.2)	112 (498)	102 (454)	122 (543)
-09 (-22.8)	112 (498)	102 (454)	122 (543)
-10 (-23.3)	111 (494)	101 (449)	121 (538)
-11 (-23.9)	111 (494)	101 (449)	121 (538)
-12 (-24.4)	110 (489)	100 (445)	120 (534)
-13 (-25.0)	110 (489)	100 (445)	120 (534)
-14 (-25.5)	109 (485)	99 (440)	119 (529)
-15 (-26.1)	109 (485)	99 (440)	119 (529)
-16 (-26.7)	108 (480)	98 (436)	118 (525)
-17 (-27.2)	108 (480)	98 (436)	118 (525)
-18 (-27.8)	107 (476)	97 (431)	117 (520)
-19 (-28.3)	107 (476)	97 (431)	117 (520)
-20 (-28.9)	107 (476)	97 (431)	117 (520)
-21 (-29.4)	106 (472)	96 (427)	116 (516)
-22 (-30.0)	106 (472)	96 (427)	116 (516)
-23 (-30.5)	105 (467)	95 (423)	115 (512)
-24 (-31.1)	105 (467)	95 (423)	115 (512)
-25 (-31.7)	104 (463)	94 (418)	114 (507)
-26 (-32.2)	104 (463)	94 (418)	114 (507)
-27 (-32.8)	103 (458)	93 (414)	113 (503)
-28 (-33.3)	103 (458)	93 (414)	113 (503)
-29 (-33.9)	102 (454)	92 (409)	112 (498)
-30 (-34.4)	102 (454)	92 (409)	112 (498)
-31 (-35.0)	101 (449)	91 (405)	111 (494)
-32 (-35.5)	101 (449)	91 (405)	111 (494)
-33 (-36.1)	100 (445)	90 (400)	110 (489)

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(Continued)

Temp Deg F (C)	Nominal Lbs (newtons)	Minimum Lbs (newtons)	Maximum Lbs (newtons)
-34 (-36.7)	100 (445)	90 (400)	110 (489)
-35 (-37.2)	100 (445)	90 (400)	110 (489)
-36 (-37.8)	99 (440)	89 (396)	109 (485)
-37 (-38.3)	99 (440)	89 (396)	109 (485)
-38 (-38.9)	98 (436)	88 (391)	108 (480)
-39 (-39.4)	98 (436)	88 (391)	108 (480)
-40 (-40.0)	97 (431)	87 (387)	107 (476)

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(c) Adjust the turnbuckles in the cables RA and RB to get the cable tension as given in (Table 502):

Table 502/27-21-00-993-822-002 737-800 / 737-900 Rudder Cable Rigging Load

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
110 (43.3)	190 (86.1)	180 (81.6)	200 (90.7)
109 (43.8)	190 (86.1)	180 (81.6)	200 (90.7)
108 (42.2)	189 (85.7)	179 (81.2)	199 (90.3)
107 (41.7)	189 (85.7)	179 (81.2)	199 (90.3)
106 (41.1)	188 (85.3)	178 (80.7)	198 (89.8)
105 (40.5)	188 (85.3)	178 (80.7)	198 (89.8)
104 (40.0)	187 (84.8)	177 (80.3)	197 (89.3)
103 (39.4)	187 (84.8)	177 (80.3)	197 (89.3)
102 (38.9)	186 (84.4)	176 (79.8)	196 (88.9)
101 (38.3)	186 (84.4)	176 (79.8)	196 (88.9)
100 (37.8)	185 (83.9)	175 (79.3)	195 (88.4)
99 (37.2)	184 (83.5)	174 (78.9)	194 (88.0)
98 (36.7)	184 (83.5)	174 (78.9)	194 (88.0)
97 (36.1)	183 (83.0)	173 (78.5)	192 (87.5)
96 (35.5)	183 (83.0)	173 (78.5)	193 (87.5)
95 (35.0)	182 (82.5)	172 (78.0)	192 (87.1)
94 (34.4)	182 (82.5)	172 (78.0)	192 (87.1)
93 (33.9)	181 (82.1)	171 (77.6)	191 (86.6)
92 (33.3)	181 (82.1)	171 (77.6)	191 (86.6)

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(Continued)

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
91 (32.8)	180 (81.6)	170 (77.1)	190 (86.2)
90 (32.2)	180 (81.6)	170 (77.1)	190 (86.2)
89 (31.7)	179 (81.2)	169 (76.7)	189 (85.7)
88 (31.1)	179 (81.2)	169 (76.7)	189 (85.7)
87 (30.5)	178 (80.7)	168 (76.2)	188 (85.3)
86 (30.0)	178 (80.7)	168 (76.2)	188 (85.3)
85 (29.4)	177 (80.3)	167 (75.7)	187 (84.8)
84 (28.9)	177 (80.3)	167 (75.7)	187 (84.8)
83 (28.3)	176 (79.8)	166 (75.3)	186 (84.4)
82 (27.8)	176 (79.8)	166 (75.3)	186 (84.4)
81 (27.2)	175 (79.4)	165 (74.8)	185 (83.9)
80 (26.7)	175 (79.4)	165 (74.8)	185 (83.9)
79 (26.1)	174 (78.9)	164 (74.4)	184 (83.5)
78 (25.5)	174 (78.9)	164 (74.4)	184 (83.5)
77 (25.0)	173 (78.5)	163 (73.9)	183 (83.0)
76 (24.4)	173 (78.5	163 (73.9)	183 (83.0)
75 (23.9)	172 (78.0)	162 (73.5)	182 (82.5)
74 (23.3)	172 (78.0)	162 (73.5)	182 (82.5)
73 (22.8)	171 (77.6)	161 (73.0)	181 (82.1)
72 (22.2)	171 (77.6)	161 (73.0)	181 (82.1)
71 (21.7)	170 (77.1)	160 (72.6)	180 (81.6)
70 (21.1)	170 (77.1)	160 (72.6)	180 (81.6)
69 (20.5)	170 (77.1)	160 (72.6)	180 (81.6)
68 (20.0)	169 (76.7)	159 (72.1)	179 (81.2)
67 (19.4)	169 (76.7)	159 (72.1)	179 (81.2)
66 (18.9)	168 (76.2)	158 (71.7)	178 (80.7)
65 (18.3)	168 (76.2)	158 (71.7)	178 (80.7)
64 (17.8)	167 (75.7)	157 (71.2)	177 (80.3)
63 (17.2)	167 (75.7)	157 (71.2)	177 (80.3)
62 (16.7)	166 (75.3)	156 (70.8)	176 (79.8)
61 (16.1)	166 (75.3)	156 (70.8)	176 (79.8)

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(Continued)

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
60 (15.5)	165 (74.8)	155 (70.3)	175 (79.4)
59 (15.0)	165 (74.8)	155 (70.3)	175 (79.4)
58 (14.4)	164 (74.4)	154 (69.8)	174 (78.9)
57 (13.9)	164 (74.4)	154 (69.8)	174 (78.9)
56 (13.3)	163 (73.9)	153 (69.3)	173 (78.5)
55 (12.8)	163 (73.9)	153 (69.3)	173 (78.5)
54 (12.2)	162 (73.5)	152 (68.9)	172 (78.0)
53 (11.7)	162 (73.5)	152 (68.9)	172 (78.0)
52 (11.1)	161 (73.0)	151 (68.5)	171 (77.6)
51 (10.5)	161 (73.0)	151 (68.5)	171 (77.6)
50 (10.0)	160 (72.6)	150 (68.0)	170 (77.1)
49 (9.4)	160 (72.6)	150 (68.0)	170 (77.1)
48 (8.9)	159 (72.1)	149 (67.6)	169 (76.7)
47 (8.3)	159 (72.1)	149 (67.6)	169 (76.7)
46 (7.8)	158 (71.7)	148 (67.1)	168 (76.2)
45 (7.2)	158 (71.7)	148 (67.1)	168 (76.2)
44 (6.7)	157 (71.2)	147 (66.7)	167 (75.7)
43 (6.1)	157 (71.2)	147 (66.7)	167 (75.7)
42 (5.5)	156 (70.8)	146 (66.2)	166 (75.3)
41 (5.0)	156 (70.8)	146 (66.2)	166 (75.3)
40 (4.4)	155 (70.3)	145 (65.8)	165 (74.8)
39 (3.9)	155 (70.3)	145 (65.8)	165 (74.8)
38 (3.3)	154 (69.8)	144 (65.3)	164 (74.4)
37 (2.8)	154 (69.8)	144 (65.3)	164 (74.4)
36 (2.2)	153 (69.4)	143 (64.9)	163 (73.9)
35 (1.7)	153 (69.4)	143 (64.9)	163 (73.9)
34 (1.1)	152 (68.9)	142 (64.4)	162 (73.5)
33 (0.5)	152 (68.9)	142 (64.4)	162 (73.5)
32 (0.0)	151 (68.5)	141 (63.9)	161 (73.0)
31 (-0.5)	151 (68.5)	141 (63.9)	161 (73.0)
30 (-1.1)	150 (68.0)	140 (63.5)	160 (72.6)

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HAP 031-054; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253 (Continued)

(Continued)

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
29 (-1.7)	150 (68.0)	140 (63.5)	160 (72.6)
28 (-2.2)	149 (67.6)	139 (63.0)	159 (72.1)
27 (-2.8)	149 (67.6)	139 (63.0)	159 (72.1)
26 (-3.3)	148 (67.1)	138 (62.6)	158 (71.7)
25 (-3.9)	148 (67.1)	138 (62.6)	158 (71.7)
24 (-4.4)	147 (66.7)	137 (62.1)	157 (71.2)
23 (-5.0)	147 (66.7)	137 (62.1)	157 (71.2)
22 (-5.5)	147 (66.7)	137 (62.1)	157 (71.2)
21 (-6.1)	146 (66.2)	136 (61.7)	156 (70.8)
20 (-6.7)	146 (66.2)	136 (61.7)	156 (70.8)
19 (-7.2)	145 (65.8)	135 (61.2)	155 (70.3)
18 (-7.8)	145 (65.8)	135 (61.2)	155 (70.3)
17 (-8.3)	144 (65.3)	134 (60.8)	154 (69.8)
16 (-8.9)	144 (65.3)	134 (60.8)	154 (69.8)
15 (-9.4)	143 (64.9)	133 (60.3)	153 (69.4)
14 (-10.0)	143 (64.9)	133 (60.3)	153 (69.4)
13 (-10.5)	142 (64.4)	132 (59.9)	152 (68.9)
12 (-11.1)	142 (64.4)	132 (59.9)	152 (68.9)
11 (-11.7)	141 (63.9)	131 (59.4)	151 (68.5)
10 (-12.2)	141 (63.9)	131 (59.4)	151 (68.5)
09 (-12.8)	140 (63.5)	130 (59.0)	150 (68.0)
08 (-13.3)	140 (63.5)	130 (59.0)	150 (68.0)
07 (-13.9)	139 (63.0)	129 (58.5)	149 (67.6)
06 (-14.4)	139 (63.0)	129 (58.5)	149 (67.6)
05 (-15.0)	138 (62.6)	128 (58.0)	148 (67.1)
04 (-15.5)	138 (62.6)	128 (58.0)	148 (67.1)
03 (-16.1)	137 (62.1)	127 (57.6)	147 (66.7)
02 (-16.7)	137 (62.1)	127 (57.6)	147 (66.7)
01 (-17.2)	136 (61.7)	126 (57.1)	146 (66.2)
00 (-17.8)	136 (61.7)	126 (57.1)	146 (66.2)
-01 (-18.3)	135 (61.2)	125 (56.7)	145 (65.8)

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HAP 031-054; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253 (Continued)

(Continued)

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
-02 (-18.9)	135 (61.2)	125 (56.7)	145 (65.8)
-03 (-19.4)	135 (61.2)	125 (56.7	145 (65.8)
-04 (-20.0)	134 (60.8)	124 (56.2)	144 (65.3)
-05 (-20.5)	134 (60.8)	124 (56.2)	144 (65.3)
-06 (-21.1)	133 (60.3)	123 (55.8)	143 (64.9)
-07 (-21.7)	133 (60.3)	123 (55.8)	143 (64.9)
-08 (-22.2)	132 (59.9)	122 (55.3)	142 (64.4)
-09 (-22.8)	132 (59.9)	122 (55.3)	142 (64.4)
-10 (-23.3)	131 (59.4)	121 (54.9)	141 (64.0)
-11 (-23.9)	131 (59.4)	121 (54.9)	141 (64.0)
-12 (-24.4)	130 (59.0)	120 (54.4)	140 (63.5)
-13 (-25.0)	130 (59.0)	120 (54.4)	140 (63.5)
-14 (-25.5)	129 (58.5)	119 (54.0)	139 (63.0)
-15 (-26.1)	129 (58.5)	119 (54.0)	139 (63.0)
-16 (-26.7)	128 (58.0)	118 (53.5)	138 (62.6)
-17 (-27.2)	128 (58.0)	118 (53.5)	138 (62.6)
-18 (-27.8)	127 (57.6)	117 (53.0)	137 (62.1)
-19 (-28.3)	127 (57.6)	117 (53.0)	137 (62.1)
-20 (-28.9)	127 (57.6)	117 (53.0)	137 (62.1)
-21 (-29.4)	126 (57.1)	116 (52.6)	136 (61.7)
-22 (-30.0)	126 (57.1)	116 (52.6)	136 (61.7)
-23 (-30.5)	125 (56.7)	115 (52.2)	135 (61.2)
-24 (-31.1)	125 (56.7)	115 (52.2)	135 (61.2)
-25 (-31.7)	124 (56.2)	114 (51.7)	134 (60.8)
-26 (-32.2)	124 (56.2)	114 (51.7)	134 (60.8)
-27 (-32.8)	123 (55.8)	113 (51.2)	133 (60.3)
-28 (-33.3)	123 (55.8)	113 (51.2)	133 (60.3)
-29 (-33.9)	122 (55.3)	112 (50.8)	132 (59.9)
-30 (-34.4)	122 (55.3)	112 (50.8)	132 (59.9)
-31 (-35.0)	121 (54.9)	111 (50.3)	131 (59.4)
-32 (-35.5)	121 (54.9)	111 (50.3)	131 (59.4)

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HAP 031-054; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253 (Continued)

(Continued)

Temp Deg F (C)	Nominal Lbs (Kg)	Minimum Lbs (Kg)	Maximum Lbs (Kg)
-33 (-36.1)	120 (54.4)	110 (49.9)	130 (59.0)
-34 (-36.7)	120 (54.4)	110 (49.9)	130 (59.0)
-35 (-37.2)	120 (54.4)	110 (49.9)	130 (59.0)
-36 (-37.8)	119 (54.0)	109 (49.4)	129 (58.5)
-37 (-38.3)	119 (54.0)	109 (49.4)	129 (58.5)
-38 (-38.9)	118 (53.5)	108 (49.0)	128 (58.0)
-39 (-39.4)	118 (53.5)	108 (49.0)	128 (58.0)
-40 (-40.0)	117 (53.1)	107 (48.5)	127 (57.6)

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

(d) Make sure you can install these rig pins from the rig pin kit, SPL-1585 (Figure 501):

1) Rig pin R-3 in the captain's rudder forward quadrant.

2) Rig pin R-4 in the first officer's rudder forward quadrant.

(e) If you can not install the rig pins R-3 and R-4 freely, then do these steps:

1) Turn the turnbuckles to release the tension of the control cables RA and RB.

2) Remove the pin [5], nut [4], washer [3], spacer [2] and bolt [1] to disconnect one end of the bus rod [6] from rudder forward quadrant. Discard the pin [5].

3) Install the rig pins R-3 in the captain's rudder forward quadrant.

4) Install the rig pin R-4 in the first officer's rudder forward quadrant.

5) Adjust the bus rod [6] until you can install the bolt [1] easily.

6) Install the bolt [1], spacer [2], washer [3], nut [4], and new pin [5] to connect the bus rod [6] to the rudder forward quadrant.

HAP 101-999

7) Adjust the turnbuckles on the control cables RA and RB to get the correct tension as given in (Table 501).

HAP 031-054; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

8) Adjust the turnbuckles on the control cables RA and RB to get the correct tension as given in (Table 502).

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

(f) Do these steps to adjust the captain's and first officer's pedals to the neutral adjustment position:

NOTE: The middle position of the rudder pedals is where the number of turns of the shaft from the full forward and full aft adjustment are the same.

1) Turn the rudder pedal adjustment crank to move the rudder pedals full forward.

2) Turn the rudder pedal adjustment crank to move the rudder pedals full aft. Record the number of turns.

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3) Turn the rudder pedal adjustment crank half the number of turns forward.

(g) Install these rig pins from the rig pin kit, SPL-1585:

1) Rig pin R-1 on the captain's rudder pedals.

2) Rig pin R-2 on the first officer's rudder pedals.

(h) If you can not install the rig pin R-1 or R-2 freely, then do these steps:

1) Loosen the jamnuts [8] from the applicable rudder pedal tension rod [7].

NOTE: If you can not install rig pin R-1 then adjust the captain's rudder pedal tension rods. If you can not install the rig pin R-2 then adjust the first officer's rudder pedal tension rods. You are only required to adjust the applicable rudder pedal tension rod that is out of rig.

2) Remove the nut [11], washer [10], bolt [9] from the forward end of the rudder pedal tension rod [7].

3) Adjust the rudder pedal tension rod [7] until you can install the applicable rig pin freely.

a) Make sure that you keep the lube fitting on the rudder pedal tension rod [7] is in the down direction.

4) Install the bolt [9], washer [10], nut [11].

5) Tighten the jamnuts [8].

(i) Do a check on the rudder forward quadrant bus rod [6] and the four rudder pedal tension rods [7]:

1) Make sure the rod ends cover at least 50 percent of the inspection holes at two end of the rods (10 locations).

(j) Remove the rig pin R-1, R-2, R-3, R-4, and R-5.

(k) Operate the rudder pedals through one full travel cycle.

HAP 101-999

1) Make sure the control cables RA and RB are at the correct tension as given in (Table 501).

HAP 031-054; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

2) Make sure the control cables RA and RB are at the correct tension as given in (Table 502).

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

(l) Install the locking clips on the turnbuckles.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-21-00-010-024-002

(1) Close these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel
114AW	Forward Nose Wheel Well Panel
114BW	Forward Nose Wheel Well Panel
324AL	Vertical Fin, Aft Fin Access Door

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SUBTASK 27-21-00-010-025-002

(2) Close these access doors:

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door
324CL	Vertical Fin, Access

SUBTASK 27-21-00-860-078-002

(3) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

——————— END OF TASK ———————

TASK 27-21-00-820-809-002

5. Control Rod for Main Rudder Power Control Unit Adjustment

(Figure 501, Figure 502)

A. General

(1) Use this task to adjust the control rod for the main rudder power control unit (PCU).

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-11-94	AILERON/RUDDER TRIM CONTROL MODULE
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

E. Access Panels

Number	Name/Location
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

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F. Prepare for the Adjustment

SUBTASK 27-21-00-840-012-002

(1) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-00-010-033-002

(2) To get access to the main PCU, do this step:

Open this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-00-010-034-002

(3) To get access to the rudder feel and centering unit, do this step:

Open this access panel:

Number	Name/Location
324CL	Vertical Fin, Access

SUBTASK 27-21-00-820-030-002

(4) Manually hold the rudder in the neutral position over the index plate.

SUBTASK 27-21-00-860-079-002

(5) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-21-00-840-013-002

(6) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	15	C01628	FLIGHT CONTROL FORCE FIGHT MON

SUBTASK 27-21-00-860-080-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Pressurize the rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

(a) Move the rudder pedals to bleed the main rudder PCU until the movement of the rudder is smooth.

SUBTASK 27-21-00-980-001-002

(8) Make sure the rudder pedals are in the neutral position.

(a) If it is necessary, tap on the rudder pedals lightly to put the rudder pedals to the neutral position.

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SUBTASK 27-21-00-480-020

(9) Install rig pin R-5 from the rig pin kit, SPL-1585 in the rudder feel and centering unit.

(a) Make sure you can install the rig pin R-5 freely. If you cannot install the rig pin freely, adjust the rudder trim actuator:

1) Jiggle and release the feel and centering unit input arm to make sure the system is centered.

2) Move the rudder trim knob until rig pin R-5 can be installed freely.

(10) Make sure the rudder trim indicator is at 0.00 +/- 0.25 unit of trim.

(a) If indicator is not at 0.00 +/- 0.25 unit of trim, adjust the trim indicator per AILERON/RUDDER TRIM CONTROL MODULE, SUBJECT 27-11-94.

SUBTASK 27-21-00-860-081-002

(11) Set the FLT CONTROL A and B switches to OFF.

SUBTASK 27-21-00-480-019-002

(12) Install the rig pins R-3, and R-4 (Figure 501).

(a) If only one rig pin can be inserted freely, adjust the bus rod per Rudder Forward Quadrant Adjustment, TASK 27-21-00-820-806-002.

(b) If both rig pins cannot be installed freely, adjust the control cables RA and RB, do this task: Rudder Control Cables RA and RB Adjustment, TASK 27-21-00-820-808-002.

(13) Install the rig pins R-1 and R-2.

(a) If you cannot install the rig pins freely, adjust the pedal tension rods per Rudder Pedals Adjustment, TASK 27-21-00-820-807-002.

SUBTASK 27-21-00-080-005-002

(14) Remove the rig pins R-1, R-2, R-3, and R-4.

G. Control Rods for the Main PCU Adjustment

SUBTASK 27-21-00-860-082-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Set the FLT CONTROL B switch to ON.

SUBTASK 27-21-00-210-002-002

(2) Make sure that the YAW DAMPER switch on the P5-3 panel is in the OFF position and the YAW DAMPER light is illuminated.

SUBTASK 27-21-00-860-083-002

(3) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

NOTE: Do not change the position of the rudder trim knob until the Main PCU control rods and the Standby PCU control rod have been adjusted.

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SUBTASK 27-21-00-820-027-002

(4) Do these steps to put the rudder trailing edge to the left of the index plate:

NOTE: Always start the adjustment of the control rod with the rudder at this position.

(a) Loosen the clamp nut [35] on the lower control rod [36] until you can rotate the sleeve [37].

(b) Rotate the sleeve [37] until the rudder trailing edge is between 0.30 in. (7.6 mm) to 0.50 in. (12.7 mm) to the left of the index plate.

NOTE: One full rotation of the sleeve [37] will move the rudder trailing edge 0.18 degree (0.18 inch). Rotate the sleeve [37] clockwise (looking aft) will move the rudder trailing edge left. Rotate the sleeve [37] counter-clockwise (looking aft) will move the rudder trailing edge right.

SUBTASK 27-21-00-860-084-002

(5) Set the FLT CONTROL B switch to OFF and FLT CONTROL A switch to ON.

SUBTASK 27-21-00-820-028-002

(6) Do these steps to put the rudder trailing edge to the left of the index plate:

NOTE: Always start the adjustment of the control rod with the rudder at this position.

(a) Loosen the clamp nut [35] on the upper control rod [36] until you can rotate the sleeve [37].

(b) Rotate the sleeve [37] until the rudder trailing edge is between 0.30 in. (7.6 mm) to 0.50 in. (12.7 mm) to the left of the index plate.

NOTE: One full rotation of the sleeve [37] will move the rudder trailing edge 0.18 degree (0.18 inch). Rotate the sleeve [37] clockwise (looking aft) will move the rudder trailing edge left. Rotate the sleeve [37] counter-clockwise (looking aft) will move the rudder trailing edge right.

SUBTASK 27-21-00-860-153-002

(7) Set the FLT CONTROL A switch to OFF.

SUBTASK 27-21-00-080-008-002

(8) Install the rig pin R-5 in the rudder feel and centering unit.

SUBTASK 27-21-00-980-002-002

(9) Push the rudder trailing edge to the right of the index plate 10 in. (254 mm) or more to rotate the overrides out of the detent position then smoothly return the rudder back to the center position.

NOTE: Do not move the rudder surface again until both of the control rods [36] have been adjusted.

SUBTASK 27-21-00-080-009-002

(10) Remove the rig pin R-5.

SUBTASK 27-21-00-860-154-002

(11) Set the FLT CONTROL A switch to ON.

SUBTASK 27-21-00-820-013-002

(12) Do this adjustment to the upper control rod [36]:

(a) Loosen the clamp nut [35] on the upper control rod [36] until you can rotate the sleeve [37].

(b) Rotate the sleeve [37] until the rudder trailing edge is within the center of the index plate.

1) Make sure that the rudder trailing edge does not go beyond the center of the index plate on to the right side. If this happens, start the adjustment again with the rudder trailing edge positioned to the left of the index plate.

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(c) Tighten the clamp nut [35] on the upper control rod [36].

NOTE: Do not torque the clamp nut [35] at this time.

(d) Make sure that the rudder trailing edge is still within the center of the index plate.

SUBTASK 27-21-00-860-087-002

(13) Set the FLT CONTROL A switch to OFF and set the FLT CONTROL B switch to ON.

SUBTASK 27-21-00-820-015-002

(14) Do this adjustment to the lower control rod [36]:

(a) Loosen the clamp nut [35] on the lower control rod [36] until you can rotate the sleeve [37].

(b) Rotate the sleeve [37] until the rudder trailing edge is within the center of the index plate.

1) Make sure that the rudder trailing edge does not go beyond the center of the index plate on to the right side. If this happens, start the adjustment again with the rudder trailing edge positioned to the left of the index plate.

(c) Tighten the clamp nut [35] on the lower control rod [36].

NOTE: Do not torque the clamp nut [35] at this time.

(d) Make sure that the rudder trailing edge is still within the center of the index plate.

SUBTASK 27-21-00-820-017-002

(15) Set the FLT CONTROL A switch to ON.

(a) Make sure that the rudder trailing edge is still within the center of the index plate.

SUBTASK 27-21-00-820-018-002

(16) Set the FLT CONTROL B switch to OFF.

(a) Make sure that the rudder trailing edge is still within the center of the index plate.

SUBTASK 27-21-00-820-019-002

(17) Set the FLT CONTROL A switch to OFF and FLT CONTROL B switch to ON.

(a) Make sure that the rudder trailing edge is still within the center of the index plate.

SUBTASK 27-21-00-860-155-002

(18) Set the FLT CONTROL A switch to ON.

SUBTASK 27-21-00-420-001-002

(19) Tighten the clamp nuts [35] on the upper and lower control rods [36] to 100 in-lb (11.3 N·m) – 150 in-lb (16.9 N·m).

SUBTASK 27-21-00-860-159-002

(20) Tap on the rudder pedals lightly to put the rudder pedals to the neutral position.

SUBTASK 27-21-00-860-089-002

(21) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	15	C01628	FLIGHT CONTROL FORCE FIGHT MON

SUBTASK 27-21-00-700-001-002

(22) Verify voltage between pin 18 and pin 20 of connector D10064 on the EE shelf is between 4.38 VDC to 5.62 VDC.

(a) If the voltage measured is not between 4.38 VDC to 5.62 VDC, adjust the control rods [36] for the Main Rudder PCU.

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SUBTASK 27-21-00-820-020-002

(23) Make sure that you can install and remove rig pin R-5 freely.

H. Put the Airplane Back To Its Usual Condition

SUBTASK 27-21-00-820-021-002

(1) Do a check of the standby rudder PCU. If it is necessary, do this task: Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-002.

SUBTASK 27-21-00-860-090-002

(2) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

SUBTASK 27-21-00-410-012-002

(3) Close these access panels:

Number	Name/Location
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

SUBTASK 27-21-00-860-091-002

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

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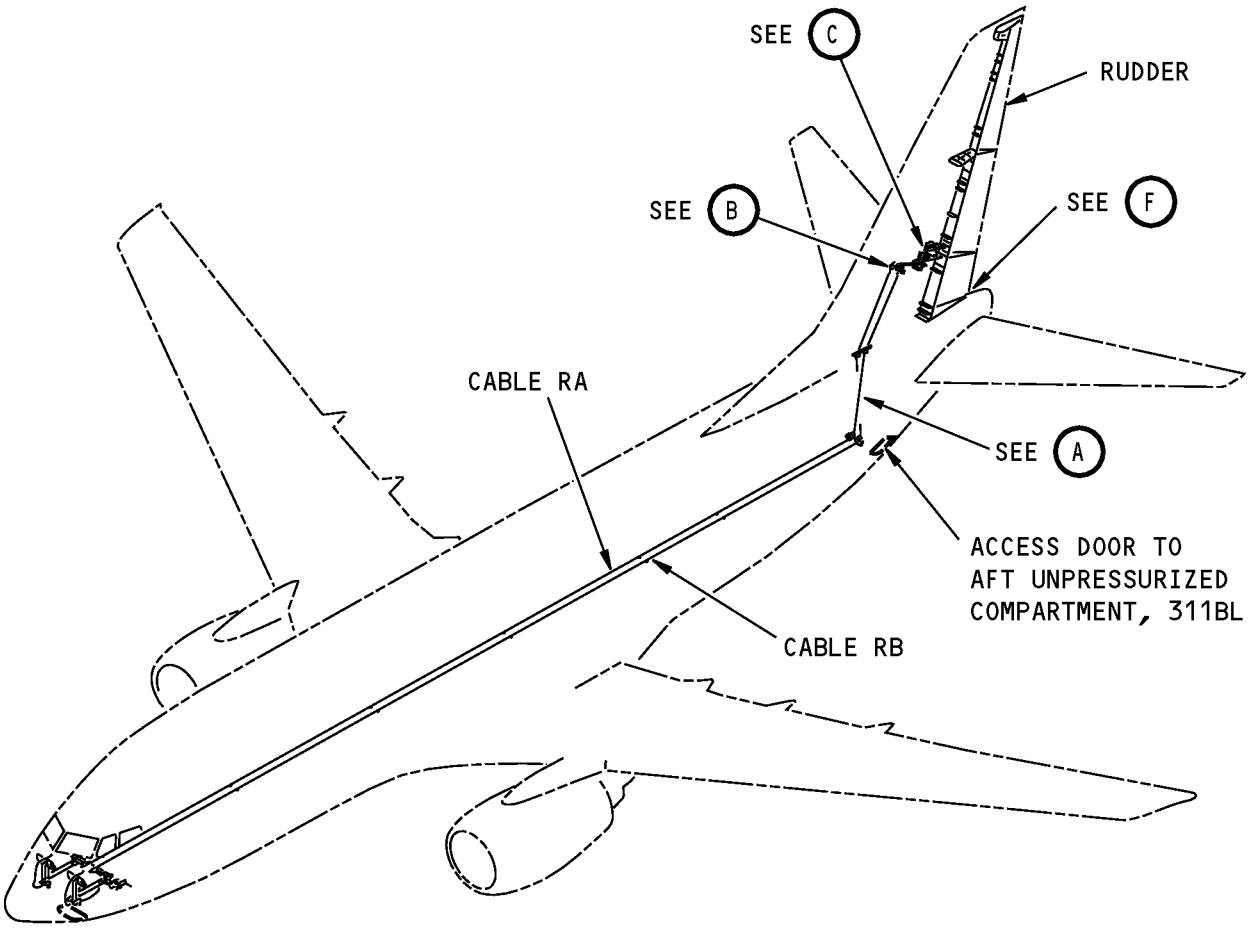

Rudder Control System Aft Components
Figure 502 (Sheet 1 of 8)/27-21-00-990-811-002

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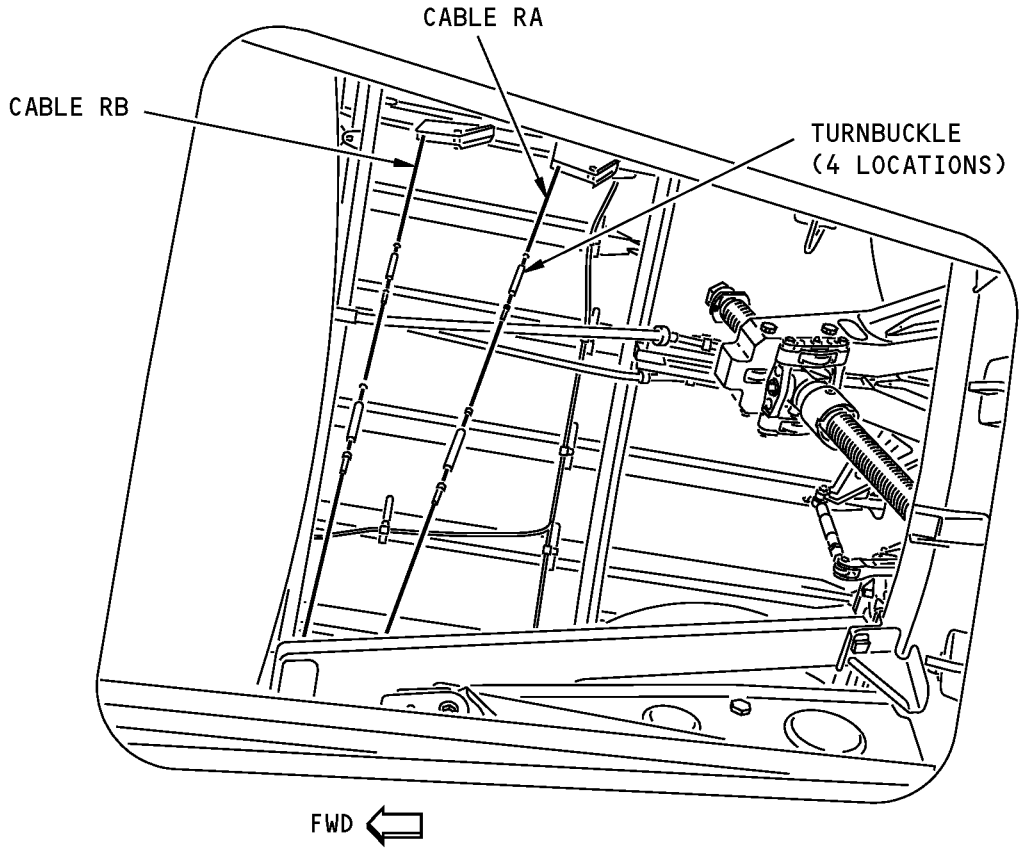

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Rudder Control System Aft Components
Figure 502 (Sheet 2 of 8)/27-21-00-990-811-002

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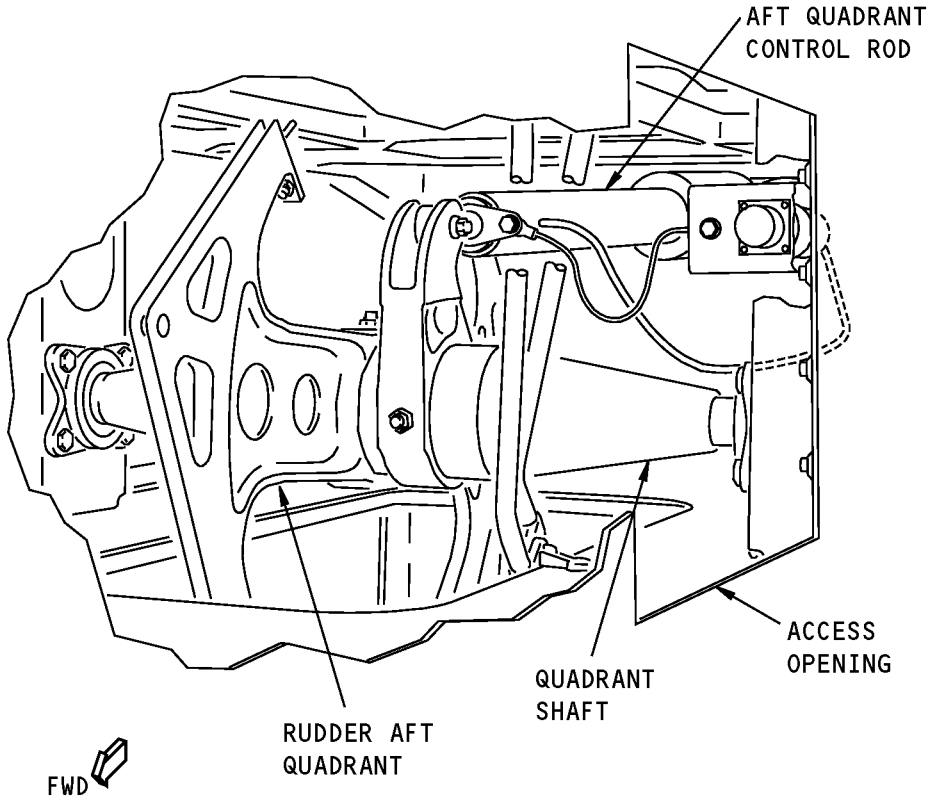

RUDDER AFT QUADRANT

B

Rudder Control System Aft Components
Figure 502 (Sheet 3 of 8)/27-21-00-990-811-002

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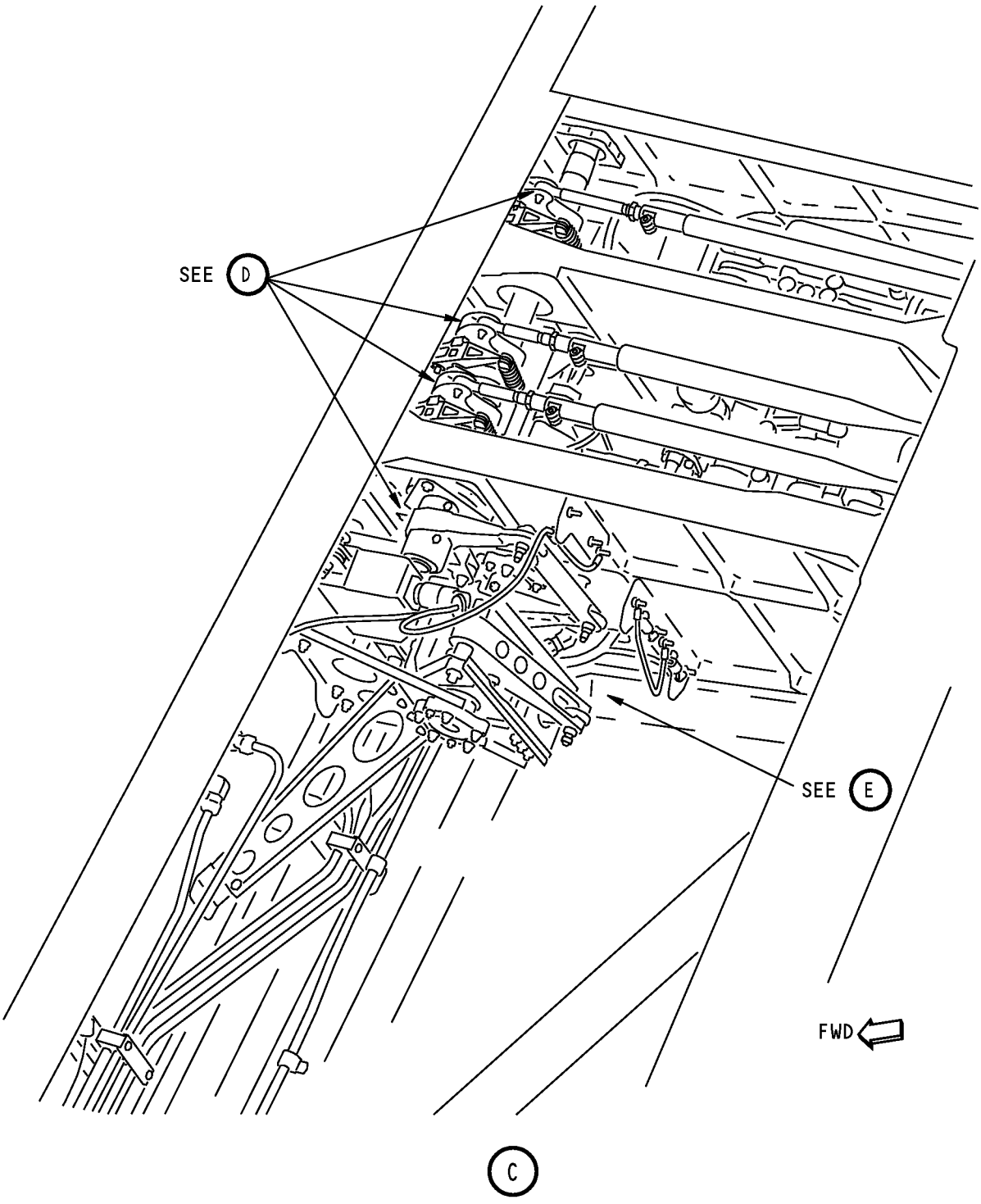

Rudder Control System Aft Components
Figure 502 (Sheet 4 of 8)/27-21-00-990-811-002

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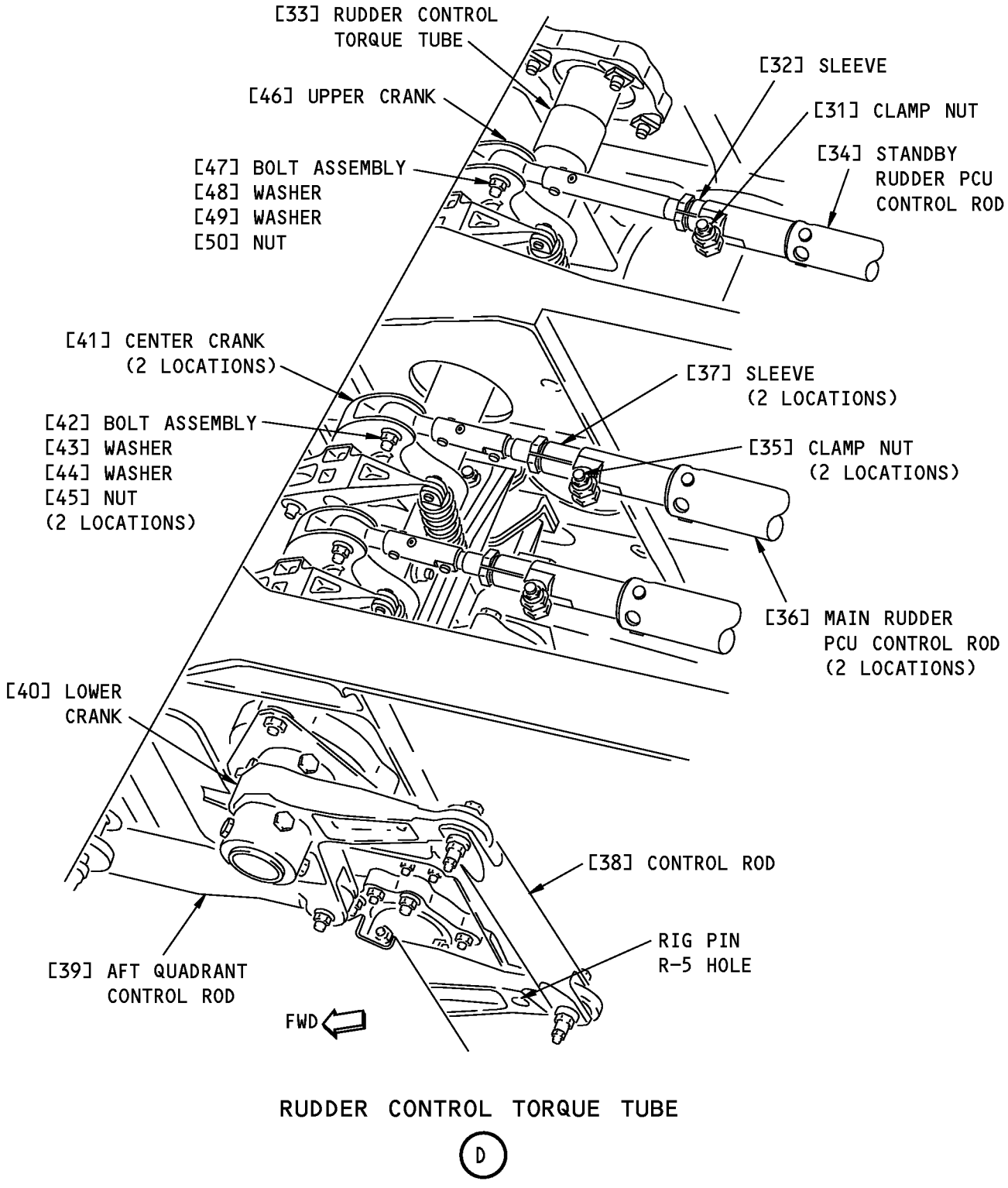

Rudder Control System Aft Components
Figure 502 (Sheet 5 of 8)/27-21-00-990-811-002

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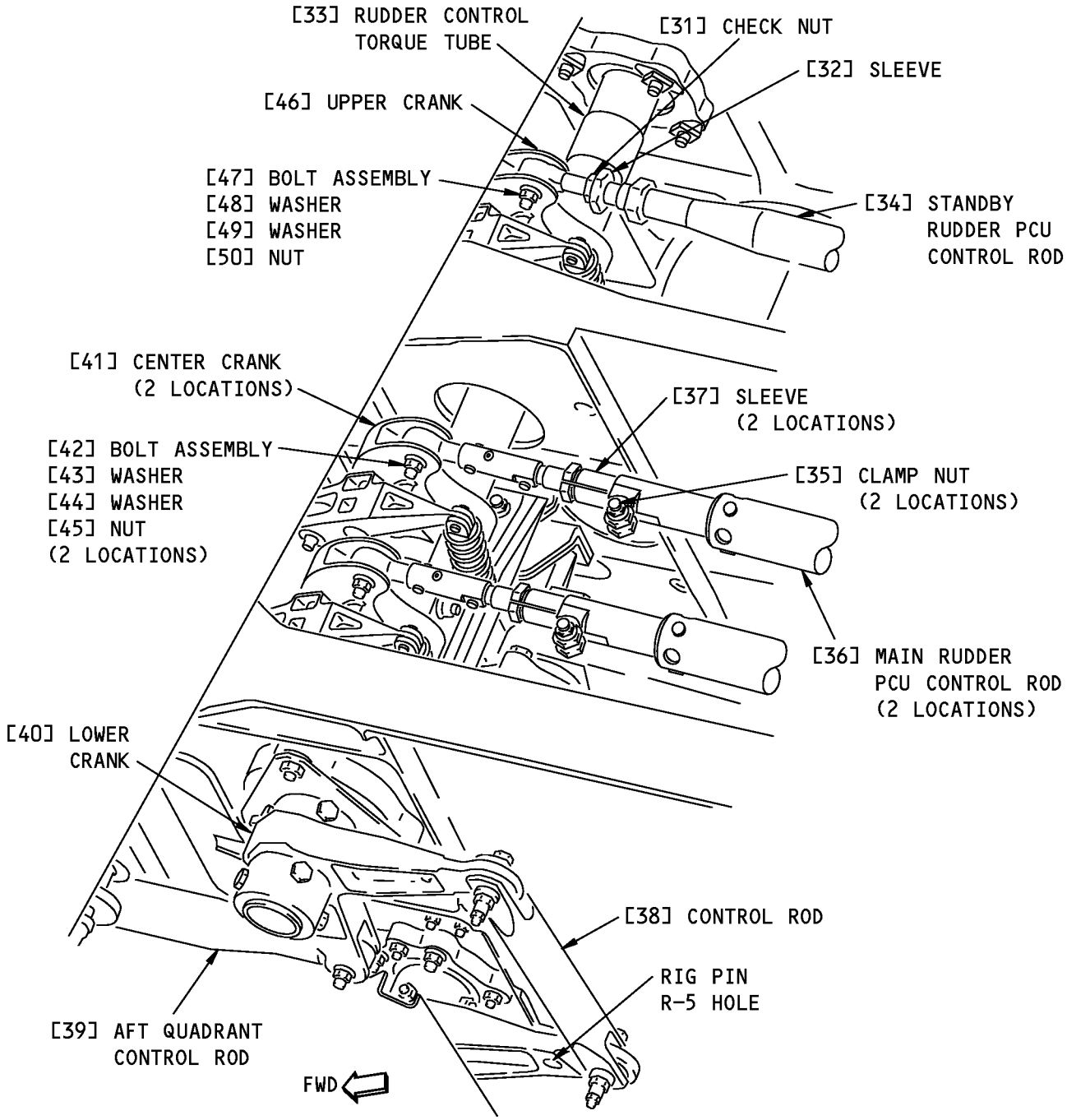

Rudder Control System Aft Components
Figure 502 (Sheet 6 of 8)/27-21-00-990-811-002

EFFECTIVITY
HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253; AIRPLANES WITHOUT 251A3495-1 OR -7 CONTROL ROD

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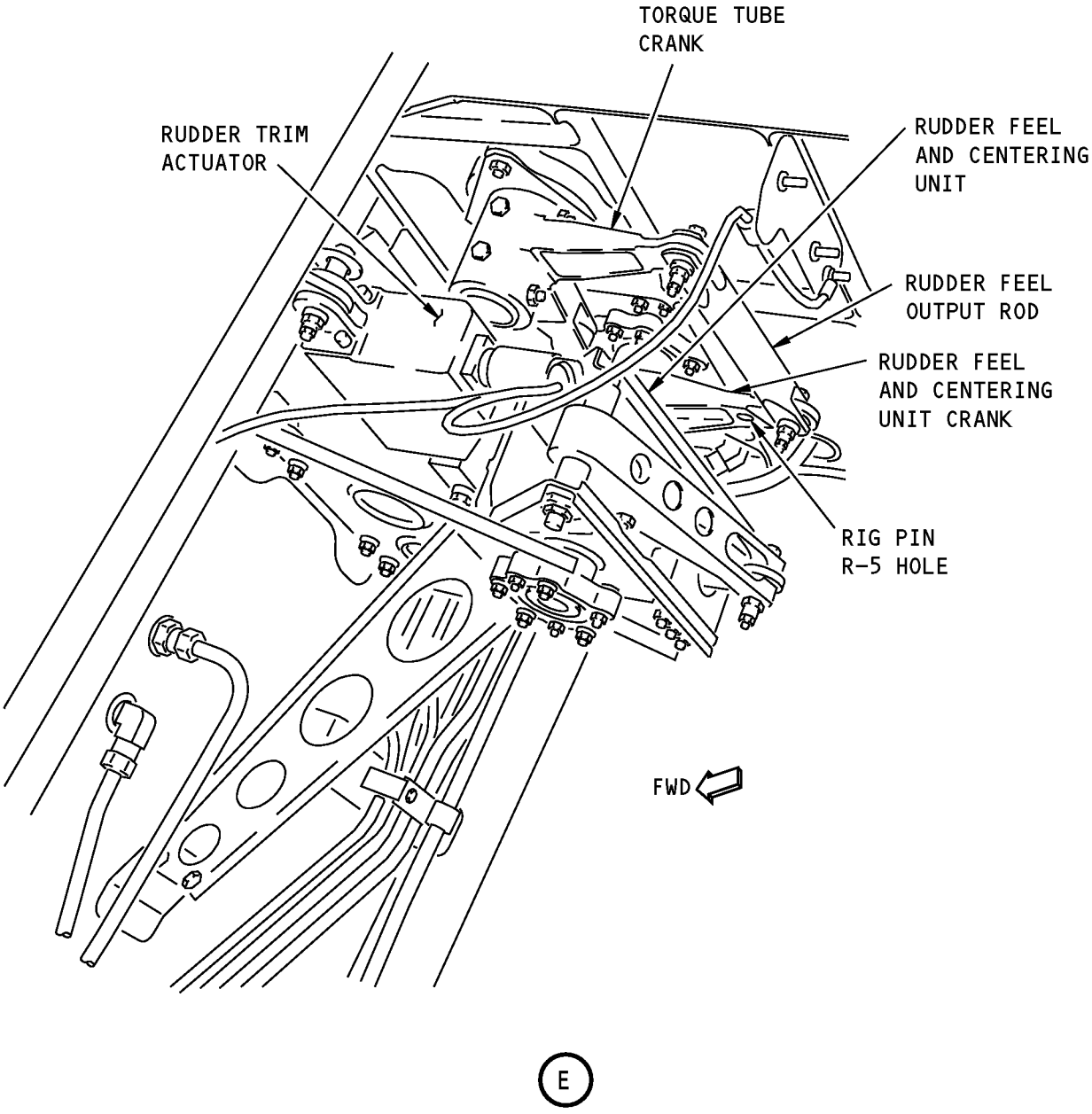

Rudder Control System Aft Components
Figure 502 (Sheet 7 of 8)/27-21-00-990-811-002

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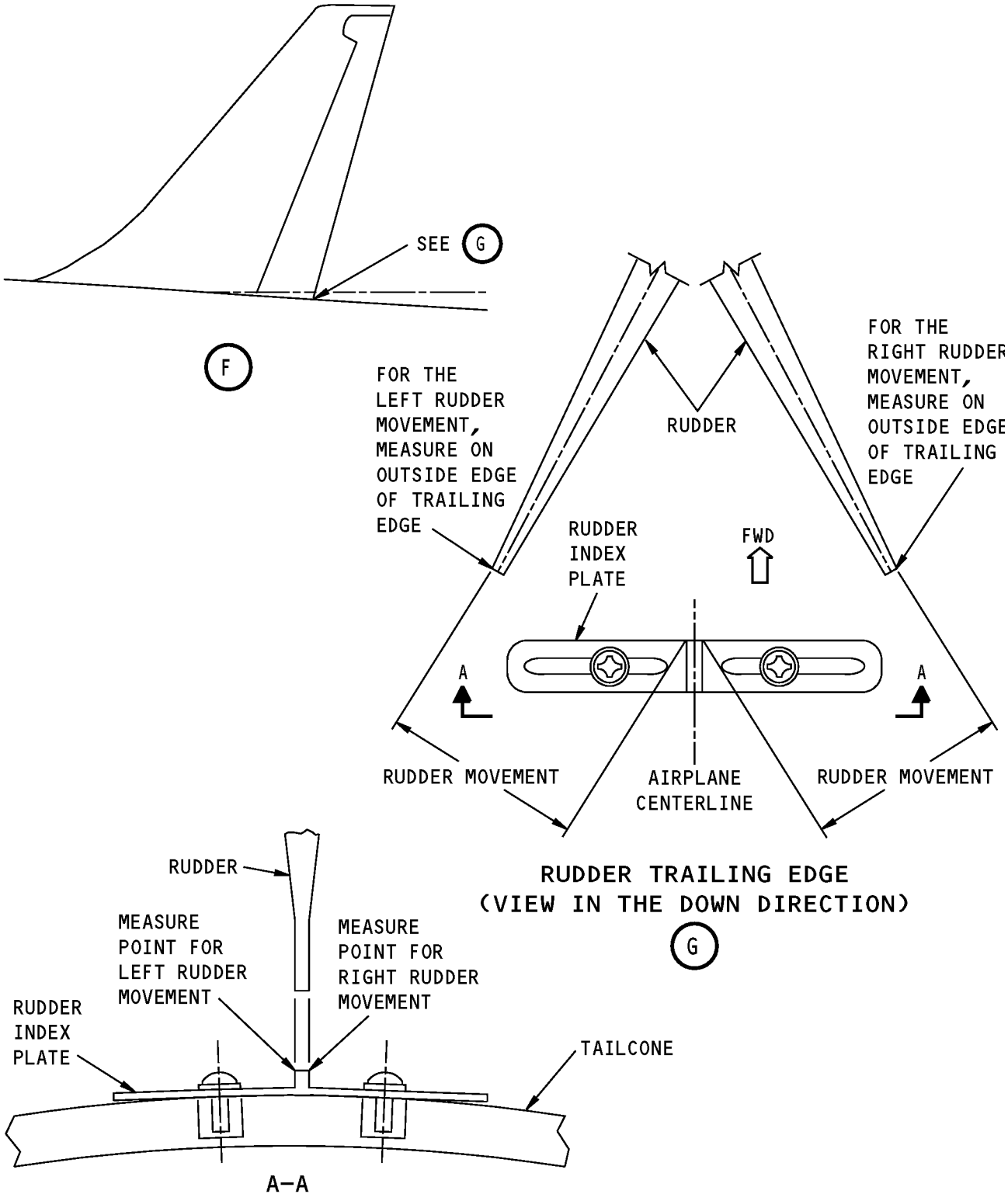

Rudder Control System Aft Components
Figure 502 (Sheet 8 of 8)/27-21-00-990-811-002

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TASK 27-21-00-820-810-002

6. Control Rod for Standby Rudder Power Control Unit Adjustment

(Figure 502)

A. General

(1) Use this task to adjust the control rod for the standby rudder power control unit (PCU). The rudder main PCU must be adjusted before you adjust the standby rudder PCU.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

E. Prepare for the Adjustment

SUBTASK 27-21-00-860-092-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-21-00-010-028-002

(2) To get access to the standby rudder PCU, do this step:

Open this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-00-010-029-002

(3) To get access to the rudder feel and centering unit, do this step:

Open this access panel:

Number	Name/Location
324CL	Vertical Fin, Access

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SUBTASK 27-21-00-860-093-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Pressurize the standby rudder hydraulic system. To pressurize it, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-094-002

(5) Move the rudder pedals through ten cycles to flush and bleed the standby rudder PCU.

SUBTASK 27-21-00-860-095-002

(6) Set the FLT CONTROL A and B switches to the ON position.

SUBTASK 27-21-00-860-096-002

(7) Make sure the rudder trim indicator is in the neutral position. (Figure 501)

SUBTASK 27-21-00-480-021-002

(8) Make sure you can install and remove the rig pin R-5 freely with no movement of the rudder feel and centering unit output crank.(Figure 502)

SUBTASK 27-21-00-860-169-002

(9) Align the ADIRS. To align the ADIRS, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801

F. Control Rod of the Standby Rudder PCU Adjustment

SUBTASK 27-21-00-710-072-002

(1) Adjust the control rod [34] of the standby rudder PCU:

(a) Set FLT CONTROL A and B switches to the STBY RUD position.

(b) Set the YAW DAMPER switch on the P5-3 overhead panel to the ON position.

1) Make sure the YAW DAMPER light goes out after approximately 2 seconds.

(c) Move the control wheel approximately 30 degrees clockwise.

1) Make sure the rudder moves to the right.

(d) Release the control wheel.

(e) Do these steps to initiate a zero yaw damper command output from the stall Management Yaw Damper No. 2 (SMYD No. 2), M1748:

NOTE: The SMYD No. 2 is installed on the E3-2 electrical equipment rack.

1) Push and release the ON/OFF button on the front BITE display of the SMYD No. 2.

2) Push and release the up arrow or down arrow button until the GROUND TEST shows on the display.

3) Push the YES button to get access to the ground test option.

4) Push and release the up arrow or down arrow button until the SERVO TEST? shows on the display.

5) Push the YES button to start the servo test.

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WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER. THE RUDDER CAN MOVE QUICKLY WHEN YOU PUSH THE "YES" BUTTON ON THE SMYD NO. 2. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

6) Push the YES button when the RUDDER CLEARED? shows on the display.

7) Push the YES button when the FLT CTRL A STBY? shows on the display.

8) Push the YES button when the FLT CTRL B STBY? shows on the display.

9) Push the YES button when YAW DMPR ENGAGED? shows on the display.

10) Push the YES button when the ZERO COMMAND? shows on the display.

NOTE: A yaw damper command value and LVDT position will show for 10 seconds each, then the END ZERO COMMAND? will show on the display. You can push the NO button to show these values again.

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253; AIRPLANES WITH 251A3495-1 OR -7 CONTROL ROD

SUBTASK 27-21-00-820-023-002

(2) Do this adjustment to the standby rudder PCU control rod [34] (Figure 502):

(a) Loosen the clamp nut [31] on the control rod [34] until you can rotate the sleeve [32].

(b) Rotate the sleeve [32] until the rudder trailing edge is within the center of the index plate.

NOTE: One full rotation of the sleeve [32] will move the rudder trailing edge 0.18 degree (0.18 inch). Rotate the sleeve [32] clockwise (looking aft) will move the rudder trailing edge left. Rotate the sleeve [32] counter-clockwise (looking aft) will move the rudder trailing edge right.

(c) Tighten the clamp nut [31] on the control rod [34].

NOTE: Do not torque the clamp nut [31] at this time.

(d) Make sure that the rudder trailing edge is still within the center of the index plate.

(e) Tighten the clamp nut [31] on the control rod [34] to 100 in-lb (11.3 N·m) – 150 in-lb (16.9 N·m).

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253; AIRPLANES WITHOUT 251A3495-1 OR -7 CONTROL ROD

SUBTASK 27-21-00-820-032-002

(3) Do this adjustment to the standby rudder PCU control rod [34](Figure 502):

(a) If the rudder trailing edge is greater than 0.50 in. (12.7 mm) from the neutral position, then do this coarse adjustment to the control rod [34]:

WARNING: MAKE SURE THAT YOU SET THESE SWITCHES TO THE OFF POSITION BEFORE YOU DISCONNECT THE CONTROL ROD FROM THE STANDBY RUDDER PCU. THE CONTROL ROD CAN MOVE QUICKLY AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

1) Set the FLT CONTROL A and B switches to OFF.

2) Loosen the two checknuts [31] on the control rod [34].

3) Remove the nut [50], washer [49], washer [48], and bolt [47] to disconnect the control rod [34] from the upper crank [46] of the torque tube [33].

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4) Turn the control rod end for half a turn relative to the sleeve [32]; and turn the sleeve [32] and the control rod end together for half a turn.

NOTE: The sum of half turn of each is equal to 0.67 in. (17.0 mm) at the rudder trailing edge.

5) Keep number of threads that you can see in the two parts are approximately same.

6) Install the bolt assembly [47] with the bolt head end up, washer [48] (under bolt), washer [49] (under nut), and nut [50] to connect the control rod [34] to the upper crank [46].

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER. THE RUDDER CAN MOVE QUICKLY WHEN YOU PUSH THE 'YES' BUTTON ON THE SMYD NO. 2. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

7) Set the FLT CONTROL A and B switches to the STANDBY RUD position.

(b) If the rudder trailing edge is less than 0.50 in. (12.7 mm) from the neutral position, then do this fine adjustment to the control rod [34]:

1) Loosen the checknuts [31] on the control rod [34].

2) Turn the adjustable sleeve [32] until the two sides of the rudder trailing edge are in the width of the rudder index tab.

3) Tighten the two checknuts [31].

(c) Do a check for minimum thread engagement of the rod. Make sure that you can see the rod from the inspection hole in the tube.

(d) Set the YAW DAMPER switch to the OFF position.

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

SUBTASK 27-21-00-820-025-002

(4) Make sure that you can install and remove the rig pin R-5 freely.

SUBTASK 27-21-00-860-097-002

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

SUBTASK 27-21-00-820-026-002

(6) Set the FLT CONTROL A and B switches to ON.

(a) Make sure that the STBY RUD ON light is not illuminated after 5 seconds.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-480-022-002

(1) Remove the rig pin R-5.

SUBTASK 27-21-00-860-098-002

(2) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

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SUBTASK 27-21-00-410-014-002

(3) Close these access panels:

Number	Name/Location
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

——————— END OF TASK ———————

TASK 27-21-00-700-813-002

7. Rudder Pedal Adjustment and Limit Travel Test

A. General

(1) Use this test to make sure the rudder pedals can move through their full travel and the pedal adjustment crank operates correctly.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-21-00-860-099-002

(1) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-730-030-002

(2) Do these steps to set the jackshaft yokes to the middle positions:

NOTE: The middle positions of the jackshaft yokes is where the number of turns of the shaft from the full forward and full aft adjustment are the same.

(a) Turn the rudder pedal adjustment cranks for both the captain and first officer to move the rudder pedals full forward.

(b) Turn the rudder pedal adjustment cranks to move the rudder pedals full aft.

1) Keep a record of number of turns.

(c) Turn the rudder pedal adjustment cranks back half of the number of recorded turns to set the jackshaft yoke to the middle position.

(d) Make sure that you can install rig pins R-1 and R-2 easily.

(e) Remove the rig pins R-1 and R-2.

SUBTASK 27-21-00-730-028-002

(3) Do the captain's rudder pedal adjustment and the limit travel:

(a) Make sure the rudder trim indicator is at the zero unit of trim.

(b) Turn the rudder pedal adjustment crank to move the captain's pedals full forward.

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(c) Push the captain's left pedal forward until it touches the stop and hold.

1) Measure the forward travel of the captain's left pedal from the middle position of the pedal adjustment.

2) Make sure the forward travel, which measured at the pedal pivot point is at a minimum of 6.58 in. (167.1 mm).

3) Release the captain's left pedal.

(d) Push the captain's right pedal forward until it touches the stop and hold.

1) Measure the forward travel of the captain's right pedal from the middle position of the pedal adjustment.

2) Make sure the forward travel, which measured at the pedal pivot point is at a minimum of 6.58 in. (167.1 mm).

3) Release the captain's right pedal.

(e) Push forward on both the captain's left and right pedals at the same time:

1) Apply approximately 2.5 pounds on each pedal simultaneously.

(f) Release both pedals.

(g) Turn the rudder pedal adjustment crank to move the captain's pedals to full aft position.

1) Turn the crank at a rate of one revolution (turn) per second.

(h) Make sure that the adjustment crank moves smooth and without any chatter.

(i) Push the captain's left pedal forward until it touches the stop and hold.

1) Measure the aft travel of the captain's right pedal from the middle position of the pedal adjustment.

2) Make sure the aft travel, which measured at the pedal pivot point is at a minimum of 6.61 in. (167.9 mm).

3) Release the captain's left pedal.

(j) Push the captain's right pedal forward until it touches the stop and hold.

1) Measure the aft travel of the captain's left pedal from the middle position of the pedal adjustment.

2) Make sure the aft travel, which measured at the pedal pivot point is at a minimum of 6.61 in. (167.9 mm).

3) Release the captain's right pedal.

(k) Turn the rudder pedal adjustment crank to move the captain's pedals to full forward position.

1) Turn the crank at a rate of one revolution (turn) per second.

(l) Make sure that the adjustment crank only chattered slightly and there is no binding when the crank is turned.

NOTE: The tendency to chatter will increase as the rate of adjustment increases.

SUBTASK 27-21-00-730-029-002

(4) Do the first officer's rudder pedal adjustment and the limit travel:

(a) Make sure the rudder trim indicator is at the zero unit of trim.

(b) Turn the rudder pedal adjustment crank to move the first officer's pedals full forward.

(c) Push the first officer's left pedal forward until it touches the stop and hold.

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1) Measure the forward travel of the first officer's left pedal from the middle position of the pedal adjustment.
2) Make sure the forward travel, which measured at the pedal pivot point is at a minimum of 6.58 in. (167.1 mm).
3) Release the first officer's left pedal.

(d) Push the first officer's right pedal forward until it touches the stop and hold.
1) Measure the forward travel of the first officer's right pedal from the middle position of the pedal adjustment.
2) Make sure the forward travel, which measured at the pedal pivot point is at a minimum of 6.58 in. (167.1 mm).
3) Release the first officer's right pedal.

(e) Push on both the first officer's left and right pedals at the same time:
1) Apply approximately 2.5 pounds on each pedal simultaneously.

(f) Release both pedals.

(g) Turn the rudder pedal adjustment crank to move the first officer's pedals to full aft position.
1) Turn the crank at a rate of one revolution (turn) per second.

(h) Make sure that the adjustment crank moves smooth and without any chatter.

(i) Turn the rudder pedal adjustment crank to move the first officer's pedals to full aft position.

(j) Push the first officer's left pedal forward until it touches the stop and hold.
1) Measure the aft travel of the first officer's right pedal from the middle position of the pedal adjustment.
2) Make sure the aft travel, which measured at the pedal pivot point is at a minimum of 6.61 in. (167.9 mm).
3) Release the first officer's left pedal.

(k) Push the first officer's right pedal forward until it touches the stop and hold.
1) Measure the aft travel of the first officer's left pedal from the middle position of the pedal adjustment.
2) Make sure the aft travel, which measured at the pedal pivot point is at a minimum of 6.61 in. (167.9 mm).
3) Release the first officer's right pedal.

(l) Turn the rudder pedal adjustment crank to move the first officer's pedals to full forward position.
1) Turn the crank at a rate of one revolution (turn) per second.

(m) Make sure that the adjustment crank only chatters slightly and there is no binding when the crank is turned.

NOTE: The tendency to chatter will increase as the rate of adjustment increases.

SUBTASK 27-21-00-860-100-002

(5) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

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TASK 27-21-00-700-814-002

8. Rudder Hinge Bearing and PCU Bearing Freeplay

(Figure 503)

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this task to check the freeplay of the rudder control system.

(3) This test will have two rudder left position readings. This will verify that the indicator does not move during the test.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

Reference	Description
STD-753	Scale - Push/Pull, 0-25 pound (0-11 kilogram) Capacity, 1/4 pound (113 gram) Accuracy
STD-1238	Indicator - Dial
STD-1278	Block - Loading, 1/8 Inch Thick, 3 Inch by 3 Inch Wood or Fiberglass Block with Pad to Prevent Damage to the Skin.
STD-1279	Mount - Device, Mounting, Holds the Dial Indicator

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

E. Procedure

SUBTASK 27-21-00-860-101-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-730-017-002

(2) Do the rudder hinge bearing and PCU bearing freeplay:

(a) Make sure the rudder and rudder pedals are in the neutral position.

(b) Make sure the rudder trim indicator is at zero units of trim.

(c) Attach the dial dial indicator, STD-1238 with the mount, STD-1279 at the lower end of the rudder trailing edge.

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CAUTION: USE A LOADING BLOCK AND DO NOT PUT MORE THAN 50 LBF (222 N) ON THE RUDDER WHEN YOU MOVE THE RUDDER SURFACE BY AN EXTERNAL FORCE. APPLY THE EXTERNAL FORCE APPROXIMATELY BETWEEN 6 TO 8 INCHES (150 TO 200 MILLIMETERS) FROM THE BOTTOM OF THE TRAILING EDGE AND APPROXIMATELY 3 INCHES (80 MILLIMETERS) FORWARD OF THE TRAILING EDGE. IF YOU DO NOT APPLY FORCE AT THIS LOCATION, YOU CAN CAUSE DAMAGE TO THE RUDDER.

(d) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder to the left side with a force of 12 lbf (53.4 N) ±4.0 lbf (17.8 N) and release slowly.

1) Make a record of the rudder position on the dial indicator.

(e) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder to the right side with a force of 12 lbf (53.4 N) ±4.0 lbf (17.8 N) and release slowly.

1) Make a record of the rudder position on the dial indicator.

(f) Make sure the difference between the left and right positions is not more than 0.05 in. (1.3 mm).

1) If the difference is more than 0.05 in. (1.3 mm), Then replace the bearings on the rudder hinge or power control units and repeat this test.

(g) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder to the left side with a force of 12 lbf (53.4 N) ±4.0 lbf (17.8 N) and release slowly.

NOTE: This check compares the two left positions to verify that the dial indicator did not move during the test. If the check shows that the dial indicator had moved, the test has to be repeated.

1) Make a record of the rudder position on the dial indicator.

(h) Make sure the difference between the two left positions is not more than 0.03 in. (0.8 mm).

1) If the difference is more than 0.03 in. (0.8 mm), then repeat the freeplay check.

(i) Remove the dial indicator, STD-1238 from the rudder.

SUBTASK 27-21-00-860-102-002

(3) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

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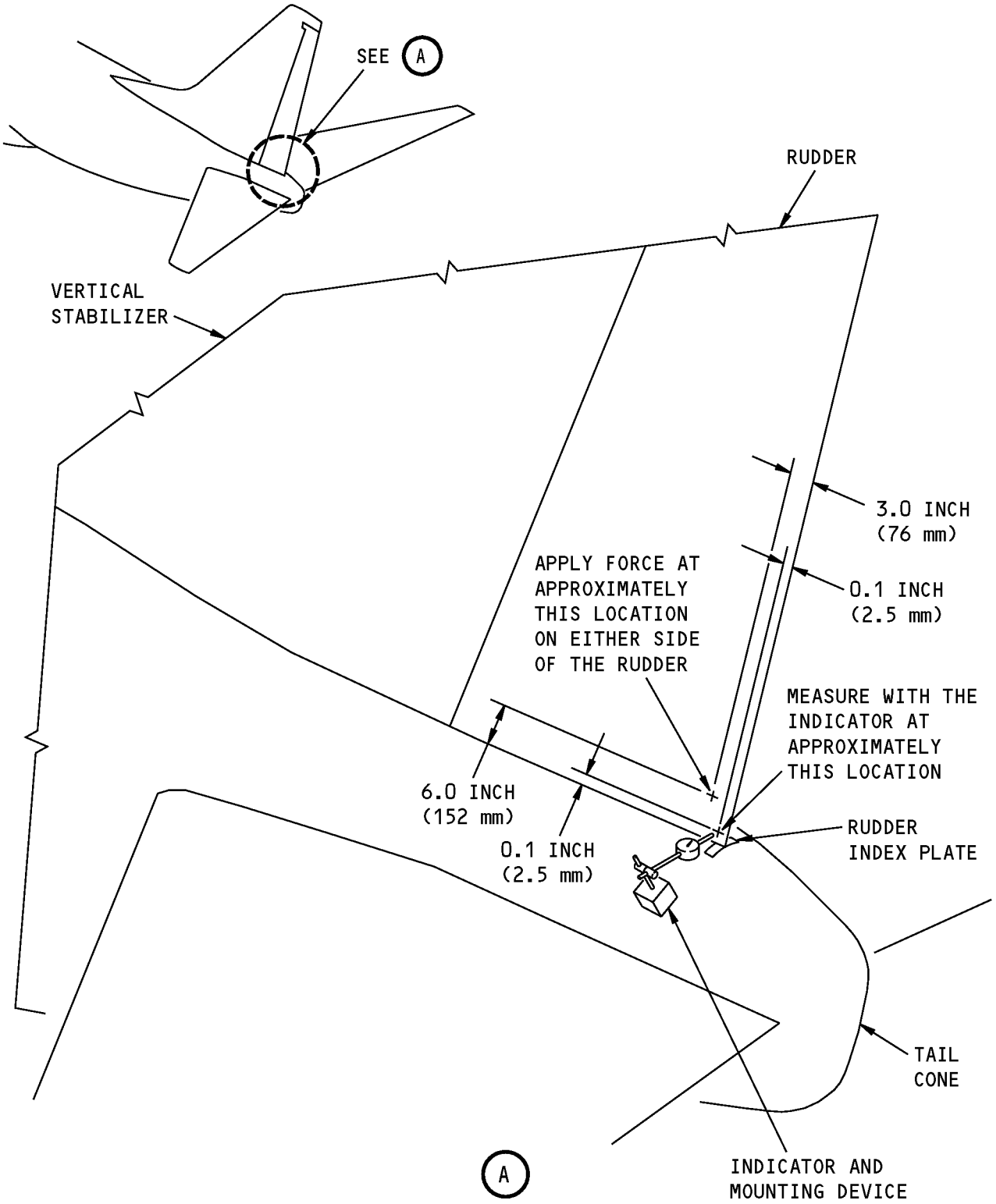

Rudder Hinge and PCU Bearing Freeplay Check
Figure 503/27-21-00-990-818-002

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TASK 27-21-00-700-815-002

9. Rudder Centering Test

A. General

(1) Use this test to make sure the rudder is in its center position.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-21-00-860-103-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-104-002

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-21-00-860-105-002

(3) Align the ADIRS. To align the ADIRS, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 27-21-00-730-018-002

(4) Do the test of the rudder centering test:

(a) Make sure the rudder is in the neutral position.

1) If it is necessary, move the rudder pedals lightly to set the rudder to the neutral position.

(b) Make sure that the rudder trim indicator is at 0.0 ± 0.25 units of trim.

(c) Move the captain's left rudder pedal approximately 0.5 in. (12.7 mm) forward and release.

1) Make sure the rudder goes back to the neutral position.

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(d) Move the captain's right rudder pedal approximately 0.5 in. (12.7 mm) forward and release.

1) Make sure the rudder goes back to the neutral position.

(e) Set FLT CONTROL A and B switches to the STBY RUD position.

1) Make sure that the STANDBY HYD LOW PRESSURE light on the P5-3 panel extinguishes.

(f) Set the YAW DAMPER switch on the P5-3 overhead panel to the ON position.

(g) Do these steps to initiate a zero yaw damper command output from the stall Management Yaw Damper No. 2 (SMYD No. 2), M1748:

NOTE: The SMYD No. 2 is installed on the E3-2 electrical equipment rack.

1) Push and release the ON/OFF button on the front BITE display of the SMYD No. 2.
2) Push and release the up arrow or down arrow button until the GROUND TEST shows on the display.
3) Push the YES button to get access to the ground test option.
4) Push and release the up arrow or down arrow button until the SERVO TEST? shows on the display.
5) Push the YES button to start the servo test.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE RUDDER. THE RUDDER CAN MOVE QUICKLY WHEN YOU PUSH THE "YES" BUTTON ON THE SMYD NO. 2. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

6) Push the YES button when the RUDDER CLEARED? shows on the display.
7) Push the YES button when the FLT CTRL A STBY? shows on the display.
8) Push the YES button when the FLT CTRL B STBY? shows on the display.
9) Push the YES button when YAW DMPR ENGAGED? shows on the display.
10) Push the YES button when the ZERO COMMAND? shows on the display.

NOTE: A yaw damper command value and LVDT position will show for 10 seconds each, then the END ZERO COMMAND? will show on the display. You can push the NO button to show these values again.

(h) Move the captain's left rudder pedal approximately 0.5 in. (12.7 mm) forward and release.

1) Make sure the rudder goes back to the neutral position.

(i) Move the captain's right rudder pedal approximately 0.5 in. (12.7 mm) forward and release.

1) Make sure the rudder goes back to the neutral position.

(j) Push and release the ON/OFF button on the SMYD No. 2.

SUBTASK 27-21-00-860-107-002

(5) Set the YAW DAMPER switch on the P5-3 overhead panel to the OFF position.

SUBTASK 27-21-00-860-108-002

(6) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 27-21-00-860-109-002

(7) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

END OF TASK

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TASK 27-21-00-700-816-002

10. Rudder Pedal Forces Test

(Figure 504)

A. General

(1) Use this test to make sure the rudder pedals operate with the correct forces.

NOTE: You must measure the forces with the pedal moving away from the neutral position. If the pedal moves more than the specified distances, you must repeat the test and start with the pedal at neutral position.

(2) You may need two people to do the test. One person can sit in one of the seats and push on the tool. The other person can measure the rudder pedal movement and record the results.

(3) It may be useful to take three readings on each rudder pedal for better accuracy on the rudder pedal forces test.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1681	Adapter - Force Check Tool, Rudder Pedal (Part #: F80212-30, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

E. Procedure

SUBTASK 27-21-00-860-110-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-730-019-002

(2) Do the test of the rudder pedal forces test:

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(a) Set the captain's and first officer's rudder pedal adjustment cranks to the middle position and verify. (Figure 501)

(b) Make sure the rudder pedals are in the neutral position.

(c) Install adapter, SPL-1681 on the captain's left rudder pedal.

1) Push on the adapter, SPL-1681 until the rudder starts to move.

2) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 503):

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

Table 503/27-21-00-993-816-002

Angle from Horizontal	Multiplication Factor
0°	1.0
5°	1.0
10°	0.98
15°	0.97
20°	0.94
25°	0.91
30°	0.87
35°	0.82
40°	0.77
45°	0.71

3) Make sure the pedal force is no more than 18.0 lbf (80.1 N).

4) Push again on the adapter, SPL-1681 until the captain's left rudder pedal is 3.60 in. (91.4 mm) ±0.10 in. (2.5 mm) forward from the neutral position.

NOTE: When the rudder pedal reaches 3.6 +/- 0.1 inches, DO NOT relax the force on the tool until measurement is taken, or the test will fail. If the 3.6 +/- 0.1 inch travel limit is exceeded, release the pedal to neutral and start again.

NOTE: You can use a ruler or straightedge that is placed against the rudder pedal, to measure the rudder pedal movement. It may help to attach a pointer to the pedal, using tape.

5) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 503).

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

6) Make sure the pedal force is between 60.0 lbf (266.9 N) to 82.0 lbf (364.8 N).

7) Remove the adapter, SPL-1681 from the captain's left pedal.

(d) Install adapter, SPL-1681 on the captain's right rudder pedal.

1) Push on the adapter, SPL-1681 until the rudder starts to move.

2) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 503).

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

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3) Make sure the pedal force is no more than 18.0 lbf (80.1 N).

4) Push again on the adapter, SPL-1681 until the captain's right rudder pedal is 3.60 in. (91.4 mm) ±0.10 in. (2.5 mm) forward from the neutral position.

NOTE: When the rudder pedal reaches 3.6 +/- 0.1 inches, DO NOT relax the force on the tool until measurement is taken, or the test will fail. If the 3.6 +/- 0.1 inch travel limit is exceeded, release the pedal to neutral and start again.

5) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 503).

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

6) Make sure the pedal force is between 60.0 lbf (266.9 N) to 82.0 lbf (364.8 N).

7) Remove the adapter, SPL-1681 from the captain's right pedal.

(e) Install adapter, SPL-1681 on the first officer's left rudder pedal.

1) Push on the adapter, SPL-1681 until the rudder starts to move.

2) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 503).

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

3) Make sure the pedal force is no more than 18.0 lbf (80.1 N).

4) Push again on the adapter, SPL-1681 until the first officer's left rudder pedal is 3.60 in. (91.4 mm) ±0.10 in. (2.5 mm) forward from the neutral position.

NOTE: When the rudder pedal reaches 3.6 +/- 0.1 inches, DO NOT relax the force on the tool until measurement is taken, or the test will fail. If the 3.6 +/- 0.1 inch travel limit is exceeded, release the pedal to neutral and start again.

5) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 503).

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

6) Make sure the pedal force is between 60.0 lbf (266.9 N) to 82.0 lbf (364.8 N).

7) Remove the adapter, SPL-1681 from the first officer's left pedal.

(f) Install adapter, SPL-1681 on the first officer's right rudder pedal.

1) Push on the adapter, SPL-1681 until the rudder starts to move.

2) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 503).

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

3) Make sure the pedal force is no more than 18.0 lbf (80.1 N).

4) Push again on the adapter, SPL-1681 until the first officer's right rudder pedal is 3.60 in. (91.4 mm) ±0.10 in. (2.5 mm) forward from the neutral position.

NOTE: When the rudder pedal reaches 3.6 +/- 0.1 inches, DO NOT relax the force on the tool until measurement is taken, or the test will fail. If the 3.6 +/- 0.1 inch travel limit is exceeded, release the pedal to neutral and start again.

5) Multiply the compression gage value on the adapter, SPL-1681 by a multiplication factor given in (Table 503).

NOTE: The angle from the horizontal value is also shown on the adapter, SPL-1681.

6) Make sure the pedal force is between 60.0 lbf (266.9 N) to 82.0 lbf (364.8 N).

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7) Remove the adapter, SPL-1681 from the first officer's right pedal.

SUBTASK 27-21-00-860-111-002

(3) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

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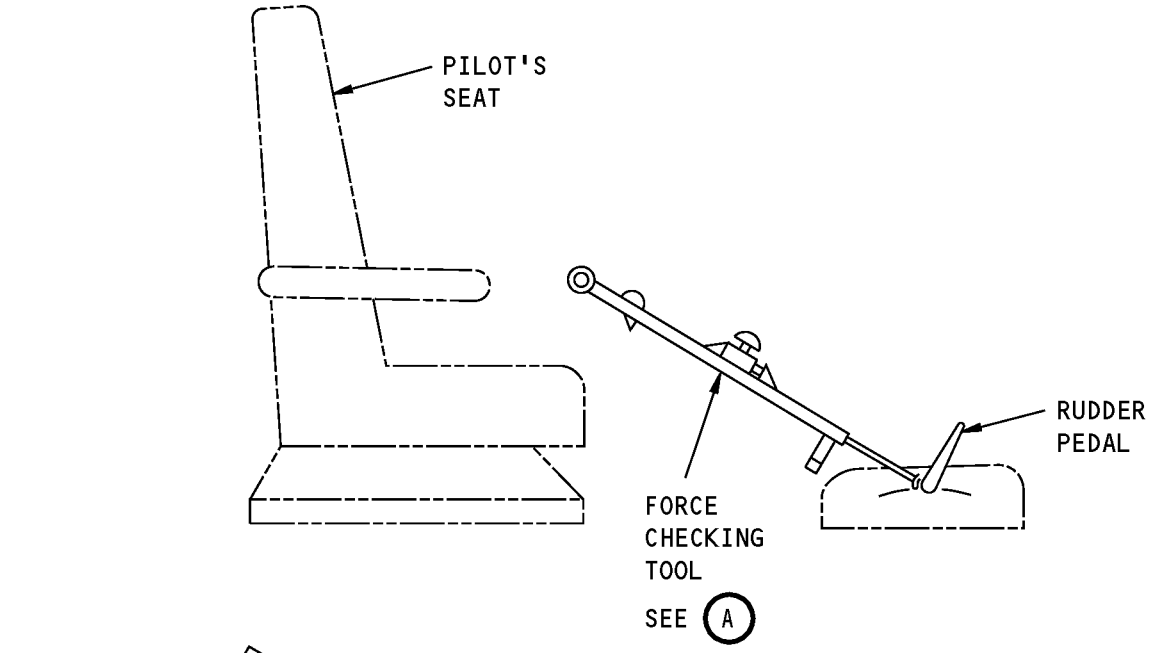

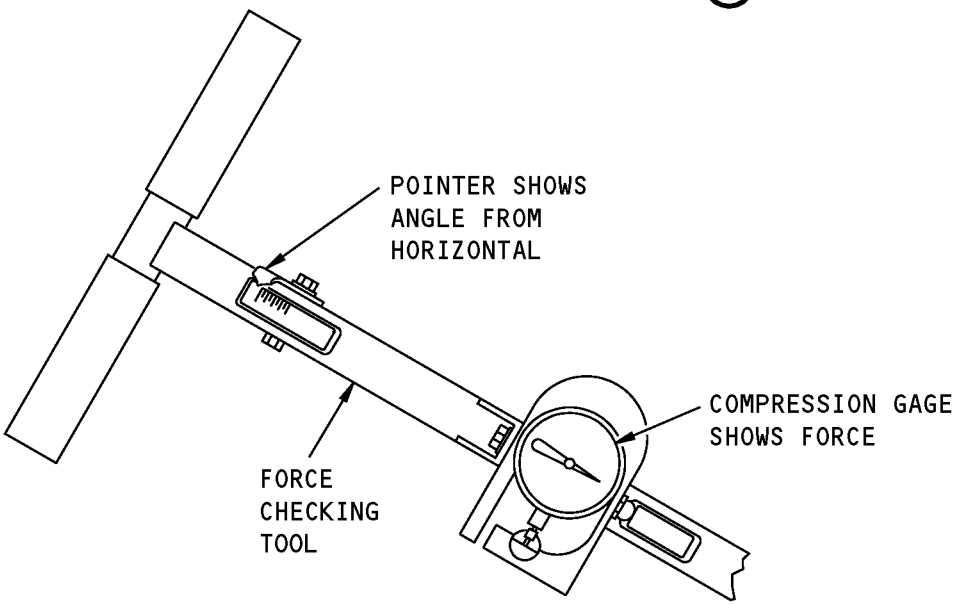

FORCE CHECKING TOOL
A

Rudder Pedal Force Checking Tool
Figure 504/27-21-00-990-812-002

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TASK 27-21-00-700-817-002

11. Rudder Travel Test

A. General

(1) Use this test to make sure the rudder operates correctly.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-21-00-860-112-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the rudder hydraulic systems A and B, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-730-020-002

(2) Do the test of the rudder travel test:

(a) Set the FLT CONTROL A switch to the ON position and FLT CONTROL B switch to the OFF position.

(b) Set the captain's and first officer's rudder pedal adjustment cranks to the middle position. (Figure 501)

(c) Make sure the rudder pedals are in the neutral position.

(d) Push and hold captain's left pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 in. (685.0 mm) ±0.91 in. (23.1 mm) (29.00 +/- 1.00 degrees) rudder trailing edge left.

3) Release the captain's left pedal.

(e) Push and hold the captain's right pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 in. (685.0 mm) ±0.91 in. (23.1 mm) (29.00 +/- 1.00 degrees) rudder trailing edge right.

3) Release the captain's right pedal.

(f) Set the FLT CONTROL B switch to the ON position and FLT CONTROL A switch to the OFF position.

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(g) Push and hold captain's left pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 in. (685.0 mm) ±0.91 in. (23.1 mm) (29.00 +/- 1.00 degrees) rudder trailing edge left.

3) Release the captain's left pedal.

(h) Push and hold the captain's right pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 in. (685.0 mm) ±0.91 in. (23.1 mm) (29.00 +/- 1.00 degrees) rudder trailing edge right.

3) Release the captain's right pedal.

(i) Set the FLT CONTROL B switch to the STBY position.

(j) Push and hold captain's left pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 in. (685.0 mm) ±0.91 in. (23.1 mm) (29.00 +/- 1.00 degrees) rudder trailing edge left.

3) Release the captain's left pedal.

(k) Push and hold the captain's right pedal until it touches the forward quadrant stop.

1) Measure the rudder travel.

2) Make sure that the dimension is 26.97 in. (685.0 mm) ±0.91 in. (23.1 mm) (29.00 +/- 1.00 degrees) rudder trailing edge right.

3) Release the captain's right pedal.

SUBTASK 27-21-00-860-113-002

(3) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

TASK 27-21-00-700-818-002

12. Standby Rudder Power Control Unit Deadband Test

A. General

(1) Use this test to make sure the standby rudder power control unit (PCU) is in the correct rigged position.

NOTE: Make sure that the YAW DAMPER switch on the P5-3 overhead panel is in the OFF position.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

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(Continued)

Zone	Area
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-21-00-860-114-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the standby rudder hydraulic system. To pressurize it, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-115-002

(2) Move the rudder pedals through ten cycles to flush and bleed the standby rudder PCU.

SUBTASK 27-21-00-860-116-002

(3) Set the FLT CONTROL A and B switches to the ON position.

SUBTASK 27-21-00-730-021-002

(4) Do the test of the standby rudder PCU deadband test:

(a) Make sure the rudder is in the neutral position.

1) If it is necessary, move the rudder pedals lightly to put the rudder to the neutral position.

2) Make sure the rudder trim indicator is at 0.00 +/- 0.25 unit of trim.

(b) Set the FLT CONTROL A and B to the STANDBY RUD position.

(c) Use your hands to push the rudder to the right, then slowly remove the load.

1) Move your hands away from the rudder.

2) Measure the rudder right position from the center of the rudder trailing edge to the centerline of the index plate.

3) Record this measurement as A.

(d) Push the rudder by hands to the left, then slowly remove the load.

1) Move your hands away from the rudder.

2) Measure the rudder left position from the center of the rudder trailing edge to the centerline of the index plate.

3) Record this measurement as B.

(e) Make sure the difference between A and B is not greater than 0.2 in. (5 mm).

1) If the difference is greater than 0.2 in. (5 mm), do this task: Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-002

SUBTASK 27-21-00-860-117-002

(5) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

END OF TASK

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TASK 27-21-00-700-819-002

13. Rudder Trim System Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to make sure the rudder trim system operates correctly.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

D. Procedure

SUBTASK 27-21-00-860-118-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize both rudder hydraulic systems A and B, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

NOTE: You need to pressurize both systems A and B for this task.

SUBTASK 27-21-00-730-022-002

(2) Do the test of the rudder trim system:

(a) Make sure the rudder is in the neutral position.

1) If it is necessary, move the rudder pedals lightly to put the rudder to the neutral position.

2) Make sure the rudder trim indicator is at 0.00 +/- 0.25 units of trim.

(b) Move the rudder trim knob to NOSE LEFT until the mark on the rudder trim knob is aligned with the indicator mark on the lightplate under the trim knob.

1) Make sure the rudder did not move.

(c) Move the rudder trim knob to NOSE RIGHT until the mark on the rudder trim knob is aligned with the indicator mark on the lightplate under the trim knob.

1) Make sure the rudder did not move.

(d) Move the rudder trim knob to NOSE RIGHT until the rudder trim indicator shows 10.0 +/- 0.25 units of trim.

1) Make sure the rudder moves 10.12 in. (257.0 mm) ±1.26 in. (32.0 mm) (10.74 +/- 1.35 degrees) to the right side.

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(e) Move the rudder trim knob to NOSE RIGHT until the rudder stops.

1) Make sure the rudder moves 16.89 in. (429.0 mm) ±0.93 in. (23.6 mm) (18.03 +/- 1.00 degrees) to the right side.

2) Make sure the rudder trim indicator is at least 15 units of trim.

(f) Move the rudder trim knob to NOSE LEFT until the rudder trim indicator shows 10.0 +/- 0.25 units of trim.

1) Make sure the rudder moves 10.12 in. (257.0 mm) ±1.26 in. (32.0 mm) (10.74 +/- 1.35 degrees) to the left side.

(g) Move the rudder trim knob to NOSE LEFT until the rudder stops.

1) Make sure the rudder moves 16.89 in. (429.0 mm) ±0.93 in. (23.6 mm) (18.03 +/- 1.00 degrees) to the left side.

2) Make sure the rudder trim indicator is at least 15 units of trim.

(h) Make sure the rudder trim knob operates smoothly and goes back to the center freely.

SUBTASK 27-21-00-860-119-002

(3) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

TASK 27-21-00-700-820-002

14. Wheel to Rudder Interconnect System Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to make sure the wheel to rudder function of the standby rudder power control unit (PCU) operates correctly.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
325	Vertical Fin - Rudder

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D. Procedure

SUBTASK 27-21-00-860-163-002

(1) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 27-21-00-860-120-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize the rudder hydraulic systems A and B, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-121-002

(3) Align the ADIRS. To align the ADIRS, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 27-21-00-860-122-002

(4) Make sure that the mode select switch on the inertial reference system (IRS) mode select unit (MSU) is set to the NAV position.

SUBTASK 27-21-00-860-123-002

(5) Move the flaps to a position other than up position. To move them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-21-00-730-023-002

(6) Do the test of the wheel to rudder interconnect system:

NOTE: The rudder will move pass the center position to the opposite direction when the control wheel returns to the neutral position. To return the rudder to the center position with the control wheel at neutral, you must set the YAW DAMPER switch on the overhead panel to the OFF position then back to the ON position.

(a) Make sure the rudder is in the neutral position.

1) Make sure the rudder trim indicator is at 0.0 +/- 0.25 unit of trim.

2) If it is necessary, move the rudder pedals lightly to put the rudder to the neutral position.

(b) Set the FLT CONTROL A and B switches, on the forward overhead panel, P5, to the STBY RUD position.

(c) Set the YAW DAMPER switch, on the forward overhead panel, P5, to the ON position.

(d) Rotate the captain's control wheel to the full left and hold.

1) Make sure the rudder moves 2.47 in. (62.7 mm) ±0.25 in. (6.35 mm) (2.4 +/- 0.3 degrees) to the left side.

(e) Put the captain's control wheel back to the neutral position.

(f) Rotate the captain's control wheel to the full right and hold.

1) Make sure the rudder moves from left to right.

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2) Make sure the rudder moves 2.47 in. (62.7 mm) ±0.25 in. (6.35 mm) (2.4 +/- 0.3 degrees) to the right side.

(g) Put the captain's control wheel back to the neutral position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-00-860-175-002

(1) Put the YAW DAMPER switch, on the P5 panel, in the OFF position.

SUBTASK 27-21-00-860-176-002

(2) Set the mode select IRS switches to the OFF position.

SUBTASK 27-21-00-860-177-002

(3) Return the flaps to the retracted position. To retract them, do this task:

Retract the Trailing Edge Flaps, TASK 27-51-00-860-804

SUBTASK 27-21-00-860-178-002

(4) Set the FLT CONTROL A and B switches, on the forward overhead panel, P5, to the OFF position.

SUBTASK 27-21-00-860-179-002

(5) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801

——————— END OF TASK ———————

TASK 27-21-00-700-821-002

15. Rudder Hinge Friction Test

Figure 503

A. General

(1) Use this test to verify that the rudder hinge friction is within limit.

B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

C. Tools/Equipment

Reference	Description
STD-753	Scale - Push/Pull, 0-25 pound (0-11 kilogram) Capacity, 1/4 pound (113 gram) Accuracy
STD-1238	Indicator - Dial
STD-1278	Block - Loading, 1/8 Inch Thick, 3 Inch by 3 Inch Wood or Fiberglass Block with Pad to Prevent Damage to the Skin.
STD-1279	Mount - Device, Mounting, Holds the Dial Indicator

D. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

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E. Procedure

SUBTASK 27-21-00-860-125-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If hydraulic pressure is powered, do this step to turn off hydraulic power:

(a) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-00-730-024-002

CAUTION: USE A LOADING BLOCK AND DO NOT PUT MORE THAN 50 LBF (222 N) ON THE RUDDER WHEN YOU MOVE THE RUDDER SURFACE BY AN EXTERNAL FORCE. APPLY THE EXTERNAL FORCE APPROXIMATELY AT BETWEEN 6 INCHES (162 MILLIMETERS) AND 18 IN. (457 MM) FROM THE BOTTOM OF THE TRAILING EDGE AND APPROXIMATELY 3 IN. (76 MM) FORWARD OF THE TRAILING EDGE. IF YOU DO NOT APPLY FORCE AT THIS LOCATION, YOU CAN CAUSE DAMAGE TO THE RUDDER

(2) Do the rudder hinge friction check:

NOTE: If the dial indicator is not available, you can use a ruler to measure the rudder trailing edge placement in this test.

(a) Make sure the rudder and rudder pedals are in the neutral position.

(b) Make sure the rudder trim indicator is at zero units of trim.

(c) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder fully to the left side.

1) Verify that there is no sign of binding, rough spots or excessive friction at any point of travel.

a) If binding or excessive friction exist, the bearings may be out of alignment, damaged or improperly installed. Correct this condition and repeat this check.

(d) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder fully to the right side.

1) Verify that there is no sign of binding, rough spots or excessive friction at any point of travel.

a) If binding or excessive friction exist, the bearings may be out of alignment, damaged or improperly installed. Correct this condition and repeat this check.

(e) Attach the mount, STD-1279 on the tail cone.

(f) Place the pointer of the dial indicator, STD-1238 at the lower aft corner of the rudder trailing edge.

(g) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder 2.25 in. (5.72 cm) ±0.1 in. (0.25 cm) to the left side.

1) Verify that the force to move the rudder is less than 25 lbf (111 N).

(h) Use a block, STD-1278 and push/pull scale 0-25 pound (0-11 kilogram), STD-753 to move the rudder 2.25 in. (5.72 cm) ±0.1 in. (0.25 cm) to the right side.

1) Verify that the force to move the rudder is less than 25 lbf (111 N).

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(i) Remove the dial indicator, STD-1238 and block, STD-1278 from the rudder.

—————— END OF TASK ——————

TASK 27-21-00-700-822-002

16. Main Rudder PCU Internal Hydraulic Leakage Test

(Figure 505)

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this task to do a check for excessive internal hydraulic leakage for the main rudder PCU.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door
324DL	Trailing Edge Access

E. Prepare for the Main Rudder PCU Check

SUBTASK 27-21-00-840-014-002

(1) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	9	C01447	FLIGHT CONTROL RUDDER AUTHORITY LIMITER
D	15	C01628	FLIGHT CONTROL FORCE FIGHT MON

SUBTASK 27-21-00-840-015-002

(2) Open this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-00-860-156-002

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-21-00-860-126-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Pressurize the rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-128-002

(5) Put the FLT CONTROL A and B switches, on the P5-3 panel, to the ON position.

SUBTASK 27-21-00-980-003-002

(6) Move the rudder pedals through 5 cycles of full travel.

SUBTASK 27-21-00-010-030-002

(7) To get access to the main electronics equipment compartment, do this task:

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-21-00-700-002-002

(8) Use a digital voltmeter to verify 4.5 Vdc to 5.5 Vdc between pin 18 and pin 20 of connector D10064 on the E1-EE shelf in the EE bay.

SUBTASK 27-21-00-210-003-002

(9) Verify that the STBY RUD ON light on the overhead panel P5-3 is not illuminated.

SUBTASK 27-21-00-860-129-002

(10) Put the FLT CONTROL A switch, on the P5-3 panel, to the OFF position.

F. Rudder main PCU system B Internal Leakage Check in the extend direction.

NOTE: You will need 3 persons to complete this task.

There is a time limit to complete some steps in this task.

SUBTASK 27-21-00-860-130-002

(1) Use the FSEU, located on the E-1 shelf in the main equipment center, to command the Rudder Pressure Limiters (RPL) to the "LOW" pressure state. Do these steps:

NOTE: The command will remain active for only 75 seconds after it is set.

(a) Push the ON/OFF button on the front panel of the flap/slat electronics unit (FSEU), on E shelf, to turn on the display.

NOTE: The display will show EXISTING FAULTS?

(b) Select OTHER FUNCTNS? from the MAIN MENU on the FSEU. The display will show SET OUTPUTS?

(c) Select SET OUTPUTS? from the OTHER FUNCTNS? menu. The display will show RUD PRES LIMIT?

(d) Select RUD PRES LIMIT? from the SET OUTPUTS? menu. The display will show SET ON?

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(e) Select SET ON? from the RUD PRES LIMIT? menu. The display will show CMD ON, SET OFF?

NOTE: You only have 75 seconds to complete the next 3 tasks. If you do not finish in 75 seconds, you will have to repeat the test and start with the steps to use the FSEU to command the RPL to the "LOW" state.

SUBTASK 27-21-00-980-004-002

(2) Push the left rudder pedal until it touches the forward quadrant stop and hold.

NOTE: To make the test easier, you may skip the following step. If you skip the following step and the test fails during the voltage check, then you must repeat the test and perform the following step.

SUBTASK 27-21-00-980-005-002

(3) Manually hold the main rudder PCU lower control rod at location B (Figure 505) and pull forward with a force of approximately 30 to 40 lbs (133 to 178 newtons) until it touches the stop and hold.

SUBTASK 27-21-00-700-003-002

(4) Verify voltage between pin 18 and pin 20 of connector D10064 on the E1-EE shelf is between 1.87 VDC to 2.62 VDC.

SUBTASK 27-21-00-980-020-002

(5) Release the main rudder PCU control rod.

SUBTASK 27-21-00-980-021-002

(6) Release the rudder pedal.

SUBTASK 27-21-00-860-131-002

(7) The display screen on the FSEU should show CMD ON, SET OFF?.

Select YES. The display will show CMD OFF, SET ON?.

SUBTASK 27-21-00-980-022-002

(8) Push the left rudder pedal until it touches the forward quadrant stop and hold.

NOTE: To make the test easier, you may skip the following step. If you skip the following step and the test fails during the voltage check, then you must repeat the test and perform the following step.

SUBTASK 27-21-00-980-023-002

(9) Manually hold the main rudder PCU lower control rod at location B (Figure 505) and pull forward with a force of approximately 30 to 40 lbs (133 to 178 newtons) until it touches the stop and hold.

SUBTASK 27-21-00-700-004-002

(10) Verify voltage between pin 18 and pin 20 of connector D10064 on the E1-EE shelf is less than 1.87 VDC.

SUBTASK 27-21-00-980-006-002

(11) Release the main rudder PCU lower control rod.

SUBTASK 27-21-00-980-007-002

(12) Release the left rudder pedal.

NOTE: You have completed the test of system B in the extend direction.

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G. Rudder main PCU system B Internal Leakage Check in the retract direction.

SUBTASK 27-21-00-860-132-002

(1) Use the FSEU, located on the E-1 shelf in the main equipment center, to command the Rudder Pressure Limiters (RPL) to the "LOW" pressure state. Do these steps:

NOTE: The command will remains active for only 75 seconds after it is set.

(a) Push the ON/OFF button on the front panel of the flap/slat electronics unit (FSEU), on E shelf, to turn on the display.

NOTE: The display will show EXISTING FAULTS?

(b) Select OTHER FUNCTNS? from the MAIN MENU on the FSEU. The display will show SET OUTPUTS?

(c) Select SET OUTPUTS? from the OTHER FUNCTNS? menu. The display will show RUD PRES LIMIT?

(d) Select RUD PRES LIMIT? from the SET OUTPUTS? menu. The display will show SET ON?

(e) Select SET ON? from the RUD PRES LIMIT? menu. The display will show CMD ON, SET OFF?

NOTE: You only have 75 seconds to complete the next 3 tasks. If you do not finish in 75 seconds, you will have to repeat the test and start with the steps to use the FSEU to command the RPL to the "LOW" state.

SUBTASK 27-21-00-980-008-002

(2) Push the right rudder pedal until it touches the forward quadrant stop and hold.

NOTE: To make the test easier, you may skip the following step. If you skip the following step and the test fails during the voltage check, then you must repeat the test and perform the following step.

SUBTASK 27-21-00-980-009-002

(3) Manually hold the main rudder PCU lower control rod at location B (Figure 505) and pull aft with a force of approximately 30 to 40 lbs (133 to 178 newtons) until it touches the stop and hold.

SUBTASK 27-21-00-700-005-002

(4) Verify voltage between pin 18 and pin 20 of connector D10064 on the E1-EE shelf is between 7.37 VDC to 8.13 VDC.

SUBTASK 27-21-00-980-024-002

(5) Release the main rudder PCU control rod.

SUBTASK 27-21-00-980-025-002

(6) Release the rudder pedal.

SUBTASK 27-21-00-860-133-002

(7) The display screen on the FSEU should show CMD ON, SET OFF?.

Select YES. The display will show CMD OFF, SET ON?.

SUBTASK 27-21-00-980-026-002

(8) Push the right rudder pedal until it touches the forward quadrant stop and hold.

NOTE: To make the test easier, you may skip the following step. If you skip the following step and the test fails during the voltage check, then you must repeat the test and perform the following step.

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SUBTASK 27-21-00-980-027-002

(9) Manually hold the main rudder PCU lower control rod at location B (Figure 505) and pull aft with a force of approximately 30 to 40 lbs (133 to 178 newtons) until it touches the stop and hold.

SUBTASK 27-21-00-700-006-002

(10) Verify voltage between pin 18 and pin 20 of connector D10064 on the E1-EE shelf is greater than 8.13 VDC.

SUBTASK 27-21-00-980-010-002

(11) Release the main rudder PCU lower control rod.

SUBTASK 27-21-00-980-011-002

(12) Release the right rudder pedal.

NOTE: You have completed the test of system B in the retract direction.

H. Rudder main PCU system A Internal Leakage Check in the extend direction.

NOTE: You will need 3 persons to complete this task. There is a time limit to complete some steps in this task.

SUBTASK 27-21-00-860-134-002

(1) Put the FLT CONTROL A switch, on the P5-3 panel, to the ON position.

SUBTASK 27-21-00-860-135-002

(2) Put the FLT CONTROL B switch, on the P5-3 panel, to the OFF position.

SUBTASK 27-21-00-860-136-002

(3) Use the FSEU, located on the E-1 shelf in the main equipment center, to command the Rudder Pressure Limiters (RPL) to the "LOW" pressure state. Do these steps:

NOTE: The command will remains active for only 75 seconds after it is set.

(a) Push the ON/OFF button on the front panel of the flap/slat electronics unit (FSEU), on E shelf, to turn on the display.

NOTE: The display will show EXISTING FAULTS?

(b) Select OTHER FUNCTNS? from the MAIN MENU on the FSEU. The display will show SET OUTPUTS?

(c) Select SET OUTPUTS? from the OTHER FUNCTNS? menu. The display will show RUD PRES LIMIT?

(d) Select RUD PRES LIMIT? from the SET OUTPUTS? menu. The display will show SET ON?

(e) Select SET ON? from the RUD PRES LIMIT? menu. The display will show CMD ON, SET OFF?

NOTE: You only have 75 seconds to complete the next 3 tasks. If you do not finish in 75 seconds, you will have to repeat the test and start with the steps to use the FSEU to command the RPL to the "LOW" state.

SUBTASK 27-21-00-980-012-002

(4) Push the left rudder pedal until it touches the forward quadrant stop and hold.

NOTE: To make the test easier, you may skip the following step. If you skip the following step and the test fails during the voltage check, then you must repeat the test and perform the following step.

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SUBTASK 27-21-00-980-013-002

(5) Manually hold the main rudder PCU upper control rod at location A (Figure 505) and pull forward with a force of approximately 30 to 40 lbs (133 to 178 newtons) until it touches the stop and hold.

SUBTASK 27-21-00-700-007-002

(6) Verify voltage between pin 18 and pin 20 of connector D10064 on the E1-EE shelf is between 7.37 VDC to 8.13 VDC.

SUBTASK 27-21-00-980-028-002

(7) Release the main rudder PCU control rod.

SUBTASK 27-21-00-980-029-002

(8) Release the rudder pedal.

SUBTASK 27-21-00-860-137-002

(9) The display screen on the FSEU should show CMD ON, SET OFF?.

(a) Select YES. The display will show CMD OFF, SET ON?.

SUBTASK 27-21-00-980-030-002

(10) Push the left rudder pedal until it touches the forward quadrant stop and hold.

NOTE: To make the test easier, you may skip the following step. If you skip the following step and the test fails during the voltage check, then you must repeat the test and perform the following step.

SUBTASK 27-21-00-980-031-002

(11) Manually hold the main rudder PCU upper control rod at location A (Figure 505) and pull forward with a force of approximately 30 to 40 lbs (133 to 178 newtons) until it touches the stop and hold.

SUBTASK 27-21-00-700-008-002

(12) Verify voltage between pin 18 and pin 20 of connector D10064 on the E1-EE shelf is greater than 8.13 VDC.

SUBTASK 27-21-00-980-014-002

(13) Release the main rudder PCU upper control rod.

SUBTASK 27-21-00-980-015-002

(14) Release the left rudder pedal.

NOTE: You have completed the test of system A in the extend direction.

I. Rudder main PCU system A Internal Leakage Check in the retract direction.

NOTE: You will need 3 persons to complete this task. There is a time limit to complete some steps in this task.

SUBTASK 27-21-00-860-138-002

(1) Use the FSEU, located on the E-1 shelf in the main equipment center, to command the Rudder Pressure Limiters (RPL) to the "LOW" pressure state. Do these steps:

NOTE: The command will remains active for only 75 seconds after it is set.

(a) Push the ON/OFF button on the front panel of the flap/slat electronics unit (FSEU), on E shelf, to turn on the display.

NOTE: The display will show EXISTING FAULTS?

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(b) Select OTHER FUNCTNS? from the MAIN MENU on the FSEU. The display will show SET OUTPUTS?

(c) Select SET OUTPUTS? from the OTHER FUNCTNS? menu. The display will show RUD PRES LIMIT?

(d) Select RUD PRES LIMIT? from the SET OUTPUTS? menu. The display will show SET ON?

(e) Select SET ON? from the RUD PRES LIMIT? menu. The display will show CMD ON, SET OFF?

NOTE: You only have 75 seconds to complete the next 3 tasks. If you do not finish in 75 seconds, you will have to repeat the test and start with the steps to use the FSEU to command the RPL to the "LOW" state.

SUBTASK 27-21-00-980-016-002

(2) Push the right rudder pedal until it touches the forward quadrant stop and hold.

NOTE: To make the test easier, you may skip the following step. If you skip the following step and the test fails during the voltage check, then you must repeat the test and perform the following step.

SUBTASK 27-21-00-980-017-002

(3) Manually hold the main rudder PCU upper control rod at location A (Figure 505) and pull aft with a force of approximately 30 to 40 lbs (133 to 178 newtons) until it touches the stop and hold.

SUBTASK 27-21-00-700-009-002

(4) Verify voltage between pin 18 and pin 20 of connector D10064 on the E1-EE shelf is between 1.87 VDC to 2.62 VDC.

SUBTASK 27-21-00-980-032-002

(5) Release the main rudder PCU control rod.

SUBTASK 27-21-00-980-033-002

(6) Release the rudder pedal.

SUBTASK 27-21-00-860-139-002

(7) The display screen on the FSEU should show CMD ON, SET OFF?.

Select YES. The display will show CMD OFF, SET ON?.

SUBTASK 27-21-00-980-034-002

(8) Push the right rudder pedal until it touches the forward quadrant stop and hold.

NOTE: To make the test easier, you may skip the following step. If you skip the following step and the test fails during the voltage check, then you must repeat the test and perform the following step.

SUBTASK 27-21-00-980-035-002

(9) Manually hold the main rudder PCU upper control rod at location A (Figure 505) and pull aft with a force of approximately 30 to 40 lbs (133 to 178 newtons) until it touches the stop and hold.

SUBTASK 27-21-00-700-010-002

(10) Verify voltage between pin 18 and pin 20 of connector D10064 on the E1-EE shelf is less than 1.87 VDC.

SUBTASK 27-21-00-980-018-002

(11) Release the main rudder PCU upper control rod.

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SUBTASK 27-21-00-980-019-002

(12) Release the right rudder pedal.

NOTE: You have completed the test of system A in the retract direction.

SUBTASK 27-21-00-860-140-002

(13) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

SUBTASK 27-21-00-860-141-002

(14) If electrical is not needed, remove electrical power. do this task: Remove Electrical Power, TASK 24-22-00-860-812

SUBTASK 27-21-00-410-019-002

(15) Close these access panels:

Number	Name/Location
117A	Electronic Equipment Access Door
324DL	Trailing Edge Access

———————— END OF TASK ————————

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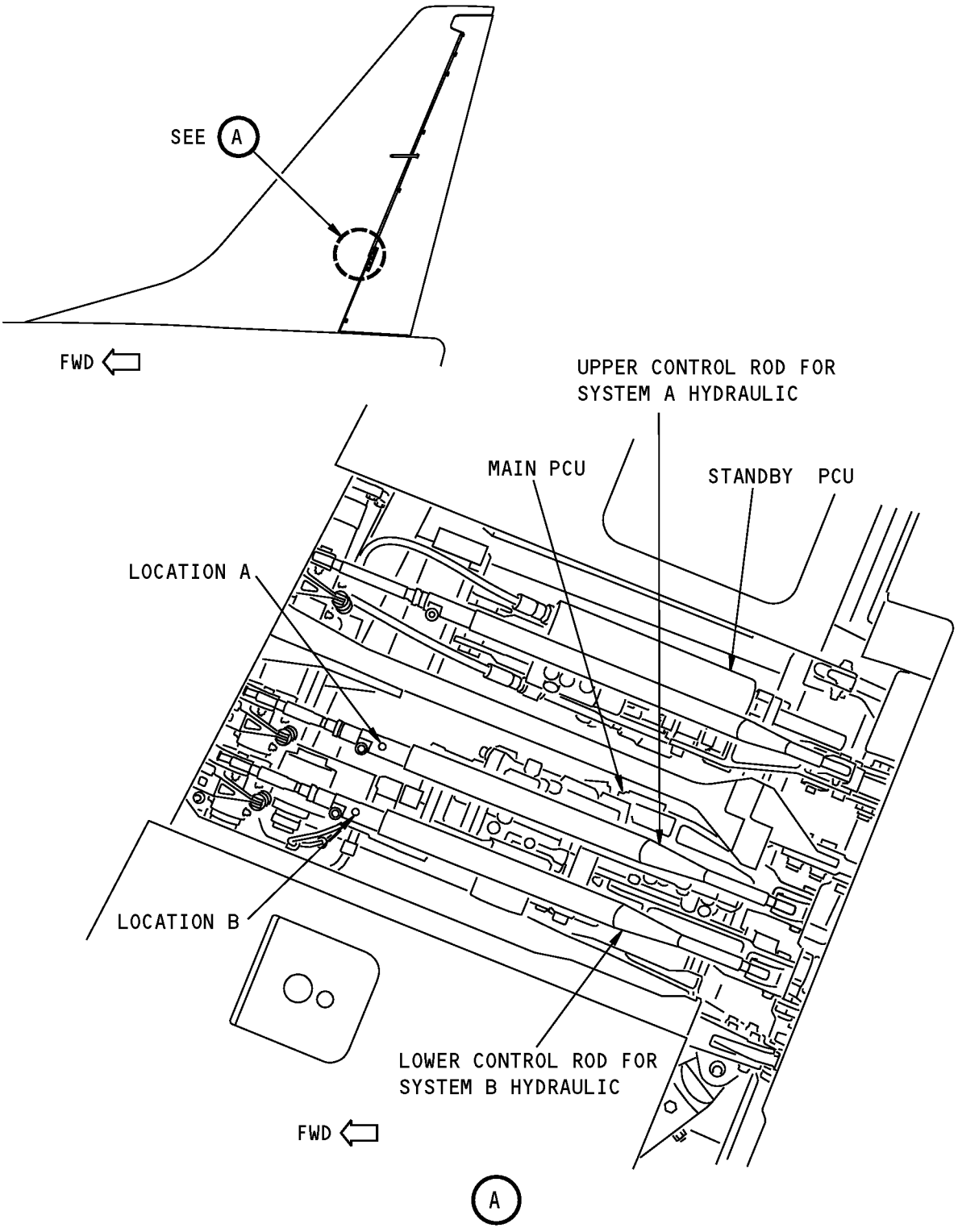

Main Rudder PCU Internal Leakage Test
Figure 505/27-21-00-990-813-002

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TASK 27-21-00-700-823-002

17. Rudder Override Operational Test

(Figure 506)

A. General

(1) This procedure is a scheduled maintenance task.

WARNING: FOLLOW THE STEPS IN THIS TASK IN THE ORDER THAT THEY ARE WRITTEN. FAILURE TO DO SO CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Use this test to verify that the override mechanisms installed on the torque tube are operational.

B. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

C. Access Panels

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

D. Procedure

SUBTASK 27-21-00-840-017-002

(1) Put the FLT CONTROL A and B switches, on the P5 panel, to the OFF position.

SUBTASK 27-21-00-010-031-002

(2) To gain access to the torque tube, do this task:

Open these access panels:

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

SUBTASK 27-21-00-730-025-002

(3) Do the rudder override operational test:

(a) Make sure the rudder and rudder pedals are in the neutral position.

(b) Manually hold the rudder aft edge in the centered position.

(c) Observe the torque tube override assemblies and do these steps:.

1) Slowly push on the captain's left rudder pedal forward full travel then return the pedal to the neutral position.

NOTE: It will require more force than normal operation for the override mechanism to breakout of the detent position.

2) Verify that all 3 override assemblies breakout of their detent positions.

3) Verify that there is no sign of binding or interferences at any point of travel on the three override assemblies.

a) If binding or excessive friction exist, the override assemblies may be damaged or improperly installed. Correct this condition and repeat this check.

(d) Observe the torque tube override assemblies and do these steps:.

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1) Slowly push on the captain's right rudder pedal forward full travel then return the pedal to the neutral position.

   NOTE: It will require more force than normal operation for the override mechanism to breakout of the detent position.

2) Verify that all 3 override assemblies breakout of their detent positions.

3) Verify that there is no sign of binding or interferences at any point of travel on the three override assemblies.

   a) If binding or excessive friction exist, the override assemblies may be damaged or improperly installed. Correct this condition and repeat this check.

SUBTASK 27-21-00-410-017-002

(4) Install these access panels:

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

END OF TASK

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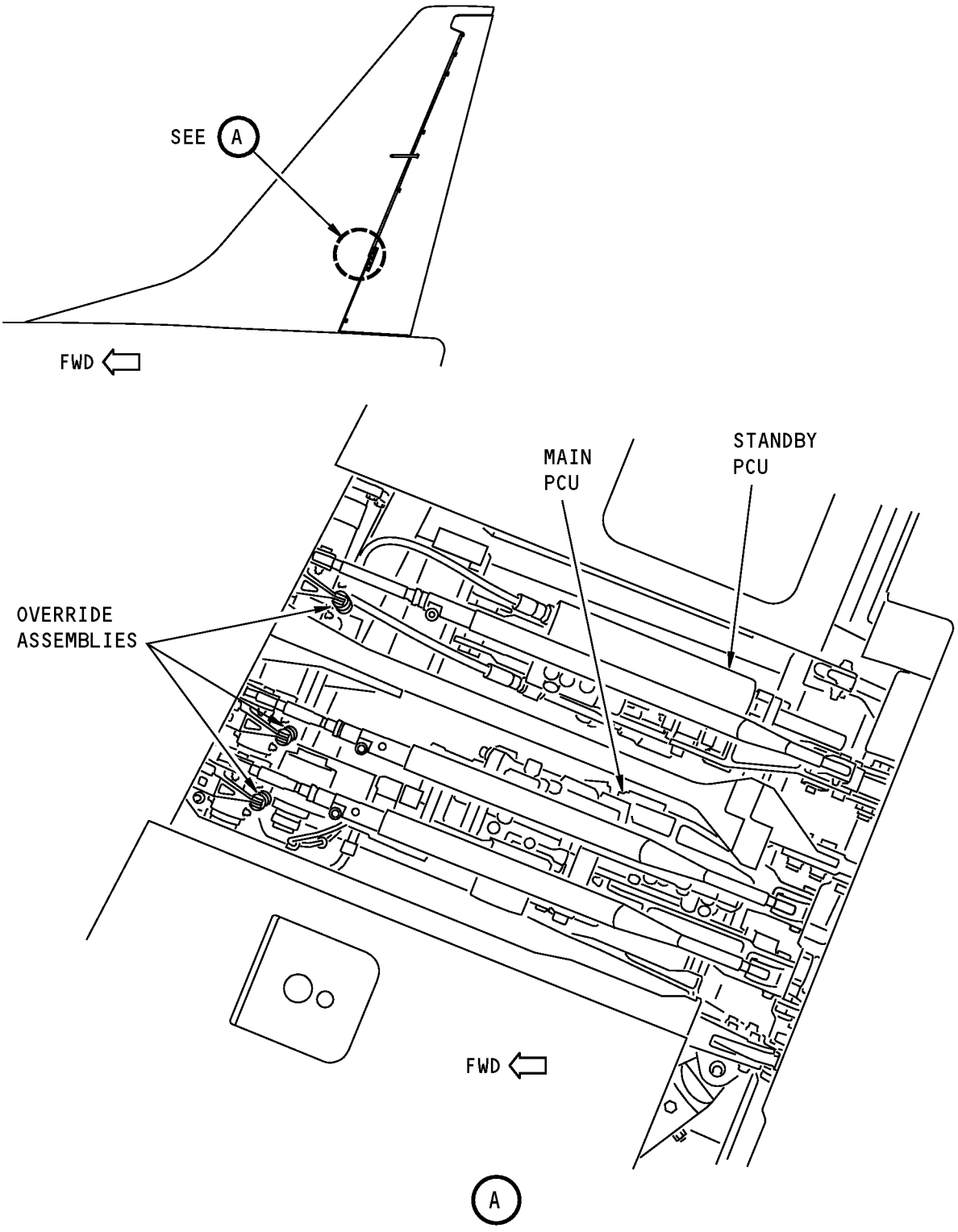

Rudder Override Operational Test
Figure 506/27-21-00-990-817-002

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TASK 27-21-00-700-824-002

18. Rudder Main PCU Force Fight Monitor Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to verify that the STBY RUD ON light on the overhead panel P5-3 is functional.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
32-09-00-840-802	Return the Airplane Systems Back to Their Normal On Ground Condition (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)

C. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324CL	Vertical Fin, Access
324EL	Vertical Fin, Access

E. Procedure

SUBTASK 27-21-00-860-157-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-21-00-860-143-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize the rudder hydraulic systems A and B. To pressurize them, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-00-860-145-002

(3) Put the FLT CONTROL A and B switches, on the P5 panel, to the ON position.

SUBTASK 27-21-00-860-166-002

(4) Make sure that the airplane is in the air mode. If necessary, Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 27-21-00-860-146-002

(5) Move the rudder pedals through 5 cycles of full travel.

SUBTASK 27-21-00-210-004-002

(6) Verify that the STBY RUD ON light on the overhead panel P5-3 is not illuminated.

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SUBTASK 27-21-00-860-147-002

(7) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-21-00-860-148-002

(8) Put the FLT CONTROL B switch, on the P5 panel, to the STBY RUD position.

SUBTASK 27-21-00-210-005-002

(9) Verify that the STBY RUD ON light on the overhead panel P5-3 is illuminated.

SUBTASK 27-21-00-860-149-002

(10) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-21-00-860-150-002

(11) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD

SUBTASK 27-21-00-010-032-002

(12) To gain access to the rudder main PCU, do this task:

Open these access panels:

Number	Name/Location
324CL	Vertical Fin, Access
324EL	Vertical Fin, Access

SUBTASK 27-21-00-860-158-002

(13) Put the FLT CONTROL B switch, on the P5 panel, to the ON position.

SUBTASK 27-21-00-730-026-002

WARNING: FOLLOW THE STEPS IN THIS TASK EXACTLY IN THE ORDER THAT THEY ARE WRITTEN. FAILURE TO DO SO CAN CAUSE INJURY TO PERSONS AND DAMGE TO EQUIPMENT.

(14) Do the Force Fight Monitor test:

(a) Verify that the STBY RUD ON light and STANDBY HYD LOW PRESS light on the overhead panel P5-3 are not illuminated

(b) Move the rudder pedals through 2 cycles of full travel.

NOTE: This will relieve any standby hydraulic system residual pressure.

1) If necessary, jiggle the rudder pedals to put the pedals to the neutral position.

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(c) Manually hold the rudder main PCU upper control rod at location A (Figure 505) and pull aft with sufficient force to break out the input override (approximately 30 lbs). Hold the control rod in this position for at least 7 seconds then release.

(d) Verify that the STBY RUD ON light and STANDBY HYD LOW PRESS light on the overhead panel P5-3 are illuminated.

NOTE: The standby hydraulic pumps will not activate.

(e) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD

(f) Verify that the STANDBY HYD LOW PRESS light on the overhead panel P5-3 is not illuminated.

NOTE: The standby hydraulic pumps will activate.

(g) Open this circuit breaker on the P6-2 panel for at least 2 seconds then close:

Open and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	15	C01628	FLIGHT CONTROL FORCE FIGHT MON

(h) Verify that the STBY RUD ON light on the overhead panel P5-3 is not illuminated.

(i) Put the FLT CONTROL B switch, on the P5 panel, to the STBY RUD position.

(j) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD

(k) Put the FLT CONTROL B switch, on the P5 panel, to the ON position.

(l) Move the rudder pedals through 2 cycles of full travel.

1) If necessary, jiggle the rudder pedals to put the pedals to the neutral position.

(m) Manually hold the rudder main PCU upper control rod at location A (Figure 505) and pull forward with sufficient force to break out the input override (approximately 30 lbs). Hold the control rod in this position for at least 7 seconds then release.

(n) Verify that the STBY RUD ON light and STANDBY HYD LOW PRESS light on the overhead panel P5-3 are illuminated.

NOTE: STANDBY HYD LOW PRESS light will not illuminate until hydraulic pressure has bled off (approximately 5 minutes).

NOTE: The standby hydraulic pumps will not activate.

(o) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD

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(p) Verify that the STANDBY HYD LOW PRESS light on the overhead panel P5-3 is not illuminated.

NOTE: The standby hydraulic pumps will activate.

(q) Open this circuit breaker on the P6-2 panel for at least 2 seconds then close:

Open and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	15	C01628	FLIGHT CONTROL FORCE FIGHT MON

(r) Verify that the STBY RUD ON light on the overhead panel P5-3 is not illuminated.

SUBTASK 27-21-00-860-151-002

(15) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

SUBTASK 27-21-00-860-152-002

(16) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 27-21-00-860-180-002

(17) Put the airplane back to the original condition. Do this task: Return the Airplane Systems Back to Their Normal On Ground Condition, TASK 32-09-00-840-802.

SUBTASK 27-21-00-410-018-002

(18) Install these access panels:

Number	Name/Location
324CL	Vertical Fin, Access
324EL	Vertical Fin, Access

END OF TASK

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RUDDER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder

(2) An installation of the rudder.

TASK 27-21-11-000-801

2. Rudder Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-91-990-804-002	Figure: Main Rudder Power Control Unit Installation (P/B 401)
27-21-91-990-806-001	Figure: Main Rudder Power Control Unit Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2033	Sling - Rudder (Part #: C27035-20, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge
325	Vertical Fin - Rudder

D. Prepare for the Removal

SUBTASK 27-21-11-860-001

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-11-010-001

(2) Remove these access panels:

(a) Hinge covers

SUBTASK 27-21-11-020-001

(3) Remove the seals and seal attachment plates from each side of the fin at the rudder balance weight.

SUBTASK 27-21-11-860-002

(4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	16	C00788	FLIGHT CONTROL TRIM IND RUD
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

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E. Rudder Removal

SUBTASK 27-21-11-480-001

(1) Do these steps to install the sling, SPL-2033 (Figure 401):

(a) Install the hoist fittings on the RUDDER [1] with a $\frac{1}{4}$ in. (6.4 mm) drive socket.

(b) Install two 70 ft (21 m) ropes to make sure the rudder does not rotate and hit the airplane.

(c) Attach the sling to the hoist fittings installed on the RUDDER [1].

SUBTASK 27-21-11-020-002

(2) Lift the RUDDER [1] until the load is removed from its hinges.

SUBTASK 27-21-11-020-003

(3) Remove the nut [46], washers [45], and bolt [44] to disconnect the bonding jumper [47] from the vertical fin at hinge 9 (Figure 402).

SUBTASK 27-21-11-020-004

(4) Disconnect the control rod of the rudder position transmitter from the vertical fin:

(a) Remove the bolt [23], washer [24], and washer [25].

(b) Disconnect the control rod.

SUBTASK 27-21-11-020-005

CAUTION: REMOVE THE CONTROL ROD FROM THE PCU BEFORE YOU DISCONNECT THE PCU FROM THE RUDDER. IF YOU DO NOT REMOVE THE CONTROL ROD FIRST, DAMAGE TO THE CONTROL ROD CAN OCCUR DURING THE CHECK.

(5) Do this step to disconnect the rudder main power control unit (PCU) from the RUDDER [1]:

HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253

(a) Disconnect and remove the control rod (or rods) from the main PCU (SeeFigure 27-21-91-990-806-001).

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

(b) Disconnect and remove the control rod (or rods) from the main PCU (SeeFigure 27-21-91-990-804-002).

HAP ALL

(c) Remove nut [15], washer [14], nut [13], washer [12], bushing [11], bolt [10], and bolt [9].

SUBTASK 27-21-11-020-006

(6) Do this step to disconnect the rudder standby power control unit (PCU) from the RUDDER [1]:

(a) Remove nut [29], washer [28], bushing [50], washer [27], and bolt [26].

SUBTASK 27-21-11-020-007

(7) Move the RUDDER [1] to the neutral position.

SUBTASK 27-21-11-020-008

WARNING: MAKE SURE THE CRANE WILL HOLD THE RUDDER IN A STABLE POSITION WHEN YOU REMOVE THE HINGE BOLTS. ACCIDENTAL RUDDER MOVEMENT WHEN YOU DISCONNECT IT FROM THE AIRPLANE CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(8) Remove the hinge bolts from the hinges:

(a) At hinges 1, 4, 5, 6, 8, and 9, remove the pin [35], nuts [34], washers [33], bushings [32], washers [31], and bolts [30] from the hinges. Discard the pin [35].

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(b) At hinge 2, remove the pin [2], nut [3], washer [4], spacer [5], bushing [6], washer [7], and bolt [8] from the hinge. Discard the pin [2].

(c) At hinge 3, remove the pin [22], nut [21], washer [20], bushing [19], bushing [18], washer [17], and bolt [16] from the hinge. Discard the pin [22].

(d) At hinge 7, remove the pin [43], nut [42], washer [41], washer [39], bushing [38], washer [37], and bolt [36] from the hinge. Discard the pin [43].

SUBTASK 27-21-11-020-009

CAUTION: YOU MUST MOVE THE RUDDER UP BEFORE YOU MOVE IT BACK FROM THE VERTICAL FIN. YOU CAN CAUSE DAMAGE TO THE RUDDER.

(9) Do these steps to remove the RUDDER [1]:

(a) Move the RUDDER [1] up and aft from the vertical fin and lower to the ground.

——————— END OF TASK ———————

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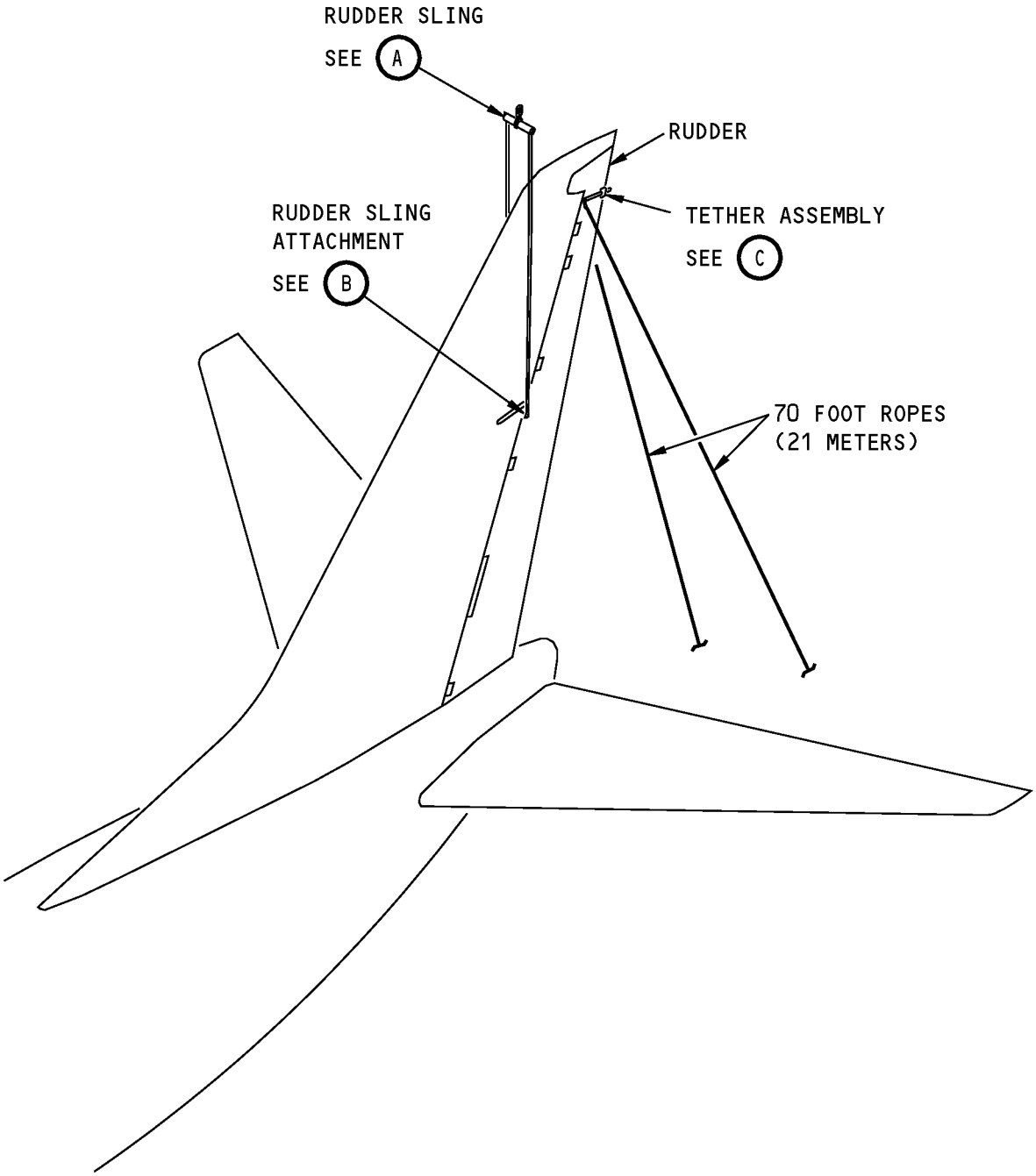

Rudder Sling Installation
Figure 401 (Sheet 1 of 2)/27-21-11-990-801

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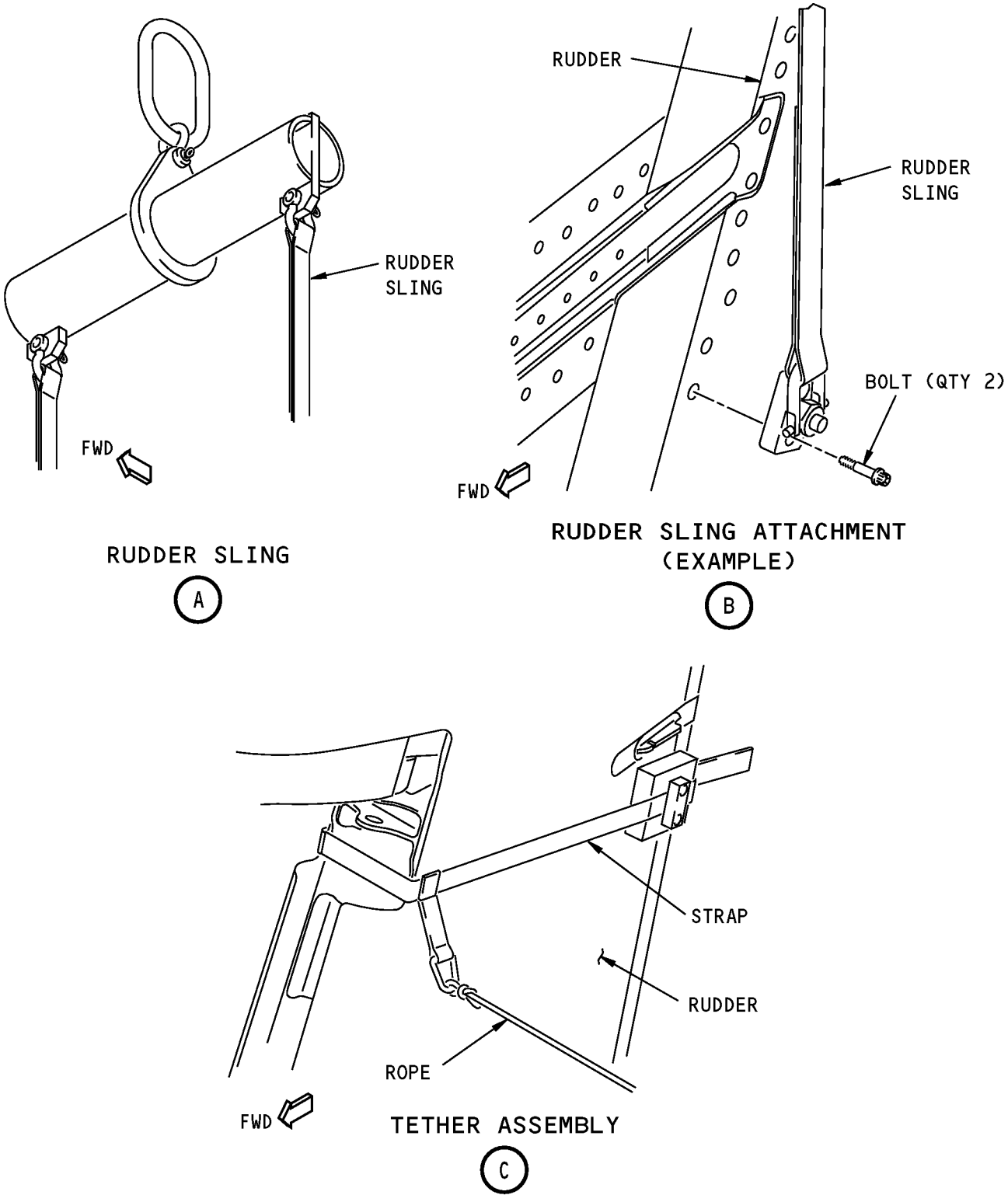

Rudder Sling Installation
Figure 401 (Sheet 2 of 2)/27-21-11-990-801

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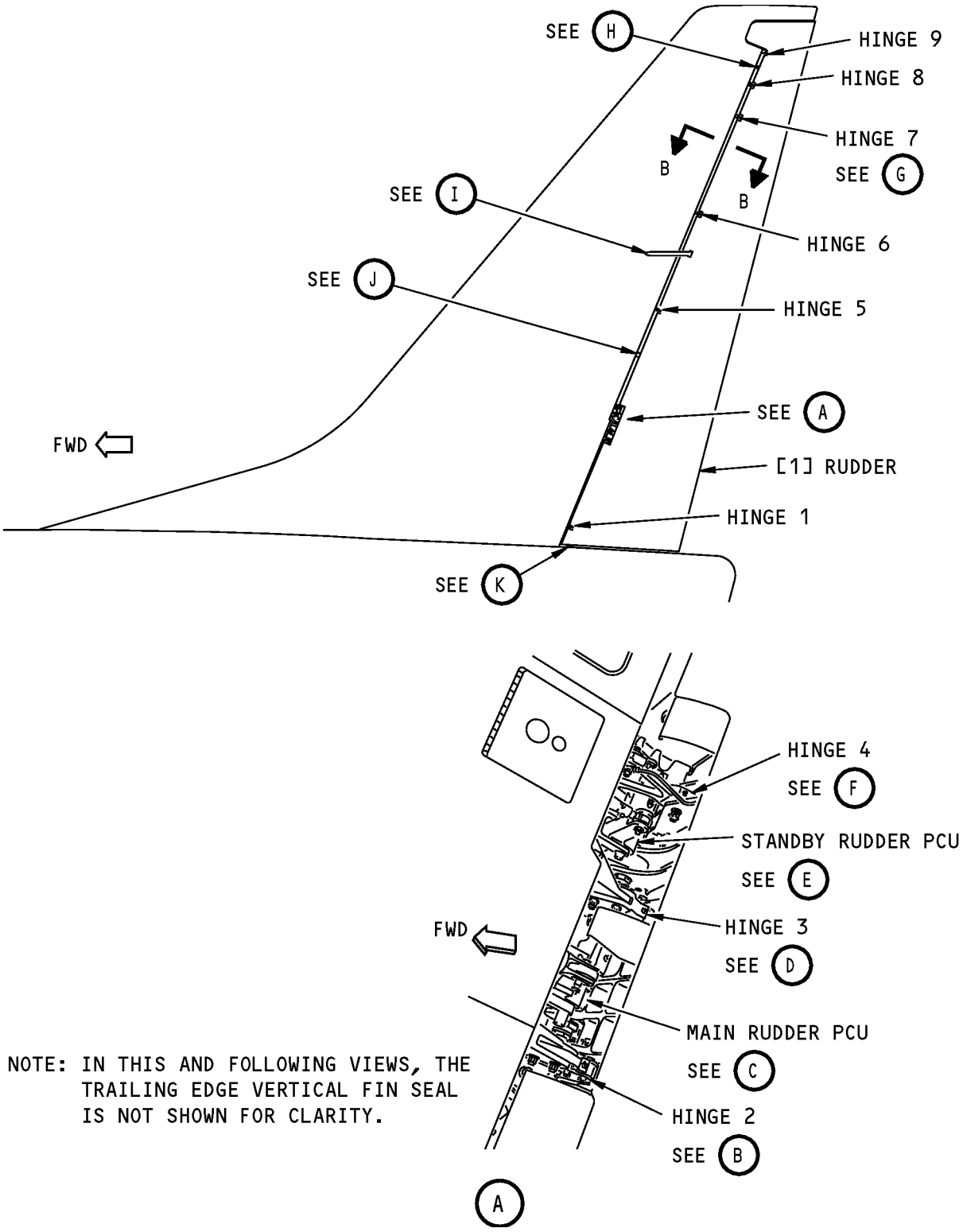

NOTE: IN THIS AND FOLLOWING VIEWS, THE TRAILING EDGE VERTICAL FIN SEAL IS NOT SHOWN FOR CLARITY.

Rudder Installation
Figure 402 (Sheet 1 of 8)/27-21-11-990-802

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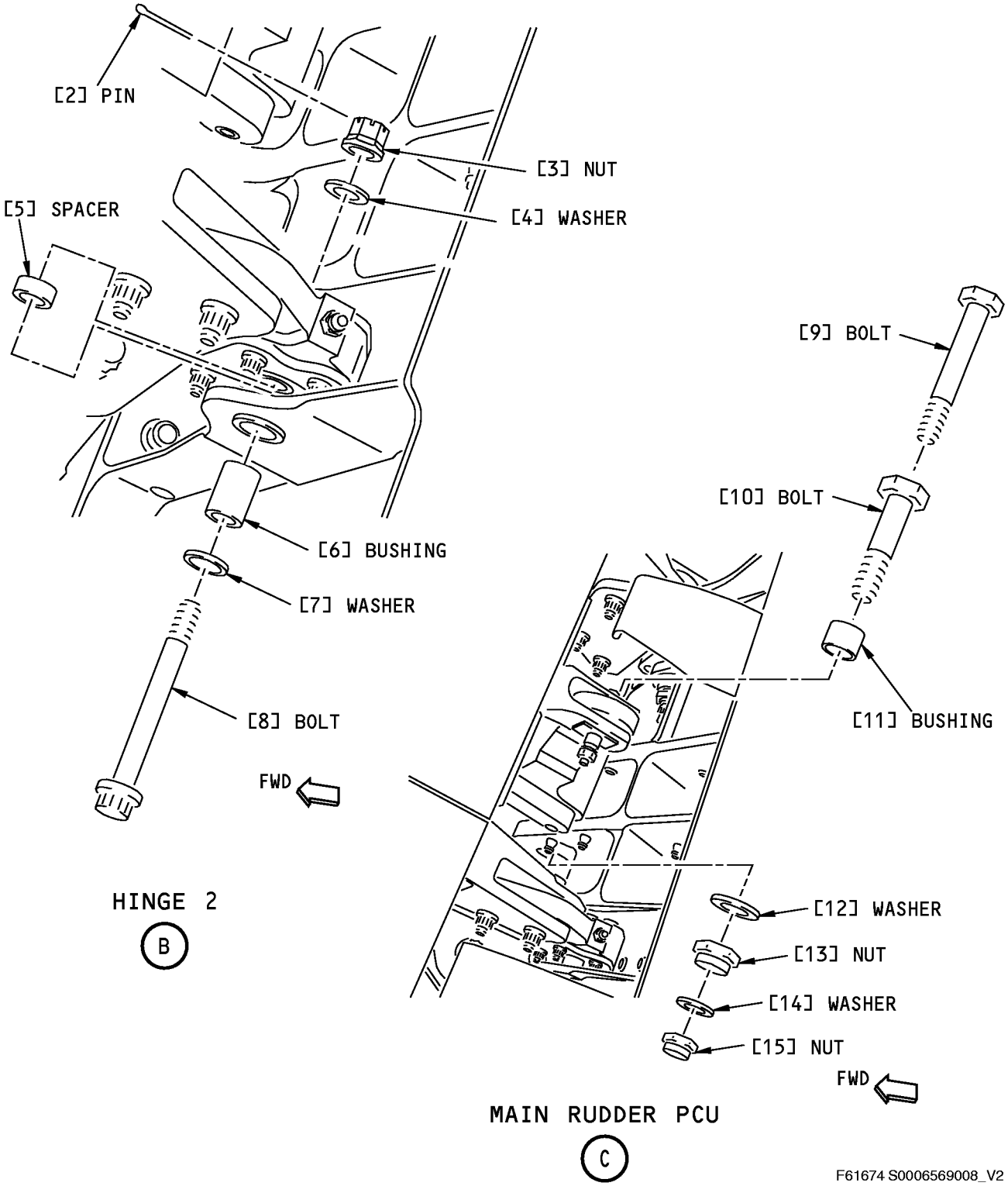

Rudder Installation
Figure 402 (Sheet 2 of 8)/27-21-11-990-802

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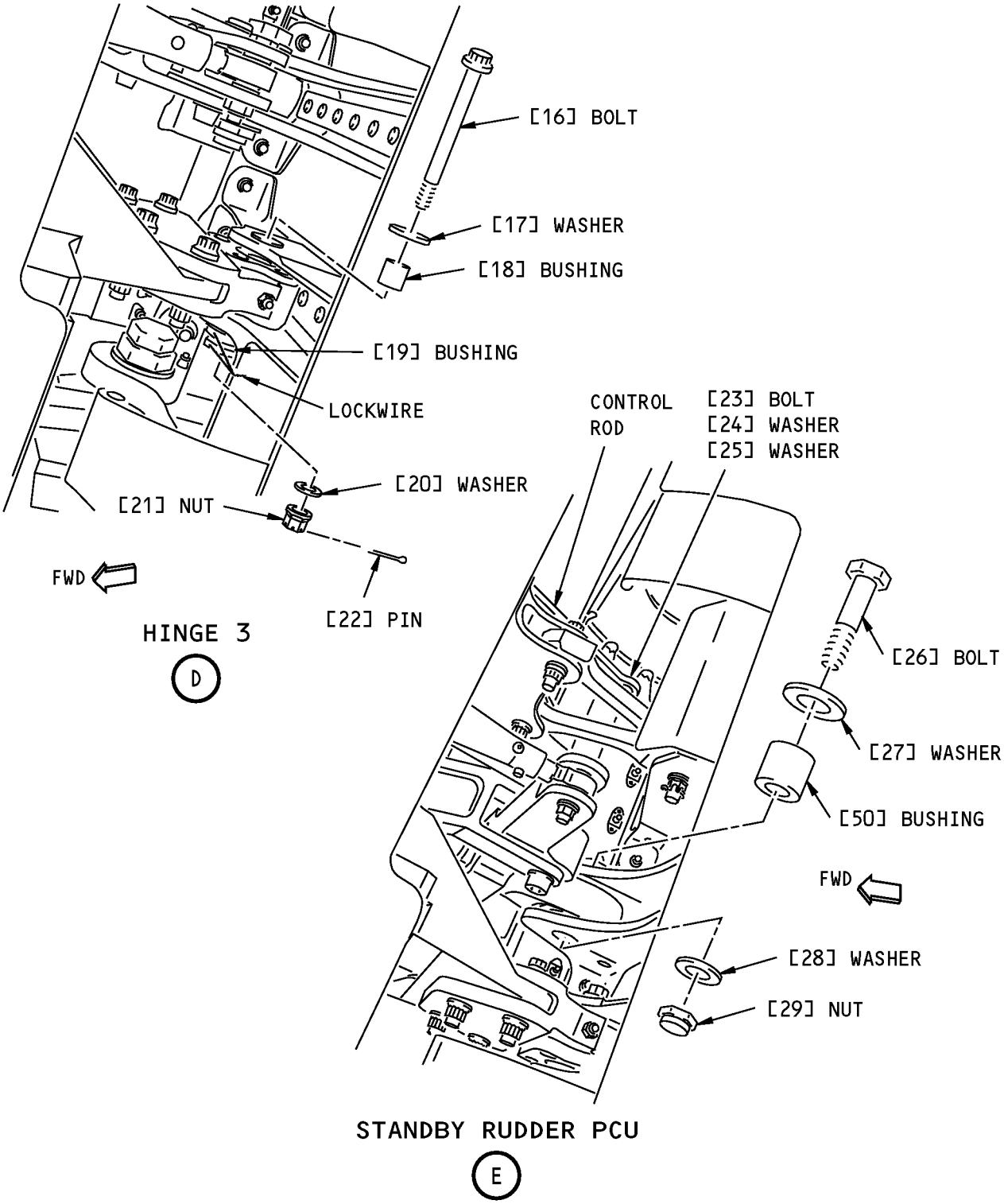

Rudder Installation
Figure 402 (Sheet 3 of 8)/27-21-11-990-802

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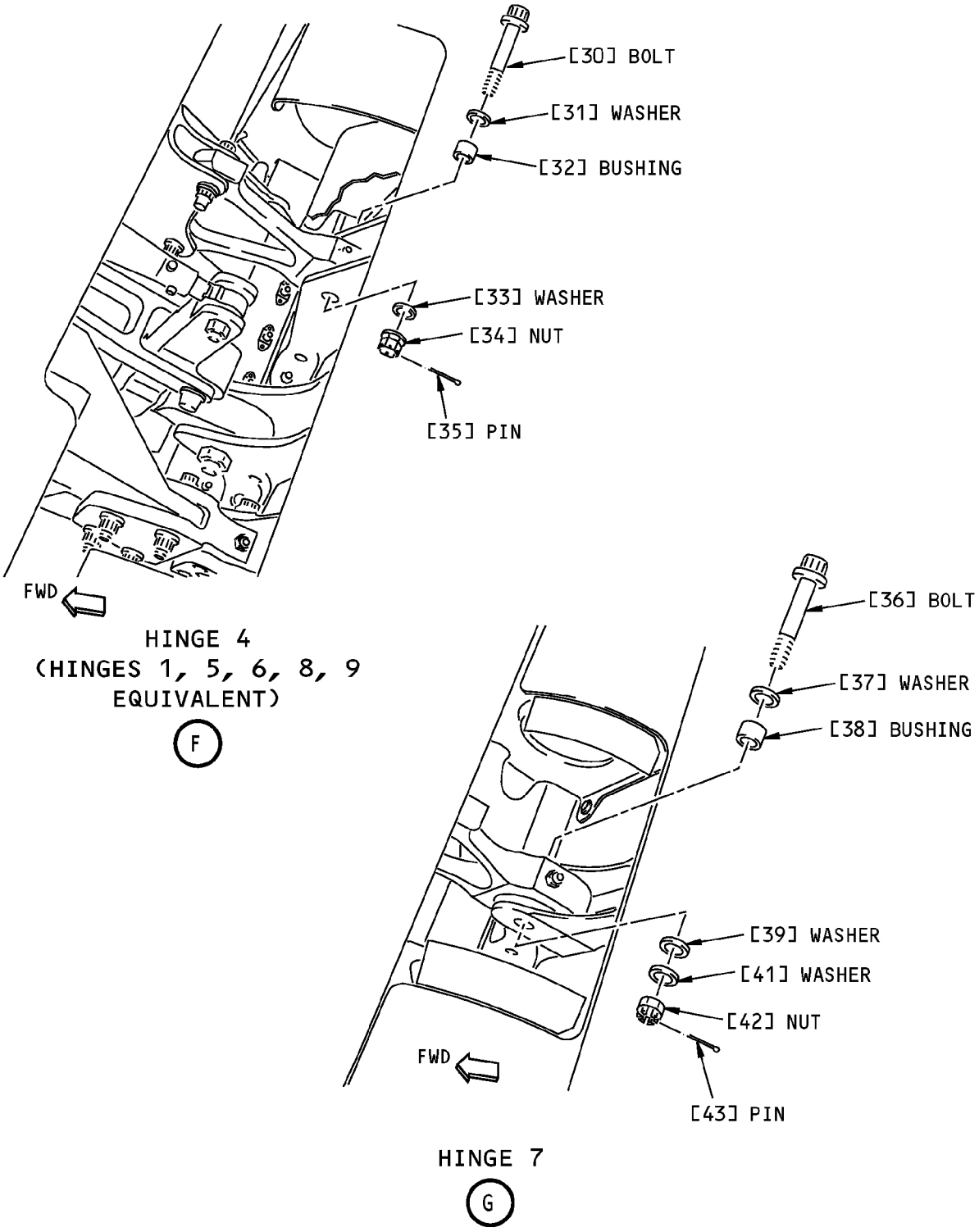

Rudder Installation
Figure 402 (Sheet 4 of 8)/27-21-11-990-802

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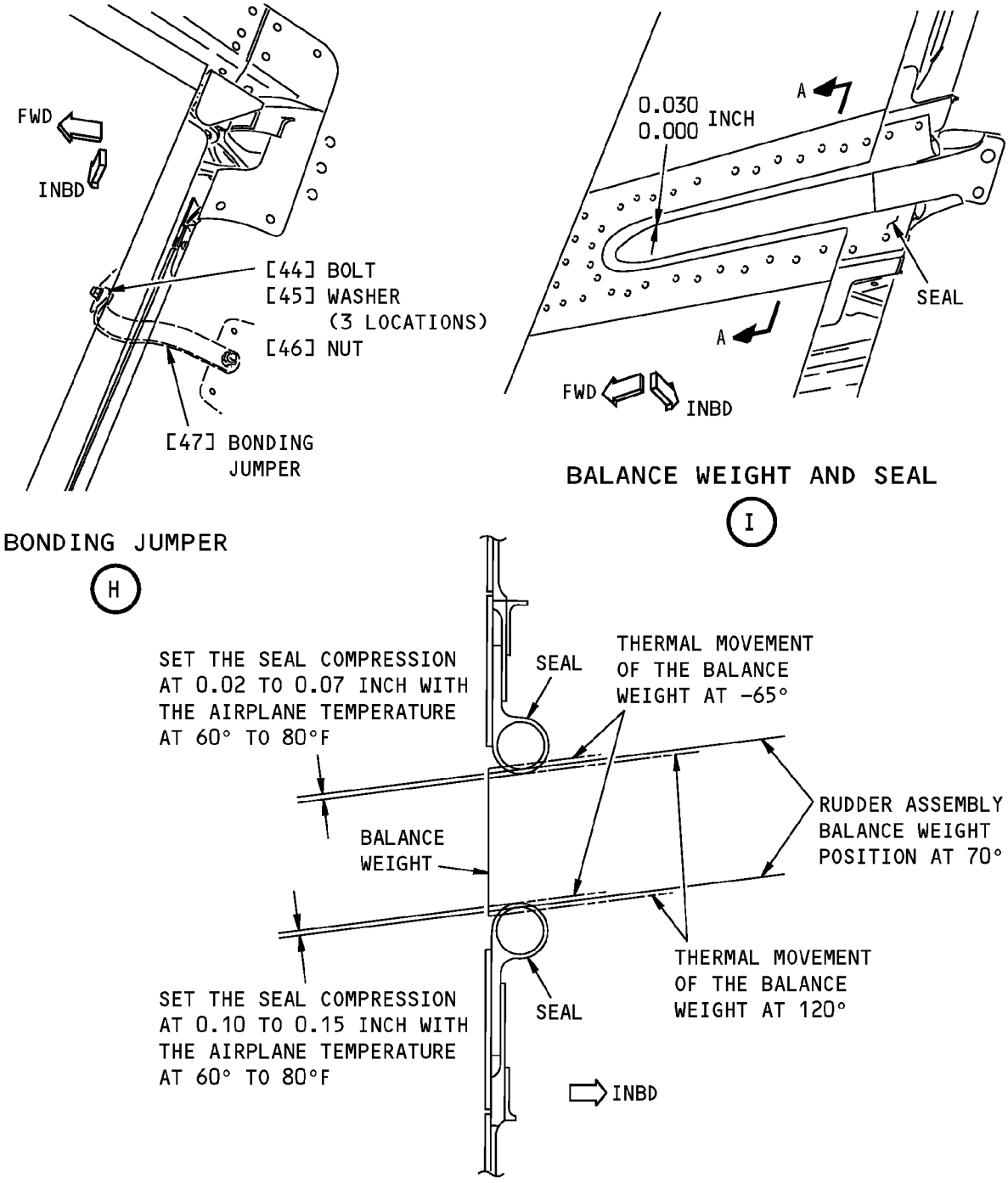

Rudder Installation
Figure 402 (Sheet 5 of 8)/27-21-11-990-802

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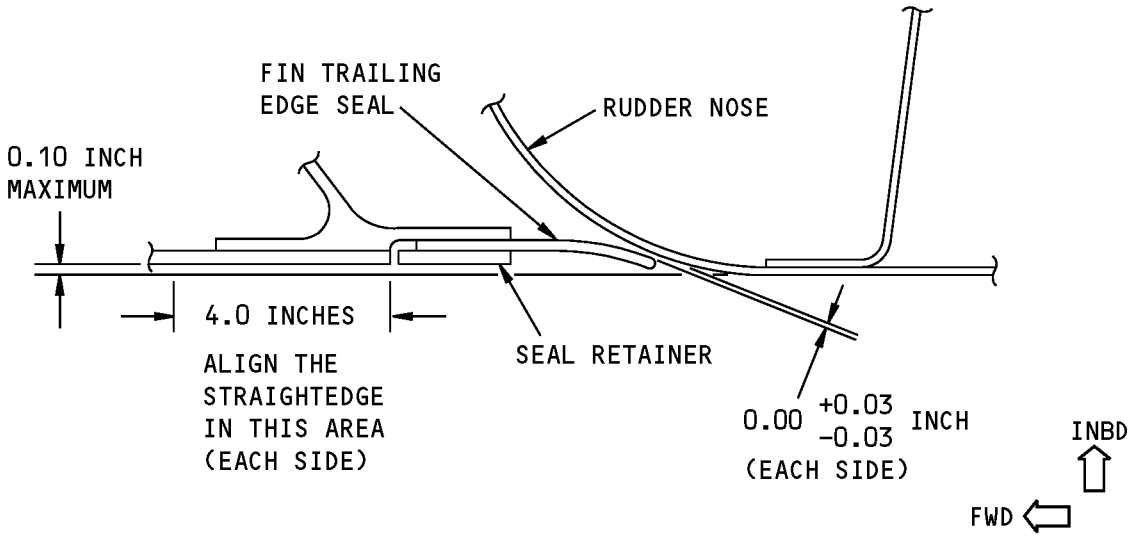
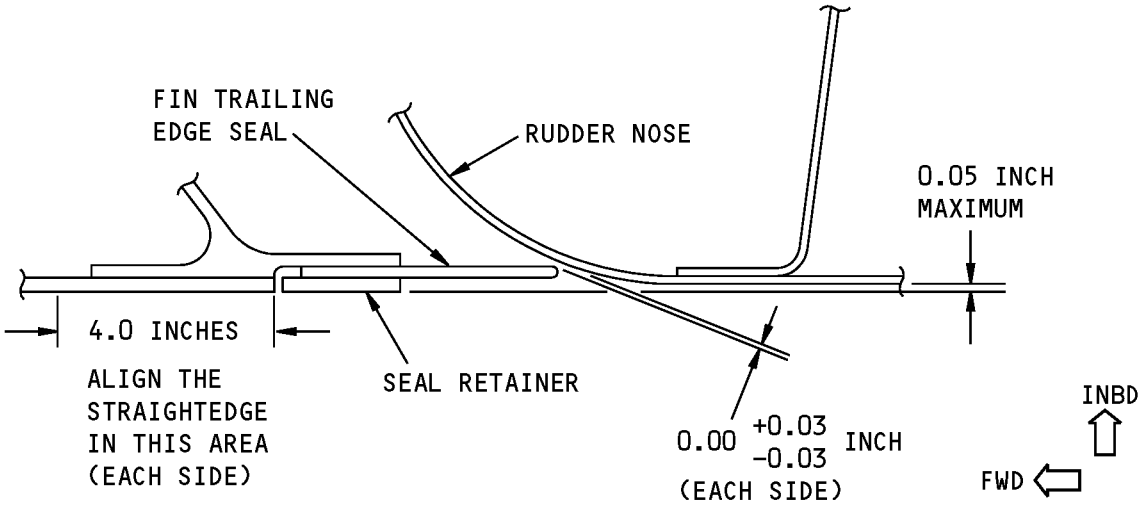


POSITIVE MISMATCH
B–B



NEGATIVE MISMATCH
B–B

Rudder Installation
Figure 402 (Sheet 6 of 8)/27-21-11-990-802

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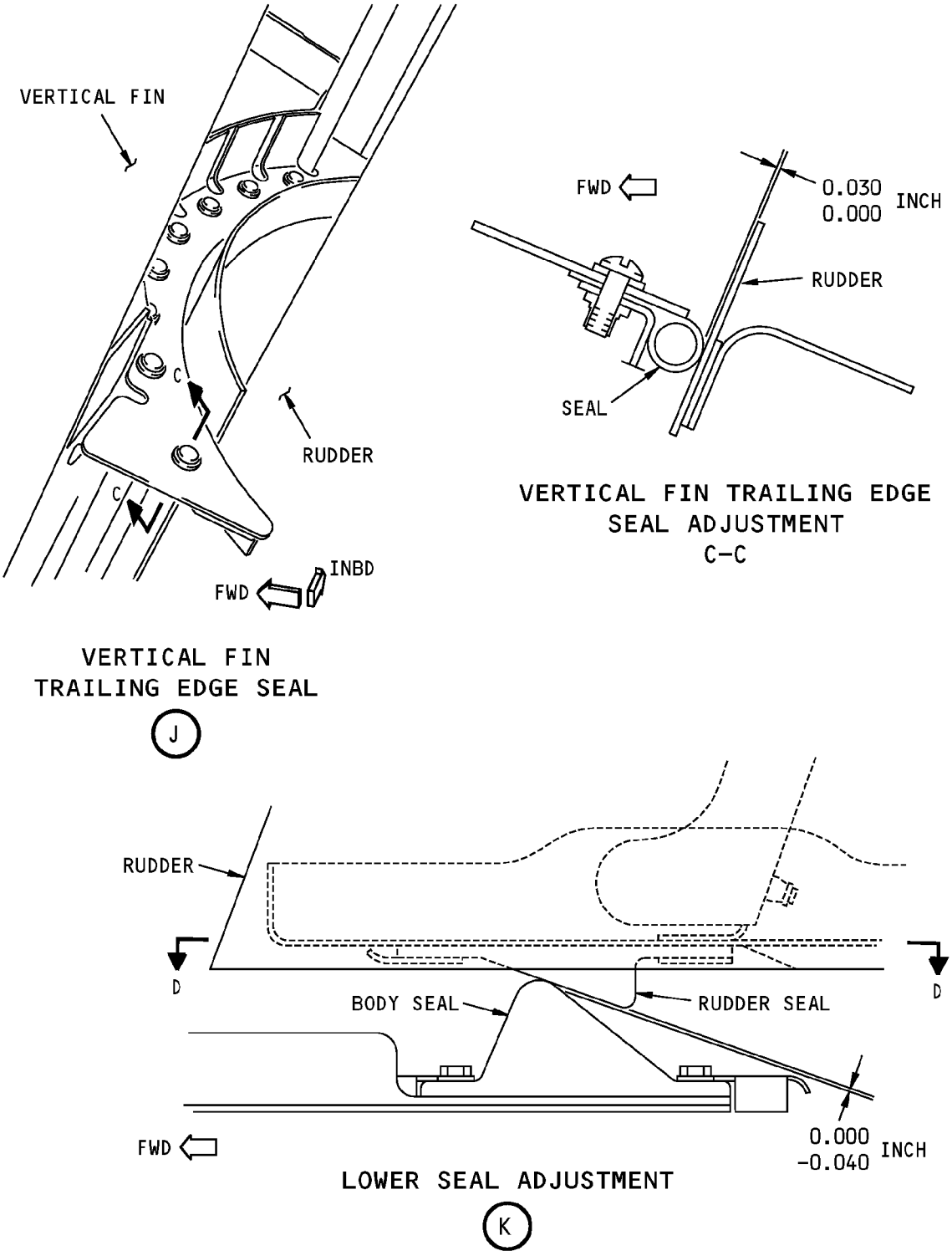

Rudder Installation
Figure 402 (Sheet 7 of 8)/27-21-11-990-802

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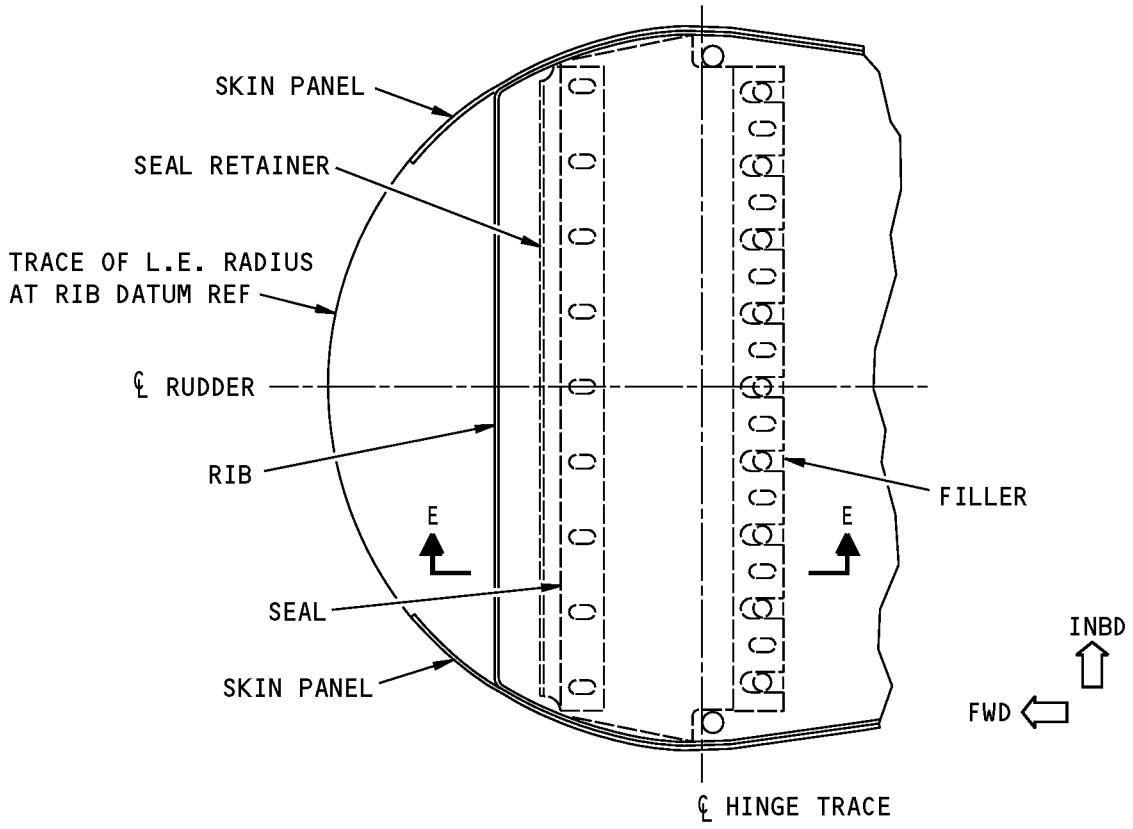
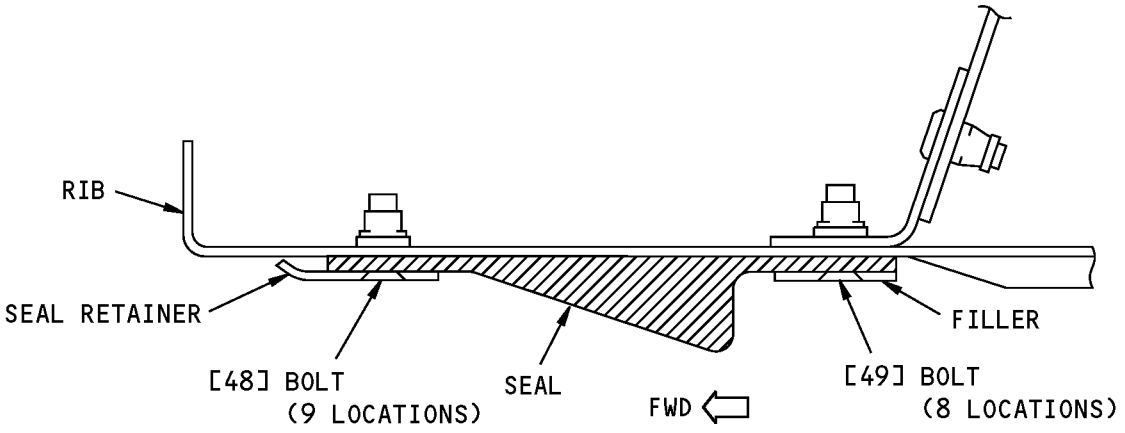


D–D



E–E

Rudder Installation
Figure 402 (Sheet 8 of 8)/27-21-11-990-802

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TASK 27-21-11-400-801

3. Rudder Installation

(Figure 401, Figure 402)

A. References

Reference	Title
27-21-00-700-814-001	Rudder Hinge Bearing and PCU Bearing Freeplay (P/B 501)
27-21-00-700-814-002	Rudder Hinge Bearing and PCU Bearing Freeplay (P/B 501)
27-21-00-700-815-001	Rudder Centering Test (P/B 501)
27-21-00-700-815-002	Rudder Centering Test (P/B 501)
27-21-00-700-817-001	Rudder Travel Test (P/B 501)
27-21-00-700-817-002	Rudder Travel Test (P/B 501)
27-21-00-700-821-002	Rudder Hinge Friction Test (P/B 501)
27-21-00-700-823-001	Rudder Hinge Friction Test (P/B 501)
27-21-91-990-804-002	Figure: Main Rudder Power Control Unit Installation (P/B 401)
27-21-91-990-806-001	Figure: Main Rudder Power Control Unit Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)
SPL-2033	Sling - Rudder (Part #: C27035-20, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Pin	27-21-11-01-005	HAP ALL
22	Pin	27-21-11-01-005	HAP ALL
35	Pin	27-21-11-01-005	HAP ALL
43	Pin	27-21-11-01-005	HAP ALL

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E. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge
325	Vertical Fin - Rudder

F. Rudder Installation

CAUTION: BE CAREFUL WHEN YOU MOVE THE RUDDER. IF THE CONTROL ROD HITS THE VERTICAL STABILIZER, DAMAGE CAN OCCUR.

SUBTASK 27-21-11-860-003

(1) Loosen all the seals at the trailing edge of the fin and move them fully forward.

SUBTASK 27-21-11-080-001

(2) Connect the sling, SPL-2033 to the RUDDER [1] (Figure 401).

SUBTASK 27-21-11-420-001

(3) Do these steps to put the RUDDER [1] in its position and connect the hinges:

(a) Apply a thin layer of grease, D00015 to the smooth surfaces of all the hinge bolts (outer diameter), bushings (inner diameter), and bearings before you install them.

(b) Put the sling, SPL-2033 in its position and connect it to the RUDDER [1] (Figure 401).

(c) Lift the RUDDER [1] to its position on the vertical fin.

1) Use the ropes to make sure the rudder does not hit the airplane.

(d) Install the bolts, washers, spacers, and bushings that follow:

1) At hinges 1, 4, 5, 6, 8, and 9, install the bushings [32], washers [31], and bolts [30] to the hinge fittings.

2) At hinge 2, install the spacer [5], bushing [6], washer [7], and bolt [8] to the hinge fitting.

3) At hinge 3, install the bushing [18], washer [17], and bolt [16] to the hinge fitting.

4) At hinge 7, install bushing [38], washer [37], and bolt [36] to the hinge fitting.

(e) Release the RUDDER [1] slowly until the load is on its hinges.

(f) Make sure the torque required to rotate the bolts is less than 100 in-lb (11.3 N·m).

(g) Install the nuts, washers, and pins in the order that follow:

1) At hinge 2, install the washer [4] and nut [3].

a) Tighten the nut [3] to 150 in-lb (16.9 N·m) – 200 in-lb (22.6 N·m).

NOTE: Tighten the nut [3] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [8].

b) Install the new pin [2].

2) At hinges 1, 4, 5, 6, 8, and 9, install the washers [33] and nuts [34].

a) Tighten the nuts [34] to 150 in-lb (16.9 N·m) – 200 in-lb (22.6 N·m).

NOTE: Tighten the nuts [34] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolts [30].

b) Install the new pin [35].

3) At hinge 3, do these steps:

a) Install the bushing [19] at hinge 3.

b) Adjust the bushing until it is against the fin bearing with finger tight pressure only.

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c) Install the washers [20] and nut [21].

d) Tighten the nut [21] to 150 in-lb (16.9 N·m) – 200 in-lb (22.6 N·m).

NOTE: Tighten the nut [21] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolts [16].

e) Install the new pin [22].

f) Install the lockwire, G01048 from the bushing [19] to hinge fitting.

g) Fill the holes of the lockwire, G01048 with sealant, A00247.

4) At hinge 7, install the washer [39], washer [41], and nut [42].

a) Tighten the nut [42] to 150 in-lb (16.9 N·m) – 200 in-lb (22.6 N·m).

NOTE: Tighten the nut [42] to the lower end of the torque range. Continue to tighten the nut until the next castellation aligns with the hole in the bolt [36].

b) Install the new pin [43].

SUBTASK 27-21-11-620-001

(4) Apply sealant, A00247 to both ends of the bonding jumper [47] and their fasteners.

SUBTASK 27-21-11-420-002

(5) Connect the control rod for the rudder position transmitter to the vertical fin:

(a) Install the washer [25], washer [24], and bolt [23].

SUBTASK 27-21-11-420-003

(6) Install the bolt [44], washers [45], and nut [46] to connect the bonding jumper [47] to the vertical fin at hinge 9.

(a) Use the bonding meter, COM-1550 ohmmeter to make sure there is a maximum of 0.010 ohm between the vertical fin and the rudder [1].

SUBTASK 27-21-11-080-002

(7) Remove the sling, SPL-2033.

SUBTASK 27-21-11-220-004

(8) Make sure that there is clearance between all the seals and the forward part of the rudder and the balance weight.

NOTE: Manually move the rudder approximately seven degrees in each direction to examine the clearance.

SUBTASK 27-21-11-710-001

(9) Move the rudder to the left and right from the neutral position.

(a) Make sure that rudder moves left and right a minimum of 30 degrees from the neutral position.

SUBTASK 27-21-11-420-004

(10) Do this step to connect the rudder standby power control unit (PCU) to the RUDDER [1]:

(a) Install bolt [26], washer [27], bushing [50], washer [28], and nut [29]

(b) Tighten the nut [29] to 400 in-lb (45.2 N·m) – 500 in-lb (56.5 N·m).

SUBTASK 27-21-11-420-005

(11) Do these steps to connect the rudder main PCU to the RUDDER [1]:

(a) Install the bushing [11], bolt [10], bolt [9], washer [12], and nut [13].

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1) Tighten the nut [13] to 800 in-lb (90.39 N·m) – 960 in-lb (108.46 N·m).

CAUTION: DO NOT TIGHTEN THE NUT [13] AFTER YOU TIGHTEN THE NUT [15]. YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Install washer [14] and nut [15].

1) Tighten the nut [15] to 400 in-lb (45.2 N·m) to 480 in-lb (54.2 N·m).

HAP 001-013, 015-026, 028-030 PRE SB 737-27-1253

(c) Install the control rod (or rods) that you removed between the torque tube and the main PCU (SeeFigure 27-21-91-990-806-001).

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27-1253

(d) Install the control rod (or rods) that you removed between the torque tube and the main PCU (SeeFigure 27-21-91-990-804-002).

HAP ALL

SUBTASK 27-21-11-220-005

(12) Make sure the mismatch between the rudder and the vertical fin is correct at each of rib locations (Figure 402) (View B-B).

SUBTASK 27-21-11-820-001

(13) Adjust the seals at the trailing edge of the vertical fin and tighten them (Figure 402) (View J and C-C).

SUBTASK 27-21-11-820-002

(14) Adjust the balance weight seals on the vertical fin and tighten the seal retainers (Figure 402) (View I and A-A).

SUBTASK 27-21-11-820-003

(15) Adjust the clearance for the lower (rudder to body) seal (Figure 402) (View K, D-D, and E-E):

(a) Move the rudder to its neutral position.

(b) Make sure the gap is 0.00 in. (0.00 mm) – -0.04 in. (-1.02 mm).

(c) If it is necessary, do these steps to adjust the seal:

1) Loosen the bolts [48] and bolts [49] from the seal.

2) Adjust the seal until the gap is 0.00 in. (0.00 mm) – -0.04 in. (-1.02 mm).

3) Tighten the bolts [48] and bolts [49].

(d) Make sure the seal does not cause a blockage at the left and right rudder drain holes.

SUBTASK 27-21-11-860-004

(16) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	16	C00788	FLIGHT CONTROL TRIM IND RUD
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

SUBTASK 27-21-11-220-006

(17) Do this task: Rudder Hinge Bearing and PCU Bearing Freeplay, TASK 27-21-00-700-814-001 or Rudder Hinge Bearing and PCU Bearing Freeplay, TASK 27-21-00-700-814-002.

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SUBTASK 27-21-11-220-007

(18) Do this task: Rudder Travel Test, TASK 27-21-00-700-817-001 or Rudder Travel Test, TASK 27-21-00-700-817-002.

SUBTASK 27-21-11-220-008

(19) Do this task: Rudder Centering Test, TASK 27-21-00-700-815-001 or Rudder Centering Test, TASK 27-21-00-700-815-002

SUBTASK 27-21-11-220-009

(20) Do this task: Rudder Hinge Friction Test, TASK 27-21-00-700-823-001 or Rudder Hinge Friction Test, TASK 27-21-00-700-821-002

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-11-410-001

(1) Install these access panels:

(a) Hinge Covers

END OF TASK

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RUDDER INDEX PLATE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder index plate

(2) An installation of the rudder index plate.

TASK 27-21-17-000-801

2. Rudder Index Plate Removal

(Figure 401)

A. Location Zones

Zone	Area
315	APU Compartment - Left
316	APU Compartment - Right

B. Rudder Index Plate Removal

SUBTASK 27-21-17-930-001

(1) Put a tape on the airplane adjacent to the rudder index plate.

(a) Accurately make a mark of the position of the rudder index plate on the tape.

SUBTASK 27-21-17-020-001

(2) Remove the screws [2] and washers [3] to remove the rudder index plate [1].

SUBTASK 27-21-17-020-002

(3) Remove the rudder index plate [1] from the airplane.

——————— END OF TASK ———————

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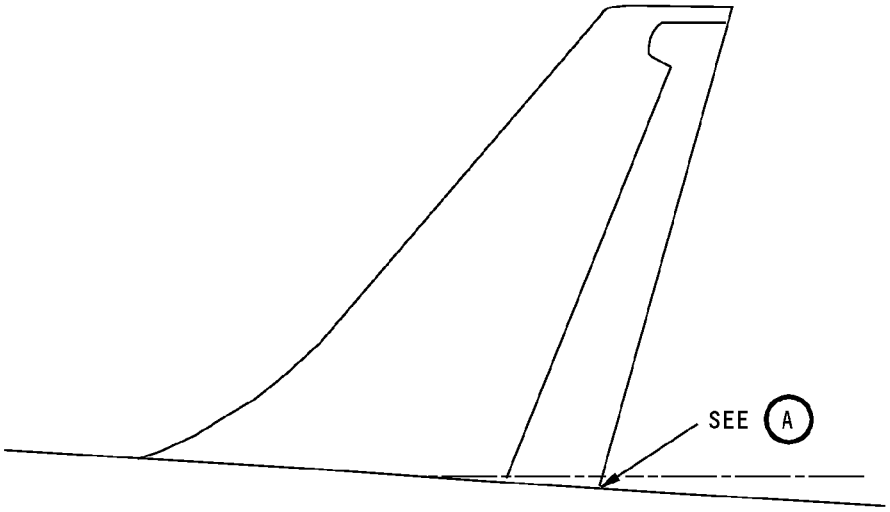

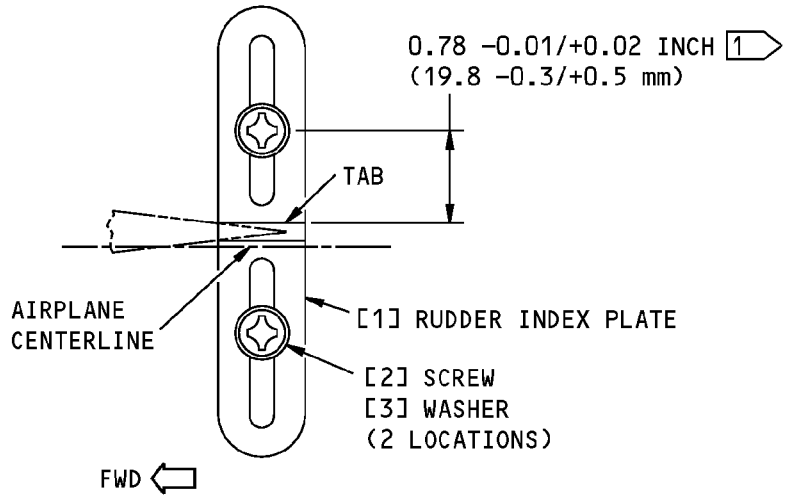

1 THIS DIMENSION MAY BE DIFFERENT IF THE INDEX PLATE HAS BEEN ADJUSTED FOR LATERAL TRIM.

Rudder Index Plate Installation
Figure 401/27-21-17-990-801

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TASK 27-21-17-400-801

3. Rudder Index Plate Installation

(Figure 401)

A. Location Zones

Zone	Area
315	APU Compartment - Left
316	APU Compartment - Right

B. Rudder Index Plate Installation

SUBTASK 27-21-17-420-001

(1) If there is tape with a mark that shows the correct position, then do these steps to install the rudder index plate [1]:

(a) Place the rudder index plate [1] in its position and align it with the mark.

(b) Install the screws [2] and washers [3] to install the rudder index plate [1].

(c) Remove the tape (that has the mark on it) from the airplane.

SUBTASK 27-21-17-420-002

(2) If there is not a tape with a mark that shows the correct position, then do these steps to install the rudder index plate [1]:

(a) Put the rudder index plate [1] in its position (Figure 401).

(b) Install the screws [2] and washers [3] to install the rudder index plate [1].

(c) Make sure the rudder index plate [1] is set at 0.78 +0.02/-0.01 inch (19.8 +0.5/-0.2 mm) (Figure 401).

END OF TASK

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STANDBY RUDDER POWER CONTROL UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the standby rudder power control unit (PCU)

(2) An installation of the standby rudder PCU.

TASK 27-21-24-000-801

2. Standby Rudder Power Control Unit Removal

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

B. Tools/Equipment

Reference	Description
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324DL	Trailing Edge Access

E. Prepare for the Removal

SUBTASK 27-21-24-860-001

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-24-860-002

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-24-010-002

(3) Remove this access panel:

Number	Name/Location
324DL	Trailing Edge Access

F. Standby Rudder PCU Removal

SUBTASK 27-21-24-020-001

(1) Disconnect the hydraulic lines [12] from the power control unit [4].

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(a) Put a 1 U.S.-gal (3.81 l) oil resistant container, STD-203 below the hydraulic connections.

(b) Disconnect the hydraulic lines [12] from the power control unit [4].

(c) Install the plugs and caps to the hydraulic lines and ports.

(d) Install a tag on the hydraulic lines [12] to make sure you install them correctly. Discard the packing [3] and packing [11].

SUBTASK 27-21-24-020-002

(2) Disconnect the electrical connector [1] from the power control unit [4].

SUBTASK 27-21-24-020-003

(3) Disconnect the vernier control rod [9] from the power control unit [4]:

(a) Remove the nut [8], washer [7], washer [6], and bolt [5] to disconnect the control rod [9] from the power control unit [4].

SUBTASK 27-21-24-020-004

(4) Remove the power control unit [4]:

(a) Remove the nut [24], washers [23], bushing [22], washer [21], and bolt [20] to disconnect the power control unit [4] from the rudder.

CAUTION: MAKE SURE THAT YOU HOLD THE STANDBY RUDDER PCU DURING THE REMOVAL OF THE STANDBY RUDDER PCU. THE STANDBY RUDDER PCU CAN FALL. THIS CAN CAUSE DAMAGE TO THE STANDBY RUDDER PCU.

(b) Remove the nut [19], washer [18], washer [17], bushing [16], bushing [15], washer [14], and bolt [13] to that attach the power control unit [4] to the airplane structure.

(c) Remove the power control unit [4] from the airplane.

—————— END OF TASK ——————

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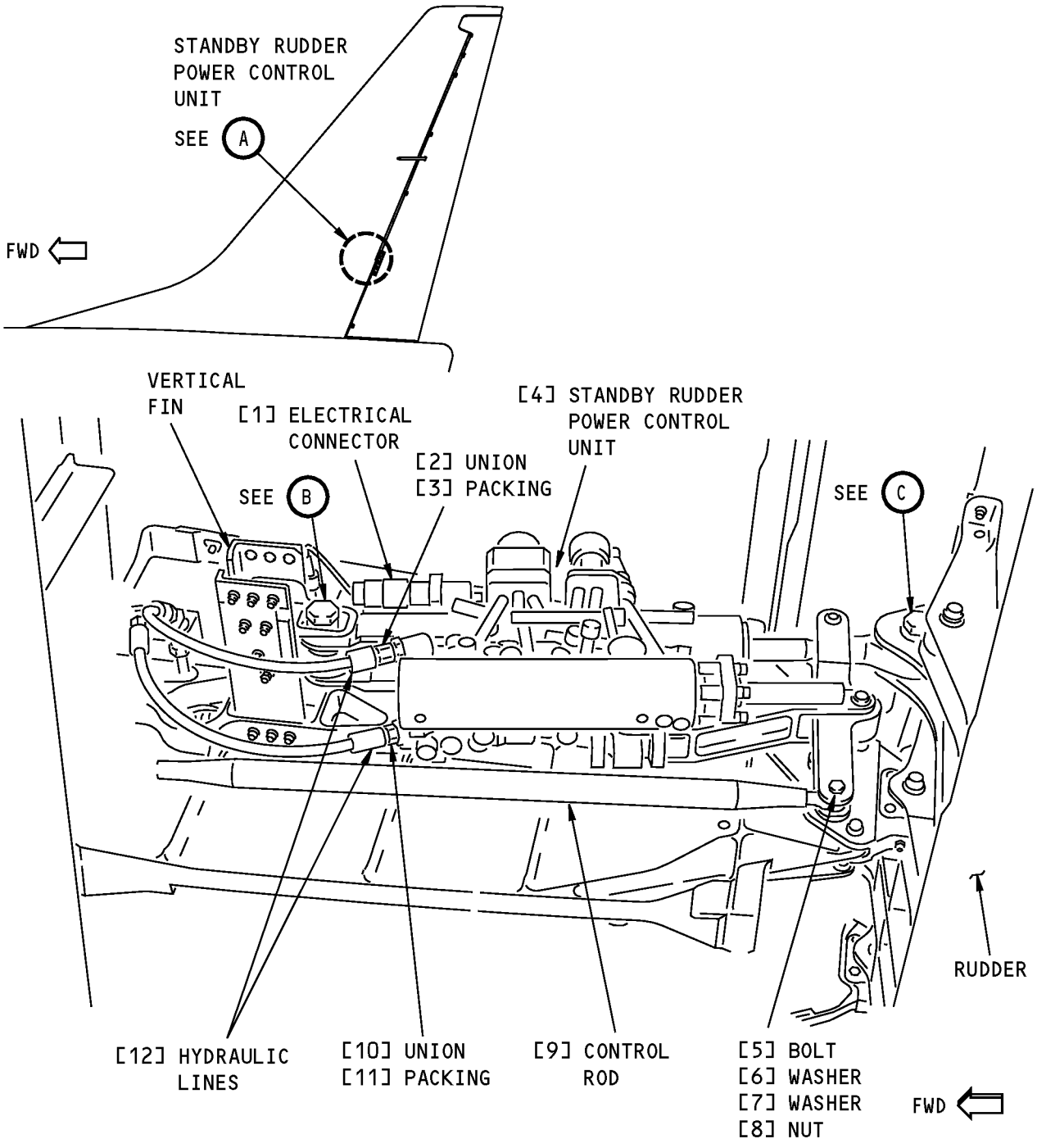

Standby Rudder Power Control Unit Installation
Figure 401 (Sheet 1 of 2)/27-21-24-990-801

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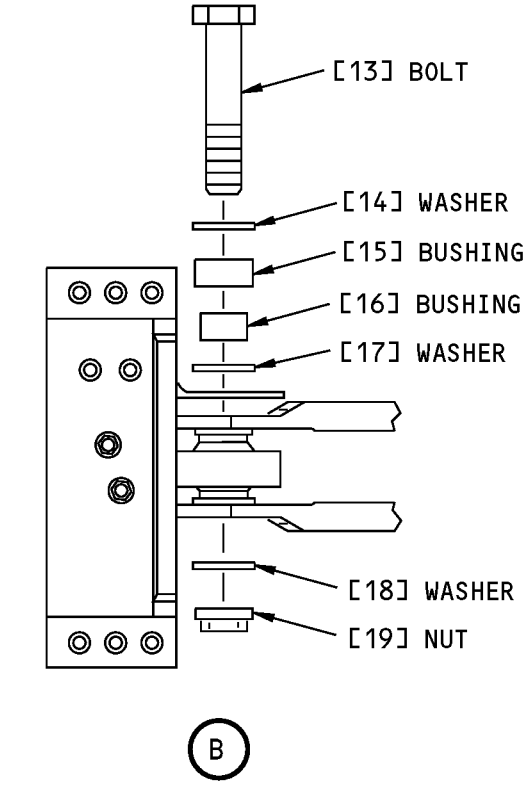

Standby Rudder Power Control Unit Installation
Figure 401 (Sheet 2 of 2)/27-21-24-990-801

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TASK 27-21-24-400-801

3. Standby Rudder Power Control Unit Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-21-00-700-817-001	Rudder Travel Test (P/B 501)
27-21-00-700-817-002	Rudder Travel Test (P/B 501)
27-21-00-700-818-001	Standby Rudder Power Control Unit Deadband Test (P/B 501)
27-21-00-700-818-002	Standby Rudder Power Control Unit Deadband Test (P/B 501)
27-21-00-820-810-001	Control Rod for Standby Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-820-810-002	Control Rod for Standby Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Power control unit	27-21-24-01-125	HAP ALL

E. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

F. Access Panels

Number	Name/Location
324DL	Trailing Edge Access

G. Standby Rudder PCU Installation

SUBTASK 27-21-24-220-001

(1) Examine the standby rudder PCU and all connections to the standby rudder PCU for worn areas. Do this task: Standby Rudder Power Control Unit Inspection (AMM 27-21-24/601).

SUBTASK 27-21-24-420-001

(2) If it the unions and packings are not installed in the power control unit [4], then do these steps:

(a) Lubricate the unions and packings with fluid, D00153.

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(b) Install the union [2] and new packing [3] in the power control unit [4].

(c) Install the union [10] and new packing [11] in the power control unit [4].

SUBTASK 27-21-24-420-002

(3) Install the power control unit [4]:

(a) Put the power control unit [4] in its position.

(b) Install the bolt [13], washers [14], bushing [15], bushing [16], washer [17], washer [18], and nut [19] to connect the power control unit [4] to the airplane structure.

1) Tighten the nut [19] to 450-550 pound-inches (50.8-62.1 newton-meters).

(c) Install the bolt [20], washer [21], bushing [22], washer [23], and nut [24] to connect the power control unit [4] to the rudder.

1) Tighten the nut [24] to 350-400 pound-inches (39.5-45.2 newton-meters).

SUBTASK 27-21-24-420-003

(4) Connect the vernier control rod [9] to the power control unit [4]:

(a) Install the bolt [5], washer [6], washer [7], and nut [8] to connect the control rod [9] to the power control unit [4].

SUBTASK 27-21-24-020-005

CAUTION: MAKE SURE THAT YOU CORRECTLY INSTALL THE HYDRAULIC LINES TO THE STANDBY RUDDER PCU. MAKE SURE THAT CORRECT UNIONS ARE INSTALLED IN THE HYDRAULIC PORTS. YOU CAN CAUSE DAMAGE TO THE STANDBY RUDDER PCU.

(5) Connect the hydraulic lines [12] to the power control unit [4]:

(a) Remove the caps and plugs from the hydraulic lines and ports.

(b) Remove the identification tags from the hydraulic lines.

(c) Remove the 1 U.S.-gal (3.81 l) oil resistant container, STD-203 used to catch fluids from the hydraulic lines.

(d) Connect the hydraulic lines [12] to the power control unit [4].

SUBTASK 27-21-24-020-006

(6) Connect the electrical connector [1] to the power control unit [4].

SUBTASK 27-21-24-860-003

(7) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-24-820-001

(8) Do this task: Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-001 or Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-002.

SUBTASK 27-21-24-860-004

(9) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

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SUBTASK 27-21-24-710-001

(10) Do this task: Standby Rudder Power Control Unit Deadband Test, TASK 27-21-00-700-818-001 or Standby Rudder Power Control Unit Deadband Test, TASK 27-21-00-700-818-002.

SUBTASK 27-21-24-710-002

(11) Do this task: Rudder Travel Test, TASK 27-21-00-700-817-001 or Rudder Travel Test, TASK 27-21-00-700-817-002.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-24-410-001

(1) Install this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-24-410-003

(2) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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STANDBY RUDDER POWER CONTROL UNIT - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure contains these tasks:

(1) Standby Rudder Power Control Unit General Visual Inspection

(2) Standby Rudder Power Control Unit Detail Visual Inspection.

TASK 27-21-24-210-801

2. Standby Ruddder Power Control Unit (with Hydraulic Power on) General Visual Inspection

Figure 601

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

C. Location Zones

Zone	Area
325	Vertical Fin - Rudder

D. Access Panels

Number	Name/Location
324DL	Trailing Edge Access

E. Procedure

SUBTASK 27-21-24-010-003

(1) Open this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-24-860-007

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Pressurize the Standby Hydraulic System, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-24-210-001

(3) Do a general visual inspection of the standby rudder power control unit Figure 601.

SUBTASK 27-21-24-860-006

(4) Remove pressure from the Standby Hydraulic System, do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

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SUBTASK 27-21-24-410-004

(5) Close this access panel:

Number	Name/Location
324DL	Trailing Edge Access

——————— END OF TASK ———————

TASK 27-21-24-210-802

3. Standby Ruddder Power Control Unit Detail Visual Inspection

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
325	Vertical Fin - Rudder

C. Access Panels

Number	Name/Location
324DL	Trailing Edge Access

D. Procedure

SUBTASK 27-21-24-010-004

(1) Open this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-24-210-002

(2) Do a detail visual inspection of the standby rudder power control unit attachment points, (Figure 601).

(a) Examine the attachment points for security and damage.

SUBTASK 27-21-24-410-005

(3) Close this access panel:

Number	Name/Location
324DL	Trailing Edge Access

——————— END OF TASK ———————

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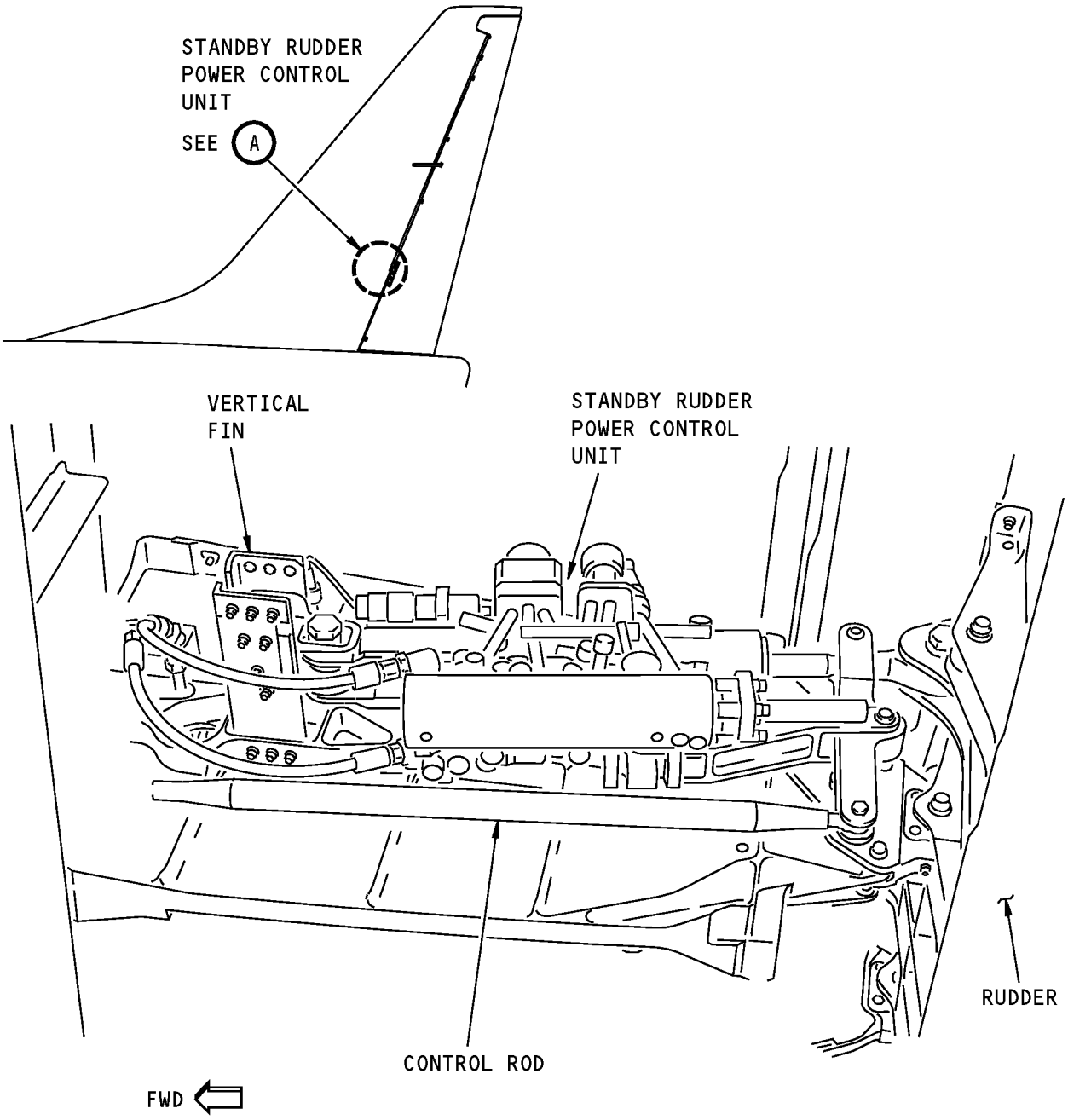

Standby Rudder Power Control Unit Visual Inspection
Figure 601/27-21-24-990-802

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RUDDER PEDALS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder pedals

(2) An installation of the rudder pedals.

B. This procedure is applicable for the captain's rudder pedals and first officer's rudder pedals.

TASK 27-21-31-000-801

2. Rudder Pedals Removal

(Figure 401, Figure 402)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Prepare for the Removal

SUBTASK 27-21-31-010-001

(1) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-21-31-480-001

(2) Install the rig pin R-3 from the rig pin kit, SPL-1585 in the forward rig pin hole of the captain's rudder forward quadrant (Figure 401).

SUBTASK 27-21-31-480-002

(3) Install the rig pin R-4 from the rig pin kit, SPL-1585 in the forward rig pin hole of the first officer's rudder forward quadrant (Figure 401).

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E. Rudder Pedals Removal

SUBTASK 27-21-31-020-001

(1) Remove the screws [22] and washers [23] that attach the top cover [21] to the rudder pedal heelrests.

SUBTASK 27-21-31-020-002

(2) Remove the screws [25] that attach the outboard pedal shroud [19] and inboard pedal shroud [20] to the top cover [21].

SUBTASK 27-21-31-020-003

(3) Remove the screws [24] that attach the outboard pedal shroud [19] to the stanchion wall.

SUBTASK 27-21-31-020-004

(4) Remove the outboard pedal shroud [19] to get access to a fastener which attaches the pedal adjustment cable to the top cover [21].

SUBTASK 27-21-31-020-005

(5) Remove the nuts [10], washers [9], bushings [8], and bolts [7] to disconnect the two brake pushrods [11] from the bellcranks [6].

SUBTASK 27-21-31-020-009

(6) Remove the screws [19] and brackets [20] from the rudder pedals [12].

SUBTASK 27-21-31-020-006

(7) Remove the pin [3A], nuts [3], washers [2], and bolts [1] to disconnect the two rudder pedal tension rods [4] from the rudder pedals [12].

SUBTASK 27-21-31-020-007

(8) Remove the top cover [21].

(a) If it is necessary, pull the control column aft, move the pedals, and turn the top cover [21] as it clears adjacent structure.

SUBTASK 27-21-31-020-008

(9) Remove the rudder pedals [12] from the support structure:

(a) Remove the nut [13], washer [17].

(b) Hold the rudder pedals [12] and pull the support shaft [16] out.

NOTE: The bushings, bearings, and washers will be loosed as the support shaft [16] is removed.

(c) Pull each rudder pedal [12] through the floor beams, into the flight compartment.

(d) Remove the rudder pedals [12] from the airplane.

———————— END OF TASK ————————

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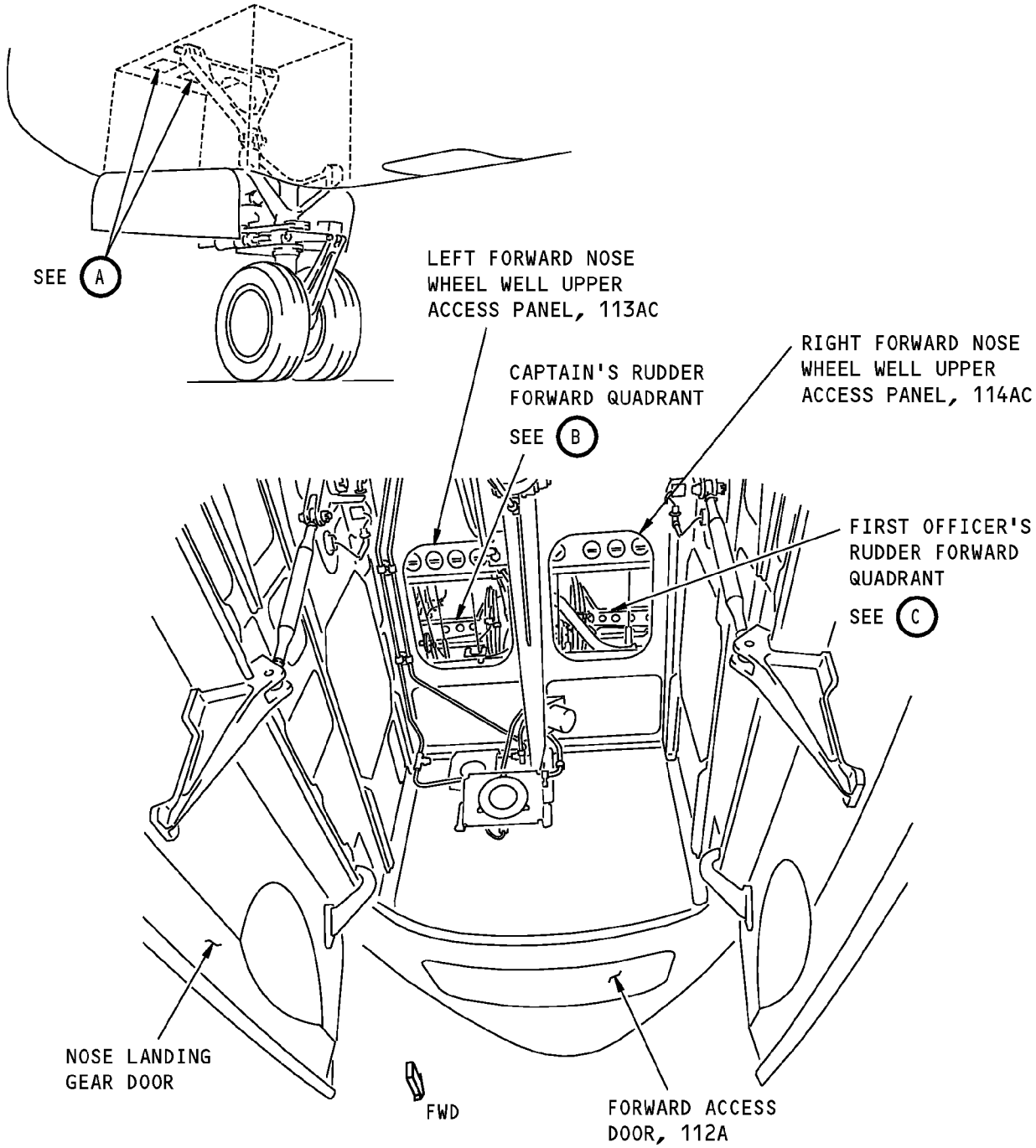

NOSE LANDING GEAR WHEEL WELL

A

Rudder Forward Quadrant Rig Pin Installation
Figure 401 (Sheet 1 of 3)/27-21-31-990-801

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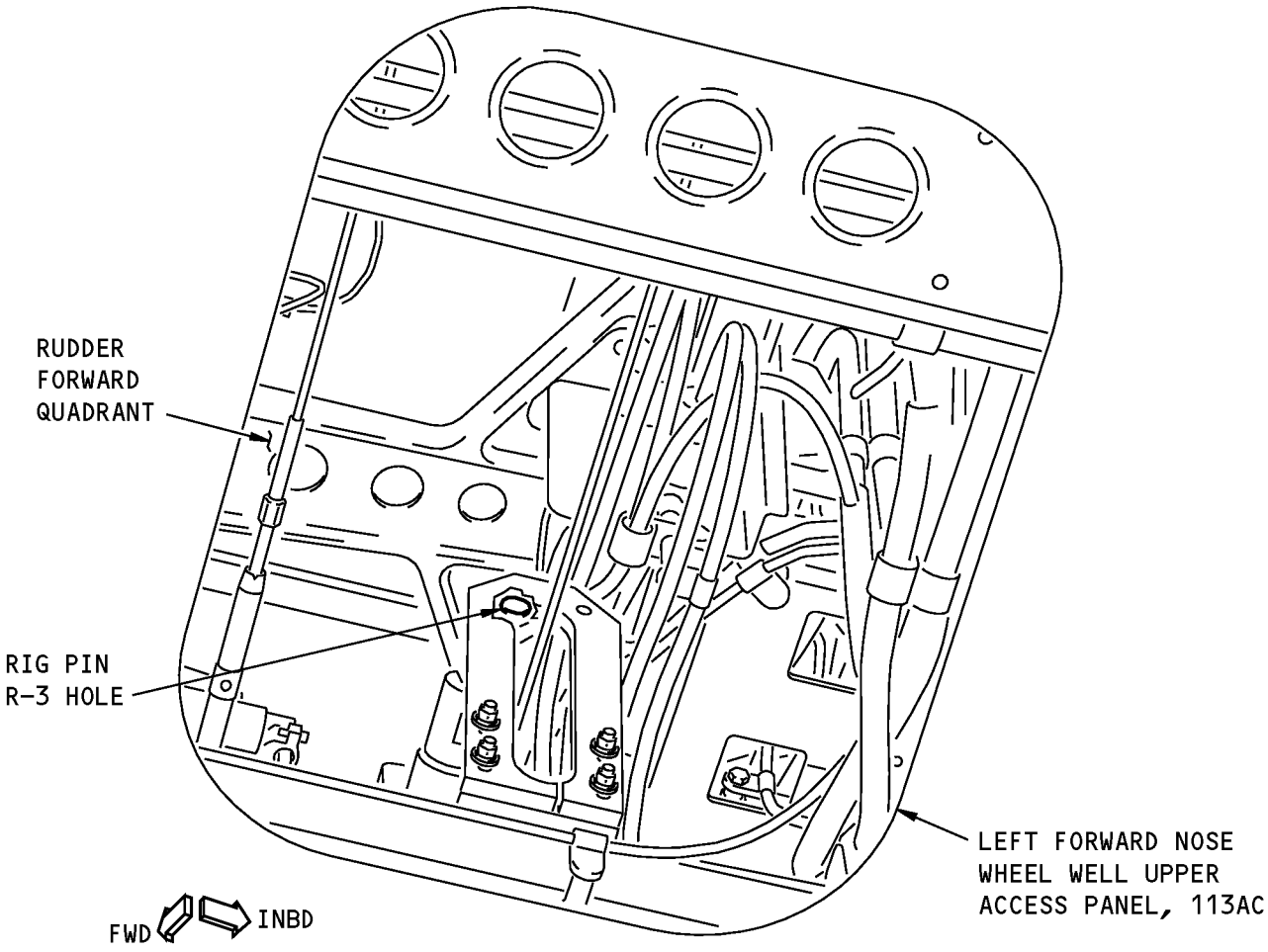

CAPTAIN'S RUDDER FORWARD QUADRANT

B

Rudder Forward Quadrant Rig Pin Installation
Figure 401 (Sheet 2 of 3)/27-21-31-990-801

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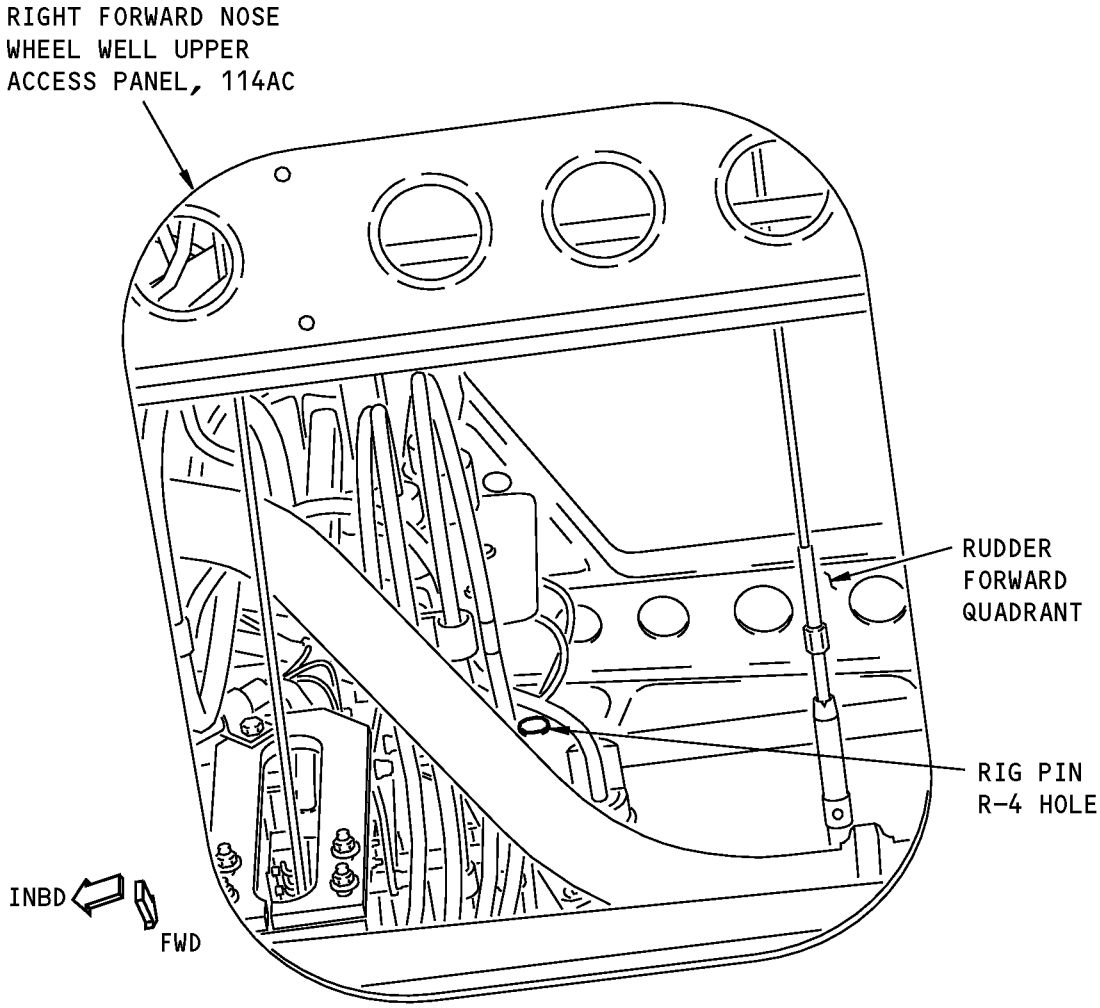

FIRST OFFICER'S RUDDER FORWARD QUADRANT

C

Rudder Forward Quadrant Rig Pin Installation
Figure 401 (Sheet 3 of 3)/27-21-31-990-801

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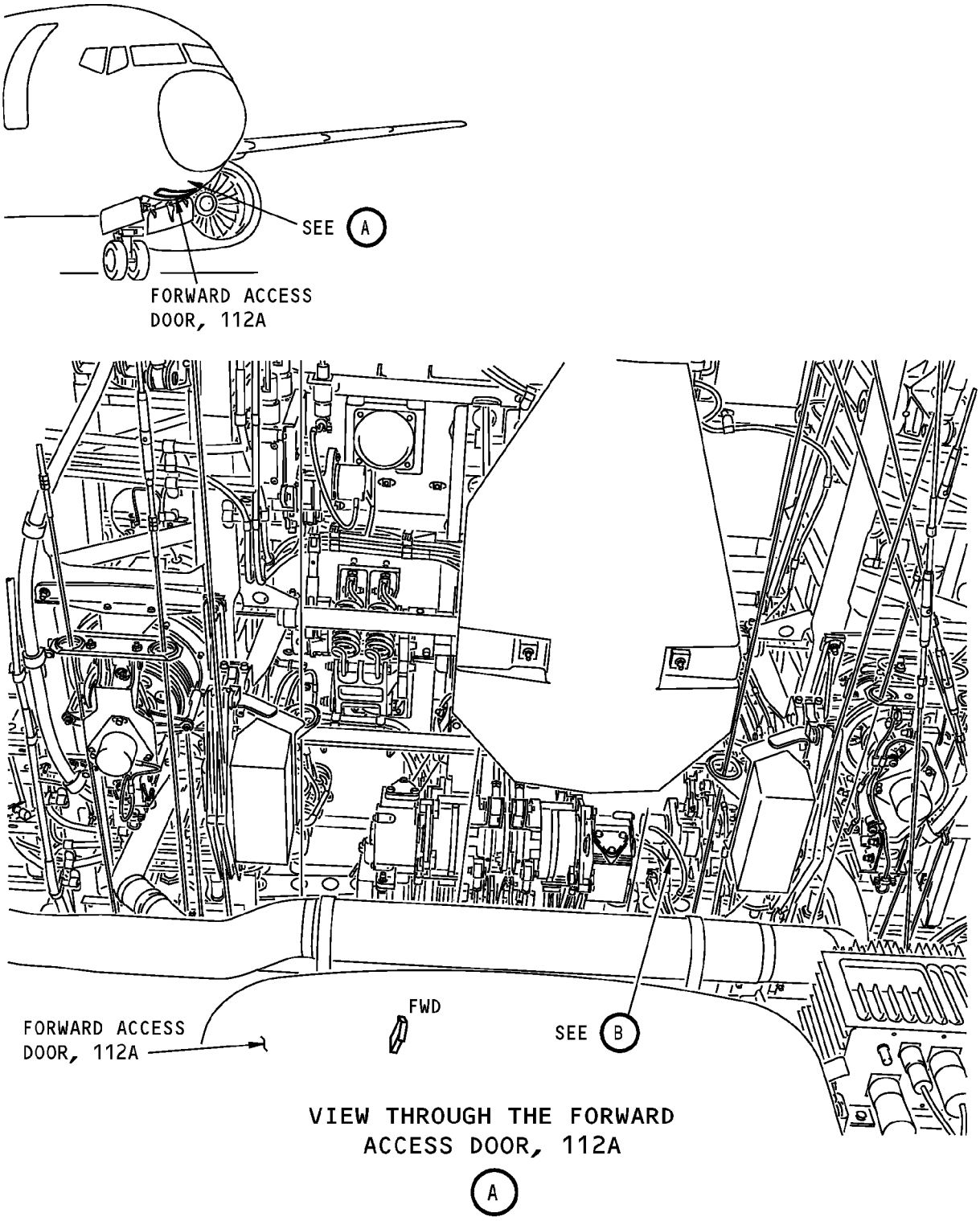

Rudder Pedals Installation
Figure 402 (Sheet 1 of 3)/27-21-31-990-802

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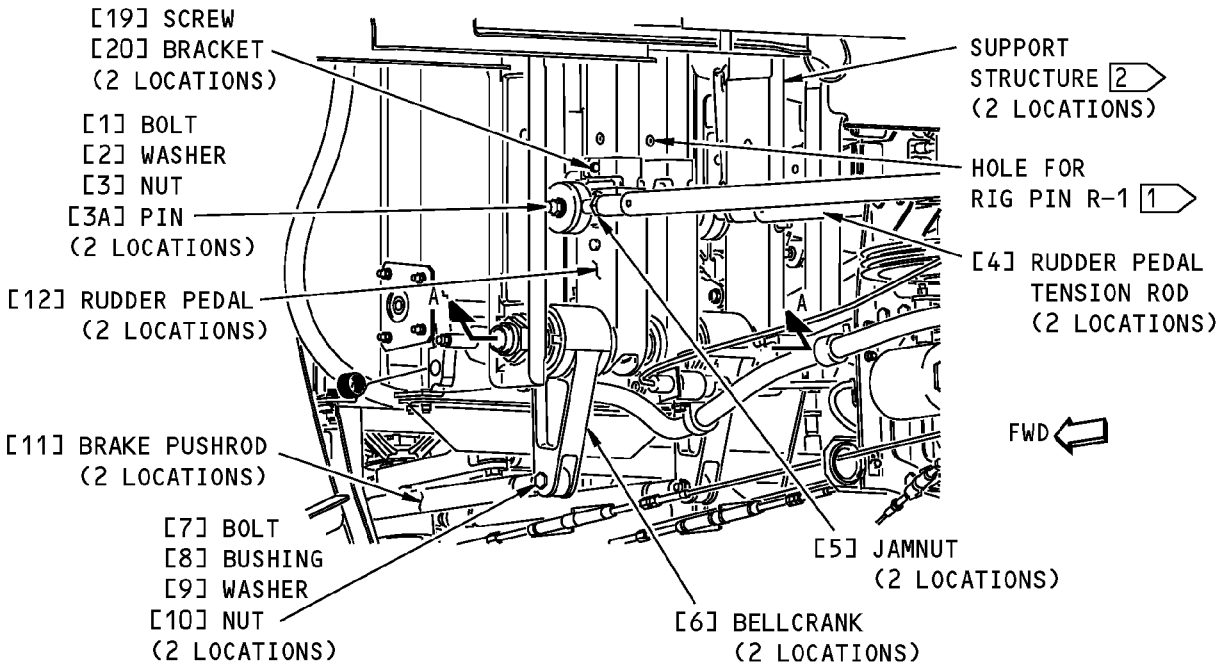
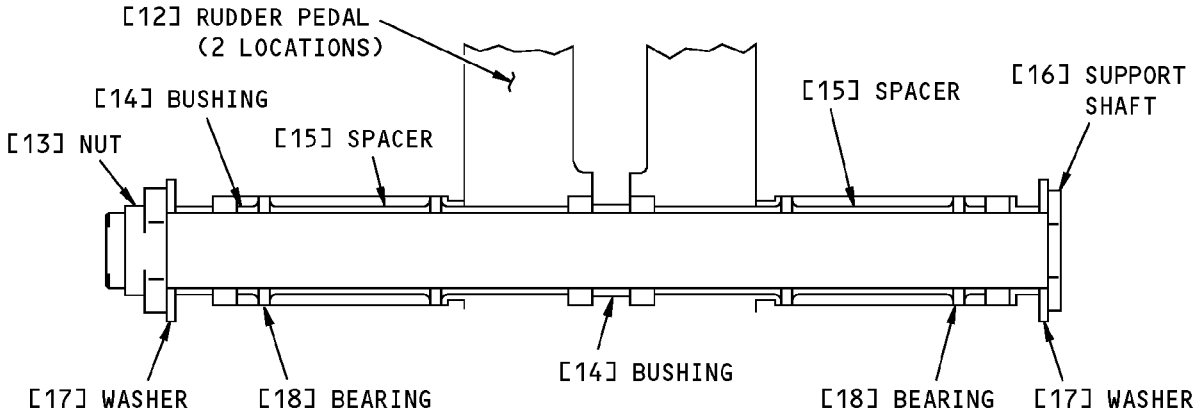


CAPTAINS'S RUDDER PEDALS
(FIRST OFFICER'S RUDDER PEDALS IS OPPOSITE)

B



A–A

1 RIG PIN R-2 IS INSTALLED IN THE FIRST OFFICER'S RUDDER PEDALS.

2 FLOOR BEAMS ARE NOT SHOWN FOR CLARITY.

Rudder Pedals Installation
Figure 402 (Sheet 2 of 3)/27-21-31-990-802

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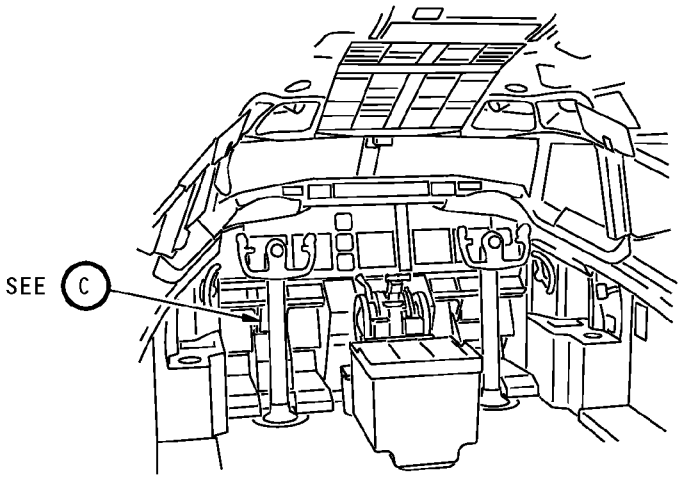
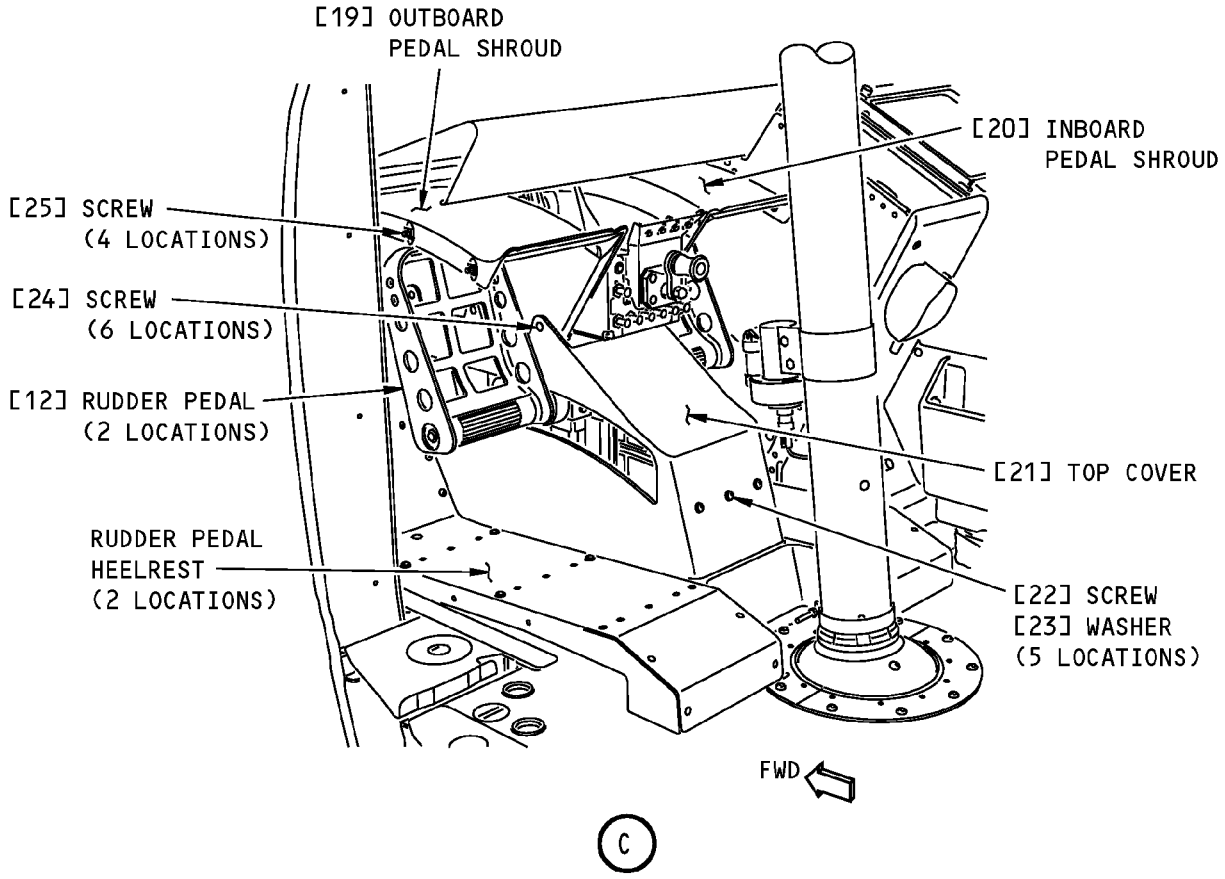


FLIGHT COMPARTMENT



Rudder Pedals Installation
Figure 402 (Sheet 3 of 3)/27-21-31-990-802

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TASK 27-21-31-400-801

3. Rudder Pedals Installation

(Figure 401, Figure 402)

A. References

Reference	Title
27-21-00-700-813-001	Rudder Pedal Adjustment and Limit Travel Test (P/B 501)
27-21-00-700-813-002	Rudder Pedal Adjustment and Limit Travel Test (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Rudder Pedals Installation

SUBTASK 27-21-31-480-003

(1) Make sure that the rig pin R-3 from the rig pin kit, SPL-1585 is installed in the captain's rudder forward quadrant.

SUBTASK 27-21-31-480-004

(2) Make sure that the rig pin R-4 from the rig pin kit, SPL-1585 is installed in the first officer's rudder forward quadrant.

SUBTASK 27-21-31-420-001

(3) Install the rudder pedals [12]:

(a) Put the spacers [15] and bearings [18] into the rudder pedals [12].

(b) Put the inboard rudder pedal between the support structure and align the holes.

(c) Put the washer [17] on the support shaft [16].

(d) Install the support shaft [16] from the inboard side through the hole in the support structures and through the bushing [14] and rudder pedal [12].

(e) Install the bushing [14] on the support shaft [16].

(f) Install the washer [17] and nut [13] on the support shaft [16].

1) Tighten the nut [13] to 200-500 pound-inches (22.6-56.5 newton-meters).

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(g) Make sure the support shaft [16] is not free to turn in the support structures.

SUBTASK 27-21-31-820-001

(4) Do these steps to adjust the rudder pedal position:

(a) Turn the rudder pedal adjustment crank full clockwise for the installed rudder pedals until the jackshaft is in its full forward position.

(b) Turn the rudder pedal adjustment crank 4 turns counterclockwise.

(c) If you install the captain's rudder pedals [12], then install the rig pin R-1 from the test set rig pin kit, SPL-1585 in the captain's rudder pedals [12].

(d) If you install the first officer's rudder pedals [12], then install the rig pin R-2 from the test set rig pin kit, SPL-1585 in the first officer's rudder pedals [12].

SUBTASK 27-21-31-820-002

(5) Do these steps to adjust the two rudder pedal tension rods [4]:

(a) Loosen the jamnuts [5] on the two rudder pedal tension rods [4].

(b) Turn the rudder pedal tension rods [4] until you can attach them to the rudder pedals [12].

(c) Make sure you can see the rod end threads through the inspection holes at two ends of the rudder pedal tension rods [4] after the adjustment.

(d) Make sure that the threads show in at least one-half of the inspection hole.

(e) Tighten the jamnuts [5] on the rudder pedal tension rods [4].

SUBTASK 27-21-31-420-002

(6) Install the bolts [1], washers [2], nuts [3] and pin [3A] to connect the two rudder pedal tension rods [4] to the rudder pedals [12].

SUBTASK 27-21-31-420-009

(7) Install the brackets [20] and the screws [19] on the rudder pedals [12].

SUBTASK 27-21-31-420-003

(8) Install the bolts [7], bushings [8], washers [9], and nuts [10] to connect the two brake pushrods [11] to the bellcranks [6].

(a) Adjust the length of the brake pushrods [11] if it is necessary.

SUBTASK 27-21-31-420-004

(9) Attach the pedal adjustment cable to the top cover [21] with a fastener.

SUBTASK 27-21-31-420-005

(10) Install the screws [25] to attach the outboard pedal shroud [19] to the stanchion wall.

SUBTASK 27-21-31-420-006

(11) Put the top cover [21] on the rudder pedal heel rests.

SUBTASK 27-21-31-420-007

(12) Install the screws [24] to attach the outboard pedal shroud [24] and inboard pedal shroud [19] to the top cover [21].

SUBTASK 27-21-31-420-008

(13) Install the screws [22] and washers [23] to attach the top cover [21] to the rudder pedal heelrests.

SUBTASK 27-21-31-080-001

(14) Remove rig pins R-3 and R-4.

SUBTASK 27-21-31-080-002

(15) Remove rig pin R-1 or R-2.

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SUBTASK 27-21-31-730-001

(16) Do this task: Rudder Pedal Adjustment and Limit Travel Test, TASK 27-21-00-700-813-001 or Rudder Pedal Adjustment and Limit Travel Test, TASK 27-21-00-700-813-002.

F. Put the Airplane Back To Its Usual condition

SUBTASK 27-21-31-410-001

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

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RUDDER PEDAL ADJUSTMENT CRANK - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a rudder pedal adjustment crank

(2) An installation of a rudder pedal adjustment crank.

B. The rudder pedal adjustment crank is referred to as the "crank assembly" in this procedure.

C. The crank assembly includes the crank lever [14] and cable [1].

D. The procedure is applicable for the captain's and first officer's crank assembly.

E. It is not necessary to remove the cable to remove the crank lever.

TASK 27-21-41-000-801

2. Rudder Pedal Adjustment Crank Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
222	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Right

B. Access Panels

Number	Name/Location
112A	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-21-41-010-001

(1) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-21-41-010-002

(2) Open the main instrument panel shroud to get access to the cable.

SUBTASK 27-21-41-010-003

(3) Open the main instrument panel module assembly [14].

D. Crank Assembly Removal

SUBTASK 27-21-41-020-001

(1) Do these steps to remove the crank lever [10]:

(a) Remove the nut [8] and washer [9] from the crank lever [10].

(b) Remove the crank lever [10] from the bearing retainer [12].

(c) Remove the spacer [11].

SUBTASK 27-21-41-020-002

(2) Do these steps to remove the cable [1] from the crank lever [10]:

(a) Remove the lockwire from the cable retaining nut [13].

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(b) Loosen the cable retaining nut [13].

(c) Pull the cable [1] forward until it disconnects from the crank support bracket [7].

SUBTASK 27-21-41-020-003

(3) Do these steps to disconnect the cable [1] from the rudder jackshaft [4]:

(a) Loosen the retaining nut [3] at the rudder jackshaft [4].

(b) Hold the retaining nut [3] and pull the cable [1] from the rudder jackshaft [4].

(c) Remove the retaining nut [3] and washer [2].

SUBTASK 27-21-41-020-004

(4) Do these steps to remove the cable [1]:

(a) Remove the bolts [5] from the cable clamps [6].

(b) Remove the cable clamps [6] and keep a record of their locations.

(c) Remove the elastic grommet.

(d) Pull the cable [1] through the grommet hole.

(e) Remove the cable [1].

——————— END OF TASK ———————

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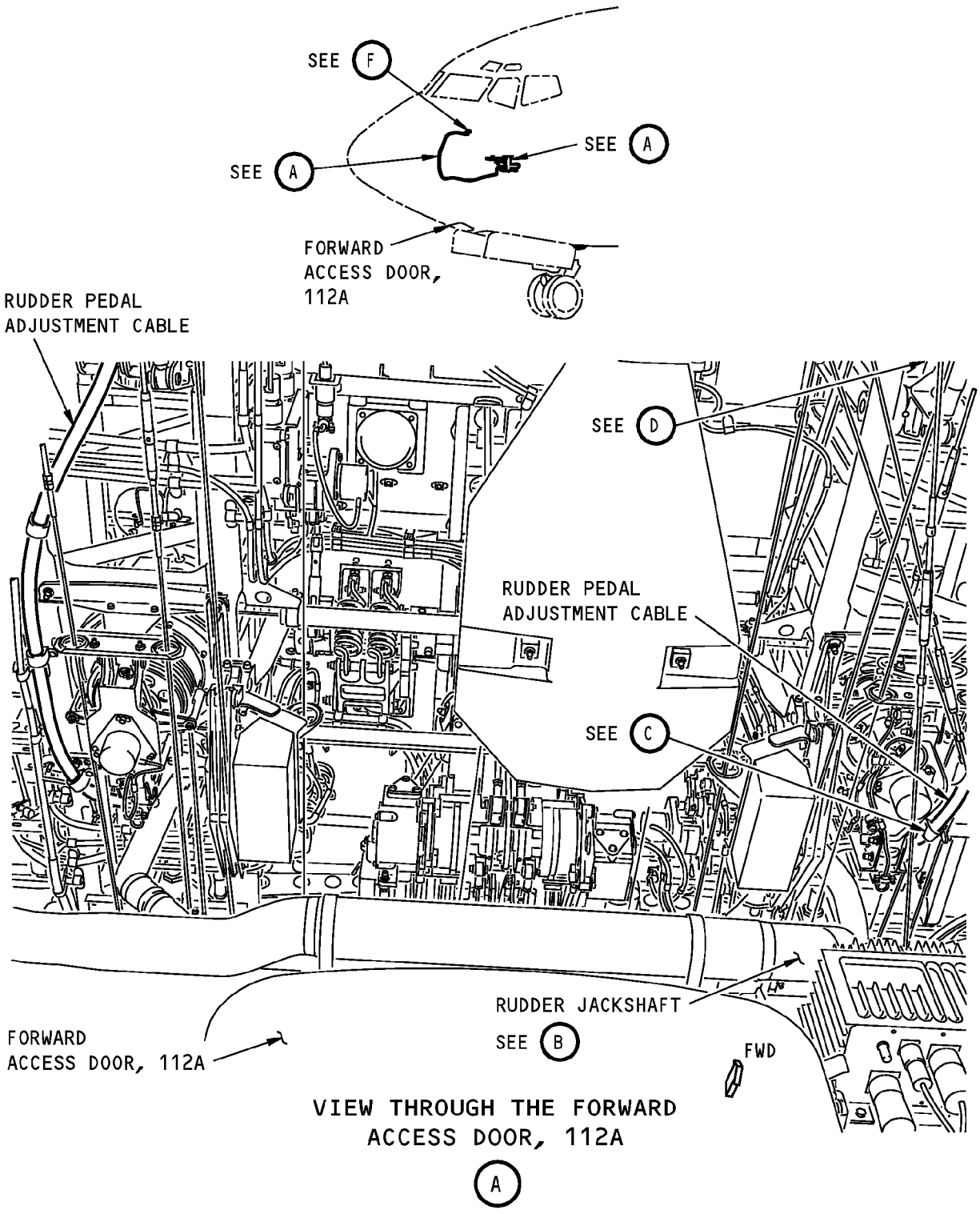

Rudder Pedal Adjustment Crank Installation
Figure 401 (Sheet 1 of 4)/27-21-41-990-801

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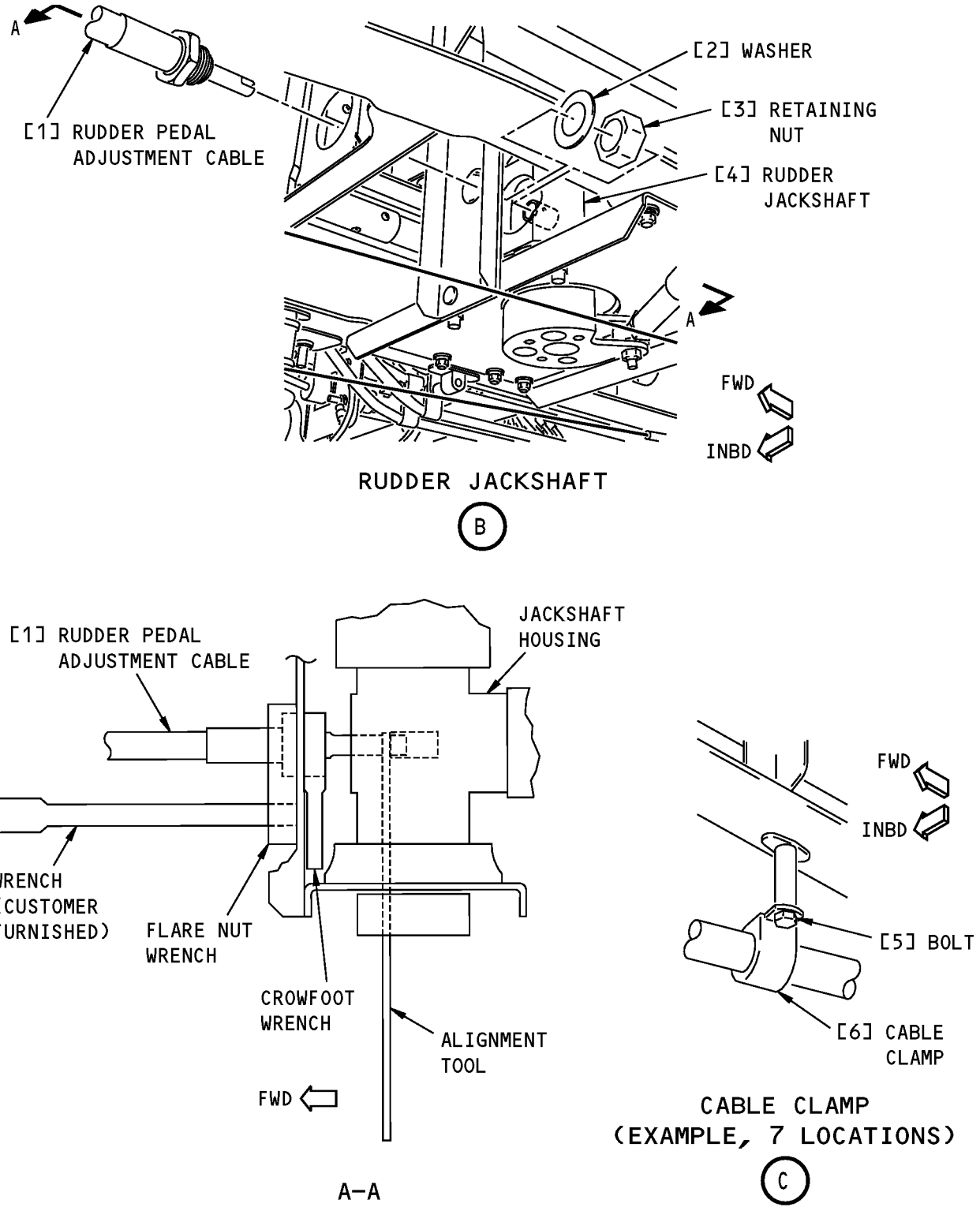

Rudder Pedal Adjustment Crank Installation
Figure 401 (Sheet 2 of 4)/27-21-41-990-801

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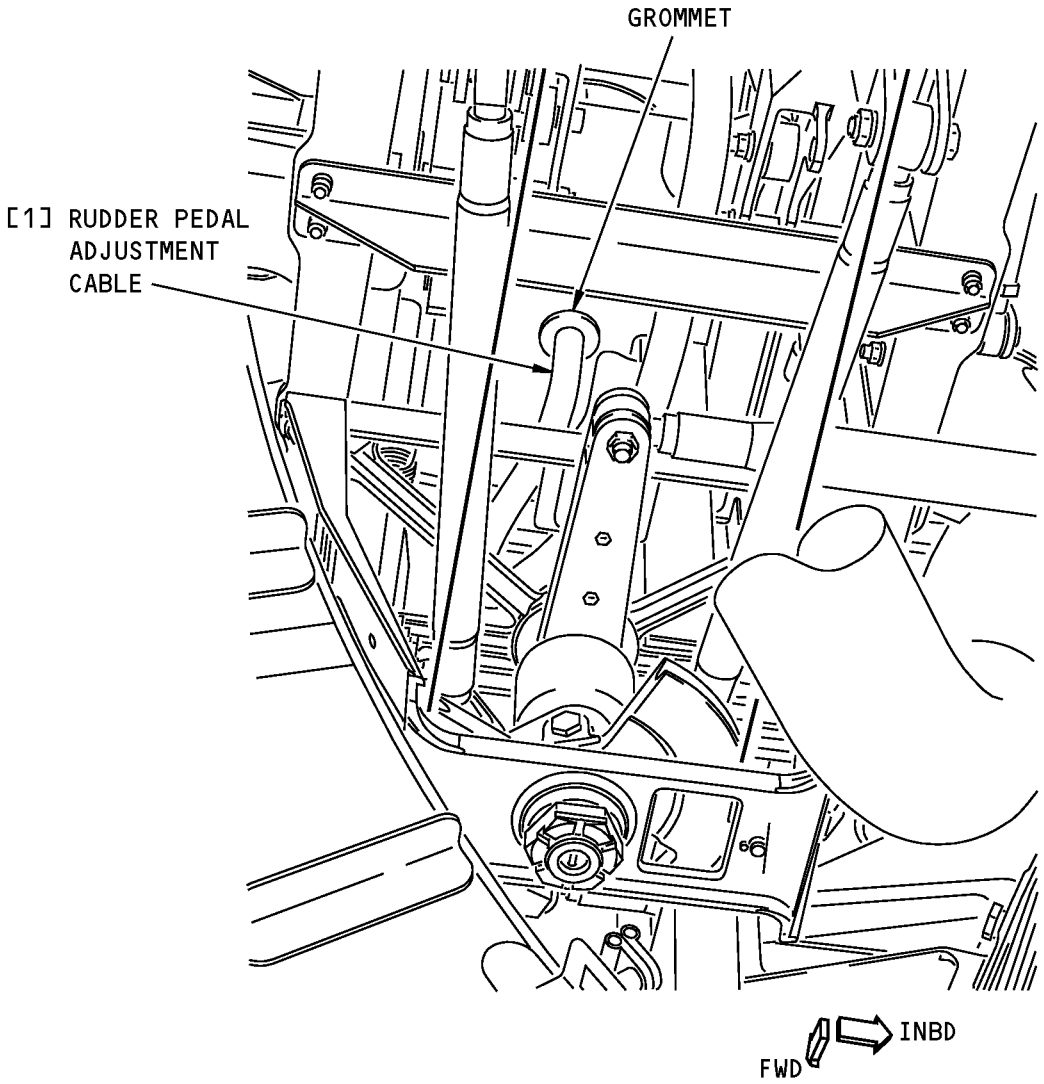

Rudder Pedal Adjustment Crank Installation
Figure 401 (Sheet 3 of 4)/27-21-41-990-801

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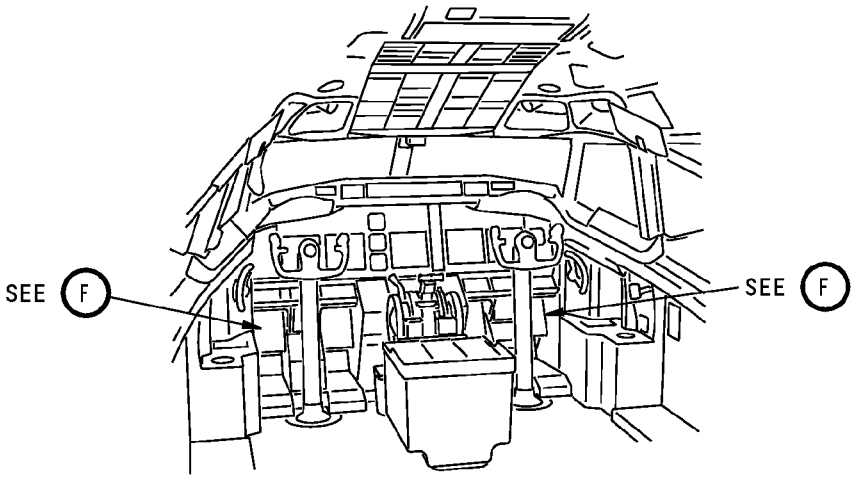
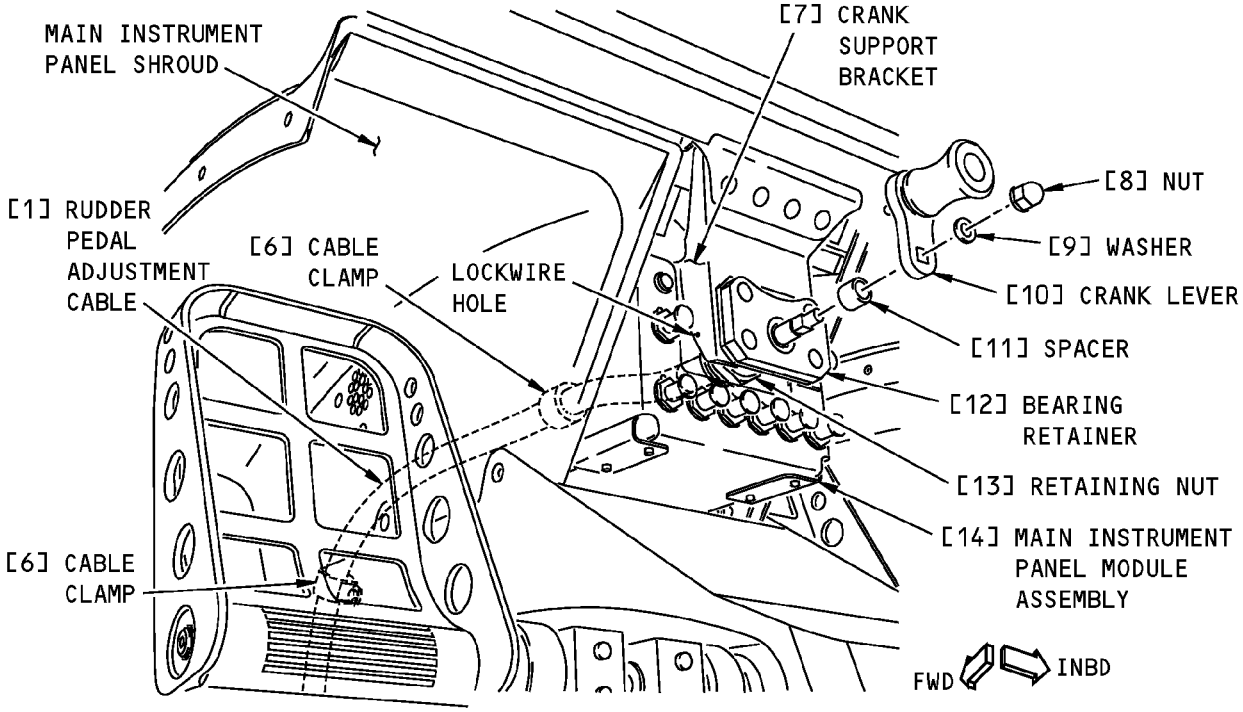


FLIGHT COMPARTMENT

E



LEFT MAIN INSTRUMENT PANEL MODULE ASSEMBLY
(RIGHT MAIN INSTRUMENT PANEL MODULE ASSEMBLY IS EQUIVALENT)

F

Rudder Pedal Adjustment Crank Installation
Figure 401 (Sheet 4 of 4)/27-21-41-990-801

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TASK 27-21-41-400-801

3. Rudder Pedal Adjustment Crank Installation

(Figure 401)

A. References

Reference	Title
27-21-00-700-813-001	Rudder Pedal Adjustment and Limit Travel Test (P/B 501)
27-21-00-700-813-002	Rudder Pedal Adjustment and Limit Travel Test (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1689	Equipment - Alignment, Rudder Pedal Adjustment (B27064-5 included in kit B27064-1 & -2) (Part #: B27064-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: B27064-2, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
221	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Left
222	Passenger Compartment - Aft of Control Compartment to Forward Entry Door - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Rudder Pedal Adjustment Crank Installation

SUBTASK 27-21-41-420-001

(1) Do these steps to install the cable [1]:

(a) Install the grommet on the cable [1].

(b) Push the cable [1] through the grommet hole.

NOTE: One end of the cable should reach the crank lever and the other end should reach the rudder jackshaft [4].

(c) Install the cable clamps [6] and bolts [5] on the cable [1].

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1) Make sure the cable radius is more than 5.0 inches (127 millimeters) for all the curves in the cable.

NOTE: If the cable radius is less than 5.0 inches (127 millimeters), the cable will not operate correctly.

SUBTASK 27-21-41-420-002

(2) Connect the cable [1] to the rudder pedal jackshaft [4]:

(a) Put the washer [2] and retaining nut [3] on the cable [1].

(b) Put the cable [1] through the rudder jackshaft [4].

(c) Apply a thin layer of grease, D00013 to the outside diameter of the cable [1] before it is installed in the rudder jackshaft [4].

(d) Do these steps:

1) Install the alignment tool equipment (B27064-5), SPL-1689 through the hole in the bottom of the rudder jackshaft [4] to hold the jackshaft universal joint in its position.

2) Turn the cable [1] end until it engages the jackshaft pin.

3) Use the crowfoot wrench to hold the retaining nut [3].

4) Use the flare nut wrench to hold the sleeve of the cable [1].

(e) Tighten the retaining nut [3].

1) Tighten the retaining nut [3] to 90-400 pound-inches (10.2-45.2 newton-meters) before it touches the jackshaft support.

2) Turn the retaining nut [3] 1/4 to 1/2 of a turn more when it touches the jackshaft support.

SUBTASK 27-21-41-420-003

(3) Do these steps to connect the cable [1] to the crank lever [10]:

(a) Put the cable retaining nut [13] on one end of the cable [1].

(b) Push the cable [1] through the bearing retainer [12].

(c) Tighten the cable retaining nut [13].

1) Tighten the cable retaining nut [13] finger tight plus one quarter turn.

(d) Install the lockwire, G01048 on the retaining nut [13].

NOTE: To get the best lockwire angle, make sure that the aft cable assembly can turn easily and smoothly.

SUBTASK 27-21-41-420-004

(4) Do these steps to install the crank lever [10]:

(a) Install the spacer [11] on the cable [1].

(b) Install the crank lever [10], washer [9], and nut [8].

SUBTASK 27-21-41-410-001

(5) Close the main instrument panel module assembly [14].

SUBTASK 27-21-41-410-002

(6) Close the main instrument panel module shroud.

SUBTASK 27-21-41-710-001

(7) Do this task to test the rudder pedal adjustment cranks: Rudder Pedal Adjustment and Limit Travel Test, TASK 27-21-00-700-813-001 or Rudder Pedal Adjustment and Limit Travel Test, TASK 27-21-00-700-813-002.

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SUBTASK 27-21-41-410-003

(8) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

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RUDDER FORWARD QUADRANT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a rudder forward quadrant

(2) An installation of the a rudder forward quadrant.

B. The rudder forward quadrant includes the quadrant and jackshaft.

C. This procedure is applicable for the captain's and first officer's rudder forward quadrants.

TASK 27-21-51-000-801

2. Rudder Forward Quadrant Removal

(Figure 401, Figure 402, Figure 403)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
31-31-42-000-801	Rudder Pedal Position Sensor Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
112A	Forward Access Door
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel
311BL	Stabilizer Trim Access Door
324CL	Vertical Fin, Access

E. Prepare for the Removal

SUBTASK 27-21-51-860-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

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SUBTASK 27-21-51-010-001

(2) To get access to the rudder feel and centering unit, do this task:

Open this access panel:

Number	Name/Location
324CL	Vertical Fin, Access

SUBTASK 27-21-51-080-001

(3) Install rig pin R-5 from the rig pin kit, SPL-1585 in the rudder feel and centering unit (Figure 401).

SUBTASK 27-21-51-010-008

(4) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-21-51-010-002

(5) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-21-51-010-003

(6) Remove these access panels:

Number	Name/Location
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel

and .

SUBTASK 27-21-51-020-001

(7) For the first officer's rudder forward quadrant, remove the rudder pedal position sensor. To remove it, do this task: Rudder Pedal Position Sensor Removal, TASK 31-31-42-000-801.

F. Rudder Forward Quadrant Removal

(Figure 402, Figure 403)

SUBTASK 27-21-51-010-004

WARNING: YOU MUST LOOSEN AND DISCONNECT THE RUDDER CABLES FROM THE RUDDER FORWARD QUADRANTS BEFORE YOU DISCONNECT THE BUS ROD. RELIEVE TENSION UNIFORMLY IN THE TWO RUDDER CABLES. IF YOU DO NOT LOOSEN THE RUDDER CABLES EQUALLY, IT CAN CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(1) Loosen the turnbuckles [91] for the rudder cable RB [21] and rudder cable RA [22] (Figure 403).

SUBTASK 27-21-51-020-002

(2) Disconnect the applicable rudder cable from the rudder forward quadrant [39] that you will remove (Figure 402):

(a) Remove the bolt [30] and washer [31] from the cable retainer [32].

(b) Remove the cable RB [21] or cable RA [22] from the rudder forward quadrant [39].

SUBTASK 27-21-51-020-003

(3) Remove the pins [44], nuts [43], washers [42], and bolts [41] to disconnect the rudder pedal tension rods [40] from the rudder forward quadrant [39]. Discard the pins [44].

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SUBTASK 27-21-51-020-004

(4) Remove the pin [49], nut [48], washer [47], spacers [46], and bolt [45] to disconnect the bus rod [50] from the rudder forward quadrant [39]. Discard the pin [49].

SUBTASK 27-21-51-020-010

(5) Remove the nuts [90], washers [89], and bolts [88] to remove the cover assembly [87] from the floor beam structure.

SUBTASK 27-21-51-020-005

(6) Remove the nuts [73], washers [72], and bolts [71] to remove the adjustment shaft support bracket [74] from the structure.

SUBTASK 27-21-51-020-006

(7) Pull the adjustment shaft [75] and the adjustment shaft support bracket [74] forward to disengage the adjustment shaft [75] from the rudder forward quadrant [39].

SUBTASK 27-21-51-020-007

(8) Remove the nuts [54], washers [53], and screws [52] to remove the cable guard [51].

SUBTASK 27-21-51-020-008

(9) If you remove the captain's rudder forward quadrant [39], then do these steps:

(a) Remove the lockwire from the rudder pedal steering arm [24].

(b) Remove the screws [68] and washers [69] to disconnect the rudder pedal steering arm [24] from the rudder forward quadrant [39].

(c) Move the rudder pedal steering arm [24] out of the way.

(d) Hold the rudder forward quadrant [39] and remove the jackshaft support channel [70]:

NOTE: The rudder forward quadrant is free to fall from the upper bearing housing after you remove the screws.

1) Remove the nuts [60], washers [59], and screws [58].

2) Remove the nut [63], washer [62], and screw [61].

(e) Remove the rudder forward quadrant [39] from the airplane:

1) Move the rudder forward quadrant [39] in an aft and outboard direction to clear the floor beam penetration, and remove it from the airplane.

(f) Do these steps to remove the lower bearing housing [67] from the jackshaft support channel [74]:

1) Remove the nuts [57], washers [56], and bolts [55].

2) Remove the nut [66], washer [65], and bolt [64].

SUBTASK 27-21-51-020-009

(10) If you remove the first officer's rudder forward quadrant [39], then do these steps:

(a) Remove the lockwire from the rudder pedal position sensor quadrant [23].

(b) Remove the screws [77] and washers [78] to disconnect the rudder pedal position sensor quadrant [23] from the rudder forward quadrant [39].

(c) Hold the rudder forward quadrant [39] and remove the jackshaft support channel [76]:

NOTE: The rudder forward quadrant is free to fall from the upper bearing housing after you remove the bolts and screws.

1) Remove the nuts [60], washers [59], and screws [58].

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HAP 001-013

2) Remove the nuts [81], washers [80], and bolts [79].

3) Remove the nuts [85], washers [84], bolts [83], and fillers [82] from the support [86].

HAP 015-026, 028-054, 101-999

4) Remove the nuts [85], washers [84], and bolts [83.

HAP ALL

5) Remove the support [86].

6) Remove the nut [63], washer [62], and screw [61].

(d) Remove the rudder forward quadrant [39] from the airplane:

1) Move the rudder forward quadrant [39] in an aft and outboard direction to clear the floor beam penetration, and remove it from the airplane.

(e) Do these steps to remove the lower bearing housing [67] from the jackshaft support channel [39]:

1) Remove the nuts [57], washers [56], and bolts [55].

2) Remove the nut [66], washer [65], and bolt [64].

—————— END OF TASK ——————

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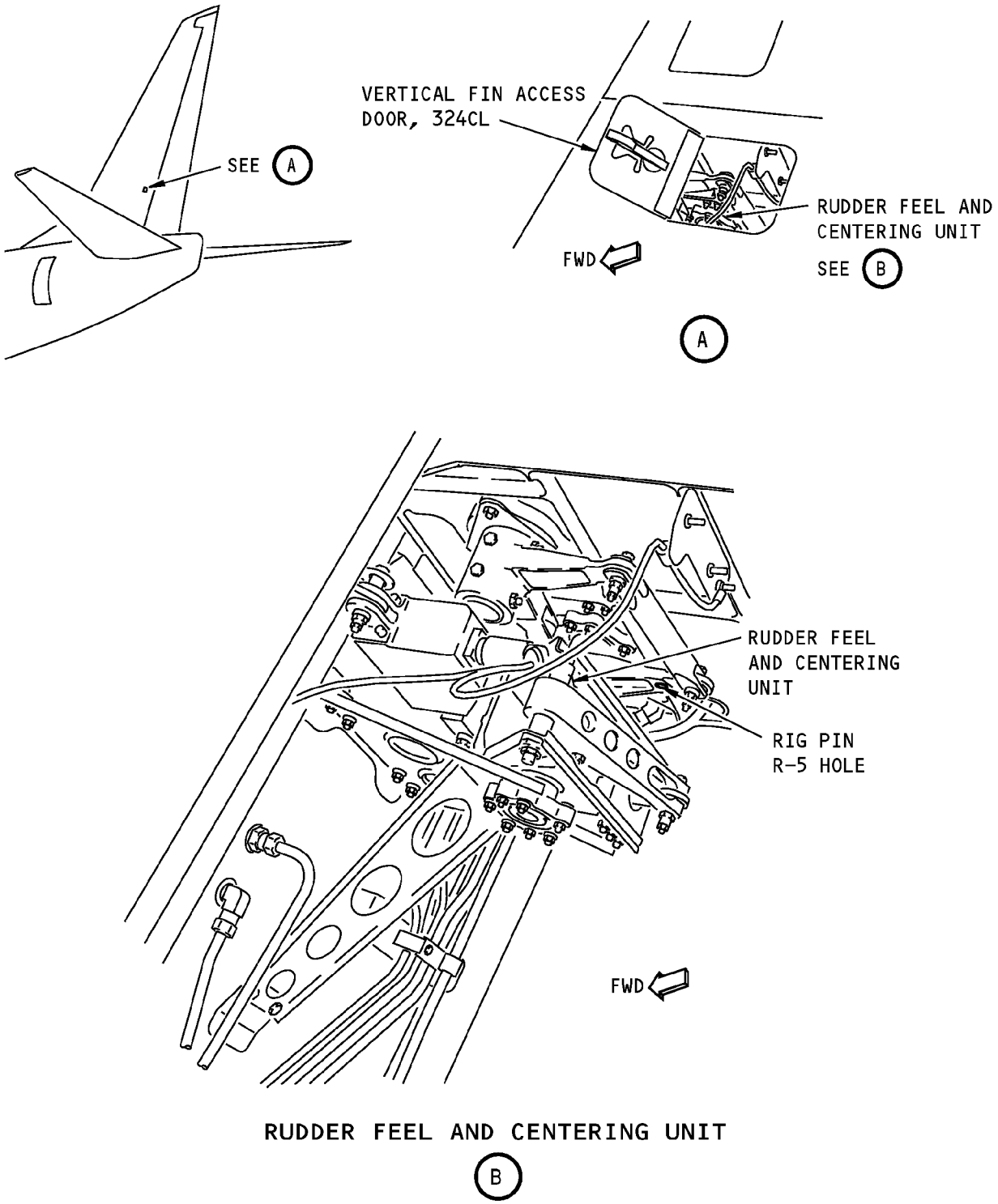

Rudder Rig Pin Installation
Figure 401/27-21-51-990-801

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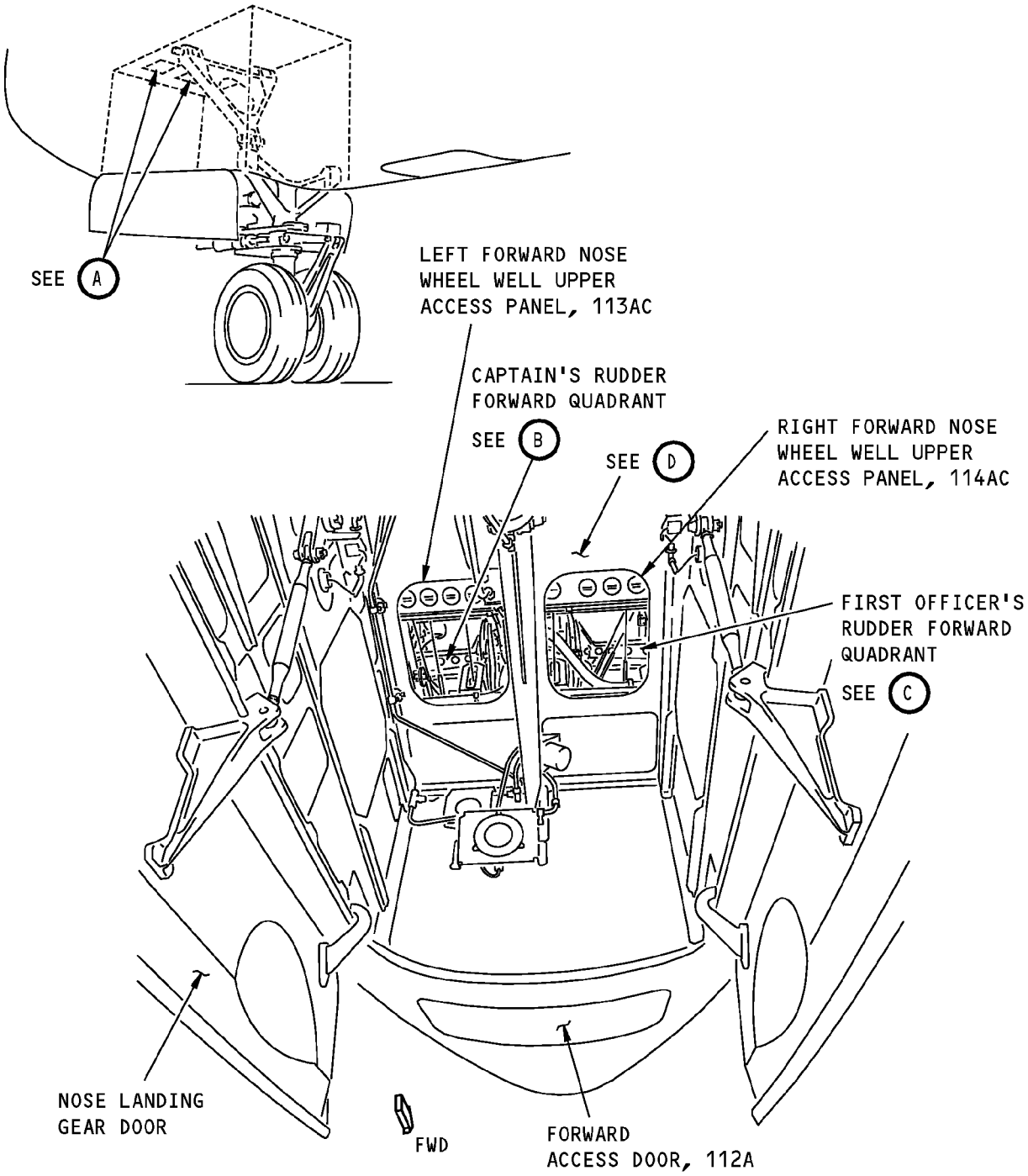

Rudder Forward Quadrant Installation
Figure 402 (Sheet 1 of 10)/27-21-51-990-802

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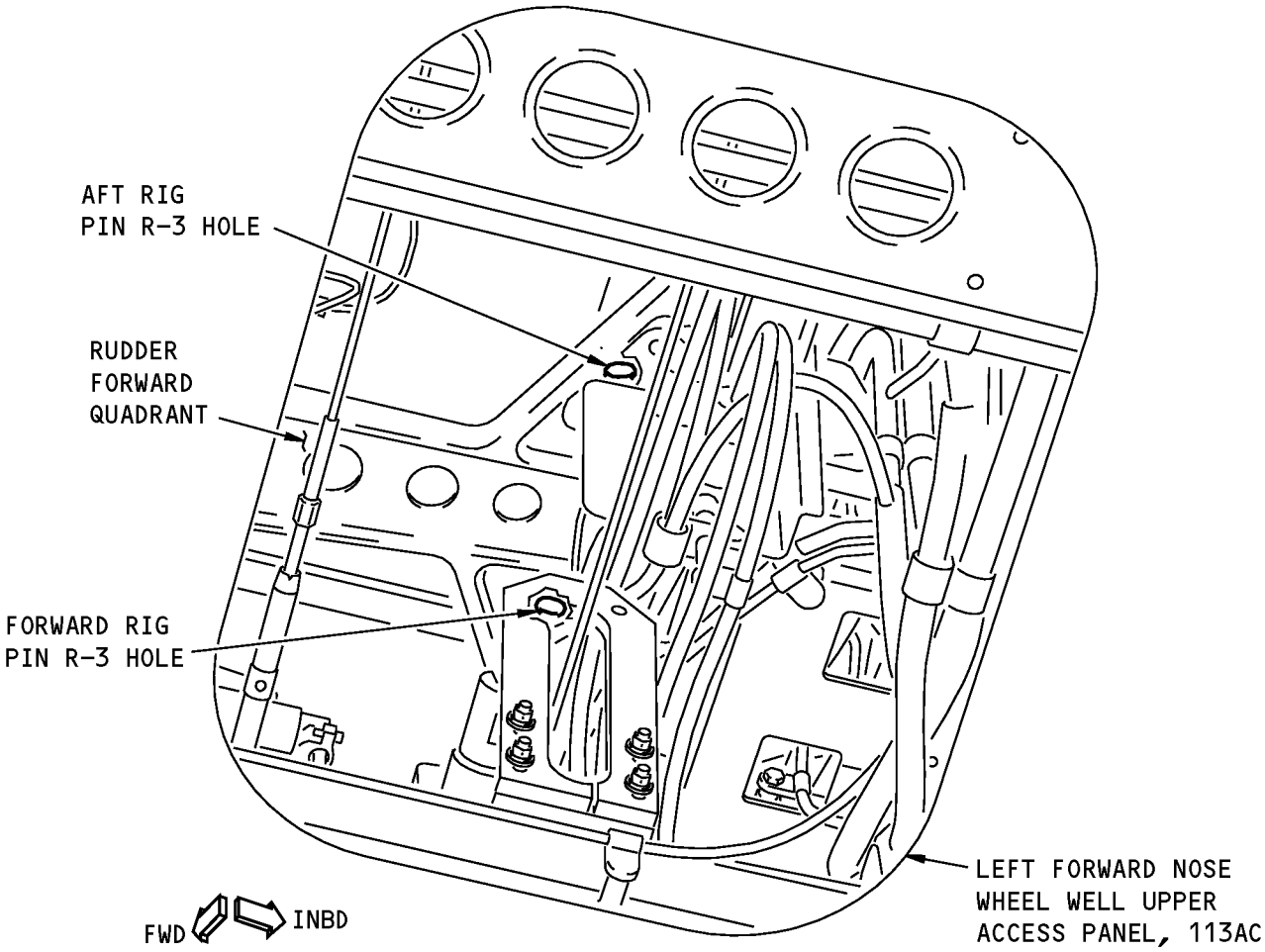

CAPTAIN'S RUDDER FORWARD QUADRANT

B

Rudder Forward Quadrant Installation
Figure 402 (Sheet 2 of 10)/27-21-51-990-802

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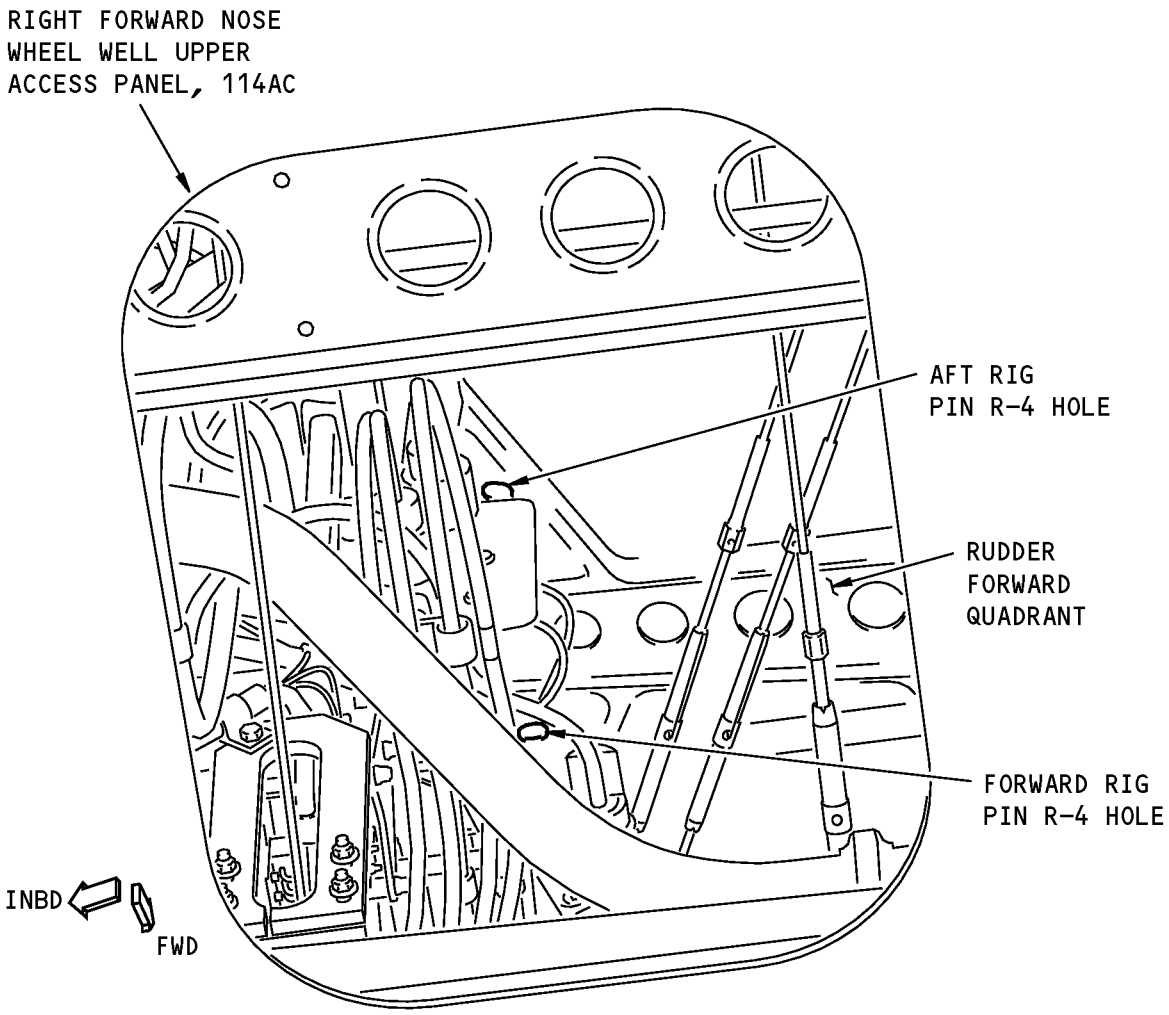

FIRST OFFICER'S RUDDER FORWARD QUADRANT

C

Rudder Forward Quadrant Installation
Figure 402 (Sheet 3 of 10)/27-21-51-990-802

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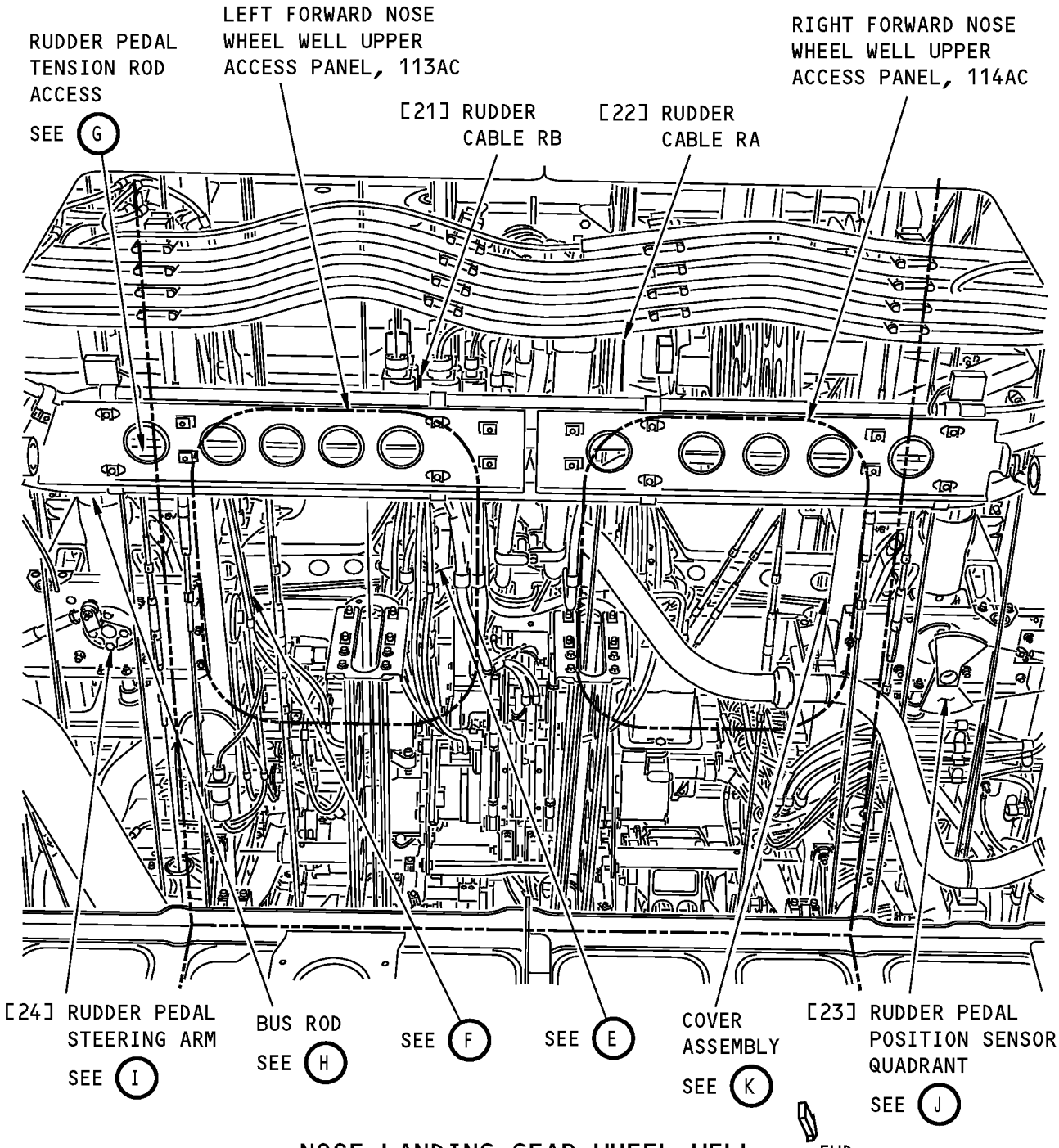

Rudder Forward Quadrant Installation
Figure 402 (Sheet 4 of 10)/27-21-51-990-802

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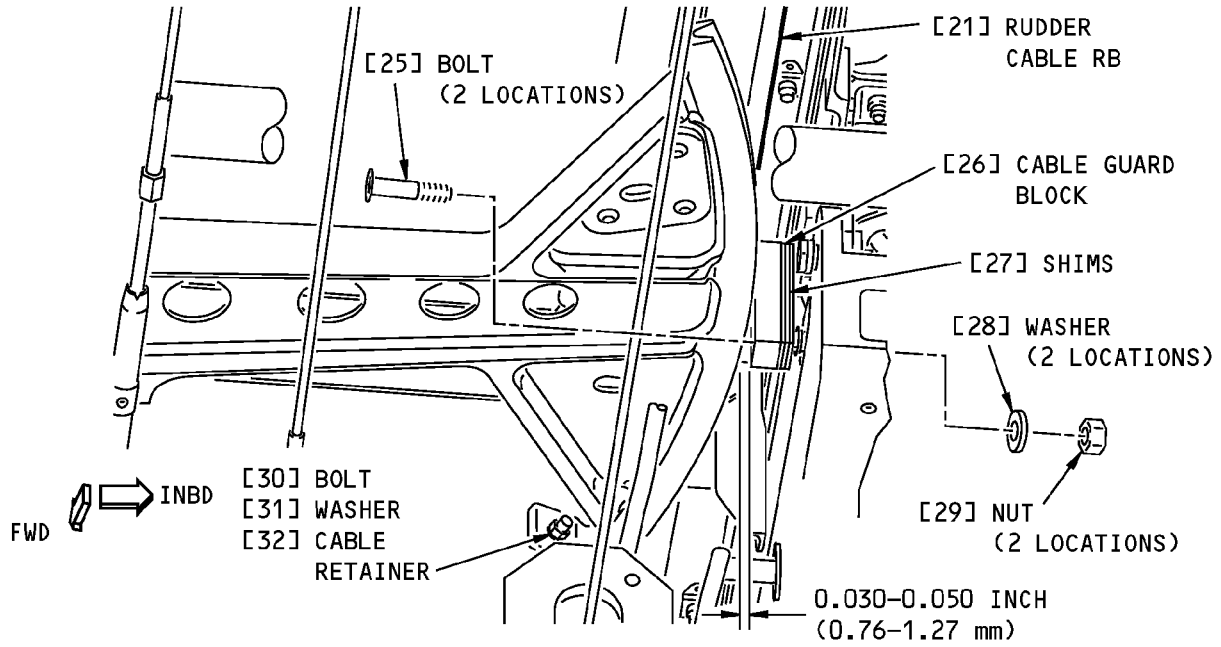
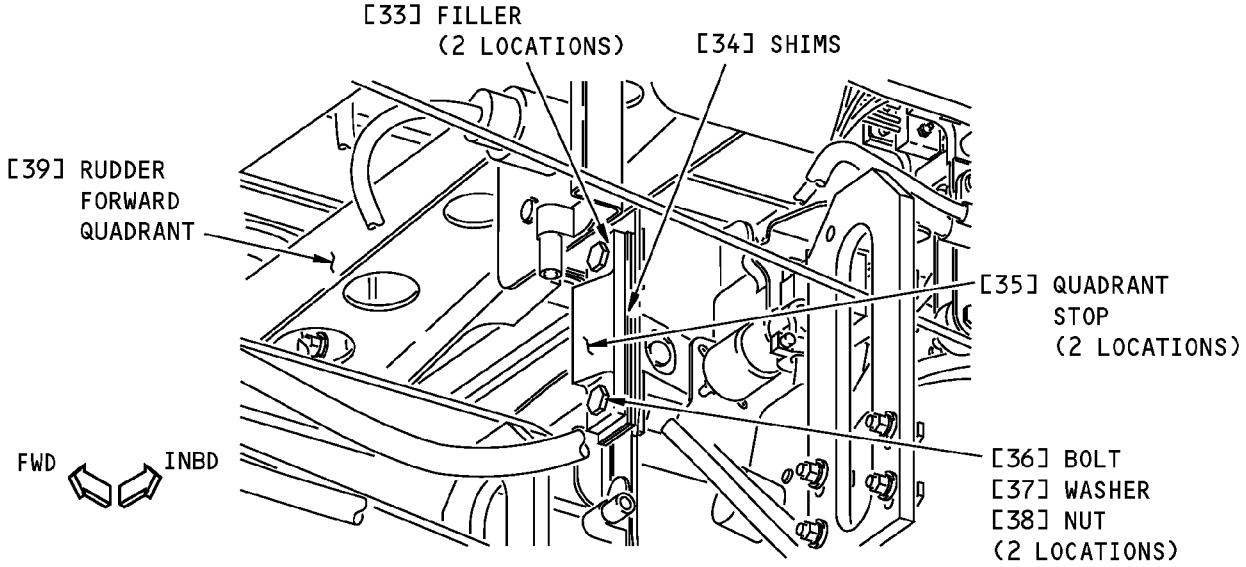


RUDDER FORWARD QUADRANT
(CAPTAIN'S SIDE IS SHOWN, FIRST OFFICER'S SIDE IS OPPOSITE)

E



RUDDER FORWARD QUADRANT
(CAPTAIN'S SIDE IS SHOWN, FIRST OFFICER'S SIDE IS OPPOSITE)

F

Rudder Forward Quadrant Installation
Figure 402 (Sheet 5 of 10)/27-21-51-990-802

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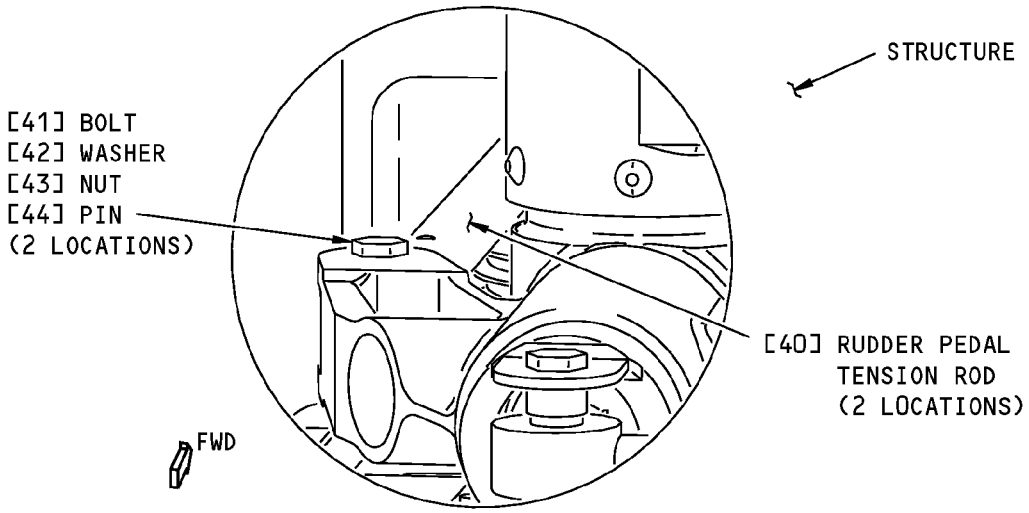
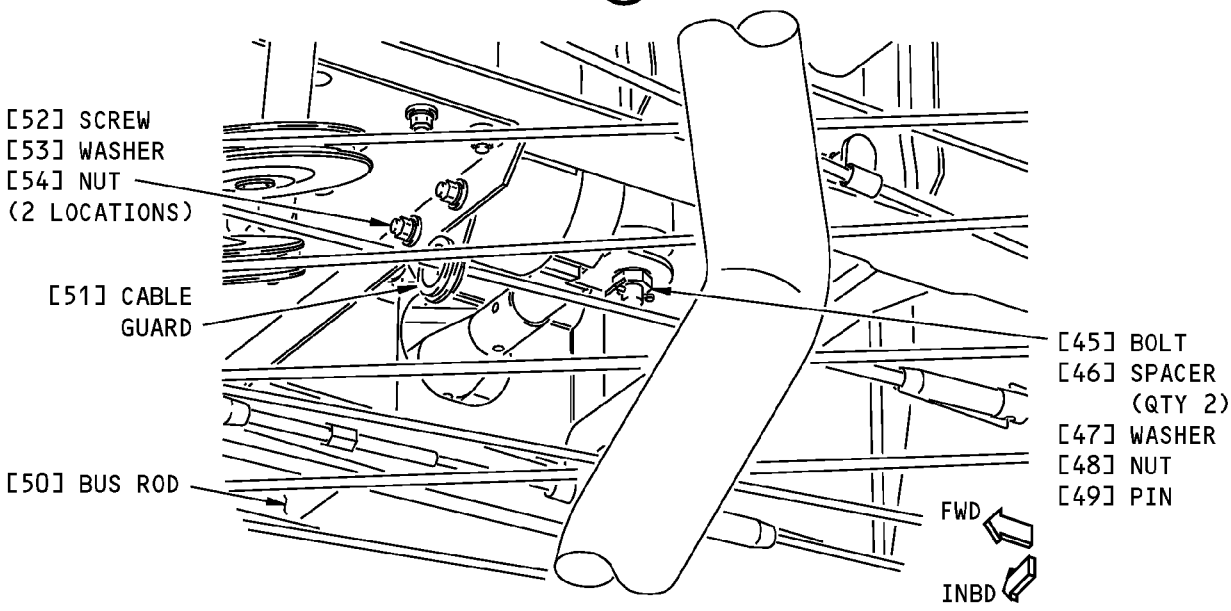


RUDDER PEDAL TENSION ROD CONNECTION
(RUDDER FORWARD QUADRANT)
(CAPTAIN'S SIDE IS SHOWN, FIRST OFFICER'S SIDE IS OPPOSITE)

G



BUS ROD CONNECTION
(RUDDER FORWARD QUADRANT)
(CAPTAIN'S SIDE IS SHOWN, FIRST OFFICER'S SIDE IS OPPOSITE)

H

Rudder Forward Quadrant Installation
Figure 402 (Sheet 6 of 10)/27-21-51-990-802

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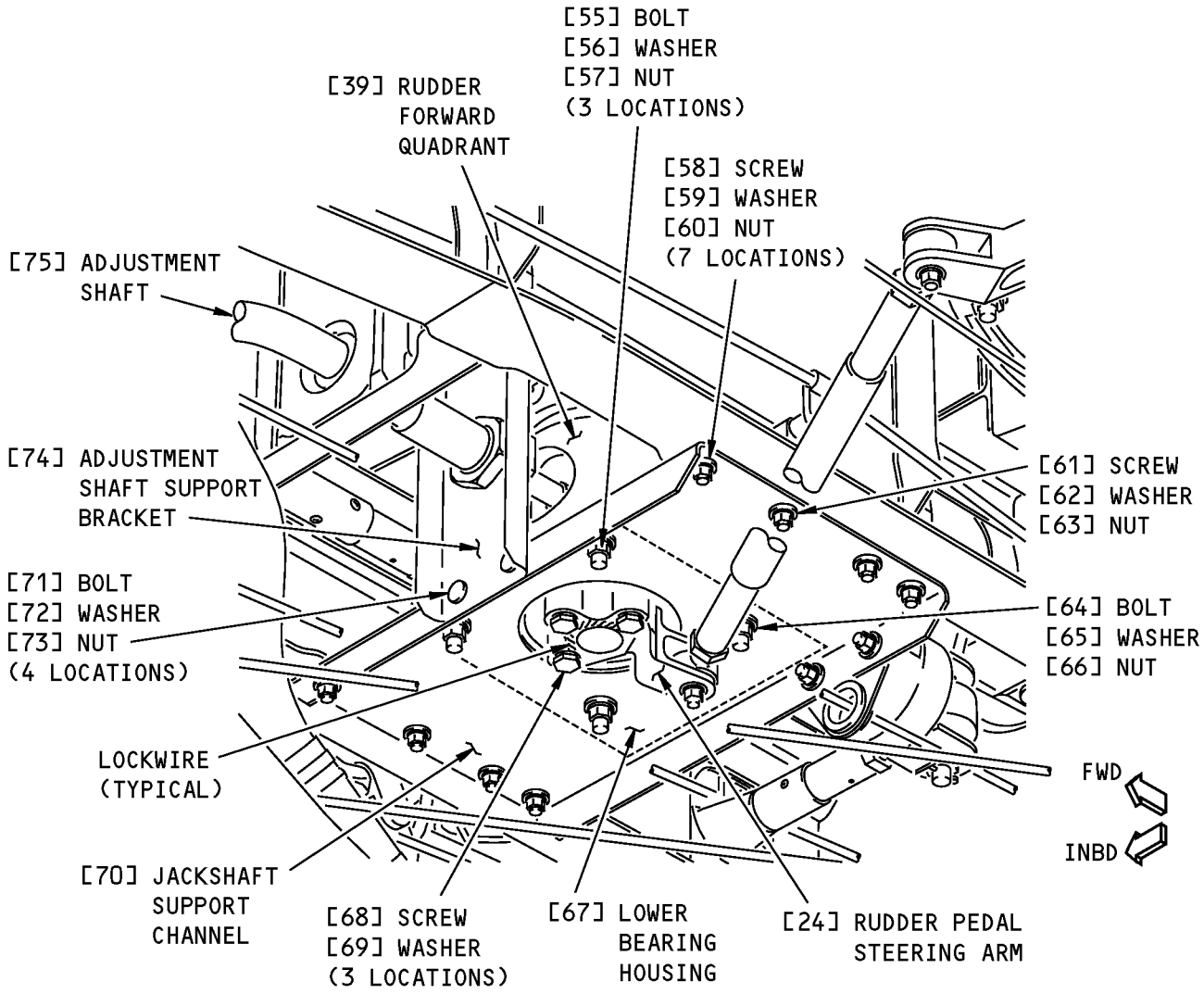

CAPTAIN'S RUDDER FORWARD QUADRANT,
RUDDER PEDAL STEERING ARM AND ADJUSTMENT

I

Rudder Forward Quadrant Installation
Figure 402 (Sheet 7 of 10)/27-21-51-990-802

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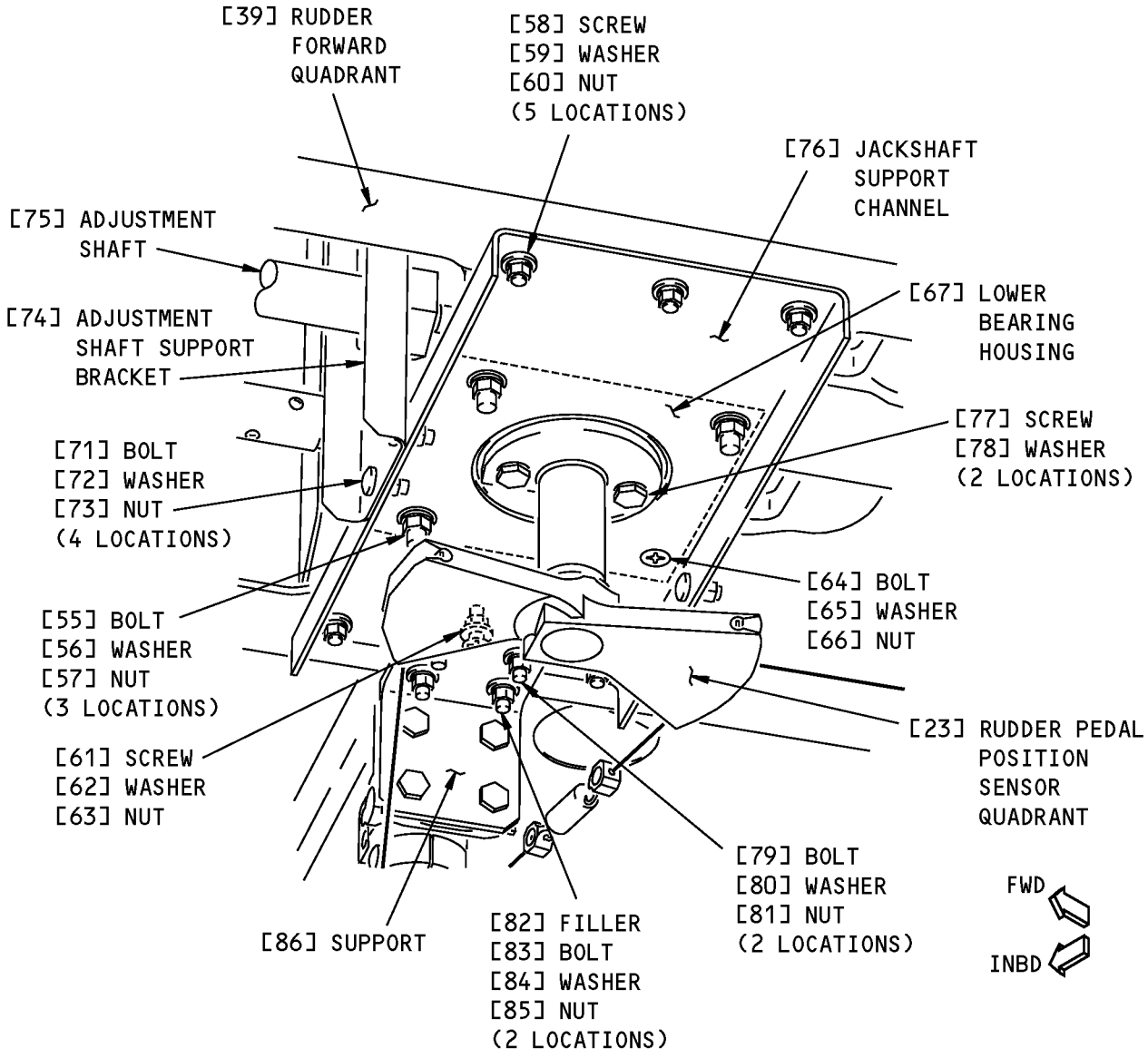

FIRST OFFICER'S RUDDER FORWARD QUADRANT,
RUDDER PEDAL POSITION SENSOR QUADRANT

J

Rudder Forward Quadrant Installation
Figure 402 (Sheet 8 of 10)/27-21-51-990-802

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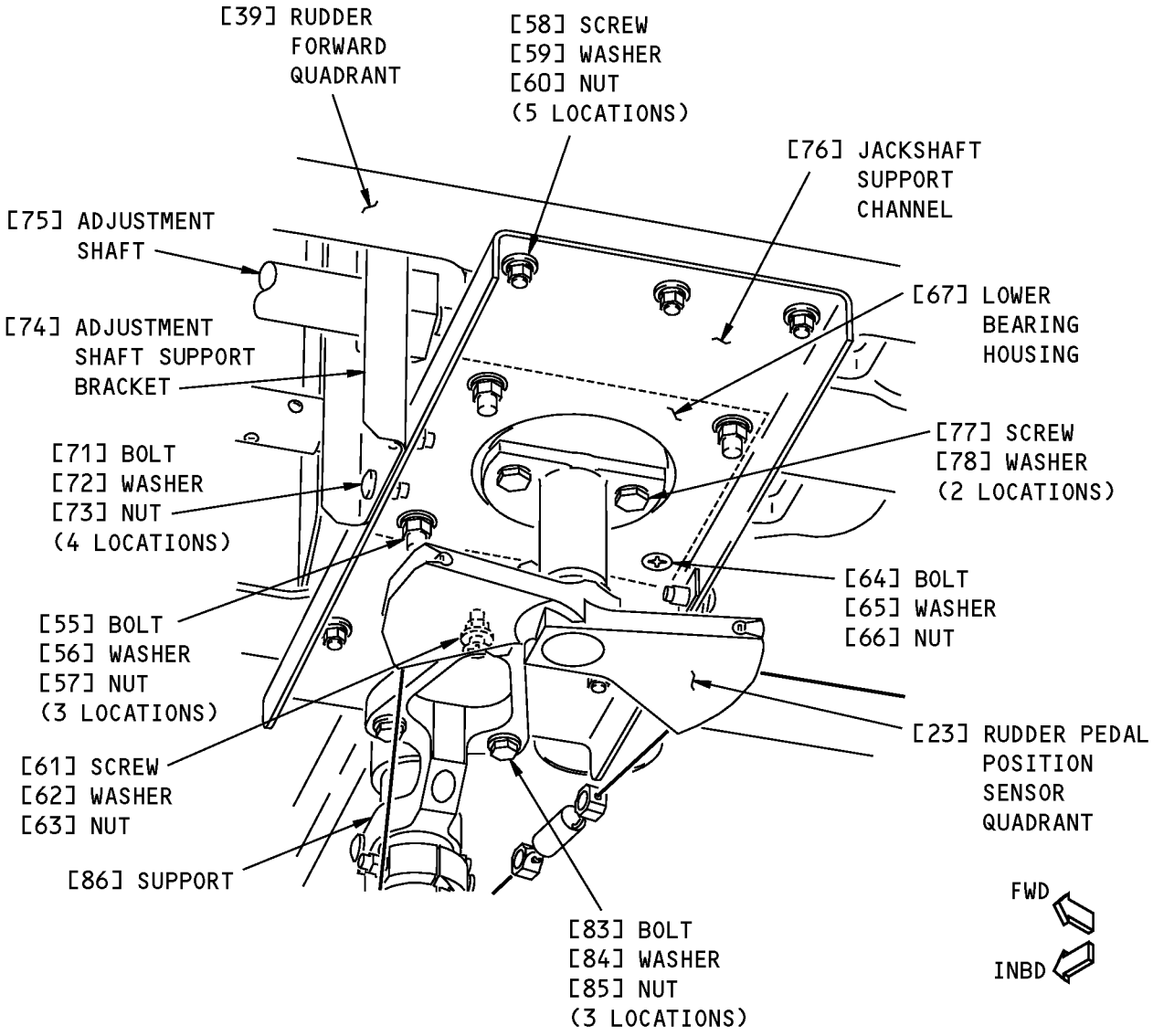

FIRST OFFICER'S RUDDER FORWARD QUADRANT,
RUDDER PEDAL POSITION SENSOR QUADRANT

J

Rudder Forward Quadrant Installation
Figure 402 (Sheet 9 of 10)/27-21-51-990-802

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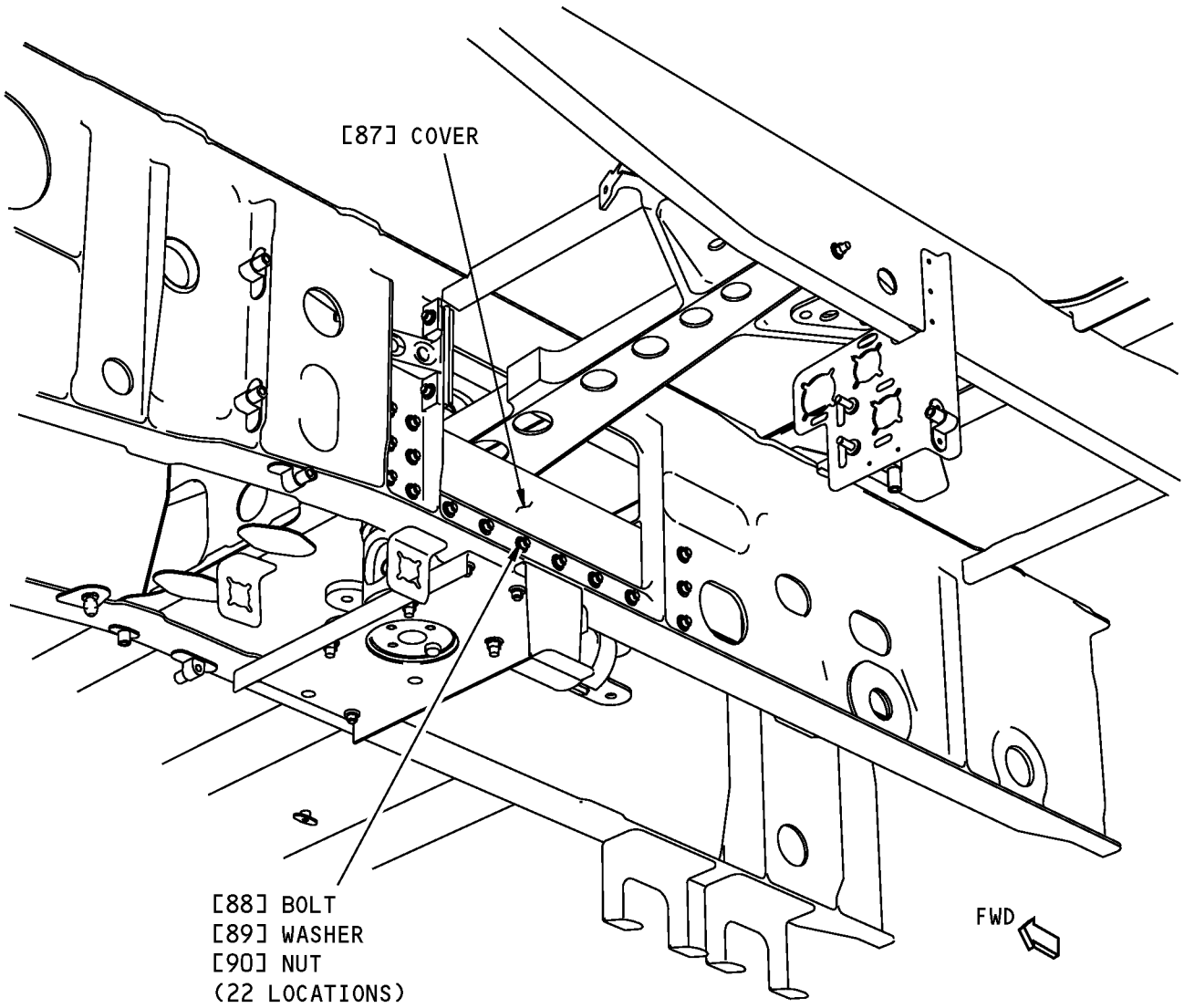

COVER ASSEMBLY
K

Rudder Forward Quadrant Installation
Figure 402 (Sheet 10 of 10)/27-21-51-990-802

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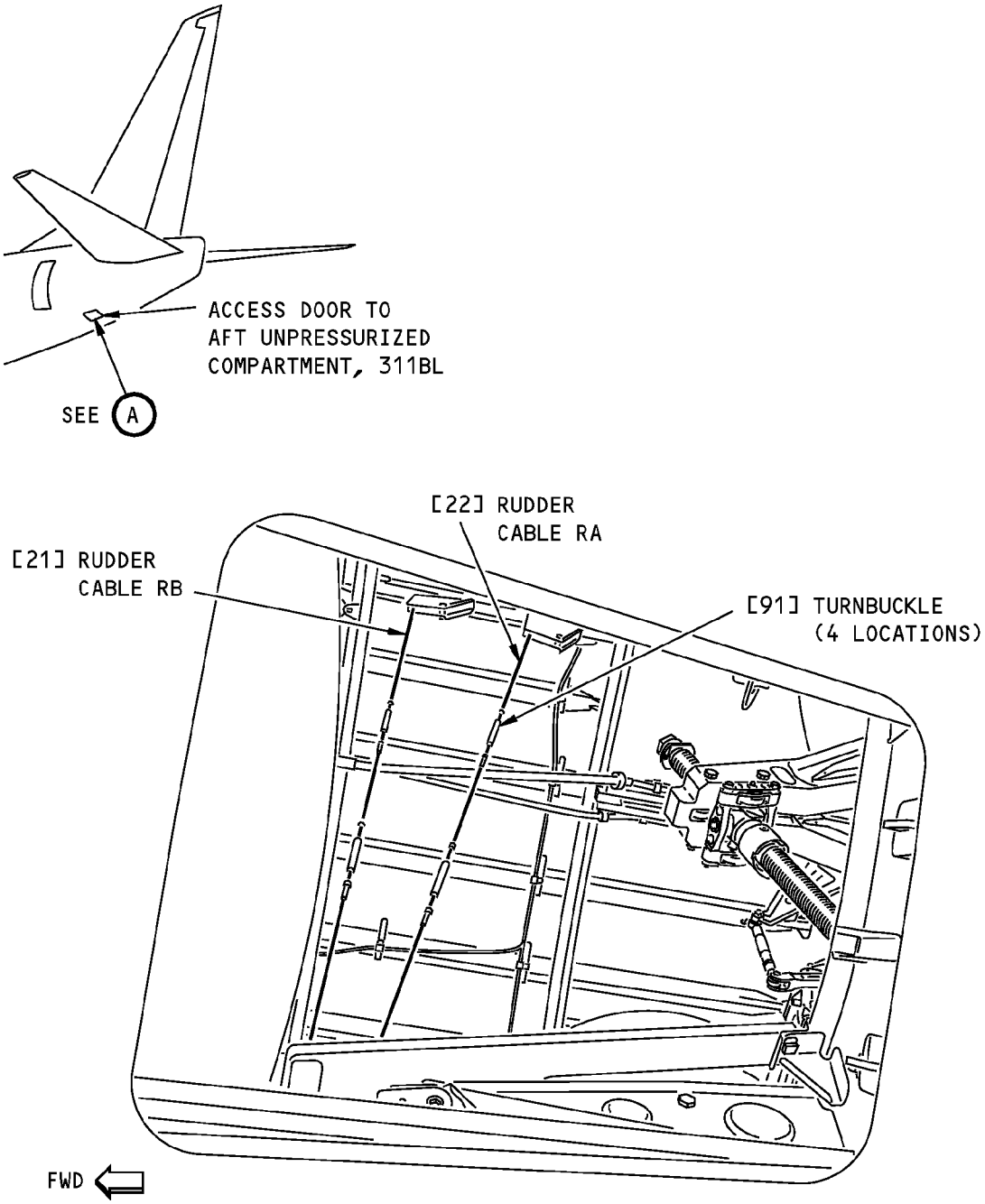

Cables and Turnbuckles Location
Figure 403/27-21-51-990-803

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TASK 27-21-51-400-801

3. Rudder Forward Quadrant Installation

(Figure 401, Figure 402)

A. References

Reference	Title
27-21-00-700-819-001	Rudder Trim System Test (P/B 501)
27-21-00-700-819-002	Rudder Trim System Test (P/B 501)
27-21-00-820-807-001	Rudder Pedals Adjustment (P/B 501)
27-21-00-820-807-002	Rudder Pedals Adjustment (P/B 501)
27-21-00-820-808-001	Rudder Control Cables RA and RB Adjustment (P/B 501)
27-21-00-820-808-002	Rudder Control Cables RA and RB Adjustment (P/B 501)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)
31-31-42-400-801	Rudder Pedal Position Sensor Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

E. Access Panels

Number	Name/Location
112A	Forward Access Door
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel
311BL	Stabilizer Trim Access Door
324CL	Vertical Fin, Access

F. Rudder Forward Quadrant Installation

(Figure 402, Figure 403)

SUBTASK 27-21-51-420-001

(1) If you install the captain's rudder forward quadrant [39], then do these steps (Figure 402):

(a) Install the lower bearing housing [67] to the jackshaft support channel [70] if it is necessary:

1) Put the lower bearing housing [67] on the jackshaft support channel [70].

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2) Install the bolts [55], washers [56], and nuts [57].

3) Install the bolt [64], washer [65], and nut [66].

(b) Put the rudder forward quadrant [39] in the upper bearing housing and the quadrant arm thru the floor beam penetration.

(c) Attach the jackshaft support channel [70] to the airplane structure:

1) Install the screws [58], washers [59], and nuts [60].

2) Install the screw [61], washer [62], and nut [63].

(d) Install the screws [68] and washers [69] to connect the rudder pedal steering arm [24] to the rudder forward quadrant [39].

1) Install the lockwire, G01912.

(e) Install the screws [52], washers [53], and nuts [5] to attach the cable guard [51] to the jackshaft support channel [70].

SUBTASK 27-21-51-420-002

(2) If you install the first officer's rudder forward quadrant [3], then do these steps:

(a) Install the lower bearing housing [67] to the jackshaft support channel [76] if it is necessary:

1) Put the lower bearing housing [67] on the jackshaft support channel [76].

2) Install the bolts [55], washers [56], and nuts [57].

3) Install the bolt [64], washer [65], and nut [66].

(b) Put the rudder forward quadrant [39] in the upper bearing housing and quadrant arm thru the floor beam penetration.

(c) Attach the jackshaft support channel [76] to the airplane structure:

1) Install the screws [58], washers [59], and nuts [60].

2) Install the screw [61], washer [62], and nut [63].

(d) Attach the support [86] to the jackshaft support channel [76]:

HAP 001-013

1) Install the fillers [82] and support [86].

HAP ALL

2) Install the bolts [83], washers [84], and nuts [85].

HAP 001-013

3) Install the bolts [79], washers [80], and nuts [81].

HAP ALL

(e) Connect the rudder pedal position sensor quadrant [23] to the rudder forward quadrant [39].

1) Install screws [77] and washers [78].

2) Install the lockwire, G01912.

(f) Install the screws [52], washers [53], and nuts [54] to attach the cable guard [51] to the jackshaft support channel [76].

SUBTASK 27-21-51-480-001

(3) Install rig pin R-3 from the rig pin kit, SPL-1585 in the forward rig pin hole of the captain's rudder forward quadrant [39].

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SUBTASK 27-21-51-480-002

(4) Install rig pin R-4 from the rig pin kit, SPL-1585 in the forward rig pin hole of the first officer's rudder forward quadrant [39].

SUBTASK 27-21-51-820-006

(5) Make sure the clearance between the cable guard block [26] and the rudder forward quadrant [39] is 0.030 to 0.050 inch (0.762 to 1.270 millimeters).

(a) If it is necessary, add or remove the shims [27]:

1) Remove the nuts [29], washers [28], and bolts [25] from the cable guard block [26].

2) Add or remove the shims [27] laminations.

3) Install the bolts [25], washers [28], and nuts [29] to the cable guard block [26].

SUBTASK 27-21-51-420-003

(6) Temporarily install the bolt [45] to connect the bus rod [50] to the rudder forward quadrant [39].

(a) If it is necessary, adjust the bus rod [50] until rig pins R-3 and R-4 move freely.

SUBTASK 27-21-51-420-004

(7) Install the bolts [41], washers [42], nuts [43], and pins [44] to connect the rudder pedal tension rods [40] to the rudder forward quadrant [39].

(a) If it is necessary, adjust the length of the rudder pedal tension rods.

SUBTASK 27-21-51-080-002

(8) Remove rig pins R-3, R-4, R-1, and R-2.

SUBTASK 27-21-51-420-011

(9) If you install the captain's rudder forward quadrant, then do these steps:

(a) Move the captain's rudder forward quadrant [39] until it touches the quadrant stop [35].

(b) Make sure that you can install rig pin R-3 easily in the aft rig pin hole.

1) If it is necessary, add or remove the shims [34]:

a) Remove the nuts [38], washers [37], bolts [36], and fillers [33] from the quadrant stops [35].

b) Add or remove the shims [34] laminations.

c) Install the fillers [33], bolts [36], washers [37], and nuts [38] to the quadrant stops [35].

(c) Remove rig pin R-3.

SUBTASK 27-21-51-420-012

(10) If you install the first officer's rudder forward quadrant, then do these steps:

(a) Move the first officer's rudder forward quadrant [39] until it touches the quadrant stop [35].

(b) Make sure that you can install rig pin R-4 easily in the aft rig pin hole.

1) If it is necessary, add or remove the shims [34]:

a) Remove the nuts [38], washers [37], bolts [36], and fillers [33] from the quadrant stops [35].

b) Add or remove the shims [34] laminations.

c) Install the fillers [33], bolts [36], washers [37], and nuts [38] to the quadrant stops [35].

(c) Remove rig pin R-4.

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SUBTASK 27-21-51-480-005

(11) Install rig pin R-3 in the forward rig pin hole of the captain's rudder forward quadrant.

SUBTASK 27-21-51-480-006

(12) Install rig pin R-4 in the forward rig pin hole of the first officer's rudder forward quadrant.

SUBTASK 27-21-51-420-005

(13) Connect the adjustment shaft [75] to the rudder forward quadrant [39]:

(a) Put the adjustment shaft [75] into the rudder forward quadrant's universal joint [39].

NOTE: The slot in the adjustment shaft must engage with the pin in the hole.

SUBTASK 27-21-51-420-006

(14) Install the bolts [71], washers [72], and nuts [73] to attach the adjustment shaft support bracket [74] to the structure.

SUBTASK 27-21-51-420-013

(15) Install the bolts [88], washers [89], and nuts [90] to attach the cover assembly [87] to the floor beam structure.

SUBTASK 27-21-51-860-002

(16) Do these steps to put the rudder pedals to the neutral position:

(a) Turn the adjustment crank clockwise for the rudder pedals to the full forward position.

(b) Turn the adjustment crank back four turns from the full forward position, to get to the neutral position.

SUBTASK 27-21-51-820-004

(17) Do this task: Rudder Pedals Adjustment, TASK 27-21-00-820-807-001 or Rudder Pedals Adjustment, TASK 27-21-00-820-807-002.

SUBTASK 27-21-51-420-007

(18) Connect the bus rod [50] to the rudder forward quadrant [39]:

(a) Remove the bolt [45] from the bus rod [50].

(b) Turn the bus rod two full turns to make it shorter.

(c) Make sure you can see the threads of the two bus rod ends through the holes in the bus rod.

(d) Install the bolt [45], spacers [46], washer [47], nut [48], and pin [49] to connect the bus rod [50] to the rudder forward quadrant [39].

SUBTASK 27-21-51-420-008

(19) Install the bolt [30], washer [31], and cable retainer [32] to connect the applicable rudder cable to the rudder forward quadrant [39].

SUBTASK 27-21-51-420-009

(20) Tighten the turnbuckle [91] until cable RA or RB are not loose. (Figure 403)

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-51-420-010

(1) For the first officer's rudder forward quadrant, install the rudder pedal position sensor. To install it, do this task: Rudder Pedal Position Sensor Installation, TASK 31-31-42-400-801.

SUBTASK 27-21-51-080-005

(2) Remove the rig pins R-5 from the rudder feel and centering unit (Figure 401).

SUBTASK 27-21-51-080-006

(3) Remove the rig pins R-3 and R-4.

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SUBTASK 27-21-51-820-005

(4) Adjust the rudder control cables RA and RB. To adjust them, do this task: Rudder Control Cables RA and RB Adjustment, TASK 27-21-00-820-808-001 or Rudder Control Cables RA and RB Adjustment, TASK 27-21-00-820-808-002.

SUBTASK 27-21-51-860-003

(5) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

SUBTASK 27-21-51-730-001

(6) Do this task: Rudder Trim System Test, TASK 27-21-00-700-819-001 or Rudder Trim System Test, TASK 27-21-00-700-819-002.

SUBTASK 27-21-51-010-006

(7) Close this access panel:

Number	Name/Location
324CL	Vertical Fin, Access

SUBTASK 27-21-51-410-001

(8) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-21-51-410-002

(9) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-21-51-010-007

(10) Install these access panels:

Number	Name/Location
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel

and .

END OF TASK

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RUDDER FORWARD QUADRANT - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has this inspection task:

(1) Rudder Mechanical Control Path

TASK 27-21-51-210-801

2. Rudder Mechanical Control Path Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Procedure

SUBTASK 27-21-51-010-009

(1) To get access to the rudder mechanical control path, do this task:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-21-51-210-001

(2) Do a general visual inspection of the rudder mechanical control path.

SUBTASK 27-21-51-010-010

(3) Close this access panel:

Number	Name/Location
112A	Forward Access Door

——————— END OF TASK ———————

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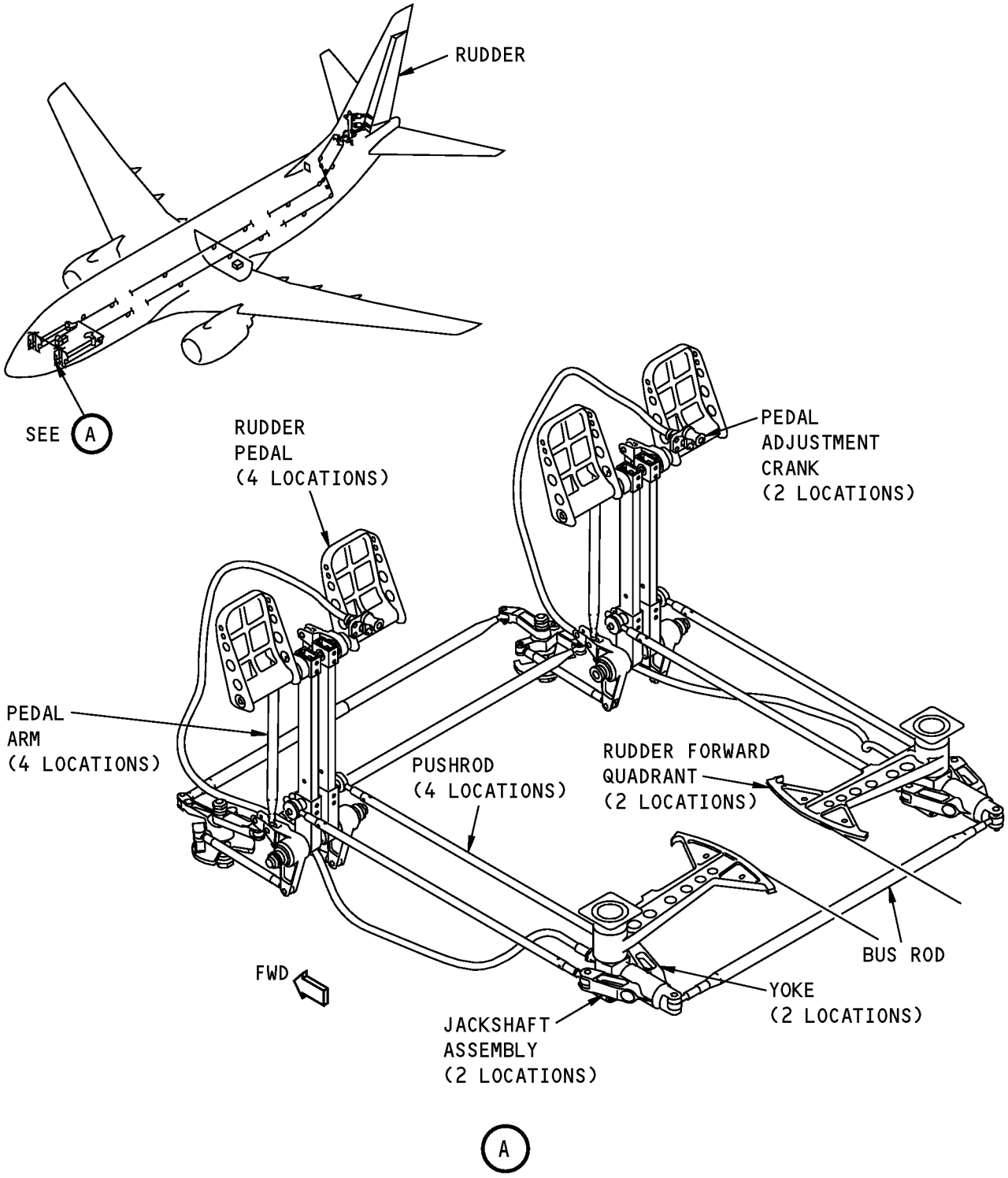

Rudder and Rudder Trim Control System - Rudder Pedals and Forward Quadrants
Figure 601/27-21-51-990-804

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RUDDER AFT QUADRANT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder aft quadrant

(2) An installation of the rudder aft quadrant.

B. The rudder aft quadrant includes the quadrant, quadrant shaft, and two bearing housings.

TASK 27-21-61-000-801

2. Rudder Aft Quadrant Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
311	Area Aft of Pressure Bulkhead - Left
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
112A	Forward Access Door
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel
311BL	Stabilizer Trim Access Door
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access
324CL	Vertical Fin, Access

E. Prepare for the Removal

SUBTASK 27-21-61-860-003

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

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SUBTASK 27-21-61-010-004

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-21-61-010-007

(3) Remove these access panels:

Number	Name/Location
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel

SUBTASK 27-21-61-480-003

(4) Install the rig pin R-3 or R-4 from the rig pin kit, SPL-1585 in the forward rig pin hole of the captain's or first officer's rudder forward quadrant (Figure 401).

SUBTASK 27-21-61-010-008

(5) To get access to the rudder aft quadrant, do this task:

Remove these access panels:

Number	Name/Location
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access

SUBTASK 27-21-61-010-002

(6) To get access to the cable turnbuckles, do this task:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-21-61-010-003

(7) Open this access panel:

Number	Name/Location
324CL	Vertical Fin, Access

F. Rudder Aft Quadrant Removal

(Figure 402)

SUBTASK 27-21-61-020-001

(1) Loosen the cable RA [2] and cable RB [1] at the turnbuckles [3].

SUBTASK 27-21-61-020-002

(2) Remove the bolts [9], washers [11], and nuts [12] to remove the cable retainers [10] from the quadrant [20].

SUBTASK 27-21-61-020-003

(3) Disconnect the cable RA [2] and cable RB [1] from the quadrant [20].

SUBTASK 27-21-61-020-004

(4) Remove the nut [15], washer [14], and bolt [13] which connect the control rod [16] to the quadrant [20].

SUBTASK 27-21-61-020-005

(5) Remove the rudder aft quadrant:

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(a) Remove the bolts [25] and washers [26] which attach the left bearing housing [19] to the airplane structure.

(b) Slide the quadrant shaft [17] towards the left until the end of the quadrant shaft [17] is clear of hole in the right side mounting surface.

(c) Remove the left bearing housing [19] and plate [18] from the quadrant shaft [17].

(d) Remove the nuts [7], washers [6], washers [5], bolts [4], and spacers [8] which attach the quadrant [20] to the quadrant shaft [17].

(e) Remove the quadrant [20] from the quadrant shaft [17].

(f) Remove the quadrant [20], quadrant shaft [17], right bearing housing [27], and plate [18] from the airplane.

END OF TASK

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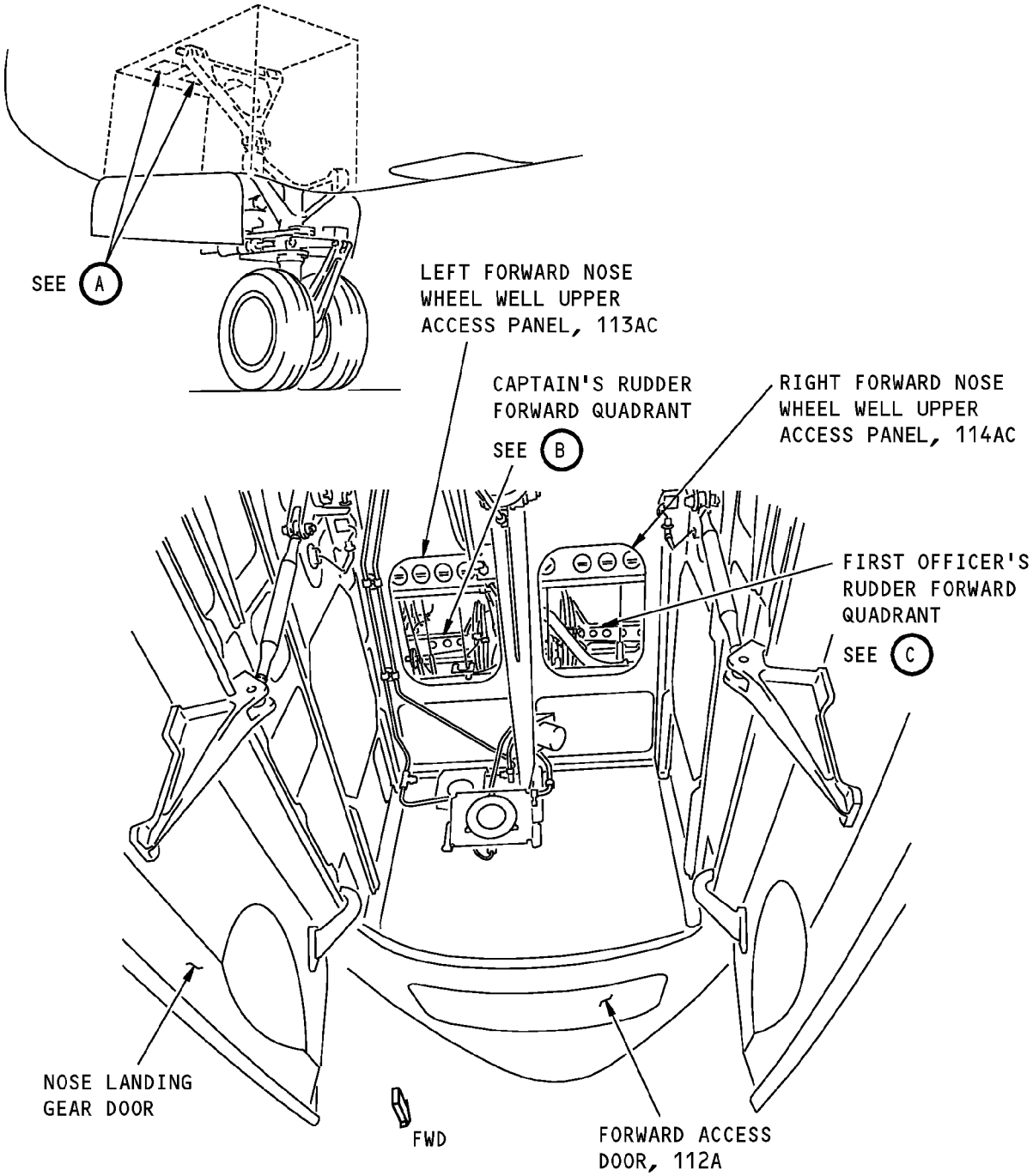

Rudder Forward Quadrant Rig Pin Installation
Figure 401 (Sheet 1 of 3)/27-21-61-990-801

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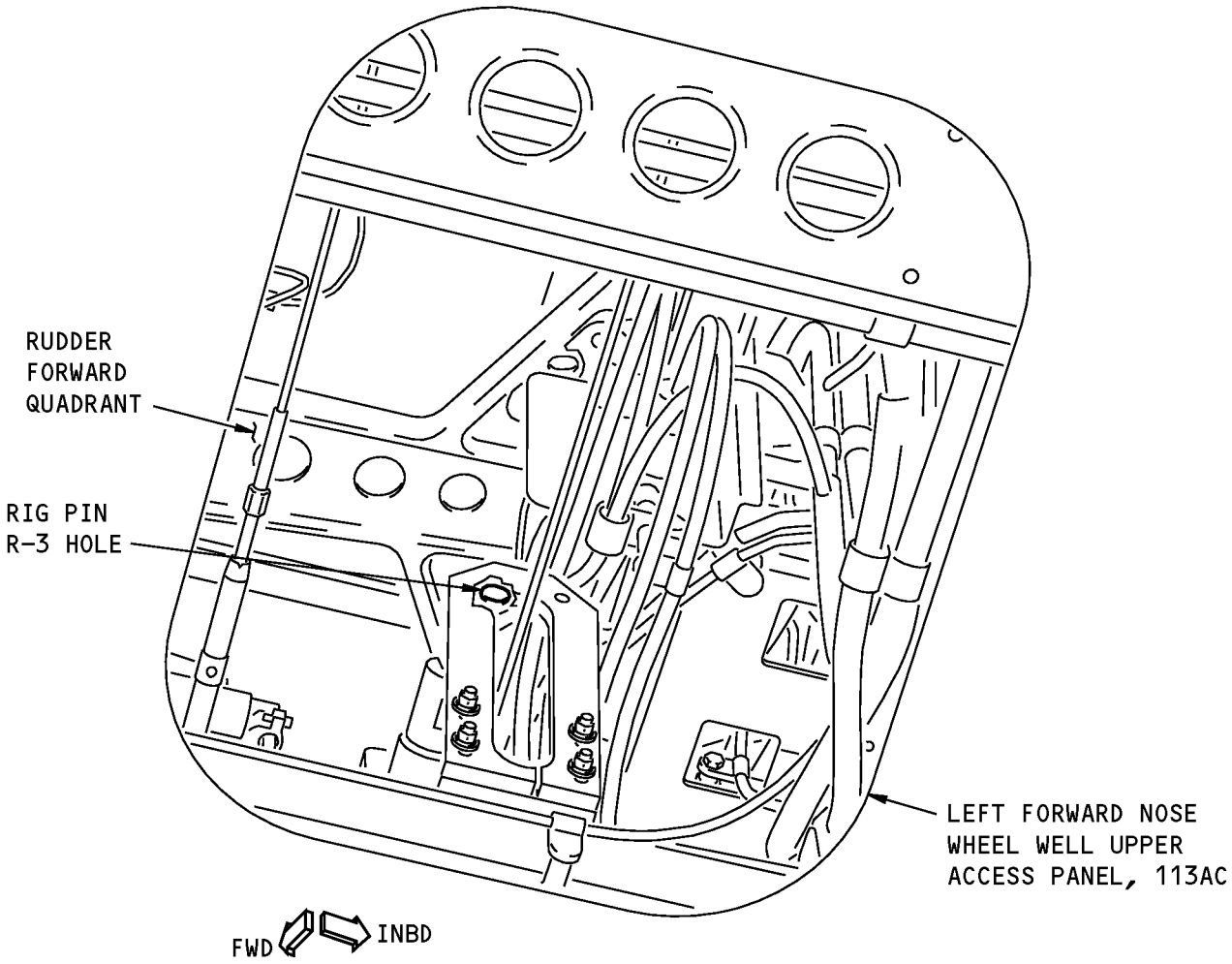

CAPTAIN'S RUDDER FORWARD QUADRANT

B

Rudder Forward Quadrant Rig Pin Installation
Figure 401 (Sheet 2 of 3)/27-21-61-990-801

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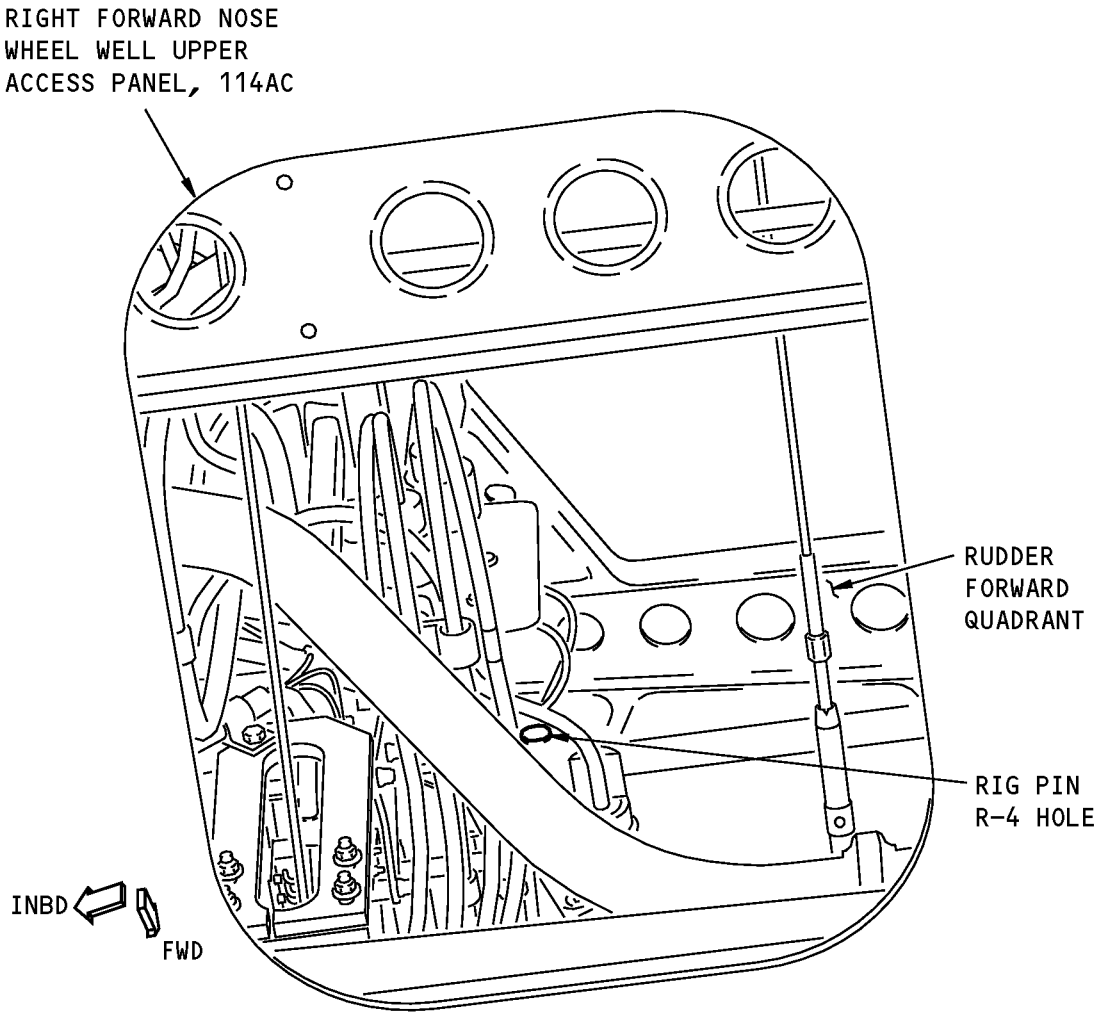

FIRST OFFICER'S RUDDER FORWARD QUADRANT

C

Rudder Forward Quadrant Rig Pin Installation
Figure 401 (Sheet 3 of 3)/27-21-61-990-801

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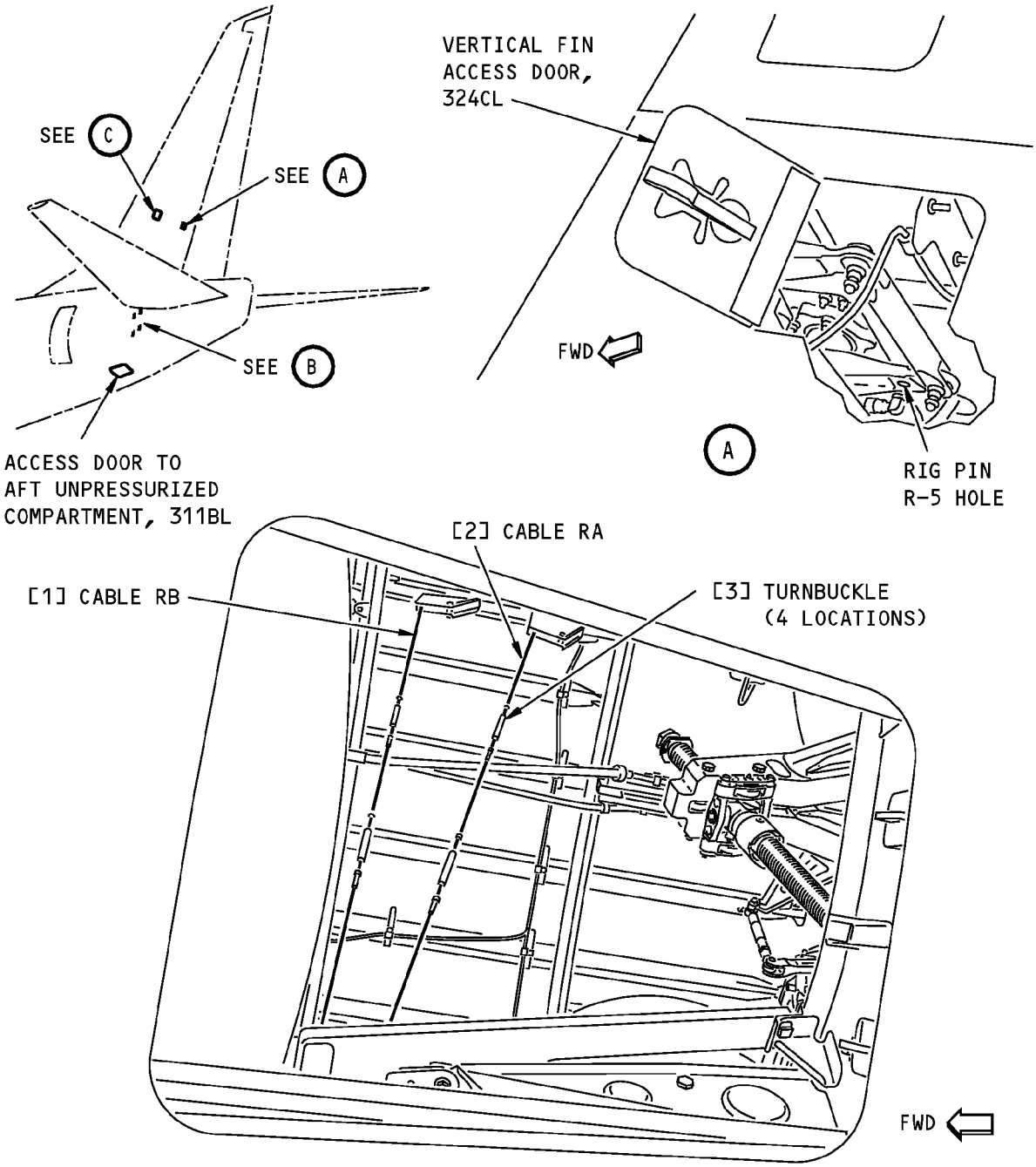

Rudder Aft Quadrant Installation
Figure 402 (Sheet 1 of 3)/27-21-61-990-802

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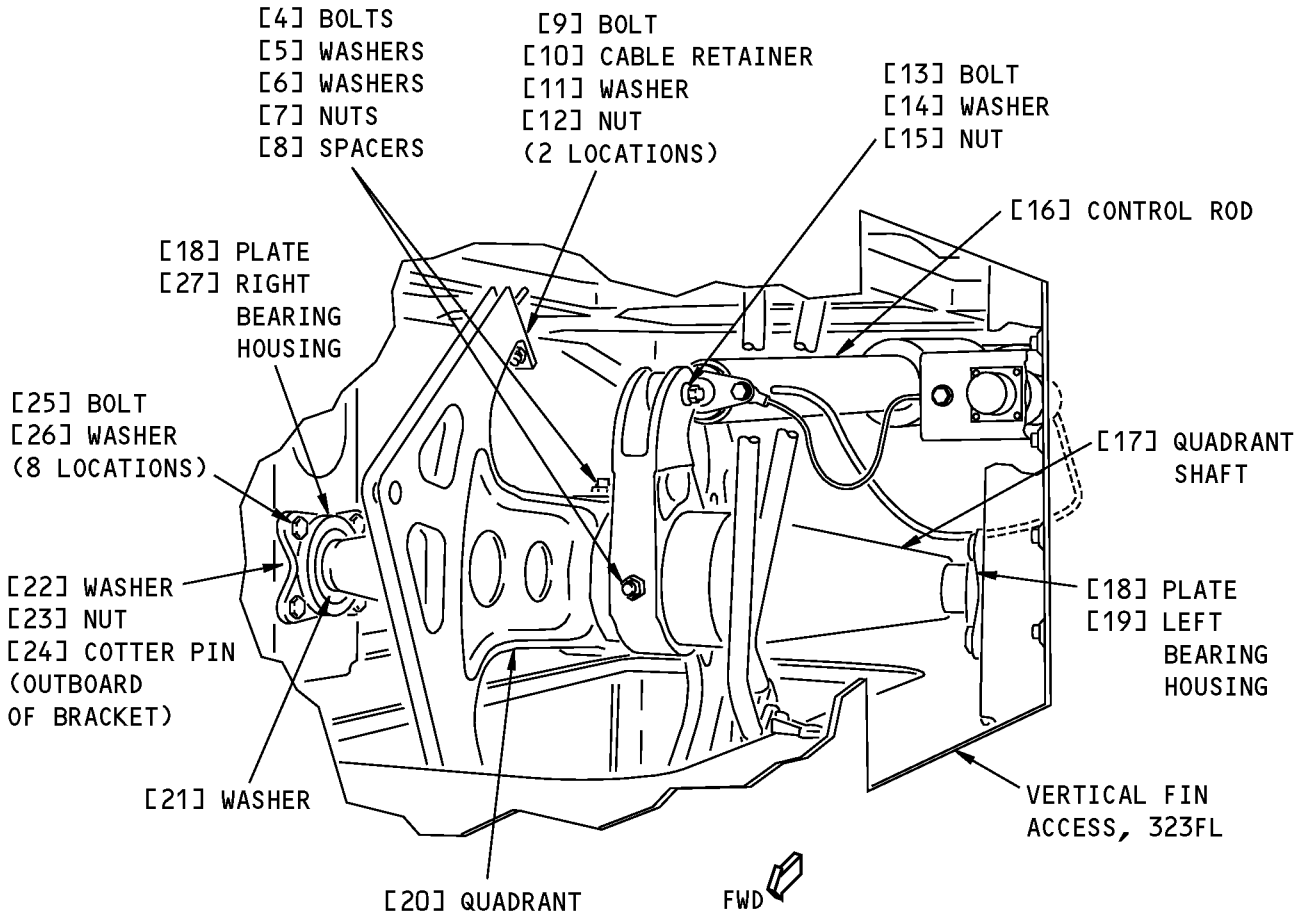

RUDDER AFT QUADRANT

C

Rudder Aft Quadrant Installation
Figure 402 (Sheet 2 of 3)/27-21-61-990-802

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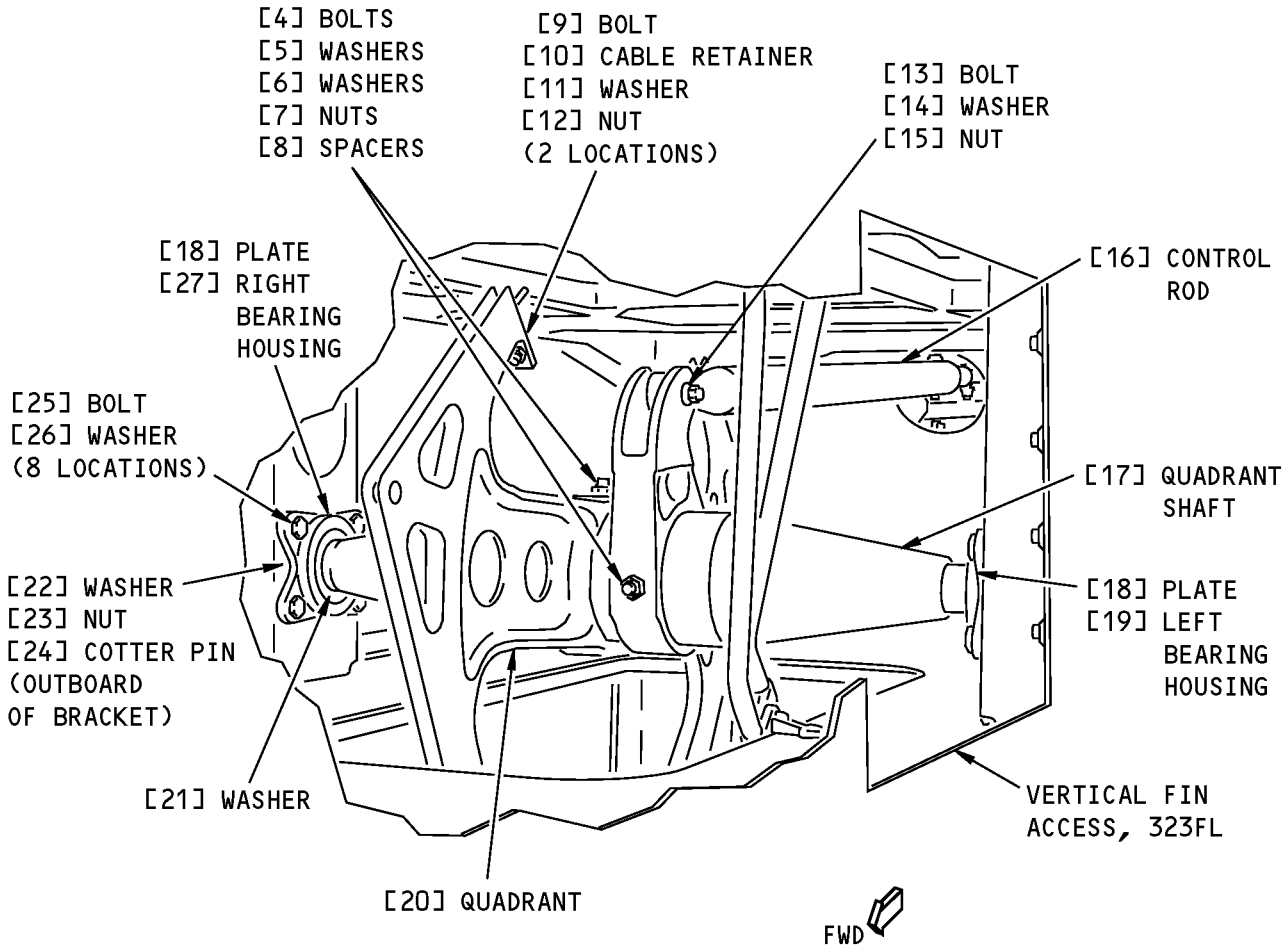

RUDDER AFT QUADRANT

C

Rudder Aft Quadrant Installation
Figure 402 (Sheet 3 of 3)/27-21-61-990-802

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TASK 27-21-61-400-801

3. Rudder Aft Quadrant Installation

(Figure 401, Figure 402)

A. References

Reference	Title
27-21-00-700-817-001	Rudder Travel Test (P/B 501)
27-21-00-700-817-002	Rudder Travel Test (P/B 501)
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-820-808-001	Rudder Control Cables RA and RB Adjustment (P/B 501)
27-21-00-820-808-002	Rudder Control Cables RA and RB Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
20	Quadrant	27-21-61-01-060	HAP ALL
24	Pin	27-21-61-01-005	HAP ALL

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
311	Area Aft of Pressure Bulkhead - Left
324	Vertical Fin - Rear Spar To Trailing Edge

E. Access Panels

Number	Name/Location
112A	Forward Access Door
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel
311BL	Stabilizer Trim Access Door
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access
324CL	Vertical Fin, Access

F. Rudder Aft Quadrant Installation

(Figure 402)

SUBTASK 27-21-61-860-002

(1) Make sure that pressure to the rudder hydraulic systems A, B, and Standby is removed. To remove it, do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

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SUBTASK 27-21-61-420-001

(2) Install the rudder aft quadrant:

(a) Put the washer [21], plate [18], and the right bearing housing [27] on the right side of the quadrant shaft [17].

1) Make sure the countersunk side of the washer [21] is toward the center of the quadrant shaft [17].

(b) Install the washer [22] and nut [23] on the right side of the quadrant shaft [17].

1) Tighten the nut [23] to 190-280 pound-inches (21.5-31.6 newton-meters).

(c) Install a new pin [24].

(d) Put all the parts through the access hole.

(e) Slide the quadrant [20] onto the quadrant shaft [17].

(f) Install the bolts [4], spacers [8], washers [5], washers [6], and nuts [7] to attach the quadrant [20] to the quadrant shaft [17].

(g) Put the left housing bearing [19] on the left side of the quadrant shaft [17].

(h) Put the quadrant shaft [17] and plate [18] in its position.

(i) Install the bolts [25] and washers [26] to attach the left bearing housing [19] and right bearing housing [27] to the airplane structure.

SUBTASK 27-21-61-420-002

(3) Turn the quadrant shaft [17].

(a) Make sure that the quadrant shaft [17] moves freely in the left bearing housing [19] and right bearing housing [27].

SUBTASK 27-21-61-420-003

(4) Connect the cable RA [2] and cable RB [1] to the quadrant [20].

(a) Install the cable retainers [10], bolts [9], washers [11], and nuts [12].

SUBTASK 27-21-61-420-004

(5) Tighten the turnbuckles [3] until the cable RA [2] and RB [1] are not loose.

SUBTASK 27-21-61-420-005

(6) Install the bolt [13], washer [14], and nut [15] to connect the control rod [16] to quadrant [20].

SUBTASK 27-21-61-480-002

(7) Install the rig pin R-5 from the rig pin kit, SPL-1585 to the rudder feel and centering unit (Figure 402).

SUBTASK 27-21-61-820-001

(8) Adjust the cables RA and RB. To adjust them, do this task: Rudder Control Cables RA and RB Adjustment, TASK 27-21-00-820-808-001 or Rudder Control Cables RA and RB Adjustment, TASK 27-21-00-820-808-002.

SUBTASK 27-21-61-080-001

(9) Remove the rig pins R-3 and R-4 from the rudder forward quadrants (Figure 401).

SUBTASK 27-21-61-080-002

(10) Remove the rig pins R-5 from the rudder feel and centering unit.

SUBTASK 27-21-61-710-001

(11) Do this task: Rudder Travel Test, TASK 27-21-00-700-817-001 or Rudder Travel Test, TASK 27-21-00-700-817-002.

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G. Put the Airplane Back to Initial Condition

SUBTASK 27-21-61-410-004

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-21-61-940-001

(2) Install these access panels:

Number	Name/Location
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel

and .

SUBTASK 27-21-61-410-001

(3) Close this access panel:

Number	Name/Location
324CL	Vertical Fin, Access

SUBTASK 27-21-61-410-002

(4) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-21-61-410-003

(5) Install these access panels:

Number	Name/Location
323FL	Vertical Fin, Access
323GL	Vertical Fin, Access

and .

———————— END OF TASK ————————

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RUDDER AFT QUADRANT - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Detail Visual Inspection of the Rudder Aft Quadrant components

(2) General Visual Inspection of the Rudder Aft Quadrant components.

TASK 27-21-61-210-801

2. Rudder Aft Quadrant Detail Visual Inspection

(Figure 601, Figure 602 or Figure 603)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

C. Access Panels

Number	Name/Location
323FL	Vertical Fin, Access
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

D. Procedure

SUBTASK 27-21-61-010-005

(1) Remove these access panels:

Number	Name/Location
323FL	Vertical Fin, Access
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

SUBTASK 27-21-61-210-001

(2) Do a detail visual inspection of the Rudder Aft Quadrant, Torque Tube Assembly, Feel and Centering Unit, and associated Input/Output rods.

(a) Aft quadrant

(b) Aft quadrant output rod

(c) Aft quadrant bearings

(d) Aft quadrant shaft

(e) Rudder torque tube

(f) Rudder torque tube bearings

(g) Rudder torque tube cranks

(h) Rudder torque tube input rods

(i) Feel and centering unit.

(j) Feel and centering unit output rod.

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SUBTASK 27-21-61-010-006

(3) Install these access panels:

Number	Name/Location
323FL	Vertical Fin, Access
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

—————— END OF TASK ——————

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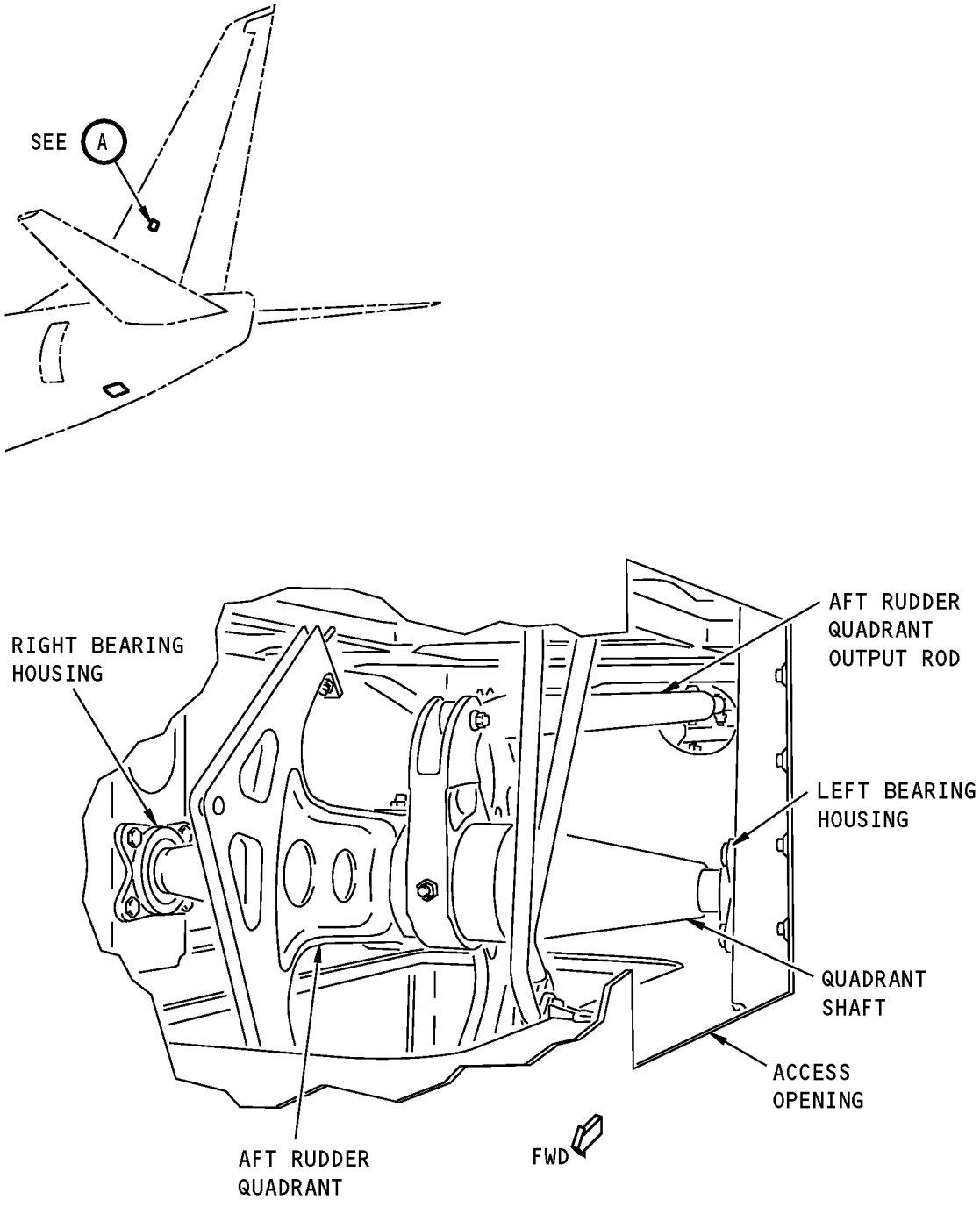

Aft Rudder Quadrant Visual Inspection
Figure 601/27-21-61-990-803

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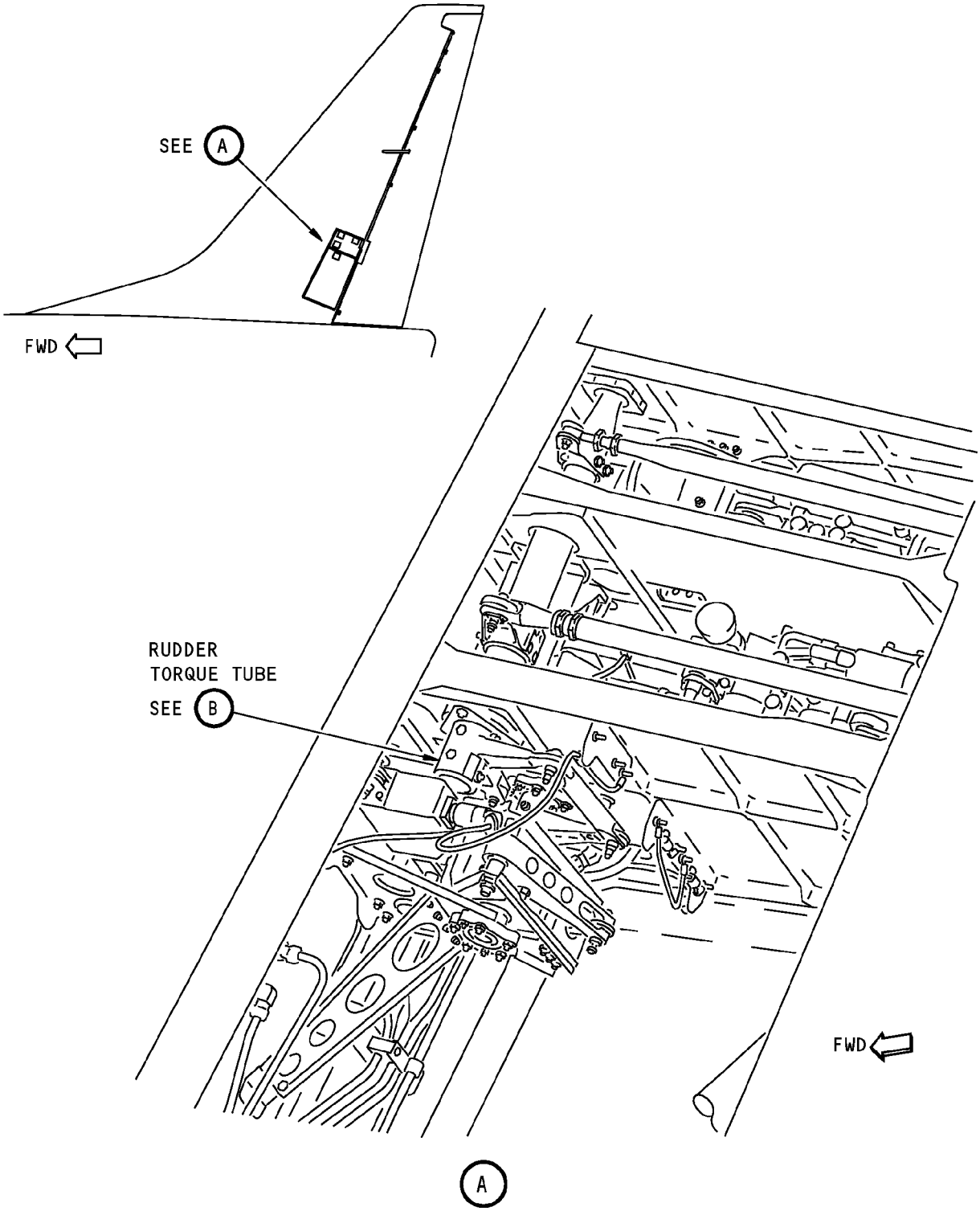

Rudder Torque Tube Visual Inspection
Figure 602 (Sheet 1 of 2)/27-21-61-990-804

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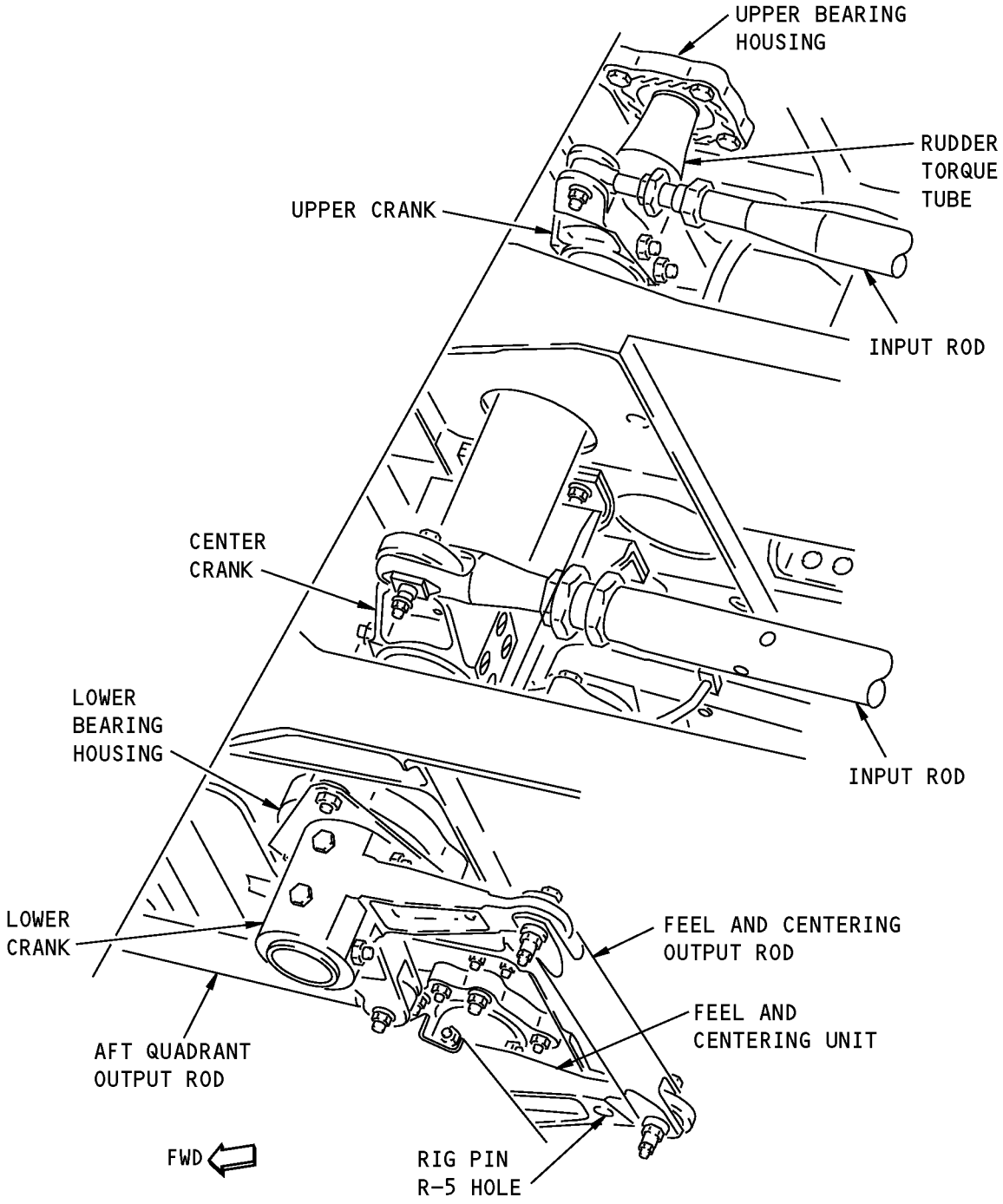

Rudder Torque Tube Visual Inspection
Figure 602 (Sheet 2 of 2)/27-21-61-990-804

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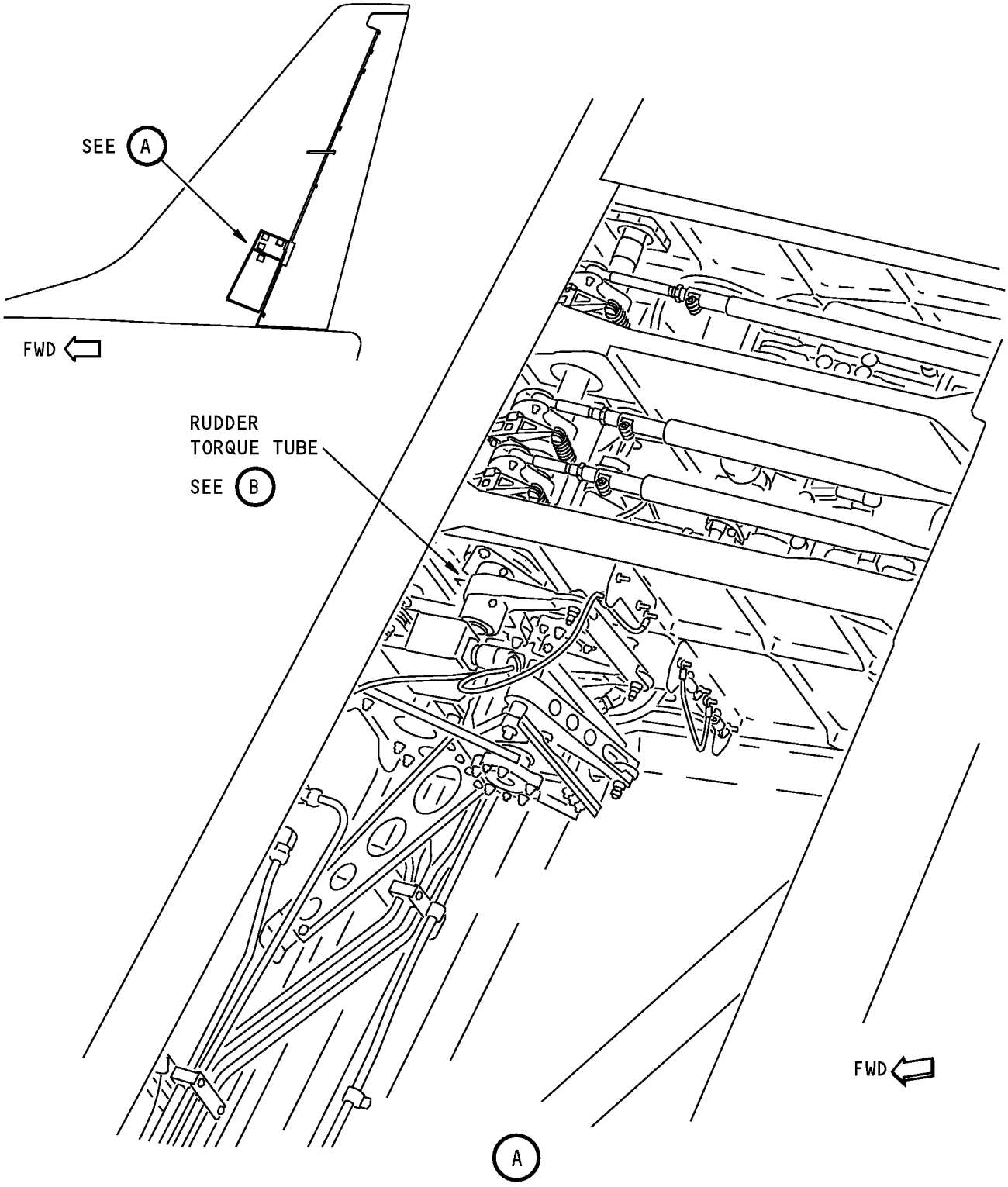

Rudder Torque Tube Visual Inspection
Figure 603 (Sheet 1 of 2)/27-21-61-990-805

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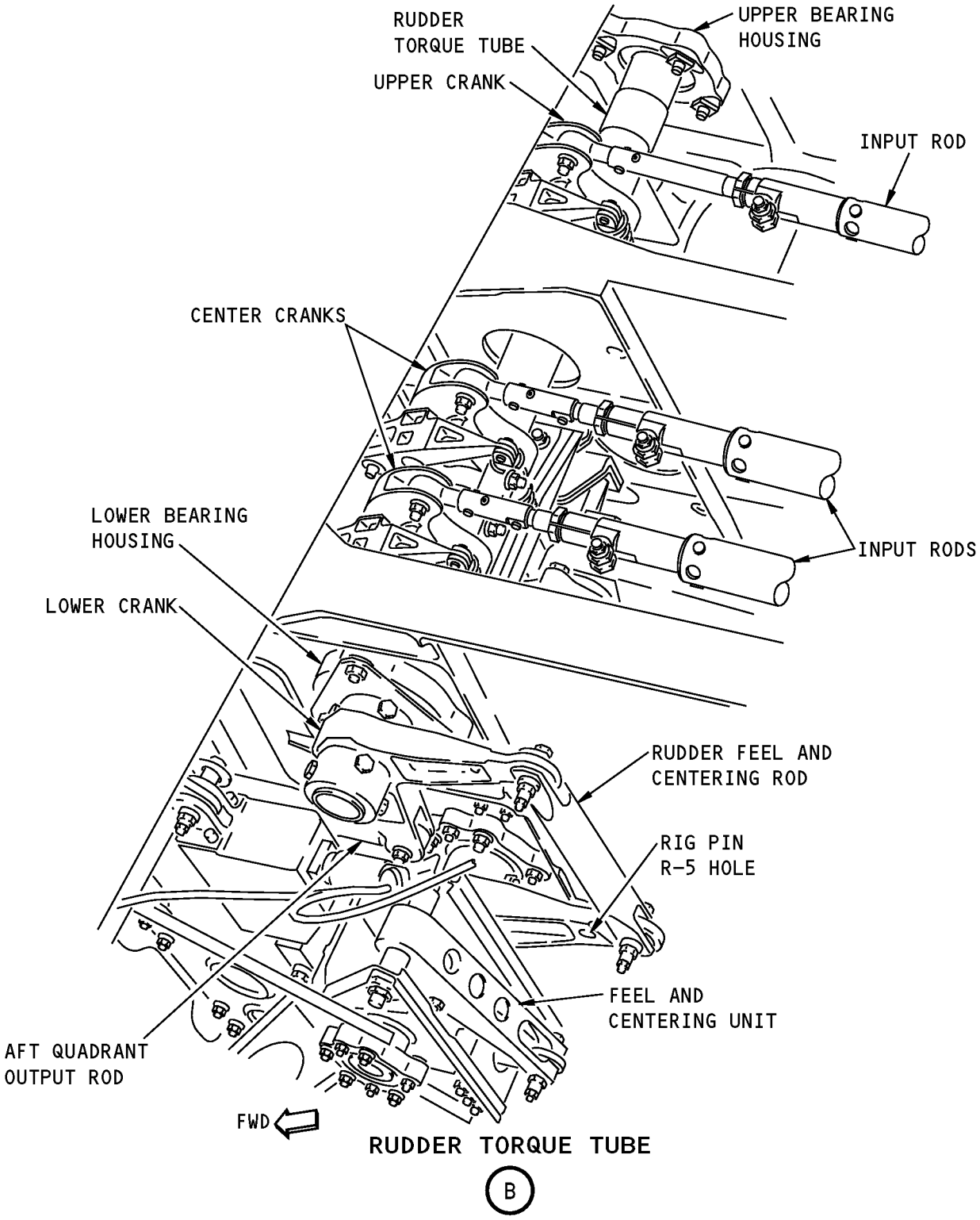

Rudder Torque Tube Visual Inspection
Figure 603 (Sheet 2 of 2)/27-21-61-990-805

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TASK 27-21-61-210-802

3. Ruddder Aft Quadrant General Visual Inspection

(Figure 601, Figure 602 or Figure 603)

A. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

B. Access Panels

Number	Name/Location
323CL	Vertical Fin, Rear Spar Access Door
323FL	Vertical Fin, Access
324DL	Trailing Edge Access

C. Procedure

SUBTASK 27-21-61-010-009

(1) Open these access panels:

Number	Name/Location
323CL	Vertical Fin, Rear Spar Access Door
323FL	Vertical Fin, Access
324DL	Trailing Edge Access

SUBTASK 27-21-61-210-002

(2) Do a general visual inspection of the Rudder Aft Quadrant, Torque Tube Assembly, Feel and Centering Unit, and associated Input/Output rods.:

(a) Aft quadrant

(b) Aft quadrant output rod

(c) Aft quadrant bearings

(d) Aft quadrant shaft

(e) Rudder torque tube

(f) Rudder torque tube bearings

(g) Rudder torque tube cranks

(h) Rudder torque tube input rods

(i) Feel and centering unit.

(j) Feel and centering unit output rod.

SUBTASK 27-21-61-010-010

(3) Close these access panels:

Number	Name/Location
323CL	Vertical Fin, Rear Spar Access Door
323FL	Vertical Fin, Access
324DL	Trailing Edge Access

——————— END OF TASK ———————

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RUDDER CONTROL TORQUE TUBE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder control torque tube

(2) An installation of the rudder control torque tube.

B. The rudder control torque tube is referred to as the "torque tube" in this procedure.

TASK 27-21-71-000-803-001

2. Rudder Control Torque Tube Removal

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-87-000-801	Rudder Trim Actuator Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

E. Prepare for the Removal

SUBTASK 27-21-71-860-005-001

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-71-010-003-001

(2) Remove these access panels:

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

SUBTASK 27-21-71-480-002-001

(3) Install the rig pin R-5 from the rig pin kit, SPL-1585 in the output crank of the rudder feel and centering unit.

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F. Torque Tube Removal

(Figure 401)

SUBTASK 27-21-71-020-016-001

(1) Remove the nut [39], washer [38], washer [37], and bolt [36] to disconnect the vernier control rod [5] from the upper crank [35].

SUBTASK 27-21-71-020-017-001

(2) Remove the nut [34], washer [33], washer [32], and bolt assembly [31] to disconnect the vernier control rod [9] from the center crank [30].

SUBTASK 27-21-71-020-018-001

(3) Remove the nut [20], washer [19], and bolt [18] to disconnect the aft quadrant control rod [21] from the lower crank [22].

SUBTASK 27-21-71-020-019-001

(4) Remove the nut [16], nut [15], washer [14], and bolt [13] to disconnect the control rod [17] from the lower crank [22].

SUBTASK 27-21-71-020-021-001

(5) Remove the rudder trim actuator, do this task: Rudder Trim Actuator Removal, TASK 27-21-87-000-801

SUBTASK 27-21-71-020-020-001

(6) Remove the torque tube [1]:

(a) Use a marker or pen to make marks to identify the installed positions of the lower crank [22], center crank [30], and upper crank [35].

(b) Remove the nuts [25], washers [24], bolts [23] that attach the lower crank [22] to the torque tube [1].

(c) Remove the nuts [12], washers [11], bolts [10] that attach the center crank [30] to the torque tube [1].

(d) Remove the nuts [8], washers [7], bolts [6] that attach the upper crank [35] to the torque tube [1].

(e) Remove the bolts [2] and washers [3] from the upper bearing housing [4].

(f) Remove the nuts [29], washers [28], and bolts [27] that attach the lower bearing housing [26] to airplane structure.

(g) Pull the lower crank [22] down and remove it from the torque tube [1].

(h) Remove the plate [42], retainer [41], lower bearing housing [26], and plate [40] from the torque tube [1].

(i) Pull the torque tube [1] down through the upper crank [35] and center crank [30].

(j) Remove the torque tube [1], upper crank [35], and center crank [30] from the airplane.

——————— END OF TASK ———————

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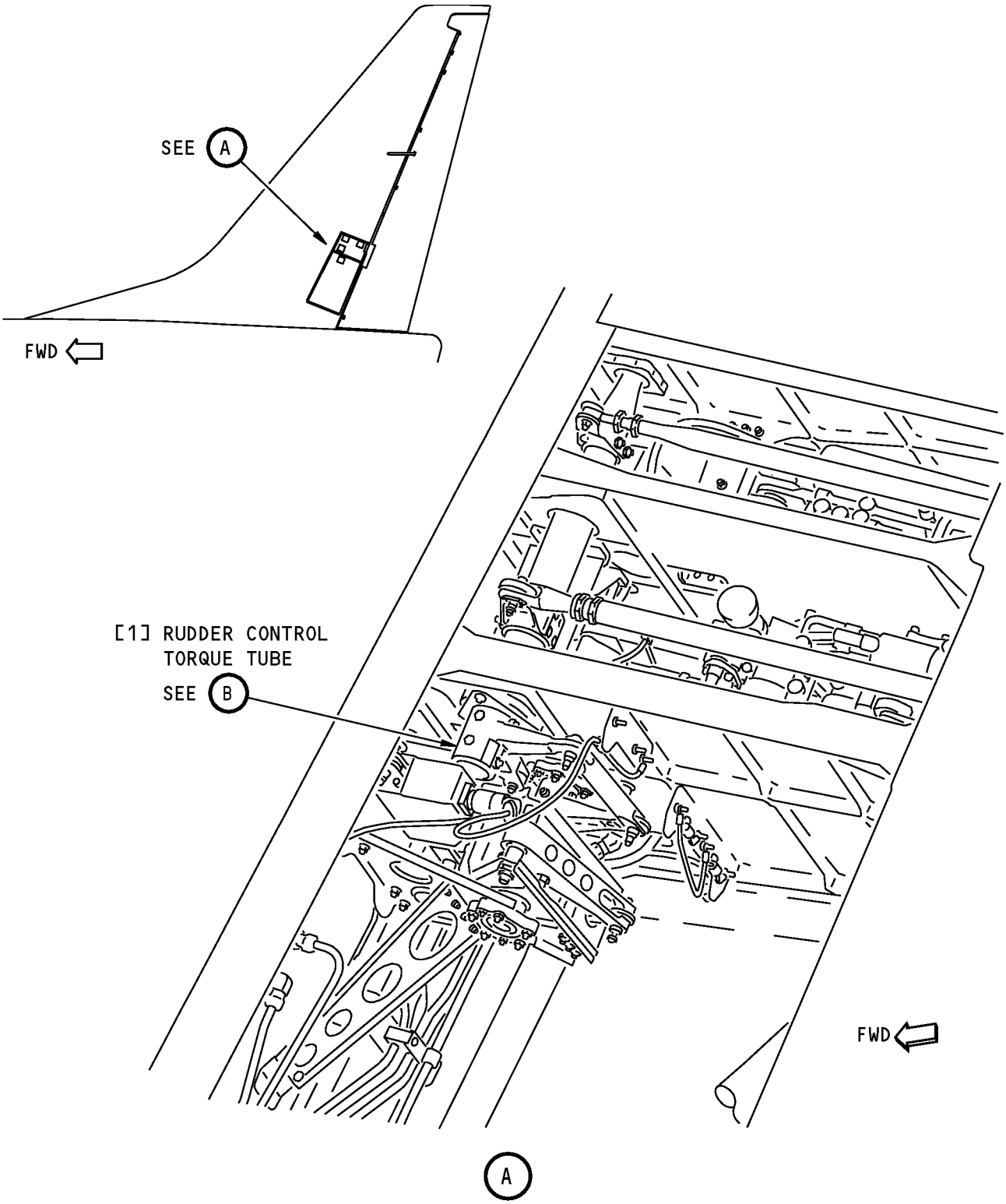

Rudder Control Torque Tube Installation
Figure 401 (Sheet 1 of 3)/27-21-71-990-804-001

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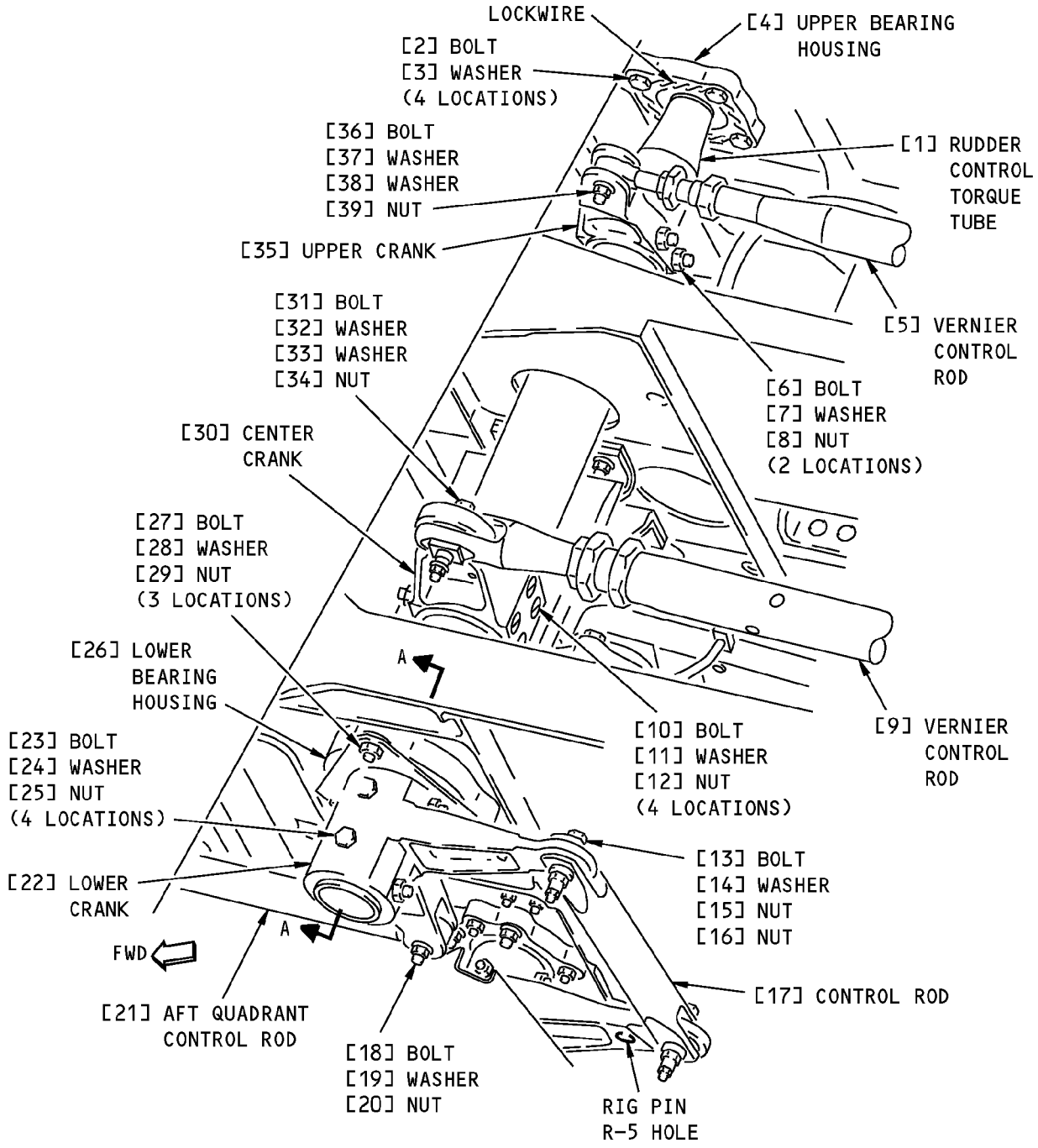

Rudder Control Torque Tube Installation
Figure 401 (Sheet 2 of 3)/27-21-71-990-804-001

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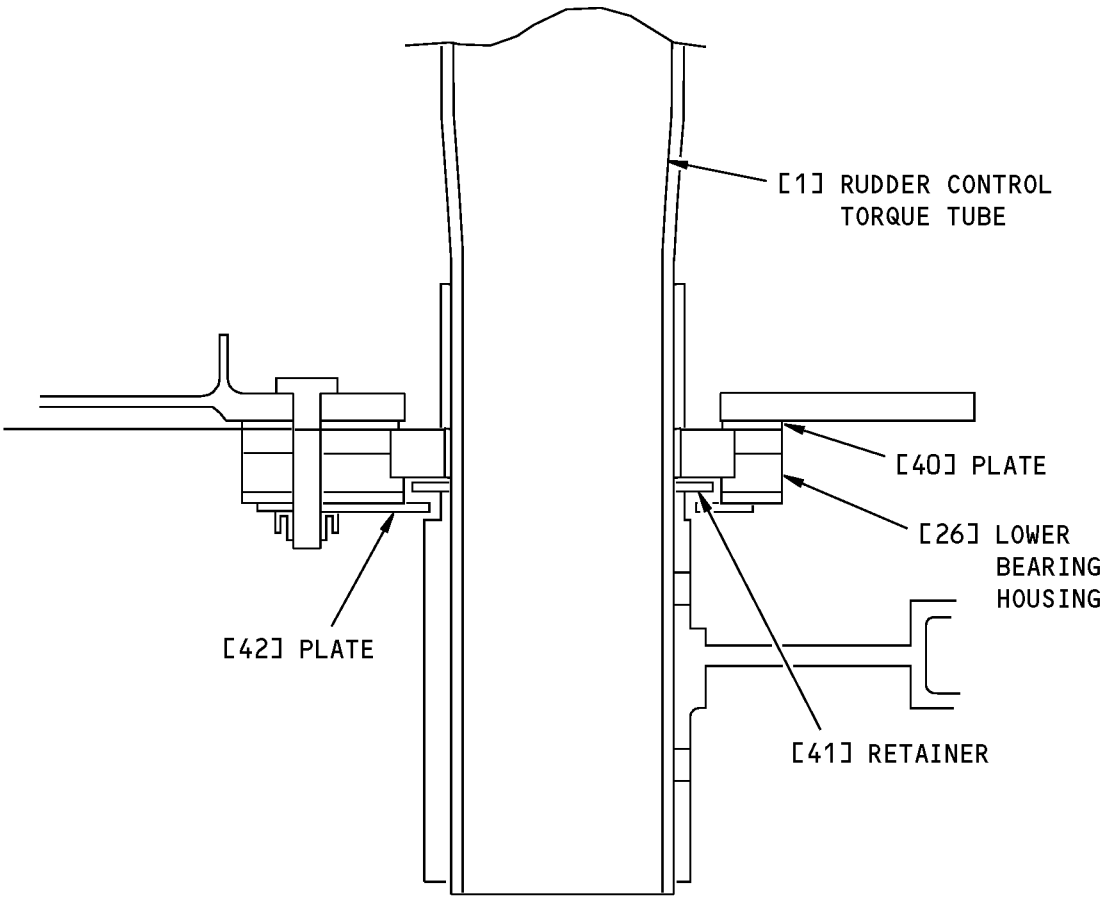

Rudder Control Torque Tube Installation
Figure 401 (Sheet 3 of 3)/27-21-71-990-804-001

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TASK 27-21-71-400-803-001

3. Rudder Control Torque Tube Installation

(Figure 401)

A. References

Reference	Title
27-21-00-700-817-001	Rudder Travel Test (P/B 501)
27-21-00-700-818-001	Standby Rudder Power Control Unit Deadband Test (P/B 501)
27-21-00-820-809-001	Control Rod for Main Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-820-810-001	Control Rod for Standby Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)
27-21-87-400-801	Rudder Trim Actuator Installation (P/B 401)
51-31-00-390-804	Fillet Seal Application (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00308	Compound - Corrosion Preventive, Petrolatum Hot Application	MIL-C-11796
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

D. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

E. Access Panels

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

F. Torque Tube Installation

SUBTASK 27-21-71-420-012-001

(1) Install the torque tube [1]:

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(a) Put the torque tube [1] through the structural cutouts, the upper bearing housing [4], upper crank [35], and center crank [30].

(b) Install the plate [40], lower bearing housing [26], retainer [41], and plate [42] to the torque tube [1].

(c) Install the bolts [27], washers [28], and nuts [29] to attach the lower bearing housing [26] to the structure.

(d) Install the washers [3] and bolts [2] to attach the upper bearing housing [4] to the structure.

1) Install the lockwire, G01048.

(e) Install the lower crank [22] on the torque tube [1]:

1) Apply corrosion preventive compound, C00308 to the bolts [23].

2) Put the lower crank [22] on the torque tube [1].

3) Install the bolts [23], washers [24], and nuts [25] to attach the lower crank [22] to the torque tube [1].

4) Tighten the nuts [25] to 12-15 pound-inches (53-66 newton meters) millimeters).

(f) Install the center crank [30] to the torque tube [1]:

1) Apply corrosion preventive compound, C00308 to the bolts [10].

2) Install the bolts [10], washers [11], and nuts [12] to attach the center crank [30] to the torque tube [1].

3) Tighten the nuts [12] to 25-35 pound-inches (111-155 newton meters) newton-meters).

4) Apply a fillet seal between the center crank [30] and the torque tube [1] with sealant, A00247. To apply fillet seal, do this task: Fillet Seal Application, TASK 51-31-00-390-804.

(g) Install the upper crank [35] to the torque tube [1]:

1) Apply corrosion preventive compound, C00308 to the bolts [6].

2) Install the bolts [6], washers [7], and nuts [8] to attach the upper crank [35] to the torque tube [1].

3) Tighten the nuts [8] to 25-35 pound-inches (111-155 newton meters).

4) Apply a fillet seal between the upper crank [35] and the torque tube [1] with sealant, A00247. To apply fillet seal, do this task: Fillet Seal Application, TASK 51-31-00-390-804.

SUBTASK 27-21-71-710-007-001

(2) Make sure the torque tube [1] turns freely and that there is no play in the horizontal and vertical directions.

(a) If the torque tube [1] does not turn freely, do a check of the lower bearing housing [26] and upper bearing housing [4] installation.

SUBTASK 27-21-71-420-013-001

(3) Install the bolt [36], washer [37] (under the bolt), washer [38] (under the nut), and nut [39] to connect the vernier control rod [5] to the upper crank [35].

SUBTASK 27-21-71-420-014-001

(4) Connect the vernier control rod [9] to the center crank [30]:

(a) Install the washer [32] and bolt [31].

1) Tighten the outer bolt of the bolt [31] to 70-85 pound-inches (7.9-9.6 newton-meters).

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CAUTION: DO NOT TRY TO TIGHTEN THE OUTER BOLT OF THE BOLT [31] AGAIN AFTER YOU TIGHTEN THE NUT [34], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Install the washer [33] and nut [34].

1) Tighten the nut [34] to 25-30 pound-inches (2.8-3.9 newton-meters).

SUBTASK 27-21-71-420-017-001

(5) Install the rudder trim actuator, do this task: Rudder Trim Actuator Installation, TASK 27-21-87-400-801

SUBTASK 27-21-71-420-015-001

(6) Install the bolt [18], washer [19], and nut [20] to connect the aft quadrant rod [21] to the lower crank [22].

SUBTASK 27-21-71-420-016-001

(7) Connect the control rod [17] to the lower crank [22]:

(a) Install the bolt assembly [13], washer [14], and nut [15].

1) Tighten the nut [15] to 45-60 pound-inches (5.1-6.8 newton-meters).

CAUTION: DO NOT TRY TO TIGHTEN THE NUT [15] AGAIN AFTER YOU TIGHTEN THE NUT [16], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Install the nut [16].

1) Tighten the nut [16] to 12-15 pound-inches (1.3-1.7 newton-meters).

SUBTASK 27-21-71-640-003-001

(8) Apply grease, D00015 to the upper bearing housing [4] and lower bearing housing [26].

(a) Fill the upper bearing housing [4] and lower bearing housing [26] with grease, D00015 until the grease is level with the surrounding structure.

SUBTASK 27-21-71-860-006-001

(9) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

SUBTASK 27-21-71-080-002-001

(10) Remove the rig pin R-5 from test set rig pin kit, SPL-1585 from the output crank of the rudder feel and centering unit.

G. Rudder Control Torque Tube Installation Test

SUBTASK 27-21-71-820-005-001

(1) Do this task: Control Rod for Main Rudder Power Control Unit Adjustment, TASK 27-21-00-820-809-001.

SUBTASK 27-21-71-820-006-001

(2) Do this task: Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-001.

SUBTASK 27-21-71-710-008-001

(3) Do this task: Standby Rudder Power Control Unit Deadband Test, TASK 27-21-00-700-818-001.

SUBTASK 27-21-71-710-009-001

(4) Do this task: Rudder Travel Test, TASK 27-21-00-700-817-001.

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SUBTASK 27-21-71-410-003-001

(5) Install these access panels:

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

END OF TASK

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RUDDER CONTROL TORQUE TUBE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder control torque tube

(2) An installation of the rudder control torque tube.

B. The rudder control torque tube is referred to as the "torque tube" in this procedure.

TASK 27-21-71-000-802-002

2. Rudder Control Torque Tube Removal

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-87-000-801	Rudder Trim Actuator Removal (P/B 401)

B. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

C. Access Panels

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

D. Prepare for the Removal

SUBTASK 27-21-71-860-003-002

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-71-010-002-002

(2) Remove these access panels:

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

E. Torque Tube Removal

(Figure 401)

SUBTASK 27-21-71-020-010-002

(1) Remove the nut [33], washer [32], washer [31], and bolt assembly [30] to disconnect the standby rudder PCU control rod [2] from the upper crank [34].

SUBTASK 27-21-71-020-011-002

(2) Remove the nuts [33], washers [32], washers [31], and bolt assemblies [30] to disconnect the main rudder PCU control rods [3] from the center cranks [29].

SUBTASK 27-21-71-020-012-002

(3) Remove the nut [11], washer [10], and bolt [9] to disconnect the aft quadrant control rod [12] from the lower crank [20].

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SUBTASK 27-21-71-020-013-002

(4) Remove the nut [7], nut [6], washer [5], and bolt assembly [4] to disconnect the control rod [8] from the lower crank [20].

SUBTASK 27-21-71-020-014-002

(5) Remove the rudder trim actuator [18], do this task: Rudder Trim Actuator Removal, TASK 27-21-87-000-801

SUBTASK 27-21-71-020-015-002

(6) Remove the torque tube [1]:

(a) Use a marker or pen to make marks to identify the installed positions of the center cranks [29], and upper crank [34].

(b) Remove the nuts [27], washers [26], washers [25], bolt [24], and bolt [28] that attach the upper crank [34] to the torque tube [1].

(c) Remove the nuts [27], washers [26], washers [25], bolts [24], and bolts [28] that attach the center cranks [29] to the torque tube [1].

(d) Remove the nuts [39], washers [38], and bolts [37] that attach the lower bearing housing [21] to airplane structure.

NOTE: Do not remove the lower crank [22] from the torque tube [1].

(e) Pull the torque tube [1] down through the upper bearing housing [35], upper crank [34], and center cranks [29].

(f) Remove the torque tube [1], upper crank [34], and center cranks [29] from the airplane.

——————— END OF TASK ———————

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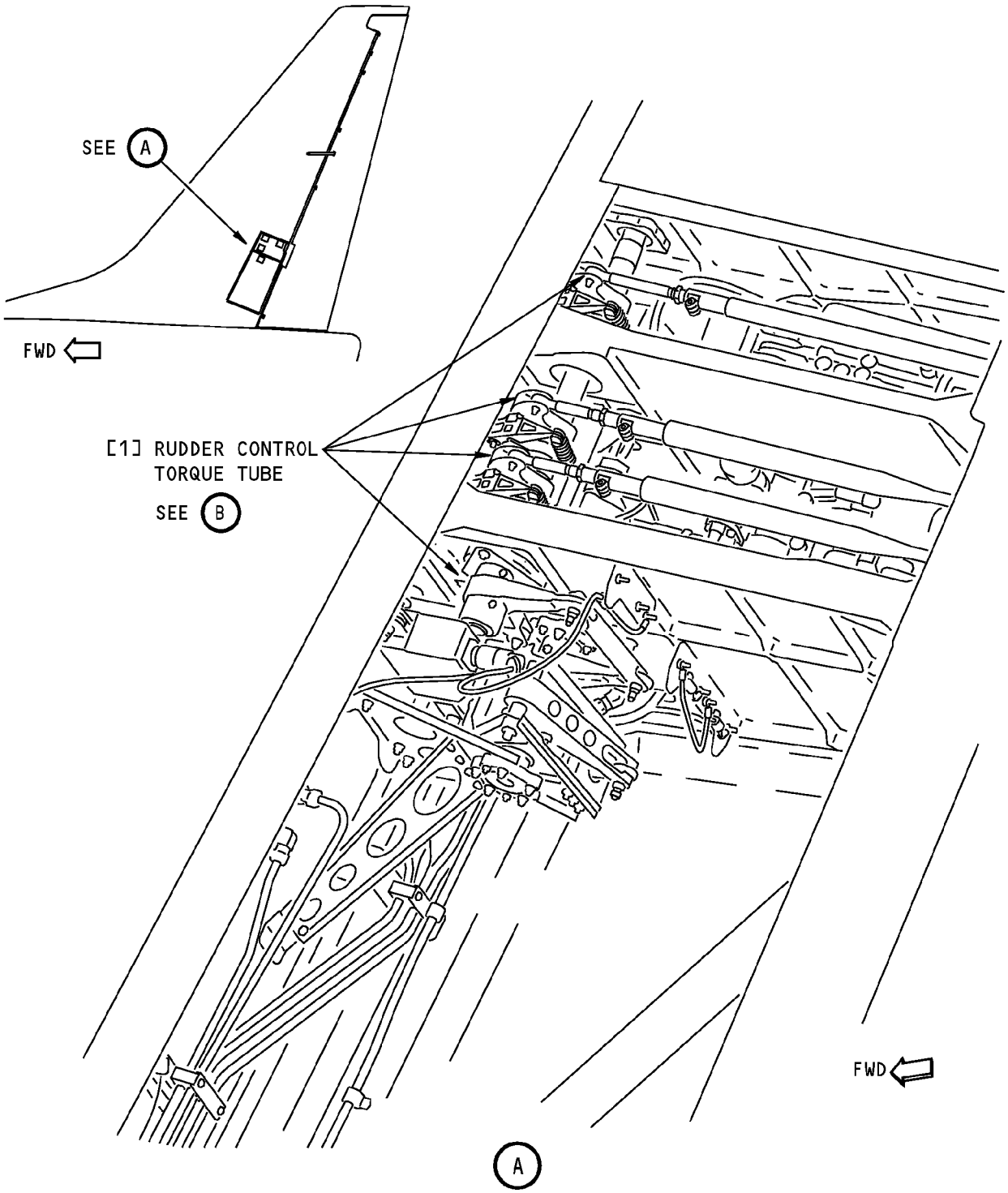

Rudder Control Torque Tube Installation
Figure 401 (Sheet 1 of 3)/27-21-71-990-803-002

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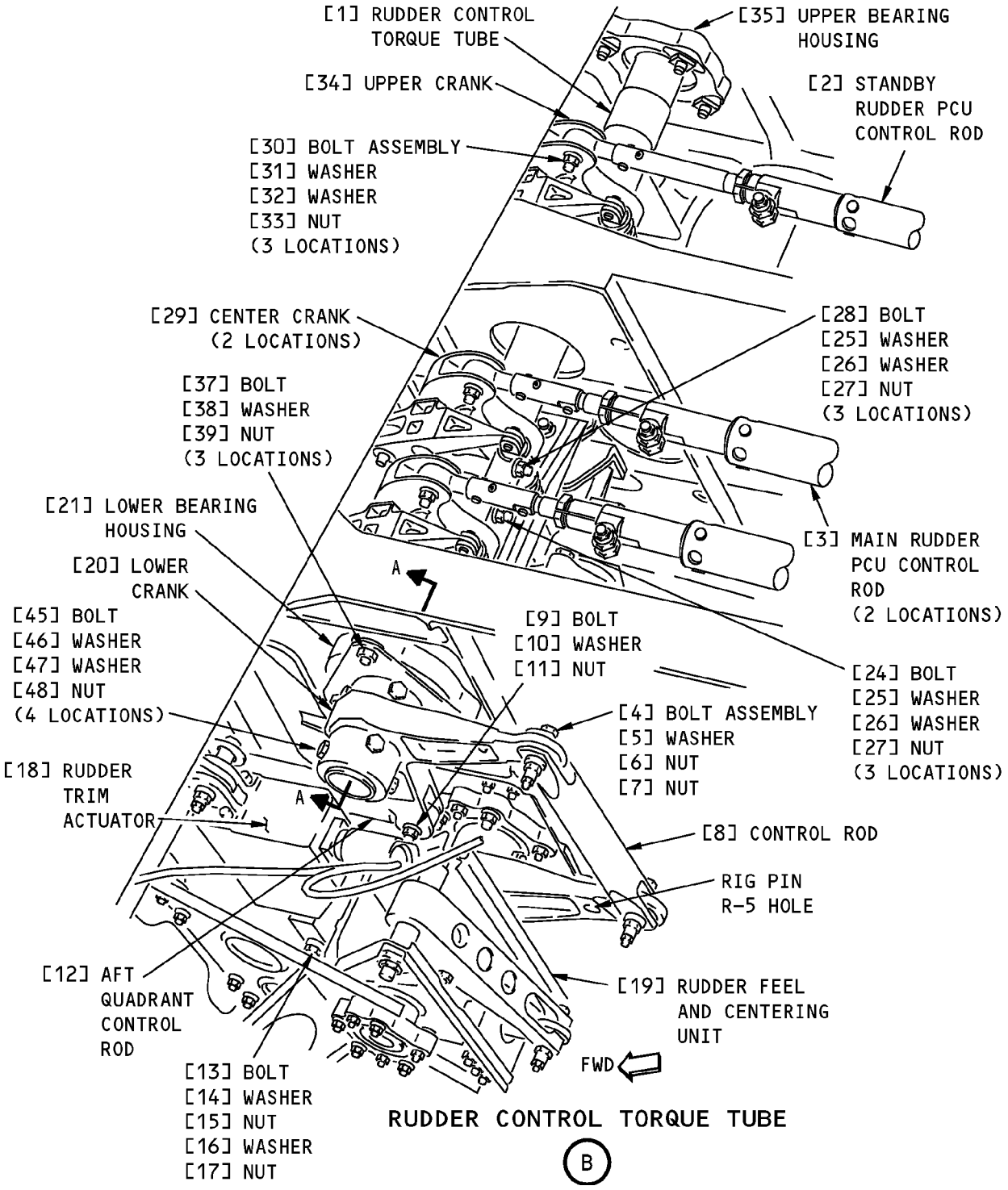

Rudder Control Torque Tube Installation
Figure 401 (Sheet 2 of 3)/27-21-71-990-803-002

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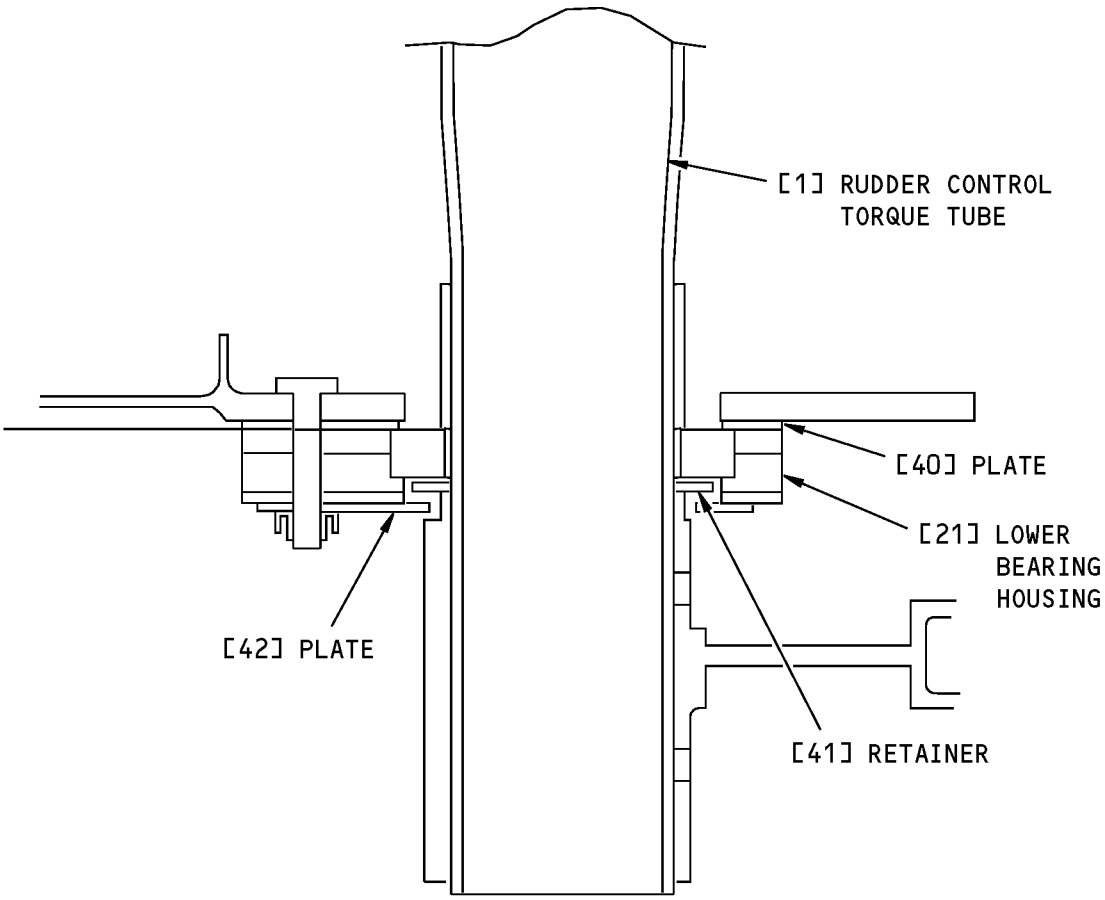

Rudder Control Torque Tube Installation
Figure 401 (Sheet 3 of 3)/27-21-71-990-803-002

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TASK 27-21-71-400-802-002

3. Rudder Control Torque Tube Installation

(Figure 401)

A. References

Reference	Title
27-21-00-700-817-002	Rudder Travel Test (P/B 501)
27-21-00-820-809-002	Control Rod for Main Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-820-810-002	Control Rod for Standby Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)
27-21-87-400-801	Rudder Trim Actuator Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

E. Torque Tube Installation

SUBTASK 27-21-71-420-006-002

(1) Install the torque tube [1]:

(a) Make sure that the plate [40], lower bearing housing [21], retainer [41], and plate [42] in their positions on the torque tube [1].

(b) Put the torque tube [1] through the structural cutouts, center cranks [29], upper crank [34], and upper bearing housing [35].

NOTE: Put the center cranks [29] and upper crank [34] in their original position before you put the torque tube [1] through the structural cutouts.

(c) Install the bolts [37], washers [38], and nuts [39] to attach the lower bearing housing [21] to the airplane structure.

(d) Install the center cranks [29] on the torque tube [1]:

1) Install the bolts [24], bolts [28], washers [25], washers [26], and nuts [27] to attach the center cranks [29] to the torque tube [1].

2) Tighten the nuts [27] to 15-25 pound-inches (1.69-2.82 newton-meters) above the run-on torque.

(e) Install the upper crank [34] to the torque tube [1]:

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1) Install the bolt [24], bolt [28], washers [25], washers [26], and nuts [27] to attach the upper crank [34] to the torque tube [1].

2) Tighten the nuts [27] to 15-25 pound-inches (1.69-2.82 newton-meters) above the run-on torque.

SUBTASK 27-21-71-710-004-002

(2) Make sure the torque tube [1] turns freely and that there is no play in the horizontal and vertical directions.

(a) If the torque tube [1] does not turn freely, do a check of the lower bearing housing [21] and upper bearing housing [35] installation.

SUBTASK 27-21-71-420-007-002

(3) Install the bolt assembly [30], washer [31] (under the bolt), washer [32] (under the nut), and nut [33] to connect the control rod [2] to the upper crank [34].

SUBTASK 27-21-71-420-008-002

(4) Install the bolt assemblies [30], washers [31] (under the bolt), washers [32] (under the nut), and nuts [33] to connect the control rods [3] to the center cranks [29].

SUBTASK 27-21-71-420-009-002

(5) Install the rudder trim actuator [18], do this task: Rudder Trim Actuator Installation, TASK 27-21-87-400-801

SUBTASK 27-21-71-420-010-002

(6) Install the bolt [9], washer [10], and nut [11] to connect the aft quadrant rod [12] to the lower crank [20].

SUBTASK 27-21-71-420-011-002

(7) Connect the control rod [8] to the lower crank [20]:

(a) Install the bolt assembly [4], washer [5], and nut [6].

1) Tighten the nut [6] to 45-60 pound-inches (5.1-6.8 newton-meters).

CAUTION: DO NOT TRY TO TIGHTEN THE NUT [6] AGAIN AFTER YOU TIGHTEN THE NUT [7], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Install the nut [7].

1) Tighten the nut [7] to 12-15 pound-inches (1.3-1.7 newton-meters).

SUBTASK 27-21-71-640-002-002

(8) Apply grease, D00015 or grease, D00633 to the upper bearing housing [35] and lower bearing housing [21].

(a) Fill the upper bearing housing [35] and lower bearing housing [21] with grease, D00015 or grease, D00633 until the grease is level with the surrounding structure.

SUBTASK 27-21-71-860-004-002

(9) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

F. Rudder Control Torque Tube Installation Test

SUBTASK 27-21-71-820-003-002

(1) Do this task: Control Rod for Main Rudder Power Control Unit Adjustment, TASK 27-21-00-820-809-002.

SUBTASK 27-21-71-820-004-002

(2) Do this task: Control Rod for Standby Rudder Power Control Unit Adjustment, TASK 27-21-00-820-810-002.

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SUBTASK 27-21-71-710-006-002

(3) Do this task: Rudder Travel Test, TASK 27-21-00-700-817-002.

SUBTASK 27-21-71-410-002-002

(4) Install these access panels:

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access

END OF TASK

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RUDDER FEEL AND CENTERING UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder feel and centering unit

(2) An installation of the rudder feel and centering unit.

TASK 27-21-82-000-801

2. Rudder Feel and Centering Unit Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
112A	Forward Access Door
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access
324DR	Vertical Fin, Trailing Edge Access

E. Prepare for the Removal

SUBTASK 27-21-82-860-003

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

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SUBTASK 27-21-82-010-001

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-21-82-010-003

(3) Remove these access panels:

Number	Name/Location
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel

SUBTASK 27-21-82-010-005

(4) Remove this access panel:

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access

SUBTASK 27-21-82-010-006

(5) Remove this access panel:

Number	Name/Location
324DR	Vertical Fin, Trailing Edge Access

SUBTASK 27-21-82-010-002

(6) Remove this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-82-480-001

(7) Install the rig pin R-3 or R-4 from the rig pin kit, SPL-1585 in the forward rig pin hole of the captain's or first officer's rudder forward quadrants (Figure 401).

F. Rudder Feel and Centering Unit Removal

(Figure 402)

SUBTASK 27-21-82-020-001

(1) Remove the rudder feel and centering unit [7]:

(a) Remove the nut [27], washer [26], nut [25], washer [24], and bolt assembly [23] to disconnect the feel and centering unit [7] from the rudder trim actuator [1].

(b) Remove the nut [33], nut [32], washer [31], washer [30], bushing [29], and bolt assembly [28] to disconnect the feel and centering unit crank [8] from the feel output rod [9].

(c) Remove the nuts [6], washers [5], and bolts [4] which attach the upper bearing housing [2] and plate [3] to the airplane structure.

(d) Hold the rudder feel and centering unit [7] and remove these parts from the support bracket [18]:

1) Remove the nuts [22], washers [21], washers [20], and bolts [19].

2) Remove the nuts [17], washers [16], washers [15], and bolts [14].

(e) Remove the nuts [13], washers [12], and bolts [11] from the lower bearing housing [10].

NOTE: If it is necessary, turn the rudder feel and centering unit to get access to the bolts.

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(f) Remove the rudder feel and centering unit [7] and support bracket [18].

END OF TASK

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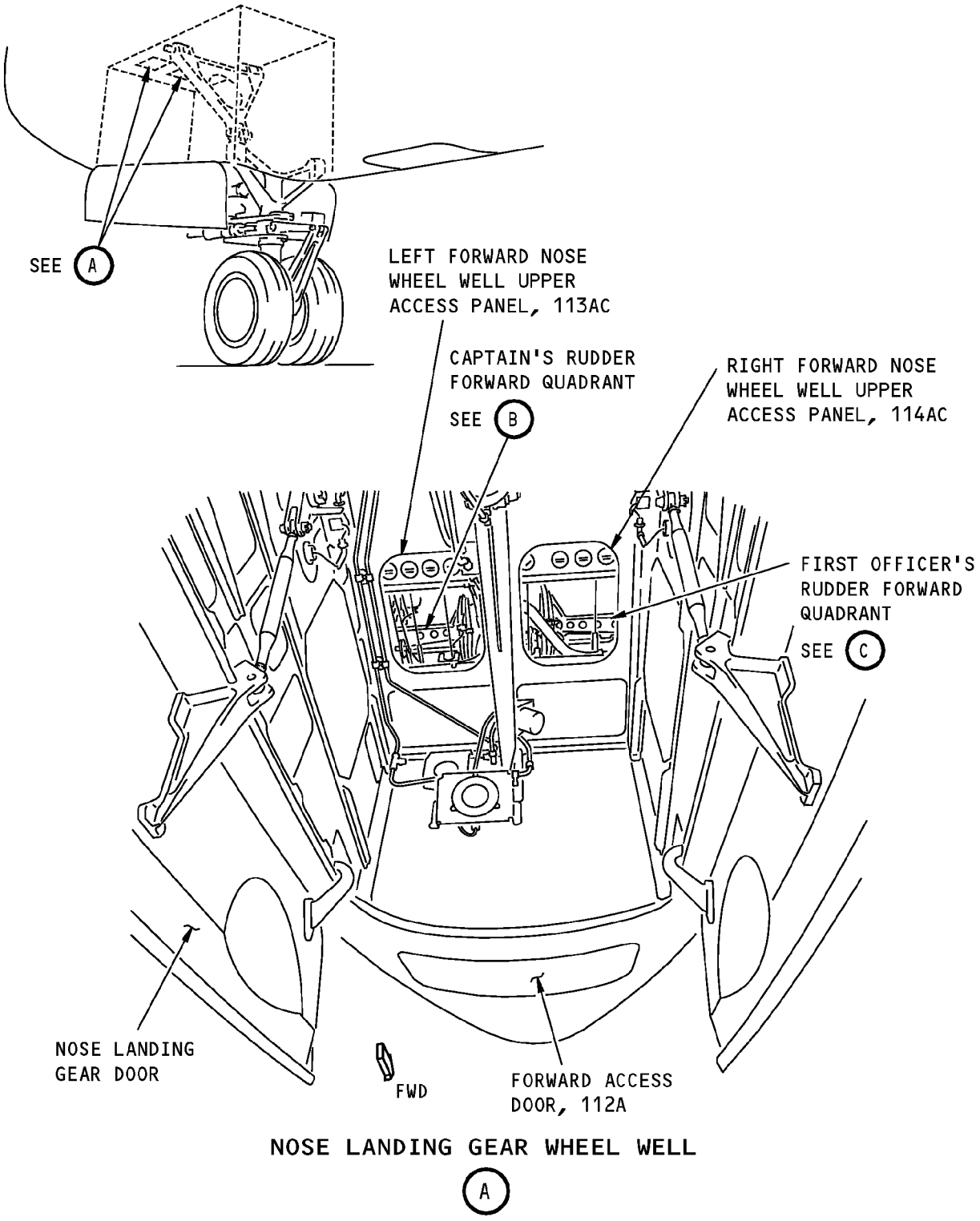

Rudder Forward Quadrant Rig Pin Installation
Figure 401 (Sheet 1 of 3)/27-21-82-990-801

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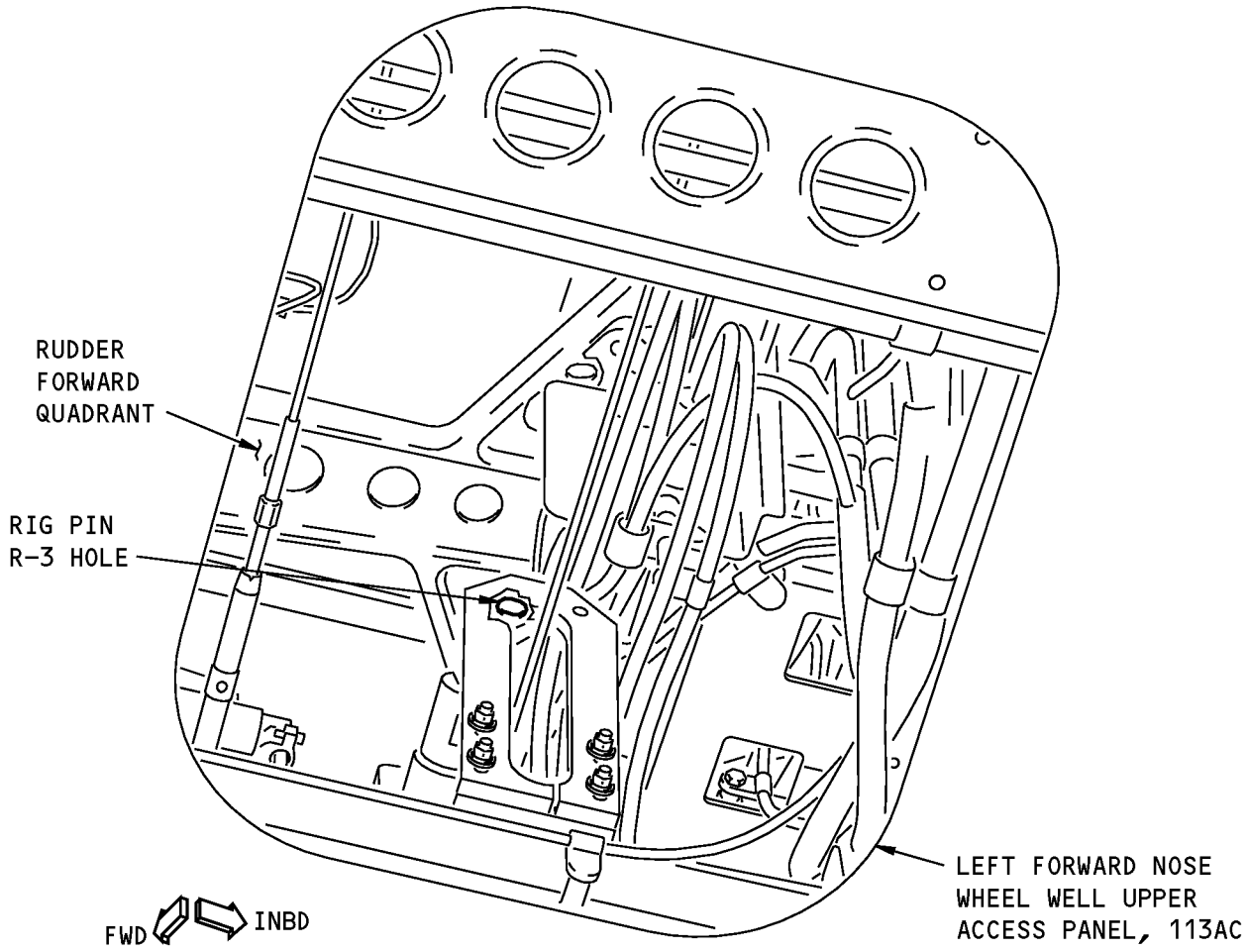

CAPTAIN'S RUDDER FORWARD QUADRANT

B

Rudder Forward Quadrant Rig Pin Installation
Figure 401 (Sheet 2 of 3)/27-21-82-990-801

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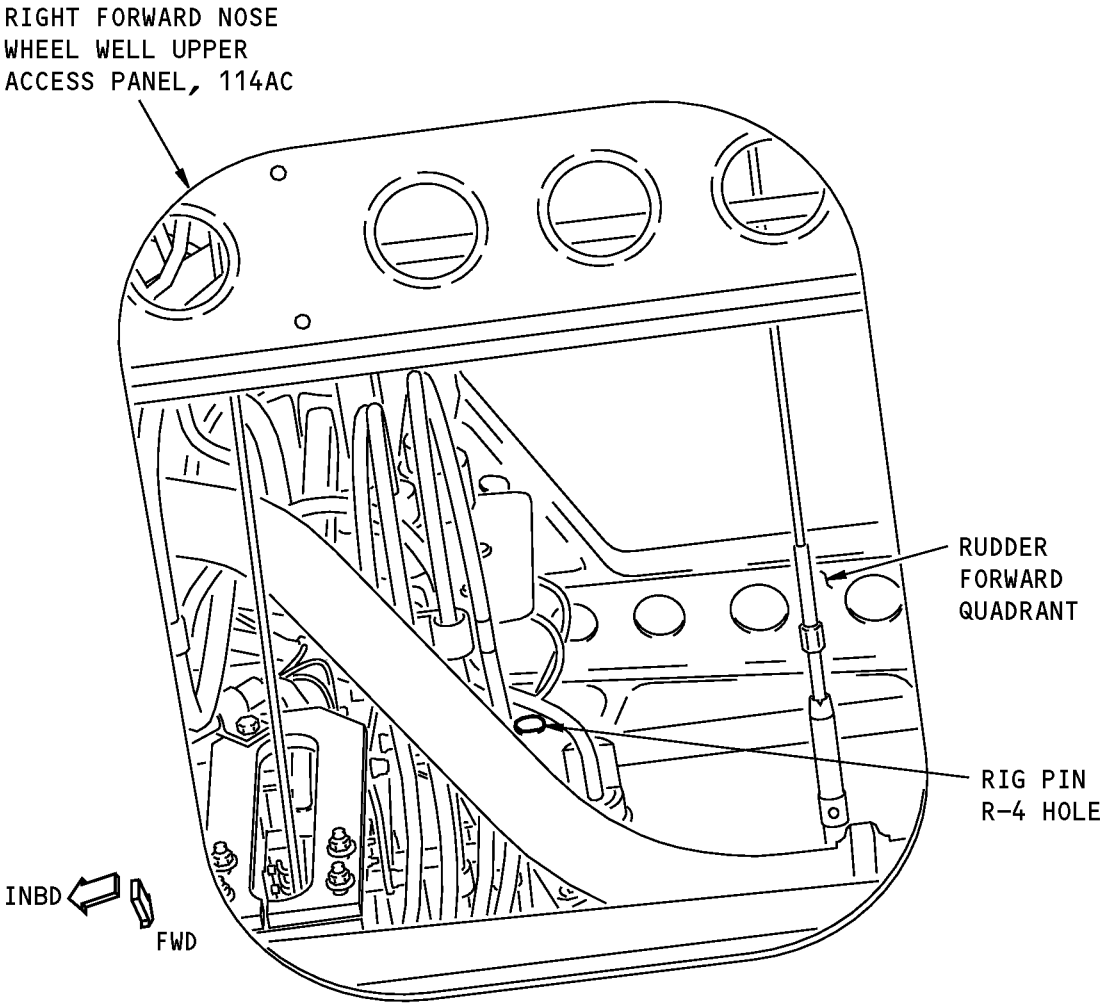

FIRST OFFICER'S RUDDER FORWARD QUADRANT

C

Rudder Forward Quadrant Rig Pin Installation
Figure 401 (Sheet 3 of 3)/27-21-82-990-801

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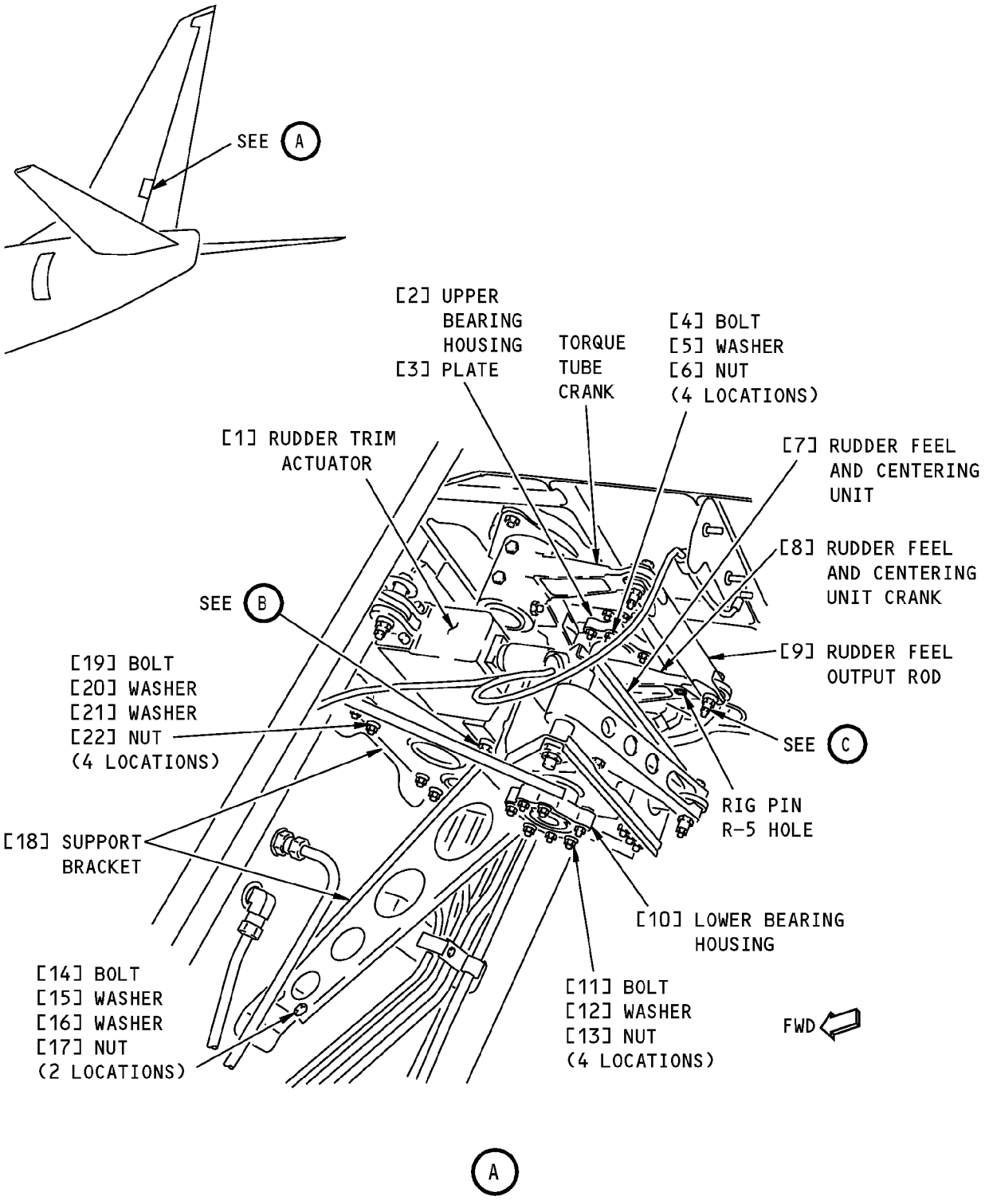

Rudder Feel and Centering Unit Installation
Figure 402 (Sheet 1 of 2)/27-21-82-990-802

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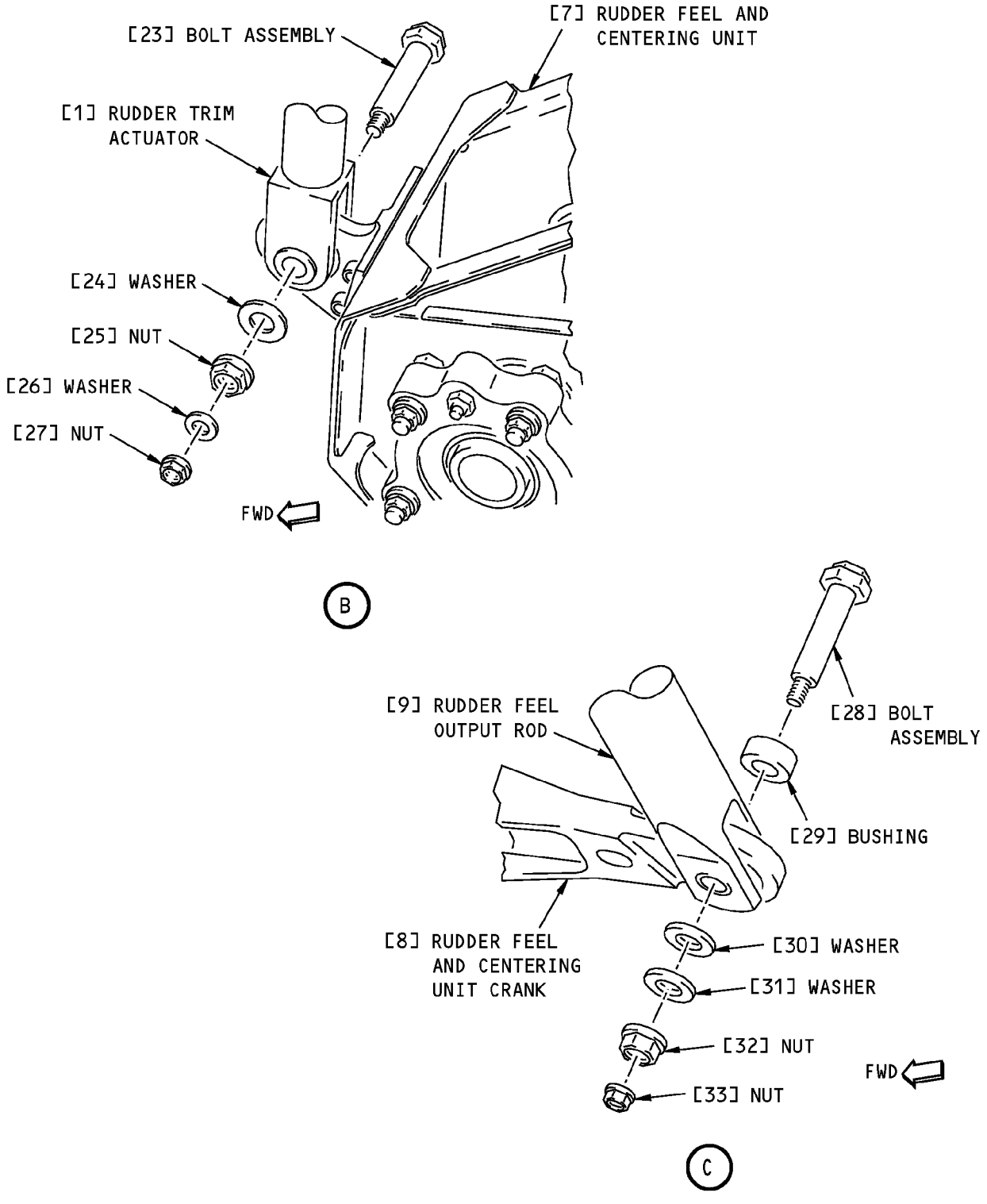

Rudder Feel and Centering Unit Installation
Figure 402 (Sheet 2 of 2)/27-21-82-990-802

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TASK 27-21-82-400-801

3. Rudder Feel and Centering Unit Installation

(Figure 401, Figure 402)

A. References

Reference	Title
12-22-21-600-802	Spring Slider Shaft Lubrication (P/B 301)
27-21-00-700-816-001	Rudder Pedal Forces Test (P/B 501)
27-21-00-700-816-002	Rudder Pedal Forces Test (P/B 501)
27-21-00-700-817-001	Rudder Travel Test (P/B 501)
27-21-00-700-817-002	Rudder Travel Test (P/B 501)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
112A	Forward Access Door
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel
324BL	Vertical Fin, Trailing Edge Access
324DL	Trailing Edge Access
324DR	Vertical Fin, Trailing Edge Access

E. Rudder Feel and Centering Unit Installation

SUBTASK 27-21-82-640-001

(1) Lubricate the spring slider shaft. To lubricate it, do this task: Spring Slider Shaft Lubrication, TASK 12-22-21-600-802.

SUBTASK 27-21-82-420-001

(2) Install the rudder feel and centering unit [7]:

(a) Install the bolts [11], washers [12], and nuts [13] to attach the lower bearing housing [10] to the support bracket [18].

(b) Put the rudder feel and centering unit [7] and support bracket [18] in their positions.

(c) Install the support bracket [18]:

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1) Install the bolts [19], washers [20] (under the bolt), washers [21] (under the nut), and nuts [22].

2) Install the bolts [14], washers [15] (under the bolt), washers [16] (under the nut), and nuts [17].

(d) Install the bolts [4], washers [5], and nuts [6] to attach the upper bearing housing [2] and plate [3] to the airplane structure.

SUBTASK 27-21-82-210-001

(3) Examine the feel output rod [9] for damage.

NOTE: The feel output rod has two load paths.

SUBTASK 27-21-82-420-002

(4) Connect the feel and centering unit crank [8] to the rudder feel output rod [8]:

(a) Install the bolt assembly [28], bushing [29], washer [30], washer [31], and nut [32].

1) Tighten the nut [32] to 45-60 pound-inches (5.1-6.8 newton-meters).

CAUTION: DO NOT TRY TO TIGHTEN THE NUT [32] AGAIN AFTER YOU TIGHTEN THE NUT [33], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Install the nut [33].

1) Tighten the nut [33] to 12-15 pound-inches (1.3-1.7 newton-meters).

SUBTASK 27-21-82-480-002

(5) Install the rig pin R-5 of the rig pin kit, SPL-1585 from the rudder feel and centering unit [7].

SUBTASK 27-21-82-420-003

(6) Connect the rudder trim actuator [1] to the rudder feel and centering unit [7]:

(a) Install the bolt assembly [23], washer [24], and nut [25].

1) Tighten the nut [25] to 85-100 pound-inches (9.6-11.3 newton-meters).

CAUTION: DO NOT TRY TO TIGHTEN THE NUT [25] AGAIN AFTER YOU TIGHTEN THE NUT [27], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Install the washer [26] and nut [27].

(c) Tighten the nut [27] to 30-35 pound-inches (3.9-4.0 newton-meters).

SUBTASK 27-21-82-080-001

(7) Remove the rig pins R-3 or R-4 of the rig pin kit, SPL-1585 from the rudder forward quadrants.

SUBTASK 27-21-82-080-002

(8) Remove the rig pin R-5 of the rig pin kit, SPL-1585 from the rudder feel and centering unit.

F. Rudder Feel and Centering Unit Test

SUBTASK 27-21-82-020-002

(1) Disconnect the steering for the nose landing gear from the rudder system

NOTE: It is not necessary to disconnect the steering if the airplane is on jacks and the nose landing gear is fully extended.

SUBTASK 27-21-82-860-004

(2) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-82-700-001

(3) Test the Feel and Centering System:

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(a) Operate the rudder pedals through their full travel range three times.

(b) Make sure the rudder trim indicator shows zero units of trim.

(c) Push the captain's left rudder pedal forward approximately 0.5 inch and release it.

1) Make sure each side of the rudder trailing edge aligns with the tab on the rudder index plate.

(d) Push the captain's right rudder pedal forward approximately 0.5 inch and release it.

1) Make sure each side of the rudder trailing edge aligns with the tab on the rudder index plate.

SUBTASK 27-21-82-420-004

(4) Connect the steering for the nose landing gear to the rudder system if it disconnects.

SUBTASK 27-21-82-730-002

(5) Do this task: Rudder Pedal Forces Test, TASK 27-21-00-700-816-001 or Rudder Pedal Forces Test, TASK 27-21-00-700-816-002.

SUBTASK 27-21-82-730-001

(6) Do this task: Rudder Travel Test, TASK 27-21-00-700-817-001 or Rudder Travel Test, TASK 27-21-00-700-817-002.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-82-860-005

(1) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

SUBTASK 27-21-82-410-004

(2) Install this access panel:

Number	Name/Location
324DR	Vertical Fin, Trailing Edge Access

SUBTASK 27-21-82-410-003

(3) Install this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-82-410-001

(4) Install this access panel:

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access

SUBTASK 27-21-82-010-004

(5) Install these access panels:

Number	Name/Location
113AC	Fwd Nose Wheel Well Upper Access Panel
114AC	Fwd Nose Wheel Well Upper Access Panel

and .

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SUBTASK 27-21-82-410-002

(6) Close this access panel:

Number	Name/Location
112A	Forward Access Door

——————— END OF TASK ———————

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RUDDER TRIM ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the rudder trim actuator

(2) An installation of the rudder trim actuator.

TASK 27-21-87-000-801

2. Rudder Trim Actuator Removal

(Figure 401)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

C. Access Panels

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access

D. Prepare for the Removal

SUBTASK 27-21-87-860-001

(1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	16	C00788	FLIGHT CONTROL TRIM IND RUD
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

SUBTASK 27-21-87-860-002

(2) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-87-010-001

(3) Open this access panel:

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access

E. Rudder Trim Actuator Removal

SUBTASK 27-21-87-020-001

(1) Remove the rudder trim actuator [1]:

(a) Disconnect the electrical connector [9] from the rudder trim actuator [1].

(b) Remove the nut [4], washer [5], nut [6], washer [7], and bolt assembly [3] to disconnect the rudder feel and centering unit [2] from the rudder trim actuator [1].

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(c) Remove the nut [10], washer [11], nut [12], washer [13], bushing [14], and bolt [8] that attach the rudder trim actuator [1] to the airplane structure.

(d) Remove the rudder trim actuator [1] from the airplane.

END OF TASK

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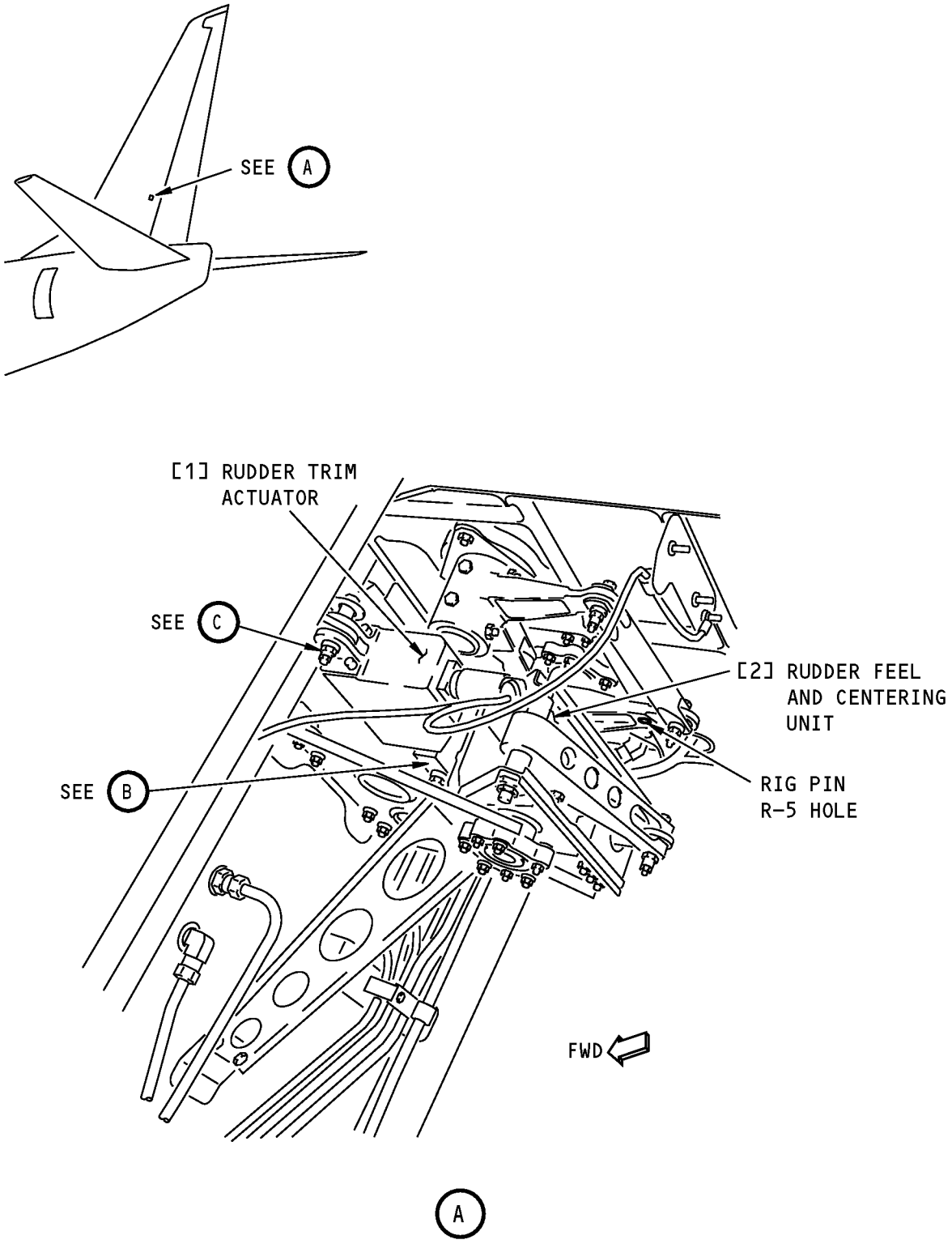

Rudder Trim Actuator Installation
Figure 401 (Sheet 1 of 2)/27-21-87-990-801

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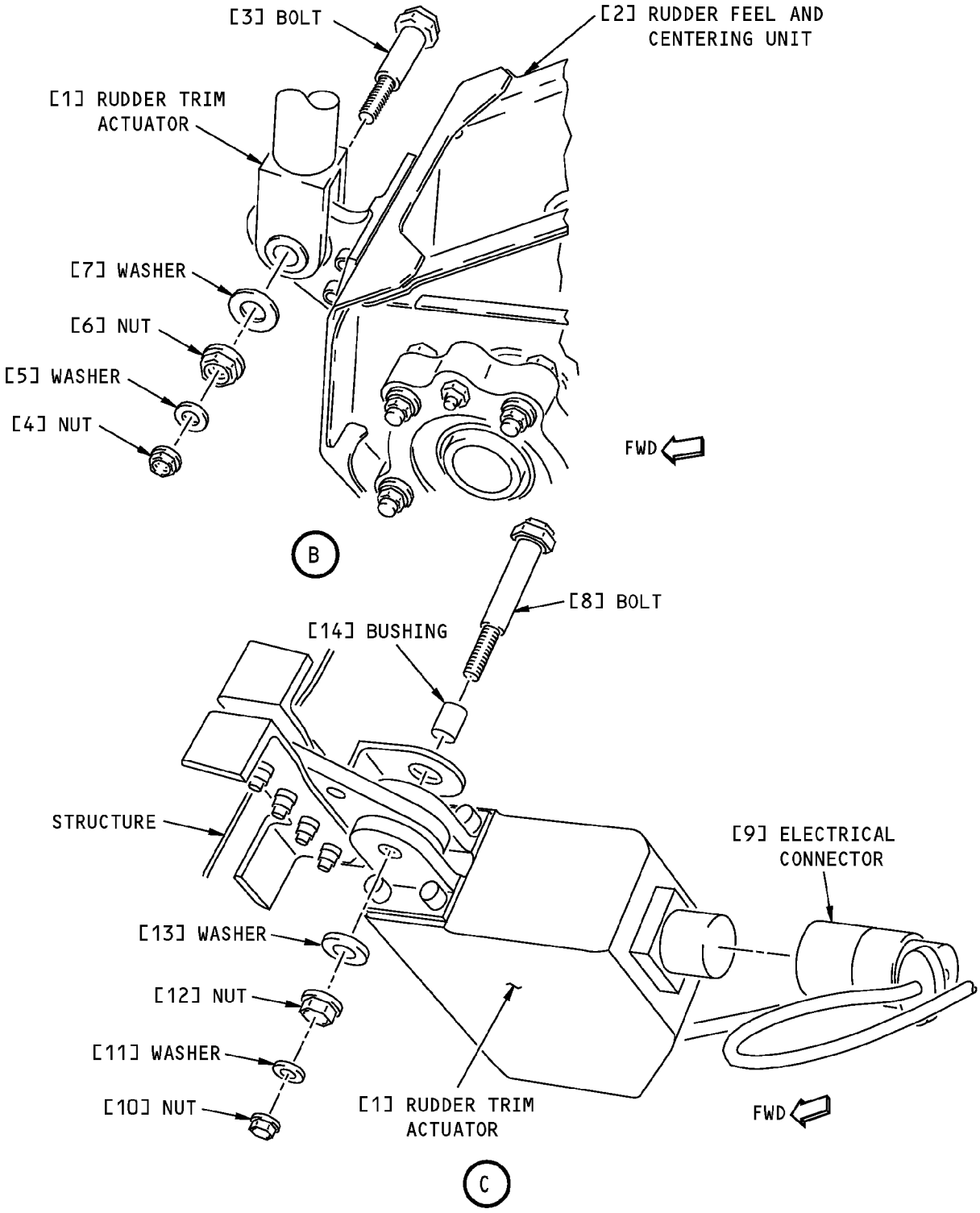

Rudder Trim Actuator Installation
Figure 401 (Sheet 2 of 2)/27-21-87-990-801

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TASK 27-21-87-400-801

3. Rudder Trim Actuator Installation

(Figure 401)

A. References

Reference	Title
27-11-94-990-801	Figure: Aileron/Rudder Trim Control Module (P/B 401)
27-21-00-700-817-001	Rudder Travel Test (P/B 501)
27-21-00-700-817-002	Rudder Travel Test (P/B 501)
27-21-00-700-819-001	Rudder Trim System Test (P/B 501)
27-21-00-700-819-002	Rudder Trim System Test (P/B 501)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access

E. Rudder Trim Actuator Installation

(Figure 401)

SUBTASK 27-21-87-860-003

(1) Make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	16	C00788	FLIGHT CONTROL TRIM IND RUD
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

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SUBTASK 27-21-87-860-004

(2) Make sure that you remove pressure from the rudder hydraulic systems A and B. To remove them, do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-87-420-001

(3) Install the rudder trim actuator [1]:

(a) Install the bolt assembly [8], bushing [14], washer [13], and nut [12] to connect the rudder trim actuator [1] to the airplane structure.

1) Tighten the nut [12] to 85-100 pound-inches (9.6-11.3 newton-meters).

CAUTION: DO NOT TRY TO TIGHTEN THE NUT [12] AGAIN AFTER YOU TIGHTEN THE NUT [10], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Install the washer [11] and nut [10].

1) Tighten the nut [10] to 30-35 pound-inches (3.9-4.0 newton-meters).

(c) Install the bolt assembly [3], washer [7], and nut [6] to connect the rudder trim actuator [1] to the rudder feel and centering unit [2].

1) Tighten the nut [6] to 85-100 pound-inches (9.6-11.3 newton-meters).

CAUTION: DO NOT TRY TO TIGHTEN THE NUT [6] AGAIN AFTER YOU TIGHTEN THE NUT [4], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(d) Install the washer [5] and nut [4].

1) Tighten the nut [4] to 30-35 pound-inches (3.9-4.0 newton-meters).

(e) Connect the electrical connector [9] to the rudder trim actuator [1].

SUBTASK 27-21-87-860-005

(4) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

SUBTASK 27-21-87-860-006

(5) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-87-860-007

(6) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	16	C00788	FLIGHT CONTROL TRIM IND RUD
D	19	C00787	FLIGHT CONTROL TRIM CONT RUD

SUBTASK 27-21-87-820-001

(7) Operate the rudder trim knob until you can install the rig pin R-5 from the rig pin kit, SPL-1585 to the rudder feel and centering unit [2].

SUBTASK 27-21-87-820-002

(8) If the rudder trim indicator reading is not 0.0 +/- 0.1 unit, turn the adjustment screw on the bottom of the rudder trim indicator until the pointer reads 0.0 +/- 0.1 unit
Figure 27-11-94-990-801.

SUBTASK 27-21-87-480-001

(9) Remove the rig pin R-5 from the rudder feel and centering unit [2].

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SUBTASK 27-21-87-730-001

(10) Do this task: Rudder Travel Test, TASK 27-21-00-700-817-001 or Rudder Travel Test, TASK 27-21-00-700-817-002.

SUBTASK 27-21-87-730-002

(11) Do this task: Rudder Trim System Test, TASK 27-21-00-700-819-001 or Rudder Trim System Test, TASK 27-21-00-700-819-002.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-21-87-860-008

(1) If it is necessary, do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

SUBTASK 27-21-87-410-001

(2) Install this access panel:

Number	Name/Location
324BL	Vertical Fin, Trailing Edge Access

END OF TASK

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MAIN RUDDER POWER CONTROL UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the main rudder power control unit (PCU)

(2) An installation of the main rudder PCU

(3) A removal of the main rudder PCU load limiter solenoid valve

(4) An installation of the main rudder PCU load limiter solenoid valve.

TASK 27-21-91-000-804-001

2. Main Rudder Power Control Unit Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1727	Lock - Ground, Rudder, PCU Removed (Part #: C27057-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1732	Equipment - Removal/Installation, Rudder PCU (Part #: C27049-36, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27049-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

E. Prepare for the Removal

SUBTASK 27-21-91-860-020-001

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

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SUBTASK 27-21-91-860-021-001

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-91-010-006-001

(3) To get access to the main rudder PCU, do this task:

Remove this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-91-010-007-001

(4) To get access to the rudder feel and centering unit, do this task:

Open this access panel:

Number	Name/Location
324CL	Vertical Fin, Access

SUBTASK 27-21-91-480-008-001

(5) Install the rig pin R-5 from rig pin kit, SPL-1585 in the rudder feel and centering unit (Figure 401).

F. Main Rudder PCU Removal

SUBTASK 27-21-91-020-019-001

CAUTION: MAKE SURE THAT YOU REMOVE THE VERNIER CONTROL ROD [8] BEFORE YOU REMOVE THE MAIN RUDDER . FAILURE TO REMOVE THE VERNIER CONTROL ROD [8] FIRST CAN CAUSE DAMAGE TO THE VERNIER CONTROL ROD [8].

(1) Remove the vernier control rod [8]:

(a) Remove the nuts [7], washers [6], washers [5], and bolt assemblies [4] to disconnect the vernier control rod [8] from the external summing lever [3] and rudder actuator input crank [10].

(b) Remove the vernier control rod [8] from the airplane.

SUBTASK 27-21-91-480-009-001

(2) Install the equipment, SPL-1732 (Figure 402):

(a) Install the bracket assembly [56] with screws [51] and washers [52] to the vertical fin.

1) Tighten the screws [51] to 18-25 pound-inches (2.0-2.8 newton-meters).

(b) Install the beam assembly [55] with screws [53] and washers [54] to the main rudder pcu installation [1].

1) Tighten the screw [53] to 45-60 pound-inches (5.0-6.8 newton-meters).

(c) Install the arm assembly [58] to the bracket assembly [56].

SUBTASK 27-21-91-020-020-001

(3) Remove the nut [32], washer [31], nut [30], washer [29], and bolt assembly [28] to disconnect the rod assembly [2] from the rudder.

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SUBTASK 27-21-91-020-021-001

CAUTION: MAKE SURE THAT YOU HOLD THE MAIN RUDDER DURING THE REMOVAL OF THE FORWARD MANIFOLD [11]. THE PCU CAN FALL. THIS CAN CAUSE DAMAGE TO THE MAIN RUDDER .

(4) Remove the nut [27], washer [26], nut [25], washer [24], washer [34], bushing [23], and bolt assembly [22] to disconnect the forward manifold [11] from vertical fin structure.

SUBTASK 27-21-91-480-010-001

(5) Install the lock, SPL-1727 to hold the rudder in its position.

SUBTASK 27-21-91-020-022-001

(6) Disconnect the electrical connectors [9] from the main rudder pcu installation [1].

SUBTASK 27-21-91-020-023-001

(7) Disconnect the hydraulic lines from the main rudder pcu installation [1].

(a) Put a 1 U.S.-gal (3.81 l) oil resistant container, STD-203container below the hydraulic connections.

(b) Disconnect the return line hydraulic system A [12] from the main rudder pcu installation [1]. Discard the packing [20].

(c) Disconnect the pressure line hydraulic system A [21] from the main rudder pcu installation [1]. Discard the packing [18].

(d) Disconnect the return line hydraulic system B [14] from the main rudder pcu installation [1]. Discard the packing [16].

(e) Disconnect the pressure line hydraulic system B [13] from the main rudder pcu installation [1]. Discard the packing [18].

(f) Install the plugs and caps to the hydraulic lines and ports.

(g) Install a tag on the hydraulic lines to make sure you install them correctly.

SUBTASK 27-21-91-020-024-001

(8) Use a 200 pounds (90.7 kilograms) fishpole to remove the main rudder pcu installation [1] from the airplane.

——————— END OF TASK ———————

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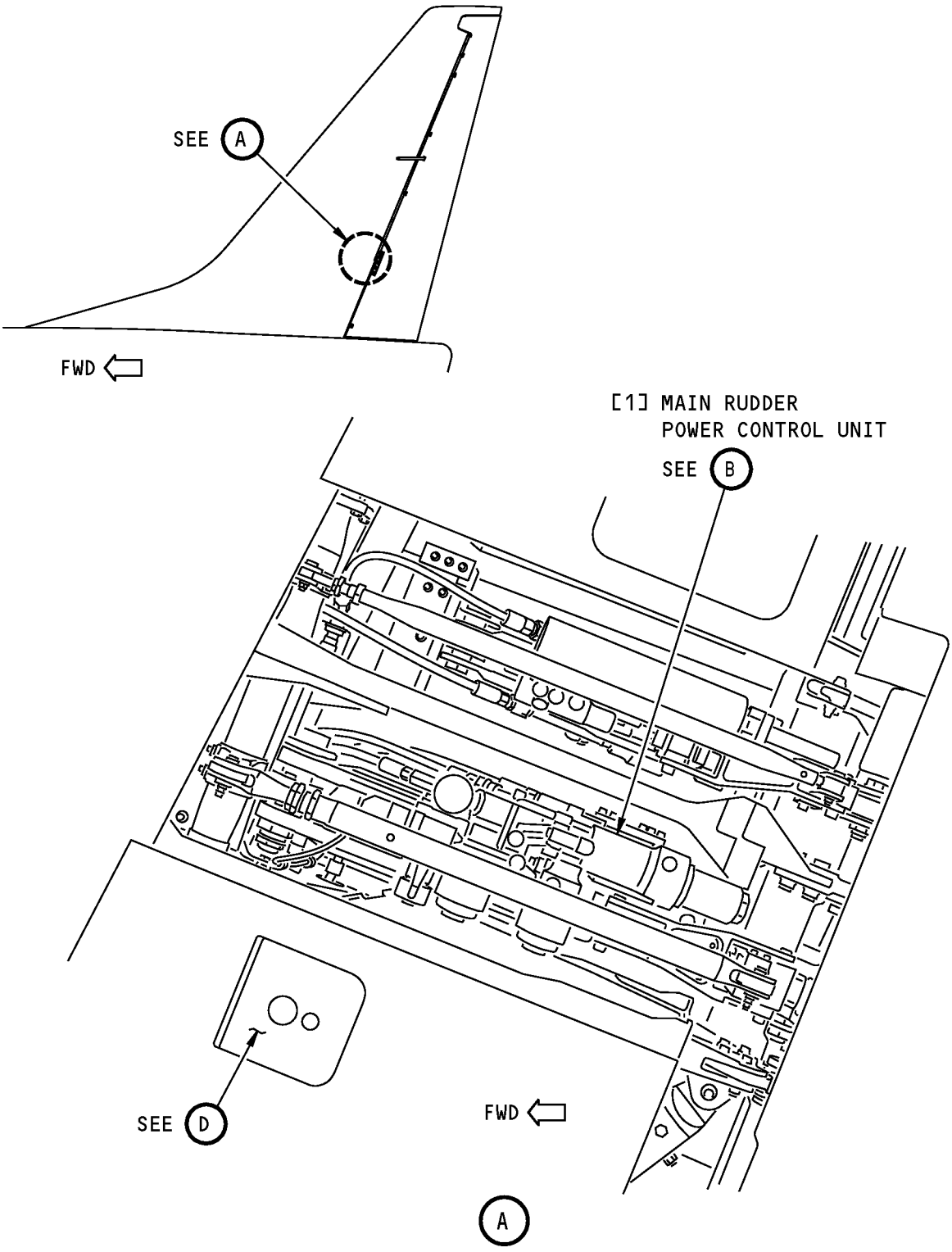

Main Rudder Power Control Unit Installation
Figure 401 (Sheet 1 of 4)/27-21-91-990-806-001

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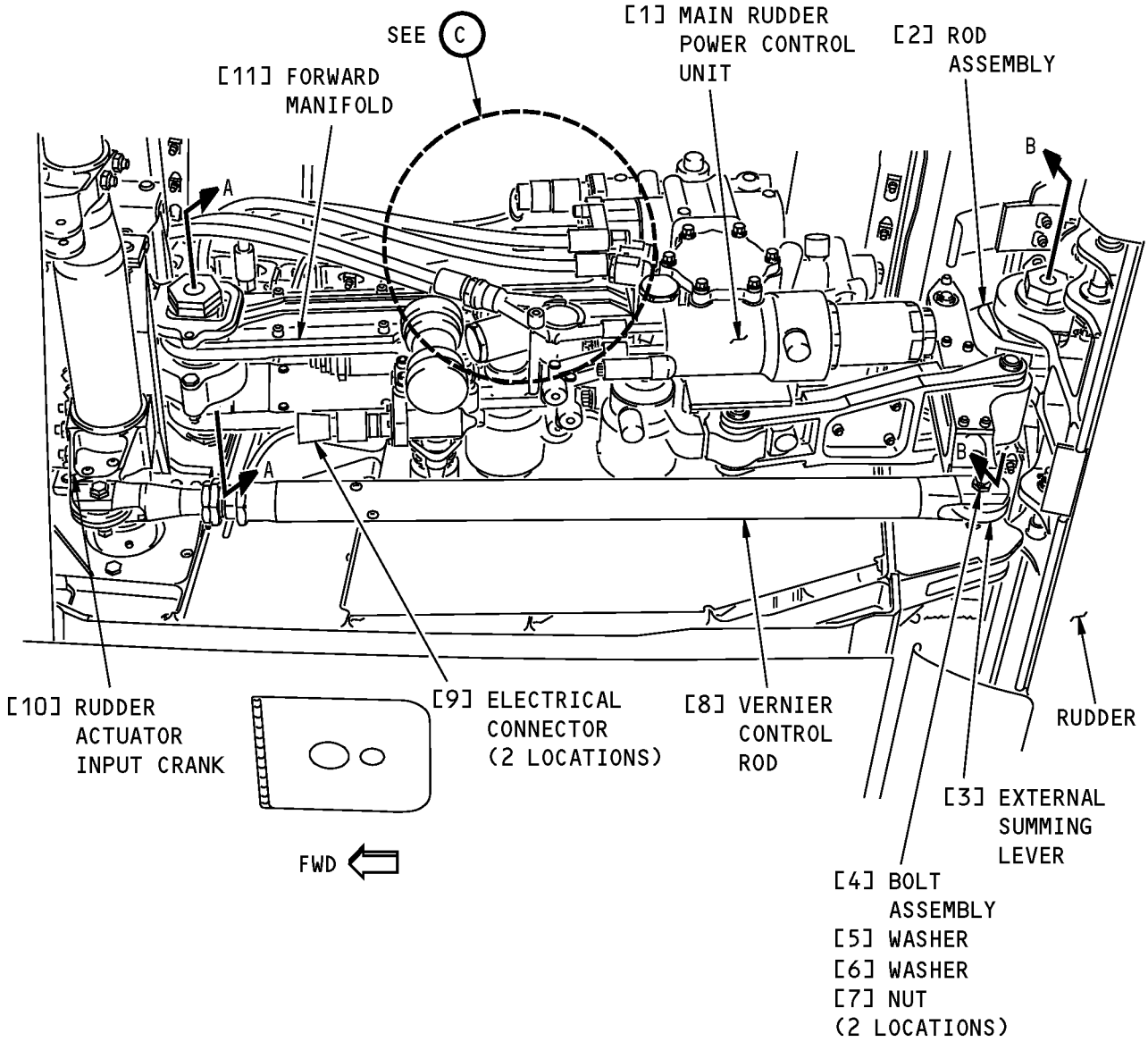

Main Rudder Power Control Unit Installation
Figure 401 (Sheet 2 of 4)/27-21-91-990-806-001

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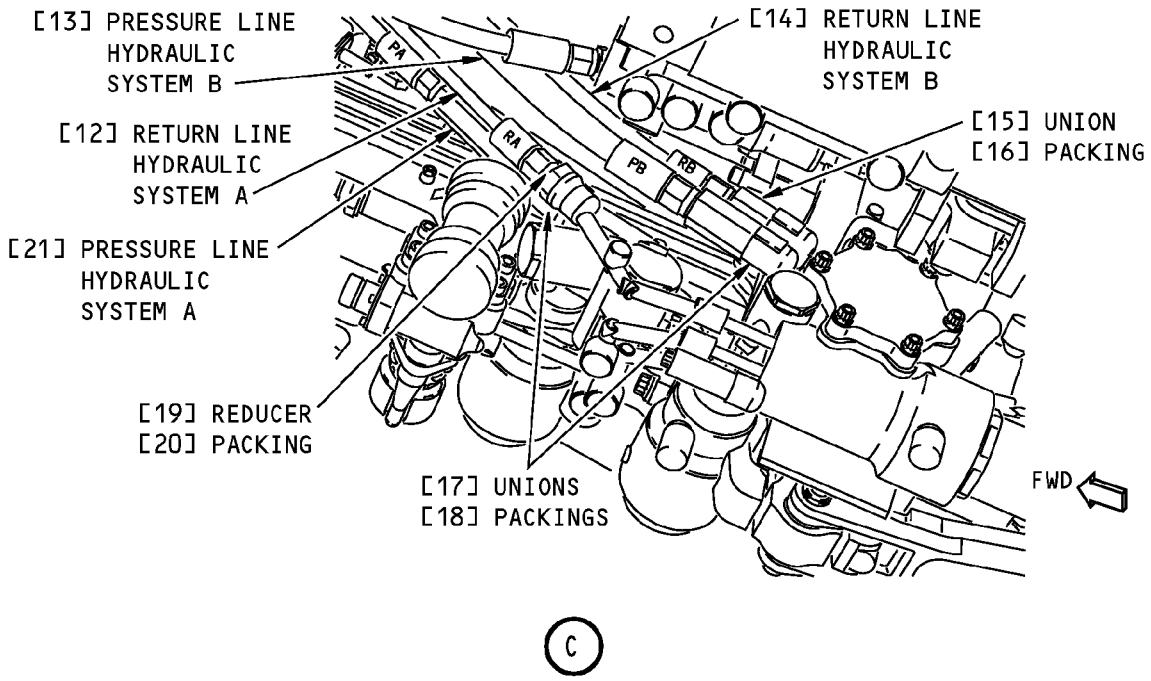

Main Rudder Power Control Unit Installation
Figure 401 (Sheet 3 of 4)/27-21-91-990-806-001

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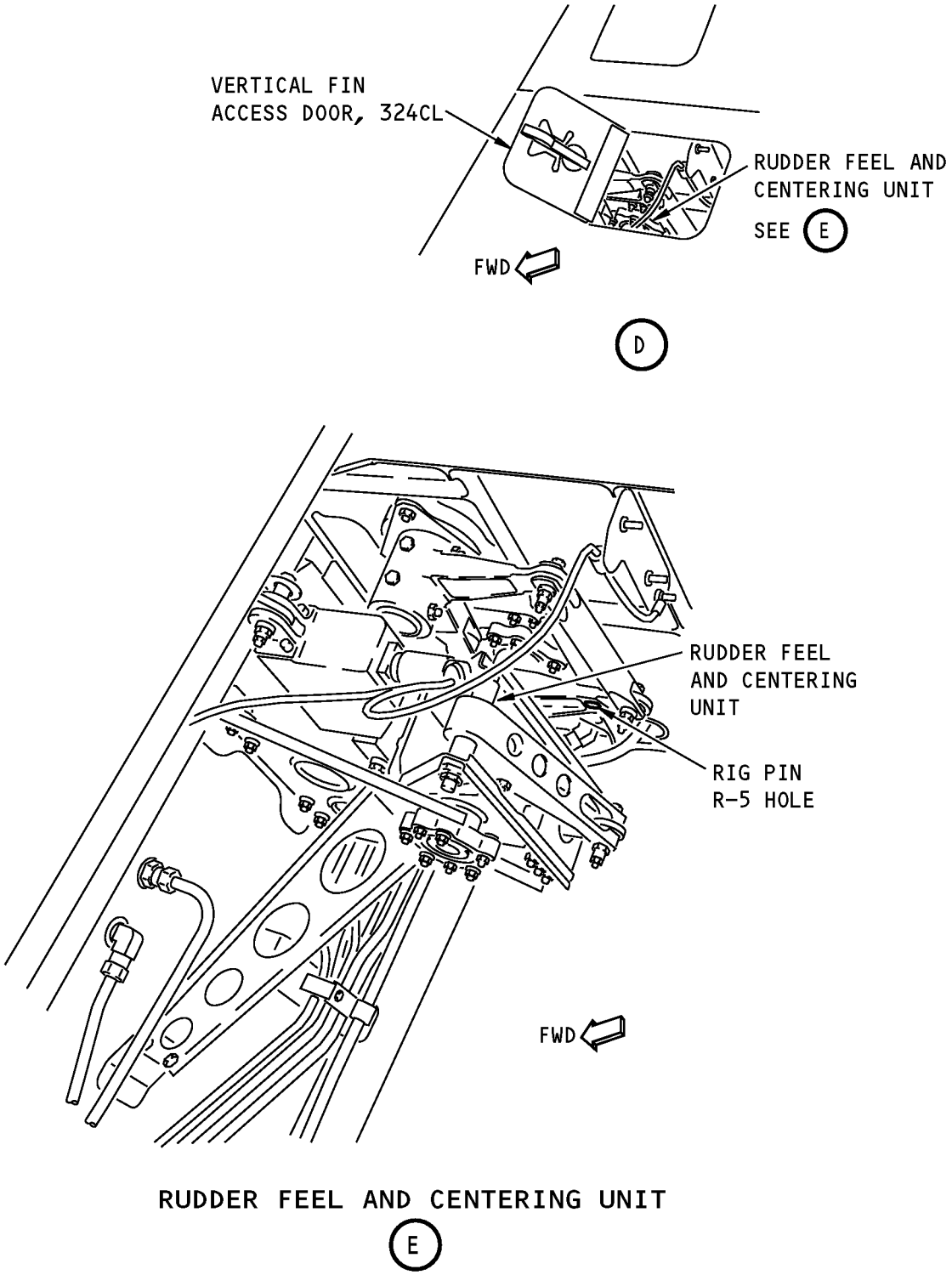

Main Rudder Power Control Unit Installation
Figure 401 (Sheet 4 of 4)/27-21-91-990-806-001

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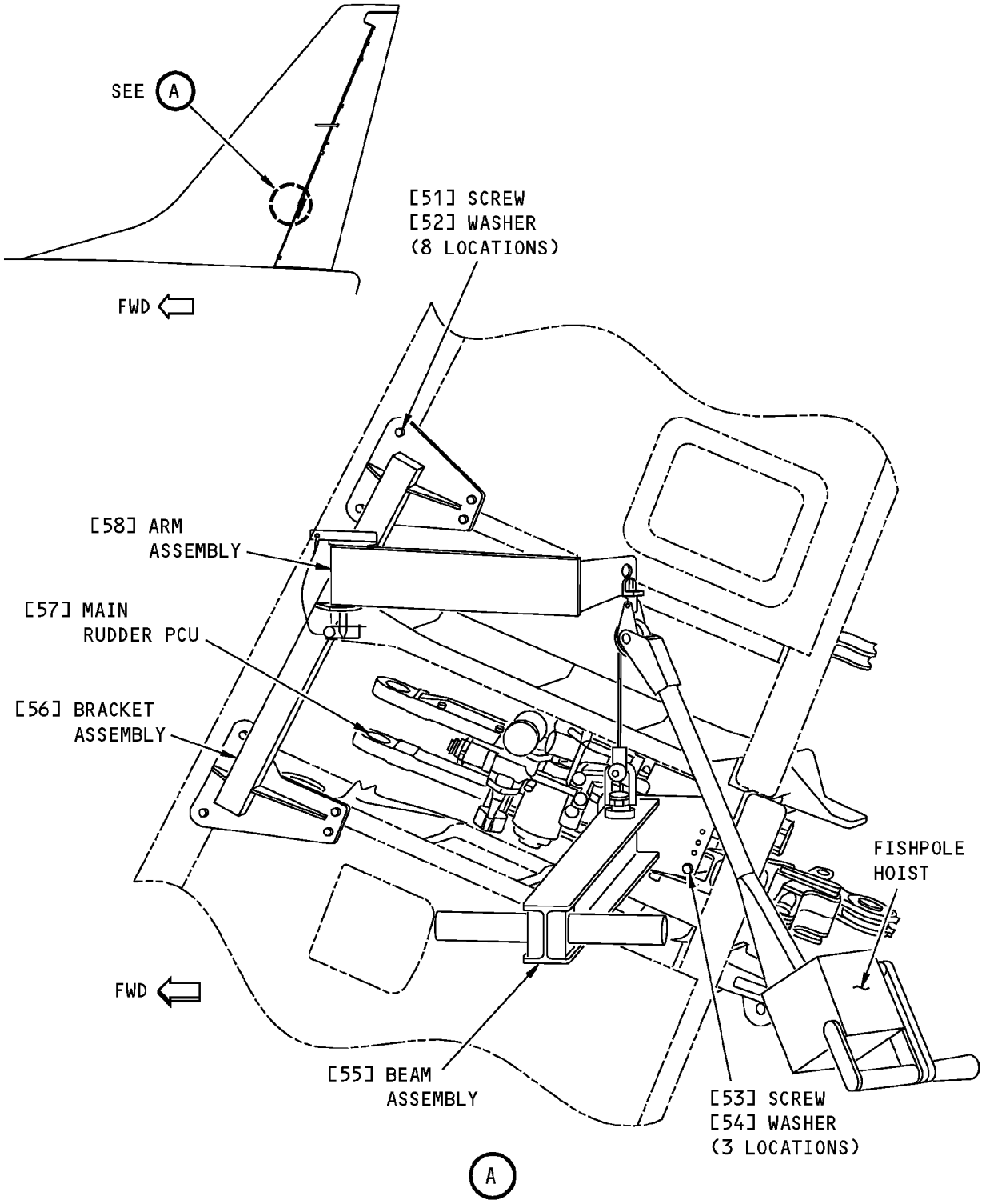

Main Rudder PCU Tool Installation
Figure 402/27-21-91-990-807-001

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TASK 27-21-91-400-804-001

3. Main Rudder Power Control Unit Installation

(Figure 401, Figure 402)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-21-00-700-814-001	Rudder Hinge Bearing and PCU Bearing Freeplay (P/B 501)
27-21-00-700-815-001	Rudder Centering Test (P/B 501)
27-21-00-700-816-001	Rudder Pedal Forces Test (P/B 501)
27-21-00-700-817-001	Rudder Travel Test (P/B 501)
27-21-00-700-821-001	Authority Limiter Test (P/B 501)
27-21-00-700-823-001	Rudder Hinge Friction Test (P/B 501)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-820-809-001	Control Rod for Main Rudder Power Control Unit Adjustment (P/B 501)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1727	Lock - Ground, Rudder, PCU Removed (Part #: C27057-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1731	Equipment - Torque Wrench, Rudder PCU Attachment (Part #: C27042-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1732	Equipment - Removal/Installation, Rudder PCU (Part #: C27049-36, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27049-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

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D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

E. Access Panels

Number	Name/Location
324CL	Vertical Fin, Access
324DL	Trailing Edge Access

F. Main Rudder PCU Installation

SUBTASK 27-21-91-080-006-001

(1) Remove the lock, SPL-1727.

SUBTASK 27-21-91-480-011-001

(2) Install the equipment, SPL-1732 to the main rudder pcu installation [1] (Figure 402).

SUBTASK 27-21-91-420-005-001

CAUTION: MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO INSTALL THE MAIN RUDDER CAREFULLY AND DO THE PROCEDURE IN THE SPECIFIED SEQUENCE. DAMAGE TO THE VERNIER CONTROL ROD [9] MAY OCCUR IF YOU DO NOT FOLLOW THE INSTRUCTIONS CORRECTLY.

(3) Install the main rudder pcu installation [1] (Figure 401):

(a) Use a 200 pounds (90.7 kilograms) fishpole to put the main rudder pcu installation [1] in its position with the forward manifold [11] in the forward direction.

(b) Connect the forward manifold [11] to the vertical fin structure:

1) Install the washer [34], bushing [23], bolt assembly [22], washer [24], and nut [25].

2) Use the equipment, SPL-1731 to tighten the nut [25] to 1000-1200 pound-inches (113.0-135.6 newton-meters).

3) Install the washer [26] and nut [27].

CAUTION: DO NOT TIGHTEN THE NUT [25] AFTER YOU TIGHTEN THE NUT [27]. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

4) Tighten the nut [27] to 650-800 pound-inches (73.4-90.4 newton-meters).

(c) Connect the rod assembly [2] to the rudder:

1) Install the bolt assembly [28], washer [29], and nut [30].

2) Tighten the nut [30] to 900-1050 pound-inches (101.7-118.6 newton-meters).

3) Install the washer [31] and nut [32].

CAUTION: DO NOT TIGHTEN THE NUT [30] AFTER YOU TIGHTEN THE NUT [32]. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

4) Tighten the nut [32] to 450-550 pound-inches (50.8-62.1 newton-meters).

SUBTASK 27-21-91-080-007-001

(4) Remove the equipment, SPL-1732 from the main rudder pcu installation [1]:

(a) Remove the screws [53] and washers [54] from the beam assembly [55].

(b) Remove the screws [51] and washers [52] from the bracket assembly [56].

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(c) Remove the bracket assembly [56] and beam assembly [55].

SUBTASK 27-21-91-420-006-001

(5) Install the vernier control rod [8]:

(a) Put the vernier control rod [8] in its position with the vernier adjustment end in the forward direction.

(b) Make sure that you can see 7 +/- 1 threads on the forward end of the rod and the sleeve.

(c) Connect the vernier control rod [8] to the external summing lever [3] and rudder actuator input crank [10]:

1) Install the bolt assemblies [4] and washers [5].

2) Tighten the outer bolt of the bolt assemblies [4] to 70-85 pound-inches (7.9-9.6 newton-meters).

3) Install the washers [6] and nuts [7].

CAUTION: DO NOT TIGHTEN THE OUTER BOLT OF THE BOLT ASSEMBLY [4] AFTER YOU TIGHTEN THE NUT [7]. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

4) Tighten the nuts [7] to 25-30 pound-inches (2.8-3.4 newton-meters).

SUBTASK 27-21-91-020-025-001

CAUTION: MAKE SURE THAT YOU CORRECTLY INSTALL THE HYDRAULIC LINES TO THE MAIN RUDDER PCU. MAKE SURE THAT CORRECT UNIONS ARE INSTALLED IN THE HYDRAULIC PORTS. YOU CAN CAUSE DAMAGE TO THE MAIN RUDDER PCU.

(6) Connect the hydraulic lines to the main rudder pcu installation [1]:

(a) Remove the caps and plugs from the hydraulic lines and ports.

(b) If the main rudder pcu installation [1] does not have unions and packings installed, then do these steps:

1) Apply fluid, D00153 to the unions, reducer and packings.

2) Install the unions [15] and new packings [16].

3) Install the unions [17] and new packings [18].

4) Install the reducer [19] and new packing [20].

(c) Connect the return line hydraulic system A [12] to the main rudder pcu installation [1].

(d) Connect the pressure line hydraulic system A [21] to the main rudder pcu installation [1].

(e) Connect the return line hydraulic system B [14] to the main rudder pcu installation [1].

(f) Connect the pressure line hydraulic system B [13] to the main rudder pcu installation [1].

(g) Remove the 1 U.S.-gal (3.81 l) oil resistant container, STD-203container placed below the hydraulic connections.

SUBTASK 27-21-91-020-026-001

(7) Connect the electrical connectors [9] to the main rudder pcu installation [1].

SUBTASK 27-21-91-080-008-001

(8) Remove the rig pin R-5 from the rig pin kit, SPL-1585 from the rudder feel and centering unit.

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SUBTASK 27-21-91-860-022-001

(9) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-91-860-023-001

(10) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

SUBTASK 27-21-91-860-024-001

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(11) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-91-870-003-001

(12) Move the rudder pedals to bleed the main rudder PCU until the movement of the rudder is smooth.

SUBTASK 27-21-91-790-003-001

(13) Examine the hydraulic connections for leakage.

SUBTASK 27-21-91-860-025-001

(14) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

SUBTASK 27-21-91-820-005-001

(15) Do this task: Control Rod for Main Rudder Power Control Unit Adjustment, TASK 27-21-00-820-809-001.

SUBTASK 27-21-91-730-012-001

(16) Do this task: Rudder Pedal Forces Test, TASK 27-21-00-700-816-001.

SUBTASK 27-21-91-730-013-001

(17) Do this task: Rudder Hinge Friction Test, TASK 27-21-00-700-823-001.

SUBTASK 27-21-91-730-014-001

(18) Do this task: Rudder Hinge Bearing and PCU Bearing Freeplay, TASK 27-21-00-700-814-001.

SUBTASK 27-21-91-730-015-001

(19) Do this task: Rudder Centering Test, TASK 27-21-00-700-815-001.

SUBTASK 27-21-91-730-016-001

(20) Do this task: Rudder Travel Test, TASK 27-21-00-700-817-001.

SUBTASK 27-21-91-730-017-001

(21) Do this task: Authority Limiter Test, TASK 27-21-00-700-821-001.

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G. Put the Airplane Back to Its Initial Condition

SUBTASK 27-21-91-410-008-001

(1) Install this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-91-410-009-001

(2) Close this access panel:

Number	Name/Location
324CL	Vertical Fin, Access

SUBTASK 27-21-91-410-010-001

(3) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

END OF TASK

TASK 27-21-91-000-805-001

4. Main Rudder PCU Load Limiter Solenoid Valve Removal

(Figure 403)

A. General

(1) There is two solenoid valves and one transfer valve installed on the main rudder PCU. For the transfer valve and yaw damper solenoid, refer to AMM 22-23-21/401.

(2) The main rudder PCU load limiter solenoid valve is referred to as the "solenoid valve" in this procedure.

B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324DL	Trailing Edge Access

E. Prepare for the Removal

SUBTASK 27-21-91-860-026-001

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-91-860-027-001

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC

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Row	Col	Number	Name
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-91-010-008-001

(3) To get access to the main rudder, do this task:

Remove this access panel:

Number	Name/Location
324DL	Trailing Edge Access

F. Solenoid Valve Removal

SUBTASK 27-21-91-020-027-001

(1) Do these steps to remove the solenoid valve [71]:

(a) Remove the bolts [72] that attach the solenoid valve [71] to the main rudder pcu installation [1].

(b) Remove the seal plate [73].

(c) Remove the O-ring [74]. Discard the O-ring [74].

(d) Remove the solenoid valve [71].

(e) Put plugs on the main rudder PCU ports.

——————— END OF TASK ———————

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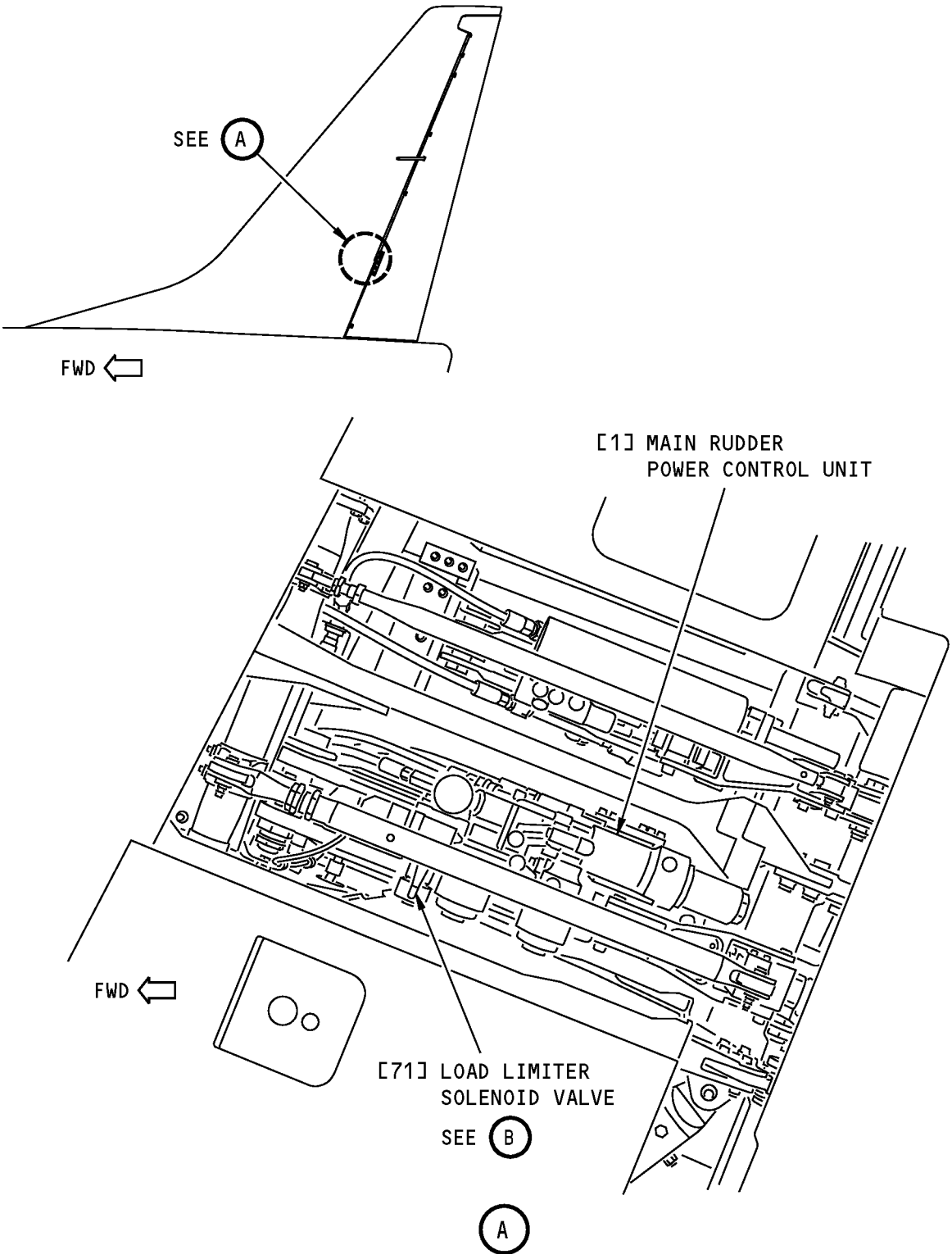

Main Rudder PCU Load Limiter Solenoid Valve Installation
Figure 403 (Sheet 1 of 2)/27-21-91-990-808-001

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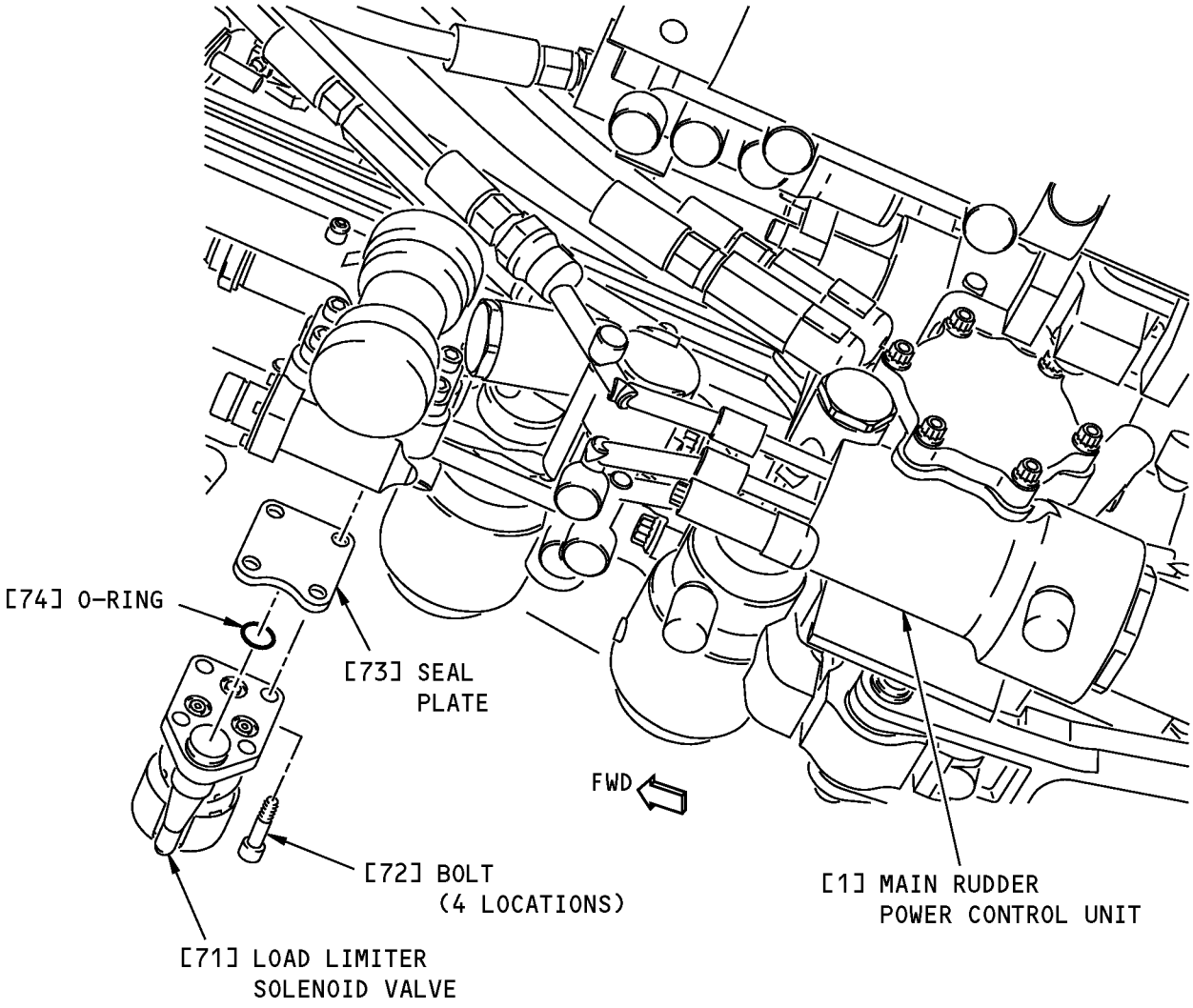

LOAD LIMITER SOLENOID VALVE

B

Main Rudder PCU Load Limiter Solenoid Valve Installation
Figure 403 (Sheet 2 of 2)/27-21-91-990-808-001

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TASK 27-21-91-400-805-001

5. Main Rudder PCU Load Limiter Solenoid Valve Installation

(Figure 403)

A. References

Reference	Title
27-21-00-700-821-001	Authority Limiter Test (P/B 501)
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324DL	Trailing Edge Access

E. Prepare for the Installation

SUBTASK 27-21-91-860-028-001

(1) Make sure you remove pressure from the rudder hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

F. Solenoid Valve Installation

SUBTASK 27-21-91-020-028-001

(1) Do these steps to install the solenoid valve [71]:

(a) Remove the plugs on the main rudder PCU ports.

(b) Clean the seal plate [73].

(c) Lubricate the new O-ring [74] with fluid, D00153.

(d) Install the new O-ring [74].

(e) Install the seal plate [73].

(f) Install the solenoid valve [71].

(g) Install the bolts [72] that attach the solenoid valve [71] to the main rudder PCU.

(h) Tighten the bolts [72] to 50-70 pound-inches (5.6-7.9 newton-meters).

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SUBTASK 27-21-91-860-029-001

(2) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

SUBTASK 27-21-91-860-030-001

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-91-710-002-001

(4) Do this task: Authority Limiter Test, TASK 27-21-00-700-821-001.

SUBTASK 27-21-91-410-011-001

(5) Install this access panel:

Number	Name/Location
324DL	Trailing Edge Access

——————— END OF TASK ———————

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MAIN RUDDER POWER CONTROL UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the main rudder power control unit (PCU)

(2) An installation of the main rudder PCU

(3) A removal of the main rudder PCU load limiter solenoid valve

(4) An installation of the main rudder PCU load limiter solenoid valve

TASK 27-21-91-000-803-002

2. Main Rudder Power Control Unit Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1727	Lock - Ground, Rudder, PCU Removed (Part #: C27057-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1732	Equipment - Removal/Installation, Rudder PCU (Part #: C27049-36, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27049-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. Location Zones

Zone	Area
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324DL	Trailing Edge Access

E. Prepare for the Removal

SUBTASK 27-21-91-860-012-002

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

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SUBTASK 27-21-91-860-013-002

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-91-860-018-002

(3) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	15	C01628	FLIGHT CONTROL FORCE FIGHT MON

SUBTASK 27-21-91-010-004-002

(4) To get access to the main rudder PCU, do this task:

Remove this access panel:

Number	Name/Location
324DL	Trailing Edge Access

F. Main Rudder PCU Removal

SUBTASK 27-21-91-020-011-002

CAUTION: MAKE SURE THAT YOU REMOVE THE CONTROL RODS [8] BEFORE YOU REMOVE THE MAIN RUDDER PCU [1]. FAILURE TO REMOVE THE CONTROL ROD [8] FIRST CAN CAUSE DAMAGE TO THE CONTROL ROD [8].

(1) Remove the control rods [8]:

(a) Remove the nuts [7], washers [6], washers [5], and bolts [4] to disconnect the control rods [8] from the external summing levers [3].

(b) Remove the nuts [44], washers [43], washers [42], and bolts [41] to disconnect the control rods [8] from the input cranks [10].

(c) Remove the control rods [8] from the airplane.

SUBTASK 27-21-91-480-005-002

(2) Install the equipment, SPL-1732 (Figure 402):

(a) Install the bracket assembly [56] with screws [51] and washers [52] to the vertical fin.

1) Tighten the screws [51] to 18-25 pound-inches (2.0-2.8 newton-meters).

(b) Install the beam assembly [55] with screws [53] and washers [54] to the main rudder PCU [1].

1) Tighten the screw [53] to 45-60 pound-inches (5.0-6.8 newton-meters).

(c) Install the arm assembly [58] to the bracket assembly [56].

SUBTASK 27-21-91-020-012-002

(3) Remove the nut [32], washer [31], nut [30], washer [29], and bolt assembly [28] to disconnect the rod assembly [2] from the rudder.

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SUBTASK 27-21-91-020-013-002

CAUTION: MAKE SURE THAT YOU HOLD THE MAIN RUDDER PCU [1] DURING THE REMOVAL OF THE FORWARD MANIFOLD [11]. THE PCU CAN FALL. THIS CAN CAUSE DAMAGE TO THE MAIN RUDDER PCU [1].

(4) Remove the nut [27], washer [26], nut [25], washer [24], washer [34], bushing [23], and bolt assembly [22] to disconnect the forward manifold [11] from vertical fin structure.

SUBTASK 27-21-91-480-006-002

(5) Install the lock, SPL-1727 to hold the rudder in its position.

SUBTASK 27-21-91-020-014-002

(6) Disconnect the electrical connectors [9] from the main rudder PCU [1].

SUBTASK 27-21-91-020-015-002

(7) Disconnect the hydraulic lines from the main rudder PCU [1].

(a) Put a 1 U.S.-gal (3.81 l) oil resistant container, STD-203container below the hydraulic connections.

(b) Disconnect the return line hydraulic system A [12] from the main rudder PCU [1].

(c) Disconnect the pressure line hydraulic system A [21] from the main rudder PCU [1].

(d) Disconnect the return line hydraulic system B [14] from the main rudder PCU [1].

(e) Disconnect the pressure line hydraulic system B [13] from the main rudder PCU [1].

(f) Install the plugs and caps to the hydraulic lines and ports.

(g) Install a tag on the hydraulic lines to make sure you install them correctly.

SUBTASK 27-21-91-020-016-002

(8) Use a 200 pounds (90.7 kilograms) fishpole to remove the main rudder PCU [1] from the airplane.

END OF TASK

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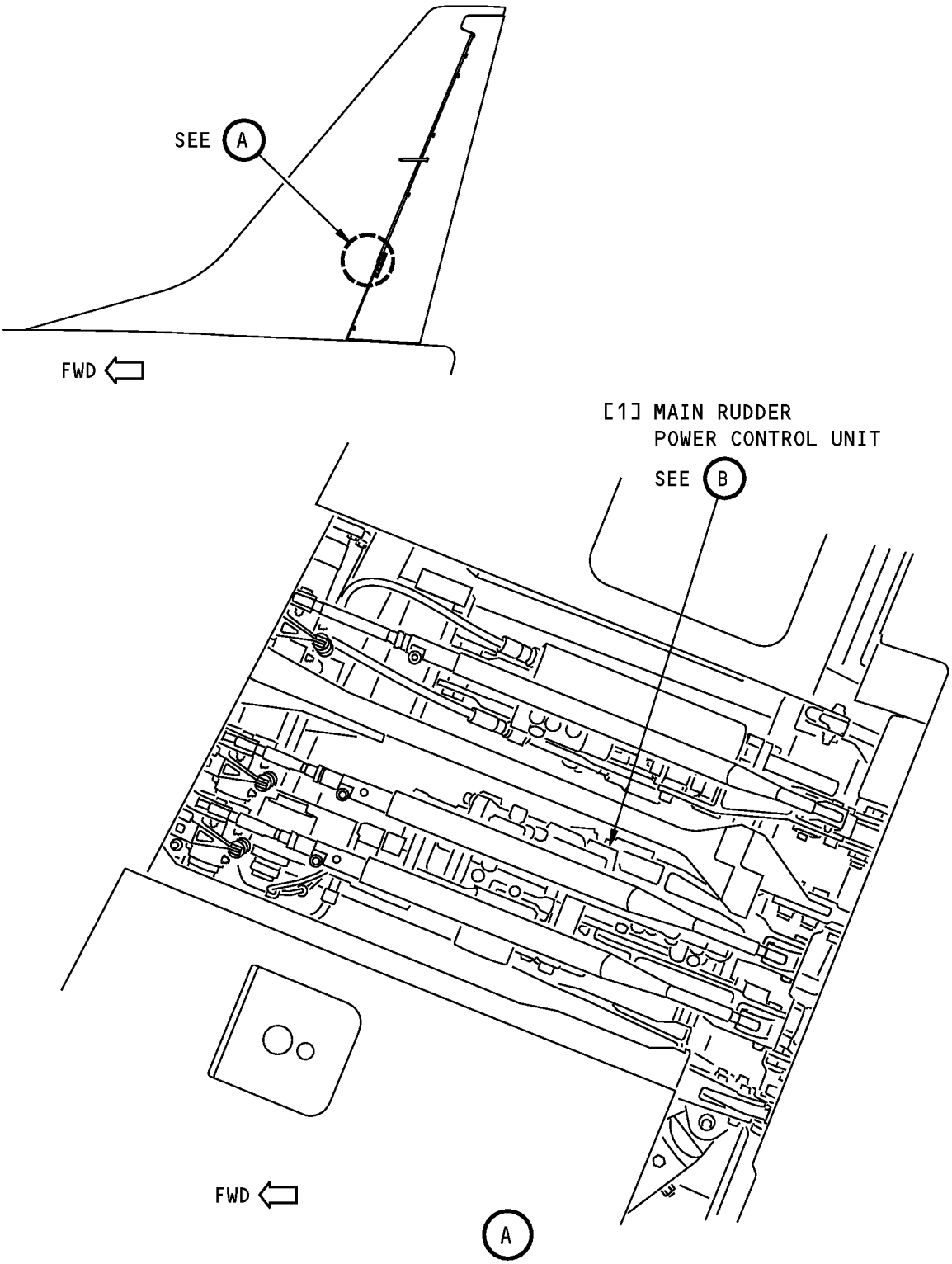

Main Rudder Power Control Unit Installation
Figure 401 (Sheet 1 of 3)/27-21-91-990-804-002

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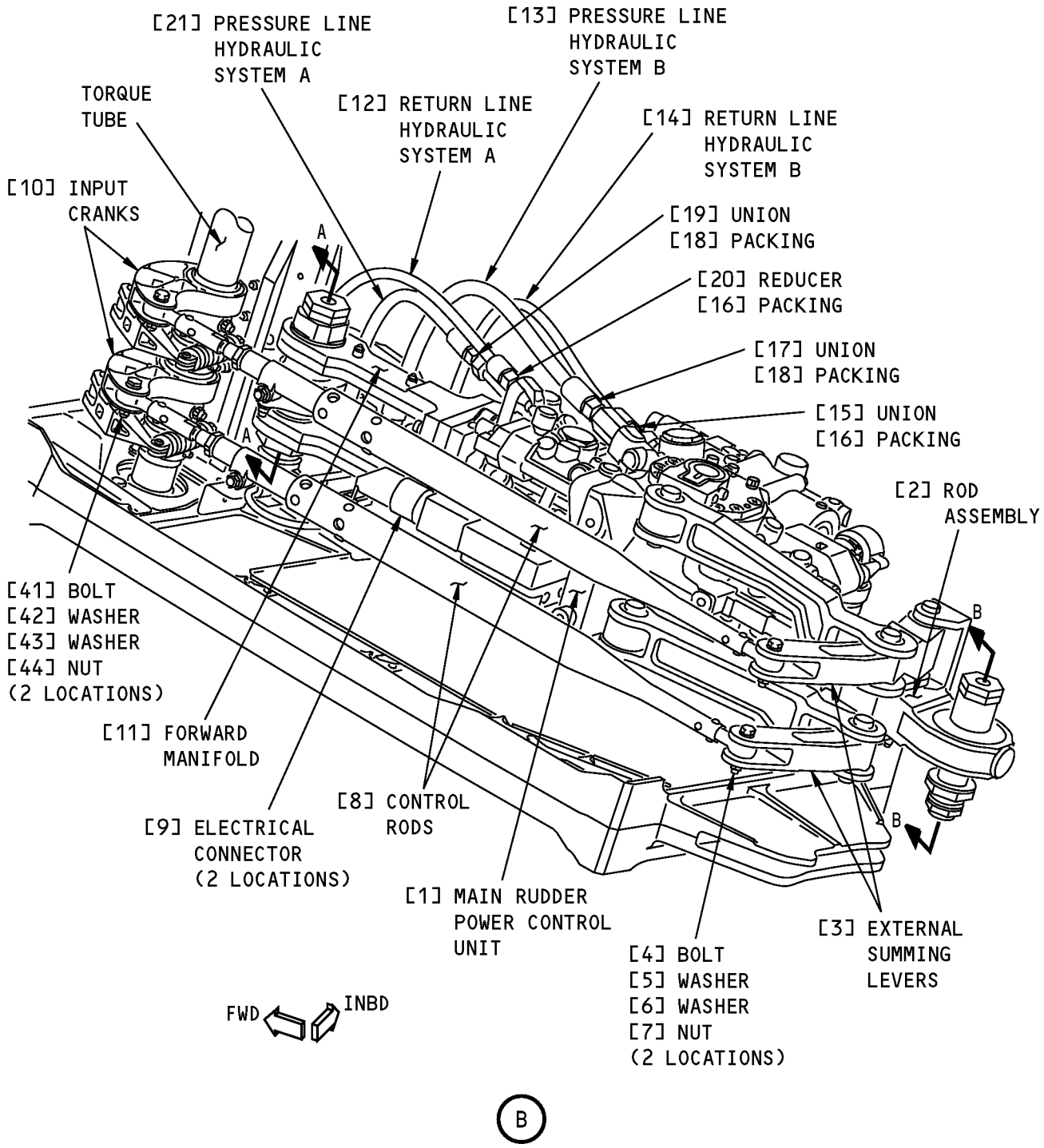

Main Rudder Power Control Unit Installation
Figure 401 (Sheet 2 of 3)/27-21-91-990-804-002

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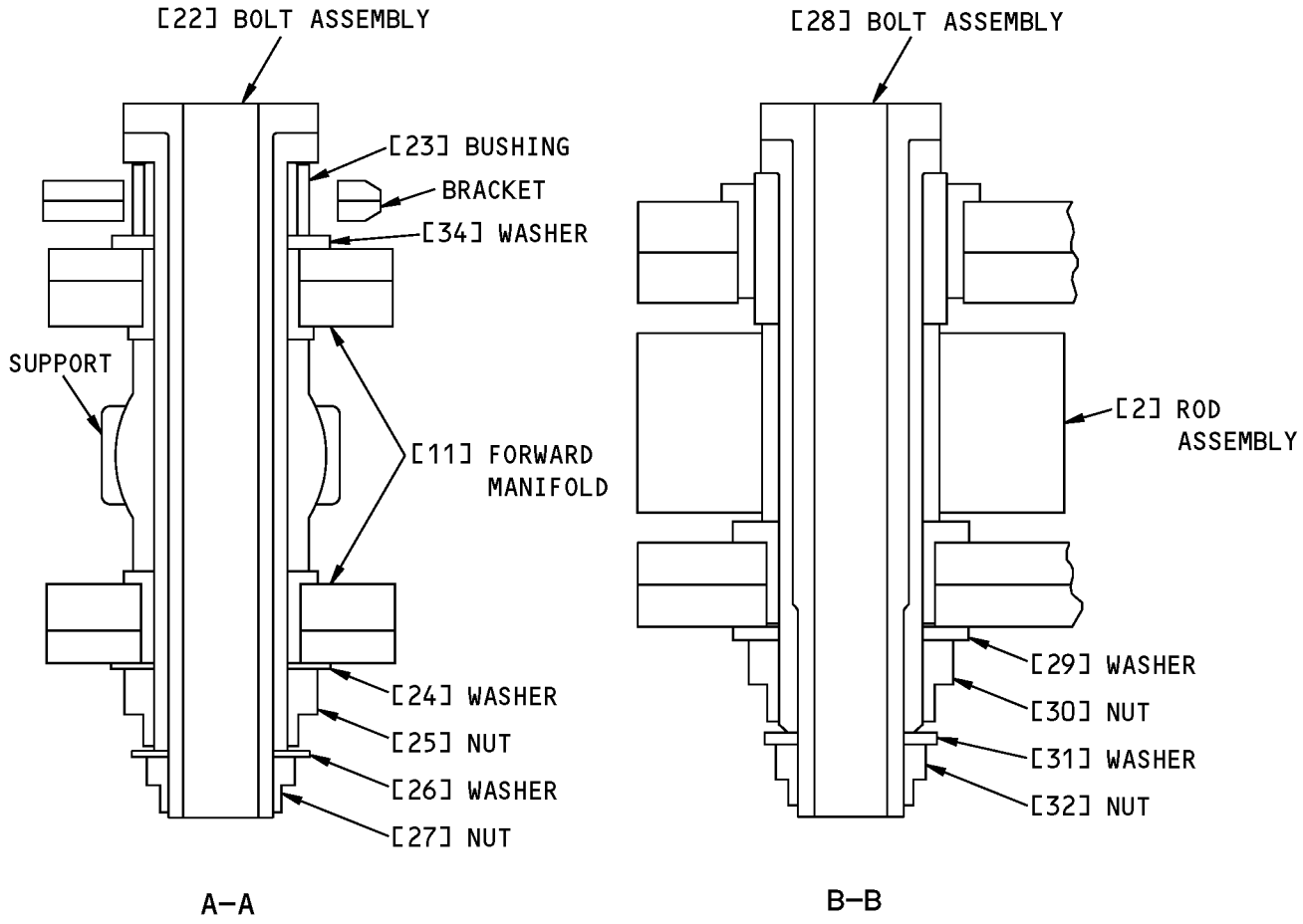

Main Rudder Power Control Unit Installation
Figure 401 (Sheet 3 of 3)/27-21-91-990-804-002

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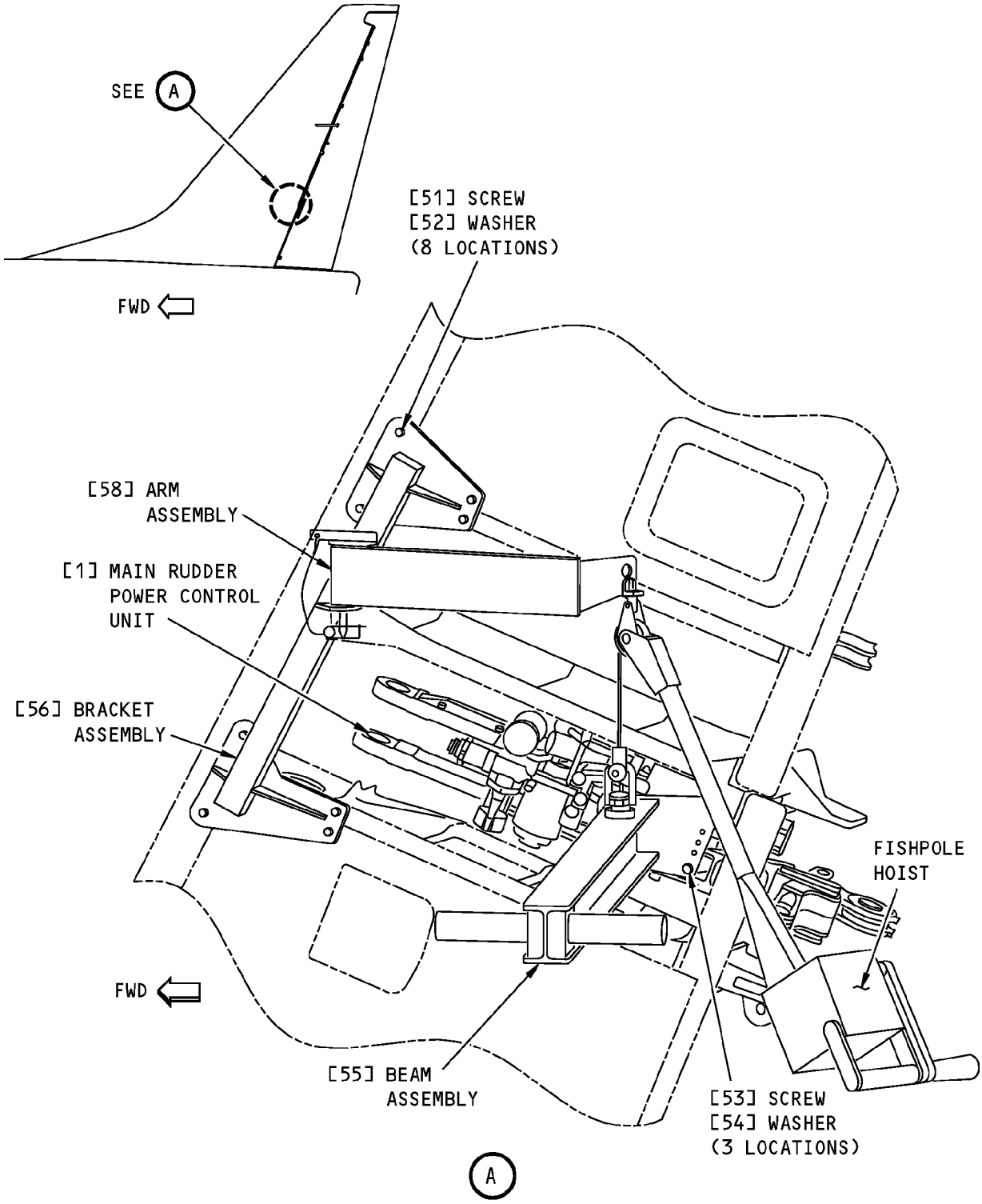

Main Rudder PCU Tool Installation
Figure 402/27-21-91-990-805-002

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TASK 27-21-91-400-803-002

3. Main Rudder Power Control Unit Installation

(Figure 401, Figure 402)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-21-00-700-814-002	Rudder Hinge Bearing and PCU Bearing Freeplay (P/B 501)
27-21-00-700-815-002	Rudder Centering Test (P/B 501)
27-21-00-700-816-002	Rudder Pedal Forces Test (P/B 501)
27-21-00-700-817-002	Rudder Travel Test (P/B 501)
27-21-00-700-821-002	Rudder Hinge Friction Test (P/B 501)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1727	Lock - Ground, Rudder, PCU Removed (Part #: C27057-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1731	Equipment - Torque Wrench, Rudder PCU Attachment (Part #: C27042-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1732	Equipment - Removal/Installation, Rudder PCU (Part #: C27049-36, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27049-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

C. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
324	Vertical Fin - Rear Spar To Trailing Edge

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E. Access Panels

Number	Name/Location
324DL	Trailing Edge Access

F. Main Rudder PCU Installation

SUBTASK 27-21-91-080-004-002

(1) Remove the lock, SPL-1727.

SUBTASK 27-21-91-480-007-002

(2) Install the equipment, SPL-1732 to the main rudder PCU [1] (Figure 402).

SUBTASK 27-21-91-420-003-002

CAUTION: MAKE SURE THAT YOU FOLLOW THE INSTRUCTIONS TO INSTALL THE MAIN RUDDER PCU [1] CAREFULLY AND DO THE PROCEDURE IN THE SPECIFIED SEQUENCE. DAMAGE TO THE CONTROL RODS [9] MAY OCCUR IF YOU DO NOT FOLLOW THE INSTRUCTIONS CORRECTLY.

(3) Install the main rudder PCU [1] (Figure 401):

(a) Use a 200 pounds (90.7 kilograms) fishpole to put the main rudder PCU [1] in its position with the forward manifold [11] in the forward direction.

(b) Connect the forward manifold [11] to the vertical fin structure:

1) Install the washer [34], bushing [23], bolt assembly [22], washer [24], and nut [25].

2) Use the equipment, SPL-1731 to tighten the nut [25] to 1000-1200 pound-inches (113.0-135.6 newton-meters).

3) Install the washer [26] and nut [27].

CAUTION: DO NOT TIGHTEN THE NUT [25] AFTER YOU TIGHTEN THE NUT [27]. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

4) Tighten the nut [27] to 650-800 pound-inches (73.4-90.4 newton-meters).

(c) Connect the rod assembly [2] to the rudder:

1) Install the bolt assembly [28], washer [29], and nut [30].

2) Tighten the nut [30] to 900-1050 pound-inches (101.7-118.6 newton-meters).

3) Install the washer [31] and nut [32].

CAUTION: DO NOT TIGHTEN THE NUT [30] AFTER YOU TIGHTEN THE NUT [32]. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

4) Tighten the nut [32] to 450-550 pound-inches (50.8-62.1 newton-meters).

SUBTASK 27-21-91-080-005-002

(4) Remove the equipment, SPL-1732 from the main rudder PCU [1]:

(a) Remove the screws [53] and washers [54] from the beam assembly [55].

(b) Remove the screws [51] and washers [52] from the bracket assembly [56].

(c) Remove the bracket assembly [56] and beam assembly [55].

SUBTASK 27-21-91-020-017-002

CAUTION: MAKE SURE THAT YOU CORRECTLY INSTALL THE HYDRAULIC LINES TO THE MAIN RUDDER PCU. MAKE SURE THAT CORRECT UNIONS ARE INSTALLED IN THE HYDRAULIC PORTS. YOU CAN CAUSE DAMAGE TO THE MAIN RUDDER PCU.

(5) Connect the hydraulic lines to the main rudder PCU [1]:

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(a) Remove the caps and plugs from the hydraulic lines and ports.

(b) If the main rudder PCU [1] does not have the unions and packings installed, do these steps:

1) Apply fluid, D00153 to the unions, reducer and packings.

2) Install the union [15] and packing [16].

3) Install the union [17] and packing [18].

4) Install the union [19] and packing [18].

5) Install the reducer [20] and packing [16].

(c) Connect the return line hydraulic system A [12] to the main rudder PCU [1].

(d) Connect the pressure line hydraulic system A [21] to the main rudder PCU [1].

(e) Connect the return line hydraulic system B [14] to the main rudder PCU [1].

(f) Connect the pressure line hydraulic system B [13] to the main rudder PCU [1].

(g) Remove the 1 U.S.-gal (3.81 l) oil resistant container, STD-203container placed below the hydraulic connections.

SUBTASK 27-21-91-420-007-002

(6) Install the control rods [8]:

(a) Put the control rods [8] in its position with the adjustment end in the forward direction.

(b) Connect the control rods [8] to the external summing levers [3]:

1) Install the bolts [4], washers [5], washers [6], and nuts [7].

(c) Connect the control rods [8] to the input cranks [10]:

1) Install the bolts [41], washers [42], washers [43], and nuts [44].

SUBTASK 27-21-91-020-018-002

(7) Connect the electrical connectors [9] to the main rudder PCU [1].

SUBTASK 27-21-91-860-014-002

(8) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-91-860-019-002

(9) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	15	C01628	FLIGHT CONTROL FORCE FIGHT MON

SUBTASK 27-21-91-860-015-002

(10) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

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SUBTASK 27-21-91-860-016-002

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(11) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-91-870-002-002

(12) Move the rudder pedals to bleed the main rudder PCU until the movement of the rudder is smooth.

SUBTASK 27-21-91-790-002-002

(13) Examine the hydraulic connections for leakage.

SUBTASK 27-21-91-860-017-002

(14) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

SUBTASK 27-21-91-820-002-002

(15) Do this task: Control Rod for the Main Rudder PCU Adjustment (AMM 27-21-00/501).

SUBTASK 27-21-91-820-003-002

(16) Do this task: Rudder Main PCU Force Fight Monitor Test (AMM 27-21-00/501).

SUBTASK 27-21-91-820-004-002

(17) Do this task: Main Rudder PCU Internal Hydraulic Leakage Test (AMM 27-21-00/501).

SUBTASK 27-21-91-730-007-002

(18) Do this task: Rudder Pedal Forces Test, TASK 27-21-00-700-816-002.

SUBTASK 27-21-91-730-008-002

(19) Do this task: Rudder Hinge Friction Test, TASK 27-21-00-700-821-002.

SUBTASK 27-21-91-730-009-002

(20) Do this task: Rudder Hinge Bearing and PCU Bearing Freeplay, TASK 27-21-00-700-814-002.

SUBTASK 27-21-91-730-010-002

(21) Do this task: Rudder Centering Test, TASK 27-21-00-700-815-002.

SUBTASK 27-21-91-730-011-002

(22) Do this task: Rudder Travel Test, TASK 27-21-00-700-817-002.

G. Put the Airplane Back to Its Initial Condition

SUBTASK 27-21-91-410-005-002

(1) Install this access panel:

Number	Name/Location
324DL	Trailing Edge Access

SUBTASK 27-21-91-410-007-002

(2) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

END OF TASK

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TASK 27-21-91-000-806-002

4. Main Rudder PCU Load Limiter Solenoid Valve Removal

(Figure 403)

A. General

(1) There is two load limiter solenoid valves, one yaw damper solenoid valve, and one transfer valve installed on the main rudder PCU. For the transfer valve and yaw damper solenoid, refer to AMM 22-23-21/401.

(2) Each of the two main rudder PCU load limiter solenoid valves is referred to as the "solenoid valve [71]" in this procedure. This procedure is applicable to both solenoid valves.

B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324DL	Trailing Edge Access

E. Prepare for the Removal

SUBTASK 27-21-91-860-031-002

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-91-860-032-002

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-91-010-009-002

(3) To get access to the main rudder pcu installation [1], do this step:

Remove this access panel:

Number	Name/Location
324DL	Trailing Edge Access

F. Solenoid Valve Removal

SUBTASK 27-21-91-020-033-002

(1) Do these steps to remove the solenoid valve [71]:

(a) Remove the bolts [72] that attach the solenoid valve [71] to the main rudder [1].

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(b) Remove the seal plate [73].

(c) Remove the O-ring [74]. Discard the O-ring [74].

(d) Remove the solenoid valve [71].

(e) Put plugs on the main rudder PCU ports.

END OF TASK

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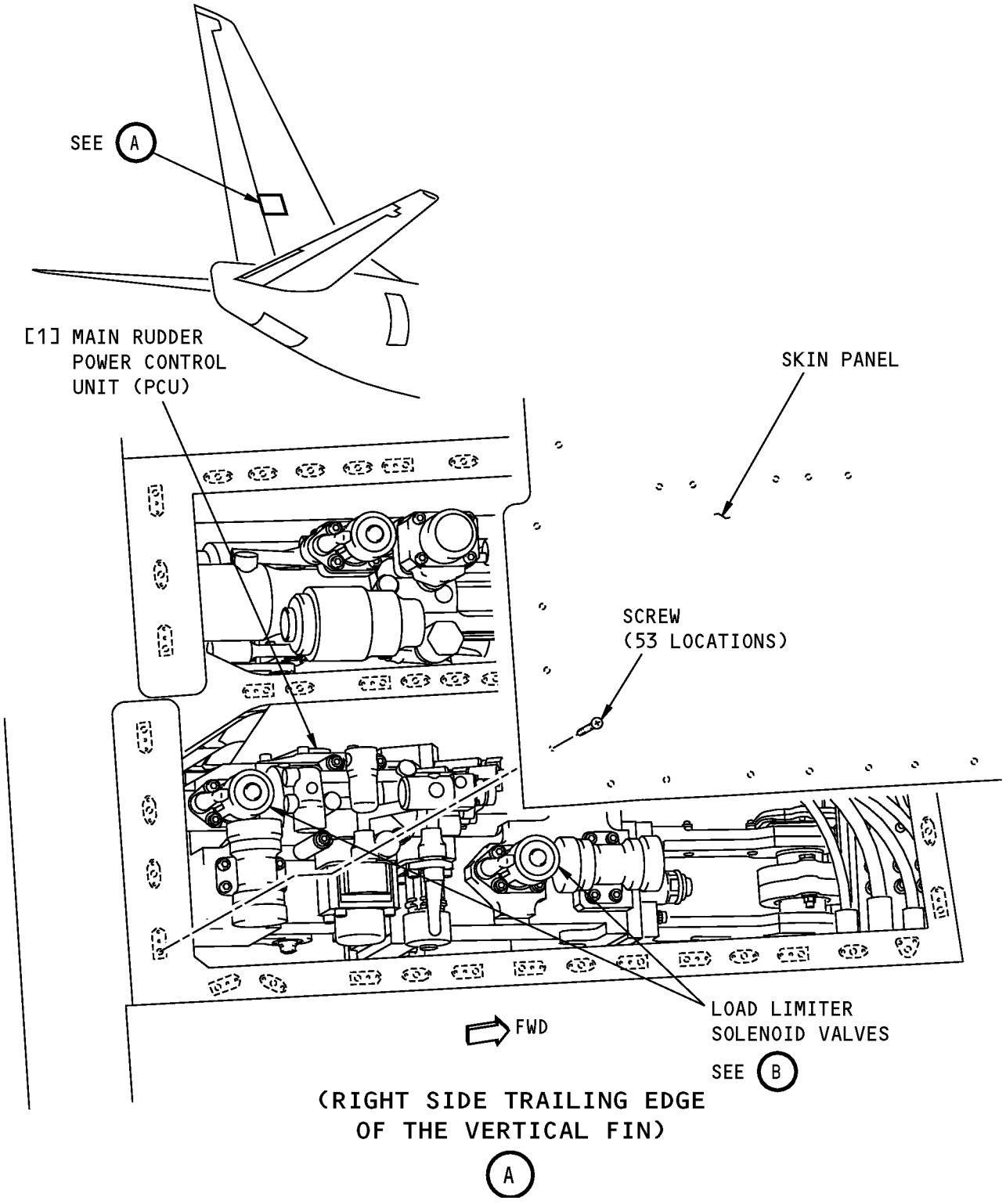

Main Rudder PCU Load Limiter Solenoid Valve Installation
Figure 403 (Sheet 1 of 2)/27-21-91-990-810-002

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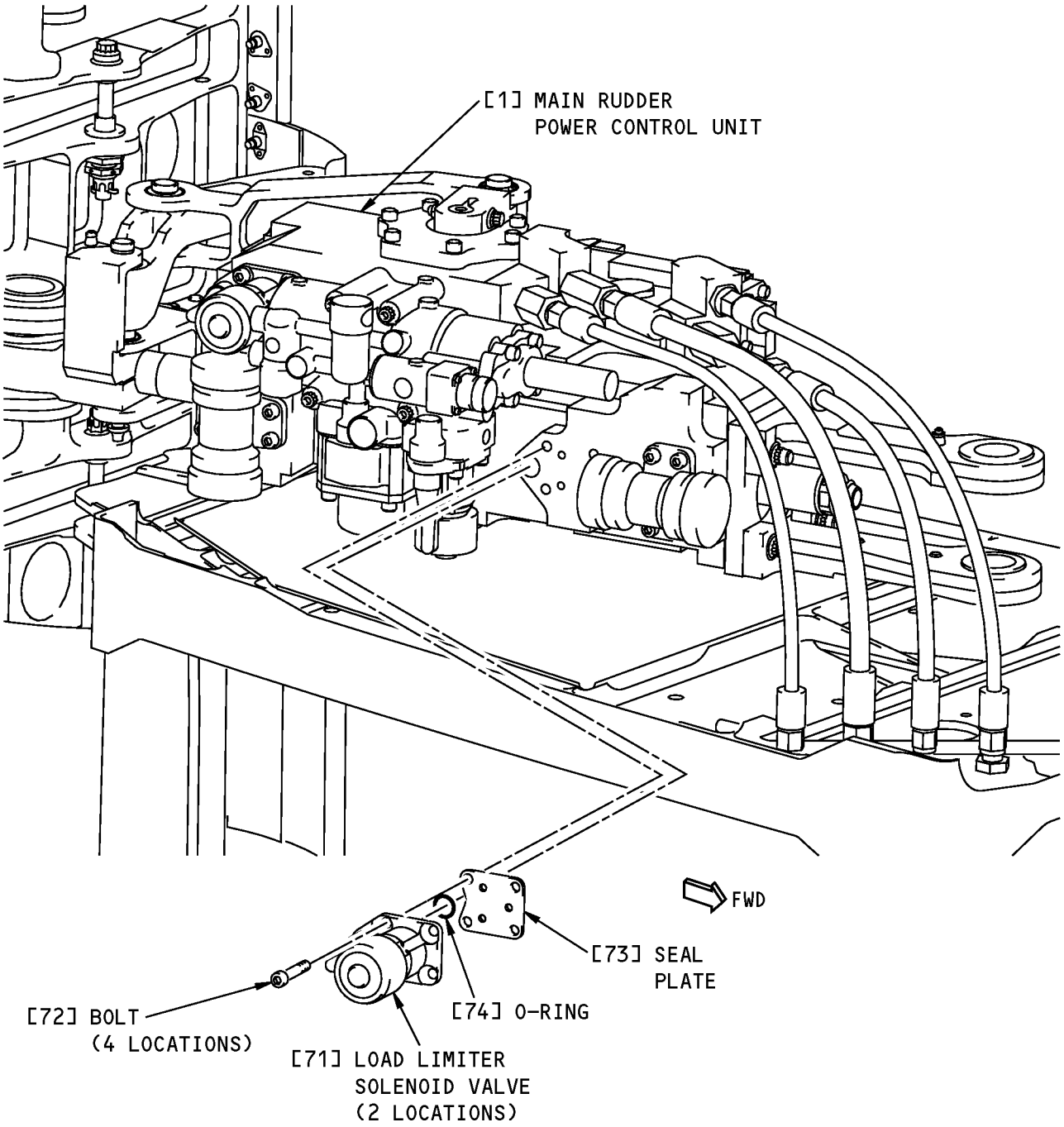

LOAD LIMITER SOLENOID VALVE
(EXAMPLE)

B

Main Rudder PCU Load Limiter Solenoid Valve Installation
Figure 403 (Sheet 2 of 2)/27-21-91-990-810-002

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TASK 27-21-91-400-806-002

5. Main Rudder PCU Load Limiter Solenoid Valve Installation

(Figure 403)

A. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
324	Vertical Fin - Rear Spar To Trailing Edge

D. Access Panels

Number	Name/Location
324DL	Trailing Edge Access

E. Prepare for the Installation

SUBTASK 27-21-91-860-033-002

(1) Make sure you remove pressure from the rudder hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

F. Solenoid Valve Installation

SUBTASK 27-21-91-020-034-002

(1) Do these steps to install the solenoid valve [71]:

(a) Remove the plugs on the main rudder PCU ports.

(b) Clean the seal plate [73].

(c) Lubricate the new O-ring [74] with fluid, D00153.

(d) Install the new O-ring [74].

(e) Install the seal plate [73].

(f) Install the solenoid valve [71].

(g) Install the bolts [72] that attach the solenoid valve [71] to the main rudder PCU.

(h) Tighten the bolts [72] to 50-70 pound-inches (5.6-7.9 newton-meters).

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SUBTASK 27-21-91-860-034-002

(2) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

SUBTASK 27-21-91-860-035-002

(3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC
D	6	C01354	YAW DAMPER 2 DC
D	7	C00286	YAW DAMPER 1 DC

SUBTASK 27-21-91-410-012-002

(4) Install this access panel:

Number	Name/Location
324DL	Trailing Edge Access

END OF TASK

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STANDBY RUDDER POWER CONTROL UNIT SHUTOFF VALVE - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal of the rudder valve motor from the standby rudder power control unit (PCU) shutoff valve

(2) An installation of the rudder valve motor to the standby rudder PCU shutoff valve

(3) A removal of the standby rudder power control unit (PCU) shutoff valve

(4) An installation of the standby rudder PCU shutoff valve

(5) An installation test of the standby rudder PCU shutoff valve.

B. The standby rudder PCU shutoff valve is referred to as the "shutoff valve" in this procedure.

C. You do not have to remove the shutoff valve from the modular package assembly to remove the rudder valve motor.

TASK 27-21-94-000-801

2. Rudder Valve Motor Removal

(Figure 201, Figure 202)

A. General

(1) This task provides instructions to remove the rudder valve motor only.

B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

D. Prepare for the Removal

SUBTASK 27-21-94-860-001

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-94-860-002

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

E. Rudder Valve Motor Removal

SUBTASK 27-21-94-020-001

(1) Disconnect the electrical connector [5] from the rudder valve motor [4].

SUBTASK 27-21-94-020-002

(2) Move the manual override lever [2] on the rudder valve motor [4] to position 2.

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SUBTASK 27-21-94-020-003

(3) Remove the screws [6] from the rudder valve motor [4].

SUBTASK 27-21-94-020-004

(4) Remove the rudder valve motor [4] from the shutoff valve [1].

END OF TASK

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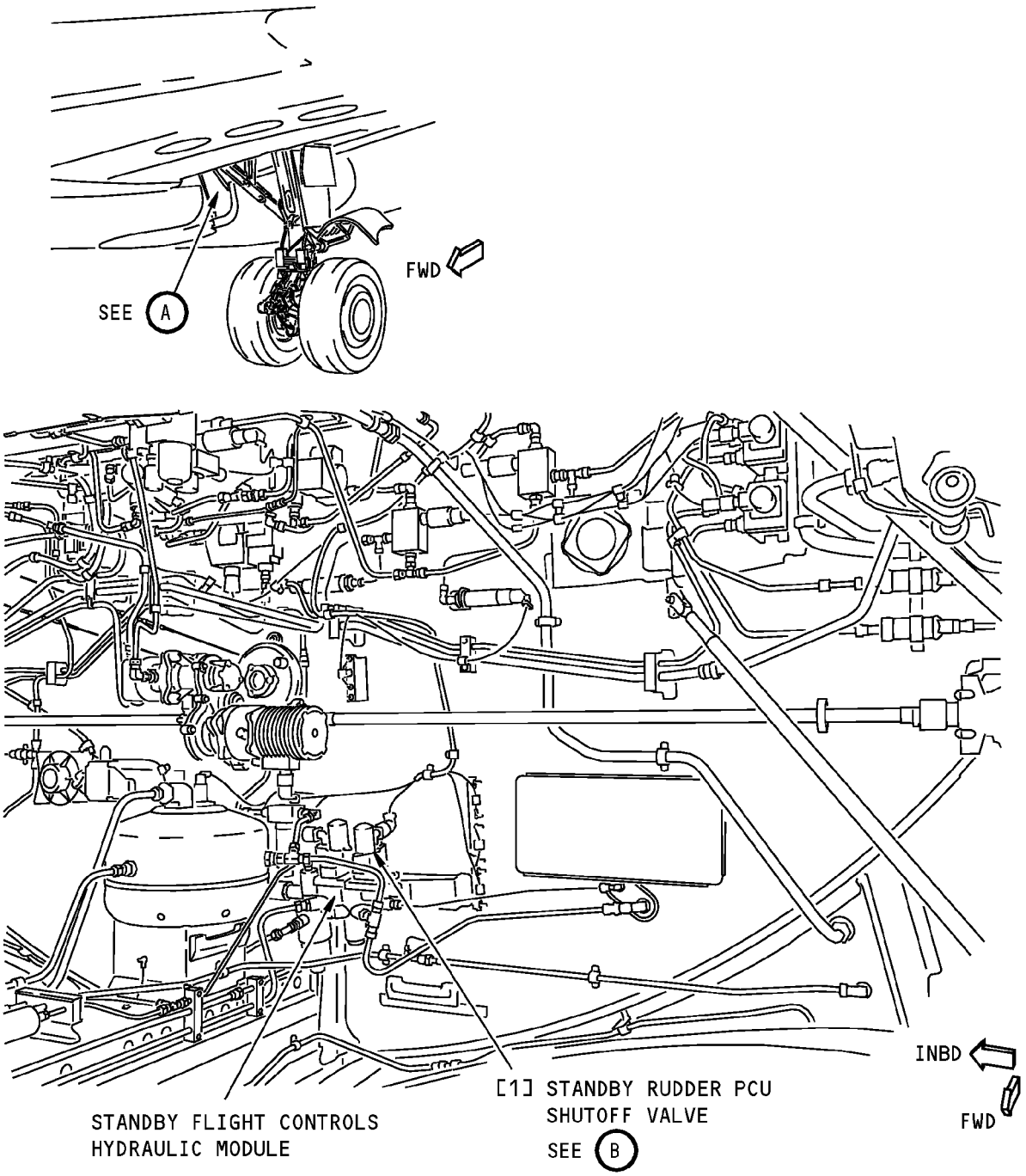

Standby Rudder PCU Shutoff Valve Installation
Figure 201 (Sheet 1 of 2)/27-21-94-990-801

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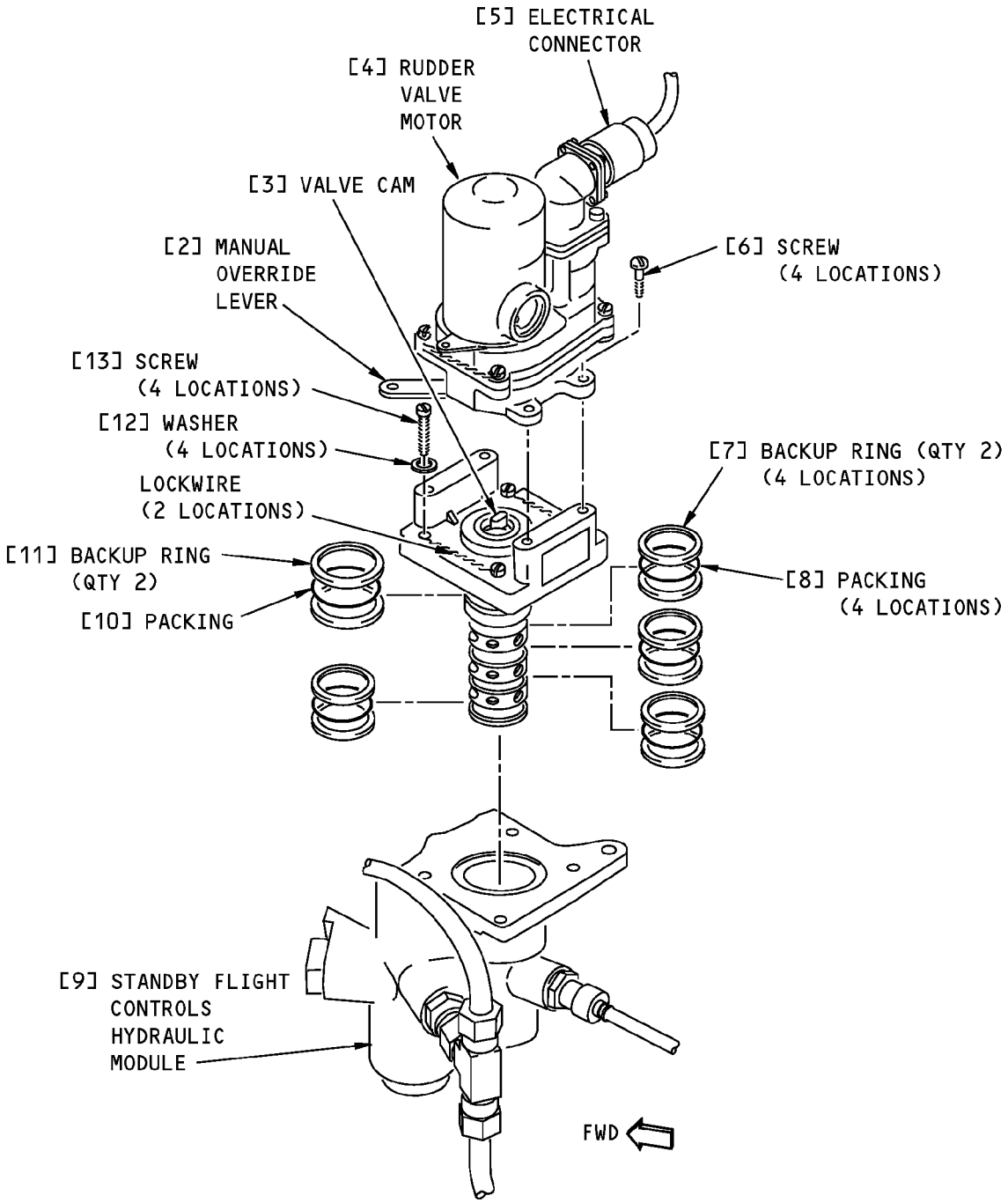

Standby Rudder PCU Shutoff Valve Installation
Figure 201 (Sheet 2 of 2)/27-21-94-990-801

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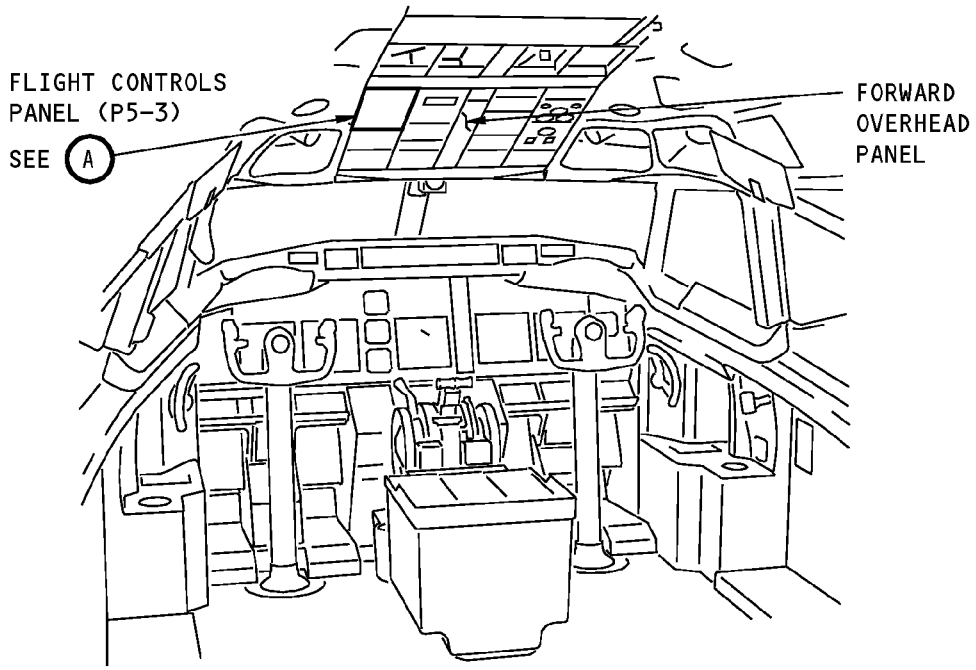
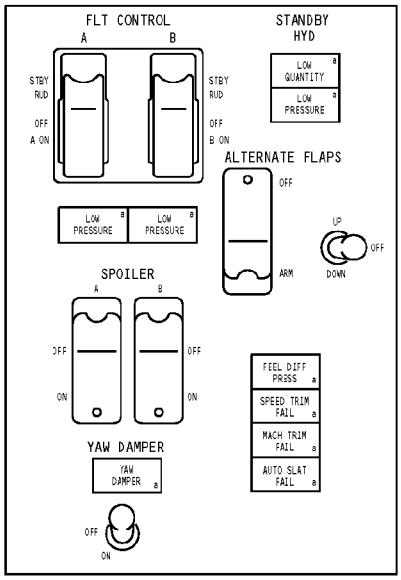


FLIGHT COMPARTMENT



FLIGHT CONTROLS PANEL (P5-3)

A

Flight Control Switches
Figure 202/27-21-94-990-802

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TASK 27-21-94-400-801

3. Rudder Valve Motor Installation

(Figure 201)

A. General

(1) This task provides instructions to install the rudder valve motor only.

B. References

Reference	Title
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

E. Procedure

SUBTASK 27-21-94-020-005

(1) Make sure that the manual override lever [2] on the rudder valve motor [4] is in position 2.

SUBTASK 27-21-94-420-001

(2) Put the rudder valve motor [4] on the shutoff valve [1].

(a) Make sure the rudder valve motor [4] is engaged with the valve cam [3].

SUBTASK 27-21-94-420-002

(3) Install the screws [6] which attach the rudder valve motor [4] to the shutoff valve [1].

SUBTASK 27-21-94-210-001

(4) Before you connect the electrical connector [5], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-21-94-420-003

(5) Connect the electrical connector [5] to the rudder valve motor [4].

SUBTASK 27-21-94-860-003

(6) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

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SUBTASK 27-21-94-860-016

(7) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-21-94-730-001

(8) Do this task: Standby Rudder PCU Shutoff Valve Installation Test, TASK 27-21-94-710-801.

——————— END OF TASK ———————

TASK 27-21-94-000-802

4. Standby Rudder PCU Shutoff Valve Removal

(Figure 201)

A. General

(1) This task provides instructions to remove the shutoff valve (with the rudder valve motor attached) from the standby flight controls hydraulic module.

B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

D. Prepare for the Removal

SUBTASK 27-21-94-860-004

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-94-860-005

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

E. Shutoff Valve Removal

SUBTASK 27-21-94-020-006

(1) Disconnect the electrical connector [5] from the rudder valve motor [4].

SUBTASK 27-21-94-020-007

(2) Remove the lockwires from the screws [13].

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SUBTASK 27-21-94-020-008

(3) Remove the screws [13] and washers [12] which attach the shutoff valve [1] to the standby flight controls hydraulic module [9].

SUBTASK 27-21-94-020-009

CAUTION: DO NOT LET HYDRAULIC FLUID GET ON EQUIPMENT. IF HYDRAULIC FLUID GETS ON EQUIPMENT, IMMEDIATELY CLEAN IT FROM THE EQUIPMENT. HYDRAULIC FLUID CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Put a container below the shutoff valve [1] to catch hydraulic fluid.

SUBTASK 27-21-94-020-010

(5) Carefully turn and pull directly up on the shutoff valve [1] to remove it from the standby flight controls hydraulic module [9].

SUBTASK 27-21-94-020-011

(6) Put a cover on the standby flight controls hydraulic module [9] to keep dirt out.

——————— END OF TASK ———————

TASK 27-21-94-400-802

5. Standby Rudder PCU Shutoff Valve Installation

(Figure 201)

A. General

(1) This task provides instructions to install the shutoff valve (with the rudder valve motor attached) to the standby flight controls hydraulic module.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-21-00-840-802	Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜C32
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

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E. Procedure

SUBTASK 27-21-94-420-004

(1) If the shutoff valve does not have the packings [8], packing [10], backup rings [7], and backup rings [11] installed, do these steps:

(a) Lubricate the packings [8], packing [10], backup rings [7], and backup rings [11] with fluid, D00153.

(b) Install the packings [8], packing [10], backup rings [7], and backup rings [11] to the shutoff valve [1].

SUBTASK 27-21-94-420-005

(2) Carefully install the shutoff valve [1] in the modular package assembly [9].

SUBTASK 27-21-94-420-006

(3) Install the washers [12] and screws [13] which attach the shutoff valve [1] to the modular package assembly [9].

(a) Tighten the screws [13] to 30-40 pound-inches (3.4-4.5 newton-meters).

SUBTASK 27-21-94-420-007

(4) Install the lockwire, G01048 on the screws [13].

SUBTASK 27-21-94-210-002

(5) Before you connect the electrical connector [5], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-21-94-420-008

(6) Connect the electrical connector [5] to the rudder valve motor [4].

SUBTASK 27-21-94-860-006

(7) Do this task: Put the Rudder Systems A, B, and Standby Back to the Condition Before the Pressure Removal, TASK 27-21-00-840-802.

SUBTASK 27-21-94-860-017

(8) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-21-94-710-001

(9) Do this task: Standby Rudder PCU Shutoff Valve Installation Test, TASK 27-21-94-710-801.

SUBTASK 27-21-94-860-007

(10) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

END OF TASK

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TASK 27-21-94-710-801

6. Standby Rudder PCU Shutoff Valve Installation Test

(Figure 201, Figure 202)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left

C. Procedure

SUBTASK 27-21-94-860-008

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-21-94-860-018

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

SUBTASK 27-21-94-860-010

(3) Make sure the FLIGHT CONTROL A and B switches are in the ON position.

NOTE: The FLIGHT CONTROL A and B switches are on the upper left corner of the pilot's overhead panel.

SUBTASK 27-21-94-860-011

(4) Make sure the manual override lever on the rudder valve motor is in position 1.

SUBTASK 27-21-94-860-012

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM THE RUDDER WHEN YOU SUPPLY HYDRAULIC POWER. THE RUDDER CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT WHEN YOU SUPPLY HYDRAULIC POWER.

(5) Put the FLIGHT CONTROL A or B switch to the STDBY RUD position.

SUBTASK 27-21-94-860-013

(6) Make sure the manual override lever on the rudder valve motor is in at position 2.

SUBTASK 27-21-94-710-002

(7) Push the rudder pedals until they touches the forward quadrant stops.

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(a) Make sure the rudder moves correctly.

NOTE: The rudder position indicator in the flight compartment will show you if the rudder moves.

SUBTASK 27-21-94-790-001

(8) Make sure there is no hydraulic fluid leakage from the shutoff valve.

SUBTASK 27-21-94-860-014

(9) Put the FLIGHT CONTROL A or B switch to the ON position.

SUBTASK 27-21-94-860-015

(10) Make sure the manual override lever on the rudder valve motor is in position 1.

SUBTASK 27-21-94-860-019

(11) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

——————— END OF TASK ———————

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RUDDER HYDRAULIC FUSE - REMOVAL/INSTALLATION

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A removal of the rudder hydraulic fuse

(2) An installation of the rudder hydraulic fuse.

TASK 27-21-95-000-801

2. Rudder Hydraulic Fuse Removal

(Figure 401)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-21-00-800-802	Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Rudder hydraulic fuse	29-11-52-14A-415	HAP ALL

D. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Removal

SUBTASK 27-21-95-860-001

(1) Do this task: Remove Pressure from the Rudder Hydraulic Systems A, B, and Standby, TASK 27-21-00-800-802.

SUBTASK 27-21-95-860-002

(2) Release pressure from the hydraulic reservoirs. To release it, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-21-95-010-001

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

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G. Rudder Hydraulic Fuse Removal

SUBTASK 27-21-95-860-007

(1) Remove bolts [1] and [8], washers [2] and [9], nuts [3] and [10], and clamps [4] and [11]. Leave clamp [11] around hydraulic line [6].

SUBTASK 27-21-95-020-002

(2) Remove rudder hydraulic fuse [7].

(a) Disconnect the hydraulic line [5] and [6] from rudder hydraulic fuse [7].

(b) Remove the rudder hydraulic fuse [7].

——————— END OF TASK ———————

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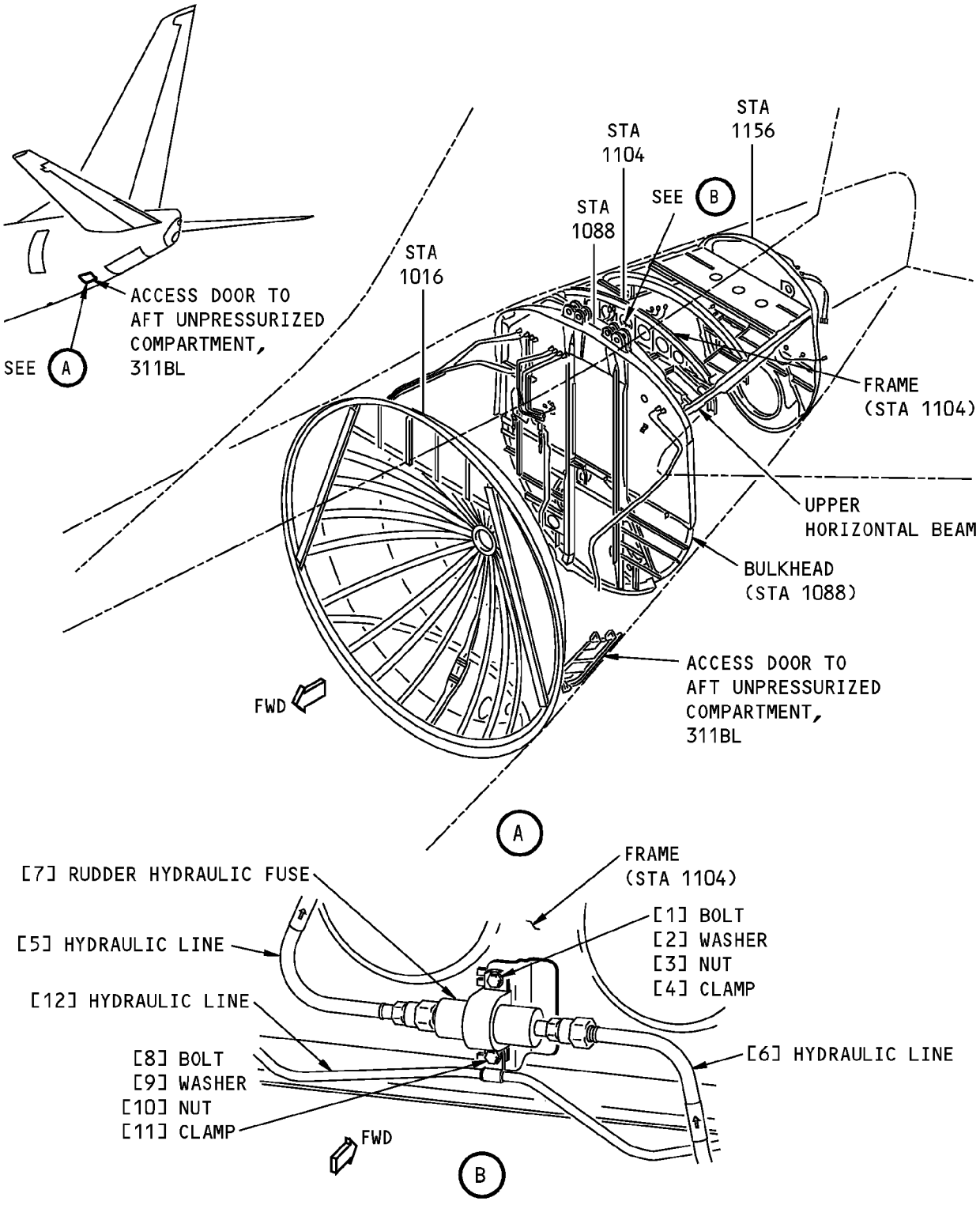

Rudder Hydraulic Fuse Installation
Figure 401/27-21-95-990-801

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TASK 27-21-95-400-801

3. Rudder Hydraulic Fuse Installation

(Figure 401)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-21-00-800-801	Rudder Hydraulic System A, B, or Standby Pressurization (P/B 201)
27-21-00-840-801	Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Rudder hydraulic fuse	29-11-52-14A-415	HAP ALL

D. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Rudder Hydraulic Fuse Installation

SUBTASK 27-21-95-420-001

(1) Install the rudder hydraulic fuse [7]:

(a) Put the rudder hydraulic fuse [7] in its position.

NOTE: The flow direction arrow on the rudder hydraulic fuse must agree with the arrow on the airplane.

(b) Connect the hydraulic lines [5] and [6] to the rudder hydraulic fuse [7].

SUBTASK 27-21-95-860-008

(2) Install clamps [4] and [11] using bolts [1] and [8], washers [2] and [9], nuts [3] and [10].

SUBTASK 27-21-95-860-005

(3) Do the test on the rudder hydraulic fuse:

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSON AND DAMAGE TO EQUIPMENT.

(a) Pressurize the rudder hydraulic system B. To pressurize it, do this task: Rudder Hydraulic System A, B, or Standby Pressurization, TASK 27-21-00-800-801.

(b) Move the rudder pedals through their full travel three times.

(c) Make sure the rudder moves correctly.

SUBTASK 27-21-95-210-001

(4) Visually examine the rudder hydraulic fuse for hydraulic leaks.

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G. Put the Airplanes Back to Its Usual Condition

SUBTASK 27-21-95-860-006

(1) Do this task: Put the Rudder Hydraulic systems A, B, and Standby Back to the Condition Before the Pressurization, TASK 27-21-00-840-801.

SUBTASK 27-21-95-410-001

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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ELEVATOR AND TAB CONTROL SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Elevator Hydraulic System A and B Pressurization

(2) Put the Elevator Hydraulic Systems A and B Back to the Condition before the Pressurization

(3) Remove Pressure from the Elevator Hydraulic Systems A and B

(4) Put the Elevator Hydraulic Systems A and B Back to the Condition before the Pressure Removal

(5) Null Procedure - Mach Trim Actuator.

(6) Visual Inspection of the Elevator Control Pushrod.

(7) Visual Inspection of the Elevator Feel and Centering Unit.

(8) Detailed Visual Inspection of the Elevator Tab and Tab Mechanism.

C. Hydraulic systems A, B must have pressure removed before maintenance is done on the elevator control system. This is to prevent injury to persons because of accidental operation of the control system while you do maintenance. You must be careful to put maintenance stands and equipment away from control surface travel.

D. Electric pump 1 pressurizes the hydraulic system B and electric pump 2 pressurizes the hydraulic system A. Electric pump 1 heat exchanger is installed in the fuel tank 2. Electric pump 2 heat exchanger is installed in the fuel tank 1.

E. This procedure operates the electric hydraulic system A or B pumps to pressurize the hydraulic systems A and B. Pressurization of the hydraulic systems with the engine-driven hydraulic pumps is not included in this procedure.

TASK 27-31-00-800-801

2. Elevator Hydraulic System A and B - Pressurization

(Figure 201)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 27-31-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-31-00-860-002

CAUTION: DO NOT OPERATE THE SYSTEM A OR B HYDRAULIC PUMPS FOR MORE THAN TWO MINUTES WITHOUT FUEL IN THE FUEL TANKS. THE NO. 1 (FOR SYSTEM A) AND NO. 2 (FOR SYSTEM B) FUEL TANKS MUST HAVE A MINIMUM OF 250 GALLONS (1675 POUNDS/760 KILOGRAMS) OF FUEL IN THEM. IF THERE IS NOT SUFFICIENT FUEL IN THE FUEL TANKS, THE HYDRAULIC SYSTEMS WILL BECOME TOO HOT.

(2) Make sure the No. 1 and No. 2 fuel tanks each have 250 gallons (1675 pounds/760 kilograms) of fuel in them.

SUBTASK 27-31-00-210-001

(3) Make sure the hydraulic reservoirs are full. To fill them, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 27-31-00-860-003

(4) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-31-00-860-004

(5) Set the parking brake.

SUBTASK 27-31-00-480-001

WARNING: MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR BEFORE YOU PRESSURIZE THE HYDRAULIC SYSTEMS. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Install the ground lock assemblies in the nose gear. To install them, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-31-00-860-005

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Pressurize the elevator hydraulic system A:

(a) Set the ELEC 2, HYD PUMPS A switch on the forward overhead panel to the ON position.

(b) To pressurize the hydraulic system A, set the FLT CONTROL A switch on the forward overhead panel to the ON position.

SUBTASK 27-31-00-780-001

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Pressurize the elevator hydraulic system B:

(a) Set the ELEC 1, HYD PUMPS B switch on the forward overhead panel to the ON position.

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(b) To pressurize the hydraulic system B, set the FLT CONTROL B switch on the forward overhead panel to the ON position.

END OF TASK

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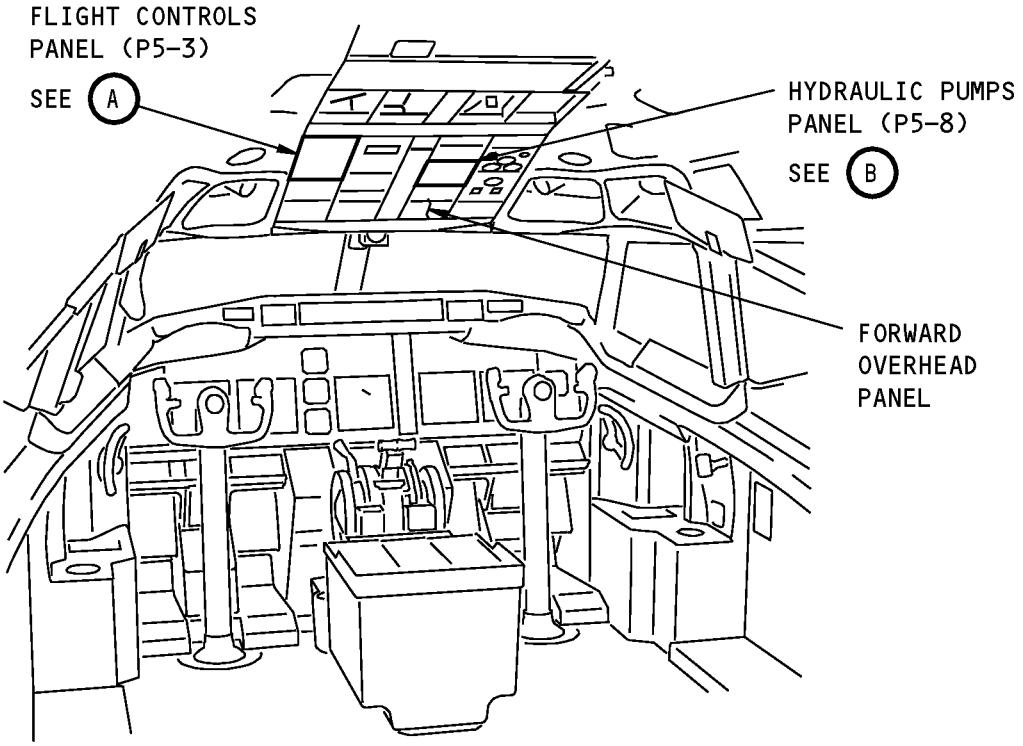
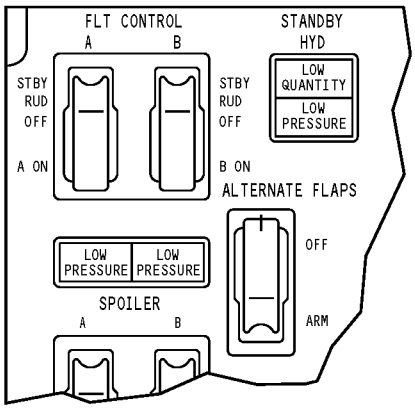
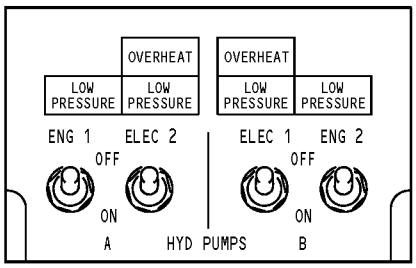


FLIGHT COMPARTMENT





FLIGHT CONTROLS PANEL (P5-3)

A

HYDRAULIC PUMPS PANEL (P5-8)

B

Elevator Power Control Switches
Figure 201/27-31-00-990-801

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TASK 27-31-00-840-801

3. Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization

(Figure 201)

A. References

Reference	Title
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 27-31-00-860-006

(1) Set the ELEC 2, HYD PUMPS A and the ELEC 1, HYD PUMPS B switches on the forward overhead panel to the OFF position.

SUBTASK 27-31-00-860-007

(2) Set the FLT CONTROL A and B switches on the forward overhead panel to the OFF position.

SUBTASK 27-31-00-080-001

(3) Remove the ground lock assemblies from the nose gear. To remove them, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

———————— END OF TASK ————————

TASK 27-31-00-800-802

4. Remove Pressure from the Elevator Hydraulic Systems A and B

(Figure 201, Figure 202)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1676	Assembly - Lock, Flight Controls (used with valve p/n 10-60710-2) (Part #: F80049-17, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Procedure

SUBTASK 27-31-00-860-008

(1) Set the FLT CONTROL A and B switches on the forward overhead panel to the OFF position.

SUBTASK 27-31-00-860-009

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-31-00-860-010

(3) Set the ELEC 2, HYD PUMPS A and the ELEC 1, HYD PUMPS B switches on the forward overhead panel to the OFF position.

SUBTASK 27-31-00-870-001

(4) Operate the rudder pedals to decrease the remaining hydraulic system pressure.

SUBTASK 27-31-00-860-011

(5) If it is necessary to open a hydraulic line, you must release pressure from the reservoir for the applicable hydraulic system. To release the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-31-00-480-002

(6) Install the flight controls hydraulic module locks (Figure 202):

(a) Disconnect the electrical connector from the flight controls shutoff valve at the flight controls hydraulic modules A and B.

(b) Put the manual override lever at the two flight controls shutoff valves in the position 2 (OFF position).

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(c) Install the lock, SPL-1675 or lock, SPL-1676 on the two flight controls shutoff valves.

1) Install the lockpins.

END OF TASK

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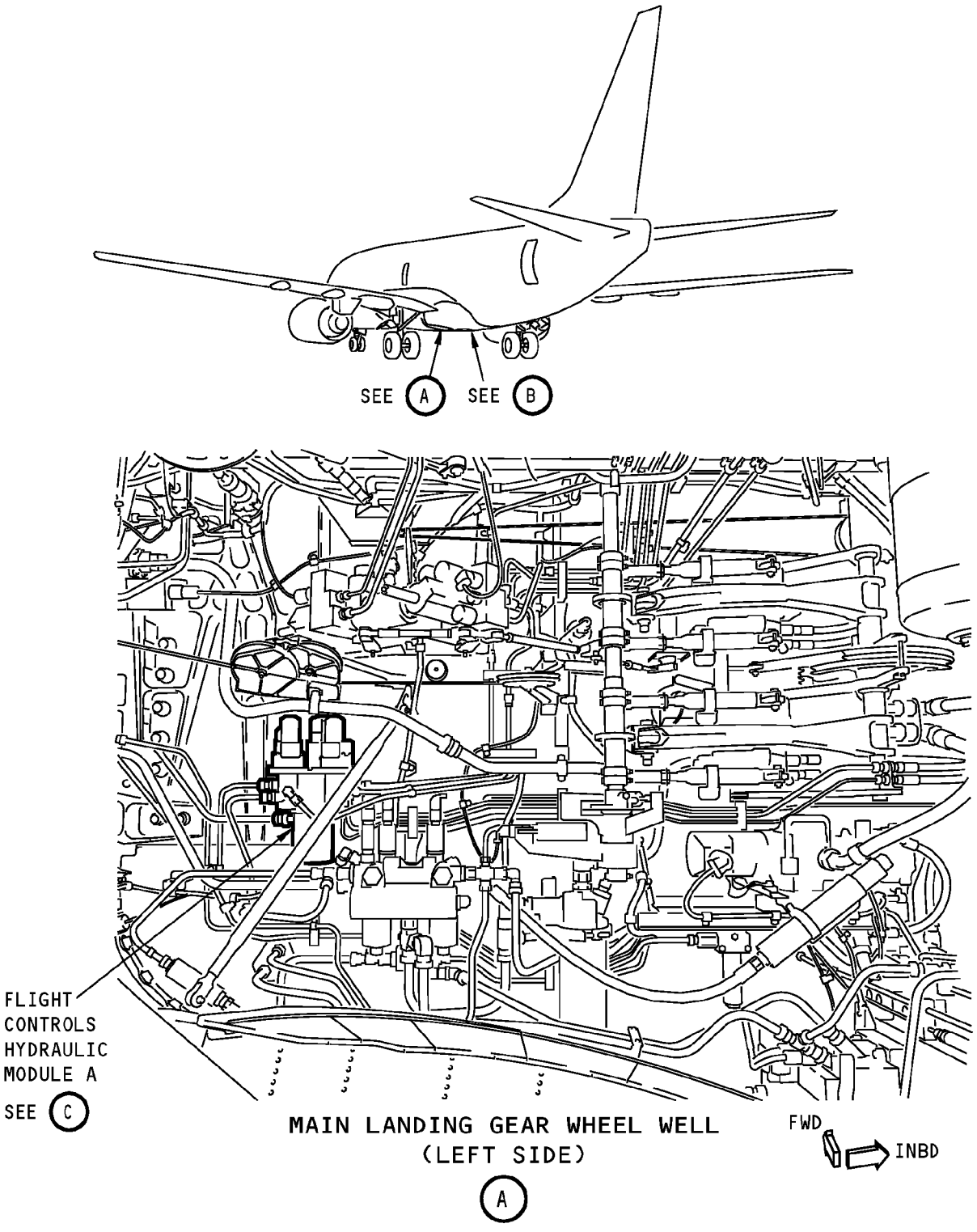

Flight Controls Hydraulic Module Lock Installation
Figure 202 (Sheet 1 of 3)/27-31-00-990-802

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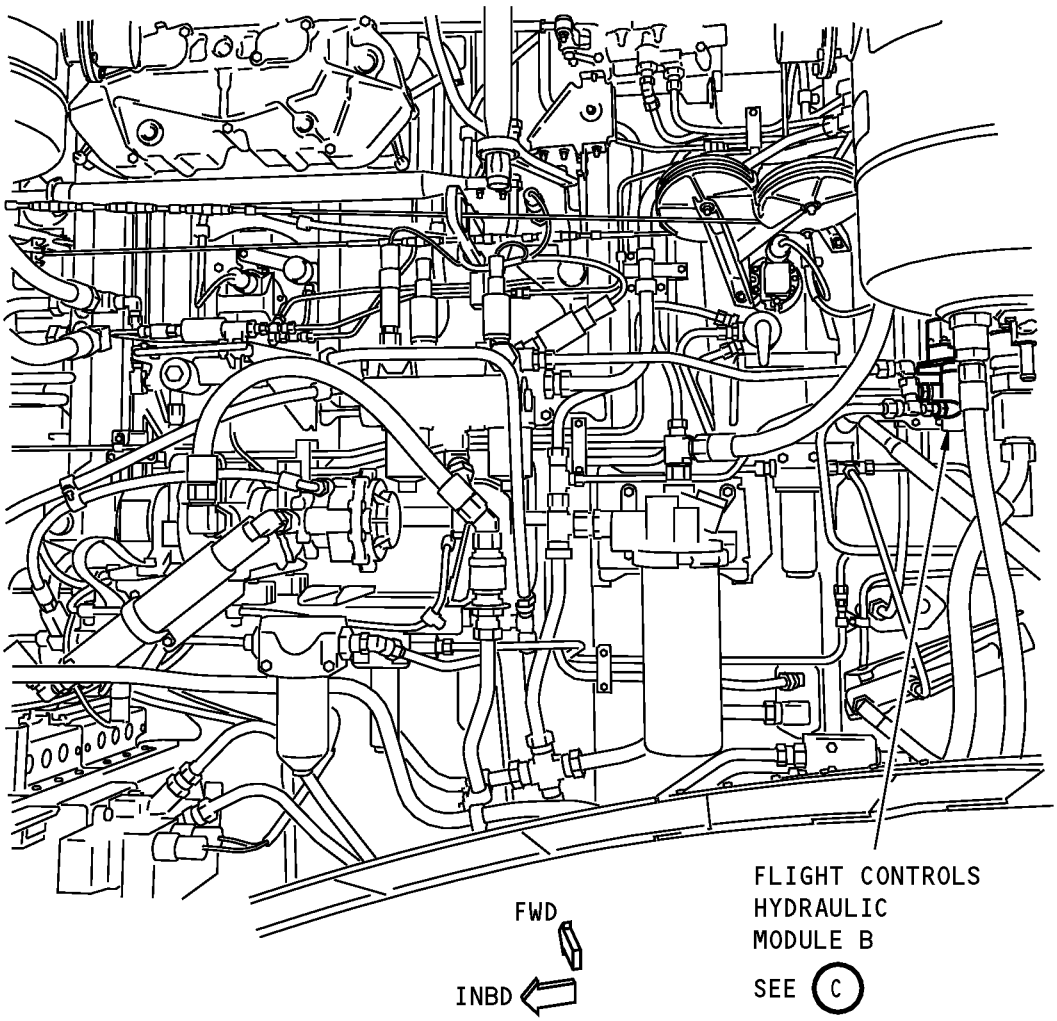

Flight Controls Hydraulic Module Lock Installation
Figure 202 (Sheet 2 of 3)/27-31-00-990-802

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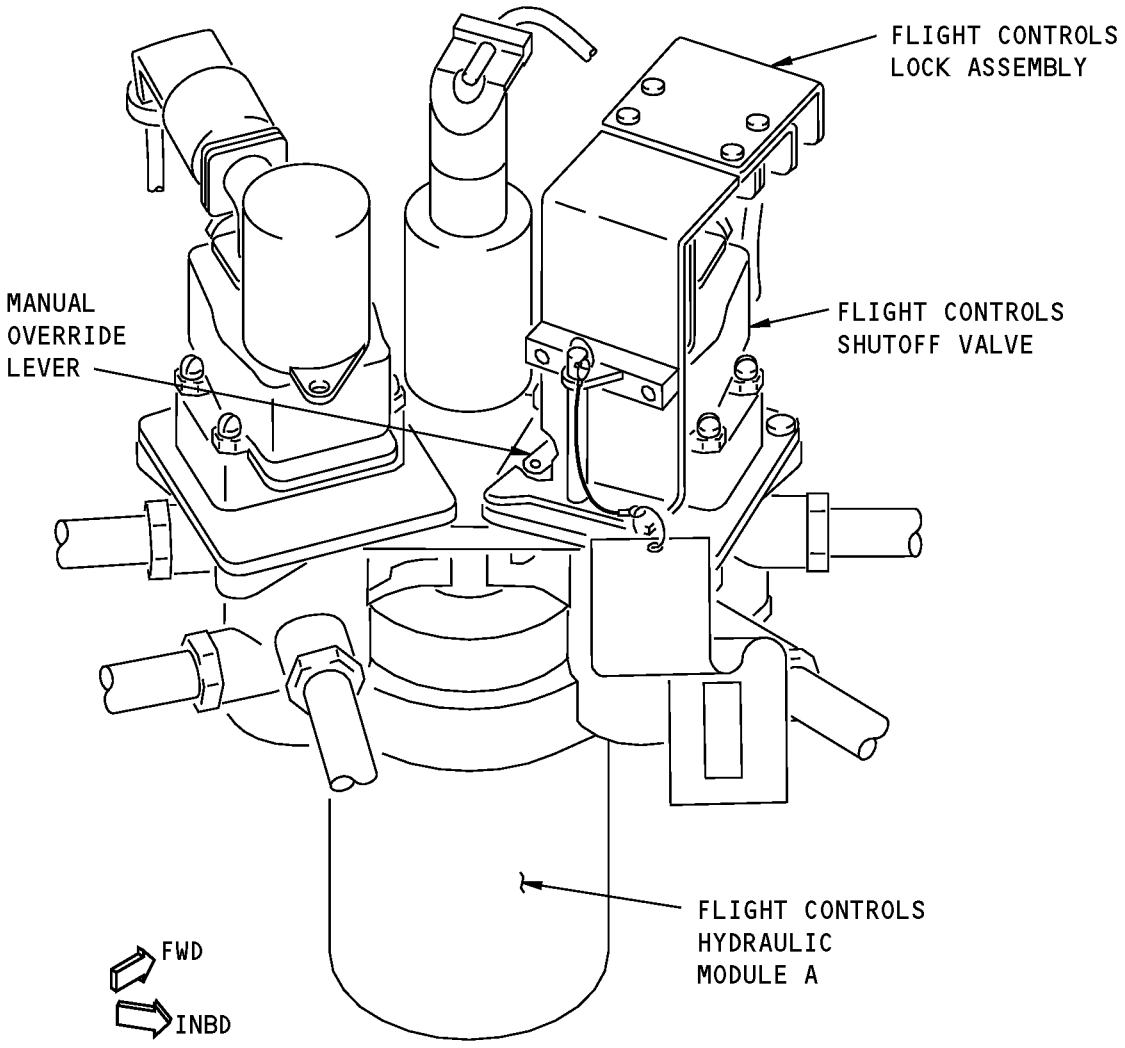

FLIGHT CONTROLS HYDRAULIC MODULE A
(MODULE B IS EQUIVALENT)

C

Flight Controls Hydraulic Module Lock Installation
Figure 202 (Sheet 3 of 3)/27-31-00-990-802

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TASK 27-31-00-840-802

5. Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal

(Figure 201, Figure 202)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1676	Assembly - Lock, Flight Controls (used with valve p/n 10-60710-2) (Part #: F80049-17, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Procedure

SUBTASK 27-31-00-080-002

(1) Remove the flight controls hydraulic module locks from the flight controls shutoff valves.

(a) Remove the lockpins.

(b) Remove the lock, SPL-1675 or lock, SPL-1676 from the two flight controls shutoff valves.

(c) Put the manual override lever at the two flight controls shutoff valves in the position 1 (ON position).

(d) Connect the electrical connector to the flight controls hydraulic modules A and B.

SUBTASK 27-31-00-860-012

(2) Set the FLT CONTROL A and B switches on the forward overhead panel to the ON position.

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SUBTASK 27-31-00-860-013

(3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

SUBTASK 27-31-00-860-014

(4) If it is necessary, fill the hydraulic reservoirs. To fill them, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

TASK 27-31-00-700-801

6. Null Procedure - Mach Trim Actuator

A. References

Reference	Title
22-11-00-820-802	Elevator Rigging Test (P/B 501)
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Prepare for the Test

SUBTASK 27-31-00-860-146

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-31-00-860-147

(2) Set the autopilot stab trim cutout switch, on the control stand, to the CUTOUT position.

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SUBTASK 27-31-00-860-148

(3) Make sure that the VHF NAV and IRS switches, on the P5 forward overhead panel, are in the NORMAL positions.

SUBTASK 27-31-00-860-149

(4) Set the left and right IRS select switches, on the P5 aft overhead panel, to the ALIGN or NAV position.

SUBTASK 27-31-00-860-150

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, STABILIZER AND NOSE GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Supply hydraulic power to hydraulic systems A and B. To supply hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-31-00-010-039

(6) To get access to the stabilizer trim jackscrew, do this task:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-980-003

(7) Do these steps to set the B dimension:

NOTE: The B dimension is measured between the center of the upper and lower Gimbal pins on the stabilizer trim jackscrew. To do this, one person must be in the tail of the airplane with a headset and the other person in the flight compartment.

(a) Turn the stab trim wheel handle on the control stand to set the B dimension.

(b) Use the trammel bar, SPL-1677 to measure the B dimension.

(c) Make sure that the B dimension is 39.89 (±0.01) inches.

F. Procedure

SUBTASK 27-31-00-740-008

(1) Push the INIT REF key on the CDU keyboard.

(a) Push the Line Select Key (LSK) that is adjacent to each selection:

1) INDEX
2) MAINT
3) DFCS
4) EXTENDED MAINTENANCE
5) RIGGING

SUBTASK 27-31-00-740-002

(2) Push the Line Select Key (LSK) adjacent to <ELEVATOR on the control display unit (CDU).

SUBTASK 27-31-00-740-003

(3) Push the LSK adjacent to <ELEV RIG on the CDU.

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SUBTASK 27-31-00-740-004

(4) Follow the instructions on the CDU and push the LSK adjacent to <CONTINUE until Test 51.02 MT ACT POS menu shows on the CDU.

NOTE: The DFCS BITE Rigging Test will move the mach trim actuator to the fully extended position.

SUBTASK 27-31-00-740-009

(5) Use Test 51.02 and 51.03 to make sure that the MT ACT POS for FCC channel A and B are within their limits (TASK 22-11-00-820-802).

NOTE: For Tests 51.02 and 51.03, there is no value for the B side; N/A.

SUBTASK 27-31-00-740-010

(6) Continue with test 51.02 until test 51.03 is displayed.

NOTE: A mach trim actuator position of 0.00 +/- 0.20 should be displayed.

SUBTASK 27-31-00-740-011

(7) The null procedure for the mach trim actuator is complete.

SUBTASK 27-31-00-860-179

(8) Push the INIT REF key on the CDU keyboard.

END OF TASK

TASK 27-31-00-200-801

7. Elevator Control Pushrod - Visual Inspection

(Figure 203)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

C. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

D. Procedure

SUBTASK 27-31-00-010-036

(1) Open this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-860-158

(2) If hydraulic systems A and B have pressure, remove pressure from the elevator hydraulic systems A and B. To remove hydraulic pressure, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

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SUBTASK 27-31-00-200-008

(3) Do a detailed visual inspection of the elevator control pushrods (on both elevators) (Figure 203).

(a) Make sure all hardware is installed and secure.

(b) Check for unusual wear and loose parts at the two connection points of the elevator control pushrod.

NOTE: Try to wiggle or move connection bolts with hand pressure only.

SUBTASK 27-31-00-420-012

(4) Tighten and properly secure any loose items.

SUBTASK 27-31-00-960-004

(5) If replacement is necessary, replace any worn or loose parts with new hardware.

SUBTASK 27-31-00-410-026

(6) Close this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-741-001

(7) If you need hydraulic pressure in systems A and B, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

——————— END OF TASK ———————

TASK 27-31-00-200-802

8. Elevator Feel and Centering Unit - Visual Inspection

(Figure 203)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

C. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

D. Procedure

SUBTASK 27-31-00-780-002

(1) If hydraulic systems A and B have pressure, remove pressure from the elevator hydraulic systems A and B. To remove hydraulic pressure, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

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SUBTASK 27-31-00-010-037

(2) Open this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-200-002

(3) Do a visual inspection of the Elevator Feel and Centering Unit:

(a) Check for any hydraulic leaks at the actuator seals and hydraulic line connections.

(b) Check for unusual wear or loose parts at the Feel and Centering Unit connection points.

1) Make sure all of the hardware is installed and secure.

a) Tighten and properly secure any loose items.

2) If replacement is necessary, replace any loose or worn hardware with new hardware.

SUBTASK 27-31-00-410-027

(4) Close this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-840-004

(5) If you need hydraulic pressure in systems A and B, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

——————— END OF TASK ———————

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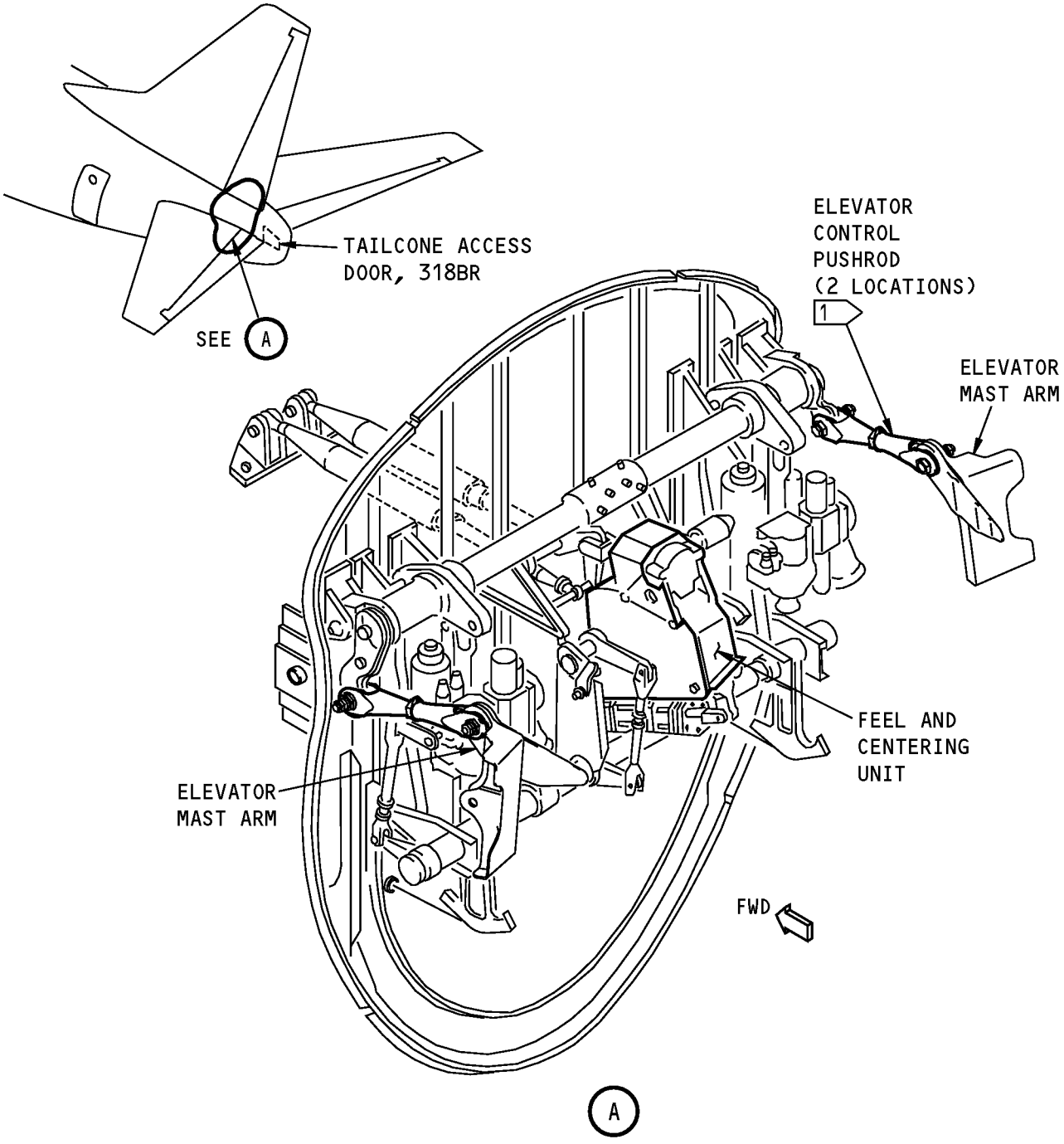

1 ACCESS TO THE FORWARD ELEVATOR CONTROL PUSHROD CONNECTION POINT IS THROUGH THE TAILCONE ACCESS DOOR 318BR.
ACCESS TO THE ELEVATOR CONTROL PUSHROD AFT CONNECTION POINT IS AT THE TOP OF THE ELEVATOR AT THE ELEVATOR MAST ARM.

Elevator Feel and Centering Unit/Elevator Control Pushrod
Figure 203/27-31-00-990-819

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TASK 27-31-00-220-802

9. Elevator Tab and Tab Mechanism - Detailed Visual Inspection

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-31-31-400-801	Elevator Tab - Installation (P/B 401)
27-31-34-400-802	Elevator Tab Control Mechanism - Installation (P/B 401)

C. Location Zones

Zone	Area
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
334	Left Horizontal Stabilizer - Elevator
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
344	Right Horizontal Stabilizer - Elevator

D. Access Panels

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
334PT	Horizontal Stabilizer, Tab Control Rod Fairing
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

E. Procedure

SUBTASK 27-31-00-860-159

(1) Remove pressure from the elevator hydraulic systems A and B. To remove hydraulic pressure, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-200-009

(2) Do a detailed visual inspection of the elevator tab hinges.

(a) Make sure all hardware is installed and secure. (TASK 27-31-31-400-801)

(b) Check for unusual wear and loose parts.

NOTE: Try to wiggle or move hinge bolts with hand pressure only.

(c) Inspect the lug assembly bearings to ensure the bearings are lubricated and in good condition.

SUBTASK 27-31-00-420-013

(3) Tighten and properly secure any loose items.

SUBTASK 27-31-00-960-005

(4) Replace, as necessary, with any new hardware.

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SUBTASK 27-31-00-010-044

(5) Open these access panels:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
334PT	Horizontal Stabilizer, Tab Control Rod Fairing
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

SUBTASK 27-31-00-200-011

(6) Do a detailed inspection for security and condition of the elevator tab control mechanism and elevator tab pushrod attachment.

(a) Make sure all hardware is installed and secure (TASK 27-31-34-400-802).

(b) Check for unusual wear or loose parts by lightly wiggling the pushrods.

SUBTASK 27-31-00-420-014

(7) Tighten and properly secure any loose items.

NOTE: If the nuts on the bolts that attach the elevator tab control rods to structure are loose, they should be replaced and not re-torqued. Using new nuts will ensure that they have the required run-on torque of 3.5 in-lb (0.4 N·m).

SUBTASK 27-31-00-960-006

(8) Replace, as necessary, with any new hardware.

SUBTASK 27-31-00-200-012

(9) Do a detailed visual inspection for security and condition of the elevator tab pushrod and elevator tab mast fitting to pushrod attachment .

(a) Turn the tab assembly trailing edge down so that the installation of the tab pushrods to the tab mast fittings are visible (TASK 27-31-34-400-802).

NOTE: This can also be done in the balanced mode with the trailing edge down.

SUBTASK 27-31-00-420-015

(10) Tighten and properly secure any loose items.

SUBTASK 27-31-00-960-007

(11) Replace, as necessary, with any new hardware.

SUBTASK 27-31-00-860-160

(12) Put the Elevator Hydraulic Systems A and B back to the condition before the pressure removal, do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-00-410-031

(13) Close these access panels:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
334PT	Horizontal Stabilizer, Tab Control Rod Fairing
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

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SUBTASK 27-31-00-840-002

(14) Put the airplane back to its normal condition.

——————— END OF TASK ———————

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ELEVATOR AND ELEVATOR TRIM CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Operational Test - Elevator and Elevator Trim Control System - Use this task to do a quick check of the elevator control system.

(2) Operational Test - Elevator Tab Control System - Use this task to do a quick check of the elevator tab control system.

(3) Operational Test - Elevator Control Column Override - Use this task to do a quick check of the control column override assembly.

(4) Functional Test - Elevator Control Column Override - Use this task to do a functional check of the control column override assembly.

(5) Elevator Control Cables EA and EB and Pitch Force Transducers Adjustment - Use this task to adjust the elevator control cable and pitch force transducers.

(6) Elevator Control Pushrods Adjustment - Use this task to adjust the control pushrods which connect the elevator to the output torque tube.

(7) Input Rods of the Elevator Power Control Unit - Use this task to adjust the two input rods (primary and secondary) of the right and left elevator power control units (PCUs).

(8) Input Rods of the Elevator Neutral Shift Mechanism and Output Rod of the Feel and Centering Unit Adjustment - Use this task to adjust the input rods which connect the neutral shift mechanism to the stabilizer. It also includes steps to adjust the output rod which connect the feel and centering unit to the input torque tube.

(9) Elevator Tab Pushrods Adjustment - Use this task to adjust the elevator tab pushrods.

(10) Input Rod of the Elevator Feel Computer Adjustment - Use this test to adjust the input rod (stabilizer pushrod) of the elevator feel computer.

(11) Elevator Surface Friction and Balance Test - Use this task to make sure the elevators are balanced.

(12) Elevator Balance Panels Test - Use this test to make sure the elevator balance panels are installed properly.

(13) Elevator Limit Travel Test - Use this test to make sure the elevator operates correctly.

(14) Elevator Output Torque Tube Linkage Test - Use this task to do a check of the elevator output torque tube bus linkage.

(15) Elevator Tab Linkage Test - Use this task to do a check of the elevator tab control system.

(16) Manual Mode Test - Use this task to make sure the control columns and control wheels operate freely.

(17) Control Column Travel and Centering Test - Use this test to make sure the control columns can move through their full travel. This test also includes the centering test of the control columns.

(18) Control Column Power Force Test - Use this test to make sure the control columns move with a correct force.

(19) Neutral Shift Test - Use this test to make sure the neutral shift mechanism moves the elevator correctly when the stabilizer moves. When the stabilizer moves, it provides input to the elevator PCUs.

(20) Feel Differential Pressure Light Test - Use this test to make sure the FEEL DIFF PRESS light and the trailing edge flaps switch, S1051 operate correctly.

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(21) Feel Differential Pressure Light Test - Use this test to make sure the FEEL DIFF PRESS light operates correctly.

(22) Pitot Probe Leak Test - Use this test to make sure there is no leakage at the pitot probes.

(23) Feel Force System Test - Use this test to make sure the elevator feel computer operates correctly. The elevator feel computer changes the control columns forces as the airspeed changes.

(24) Sensor Null Test - Use this test to make sure the elevator is in the correct rig position with DFCS Computer BITE.

(25) Elevator PCU Input Rod (Pogo) Functional Test - Use this task to do a check of force required to compress and extend each input rod (pogo) of the elevator power control unit (PCU).

(26) Elevator Power Off Flight Test

(27) Elevator Tab Pushrod Adjustment after the Elevator Power Off Flight Test

TASK 27-31-00-710-801

2. Elevator and Elevator Trim Control System - Operational Test

A. General

(1) Use this task to do a quick check of the elevator control system.

B. References

Reference	Title
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Procedure

SUBTASK 27-31-00-860-099

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-710-003

(2) Operate the control column with the systems A and B hydraulic power:

(a) Set the FLT CONTROL A and B switches on the forward overhead panel, P5, to the ON position.

(b) Move the control column full aft.

1) Make sure that the elevators move full up and the system operates smoothly.

(c) Move the control column full forward.

1) Make sure that the elevators move full down and the system operates smoothly.

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SUBTASK 27-31-00-710-004

(3) Operate the control column with the system B hydraulic power:

(a) Set the FLT CONTROL A switch on the forward overhead panel, P5, to the OFF position.

(b) Move the control column full aft.

1) Make sure that the elevators move full up and the system operates smoothly.

(c) Move the control column full forward.

1) Make sure that the elevators move full down and the system operates smoothly.

SUBTASK 27-31-00-710-005

(4) Operate the control column with the system A hydraulic power:

(a) Set the FLT CONTROL A switch on the forward overhead panel, P5, to the ON position.

(b) Set the FLT CONTROL B switch on the forward overhead panel, P5, to the OFF position.

(c) Move the control column full aft.

1) Make sure that the elevators move full up and the system operates smoothly.

(d) Move the control column full forward.

1) Make sure that the elevators move full down and the system operates smoothly.

SUBTASK 27-31-00-860-100

(5) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

——————— END OF TASK ———————

TASK 27-31-00-700-815

3. Elevator Tab Control System - Operational Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to do a quick check of the elevator tab control system.

B. References

Reference	Title
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

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D. Prepare for the Test

SUBTASK 27-31-00-860-103

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-860-151

(2) Make sure the flaps are in the full up position.

SUBTASK 27-31-00-860-106

(3) Make sure the control column is in the neutral position.

SUBTASK 27-31-00-760-001

(4) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	5	C01204	SMYD-1 CMPTR DC
E	6	C01205	SMYD-1 SNSR EXC AC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC
B	5	C01206	SMYD-2 CMPTR DC
C	14	C01008	ADIRU RIGHT AC
C	17	C01010	ADIRU RIGHT DC

E. Operational Test - Elevator Tab Control System

HAP ALL; AIRPLANES WITH THE 10 SECOND TIME DELAY ELEVATOR TAB CONTROL VALVE

SUBTASK 27-31-00-730-014

(1) Do the operational test - elevator tab control system:

(a) Move and hold the control column full aft.

1) Make sure that the elevator tabs move down.

(b) Move and hold the control column full forward.

1) Make sure that the elevator tabs move up.

(c) Release the control column.

(d) Cycle the control column and return it to neutral.

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(e) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	8	C01464	FLIGHT CONTROL ELEV TAB VLV RIGHT

(f) Set the flaps to the 5 degree position.

(g) Move and hold the control column full forward.

1) Make sure that the left elevator tab is below the elevator and the right elevator tab is above the elevator.

(h) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	8	C01464	FLIGHT CONTROL ELEV TAB VLV RIGHT

1) Make sure there is an 8-12 second time delay before the right elevator tab begins to move.

(i) Cycle the control column full forward and full aft.

1) Make sure that both elevator tabs move in the same direction as the elevators.

HAP ALL

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-107

(1) Set the flaps to the full up position.

SUBTASK 27-31-00-860-108

(2) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

——————— END OF TASK ———————

TASK 27-31-00-710-802

4. Elevator Control Column Override - Operational Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this task to do a quick check of the elevator control column override assembly.

B. References

Reference	Title
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

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D. Procedure

SUBTASK 27-31-00-860-101

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-710-006

(2) Do an operational test of the elevator control column override:

(a) Override Test of the First Officer's Control Column:

1) Push the captain's and first officer's control columns forward.
2) Hold the captain's control column forward (against the forward stop).
3) Pull the first officer's control column aft.
4) Make sure that you can pull the first officer's control column aft.
5) Release the captain's and first officer's control columns go to the neutral position.

(b) Override Test of the Captain's Control Column:

1) Push the captain's and first officer's control columns forward.
2) Hold the first officer's control column forward (against the forward stop).
3) Pull the captain's control column aft.
4) Make sure that you can pull the captain's control column aft.
5) Release the captain's and first officer's control columns go to the neutral position.

SUBTASK 27-31-00-860-102

(3) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

——————— END OF TASK ———————

TASK 27-31-00-720-801

5. Elevator Control Column Override - Functional Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this task to do a functional check of the elevator control column override.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1751	Equipment - Adapter, Control Wheel (Part #: C27060-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F72867-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

E. Procedure

SUBTASK 27-31-00-860-122

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-710-010

(2) Do functional test of the elevator control column override:

(a) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

1) Put a 6 inch (150 mm) strip of adhesive tape vertically on the right elevator index plate.

2) Make a mark on the tape where the upper surface of the right elevator trailing edge would extend to the tape.

3) Attach the force gage and equipment, SPL-1751 to the captain's control column.

NOTE: The force gage is a push-pull scale for measuring control column loads.

4) Block the first officer's control wheel in the neutral position.

NOTE: One mechanic can hold the first officer's control wheel steady in the neutral position.

5) Slowly pull the captain's control column aft and hold at a minimum right elevator position of 1.9 - 2.0 inches (48 - 51 mm) (3.15 degrees).

6) Make sure that the captain's control column force is between 40 - 100 pounds (178 - 445 newtons).

7) Release the captain's control column slowly to center the system.

(b) Push the captains's control column slowly forward and hold at a minimum right elevator position of 1.9 - 2.0 inches (48 - 51 mm) (3.15 degrees).

(c) Make sure that the captain's control column force is between 32 - 102 pounds (142 - 454 newtons).

(d) Remove the force gage and equipment, SPL-1751 from the captain's control column.

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F. Put the Airplane Back to its Usual Condition

SUBTASK 27-31-00-860-123

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

——————— END OF TASK ———————

TASK 27-31-00-820-801

6. Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment

(Figure 501, Figure 502, Figure 503)

A. General

(1) Use this task to adjust the elevator control cables and pitch force transducers.

(2) Before you do cable adjustment, permit a minimum of one hour at a constant ambient temperature of +/- 5 degrees F (+/- 2.8 degrees C) for the airframe temperature to become stable.

(a) The cable tension values will not be correct when there are temperature differences along the cable run.

B. References

Reference	Title
22-11-92-820-801	Pitch Force Transducer Adjustment (DFCS BITE Test) (P/B 501)
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1554	Tensiometer - Cable (40-600 LB) (Part #: ACM-600, Supplier: 13331, A/P Effectivity: 737-ALL) (Part #: T5-8008-106-00, Supplier: 0N8U4, A/P Effectivity: 737-ALL) (Part #: T60-1001-C9-1A, Supplier: 0N8U4, A/P Effectivity: 737-ALL)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
311	Area Aft of Pressure Bulkhead - Left

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(Continued)

Zone	Area
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door

F. Prepare for the Adjustment

SUBTASK 27-31-00-860-016

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-860-017

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-031

(3) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-31-00-010-032

(4) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-010-001

(5) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-860-018

(6) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

SUBTASK 27-31-00-480-010

(7) Use a 40 - 600 lb cable tensiometer, COM-1554 to get the tension measurement, (Table 501).

G. Elevator Control Cables EA and EB and Pitch Force Transducers Adjustment

SUBTASK 27-31-00-020-001

(1) Remove the nuts [3], washers [2], and bolts [1] from the adjustable end of the two pitch force transducers (Figure 501).

NOTE: The bolts [1] will be installed when you complete the adjustment of the pitch force transducers.

SUBTASK 27-31-00-710-001

(2) Adjust the elevator control cables EA and EB and the pitch force transducers:

(a) Install the rig pin E-5 from the rig pin kit, SPL-1585 in the elevator aft quadrant (Figure 503).

1) Make sure you can move the rig pin freely.

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2) If it is necessary, move the elevator by hand until you can install the rig pin E-5.

(b) Install the rig pin E-1 from the rig pin kit, SPL-1585 in the elevator left forward quadrant (Figure 501).

1) Make sure you can move the rig pin E-1 freely.

(c) Remove the nuts [6], washers [5], and bolts [4] from the two elevator forward quadrants.

NOTE: The bolts [4] will be installed when you complete the adjustment of the pitch force transducers.

(d) Install the rig pins E-2 and E-3 from the rig pin kit, SPL-1585 through the installation holes of the bolts [4] (Figure 501).

1) Make sure you can move the rig pins E-2 and E-3 freely.

(e) If you install new elevator control cables EA and EB, then do these steps to stretch the cables:

1) Adjust the turnbuckles on the EAL, EAR, EBL, and EBR cables to 300 +/- 20 pounds (1334 +/- 89 newtons or 136.0 +/- 9.1 kg)

2) Adjust the seals in the pressure bulkhead, if it is necessary, to keep the cables straight.

3) Remove the rig pin E-1 from the elevator left forward quadrant.

4) Remove the rig pin E-5 from the elevator aft quadrant.

5) Move the control column 25 times through full travel.

6) Install the rig pin E-5 to the elevator aft quadrant.

a) Make sure you can move the rig pin E-5 freely.

b) If it is necessary, move the elevator by hand until the rig pin holes align.

7) Install the rig pin E-1 to the elevator left forward quadrant.

a) Make sure you can move the rig pin E-1 freely.

8) Make sure the rig pins E-2 and E-3 move freely through the installation holes of the bolts [4].

(f) Adjust the control cables EA and EB to their correct cable rigging tension:

1) Adjust the turnbuckles to get the cable tension as shown on the table below (Table 501):

Table 501/27-31-00-993-816 Elevator Control Cable Rigging Tension

Temperature Deg F (C)	Maximum Lbs (Kg)	Minimum Lbs (Kg)
-40 (-40)	83 (38)	63 (29)
-39 (-38)	84 (38)	64 (29)
-38 (-39)	84 (38)	64 (29)
-37 (-38)	85 (39)	65 (30)
-36 (-38)	85 (39)	65 (30)
-35 (-37)	86 (39)	66 (30)
-34 (-37)	86 (39)	66 (30)
-33 (-36)	87 (40)	67 (30)
-32 (-36)	87 (40)	67 (30)
-31 (-35)	88 (40)	68 (31)

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(Continued)

Temperature Deg F (C)	Maximum Lbs (Kg)	Minimum Lbs (Kg)
-30 (-34)	88 (40)	68 (31)
-29 (-34)	88 (40)	68 (31)
-28 (-33)	89 (44)	69 (31)
-27 (-33)	90 (41)	70 (32)
-26 (-32)	90 (41)	70 (32)
-25 (-32)	91 (41)	71 (32)
-24 (-31)	91 (41)	71 (32)
-23 (-31)	92 (42)	72 (33)
-22 (-30)	92 (42)	72 (33)
-21 (-29)	93 (42)	73 (33)
-20 (-29)	93 (42)	73 (33)
-19 (-28)	93 (42)	73 (33)
-18 (-28)	94 (43)	74 (34)
-17 (-27)	94 (43)	74 (34)
-16 (-27)	95 (43)	75 (34)
-15 (-26)	95 (43)	75 (34)
-14 (-26)	95 (43)	75 (34)
-13 (-25)	96 (44)	76 (35)
-12 (-24)	96 (44)	76 (35)
-11 (-24)	97 (44)	77 (35)
-10 (-23)	97 (44)	77 (35)
-09 (-23)	97 (44)	77 (35)
-08 (-22)	98 (44)	78 (35)
-07 (-22)	98 (44)	78 (35)
-06 (-21)	99 (45)	79 (36)
-05 (-21)	99 (45)	79 (36)
-04 (-20)	99 (45)	79 (36)
-03 (-19)	100 (45)	80 (36)
-02 (-19)	100 (45)	80 (36)
-01 (-18)	101 (46)	81 (37)
00 (-18)	101 (46)	81 (37)
01 (-17)	102 (46)	82 (37)

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(Continued)

Temperature Deg F (C)	Maximum Lbs (Kg)	Minimum Lbs (Kg)
02 (-17)	102 (46)	82 (37)
03 (-16)	102 (46)	82 (37)
04 (-16)	103 (47)	83 (38)
05 (-15)	103 (47)	83 (38)
06 (-14)	104 (47)	84 (38)
07 (-14)	104 (47)	84 (38)
08 (-13)	104 (47)	84 (38)
09 (-13)	105 (48)	85 (39)
10 (-12)	105 (48)	85 (39)
11 (-12)	106 (48)	86 (39)
12 (-11)	106 (48)	86 (39)
13 (-11)	106 (48)	86 (39)
14 (-10)	107 (49)	87 (40)
15 (-9)	107 (49)	87 (40)
16 (-9)	108 (49)	88 (40)
17 (-8)	108 (49)	88 (40)
18 (-8)	109 (49)	89 (40)
19 (-7)	109 (49)	89 (40)
20 (-7)	109 (49)	89 (40)
21 (-6)	110 (50)	90 (41)
22 (-6)	110 (50)	90 (41)
23 (-5)	111 (50)	91 (41)
24 (-4)	111 (50)	91 (41)
25 (-4)	111 (50)	91 (41)
26 (-3)	112 (51)	92 (42)
27 (-3)	112 (51)	92 (42)
28 (-2)	113 (51)	93 (42)
29 (-2)	113 (51)	93 (42)
30 (-1)	114 (52)	94 (43)
31 (-1)	114 (52)	94 (43)
32 (0)	114 (52)	94 (43)
33 (1)	115 (52)	95 (43)

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(Continued)

Temperature Deg F (C)	Maximum Lbs (Kg)	Minimum Lbs (Kg)
34 (1)	115 (52)	95 (43)
35 (2)	116 (53)	96 (44)
36 (2)	116 (53)	96 (44)
37 (3)	116 (53)	96 (44)
38 (3)	117 (53)	97 (44)
39 (4)	117 (53)	97 (44)
40 (4)	118 (54)	98 (44)
41 (5)	118 (54)	98 (44)
42 (6)	119 (54)	99 (45)
43 (6)	119 (54)	99 (45)
44 (7)	119 (54)	99 (45)
45 (7)	120 (54)	100 (45)
46 (8)	120 (54)	100 (45)
47 (8)	121 (55)	101 (46)
48 (9)	121 (55)	101 (46)
49 (9)	121 (55)	101 (46)
50 (10)	122 (55)	102 (46)
51 (11)	122 (55)	102 (46)
52 (11)	123 (56)	103 (47)
53 (12)	123 (56)	104 (47)
54 (12)	124 (56)	104 (47)
55 (13)	124 (56)	104 (47)
56 (13)	124 (56)	104 (47)
57 (14)	125 (57)	105 (48)
58 (14)	125 (57)	105 (48)
59 (15)	126 (57)	106 (48)
60 (16)	126 (57)	106 (48)
61 (16)	127 (58)	107 (49)
62 (17)	127 (58)	107 (49)
63 (17)	127 (58)	107 (49)
64 (18)	128 (58)	108 (49)
65 (18)	128 (58)	108 (49)

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(Continued)

Temperature Deg F (C)	Maximum Lbs (Kg)	Minimum Lbs (Kg)
66 (19)	129 (59)	109 (49)
67 (19)	129 (59)	109 (49)
68 (20)	130 (59)	110 (50)
69 (21)	130 (59)	110 (50)
70 (21)	130 (59)	110 (50)
71 (22)	131 (59)	111 (50)
72 (22)	131 (59)	111 (50)
73 (23)	132 (60)	111 (50)
74 (23)	132 (60)	112 (51)
75 (24)	133 (60)	113 (51)
76 (24)	133 (60)	113 (51)
77 (25)	133 (60)	113 (51)
78 (26)	134 (61)	114 (52)
79 (26)	134 (61)	114 (52)
80 (27)	135 (61)	115 (52)
81 (27)	135 (61)	115 (52)
82 (28)	136 (62)	116 (53)
83 (28)	136 (62)	116 (53)
84 (29)	136 (62)	116 (53)
85 (29)	137 (62)	117 (53)
86 (30)	137 (62)	117 (53)
87 (31)	138 (63)	118 (54)
88 (31)	138 (63)	118 (54)
89 (32)	139 (63)	119 (54)
90 (32)	139 (63)	119 (54)
91 (33)	140 (64)	120 (54)
92 (33)	140 (64)	120 (54)
93 (34)	140 (64)	120 (54)
94 (34)	141 (64)	121 (55)
95 (35)	141 (64)	121 (55)
96 (36)	142 (64)	122 (55)
97 (36)	142 (64)	122 (55)

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(Continued)

Temperature Deg F (C)	Maximum Lbs (Kg)	Minimum Lbs (Kg)
98 (37)	143 (65)	123 (56)
99 (37)	143 (65)	123 (56)
100 (38)	143 (65)	123 (56)
101 (38)	144 (65)	124 (56)
102 (39)	144 (65)	124 (56)
103 (39)	145 (66)	125 (57)
104 (40)	145 (66)	125 (57)
105 (41)	146 (66)	126 (57)
106 (41)	146 (66)	126 (57)
107 (42)	147 (67)	127 (58)
108 (42)	147 (67)	127 (58)
109 (43)	147 (67)	127 (58)
110 (43)	148 (67)	128 (58)

(g) Adjust the pitch force transducers. To adjust them, do this task: Pitch Force Transducer Adjustment (DFCS BITE Test), TASK 22-11-92-820-801.

(h) Make sure the tension of control cables EA and EB are same as shown on the table above (Table 501).

(i) Make sure you can move the rig pins E-1, E-2, E-3, and E-5 freely.

(j) Remove the rig pins E-2 and E-3.

(k) Install the bolts [4], washers [5], and nuts [6].

(l) Install the locking clips on the turnbuckles.

(m) Remove the rig pins E-1 and E-5.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-410-001

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-940-001

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-940-002

(3) Close this access panel:

Number	Name/Location
112A	Forward Access Door

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SUBTASK 27-31-00-860-019

(4) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

END OF TASK

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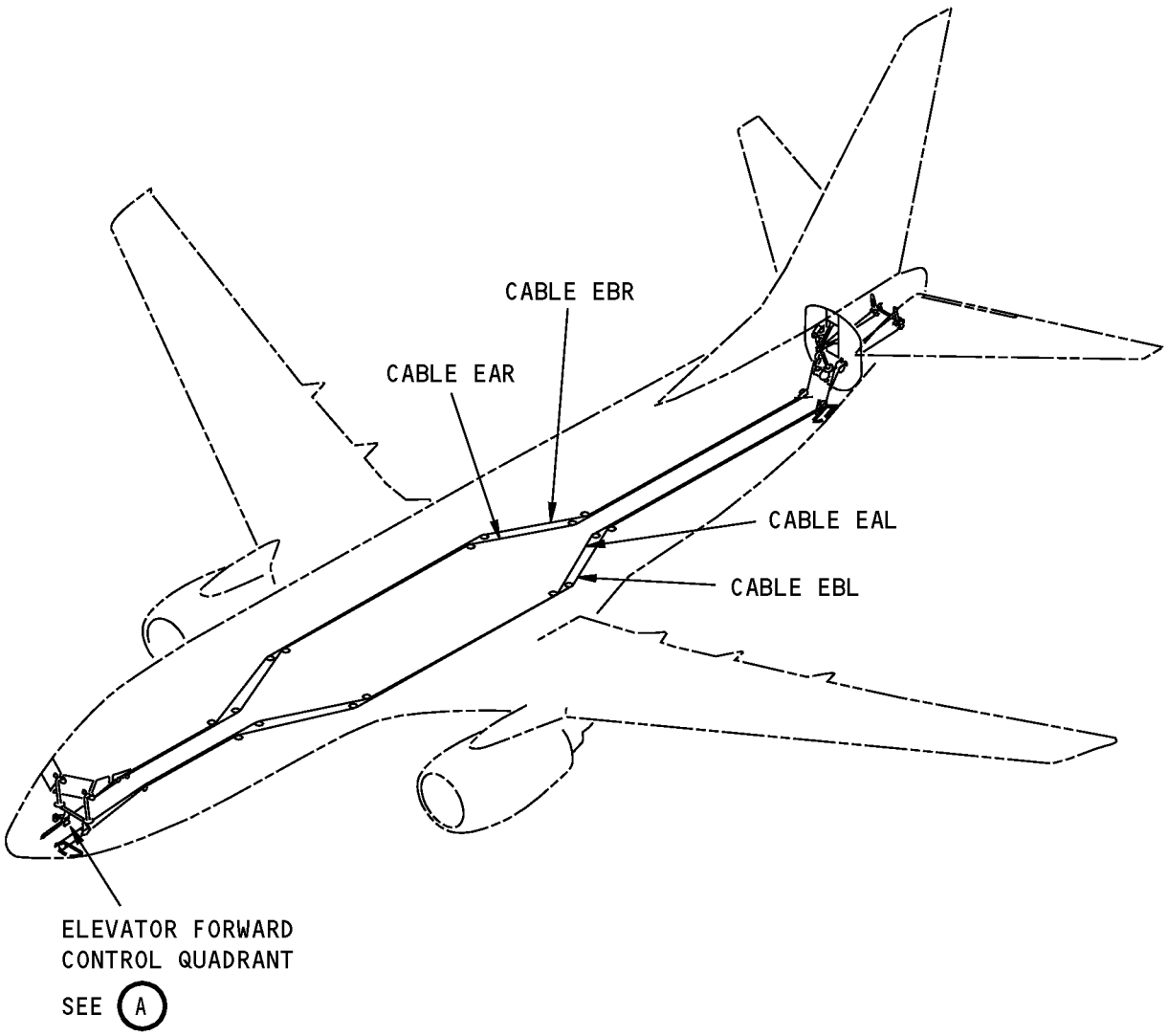

ELEVATOR AND TAB CONTROL CABLES,
CONTROL COLUMN AND FORWARD QUADRANT

Elevator Control Cables Adjustment
Figure 501 (Sheet 1 of 2)/27-31-00-990-803

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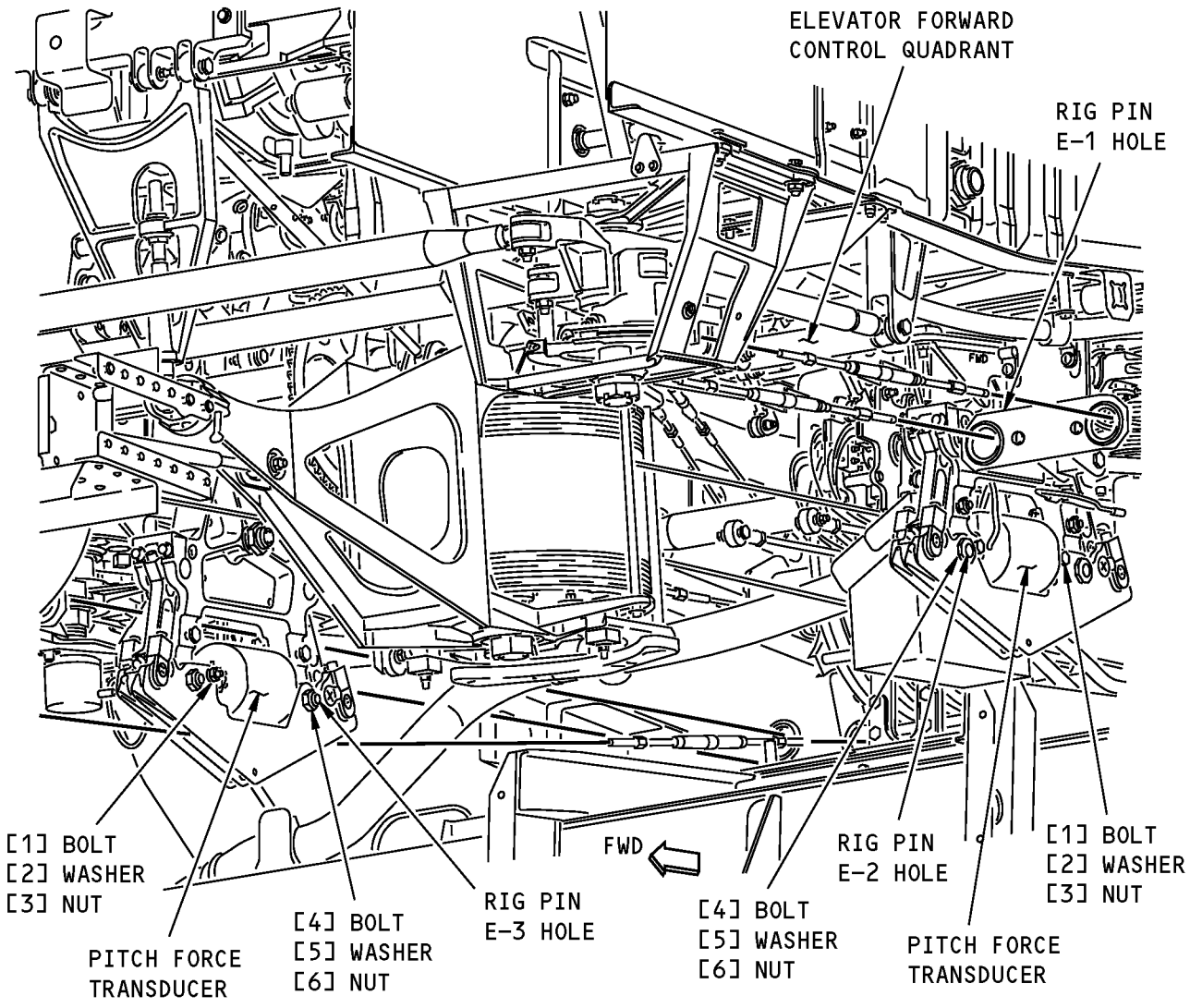

ELEVATOR FORWARD CONTROL QUADRANT ASSEMBLY

A

Elevator Control Cables Adjustment
Figure 501 (Sheet 2 of 2)/27-31-00-990-803

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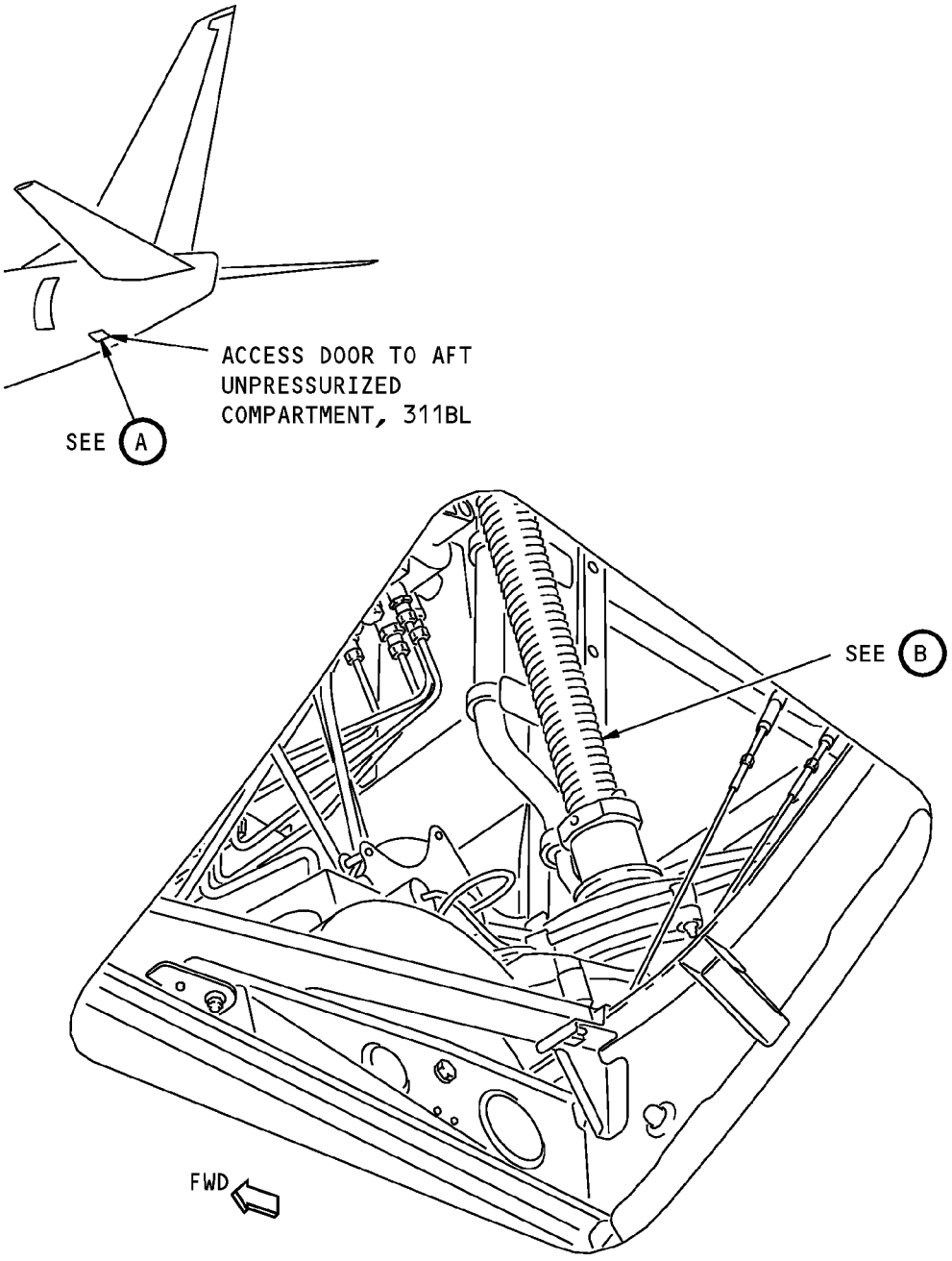

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Stabilizer Trim Jackscrew Setting
Figure 502 (Sheet 1 of 2)/27-31-00-990-804

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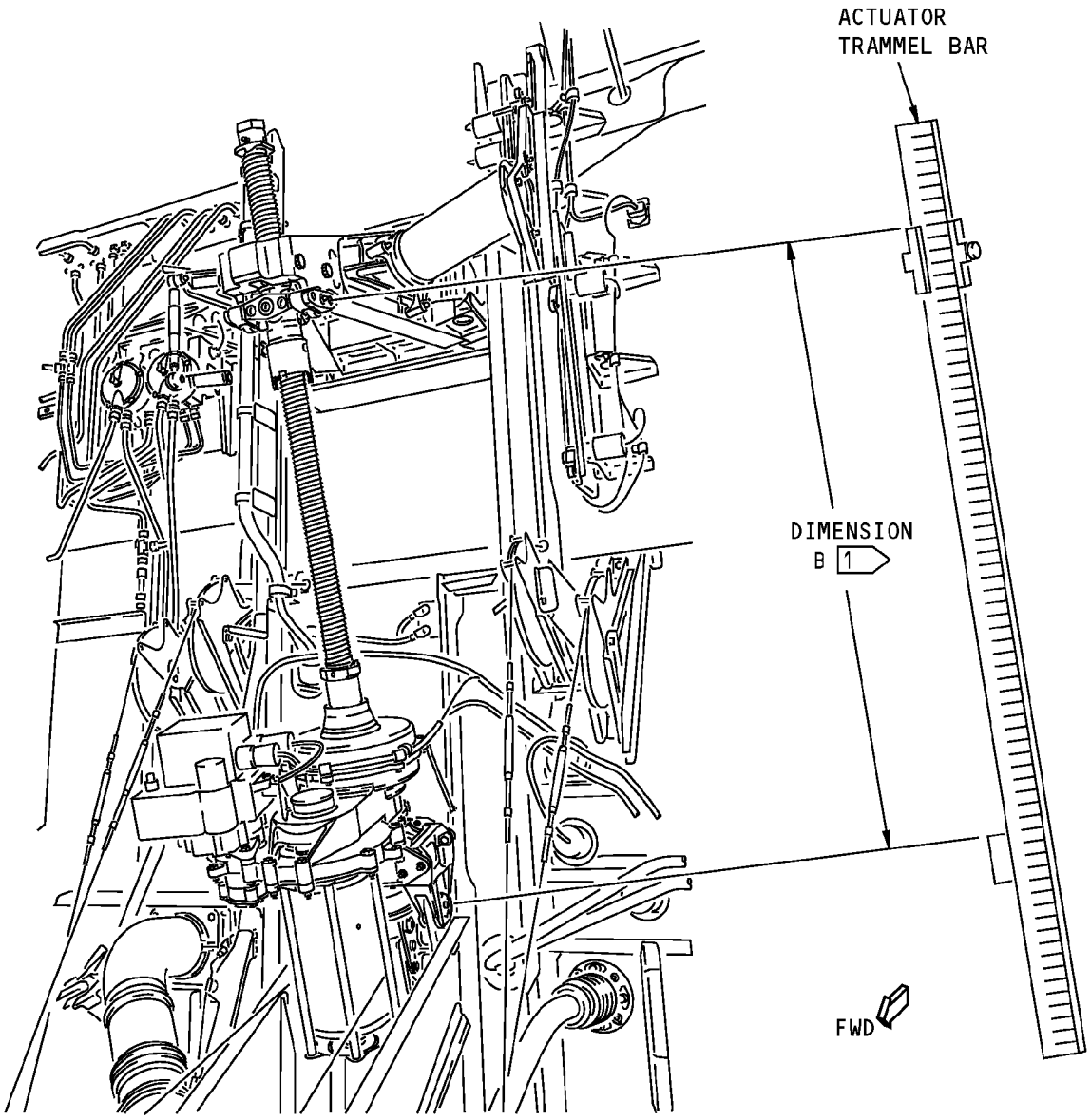

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Stabilizer Trim Jackscrew Setting
Figure 502 (Sheet 2 of 2)/27-31-00-990-804

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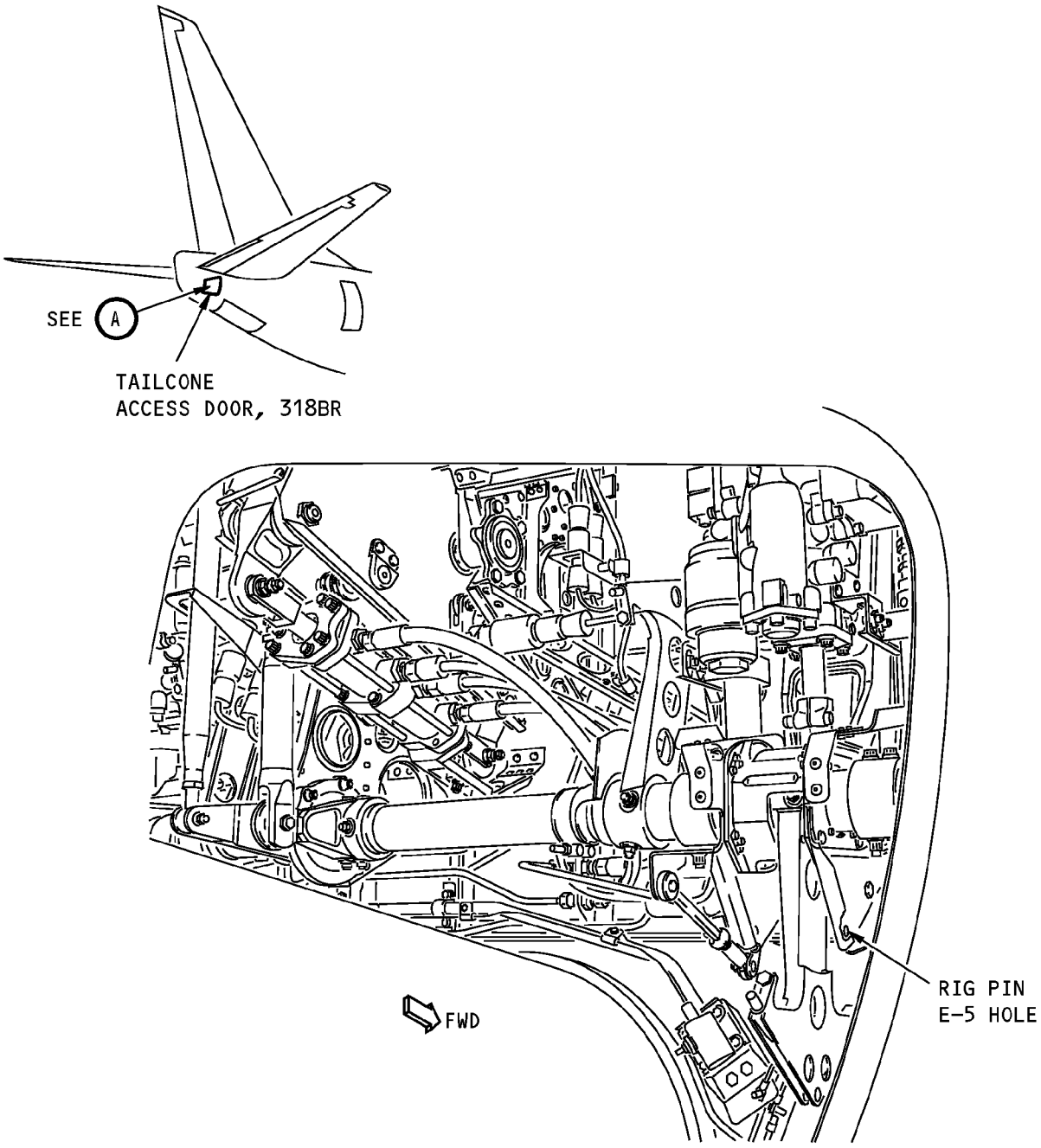

Elevator Aft Control Quadrant Rig Pin Location
Figure 503/27-31-00-990-805

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TASK 27-31-00-820-802

7. Elevator Control Pushrods - Adjustment

(Figure 502, Figure 503, Figure 504, Figure 505, Figure 519)

A. General

(1) Use this test to adjust the elevator control pushrods which connect the output torque tube to the elevators.

NOTE: For each elevator tab, if both pushrods are adjusted, then Elevator Power-Off Flight - Test, TASK 27-31-00-710-803 Elevator Power-Off Flight - Test, TASK 27-31-00-710-803 is necessary. If only one pushrod is adjusted and you can verify that the remaining rod has not been replaced or adjusted since the last flight test, then this flight test is not necessary. If only one pushrod is adjusted and you cannot verify that the remaining pushrod has not been replaced or adjusted since the last flight test, then the Elevator Power-Off Flight - Test, TASK 27-31-00-710-803 Elevator Power-Off Flight - Test, TASK 27-31-00-710-803 is necessary.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)

E. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

F. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door

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G. Prepare for the Adjustment

SUBTASK 27-31-00-860-020

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-860-021

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-033

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-010-002

(4) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-860-022

(5) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

H. Elevator Control Pushrods Adjustment

SUBTASK 27-31-00-860-023

(1) Push down on the trailing edge of the right elevator, to bottom out the elevator PCU's in the extended position.

SUBTASK 27-31-00-710-002

(2) Make sure the right elevator is in the full down position with the inboard end of the elevator trailing edge 10.84 +0.09/-0.32 inches (275.3 +2.3/-8.1 mm) below the index mark (Figure 519).

(a) Remove the nut [27], washer [26], nut [25], washers [24], and bolt [23] to disconnect the right elevator control pushrod [28] from the elevator bus crank [22].

(b) Loosen the checknut [29] on the right elevator pushrod [28].

(c) Adjust the elevator control pushrod [28] until the elevator is in the full down position with PCUs bottomed.

NOTE: One half turn of the elevator control pushrod [28] is equal to 0.20 inch (5.1 mm) at the elevator trailing edge.

(d) Install the bolt [23], washers [24] (under the nut), nut [25] (Figure 504).

1) Tighten the nut [25] by hand.

SUBTASK 27-31-00-980-002

(3) Push down on the trailing edge of the left elevator, to bottom out of the elevator PCU's in the extended position.

SUBTASK 27-31-00-820-016

(4) Make sure the left elevator is in the full down position with the inboard end of the elevator trailing edge 10.84 +0.09/-0.32 inches (275.3 +2.3/-8.1 mm) from the elevator neutral index mark (Figure 519).

(a) Remove the nut [27], washer [26], nut [25], washers [24], and bolt [23] to disconnect the left elevator control pushrod [28] from the elevator bus crank [22].

(b) Loosen the checknut [29] on the left elevator control pushrod [28].

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(c) Adjust the elevator control pushrod [28] until the elevator is in the full down position with PCUs bottomed.

NOTE: One half turn of the elevator control pushrod [28] is equal to 0.20 inch (5.1 mm) at the elevator trailing edge (Figure 505).

(d) Install the bolt [23], washers [24] (under the nut), nut [25] (Figure 504).

1) Tighten the nut [25] by hand.

SUBTASK 27-31-00-970-005

(5) Make sure the final position of the left elevator is +/- 0.12 inch (+/- 3.0 millimeters) of the final position of the right elevator.

(a) If it is necessary, re-adjust the right elevator to 10.84 +0.09/-0.32 inches (275.3 +2.3/-8.1 mm) from the index plate (Figure 519).

SUBTASK 27-31-00-420-003

(6) Tighten the checknuts [29] on the left and right elevator pushrods [28] to 750 - 900 pound-inches (84.8 - 101.7 newton-meters).

(a) Install the lockwire, G01912 on the checknuts [29].

SUBTASK 27-31-00-420-004

(7) Tighten the nuts [25] to 500 - 600 pound-inches (56.5 - 67.8 newton-meters).

SUBTASK 27-31-00-420-005

CAUTION: DO NOT TRY TO TIGHTEN THE NUT [25] AGAIN AFTER YOU TIGHTEN THE NUT [27], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(8) Install the washers [26] and nuts [27].

(a) Tighten the nuts [27] to 150 - 220 pound-inches (17.0 - 24.9 newton-meters).

SUBTASK 27-31-00-860-124

(9) Release the elevator PCUs from their extended position.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-410-002

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-940-003

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-024

(3) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

END OF TASK

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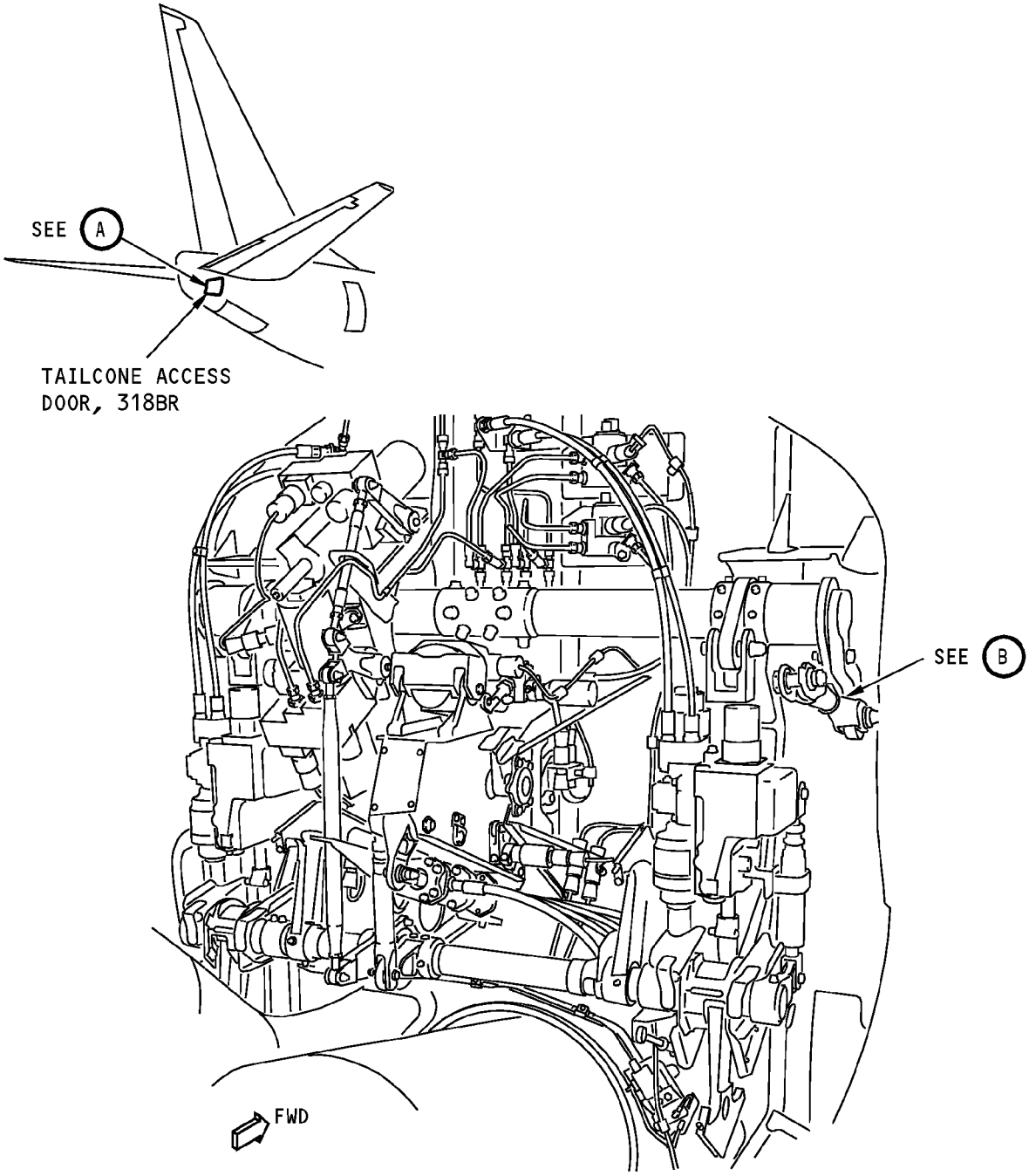

Elevator Pushrods Adjustment
Figure 504 (Sheet 1 of 2)/27-31-00-990-806

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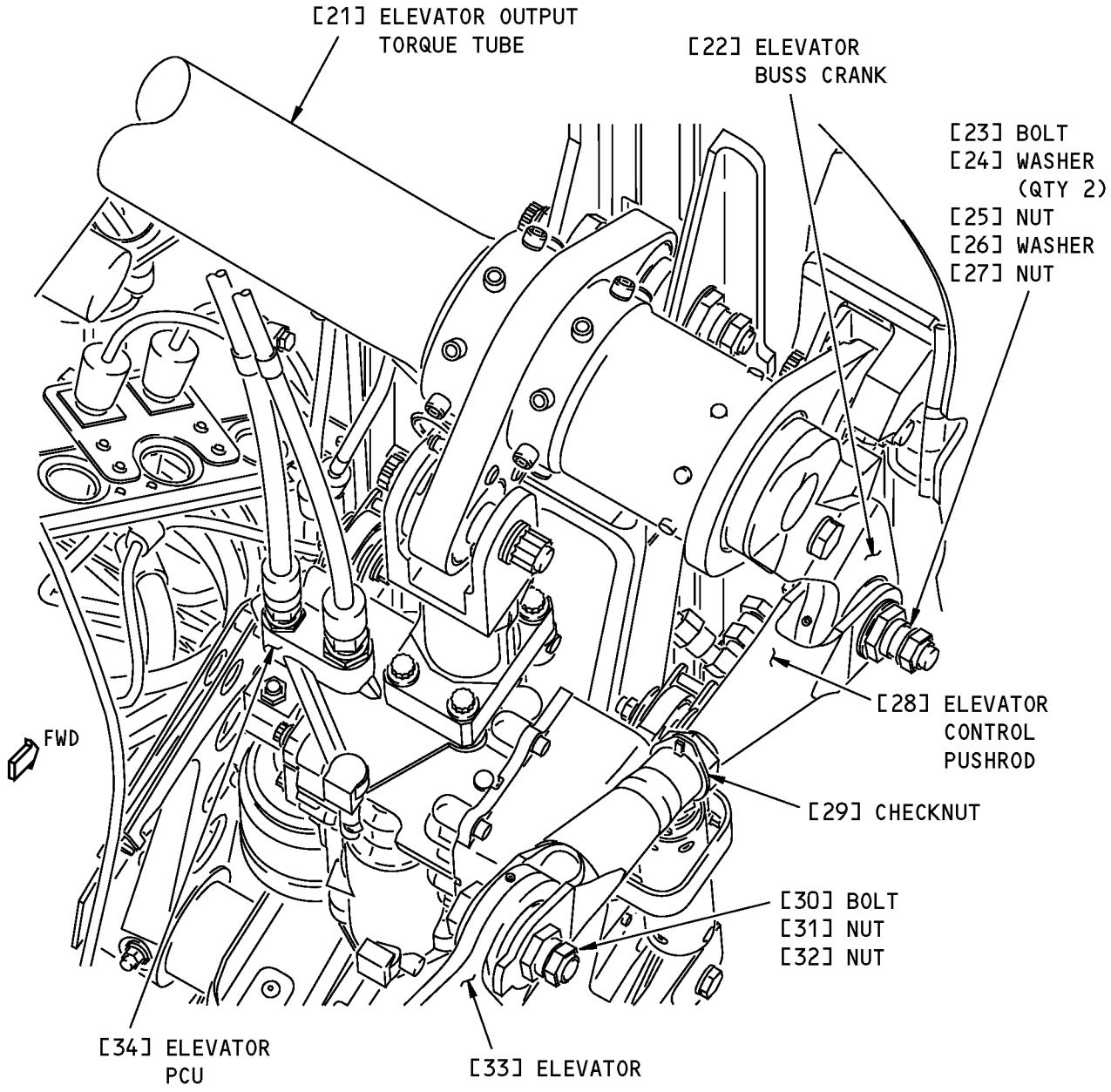

(RIGHT SIDE IS SHOWN, LEFT SIDE IS OPPOSITE)

B

Elevator Pushrods Adjustment
Figure 504 (Sheet 2 of 2)/27-31-00-990-806

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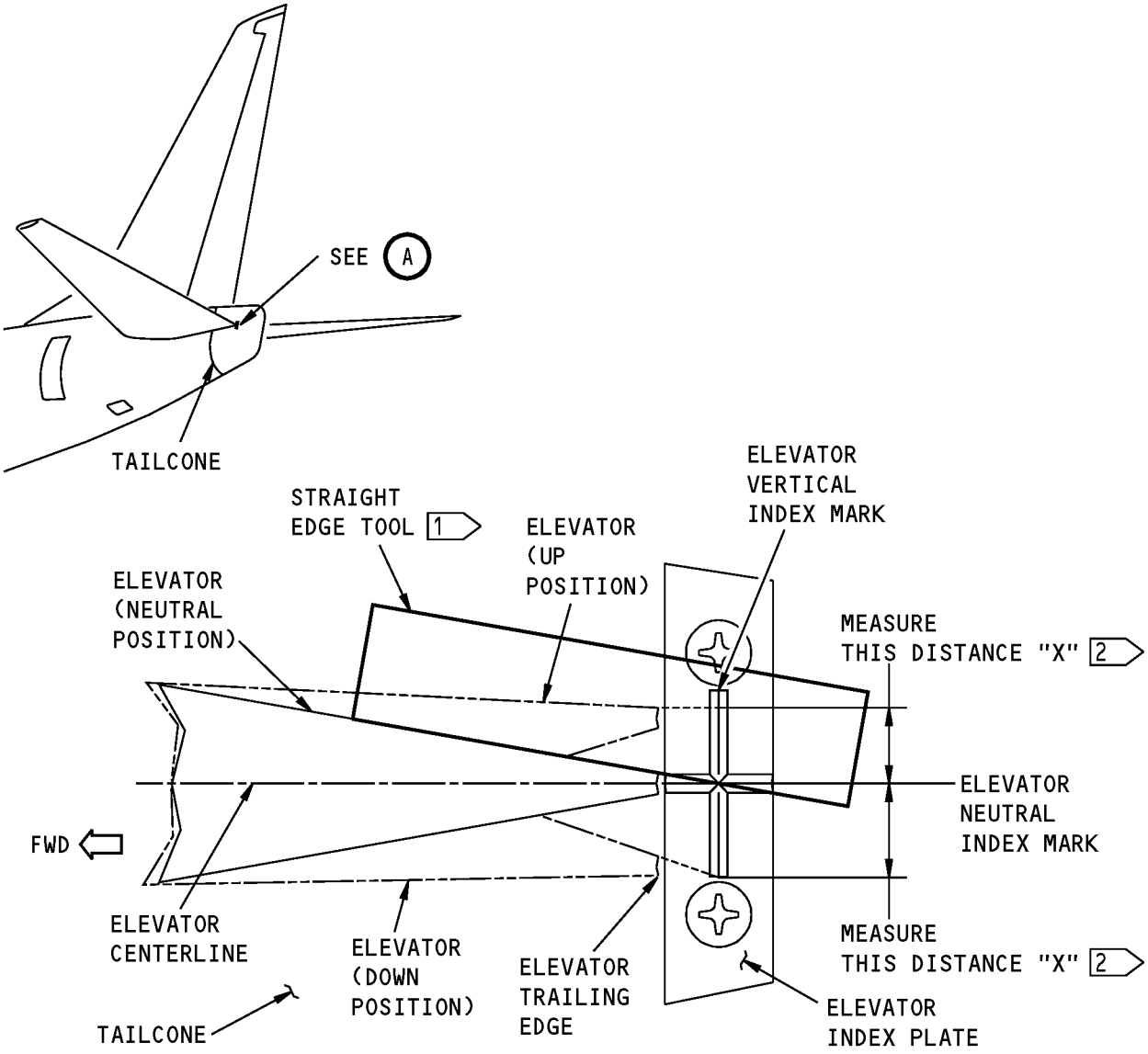

ELEVATOR TAB PUSHROD ADJUSTMENT MEASUREMENTS
(LEFT SIDE)

A

1 ELEVATOR IS AT NEUTRAL WHEN THE BOTTOM EDGE OF A STRAIGHT EDGE TOOL PLACED ON THE UPPER ELEVATOR SURFACE PASSES THROUGH THE MIDDLE OF THE ELEVATOR INDEX PLATE, AS SHOWN.

2 THE DISTANCE "X" IS MEASURED USING A STRAIGHT EDGE TOOL ON THE UPPER SURFACE OF THE ELEVATOR TO INTERSECT WITH THE ELEVATOR VERTICAL INDEX MARK AT THE ELEVATOR NEUTRAL INDEX MARK.

Elevator Tab Adjustment
Figure 505/27-31-00-990-807

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TASK 27-31-00-820-803

8. Input Rods of the Elevator Power Control Unit - Adjustment

(Figure 502, Figure 503, Figure 505, Figure 506)

A. General

(1) Use this test to adjust the two input rods (primary and secondary) of the right and left elevator power control units (PCUs).

NOTE: For this procedure, the primary input rod is on the left and the secondary input rod is on the right. This applies to both left and right elevator PCUs.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)

E. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

F. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door

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G. Prepare for the Adjustment

SUBTASK 27-31-00-860-025

(1) Make sure the adjustment of elevator control pushrods is satisfactory. To adjust them, do this task: Elevator Control Pushrods - Adjustment, TASK 27-31-00-820-802.

SUBTASK 27-31-00-860-026

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-034

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-010-003

(4) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-860-028

(5) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

SUBTASK 27-31-00-860-152

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Pressurize the elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-480-003

(7) Install the rig pin E-5 from the rig pin kit, SPL-1585 to the elevator aft quadrant (Figure 503).

NOTE: Make sure the rig pin E-5 fits freely in the rig pin hole.

H. Input Rods for the Elevator PCU Adjustment

HAP ALL; AIRPLANES WITH INPUT RODS WITH ONLY ONE ADJUSTMENT

SUBTASK 27-31-00-820-018

(1) Adjust the input rods for the elevator PCU (Figure 506):

NOTE: This procedure adjusts both the right and left elevator PCU input rods.

(a) If adjusting the right elevator PCU, do the following:

1) Set the FLT CONTROL A switch to the off position and FLT CONTROL B switch to the on position.

(b) If adjusting the left elevator PCU, do the following:

1) Set the FLT CONTROL B switch to the off position and FLT CONTROL A switch to the on position.

(c) Measure the distance from the upper trailing edge surface of the right elevator to the neutral index mark of the index plate (Figure 505).

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(d) If the distance is greater than 0.06 inch (1.5 mm), do the following adjustment:

1) Remove the nut [55], washer [54], washer [53], and bolt [52] to disconnect the secondary input rod from the upper attach point (Figure 506).
2) Loosen the checknut [57] on the primary input rod.
3) Rotate the primary input rod tube until the distance from the trailing edge of the elevator to the index plate is no more than 0.06 inch (1.5 mm) (Figure 505).
4) Tighten the checknut [57] 195 - 235 inch-pounds

(22.0 - 26.6 newton-meters) (Figure 506).

NOTE: Recheck the elevator trailing edge to index plate dimension after torquing the checknut. The tightening of the checknut can cause the dimension to change.

5) Loosen the checknut [57] on the secondary input rod.
6) Rotate the secondary input rod tube until the upper attach bolt [52] can be freely installed through the clevis and the PCU crank arm.
7) Install the bolt [52], washer [53], washer [54], and nut [55].
8) Tighten the nut [55].
9) Tighten the checknut [57] 195 - 235 inch-pounds

(22.0 - 26.6 newton-meters).

NOTE: Recheck the elevator trailing edge to index plate dimension after torquing the checknut. The tightening of the checknut can cause the dimension to change.

10) Install lockwire on the checknuts of the input rods.

NOTE: Install lockwire from the checknut to the input rod tube, and then to the small hole in the upper clevis.

11) If the right elevator PCU input rods have been adjusted, set the FLT CONTROL B switch to the off position.
12) If the left elevator PCU input rods have been adjusted, set the FLT CONTROL A swich to the off position.

HAP ALL; AIRPLANES WITH INPUT RODS WITH COARSE AND FINE ADJUSTMENTS

SUBTASK 27-31-00-820-001

(2) Adjust the input rods for the elevator PCU (Figure 506):

NOTE: This procedure adjusts both the right and left elevator PCU input rods.

(a) If adjusting the right elevator PCU:

1) Set the FLT CONTROL A switch to the off position and FLT CONTROL B switch to the on position.

(b) If adjusting the left elevator PCU:

1) Set the FLT CONTROL B switch to the off position and FLT CONTROL A switch to the on position.

(c) Measure the distance from the upper trailing edge surface of the right elevator to the neutral index mark of the index plate (Figure 505).

(d) If the distance is greater than 0.4 inch (10 mm), then do this coarse adjustment of the elevator PCU input rods:

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1) Set the FLT CONTROL B switch to the OFF position.
2) Remove the nut [55], washer [54], washer [53], and bolt [52] to disconnect the primary input rod [59] from the quadrant crank.
3) Remove the nut [55], washer [54], washer [53], and bolt [52] to disconnect the secondary input rod [58] from the quadrant crank.
4) Loosen the checknut [57] on the primary input rod [59].
5) Turn the input rod end one half of one turn relative to the sleeve [56].

   NOTE: A half turn of the sleeve moves the elevator trailing edge 0.20 inch (5.1 mm). A half turn of the sleeve [56] and the input rod end together moves the elevator trailing edge 0.18 inch (4.6 mm).

6) Turn the sleeve [56] and the input rod end together one half of one turn
7) Make sure the distance of the right elevator trailing edge is less than 0.4 inch (10 mm) from the index plate (Figure 505).
8) Keep number of threads that you can see in the two parts are approximately the same.
9) Adjust the clevis until you can freely install the bolt [52].
10) Install the bolt [52], washer [53], washer [54], and nut [55] to connect the primary input rod [59] to the quadrant crank (Figure 506).
11) Set the FLT CONTROL B switch to the ON position.

(e) If the distance is less than 0.4 inch (10 mm) but greater than 0.06 inch (1.5 mm) (Figure 505), then do this fine adjustment of the elevator PCU input rods (Figure 506):

1) If it is not disconnected, remove the nut [55], washer [54], washer [53], and bolt [52] to disconnect the secondary input rod [58] from the quadrant crank.
2) Loosen the checknut [57] on the secondary input rod [59].
3) Turn the input rod end half turn relative to the sleeve [56].
4) Make sure the distance of the right elevator trailing edge is less than 0.06 inch (1.5 millimeters) from the index plate (Figure 505).
5) Make sure that the number of threads that you can see in the two parts are approximately the same.
6) Install the bolt [52], washer [53], washer [54], and nut [55] to connect the secondary input rod [58] to the quadrant crank (Figure 506).
   a) Tighten the checknuts [57] on the two input rods to 350 - 400 pound-inches (39.6 - 45.2 newton-meters).
7) Install the lockwire, G01912 on the checknuts [57].
8) If the right elevator PCU input rods have been adjusted, set the FLT CONTROL B switch to the off position.
9) If the left elevator PCU input rods have been adjusted, set the FLT CONTROL A swich to the off position.

HAP ALL

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-080-003

(1) Remove the rig pin E-5 from the elevator aft quadrant.

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SUBTASK 27-31-00-410-003

(2) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-940-004

(3) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-029

(4) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

——————— END OF TASK ———————

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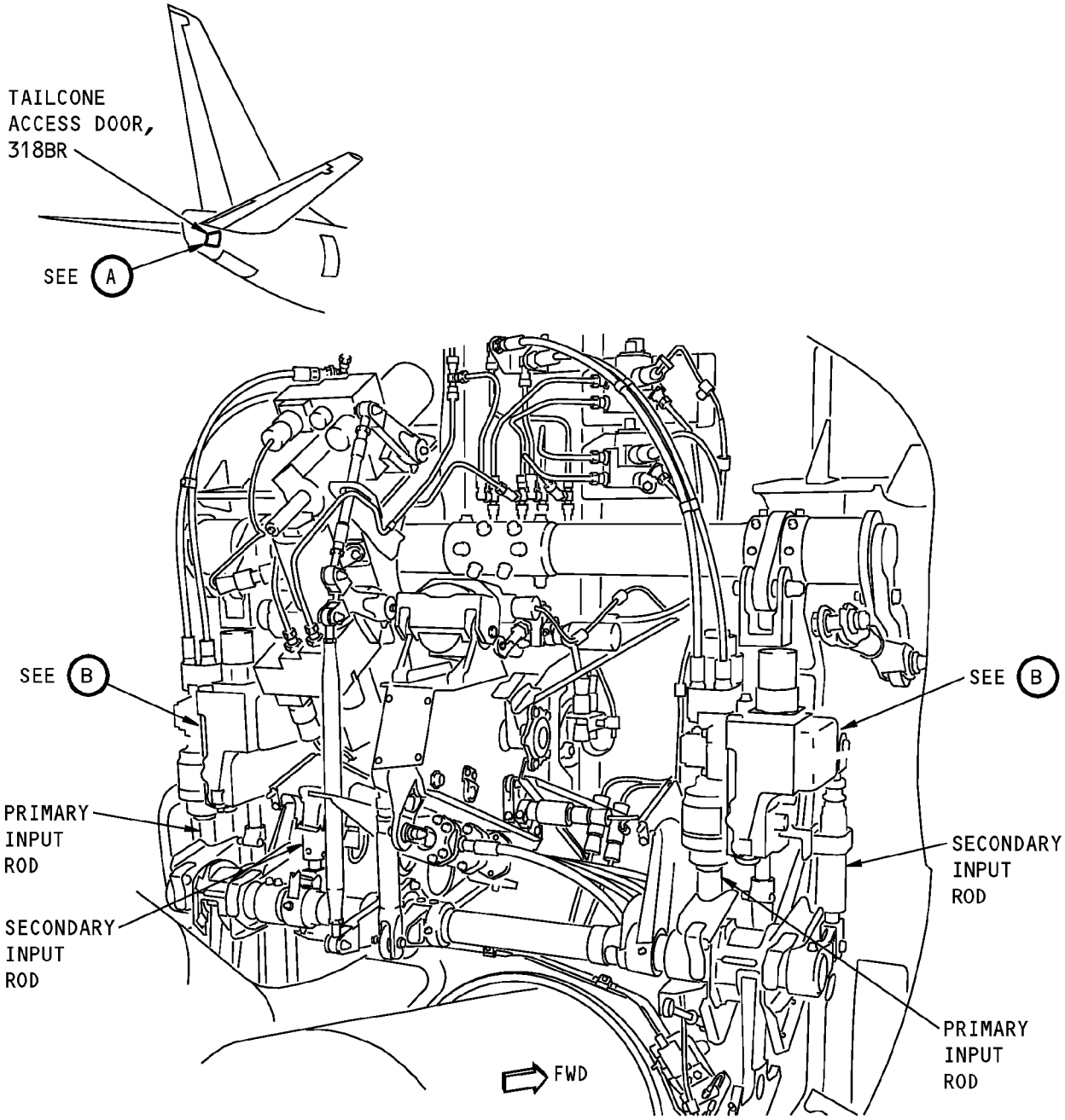

Elevator PCU Input Rods Adjustment
Figure 506 (Sheet 1 of 3)/27-31-00-990-808

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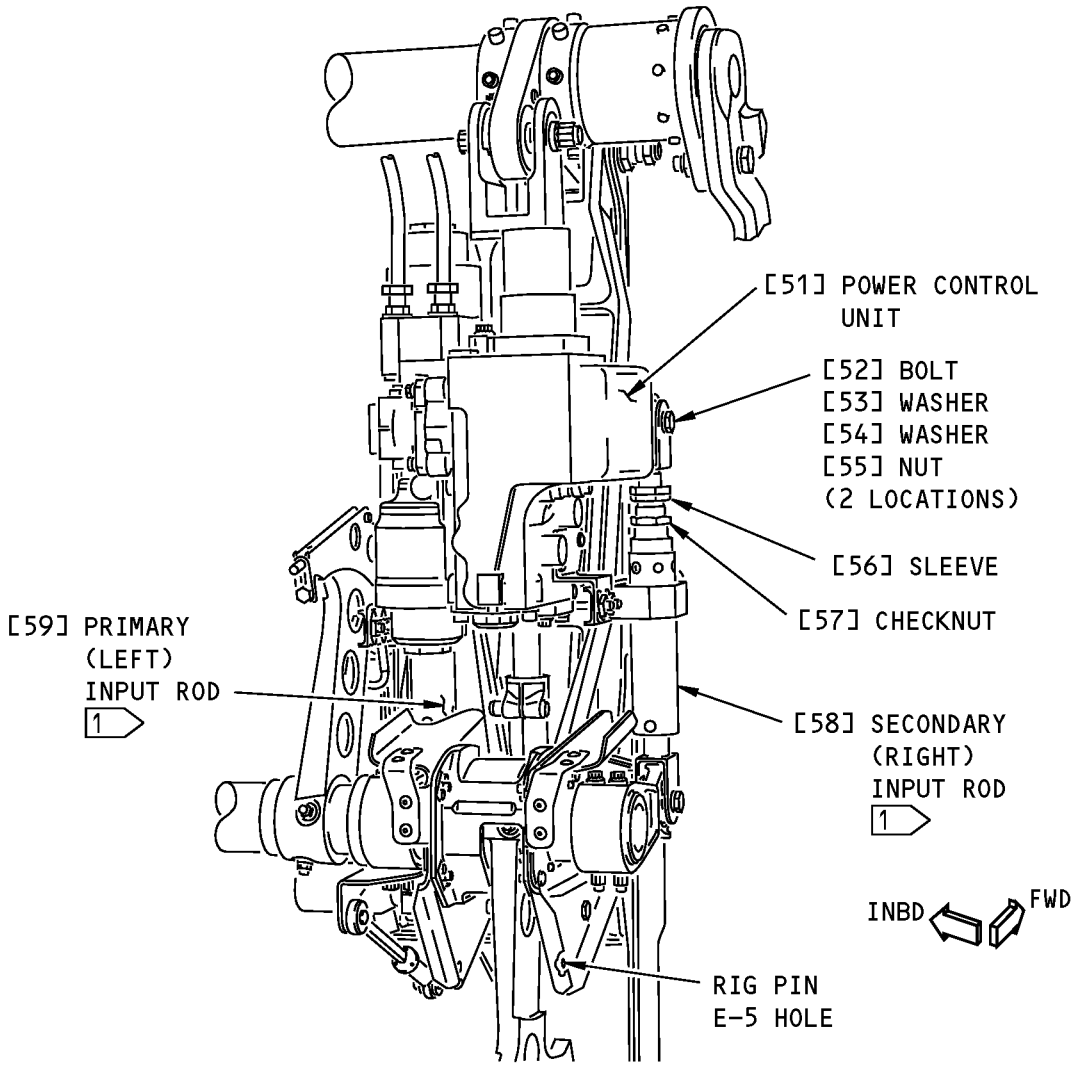

RIGHT POWER CONTROL UNIT
(LEFT POWER CONTROL UNIT IS EQUIVALENT)

B

1 INPUT RODS WITH COARSE AND FINE ADJUSTMENTS

Elevator PCU Input Rods Adjustment
Figure 506 (Sheet 2 of 3)/27-31-00-990-808

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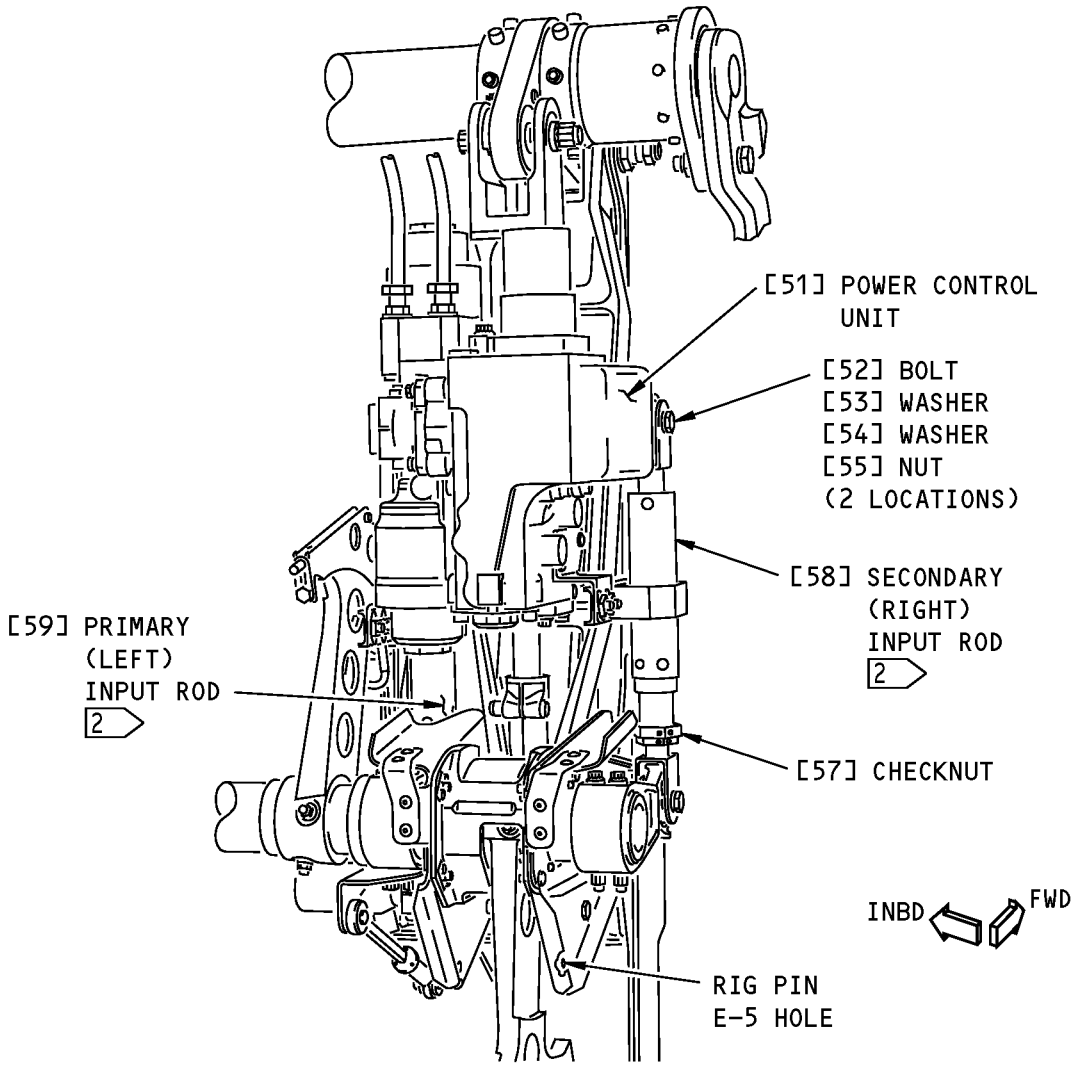

RIGHT POWER CONTROL UNIT
(LEFT POWER CONTROL UNIT IS EQUIVALENT)

B

2 INPUT RODS WITH ONE ADJUSTMENT

Elevator PCU Input Rods Adjustment
Figure 506 (Sheet 3 of 3)/27-31-00-990-808

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TASK 27-31-00-820-804

9. Input Rods of the Elevator Neutral Shift Mechanism and Output Rod of the Feel and Centering Unit - Adjustment

(Figure 502, Figure 507)

A. General

(1) Use this test to adjust the input rods which connect the elevator neutral shift mechanism to the stabilizer. This test also includes steps to adjust the output rod which connects the elevator feel and centering unit to the input torque tube.

B. References

Reference	Title
22-11-14-820-801	Elevator Neutral Shift Sensor Adjustment (P/B 501)
22-11-31-820-801	Stabilizer Position Sensor Adjustment (P/B 501)
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)

E. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

F. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door

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G. Prepare for the Adjustment

SUBTASK 27-31-00-860-030

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-860-031

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-035

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-010-004

(4) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-860-032

(5) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

SUBTASK 27-31-00-480-004

(6) Install the rig pin E-5 from the rig pin kit, SPL-1585 to the elevator aft quadrant (Figure 507).

H. Input Rods of the Elevator Neutral Shift Mechanism and Output Rod of the Elevator Feel and Centering Unit

SUBTASK 27-31-00-220-001

(1) Measure the distance "Z" between the centerline of the left neutral shift crank bolt [82] and the aft side of the vertical bulkhead.

(a) Make sure the distance is 1.25 +/- 0.03 inches (31.8 +/- 0.8 mm).

SUBTASK 27-31-00-820-003

(2) If the distance is not 1.25 +/- 0.03 inches (31.8 +/- 0.8 millimeters), adjust the neutral shift input rods [84] of the elevator neutral shift mechanism [87] (Figure 507):

(a) Remove the nut [79], washer [78], washer [77], and bolt [76] to disconnect the output rod of the elevator feel and centering unit [71] from the input crank [75].

(b) Loosen the checknuts on the neutral shift input rods [84].

(c) Remove the nuts [85], washers [86], washers [83], washers [81], and bolts [82] to disconnect the neutral shift input rods [84] from the neutral shift mechanism crank [87].

(d) Adjust the input rods [84] until you get a "Z" dimension of 1.25 +/- 0.03 inches (31.8 +/- 0.8 mm) at the left input rod [84].

(e) Install the bolts [82], washers [81], washers [83], washers [86], and nuts [85] to connect the stabilizer position sensor input rods [80] and neutral shift input rods [84] to the neutral shift mechanism crank [87].

1) Install the lockwire, G01912.

SUBTASK 27-31-00-820-004

(3) Adjust the output rod of the elevator feel and centering unit (Figure 507):

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(a) If it is not disconnected, remove the nut [79], washer [78], washer [77], and bolt [76] to disconnect the output rod [74] of the elevator feel and centering unit from the input crank [75].

(b) Measure the distance between the bolt hole in the output rod [74] and the bolt hole in the input crank [75]:

(c) If the distance is greater than 0.06 inch (1.5 millimeters), then do these steps:

1) Turn the output rod end half turn relative to the sleeve [73], and the sleeve [73] and the output rod [74] end together half turn.

2) Make sure the distance of the two bolt holes is less than 0.06 inch (1.5 mm).

3) Keep the number of threads that you can see in the two parts approximately the same.

(d) If the distance is less than 0.06 inch (1.5 mm), then do these steps:

1) Turn the sleeve [73] until you can install the bolt [76] easily.

NOTE: You must always turn the output rod end and sleeve [73] in the same direction.

2) Keep the number of threads that you can see in the two parts are approximately same.

CAUTION: DO NOT TRY TO TIGHTEN THE OUTER BOLT OF THE BOLT [76] AGAIN AFTER YOU TIGHTEN THE NUT [79]. YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

3) Install the bolt [76], washer [77], washer [78], and nut [79] to connect the output rod [74] to the input crank [75].

a) Tighten the outer bolt of the bolt [76] to 75 - 85 pound-inches (8.5 - 9.6 newton-meters).

b) Tighten the nut [79] to 15 - 20 pound-inches (1.7 - 2.3 newton-meters).

SUBTASK 27-31-00-820-005

(4) If it is necessary, do this task: Elevator Neutral Shift Sensor Adjustment, TASK 22-11-14-820-801.

SUBTASK 27-31-00-820-006

(5) If it is necessary, do this task: Stabilizer Position Sensor Adjustment, TASK 22-11-31-820-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-080-004

(1) Remove the rig pin E-5 from the elevator aft quadrant.

SUBTASK 27-31-00-410-004

(2) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-940-005

(3) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-033

(4) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

END OF TASK

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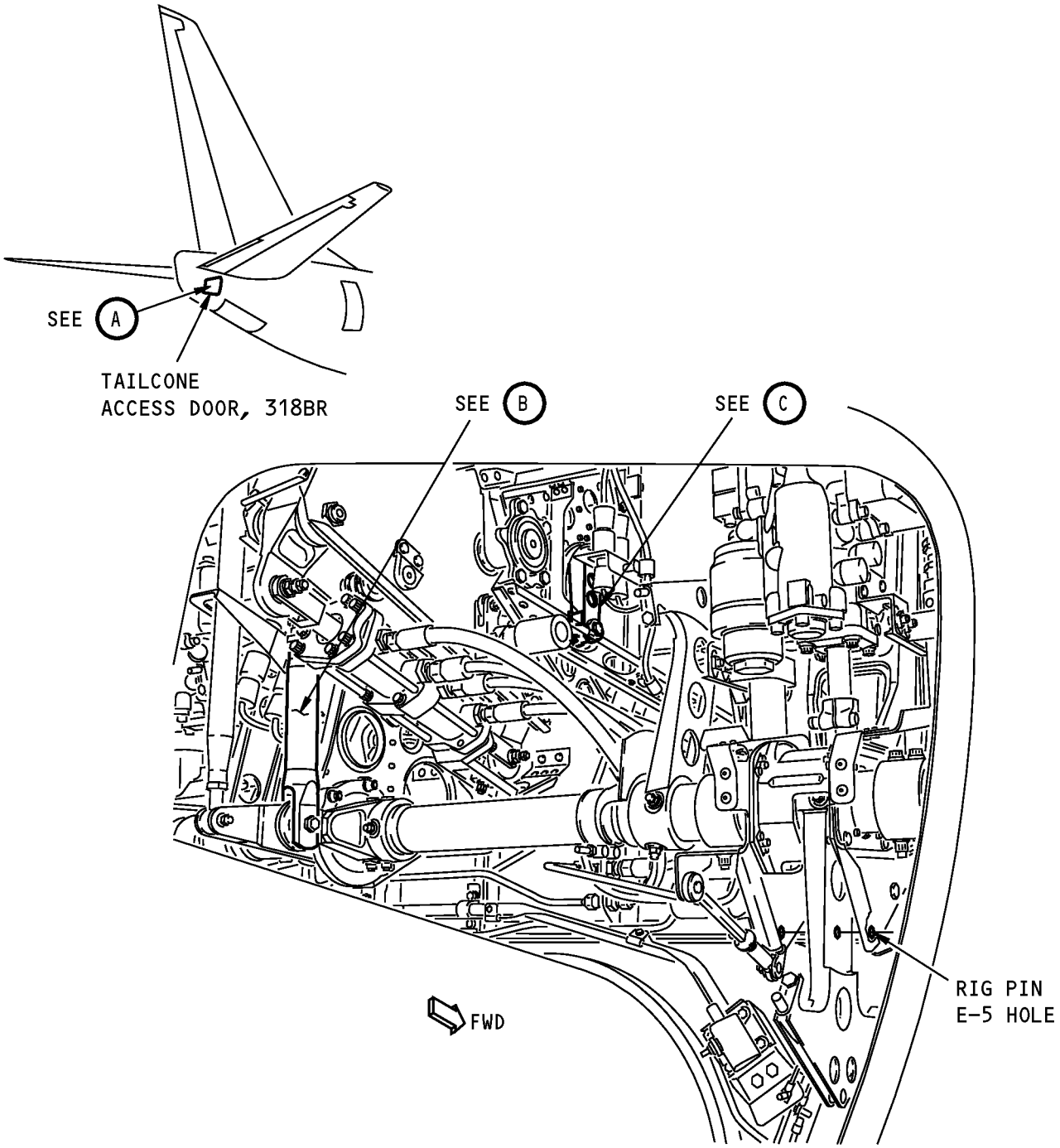

Elevator Neutral Shift Mechanism Input Rods and Elevator Feel and Centering Unit Output Rod Adjustment
Figure 507 (Sheet 1 of 3)/27-31-00-990-809

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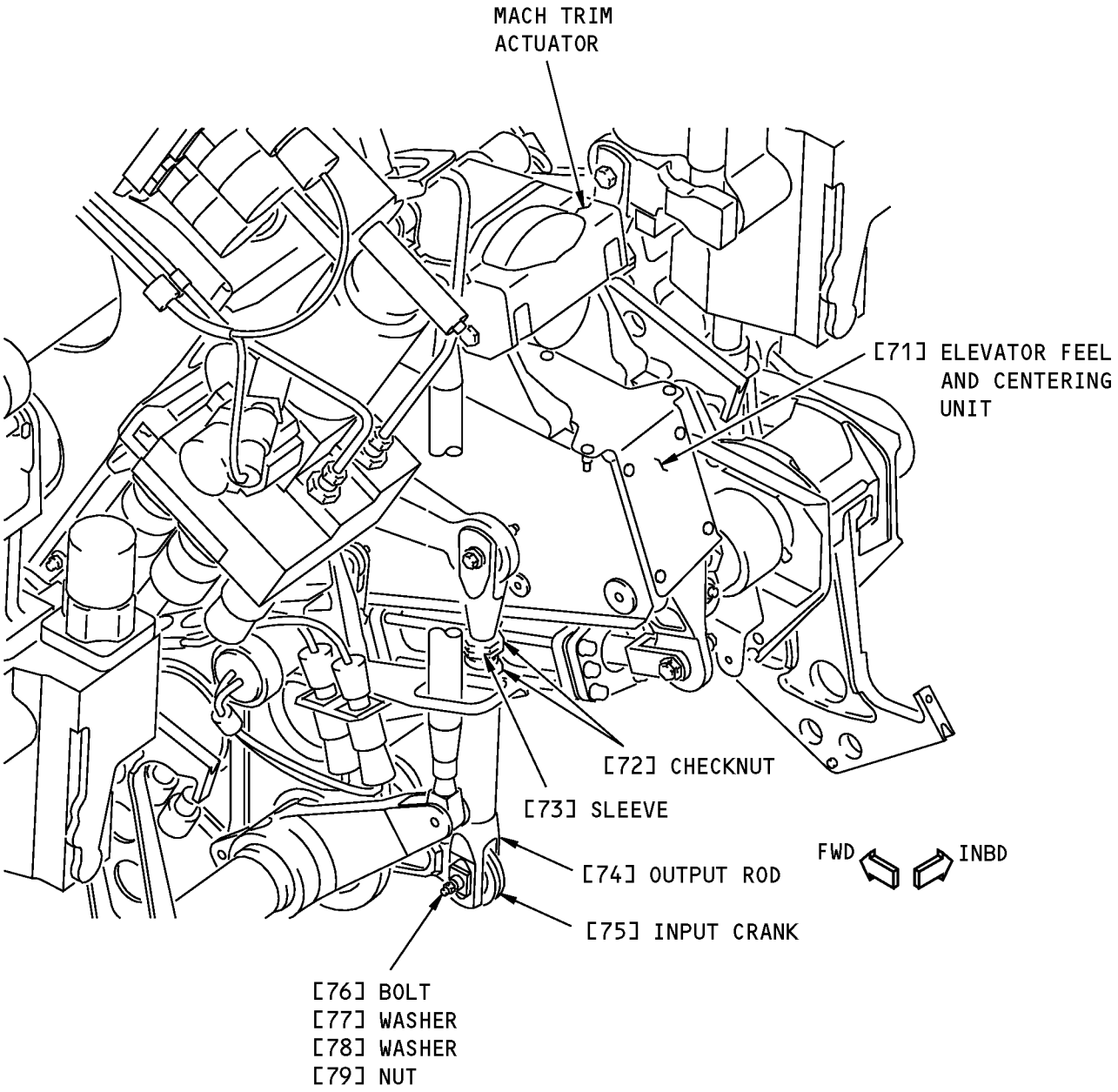

Elevator Neutral Shift Mechanism Input Rods and Elevator Feel and Centering Unit Output Rod Adjustment
Figure 507 (Sheet 2 of 3)/27-31-00-990-809

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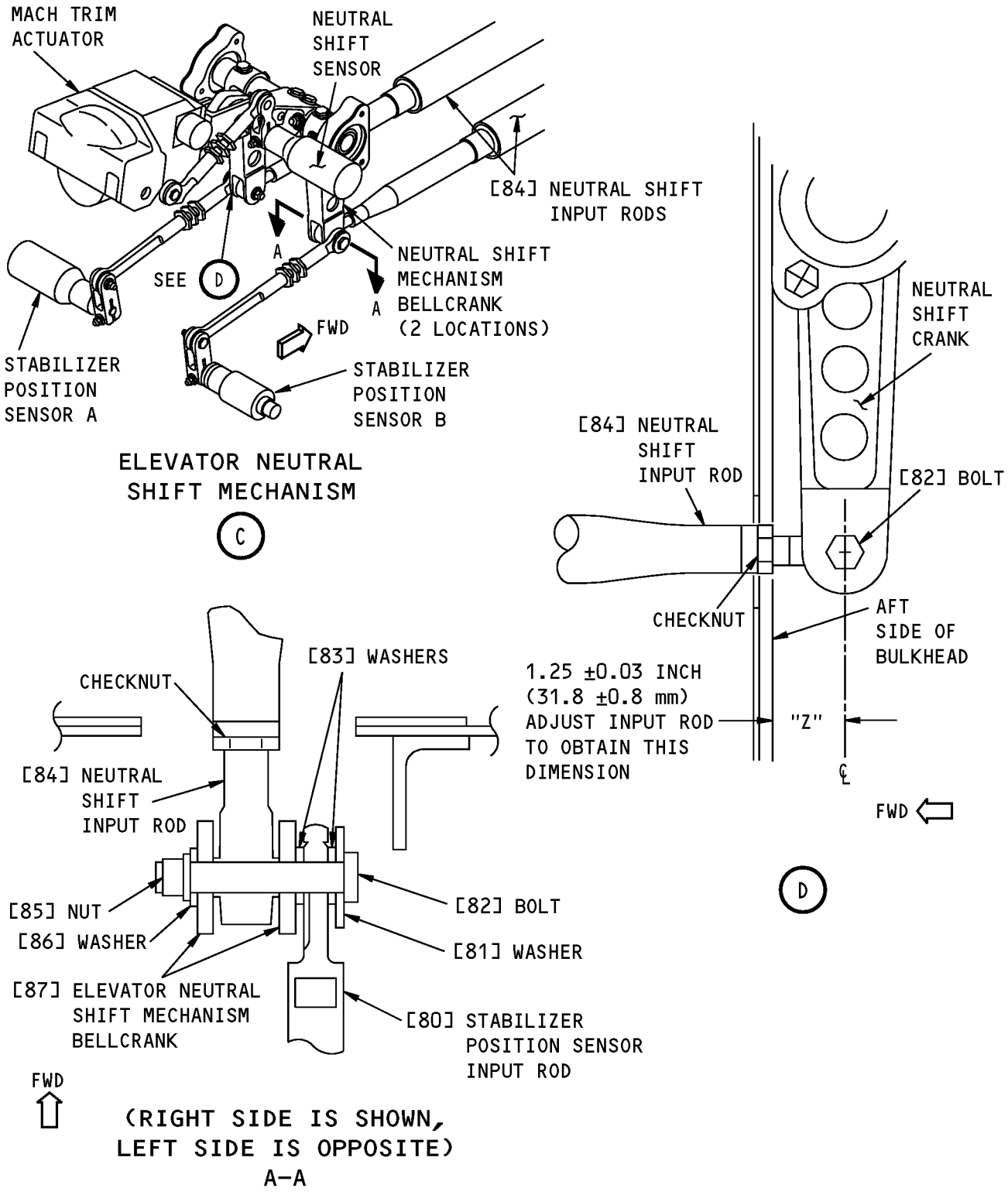

Elevator Neutral Shift Mechanism Input Rods and Elevator Feel and Centering Unit Output Rod Adjustment
Figure 507 (Sheet 3 of 3)/27-31-00-990-809

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TASK 27-31-00-820-805

10. Elevator Tab Pushrods - Adjustment

(Figure 502, Figure 503, Figure 505, Figure 510)

NOTE: For each elevator tab, if one or both of the elevator tab pushrods are adjusted, then Elevator Power-Off Flight - Test, TASK 27-31-00-710-803 is necessary.

NOTE: See Figure 508.

A. General

(1) Use this test to adjust the elevator tab pushrods. This task is applicable for the left and right elevator tab pushrods.

NOTE: Adjustment of the elevator tab pushrods to a dimension recorded prior to the last successful flight test will reduce the chance that a second flight test will be required.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-10345	Rigging Bar - Elevator Tab (Part #: C27028-21, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27028-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
334PT	Horizontal Stabilizer, Tab Control Rod Fairing
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

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F. Prepare for the Adjustment

SUBTASK 27-31-00-860-034

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-860-035

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-023

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-010-005

(4) For the left elevator tab pushrods, remove this access panel:

Number	Name/Location
334PT	Horizontal Stabilizer, Tab Control Rod Fairing

SUBTASK 27-31-00-010-024

(5) For the right elevator tab pushrods, remove this access panel:

Number	Name/Location
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

SUBTASK 27-31-00-860-036

(6) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

G. Elevator Tab Pushrods Adjustment

NOTE: See Figure 508.

SUBTASK 27-31-00-020-002

(1) Loosen the four checknuts [103] and checknuts [105] from the tab pushrods [110].

SUBTASK 27-31-00-860-037

(2) Push the elevator trailing edge full up by hand.

SUBTASK 27-31-00-860-038

(3) While you move the elevator trailing edge down, align the center of the elevator trailing edge with the index mark in +/- 0.04 inch (+/- 1.0 mm), or less (Figure 505).

NOTE: Keep the elevators at this position while you measure and adjust the tab pushrods. If the elevator position is changed, you must put the elevator trailing edge at the full up position and do this step again before you continue.

SUBTASK 27-31-00-480-005

(4) Install the elevator tab rigging bar, SPL-10345 (Figure 510):

(a) To use the elevator tab rigging bar, SPL-10345, do the steps that follow:

1) Move the digital micrometer to the bottom of the slide.

2) Push the button on the micrometer to zero the micrometer reading.

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3) Move the digital micrometer up until it gives the same reading as the calibration value stamped on the side of the tool.

NOTE: This brings the pointer on the micrometer up to approximately 0.3 inch (8 millimeters) below the trailing edge of the elevator tab.

4) Push the button on the micrometer to zero the micrometer reading.

HAP ALL; AIRPLANES WITH SIX HINGE ELEVATOR TABS

(b) Install the elevator tab rigging bar, SPL-10345 below the elevator and elevator tab at the third elevator tab hinge (from inboard).

HAP ALL

(c) Make sure the cross bar on the elevator tab rigging bar, SPL-10345 touches the lower surface of the elevator trailing edge.

SUBTASK 27-31-00-820-007

(5) Adjust the tab pushrods [110] until the gap measured from the elevator tab faired position to the elevator tab rigged up position with the elevator tab rigging bar, SPL-10345 (dimension X) is the same dimension that you measured and recorded prior to the last successful flight test and before any pushrod adjustment. If the prior tab location was not measured or recorded, then adjust to 0.36 +/- 0.01 inch (9.1 +/- 0.3 mm) (Figure 510).

NOTE: Adjustment of the elevator tab pushrods to a dimension recorded prior to the last successful flight test will reduce the chance that a second flight test will be required.

NOTE: You may need to do a coarse adjustment of the elevator tab pushrods if the gap between the elevator tab trailing edge and the fixture is too much.

You must always do a fine adjustment of the elevator tab pushrods if dimension X is not in the tolerance.

NOTE: While adjusting the elevator tab pushrods, the number of threads showing on the elevator tab pushrod ends should be approximately equal to the number of threads showing on the bushing [104].

SUBTASK 27-31-00-820-008

(6) If it is necessary, do this coarse adjustment of the elevator tab pushrods by turning the tab rod ends (Figure 508):

(a) Remove the pins [111], nuts [109], washers [108], bolts [106], and bushings [107] from the tab pushrods [110].

(b) Turn the tab pushrod ends until the distance between the elevator tab trailing edge and the elevator tab rigging bar, SPL-10345 (dimension X) is the same dimension that you measured and recorded prior to the last successful flight test and before any pushrod adjustment. If the prior tab location was not measured or recorded, then adjust to 0.36 inch (9.1 mm).

NOTE: One half turn of the tab pushrod end is equal to 0.1 inch (3 mm) at the elevator tab trailing edge.

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(c) Install the bushings [107], bolts [106], washers [108], and nuts [109] to connect the tab pushrods [110] to the elevator tab [102].

NOTE: The inboard bolt is installed with the head inboard and the outboard bolt is installed with the head outboard

NOTE: If you loosened or removed the nuts [109], they need to be replaced and not re-installed. Using new nuts will ensure that they have the required run-on torque of 3.5 in-lb (0.4 N·m).

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

SUBTASK 27-31-00-820-019

(7) Do this fine adjustment of the elevator tab pushrods (Figure 508):

(a) Turn the bushing [104] to adjust the length of the tab pushrods [110].

NOTE: One full turn of the bushing [104] is equal to 0.02 inch (0.5 mm) at the elevator tab trailing edge.

(b) Loosen the nuts [109] that attach the tab pushrods [110] to the elevator tab [102].

(c) Remove the pins [111] from in front of the head of the bolts [106].

(d) Move the rectangle bolt heads out of the anti-rotation bolt bosses and make sure that you can easily turn the bolts [106] by hand.

1) If it is necessary, adjust the bushing [104] on the tab pushrods [110].

CAUTION: IF THE NUTS [109] ARE NOT TIGHTENED CORRECTLY, THEN THE PUSHRODS CAN BECOME DISCONNECTED AND CAUSE DAMAGE TO THE ELEVATOR AND STABILIZER.

(e) Tighten the nuts [109] to 70 - 80 pound-inches (7.9 - 9.0 newton-meters) and install pins [111].

NOTE: If you loosened or removed the nuts [109], they need to be replaced and not re-installed. Using new nuts will ensure that they have the required run-on torque of 3.5 in-lb (0.4 N·m).

(f) Tighten the checknuts [103] and checknuts [105] on the tab pushrods [110] to 150 - 200 pound-inches (17.0 - 22.6 newton-meters).

(g) Install lockwire on the checknut [103] and between the bushing [104] and the checknut [105].

HAP ALL

SUBTASK 27-31-00-220-002

(8) Make sure the gap measured from the elevator tab faired position to the elevator tab rigged up position with the elevator tab rigging bar, SPL-10345 (dimension X) is the same dimension that you measured and recorded prior to the last successful flight test and before any pushrod adjustment. If the prior tab location was not measured or recorded, then adjust to 0.36 +/- 0.01 inch (9.1 +/- 0.3 mm).

SUBTASK 27-31-00-220-003

(9) Do a check of the thread engagement of the tab pushrod ends and bushings [104]:

(a) Make sure the end of the bushing [104] covers the inspection hole on each tab pushrod [110].

(b) Make sure the inspection hole of each tab pushrod end bearing is not shown.

(c) If the thread engagement is not correct, you must do the coarse adjustment again.

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SUBTASK 27-31-00-200-013

(10) Verify that the forward and aft tab rod end bearings are aligned in the correct alignment :

NOTE: See Figure 509.

(a) Rotate each tab rod counterclockwise (when facing forward) until contact is made between the tab rod end and surrounding structure.

1) This initial contact point is the start of the measurement of the rod end bearing alignment.

(b) Rotate each tab rod clockwise (when facing forward) until contact is made between the tab rod end and surrounding structure.

1) Measure the distance travelled between the contact points as the tab rod was rotated clockwise from contact point to contact point.

(c) There should be a minimum of 0.040 inch (1.02 millimeters) travel from contact point to contact point.

1) If there is less than 0.040 inch (1.02 millimeters) of travel from contact point to contact point, adjust the tab rod end until a minimum travel of 0.040 inch (1.02 millimeters) is achieved.

a) If it was necessary to adjust the tab rods, make sure you torque the check nuts to the proper torque and do a check of the rod end rotation from contact point to contact point.

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

SUBTASK 27-31-00-420-010

(11) Install lockwire on the checknuts [103] and checknuts [105] (Figure 508).

HAP ALL

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-410-005

(1) Install these access panels:

Number	Name/Location
334PT	Horizontal Stabilizer, Tab Control Rod Fairing
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

SUBTASK 27-31-00-940-006

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-039

(3) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

——————— END OF TASK ———————

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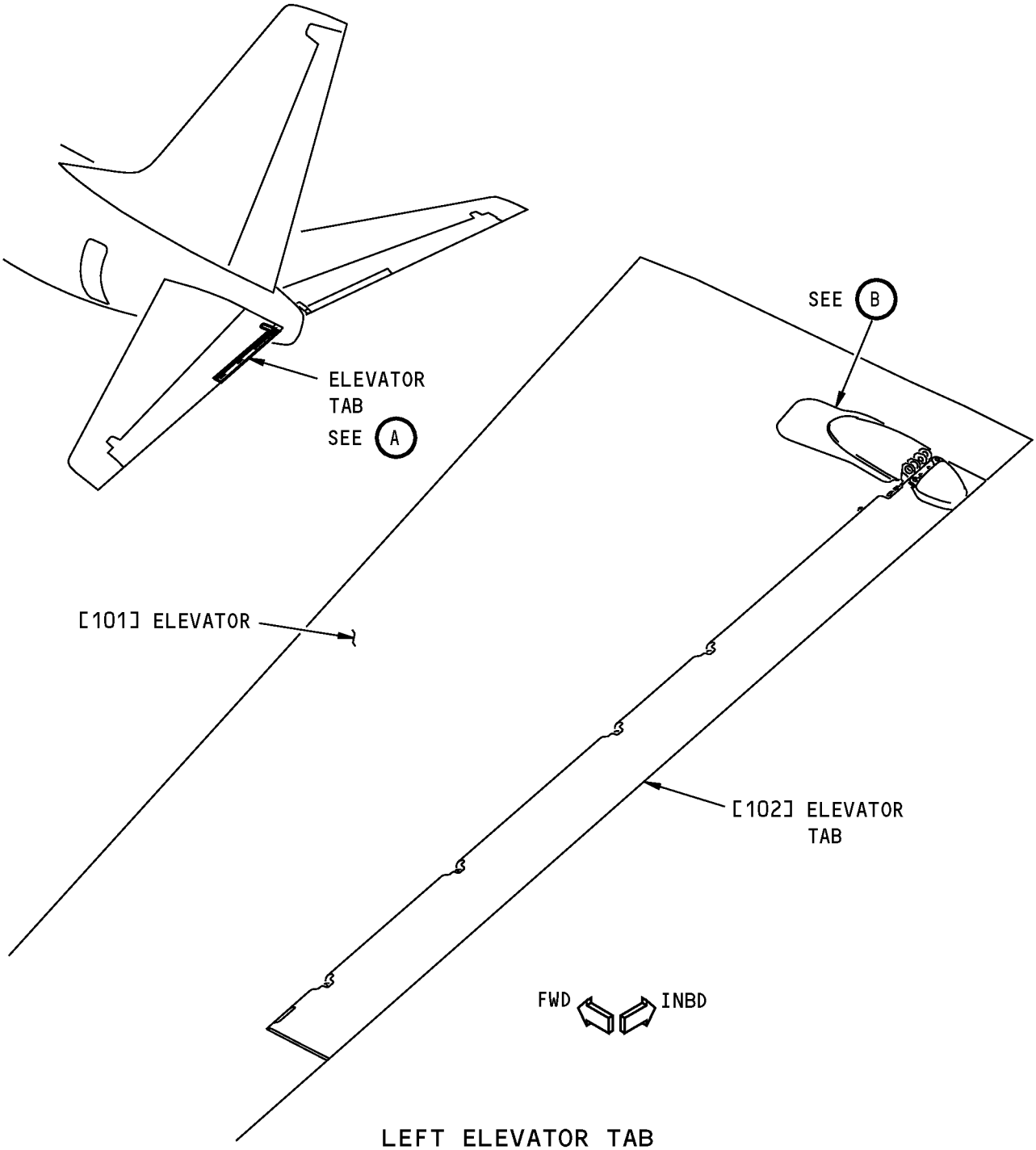

Elevator Tab Pushrods Adjustment
Figure 508/27-31-00-990-810

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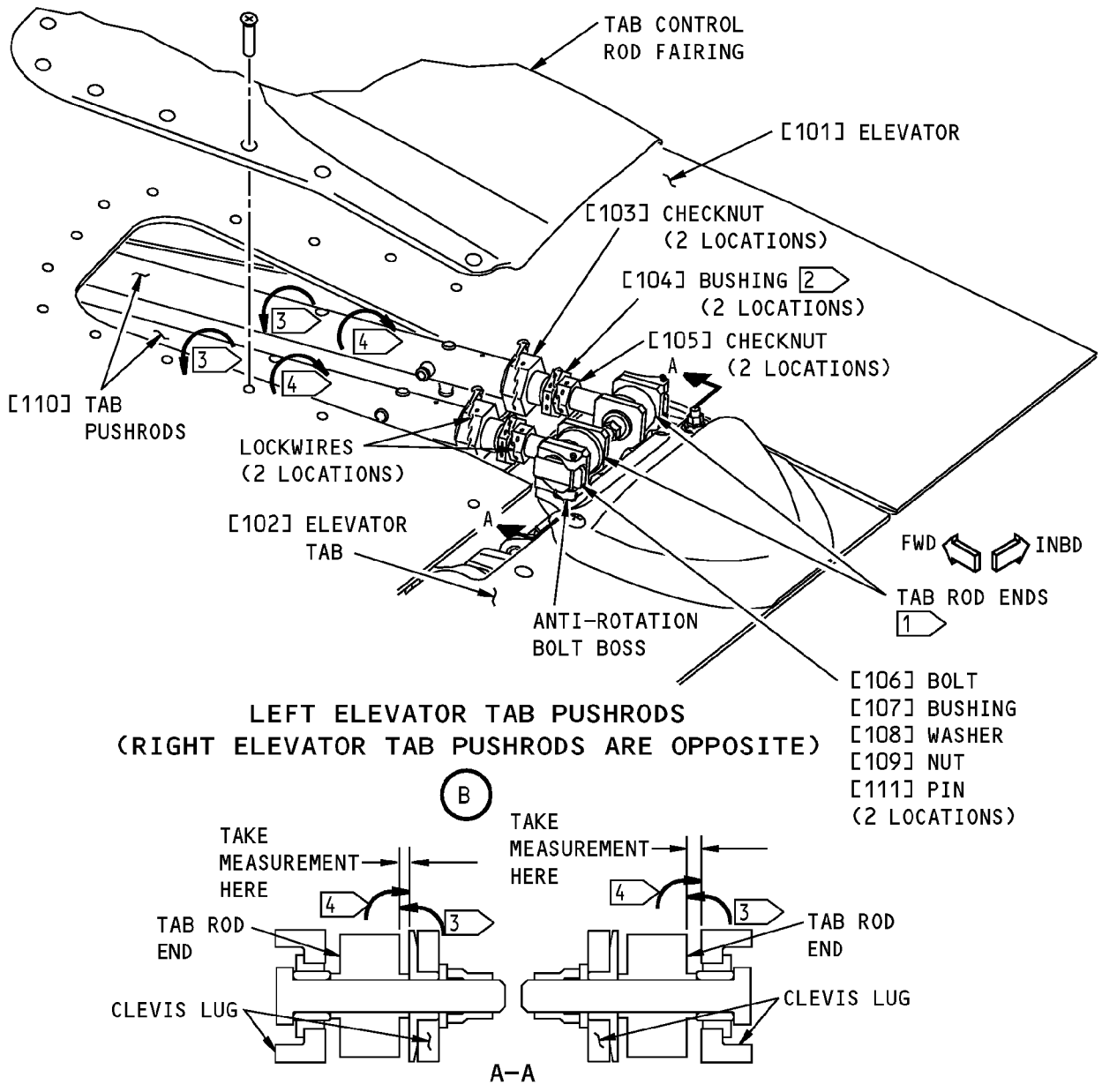

1 TURN THE ELEVATOR TAB ROD ENDS TO MAKE COARSE ADJUSTMENTS OF THE ELEVATOR TAB TRAILING EDGE.

2 TURN THE BUSHING [104] (VERNIER COLLAR) TO MAKE FINE ADJUSTMENTS OF THE ELEVATOR TAB TRAILING EDGE.

3 ROTATE THE TAB PUSHRODS COUNTERCLOCKWISE UNTIL CONTACT IS MADE. START THE MEASUREMENT.

4 ROTATE THE TAB PUSHRODS CLOCKWISE UNTIL CONTACT IS MADE. END THE MEASUREMENT. THE MINIMUM TRAVEL (WHILE ROTATING EACH PUSHROD FROM CONTACT TO CONTACT) SHOULD BE 0.040 INCH (1.02 mm).

Elevator Tab Pushrods Adjustment
Figure 509/27-31-00-990-827

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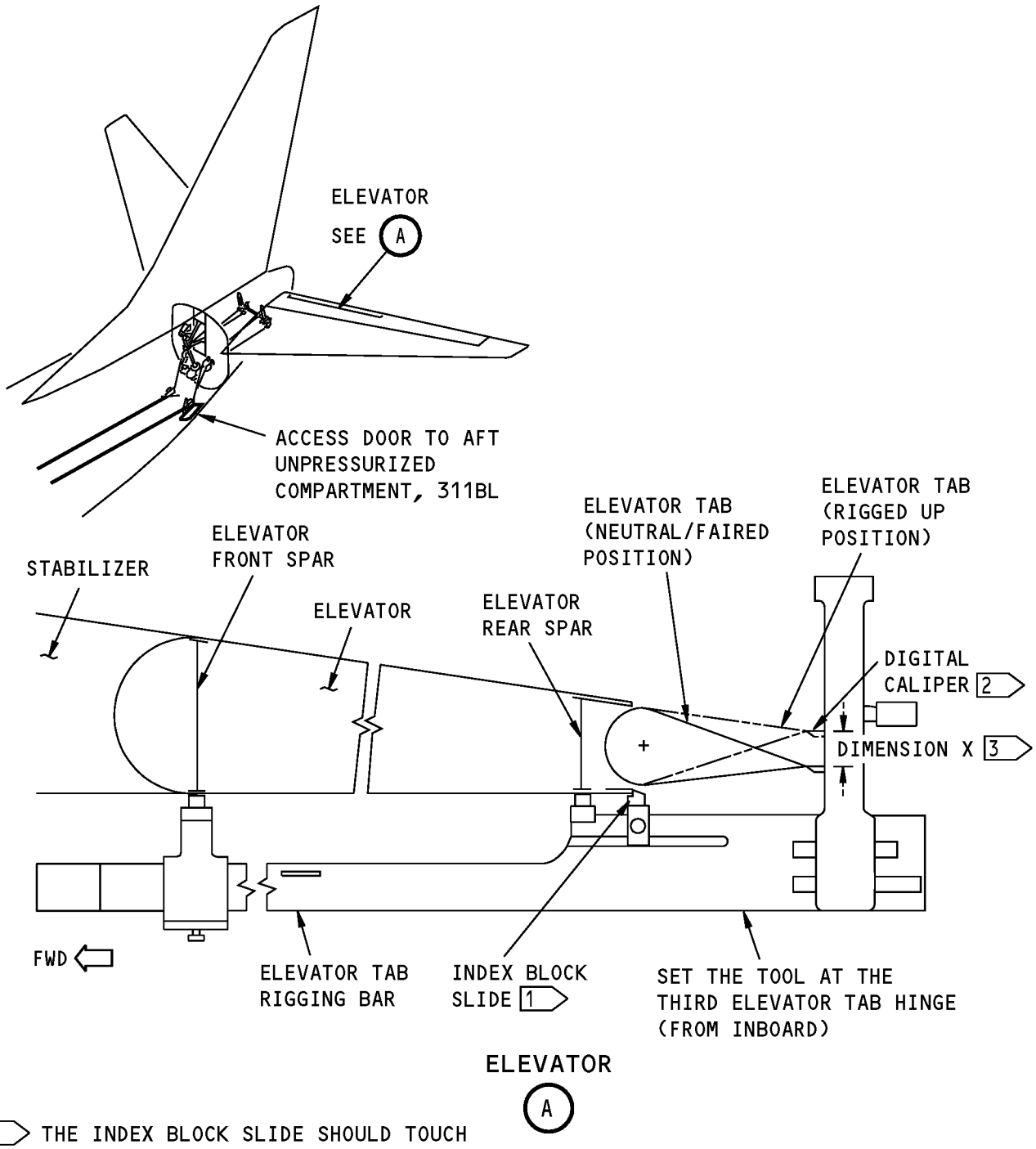

1 THE INDEX BLOCK SLIDE SHOULD TOUCH THE TRAILING EDGE OF THE ELEVATOR.

2 THE DIGITAL CALIPER SHOULD TOUCH THE LOWER TRAILING EDGE OF THE ELEVATOR TAB.

3 DIMENSION X IS MEASURED FROM THE ELEVATOR TAB FAIRED POSITION TO THE ELEVATOR TAB RIGGED UP POSITION.

Elevator Tab Fixture Bar Installation
Figure 510/27-31-00-990-811

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TASK 27-31-00-820-806

11. Input Rod of the Elevator Feel Computer - Adjustment

(Figure 502, Figure 511)

A. General

(1) Use this test to adjust the input rod (stabilizer pushrod) of the elevator feel computer.

B. References

Reference	Title
22-11-31-710-801	Stabilizer Position Sensor Test (P/B 501)
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Adjustment

SUBTASK 27-31-00-860-040

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-860-041

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

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SUBTASK 27-31-00-860-042

(3) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

SUBTASK 27-31-00-010-006

(4) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-043

(5) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

G. Input Rod of the Elevator Feel Computer Adjustment

SUBTASK 27-31-00-410-006

(1) Make sure you can install the rig pin E-4 from the rig pin kit, SPL-1585 in the rig pin holes in the input arm [122] and elevator feel computer [127].

SUBTASK 27-31-00-820-010

(2) If you can not install the rig pin E-4 easily, adjust the input rod [121] of the elevator feel computer [127] (Figure 511):

(a) Remove the nut [125], washer [124], and bolt [123] to disconnect the input rod [121] from the input arm [122].

(b) Install the rig pin E-4 in the rig pin holes in the input arm [122] and elevator feel computer [127].

(c) Loosen the checknut [126].

(d) Adjust the input rod [121] until you can install the bolt [123] easily through the input arm [122] and input rod [121].

(e) Install the washer [124] and nut [125].

(f) Tighten the checknut [126].

(g) Remove the rig pin E-4.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-044

(1) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

SUBTASK 27-31-00-820-011

(2) Do this task: Stabilizer Position Sensor Test, TASK 22-11-31-710-801.

SUBTASK 27-31-00-410-007

(3) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

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SUBTASK 27-31-00-860-045

(4) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

END OF TASK

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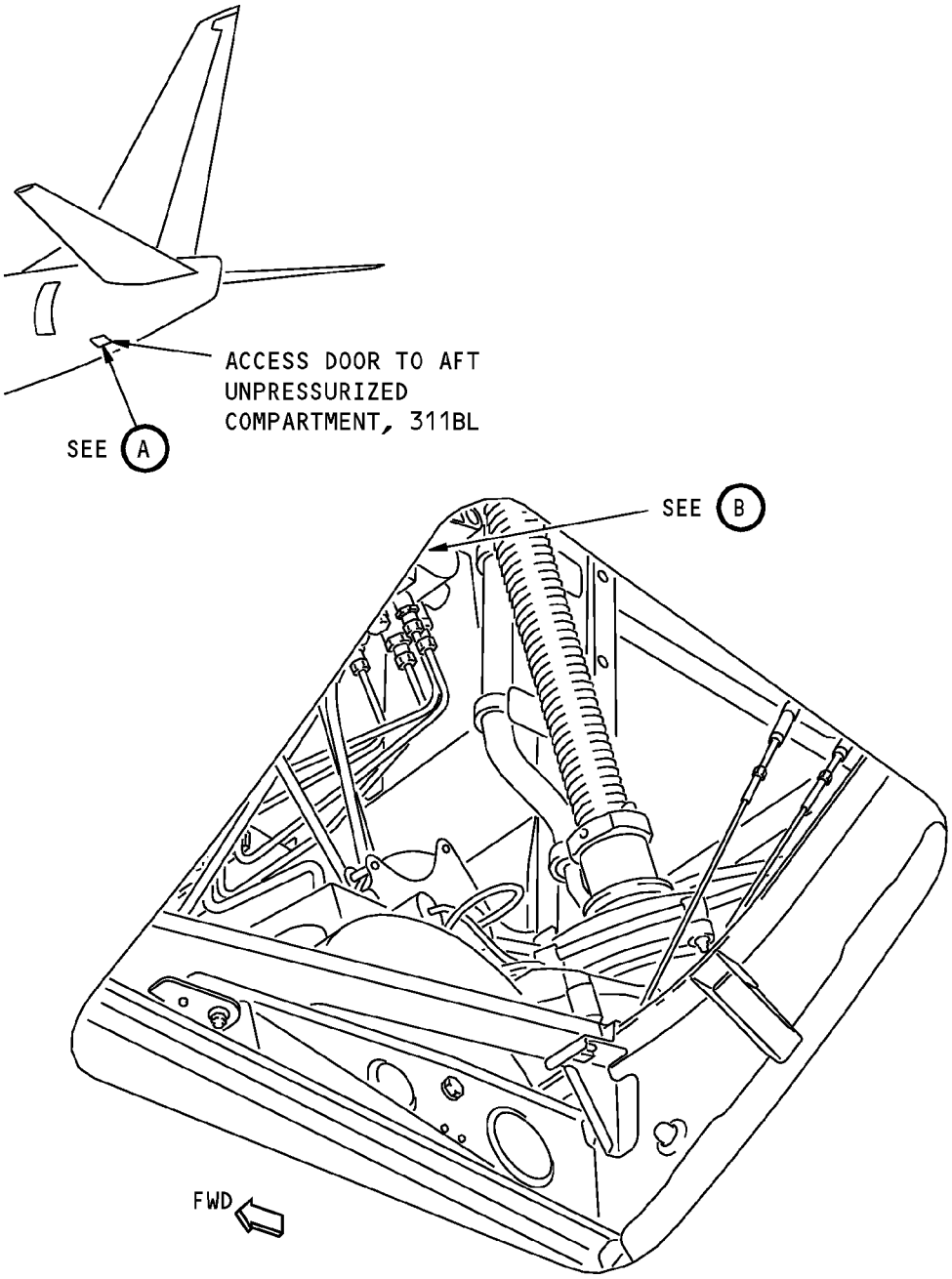

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Elevator Feel Computer Input Rod Adjustment
Figure 511 (Sheet 1 of 2)/27-31-00-990-812

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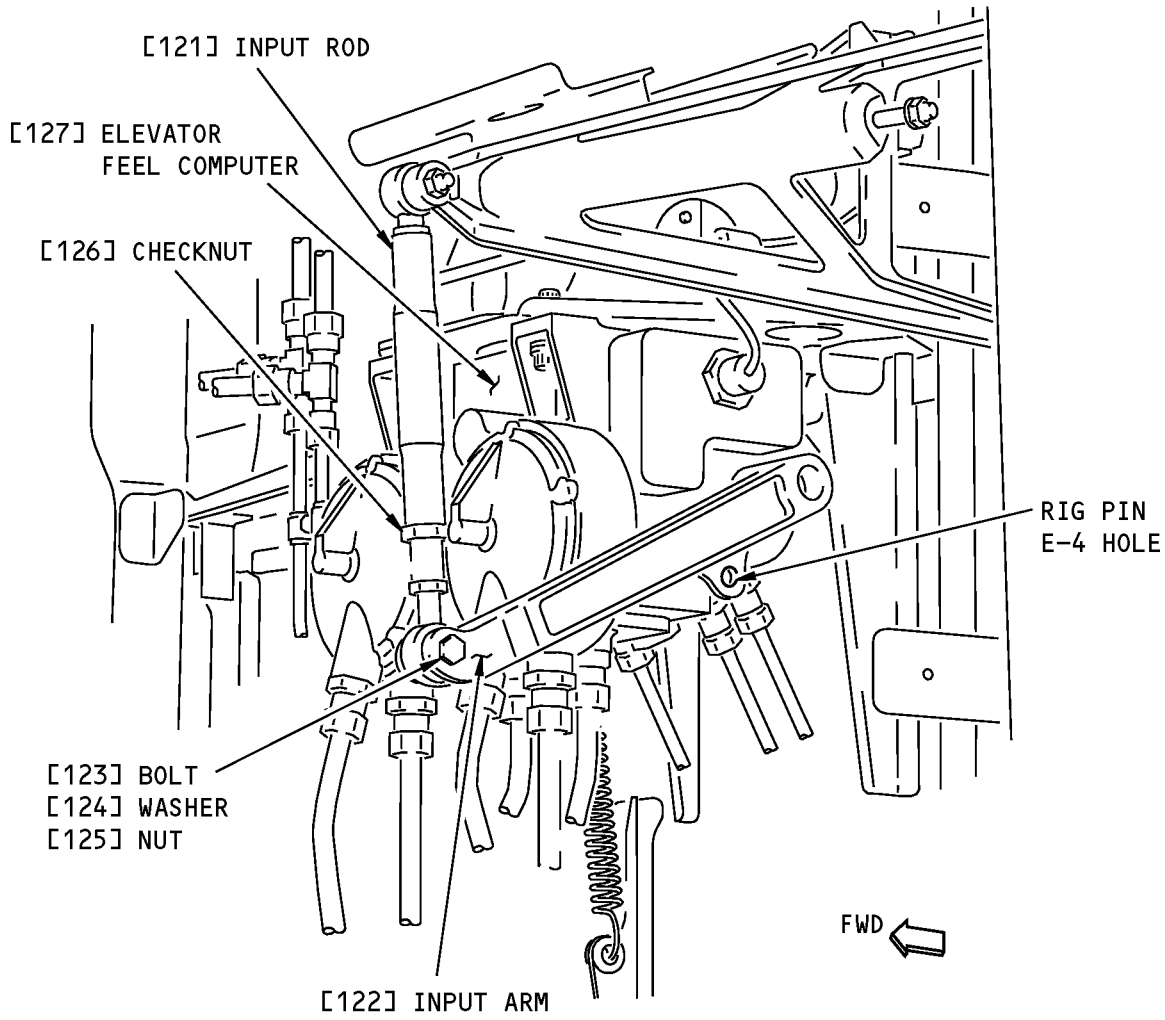

ELEVATOR FEEL COMPUTER

B

Elevator Feel Computer Input Rod Adjustment
Figure 511 (Sheet 2 of 2)/27-31-00-990-812

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TASK 27-31-00-700-802

12. Elevator Surface Friction and Balance - Test

(Figure 502) (Figure 505)

A. General

(1) Use this test to make sure the elevators are balanced.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
FIM 27-31 TASK 810	Elevator Does Not Move Correctly - Fault Isolation
SRM 51-60-04	Structural Repair Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1278	Block - Loading, 1/8 Inch Thick, 3 Inch by 3 Inch Wood or Fiberglass Block with Pad to Prevent Damage to the Skin.

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

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F. Prepare for the Test

SUBTASK 27-31-00-860-046

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-860-047

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-007

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-048

(4) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.05 inches or 1013.2 +/- 1.3 mm) (Figure 502).

SUBTASK 27-31-00-860-049

(5) Move the control columns in a longitudinal (forward to aft) direction through full travel 20 times.

G. Elevator Surface Friction and Balance Test

SUBTASK 27-31-00-730-001

CAUTION: DO NOT PUT A LOAD OF MORE THAN 65 POUNDS (289 NEWTONS) ON THE ELEVATORS AT ONE TIME. IF THE LOAD IS TOO HEAVY, IT CAN CAUSE DAMAGE TO THE ELEVATORS.

(1) Do the elevator surface friction and balance test:

(a) Hold the captain's control columns at the neutral position.

(b) Move the elevator with your hand until the right elevator trailing edge aligns with the elevator neutral index mark (Figure 505).

1) Release the elevator trailing edge.

(c) If the right elevator trailing edge moves down from the index mark, then do the elevator balance adjustment (SRM 51-60-04).

(d) If the right elevator trailing edge moves up from the index mark, then do these steps:

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Turn on the A and B hydraulic systems to center the elevator, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

2) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

3) Hold the captain's control column in the neutral position.

4) Use the block, STD-1278 and force gauge, COM-1557 to measure the minimum force required to move the elevator trailing edge down 0.75 +/- 0.15 inch (19.1 +/- 3.8 mm) (1.25 +/- 0.24 degrees) from the neutral index mark (this force is referred to as the "down force").

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a) Make a record of this down force.

5) Hold the captain' control column in the neutral position.

6) Use the block, STD-1278 and force gauge, COM-1557 to measure the minimum force required to hold the elevator trailing edge at the index mark (which is referred to as the "up force").

a) Make a record of this up force.

7) Make sure the difference between the down force and up force is equal or less than 20 pounds (89 newtons).

8) If the difference between the down force and up force is greater than 20 pounds (89 newtons), then do this task: FIM 27-31 TASK 810.

(e) If the right elevator trailing edge stays at the index mark, then do these steps:

1) Hold the captain's control column in the neutral position.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

2) Turn on the A and B hydraulic systems to center the elevator, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

3) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

4) Use the force gauge, COM-1557 to measure the force required to move the elevator trailing edge down 0.75 +/- 0.15 inch (19.1 +/- 3.8 mm) (1.25 +/- 0.24 degrees) from the index mark (which is referred to as the "down force").

a) Make a record of this down force.

5) Use the force gauge, COM-1557 to measure the force required to move the elevator trailing edge up 0.75 +/- 0.15 inch (19.1 +/- 3.8 mm) (1.25 +/- 0.24 degrees) from the index mark (which is referred to as the "up force").

a) Make a record of this up force.

6) If the down force is less than the up force, then do a check of the elevator balance adjustment (SRM 51-60-04).

7) Calculate the sum of the down force and the up force.

8) Make sure the sum of the down force and the up force is equal or less than 32 pounds (142 newtons).

9) If the sum of the down force and the up force is greater than 32 pounds (142 newtons), then, do this task: FIM 27-31 TASK 810.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-050

(1) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

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SUBTASK 27-31-00-410-008

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

TASK 27-31-00-700-803

13. Elevator Balance Panels - Test

(Figure 502, Figure 504)

A. General

(1) Use this test to make sure the elevator balance panels are installed properly. This task is applicable for the left and right elevator balance panels.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
27-31-41-400-801	Elevator Balance Panel - Installation (P/B 401)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Prepare for the Test

SUBTASK 27-31-00-860-051

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-860-052

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-008

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

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SUBTASK 27-31-00-860-053

(4) Use the stab trim switches on the control wheel to set the stabilizer at approximately 4 units of trim.

SUBTASK 27-31-00-860-054

(5) Move the control columns in a longitudinal direction (forward and aft) through full travel one time.

F. Elevator Balance Panels Test

SUBTASK 27-31-00-200-006

(1) Check to make sure the bulb seal gaps in the balance panel bay are 0.02 +/- 0.01 inches (0.5 +/- 0.3 millimeter) by doing the "Check" steps in this procedure: Elevator Balance Panel - Installation, TASK 27-31-41-400-801.

SUBTASK 27-31-00-200-007

(2) Move each elevator (left and right side) by hand through the full travel to make sure that the elevator moves smoothly and freely.

(a) Visually verify that each of the bulb seals do not bind as the elevator moves through the full travel.

SUBTASK 27-31-00-420-009

(3) Install the access panels that were removed for this procedure.

SUBTASK 27-31-00-700-004

(4) Do this task: Manual Mode - Test, TASK 27-31-00-700-807.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-055

(1) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-00-410-025

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

TASK 27-31-00-700-804

14. Elevator Travel Limit - Test

(Figure 502, Figure 519)

A. General

(1) Use this test to make sure the elevator operates correctly through the full travel.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

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(Continued)

Reference	Title
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-31-00-860-056

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-860-057

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-011

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-058

(4) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 millimeters) (Figure 502).

G. Elevator Travel Limit Test

SUBTASK 27-31-00-730-003

CAUTION: DO NOT PUT A LOAD OF MORE THAN 65 POUNDS (289 NEWTONS) ON THE ELEVATORS AT ONE TIME. IF THE LOAD IS TOO HEAVY, IT CAN CAUSE DAMAGE TO THE ELEVATORS.

(1) Do the elevator travel limit test with hydraulics off:

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(a) Check for binding at the left and right elevators:

1) Use your hand to move the right elevator through the full travel.

a) Make sure that there is no binding through the full travel.

2) Use your hand to move the left elevator through the full travel.

a) Make sure that there is no binding through the full travel.

(b) Move and hold the captain's control column aft until it touches the stops.

1) Make sure the right elevator moves 13.16 - 14.87 inches (334.3 - 377.7 mm) up from the index mark (Figure 519).

(c) Move and hold the captain's control column forward until it touches the stops.

1) Make sure the right elevator moves 9.90 - 11.08 inches (251.5 - 281.4 mm) down from the index mark.

(d) Move and hold the captain's control column aft until it touches the stops.

1) Make sure the left elevator moves 13.16 - 14.87 inches (334.3 - 377.7 mm) up from the index mark (Figure 519).

(e) Move and hold the captain's control column forward until it touches the stops.

1) Make sure the left elevator moves 9.90 - 11.08 inches (251.5 - 281.4 mm) down from the index mark (Figure 519).

(f) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-00-730-016

(2) Do the elevator travel limit test with hydraulics on:

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Pressurize the elevator hydraulic system A. To pressurize it, do the system A portion of this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

(b) Move and hold the captain's control column aft until it touches the stops.

1) Make sure the right elevator moves up 13.73 - 14.87 inches (348.7 - 377.7 mm) from the index mark (Figure 519).

(c) Move and hold the captain's control column forward until it touches the stops.

1) Make sure the right elevator moves down 10.18 - 11.08 inches (258.6 - 281.4 mm) from the index mark (Figure 519).

(d) Set the FLT CONTROL B switch on the forward overhead panel, P5, to the ON position.

(e) Set the FLT CONTROL A switch on the forward overhead panel, P5, to the OFF position.

(f) Remove pressure from the elevator hydraulic system A. To remove pressure, do the system A portion of this task:Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

(g) Pressurize the elevator hydraulic system B. To pressurize it, do the system B portion of this task:Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

(h) Move and hold the captain's control column aft until it touches the stops.

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1) Make sure the right elevator moves up 13.73 - 14.87 inches (348.7 - 377.7 mm) from the index mark (Figure 519).

(i) Move and hold the captain's control column forward until it touches the stops.

1) Make sure the right elevator moves down 10.18 - 11.08 inches (258.6 - 281.4 mm) from the index mark (Figure 519).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-059

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-31-00-410-010

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

TASK 27-31-00-700-805

15. Elevator Output Torque Tube Buss Linkage - Test

(Figure 502)

A. General

(1) Use this test to do a check of the elevator output torque tube buss linkage.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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(Continued)

Reference	Description
STD-1278	Block - Loading, 1/8 Inch Thick, 3 Inch by 3 Inch Wood or Fiberglass Block with Pad to Prevent Damage to the Skin.

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-31-00-860-060

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-860-061

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-012

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-062

(4) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

SUBTASK 27-31-00-860-063

(5) Operate the elevator in the full travel 6 times.

SUBTASK 27-31-00-860-064

(6) Make sure the control column is in the neutral position.

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G. Elevator Output Torque Tube Buss Linkage Test

SUBTASK 27-31-00-730-004

CAUTION: DO NOT PUT A LOAD OF MORE THAN 65 POUNDS (289 NEWTONS) ON THE ELEVATORS AT ONE TIME. IF THE LOAD IS TOO HEAVY, IT CAN CAUSE DAMAGE TO THE ELEVATORS.

(1) Do a test of the elevator output torque tube:

(a) Set the FLT CONTROL A switch on the forward overhead panel, P5, to the OFF position.

(b) Make sure the FLT CONTROL B switch on the forward overhead panel, P5, is in the ON position.

(c) Use a block, STD-1278 and force gauge, COM-1557 to apply a downward force of 15 +/- 1 pounds (67 +/- 4 newtons) to the right elevator trailing edge.

1) Slowly release the force.

2) Make a mark of the elevator position on the tailcone after you remove the force.

(d) Use a block, STD-1278 and force gauge, COM-1557 to apply an upward force of 10 +/- 1 pounds (45 +/- 4 newtons) to the right elevator trailing edge.

1) Hold the elevator in this position with the force you have applied.

2) Make a mark of the elevator position on the tailcone before you remove the force.

3) Slowly remove the force.

a) Make sure the distance between the up and down position of the right elevator is not greater than 0.21 inch (5.3 mm).

(e) Set the FLT CONTROL A switch on the forward overhead panel, P5, to the ON position.

(f) Set the FLT CONTROL B switch on the forward overhead panel, P5, to the OFF position.

(g) Use a block, STD-1278 and force gauge, COM-1557 to apply a downward force of 15 +/- 1 pounds (67 +/- 4 newtons) to the left elevator trailing edge.

1) Slowly release the force.

2) Make a mark of the elevator position on the tailcone after you remove the force.

(h) Use a block, STD-1278 and force gauge, COM-1557 to apply an upward force of 10 +/- 1 pounds (45 +/- 4 newtons) to the left elevator trailing edge.

1) Hold the elevator in this position with the force you have applied.

2) Make a mark of the elevator position on the tailcone before you remove the force.

3) Slowly remove the force.

a) Make sure the distance between the up and down position of the left elevator is not greater than 0.21 inch (5.3 mm).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-065

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-31-00-410-011

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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TASK 27-31-00-700-806

16. Elevator Tab Linkage - Test

(Figure 502, Figure 505, Figure 510, Figure 519)

A. General

(1) Use this test to do a check of the elevator tab control system.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-10345	Rigging Bar - Elevator Tab (Part #: C27028-21, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27028-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

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F. Prepare for the Test

SUBTASK 27-31-00-860-066

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-860-067

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-760-003

(3) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	5	C01009	ADIRU LEFT DC
E	7	C01007	ADIRU LEFT AC

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	5	C01204	SMYD-1 CMPTR DC
E	6	C01205	SMYD-1 SNSR EXC AC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC
B	5	C01206	SMYD-2 CMPTR DC
C	14	C01008	ADIRU RIGHT AC
C	17	C01010	ADIRU RIGHT DC

SUBTASK 27-31-00-010-013

(4) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-068

(5) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 1.3 mm) (Figure 502).

SUBTASK 27-31-00-860-069

(6) Make sure the control column is in the neutral position.

G. Elevator Tab Linkage Test

SUBTASK 27-31-00-730-005

CAUTION: DO NOT PUT A LOAD OF MORE THAN 65 POUNDS (289 NEWTONS) ON THE ELEVATORS AT ONE TIME. IF THE LOAD IS TOO HEAVY, IT CAN CAUSE DAMAGE TO THE ELEVATORS.

(1) Do the elevator tab linkage test:

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(a) Cycle the control column forward and aft to center the system.

(b) Make sure that the flaps are fully retracted.

1) If necessary, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Move the left elevator tab up and down by hand to determine if the elevator tab is loose.

1) Make sure the looseness is not greater than 0.030 inch (0.76 mm) total movement at the trailing edge of the left elevator tab.

(d) Move the right elevator tab up and down by hand to determine if the elevator tab is loose.

1) Make sure the looseness is not greater than 0.030 inch (0.76 mm) total movement at the trailing edge of the right elevator tab.

(e) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

(f) Move the right elevator by hand to align it with the index mark in +/- 0.06 inch (+/- 1.5 mm) (Figure 505).

HAP ALL; AIRPLANES WITH SIX HINGE ELEVATOR TABS

(g) Install the elevator tab rigging bar, SPL-10345 at the third elevator tab hinge (from inboard) (Figure 510).

HAP ALL

(h) Make sure the distance between the right elevator tab and the elevator tab rigging bar, SPL-10345 (dimension X) is in (0.25 in. (6.35 mm) - 0.47 in. (11.94 mm) (Figure 510).

(i) Move the left elevator by hand to align it with the index mark in +/- 0.06 inch (+/- 1.5 millimeter).

HAP ALL; AIRPLANES WITH SIX HINGE ELEVATOR TABS

(j) Install the elevator tab rigging bar, SPL-10345 at the third elevator tab hinge (from inboard) (Figure 510).

HAP ALL

(k) Make sure the distance between the left elevator tab and the elevator tab rigging bar, SPL-10345 is in 0.25 in. (6.35 mm) - 0.47 in. (11.94 mm) (Figure 510).

(l) Remove the elevator tab rigging bar, SPL-10345.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(m) Pressurize elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

(n) Lightly move the control column forward and aft a small amount to make sure that the system is in the neutral position.

(o) Verify that the right elevator is aligned with the index mark in +/- 0.06 inch (+/- 1.5 mm).

(p) Use a 6 inch (150 millimeter) scale to measure from the bottom edge of the right elevator to the bottom edge of the elevator tab (this is referred to as the "neutral tab position").

1) Make a record of this neutral tab position.

(q) Move and hold the control column full aft.

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1) Use a scale to make sure the trailing edge of the right elevator is in 13.73 - 14.87 inches (348.7 - 377.7 mm) of the index mark (Figure 519).

2) Use a 6 inch (150 mm) scale to measure from the bottom edge of the right elevator to the bottom edge of the elevator tab (this is referred to as the "down tab position").

a) Make a record of this down tab position.

b) Release the control column.

(r) Move and hold the control column full forward.

1) Use a scale to make sure the trailing edge of the right elevator is in 10.18 - 11.08 inches (258.6 - 281.4 mm) of the index mark.

2) Use a 6 inch (150 mm) scale to measure from the bottom edge of the right elevator to the bottom edge of the elevator tab (this is referred to as the "up tab position").

a) Make a record of this up tab position.

b) Release the control column.

(s) Add the neutral tab position to the down tab position.

1) Make sure the sum is 1.35 - 1.69 inches (34.3 - 42.9 mm).

(t) Subtract the neutral tab position from up tab position.

1) Make sure the difference is between 1.00 and 1.28 inches (25.4 - 45.7 mm).

(u) Lightly move the control column forward and aft a small amount to make sure that the system is in the neutral position.

(v) Verify that the right elevator is aligned with the index mark in +/- 0.06 inch (+/- 1.5 mm).

(w) Use a 6 inch (150 millimeter) scale to measure from the bottom edge of the left elevator to the bottom edge of the elevator tab (this is referred to as the "neutral tab position").

1) Make a record of this neutral tab position.

(x) Move and hold the control column full aft.

1) Use a scale to make sure the trailing edge of the left elevator is in 13.73 - 14.87 inches (348.7 - 377.7 mm) of the index mark.

2) Use a 6 inch (150 millimeter) scale to measure from the bottom edge of the left elevator to the bottom edge of the elevator tab (this is referred to as the "down tab position").

a) Make a record of this down tab position.

b) Release the control column.

(y) Move and hold the control column full forward.

1) Use a scale to make sure the trailing edge of the left elevator is in 10.18 - 11.08 inches (258.6 - 281.4 mm) of the index mark.

2) Use a 6 inch (150 mm) scale to measure from the bottom edge of the left elevator to the bottom edge of the elevator tab (this is referred to as the "up tab position").

a) Make a record of this up tab position.

b) Release the control column.

(z) Add the neutral tab position to the down tab position.

1) Make sure the sum is 1.35 - 1.69 inches (34.3 - 42.9 mm).

(aa) Subtract the neutral tab position from the up tab position.

1) Make sure the difference is 1.00 - 1.28 inches (25.4 - 45.7 mm).

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(ab) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	8	C01464	FLIGHT CONTROL ELEV TAB VLV RIGHT

(ac) Move the flap control lever to the 5-unit position.

(ad) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	8	C01464	FLIGHT CONTROL ELEV TAB VLV RIGHT

1) Make sure that the right tab begins to move in 10 +/- 2 seconds.

(ae) Lightly move the control column forward and aft a small amount to make sure that the system is in the neutral position.

(af) Verify that the right elevator is aligned with the index mark in +/- 0.06 inch (+/- 1.5 mm).

1) Use a 6 inch (150 millimeter) scale to measure from the bottom edge of the right elevator to the bottom edge of the elevator tab (this is referred to as the "neutral tab position).
   a) Make a record of this neutral tab position.

(ag) Move and hold the control column full aft.

1) Use a scale to make sure the trailing edge of the right elevator is in 13.73 - 14.87 inches (348.7 - 377.7 millimeters) of the index mark.
2) Use a 6 inch (150 millimeter) scale to measure from the bottom edge of the right elevator to the bottom edge of the elevator tab (this is referred to as the "up tab position").
   a) Make a record of this up tab position.
   b) Release the control column.

(ah) Move and hold the control column full forward.

1) Use a scale to make sure the trailing edge of the right elevator is in 10.18 - 11.08 inches (258.6 - 281.4 mm) of the index mark.
2) Use a 6 inch (150 mm) scale to measure from the bottom edge of the right elevator to the bottom edge of the elevator tab (this is referred to as the "down tab position").
   a) Make a record of this down tab position.
   b) Release the control column.

(ai) Add the neutral tab position to the up tab position.

1) Make sure the sum is between 0.80 and 1.20 inches (20.3 and 30.5 mm).

(aj) Subtract the neutral tab position from the down tab position.

1) Make sure the difference is between 0.60 and 0.90 inches (15.2 and 22.9 mm).

(ak) Move the left elevator by hand to align it with the index mark in +/- 0.06 inch (+/- 1.5 mm).

1) Use a 6 inch (150 millimeter) scale to measure from the bottom edge of the left elevator to the bottom edge of the elevator tab (this is referred to as the "neutral tab position").
   a) Make a record of this neutral tab position.

(al) Move and hold the control column full aft.

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1) Use a scale to make sure the left elevator is in 13.73 - 14.87 inches (348.7 - 377.7 mm) of the index mark.

(am) Use a 6 inch (150 millimeter) scale to measure from the bottom edge of the left elevator to the bottom edge of the elevator tab (this is referred to as the "up tab position").

1) Make a record of this up tab position.

(an) Move and hold the control column full forward.

1) Use a scale to make sure the trailing edge of the left elevator is in 10.18 - 11.08 inches (258.6 - 281.4 mm) of the index mark.

2) Use a 6 inch (150 millimeter) scale to measure from the bottom edge of the left elevator to the bottom edge of the elevator tab (this is referred to as the "down tab position").

a) Make a record of this down tab position.

b) Release the control column.

(ao) Add the neutral tab position to the up tab position.

1) Make sure the sum is between 0.80 and 1.20 inches

(20.3 - 30.5 mm).

(ap) Subtract the neutral tab position from the down tab position.

1) Make sure the difference is between 0.60 and 0.90 inches (15.2 - 22.9 mm).

(aq) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-070

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-31-00-410-012

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

TASK 27-31-00-700-807

17. Manual Mode - Test

(Figure 502)

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to make sure the control columns and control wheels operate freely.

B. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

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C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-31-00-860-071

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-040-001

(2) Do the following to isolate the spoilers to keep them from moving when you turn the control wheel:

(a) Turn the A and B Spoiler Shutoff Switches on the P5-3 panel to the OFF position.

SUBTASK 27-31-00-010-014

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-073

(4) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

G. Manual Mode Test

SUBTASK 27-31-00-730-006

(1) Do the manual mode test:

(a) Make sure the control columns and control wheels move freely:

1) Move the control column in a longitudinal direction (forward and aft), and while moving the control column forward and aft, rotate the control wheel between the left and right stops.

a) Repeat this step nine more times.

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2) Rotate and hold the control wheel against the left stop and move the control column in a longitudinal direction (forward and aft) between the stops.

3) Rotate and hold the control wheel against the right stop and move the control column in a longitudinal direction (forward and aft) between the stops.

4) Hold the control column full forward and rotate the control wheel left and right between the stops.

5) Hold the control column full aft and rotate the control wheel left and right between the stops.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-074

(1) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-00-040-002

(2) If necessary, turn the A and B Spoiler Shutoff Switches on the P5-3 panel to the ON position.

SUBTASK 27-31-00-410-013

(3) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

TASK 27-31-00-700-808

18. Control Column Travel and Centering - Test

(Figure 502, Figure 505, Figure 512, Figure 519)

A. General

(1) Use this test to make sure the control columns can move through their full travel. This also includes a centering test of the control columns.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1674	Assembly - Adapter, Control Wheel, Torque and Force Test (Part #: C27060-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F72867-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-31-00-860-075

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-860-076

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-015

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-077

(4) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.05 inches or 1013.2 +/- 1.3 mm) (Figure 502).

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G. Control Column Travel and Centering Test

SUBTASK 27-31-00-730-007

(1) Do the control column travel test (Figure 512):

(a) Attach the adapter, SPL-1674 and control column assembly protractor, SPL-1680 to the captain's control column (Figure 512).

(b) Move the captain's control column full aft until it touches the stop and hold it in that position.

1) Make sure the right elevator trailing edge moves to 13.16 - 14.87 inches (334.3 - 377.7 mm) up from the index mark (Figure 519).

a) Make sure the position of the captain's control column is at a minimum of 14 degrees aft of the column neutral rig position (Figure 512).

(c) Move the captain's control column full forward until it touches the stop and hold it in that position.

1) Make sure the right elevator trailing edge moves to 9.90 - 11.08 inches (251.5 - 281.4 mm) down from the index mark (Figure 519).

2) Make sure the position of the captain's control column is at a minimum of 12.8 degrees forward of the column neutral rig position.

a) Release the control column.

(d) Make sure the total travel of the captain's control column is a minimum of 28.4 degrees (Figure 512).

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(e) Pressurize elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

(f) Move the captain's control column lightly forward and aft to make sure it is in the neutral position.

1) Make sure the position of the captain's control column is in 6.1 - 7.7 degrees of the vertical position (90 degrees).

(g) Remove the adapter, SPL-1674 and control column assembly protractor, SPL-1680 from the captain's control column.

(h) Attach the adapter, SPL-1674 and control column assembly protractor, SPL-1680 to the first officer's control column (Figure 512).

(i) Move the first officer's control column lightly forward and aft to make sure it is in the neutral position (Figure 512).

1) Make sure the position of the captain's control column is in 6.1 - 7.7 degrees of the vertical position.

(j) Remove the adapter, SPL-1674 and control column assembly protractor, SPL-1680 from the first officer's control column.

SUBTASK 27-31-00-730-008

(2) Do the elevator centering test:

(a) Set the FLT CONTROL B switch on the forward overhead panel, P5, to the OFF position.

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(b) Make sure the FLT CONTROL A switch on the forward overhead panel, P5, is in the ON position.

(c) Make sure the captain's control column is at the neutral position.

1) Make sure the right elevator aligns with the index mark in +/- 0.06 inch (+/- 1.5 mm) (Figure 505).

(d) Set the FLT CONTROL B switch to the ON position.

1) Make sure the right elevator aligns with the index mark in +/- 0.06 inch (+/- 1.5 mm).

(e) Set the FLT CONTROL A switch to the OFF position.

(f) Make sure the FLT CONTROL B switch is in the ON position.

1) Make sure the right elevator aligns with the index mark in +/- 0.06 inch (+/- 1.5 mm).

(g) Set the FLT CONTROL A switch to the ON then to the OFF position.

1) Make sure there is less than 0.02 inch (0.5 mm) movement at the right elevator trailing edge.

(h) Set the FLT CONTROL B switch to the OFF then to the ON then to the OFF position.

1) Make sure there is less than 0.02 inch (0.5 mm) movement at the right elevator trailing edge.

(i) Set the FLT CONTROL A and B switches to the ON position.

(j) Make sure the captain's control column is at the neutral position.

1) Make sure the right elevator aligns with the index mark in +/- 0.06 inch (+/- 1.5 mm).

(k) Move the captain's control column forward approximately 2 degrees and release.

1) Make sure the right elevator trailing edge aligns with the index mark in 0.00 +/- 0.12 inch (0.0 +/- 3.0 mm).

(l) Move the captain's control column aft approximately 2 degrees and release.

1) Make sure the right elevator trailing edge aligns with the index mark in 0.00 +/- 0.12 inch (0.0 +/- 3.0 mm).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-078

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-31-00-410-014

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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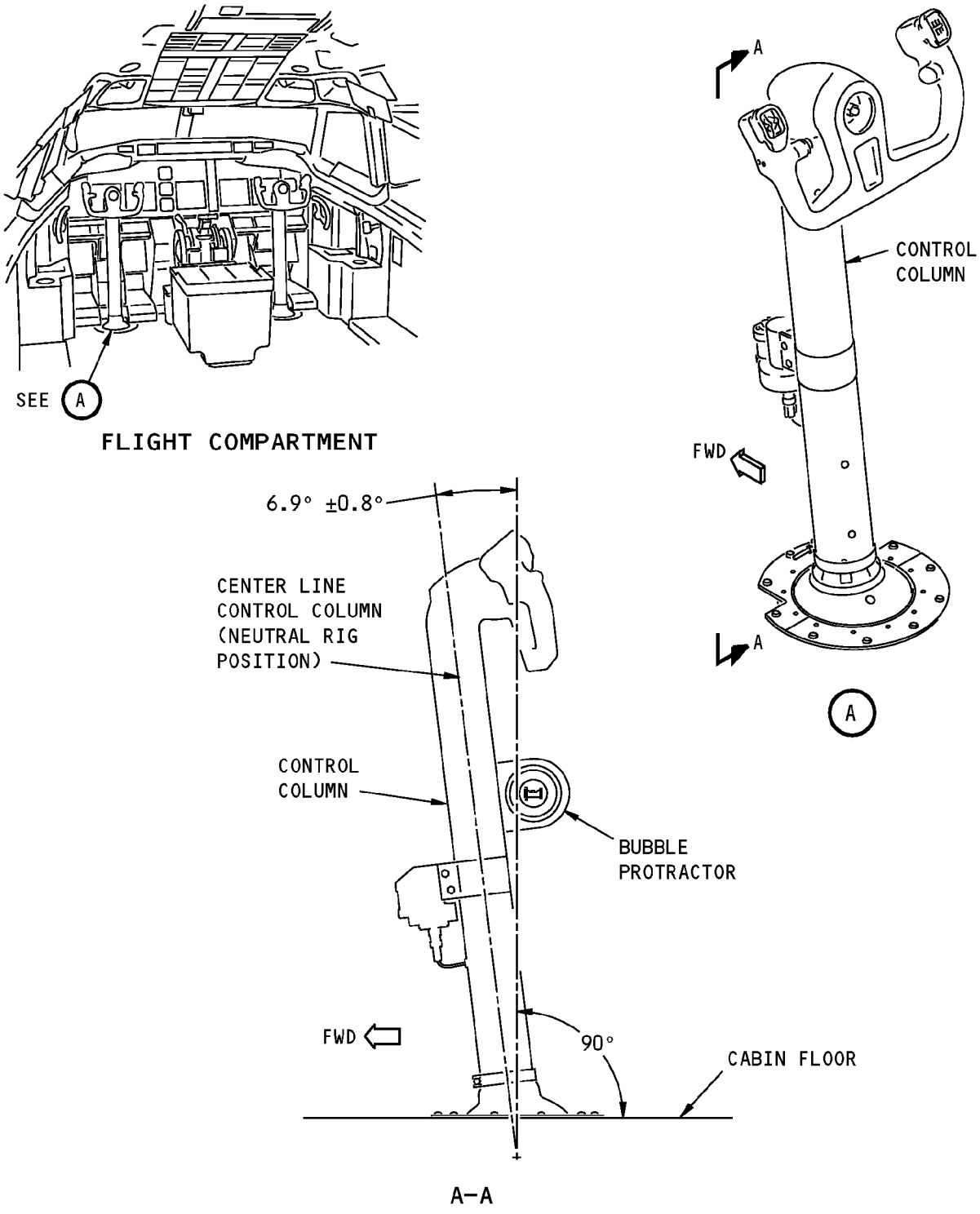

Elevator Control Column Protractor Installation
Figure 512/27-31-00-990-813

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TASK 27-31-00-700-809

19. Control Column Power Force - Test

(Figure 502, Figure 512, Figure 519)

A. General

(1) Use this test to make sure the control columns move with the correct input force.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
SPL-1674	Assembly - Adapter, Control Wheel, Torque and Force Test (Part #: C27060-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F72867-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-31-00-860-079

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-00-860-080

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-016

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-081

(4) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

G. Control Column Power Force Test

SUBTASK 27-31-00-730-009

(1) Do the control column force test (with hydraulics unpressurized):

(a) Move the captain's control column slowly aft and hold at the elevator trailing edge up position of 3.59 - 3.69 inches (91.2 - 93.7 mm) (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force to hold the control column is between 11 - 53 pounds (107 - 236 newtons) (Figure 512).

2) Center the control column.

(b) Move the captain's control column slowly forward and hold at the elevator trailing edge down position of 3.64 - 3.74 inches (92.5 - 95.0 mm) (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force to hold the control column is between 19 - 63 pounds (160 - 280 newtons) (Figure 512).

SUBTASK 27-31-00-730-019

(2) Do the control column force test (with hydraulics pressurized):

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WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, STABILIZER AND NOSE GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Pressurize elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

(b) Move the captain's control column lightly forward and aft to put the system in the neutral position.

1) Attach "DO-NOT-MOVE" tags on the control columns.

(c) Attach approximately 36 inches (900 mm) of masking tape to the tailcone, forward of the right elevator index plate (Figure 519).

NOTE: Make sure there are approximately 18 inches (450 mm) of masking tape above the index plate and approximately 18 inches (450 mm) of masking tape below the index plate.

(d) Make a mark of the neutral position of the elevator trailing edge on the masking tape.

1) Use this mark of the neutral position as reference.

(e) Make marks of the right elevator positions on the masking tape (from the two tables below).

(f) Move the captain's control column slowly aft with the force gauge, COM-1557.

1) Hold the captain's control column at these elevator positions (that have been marked on the masking tape of the right elevator) and make sure the forces to move the control column are in these limits:

NOTE: Put a straight edge on the top of the trailing edge surface of the elevator surface to measure the elevator position at the surface of the tailcone.

NOTE: The "breakout" is when the elevator starts to move.

Table 502/27-31-00-993-825

RIGHT ELEVATOR POSITION (T.E. UP)	REQUIRED COLUMN FORCE (AFT)
BREAKOUT	3.0 - 7.0 pounds (13.3 - 31.1 newtons)
1.90 - 2.00 inches (48.3 - 50.8 mm)	14.5 - 21.5 pounds (64.5 - 95.6 newtons)
5.05 - 5.15 inches (128.3 - 130.8 mm)	21.0 - 27.0 pounds (93.4 - 120.1 newtons)
9.40 - 9.50 inches (238.8 - 241.3 mm)	29.5 - 36.5 pounds (131.2 - 162.4 newtons)

(g) Move the captain's control column slowly forward with the force gauge, COM-1557.

1) Hold the captain's control column at these elevator positions and make sure the forces to move the control column are in these limits:

NOTE: The "breakout" is when the elevator starts to move.

Table 503/27-31-00-993-826

RIGHT ELEVATOR POSITION (T.E. DOWN)	REQUIRED COLUMN FORCE (FORWARD)
BREAKOUT	3.5 - 7.5 pounds (15.6 - 33.4 newtons)
1.90 - 2.00 inches (48.3 - 50.8 mm)	17.5 - 21.5 pounds (77.8 - 95.6 newtons)
5.05 - 5.15 inches (128.3 - 130.8 mm)	28.5 - 35.5 pounds (126.8 - 157.9 newtons)

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(Continued)

RIGHT ELEVATOR POSITION (T.E. DOWN)	REQUIRED COLUMN FORCE (FORWARD)
9.40 - 9.50 inches (238.8 - 241.3 mm)	34.8 - 42.8 pounds (154.7 - 190.4 newtons)

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-080-006

(1) Remove the adapter, SPL-1674 and control column assembly protractor, SPL-1680 from the captain's control column.

SUBTASK 27-31-00-860-082

(2) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-31-00-410-015

(3) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

TASK 27-31-00-700-810

20. Neutral Shift - Test

(Figure 502, Figure 505, Figure 519)

A. General

(1) Use this test to make sure the elevator neutral shift mechanism moves the elevator when the stabilizer moves. When the stabilizer moves, it gives a mechanical input to the elevator PCUs.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-31-00-860-083

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-860-084

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-010-017

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-085

(4) Use the bar, SPL-1677 to set the "B" dimension at 21.32 +/- 0.10 inches (541.5 +/- 2.5 mm) (Figure 502).

G. Neutral Shift Test

SUBTASK 27-31-00-730-010

(1) Do the neutral shift test:

(a) Make sure the right elevator trailing edge moves up 13.90 - 14.90 inches (353.1 - 378.5 mm) from the index mark (Figure 519).

(b) Use the bar, SPL-1677 to set the "B" dimension at 45.84 +/- 0.10 inches (1164.3 +/- 2.5 mm).

(c) Move the captain's control column aft and forward lightly to make sure it is in the neutral position.

(d) Make sure the right elevator trailing edge moves down 3.20 - 3.80 inches (81.3 - 96.5 mm) from the index mark.

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SUBTASK 27-31-00-700-006

(2) Do the following steps to check the elevator system:

NOTE: You use the Flight Management Computer Control Display Unit (FMC CDU) to do the following Built-In-Test Equipment (BITE) test.

(a) If you need to supply electrical power, do this task: Supply Electrical Power, TASK 24-22-00-860-811

(b) Push the INIT REF key on the CDU keyboard.

1) Push the Line Select Key (LSK) that is adjacent to each selection:

a) INDEX

b) MAINT

c) DFCS

d) EXTENDED MAINTENANCE

e) RIGGING

f) ELEVATOR

NOTE: After you make this selection, the CONTINUE will show. Do the instructions that show on the CDU display before you push the LSK that is adjacent to CONTINUE.

g) COMPLETE ELEV RIG

NOTE: This selection contains the ELEV RIG test.

h) During this test, do the instructions that show on the CDU display.

i) After you do the instructions that show on the CDU display, push the LSK that is adjacent to CONTINUE.

2) Do the Elevator Rigging Check:

a) Make sure that the values for the A and B sides are between the limits that show on the CDU display or in this task.

Table 504/27-31-00-993-820

Test		Limits:
51.01	STAB POS (VAC)	-0.07 to 0.07

b) Use the trammel bar, SPL-1677 to measure the B dimension.

c) Make sure that the B dimension is 39.89 (±0.01) inches.

Table 505/27-31-00-993-821

Test		Limits
51.02	MT ACT POS (VAC)	-8.70 to -6.35
Note: No value for B side; N/A		
51.03	MT ACT POS (VAC)	-0.20 TO 0.20
Note: No value for B side; N/A		
51.04	ELEV POS (vac)	-0.55 RO -0.45

d) Make sure that the elevator trailing edge aligns with the elevator index on the tail cone at 0 (±0.06) inch.

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Table 506/27-31-00-993-822

Test		Limits
51.05	NSS POS (VAC)	-1.77 to -1.67
51.06	ELEV LVDT (VAC)	-2.05 to -1.95
51.07	ELEV POS (VAC)	-0.55 TO -0.45

e) Make sure that the elevator trailing edge aligns with the elevator index on the tail cone at 0 (±0.06) inch.

Table 507/27-31-00-993-823

Test		Limits
51.08	ELEV POS (VAC)	-0.55 to -0.45
51.09	ELEV POS (VAC)	-0.55 to -0.45
51.10	ELEV POS (VAC)	-0.55 to -0.45
51.11	ELEV POS (VAC)	-0.55 to -0.45

f) Set the B dimension to 29.00 (±0.01) inches.

g) Use the trammel bar, SPL-1677 to measure the B dimension.

h) Make sure that the B dimension is at 29.00 (±0.01) inches.

Table 508/27-31-00-993-824

Test		Limits
51.12	STAB POS (VAC)	4.47 to 5.29
51.13	ELEV LVDT (VAC)	-0.06 to 0.06
51.14	ELEV POS (VAC)	-0.10 to 0.10
51.15	NSS POS (VAC)	-0.20 to 0.20

3) Do these steps to get out of the BITE test:

NOTE: If there are instructions on the CDU display, it is necessary to do the instructions that show on the CDU display.

a) Push the LSK adjacent to PREV MENU on test 51.16 screen.

b) Push the LSK adjacent to PREV MENU on the ELEVATOR RIGGING screen.

c) Push the LSK adjacent to CONTINUE on the RIGGING INDEX screen.

d) Push the LSK adjacent to EXIT on the RIGGING INDEX screen.

e) Push the LSK adjacent to CONTINUE on the END OF BITE RIGGING screen.

f) Push the LSK adjacent to EXIT until you get out of the BITE test.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-086

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

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SUBTASK 27-31-00-410-016

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

TASK 27-31-00-700-811

21. Feel Differential Pressure Light - Test

A. General

(1) Use this test to make sure the FEEL DIFF PRESS light operates correctly.

B. References

Reference	Title
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Prepare for the Test

SUBTASK 27-31-00-860-087

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-010-018

(2) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

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F. Feel Differential Pressure Light Test

HAP ALL; AIRPLANES WITH THE ELEVATOR FEEL SHIFT MODULE

SUBTASK 27-31-00-860-153

(1) Set the FLT CONTROL B switch on the forward overhead panel, P5, to the OFF position.

(a) Make sure the FEEL DIFF PRESS light on the forward overhead panel, P5, illuminates after a minimum of 35 seconds.

NOTE: The time required for the system to bleed down will vary. It may take up to 120 seconds for the FEEL DIFF PRESS light to illuminate.

HAP ALL

SUBTASK 27-31-00-860-155

(2) Set the FLT CONTROL A switch to the OFF position.

(a) Make sure the FEEL DIFF PRESS light goes off.

SUBTASK 27-31-00-860-156

(3) Set the FLT CONTROL B switch to the ON position.

(a) Wait for a minimum of 35 seconds.

(b) Make sure the FEEL DIFF PRESS light comes on.

NOTE: The time required for the system to bleed down will vary. It may take up to 120 seconds for the FEEL DIFF PRESS light to illuminate.

SUBTASK 27-31-00-860-157

(4) Set the FLT CONTROL A switch to the ON position.

(a) Make sure the FEEL DIFF PRESS light goes off.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-089

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-31-00-410-017

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

TASK 27-31-00-790-801

22. Pitot System Leak - Test

(Figure 513)

A. General

(1) Use this test to do a leak check of the pitot system.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1742	Regulator - Air Pressure, Elevator Feel Computer (Part #: F72928-58, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: F72928-62, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: F72928-63, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
323	Vertical Fin - Front Spar To Rear Spar

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Procedure

SUBTASK 27-31-00-010-019

(1) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-390-001

(2) Seal the drain hole in each pitot probe on the vertical fin.

SUBTASK 27-31-00-020-004

(3) Remove the drain plugs from the pitot lines.

SUBTASK 27-31-00-480-007

(4) Connect the pressure gage lines from the regulator, SPL-1742 to the drain holes of the pitot lines.

SUBTASK 27-31-00-480-008

CAUTION: MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE PROBE CAN BEND OR TWIST OUT OF TOLERANCE.

(5) Connect the pressure lines from the regulator, SPL-1742 to the two pitot probes on the vertical fin.

SUBTASK 27-31-00-790-001

(6) Do a pitot system leak test:

CAUTION: DO NOT INCREASE THE PRESSURE TO MORE THAN 6 PSIG (474 KNOTS KCAS) DURING THE TEST. IF THE PRESSURE IS MORE THAN 6 PSIG, (41.4 KPA) IT CAN CAUSE DAMAGE TO THE ELEVATOR FEEL COMPUTER.

(a) Operate the regulator, SPL-1742, to apply pressure between 4.9 and 5.1 psig (33.8 and 35.2 kPa).

(b) Set the shutoff valve in the regulator, SPL-1742 to the OFF position.

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(c) Make sure that the pressure does not decrease more than 0.3 psig (2.1 kPa) (12 knots KCAS) during a 2-minute time.

(d) Operate the regulator, SPL-1742, to decrease the pressure to zero.

SUBTASK 27-31-00-160-001

(7) Remove the seals from the drain holes in each pitot probe.

SUBTASK 27-31-00-080-007

(8) Remove the pressure gage lines from the regulator, SPL-1742 to the drain holes.

SUBTASK 27-31-00-080-008

(9) Remove the pressure lines from the regulator, SPL-1742 to the pitot probes.

SUBTASK 27-31-00-430-002

(10) Install the drain plugs on the pitot lines.

SUBTASK 27-31-00-410-018

(11) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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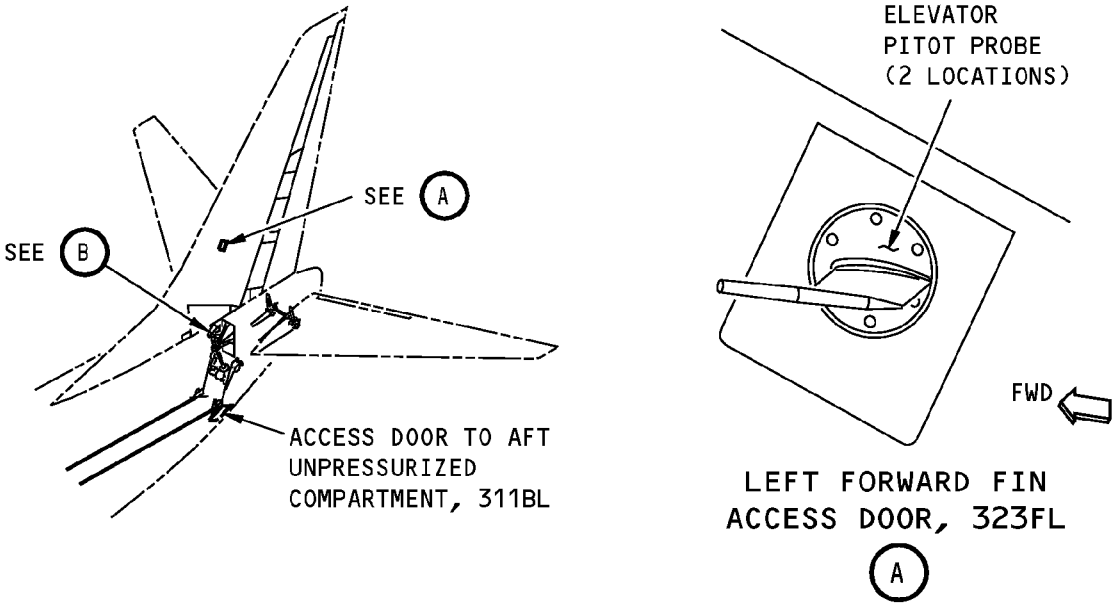

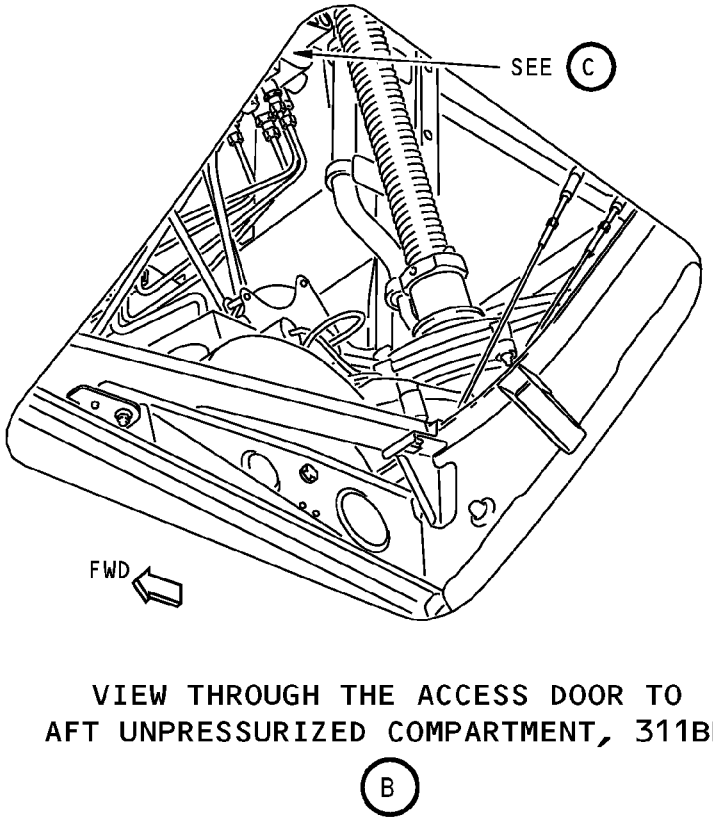

Elevator Pitot-Static System
Figure 513 (Sheet 1 of 2)/27-31-00-990-814

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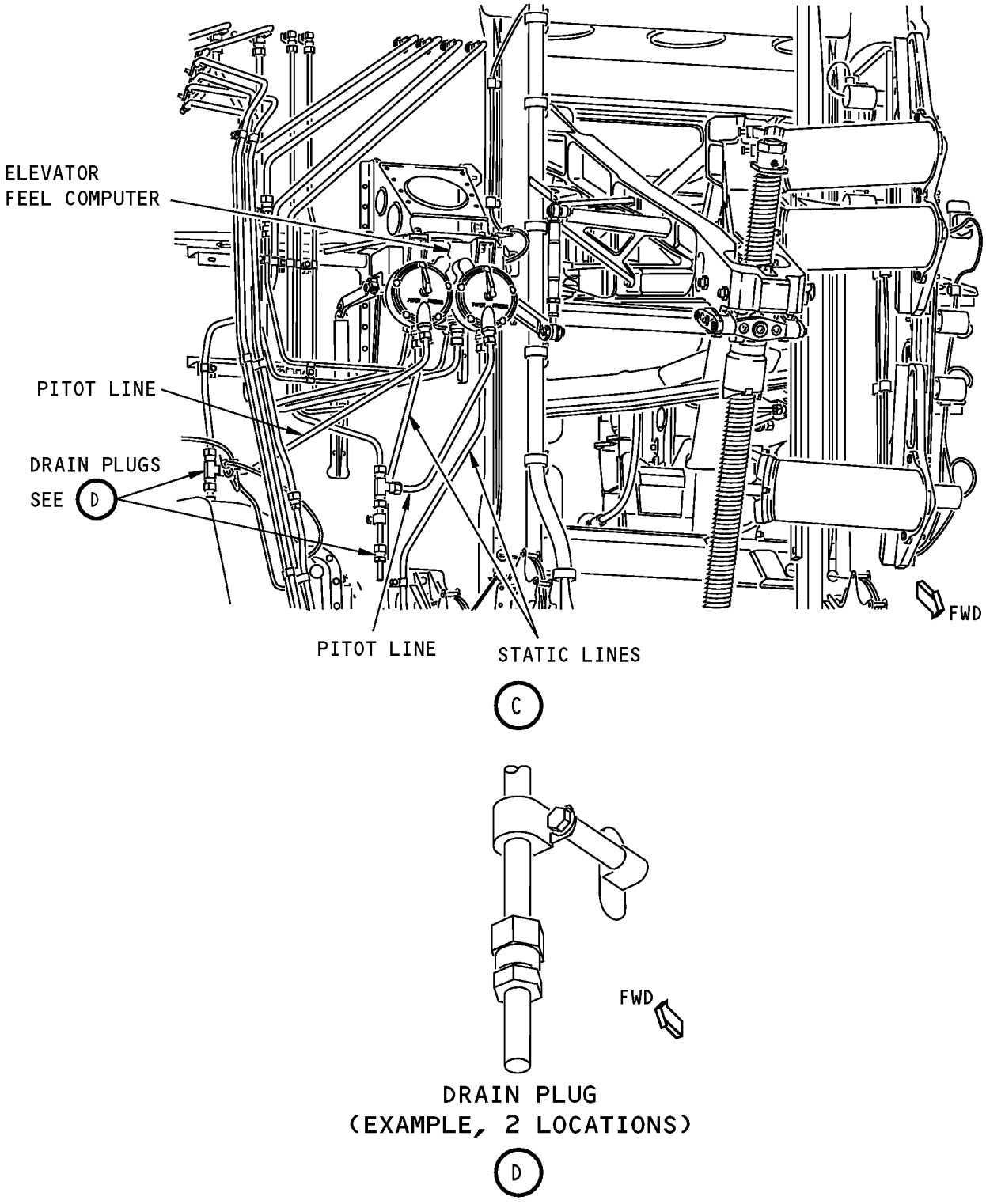

Elevator Pitot-Static System
Figure 513 (Sheet 2 of 2)/27-31-00-990-814

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TASK 27-31-00-700-812

23. Feel Force System - Test

(Figure 502, Figure 513, Figure 519)

A. General

(1) Use this test to make sure the elevator feel computer operates correctly. The elevator feel computer changes the control column forces as the airspeed changes.

B. References

Reference	Title
22-11-00-820-802	Elevator Rigging Test (P/B 501)
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)

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(Continued)

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1742	Regulator - Air Pressure, Elevator Feel Computer (Part #: F72928-58, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: F72928-62, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: F72928-63, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-31-00-860-090

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-860-091

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-00-480-014

(3) At the two pitot probes on the vertical fin, do the following:

(a) Seal the drain hole on each pitot probe.

CAUTION: MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE WEIGHT OF THE TEST HOSE CAN BEND OR TWIST THE PITOT PROBE OUT OF TOLERANCE.

(b) Connect the pressure lines from the air data model test set, COM-1914 or regulator, SPL-1742 to the two pitot probes on the vertical fin.

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SUBTASK 27-31-00-010-020

(4) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-480-015

(5) Inside the aft unpressurized compartment, below the elevator feel computer, do the following:

(a) Remove the restrictor valves from the bottom of the pitot lines.

(b) If you are using the regulator, SPL-1742, or equivalent, do the following:

1) Connect the pressure gage lines from the regulator, SPL-1742, or equivalent, to the drain holes of the pitot lines.

(c) If you are using the air data model test set, COM-1914, then do the following:

1) Install plugs over the ends of the pitot lines.

2) Install a highly visible streamer on the opening of the aft unpressurized compartment.

a) Make sure that you can easily see the streamer from the ground.

NOTE: This is to remind you to remove the plugs and install the restrictor valves again when the test is completed.

SUBTASK 27-31-00-860-092

(6) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

G. Feel Force System Test

(Figure 513)

SUBTASK 27-31-00-730-012

(1) Do the feel force system test:

CAUTION: DO NOT INCREASE THE PRESSURE TO MORE THAN 6 PSIG (474 KNOTS KCAS) DURING THE TEST. IF THE PRESSURE IS MORE THAN 6 PSIG (41.4 KPA), IT CAN CAUSE DAMAGE TO THE ELEVATOR FEEL COMPUTER.

(a) Operate the regulator, SPL-1742 or air data model test set, COM-1914 to increase the pressure to 0.77 - 0.87 psig (5.3 - 6.0 kPa) (185 knots).

(b) Apply masking tape on the tail cone along direction of the travel of the elevator trailing edge.

NOTE: You can use the elevator travel measuring tool as an alternative to the masking tape.

(c) Move the captain's control column lightly to put the system in the neutral position, then release.

1) Make a mark of the neutral position of the elevator trailing edge on the masking tape.

(d) Move the captain's control column slowly aft until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 17 - 28 pounds (76 - 125 newtons).

(e) Move the captain's control column slowly aft until the elevator trailing edge is at 4.75 - 4.85 inches (120.6 - 123.2 mm) from the neutral position, and hold (Figure 519).

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1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 36 - 45 pounds (160 - 200 newtons).

(f) Move the captain's control column slowly forward until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 17.0 - 27.5 pounds (75.6 - 122.3 newtons).

(g) Move the captain's control column slowly forward until the elevator trailing edge is at 4.75 - 4.85 inches (120.6 - 123.2 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 44 - 53 pounds (196 - 236 newtons).

(h) Set the FLT CONTROL B switch on the forward overhead panel, P5 to the OFF position.

(i) Move the captain's control column slowly aft until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 17 - 28 pounds (76 - 125 newtons).

(j) Move the captain's control column slowly aft until the elevator trailing edge is at 4.75 - 4.85 inches (120.6 - 123.2 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 36 - 45 pounds (160 - 200 newtons).

(k) Move the captain's control column slowly forward until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 17.0 - 27.5 pounds (75.6 - 122.3 newtons).

(l) Move the captain's control column slowly forward until the elevator trailing edge is at 4.75 - 4.85 inches (120.6 - 123.2 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 44 - 53 pounds (196 - 236 newtons).

(m) Set the FLT CONTROL A switch on the forward overhead panel, P5 to the OFF position.

(n) Set the FLT CONTROL B switch to the ON position.

(o) Move the captain's control column slowly aft until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 17 - 28 pounds (76 - 125 newtons).

(p) Move the captain's control column slowly aft until the elevator trailing edge is at 4.75 - 4.85 inches (120.6 - 123.2 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 36 - 45 pounds (160 -200 newtons).

(q) Move the captain's control column slowly forward until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 17.0 - 27.5 pounds (75.6 - 122.3 newtons).

(r) Move the captain's control column slowly forward until the elevator trailing edge is at 4.75 - 4.85 inches (120.6 - 123.2 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 44 - 53 pounds (196 - 236 newtons).

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(s) Set the FLT CONTROL A switch to the ON position.

CAUTION: DO NOT INCREASE THE PRESSURE TO MORE THAN 6 PSIG (474 KNOTS KCAS) DURING THE TEST. IF THE PRESSURE IS MORE THAN 6 PSIG, IT CAN CAUSE DAMAGE TO THE ELEVATOR FEEL COMPUTER.

(t) Operate the regulator, SPL-1742 or air data model test set, COM-1914 to increase the pressure to 2.42 - 2.52 psig (16.7 - 17.3 kPa) (315 knots).

(u) Move the captain's control column slowly aft until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold (Figure 519).

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 28 - 44 pounds (125 - 196 newtons).

(v) Move the captain's control column slowly forward until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold.

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 30 - 46 pounds (133 - 205 newtons).

(w) Set the FLT CONTROL B switch to the OFF position.

(x) Move the captain's control column slowly aft until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold.

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 28 - 44 pounds (125 - 196 newtons).

(y) Move the captain's control column slowly forward until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold.

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 30 - 46 pounds (133 -205 newtons).

(z) Set the FLT CONTROL B switch to the ON position.

(aa) Set the FLT CONTROL A switch on the forward overhead panel, P5 to the OFF position.

(ab) Move the captain's control column slowly aft until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold.

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 28 - 44 pounds (125 - 196 newtons).

(ac) Move the captain's control column slowly forward until the elevator trailing edge is at 1.15 - 1.25 inches (29.2 - 31.7 mm) from the neutral position, and hold.

1) Use the force gauge, COM-1557 to make sure the force required to keep the control column at this position is 30 - 46 pounds (133 - 204 newtons).

(ad) Set the FLT CONTROL A and B switches to the OFF position.

(ae) Operate the regulator, SPL-1742 or air data model test set, COM-1914to decrease the pressure to 0.0 psig (0.0 kPa) (0 knots).

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-730-013

(1) Do a test of the autopilot authority in the elevator rigging test. To do this test, do this task: Elevator Rigging Test, TASK 22-11-00-820-802.

SUBTASK 27-31-00-080-009

(2) At the two pitot probes on the vertical fin, do the following:

(a) Remove the pressure lines from the air data model test set, COM-1914 or regulator, SPL-1742 from the pitot probes.

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(b) Remove the seal from the drain hole in each pitot probe.

SUBTASK 27-31-00-430-003

(3) Inside the aft unpressurized compartment, do the following:

(a) If you used the regulator, SPL-1742, or equivalent, for the test, do the following:

1) Disconnect the pressure gage lines of the regulator, SPL-1742, or equivalent, from the drain holes of the pitot lines.

(b) If you used the air data model test set, COM-1914 for the test, do the following:

1) Remove the plugs that were installed over the ends of the pitot lines.

2) Remove the highly visible streamer that you installed on the opening of the aft unpressurized compartment.

(c) Install the restrictor valves on the bottom of the pitot lines.

SUBTASK 27-31-00-410-019

(4) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-093

(5) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

——————— END OF TASK ———————

TASK 27-31-00-700-814

24. Sensor Null - Test

(Figure 502)

A. General

(1) Use this test to do the elevator rigging test with the DFCS computer BITE. The control display unit (CDU) is necessary for this procedure.

B. References

Reference	Title
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-31-00-860-096

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-010-022

(2) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-097

(3) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

G. Sensor Null Test

SUBTASK 27-31-00-740-006

(1) Do the sensor null test:

(a) Do this BITE test on the control display unit (CDU):

1) Push the INIT REF key on the CDU keyboard.

2) Push the Line Select Key (LSK) that is adjacent to these selections:

NOTE: Use the NEXT PAGE or PREV PAGE key to change page if it is necessary. During the BITE test, if the "CONTINUE" shows, then push the LSK that is adjacent to "CONTINUE" after you do the instructions that show on the CDU display.

a) INDEX

b) MAINT

c) DFCS

d) EXTENDED MAINTENANCE

e) RIGGING

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f) ELEVATOR

g) CONTINUE

3) Do the instructions that show on the CDU and push the LSK adjacent to these selections:

a) CONTINUE

b) ELEV RIG

4) Make sure the BITE display values on the A and B sides are in the limit as shown below:

NOTE: During the BITE test, if the "CONTINUE" shows, then push the LSK that is adjacent to "CONTINUE" after you do the instructions that show on the CDU display.

Table 509/27-31-00-993-819

Test 51.01	STAB POS (VAC)	Limits: -0.07 TO 0.07
Use the bar, F80055-1 to set the "B" dimension as on the CDU. Test 51.02		
Test 51.02	MT ACT POS (VAC)	Limits: -6.10 to -8.43
51.03	MT ACT POS (VAC)	Limits: -0.20 to 0.20
Test 51.04	ELEV POS (VAC)	Limits: -0.55 to -0.45
Make sure the elevator trailing edge aligns with the index mark +/- 0.06 inch (1.5 millimeters).		
Test 51.05	NSS POS (VAC)	Limits: -1.77 to -1.67
Test 51.06	ELEV LVDT (VAC)	Limits: -2.05 to -1.95
Test 51.07	ELEV POS (VAC)	Limits: -0.55 to -0.45
Make sure the elevator trailing edge aligns with the index mark +/- 0.06 inch (1.5 millimeters).		
Test 51.08	ELEV POS (VAC)	Limits: -0.55 to -0.45
Test 51.09	ELEV POS (VAC)	Limits: -0.55 to -0.45
Test 51.10	ELEV POS (VAC)	Limits: -0.55 to -0.45
Test 51.11	ELEV POS (VAC)	Limits: -0.55 to -0.45
Test 51.12	STAB POS (VAC)	Limits: 4.47 to 5.29
Test 51.13	ELEVATOR LVDT	Limits: -0.06 to -0.06
Test 51.14	ELEVATOR POS	Limits: -0.20 to 0.20
Test 51.15	NSS POS	Limits: -0.20 to 0.20

5) Push the INIT/REF key.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-098

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

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SUBTASK 27-31-00-410-021

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

TASK 27-31-00-820-809

25. Elevator Power Control Unit (PCU) Input Rod (Pogo) - Functional Test

(Figure 502, Figure 514)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This task is applicable for the left and right elevator PCUs.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1749	Tool - Lock Equipment, Aileron/Elevator PCU Input Rod (POGO) (Part #: C27066-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door

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F. Prepare for test:

SUBTASK 27-31-00-860-113

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-010-030

(2) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-860-114

(3) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 502).

SUBTASK 27-31-00-010-040

(4) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

G. Elevator Power Control Unit (PCU) Input Rod Functional test.

SUBTASK 27-31-00-740-007

(1) Do this BITE test on the control display unit (CDU):

(a) Push the INT REF key on the CDU keyboard.

(b) Null the mach trim actuator, do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

(c) Push the Line Select Key (LSK) that is adjacent to these selections:

NOTE: Use the NEXT PAGE or PREV PAGE key to change page if it is necessary. During the BITE test, if the "CONTINUE" shows, then push the LSK that is adjacent to "CONTINUE" after you do the instructions that show on the CDU display.

1) INDEX
2) MAINT
3) DFCS
4) EXTENDED MAINTENANCE
5) RIGGING
6) ELEVATOR
7) CONTINUE

(d) Do the instructions that show on the CDU and push the LSK adjacent to these selections:

1) CONTINUE
2) ELEV RIG

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(e) Make sure the BITE display values on the A and B sides are in the limit as shown below:

NOTE: During the BITE test, if the "CONTINUE" shows, then push the LSK that is adjacent to "CONTINUE" after you do the instructions that show on the CDU display.

(f) Make sure that the mach trim actuator voltage is 0.00 +/- 0.20 VAC.

(g) Make sure that the flaps are in the full up position.

(h) Make sure that the values for the A side are between the limits that show on the CDU display.

1) Test 51.03 MT ACT POS (VAC) limits: -0.20 to 0.20

(i) Push the INIT/REF key.

(j) Cycle the pilot control column (full forward, full aft) to ensure elevator has full travel.

(k) Make sure the captain's control column is at the neutral position.

(l) Make sure the right elevator trailing edge position is +/- 0.06 inch (1.5 mm) (+/-0.10 deg.) with index plate.

NOTE: Use a straight edge on top of the elevator to make a line to the index plate.

SUBTASK 27-31-00-860-115

(2) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-31-00-480-013

(3) Install the tool, SPL-1749 on both elevator PCU pistons.

NOTE: Make sure that the tool, SPL-1749 is installed correctly to prevent damage to the lockwire.

SUBTASK 27-31-00-970-002

(4) Measure the distance that the PCU pogo clevis moves away from the end of the tube when checking for extension.

SUBTASK 27-31-00-860-116

(5) Move the captain and first officer's control column aft until all four elevator PCU pogos extend approximately 0.3 inches (8 mm).

NOTE: Total column force will be approximately 140 pounds (623 newtons).

SUBTASK 27-31-00-860-117

(6) Remove the force on the control columns slowly.

SUBTASK 27-31-00-080-010

(7) Remove the tool, SPL-1749 from both elevator PCU pistons.

SUBTASK 27-31-00-860-118

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-00-860-119

(9) Cycle the pilot control column (full forward, full aft) to make sure the elevator has full travel.

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-00-860-121

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-31-00-010-041

(2) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-00-410-024

(3) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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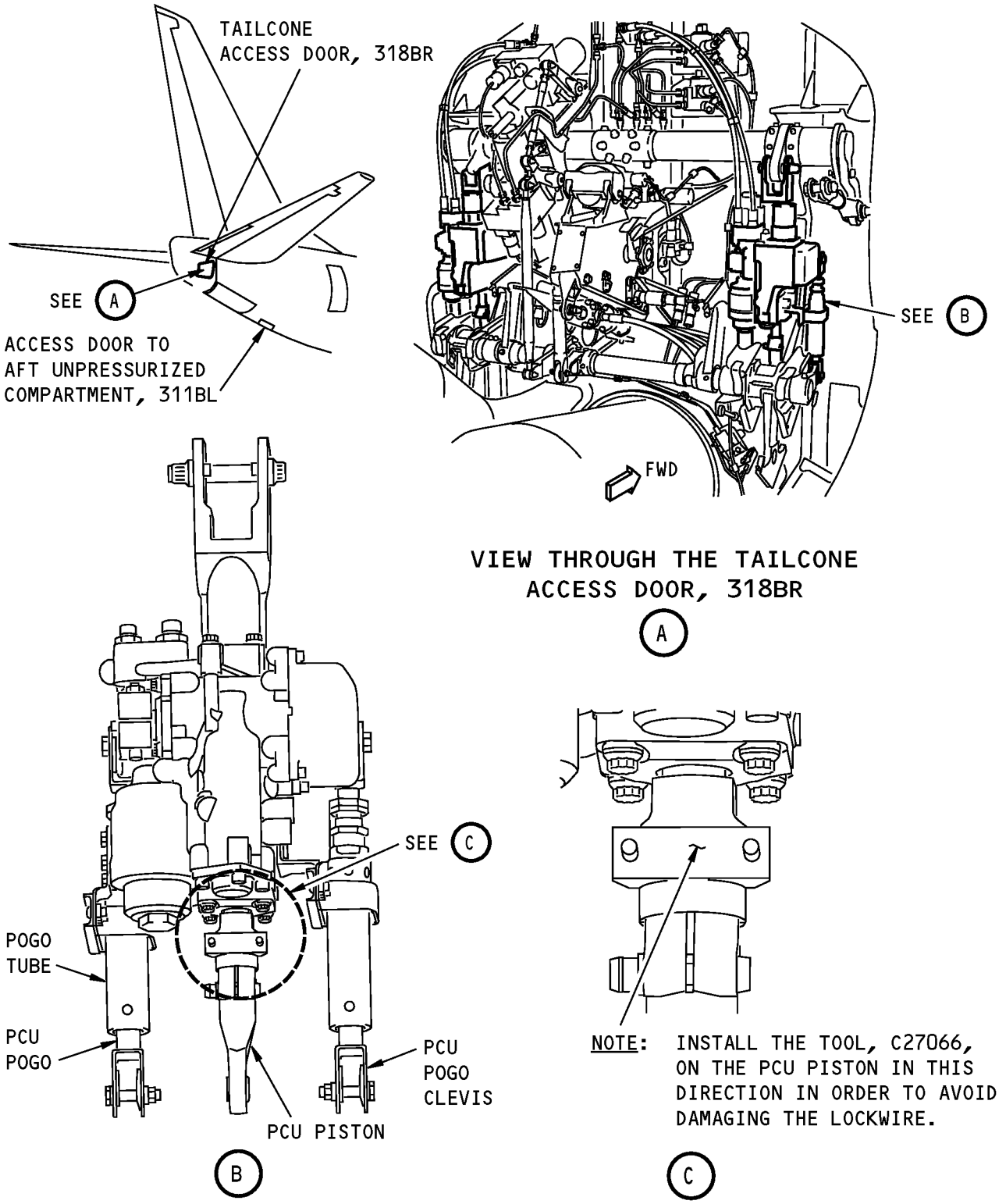

Aileron/Elevator Power Control Unit (PCU) Input Rod Functional Test Tool
Figure 514/27-31-00-990-815

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TASK 27-31-00-710-803

26. Elevator Power-Off Flight - Test

(Figure 517)

HAP 101-999

NOTE: See Figure 515.

HAP 001-013, 015-026, 028-054

NOTE: See Figure 516.

HAP ALL

A. General

(1) The flight test is necessary because the maintenance action can affect the flight characteristics of the airplane and incorrect adjustment can cause a pitch and attitude upset in the event of a dual simultaneous hydraulic system loss. Since the magnitude and attitude of this pitch upset cannot be predicted to sufficient accuracy or verified on the ground, a flight test is necessary to determine the unbalanced moment. The unbalanced moment is reflected in terms of the number and direction the pilot must turn the stabilizer trim wheel to return the airplane to level flight after initiating manual reversion. If the number and direction of stabilizer trim wheel turns are not within limits, then the elevator tab pushrods need to be re-adjusted and a subsequent flight test performed. The number and direction of stabilizer trim wheel turns should be recorded during the manual reversion flight test since this information is needed to correctly re-adjust the pushrods.

(2) Make sure that you satisfy the flight test requirement before a revenue service of the airplane. However, if it is not possible to perform a flight test before revenue service, you can operate the airplane in revenue service for a maximum of 10 days before you successfully complete the flight test. A second flight test is necessary if the pitch up or pitch down trim is more than the limit during the first flight test.

(3) This flight test is necessary after you have completed one of the following maintenance tasks:

NOTE: A replacement part is a new or different part that was used to replace a part.

(a) For the elevator:

1) After a replacement of an elevator.

2) After a replacement or adjustment of an elevator pushrod.

3) After a replacement of an elevator hinge bearing plate (Figure 517).

NOTE: Flight test is not required if all of the following conditions are met:

- The elevator was not removed from the airplane.

- Adjacent hinge plates are not removed at the same time.

- No more than two hinge plates are removed at the same time on the same side.

4) After a replacement of an elevator hinge fitting plate.

5) After a maintenance where on-jig re-balance of the elevator is necessary (SRM 51-60-04).

(b) For the elevator tab:

1) After a replacement of an elevator tab (or tabs).

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2) After a replacement or an adjustment of an elevator tab pushrod.

NOTE: For each elevator tab, if both pushrods are adjusted, then a flight test is necessary. If only one pushrod is adjusted and you can verify that the remaining rod has not been replaced or adjusted since the last flight test, then the flight test is not necessary.

If only one pushrod is adjusted and you cannot verify that the remaining pushrod has not been adjusted since the last flight test, then a flight test is necessary.

3) After a replacement of an elevator tab hinge bearing.

NOTE: It is not necessary to do a flight test if: you do not remove the elevator tab hinge fitting assemblies from the elevator when you replace the bearing, you do not adjust the elevator tab control rods, or when the tab rods are removed, you install the same tab rod in the same left and right locations on the same tab.

4) After a replacement of an elevator tab hinge fitting.

5) AIRPLANES WITH SIX HINGE ELEVATOR TABS;

NOTE: It is not necessary to do a flight test if: you replace bolts at any elevator tab hinge location, or if you replace bushings at any tab hinge location, if you can verify that no other maintenance action, which normally requires a flight test, has been performed since the last flight test.

(4) Dual Hydraulics Failure: Please read the following instructions before you perform the flight test.

(a) Sudden dual hydraulic failure or selection of both flight control switches to off or standby will put the airplane in manual reversion and cause elevator movement to a deflection that balances the air load. The intent of the airplane design and Aircraft Maintenance Manual procedures is to have the resultant pitch upset be easily manageable, but if an out of tolerance elevator tab rigging exists on the airplane, the pitch upset could be significant. Flight Crews, especially for check flights after elevator tab maintenance, should be prepared in the event of a large upset.

(b) Upset recovery techniques are discussed in the maneuvers section of the Flight Crew Training Maneuvers. These techniques provide good guidance in the case of a large upset. Additional items to consider for a dual hydraulic failure are:

1) elevator forces will be high and elevator control authority reduced in manual reversion hydraulics should not be restored with large column inputs present

(c) If the pitch upset is significant, immediately accomplish the Upset Recovery maneuver found in the non-normal maneuvers section in the Quick Reference Handbook. For example, the use of bank angle in the event of large nose up pitch rate, described in this section, may be beneficial.

(d) If performing a maintenance check (where hydraulics are available to be restored), the pilot's should coordinate the restoration of hydraulics to ensure that column input is small at time hydraulics are restored. Restoring hydraulics with large column input will result in a large sudden elevator command that may generate a pitch upset in the opposite direction. The pilot flying should reduce column input at the time hydraulics are restored by using stabilizer trim or by momentarily allowing the airplane to maneuver. At the time hydraulics are restored, the pilot flying should be prepared to apply column inputs to maintain control as normal column feel forces return.

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B. References

Reference	Title
27-09-71 P/B 501	FLIGHT CONTROLS TRIM CORRECTION - ADJUSTMENT/TEST
SRM 51-60-04	Structural Repair Manual

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Prepare for Flight Test

SUBTASK 27-31-00-860-109

(1) Before doing a flight test to verify the elevator tab pushrod adjustment, make sure that you adjust the appropriate system if either of the following conditions exist:

(a) Aileron trim requirement is more than 3/4 unit.

NOTE: If the aileron trim requirement is more than 3/4 unit, you need to adjust the aileron trim per the applicable section of PAGEBLOCK 27-09-71/501 before doing an elevator tab adjustment power-off flight test.

(b) Rudder trim requirement is more than 3/4 unit.

NOTE: If the rudder trim requirement is more than 3/4 unit, you need to adjust the rudder trim per the applicable section of PAGEBLOCK 27-09-71/501 before doing an elevator tab adjustment power-off flight test.

SUBTASK 27-31-00-820-017

(2) Adjust the elevator tab pushrods before the flight test, do this task: Elevator Tab Pushrods - Adjustment, TASK 27-31-00-820-805.

E. Flight Test Procedure

SUBTASK 27-31-00-710-008

(1) Make sure you satisfy these flight conditions:

(a) Indicated Airspeed: 250 kcas

(b) Altitude: Flight Level 15,000 feet

NOTE: The altitude should be within 500 feet of the 15,000 feet level to get good flight results. Altitude variation more than 500 feet is large enough to cause misleading test results.

(c) Weight requirement:

HAP 101-999; 737-700

1) less than 125,000 pounds (56,699 kilograms)

HAP 001-013, 015-026, 028-054; 737-800

2) less than 135,000 pounds (61,235 kilograms)

HAP ALL

(d) Percentage of MAC center of gravity

HAP 101-999

NOTE: See Figure 515.

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HAP 101-999 (Continued)

HAP 001-013, 015-026, 028-054

NOTE: See Figure 516.

HAP ALL

NOTE: The Center of Gravity (CG) percentage Mean Aerodynamic Chord (MAC) is calculated by dispatch based on fuel loads, cargo loading, and passenger loading. This information is calculated for the pilot to enter into the Flight Management Computer (FMC) to get the recommended stabilizer setting for takeoff.

Because the percent MAC center of gravity (for this test) is being used for a flight test with minimal flight crew, no cargo, and a normal fuel burn is anticipated; recording the CG in percent of MAC at takeoff is sufficient for proper adjustment of the tabs.

(e) N1 equal for both engines

(f) Wing fuel loads equal

(g) Flaps up

SUBTASK 27-31-00-710-009

(2) Set the SPOILER A and B switches on the forward overhead panel, P5, to the OFF position.

NOTE: Hold control wheel firmly when you turn the SPOILER A and B switches OFF to control any upset which might occur in pitch or roll direction. If wheel input required to maintain steady flight increases when SPOILER A and B switches are turned off, this could indicate unusual spoiler movement. If the required wheel input increases more than approximately 2 units, higher than normal wheel forces may occur when the FLT CONTROL A and B are turned to STBY RUD.

SUBTASK 27-31-00-860-110

(3) Set the FLT CONTROL A and B switches on the forward overhead panel, P5, to the STDBY RUD position.

NOTE: To successfully complete the test, the airplane must be re-trimmed to the same airspeed. To provide a greater precision for the maneuver, someone other than the pilot in command should set the switches.

SUBTASK 27-31-00-860-128

(4) Set the autopilot stabilizer trim cutout switch to the CUTOUT position.

NOTE: A speed trim fail master caution annunciation may occur if thresholds are exceeded.

NOTE: As soon as you complete the power off flight test, you must move the autopilot stabilizer trim cutout switch to the NORMAL position.

SUBTASK 27-31-00-860-111

(5) If the airplane pitches, use the elevator to re-trim the airplane to the same airspeed:

(a) Manually turn the stabilizer trim wheel to reduce column force to zero.

(b) Keep a record of the number of turns required to re-trim the airplane.

NOTE: During the initial rotation of the stabilizer trim wheel, there might be some freeplay. Do not count the turns until you remove the freeplay.

(c) Keep a record of the center of gravity of the airplane.

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SUBTASK 27-31-00-860-161

(6) After completing the elevator power-off flight test portion of the flight, return the switches (that were moved for the power-off flight test) to their normal flight positions.

SUBTASK 27-31-00-700-005

(7) Make sure the number of turns of the stabilizer trim wheel in the airplane Nose Up or Nose Down direction, are within the limits of the corresponding region in the referenced figure.

SUBTASK 27-31-00-700-002

(8) If the number of turns of the stabilizer trim wheel in the airplane Nose Up or Nose Down direction, are more than the limits, do the steps that follow:

(a) Make sure the rigging of the elevator control pushrods, the input rod of the elevator power control unit (PCU), and the output rod of the elevator feel and centering unit is correct.

(b) If the rigging of the elevator control pushrods, the input rod of the elevator PCU, and the output rod of the elevator feel and centering unit is satisfactory, then, do this task: Elevator Tab Pushrod - Adjustment after the Elevator Power-Off Flight Test, TASK 27-31-00-820-808.

——————— END OF TASK ———————

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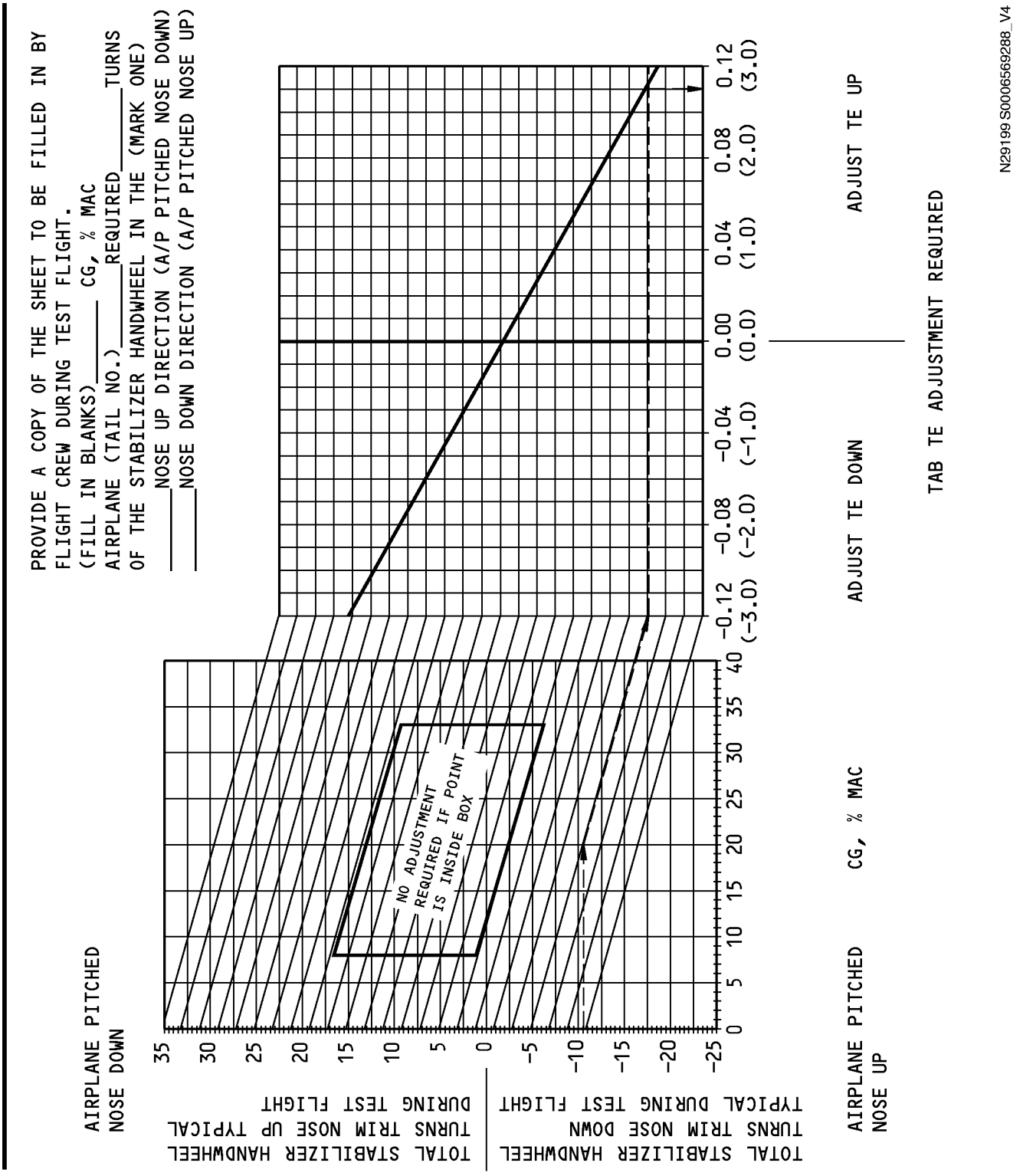

737-700 Elevator Tab Rig Adjustment Chart
Figure 515/27-31-00-990-843

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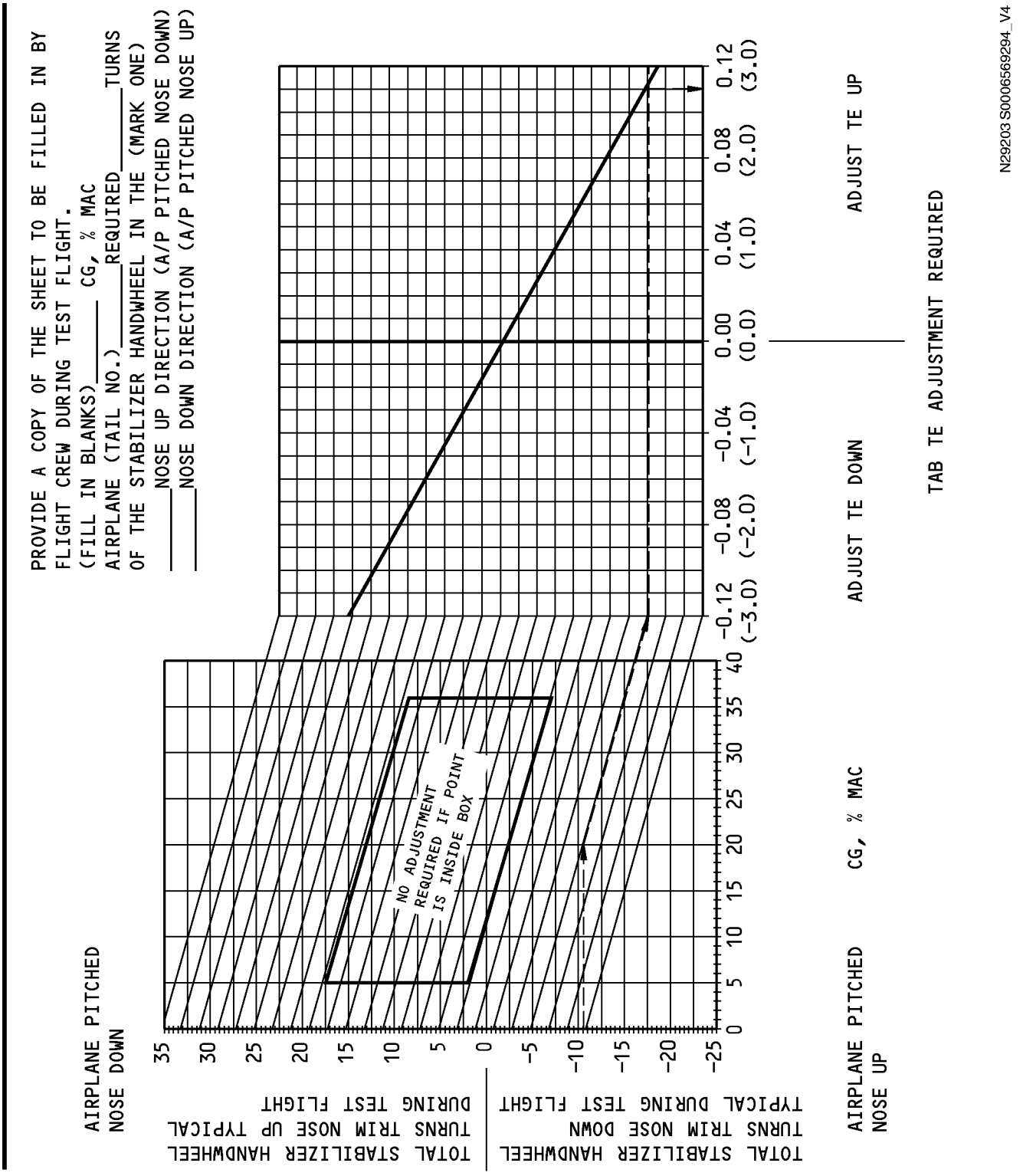

737-800 Elevator Tab Rig Adjustment Chart
Figure 516/27-31-00-990-846

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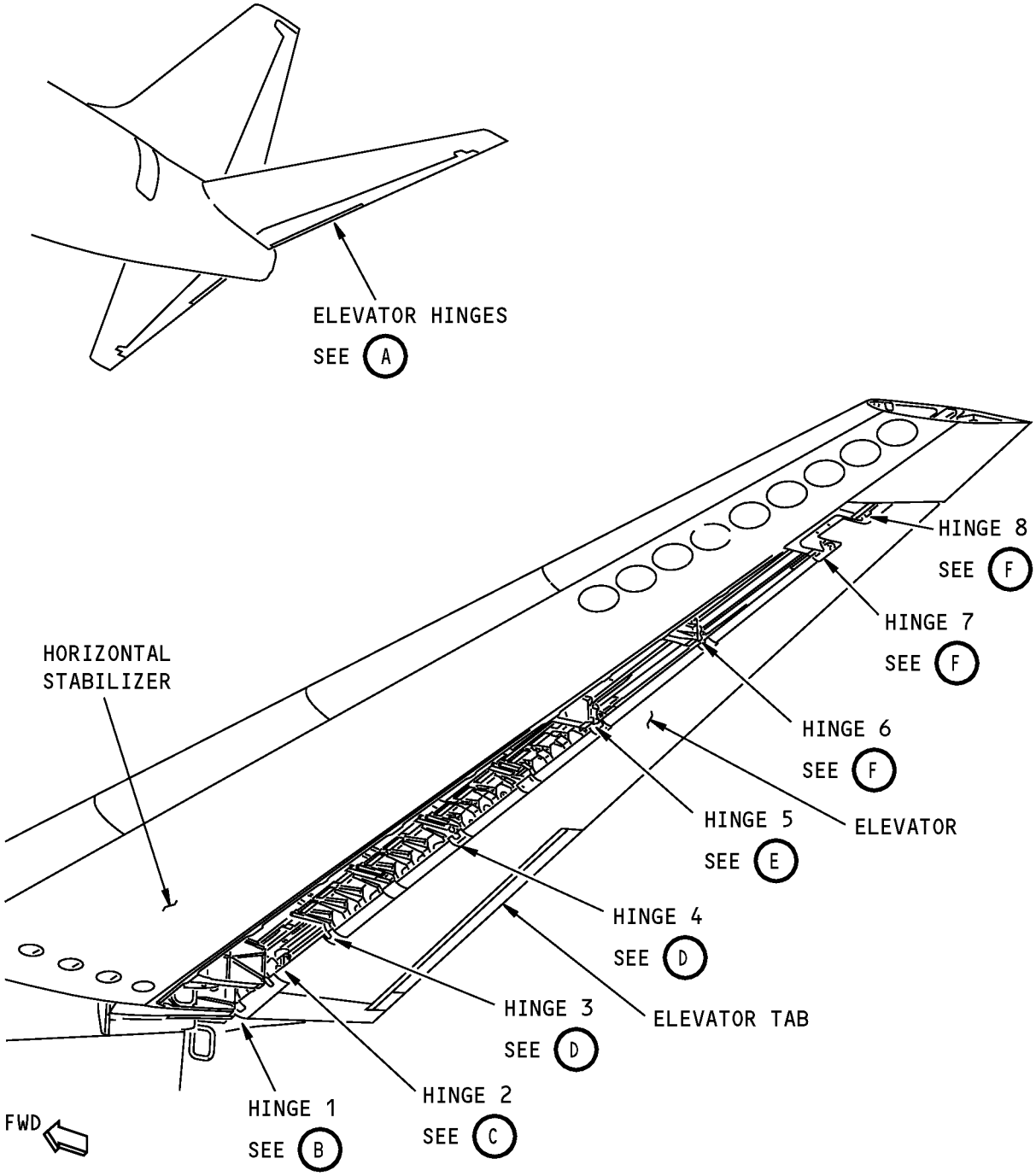

ELEVATOR HINGES
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)
A

Elevator Hinge Assemblies
Figure 517 (Sheet 1 of 4)/27-31-00-990-820

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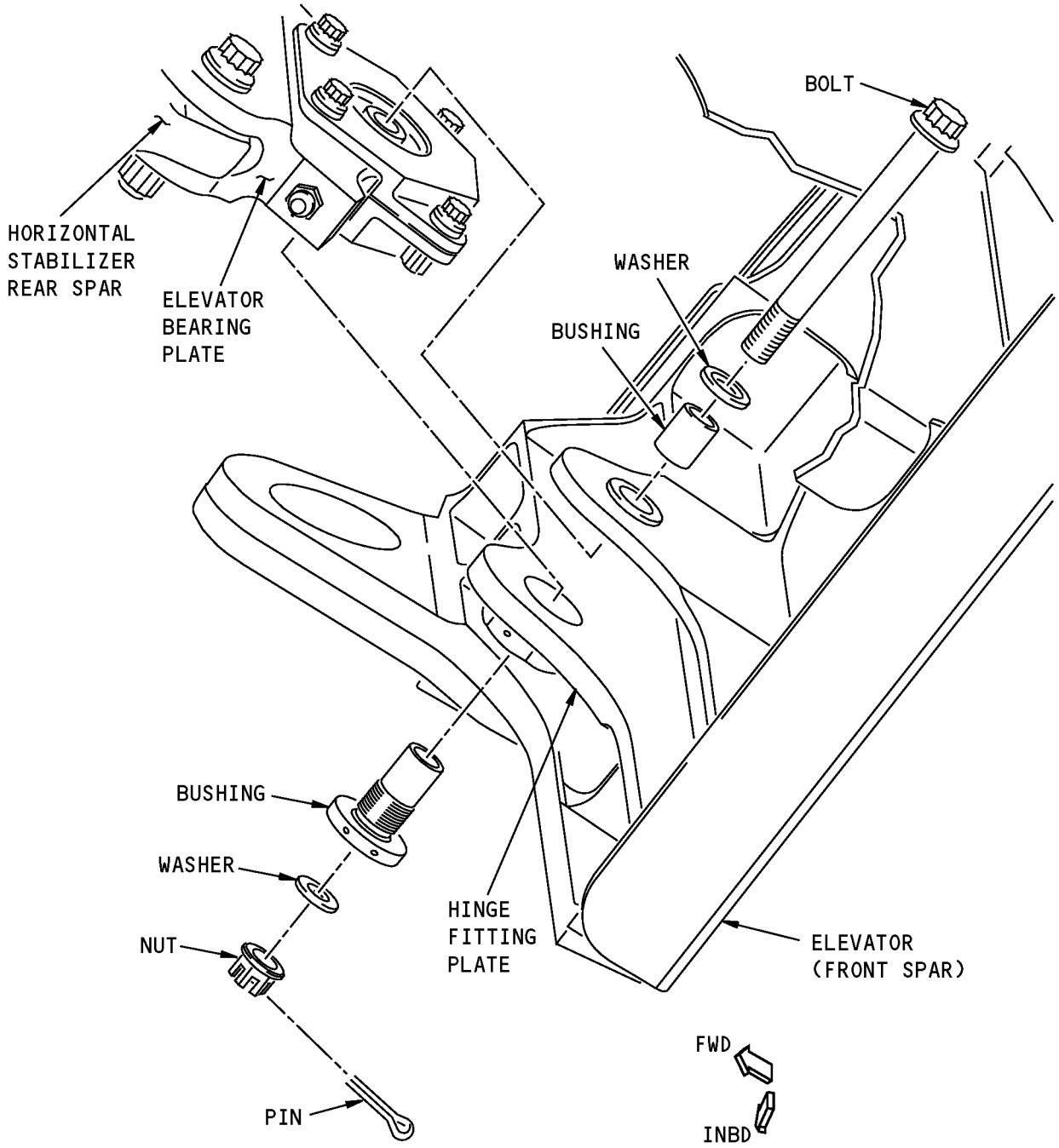

HINGE 1

B

Elevator Hinge Assemblies
Figure 517 (Sheet 2 of 4)/27-31-00-990-820

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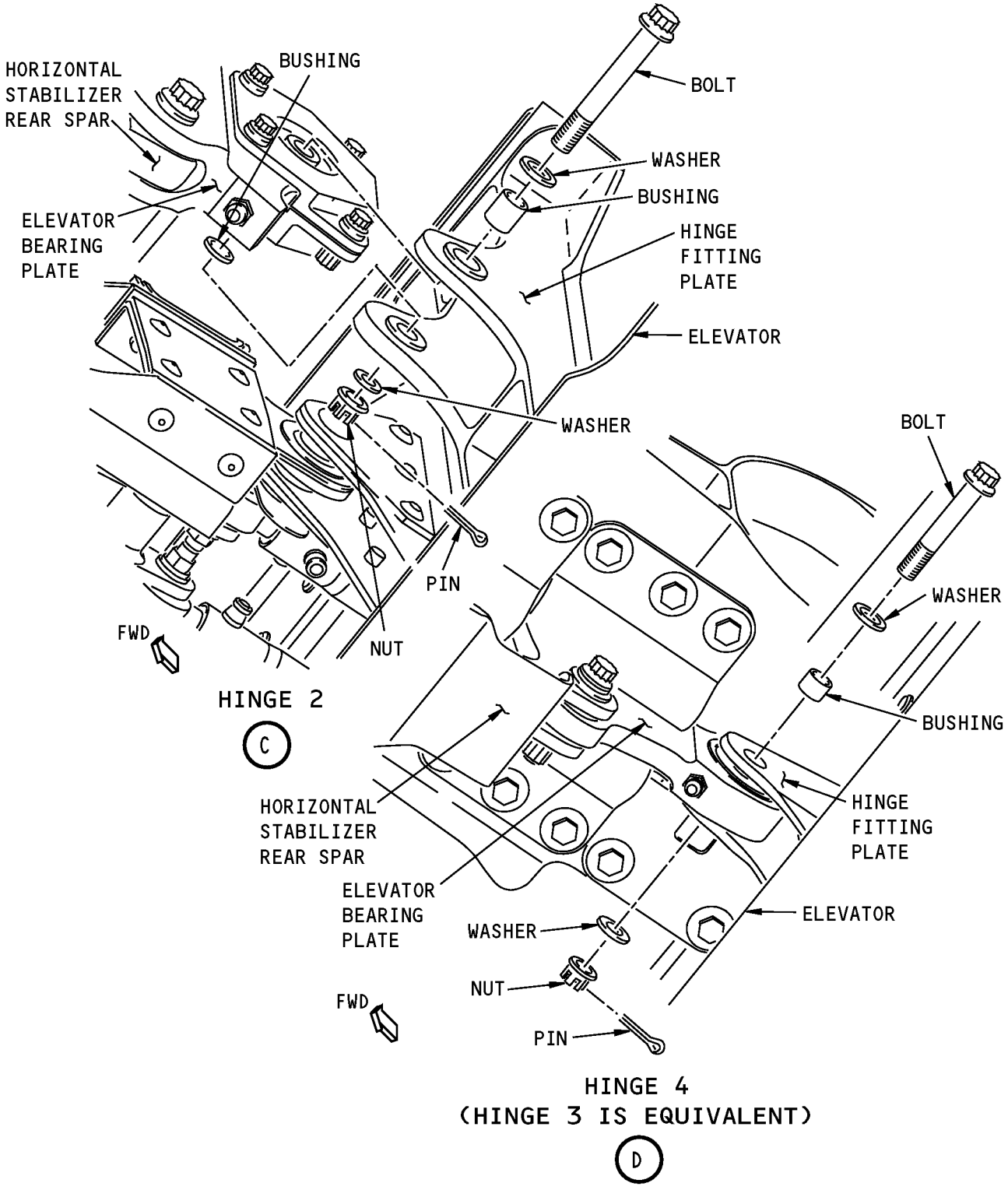

Elevator Hinge Assemblies
Figure 517 (Sheet 3 of 4)/27-31-00-990-820

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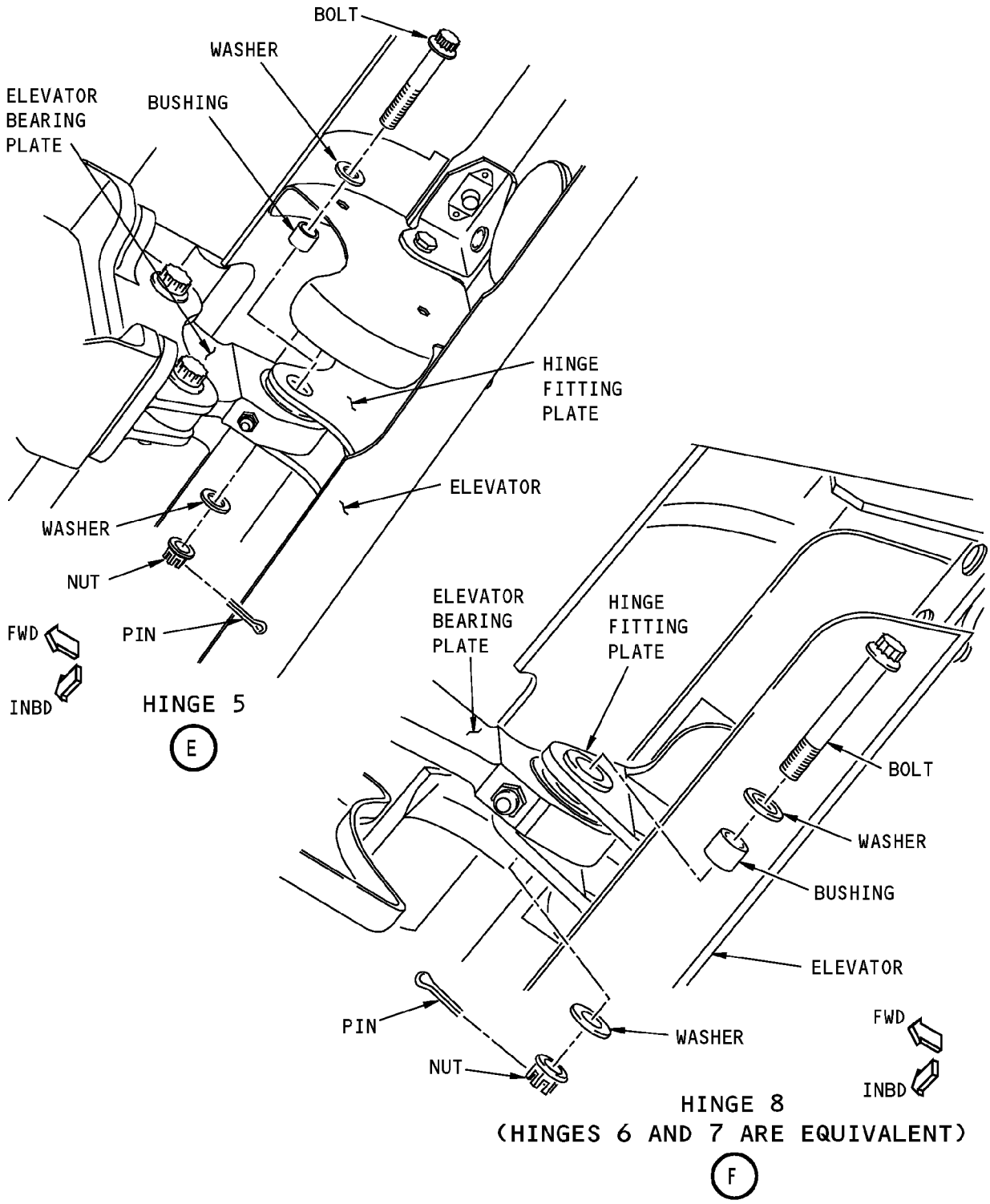

Elevator Hinge Assemblies
Figure 517 (Sheet 4 of 4)/27-31-00-990-820

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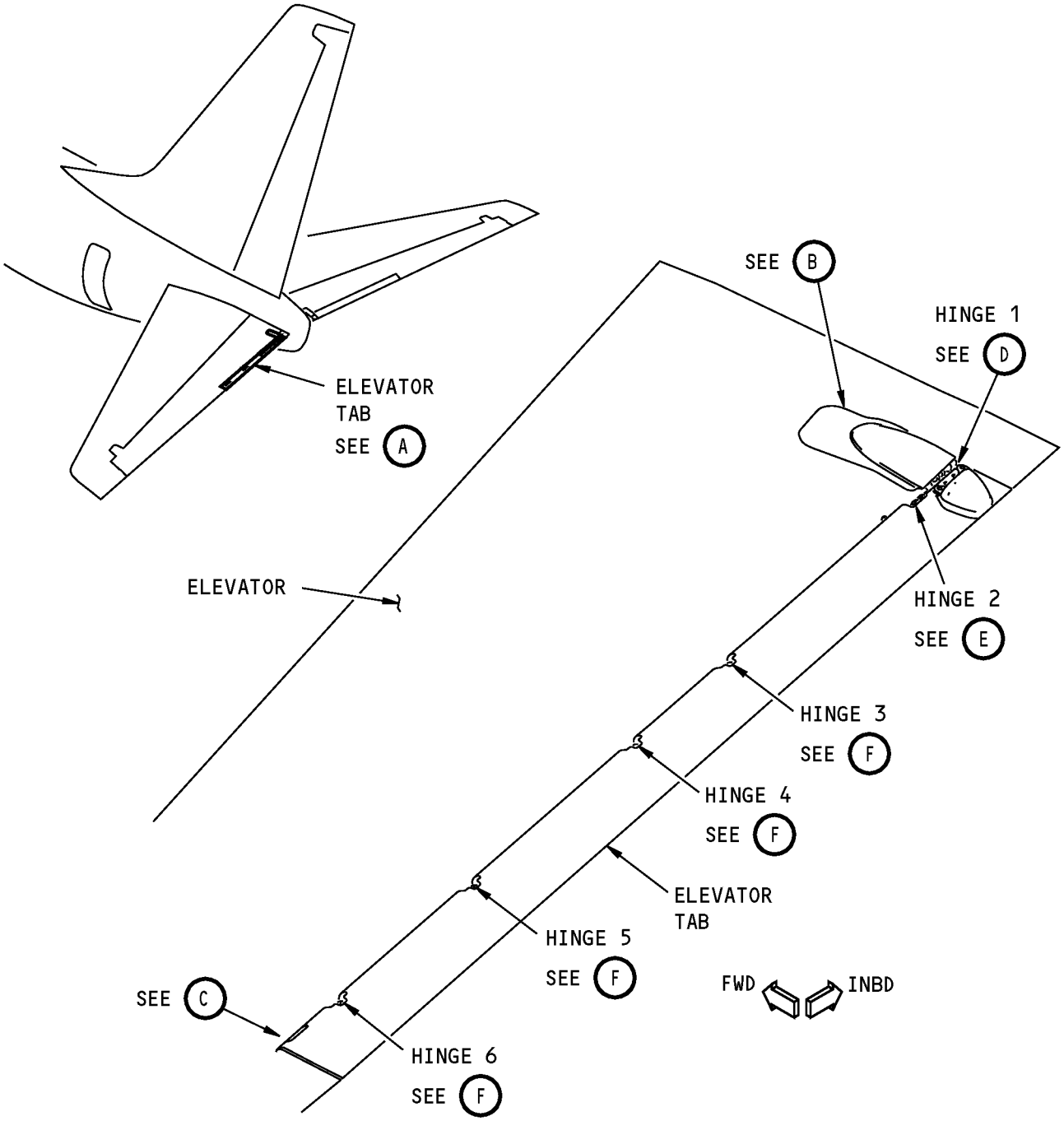

LEFT ELEVATOR TAB
(RIGHT ELEVATOR TAB IS OPPOSITE)

A

Elevator Tab Hinge Assemblies
Figure 518 (Sheet 1 of 4)/27-31-00-990-824

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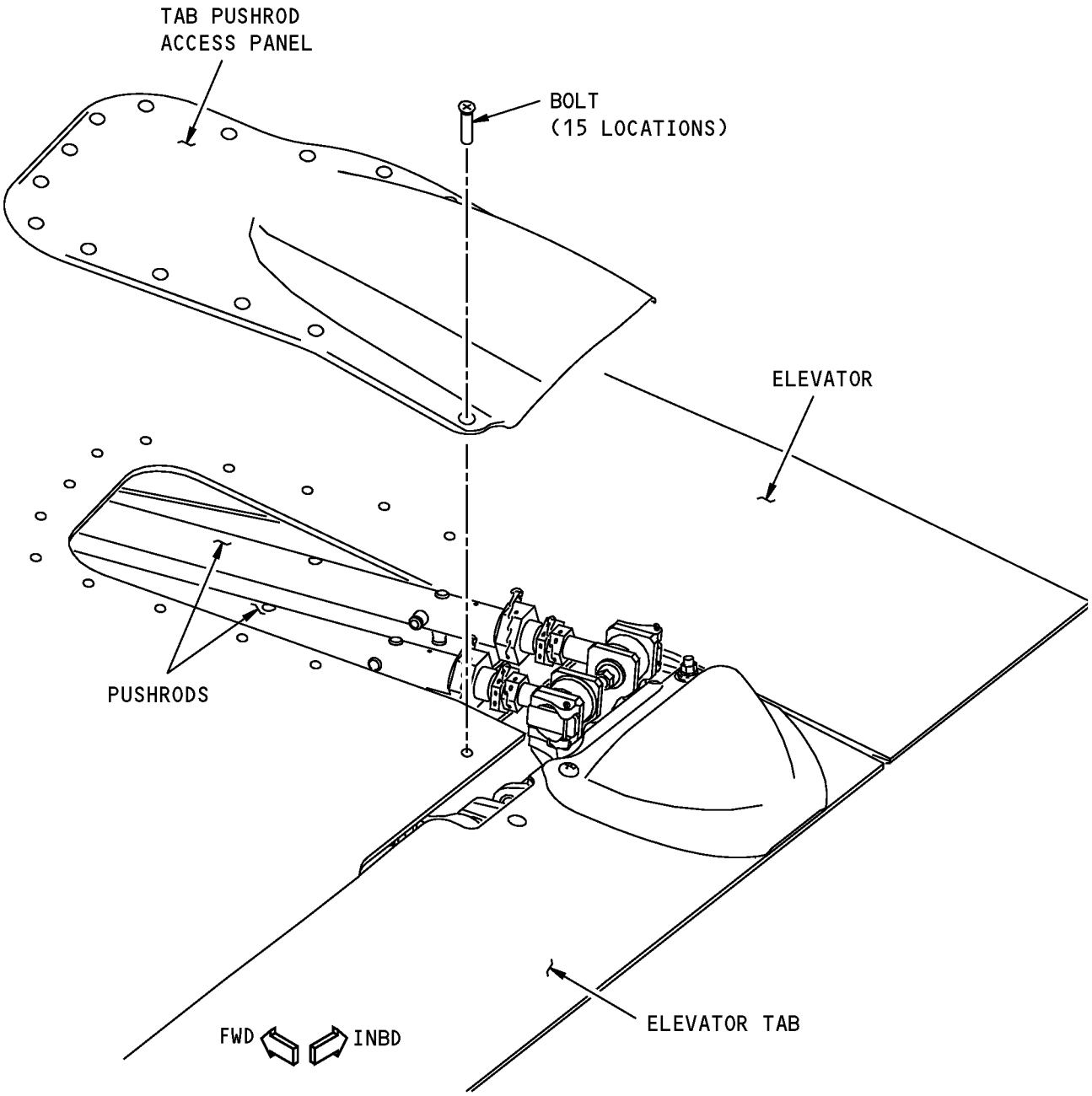

Elevator Tab Hinge Assemblies
Figure 518 (Sheet 2 of 4)/27-31-00-990-824

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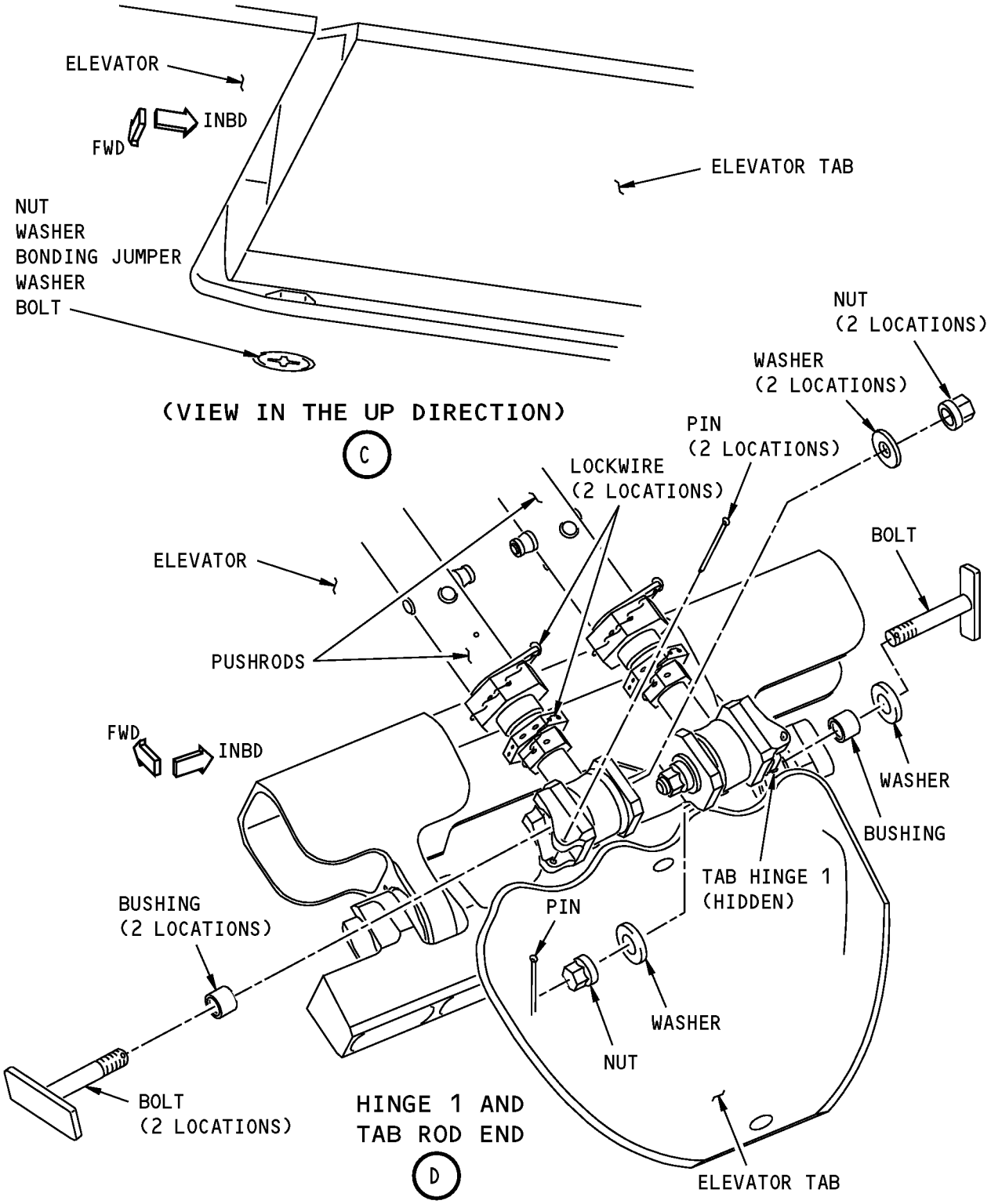

Elevator Tab Hinge Assemblies
Figure 518 (Sheet 3 of 4)/27-31-00-990-824

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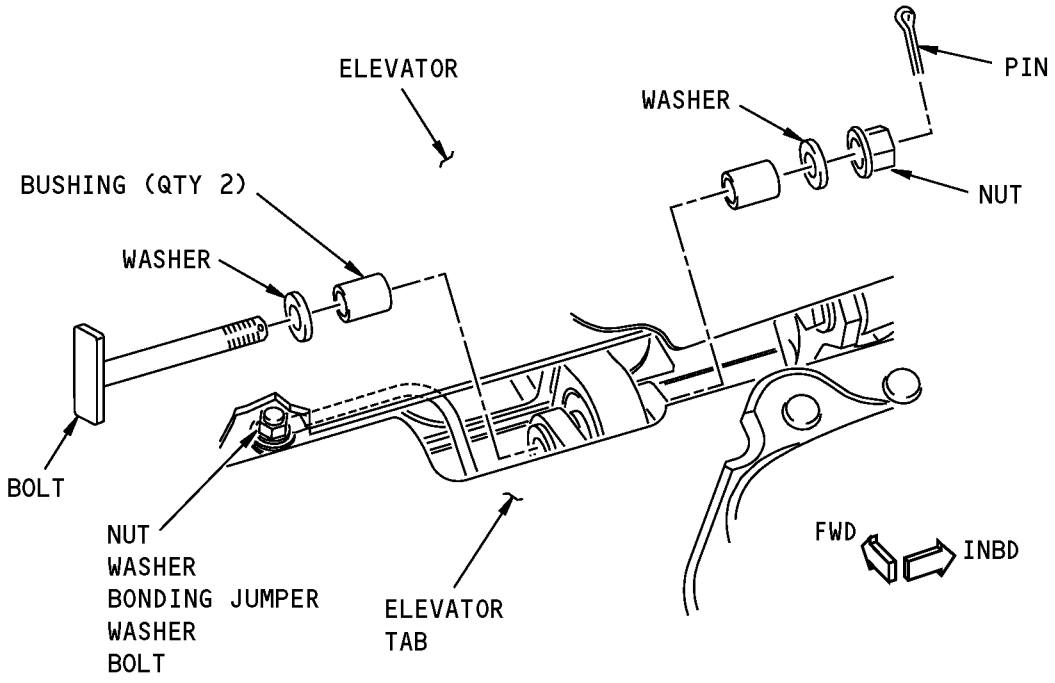
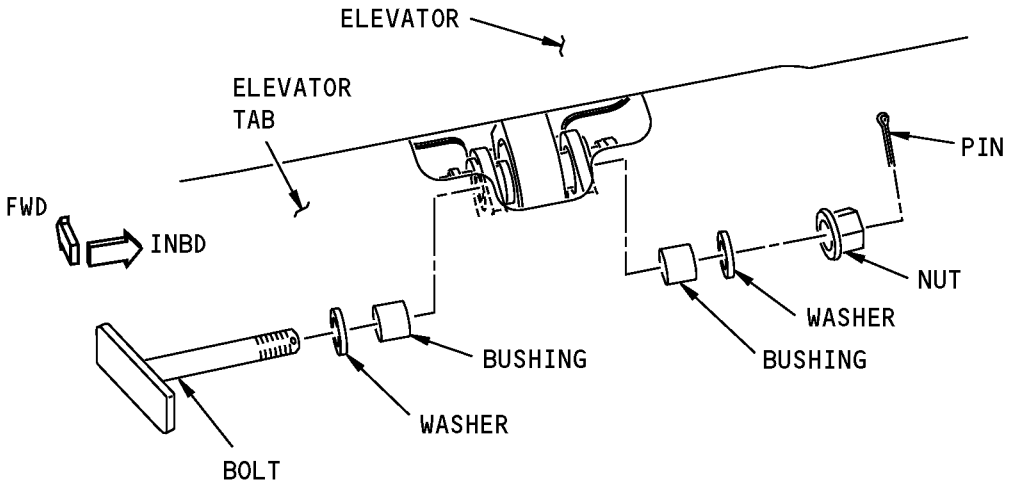


HINGE 2

E



HINGE 3
(HINGES 4, 5, AND 6 ARE EQUIVALENT)

F

Elevator Tab Hinge Assemblies
Figure 518 (Sheet 4 of 4)/27-31-00-990-824

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TASK 27-31-00-820-808

27. Elevator Tab Pushrod - Adjustment after the Elevator Power-Off Flight Test

(Figure 502, Figure 505, Figure 510)

NOTE: For each elevator tab, if both pushrods are adjusted, then the Elevator Power-Off Flight - Test, TASK 27-31-00-710-803 is necessary. If only one pushrod is adjusted and you can verify that the remaining rod has not been replaced or adjusted since the last flight test, then this flight test is not necessary. If only one pushrod is adjusted and you cannot verify that the remaining pushrod has not been replaced or adjusted since the last flight test, then the Elevator Power-Off Flight - Test, TASK 27-31-00-710-803.

NOTE: See Figure 509.

HAP 101-999

NOTE: See Figure 515.

HAP 001-013, 015-026, 028-054

NOTE: See Figure 516.

HAP ALL

A. General

(1) Use this procedure to adjust the elevator tab if the number of turns of the stabilizer trim wheel during the elevator power off flight test are more than the allowable limits.

NOTE: See Figure 509.

HAP 101-999

NOTE: See Figure 515.

HAP 001-013, 015-026, 028-054

NOTE: See Figure 516.

HAP ALL

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-10345	Rigging Bar - Elevator Tab (Part #: C27028-21, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27028-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
334PT	Horizontal Stabilizer, Tab Control Rod Fairing
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

E. Elevator Tab Pushrod Adjustment.

SUBTASK 27-31-00-970-001

(1) Get the number and direction (airplane nose up or airplane nose down) of stabilizer wheel turns necessary to trim the airplane during the power-off flight test.

SUBTASK 27-31-00-970-004

(2) Get the record of the Center of Gravity that was made during the power-off flight test.

SUBTASK 27-31-00-010-027

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-00-010-028

(4) For the left elevator tab pushrods, remove this access panel:

Number	Name/Location
334PT	Horizontal Stabilizer, Tab Control Rod Fairing

SUBTASK 27-31-00-010-029

(5) For the right elevator tab pushrods, remove this access panel:

Number	Name/Location
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

SUBTASK 27-31-00-480-011

(6) Use the bar, SPL-1677 to set the "B" dimension to 39.89 +/-0.01 inches (1013.2 +/- 0.3 mm) (Figure 502).

SUBTASK 27-31-00-980-001

(7) Push the elevator trailing edge full up by hand.

SUBTASK 27-31-00-820-012

(8) Then, while you move the elevator down from the trailing edge up position, align the elevator with the index mark in +/- 0.04 inches (+/- 1.0 mm), or less (Figure 505).

NOTE: Keep the elevators at this position while you adjust the tab pushrods. If the elevator position is changed, you must put the elevator trailing edge at full up position and do this step again before you continue.

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SUBTASK 27-31-00-480-012

(9) Install theelevator tab rigging bar, SPL-10345 (Figure 510):

HAP ALL; AIRPLANES WITH SIX HINGE ELEVATOR TABS

(a) Install theelevator tab rigging bar, SPL-10345 below the elevator and elevator tab at the inboard side of the third elevator tab hinge.

HAP ALL

(b) Make sure the cross bar on theelevator tab rigging bar, SPL-10345 touches the lower surface of the elevator trailing edge.

HAP ALL; AIRPLANES WITH SIX HINGE ELEVATOR TABS

SUBTASK 27-31-00-820-028

(10) Adjust the elevator tab pushrods [110] using the Elevator Tab Rig Adjustment Chart.

HAP 101-999

NOTE: See Figure 515.

HAP 001-013, 015-026, 028-054

NOTE: See Figure 516.

HAP ALL; AIRPLANES WITH SIX HINGE ELEVATOR TABS

NOTE: An example of how to use the Elevator Tab Rig Adjustment Chart is shown with the dashed lines with arrows.

The example assumes 10.5 airplane nose down handwheel turns are needed to retrim the airplane with a center of gravity of 20 percent MAC on the left chart. Follow the diagonal lines to the left side of the right chart. Make a horizontal line across the chart. Draw a line down from the point where the horizontal line intersects the thick diagonal line on the right chart.

The example shows that you will need to adjust the elevator tab to 0.11 inches (2.8 mm) trailing edge up from the current position to bring the airplane to a neutral elevator tab trim.

NOTE: For coarse adjustment, a half turn of the tab rod end results in approximately 0.10 inch (2.5 mm) at the tab trailing edge Figure 509.

For finer adjustment, one full turn of the bushing [104] (vernier collar) results in approximately 0.02 inch (0.5 mm) at the elevator tab trailing edge.

The number of threads showing on the pushrod ends should be approximately equal to the number of threads showing on the bushing [104].

The elevator tab should be adjusted to the nearest 0.01 inch (0.3 mm) shown on the scale at the bottom of the right chart of the Elevator Tab Rig Adjustment Chart.

HAP ALL

SUBTASK 27-31-00-820-014

(11) If it is necessary, do this coarse adjustment of the elevator tab pushrods:

NOTE: See Figure 509.

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HAP 101-999

NOTE: See Figure 515.

HAP 001-013, 015-026, 028-054

NOTE: See Figure 516.

HAP ALL

(a) Remove the pins [111], nuts [109], washers [108], bolts [106], and bushings [107] from the tab pushrods [110].

(b) Turn the tab pushrod ends until the adjustment dimension is within 0.1 inch (3 millimeters).

NOTE: One half turn of the tab pushrod end is equal to 0.1 inch (3 mm) at the elevator tab trailing edge.

(c) Install the bushings [107], bolts [106], washers [108], and new nuts [109] to connect the tab pushrods [110] to the elevator tab [102].

NOTE: If you loosened or removed the nuts [109], they need to be replaced and not re-installed. Using new nuts will ensure that they have the required run-on torque of 3.5 in-lb (0.4 N·m).

NOTE: The inboard bolt is installed with the head inboard and the outboard bolt is installed with the head outboard.

(d) Install elevator tab rigging bar, SPL-10345, and check that the adjustment measurement is within 0.1 inch (3 mm) (Figure 510).

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

(e) Install new nuts and tighten the nuts [109] to 70 - 80 pound-inches (7.9 - 9.0 newton-meters).

HAP ALL

SUBTASK 27-31-00-820-023

(12) Do this fine adjustment of the elevator tab pushrods Figure 509:

(a) Turn the bushing [104] to adjust the length of the tab pushrods [110].

NOTE: One full turn of the bushing [104] is equal to 0.02 inch (0.5 mm) at the elevator tab trailing edge.

(b) Loosen the nuts [109] that attach the tab pushrods [110] to the elevator tab [102].

(c) Remove the pins [111] from in front of the head of the bolts [106].

(d) Move the rectangle bolt heads out of the anti-rotation bolt bosses and make sure that you can easily turn the bolts [106] by hand.

1) If it is necessary, adjust the bushing [104] on the tab pushrods [110].

CAUTION: IF THE NUTS [109] ARE NOT TIGHTENED CORRECTLY, THEN THE PUSHRODS CAN BECOME DISCONNECTED AND CAUSE DAMAGE TO THE ELEVATOR AND STABILIZER.

(e) Install new nuts [109] and then tighten the new nuts [109] to 70 - 80 pound-inches (7.9 - 9.0 newton-meters) and install pins [111].

NOTE: If you loosened or removed the nuts [109], they need to be replaced and not re-installed. Using new nuts will ensure that they have the required run-on torque of 3.5 in-lb (0.4 N·m).

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(f) Tighten the checknuts [103] and checknuts [105] on the tab pushrods [110] to 150 - 200 pound-inches (17.0 - 22.6 newton-meters).

SUBTASK 27-31-00-220-004

(13) Installelevator tab rigging bar, SPL-10345 and check that the adjustment measurement is the same (Figure 510).

SUBTASK 27-31-00-220-005

(14) Do a check of the thread engagement of the tab pushrod ends and bushings [104]:

NOTE: See Figure 509.

(a) Make sure the end of the bushing [104] covers the inspection hole on each tab pushrod [110].

(b) Make sure the inspection hole of each tab pushrod end bearing is not shown.

(c) If the thread engagement is not correct, you must do the coarse adjustment again.

HAP 101-999

NOTE: See Figure 515.

HAP 001-013, 015-026, 028-054

NOTE: See Figure 516.

HAP ALL

SUBTASK 27-31-00-430-001

(15) Install lockwire on the checknuts [103] and checknuts [105] Figure 509.

END OF TASK

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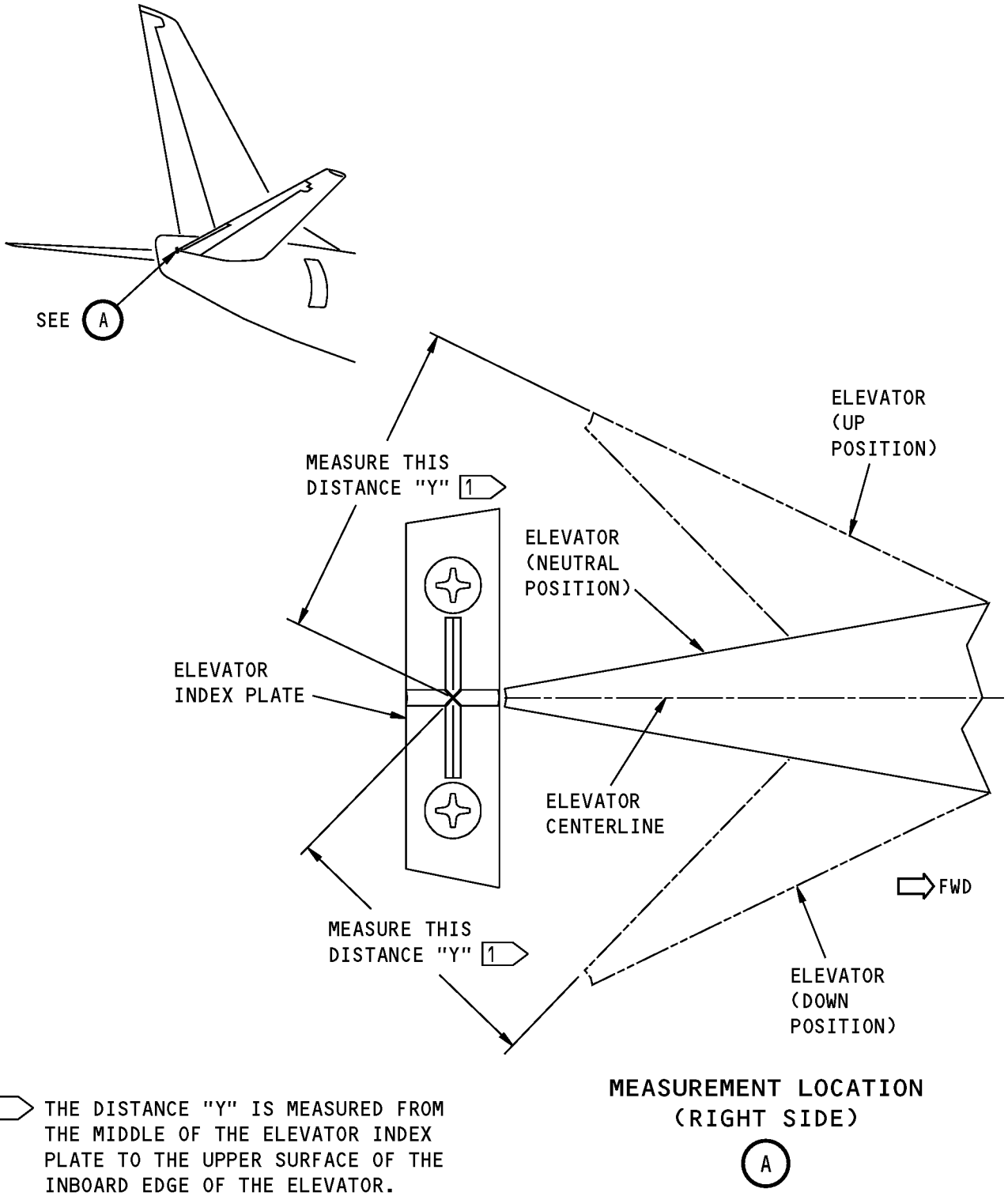

1 THE DISTANCE "Y" IS MEASURED FROM THE MIDDLE OF THE ELEVATOR INDEX PLATE TO THE UPPER SURFACE OF THE INBOARD EDGE OF THE ELEVATOR.

Elevator Full Travel Measurements
Figure 519/27-31-00-990-826

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ELEVATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator

(2) An installation of the elevator

(3) A removal of the elevator control pushrod

(4) An installation of the elevator control pushrod.

B. When it is necessary to balance the elevator, make sure you do a check of the elevator and the elevator tab part numbers. Refer to Chapter 51 of the Structural Repair Manual when you balance the elevator-elevator tab combination after the structural repairs or after you put on new paint.

C. If you install a tab on the elevator during the elevator installation, make sure the number of the elevator control tab adjust weights agree with the tab data plate.

TASK 27-31-11-000-801

2. Elevator - Removal

(Figure 401, Figure 402, Figure 403, Figure 405)

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

NOTE: Also see Figure 404.

HAP ALL

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-32-200-803	Elevator Tab Freeplay - Check (P/B 601)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2034	Sling - Elevator Hoisting (Part #: C27034-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
318	Tail Cone Compartment - Right
334	Left Horizontal Stabilizer - Elevator

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(Continued)

Zone	Area
335	Left Horizontal Stabilizer - Tip
344	Right Horizontal Stabilizer - Elevator
345	Right Horizontal Stabilizer - Tip

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
334GB	Horizontal Stabilizer, Elevator Hinge Cover
334HB	Horizontal Stabilizer, Elevator Hinge Cover
334JB	Horizontal Stabilizer, Elevator Hinge Cover
334KB	Horizontal Stabilizer, Elevator Hinge Cover
334LB	Horizontal Stabilizer, Elevator Hinge Cover
334MB	Horizontal Stabilizer, Elevator Hinge Cover
334NB	Horizontal Stabilizer, Elevator Hinge Cover
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
344GB	Horizontal Stabilizer, Hinge Cover, Elevator Station 24.09
344HB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 66.54
344JB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 121.59
344KB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 176.64
344LB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 213.32
344MB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 250.04
344NB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 265.45

E. Prepare for the Removal

SUBTASK 27-31-11-860-001

(1) Make sure that pressure is removed from the elevator hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-11-010-001

(2) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-11-010-002

(3) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

to get access to the elevator aft quadrant.

SUBTASK 27-31-11-010-009

(4) For the left elevator, remove this access panel:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

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SUBTASK 27-31-11-010-010

(5) For the right elevator, remove this access panel:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

SUBTASK 27-31-11-010-003

(6) For the left elevator, open these access panels:

Number	Name/Location
334GB	Horizontal Stabilizer, Elevator Hinge Cover
334HB	Horizontal Stabilizer, Elevator Hinge Cover
334JB	Horizontal Stabilizer, Elevator Hinge Cover
334KB	Horizontal Stabilizer, Elevator Hinge Cover
334LB	Horizontal Stabilizer, Elevator Hinge Cover
334MB	Horizontal Stabilizer, Elevator Hinge Cover
334NB	Horizontal Stabilizer, Elevator Hinge Cover

SUBTASK 27-31-11-010-004

(7) For the right elevator, open these access panels:

Number	Name/Location
344GB	Horizontal Stabilizer, Hinge Cover, Elevator Station 24.09
344HB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 66.54
344JB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 121.59
344KB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 176.64
344LB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 213.32
344MB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 250.04
344NB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 265.45

SUBTASK 27-31-11-860-002

(8) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 27-31-11-860-003

(9) Use the bar, SPL-1677 to set B dimension at 39.89 +/- 0.01 inches (1013.2 +/- 0.3 millimeter) (Figure 401).

SUBTASK 27-31-11-480-001

(10) Install the rig pin E-5 from rig pin kit, SPL-1585 in the elevator aft quadrant (Figure 402).

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SUBTASK 27-31-11-820-011

(11) Measure and record the elevator tab position.

NOTE: Measuring and recording the elevator tab position before you remove the tab may improve the manual reversion success rate if the tab needs to be adjusted after installation.

(a) If the same tab will be re-installed, then do the following before removing the tab:

1) Make sure that the elevator tab meets the freeplay limits. To check the freeplay limits, do this task: Elevator Tab Freeplay - Check, TASK 27-31-32-200-803.

(b) While you move the elevator trailing edge down, align the projected center of the elevator trailing edge with the index mark within +/- 0.04 inch (1.0 millimeter), or less.

1) Measure and record the elevator tab position.

F. Elevator Removal

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

SUBTASK 27-31-11-020-010

(1) Remove the elevator connections to the tab mechanism [34] (Figure 404):

(a) Remove the screws [29] from the pin retainers [30] and rotate the pin retainer [30] arms away from the bolt [22] heads.

(b) Remove the nuts [31], washers [32], and pin assemblies [21] that attach the tab mechanism [34] to the elevator.

(c) Remove the nuts [28], washers [27], bolts [22], and spacers [23] that attach the tab pushrods [26] to the tab mechanism [34].

HAP ALL

SUBTASK 27-31-11-480-004

(2) If you are going to use a sling to remove the elevator, do the following to install the sling, SPL-2034 to the elevator installation [1] (Figure 403):

NOTE: If you do not use the sling to remove the elevator, you must properly support the elevator while removing the hinge bolts.

(a) Find the bolts [3] on the elevator installation [1] to attach the sling, SPL-2034.

NOTE: The bolts [3] are on the upper panel next to elevator hinge 3 and hinge 5 (Figure 403).

(b) Remove the bolts [3] from the elevator installation [1].

(c) Install the forward sling fittings on the elevator installation [1].

1) Install the fasteners to attach each sling fitting to the elevator installation [1].

(d) Install the aft sling fitting on the elevator installation [1].

(e) Attach the straps from the forward sling fittings to the aft sling fitting.

(f) Attach the sling, SPL-2034 to the forward sling fittings and aft sling fitting.

(g) Connect an overhead crane to the primary support sling on the sling, SPL-2034.

(h) Connect a tether line to the aft sling fitting.

(i) Use the sling, SPL-2034 to hold the elevator installation [1].

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SUBTASK 27-31-11-020-002

(3) Disconnect the push rod [52] of the elevator position transmitter [51] from the elevator installation [1] (Figure 405):

(a) Disconnect the electrical connector [53] from the elevator position transmitter [51].

(b) Remove the screw [56], washer [55] and spacer [54] from the pushrod [52].

SUBTASK 27-31-11-020-003

(4) Remove the nut [57], nut [58], and pin assembly [59] to disconnect the elevator control pushrod [60] from the elevator installation [1].

SUBTASK 27-31-11-020-004

(5) Disconnect the balance panels from the elevator installation [1] (Figure 405):

(a) Remove the bolts [62] and washers [63].

(b) Remove the bolts [64] and washers [65].

SUBTASK 27-31-11-020-005

(6) Remove the elevator installation [1] in the following order (Figure 405):

(a) At elevator hinge 2, remove the pin [78], nut [79], washer [77], bushing [73], bolt [74], washer [75], and bushing [76].

1) Discard the pin [78].

(b) At elevator hinges 3 and 4, remove the pins [85], nuts [84], washers [83], bushings [82], washers [81], bolts [80], washers [81], and bushings [82].

1) Discard the pin [85].

(c) At elevator hinge 5, remove pin [90], nut [91], washer [89], bushing [88], washer [87], bolt [86], washer [87], and bushing [88].

1) Discard the pin [90].

(d) Remove the nuts [99] and washers [100] to disconnect the bonding jumper [98] from the horizontal stabilizer [2].

(e) At elevator hinges 6, 7, and 8, remove the pins [97], nuts [96], washers [95], bolts [92], washers [93], and bushings [94].

NOTE: If it is necessary, pull on the tether line to remove the bolts.

1) Discard the pin [97].

(f) At elevator hinge 1, remove the lockwire, pin [72], nut [71], washer [70], bushing [69], bolt [66], washer [67], and bushing [68]

NOTE: If it is necessary, pull on the tether line to remove the bolt.

1) Discard the pin [72].

(g) Remove the lockwire from the secondary bushing and remove the secondary bushing from hinge 1.

(h) Remove the elevator installation [1] from the airplane.

END OF TASK

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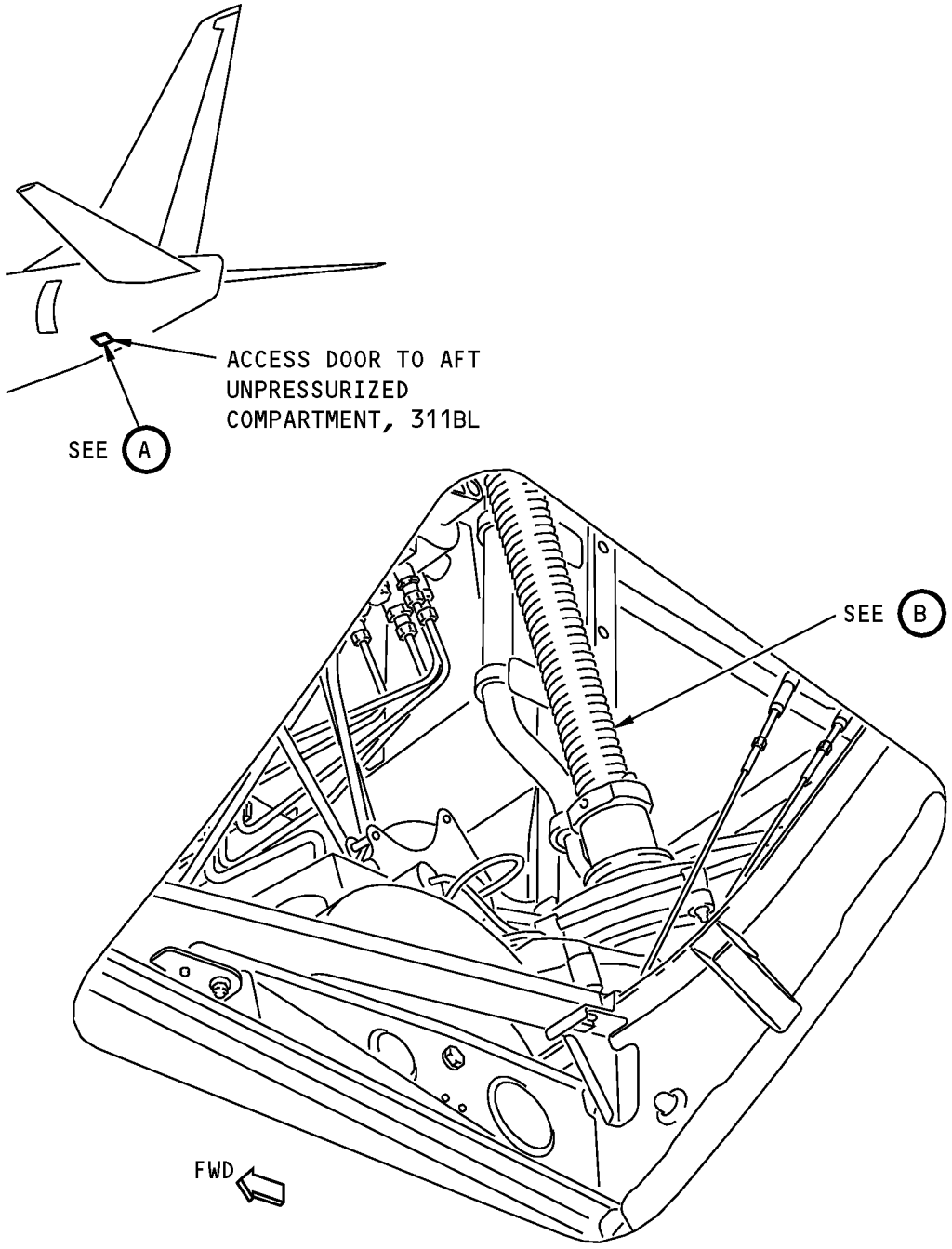

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Stabilizer Trim Jackscrew Setting
Figure 401 (Sheet 1 of 2)/27-31-11-990-801

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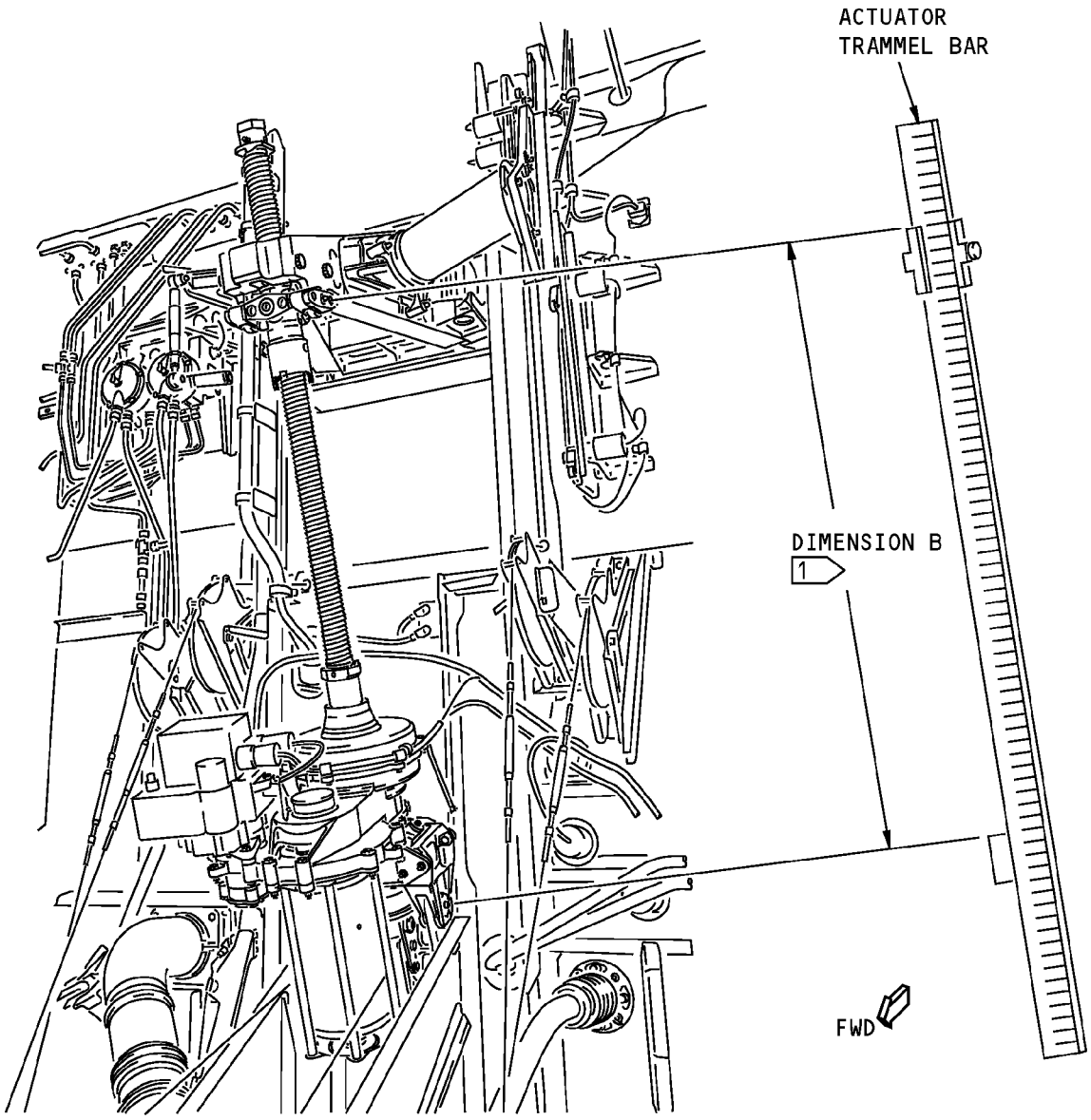

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS (CENTER OF GREASE FITTINGS).

Stabilizer Trim Jackscrew Setting
Figure 401 (Sheet 2 of 2)/27-31-11-990-801

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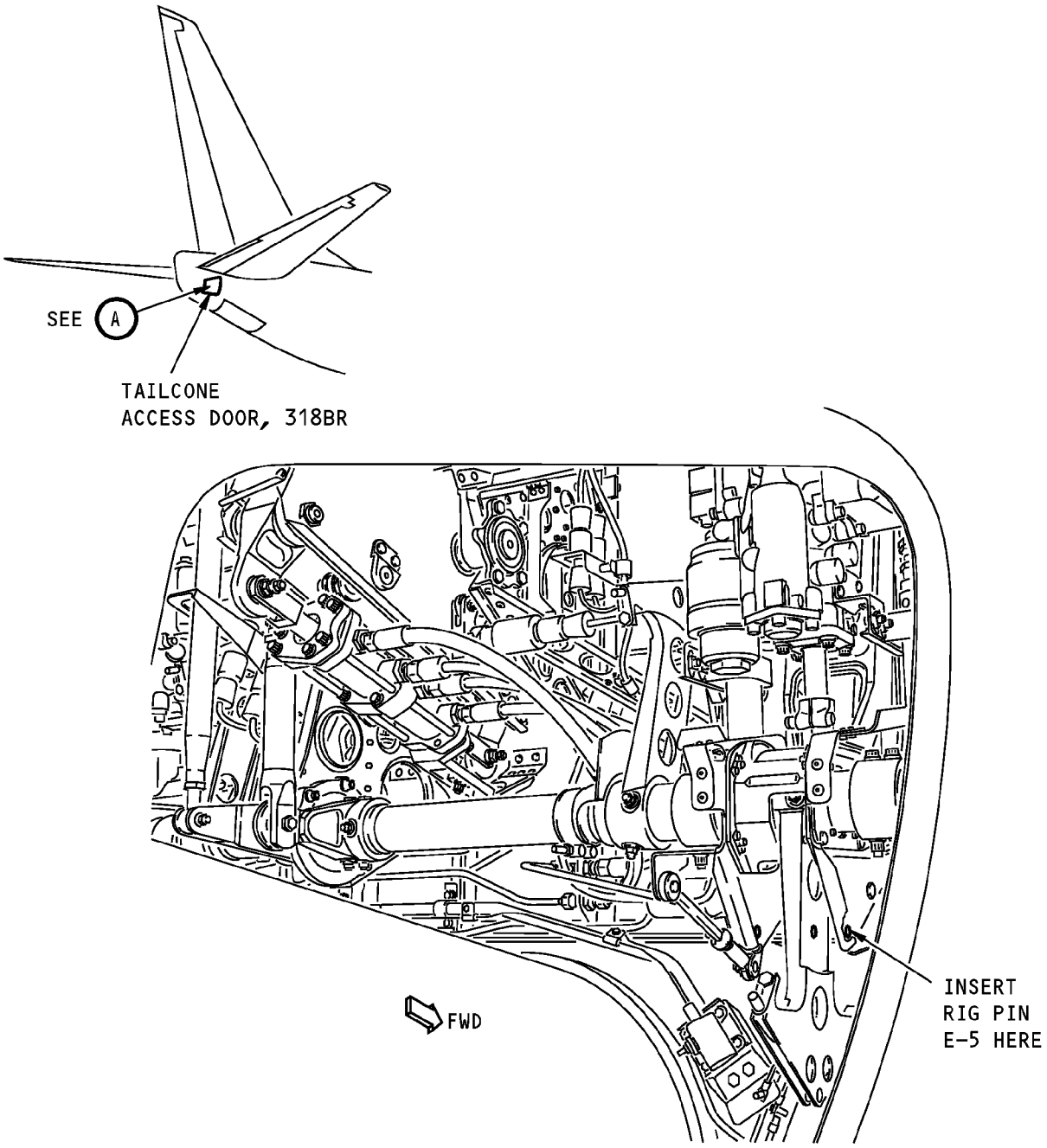

Elevator Rig Pin Installation
Figure 402/27-31-11-990-802

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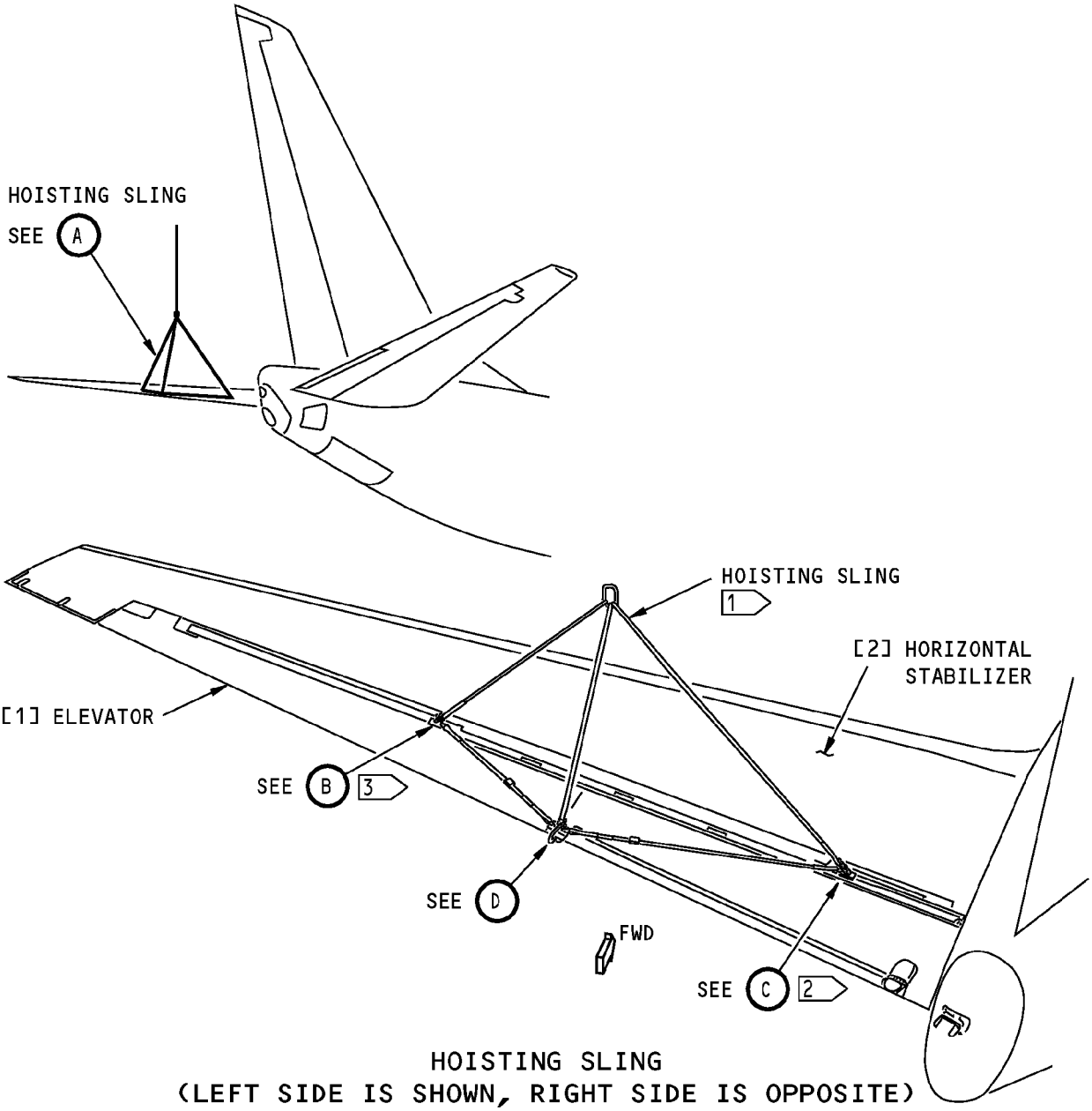

HOISTING SLING
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

A

1 THIS SLING CAN BE USED TO FACILITATE THE HANDLING OF THE ELEVATOR.

2 THE INBOARD FORWARD SLING FITTING CAN BE FOUND NEXT TO HINGE 3.

3 THE OUTBOARD FORWARD SLING FITTING CAN BE FOUND NEXT TO HINGE 5.

Elevator Hoisting Sling Installation
Figure 403 (Sheet 1 of 2)/27-31-11-990-803

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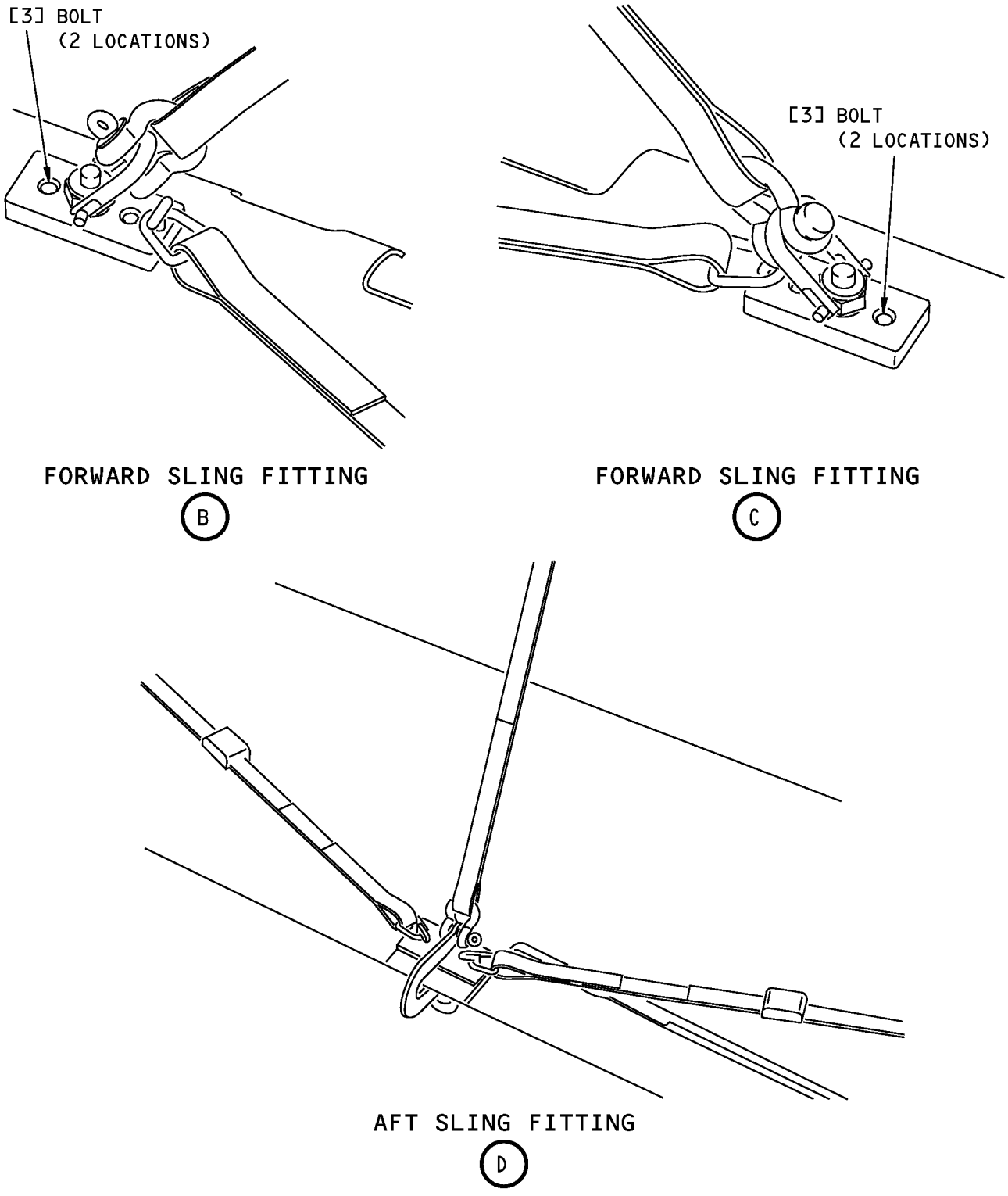

Elevator Hoisting Sling Installation
Figure 403 (Sheet 2 of 2)/27-31-11-990-803

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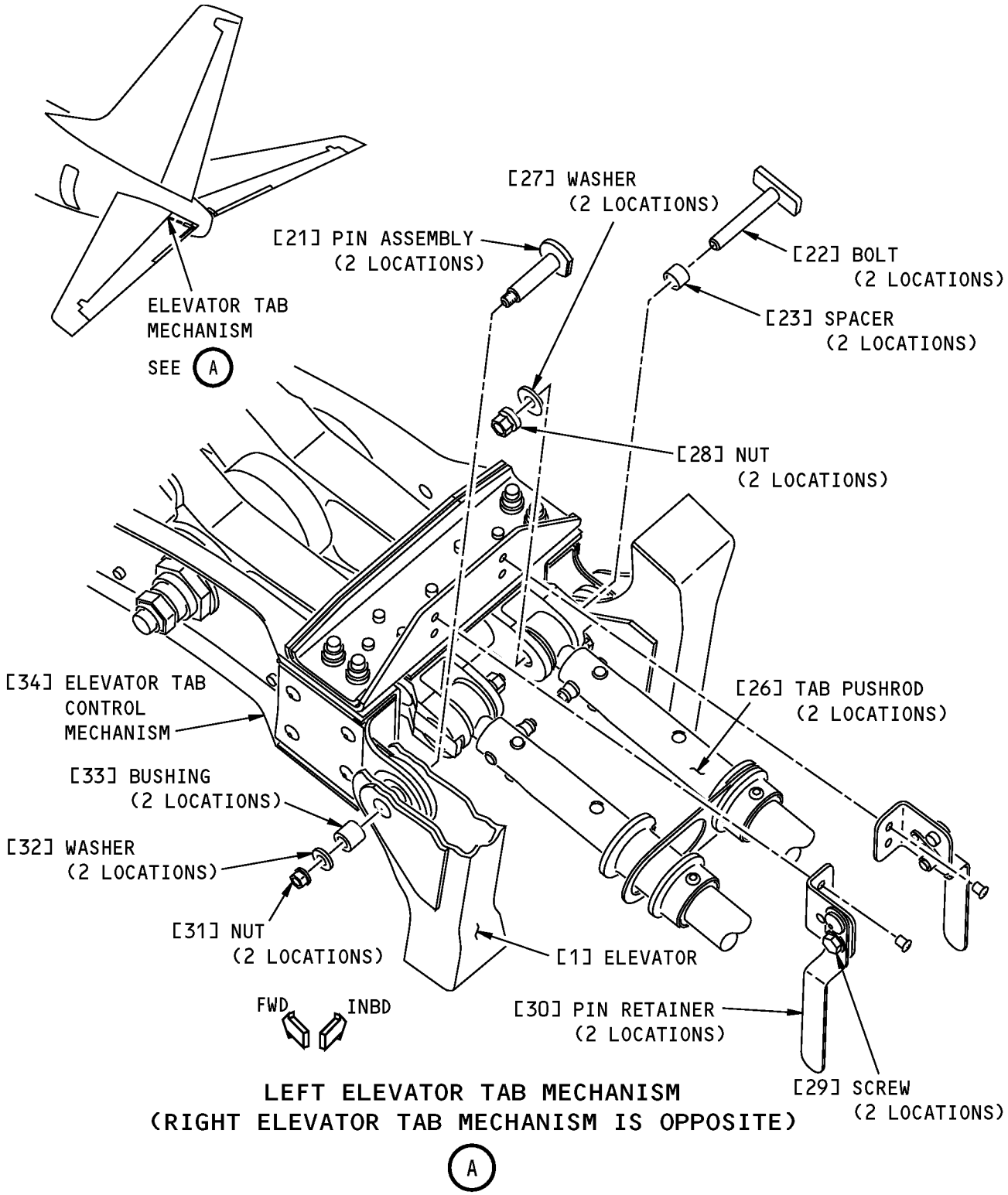

Elevator Tab Mechanism Installation
Figure 404/27-31-11-990-804

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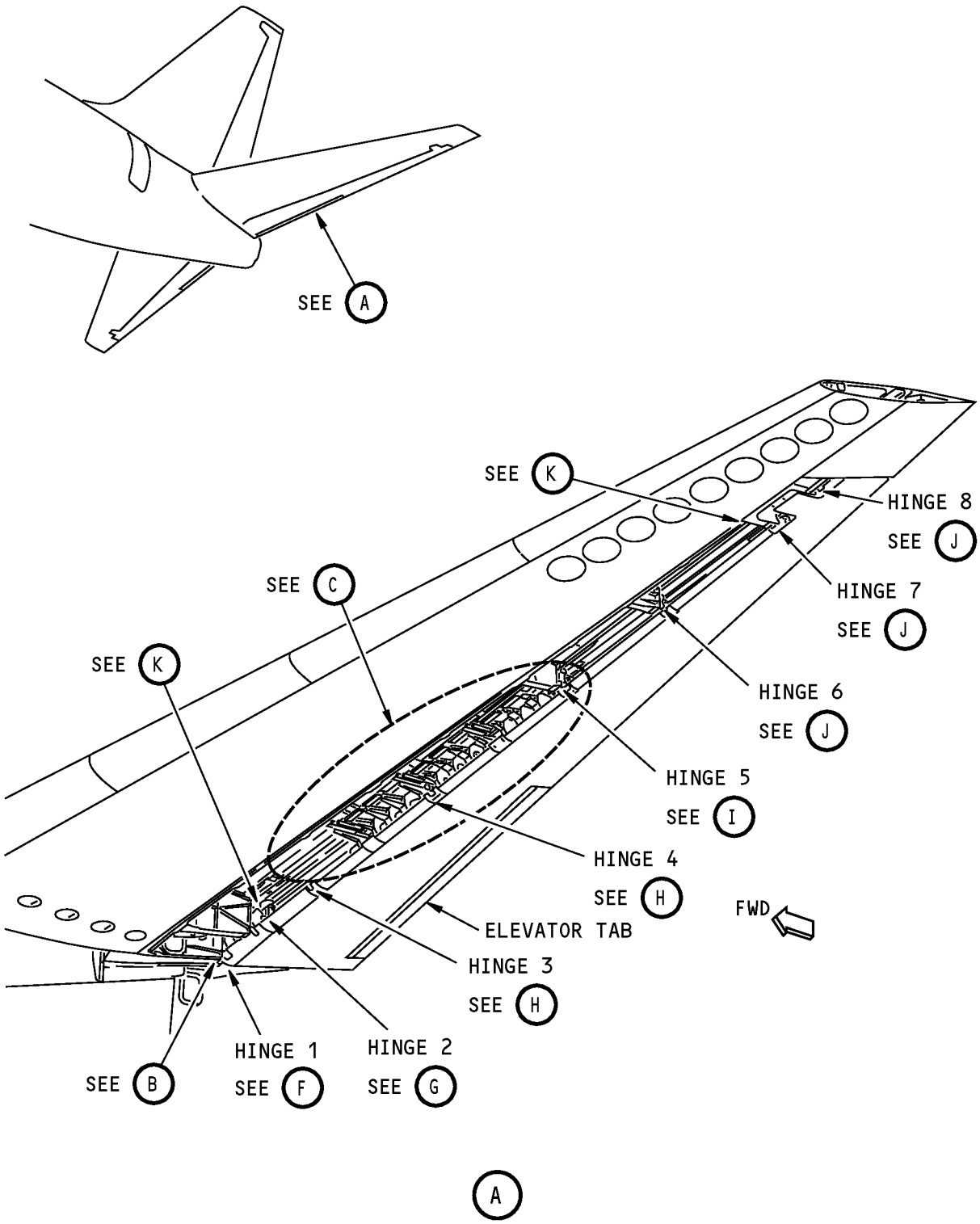

Elevator Installation
Figure 405 (Sheet 1 of 7)/27-31-11-990-805

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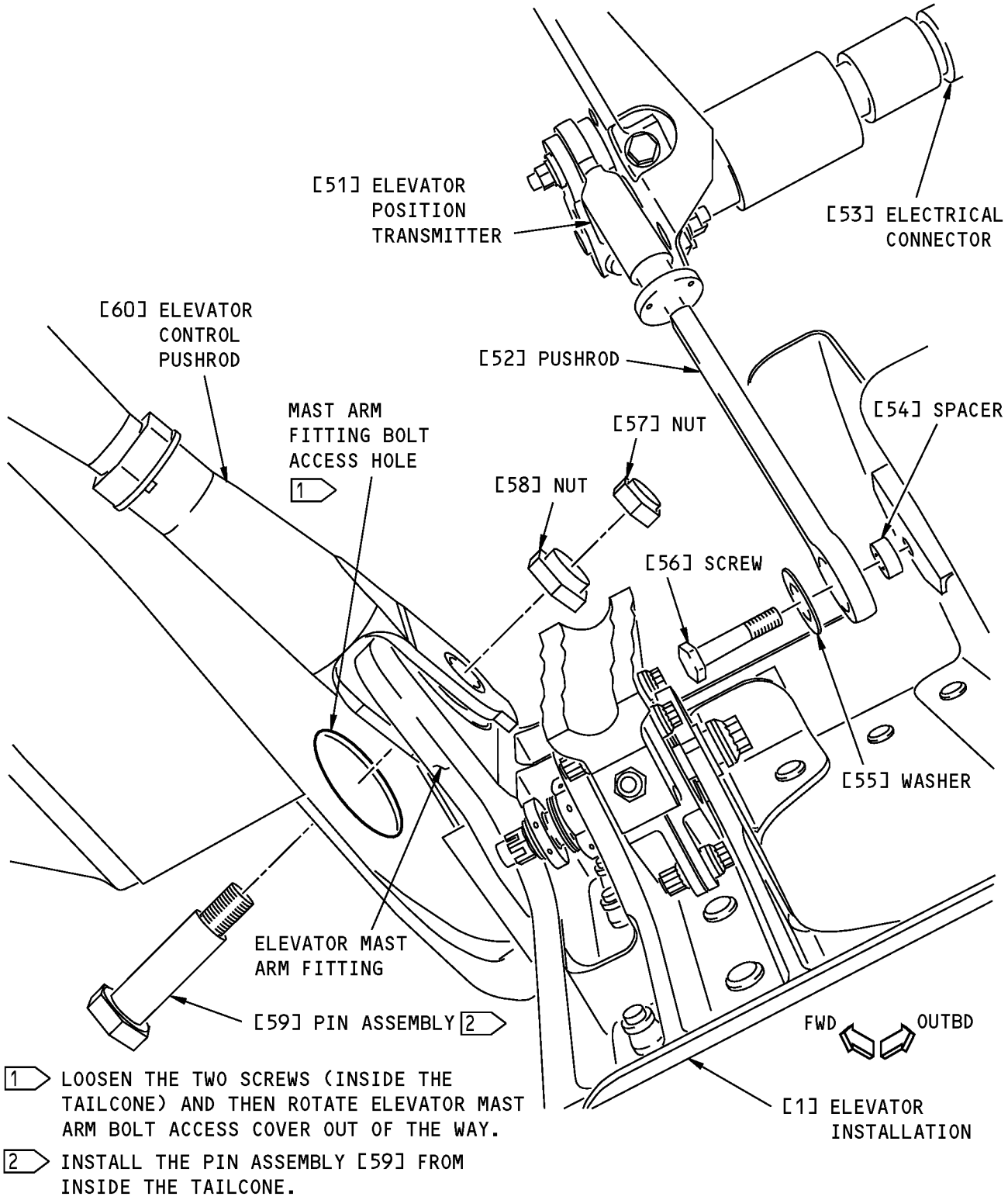

Elevator Installation
Figure 405 (Sheet 2 of 7)/27-31-11-990-805

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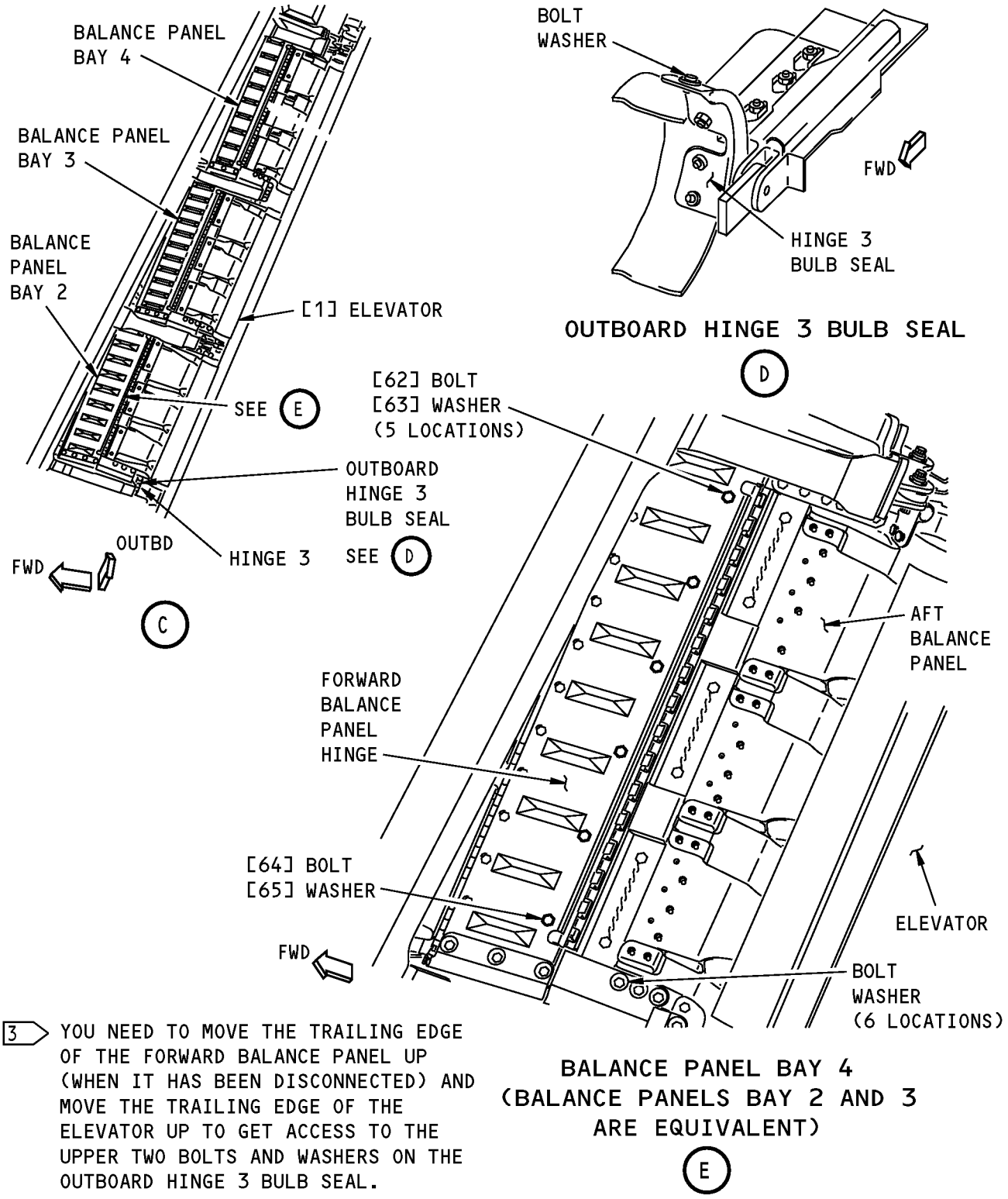

Elevator Installation
Figure 405 (Sheet 3 of 7)/27-31-11-990-805

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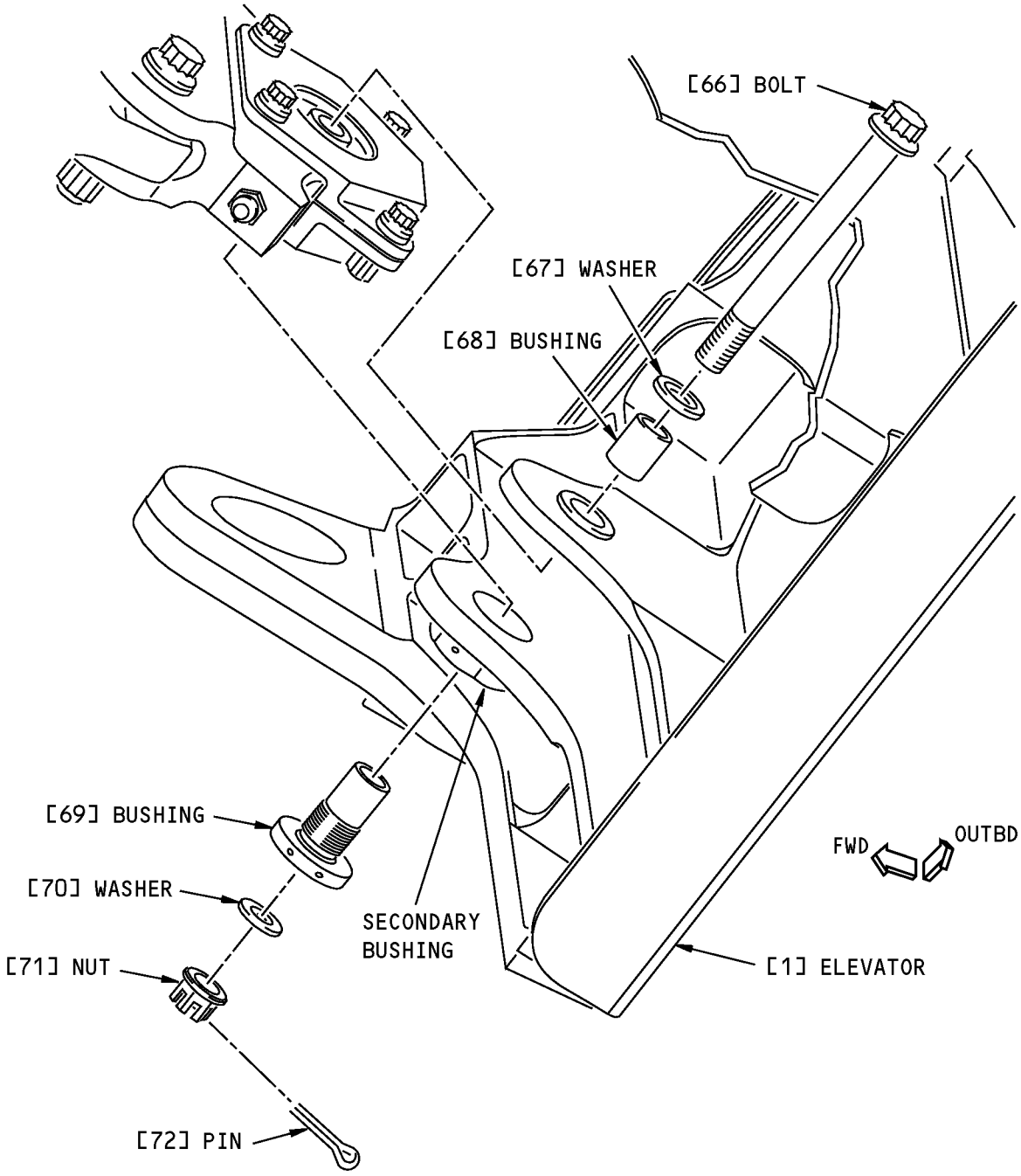

HINGE 1

F

Elevator Installation
Figure 405 (Sheet 4 of 7)/27-31-11-990-805

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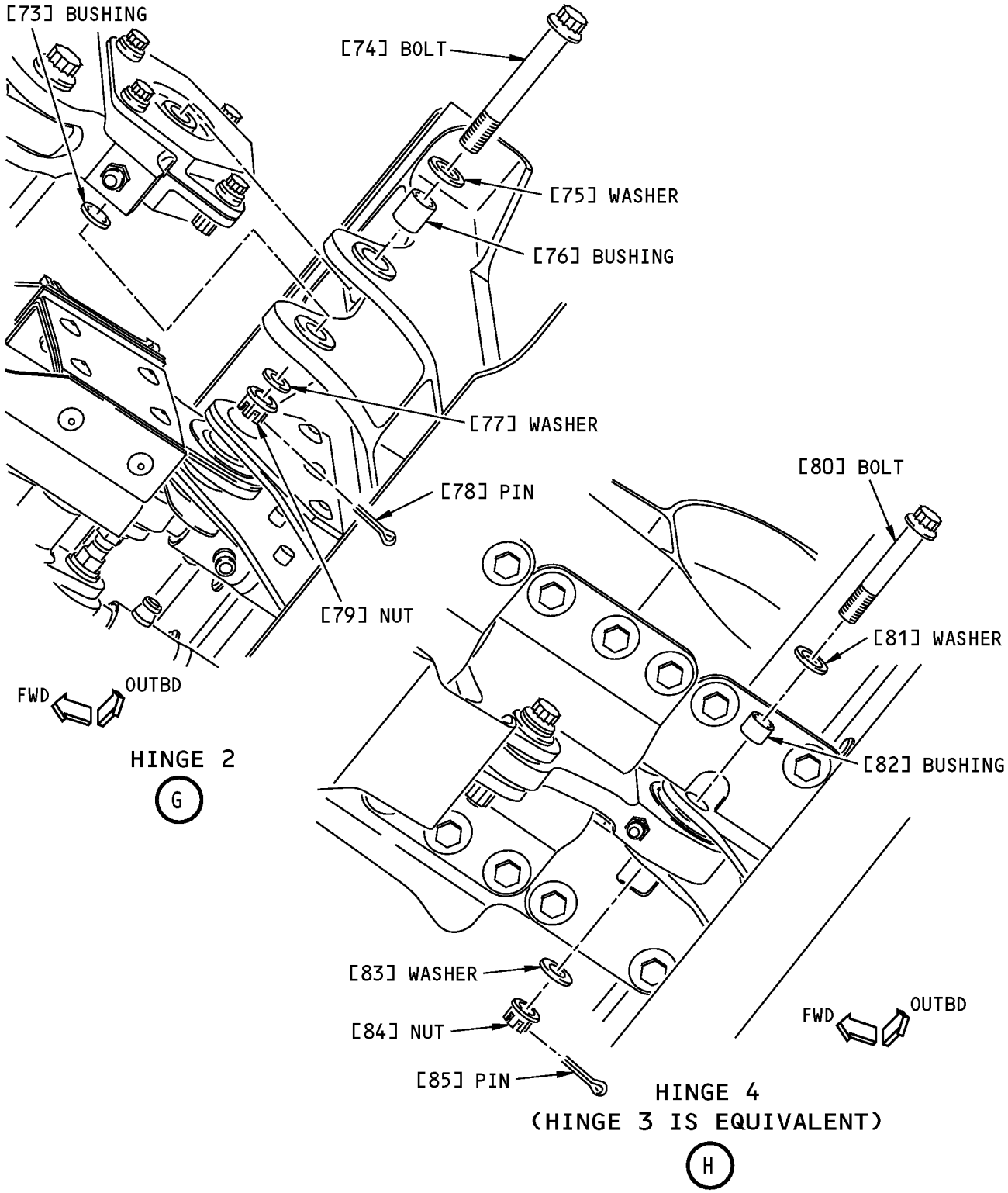

Elevator Installation
Figure 405 (Sheet 5 of 7)/27-31-11-990-805

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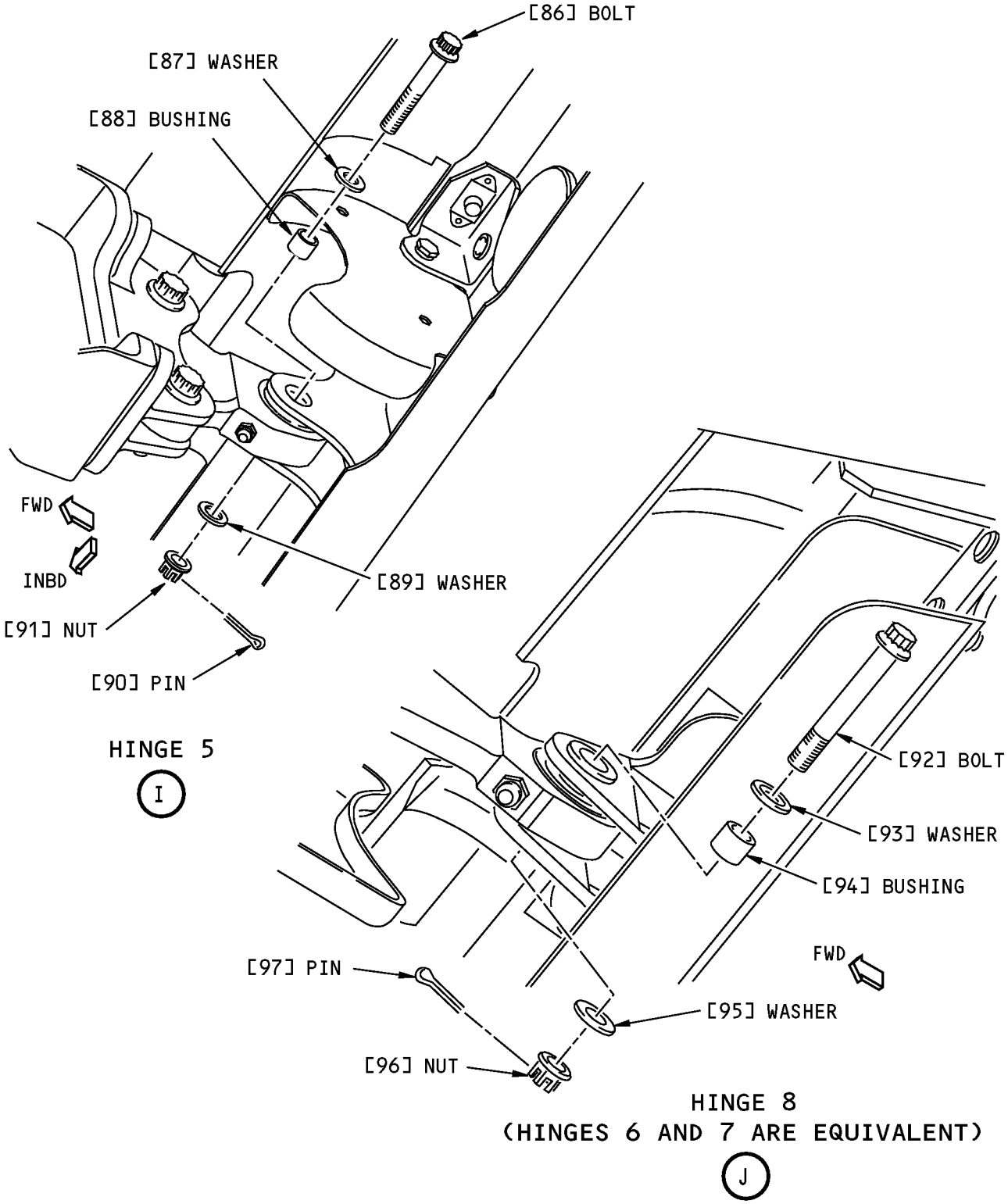

Elevator Installation
Figure 405 (Sheet 6 of 7)/27-31-11-990-805

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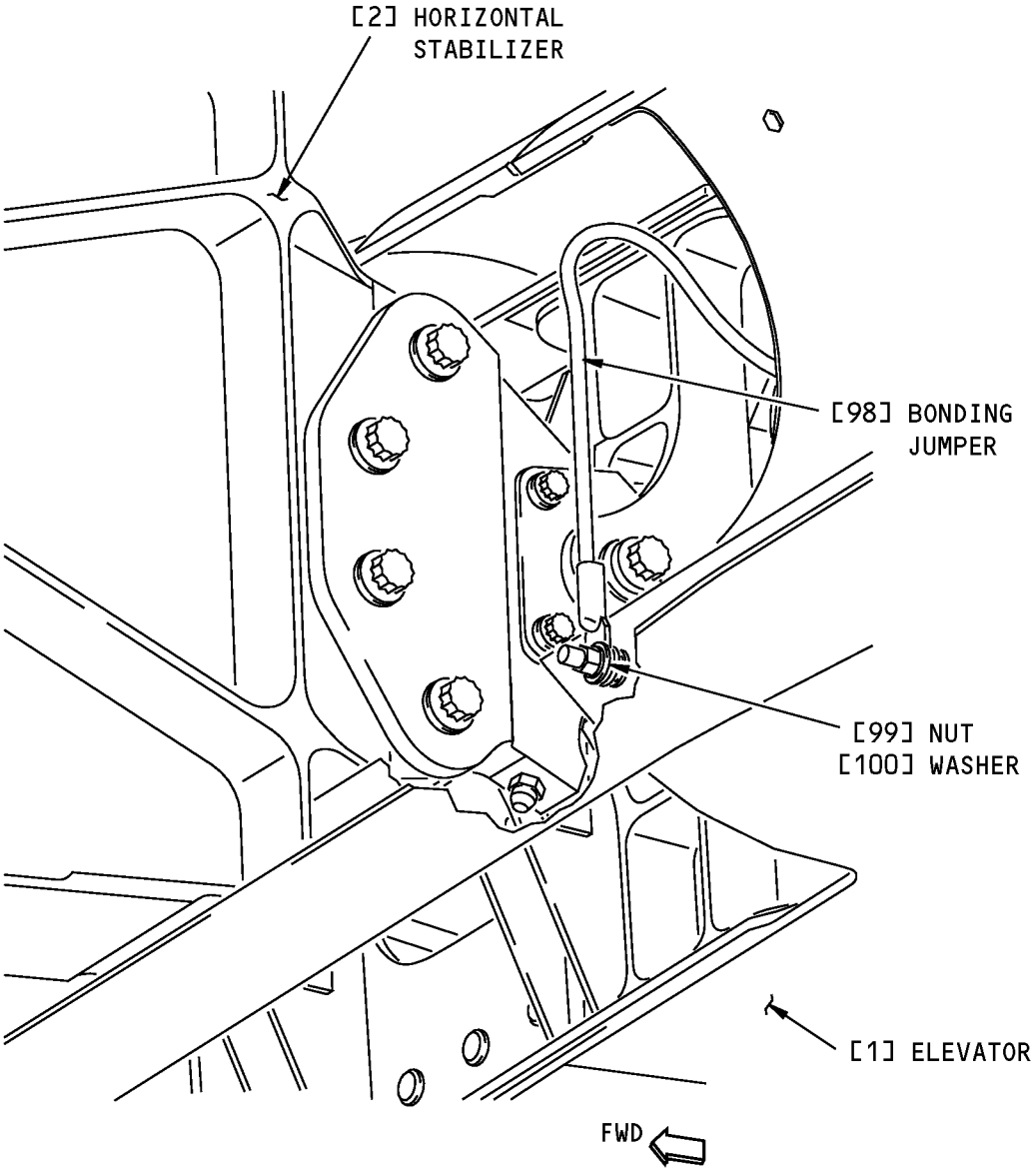

BONDING JUMPER
(EXAMPLE)
K

Elevator Installation
Figure 405 (Sheet 7 of 7)/27-31-11-990-805

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TASK 27-31-11-400-801

3. Elevator - Installation

(Figure 401, Figure 402, Figure 403, Figure 405, Figure 406)

NOTE: Also see Figure 404.

A. References

Reference	Title
12-22-31-600-801	Elevator Buss Crank and Master Arm Fitting - Lubrication (P/B 301)
27-31-00-700-802	Elevator Surface Friction and Balance - Test (P/B 501)
27-31-00-700-804	Elevator Travel Limit - Test (P/B 501)
27-31-00-700-805	Elevator Output Torque Tube Buss Linkage - Test (P/B 501)
27-31-00-700-806	Elevator Tab Linkage - Test (P/B 501)
27-31-00-700-807	Manual Mode - Test (P/B 501)
27-31-00-700-808	Control Column Travel and Centering - Test (P/B 501)
27-31-00-700-809	Control Column Power Force - Test (P/B 501)
27-31-00-710-803	Elevator Power-Off Flight - Test (P/B 501)
27-31-00-820-802	Elevator Control Pushrods - Adjustment (P/B 501)
27-31-00-820-803	Input Rods of the Elevator Power Control Unit - Adjustment (P/B 501)
27-31-00-820-805	Elevator Tab Pushrods - Adjustment (P/B 501)
27-31-00-990-807	Figure: Elevator Tab Adjustment (P/B 501)
31-31-51-700-801	Elevator Position Transmitter Installation Test (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2034	Sling - Elevator Hoisting (Part #: C27034-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1232	Protractor - Digital

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
D00633	Grease - Aircraft General Purpose	BMS3-33
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

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D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Elevator installation	55-20-00-06-005	HAP ALL
		55-20-00-06-120	HAP 008-013, 015-026, 028-054, 101-999
		55-20-00-15-005	HAP 001-013, 015-026, 028-030
		55-20-00-15-105	HAP 001-013, 015-026, 028-030
72	Pin	55-20-00-06-055	HAP ALL
78	Pin	55-20-00-06-055	HAP ALL
85	Pin	55-20-00-06-055	HAP ALL
90	Pin	55-20-00-06-055	HAP ALL
97	Pin	55-20-00-06-015	HAP ALL
		55-20-00-06-055	HAP ALL

E. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
318	Tail Cone Compartment - Right
334	Left Horizontal Stabilizer - Elevator
335	Left Horizontal Stabilizer - Tip
344	Right Horizontal Stabilizer - Elevator
345	Right Horizontal Stabilizer - Tip

F. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
334GB	Horizontal Stabilizer, Elevator Hinge Cover
334HB	Horizontal Stabilizer, Elevator Hinge Cover
334JB	Horizontal Stabilizer, Elevator Hinge Cover
334KB	Horizontal Stabilizer, Elevator Hinge Cover
334LB	Horizontal Stabilizer, Elevator Hinge Cover
334MB	Horizontal Stabilizer, Elevator Hinge Cover
334NB	Horizontal Stabilizer, Elevator Hinge Cover
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
344GB	Horizontal Stabilizer, Hinge Cover, Elevator Station 24.09
344HB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 66.54
344JB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 121.59
344KB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 176.64
344LB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 213.32
344MB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 250.04
344NB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 265.45

G. Elevator Installation

SUBTASK 27-31-11-640-001

(1) Lubricate the bolts, bushings with grease, D00633 (preferred) or grease, D00015 (alternate).

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SUBTASK 27-31-11-420-001

(2) Install the elevator installation [1] in the order as shown, (Figure 405):

(a) Put the elevator installation [1] at the stabilizer trailing edge.

NOTE: The sling, SPL-2034 can be used to facilitate this task.

(b) At elevator hinges 1 and 2, do these steps:

1) If necessary, install the secondary bushing at hinge 1.

2) Install the hinge 1 bushing [68], washer [67] and bolt [66] with the bolt head outboard.

a) Make sure the clearance between the hinge 1 washer [67] and the flanged bushing on the elevator hinge is not less than 0.0150 inch (0.381 mm).

3) Loosely install the hinge 1 bushing [69].

NOTE: Do not tighten the hinge 1 bushing [69] until it seats against the horizontal stabilizer bearing. If you tighten the hinge 1 bushing [69] before you torque the hinge 2 nut [79], the elevator axial freeplay will not be correct.

4) Loosely install hinge 1 washer [70] and nut [71].

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

5) Install the hinge 2 bushing [76], bushing [73], washer [75] and bolt [74] with the bolt head outboard.

NOTE: Do not install the hinge 2 washer [77], nut [79] or pin [78] at this time.

HAP ALL

(c) At elevator hinges 8, 7, and 6, do these steps:

NOTE: Do the following steps starting at hinge 8, then hinge 7, and then hinge 6.

1) Install the bushings [94], washers [93], and bolts [92] with the bolt head outboard.

a) Make sure the clearance between the washer [93] and the bushing on the elevator hinge is not less than 0.0150 inch (0.381 millimeter).

2) Install washers [95] and nuts [96].

a) Tighten the nuts [96] to 50 - 75 pound-inches (5.7 - 8.5 newton-meters).

3) Install the new pin [97].

(d) At elevator hinges 3 and 4, do these steps:

1) Install the bushings [82], washers [81] and bolts [80] with the bolt heads outboard.

a) Make sure the clearance between the washer [81] and the bushing on the elevator hinge is not less than 0.0150 inch (0.381 millimeter).

2) Install washers [83] and nuts [84].

a) Tighten the nuts [84] to 90 - 125 pound-inches (10.2 - 14.1 newton-meters).

3) Install the new pins [85].

(e) At elevator hinge 5, do these steps:

1) Install the bushing [88], washer [87], and bolt [86] with the bolt head outboard.

a) Make sure the clearance between the washer [87] and the bushing on the elevator hinge is not less than 0.0150 inch (0.381 millimeter).

2) Install washer [89] and nut [91].

a) Tighten the nut [91] to 90 - 125 pound-inches (10.2 - 14.1 newton-meters).

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3) Install the new pin [90].

(f) Connect the bonding jumper [98] to the horizontal stabilizer [2]:

1) Install the washers [100] and nuts [99] to attach the bonding jumpers [98] to the horizontal stabilizer [2].

2) Use the bonding meter, COM-1550 to make sure there is a maximum of 0.010 ohm between the horizontal stabilizer [2] and elevator installation [1].

3) Seal the bonding jumper ends and fasteners with sealant, A00247.

SUBTASK 27-31-11-080-001

(3) If the sling, SPL-2034 was used for installation of the elevator, do the following to remove it from the elevator installation [1] (Figure 403):

(a) Remove the fasteners to disconnect the forward sling fittings from the elevator installation [1].

(b) Remove the forward sling fittings from the elevator installation [1].

(c) Install the bolts [3] on the elevator installation [1].

(d) Remove the aft sling fitting from the elevator installation [1].

SUBTASK 27-31-11-710-002

(4) Do an initial check of the elevator full travel by turning the elevator installation [1] full up and full down by hand.

(a) Make sure the elevator installation [1] moves a minimum of 25.87 degrees trailing edge up from the neutral index mark and a minimum of 19.53 degrees trailing edge down from the neutral index mark. Use the digital protractor, STD-1232 to measure the angle.

NOTE: If you do not get one or both of the required angles, disconnect the elevator control pushrod [60] from the mast arm fitting (Figure 405), and measure the angles again.

SUBTASK 27-31-11-420-002

CAUTION: MAKE SURE THAT THE IDLER HINGE MOVES DOWN FROM THE STABILIZER SUPPORT BEAM WHEN YOU ATTACH THE BALANCE PANELS TO THE ELEVATOR. FAILURE TO INSTALL THE BALANCE PANELS CORRECTLY CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Connect the balance panels to the elevator installation [1] (Figure 405):

(a) Install the washers [65] and bolts [64].

(b) Install the washers [63] and bolts [62].

(c) Check the elevator balance panel seal gap SUBTASK 27-31-41-420-002.

(d) Make sure you install the hinge seals correctly before you tighten the bolt [64] and bolt [62].

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

SUBTASK 27-31-11-020-015

(6) Connect the tab mechanism [34] to the elevator installation [1] and tab pushrods [26] (Figure 404):

(a) Install the bushings [33], the pin assemblies [21], the washers [32], and the nuts [31] that attach the tab mechanism [34] to the elevator [1].

NOTE: You may have to move the hinge 2 bolt [74] outboard to torque the nut [31] of the outboard tab mechanism attach point.

(b) Tighten the mechanism nuts [31] to 25 - 35 pound-inches (2.8 - 4.0 newton-meters).

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(c) Install the spacers [23], bolts [22], washers [27], and new nuts [28] to attach the tab pushrods [26] to the tab mechanism [34].

NOTE: If you loosened or removed the nuts [28], they need to be replaced with new nuts. Using new nuts will ensure that they have the required run-on torque. Make sure that new nuts are installed.

(d) Tighten the new nuts [28] to 70 - 80 pound-inches (7.9 - 9.0 newton-meters).

(e) Install the pin retainers [30] with the screws [29].

SUBTASK 27-31-11-420-007

(7) At elevator hinge 2, do these steps:

(a) Make sure the clearance between the washer [75] and bushing [76] on the elevator hinge is not less than 0.0150 inch (0.381 millimeter).

(b) Install washer [77] and nut [79].

1) Tighten the hinge 2 nut [79] by torquing the head of the bolt [74] to 113 - 138 pound-inches (12.8 - 15.6 newton-meters) while using a wrench to keep the nut [79] from rotating.

NOTE: The normal torque for the nut [79] is 90 - 125 pound-inches (10.2 - 14.1 newton-meters). You cannot access the nut [79] with a torque wrench so you must torque the head of the bolt [74] to the upper torque value of the nut, +/- 10 percent of that upper torque value. That torque value would be 125.0 +/- 12.5 pound-inches (which is 113 - 138 pound-inches (12.8 - 15.6 newton-meters)).

(c) Install the new pin [78].

HAP ALL

SUBTASK 27-31-11-420-008

(8) At elevator hinge 1, do these steps:

(a) Tighten the hinge 1 bushing [69] until it seats against the horizontal stabilizer bearing.

NOTE: Use only hand pressure to tighten the hinge 1 bushing [69].

(b) Tighten the hinge 1 nut [71] to 90 - 125 pound-inches (10.2 - 14.1 newton-meters).

1) Install the new pin [72] in hinge 1.

2) Install the lockwire, G01048 from the bushing [69] to the elevator installation [1].

SUBTASK 27-31-11-710-024

(9) Do a final check of the elevator full travel by turning the elevator installation [1] full up and full down by hand.

(a) Make sure the elevator installation [1] moves a minimum of 25.87 degrees trailing edge up from the neutral index mark and a minimum of 19.53 degrees trailing edge down from the neutral index mark. Use the digital protractor, STD-1232 to measure the angle.

NOTE: If you do not get one or both of the required angles, disconnect the elevator control pushrod [60] from the mast arm fitting (Figure 405), and measure the angles again.

SUBTASK 27-31-11-420-004

(10) Connect the pushrod [52] of the elevator position transmitter [51] to the elevator installation [1] (Figure 405):

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(a) Install the screw [56], washer [55], and spacer [54] to the pushrod [52].

(b) Connect the electrical connector [53] to the elevator position transmitter [51].

SUBTASK 27-31-11-420-005

(11) Connect the elevator control pushrod [60] to the elevator installation [1] (Figure 405):

(a) Move the elevator installation [1] to the neutral position.

(b) Install the pin assembly [59] with the pin head inboard, nut [58].

1) Tighten the nut [58] to 500 - 600 pound-inches (56.5 - 67.8 newton-meters).

CAUTION: DO NOT TIGHTEN THE NUT [58] AGAIN AFTER YOU TIGHTEN THE NUT [57], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(c) Install the nut [57].

1) Tighten the nut [57] to 150 - 220 pound-inches (17.0 - 24.9 newton-meters).

SUBTASK 27-31-11-080-002

(12) Remove the rig pin E-5 of the rig pin kit, SPL-1585 from the elevator aft quadrant.

SUBTASK 27-31-11-700-005

(13) Check the adjustment of the elevator blade seal gaps:

(a) Make sure the stabilizer and elevator are at their neutral positions.

(b) Make sure the elevator blade seal gap is within the tolerance of 0.020 +0.030/-0.010 inch (0.51 +0.76/-0.25 millimeter) (Figure 406).

SUBTASK 27-31-11-640-002

(14) Do this task: Elevator Buss Crank and Master Arm Fitting - Lubrication, TASK 12-22-31-600-801.

SUBTASK 27-31-11-860-004

(15) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 27-31-11-860-005

(16) Adjust and test the elevator system by doing the following:

NOTE: If you install the same elevator that you removed from the airplane, and no repairs or modifications to the elevator or adjustments to the elevator system have been made, then it is not necessary to do the adjustment steps of the elevator system below. Continue to the elevator tab pushrod adjustment section of this procedure.

(a) Do this task: Elevator Control Pushrods - Adjustment, TASK 27-31-00-820-802.

(b) Do this task: Input Rods of the Elevator Power Control Unit - Adjustment, TASK 27-31-00-820-803.

(c) Do the following test for elevator centering:

1) Set the FLT CONTROL B switch on the forward overhead panel, P5, to the OFF position.

2) Make sure the FLT CONTROL A switch on the forward overhead panel, P5, is in the ON position.

3) Make sure the captain's control column is at the neutral position.

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a) Make sure the right elevator aligns with the index mark in +/- 0.06 inch (+/- 1.5 mm) (Figure 27-31-00-990-807).

4) Set the FLT CONTROL B switch to the ON position.

a) Make sure the right elevator aligns with the index mark in +/- 0.06 inch (+/- 1.5 mm).

5) Set the FLT CONTROL A switch to the OFF position.

6) Make sure the FLT CONTROL B switch is in the ON position.

7) Set the FLT CONTROL A switch to the ON then to the OFF position.

a) Make sure there is less than 0.02 inch (0.5 mm) movement at the right elevator trailing edge.

8) Set the FLT CONTROL B switch to the OFF then to the ON then to the OFF position.

a) Make sure there is less than 0.02 inch (0.5 mm) movement at the right elevator trailing edge.

9) Set the FLT CONTROL A and B switches to the ON position.

10) Make sure the captain's control column is at the neutral position.

a) Make sure the right elevator aligns with the index mark in +/- 0.06 inch (+/- 1.5 mm).

11) Move the captain's control column forward approximately 2 degrees and release.

a) Make sure the right elevator trailing edge aligns with the index mark in 0.00 +/- 0.12 inch (0.0 +/- 3.0 mm).

12) Move the captain's control column aft approximately 2 degrees and release.

a) Make sure the right elevator trailing edge aligns with the index mark in 0.00 +/- 0.12 inch (0.0 +/- 3.0 mm).

SUBTASK 27-31-11-820-003

(17) Adjust the elevator tab pushrods by doing the following:

NOTE: If the elevator tabs, tab control mechanism, or tab rods have not been replaced, repaired or modified, and no adjustments to the tab pushrods have been made, then it is not necessary to do the adjustment of the elevator tab pushrods in the following step. Do the elevator position transmitter installation test.

(a) Do this task: Elevator Tab Pushrods - Adjustment, TASK 27-31-00-820-805.

NOTE: If the elevator tab position measurements were recorded in the elevator removal steps, then adjust the elevator and tab control system to the position measured prior to removal.

(b) Do this task: Elevator Position Transmitter Installation Test, TASK 31-31-51-700-801.

(c) Do this task: Manual Mode - Test, TASK 27-31-00-700-807.

(d) Do this task: Elevator Surface Friction and Balance - Test, TASK 27-31-00-700-802.

(e) For the left elevator, install this access panel:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

(f) For the right elevator, install this access panel:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

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(g) For the left elevator, install these access panels:

Number	Name/Location
334GB	Horizontal Stabilizer, Elevator Hinge Cover
334HB	Horizontal Stabilizer, Elevator Hinge Cover
334JB	Horizontal Stabilizer, Elevator Hinge Cover
334KB	Horizontal Stabilizer, Elevator Hinge Cover
334LB	Horizontal Stabilizer, Elevator Hinge Cover
334MB	Horizontal Stabilizer, Elevator Hinge Cover
334NB	Horizontal Stabilizer, Elevator Hinge Cover

(h) For the right elevator, install these access panels:

Number	Name/Location
344GB	Horizontal Stabilizer, Hinge Cover, Elevator Station 24.09
344HB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 66.54
344JB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 121.59
344KB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 176.64
344LB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 213.32
344MB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 250.04
344NB	Horizontal Stabilizer, Elevator Hinge Cover, Elevator Sta 265.45

(i) Do this task: Elevator Travel Limit - Test, TASK 27-31-00-700-804.

(j) Do this task: Elevator Output Torque Tube Buss Linkage - Test, TASK 27-31-00-700-805.

(k) Do this task: Elevator Tab Linkage - Test, TASK 27-31-00-700-806.

(l) Do this task: Control Column Travel and Centering - Test, TASK 27-31-00-700-808.

(m) Do this task: Control Column Power Force - Test, TASK 27-31-00-700-809.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-11-410-005

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-11-410-001

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

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SUBTASK 27-31-11-710-010

(3) Do this task: Elevator Power-Off Flight - Test, TASK 27-31-00-710-803.

NOTE: Depending on which systems have been disturbed, you may not have to do a power-off flight test. To see if you need to do a power-off flight test, check the requirements in the ''General'' section at the beginning of the power-off flight test task.

———————— END OF TASK ————————

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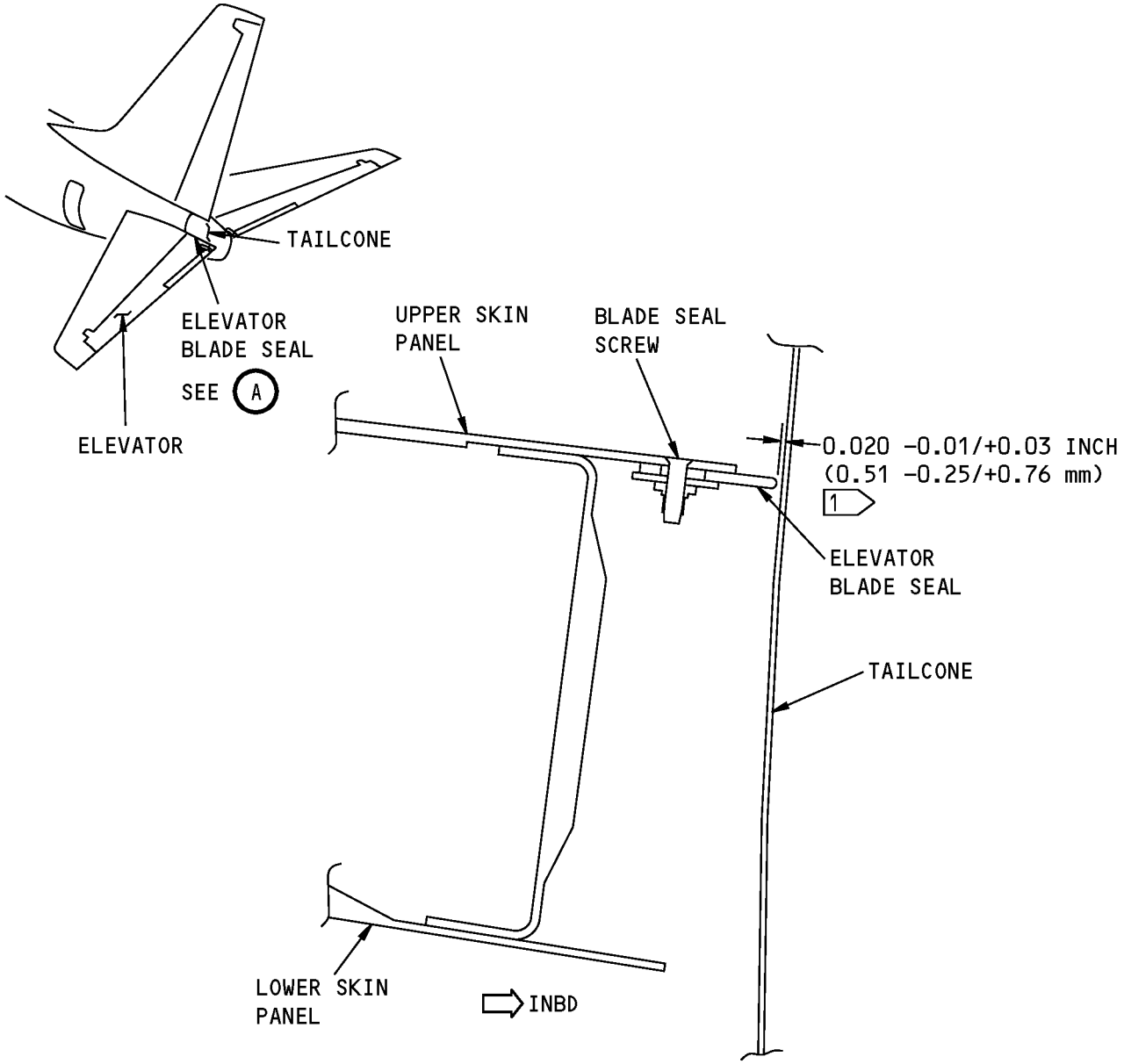

1 THE ELEVATOR BLADE SEAL GAP ADJUSTMENT NEEDS TO BE MADE WITHIN THE STABILIZER AND THE ELEVATOR AT THE NEUTRAL POSITIONS

Elevator Blade Seal Gap Adjustment
Figure 406/27-31-11-990-810

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TASK 27-31-11-000-802

4. Elevator Control Pushrod - Removal

(Figure 403, Figure 407)

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2034	Sling - Elevator Hoisting (Part #: C27034-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door
333AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

E. Prepare for the Removal

SUBTASK 27-31-11-970-001

(1) Measure and record the elevator tab trailing edge position.

SUBTASK 27-31-11-860-006

(2) Make sure that pressure is removed from the elevator hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

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SUBTASK 27-31-11-010-005

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-11-010-006

(4) To get access to the elevator aft quadrant, do this task:

Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-11-010-007

(5) For the left elevator control pushrod, open these access panels:

Number	Name/Location
343AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

SUBTASK 27-31-11-010-008

(6) For the right elevator, open these access panels:

Number	Name/Location
333AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

SUBTASK 27-31-11-860-007

(7) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 27-31-11-860-008

(8) Use the bar, SPL-1677 to set B dimension at 39.89 +/- 0.01 inches (1013.2 +/- 0.3 millimeter) (Figure 401).

SUBTASK 27-31-11-820-005

(9) Install the rig pin E-5 from rig pin kit, SPL-1585 in the elevator aft quadrant (Figure 402).

SUBTASK 27-31-11-480-003

(10) If the sling, SPL-2034 is used to support the elevator assembly while the elevator control pushrod is removed, do the following (Figure 403):

(a) Find the bolts [3] on the elevator installation [1] to attach the sling, SPL-2034.

NOTE: The bolts [3] are on the upper panel next to elevator hinge 3 and hinge 5 (Figure 405).

(b) Remove the bolts [3] from the elevator installation [1].

(c) Install the forward sling fittings on the elevator installation [1].

1) Install the fasteners to attach each sling fitting to the elevator installation [1].

(d) Install the aft sling fitting on the elevator installation [1].

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(e) Attach the straps from the forward sling fittings to the aft sling fitting.

(f) Attach the sling, SPL-2034 to the forward sling fittings and aft sling fitting.

(g) Connect an overhead crane to the primary support sling on the sling, SPL-2034.

(h) Connect a tether line to the aft sling fitting.

(i) Use the sling, SPL-2034 to hold the elevator installation [1].

F. Pushrod Removal

(Figure 407)

SUBTASK 27-31-11-020-006

(1) Remove the nut [110], nut [111], and bolt assembly [112] to disconnect the elevator control pushrod [113] from the elevator mast arm [114].

NOTE: The bolt assembly is removed through the circular access hole in the tailcone.

SUBTASK 27-31-11-020-007

(2) Remove the nut [115], washer [116], nut [117], washers [118] and bolt assembly [119] to disconnect the rod assembly [113] from the elevator bus crank [120].

SUBTASK 27-31-11-020-008

(3) Remove the elevator control push rod assembly [113].

END OF TASK

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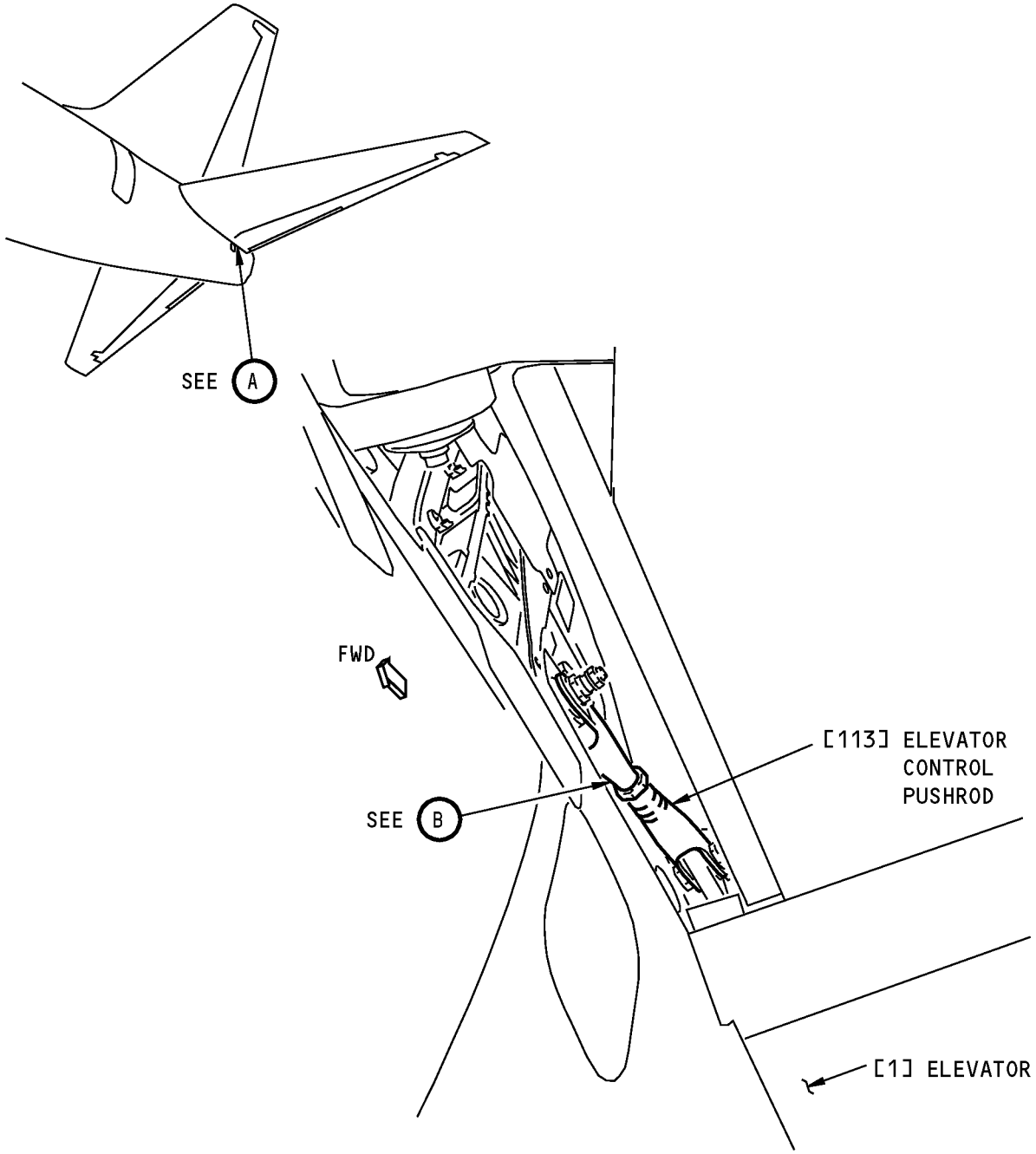

ELEVATOR CONTROL PUSHROD
(GAP COVER REMOVED)
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

Elevator Control Pushrod Installation
Figure 407 (Sheet 1 of 2)/27-31-11-990-806

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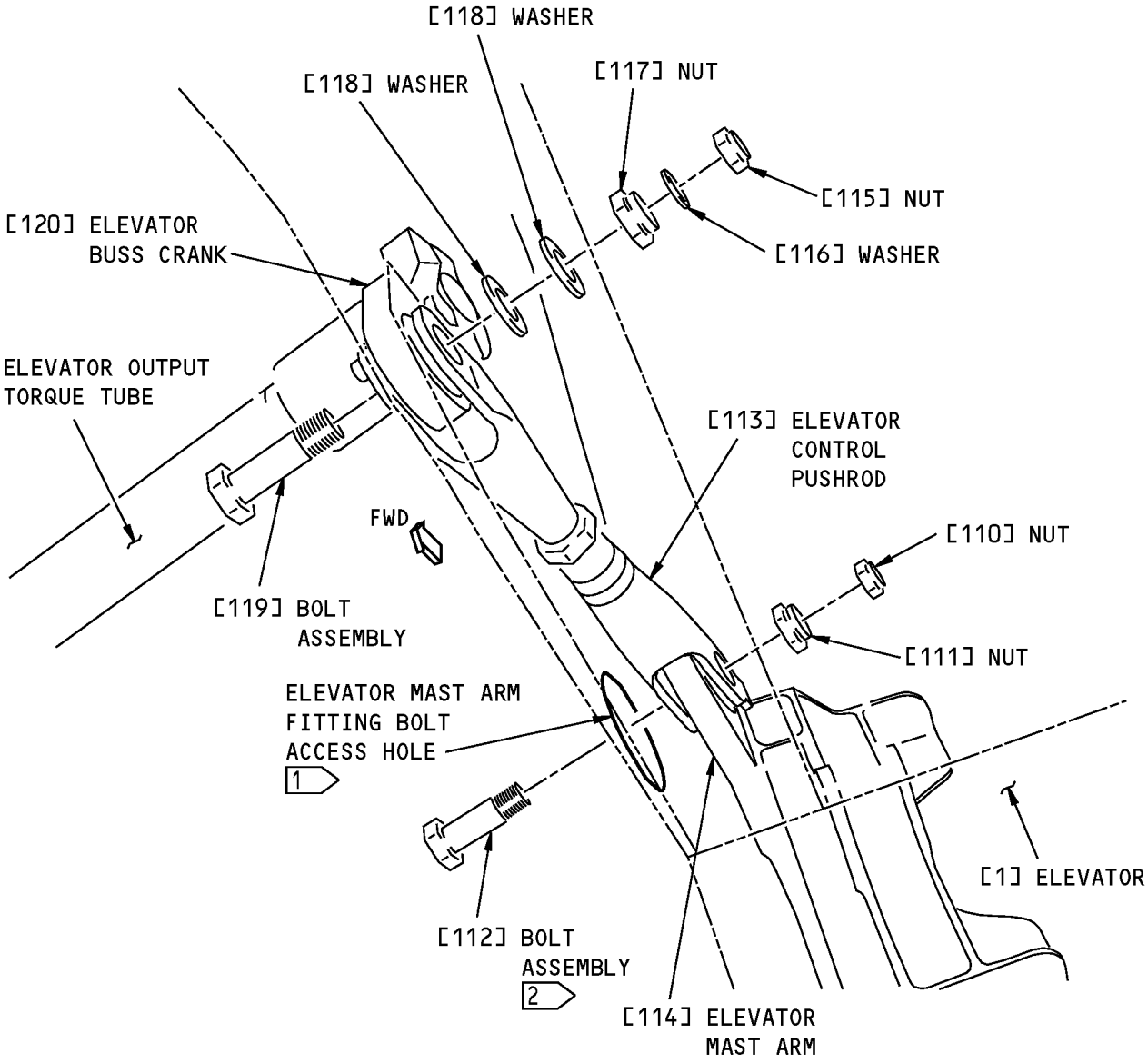

1 REMOVE TWO SCREWS AND ROTATE ELEVATOR MAST ARM BOLT ACCESS COVER OUT OF THE WAY.

2 INSTALL THE BOLT FROM THE INSIDE OF THE TAILCONE.

Elevator Control Pushrod Installation
Figure 407 (Sheet 2 of 2)/27-31-11-990-806

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TASK 27-31-11-400-802

5. Elevator Control Pushrod - Installation

(Figure 403, Figure 407)

A. References

Reference	Title
27-31-00-700-802	Elevator Surface Friction and Balance - Test (P/B 501)
27-31-00-700-804	Elevator Travel Limit - Test (P/B 501)
27-31-00-700-805	Elevator Output Torque Tube Buss Linkage - Test (P/B 501)
27-31-00-700-806	Elevator Tab Linkage - Test (P/B 501)
27-31-00-700-807	Manual Mode - Test (P/B 501)
27-31-00-700-808	Control Column Travel and Centering - Test (P/B 501)
27-31-00-700-809	Control Column Power Force - Test (P/B 501)
27-31-00-710-803	Elevator Power-Off Flight - Test (P/B 501)
27-31-00-820-802	Elevator Control Pushrods - Adjustment (P/B 501)
27-31-00-820-803	Input Rods of the Elevator Power Control Unit - Adjustment (P/B 501)
27-31-00-820-805	Elevator Tab Pushrods - Adjustment (P/B 501)
31-31-51-700-801	Elevator Position Transmitter Installation Test (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-2034	Sling - Elevator Hoisting (Part #: C27034-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)

D. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body

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F. Pushrod Installation

(Figure 407)

SUBTASK 27-31-11-640-003

(1) Lubricate the bolts and bushings with grease, D00015.

SUBTASK 27-31-11-420-006

(2) Install the rod assembly [113]:

(a) Make sure the elevator installation [1] is in the neutral position (Figure 403).

(b) Connect the elevator control pushrod [113] to the elevator bus crank [120]:

1) Install the bolt assembly [119] (with the bolt head inboard) washers [118], and nut [117].

2) Tighten the nut [117] to 500 - 600 pound-inches (56.5 - 67.8 newton-meters).

CAUTION: DO NOT TIGHTEN THE NUT [117] AGAIN AFTER YOU TIGHTEN THE NUT [115], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

3) Install the washer [116] and the nut [115].

4) Tighten the nut [115] to 150 - 220 pound-inches (17.0 - 24.9 newton-meters).

(c) Connect the rod assembly [113] to the elevator mast arm [114]:

1) Install the bolt assembly [112] with the bolt head inboard, nut [111].

NOTE: The bolt assembly [112] is installed through the circular access hole in the tailcone.

2) Tighten the nut [111] to 500 - 600 pound-inches (56.5 - 67.8 newton-meters).

CAUTION: DO NOT TIGHTEN THE NUT [111] AGAIN AFTER YOU TIGHTEN THE NUT [110], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

3) Install the nut [110].

4) Tighten the nut [110] to 150 - 220 pound-inches (17.0 - 24.9 newton-meters).

SUBTASK 27-31-11-080-003

(3) If you used the sling, SPL-2034 to support the elevator assembly, do the following to remove the sling, SPL-2034 from the elevator installation [1] (Figure 403):

(a) Remove the fasteners to disconnect the forward sling fittings from the elevator installation [1].

(b) Remove the forward sling fittings from the elevator installation [1].

(c) Install the bolts [3] on the elevator installation [1].

(d) Remove the aft sling fitting from the elevator installation [1].

SUBTASK 27-31-11-860-009

(4) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 27-31-11-820-008

(5) Do this task: Elevator Control Pushrods - Adjustment, TASK 27-31-00-820-802.

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SUBTASK 27-31-11-700-001

(6) Do this task: Input Rods of the Elevator Power Control Unit - Adjustment, TASK 27-31-00-820-803.

SUBTASK 27-31-11-700-002

(7) Do this task: Elevator Tab Pushrods - Adjustment, TASK 27-31-00-820-805.

SUBTASK 27-31-11-820-009

(8) Do this task: Elevator Position Transmitter Installation Test, TASK 31-31-51-700-801.

SUBTASK 27-31-11-710-023

(9) Do this task: Manual Mode - Test, TASK 27-31-00-700-807.

NOTE: After completing the Manual Mode Test, and while the hydraulics are still pressurized, check the hydraulic connection on the elevator tab mechanism actuator for hydraulic fluid leaks.

SUBTASK 27-31-11-710-013

(10) Do this task: Elevator Surface Friction and Balance - Test, TASK 27-31-00-700-802.

SUBTASK 27-31-11-710-014

(11) Do this task: Elevator Travel Limit - Test, TASK 27-31-00-700-804.

SUBTASK 27-31-11-710-015

(12) Do this task: Elevator Output Torque Tube Buss Linkage - Test, TASK 27-31-00-700-805.

SUBTASK 27-31-11-710-016

(13) Do this task: Elevator Tab Linkage - Test, TASK 27-31-00-700-806.

SUBTASK 27-31-11-710-017

(14) Do this task: Control Column Travel and Centering - Test, TASK 27-31-00-700-808.

SUBTASK 27-31-11-700-003

(15) Do this task: Control Column Power Force - Test, TASK 27-31-00-700-809.

SUBTASK 27-31-11-700-004

(16) Do this task: Elevator Power-Off Flight - Test, TASK 27-31-00-710-803.

NOTE: You may not need to do a power-off flight test, depending on which systems have been disturbed. To see if you need to do a flight test, check the requirements in the "General" section at the beginning of the power-off flight test section.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-11-410-006

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-11-410-007

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

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SUBTASK 27-31-11-410-008

(3) For the left elevator, install this access panel:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

SUBTASK 27-31-11-410-009

(4) For the right elevator, install these access panels:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body

SUBTASK 27-31-11-710-020

(5) Do this task: Elevator Power-Off Flight - Test, TASK 27-31-00-710-803.

END OF TASK

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ELEVATOR POWER CONTROL UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of an elevator power control unit (PCU)

(2) An installation of an elevator PCU.

B. This procedure is applicable for the left and right elevator PCUs.

TASK 27-31-14-000-801

2. Elevator Power Control Unit - Removal

(Figure 401, Figure 402, Figure 403)

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1683	Fixture - Elevator Rigging and Restraining (Part #: F80063-501, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
317AL	Tail Cone Access Door
318BR	Tailcone Access Door

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E. Prepare for the Removal

SUBTASK 27-31-14-010-001

(1) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-14-860-001

(2) Use the bar, SPL-1677 to set the B dimension at 39.89 +/- 0.01 inches (1013.21 +/- 0.25 millimeters) (Figure 401).

SUBTASK 27-31-14-860-002

(3) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-14-010-002

(4) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-14-010-004

(5) Remove this access panel:

Number	Name/Location
317AL	Tail Cone Access Door

F. Elevator PCU Removal

(Figure 402)

SUBTASK 27-31-14-020-002

(1) Remove the nuts [22], washers [21], washers [20], and bolts [19] to disconnect the four input rods [23] from the four input cranks [18] (two on each elevator PCU).

NOTE: Move the control column to move the quadrant out of the way when there are clearance problems with the lower input rod attach bolt.

SUBTASK 27-31-14-020-004

(2) Move the four input cranks [18] forward.

SUBTASK 27-31-14-480-003

(3) Install the rig pin E-5 from the rig pin kit, SPL-1585 in the elevator aft control quadrant (Figure 402).

NOTE: To easily get access to the lower connection, set the input cranks on the rig pin E-5.

NOTE: If necessary, disconnect the vernier control pushrods [30] and [31] so that the torque tube can be rotated to gain access to the PCU attach bolt (Fig. 402).

SUBTASK 27-31-14-020-003

(4) Remove the elevator PCU [6]:

(a) Remove the nut [17], washer [16], nut [15], washer [14], bolt [12], and bushing [13] that attach the elevator PCU [6] to the mounting brackets.

NOTE: If necessary, move the control quadrant to rotate the input cranks out of the way of the PCU attachment bolt head.

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WARNING: RELEASE THE HYDRAULIC CONNECTION SLOWLY AND LET THE PRESSURE DECREASE BEFORE YOU COMPLETELY REMOVE THE HYDRAULIC LINES. IF YOU DISCONNECT THE HYDRAULIC LINE WHEN IT HAS PRESSURE, A SPRAY OF HYDRAULIC FLUID CAN CAUSE INJURY TO PERSONS.

(b) Disconnect the hydraulic lines [3] from the elevator PCU [6].

1) Install caps and plugs on the hydraulic lines [3] and ports.

(c) Remove the nut [11], washer [10], washer [9], and bolt [8] that attach the elevator PCU [6] to the output torque tube [7].

(d) Remove the elevator PCU [6] from the airplane.

SUBTASK 27-31-14-480-002

(5) If you remove the two elevator PCUs at the same time, then install the fixture, SPL-1683 in the position of the right elevator elevator PCU [6] (Figure 403).

(a) Put the fixture, SPL-1683 between the output torque tube and input crank.

(b) Install the pins of fixture, SPL-1683 to hold the fixture, SPL-1683 in position.

END OF TASK

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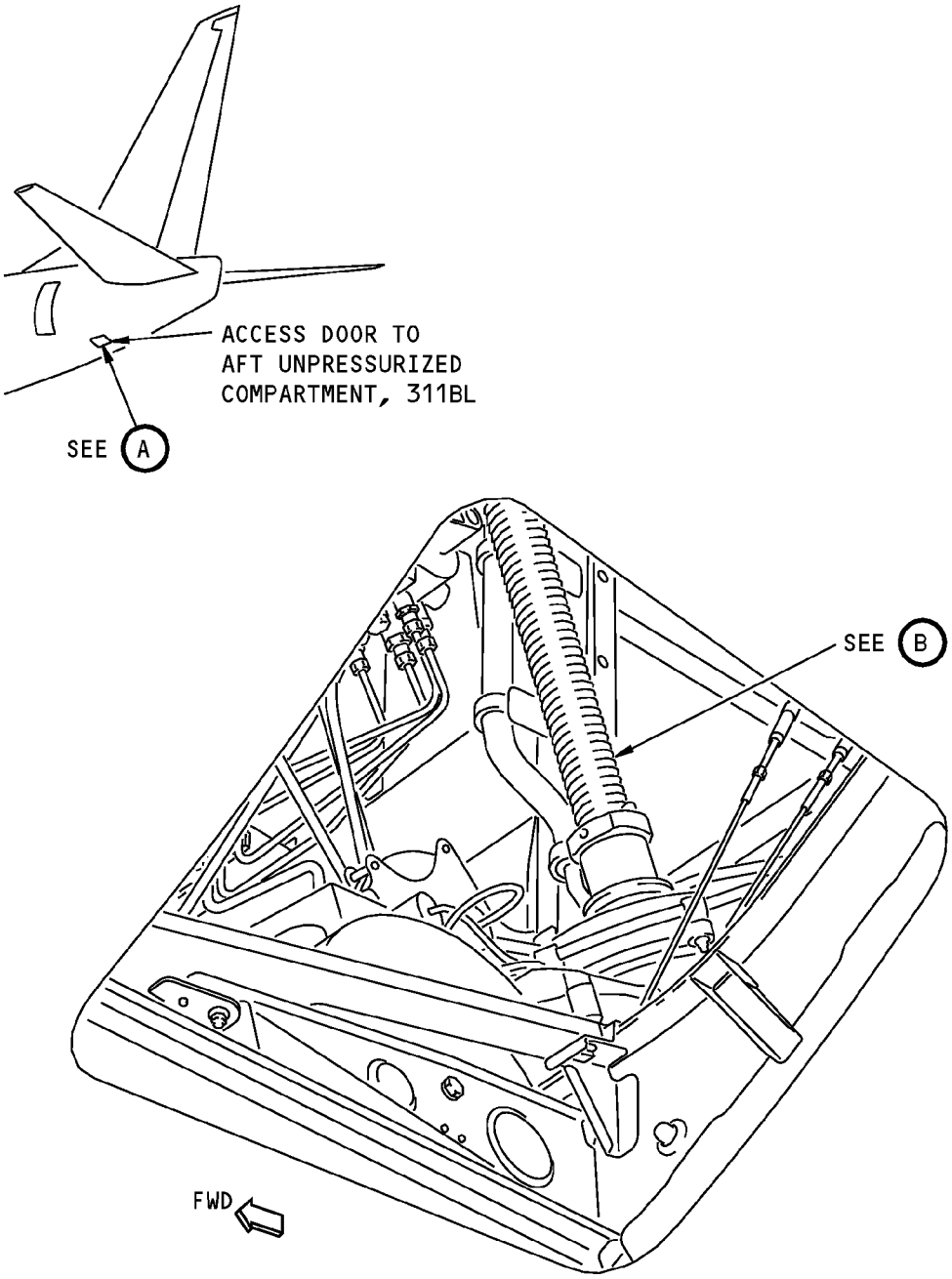

Stabilizer Trim Jackscrew Adjustment
Figure 401 (Sheet 1 of 2)/27-31-14-990-801

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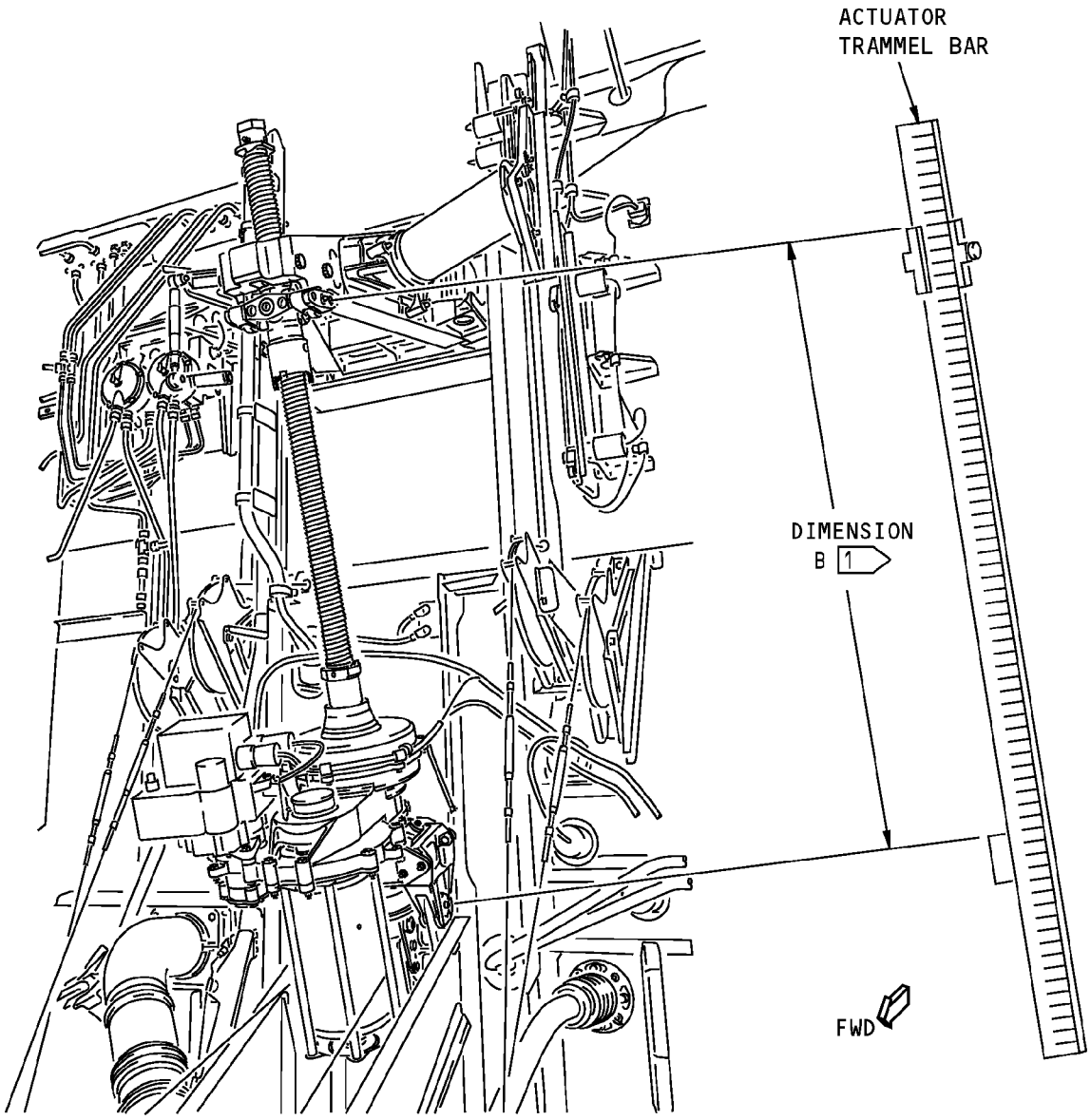

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Stabilizer Trim Jackscrew Adjustment
Figure 401 (Sheet 2 of 2)/27-31-14-990-801

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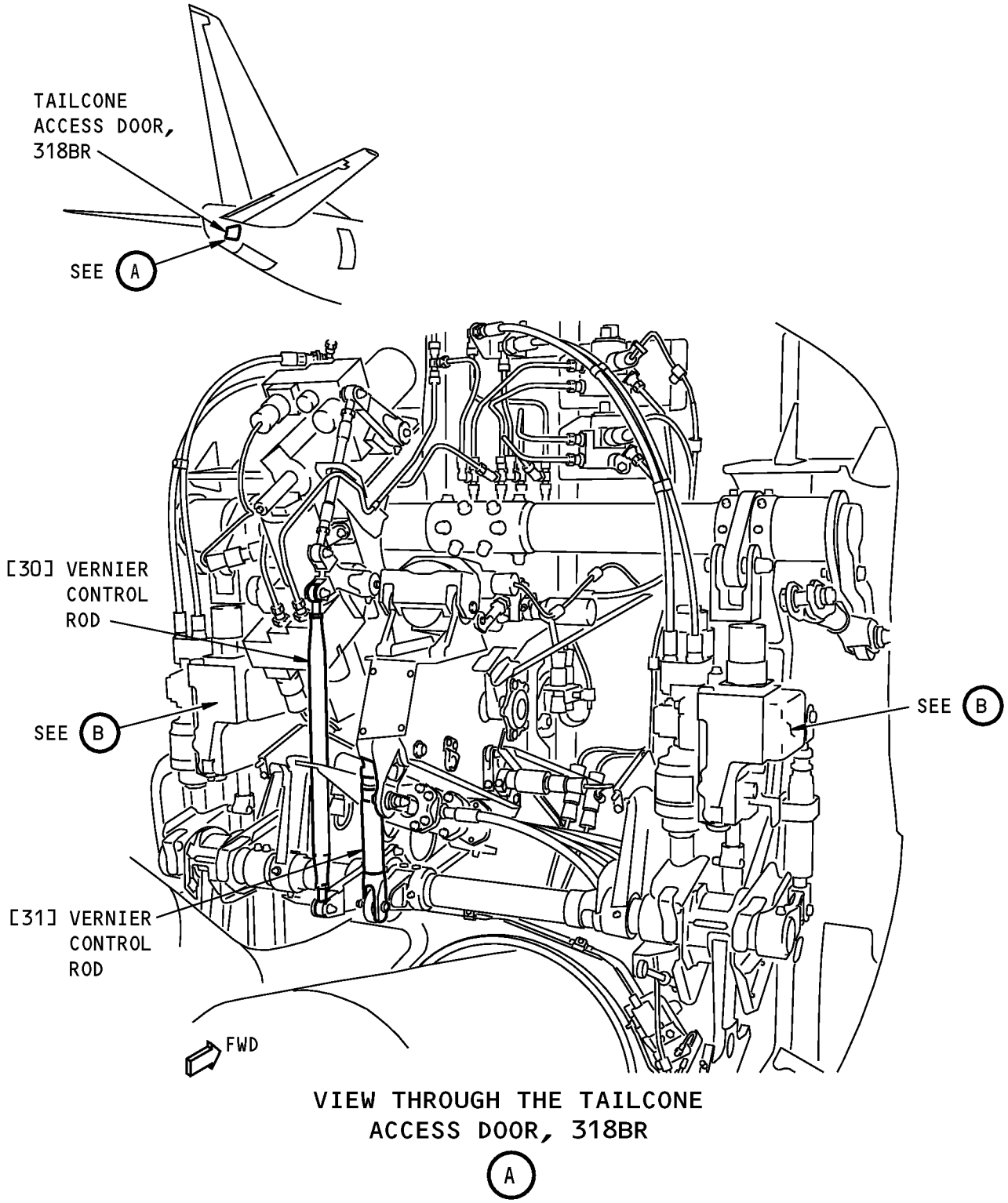

Elevator Power Control Unit Installation
Figure 402 (Sheet 1 of 3)/27-31-14-990-802

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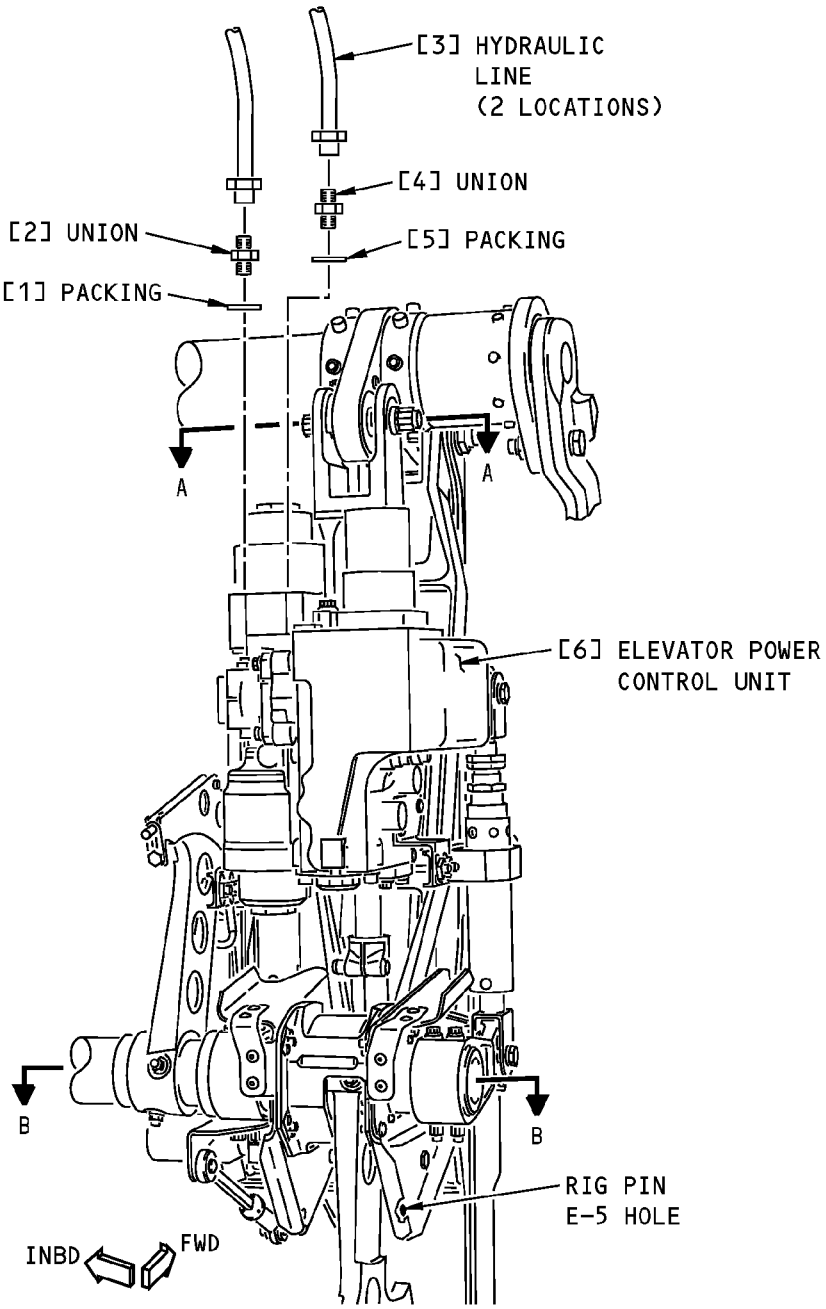

RIGHT POWER CONTROL UNIT
(LEFT POWER CONTROL UNIT IS OPPOSITE)

B

Elevator Power Control Unit Installation
Figure 402 (Sheet 2 of 3)/27-31-14-990-802

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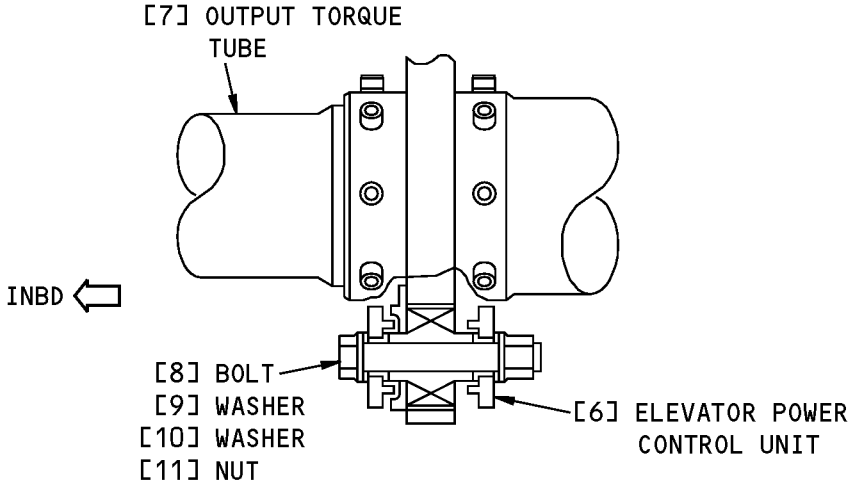
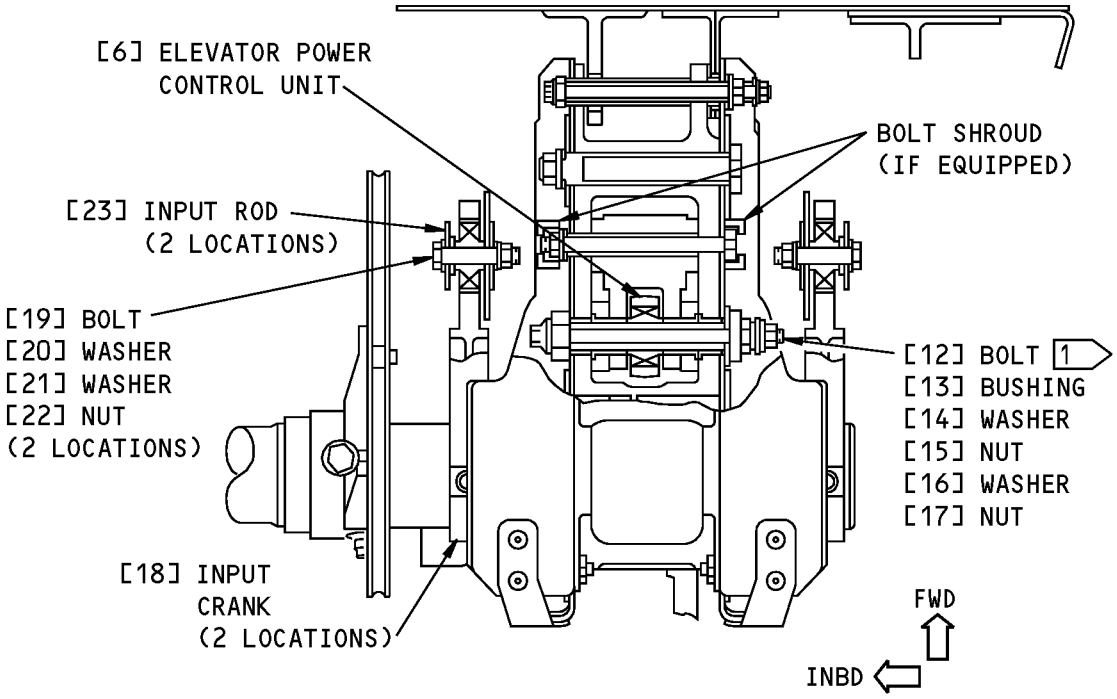


A–A



(RIGHT SIDE SHOWN)

B–B

1 INSTALL THE BOLT WITH THE BOLT HEAD INBOARD FOR THE LEFT ELEVATOR PCU AND THE RIGHT ELEVATOR PCU (SHOWN).

Elevator Power Control Unit Installation
Figure 402 (Sheet 3 of 3)/27-31-14-990-802

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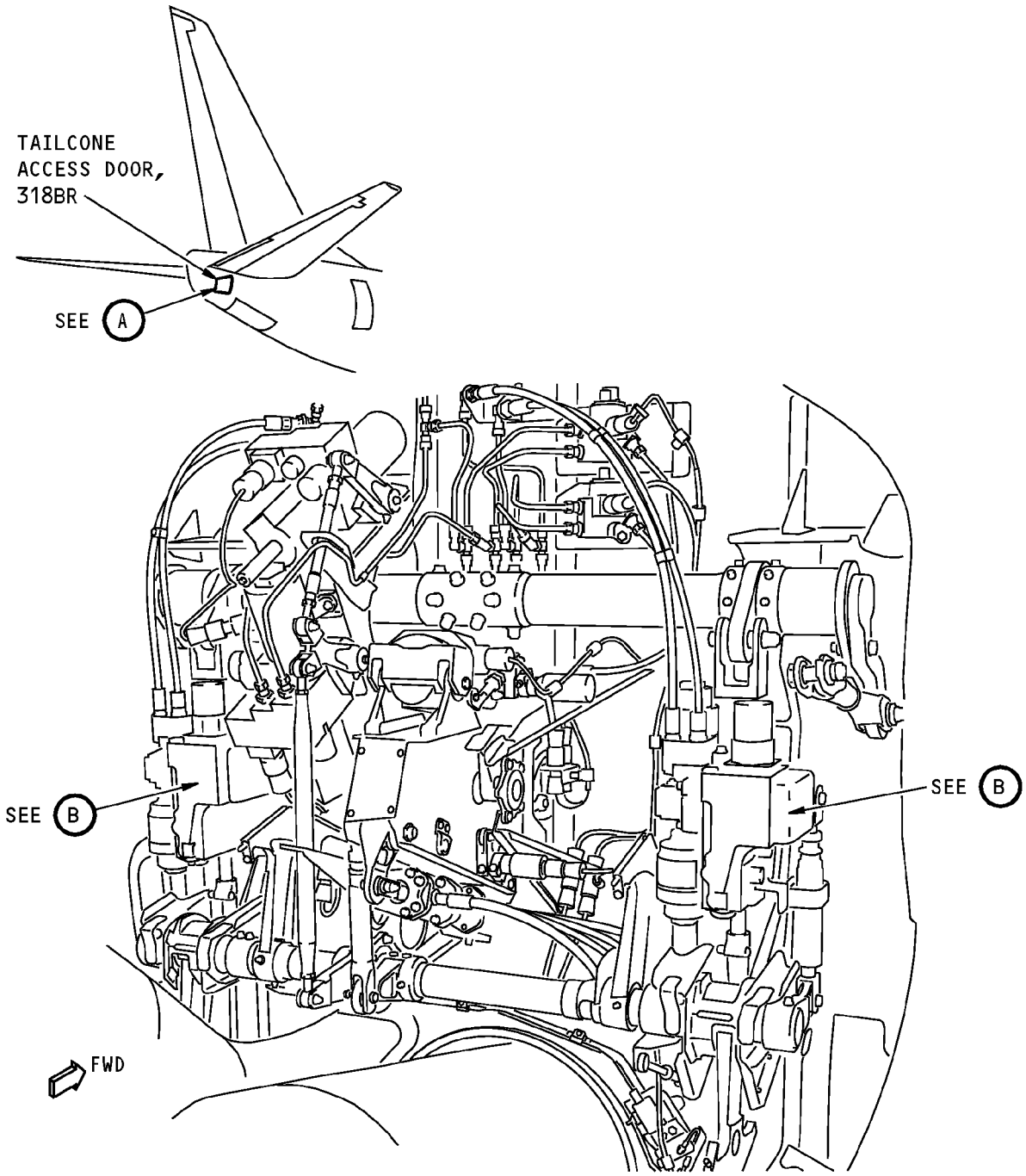

VIEW THROUGH THE TAILCONE
ACCESS DOOR, 318BR

A

Power Control Unit Rigging and Restraining Tool Installation
Figure 403 (Sheet 1 of 2)/27-31-14-990-803

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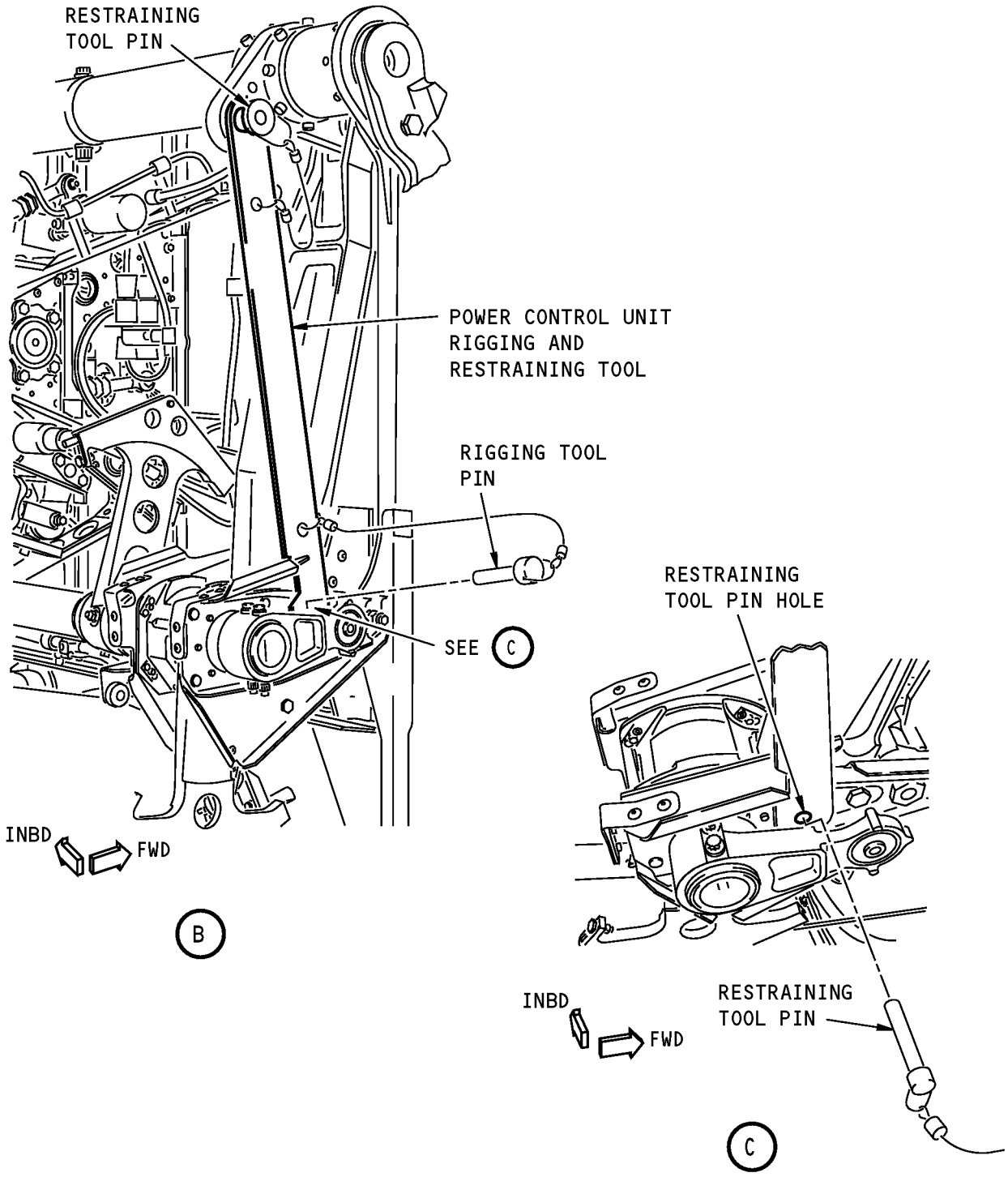

Power Control Unit Rigging and Restraining Tool Installation
Figure 403 (Sheet 2 of 2)/27-31-14-990-803

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TASK 27-31-14-400-801

3. Elevator Power Control Unit Installation

(Figure 401, Figure 402, Figure 403)

A. References

Reference	Title
27-31-00-700-802	Elevator Surface Friction and Balance - Test (P/B 501)
27-31-00-700-804	Elevator Travel Limit - Test (P/B 501)
27-31-00-700-807	Manual Mode - Test (P/B 501)
27-31-00-700-808	Control Column Travel and Centering - Test (P/B 501)
27-31-00-700-809	Control Column Power Force - Test (P/B 501)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-820-803	Input Rods of the Elevator Power Control Unit - Adjustment (P/B 501)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1683	Fixture - Elevator Rigging and Restraining (Part #: F80063-501, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Packing	27-31-14-02-500	HAP ALL
5	Packing	27-31-14-02-505	HAP ALL
6	Elevator PCU	27-31-14-03-210	HAP ALL

E. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
315	APU Compartment - Left

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(Continued)

Zone	Area
316	APU Compartment - Right

F. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
317AL	Tail Cone Access Door
318BR	Tailcone Access Door

G. Prepare for the Installation

SUBTASK 27-31-14-860-003

(1) Make sure that the pressure to the elevator hydraulic systems A and B is removed. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-14-080-001

(2) Remove the fixture, SPL-1683 if it is applicable.

H. Elevator PCU Installation

SUBTASK 27-31-14-420-001

(1) If the packings and unions are not installed in the elevator PCU [6], then do these steps:

(a) Lubricate the new packing [1] and the new packing [5] with fluid, D00153.

(b) Install the new packing [1], union [2], the new packing [5], and union [4] in the elevator PCU [6].

SUBTASK 27-31-14-420-002

(2) Install the elevator PCU [6]:

(a) Apply grease, D00633 to the bolt [8] and bolt [12].

(b) Put the elevator PCU [6] in its position.

(c) Install the bolt [8] with the bolt head inboard, washer [9], washer [10], and nut [11] to attach the elevator PCU [6] to the output torque tube [7].

(d) Install the bushing [13], bolt [12], washer [14], and nut [15] to attach the elevator PCU [6] to the mounting bracket.

NOTE: For the right elevator PCU, install the bolt [12] with the bolt head inboard. For the left elevator PCU, install the bolt [12] with the bolt head inboard.

1) Tighten the nut [15] to 550-600 pound-inches (62.1-67.8 newton-meters).

CAUTION: DO NOT TIGHTEN THE NUT [15] AGAIN AFTER YOU TIGHTEN THE NUT [17]. YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

(e) Install the washer [16] and nut [17].

1) Tighten the nut [17] to 225-250 pound-inches (25.4-28.2 newton-meters).

SUBTASK 27-31-14-080-003

(3) Remove the rig pin E-5 of the rig pin kit, SPL-1585 from the elevator aft control quadrant.

SUBTASK 27-31-14-860-004

(4) Move the elevator PCU [6] to the fully retracted position.

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SUBTASK 27-31-14-420-003

(5) Connect the four input rods [23] to the four input cranks [18] (two on each PCU):

NOTE: Move the control column to move the quadrant out of the way when there are clearance problems with the lower input rod attach bolt.

(a) Apply grease, D00633 to the bolts [19].

(b) Install the bolts [19], washers [20], washers [21], and nuts [22].

NOTE: For the outboard bolt, install the bolt [19] with the bolt head outboard. For the inboard bolt, install the bolt [19] with the bolt head inboard.

SUBTASK 27-31-14-420-004

(6) Remove the caps and the plugs from the and hydraulic lines [3] and ports.

(a) Remove hydraulic fluid that falls on the floor.

SUBTASK 27-31-14-420-005

(7) Connect the hydraulic lines [3] to the elevator PCU [6].

SUBTASK 27-31-14-860-005

(8) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-14-820-001

(9) Do this task: Input Rods of the Elevator Power Control Unit - Adjustment, TASK 27-31-00-820-803.

SUBTASK 27-31-14-820-002

(10) Do this task: Elevator Surface Friction and Balance - Test, TASK 27-31-00-700-802.

SUBTASK 27-31-14-820-003

(11) Do this task: Elevator Travel Limit - Test, TASK 27-31-00-700-804.

SUBTASK 27-31-14-820-004

(12) Do this task: Manual Mode - Test, TASK 27-31-00-700-807.

SUBTASK 27-31-14-820-005

(13) Do this task: Control Column Travel and Centering - Test, TASK 27-31-00-700-808.

SUBTASK 27-31-14-820-006

(14) Do this task: Control Column Power Force - Test, TASK 27-31-00-700-809.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-14-410-001

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-14-410-004

(2) Install this access panel:

Number	Name/Location
317AL	Tail Cone Access Door

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SUBTASK 27-31-14-410-002

(3) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

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ELEVATOR POWER CONTROL UNIT - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these inspection tasks:

(1) Elevator Power Control Unit (PCU) Visual Inspection

(2) Elevator PCU Inspection.

(a) This task supplies the data for a dimensional inspection of the elevator PCU.

(b) This task does not remove or install the elevator PCU, refer to the Elevator Power Control Unit - Removal/Installation procedures to remove and install the elevator PCU.

TASK 27-31-14-210-801

2. Elevator Power Control Unit Visual Inspection

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

D. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

E. Procedure

SUBTASK 27-31-14-860-006

(1) To pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801

SUBTASK 27-31-14-010-003

(2) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

to get access to the Elevator Power Control Units.

SUBTASK 27-31-14-210-001

(3) Do a general visual inspection of the elevator power control unit.

SUBTASK 27-31-14-860-007

(4) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805

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SUBTASK 27-31-14-410-003

(5) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

—————— END OF TASK ——————

TASK 27-31-14-200-801

3. Elevator Power Control Unit - Inspection

(Figure 601)

A. General

(1) This procedure gives wear limits and repair data for the elevator power control unit (PCU).

B. References

Reference	Title
27-31-14-000-801	Elevator Power Control Unit - Removal (P/B 401)
27-31-14-400-801	Elevator Power Control Unit Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

E. Procedure

SUBTASK 27-31-14-020-005

(1) Remove the elevator power control unit (PCU). To remove it, do this task: Elevator Power Control Unit - Removal, TASK 27-31-14-000-801.

SUBTASK 27-31-14-020-006

(2) Use these tools to check for wear on the parts of the elevator PCU connections:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-31-14-020-007

(3) Examine the parts of the elevator PCU connections for worn areas:

(a) Remove the parts to be checked.

(b) Measure the parts as necessary with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions that follow.

(d) If the parts are not in the tolerance, replace or repair the part as required.

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Table 601/27-31-14-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 BEARING	I.D.	0.4995 in 12.687 mm	0.5000 in 12.700 mm	0.5030 in 12.776 mm	0.0035 in 0.089 mm
#1 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4981 in 12.652 mm	
#2 PCU END FITTING BUSHING	I.D.	0.4995 in 12.687 mm	0.5000 in 12.700 mm	0.5030 in 12.776 mm	0.0035 in 0.089 mm
#2 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4981 in 12.652 mm	
#3 BUSHING	I.D.	0.6245 in 15.862 mm	0.6250 in 15.875 mm	0.6275 in 15.938 mm	0.0033 in 0.084 mm
#3 BOLT ASSEMBLY	O.D.	0.6237 in 15.842 mm	0.6242 in 15.855 mm	0.6212 in 15.778 mm	
#4 BUSHING	I.D.	0.6245 in 15.862 mm	0.6250 in 15.875 mm	0.6265 in 15.913 mm	0.0033 in 0.084 mm
#4 BOLT ASSEMBLY	O.D.	0.6237 in 15.842 mm	0.6242 in 15.855 mm	0.6212 in 15.778 mm	
#5 BEARING	I.D.	0.6245 in 15.862 mm	0.6250 in 15.875 mm	0.6275 in 15.938 mm	0.0033 in 0.084 mm
#5 BOLT ASSEMBLY	O.D.	0.6237 in 15.842 mm	0.6242 in 15.855 mm	0.6212 in 15.778 mm	
#6 SUPPORT LINK	I.D.	0.7500 in 19.050 mm	0.7507 in 19.068 mm	0.7522 in 19.106 mm	0.0022 in 0.056 mm
#6 BUSHING	O.D.	0.7495 in 19.037 mm	0.7500 in 19.050 mm	0.7491 in 19.027 mm	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#7 BUSHING	I.D.	0.6245 in 15.862 mm	0.6250 in 15.875 mm	0.6265 in 15.913 mm	0.0023 in 0.058 mm
#7 BOLT	O.D.	0.6237 in 15.842 mm	0.6242 in 15.855 mm	0.6212 in 15.778 mm	
#8 BEARING	I.D.	0.3122 in 7.930 mm	0.3125 in 7.937 mm	0.3155 in 8.014 mm	0.0035 in 0.089 mm
#8 BOLT	O.D.	0.3110 in 7.899 mm	0.3120 in 7.925 mm	0.3106 in 7.889 mm	
#9 INPUT ROD	I.D.	0.3120 in 7.925 mm	0.3130 in 7.950 mm	0.3160 in 8.026 mm	0.0040 in 0.102 mm
#9 BOLT	O.D.	0.3110 in 7.899 mm	0.3120 in 7.925 mm	0.3106 in 7.889 mm	

SUBTASK 27-31-14-020-008

(4) Install the elevator PCU. To install it, do this task: Elevator Power Control Unit Installation, TASK 27-31-14-400-801.

END OF TASK

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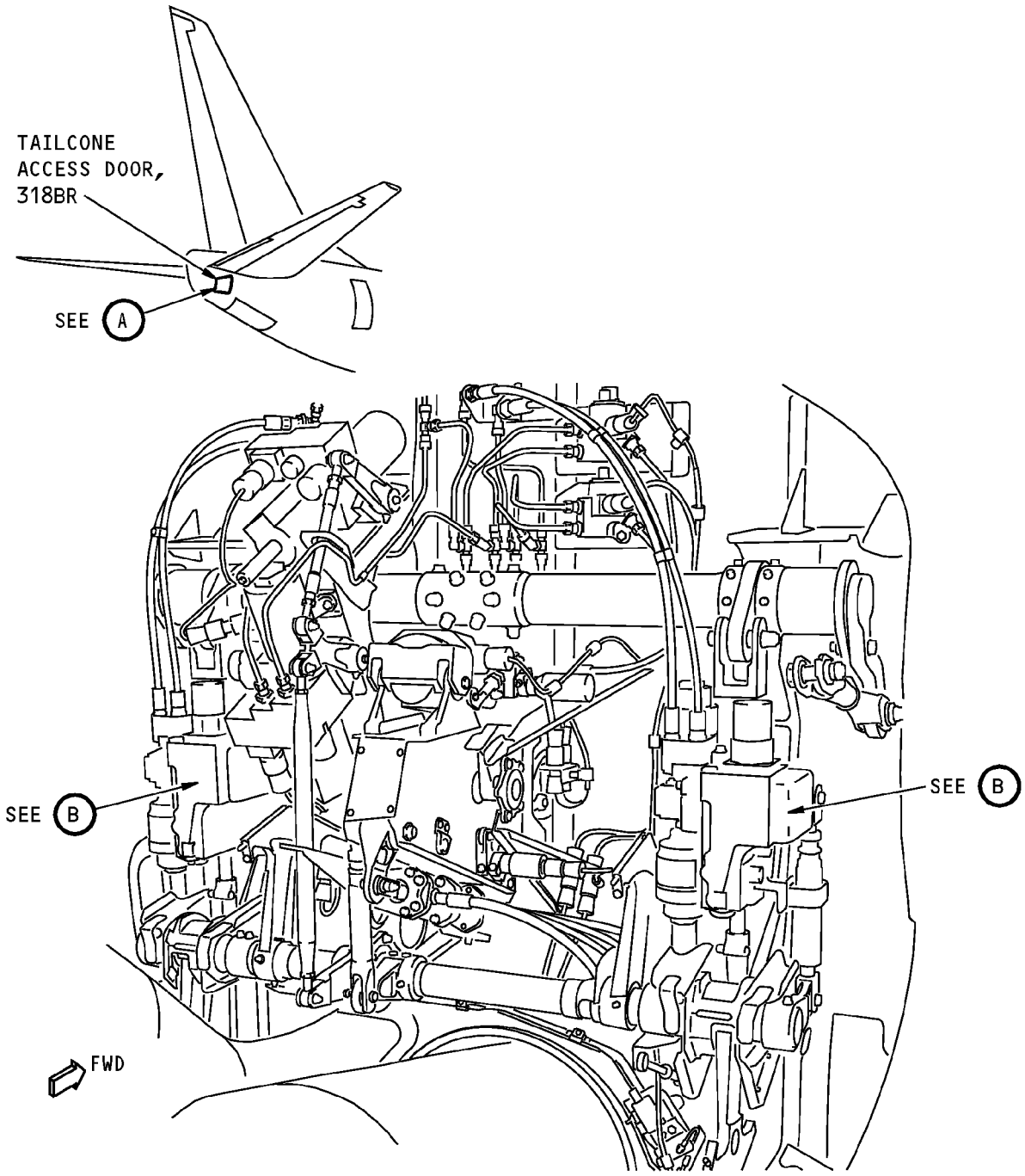

VIEW THROUGH THE TAILCONE
ACCESS DOOR, 318BR
A

Elevator Power Control Unit Wear Limits
Figure 601 (Sheet 1 of 3)/27-31-14-990-804

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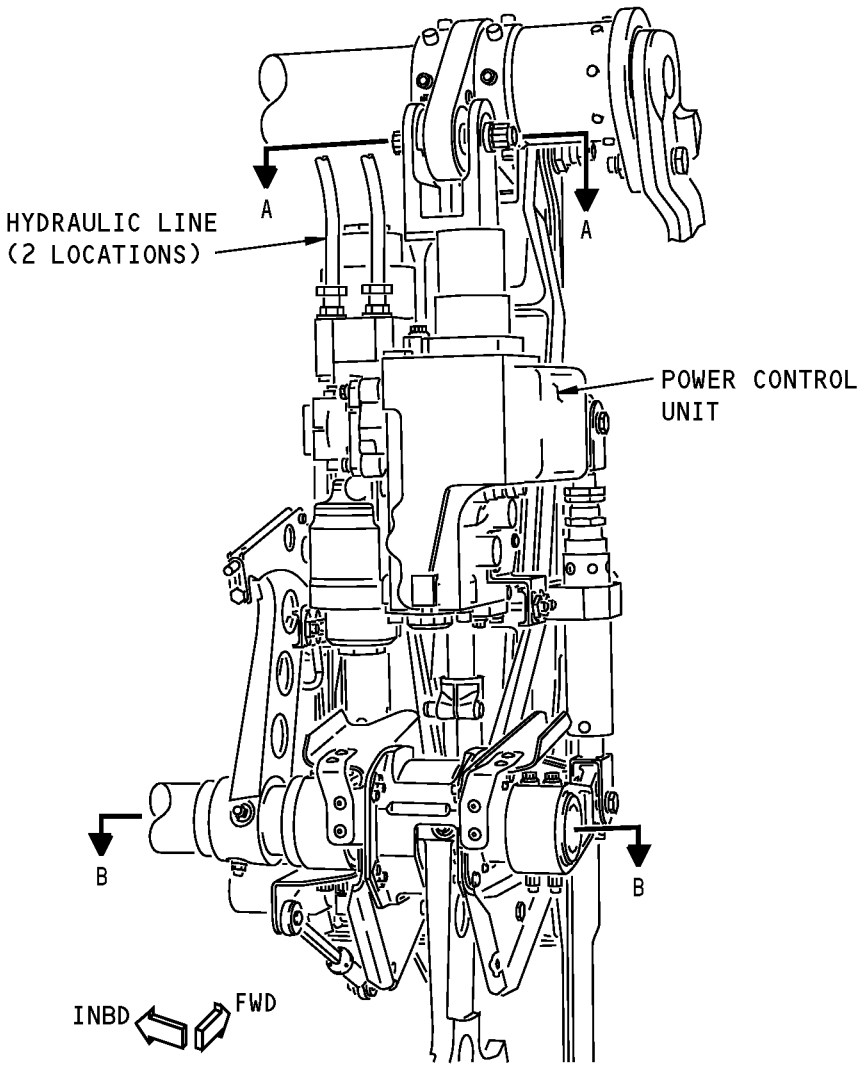

RIGHT POWER CONTROL UNIT
(LEFT POWER CONTROL UNIT IS OPPOSITE)

B

Elevator Power Control Unit Wear Limits
Figure 601 (Sheet 2 of 3)/27-31-14-990-804

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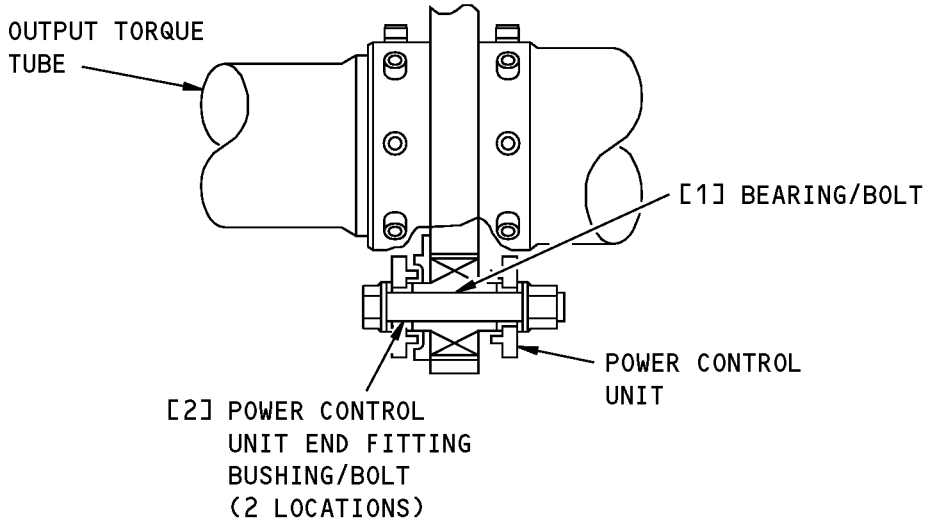
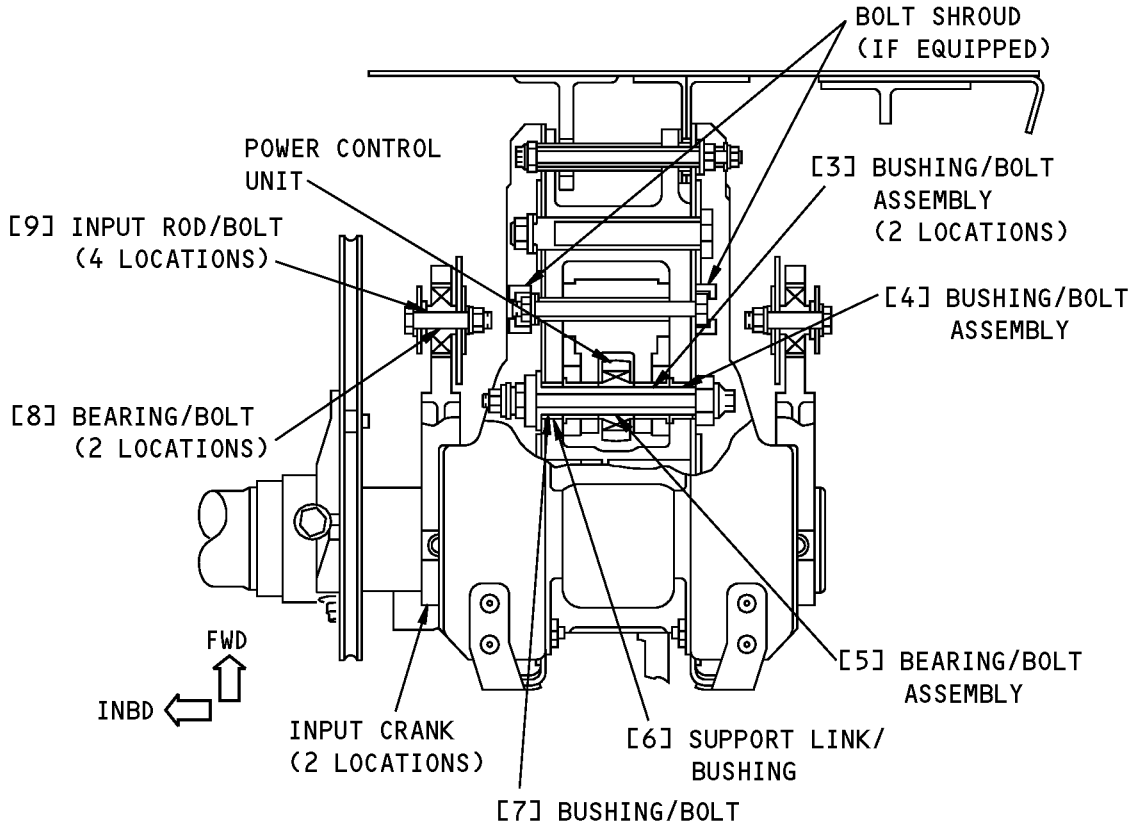


A–A



B–B

Elevator Power Control Unit Wear Limits
Figure 601 (Sheet 3 of 3)/27-31-14-990-804

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ELEVATOR PITOT-STATIC SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Elevator Pitot-Static System Flushing

(2) Elevator Pitot-Static System Drainage Inspection

(3) Elevator Pitot Probe Inspection

(4) Elevator Pitot System Leak Test.

(5) Elevator Pitot System Pressurization

TASK 27-31-17-170-801

2. Elevator Pitot-Static System Flushing

(Figure 201)

A. Tools/Equipment

Reference	Description
STD-1280	Source - Air, Regulated, Dry Filtered, 0-30 PSIG

B. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
323	Vertical Fin - Front Spar To Rear Spar

C. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
323FL	Vertical Fin, Access

D. Prepare for the Flushing

SUBTASK 27-31-17-010-001

(1) Remove this access panel:

Number	Name/Location
323FL	Vertical Fin, Access

SUBTASK 27-31-17-010-002

(2) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Elevator Pitot-Static System Flushing

SUBTASK 27-31-17-170-001

(1) Flush the pitot system:

(a) Disconnect the pitot lines from the pitot probes.

(b) Disconnect the pitot lines from the elevator feel computer.

(c) Remove the restrictor valves from the pitot lines.

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(d) Flush the left pitot line with 0-30 psig dry filtered regulated air source, STD-1280 not more than 15 psig (698 knots/103.4 kPa) for 3 minutes.

NOTE: Flush the pitot line at a different time from the probe end, elevator feel computer end, and restrictor valve end.

(e) Flush the right pitot line with 0-30 psig dry filtered regulated air source, STD-1280 not more than 15 psig (698 knots/103.4 kPa) for 3 minutes.

(f) Connect the pitot lines to the pitot probes.

(g) Connect the pitot lines to the elevator feel computer.

(h) Install the restrictor valves.

SUBTASK 27-31-17-170-002

(2) Flush the static system:

(a) Disconnect the static lines from the elevator feel computer.

(b) Flush the static lines from each ends with 0-30 psig dry filtered regulated air source, STD-1280 not more than 15 psig (698 knots/103.4 kPa) for 3 minutes.

(c) Connect the static lines to the elevator feel computer.

SUBTASK 27-31-17-210-001

(3) Make sure that there is no particle or roughness in all ports in the pitot-static system.

SUBTASK 27-31-17-790-001

(4) Do this task: Elevator Pitot System Leak - Test, TASK 27-31-17-790-801.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-17-410-001

(1) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-17-410-002

(2) Install this access panel:

Number	Name/Location
323FL	Vertical Fin, Access

——————— END OF TASK ———————

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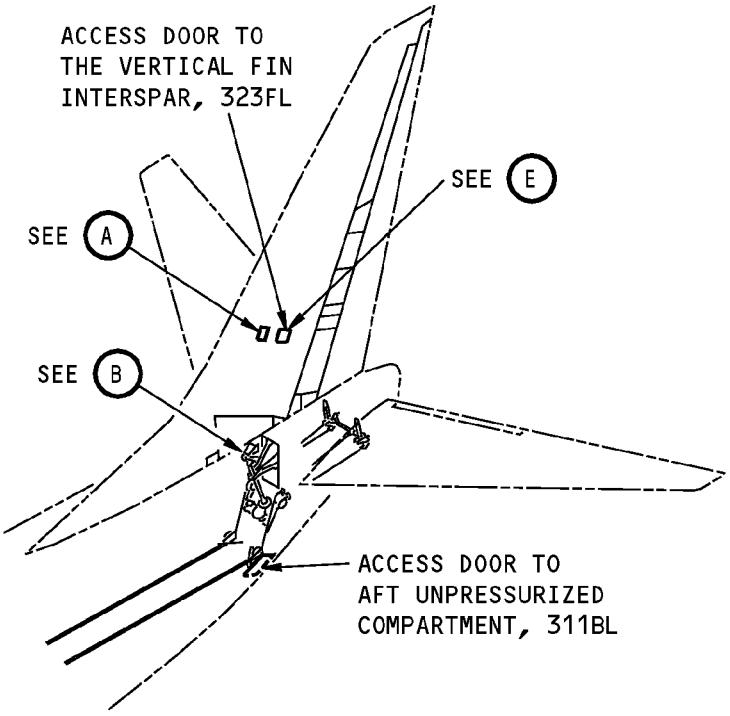
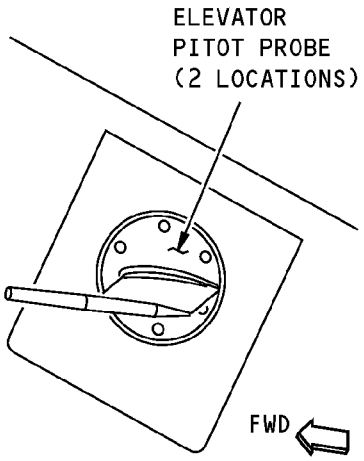
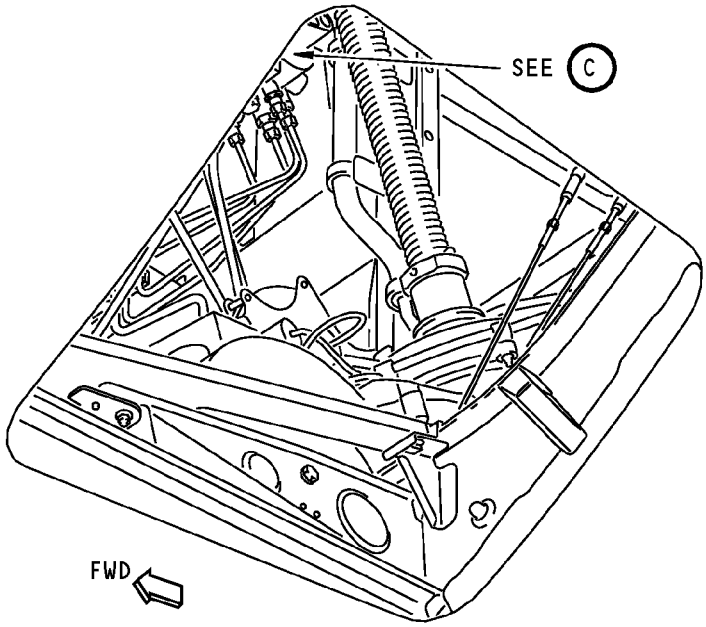




LEFT FORWARD FIN
ACCESS DOOR, 323FL
A



VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL
B

Elevator Pitot-Static System Installation
Figure 201 (Sheet 1 of 3)/27-31-17-990-801

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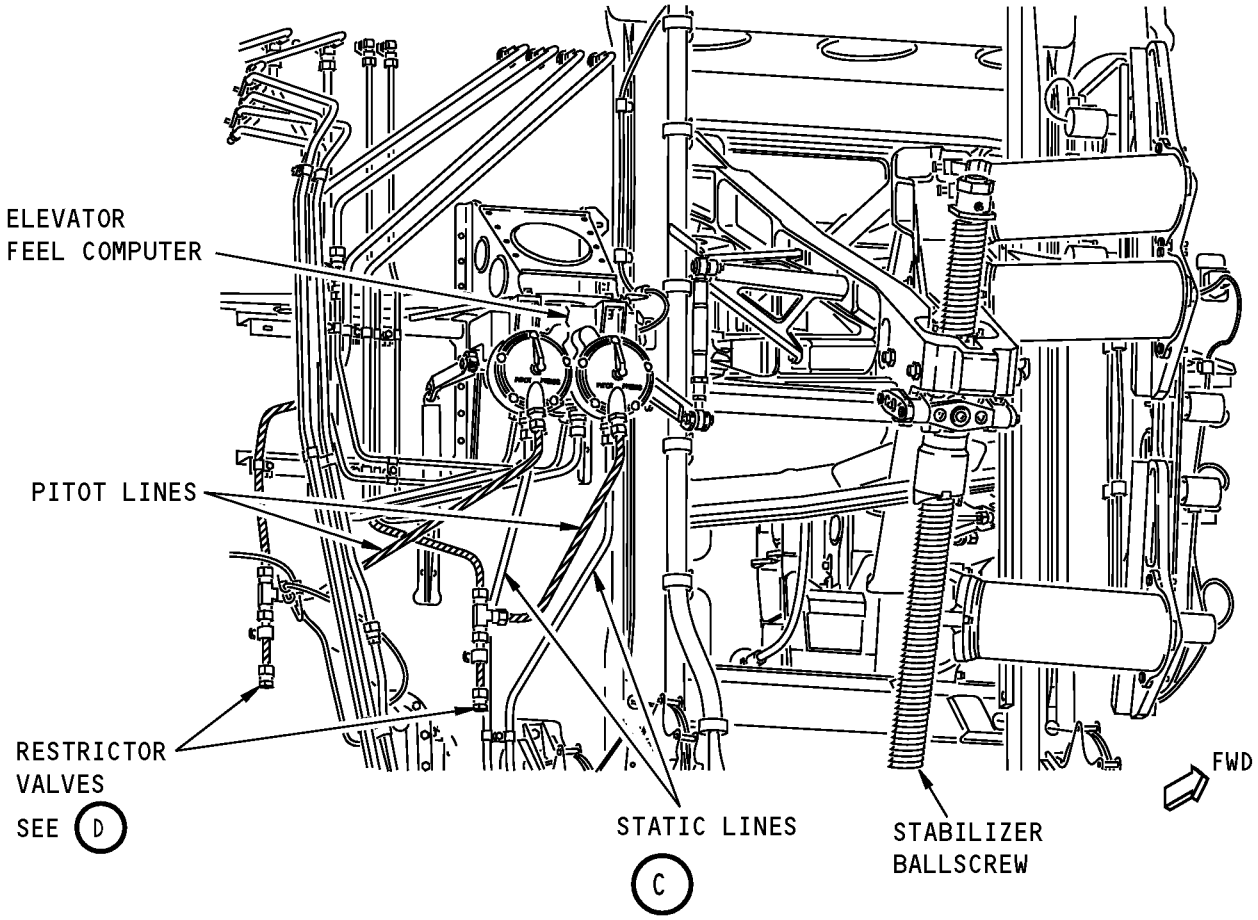

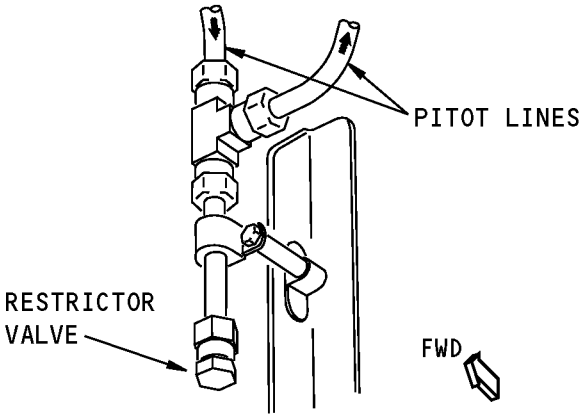

RESTRICTOR VALVE
(2 LOCATIONS)
D

Elevator Pitot-Static System Installation
Figure 201 (Sheet 2 of 3)/27-31-17-990-801

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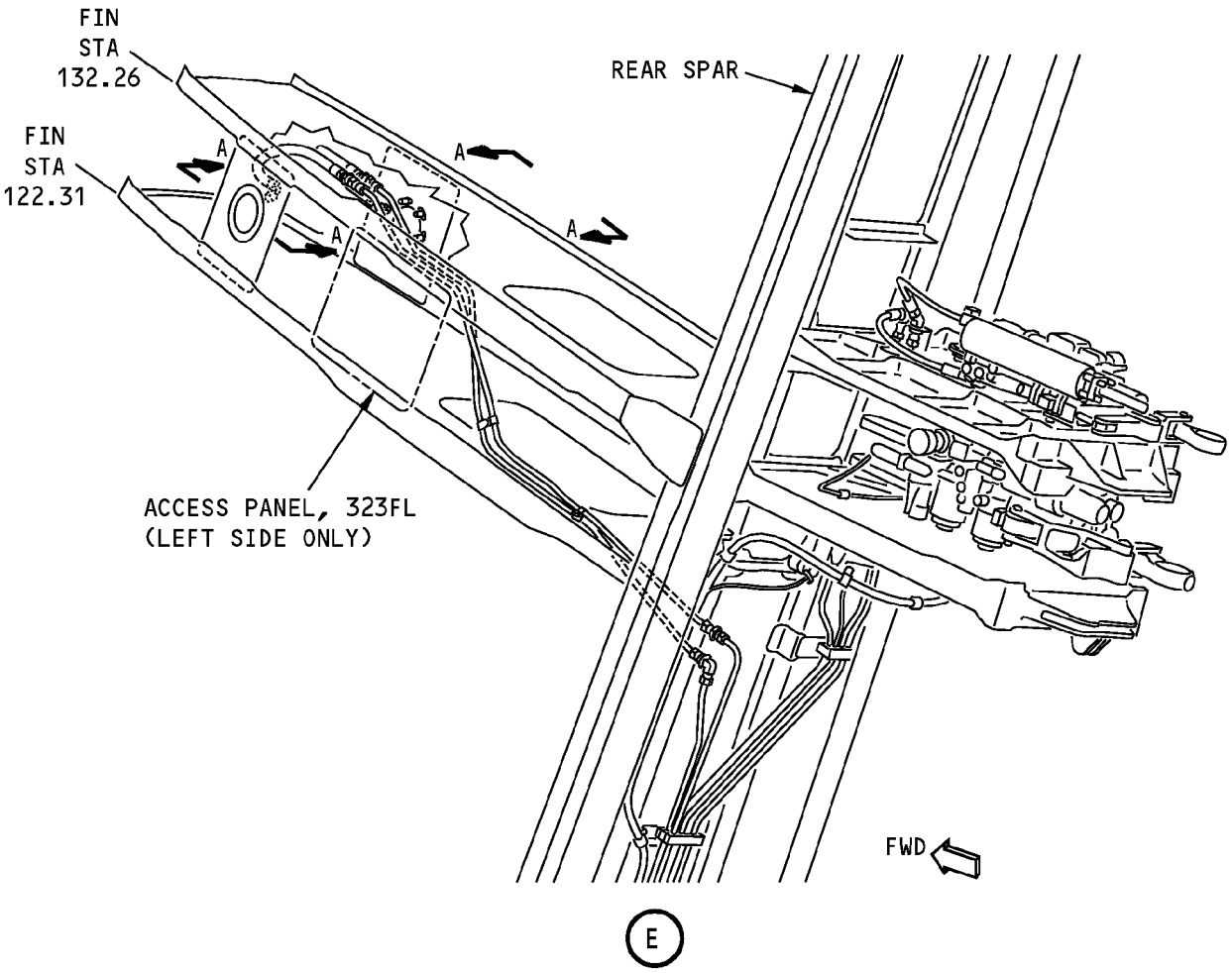

Elevator Pitot-Static System Installation
Figure 201 (Sheet 3 of 3)/27-31-17-990-801

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TASK 27-31-17-200-801

3. Elevator Pitot-Static System Drainage - Inspection

(Figure 201)

A. General

(1) This procedure is a scheduled maintenance task.

B. Consumable Materials

Reference	Description	Specification
B00065	Alcohol - Denatured, Ethyl (Ethanol)	27CFR21.35
B00068	Alcohol - Ethyl (Denatured)	AMS 3002F (MIL-E-51454, Type II)
B00130	Alcohol - Isopropyl	TT-I-735

C. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
323	Vertical Fin - Front Spar To Rear Spar

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
323FL	Vertical Fin, Access

E. Prepare for the Inspection

SUBTASK 27-31-17-010-003

(1) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-17-010-004

(2) Remove this access panel:

Number	Name/Location
323FL	Vertical Fin, Access

F. Elevator Pitot-Static System Drainage Inspection

SUBTASK 27-31-17-170-003

(1) Drain the pitot system:

(a) Remove the restrictor valves from the pitot lines.

(b) Make sure the pitot lines have proper drainage. Check the hoses between the Elevator Feel System pitot-static probes and the associated rigid metal tubing to ensure that the hoses loop upward so that they do not trap water (Figure 201).

(c) If it is necessary, flush the pitot system. To flush it, do this task: Elevator Pitot-Static System Flushing, TASK 27-31-17-170-801.

(d) Clean the restrictor valves with solvent.

NOTE: Use either alcohol, B00130, alcohol, B00065, or alcohol, B00068.

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(e) Install the restrictor valves.

SUBTASK 27-31-17-170-004

(2) Examine the static system:

(a) Disconnect the static lines from elevator feel computer.

(b) Make sure the static lines have proper drainage.

1) If it is necessary, flush the static system. To flush it, do this task: Elevator Pitot-Static System Flushing, TASK 27-31-17-170-801.

(c) Connect the static lines.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-17-410-003

(1) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-17-410-004

(2) Install this access panel:

Number	Name/Location
323FL	Vertical Fin, Access

END OF TASK

TASK 27-31-17-200-802

4. Elevator Pitot Probe - Inspection

(Figure 201)

A. References

Reference	Title
27-31-94-000-801	Feel System Pitot Probe Removal (P/B 401)
27-31-94-400-801	Feel System Pitot Probe - Installation (P/B 401)

B. Location Zones

Zone	Area
323	Vertical Fin - Front Spar To Rear Spar

C. Procedure

SUBTASK 27-31-17-170-005

(1) Examine the pitot probe for damage.

(a) Make sure the maximum tip bluntness of the pitot probe is not more than 0.04 inch (1.0 millimeter).

(b) Make sure the pitot probe is not bent or the electrical heater is damaged.

(c) If it is necessary, replace the pitot probe. These are the tasks:

- Feel System Pitot Probe Removal, TASK 27-31-94-000-801
- Feel System Pitot Probe - Installation, TASK 27-31-94-400-801

END OF TASK

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TASK 27-31-17-790-801

5. Elevator Pitot System Leak - Test

(Figure 201)

A. General

(1) This procedure is a scheduled maintenance task.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
SPL-1742	Regulator - Air Pressure, Elevator Feel Computer (Part #: F72928-58, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: F72928-62, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: F72928-63, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
323	Vertical Fin - Front Spar To Rear Spar

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

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E. Procedure

SUBTASK 27-31-17-010-005

(1) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-17-390-001

WARNING: WHEN THE PITOT PROBES HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE PITOT PROBES HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE PITOT PROBES, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

(2) At the two pitot probes on the vertical fin, do the following:

(a) Seal the drain hole on each pitot probe.

CAUTION: MAKE SURE THAT THE PITOT PROBE HAS NO ADDED WEIGHT ON IT FROM THE TEST HOSE. THE WEIGHT OF THE TEST HOSE CAN BEND OR TWIST THE PITOT PROBE OUT OF TOLERANCE.

(b) Connect the pressure lines from the air data model test set, COM-1914 or regulator, SPL-1742 or equivalent to the two pitot probes.

SUBTASK 27-31-17-020-001

(3) Inside the aft unpressurized compartment, below the elevator feel computer, do the following:

(a) Remove the restrictor valves from the bottom of the pitot lines Figure 201.

(b) If you are using the regulator, SPL-1742, or equivalent, for the leak test, do the following:

NOTE: The DPS 400 Test Set can be used as an alternate tool to the DPS 500.

1) Connect the pressure gage lines from the regulator, SPL-1742, or equivalent, to the drain holes of the pitot lines.

(c) If you are using the air data model test set, COM-1914 for the leak test, do the following:

1) Install plugs over the ends of the pitot lines.

2) Install a highly visible streamer on the opening of the aft unpressurized compartment.

a) Make sure that you can easily see the streamer from the ground.

NOTE: This is to remind you to remove the plugs and install the restrictor valves again when the test is completed.

SUBTASK 27-31-17-790-002

(4) Do the pitot system leak test:

NOTE: The pitot drain lines must be sealed in order to hold pressure during the test.

CAUTION: DO NOT INCREASE THE PRESSURE TO MORE THAN 6 PSIG (474 KCAS/41.4 KPA) DURING THE TEST. IF THE PRESSURE IS MORE THAN 6 PSIG (474 KCAS/41.4 KPA), IT CAN CAUSE DAMAGE TO THE ELEVATOR FEEL COMPUTER.

(a) Operate the air data model test set, COM-1914 or regulator, SPL-1742 or equivalent, to apply pressure between 194 kcas and 201 kcas (or 2.50 +0.05 / -0.00 psig (17.25 +0.35 / -0.00 kPa)).

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(b) Set the shutoff valve in the air data model test set, COM-1914 or regulator, SPL-1742 or equivalent to the OFF position.

(c) Make sure that the pressure does not decrease more than 0.2 psig (8 kcas/1.4 kPa) during a 2-minute time.

NOTE: The low pressure pressurization steps above ensure that there is no significant system leak before you apply full pressure in the following steps. If there is a leak in the pitot system or the pressurization equipment, you can exceed the full pressure of 6 psig and cause damage to the feel computer bellows.

1) Fix any pitot system or pressurization equipment leaks, as necessary.

(d) Operate the air data model test set, COM-1914 or regulator, SPL-1742 or equivalent, to apply pressure between 433 kcas and 441 kcas (or 5.0 ±0.1 psig (34.5 ±0.7 kPa)).

(e) Set the shutoff valve in the air data model test set, COM-1914 or regulator, SPL-1742 or equivalent to the OFF position.

(f) Make sure that the pressure does not decrease more than 0.3 psig (12 kcas/2.1 kPa) during a 2-minute time.

(g) Operate the air data model test set, COM-1914 or regulator, SPL-1742 or equivalent, to decrease the pitot pressure to zero.

SUBTASK 27-31-17-160-001

(5) At the two pitot probes on the vertical fin, do the following:

(a) Remove the pressure lines from the air data model test set, COM-1914 or regulator, SPL-1742 or equivalent to the pitot probes.

(b) Remove the seals from the drain holes in each pitot probe.

SUBTASK 27-31-17-080-001

(6) Inside the aft unpressurized compartment, below the elevator feel computer, do the following:

(a) If you used the regulator, SPL-1742, or equivalent, for the leak test, do the following:

1) Disconnect the pressure gage lines of the regulator, SPL-1742, or equivalent, from the drain holes of the pitot lines.

(b) If you used the air data model test set, COM-1914 for the leak test, do the following:

1) Remove the plugs that were installed over the ends of the pitot lines.

2) Remove the highly visible streamer on the opening of the aft unpressurized compartment.

(c) Install the restrictor valves on the bottom of the pitot lines.

SUBTASK 27-31-17-410-005

(7) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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TASK 27-31-17-780-801

6. Elevator Pitot System - Pressurization

(Figure 201)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
SPL-1742	Regulator - Air Pressure, Elevator Feel Computer (Part #: F72928-58, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: F72928-62, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: F72928-63, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

B. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

C. Procedure

SUBTASK 27-31-17-010-006

(1) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

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SUBTASK 27-31-17-480-003

(2) Do the following to prepare the elevator pitot system for pressurization:

NOTE: The following two steps do not need to be completed if you are using the air data model test set, COM-1914.

(a) Remove the restrictor valves from the pitot lines.

(b) Connect the pressure gage lines from the regulator, SPL-1742 or equivalent to the drain holes of the pitot lines.

NOTE: The DPS 400 Test Set can be used as an alternate tool to the DPS 500.

WARNING: WHEN THE PITOT PROBES HAVE COVERS ON THEM, MAKE SURE THAT A PERSON ON THE GROUND CAN SEE THE COVERS. ALSO MAKE SURE YOU ATTACH A TAG TO THE LEFT CONTROL WHEEL IN THE FLIGHT COMPARTMENT AS A REMINDER THAT THE PITOT PROBES HAVE COVERS ON THEM. IF THE COVERS ARE NOT REMOVED FROM THE PITOT PROBES, INCORRECT AIRSPEED-SENSING AND ALTITUDE-SENSING SIGNALS CAN OCCUR. THIS CAN CAUSE DANGEROUS FLIGHT CONDITIONS.

(c) Seal the drain hole in each pitot probe on the vertical fin.

CAUTION: DO NOT INCREASE THE PRESSURE TO MORE THAN 6 PSIG (41 KPA), 474 KNOTS (878 KM/H) DURING THE TEST. IF THE PRESSURE IS MORE THAN 6 PSIG (41 KPA), 474 KNOTS (878 KM/H), IT CAN CAUSE DAMAGE TO THE ELEVATOR FEEL COMPUTER.

CAUTION: MAKE SURE THAT THE WEIGHT OF THE TEST HOSE IS NOT ON THE PITOT PROBE. THE WEIGHT OF THE HOSE CAN BEND OR TWIST THE PROBE UNTIL IT IS NOT IN TOLERANCE.

(d) Connect the pressure lines from the air data model test set, COM-1914 or regulator, SPL-1742 or equivalent to the two pitot probes on the vertical fin.

SUBTASK 27-31-17-480-004

(3) Pressurize the elevator pitot system:

(a) Operate the air data model test set, COM-1914 or regulator, SPL-1742 to pressurize the system, as necessary, to obtain the system test data.

(b) When testing is complete, slowly operate the air data model test set, COM-1914 or regulator, SPL-1742 to remove pressure from the system until it is at zero.

SUBTASK 27-31-17-010-007

(4) Remove the pressurization equipment from the airplane:

(a) Remove the pressure gage lines from the air data model test set, COM-1914 or regulator, SPL-1742 or equivalent to the drain holes.

(b) Install the restrictor valves in each of the pitot lines.

(c) Remove the pressure lines from the air data model test set, COM-1914 or regulator, SPL-1742, or equivalent, from the pitot probes.

SUBTASK 27-31-17-410-006

(5) Close this access panel:

Number	Name/Location

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(Continued)

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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ELEVATOR FEEL SHIFT MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of an elevator feel shift module

(2) An installation of an elevator feel shift module.

TASK 27-31-20-000-801

2. Elevator Feel Shift Module Removal

(Figure 401, Figure 402)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
34-11-00-790-802	Static and Total Air Pressure System - Pressurization (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

C. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

D. Prepare for the Removal

SUBTASK 27-31-20-010-002

(1) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-20-760-001

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-31-20-860-001

(3) Put the SYSTEM A FLIGHT CONTROL SHUTOFF and the SYSTEM B FLIGHT CONTROL SHUTOFF switches on the P5 flight control panel, forward overhead panel to the OFF position.

SUBTASK 27-31-20-860-002

(4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	2	C01064	AFCS SYS B MACH TRIM DC
B	3	C01046	AFCS SYS B FCC DC
B	4	C00716	AFCS SYS B ENGAGE INTLK

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Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
C	1	C01037	AFCS SYS B MACH TRIM AC
C	2	C01042	AFCS SYS B SNSR EXC AC
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2

SUBTASK 27-31-20-860-003

(5) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-20-860-004

(6) Remove pressure from the alternate pitot systems No. 1 and 2. To remove it, do this task: Static and Total Air Pressure System - Pressurization, TASK 34-11-00-790-802.

SUBTASK 27-31-20-760-002

(7) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

E. Elevator Feel Shift Module Removal

(Figure 402)

SUBTASK 27-31-20-020-001

WARNING: RELEASE THE CONNECTION SLOWLY AND LET THE PRESSURE DECREASE BEFORE YOU COMPLETELY REMOVE THE HYDRAULIC LINE. IF YOU DISCONNECT THE HYDRAULIC LINE WHEN IT HAS PRESSURE, A SPRAY OF HYDRAULIC FLUID CAN CAUSE INJURY TO PERSONS.

(1) Disconnect the hydraulic lines [4] from the elevator feel shift module [1].

(a) Install the caps and plugs on the open ports and hydraulic lines [4].

SUBTASK 27-31-20-480-001

(2) Disconnect the electrical connector [5] from the elevator feel shift module [1].

SUBTASK 27-31-20-020-002

(3) Hold the elevator feel shift module and remove the bolts [2] and washers [3] that connect the elevator feel shift module [1] to the bracket.

SUBTASK 27-31-20-480-002

(4) Remove the elevator feel shift module [1].

——————— END OF TASK ———————

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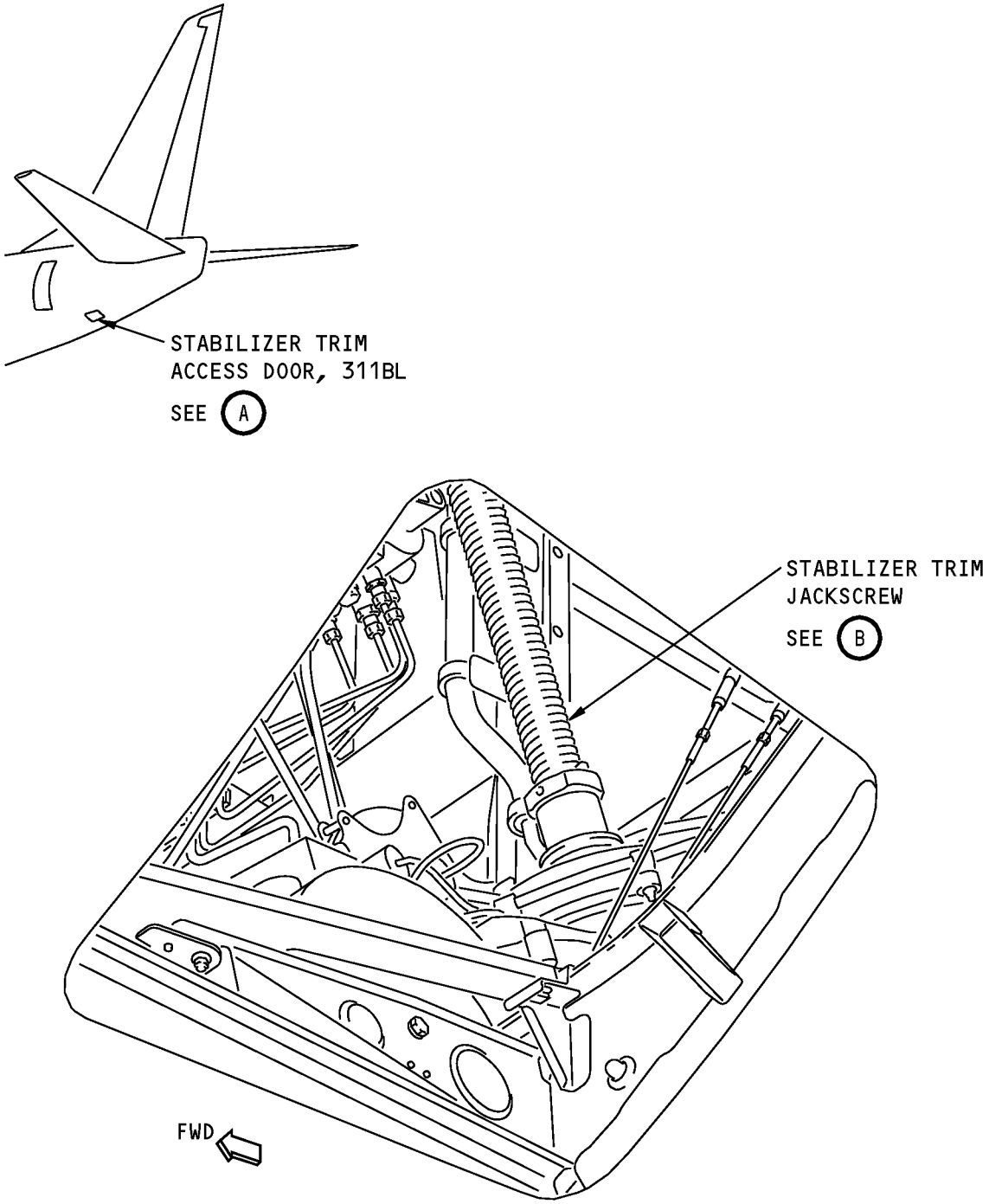

Stabilizer Trim Jackscrew Adjustment
Figure 401 (Sheet 1 of 2)/27-31-20-990-801

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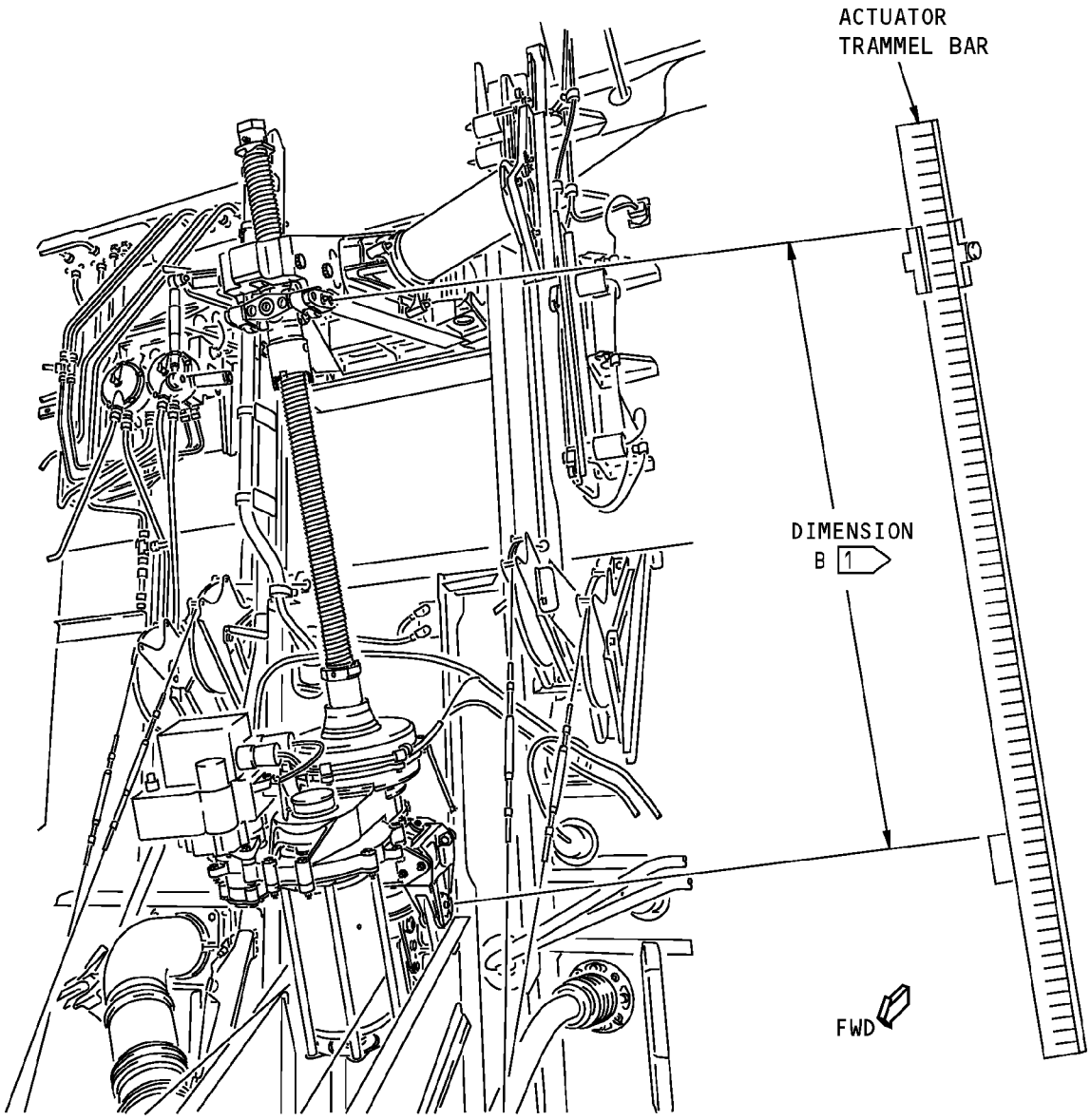

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Stabilizer Trim Jackscrew Adjustment
Figure 401 (Sheet 2 of 2)/27-31-20-990-801

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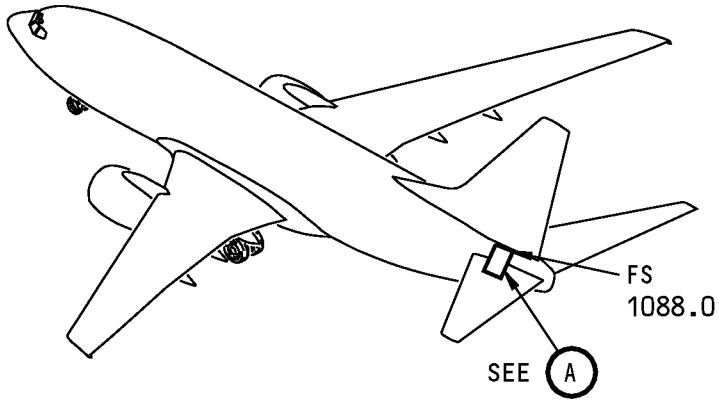

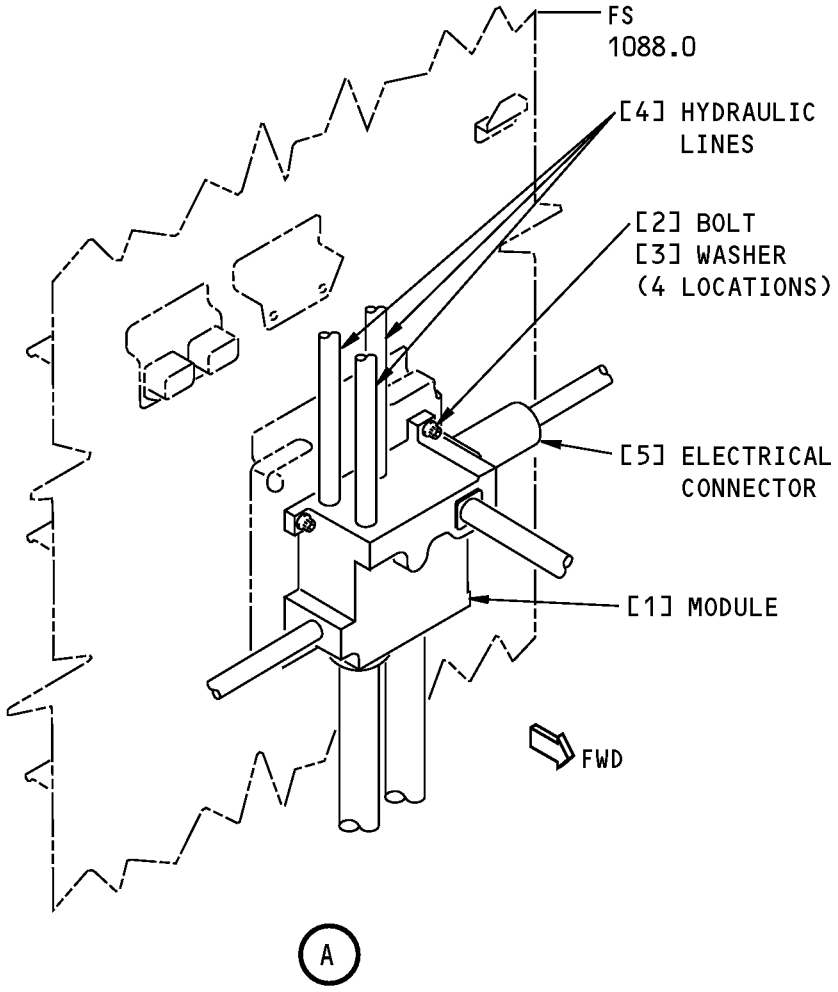

Elevator Feel Shift Module - Installation
Figure 402/27-31-20-990-802

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TASK 27-31-20-400-801

3. Elevator Feel Shift Module - Installation

(Figure 401, Figure 402)

A. References

Reference	Title
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-31-00-700-812	Feel Force System - Test (P/B 501)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-20-740-801	Elevator Feel Shift Module - Test (P/B 501)
51-31-00-390-804	Fillet Seal Application (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

C. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

D. Prepare for the Installation

SUBTASK 27-31-20-860-005

(1) Make sure that the pressure to the elevator hydraulic systems A and B is removed. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

E. Elevator Feel Shift Module Installation

SUBTASK 27-31-20-420-001

(1) Install the elevator feel shift module [1]:

(a) Install the washers [3] and bolts [2] to attach the elevator feel shift module (EFSM) [1] to the bracket.

1) Make sure that the electrical resistance between the EFSM and the bracket, that it is attached to, is 0.005 ohms, or less.

2) Make sure that the electrical resistance between the EFSM and the airplane structure is 0.005 ohms, or less.

a) If the electrical resistance at the two locations is more than 0.005 ohms, then remove the EFSM and prepare the electrical faying surfaces.

(b) Apply a fillet seal of BMS 5-95 along the joint edges. To apply the sealant, do this task: Fillet Seal Application, TASK 51-31-00-390-804.

SUBTASK 27-31-20-420-002

(2) Connect electrical connector [4] to the elevator feel shift module [1].

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SUBTASK 27-31-20-420-003

(3) Remove the caps and plugs from the open ports and hydraulic lines [4].

SUBTASK 27-31-20-420-005

(4) Connect the hydraulic lines [4] to the elevator feel shift module [1].

NOTE: Apply a layer of hydraulic fluid to the hydraulic fittings before you install the hydraulic lines.

HAP ALL

SUBTASK 27-31-20-720-003

(5) Do the, do this task: Elevator Feel Shift Module - Test, TASK 27-31-20-740-801.

HAP ALL; AIRPLANES WITH ELEVATOR FEEL SHIFT MODULE

SUBTASK 27-31-20-720-001

(6) Do this task: Feel Force System - Test, TASK 27-31-00-700-812.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-20-860-008

(1) Put the SYSTEM A FLIGHT CONTROL SHUTOFF and the SYSTEM B FLIGHT CONTROL SHUTOFF switches on the P5 flight control panel, forward overhead panel to the ON position.

SUBTASK 27-31-20-860-009

(2) Put the STAB TRIM cutout switches on the pilots control stand panel to the NORM position.

SUBTASK 27-31-20-860-015

(3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	2	C01064	AFCS SYS B MACH TRIM DC
B	3	C01046	AFCS SYS B FCC DC
B	4	C00716	AFCS SYS B ENGAGE INTLK
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
C	1	C01037	AFCS SYS B MACH TRIM AC
C	2	C01042	AFCS SYS B SNSR EXC AC
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2

SUBTASK 27-31-20-760-005

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

SUBTASK 27-31-20-410-002

(5) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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ELEVATOR FEEL SHIFT MODULE - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has this task:

(1) A test of the elevator feel shift module

TASK 27-31-20-740-801

2. Elevator Feel Shift Module - Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Make sure that both Stall Management Yaw Damper computers are installed for this test.

NOTE: Stall Management Yaw Damper Computer P/N 285A1010-4 or subsequent is required.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 27-31-20-760-006

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-31-20-760-007

(2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
HAP 037-054			
A	4	C01662	SPOILER PCU SOV SYS A
HAP ALL; AIRPLANES WITH ELEVATOR FEEL SHIFT MODULE AND A 285A1010-4 OR SUBSEQUENT, STALL MANAGEMENT YAW DAMPER COMPUTER			
B	8	C01464	FLIGHT CONTROL ELEV TAB VLV RIGHT

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F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	13	C00311	INDICATOR MASTER DIM BUS 1
E	14	C00316	INDICATOR MASTER DIM SECT 4

SUBTASK 27-31-20-420-006

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES WHEN HYDRAULIC POWER IS SUPPLIED. AILERONS, ELEVATORS, RUDDERS, FLAPS, SLATS, SPOILERS AND STABILIZER ARE FULLY POWERED SURFACES. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

(3) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-20-410-005

(4) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

F. Elevator Feel Shift Module Test

SUBTASK 27-31-20-700-005

(1) Do the following steps to test the Elevator Feel Shift Module (EFSM) with the SMYD 1 energized:

(a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	5	C01206	SMYD-2 CMPTR DC

(b) Press the ON/OFF button on the BITE panel on the front of SMYD number 1.

(c) Make sure EXISTING FAULTS? shows on the display.

(d) Press down arrow button until OTHER FUNCTIONS? shows on the display.

(e) Press YES button on the BITE panel on the front of SMYD number 1.

(f) Make sure SYSTEM CONFIG? shows on the display.

(g) Press down arrow button until SET OUTPUTS? shows on the display.

(h) Press YES button on the BITE panel on the front of SMYD number 1.

(i) Make sure SS CMD? shows on the display.

(j) Press YES button on the BITE panel on the front of SMYD number 1.

NOTE: SS ACTIVATE will show on the display and then REMOVE CMD? will show on the display.

(k) Make sure that the Captain's control column shakes.

(l) After a minimum of 60 seconds, make sure the FEEL DIFF PRESS light on the P5 forward overhead panel is not illuminated.

(m) Make sure CMD REMOVED shows on the display after the Captain's control column stops shaking.

(n) Press MENU button on the BITE panel on the front of SMYD number 1.

(o) Make sure SS CMD? shows on the display.

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(p) Press NO button on the BITE panel on the front of SMYD number 1.

(q) Make sure SS CMD & EFS CMD? shows on the display.

(r) Press YES button on the BITE panel on the front of SMYD number 1.

(s) Make sure SS & EFS ACTIVATE shows on the display before REMOVE CMD shows on the display.

(t) Make sure that the Captain's control column shakes.

(u) Make sure that the following lights come on and stay on after a minimum of 20 to 60 seconds:

1) Left and right MASTER CAUTION lights on the P7 glareshield panel

2) FEEL DIFF PRESS light on the P5 forward overhead panel.

(v) Make sure that the message CMD REMOVED is shown on the SMYD BITE display after the captain's control column stops shaking.

NOTE: The FEEL DIFF PRESS light should go off.

(w) Press the master caution PUSH TO RESET light on the P7 glareshield panel.

(x) Make sure these lights go off:

1) Left MASTER CAUTION light on the P7 glareshield panel

2) Right MASTER CAUTION light on the P7 glareshield panel.

(y) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	5	C01206	SMYD-2 CMPTR DC

SUBTASK 27-31-20-700-006

(2) Do the following steps to test the Elevator Feel Shift Module (EFSM) with the SMYD 2 energized:

(a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	5	C01204	SMYD-1 CMPTR DC

(b) Press the ON/OFF button on the BITE panel on the front of SMYD number 2.

(c) Make sure EXISTING FAULTS? shows on the display.

(d) Press down arrow button until OTHER FUNCTIONS? shows on the display.

(e) Press YES button on the BITE panel on the front of SMYD number 2.

(f) Make sure SYSTEM CONFIG? shows on the display.

(g) Press down arrow button until SET OUTPUTS? shows on the display.

(h) Press YES button on the BITE panel on the front of SMYD number 2.

(i) Make sure SS CMD? shows on the display.

(j) Press YES button on the BITE panel on the front of SMYD number 2.

NOTE: SS ACTIVATE will show on the display and then REMOVE CMD? will show on the display.

(k) Make sure that the First Officer's control column shakes.

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(l) After a minimum of 60 seconds, make sure the FEEL DIFF PRESS light on the P5 forward overhead panel is not on.

(m) Make sure CMD REMOVED shows on the display after the First Officer's control column stops shaking.

(n) Press MENU button on the BITE panel on the front of SMYD number 2.

(o) Make sure SS CMD? shows on the display.

(p) Press NO button on the BITE panel on the front of SMYD number 2.

(q) Make sure SS CMD & EFS CMD? shows on the display.

(r) Press YES button on the BITE panel on the front of SMYD number 2.

(s) Make sure SS & EFS ACTIVATE shows on the display before REMOVE CMD shows on the display.

(t) Make sure that the First Officer's control column shakes.

(u) Make sure that the following lights come on and stay on after a minimum of 20 to 60 seconds:

1) Left and right MASTER CAUTION lights on the P7 glareshield panel

2) FEEL DIFF PRESS light on the P5-3 forward overhead panel.

(v) Make sure that the message CMD REMOVED is shown on the SMYD BITE display after the First Officer's control column stops shaking.

NOTE: The FEEL DIFF PRESS light should go off.

(w) Push the master caution PUSH TO RESET on the P7 glareshield panel.

(x) Make sure these lights go off:

1) Left MASTER CAUTION light on the P7 glareshield panel

2) Right MASTER CAUTION light on the P7 glareshield panel.

(y) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	5	C01204	SMYD-1 CMPTR DC

(z) Press the ON/OFF button on the BITE panel on the front of SMYD number 2.

SUBTASK 27-31-20-700-007

(3) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	5	C01204	SMYD-1 CMPTR DC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	5	C01206	SMYD-2 CMPTR DC

Do the following steps to test the Elevator Feel Shift Module (EFSM) with both SMYD1 and SMYD 2 energized:

NOTE: The following steps must be done to both SMYD1 and SMYD2 at the same time.

(a) Press the ON/OFF button on the BITE panel on the front of both SMYD 1 and SMYD 2.

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(b) Make sure EXISTING FAULTS? show on both of the displays.

(c) Press down arrow buttons on both SMYDs until OTHER FUNCTIONS? shows on both displays.

(d) Press YES buttons on the BITE panels on the front of both SMYDs.

(e) Make sure SYSTEM CONFIG? show on both displays.

(f) Press down arrow buttons both SMYDs until SET OUTPUTS? shows on both displays.

(g) Press YES buttons on the BITE panel on the front of both SMYDs.

(h) Make sure SS CMD? show on both displays.

(i) Press YES buttons on the BITE panel on the front of both SMYDs.

NOTE: SS ACTIVATE will show on both of the displays and then REMOVE CMD? will show on both of the displays.

(j) Make sure that both the Captain's and First Officer's control columns shake.

(k) After a minimum of 60 seconds, make sure the FEEL DIFF PRESS light on the P5 forward overhead panel is not on.

(l) Make sure CMD REMOVED show on both displays after the control columns stops shaking.

(m) Press MENU buttons on the BITE panel on the front of both SMYDs.

(n) Make sure SS CMD? show on both displays.

(o) Press NO buttons on the BITE panel on the front of both SMYDs.

(p) Make sure SS CMD & EFS CMD? show on both displays.

(q) Press YES buttons on the BITE panel on the front of both SMYDs.

(r) Make sure SS & EFS ACTIVATE show on both displays before REMOVE CMD shows on both displays.

(s) Make sure that both the Captain's and First Officer's control columns shake.

(t) Make sure that the following lights come on and stay on after a minimum of 20 to 60 seconds:

1) Left and right MASTER CAUTION lights on the P7 glareshield panel

2) FEEL DIFF PRESS light on the P5-3 forward overhead panel.

(u) Make sure that CMD REMOVED show on both displays after the control columns stop shaking.

NOTE: The FEEL DIFF PRESS light should go off.

(v) Push the master caution PUSH TO RESET on the P7 glareshield panel.

(w) Make sure these lights go off:

1) Left MASTER CAUTION light on the P7 glareshield panel

2) Right MASTER CAUTION light on the P7 glareshield panel.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-20-860-014

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-20-760-008

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

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SUBTASK 27-31-20-410-003

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

——————— END OF TASK ———————

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ELEVATOR TAB - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of an elevator tab.

(2) An installation of an elevator tab.

B. This procedure is applicable to the left and right elevator tabs.

TASK 27-31-31-000-801

2. Elevator Tab - Removal

(Figure 401)

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

NOTE: Also see Figure 402.

HAP ALL

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-32-200-803	Elevator Tab Freeplay - Check (P/B 601)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-10345	Rigging Bar - Elevator Tab (Part #: C27028-21, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27028-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
316	APU Compartment - Right
334	Left Horizontal Stabilizer - Elevator
335	Left Horizontal Stabilizer - Tip
344	Right Horizontal Stabilizer - Elevator
345	Right Horizontal Stabilizer - Tip

D. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

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E. Prepare for the Removal

SUBTASK 27-31-31-860-001

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-31-010-001

(2) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-31-480-001

(3) Install the rig pin E-5 from rig pin kit, SPL-1585 in the aft control quadrant (Figure 401).

SUBTASK 27-31-31-220-001

(4) Measure and record the elevator tab position:

NOTE: Measuring and recording the elevator tab position before you remove the tab may improve the manual reversion success rate, if the tab needs to be adjusted after installation. The tab position can be measured with the elevator tab rigging bar, SPL-10345, installed on the second elevator tab hinge (from inboard). The tab position can also be measured using two pointers with one attached to the elevator and one attached to the elevator tab. To get an accurate measurement when you re-install the tab, you will have to mark the position of the edge of the elevator and elevator tab on the pointers so that they can be re-installed at the same locations when you do the measurements to re-install the elevator tab.

(a) If the same tab will be re-installed, then do the following prior to tab removal:

1) Make sure that the elevator tab meets the freeplay limits. To check the freeplay limits, do this task: Elevator Tab Freeplay - Check, TASK 27-31-32-200-803.

(b) While you move the elevator trailing edge down, align the projected center of the elevator trailing edge with the index mark within +/- 0.04 inch (1.0 millimeter), or less.

1) Measure and record the elevator tab position.

F. Elevator Tab Removal

SUBTASK 27-31-31-020-001

(1) Remove the bolts [24] from the access panel [23] to get access to the elevator tab pushrods [25].

SUBTASK 27-31-31-020-004

(2) Remove the elevator tab assembly [22]:

(a) Remove the pins [54], nuts [30], washers [31], bushings [32], and bolts [33] from the elevator tab assembly [22] and elevator tab pushrods [25]. Discard the pins [54].

(b) Hold the elevator tab assembly [22] while you disconnect the elevator tab assembly [22] from the elevator [21]:

1) Remove the pin [44], nut [45], washer [43], bushing [42], washer [41], and bolt [40]. Discard the pin [44].

2) Remove the pins [51], nuts [52], washers [50], bushings [49], washers [48], and bolts [47]. Discard the pins [51].

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CAUTION: DO NOT LET THE BONDING JUMPERS SUPPORT THE WEIGHT OF THE ELEVATOR TAB ASSEMBLY [22]. THE BONDING JUMPERS CAN BE DAMAGED.

3) Remove nut [26], washers [27], and bolt [29] to disconnect the bonding jumper [28] from the elevator [21].

4) Remove nut [34], washers [35], and bolt [37] to disconnect the bonding jumper [36] from the elevator [21].

(c) Remove the elevator tab assembly [22].

END OF TASK

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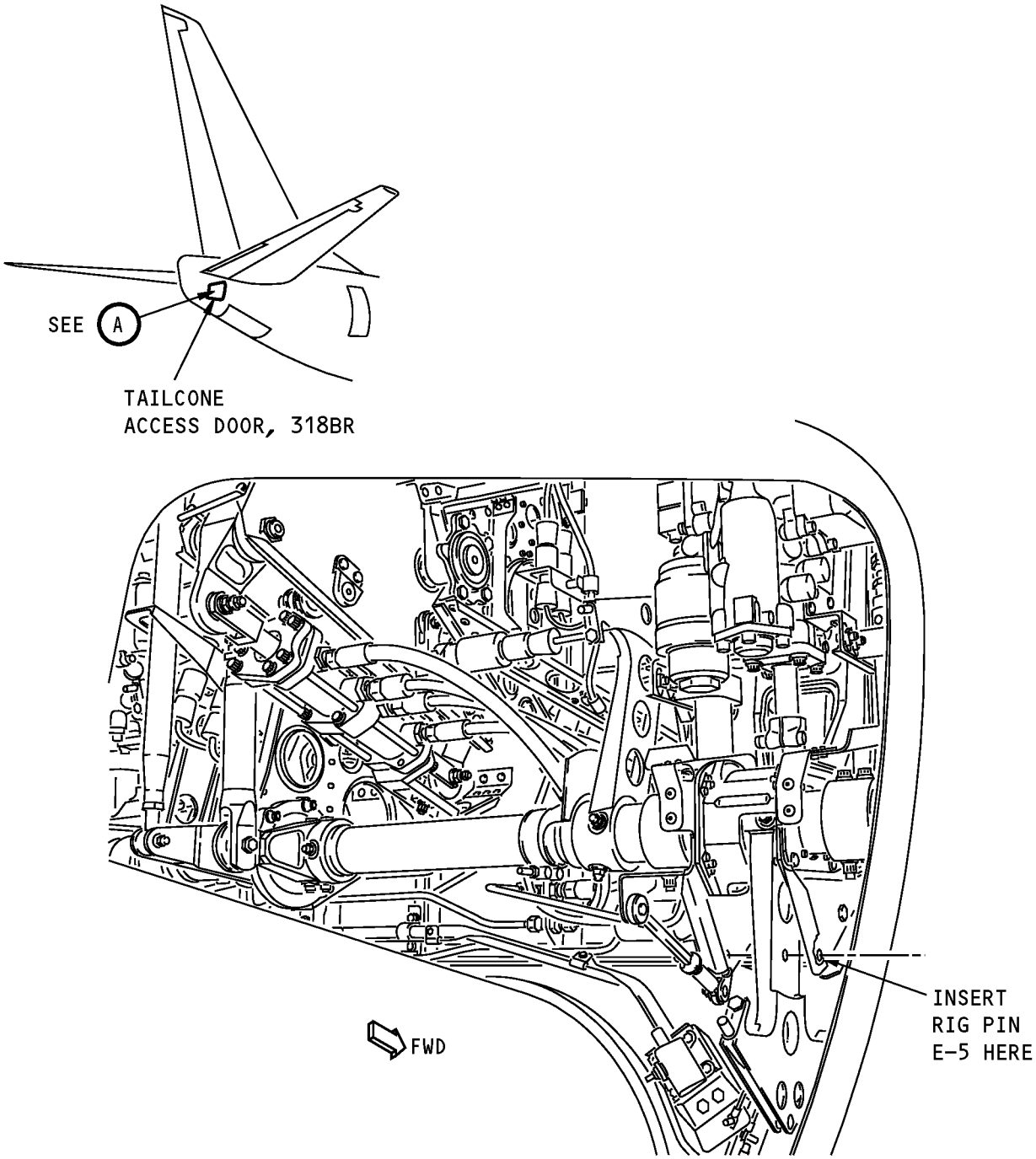

Elevator Rig Pin Installation
Figure 401/27-31-31-990-801

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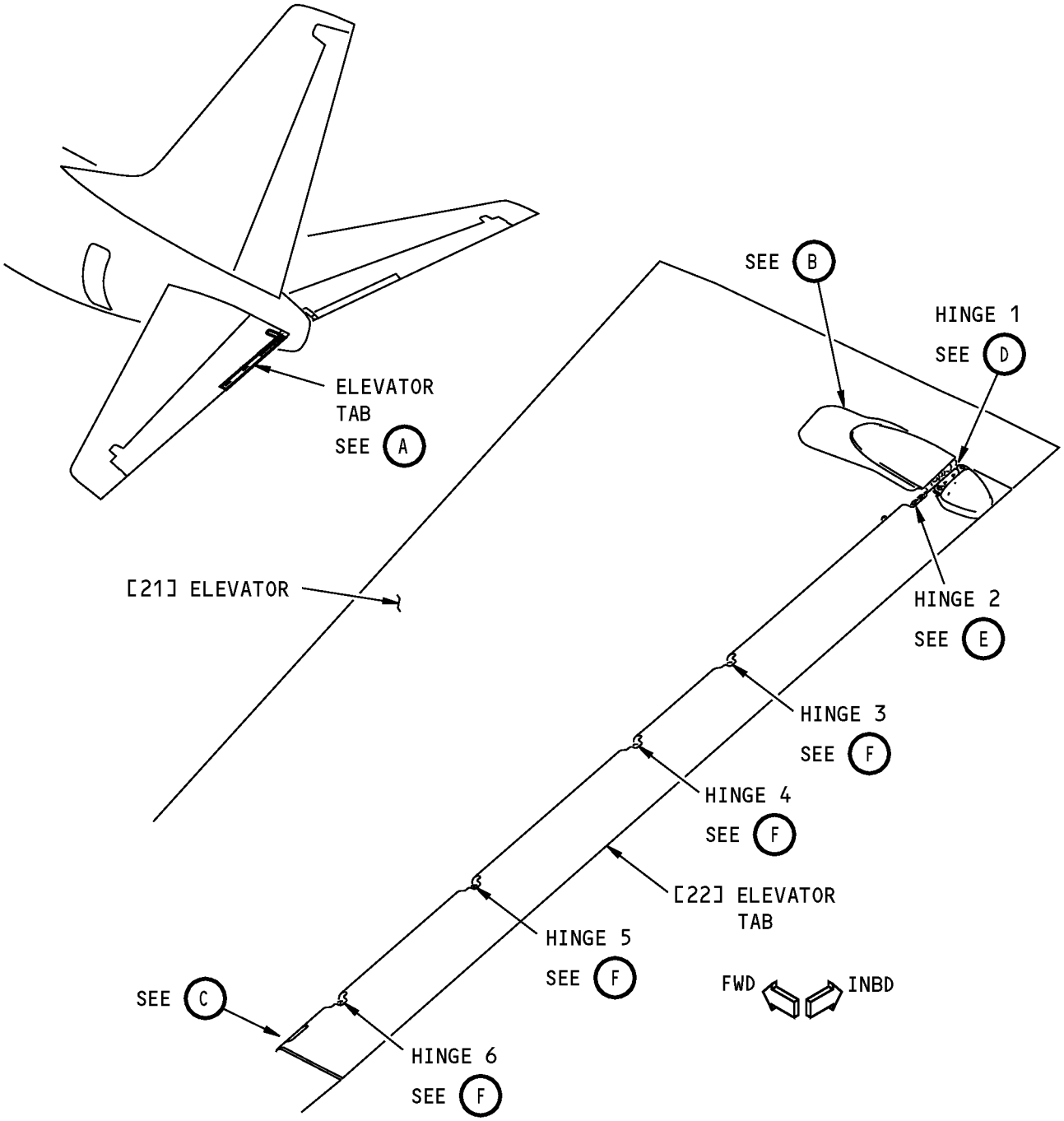

LEFT ELEVATOR TAB
(RIGHT ELEVATOR TAB IS OPPOSITE)

A

Elevator Tab Installation
Figure 402 (Sheet 1 of 4)/27-31-31-990-802

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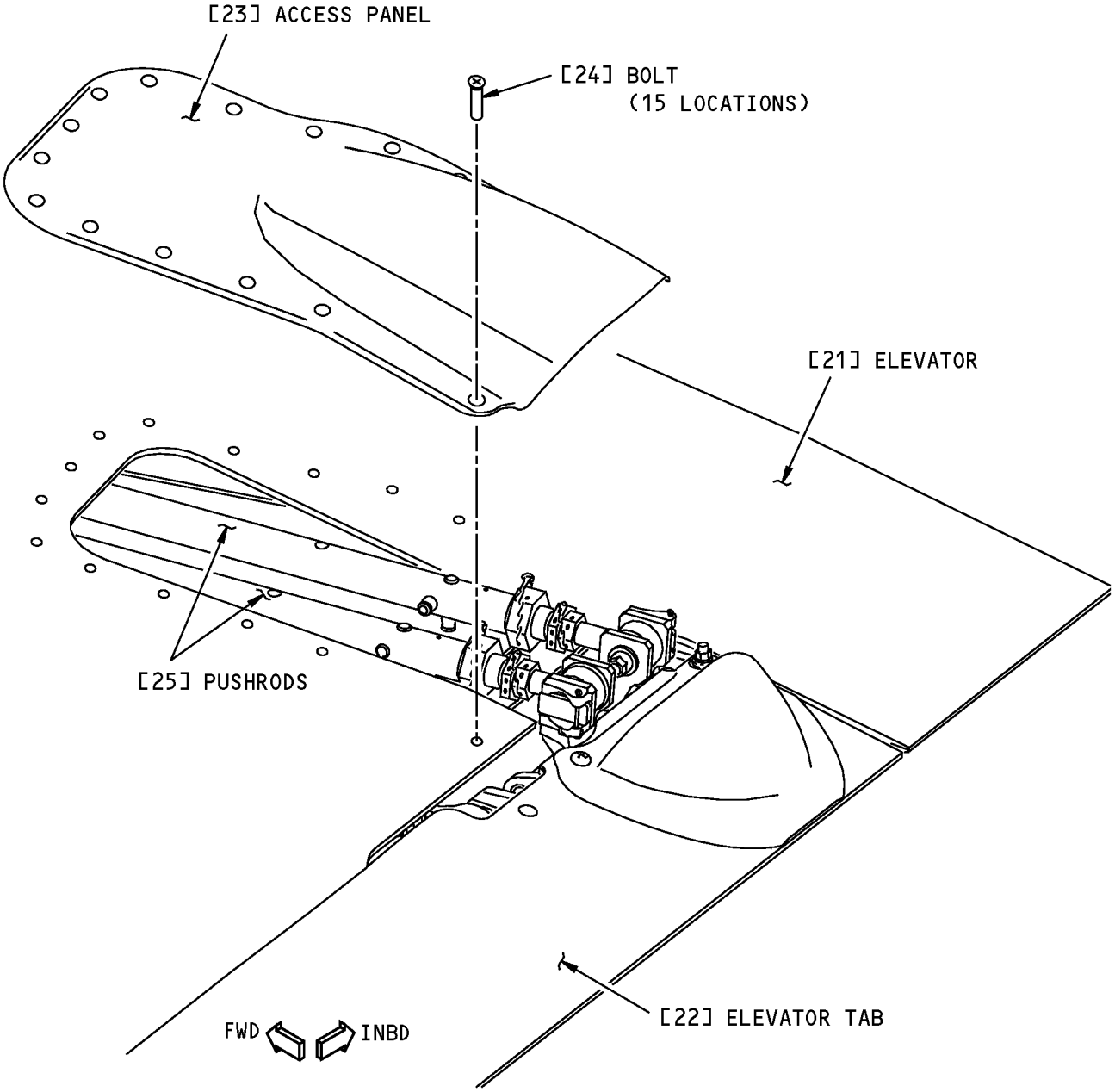

Elevator Tab Installation
Figure 402 (Sheet 2 of 4)/27-31-31-990-802

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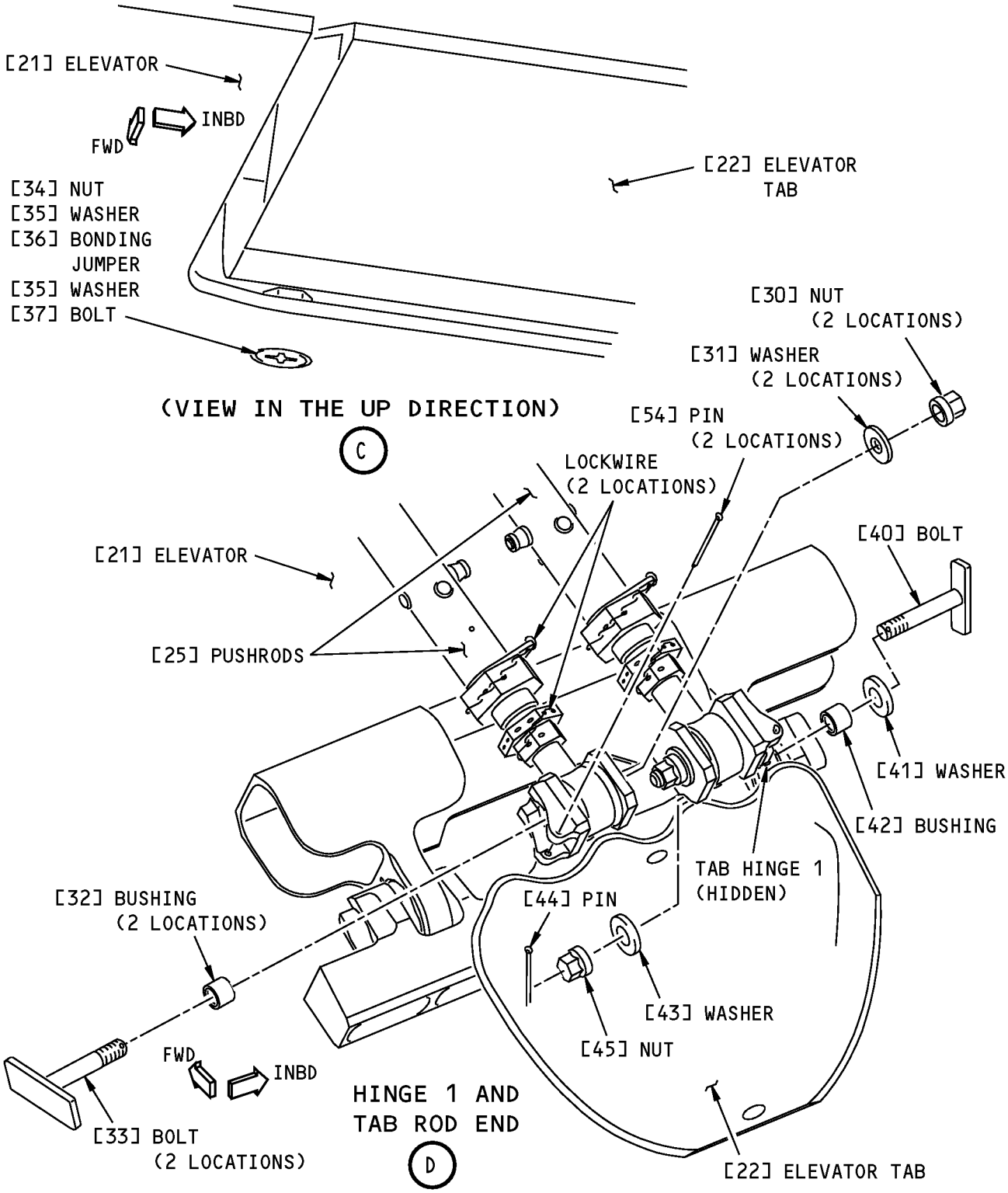

Elevator Tab Installation
Figure 402 (Sheet 3 of 4)/27-31-31-990-802

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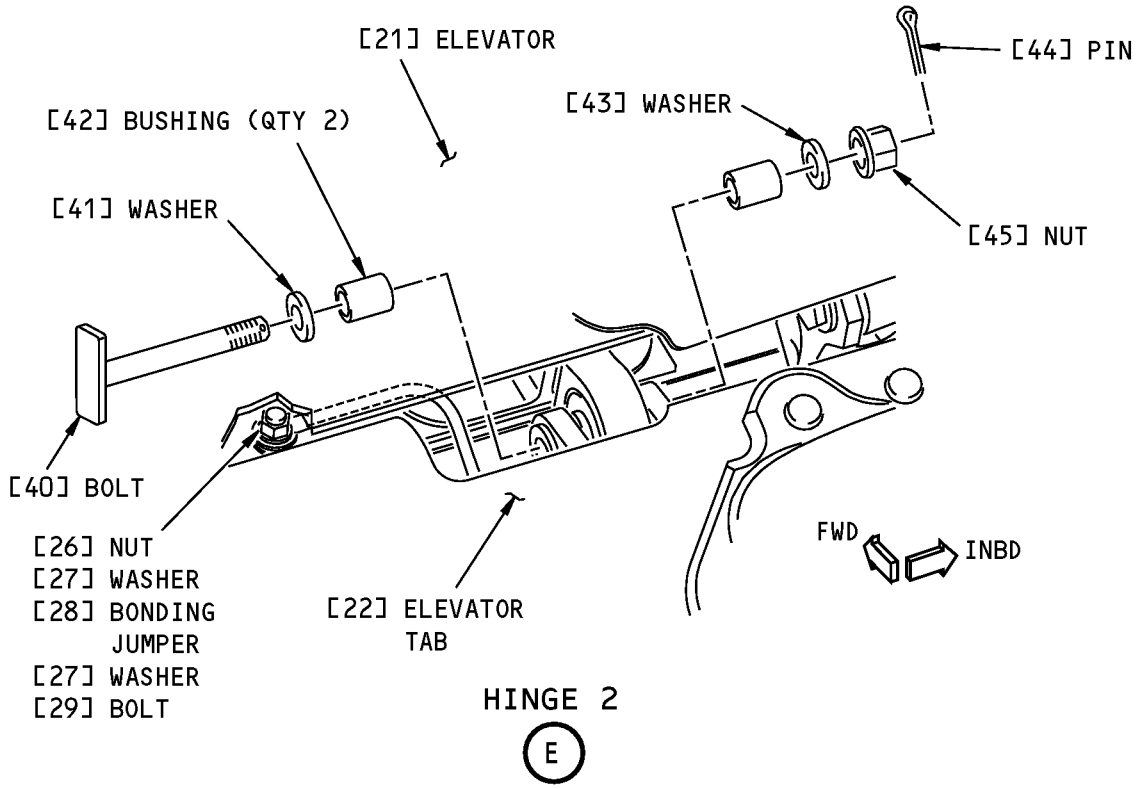
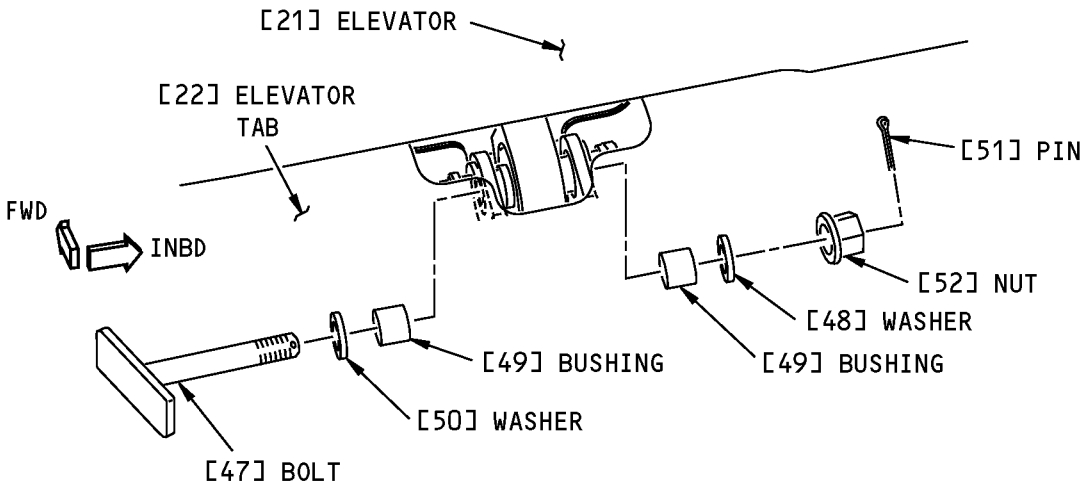


HINGE 2

E



HINGE 3
(HINGES 4, 5, AND 6 ARE EQUIVALENT)

F

Elevator Tab Installation
Figure 402 (Sheet 4 of 4)/27-31-31-990-802

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TASK 27-31-31-400-801

3. Elevator Tab - Installation

(Figure 401)

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

NOTE: Also see Figure 402.

HAP ALL

A. References

Reference	Title
12-22-31-640-802	Elevator Tab Hinge Lubrication (P/B 301)
27-31-00-700-802	Elevator Surface Friction and Balance - Test (P/B 501)
27-31-00-700-806	Elevator Tab Linkage - Test (P/B 501)
27-31-00-710-803	Elevator Power-Off Flight - Test (P/B 501)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-820-805	Elevator Tab Pushrods - Adjustment (P/B 501)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
SRM 51-60-06	Structural Repair Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D50004	Compound - Antiseize	BMS3-28

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
22	Tab assembly	55-20-00-09-070	HAP ALL
		55-20-00-09-075	HAP ALL

E. Location Zones

Zone	Area
316	APU Compartment - Right
334	Left Horizontal Stabilizer - Elevator

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(Continued)

Zone	Area
335	Left Horizontal Stabilizer - Tip
344	Right Horizontal Stabilizer - Elevator
345	Right Horizontal Stabilizer - Tip

F. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

G. Prepare for the Installation

SUBTASK 27-31-31-860-002

(1) Make sure that pressure to the elevator hydraulic systems A and B is removed. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-31-860-003

(2) Examine the data plate on the elevator tab for the necessary number of the tab adjust weights (SRM 51-60-06).

SUBTASK 27-31-31-860-004

(3) Make sure the elevator has the correct number of the tab adjust weights (SRM 51-60-06).

(a) Add or remove weights on the elevator balance panels as applicable.

H. Elevator Tab Installation

SUBTASK 27-31-31-020-005

(1) Install the elevator tab assembly [22]:

(a) Clean the elevator locations where bonding jumper [28] and bonding jumper [36] will be attached.

(b) If bonding jumper [28] or bonding jumper [36] were removed from the elevator tab assembly [22], reinstall them.

1) Use the bonding meter, COM-1550 to make sure there is a maximum of 100 ohms between the bonding jumper [28] or bonding jumper [36] and the elevator tab assembly [22] after piercing the painted surface to the conductive graphite layer of the elevator tab assembly [22].

2) Repair the paint of the elevator tab assembly [22] where the ohmmeter readings were taken.

3) Seal the bonding jumper ends and fasteners with sealant, A00247.

(c) Apply compound, D50004 to the threads of the bolts [40] and the bolts [47].

NOTE: Do not apply compound, D50004 to the unthreaded part of the bolts.

(d) Put the elevator tab assembly [22] near its position behind the elevator.

CAUTION: DO NOT LET THE BONDING JUMPERS SUPPORT THE WEIGHT OF THE ELEVATOR TAB ASSEMBLY [22]. THE BONDING JUMPERS CAN BE DAMAGED.

(e) Connect the bonding jumper [28] to the elevator [21]:

1) Install the bolt [29], washers [27] and nut [26] to attach the bonding jumper [28] to the elevator [21].

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2) Use the bonding meter, COM-1550 to make sure there is a maximum of 100 ohms to 100K ohms between the bonding jumper [28] and the elevator after piercing the painted surface to the conductive graphite layer of the elevator [21].

(f) Connect the bonding jumper [36] to the elevator [21]:

1) Install the bolt [37], washers [35] and nut [34] to attach the bonding jumper [36] to the elevator [21].

2) Use the bonding meter, COM-1550 to make sure there is a maximum of 100 ohms to 100K ohms between the bonding jumper [36] and the elevator [21] after piercing the painted surface to the conductive graphite layer of the elevator [21].

(g) Seal the bonding jumper ends and fasteners with sealant, A00247.

(h) Connect the elevator tab assembly [22] to the elevator [21]:

NOTE: If you loosened or removed the nuts [30] or nuts [45], they need to be replaced with new nuts. Using new nuts will ensure that they have the required run-on torque.

1) Install the bolts [47], washers [48], bushings [49], washers [50], and new nuts [52] on the outboard hinges (hinges other than hinge 1, or the most inboard hinge).

NOTE: If it is necessary, you can install up to two additional washers under the nut.

(i) Tighten the new nuts [52] to 90 - 100 pound-inches (10.2 - 11.3 newton-meters) and install new pins [51] in the end of the bolts [47].

(j) Tighten the new nut [45] to 90 - 100 pound-inches (10.2 - 11.3 newton-meters) and install a new pin [44] in the end of the bolt [40].

(k) Install the bushings [32], bolts [33], washers [31], and new nuts [30] to connect the tab pushrods [25] to the elevator tab assembly [22].

NOTE: The inboard bolt is installed with the head inboard and the outboard bolt is installed with the head outboard.

CAUTION: IF THE NEW NUTS [30] ARE NOT TIGHTENED CORRECTLY, THEN THE PUSHRODS CAN BECOME DISCONNECTED AND CAUSE DAMAGE TO THE ELEVATOR AND STABILIZER.

(l) Tighten the new nuts [30] to 70 - 80 pound-inches (7.9 - 9.0 newton-meters) and install new pins [54] in the anti-rotation boss at the head of the bolt [33].

SUBTASK 27-31-31-610-001

(2) Do this task: Elevator Tab Hinge Lubrication, TASK 12-22-31-640-802.

SUBTASK 27-31-31-080-001

(3) Remove rig pin E-5 of the rig pin kit, SPL-1585 from the aft control quadrant (Figure 401).

SUBTASK 27-31-31-860-005

(4) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-31-820-001

(5) Adjust the tab pushrods until you get the same tab position that you measured before you removed the elevator tab. To adjust them, do this task: Elevator Tab Pushrods - Adjustment, TASK 27-31-00-820-805.

SUBTASK 27-31-31-710-001

(6) Do this task: Elevator Surface Friction and Balance - Test, TASK 27-31-00-700-802.

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SUBTASK 27-31-31-710-002

(7) Do this task: Elevator Tab Linkage - Test, TASK 27-31-00-700-806.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-31-410-001

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-31-710-003

(2) If it is necessary, do this task: Elevator Power-Off Flight - Test, TASK 27-31-00-710-803.

END OF TASK

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ELEVATOR AND ELEVATOR TAB FREEPLAY - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure contains tasks to inspect the following for freeplay:

(1) The elevator output torque tube buss linkage.

(2) The elevator tab.

TASK 27-31-32-200-804

2. Elevator Output Torque Tube Buss Linkage Freeplay - Check

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to do a check of the elevator output torque tube buss linkage freeplay.

B. References

Reference	Title
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1278	Block - Loading, 1/8 Inch Thick, 3 Inch by 3 Inch Wood or Fiberglass Block with Pad to Prevent Damage to the Skin.

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator

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(Continued)

Zone	Area
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Check

SUBTASK 27-31-32-860-019

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Pressurize the elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-32-860-020

(2) Make sure the flaps are in the full up position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-31-32-010-004

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-32-860-021

(4) Use the bar, SPL-1677 to set the "B" dimension at 39.89 +/- 0.01 inches (1013.2 +/- 0.3 millimeters) or 4 units of trim (Figure 601).

SUBTASK 27-31-32-860-022

(5) Operate the elevator in the full travel 6 times.

SUBTASK 27-31-32-860-023

(6) Make sure the control column is in the neutral position.

G. Do a Check of the Buss Linkage of the Elevator Output Torque Tube

SUBTASK 27-31-32-220-010

CAUTION: DO NOT PUT A LOAD OF MORE THAN 65 POUNDS (290 NEWTONS) ON THE ELEVATORS AT ONE TIME. IF THE LOAD IS TOO HEAVY, IT CAN CAUSE DAMAGE TO THE ELEVATORS.

(1) Do a check of the elevator output torque tube:

(a) Set the FLT CONTROL A switch on the forward overhead panel, P5, to the OFF position.

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(b) Make sure the FLT CONTROL B switch on the forward overhead panel, P5, is in the ON position.

(c) Put a piece of tape over the right elevator index plate [1].

(d) Use a block, STD-1278 and force gauge, COM-1557 to apply a force of 15 +/- 1 pounds (67 +/- 4 newtons) to the right elevator trailing edge in the down direction and release slowly.

NOTE: Apply the force approximately 0.5 inch (13 millimeters) forward of the trailing edge and 1 inch (25 millimeters) outboard of the inboard edge of the elevator (next to the tailcone).

1) Make a mark of the right elevator position on the tape after you remove the force.

NOTE: Mark the position of the elevator after the force is removed from the elevator.

(e) Use a block, STD-1278 and force gauge, COM-1557 to apply a force of 10 +/- 1 pounds (45 +/- 4 newtons) to right elevator trailing edge in the up direction.

NOTE: Apply the force approximately 0.5 inch (13 millimeters) forward of the trailing edge and 1 inch (25 millimeters) outboard of the inboard edge of the elevator (next to the tailcone).

1) Make a mark of the right elevator position on the tape before you remove the force.

2) Slowly remove the force.

(f) Make sure the distance between the up and down position of the right elevator is not greater than 0.210 inch (5.32 millimeters).

(g) Remove the tape.

(h) Set the FLT CONTROL A switch on the forward overhead panel, P5, to the ON position.

(i) Set the FLT CONTROL B switch on the forward overhead panel, P5, to the OFF position.

(j) Put a piece of tape over the left elevator index plate [1].

(k) Use a block, STD-1278 and force gauge, COM-1557 to apply a force of 15 +/- 1 pounds (67 +/- 4 newtons) to left elevator trailing edge in the down direction and release slowly.

NOTE: Apply the force approximately 0.5 inch (13 millimeters) forward of the trailing edge and 1 inch (25 millimeters) outboard of the inboard edge of the elevator (next to the tailcone).

1) Make a mark of the left elevator position on the tape after you remove the force.

NOTE: Mark the position of the elevator after the force is removed from the elevator.

(l) Use a block, STD-1278 and force gauge, COM-1557 to apply a force of 10 +/- 1 pounds (45 +/- 4 newtons) to left elevator trailing edge in the up direction.

NOTE: Apply the force approximately 0.5 inch (13 millimeters) forward of the elevator trailing edge and 1 inch (25 millimeters) outboard of the inboard edge of the elevator (next to the tailcone).

1) Make a mark of the left elevator position on the tape before you remove the force.

2) Slowly remove the force.

(m) Make sure the distance between the up and down position of the left elevator is not greater than 0.210 inch (5.32 millimeters).

(n) Remove the tape.

(o) Set the FLT CONTROL B switch on the forward overhead panel, P5, to the ON position.

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H. Put the Airplane Back to Its Usual Condition.

SUBTASK 27-31-32-860-024

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-31-32-410-004

(2) Install this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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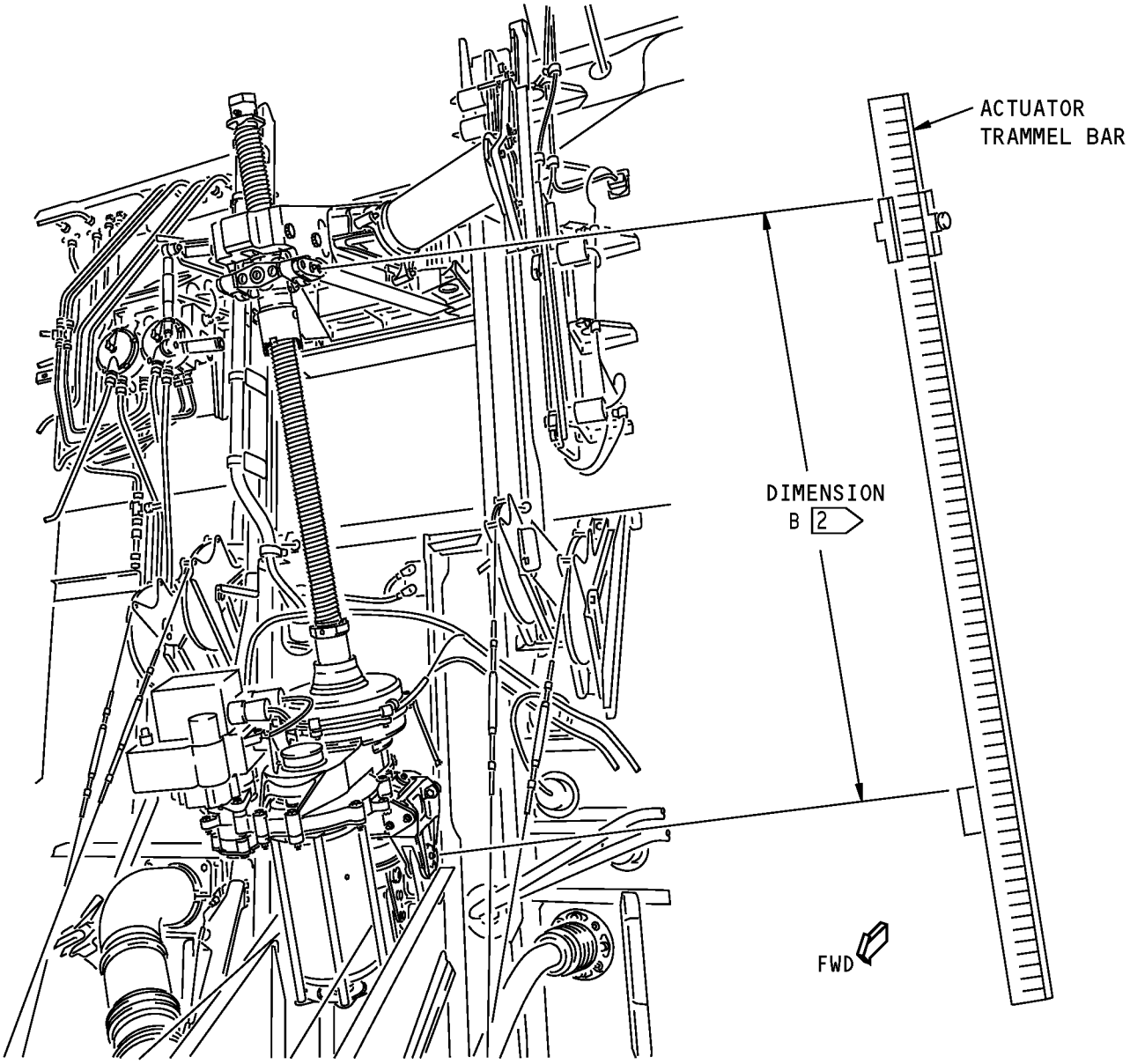

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREES (4.0 PILOT UNITS).

2 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS (CENTER OF GREASE FITTINGS).

Elevator Output Torque Tube Buss Linkage Freeplay Inspection
Figure 601 (Sheet 1 of 2)/27-31-32-990-804

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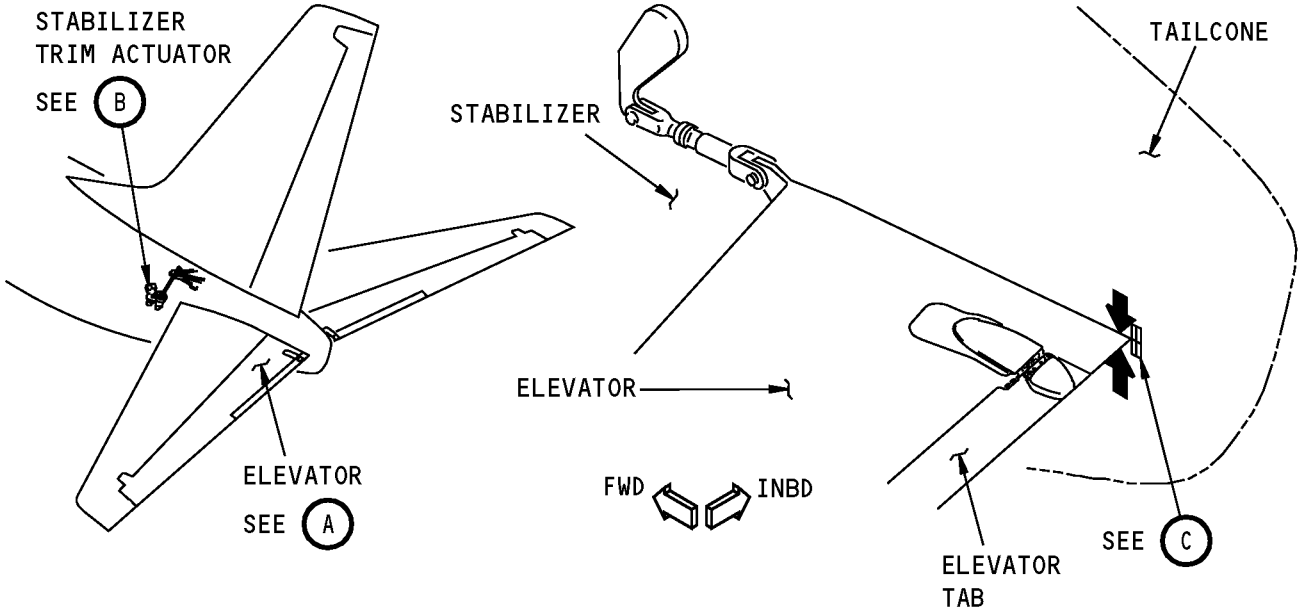
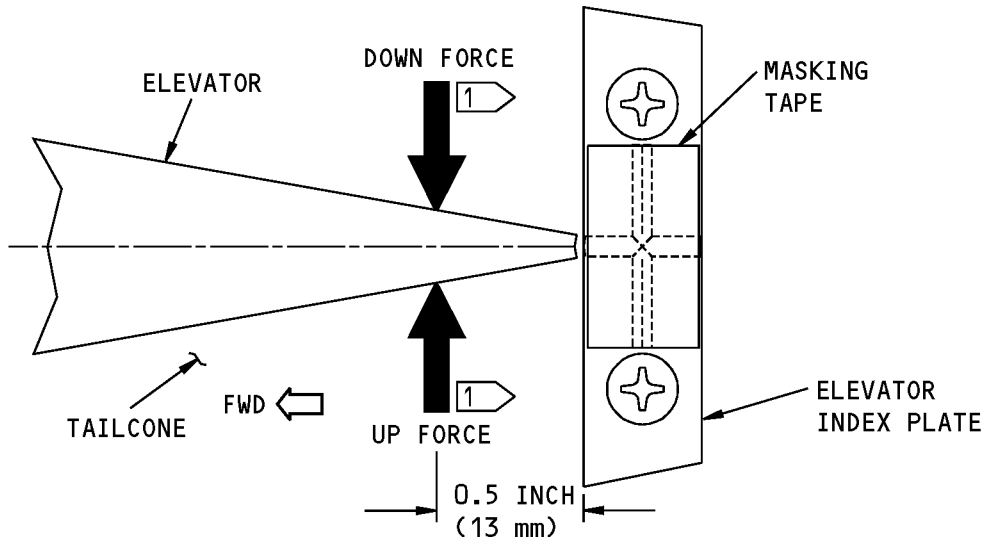


LEFT ELEVATOR
(RIGHT ELEVATOR IS OPPOSITE)

A



BUSS LINKAGE FREEPLAY

C

1 APPLY UP FORCE AND DOWN FORCE APPROXIMATELY 0.5 INCH (13 mm) FORWARD OF THE TRAILING EDGE AND 1 INCH (25 mm) OUTBOARD OF THE INBOARD EDGE OF THE ELEVATOR (NEXT TO THE TAILCONE).

Elevator Output Torque Tube Buss Linkage Freeplay Inspection
Figure 601 (Sheet 2 of 2)/27-31-32-990-804

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TASK 27-31-32-200-803

3. Elevator Tab Freeplay - Check

(Figure 602)

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to do a check of the elevator tab trailing edge freeplay, the elevator tab hinge line axial freeplay, and the elevator tab hinge line radial freeplay.

B. References

Reference	Title
12-22-31-640-802	Elevator Tab Hinge Lubrication (P/B 301)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1107	Gauge - Feeler, 0.0 - 0.5 Inch, Readable to 1/1000th
STD-1238	Indicator - Dial
STD-1303	Caliper - Dial

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
334	Left Horizontal Stabilizer - Elevator

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(Continued)

Zone	Area
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Check

SUBTASK 27-31-32-860-013

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the elevator hydraulic systems A and B. To pressurize them, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-32-860-014

(2) Make sure the flaps are in the full up position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-31-32-010-003

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-32-860-015

(4) Use the bar, SPL-1677 to set the "B" dimension at 39.89 +/- 0.01 inches (1013.2 +/- 0.3 millimeters) or 4 units of trim (Figure 602).

SUBTASK 27-31-32-860-016

(5) Operate the elevator in the full travel 6 times.

SUBTASK 27-31-32-860-017

(6) Make sure the control column is in the neutral position.

G. Do a Check of the Elevator Tab Trailing Edge Freeplay

SUBTASK 27-31-32-220-007

(1) Do a check of the elevator tab trailing edge freeplay (Figure 602):

(a) Remove pressure from the elevator hydraulic systems A and B. To remove the pressure, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

(b) Make sure that the flaps are retracted to the full up position.

(c) Make sure the stabilizer is set to 4.0 +/- 0.5 units of trim.

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CAUTION: BE VERY CAREFUL WHEN YOU INSTALL THE WOODEN BLOCK. IF YOU USE MORE THAN HAND PRESSURE TO INSTALL THE WOODEN BLOCK, YOU CAN CAUSE DAMAGE TO THE ELEVATOR OR TAIL CONE.

(d) Keep the elevator from moving by installing a wooden block between the inboard edge of the elevator and the tail cone (Figure 602).

NOTE: Be sure cover the wooden block with duct tape or equivalent so that you do not damage the paint of the elevator or tail cone.

CAUTION: BE VERY CAREFUL WHEN YOU INSTALL THE MOUNTING PLATE. THE ELEVATOR IS MADE OF COMPOSITE MATERIALS. THE MOUNTING PLATE CAN CAUSE DAMAGE TO THE ELEVATOR IF YOU ARE NOT CAREFUL. DO NOT MOVE THE CONTROL COLUMNS. ANY MOVEMENT OF THE CONTROL COLUMNS CAN CAUSE DAMAGE TO THE ELEVATOR OR INJURY TO PERSONS WORKING NEAR THE ELEVATOR.

(e) Attach a mounting plate to the elevator trailing edge forward of the elevator tab hinge 2.

NOTE: If double-back tape is used to secure the mounting plate, it must NOT be made of compressible foam.

1) Put the dial indicator, STD-1238 plunger on the top of the elevator tab, approximately 0.1 inch (3 millimeters) forward of the trailing edge of the elevator tab and within 0.5 inch (13 mm) of the inboard side of the hinge 2 centerline.

2) Adjust the dial indicator, STD-1238 to zero.

(f) Use a block and a force gauge, COM-1557 to push down on the top of the elevator tab with a force of 10.0 +/- 0.2 pounds (44.5 +/- 0.9 newtons).

NOTE: Apply the force on the elevator tab at the trailing edge, as close as possible to the tab hinge 2 centerline.

1) Make a record of the travel shown on the dial indicator, STD-1238.

2) Slowly remove the force.

(g) Push up on the bottom surface of the elevator tab with a force of 10.0 +/- 0.2 pounds (44.5 +/- 0.9 newtons), directly below the force applied before.

NOTE: Do not adjust the dial indicator.

1) Make a record of the travel shown on the dial indicator, STD-1238.

2) Slowly remove the force.

(h) Make sure the sum of the two travel records is not more than 0.030 inch (0.76 millimeter).

1) If the sum of the two travel records is more than 0.030 inch (0.76 millimeter), check the hinges for excessive wear and replace, as necessary.

(i) Remove the dial indicator, STD-1238.

(j) Remove the mounting plate.

(k) Do the same check on the tab of the opposite elevator.

H. Do a Check of the Elevator Tab Hinge Axial Freeplay

SUBTASK 27-31-32-220-011

(1) Do a check of the elevator tab hinge axial freeplay (Figure 602):

(a) Remove pressure from the elevator hydraulic systems A and B. To remove the pressure, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

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(b) Make sure that the flaps are retracted to the full up position.

(c) Make sure the stabilizer is set at 4.0 +/- 0.5 units of trim.

(d) Keep the elevator from moving by installing a wooden block between the inboard edge of the elevator and the tail cone (Figure 602).

NOTE: BE VERY CAREFUL WHEN YOU INSTALL THE WOODEN BLOCK. IF YOU USE MORE THAN HAND PRESSURE TO INSTALL THE WOODEN BLOCK, YOU CAN CAUSE DAMAGE TO THE ELEVATOR OR TAIL CONE.

NOTE: Be sure to cover the wooden block with duct tape or equivalent so that you do not damage the paint of the elevator or tail cone.

(e) Do these steps to make sure the axial play (inboard - outboard direction) of the tab is not more than 0.036 inch (0.91 millimeter).

1) Hold the elevator tab at the trailing edge and move it outboard using hand pressure.

2) Use a 0.0 - 0.5 Inch feeler gauge, STD-1107 or a dial caliper, STD-1303 to measure the clearance between the elevator and the outboard end of the elevator tab.

NOTE: It may be necessary to insert a flat metal filler block between the elevator and the elevator tab to help in this measurement.

a) Make a record of the clearance dimension.

3) Hold the elevator tab at the trailing edge and move it inboard using hand pressure.

4) Measure the clearance between the elevator and the outboard end of the elevator tab.

a) Make a record of the clearance dimension.

5) Make sure the difference between the two measured clearances, or the axial freeplay, is less than 0.036 inch (0.91 millimeters).

(f) Do the same check on the tab of the opposite elevator.

I. Do a Check of the Elevator Tab Hinge Line Freeplay

SUBTASK 27-31-32-220-009

(1) Do a check of the elevator tab hinge line freeplay (Figure 602):

(a) If necessary, remove pressure from the elevator hydraulic systems A and B. To remove the pressure, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

(b) Make sure the stabilizer is set at 4.0 +/- 0.5 units of trim.

(c) Make sure the flaps are retracted to the full up position.

CAUTION: BE VERY CAREFUL WHEN YOU INSTALL THE WOODEN BLOCK. IF YOU USE MORE THAN HAND PRESSURE TO INSTALL THE WOODEN BLOCK, YOU CAN CAUSE DAMAGE TO THE ELEVATOR OR TAIL CONE.

(d) Keep the elevator from moving by installing a wooden block between the inboard edge of the elevator and the tail cone (Figure 602).

NOTE: Be sure cover the wooden block with duct tape or equivalent so that you do not damage the paint of the elevator or tail cone.

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CAUTION: BE VERY CAREFUL WHEN YOU INSTALL THE MOUNTING PLATE. THE ELEVATOR IS MADE OF COMPOSITE MATERIALS. THE MOUNTING PLATE CAN CAUSE DAMAGE TO THE ELEVATOR IF YOU ARE NOT CAREFUL.

(e) Attach a mounting plate to the elevator trailing edge, forward of elevator tab hinge 3.

NOTE: If double-back tape is used to secure the mounting plate, it must NOT be made of compressible foam.

(f) Put the dial indicator plunger on the elevator tab leading edge directly over the top of the tab hinge centerline (Figure 602, sheet 6).

(g) Adjust the dial indicator to zero once there is contact with the elevator tab leading edge.

(h) Use a block and a force scale to apply a 10.0 +/- 0.5 pound (44.5 +/- 2.2 newton) force in the up direction. The force is to be applied in line with the plunger on the bottom side of the tab leading edge.

(i) Make a record of the travel shown on the dial indicator.

(j) Slowly remove the force.

NOTE: Do not adjust the dial indicator.

(k) Use a block and a force scale to apply a 10.0 +/- 0.5 pound (44.5 +/- 2.2 newton) force in the down direction. The force is to be applied to the top side of the tab leading edge.

(l) Make a record of the travel shown on the dial indicator.

(m) Slowly remove the force.

(n) Make sure that the sum of the two travel records is not more than 0.030 inch (0.76 millimeter).

1) If the sum of the two travel records is more than 0.030 inch (0.76 millimeter) check the hinges for excessive wear and replace, as necessary.

(o) Move the mounting plate and dial indicator to the next hinge centerline.

(p) Repeat the above steps for the other three outboard tab hinges (hinges 4, 5, and 6).

(q) Repeat the above steps for the four outboard hinges on the opposite elevator tab.

(r) Remove the dial indicator.

(s) Remove the mounting plate.

SUBTASK 27-31-32-640-003

(2) Lubricate the elevator tab hinges, do this task: Elevator Tab Hinge Lubrication, TASK 12-22-31-640-802.

J. Put the Airplane Back to Its Usual Condition.

SUBTASK 27-31-32-860-018

(1) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

SUBTASK 27-31-32-410-003

(2) Install this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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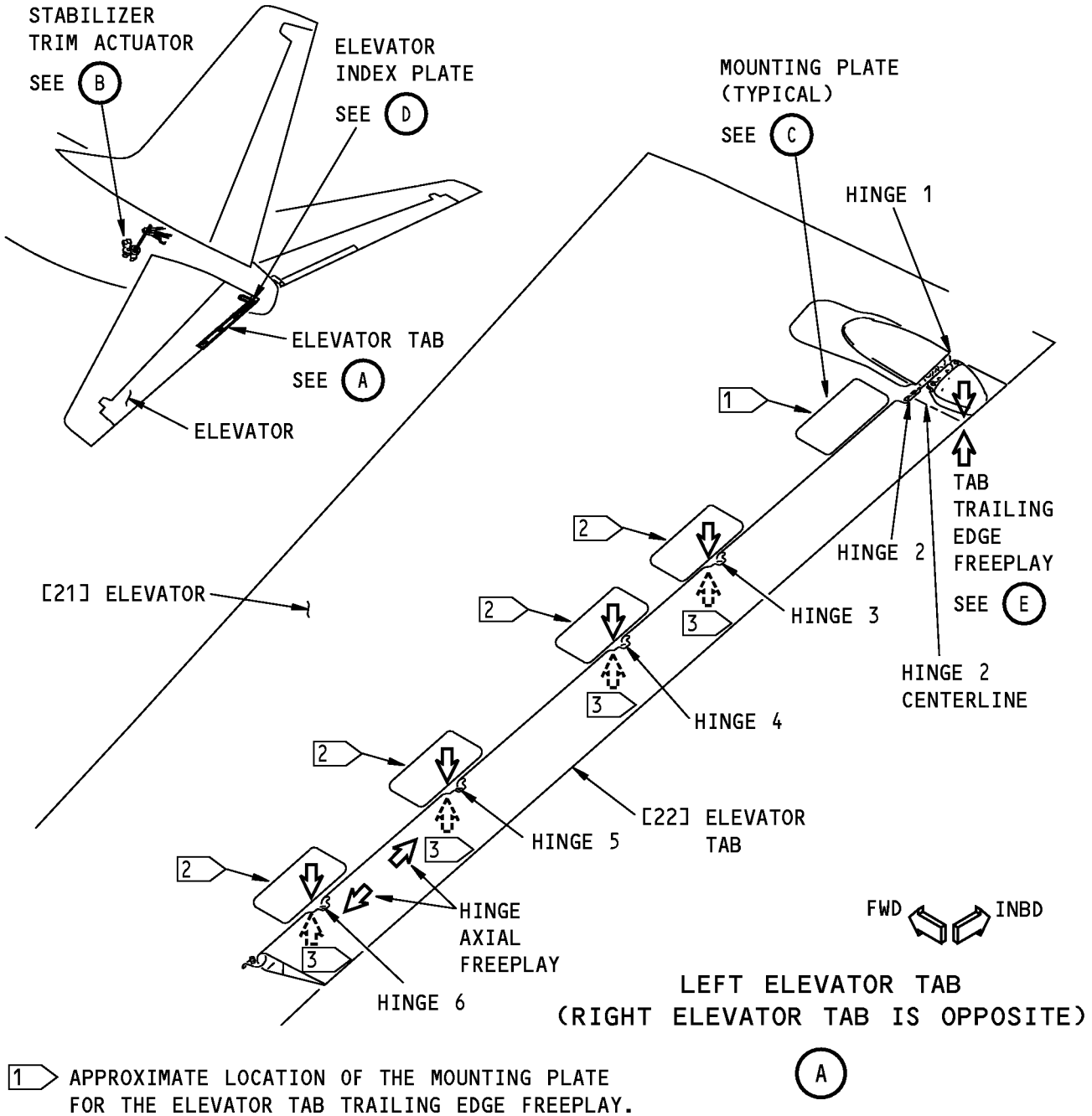

1 APPROXIMATE LOCATION OF THE MOUNTING PLATE FOR THE ELEVATOR TAB TRAILING EDGE FREEPLAY.

2 APPROXIMATE LOCATION OF THE MOUNTING PLATE FOR THE ELEVATOR TAB HINGE LINE FREEPLAY.

3 APPLY FORCE FOR TAB HINGE LINE FREEPLAY AT HINGES 3, 4, 5 AND 6, AS CLOSE TO THE HINGE LUG CENTERLINE, AS POSSIBLE.

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Elevator Tab Freeplay Check
Figure 602 (Sheet 1 of 6)/27-31-32-990-803

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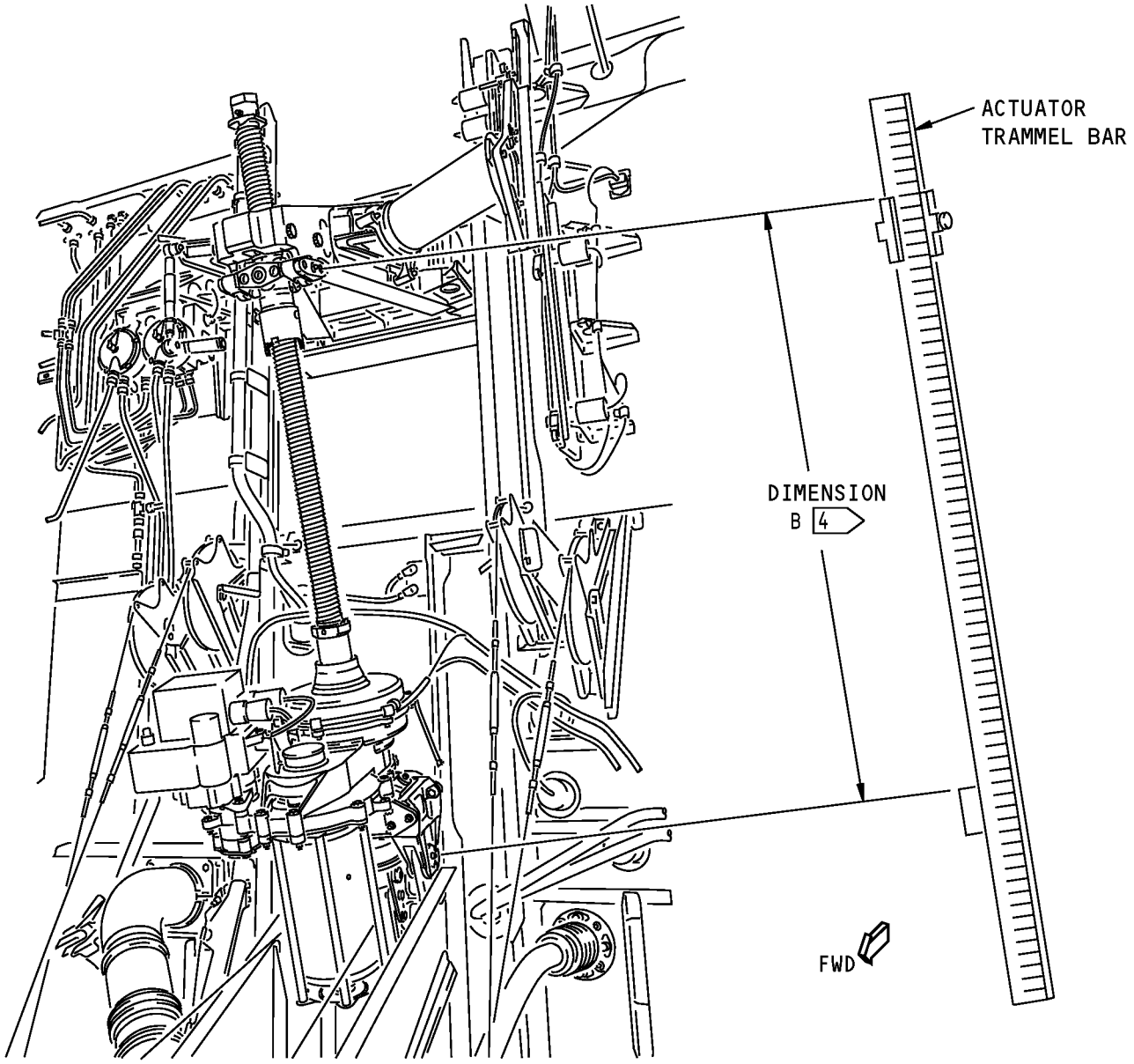

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREES (4.0 PILOT UNITS).

4 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS (CENTER OF GREASE FITTINGS).

Elevator Tab Freeplay Check
Figure 602 (Sheet 2 of 6)/27-31-32-990-803

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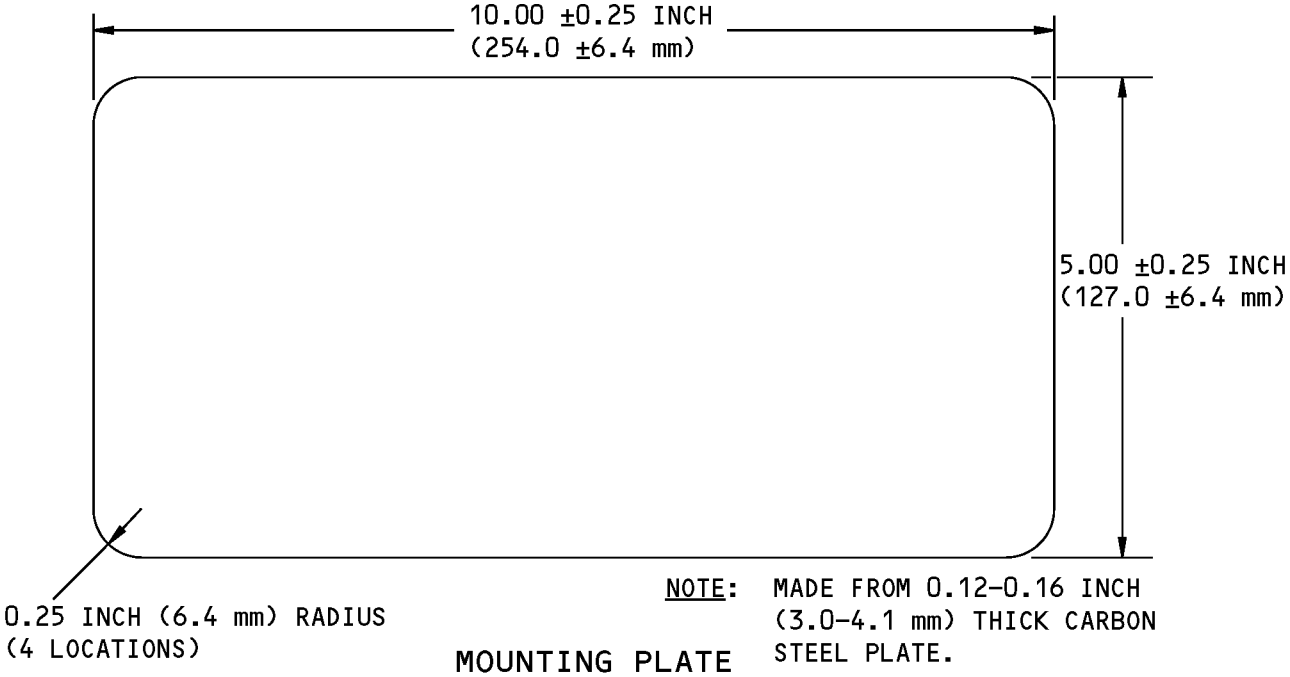
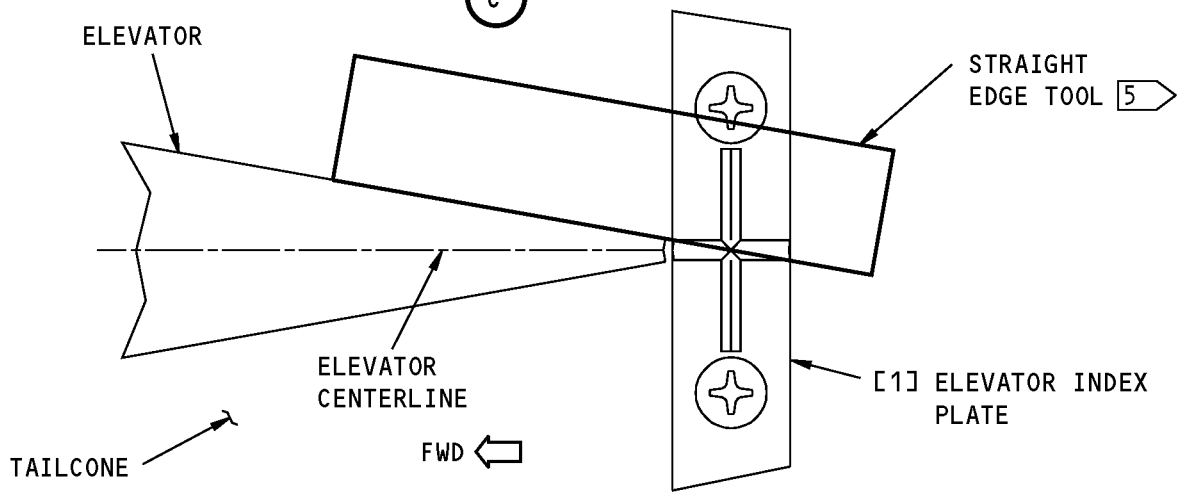


MOUNTING PLATE
(TYPICAL)

C



ELEVATOR INDEX PLATE

D

5 ELEVATOR IS AT THE NEUTRAL POSITION WHEN THE BOTTOM EDGE OF A STRAIGHT EDGE TOOL PLACED ON THE UPPER ELEVATOR SURFACE PASSES THROUGH THE MIDDLE OF THE ELEVATOR INDEX PLATE, AS SHOWN.

Elevator Tab Freeplay Check
Figure 602 (Sheet 3 of 6)/27-31-32-990-803

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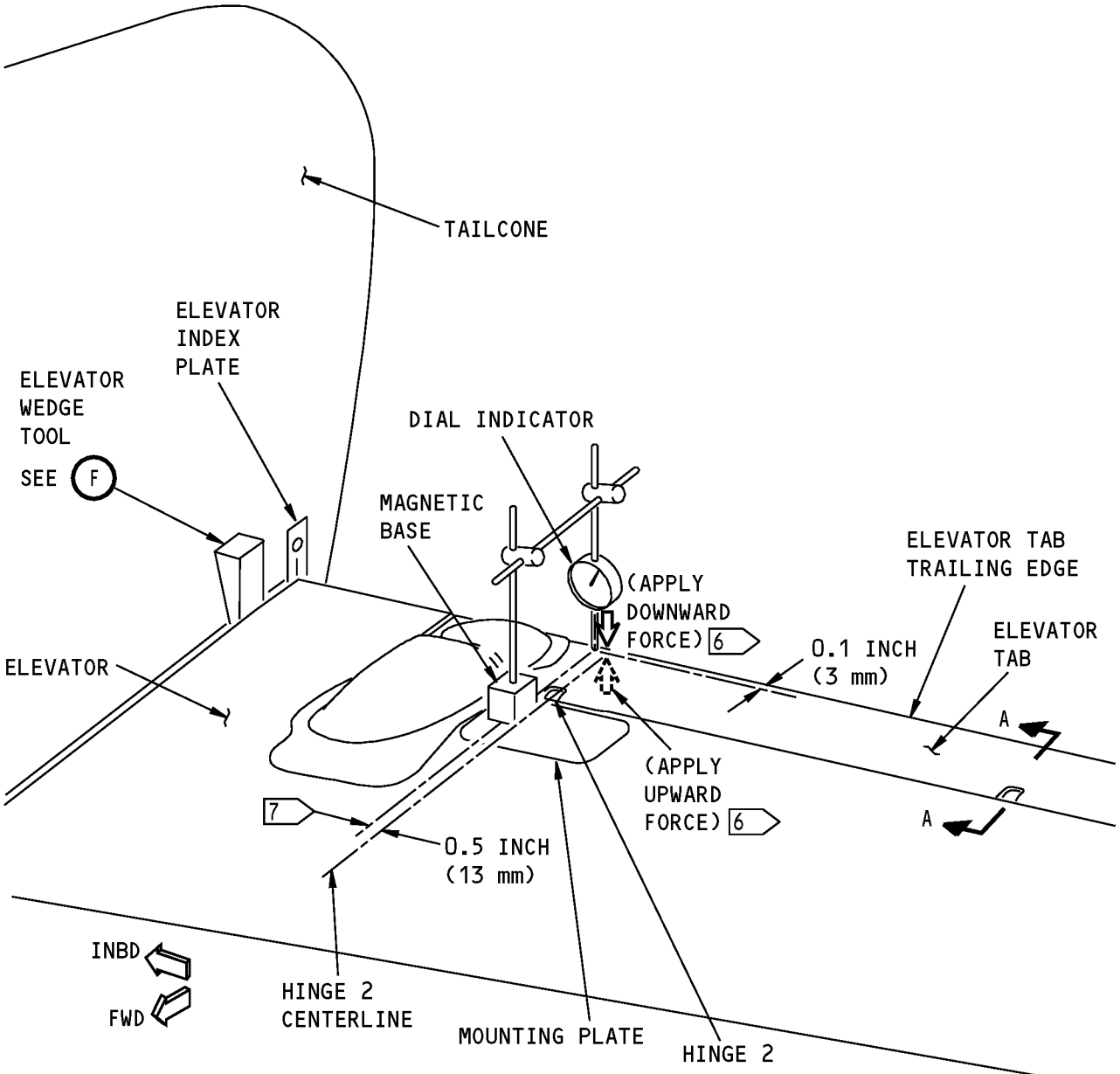

LEFT ELEVATOR TAB TRAILING EDGE FREEPLAY
(RIGHT ELEVATOR TAB IS OPPOSITE)

E

6 APPLY FORCE TO TAB WITHIN 0.1 INCH (3 mm) OF THE TRAILING EDGE OF THE TAB AND AS CLOSE AS POSSIBLE TO THE HINGE 2 CENTERLINE.

7 DIAL INDICATOR PLUNGER CENTERLINE WITHIN 0.5 INCH (13 mm) OF THE HINGE 2 CENTERLINE.

Elevator Tab Freeplay Check
Figure 602 (Sheet 4 of 6)/27-31-32-990-803

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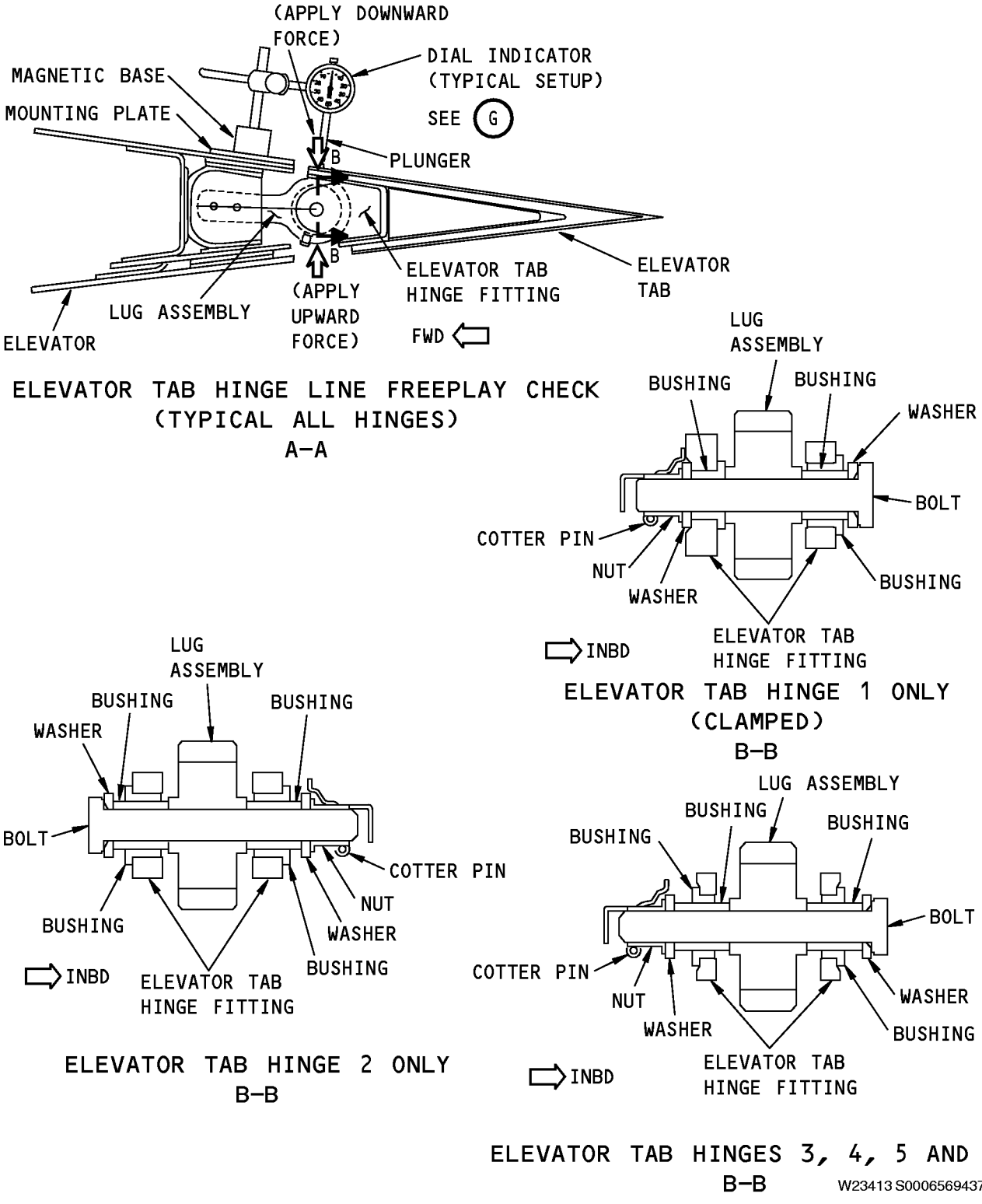

Elevator Tab Freeplay Check
Figure 602 (Sheet 5 of 6)/27-31-32-990-803

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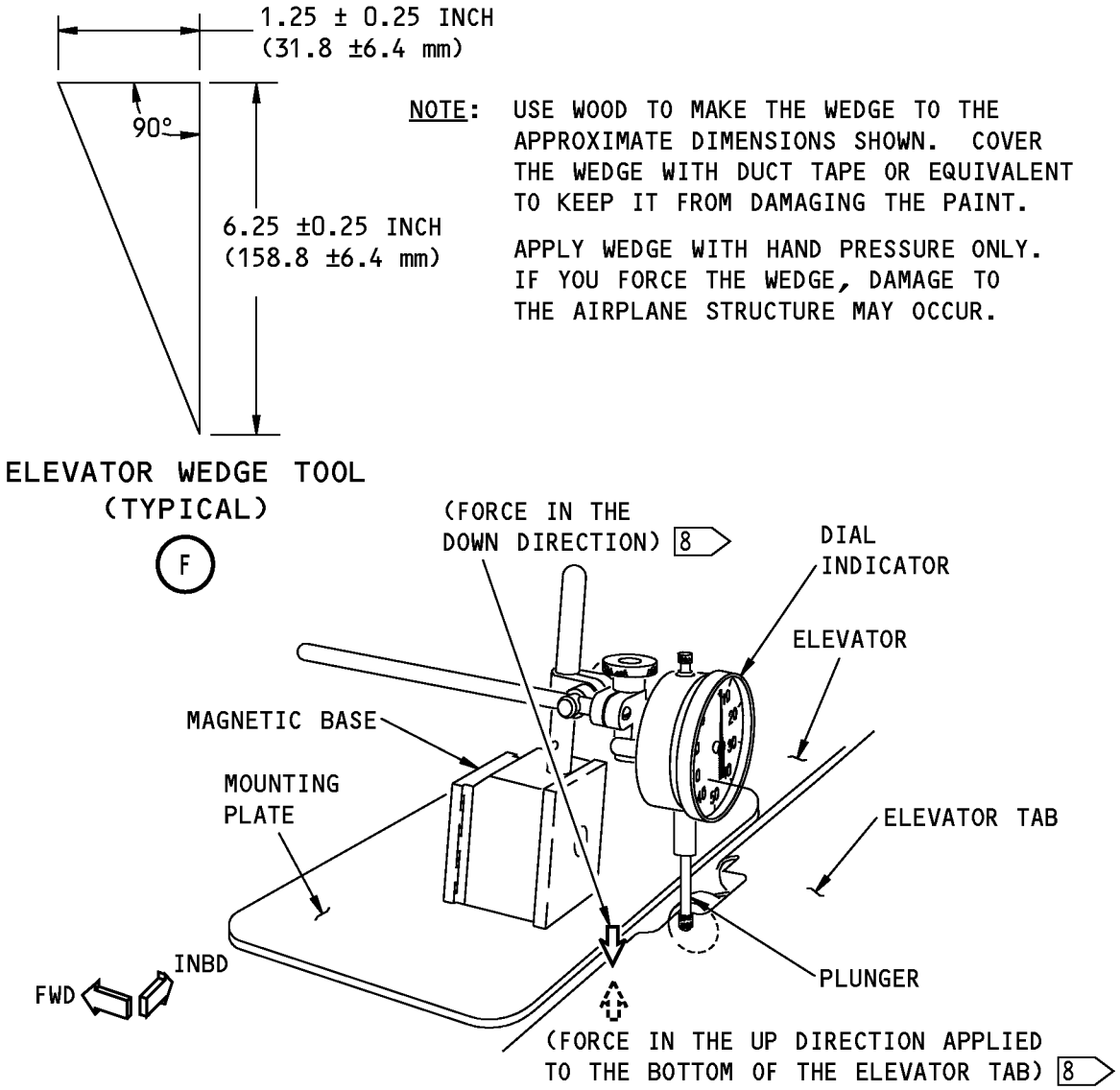

ELEVATOR TAB HINGE LINE FREEPLAY CHECK
(HINGES 3, 4, 5 AND 6)
(FORCE IN THE UP AND DOWN DIRECTION)

G

8 APPLY THE UP AND DOWN FORCES AS CLOSE AS POSSIBLE TO THE AXIS OF THE DIAL INDICATOR PLUNGER.

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Elevator Tab Freeplay Check
Figure 602 (Sheet 6 of 6)/27-31-32-990-803

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ELEVATOR TAB CONTROL MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator tab control mechanism

(2) An installation of the elevator tab control mechanism

(3) A removal of the tab pushrod

(4) An installation of the tab pushrod.

(5) A removal of the elevator tab lock actuator.

(6) An installation of the elevator tab lock actuator.

B. The elevator tab control mechanism is referred to as the "tab mechanism" in this procedure.

C. The tab mechanism includes the crank assembly and two tab pushrods.

D. This procedure is applicable to the left and right tab mechanism.

TASK 27-31-34-000-802

2. Elevator Tab Control Mechanism - Removal

(Figure 401)

NOTE: Also see Figure 402, Figure 403 and Figure 405.

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
318	Tail Cone Compartment - Right
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
334	Left Horizontal Stabilizer - Elevator
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
344	Right Horizontal Stabilizer - Elevator

C. Access Panels

Number	Name/Location
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

D. Prepare for the Removal

SUBTASK 27-31-34-860-003

(1) Remove pressure from the elevator hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

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SUBTASK 27-31-34-700-001

(2) Measure and record the elevator tab position in relation to the elevator.

NOTE: Measuring and recording the elevator tab position before you remove the tab may improve the manual reversion success rate, if the tab needs to be adjusted after installation. The tab position can be measured with the elevator tab rigging bar, SPL-10345, installed on the second elevator tab hinge (from inboard). The tab position can also be measured using two pointers with one attached to the elevator and one attached to the elevator tab. To get an accurate measurement when you re-install the tab, you will have to mark the position of the edge of the elevator and elevator tab on the pointers so that they can be re-installed at the same locations when you do the measurements to re-install the elevator tab.

(a) While you move the elevator trailing edge down, align the projected center of the elevator trailing edge with the index mark within +/- 0.04 inch (1.0 millimeter), or less.

1) Measure and record the elevator tab position.

SUBTASK 27-31-34-010-004

(3) To get access to the aft control quadrant, do this task:

Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-34-010-005

(4) For the left elevator, remove this access panel:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

SUBTASK 27-31-34-010-006

(5) For the right elevator, remove this access panel:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

E. Elevator Tab Control Mechanism Removal

SUBTASK 27-31-34-020-005

(1) Disconnect hydraulic line [31] from the tab mechanism [32].

SUBTASK 27-31-34-020-006

(2) Disconnect the electrical line [30] from the tab mechanism [32].

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

SUBTASK 27-31-34-020-016

(3) Remove the tab mechanism [32]:

(a) Remove the screws [48] from the pin retainers [49] rotate the pin retainer [49] arms up.

(b) Remove the nuts [52], washers [51], and pin assembly [40] that attach the tab mechanism [32] to the elevator [21].

(c) Remove the nuts [47], washers [46], spacers [53], and bolts [41] that attach the tab pushrods [29] to the tab mechanism [32].

(d) Remove the nuts [37], washers [36], nuts [35], washers [34], bushings [38], and bolts [39] that attach the tab mechanism [32] to the horizontal stabilizer [33].

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(e) Remove the tab mechanism [32] from the airplane.

HAP ALL

———————— END OF TASK ————————

TASK 27-31-34-400-802

3. Elevator Tab Control Mechanism - Installation

(Figure 401)

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

NOTE: Also see Figure 402, Figure 403 and Figure 405.

HAP ALL

A. References

Reference	Title
27-31-00-700-804	Elevator Travel Limit - Test (P/B 501)
27-31-00-700-806	Elevator Tab Linkage - Test (P/B 501)
27-31-00-700-809	Control Column Power Force - Test (P/B 501)
27-31-00-710-803	Elevator Power-Off Flight - Test (P/B 501)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-820-805	Elevator Tab Pushrods - Adjustment (P/B 501)

B. Location Zones

Zone	Area
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
334	Left Horizontal Stabilizer - Elevator
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
344	Right Horizontal Stabilizer - Elevator

C. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
334PT	Horizontal Stabilizer, Tab Control Rod Fairing
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

D. Elevator Tab Control Mechanism Installation

SUBTASK 27-31-34-860-004

(1) Make sure hydraulic power is removed from the elevator hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

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HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

SUBTASK 27-31-34-420-009

(2) Install the tab mechanism [32]:

(a) Put the tab mechanism [32] in its position.

(b) Do this step to connect the tab pushrods [29] to the tab mechanism [32]:

1) Install the bolts [41], washers [46], spacers [54], and new nuts [47] to connect the tab pushrods [29] to the tab mechanism [32].

NOTE: The inboard bolt is installed with the head inboard and the outboard bolt is installed with the head outboard.

NOTE: If you loosened or removed the nuts [47], they need to be replaced and not re-installed. Using new nuts will ensure that they have the required run-on torque of 3.5 in-lb (0.4 N·m).

(c) Install the pin assemblies [40] with the heads at the inside of the tab mechanism [32], washers [51], and nuts [52] to connect the tab mechanism [32] to the elevator [21].

NOTE: You must use a special tool to hold the heads of the pin assemblies [40] while tightening the nuts [52].

(d) Rotate the pin retainer [48] arms down and install the screws [48] to attach the pin retainers [49] to the tab mechanism [32].

(e) Install the bushings [38], bolts [39], washers [34], and nuts [35] to connect the tab mechanism [32] to the horizontal stabilizer [33].

NOTE: The bolts are installed with the heads at the outside of the tab mechanism.

1) Tighten the nuts [35] to 50 - 60 pound-inches (5.7 - 6.8 newton-meters).

CAUTION: DO NOT TIGHTEN THE NUTS [35] AGAIN AFTER YOU TIGHTEN THE NUT [37]. YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(f) Install the washers [36] and nuts [37].

1) Tighten the nuts [37] to 12 - 15 pound-inches (1.4 - 1.7 newton-meters).

HAP ALL

SUBTASK 27-31-34-700-002

(3) Adjust the tab rods to the approximate position that you measured before removing the mechanism. To adjust the tab rods, do this task: Elevator Tab Pushrods - Adjustment, TASK 27-31-00-820-805.

SUBTASK 27-31-34-730-005

(4) Do this task: Elevator Travel Limit - Test, TASK 27-31-00-700-804.

SUBTASK 27-31-34-730-006

(5) Do this task: Elevator Tab Linkage - Test, TASK 27-31-00-700-806.

SUBTASK 27-31-34-730-007

(6) Do this task: Control Column Power Force - Test, TASK 27-31-00-700-809.

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E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-34-410-004

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-34-410-005

(2) For the left elevator, install this access panel:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

SUBTASK 27-31-34-410-006

(3) For the right elevator, install this access panel:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

SUBTASK 27-31-34-410-016

(4) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-34-410-017

(5) For the left elevator tab pushrods, install this access panel:

Number	Name/Location
334PT	Horizontal Stabilizer, Tab Control Rod Fairing

SUBTASK 27-31-34-410-018

(6) For the right elevator tab pushrods, install this access panel:

Number	Name/Location
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

SUBTASK 27-31-34-730-008

(7) Do this task: Elevator Power-Off Flight - Test, TASK 27-31-00-710-803.

——————— END OF TASK ———————

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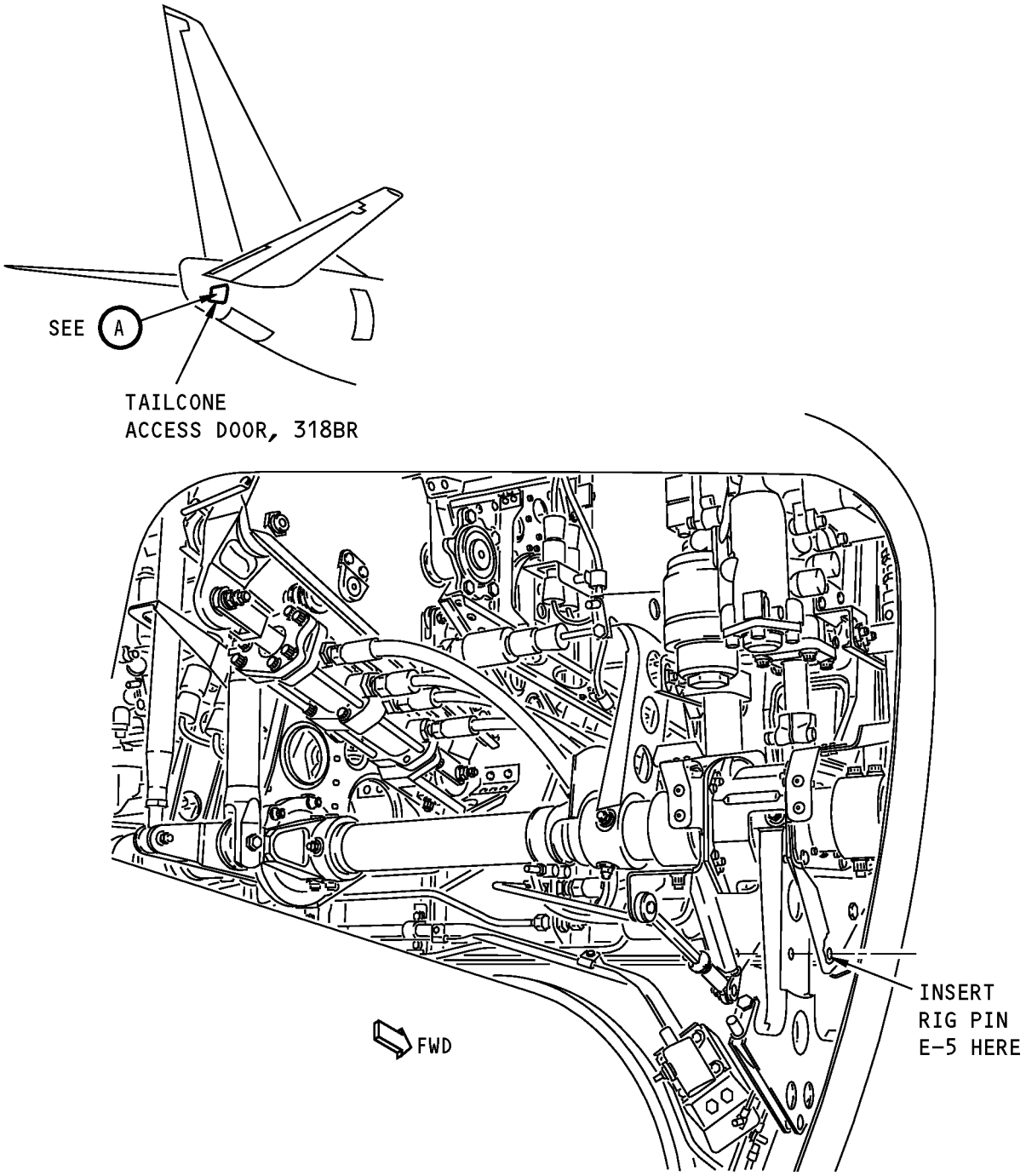

Elevator Aft Quadrant Rig Pin Installation
Figure 401/27-31-34-990-801

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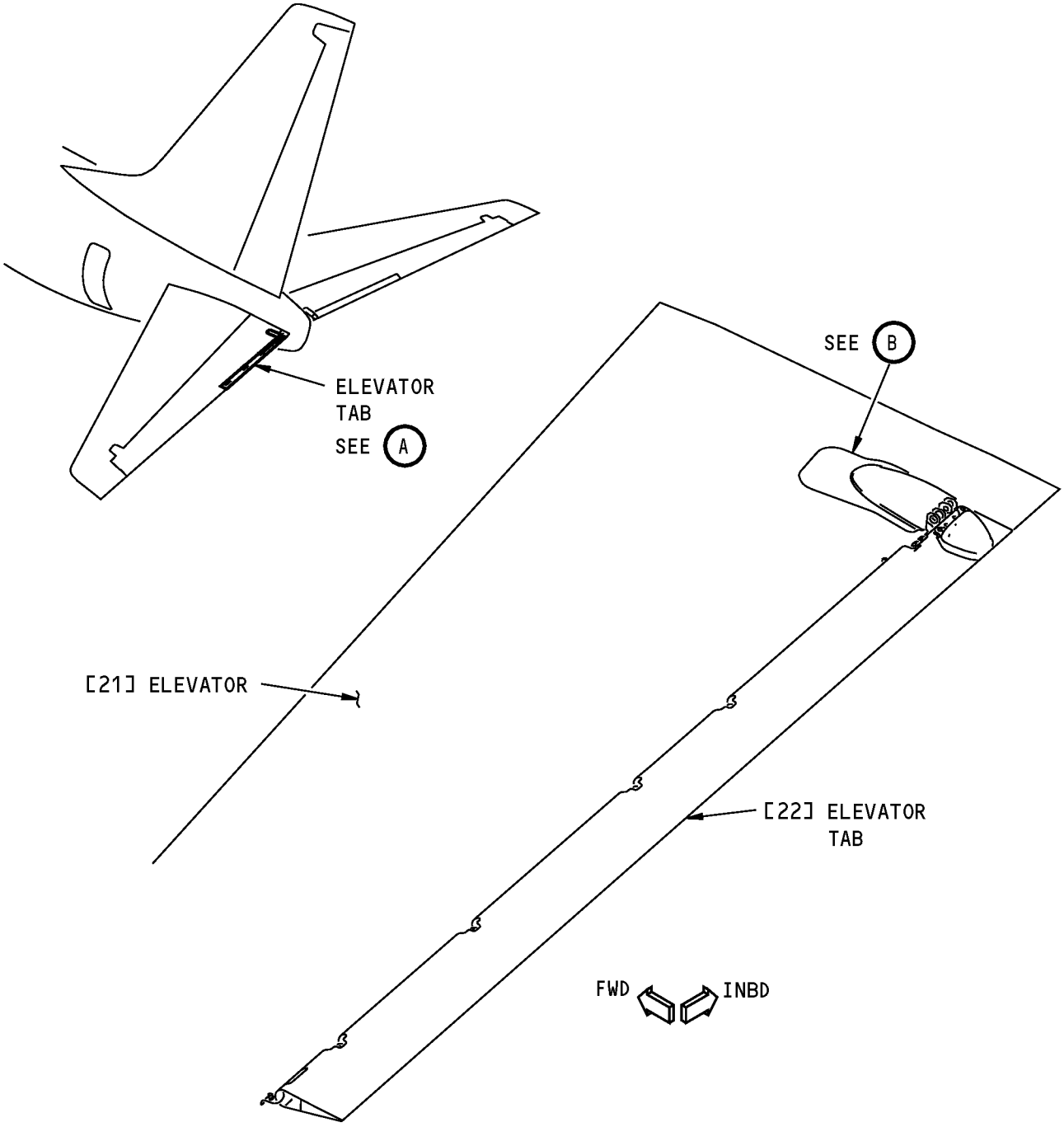

Elevator Tab Control Mechanism Installation
Figure 402/27-31-34-990-802

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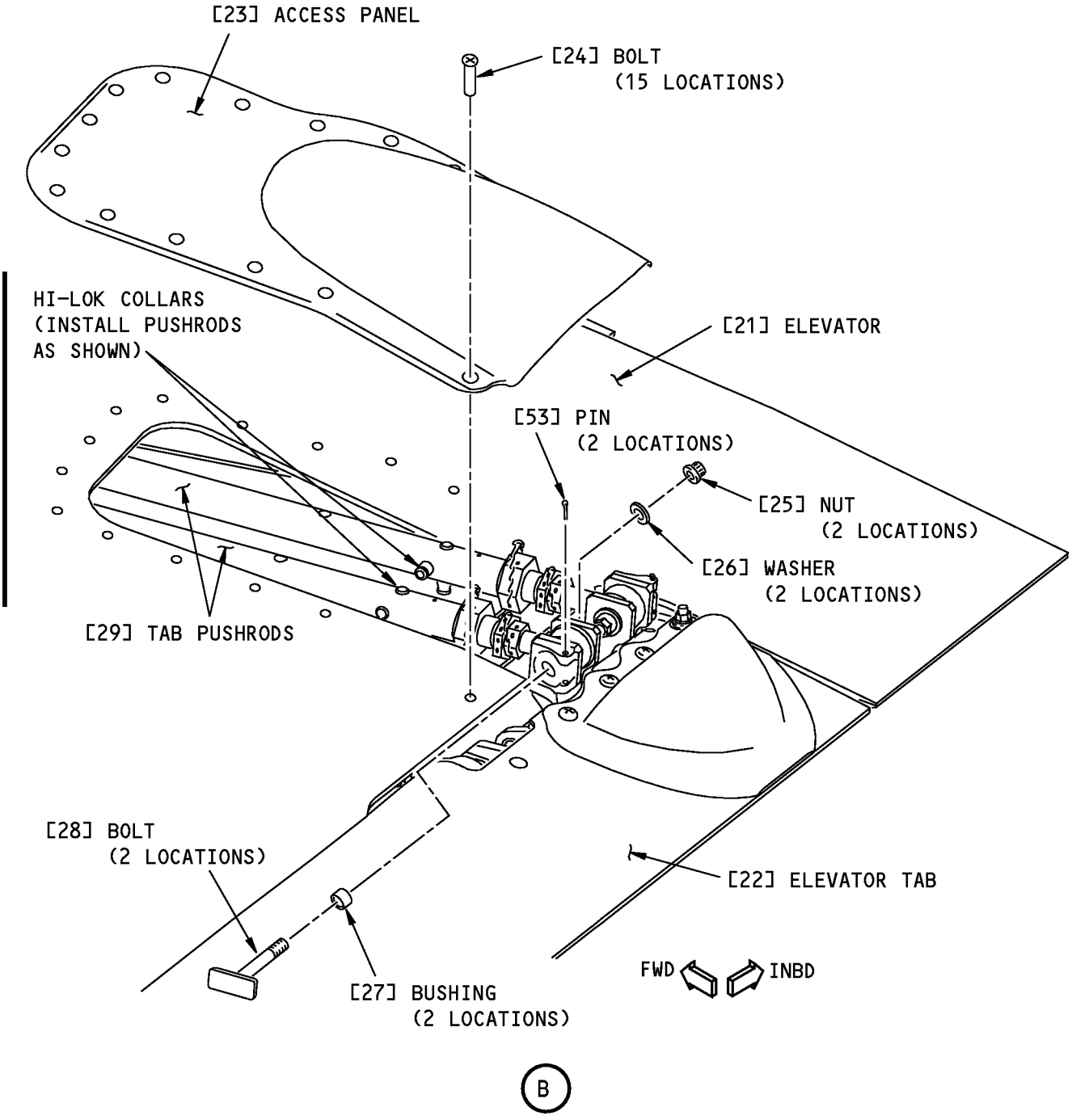

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Elevator Tab Control Mechanism Installation
Figure 403/27-31-34-990-807

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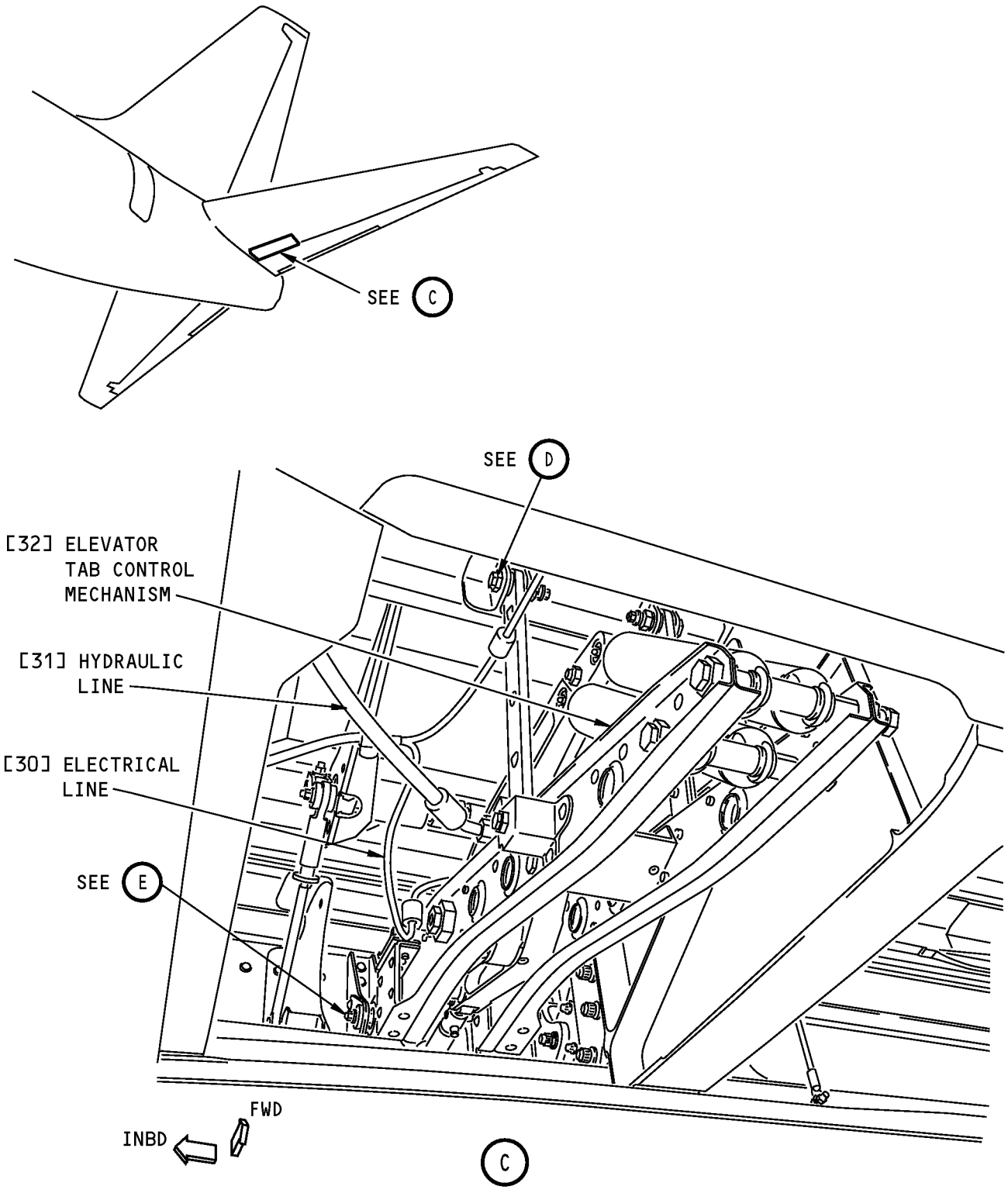

Elevator Tab Control Mechanism Installation
Figure 404 (Sheet 1 of 2)/27-31-34-990-808

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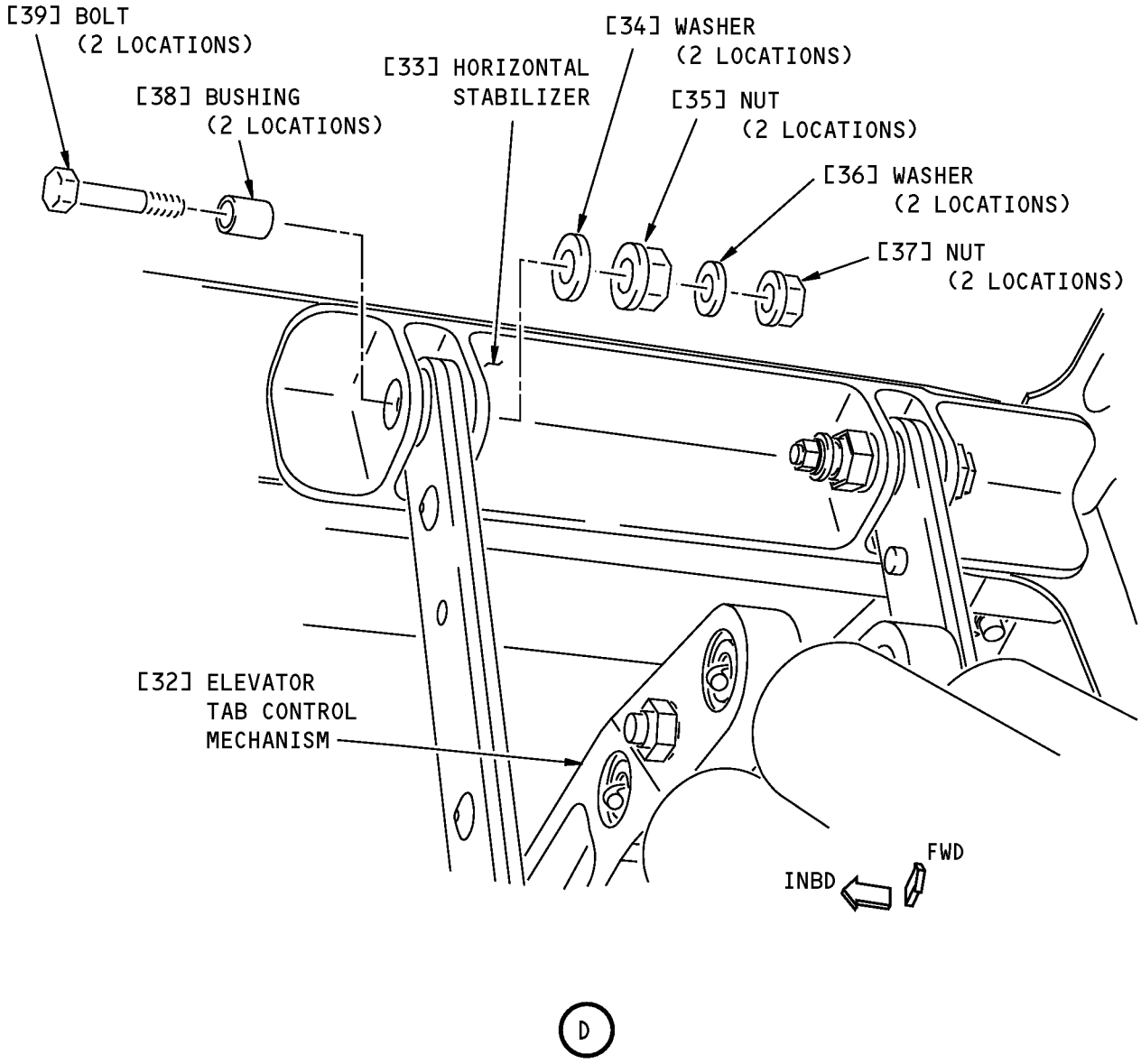

Elevator Tab Control Mechanism Installation
Figure 404 (Sheet 2 of 2)/27-31-34-990-808

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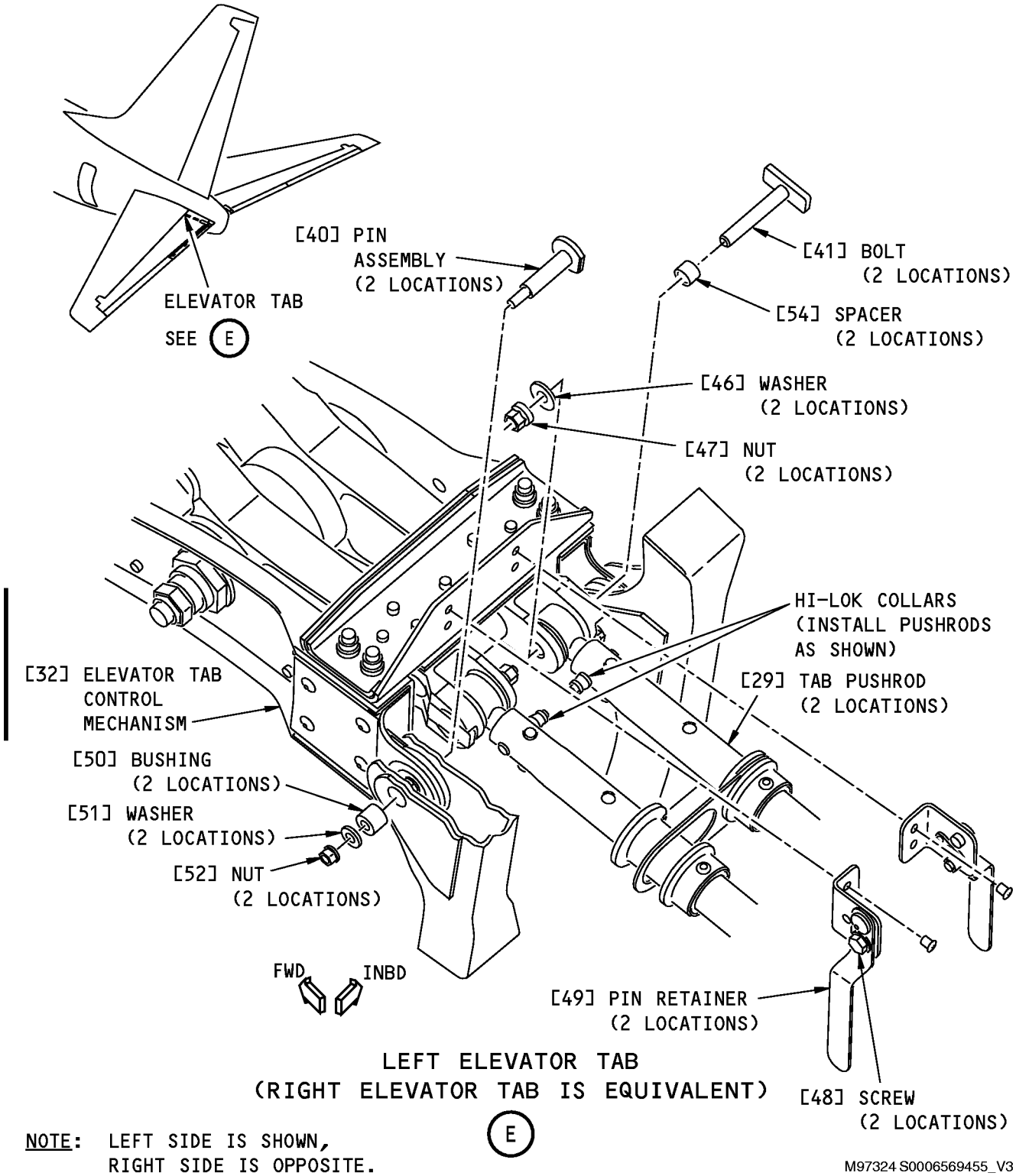

Elevator Tab Control Mechanism Installation
Figure 405/27-31-34-990-814

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TASK 27-31-34-000-803

4. Elevator Tab Pushrod - Removal

(Figure 401)

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

NOTE: Also see Figure 402, Figure 403 and Figure 405.

HAP ALL

A. General

(1) This task is applicable for two left elevator tab and two right elevator tab pushrods.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-990-804	Figure: Stabilizer Trim Jackscrew Setting (P/B 501)
27-31-00-990-807	Figure: Elevator Tab Adjustment (P/B 501)
27-31-00-990-811	Figure: Elevator Tab Fixture Bar Installation (P/B 501)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-10345	Rigging Bar - Elevator Tab (Part #: C27028-21, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27028-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
318	Tail Cone Compartment - Right
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
334	Left Horizontal Stabilizer - Elevator
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
344	Right Horizontal Stabilizer - Elevator

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

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(Continued)

Number	Name/Location
334PT	Horizontal Stabilizer, Tab Control Rod Fairing
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

F. Prepare for the Removal

SUBTASK 27-31-34-860-005

(1) Remove pressure from the elevator hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-34-010-007

(2) To get access to the aft control quadrant, do this task:

Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-34-010-008

(3) For the left elevator, remove this access panel:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

SUBTASK 27-31-34-010-009

(4) For the right elevator, remove this access panel:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

SUBTASK 27-31-34-010-019

(5) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-34-010-020

(6) For the left elevator tab pushrods, remove this access panel:

Number	Name/Location
334PT	Horizontal Stabilizer, Tab Control Rod Fairing

SUBTASK 27-31-34-010-021

(7) For the right elevator tab pushrods, remove this access panel:

Number	Name/Location
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

SUBTASK 27-31-34-220-002

(8) Measure the elevator tab position.

SUBTASK 27-31-34-860-009

(9) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

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SUBTASK 27-31-34-860-010

(10) Use the bar, SPL-1677 to set the "B" dimension at 4 units of trim (39.89 +/- 0.01 inches or 1013.2 +/- 0.3 mm) (Figure 27-31-00-990-804).

SUBTASK 27-31-34-860-011

(11) Push the elevator trailing edge full up by hand.

SUBTASK 27-31-34-860-012

(12) While you move the elevator trailing edge down, align the center of the elevator trailing edge with the index mark in +/- 0.04 inch (+/- 1.0 mm), or less (Figure 27-31-00-990-807).

NOTE: Keep the elevators at this position while you measure and adjust the tab pushrods. If the elevator position is changed, you must put the elevator trailing edge at the full up position and do this step again before you continue.

SUBTASK 27-31-34-480-005

(13) Install the elevator tab rigging bar, SPL-10345 (Figure 27-31-00-990-811).

(a) To use the elevator tab rigging bar, SPL-10345, do the steps that follow:

1) Move the digital micrometer to the bottom of the slide.

2) Push the button on the micrometer to zero the micrometer reading.

3) Move the digital micrometer up until it gives the same reading as the calibration value stamped on the side of the tool.

NOTE: This brings the pointer on the micrometer up to approximately 0.3 inch (8millimeters) below the trailing edge of the elevator tab.

4) Push the button on the micrometer to zero the micrometer reading.

(b) Install the elevator tab rigging bar, SPL-10345 below the elevator and elevator tab at the third elevator tab hinge (from inboard).

(c) Make sure the cross bar on the elevator tab rigging bar, SPL-10345 touches the lower surface of the elevator trailing edge.

1) Record and keep a record of the elevator tab dimension.

NOTE: Adjusting the elevator tab back to this recorded position may reduce the need for a second flight test.

G. Tab Pushrod Removal

SUBTASK 27-31-34-020-008

(1) Remove the bolts [24] that attach the access panel [23] to the elevator [21].

SUBTASK 27-31-34-020-009

(2) Remove the tab pushrod [29]:

(a) Remove the screws [48] from the pin retainer [49].

(b) Remove the pin [53], nut [25], washer [26], bushing [27], and bolt [28] from the tab pushrod [29] and elevator tab [22]. Discard the pin [53].

(c) Remove the upper access panels to disconnect the tab mechanism [32] from the elevator by removing items [52], [51], [50], [40], if it is required to remove bolt [41].

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

(d) Remove the nut [47], washer [46], spacer [53], and the bolt [41] from the elevator tab control mechanism [32] and tab pushrod [29].

HAP ALL

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(e) Disconnect the tab pushrod [29] from the elevator tab control mechanism [32].

(f) Remove the tab pushrod [29] from the airplane.

——————— END OF TASK ———————

TASK 27-31-34-400-803

5. Elevator Tab Pushrod - Installation

(Figure 401)

NOTE: Also see Figure 402, Figure 403 and Figure 405.

A. References

Reference	Title
27-31-00-700-804	Elevator Travel Limit - Test (P/B 501)
27-31-00-700-806	Elevator Tab Linkage - Test (P/B 501)
27-31-00-700-809	Control Column Power Force - Test (P/B 501)
27-31-00-710-803	Elevator Power-Off Flight - Test (P/B 501)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-820-805	Elevator Tab Pushrods - Adjustment (P/B 501)

B. Location Zones

Zone	Area
318	Tail Cone Compartment - Right
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
334	Left Horizontal Stabilizer - Elevator
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
344	Right Horizontal Stabilizer - Elevator

C. Access Panels

Number	Name/Location
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

D. Tab Pushrod Installation

SUBTASK 27-31-34-860-006

(1) Make sure hydraulic power is removed from the elevator hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-34-420-004

(2) Install the tab pushrods [29]:

(a) Put the tab pushrods [29] in its position.

NOTE: If you loosened or removed the nuts [47] or nuts [25], they need to be replaced with new nuts. Using new nuts will ensure that they have the required run-on torque.

(b) Install the tab mechanism [32] to the elevator by installing items [40], [50], [51], [and [52], if it was required to remove bolts [41] (Figure 405).

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HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

(c) Install the spacers [53], bolts [41], washers [46], and new nuts [47] to connect the tab pushrods [29] to the elevator tab control mechanism [32].

NOTE: The inboard bolt is installed with the head inboard and the outboard bolt is installed with the head outboard.

HAP ALL

CAUTION: IF THE NEW NUTS [47] ARE NOT TIGHTENED CORRECTLY, THEN THE PUSHRODS CAN BECOME DISCONNECTED AND CAUSE DAMAGE TO THE ELEVATOR AND STABILIZER.

(d) Tighten the new nuts [47] to 70 - 80 pound-inches (7.9 - 9.0 newton-meters).

(e) Install the screws [48] to attach the pin retainers [49] to the elevator tab control mechanism [32].

(f) Install the bushings [27], bolts [28], washers [26] and new nuts [25] to connect the tab pushrods [29] to the elevator tab [22].

NOTE: The inboard bolt is installed with the head inboard and the outboard bolt is installed with the head outboard.

CAUTION: IF THE NEW NUTS [25] ARE NOT TIGHTENED CORRECTLY, THEN THE PUSHRODS CAN BECOME DISCONNECTED AND CAUSE DAMAGE TO THE ELEVATOR AND STABILIZER.

(g) Tighten the new nuts [25] to 70 - 80 pound-inches (7.9 - 9.0 newton-meters) and install new pins [53] in the anti-rotation boss at the head of the bolt [28].

SUBTASK 27-31-34-820-002

(3) Adjust the tab pushrods until you get the same tab position that you measured before you removed the elevator tab pushrods. To adjust them, do this task: Elevator Tab Pushrods - Adjustment, TASK 27-31-00-820-805.

SUBTASK 27-31-34-420-005

(4) Install the bolts [24] to attach the access panel [23] to the elevator [21].

SUBTASK 27-31-34-730-009

(5) Do this task: Elevator Travel Limit - Test, TASK 27-31-00-700-804.

SUBTASK 27-31-34-730-010

(6) Do this task: Elevator Tab Linkage - Test, TASK 27-31-00-700-806.

SUBTASK 27-31-34-730-011

(7) Do this task: Control Column Power Force - Test, TASK 27-31-00-700-809.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-34-410-008

(1) For the left elevator, install this access panel:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

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SUBTASK 27-31-34-410-009

(2) For the right elevator, install this access panel:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

SUBTASK 27-31-34-410-012

(3) Close this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-34-730-012

(4) Do this task: Elevator Power-Off Flight - Test, TASK 27-31-00-710-803.

——————— END OF TASK ———————

TASK 27-31-34-000-804

6. Elevator Tab Lock Actuator - Removal

(Figure 401, Figure 406)

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

NOTE: Also see Figure 402, Figure 403 and Figure 405.

HAP ALL

A. References

Reference	Title
27-31-00-710-803	Elevator Power-Off Flight - Test (P/B 501)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-820-805	Elevator Tab Pushrods - Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
318	Tail Cone Compartment - Right
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
334	Left Horizontal Stabilizer - Elevator
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
344	Right Horizontal Stabilizer - Elevator

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D. Access Panels

Number	Name/Location
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

E. Prepare for the Removal

SUBTASK 27-31-34-860-007

(1) Remove pressure from the elevator hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-34-010-011

(2) To get access to the aft control quadrant, do this task:

Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-34-010-012

(3) For the left elevator, remove this access panel:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

SUBTASK 27-31-34-010-013

(4) For the right elevator, remove this access panel:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

SUBTASK 27-31-34-480-004

(5) Install the rig pin E-5 from rig pin kit, SPL-1585 in the aft control quadrant (Figure 401).

SUBTASK 27-31-34-220-003

(6) If you will change the adjustment of the elevator tab pushrods, then you need to measure the elevator tab position. To measure the tab position, do this task: Elevator Tab Pushrods - Adjustment, TASK 27-31-00-820-805.

(a) Keep a record of the elevator tab position.

(b) If you will change the adjustment of both elevator tab pushrods, then you need to do an elevator power-off flight test. Do this task:Elevator Power-Off Flight - Test, TASK 27-31-00-710-803

F. Tab Lock Actuator Removal

SUBTASK 27-31-34-020-014

(1) Disconnect the hydraulic line [31] from the elevator tab lock actuator [78] and install caps and plugs on the hydraulic line and port.

NOTE: See Figure 402.

NOTE: The spring should be at the neutral position when the hydraulic line is disconnected.

SUBTASK 27-31-34-020-015

(2) Remove the elevator tab lock actuator [78]:

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(a) Remove the nut [80], washer [79], bushings [77], and bolt [76] from the elevator tab lock actuator [78].

(b) Remove the nut [75], washer [74], bushing [73], and bolt [71] from the elevator tab lock actuator [78].

(c) Remove the elevator tab lock actuator [78] from the airplane.

——————— END OF TASK ———————

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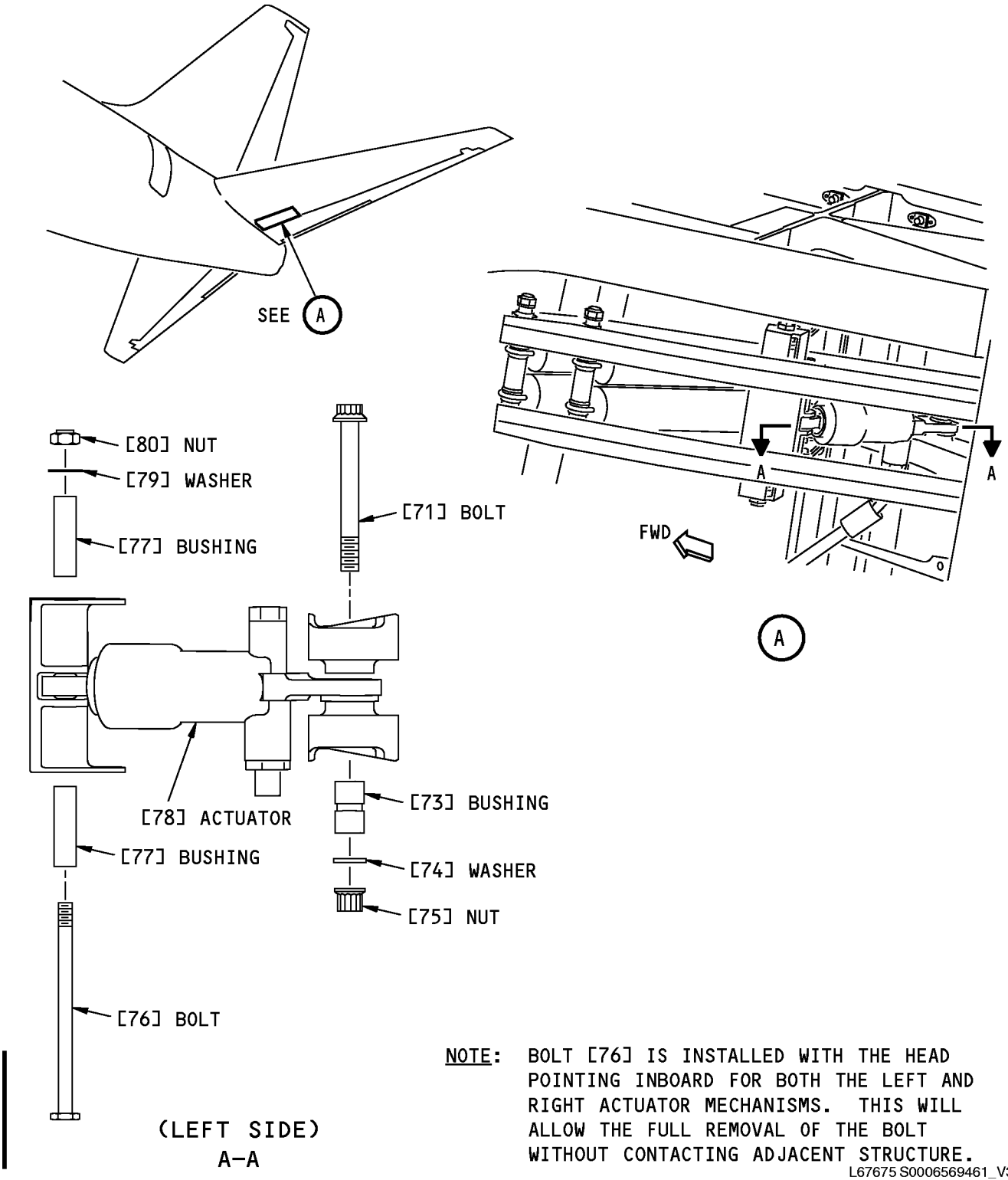

Elevator Tab Lock Actuator Installation
Figure 406/27-31-34-990-804

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TASK 27-31-34-400-804

7. Elevator Tab Lock Actuator - Installation

(Figure 401, Figure 406)

HAP ALL; AIRPLANES WITH THE SIX HINGE ELEVATOR TAB WITH RECTANGULAR HEAD BOLTS

NOTE: Also see Figure 402, Figure 403 and Figure 405.

HAP ALL

A. References

Reference	Title
27-31-00-700-815	Elevator Tab Control System - Operational Test (P/B 501)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
318	Tail Cone Compartment - Right
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
334	Left Horizontal Stabilizer - Elevator
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge
344	Right Horizontal Stabilizer - Elevator

D. Access Panels

Number	Name/Location
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

E. Tab Mechanism Installation

SUBTASK 27-31-34-860-008

(1) Make sure hydraulic power is removed from the elevator hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-34-420-007

(2) Install the elevator tab lock actuator [78]:

(a) Install the bolt [71], bushing [73], washer [74], and nut [75].

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(b) Install the bolt [76], bushings [77], washer [79], and nut [80].

NOTE: The bolt [76] is installed with the head pointing inboard on both the left and right actuator mechanisms. This will allow the full removal of the bolt from the actuator mechanism without it contacting adjacent structure.

SUBTASK 27-31-34-420-008

(3) Connect the hydraulic line.

(a) Remove the caps and plugs from the hydraulic and electrical lines.

(b) Connect hydraulic line [31] from the crank assembly [32].

SUBTASK 27-31-34-080-004

(4) Remove rig pin E-5 of the rig pin kit, SPL-1585 from the aft control quadrant (Figure 401).

SUBTASK 27-31-34-730-013

(5) Do this task: Elevator Tab Control System - Operational Test, TASK 27-31-00-700-815.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-34-410-013

(1) For the left elevator, install this access panel:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge

SUBTASK 27-31-34-410-014

(2) For the right elevator, install this access panel:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area

SUBTASK 27-31-34-410-015

(3) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

END OF TASK

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ELEVATOR TAB CONTROL MECHANISM - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these inspection tasks:

(1) Elevator Balance Weight Installation and Elevator Tab Control Mechanism General Visual Inspection

TASK 27-31-34-210-801

2. Elevator Balance Weight Installation and Elevator Tab Control Mechanism - General Visual Inspection

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

C. Access Panels

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
333CB	Horizontal Stabilizer, Access Panel, Trailing Edge
333DB	Horizontal Stabilizer, Access Panel, Trailing Edge
334PT	Horizontal Stabilizer, Tab Control Rod Fairing
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
343CB	Horizontal Stabilizer, Access Panel - T.E. Area
343DB	Horizontal Stabilizer, Access Panel - T.E. Area
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

D. Procedure

SUBTASK 27-31-34-010-014

(1) Remove these access panels to get access to the left Elevator Tab Control Mechanism:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
333CB	Horizontal Stabilizer, Access Panel, Trailing Edge
333DB	Horizontal Stabilizer, Access Panel, Trailing Edge
334PT	Horizontal Stabilizer, Tab Control Rod Fairing

SUBTASK 27-31-34-010-010

(2) Remove these access panels to get access to the right Elevator Tab Control Mechanism:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
343CB	Horizontal Stabilizer, Access Panel - T.E. Area
343DB	Horizontal Stabilizer, Access Panel - T.E. Area
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

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SUBTASK 27-31-34-210-001

(3) Do a general visual inspection of the left and right elevator balance weight installations and elevator tab control mechanisms (Figure 601 or Figure 602 Figure 601 or Figure 602).

SUBTASK 27-31-34-010-015

(4) Install these access panels, used to access to the left Elevator Tab Control Mechanism:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
333CB	Horizontal Stabilizer, Access Panel, Trailing Edge
333DB	Horizontal Stabilizer, Access Panel, Trailing Edge
344PT	Horizontal Stabilizer, Tab Control Rod Fairing, Elevator Sta 34.0

SUBTASK 27-31-34-410-010

(5) Install these panels used to access to the right Elevator Tab Control Mechanism:

Number	Name/Location
334PT	Horizontal Stabilizer, Tab Control Rod Fairing
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
343CB	Horizontal Stabilizer, Access Panel - T.E. Area
343DB	Horizontal Stabilizer, Access Panel - T.E. Area

END OF TASK

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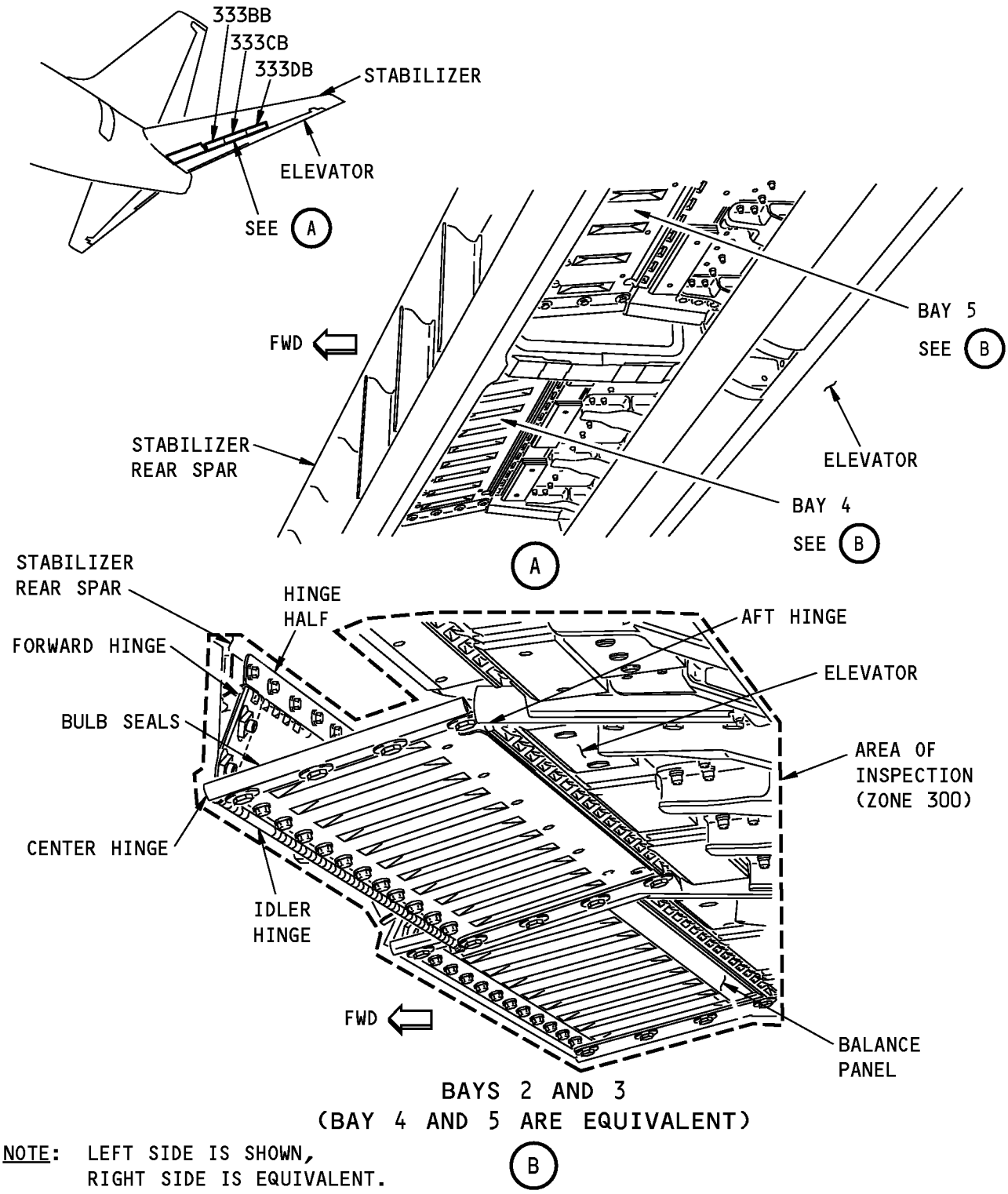

Elevator Balance Weight Installation - General Visual Inspection
Figure 601 (Sheet 1 of 2)/27-31-34-990-815

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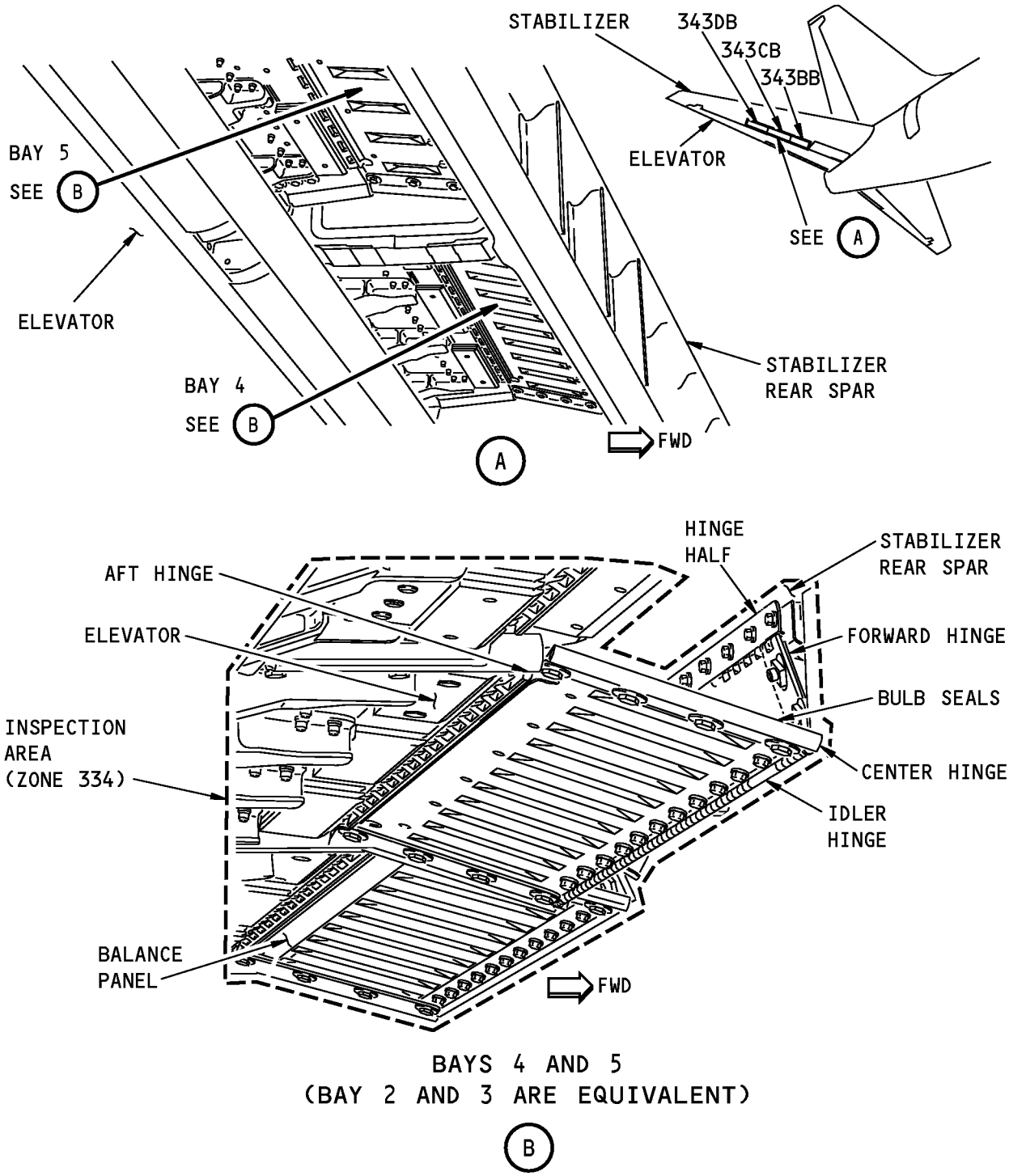

Elevator Balance Weight Installation - General Visual Inspection
Figure 601 (Sheet 2 of 2)/27-31-34-990-815

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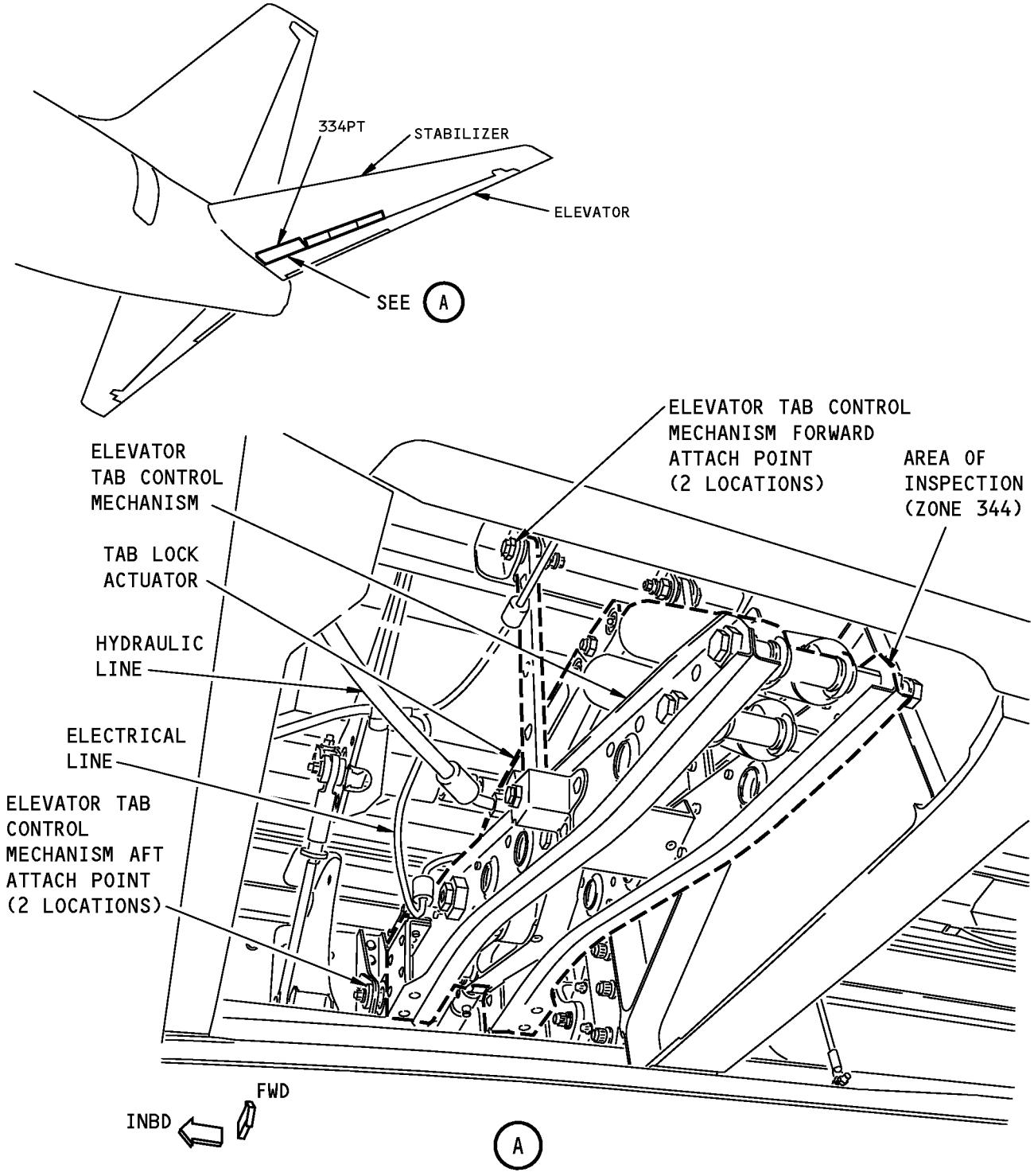

Elevator Tab Control Mechanism - General Visual Inspection
Figure 602 (Sheet 1 of 2)/27-31-34-990-816

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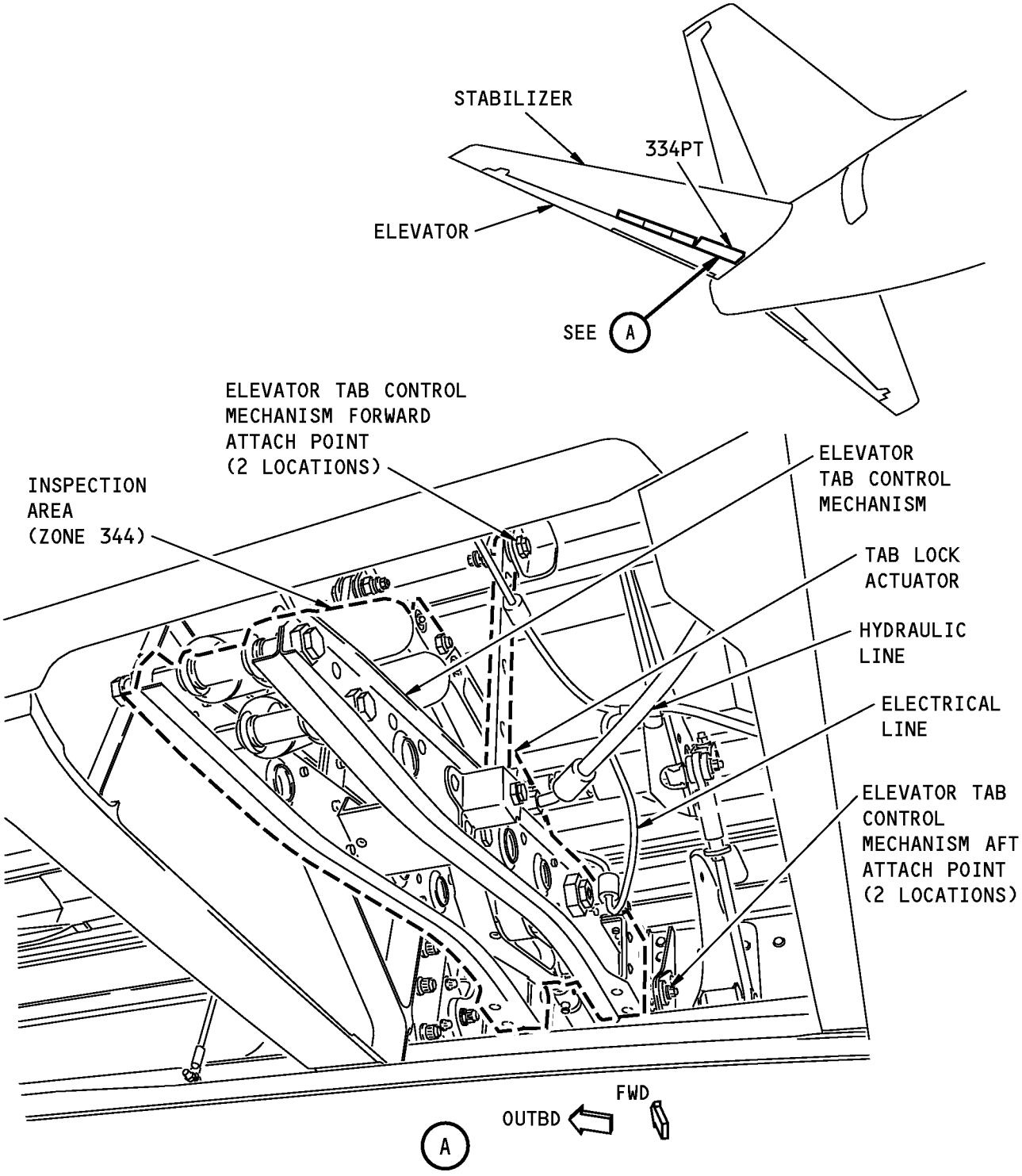

Elevator Tab Control Mechanism - General Visual Inspection
Figure 602 (Sheet 2 of 2)/27-31-34-990-816

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ELEVATOR TAB CONTROL VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator tab control valve

(2) An installation of the elevator tab control valve

B. The elevator tab control valve is referred to as the "control valve" in this procedure.

C. This procedure is applicable to the control valves for the left and right elevator tab control mechanisms. The upper control valve is for the left elevator tab control mechanism and the lower control valve is for the right elevator tab control mechanism.

TASK 27-31-35-000-801

2. Elevator Tab Control Valve - Removal

(Figure 401)

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
318	Tail Cone Compartment - Right

C. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

D. Prepare for the Removal

SUBTASK 27-31-35-860-001

(1) Remove pressure from the elevator hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-35-010-001

(2) To get access to the control valve, do this task:

Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

E. Control Valve Removal

SUBTASK 27-31-35-020-001

(1) Disconnect hydraulic lines [10] from the control valve [11]. Discard the packings [9].

(a) Install the caps and plugs on the control valve ports and hydraulic lines.

SUBTASK 27-31-35-020-002

(2) Disconnect the electrical line [5] from the control valve [11].

SUBTASK 27-31-35-020-003

(3) Remove the bolts [6] and washers [7] that attach the control valve [11] to the airplane structure.

END OF TASK

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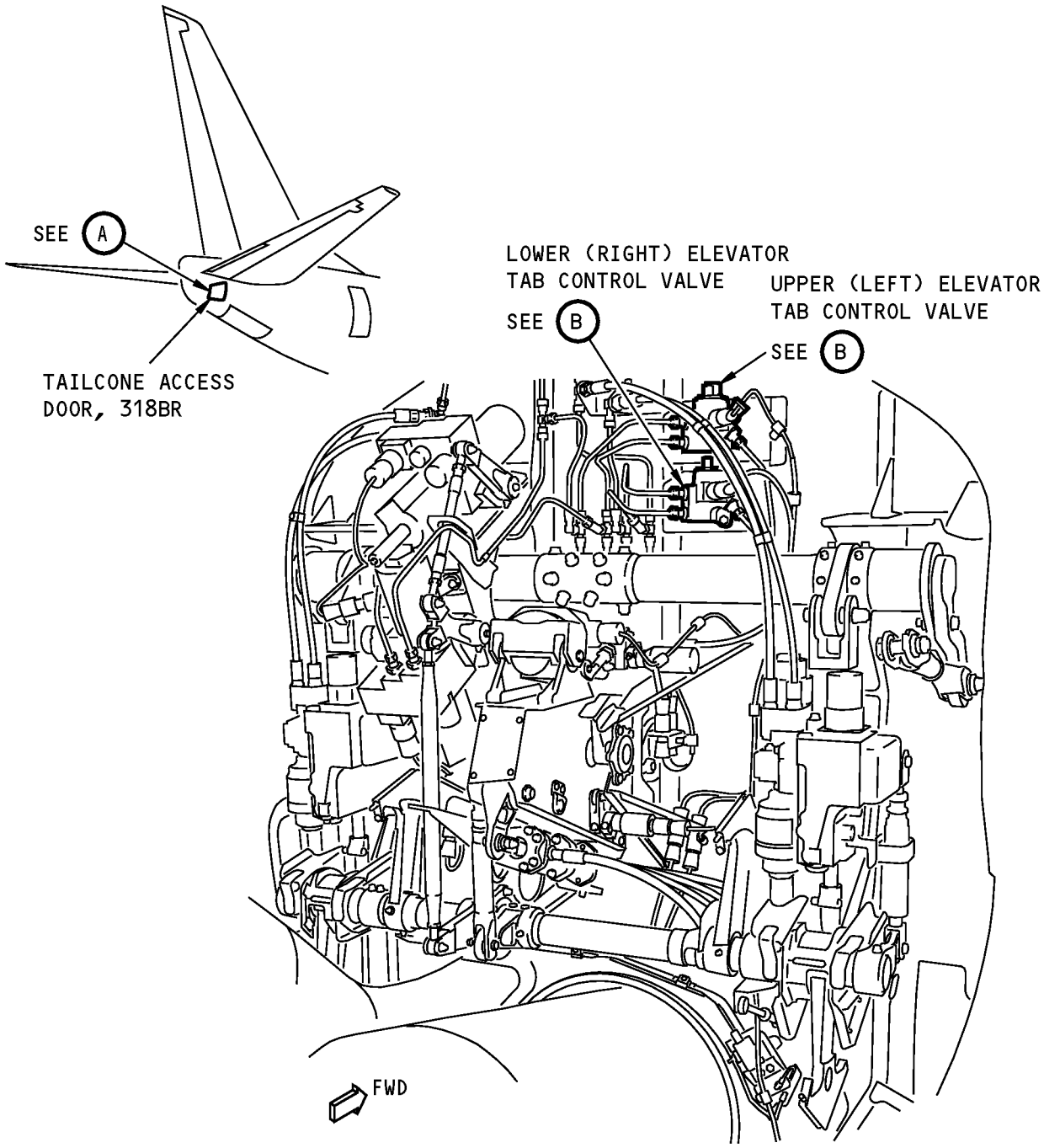

Elevator Tab Control Valve Installation
Figure 401 (Sheet 1 of 2)/27-31-35-990-801

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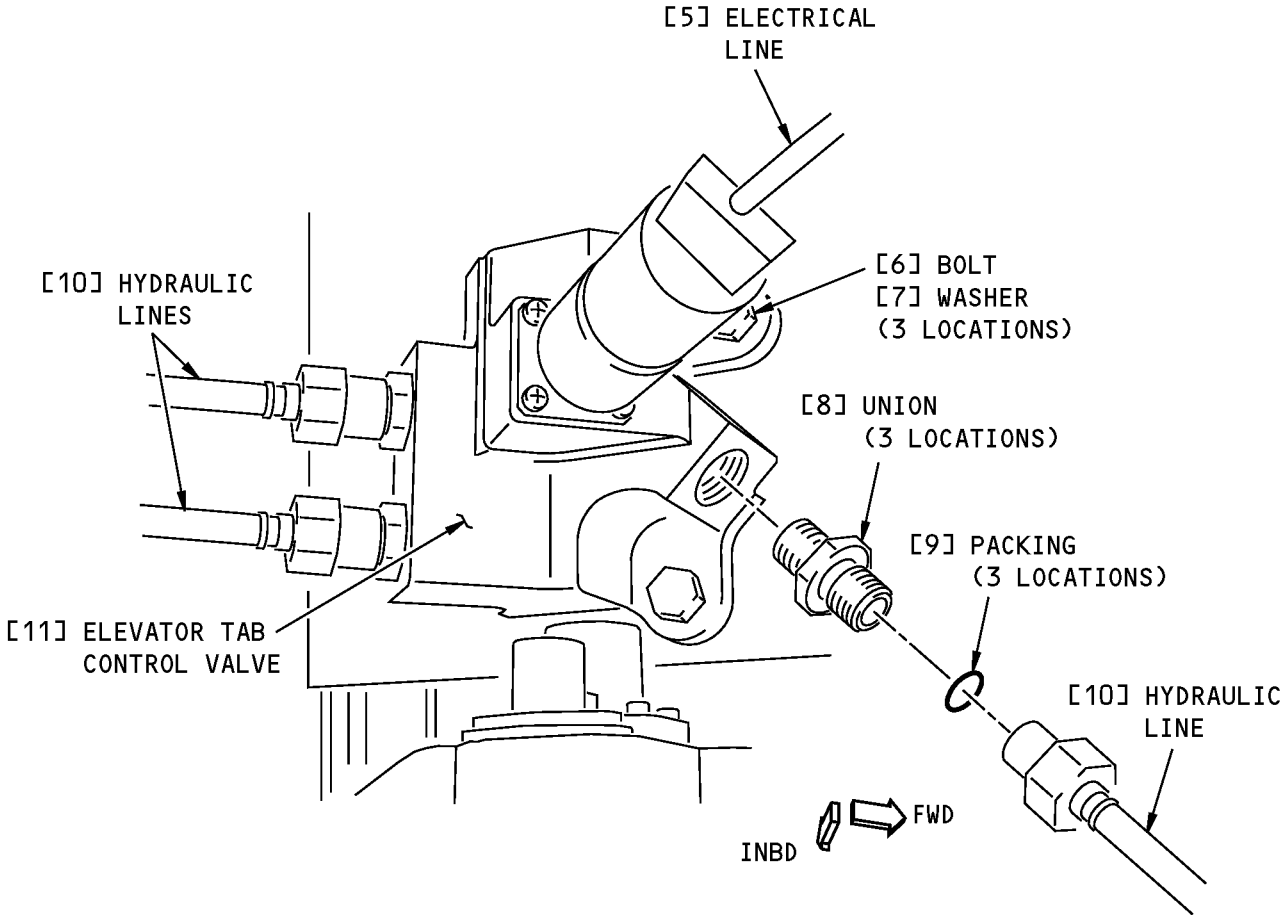

ELEVATOR TAB CONTROL VALVE
(UPPER (OR LEFT TAB) IS SHOWN,
LOWER (OR RIGHT TAB) IS EQUIVALENT)

B

Elevator Tab Control Valve Installation
Figure 401 (Sheet 2 of 2)/27-31-35-990-801

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TASK 27-31-35-400-801

3. Elevator Tab Control Valve - Installation

(Figure 401)

A. References

Reference	Title
27-31-00-700-815	Elevator Tab Control System - Operational Test (P/B 501)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Packing	27-31-31-02-075	HAP ALL
11	Control valve	27-31-31-02-015	HAP ALL
		27-31-31-02-077	HAP ALL

D. Location Zones

Zone	Area
318	Tail Cone Compartment - Right

E. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

F. Control Valve Installation

SUBTASK 27-31-35-860-002

(1) Make sure hydraulic power is removed from the elevator hydraulic systems A and B. To remove it, do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-31-35-420-001

(2) If the unions and packings are not installed in the control valve [11], then do these steps:

(a) Lubricate the unions and new packings with fluid, D00153.

(b) Install the new packings [9] and unions [8] to the control valve [11].

SUBTASK 27-31-35-420-002

(3) Install the control valve [11] to the airplane structure.

(a) Install the bolts [6] and washers [7] in the control valve [11].

(b) Remove the caps and plugs from the hydraulic [10] and electrical [5] lines.

(c) Connect the hydraulic lines [10] to the control valve [11].

(d) Connect the electrical line [5] to the control valve [11].

SUBTASK 27-31-35-730-001

(4) Do this task: Elevator Tab Control System - Operational Test, TASK 27-31-00-700-815.

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G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-35-410-001

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

END OF TASK

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ELEVATOR FEEL COMPUTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator feel computer

(2) An installation of the elevator feel computer.

TASK 27-31-37-000-801

2. Elevator Feel Computer - Removal

(Figure 401)

A. References

Reference	Title
20-10-51-000-801	Flareless Tubing Assembly Removal (P/B 401)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1673	Pin - Safety, Elevator Feel Computer (Part #: F80153-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Prepare for the Removal

SUBTASK 27-31-37-010-001

(1) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-37-860-001

(2) Use the bar, SPL-1677 to set the B dimension at 39.89 +/- 0.01 inches (1013.21 +/- 0.25 millimeters) (Figure 401).

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SUBTASK 27-31-37-860-002

(3) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-37-860-003

(4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	2	C01064	AFCS SYS B MACH TRIM DC
B	3	C01046	AFCS SYS B FCC DC
B	4	C00716	AFCS SYS B ENGAGE INTLK
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
C	1	C01037	AFCS SYS B MACH TRIM AC
C	2	C01042	AFCS SYS B SNSR EXC AC
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2

SUBTASK 27-31-37-480-001

CAUTION: YOU MUST INSTALL THE SAFETY PIN, F80153-1 IN THE RIG PIN HOLE OF THE ELEVATOR FEEL COMPUTER. IF THE ELEVATOR FEEL COMPUTER IS NOT ATTACHED TO THE INPUT ARM, IT CAN BE EASILY DAMAGED WHEN IT IS REMOVED.

(5) Install the pin, SPL-1673 in the input arm [8] and the elevator feel computer assembly [1].

F. Elevator Feel Computer Removal

SUBTASK 27-31-37-020-001

CAUTION: DO NOT LIFT THE ELEVATOR FEEL COMPUTER BY THE INPUT ARM, OR APPLY A TORQUE OF MORE THAN 300 POUND-INCHES (33.9 NEWTON-METERS) TO THE INPUT ARM. THE ELEVATOR FEEL COMPUTER IS VERY SENSITIVE AND IT CAN EASILY BE DAMAGED.

(1) Remove the elevator feel computer assembly [1]:

(a) Disconnect the spring [16] from the elevator feel computer assembly [1].

(b) Remove the nut [23], washer [22], and bolt [21] to disconnect the stabilizer pushrod [2] from the input arm [8].

(c) Disconnect the electrical connector [7] from the elevator feel computer assembly [1].

WARNING: RELEASE THE CONNECTION SLOWLY AND LET THE PRESSURE DECREASE BEFORE YOU COMPLETELY REMOVE THE HYDRAULIC LINE, IF YOU DISCONNECT THE HYDRAULIC LINE WHEN IT HAS PRESSURE, A SPRAY OF HYDRAULIC FLUID CAN CAUSE INJURY TO PERSONS.

(d) Disconnect the hydraulic lines, pitot lines, and static lines from the elevator feel computer assembly [1].

NOTE: Install tags on lines and port fittings to clearly show the correct connection location. See (Flareless Tubing Assembly Removal, TASK 20-10-51-000-801) for instructions on correct tubing removal.

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(e) Install caps to the hydraulic lines, pitot lines, and static lines.

(f) Install plugs to all ports.

(g) Remove the nuts [6], washers [5], washers [4], and bolts [3] that attach the elevator feel computer assembly [1] to the airplane structure.

(h) Remove the elevator feel computer assembly [1] from the airplane.

SUBTASK 27-31-37-540-001

(2) Discard the packings [9], packings [12], packings [14], packings [17], and packings [19].

END OF TASK

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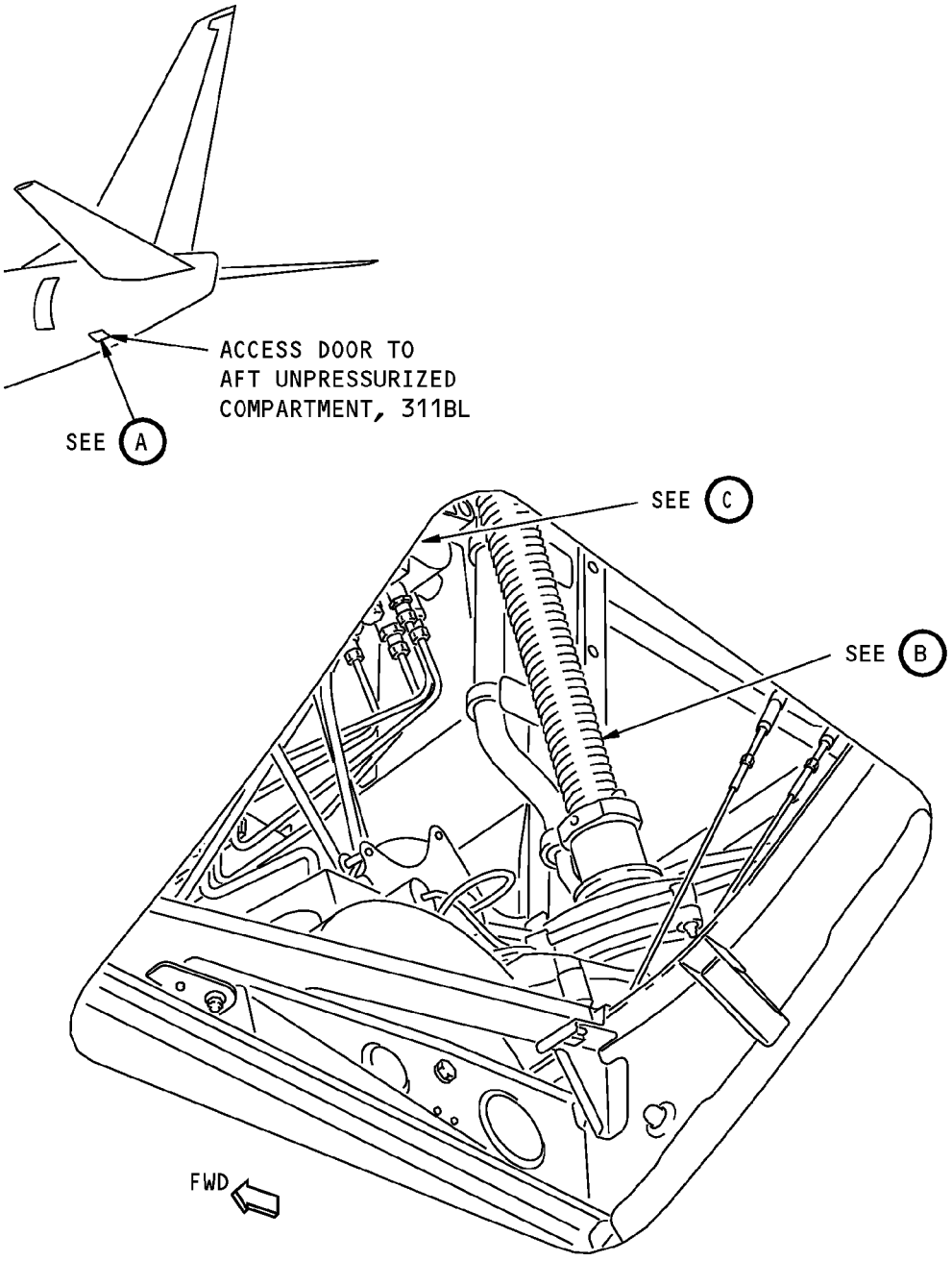

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL
A

Elevator Feel Computer Installation
Figure 401 (Sheet 1 of 3)/27-31-37-990-801

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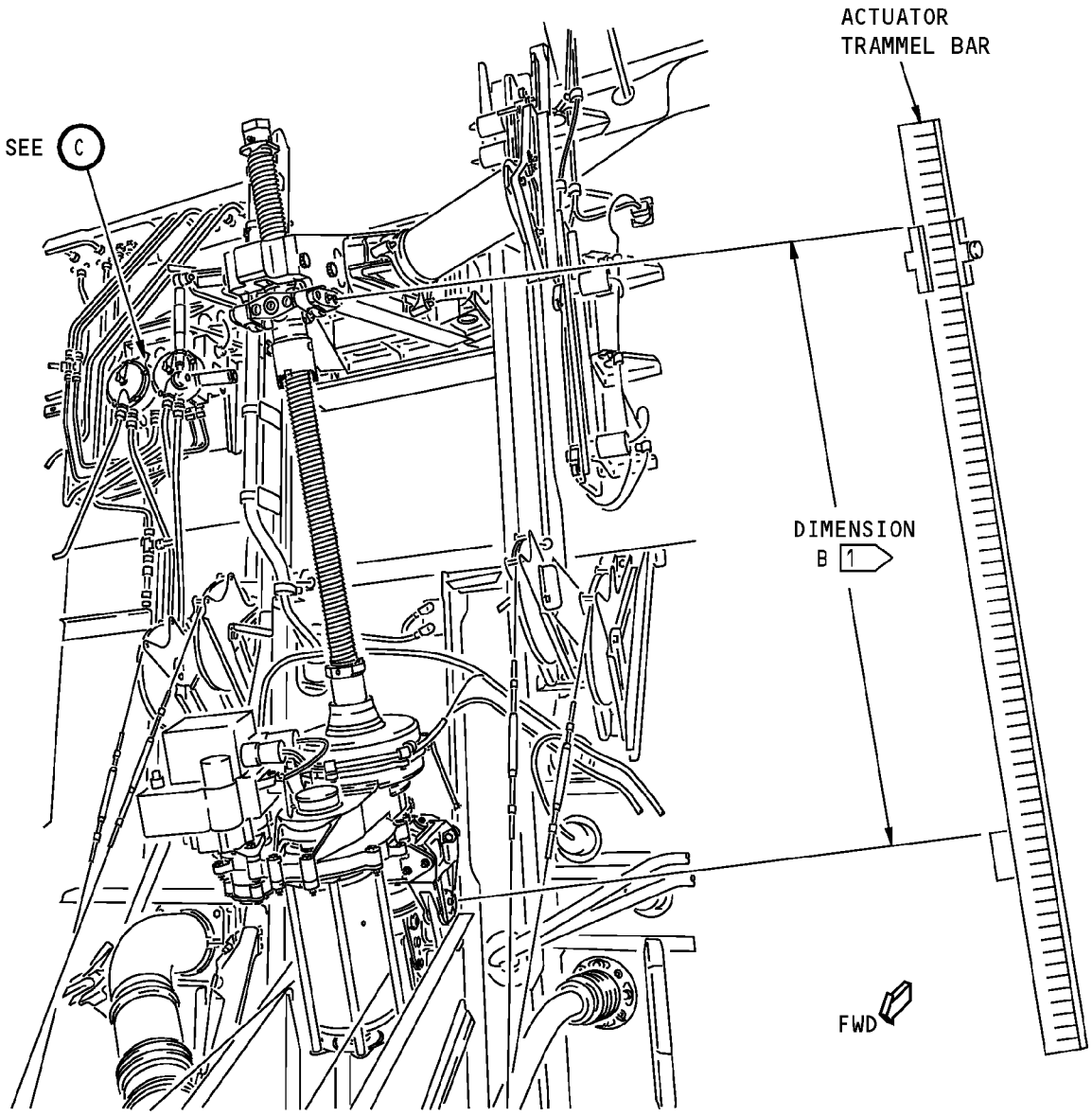

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Elevator Feel Computer Installation
Figure 401 (Sheet 2 of 3)/27-31-37-990-801

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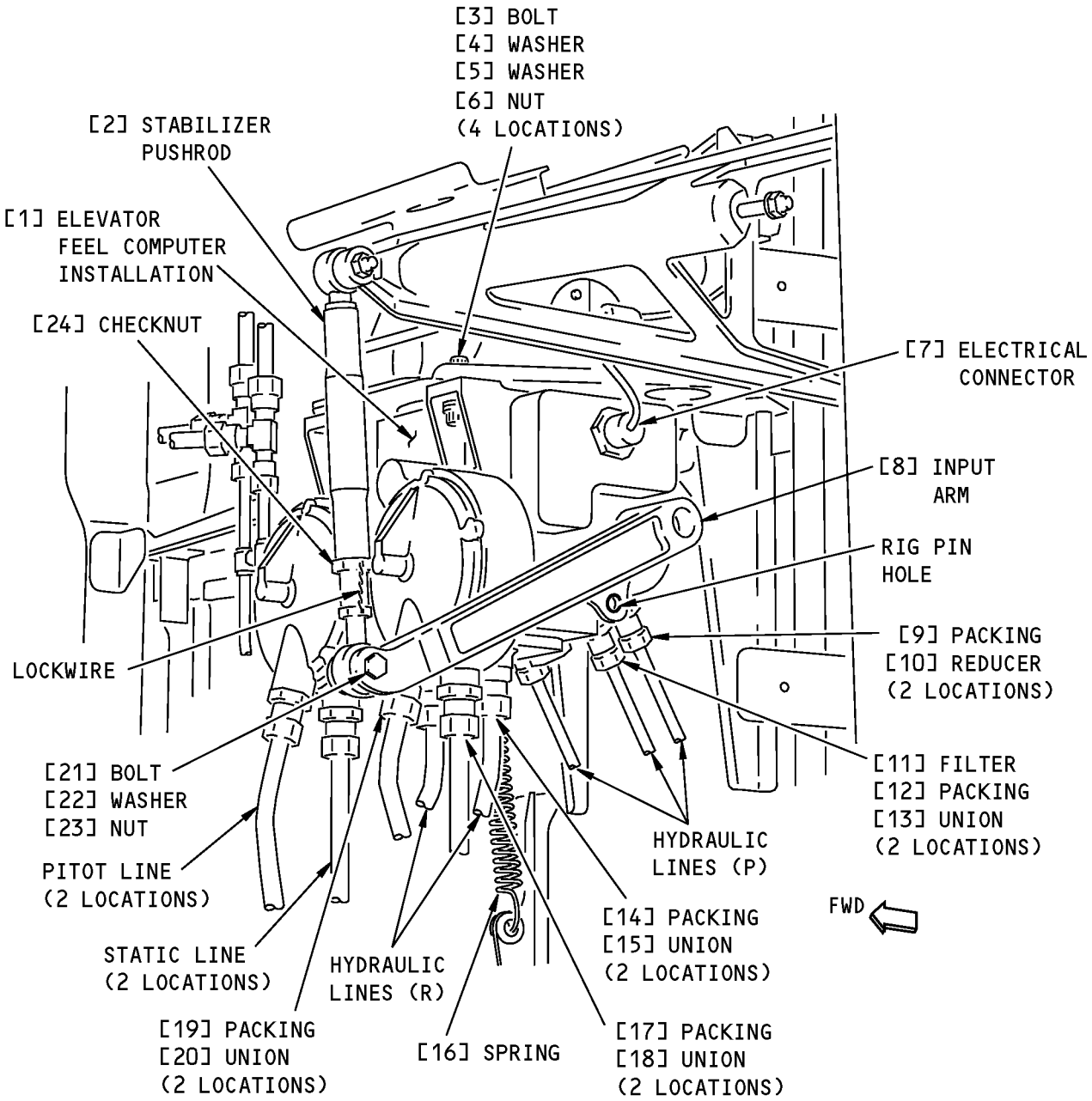

Elevator Feel Computer Installation
Figure 401 (Sheet 3 of 3)/27-31-37-990-801

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TASK 27-31-37-400-801

3. Elevator Feel Computer - Installation

(Figure 401)

A. References

Reference	Title
20-10-51-400-804	Flareless Tubing Assembly Installation (P/B 401)
27-31-00-700-812	Feel Force System - Test (P/B 501)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1673	Pin - Safety, Elevator Feel Computer (Part #: F80153-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜C32

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Computer assembly	27-31-37-01-155	HAP ALL
9	Packing	27-31-37-01-225	HAP ALL
14	Packing	27-31-37-01-260	HAP ALL
17	Packing	27-31-37-01-225	HAP ALL
19	Packing	27-31-37-01-225	HAP ALL

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E. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

F. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

G. Elevator Feel Computer Installation

SUBTASK 27-31-37-860-004

(1) Make sure that pressure is removed from the elevator hydraulic systems A and B. To remove it, do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-37-860-005

(2) Use the bar, SPL-1677 to make sure that the B dimension is at 39.89 +/- 0.01 inches (1013.21 +/- 0.25 millimeters) (Figure 401).

SUBTASK 27-31-37-420-001

(3) If the packings, filters, unions, and reducers are not installed in the elevator feel computer assembly [1], then do these steps:

(a) Lightly lubricate the new packings with fluid, D00153.

(b) Install these items in the elevator feel computer assembly [1]:

1) The packings [9] and reducers [10] to the fittings for the computer pressure lines

2) The filters [11], new packings [12], and unions [13] to the fittings for the hydraulic lines

3) The new packings [14] and unions [15] to the fittings for the return lines

4) The new packings [17] and unions [18] to the fittings for the static lines

5) The new packings [19] and unions [20] to the fittings for the pitot lines.

SUBTASK 27-31-37-080-001

(4) Remove the pin, SPL-1673 from the input arm [8] and the elevator feel computer assembly [1].

SUBTASK 27-31-37-480-002

(5) Install the rig pin E-4 from the test set rig pin kit, SPL-1585 in the input arm [8] and the elevator feel computer assembly [1].

SUBTASK 27-31-37-420-002

(6) Install the elevator feel computer assembly [1]:

(a) Put the elevator feel computer assembly [1] in its position.

(b) Install the bolts [3], washers [4] (under the bolt), washers [5] (under the nut), and nuts [6] to attach the elevator feel computer assembly [1] to the airplane structure.

(c) Connect the stabilizer pushrod [2] to the input arm [8]:

1) If you cannot install the bolt [21], do these steps to adjust the length of the stabilizer pushrod [2]:

a) Loosen the checknut [24] on the stabilizer pushrod [2].

b) Turn the rod end fitting of the stabilizer pushrod [2] until you can install the bolt [21] easily by hand.

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c) Make sure the rod end extends more than half of the distance across the inspection hole in the stabilizer pushrod [2].

d) Tighten the checknut [24].

e) Install the lockwire, G01048.

2) Install the washer [22] and nut [23] to the bolt [21].

(d) Connect the spring [16] to the elevator feel computer assembly [1].

CAUTION: MAKE SURE YOU CONNECT THE HYDRAULIC LINES TO THE CORRECT PORTS. IF YOU INSTALL THE HYDRAULIC LINES TO INCORRECT PORTS, YOU CAN CAUSE DAMAGE TO THE ELEVATOR FEEL COMPUTER.

(e) Connect the hydraulic lines to the elevator feel computer assembly [1].

NOTE: See (TASK 20-10-51-400-804) for instructions on correct tubing installation.

1) Remove the caps and plugs.

2) Connect the hydraulic lines to the elevator feel computer assembly [1].

(f) Remove the caps and plugs from pitot lines, static line.

(g) Connect the pitot lines and static lines to the fittings on the elevator feel computer assembly [1]:

(h) Connect the electrical connector [7] to the elevator feel computer assembly [1].

SUBTASK 27-31-37-080-002

(7) Remove the rig pin E-4 of the rig pin kit, SPL-1585 from the input arm [8] and elevator feel computer assembly [1].

SUBTASK 27-31-37-860-006

(8) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-37-870-001

(9) Bleed the elevator control system:

(a) Move the control column full forward then full aft until the movement is smooth.

NOTE: When you bleed the remaining air out of the system, the artificial feel force increases.

SUBTASK 27-31-37-210-001

(10) Make sure that there is no hydraulic leakage from the elevator feel computer.

H. Put the Airplane Back to Its Initial Condition

SUBTASK 27-31-37-860-007

(1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	2	C01064	AFCS SYS B MACH TRIM DC
B	3	C01046	AFCS SYS B FCC DC
B	4	C00716	AFCS SYS B ENGAGE INTLK
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
C	1	C01037	AFCS SYS B MACH TRIM AC
C	2	C01042	AFCS SYS B SNSR EXC AC
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

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F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	13	C00311	INDICATOR MASTER DIM BUS 1
D	14	C00312	INDICATOR MASTER DIM BUS 2

SUBTASK 27-31-37-730-001

(2) Do this task: Feel Force System - Test, TASK 27-31-00-700-812.

SUBTASK 27-31-37-410-001

(3) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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ELEVATOR BALANCE PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of an elevator balance panel

(2) An installation of an elevator balance panel.

B. The elevator balance panel is referred to as the "balance panel" in this procedure.

TASK 27-31-41-000-801

2. Elevator Balance Panel - Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
316	APU Compartment - Right
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge

D. Access Panels

Number	Name/Location
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
333CB	Horizontal Stabilizer, Access Panel, Trailing Edge
333DB	Horizontal Stabilizer, Access Panel, Trailing Edge
333EB	Horizontal Stabilizer, Access Panel, Trailing Edge
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
343CB	Horizontal Stabilizer, Access Panel - T.E. Area
343DB	Horizontal Stabilizer, Access Panel - T.E. Area
343EB	Horizontal Stabilizer, Access Panel - T.E. Area

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E. Prepare for the Removal

SUBTASK 27-31-41-860-001

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-41-010-001

(2) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-41-010-002

(3) For the left elevator, remove these access panels:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
333CB	Horizontal Stabilizer, Access Panel, Trailing Edge
333DB	Horizontal Stabilizer, Access Panel, Trailing Edge
333EB	Horizontal Stabilizer, Access Panel, Trailing Edge

SUBTASK 27-31-41-010-003

(4) For the right elevator, remove these access panels:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
343CB	Horizontal Stabilizer, Access Panel - T.E. Area
343DB	Horizontal Stabilizer, Access Panel - T.E. Area
343EB	Horizontal Stabilizer, Access Panel - T.E. Area

SUBTASK 27-31-41-480-001

(5) Install the rig pin E-5 from the rig pin kit, SPL-1585 in the aft control quadrant (Figure 401).

F. Elevator Balance Panel Removal

(Figure 402)

SUBTASK 27-31-41-020-001

(1) Remove the balance panel [10] (bays 2, 3, and 4):

(a) Remove the bulb seals [17] from the airplane.

(b) Remove the washers [14] and bolts [13] that attach the balance panel [10] to the idler hinge [18].

(c) Remove the washers [11] and bolts [12] that attach the balance panel [10] to the elevator [6].

(d) Remove the balance panel [10] from the airplane.

SUBTASK 27-31-41-020-004

(2) Remove the idler hinge [18] (bays 2, 3, and 4):

(a) Remove the washers [8] and bolts [7] that attach the flat seals [5] to the idler hinge [18].

(b) Remove the flat seals [5] from the airplane.

(c) Remove the washers [4] and bolts [3] that attach the hinge half [2] to the balance panel support [1].

(d) Remove the idler hinge [18] and the idler hinge seal [19] from the airplane.

END OF TASK

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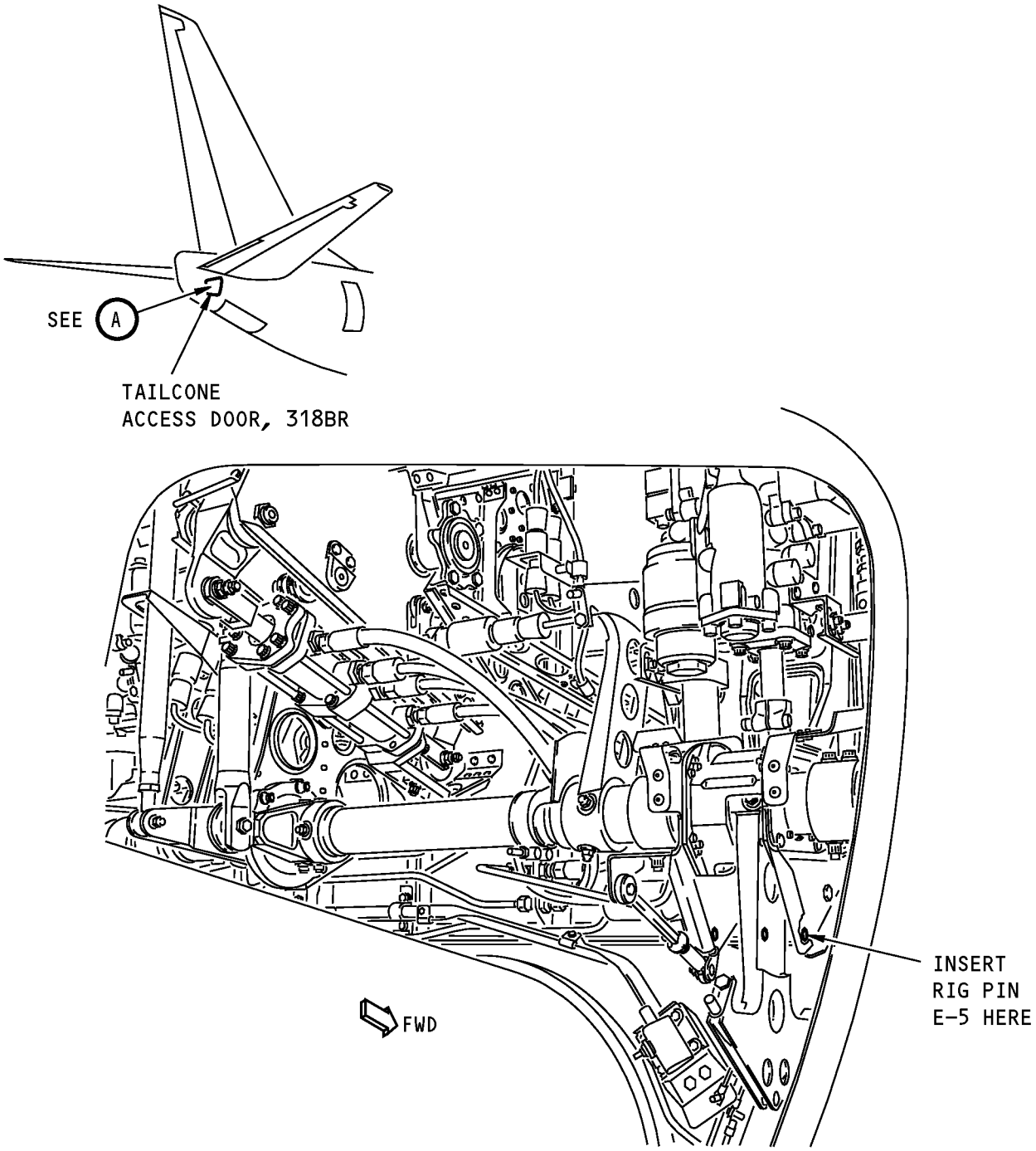

Elevator Rig Pin Installation
Figure 401/27-31-41-990-801

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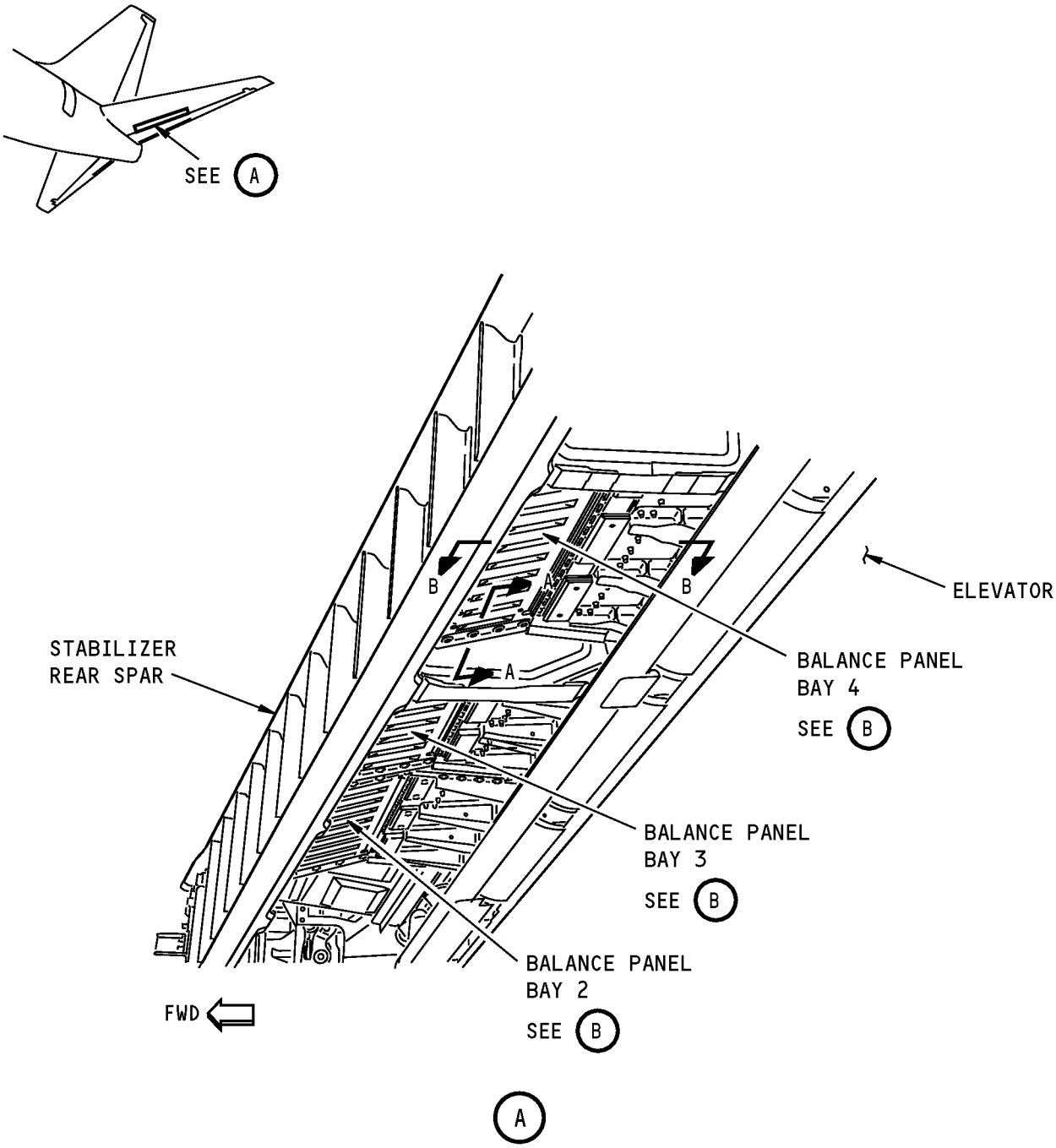

NOTE: LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE.

Elevator Balance Panel Installation
Figure 402 (Sheet 1 of 4)/27-31-41-990-802

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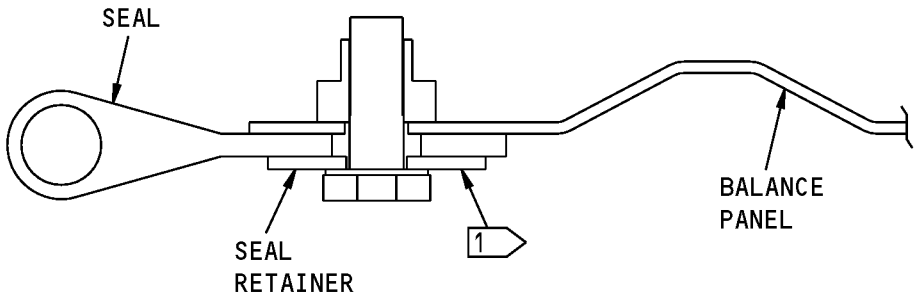
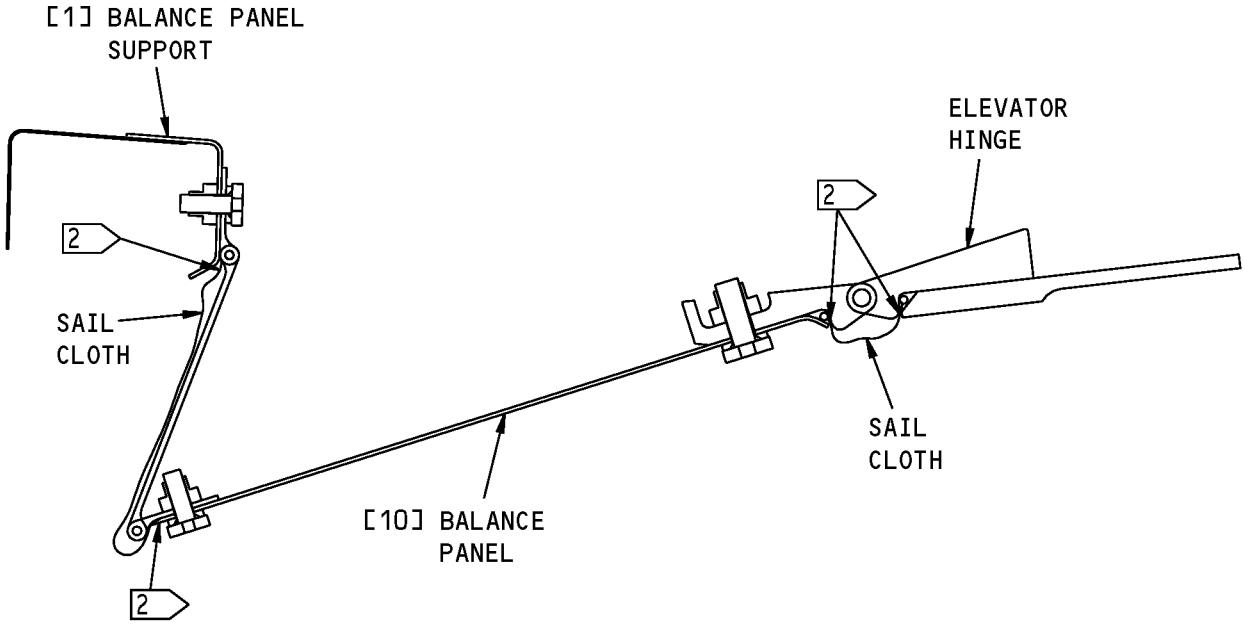


A–A



B–B

1 APPLY BMS 3-23 BY BRUSH ONLY TO ALL EDGES OF THE SEAL RETAINER AND INTERFACE BETWEEN THE SEAL RETAINER AND THE SEAL. THIS ONLY NEEDS TO BE APPLIED WHEN NEW COMPONENTS ARE INSTALLED.

2 APPLY BMS 3-23 BY BRUSH ONLY TO ALL SURFACES WHERE THE BALANCE PANEL SURFACES CONTACT THE SAIL CLOTH. THIS ONLY NEEDS TO BE APPLIED WHEN NEW COMPONENTS ARE BEING INSTALLED. IF YOU INSTALL THE SAME PART THAT WAS REMOVED, YOU DO NOT NEED TO APPLY THE BMS 3-23.

Elevator Balance Panel Installation
Figure 402 (Sheet 2 of 4)/27-31-41-990-802

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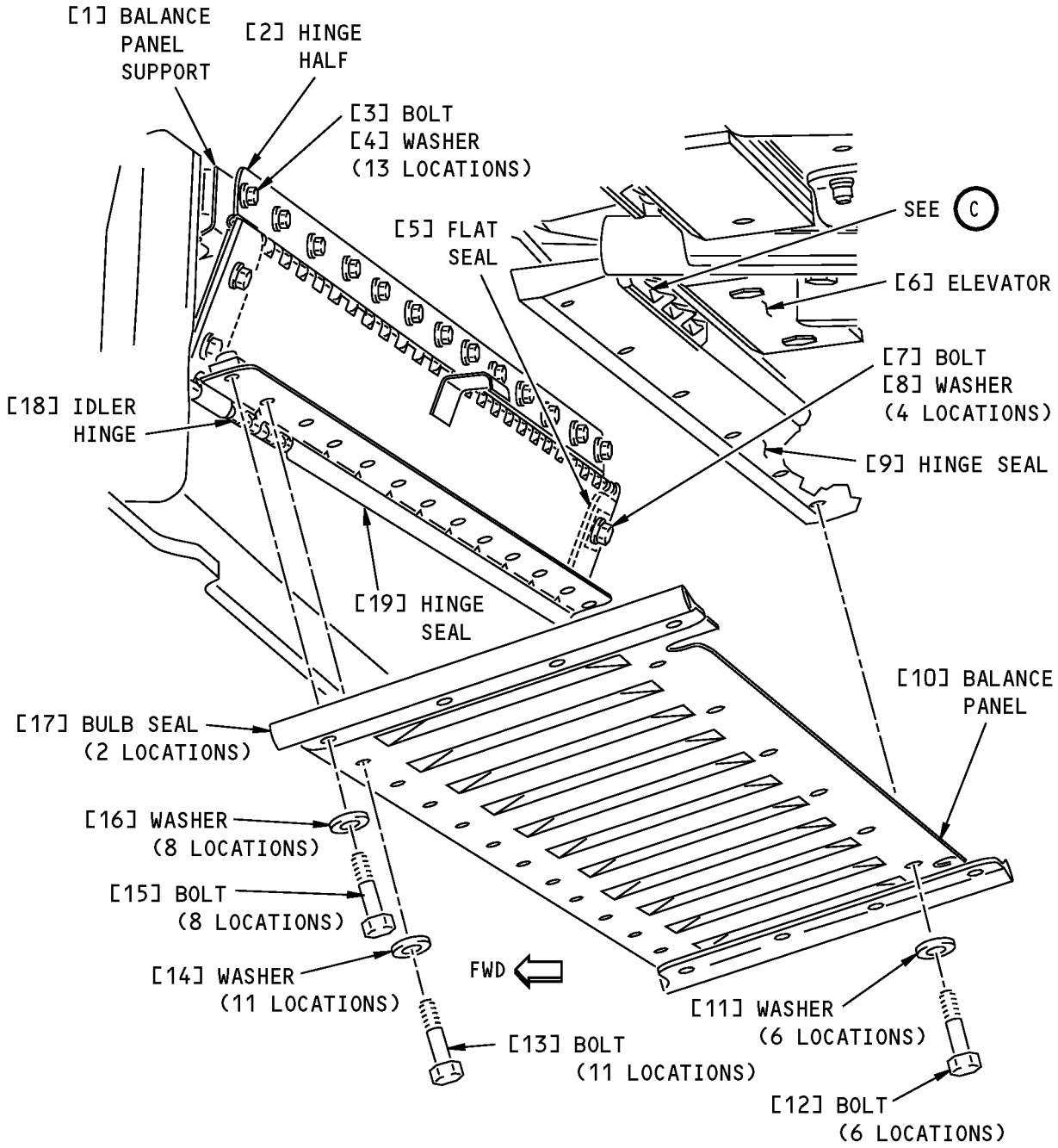

Elevator Balance Panel Installation
Figure 402 (Sheet 3 of 4)/27-31-41-990-802

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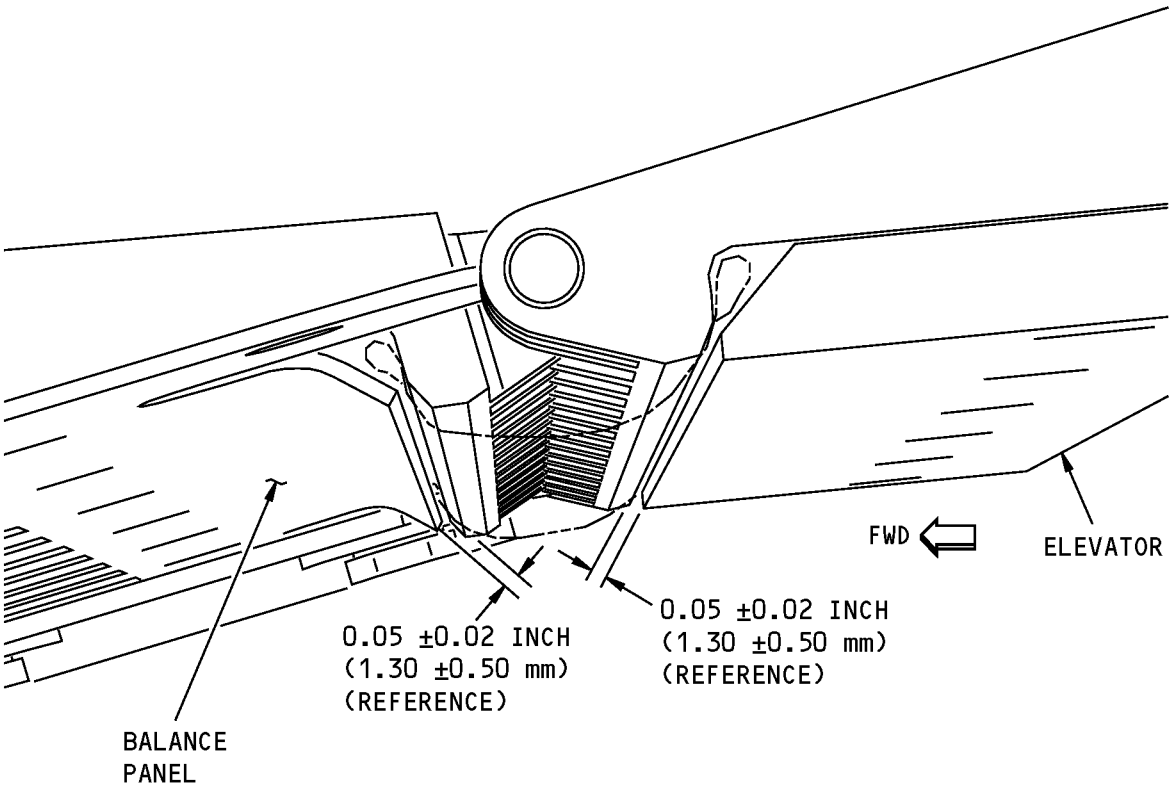

C

Elevator Balance Panel Installation
Figure 402 (Sheet 4 of 4)/27-31-41-990-802

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TASK 27-31-41-400-801

3. Elevator Balance Panel - Installation

(Figure 401, Figure 402)

A. References

Reference	Title
27-31-00-700-803	Elevator Balance Panels - Test (P/B 501)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
316	APU Compartment - Right
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge

D. Access Panels

Number	Name/Location
318BR	Tailcone Access Door
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
333CB	Horizontal Stabilizer, Access Panel, Trailing Edge
333DB	Horizontal Stabilizer, Access Panel, Trailing Edge
333EB	Horizontal Stabilizer, Access Panel, Trailing Edge
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
343CB	Horizontal Stabilizer, Access Panel - T.E. Area
343DB	Horizontal Stabilizer, Access Panel - T.E. Area
343EB	Horizontal Stabilizer, Access Panel - T.E. Area

E. Elevator Balance Panel Installation

(Figure 402)

SUBTASK 27-31-41-860-002

(1) Make sure that the pressure to the elevator hydraulic systems A and B is removed, do this task: Elevator Balance Panels - Test, TASK 27-31-00-700-803

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SUBTASK 27-31-41-420-001

(2) Install the idler hinge [18] (bays 2, 3, and 4):

NOTE: If you are installing new balance panel assemblies or seals, follow the instructions in Figure 402 to apply anti-corrosion compound to the new parts. If you use the same parts that you removed, you do not need to apply the compound.

(a) Install the bolts [3] and washers [4] that attach the hinge half [2] to the balance panel support [1].

(b) Loosely install the bolts [7] and washers [8] to attach the flat seal [5] to the idler hinge [18].

(c) Make sure that the clearance between the flat seal [5] and the stabilizer trailing edge rib is 0.01 +0.06/-0.00 inch (0.25 +1.52/-0.00 millimeters).

(d) Tighten the bolts [7].

SUBTASK 27-31-41-420-002

(3) Install the balance panel [10]:

(a) Put and hold the balance panel [10] in its position.

(b) Loosely install the bolts [12] and washers [11] to attach the balance panel [10] and the elevator hinge seal [9] to the elevator [6].

1) Carefully install the elevator hinge seal [9] between the elevator [6] and balance panel [10].

2) Check to make sure that the gap between the balance panel [10] and the hinge half for the elevator hinge seal [9] does not allow either of the following conditions:

a) pinching of the seal material

b) movement of the seal inboard or outboard

NOTE: The nominal design dimension for the gap between the balance panel [10] and the hinge half for the elevator hinge seal [9] that meets this condition is 0.05 ±0.02 in. (1.3 ±0.5 mm).

(c) Tighten the bolts [12].

(d) Make sure that the idler hinge [18] is turned down from the balance panel support [1].

(e) Loosely install the bolts [13] and washers [14] to attach the balance panel [10] to the idler hinge [18] and idler hinge seal [19].

(f) Manually move the elevator through the full range of travel.

1) Make sure the idler hinge seal [19] stays loose for all elevator positions.

(g) Tighten the bolts [13].

(h) Loosely install the bolts [15] and washers [16] to attach the bulb seals [17] to the balance panel [10].

CAUTION: MAKE SURE THAT YOU ADJUST THE BULB SEALS CORRECTLY. IF THE BULB SEALS ARE NOT ADJUSTED CORRECTLY, DAMAGE TO THE TRAILING EDGE RIBS CAN OCCUR.

(i) Check to make sure that the clearance between the bulb seal [17] or bulb seal [22] and stabilizer rib is 0.02 +/- 0.01 inch (0.51 +/- 0.25 millimeter).

(j) Check to make sure that the clearance between the bulb seal [17] or bulb seal [22] and the aft end of the flat seal is 0.20 inch (5.1 millimeters).

1) If it is necessary, loosen the bolts [7] and adjust the flap seal [5] or flap seal [20] to get the necessary clearance.

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(k) Tighten the bolts [15].

SUBTASK 27-31-41-080-001

(4) Remove rig pin E-5 of the rig pin kit, SPL-1585 from the aft control quadrant (Figure 401).

SUBTASK 27-31-41-860-003

(5) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-41-710-001

(6) Do this task: Elevator Balance Panels - Test, TASK 27-31-00-700-803.

SUBTASK 27-31-41-010-004

(7) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-41-410-001

(8) For the left elevator, install these access panels:

Number	Name/Location
333BB	Horizontal Stabilizer, Access Panel, Trailing Edge
333CB	Horizontal Stabilizer, Access Panel, Trailing Edge
333DB	Horizontal Stabilizer, Access Panel, Trailing Edge
333EB	Horizontal Stabilizer, Access Panel, Trailing Edge

SUBTASK 27-31-41-410-002

(9) For the right elevator, install these access panels:

Number	Name/Location
343BB	Horizontal Stabilizer, Access Panel - T.E. Area
343CB	Horizontal Stabilizer, Access Panel - T.E. Area
343DB	Horizontal Stabilizer, Access Panel - T.E. Area
343EB	Horizontal Stabilizer, Access Panel - T.E. Area

——————— END OF TASK ———————

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ELEVATOR BALANCE PANEL - INSPECTION/CHECK

1. General

A. This task supplies the data for a dimensional inspection of the elevator balance panel.

B. This task does not remove or install the rudder. Refer to the Elevator Balance Panel - Removal/Installation for procedures to remove and install the elevator balance panel.

TASK 27-31-41-200-801

2. Elevator Balance Panel - Inspection

(Figure 601)

A. General

(1) This procedure gives wear limits and repair data for the elevator balance panel.

B. References

Reference	Title
27-31-41-000-801	Elevator Balance Panel - Removal (P/B 401)
27-31-41-400-801	Elevator Balance Panel - Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
334	Left Horizontal Stabilizer - Elevator
344	Right Horizontal Stabilizer - Elevator

E. Procedure

SUBTASK 27-31-41-020-005

(1) Remove the elevator balance panel. To remove it, do this task: Elevator Balance Panel - Removal, TASK 27-31-41-000-801.

SUBTASK 27-31-41-020-006

(2) Use these tools to check for wear on the parts of the elevator balance panel connections:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-31-41-020-007

(3) Examine the parts of the elevator balance panel connections for worn areas:

(a) Remove the parts to be checked.

(b) Measure the parts, as necessary, with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions that follow:

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Table 601/27-31-41-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS inches (mm)		WEAR LIMITS inches (mm)	
		MINIMUM	MAXIMUM	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 FORWARD HINGE HALF	I.D.	0.0930 (2.362)	0.0980 (2.489)	0.1040 (2.642)	0.0175 (0.445) *[1]
#1 FORWARD HINGE PIN	O.D.	0.0880 (2.235)	0.0900 (2.286)	0.0865 (2.197)	
#2 AFT HINGE HALF	I.D.	0.1830 (4.648)	0.1880 (4.775)	0.1940 (4.928)	0.0175 (0.445) *[1]
#2 AFT HINGE PIN	O.D.	0.1780 (4.521)	0.1800 (4.572)	0.1765 (4.483)	

*[1] TOTAL PLAY IN THE JOINT = 0.0350 INCH (0.889 MILLIMETER)

(d) If the parts are not in the tolerance, replace or repair the parts, as required.

SUBTASK 27-31-41-020-008

(4) Install the elevator balance panel. To install it, do this task: Elevator Balance Panel - Installation, TASK 27-31-41-400-801.

END OF TASK

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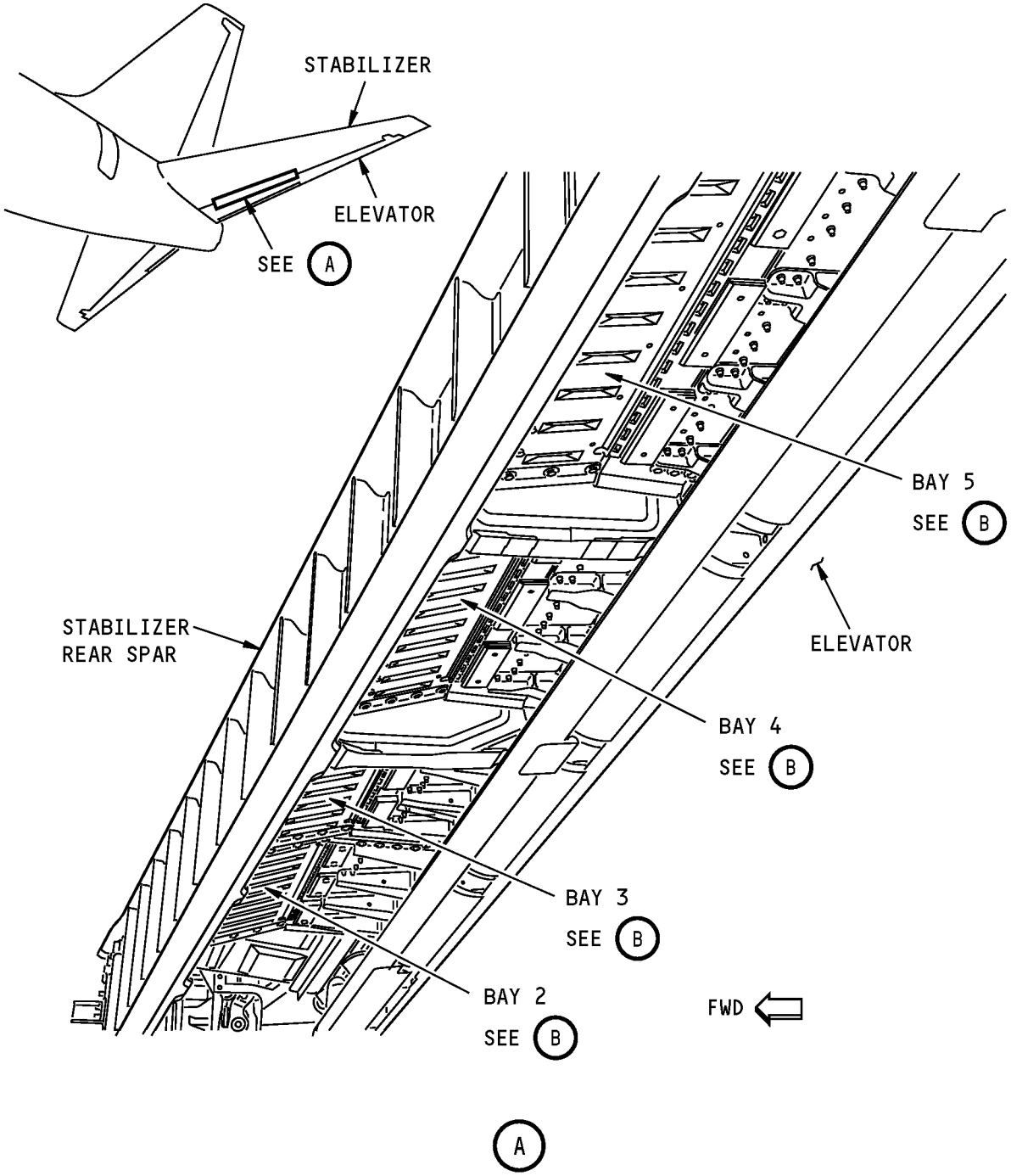

NOTE: LEFT SIDE IS SHOWN,
RIGHT SIDE IS EQUIVALENT.

Elevator Balance Panel Wear Limits
Figure 601 (Sheet 1 of 2)/27-31-41-990-803

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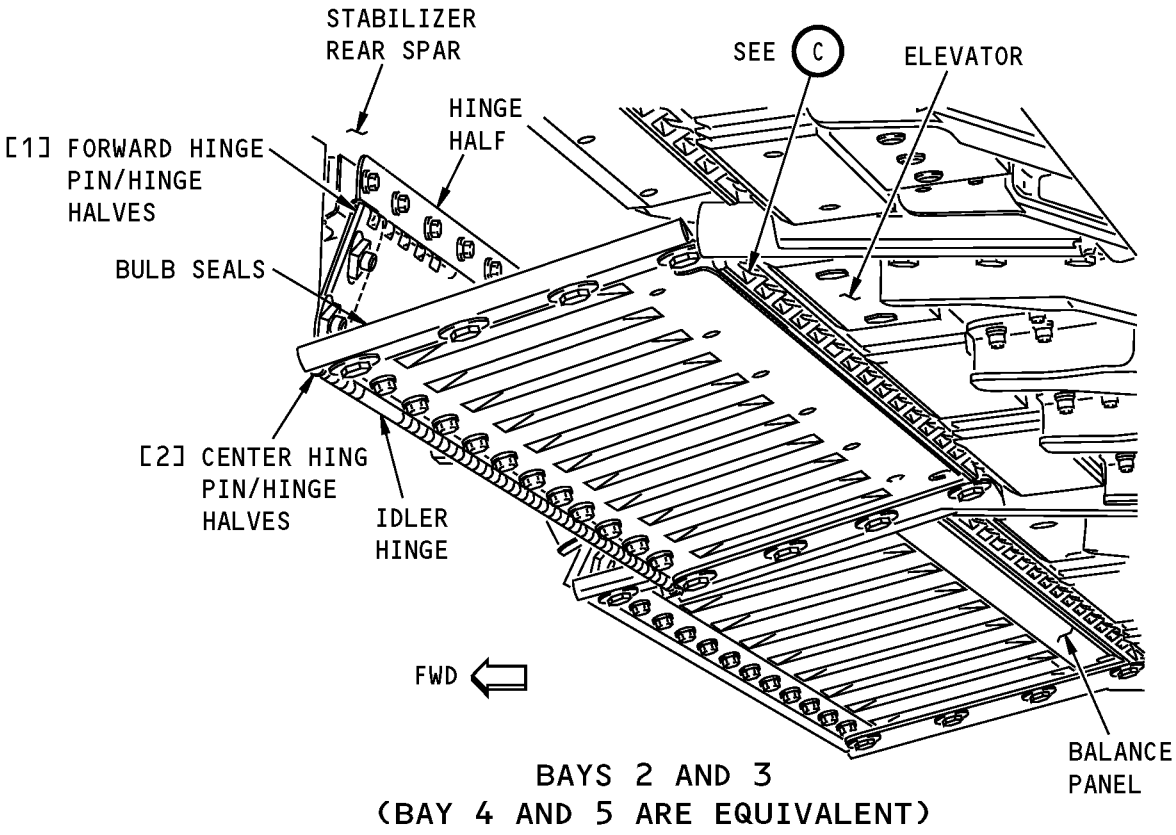

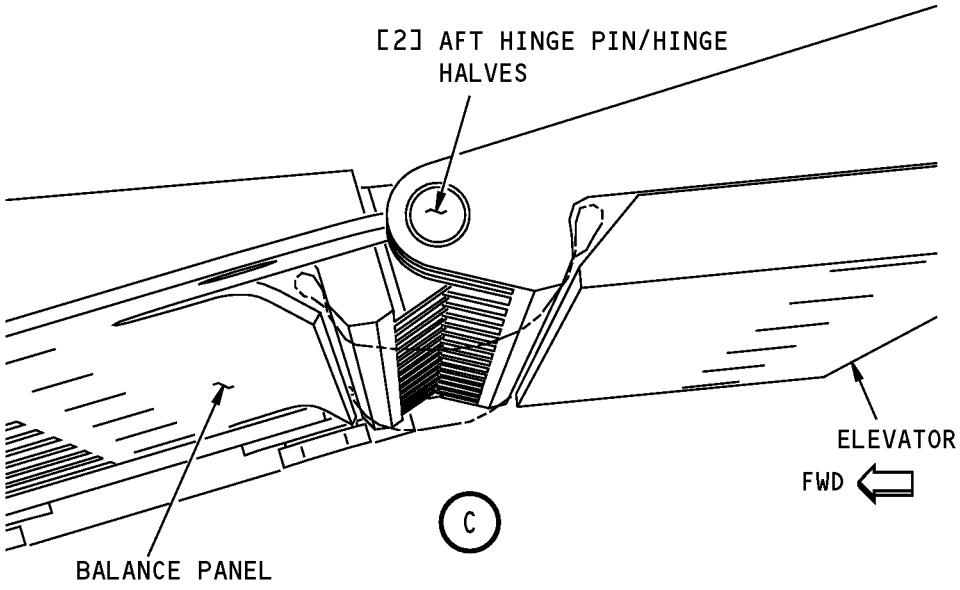

Elevator Balance Panel Wear Limits
Figure 601 (Sheet 2 of 2)/27-31-41-990-803

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CONTROL COLUMN - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a control column

(2) An installation of a control column.

B. This procedure is applicable for the captain's and first officer's control column.

TASK 27-31-51-000-801

2. Control Column - Removal

(Figure 401)

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Prepare for the Removal

SUBTASK 27-31-51-860-001

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-51-860-002

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	7	C01208	STALL WARN ASYM MODE

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

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Row	Col	Number	Name
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-31-51-010-001

(3) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-31-51-480-001

(4) Install the rig pin E-1 from the rig pin kit, SPL-1585 in the left forward quadrant.

F. Control Column Removal

SUBTASK 27-31-51-020-001

(1) Disconnect the electrical wire [11] for the control column shaker [13] from the terminal strip in the lower nose compartment.

SUBTASK 27-31-51-020-004

(2) Disconnect the electrical wire [5] to the control column [1] from the terminal strip in the lower nose compartment.

SUBTASK 27-31-51-020-002

(3) Remove the ring assemblies and dust seals:

(a) Remove the screws [15] and washers [16] from the forward ring assembly [14] and aft ring assembly [17].

(b) Remove the forward ring assembly [14] and aft ring assembly [17].

(c) Remove the aft dust seal [18] and forward dust seal [19].

SUBTASK 27-31-51-020-003

(4) Remove the control column [1]:

CAUTION: HOLD THE CONTROL COLUMN WHEN YOU REMOVE THE COUPLINGS. THE CONTROL COLUMN CAN FALL AND CAUSE DAMAGE TO EQUIPMENT.

(a) Hold the control column while you remove the nuts [7], washers [8], and bolts [12] from the outboard couplings [9].

(b) Remove the outboard couplings [9].

(c) Lift and remove the control column [1] from the forward quadrant assembly.

END OF TASK

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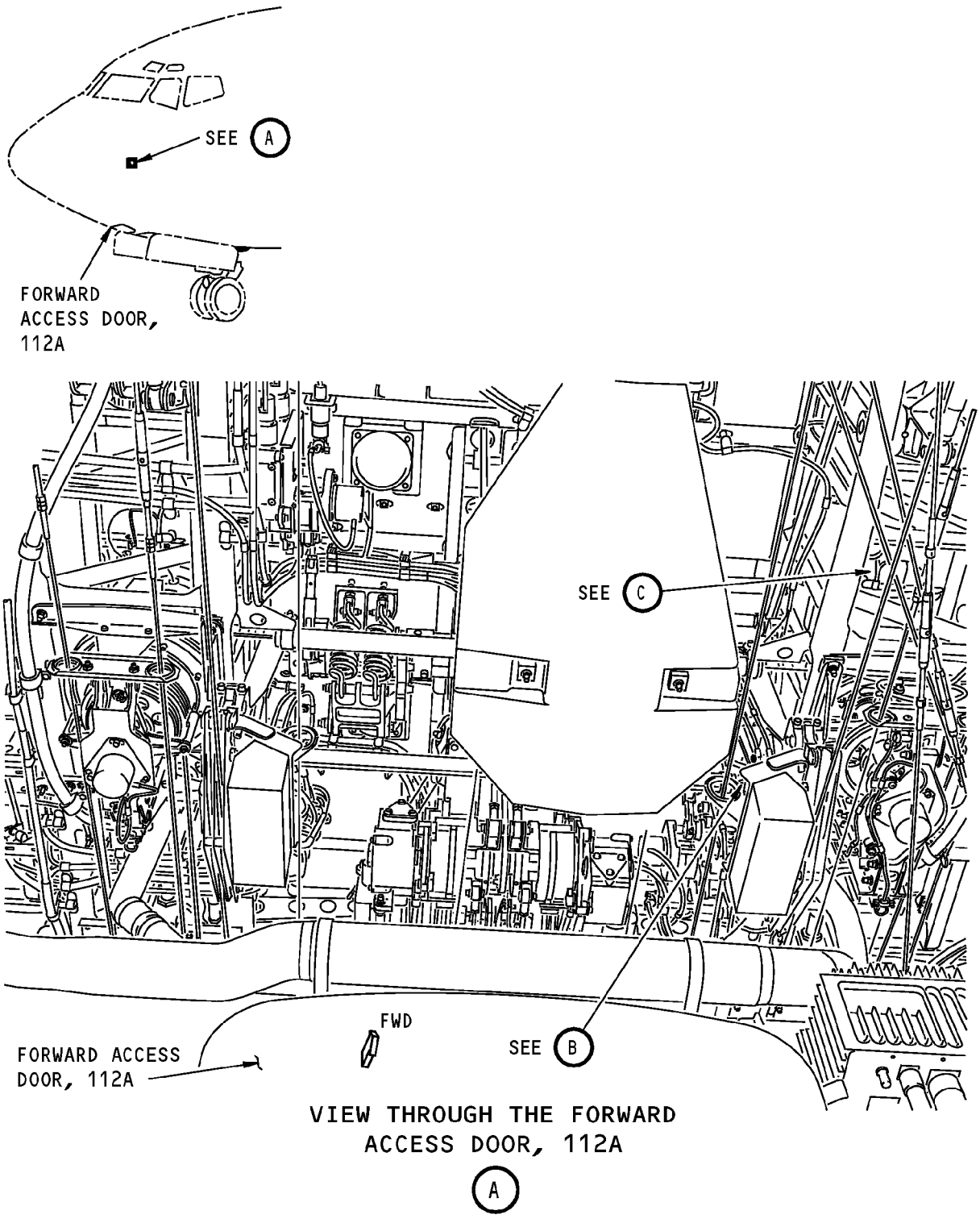

Control Column Installation
Figure 401 (Sheet 1 of 6)/27-31-51-990-801

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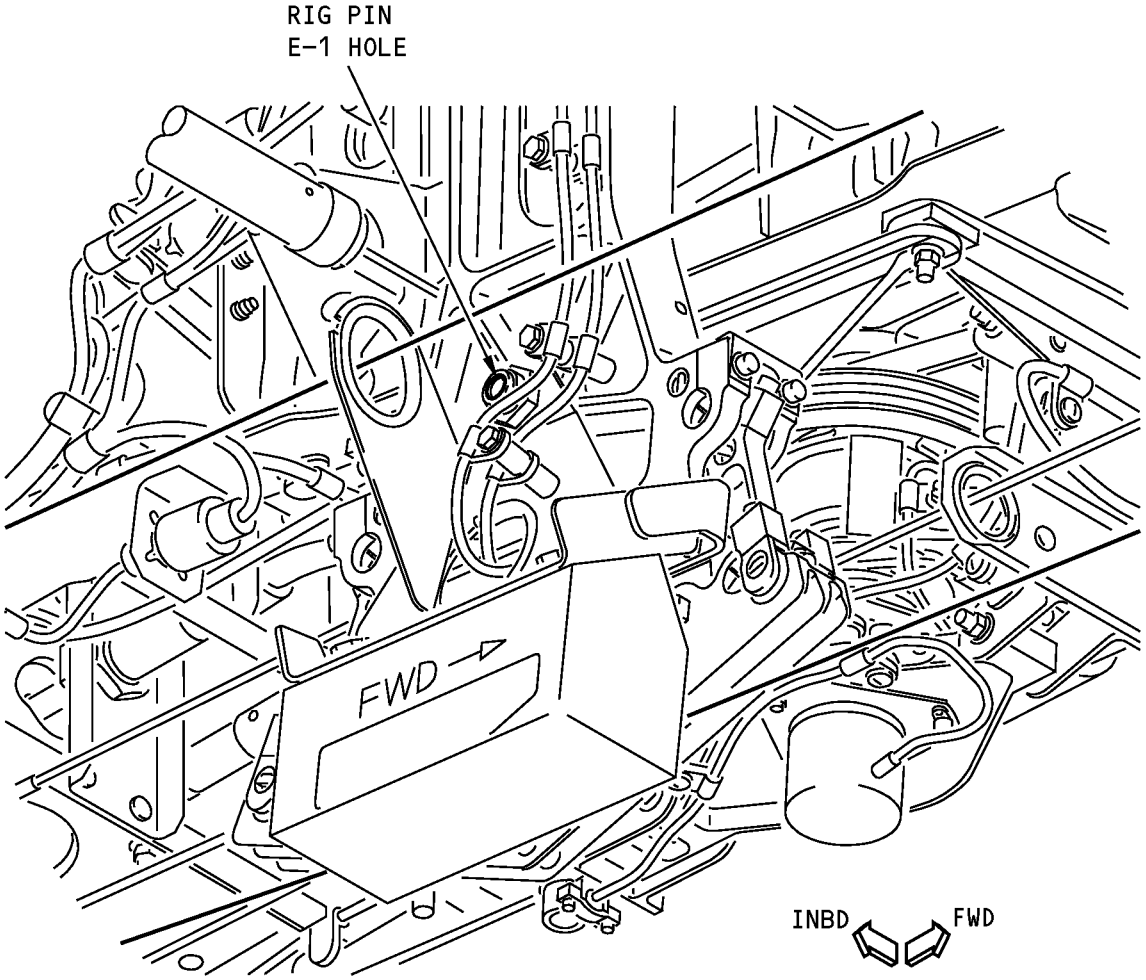

Control Column Installation
Figure 401 (Sheet 2 of 6)/27-31-51-990-801

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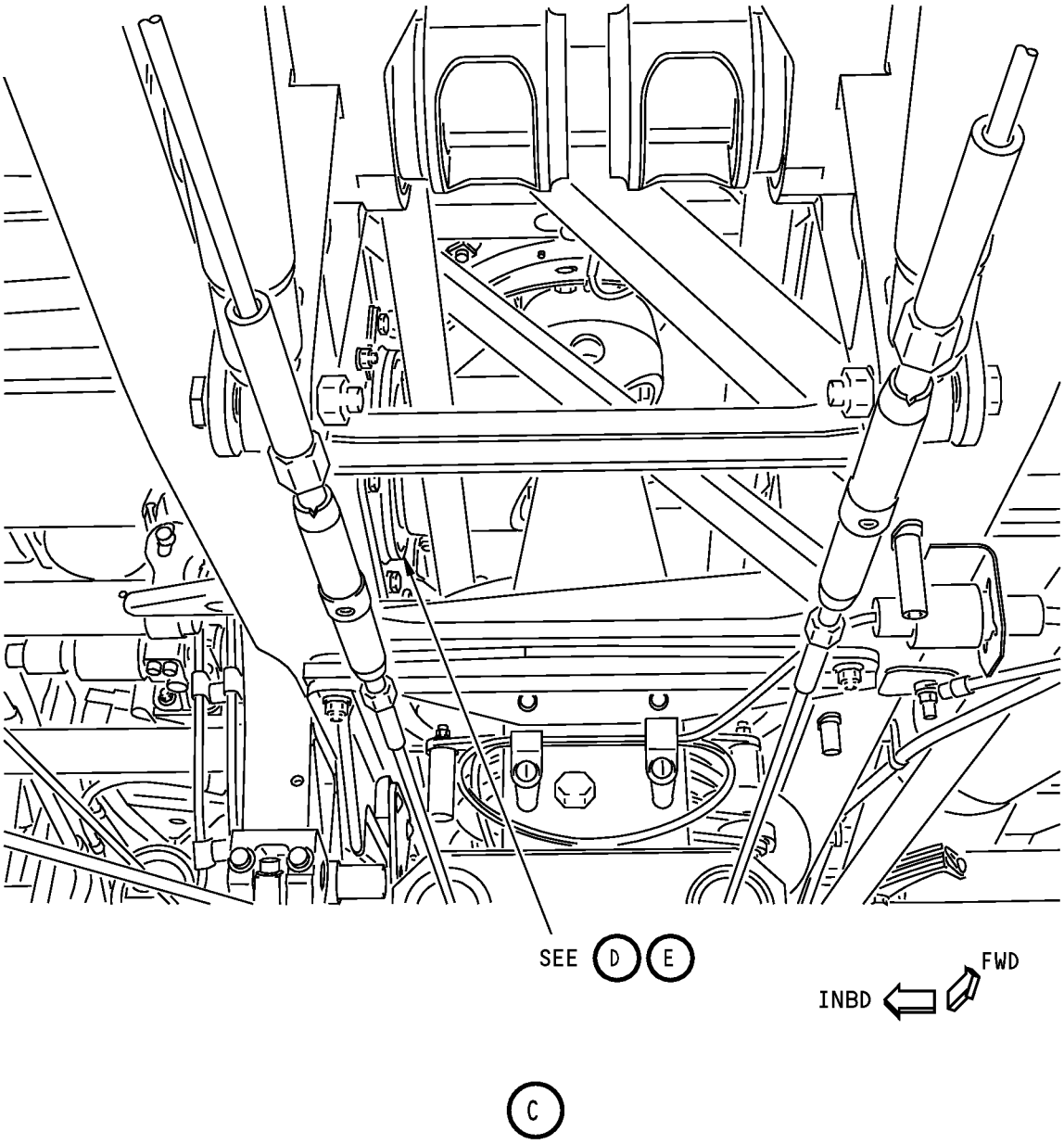

Control Column Installation
Figure 401 (Sheet 3 of 6)/27-31-51-990-801

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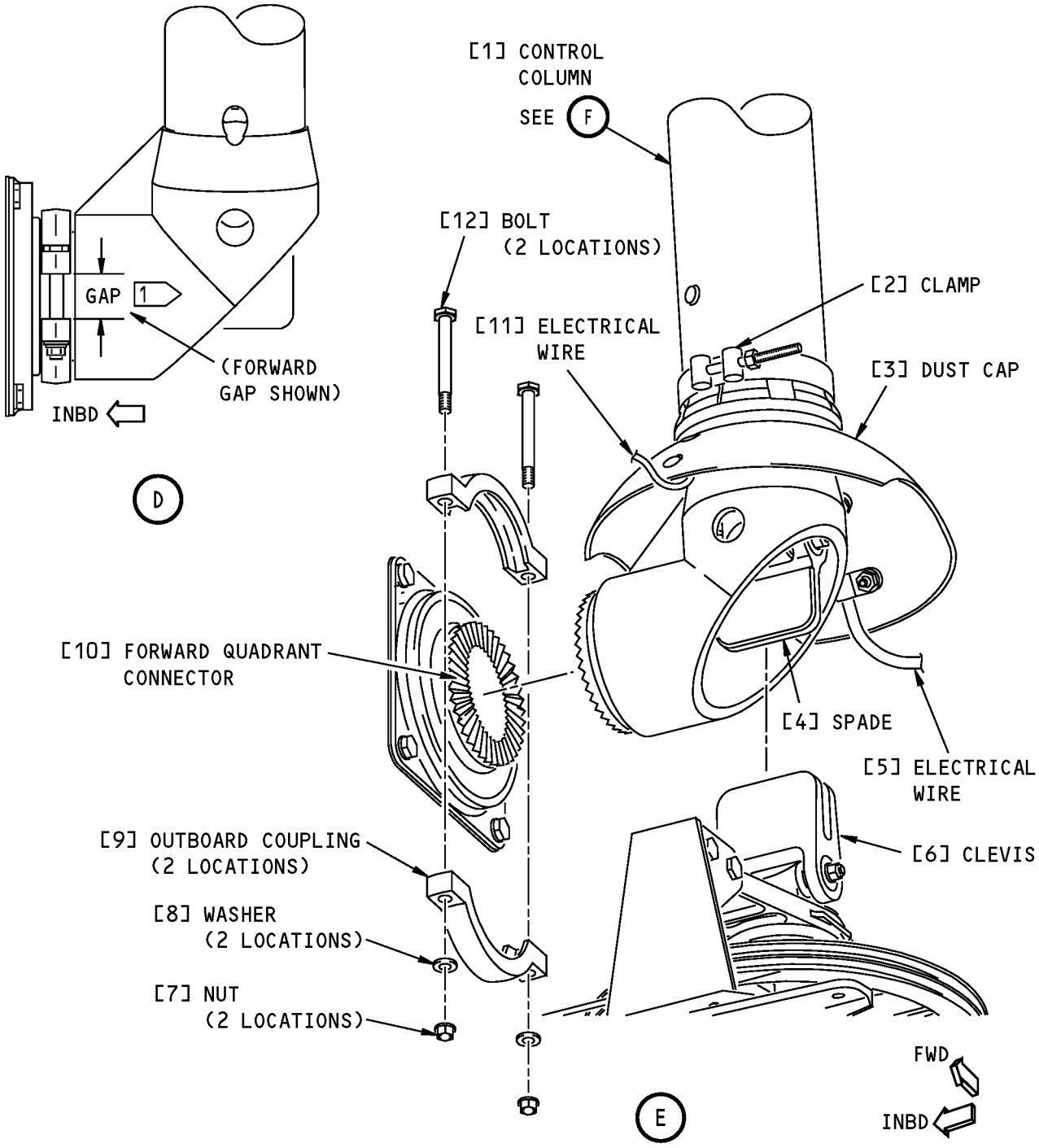

1 MEASURE THE GAP AT THE FORWARD AND AFT ENDS OF EACH OUTBOARD COUPLING. THE FORWARD AND AFT GAPS OF EACH OUTBOARD COUPLING SHOULD BE WITHIN 0.03 INCH (0.8 mm) OF EACH OTHER.

Control Column Installation
Figure 401 (Sheet 4 of 6)/27-31-51-990-801

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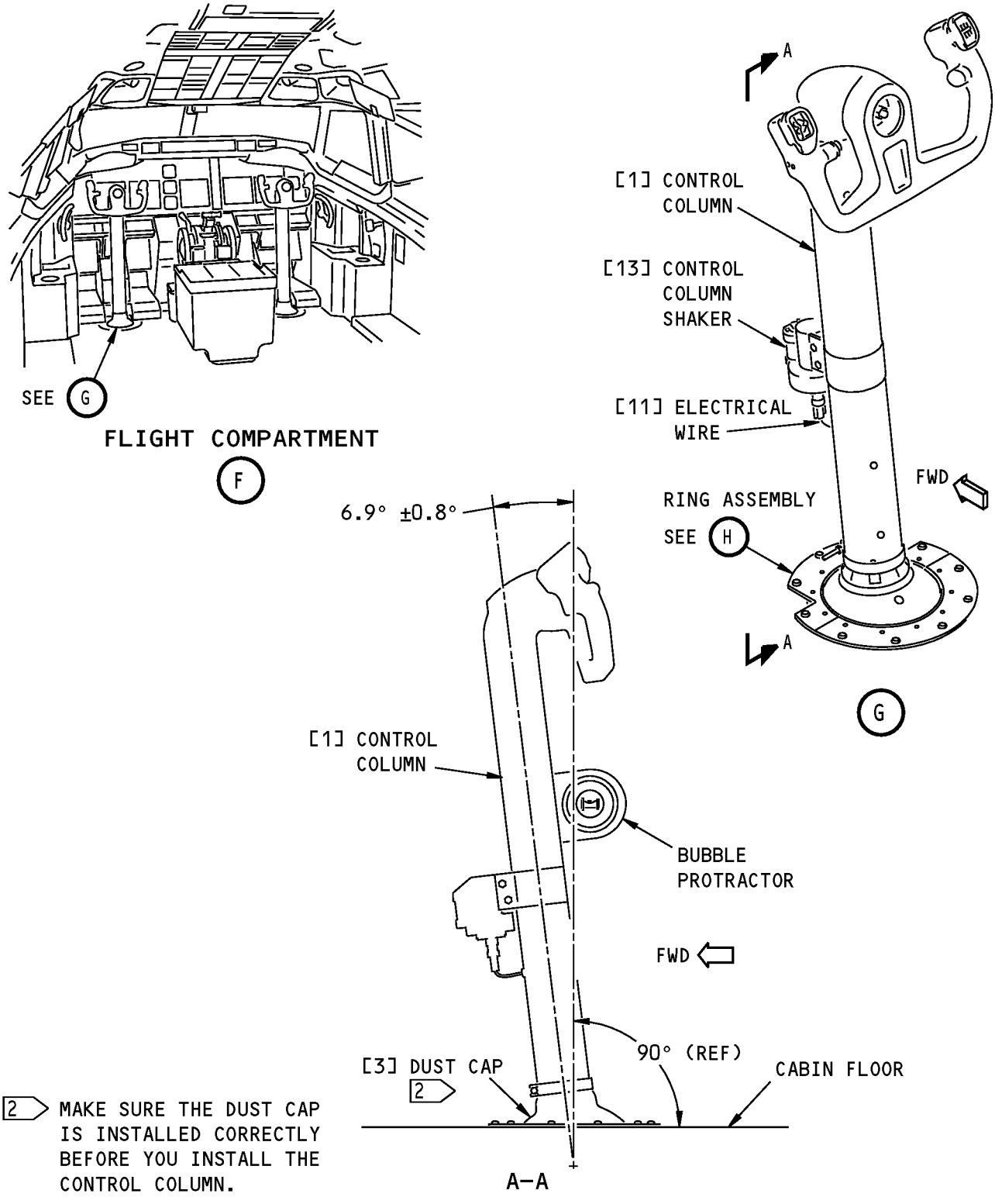

Control Column Installation
Figure 401 (Sheet 5 of 6)/27-31-51-990-801

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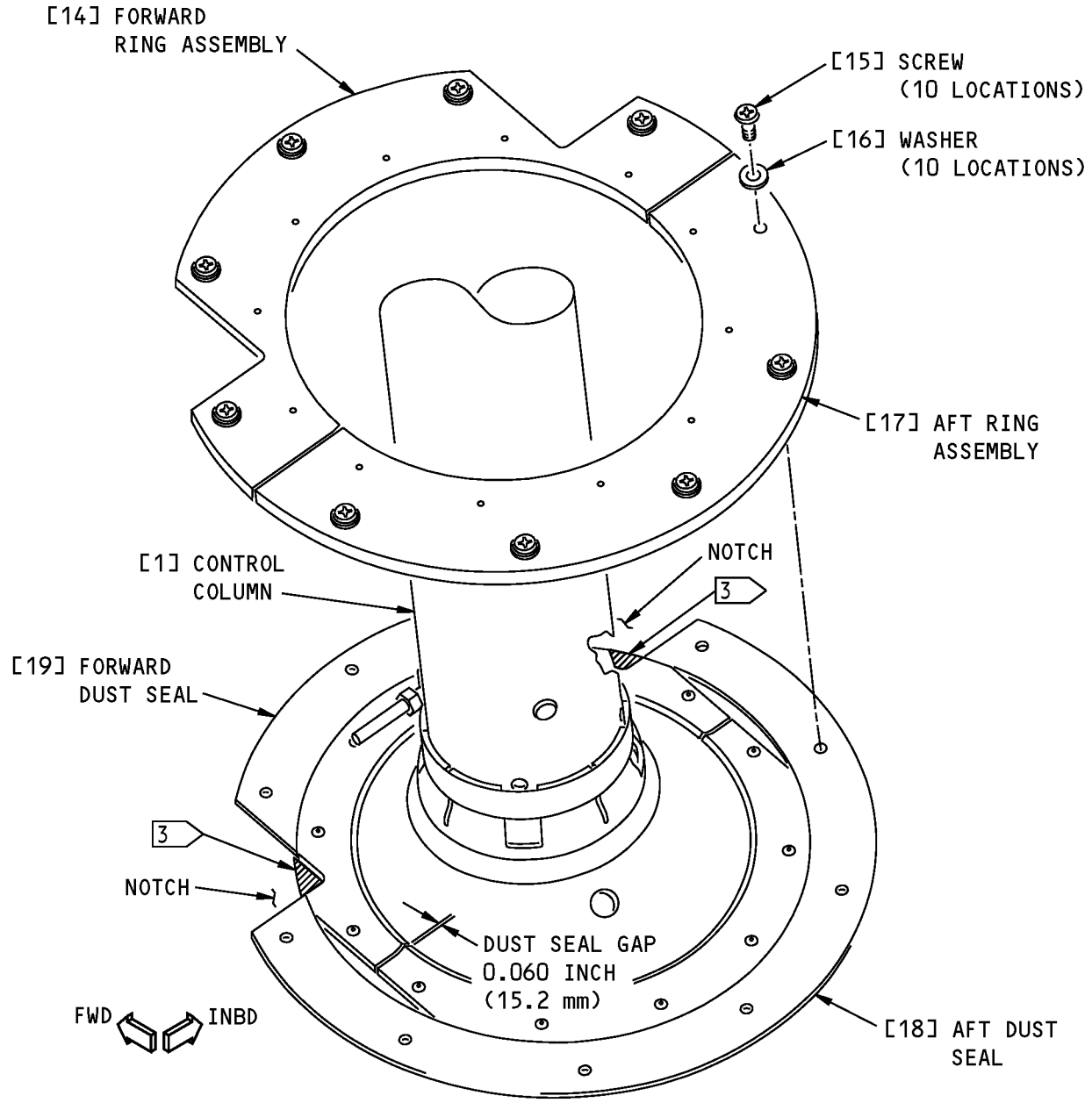

3 APPLY SEALANT TO THE HOLE BETWEEN THE NOTCH IN THE DUST SEALS AND THE CUTOUT IN THE FLOOR.

Control Column Installation
Figure 401 (Sheet 6 of 6)/27-31-51-990-801

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TASK 27-31-51-400-801

3. Control Column - Installation

(Figure 401)

A. References

Reference	Title
23-51-04-400-801	Control Wheel PTT Switch Installation (P/B 401)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-31-00-700-804	Elevator Travel Limit - Test (P/B 501)
27-31-00-700-807	Manual Mode - Test (P/B 501)
27-31-00-700-808	Control Column Travel and Centering - Test (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Control Column Installation

SUBTASK 27-31-51-420-001

(1) Put the control column [1] in its position.

(a) Set the control wheel to the neutral position to engage the spade [4] with the clevis [6].

SUBTASK 27-31-51-480-002

(2) Use the control column assembly protractor, SPL-1680 to set the control column to 6.9 +/- 0.8 degrees forward of a vertical line from the floor (Figure 401).

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SUBTASK 27-31-51-420-002

(3) Install the control column [1]:

(a) Engage the face splines on the control column [1] with the splines on the forward quadrant connector [10].

(b) Install the outboard couplings [9]:

1) Install the bolts [12], washers [8], and nuts [7] on the outboard couplings [9].

NOTE: Make sure that you use the correct bolts.

(c) Do these steps to make the clearances equal at each end of each outboard coupling:

1) Tighten the bolts [12] to 50 pound-inches (5.7 newton-meters) of torque.

2) Tighten the one bolt and then the other to 50 +30 / -0 in-lb (5.6 +3.4 / -0.0 N·m) in approximately 10 in-lb (1.1 N·m) increments until you get the clearances equal to +/- 0.03 inch (+/- 0.8 millimeter) of each other.

(d) Make sure that the control column angle is 6.9 +/- 0.8 degrees forward of the vertical line from the floor.

(e) Connect the electrical wire [5] and electrical wire [11] to the terminal strip in the lower nose compartment.

SUBTASK 27-31-51-420-003

(4) Install the ring assemblies and dust seals:

(a) Install the forward dust seal [19], aft dust seal [18], forward ring assembly [14], and aft ring assembly [17] with the screws [15] and washers [16].

CAUTION: DO NOT HOLD THE DUST CAP TOO TIGHTLY AGAINST THE WIRE BUNDLE. IT CAN CAUSE DAMAGE TO THE ELECTRICAL WIRES.

(b) If it is necessary, adjust the dust cap [3] to set the edge of the dust seals lightly up against the dust cap [3].

1) Loosen the clamp [2] to adjust the dust cap [3].

(c) Make sure the gap between the two dust seals is 0.060 inch (1.52 millimeters).

(d) Fill the hole between the notch in the dust seals and the cutout in the floor with sealant, A00247.

SUBTASK 27-31-51-080-001

(5) Remove the rig pin E-1 from the left forward quadrant.

SUBTASK 27-31-51-410-001

(6) Close this access panel:

Number	Name/Location
112A	Forward Access Door

G. Control Column Installation Test

SUBTASK 27-31-51-860-003

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	7	C01208	STALL WARN ASYM MODE

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F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-31-51-710-001

(2) Do a check of the control column:

(a) Move the control column full forward then full aft.

1) Make sure the control column operates correctly and smoothly.

(b) Turn the control wheel through full travel.

1) Make sure the control wheel operates correctly and smoothly.

SUBTASK 27-31-51-710-006

(3) Do this task: Control Column Travel and Centering - Test, TASK 27-31-00-700-808.

SUBTASK 27-31-51-710-007

(4) Do this task: Manual Mode - Test, TASK 27-31-00-700-807.

SUBTASK 27-31-51-710-008

(5) Do this task: Elevator Travel Limit - Test, TASK 27-31-00-700-804.

SUBTASK 27-31-51-860-005

(6) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-31-51-710-003

(7) Do the operational test of the PTT switch in this task: Control Wheel PTT Switch Installation, TASK 23-51-04-400-801.

SUBTASK 27-31-51-710-004

(8) Do a test of the stabilizer trim control switch on the control wheel:

(a) Move the STAB TRIM CUTOUT switch to the NORMAL position.

(b) Move the STAB TRIM switches to APL NOSE UP and then to APL NOSE DOWN.

1) Make sure the stabilizer moves correctly.

SUBTASK 27-31-51-740-001

(9) Do a test of the autopilot disengage switch on the control wheel:

(a) Push the CMD A or CMD B autopilot engage switch on the mode control panel to engage the autopilot.

1) Make sure that the CMD A or CMD B autopilot engage switch light comes on.

(b) Push the captain or first officer autopilot disengage switch on the control wheel to disengage the autopilot.

1) Make sure that the A/P warning lights flash.

2) Make sure that the A/P disengage warning sound comes on.

3) Push the captain or first officer autopilot disengage switch again.

a) Make sure that the A/P warning lights go off.

b) Make sure that there is no A/P disengage warning sound.

——————— END OF TASK ———————

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CONTROL COLUMN SUPPORT BEARING - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a control column support bearing

(2) An installation of a control column support bearing.

B. The control column support bearing is referred to as "support bearing" in this procedure.

C. the support bearing includes the forward quadrant connector, bearing housing, shim, and bearing.

D. This procedure is applicable for the support bearings on the captain's and first officer's control column.

TASK 27-31-54-000-801

2. Control Column Support Bearing Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-51-000-801	Control Column - Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1747	Set - Support, Forward Elevator Control Quadrant (Part #: C27036-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right
318	Tail Cone Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door
318BR	Tailcone Access Door

E. Prepare for the Removal

SUBTASK 27-31-54-860-001

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

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SUBTASK 27-31-54-010-001

(2) To get access to the elevator forward quadrant, do thsi task:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-31-54-010-002

(3) To get access to the elevator aft quadrant, do this task:

Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-54-480-001

(4) Install the rig pin E-5 from the rig pin kit, SPL-1585 in the elevator aft quadrant (Figure 401).

SUBTASK 27-31-54-480-002

(5) Install the rig pin E-1 from the rig pin kit, SPL-1585 in the left forward quadrant (Figure 402).

SUBTASK 27-31-54-020-001

(6) Remove the applicable control column. To remove it, do this task: Control Column - Removal, TASK 27-31-51-000-801.

F. Support Bearing Removal

(Figure 402)

SUBTASK 27-31-54-020-002

(1) Turn the cable turnbuckles [1] to release the tension in the elevator control cables.

NOTE: Do not disconnect the cable turnbuckles.

SUBTASK 27-31-54-480-003

CAUTION: MAKE SURE YOU INSTALL A SUPPORT FOR THE FORWARD QUADRANT ASSEMBLY BEFORE AND AFTER YOU REMOVE THE COUPLINGS. IF YOU DO NOT HOLD THE FORWARD QUADRANT ASSEMBLY CORRECTLY, YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Install the set, SPL-1747 to support the forward quadrant assembly.

SUBTASK 27-31-54-020-003

(3) Remove the nuts [5], washers [4], and bolts [3] from the inboard couplings [6].

SUBTASK 27-31-54-020-004

(4) Remove the forward quadrant connector [11].

SUBTASK 27-31-54-020-005

(5) Remove the bearing housing [15]:

(a) Remove the nuts [7], washers [9], upper bolts [10] from the bearing housing [15].

(b) Remove the nuts [17], washers [16], washers [14], and lower bolts [13] from the bearing housing [15].

(c) Remove the bearing housing [15] and shim [8] from the airplane.

SUBTASK 27-31-54-020-006

(6) Remove the bearing [12] from the bearing housing [15]:

(a) Turn the bearing [12] at the right angles to the bearing housing [15].

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(b) Align the bearing [12] with the slots in the bearing housing [15].

(c) Remove the bearing [12] from the bearing housing [15].

——————— END OF TASK ———————

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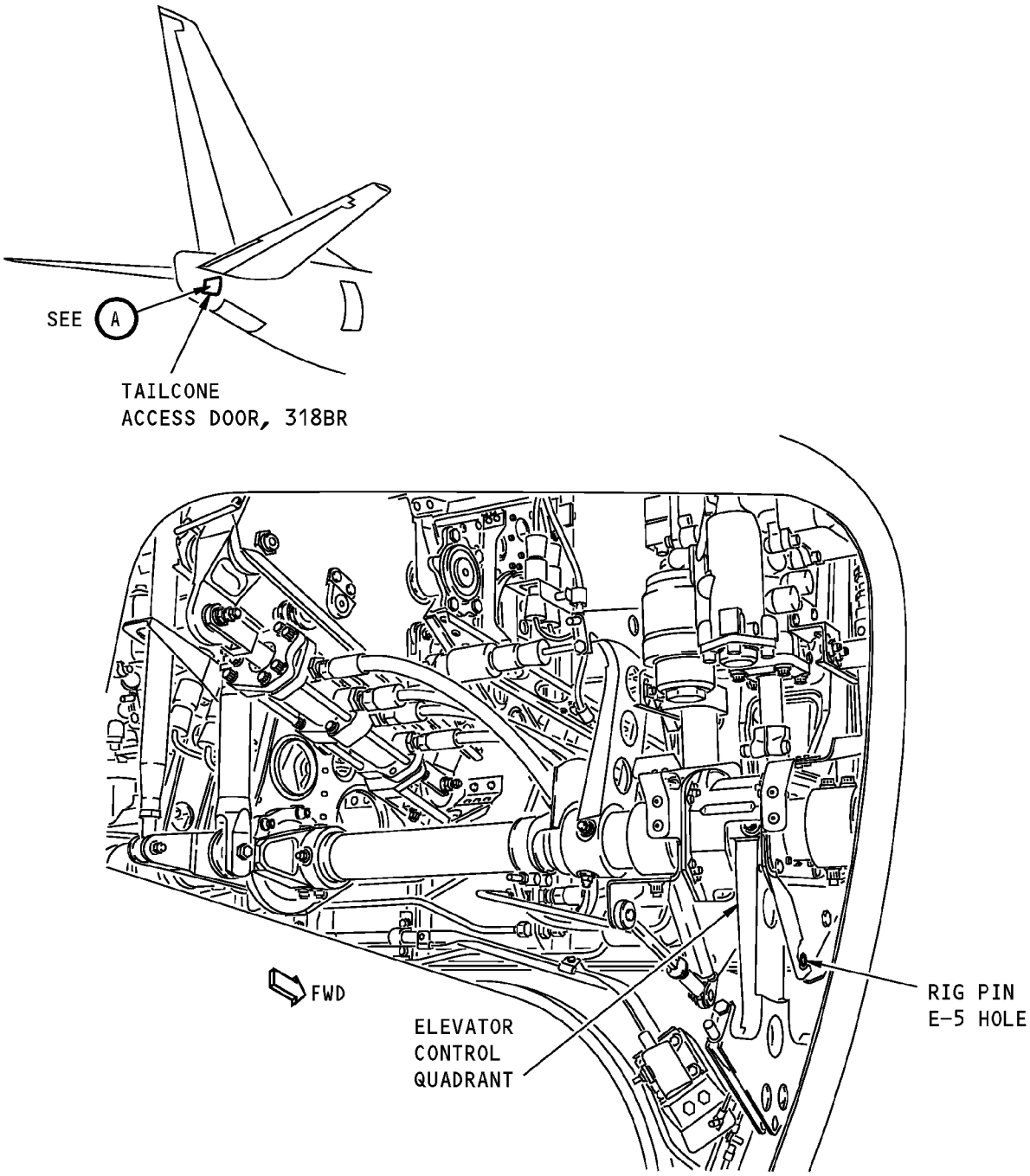

Elevator Rig Pin Installation
Figure 401/27-31-54-990-801

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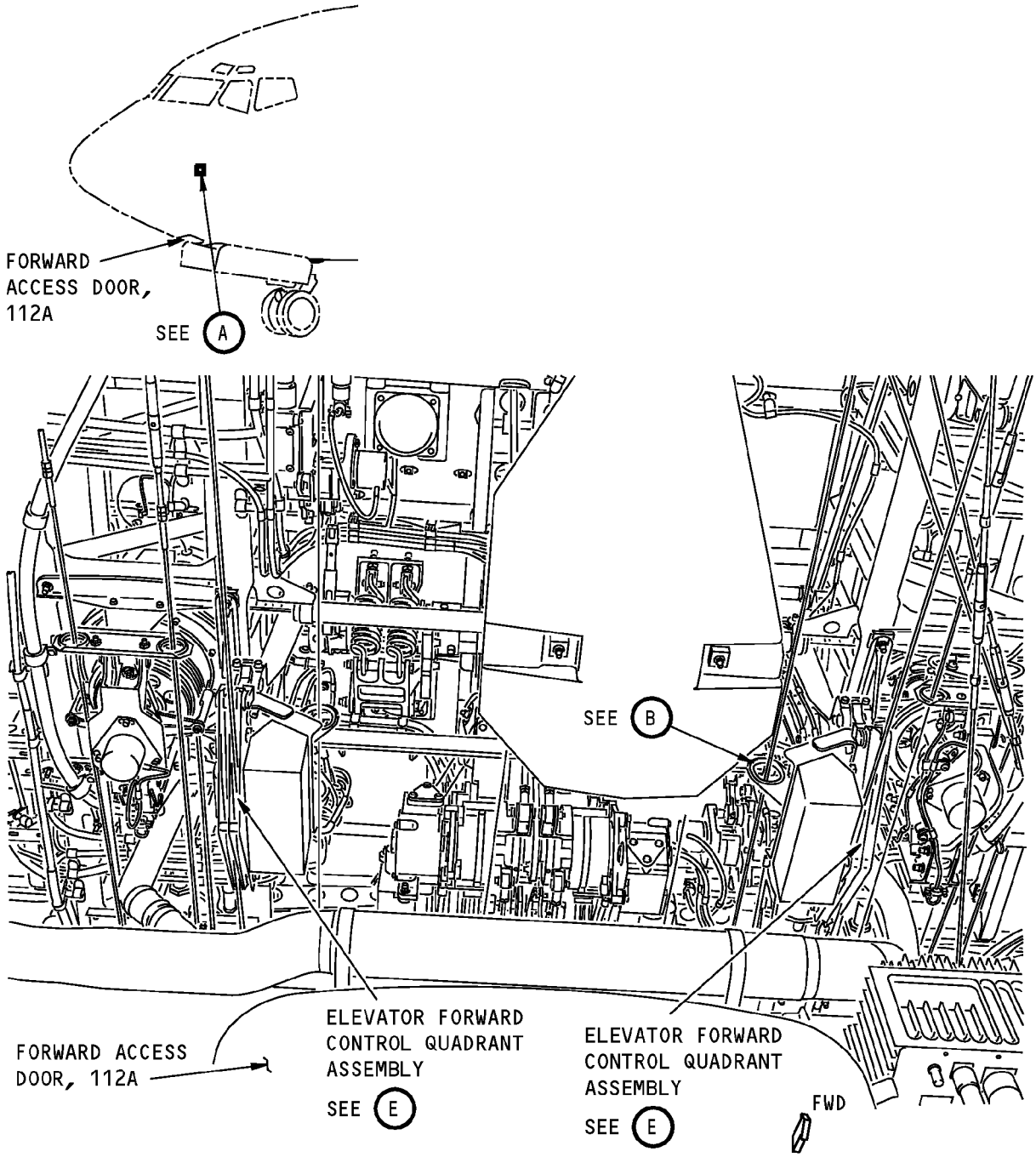

Control Column Support Bearing Installation
Figure 402 (Sheet 1 of 5)/27-31-54-990-802

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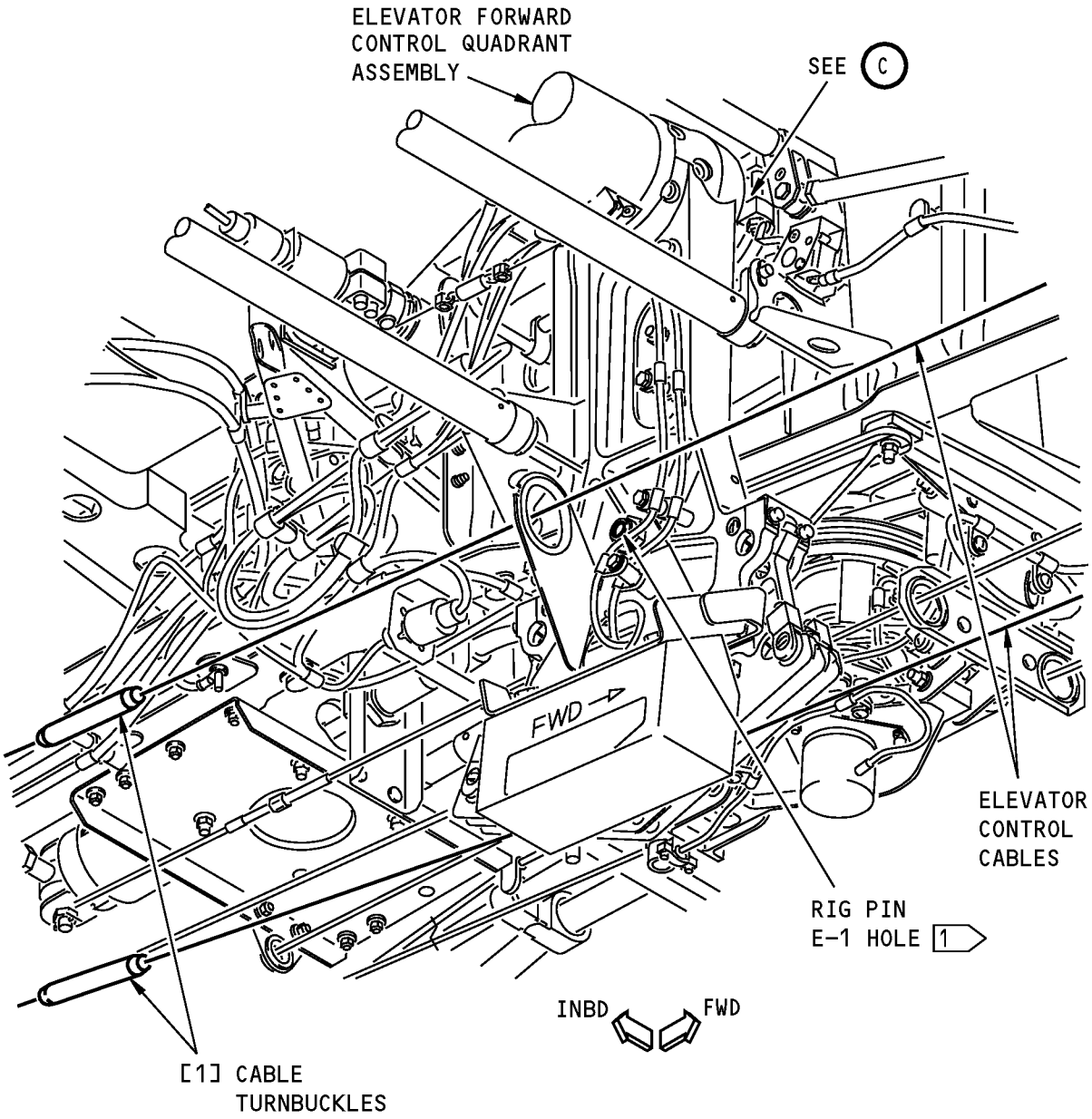

1 LEFT FORWARD CONTROL QUADRANT ONLY

Control Column Support Bearing Installation
Figure 402 (Sheet 2 of 5)/27-31-54-990-802

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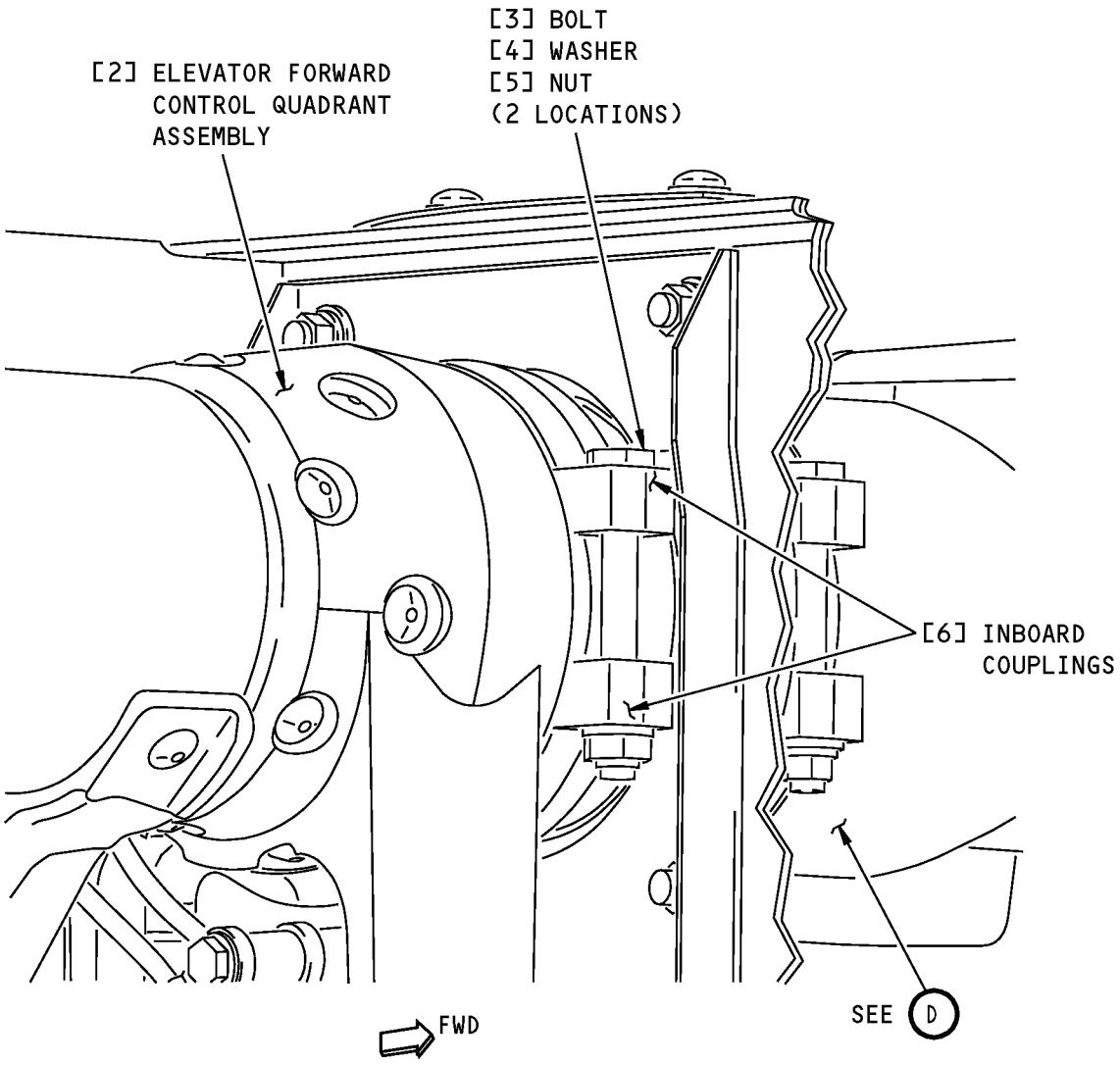

ELEVATOR FORWARD CONTROL QUADRANT ASSEMBLY

C

Control Column Support Bearing Installation
Figure 402 (Sheet 3 of 5)/27-31-54-990-802

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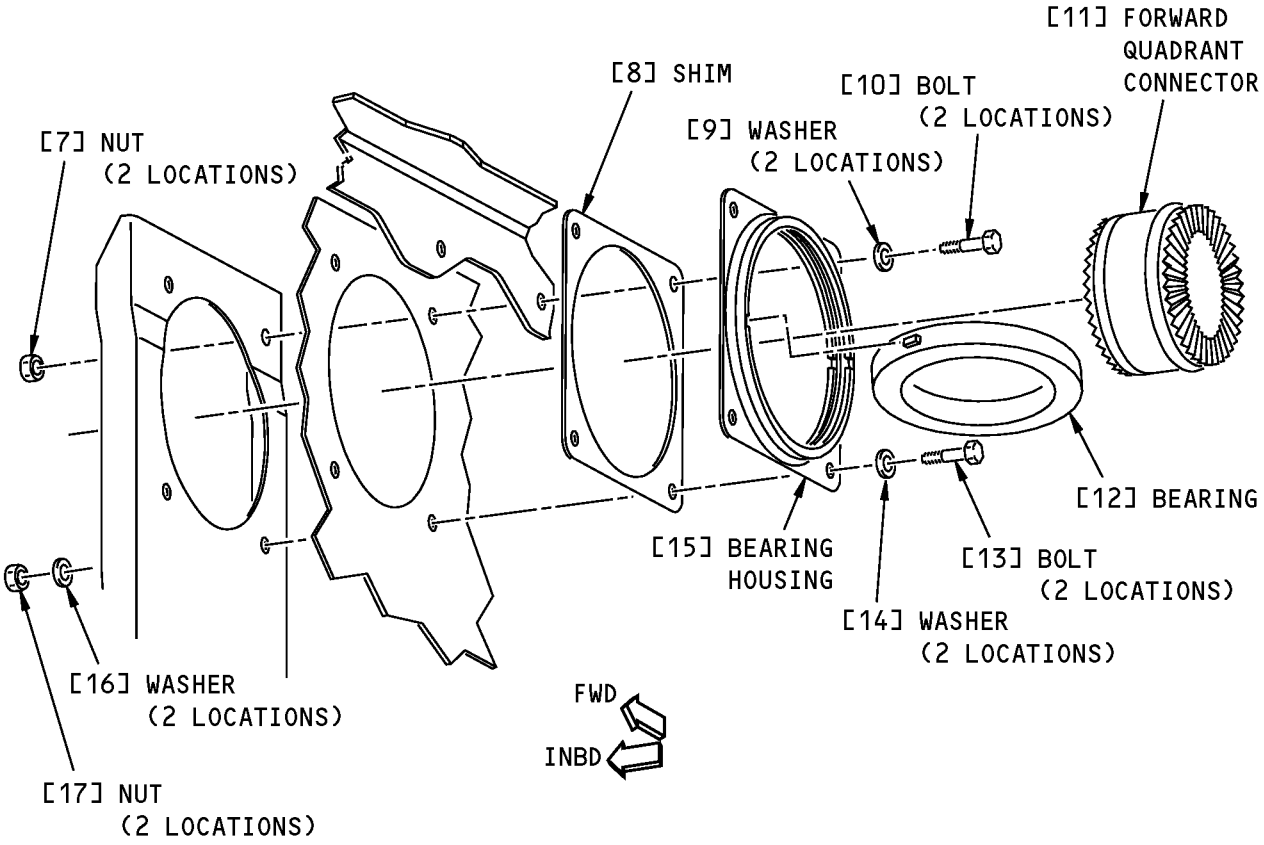

Control Column Support Bearing Installation
Figure 402 (Sheet 4 of 5)/27-31-54-990-802

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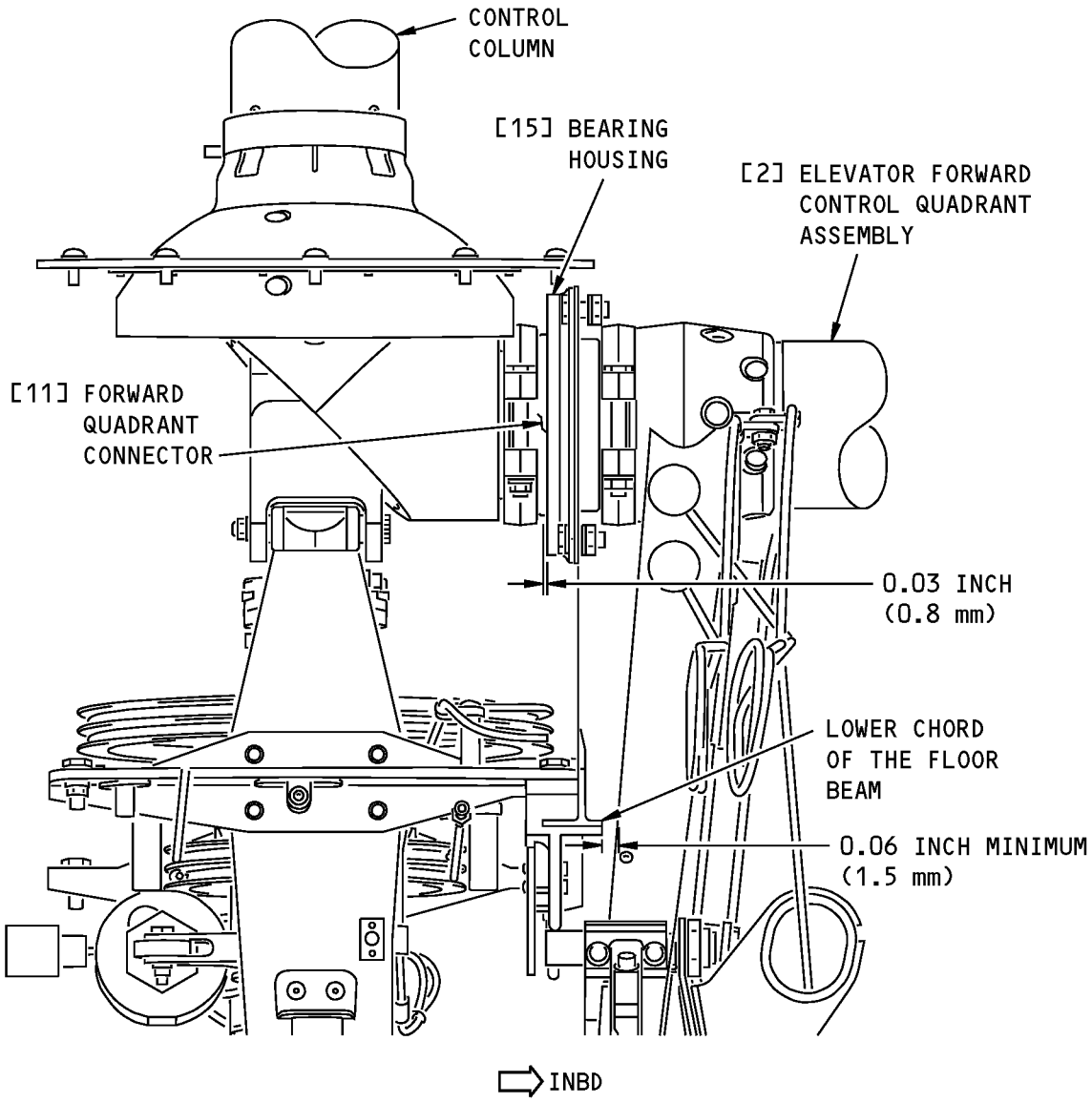

ELEVATOR FORWARD CONTROL QUADRANT ASSEMBLY
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

E

Control Column Support Bearing Installation
Figure 402 (Sheet 5 of 5)/27-31-54-990-802

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TASK 27-31-54-400-801

3. Control Column Support Bearing Installation

(Figure 401, Figure 402)

A. References

Reference	Title
27-31-00-820-801	Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment (P/B 501)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
27-31-51-400-801	Control Column - Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1747	Set - Support, Forward Elevator Control Quadrant (Part #: C27036-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right
318	Tail Cone Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door
318BR	Tailcone Access Door

E. Control Column Support Bearing Installation

SUBTASK 27-31-54-420-001

(1) Install the bearing [12] in the bearing housing [15]:

(a) Put the bearing [12] at the right angle of the bearing housing [15].

(b) Move the bearing [12] in the bearing housing [15] slots. Turn the bearing [12] to the correct position.

SUBTASK 27-31-54-420-002

(2) Install the bearing housing [15]:

(a) Put the bearing housing [15] and the shim [8] against the structure.

(b) Install the upper bolts [10], washers [9], and nuts [7] that attach the bearing housing [15] to the structure.

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(c) Install the lower bolts [13], washers [14], washers [16], and nuts [17] on the bearing housing [15].

SUBTASK 27-31-54-420-003

(3) Install the forward control quadrant assembly [2] to the support bearing:

(a) Install the forward control connector [11] in the bearing housing [15].

(b) Align the spines of the elevator forward control quadrant assembly [2] with the forward quadrant connector [11].

(c) Install inboard couplings [6] with the bolts [3], washers [4], and nuts [5].

(d) Do these steps to make the clearances equal at each end of each inboard coupling [6]:

1) Tighten the bolts [3] to 50 pound-inches (5.7 newton-meters) of torque.

2) Tighten the bolt [3] and then the other to 50-70 pound-inches (5.7-7.9 newton-meters) in approximately 10 pound-inch (1.1 newton-meters) increments until you get the clearances equal to +/- 0.03 inch (+/- 0.76 millimeter) of each other.

(e) Adjust the shim [8] below the bearing housing [15]:

1) Make sure the clearance between the forward quadrant connector [11] and inner race of the bearing [12] is 0.01-0.03 inch (0.25-0.76 millimeter).

2) Make sure the clearance between lower chord of the floor beam and each side of the forward control quadrant assembly [2] is 0.06 inch (1.5 millimeters) minimum through the full travel.

3) If necessary, add or remove shims [8] under the bearing housing [15].

SUBTASK 27-31-54-480-004

(4) Remove the set, SPL-1747 from the forward control quadrant assembly [2].

SUBTASK 27-31-54-420-004

(5) Install the applicable control column. To install it, do this task: Control Column - Installation, TASK 27-31-51-400-801.

SUBTASK 27-31-54-080-001

(6) Remove the rig pin E-1 of rig pin kit, SPL-1585 from the left forward quadrant.

SUBTASK 27-31-54-080-002

(7) Remove the rig pin E-5 of the rig pin kit, SPL-1585 from the aft control quadrant.

SUBTASK 27-31-54-710-001

(8) Do a check of the control column:

(a) Move the control column full forward then full aft.

1) Make sure the control column operates correctly and smoothly.

SUBTASK 27-31-54-820-001

(9) Adjust the elevator control cables EA and EB. To adjust them, do this task: Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment, TASK 27-31-00-820-801.

F. Put the Airplane Back To Its Usual Condition

SUBTASK 27-31-54-410-001

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

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SUBTASK 27-31-54-410-002

(2) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-31-54-860-002

(3) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

———————— END OF TASK ————————

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ELEVATOR FORWARD CONTROL QUADRANT ASSEMBLY - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator forward control quadrant assembly

(2) An installation of the elevator forward control quadrant assembly.

B. The elevator forward control quadrant assembly is referred to as "forward quadrant assembly" in this procedure.

TASK 27-31-61-000-801

2. Elevator Forward Control Quadrant Assembly Removal

(Figure 401, Figure 402)

A. References

Reference	Title
22-11-92-000-801	Pitch Force Transducer Removal (P/B 401)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable (Part #: A20005-9, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right
318	Tail Cone Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door
318BR	Tailcone Access Door

E. Prepare for the Removal

SUBTASK 27-31-61-860-001

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-61-010-001

(2) To get access to the elevator forward quadrant, do this task:

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Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-31-61-010-002

(3) To get access to the elevator aft quadrant, do this task:

Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-61-480-001

(4) Install the rig pin E-5 from the test set rig pin kit, SPL-1585 in the elevator aft quadrant (Figure 401).

SUBTASK 27-31-61-480-002

(5) Install the rig pin E-1 from the rig pin kit, SPL-1585 in the left side of forward quadrant assembly (Figure 402).

SUBTASK 27-31-61-020-001

(6) Remove the pitch control wheel steering force transducers from the forward quadrant assembly. To remove them, do this task: Pitch Force Transducer Removal, TASK 22-11-92-000-801.

F. Forward Quadrant Assembly Removal

(Figure 402)

SUBTASK 27-31-61-020-002

(1) Turn the cable turnbuckles to release the tension in the cables EA [2] and cables EB [3].

NOTE: Do not disconnect the cable turnbuckles.

(a) If it is necessary, install control cable clamp, SPL-1569 on the cables EA [2] and cables EB [3].

SUBTASK 27-31-61-020-003

(2) Remove the cables EA [2] and cables EB [3] from the forward quadrant assembly [1]:

(a) Remove the screws [10] and retainers [4] from the cables EA [2] and cables EB [3].

(b) Put identification tags on the cables.

(c) Remove the bolts [6], washers [7], and nuts [8] that attach the fairleads [9] to the forward quadrant assembly [1].

SUBTASK 27-31-61-020-004

(3) Remove the bolts [11] and washers [12] that attach the mass balance weight [5] to the forward quadrant assembly [1].

SUBTASK 27-31-61-020-005

(4) Remove the ring assemblies and dust seals from the control columns [15]:

(a) Remove the screws [22] and washers [23] from the forward ring assemblies [21] and aft ring assemblies [23].

(b) Remove the forward ring assemblies [21] and aft ring assemblies [24].

(c) Remove the aft dust seals [25] and forward dust seals [26].

SUBTASK 27-31-61-080-001

(5) Remove the rig pin E-1 from the left side of forward quadrant assembly [1].

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SUBTASK 27-31-61-020-006

CAUTION: HOLD THE CONTROL COLUMNS AND THE FORWARD QUADRANT ASSEMBLY WHEN YOU REMOVE THEM. THEY CAN FALL AND CAUSE DAMAGE TO EQUIPMENT.

(6) Remove the forward quadrant assembly [1]:

(a) Remove the nuts [18], washers [17], and bolts [13] from the inboard couplings [16].

(b) Remove the inboard couplings [16].

(c) Move the control columns [15] outboard until you can disengage the forward quadrant connectors [14] from the forward quadrant assembly [1].

NOTE: Use a marker or a pen to make marks on the forward quadrant connector [14] and the forward quadrant assembly [1] to help align the control column during the forward quadrant assembly [1] installation.

(d) Remove the forward quadrant assembly [1].

——————— END OF TASK ———————

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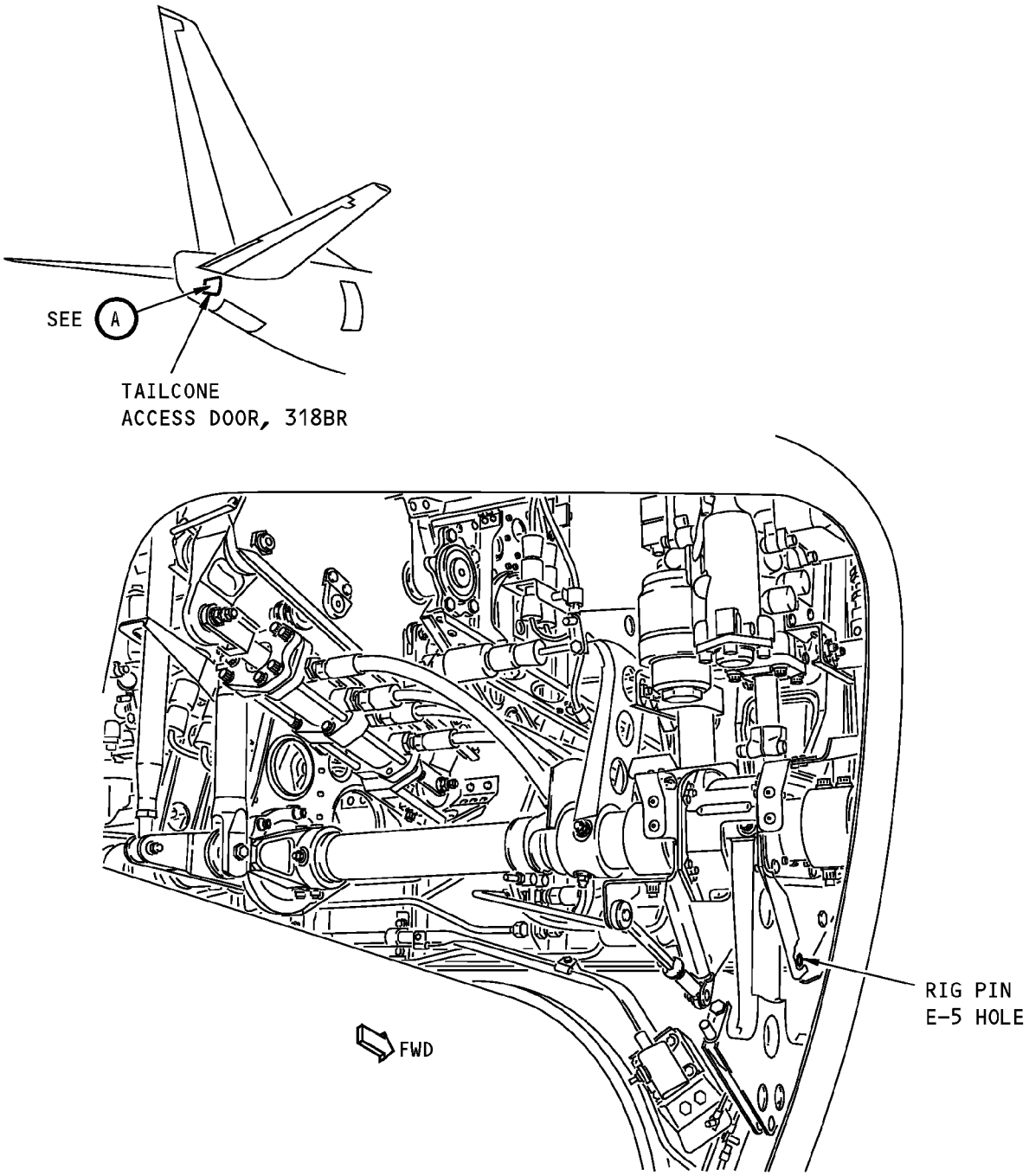

Elevator Rig Pin Installation
Figure 401/27-31-61-990-801

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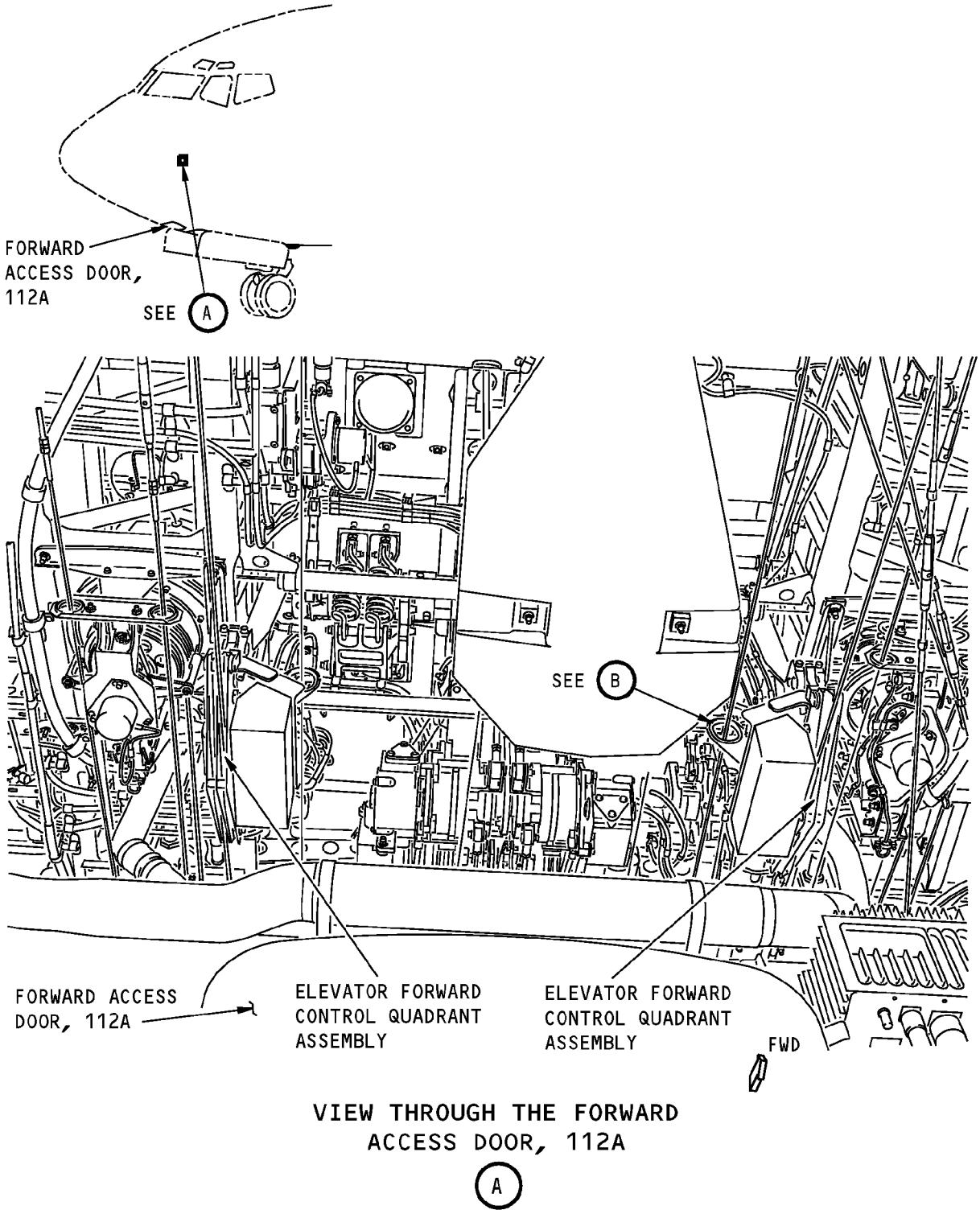

Elevator Forward Control Quadrant Assembly Installation
Figure 402 (Sheet 1 of 7)/27-31-61-990-802

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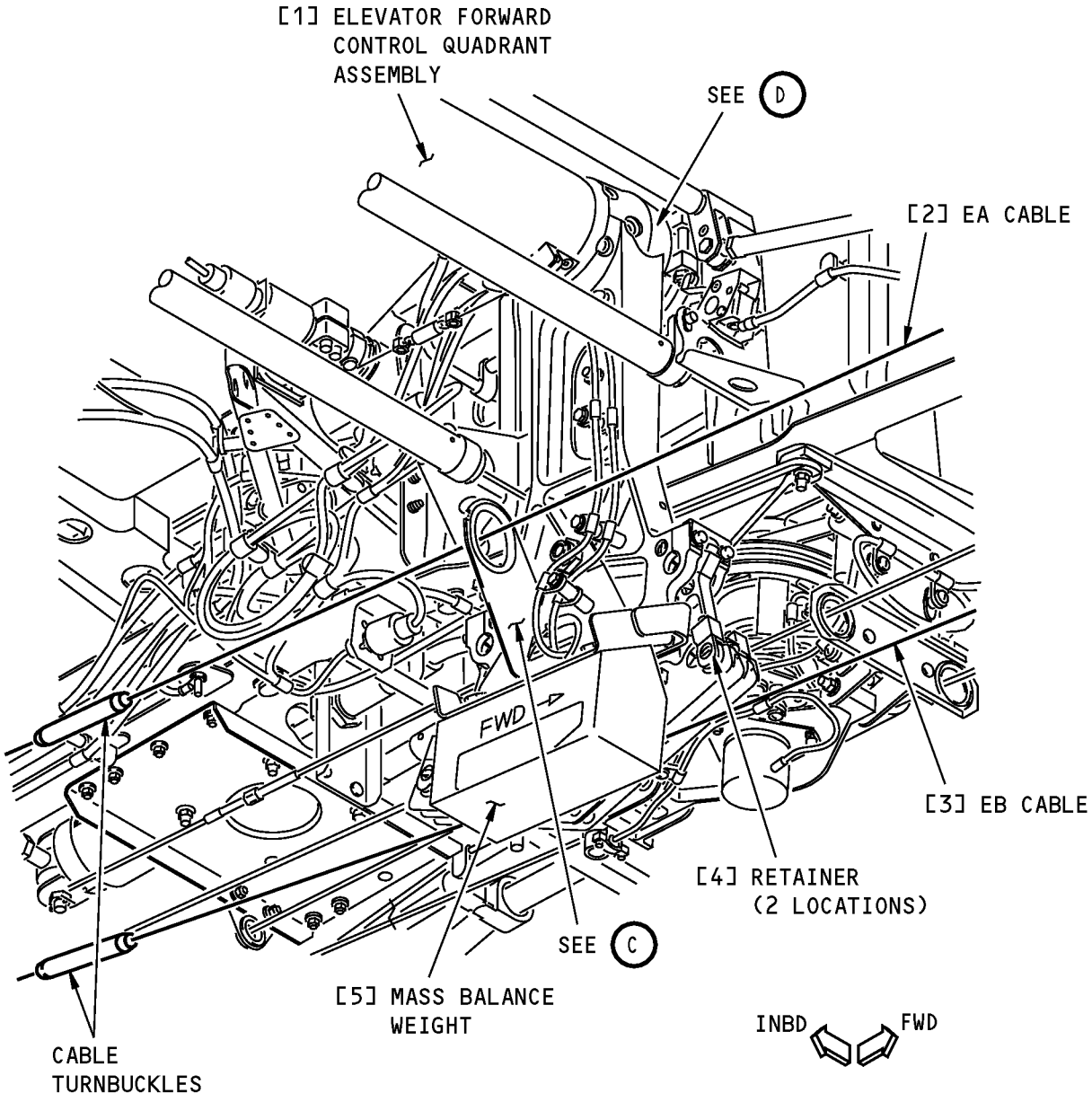

(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

B

Elevator Forward Control Quadrant Assembly Installation
Figure 402 (Sheet 2 of 7)/27-31-61-990-802

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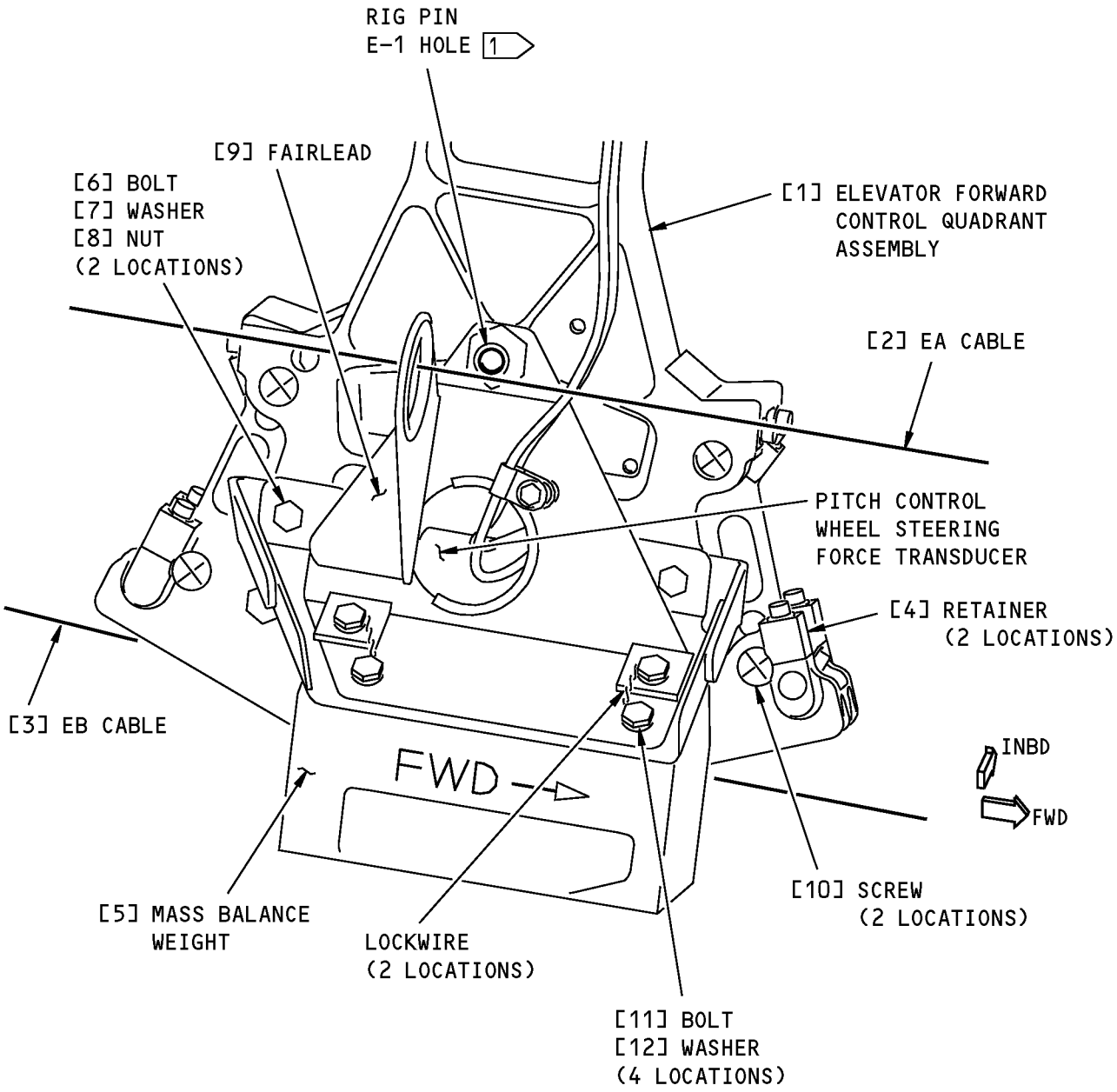

MASS BALANCE WEIGHT

C

1 LEFT SIDE OF FORWARD QUADRANT ASSEMBLY ONLY

Elevator Forward Control Quadrant Assembly Installation
Figure 402 (Sheet 3 of 7)/27-31-61-990-802

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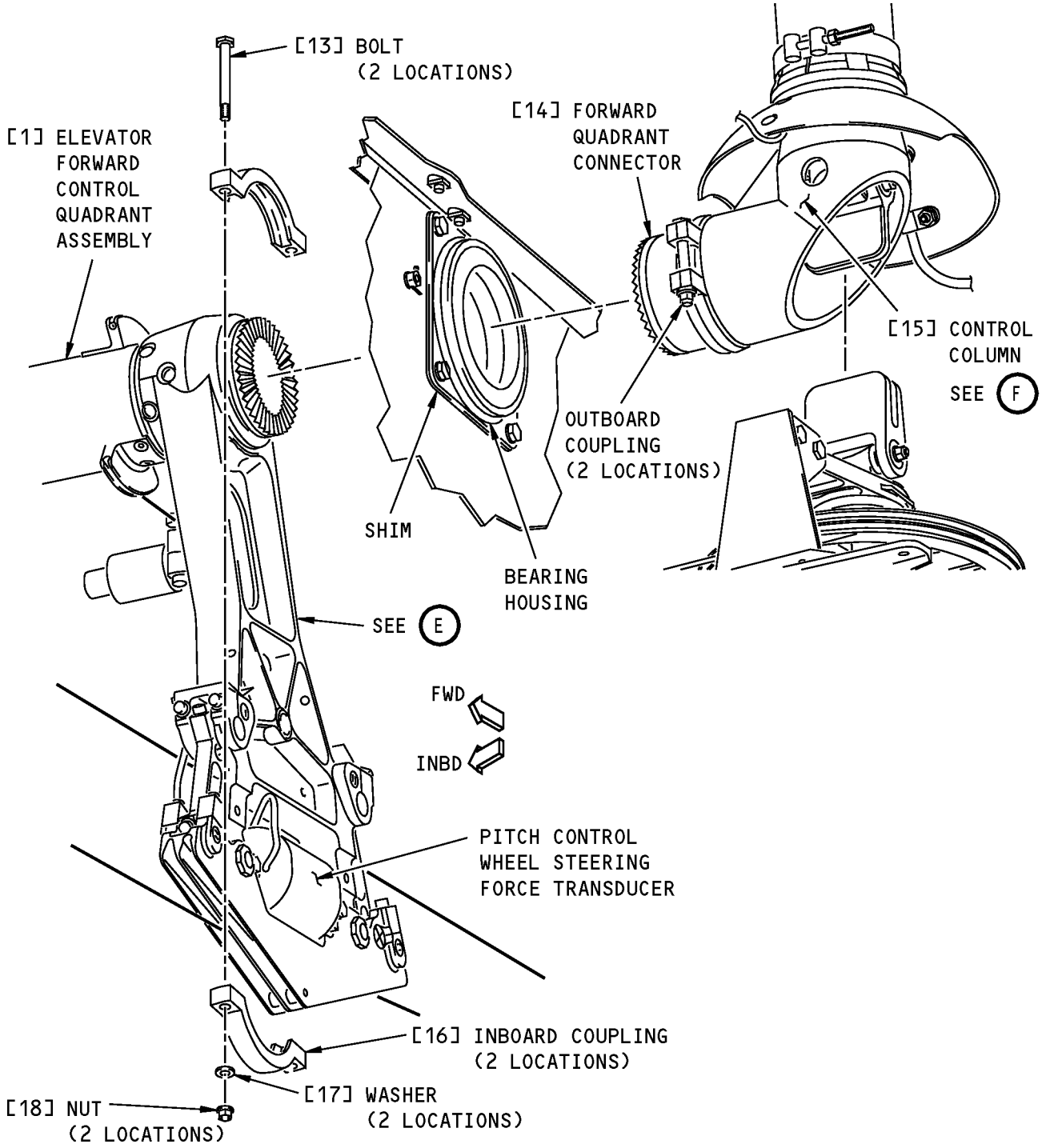

Elevator Forward Control Quadrant Assembly Installation
Figure 402 (Sheet 4 of 7)/27-31-61-990-802

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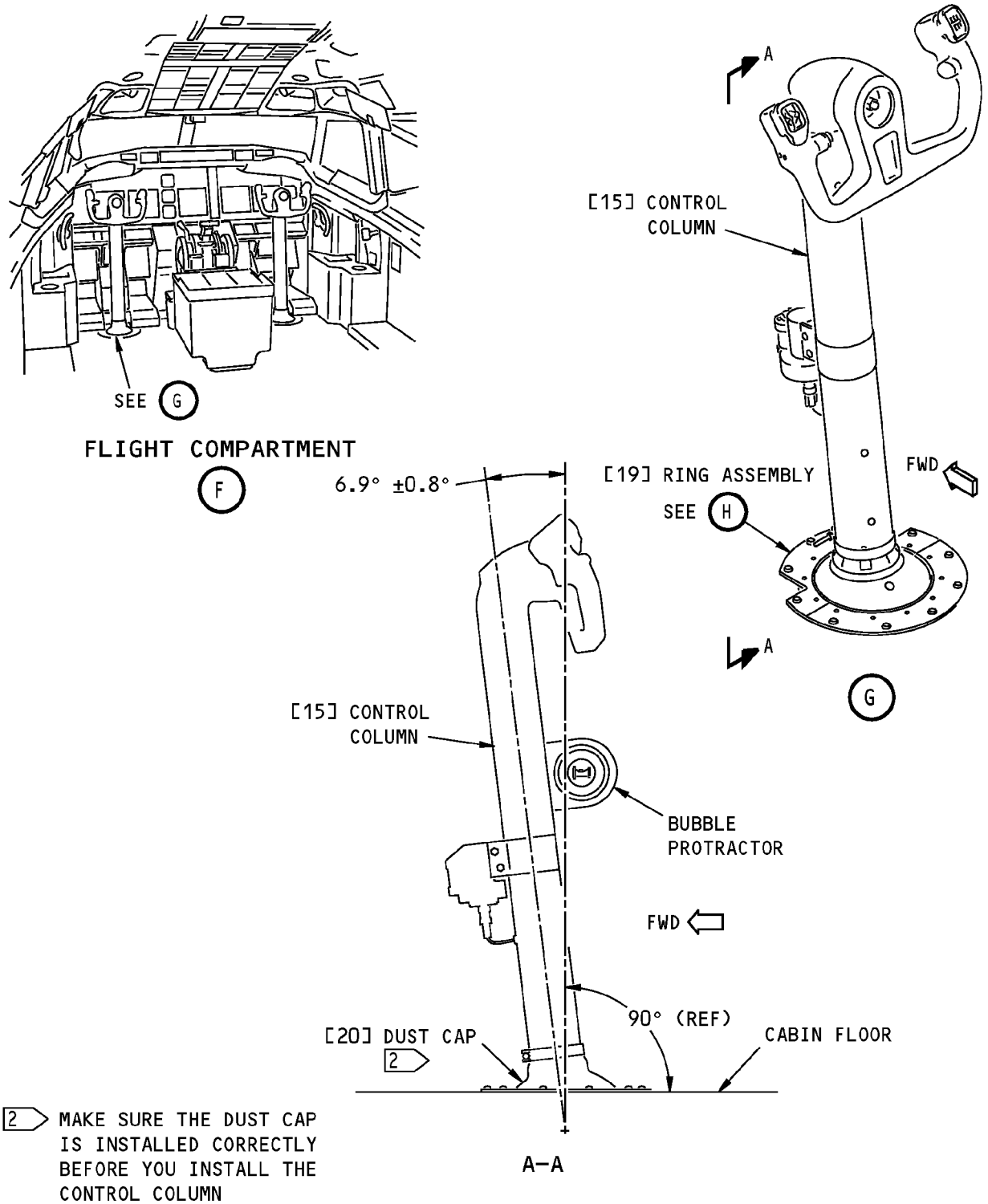

Elevator Forward Control Quadrant Assembly Installation
Figure 402 (Sheet 5 of 7)/27-31-61-990-802

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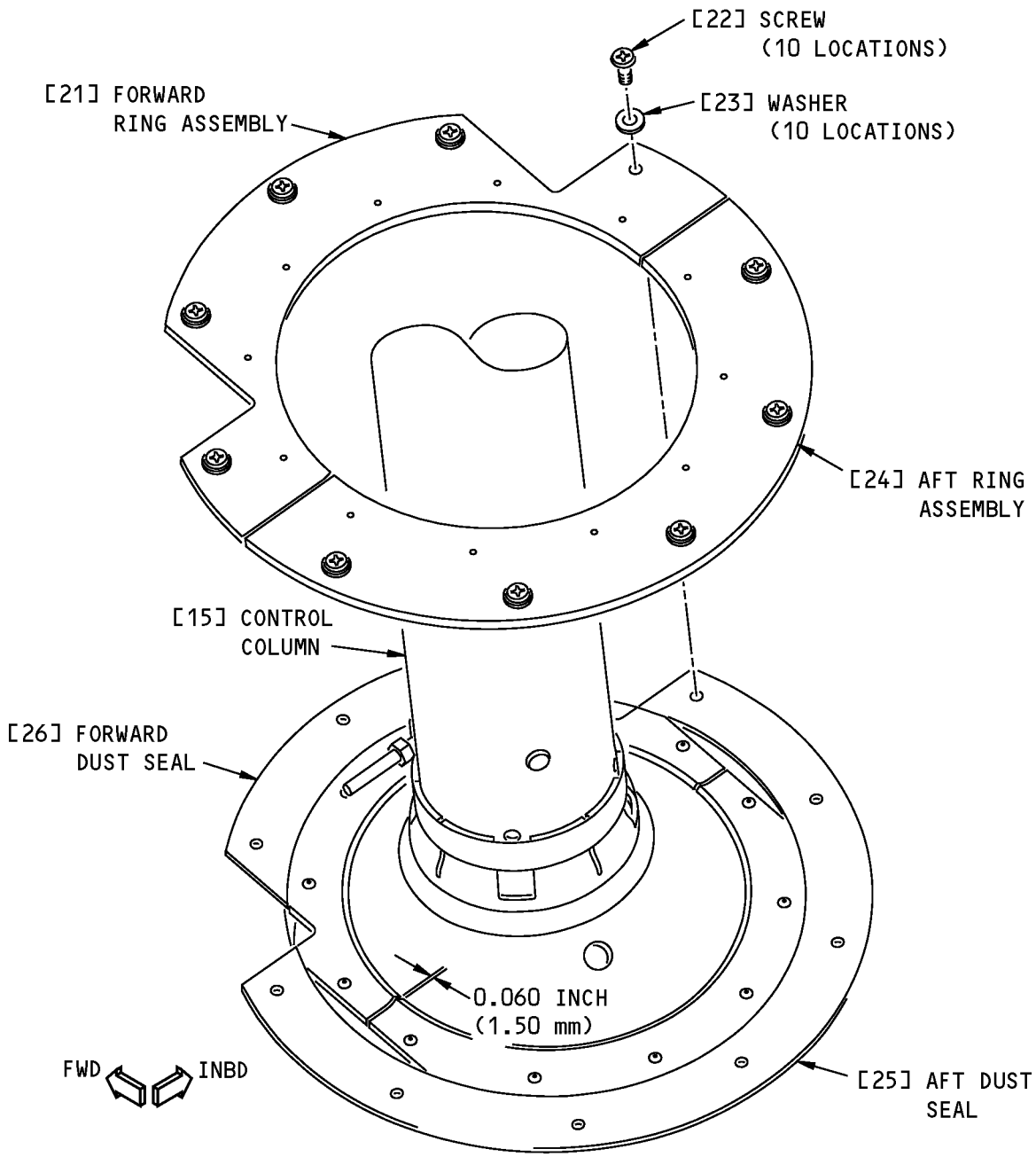

Elevator Forward Control Quadrant Assembly Installation
Figure 402 (Sheet 6 of 7)/27-31-61-990-802

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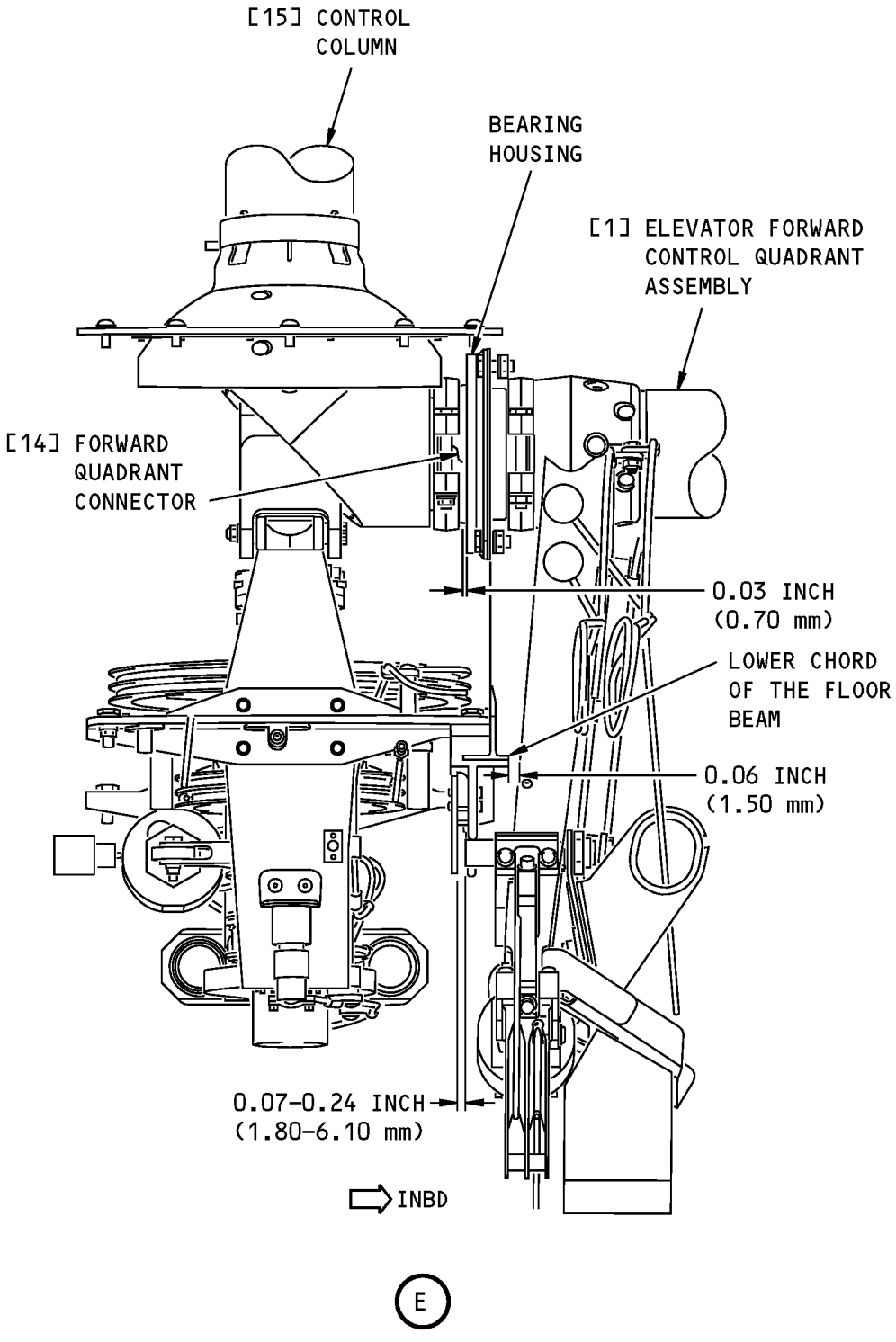

Elevator Forward Control Quadrant Assembly Installation
Figure 402 (Sheet 7 of 7)/27-31-61-990-802

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TASK 27-31-61-400-801

3. Elevator Forward Control Quadrant Assembly Installation

(Figure 401, Figure 402)

A. References

Reference	Title
22-11-92-400-801	Pitch Force Transducer Installation (P/B 401)
27-31-00-700-807	Manual Mode - Test (P/B 501)
27-31-00-820-801	Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment (P/B 501)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable (Part #: A20005-9, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00225	Compound - Two Part Hole Filling, Polysulfide	BMS5-16
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right
318	Tail Cone Compartment - Right

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E. Access Panels

Number	Name/Location
112A	Forward Access Door
318BR	Tailcone Access Door

F. Forward Control Quadrant Installation

(Figure 402)

SUBTASK 27-31-61-480-003

(1) Use the control column assembly protractor, SPL-1680 to set the control column to 6.9 +/- 0.8 degrees forward of a vertical line from the floor (Figure 402)(View A-A).

SUBTASK 27-31-61-420-001

(2) Install the mass balance weight [5] to the forward quadrant assembly [1]:

(a) Put the mass balance weight [5] in position.

(b) Install the bolts [11] and washers [12].

(c) Install the lockwire, G01912.

SUBTASK 27-31-61-480-004

(3) Install the rig pin E-1 in the left side of the forward quadrant assembly.

SUBTASK 27-31-61-420-002

(4) Install the forward quadrant assembly [1]:

(a) Set the control wheels to the neutral position.

(b) Put the forward quadrant assembly [1] it its position.

(c) Move the control columns inboard and at the same time align the spines of the elevator forward control quadrant assembly [1] with the forward quadrant connectors [14].

(d) Install inboard couplings [16] with the bolts [13], washers [17], and nuts [18].

NOTE: Make sure that you use the correct bolts.

(e) Do these steps to make the clearances equal at each end of each inboard coupling:

1) Tighten the bolts [13] to 50 inch-pounds (5.7 newton-meters) of torque.

2) Tighten the bolt [13] and then the other to 50-70 pound-inches (5.7-7.9 newton-meters) in approximately 10 pound-inch (1.1 newton-meters) increments until you get the clearances equal to +/- 0.03 inch (+/- 0.76 millimeter) of each other.

SUBTASK 27-31-61-820-001

(5) Adjust the shim below the bearing housings:

(a) Make sure the clearance between lower chord of the floor beam and each side of the forward quadrant assembly [1] is 0.06 inch (1.5 millimeters) minimum through the full travel.

(b) Make sure the total clearance (sum of the clearances of the two side of forward quadrant assembly) between the bearing and forward quadrant connector is 0.01-0.02 inch (0.25-0.51 millimeter).

(c) Make sure the total side play of the control column assembly is 0.01-0.03 inch (0.25-0.76 millimeter).

(d) Make sure the outboard end of the stop on the left side of the forward quadrant assembly [1] is clear of the inboard face of the bracket by 0.07-0.24 inch (1.8-6.1 millimeters).

(e) If necessary, add or remove shim under the bearing housing.

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SUBTASK 27-31-61-420-003

(6) Install the ring assemblies and dust seals:

(a) Install the forward dust seals [26], aft dust seals [25], forward ring assemblies [21], and aft ring assemblies [24] with the screws [22] and washers [23].

CAUTION: DO NOT HOLD THE DUST CAP TOO TIGHTLY AGAINST THE WIRE BUNDLE. IT CAN CAUSE DAMAGE TO THE ELECTRICAL WIRES.

(b) If it is necessary, adjust the dust cap [20] to set the edge of the dust seals lightly up against the dust caps [20].

1) Loosen the clamps to adjust the dust caps [20].

(c) Make sure the gap between the two dust seals is 0.60 inch (15.2 millimeters).

(d) Fill the gap between the two dust seals with compound, A00225.

(e) Fill the hole between the notch in the dust seals and the cutout in the floor with compound, A00225.

SUBTASK 27-31-61-080-002

(7) Remove the rig pin E-1 from the rig pin kit, SPL-1585 from the left side of the forward quadrant assembly.

SUBTASK 27-31-61-710-001

(8) Do a check of the control column:

(a) Move the control column full forward then full aft.

1) Make sure the control column operates correctly and smoothly.

SUBTASK 27-31-61-420-004

(9) Connect the cables EA [2] and cables EB [3] to the forward quadrants assembly [1]

(a) Install the bolts [6], washers [7], and nuts [8] that attach the fairleads [9] to forward quadrant assembly [1].

(b) Remove the identification tags from the cable EA [2] and cable EA [3].

(c) Install the cables EA [2] and cables EB [3] to the forward quadrants assembly [1].

(d) Install the retainers [4] and screws [10] to the cables EA [2] and cables EB [3].

(e) Remove the control cable clamp, SPL-1569 if installed.

SUBTASK 27-31-61-080-003

(10) Remove the rig pin E-5 from the rig pin kit, SPL-1585 from the aft control quadrant (Figure 401).

SUBTASK 27-31-61-420-005

(11) Install the pitch control wheel steering force transducers to the forward quadrant assembly. To install them, do this task: Pitch Force Transducer Installation, TASK 22-11-92-400-801.

SUBTASK 27-31-61-860-002

(12) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-61-820-002

(13) Adjust the elevator control cables EA and EB. To adjust them, do this task: Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment, TASK 27-31-00-820-801.

SUBTASK 27-31-61-710-002

(14) Do this task: Manual Mode - Test, TASK 27-31-00-700-807.

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G. Put the Airplane Back To Its Usual Condition

SUBTASK 27-31-61-410-001

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-61-410-002

(2) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

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ELEVATOR FORWARD CONTROL QUADRANT ASSEMBLY - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has this inspection task:

(1) Elevator Mechanical Control Path

TASK 27-31-61-210-801

2. Elevator Mechanical Control Path Inspection

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door
318BR	Tailcone Access Door

D. Procedure

SUBTASK 27-31-61-010-003

(1) To get access to the elevator mechanical control path, do this task:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-31-61-210-001

(2) Do a general visual inspection of the forward elevator mechanical control path.

SUBTASK 27-31-61-410-003

(3) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-31-61-010-004

(4) To get access to the elevator mechanical control path, do this task:

Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-61-210-002

(5) Do a general visual inspection of the aft elevator mechanical control path.

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SUBTASK 27-31-61-410-004

(6) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

——————— END OF TASK ———————

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ELEVATOR FEEL AND CENTERING UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator feel and centering unit

(2) An installation of elevator feel and centering unit.

B. The feel and centering unit is referred to as "centering unit" in this procedure.

TASK 27-31-64-000-801

2. Elevator Feel and Centering Unit Removal

(Figure 401)

A. References

Reference	Title
22-11-24-000-801	Mach Trim Actuator Removal (P/B 401)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-67-000-801	Elevator Feel Actuator Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
318	Tail Cone Compartment - Right

D. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

E. Prepare for the Removal

SUBTASK 27-31-64-010-001

(1) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-64-860-001

(2) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-64-480-001

(3) Install rig pin E-5 from the rig pin kit, SPL-1585 in the elevator aft control quadrant.

SUBTASK 27-31-64-480-002

(4) Attach "DO-NOT-OPERATE" tags on the control columns.

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SUBTASK 27-31-64-020-001

(5) Do this task: Mach Trim Actuator Removal, TASK 22-11-24-000-801.

SUBTASK 27-31-64-020-002

(6) Do this task: Elevator Feel Actuator Removal, TASK 27-31-67-000-801.

F. Centering Unit Removal

SUBTASK 27-31-64-020-003

(1) Remove the centering unit [1]:

(a) Remove nut [6], washer [5], washer [4], and bolt [3] to disconnect the output rod [7] from the crank [2].

(b) Remove the nut [11], washer [10], washer [9], and bolt [8] to disconnect the micro-adjustment rod [12] from the centering unit [1].

(c) Hold the centering unit [1] and remove the bolts [15] and washers [16] from the bearing assemblies [13].

(d) Remove the centering unit [1] from the support brackets [14].

—————— END OF TASK ——————

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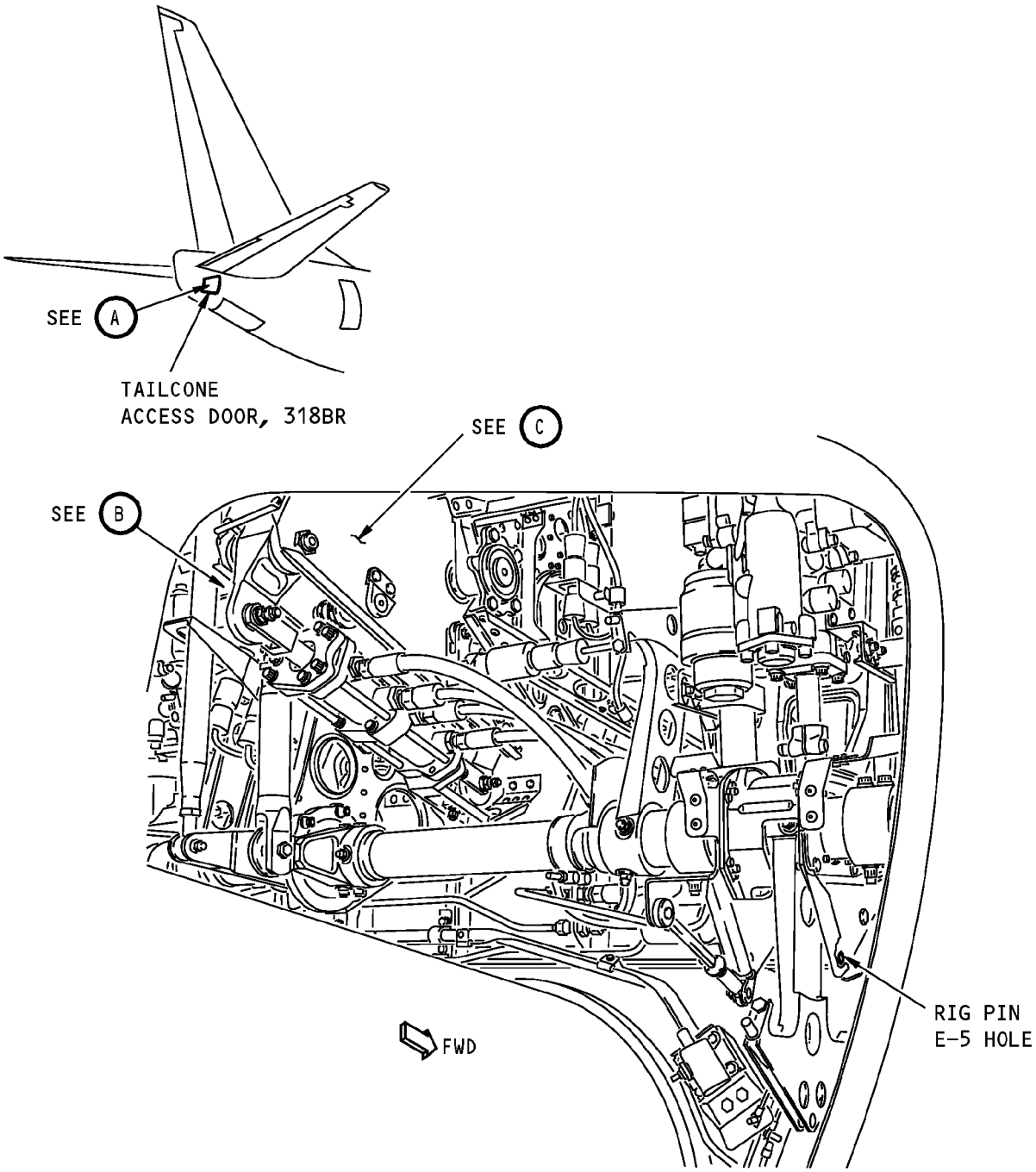

Elevator Feel and Centering Unit Installation
Figure 401 (Sheet 1 of 3)/27-31-64-990-801

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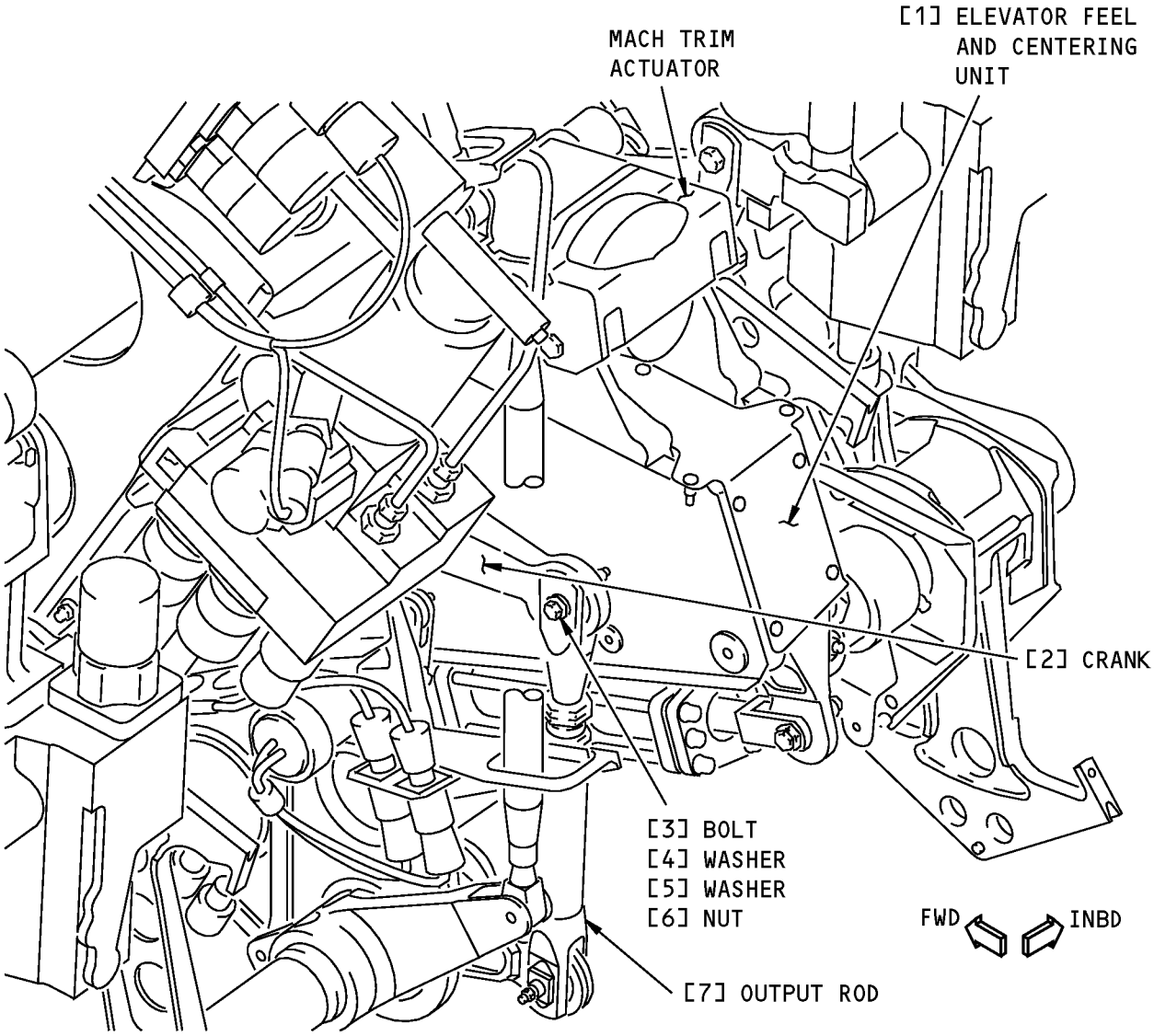

Elevator Feel and Centering Unit Installation
Figure 401 (Sheet 2 of 3)/27-31-64-990-801

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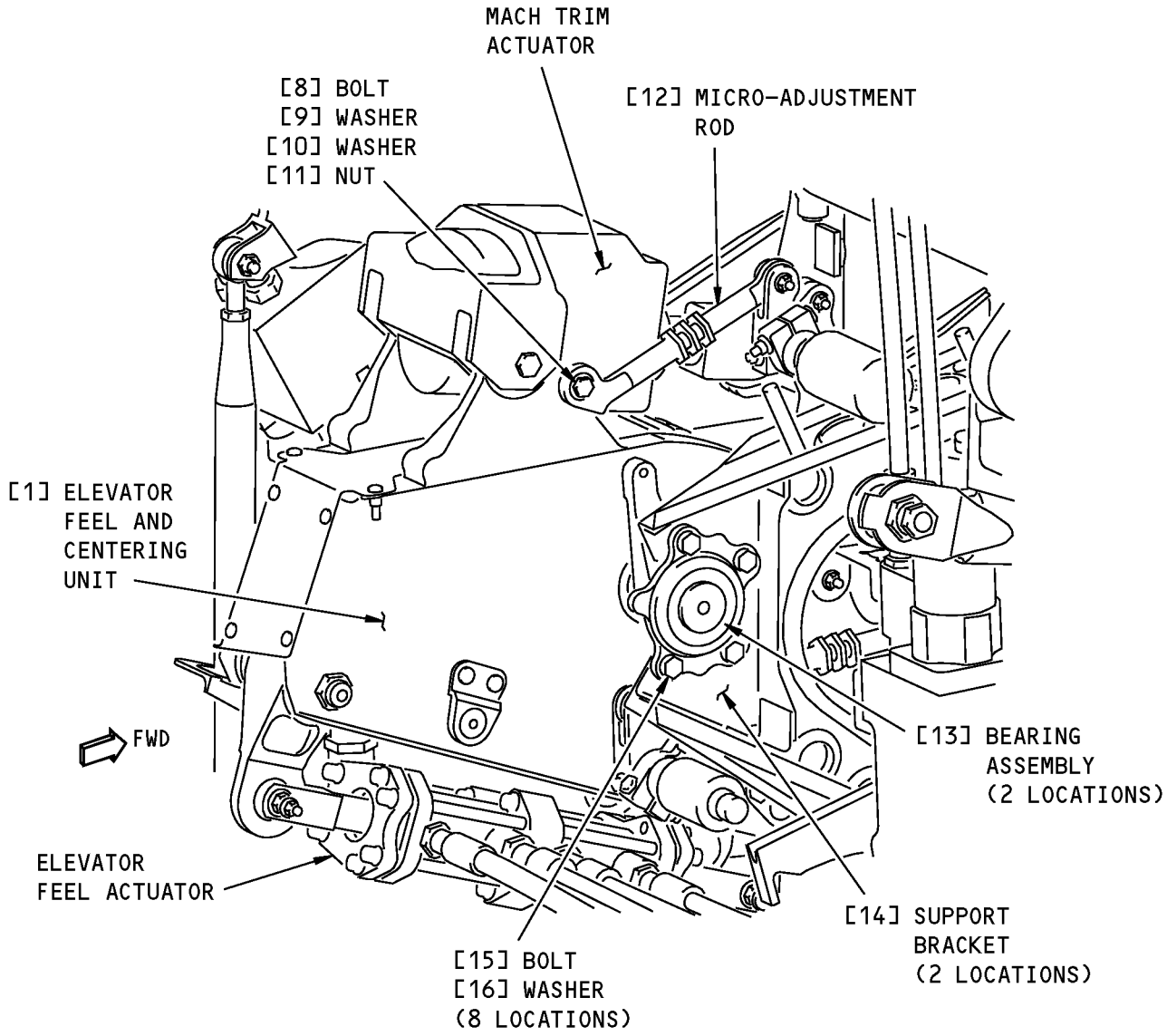

Elevator Feel and Centering Unit Installation
Figure 401 (Sheet 3 of 3)/27-31-64-990-801

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TASK 27-31-64-400-801

3. Elevator Feel and Centering Unit Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
22-11-14-820-801	Elevator Neutral Shift Sensor Adjustment (P/B 501)
22-11-24-400-801	Mach Trim Actuator Installation (P/B 401)
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-700-812	Feel Force System - Test (P/B 501)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
27-31-67-400-801	Elevator Feel Actuator Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
318	Tail Cone Compartment - Right

D. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

E. Centering Unit Installation

SUBTASK 27-31-64-420-001

(1) Install the centering unit [1]:

(a) Put the centering unit [1] in its position.

(b) Align the bolt installation holes in the bearing assemblies [13] with support brackets [14].

(c) Install the bolts [15] and washers [16] to attach the bearing assemblies [13] to the support brackets [14].

(d) Install the bolt [8], washer [9], washer [10], and nut [11] to connect the micro-adjustment rod [12] to the centering unit [1].

SUBTASK 27-31-64-420-002

(2) Do this task: Elevator Feel Actuator Installation, TASK 27-31-67-400-801.

SUBTASK 27-31-64-420-003

(3) Do this task: Mach Trim Actuator Installation, TASK 22-11-24-400-801.

SUBTASK 27-31-64-860-002

(4) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

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SUBTASK 27-31-64-820-002

(5) Adjust the output rod [2]:

(a) Align the bolt hole of the output rod [7] and bolt hole of the crank [2].

(b) If the alignment difference is more that 0.06 inch (1.5 millimeters), then do these steps:

1) Turn the sleeve on the output rod [7] until you can install the bolt [3] easily.

NOTE: Always turn the clevis and the sleeve in the same direction and number of threads are equal in the two parts.

SUBTASK 27-31-64-420-004

CAUTION: DO NOT TIGHTEN THE OUTER BOLT OF THE BOLT [3] AGAIN AFTER YOU TIGHTEN THE NUT [7]. YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

(6) Install the bolt [3], washer [4] (under bolt), washer [5] (under nut), and nut [6] to connect the output rod [7] to the crank [2].

(a) Tighten the outer bolt of the bolt [3] to 75-85 pound-inches (8.5-9.6 newton-meters).

(b) Tighten the nut [6] to 15-20 pound-inches (1.7-2.3 newton-meters).

SUBTASK 27-31-64-080-001

(7) Remove the rig pin E-5 of the rig pin kit, SPL-1585 from the elevator aft control quadrant.

SUBTASK 27-31-64-820-003

(8) Do this task: Elevator Neutral Shift Sensor Adjustment, TASK 22-11-14-820-801.

SUBTASK 27-31-64-860-003

(9) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-64-080-002

(10) Remove the "DO-NOT-OPERATE" tags from the control columns.

SUBTASK 27-31-64-710-001

(11) Move the control column full forward and full aft.

(a) Make sure the control column moves freely and smoothly.

SUBTASK 27-31-64-710-002

(12) Do this task: Feel Force System - Test, TASK 27-31-00-700-812.

SUBTASK 27-31-64-790-001

(13) Make sure that there is no hydraulic leakage at the elevator feel actuator.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-64-410-001

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-64-610-001

(2) If it is necessary, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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ELEVATOR FEEL AND CENTERING UNIT - INSPECTION/CHECK

1. General

A. This procedure contains this task:

(1) Elevator Feel and Centering Unit Inspection

(a) This task supplies the data for a dimensional inspection of the elevator feel and centering unit.

(b) This task does not remove or install the elevator feel and centering unit, refer to the Elevator Feel and Centering Unit - Removal/Installation for procedures to remove and install the elevator feel and centering unit.

TASK 27-31-64-200-801

2. Elevator Feel and Centering Unit Inspection

(Figure 601)

A. General

(1) This procedure gives wear limits and repair data for the elevator feel and centering unit.

B. References

Reference	Title
27-31-64-400-801	Elevator Feel and Centering Unit Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

E. Procedure

SUBTASK 27-31-64-020-005

(1) Use these tools to check for wear on the parts of the elevator feel and centering unit connections:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-31-64-020-006

(2) Examine the parts of the elevator feel and centering unit connections for worn areas:

(a) Remove the parts to be checked.

(b) Measure the parts, as necessary, with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions that follow.

(d) If the parts are not in the tolerance, replace or repair the part, as required.

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Table 601/27-31-64-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 BEARING	I.D.	0.3120 in 7.925 mm	0.3125 in 7.938 mm	0.3155 in 8.014 mm	0.0035 in 0.089 mm
#1 BOLT	O.D.	0.3110 in 7.899 mm	0.3120 in 7.925 mm	0.3106 in 7.889 mm	
#2 OUTPUT ROD	I.D.	0.3120 in 7.925 mm	0.3130 in 7.950 mm	0.3160 in 8.026 mm	0.0040 in 0.102 mm
#2 BOLT	O.D.	0.3110 in 7.899 mm	0.3120 in 7.925 mm	0.3106 in 7.889 mm	

SUBTASK 27-31-64-020-007

(3) Install the elevator feel and centering unit. To install it, do this task: Elevator Feel and Centering Unit Installation, TASK 27-31-64-400-801.

——————— END OF TASK ———————

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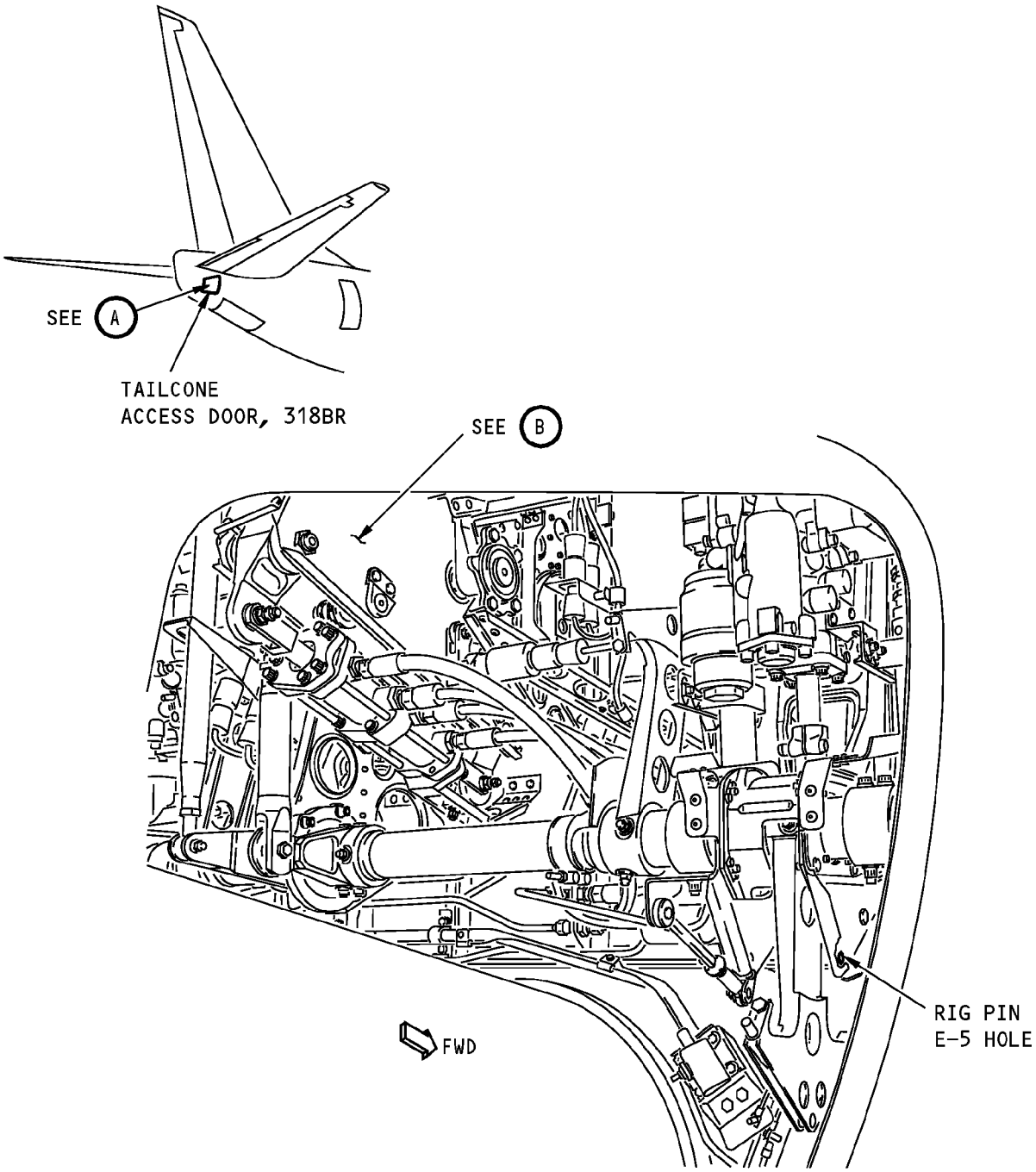

Elevator Feel and Centering Unit Wear Limits
Figure 601 (Sheet 1 of 2)/27-31-64-990-802

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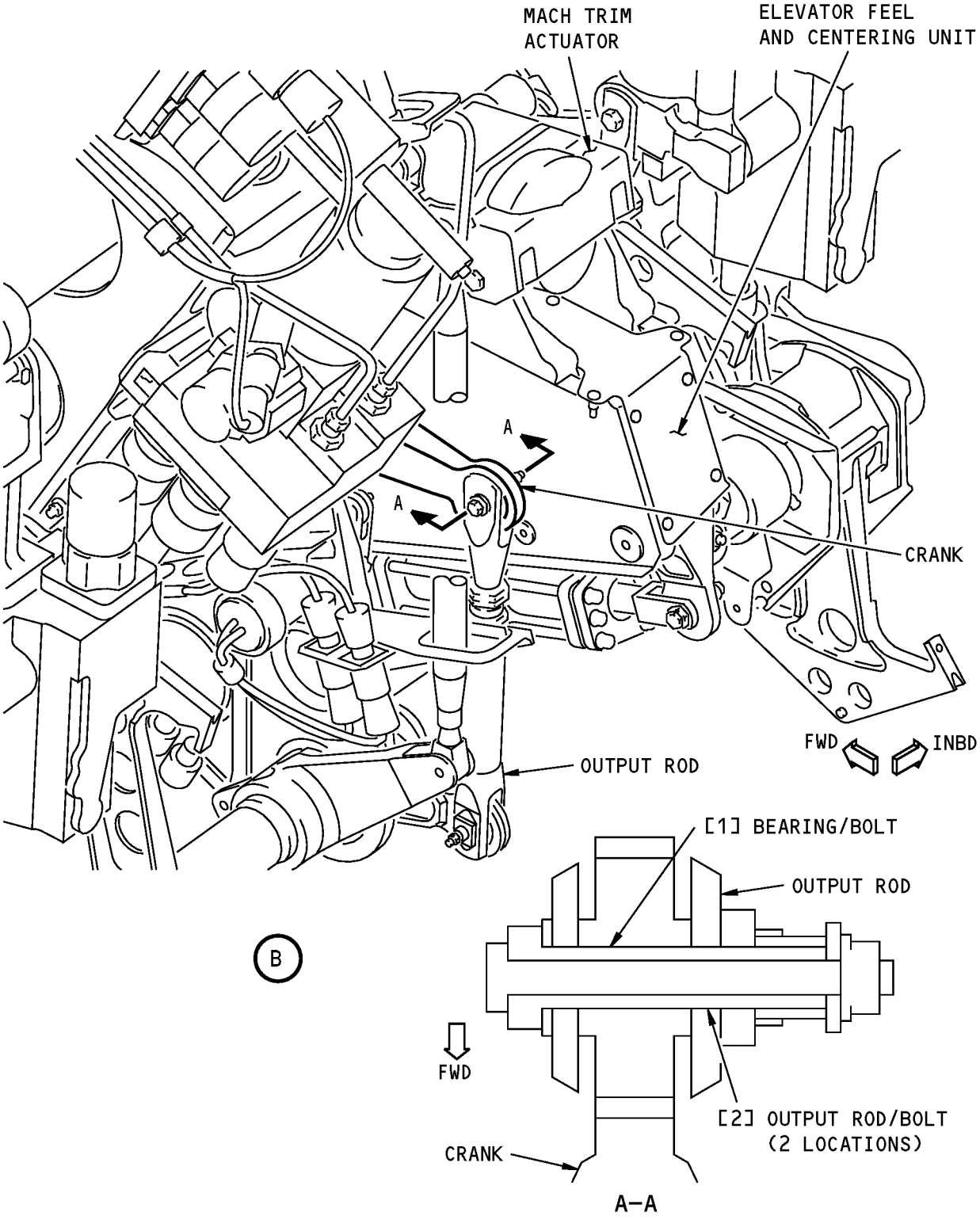

Elevator Feel and Centering Unit Wear Limits
Figure 601 (Sheet 2 of 2)/27-31-64-990-802

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ELEVATOR FEEL ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator feel actuator

(2) An installation of the elevator feel actuator.

B. The elevator feel actuator is installed below the elevator feel and centering unit.

TASK 27-31-67-000-801

2. Elevator Feel Actuator Removal

(Figure 401)

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

D. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

E. Prepare for the Removal

SUBTASK 27-31-67-860-001

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-67-010-001

(2) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-67-480-001

(3) Install the rig pin E-5 from the rig pin kit, SPL-1585 in the elevator aft control quadrant (Figure 401).

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F. Elevator Feel Actuator Removal

SUBTASK 27-31-67-020-001

WARNING: RELEASE THE CONNECTION SLOWLY AND LET THE PRESSURE DECREASE BEFORE YOU COMPLETELY REMOVE THE HYDRAULIC LINE. IF YOU DISCONNECT THE HYDRAULIC LINE WHEN IT HAS PRESSURE, A SPRAY OF HYDRAULIC FLUID CAN CAUSE INJURY TO PERSONS.

(1) Disconnect the hydraulic lines from the Elevator Feel Actuator [3] Figure 401.

(a) Install the caps and plugs on the open ports and hydraulic lines. Discard the packings [11] and the packings [15].

SUBTASK 27-31-67-020-002

(2) Remove the Elevator Feel Actuator [3] from the elevator feel and centering unit [1]:

(a) Remove nut [20], washer [21], nut [22], washer [23], and bolt assembly [24] from the aft connection of the Elevator Feel Actuator [3].

(b) Remove the nut [17], washer [18], bushing [19], and slide block [16] from the anti-rotation fitting [6].

(c) Remove the nut [10], washer [9], nut [8], washer [7], spacer [5], anti-rotation fitting [6], and bolt assembly [4] from the forward connection of the Elevator Feel Actuator [3].

(d) Remove the Elevator Feel Actuator [3].

END OF TASK

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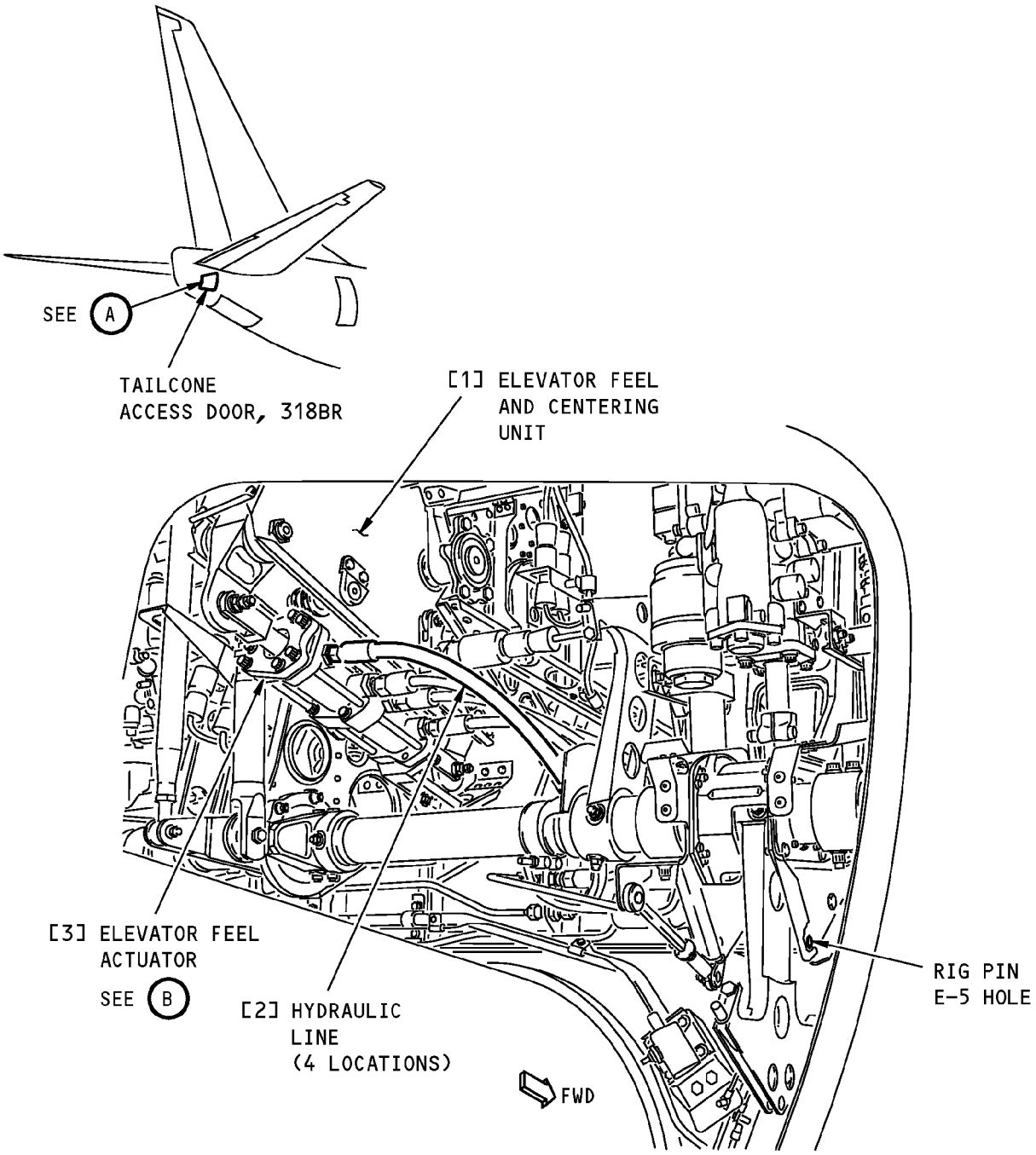

Elevator Feel Actuator Installation
Figure 401 (Sheet 1 of 2)/27-31-67-990-801

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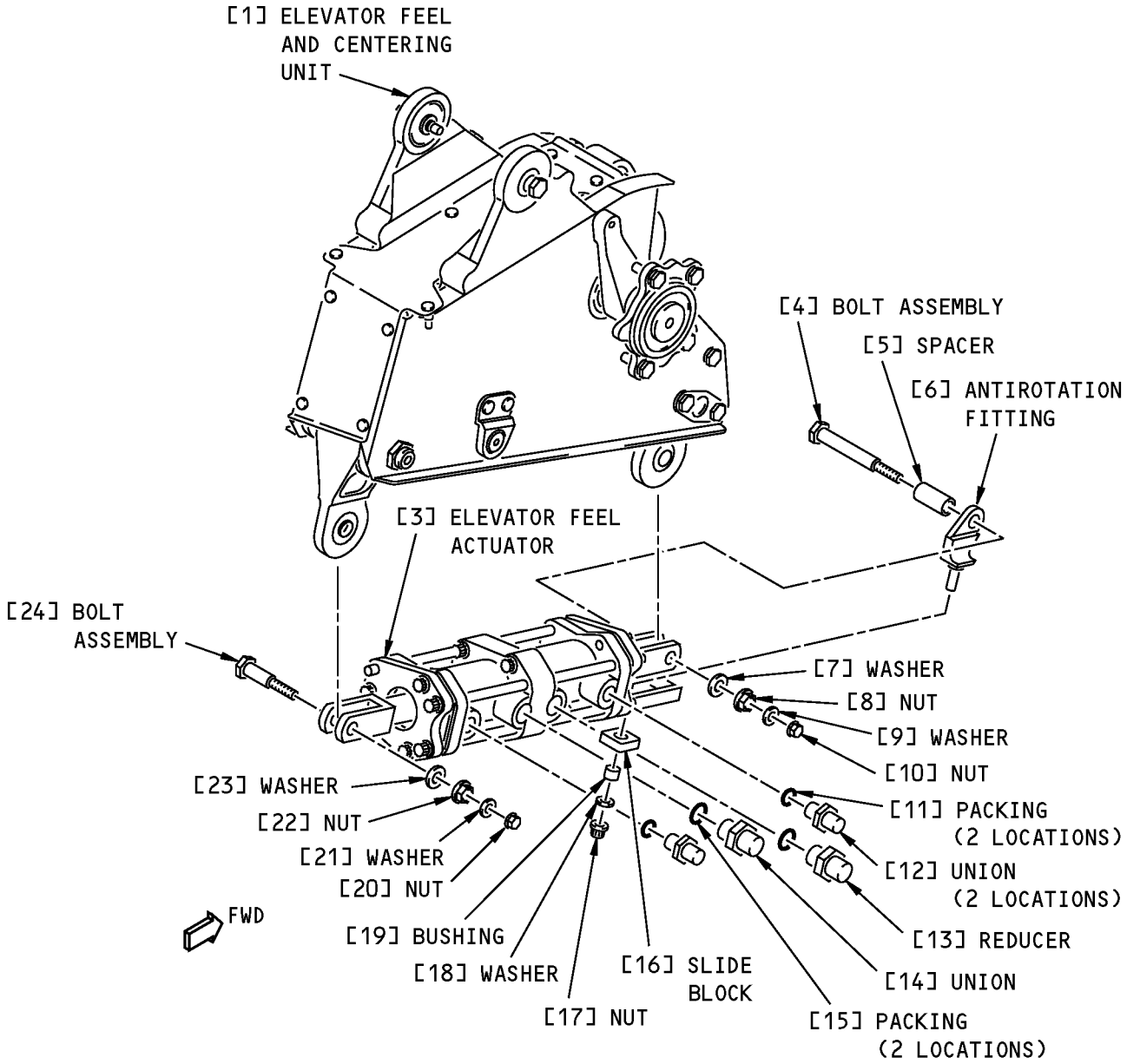

ELEVATOR FEEL ACTUATOR

B

Elevator Feel Actuator Installation
Figure 401 (Sheet 2 of 2)/27-31-67-990-801

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TASK 27-31-67-400-801

3. Elevator Feel Actuator Installation

(Figure 401)

A. References

Reference	Title
27-31-00-700-812	Feel Force System - Test (P/B 501)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

D. Location Zones

Zone	Area
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

E. Access Panels

Number	Name/Location
318BR	Tailcone Access Door

F. Elevator Feel Actuator Installation

SUBTASK 27-31-67-420-001

(1) If it is necessary, do these steps to install the new packings, unions, and reducer:

(a) Lubricate the new packings, unions, and reducer with fluid, D00153.

(b) Install the new packings [11], new packings [15], unions [12], union [14], and reducer [13] to the Elevator Feel Actuator [3].

SUBTASK 27-31-67-420-002

(2) Install the Elevator Feel Actuator [3]:

(a) Put and hold the Elevator Feel Actuator [3] in its position.

(b) Install bolt assembly [24], washer [23], and nut [22] to attach the aft connection of the Elevator Feel Actuator [3] to the elevator feel and centering unit [1].

1) Tighten the nut [22] to 85-100 pound-inches (9.6-11.3 newton-meters).

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CAUTION: DO NOT TIGHTEN THE NUT [22] AGAIN AFTER YOU TIGHTEN THE NUT [20]. YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(c) Install the washer [21] and nut [20].

1) Tighten the nut [20] to 30-35 pound-inches (3.4-3.9 newton-meters).

(d) Install bolt assembly [4], spacer [5], anti-rotation fitting [6], washer [7], and nut [8] to attach the forward connection of the Elevator Feel Actuator [3] to the elevator feel and centering unit [1].

1) Tighten the nut [8] to 85-100 pound-inches (9.6-11.3 newton-meters).

CAUTION: DO NOT TIGHTEN THE NUT [8] AGAIN AFTER YOU TIGHTEN THE NUT [10]. YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(e) Install the washer [9] and nut [10].

1) Tighten the nut [10] to 30-35 pound-inches (3.4-3.9 newton-meters).

(f) Install the slide block [16], bushing [19], washer [18], and nut [17] to anti-rotation fitting [6].

1) Tighten the nut to 100-125 pound-inches (11.3-14.1 newton-meters).

SUBTASK 27-31-67-420-003

(3) Connect the hydraulic lines [2] to the Elevator Feel Actuator [3].

(a) Remove the caps and plugs from the open ports and hydraulic lines.

(b) Connect the hydraulic lines [2].

SUBTASK 27-31-67-080-001

(4) Remove the rig pin E-5 of the rig pin kit, SPL-1585 from the elevator aft control quadrant.

SUBTASK 27-31-67-860-002

(5) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-67-870-001

(6) Bleed the elevator control system:

(a) Move the control column in a longitudinal direction until the movement is smooth and the feel force is normal.

(b) Make sure the feel forces increase when the air is bled out.

SUBTASK 27-31-67-790-001

(7) Make sure there is no hydraulic leakage at the elevator feel actuator.

SUBTASK 27-31-67-720-001

(8) Do this task: Feel Force System - Test, TASK 27-31-00-700-812.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-67-410-001

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

END OF TASK

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ELEVATOR INPUT TORQUE TUBE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator input torque tube

(2) An installation of the elevator input torque tube.

B. The elevator input torque tube is referred to as the "torque tube" in this procedure.

C. The torque tube includes four quadrants and six input cranks.

TASK 27-31-71-000-801

2. Elevator Input Torque Tube - Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
53-53-00-000-801	Tailcone Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
315	APU Compartment - Left
316	APU Compartment - Right

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Prepare for the Removal

SUBTASK 27-31-71-860-001

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-71-020-001

(2) Remove the tail cone to get access to the torque tube [18]:

(a) Use marking pens or masking tape to make marks on the airplane to show the tail cone locations for correct installation of the tail cone.

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(b) Do this task: Tailcone Removal, TASK 53-53-00-000-801.

SUBTASK 27-31-71-860-002

(3) Use the bar, SPL-1677 to set the horizontal stabilizer to 4 units of trim.

SUBTASK 27-31-71-080-001

(4) Install the rig pin E-5 from the rig pin kit, SPL-1585 on the elevator aft quadrant.

SUBTASK 27-31-71-010-001

(5) To get access to the turnbuckles, do this task:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Torque Tube Removal

SUBTASK 27-31-71-020-002

(1) Remove the cables EAL, EBL, EAR, and EBR from the quadrants [5] (Figure 401, Figure 402):

(a) Install the clamps on the cables so the cables will not go through the aft pressure bulkhead.

(b) Remove the turnbuckles locking clips.

(c) Loosen the turnbuckles for the elevator cables EAL, EBL, EAR, and EBR (Figure 401).

(d) Remove the nuts [4], washers [3], bolts [1], and cable retainers [2] from the four quadrants [5].

(e) Remove the cables from the quadrants [5].

SUBTASK 27-31-71-020-003

(2) Remove the torque tube [18]:

(a) Remove the nuts [16], washers [15], and bolts [14] to disconnect the elevator position sensor rod [13] from the torque tube [18] (Figure 402) (View B).

(b) Remove the nut [29], washer [28], washer [27], and bolt [26] to disconnect the autopilot actuator rod [19] from the input crank [30] (Figure 402)(View C).

(c) Remove the nuts [11], washers [10], washers [9], and bolts [8] to disconnect the four input rods [7] of the elevator power control units [6] from the four input cranks [12] (Figure 402) (Views B and E).

(d) Remove the nut [24], washer [23], washer [22], and bolt [21] to disconnect the feel and centering rod [20] from the input crank [25] (Figure 402)(View C).

(e) Use the drill bit 0.247/0.250 and the drill centering guide to drill out the lockbolts [32] and collars [33] from the center bearing retainer [31] (Figure 402) (View D).

1) Make sure the holes are not out of tolerance.

(f) Remove the rig pin E-5 from the elevator aft quadrant.

(g) Remove the nuts [43], washers [42], nuts [41], washers [40], bolt assemblies [38], and bushings [39] to disconnect the two elevator power control units [6] from the torque tube [18] (Figure 402) (View A-A).

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27A1271

(h) Remove the bolt shrouds [54] from the left and right assemblies.

NOTE: There is a bolt shroud [54] on the bolt heads and the nut ends of the bolts [44].

HAP ALL

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(i) Remove the nuts [47], washers [46], bolts [44], and bushings [45] to disconnect the two reaction links [37] from the torque tube [18].

(j) Remove the nuts [48], washers [49], nuts [50], washer [52], washers [51], washers [34], bolt assemblies [35], and bushings [53] to disconnect the torque tube [18] from the support structure.

(k) Remove the torque tube [18] from the airplane.

END OF TASK

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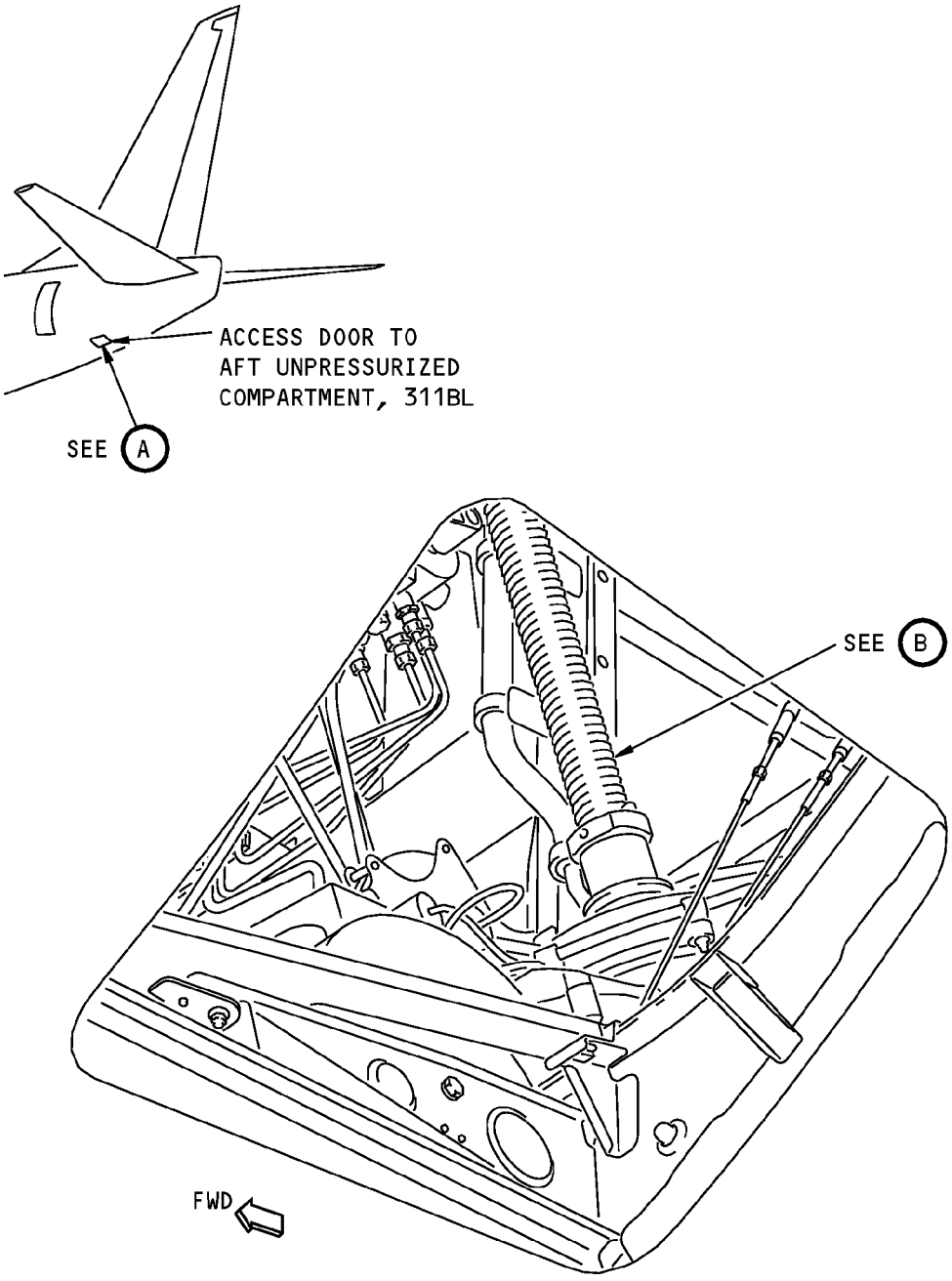

Elevator Cable and Turnbuckle Locations
Figure 401 (Sheet 1 of 2)/27-31-71-990-801

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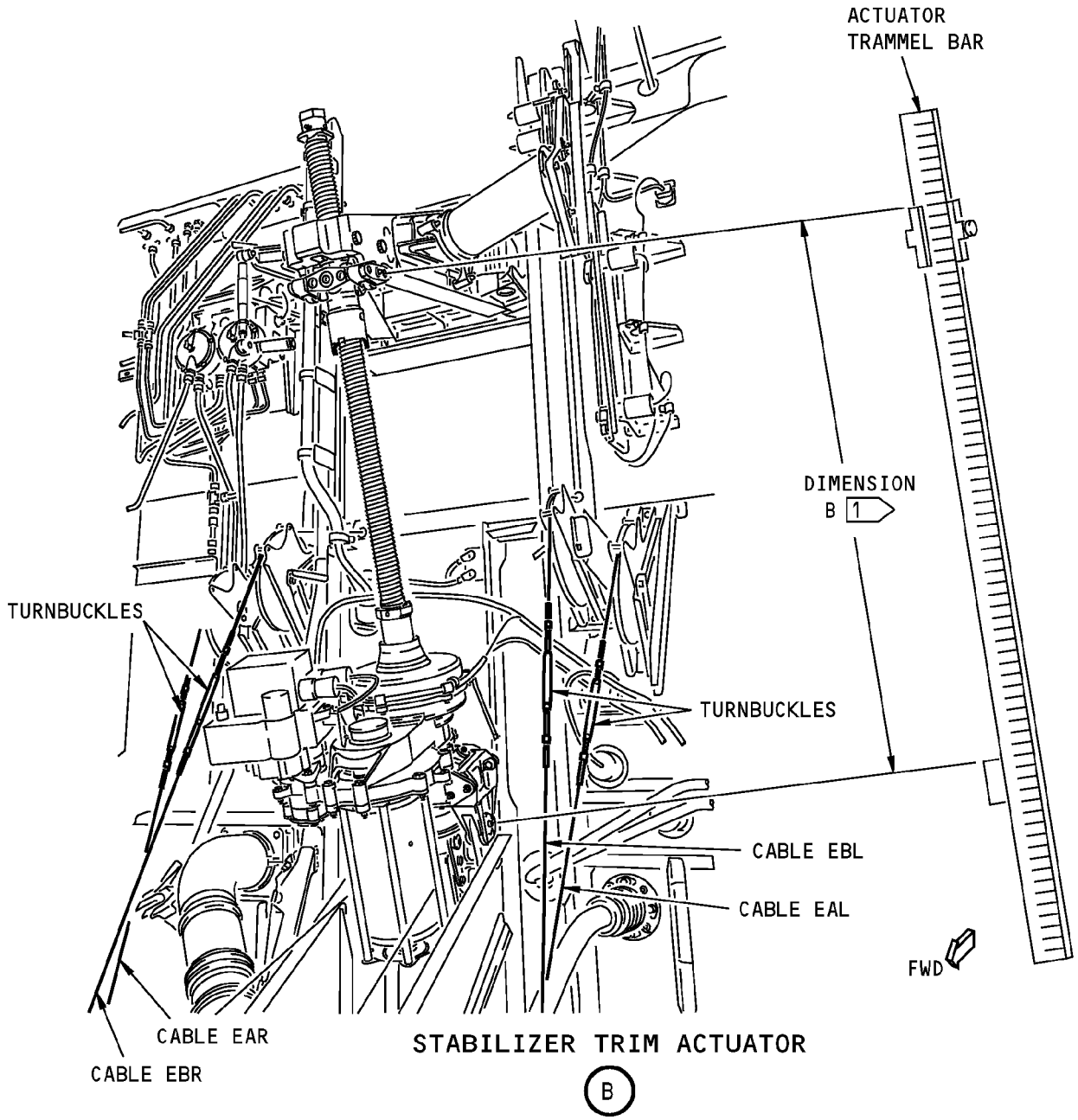

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Elevator Cable and Turnbuckle Locations
Figure 401 (Sheet 2 of 2)/27-31-71-990-801

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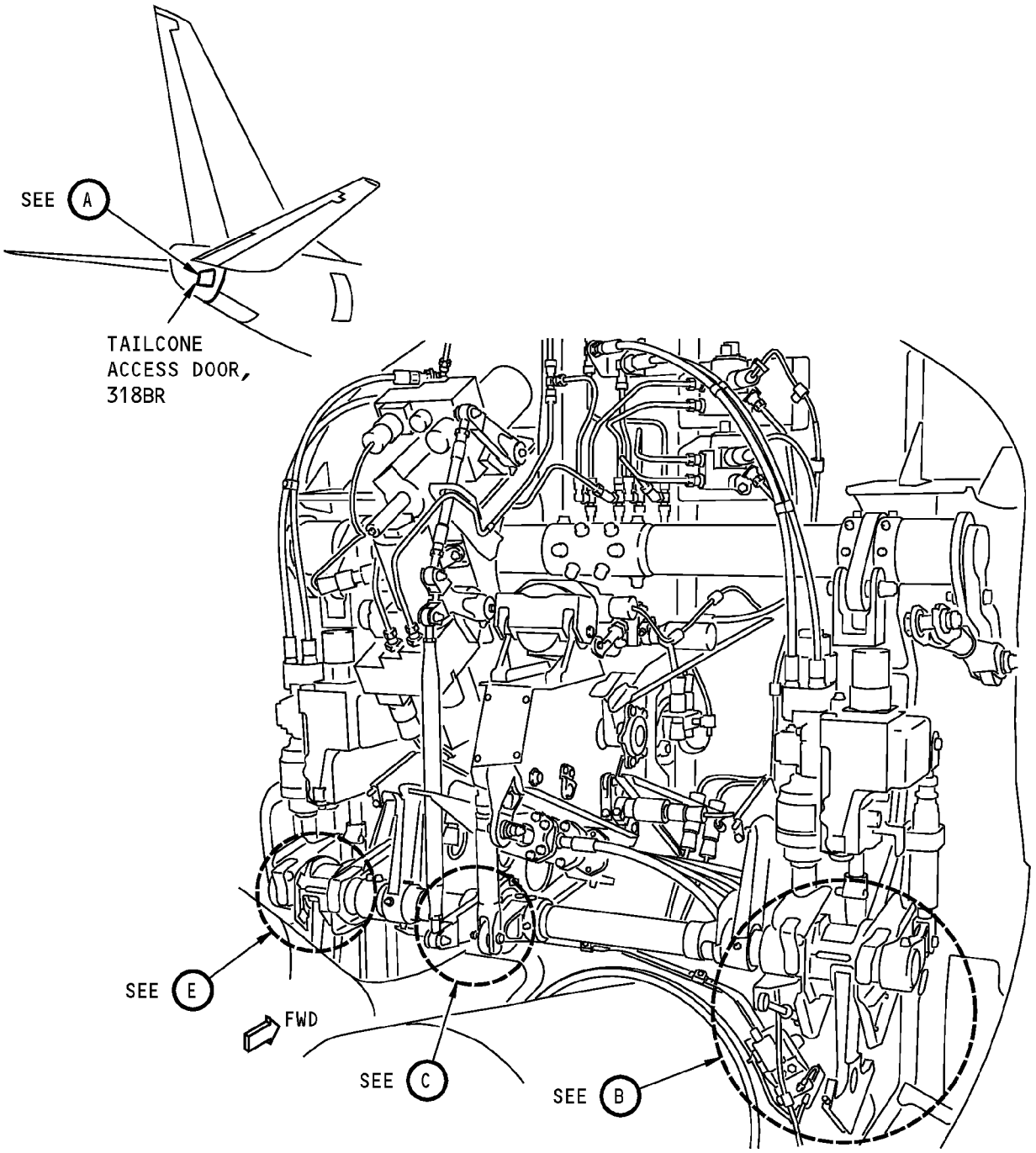

Elevator Input Torque Tube Installation
Figure 402 (Sheet 1 of 8)/27-31-71-990-802

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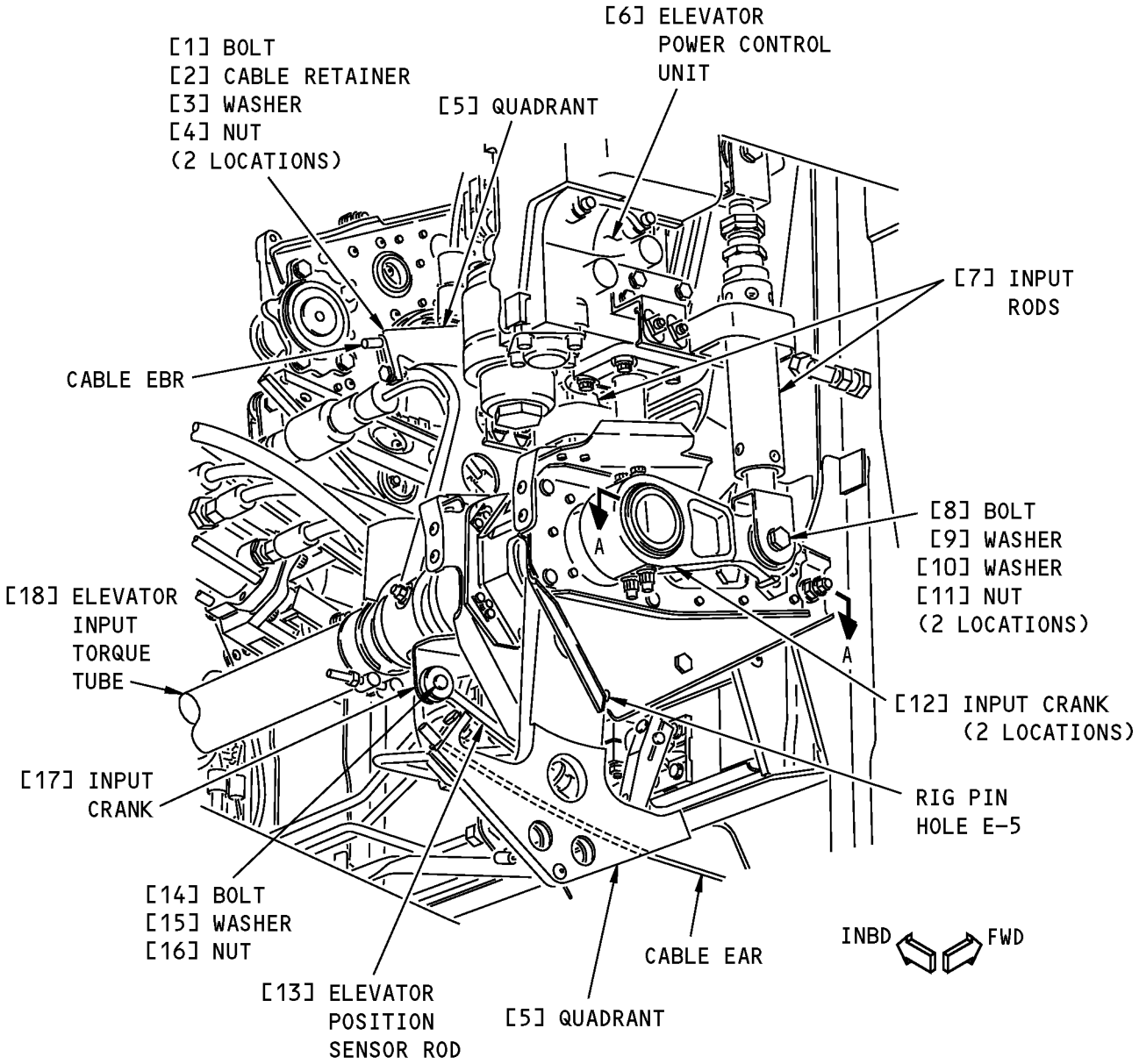

Elevator Input Torque Tube Installation
Figure 402 (Sheet 2 of 8)/27-31-71-990-802

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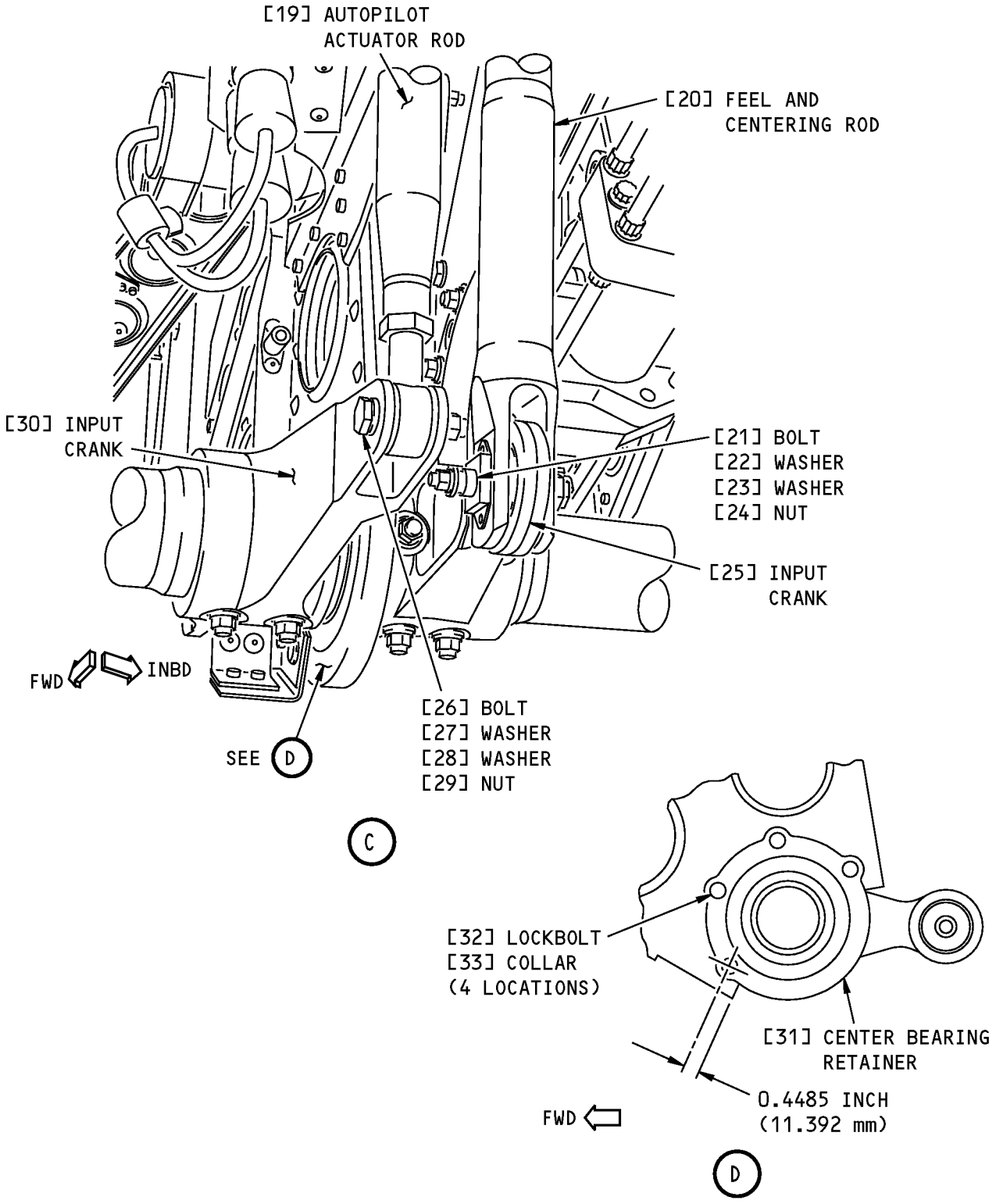

Elevator Input Torque Tube Installation
Figure 402 (Sheet 3 of 8)/27-31-71-990-802

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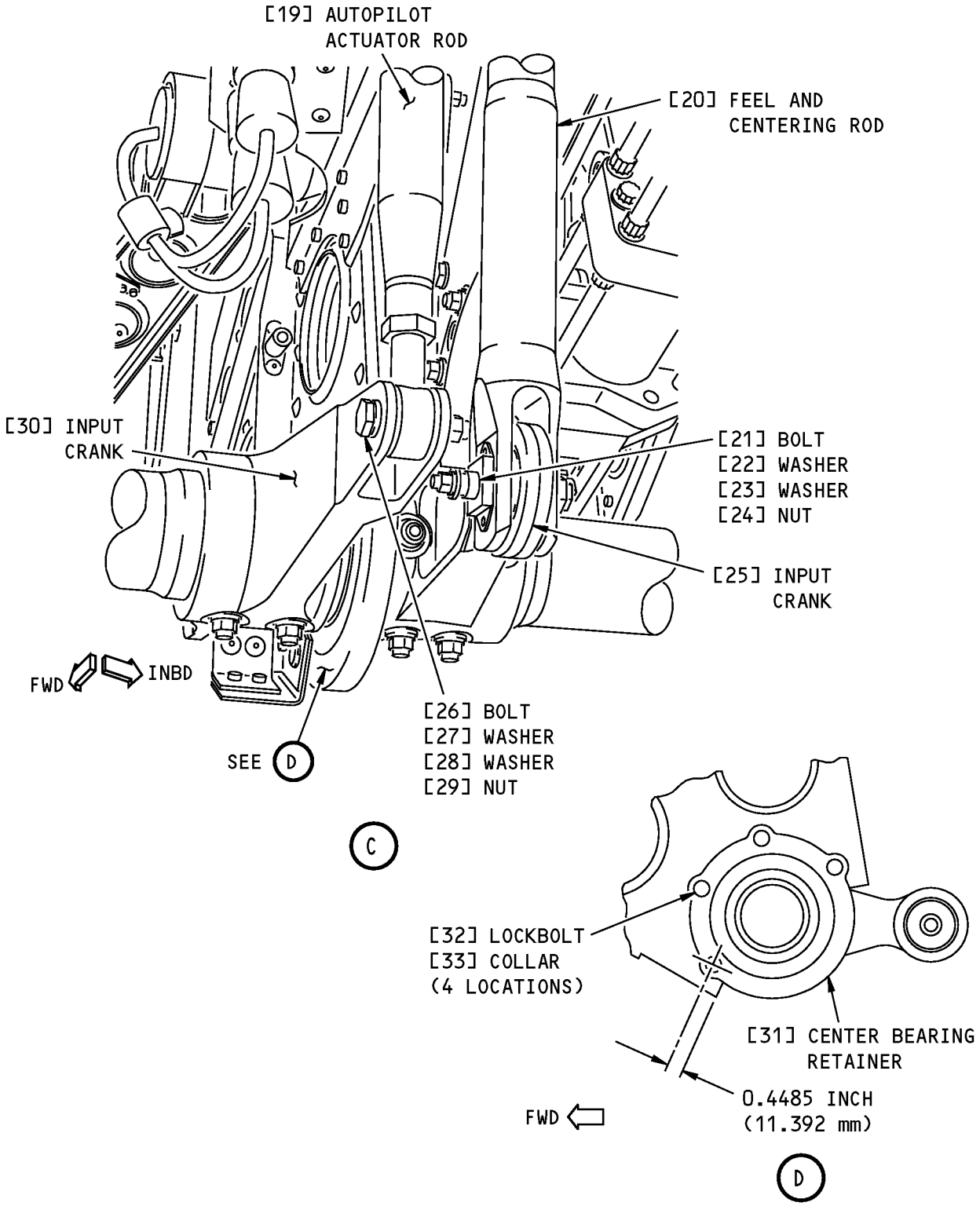

Elevator Input Torque Tube Installation
Figure 402 (Sheet 4 of 8)/27-31-71-990-802

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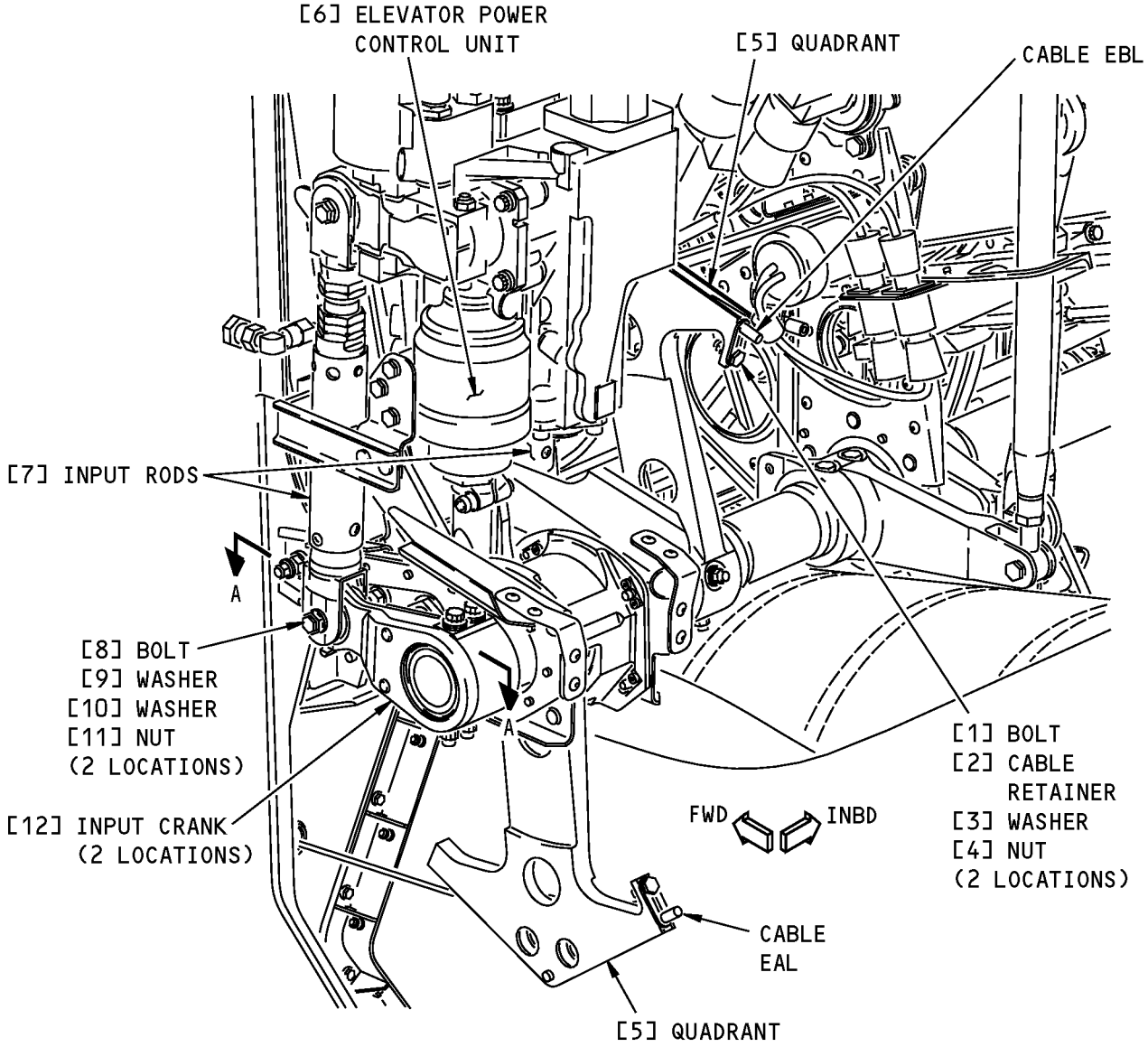

Elevator Input Torque Tube Installation
Figure 402 (Sheet 5 of 8)/27-31-71-990-802

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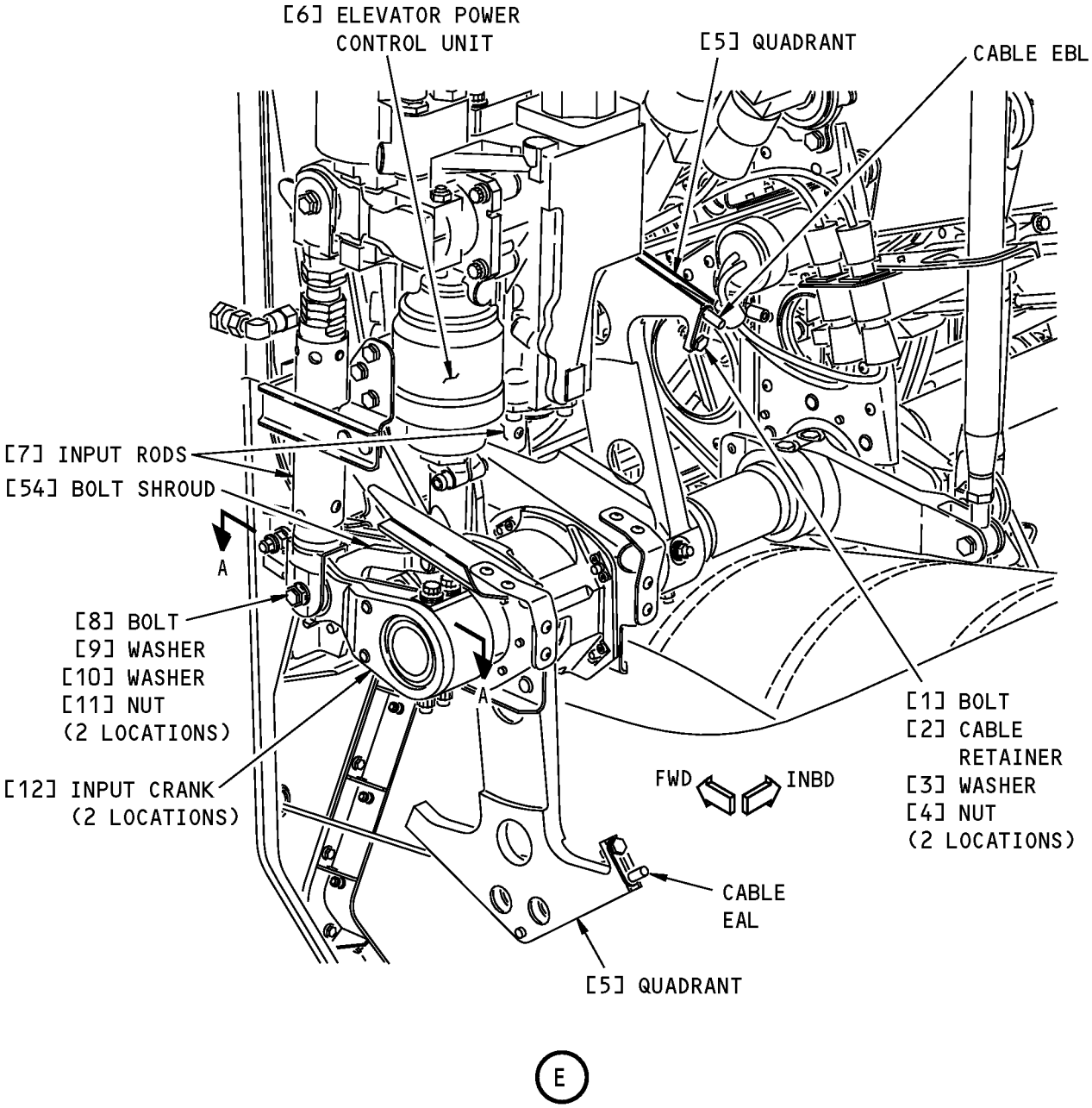

Elevator Input Torque Tube Installation
Figure 402 (Sheet 6 of 8)/27-31-71-990-802

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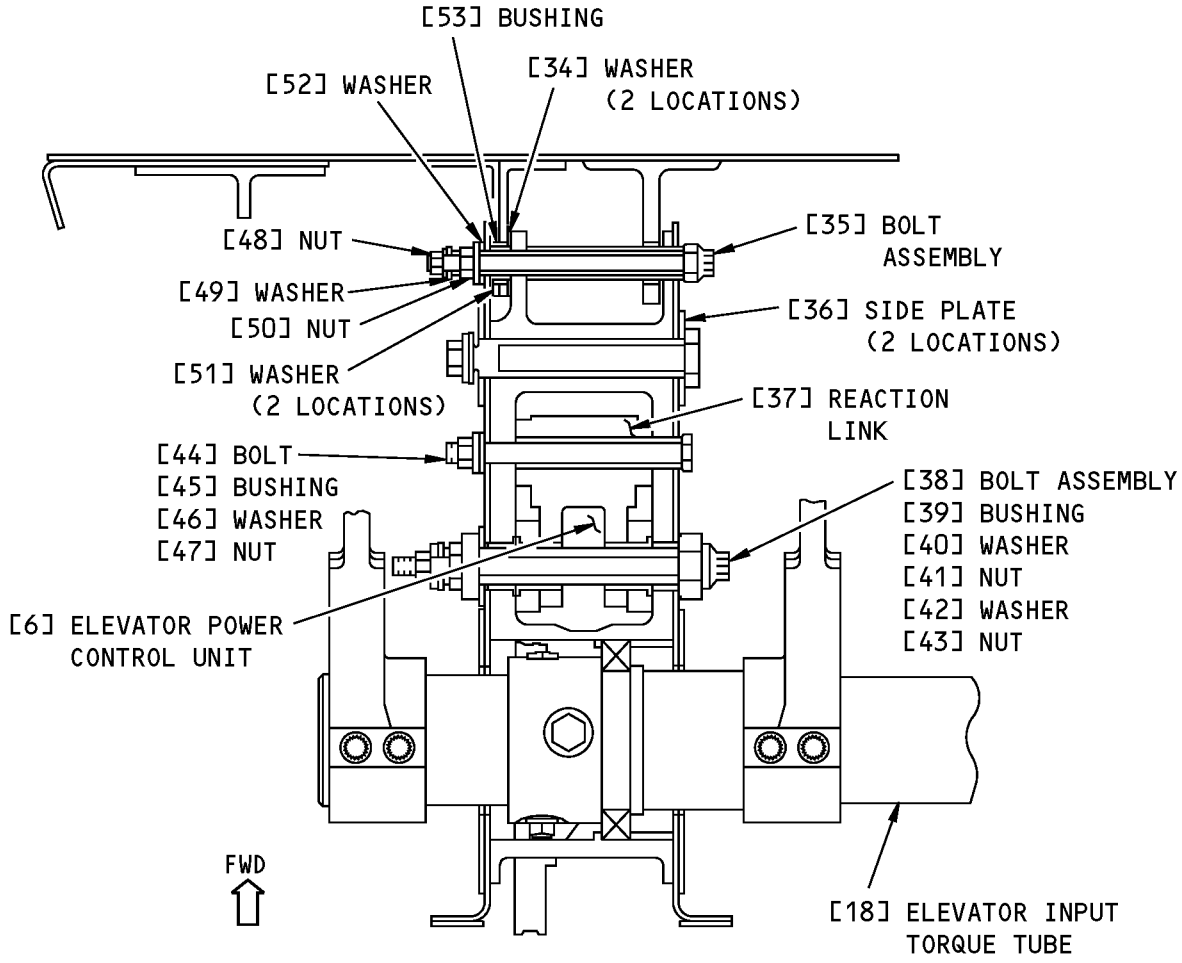

(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)
A-A

Elevator Input Torque Tube Installation
Figure 402 (Sheet 7 of 8)/27-31-71-990-802

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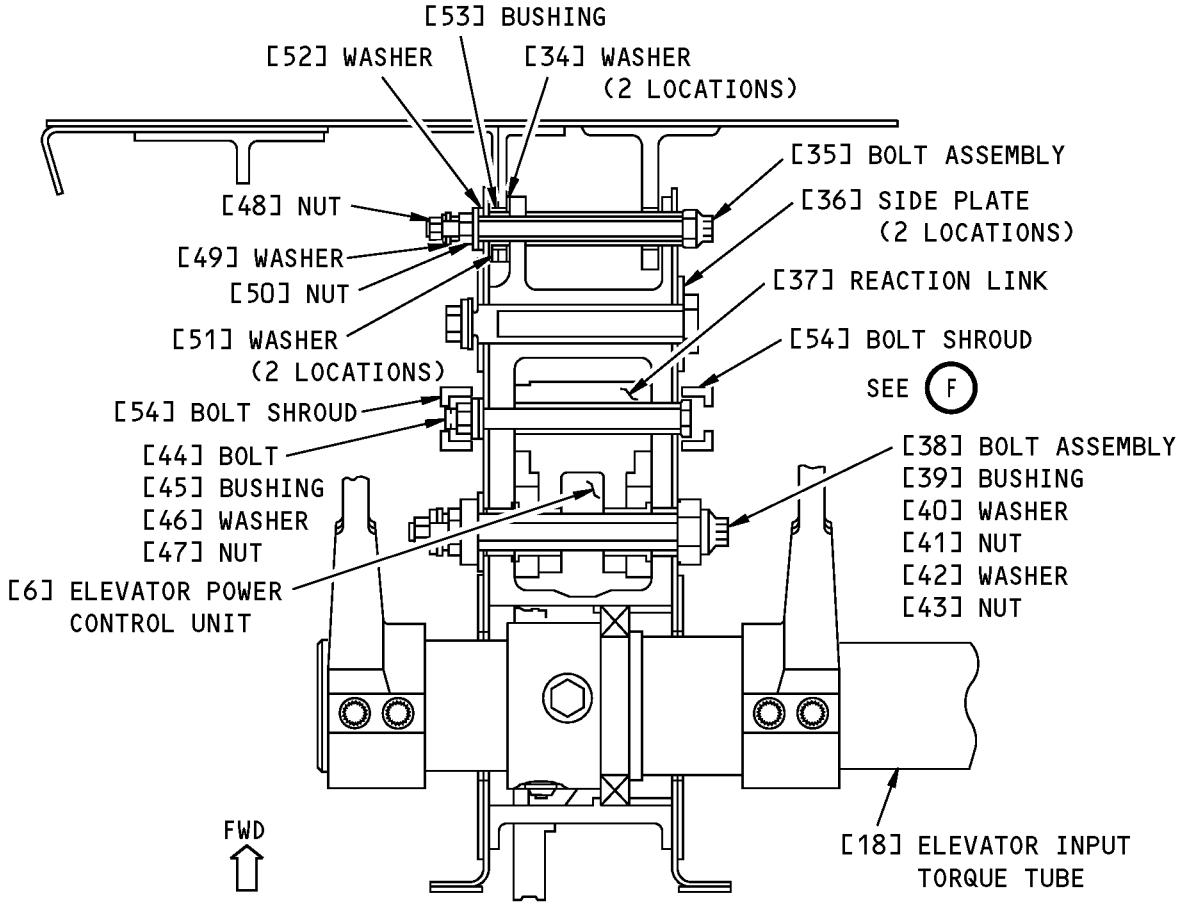
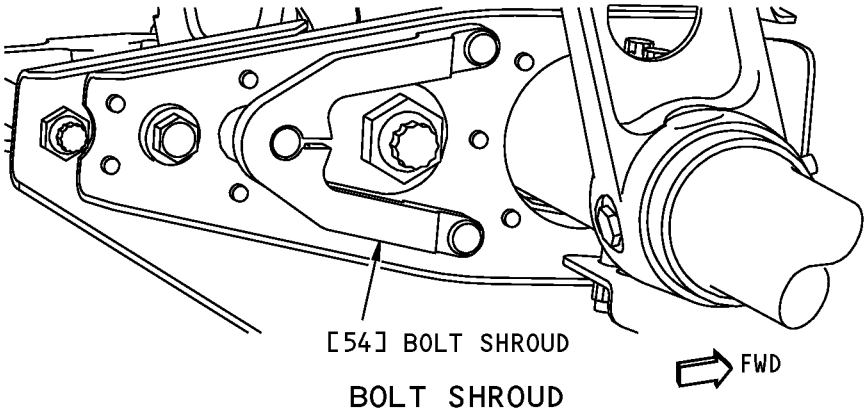


(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

A–A



BOLT SHROUD
(INBOARD SHOWN, TYPICAL)

F

Elevator Input Torque Tube Installation
Figure 402 (Sheet 8 of 8)/27-31-71-990-802

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TASK 27-31-71-400-801

3. Elevator Input Torque Tube - Installation

(Figure 401, Figure 402)

A. References

Reference	Title
27-31-00-700-809	Control Column Power Force - Test (P/B 501)
27-31-00-700-812	Feel Force System - Test (P/B 501)
27-31-00-820-801	Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment (P/B 501)
27-31-00-820-802	Elevator Control Pushrods - Adjustment (P/B 501)
27-31-00-820-803	Input Rods of the Elevator Power Control Unit - Adjustment (P/B 501)
27-31-00-820-804	Input Rods of the Elevator Neutral Shift Mechanism and Output Rod of the Feel and Centering Unit - Adjustment (P/B 501)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
53-53-00-400-801	Tailcone Installation (P/B 401)

B. Location Zones

Zone	Area
315	APU Compartment - Left
316	APU Compartment - Right

C. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

D. Torque Tube Installation

SUBTASK 27-31-71-420-001

(1) Install the torque tube [18]:

(a) Hold the torque tube [18] in its position.

(b) Attach the torque tube [18] to the support structure:

1) Install the bushings [53], bolt assemblies [35], washers [34], washers [51], washers [52], and nuts [50].

a) Tighten the nuts [50] to 90-105 pound-inches (10.2-11.9 newton-meters).

CAUTION: DO NOT TIGHTEN THE NUT [48] AGAIN AFTER YOU TIGHTEN THE NUT [50]. YOU CAN CAUSE DAMAGE TO EQUIPMENT.

2) Install the washers [49] and nuts [50].

a) Tighten the nuts [50] to 30-35 pound-inches (3.4-3.9 newton-meters).

CAUTION: EXAMINE THE INNER AND THE OUTER RODS/BOLTS FOR DAMAGE BEFORE YOU INSTALL THE ROD END BOLTS. DAMAGE TO EQUIPMENT CAN OCCUR.

(c) Connect the torque tube [18] to the two reaction links [37]:

1) Install the bushings [45], bolts [44], washers [46], and nuts [47].

NOTE: Install the left bolt (on the left assembly) with the bolt head inboard and the right bolt (on the right assembly) with the bolt head outboard.

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HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-27A1271

(d) Install the bolt shrouds [54] on the left and right assemblies (Figure 402) (View A-A).

NOTE: There is a bolt shroud [54] on the bolt heads and the nut ends of the bolts [44].

HAP ALL

(e) Install the two elevator power control units [6] to the torque tube [18]:

NOTE: Install the left bolt with the bolt head inboard and the right bolt with the bolt head outboard.

1) Install the bushings [39], bolt assemblies [38], washers [40], and nuts [41].

a) Tighten the nuts [41] to 550-600 pound-inches (62.1-67.8 newton-meters).

CAUTION: DO NOT TIGHTEN THE NUT [41] AGAIN AFTER YOU TIGHTEN THE NUT [43], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

2) Install the washers [42] and nuts [43].

a) Tighten the nuts [43] to 225-250 pound-inches (25.4-28.2 newton-meters).

(f) If necessary, drill the diameter of the 0.247/0.250 inch (6.27/6.35 millimeters) holes in the center bearing retainer [31].

(g) Use the drill centering guide adapter to make sure the holes are not out of tolerance.

(h) Install the lockbolts [32] and collars [33] to attach the center bearing retainer [31] to the bracket.

(i) Connect the four input rods [7] of the two elevator power control units to the input cranks [12]:

1) Install the bolts [8], washers [9], washers [10], nuts [11].

(j) Connect the feel and centering rod [20] to the input crank [25]:

1) Install the bolt [21], washer [22] (under the bolt), washer [23] (under the nut), and nut [24].

(k) Install the bolt [14], washers [15], and nut [16] to connect the elevator position sensor rod [13] to the torque tube [18].

(l) Install the bolt [26], washer [27], washer [28], and nut [29] to connect the autopilot actuator rod [19] to the input crank [30].

SUBTASK 27-31-71-420-002

(2) Install the cables EAL, EBL, EAR, and EBR to the quadrants [5]:

(a) Install the bolts [1], washers [3], nuts [4], and cable retainers [2] to attach the cables to the four quadrants [5].

(b) Remove the clamps from the cables.

(c) Install the turnbuckles locking clips.

SUBTASK 27-31-71-420-003

(3) Do this task: Tailcone Installation, TASK 53-53-00-400-801.

E. Torque Tube Installation Test

SUBTASK 27-31-71-820-001

(1) Adjust the tension of the EAL, EBL, EAR, and EBR control cables. To adjust them, do this task: Elevator Control Cables EA and EB and Pitch Force Transducers - Adjustment, TASK 27-31-00-820-801.

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SUBTASK 27-31-71-710-001

(2) Turn the elevator slowly by hand through the full travel up and down.

(a) Make sure the elevator moves freely.

SUBTASK 27-31-71-860-003

(3) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-71-710-002

(4) Do this check of the synchronized operation of the elevator power control units:

(a) Turn the FLT CONTROL A switch to OFF and the FLT CONTROL B switch to ON.

1) Make sure the elevator trailing edge move more than 0.02 inch (0.5 millimeter).

2) If it is necessary, adjust the input rods of the power control units. To adjust them, do this task: Input Rods of the Elevator Power Control Unit - Adjustment, TASK 27-31-00-820-803.

(b) Turn the FLT CONTROL A switch to ON and the FLT CONTROL B switch to OFF.

1) Make sure the elevator trailing edge move more than 0.02 inch (0.5 millimeter).

2) If it is necessary, adjust the input rods of the power control units. To adjust them, do this task: Input Rods of the Elevator Power Control Unit - Adjustment, TASK 27-31-00-820-803.

SUBTASK 27-31-71-820-002

(5) Adjust the elevator pushrod. To adjust it, do this task: Elevator Control Pushrods - Adjustment, TASK 27-31-00-820-802.

SUBTASK 27-31-71-820-003

(6) Adjust the output rod of the elevator feel and centering unit. To adjust it, do this task: Input Rods of the Elevator Neutral Shift Mechanism and Output Rod of the Feel and Centering Unit - Adjustment, TASK 27-31-00-820-804.

SUBTASK 27-31-71-710-003

(7) Do this task: Control Column Power Force - Test, TASK 27-31-00-700-809.

SUBTASK 27-31-71-710-004

(8) Do this task: Feel Force System - Test, TASK 27-31-00-700-812.

SUBTASK 27-31-71-410-001

(9) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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ELEVATOR OUTPUT TORQUE TUBE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator output torque tube

(2) An installation of the elevator output torque tube.

B. The elevator output torque tube is referred to as the "torque tube" in this procedure.

TASK 27-31-74-000-801

2. Elevator Output Torque Tube Removal

(Figure 401)

A. References

Reference	Title
22-11-26-000-801	Autopilot Elevator Actuator Removal (P/B 401)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
53-53-00-000-801	Tailcone Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
315	APU Compartment - Left
316	APU Compartment - Right

D. Prepare for the Removal

SUBTASK 27-31-74-860-001

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-74-020-001

(2) Do this task: Tailcone Removal, TASK 53-53-00-000-801.

SUBTASK 27-31-74-860-002

(3) Use the control trim wheel to set the horizontal stabilizer to 4 units of trim.

SUBTASK 27-31-74-020-002

(4) Do this task: Autopilot Elevator Actuator Removal, TASK 22-11-26-000-801.

E. Torque Tube Removal

(Figure 401)

SUBTASK 27-31-74-020-003

(1) Remove the mounting bracket [31] of the elevator autopilot actuators:

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(a) Remove the bolts [27] and washers [28] from the mounting bracket [31].

(b) Remove the bolts [29] and washers [30] from the mounting bracket [31].

(c) Remove the nuts [35], washers [34], washers [33], and bolts [32] from the mounting bracket [31].

(d) Remove the nuts [39], washers [38], washers [37], and bolts [36] from the mounting bracket [31].

(e) Remove the mounting bracket [31] from the airplane.

SUBTASK 27-31-74-480-001

(2) Install the rig pin E-5 from the rig pin kit, SPL-1585 in the elevator aft control quadrant.

SUBTASK 27-31-74-020-004

(3) Remove the torque tube assembly [1]:

(a) Remove the nuts [25], washers [24], nuts [23], washers [22], and bolts [26] to disconnect the two elevator control pushrods [4] from the torque tube assembly [1].

(b) Remove the nuts [9], washers [8], washers [7], and bolts [6] to disconnect the two elevator power control units [5] from the torque tube assembly [1].

(c) Move the elevator power control units [5] away from the aft bulkhead until the input cranks are in the bottom.

(d) At each end of the torque tube assembly [1], remove the nuts [20], washers [21], nuts [15], washers [14], bolts [11], bushings [12], and bushings [13] to disconnect the torque tube assembly [1] from the two inboard pivot brackets [2] and two reaction links [10].

(e) At each end of the torque tube assembly [1], remove the nuts [17], washers [18], washers [19], and bolts [16] to disconnect the torque tube assembly [1] from the two outboard pivot brackets [3].

(f) Remove the torque tube assembly [1] from the airplane.

——————— END OF TASK ———————

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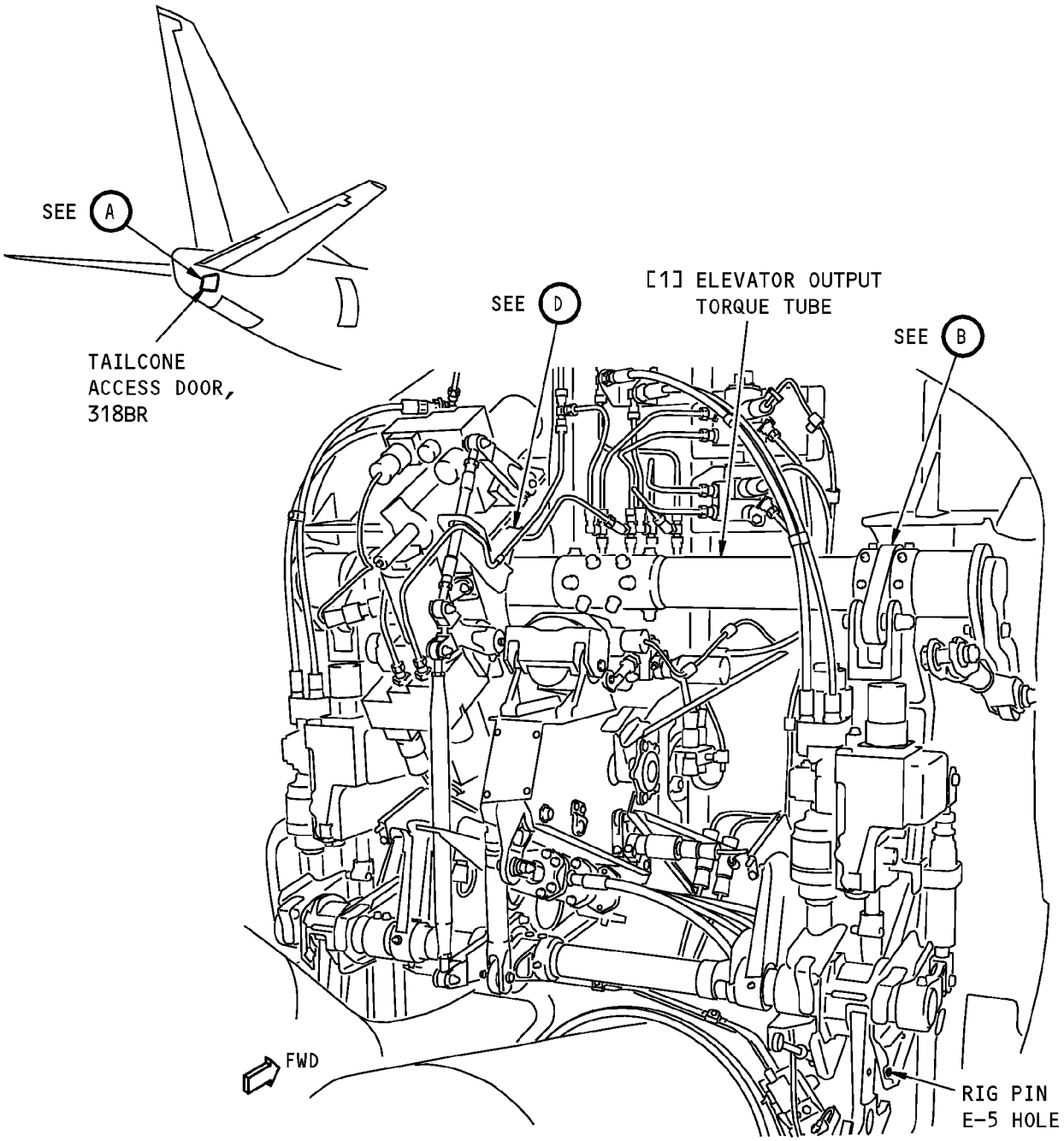

VIEW THROUGH THE TAILCONE
ACCESS DOOR, 318BR
A

Elevator Output Torque Tube Installation
Figure 401 (Sheet 1 of 4)/27-31-74-990-801

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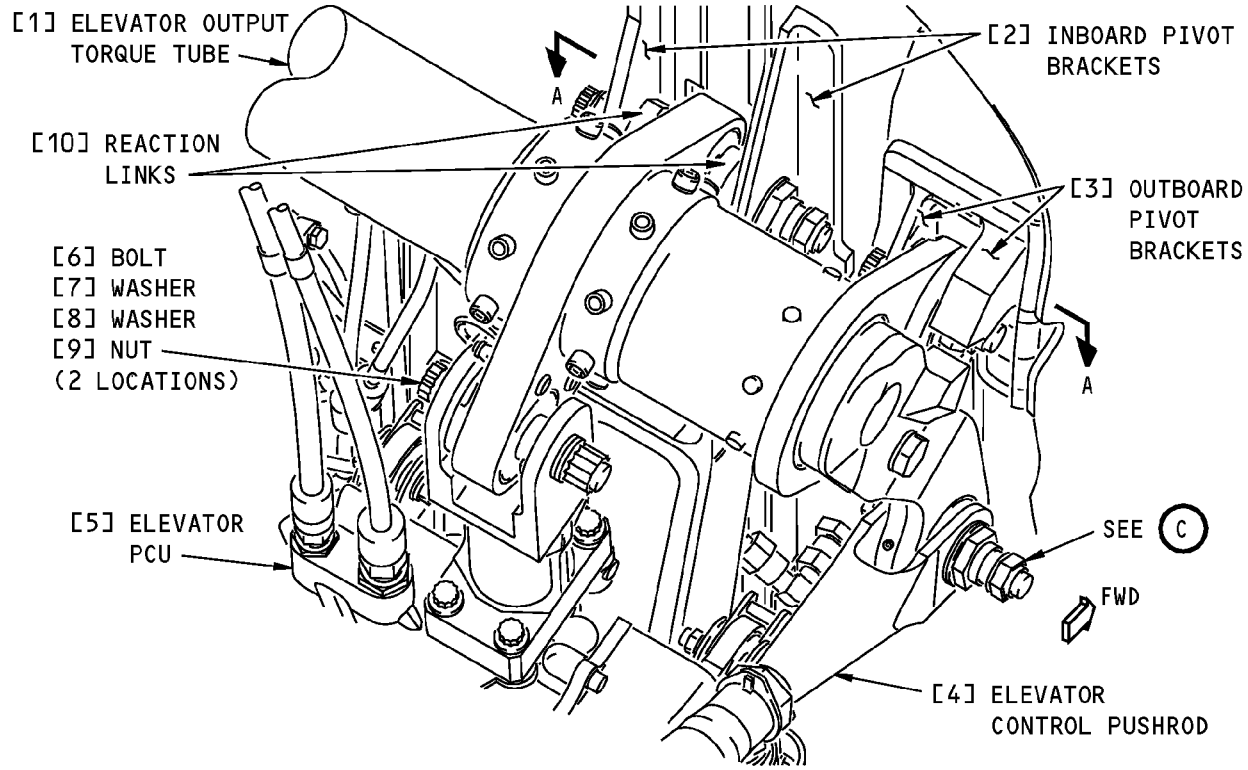

Elevator Output Torque Tube Installation
Figure 401 (Sheet 2 of 4)/27-31-74-990-801

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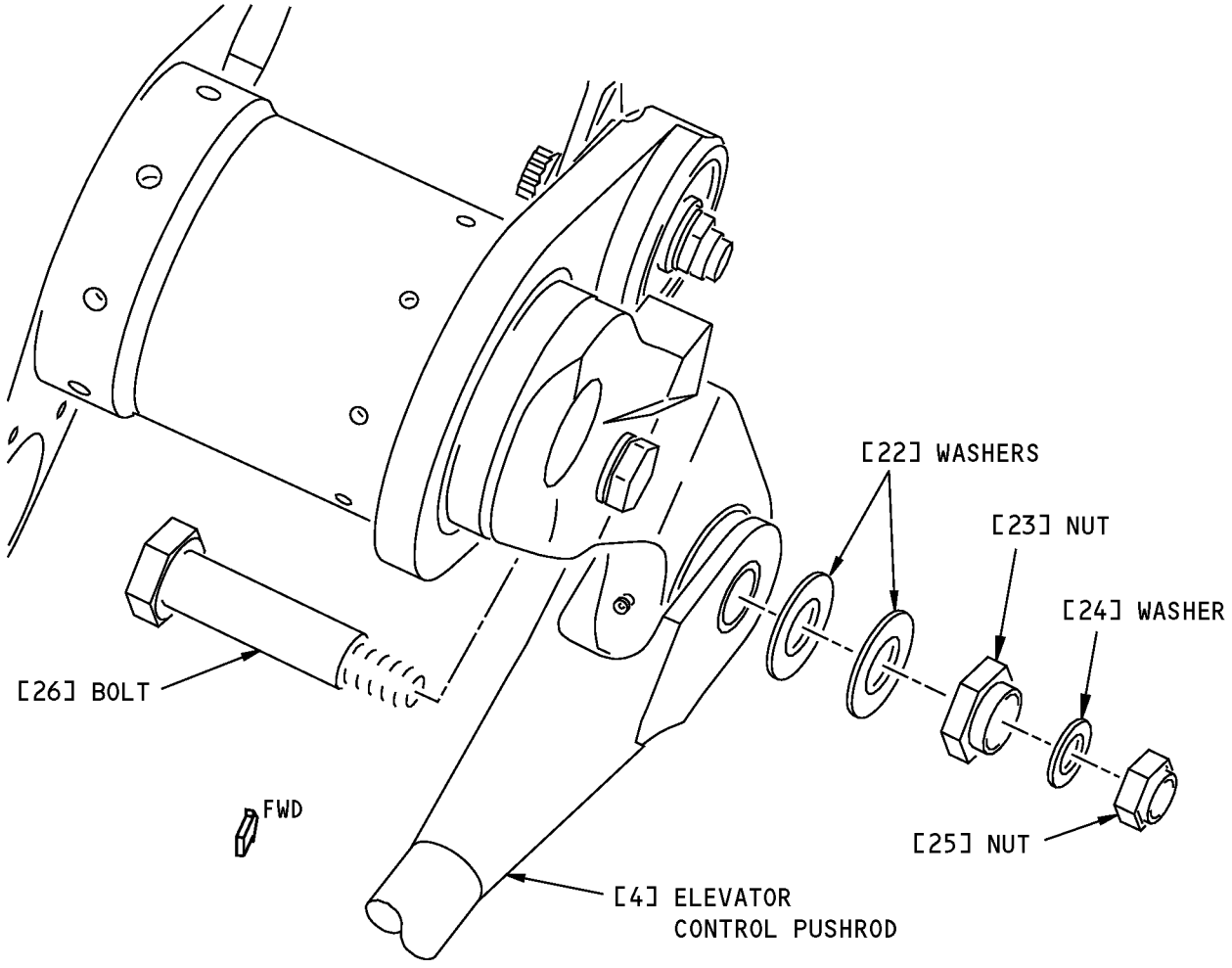

C

Elevator Output Torque Tube Installation
Figure 401 (Sheet 3 of 4)/27-31-74-990-801

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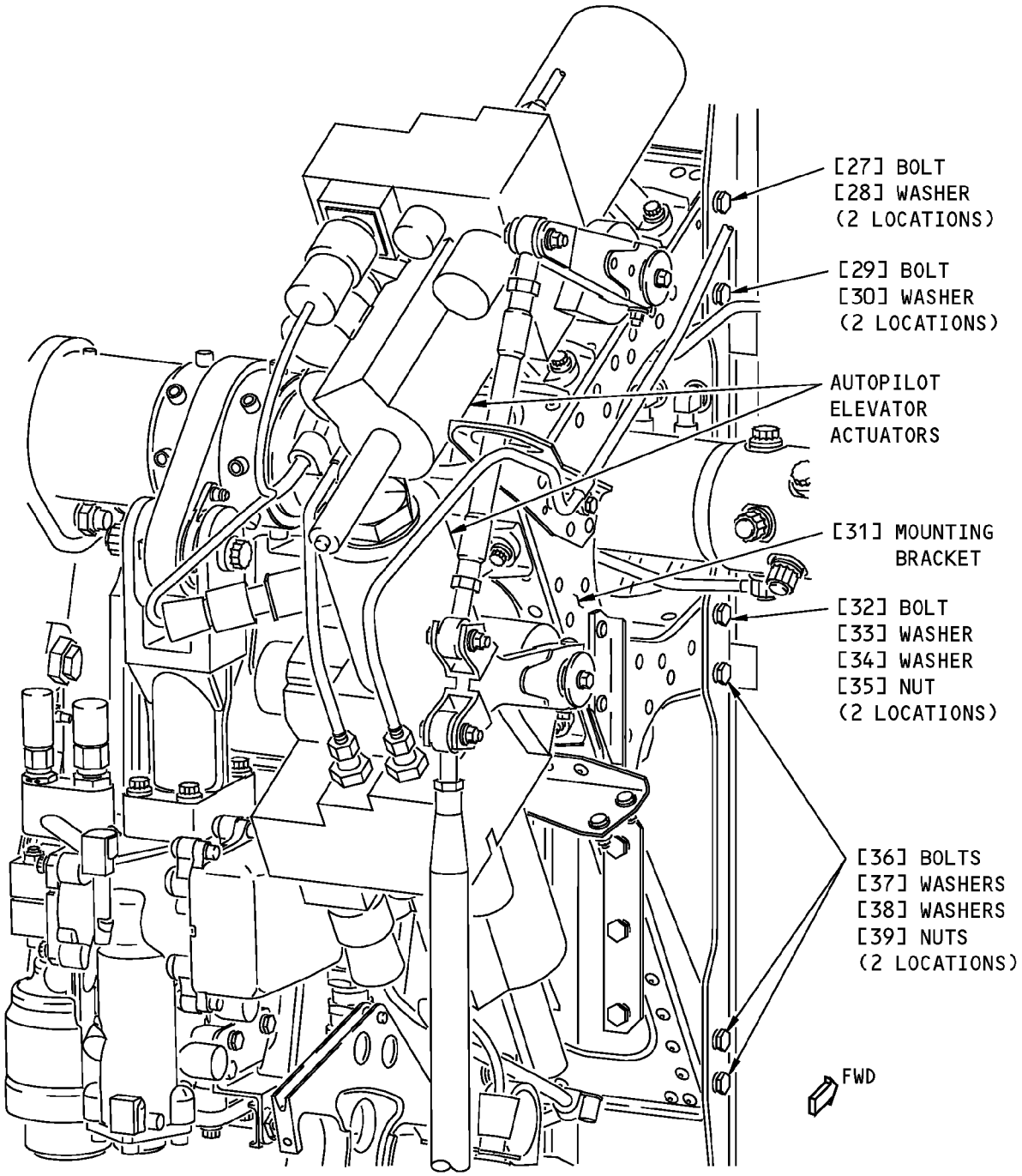

Elevator Output Torque Tube Installation
Figure 401 (Sheet 4 of 4)/27-31-74-990-801

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TASK 27-31-74-400-801

3. Elevator Output Torque Tube Installation

(Figure 401)

A. References

Reference	Title
22-11-26-400-801	Autopilot Elevator Actuator Installation (P/B 401)
27-31-00-820-802	Elevator Control Pushrods - Adjustment (P/B 501)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
53-53-00-400-801	Tailcone Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Tube assembly	27-31-71-01-005	HAP ALL
		27-31-74-01-065	HAP ALL

E. Location Zones

Zone	Area
315	APU Compartment - Left
316	APU Compartment - Right

F. Torque Tube Installation

SUBTASK 27-31-74-420-001

(1) Install the torque tube [1]:

(a) Put the torque tube assembly [1] in its position.

(b) Install the alignment pins to keep the bearing components in the inboard pivot clevis fittings of the torque tube assembly [1].

(c) Lubricate the bushings, bolts, and bearings with grease, D00013.

(d) Connect the torque tube assembly [1] to the two outboard pivot brackets [3]:

1) At each of the torque tube assembly [1], install the bolts [16] with the bolt head inboard, washers [19], washers [18], and nuts [17].

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CAUTION: BE CAREFUL WHEN YOU INSTALL THE BOLTS [11]. YOU CAN CAUSE DAMAGE TO THE BEARING COMPONENTS IF YOU HIT THE BOLTS [11] DURING THE INSTALLATION.

(e) Connect the torque tube assembly [1] to the two inboard pivot brackets [2] and two reaction links [10]:

1) At each end of the torque tube assembly [1], install the bushing [12] (on the right side only), bushings [13], bolts [11], washers [14], and nuts [15].

a) Tighten the nuts [15] to 500-600 pound-inches (56.5-67.8 newton-meters).

CAUTION: DO NOT TIGHTEN THE NUT [15] AGAIN AFTER YOU TIGHTEN THE NUT [20], YOU CAN CAUSE DAMAGE TO EQUIPMENT.

2) Install the washers [21] and nuts [20].

a) Tighten the nuts [20] to 150-220 pound-inches (16.9-24.9 newton-meters).

SUBTASK 27-31-74-420-002

(2) Install the mounting bracket [31] for the autopilot elevator actuators:

(a) Put the mounting bracket [31] in position.

(b) Install bolts [27] and washers [28].

(c) Install bolts [29] and washers [30].

(d) Install the bolts [32], washers [33] (under the bolt), washers [34] (under the nut), and nuts [35].

(e) Install the bolts [36], washers [37] (under the bolt), washers [38] (under the nut), and nuts [39].

SUBTASK 27-31-74-420-003

(3) Install the autopilot elevator actuators on the mounting bracket [31]. To install them, do this task: Autopilot Elevator Actuator Installation, TASK 22-11-26-400-801.

SUBTASK 27-31-74-420-004

(4) Install the elevator control pushrods [4] to the torque tube assembly [1]:

(a) Install the bolts [26], washers [22], nuts [23], washers [24], and nuts [25].

NOTE: Do not tighten the nuts [24] and nuts [26]. The nuts [24] and nuts [26] will be tightened after the adjustment.

SUBTASK 27-31-74-080-001

(5) Remove rig pin E-5 of the rig pin kit, SPL-1585 from the elevator aft quadrant.

SUBTASK 27-31-74-820-001

(6) Adjust the elevator control pushrods. To adjust them, do this task: Elevator Control Pushrods - Adjustment, TASK 27-31-00-820-802.

SUBTASK 27-31-74-420-005

(7) Do this task: Tailcone Installation, TASK 53-53-00-400-801.

SUBTASK 27-31-74-860-003

(8) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

——————— END OF TASK ———————

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ELEVATOR INDEX PLATE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of an elevator index plate

(2) An installation of an elevator index plate.

B. This procedure is applicable for the left and right elevator index plates.

C. You must do this procedure when the tail cone is removed and a new or different tail cone is installed.

TASK 27-31-81-000-801

2. Elevator Index Plate Removal

(Figure 401)

A. General

(1) This procedure is for the removal of the elevator index plate from a removed tail cone.

B. Location Zones

Zone	Area
315	APU Compartment - Left
316	APU Compartment - Right

C. Elevator Index Plate Removal

SUBTASK 27-31-81-020-001

(1) Remove the elevator index plate [1]:

(a) Remove the lockwire.

(b) Remove the nuts [4], washers [3], and bolts [2] from the elevator index plate [1].

(c) Remove the elevator index plate [1] from the tail cone.

——————— END OF TASK ———————

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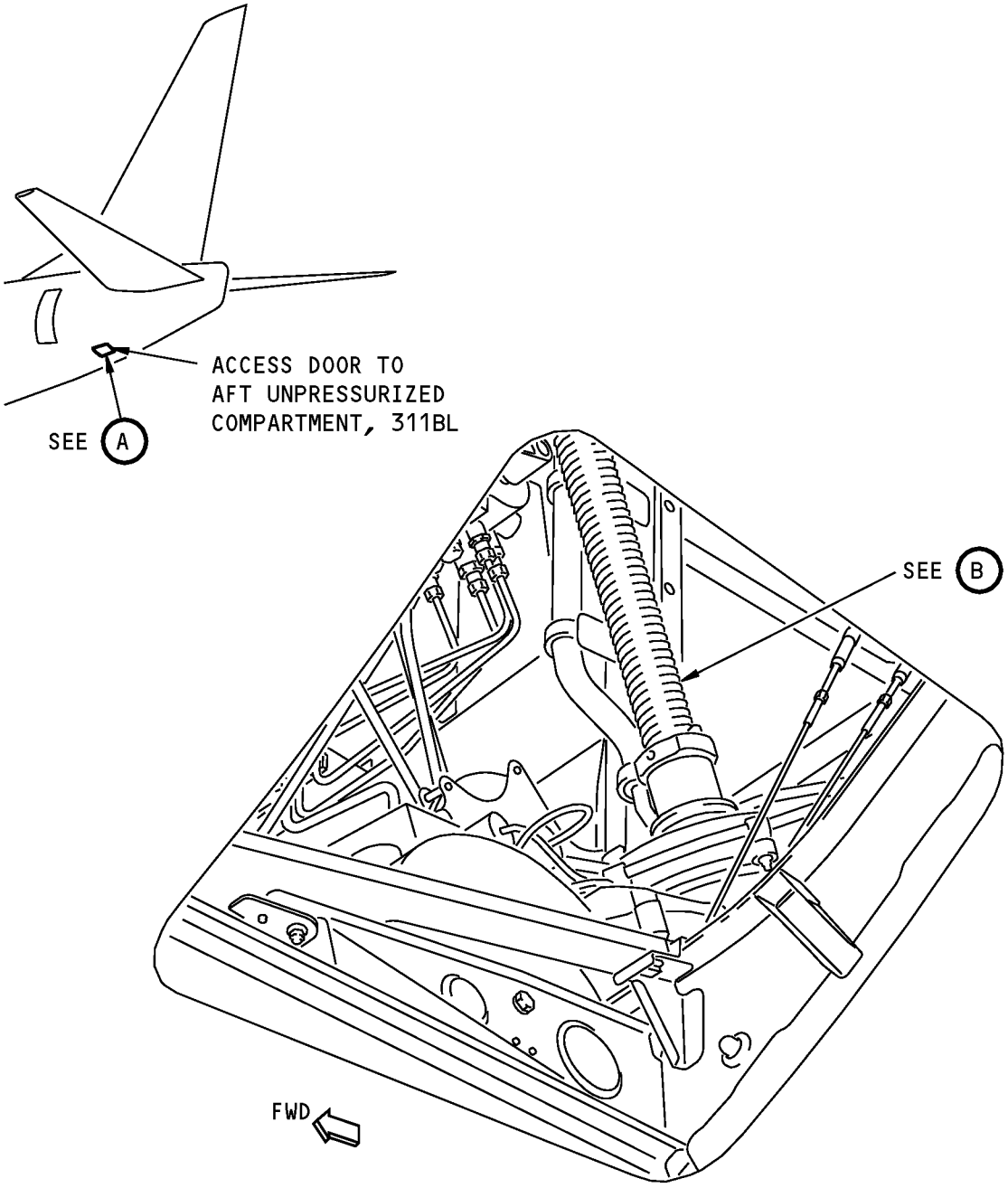

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Stabilizer Trim Jackscrew Adjustment
Figure 401 (Sheet 1 of 2)/27-31-81-990-801

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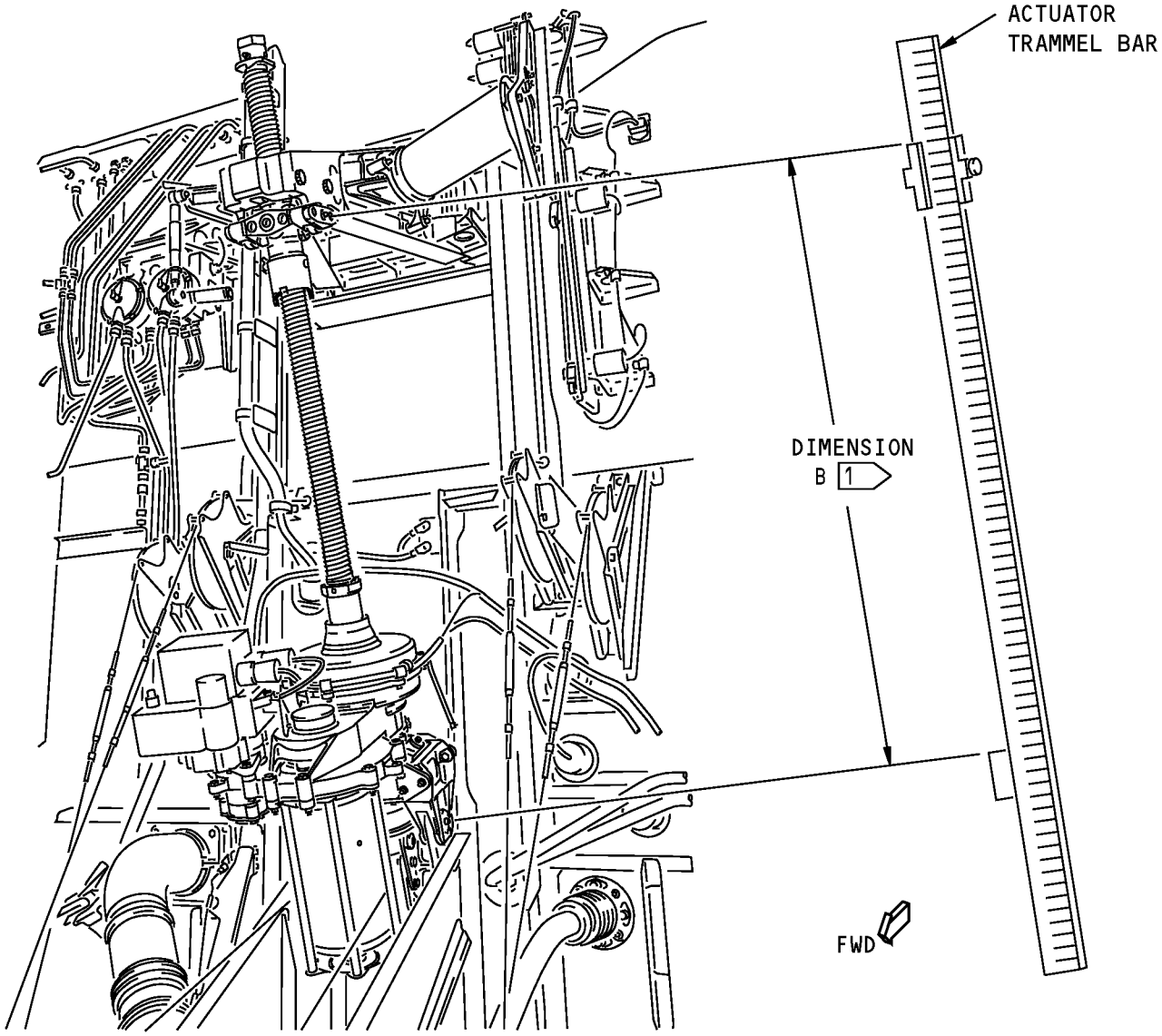

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Stabilizer Trim Jackscrew Adjustment
Figure 401 (Sheet 2 of 2)/27-31-81-990-801

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TASK 27-31-81-400-801

3. Elevator Index Plate Installation

(Figure 401, Figure 402, Figure 403)

A. General

(1) This procedure is for the installation of the elevator index plate to a new or different installed tail cone.

B. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1730	Beam - Rigging, Elevator Index Plate Installation (Part #: C27044-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
315	APU Compartment - Left
316	APU Compartment - Right

F. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door

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G. Prepare for the Installation

SUBTASK 27-31-81-010-001

(1) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-81-010-002

(2) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-81-480-001

(3) Use the bar, SPL-1677 to set the B dimension at 39.89 +/- 0.01 inches (1013.2 +/- 0.3 millimeters) (Figure 402).

SUBTASK 27-31-81-860-001

(4) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-31-81-860-002

(5) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-81-480-002

(6) Attach DO-NOT-OPERATE tags to the control columns.

SUBTASK 27-31-81-480-003

(7) Use the beam, SPL-1730 to adjust the elevator trailing edge (Figure 403):

(a) Set the beam, SPL-1730 on the stabilizer lower surface.

(b) Set the elevator trailing edge to the index mark on the beam, SPL-1730.

(c) Remove the beam, SPL-1730.

H. Elevator Index Plate Installation

(Figure 401)

SUBTASK 27-31-81-420-001

(1) Install the elevator index plate [1]:

(a) Align the center mark of elevator index plate [1] with the elevator trailing edge.

(b) Drill two 0.190 +0.004/-0.000 inch (4.82 +0.10/-0.00 millimeters) diameter holes through the tail cone and the elevator index plate [1].

(c) Install the bolts [2], washers [3], and nuts [4] to attach the elevator index plate [1] to the tail cone.

(d) Install the lockwire, G01912.

SUBTASK 27-31-81-080-001

(2) Remove the DO-NOT-OPERATE tags from the control columns.

SUBTASK 27-31-81-210-001

(3) Make sure the elevator trailing edge aligns with the center mark of the elevator index plate.

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I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-81-410-001

(1) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-81-410-002

(2) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-81-860-003

(3) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

——————— END OF TASK ———————

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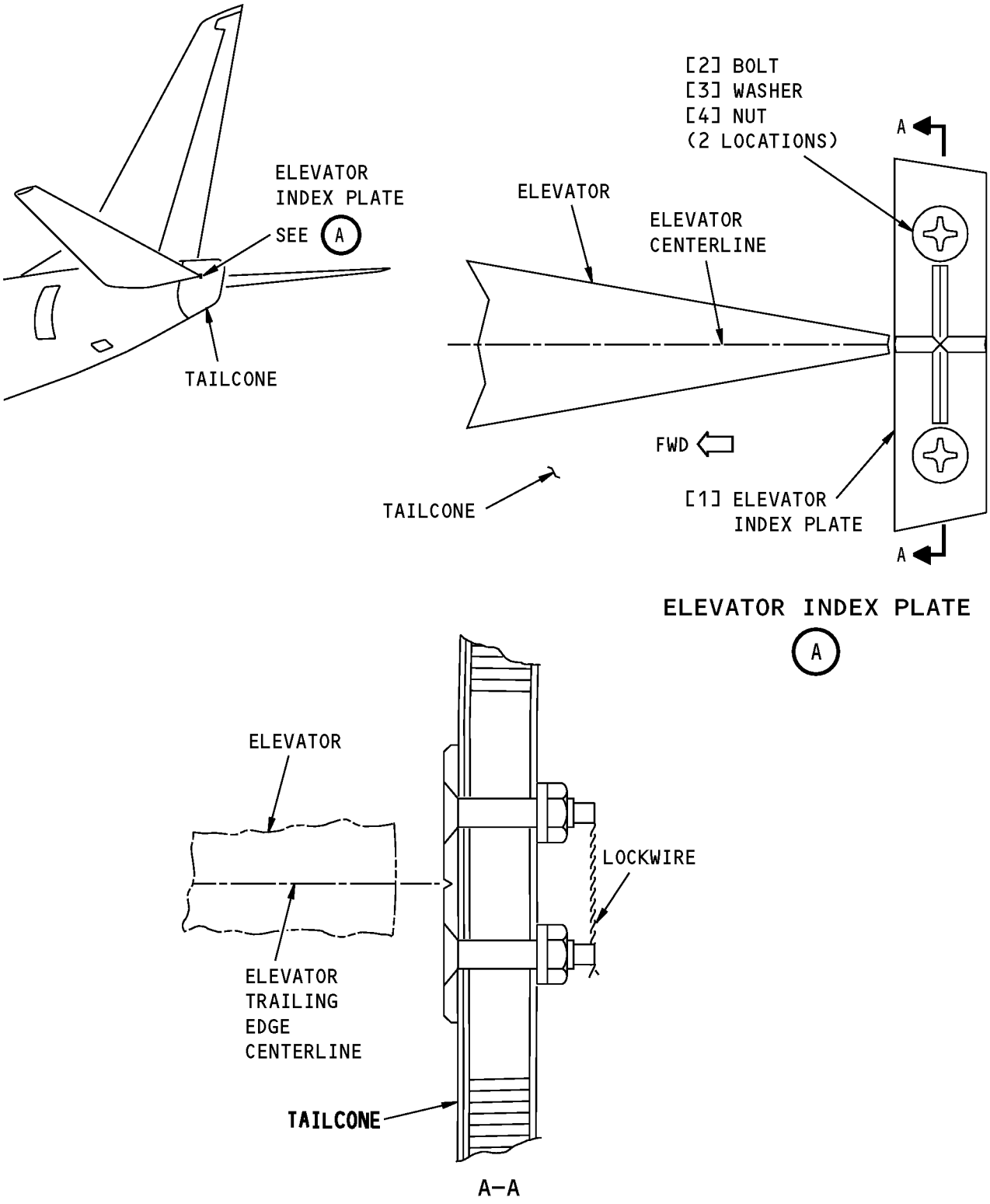

Elevator Index Plate Installation
Figure 402/27-31-81-990-802

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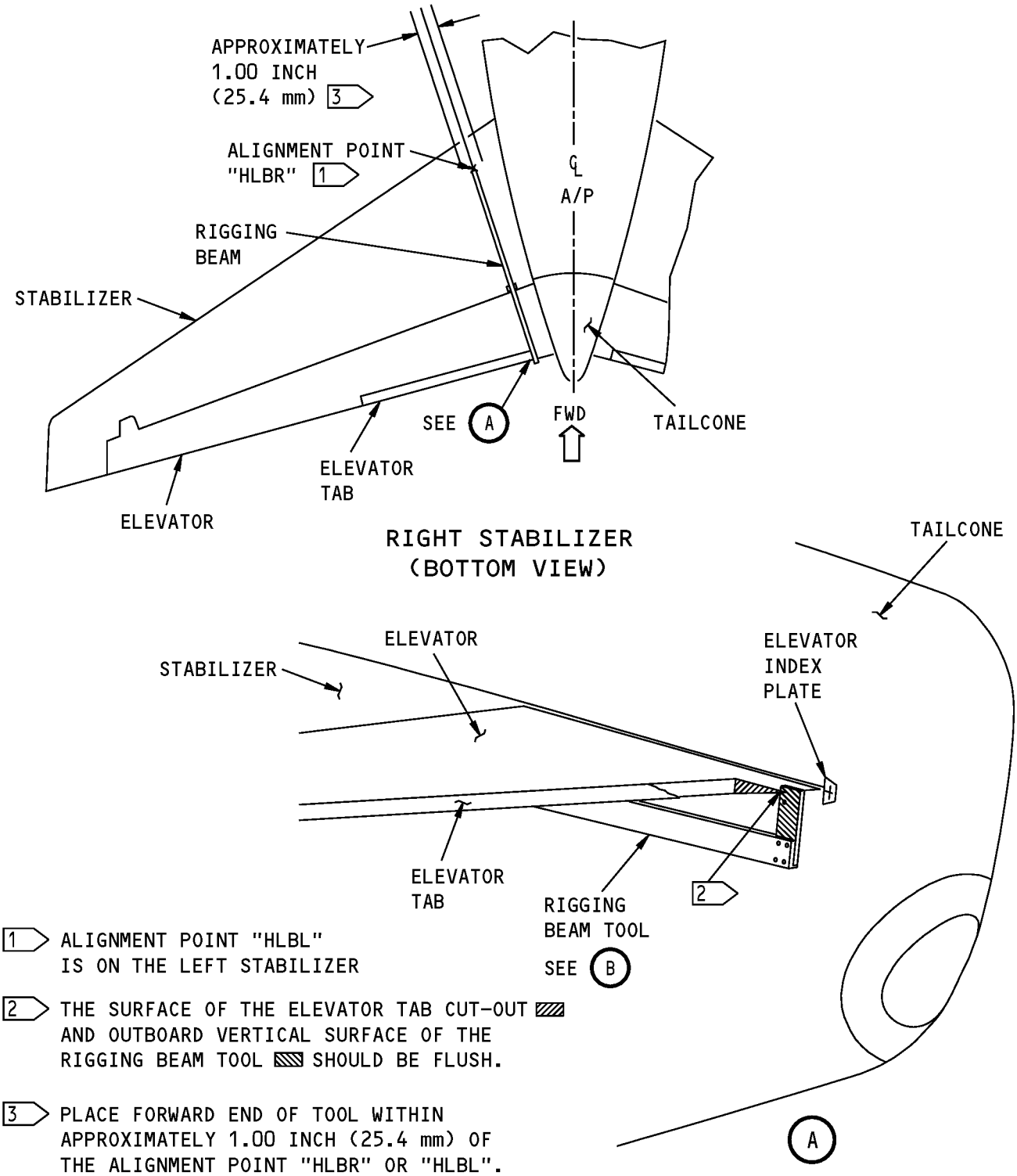

Rigging Beam Installation
Figure 403 (Sheet 1 of 2)/27-31-81-990-803

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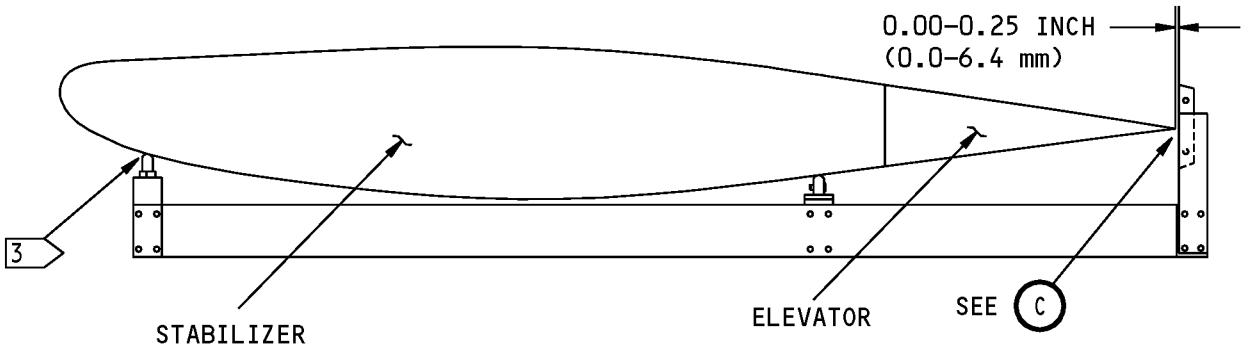
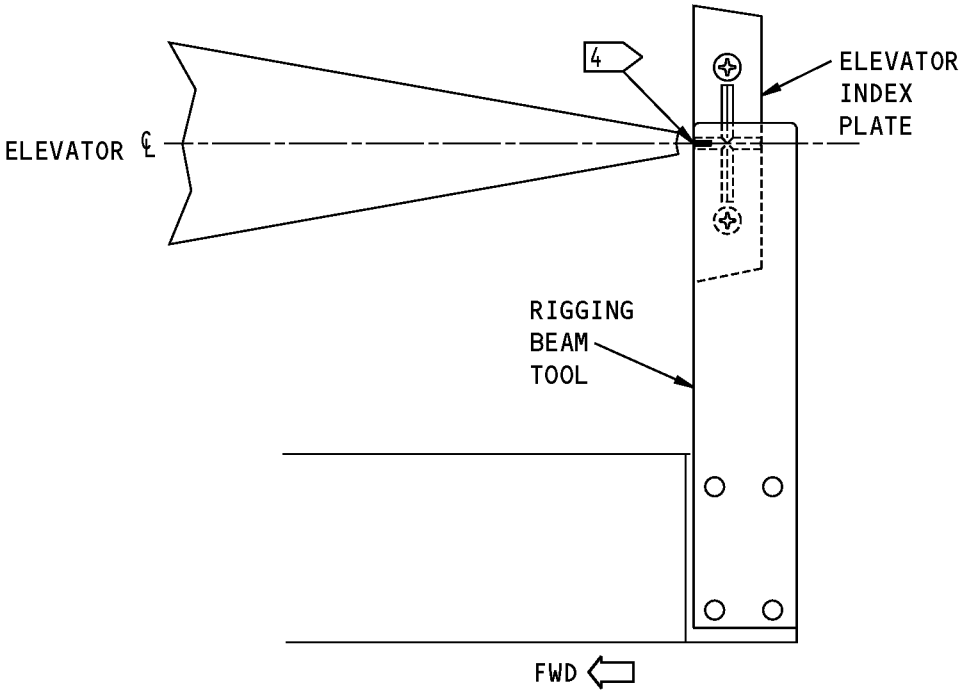


RIGGING BEAM TOOL

B



(LEFT SIDE IS SHOWN,
RIGHT SIDE IS OPPOSITE)

C

4 THE ELEVATOR CENTER LINE, THE RIGGING BEAM INDEX MARK, AND THE CENTER OF THE ELEVATOR INDEX PLATE GROOVE SHOULD ALL BE IN THE SAME PLANE FOR PERFECT ALIGNMENT OF THE ELEVATOR INDEX PLATE.

Rigging Beam Installation
Figure 403 (Sheet 2 of 2)/27-31-81-990-803

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ELEVATOR NEUTRAL SHIFT MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the elevator neutral shift mechanism

(2) An installation of the elevator neutral shift mechanism.

B. The elevator neutral shift mechanism is referred to as the "neutral shift mechanism" in this procedure.

TASK 27-31-91-000-801

2. Elevator Neutral Shift Mechanism Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1672	Assembly - Lock, Stabilizer Trim (Part #: F71336-501, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door

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E. Prepare for the Removal

SUBTASK 27-31-91-860-001

(1) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

SUBTASK 27-31-91-010-001

(2) Remove this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-91-010-002

(3) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-31-91-480-001

(4) Use the bar, SPL-1677 to set B dimension at 39.89 +/- 0.01 inches (1013.2 +/- 0.3 millimeters).

SUBTASK 27-31-91-860-002

(5) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM
C	4	C00456	AFCS SYS A MACH TRIM AC
D	1	C01049	AFCS SYS A WARN LIGHT (BAT)
D	2	C01045	AFCS SYS A FCC DC
D	3	C01048	AFCS SYS A ENGAGE INTLK
D	4	C00457	AFCS SYS A MACH TRIM DC
D	5	C01044	AFCS MCP DC 1

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	1	C00374	AFCS SYS B WARN LIGHT (BAT)
B	2	C01064	AFCS SYS B MACH TRIM DC
B	3	C01046	AFCS SYS B FCC DC
B	4	C00716	AFCS SYS B ENGAGE INTLK
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
C	1	C01037	AFCS SYS B MACH TRIM AC
C	2	C01042	AFCS SYS B SNSR EXC AC
C	3	C01047	AFCS MCP DC 2
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-31-91-480-002

(6) Install the lock, SPL-1672 on the stabilizer trim wheel at the control stand (Figure 402):

(a) Turn the stabilizer trim wheel to put the handle at the top of the wheel.

(b) Adjust the height of the lock, SPL-1672 until the yoke is under the handle.

(c) Install the pin through the yoke.

(d) Install the safety pin.

SUBTASK 27-31-91-480-003

(7) Install the rig pin E-5 from the rig pin kit, SPL-1585 in the aft control quadrant, (Figure 401).

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F. Neutral Shift Mechanism Removal

(Figure 401)

SUBTASK 27-31-91-020-001

(1) Remove the neutral shift mechanism [1]:

(a) Remove the nut [8], washer [9], nut [10], washers [7], and bolt [6] to disconnect the neutral shift mechanism [1] from the mach trim actuator.

(b) Remove the nuts [28], washers [26], washers [24], and bolts [25] to disconnect control rods [23] and control rods [27] from the neutral shift mechanism [1].

(c) Remove the nuts [4], washers [3], and bolts [2] that attach the neutral shift mechanism [1] to the support brackets.

(d) Remove the nuts [13], washers [12], and bolts [11] that attach the neutral shift mechanism [1] to the support brackets.

(e) Remove the neutral shift mechanism [1] and spacers [17] from the airplane.

NOTE: Note the quantity, orientation, and location of the spacers [17] before you remove them from the neutral shift mechanism [1].

——————— END OF TASK ———————

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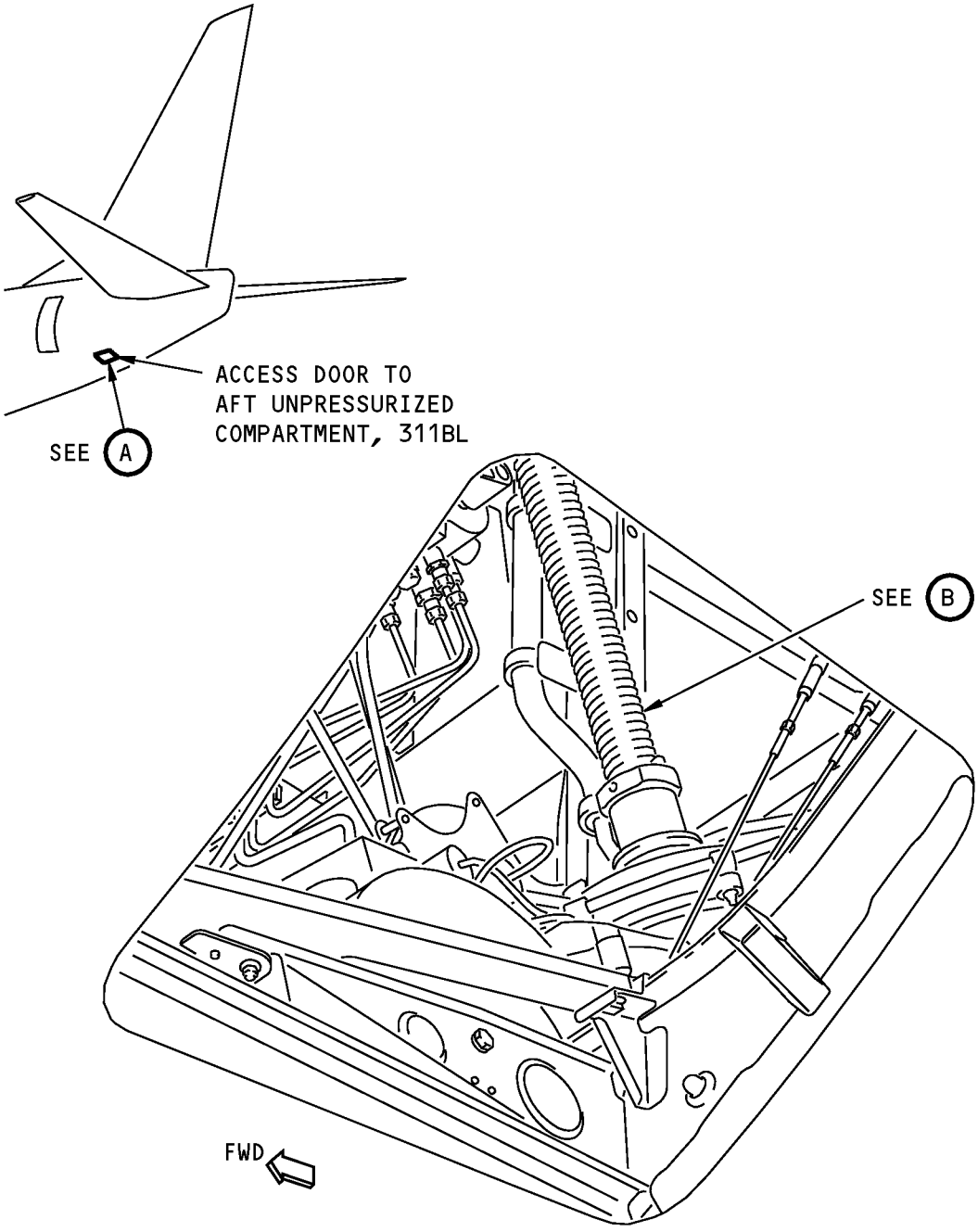

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Elevator Neutral Shift Mechanism Installation
Figure 401 (Sheet 1 of 6)/27-31-91-990-801

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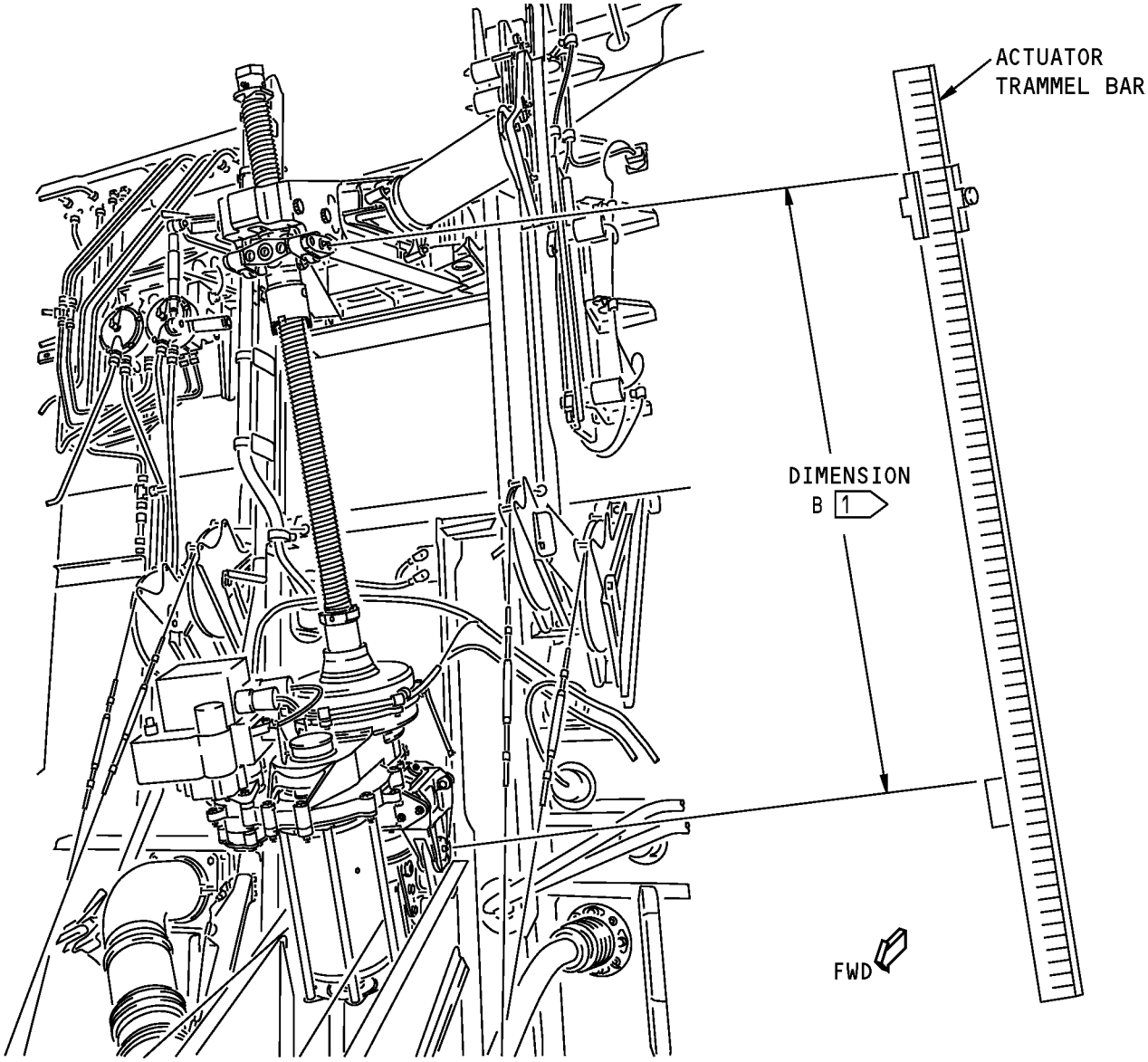

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILIZER LEADING EDGE AT ZERO DEGREES (NEUTRAL POSITION).

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Elevator Neutral Shift Mechanism Installation
Figure 401 (Sheet 2 of 6)/27-31-91-990-801

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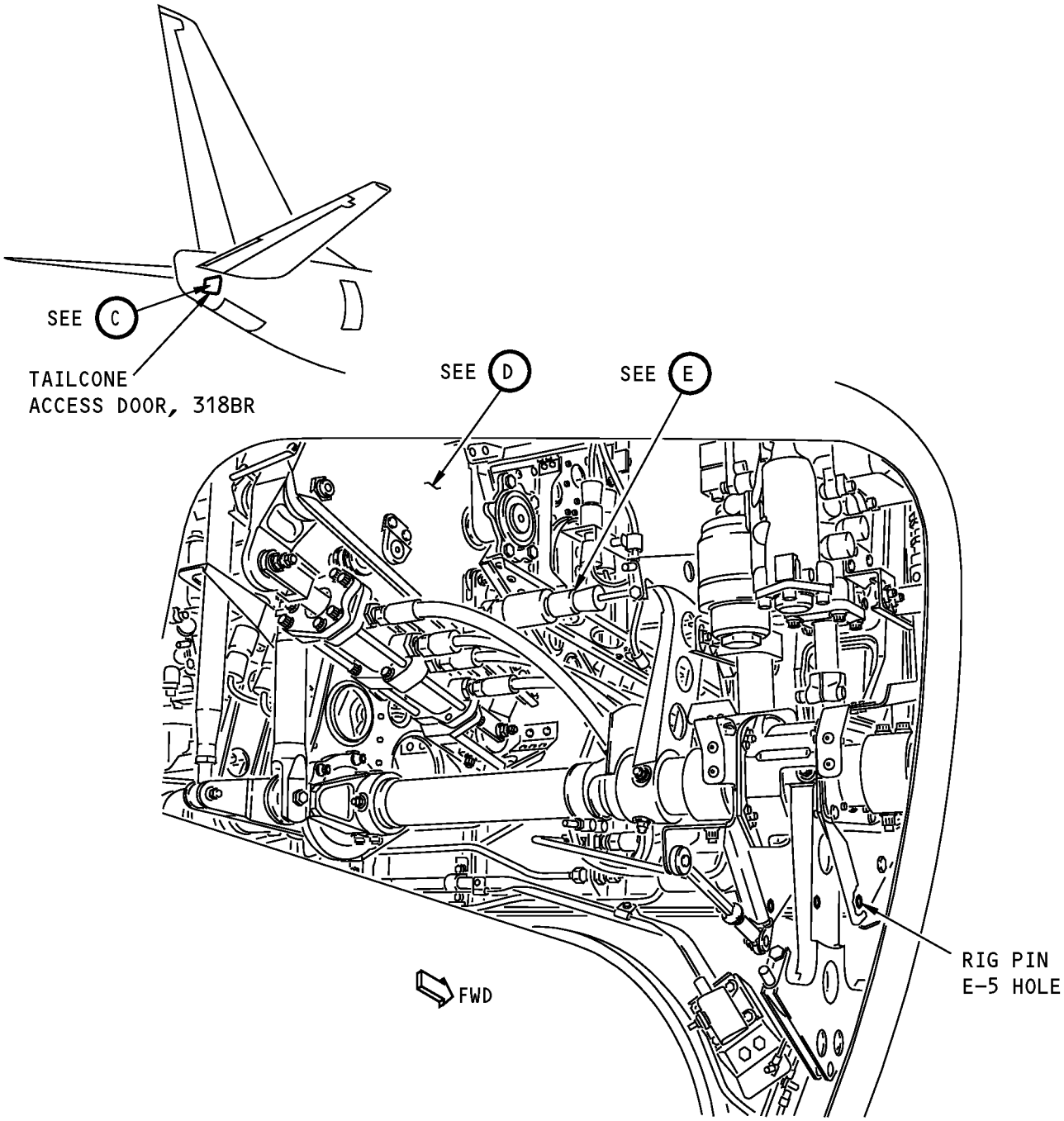

Elevator Neutral Shift Mechanism Installation
Figure 401 (Sheet 3 of 6)/27-31-91-990-801

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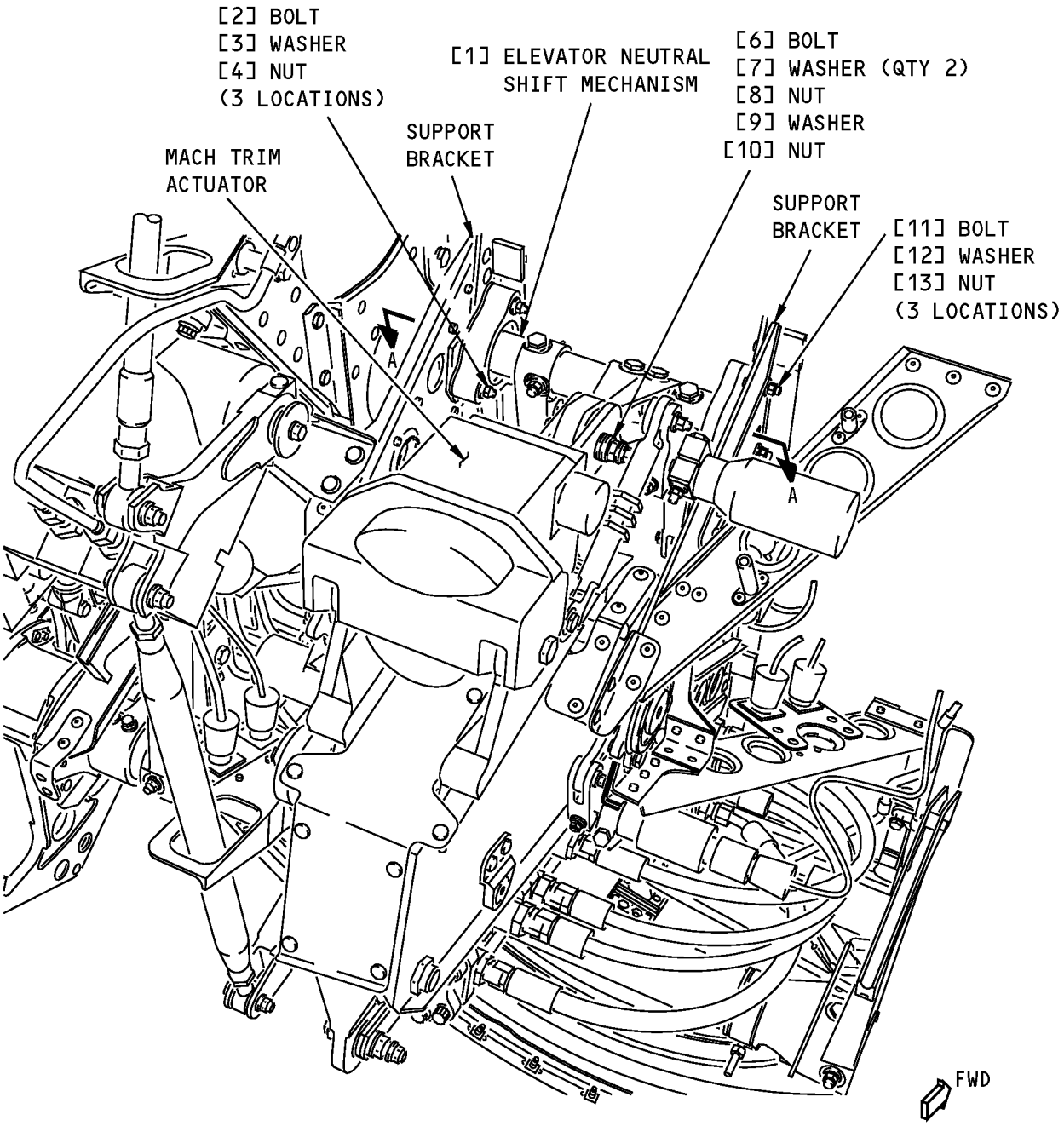

Elevator Neutral Shift Mechanism Installation
Figure 401 (Sheet 4 of 6)/27-31-91-990-801

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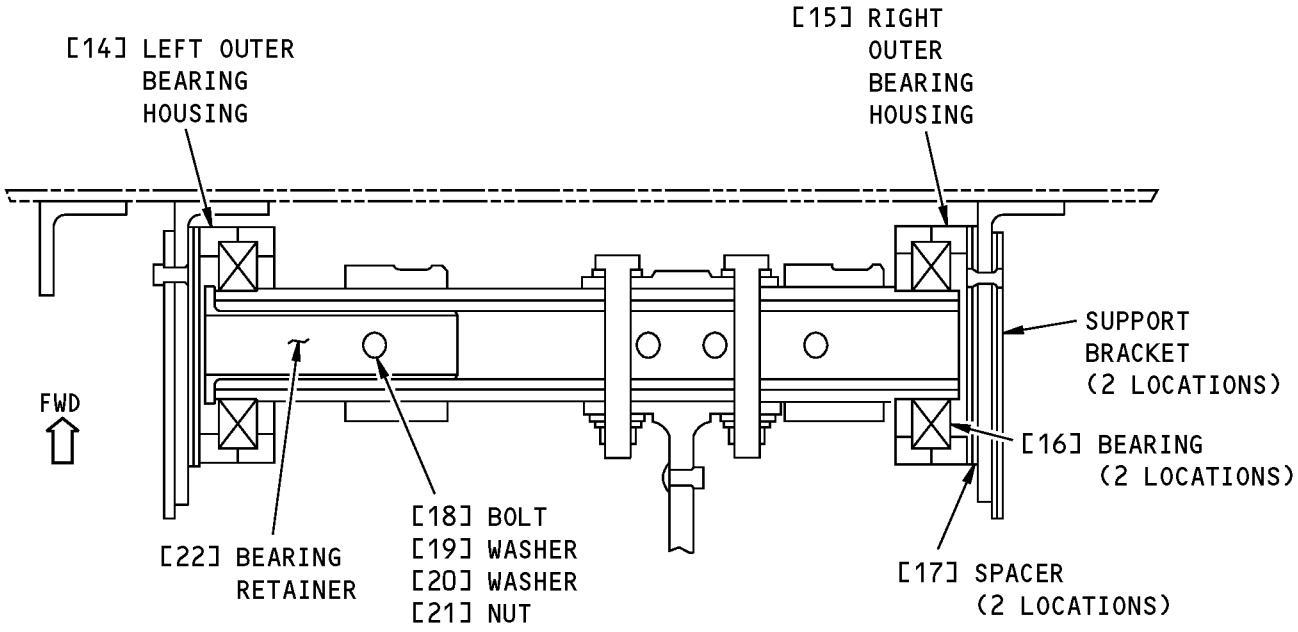

A–A

Elevator Neutral Shift Mechanism Installation
Figure 401 (Sheet 5 of 6)/27-31-91-990-801

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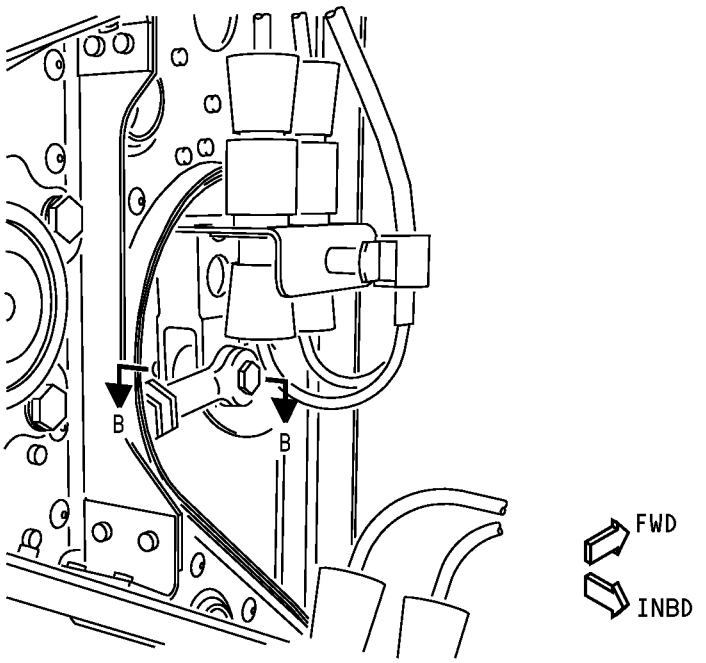
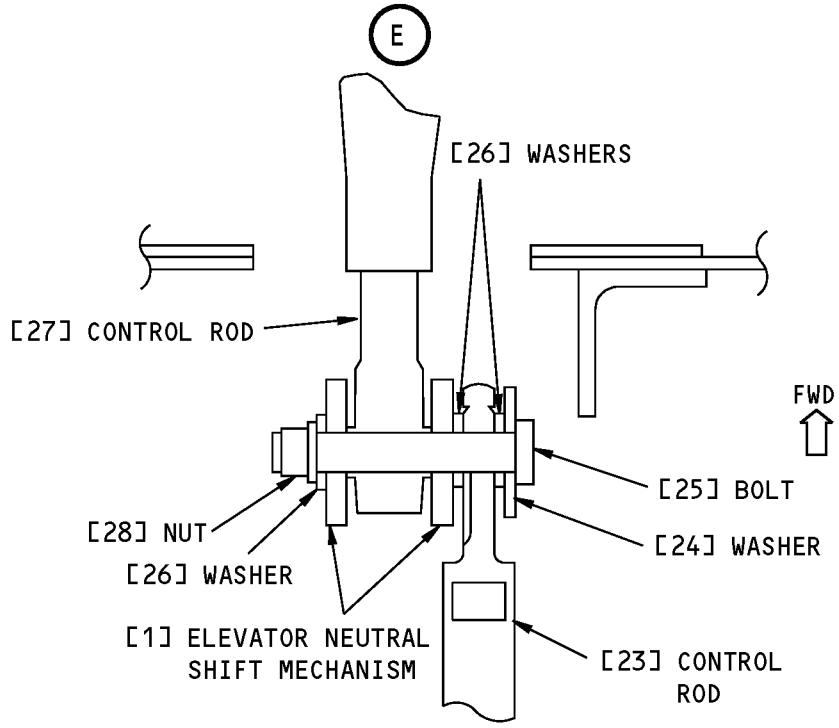


ELEVATOR NEUTRAL SHIFT MECHANISM
(RIGHT SIDE IS SHOWN, LEFT SIDE IS OPPOSITE)



(RIGHT SIDE IS SHOWN, LEFT SIDE IS OPPOSITE)
B–B

Elevator Neutral Shift Mechanism Installation
Figure 401 (Sheet 6 of 6)/27-31-91-990-801

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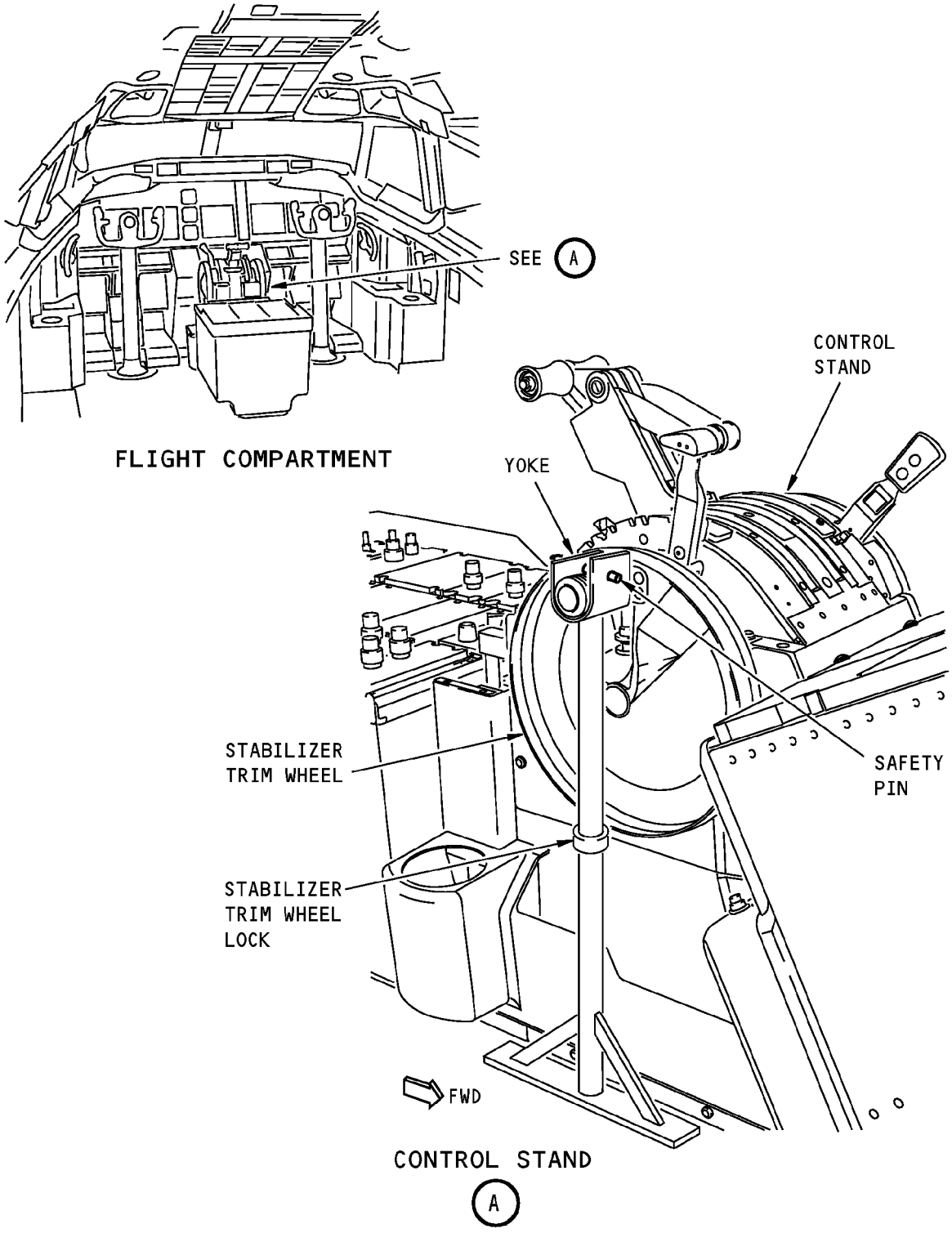

Stabilizer Trim Wheel Lock Installation
Figure 402/27-31-91-990-802

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TASK 27-31-91-400-801

3. Elevator Neutral Shift Mechanism Installation

(Figure 401)

A. References

Reference	Title
27-31-00-700-810	Neutral Shift - Test (P/B 501)
27-31-00-820-804	Input Rods of the Elevator Neutral Shift Mechanism and Output Rod of the Feel and Centering Unit - Adjustment (P/B 501)
27-31-00-840-802	Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1672	Assembly - Lock, Stabilizer Trim (Part #: F71336-501, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door
318BR	Tailcone Access Door

F. Neutral Shift Mechanism Installation

(Figure 401)

SUBTASK 27-31-91-640-001

(1) Do these steps to replace the bearings of the neutral shift mechanism [1]:

(a) Remove the outer housing bearing [15] from the short end of the neutral shift mechanism [1].

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(b) Remove the bearing [16] from the short end of the neutral shift mechanism [1].

(c) Remove the outer housing bearing [14] from the long end of the neutral shift mechanism [1].

(d) Remove the nut [21], washer [20], washer [19], and bolt [18] from the long end of the neutral shift mechanism [1].

(e) Remove the bearing retainer [22] and bearing [16] from the neutral shift mechanism [1].

(f) Apply sealant, A00247 between each new bearing, their bearing housings and bearing retainer.

(g) Install the bearings [16], bearing housing [14], bearing housing [15], and bearing retainer [22] back on the neutral shift mechanism [1].

(h) Turn the bearing retainer [22] until you can install the bolt [18], washer [19] (under the bolt head), washer [20] (under the nut), and the nut [21].

SUBTASK 27-31-91-420-001

(2) Install the neutral shift mechanism [1]:

(a) Put the neutral shift mechanism [1] between the support brackets.

1) Align the neutral shift mechanism [1] with the mach trim actuator.

2) Install the spacers [17] between the neutral shift mechanism [1] and support brackets.

a) Add or remove spacers [17], if necessary.

(b) Install the bolts [2], washers [3] (under the nuts), and nuts [4] to attach the left side of the neutral shift mechanism [1] to the left support bracket.

(c) Install the bolts [11], washers [12] (under the nuts), and nuts [13] to attach the right side of the neutral shift mechanism [1] to the right support bracket.

WARNING: MAKE SURE YOU TURN THE CRANK OF THE NEUTRAL SHIFT MECHANISM IN THE UP DIRECTION. IF YOU INSTALL THE CRANK INCORRECTLY, THE STABILIZER CAN MOVE QUICKLY WHEN YOU ENGAGE THE AUTOPILOT. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(d) Make sure the crank of the neutral shift mechanism [1] is in the up direction and connected to the mach trim actuator.

1) Install the bolt [6] from the left to the right side (bolt head on the left side).

2) Install the washers [7] (under the nut) and nut [8].

a) Tighten the nut [8] to 85-100 pound-inches (9.6-11.3 newton-meters).

CAUTION: DO NOT TIGHTEN THE NUT [10] AGAIN AFTER YOU TIGHTEN THE NUT [8]. YOU CAN CAUSE DAMAGE TO THE BOLT ASSEMBLY.

3) Install the washer [9] and nut [10].

a) Tighten the nut [10] to 30-35 pound-inches (3.4-3.9 newton-meters).

(e) Connect the controls rods [27] and control rods [23] to the neutral shift mechanism [1].

1) Install the bolts [25], washers [24], washers [26], and nuts [28].

SUBTASK 27-31-91-080-001

(3) Remove the rig pin E-5 of the rig pin kit, SPL-1585 from the aft control quadrant.

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SUBTASK 27-31-91-860-003

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM
C	4	C00456	AFCS SYS A MACH TRIM AC
D	1	C01049	AFCS SYS A WARN LIGHT (BAT)
D	2	C01045	AFCS SYS A FCC DC
D	3	C01048	AFCS SYS A ENGAGE INTLK
D	4	C00457	AFCS SYS A MACH TRIM DC
D	5	C01044	AFCS MCP DC 1

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	1	C00374	AFCS SYS B WARN LIGHT (BAT)
B	2	C01064	AFCS SYS B MACH TRIM DC
B	3	C01046	AFCS SYS B FCC DC
B	4	C00716	AFCS SYS B ENGAGE INTLK
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
C	1	C01037	AFCS SYS B MACH TRIM AC
C	2	C01042	AFCS SYS B SNSR EXC AC
C	3	C01047	AFCS MCP DC 2
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-31-91-080-002

(5) Remove the lock, SPL-1672 from the stabilizer trim wheel (Figure 402).

SUBTASK 27-31-91-860-004

(6) Do this task: Put the Elevator Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-31-00-840-802.

SUBTASK 27-31-91-820-001

(7) Adjust the neutral shift mechanism. To adjust it, do this task: Input Rods of the Elevator Neutral Shift Mechanism and Output Rod of the Feel and Centering Unit - Adjustment, TASK 27-31-00-820-804.

SUBTASK 27-31-91-730-001

(8) Do this task: Neutral Shift - Test, TASK 27-31-00-700-810.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-31-91-410-001

(1) Install this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-31-91-410-002

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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ELEVATOR NEUTRAL SHIFT MECHANISM - INSPECTION/CHECK

1. General

A. This procedure contains this task:

(1) Elevator Neutral Shift Mechanism Inspection

(a) This task supplies the data for a dimensional inspection of the elevator neutral shift mechanism.

(b) This task does not remove or install the elevator neutral shift mechanism, refer to the Elevator Neutral Shift Mechanism - Removal/Installation for procedures to remove and install the elevator neutral shift mechanism.

TASK 27-31-91-200-801

2. Elevator Neutral Shift Mechanism - Inspection

(Figure 601)

A. General

(1) This procedure gives wear limits and repair data for the elevator neutral shift mechanism.

B. References

Reference	Title
27-31-91-000-801	Elevator Neutral Shift Mechanism Removal (P/B 401)
27-31-91-400-801	Elevator Neutral Shift Mechanism Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right

E. Procedure

SUBTASK 27-31-91-020-002

(1) Remove the elevator neutral shift mechanism. To remove it, do this task: Elevator Neutral Shift Mechanism Removal, TASK 27-31-91-000-801.

SUBTASK 27-31-91-020-003

(2) Use these tools to check for wear on the parts of the elevator neutral shift mechanism connections:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-31-91-020-004

(3) Examine the parts of the elevator neutral shift mechanism connections for worn areas:

(a) Remove the parts to be checked.

(b) Measure the parts as necessary with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions that follow.

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(d) If the parts are not in the tolerance, replace or repair the part as required.

Table 601/27-31-91-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 OUTER BEARING HOUSING	I.D.	1.9375 in 49.212 mm	1.9385 in 49.238 mm	1.9415 in 49.314 mm	0.004 in 0.102 mm
#1 BEARING	O.D.	1.9365 in 49.187 mm	1.9375 in 49.212 mm	1.9360 in 49.174 mm	
#2 BEARING	I.D.	0.9995 in 25.387 mm	1.0000 in 25.400 mm	1.0025 in 25.463 mm	0.0035 in 0.089 mm
#2 ELEVATOR NEUTRAL SHIFT MECHANISM	O.D.	0.9985 in 25.362 mm	0.9990 in 25.375 mm	0.9965 in 25.311 mm	

SUBTASK 27-31-91-020-005

(4) Install the elevator neutral shift mechanism. To install it, do this task: Elevator Neutral Shift Mechanism Installation, TASK 27-31-91-400-801.

——————— END OF TASK ———————

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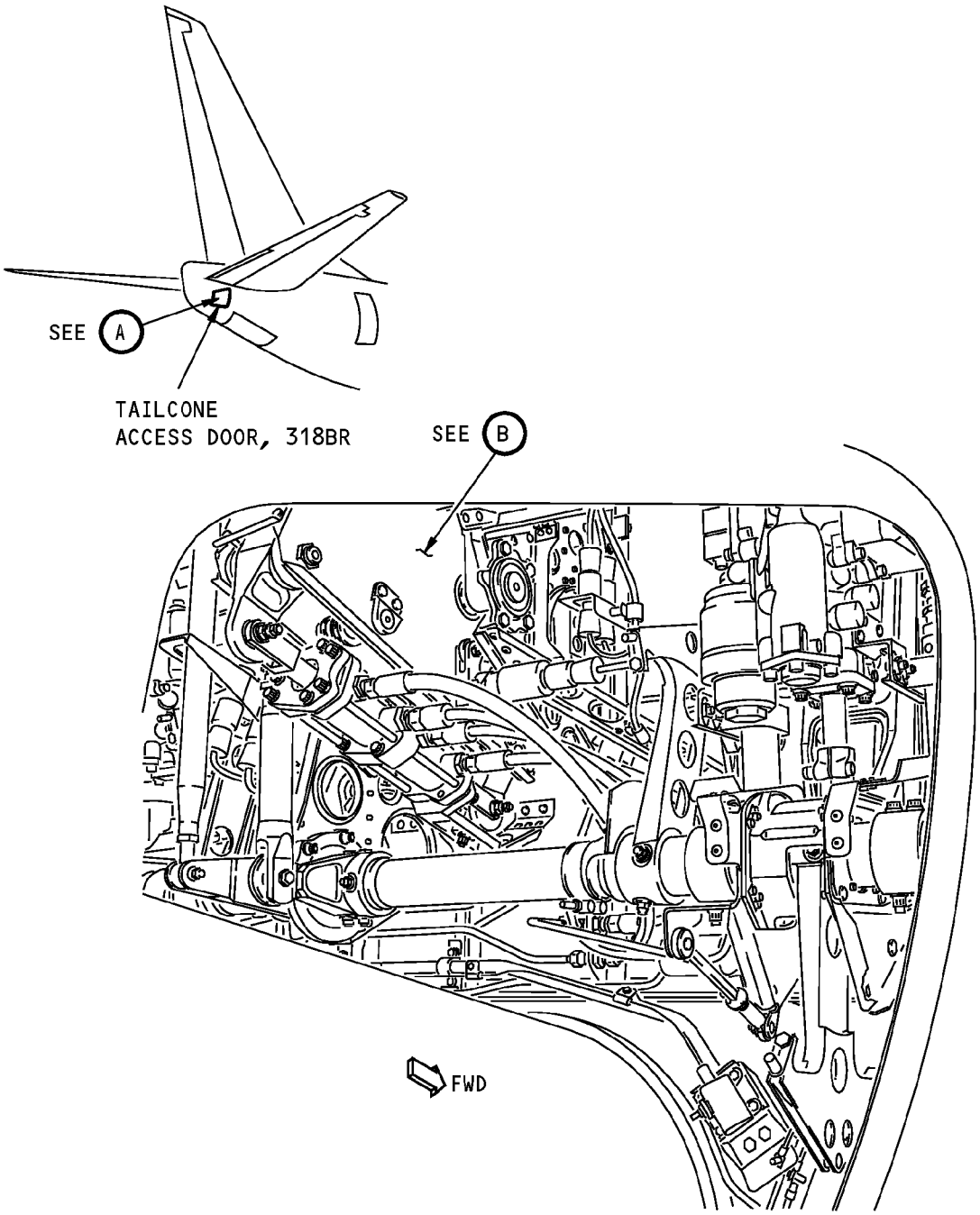

VIEW THROUGH THE TAILCONE
ACCESS DOOR, 318BR

A

Elevator Neutral Shift Mechanism Wear Limits
Figure 601 (Sheet 1 of 3)/27-31-91-990-803

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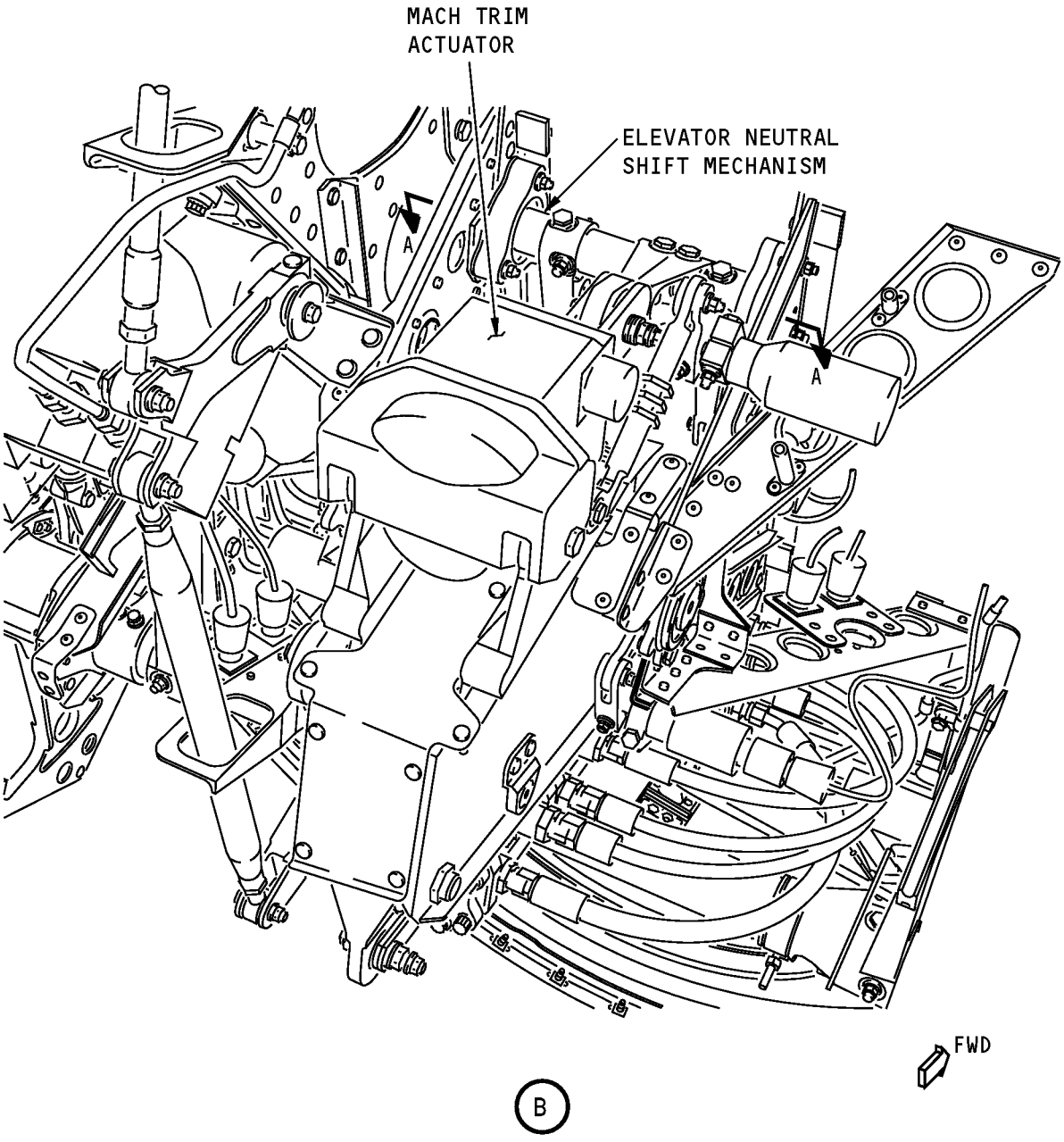

Elevator Neutral Shift Mechanism Wear Limits
Figure 601 (Sheet 2 of 3)/27-31-91-990-803

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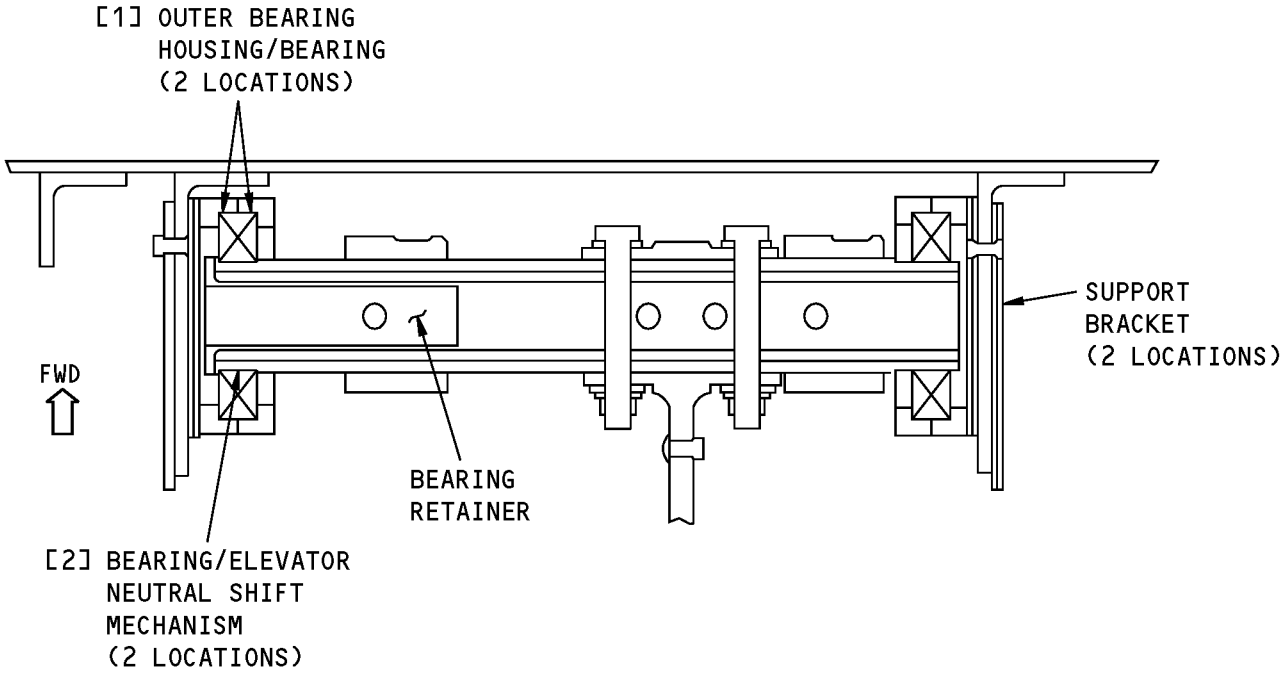

Elevator Neutral Shift Mechanism Wear Limits
Figure 601 (Sheet 3 of 3)/27-31-91-990-803

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FEEL SYSTEM PITOT PROBE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a feel system pitot probe

(2) An installation of a feel system pitot probe.

B. The feel system pitot probe is referred to as the "pitot probe" in this procedure.

C. A pitot probe is installed on each side of the vertical fin. This procedure is applicable for the left and right pitot probes.

TASK 27-31-94-000-801

2. Feel System Pitot Probe Removal

(Figure 401)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved (Part #: 1-6390-A, Supplier: 63318, A/P Effectivity: 737-ALL) (Part #: 10810, Supplier: $0855, A/P Effectivity: 737-ALL) (Part #: 234350, Supplier: $0857, A/P Effectivity: 737-ALL) (Part #: 311, Supplier: KA861, A/P Effectivity: 737-ALL) (Part #: 411B60, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: 411B90, Supplier: 3DN12, A/P Effectivity: 737-ALL) (Part #: DAD5013, Supplier: $0856, A/P Effectivity: 737-ALL) (Part #: DFD5019, Supplier: $0856, A/P Effectivity: 737-ALL) (Part #: J5-0275-2010, Supplier: 435R8, A/P Effectivity: 737-ALL) (Part #: SCD5019, Supplier: $0856, A/P Effectivity: 737-ALL) (Part #: ST982LF, Supplier: 3Z323, A/P Effectivity: 737-ALL) (Part #: TS1275-4, Supplier: 1DWR5, A/P Effectivity: 737-ALL)

B. Location Zones

Zone	Area
323	Vertical Fin - Front Spar To Rear Spar

C. Pitot Probe Removal

SUBTASK 27-31-94-860-001

(1) For the left pitot probe,

Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	4	C00236	HEATERS ELEV PITOT LEFT

SUBTASK 27-31-94-860-002

(2) For the right pitot probe,

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Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	4	C00237	HEATERS ELEV PITOT RIGHT

SUBTASK 27-31-94-140-001

WARNING: MAKE SURE THAT THE PITOT PROBE [8] HEAT IS OFF. INJURY TO PERSONS CAN OCCUR.

CAUTION: MAKE SURE THAT THE AREA AROUND THE PITOT PROBE [8] IS CLEAR OF UNWANTED MATERIAL. CONTAMINATION OF THE PITOT SYSTEM CAN OCCUR.

(3) Use the sealant removal tool, COM-2481 to remove the sealant from around the baseplate [5] of the pitot probe [8].

SUBTASK 27-31-94-020-001

(4) Remove the bolts [9] from the baseplate [5] of the pitot probe [8].

SUBTASK 27-31-94-020-002

CAUTION: MAKE SURE THAT THE PITOT PROBE HAS NO WEIGHT ON IT. THE PITOT PROBE [8] CAN BEND OR TWIST OUT OF TOLERANCE.

(5) Do these steps to loosen the pitot probe [8] from the airplane skin:

(a) Hold the probe strut [7].

(b) Loosen the gasket [2].

(c) Pull the pitot probe [8] out from the airplane skin until you can get access to the pitot hose fitting [10] and electrical connector [1] on the base of the pitot probe [8].

SUBTASK 27-31-94-020-003

CAUTION: USE WRENCHES TO APPLY COUNTER PRESSURE ON EACH SIDE OF THE FITTING DURING DISASSEMBLY. DAMAGE TO THE TUBE OR FITTING CAN OCCUR.

(6) Disconnect the pitot hose fitting [10] at the base of the pitot probe [8].

SUBTASK 27-31-94-020-004

(7) Remove the long screw [6] from the pitot probe side of the electrical connector [1].

SUBTASK 27-31-94-020-005

(8) Disconnect the electrical connector [1].

SUBTASK 27-31-94-020-006

(9) Remove the pitot probe [8].

SUBTASK 27-31-94-420-001

(10) Install the long screw [6] in the electrical connector [1].

SUBTASK 27-31-94-020-007

(11) Temporarily attach the electrical connector [1] and pitot hose fitting [10] to the airplane structure with tape so they do not fall inside vertical fin.

SUBTASK 27-31-94-020-008

(12) Put a cap on the pitot hose fitting [10] to keep out unwanted material.

SUBTASK 27-31-94-020-013

(13) Remove the elbow [11] from the pitot probe assembly [8].

(a) Remove the lockwire [12] and discard.

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SUBTASK 27-31-94-020-009

(14) Remove the bolts [3], washers [4], and pitot probe [8] from the baseplate [5].

SUBTASK 27-31-94-020-010

(15) Keep the baseplate [5] for another installation.

SUBTASK 27-31-94-020-011

(16) Remove the gasket [2] and discard it.

——————— END OF TASK ———————

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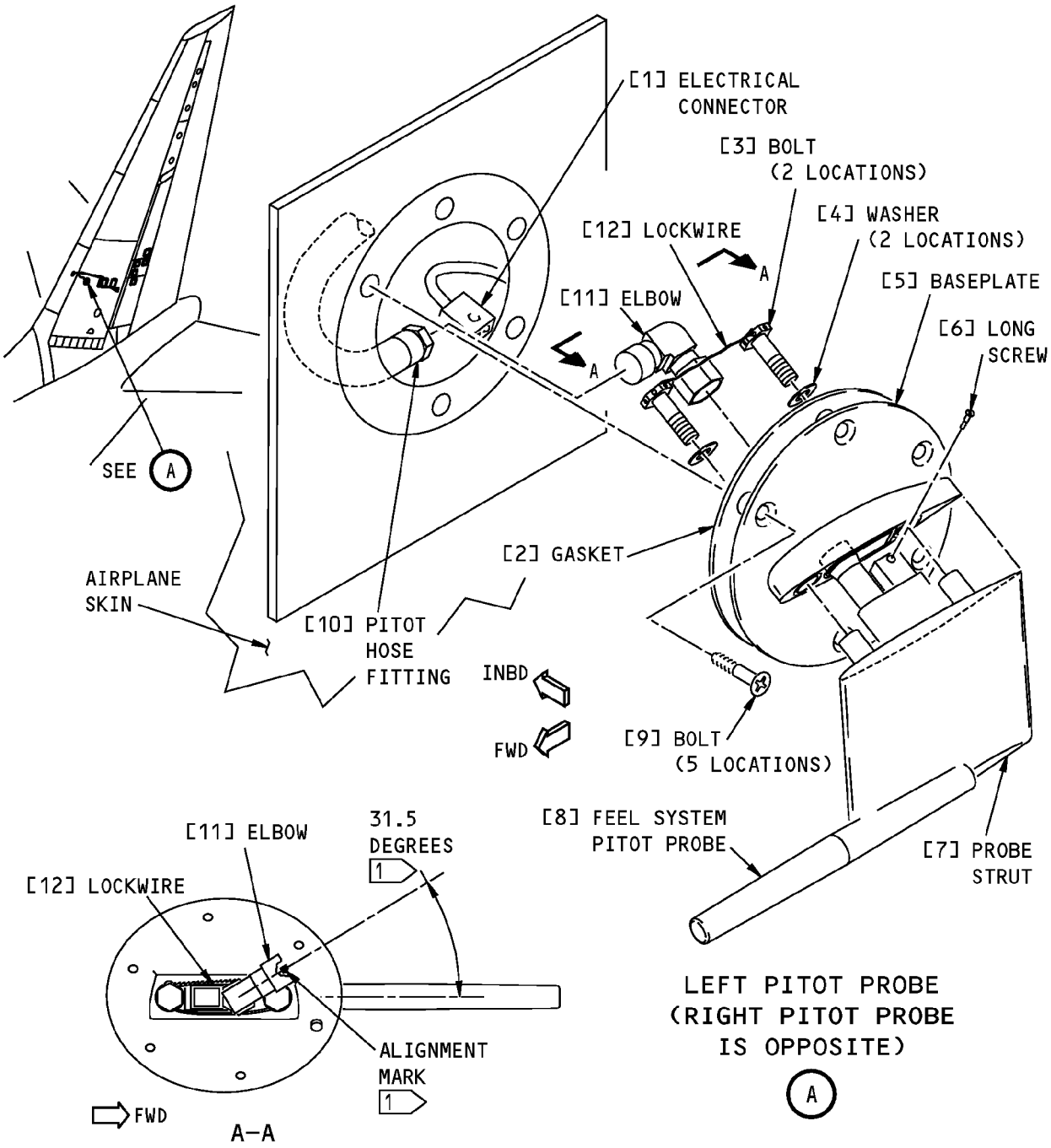

1 THE CENTER OF THE 90-DEGREE ELBOW SHOULD ALIGN 31.5 DEGREES ABOVE THE CENTER OF THE PITOT PROBE (OR ALIGNMENT MARK SHOWN). THIS WILL PREVENT MOISTURE FROM COLLECTING IN LOW SPOTS OF THE PITOT ASSEMBLY AND PITOT HOSE.

Feel System Pitot Probe Installation
Figure 401/27-31-94-990-801

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TASK 27-31-94-400-801

3. Feel System Pitot Probe - Installation

(Figure 401)

A. References

Reference	Title
20-10-34-110-802	Clean Bare, Clad, or Plated Metal with Solvent (P/B 701)
27-31-17-790-801	Elevator Pitot System Leak - Test (P/B 201)
30-31-00-730-801	Pitot Probe, AOA Sensor, and TAT Probe Heater Test (P/B 501)
SWPM 20-20-00	Standard Wiring Practices Manual

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A00708	Sealant - Fast Curing, 2-Part - PR-1828	AMS 3277
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)

D. Location Zones

Zone	Area
323	Vertical Fin - Front Spar To Rear Spar

E. Pitot Probe Installation

SUBTASK 27-31-94-110-001

(1) For the surface of the baseplate [5], do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.

SUBTASK 27-31-94-420-002

(2) Put the pitot probe [8] on the baseplate [5]:

(a) Install the bolts [3] and washers [4] in the baseplate [5].

(b) Install the lockwire, G01912 on the bolts [3].

SUBTASK 27-31-94-020-014

(3) Install the elbow [11] on the pitot probe assembly [8]:

(a) Make sure the center of the elbow [11] is aligned with the alignment mark on the inboard side of the pitot probe [8] base (Figure 401).

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SUBTASK 27-31-94-420-005

(4) Put the new gasket [2] in position on the baseplate [5].

SUBTASK 27-31-94-420-012

CAUTION: USE WRENCHES TO APPLY COUNTER PRESSURE ON EACH SIDE OF THE FITTING DURING ASSEMBLY. DAMAGE TO THE TUBE OR FITTING CAN OCCUR.

(5) Connect the pitot hose fitting [10] to the elbow [11].

NOTE: The lowest point of the flexible hose should be the connection with the pitot probe.

SUBTASK 27-31-94-020-012

(6) Remove the long screw [6] from the electrical connector [1], if it is installed.

SUBTASK 27-31-94-210-001

(7) Examine the electrical connector [1] for loose, bent, or broken pins.

SUBTASK 27-31-94-420-007

(8) Connect the electrical connector [1].

SUBTASK 27-31-94-420-008

(9) Install the long screw [6] in the electrical connector [1].

SUBTASK 27-31-94-390-001

(10) Apply a thin layer of sealant, A00247 or PR-1828 sealant, A00708, on the mating surfaces of the baseplate [5] and pitot probe [8].

NOTE: You can use the quick curing sealant in applications where the aircraft needs to go quickly back into service. The two part sealant should be mixed and then applied per BAC5000 or BAC5030.

NOTE: If the aircraft needs to go quickly back into service, and you do not use the quick curing sealant, it is not necessary to apply either sealant immediately if the cure time of either of the two sealants will cause a flight delay. To prevent moisture damage to the airplane, sealant should be applied as soon as it is convenient for the operator.

SUBTASK 27-31-94-420-009

(11) Do these steps to put the pitot probe [8] in its position:

(a) Hold the probe strut [7].

(b) Put the pitot hose fitting [10] and electrical connector [1] in the installation hole.

(c) Put the pitot probe [8] in its position on the airplane skin.

1) Make sure the airplane skin and the baseplate [5] are aligned in ± 0.04 inch (± 1.0 millimeters) or less.

SUBTASK 27-31-94-420-010

(12) Install the bolts [9] in the baseplate [5] of the pitot probe [8].

SUBTASK 27-31-94-420-011

(13) Tighten the bolts [9].

SUBTASK 27-31-94-390-002

(14) Fill the gap between the baseplate [5] and the airplane skin with sealant, A00247.

NOTE: It is not necessary to apply the sealant immediately if the cure time of the sealant will cause a flight delay. To prevent moisture damage to the airplane, sealant should be applied as soon as it is convenient for the operator.

(a) Make sure the baseplate [5] and sealant are flat with the airplane skin.

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F. Pitot Probe Installation Test

SUBTASK 27-31-94-760-001

(1) Measure the resistance between the strut of the pitot probe [8] and the airplane skin with a bonding meter, COM-1550.

(a) If the resistance is more than 0.010 ohms, do these steps:

1) Remove the pitot probe [8].

2) Clean the bonding surfaces, including the countersunk holes in the pitot probe [8] (SWPM 20-20-00).

3) Replace the bolts with new bolts.

4) Re-install the pitot probe [8].

5) Measure the resistance between the strut of the pitot probe [8] and the airplane skin with a bonding meter, COM-1550.

6) If the resistance is more than 0.010 ohms, do these steps:

a) Remove the pitot probe [8].

b) Replace the nutplates and rivets that attach the pitot probe [8] (SRM 51-40-02).

c) Reinstall the pitot probe [8] and make sure the bonding resistance is not more than 0.010 ohm.

SUBTASK 27-31-94-860-003

(2) For the left pitot probe,

Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	4	C00236	HEATERS ELEV PITOT LEFT

SUBTASK 27-31-94-860-004

(3) For the right pitot probe,

Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	4	C00237	HEATERS ELEV PITOT RIGHT

SUBTASK 27-31-94-710-001

(4) Do this task: Elevator Pitot System Leak - Test, TASK 27-31-17-790-801.

SUBTASK 27-31-94-710-002

(5) Do this task: Pitot Probe, AOA Sensor, and TAT Probe Heater Test, TASK 30-31-00-730-801.

END OF TASK

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STALL WARNING SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Stall Warning System - Operational Test

(2) Stall Management Yaw Damper Test - Existing Faults

(3) Stall Management Yaw Damper Test - Fault History

(4) Stall Management Yaw Damper Test - Ground Test

TASK 27-32-00-710-801

2. Stall Warning System - Operational Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-32-00-860-001

(1) Do this task: Supply External Power, TASK 24-22-00-860-813

SUBTASK 27-32-00-710-001

(2) Do a test of the number 1 stall warning system:

NOTE: The amber SPD LIM light on the on-side Primary Flight Display will come on. The MASTER CAUTION light will come on if the Yaw Damper switch is ''disengaged/off''. This will not occur on 285A1010-7 SMYD units. A SPD LIM annunciation that stays on more than 5 seconds after the stick shaker operates could be a problem.

(a) Push and hold the STALL WARNING TEST NO. 1 switch on the stall warning test module (P5-18 panel).

(b) Make sure that the captain's control column shaker operates.

(c) Release the switch.

(d) Make sure that the shaker stops.

SUBTASK 27-32-00-710-002

(3) Do a test of the number 2 stall warning system:

NOTE: The amber SPD LIM light on the on-side Primary Flight Display will come on. The MASTER CAUTION light will come on if the Yaw Damper switch is ''disengaged/off''. This will not occur on 285A1010-7 SMYD units. A SPD LIM annunciation that stays on more than 5 seconds after the stick shaker operates could be a problem.

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(a) Push and hold the STALL WARNING TEST NO. 2 switch on the stall warning test module (P5-18 panel).

(b) Make sure that the first officer's control column shaker operates.

(c) Release the switch.

(d) Make sure that the shaker stops.

SUBTASK 27-32-00-860-002

(4) If electrical power is no longer needed: do this task: Remove External Power, TASK 24-22-00-860-814.

——————— END OF TASK ———————

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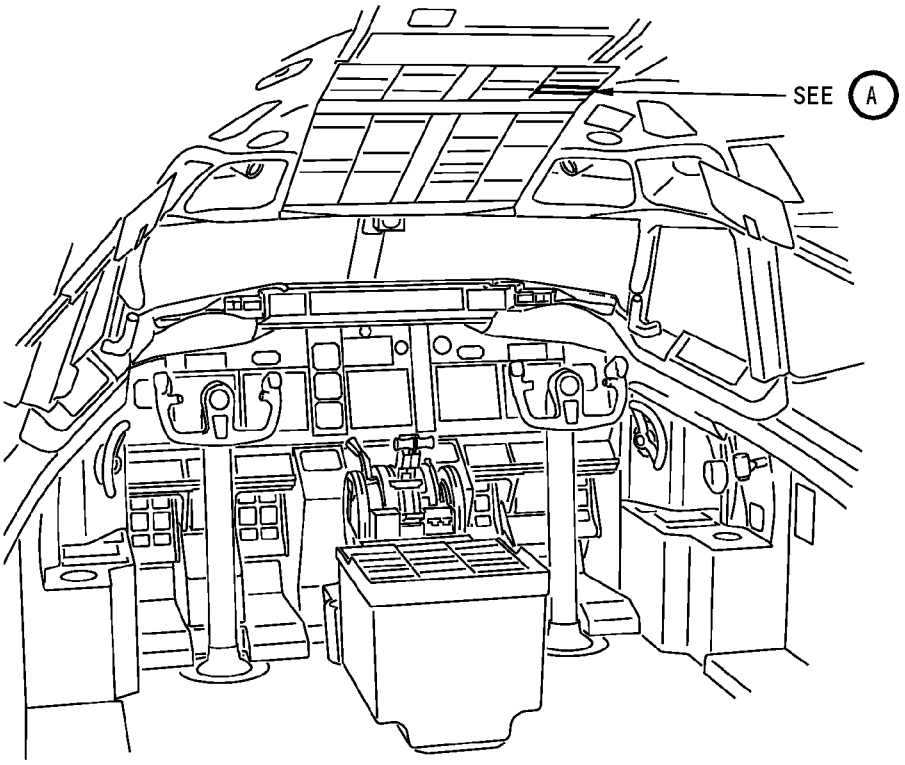
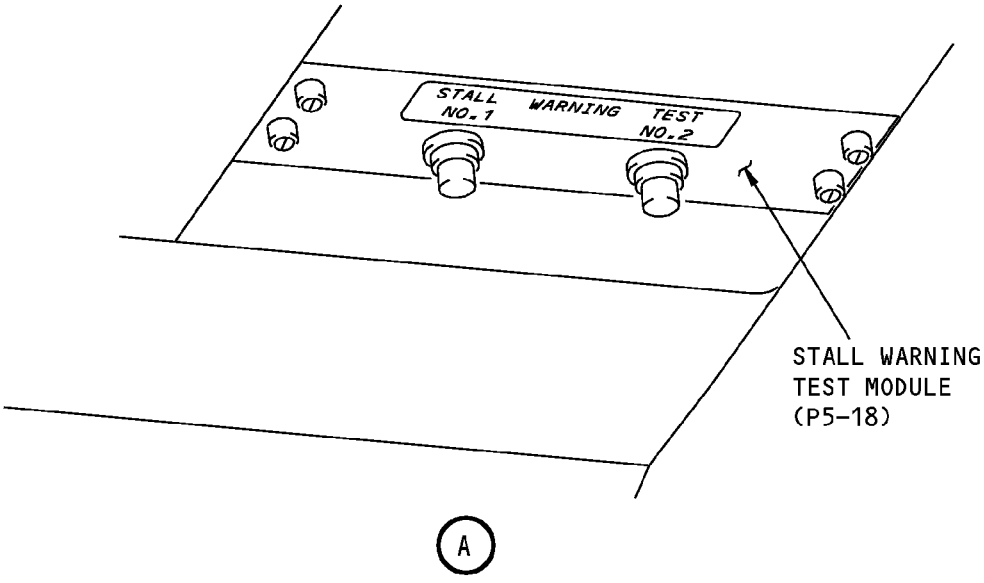


FLIGHT COMPARTMENT



Stall Warning System Test
Figure 501/27-32-00-990-801

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TASK 27-32-00-740-801

3. Stall Management Yaw Damper (SMYD) BITE Test - Existing Faults

(Figure 502)

A. General

(1) This procedure does the EXISTING FAULTS portion of the Stall Management Yaw Damper (SMYD) BITE.

(2) Do this BITE test for SMYD 1 and 2 to ensure all faults are found.

(3) For EXISTING FAULTS, the SMYD does internal tests, discrete output checks, sensor interface checks, and checks of inputs to the SMYD. Any faults that are found during the EXISTING FAULTS are active. A maintenance message identifies a specific failure which is found by the SMYD.

B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
FIM 27-32 TASK 801	Stall Management Yaw Damper BITE Procedure

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Procedure

SUBTASK 27-32-00-860-003

(1) Do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 27-32-00-010-001

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-32-00-740-001

(3) Do the EXISTING FAULTS test on the SMYD BITE:

(a) Push the ON/OFF switch.

NOTE: The display will show EXISTING FAULTS? If a fault occurs, check to make sure that all FMC and ADIRU values are good.

(b) Push the YES switch. The display will show:

1) Either a message corresponding the first fault in the list.

2) Or the display will show NO FAULTS.

(c) If there are existing faults, then, do this task: FIM 27-32 TASK 801

(d) If the display shows NO FAULTS, push the MENU switch to return to the EXISTING FAULTS? display.

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F. If you are finished with the SMYD tests, return the airplane to normal.

SUBTASK 27-32-00-860-004

(1) Push the ON/OFF switch to turn the SMYD display off.

SUBTASK 27-32-00-410-001

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-32-00-860-005

(3) If it is not necessary, do this task: Remove External Power, TASK 24-22-00-860-814.

——————— END OF TASK ———————

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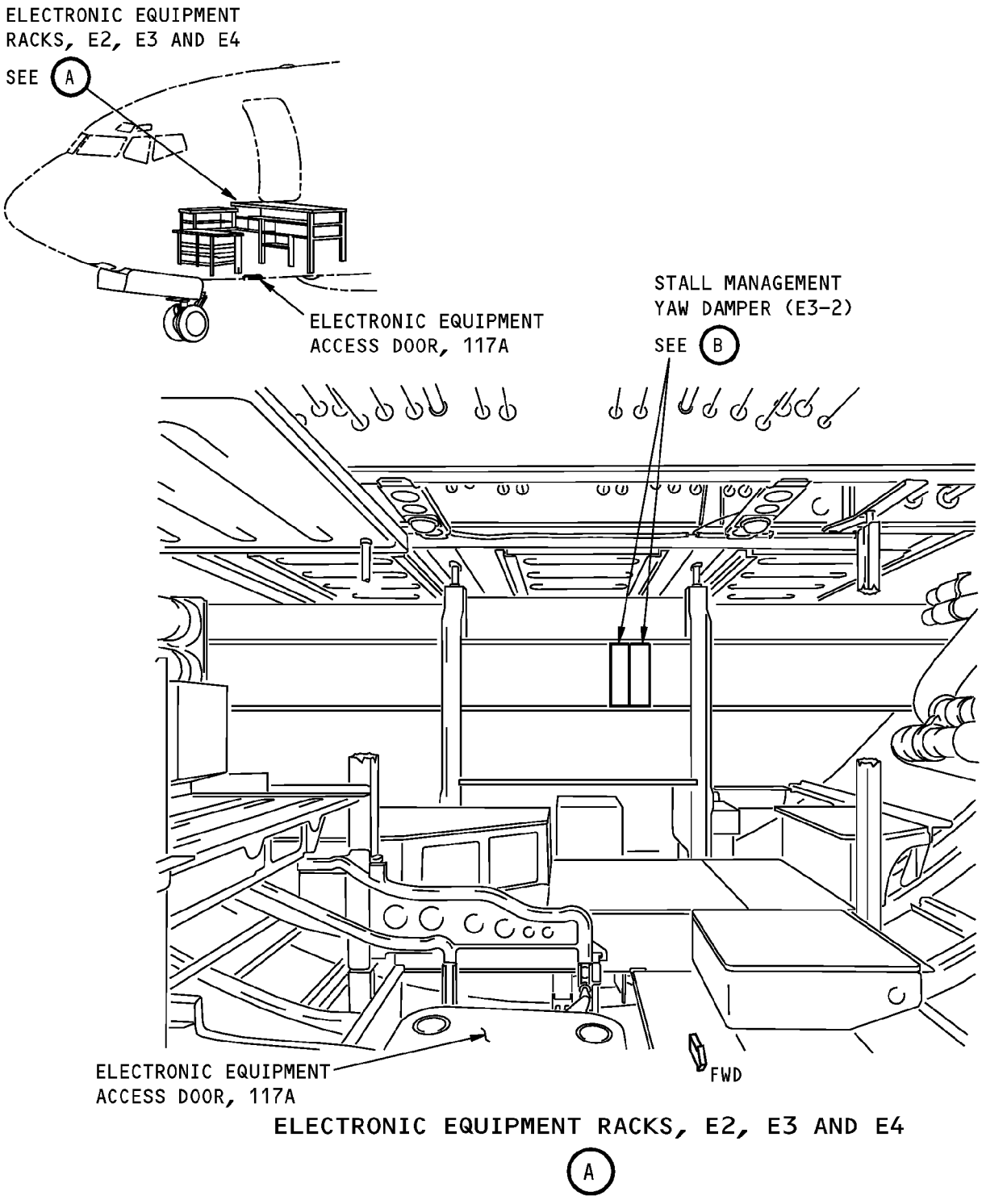

Stall Management Yaw Damper Test
Figure 502 (Sheet 1 of 2)/27-32-00-990-802

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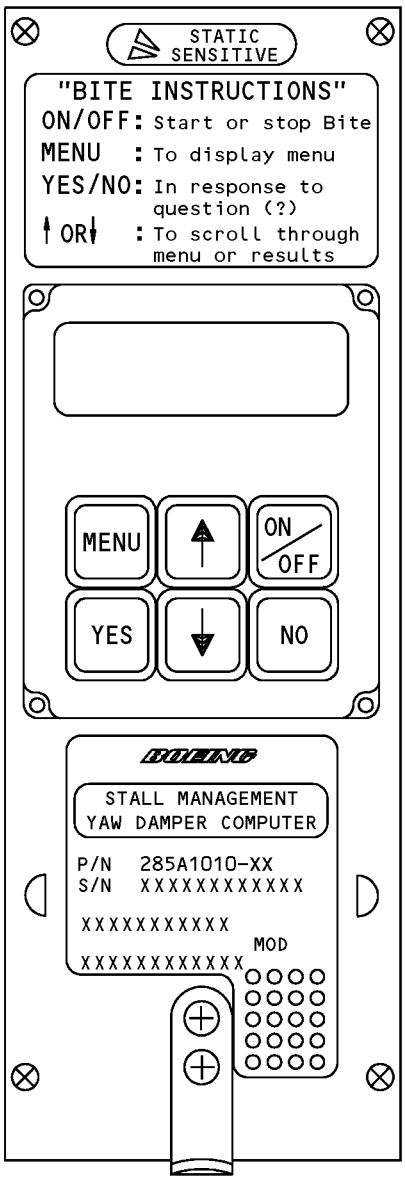

STALL MANAGEMENT YAW DAMPER
(EXAMPLE)

B

Stall Management Yaw Damper Test
Figure 502 (Sheet 2 of 2)/27-32-00-990-802

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TASK 27-32-00-740-802

4. Stall Management Yaw Damper (SMYD) BITE Test - Fault History

(Figure 502)

A. General

(1) This procedure does the FAULT HISTORY? portion of the Stall Management Yaw Damper (SMYD) BITE.

(2) The SMYD keeps a record of faults in FAULT HISTORY. The faults are grouped by flight leg. Flight leg 0 (LEG 0) is the most recent flight and includes faults that occurred on the ground after the most recent flight. Only flight legs with faults will be displayed.

B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
FIM 27-32 TASK 801	Stall Management Yaw Damper BITE Procedure

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the test

SUBTASK 27-32-00-860-006

(1) Do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 27-32-00-010-002

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

F. Procedure

SUBTASK 27-32-00-740-002

(1) Do the FAULT HISTORY test on the SMYD BITE.

(a) Push the ON/OFF switch on the SMYD BITE display to turn the BITE display on.

NOTE: EXISTING FAULTS? will be displayed.

(b) Push the down arrow until the display shows FAULT HISTORY?.

1) Push the YES switch.

a) If there are faults in history, The display will show FLIGHT LEG -n where n is the most recent flight with faults recorded.

b) If there are no faults, the message NO FAULT HISTORY will be displayed.

2) Push the up arrow or down arrow to go through the flight legs.

3) If you push YES at any flight leg display the message corresponding to the first fault in the list will be displayed.

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4) To display the faults for the flight leg use the up arrow and down arrow.

NOTE: To return to the FLIGHT LEG N display, push the MENU switch.

5) To return to the FAULT HISTORY display, push the MENU switch.

6) Refer to FIM 27-32 TASK 801 to find the fault isolation task for the applicable maintenance message.

G. If you are finished with the SMYD tests, return the airplane to normal.

SUBTASK 27-32-00-860-007

(1) Push the ON/OFF switch to turn the SMYD display off.

SUBTASK 27-32-00-410-002

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-32-00-860-008

(3) If electrical power is no longer necessary, do this task: Remove External Power, TASK 24-22-00-860-814.

———————— END OF TASK ————————

TASK 27-32-00-740-803

5. Stall Management Yaw Damper (SMYD) BITE Test - Ground Test

(Figure 502)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This procedure does the GROUND TEST? portion of the Stall Management Yaw Damper (SMYD) BITE.

(3) For GROUND TEST, the SMYD has several menus:

(a) SELF TEST? - This performs a self test sequence of the SMYD.

(b) DISCRETE INPUTS? - Monitors the status of each displayed discrete inputs to the SMYD.

(c) ARINC429 INPUTS? - Monitors the status of each ARINC429 input to the SMYD.

(d) ANALOG INPUTS? - Displays the status of these sensors:

1) AOA SENSOR?

2) FLAP SENSOR?

3) WHEEL SENSOR?

4) YD LVDT?

NOTE: This is only for the SMYD in the number 2 position.

(e) SERVO TEST? - Tests the integrity of the interface between the SMYD and the rudder power control unit.

(f) DISPLAY TEST? Tests the SMYD display.

(4) This task has a procedure for each of these menu items.

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B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)
FIM 27-32 TASK 801	Stall Management Yaw Damper BITE Procedure

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Tests

SUBTASK 27-32-00-860-009

(1) Supply electrical power to the airplane. To do this, do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 27-32-00-860-012

(2) Align the air data inertial reference system. To do this, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

SUBTASK 27-32-00-010-003

(3) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

NOTE: Do the steps that follow on both SMYD #1 and SMYD #2.

F. SELF TEST

SUBTASK 27-32-00-740-003

(1) Push the ON/OFF switch to turn on the BITE display.

SUBTASK 27-32-00-740-004

(2) Push the down arrow to display GROUND TESTS?

SUBTASK 27-32-00-740-005

(3) Push the YES switch. SELF TEST? will be displayed.

SUBTASK 27-32-00-740-007

(4) Push the YES switch to start the self test.

(a) TEST IN PROGRESS will display while the test is run.

(b) When the self test is complete either:

1) A message corresponding to the first fault will be displayed.

2) Or SMYD LRU OK will be displayed.

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(c) If faults are detected, then, do this task: FIM 27-32 TASK 801.

(d) Push the MENU switch to go back to the SELF TEST? display.

G. DISCRETE INPUTS

SUBTASK 27-32-00-740-008

(1) Push the down arrow to display DISCRETE INPUTS?

SUBTASK 27-32-00-740-009

(2) Push the YES switch to start the discrete inputs test.

(a) Push the down arrow until ASYMETRY = OPEN is displayed.

(b) Push the ON/OFF switch on the FSEU BITE panel.

(c) Push the down arrow on the FSEU until OTHER FUNCTNS? is displayed.

(d) Push the YES switch on the FSEU.

(e) Push the down arrow on the FSEU until SET OUTPUTS? is displayed.

(f) Push the YES switch on the FSEU.

(g) Push the down arrow on the FSEU until LE INTRANS? is displayed.

(h) Push the YES switch on the FSEU to display SET ON?

(i) Push the YES switch on the FSEU.

(j) Verify that both SMYDs display ASYMETRY = GND.

(k) Push the down arrow on both SMYDs to display LE UCM = OPEN.

(l) Make sure the FSEU display returns to LE INTRANS?

NOTE: It takes approximately 75 seconds from step (i) for this to occur.

(m) Push the down arrow on the FSEU to display LE UCM?

(n) Push the YES switch on the FSEU to display SET ON?

(o) Push the YES switch on the FSEU.

(p) Verify that both SMYDs display LE UCM = GND.

(q) Push the ON/OFF switch on the FSEU.

(r) Push the YES switch on the FSEU to exit its BITE.

(s) Push the MENU switch on both SMYDs until DISCRETE INPUTS? is displayed.

H. ARINC429 TEST

SUBTASK 27-32-00-740-010

(1) Push the down arrow to display ARINC429 INPUTS?

SUBTASK 27-32-00-740-011

(2) Push the YES switch to start the ARINC429 test.

(a) The first input bus will be displayed: ON SIDE IR BUS?

(b) To display the other input busses, push the down arrow until the desired bus is displayed.

(c) A good data bus will display "BUS ACTIVE" and a bad bus will display "BUS INACTIVE".

(d) The busses are:

1) ON SIDE IR BUS
2) OFF SIDE IR BUS
3) ON SIDE ADR BUS
4) CDS DEU BUS

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5) FMC BUS

6) DFCS MCP BUS

7) CROSS CHANNEL

(e) Push YES at any display to activate the test for the bus.

(f) If there is no fault in the bus activity monitor, BUS ACTIVE will be displayed.

(g) If there are faults, BUS INACTIVE will be displayed

NOTE: For some combinations of SMYD and FMC part numbers a nuisance BUS INACTIVE fault message may occur for the FMC bus. If that occurs, push the up arrow until EXISTING FAULTS?

(h) Use the MENU key to return to the ARINC429 TEST? display.

I. SENSOR TEST

SUBTASK 27-32-00-740-012

(1) Push the down arrow to display ANALOG INPUTS?

SUBTASK 27-32-00-740-013

(2) Push the YES switch to start the analog inputs test.

(a) The SMYD will display the status of these sensors:

1) AOA SENSOR

2) FLAP SENSOR

3) YD LVDT

4) WHEEL SENSOR

NOTE: The WHEEL SENSOR is only on the SMYD installed in the number 2 position. The SMYD in position 1 will not have this sensor. If the sensor value is bad, "WHEEL INVALID" will appear.

(b) To move through the sensors, push the up and down arrow until the desired sensor is displayed.

(c) When the sensor is displayed, push the YES switch to show the status of that sensor. The possible displays are:

1) AOA (sensor angle) or AOA INVALID

2) FLAP DET (flap detent position), FLAP SYN (flap synchro angle), or FLAP INVALID

NOTE: Use the down arrow to move from the FLAP DET nn display to the FLAP SYN nn display.

3) YD LVDT (angle) or YD LVDT INVALID.

4) WHEEL (angle) or WHEEL INVALID.

NOTE: WHEEL and WHEEL INVALID is only on the SMYD installed in the number 2 position.

(d) Push the MENU key to return to the ANALOG INPUTS? display.

J. SERVO TEST

NOTE: The SERVO TEST can be run from SMYD 1 and SMYD 2. Do the steps below for either SMYD.

SUBTASK 27-32-00-740-014

(1) Push the down arrow switch until SERVO TEST? is displayed.

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SUBTASK 27-32-00-740-015

(2) Push the YES switch to start the servo test.

(a) A series of warning messages will be displayed on the SMYD prior to the activation of rudder commands. Be aware of what will happen next during the test.

(b) There are two subtests in the SERVO TEST selection. They are:

1) ZERO COMMAND?

2) SWEEP TEST?

(c) Use the up arrow and down arrow to display the test.

WARNING: THE RUDDER WILL MOVE WHEN THESE TESTS ARE RUN. DAMAGE TO EQUIPMENT OR INJURY TO PERSONNEL CAN OCCUR. MAKE SURE THERE IN NO EQUIPMENT OR PERSONNEL NEAR THE RUDDER.

(d) Push the YES switch to start the displayed test.

(e) The ZERO COMMAND test does the following:

NOTE: There will be a delay between the displays. The delay can be up to 10 seconds.

1) RUDDER MOVING is displayed.

2) YD CMD (value) is displayed.

3) LVDT (value) is displayed.

4) END ZERO COMMAND? is displayed.

5) Push the YES switch to end the ZERO COMMAND test. The following will be displayed:

a) RUDDER MOVING

b) TEST EXITING

c) ZERO COMMAND?

(f) Push the down arrow to continue the test, the following displays will show:

1) SWEEP TEST?

(g) Push the YES switch to end the test.

(h) The SWEEP TEST? displays the following when it is run:

1) RUD CMD LEFT

2) LVDT (value)

3) RUD CMD RIGHT

4) LVDT (value)

5) RUD CMD ZERO

6) LVDT (value)

(i) If the test passes:

1) TEST PASSED is displayed

(j) If the test failed, TEST FAILED is displayed followed by a message for the first fault. To isolate the fault, do this task: FIM 27-32 TASK 801.

(k) Use the MENU switch to return to the SERVO TEST? display.

K. INPUT SIGNAL INTEGRITY TEST

SUBTASK 27-32-00-740-016

(1) Push the MENU switch to display GROUND TESTS?

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(a) Push the down arrow to display OTHER FUNCTNS?

(b) Push the YES switch.

(c) Push the down arrow to display I/O MONITOR?

(d) Push the YES switch to display ARINC429 INPUTS?

(e) Push the YES switch.

(f) Push the down arrow until CDS DEU BUS? is displayed.

(g) Push the YES switch to display WORD 017?

NOTE: Skip the next three steps if WORD 017? does not display.

(h) Push the YES switch.

(i) Verify the SMYD BITE readout values:

1) Between -39 and -29 when the speedbrake lever is in the FLIGHT DETENT position.

2) Between -3 and +3 when the speedbrake lever is in the DOWN position.

(j) Push the MENU switch.

(k) Push the down arrow until WORD 352? is displayed.

(l) Push the YES switch until BIT 27 is displayed.

(m) Verify the SMYD BITE readout values:

1) 1, when the WING ANTI-ICE switch on the P5 Fwd Overhead panel is ON.

2) 0, when the WING ANTI-ICE switch on the P5 Fwd Overhead panel is OFF.

L. If you are finished with the SMYD tests, return the airplane to normal.

SUBTASK 27-32-00-860-010

(1) Push the ON/OFF switch to turn the SMYD BITE display off.

SUBTASK 27-32-00-410-003

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-32-00-860-011

(3) If electrical power is no longer necessary, do this task: Remove External Power, TASK 24-22-00-860-814.

END OF TASK

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STALL WARNING TEST MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the stall warning test module.

(2) An installation of the stall warning test module.

TASK 27-32-21-000-801

2. Stall Warning Test Module Removal

(Figure 401)

A. Location Zones

Zone	Area
212	Flight Compartment - Right

B. Prepare for the Removal

SUBTASK 27-32-21-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	5	C01204	SMYD-1 CMPTR DC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	5	C01206	SMYD-2 CMPTR DC

C. Stall Warning Test Module Removal

SUBTASK 27-32-21-020-001

(1) Remove the stall warning test module [1]:

(a) Hold thestall warning test module [1].

(b) Release the fasteners which attach the stall warning test module [1] to the aft overhead panel.

(c) Lower the stall warning test module [1] from the aft overhead panel.

(d) Disconnect the electrical connectors from the back of the stall warning test module [1].

(e) Remove the stall warning test module [1].

END OF TASK

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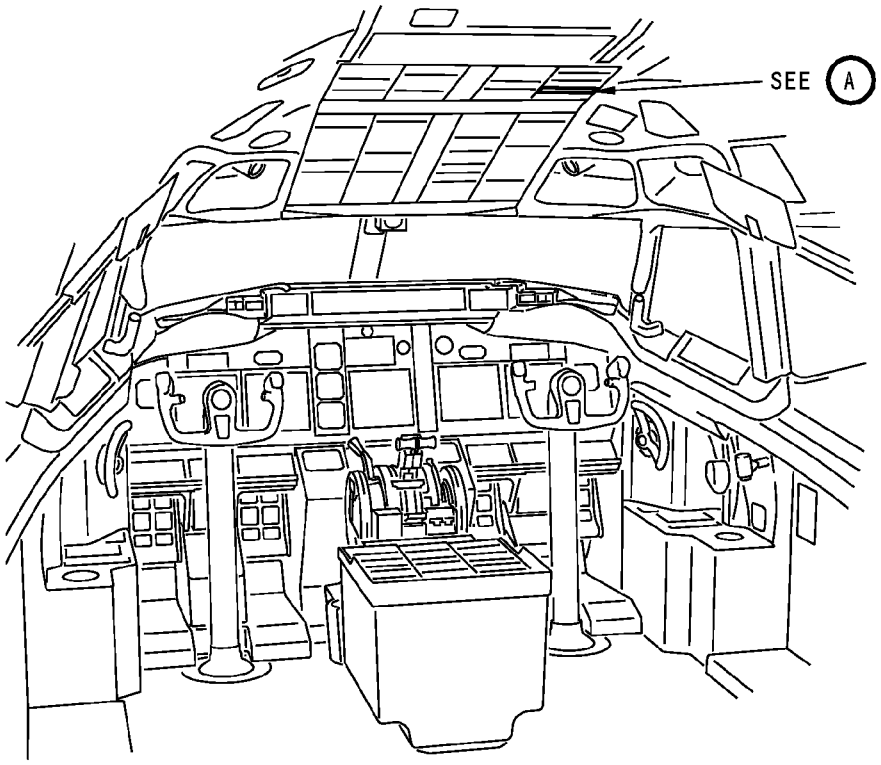

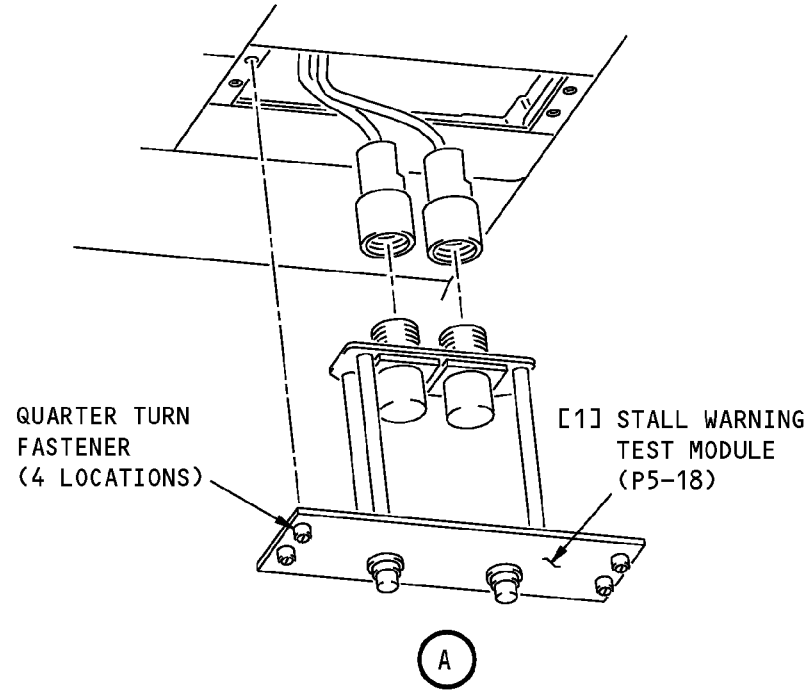

Stall Warning Test Module Installation
Figure 401/27-32-21-990-801

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TASK 27-32-21-400-801

3. Stall Warning Test Module Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Stall warning test module	27-32-21-01B-050	HAP 001-013, 015-026, 028
		27-32-21-02-020	HAP 031-054, 101-999
		27-32-21-03-020	HAP 029, 030

C. Stall Warning Test Module Installation

SUBTASK 27-32-21-420-001

(1) Connect the electrical connectors to the stall warning test module [1].

SUBTASK 27-32-21-420-002

(2) Install the stall warning test module [1] in the aft overhead panel.

SUBTASK 27-32-21-410-001

(3) Tighten the fasteners.

SUBTASK 27-32-21-860-002

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	5	C01204	SMYD-1 CMPTR DC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	5	C01206	SMYD-2 CMPTR DC

D. Stall Warning Test Module Installation Test

SUBTASK 27-32-21-860-003

(1) Do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 27-32-21-860-004

(2) Push and hold the STALL WARNING TEST NO. 1 switch on the module.

NOTE: The amber SPD LIM light on the on-side Primary Flight Display will come on. A YAW DAMPER light on the P5-3 panel with a related MASTER CAUTION light is possible. A SPD LIM annunciation that stays on more than 5 seconds after the stick shaker operates could be a problem.

(a) Make sure that the captain's control column shaker operates.

SUBTASK 27-32-21-860-005

(3) Release the STALL WARNING TEST NO. 1 switch.

(a) Make sure that the shaker stops.

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SUBTASK 27-32-21-860-006

(4) Push and hold the STALL WARNING TEST NO. 2 switch on the module.

(a) Make sure that the first officer's control column shaker operates.

SUBTASK 27-32-21-860-007

(5) Release the STALL WARNING TEST NO. 2 switch.

(a) Make sure that the shaker stops.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-32-21-210-004

(1) If electrical power is not necessary, do this task: Remove External Power, TASK 24-22-00-860-814.

——————— END OF TASK ———————

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CONTROL COLUMN SHAKER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Removal of the control column shaker.

(2) Installation of the control column shaker.

TASK 27-32-31-000-801

2. Control Column Shaker Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Prepare for the Removal

SUBTASK 27-32-31-860-001

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	4	C01392	STICK SHAKER LEFT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	6	C01393	STICK SHAKER RIGHT

C. Shaker Removal

SUBTASK 27-32-31-020-001

(1) Disconnect the electrical connector from the shaker [1].

SUBTASK 27-32-31-020-002

(2) Remove the two nuts [4], two bolts [5]], two shims [3], and two spacers [2] which attach the shaker [1] to the strap on the control column.

SUBTASK 27-32-31-020-003

(3) Remove the shaker [1] from the control column.

——————— END OF TASK ———————

TASK 27-32-31-400-801

3. Control Column Shaker Installation

(Figure 401)

A. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Shaker	27-32-31-01-035	HAP ALL

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B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Shaker Installation

SUBTASK 27-32-31-420-001

(1) Attach the shaker [1] to the strap on the control column with the bolts [5], nuts [4], shims [3], and spacers [2] .

SUBTASK 27-32-31-420-002

(2) Tighten the bolts [5] to 20-25 pound-inches.

SUBTASK 27-32-31-420-003

(3) Add or remove shims [3] as necessary between the shaker [1] and strap to get a snug fit.

SUBTASK 27-32-31-860-002

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	4	C01392	STICK SHAKER LEFT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	6	C01393	STICK SHAKER RIGHT

D. Shaker Installation Test

SUBTASK 27-32-31-710-001

(1) Do a post-installation check of the shaker.

(a) Push and hold the STALL WARNING TEST NO. 1 switch (for the captain's shaker) or NO. 2 switch (for the first officer's shaker) on the P5 panel.

(b) Make sure the applicable shaker operates.

(c) Release the switch.

(d) Make sure that the shaker [1] stops.

END OF TASK

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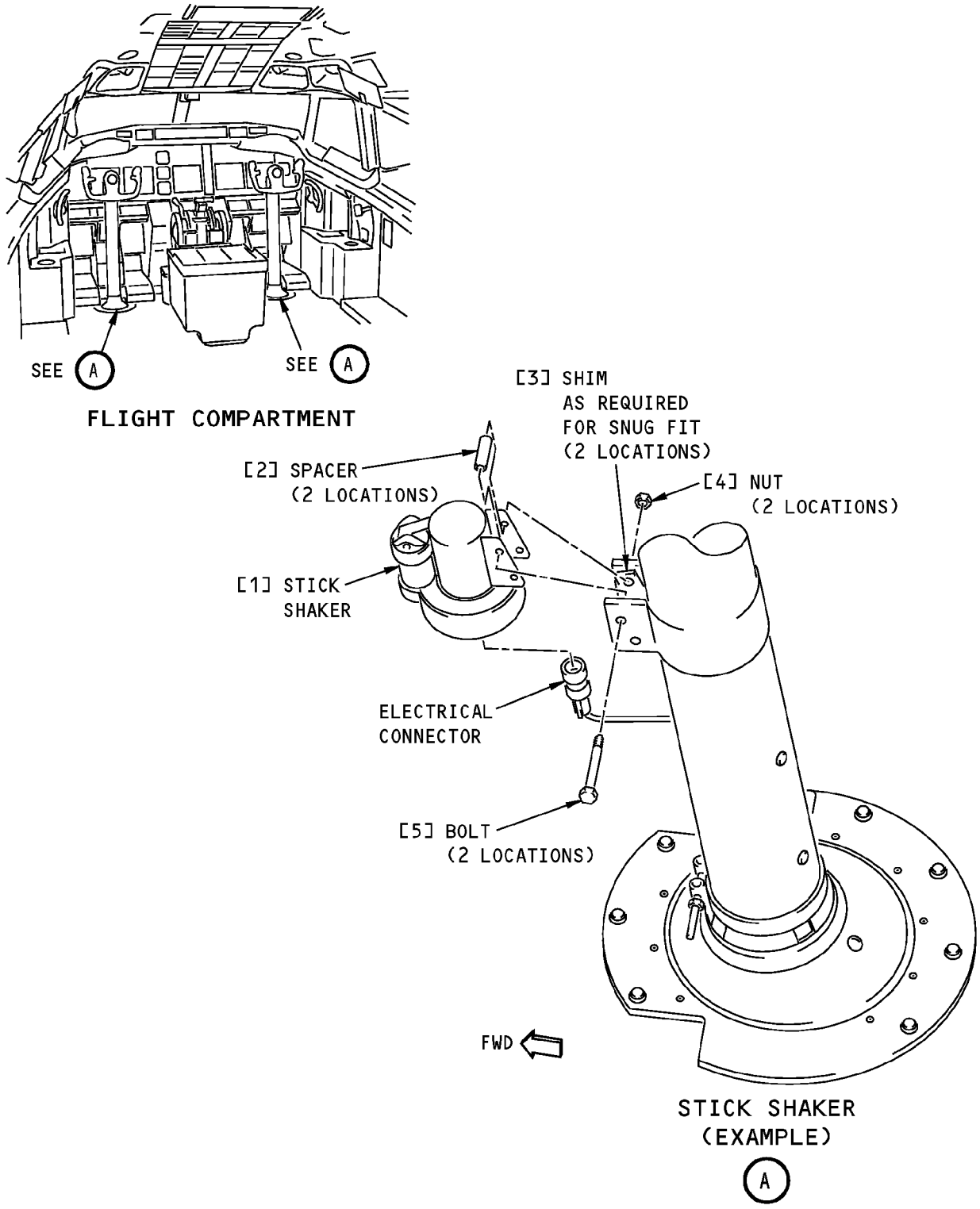

Control Column Shaker Installation
Figure 401/27-32-31-990-801

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STALL MANAGEMENT YAW DAMPER (SMYD) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Removal of the stall management yaw damper.

(2) Installation of the stall management yaw damper.

TASK 27-32-42-000-801

2. Stall Management Yaw Damper (SMYD) Removal

(Figure 401)

A. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)
20-40-12-000-802	ESDS Handling for Metal Encased Unit Removal (P/B 201)
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Removal

SUBTASK 27-32-42-860-001

(1) If you will remove the number 1 SMYD, do this step:

Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	4	C01392	STICK SHAKER LEFT
E	5	C01204	SMYD-1 CMPTR DC
E	6	C01205	SMYD-1 SNSR EXC AC

SUBTASK 27-32-42-860-002

(2) If you will remove the number 2 SMYD, do this step:

Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC
B	5	C01206	SMYD-2 CMPTR DC
B	6	C01393	STICK SHAKER RIGHT

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SUBTASK 27-32-42-010-001

(3) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

E. SMYD Removal

SUBTASK 27-32-42-910-001

CAUTION: DO NOT TOUCH THE SMYD BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE SMYD.

(1) Do the necessary steps to protect the SMYD from electrostatic discharge. To do this, do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 27-32-42-020-001

(2) Loosen the SMYD hold down knob.

NOTE: Refer to (E/E Box Removal, TASK 20-10-07-000-801) for further details on the E/E box removal.

SUBTASK 27-32-42-020-002

(3) Carefully move the SYMD [1] out from the tray and remove the SYMD [1].

NOTE: Move the front of the SMYD from side to side approximately 1/8 inch to help disconnect the SMYD from the electrical connector.

SUBTASK 27-32-42-420-001

CAUTION: DO NOT TOUCH THE CONDUCTOR PINS OR OTHER CONDUCTORS ON THE SMYD. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE SMYD.

(4) Install protective covers on the SMYD connectors. To do this, do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804.

SUBTASK 27-32-42-020-003

(5) Cover the electrical connectors of the shelf with plastic caps.

——————— END OF TASK ———————

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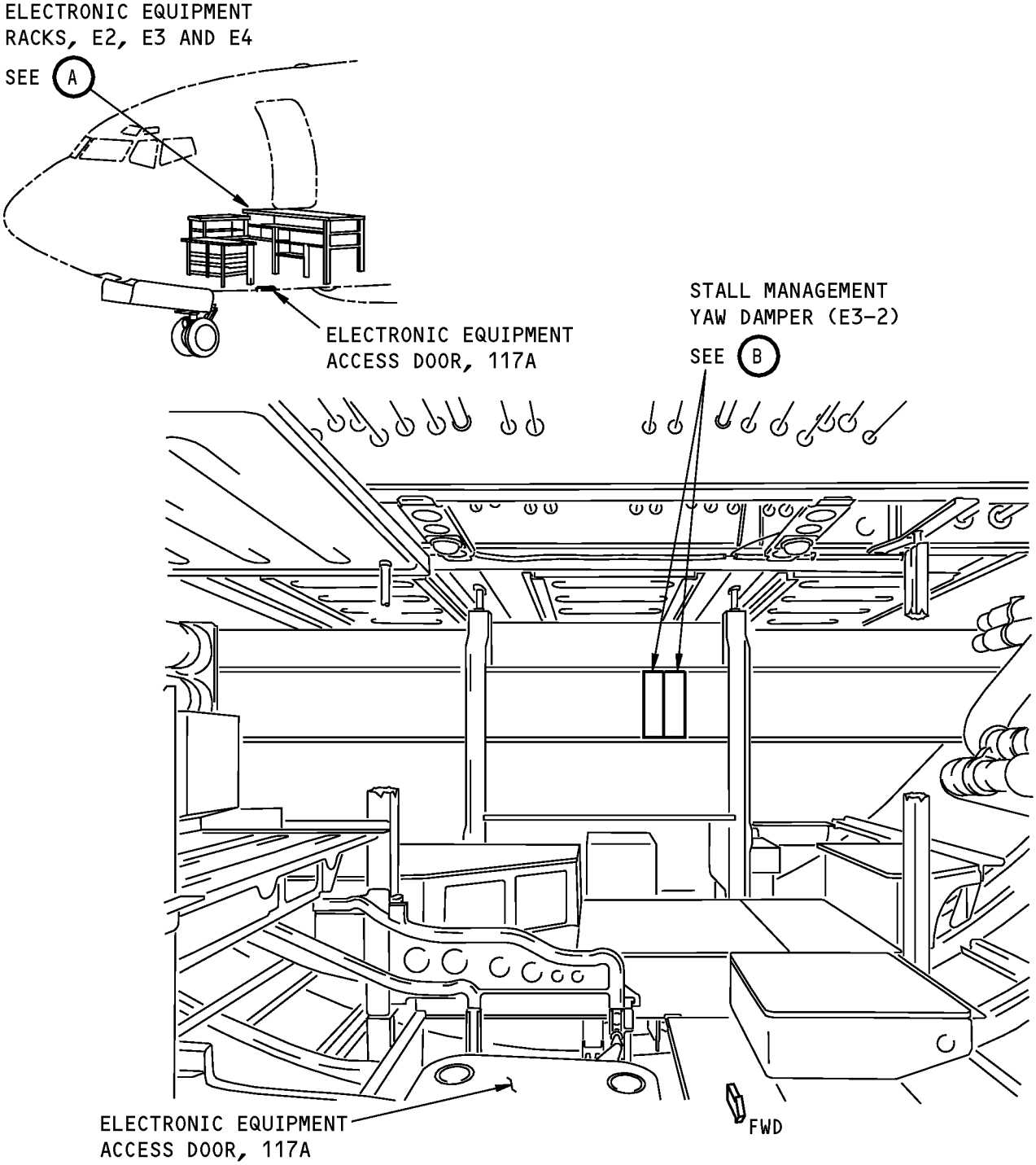

Stall Management Yaw Damper Installation
Figure 401 (Sheet 1 of 2)/27-32-42-990-801

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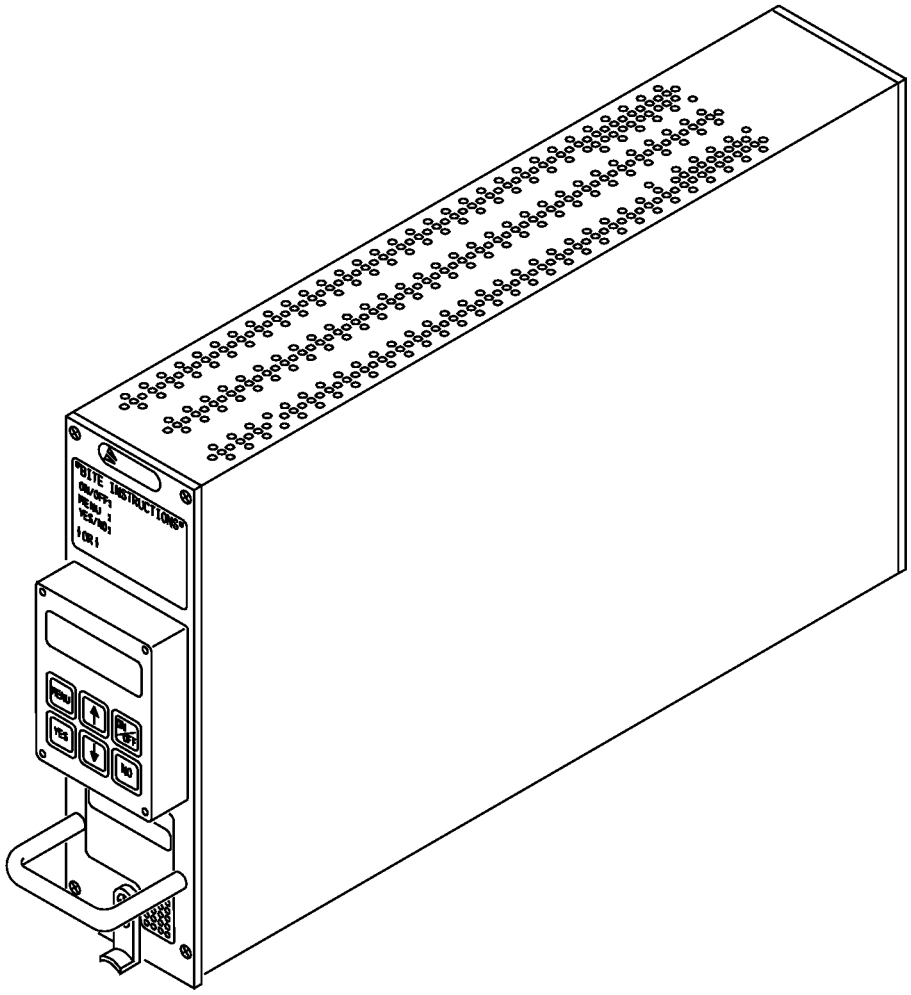

[1] STALL MANAGEMENT YAW DAMPER
(EXAMPLE)

B

Stall Management Yaw Damper Installation
Figure 401 (Sheet 2 of 2)/27-32-42-990-801

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TASK 27-32-42-400-801

3. Stall Management Yaw Damper (SMYD) Installation

(Figure 401)

A. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
20-40-12-000-804	Conductive Dust Cap and Conductor Cover Removal (P/B 201)
20-40-12-400-802	ESDS Handling for Metal Encased Unit Installation (P/B 201)
22-11-00-740-806	BITE Library Test (P/B 501)
24-22-00-860-813	Supply External Power (P/B 201)
27-32-00-740-803	Stall Management Yaw Damper (SMYD) BITE Test - Ground Test (P/B 501)
34-21-03-400-801	IRS Mode Select Unit Installation (P/B 401)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	SYMD	27-32-42-01-005	HAP 001-011
		27-32-42-01-050	HAP 001-011
		27-32-42-01-200	HAP 001-011
		27-32-42-02-005	HAP 012, 013, 015-026
		27-32-42-02-070	HAP 012, 013, 015-026
		27-32-42-02-200	HAP 012, 013, 015-026, 028-040, 042, 043, 101
		27-32-42-03-005	HAP 102-999
		27-32-42-04-005	HAP 041, 044-054

C. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Installation

SUBTASK 27-32-42-860-003

(1) If you will install the number 1 SMYD, do this step:

Make sure that these circuit breakers are open and have safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	4	C01392	STICK SHAKER LEFT
E	5	C01204	SMYD-1 CMPTR DC
E	6	C01205	SMYD-1 SNSR EXC AC

SUBTASK 27-32-42-860-004

(2) If you will install the number 2 SMYD, do this step:

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Make sure that these circuit breakers are open and have safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC
B	5	C01206	SMYD-2 CMPTR DC
B	6	C01393	STICK SHAKER RIGHT

F. SMYD Installation

SUBTASK 27-32-42-910-002

CAUTION: DO NOT TOUCH THE SMYD BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE SMYD.

(1) Do the necessary steps to protect the SMYD from electrostatic discharge. To do this, do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 27-32-42-210-001

(2) Make sure the SMYD and shelf connectors are clean.

SUBTASK 27-32-42-020-004

(3) Remove any protective caps or bags from SMYD and shelf. To do this, do this task: Conductive Dust Cap and Conductor Cover Removal, TASK 20-40-12-000-804.

SUBTASK 27-32-42-420-002

CAUTION: ELECTRICAL PINS ON THE SMYD CONNECTOR AND TRAY CONNECTOR MUST NOT BE BENT OR DAMAGED. INSTALLATION OF A SMYD BOX WITH DAMAGED PINS COULD RESULT IN DAMAGE TO THE SMYD, TRAY ELECTRICAL CONNECTOR, OR SYSTEM COMPONENTS.

(4) Slide the SYMD [1] into the shelf.

NOTE: Refer to (E/E Box Installation, TASK 20-10-07-400-801) for further details on the E/E box installation.

SUBTASK 27-32-42-820-001

(5) Tighten the hold down knob.

G. Stall Management Yaw Damper Module Installation Test

SUBTASK 27-32-42-860-005

(1) Supply electrical power to the airplane. To do this, do this task: Supply External Power, TASK 24-22-00-860-813.

(a) Make sure the IRU is operating. do this task: IRS Mode Select Unit Installation, TASK 34-21-03-400-801

(b) Make sure the FMC is powered and has good weight data entered. do this task: BITE Library Test, TASK 22-11-00-740-806

SUBTASK 27-32-42-860-006

(2) For the applicable SMYD, do this step:

Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	4	C01392	STICK SHAKER LEFT
E	5	C01204	SMYD-1 CMPTR DC

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Row	Col	Number	Name
E	6	C01205	SMYD-1 SNSR EXC AC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC
B	5	C01206	SMYD-2 CMPTR DC
B	6	C01393	STICK SHAKER RIGHT

SUBTASK 27-32-42-740-001

(3) Push the NO. 1 STALL WARNING TEST switch.

(a) Make sure the captain's shaker operates.

SUBTASK 27-32-42-740-002

(4) Push the NO. 2 STALL WARNING TEST switch.

(a) Make sure the first officer's shaker operates.

SUBTASK 27-32-42-740-003

(5) Push the MASTER CAUTION switch.

(a) Make sure the AUTOSLAT FAIL light is off.

SUBTASK 27-32-42-740-004

(6) Do the SMYD EXISTING FAULTS test.

(a) Turn on the SMYD BITE by pushing the ON/OFF switch.

NOTE: EXISTING FAULT? should show.

(b) Push the YES switch.

(c) Make sure NO FAULTS shows on the display.

SUBTASK 27-32-42-740-005

(7) Do the SWEEP TEST on the SMYD. To do the test, do this task: Stall Management Yaw Damper (SMYD) BITE Test - Ground Test, TASK 27-32-00-740-803.

NOTE: This test is part of the SERVO TEST which is part of the SMYD GROUND TEST.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-32-42-860-007

(1) Push the ON/OFF switch on the SMYD BITE panel to turn the SMYD BITE off.

SUBTASK 27-32-42-410-001

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

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HORIZONTAL STABILIZER TRIM CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Stabilizer Control Cable and Chain Adjustment - Use this task to adjust the horizontal stabilizer control cables and chain.

(2) Stabilizer Manual Trim and Trim Indicator Test - Use this test to make sure the horizontal stabilizer moves to the correct position when it is operated from the stabilizer trim wheel. This test also makes sure that the stabilizer trim indicator operates correctly.

(3) Stabilizer Trim Control System Friction Test - Use this test to check the force to operate the horizontal stabilizer.

(4) Stabilizer Electric Trim System Test - Use this test to make sure the horizontal stabilizer moves at the correct speed when it is operated from the STAB TRIM switches.

(5) Stabilizer Trim Wheel Free Movement Test - Use this test to test the amount of horizontal stabilizer movement after the STAB TRIM switches are released.

(6) Stabilizer Trim Limit Switches Test - Use this test to make sure the stabilizer trim limit switches operate correctly.

(7) Stabilizer Clutch Friction System Test - Use this test to make sure that the correct force will disconnect the manual clutch.

(8) Column Actuated Stabilizer Trim Cutout Switch Override Test - Use this test to make sure the horizontal stabilizer follows the commands from the STAB TRIM switches, even though the column actuated STAB TRIM cutout switches give the opposite command.

(9) Stabilizer Trim Secondary Brake System Test - Use this test to make sure the stabilizer secondary brake can prevent movement of the horizontal stabilizer.

(10) Stabilizer Trim Cutout Test - Use this procedure to make sure the stabilizer trim cutout switch operates correctly. The stabilizer trim cutout switch stops the horizontal stabilizer when the control column command is opposite from the STAB TRIM switches.

(11) Column Cutout Switches Test - Use this test to make sure the captain's and first officer's column cutout switches operate correctly.

TASK 27-41-00-820-801

2. Stabilizer Control Cable and Chain Adjustment

(Figure 501)

A. General

(1) Use this task to adjust the horizontal stabilizer control cables and chain.

(2) Before you do cable adjustment, permit a minimum of one hour at a constant ambient temperature of ±5 degrees F (±2.8 degrees C) for the airframe temperature to become stable.

(a) The cable tension values will not be correct when there are temperature differences along the cable run.

(3) If the cables need to be replaced, do this task: Stabilizer Control Cable Removal, TASK 27-41-82-000-801.

B. References

Reference	Title
27-41-82-000-801	Stabilizer Control Cable Removal (P/B 401)

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C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1554	Tensiometer - Cable (40-600 LB) (Part #: ACM-600, Supplier: 13331, A/P Effectivity: 737-ALL) (Part #: T5-8008-106-00, Supplier: 0N8U4, A/P Effectivity: 737-ALL) (Part #: T60-1001-C9-1A, Supplier: 0N8U4, A/P Effectivity: 737-ALL)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door

F. Prepare for the Adjustment

SUBTASK 27-41-00-010-001

(1) Open these access panels:

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-00-020-001

WARNING: DO NOT OPERATE THE STABILIZER ELECTRICALLY UNTIL YOU ADJUST THE STABILIZER TRIM LIMIT SWITCHES, CABLES, AND CHAIN. THE HORIZONTAL STABILIZER CAN MOVE QUICKLY WHEN YOU OPERATE THE STABILIZER TRIM LIMIT SWITCHES. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Disconnect the flexible shaft [8] from the stabilizer forward control mechanism (Figure 501).

SUBTASK 27-41-00-020-002

(3) Remove the pins [14] from the connector link [13] to disconnect the chain [10].

SUBTASK 27-41-00-020-003

(4) Remove the nut [6], washer [5], washer [4], bolt [3] to disconnect the upper turnbuckle [2] from the stabilizer forward mechanism.

SUBTASK 27-41-00-820-001

(5) Adjust the lower turnbuckle [9] on the stabilizer forward mechanism to its maximum length 0.50 in. (12.7 mm) minimum thread engagement on each rod end).

NOTE: This will move the forward drum aft.

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G. Procedure

CAUTION: MAKE SURE THAT THE STABILIZER TRIM MOTOR HAS A MINIMUM 13 MINUTES OFF FOR EACH 2 MINUTES OPERATION. IF YOU DO NOT GIVE SUFFICIENT TIME OFF TO THE STABILIZER TRIM MOTOR, DAMAGE TO THE MOTOR CAN OCCUR.

SUBTASK 27-41-00-710-001

(1) Adjust the tension of the cable STA and cable STB:

(a) If you installed new cables, then do these steps to stretch the cables:

NOTE: If you are adjusting the tension on existing cables (cables that were already on the aircraft), you do not need to do these steps. Go to the steps to adjust the cable STA and cable STB to their correct rigging tension.

1) Adjust the lower turnbuckle [9] to get the cable tension of 350 ±50 lbf (1557 ±223 N).

a) Operate the stabilizer system through a full cycle.

NOTE: You will need to use the control wheel switches to move the stabilizer since the stab trim control wheel chain has been disconnected.

b) Put the cables at the center of the forward cable drum.

c) Tighten the lower turnbuckle [9].

d) Use the 40 - 600 lb cable tensiometer, COM-1554 or 40 - 600 lb cable tensiometer, COM-1554 to make sure the cable tension is at 350 ±50 lbf (1557 ±223 N).

e) Operate the stabilizer system through a full cycle.

f) Put the cables at the center of the forward cable drum.

g) Make sure the cable tension stays at 350 ±50 lbf (1557 ±223 N).

h) Operate the stabilizer system through 5 full cycles.

i) Make sure the cable tension stays at 350 ±50 lbf (1557 ±223 N).

(b) Do these steps to adjust cable STA and cable STB to the correct rigging tension:

1) Operate the stabilizer system through a full cycle.

NOTE: You will need to use the control wheel switches to move the stabilizer since the stab trim control wheel chain has been disconnected.

2) Put the cables at the center of the forward cable drum.

3) Adjust the lower turnbuckle [9] to get the cable rigging tension as shown in the table below (Table 501):

Table 501/27-41-00-993-807

Temp Deg F (C)	Low Tolerance Lbs (newtons)	High Tolerance Lbs (newtons)
110 (43.3)	137 (609)	187 (832)
109 (42.8)	136 (605)	186 (827)
108 (42.2)	136 (605)	186 (827)
107 (41.7)	136 (605)	186 (827)
106 (41.1)	135 (601)	185 (823)
105 (40.5)	135 (601)	185 (823)
104 (40.0)	134 (596)	184 (818)

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(Continued)

Temp Deg F (C)	Low Tolerance Lbs (newtons)	High Tolerance Lbs (newtons)
103 (39.4)	134 (596)	184 (818)
102 (38.9)	134 (596)	184 (818)
101 (38.3)	133 (592)	183 (814)
100 (37.8)	133 (592)	183 (814)
99 (37.2)	132 (587)	182 (810)
98 (36.7)	132 (587)	182 (810)
97 (36.1)	131 (583)	181 (805)
96 (35.5)	131 (583)	181 (805)
95 (35.0)	131 (583)	181 (805)
94 (34.4)	130 (578)	180 (801)
93 (33.9)	130 (578)	180 (801)
92 (33.3)	129 (574)	179 (796)
91 (32.8)	129 (574)	179 (796)
90 (32.2)	128 (569)	178 (792)
89 (31.7)	128 (569)	178 (792)
88 (31.1)	128 (569)	178 (792)
87 (30.5)	127 (565)	177 (787)
86 (30.0)	127 (565)	177 (787)
85 (29.4)	126 (560)	176 (783)
84 (28.9)	126 (560)	176 (783)
83 (28.3)	126 (560)	176 (783)
82 (27.8)	125 (556)	175 (778)
81 (27.2)	125 (556)	175 (778)
80 (26.7)	124 (552)	174 (774)
79 (26.1)	124 (552)	174 (774)
78 (25.5)	123 (547)	173 (770)
77 (25.0)	123 (547)	173 (770)
76 (24.4)	123 (547)	173 (770)
75 (23.9)	122 (543)	172 (765)
74 (23.3)	122 (543)	172 (765)
73 (22.8)	121 (538)	171 (761)

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(Continued)

Temp Deg F (C)	Low Tolerance Lbs (newtons)	High Tolerance Lbs (newtons)
72 (22.2)	121 (538)	171 (761)
71 (21.7)	120 (534)	170 (756)
70 (21.1)	120 (534)	170 (756)
69 (20.5)	120 (534)	170 (756)
68 (20.0)	119 (529)	169 (752)
67 (19.4)	119 (529)	169 (752)
66 (18.9)	118 (525)	168 (747)
65 (18.3)	118 (525)	168 (747)
64 (17.8)	118 (525)	168 (747)
63 (17.2)	117 (520)	167 (743)
62 (16.7)	117 (520)	167 (743)
61 (16.1)	116 (516)	166 (738)
60 (15.5)	116 (516)	166 (738)
59 (15.0)	115 (512)	165 (734)
58 (14.4)	115 (512)	165 (734)
57 (13.9)	115 (512)	165 (734)
56 (13.3)	114 (507)	164 (730)
55 (12.8)	114 (507)	164 (730)
54 (12.2)	113 (503)	163 (725)
53 (11.7)	113 (503)	163 (725)
52 (11.1)	112 (498)	162 (721)
51 (10.5)	112 (498)	162 (721)
50 (10.0)	112 (498)	162 (721)
49 (9.4)	111 (494)	161 (716)
48 (8.9)	111 (494)	161 (716)
47 (8.3)	110 (489)	160 (712)
46 (7.8)	110 (489)	160 (712)
45 (7.2)	109 (485)	159 (707)
44 (6.7)	109 (485)	159 (707)
43 (6.1)	109 (485)	159 (707)
42 (5.5)	108 (480)	158 (703)

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(Continued)

Temp Deg F (C)	Low Tolerance Lbs (newtons)	High Tolerance Lbs (newtons)
41 (5.0)	108 (480)	158 (703)
40 (4.4)	107 (476)	157 (698)
39 (3.9)	107 (476)	157 (698)
38 (3.3)	107 (476)	157 (698)
37 (2.8)	106 (472)	156 (694)
36 (2.2)	106 (472)	156 (694)
35 (1.7)	105 (467)	155 (689)
34 (1.1)	105 (467)	155 (689)
33 (0.5)	104 (463)	154 (685)
32 (0.0)	104 (463)	154 (685)
31 (-0.5)	104 (463)	154 (685)
30 (-1.1)	103 (458)	153 (681)
29 (-1.7)	103 (458)	153 (681)
28 (-2.2)	102 (454)	152 (676)
27 (-2.8)	102 (454)	152 (676)
26 (-3.3)	101 (449)	151 (672)
25 (-3.9)	101 (449)	151 (672)
24 (-4.4)	101 (449)	151 (672)
23 (-5.0)	100 (445)	150 (667)
22 (-5.5)	100 (445)	150 (667)
21 (-6.1)	99 (440)	149 (663)
20 (-6.7)	99 (440)	149 (663)
19 (-7.2)	99 (440)	149 (663)
18 (-7.8)	98 (436)	148 (658)
17 (-8.3)	98 (436)	148 (658)
16 (-8.9)	97 (431)	147 (654)
15 (-9.4)	97 (431)	147 (654)
14 (-10.0)	96 (427)	146 (649)
13 (-10.5)	96 (427)	146 (649)
12 (-11.1)	96 (427)	146 (649)
11 (-11.7)	95 (423)	145 (645)

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(Continued)

Temp Deg F (C)	Low Tolerance Lbs (newtons)	High Tolerance Lbs (newtons)
10 (-12.2)	95 (423)	145 (645)
09 (-12.8)	94 (418)	144 (641)
08 (-13.3)	94 (418)	144 (641)
07 (-13.9)	93 (414)	143 (636)
06 (-14.4)	93 (414)	143 (636)
05 (-15.0)	93 (414)	143 (636)
04 (-15.5)	92 (409)	142 (632)
03 (-16.1)	92 (409)	142 (632)
02 (-16.7)	91 (405)	141 (627)
01 (-17.2)	91 (405)	141 (627)
00 (-17.8)	91 (405)	141 (627)
-01 (-18.3)	90 (400)	140 (623)
-02 (-18.9)	90 (400)	140 (623)
-03 (-19.4)	89 (396)	139 (618)
-04 (-20.0)	89 (396)	139 (618)
-05 (-20.5)	88 (391)	138 (614)
-06 (-21.1)	88 (391)	138 (614)
-07 (-21.7)	88 (391)	138 (614)
-08 (-22.2)	87 (387)	137 (609)
-09 (-22.8)	87 (387)	137 (609)
-10 (-23.3)	86 (383)	136 (605)
-11 (-23.9)	86 (383)	136 (605)
-12 (-24.4)	85 (378)	135 (601)
-13 (-25.0)	85 (378)	135 (601)
-14 (-25.5)	85 (378)	135 (601)
-15 (-26.1)	84 (378)	134 (601)
-16 (-26.7)	84 (378)	134 (601)
-17 (-27.2)	83 (369)	133 (592)
-18 (-27.8)	83 (369)	133 (592)
-19 (-28.3)	82 (365)	132 (587)
-20 (-28.9)	82 (365)	132 (587)

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(Continued)

Temp Deg F (C)	Low Tolerance Lbs (newtons)	High Tolerance Lbs (newtons)
-21 (-29.4)	82 (365)	132 (587)
-22 (-30.0)	81 (360)	131 (583)
-23 (-30.5)	81 (360)	131 (583)
-24 (-31.1)	80 (356)	130 (578)
-25 (-31.7)	80 (356)	130 (578)
-26 (-32.2)	80 (356)	130 (578)
-27 (-32.8)	79 (351)	129 (574)
-28 (-33.3)	79 (351)	129 (574)
-29 (-33.9)	78 (347)	128 (569)
-30 (-34.4)	78 (347)	128 (569)
-31 (-35.0)	77 (343)	127 (565)
-32 (-35.5)	77 (343)	127 (565)
-33 (-36.1)	77 (343)	127 (565)
-34 (-36.7)	76 (338)	126 (560)
-35 (-37.2)	76 (338)	126 (560)
-36 (-37.8)	75 (334)	125 (556)
-37 (-38.3)	75 (334)	125 (556)
-38 (-39.4)	74 (329)	124 (552)
-39 (-38.9)	74 (329)	124 (552)
-40 (-40.0)	74 (329)	124 (552)

4) Operate the stabilizer system through 5 full cycles.

   NOTE: You will need to use the control wheel switches to move the stabilizer since the stab trim control wheel chain has been disconnected.

5) Put the cables at the center of the forward cable drum.

6) Do the following to verify that the stabilizer trim cable tension is correct:

   a) Use the 40 - 600 lb cable tensiometer, COM-1554 or 40 - 600 lb cable tensiometer, COM-1554 to make sure the cable tension is the same as the tension in (Table 501).

   b) If the cable tension is not correct, adjust the lower turnbuckle [9] to get the correct cable rigging tension shown in (Table 501).

7) Make sure that the lower turnbuckle [9] length is 11.00 in. (279.4 mm) – 15.25 in. (387.3 mm) after the adjustment.

8) Make sure that the horizontal stabilizer moves freely through the full travel to the airplane nose down limit.

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SUBTASK 27-41-00-820-002

(2) Adjust the chain [10] movement:

(a) Install the chain [10] over the two idler sprockets [11] and forward mechanism sprocket [12].

(b) Install the pins [14] on the outboard side to connect the chain [10].

(c) Apply a 5 lbf (22.2 N) force at approximately 4.5 ± 1.0 inches (114 ±25 mm) from where the chain [10] touches the forward mechanism sprocket [12].

(d) Make sure the movement of the chain [10] is 0.25 ±0.07 in. (6.4 ±1.8 mm).

(e) If it is necessary, adjust the forward support link [1] and aft support link [7] to get the correct chain movement.

(f) Measure the eyebolt thread extensions or "A" dimension to adjust the aft support link [7] and forward support link [1] for the correct chain movement.

1) Measure the eyebolt thread extensions (Figure 501):

a) On the forward support link [1], measure the length of the eyebolt thread extension [16] above the upper adjusting nut [15].

b) On the aft support links [7], measure the length of the eyebolt thread extension [20] below the upper adjusting nuts [18].

c) Make sure that the lengths of the two aft eyebolt thread extensions [20] and the one forward eyebolt thread extension [16] are in ±0.12 inch (±3.1 mm) of each other (Figure 501) (Views A-A and B-B).

2) Measure the "A" dimensions of the aft support links [7] and forward support link [1] (Figure 501):

NOTE: The "A" dimension is the measurement of the aft support links and forward support link between two connections.

a) On the aft support links [7], measure from the center of the aft support bolts to the threaded stud on the left and right aft support links [7].

b) On the forward support link [1], measure from the center of the mounting bolt to the center of the bolt through the lower end of the eyebolt.

c) Make sure that the lengths of the three "A" dimensions are in ±0.06 inch (±1.5 mm) of each other (Figure 501) (View A).

SUBTASK 27-41-00-420-003

(3) Connect the flexible shaft [8] to the forward mechanism.

(a) Use the bar, SPL-1677 to set the "B" dimension to the 39.89 ±0.03 in. (1013.2 ±0.8 mm) (Figure 501).

(b) Turn the flexible shaft [8] until the stabilizer position indicator is at 4 units of trim (Figure 501).

(c) Connect the flexible shaft [8] to the forward mechanism.

SUBTASK 27-41-00-420-004

(4) Install the upper turnbuckle [2] to the forward mechanism.

(a) Adjust the upper turnbuckle [2] until you can install the bolt [3] freely through the rod end at the forward mechanism.

(b) Install the washer [4], washer [5], and nut [6] to the bolt [3].

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SUBTASK 27-41-00-710-015

(5) Operate the stabilizer system to the NOSE UP stop (stabilizer leading edge moves down) and do a check for the conditions that follow:

(a) The clearance between the cables and cable guard is not less than 0.25 in. (6.4 mm) (Figure 501) (View D).

NOTE: The cable guard is installed at station 237 in the bulkhead.

1) Adjust the cable guard, if it is necessary.

(b) The clearance between the cables and wire raceway on top of the nose wheel well is not less than 0.35 in. (8.9 mm).

(c) The cables do not touch the pulley flanges.

(d) The cables are in ±2 degrees of the plane of the pulleys.

(e) The clearance between the aileron control cable and the chain at the forward mechanism sprocket [12] is not less than 0.75 in. (19.0 mm).

(f) The pulleys turn freely with no interference from the cable guards.

(g) The cables are installed through the grommets and the air pressure seals.

(h) The cables do not touch the cable guards, rub strips, or grommets.

(i) The clearance between the cables and adjacent structure is not less than 0.20 in. (5.1 mm).

SUBTASK 27-41-00-420-005

(6) Install lockwires to the upper turnbuckle [2] and lower turnbuckle [9].

SUBTASK 27-41-00-410-001

(7) Close these access panels:

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door

END OF TASK

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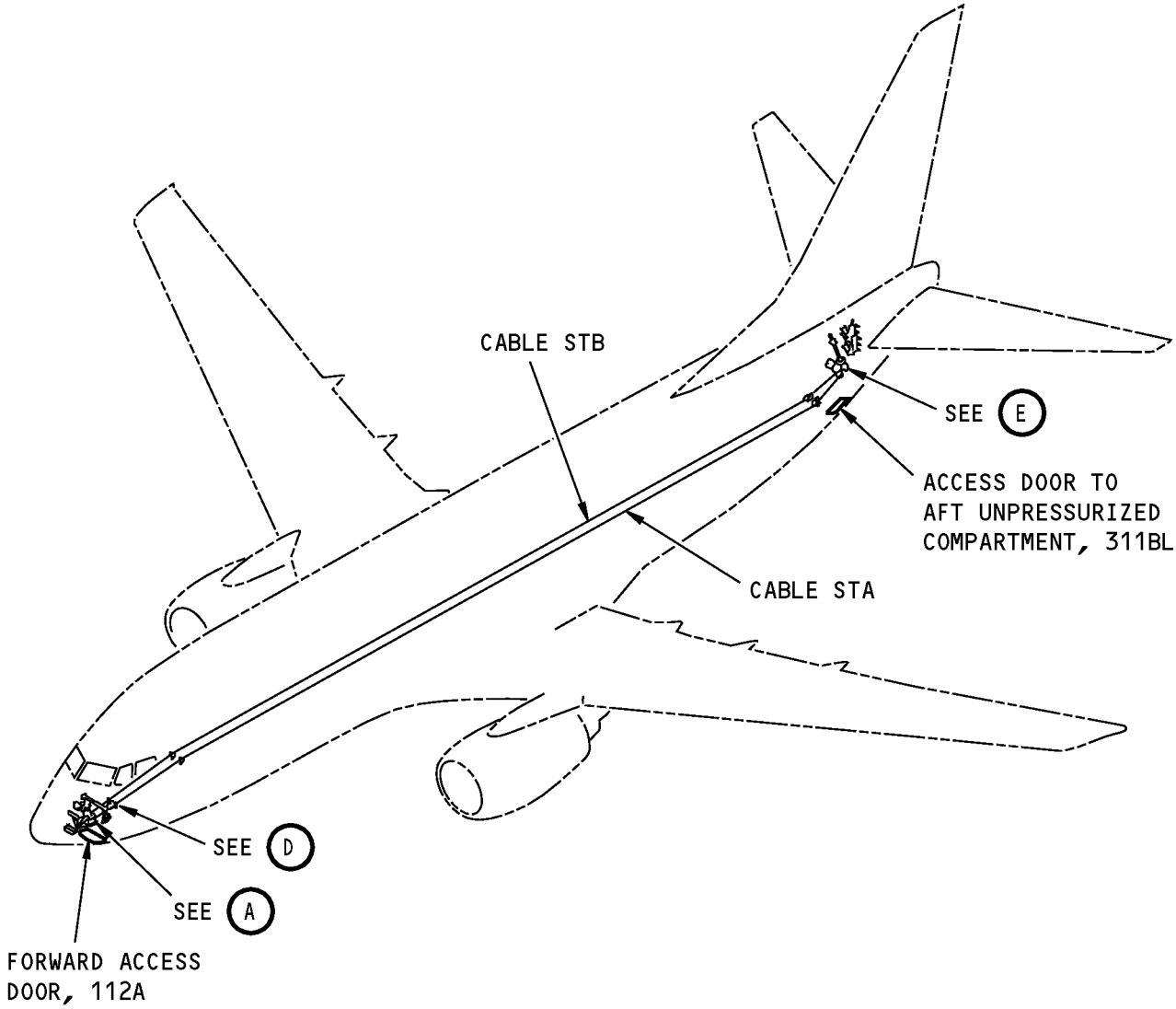

Stabilizer Control Cable and Chain Adjustment
Figure 501 (Sheet 1 of 5)/27-41-00-990-801

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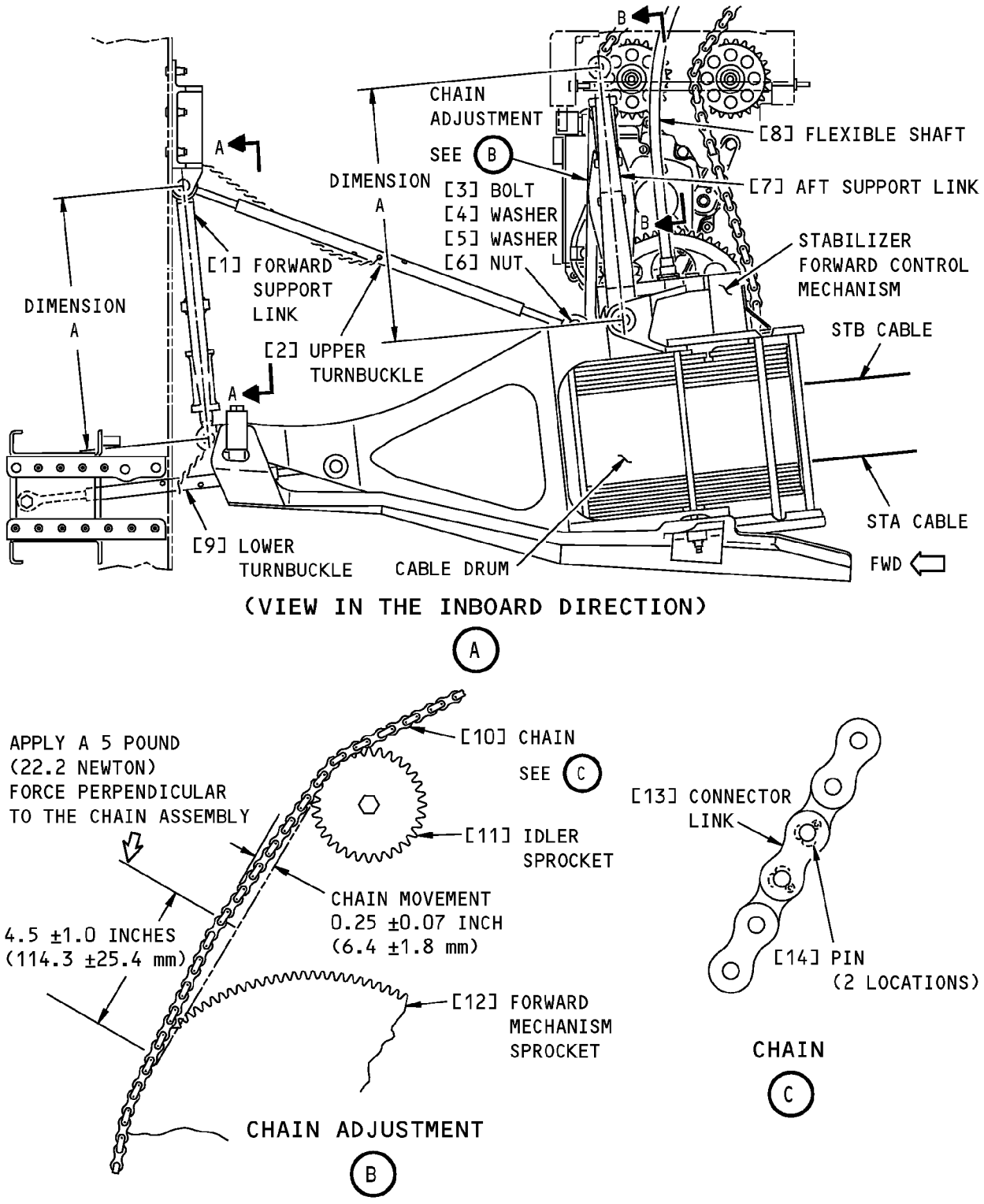

Stabilizer Control Cable and Chain Adjustment
Figure 501 (Sheet 2 of 5)/27-41-00-990-801

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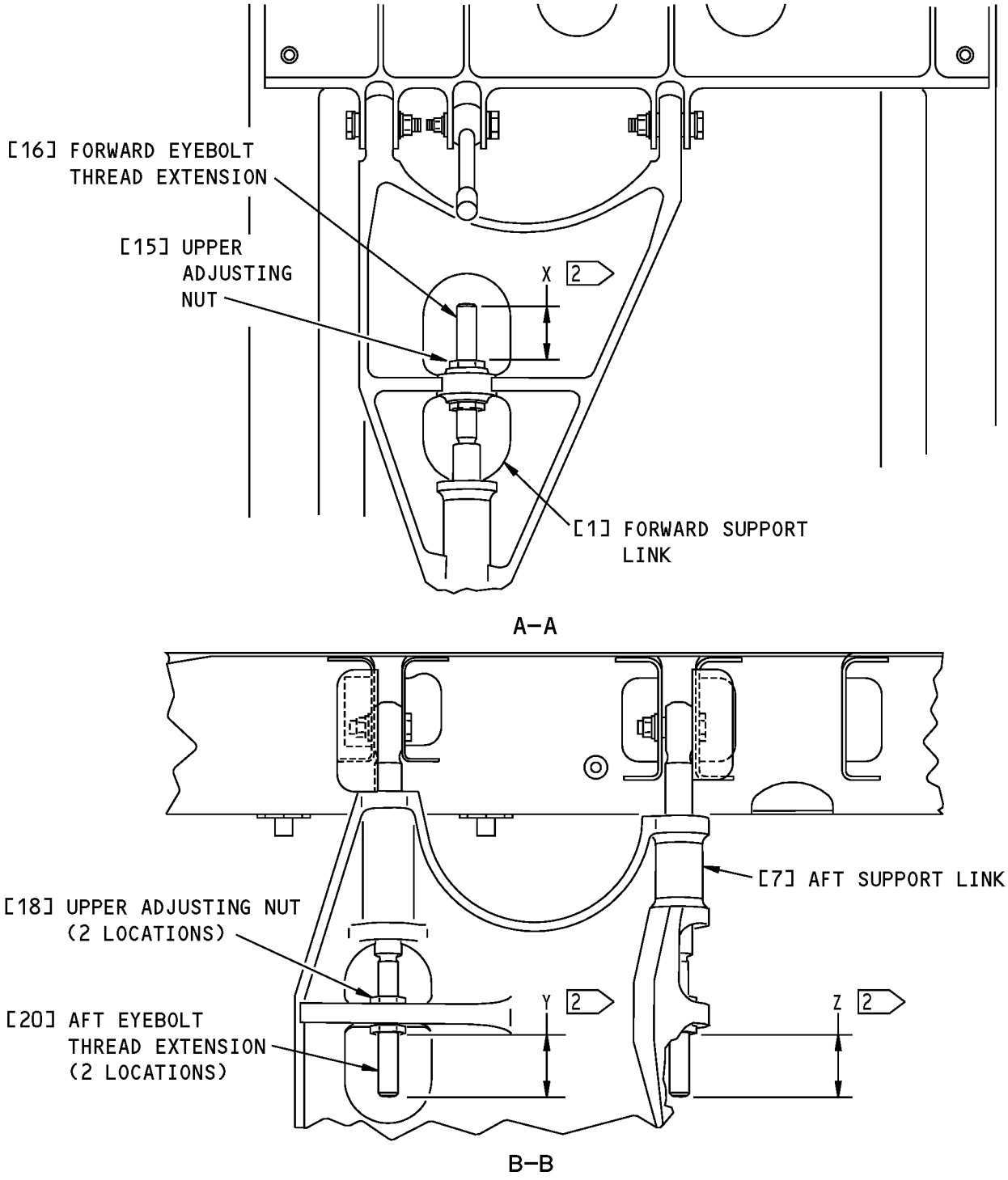

2 DIMENSIONS X, Y AND Z MUST BE WITHIN ±0.12 INCH (±3.1 mm) OF EACH OTHER.

Stabilizer Control Cable and Chain Adjustment
Figure 501 (Sheet 3 of 5)/27-41-00-990-801

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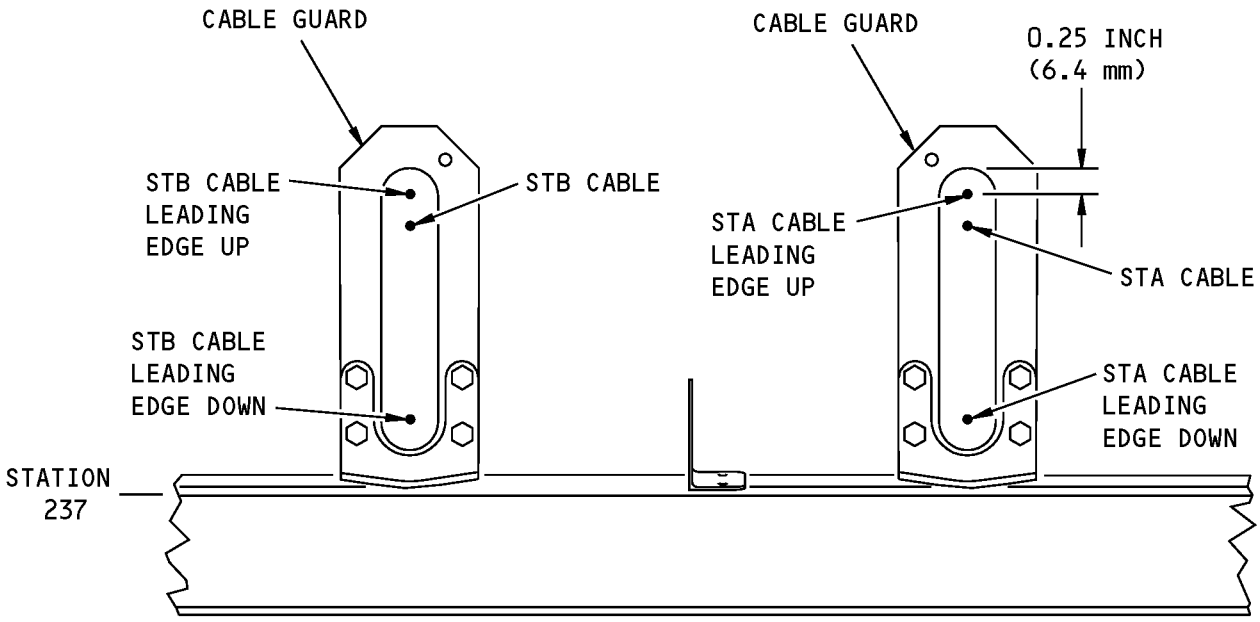

Stabilizer Control Cable and Chain Adjustment
Figure 501 (Sheet 4 of 5)/27-41-00-990-801

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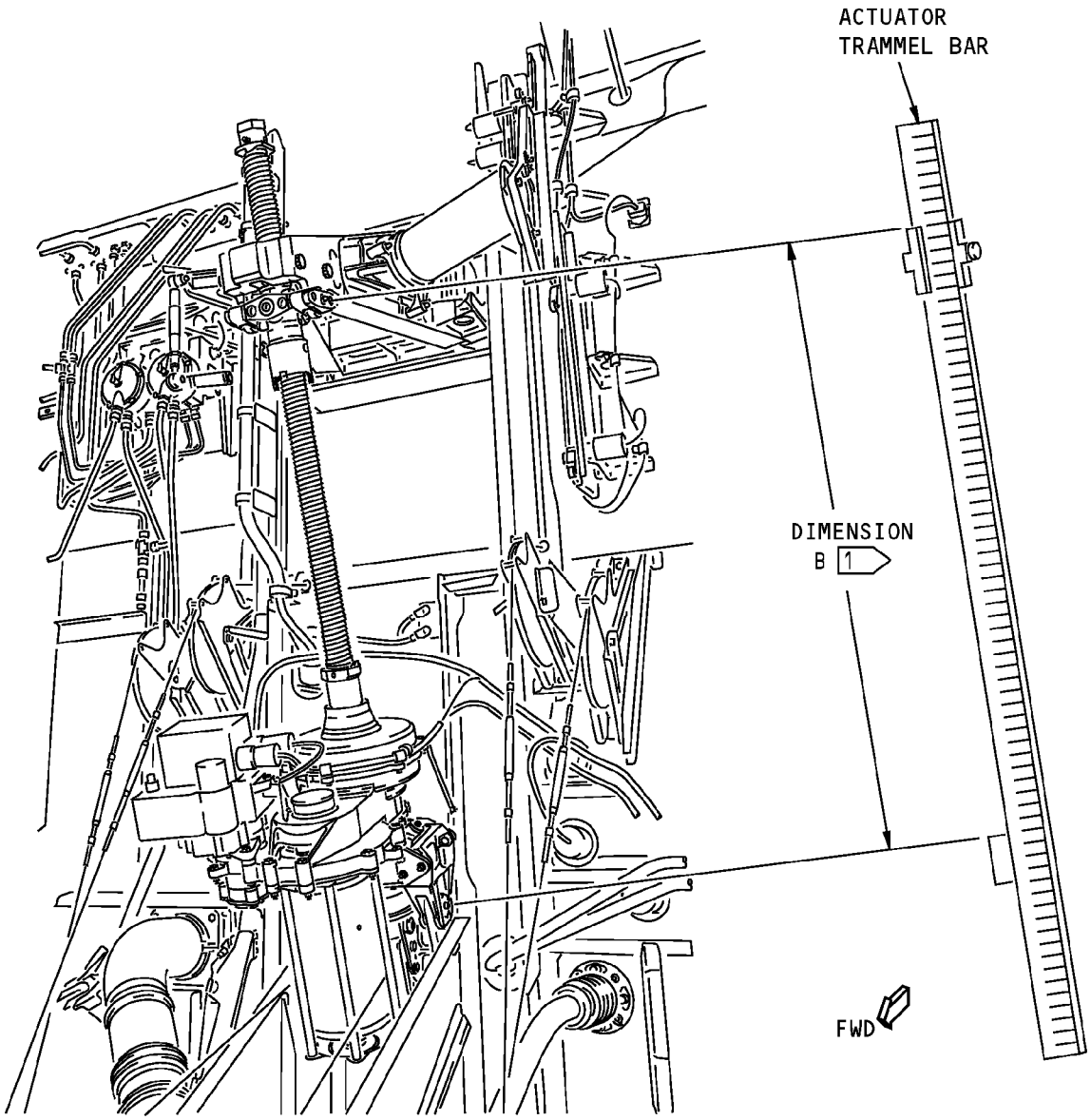

STABILIZER TRIM ACTUATOR

E

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Stabilizer Control Cable and Chain Adjustment
Figure 501 (Sheet 5 of 5)/27-41-00-990-801

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TASK 27-41-00-700-801

3. Stabilizer Manual Trim and Trim Indicator Test

(Figure 502, Figure 503)

A. General

(1) Use this test to make sure the horizontal stabilizer moves to the correct position when it is operated from the stabilizer trim wheel. It also make sure that the stabilizer trim indicator operates correctly.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-41-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-00-010-003

(2) To get access to the stabilizer trim actuator, do this step:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

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G. Procedure

SUBTASK 27-41-00-710-002

WARNING: MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE HORIZONTAL STABILIZERS. THE HORIZONTAL STABILIZER WILL MOVE WHEN YOU TURN THE CONTROL TRIM WHEELS (OR PUSH THE STAB TRIM SWITCHES). THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do the test of the stabilizer manual trim and trim indicator test:

(a) Turn the control trim wheel counterclockwise (full APL NOSE DOWN) until it touches the stops.

1) Use the bar, SPL-1677 to make sure the "B" dimension is 45.84 ±0.10 in. (1164.3 ±2.6 mm).

2) Make sure that the two STAB TRIM indicators on the control stand show -0.2 ±0.5 units of trim.

3) Make sure that the difference between the two STAB TRIM indicators is less than 0.5 units of trim.

(b) Turn the control trim wheel clockwise (full APL NOSE UP) until it touches the stops.

1) Make sure that the horizontal stabilizer moves down freely through the full travel.

2) Use the bar, SPL-1677 to make sure the "B" dimension is 21.32 ±0.10 in. (541.5 ±2.6 mm).

3) Make sure that the two STAB TRIM indicators on the control stand show 16.9 ±0.5 unit of trim.

4) Make sure that the difference between the two STAB TRIM indicators is less than 0.5 units of trim.

SUBTASK 27-41-00-410-003

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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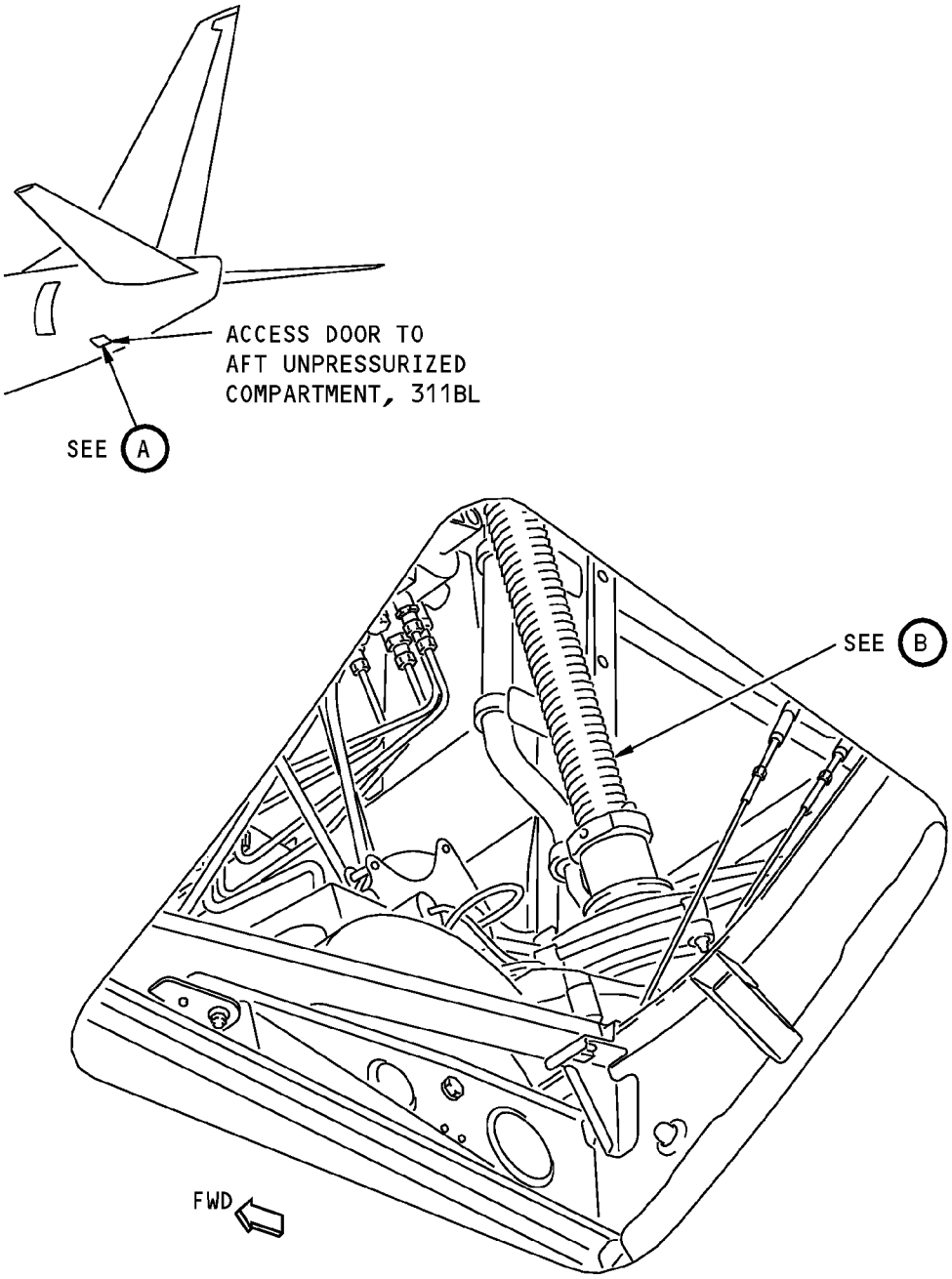

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Stabilizer Trim Jackscrew Adjustment
Figure 502 (Sheet 1 of 2)/27-41-00-990-802

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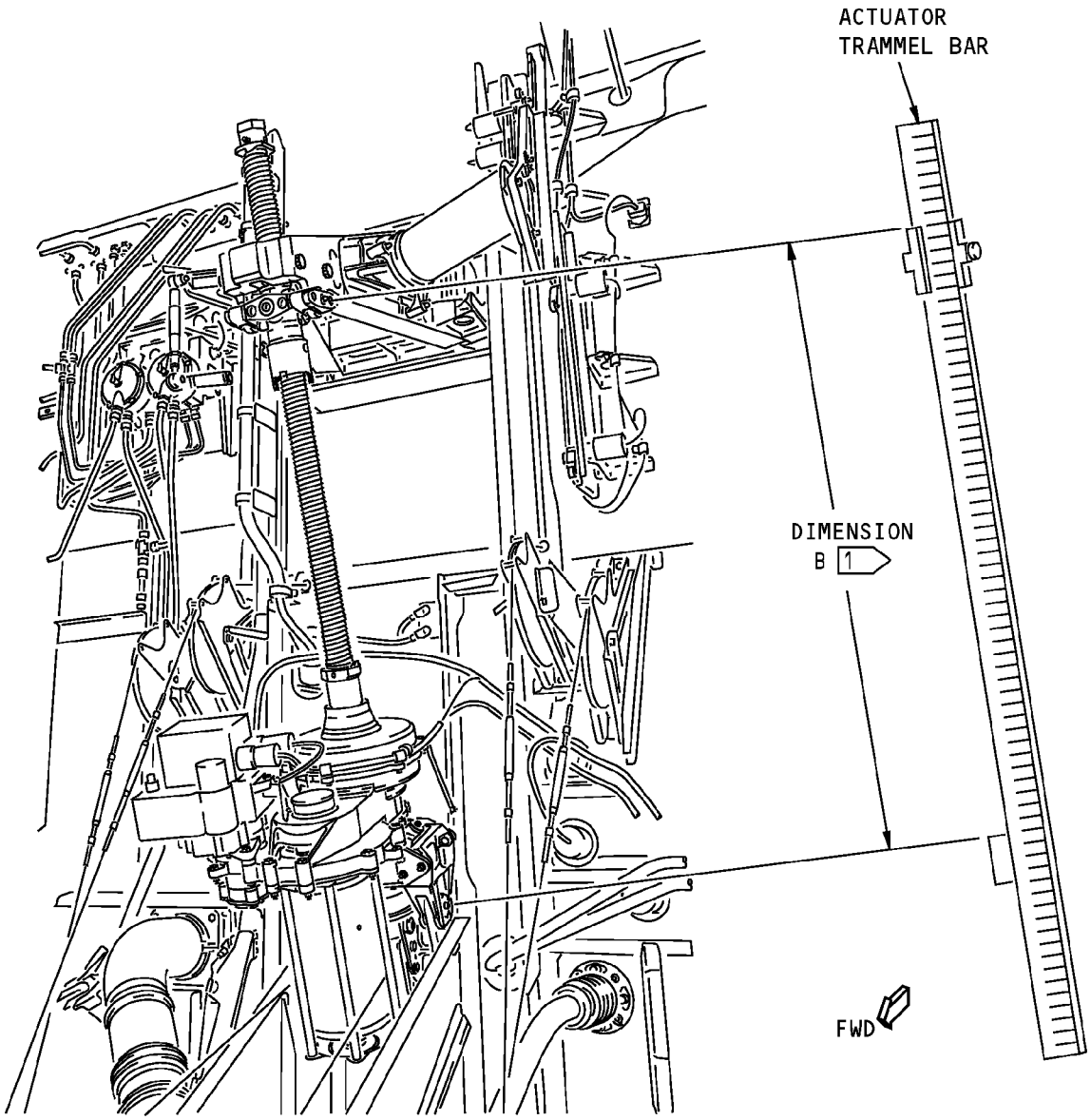

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Stabilizer Trim Jackscrew Adjustment
Figure 502 (Sheet 2 of 2)/27-41-00-990-802

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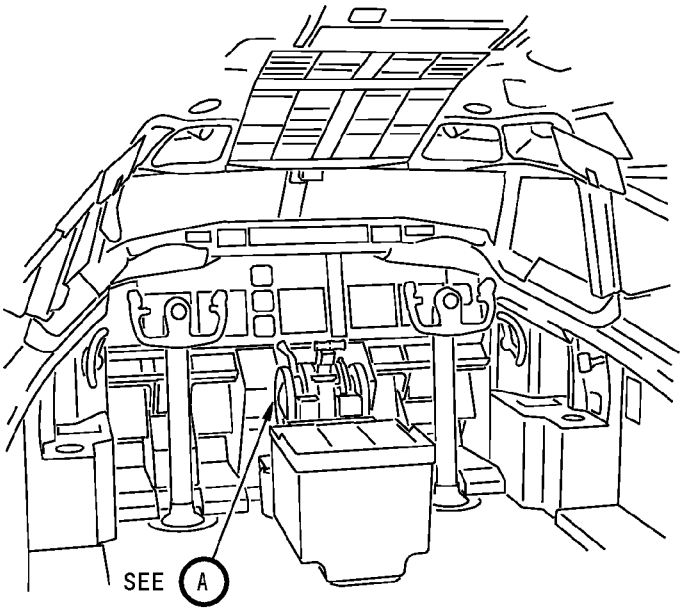
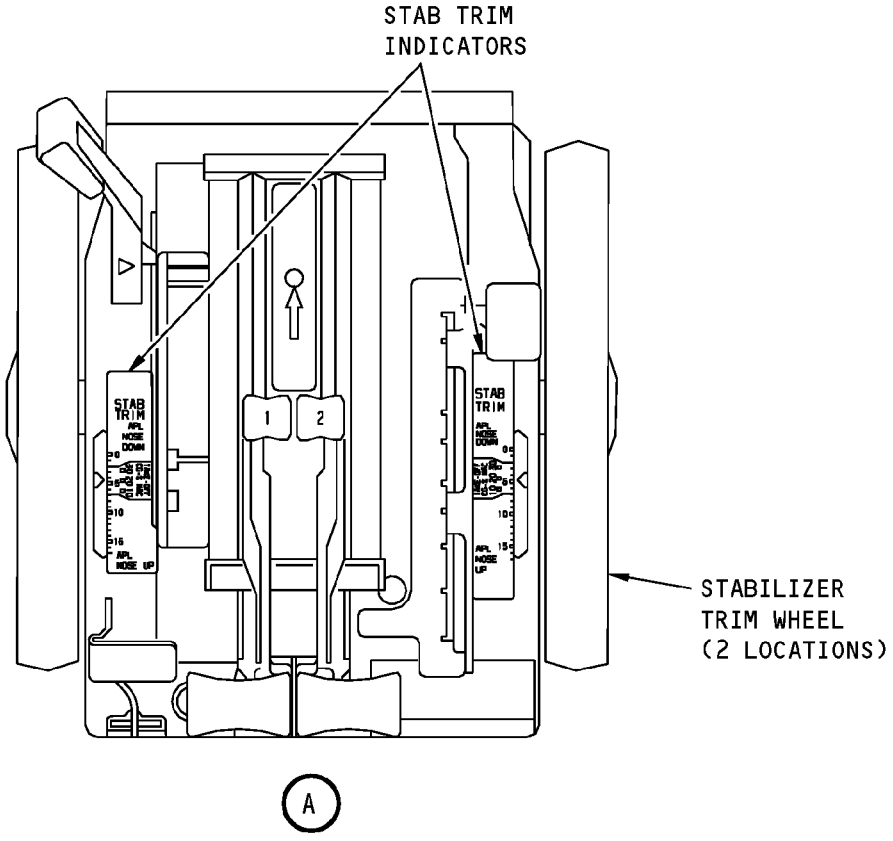


FLIGHT COMPARTMENT



Stabilizer Trim Wheel and Stabilizer Trim Indicator Locations
Figure 503/27-41-00-990-803

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TASK 27-41-00-700-802

4. Horizontal Stabilizer Trim Control System Friction Test

(Figure 502)

A. General

(1) Use this procedure to make sure the system operates smoothly.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1748	Adapter - Torque Wrench, Manual, Stabilizer Trim Wheel (Part #: C27064-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

D. Prepare for the Test

SUBTASK 27-41-00-860-002

(1) Set the main cutout switch, S272 on the control stand to the CUTOUT position.

SUBTASK 27-41-00-480-001

(2) Install the adapter, SPL-1748 on the captain's control trim wheel.

E. Procedure

SUBTASK 27-41-00-710-003

WARNING: MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE HORIZONTAL STABILIZERS. THE HORIZONTAL STABILIZER WILL MOVE WHEN YOU TURN THE CONTROL TRIM WHEELS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do the friction test of the horizontal stabilizer trim control:

(a) Turn the captain's control trim wheel counterclockwise (full APL NOSE DOWN) until it touches the stops.

(b) Turn the captain's control trim wheel clockwise (full APL NOSE UP) until it touches the stops.

1) Make sure the force necessary to operate the control trim wheel is not more than 62 in-lb (7.0 N·m) or not less than 22 in-lb (2.5 N·m).

2) Make sure the system operates smoothly.

(c) Turn the control trim wheel counterclockwise (full APL NOSE DOWN) until it touches the stops.

1) Make sure the force necessary to operate the control trim wheel is not more than 62 in-lb (7.0 N·m) or not less than 22 in-lb (2.5 N·m).

2) Make sure the system operates smoothly.

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SUBTASK 27-41-00-080-001

(2) Remove the adapter, SPL-1748 from the captain's control trim wheel.

——————— END OF TASK ———————

TASK 27-41-00-700-803

5. Stabilizer Electric Trim System Test

A. General

(1) Use this test to make sure the horizontal stabilizer moves at the correct speed when it is operated from the STAB TRIM switches.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
330	Subzone - Left Horizontal Stabilizer and Elevator
340	Subzone - Right Horizontal Stabilizer and Elevator

D. Prepare for the Test

SUBTASK 27-41-00-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-00-860-004

(2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-00-860-005

(3) Make sure that the main cutout switch, S272, on the P8 panel, is in the NORMAL position.

SUBTASK 27-41-00-860-006

(4) Make sure that the STAB TRIM switch on the stab trim and cabin door panel, P8-47 is in the NORMAL position.

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E. Procedure

SUBTASK 27-41-00-710-004

WARNING: MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE HORIZONTAL STABILIZERS. THE HORIZONTAL STABILIZERS WILL MOVE WHEN YOU MOVE THE CONTROL WHEELS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do the test of the electrical trim system test:

(a) Set the flaps to any position from 1-40 units, Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

1) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

a) Make sure the stabilizer leading edge moves up.

b) Release the STAB TRIM switches.

2) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

a) Make sure the stabilizer leading edge moves down.

b) Release the STAB TRIM switches.

3) Push and hold the STAB TRIM switches on the first officer's control wheel to the NOSE DOWN position.

a) Make sure the stabilizer leading edge moves up.

b) Release the STAB TRIM switches.

4) Push and hold the STAB TRIM switches on the first officer's control wheel to the NOSE UP position.

a) Make sure the stabilizer leading edge moves down.

b) Release the STAB TRIM switches.

5) Push the STAB TRIM switches on the captain's control wheel to the NOSE UP position until it stops and then to the NOSE DOWN position until it stops.

a) Make sure the time for the stabilizer to move from its lower limit of travel to its upper limit of travel is between 31-39 seconds.

b) Make sure that the operation is smooth and there is no unusual noise.

6) Use the STAB TRIM switches on the captain's control wheel to move the stabilizer many time in the two directions one after the other for 3 seconds each.

a) Make sure that the operation is smooth and there is no unusual noise.

7) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position until the system comes to the full trim speed.

a) Move the STAB TRIM switches momentarily to OFF and then to the NOSE DOWN position.

b) Make sure the stabilizer leading edge moves up immediately after you move the STAB TRIM switches to the NOSE DOWN position.

8) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position until the system comes to the full trim speed.

a) Move the STAB TRIM switches momentarily to OFF and then to the NOSE UP position.

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b) Make sure the stabilizer leading edge moves down immediately after you move the STAB TRIM switches to the NOSE UP position.

(b) Set the flaps to the full up position, Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

1) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

a) Make sure the stabilizer leading edge moves up.

b) Release the STAB TRIM switches.

2) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

a) Make sure the stabilizer leading edge moves down.

b) Release the STAB TRIM switches.

3) Push and hold the STAB TRIM switches on the first officer's control wheel to the NOSE DOWN position.

a) Make sure the stabilizer leading edge moves up.

b) Release the STAB TRIM switches.

4) Push and hold the STAB TRIM switches on the first officer's control wheel to the NOSE UP position.

a) Make sure the stabilizer leading edge moves down.

b) Release the STAB TRIM switches.

5) Push the STAB TRIM switches on the captain's control wheel to the NOSE UP position until it stops and then to the NOSE DOWN position until it stops.

HAP 101-999

a) Make sure the time for the stabilizer to move from its lower limit of travel to its upper limit of travel is 46-56 seconds.

HAP 001-013, 015-026, 028-054

b) Make sure the time for the stabilizer to move from its lower limit of travel to its upper limit of travel is 47-58 seconds.

HAP ALL

c) Make sure that the operation is smooth and there is no unusual noise.

6) Use the STAB TRIM switches on the captain's control wheel to move the stabilizer many times in the two directions, one after the other, for 3 seconds each.

a) Make sure that the operation is smooth and there is no unusual noise.

7) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position until the system comes to the full trim speed.

a) Move the STAB TRIM switches momentarily to OFF and then to the NOSE DOWN position.

b) Make sure the stabilizer leading edge moves up immediately after you move the STAB TRIM switches to the NOSE DOWN position.

8) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position until the system comes to the full trim speed.

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a) Move the STAB TRIM switches momentarily to OFF and then to the NOSE UP position.

b) Make sure the stabilizer leading edge moves down immediately after you move the STAB TRIM switches to the NOSE UP position.

9) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

a) Make sure the stabilizer leading edge moves down.

b) Set the main cutout switch, S272, to the CUTOUT position.

c) Make sure that the movement of the stabilizer stops immediately.

d) Set the main cutout switch, S272, to the NORMAL position.

e) Make sure the stabilizer continues to move.

f) Release the STAB TRIM switches.

——————— END OF TASK ———————

TASK 27-41-00-700-804

6. Stabilizer Trim Wheel Free Movement Test

A. General

(1) Use this test to check the freeplay between the horizontal stabilizer trim motor and the ballscrew.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 27-41-00-860-007

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-00-860-008

(2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

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SUBTASK 27-41-00-860-009

(3) Make sure that the main cutout switch, S272, on the P8 panel, is in the NORMAL position.

SUBTASK 27-41-00-860-010

(4) Make sure that the STAB TRIM switch on the stab trim and cabin door panel, P8-47 is in the NORMAL position.

E. Procedure

SUBTASK 27-41-00-710-005

(1) Do the test of the stabilizer trim wheel free movement:

(a) Set the flaps to the 5-unit position, Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

1) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position until the system comes to full trim speed.

a) Release the STAB TRIM switches. Make sure the stabilizer trim wheel continues to move not more than 2.5 turns (900 degrees).

b) Make sure the reverse travel (APL NOSE DOWN) is not more than 27 degrees.

2) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position until the system comes to full trim speed.

a) Release the STAB TRIM switches. Make sure the stabilizer trim wheel continues to move not more than 2.5 turns (900 degrees).

b) Make sure the reverse travel (APL NOSE UP) is not more than 100 degrees.

(b) Set the flaps to the full up position, Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

1) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position until the system comes to full trim speed.

a) Release the STAB TRIM switches. Make sure the stabilizer trim wheel continues to move not more than 0.5 turns (180 degrees).

b) Make sure the reverse travel (APL NOSE UP) is not more than 65 degrees.

2) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position until the system comes to full trim speed.

a) Release the STAB TRIM switches. Make sure the stabilizer trim wheel continues to move not more than 0.5 turns (180 degrees).

b) Make sure the reverse travel (APL NOSE DOWN) is not more than 65 degrees.

———————— END OF TASK ————————

TASK 27-41-00-700-805

7. Stabilizer Trim Limit Switches Test

(Figure 504)

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to make sure the stabilizer trim limit switches operate correctly.

(3) The trim system can move the stabilizer to a position more than the limits that were set during the adjustment of the limit switches. This condition is usual. Thus the "B" dimension tolerances for the test are larger than the tolerance for the adjustment.

(4) This test is applicable only for limit switches S145, S844, S144.

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B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-41-00-860-011

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-00-860-012

(2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-00-860-013

(3) Make sure that the main cutout switch, S272 is in the NORMAL position.

SUBTASK 27-41-00-860-014

(4) Make sure that the STAB TRIM switch on the stab trim and cabin door panel, P8-47 is in the NORMAL position.

SUBTASK 27-41-00-860-015

(5) Make sure that the flaps are in the full up position.

SUBTASK 27-41-00-010-004

(6) To get access to the limit switches, do this step:

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Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

G. Procedure

SUBTASK 27-41-00-710-007

(1) Do the test of the limit switch S844:

(a) Move the stabilizer to the maximum leading edge up (APL NOSE DOWN) position (the mechanical limits). This can be done using the STAB TRIM switches and then the stabilizer trim wheel.

(b) Turn the captain's stabilizer trim wheel clockwise approximately 3 turns.

(c) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

1) Make sure that the stabilizer leading edge does not move.

2) Release the STAB TRIM switches.

(d) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

1) Make sure that the stabilizer leading edge moves down (APL NOSE UP).

2) Release the STAB TRIM switches.

(e) Move the stabilizer to approximately 4 units of trim.

(f) Move the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position until the stabilizer stops automatically.

1) Use the bar, SPL-1677 to measure the "B" dimension.

HAP 101-999

2) Make sure the "B" dimension is 39.46 ±0.05 in. (1002.3 ±1.3 mm).

a) Make sure that the STAB TRIM indicator on the control stand reads 4.30 units of trim.

NOTE: The STAB TRIM indicator gives approximate indications. Do not use the STAB TRIM indicator indications to adjust the stabilizer trim switches ("B" dimension).

HAP 001-013, 015-026, 028-054

3) Make sure the "B" dimension is 39.96 ±0.05 in. (1015.0 ±1.3 mm).

a) Make sure that the STAB TRIM indicator on the control stand reads 3.95 units of trim.

NOTE: The STAB TRIM indicator gives approximate indications. Do not use the STAB TRIM indicator indications to adjust the stabilizer trim switches ("B" dimension).

HAP ALL

SUBTASK 27-41-00-710-008

(2) Do the test of the limit switch, S145:

(a) If you use the standby hydraulic pump motor to move the flaps, then do these steps:

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WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE AND TRAILING EDGE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAPS. THE FLAPS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Put the ALTERNATE FLAP arm switch in the ARM position.

NOTE: The standby hydraulic pump motor will operate when the ALTERNATE FLAP arm switch is in the ARM position.

2) Move the alternate flap drive control switch to extend the flaps to the 5-unit position.

(b) If you use the system B hydraulic power to move the flaps, then do these steps:

1) Pressurize hydraulic system B. To pressurize it, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE AND TRAILING EDGE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAPS. THE FLAPS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

2) Move the flap control lever to extend the flaps to the 5-unit position.

(c) Move the stabilizer to the maximum leading edge up (APL NOSE DOWN) position (mechanical limits). This can be done using the STAB TRIM switches and then the stabilizer trim wheel.

(d) Turn the captain's stabilizer trim wheel clockwise approximately 2.00 ±0.25 turns.

(e) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

1) Make sure that the stabilizer leading edge does not move.

2) Release the STAB TRIM switches.

(f) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

1) Make sure that stabilizer leading edge moves down (APL NOSE UP).

2) Release the STAB TRIM switches.

(g) Move the stabilizer to approximately 1 unit of trim.

(h) Move the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position until the stabilizer stops automatically.

1) Use the bar, SPL-1677 to measure the "B" dimension.

2) Make sure the "B" dimension is 45.48 ±0.10 in. (1155.2 ±2.5 mm).

a) Make sure that the STAB TRIM indicator on the control stand reads 0.05 units of trim.

NOTE: The STAB TRIM indicator gives approximate indications. Do not use the STAB TRIM indicator indications to adjust the stabilizer trim switches ("B" dimension).

(i) Move the flap control lever or the alternate flap drive control switch to retract the flaps.

(j) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-41-00-710-014

(3) Do the test of the limit switch S144:

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(a) Move the stabilizer to the maximum leading edge down (APL NOSE UP) position (mechanical limits). This can be done using the STAB TRIM switches and then the stabilizer trim wheel.

(b) Turn the captain's stabilizer trim wheel counterclockwise approximately 3 turns.

(c) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

1) Make sure that the stabilizer leading edge does not move.

2) Release the STAB TRIM switches.

(d) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

1) Make sure that stabilizer leading edge moves up (APL NOSE DOWN).

2) Release the STAB TRIM switches.

(e) Move the stabilizer to approximately 12 units of trim.

(f) Move the STAB TRIM switches on the captain's control wheel to the NOSE UP position until the stabilizer stops automatically.

1) Use the bar, SPL-1677 to measure the "B" dimension.

2) Make sure the "B" dimension is 24.80 ±0.10 in. (629.9 ±2.6 mm).

a) Make sure that the STAB TRIM indicator on the control stand reads 14.5 units of trim.

NOTE: The STAB TRIM indicator gives approximate indications. Do not use the STAB TRIM indicator indications to adjust the stabilizer trim switches ("B" dimension).

SUBTASK 27-41-00-410-004

(4) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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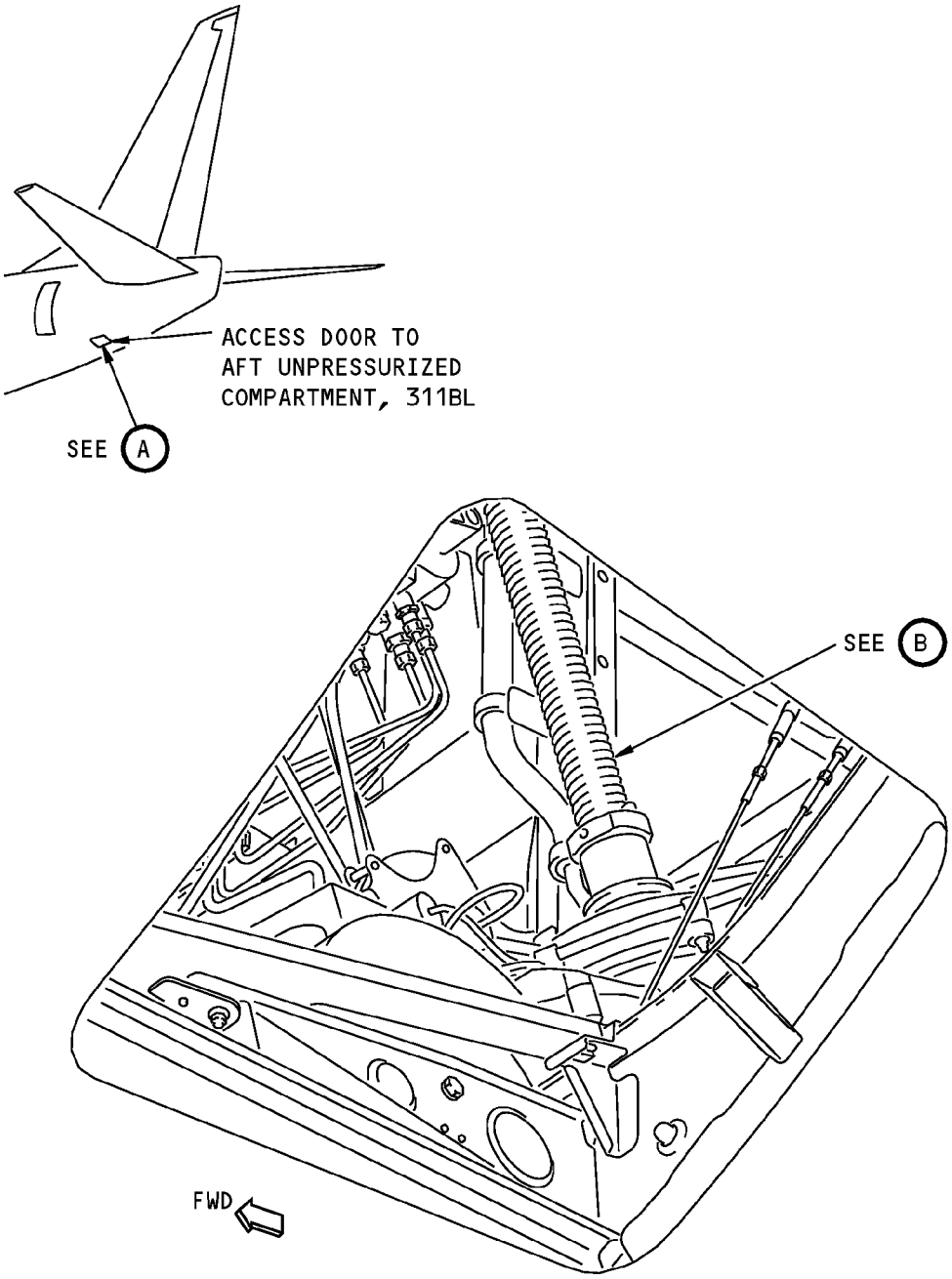

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Stabilizer Trim Limit Switches Test
Figure 504 (Sheet 1 of 2)/27-41-00-990-804

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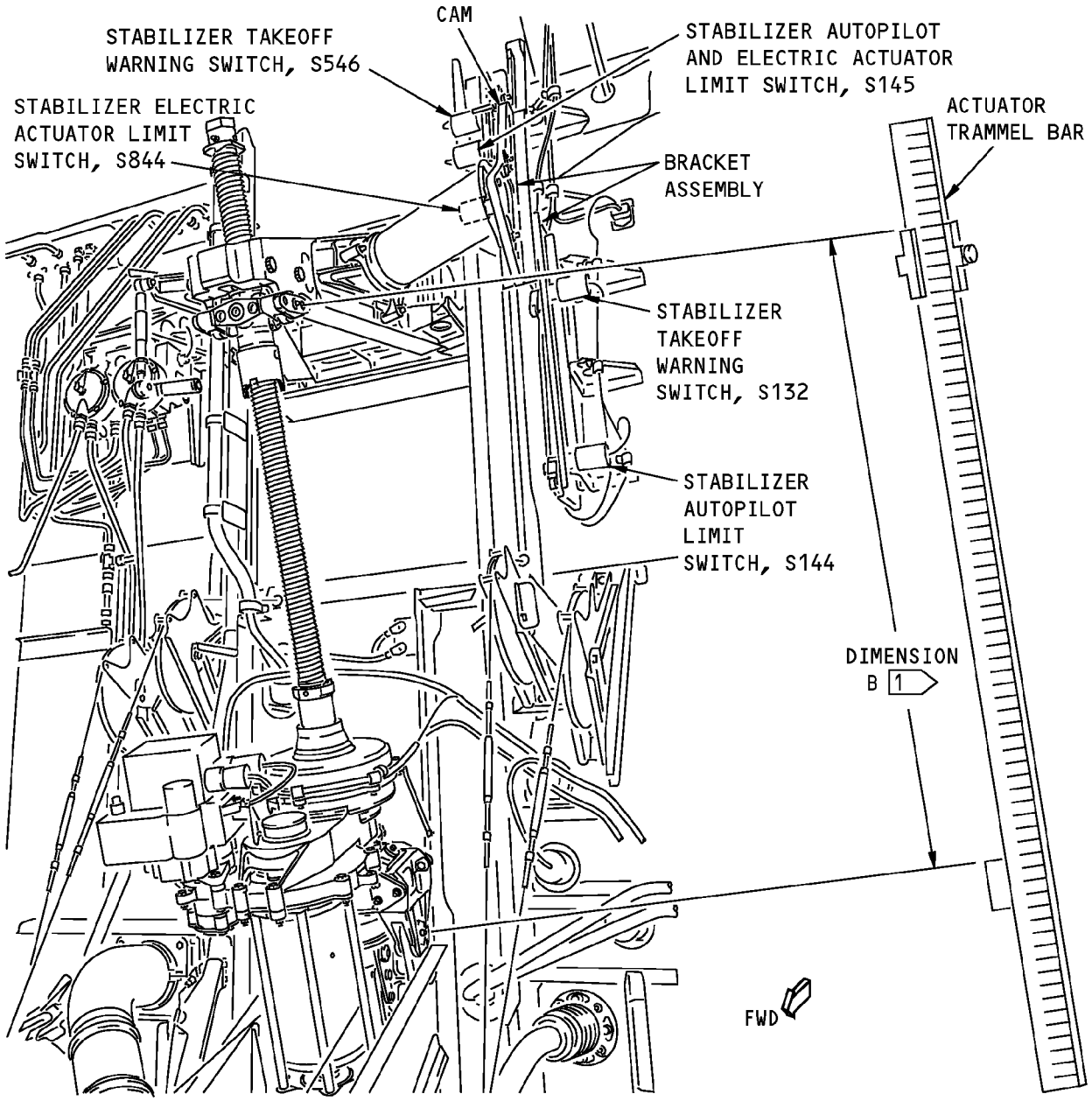

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Stabilizer Trim Limit Switches Test
Figure 504 (Sheet 2 of 2)/27-41-00-990-804

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TASK 27-41-00-700-806

8. Stabilizer Clutch Friction System Test

A. General

(1) Use this test to make sure that the correct force disconnects the manual clutch.

B. References

Reference	Title
27-41-71-000-801	Stabilizer Trim Motor Removal (P/B 401)
27-41-71-400-801	Stabilizer Trim Motor Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1684	Assembly - Wrench, Pinion Gear, Stabilizer Trim Actuator (Part #: F71267, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F71252, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500)
SPL-1748	Adapter - Torque Wrench, Manual, Stabilizer Trim Wheel (Part #: C27064-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Prepare for the Test

SUBTASK 27-41-00-020-005

(1) Do this task: Stabilizer Trim Motor Removal, TASK 27-41-71-000-801.

SUBTASK 27-41-00-480-002

(2) Install the wrench, SPL-1684 on the internal spline on the stabilizer gearbox.

(a) Make sure the wrench does not turn.

SUBTASK 27-41-00-480-003

(3) Install the adapter, SPL-1748 on the captain's stabilizer trim wheel.

F. Procedure

SUBTASK 27-41-00-710-009

(1) Do a check of the manual clutch disconnect:

(a) Turn the captain's stabilizer trim wheel 3 turns or more counterclockwise.

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(b) Make sure the torque necessary to operate the stabilizer trim wheel is not more than 163 in-lb (18.42 N·m).

NOTE: 163 in-lb is equal to a tangential force at the handle of the trim wheel of approximately 46 lbs (205 N).

(c) Turn the captain's stabilizer trim wheel 3 turns or more clockwise.

(d) Make sure the torque necessary to operate the stabilizer trim wheel is not more than 163 in-lb (18.42 N·m).

NOTE: 163 in-lb is equal to a tangential force at the handle of the trim wheel of approximately 46 lbs (205 N).

SUBTASK 27-41-00-480-004

(2) Remove the wrench, SPL-1684 and the adapter, SPL-1748.

SUBTASK 27-41-00-420-002

(3) Do this task: Stabilizer Trim Motor Installation, TASK 27-41-71-400-801.

——————— END OF TASK ———————

TASK 27-41-00-700-807

9. Column Actuated Stabilizer Trim Cutout Switch Override Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to make sure the horizontal stabilizer follows the commands from the STAB TRIM switches, even though the column actuated STAB TRIM cutout switches give the opposite command.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
330	Subzone - Left Horizontal Stabilizer and Elevator
340	Subzone - Right Horizontal Stabilizer and Elevator

D. Prepare for the Test

SUBTASK 27-41-00-860-016

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-00-860-017

(2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

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SUBTASK 27-41-00-780-001

(3) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

E. Procedure

SUBTASK 27-41-00-710-010

WARNING: MAKE SURE THAT THE STABILIZER TRIM MOTOR HAS A MINIMUM 13 MINUTES OFF FOR EVERY 2 MINUTES OPERATION. IF YOU DO NOT GIVE THE STABILIZER TRIM MOTOR SUFFICIENT TIME OFF, DAMAGE TO THE STABILIZER TRIM MOTOR CAN OCCUR.

(1) Do the column actuated stabilizer trim cutout switch override test:

(a) Make sure that the main cutout switch, S272 on the control stand is in the NORMAL position.

(b) Set the STAB TRIM switch on the stab trim and cabin door, P8-47 module, to the OVERRIDE position.

(c) Turn the stabilizer trim wheel to set the stabilizer to approximately 8 units of trim.

(d) Pull the captain's control column full aft.

(e) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

1) Make sure that the stabilizer leading edge moves up (STAB TRIM indicator movement in the APL NOSE DOWN direction).

2) Release the STAB TRIM switches.

(f) Put the captain's control column to the neutral detent.

(g) Set the STAB TRIM switch on the stab trim and cabin door, P8-47 module, to the NORM position.

(h) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

1) Make sure that the stabilizer leading edge moves up (STAB TRIM indicator movement in the APL NOSE DOWN direction).

2) Pull the captain's control column full aft.

3) Make sure the movement of the stabilizer stops.

4) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

5) Make sure that the stabilizer leading edge moves down (STAB TRIM indicator movement in the APL NOSE UP direction).

6) Release the STAB TRIM switches.

(i) Put the captain's control column to the neutral detent.

(j) Set the STAB TRIM switch on the stab trim and cabin door, P8-47 module, to the OVERRIDE position.

(k) Push the captain's control column full forward.

(l) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

1) Make sure that the stabilizer leading edge moves down (STAB TRIM indicator movement in the APL NOSE UP direction).

2) Release the STAB TRIM switches.

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(m) Put the captain's control column to the neutral detent.

(n) Set the STAB TRIM switch on the stab trim and cabin door, P8-47 module, to the NORM position.

(o) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

1) Make sure that the stabilizer leading edge moves down (STAB TRIM indicator movement in the APL NOSE UP direction).

2) Push the captain's control column full forward.

3) Make sure the movement of the stabilizer stops.

4) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

5) Make sure that the stabilizer leading edge moves up (STAB TRIM indicator movement in the APL NOSE DOWN direction).

6) Release the STAB TRIM switches.

(p) Put the captain's control column to the neutral detent.

SUBTASK 27-41-00-780-002

(2) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

——————— END OF TASK ———————

TASK 27-41-00-700-808

10. Stabilizer Trim Secondary Brake System Test

(Figure 505)

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to make sure the stabilizer secondary brake can prevent movement of the horizontal stabilizer.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-9358	Measurement Tool - Stab System Test (Part #: C27078-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

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D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Prepare for the Test

SUBTASK 27-41-00-860-018

(1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-00-010-005

(2) To get access to the stabilizer trim actuator, do this step:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Procedure

SUBTASK 27-41-00-700-001

(1) Do the stabilizer trim secondary brake system test:

(a) Turn the captain's stabilizer trim wheel several turns counterclockwise (2-3 turns is satisfactory).

NOTE: If necessary, use of the first officer's control wheel instead of the captain's control wheel is acceptable, provided that this substitution is maintained throughout the test.

(b) If available, install measurement tool, SPL-9358 onto the housing assembly.

WARNING: MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE HORIZONTAL STABILIZER. THE HORIZONTAL STABILIZER WILL MOVE WHEN YOU TURN THE JACKSCREW. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: IF MORE THAN 800 POUND-INCHES (90.4 NEWTON-METERS) OF TORQUE IS APPLIED TO POST-SB 27-1210 BALLSCREW ACTUATOR ASSEMBLIES, DAMAGE TO THE BALLSCREW ACTUATOR ASSEMBLY MAY OCCUR.

(c) Apply a 500 ±20 in-lb (56.5 ±2.3 N·m) counterclockwise torque to the upstop of the jackscrew and hold.

NOTE: Make sure you do not put the torque on the safety rod nut.

1) While maintaining torque on the jackscrew, use a marker to make a line on the jackscrew shield and the retainer - seal.

2) Release the torque.

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CAUTION: IF MORE THAN 800 POUND-INCHES (90.4 NEWTON-METERS) OF TORQUE IS APPLIED TO POST-SB 27-1210 BALLSCREW ACTUATOR ASSEMBLIES, DAMAGE TO THE BALLSCREW ACTUATOR ASSEMBLY MAY OCCUR.

(d) Apply a 500 ±20 in-lb (56.5 ±2.3 N·m) clockwise torque to the upstop of the jackscrew and hold.

NOTE: Make sure you do not put the torque on the safety rod nut.

1) While maintaining torque on the jackscrew, use a marker to make a line on the jackscrew shield and the retainer - seal.

2) Release the torque.

(e) Using the measurement tool, SPL-9358, measure the arc distance between the lines.

1) Make sure that the arc distance dimension is not more than 1.06 in. (26.9 mm) (36.0 degrees).

(f) Remove the measurement tool, SPL-9358measurement tool, SPL-9358from the cover plate assembly.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-00-410-005

(1) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-00-860-019

(2) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

END OF TASK

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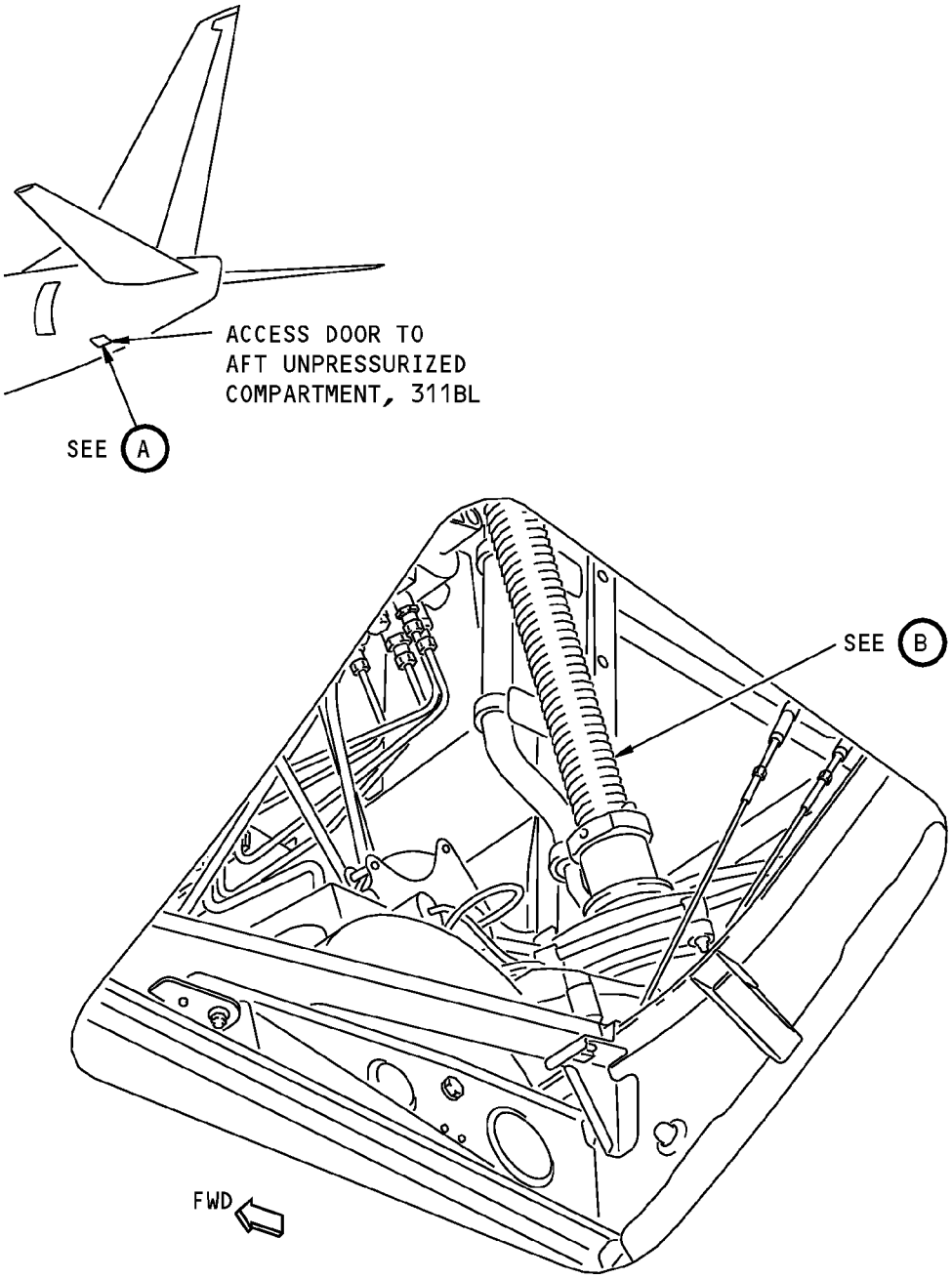

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Stabilizer Trim Secondary Brake System Test
Figure 505 (Sheet 1 of 2)/27-41-00-990-805

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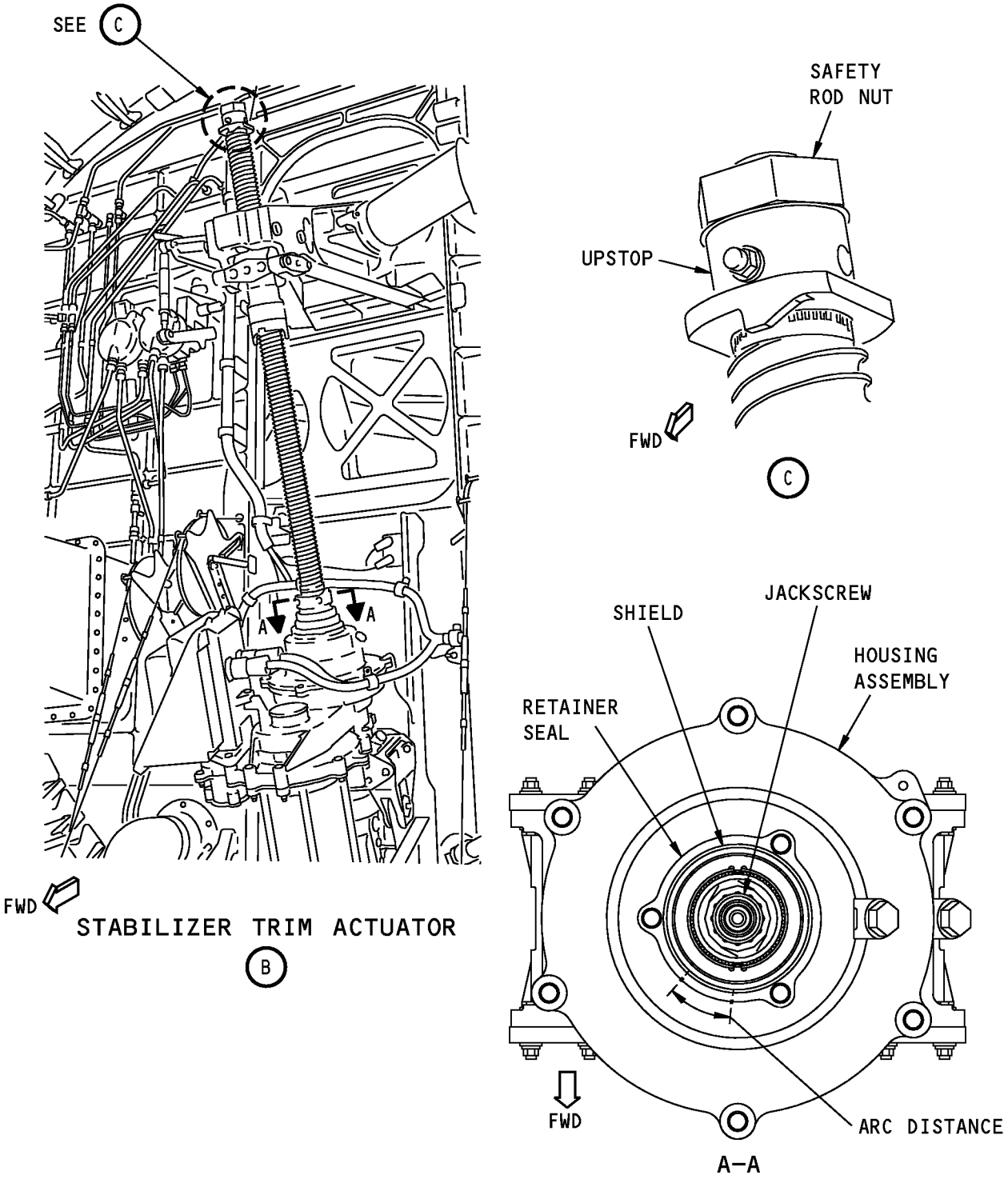

Stabilizer Trim Secondary Brake System Test
Figure 505 (Sheet 2 of 2)/27-41-00-990-805

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TASK 27-41-00-700-809

11. Stabilizer Trim Cutout Test

A. General

(1) Use this procedure to make sure the stabilizer trim cutout switch operates correctly. It stops the horizontal stabilizer when the control column command is opposite from the STAB TRIM switches.

B. References

Reference	Title
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-840-801	Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
330	Subzone - Left Horizontal Stabilizer and Elevator
340	Subzone - Right Horizontal Stabilizer and Elevator

E. Prepare for the Test

SUBTASK 27-41-00-860-020

(1) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-41-00-860-021

(2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

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F. Procedure

SUBTASK 27-41-00-710-012

WARNING: MAKE SURE THAT THE STABILIZER TRIM MOTOR HAS A MINIMUM 13 MINUTES OFF FOR EVERY 2 MINUTES OPERATION. IF YOU DO NOT GIVE THE STABILIZER TRIM MOTOR SUFFICIENT TIME OFF, DAMAGE TO THE STABILIZER TRIM MOTOR CAN OCCUR.

(1) Do the stabilizer trim cutout test:

(a) Make sure that the main cutout switch, S272 on the control stand is in the NORMAL position.

(b) Set the STAB TRIM switch on the stab trim and cabin door, P8-47 module, to the NORM position.

(c) Position the stabilizer to an intermediate position (Approximately 8 units of trim is satisfactory).

(d) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

1) Make sure that the stabilizer leading edge moves down (APL NOSE UP).

2) While the stabilizer moves, push the captain's control column forward until the column cutout switch stops the stabilizer.

3) Immediately release the control column to the neutral position with the two stab trim switches still held in the nose up position.

4) With the control column in the neutral position, make sure the stabilizer leading edge continues to move down.

5) Release the STAB TRIM switches.

(e) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

1) Make sure that the stabilizer leading edge moves up (APL NOSE DOWN).

2) While the stabilizer moves, pull the captain's control column aft until the column cutout switch stops the stabilizer.

3) Immediately release the control column to the neutral position with the two stab trim switches still held in the nose down position.

4) With the control column in the neutral position, make sure the stabilizer leading edge continues to move up.

5) Release the STAB TRIM switches.

(f) Position the stabilizer to an intermediate position (Approximately 8 units of trim is satisfactory).

(g) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

1) Make sure that the stabilizer leading edge moves down (APL NOSE UP).

2) While the stabilizer moves, push the captain's control column forward until the column cutout switch stops the stabilizer.

3) Hold the captain's control column in this position and immediately release the STAB TRIM switches.

4) Use a control column assembly protractor, SPL-1680 to make sure the captain's control column is between 2.90 and 3.70 degrees forward from the neutral position.

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5) Put the captain's control column back to the neutral position.

(h) Position the stabilizer to an intermediate position (Approximately 8 units of trim is satisfactory).

(i) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

1) Make sure that the stabilizer leading edge moves up (APL NOSE DOWN).

2) While the stabilizer moves, pull the captain's control column aft until the column cutout switch stops the stabilizer.

3) Hold the captain's control column in this position and immediately release the STAB TRIM switches.

4) Use a control column assembly protractor, SPL-1680 to make sure the captain's control column is between 3.20 and 4.21 degrees aft from the neutral position.

5) Put the captain's control column back to the neutral position.

SUBTASK 27-41-00-860-022

(2) Do this task: Put the Elevator Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-31-00-840-801.

——————— END OF TASK ———————

TASK 27-41-00-700-810

12. Column Cutout Switches Test

(Figure 506)

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this test to make sure the captain's and first officer column cutout switches operate correctly.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-10343	Box - Test, Cutout Switch, Stab Trim Control (Part #: C27007-31, Supplier: 81205, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27007-26, Supplier: 81205, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -BBJ)

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C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Procedure

SUBTASK 27-41-00-010-006

(1) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-41-00-730-001

(2) Do the test of the captain's column cutout switch:

(a) Install the control column assembly protractor, SPL-1680 on the captain's control column.

(b) Disconnect the electrical connector D12156 from the captain's column cutout switch.

(c) Install the test box, SPL-10343:

1) Connect thetest box, SPL-10343 connector to the captain's column cutout switch.

2) Connect the input jack on thetest box, SPL-10343 to 28V DC power.

3) Set the stabilizer to 4 units of trim (B dimension equals to 39.89 in. (1013.2 mm).

(d) Set the POWER and MAIN CLUTCH CUTOUT switches on thetest box, SPL-10343 to the ON position.

1) Move the captain's control column to the neutral position, which is 6.9 ±0.8 degrees forward of the vertical position.

2) Make sure the lights on the agree with the Table 502 below:

NOTE: Ignore the lights on the AUTOPILOT STABILIZER TRIM side of the test box (right side).

Table 502/27-41-00-993-808

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	ON
MAIN MOTOR CUTOUT	OFF
MAIN CLUTCH CUTOUT	ON

3) Move the captain's control column more than 6 degrees aft of the neutral position.

4) Make sure the lights on thetest box, SPL-10343 agree with the Table 503 below:

NOTE: Ignore the lights on the AUTOPILOT STABILIZER TRIM side of the test box (right side).

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Table 503/27-41-00-993-809

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	OFF
MAIN CLUTCH CUTOUT	ON

5) Move the captain's control column to the neutral position,

6) Make sure the lights on thetest box, SPL-10343 agree with the Table 504 below:

NOTE: Ignore the lights on the AUTOPILOT STABILIZER TRIM side of the test box (right side).

Table 504/27-41-00-993-810

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	ON
MAIN MOTOR CUTOUT	OFF
MAIN CLUTCH CUTOUT	ON

7) Move the captain's control column more than 4 degrees forward of the neutral position.

8) Make sure the lights on thetest box, SPL-10343 agree with the Table 505 below:

NOTE: Ignore the lights on the AUTOPILOT STABILIZER TRIM side of the test box (right side).

Table 505/27-41-00-993-811

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	OFF
MAIN CLUTCH CUTOUT	ON

(e) Set the POWER and MAIN CLUTCH CUTOUT switches on thetest box, SPL-10343 to the OFF position.

(f) Set the POWER and MAIN MOTOR CUTOUT switches on thetest box, SPL-10343 to the ON position.

1) Move the captain's control column to the neutral position.

2) Make sure the lights on thetest box, SPL-10343 agree with the Table 506 below:

NOTE: Ignore the lights on the AUTOPILOT STABILIZER TRIM side of the test box (right side).

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Table 506/27-41-00-993-812

LIGHT	STATUS
POWER	ON
MAIN MOTOR	ON
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	ON
MAIN CLUTCH CUTOUT	OFF

3) Move the captain's control column more than 6 degrees aft of the neutral position.
4) Make sure the lights on thetest box, SPL-10343 agree with the Table 507 below:

NOTE: Ignore the lights on the AUTOPILOT STABILIZER TRIM side of the test box (right side).

Table 507/27-41-00-993-813

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	ON
MAIN CLUTCH CUTOUT	OFF

5) Move the captain's control column to the neutral position,
6) Make sure the lights on thetest box, SPL-10343 agree with the Table 508 below:

NOTE: Ignore the lights on the AUTOPILOT STABILIZER TRIM side of the test box (right side).

Table 508/27-41-00-993-814

LIGHT	STATUS
POWER	ON
MAIN MOTOR	ON
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	ON
MAIN CLUTCH CUTOUT	OFF

7) Move the captain's control column more than 4 degrees forward of the neutral position.
8) Make sure the lights on thetest box, SPL-10343 agree with the Table 509 below:

NOTE: Ignore the lights on the AUTOPILOT STABILIZER TRIM side of the test box (right side).

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Table 509/27-41-00-993-815

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	ON
MAIN CLUTCH CUTOUT	OFF

9) Set the control column to the neutral position.

(g) Set the POWER and MAIN MOTOR CUTOUT switches on thetest box, SPL-10343 to the OFF position.

(h) Disconnect the test box connectors from the captain's cutout switch connectors.

(i) Connect the electrical connector D12156 to the captain's cutout switch.

(j) Remove thetest box, SPL-10343 from the captain's control column.

(k) Remove the control column assembly protractor, SPL-1680 from the captain's control column.

SUBTASK 27-41-00-730-002

(3) Do the test of the first officer's column cutout switch:

(a) Install the control column assembly protractor, SPL-1680 on the first officer's control column.

(b) Install thetest box, SPL-10343 on the first officer's control column.

(c) Disconnect the electrical connectors D3124 and D2257 from the first officer's column cutout switch.

(d) Install the test box, SPL-10343:

1) Connect thetest box, SPL-10343 to the first officer's column cutout switch.

2) Connect the input jack on thetest box, SPL-10343 to 28V DC power.

(e) Set the POWER, MAIN CLUTCH CUTOUT, AUTOPILOT MOTOR CUTOUT switches on thetest box, SPL-10343 to the ON position.

1) Move the first officer's control column to the neutral position, which is 6.9 ±0.8 degrees forward of the vertical position.

2) Make sure the lights on thetest box, SPL-10343 agree with the Table 510 below:

Table 510/27-41-00-993-816

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	ON
MAIN MOTOR CUTOUT	OFF
MAIN CLUTCH CUTOUT	ON
AUTOPILOT MOTOR	ON

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(Continued)

LIGHT	STATUS
AUTOPILOT CLUTCH	OFF
AUTOPILOT MOTOR CUTOUT	ON
AUTOPILOT CLUTCH CUTOUT	OFF

3) Move the first officer's control column more than 6 degrees aft of the neutral position.
4) Make sure the lights on thetest box, SPL-10343 agree with the Table 511 below:

Table 511/27-41-00-993-817

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	OFF
MAIN CLUTCH CUTOUT	ON
AUTOPILOT MOTOR	OFF
AUTOPILOT CLUTCH	OFF
AUTOPILOT MOTOR CUTOUT	ON
AUTOPILOT CLUTCH CUTOUT	OFF

5) Move the first officer's control column to the neutral position.
6) Make sure the lights on thetest box, SPL-10343 agree with the Table 512 below:

Table 512/27-41-00-993-818

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	ON
MAIN MOTOR CUTOUT	OFF
MAIN CLUTCH CUTOUT	ON
AUTOPILOT MOTOR	ON
AUTOPILOT CLUTCH	OFF
AUTOPILOT MOTOR CUTOUT	ON
AUTOPILOT CLUTCH CUTOUT	OFF

7) Move the first officer's control column more than 4 degrees forward of the neutral position.
8) Make sure the lights on thetest box, SPL-10343 agree with the Table 513 below:

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Table 513/27-41-00-993-819

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	OFF
MAIN CLUTCH CUTOUT	ON
AUTOPILOT MOTOR	OFF
AUTOPILOT CLUTCH	OFF
AUTOPILOT MOTOR CUTOUT	ON
AUTOPILOT CLUTCH CUTOUT	OFF

(f) Set the POWER, MAIN CLUTCH CUTOUT, and AUTOPILOT MOTOR CUTOUT switches on thetest box, SPL-10343 to the OFF position.

(g) Set the POWER, MAIN MOTOR CUTOUT, and AUTOPILOT CLUTCH CUTOUT switches on thetest box, SPL-10343 to the ON position.

1) Move the first officer's control column to the neutral position.

2) Make sure the lights on thetest box, SPL-10343 agree with the Table 514 below:

Table 514/27-41-00-993-820

LIGHT	STATUS
POWER	ON
MAIN MOTOR	ON
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	ON
MAIN CLUTCH CUTOUT	OFF
AUTOPILOT MOTOR	OFF
AUTOPILOT CLUTCH	ON
AUTOPILOT MOTOR CUTOUT	OFF
AUTOPILOT CLUTCH CUTOUT	ON

3) Move the first officer's control column more than 6 degrees aft of the neutral position.

4) Make sure the lights on thetest box, SPL-10343 agree with the Table 515 below:

Table 515/27-41-00-993-821

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	OFF

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(Continued)

LIGHT	STATUS
MAIN MOTOR CUTOUT	ON
MAIN CLUTCH CUTOUT	OFF
AUTOPILOT MOTOR	OFF
AUTOPILOT CLUTCH	OFF
AUTOPILOT MOTOR CUTOUT	OFF
AUTOPILOT CLUTCH CUTOUT	ON

5) Move the first officer's control column to the neutral position.
6) Make sure the lights on thetest box, SPL-10343 agree with the Table 516 below:

Table 516/27-41-00-993-822

LIGHT	STATUS
POWER	ON
MAIN MOTOR	ON
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	ON
MAIN CLUTCH CUTOUT	OFF
AUTOPILOT MOTOR	OFF
AUTOPILOT CLUTCH	ON
AUTOPILOT MOTOR CUTOUT	OFF
AUTOPILOT CLUTCH CUTOUT	ON

7) Move the first officer's control column more than 4 degrees forward of the neutral position.
8) Make sure the lights on thetest box, SPL-10343 agree with the Table 517 below:

Table 517/27-41-00-993-823

LIGHT	STATUS
POWER	ON
MAIN MOTOR	OFF
MAIN CLUTCH	OFF
MAIN MOTOR CUTOUT	ON
MAIN CLUTCH CUTOUT	OFF
AUTOPILOT MOTOR	OFF
AUTOPILOT CLUTCH	OFF
AUTOPILOT MOTOR CUTOUT	OFF

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(Continued)

LIGHT	STATUS
AUTOPILOT CLUTCH CUTOUT	ON

9) Set the control column to the neutral position.

(h) Set the POWER, MAIN MOTOR CUTOUT, and AUTOPILOT CLUTCH CUTOUT switches on thetest box, SPL-10343 to the OFF position.

(i) Disconnect the test box connectors from the first officer's cutout switch.

(j) Connect the electrical connectors D3124 and D2257 to the first officer's cutout switch.

(k) Remove thetest box, SPL-10343 from the first officer's control column.

(l) Remove the control column assembly protractor, SPL-1680 from the first officer's control column.

SUBTASK 27-41-00-410-006

(4) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

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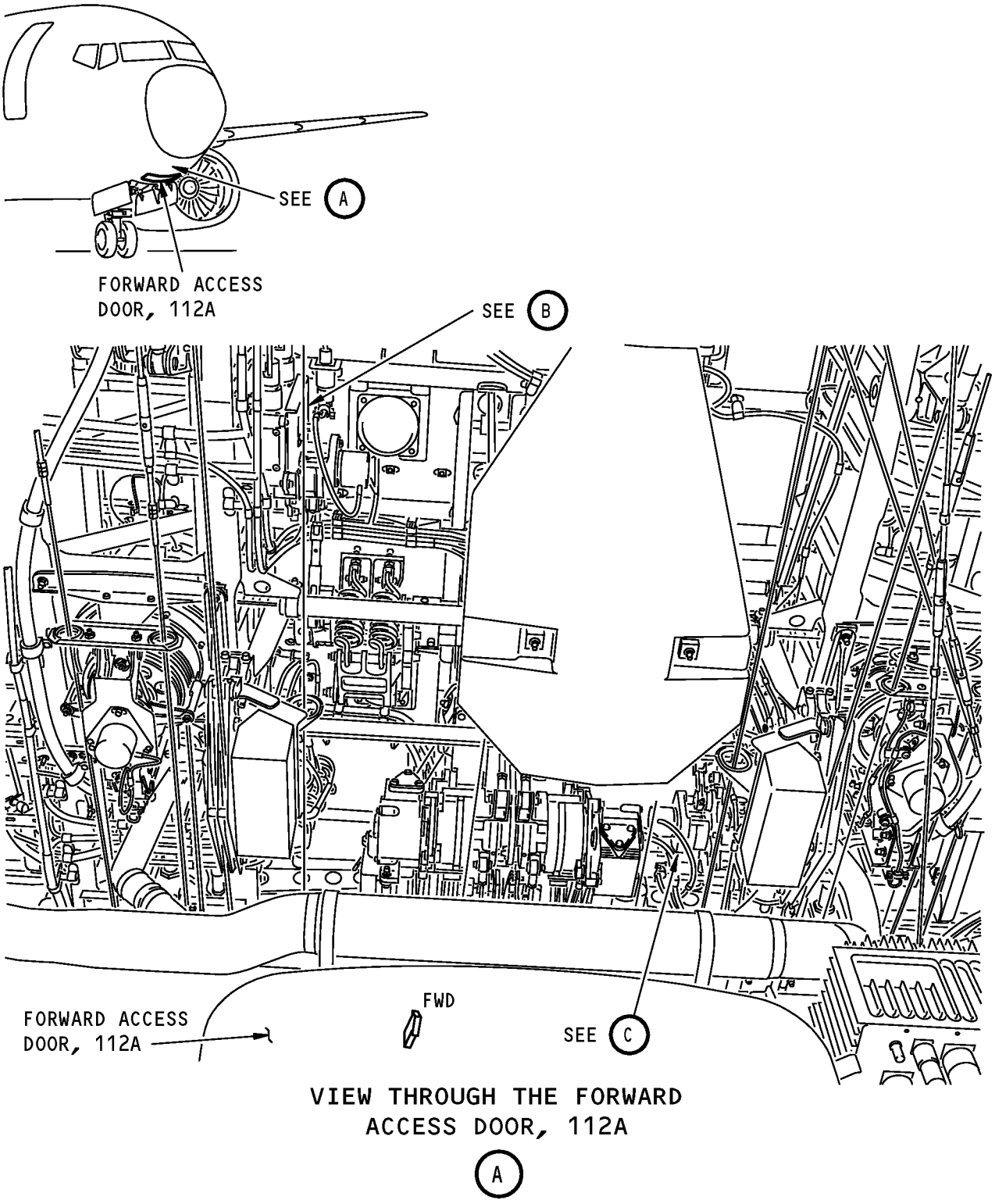

Column Cutout Switch Test
Figure 506 (Sheet 1 of 3)/27-41-00-990-808

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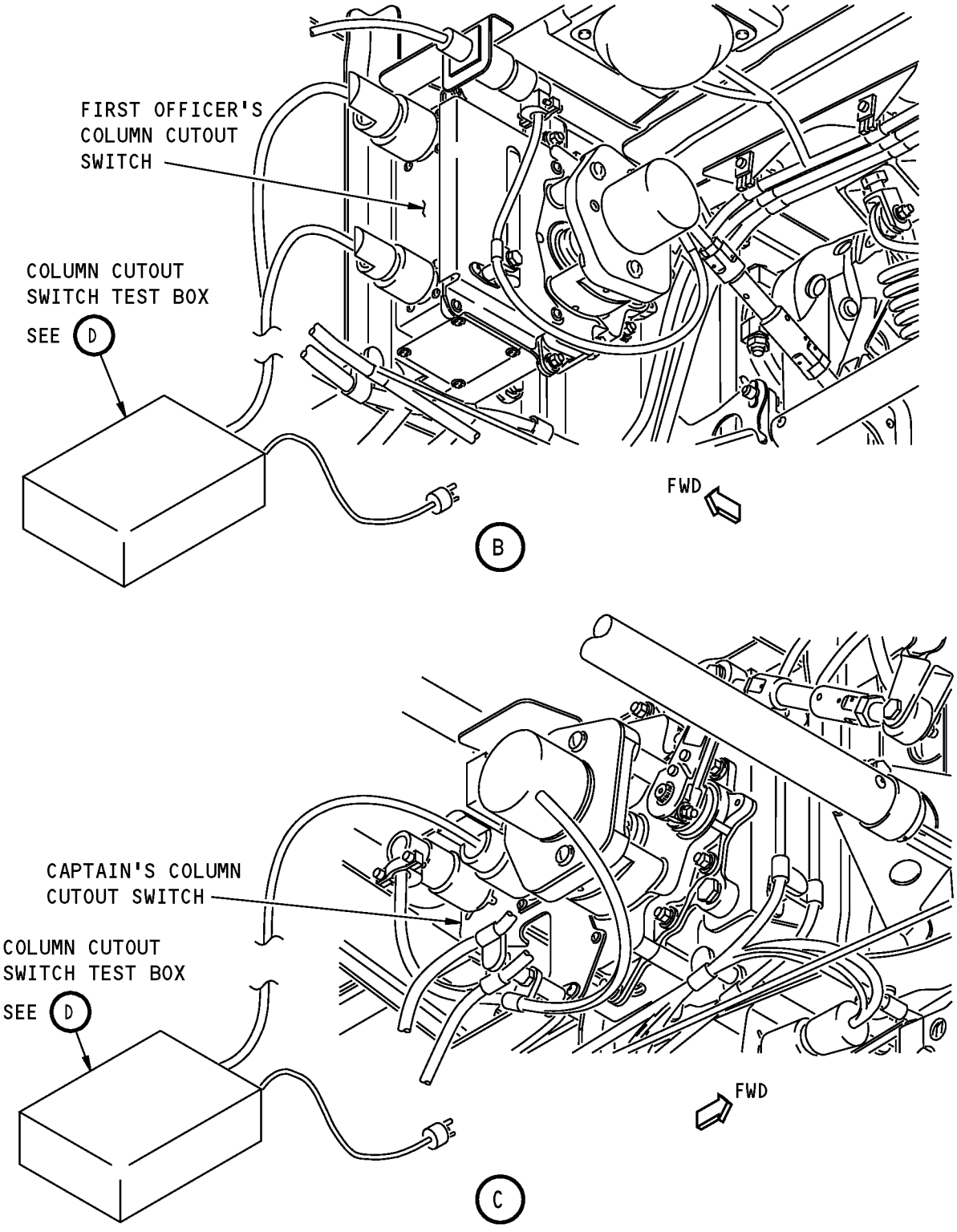

Column Cutout Switch Test
Figure 506 (Sheet 2 of 3)/27-41-00-990-808

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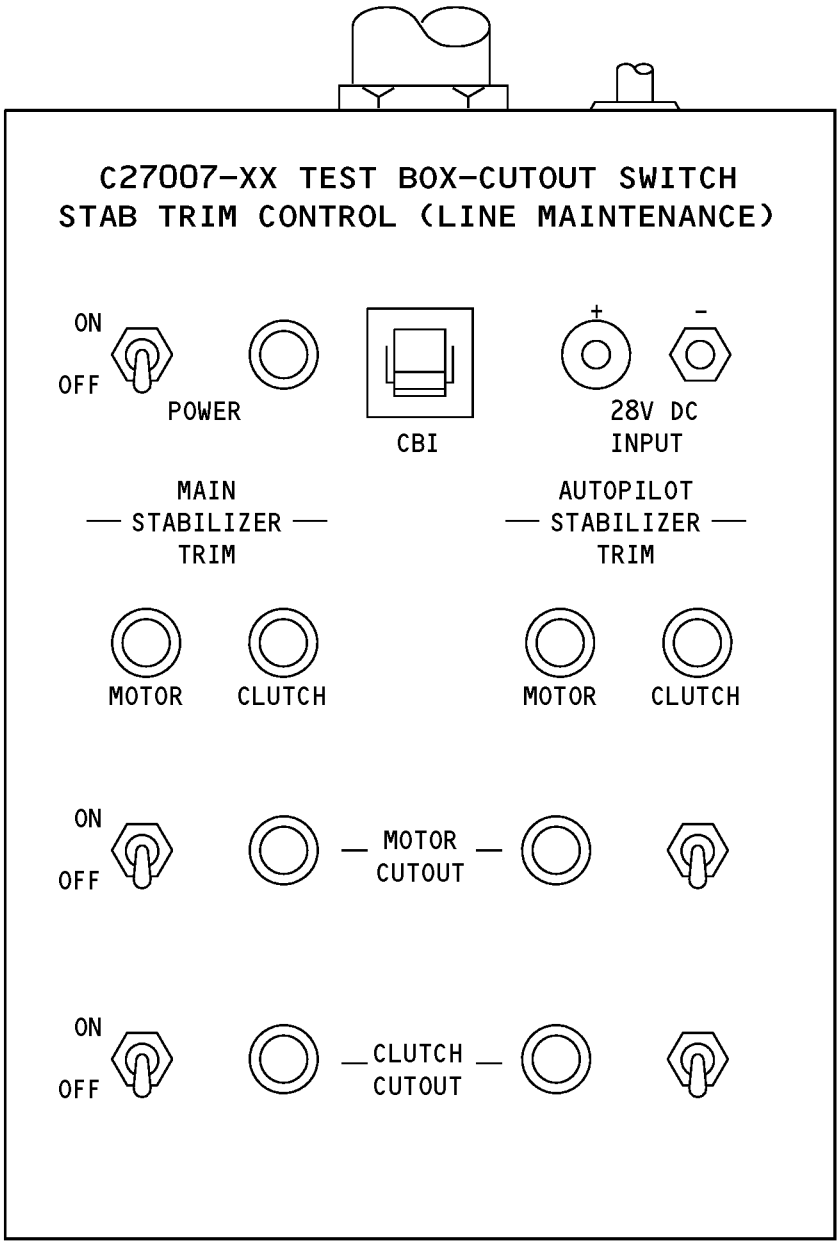

COLUMN CUTOUT SWITCH TEST BOX

D

Column Cutout Switch Test
Figure 506 (Sheet 3 of 3)/27-41-00-990-808

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HORIZONTAL STABILIZER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a horizontal stabilizer

(2) An installation of a horizontal stabilizer.

B. You can remove and install the horizontal stabilizer with or without the elevator and elevator tab.

C. This procedure is applicable for the left and right horizontal stabilizers.

TASK 27-41-11-000-801

2. Horizontal Stabilizer Removal

(Figure 402, Figure 404, Figure 405)

A. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-800-802	Remove Pressure from the Elevator Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1672	Assembly - Lock, Stabilizer Trim (Part #: F71336-501, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2030	Equipment - Pin Removal, Horizontal Stabilizer (Part #: C55005-11, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2035	Sling - Horizontal Stabilizer (standard sling, used to remove and install horizontal stabilizer with or without elevator attached) (Part #: C55007-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right
330	Subzone - Left Horizontal Stabilizer and Elevator
340	Subzone - Right Horizontal Stabilizer and Elevator

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D. Access Panels

Number	Name/Location
317AL	Tail Cone Access Door
318BR	Tailcone Access Door
331A	Horizontal Stabilizer, Gap Cover
331AZ	Horizontal Stabilizer, Access Panel, Inboard L.E. Closure Rib
332AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
333AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
333AZ	Horizontal Stabilizer, Access Panel, Inboard T.E. Closure Rib
341A	Horizontal Stabilizer, Gap Cover
341AZ	Horizontal Stabilizer, Access Panel - Inbd L.E. Closure Rib
342AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body
343AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body
343AZ	Horizontal Stabilizer, Access Panel - Inbd T.E. Closure Rib

E. Prepare for the Removal

NOTE: If the horizontal stabilizer is being removed and the same stabilizer, elevator, and elevator tab is going to be re-installed (without elevator or elevator tab rework or adjustment), then the following procedure will determine if a flight test is necessary.

NOTE: If the tailcone is removed or it's position is adjusted during the elevator or stabilizer removal procedure, the left and right elevator index plate positions will be in a different position when the tailcone is re-installed. The elevator position cannot be properly measured with the elevator index plate in a different location, therefore, you must do a power-off flight test.

SUBTASK 27-41-11-700-001

(1) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

SUBTASK 27-41-11-860-007

(2) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

SUBTASK 27-41-11-860-008

(3) Use the bar, SPL-1677 to set the B dimension of the horizontal stabilizer at 39.89 +/- 0.01 inches (1013.2 +/- 0.3 mm) (this is a neutral stabilizer setting of zero degrees or 4 units of trim) Figure 401.

SUBTASK 27-41-11-860-009

(4) Move the control column forward and aft several times and then let it go at the neutral position.

SUBTASK 27-41-11-860-010

(5) Do the following to measure the elevator position:

(a) Measure the left elevator position on the elevator index plate Figure 403.

NOTE: Be sure to note if the elevator is above or below the neutral mark.

(b) Measure the right elevator position on the elevator index plate Figure 403.

NOTE: Be sure to note if the elevator is above or below the neutral mark.

SUBTASK 27-41-11-860-001

(6) Do this task: Remove Pressure from the Elevator Hydraulic Systems A and B, TASK 27-31-00-800-802.

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SUBTASK 27-41-11-860-002

(7) Set the stabilizer trim cutout switches to the CUTOUT position.

NOTE: The stabilizer trim cutout switches are installed on the control stand.

SUBTASK 27-41-11-860-003

(8) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-11-860-011

(9) Open the following circuit breaker (if installed):

(a) Open this circuit breaker and install safety tag:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
A	15	C00644	EXTERIOR LIGHTING LOGO ILLUM

SUBTASK 27-41-11-860-004

(10) If necessary, use the stabilizer trim wheel on the control stand to set the horizontal stabilizer at zero degrees (4 units of trim).

SUBTASK 27-41-11-480-001

(11) Install the lock, SPL-1672 on the stabilizer trim wheel at the control stand (Figure 402):

(a) Turn the trim wheel to put the handle at the top of the wheel.

(b) Adjust the height of the trim lock to put the trim wheel handle correctly on the yoke.

(c) Install the pin through the yoke.

(d) Install the safety pin.

SUBTASK 27-41-11-410-004

(12) Open this access panel:

Number	Name/Location
318BR	Tailcone Access Door

SUBTASK 27-41-11-010-001

(13) To gain access for the left horizontal stabilizer, do this step:

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Open these access panels:

Number	Name/Location
331A	Horizontal Stabilizer, Gap Cover
331AZ	Horizontal Stabilizer, Access Panel, Inboard L.E. Closure Rib
332AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
333AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
333AZ	Horizontal Stabilizer, Access Panel, Inboard T.E. Closure Rib

SUBTASK 27-41-11-010-002

(14) To gain access for the right horizontal stabilizer, do this step:

Open these access panels:

Number	Name/Location
341A	Horizontal Stabilizer, Gap Cover
341AZ	Horizontal Stabilizer, Access Panel - Inbd L.E. Closure Rib
342AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body
343AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body
343AZ	Horizontal Stabilizer, Access Panel - Inbd T.E. Closure Rib

F. Horizontal Stabilizer Removal

SUBTASK 27-41-11-480-002

(1) Install the sling, SPL-2035 (Figure 404):

(a) Remove the bolts [1] and bolts [2] from the stabilizer top surface.

CAUTION: MAKE SURE YOU INSTALL THE HOISTING SLING CORRECTLY WHEN YOU REMOVE THE HORIZONTAL STABILIZER WITH OR WITHOUT THE ELEVATOR INSTALLED. IF YOU DO NOT INSTALL THE HOISTING SLING CORRECTLY FOR THE REMOVAL OF THE HORIZONTAL STABILIZER, YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Attach the sling, SPL-2035 to the horizontal stabilizer with fasteners.

(c) Attach a hoist to the sling, SPL-2035.

CAUTION: YOU MUST CAREFULLY LIFT THE HOISTING SLING. A SUDDEN MOVEMENT OF THE HOISTING SLING CAN CAUSE DAMAGE TO THE HORIZONTAL STABILIZER.

(d) Apply sufficient tension to the sling to lift the weight of the horizontal stabilizer.

SUBTASK 27-41-11-020-001

CAUTION: RELEASE THE CONNECTION SLOWLY AND LET THE PRESSURE DECREASE BEFORE YOU COMPLETELY REMOVE THE HYDRAULIC LINES. IF YOU DISCONNECT A HYDRAULIC LINE WHEN IT HAS PRESSURE, A SPRAY OF THE HYDRAULIC FLUID CAN CAUSE INJURY TO PERSONS.

(2) Disconnect the hydraulic line [25] of the elevator tab installed aft of the stabilizer rear spar.

SUBTASK 27-41-11-020-008

(3) Disconnect the following electrical connectors:

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(a) Flight recorder position sensor

(b) Exterior logo light (if installed).

SUBTASK 27-41-11-020-002

(4) If the elevator is attached to the horizontal stabilizer, then do this step:

(a) Open this access panel:

Number	Name/Location
318BR	Tailcone Access Door

or

Open this access panel:

Number	Name/Location
317AL	Tail Cone Access Door

(b) Remove the nut [24], washer [23], washer [22], and bolt [21] to disconnect the elevator control pushrod from the elevator.

SUBTASK 27-41-11-020-003

(5) Remove the horizontal stabilizer [26] (Figure 405):

NOTE: If the bolts are frozen, use equipment, SPL-2030 to assist in removal.

(a) At the horizontal stabilizer rear spar, do these steps:

1) Remove the nut [32] and washer [34] from the bolt [28].

2) Remove the nuts [35] and washers [34] from the bolts [38].

3) Remove the bolt [28], washer [29], and washer [27]. Keep a record of the bolt length and location for the installation.

NOTE: It may be necessary for you to remove the seal support structure before removing this bolt.

4) Remove the bolts [38], washers [37], and washers [27]. Keep a record of the each bolt length and location for the installation.

NOTE: It may be necessary for you to remove the seal support structure before removing these bolts.

5) Remove the pin [33], pins [36], and anti-rotation lock [31].

NOTE: If it is necessary, adjust the tension of the sling to help remove the pins.

6) For each bolt or pin, remove and inspect it. If bolt or pin shows signs of damage: pitting, corrosion, no plating (pins only), galling (bolts only) or wear beyond drawing tolerances, replace it with the improved bolt or pin. If the pins or bolts show no sign of damage, it can be reinstalled or replaced with an improved front spar bolt or rear spar pin designed to resist wear, galling, or corrosion.

NOTE: If an existing pin has missing plating, or plating that is damaged, but has no pitting, corrosion, or galling, it can be repaired and installed. However, you must still accomplish repeat inspections.

(b) At the horizontal stabilizer front spar, do these steps:

1) Remove the pins [44], nuts [43], washers [42], shims [45], washers [40], and bolts [41].

(c) Lift the horizontal stabilizer [26] out horizontally, then lower to the support stand.

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(d) For each bolt or pin removed, inspect it and If bolts or pins shows signs of damage: pitting, corrosion, no plating (pins only), galling (bolts only) or wear beyond drawing tolerances, replace it with the improved bolt or pin. If the pins or bolts show no sign of damage, it can be reinstalled or replaced with an improved front spar bolt or rear spar pin designed to resist wear, galling, or corrosion.

END OF TASK

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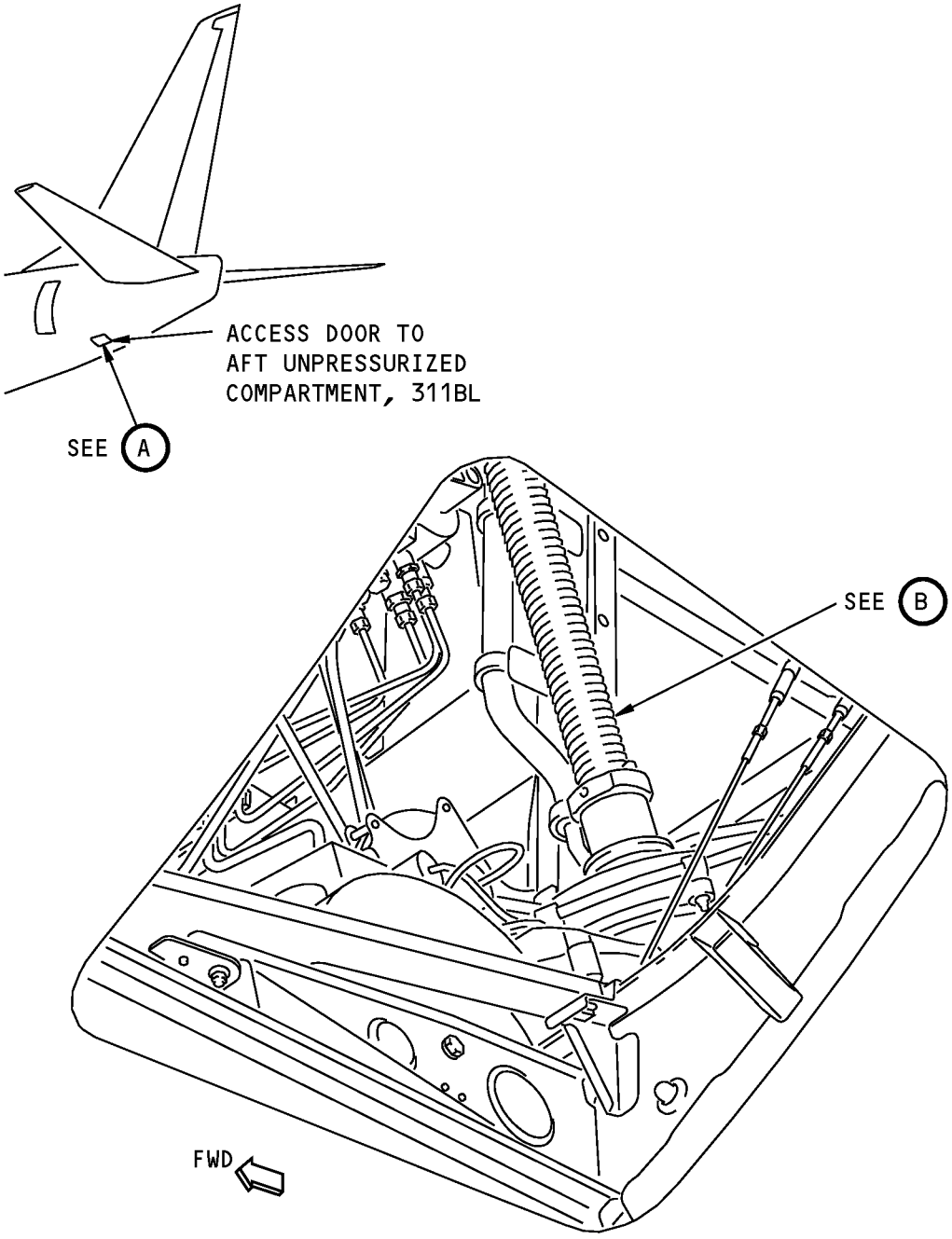

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Stabilizer B Dimension Setting
Figure 401 (Sheet 1 of 2)/27-41-11-990-806

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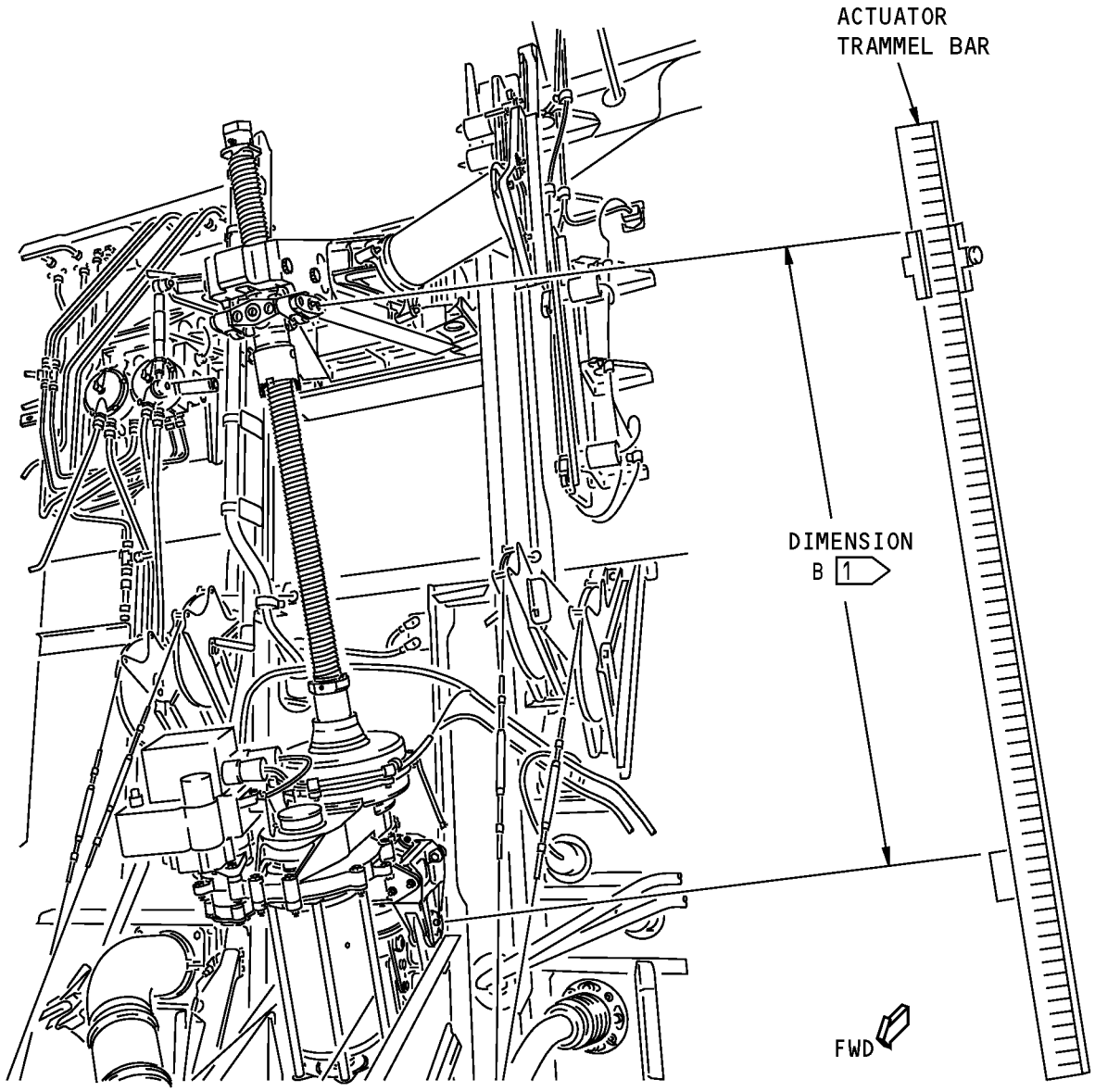

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Stabilizer B Dimension Setting
Figure 401 (Sheet 2 of 2)/27-41-11-990-806

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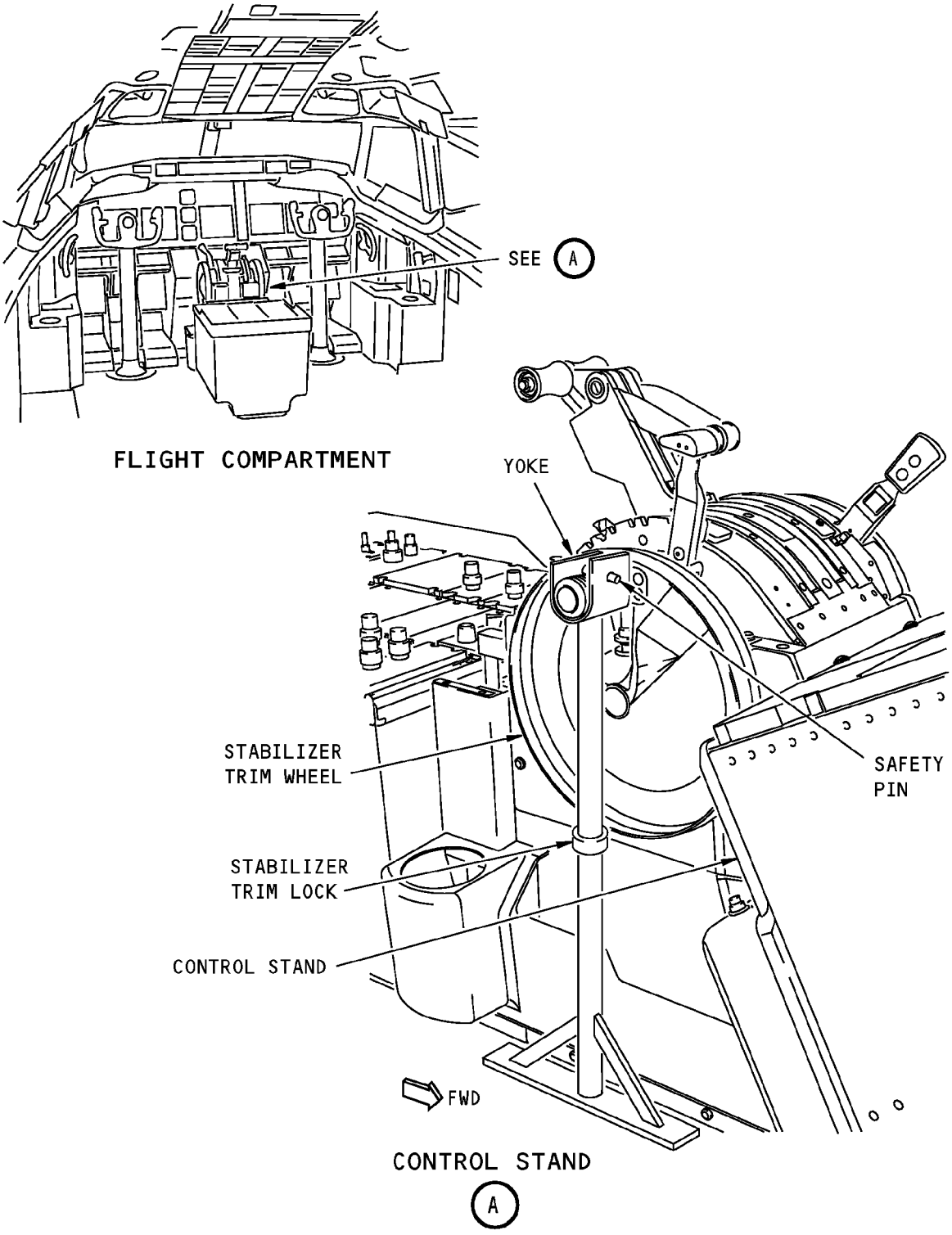

Stabilizer Trim Lock Installation
Figure 402/27-41-11-990-801

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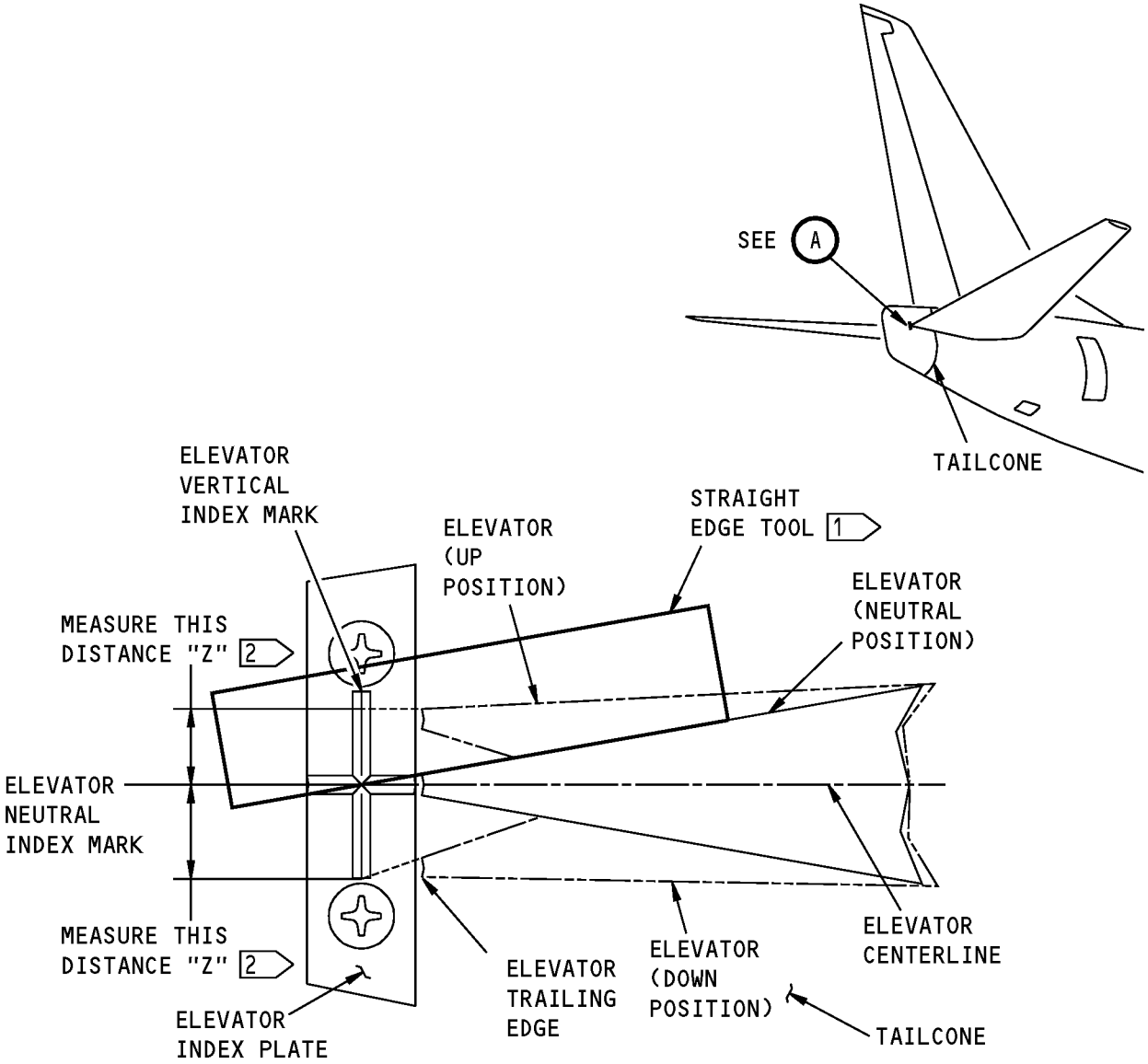

ELEVATOR POSITION ADJUSTMENT MEASUREMENTS
(RIGHT SIDE)

A

1 ELEVATOR IS AT NEUTRAL WHEN THE BOTTOM EDGE OF A STRAIGHT EDGE TOOL PLACED ON THE UPPER ELEVATOR SURFACE PASSES THROUGH THE MIDDLE OF THE ELEVATOR INDEX PLATE, AS SHOWN.

2 THE DISTANCE "Z" IS MEASURED USING A STRAIGHT EDGE TOOL ON THE UPPER SURFACE OF THE ELEVATOR TO INTERSECT WITH THE ELEVATOR VERTICAL INDEX MARK AT THE ELEVATOR NEUTRAL INDEX MARK.

Elevator Position Measurement
Figure 403/27-41-11-990-807

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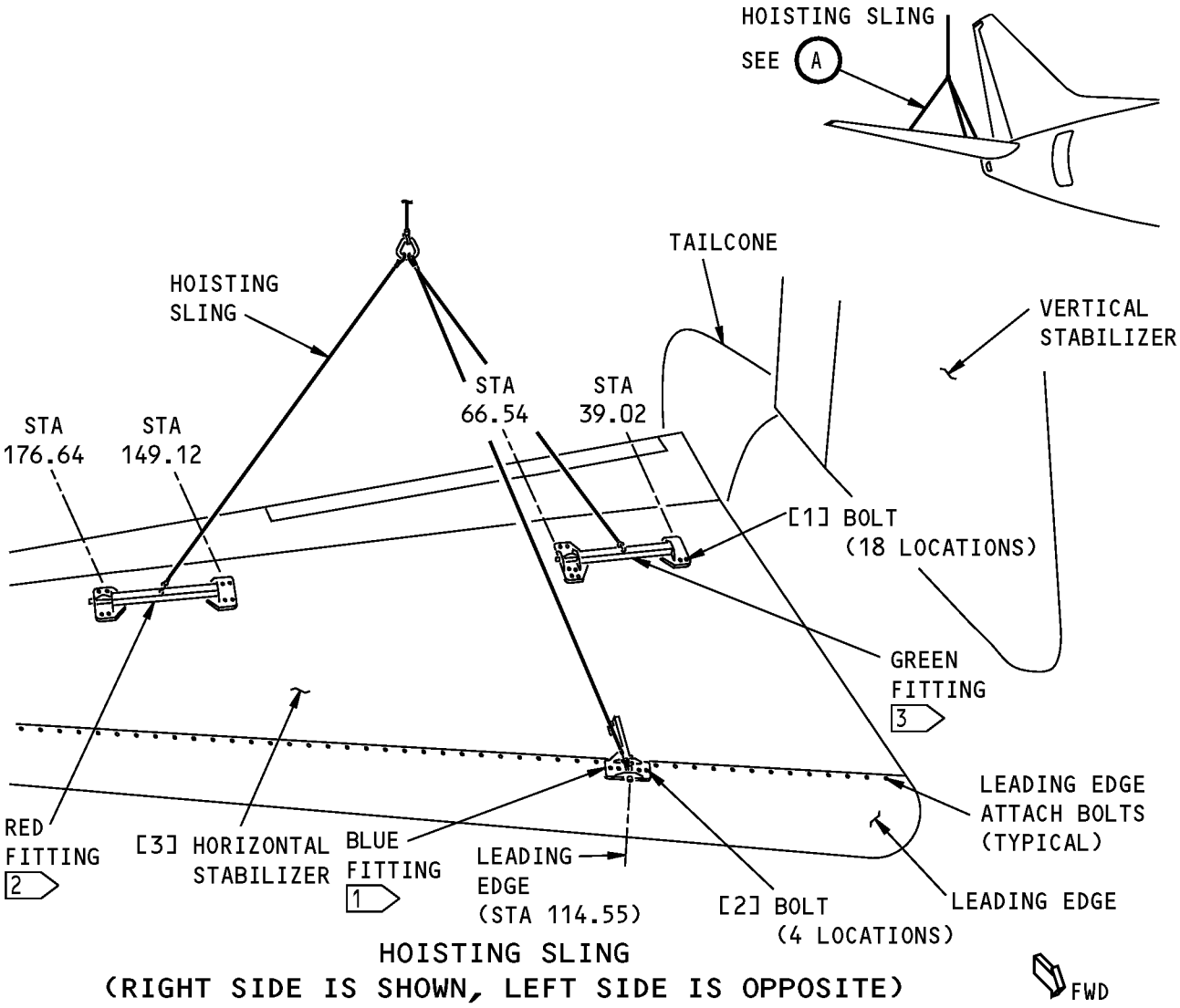

HOISTING SLING
(RIGHT SIDE IS SHOWN, LEFT SIDE IS OPPOSITE)

A

1 THE FORWARD ATTACH (BLUE) FITTING IS ATTACHED TO THE STABILIZER FRONT SPAR (LEADING EDGE ATTACH BOLTS).

TWO BOLTS ARE USED ON THE INBOARD SIDE OF THE LEADING EDGE RIB (STA 114.55) AND TWO BOLTS ARE USED ON THE OUTBOARD SIDE OF THE LEADING EDGE RIB (STA 114.55).

2 THE AFT OUTBOARD ATTACH (RED) FITTING IS ATTACHED TO THE ELEVATOR HINGE SUPPORT RIBS, FOUR BOLTS ARE USED AT STA 176.64 AND FOUR BOLTS ARE USED AT STA 149.12.

3 THE AFT INBOARD ATTACH (GREEN) FITTING IS ATTACHED TO THE ELEVATOR HINGE SUPPORT RIBS, SIX BOLTS ARE USED AT STA 66.54 AND FOUR BOLTS ARE USED AT STA 39.02.

Horizontal Stabilizer Hoisting Sling Installation
Figure 404/27-41-11-990-802

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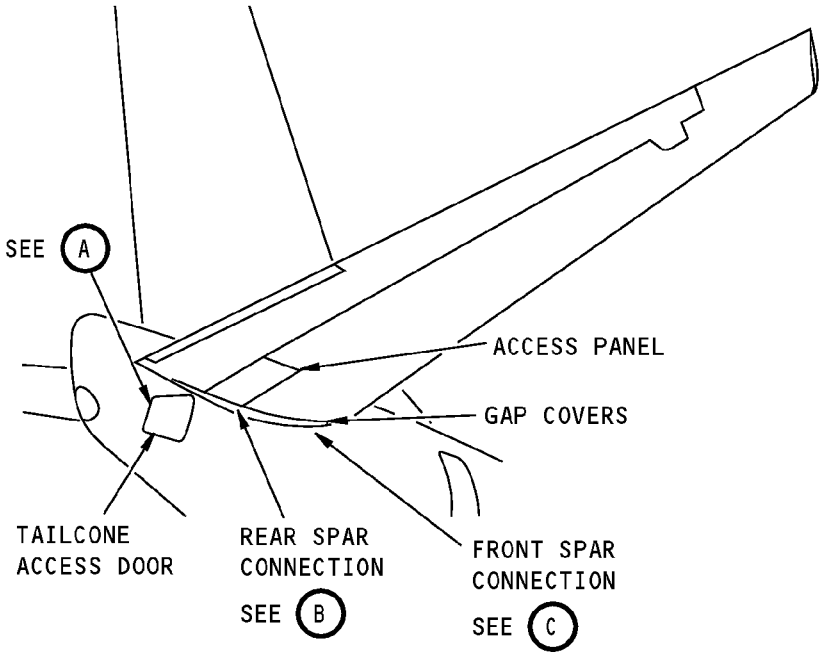

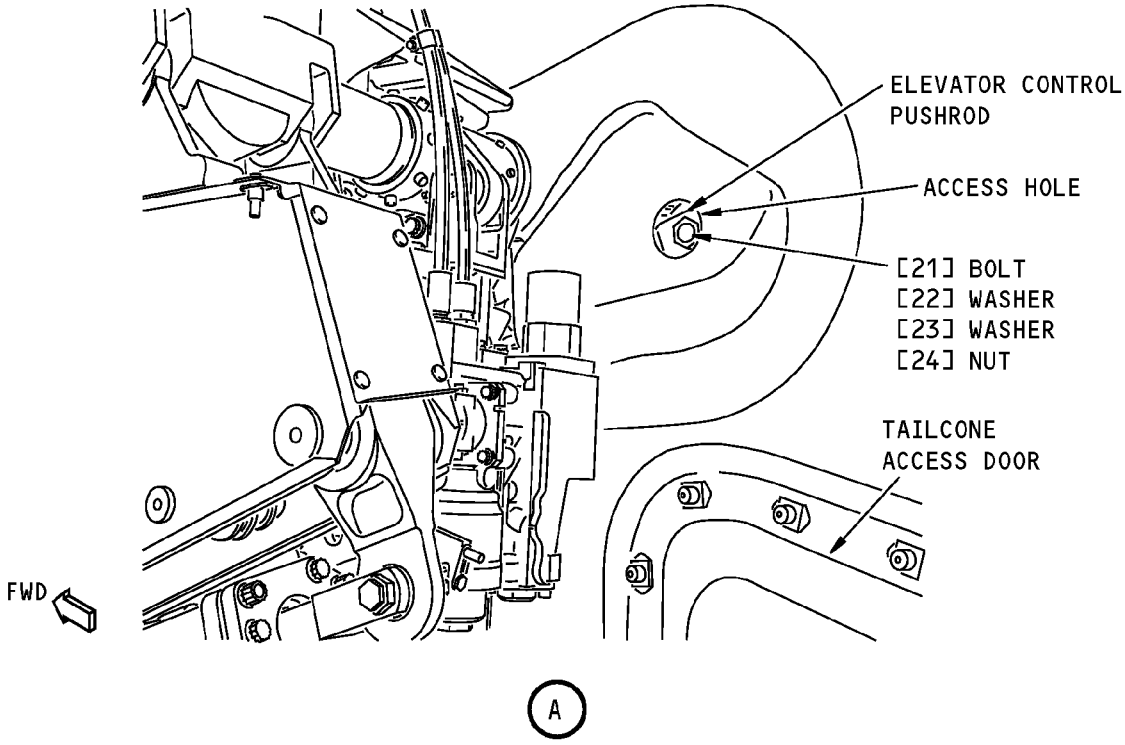

Horizontal Stabilizer Installation
Figure 405 (Sheet 1 of 7)/27-41-11-990-803

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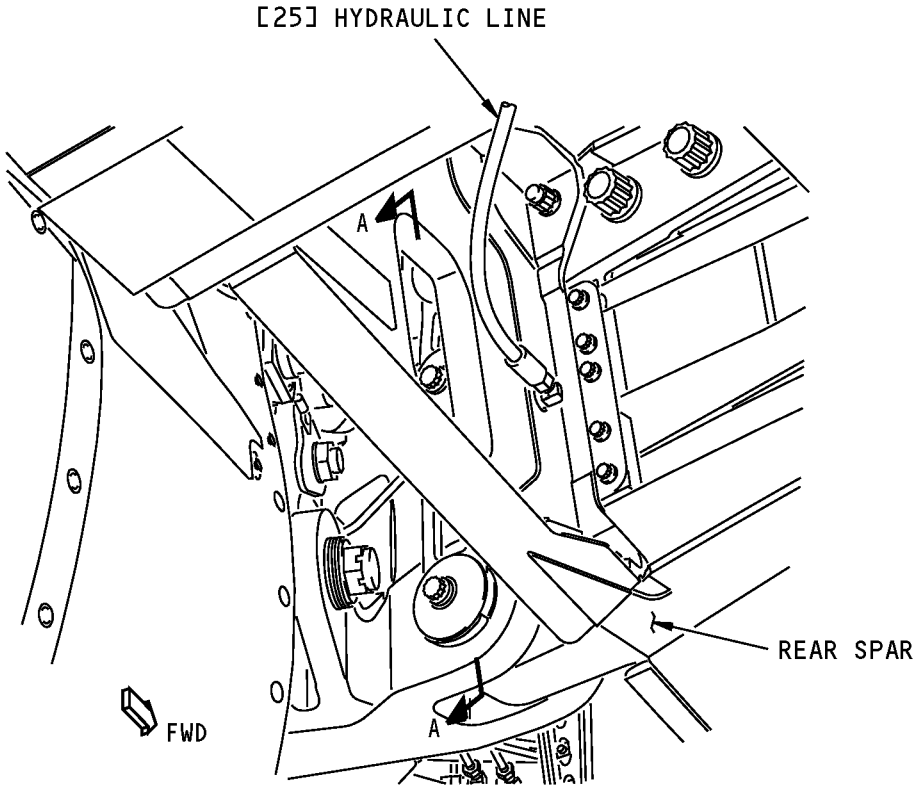

REAR SPAR CONNECTION
(ACCESS PANELS AND GAP COVERS REMOVED)
(RIGHT SIDE IS SHOWN, LEFT SIDE IS OPPOSITE)

B

Horizontal Stabilizer Installation
Figure 405 (Sheet 2 of 7)/27-41-11-990-803

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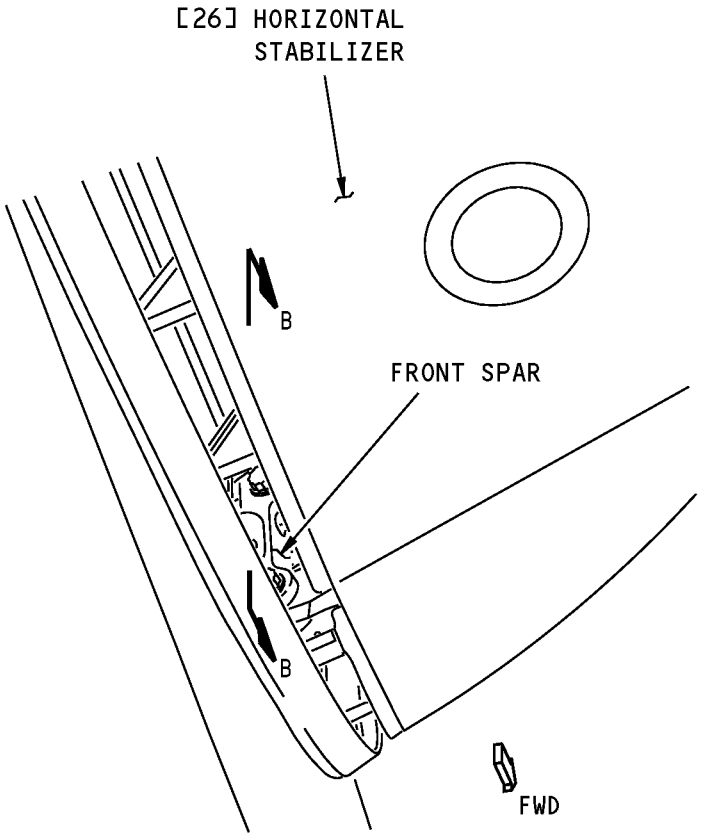

FRONT SPAR CONNECTION
(GAP COVERS REMOVED)
(RIGHT SIDE IS SHOWN, LEFT SIDE IS OPPOSITE)

C

Horizontal Stabilizer Installation
Figure 405 (Sheet 3 of 7)/27-41-11-990-803

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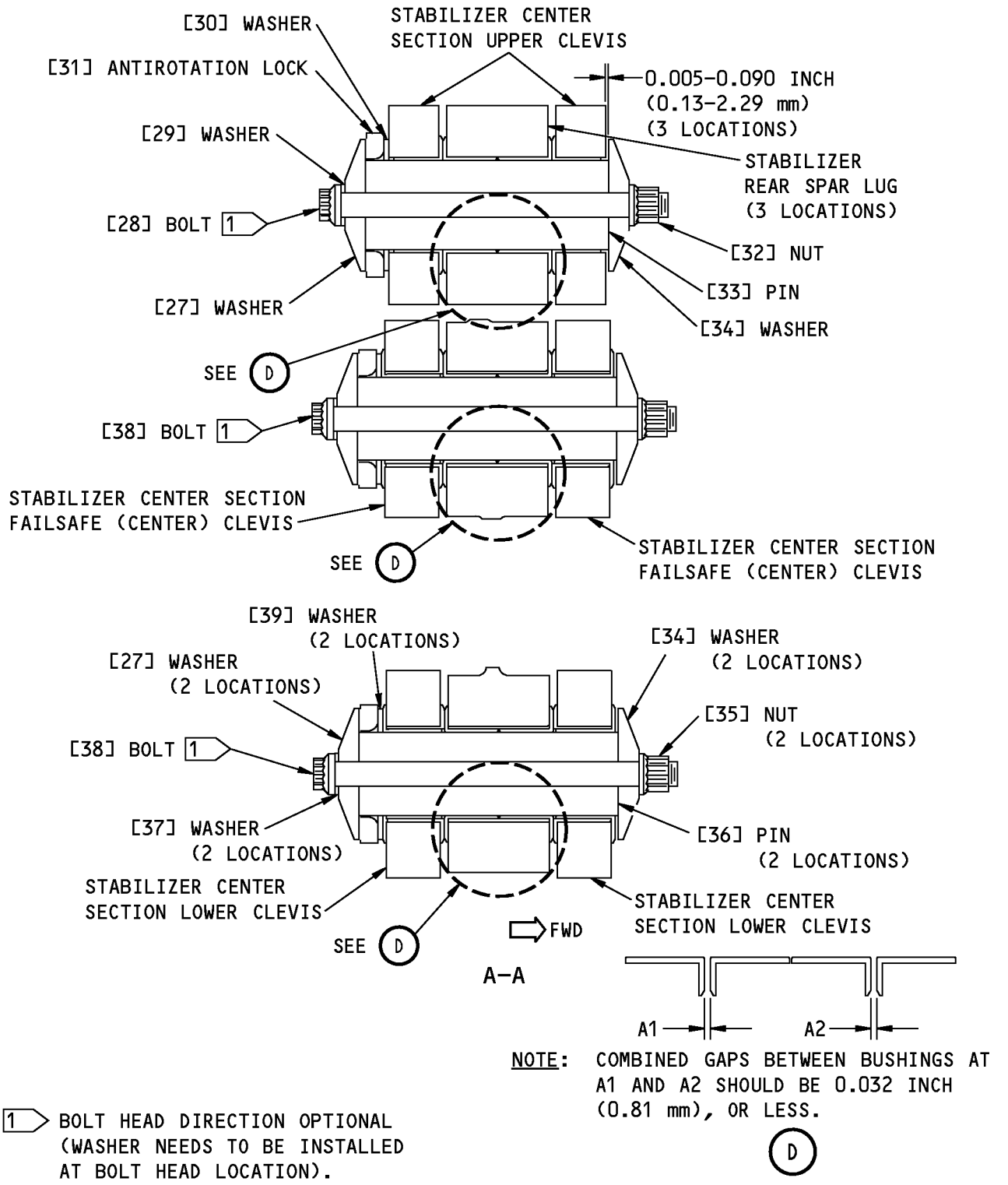

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Horizontal Stabilizer Installation
Figure 405 (Sheet 4 of 7)/27-41-11-990-803

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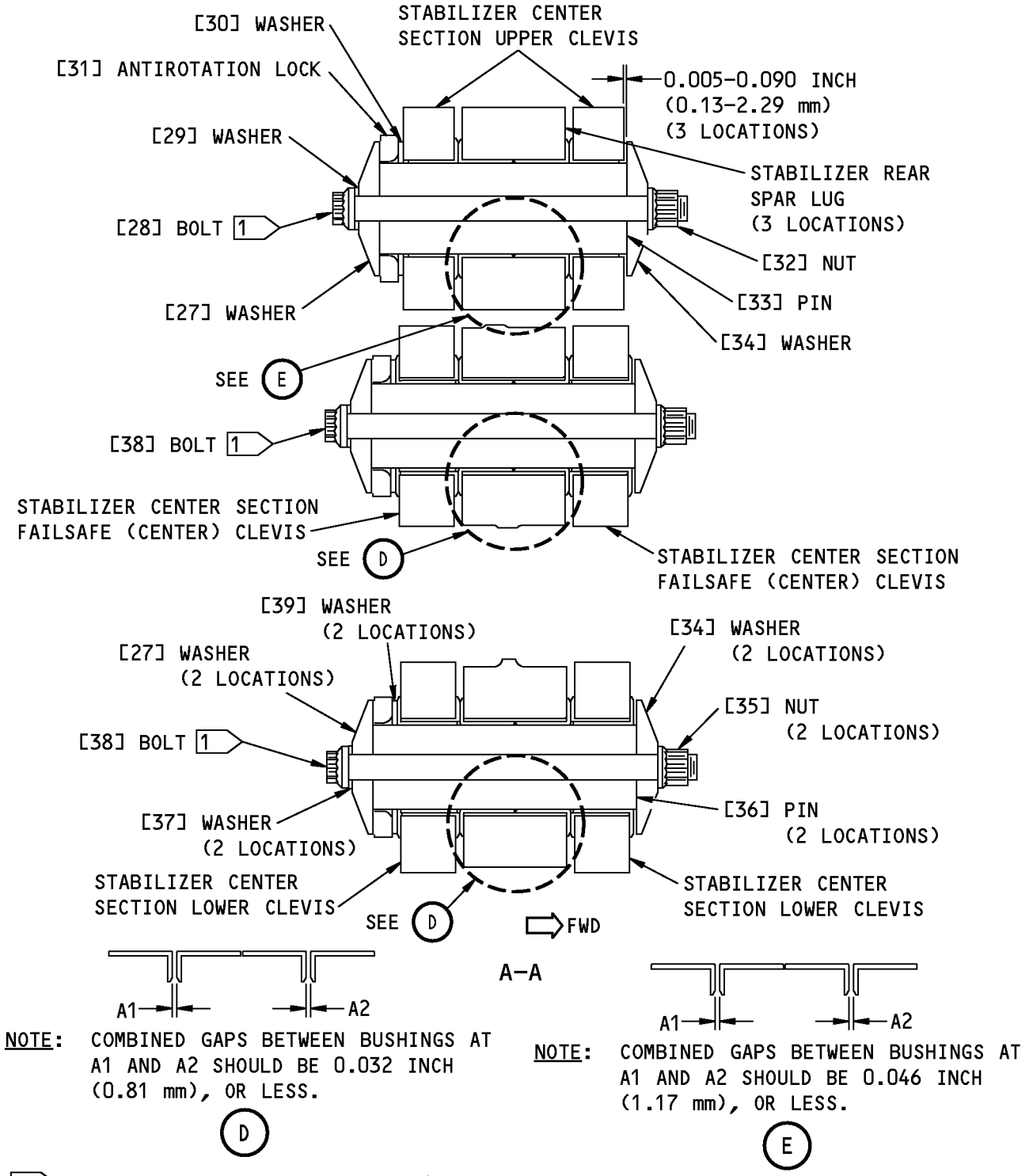

Horizontal Stabilizer Installation
Figure 405 (Sheet 5 of 7)/27-41-11-990-803

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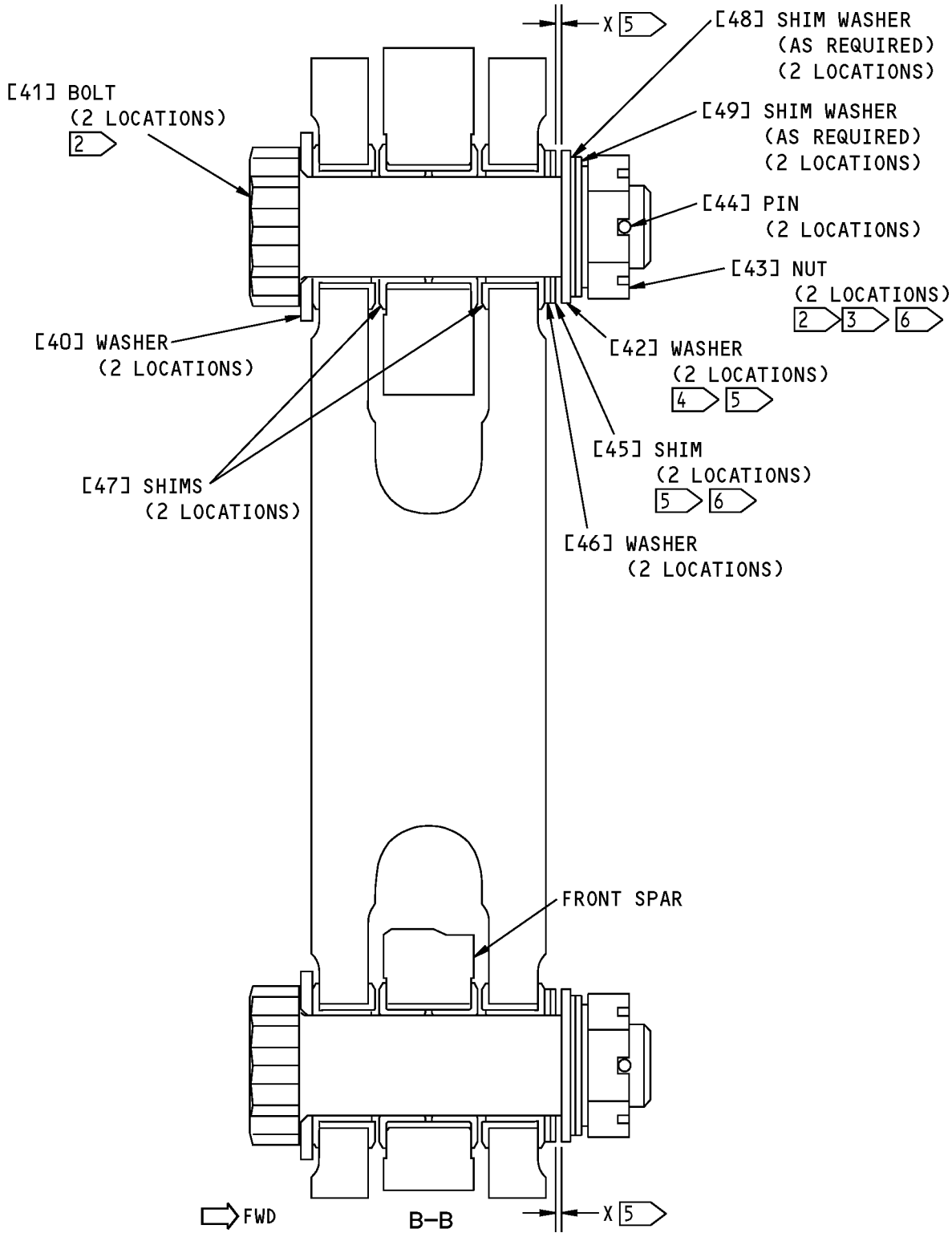

Horizontal Stabilizer Installation
Figure 405 (Sheet 6 of 7)/27-41-11-990-803

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2 BEFORE INSTALLING NUT, COAT THREADS OF BOLT AND NUT WITH BMS 3-28 ANTI-SEIZE COMPOUND.

3 TORQUE NUT TO AN INITIAL TORQUE OF 50 POUND-INCHES (5.6 NEWTON-METERS)

4 AFTER INITIAL TORQUE, WASHER [42] OR SHIM WASHER [48]/[49] MUST TOUCH STEPPED PART OF BOLT [41]. IF THE WASHER [42] OR SHIM WASHER [48]/[49] DOES NOT CONTACT STEPPED PART OF BOLT [41], REMOVE LAMINATED SHIMS [45] UNTIL IT DOES.

5 THE GAP "X" BETWEEN THE SHIMS [45] AND WASHER [42] IS MORE THAN 0.002 INCH (0.05 mm), ADD SHIMS [45] UNTIL THE GAP "X" IS BETWEEN 0.002-0.000 INCH (0.05-0.00 mm).

6 WHEN SHIM [45] ADJUSTMENTS ARE COMPLETE, TORQUE NUT TO 950-1400 POUND-INCHES (107.4-158.2 NEWTON-METERS).

Horizontal Stabilizer Installation
Figure 405 (Sheet 7 of 7)/27-41-11-990-803

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TASK 27-41-11-400-801

3. Horizontal Stabilizer Installation

(Figure 402, Figure 404, Figure 405, Figure 406)

A. References

Reference	Title
27-31-00-700-801	Null Procedure - Mach Trim Actuator (P/B 201)
27-31-00-700-804	Elevator Travel Limit - Test (P/B 501)
27-31-00-700-815	Elevator Tab Control System - Operational Test (P/B 501)
27-31-00-710-803	Elevator Power-Off Flight - Test (P/B 501)
27-31-00-800-801	Elevator Hydraulic System A and B - Pressurization (P/B 201)
27-31-00-820-802	Elevator Control Pushrods - Adjustment (P/B 501)
27-31-00-820-803	Input Rods of the Elevator Power Control Unit - Adjustment (P/B 501)
27-31-11-400-801	Elevator - Installation (P/B 401)
31-31-51-700-801	Elevator Position Transmitter Installation Test (P/B 401)
33-49-00-960-802	Logo Light - Light Assembly Replacement (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1672	Assembly - Lock, Stabilizer Trim (Part #: F71336-501, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2035	Sling - Horizontal Stabilizer (standard sling, used to remove and install horizontal stabilizer with or without elevator attached) (Part #: C55007-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D50004	Compound - Antiseize	BMS3-28
G50136	Paste - Corrosion Inhibiting, Non-drying	BMS 3-38

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
317	Tail Cone Compartment - Left
318	Tail Cone Compartment - Right
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge

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E. Access Panels

Number	Name/Location
317AL	Tail Cone Access Door
318BR	Tailcone Access Door
331A	Horizontal Stabilizer, Gap Cover
331AZ	Horizontal Stabilizer, Access Panel, Inboard L.E. Closure Rib
332AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
333AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
333AZ	Horizontal Stabilizer, Access Panel, Inboard T.E. Closure Rib
341A	Horizontal Stabilizer, Gap Cover
341AZ	Horizontal Stabilizer, Access Panel - Inbd L.E. Closure Rib
342AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body
343AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body
343AZ	Horizontal Stabilizer, Access Panel - Inbd T.E. Closure Rib

F. Horizontal Stabilizer Installation

SUBTASK 27-41-11-480-003

(1) Install the sling, SPL-2035 to the horizontal stabilizer [26] (Figure 404).

SUBTASK 27-41-11-640-001

(2) Lubricate the bolts, washers, bushings in the front and rear spar fittings, and pins with corrosion inhibiting non-drying paste, G50136.

NOTE: Do not put the corrosion inhibiting non-drying paste, G50136 on the threaded portion of the bolts.

SUBTASK 27-41-11-640-002

(3) Lubricate the bolt threads and nut threads with compound, D50004.

NOTE: This anti-sieze compound will prevent galling of the threads.

SUBTASK 27-41-11-420-001

(4) Install the horizontal stabilizer [26] (Figure 405):

(a) Lift and put the horizontal stabilizer [26] in its position.

(b) Align the horizontal stabilizer [26] with the rear and front fittings on the airplane.

(c) Temporarily install the bolts [41] on the front rear spar of the horizontal stabilizer [26].

NOTE: You can use the stabilizer alignment tool, C55008-1, to align the stabilizer in place of using the bolts [41].

(d) At the rear spar of the horizontal stabilizer [26], do these steps:

1) Install the anti-rotation lock [31], pin [33], washer [30], washer [27], washer [29], bolt [28] with the bolt heads either forward or aft, washer [34], and nut [32].

2) Install the pins [36], washers [39], washers [27], washers [37], bolts [38] with the bolt heads either forward or aft, washers [34], and nuts [35].

3) Measure the clearance between the bushing faces of the external and internal lugs,Figure 405.

NOTE: This clearance measurement is for the sum of the two clearances (A1 and A2) at each of the three rear spar clevises.

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a) Make sure the maximum allowable clearance for each clevis at the center (failsafe) and lower lugs (sum of the two clearances, A1 and A2, at each lug) is 0.032 in. (0.81 mm).

HAP 001-013, 015-026 PRE SB 737-55-1074

b) Make sure the maximum allowable clearance for the upper clevis (sum of the two clearances, A1 and A2) is 0.032 in. (0.81 mm).

HAP 028-054, 101-999; HAP 001-013, 015-026 POST SB 737-55-1074

c) Make sure the maximum allowable clearance for the upper clevis (sum of the two clearances, A1 and A2) is 0.046 in. (1.17 mm).

HAP ALL

4) Tighten the nut [32] to 575 ±75 in-lb (65 ±9 N·m)and nuts [35] to 575 ±75 in-lb (65 ±9 N·m)but keep a clearance of 0.005 in. (0.13 mm) – 0.090 in. (2.29 mm) after the nut is tightened.

NOTE: The clearance of 0.005 in. (0.13mm) - 0.090 in. (2.29mm) after the nut [32], and [35] are tightened, is taken between the Stabilizer Center Section Clevis and Washer [34].

(e) At the front spar of the horizontal stabilizer [26], do these steps:

1) Remove the bolts [41].

2) Measure the clearance between the bushing faces of the lugs and clevises.

3) Install the shims [47] to get a maximum clearance of 0.005 in. (0.13 mm) for each side of the lugs (maximum of 0.010 in. (0.25 mm) total allowable clearance for each clevis).

4) Install the washers [40], bolts [41], washers [42], shims [45], and nuts [43].

NOTE: Shim washers [48] and/or [49] may be added between the nut and washer to align the bolt pin hole and the nut.

a) Tighten the nuts [43] to an initial torque of 50 in-lb (5.6 N·m).

b) Make sure the stepped portion of the bolts [41] touch the washers [42] or shim washers [48] or [49], if used.

NOTE: If it is necessary, remove the shims [45] until the stepped portion of the bolts [41] touch the washers [42] or shim washers [48] or [49], if used.

c) Make sure that the gap "X" between the shims [45] and washers [42] is not greater than 0.002 in. (0.05 mm).

NOTE: If it is necessary, add shims [45] until the gap "X" is between 0.002 in. (0.05 mm) - 0.000 in. (0.00 mm).

d) Tighten the nuts [43] to 950 in-lb (107.3 N·m) – 1400 in-lb (158.2 N·m).

e) Install the new pins [44].

NOTE: Tighten or loosen the nuts [43], if it is necessary to get the pin hole alignment.

SUBTASK 27-41-11-080-001

(5) Remove the sling, SPL-2035 from the horizontal stabilizer [26].

(a) Remove the fasteners from the hoisting sling.

(b) Install the bolts [1] and bolts [2] on the horizontal stabilizer [26].

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SUBTASK 27-41-11-420-002

(6) If the elevator is not attached to the horizontal stabilizer [26], then, do this task: Elevator - Installation, TASK 27-31-11-400-801.

SUBTASK 27-41-11-420-003

(7) If the elevator is attached to the horizontal stabilizer [26], then connect the elevator control pushrod to the elevator:

(a) Move the elevator by hand to the neutral position.

(b) Install the bolt [21] with the bolt head inboard, washer [22], washer [23], and nut [24] to connect the elevator control pushrod to the elevator.

(c) Close this access panel:

Number	Name/Location
318BR	Tailcone Access Door

or

Close this access panel:

Number	Name/Location
317AL	Tail Cone Access Door

SUBTASK 27-41-11-420-004

(8) Connect the hydraulic line [25] (that is installed just aft of the stabilizer rear spar) of the elevator tab mechanism actuator.

SUBTASK 27-41-11-420-005

(9) Connect the following electrical connectors:

(a) Flight recorder position sensor

(b) Exterior logo light (if installed).

SUBTASK 27-41-11-410-001

(10) For the left horizontal stabilizer, do this step:

Close these access panels:

Number	Name/Location
331A	Horizontal Stabilizer, Gap Cover
331AZ	Horizontal Stabilizer, Access Panel, Inboard L.E. Closure Rib
332AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
333AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
333AZ	Horizontal Stabilizer, Access Panel, Inboard T.E. Closure Rib

SUBTASK 27-41-11-410-002

(11) For the right horizontal stabilizer, do this step:

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Close these access panels:

Number	Name/Location
341A	Horizontal Stabilizer, Gap Cover
341AZ	Horizontal Stabilizer, Access Panel - Inbd L.E. Closure Rib
342AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body
343AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body
343AZ	Horizontal Stabilizer, Access Panel - Inbd T.E. Closure Rib

SUBTASK 27-41-11-080-002

(12) Remove the lock, SPL-1672 from the stabilizer trim wheel at the control stand.

SUBTASK 27-41-11-820-001

(13) Adjust the stabilizer-to-body seals (Figure 406):

(a) Set the horizontal stabilizer to a zero degree trim (four units of trim).

(b) Make sure that the clearance between the stabilizer-to-body blade seals and the airplane body surface along the upper and lower horizontal edge is 0.01 in. (0.25 mm) - 0.05 in. (1.27 mm).

1) If necessary, adjust the stabilizer-to-body blade seals in or out.

(c) Make sure the stabilizer-to-body bulb seals touch and push against the airplane body surface.

(d) Move the stabilizer leading edge to the full down position (the ball nut is against the downstop).

(e) Make sure that the clearance is 0.01 in. (0.25 mm) - 0.05 in. (1.27 mm) between the airplane body surface and the stabilizer-to-body blade seals at these locations:

1) The blade seals adjacent to the gap cover of the lower spar.

a) Adjust the stabilizer-to-body blade seals in or out, if it is applicable.

2) The blade seal adjacent to the gap cover of the upper spar.

a) Adjust the blade seal in or out, if it is applicable.

SUBTASK 27-41-11-860-005

(14) Set the stabilizer trim cutout switches to the NORMAL position.

SUBTASK 27-41-11-820-007

(15) If the same stabilizer, elevator, and elevator tab that was removed was re-installed (without elevator or elevator tab rework or adjustment - and the tailcone was not removed), then the following check will determine if a flight test is necessary:

NOTE: If the tailcone was removed, or its position adjusted during the stabilizer or elevator removal procedure, the left and right elevator index plate positions will be in a different position when the tailcone is re-installed. The elevator cannot be properly measured with the elevator index plate in a different location, therefore, you must do a power-off flight test.

(a) Do this task: Elevator Hydraulic System A and B - Pressurization, TASK 27-31-00-800-801.

(b) Do this task: Null Procedure - Mach Trim Actuator, TASK 27-31-00-700-801.

(c) Use the bar, SPL-1677 to set the horizontal stabilizer to 39.89 +/- 0.01 inches (1013.2 +/- 0.3 mm) (this is the neutral stabilizer position or zero degrees (4 units of trim)).

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(d) Move the control column forward and aft several times and then let it go at the neutral position.

(e) Verify that the right elevator position, ''Z'', is within +/- 0.06 inch (1.5 millimeters) of the neutral mark on the right elevator index plate, Figure 403.

1) If necessary, adjust the PCU input rods to achieve the +/- 0.06 inch (1.5 millimeters) measurement on the right elevator index plate, do this task: Input Rods of the Elevator Power Control Unit - Adjustment, TASK 27-31-00-820-803.

(f) Do the following to verify correct stabilizer geometry:

1) Verify that the left elevator is within 0.12 in. (3.0 mm) of the initial left elevator position.

NOTE: The initial left elevator position is the position, ''Z'', measured before the removal of the stabilizer.

2) Verify that the right elevator is within 0.12 in. (3.0 mm) of the initial right elevator position.

NOTE: The initial right elevator position is the position, ''Z'', measured before the removal of the stabilizer.

3) Verify that the left elevator is within 0.12 in. (3.0 mm) of the right elevator position.

NOTE: This measurement compares the left and right stabilizer half positions after the installation of both sides of the stabilizer. It assures that the left and right elevators are within 0.12 in. (3.0 mm) of their original positions. The 0.12 in. (3.0 mm) difference is calculated to have a negligible effect on manual reversion.

(g) If the measurements in the above step are not within limits, the elevator system should be adjusted and test flown for manual reversion.

NOTE: You cannot adjust the elevator control pushrod to assure that the elevator is within the limits. Adjustment of the elevator control pushrod is too coarse to achieve the minimum tolerance of 0.12 in. (3.0 mm). One half turn of the elevator control pushrod moves the trailing edge of the elevator up or down 0.20 in. (5.1 mm).

SUBTASK 27-41-11-860-012

(16) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-11-860-013

(17) Close the following circuit breaker (if installed):

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(a) Remove the safety tag and close this circuit breaker:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
A	15	C00644	EXTERIOR LIGHTING LOGO ILLUM

SUBTASK 27-41-11-820-003

(18) Do the following system tests (if necessary):

NOTE: If the tailcone has not been removed and the same stabilizer, elevator, and/or elevator tab has been re-installed (without elevator or elevator tab rework or adjustment) and the elevator position ''Z'' measurements (performed previously in this procedure) are within the specified limits, a flight test is not necessary.

If the tailcone has been removed, or either the stabilizer, elevator, and/or elevator tab have been replaced, (with elevator or elevator tab adjustment), a flight test is required.

If the tailcone was not removed or adjusted, or the same stabilizer, elevator, or elevator tab was re-installed (without elevator tab rework or adjustment), but the elevator position ''Z'' measurements (performed previously in this procedure) are NOT within the specified limits, a flight test is required.

(a) Do this task: Elevator Travel Limit - Test, TASK 27-31-00-700-804.

(b) Verify that the elevator pushrods are properly adjusted. Do this task: Elevator Control Pushrods - Adjustment, TASK 27-31-00-820-802.

NOTE: If the elevator pushrods are adjusted, a flight test is required.

(c) Do this task: Elevator Tab Control System - Operational Test, TASK 27-31-00-700-815.

(d) Use the stabilizer trim wheel to make sure that the horizontal stabilizer operates through full travel between the stops.

(e) Do this task: Elevator Position Transmitter Installation Test, TASK 31-31-51-700-801.

(f) To test the logo lights (if installed), do the test portion of the following task: (TASK 33-49-00-960-802).

(g) If necessary, do this task: Elevator Power-Off Flight - Test, TASK 27-31-00-710-803.

SUBTASK 27-41-11-410-003

(19) Close this access panel:

Number	Name/Location
318BR	Tailcone Access Door

END OF TASK

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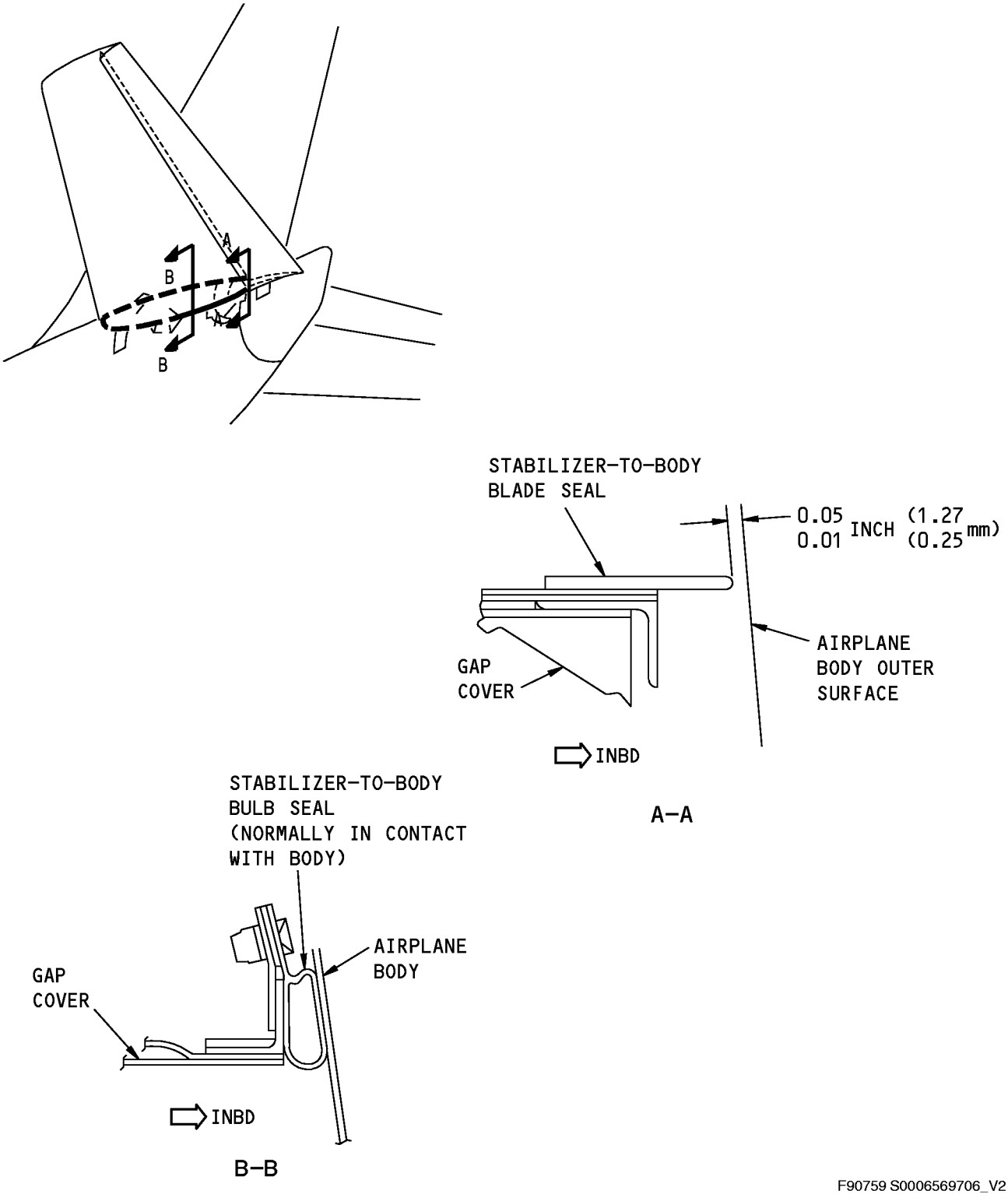

F90759 S0006569706_V2

Stabilizer-to-Body Seal Adjustment
Figure 406/27-41-11-990-804

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HORIZONTAL STABILIZER LEADING EDGE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a horizontal stabilizer leading edge

(2) An installation of a horizontal stabilizer leading edge.

B. The horizontal stabilizer leading edge is referred to as the "leading edge" in this procedure.

C. This procedure is applicable for the left and right leading edges.

TASK 27-41-21-000-801

2. Horizontal Stabilizer Leading Edge Removal

(Figure 401)

A. Location Zones

Zone	Area
331	Left Horizontal Stabilizer - Removable Leading Edge
341	Right Horizontal Stabilizer - Removable Leading Edge

B. Procedure

SUBTASK 27-41-21-020-001

(1) Remove the leading edge [3]:

(a) Using non-metallic tools, remove seal from leading edge [3] and tip cap assembly [4].

(b) Remove the bolts from the tip cap assembly [4] and slightly move out enough so the leading edge [3] can be remove.

(c) Remove the bolts [1] that attach the lower surface and the inboard of the leading edge [3] to the front spar.

(d) Hold the leading edge [3] and remove the bolts [1] that attach the top surface of the leading edge [3] to the front spar.

(e) Hold each end of the leading edge [3].

(f) Remove the leading edge [3] from the airplane.

—————— END OF TASK ——————

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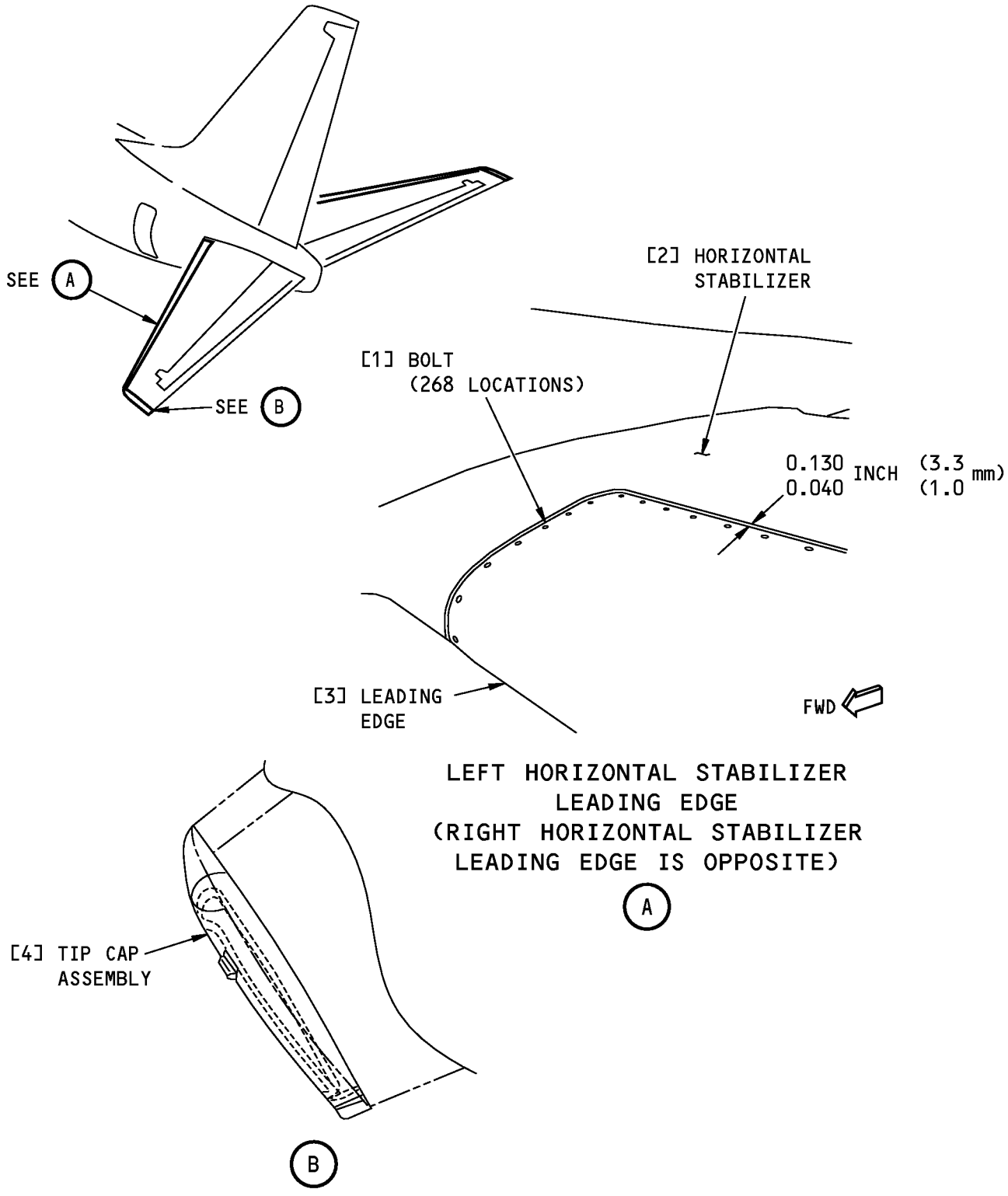

Horizontal Stabilizer Leading Edge Installation
Figure 401/27-41-21-990-801

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TASK 27-41-21-400-801

3. Horizontal Stabilizer Leading Edge Installation

(Figure 401)

A. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A00900	Sealant - Silicone, RTV - Dow Corning 93-006-1	

B. Location Zones

Zone	Area
331	Left Horizontal Stabilizer - Removable Leading Edge
341	Right Horizontal Stabilizer - Removable Leading Edge

C. Procedure

SUBTASK 27-41-21-420-001

(1) Install the leading edge [3]:

(a) Lift and put the leading edge [3] in its position.

(b) Make sure the clearance between the leading edge [3] and the horizontal stabilizer [2] is 0.040 in. (1.02 mm) – 0.130 in. (3.30 mm).

CAUTION: ALIGN THE LEADING EDGE ASSEMBLY ALONG THE FULL LENGTH OF THE EDGE BEFORE YOU INSTALL THE FASTENERS. IF YOU PUSH THE ASSEMBLY INTO ITS POSITION AND INSTALL THE FASTENERS, DAMAGE CAN OCCUR TO THE RIB CHORDS.

1) Make sure you check the alignment of the leading edge assembly along the full length prior to installing the fasteners.

NOTE: If the leading edge assembly is not aligned or forced into position during installation, then the induced strains can cause tension cracks in the rib chords.

(c) Install the bolts [1] that attach the top surface of the leading edge [3] to the front spar.

(d) Install the bolts [1] that attach the lower surface and inboard of the leading edge [3] to the front spar.

(e) Install tip cap assembly [4].

(f) Fill the clearance between the leading edge [3] and the horizontal stabilizer [2] with Dow Corning 93-006-1 sealant, A00900 or sealant, A00247.

———————— END OF TASK ————————

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HORIZONTAL STABILIZER CENTER SECTION HINGE FITTING - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a horizontal stabilizer center section hinge fitting

(2) An installation of a horizontal stabilizer center section hinge fitting.

B. The horizontal stabilizer center section hinge fitting is referred to as the "hinge fitting".

C. You can remove the hinge fitting of the horizontal stabilizer center section hinge (which has the hinge bearing) without the removal of the outboard stabilizer sections.

D. This procedure is applicable for the left and right hinge fittings.

E. You must do the removal and installation of the hinge fitting on one side at a time.

TASK 27-41-31-000-801

2. Horizontal Stabilizer Center Section Hinge Fitting Removal

(Figure 401, Figure 402)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1672	Assembly - Lock, Stabilizer Trim (Part #: F71336-501, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2026	Set - Punch, Horizontal Stabilizer Center Section (Part #: C55002-1, Supplier: 81205, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge

C. Access Panels

Number	Name/Location
331A	Horizontal Stabilizer, Gap Cover
331AZ	Horizontal Stabilizer, Access Panel, Inboard L.E. Closure Rib
332AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
341A	Horizontal Stabilizer, Gap Cover
341AZ	Horizontal Stabilizer, Access Panel - Inbd L.E. Closure Rib
342AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body

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D. Prepare for the Removal

WARNING: MAKE SURE THAT ALL PERSONNEL, AND EQUIPMENT ARE AWAY FROM THE HORIZONTAL STABILIZER. THE MOVEMENT OF THE HORIZONTAL STABILIZER DURING MAINTENANCE CAN CAUSE INJURY TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

SUBTASK 27-41-31-860-001

(1) Set the stabilizer to the maximum leading edge down position using the stabilizer trim wheel.

SUBTASK 27-41-31-860-002

(2) Set the stabilizer trim cutout switches to the CUTOUT position.

NOTE: The stabilizer trim cutout switches are installed on the control stand.

SUBTASK 27-41-31-860-003

(3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-31-480-001

(4) Install the lock, SPL-1672 on the stabilizer trim wheel at the control stand (Figure 401):

(a) Turn the trim wheel to put the handle at the top of the wheel.

(b) Adjust the height of the trim lock to put the trim wheel handle correctly on the yoke.

(c) Install the pin through the yoke.

(d) Install the safety pin.

SUBTASK 27-41-31-010-001

(5) To gain access to the left hinge fitting, do this step:

Open these access panels:

Number	Name/Location
331A	Horizontal Stabilizer, Gap Cover
331AZ	Horizontal Stabilizer, Access Panel, Inboard L.E. Closure Rib
332AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body

SUBTASK 27-41-31-010-002

(6) To gain access to the right hinge fitting, do this step:

Open these access panels:

Number	Name/Location
341A	Horizontal Stabilizer, Gap Cover
341AZ	Horizontal Stabilizer, Access Panel - Inbd L.E. Closure Rib
342AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body

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E. Hinge Fitting Removal

(Figure 402)

SUBTASK 27-41-31-020-001

NOTE: You must do the removal and installation of the hinge fitting on one side at a time.

(1) Remove the hinge fitting [24] from the bulkhead support structure:

(a) Remove the pin [20], nut [19], and washer [21]. Discard the pin [20].

(b) Remove the pin [22], nut [18], bushing spacer [23]. Discard the pin [22].

(c) Remove the bolts [2] and washers [3] from the bushing retainer [1].

(d) Remove the bushing retainer [1].

(e) Use the set, SPL-2026 and push out these parts:

1) The hinge insert pin [27]

2) The bushing retainer [25]

3) The hinge pin [26].

(f) Remove the adjustable hinge bushing [28], bushing spacer [16], and hinge bushing [17].

NOTE: The bushing spacer [16] will come off when you remove the adjustable hinge bushing [28].

SUBTASK 27-41-31-020-002

(2) Remove the upper thrust brace [38] and lower thrust brace [39]:

(a) Remove the pin [37], nut [36], washer [35], washer [34], and bolt [33] that attach the upper thrust brace [38] and lower thrust brace [39] to the thrust brace fitting [51].

NOTE: Use a marker or a pin to make marks on the upper thrust brace [38] and lower thrust brace [39] to help make the installation easier. Do not use sharp objects to make marks.

(b) Remove the pin [44], nut [43], washer [42], washer [41], and bolt [40].

SUBTASK 27-41-31-020-003

(3) Remove the thrust brace fitting [51] from the hinge fitting [24]:

(a) Remove the nuts [50], washers [49], washers [48], and bolts [47] that attach the thrust brace fitting [51] to the hinge fitting [24].

NOTE: Use a marker or pen to make marks on the thrust brace fitting [51] to help make the installation easier. Do not use sharp objects to make marks.

(b) Remove the thrust brace fitting [51] and shim [46].

SUBTASK 27-41-31-020-004

(4) Remove the fail safe link [10] from the hinge fitting [24]:

(a) Remove the nuts [7], washers [5], washers [6], bolt [4], and bolt [9].

(b) Remove the bonding jumper [8].

(c) Remove the pin [56], nut [15], washer [14], washer [13], and bolt [12]. Discard the pin [56].

(d) Remove the fail safe link [10] and filler [11].

SUBTASK 27-41-31-020-005

(5) Remove the hinge fitting [24]:

(a) Remove the bolts [52] from the bracket [53].

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(b) Remove the bolts [54] from the bracket [55].

(c) Remove the pin [33], nut [32], washer [31], washer [30], and bolt [29] from the hinge fitting [24]. Discard the pin [33].

(d) Remove the pin [45], nut [44], washer [43], washer [42], and bolt [41] from the hinge fitting [24]. Discard the pin [45].

(e) Remove the hinge fitting [24] from the airplane.

——————— END OF TASK ———————

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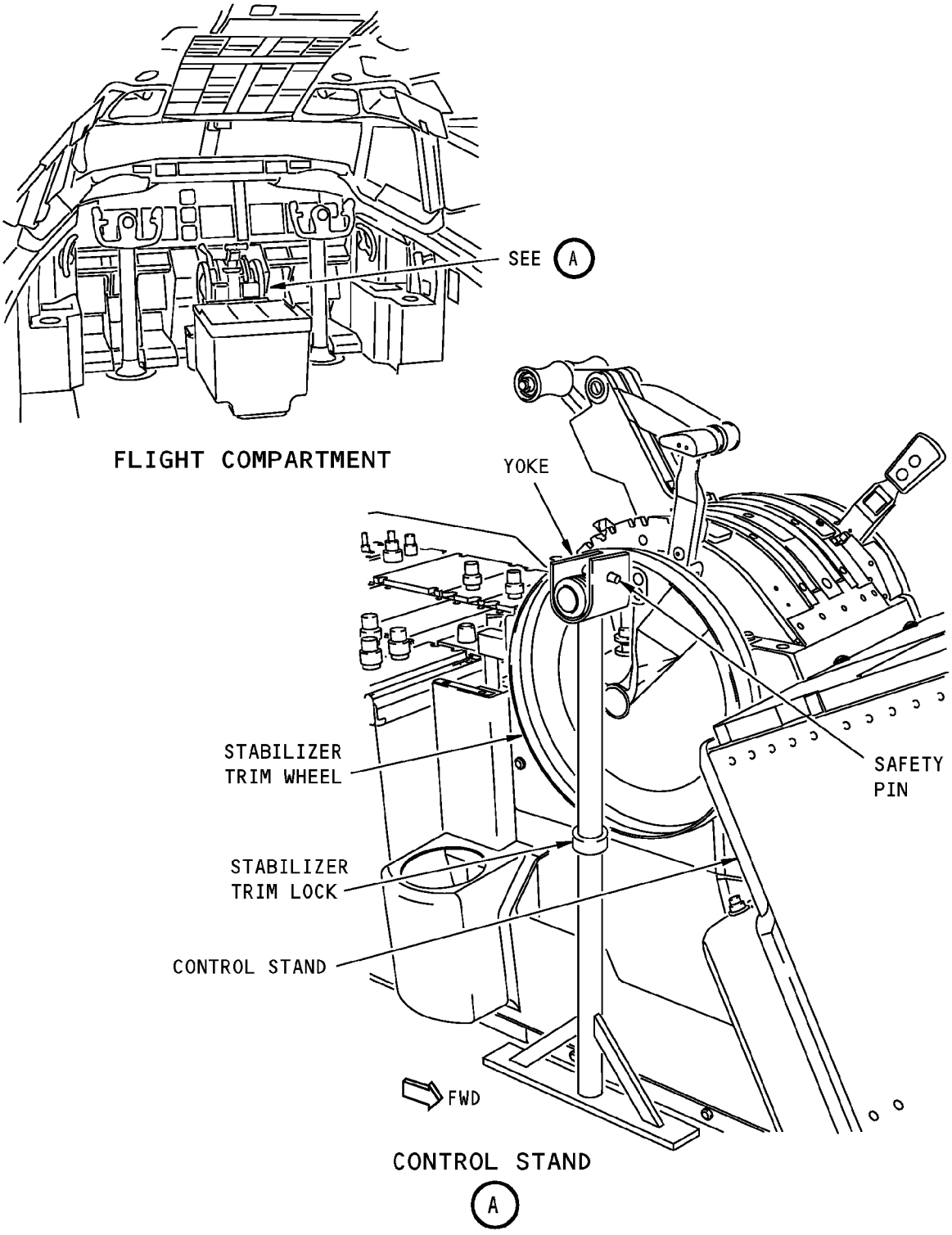

Stabilizer Trim Lock Installation
Figure 401/27-41-31-990-801

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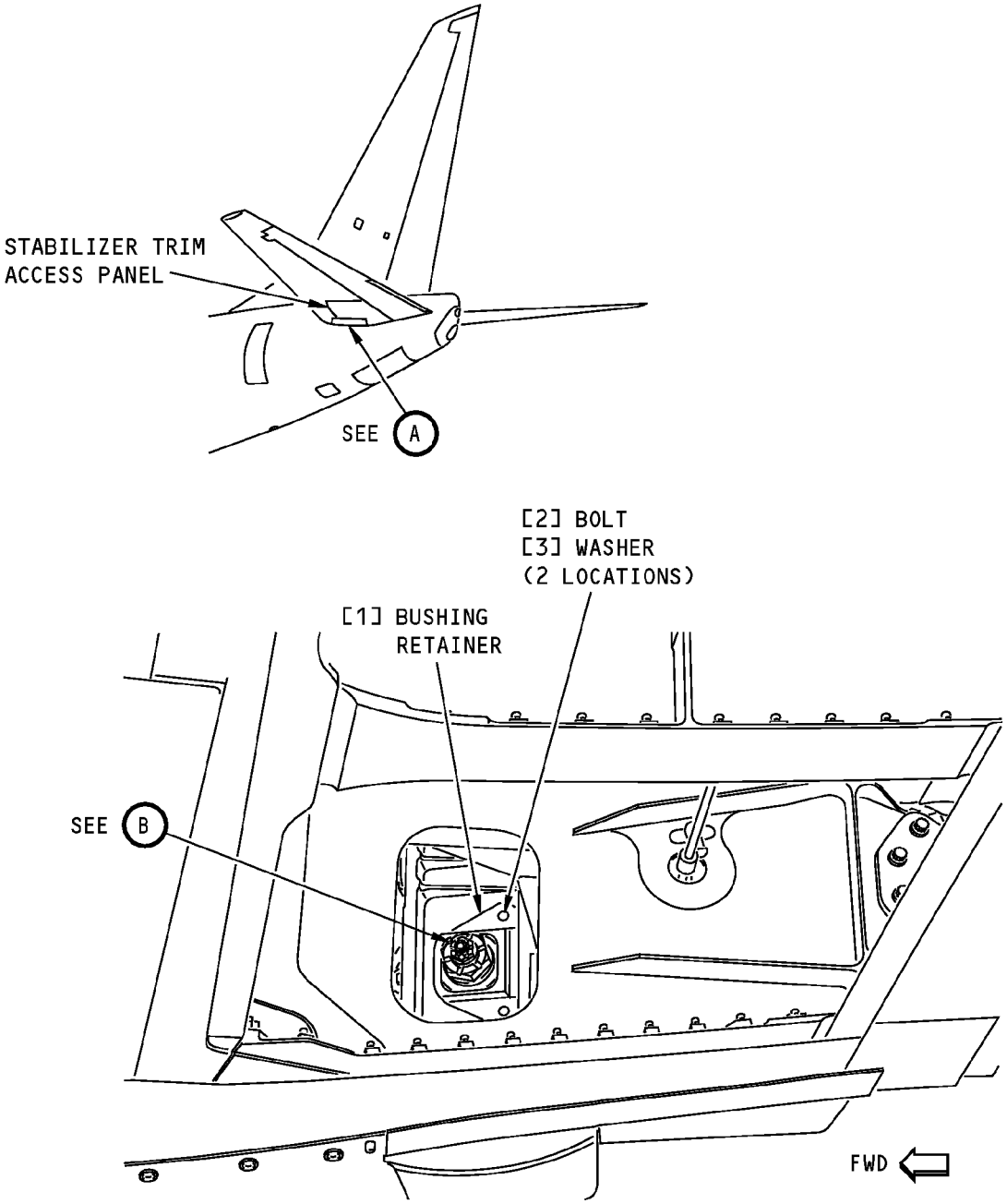

Horizontal Stabilizer Center Section Hinge Fitting Installation
Figure 402 (Sheet 1 of 5)/27-41-31-990-802

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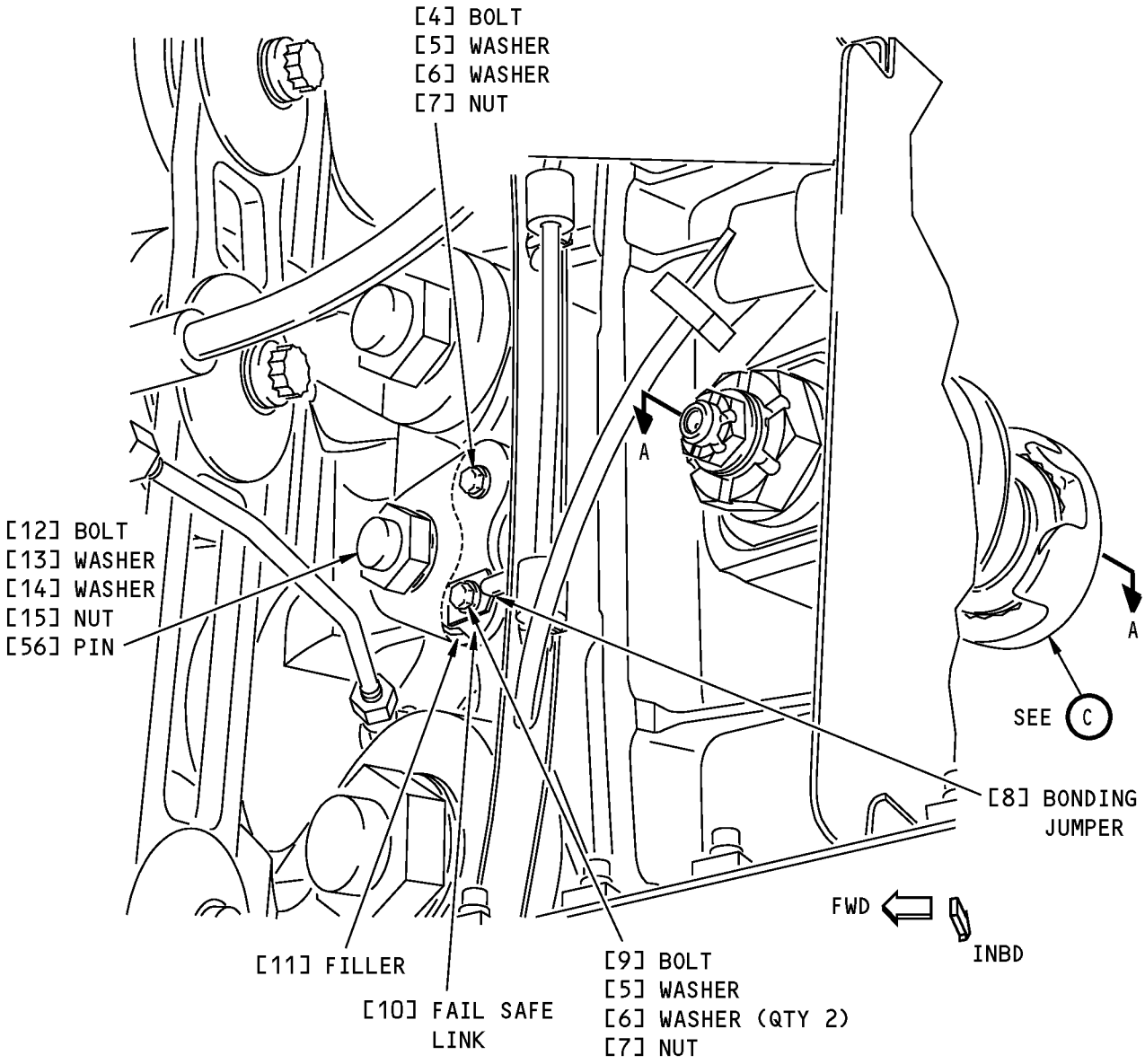

Horizontal Stabilizer Center Section Hinge Fitting Installation
Figure 402 (Sheet 2 of 5)/27-41-31-990-802

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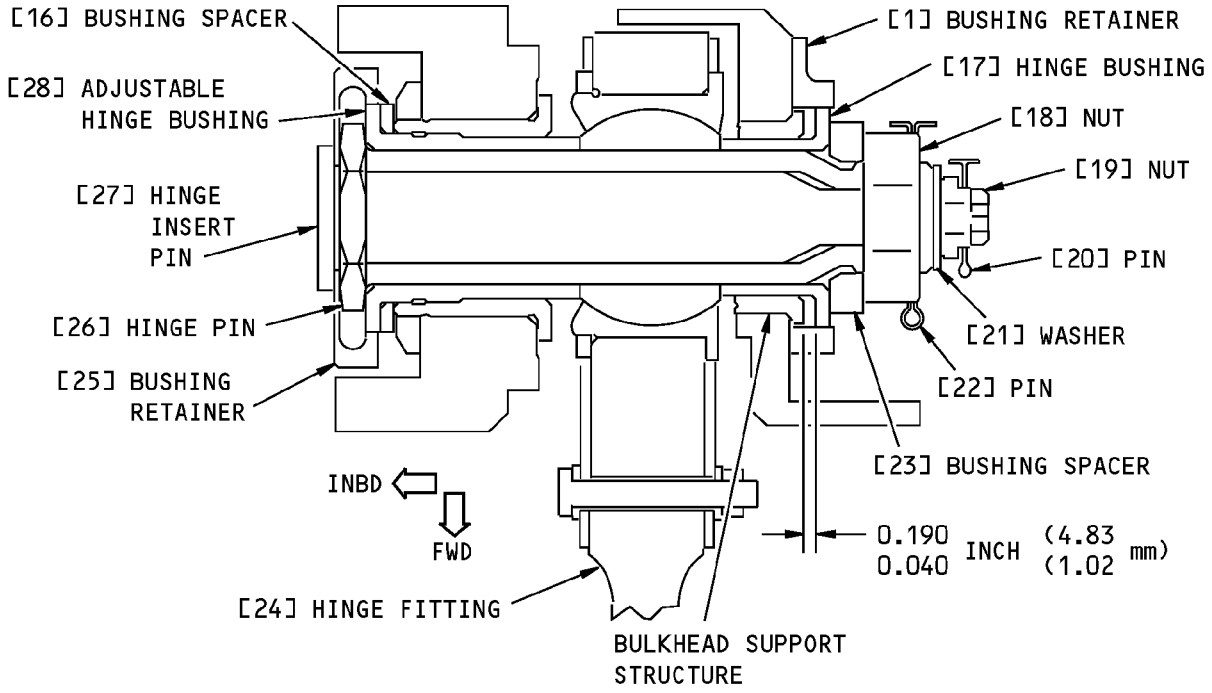
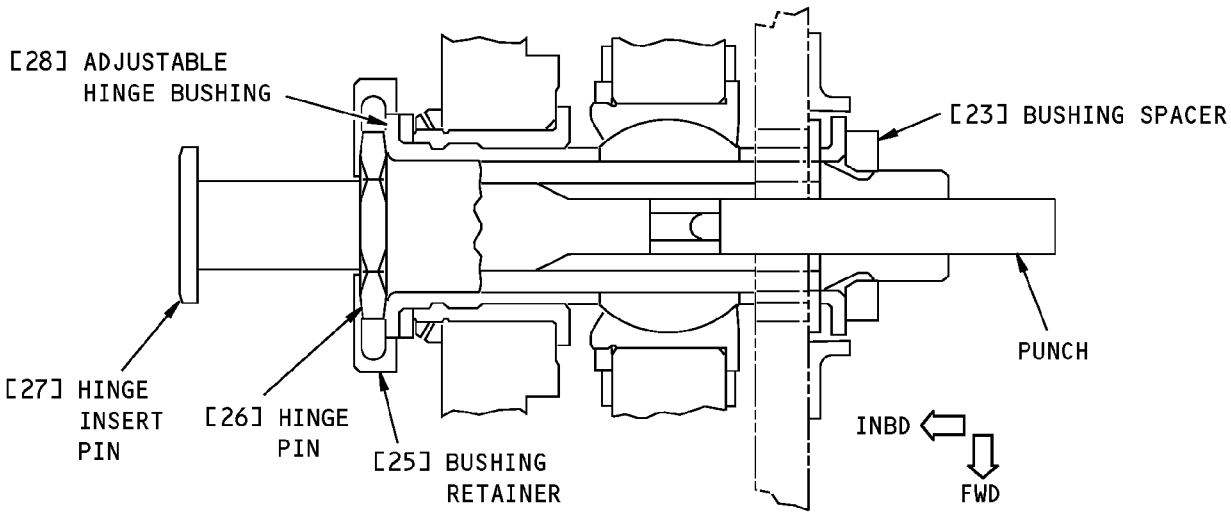


HORIZONTAL STABILIZER HINGE PIN REMOVAL
(STEP 1)
A-A



HORIZONTAL STABILIZER HINGE PIN REMOVAL
(STEP 2)
A-A

Horizontal Stabilizer Center Section Hinge Fitting Installation
Figure 402 (Sheet 3 of 5)/27-41-31-990-802

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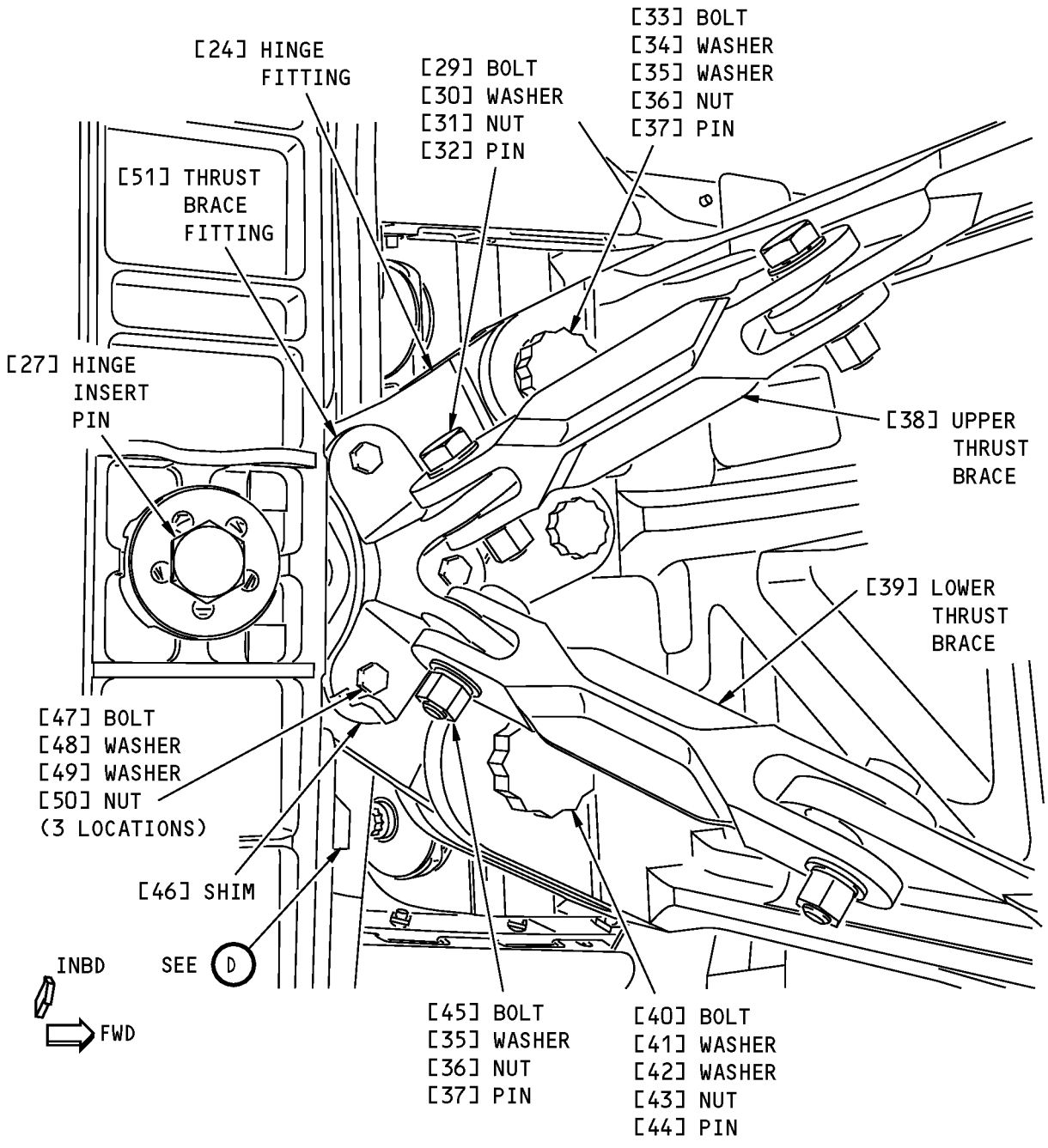

Horizontal Stabilizer Center Section Hinge Fitting Installation
Figure 402 (Sheet 4 of 5)/27-41-31-990-802

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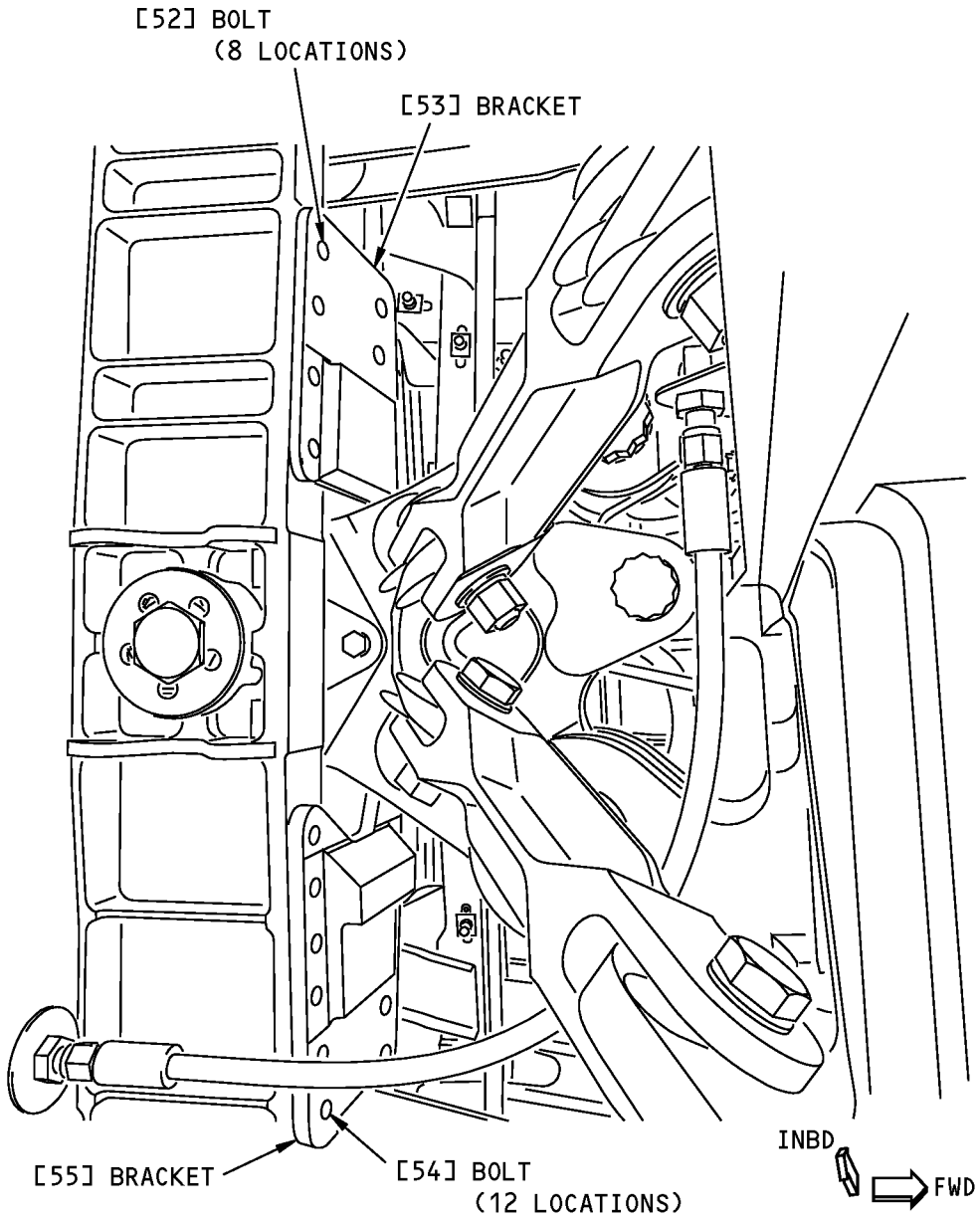

Horizontal Stabilizer Center Section Hinge Fitting Installation
Figure 402 (Sheet 5 of 5)/27-41-31-990-802

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TASK 27-41-31-400-801

3. Horizontal Stabilizer Center Section Hinge Fitting Installation

(Figure 401, Figure 402)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)
SPL-1672	Assembly - Lock, Stabilizer Trim (Part #: F71336-501, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2036	Protector - Horizontal Stabilizer Hinge Pin Thread (Part #: C27054-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1238	Indicator - Dial

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
D00633	Grease - Aircraft General Purpose	BMS3-33
D50004	Compound - Antiseize	BMS3-28

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
333	Left Horizontal Stabilizer - Rear Spar to Trailing Edge
343	Right Horizontal Stabilizer - Rear Spar to Trailing Edge

D. Access Panels

Number	Name/Location
331A	Horizontal Stabilizer, Gap Cover
331AZ	Horizontal Stabilizer, Access Panel, Inboard L.E. Closure Rib
332AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body
341A	Horizontal Stabilizer, Gap Cover
341AZ	Horizontal Stabilizer, Access Panel - Inbd L.E. Closure Rib
342AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body

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E. Hinge Fitting Installation

(Figure 402)

NOTE: You must do the removal and installation of the hinge fitting on one side at a time.

SUBTASK 27-41-31-420-001

(1) Install the hinge fitting [24]:

(a) Lubricate the bolt threads of bolt [29] and bolt [40] with grease, D00633.

(b) Put the hinge fitting [24] in its position.

(c) Install the bolt [29], washer [30] (under the bolt), washers [31] (3 maximum under nut), nut [32].

1) Tighten the nut [32] to 2200 in-lb (248.6 N·m) – 3300 in-lb (372.8 N·m).

2) Install the new pin [33].

NOTE: Tighten nut [32] if it is necessary to get the pin hole alignment but do not exceed 5300 in-lb (598.8 N·m).

(d) Install the bolt [41], washer [42] (under the bolt), washers [43] (3 maximum under nut), and nut [44].

1) Tighten the nut [44] to 6450 in-lb (728.7 N·m) – 6400 in-lb (723.1 N·m).

2) Install the new pin [45].

NOTE: Tighten nut [44] if it is necessary to get the pin hole alignment but do not exceed 8600 in-lb (971.7 N·m).

SUBTASK 27-41-31-420-002

(2) Install the fail safe link [10] to the hinge fitting [24]:

(a) Lubricate the bolt [12] and bolt threads with grease, D00633.

(b) Apply sealant, A00247 to the bolt [4] and bolt [9].

(c) Put the fail safe link [10] and filler [11] on the hinge fitting [24].

(d) Install the bolt [12], washer [13] (under the bolt), washers [14] (3 maximum under nut), and nut [15].

1) Tighten the nut [15] to 1300 in-lb (146.9 N·m) – 1530 in-lb (172.9 N·m).

2) Install the new pin [56].

NOTE: Tighten nut [15] if it is necessary to get the pin hole alignment but do not exceed 2000 in-lb (226.0 N·m).

(e) Install the bolt [4], washer [5] (under the bolt), washer [6] (under the nut), and nut [7].

1) Tighten the nut [7] to 370 in-lb (41.8 N·m) – 690 in-lb (78.0 N·m).

(f) Install the bolt [9], washer [5] (under the bolt), washers [6] (under the nut), bonding jumper [8] (between washers [6]), and nuts [7].

1) Tighten the nut [7] to 370 in-lb (41.8 N·m) – 690 in-lb (78.0 N·m).

2) Use bonding meter, COM-1550 to make sure the resistance between the free end of the bonding jumper [8] and fail safe link [10] is not greater than 0.00216 ohms.

3) Apply sealant, A00247 at the end of the bonding jumper [8].

SUBTASK 27-41-31-420-003

(3) Install the thrust brace fitting [51] on the hinge fitting [24]:

(a) Lubricate the bolts [47] with sealant, A00247.

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(b) Put the thrust brace fitting [51] and shim [46] on the hinge fitting [24].

1) Remove or add shim [46] until you can install the bolt [34] and bolt [40] easily.

(c) Install the bolts [47], washers [48] (under the bolt), washers [49] (under the nut), and nuts [50].

1) Tighten the nuts [50] to 630 in-lb (71.2 N·m) – 1070 in-lb (120.9 N·m).

SUBTASK 27-41-31-420-004

(4) Connect the upper thrust brace [38] and lower thrust brace [39] to the thrust brace fitting:

(a) Lubricate the bolt [34], bolt [40], and bolt threads with grease, D00015.

(b) Put the lower thrust brace [39] and upper thrust brace [38] in their positions.

(c) Install the bolt [34], bolt [40], washers [35], and nuts [36].

1) Tighten the nuts [36] to 650 in-lb (73.4 N·m) – 540 in-lb (61.0 N·m).

2) Install the new pin [37].

NOTE: Tighten nut [36] if it is necessary to get the pin hole alignment but do not exceed 650 in-lb (73.4 N·m).

SUBTASK 27-41-31-220-001

(5) Do a check of the dimension between the hinge fitting [24] and bulkhead support structure:

(a) Attach an L-angle shape to the forward side of the bulkhead flange to use as a reference plane.

(b) Install the dial indicator, STD-1238.

(c) Measure the dimension between the hinge fitting [24] and the bulkhead support structure.

SUBTASK 27-41-31-420-005

(6) Install the hinge fitting [24] to the bulkhead support structure.

(a) Install the adjustable hinge bushing [28]:

1) Install the adjustable hinge bushing [28] by hand until it touches the hinge fitting bearing.

2) Use the dial indicator, STD-1238 to measure the dimension between the hinge fitting [24] and the bulkhead support structure.

3) Make sure this dimension is the same as you measured before.

4) If it is necessary, loosen or tighten the adjustable hinge bushing [28] until you get the correct dimension.

(b) Install the hinge bushing [17]

1) Lubricate the hinge bushing [17] with compound, D50004.

2) Install the hinge bushing [17].

(c) Install the hinge pin [26]:

1) Lubricate hinge pin [26] and protector, SPL-2036 with grease, D00015.

2) Use the protector, SPL-2036 to install the hinge pin [26].

(d) Install the bushing spacer [23] and nut [18].

1) Tighten the nut [18] by hand.

(e) Install the bolts [2] and washers [3] to attach the bushing retainer [1] to the hinge fitting [24].

(f) Install the bushing retainer [25] on the adjustable hinge bushing [28].

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CAUTION: DO NOT APPLY TORQUE TO THE WRENCH FLATS ON THE HINGE PIN. YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

(g) Temporarily remove the bushing retainer [25].

(h) Tighten the nut [18] to 650 in-lb (73.4 N·m) – 850 in-lb (96.0 N·m).

(i) If the pin holes do not align, tighten the nut [18] maximum 30 degrees as necessary to align the nearest pin hole.

(j) Use the dial indicator, STD-1238 to measure the dimension between the hinge fitting [24] and bulkhead support structure.

1) Make sure the dimension is the same as you measured before and after you installed the adjustable hinge bushing [28] in +/- 0.005 inch (+/- 0.13 millimeter).

(k) Do a check of the clearance between the bulkhead support structure and hinge bushing [17].

1) Remove the bolts [2] and washers [3] to remove the bushing retainer [1].

2) Do a check of the clearance between the bulkhead support structure and hinge bushing [17].

3) Make sure the clearance is 0.12 +0.07 / -0.08 in. (3.05 +1.78 / -2.03 mm).

4) Install the bolts [2] and washers [3] to attach the bushing retainer [1] to the hinge fitting [24].

(l) Install the bushing retainer [25] with the hinge insert pin [27].

1) Turn the hinge insert pin [27] until you align the pin holes.

CAUTION: DO NOT APPLY TORQUE TO THE WRENCH FLATS ON THE HINGE PIN. YOU CAN CAUSE DAMAGE TO THE EQUIPMENT.

(m) Install the washer [21] and nut [19].

1) Tighten the nut [19] to a maximum of 50 in-lb (5.6 N·m).

2) If the pin hole of the nut [19] does not align, loosen the nut [19] a maximum of 30 degrees as necessary to align the nearest pin hole of the nut [19].

3) Install the new pin [20].

(n) Install the bolts [52] to attach the bracket [53] to the bulkhead support structure.

(o) Install the bolts [54] to attach the bracket [55] to the bulkhead support structure.

SUBTASK 27-41-31-080-001

(7) Remove the L-shape and the dial indicator, STD-1238.

SUBTASK 27-41-31-080-002

(8) Remove the lock, SPL-1672 from the stabilizer trim wheel at the control stand (Figure 401).

SUBTASK 27-41-31-710-001

(9) Move the trim control wheel to make sure the stabilizer operates smoothly through the full travel between the jackscrew stops.

SUBTASK 27-41-31-220-002

(10) Make sure the clearance between the jackscrew support fitting and the fuselage structure is 0.030 ±0.020 in. (0.76 ±0.51 mm) on the two sides of the stabilizer.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-31-410-001

(1) For the left hinge fitting, do this step:

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Close these access panels:

Number	Name/Location
331A	Horizontal Stabilizer, Gap Cover
331AZ	Horizontal Stabilizer, Access Panel, Inboard L.E. Closure Rib
332AB	Horizontal Stabilizer, Gap Cover, Horizontal Stabilizer to Body

SUBTASK 27-41-31-410-002

(2) For the right hinge fitting, do this step:

Close these access panels:

Number	Name/Location
341A	Horizontal Stabilizer, Gap Cover
341AZ	Horizontal Stabilizer, Access Panel - Inbd L.E. Closure Rib
342AB	Horizontal Stabilizer, Gap Cover - H. Stab. to Body

SUBTASK 27-41-31-860-004

(3) Set the stabilizer trim cutout switches to the NORMAL position.

SUBTASK 27-41-31-860-005

(4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

END OF TASK

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STABILIZER FORWARD CONTROL MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the stabilizer forward control mechanism

(2) An installation of the stabilizer forward control mechanism.

B. The stabilizer forward control mechanism is referred to as the "forward mechanism" in this procedure.

TASK 27-41-41-000-801

2. Stabilizer Forward Control Mechanism Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door

D. Prepare for the Removal

SUBTASK 27-41-41-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-41-860-002

(2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-41-860-003

(3) Move the stabilizer to the full APL NOSE UP position.

SUBTASK 27-41-41-860-004

(4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

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SUBTASK 27-41-41-010-001

(5) To get access to the forward control mechanism [43], do this step:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-41-41-010-003

(6) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Forward Mechanism Removal

(Figure 401)

SUBTASK 27-41-41-020-012

(1) Remove the drip shield [44] from the forward control mechanism [43]:

(a) Remove the nuts [47], washers [46], and bolts [45] from the drip shield [44].

(b) Remove the clamp [48] and clamp pad [49] from the drip shield [44].

(c) Remove the drip shield [44].

SUBTASK 27-41-41-820-001

CAUTION: MAKE SURE THE CHAIN IS LOOSE BEFORE YOU RELEASE THE CABLE TENSION. TOO MUCH CABLE TENSION CAN CAUSE DAMAGE TO THE CHAIN.

(2) Adjust the upper adjusting nuts [24] of the aft support link [22] to loosen the chain [8].

SUBTASK 27-41-41-020-001

(3) Loosen the lower turnbuckle [1] to release the cable tension.

SUBTASK 27-41-41-020-003

(4) Remove the nuts [42] and washers [41] to remove the cable guard [40] from the cable drum [39].

SUBTASK 27-41-41-020-004

(5) Remove the STA cable from the bottom of the cable drum [39].

(a) Put a 50 pound (5.7 newton-meters) load on the trim control wheel to extend the STB cable and make the removal of the STA cable easier.

(b) Install a tag to the STA cable for easy installation.

SUBTASK 27-41-41-020-005

(6) Disconnect the flexible shaft [21] from the forward control mechanism [43].

SUBTASK 27-41-41-020-006

(7) Turn the trim control wheel until the connector link [11] of the chain [8] is between the idler sprocket [9] and the forward mechanism sprocket [10].

SUBTASK 27-41-41-020-007

(8) Remove the pins [12] from the connector link [11].

SUBTASK 27-41-41-020-008

(9) Disconnect the chain [8] at the connector link [11].

(a) Make sure the loose ends of the chain [8] are clear of the forward control mechanism [43].

SUBTASK 27-41-41-020-009

(10) Remove the STB cable from the top of the cable drum [39].

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(a) Install a tag to the STB cable for easy installation.

SUBTASK 27-41-41-020-010

(11) Remove the forward control mechanism [43]:

(a) Remove the nut [7], washer [6], washer [5], bushing [4], washer [3], and bolt [2] to disconnect the lower turnbuckle [1] from the brackets.

(b) Remove the nut [34], washer [33], bushing [32], washer [31], and bolt [30] to disconnect the upper turnbuckle [35] from the bracket.

(c) Hold the forward control mechanism [43].

(d) Remove nuts [29], washers [28], bushings [27], washers [26], and bolts [25] from the forward support link [37].

(e) Remove the nut [16], washer [15], bushing [14], and bolt [13] from the aft support link [22].

(f) Remove the nut [20], washer [19], bushing [18], and bolt [17] from the aft support link [22].

(g) Remove the forward control mechanism [43] from the airplane.

—————— END OF TASK ——————

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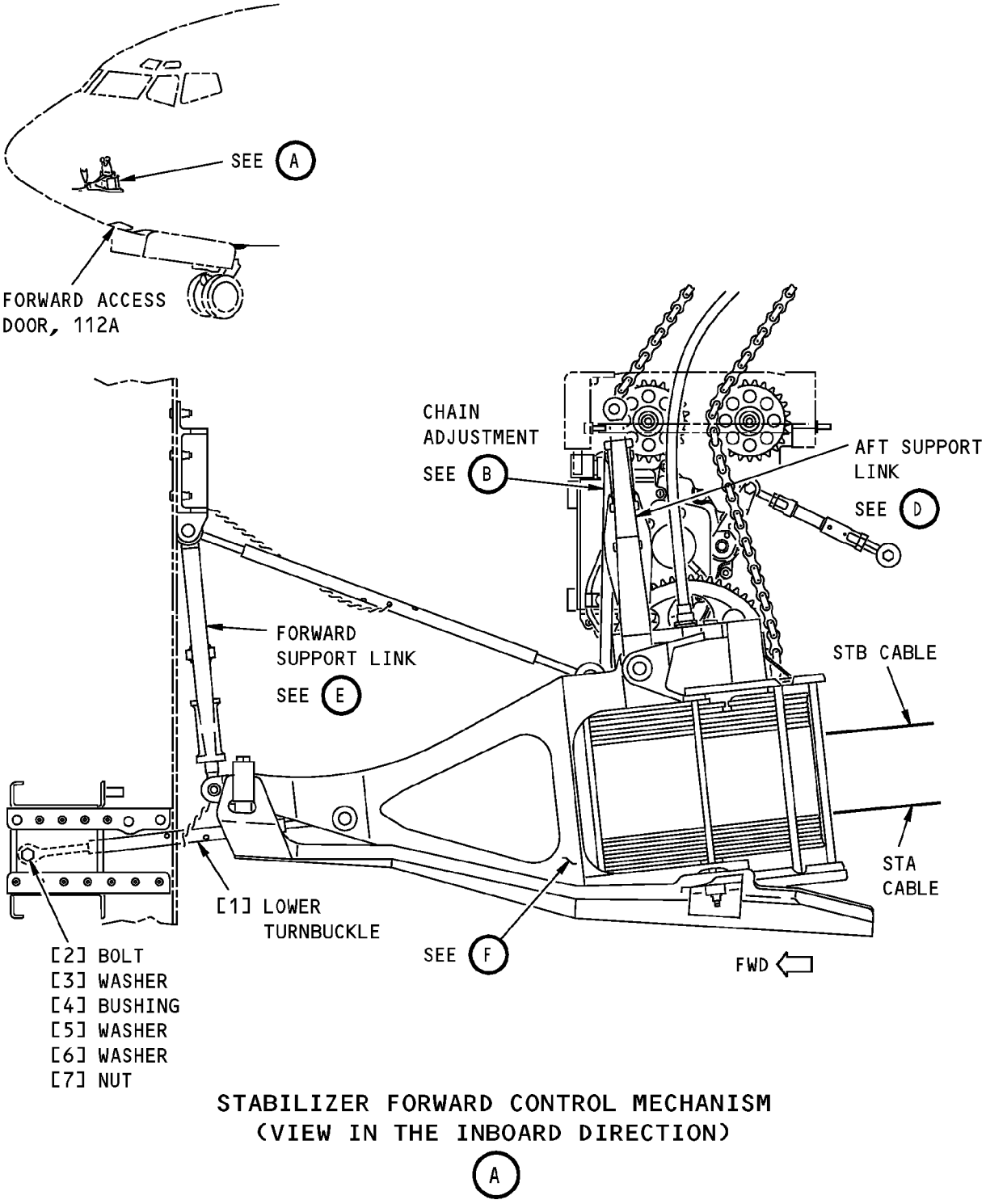

Stabilizer Forward Control Mechanism Installation
Figure 401 (Sheet 1 of 4)/27-41-41-990-801

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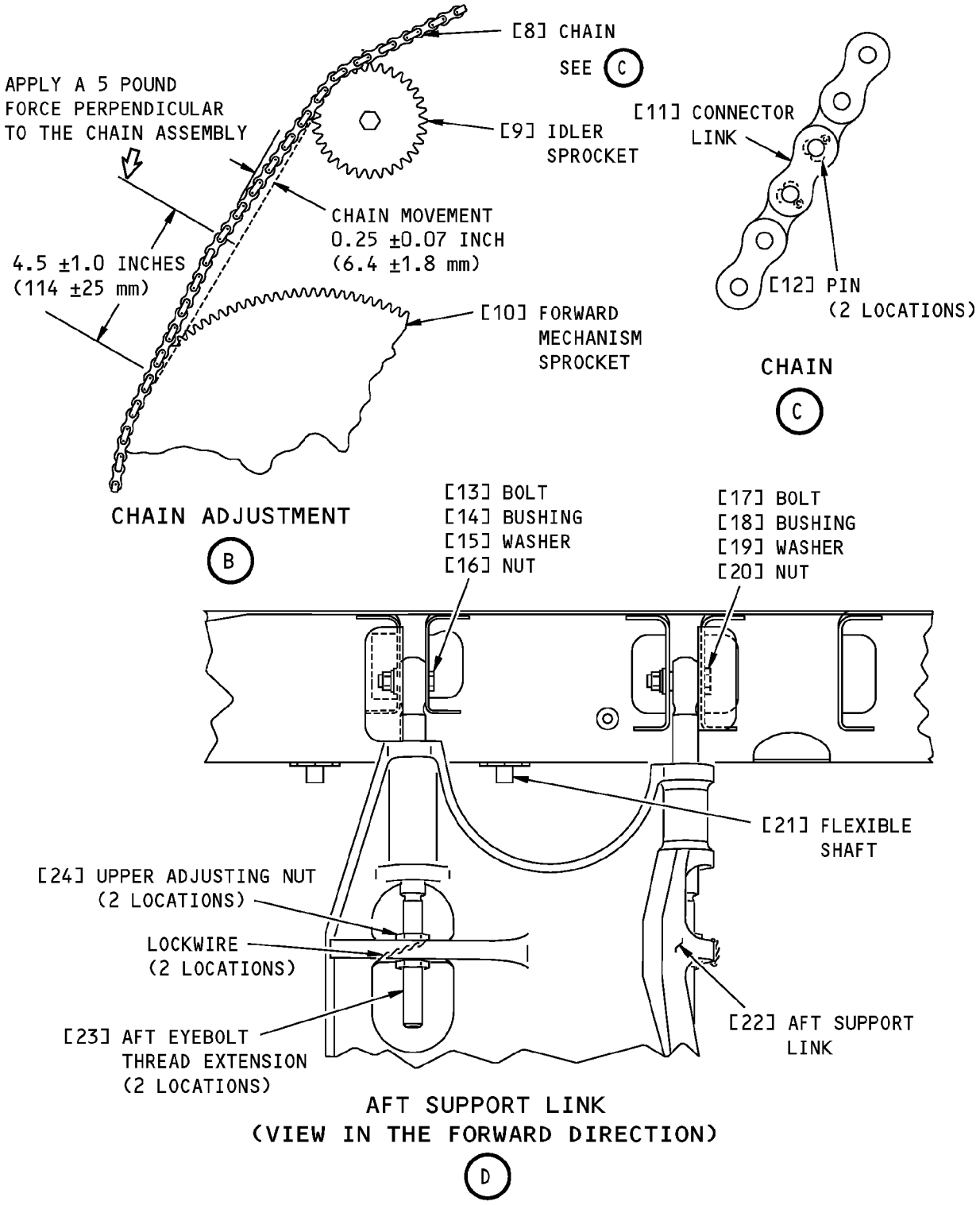

Stabilizer Forward Control Mechanism Installation
Figure 401 (Sheet 2 of 4)/27-41-41-990-801

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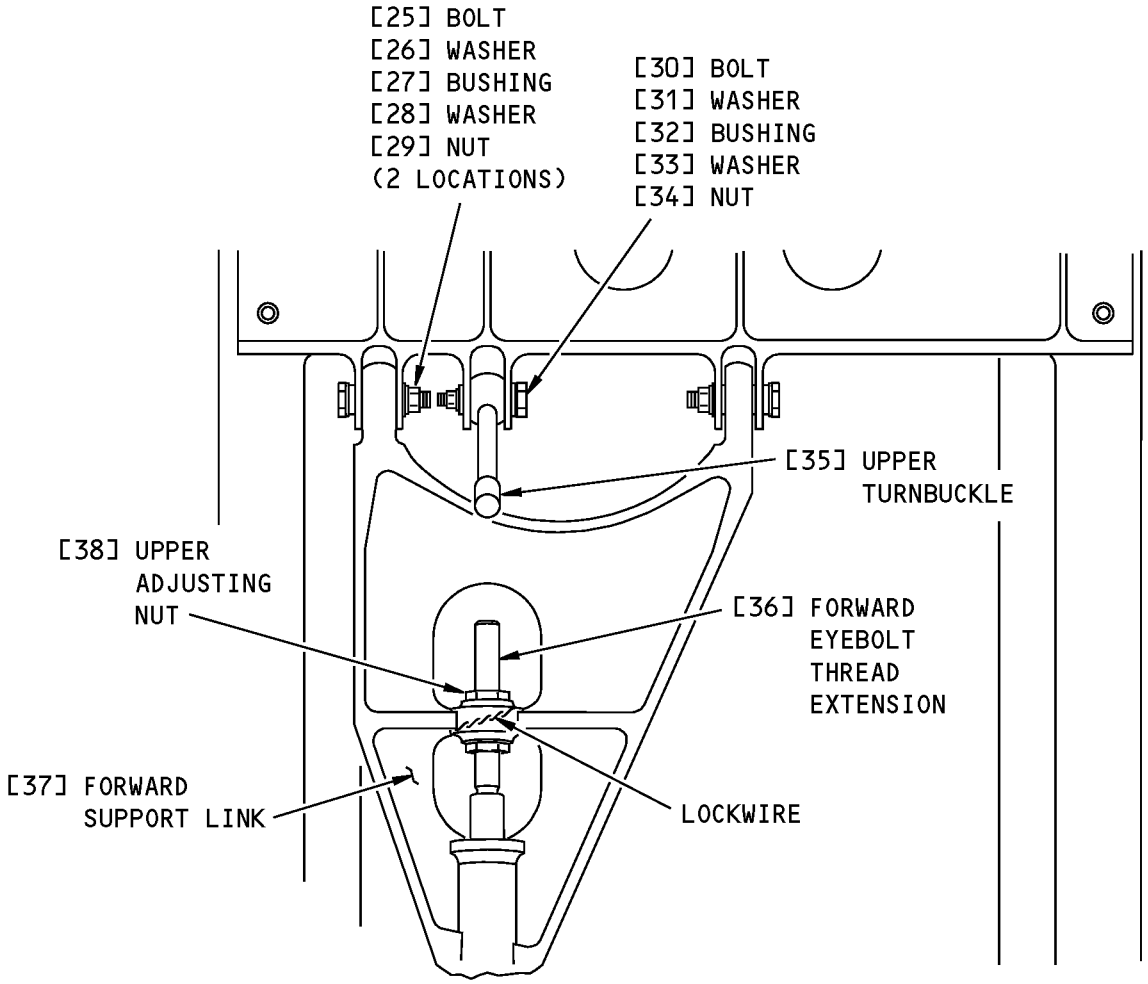

FORWARD SUPPORT LINK
(VIEW IN FORWARD DIRECTION)

E

Stabilizer Forward Control Mechanism Installation
Figure 401 (Sheet 3 of 4)/27-41-41-990-801

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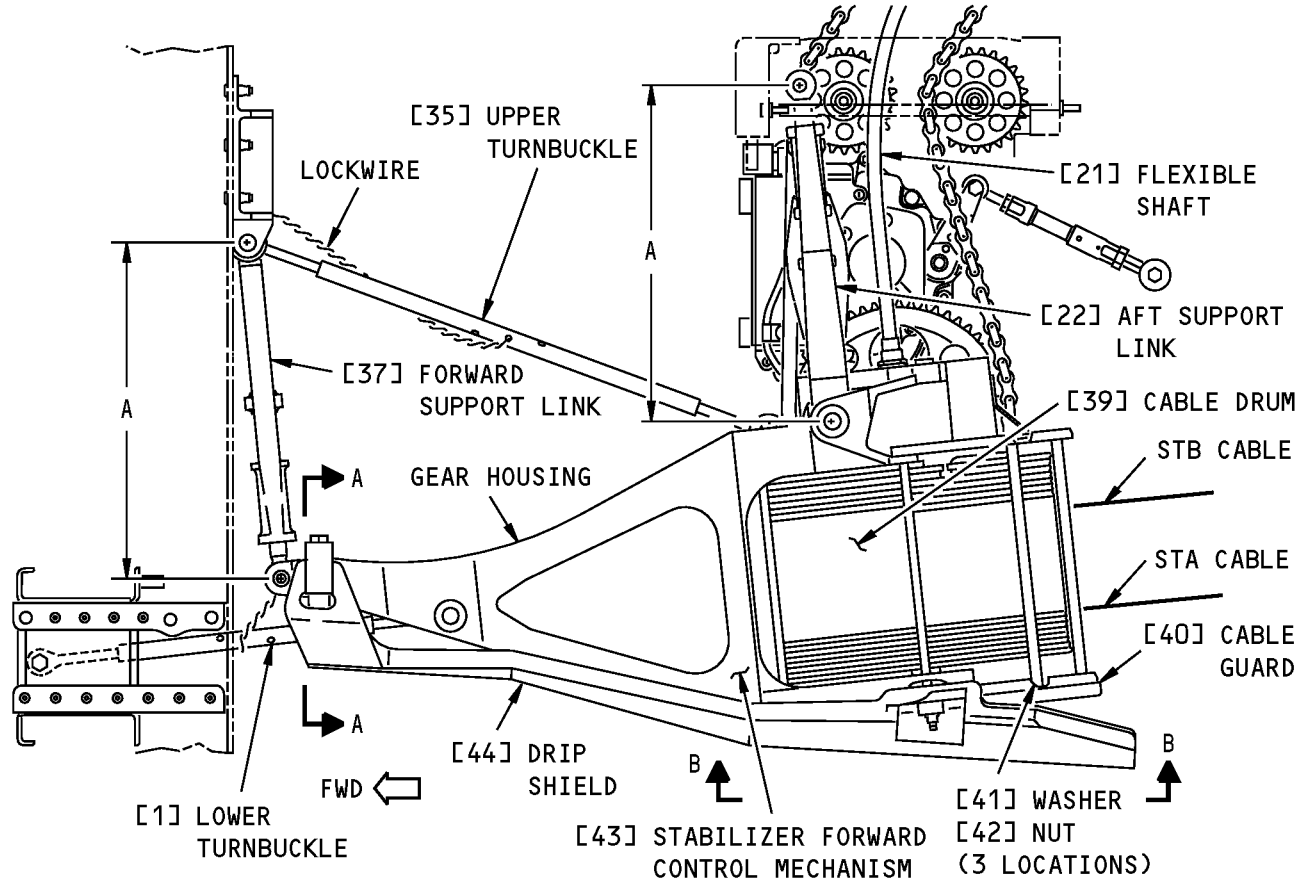
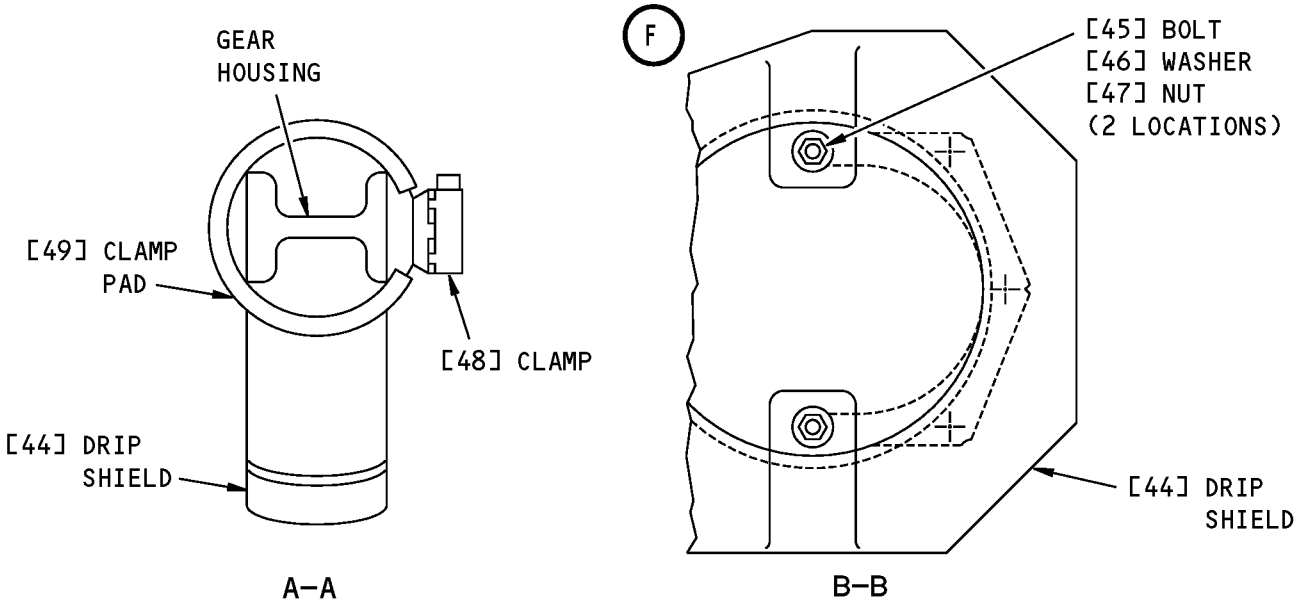


STABILIZER FORWARD CONTROL MECHANISM



Stabilizer Forward Control Mechanism Installation
Figure 401 (Sheet 4 of 4)/27-41-41-990-801

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TASK 27-41-41-400-801

3. Stabilizer Forward Control Mechanism Installation

(Figure 401, Figure 402)

A. References

Reference	Title
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
43	Control mechanism	27-41-41-01-110	HAP ALL

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

F. Access Panels

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door

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G. Forward Mechanism Installation

SUBTASK 27-41-41-420-001

(1) Install the forward control mechanism [43]:

(a) Put the forward control mechanism [43] in its position.

(b) Install the bolt [17], bushing [18], washer [19], and nut [20] to attach the aft support link [22] to the structure.

(c) Install the bolt [13], bushing [14], washer [15], and nut [16] to attach the aft support link [22] to the structure.

(d) Install the bolts [25], washers [26], bushings [27], washers [28], and nuts [29] to attach the forward support link [37] to the structure.

(e) Install the bolt [30], washer [31], bushing [32], washer [33], and nut [34] to connect the upper turnbuckle [35] to the brackets.

1) Install lockwire, G01912.

(f) Install the bolt [2], washer [3], bushing [4], washer [5], washer [6], and nut [7] to connect the lower turnbuckle [1] to the brackets.

SUBTASK 27-41-41-420-002

(2) Adjust the lower turnbuckle [1] to get approximately 12.43 in. (315.7 mm) between the connections.

(a) Make sure there is approximately equal extension of the screws on each side of the sleeve.

SUBTASK 27-41-41-020-011

(3) Connect the chain [8]:

(a) Put the chain [8] on the idler sprocket [9] and the forward mechanism sprocket [10].

(b) Connect the chain [8] at the connector link [11].

(c) Install the pins [12] on the outboard side of the chain [8].

SUBTASK 27-41-41-820-002

(4) Adjust the chain [8] tension:

(a) Apply a 5 lbf (22.2 N) force at approximately 4.5 ±1.0 in. (114 ±26 mm) from where the chain [8] touches the forward mechanism sprocket [10].

(b) Make sure the movement of the chain [8] is 0.25 ±0.07 in. (6.4 ±1.8 mm).

(c) If it is necessary, do these steps to get the correct chain movement:

1) Adjust the upper adjusting nuts [24] and upper adjusting nut [38].

2) Make sure that all three A dimensions equal ± 0.06 inch (1.5 millimeters) from each other:

a) Measure the A dimensions of left and right aft support link [22].

NOTE: The A dimension is the distance of the aft support link [22] between the center of the two connection bolts.

b) Measure the A dimension of the forward support link [36].

NOTE: The A dimension is the distance of the forward support link [37] between the center of the two connection bolts.

c) Make sure that all three A dimensions are ± 0.06 inch (1.5 millimeters) from each other.

d) Install lockwire, G01912.

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SUBTASK 27-41-41-420-003

(5) Connect the STA cable:

(a) Attach the eye of the STA cable in the slot in the bottom of the cable drum [39].

(b) Turn the trim control wheel to wind the STA cable 28-1/2 turns on the front of the cable drum [39].

SUBTASK 27-41-41-420-004

(6) Connect the STB cable:

(a) Attach the STB cable to the cable drum [39].

1) Use a force gauge, COM-1557 to put a 50 pounds (220 newtons) load on the trim control wheel to pull on the STA cable and make installation of the cable STB easier.

(b) Wind the STB cable approximately 4-1/2 turns on the front of the cable drum [39].

SUBTASK 27-41-41-420-005

(7) Install the washers [41] and nuts [42] to attach the cable guard [40] to the forward control mechanism [43].

SUBTASK 27-41-41-860-005

(8) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-41-820-003

(9) Adjust the cables STA and STB. To adjust them, do this task: Stabilizer Control Cable and Chain Adjustment, TASK 27-41-00-820-801.

SUBTASK 27-41-41-420-006

(10) Connect the flexible shaft [21] (Figure 401, Figure 402):

(a) Use the bar, SPL-1677 to set the stabilizer B dimension at 39.89 ±0.04 in. (1013.21 ±1.02 mm).

(b) Turn the flexible shaft [21] until the stabilizer trim indicators show 4.00 +/- 0.25 units of trim.

(c) Connect the flexible shaft [21] to the forward control mechanism [43].

1) Make sure that the splines engage before you tighten the union.

SUBTASK 27-41-41-420-007

(11) Install the drip shield [44] to the forward control mechanism [43]:

(a) Put the drip shield [44] under the forward control mechanism [43].

(b) Install the bolts [45], washers [46], and nuts [47].

(c) Install the clamp pad [49] and clamp [48] to the drip shield [44].

SUBTASK 27-41-41-410-001

(12) Close this access panel:

Number	Name/Location
112A	Forward Access Door

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SUBTASK 27-41-41-410-002

(13) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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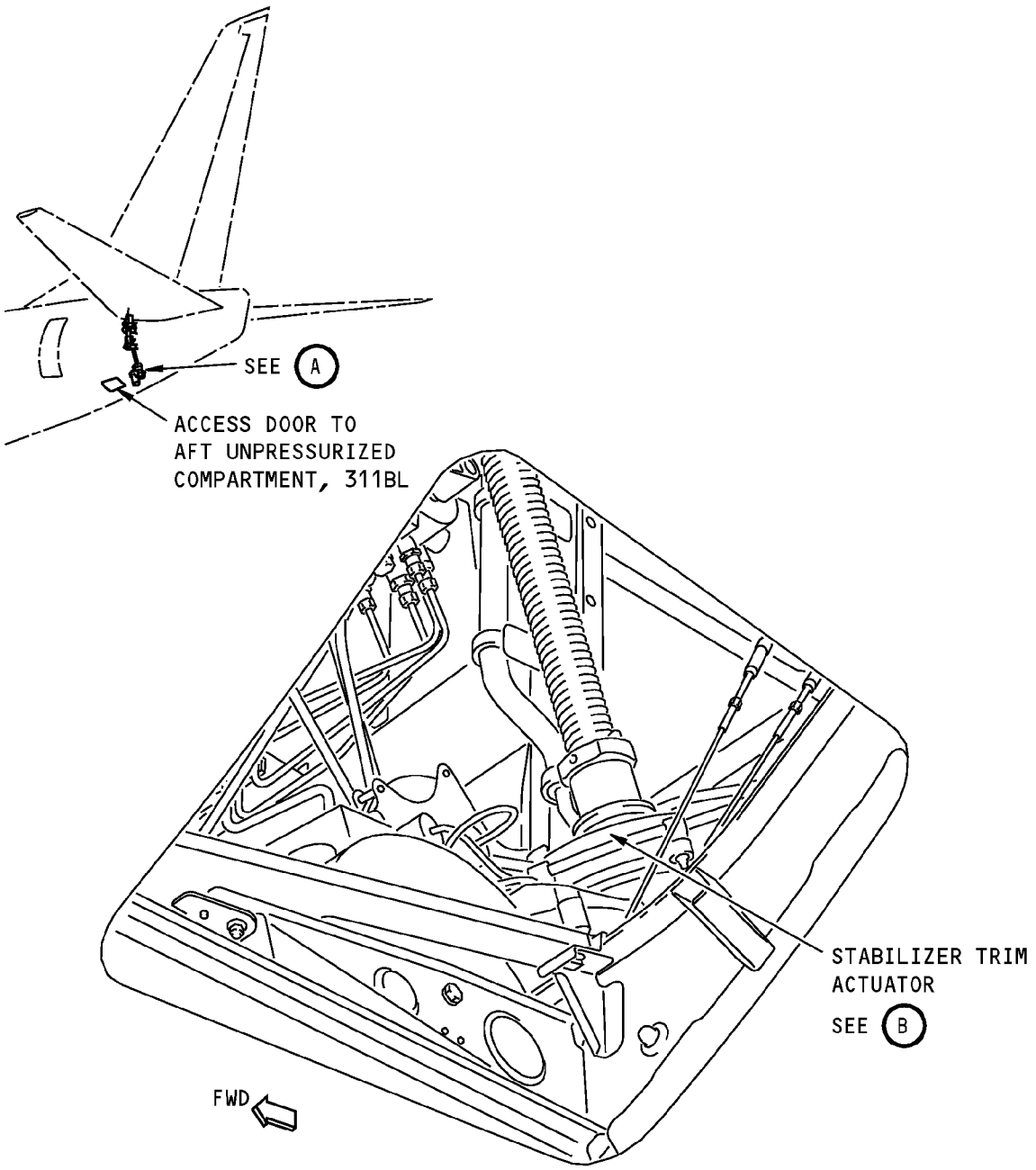

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Stabilizer Trim Jackscrew Setting
Figure 402 (Sheet 1 of 2)/27-41-41-990-802

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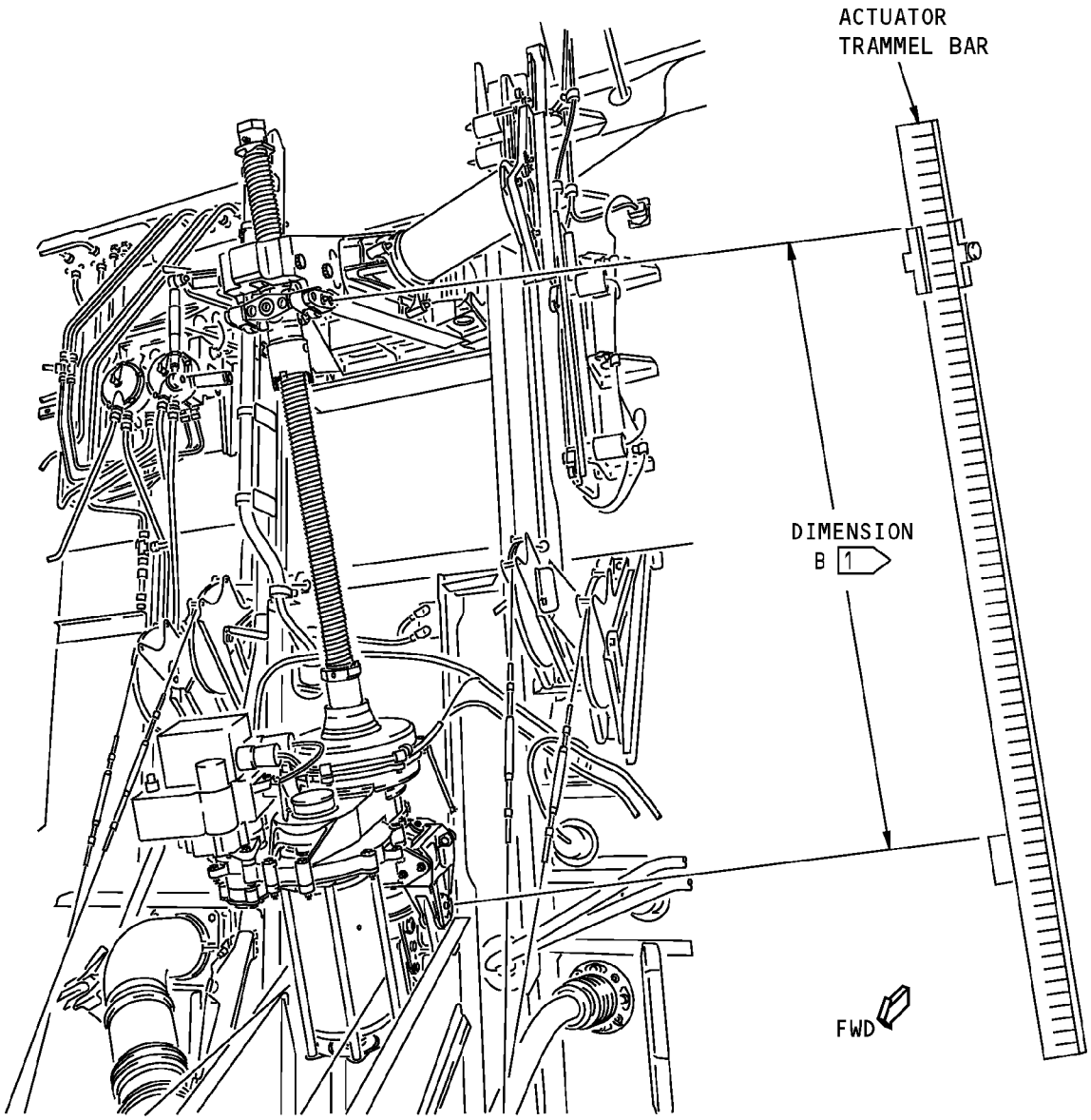

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Stabilizer Trim Jackscrew Setting
Figure 402 (Sheet 2 of 2)/27-41-41-990-802

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STABILIZER FORWARD CONTROL MECHANISM - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure contains this task:

(1) Stabilizer forward control mechanism inspection.

TASK 27-41-41-210-801

2. Stabilizer Control Mechanism Detail Visual Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Procedure

SUBTASK 27-41-41-010-002

(1) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-41-41-210-001

(2) Do a detail visual inspection of the stabilizer forward control mechanism:

(a) Examine all attachment points for security and damage.

(b) Examine upper and lower turnbuckles for damage or binding.

SUBTASK 27-41-41-410-003

(3) Close this access panel:

Number	Name/Location
112A	Forward Access Door

———————— END OF TASK ————————

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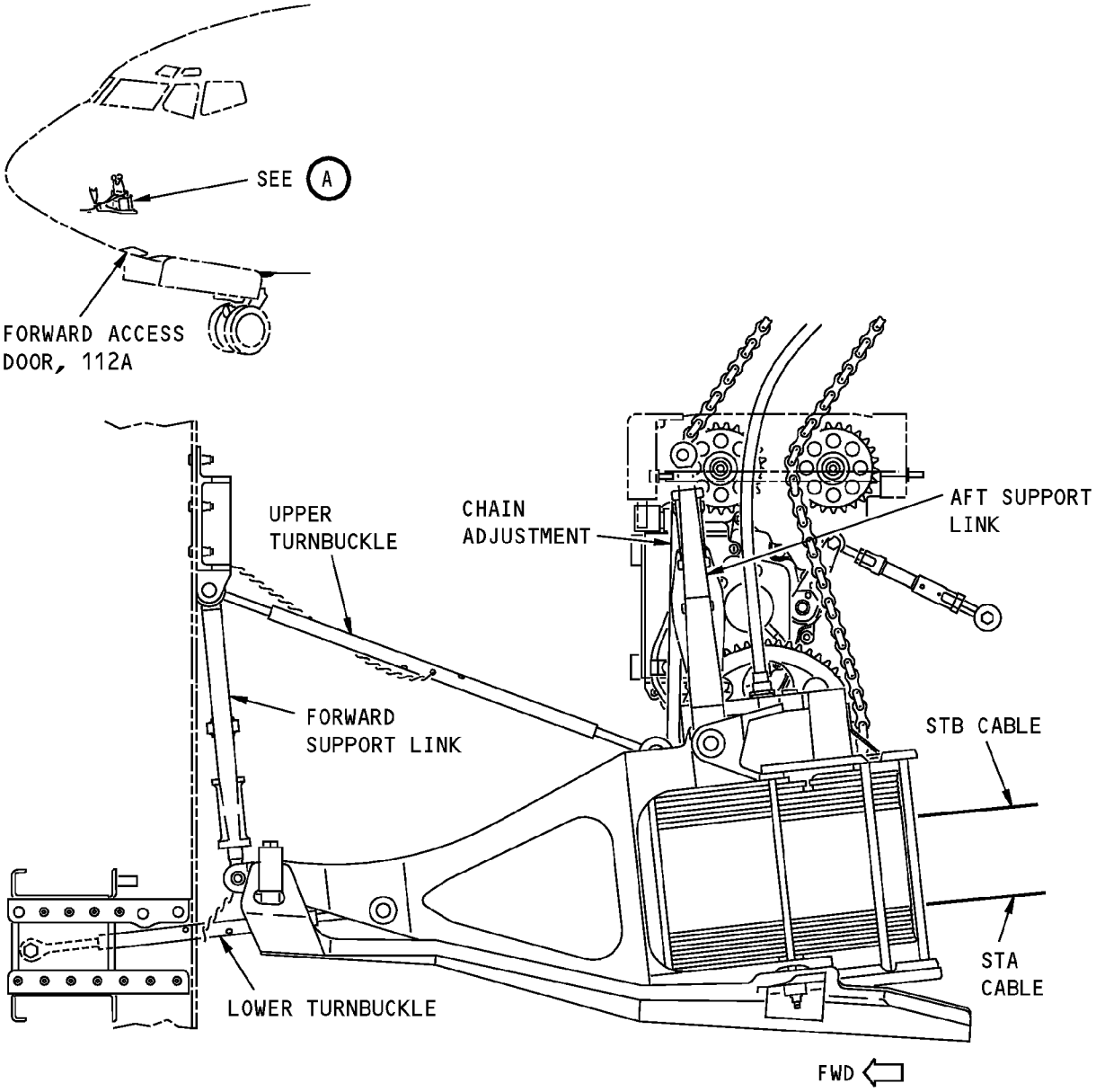

STABILIZER FORWARD CONTROL MECHANISM
(VIEW IN THE INBOARD DIRECTION)

A

Stabilizer Forward Control Mechanism
Figure 601/27-41-41-990-803

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COLUMN CUTOUT SWITCH - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a column cutout switch

(2) An installation of a column cutout switch.

B. This procedure is applicable for the captain's and first officer's column cutout switches.

(1) Electrical connectors D12156 and D817 are located on the captain's column cutout switch, M1983.

(2) Electrical connectors D10553, D2257 and D3124 are located on the first officer's column cutout switch, M1201.

TASK 27-41-51-000-801

2. Column Cutout Switch Removal

(Figure 401)

A. References

Reference	Title
31-31-52-000-801	Control Column Position Sensor Removal (P/B 401)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Prepare for the Removal

SUBTASK 27-41-51-860-001

(1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-51-010-001

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

E. Column Cutout Switch Removal

SUBTASK 27-41-51-020-001

(1) Remove the nut [6], washer [5], and bolt [4] to disconnect the rod assemblies [8] from the column cutout switch arms [3].

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SUBTASK 27-41-51-020-002

(2) Do these steps to remove the captain's column cutout switch [9]:

(a) Disconnect the electrical connectors.

(b) Remove the bolts [1] and washers [2] that attach the captain's column cutout switch [9] to the beam assembly.

(c) Remove the captain's column cutout switch [9].

SUBTASK 27-41-51-020-003

(3) Do these steps to remove the first officer's column cutout switch [12]:

(a) Disconnect the electrical connectors.

(b) Remove the bolts [10] and washers [11] that attach the first officer's column cutout switch [12] to the beam assembly.

(c) Remove the first officer's column cutout switch [12].

SUBTASK 27-41-51-020-004

(4) If it is necessary, remove the control column position sensor from the column cutout switch. To remove it, do this task: Control Column Position Sensor Removal, TASK 31-31-52-000-801

——————— END OF TASK ———————

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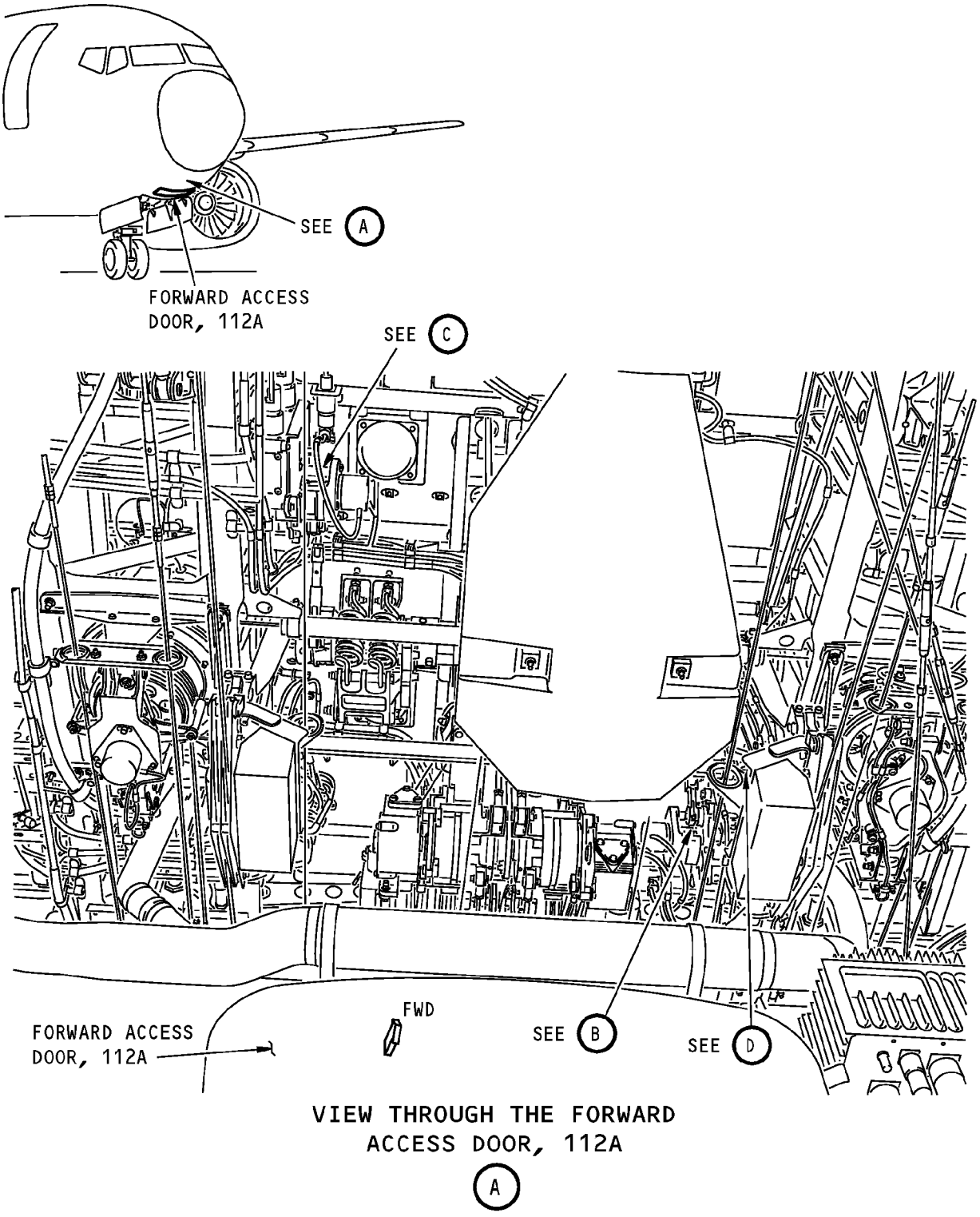

Column Cutout Switch Installation
Figure 401 (Sheet 1 of 3)/27-41-51-990-801

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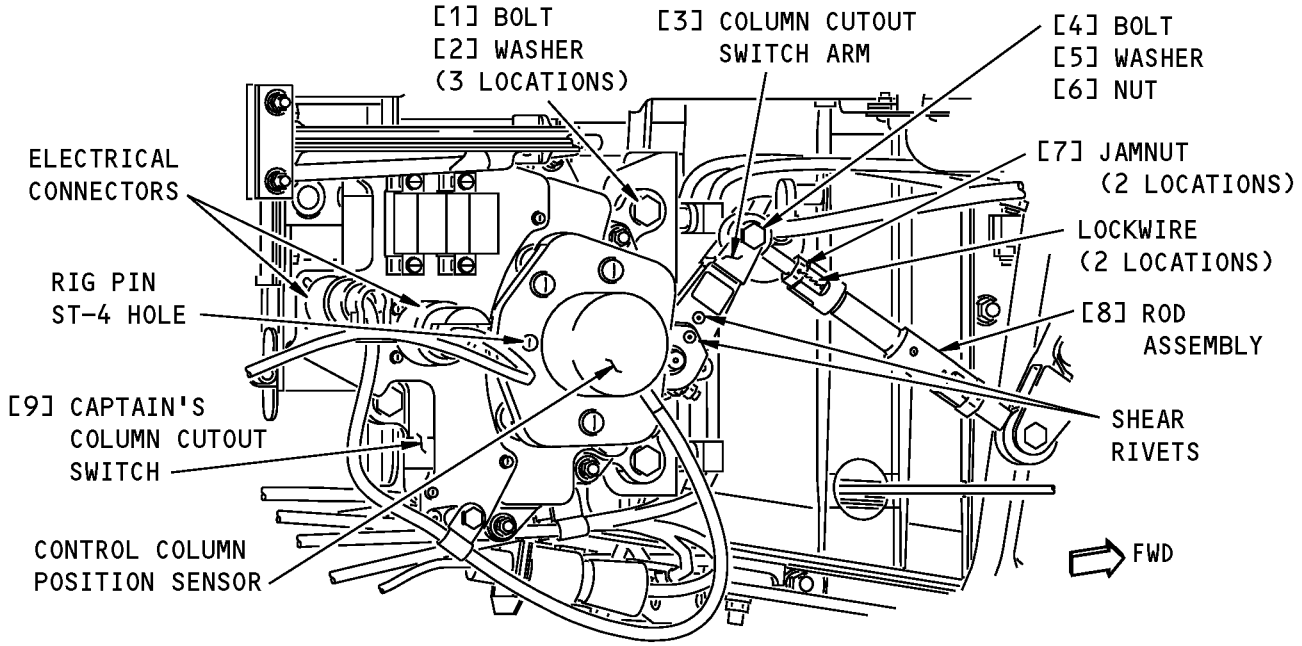
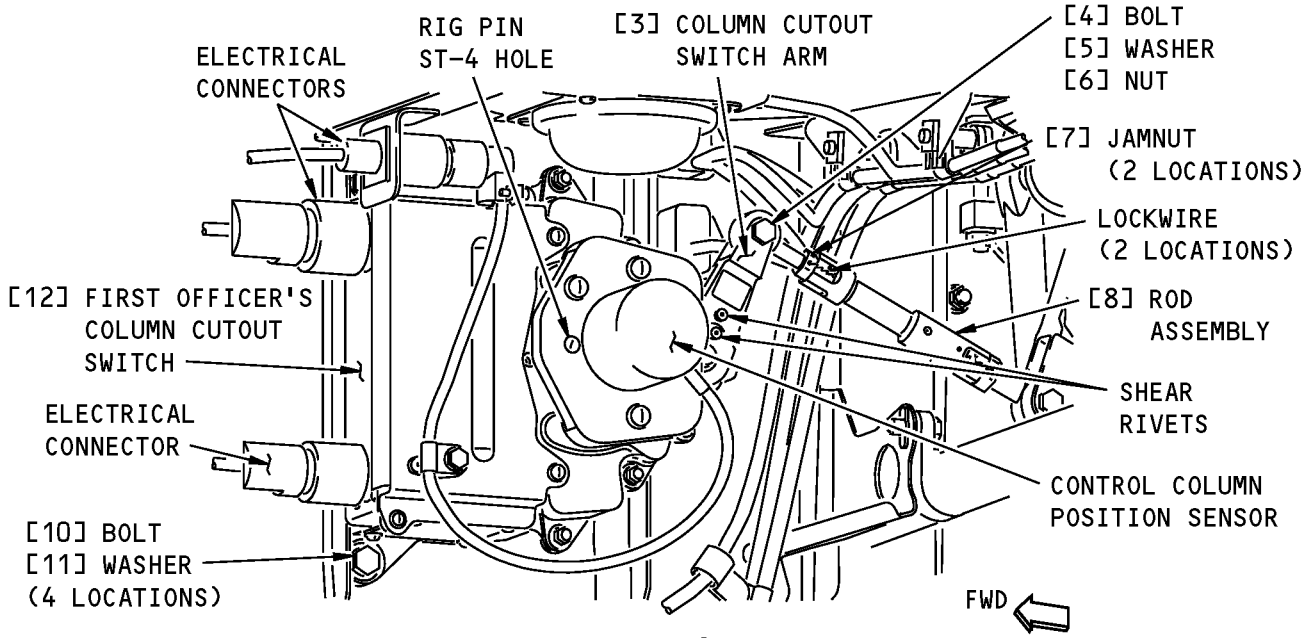


CAPTAIN'S COLUMN CUTOUT SWITCH

B



FIRST OFFICER'S COLUMN CUTOUT SWITCH

C

Column Cutout Switch Installation
Figure 401 (Sheet 2 of 3)/27-41-51-990-801

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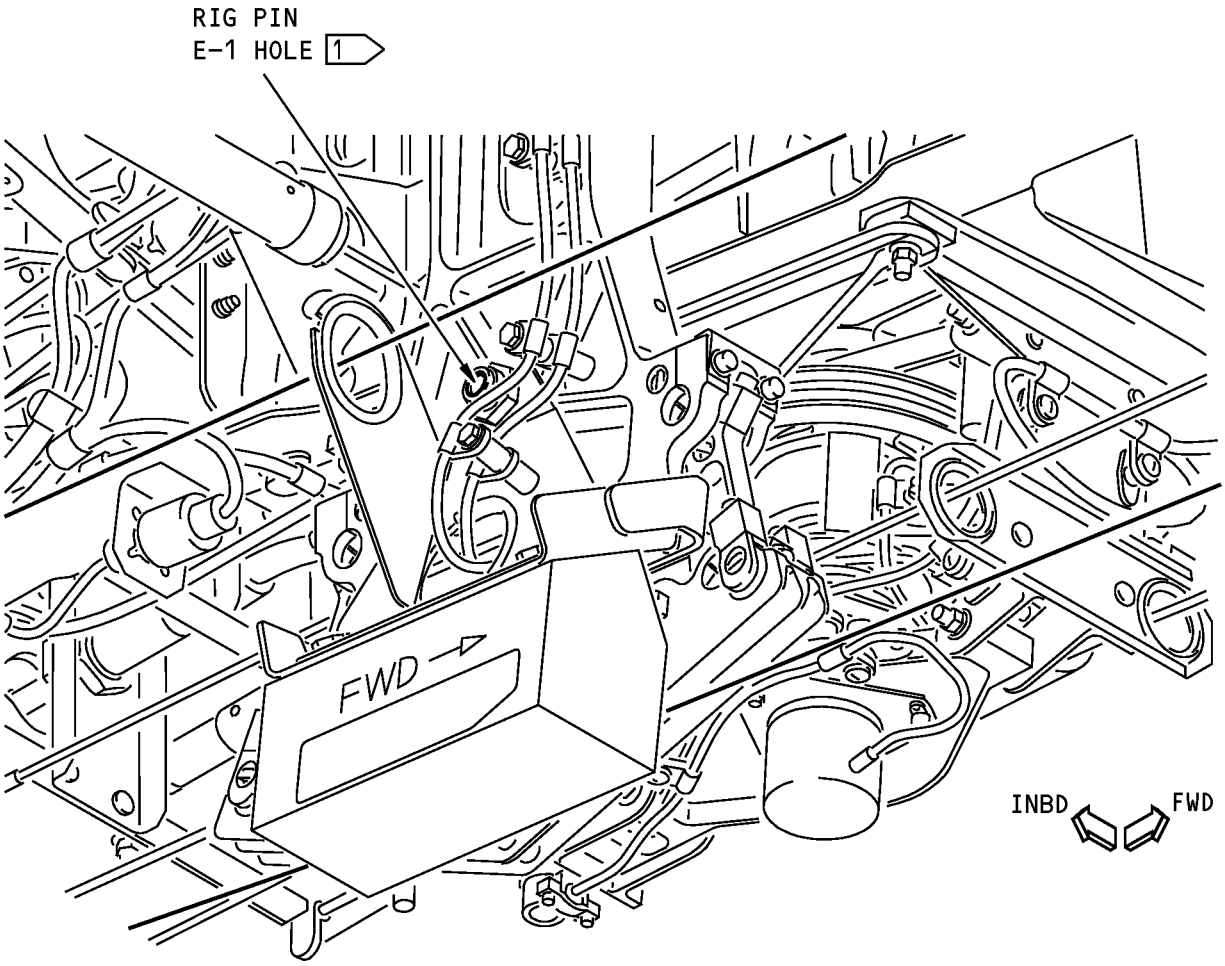

ELEVATOR FORWARD CONTROL QUADRANT

D

1 CAPTAIN'S SIDE ONLY

Column Cutout Switch Installation
Figure 401 (Sheet 3 of 3)/27-41-51-990-801

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TASK 27-41-51-400-801

3. Column Cutout Switch Installation

(Figure 401)

A. References

Reference	Title
27-41-00-700-810	Column Cutout Switches Test (P/B 501)
31-31-52-400-801	Control Column Position Sensor Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995~ C32

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Column Cutout Switch Installation

SUBTASK 27-41-51-420-001

(1) If it is necessary, install the control column position sensor to the column cutout switch. To install it, do this task: Control Column Position Sensor Installation, TASK 31-31-52-400-801.

SUBTASK 27-41-51-420-002

(2) Do these steps to install the captain's column cutout switch [9]:

(a) Put the captain's column cutout switch [9] in its position.

(b) Install the bolts [1] and washers [2] to attach the captain's column cutout switch [9] to the beam assembly.

(c) Connect the electrical connectors.

SUBTASK 27-41-51-420-003

(3) Do these steps to install the first officer's column cutout switch [12]:

(a) Put the first officer's column cutout switch [12] in its position.

(b) Install the bolts [10] and washers [11] to attach the first officer's column cutout switch [12] to the beam assembly.

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(c) Connect the electrical connectors.

SUBTASK 27-41-51-420-004

(4) Connect the rod assemblies [8] to the column cutout switch arms [3]:

(a) Install the rig pin E-1 from the rig pin kit, SPL-1585 through the left forward control quadrant.

(b) Install the rig pin ST-4 from the rig pin kit, SPL-1585 in the column cutout switch.

(c) Remove the lockwires from the rod assembly [8].

(d) Turn the jamnuts [7] until you can easily install the bolt that connect the rod assembly [8] to the column cutout switch arm [3].

(e) Install the bolt [4], washer [5], and nut [6] to connect the rod assembly [8] to the column cutout switch arm [3].

(f) Tighten the jamnuts [7].

(g) Install the lockwire, G01048.

(h) Remove the rig pin E-1 from the left forward control quadrant.

(i) Remove the rig pin ST-4 from the control column switch.

SUBTASK 27-41-51-860-002

(5) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-51-710-001

(6) Do this task: Column Cutout Switches Test, TASK 27-41-00-700-810.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-51-410-001

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

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HORIZONTAL STABILIZER TRIM CONTROL WHEEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Stabilizer Trim Control Wheel Removal.

(2) Stabilizer Trim Control Wheel Installation.

TASK 27-41-61-010-801

2. Stabilizer Trim Control Wheel Removal

(Figure 401)

A. Location Zones

Zone	Area
212	Flight Compartment - Right

B. Stabilizer Trim Control Wheel Removal

SUBTASK 27-41-61-010-001

(1) Remove the stabilizer trim wheel [1] from the control stand [7]:

(a) Remove the bolt [2] that attaches the stabilizer trim wheel [1] to the shaft.

(b) Remove the stabilizer trim wheel [1] from the shaft.

SUBTASK 27-41-61-010-002

(2) As necessary, remove the upper side cover [3] and lower side cover [5] from the right side of the control stand [7]:

(a) Remove the screws [6] and the pocket assembly [8] from the lower side cover [5].

(b) Remove the screws [4] that attach the upper side cover [3] and the lower side cover [5] to the control stand [7].

(c) Remove the upper side cover [3] and the lower side cover [5] from the control stand [7].

——————— END OF TASK ———————

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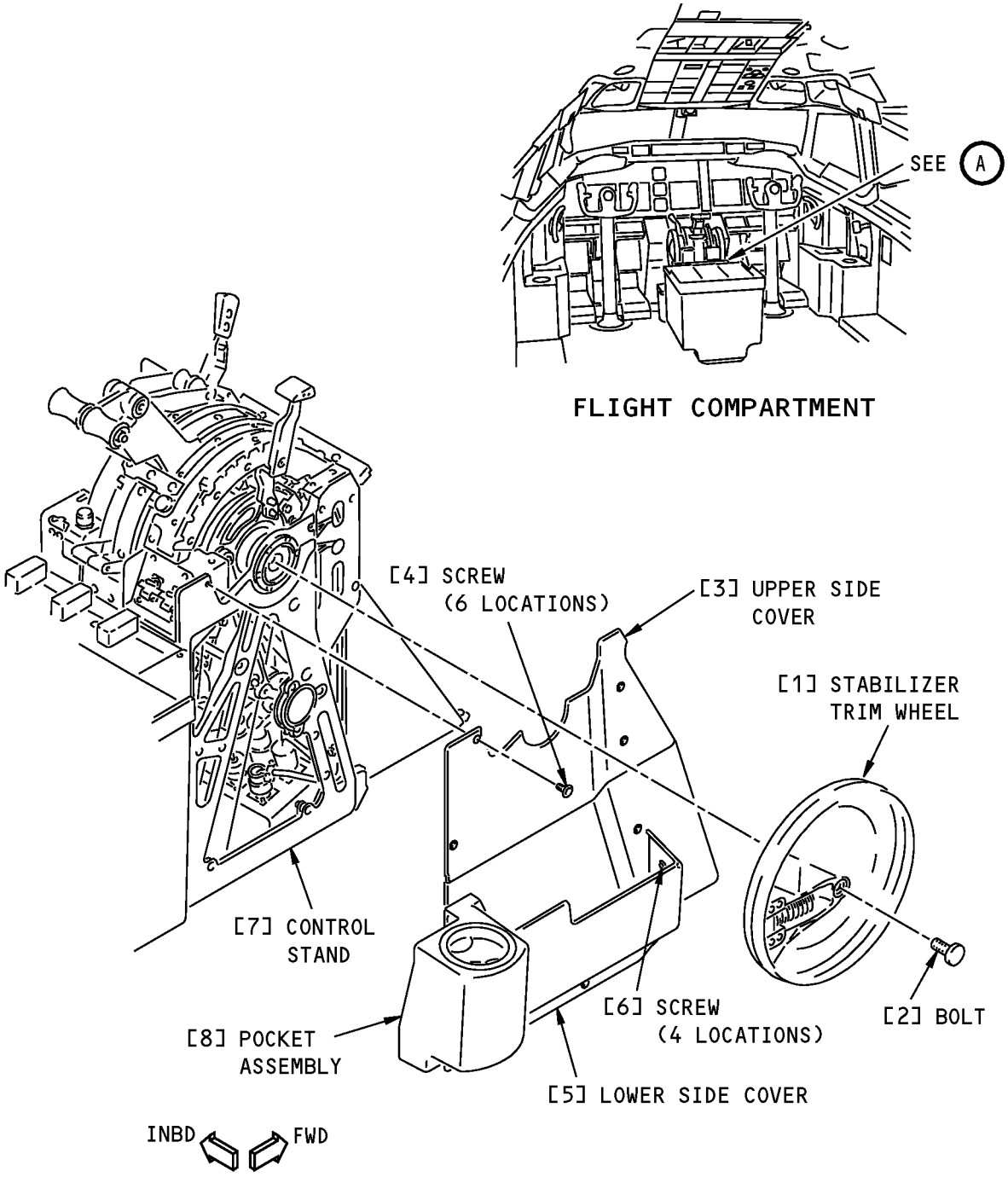

Stabilizer Trim Control Wheel Installation
Figure 401/27-41-61-990-801

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TASK 27-41-61-410-801

3. Stabilizer Trim Control Wheel Installation

(Figure 401)

A. Location Zones

Zone	Area
212	Flight Compartment - Right

B. Stabilizer Trim Control Wheel Installation

SUBTASK 27-41-61-410-002

(1) As necessary, install the upper side cover [3] and lower side cover [5] on the control stand [7]:

(a) Install the upper side cover [3] and the lower side cover [5] on the control stand [7].

(b) Install the screws [4] that attach the upper side cover [3] and the lower side cover [5] to the control stand [7].

(c) Install the screws [6] in the pocket assembly [8] and the lower side cover [5].

SUBTASK 27-41-61-410-003

(2) Install the stabilizer trim wheel [1] on the control stand [7]:

(a) Install the stabilizer trim wheel [1] on the shaft with the handle 90 +/- 15 degrees apart from the handle on the other stabilizer trim wheel.

NOTE: Make sure an equal amount of the shaft is visible on both sides of the pedestal.

(b) Install the bolt [2] that attaches the stabilizer trim wheel [1] to the shaft.

(c) Tighten the bolt to 150 in-lb (17 N·m) - 160 in-lb (18 N·m) above run-on torque.

——————— END OF TASK ———————

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STABILIZER TRIM MOTOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the stabilizer trim motor

(2) An installation of the stabilizer trim motor.

TASK 27-41-71-000-801

2. Stabilizer Trim Motor Removal

(Figure 401)

A. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

B. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

C. Prepare for the Removal

SUBTASK 27-41-71-860-007

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-71-010-001

(2) To get access to the stabilizer trim motor [1], do this step:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

D. Stabilizer Trim Motor Removal

SUBTASK 27-41-71-020-001

(1) Remove the stabilizer trim motor [1]:

(a) Disconnect the electrical connectors [2] from the stabilizer trim motor [1].

(b) Remove the nuts [6], washers [5], and bolts [4] that attaches the stabilizer trim motor [1] to the stabilizer trim actuator [3].

(c) Remove the nut [9], washer [8], and bolt [7] that attaches the stabilizer trim motor [1] to the stabilizer trim actuator [3].

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(d) Remove the stabilizer trim motor [1].

(e) Put a cover on the mounting pad to keep unwanted materials out of the stabilizer trim actuator [3].

END OF TASK

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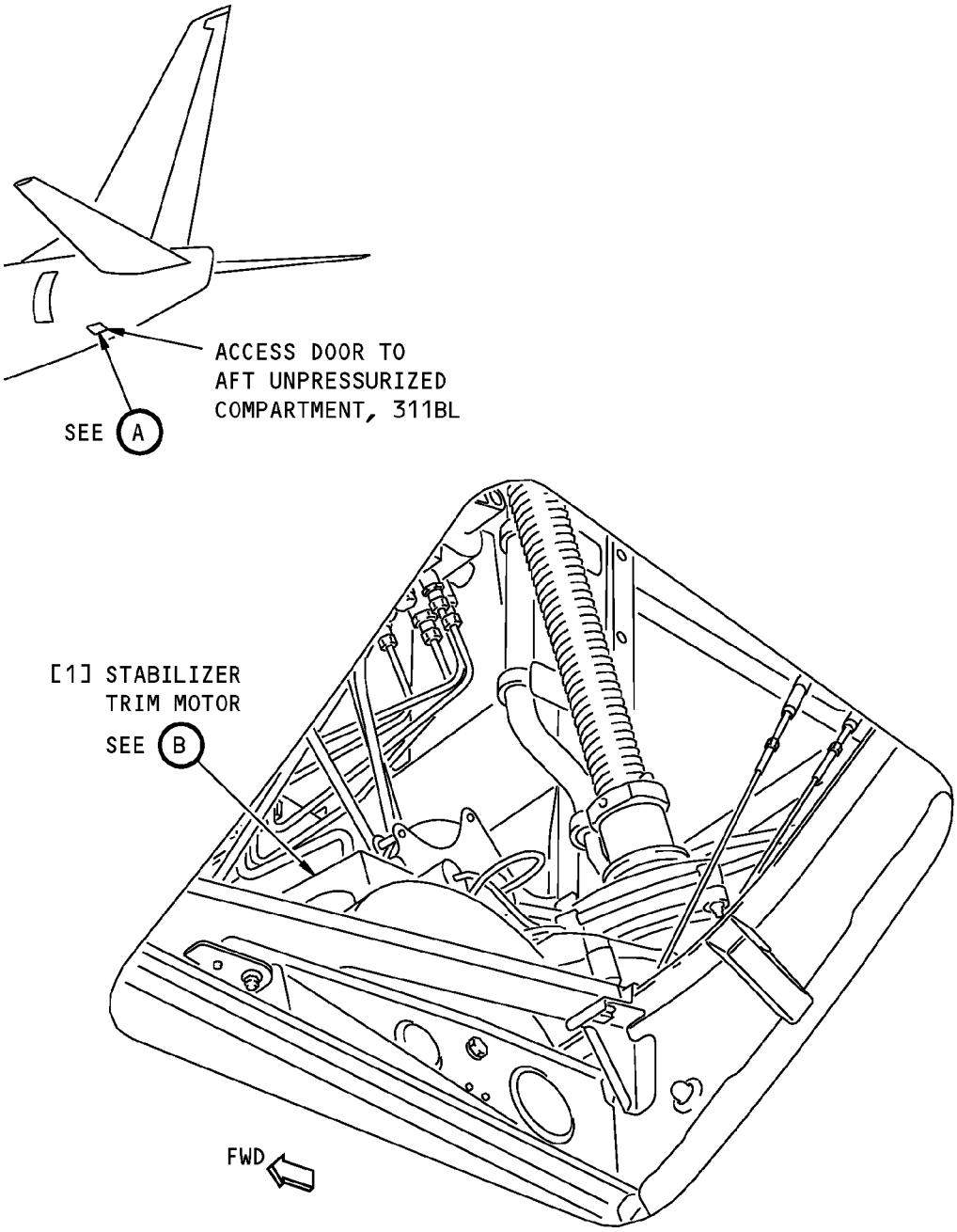

Stabilizer Trim Motor Installation
Figure 401 (Sheet 1 of 2)/27-41-71-990-801

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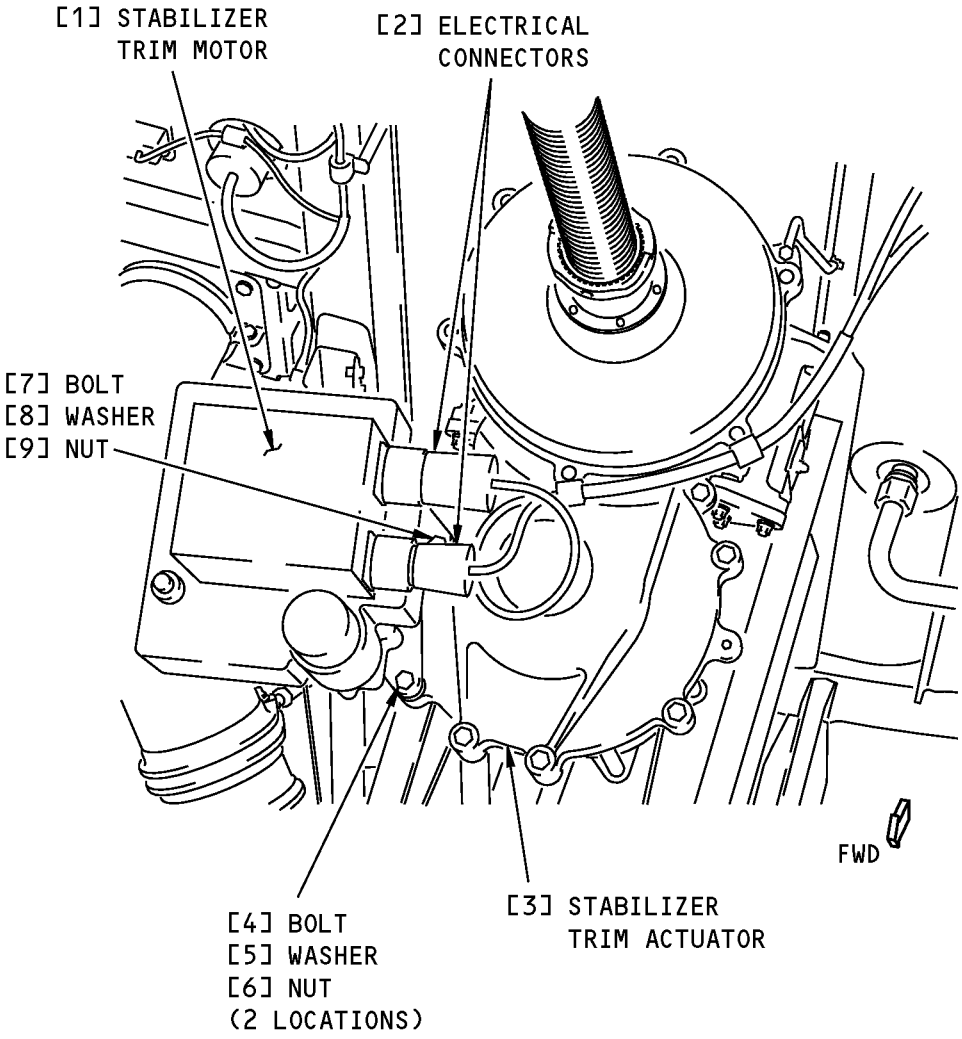

STABILIZER TRIM MOTOR

B

Stabilizer Trim Motor Installation
Figure 401 (Sheet 2 of 2)/27-41-71-990-801

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TASK 27-41-71-400-801

3. Stabilizer Trim Motor Installation

(Figure 401)

A. References

Reference	Title
27-41-71-700-801	Stabilizer Trim Motor Test (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Stabilizer Trim Motor Installation

SUBTASK 27-41-71-020-002

(1) Remove the cover from the mounting pad.

SUBTASK 27-41-71-160-001

(2) Make sure that the mating surfaces of the stabilizer trim motor [1] and the stabilizer trim actuator [3] are clean.

SUBTASK 27-41-71-640-001

(3) Fill the internal spline of the stabilizer trim actuator [3] with grease, D00633.

SUBTASK 27-41-71-420-001

(4) Install the stabilizer trim motor [1]:

(a) Engage the splined shaft of the stabilizer trim motor [1] with the internal spline of the stabilizer trim actuator [3].

(b) Install the bolts [4], washers [5], and nuts [6].

(c) Install the bolt [7], washer [8], and nut [9].

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(d) Connect the electrical connectors [2].

SUBTASK 27-41-71-220-001

(5) Use the bonding meter, COM-1550 to make sure the resistance between the stabilizer trim motor [1] and airplane structure is 0.0025 ohm.

SUBTASK 27-41-71-860-006

(6) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-71-820-001

(7) Do this task: Stabilizer Trim Motor Test, TASK 27-41-71-700-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-71-410-001

(1) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

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STABILIZER TRIM MOTOR - ADJUSTMENT/TEST

1. General

A. This procedure has one task. The task is the test of the stabilizer trim motor, M1659.

TASK 27-41-71-700-801

2. Stabilizer Trim Motor Test

A. References

Reference	Title
22-11-81-710-801	Stabilizer Trim Motor Test (P/B 501)
24-22-00-860-811	Supply Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
330	Subzone - Left Horizontal Stabilizer and Elevator
340	Subzone - Right Horizontal Stabilizer and Elevator

C. Prepare for the Test

SUBTASK 27-41-71-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-71-860-002

(2) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-71-860-003

(3) Make sure the main cutout switch, S272, on the P8 panel, is in the NORMAL position.

SUBTASK 27-41-71-860-004

(4) Make sure the STAB TRIM switch on the stab trim and cabin door panel, P8-47 is in the NORMAL position.

D. Procedure

SUBTASK 27-41-71-710-001

(1) Do the test of the stabilizer trim motor:

(a) Set the flaps to any position from 1-40 units.

1) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE DOWN position.

a) Make sure the stabilizer leading edge moves up.

b) Release the stabilizer trim control switches.

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2) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE UP position.
   a) Make sure the stabilizer leading edge moves down.
   b) Release the stabilizer trim control switches.
3) Push and hold the stabilizer trim control switches on the first officer's control wheel to the NOSE DOWN position.
   a) Make sure the stabilizer leading edge moves up.
   b) Release the stabilizer trim control switches.
4) Push and hold the stabilizer trim control switches on the first officer's control wheel to the NOSE UP position.
   a) Make sure the stabilizer leading edge moves down.
   b) Release the stabilizer trim control switches.
5) Push the stabilizer trim control switches on the captain's control wheel to the NOSE UP position and then to the NOSE DOWN position.
   a) Make sure the time for the stabilizer leading edge to move from its lower limit of travel to the upper limit of travel is between 31-39 seconds.
   b) Make sure the operation is smooth and there is no unusual noise.
6) Use the stabilizer trim control switches on the captain's control wheel to move the stabilizer many times in the two directions, one after the other for 3 seconds each.
   a) Make sure the operation is smooth and there is no unusual noise.
7) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE UP position until the system comes to the full trim speed.
   a) Move the stabilizer trim control switches momentarily to OFF and then to the NOSE DOWN position.
   b) Make sure the stabilizer leading edge moves up immediately after you move the stabilizer trim control switches to the NOSE DOWN position.
8) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE DOWN position until the system comes to the full trim speed.
   a) Move the stabilizer trim control switches momentarily to OFF and then to the NOSE UP position.
   b) Make sure the stabilizer leading edge moves down immediately after you move the stabilizer trim control switches to the NOSE UP position.
9) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE UP position until the system comes to full trim speed.
   a) Release the stabilizer trim control switches. Make sure the stabilizer trim wheel moves not more than 2.5 turns (900 degrees).
10) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE DOWN position until the system comes to full trim speed.
   a) Release the stabilizer trim control switches. Make sure the stabilizer trim wheel moves not more than 2.5 turns (900 degrees).

(b) Set the flaps to the full up position.

1) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE DOWN position.
   a) Make sure the stabilizer leading edge moves up.

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b) Release the stabilizer trim control switches.

2) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE UP position.

a) Make sure the stabilizer leading edge moves down.

b) Release the stabilizer trim control switches.

3) Push the stabilizer trim control switches on the captain's control wheel to the NOSE UP position and then to the NOSE DOWN position.

HAP 101-999

a) Make sure the time for the stabilizer to move from its lower limit of travel to the upper limit of travel is 46-56 seconds.

HAP 001-013, 015-026, 028-054

b) Make sure the time for the stabilizer to move from its lower limit of travel to the upper limit of travel is 47-58 seconds.

HAP ALL

c) Make sure the operation is smooth and there is no unusual noise.

4) Use the stabilizer trim control switches on the captain's control wheel to move the stabilizer many time in the two directions one after the other for 3 seconds each.

a) Make sure the operation is smooth and there is no unusual noise.

5) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE UP position until the system comes to the full trim speed.

a) Move the stabilizer trim control switches momentarily to OFF and then to the NOSE DOWN position.

b) Make sure the stabilizer leading edge moves up immediately after you move the stabilizer trim control switches to the NOSE DOWN position.

6) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE DOWN position until the system comes to the full trim speed.

a) Move the stabilizer trim control switches momentarily to OFF and then to the NOSE UP position.

b) Make sure the stabilizer leading edge moves down immediately after you move the stabilizer trim control switches to the NOSE UP position.

7) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE UP position until the system comes to full trim speed.

a) Release the stabilizer trim control switches. Make sure the stabilizer trim wheel moves not more than 0.5 turns (180 degrees).

8) Push and hold the stabilizer trim control switches on the captain's control wheel to the NOSE DOWN position until the system comes to full trim speed.

a) Release the stabilizer trim control switches. Make sure the stabilizer trim wheel moves not more than 0.5 turns (180 degrees).

(c) Do this task: Stabilizer Trim Motor Test, TASK 22-11-81-710-801.

——————— END OF TASK ———————

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STABILIZER BALL NUT AND JACKSCREW GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A removal of the primary stabilizer ball nut and jackscrew gearbox

(2) An installation of the stabilizer ball nut and jackscrew gearbox.

C. The stabilizer ball nut and jackscrew gearbox is referred to as the "stabilizer trim actuator" in this procedure.

D. The stabilizer trim actuator includes the ballnut, jackscrew, and jackscrew gearbox.

TASK 27-41-81-000-801

2. Stabilizer Ball Nut and Jackscrew Gearbox Removal

(Figure 401, Figure 402, Figure 403)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-41-71-000-801	Stabilizer Trim Motor Removal (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
SPL-1569	Clamp - Control Cable (Part #: A20005-9, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1678	Assembly - Lock, Horizontal Stabilizer (Part #: F80027-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1728	Equipment - Handling, Stabilizer Jackscrew (Dome Pressure Bulkhead) (Part #: C27050-32, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)
SPL-10319	Wrench Assembly - Pinion Gear (Part #: F71267, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door

F. Prepare for the Removal

SUBTASK 27-41-81-860-001

(1) Set the stabilizer leading edge to the full down (airplane nose up) position.

SUBTASK 27-41-81-860-002

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-81-010-001

(3) To get access to the stabilizer forward control mechanism, do this step:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-41-81-010-002

(4) To get access to the stabilizer trim actuator, do this step:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-81-820-001

CAUTION: MAKE SURE THE CHAIN IS LOOSE BEFORE YOU RELEASE THE CABLE TENSION. TOO MUCH CABLE TENSION CAN CAUSE DAMAGE TO THE CHAIN.

(5) Adjust the upper adjusting nuts [5] of the aft support link [6] to loosen the chain (Figure 401).

SUBTASK 27-41-81-020-017

(6) Disconnect the upper turnbuckle [4].

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SUBTASK 27-41-81-020-001

(7) Loosen the lower turnbuckle [3] to release the tension of the STA cable [66] and STB cable [65] (Figure 401).

SUBTASK 27-41-81-020-002

(8) Do this task: Stabilizer Trim Motor Removal, TASK 27-41-71-000-801.

G. Stabilizer Trim Actuator Removal

(Figure 402)

SUBTASK 27-41-81-020-003

(1) Remove the clamps [44] for the electrical connectors [47] from the jackscrew gearbox [24]:

(a) Remove the nuts [46], washers [45], and bolts [43] to remove the clamps [44] from the jackscrew gearbox [24].

(b) Remove the electrical connectors [47] from the jackscrew gearbox [24].

(c) Install the bolts [43], washers [45], and nuts [46] back to the jackscrew gearbox [24].

SUBTASK 27-41-81-020-004

(2) Remove the cable drum guard [67] and spacers [26] from the cable drum [27]:

(a) Remove the bolts [63] and washers [64] from the support plate [62].

(b) Remove the bolts [48] and washers [49] that attach the cable drum guard [67] to the cable drum [27].

(c) Remove the nut [60], washer [59], washer [58], and bolt [57] that attaches the cable drum guard [67] to the support plate [62].

(d) Remove the cable drum guard [67] and spacers [26].

SUBTASK 27-41-81-020-005

CAUTION: KEEP TENSION ON THE CABLE AT ALL TIMES. WHEN THE CABLE IS DISCONNECTED FROM THE AFT CABLE DRUM, TENSION NEEDS TO BE KEPT ON THE CABLE SO THAT THE CABLE DOES NOT BECOME CAUGHT IN THE CABLE GUARDS ON THE FORWARD CABLE DRUM. THIS CAN CAUSE DAMAGE TO THE CABLE AND THE CABLE MAY NEED TO BE REPLACED.

(3) Disconnect the STB cable [65] from the cable drum [27]:

(a) Use the force gauge, COM-1557 on the stabilizer trim wheel handle to put a 50 lb (22.7 kg) load on the STA cable [66].

NOTE: This will keep the STA cable [66] on the drum, which will make the removal of the STB cable [65] easier.

SUBTASK 27-41-81-480-001

(4) Install thepinion gear wrench assembly, SPL-10319 on the internal spline of the jackscrew gearbox [24].

SUBTASK 27-41-81-020-006

(5) Move the jackscrew [23] to put the stabilizer leading edge to the full up position.

CAUTION: MAKE SURE YOU DO NOT DAMAGE OR KINK THE CABLE WHILE UNWINDING IT FROM THE FORWARD CABLE DRUM. IF YOU UNWIND THE CABLE TOO FAST OFF OF THE FORWARD CABLE DRUM, DAMAGE MAY OCCUR TO THE END OF THE CABLE IF IT BECOMES KINKED BETWEEN THE CABLE GUARD AND THE CABLE DRUM AS THE LAST WRAP OF CABLE IS REMOVED FROM THE DRUM.

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(CAUTION PRECEDES)

CAUTION: MAKE SURE YOU ALWAYS KEEP TENSION ON THE CABLE WHILE UNWINDING IT FROM THE FORWARD DRUM. IF YOU DO NOT KEEP TENSION ON THE CABLE, THE CABLE MAY BECOME CAUGHT IN THE CABLE GUARDS ON THE FORWARD CABLE DRUM AND DAMAGE TO THE CABLE MAY OCCUR.

(a) When the stabilizer starts to move, pull the STB cable [65] into the tail compartment and wind it on a spool or a reel.

NOTE: It is recommended that a mechanic watch the cable unwind from the forward cable drum to make sure that no damage occurs to the cable as the last three wraps of cable are slowly unwound from the cable drum.

(b) When the ballnut [28] touches the stops, keep a record of the number of turns of the STA cable [66] on the cable drum [27].

CAUTION: KEEP TENSION ON THE CABLE AT ALL TIMES. WHEN THE CABLE IS DISCONNECTED FROM THE AFT CABLE DRUM, TENSION NEEDS TO BE KEPT ON THE CABLE SO THAT THE CABLE DOES NOT BECOME CAUGHT IN THE CABLE GUARDS ON THE FORWARD CABLE DRUM. THIS CAN CAUSE DAMAGE TO THE CABLE AND THE CABLE MAY NEED TO BE REPLACED.

(c) Disconnect the cable STA [66] from the cable drum [27].

SUBTASK 27-41-81-480-002

(6) Install the control cable clamp, SPL-1569 to the cables and attach DO-NOT-OPERATE tags to the stabilizer trim wheels.

SUBTASK 27-41-81-480-003

WARNING: MAKE SURE YOU INSTALL THE LOCK, F80027-18. THE STABILIZER LEADING EDGE CAN MOVE UP QUICKLY WHEN YOU DISCONNECT THE JACKSCREW. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Install the lock, SPL-1678 on the jackscrew fitting assembly [21] (Figure 403):

(a) Install the lower horizontal stabilizer lock.

NOTE: The maximum torque for the lower lock assembly bolts is 12 in-lb (1 N·m).

CAUTION: DO NOT MOVE THE JACKSCREW FITTING ASSY INTO THE HORIZONTAL STABILIZER LOCKS, F80027-18. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Turn the motor shaft or cable drum by hand to move the stabilizer leading edge down until the stabilizer truss touches the horizontal stabilizer lock.

(c) Install the upper horizontal stabilizer lock.

NOTE: Make sure the adjustable leveling feet are adjusted so that they contact the jackscrew fittings.

NOTE: The maximum torque for the upper lock assembly bolts is 12 in-lb (1 N·m).

SUBTASK 27-41-81-480-004

(8) Install the equipment, SPL-1728 to the jackscrew gearbox [24] (Figure 403):

(a) Install the hoist adapter to the sleeve of the jackscrew gearbox [24].

(b) Install the hoist bar between the frames at the top of the stabilizer trim compartment.

(c) Attach the hoist to the hoist bar and connect it to the hoist adapter.

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SUBTASK 27-41-81-020-007

(9) Remove the stabilizer trim actuator [53] from the airplane (Figure 402):

(a) Remove the nut [42], washers [40], and bolt [39] to disconnect the bonding jumper [41] from the jackscrew gearbox [24].

1) Install the bolt [39], washers [40], and nut [42] back in the jackscrew gearbox [24].

(b) Remove the bolts [54] and washers [55] from the safety strap [56].

(c) Remove the pins [38], nuts [37], washers [36], washers [34], spacers [35], and bolts [33] that attaches the ballnut [28] to the jackscrew fitting assembly [21]. Discard the pin [38].

(d) Remove the bolts [29] and washers [30] to remove the upper gimbal pins [31] from the upper gimbal fittings [22].

(e) Move the ballnut [28] down and adjust the jackscrew [23] until it is clear from the jackscrew fitting assembly [21].

(f) Install the washers [30] and bolts [29] to attach the upper gimbal pins [31] back in the upper gimbal fittings [22].

(g) Remove the pins [52], nuts [51], washers [50], and lower gimbal pins [25] from the stabilizer trim actuator [53]. Discard the pin [52].

(h) Lower the jackscrew [23] until it is clear of the stabilizer truss.

(i) Lower the stabilizer trim actuator [53] from the airplane.

END OF TASK

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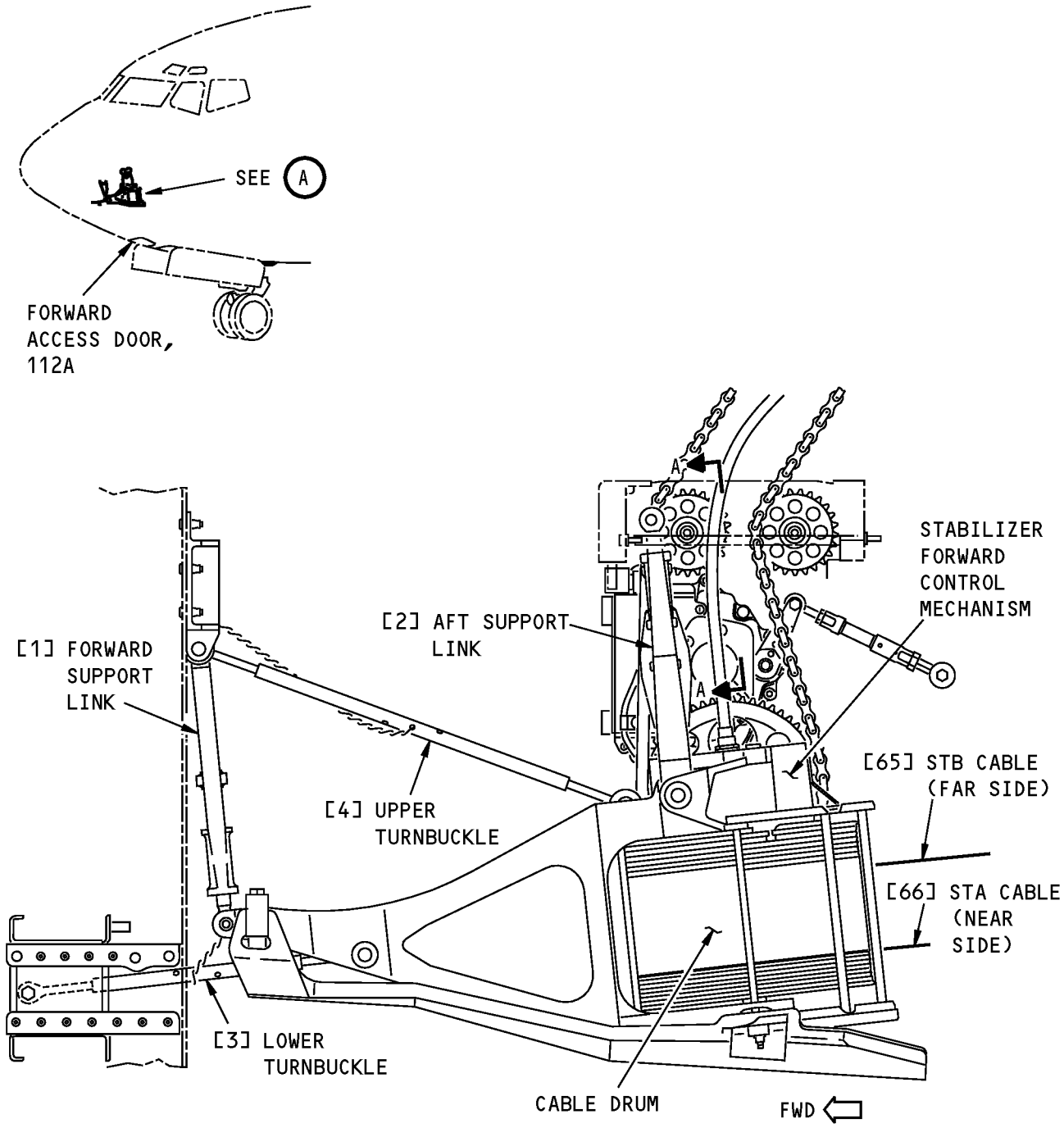

(VIEW IN THE INBOARD DIRECTION)

A

Stabilizer Forward Control Mechanism Adjustment
Figure 401 (Sheet 1 of 2)/27-41-81-990-801

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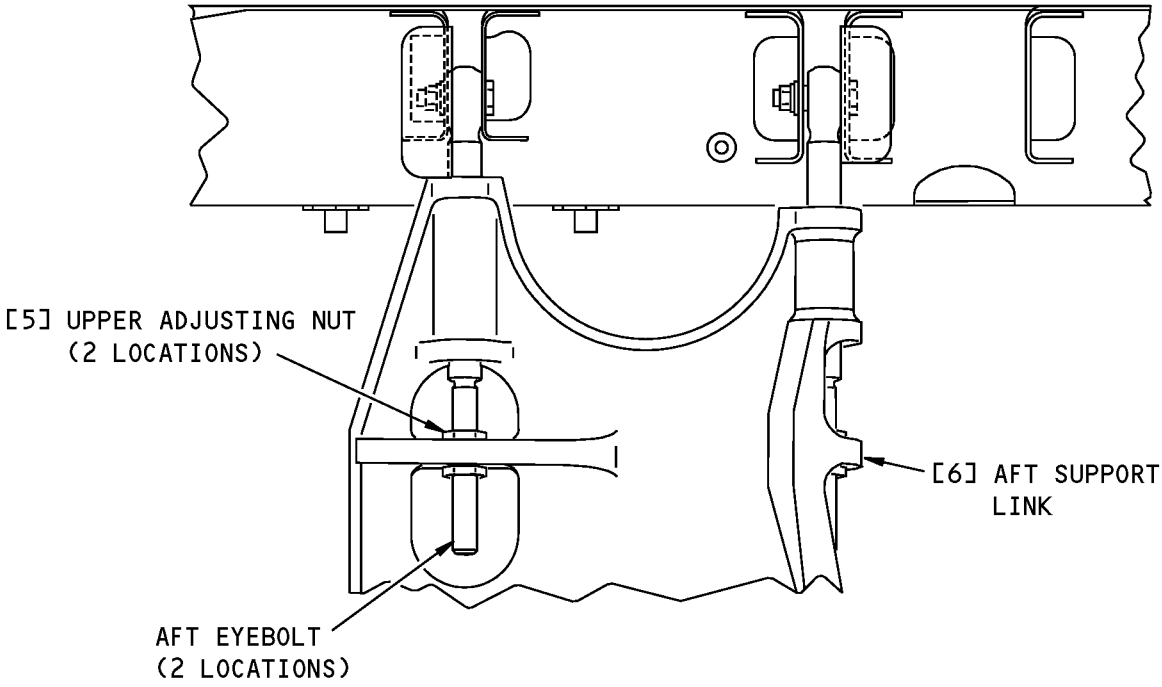

(VIEW IN THE FORWARD DIRECTION)
A-A

Stabilizer Forward Control Mechanism Adjustment
Figure 401 (Sheet 2 of 2)/27-41-81-990-801

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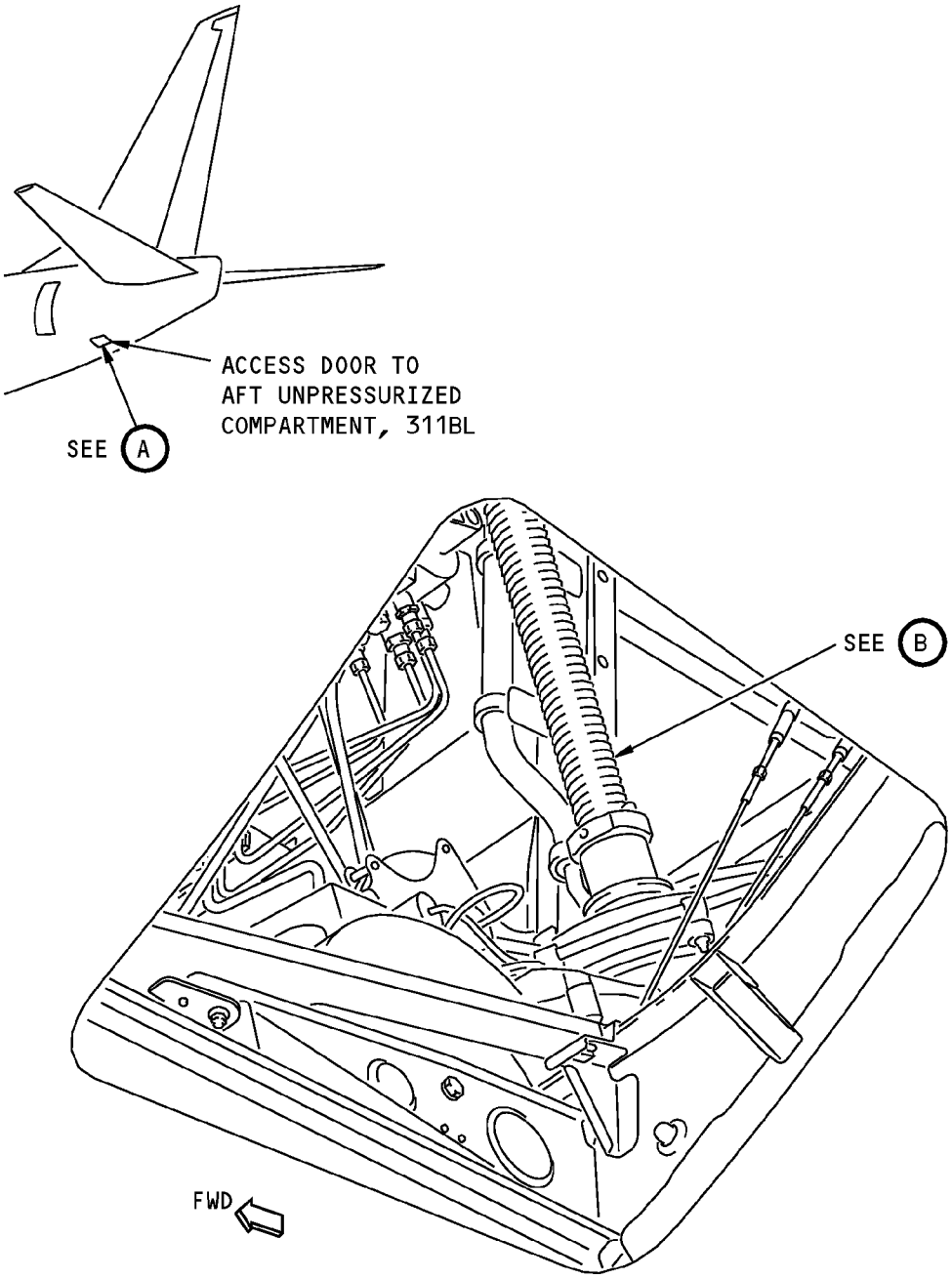

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Stabilizer Ball Nut and Jackscrew Gearbox Installation
Figure 402 (Sheet 1 of 5)/27-41-81-990-802

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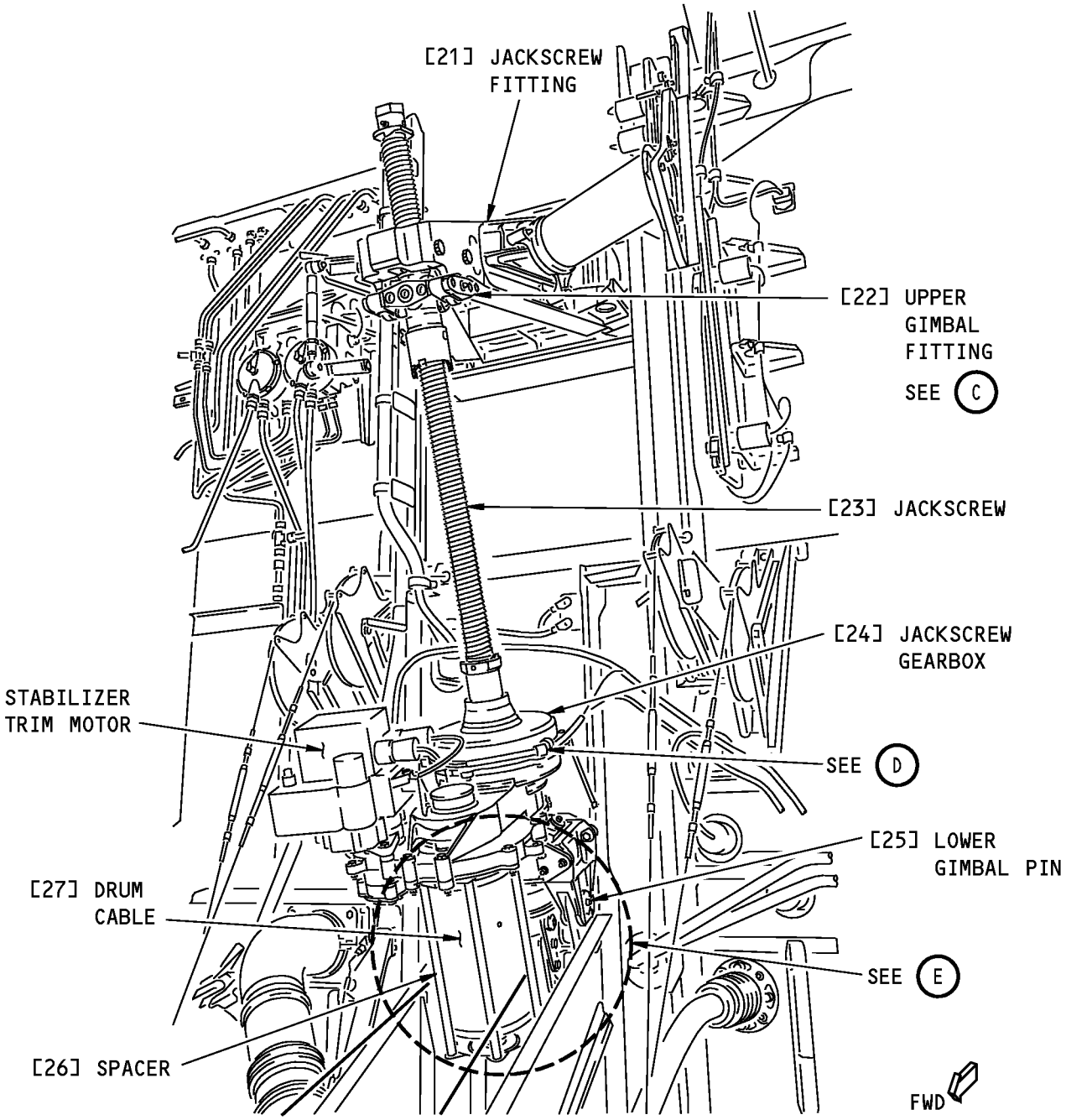

STABILIZER TRIM ACTUATOR

B

Stabilizer Ball Nut and Jackscrew Gearbox Installation
Figure 402 (Sheet 2 of 5)/27-41-81-990-802

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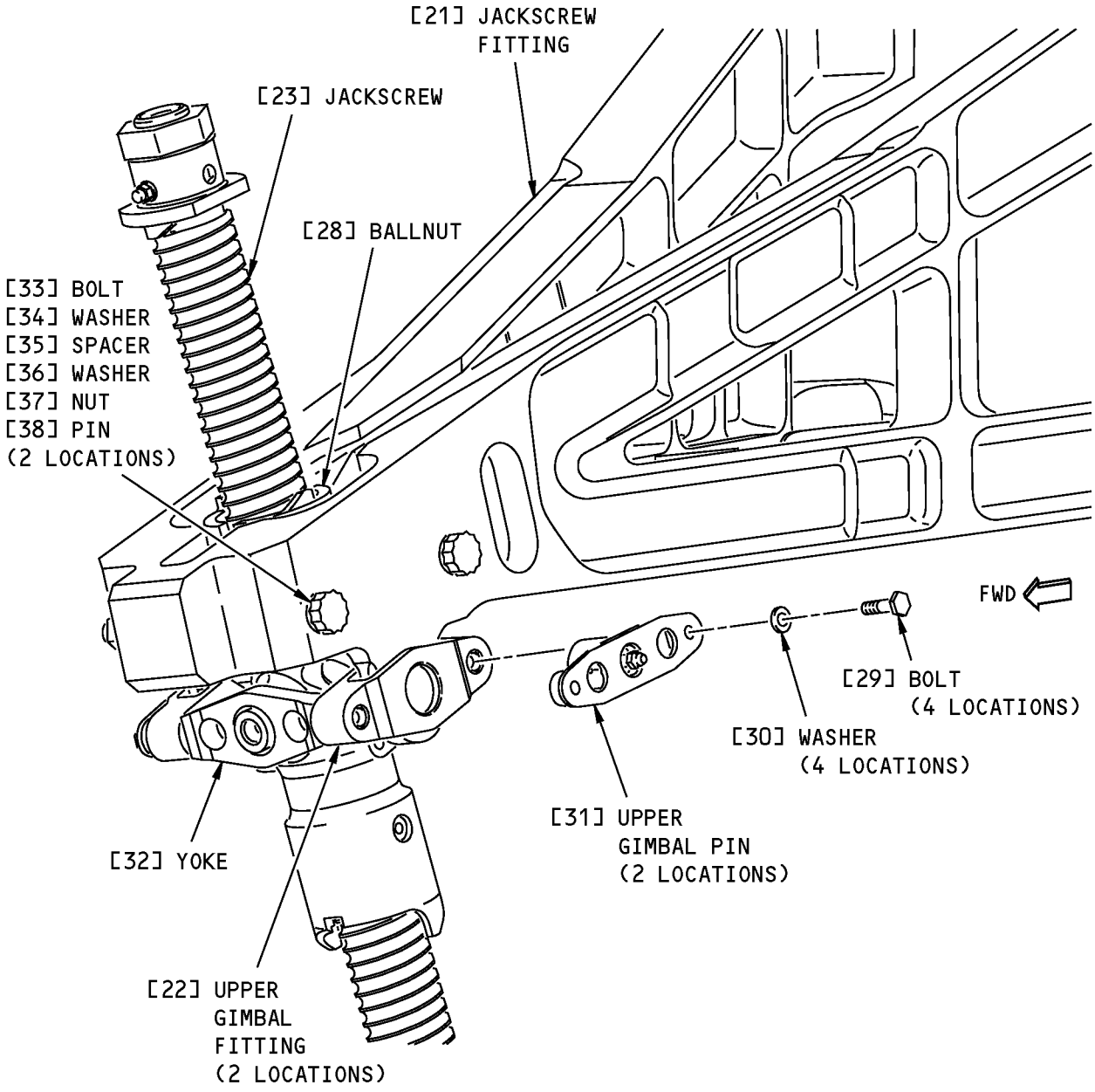

UPPER GIMBAL FITTING

C

Stabilizer Ball Nut and Jackscrew Gearbox Installation
Figure 402 (Sheet 3 of 5)/27-41-81-990-802

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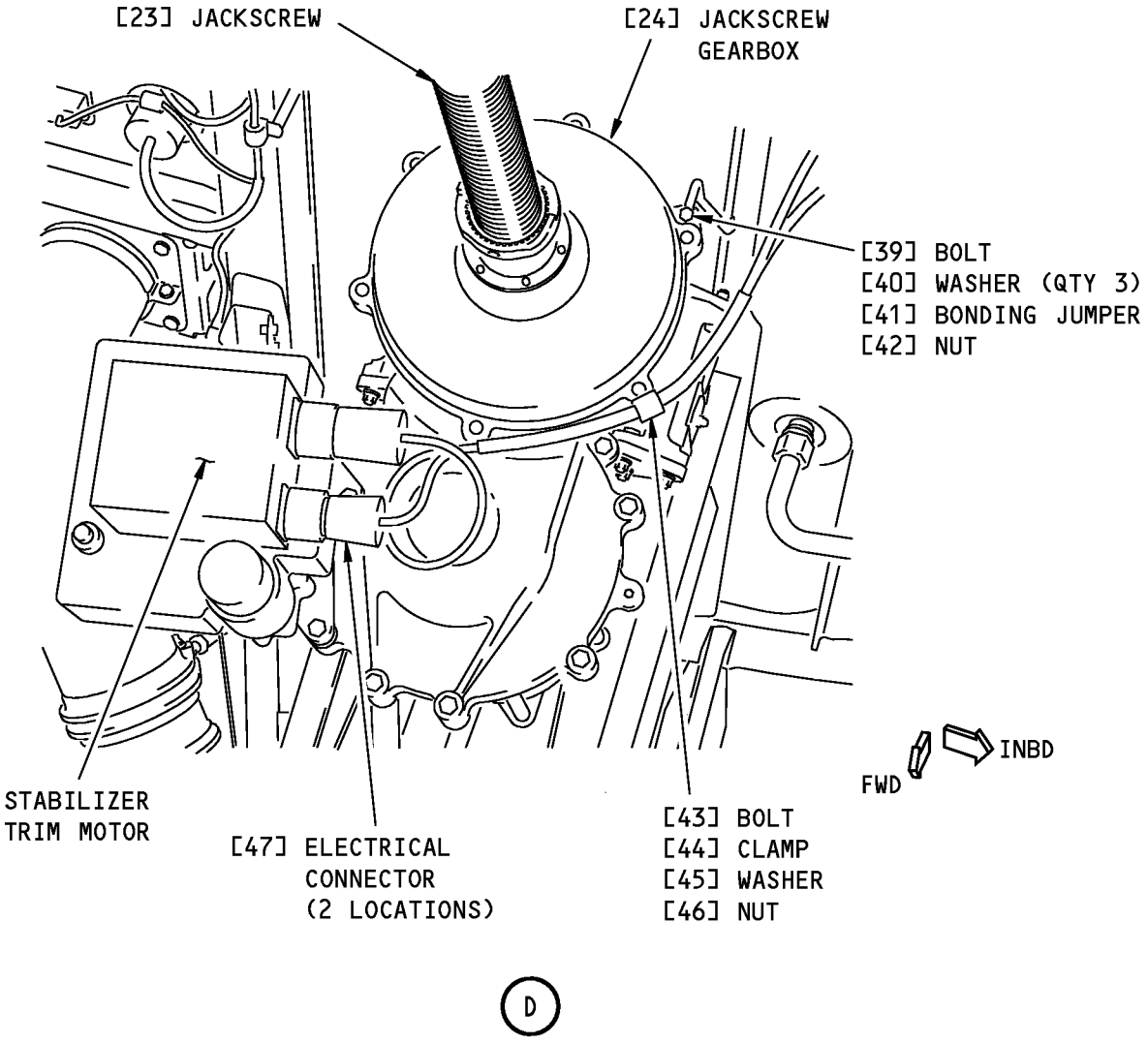

Stabilizer Ball Nut and Jackscrew Gearbox Installation
Figure 402 (Sheet 4 of 5)/27-41-81-990-802

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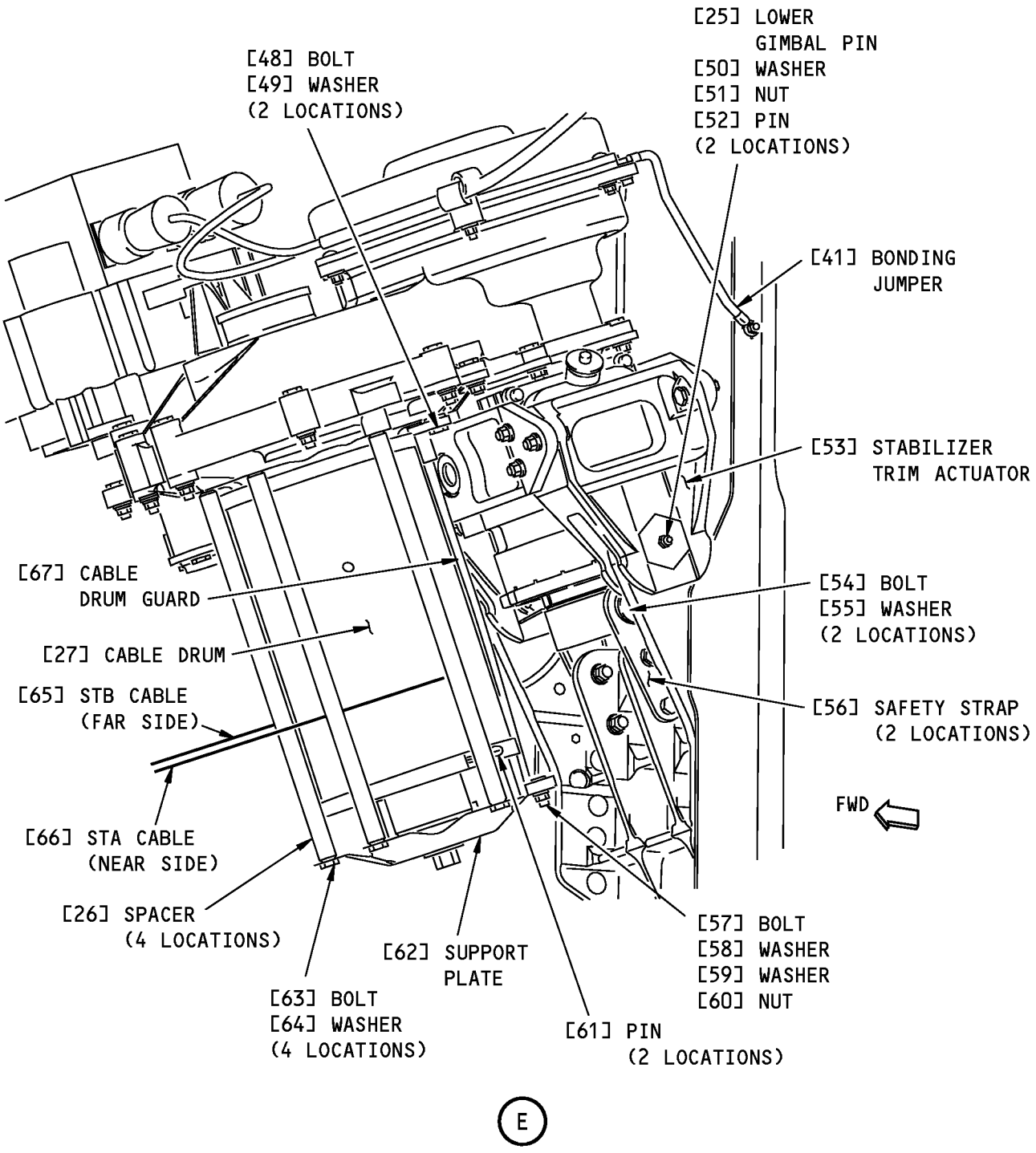

Stabilizer Ball Nut and Jackscrew Gearbox Installation
Figure 402 (Sheet 5 of 5)/27-41-81-990-802

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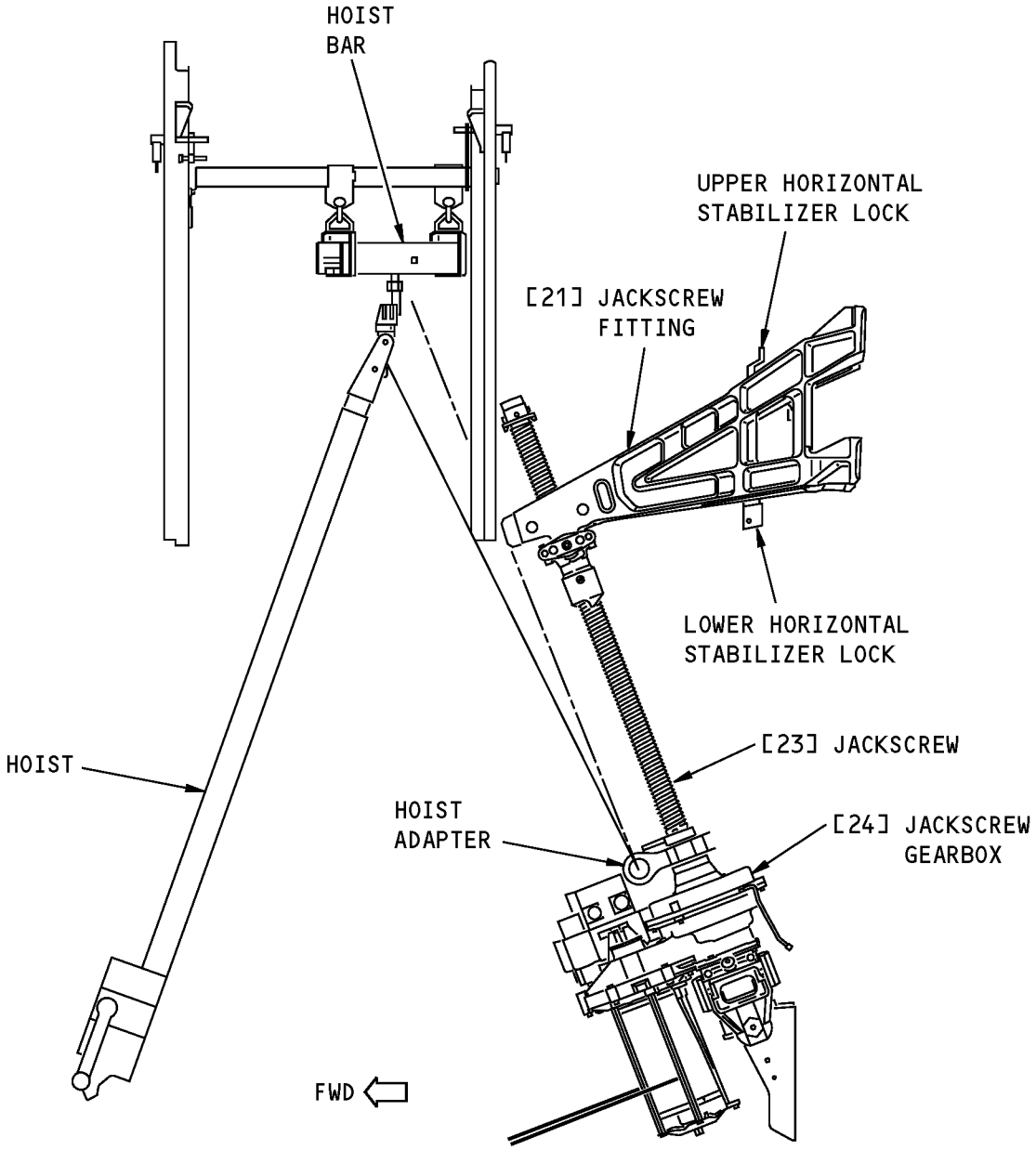

Stabilizer Lock and Jackscrew Handling Equipment Installation
Figure 403/27-41-81-990-803

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TASK 27-41-81-400-801

3. Stabilizer Ball Nut and Jackscrew Gearbox Installation

(Figure 401, Figure 402, Figure 403)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
12-22-41-600-801	Stabilizer Jackscrew, Ballnut and Gimbal - Lubrication (P/B 301)
12-22-41-610-802	Horizontal Stabilizer Actuator Brake - Servicing (P/B 301)
27-41-00-700-801	Stabilizer Manual Trim and Trim Indicator Test (P/B 501)
27-41-00-700-802	Horizontal Stabilizer Trim Control System Friction Test (P/B 501)
27-41-00-700-803	Stabilizer Electric Trim System Test (P/B 501)
27-41-00-700-804	Stabilizer Trim Wheel Free Movement Test (P/B 501)
27-41-00-700-806	Stabilizer Clutch Friction System Test (P/B 501)
27-41-00-700-808	Stabilizer Trim Secondary Brake System Test (P/B 501)
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)
27-41-71-400-801	Stabilizer Trim Motor Installation (P/B 401)
27-41-81-200-802	Upper and Lower Gimbal Wear Limits Inspection (P/B 601)
27-41-81-210-801	Stabilizer Trim Ball Nut and Jackscrew Gearbox Detail Visual Inspection (P/B 601)
27-41-81-210-802	Stabilizer Jackscrew Gearbox Backlash Inspection (P/B 601)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
SPL-1569	Clamp - Control Cable (Part #: A20005-9, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1678	Assembly - Lock, Horizontal Stabilizer (Part #: F80027-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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(Continued)

Reference	Description
SPL-1728	Equipment - Handling, Stabilizer Jackscrew (Dome Pressure Bulkhead) (Part #: C27050-32, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)
SPL-10319	Wrench Assembly - Pinion Gear (Part #: F71267, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
52	Pin	27-41-71-01-070	HAP ALL
61	Pin	27-41-61-01-110	HAP 101-999
		27-41-61-02-075	HAP 001-013, 015-026, 028-054

F. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

G. Access Panels

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door

H. Stabilizer Trim Actuator Installation

SUBTASK 27-41-81-220-001

(1) Do the following inspections only If you replaced a damaged Stabilizer Trim Actuator with a serviceable Stabilizer Trim Actuator that is not new or not overhauled, before further flight:

(a) Detailed Visual Inspection of the Stabilizer Trim Actuator for metal particles, corrosion, cracks, damage, and worn areas (Stabilizer Trim Ball Nut and Jackscrew Gearbox Detail Visual Inspection, TASK 27-41-81-210-801).

(b) Horizontal Stabilizer Trim Actuator Gearbox Backlash Inspection (Stabilizer Jackscrew Gearbox Backlash Inspection, TASK 27-41-81-210-802).

(c) Upper and Lower Gimbal Wear Limits Inspection (Upper and Lower Gimbal Wear Limits Inspection, TASK 27-41-81-200-802).

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(d) Stabilizer Jackscrew, Ballnut and Gimbal Lubrication (Stabilizer Jackscrew, Ballnut and Gimbal - Lubrication, TASK 12-22-41-600-801).

SUBTASK 27-41-81-020-008

(2) If the cable drum guard [67] and spacers [26] are installed on the cable drum [27], then do these steps (Figure 402):

(a) Remove the bolts [63] and washers [64] from the support plate [62].

(b) Remove the bolts [48] and washers [49] that attach the cable drum guard [67] to the cable drum [27].

(c) Remove the nut [60], washer [59], washer [58], and bolt [57] that attach the cable drum guard [67] to the support plate [62].

(d) Remove the cable drum guard [67] and spacers [26].

SUBTASK 27-41-81-480-005

(3) Install the hoist adapter and hoist to the jackscrew gearbox [24] (Figure 403).

SUBTASK 27-41-81-480-006

(4) Lift the stabilizer trim actuator [53] into the airplane (Figure 402).

SUBTASK 27-41-81-420-001

(5) Install the stabilizer trim actuator [53]:

(a) Install the jackscrew [23] through the jackscrew fitting assembly [21].

(b) Align the stabilizer trim actuator [53] with structure.

(c) Connect the ballnut [28] to the jackscrew fitting assembly [21]:

1) Make sure the ballnut [28] is installed with the grease fitting toward the access door. If it is necessary, rotate the ballnut half a turn.

2) Remove the bolts [29] and washers [30] from the upper gimbal pins [31].

3) Remove the upper gimbal fittings [22] and yokes [32] from the ballnut [28].

4) Lubricate the upper gimbal fittings [22] and yokes [32] with grease, D00633.

5) Install the yokes [32] on the ballnut [28].

6) Engage the upper gimbal fittings [22] on the yokes [32].

7) Turn the jackscrew [23] to engage the upper gimbal fittings [22] with the jackscrew fitting assembly [21].

8) Install the upper gimbal pins [31] to connect the ballnut [28] to the jackscrew fitting assembly [21].

9) Install bolts [29] and washers [30] to the upper gimbal pins [31].

10) Install the lockwire, G01912 to attach the two bolt heads together on each upper gimbal pin.

WARNING: DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR,EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION) AND GLOVES WHEN YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

11) Apply compound, C00913 to all the bolt holes on the jackscrew fitting assembly [21].

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12) Install spacers [35], washers [34] (under the bolts), bolts [33], washers [36] (under the nuts), and nuts [37].

13) Tighten the nuts [37] by hand, then loosen the nuts [37] to the nearest pin hole.

14) Install the new pins [38].

(d) Apply grease, D00633 to the lower gimbal pins [25].

(e) Install the lower gimbal pins [25] with the grease fitting outboard, washers [50], nuts [51] to connect the stabilizer trim actuator [53] to the structure.

(f) Tighten the nuts [51] by hand, then tighten them to nearest pin hole.

(g) Install the new pins [52].

(h) Install the washers [55] and bolts [54] with bolt head outboard to connect the stabilizer trim actuator [53] to the safety strap [56].

SUBTASK 27-41-81-420-002

(6) Install the bonding jumper [41] to the jackscrew gearbox [24]:

(a) Remove the nut [42], washers [40], and bolt [39] from the jackscrew gearbox [24].

(b) Clean the area around the bolt for electrical bonding.

(c) Install the bolt [39], bonding jumper [41] (below the bolt head), washers [40], and nut [42].

(d) Use bonding meter, COM-1550 to make sure the resistance of the bonding jumper connection is less than 0.010 ohm.

SUBTASK 27-41-81-080-001

(7) Remove the hoist adapter and equipment, SPL-1728 from the stabilizer trim actuator [53] (Figure 403):

(a) Remove the hoist adapter from the jackscrew.

(b) Remove the hoist bar and the hoist from the airplane.

SUBTASK 27-41-81-080-002

(8) Remove the lock, SPL-1678.

(a) If it is necessary, install the wire bundle clamps.

SUBTASK 27-41-81-420-003

(9) Connect the STA cable [66] to the cable drum [27] (Figure 402):

(a) With the ballnut against the upper stop, wind the cable STA [66] on the cable drum [27] approximately 1.8 turns.

(b) Install the cable terminal in the lower terminal slot of the cable drum [27].

(c) Install the new pin [61] to connect the cable terminal to the cable drum [27].

1) Install the ends of the pin [61] in the terminal slot.

CAUTION: MAKE SURE THE CABLE WINDS ONTO THE DRUM GROOVES PROPERLY WITH EACH ROTATION OF THE DRUM. IF THE CABLE GETS JAMMED BETWEEN THE CABLE AND THE CABLE DRUM GUARD, DAMAGE TO THE CABLE WILL OCCUR.

(d) Operate the jackscrew to move the stabilizer leading edge to full down position to wind the cable on the cable drum approximately 50.3 turns.

NOTE: Operate the jackscrew until it stops.

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SUBTASK 27-41-81-420-004

CAUTION: KEEP TENSION ON THE CABLE AT ALL TIMES. WHEN THE CABLE IS DISCONNECTED FROM THE CABLE DRUM, TENSION NEEDS TO BE KEPT ON THE CABLE SO THAT THE CABLE DOES NOT BECOME CAUGHT IN THE CABLE GUARDS ON THE OTHER CABLE DRUM. THIS CAN CAUSE DAMAGE TO THE CABLE AND THE CABLE MAY NEED TO BE REPLACED.

(10) Connect the STB cable [65] to the cable drum [27]:

(a) Use the force gauge, COM-1557 on the stabilizer trim wheel handle to put a 50 lb (22.7 kg) load on the STA cable [66].

NOTE: This will keep the STA cable [66] on the drum, which will make the installation of the STB cable [65] easier.

NOTE: All the grooves of the cable drum will be filled with cable except for 1/2 turn between the STA cable [66] and STB cable [65].

(b) Install the cable terminal in the top terminal slot of the cable drum [27].

(c) Install the new pin [61] to connect the cable terminal to the cable drum [27].

1) Install the ends of the pin [61] in the terminal slot.

SUBTASK 27-41-81-080-003

(11) Remove the control cable clamp, SPL-1569.

SUBTASK 27-41-81-640-001

(12) Lubricate the upper gimbal and lower gimbal at the grease fittings and jackscrew. To lubricate them, do this task: Stabilizer Jackscrew, Ballnut and Gimbal - Lubrication, TASK 12-22-41-600-801.

SUBTASK 27-41-81-420-005

(13) Install the spacers [26] and cable drum guard [67]:

(a) Install the bolts [48] and washers [49] to attach the cable drum guard [67] to the cable drum [27].

CAUTION: MAKE SURE YOU INSTALL THE SUPPORT PLATE [62] CORRECTLY. IF THE SUPPORT PLATE [62] IS NOT INSTALLED CORRECTLY, THE AMOUNT OF TORQUE NECESSARY TO DISENGAGE THE MANUAL CLUTCH CAN EXCEED THE LIMITS.

(b) Install the support plate [62] correctly.

(c) Install the bolts [63] and washers [64] to attach the spacers [26] to the support plate [62].

NOTE: The bearing assembly of the support plate [62] must be on the same side as the cable drum [27].

(d) Install the bolt [57], washer [58], washer [59], and nut [60] to attach the cable drum guard [67] to the support plate [62].

SUBTASK 27-41-81-820-002

(14) Adjust the STA cable [66] and STB cable [65] and reconnect the upper turnbuckle [4]. To adjust the cables and reconnect the turnbuckle, do this task: Stabilizer Control Cable and Chain Adjustment, TASK 27-41-00-820-801.

SUBTASK 27-41-81-080-004

(15) Remove thepinion gear wrench assembly, SPL-10319 from the jackscrew gearbox [24].

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SUBTASK 27-41-81-730-001

(16) Do this task: Stabilizer Clutch Friction System Test, TASK 27-41-00-700-806.

SUBTASK 27-41-81-420-007

(17) Do this task: Stabilizer Trim Motor Installation, TASK 27-41-71-400-801.

SUBTASK 27-41-81-420-006

(18) Install the electrical connectors [47] to the jackscrew gearbox [24]:

(a) Remove the nuts [46], washers [45], and bolts [43] from the jackscrew gearbox [24].

(b) Put the clamps [44] for the electrical connectors [47] on the jackscrew gearbox [24].

(c) Install the bolts [43], washers [45], and nuts [46] to install the clamps [44] to the jackscrew gearbox [24].

SUBTASK 27-41-81-860-003

(19) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-81-730-002

(20) Do this task: Stabilizer Manual Trim and Trim Indicator Test, TASK 27-41-00-700-801.

SUBTASK 27-41-81-730-003

(21) Do this task: Horizontal Stabilizer Trim Control System Friction Test, TASK 27-41-00-700-802.

SUBTASK 27-41-81-610-001

(22) Do this task: Horizontal Stabilizer Actuator Brake - Servicing, TASK 12-22-41-610-802.

NOTE: This lubrication procedure must be performed after the installation of any new stabilizer trim actuator.

SUBTASK 27-41-81-730-004

(23) Do this task: Stabilizer Trim Secondary Brake System Test, TASK 27-41-00-700-808.

SUBTASK 27-41-81-730-005

(24) Do this task: Stabilizer Trim Wheel Free Movement Test, TASK 27-41-00-700-804.

SUBTASK 27-41-81-730-006

(25) Do this task: Stabilizer Electric Trim System Test, TASK 27-41-00-700-803.

I. Put the Airplane Back To Its Usual Condition

SUBTASK 27-41-81-410-001

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

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SUBTASK 27-41-81-410-002

(2) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-81-480-008

(3) Remove the DO-NOT-OPERATE tags from the stabilizer trim control wheels.

END OF TASK

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STABILIZER BALL NUT AND JACKSCREW GEARBOX - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure contains these tasks:

(1) Stabilizer Trim Ball Nut and Jackscrew Gearbox Detail Visual Inspection.

(2) Stabilizer Jackscrew Gearbox Backlash Inspection.

(3) Upper and Lower Gimbal Wear Limits Inspection.

(a) This task supplies the data for a dimensional inspection of the upper and lower gimbals.

(b) This task does not remove or install the stabilizer ball nut and jackscrew gearbox. Refer to the Stabilizer Ball Nut and Jackscrew Gearbox - Removal/Installation for procedures to remove and install the stabilizer ball nut and jackscrew gearbox.

TASK 27-41-81-210-801

2. Stabilizer Trim Ball Nut and Jackscrew Gearbox Detail Visual Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
12-22-41-600-801	Stabilizer Jackscrew, Ballnut and Gimbal - Lubrication (P/B 301)
27-41-81-000-801	Stabilizer Ball Nut and Jackscrew Gearbox Removal (P/B 401)
27-41-81-400-801	Stabilizer Ball Nut and Jackscrew Gearbox Installation (P/B 401)

C. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Procedure

SUBTASK 27-41-81-040-001

(1) Set the Main Cutout switch, S272 located on the aft area of the control stand, to the CUTOUT position.

(a) Attach DO-NOT-OPERATE tags to the switches.

SUBTASK 27-41-81-010-003

(2) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

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SUBTASK 27-41-81-210-001

(3) Do the following inspections of the Stabilizer Trim Actuator.

NOTE: If you replace a damaged Stabilizer Trim Actuator with a serviceable Stabilizer Trim Actuator that is not new or not overhauled, then you must do the Detailed Inspection for the replacement Stabilizer Trim Actuator, and the Horizontal Stabilizer Gearbox Backlash Inspection.

(a) Do a detailed inspection of all attachment points for security and damage. Make sure that the Stabilizer Trim Actuator is correctly attached to the airplane structure. If damage parts are found, remove, inspect, repair or replace the damage parts.

(b) Do a general visual inspection of the area under, on, and around the Stabilizer Trim Actuator to see if grease is escaping from Ball Nut. Large amounts of grease present around the Stabilizer Trim Actuator indicate that a faulty seal or lifted return tube may be present on the Ball Nut.

NOTE: If a large amount of grease is present due to a faulty seal or lifted/leaking return tube, Repair/Replace the Stabilizer Trim Actuator.

(c) Examine cable drum and cables for damage or binding.

(d) Examine the electrical connectors of the stabilizer trim motor for damage.

(e) Do a detailed inspection of the grease on and around the ballscrew and Ball Nut for metallic particles.

NOTE: Metallic particles in the grease may be an indication of degradation of the balls in the Ball Nut. If you find any metallic particles in the grease, Repair/Replace the Stabilizer Trim Actuator.

(f) Check if any of the Ball Nut bearings are found in the vicinity of the Ball Nut, on the Ballscrew, or directly below the Stabilizer Trim Actuator. If Ball Nut ball bearings are found Repair/Replace the Stabilizer Trim Actuator, (Stabilizer Ball Nut and Jackscrew Gearbox Removal, TASK 27-41-81-000-801), (Stabilizer Ball Nut and Jackscrew Gearbox Installation, TASK 27-41-81-400-801).

NOTE: The ball bearings dimension are 0.21875 inch (5.55625 millimeters) diameter.

(g) Remove any old grease and dirt from the Ballscrew threads by wiping them with a clean, dry, non-abrasive cloth.

(h) Do a detailed inspection of the upper and lower gimbal for cracks or damage, (Figure 601 (Sheet 2)). If you find any parts with damage, remove, repair or replace the damaged parts, (Upper and Lower Gimbal Wear Limits Inspection, TASK 27-41-81-200-802)

(i) Do a detailed inspection of the Ball Nut Tube Retainers for corrosion or lifted return tubes. If the Ball Nut Tube Retainers are lifted, or if they have corrosion, Repair/ Replace the Stabilizer Trim Actuator, (Stabilizer Ball Nut and Jackscrew Gearbox Removal, TASK 27-41-81-000-801), (Stabilizer Ball Nut and Jackscrew Gearbox Installation, TASK 27-41-81-400-801).

(j) Do a detailed inspection of the Jackscrew for the following problems:

1) Inspect the Jackscrew threads for cross-threading, distortion, or stripping.

2) Check for metallic particles, pitting, gouging, corrosion, spalling, or brinelling in the Jackscrew threads.

3) Check the Jackscrew for obvious differences in thread shape between thread grooves in the lower, middle, and upper portions of the jackscrew.

4) Check the Jackscrew for damage or cracking.

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5) Remove the DO-NOT-OPERATE tags on the STAB TRIM switches.

6) Make sure that the STAB TRIM switch on the stab trim and cabin door panel, P8-47 module, is in the NORMAL position.

7) Set the Main Cutout switch, S272 located on the aft area of the control stand, to the NORMAL position.

WARNING: MAKE SURE THAT ALL PERSONNEL, AND EQUIPMENT ARE AWAY FROM THE HORIZONTAL STABILIZER. THE MOVEMENT OF THE HORIZONTAL STABILIZER DURING MAINTENANCE CAN CAUSE INJURY TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

8) Push and hold the Stabilizer Trim Control switches on the Captain's Control Wheel (NOSE UP or NOSE DOWN) to move the ballscrew to another location other than the current setting.

9) Set the Main Cutout switch, S272 located on the aft area of the control stand, to the CUTOUT position.

10) Attach DO-NOT-OPERATE tags to the switches.

11) With the stabilizer ballscrew moved to another position:

a) Remove any old grease and dirt from the newly exposed Ballscrew threads by wiping them with a clean, dry, non-abrasive cloth.

b) Inspect the Jackscrew newly exposed area threads for cross-threading, distortion, or stripping.

c) Check the newly exposed area of the jackscrew for metallic particles, pitting, gouging, corrosion, spalling, or brinelling in the Jackscrew threads.

d) Check the newly exposed Jackscrew for obvious differences in thread shape between thread grooves in the lower, middle, and upper portions of the jackscrew.

e) Check the newly exposed Jackscrew for damage or cracking.

12) If you find any problems listed above, replace the stabilizer jackscrew actuator, (Stabilizer Ball Nut and Jackscrew Gearbox Removal, TASK 27-41-81-000-801), (Stabilizer Ball Nut and Jackscrew Gearbox Installation, TASK 27-41-81-400-801).

13) For any grease removed from the Jackscrew prior to examining the threads for damage, corrosion, and contamination, do the Stabilizer Trim Jackscrew Lubrication step in: (Stabilizer Jackscrew, Ballnut and Gimbal - Lubrication, TASK 12-22-41-600-801).

SUBTASK 27-41-81-410-003

(4) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-81-741-001

(5) Put the airplane back to a serviceable condition.

END OF TASK

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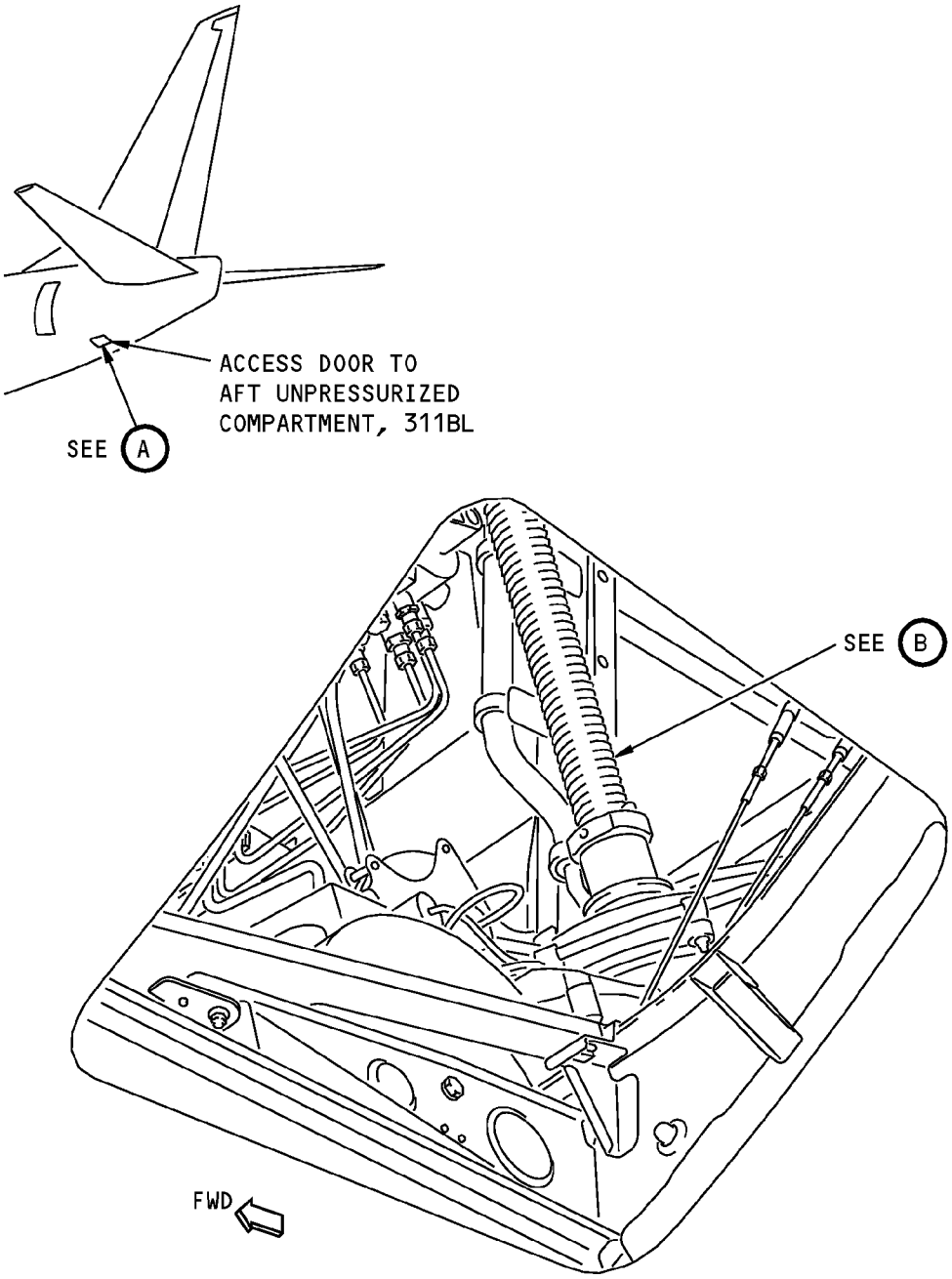

Stabilizer Ball Nut and Jackscrew Gearbox Visual Inspection
Figure 601 (Sheet 1 of 2)/27-41-81-990-804

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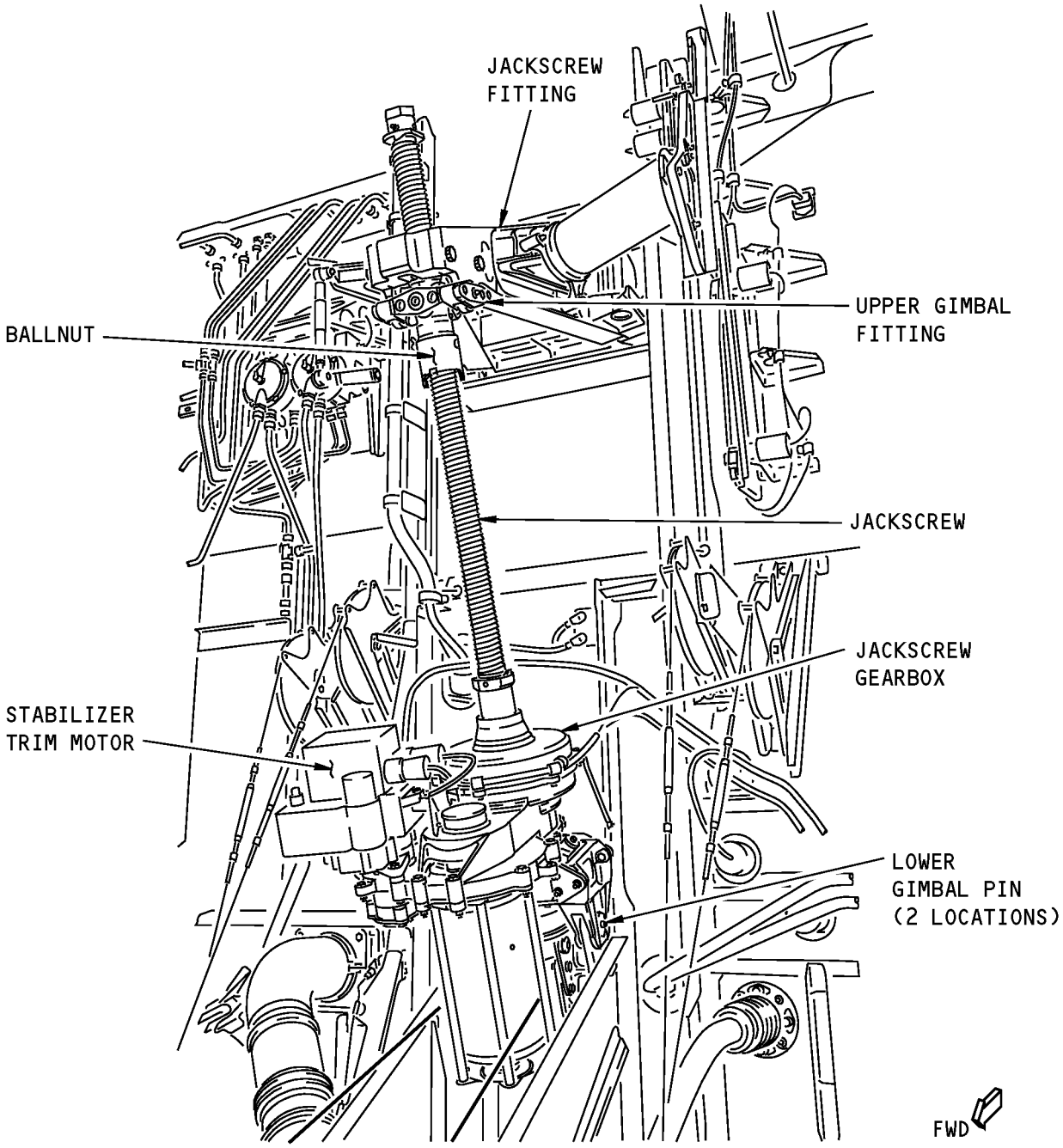

STABILIZER TRIM ACTUATOR

B

Stabilizer Ball Nut and Jackscrew Gearbox Visual Inspection
Figure 601 (Sheet 2 of 2)/27-41-81-990-804

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TASK 27-41-81-210-802

3. Stabilizer Jackscrew Gearbox Backlash Inspection

(Figure 602)

A. References

Reference	Title
27-41-81-000-801	Stabilizer Ball Nut and Jackscrew Gearbox Removal (P/B 401)
27-41-81-400-801	Stabilizer Ball Nut and Jackscrew Gearbox Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1752	Equipment - Check, Jackscrew Backlash, Horizontal Stabilizer (Part #: C27065-20, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27065-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1238	Indicator - Dial
STD-1253	Pump - Hydraulic, Hand

C. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left

D. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

E. Procedure

SUBTASK 27-41-81-010-004

(1) Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-81-860-004

(2) Move the stabilizer to 8.5 units of trim.

SUBTASK 27-41-81-860-005

(3) Set the STAB TRIM switches on the P10 Control Stand, to the CUTOUT position.

SUBTASK 27-41-81-860-006

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

SUBTASK 27-41-81-480-007

(5) Install equipment, SPL-1752 and dial indicator, STD-1238 on the jackscrew.

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(a) Install the plate assembly of equipment, SPL-1752 on the jackscrew fitting with four screws.

(b) Install the left and right bulkhead plate assembly of equipment, SPL-1752 to the bulkhead stiffeners with four screws.

(c) Install the C-channel assembly of equipment, SPL-1752 to the left and right bulk head plate assembly of equipment, SPL-1752 with two pins.

NOTE: The flat side of the C-channel assembly of equipment, SPL-1752 should point forward.

(d) Hold the upper end of the jackscrew with both hands and turn clockwise and counter-clockwise to ensure the brake ratchet pawls are engaged.

NOTE: This will lock the jackscrew in place so that the jackscrew will not turn when the load is applied.

(e) Install the hand hydraulic pump, STD-1253 to the clevis on the plate assembly of equipment, SPL-1752.

(f) Install the magnetic holder of equipment, SPL-1752 and dial indicator, STD-1238 on jackscrew.

SUBTASK 27-41-81-700-001

(6) Pressurize equipment, SPL-1752 to 900 psi (6205 kPa) – 950 psi (6550 kPa) with hand hydraulic pump, STD-1253.

SUBTASK 27-41-81-700-002

(7) If the dial indicator, STD-1238 shows more than 0.025 in. (0.64 mm), then replace the stabilizer ball nut and jackscrew gearbox. These are the tasks:

Stabilizer Ball Nut and Jackscrew Gearbox Removal, TASK 27-41-81-000-801,

Stabilizer Ball Nut and Jackscrew Gearbox Installation, TASK 27-41-81-400-801.

SUBTASK 27-41-81-080-005

(8) Remove equipment, SPL-1752, dial indicator, STD-1238, and hand hydraulic pump, STD-1253 from the jackscrew.

SUBTASK 27-41-81-860-007

(9) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

SUBTASK 27-41-81-410-004

(10) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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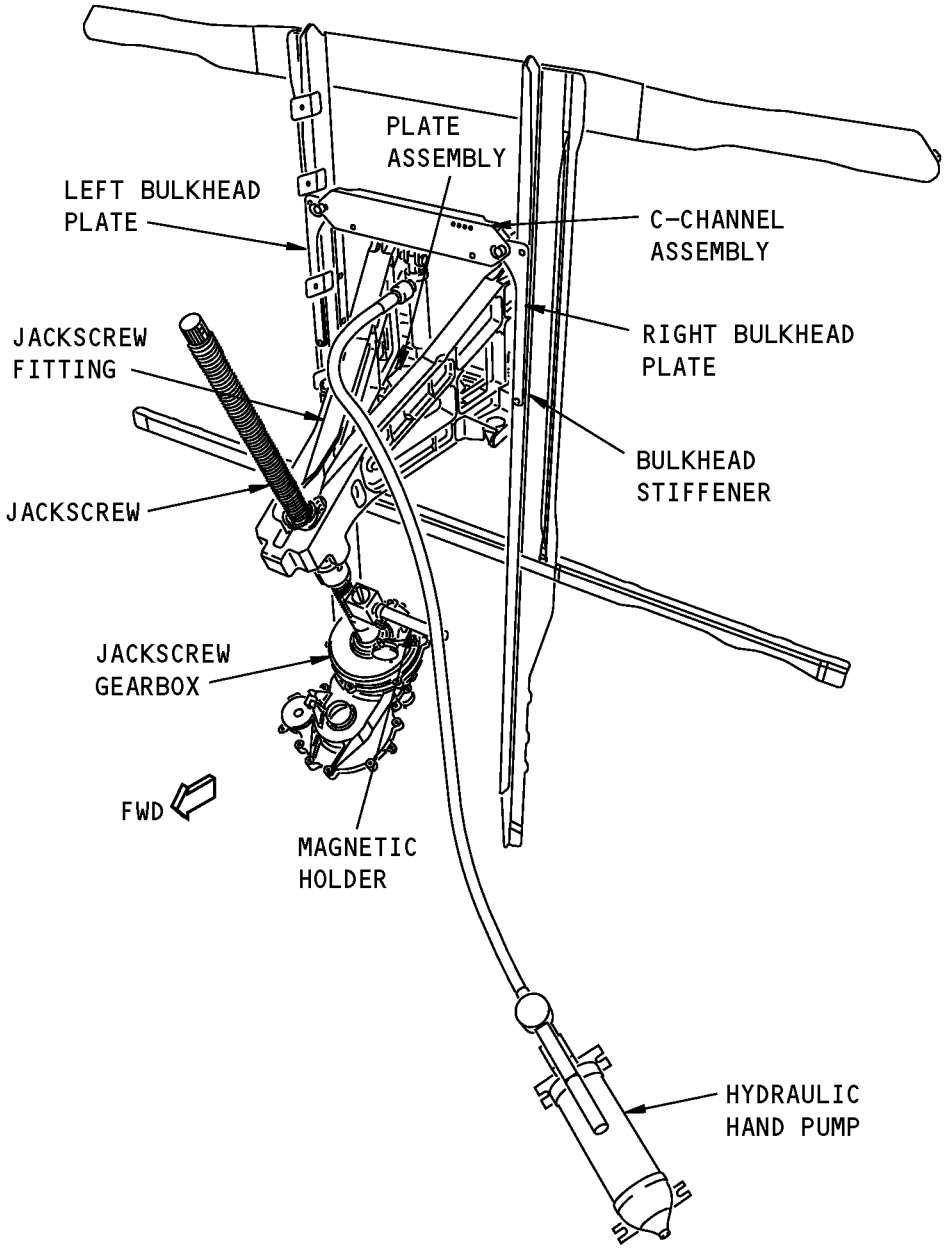

Stabilizer Jackscrew Gearbox Backlash Inspection
Figure 602/27-41-81-990-805

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TASK 27-41-81-200-802

4. Upper and Lower Gimbal Wear Limits Inspection

(Figure 603)

A. General

(1) This procedure gives wear limits and repair data for the upper and lower gimbals.

B. References

Reference	Title
27-41-81-000-801	Stabilizer Ball Nut and Jackscrew Gearbox Removal (P/B 401)
27-41-81-400-801	Stabilizer Ball Nut and Jackscrew Gearbox Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left

E. Procedure

SUBTASK 27-41-81-020-013

(1) Remove the stabilizer ball nut and jackscrew gearbox. To remove it, do this task: Stabilizer Ball Nut and Jackscrew Gearbox Removal, TASK 27-41-81-000-801.

SUBTASK 27-41-81-020-015

(2) Examine the parts of the lower and upper gimbals for worn areas:

(a) Remove the parts to be checked.

(b) Measure the parts as necessary with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions from (Table 601).

(d) If the parts are not in the tolerance, replace or repair the parts as required.

Table 601/27-41-81-993-807

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches / mm	MAXIMUM inches / mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 UPPER GIMBAL FITTING	I.D.	1.0000 in 25.40 mm	1.0010 in 25.43 mm	1.0020 in 25.45 mm	0.0050 in
#1 UPPER GIMBAL PIN	O.D.	0.9980 in 25.35 mm	0.9990 in 25.37 mm	0.9970 in 25.32 mm	0.127 mm

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches / mm	MAXIMUM inches / mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#2 JACKSCREW FITTING BUSHING	I.D.	1.0000 in 25.40 mm	1.0010 in 25.43 mm	1.0030 in 25.48 mm	0.0050 in
#2 UPPER GIMBAL PIN	O.D.	0.9980 in 25.35 mm	0.9990 in 25.37 mm	0.9970 in 25.32 mm	0.127 mm
#3 YOKE	I.D.	1.0000 in 25.40 mm	1.0010 in 25.43 mm	1.0020 in 25.45 mm	0.0050 in
#3 UPPER GIMBAL BUSHING	O.D.	0.9980 in 25.35 mm	0.9990 in 25.37 mm	0.9960 in 25.30 mm	0.127 mm
#4 OUTBOARD LOWER GIMBAL BUSHING	I.D.	1.0000 in 25.40 mm	1.0010 in 25.43 mm	1.0030 in 25.48 mm	0.0050 in
#4 LOWER GIMBAL PIN	O.D.	0.9980 in 25.35 mm	0.9990 in 25.37 mm	0.9970 in 25.32 mm	0.127 mm
#5 STRUCTURE BUSHING	I.D.	0.7500 in 19.05 mm	0.7510 in 19.08 mm	0.7550 in 19.18 mm	0.0060 in
#5 LOWER GIMBAL PIN	O.D.	0.7480 in 19.00 mm	0.7490 in 19.02 mm	0.7440 in 18.90 mm	0.152 mm
#6 INBOARD LOWER GIMBAL BUSHING	I.D.	1.0000 in 25.40 mm	1.0010 in 25.43 mm	1.0050 in 25.53 mm	0.0060 in
#6 LOWER GIMBAL PIN	O.D.	0.9980 in 25.35 mm	0.9990 in 25.37 mm	0.9940 in 25.25 mm	0.152 mm
#7 LOWER GIMBAL BUSHING	I.D.	1.2400 in 31.50 mm	1.2410 in 31.52 mm	1.2440 in 31.60 mm	0.0050 in
#7 SLEEVE	O.D.	1.2380 in 31.45 mm	1.2390 in 31.47 mm	1.2370 in 31.42 mm	0.1270 mm

SUBTASK 27-41-81-020-016

(3) Install the stabilizer ball nut and jackscrew gearbox. To install it, do this task: Stabilizer Ball Nut and Jackscrew Gearbox Installation, TASK 27-41-81-400-801.

END OF TASK

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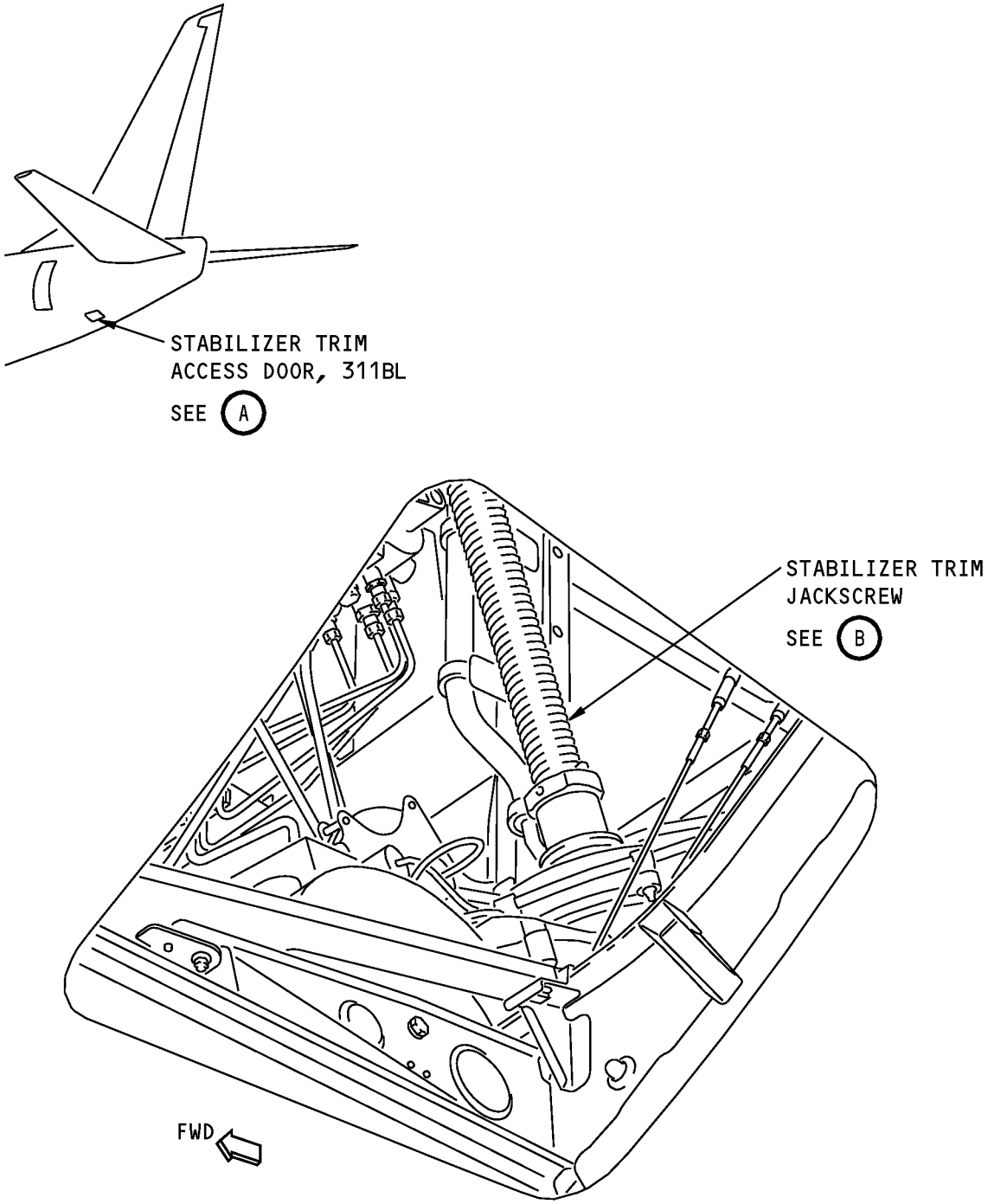

VIEW THROUGH THE STABILIZER TRIM ACCESS DOOR, 311BL
A

Stabilizer Ball Nut and Jackscrew Gearbox Wear Limits
Figure 603 (Sheet 1 of 6)/27-41-81-990-806

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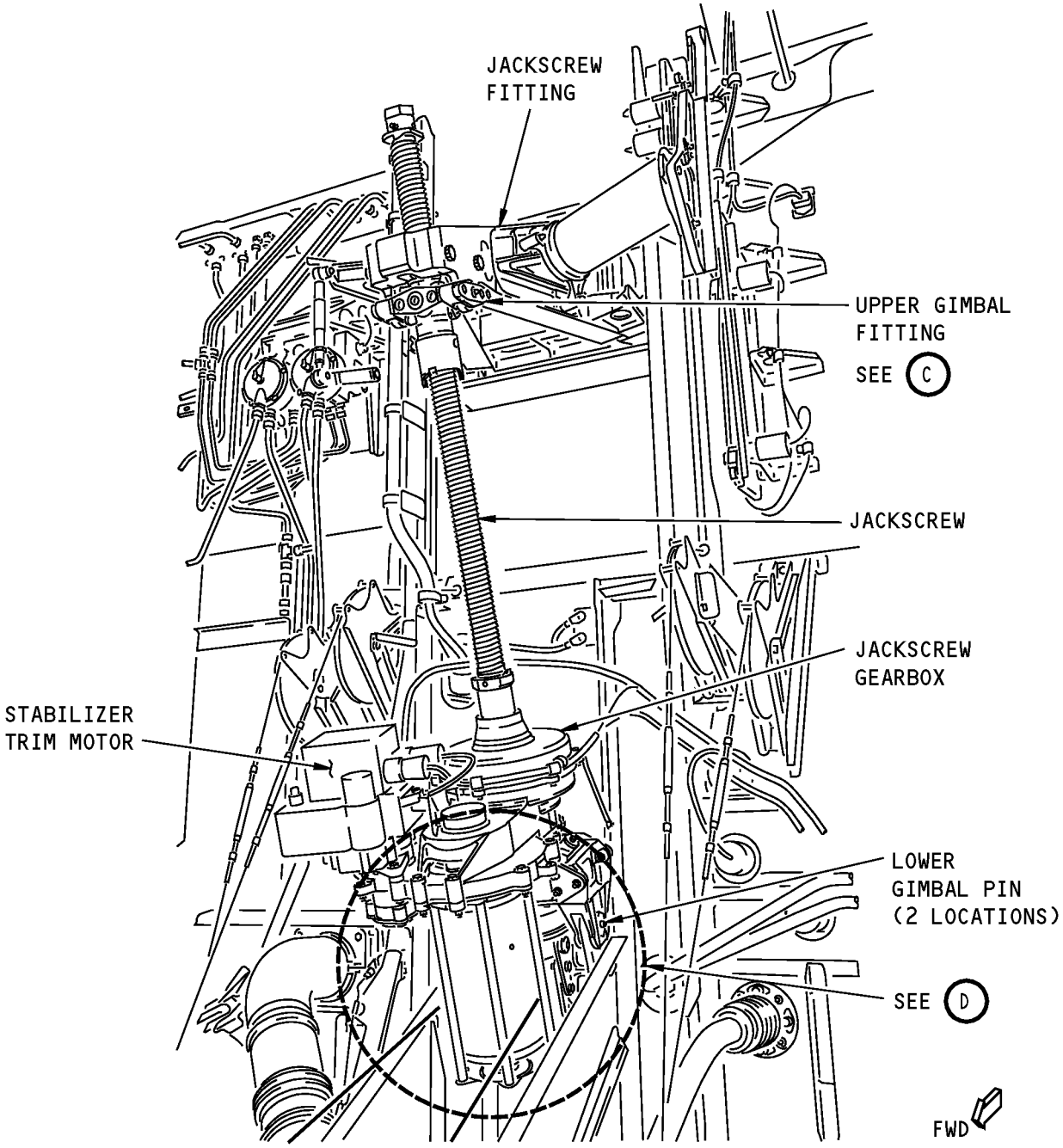

STABILIZER TRIM ACTUATOR

B

Stabilizer Ball Nut and Jackscrew Gearbox Wear Limits
Figure 603 (Sheet 2 of 6)/27-41-81-990-806

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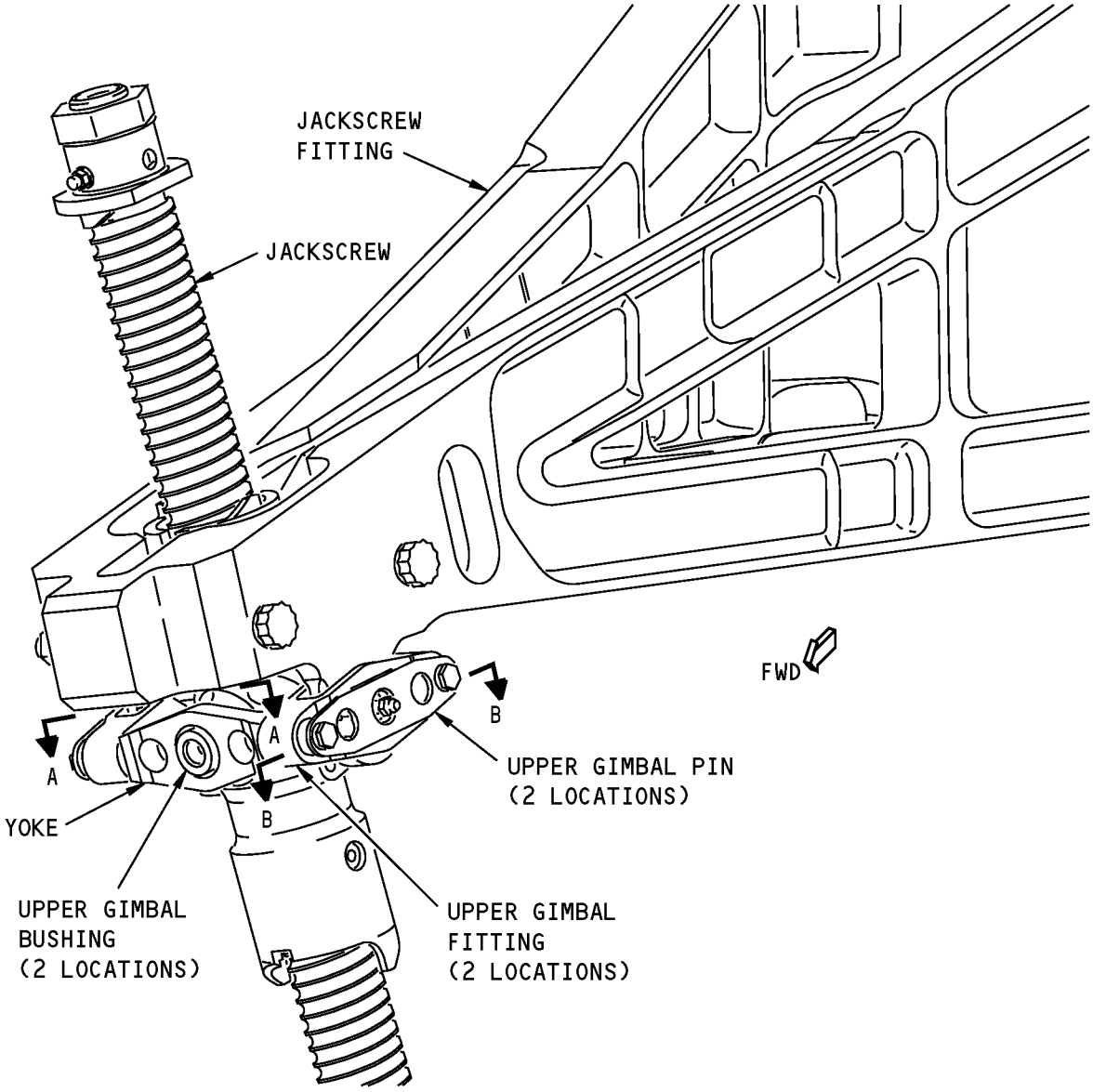

UPPER GIMBAL FITTING

C

Stabilizer Ball Nut and Jackscrew Gearbox Wear Limits
Figure 603 (Sheet 3 of 6)/27-41-81-990-806

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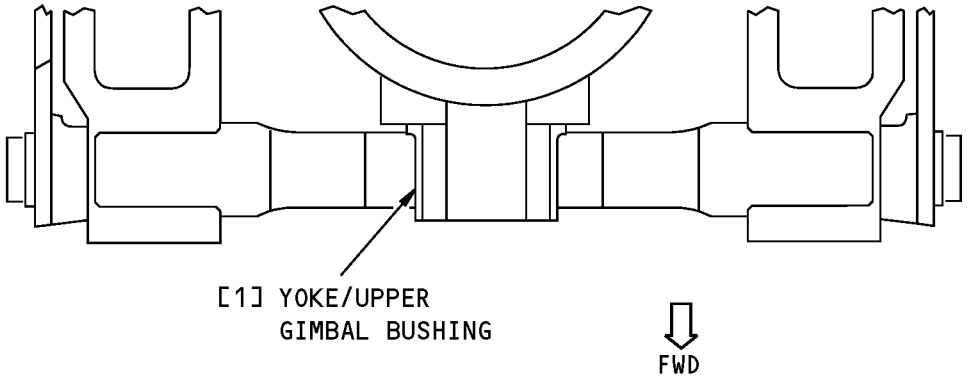
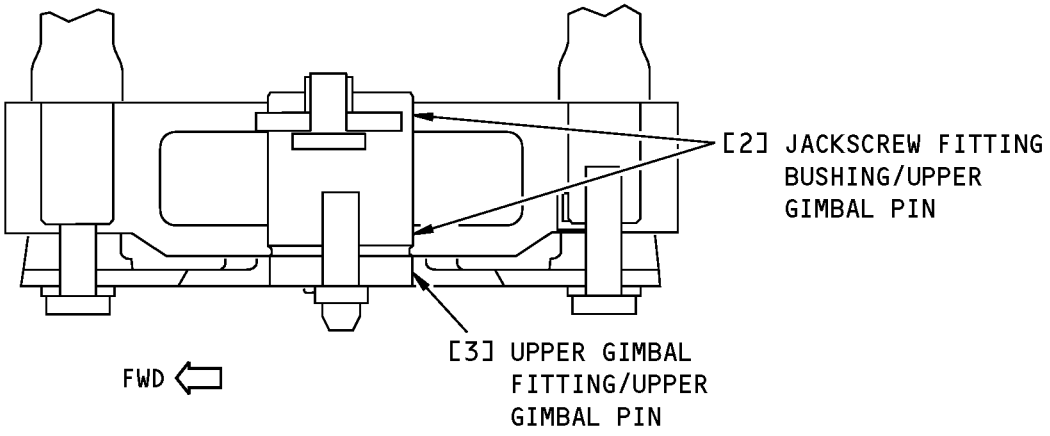


A–A



B–B

Stabilizer Ball Nut and Jackscrew Gearbox Wear Limits
Figure 603 (Sheet 4 of 6)/27-41-81-990-806

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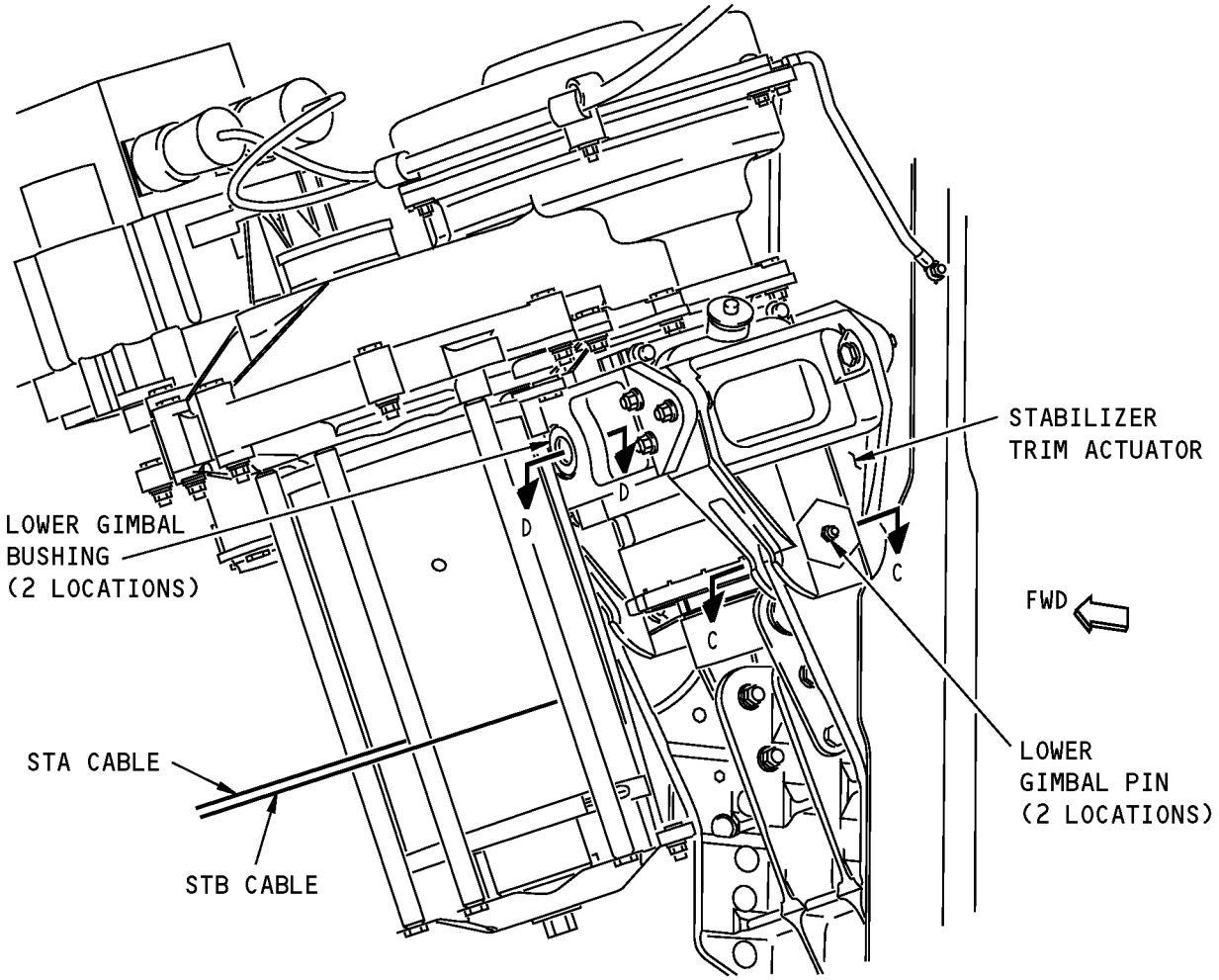

Stabilizer Ball Nut and Jackscrew Gearbox Wear Limits
Figure 603 (Sheet 5 of 6)/27-41-81-990-806

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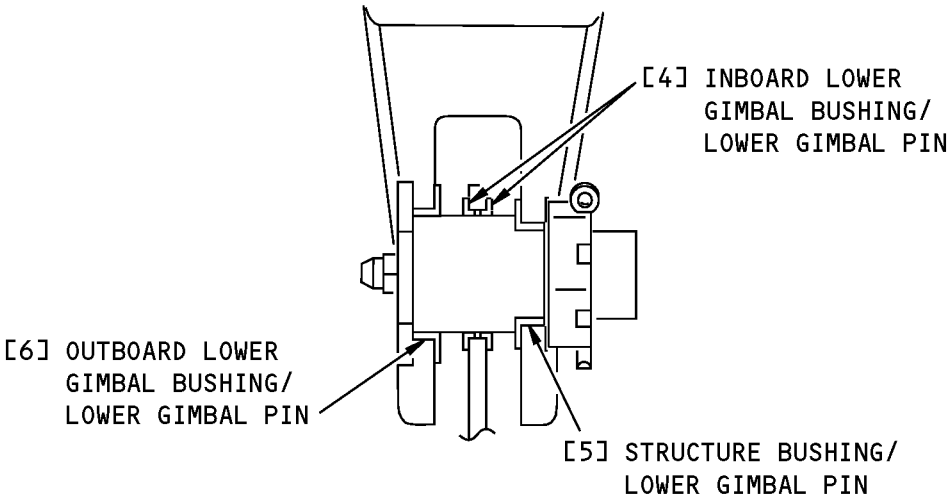
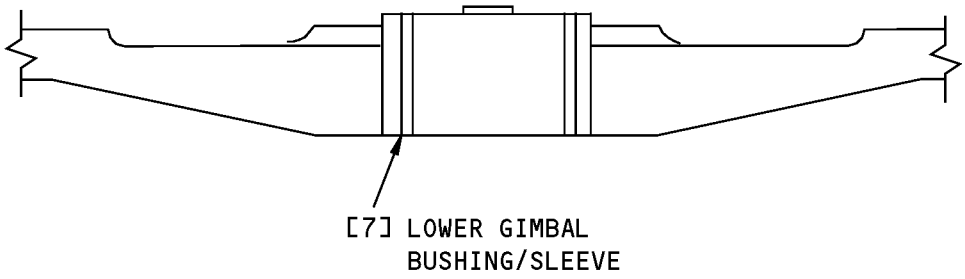


C–C



D–D

Stabilizer Ball Nut and Jackscrew Gearbox Wear Limits
Figure 603 (Sheet 6 of 6)/27-41-81-990-806

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STABILIZER CONTROL CABLE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the stabilizer trim control cables

(2) An installation of the stabilizer trim control cables.

B. The stabilizer trim control cables are referred to as the STA and STB cables in this procedure. The STA cable is located to the left of the STB cable.

C. The stabilizer trim control cable includes the cable with a swaged end connected to the aft cable drum and an end with an eyelet that connects it to the forward cable drum.

TASK 27-41-82-000-801

2. Stabilizer Control Cable Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-41-71-000-801	Stabilizer Trim Motor Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)
SPL-1569	Clamp - Control Cable (Part #: A20005-9, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-10319	Wrench Assembly - Pinion Gear (Part #: F71267, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

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D. Access Panels

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door

E. Prepare for the Removal

SUBTASK 27-41-82-860-001

(1) Set the stabilizer leading edge to the full down (airplane nose up) position.

SUBTASK 27-41-82-860-002

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-82-010-001

(3) To get access to the stabilizer forward control mechanism, do this step:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-41-82-010-002

(4) To get access to the stabilizer trim actuator, do this step:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-82-010-003

(5) Remove the cargo liners and floor panels at the locations shown in (Figure 402).

SUBTASK 27-41-82-820-001

CAUTION: MAKE SURE THE CHAIN IS LOOSE BEFORE YOU RELEASE THE CABLE TENSION. TOO MUCH CABLE TENSION CAN CAUSE DAMAGE TO THE CHAIN.

(6) Adjust the upper adjusting nuts [7] of the aft support link [8] to loosen the chain (Figure 401).

SUBTASK 27-41-82-020-001

(7) Disconnect the upper turnbuckle [4].

SUBTASK 27-41-82-020-002

(8) Loosen the lower turnbuckle [3] to release the tension of the STA cable [6] and STB cable [5].

SUBTASK 27-41-82-020-003

(9) Do this task: Stabilizer Trim Motor Removal, TASK 27-41-71-000-801.

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F. Stabilizer Control Cable Removal

SUBTASK 27-41-82-020-004

(1) Remove the cable drum guard [28] and spacers [14] from the aft cable drum [15]:

(a) Remove the bolts [26] and washers [27] from the support plate [25].

(b) Remove the bolts [16] and washers [17] that attach the cable drum guard [28] to the aft cable drum [15].

(c) Remove the nut [23], washer [22], washer [21], and bolt [20] that attach the cable drum guard [28] to the support plate [25].

(d) Remove the cable drum guard [28] and spacers [14].

SUBTASK 27-41-82-020-005

(2) Disconnect the STB cable [5] from the aft cable drum [15]:

(a) Install thepinion gear wrench assembly, SPL-10319 on the internal spline of the jackscrew gearbox [12] (Figure 401).

NOTE: Insert the arm of the pinion gear wrench assembly, SPL-10319, into the motor mount hole to keep the internal spline of the jackscrew gearbox from turning.

(b) Use the force gauge, COM-1557, on the captain's or first officer's stabilizer trim wheel handle to put a 50 lb (22.7 kg) load on the handle to stretch the STA cable [6].

NOTE: This will keep the STA cable [6] on the drum and will make the removal of the STB cable [5] easier.

(c) Disconnect the STB cable [5] from the aft cable drum [15].

SUBTASK 27-41-82-020-006

(3) Remove the STB cable [5] from the cable run.

(a) Remove the arm of thepinion gear wrench assembly, SPL-10319 from the stabilizer trim motor mount hole.

(b) Using the captain's or first officer's stabilizer trim control wheel, move the jackscrew [11] to put the stabilizer leading edge to the full up (airplane nose down) position.

CAUTION: MAKE SURE YOU DO NOT DAMAGE OR KINK THE CABLE WHILE WINDING IT ONTO THE SPOOL OR REEL. DAMAGE TO THE CABLE MAY OCCUR.

CAUTION: IF THE CABLE IS GOING TO BE USED AGAIN, DO NOT LET IT TOUCH THE DIRTY SURFACES. DIRT IN THE GREASE ON THE CABLES CAN CAUSE PREMATURE FAILURE OF THE CABLE OR MAY CAUSE PROBLEMS WHEN RE-RIGGING THE CABLE.

(c) When the stabilizer starts to move, pull the STB cable [5] into the tail compartment and wind it on a spool or a reel.

NOTE: Tension must always be kept on the STB cable [5] while pulling it into the tail compartment. The best way to keep steady tension on the STB cable [5] is to have a mechanic pulling the cable into the tail compartment while another winds it onto a spool or reel.

NOTE: To ensure the STB cable [5] is not damaged or kinked as it is unwound from the forward drum, it is best to have a mechanic in the forward compartment to watch the cable as it unwinds from the forward drum. This will ensure that the mechanic operating the stabilizer trim control wheel does not turn the forward drum too far and kink the cable on the right cable guard spacer (Figure 401).

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(d) When the ballnut [28] touches the upper stop, keep a record of the number of turns of the STA cable [6] on the cable drum [15].

(e) Disconnect the cable STA [6] from the aft cable drum [15].

NOTE: Use a control cable clamp, SPL-1569 to keep tension on the cable STA [6] to keep it from unwinding on the forward cable drum.

(f) Disconnect the cable STB [5] from the forward cable drum.

1) Remove the nut and washer from the clevis bolt.

2) Remove the clevis bolt from the STB cable [5] eyelet.

SUBTASK 27-41-82-480-001

(4) Remove the STB cable [5] from the aircraft.

(a) Attach lockstitch or some similar material to the aft end of the STB cable [5].

CAUTION: MAKE SURE YOU DO NOT DAMAGE OR KINK THE CABLE WHILE WINDING IT ONTO THE SPOOL OR REEL. DAMAGE TO THE CABLE MAY OCCUR.

CAUTION: IF THE CABLE IS GOING TO BE USED AGAIN, DO NOT LET IT TOUCH THE DIRTY SURFACES. DIRT IN THE GREASE ON THE CABLES CAN CAUSE PREMATURE FAILURE OF THE CABLE OR MAY CAUSE PROBLEMS WHEN RE-RIGGING THE CABLE.

(b) Using a spool or reel, wind the STB cable [5] up in the forward mechanism compartment.

NOTE: As the aft end of the cable moves past the idler pulleys, the idler pulleys must be removed to allow the swaged end of the cable to move forward (Figure 402).

SUBTASK 27-41-82-020-007

(5) Do the following steps to remove the cable STA [6] from the aircraft:

(a) Remove the cable clamp from the STA cable [6] at the aft cabin pressure bulkhead while maintaining force on the STA cable [6].

(b) Using the captain's or first officer's stabilizer trim control wheel, unwind the STA cable [6] from the forward drum.

CAUTION: MAKE SURE YOU DO NOT DAMAGE OR KINK THE CABLE WHILE WINDING IT ONTO THE SPOOL OR REEL. DAMAGE TO THE CABLE MAY OCCUR.

CAUTION: IF THE CABLE IS GOING TO BE USED AGAIN, DO NOT LET IT TOUCH THE DIRTY SURFACES. DIRT IN THE GREASE ON THE CABLES CAN CAUSE PREMATURE FAILURE OF THE CABLE OR MAY CAUSE PROBLEMS WHEN RE-RIGGING THE CABLE.

(c) Pull the STA cable [6] into the tail compartment and wind it on a spool or a reel.

NOTE: Tension must always be kept on the STA cable [6] while pulling it into the tail compartment. The best way to keep steady tension on the STA cable [6] is to have a mechanic pulling the cable into the tail compartment while another mechanic winds the cable onto a spool or reel.

NOTE: To ensure the STA cable [6] is not damaged or kinked as it is unwound from the forward drum, it is recommended to have a mechanic in the forward compartment to watch the cable as it slowly unwinds from the forward drum. This will ensure that the mechanic pulling the cable into the aft unpressurized compartment does not pull the cable too far and kink the cable on the left cable guard spacer (Figure 401).

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(d) Disconnect the STA cable [6] from the forward cable drum.

1) Remove the cotter pin [18], the nut, the washer, and the washers from the clevis bolt.

2) Remove the clevis bolt from the STA cable [6] eyelet.

SUBTASK 27-41-82-480-002

(6) Remove the cable STA [6] from the aircraft.

(a) Attach lockstitch or some similar material to the aft end of the cable STA [6].

CAUTION: MAKE SURE YOU DO NOT DAMAGE OR KINK THE CABLE WHILE WINDING IT ONTO THE SPOOL OR REEL. DAMAGE TO THE CABLE MAY OCCUR.

CAUTION: IF THE CABLE IS GOING TO BE USED AGAIN, DO NOT LET IT TOUCH THE DIRTY SURFACES. DIRT IN THE GREASE ON THE CABLES CAN CAUSE PREMATURE FAILURE OF THE CABLE OR MAY CAUSE PROBLEMS WHEN RE-RIGGING THE CABLE.

(b) Using a spool or reel, wind the cable STA [6] up in the forward mechanism compartment.

NOTE: As the aft end of the cable moves past the idler pulleys, the idler pulleys must be removed to allow the swaged end of the cable to move forward.

———————— END OF TASK ————————

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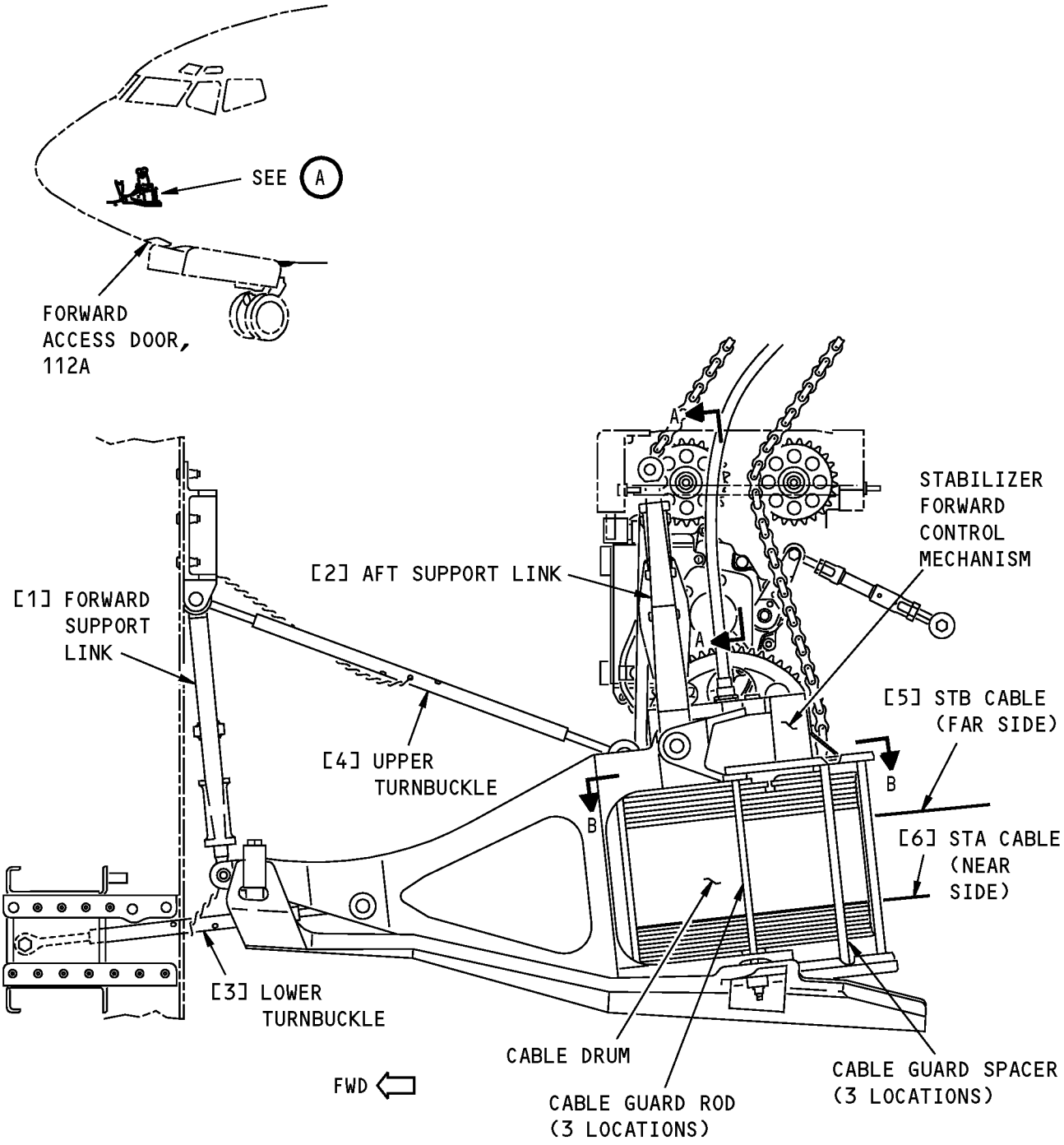

Stabilizer Control Cable Replacement
Figure 401 (Sheet 1 of 5)/27-41-82-990-801

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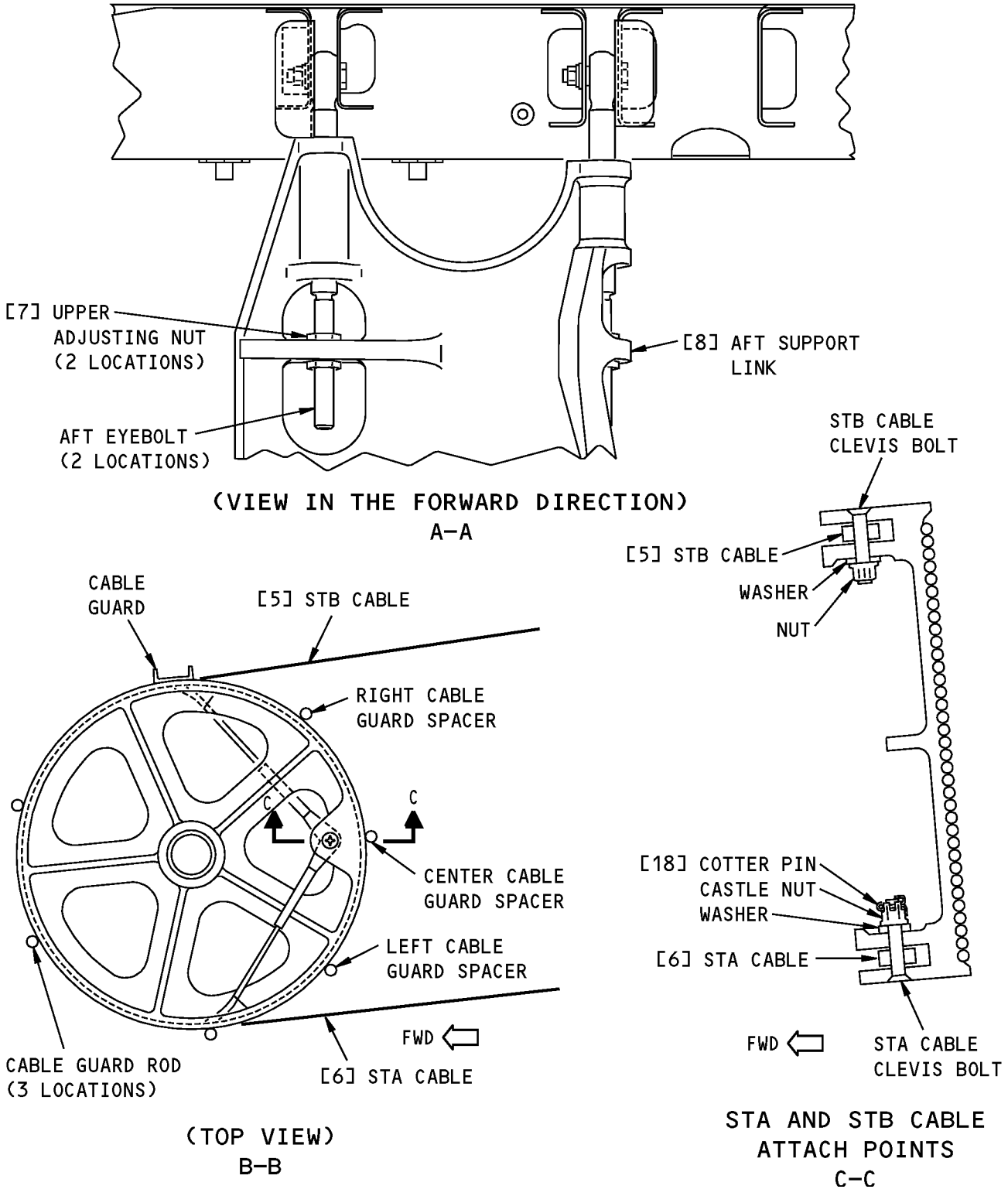

Stabilizer Control Cable Replacement
Figure 401 (Sheet 2 of 5)/27-41-82-990-801

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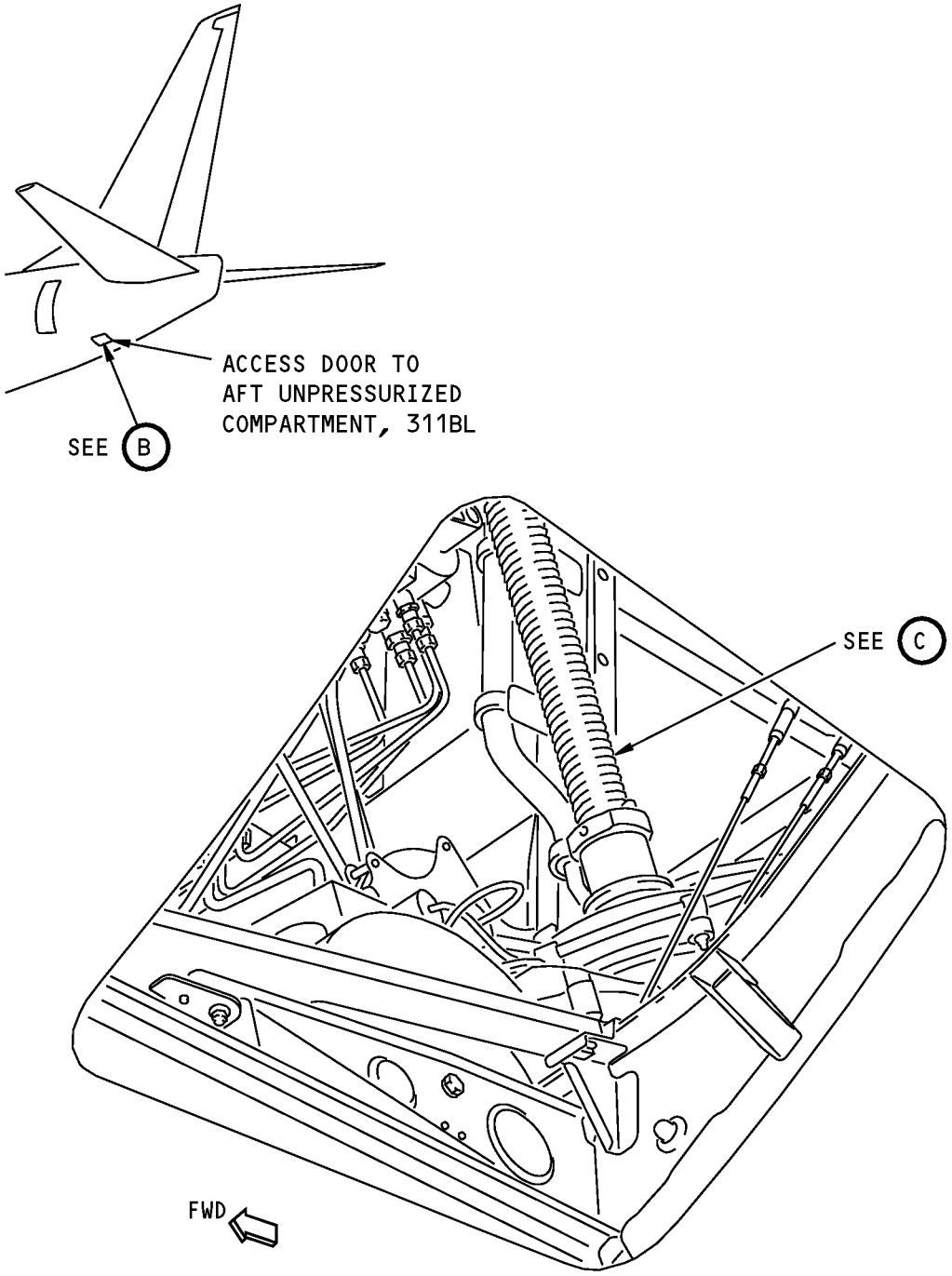

Stabilizer Control Cable Replacement
Figure 401 (Sheet 3 of 5)/27-41-82-990-801

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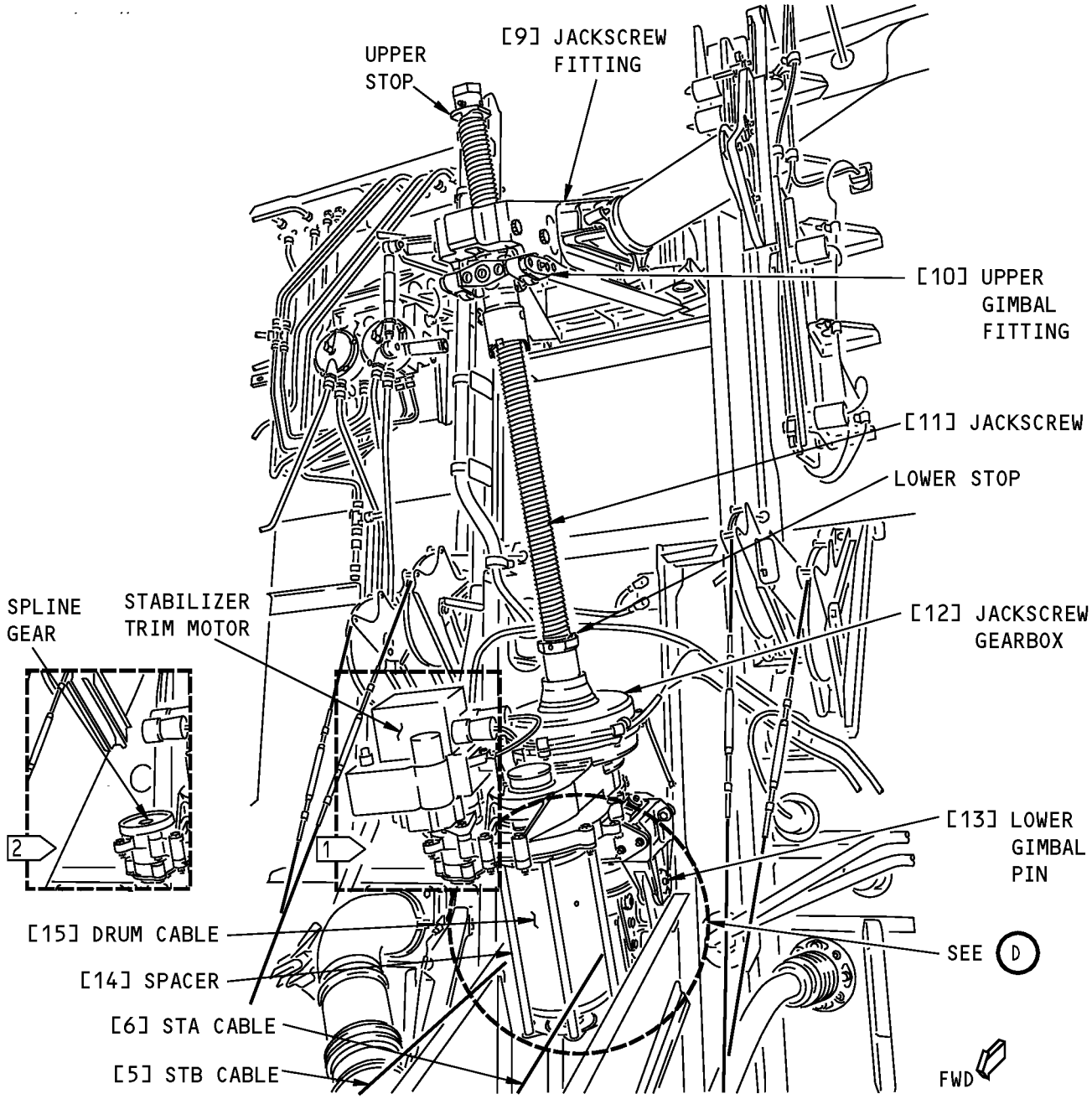

STABILIZER TRIM ACTUATOR

C

1 STABILIZER ACTUATOR ASSEMBLY WITH STABILIZER TRIM MOTOR (STM).

2 STABILIZER ACTUATOR ASSEMBLY WITHOUT STABILIZER TRIM MOTOR (STM).

Stabilizer Control Cable Replacement
Figure 401 (Sheet 4 of 5)/27-41-82-990-801

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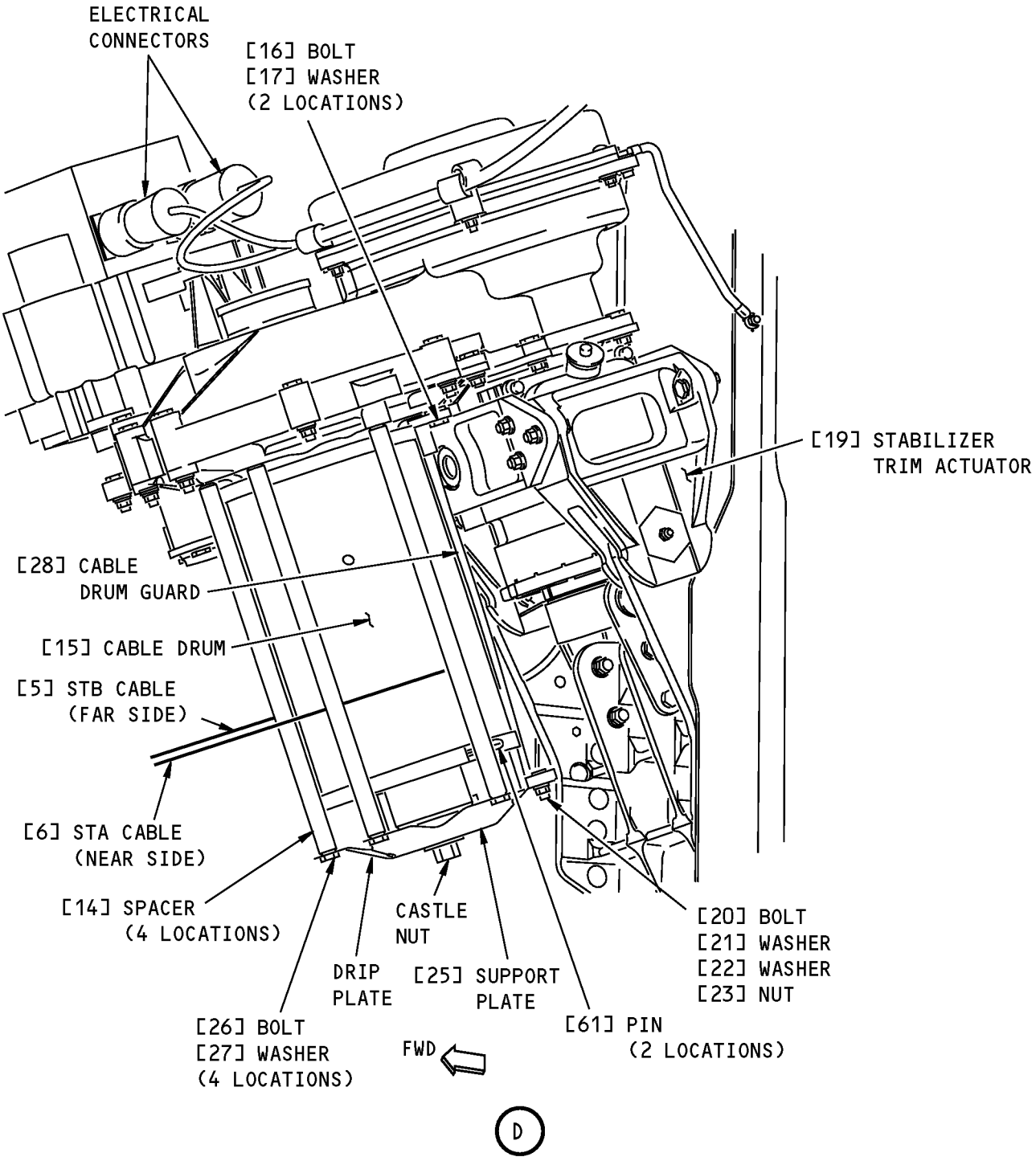

Stabilizer Control Cable Replacement
Figure 401 (Sheet 5 of 5)/27-41-82-990-801

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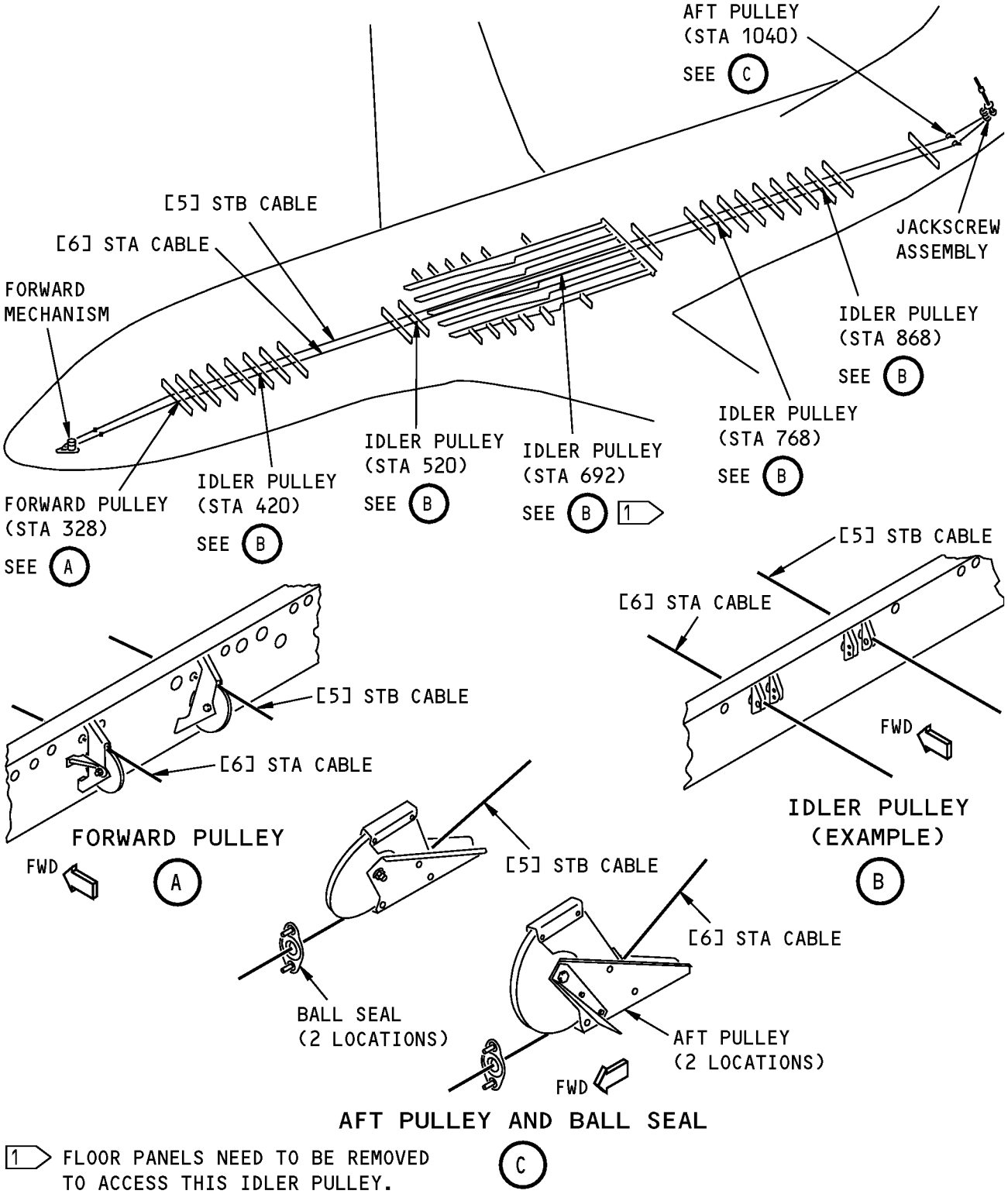

Stabilizer Control Cable Installation
Figure 402 (Sheet 1 of 2)/27-41-82-990-802

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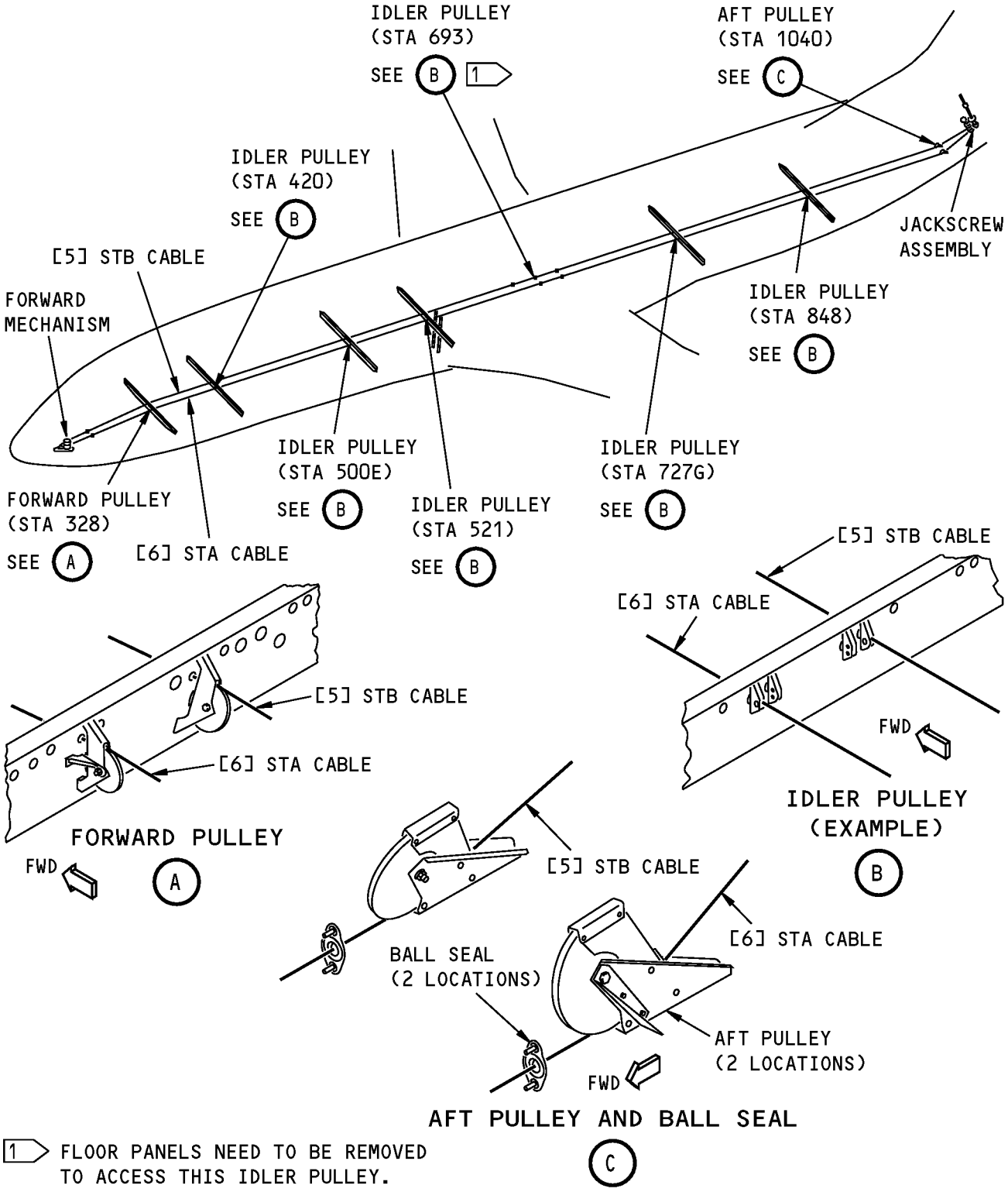

Stabilizer Control Cable Installation
Figure 402 (Sheet 2 of 2)/27-41-82-990-802

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TASK 27-41-82-000-802

3. Stabilizer Control Cable Installation

(Figure 401, Figure 402)

A. References

Reference	Title
12-22-41-610-802	Horizontal Stabilizer Actuator Brake - Servicing (P/B 301)
27-41-00-700-801	Stabilizer Manual Trim and Trim Indicator Test (P/B 501)
27-41-00-700-802	Horizontal Stabilizer Trim Control System Friction Test (P/B 501)
27-41-00-700-803	Stabilizer Electric Trim System Test (P/B 501)
27-41-00-700-804	Stabilizer Trim Wheel Free Movement Test (P/B 501)
27-41-00-700-806	Stabilizer Clutch Friction System Test (P/B 501)
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)
27-41-71-400-801	Stabilizer Trim Motor Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable (Part #: A20005-9, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-10319	Wrench Assembly - Pinion Gear (Part #: F71267, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door
311BL	Stabilizer Trim Access Door

E. Prepare for the Installation

SUBTASK 27-41-82-860-003

(1) Use the toolpinion gear wrench assembly, SPL-10319 to set the stabilizer leading edge to the full down (airplane nose up) position.

SUBTASK 27-41-82-100-001

(2) Use a clean cloth to wipe the grease and dirt from the forward and the aft cable drums.

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SUBTASK 27-41-82-420-001

(3) Install the STA [6] and STB [5] cables in the cable runs.

(a) Place the new, or old, cables in the forward mechanism compartment.

(b) Attach the lockstitch to the aft end of the STA [6] and STB [5] cables.

(c) Pulling the lockstitch in the aft unpressurized compartment, guide the stabilizer control cables through the cable runs of the airplane.

NOTE: As the aft end of the cable moves past the idler pulleys, the idler pulleys must be removed to allow the swaged end of the cable to move aft.

SUBTASK 27-41-82-420-002

(4) Wind the STA [6] and STB [5] cables onto a spool or reel in the aft unpressurized compartment.

SUBTASK 27-41-82-420-003

(5) Install the idler pulleys in the idler pulley brackets in the locations shown in (Figure 402).

F. Stabilizer Control Cable Installation

(Figure 401, Figure 402)

SUBTASK 27-41-82-420-004

(1) Connect the STA cable [6] to the bottom slot of the forward cable drum (Figure 401):

(a) Using the captain's or first officer's stabilizer control wheel, rotate the forward drum so that the lower cable connection point is on the left side of the airplane.

1) Install the eyelet bolt through the STA cable [6] eyelet, the washers on the eyelet bolt, the castle nut on the eyelet bolt, and a new cotter pin [18] through the eyelet bolt (Figure 401).

CAUTION: MAKE SURE THE CABLE WINDS ONTO THE DRUM GROOVES PROPERLY WITH EACH ROTATION OF THE DRUM. IF THE CABLE GETS JAMMED BETWEEN THE CABLE AND THE CABLE DRUM GUARD, DAMAGE TO THE CABLE WILL OCCUR.

(b) Use the captain's or first officer's stabilizer trim control wheel to wind the STA [6] cable "completely" onto the forward cable drum (Approximately 33 1/2 turns).

NOTE: Tension must always be kept on the STA cable [6] while winding it onto the forward cable drum. The best way to keep steady tension on the STA cable [6] is to have a mechanic applying tension to the cable in the aft unpressurized compartment while another mechanic keeps the cable in position in the forward mechanism compartment.

NOTE: To ensure the STA cable [6] is not damaged or kinked as it is wound onto the forward drum, it is recommended to have a mechanic in the forward mechanism compartment to watch the cable as it slowly winds onto the forward cable drum. This will ensure that the mechanic that is turning the stabilizer trim control wheel, does not turn the forward drum too much and damage or kink the cable.

SUBTASK 27-41-82-420-005

(2) Immediately connect the STB cable [5] to the top slot of the forward cable drum (Figure 401):

(a) While keeping tension on the STA [6] cable, use the captain's or first officer's stabilizer control wheel to rotate the forward drum so that the upper cable connection point is on the right side of the airplane.

1) Install the STB cable [5] eyelet in the location on the upper right side of the forward cable drum.

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a) Install the eyelet bolt through the STB cable [5] eyelet and the washer and nut on the eyelet bolt.

CAUTION: MAKE SURE THE CABLE WINDS ONTO THE DRUM GROOVES PROPERLY WITH EACH ROTATION OF THE DRUM. IF THE CABLE GETS JAMMED BETWEEN THE CABLE AND THE CABLE DRUM GUARD, DAMAGE TO THE CABLE WILL OCCUR.

(b) Use the captain's or first officer's stabilizer trim control wheel to wind the STB [5] cable onto the forward cable drum approximately 2 turns.

NOTE: Tension must always be kept on the STA [6] and STB [5] cables while winding them onto the forward cable drum. The best way to keep steady tension on the cables is to have a mechanic applying tension to the cable in the aft unpressurized compartment while another mechanic keeps the cable in position at the forward cable drum.

(c) Install non-metallic wedges between the STA [6] and STB [5] cables and the cable guards on the left and right sides of the forward cable drum.

NOTE: The wedges are used to keep tension on the STA [6] and STB [5] cables while the cables are rigged to the rear cable drum [15].

SUBTASK 27-41-82-420-006

(3) Install the STB cable [5] on the aft cable drum [15]:

(a) Install the cable terminal in the top terminal slot of the aft cable drum [15].

(b) Install a new pin [61] to connect the cable terminal to the cable drum [15].

1) Install the ends of the pin [61] in the terminal slot.

(c) Place approximately 1.7 wraps of STB cable [5] on the aft cable drum [15].

CAUTION: MAKE SURE THE STB CABLE [5] IS IN THE GROOVE OF THE FORWARD PULLEY AND AFT PULLEY BEFORE TIGHTENING THE CABLE.

(d) Using the pinion gear wrench assembly, SPL-10319, wind the STB [5] cable onto the aft cable drum [15] until the ballscrew reaches the upper stops. Use thepinion gear wrench assembly, SPL-10319 to keep tension on the STB [5] cable.

SUBTASK 27-41-82-420-007

(4) Install the STA [6] cable on the aft cable drum [15]:

(a) Place approximately 1.8 wraps of cable around the aft cable drum and install the cable terminal in the bottom terminal slot of the aft cable drum [15].

(b) Install the new pin [61] to connect the cable terminal to the cable drum [15].

1) Install the ends of the pin [61] in the terminal slot.

(c) Remove the non-metallic wedges from the forward cable drum while keeping tension on the STA [6] cable at the aft cable drum.

(d) Attach a control cable clamp, SPL-1569 to the STA [6] cable, forward of the aft cable drum.

WARNING: MAKE SURE THAT FINGERS OR HANDS DO NOT GET CAUGHT BETWEEN THE CABLE AND THE DRUM OR INSIDE OF A LOOP OF CABLE. IF THE CABLE MOVES SUDDENLY, SERIOUS INJURY MAY RESULT.

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(WARNING PRECEDES)

CAUTION: MAKE SURE THE STA [6] CABLE IS IN THE GROOVE IN THE FORWARD AND AFT PULLEYS BEFORE TIGHTENING THE CABLE.

(e) Apply tension to the STA [6] cable through the control cable clamp, SPL-1569 until there is enough cable to complete the final wrap around the aft cable drum [15].

NOTE: It may be necessary to loosen the lower turnbuckle [3], on the forward mechanism, to get enough slack in the cable.

SUBTASK 27-41-82-080-001

(5) Remove the control cable clamp, SPL-1569.

SUBTASK 27-41-82-420-008

(6) Install the spacers [14] and cable drum guard [28]:

(a) Install the bolts [16] and washers [17] to attach the cable drum guard [28] to the cable drum [15].

CAUTION: MAKE SURE YOU INSTALL THE SUPPORT PLATE [25] CORRECTLY. IF THE SUPPORT PLATE [25] IS NOT INSTALLED CORRECTLY, THE AMOUNT OF TORQUE NECESSARY TO DISENGAGE THE MANUAL CLUTCH CAN EXCEED THE LIMITS.

(b) Install the support plate [25] correctly.

(c) Install the bolts [26] and washers [27] to attach the spacers [14] to the support plate [25].

NOTE: The bearing assembly of the support plate [25] must be on the same side as the cable drum [15].

(d) Install the bolt [20], washer [21], washer [22], and nut [23] to attach the cable drum guard [28] to the support plate [25].

SUBTASK 27-41-82-020-008

(7) Reconnect the upper turnbuckle [4] after the STA and STB cables are completely rigged.

SUBTASK 27-41-82-820-002

(8) Adjust the STA cable [6] and STB cable [5]. To adjust them, do this task: Stabilizer Control Cable and Chain Adjustment, TASK 27-41-00-820-801.

SUBTASK 27-41-82-080-002

(9) Remove thepinion gear wrench assembly, SPL-10319 from the jackscrew gearbox [12].

SUBTASK 27-41-82-730-001

(10) Do this task: Stabilizer Clutch Friction System Test, TASK 27-41-00-700-806.

SUBTASK 27-41-82-420-009

(11) Do this task: Stabilizer Trim Motor Installation, TASK 27-41-71-400-801.

SUBTASK 27-41-82-860-004

(12) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

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Row	Col	Number	Name
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-82-730-002

(13) Do this task: Stabilizer Manual Trim and Trim Indicator Test, TASK 27-41-00-700-801.

SUBTASK 27-41-82-730-003

(14) Do this task: Horizontal Stabilizer Trim Control System Friction Test, TASK 27-41-00-700-802.

SUBTASK 27-41-82-610-001

(15) Do this task: Horizontal Stabilizer Actuator Brake - Servicing, TASK 12-22-41-610-802.

NOTE: This lubrication procedure must be performed after the installation of any new stabilizer trim actuator.

SUBTASK 27-41-82-730-004

(16) Do this task: Stabilizer Trim Wheel Free Movement Test, TASK 27-41-00-700-804.

SUBTASK 27-41-82-730-005

(17) Do this task: Stabilizer Electric Trim System Test, TASK 27-41-00-700-803.

G. Put the Airplane Back To Its Usual Condition

SUBTASK 27-41-82-410-001

(1) Install the cargo liners and floor panels that were removed for access to the idler pulleys.

SUBTASK 27-41-82-410-002

(2) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-41-82-410-003

(3) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-82-480-003

(4) Remove the DO-NOT-OPERATE tags from the stabilizer trim control wheels.

——————— END OF TASK ———————

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STABILIZER TRIM CUTOUT SWITCHES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a stabilizer trim cutout switch

(2) An installation of a stabilizer trim cutout switch.

B. The stabilizer trim cutout switch is referred to as the "cutout switch" in this procedure.

C. This procedure is applicable to the main cutout switch (S272) and autopilot cutout switch (S149).

TASK 27-41-91-000-801

2. Stabilizer Trim Cutout Switch Removal

(Figure 401)

A. Location Zones

Zone	Area
212	Flight Compartment - Right

B. Prepare for the Removal

SUBTASK 27-41-91-860-007

(1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

C. Cutout Switch Removal

SUBTASK 27-41-91-010-001

(1) Loosen the screws [6] and pull the panel out from the control stand.

SUBTASK 27-41-91-020-001

(2) Disconnect the electrical terminal [7] from the back of the cutout switch [1].

SUBTASK 27-41-91-020-002

(3) Remove the cutout switch [1] from the panel:

(a) Remove the locknuts [2], lockwasher [5], switch guard [4], and locking ring [3] from the cutout switch [1].

(b) Remove the cutout switch [1] from the back side of the panel.

———————— END OF TASK ————————

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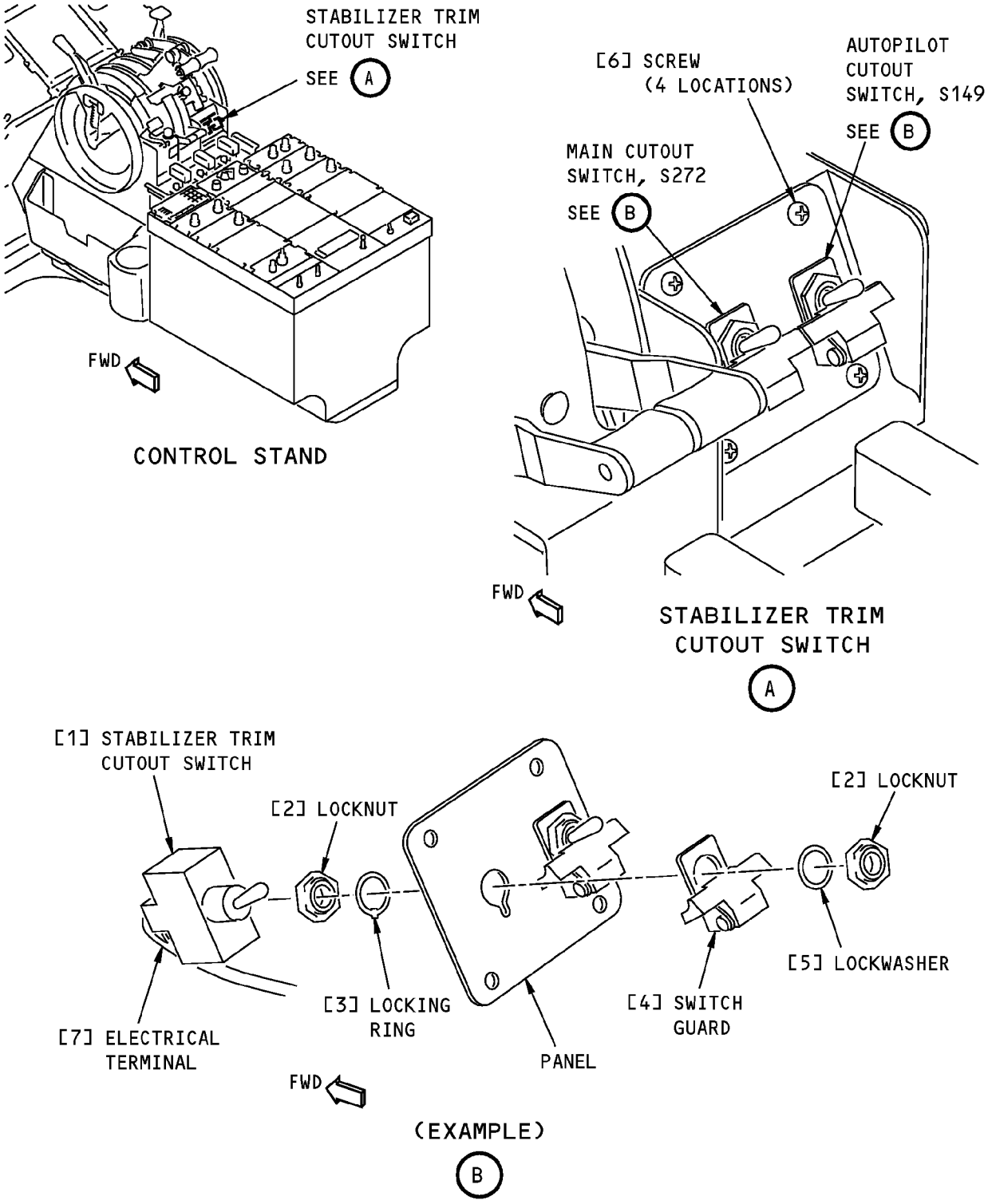

Stabilizer Trim Cutout Switch Installation
Figure 401/27-41-91-990-801

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TASK 27-41-91-400-801

3. Stabilizer Trim Cutout Switch Installation

(Figure 401)

A. References

Reference	Title
27-41-91-700-801	Main Cutout Switch Test (P/B 501)
27-41-91-700-802	Autopilot Cutout Switch Test (P/B 501)

B. Location Zones

Zone	Area
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-41-91-420-001

(1) Install the cutout switch [1] on the panel:

(a) Install the cutout switch [1] on the back side of the panel.

(b) Install the locknuts [2], locking ring [3], switch guard [4], and lockwasher [5].

NOTE: The cutout switch [1], locking ring [3], and switch guard [4] are all keyed for correct installation.

SUBTASK 27-41-91-420-002

(2) Connect the electrical terminal [7] to the back of the cutout switch [1].

SUBTASK 27-41-91-420-003

(3) Install the panel on the control stand:

(a) Put the panel in its position on the control stand.

(b) Tighten the screws [6].

SUBTASK 27-41-91-860-008

(4) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-91-820-001

(5) For the main cutout switch, do this task: Main Cutout Switch Test, TASK 27-41-91-700-801.

SUBTASK 27-41-91-820-002

(6) For the autopilot cutout switch, do this task: Autopilot Cutout Switch Test, TASK 27-41-91-700-802.

——————— END OF TASK ———————

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STABILIZER TRIM CUTOUT SWITCHES - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A test of the main cutout switch, S272

(2) A test of the autopilot cutout switch, S149.

C. The main cutout switch and autopilot cutout switch are installed on the control stand.

TASK 27-41-91-700-801

2. Main Cutout Switch Test

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 27-41-91-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-91-860-002

(2) Close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-91-860-003

(3) Make sure that the STAB TRIM switch on the stab trim and cabin door panel, P8-47 is in the NORMAL position.

E. Main Cutout Switch Test

SUBTASK 27-41-91-710-001

(1) Do the test of the main cutout switch, S272:

(a) Set the main cutout switch to the NORMAL position.

1) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

2) Make sure the stabilizer leading edge moves down.

3) Set the main cutout switch to the CUTOUT position.

4) Make sure that the movement of the stabilizer stops immediately.

5) Release the STAB TRIM switches.

(b) Set the main cutout switch to the NORMAL position.

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1) Push and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.
2) Make sure the stabilizer leading edge moves up.
3) Set the main cutout switch to the CUTOUT position.
4) Make sure that the movement of the stabilizer stops immediately.
5) Release the STAB TRIM switches.

(c) Set the main cutout switch back to the NORMAL position.

——————— END OF TASK ———————

TASK 27-41-91-700-802

3. Autopilot Cutout Switch Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

B. Location Zones

Zone	Area
212	Flight Compartment - Right

C. Prepare for the Test

SUBTASK 27-41-91-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-91-860-005

(2) Close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-91-860-006

(3) Make sure that the STAB TRIM switch on the stab trim and cabin door panel, P8-47 is in the NORMAL position.

D. Autopilot Cutout Switch Test

SUBTASK 27-41-91-710-002

(1) Do the test of the autopilot switch, S149:

(a) Set the autopilot cutout switch to the NORMAL position.

1) Engage the autopilot.
2) Move the control column to the nose up and then to the nose down position.
3) Make sure the stabilizer leading edge moves down and then up.

(b) Set the autopilot cutout switch to the CUTOUT position.

1) Make sure the autopilot disengages.
2) Move the control column to the nose up and then to the nose down position.
3) Make sure the stabilizer leading edge does not move.

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(c) Set the autopilot cutout switch to the NORMAL position.

1) Engage the autopilot.
2) Move the control column to the nose up and then to the nose down position.
3) Make sure the stabilizer leading edge moves down and then up.
4) Disengage the autopilot.

END OF TASK

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STABILIZER TRIM LIMIT SWITCHES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a stabilizer trim limit switch

(2) An installation of a stabilizer trim limit switch.

B. The stabilizer trim limit switch is referred to as the "limit switch" in this procedure.

C. There are three limit switches (S144, S145, and S844) and two stabilizer takeoff warning switches (S132 and S546) on the brackets along the stabilizer jackscrew.

D. This procedure is applicable to all three limit switches.

TASK 27-41-94-000-801

2. Stabilizer Trim Limit Switch Removal

(Figure 401)

A. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

B. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

C. Prepare for the Removal

SUBTASK 27-41-94-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

SUBTASK 27-41-94-010-001

(2) To get access to the limit switch, do this step:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-94-860-002

(3) Move the stabilizer until the cam is not in contact with the limit switch.

D. Limit Switch Removal

SUBTASK 27-41-94-020-001

(1) Remove the limit switch [1]:

(a) Disconnect the limit switch [1] wire from the wire connection.

(b) Remove the locknut [4] and washer [3] which attach the limit switch arm [5] to the limit switch [1].

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(c) Remove the lockwasher [6] and retainer nut [7] which attach the limit switch [1] to the bracket assembly [2].

(d) Remove the limit switch [1] from the bracket assembly [2].

END OF TASK

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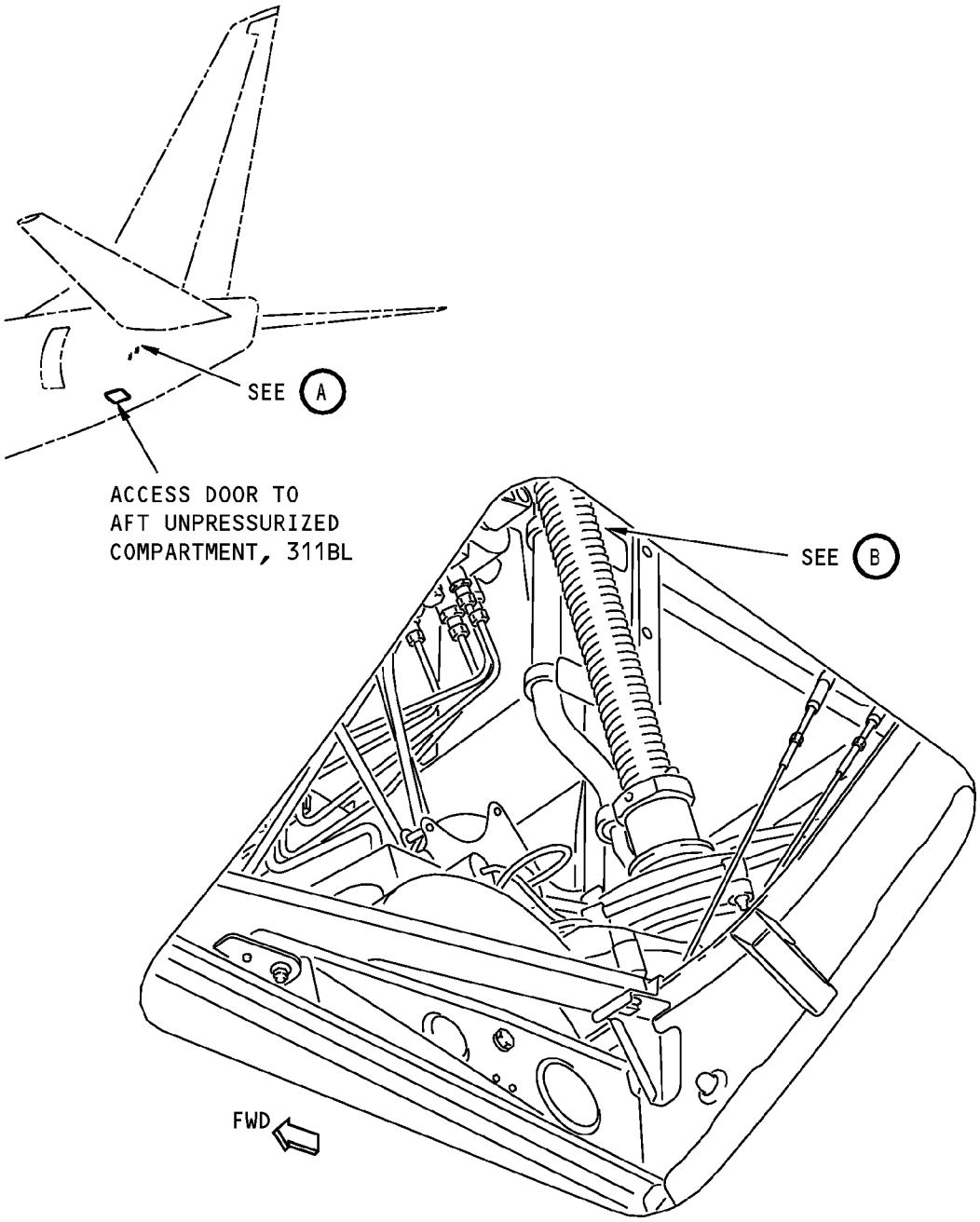

VIEW THROUGH THE ACCESS DOOR TO
AFT UNPRESSURIZED COMPARTMENT, 311BL

A

Stabilizer Trim Limit Switches Installation
Figure 401 (Sheet 1 of 3)/27-41-94-990-801

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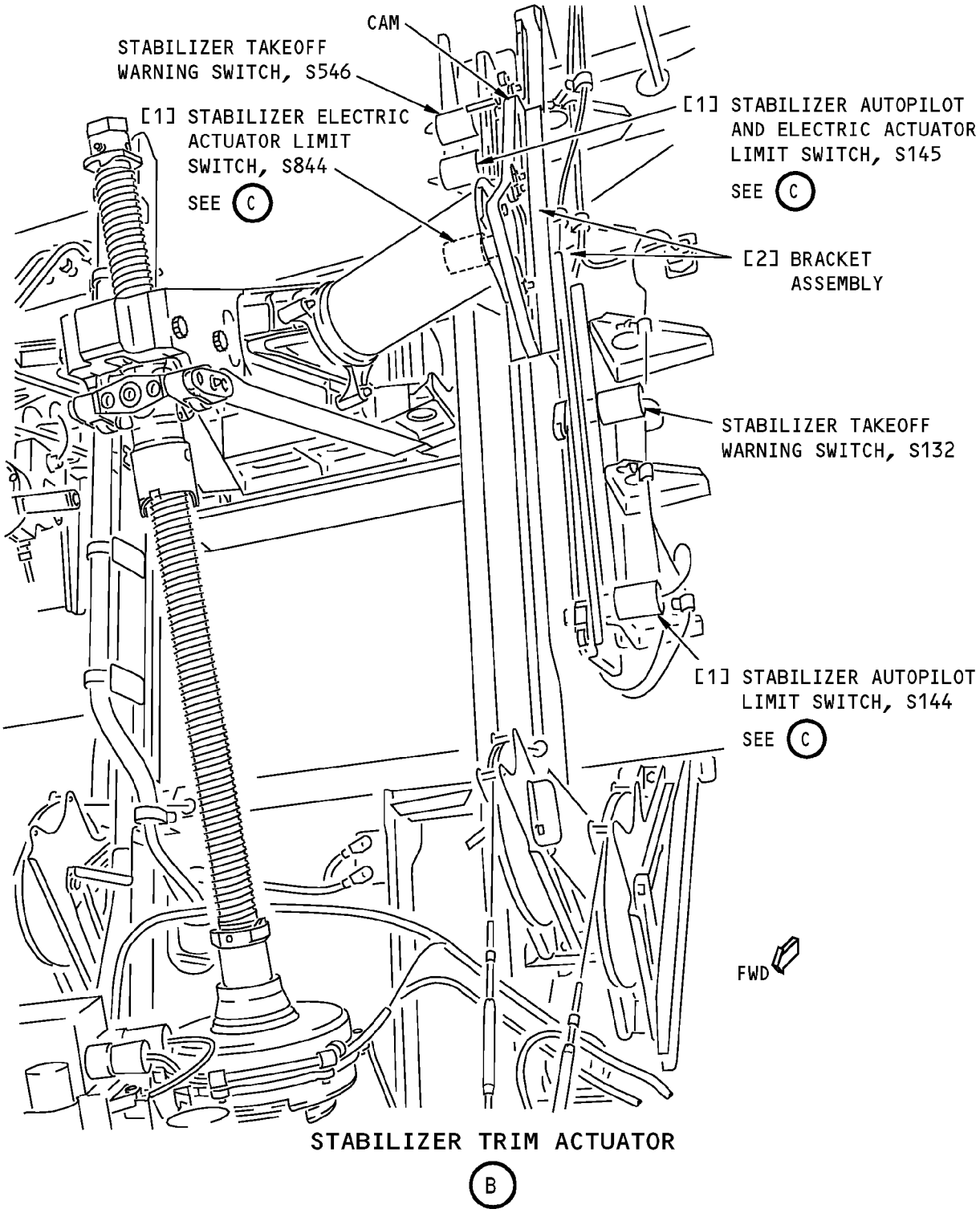

Stabilizer Trim Limit Switches Installation
Figure 401 (Sheet 2 of 3)/27-41-94-990-801

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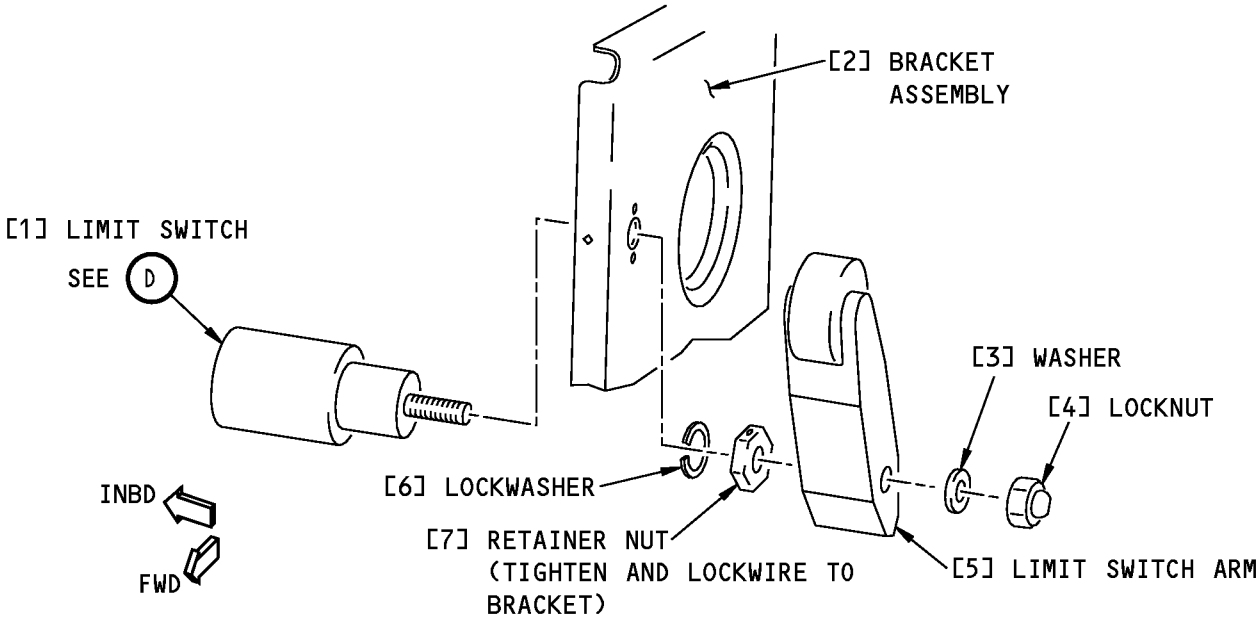
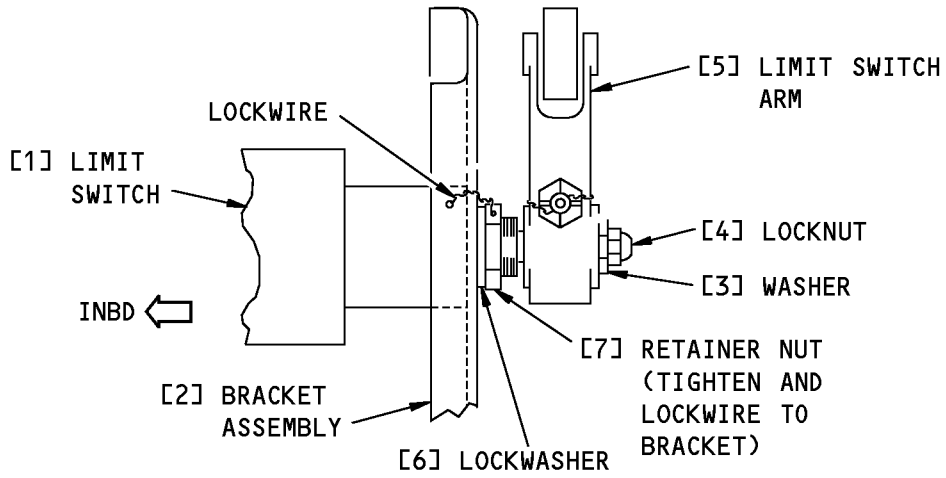


STABILIZER AUTOPILOT AND ELECTRIC ACTUATOR LIMIT SWITCHES (EXAMPLE)

C



STABILIZER AUTOPILOT AND ELECTRIC ACTUATOR LIMIT SWITCHES (EXAMPLE)

D

Stabilizer Trim Limit Switches Installation
Figure 401 (Sheet 3 of 3)/27-41-94-990-801

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TASK 27-41-94-400-801

3. Stabilizer Trim Limit Switch Installation

(Figure 401)

A. References

Reference	Title
27-41-94-700-801	Stabilizer Trim Limit Switches Test (P/B 501)
27-41-94-820-801	Stabilizer Trim Limit Switches Adjustment (P/B 501)

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

C. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

D. Limit Switch Installation

SUBTASK 27-41-94-420-001

(1) Install the limit switch [1]:

(a) Install the limit switch [1] through the bracket assembly [2].

(b) Install the retainer nut [7] and lockwasher [6] to attach the limit switch [1] to the bracket assembly [2].

(c) Torque retainer nut [7] to 15 in-lb (2 N·m) to 25 in-lb (3 N·m).

(d) Install lockwire on retainer nut [7].

(e) Turn the limit switch arm [5] to the approximate position for installation but make sure that it does not touch the cam.

(f) Put the limit switch arm [5] on the limit switch [1] to engage the serrations.

(g) Install the washer [3] and locknut [4].

1) Tighten the locknut [4] by hand.

NOTE: You will tighten the locknut [4] after you adjust the limit switch [1].

(h) Connect the limit switch [1] wire at the wire connection.

SUBTASK 27-41-94-860-003

(2) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

SUBTASK 27-41-94-820-001

(3) Do this task: Stabilizer Trim Limit Switches Adjustment, TASK 27-41-94-820-801.

SUBTASK 27-41-94-710-001

(4) Do this task: Stabilizer Trim Limit Switches Test, TASK 27-41-94-700-801.

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E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-41-94-410-001

(1) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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STABILIZER TRIM LIMIT SWITCHES - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An adjustment of the stabilizer trim limit switches

(2) A test of the stabilizer trim limit switches.

B. The stabilizer trim limit switch is referred to as the "limit switch" in this procedure.

C. There are three limit switches (S144, S145, and S844) and two stabilizer takeoff warning switches (S132 and S546) on the brackets along the stabilizer jackscrew.

D. This procedure is applicable for all three limit switches.

TASK 27-41-94-820-801

2. Stabilizer Trim Limit Switches Adjustment

(Figure 501)

A. References

Reference	Title
20-10-44-400-801	Lockwires Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1587	Wrench - Torque, 30 in-lbs (4 N-m) (Part #: TE3FUA, Supplier: 55719, A/P Effectivity: 737-ALL)
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G01505	Lockwire - Safety And Lock	NASM20995

D. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-41-94-010-002

(1) To get access to the limit switches, do this step:

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Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-94-860-004

(2) Use the bar, SPL-1677 to set the applicable "B" dimensions as follows:

(a) With the stabilizer autopilot and electric actuator nose down (flaps not up), make sure the switch S145 "B" dimension at 0.05 units of trim is 45.48 ±0.05 in. (1155.2 ±1.3 mm).

HAP 101-999

(b) With the stabilizer electric actuator nose down (flaps up), make sure the switch S844 "B" dimension at 4.30 units of trim is 39.46 ±0.05 in. (1002.3 ±1.3 mm).

HAP 001-013, 015-026, 028-054

(c) With the stabilizer electric actuator nose down (flaps up), make sure the switch S844 "B" dimension at 3.95 units of trim is 39.96 ±0.05 in. (1015.0 ±1.3 mm).

HAP ALL

(d) With the stabilizer autopilot and electric actuator nose up, make sure the switch S144 "B" dimension at 14.50 units of trim is 24.80 ±0.05 in. (629.9 ±1.3 mm).

G. Stabilizer Trim Limit Switches Adjustment

SUBTASK 27-41-94-820-002

(1) Adjusting the Type 2 style stabilizer trim limit switch, Figure 501 (Sheet 4):

(a) Remove the lockwire from the lockscrews [4].

(b) Loosen the locknut [6].

(c) Loosen the two lockscrews [4].

(d) Use a 3/32 inch (2.4 millimeters) HEX torque wrench (30 in-lbs), COM-1587 to turn the worm gear with no more than 6 in-lb (0.7 N·m) until the limit switch [1] starts to operate (when you hear a click).

(e) If you can not turn the worm gear with 6 in-lb (0.7 N·m) of torque, then do these steps:

1) Move the stabilizer until the limit switch [1] does not touch the cam.

2) Adjust the limit switch arm [3].

CAUTION: DO NOT MOVE THE SWITCH ARM [3] BEYOND ITS RANGE OF MOTION. IT CAN CAUSE DAMAGE TO THE LIMIT SWITCH [1].

3) Move the stabilizer by hand until the limit switch [1] clicks.

4) Make sure the "B" dimension is the same as follows:

a) With the stabilizer autopilot and electric actuator nose down (flaps not up), make sure the switch S145 "B" dimension at 0.05 units of trim is 45.48 ±0.05 in. (1155.2 ±1.3 mm).

HAP 101-999

b) With the stabilizer electric actuator nose down (flaps up), make sure the switch S844 "B" dimension at 4.30 units of trim is 39.46 ±0.05 in. (1002.3 ±1.3 mm).

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HAP 001-013, 015-026, 028-054

c) With the stabilizer electric actuator nose down (flaps up), make sure the switch S844 "B" dimension at 3.95 units of trim is 39.96 ±0.05 in. (1015.0 ±1.3 mm).

HAP ALL

d) With the stabilizer autopilot and electric actuator nose up, make sure the switch S144 "B" dimension at 14.50 units of trim is 24.80 ±0.05 in. (629.9 ±1.3 mm).

(f) Tighten the lockscrews [4].

(g) Tignten the locknut [6] 20 in-lb (2 N·m) to 25 in-lb (3 N·m).

(h) Install the lockwire, G01505 on the lockscrews [4], Lockwires Installation, TASK 20-10-44-400-801.

SUBTASK 27-41-94-820-004

(2) Adjust Type 1 style stabilizer trim limit switch, Figure 501 (Sheet 5):

(a) Remove the lockwire from the lockscrew [4].

(b) Loosen the locknut [6].

(c) Loosen the lockscrew [4].

(d) Using a slot-head screwdriver, turn the lockscrew [4] worm gear until the switch is in the desired position.

(e) If you can not turn the worm gear with 6 in-lb (0.7 N·m) of torque, then do these steps:

1) Move the stabilizer until the limit switch [1] does not touch the cam.

2) Adjust the limit switch arm [3].

3) Move the stabilizer by hand until the limit switch [1] clicks.

4) Make sure the "B" dimension is the same as follows:

a) With the stabilizer autopilot and electric actuator nose down (flaps not up), make sure the switch S145 "B" dimension at 0.05 units of trim is 45.48 ±0.05 in. (1155.2 ±1.3 mm).

HAP 101-999

b) With the stabilizer electric actuator nose down (flaps up), make sure the switch S844 "B" dimension at 4.30 units of trim is 39.46 ±0.05 in. (1002.3 ±1.3 mm).

HAP 001-013, 015-026, 028-054

c) With the stabilizer electric actuator nose down (flaps up), make sure the switch S844 "B" dimension at 3.95 units of trim is 39.96 ±0.05 in. (1015.0 ±1.3 mm).

HAP ALL

d) With the stabilizer autopilot and electric actuator nose up, make sure the switch S144 "B" dimension at 14.50 units of trim is 24.80 ±0.05 in. (629.9 ±1.3 mm).

(f) Tighten the lockscrew [4].

(g) Tignten the locknut [6] 20 in-lb (2 N·m) to 25 in-lb (3 N·m).

(h) Install the lockwire, G01505 on the lockscrews [4], Lockwires Installation, TASK 20-10-44-400-801.

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SUBTASK 27-41-94-820-003

(3) Make sure the limit switch arm [3] overtravel is sufficient:

(a) With the stabilizer leading edge in the full down position (airplane nose up), make sure the switch S144 can be rotated away from the cam surface by a minimum of 0.05 in. (1.27 mm) with finger pressure only.

(b) With the stabilizer leading edge in the full up position (airplane nose down), make sure the switches S145 and S844 can be rotated away from the cam surface by a minimum of 0.05 in. (1.27 mm) with finger pressure only.

SUBTASK 27-41-94-710-002

(4) Do this task: Stabilizer Trim Limit Switches Test, TASK 27-41-94-700-801.

SUBTASK 27-41-94-410-002

(5) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

——————— END OF TASK ———————

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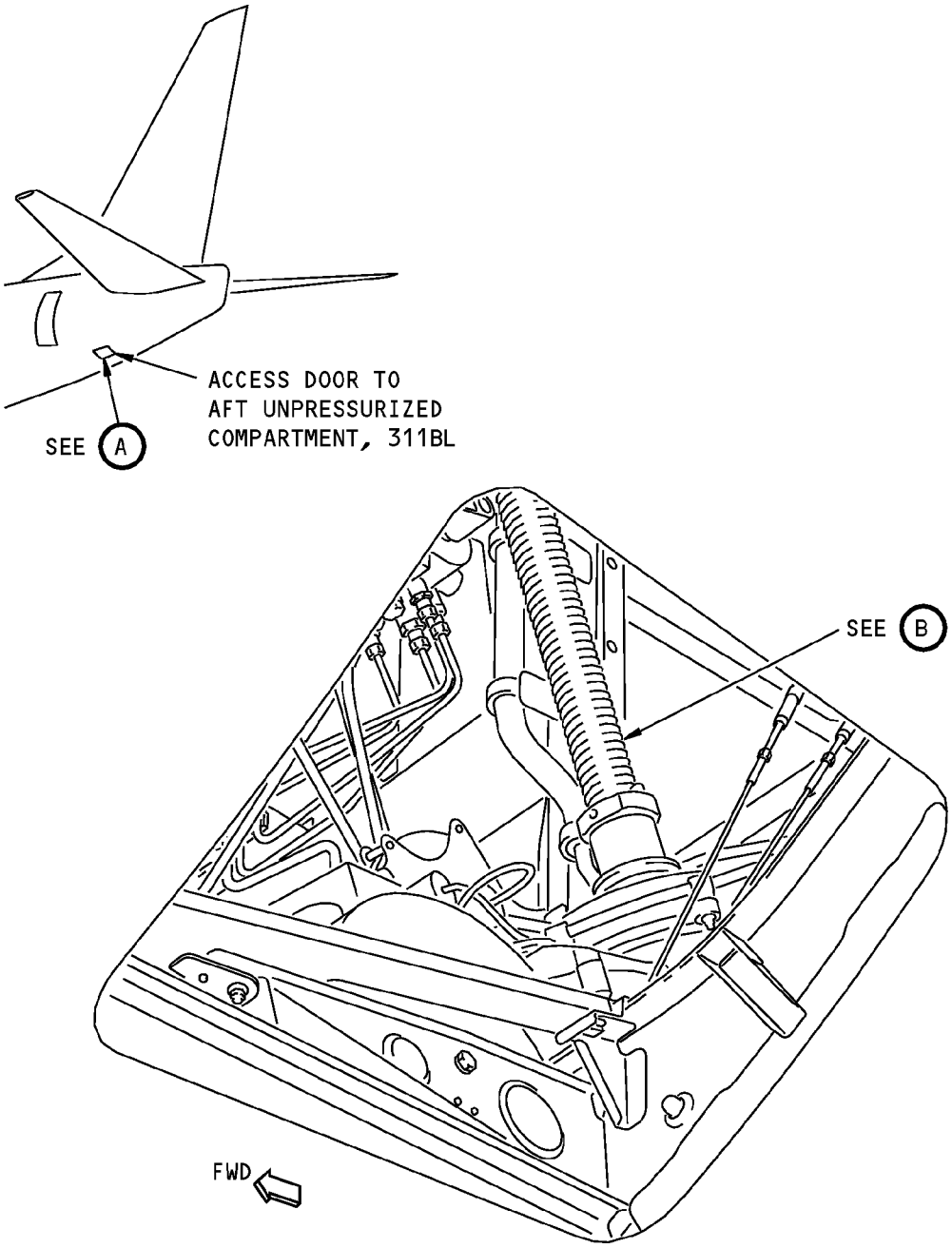

Stabilizer Trim Limit Switches Adjustment
Figure 501 (Sheet 1 of 5)/27-41-94-990-802

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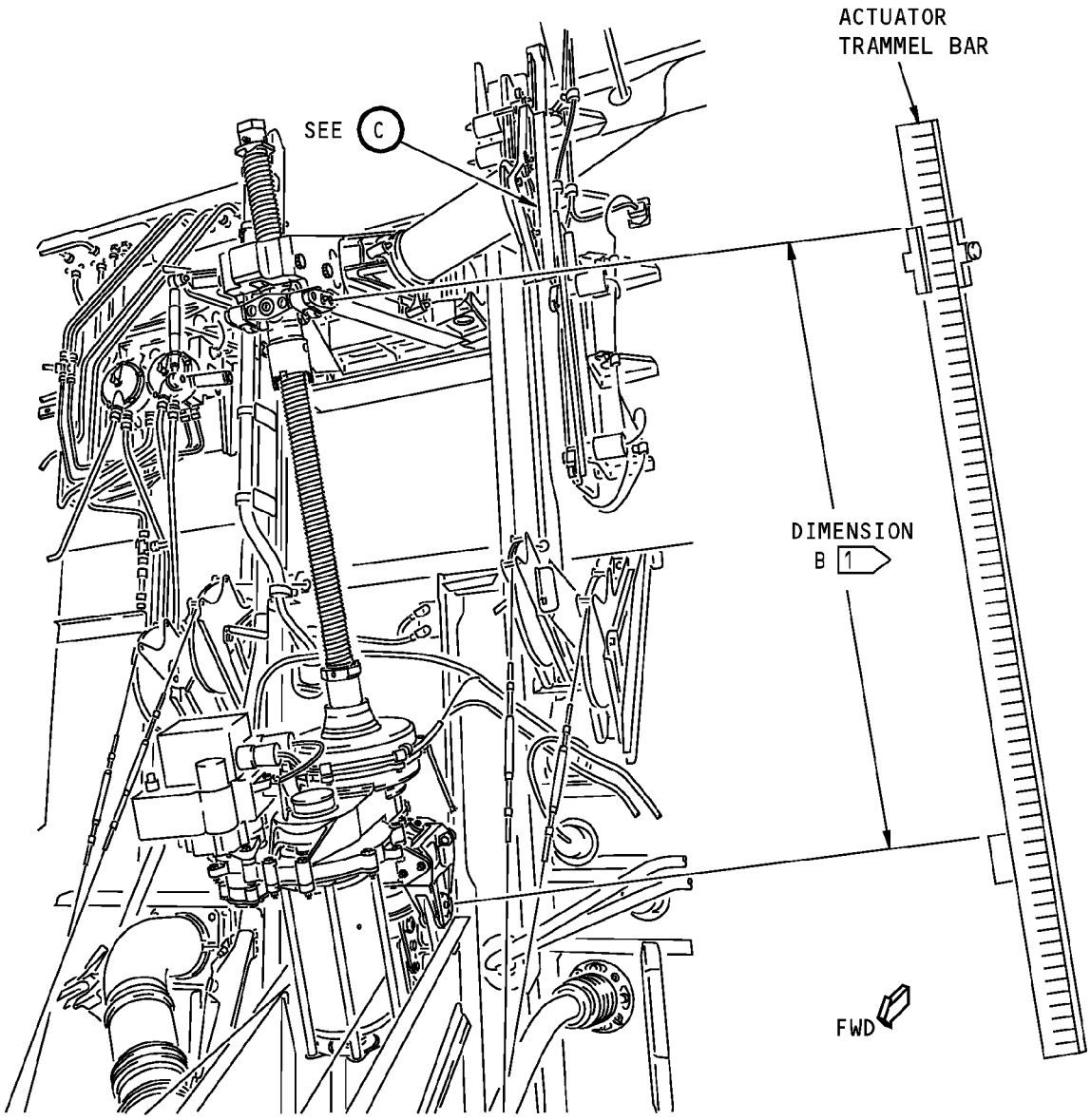

STABILIZER TRIM ACTUATOR

B

NOTE: THE STABILIZER TRIM JACKSCREW IS SHOWN WITH THE STABILILIZER LEADING EDGE AT ZERO DEGREES.

1 THE DIMENSION B IS MEASURED BETWEEN THE CENTER OF THE UPPER AND LOWER GIMBAL PINS, (CENTER OF GREASE FITTINGS).

Stabilizer Trim Limit Switches Adjustment
Figure 501 (Sheet 2 of 5)/27-41-94-990-802

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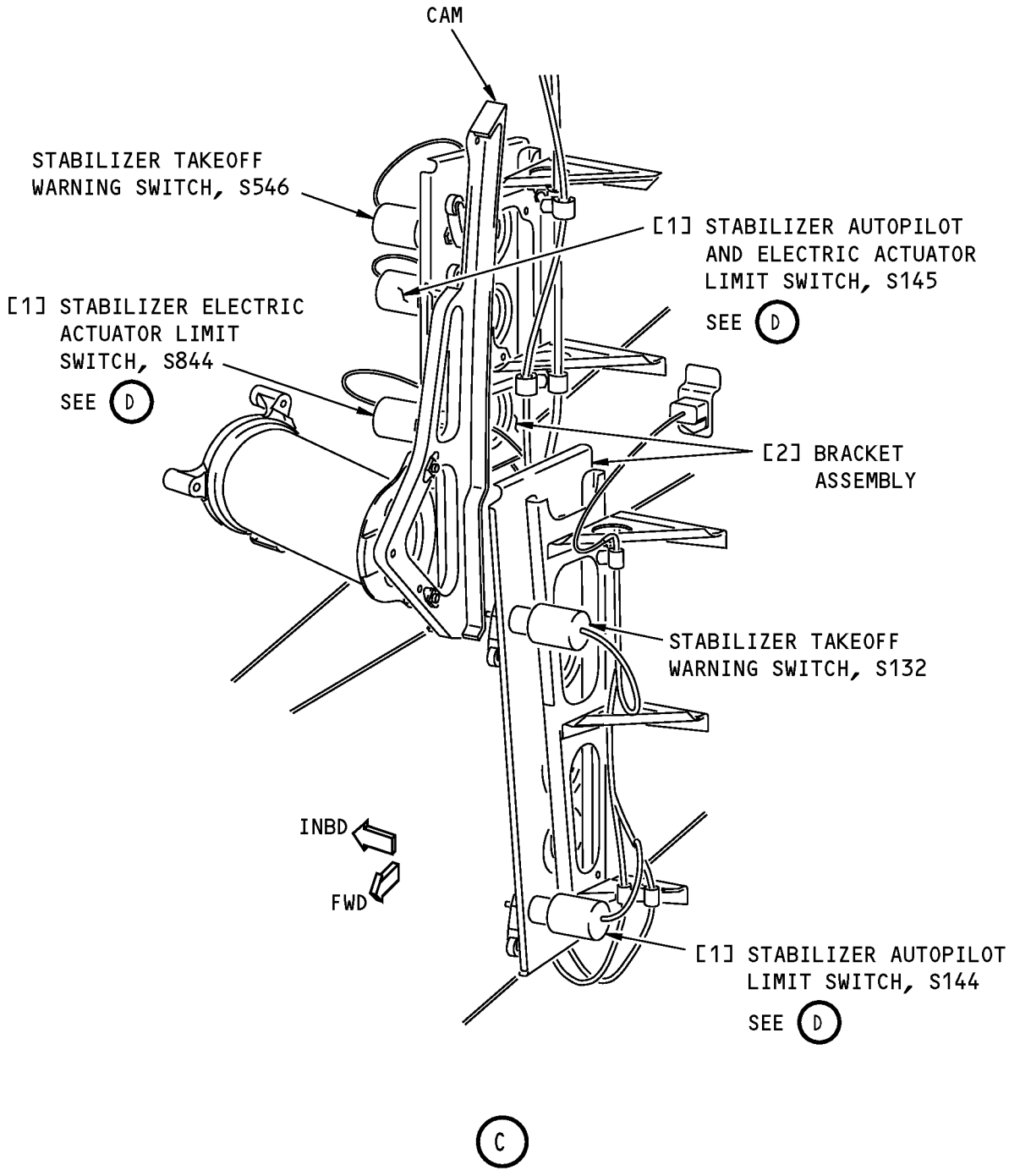

Stabilizer Trim Limit Switches Adjustment
Figure 501 (Sheet 3 of 5)/27-41-94-990-802

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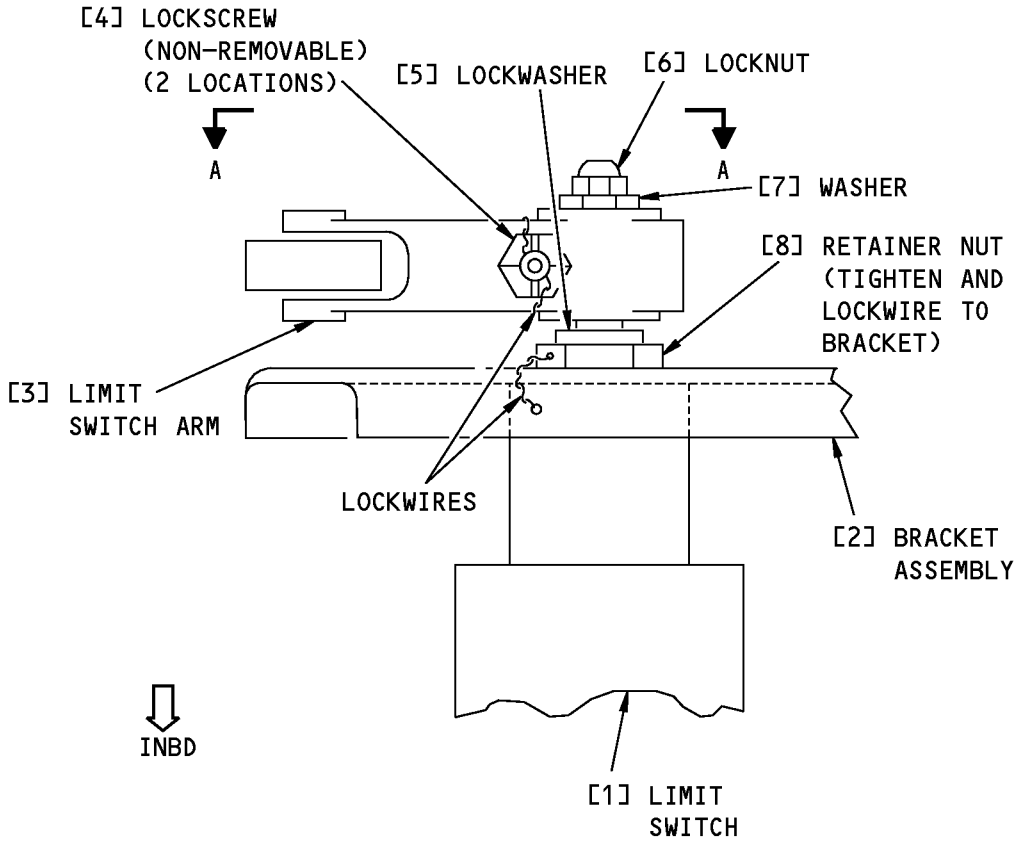
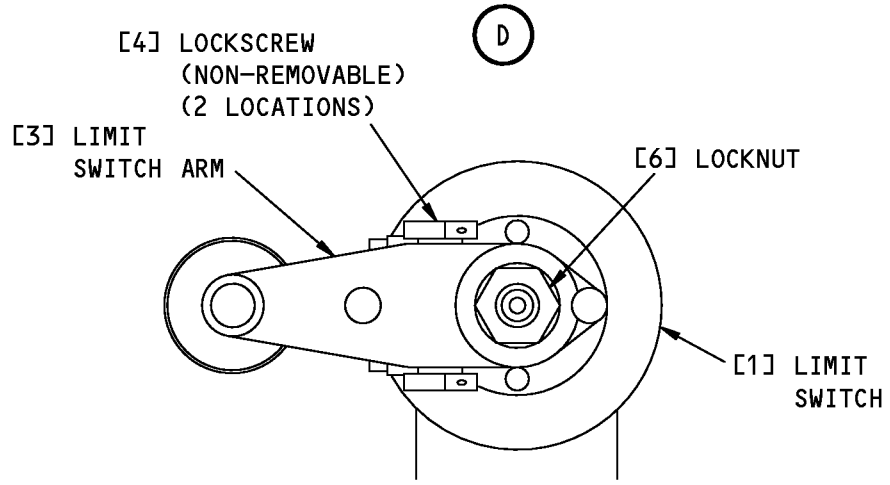


STABILIZER AUTOPILOT AND ELECTRIC ACTUATOR
LIMIT SWITCH
(TYPE 2)



A-A

Stabilizer Trim Limit Switches Adjustment
Figure 501 (Sheet 4 of 5)/27-41-94-990-802

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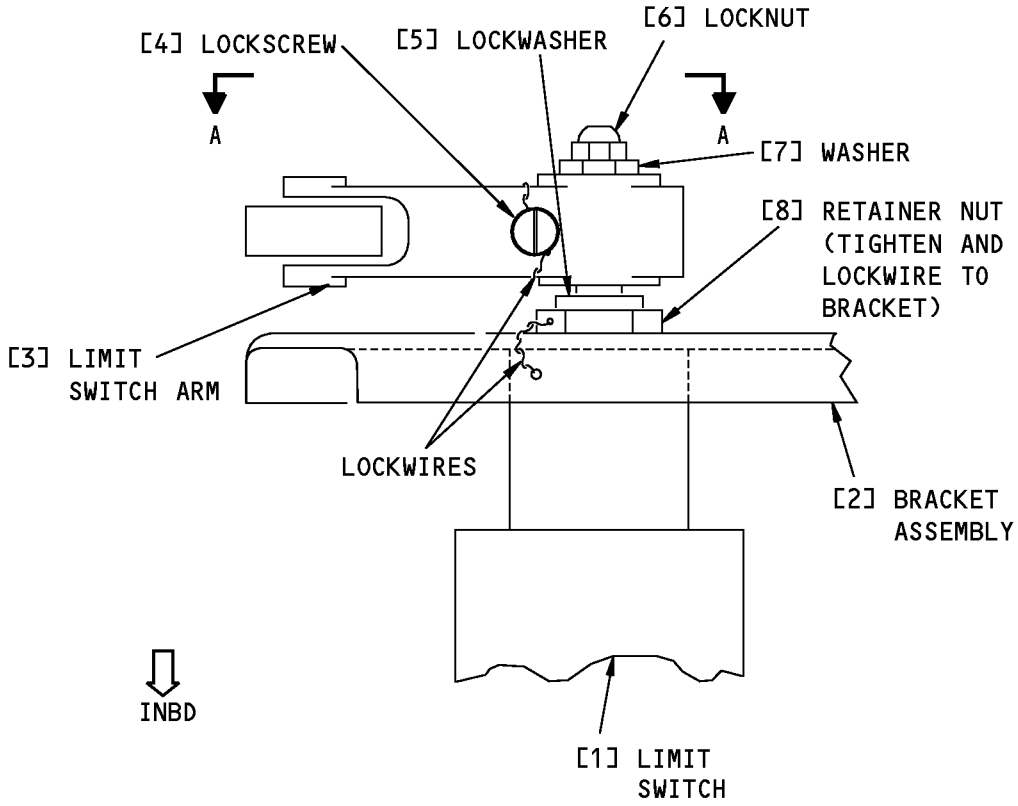

Stabilizer Trim Limit Switches Adjustment
Figure 501 (Sheet 5 of 5)/27-41-94-990-802

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TASK 27-41-94-700-801

3. Stabilizer Trim Limit Switches Test

A. General

(1) The trim system can move the stabilizer to a position more than the limits that were set during the adjustment of the limit switches because of the coasting. (Coasting occurs when power has been removed from the stab trim actuator but the ballscrew is still moving as it comes to a stop.) This condition is usual. Thus the "B" dimension tolerances for the test are larger than the tolerance for the adjustment.

(2) This test is applicable only for limit switches S145, S844, and S144.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1677	Assembly - Trammel Bar, Stabilizer Trim Actuator (Part #: F80055-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

E. Access Panels

Number	Name/Location
311BL	Stabilizer Trim Access Door

F. Prepare for the Test

SUBTASK 27-41-94-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-94-860-006

(2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-94-860-007

(3) Make sure the main cutout switch, S272 is in the NORMAL position.

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SUBTASK 27-41-94-860-008

(4) Make sure the STAB TRIM switch on the stab trim and cabin door panel, P8-47 is in the NORMAL position.

SUBTASK 27-41-94-860-009

(5) Make sure the flaps are in the full up position.

SUBTASK 27-41-94-010-003

(6) To get access to the limit switches, do this step:

Open this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

G. Stabilizer Trim Limit Switches Test

SUBTASK 27-41-94-710-004

(1) Do the test of the limit switch S844:

(a) Set the main cutout switch, S272, in the CUTOUT position.

(b) Use the stabilizer trim wheel to move the stabilizer to the maximum leading edge up (APL NOSE DOWN) position.

(c) Set the main cutout switch, S272, in the NORMAL position.

(d) Turn the captain's stabilizer trim wheel clockwise approximately 3 turns.

(e) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

1) Make sure that the stabilizer leading edge does not move.

2) Release the STAB TRIM switches.

(f) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

1) Make sure that stabilizer leading edge moves down (APL NOSE UP).

2) Release the STAB TRIM switches.

(g) Move the stabilizer to approximately 4 units of trim.

(h) Move the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position until the stabilizer stops automatically.

1) Use the bar, SPL-1677 to measure the "B" dimension.

HAP 101-999

2) Make sure the "B" dimension is 39.46 ±0.05 in. (1002.3 ±1.3 mm).

HAP 001-013, 015-026, 028-054

3) Make sure the "B" dimension is 39.96 ±0.05 in. (1015.0 ±1.3 mm).

HAP ALL

SUBTASK 27-41-94-710-005

(2) Do the test of the limit switch, S145:

(a) If you use the standby hydraulic pump motor to move the flaps, then do these steps:

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WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE AND TRAILING EDGE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAPS. THE FLAPS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: DURING GROUND OPERATION, DO NOT OPERATE THE FLAP ALTERNATE DRIVE UNIT MORE THAN 4 MINUTES OPERATION AND LESS THAN 25 MINUTES OFF. YOU CAN CAUSE DAMAGE TO THE FLAP ALTERNATE DRIVE UNIT.

1) Put the ALTERNATE FLAP arm switch in the ARM position.

NOTE: The standby hydraulic pump motor will operate when the ALTERNATE FLAP arm switch is in the ARM position.

2) Move the alternate flap drive control switch to extend the flaps to the 5-unit position.

(b) If you use the system B hydraulic power to move the flap, then do these steps:

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACE BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Pressurize hydraulic system B. To pressurize it, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE AND TRAILING EDGE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAPS. THE FLAPS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

2) Move the flap control lever to extend the flaps to the 5-unit position.

(c) Set the main cutout switch, S272, in the CUTOUT position.

(d) Use the stabilizer trim wheel to move the stabilizer to the maximum leading edge up (APL NOSE DOWN) position.

(e) Set the main cutout switch, S272, in the NORMAL position.

(f) Turn the captain's stabilizer trim wheel clockwise approximately 2 +/- 0.25 turns.

(g) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

1) Make sure that the stabilizer leading edge does not move.

2) Release the STAB TRIM switches.

(h) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

1) Make sure that stabilizer leading edge moves down (APL NOSE UP).

2) Release the STAB TRIM switches.

(i) Move the stabilizer to approximately 1 units of trim.

(j) Move the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position until the stabilizer stops automatically.

1) Use the bar, SPL-1677 to measure the "B" dimension.

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2) Make sure the "B" dimension is 45.48 ±0.10 in. (1155.2 ±2.5 mm).

(k) Move the flap control lever or the alternate flap drive control switch to retract the flaps.

(l) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-41-94-710-007

(3) Do the test of the limit switch S144:

(a) Move the stabilizer to the maximum leading edge down (APL NOSE UP) position.

(b) Turn the captain's stabilizer trim wheel counterclockwise approximately 3 turns.

(c) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE UP position.

1) Make sure that the stabilizer leading edge does not move.

2) Release the STAB TRIM switches.

(d) Move and hold the STAB TRIM switches on the captain's control wheel to the NOSE DOWN position.

1) Make sure that stabilizer leading edge moves up (APL NOSE DOWN).

2) Release the STAB TRIM switches.

(e) Move the stabilizer to approximately 12 units of trim.

(f) Move the STAB TRIM switches on the captain's control wheel to the NOSE UP position until the stabilizer stops automatically.

1) Use the bar, SPL-1677 to measure the "B" dimension.

2) Make sure the "B" dimension is 24.80 ±0.10 in. (629.9 ±2.6 mm).

SUBTASK 27-41-94-410-003

(4) Close this access panel:

Number	Name/Location
311BL	Stabilizer Trim Access Door

END OF TASK

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STABILIZER TRIM CONTROL SWITCH - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of a stabilizer trim control switch

(2) An installation of the stabilizer trim control switch.

B. The stabilizer trim control switch is referred to as the "switch assembly" in this procedure.

C. The switch assembly has an electrical cable which connects to the terminal block in the control wheel. If a switch becomes defective, the switch and electrical cable are replaced as an assembly.

D. This procedure is applicable for the captain's and first officer's switch assembly.

TASK 27-41-97-000-801

2. Stabilizer Trim Control Switch Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Prepare for the Removal

SUBTASK 27-41-97-860-005

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

C. Switch Assembly Removal

SUBTASK 27-41-97-020-001

(1) Remove the medallion [2] from the control wheel.

SUBTASK 27-41-97-020-002

(2) Remove the screws [4] from the terminal block cover [3].

(a) Remove the terminal block cover [3].

SUBTASK 27-41-97-020-003

(3) Remove the switch assembly [1]:

(a) Remove the screws [9], washers [8], and washers [10] to disconnect the switch wires from the terminal block [7].

(b) Remove the terminals from the switch wires to help the removal.

(c) Attach a threading wire to the switch electrical cable.

NOTE: This threading wire that is attached to the electrical cable is to help with the installation of the switch assembly.

(d) Remove the screws [5] which attach the switch assembly [1] to the control wheel handle.

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(e) Slowly pull the switch assembly [1] from the horn of the control wheel until the switch wires show.

NOTE: Pull until approximately 3 in. (76 mm) of the threaded wire comes out of the control wheel handle. Do not remove the threaded wire from the control wheel. It is necessary to use this threaded wire for installation.

—————— END OF TASK ——————

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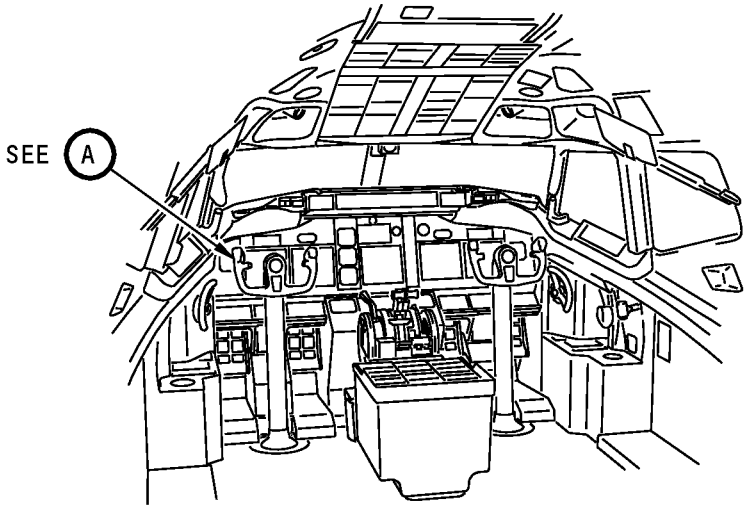
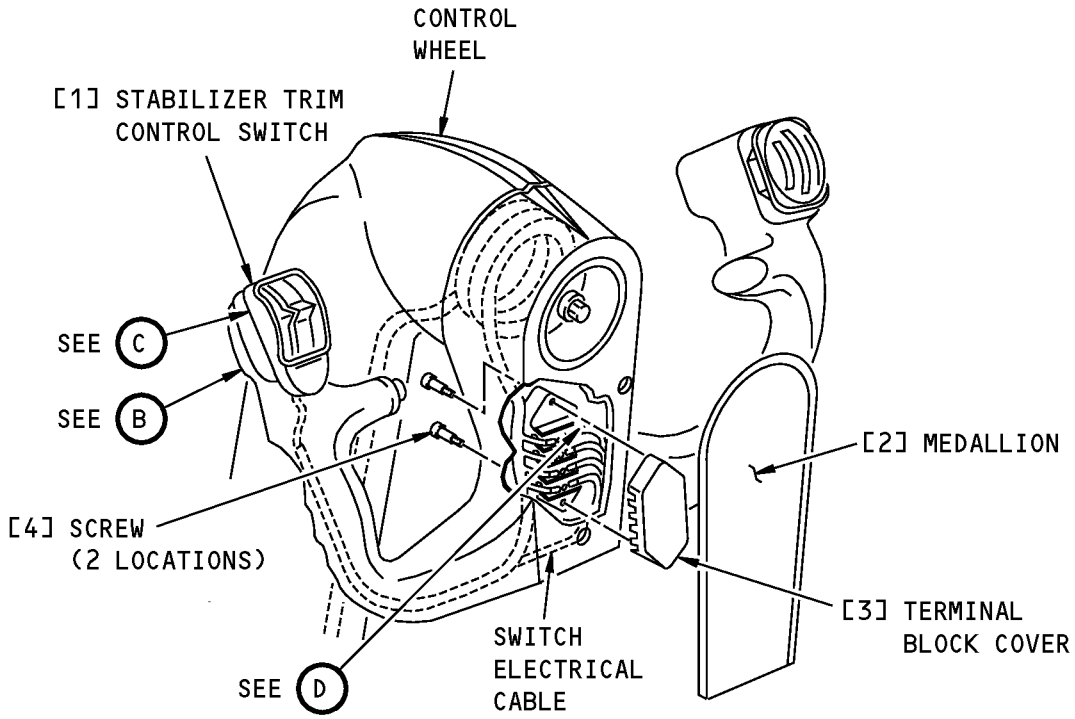


FLIGHT COMPARTMENT



A

Stabilizer Trim Control Switch Installation
Figure 401 (Sheet 1 of 2)/27-41-97-990-801

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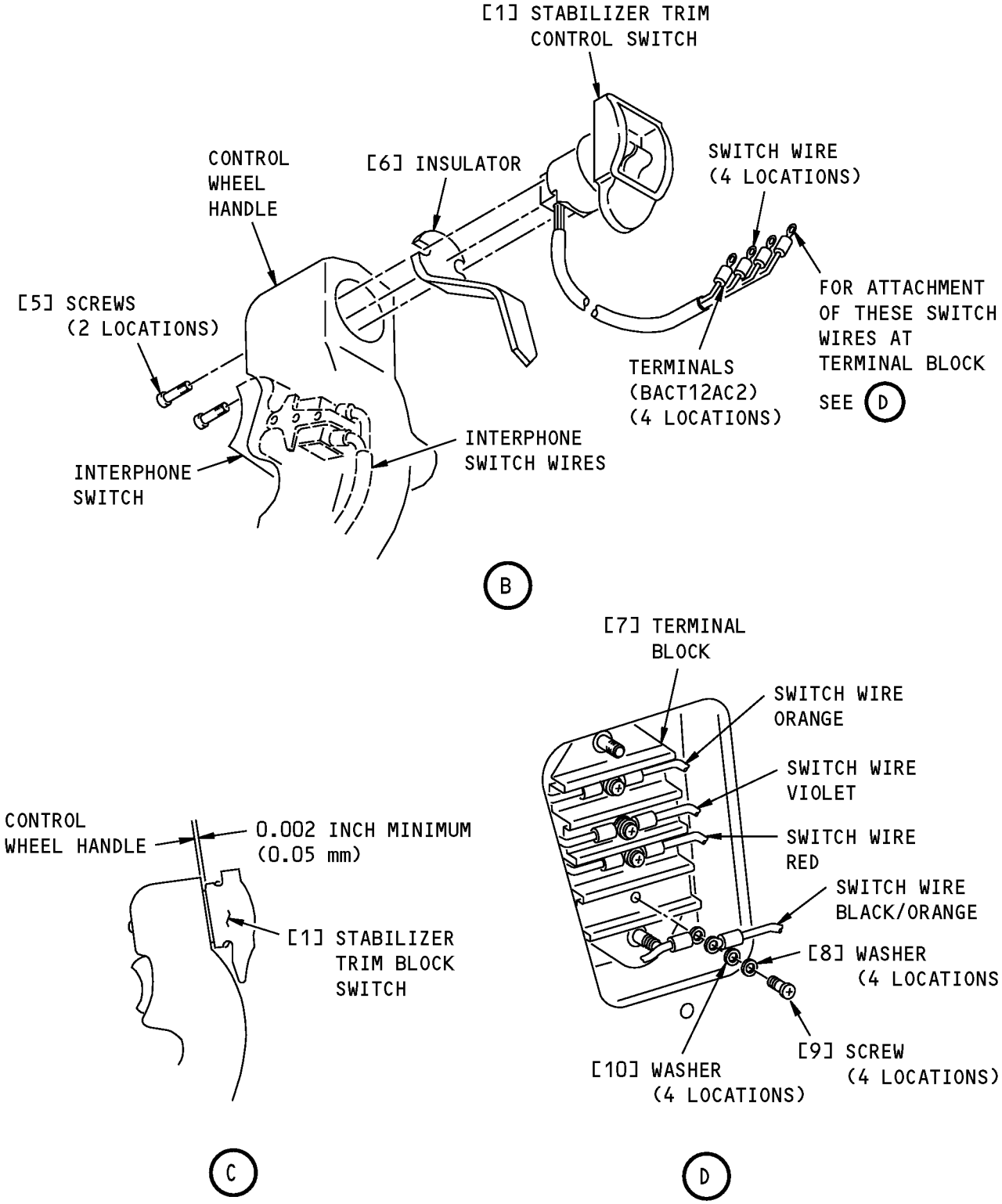

Stabilizer Trim Control Switch Installation
Figure 401 (Sheet 2 of 2)/27-41-97-990-801

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TASK 27-41-97-400-801

3. Stabilizer Trim Control Switch Installation

(Figure 401)

A. References

Reference	Title
27-41-97-700-801	Stabilizer Trim Control Switch Test (P/B 501)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Switch Assembly Installation

SUBTASK 27-41-97-420-001

(1) Install the switch assembly [1]:

NOTE: A threaded wire is attached to the switch electrical cable.

(a) Slowly pull the switch electrical cable through the control wheel handle with the other end of the threaded wire.

(b) Install the insulator [6] between the switch assembly [1] and the interphone switch wires.

(c) Put the switch assembly [1] in its position.

(d) Install the screws [5] to hold the switch assembly [1] to the control wheel.

1) Tighten the screws [5] to 4.0 ±0.5 in-lb (0.45 ±0.06 N·m).

2) Make sure there is 0.002 in. (0.05 mm) clearance between the control wheel handle and switch assembly [1].

(e) Remove the threaded wire from the switch electrical cable.

(f) Install the terminals on the switch wires.

(g) Install the screws [9], washers [8], and washers [10] to connect the terminals of the switch wire to the terminal block [7].

1) Make sure that the terminals are installed correctly according to the color code identification (Figure 401).

SUBTASK 27-41-97-420-002

(2) Install the screws [4] to attach the terminal block cover [3] to the control wheel.

SUBTASK 27-41-97-420-003

(3) Install the medallion [2] on the control wheel.

SUBTASK 27-41-97-860-006

(4) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

SUBTASK 27-41-97-710-003

(5) Do this task: Stabilizer Trim Control Switch Test, TASK 27-41-97-700-801.

——————— END OF TASK ———————

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STABILIZER TRIM CONTROL SWITCH - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has this task:

(1) Stabilizer Trim Control Switch Test - Use this test to make sure that the stabilizer trim control switches operate correctly.

C. The stabilizer trim control switches are installed on the control wheels. Each control wheel has two stabilizer trim control switches.

D. This procedure is applicable for the stabilizer trim control switches on the captain's and first officer's control wheels.

TASK 27-41-97-700-801

2. Stabilizer Trim Control Switch Test

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 27-41-97-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-97-860-002

(2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-97-860-003

(3) Make sure that the main cutout switch (S272) on the control stand is in the NORMAL position.

SUBTASK 27-41-97-860-004

(4) Make sure that the column actuated stabilizer trim (override) switch on P8-47 module is in the NORM position.

E. Stabilizer Trim Control Switch Test

SUBTASK 27-41-97-710-001

(1) Do a test of the stabilizer trim control switches on the applicable control wheel:

(a) Push and hold the two stabilizer trim control switches on the applicable control wheel to the NOSE DOWN position.

1) Make sure the stabilizer leading edge moves up.

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2) Make sure the trim wheels turn in the nose down position.

3) Make sure that the STAB TRIM indicator for the applicable control wheel moves in the NOSE DOWN position.

4) Release the two stabilizer trim control switches.

(b) Push and hold the two stabilizer trim control switches on the applicable control wheel to the NOSE UP position.

1) Make sure the stabilizer leading edge moves down.

2) Make sure the trim wheels turn in the nose up position.

3) Make sure that the STAB TRIM indicator for the applicable control wheel moves in the NOSE UP position.

4) Release the two stabilizer trim control switches.

5) Move the horizontal stabilizer to the neutral position.

(c) Push and hold the left stabilizer trim control switch on the applicable control wheel to the NOSE UP position.

1) Make sure the stabilizer leading edge does not move.

2) Release the left stabilizer trim control switch.

(d) Push and hold the left stabilizer trim control switch on the applicable control wheel to the NOSE DOWN position.

1) Make sure the stabilizer leading edge does not move.

2) Release the left stabilizer trim control switch.

(e) Push and hold the right stabilizer trim control switch on the applicable control wheel to the NOSE UP position.

1) Make sure the stabilizer leading edge does not move.

2) Release the right stabilizer trim control switch.

(f) Push and hold the right stabilizer trim control switch on the applicable control wheel to the NOSE DOWN position.

1) Make sure the stabilizer leading edge does not move.

2) Release the right stabilizer trim control switch.

——————— END OF TASK ———————

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HORIZONTAL STABILIZER INTERLOCK RELAY - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the horizontal stabilizer interlock relay.

(2) An installation of the horizontal stabilizer interlock relay.

B. The horizontal stabilizer interlock relay is referred to as the R850 relay or relay in this procedure.

TASK 27-41-98-000-801

2. Horizontal Stabilizer Interlock Relay Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Access

SUBTASK 27-41-98-800-001

(1) Location Zones

HAP 001-011

(a) Body Station 787 to Body Station 807.

HAP 012, 013, 015-026, 028-054, 101-999

(b) Body Station 887 to Body Station 907.

HAP ALL

C. Prepare for the Removal

SUBTASK 27-41-98-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

SUBTASK 27-41-98-010-001

(2) Remove the overhead sculpted panels from the following locations:

HAP 001-011

(a) In the main cabin between STA 787 and STA 807.

HAP 012, 013, 015-026, 028-054, 101-999

(b) In the main cabin between STA 887 and STA 907.

HAP ALL

D. R850 Relay Assembly Removal

HAP 001-011

SUBTASK 27-41-98-020-001

(1) Remove the relay by doing the following:

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HAP 001-011 (Continued)

(a) Remove the two screws and washers that attach the relay to the relay bracket.

(b) Remove the relay from the bracket and disconnect the electrical connector from the relay.

HAP 012, 013, 015-026, 028-054, 101-999

SUBTASK 27-41-98-020-002

(2) Remove the relay by doing the following:

(a) Remove the screws and washers that attach the relay assembly to the J11 panel.

(b) Remove the electrical connector from the relay assembly.

1) Remove the R850 relay from the airplane.

HAP ALL

——————— END OF TASK ———————

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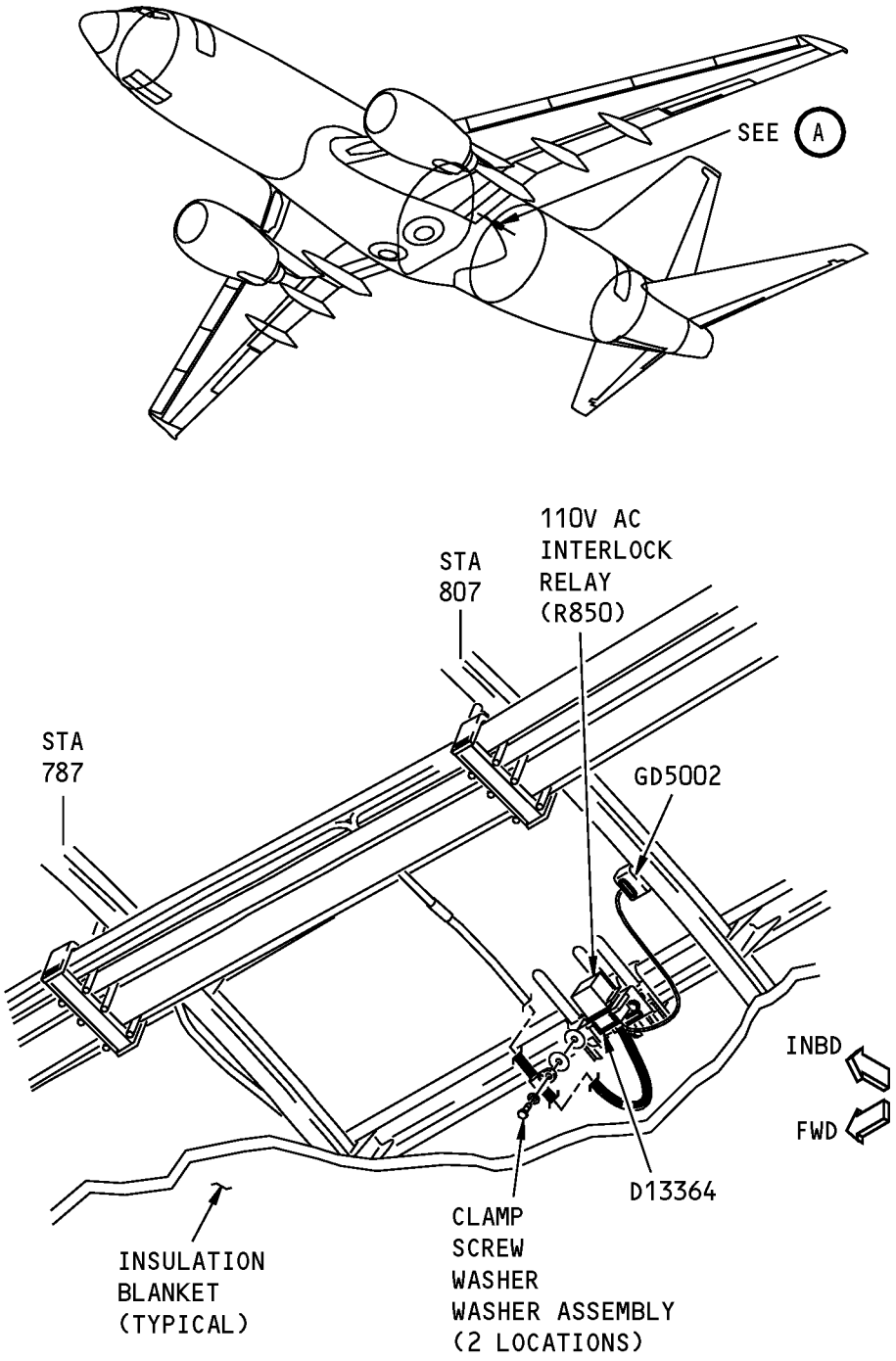

R850 Relay Removal
Figure 401 (Sheet 1 of 2)/27-41-98-990-801

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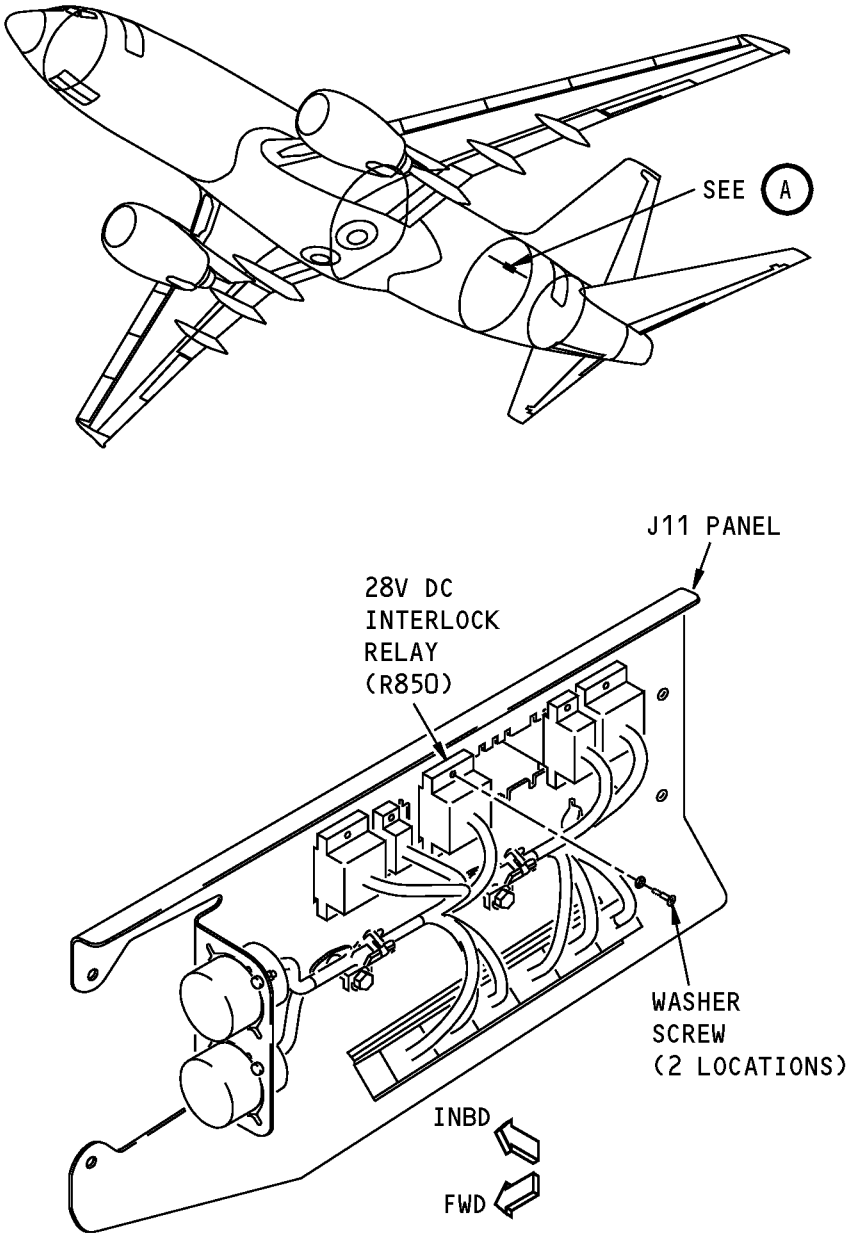

R850 Relay Removal
Figure 401 (Sheet 2 of 2)/27-41-98-990-801

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TASK 27-41-98-400-801

3. R850 Horizontal Stabilizer Interlock Relay Installation

(Figure 401)

A. References

Reference	Title
27-41-98-820-801	R850 Horizontal Stabilizer Interlock Relay Test (P/B 501)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access

SUBTASK 27-41-98-800-002

(1) Location Zones

HAP 001-011

(a) Body Station 787 to Body Station 807.

HAP 012, 013, 015-026, 028-054, 101-999

(b) Body Station 887 to Body Station 907.

HAP ALL

D. R850 Interlock Relay Installation

HAP 001-011

SUBTASK 27-41-98-020-004

(1) Install the R850 relay by doing the following:

(a) Install the two screws and washers that attach the relay to the relay bracket.

(b) Connect the electrical connector to the R850 relay assembly.

HAP 012, 013, 015-026, 028-054, 101-999

SUBTASK 27-41-98-020-005

(2) Install the R850 relay by doing the following:

(a) Install the screws and washers that attach the R850 relay assembly to the J11 panel.

(b) Install the electrical connector to the relay assembly.

HAP ALL

E. Restore the Airplane to its Usual Condition

SUBTASK 27-41-98-860-002

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

SUBTASK 27-41-98-710-001

(2) Do this task: R850 Horizontal Stabilizer Interlock Relay Test, TASK 27-41-98-820-801.

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SUBTASK 27-41-98-410-001

(3) Install the overhead panels in the following locations:

HAP 001-011

(a) In the main cabin between STA 787 and STA 807.

HAP 012, 013, 015-026, 028-054, 101-999

(b) In the main cabin between STA 887 and STA 907.

END OF TASK

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R850 HORIZONTAL STABILIZER INTERLOCK RELAY - ADJUSTMENT/TEST

1. General

A. This procedure has this task:

(1) A test of the R850 Horizontal Stabilizer Interlock Relay.

B. The R850 Horizontal Stabilizer Interlock Relay is referred to as the interlock relay or relay in this procedure.

TASK 27-41-98-820-801

2. R850 Horizontal Stabilizer Interlock Relay Test

(Figure 501)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
25-21-45-000-801	Sculptured Ceiling Panel Removal (P/B 401)
25-21-45-400-801	Sculptured Ceiling Panel Installation (P/B 401)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1231	Multimeter - Standard

C. Location Zones

Zone	Area
311	Area Aft of Pressure Bulkhead - Left
312	Area Aft of Pressure Bulkhead - Right

D. Access Panels

Number	Name/Location
114AW	Forward Nose Wheel Well Panel
311BL	Stabilizer Trim Access Door

E. Prepare for the Test

HAP 001-011

SUBTASK 27-41-98-010-002

(1) Remove the sculpted ceiling panels at STA 787 and STA 807 on the right-hand side of the passenger cabin.

NOTE: Do this task: Sculptured Ceiling Panel Removal, TASK 25-21-45-000-801.

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HAP 012, 013, 015-026, 028-054, 101-999

SUBTASK 27-41-98-010-003

(2) Remove the sculpted ceiling panels at STA 887 and STA 907 on the right-hand side of the passenger cabin

NOTE: Do this task: Sculptured Ceiling Panel Removal, TASK 25-21-45-000-801.

HAP ALL

SUBTASK 27-41-98-760-001

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-41-98-840-001

(4) Make sure that the following switches are set to the NORM (or guarded) position:

(a) The STAB TRIM MAIN ELEC (S272) cutout switch.

(b) The Column Actuated Stabilizer Trim Override (S847) switch.

SUBTASK 27-41-98-020-009

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

SUBTASK 27-41-98-020-010

(6) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-98-010-004

(7) Open these access panels:

Number	Name/Location
114AW	Forward Nose Wheel Well Panel
311BL	Stabilizer Trim Access Door

SUBTASK 27-41-98-020-011

(8) Disconnect the D700 connector from the stabilizer trim motor M1659, (Figure 501).

SUBTASK 27-41-98-860-004

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE AWAY FROM THE TRAILING EDGE FLAPS AND THE LEADING EDGE FLAPS AND SLATS. THE FLAPS AND SLATS CAN MOVE SUDDENLY. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(9) Extend the flaps to the FLAPS 1 position, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803

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F. R850 Horizontal Stabilizer Interlock Relay Test

SUBTASK 27-41-98-860-005

(1) Move the stab trim switches on the control wheel to the NOSE UP position and hold.

NOTE: The same stab trim switches (captain's or first officer's) should be used during this procedure.

SUBTASK 27-41-98-820-001

WARNING: BE SURE NOT TO TOUCH ADJACENT PINS IN CONNECTOR D700 DURING VOLTAGE CHECKS. THE 115 VAC IN THE CONNECTOR CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Use a multimeter, STD-1231 to measure the voltage on connector D700 between pin 8 and the surrounding structure.

(a) Make sure that the voltage on pin 8 is more than 2 VAC.

SUBTASK 27-41-98-820-002

WARNING: BE SURE NOT TO TOUCH ADJACENT PINS IN CONNECTOR D700 DURING VOLTAGE CHECKS. THE 115 VAC IN THE CONNECTOR CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Use a multimeter, STD-1231 to measure the voltage on connector D700 between pin 7 and the surrounding structure.

(a) Make sure that the voltage on pin 7 is more than 2 VAC.

SUBTASK 27-41-98-860-006

(4) Release the stab trim switches.

SUBTASK 27-41-98-860-007

(5) Move the stab trim switches on the control wheel to the NOSE DN position and hold.

SUBTASK 27-41-98-820-003

WARNING: BE SURE NOT TO TOUCH ADJACENT PINS IN CONNECTOR D700 DURING VOLTAGE CHECKS. THE 115 VAC IN THE CONNECTOR CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Use a multimeter, STD-1231 to measure the voltage on connector D700 between pin 6 and the surrounding structure.

(a) Make sure that the voltage on pin 6 is more than 2 VAC.

SUBTASK 27-41-98-860-008

(7) Release the stab trim switches.

SUBTASK 27-41-98-010-006

(8) Disconnect the D40616 connector on the Forward Nose Wheel Well Panel (114AW), from the J4 junction box.

SUBTASK 27-41-98-820-004

WARNING: BE SURE NOT TO TOUCH ADJACENT PINS IN CONNECTOR D700 DURING VOLTAGE CHECKS. THE 115 VAC IN THE CONNECTOR CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(9) Use a multimeter, STD-1231 to measure the voltage on connector D700 between pin 8 and the surrounding structure.

(a) Make sure that the voltage on pin 8 is less than 2 VAC.

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SUBTASK 27-41-98-860-009

(10) Move the stab trim switches on the control wheel to the NOSE UP position and hold.

NOTE: The same stab trim switches (captain's or first officer's) should be used during this procedure.

SUBTASK 27-41-98-820-005

WARNING: BE SURE NOT TO TOUCH ADJACENT PINS IN CONNECTOR D700 DURING VOLTAGE CHECKS. THE 115 VAC IN THE CONNECTOR CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(11) Use a multimeter, STD-1231 to measure the voltage on connector D700 between pin 7 and the surrounding structure.

(a) Make sure that the voltage on pin 7 is less than 2 VAC.

SUBTASK 27-41-98-860-010

(12) Release the stab trim switches.

SUBTASK 27-41-98-860-011

(13) Move the stab trim switches on the control wheel to the NOSE DN position and hold.

SUBTASK 27-41-98-820-006

WARNING: BE SURE NOT TO TOUCH ADJACENT PINS IN CONNECTOR D700 DURING VOLTAGE CHECKS. THE 115 VAC IN THE CONNECTOR CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(14) Use a multimeter, STD-1231 to measure the voltage on connector D700 between pin 6 and the surrounding structure.

(a) Make sure that the voltage on pin 6 is less than 2 VAC.

SUBTASK 27-41-98-860-012

(15) Release the stab trim switches.

SUBTASK 27-41-98-020-012

(16) Connect the D700 connector to the stabilizer trim motor M1659, (Figure 501).

SUBTASK 27-41-98-010-007

(17) Connect the D40616 connector on the Forward Nose Wheel Well Panel (114AW), to the J4 junction box.

SUBTASK 27-41-98-700-001

(18) Clear the internal monitoring faults of the stabilizer trim motor, if any, by doing the following steps:

(a) Open this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

(b) Wait a minimum of 5 seconds.

(c) Close this circuit breaker:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	2	C00849	AFCS STABILIZER TRIM

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SUBTASK 27-41-98-020-013

(19) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT
D	10	C00840	FLIGHT CONTROL STAB TRIM ACTUATOR

SUBTASK 27-41-98-700-002

(20) Do a test of the high (flaps down) stabilizer trim rate:

(a) Move the stab trim switches on the control wheel to the NOSE UP (stabilizer leading edge down) position and hold until the stabilizer stops.

(b) Do the following to measure the time it takes for the stabilizer to move from the leading edge down position to the leading edge up position:

1) Move the stab trim switches on the control wheel to the NOSE DOWN position and hold until the stabilizer stops.

2) Make sure that the time from the start to stop of stabilizer movement is between 31 and 39 seconds.

SUBTASK 27-41-98-020-014

(21) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-41-98-020-015

(22) Move the stabilizer to 4 units of trim, or more.

SUBTASK 27-41-98-700-003

(23) Do a test of the low (flaps up) stabilizer trim rate:

(a) Move the stab trim switches on the control wheel to the NOSE DOWN (stabilizer leading edge up) position and hold until the stabilizer stops.

(b) Do the following to measure the time it takes for the stabilizer to move from the leading edge up position to the leading edge down position:

1) Move the stab trim switches on the control wheel to the NOSE UP position and hold until the stabilizer stops.

2) Make sure that the time from the start to stop of stabilizer movement is between 46 and 56 seconds.

G. Restore the Airplane to Normal

SUBTASK 27-41-98-010-008

(1) Close these access panels:

Number	Name/Location
114AW	Forward Nose Wheel Well Panel
311BL	Stabilizer Trim Access Door

HAP 001-011

SUBTASK 27-41-98-010-010

(2) Install the sculpted ceiling panels at STA 787 and STA 807.

NOTE: Do this task: Sculptured Ceiling Panel Installation, TASK 25-21-45-400-801.

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HAP 001-011 (Continued)

HAP 012, 013, 015-026, 028-054, 101-999

SUBTASK 27-41-98-010-011

(3) Install the sculpted ceiling panels at STA 887 and STA 907.

NOTE: Do this task: Sculptured Ceiling Panel Installation, TASK 25-21-45-400-801.

HAP ALL

SUBTASK 27-41-98-760-002

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———————— END OF TASK ————————

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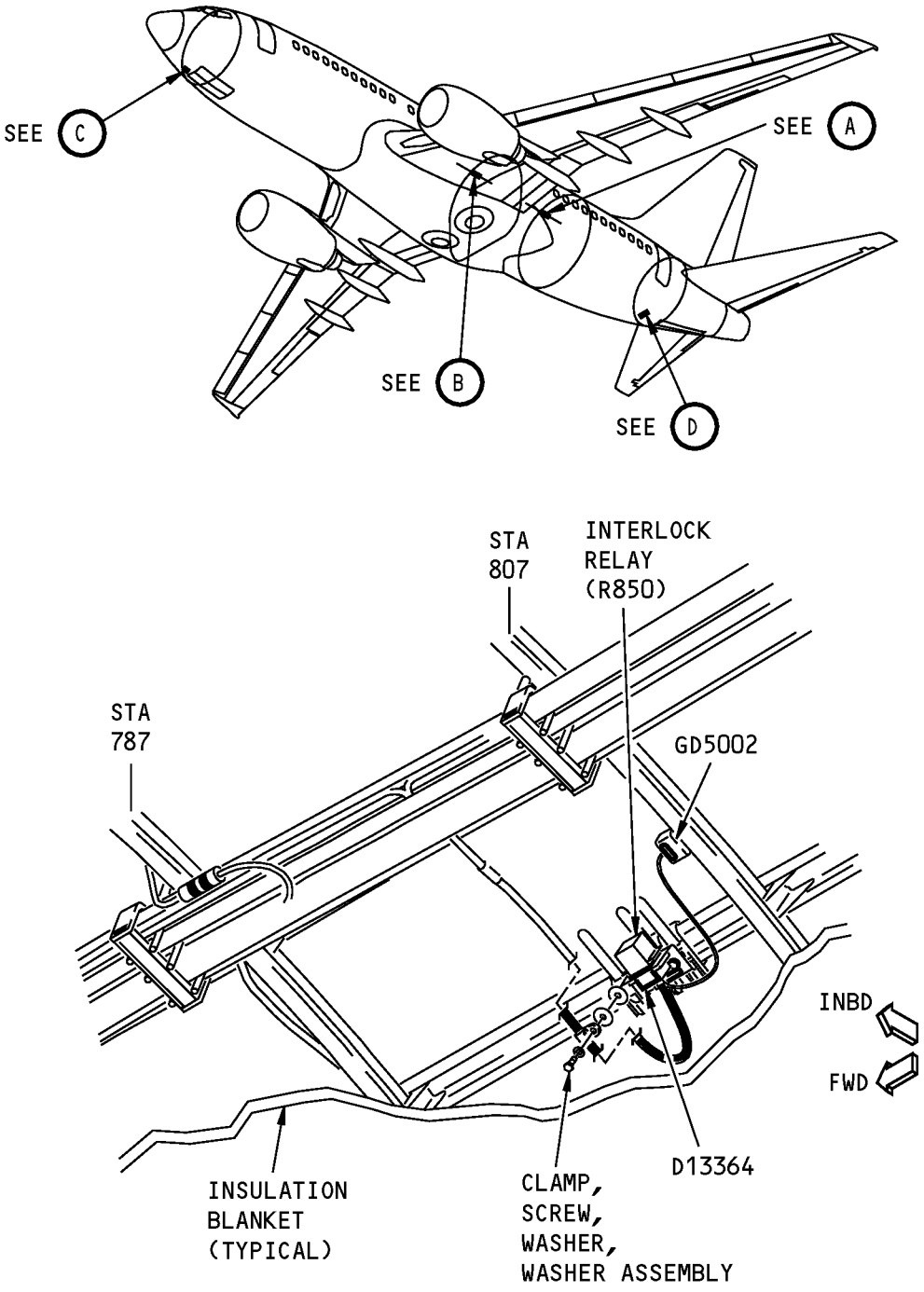

R850 Relay Test
Figure 501 (Sheet 1 of 4)/27-41-98-990-802

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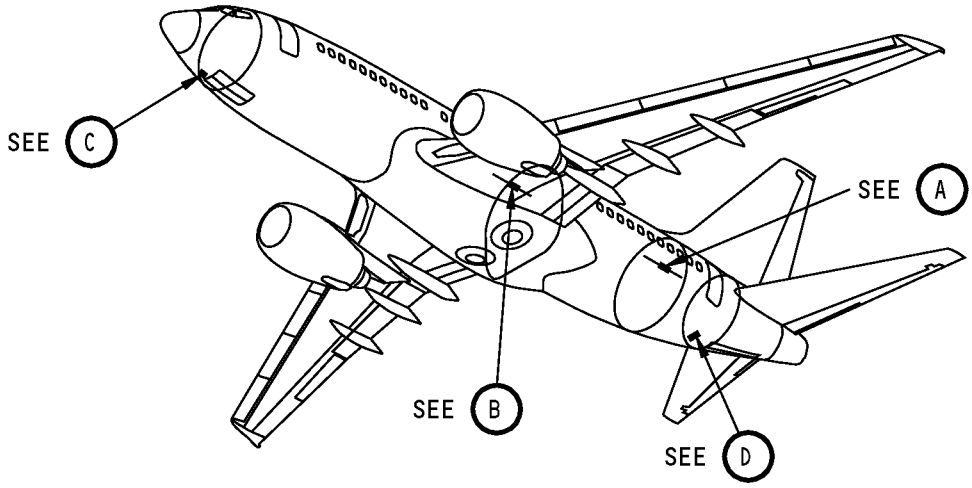

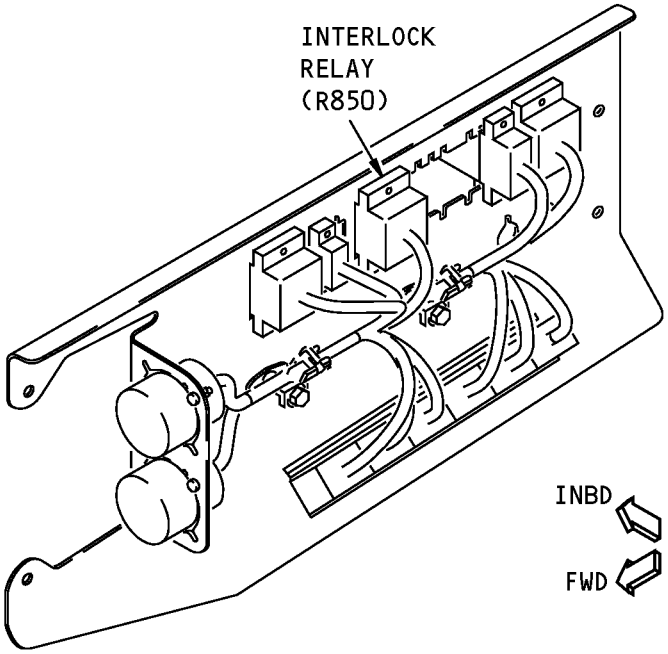

28V DC R850 RELAY LOCATION
A

R850 Relay Test
Figure 501 (Sheet 2 of 4)/27-41-98-990-802

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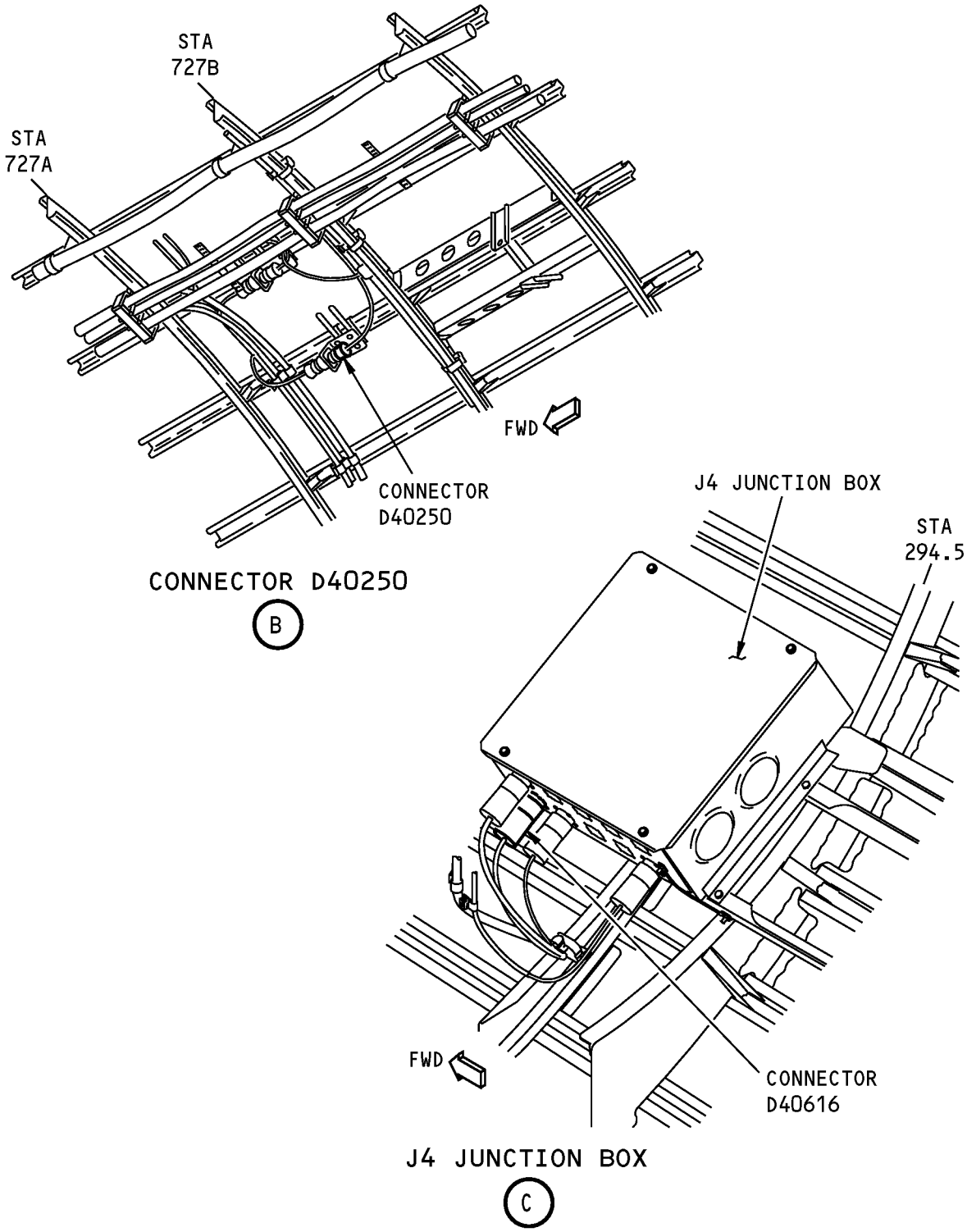

R850 Relay Test
Figure 501 (Sheet 3 of 4)/27-41-98-990-802

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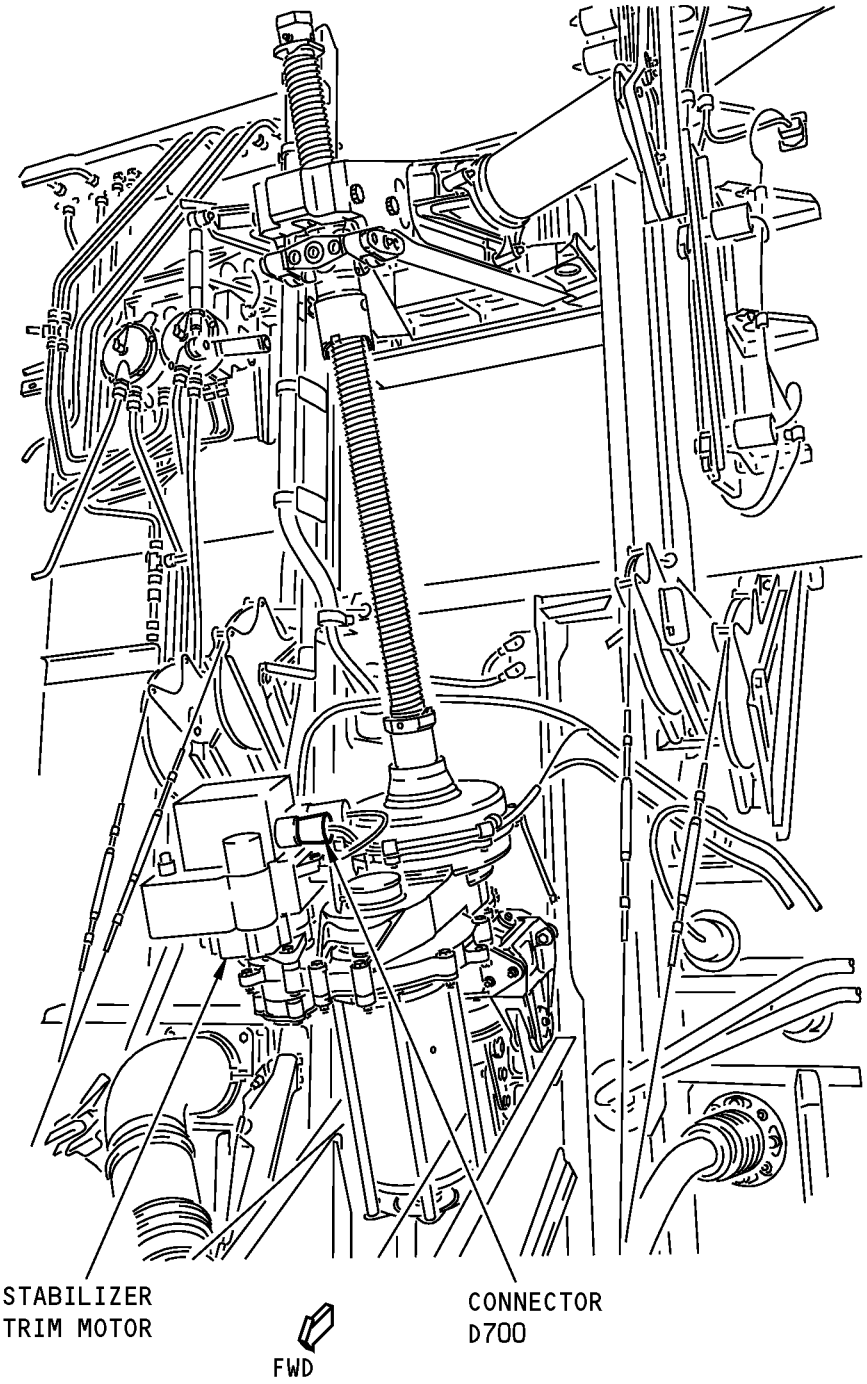

CONNECTOR D700 ELECTRICAL LOCATION

D

R850 Relay Test
Figure 501 (Sheet 4 of 4)/27-41-98-990-802

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TRAILING EDGE FLAP SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks for the trailing edge flap system:

(1) A task to deactivate the trailing edge flap system

(2) A task to reactivate the trailing edge flap system

(3) A task to operate the trailing edge flaps with primary control

(4) A task to operate the trailing edge flaps with alternate control

(5) A task to manually operate the trailing edge flaps without airplane power

(6) A task to extend the trailing edge flaps

(7) A task to retract the trailing edge flaps.

(8) A task to operate the trailing edge flaps with the leading edge flaps and slats retracted and disabled.

TASK 27-51-00-040-801

2. Trailing Edge Flap System Deactivation

A. General

(1) Use this task to deactivate the trailing edge flap system.

B. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1676	Assembly - Lock, Flight Controls (used with valve p/n 10-60710-2) (Part #: F80049-17, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Flap Deactivation

SUBTASK 27-51-00-210-001

(1) Make sure the ALTERNATE FLAPS ARM switch on the P5 overhead panel is in the OFF position (Figure 201).

SUBTASK 27-51-00-480-001

(2) Put DO-NOT-OPERATE tags on the flap control lever and the ALTERNATE FLAPS switches.

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SUBTASK 27-51-00-860-001

(3) Open these circuit breakers and install safety locks:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-51-00-480-005

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-00-040-001

(5) Deactivate the trailing edge flap bypass valve (Figure 202):

(a) Disconnect the electrical connector from the bypass valve.

(b) Move the manual override lever on the bypass valve to POSITION 2.

(c) Install the lock, SPL-1676 on the bypass valve.

———————— END OF TASK ————————

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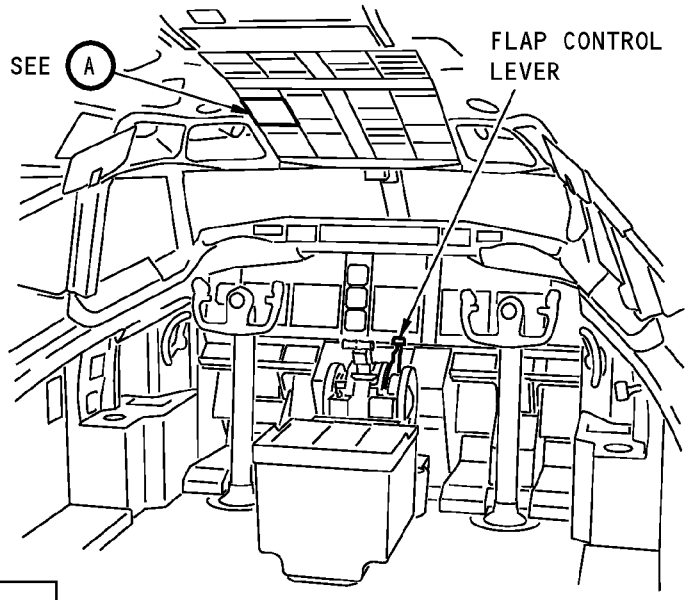
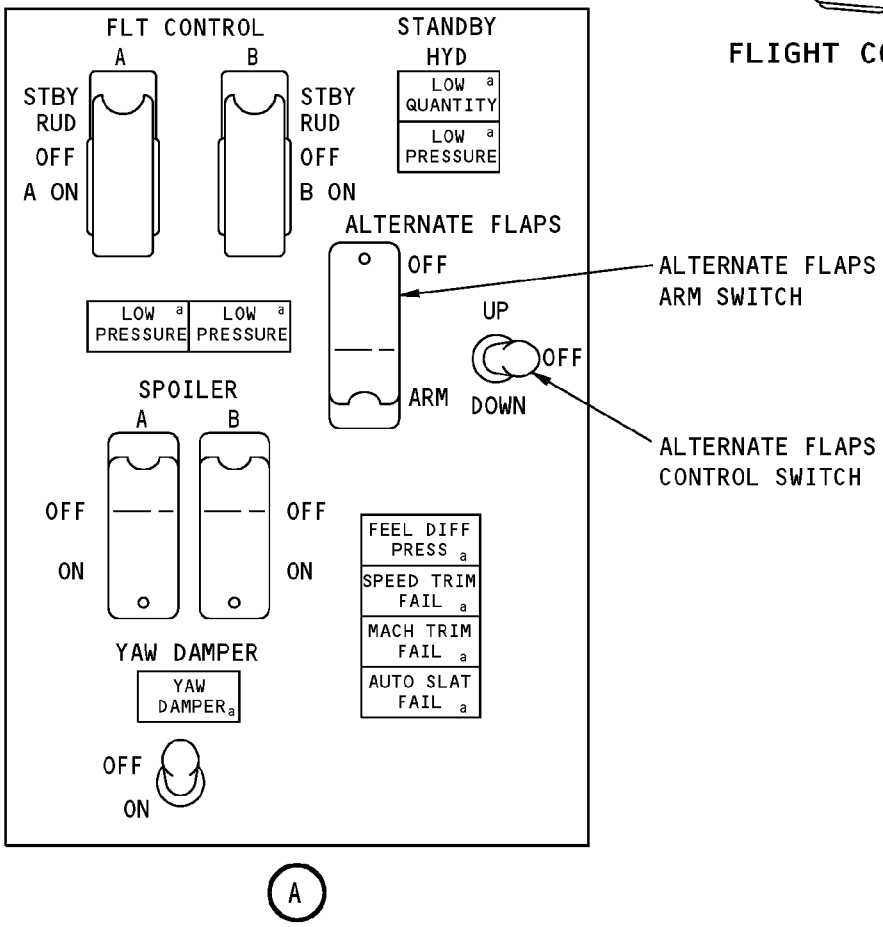


FLIGHT COMPARTMENT



Trailing Edge Flap Controls
Figure 201/27-51-00-990-801

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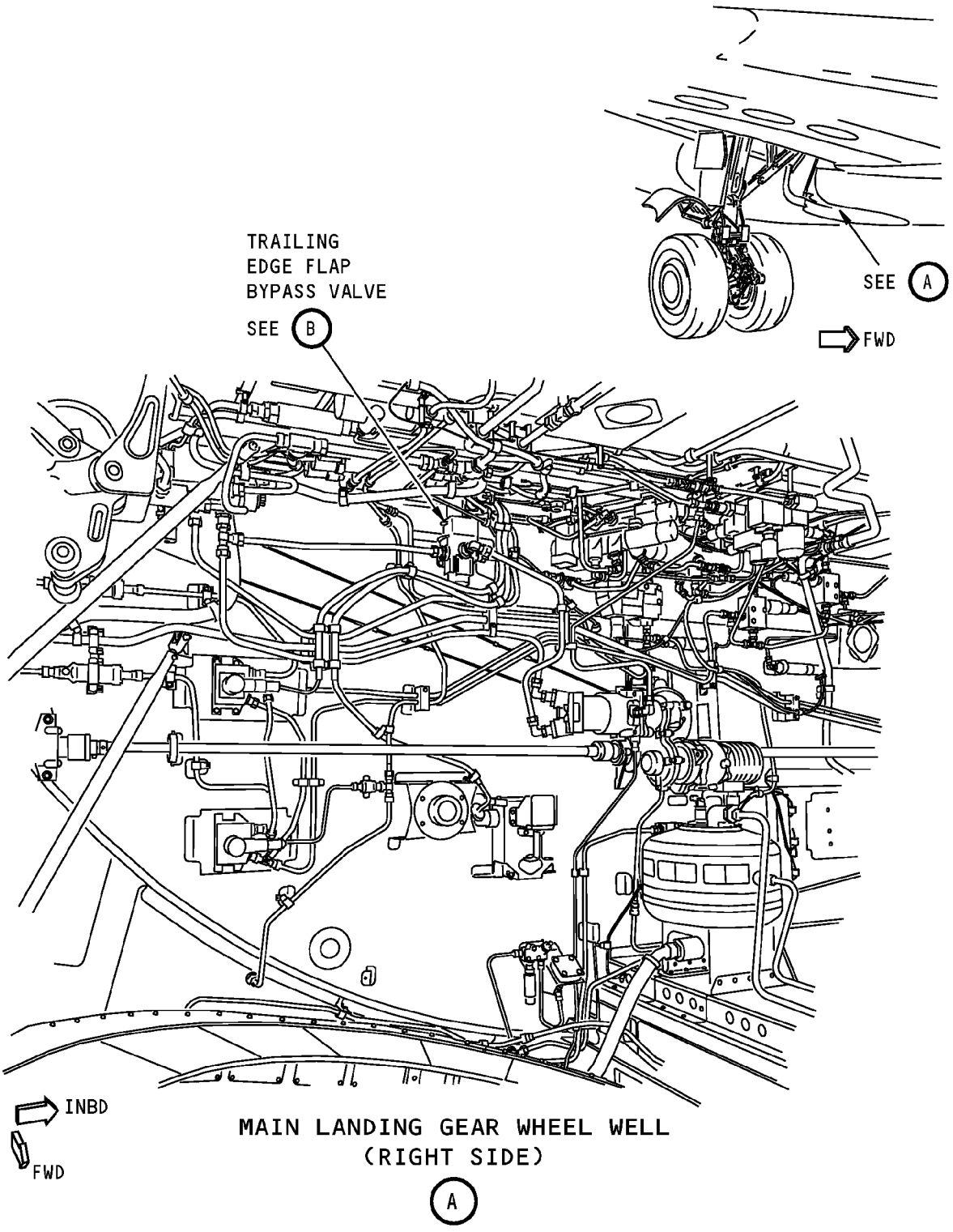

Trailing Edge Flap Bypass Valve
Figure 202 (Sheet 1 of 2)/27-51-00-990-802

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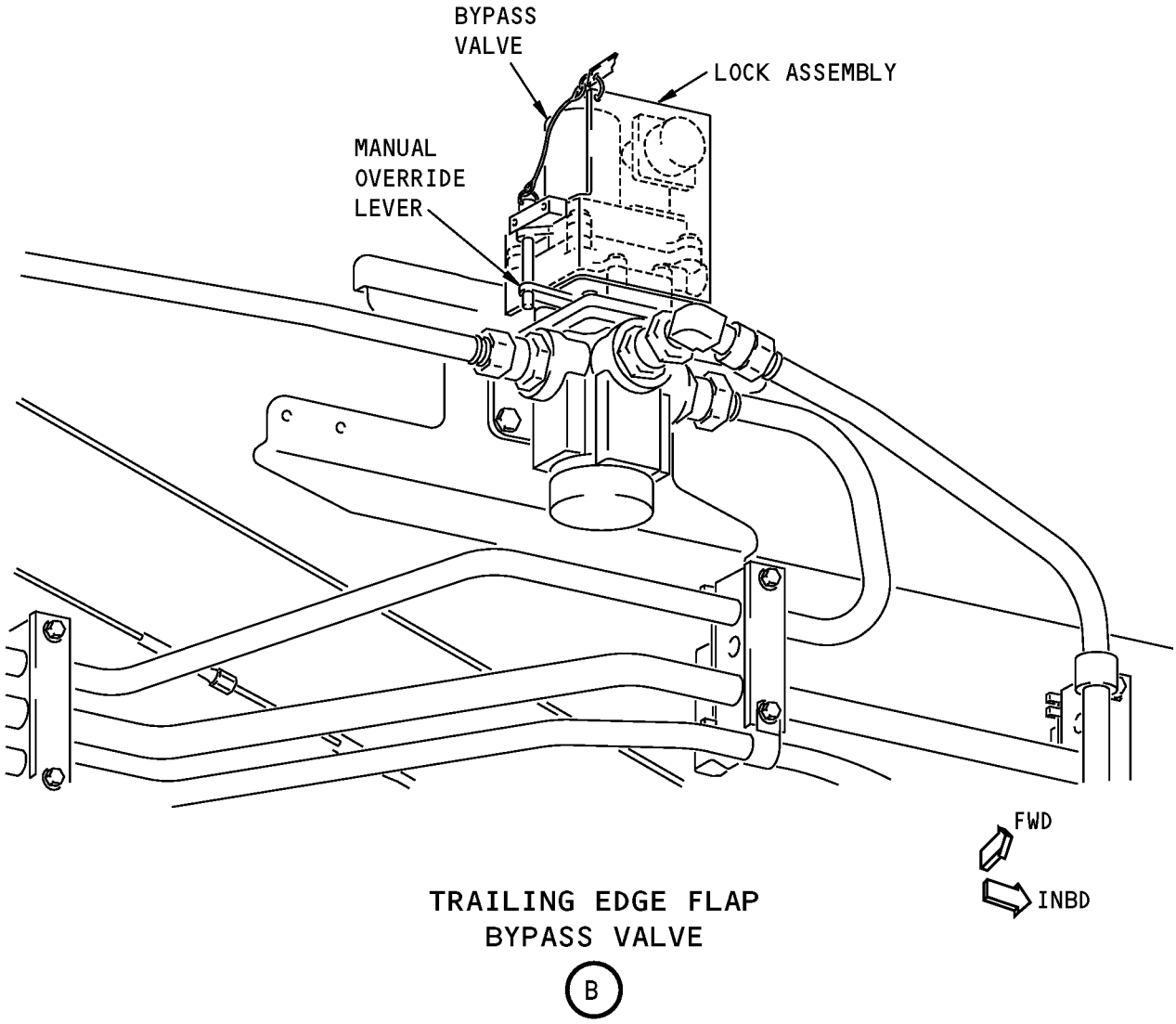

Trailing Edge Flap Bypass Valve
Figure 202 (Sheet 2 of 2)/27-51-00-990-802

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TASK 27-51-00-440-801

3. Trailing Edge Flap System Reactivation

A. General

(1) Use this procedure to reactivate the trailing edge flap system.

B. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1676	Assembly - Lock, Flight Controls (used with valve p/n 10-60710-2) (Part #: F80049-17, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

E. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Procedure

SUBTASK 27-51-00-480-006

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-00-440-001

(2) Reactivate the trailing edge flap bypass valve (Figure 202):

(a) Remove the lock, SPL-1676 from the bypass valve.

(b) Move the manual override lever on the bypass valve to POSITION 1.

(c) Before you connect the electrical connector, examine the connector for corrosion.

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WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(d) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(e) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(f) Connect the electrical connector to the bypass valve.

SUBTASK 27-51-00-860-002

(3) Remove the safety locks and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-51-00-080-001

(4) Remove the DO-NOT-OPERATE tags from the flap control lever and the ALTERNATE FLAPS switches (Figure 201).

END OF TASK

TASK 27-51-00-860-801

4. Trailing Edge Flap System Operation With Primary Control

(Figure 201)

A. General

(1) The primary control system uses the hydraulic system B to move the flaps.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-51-00-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-860-004

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

CAUTION: MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-00-860-005

WARNING: MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE TRAILING EDGE FLAPS, AND THE LEADING EDGE FLAPS AND SLATS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Move the flap control lever to the applicable detent position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-006

(1) Move the flap control lever to the UP position to retract the flaps and slats.

SUBTASK 27-51-00-860-007

(2) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

———————— END OF TASK ————————

TASK 27-51-00-860-802

5. Trailing Edge Flap System Operation With Alternate Control

(Figure 201)

A. General

(1) The alternate control system uses electrical power to move the flaps.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-51-00-860-008

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-51-00-860-009

WARNING: MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE TRAILING EDGE FLAPS, AND THE LEADING EDGE FLAPS AND SLATS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Move the ALTERNATE FLAPS ARM switch on the P5 panel to arm the alternate control system.

SUBTASK 27-51-00-860-010

(3) Move the flap control lever to the 40-unit position.

NOTE: This will decrease the load on the flap electric motor. You can move the lever past where you will move the flaps to.

SUBTASK 27-51-00-860-011

CAUTION: WAIT A MINIMUM OF 15 SECONDS AFTER THE FLAPS STOP BEFORE YOU USE THE ALTERNATE SYSTEM TO MOVE THE FLAPS AGAIN. YOU CAN CAUSE DAMAGE TO THE FLAP ALTERNATE MOTOR.

(4) Move the ALTERNATE FLAPS control switch to UP or DOWN to extend or retract the flaps as it is necessary.

NOTE: The leading edge flaps and slats will not retract with alternate control.

SUBTASK 27-51-00-860-012

(5) Move the ALTERNATE FLAPS control switch to the OFF position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-013

WARNING: MAKE SURE THE POSITION OF THE FLAPS AGREES WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Move the ALTERNATE FLAPS control switch until the flaps are in the same position as the flap control lever or move the flap control lever to the position of the flaps.

SUBTASK 27-51-00-860-014

(2) Move the ALTERNATE FLAPS control switch to the OFF position.

SUBTASK 27-51-00-860-015

(3) Move the ALTERNATE FLAPS ARM switch to the OFF position to disarm the alternate control system.

——————— END OF TASK ———————

TASK 27-51-00-980-801

6. Trailing Edge Flap System Manual Operation

(Figure 203)

A. General

(1) Use this task to manually operate the trailing edge flap system without airplane power.

B. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

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C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00467	Fluid - Landing Gear Shock Strut	BMS3-32, Type II

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Cover	27-51-55-02-110	HAP ALL
5	Packing	27-51-55-02-115	HAP ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Procedure

SUBTASK 27-51-00-480-007

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-00-040-002

WARNING: DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-00-010-001

(3) Remove the cover [4] from the flap power drive unit [1]:

(a) Remove the bolts [3] and washers [2] that attach the cover [4] to the flap power drive unit [1].

(b) Remove the cover [4] from the flap power drive unit [1]

SUBTASK 27-51-00-980-001

WARNING: MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS. THE FLAPS WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION: DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 350 POUND-INCHES (39.5 NEWTON-METERS) TORQUE OR FASTER THAN 1000 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.

(4) Use a 3/8 inch square drive to turn the manual drive on the PDU to extend or retract the trailing edge flaps to the applicable position.

NOTE: Refer to the cover [4] for the correct direction to turn the manual drive. Look at the number 4 or 5 ballscrew to find the position of the flaps.

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G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-980-002

WARNING: MAKE SURE THE POSITION OF THE FLAPS AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER THE FLAPS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Turn the manual drive until the flaps are in a position which agrees with the flap control lever.

SUBTASK 27-51-00-410-001

(2) Install the cover [4] on the flap power drive unit [1]:

(a) Apply fluid, D00467 to the packing [5] on the cover [4].

(b) Apply a thin layer of compound, C00913 to the mating surface of the cover [4] and the flap power drive unit [1].

(c) Put the cover [4] in its position on the flap power drive unit [1].

(d) Apply compound, C00913 to the shank and threads of the bolts [3].

(e) Install the bolts [3] and washers [2] to attach the cover [4].

SUBTASK 27-51-00-440-002

(3) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

END OF TASK

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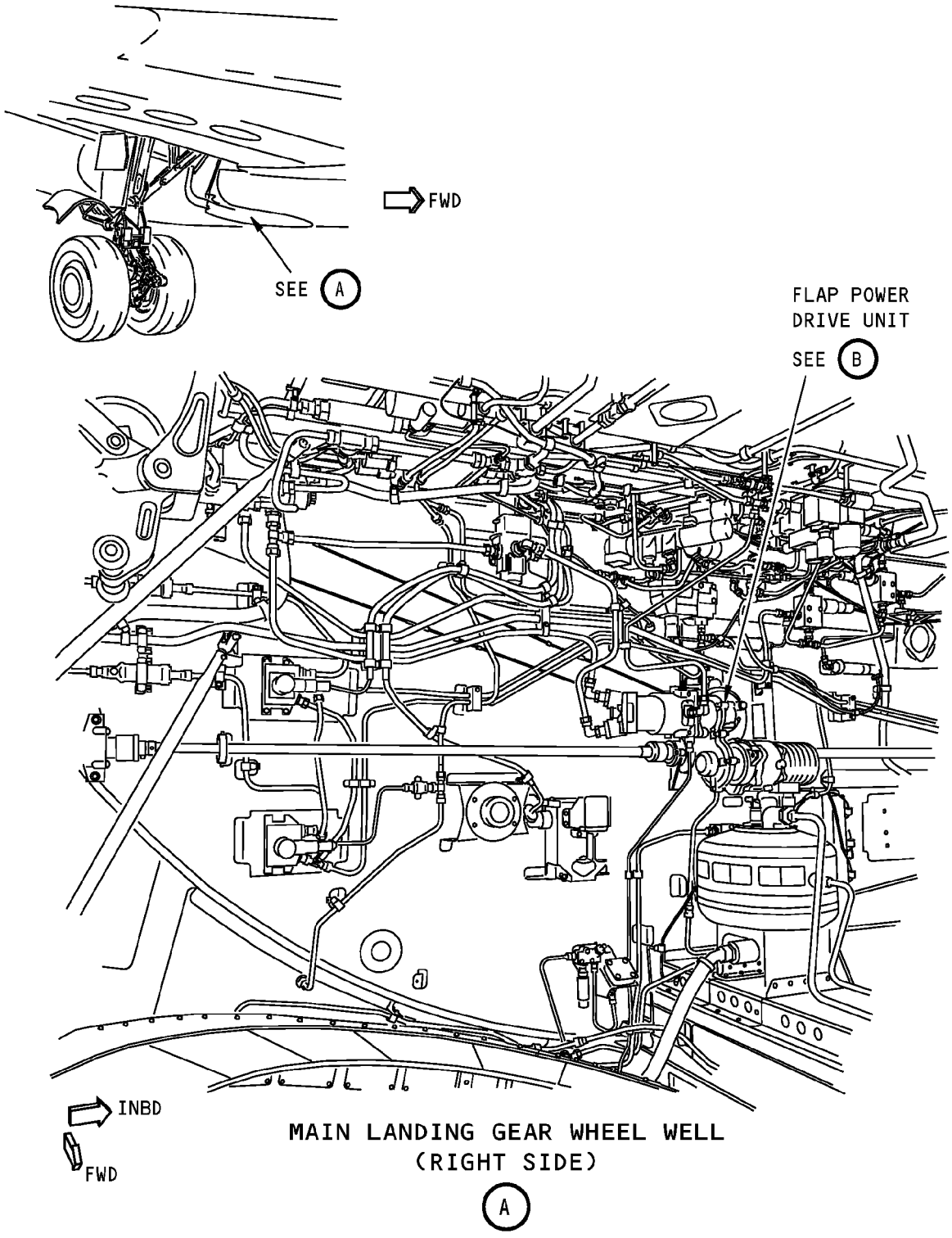

Trailing Edge Flap Manual Operation
Figure 203 (Sheet 1 of 2)/27-51-00-990-803

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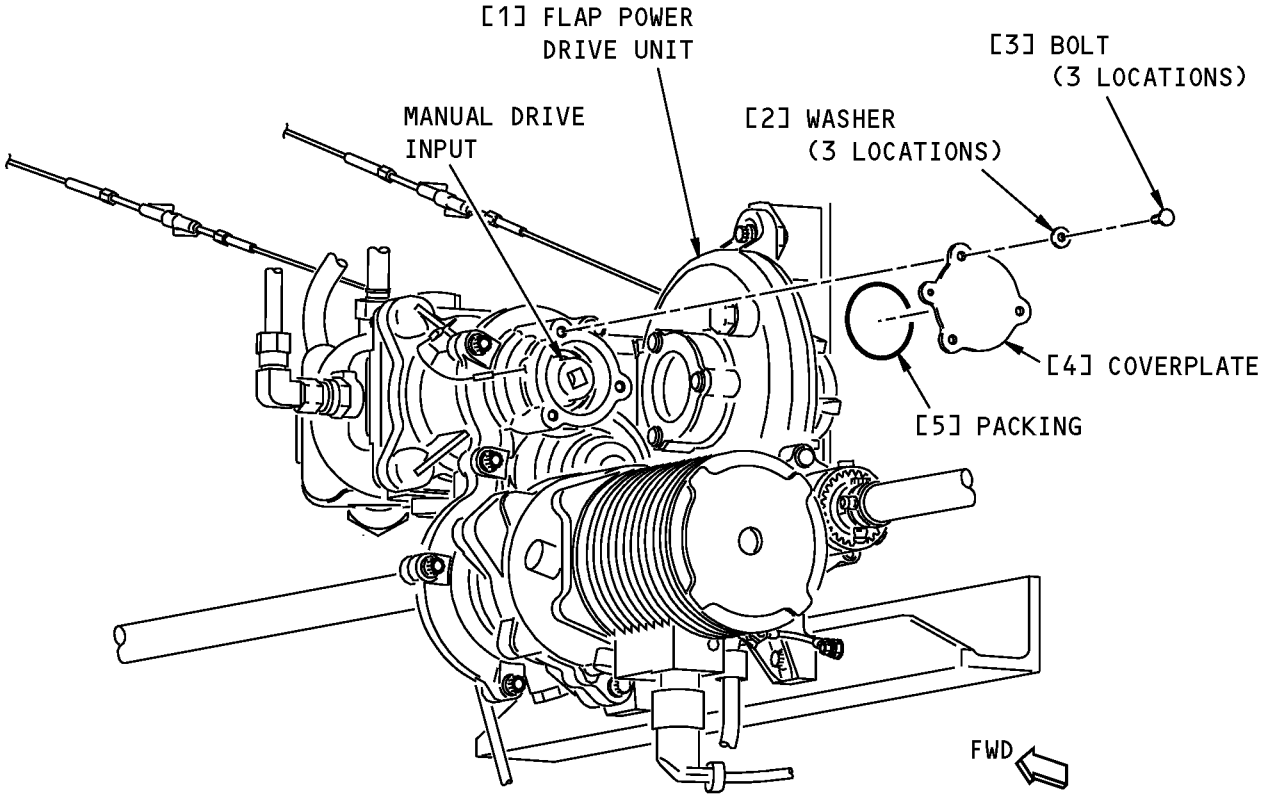

FLAP POWER DRIVE UNIT

B

Trailing Edge Flap Manual Operation
Figure 203 (Sheet 2 of 2)/27-51-00-990-803

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TASK 27-51-00-860-803

7. Extend the Trailing Edge Flaps

A. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Procedure

SUBTASK 27-51-00-860-016

(1) Do one of these tasks to extend the trailing edge flaps:

(a) To extend the flaps with hydraulic power, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(b) To extend the flaps with electrical power in alternate mode, do this task: Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802.

(c) To manually extend the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

——————— END OF TASK ———————

TASK 27-51-00-860-804

8. Retract the Trailing Edge Flaps

A. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Procedure

SUBTASK 27-51-00-860-017

(1) Do one of these tasks to retract the trailing edge flaps:

(a) To retract the flaps with hydraulic power, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(b) To retract the flaps with electrical power in alternate mode, do this task: Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802.

(c) To manually retract the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

——————— END OF TASK ———————

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TASK 27-51-00-860-805

9. Trailing Edge Flap System Operation With Leading Edge Flaps and Slats Disabled

A. General

(1) This task gives instructions to operate the trailing edge flap system with the leading edge flaps and slats retracted and disabled.

(2) You can operate the trailing edge flaps with primary or alternate control or manually after you do the Disable the Leading Edge Slats part of this task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00467	Fluid - Landing Gear Shock Strut	BMS3-32, Type II
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Cover	27-51-55-02-110	HAP ALL
5	Packing	27-51-55-02-115	HAP ALL

F. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

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(Continued)

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

G. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

H. Disable the Leading Edge Slats

SUBTASK 27-51-00-860-057

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-860-058

(2) Make sure the trailing edge flaps and the leading edge flaps and slats are in the retracted position. If they are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-00-860-059

(3) Remove the standby hydraulic system power, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

SUBTASK 27-51-00-860-060

(4) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-00-480-008

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-00-860-061

(6) Move the LE cruise depressurization valve to the closed position (Figure 204):

NOTE: It will be necessary to use the FSEU to operate the LE cruise depressurization valve.

(a) To get access to the main equipment center, do this task.

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

(b) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

(c) Push the NO button until OTHER FUNCTNS? shows on the display.

(d) Push the YES button to select OTHER FUNCTNS? on the FSEU.

(e) Push the YES button to select SET OUTPUTS? from the OTHER FUNCTNS? menu.

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(f) Push the YES button to select LE DEPR VALVE? from the SET OUTPUTS? menu.

(g) Push the YES button at the SET ON? display to change the position of the LE cruise depressurization valve.

NOTE: This will drive the valve to the closed position. The FSEU will automatically change the position of the valve back to the open position after approximately 75 seconds.

SUBTASK 27-51-00-980-004

(7) Move the manual override handle on the LE cruise depressurization valve to the OFF position (Figure 205):

NOTE: Do not force movement of the manual override handle with tools.

(a) Remove lockwire from the manual override handle on the LE cruise depressurization valve.

(b) Move the manual override handle to the OFF position.

(c) If you cannot move the manual override handle on the LE cruise depressurization valve, then make sure the leading edge and trailing edge surfaces are fully retracted. Then use the FSEU to operate the valve again.

CAUTION: MAKE SURE YOU USE A 0.316 INCH (8.03 MM) RIG PIN IN THE CRUISE DEPRESSURIZATION VALVE HANDLE. A SMALLER RIG PIN CAN PERMIT THE LEADING EDGE FLAPS AND SLATS TO MOVE IF HYDRAULIC POWER IS SUPPLIED. THIS CAN CAUSE DAMAGE TO THE AIRPLANE.

(d) Install a 0.316 inch (8.03 mm) rig pin in the manual override handle to keep the handle in the OFF position.

(e) Attach a DO-NOT-REMOVE tag on the rig pin.

SUBTASK 27-51-00-480-011

(8) Install the lock, SPL-1675 to prevent the operation of the standby hydraulic system (Figure 205).

(a) Make sure the ALTERNATE FLAPS ARM switch is in the OFF position.

(b) Disconnect the electrical connector from the leading edge standby drive shutoff valve.

(c) Make sure the manual override lever at the leading edge standby drive shutoff valve is in position 1.

WARNING: MAKE SURE TO INSTALL THE GROUND LOCK ON THE STANDBY HYDRAULIC MODULE TO PREVENT ACCIDENTAL STANDBY SYSTEM OPERATION OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(d) Install the lock, SPL-1675 on the standby hydraulic module.

(e) Install the lockpin.

I. Trailing Edge Flap Operation With Primary Control

NOTE: Make sure you do the Disable the Leading Edge Slats part of this task before you operate the trailing edge flaps.

SUBTASK 27-51-00-860-062

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE LEADING EDGE FLAPS AND SLATS. IF THE LEADING EDGE FLAPS AND SLATS ARE NOT IN THE RETRACTED POSITION, THEY WILL RETRACT WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: The leading edge flaps and slats will move to the retracted position when you supply hydraulic power if they are not in the retracted position.

SUBTASK 27-51-00-860-063

WARNING: MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE TRAILING EDGE FLAPS. THE FLAPS WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Move the flap control lever to the applicable detent position.

SUBTASK 27-51-00-860-064

(3) To retract the trailing edge flaps, move the flap control lever to the UP position.

SUBTASK 27-51-00-860-065

(4) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

J. Trailing Edge Flap Operation With Alternate Control

NOTE: Make sure you do the Disable the Leading Edge Slats part of this task before you operate the trailing edge flaps.

SUBTASK 27-51-00-860-066

WARNING: MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE TRAILING EDGE FLAPS. THE FLAPS WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Move the ALTERNATE FLAPS ARM switch on the P5 panel to arm the alternate control system.

SUBTASK 27-51-00-860-067

CAUTION: WAIT A MINIMUM OF 15 SECONDS AFTER THE FLAPS STOP BEFORE YOU USE THE ALTERNATE SYSTEM TO MOVE THE FLAPS AGAIN. YOU CAN CAUSE DAMAGE TO THE FLAP ALTERNATE MOTOR.

(2) Move the ALTERNATE FLAPS control switch to DOWN to extend the trailing edge flaps as it is necessary.

SUBTASK 27-51-00-860-068

(3) Move the ALTERNATE FLAPS control switch to the OFF position.

SUBTASK 27-51-00-860-069

WARNING: MAKE SURE THE POSITION OF THE FLAPS AGREES WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) To retract the trailing edge flaps, move the ALTERNATE FLAPS control switch to UP until the flaps are in the same position as the flap control lever.

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SUBTASK 27-51-00-860-070

(5) Move the ALTERNATE FLAPS control switch to the OFF position.

SUBTASK 27-51-00-860-071

(6) Move the ALTERNATE FLAPS ARM switch to the OFF position to disarm the alternate control system.

SUBTASK 27-51-00-080-003

(7) Remove the lock, SPL-1675 from the standby hydraulic module (Figure 205):

(a) Remove the lockpin.

(b) Remove the lock, SPL-1675 from the standby hydraulic module.

(c) Make sure the override lever at the leading edge standby drive shutoff valve is in position 1.

(d) Before you connect the electrical connector, examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(e) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(f) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(g) Connect the electrical connector to the leading edge standby drive shutoff valve.

K. Trailing Edge Flap Manual Operation

(Figure 203)

NOTE: Make sure you do the Disable the Leading Edge Slats part of this task before you operate the trailing edge flaps.

SUBTASK 27-51-00-480-003

(1) Install DO-NOT-OPERATE tags on the flap control lever, the ALTERNATE FLAPS switches and the hydraulic control switches.

SUBTASK 27-51-00-040-005

WARNING: DO THE TRAILING EDGE FLAP DEACTIVATION PROCEDURE BEFORE YOU DO WORK ON THE FLAP SYSTEM. WITH THE FLAPS ACTIVATED, THE FLAPS CAN MOVE AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-00-010-008

(3) Remove the cover [4] from the flap power drive unit [1]:

(a) Remove the bolts [3] and washers [2] that attach the cover [4] to the flap power drive unit [1].

(b) Remove the cover [4] from the power drive unit [1]

SUBTASK 27-51-00-980-005

WARNING: MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE FLAPS. THE FLAPS WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

CAUTION: DO NOT TURN THE MANUAL DRIVE WITH MORE THAN 350 POUND-INCHES (39.5 NEWTON-METERS) TORQUE OR FASTER THAN 1000 RPM. YOU CAN CAUSE DAMAGE TO THE POSITION SENSOR GEARBOX AND THE TORQUE TUBES.

(4) Use a 3/8 inch square drive to turn the manual drive on the PDU to extend the trailing edge flaps to the applicable position.

NOTE: Refer to the cover [4] for the correct direction to turn the manual drive.

NOTE: Look at the number 4 or 5 ballscrew to find the position of the flaps.

SUBTASK 27-51-00-980-006

WARNING: MAKE SURE THE POSITION OF THE FLAPS AGREE WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU SUPPLY HYDRAULIC POWER THE FLAPS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) To retract the trailing edge flaps, turn the manual drive in the retract direction until the flaps are in a position which agrees with the flap control lever.

SUBTASK 27-51-00-410-009

(6) Install the cover [4] on the flap power drive unit [1]:

(a) Apply fluid, D00467 to the packing [5] on the cover [4].

(b) Apply a thin layer of compound, C00913 to the mating surface of the cover [4] and the flap power drive unit [1].

(c) Put the cover [4] in its position on the flap power drive unit [1].

(d) Apply compound, C00913 to the shank and threads of the bolts [3].

(e) Install the bolts [3] and washers [2] to attach the cover [4].

SUBTASK 27-51-00-440-004

(7) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

L. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-480-004

(1) Remove the DO-NOT-OPERATE tags from the flap control lever, the ALTERNATE FLAPS switches and the hydraulic control switches if they are installed.

SUBTASK 27-51-00-020-006

(2) Remove the rig pin from the manual override lever on the LE cruise depressurization valve (Figure 205).

(a) Make sure the manual override lever moves from the OFF position to the ON position.

(b) Install lockwire on the manual override lever.

SUBTASK 27-51-00-410-010

(3) Below the main equipment center, do this task.

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

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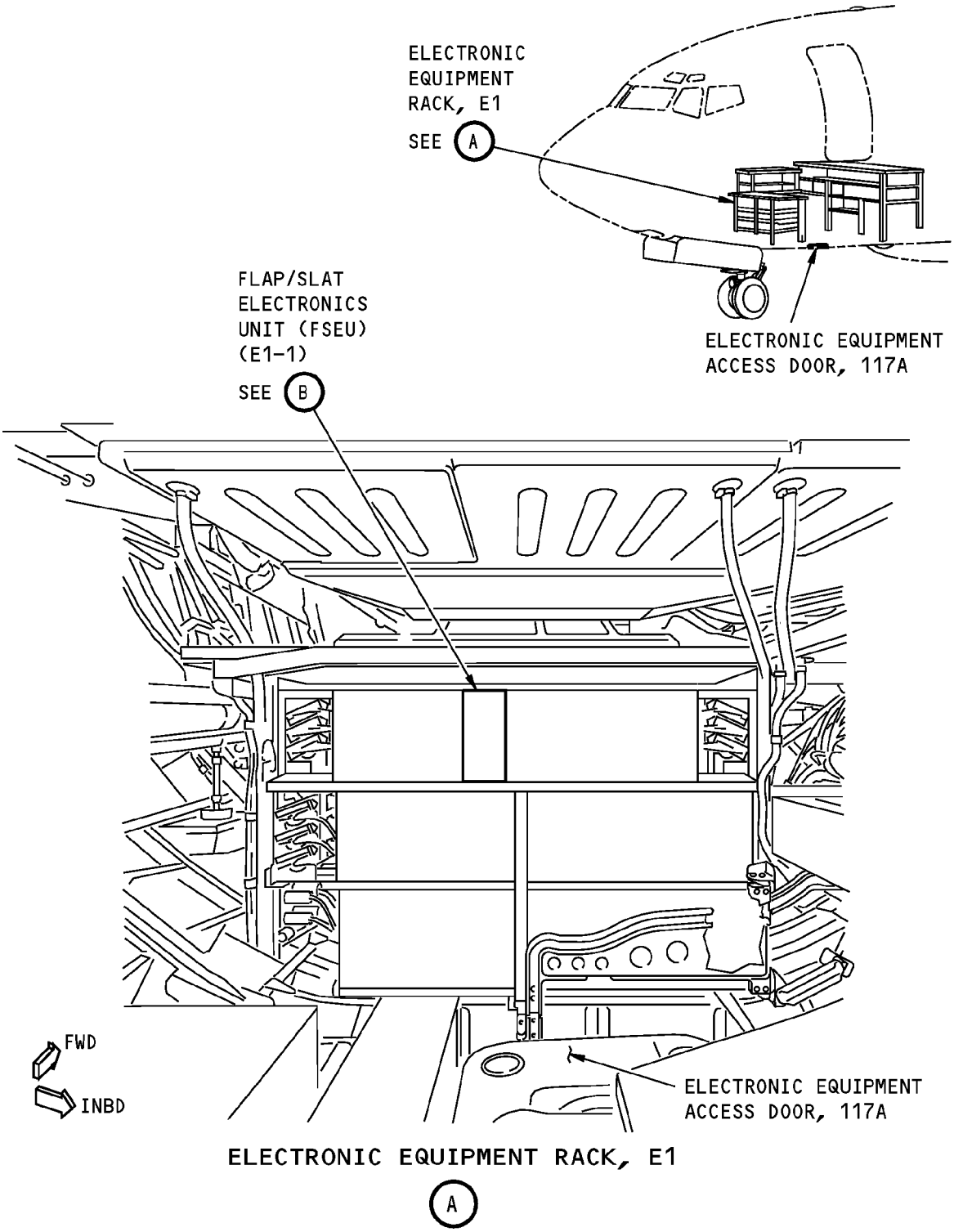

Flap/Slat Electronics Unit
Figure 204 (Sheet 1 of 2)/27-51-00-990-810

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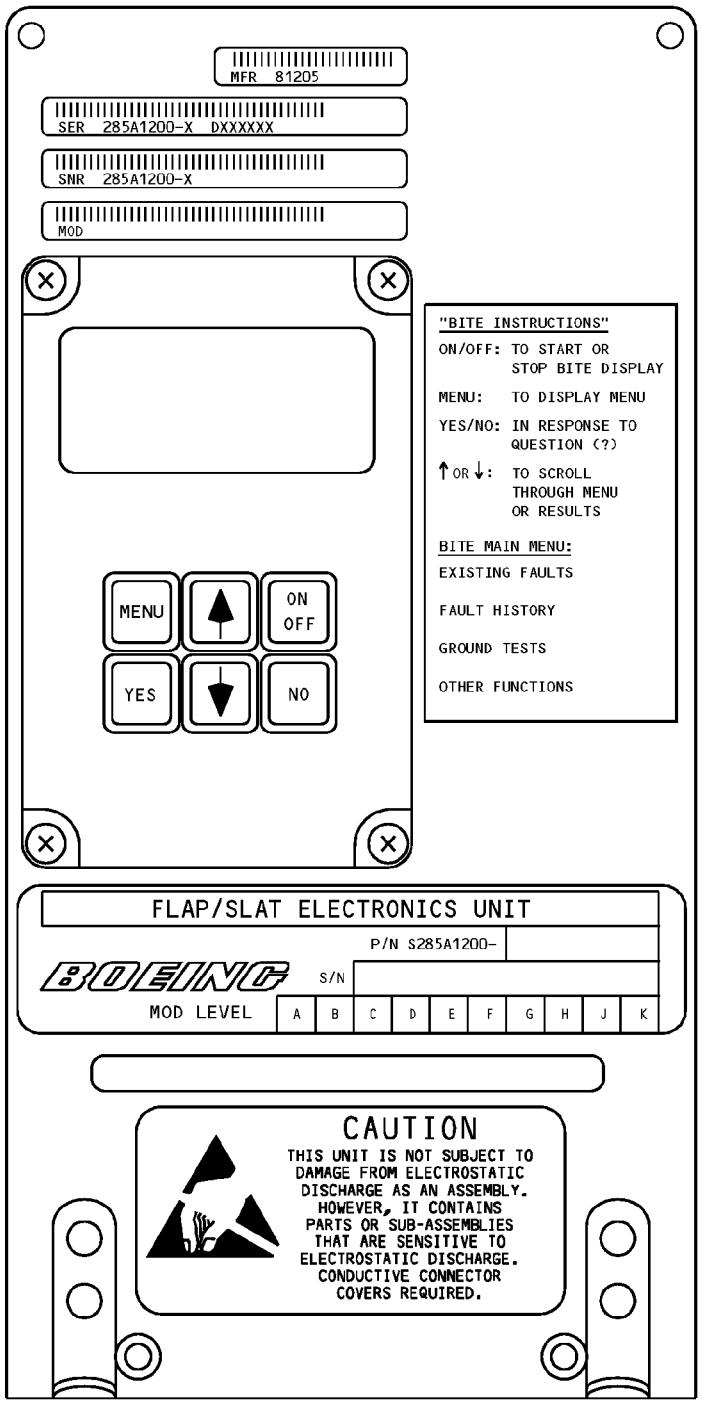

[1] FLAP/SLAT ELECTRONICS UNIT (FSEU)

B

Flap/Slat Electronics Unit
Figure 204 (Sheet 2 of 2)/27-51-00-990-810

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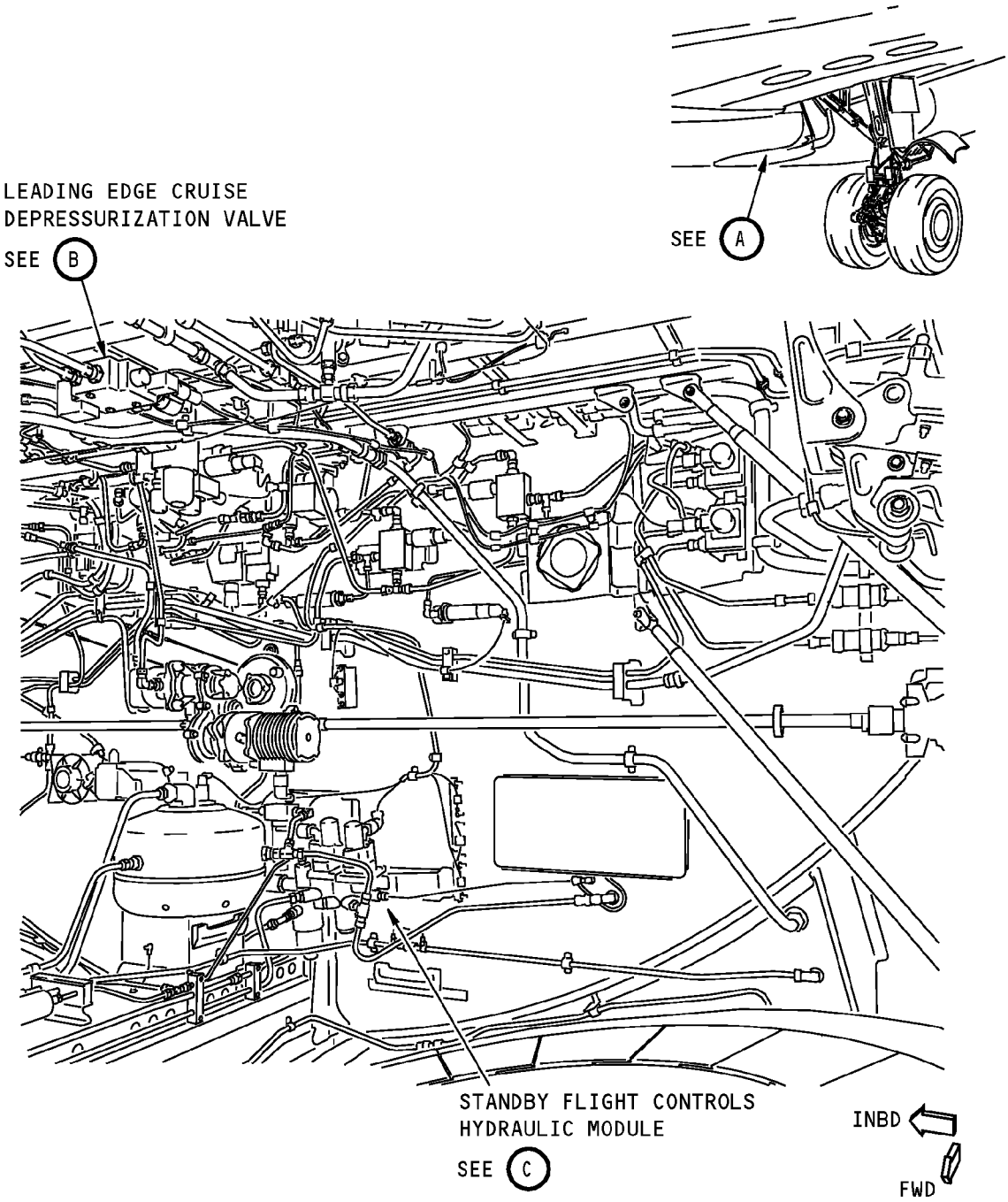

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)

A

Leading Edge Flap and Slat Deactivation
Figure 205 (Sheet 1 of 3)/27-51-00-990-811

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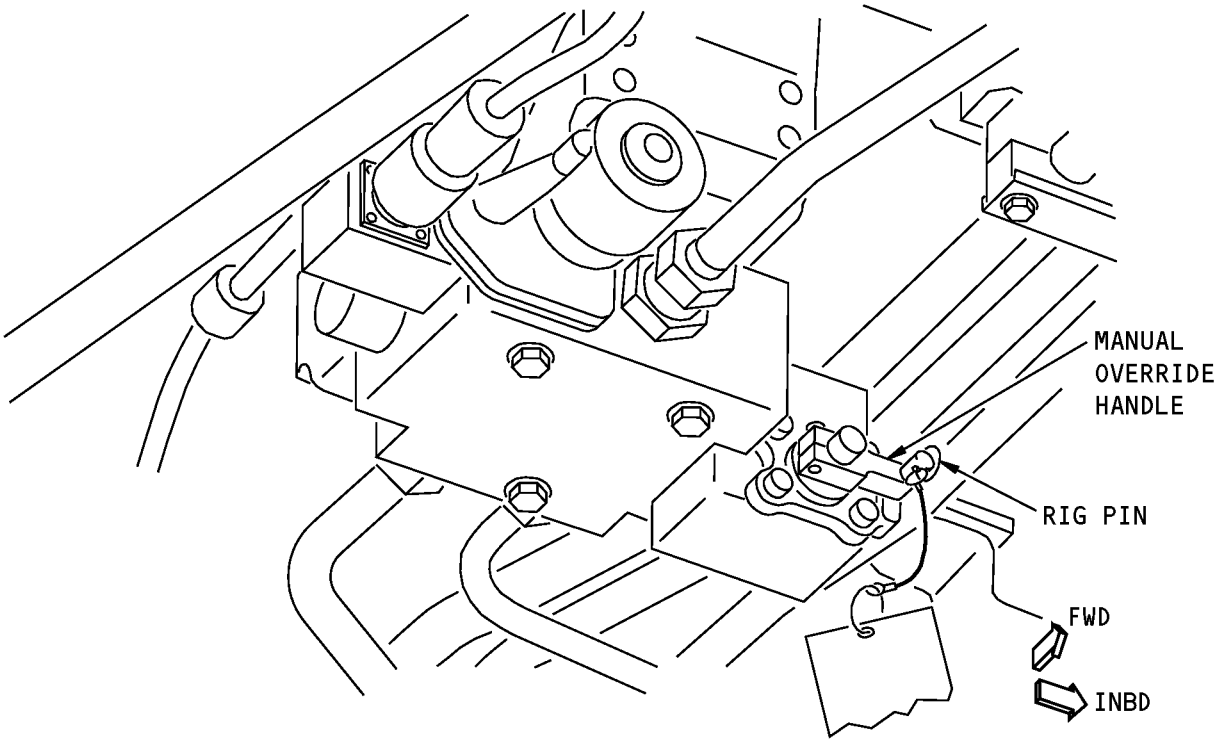

LEADING EDGE CRUISE
DEPRESSURIZATION VALVE

B

Leading Edge Flap and Slat Deactivation
Figure 205 (Sheet 2 of 3)/27-51-00-990-811

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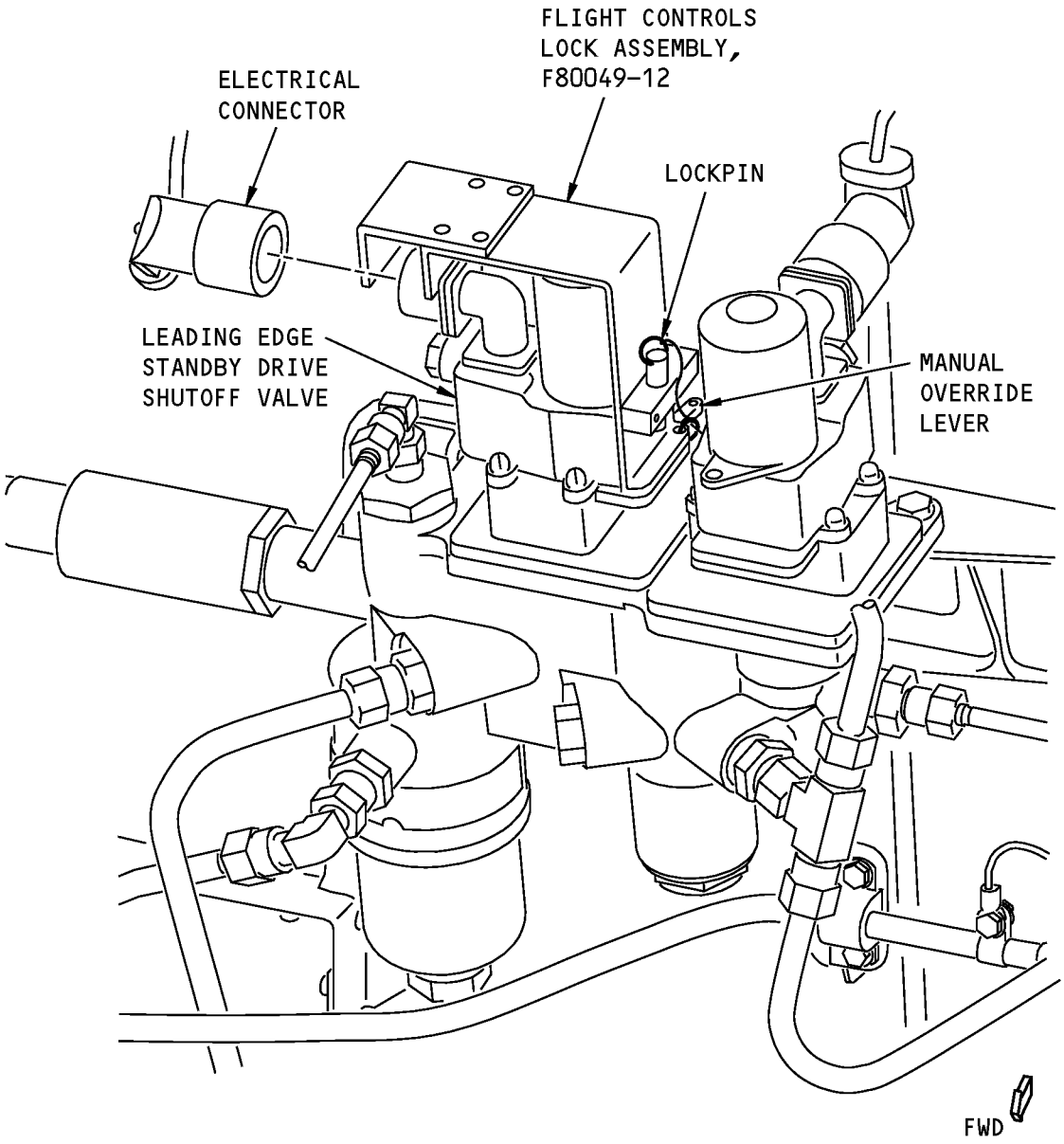

STANDBY FLIGHT CONTROLS
HYDRAULIC MODULE

C

Leading Edge Flap and Slat Deactivation
Figure 205 (Sheet 3 of 3)/27-51-00-990-811

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TRAILING EDGE FLAP SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An operational test of the trailing edge flap system

(2) An adjustment of the trailing edge flap control system

(3) An adjustment of the trailing edge flap drive system

(4) A functional test of the trailing edge flap system

(5) A BITE test of the FSEU display and existing faults

(6) A BITE test of the trailing edge flap asymmetry and skew systems

(7) A BITE test of the trailing edge flap load relief system

(8) A test of flap priority valve

(9) A test of flap control lever force

(10) An functional test of the alternate control system for the trailing edge flaps

(11) An operational test of the no-back brakes inside the transmissions

(12) A functional test of the trailing edge flap load relief system

TASK 27-51-00-710-801

2. Trailing Edge Flap System Operational Test

(Figure 501)

A. General

(1) During the operational test, you make sure the operation of the trailing edge flaps is satisfactory. This test does not make sure the flaps are adjusted correctly. You must not use this test as an alternate for the system test of the trailing edge flaps.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Operational Test

SUBTASK 27-51-00-860-018

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-860-019

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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E. Operational Test of the Trailing Edge Flap System

SUBTASK 27-51-00-710-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Do a test of the hydraulic operation of the flaps:

NOTE: Use the flap position indicator to find the position of the flaps.

(a) Move the flap control lever to the UP position and wait for the flaps to reach the UP position.

(b) Make sure the pointers on the flap position indicator are in the UP white band.

(c) Move the flap control lever to the 10-unit position and wait for the flaps to stop.

(d) Make sure the pointers on the flap position indicator are in the 10-unit white band.

(e) Move the flap control lever to the 40-unit position and wait for the flaps to stop.

(f) Make sure the pointers on the flap position indicator are in the 40-unit white band.

(g) Move the flap control lever to the UP position and wait for the flaps to reach the UP position.

(h) Make sure the pointers on the flap position indicator are in the UP white band.

SUBTASK 27-51-00-710-002

(2) Do a test of the alternate operation of the flaps:

(a) Move the ALTERNATE FLAPS ARM switch to the ARM position.

NOTE: The standby hydraulic pump motor will operate when the ALTERNATE FLAPS ARM switch is in the ARM position.

(b) Move the flap control lever to the 40-unit position.

NOTE: This will reduce the load on the flap electric motor.

1) Make sure the flaps do not move.

CAUTION: MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

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(CAUTION PRECEDES)

CAUTION: WAIT A MINIMUM OF 15 SECONDS AFTER THE FLAPS STOP BEFORE YOU USE THE ALTERNATE SYSTEM TO MOVE THE FLAPS AGAIN. YOU CAN CAUSE DAMAGE TO THE FLAP ALTERNATE MOTOR.

(c) Move the ALTERNATE FLAPS CONTROL switch to the DOWN position and hold it until the trailing edge flaps stop.

NOTE: The flap extension is controlled by a limit switch.

(d) Make sure the pointers on the flap position indicator are in the 40-unit white band.

(e) Move the ALTERNATE FLAPS CONTROL switch to the UP position.

NOTE: The flap retraction is controlled by a limit switch.

(f) Make sure the pointers on the flap position indicator are in the UP white band.

(g) Release the ALTERNATE FLAPS CONTROL switch to let it move to the OFF position.

(h) Move the ALTERNATE FLAPS CONTROL switch to the DOWN position and hold it until the trailing edge flaps are in the 40-unit position.

NOTE: Look at the flap position indicators to find the position of the flaps.

(i) Move the ALTERNATE FLAPS ARM switch to the OFF position.

SUBTASK 27-51-00-710-004

(3) Move the flap control lever to the UP position and wait for the flaps to reach the UP position.

(a) Make sure the pointers on the flap position indicator are in the UP white band.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-020

(1) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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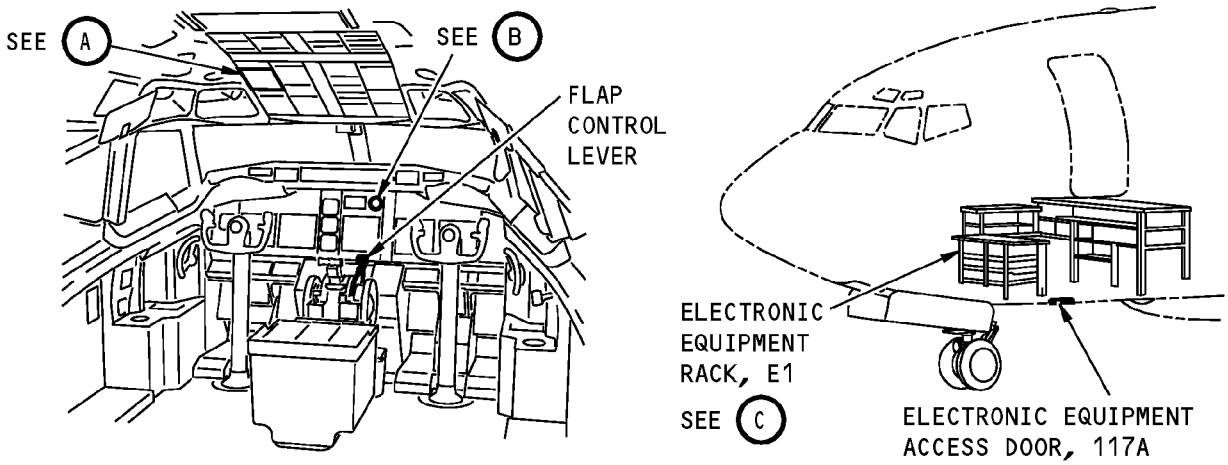

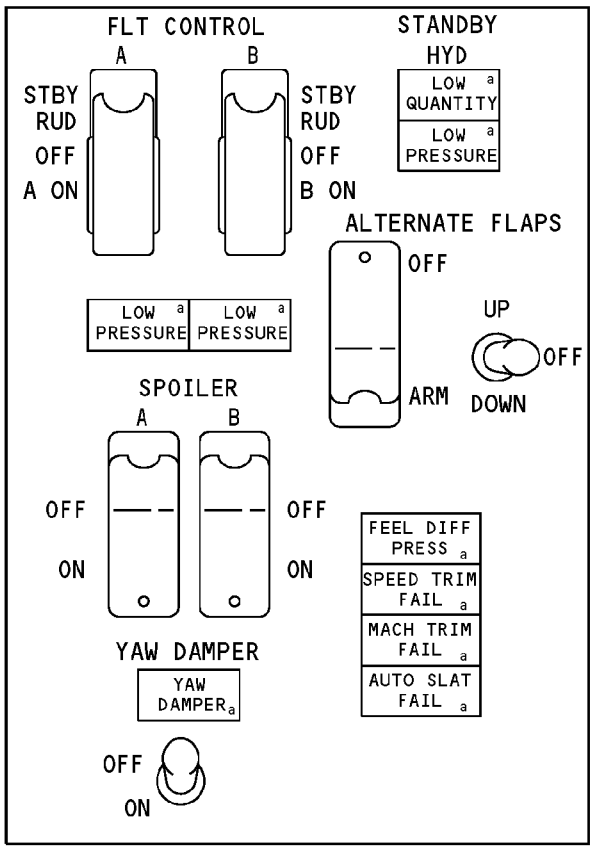

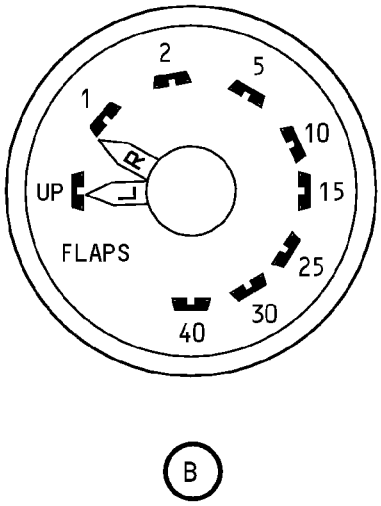

Trailing Edge Flap System Controls
Figure 501 (Sheet 1 of 3)/27-51-00-990-804

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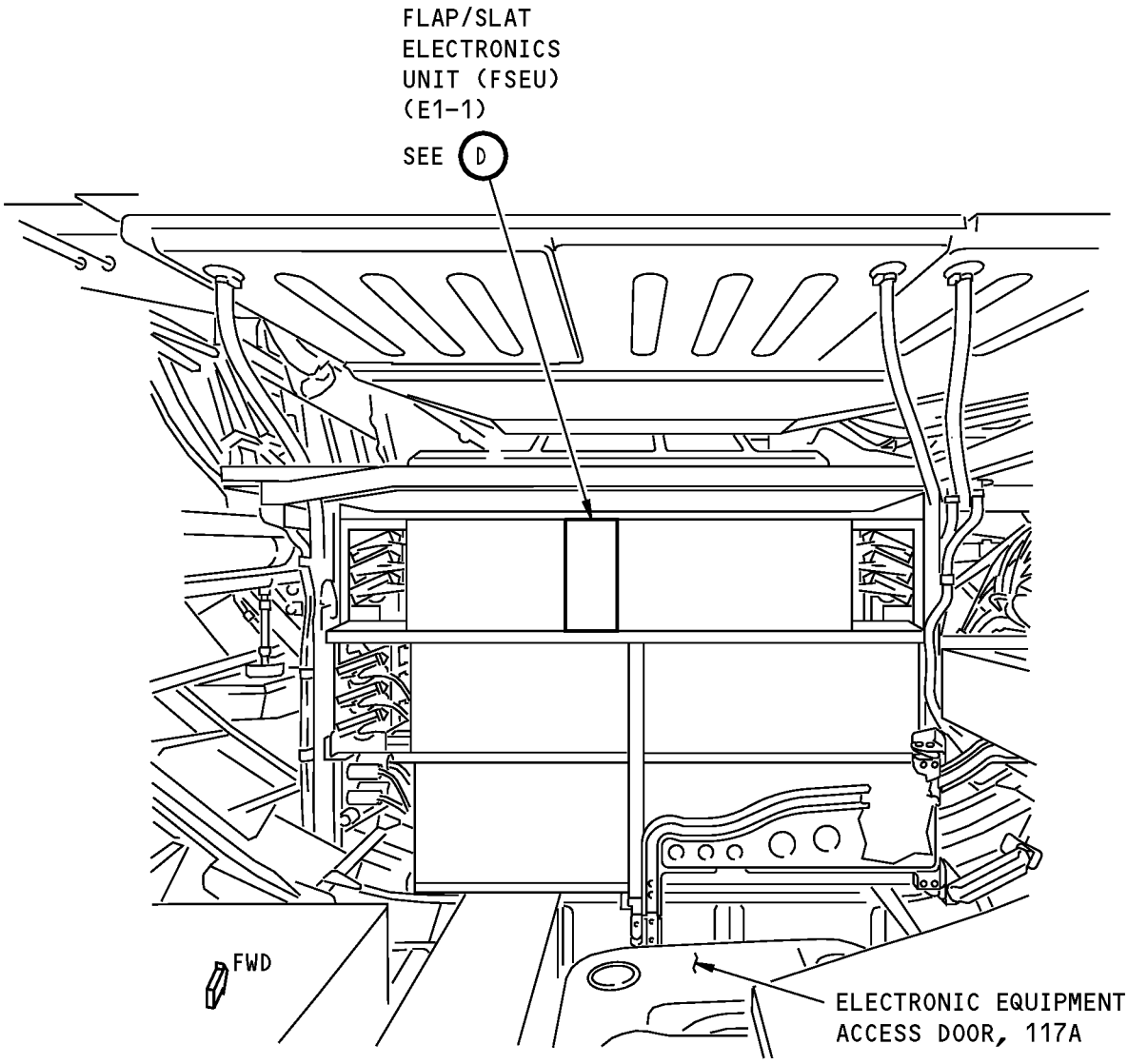

ELECTRONIC EQUIPMENT RACK, E1

C

Trailing Edge Flap System Controls
Figure 501 (Sheet 2 of 3)/27-51-00-990-804

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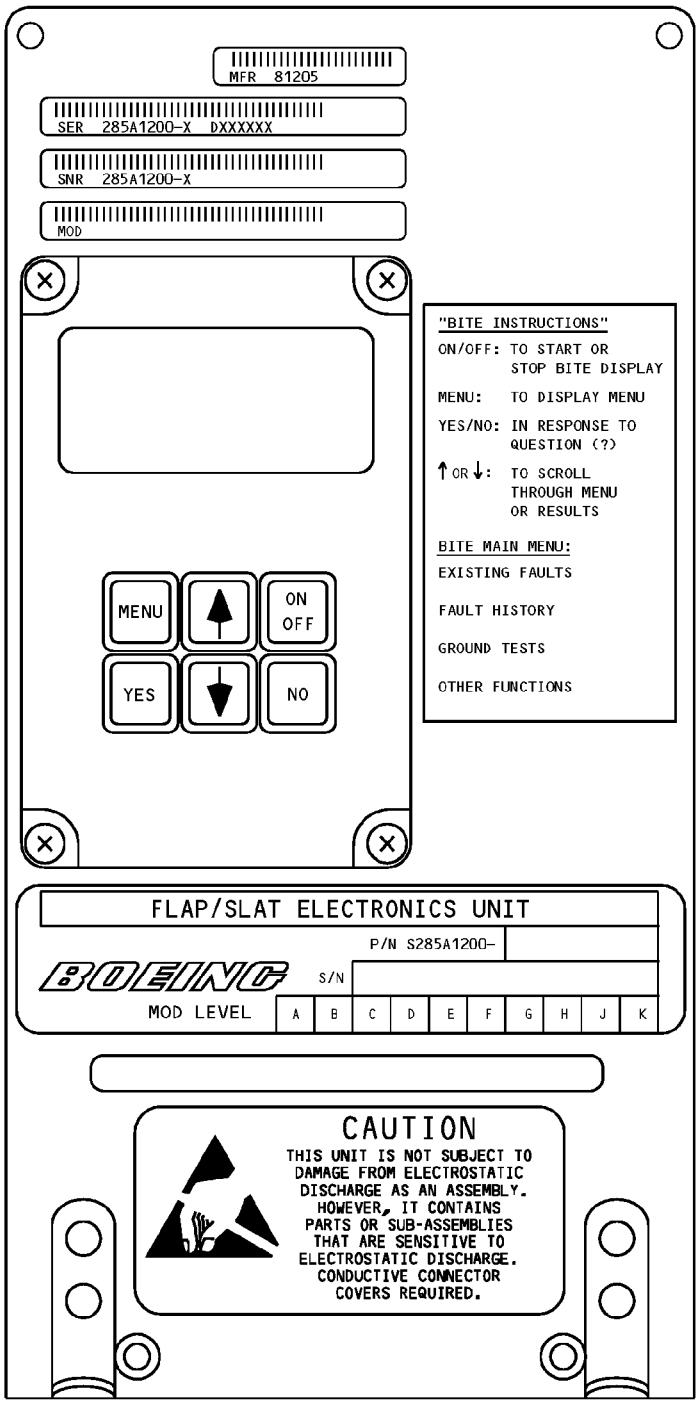

FLAP/SLAT ELECTRONICS UNIT (FSEU)

D

Trailing Edge Flap System Controls
Figure 501 (Sheet 3 of 3)/27-51-00-990-804

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TASK 27-51-00-820-801

3. Trailing Edge Flap Control System Adjustment

(Figure 502)

A. General

(1) This task does an adjustment of the trailing edge flap control system.

(a) The trailing edge flap control system includes the flap control lever, the flap control unit, the flap control valve, the control cables WFA and WFB, and the follow-up cables WFFA and WFFB.

(2) When you retract the trailing edge flaps with hydraulic power, it is necessary to stop for two minutes after you move the flaps. The flaps can move a small distance for 2 minutes after extension or retraction.

(3) The adjustment instructions included in this task are included in the Flap Actuation Rigging Instructions drawing 256A3001.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-58-01-000-801	Flap Position Transmitter Removal (P/B 401)
27-58-01-400-801	Flap Position Transmitter Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
53-21-00-000-801	Passenger Cabin Floor Panel Removal (P/B 401)
53-21-00-400-801	Passenger Cabin Floor Panel Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Clip	Not Specified	
8	Clip	Not Specified	

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F. Location Zones

Zone	Area
116	Nose Landing Gear Wheel Well - Right
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

G. Access Panels

Number	Name/Location
112A	Forward Access Door
114AC	Fwd Nose Wheel Well Upper Access Panel

H. Prepare for the Adjustment

SUBTASK 27-51-00-020-001

(1) For the flap position transmitters on the left and right wings, do this task: Flap Position Transmitter Removal, TASK 27-58-01-000-801.

NOTE: If you do not remove the flap position transmitters, they can become incorrectly adjusted.

SUBTASK 27-51-00-860-021

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-480-014

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-00-860-022

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: CAREFULLY MONITOR THE FLAP MOVEMENT IF YOU HAVE DONE WORK ON THE FLAP CONTROL SYSTEM OR THE FLAP DRIVE SYSTEM. IF COMPONENTS ARE NOT ADJUSTED CORRECTLY, YOU CAN CAUSE DAMAGE TO THE TRAILING EDGE FLAP SYSTEM.

(4) Use the alternate system or the manual drive to retract the trailing edge flaps to the UP position.

SUBTASK 27-51-00-040-003

(5) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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I. Trailing Edge Flap Control System Adjustment

SUBTASK 27-51-00-020-002

CAUTION: DISCONNECT THE TORQUE TUBES FROM THE FLAP POWER DRIVE UNIT BEFORE YOU ADJUST THE FLAP CONTROL SYSTEM. IF THE FLAP DRIVE SYSTEM IS NOT ADJUSTED CORRECTLY, YOU CAN CAUSE DAMAGE TO THE FLAP SYSTEM.

(1) If the flap drive system is not adjusted correctly, disconnect the torque tubes [18] from the power drive unit [17]:

(a) Install clamp set, SPL-1726 on the torque tubes [18] on each side of the power drive unit [17].

(b) Remove the screws [14] that attach the coupling sleeves [15] to the splined couplings [16].

(c) Move the coupling sleeves [15] off the splined couplings [16].

(d) Move the torque tubes [18] away from the flap power drive unit [17].

SUBTASK 27-51-00-010-002

(2) Remove the floor panel to get access to the top of the flap control unit [4], do this task: Passenger Cabin Floor Panel Removal, TASK 53-21-00-000-801.

NOTE: The floor panel is located between stations 706 and 727B on the right side of the airplane.

SUBTASK 27-51-00-010-003

(3) To get access to the turnbuckles [3] for the cable assemblies [1] WFA and WFB, do this step:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

or remove this access panel:

Number	Name/Location
114AC	Fwd Nose Wheel Well Upper Access Panel

SUBTASK 27-51-00-820-001

(4) Do the adjustment of the flap control lever [7] and cable assemblies [1] WFA and WFB:

(a) Put the flap control lever [7] in the rigged position:

1) Move the flap control lever [7] aft until the detent pin is out of the UP detent.

2) Put a 0.19 inch (4.8 millimeter) thick rigging block between the detent pin on the flap control lever [7] and the upstop on the detent plate.

NOTE: Make sure the rigging block does not go into the flaps UP detent.

(b) Install a clamp to hold the quadrant [6] against the aft side of the stop [5] on the flap control unit [4].

(c) Remove the clips [2] from the turnbuckles [3] on the cable assemblies [1] WFA and WFB.

(d) If you installed a new cable assembly [1], do these steps:

1) Use the turnbuckles [3] to adjust the tension in the cable assemblies [1] to 275 ±15 pounds (125 ±6.8 kilograms).

2) Remove the clamp from the quadrant [6].

3) Remove the rigging block from the flap control lever [7].

4) Move the flap control lever [7] through its full travel 25 times.

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5) Put the flap control lever [7] in the rigged position with the rigging block.

6) Install the clamp to hold the quadrant [6] against the aft side of the stop [5] on the flap control unit [4].

(e) Use the turnbuckles [3] to adjust the tension in the cable assemblies [1] WFA and WFB to the limit shown in (Table 501).

NOTE: During the adjustment, make sure the tension in the cables [1] is never less than 50 pounds (23 kilograms).

NOTE: To make sure the tension is correct, the temperature of the airframe must be constant in the limit of ±5 degrees for a minimum of one hour.

(f) Remove the clamp from the quadrant [6].

(g) Remove the rigging block from the flap control lever [7].

(h) Move the flap control lever [7] through its full travel a minimum of 5 times. Stop with the flap control lever [7] in the 1-unit position.

(i) Carefully move the flap control lever [7] forward until you feel resistance.

(j) Measure the distance between the detent pin on the flap control lever [7] and the upstop on the detent plate.

(k) If the distance is not in the limit of 0.19 ±0.02 inch (4.8 ±0.5 millimeters), then adjust the cable assembly [1] and the flap control lever [7] again.

(l) Install the clips [2] on the turnbuckles [3].

Table 501/27-51-00-993-807

Temperature	Cable Tension Pounds (kilograms)			
Degrees F (Degrees C)	WFA/WFB Cables		WFFA/WFFB Cables	
	Minimum	Maximum	Minimum	Maximum
120 (48.9)	162 (73)	172 (78)	73 (33)	83 (37)
119 (48.3)	161 (73)	171 (78)	73 (33)	83 (37)
118 (47.8)	161 (73)	171 (78)	73 (33)	83 (37)
117 (47.2)	160 (73)	170 (77)	73 (33)	83 (37)
116 (46.6)	160 (73)	170 (77)	72 (33)	82 (37)
115 (46.1)	159 (72)	169 (77)	72 (33)	82 (37)
114 (45.5)	158 (72)	168 (76)	72 (33)	82 (37)
113 (45.0)	158 (72)	168 (76)	72 (33)	82 (37)
112 (44.4)	157 (71)	167 (76)	71 (32)	81 (37)
111 (43.8)	156 (71)	166 (75)	71 (32)	81 (37)
110 (43.3)	156 (71)	166 (75)	71 (32)	81 (37)
109 (42.8)	155 (70)	165 (75)	70 (32)	80 (36)
108 (42.2)	154 (70)	164 (74)	70 (32)	80 (36)
107 (41.7)	154 (70)	164 (74)	70 (32)	80 (36)
106 (41.1)	153 (69)	163 (74)	70 (32)	80 (36)

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(Continued)

Temperature	Cable Tension Pounds (kilograms)			
Degrees F (Degrees C)	WFA/WFB Cables		WFFA/WFFB Cables	
	Minimum	Maximum	Minimum	Maximum
105 (40.5)	152 (69)	162 (73)	69 (31)	79 (36)
104 (40.0)	152 (69)	162 (73)	69 (31)	79 (36)
103 (39.4)	151 (68)	161 (73)	69 (31)	79 (36)
102 (38.9)	151 (68)	161 (73)	68 (31)	78 (35)
101 (38.3)	150 (68)	160 (72)	68 (31)	78 (35)
100 (37.8)	149 (68)	159 (72)	68 (31)	78 (35)
99 (37.2)	149 (68)	159 (72)	68 (31)	78 (35)
98 (36.7)	148 (67)	158 (72)	67 (30)	77 (35)
97 (36.1)	147 (67)	157 (71)	67 (30)	77 (35)
96 (35.5)	147 (67)	157 (71)	67 (30)	77 (35)
95 (35.0)	146 (66)	156 (71)	67 (30)	77 (35)
94 (34.4)	145 (66)	155 (70)	66 (30)	76 (34)
93 (33.9)	145 (66)	155 (70)	66 (30)	76 (34)
92 (33.3)	144 (65)	154 (70)	66 (30)	76 (34)
91 (32.7)	144 (65)	154 (70)	66 (30)	76 (34)
90 (32.2)	143 (65)	153 (69)	65 (30)	75 (34)
89 (31.7)	142 (64)	152 (69)	65 (30)	75 (34)
88 (31.1)	142 (64)	152 (69)	65 (30)	75 (34)
87 (30.5)	141 (64)	151 (68)	64 (29)	75 (34)
86 (30.5)	140 (64)	150 (68)	64 (29)	75 (34)
85 (29.4)	140 (64)	150 (68)	64 (29)	74 (34)
84 (28.9)	139 (63)	149 (68)	64 (29)	74 (34)
83 (28.3)	138 (63)	148 (67)	63 (29)	73 (33)
82 (27.8)	138 (63)	148 (67)	63 (29)	73 (33)
81 (27.2)	137 (62)	147 (67)	63 (29)	73 (33)
80 (26.7)	136 (62)	146 (66)	63 (29)	73 (33)
79 (26.1)	136 (62)	146 (66)	62 (28)	72 (33)
78 (25.5)	135 (61)	145 (66)	62 (28)	72 (33)
77 (25.0)	135 (61)	145 (66)	62 (28)	72 (33)
76 (24.4)	134 (61)	144 (65)	62 (28)	72 (33)

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(Continued)

Temperature	Cable Tension Pounds (kilograms)			
Degrees F (Degrees C)	WFA/WFB Cables		WFFA/WFFB Cables	
	Minimum	Maximum	Minimum	Maximum
75 (23.9)	133 (60)	143 (65)	61 (28)	71 (32)
74 (23.3)	133 (60)	143 (65)	61 (28)	71 (32)
73 (22.8)	132 (60)	142 (64)	61 (28)	71 (32)
72 (22.2)	131 (59)	141 (64)	61 (28)	71 (32)
71 (21.7)	131 (59)	141 (64)	60 (27)	70 (32)
70 (21.1)	130 (59)	140 (64)	60 (27)	70 (32)
69 (20.5)	129 (59)	139 (63)	60 (27)	70 (32)
68 (20.0)	129 (59)	139 (63)	59 (27)	69 (31)
67 (19.4)	128 (58)	138 (63)	59 (27)	69 (31)
66 (18.9)	127 (58)	137 (62)	59 (27)	69 (31)
65 (18.3)	127 (58)	137 (62)	59 (27)	69 (31)
64 (17.8)	126 (57)	136 (62)	58 (26)	68 (31)
63 (17.2)	126 (57)	136 (62)	58 (26)	68 (31)
62 (16.7)	125 (57)	135 (62)	58 (26)	68 (31)
61 (16.1)	124 (56)	134 (61)	58 (26)	68 (31)
60 (15.5)	124 (56)	134 (61)	57 (26)	67 (30)
59 (15.0)	123 (56)	133 (60)	57 (26)	67 (30)
58 (14.4)	122 (55)	132 (60)	57 (26)	67 (30)
57 (13.9)	122 (55)	132 (60)	57 (26)	67 (30)
56 (13.3)	121 (55)	131 (59)	56 (25)	66 (30)
55 (12.8)	120 (54)	130 (59)	56 (25)	66 (30)
54 (12.2)	120 (54)	130 (59)	56 (25)	66 (30)
53 (11.7)	119 (54)	129 (59)	56 (25)	66 (30)
52 (11.1)	118 (54)	128 (58)	55 (25)	65 (30)
51 (10.5)	118 (54)	128 (58)	55 (25)	65 (30)
50 (10.0)	117 (53)	127 (58)	55 (25)	65 (30)
49 (9.4)	117 (53)	127 (58)	55 (25)	65 (30)
48 (8.9)	116 (53)	126 (57)	54 (24)	64 (29)
47 (8.3)	115 (52)	125 (57)	54 (24)	64 (29)
46 (7.8)	115 (52)	125 (57)	54 (24)	64 (29)

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(Continued)

Temperature	Cable Tension Pounds (kilograms)			
Degrees F (Degrees C)	WFA/WFB Cables		WFFA/WFFB Cables	
	Minimum	Maximum	Minimum	Maximum
45 (7.2)	114 (52)	124 (56)	54 (24)	64 (29)
44 (6.7)	113 (51)	123 (56)	53 (24)	63 (29)
43 (6.1)	113 (51)	123 (56)	53 (24)	63 (29)
42 (5.5)	112 (51)	122 (55)	53 (24)	63 (29)
41 (5.0)	111 (50)	121 (55)	53 (24)	63 (29)
40 (4.4)	111 (50)	121 (55)	52 (24)	62 (28)
39 (3.9)	110 (50)	120 (54)	52 (24)	62 (28)
38 (3.3)	110 (50)	120 (54)	52 (24)	62 (28)
37 (2.8)	109 (49)	119 (54)	52 (24)	62 (28)
36 (2.2)	108 (49)	118 (54)	51 (23)	61 (28)
35 (1.7)	108 (49)	118 (54)	51 (23)	61 (28)
34 (1.1)	107 (49)	117 (53)	51 (23)	61 (28)
33 (0.5)	106 (48)	116 (53)	51 (23)	61 (28)
32 (0.0)	106 (48)	116 (53)	50 (23)	60 (27)
31 (-0.5)	105 (48)	115 (52)	50 (23)	60 (27)
30 (-1.1)	104 (47)	114 (52)	50 (23)	60 (27)
29 (-1.7)	104 (47)	114 (52)	50 (23)	60 (27)
28 (-2.2)	103 (47)	113 (51)	50 (23)	60 (27)
27 (-2.8)	103 (47)	113 (51)	49 (22)	59 (27)
26 (-3.3)	102 (46)	112 (51)	49 (22)	59 (27)
25 (-3.9)	101 (46)	111 (50)	49 (22)	59 (27)
24 (-4.4)	101 (46)	111 (50)	49 (22)	59 (27)
23 (-5.0)	100 (45)	110 (50)	48 (22)	58 (26)
22 (-5.5)	99 (45)	109 (49)	48 (22)	58 (26)
21 (-6.1)	99 (45)	109 (49)	48 (22)	58 (26)
20 (-6.6)	98 (44)	108 (49)	48 (22)	58 (26)
19 (-7.2)	98 (44)	108 (49)	47 (21)	57 (26)
18 (-7.8)	97 (44)	107 (49)	47 (21)	57 (26)
17 (-8.3)	96 (44)	106 (48)	47 (21)	57 (26)
16 (-8.9)	96 (44)	106 (48)	47 (21)	57 (26)

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(Continued)

Temperature	Cable Tension Pounds (kilograms)			
Degrees F (Degrees C)	WFA/WFB Cables		WFFA/WFFB Cables	
	Minimum	Maximum	Minimum	Maximum
15 (-9.4)	95 (43)	105 (48)	47 (21)	57 (26)
14 (-10.0)	94 (43)	104 (47)	46 (21)	56 (25)
13 (-10.5)	94 (43)	104 (47)	46 (21)	56 (25)
12 (-11.1)	93 (42)	103 (47)	46 (21)	56 (25)
11 (-11.6)	93 (42)	103 (47)	45 (20)	55 (25)
10 (-12.2)	92 (42)	102 (46)	45 (20)	55 (25)
9 (-12.8)	91 (41)	101 (46)	45 (20)	55 (25)
8 (-13.3)	91 (41)	101 (46)	45 (20)	55 (25)
7 (-13.9)	90 (41)	100 (45)	45 (20)	55 (25)
6 (-14.4)	90 (41)	100 (45)	44 (20)	54 (24)
5 (-15.0)	89 (40)	99 (45)	44 (20)	54 (24)
4 (-15.5)	88 (40)	98 (44)	44 (20)	54 (24)
3 (-16.1)	88 (40)	98 (44)	44 (20)	54 (24)
2 (-16.6)	87 (39)	97 (44)	43 (20)	53 (24)
1 (-17.2)	87 (39)	97 (44)	43 (20)	53 (24)
0 (-17.8)	86 (39)	96 (44)	43 (20)	53 (24)
-1 (-18.3)	85 (39)	95 (43)	43 (20)	53 (24)
-2 (-18.9)	85 (39)	95 (43)	42 (19)	52 (24)
-3 (-19.4)	84 (38)	94 (43)	42 (19)	52 (24)
-4 (-20.0)	83 (37)	93 (42)	42 (19)	52 (24)
-5 (-20.5)	83 (37)	93 (42)	42 (19)	52 (24)
-6 (-21.1)	82 (37)	93 (42)	42 (19)	52 (24)
-7 (-21.6)	82 (37)	92 (42)	41 (19)	51 (23)
-8 (-22.2)	81 (37)	91 (41)	41 (19)	51 (23)
-9 (-22.7)	80 (36)	90 (41)	41 (19)	51 (23)
-10 (-23.3)	80 (36)	90 (41)	41 (19)	51 (23)
-11 (-23.9)	79 (36)	89 (40)	40 (18)	50 (23)
-12 (-24.4)	79 (36)	89 (40)	40 (18)	50 (23)
-13 (-25.0)	79 (36)	88 (40)	40 (18)	50 (23)
-14 (-25.5)	78 (35)	88 (40)	40 (18)	50 (23)

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(Continued)

Temperature	Cable Tension Pounds (kilograms)			
Degrees F (Degrees C)	WFA/WFB Cables		WFFA/WFFB Cables	
	Minimum	Maximum	Minimum	Maximum
-15 (-26.1)	77 (35)	87 (39)	39 (18)	49 (22)
-16 (-26.6)	76 (34)	86 (39)	39 (18)	49 (22)
-17 (-27.2)	76 (34)	86 (39)	39 (18)	49 (22)
-18 (-27.7)	75 (34)	85 (38)	39 (18)	49 (22)
-19 (-28.3)	75 (34)	85 (38)	39 (18)	49 (22)
-20 (-28.8)	74 (34)	84 (38)	38 (17)	48 (22)
-21 (-29.4)	73 (33)	83 (37)	38 (17)	48 (22)
-22 (-30.0)	73 (33)	83 (37)	38 (17)	48 (22)
-23 (-30.5)	72 (33)	82 (37)	38 (17)	48 (22)
-24 (-31.1)	72 (33)	82 (37)	37 (17)	47 (21)
-25 (-31.7)	71 (32)	81 (37)	37 (17)	47 (21)
-26 (-32.2)	70 (32)	80 (36)	37 (17)	47 (21)
-27 (-32.8)	70 (32)	80 (36)	37 (17)	47 (21)
-28 (-33.3)	69 (31)	79 (36)	37 (17)	47 (21)
-29 (-33.9)	69 (31)	79 (36)	36 (16)	46 (21)
-30 (-34.4)	68 (31)	78 (35)	36 (16)	46 (21)
-31 (-35.0)	68 (31)	78 (35)	36 (16)	46 (21)
-32 (-35.5)	67 (30)	77 (35)	36 (16)	46 (21)
-33 (-36.1)	66 (30)	76 (34)	35 (16)	45 (20)
-34 (-36.7)	66 (30)	76 (34)	35 (16)	45 (20)
-35 (-37.2)	65 (30)	75 (34)	35 (16)	45 (20)
-36 (-37.8)	65 (30)	75 (34)	35 (16)	45 (20)
-37 (-38.3)	64 (29)	74 (34)	35 (16)	45 (20)
-38 (-38.9)	64 (29)	74 (34)	34 (15)	44 (20)
-39 (-39.4)	63 (29)	73 (33)	34 (15)	44 (20)
-40 (-40.0)	63 (29)	73 (33)	34 (15)	44 (20)

SUBTASK 27-51-00-820-002

(5) Make sure the flap power drive unit [17] is in the rigged position:

(a) Make sure the black rig mark on the cable drum [12] extends past the white cable guard [13] a minimum of 0.03 inches (0.76 millimeter) on each side.

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WARNING: DO NOT RETRACT THE POWER DRIVE UNIT PAST THE RIG MARK IN THE UP DIRECTION. YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) If the power drive unit [17] is not in the rigged position, use the manual drive to move the power drive unit [17].

SUBTASK 27-51-00-820-003

(6) Install the rig pin [27] in the flap control unit [4]:

NOTE: This will make sure the flap control unit [4] is in the adjusted position.

(a) Remove the screws [25] and washers [32] and the lower pan [26] from the flap control unit [4].

(b) Install the rig pin [27] through the cam follower arm and the valve cam.

SUBTASK 27-51-00-820-004

(7) Adjust the tension in the follow-up cables WFFA and WFFB:

(a) Remove the clips [8] from the turnbuckles [10] on the cables [9] and cables [11].

(b) If you installed a new cable [9] or cable [11], use the turnbuckles to adjust the tension in the cables to 125 +10/-0 pounds (56.7 +4.5/-0 kilograms).

(c) Use the turnbuckles [10] to adjust the tension in the cables WFFA and WFFB to the limit shown in (Table 501).

NOTE: During the adjustment, make sure the tension in the cables is never less than the minimum. If the temperature is 30° F (0° C) or higher the minimum tension is 50 pounds (23 kilograms). If the temperature is less than 30° F (0° C) the minimum tension is 30 pounds (14 kilograms).

NOTE: To make sure the tension is correct, the temperature of the airframe must be constant in the limit of ±5 degrees for a minimum of one hour.

(d) Make sure you can easily remove and install the rig pin [27].

(e) Install the clips [8] on the turnbuckles [10].

SUBTASK 27-51-00-820-005

(8) Make a preliminary adjustment of the trailing edge flap control valve [19]:

NOTE: This adjustment will make sure the ballscrew nuts do not hit the upstops on the ballscrews when you retract the flaps. The final adjustment will be done after the flap drive system is adjusted.

(a) Measure the distance the valve slide [29] extends past the index surface [28] on the trailing edge flap control valve [19].

(b) If the valve slide [29] does not extend past the index surface [28] in the limit of 0.00 to 0.030 inch (0.00 to 0.76 millimeters), then adjust the trailing edge flap control valve [19]:

1) Loosen the nut [30] and nut [33] on the adjustable sleeve [31].

2) Turn the adjustable sleeve [31] to change the position of the rod end [24] until the valve slide [29] and the index surface [28] align in the limit.

3) Tighten the nut [30] and nut [33] on the adjustable sleeve [31].

NOTE: Make sure the distance between the center of the rod end [24] and the nut [33] is less than 0.94 inch (23.9 millimeters). Make sure the distance between the nut [30] and the hex on the adjustable sleeve [31] is less than 0.19 inch (4.8 millimeters).

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CAUTION: MAKE SURE HYDRAULIC POWER IS REMOVED BEFORE YOU DISCONNECT THE ROD END FROM THE SUMMING LEVER. IF YOU DISCONNECT THE ROD END WITH HYDRAULIC POWER ON YOU CAN CAUSE DAMAGE TO THE FLAP CONTROL UNIT.

4) If it is necessary, disconnect the rod end [24] from the summing lever [20]:

NOTE: It is necessary to disconnect the rod end [24] if you cannot align the valve slide [29] and the index surface [28] while the adjustable sleeve [31] is in the limits.

a) Remove the nut [23], washer [22], and bolt [21] that attach the rod end [24] to the summing lever [20].

b) Change the position of the adjustable sleeve [31].

c) Install the bolt [21], washer [22] and nut [23] to attach the rod end [24] to the summing lever [20].

5) Tighten the nut [30] and nut [33].

NOTE: It is not necessary to install the lockwire on the nuts now. You will install lockwire after the final adjustment is complete.

SUBTASK 27-51-00-820-006

(9) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

SUBTASK 27-51-00-420-001

(10) Connect the torque tubes [18] to the flap power drive unit [17]:

(a) Remove the clamp set, SPL-1726 from the torque tubes [18].

(b) Make sure the ballscrew nuts for transmission No. 4 and No. 5 are 1/2 turn ±10 degrees (±0.25 inch) (±6.3 millimeters) from the upstop on the ballscrew yoke.

(c) Apply grease, D00633 to the coupling sleeve [15].

(d) Put the splined couplings [16] in the coupling sleeve [15].

(e) Install the screws [14] to attach the torque tubes [18] to the power drive unit [17].

(f) Install lockwire on the screws [14].

SUBTASK 27-51-00-420-002

(11) For the flap position transmitters on the left and right wings, do this task: Flap Position Transmitter Installation, TASK 27-58-01-400-801.

SUBTASK 27-51-00-860-023

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(12) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-00-860-024

(13) Use the primary system to extend the trailing edge flaps to the 40-unit position. To extend the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

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SUBTASK 27-51-00-860-025

(14) Use the primary system to retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

NOTE: Wait a minimum of 2 minutes before you remove the hydraulic power. The flaps can move a small distance during this time.

SUBTASK 27-51-00-860-026

(15) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-00-820-007

(16) Do these steps to do a check of the adjustment of the trailing edge flap control valve [19]:

(a) Make sure you can install the rig pin [27] in the flap control unit [4].

(b) Make sure the ballscrew nuts for transmission No. 4 and No. 5 are 1/2 turn ±10 degrees (±0.25 inch) (±6.3 millimeters) from the upstop on the ballscrew yoke.

SUBTASK 27-51-00-820-008

(17) If you cannot install the rig pin [27], or if the ballscrew nuts are not in the correct position, then do a final adjustment of the trailing edge flap control valve [19]:

NOTE: It can be necessary to adjust the flap control valve [19] more than once to get it to the correct position.

(a) Loosen the nut [30] and nut [33] on the adjustable sleeve [31].

CAUTION: ADJUST THE FLAP CONTROL VALVE A SMALL DISTANCE AT A TIME. IF YOU ADJUST THE FLAP CONTROL VALVE TOO FAR, THE BALLSCREW NUTS CAN HIT THE UPSTOPS. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Turn the adjustable sleeve [31] to change the position of the valve slide [29].

NOTE: If the flaps did not retract far enough, adjust the valve slide [29] to be further out of the flap control valve [19]. If the flaps retracted too far, adjust the valve slide [29] to be further in the flap control valve [19].

(c) Tighten the nut [30] and nut [33]] on the adjustable sleeve [31].

NOTE: Make sure the distance between the center of the rod end [24] and the nut [33] is less than 0.94 inch (23.9 millimeters). Make sure the distance between the nut [30] and the hex on the adjustable sleeve [31] is less than 0.19 inch (4.8 millimeters).

CAUTION: MAKE SURE HYDRAULIC POWER IS REMOVED BEFORE YOU DISCONNECT THE ROD END FROM THE SUMMING LEVER. IF YOU DISCONNECT THE ROD END WITH HYDRAULIC POWER ON YOU CAN CAUSE DAMAGE TO THE FLAP CONTROL UNIT.

(d) If it is necessary, disconnect the rod end [24] from the summing lever [20]:

NOTE: It is necessary to disconnect the rod end [24] if you cannot adjust the valve slide [29] enough to get the flaps in the correct position.

1) Remove the nut [23], washer [22] and bolt [21] that attach the rod end [24] to the summing lever [20].

2) Change the position of the adjustable sleeve [31].

3) Install the bolt [21], washer [22] and nut [23] to attach the rod end [24] to the summing lever [20].

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(e) Tighten the nut [30] and nut [33].

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(f) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(g) Use the primary system to fully extend and retract the trailing edge flaps a minimum of five times. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(h) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(i) Make sure you can install the rig pin [27] in the flap control unit [4].

(j) Make sure the ballscrew nuts for transmission No. 4 and No. 5 are 1/2 turn ±10 degrees (±0.25 inch) (±6.3 millimeters) from the upstop on the ballscrew yoke.

SUBTASK 27-51-00-420-003

(18) Install lockwire on the nut [30], nut [33] and the adjustable sleeve [31].

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-410-002

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

or install this access panel:

Number	Name/Location
114AC	Fwd Nose Wheel Well Upper Access Panel

SUBTASK 27-51-00-410-003

(2) Install the floor panel above the flap control unit [4], do this task: Passenger Cabin Floor Panel Installation, TASK 53-21-00-400-801.

SUBTASK 27-51-00-410-004

(3) Install the lower pan [26] on the flap control unit [4]:

(a) Put the lower pan [26] in its location on the flap control unit [4].

(b) Apply compound, C00913 to the shank and threads of the screws [25].

(c) Install the washers [32] and screw [25] to attach the lower pan [26].

END OF TASK

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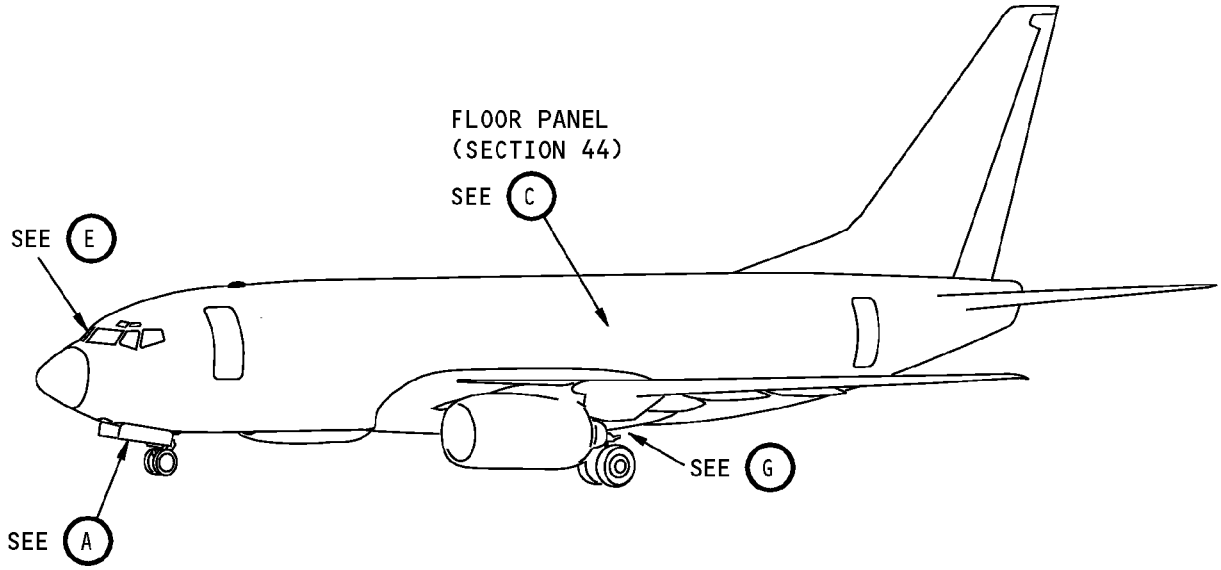

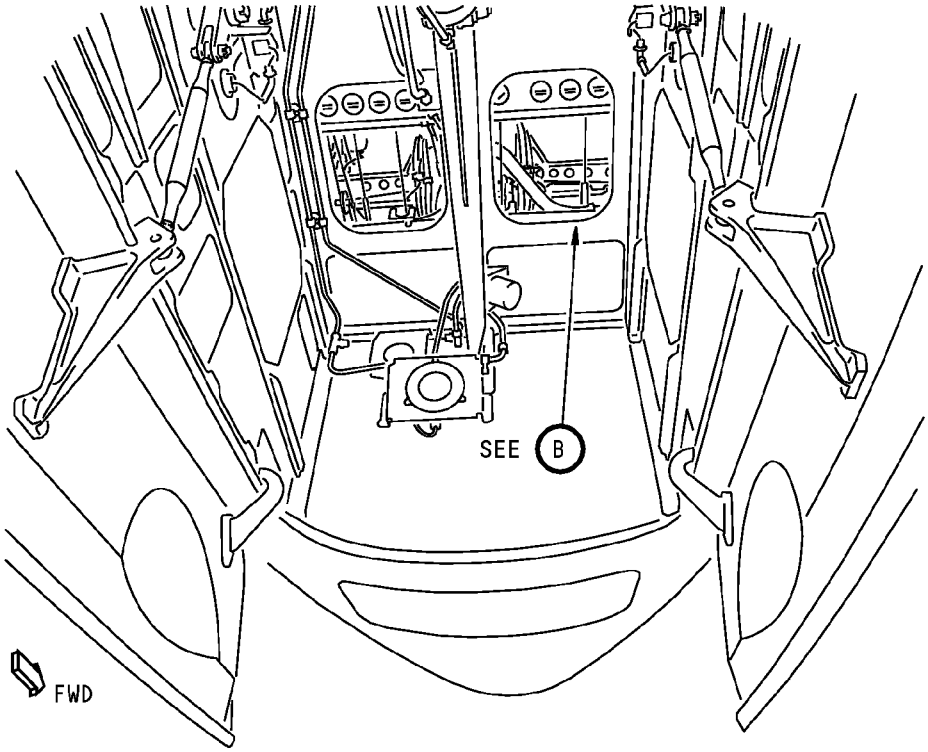

NOSE LANDING GEAR WHEEL WELL

A

Trailing Edge Flap Control System Adjustment
Figure 502 (Sheet 1 of 8)/27-51-00-990-805

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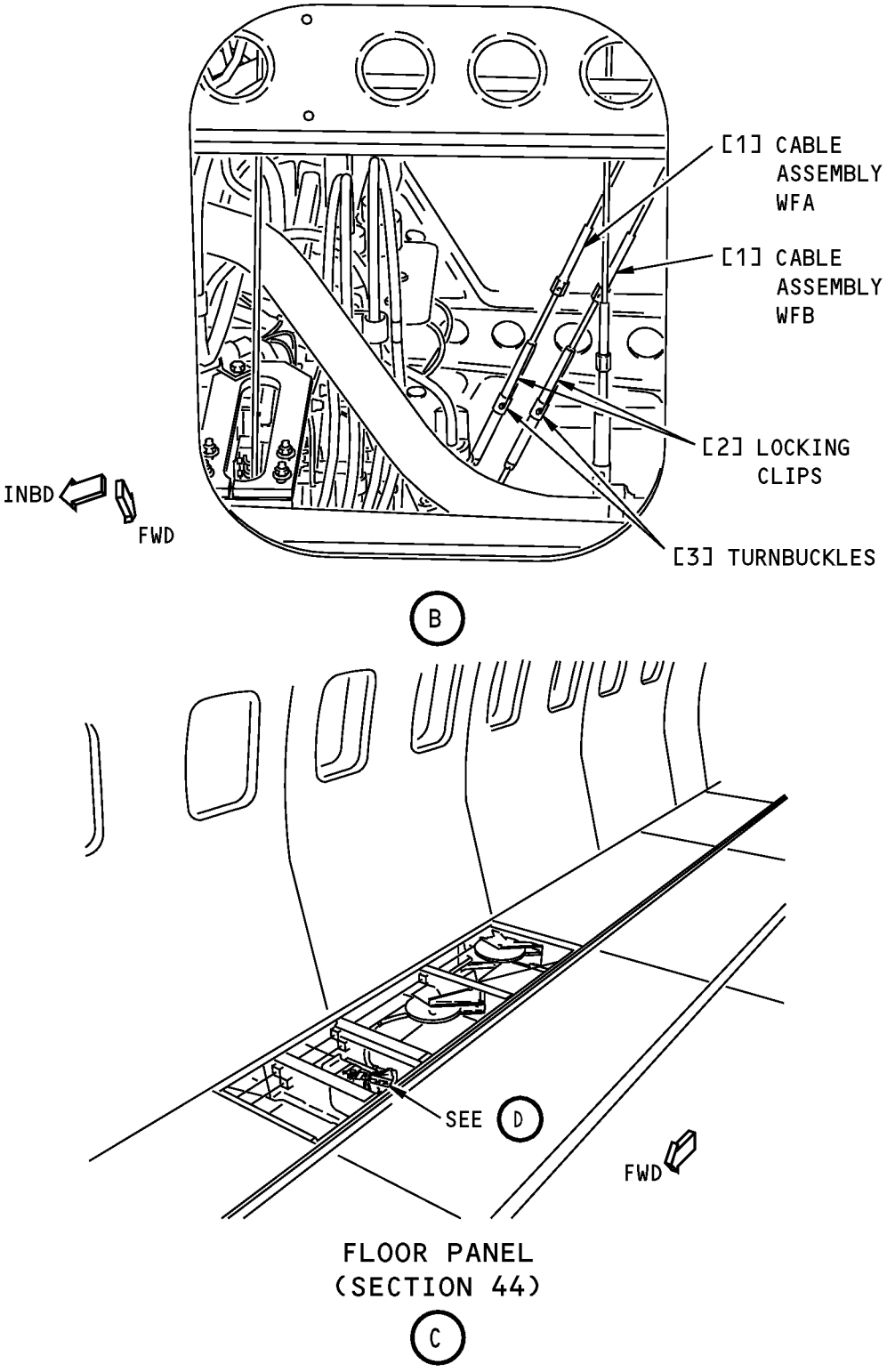

Trailing Edge Flap Control System Adjustment
Figure 502 (Sheet 2 of 8)/27-51-00-990-805

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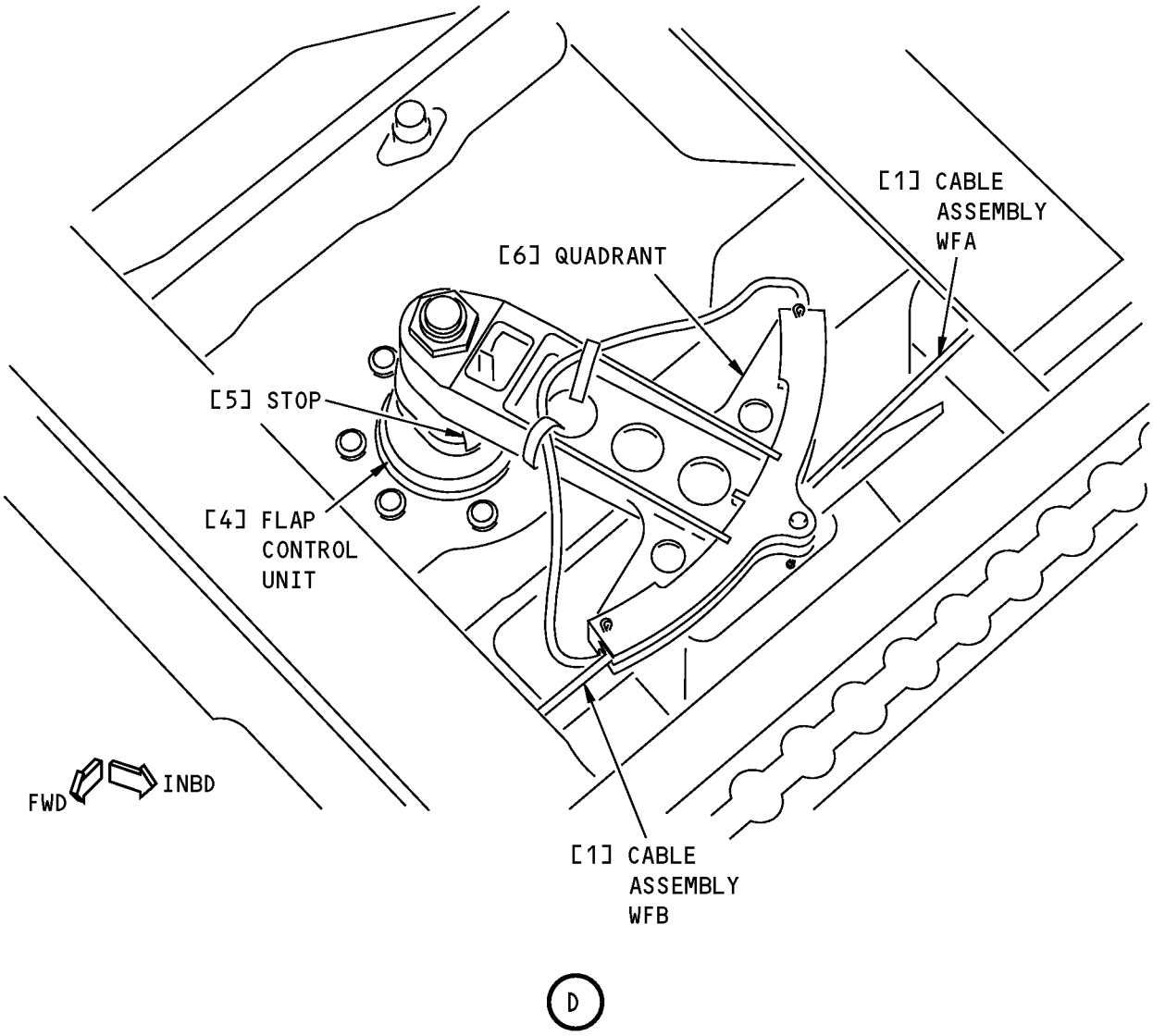

Trailing Edge Flap Control System Adjustment
Figure 502 (Sheet 3 of 8)/27-51-00-990-805

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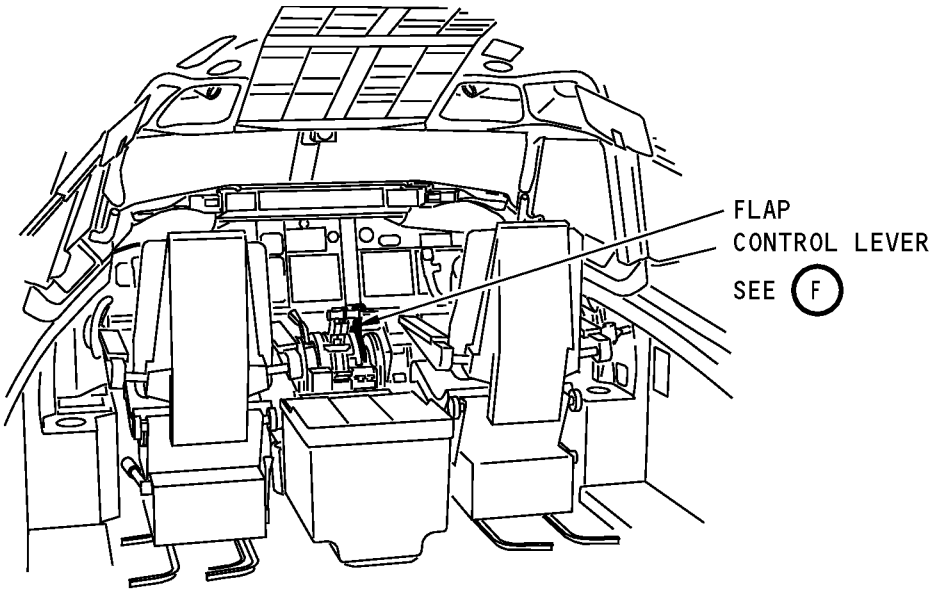
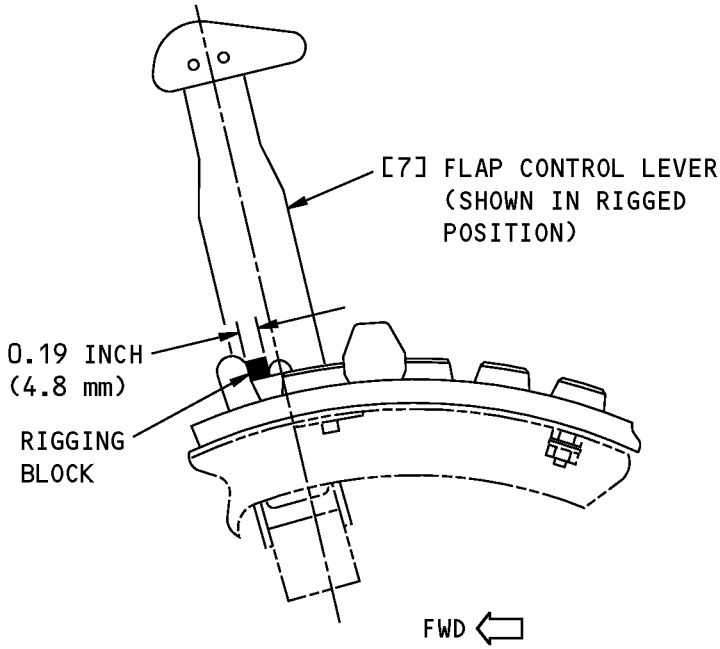


FLIGHT COMPARTMENT

E



F

Trailing Edge Flap Control System Adjustment
Figure 502 (Sheet 4 of 8)/27-51-00-990-805

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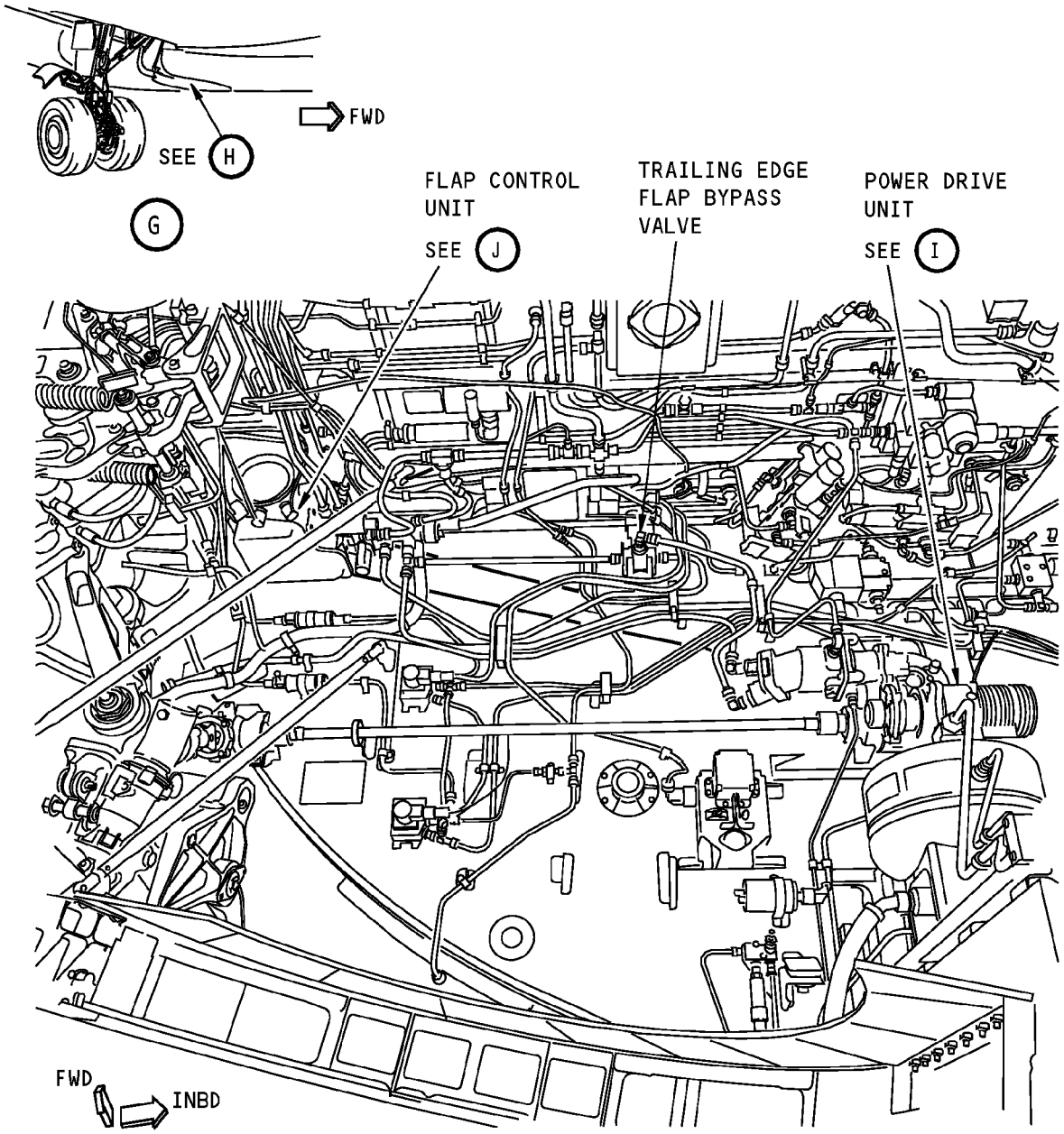

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

H

Trailing Edge Flap Control System Adjustment
Figure 502 (Sheet 5 of 8)/27-51-00-990-805

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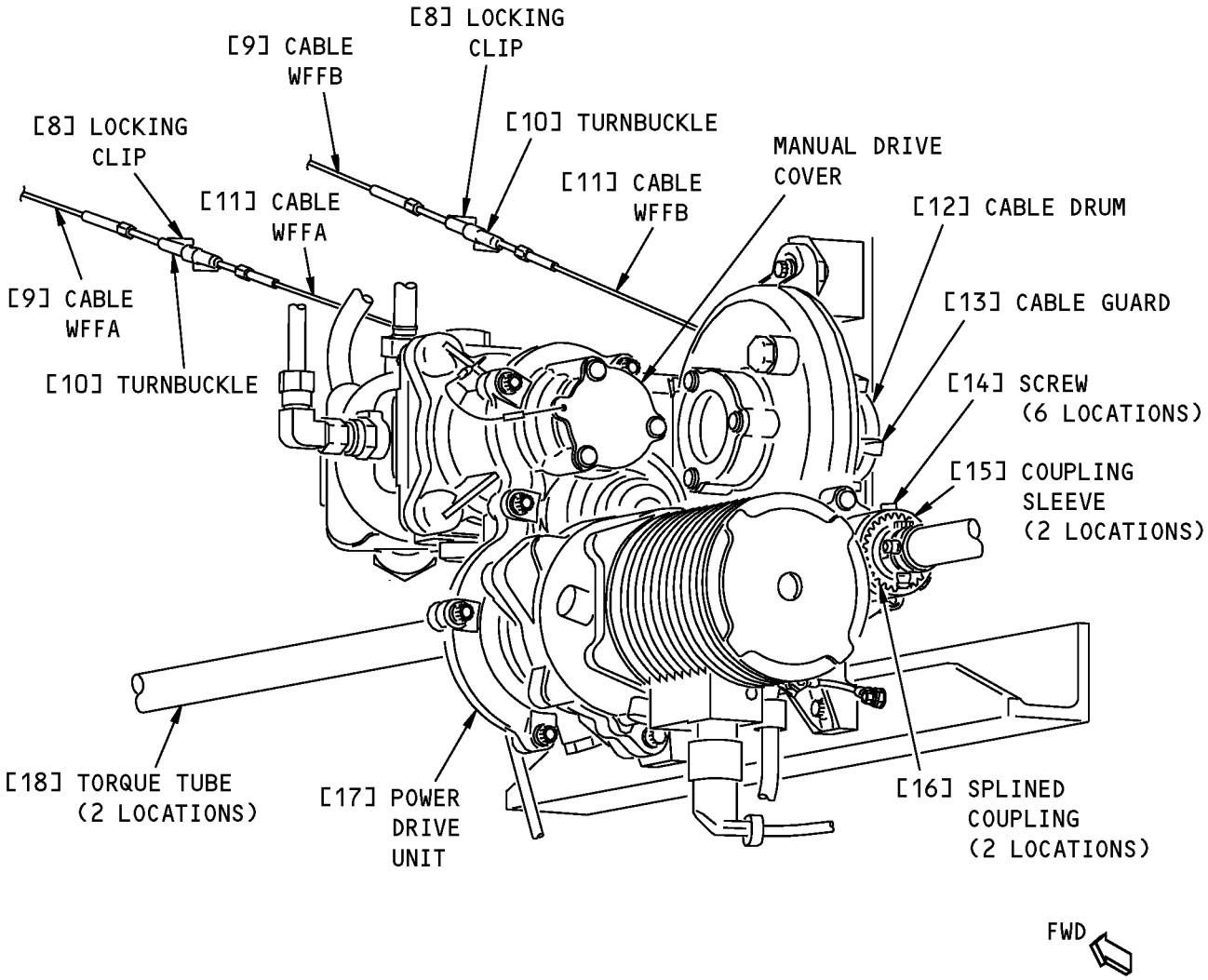

Trailing Edge Flap Control System Adjustment
Figure 502 (Sheet 6 of 8)/27-51-00-990-805

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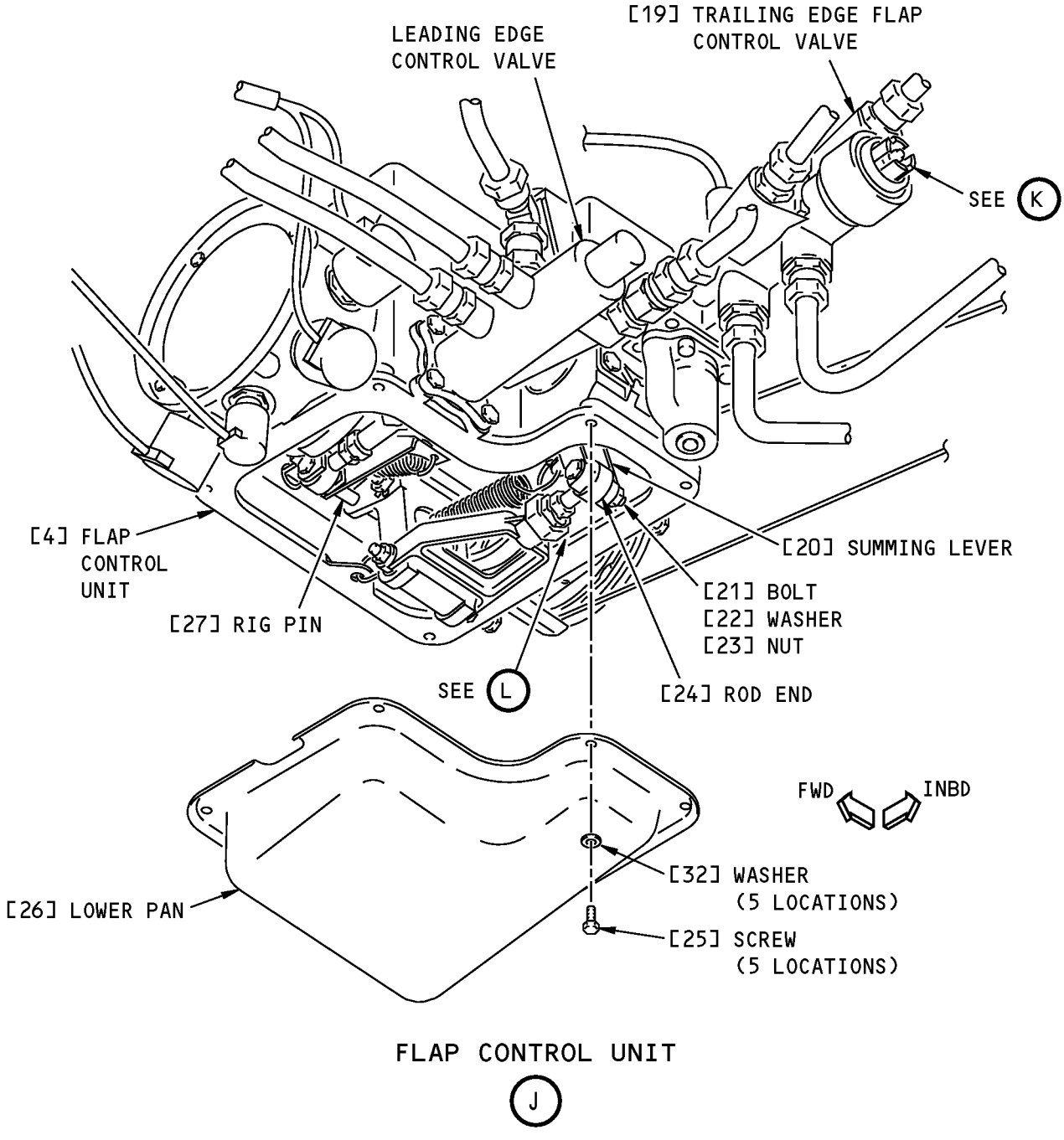

FLAP CONTROL UNIT
J

Trailing Edge Flap Control System Adjustment
Figure 502 (Sheet 7 of 8)/27-51-00-990-805

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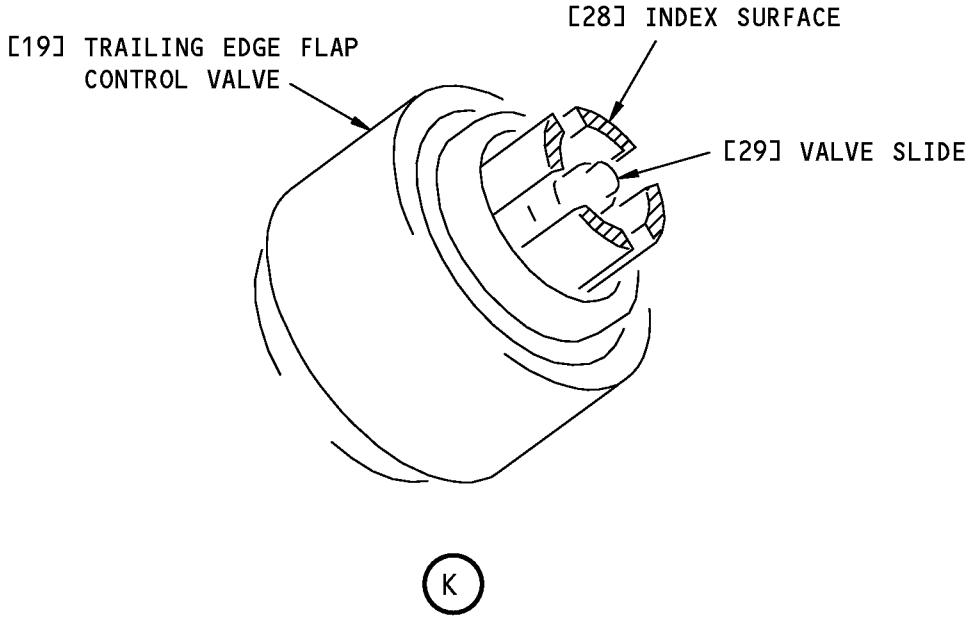

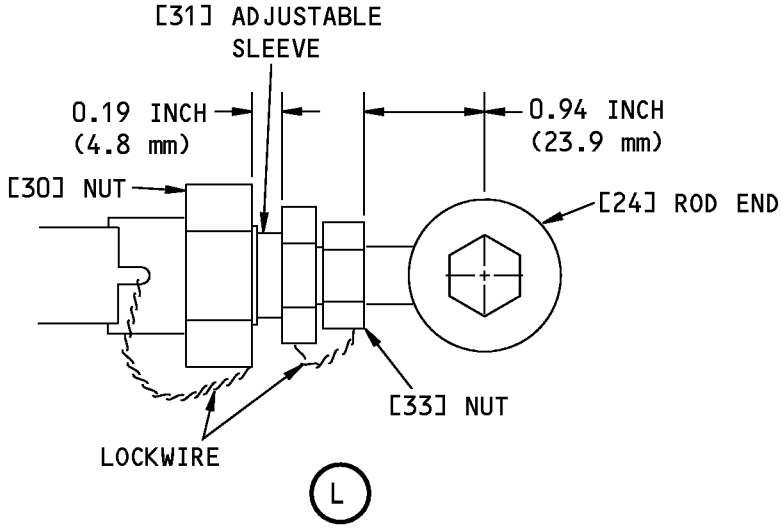

Trailing Edge Flap Control System Adjustment
Figure 502 (Sheet 8 of 8)/27-51-00-990-805

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TASK 27-51-00-820-802

4. Trailing Edge Flap Drive System Adjustment

(Figure 503)

A. General

(1) This task does a check of the adjustment and an adjustment of the trailing edge flap drive system. The procedure to adjust the inboard flaps is in (TASK 27-51-11-820-801). The procedure to adjust the outboard flaps is in (TASK 27-51-21-820-801).

(a) The trailing edge flap drive system includes the flap transmissions, angle gearboxes, torque tubes, and the flap power drive unit.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
27-51-21-820-801	Outboard Trailing Edge Flap Adjustment (P/B 501)
27-58-01-000-801	Flap Position Transmitter Removal (P/B 401)
27-58-01-400-801	Flap Position Transmitter Installation (P/B 401)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1679	Adapter - Drive, Flap Torque Tube Spline (Part #: F70300-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
541	Left Wing - Fairing Flap Support No. 4
542	Left Wing - Fairing Flap Support No. 3
543	Left Wing - Fairing Flap Support No. 2
544	Left Wing - Fairing Flap Support No. 1
550	Subzone - Left Wing: Trailing Edge, Aft of Rear Spar, Inbd of Outboard Trailing Edge Flap

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(Continued)

Zone	Area
560	Subzone - Left Wing: Trailing Edge , Aft of Rear Spar, Outboard of Inbd Trailing Edge Flap, Inbd of Fixed Trailing Edge
641	Right Wing - Fairing Flap Support No. 5
642	Right Wing - Fairing Flap Support No. 6
643	Right Wing - Fairing Flap Support No. 7
644	Right Wing - Fairing Flap Support No. 8
650	Subzone - Right Wing: Trailing Edge, Aft of Rear Spar, Inboard of Outboard Trailing Edge Flap
660	Subzone - Right Wing: Trailing Edge, Aft of Rear Spar, Outboard of Inboard Trailing Edge Flap, Inboard of Fixed Trailing Edge

F. Do a Check of the Trailing Edge Flap Drive System Adjustment

SUBTASK 27-51-00-040-004

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-00-480-015

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-00-980-003

(3) Manually extend the flaps until the ballscrew nuts touch the downstops on the ballscrews:

(a) If the torque tubes are not connected to the flap power drive unit, manually extend the flaps on each wing:

1) If all of the torque tubes on the wing are connected, use an adapter, SPL-1679 on the torque tube couplings inboard of the tee-angle gearbox.

CAUTION: DO NOT MOVE ONE END OF A FLAP MORE THAN 1.4 INCHES (35.5 MILLIMETERS) OF BALLSCREW TRAVEL MORE THAN THE OTHER END. YOU CAN CAUSE THE FLAP TO SKEW EXCESSIVELY. THIS CAN CAUSE DAMAGE TO THE FLAP.

2) If all of the torque tubes on the wing are not connected, use an adapter, SPL-1679 to drive each flap independently.

(b) If the torque tubes are connected to the flap power drive unit, and all of the torque tubes are connected on each wing, use the manual drive to extend the flaps. To use the manual drive, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-00-220-001

(4) Do a check of the adjustment of the flap drive system on each wing:

NOTE: If all of the torque tubes on the wing are not connected, it is not necessary to do this check.

(a) At all of the transmissions, measure and record the dimension from the downstop on the ballscrew nut to the downstop on the ballscrew.

NOTE: This dimension is referred to as Dimension Y.

(b) Make sure the Dimension Y for the transmission No. 4 and transmission No. 5 are in these limits:

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1) If the torque tubes are connected between the wings, Dimension Y must be 0.0 (the ballscrew nut touches the downstop) for one transmission and in the limit of 0.0 to 0.1 inch (0.0 to 2.5 millimeters) for the other transmission.

2) If the torque tubes are not connected between the wings, Dimension Y must be 0.0 (the ballscrew nut touches the downstop) for the two transmission.

(c) On the left wing flap drive system:

1) Make sure Dimension Y for transmissions No. 1 and No. 3 are in the limit of 0.0 to 0.2 inch (0.0 to 5.1 millimeters) more than Dimension Y at transmission No. 4.

2) Make sure Dimension Y for transmission No. 2 is in the limit of 0.0 to 0.22 inch (0.0 to 5.6 millimeters) more than Dimension Y at transmission No. 1.

(d) On the right wing flap drive system:

1) Make sure Dimension Y for transmissions No. 6 and No. 8 are in the limit of 0.0 to 0.2 inch (0.0 to 5.1 millimeters) more than Dimension Y at transmission No. 5.

2) Make sure Dimension Y for transmission No. 7 is in the limit of 0.0 to 0.22 inch (0.0 to 5.6 millimeters) more than Dimension Y at transmission No. 8.

SUBTASK 27-51-00-820-009

(5) If the flap drive system is not adjusted correctly on each wing, do the trailing edge flap drive system adjustment.

G. Trailing Edge Flap Drive System Adjustment

SUBTASK 27-51-00-020-003

(1) For the flap position transmitters on the left and right wings, do this task: Flap Position Transmitter Removal, TASK 27-58-01-000-801.

NOTE: If you do not remove the flap position transmitters before you disconnect the torque tubes, they will become incorrectly adjusted.

SUBTASK 27-51-00-020-004

(2) Disconnect the torque tubes [18] from the flap power drive unit [17] (Figure 502):

NOTE: This will disconnect the flap drive system for the left wing from the right wing. It is necessary to adjust the left and the right wings independently, then connect them together.

(a) Remove the screws [14] that attach the coupling sleeves [15] to the splined couplings [16].

(b) Move the coupling sleeves [15] off the splined couplings [16].

(c) Move the torque tubes [18] away from the flap power drive unit [17].

SUBTASK 27-51-00-020-005

(3) Disconnect the torque tube from the inboard side of transmission No. 2 or transmission No. 7 (Figure 503):

NOTE: This will disconnect the flap drive system for the outboard flaps from the inboard flaps.

(a) Remove the screws [14] that attach the coupling sleeves [15] to the splined couplings [16].

(b) Move the coupling sleeves [15] off the splined couplings [16].

(c) Move the torque tubes away from the transmission.

SUBTASK 27-51-00-820-010

(4) Adjust the flap drive system for the outboard flap:

NOTE: This procedure is applicable to the drive system for the outboard flap on the left wing and the right wing.

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CAUTION: DO NOT MOVE ONE END OF A FLAP MORE THAN 1.4 INCHES (35.5 MILLIMETERS) OF BALLSCREW TRAVEL MORE THAN THE OTHER END. YOU CAN CAUSE THE FLAP TO SKEW EXCESSIVELY. THIS CAN CAUSE DAMAGE TO THE FLAP.

(a) Use an adapter, SPL-1679 on the coupling on the inboard side of transmission No. 2 to extend the outboard flap until one of the ballscrew nuts touch the downstop on the ballscrew.

(b) Make sure the ballscrew nut at transmission No. 1 touches the downstop (Dimension Y = 0).

(c) Make sure the Dimension Y for transmission No. 2 is in the limit of 0.0 to 0.20 inch (0.0 to 5.08 millimeters).

(d) If the ballscrew nuts for transmissions No. 1 and No. 2 are not in the limits, adjust the drive system for the outboard flap:

1) Disconnect the torque tubes between transmissions No. 1 and No. 2:

a) Remove the screws [14] that attach the coupling sleeves [15] to the splined couplings [16].

b) Move the coupling sleeve [15] off the splined coupling [16].

c) Move the torque tube away from the transmission.

2) Manually extend the transmissions until the ballscrew nuts for transmissions No. 1 and transmission No. 2 touch the downstops.

3) Connect the torque tubes between the transmissions No. 1 and No. 2:

NOTE: To align the torque tube couplings, you can retract the transmission No. 2 a maximum of 1/3 of a torque tube turn.

a) Apply grease, D00633 to the coupling sleeve [15].

b) Put the splined coupling [16] in the coupling sleeve [15].

c) Install the screws [14] to attach the torque tube to the transmission.

d) Install lockwire on the screw [14].

SUBTASK 27-51-00-820-011

(5) Adjust the flap drive system for the inboard flap:

NOTE: This procedure is applicable to the drive system for the inboard flap on the left wing and the right wing.

CAUTION: DO NOT MOVE ONE END OF A FLAP MORE THAN 1.4 INCHES (35.5 MILLIMETERS) OF BALLSCREW TRAVEL MORE THAN THE OTHER END. YOU CAN CAUSE THE FLAP TO SKEW EXCESSIVELY. THIS CAN CAUSE DAMAGE TO THE FLAP.

(a) Use an adapter, SPL-1679 on the coupling on the inboard side of transmission No. 4 to extend the inboard flap until one of the ballscrew nuts touch the downstop on the ballscrew.

(b) Make sure the ballscrew nut at transmission No. 4 touches the downstop (Dimension Y = 0).

(c) Make sure the Dimension Y for transmission No. 3 is in the limit of 0.0 to 0.18 inch (0.0 to 4.57 millimeters).

(d) If the ballscrew nuts for transmissions No. 3 and No. 4 are not in the limits, adjust the drive system for the inboard flap:

1) Disconnect the torque tubes between transmissions No. 3 and No. 4:

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a) Remove the screws [14] that attach the coupling sleeve [15] to the splined coupling [16].

b) Move the coupling sleeve [15] off the splined coupling [16].

c) Move the torque tube away from the transmission.

2) Manually extend the transmissions until the ballscrew nuts for transmissions No. 3 and transmission No. 4 touch the downstops.

3) Connect the torque tubes between the transmissions No. 3 and No. 4.

NOTE: To align the torque tube couplings, you can retract the transmission No. 3 a maximum of 1/3 of a torque tube turn.

a) Apply grease, D00633 to the coupling sleeve [15].

b) Put the splined coupling [16] in the coupling sleeve [15].

c) Install the screws [14] to attach the torque tube to the transmission.

d) Install lockwire on the screws [14].

SUBTASK 27-51-00-820-012

(6) Connect the inboard and the outboard flaps:

NOTE: This procedure is applicable to the drive system for the inboard and outboard flaps on the left wing and the right wing.

(a) Make sure the ballscrew nuts at transmission No. 1 and transmission No. 4 touch the downstop (Dimension Y = 0).

(b) Make sure the Dimension Y for transmission No. 2 is in the limit of 0.0 to 0.20 inch (0.0 to 5.08 millimeters).

(c) Make sure the Dimension Y for transmission No. 3 is in the limit of 0.0 to 0.18 inch (0.0 to 4.51 millimeters).

(d) Connect the torque tubes between the transmissions No. 2 and No. 3.

NOTE: To align the torque tube couplings, you can retract the transmission No. 2 a maximum of 1/3 of a torque tube turn.

1) Apply grease, D00633 to the coupling sleeve [15].

2) Put the splined coupling [16] in the coupling sleeve [15].

3) Install the screws [14] to attach the torque tube to the transmission.

4) Install lockwire on the screws [14].

(e) Make sure the Dimension Y for transmission No. 2 is in the limit of 0.0 to 0.40 inch (0.0 to 10.16 millimeters).

SUBTASK 27-51-00-820-013

(7) Move the flap drive system to the retracted position (Figure 502):

WARNING: DO NOT RETRACT THE POWER DRIVE UNIT PAST THE RIG MARK IN THE UP DIRECTION. YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Use the manual drive on the flap power drive unit [17] to retract it to the retracted position.

NOTE: The flap power drive unit is in the retracted position when the black rig mark on the cable drum [12] extends past the white cable guard [13] a minimum of 0.03 inches (0.76 millimeters) on each side.

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(b) Use an adapter, SPL-1679 on the torque tube couplings inboard of the tee-angle gearbox to retract the left and right wings to the retracted position.

NOTE: The flap drive systems for the wings are in the retracted position when the ballscrew nuts are 1/2 turn +/- 10 degrees (+/- 0.25 inch) from the upstop on the yoke.

1) Retract the flap drive systems until the ballscrew nuts for transmission No. 4 and transmission No. 5 are approximately 1/2 turn from the upstop on the yokes.

2) Make sure the distance from the upstop for transmission No. 4 and transmission No. 5 are the same in the limit of 0.25 in. (6.35 mm).

SUBTASK 27-51-00-820-014

(8) Connect the torque tubes [18] to the flap power drive unit [17]:

NOTE: Do not rotate the torque tubes more than 5 spline teeth, in either direction, to the nearest position where the bolt holes align at the torque tube coupling connection. Do not rotate the PDU at this step.

NOTE: This will connect the flap drive system for the left wing to the right wing.

(a) Apply grease, D00633 to the coupling sleeve [15].

(b) Put the splined coupling [16] in the coupling sleeve [15].

(c) Install the screws [14] to attach the torque tube [18] to the power drive unit [17].

(d) Install lockwire on the screws [14].

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-00-210-010

(9) Make sure the torque trip indicators on the transmissions are set.

HAP ALL

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-420-004

(1) For the flap position transmitters on the left and the right wing, do this task: Flap Position Transmitter Installation, TASK 27-58-01-400-801.

SUBTASK 27-51-00-440-003

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

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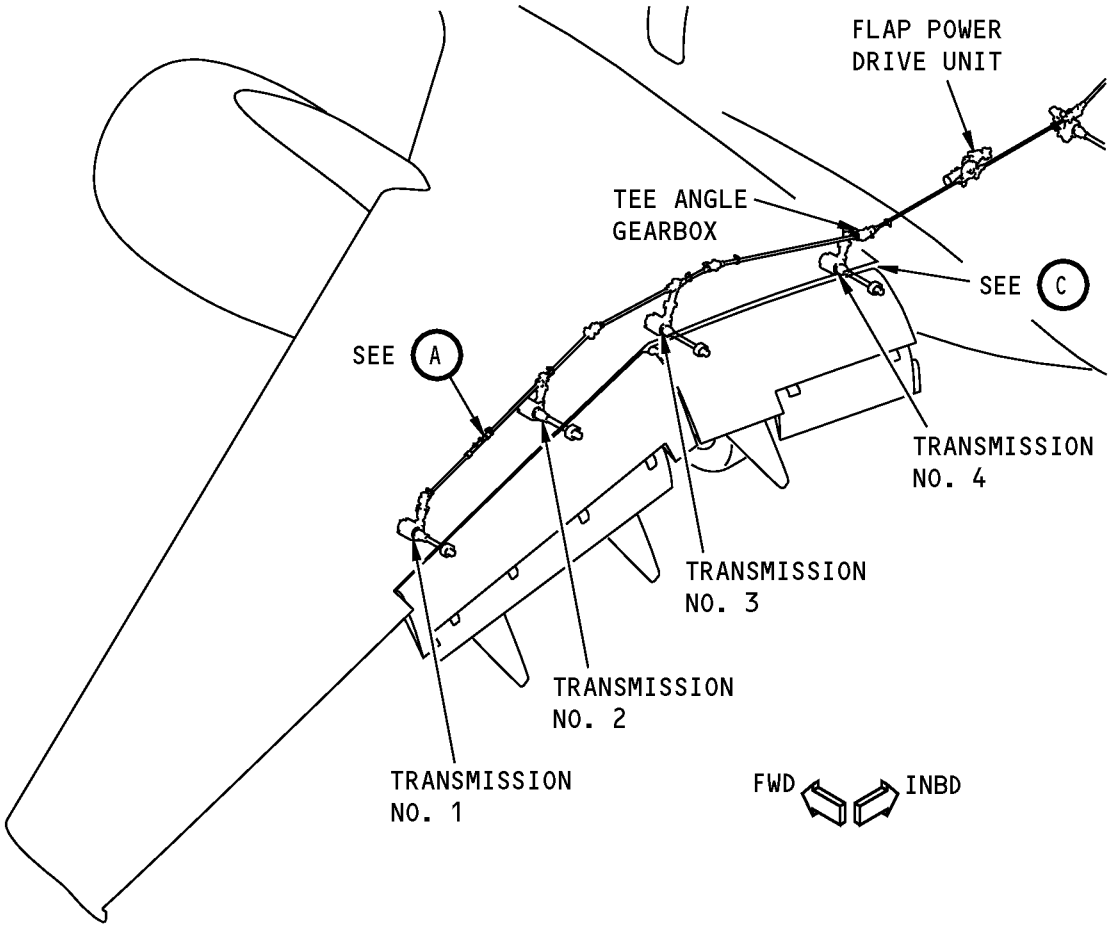

Trailing Edge Flap Drive System Adjustment
Figure 503 (Sheet 1 of 6)/27-51-00-990-806

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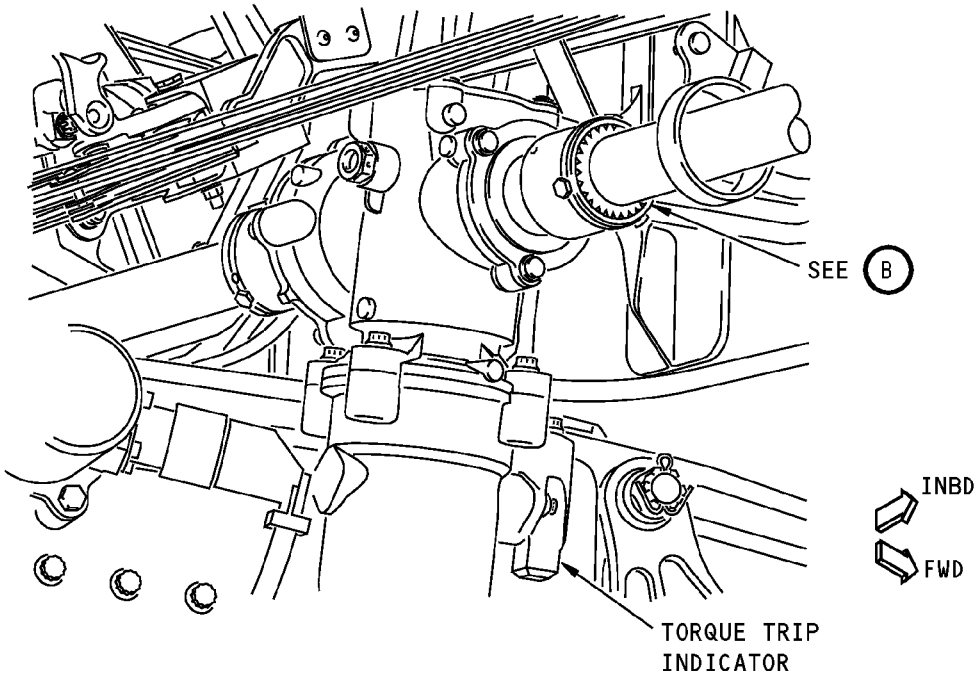

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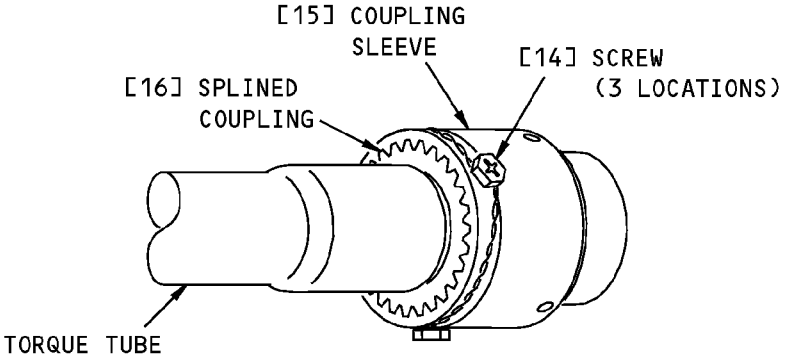

TORQUE TUBE COUPLING
(EXAMPLE)

B

Trailing Edge Flap Drive System Adjustment
Figure 503 (Sheet 2 of 6)/27-51-00-990-806

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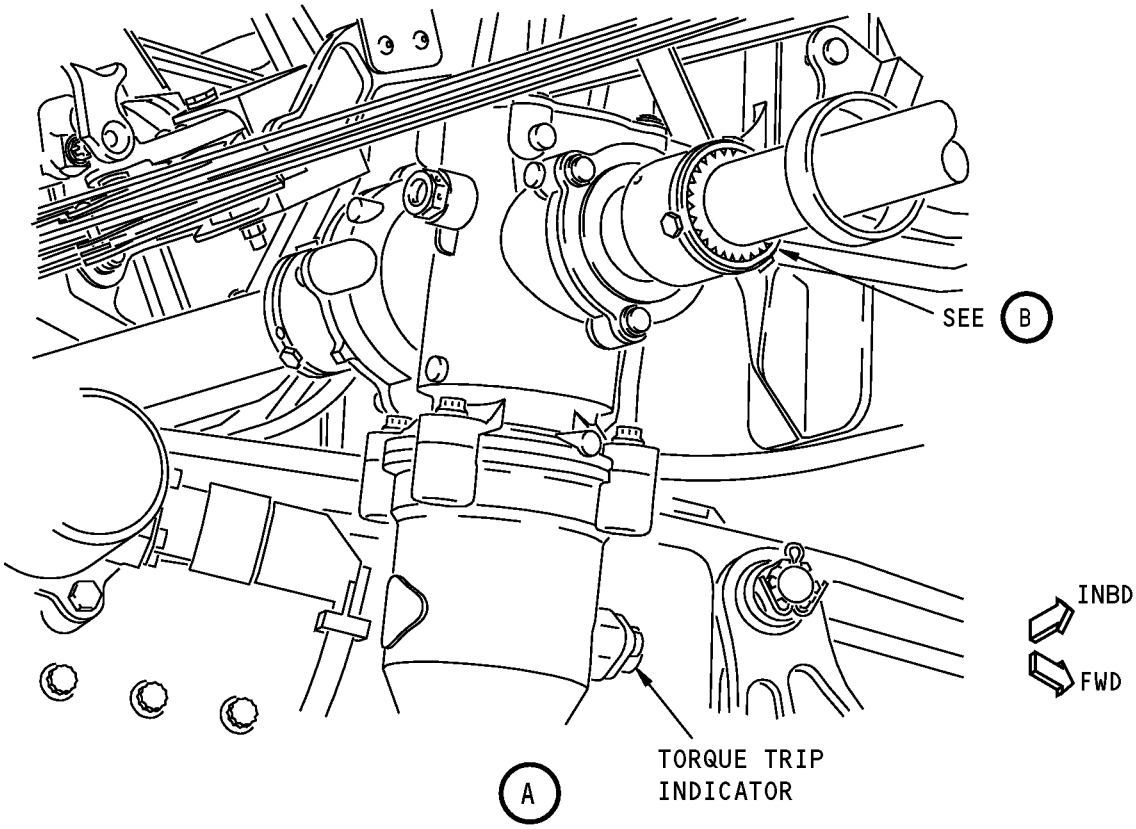

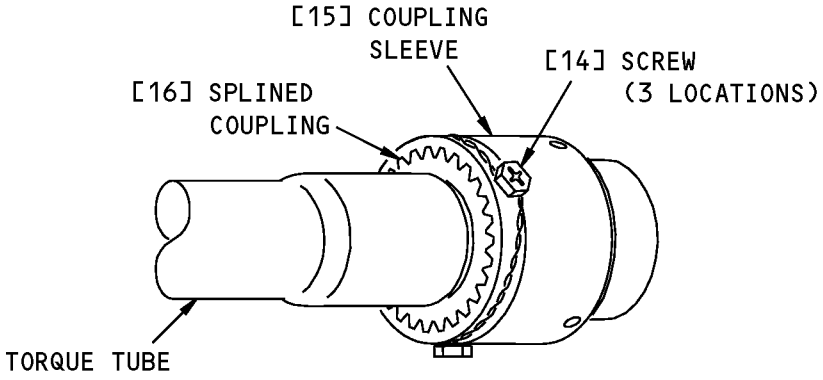

TORQUE TUBE COUPLING
(EXAMPLE)
B

Trailing Edge Flap Drive System Adjustment
Figure 503 (Sheet 3 of 6)/27-51-00-990-806

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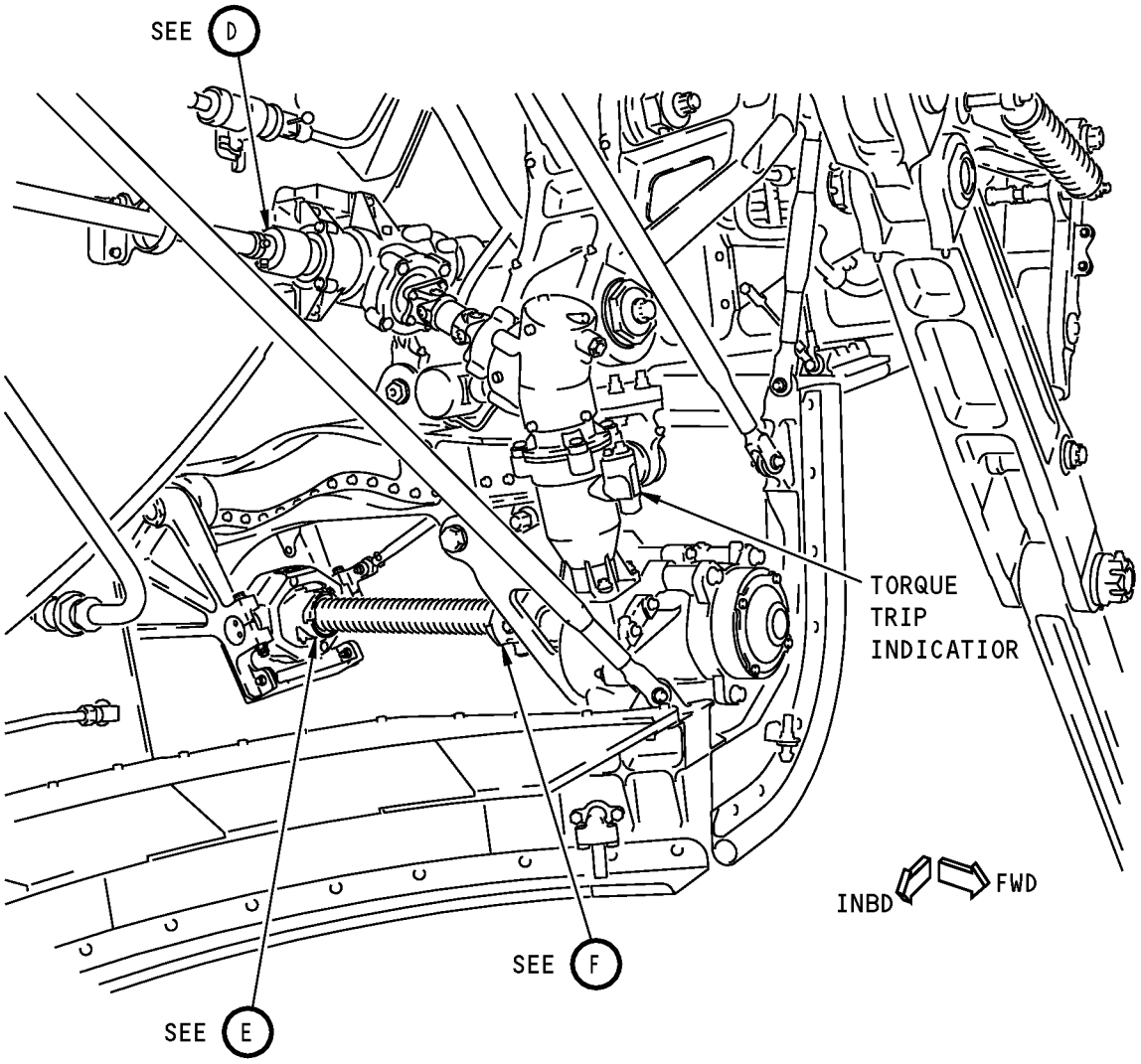

MAIN LANDING GEAR WHEEL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

C

Trailing Edge Flap Drive System Adjustment
Figure 503 (Sheet 4 of 6)/27-51-00-990-806

EFFECTIVITY
HAP 005, 008-013, 015-026, 028-054, 101-999; AIRPLANES WITH HORIZONTAL TORQUE TRIP INDICATORS

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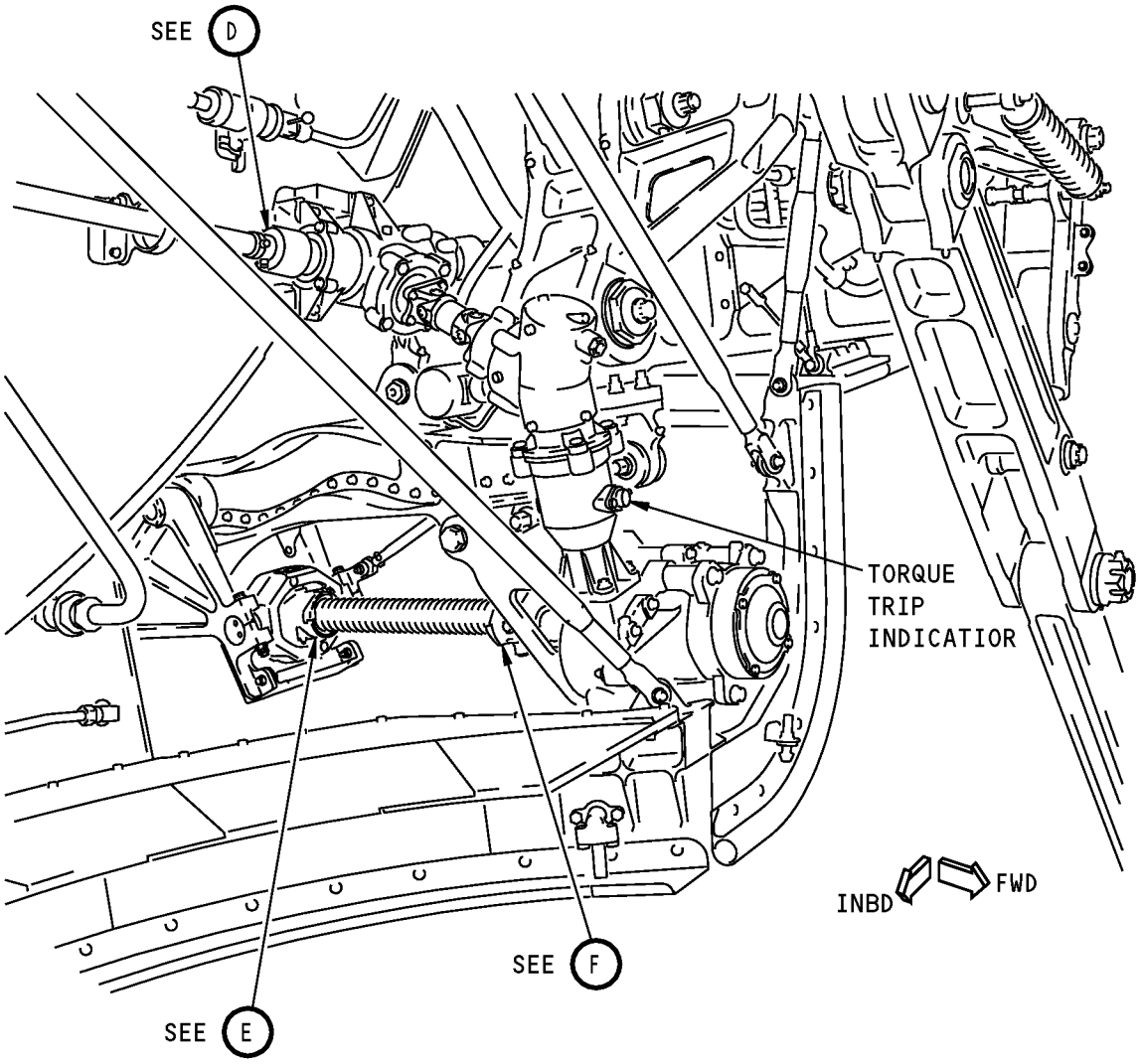

MAIN LANDING GEAR WHEEL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

C

Trailing Edge Flap Drive System Adjustment
Figure 503 (Sheet 5 of 6)/27-51-00-990-806

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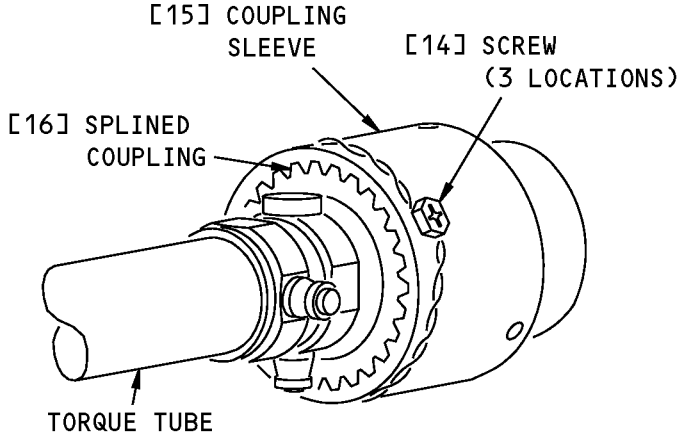
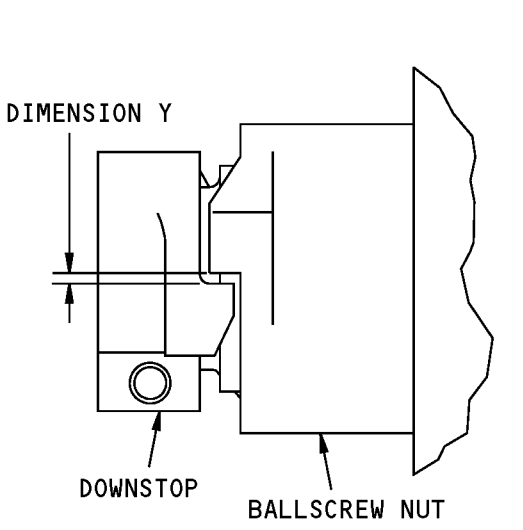


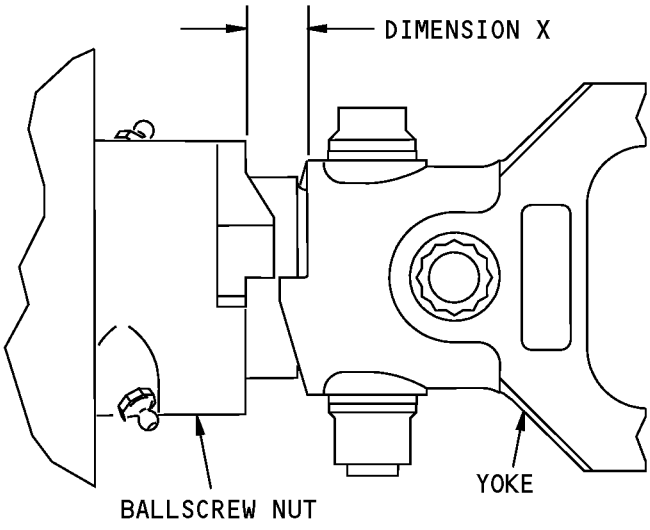
TORQUE TUBE COUPLING (EXAMPLE)

D



(EXAMPLE)

E



(EXAMPLE)

F

Trailing Edge Flap Drive System Adjustment
Figure 503 (Sheet 6 of 6)/27-51-00-990-806

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TASK 27-51-00-730-801

5. Trailing Edge Flap System Test

(Figure 501)

A. General

(1) This task does a functional test of the trailing edge flap system. This task includes these parts:

(a) A test of the FSEU display and a check of existing faults

(b) A test of the asymmetry and skew systems

(c) A test of the load relief system

(d) A test of the primary operation

(e) A test of the power supply for the ALTERNATE FLAPS switches and the bypass valve

(f) A test of the power supply for the flap electric motor

(g) A test of the UP limit switch

(h) A test of the DOWN limit switch

(i) A test of the flap priority valve

(j) A test of the force required to move the flap control lever.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 27-51-00-860-027

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-010-004

(2) to get access to the main equipment center.

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

F. Trailing Edge Flap System Test

SUBTASK 27-51-00-730-001

(1) Do this task: FSEU Display and Existing Faults Test, TASK 27-51-00-740-801.

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SUBTASK 27-51-00-730-002

(2) Do this task: Trailing Edge Flap Asymmetry Skew System BITE Test, TASK 27-51-00-740-802.

SUBTASK 27-51-00-860-028

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Use a hydraulic cart, or the EDP to supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: The EMDP will not supply sufficient hydraulic power for this test.

SUBTASK 27-51-00-730-003

(4) Do this task: Trailing Edge Flap Load Relief System BITE Test, TASK 27-51-00-740-803.

SUBTASK 27-51-00-730-004

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Do a test of the primary operation of the trailing edge flaps:

(a) Move the flap control lever to the UP position and wait for the flaps to reach the UP position.

(b) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

(c) Do a check of the flap lever sensor, position sensors and skew sensor inputs to the FSEU:

1) Select OTHER FUNCTNS? from the MAIN MENU on the FSEU.

2) Select I/O MONITOR? from the OTHER FUNCTNS? menu.

3) Select SYNCHRO INPUTS? from the I/O MONITOR? menu.

HAP 037-054

4) Make sure the inputs for the sensors are in the limits shown in (Table 502) for the UP position.

Table 502/27-51-00-993-812

Display (sensor)	Sensor Input (Flap Position)			
	Up	1-Unit	15-Units	40-Units
LVR POS	-2.8 to 2.8	13.8 to 21.4	13.8 to 21.4	105.4 to 110.9
L FL POS	-3.7 to 1.8	34.5 to 40.8	34.5 to 40.8	267.1 to 273.3
R FL POS	-3.7 to 1.8	34.5 to 40.8	34.5 to 40.8	267.1 to 273.3
F1 SKEW	295.7 to 311.0	12.2 to 29.1	12.2 to 29.1	224.4 to 242.1
F2 SKEW	330.5 to 346.0	60.9 to 78.1	60.9 to 78.1	279.2 to 296.9
F3 SKEW	0.0 to 13.2	82.9 to 99.2	82.9 to 99.2	288.7 to 305.5
F4 SKEW	332.8 to 346.9	24.3 to 40.0	24.3 to 40.0	265.1 to 282.1
F5 SKEW	13.1 to 27.2	320.0 to 335.7	320.0 to 335.7	77.9 to 94.9

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HAP 037-054 (Continued)

(Continued)

Display (sensor)	Sensor Input (Flap Position)			
	Up	1-Unit	15-Units	40-Units
F6 SKEW	346.8 to 360.0	260.8 to 277.1	260.8 to 277.1	54.5 to 71.3
F7 SKEW	14.0 to 29.5	281.9 to 299.1	281.9 to 299.1	63.1 to 80.8
F8 SKEW	49.0 to 64.3	330.9 to 347.8	330.9 to 347.8	117.9 to 135.6

HAP 001-013, 015-026, 028-036, 101-999

5) Make sure the inputs for the sensors are in the limits shown in (Table 503) for the UP position.

NOTE: Push the arrow keys to step through the sensor values.

Table 503/27-51-00-993-808

Display (Sensor)	Sensor Input (Flap Position)		
	UP	1-Unit	40-Units
LVR POS	-2.8 to 2.8	13.8 to 21.4	105.4 to 110.9
L FL POS	-3.7 to 1.8	34.5 to 40.8	267.1 to 273.3
R FL POS	-3.7 to 1.8	34.5 to 40.8	267.1 to 273.3
F1 SKEW	295.7 to 311.0	12.2 to 29.1	224.4 to 242.1
F2 SKEW	330.5 to 346.0	60.9 to 78.1	279.2 to 296.9
F3 SKEW	0.0 to 13.2	82.9 to 99.2	288.7 to 305.5
F4 SKEW	332.8 to 346.9	24.3 to 40.0	265.1 to 282.1
F5 SKEW	13.1 to 27.2	320.0 to 335.7	77.9 to 94.9
F6 SKEW	346.8 to 360.0	260.8 to 277.1	54.5 to 71.3
F7 SKEW	14.0 to 29.5	281.9 to 299.1	63.1 to 80.8
F8 SKEW	49.0 to 64.3	330.9 to 347.8	117.9 to 135.6

HAP ALL

(d) Move the flap control lever to the 1-unit position to extend the flaps.

HAP 037-054

(e) Make sure the inputs for the sensors are in the limits shown in (Table 502) for the 1-unit position.

HAP 001-013, 015-026, 028-036, 101-999

(f) Make sure the inputs for the sensors are in the limits shown in (Table 503) for the 1-unit position.

NOTE: Push the arrow keys to step through the sensor values.

HAP ALL

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(g) Move the flap control lever to the 40-unit position to extend the flaps.

NOTE: Measure the time it takes for the trailing edge flaps to extend from the 1-unit position to the 40-unit position.

(h) Make sure the time it takes for the flaps to extend is 22 to 27 seconds.

HAP 037-054

(i) Make sure the inputs for the sensors are in the limits shown in (Table 502) for the 40-unit position.

NOTE: Push the arrow keys to step through the sensor values.

HAP 001-013, 015-026, 028-036, 101-999

(j) Make sure the inputs for the sensors are in the limits shown in (Table 503) for the 40-unit position.

NOTE: Push the arrow keys to step through the sensor values.

HAP ALL

(k) Move the flap control lever to the 1-unit position to retract the flaps.

NOTE: Measure the time it takes for the trailing edge flaps to retract from the 40-unit position to the 1-unit position.

(l) Make sure the time it takes for the flaps to retract is 22 to 27 seconds.

HAP 037-054

(m) Move the flap control lever to the 15-unit position to extend the flaps.

(n) Make sure the inputs for the sensors are in the limits shown in Table 502 for the 15-unit position.

NOTE: Push the arrow keys to step through the sensor values.

HAP ALL

(o) Move the flap control lever to the UP position to retract the flaps.

SUBTASK 27-51-00-720-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Do a test of the power supply for the ALTERNATE FLAPS switches and the bypass valve:

(a) Open this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

(b) Move the ALTERNATE FLAPS ARM switch to the ARM position.

(c) Move the flap control lever to the 1-unit position to extend the flaps.

(d) Make sure the pointers on the flap position indicator are in the 1-unit white band.

(e) Move and hold the ALTERNATE FLAPS CONTROL switch in the DOWN position for 5 seconds.

NOTE: With the circuit breaker open, the bypass valve will not operate.

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(f) Make sure the flaps do not extend.

(g) Close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

(h) Move the flap control lever to the UP position.

NOTE: With the circuit breaker closed, the bypass valve will operate. The flaps will not operate with the hydraulic motor.

(i) Make sure the flaps do not retract.

(j) Move and hold the ALTERNATE FLAPS CONTROL switch in the UP position until the flaps stop.

(k) Make sure the pointers on the flap position indicator are in the UP white band.

(l) Move the ALTERNATE FLAPS ARM switch to the OFF position.

SUBTASK 27-51-00-720-002

(7) Do a test of the power supply for the flap electric motor:

(a) Move the flap control lever to the 1-unit position to extend the flaps.

(b) Make sure the pointers on the flap position indicator are in the 1-unit white band.

(c) Open this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

(d) Move the ALTERNATE FLAPS ARM switch to the ARM position.

(e) Move and hold the ALTERNATE FLAPS CONTROL switch in the UP position for 5 seconds.

NOTE: With the circuit breaker open, the electric motor will not operate.

(f) Make sure the flaps do not retract.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE SLATS. THE SLATS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT

(g) Move and hold the ALTERNATE FLAPS CONTROL switch in the DOWN position for 5 seconds.

NOTE: The leading edge slats will move from the extended position to the fully extended position.

(h) Make sure the trailing edge flaps do not extend.

(i) Close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-51-00-720-003

(8) Do a test of the UP limit switch and the time necessary to retract the flaps:

(a) Move the flap control lever to the UP position.

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(b) Move and hold the ALTERNATE FLAPS CONTROL switch in the UP position until the flaps stop.

(c) Make sure the time necessary to retract the flaps is 47 to 58 seconds.

(d) Make sure the pointers on the flap position indicator are in the UP white band.

(e) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

(f) Do a check of the position sensor inputs to the FSEU:

1) Select OTHER FUNCTNS? from the MAIN MENU on the FSEU.

2) Select I/O MONITOR? from the OTHER FUNCTNS? menu.

3) Select SYNCHRO INPUTS? from the I/O MONITOR? menu.

4) Make sure the inputs for the sensors are in the limits shown in (Table 504) for the UP position.

NOTE: Push the arrow keys to step through the sensor values.

Table 504/27-51-00-993-809

Display (Sensor)	Sensor Input (Flap Position)	
	UP	40-Units
L FL POS	-1.2 to 4.7	259.9 to 270.3
R FL POS	-1.2 to 4.7	259.9 to 270.3

SUBTASK 27-51-00-720-004

(9) Do a test of the DOWN limit switch:

(a) Move the ALTERNATE FLAPS ARM switch to the OFF position.

(b) Move the flap control lever to the 30-unit position to extend the flaps.

(c) Make sure the pointers on the flap position indicator are in the 30-unit white band.

(d) Move the ALTERNATE FLAPS ARM switch to the ARM position.

(e) Move the flap control lever to the 40-unit position.

(f) Move and hold the ALTERNATE FLAPS CONTROL switch in the DOWN position until the flaps stop.

(g) Do a check of the position sensor inputs to the FSEU:

1) Select OTHER FUNCTNS? from the MAIN MENU on the FSEU.

2) Select I/O MONITOR? from the OTHER FUNCTNS? menu.

3) Select SYNCHRO INPUTS? from the I/O MONITOR? menu.

4) Make sure the inputs for the sensors are in the limits shown in (Table 504) for the 40-unit position.

NOTE: Push the arrow keys to step through the sensor values.

(h) Push the ON/OFF button on the front panel of the FSEU to turn it off.

(i) Move the ALTERNATE FLAPS ARM switch to the OFF position.

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SUBTASK 27-51-00-860-029

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(10) Move the flap control lever to the UP position to retract the flaps.

SUBTASK 27-51-00-720-005

(11) Do this task: Flap Priority Valve Test, TASK 27-51-00-720-801.

SUBTASK 27-51-00-720-006

(12) Do this task: Flap Control Lever Force Test, TASK 27-51-00-720-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-030

(1) Push the ON/OFF button on the front panel of the FSEU to turn it off.

SUBTASK 27-51-00-410-005

(2) For the main equipment center, do this step:

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-51-00-860-031

(3) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

TASK 27-51-00-740-801

6. FSEU Display and Existing Faults Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This test does a check of the BITE display and power supplies for the FSEU. It also does a check for existing faults in the high lift system detected by the FSEU.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

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E. Prepare for the Test

SUBTASK 27-51-00-860-032

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-010-005

(2) To get access to the main equipment center, do this step:

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

F. FSEU Display and Existing Faults Test

SUBTASK 27-51-00-740-001

(1) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

SUBTASK 27-51-00-750-001

(2) Do a test of the DC power supplies for the FSEU:

(a) Open this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	8	C00211	FLIGHT CONTROL FSEU DC 1

(b) Make sure the front panel display on the FSEU is still on.

(c) Close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	8	C00211	FLIGHT CONTROL FSEU DC 1

(d) Open this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	9	C01468	FLIGHT CONTROL FSEU DC 2

(e) Make sure the front panel display on the FSEU is still on.

(f) Open this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	8	C00211	FLIGHT CONTROL FSEU DC 1

(g) Make sure the front panel display on the FSEU is off.

(h) Close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	8	C00211	FLIGHT CONTROL FSEU DC 1
A	9	C01468	FLIGHT CONTROL FSEU DC 2

(i) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

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(j) Make sure the front panel display on the FSEU comes on.

SUBTASK 27-51-00-740-002

(3) Do a test of the BITE display on the FSEU:

(a) Push the down arrow until GROUND TESTS? shows on the display.

(b) Push the YES button to select GROUND TESTS? on the FSEU.

(c) Push the down arrow until DISPLAY TEST? shows on the display.

(d) Push the YES button to select DISPLAY TEST? on the FSEU.

(e) Make sure the display characters on the front panel of the FSEU turn on in groups of four for approximately 2 seconds.

SUBTASK 27-51-00-740-003

(4) Do a check for EXISTING FAULTS with the FSEU:

(a) Push the MENU button twice.

NOTE: The display will show EXISTING FAULTS?

(b) Push the YES button to select the EXISTING FAULTS? test.

NOTE: The display will show TEST IN PROGRESS.

(c) Make sure these lights come on for 5 seconds while the display shows TEST IN PROGRESS:

1) P2 Center Instrument Panel

a) LE FLAPS TRANSIT

b) LE FLAPS EXT

2) P5 Aft Overhead Panel

a) Leading Edge Devices TRANSIT

b) Leading Edge Devices EXT

c) Leading Edge Devices FULL EXT

(d) Make sure there are no EXISTING FAULTS.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-033

(1) Push the ON/OFF button on the front panel of the FSEU to turn it off.

SUBTASK 27-51-00-410-006

(2) For the main equipment center, do this step:

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

TASK 27-51-00-740-802

7. Trailing Edge Flap Asymmetry Skew System BITE Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

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(2) This test does a check of the asymmetry and skew detection functions for the trailing edge flaps.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 27-51-00-860-034

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-010-006

(2) To get access to the main equipment center, do this task.

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

F. Trailing Edge Flap Asymmetry and Skew BITE Test

SUBTASK 27-51-00-740-004

(1) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

SUBTASK 27-51-00-740-005

(2) Do the BITE test of the asymmetry and skew detection systems:

(a) Push the down arrow until GROUND TESTS? shows on the display.

(b) Push the YES button to select GROUND TESTS? on the FSEU.

(c) Push the YES button to select TE ASYM-SKW-IND? on the FSEU.

(d) Follow the instructions on the FSEU display to complete the test.

NOTE: It will be necessary to watch the flap position indicator during this test.

(e) Make sure that TEST PASSED shows at the end of the test.

SUBTASK 27-51-00-210-002

(3) Make sure the manual override lever on the flap bypass valve is in POSITION 1 (Figure 502).

NOTE: The flap bypass valve is installed in the right main wheel well.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-035

(1) Push the ON/OFF button on the front panel of the FSEU to turn it off.

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SUBTASK 27-51-00-410-007

(2) For the main equipment center, do this task.

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

——————— END OF TASK ———————

TASK 27-51-00-740-803

8. Trailing Edge Flap Load Relief System BITE Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This test does a check of the load relief functions for the trailing edge flaps.

(3) In this procedure it is necessary to move the flap control lever to move the trailing edge flaps.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 27-51-00-860-036

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-860-037

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-00-010-007

(3) To get access to the main equipment center, do this task.

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Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

F. Trailing Edge Flap Load Relief System BITE Test

SUBTASK 27-51-00-740-006

(1) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

SUBTASK 27-51-00-740-008

(2) Do the BITE test of the load relief system:

(a) Push the down arrow until GROUND TESTS? shows on the display.

(b) Push the YES button to select GROUND TESTS? on the FSEU.

(c) Push the down arrow until TE FLAP LD REL? shows on the display.

(d) Push the YES button to select TE FLAP LD REL? from the menu.

(e) Follow the instructions on the FSEU display to complete the test.

NOTE: It will be necessary to operate the trailing edge flaps when the FSEU requests that they be in a different position.

1) Make sure the FLAP LOAD RELIEF light on the P3-1 panel comes on during the test.

(f) Make sure that TEST PASSED shows at the end of the test.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-039

(1) Push the ON/OFF button on the front panel of the FSEU to turn it off.

SUBTASK 27-51-00-410-008

(2) For the main equipment center, do this task.

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-51-00-860-040

(3) Move the flap control lever to the UP position to retract the flaps.

SUBTASK 27-51-00-860-041

(4) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK

TASK 27-51-00-720-801

9. Flap Priority Valve Test

(Figure 501)

A. General

(1) This test does a check of the flap priority valve.

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B. References

Reference	Title
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Test

SUBTASK 27-51-00-860-042

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Use a hydraulic service cart to supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: It will be necessary to control the pressure output of the hydraulic service cart.

E. Flap Priority Valve Test

SUBTASK 27-51-00-860-043

HAP 001-013, 015-026, 028-036, 101-999

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Move the flap control lever to the 10-unit position to extend the flaps.

NOTE: Wait for the flaps to get to the 10-unit position.

HAP 037-054

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAPS. THE FLAPS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Move the flap control lever to the 30-unit position to extend the flaps.

NOTE: Wait for the flaps to get to the 30-unit position.

HAP ALL

SUBTASK 27-51-00-730-005

(3) Reduce the pressure output from the hydraulic service cart to 2400 psi (16550 kPa).

SUBTASK 27-51-00-720-007

HAP 037-054

(4) Do a check of the time necessary to retract the flaps to the 25-unit position.

NOTE: The flaps will retract slowly with the hydraulic pressure reduced.

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HAP 001-013, 015-026, 028-036, 101-999

(5) Do a check of the time necessary to retract the flaps to the 5-unit position:

NOTE: The flaps will retract slowly with the hydraulic pressure reduced.

HAP ALL

(6) Do a check of the time necessary to retract the flaps:

HAP 037-054

(a) Move the flap control lever to the 25-unit position.

NOTE: The flaps can make noise while they retract slowly.

HAP 001-013, 015-026, 028-036, 101-999

(b) Move the flap control lever to the 5-unit position.

NOTE: The flaps can make noise while they retract slowly.

HAP ALL

(c) Make sure the time necessary to retract the flaps is a minimum of 59 seconds.

NOTE: It is not necessary to wait more than 1 minute for the flaps to retract.

(d) Increase the pressure output from the hydraulic service cart to 3000 psi (20685 kPa).

NOTE: If the flaps are not in the 5-unit position, they will retract much faster.

SUBTASK 27-51-00-720-008

(7) Do a check of the time necessary to retract the flaps to the UP position:

(a) Move the flap control lever to the UP position.

(b) Make sure the time necessary to retract the flaps is 17 to 22 seconds.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-044

(1) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

TASK 27-51-00-720-802

10. Flap Control Lever Force Test

(Figure 501)

A. General

(1) This test does a check of the force necessary to move the flap control lever.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

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C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the Test

SUBTASK 27-51-00-860-045

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-860-046

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

F. Flap Control Lever Force Test

SUBTASK 27-51-00-860-047

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Move the flap control lever to the UP position to retract the flaps.

SUBTASK 27-51-00-720-009

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Measure the force necessary to move the flap control lever to the 1-unit position:

(a) Move the flap control lever out of the UP detent.

(b) Put a force gauge, COM-1557 on the end of the flap control lever.

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(c) Use the force gauge, COM-1557 to move the flap control lever to the 1-unit position.

NOTE: Make sure the force gauge, COM-1557 is perpendicular to the flap control lever when you measure the force.

(d) Make sure the force necessary to move the flap control lever is less than 5 pounds (22 newtons).

SUBTASK 27-51-00-720-010

(3) Use the force gauge, COM-1557 to measure the force necessary to move the flap control lever to the 40-unit position with a stop at each detent.

(a) Make sure the force necessary to move the flap control lever is less than 5 pounds (22 newtons).

SUBTASK 27-51-00-720-011

(4) Use the force gauge, COM-1557 to measure the force necessary to move the flap control lever to the UP position with a stop at each detent.

(a) Make sure the force necessary to move the flap control lever is less than 5 pounds (22 newtons).

SUBTASK 27-51-00-080-002

(5) Remove the force gauge, COM-1557 from the end of the flap control lever.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-048

(1) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK

TASK 27-51-00-720-803

11. Alternate Flap Control System Functional Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

(2) During the functional test, you make sure the alternate operation of the trailing edge flaps is satisfactory.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1139	Timer - Stop Watch, Accurate to 1 Second

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

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E. Prepare for the Functional Test

SUBTASK 27-51-00-860-049

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-860-050

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

F. Procedure

SUBTASK 27-51-00-860-051

(1) Move the ALTERNATE FLAPS ARM switch to the ARM position.

NOTE: The standby hydraulic pump motor will operate when the ALTERNATE FLAPS ARM switch is in the ARM position.

SUBTASK 27-51-00-860-052

(2) Move the flap control lever to the 40-unit position.

NOTE: This will decrease the load on the flap electric motor.

(a) Make sure the flaps do not extend.

SUBTASK 27-51-00-710-005

CAUTION: WAIT A MINIMUM OF 15 SECONDS AFTER THE FLAPS STOP BEFORE YOU USE THE ALTERNATE SYSTEM TO MOVE THE FLAPS AGAIN. YOU CAN CAUSE DAMAGE TO THE FLAP ALTERNATE MOTOR.

(3) Hold the ALTERNATE FLAPS CONTROL switch in the DOWN position until the trailing edge flaps stop.

NOTE: The leading edge flaps and slats will extend when you move the switch to the DOWN position. The trailing edge flap extension is controlled by a limit switch.

(a) Make sure the pointers on the flap position indicator are in the 40-unit white band.

(4) Release the ALTERNATE FLAPS CONTROL switch to let it move to the OFF position.

SUBTASK 27-51-00-710-006

(5) Move the ALTERNATE FLAPS CONTROL switch to the UP position until the trailing edge flaps stop.

NOTE: The flap retraction is controlled by a limit switch.

(a) Make sure the pointers on the flap position indicator are in the UP white band.

SUBTASK 27-51-00-860-084

(6) Move the flap control lever to the UP position.

SUBTASK 27-51-00-860-054

(7) Move the ALTERNATE FLAPS ARM switch to the OFF position.

NOTE: The leading edge flaps and slats will retract.

SUBTASK 27-51-00-710-007

(8) Move the ALTERNATE FLAPS ARM switch to the ARM position.

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SUBTASK 27-51-00-860-055

(9) Move the flap control lever to the 1-unit position.

(a) Make sure the flaps do not move.

(10) Hold the ALTERNATE FLAPS CONTROL switch in the DOWN position until the trailing edge flaps are in the 1-unit position.

NOTE: The leading edge flaps and slats will extend.

(11) Release the ALTERNATE FLAPS CONTROL switch to the OFF position.

(12) Move the ALTERNATE FLAPS ARM switch to the OFF position.

SUBTASK 27-51-00-720-012

(13) Do a test of the time necessary to retract the trailing edge flaps from the 1-unit position:

(a) Move the ALTERNATE FLAPS ARM switch to the ARM position.

(b) Move the flap control lever to the UP position.

(c) Use a stopwatch, STD-1139 to measure the time necessary to retract the flaps to the UP position.

(d) Move the ALTERNATE FLAPS CONTROL switch to the UP position until the trailing edge flaps stop.

NOTE: The flap retraction is controlled by a limit switch.

(e) Make sure the time it takes for the flaps to move from the 1-unit position to the retracted position is 47 to 58 seconds.

NOTE: The leading edge flaps and slats will retract.

(f) Move the ALTERNATE FLAPS CONTROL switch to the OFF position.

(g) Move the ALTERNATE FLAPS ARM switch to the OFF position.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-056

(1) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

TASK 27-51-00-710-802

12. Transmission No-Back Brake Operational Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

(2) During this operational test, you make sure the no-back brakes in the transmissions operate.

(3) This test involves listening for a ratchet sound from the transmissions while the flaps extend.

(4) A minimum of two people are necessary to do this test.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-18-000-802	Inboard Flap Support Aft Fairing Removal (P/B 401)

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(Continued)

Reference	Title
27-51-18-400-802	Inboard Flap Support Aft Fairing Installation (P/B 401)
27-51-28-000-802	Outboard Flap Outboard Support Aft Fairing Removal (P/B 401)
27-51-28-000-804	Outboard Flap Inboard Support Aft Fairing Removal (P/B 401)
27-51-28-400-802	Outboard Flap Outboard Support Aft Fairing Installation (P/B 401)
27-51-28-400-804	Outboard Flap Inboard Support Aft Fairing Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1797	Stethoscope - Mechanics, 12 Inch Probe (Part #: GA111D, Supplier: 55719, A/P Effectivity: 737-ALL) (Opt Part #: GA111C, Supplier: 55719, A/P Effectivity: 737-ALL)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
542	Left Wing - Fairing Flap Support No. 3
543	Left Wing - Fairing Flap Support No. 2
544	Left Wing - Fairing Flap Support No. 1
642	Right Wing - Fairing Flap Support No. 6
643	Right Wing - Fairing Flap Support No. 7
644	Right Wing - Fairing Flap Support No. 8

E. Prepare for the Operational Test

SUBTASK 27-51-00-480-009

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-00-010-011

(2) Remove the aft fairings for the inboard and outboard flaps:

(a) Do this task: Inboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

(b) Do this task: Outboard Flap Inboard Support Aft Fairing Removal, TASK 27-51-28-000-804.

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(c) Do this task: Outboard Flap Outboard Support Aft Fairing Removal, TASK 27-51-28-000-802.

SUBTASK 27-51-00-860-072

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-860-073

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

F. Operational Test of the Transmission No-Back Brake

NOTE: This test is applicable to all of the transmissions for the trailing edge flaps.

SUBTASK 27-51-00-860-074

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Retract the flaps to the UP position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-00-710-008

(2) Do a test of the no-back brake in the transmissions:

(a) Put a stethoscope, COM-1797 on the applicable transmission to listen for a ratchet sound.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) Extend the flaps to the 15 unit position and listen for a ratchet sound from the transmission. To extend the trailing edge flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

NOTE: The ratchet sound is the no-back brake inside the transmission. It is necessary to do the test again for the additional transmissions, or have additional people listen to the transmissions.

(c) If it is necessary to do this test on another transmission, retract the flaps to the UP position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-075

(1) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-00-410-011

(2) Install the aft fairings for the inboard and outboard flaps:

(a) Do this task: Inboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

(b) Do this task: Outboard Flap Inboard Support Aft Fairing Installation, TASK 27-51-28-400-804.

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(c) Do this task: Outboard Flap Outboard Support Aft Fairing Installation, TASK 27-51-28-400-802.

END OF TASK

TASK 27-51-00-720-804

13. Trailing Edge Flap Load Relief System Functional Test

(Figure 501)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This task does a functional check of the load relief system for the trailing edge flaps. It makes sure that there is airspeed data from the ADIRU to the FSEU.

(3) In this procedure it is necessary to use the pitot static system to simulate airspeed.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
34-11-00-790-803	Captain's Total Air Pressure System - Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1914	Test Set - Air Data Model FLMTS (Flight Line Maintenance) (Part #: 18910920000, Supplier: 89944, A/P Effectivity: 737-ALL) (Part #: 6005KTQA1-103, Supplier: 35012, A/P Effectivity: 737-ALL) (Part #: ADC800, Supplier: 41364, A/P Effectivity: 737-ALL) (Part #: ADTS405F, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS505, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: ADTS530, Supplier: U0427, A/P Effectivity: 737-ALL) (Part #: D60340, Supplier: K1474, A/P Effectivity: 737-ALL) (Part #: D60383, Supplier: K1474, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: DPS350, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS450, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: DPS500, Supplier: 21844, A/P Effectivity: 737-ALL) (Part #: MODEL 6300, Supplier: 0RD25, A/P Effectivity: 737-ALL) (Part #: MPS31C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: MPS34C, Supplier: 48RQ2, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -ALL, -BBJ) (Part #: TES9463, Supplier: 88277, A/P Effectivity: 737-ALL) (Opt Part #: 18910480000, Supplier: 89944, A/P Effectivity: 737-ALL) (Opt Part #: D60302, Supplier: K1474, A/P Effectivity: 737-ALL)
COM-1916	Adapter - Pitot Probe (Part #: CSA75700HT-3, Supplier: 3BSK6, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: P75701M2-3, Supplier: 38002, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
121	Forward Cargo Compartment - Left
122	Forward Cargo Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Test

SUBTASK 27-51-00-860-076

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-00-860-077

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-51-00-010-015

(3) To get access to the main equipment center, do this task.

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

G. Trailing Edge Flap Load Relief System Functional Test

SUBTASK 27-51-00-740-009

(1) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

SUBTASK 27-51-00-000-001

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT
D	6	C00524	HEATERS AUX PITOT

SUBTASK 27-51-00-740-010

(3) Do the BITE test of the load relief system:

(a) Push the down arrow until GROUND TESTS? shows on the display.

(b) Push the YES button to select GROUND TESTS? on the FSEU.

(c) Push the down arrow until TE FLAP LD REL? shows on the display.

(d) Push the YES button to select TE FLAP LD REL? from the menu.

(e) Follow the instructions on the FSEU display to complete the test.

NOTE: It will be necessary to operate the trailing edge flaps when the FSEU requests that they be in a different position.

1) Make sure the FLAP LOAD RELIEF light on the P3-1 panel comes on during the test.

(f) Make sure that TEST PASSED shows at the end of the test.

SUBTASK 27-51-00-860-078

(4) Push the ON/OFF button on the front panel of the FSEU to turn it off.

SUBTASK 27-51-00-480-010

(5) Connect a pitot/static system tester to the left pitot probe to supply airspeed output from the left ADIRU. To connect the tester, do this task: Captain's Total Air Pressure System - Pressurization, TASK 34-11-00-790-803.

SUBTASK 27-51-00-720-013

(6) Do a test of the load relief system with the flaps at 40 units:

(a) Use the primary system to extend the flaps to the 40-unit position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

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(b) Use the air data model test set, COM-1914 to raise the airspeed to 164 knots, on the Captain's disply unit.

NOTE: When you apply or remove pressure to the pitot system, the rate must not be more than 300 knots for each minute.

(c) Make sure the trailing edge flaps retract to the 30-unit position.

1) Make sure the FLAP LOAD RELIEF light on the P3-1 panel comes on.

(d) Use the air data model test set, COM-1914 to lower the airspeed to 157 knots.

(e) Make sure the trailing edge flaps extend to the 40-unit position.

1) Make sure the FLAP LOAD RELIEF light goes out.

SUBTASK 27-51-00-720-014

(7) Do a test of the load relief system with the flaps at 30 units:

(a) Use the primary system to retract the flaps to the 30-unit position. To extend the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(b) Use the air data model test set, COM-1914 to raise the airspeed to 177 knots.

NOTE: When you apply or remove pressure to the pitot system, the rate must not be more than 300 knots for each minute.

(c) Make sure the trailing edge flaps retract to the 25-unit position.

1) Make sure the FLAP LOAD RELIEF light on the P3-1 panel comes on.

(d) Use the air data model test set, COM-1914 to lower the airspeed to 170 knots.

(e) Make sure the trailing edge flaps extend to the 30-unit position.

1) Make sure the FLAP LOAD RELIEF light goes out.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-00-860-079

(1) Move the flap control lever to the UP position to retract the flaps.

SUBTASK 27-51-00-860-080

(2) Put the system back to ambient pressure.

NOTE: When you apply or remove pressure to the pitot system, the rate must not be more than 300 knots for each minute.

SUBTASK 27-51-00-080-004

(3) Disconnect the pitot/static system tester from the pitot system:

CAUTION: DO NOT DISCONNECT THE PITOT SYSTEM TEST ADAPTER WHEN THE PITOT-STATIC SYSTEM IS NOT AT AMBIENT PRESSURE. IF YOU DO, DAMAGE TO THE AIR DATA MODULES CAN OCCUR.

(a) Disconnect the air data model test set, COM-1914 from the adapter, kit, COM-1916.

(b) Remove the adapter, kit, COM-1916, from the pitot probe.

(c) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
C	2	C00238	HEATERS TEMP PROBE
D	3	C01071	HEATERS ALPHA VANE RIGHT
D	5	C00525	HEATERS F/O PITOT

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Row	Col	Number	Name
D	6	C00524	HEATERS AUX PITOT

SUBTASK 27-51-00-860-081

(4) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-00-410-013

(5) For the main equipment center, do this task.

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

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TRAILING EDGE FLAP SYSTEM - INSPECTION/CHECK

1. General

A. This procedure has these inspections:

(1) An inspection of the trailing edge flap drive system components

(2) An inspection of the trailing edged flap actuation system.

TASK 27-51-00-210-801

2. Trailing Edge Flap Drive System Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
542	Left Wing - Fairing Flap Support No. 3
543	Left Wing - Fairing Flap Support No. 2
544	Left Wing - Fairing Flap Support No. 1
550	Subzone - Left Wing: Trailing Edge, Aft of Rear Spar, Inbd of Outboard Trailing Edge Flap
560	Subzone - Left Wing: Trailing Edge , Aft of Rear Spar, Outboard of Inbd Trailing Edge Flap, Inbd of Fixed Trailing Edge
641	Right Wing - Fairing Flap Support No. 5
642	Right Wing - Fairing Flap Support No. 6
643	Right Wing - Fairing Flap Support No. 7
644	Right Wing - Fairing Flap Support No. 8
650	Subzone - Right Wing: Trailing Edge, Aft of Rear Spar, Inboard of Outboard Trailing Edge Flap
660	Subzone - Right Wing: Trailing Edge, Aft of Rear Spar, Outboard of Inboard Trailing Edge Flap, Inboard of Fixed Trailing Edge

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D. Procedure

SUBTASK 27-51-00-480-012

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-00-010-009

(2) Extend the trailing edge flaps to the 40-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-00-040-006

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-00-210-003

(4) Do a general visual inspection of these items:

(a) Flap transmissions

(b) Torque tube support

(c) Seal rib angle gearbox

(d) Main landing gear beam angle gearbox

(e) Torque tube couplings

(f) Tee angle gearbox and U-joint

SUBTASK 27-51-00-440-005

(5) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-00-010-010

(6) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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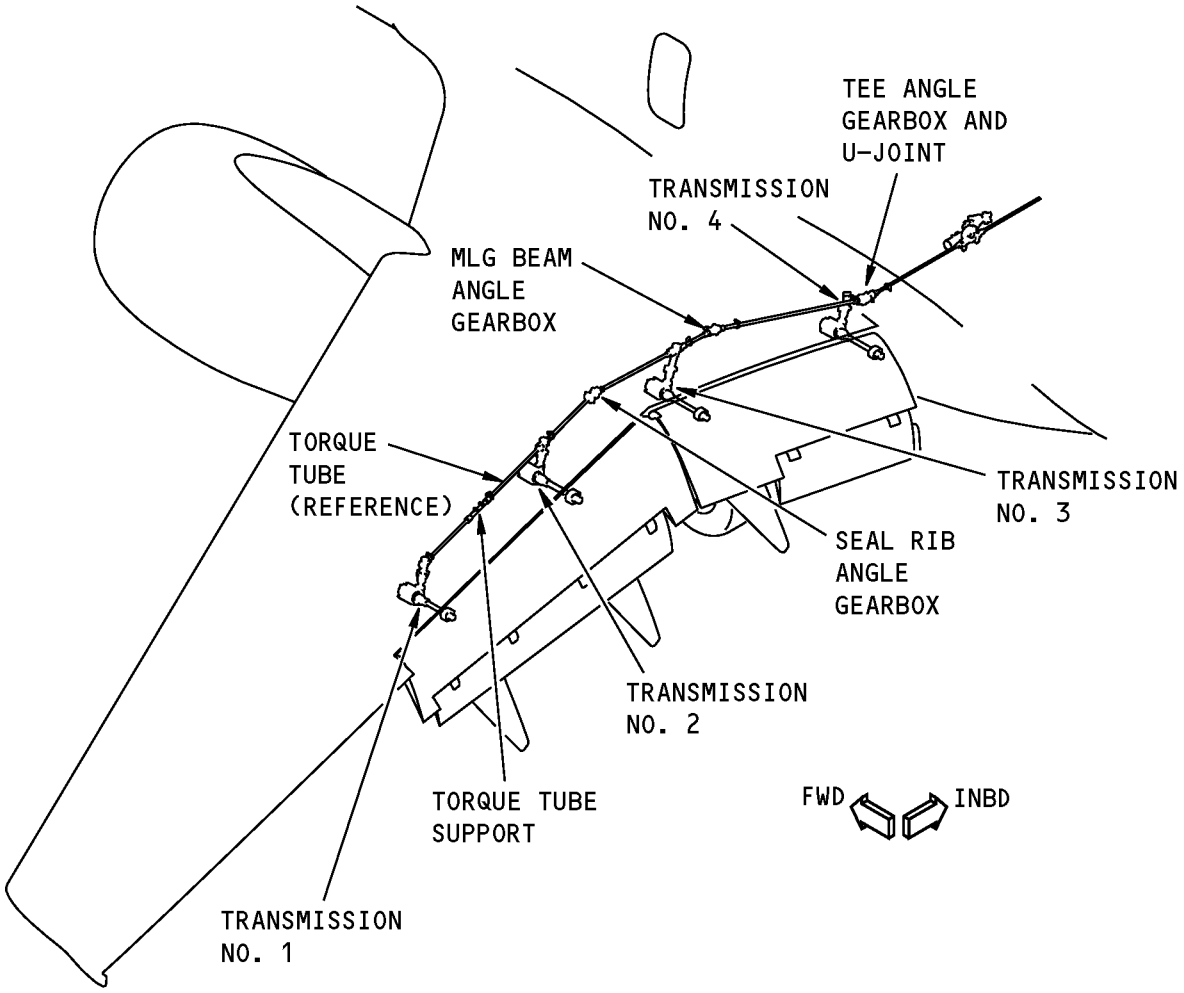

LEFT WING
(RIGHT WING IS EQUIVALENT)

Trailing Edge Flap Drive System Inspection
Figure 601/27-51-00-990-812

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TASK 27-51-00-210-802

3. Trailing Edge Flap Actuation System Inspection

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
542	Left Wing - Fairing Flap Support No. 3
543	Left Wing - Fairing Flap Support No. 2
544	Left Wing - Fairing Flap Support No. 1
550	Subzone - Left Wing: Trailing Edge, Aft of Rear Spar, Inbd of Outboard Trailing Edge Flap
560	Subzone - Left Wing: Trailing Edge , Aft of Rear Spar, Outboard of Inbd Trailing Edge Flap, Inbd of Fixed Trailing Edge
642	Right Wing - Fairing Flap Support No. 6
643	Right Wing - Fairing Flap Support No. 7
644	Right Wing - Fairing Flap Support No. 8
650	Subzone - Right Wing: Trailing Edge, Aft of Rear Spar, Inboard of Outboard Trailing Edge Flap
660	Subzone - Right Wing: Trailing Edge, Aft of Rear Spar, Outboard of Inboard Trailing Edge Flap, Inboard of Fixed Trailing Edge

E. Access Panels

Number	Name/Location
567BT	Flap, Forward Carriage Bearing And Fitting
567ET	Flap, Forward Carriage Bearing And Fitting
667BT	Flap, Forward Carriage Bearing And Fitting
667ET	Flap, Forward Carriage Bearing And Fitting

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F. Prepare for the Inspection

SUBTASK 27-51-00-480-013

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-00-010-012

(2) Extend the trailing edge flaps to the 40-unit position. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-00-040-007

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

G. Outboard Flap Inspection

(Figure 602)

SUBTASK 27-51-00-010-013

(1) At the flap supports, remove the leading edge skin panel [2] from the main flap [1] forward of the carriage:

(a) Remove the bolts [3] that attach the leading edge skin panel [2].

(b) Remove the leading edge skin panel [2] from the main flap [1].

Open these access panels:

Number	Name/Location
567BT	Flap, Forward Carriage Bearing And Fitting
567ET	Flap, Forward Carriage Bearing And Fitting
667BT	Flap, Forward Carriage Bearing And Fitting
667ET	Flap, Forward Carriage Bearing And Fitting

SUBTASK 27-51-00-210-004

(2) Do a detailed visual inspection of these items at the flap supports:

NOTE: These are flap supports No. 1, 2, 7 and 8.

(a) Aft flap drive rod, push rod and bellcrank

NOTE: Some freeplay in the bellcrank is acceptable.

(b) Carriage rollers

(c) Aft link and fittings

(d) Forward carriage bearing and fitting.

SUBTASK 27-51-00-210-005

(3) Do a detailed visual inspection of the deflection control rollers between the inboard and outboard flaps and at the outboard end of the outboard flap.

SUBTASK 27-51-00-210-006

(4) At the outboard aft flap, do a detailed visual inspection of these items:

(a) Aft flap track attachments.

NOTE: There are four aft flap tracks on the outboard flap.

(b) Inboard and outboard programming rollers.

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(c) Inboard and outboard aft flap pushrods.

(d) Rubstrips common to the aft flap support tracks, and common to the inboard and outboard edge program tracks.

(e) Inboard and outboard aft flap track rollers.

SUBTASK 27-51-00-410-012

(5) Install the leading edge skin panel [2] on the main flap [1] forward of the carriage:

(a) Close these access panels:

Number	Name/Location
567BT	Flap, Forward Carriage Bearing And Fitting
567ET	Flap, Forward Carriage Bearing And Fitting
667BT	Flap, Forward Carriage Bearing And Fitting
667ET	Flap, Forward Carriage Bearing And Fitting

Put the leading edge skin panel [2] in its location on the leading edge of the main flap [1].

(b) Apply compound, C00528 to the holes for the bolts [3].

(c) Install the bolts [3] to attach the leading edge skin panel [2].

(d) Apply sealant, A00247 to fill all of the clearances around the leading edge skin panel [2] that are more than 0.05 inch (1.27 millimeters).

H. Inboard Flap Inspection

(Figure 603)

SUBTASK 27-51-00-210-007

(1) At the outboard flap support for the inboard flap, do a detailed visual inspection of these items:

NOTE: These are flap supports No. 3 and 6.

(a) Aft flap drive rod and crankshaft

(b) Carriage rollers

SUBTASK 27-51-00-210-008

(2) At the inboard flap support for the inboard flap, do a detailed visual inspection of these items:

NOTE: These are flap supports No. 4 and 5.

(a) Carriage rollers

SUBTASK 27-51-00-210-009

(3) At the inboard aft flap, do a detailed visual inspection of these items:

(a) Aft flap track attachments.

NOTE: There are two aft flap tracks on the inboard flap.

(b) Inboard and outboard programming rollers.

(c) Inboard and outboard aft flap pushrods.

(d) Rubstrips common to the aft flap support tracks, and common to the inboard and outboard edge program tracks.

(e) Inboard and outboard aft flap track rollers.

SUBTASK 27-51-00-440-006

(4) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-00-010-014

(5) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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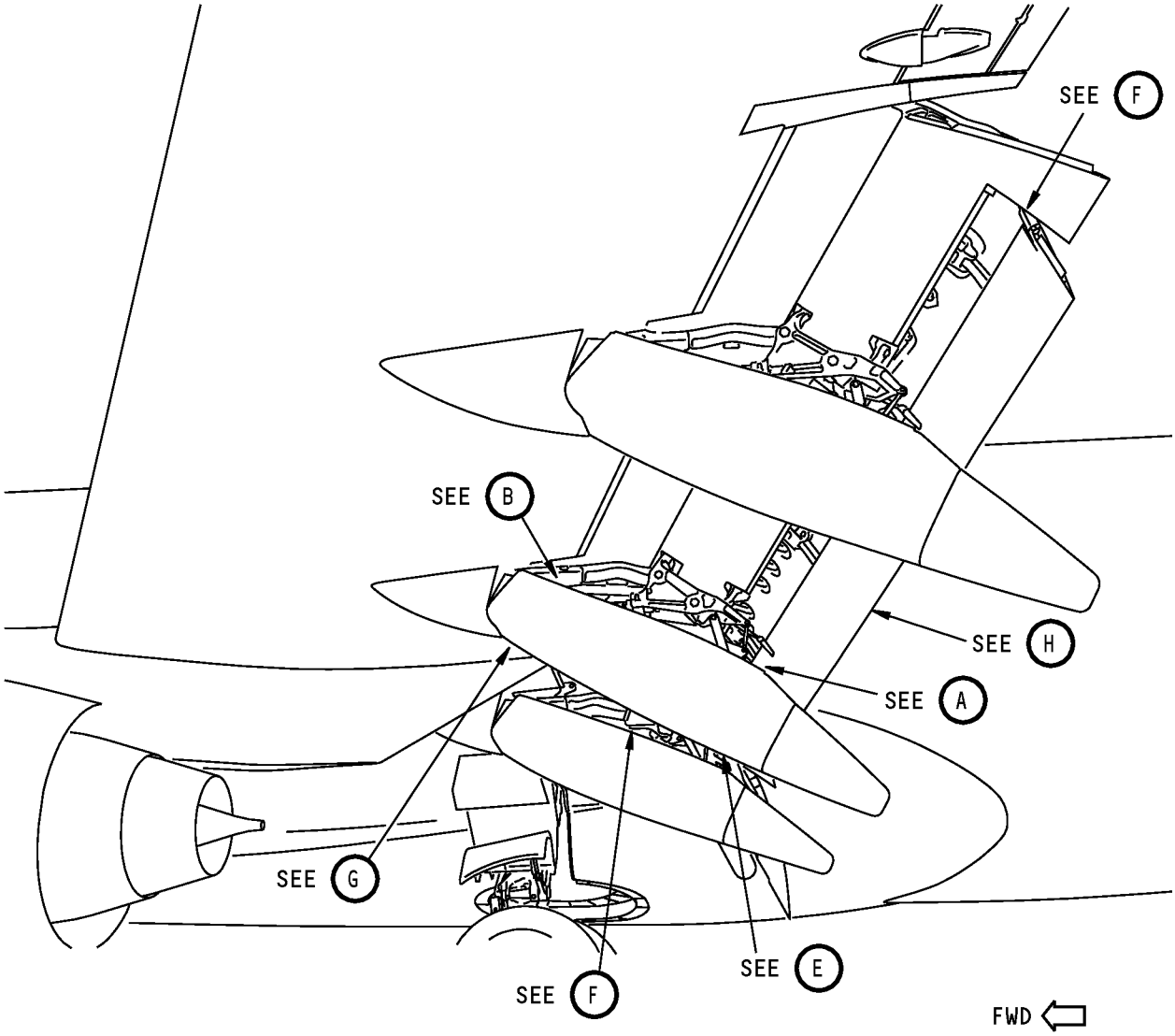

LEFT WING
(RIGHT WING IS EQUIVALENT)

Outboard Trailing Edge Flap Actuation System Inspection
Figure 602 (Sheet 1 of 7)/27-51-00-990-813

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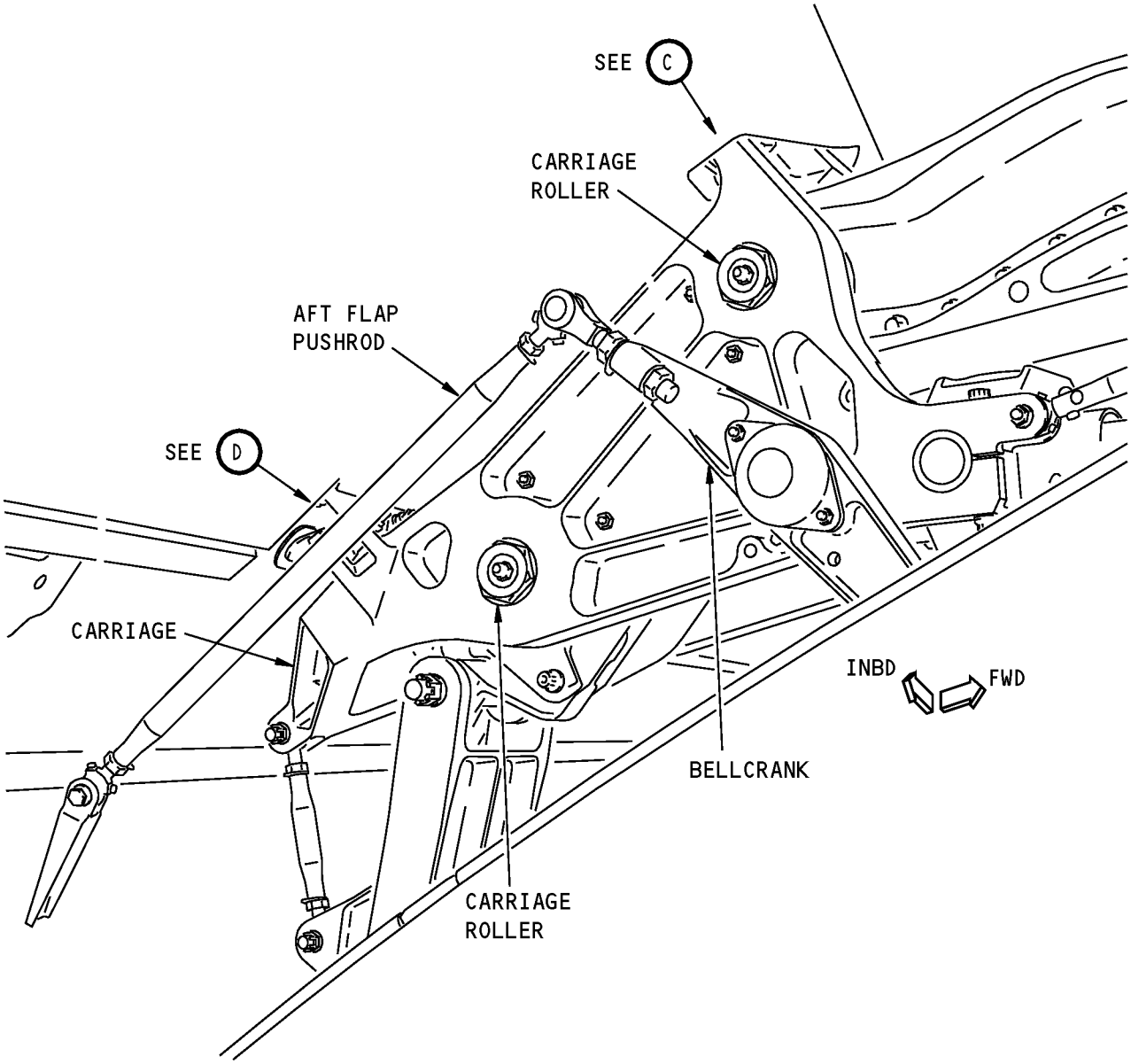

OUTBOARD FLAP INBOARD FLAP SUPPORT
(OUTBOARD FLAP OUTBOARD FLAP SUPPORT IS EQUIVALENT)

A

Outboard Trailing Edge Flap Actuation System Inspection
Figure 602 (Sheet 2 of 7)/27-51-00-990-813

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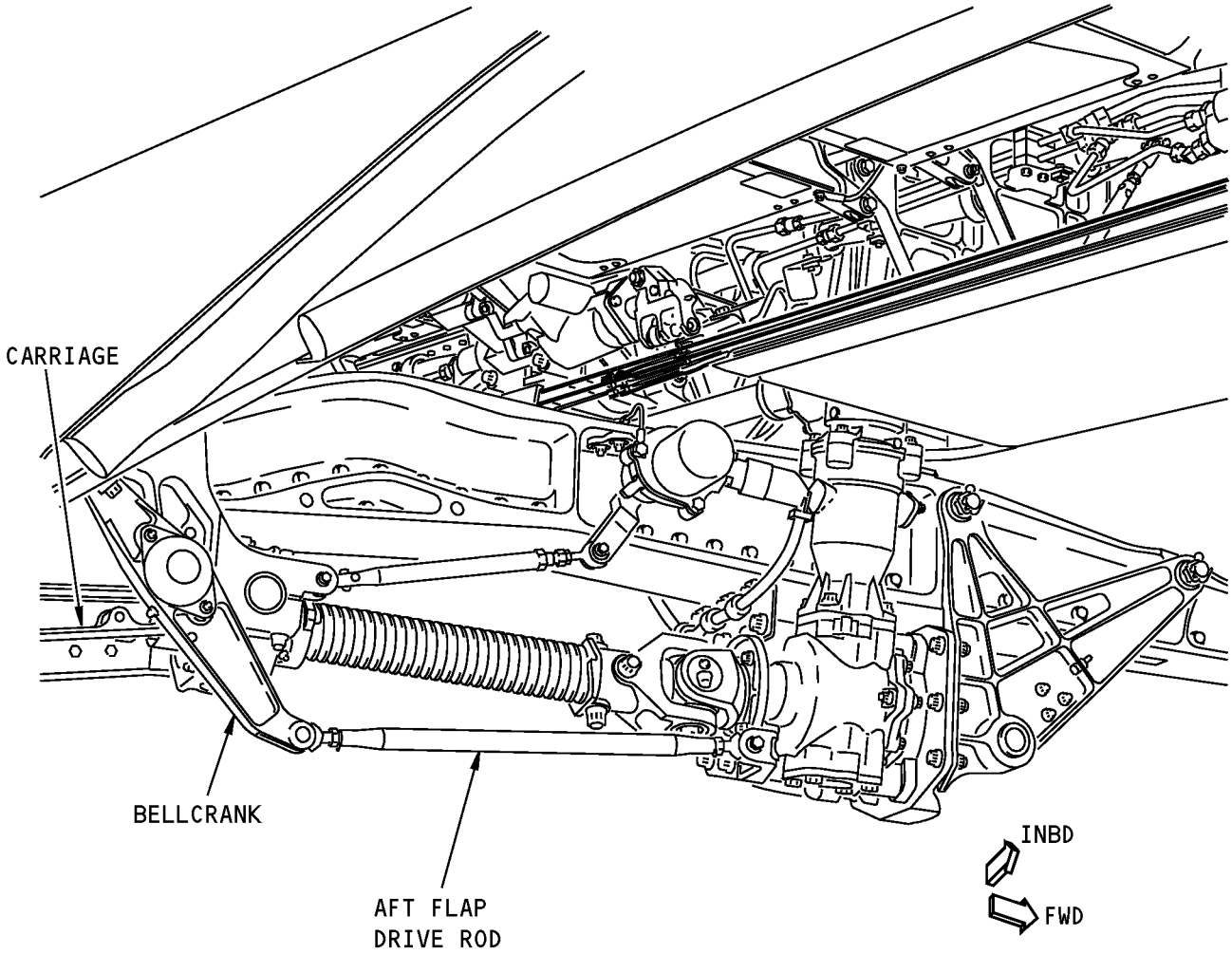

OUTBOARD FLAP INBOARD FLAP SUPPORT
(OUTBOARD FLAP OUTBOARD FLAP SUPPORT IS EQUIVALENT)

B

Outboard Trailing Edge Flap Actuation System Inspection
Figure 602 (Sheet 3 of 7)/27-51-00-990-813

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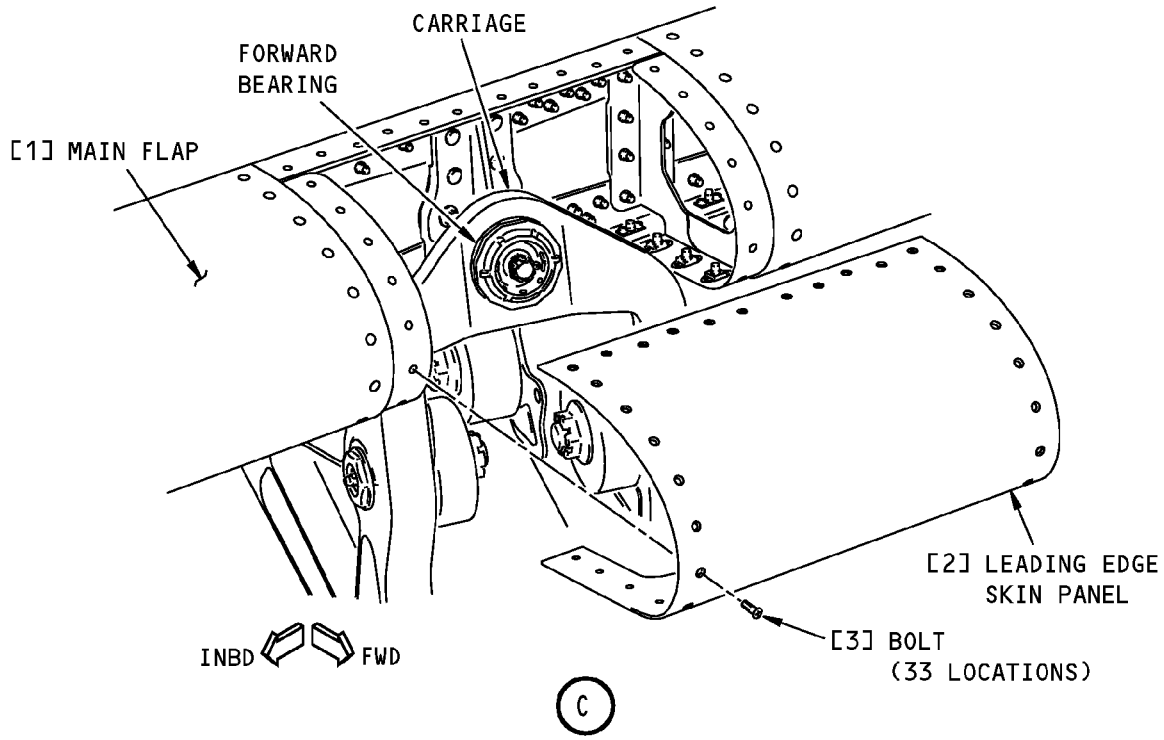

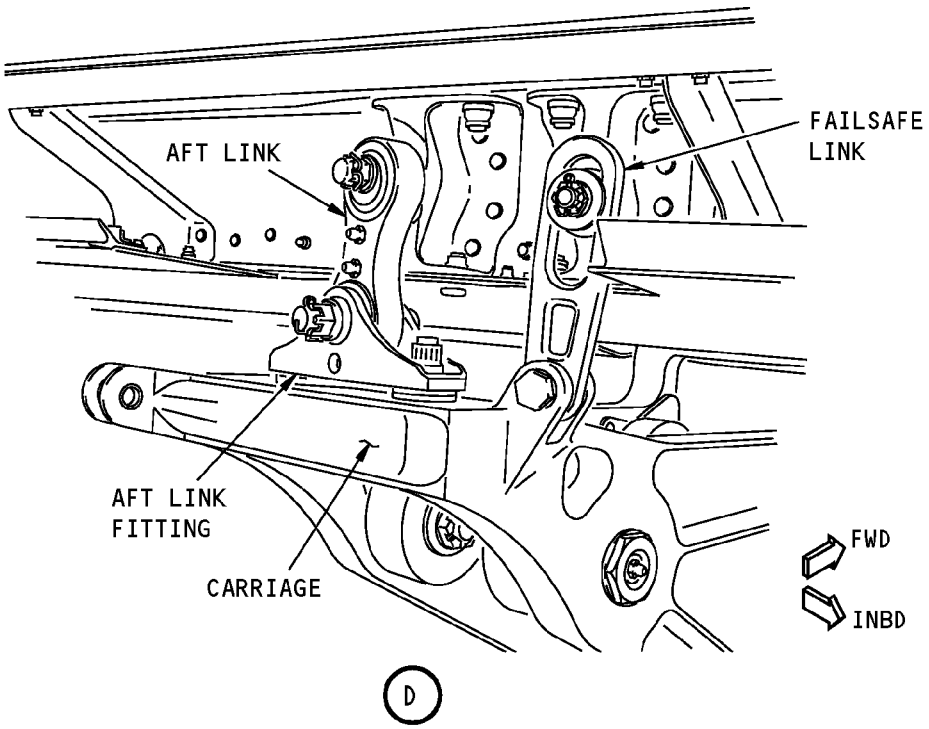

Outboard Trailing Edge Flap Actuation System Inspection
Figure 602 (Sheet 4 of 7)/27-51-00-990-813

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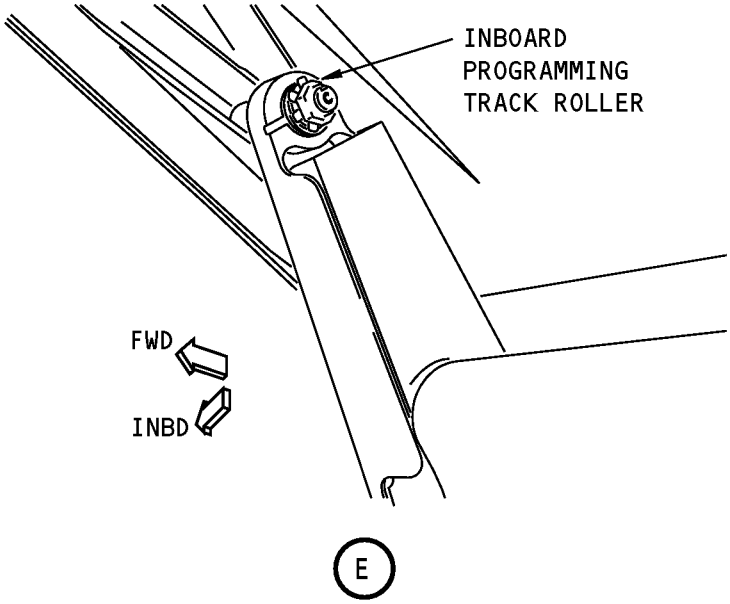

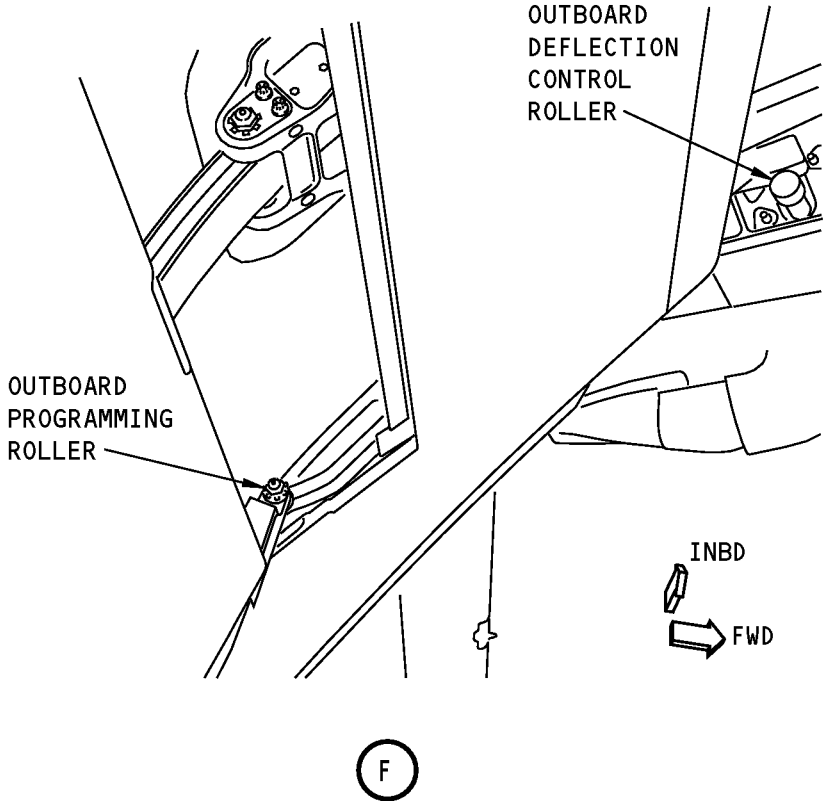

Outboard Trailing Edge Flap Actuation System Inspection
Figure 602 (Sheet 5 of 7)/27-51-00-990-813

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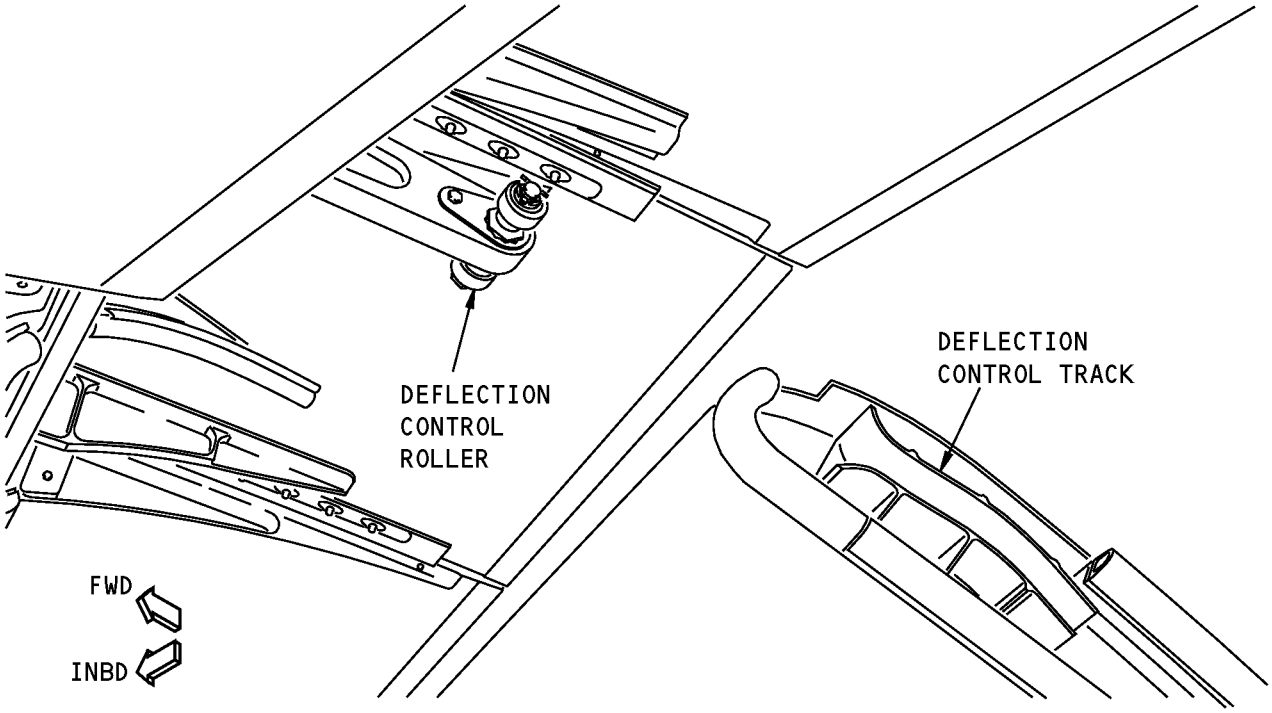

Outboard Trailing Edge Flap Actuation System Inspection
Figure 602 (Sheet 6 of 7)/27-51-00-990-813

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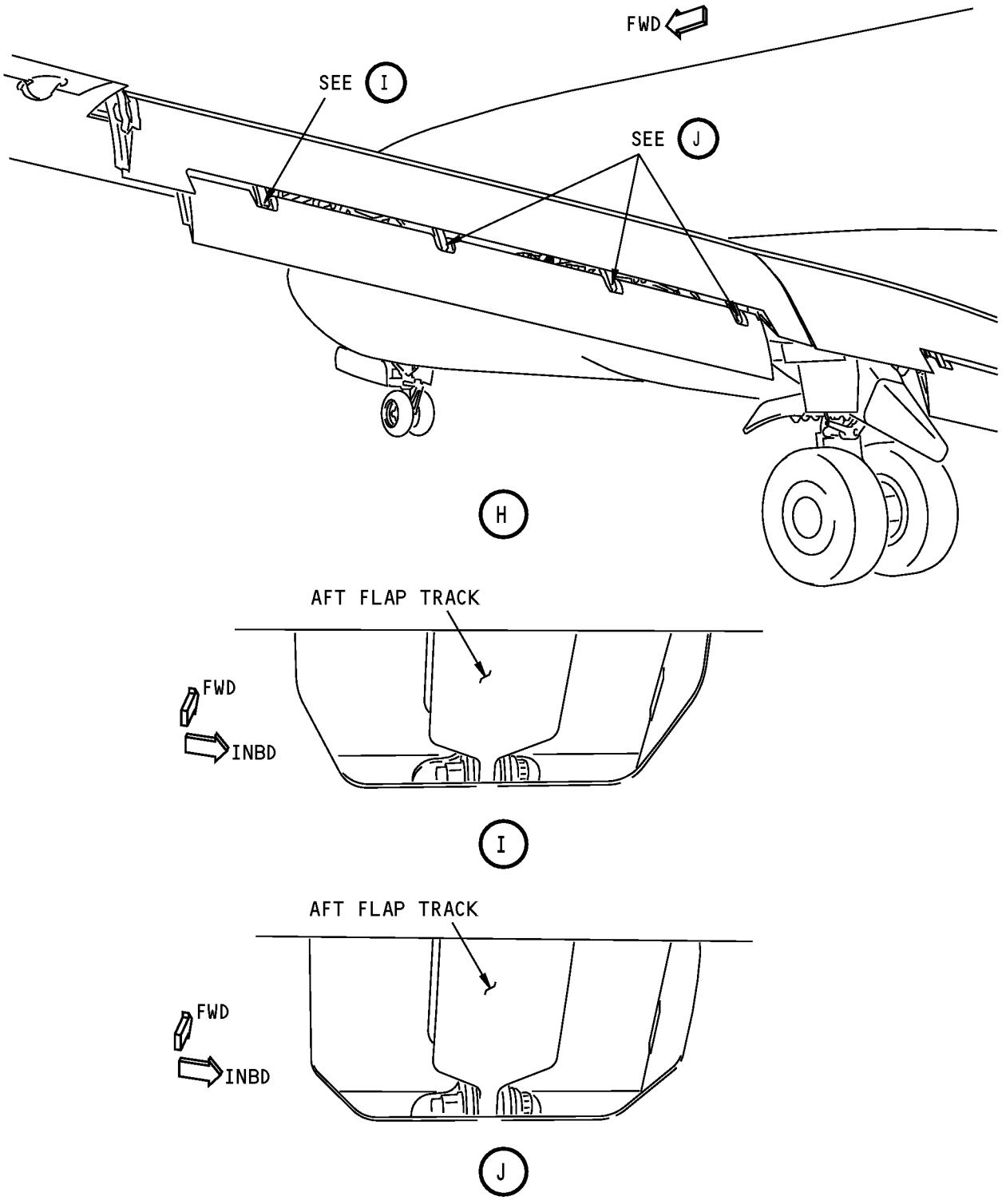

Outboard Trailing Edge Flap Actuation System Inspection
Figure 602 (Sheet 7 of 7)/27-51-00-990-813

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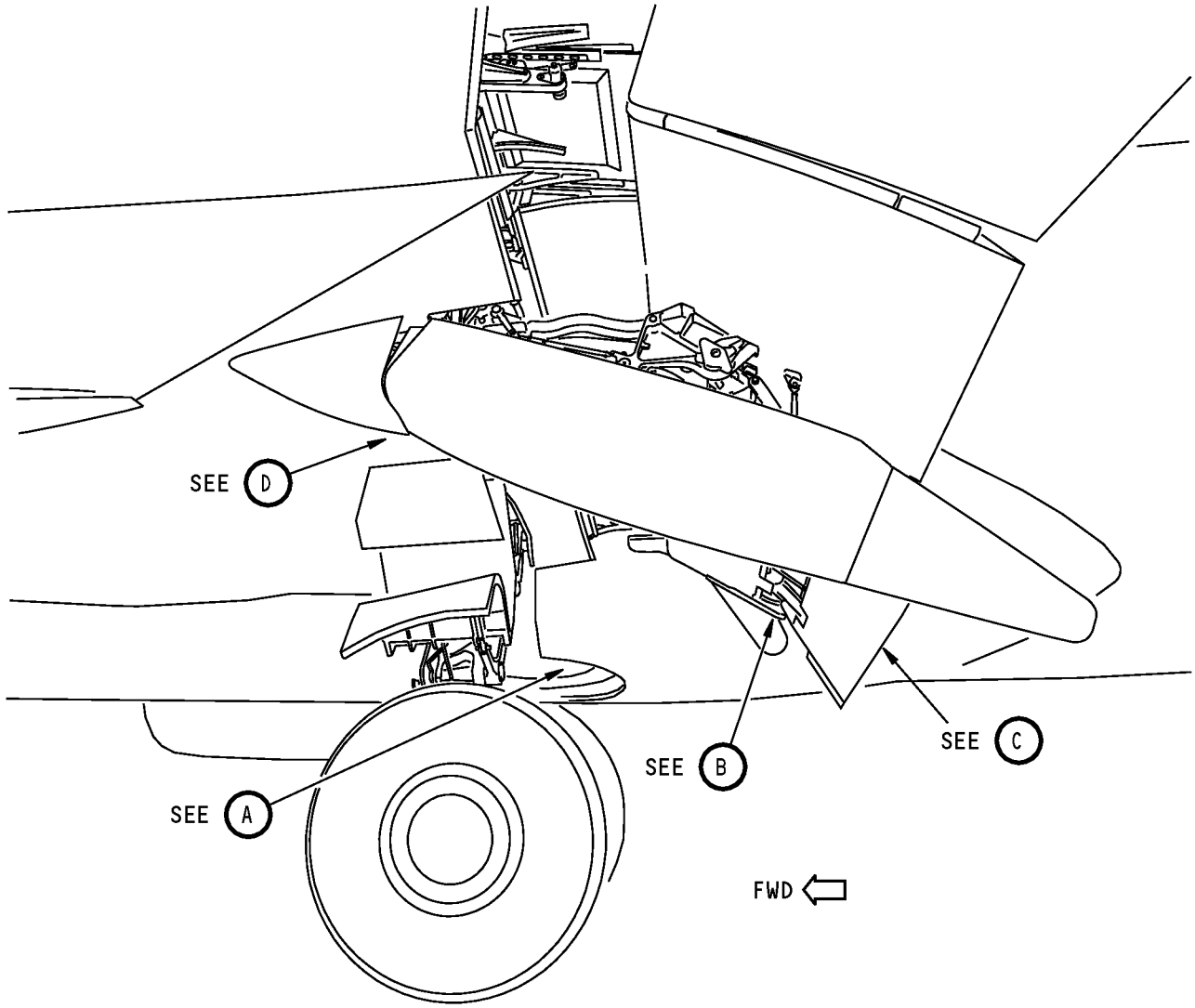

Inboard Trailing Edge Flap Actuation System Inspection
Figure 603 (Sheet 1 of 4)/27-51-00-990-814

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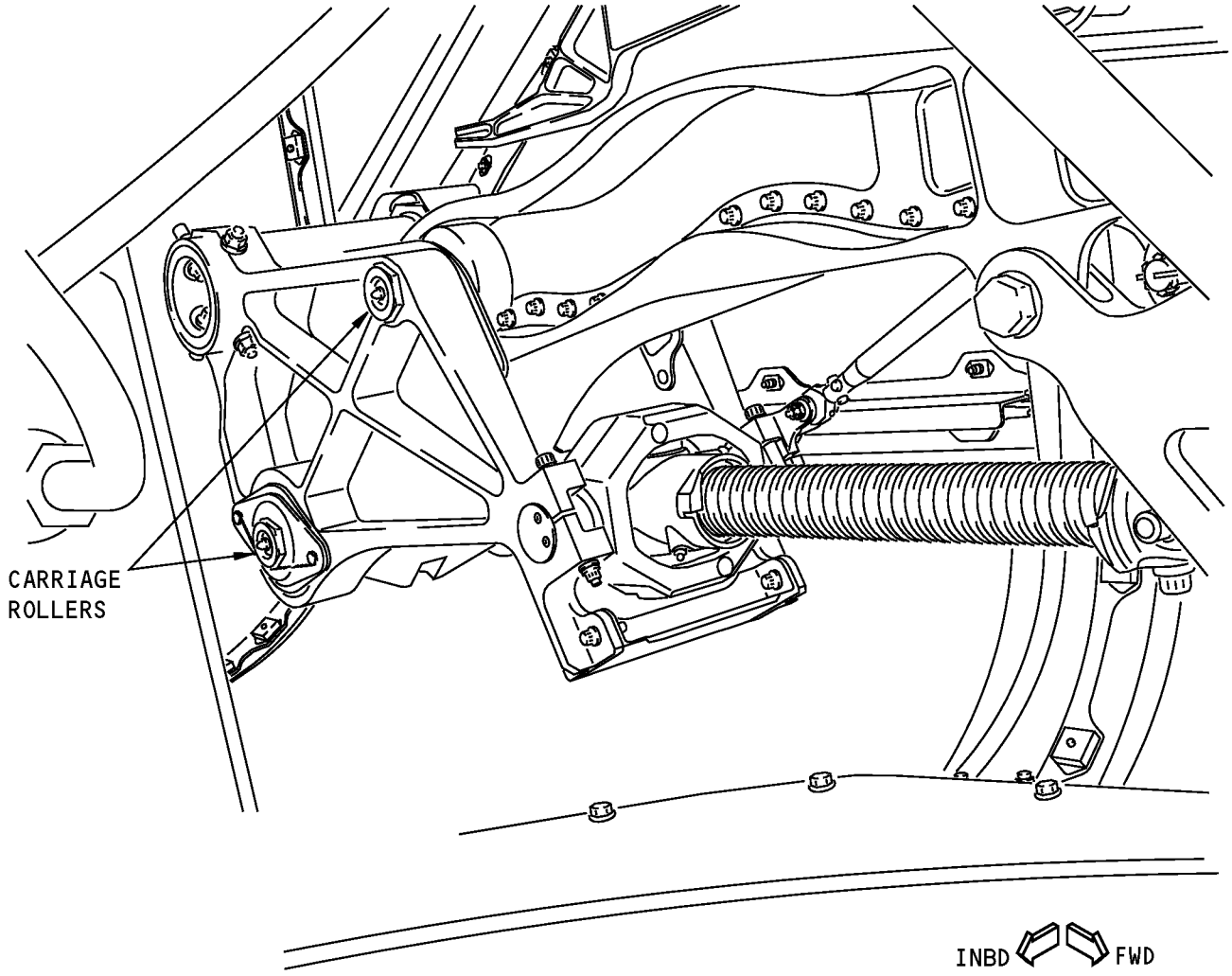

Inboard Trailing Edge Flap Actuation System Inspection
Figure 603 (Sheet 2 of 4)/27-51-00-990-814

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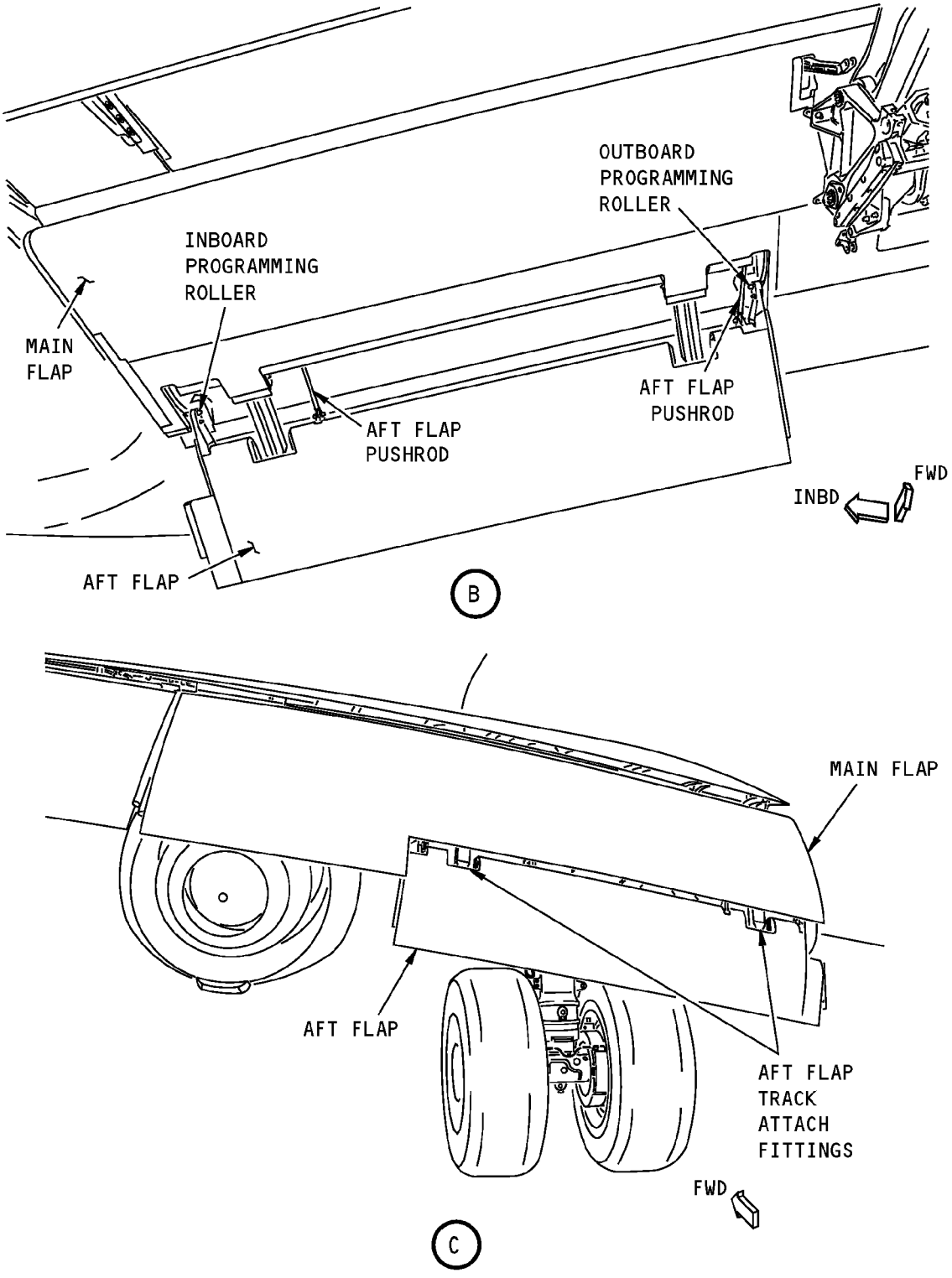

Inboard Trailing Edge Flap Actuation System Inspection
Figure 603 (Sheet 3 of 4)/27-51-00-990-814

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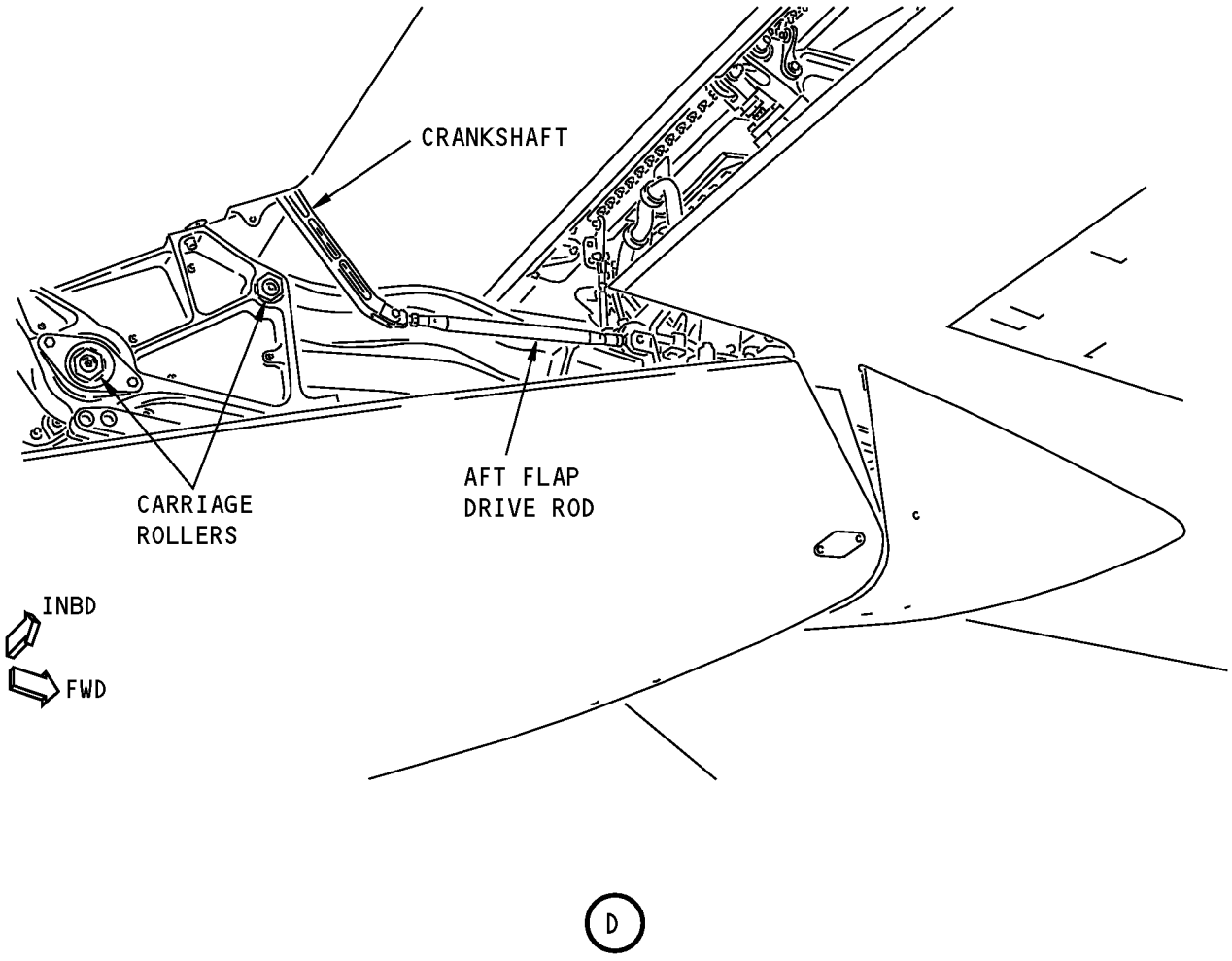

Inboard Trailing Edge Flap Actuation System Inspection
Figure 603 (Sheet 4 of 4)/27-51-00-990-814

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FLAP/SLAT ELECTRONICS UNIT (FSEU) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap/slat electronics unit (FSEU), M1746

(2) An installation of the flap/slat electronics unit (FSEU), M1746.

TASK 27-51-01-000-801

2. Flap/Slat Electronics Unit Removal

(Figure 401)

A. General

(1) The FSEU [1] is installed on the E1-1 shelf in the main equipment center.

B. References

Reference	Title
20-10-07-000-801	E/E Box Removal (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Procedure

SUBTASK 27-51-01-860-001

(1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
A	8	C00211	FLIGHT CONTROL FSEU DC 1
A	9	C01468	FLIGHT CONTROL FSEU DC 2
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-51-01-010-001

(2) To get access to the main equipment center, do this step:

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-51-01-020-001

(3) Remove the FSEU [1] from the E1-1 shelf, do this task: E/E Box Removal, TASK 20-10-07-000-801.

END OF TASK

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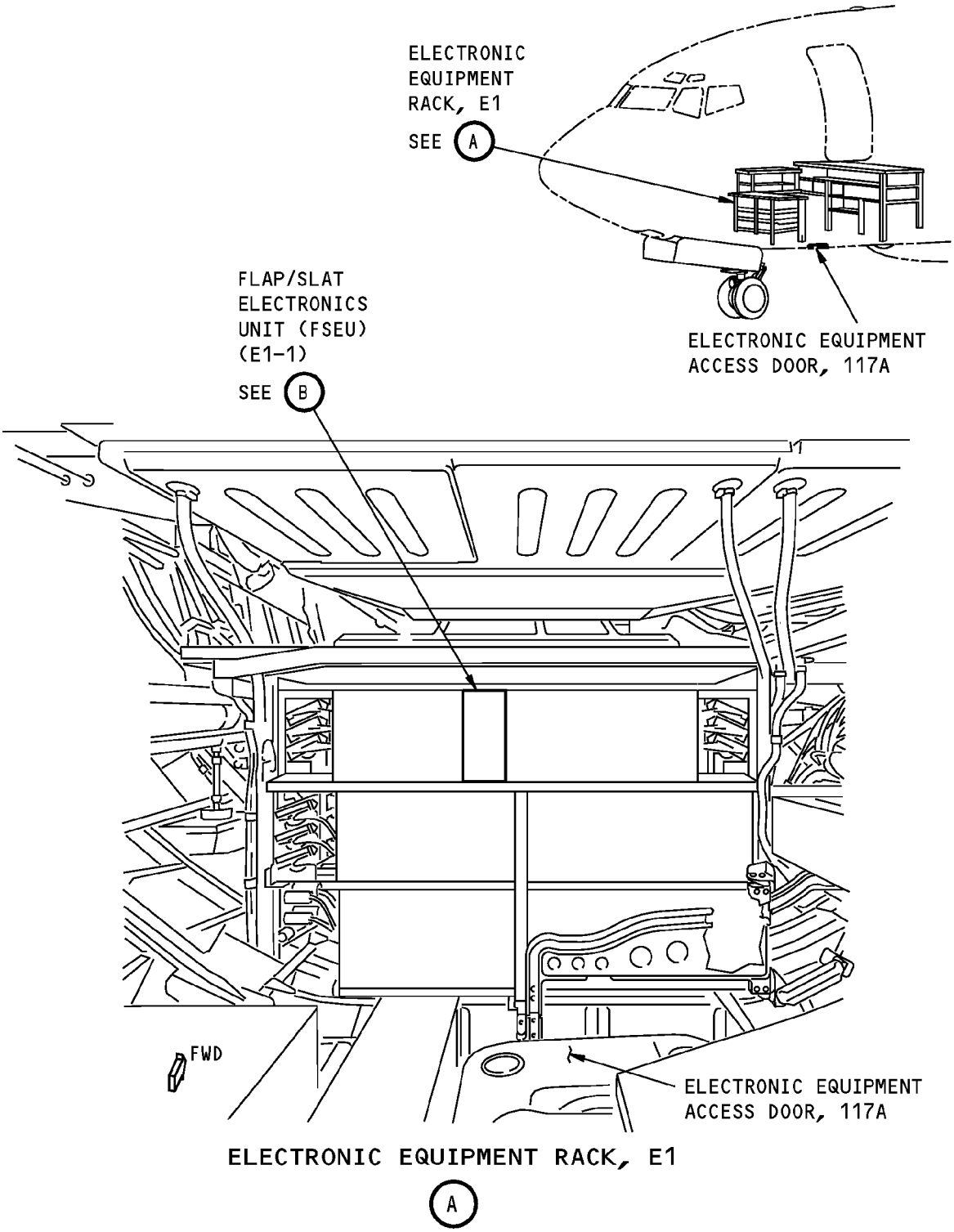

Flap/Slat Electronics Unit Installation
Figure 401 (Sheet 1 of 2)/27-51-01-990-801

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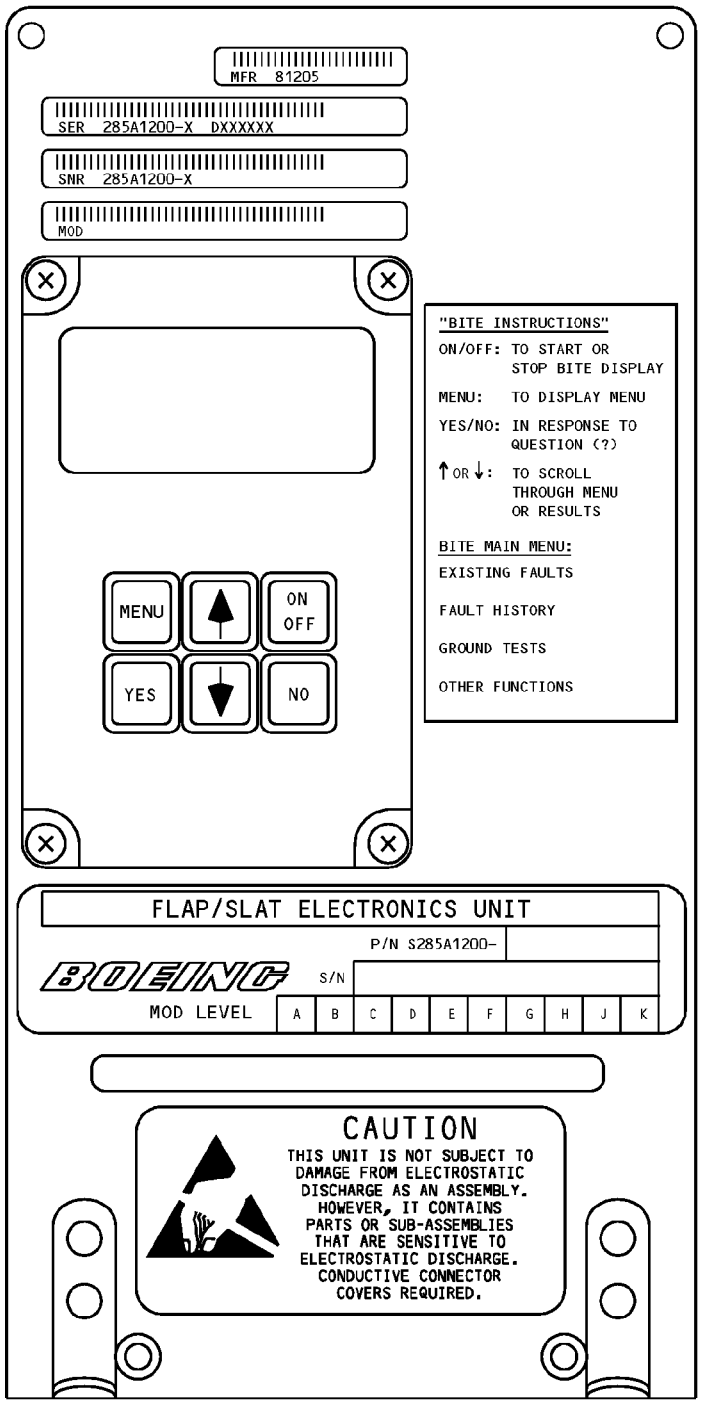

[1] FLAP/SLAT ELECTRONICS UNIT (FSEU)

B

Flap/Slat Electronics Unit Installation
Figure 401 (Sheet 2 of 2)/27-51-01-990-801

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TASK 27-51-01-400-801

3. Flap/Slat Electronics Unit Installation

(Figure 401)

A. General

(1) The FSEU [1] is installed on the E1-1 shelf in the main equipment center.

B. References

Reference	Title
20-10-07-400-801	E/E Box Installation (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-740-801	FSEU Display and Existing Faults Test (P/B 501)
27-51-00-740-802	Trailing Edge Flap Asymmetry Skew System BITE Test (P/B 501)
27-51-00-740-803	Trailing Edge Flap Load Relief System BITE Test (P/B 501)
27-81-00-700-804	Leading Edge Uncommanded Motion Protection Test (P/B 501)
27-81-00-730-801	Leading Edge Cruise Depressurization Test (P/B 501)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	FSEU	27-51-01-01-005	HAP 001-013, 015-026, 028-036
		27-51-01-02-005	HAP 037-054, 101-999

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Flap/Slat Electronic Unit Installation

SUBTASK 27-51-01-420-001

(1) Install the FSEU [1] on the E1-1 shelf, do this task: E/E Box Installation, TASK 20-10-07-400-801.

SUBTASK 27-51-01-860-002

(2) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
A	8	C00211	FLIGHT CONTROL FSEU DC 1
A	9	C01468	FLIGHT CONTROL FSEU DC 2
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

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G. Flap/Slat Electronic Unit Installation Test

SUBTASK 27-51-01-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-01-860-004

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-01-740-001

(3) Do the Existing Faults BITE test with the FSEU [1]. To do the BITE test, do this task: FSEU Display and Existing Faults Test, TASK 27-51-00-740-801.

HAP 037-054

SUBTASK 27-51-01-740-004

(4) Do the Leading Edge Cruise Depressurization Test with the FSEU [1]. To do the depressurization test, do this task:Leading Edge Cruise Depressurization Test, TASK 27-81-00-730-801.

SUBTASK 27-51-01-700-001

(5) Do the Leading Edge Uncommanded Motion Protection Test with the FSEU [1]. To do the uncommanded motion protection test, do this task:Leading Edge Uncommanded Motion Protection Test, TASK 27-81-00-700-804.

HAP ALL

SUBTASK 27-51-01-740-002

(6) Do the Load Relief BITE test with the FSEU [1]. To do the BITE test, do this task: Trailing Edge Flap Load Relief System BITE Test, TASK 27-51-00-740-803.

SUBTASK 27-51-01-740-003

(7) Do the Asymmetry Skew System BITE test with the FSEU [1]. To do the BITE test, do this task: Trailing Edge Flap Asymmetry Skew System BITE Test, TASK 27-51-00-740-802.

SUBTASK 27-51-01-710-001

(8) Do a test of the air mode inhibit function of the FSEU [1]:

(a) Use the PSEU to simulate air mode. To simulate air mode, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

NOTE: It is only necessary to simulate air mode with system 1.

(b) Push the ON/OFF button on the front panel of the FSEU [1] to turn it off and then on.

(c) Make sure that INHIBIT: IN AIR shows on the display window on the FSEU [1].

(d) Use the PSEU to return the airplane to ground mode. To return the airplane to ground mode, do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

(e) Push the ON/OFF button on the front panel of the FSEU [1] to turn it off and then on.

(f) Make sure that INHIBIT: IN AIR does not show on the display window on the FSEU [1].

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-01-860-005

(1) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-01-010-002

(2) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

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TRAILING EDGE FLAP BYPASS VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the trailing edge flap bypass valve assembly

(2) An installation of the trailing edge flap bypass valve assembly

(3) A removal of the trailing edge flap bypass valve and valve motor

(4) An installation of the trailing edge flap bypass valve and valve motor

(5) A removal of the trailing edge flap bypass valve motor

(6) An installation of the trailing edge flap bypass valve motor.

B. The trailing edge bypass valve assembly includes the valve housing, the bypass valve and the bypass valve motor.

TASK 27-51-02-000-801

2. Trailing Edge Flap Bypass Valve Assembly Removal

(Figure 401)

A. General

(1) This task includes the removal of the bypass valve assembly as a unit. The bypass valve assembly includes the housing, the valve and the valve motor.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-51-02-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-02-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-02-860-005

(3) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

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SUBTASK 27-51-02-860-006

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

E. Trailing Edge Flap Bypass Valve Assembly Removal

SUBTASK 27-51-02-020-001

(1) Disconnect the electrical connector [5] from the bypass valve assembly [4].

SUBTASK 27-51-02-020-002

(2) Disconnect the hydraulic lines [1] from the bypass valve assembly [4]:

(a) Put a container below the bypass valve assembly [4] to hold the hydraulic fluid.

(b) Disconnect the hydraulic lines [1] from the bypass valve assembly [4].

(c) Install caps on the hydraulic lines [1] and plugs in the hydraulic ports.

SUBTASK 27-51-02-020-003

(3) Remove the flap bypass valve assembly [4]:

(a) Remove the bolts [6] and washers [7] that attach the bypass valve assembly [4] to the bracket [2].

(b) Remove the bypass valve assembly [4] from the bracket [2].

SUBTASK 27-51-02-020-004

(4) If you will install a new bypass valve assembly [4], remove the unions [13] and packings [14] from the bypass valve assembly [4].

———————— END OF TASK ————————

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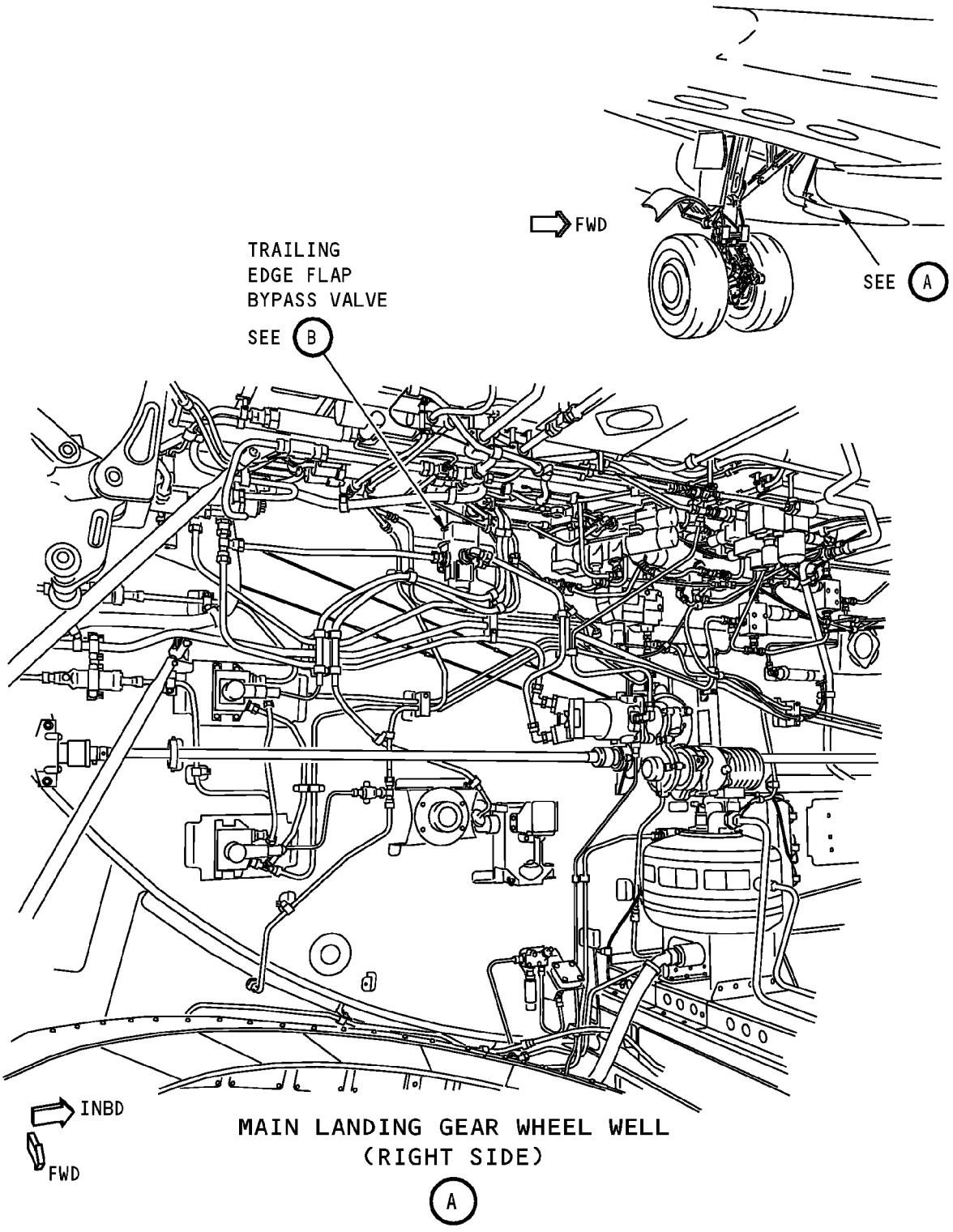

Trailing Edge Flap Bypass Valve Assembly Installation
Figure 401 (Sheet 1 of 4)/27-51-02-990-802

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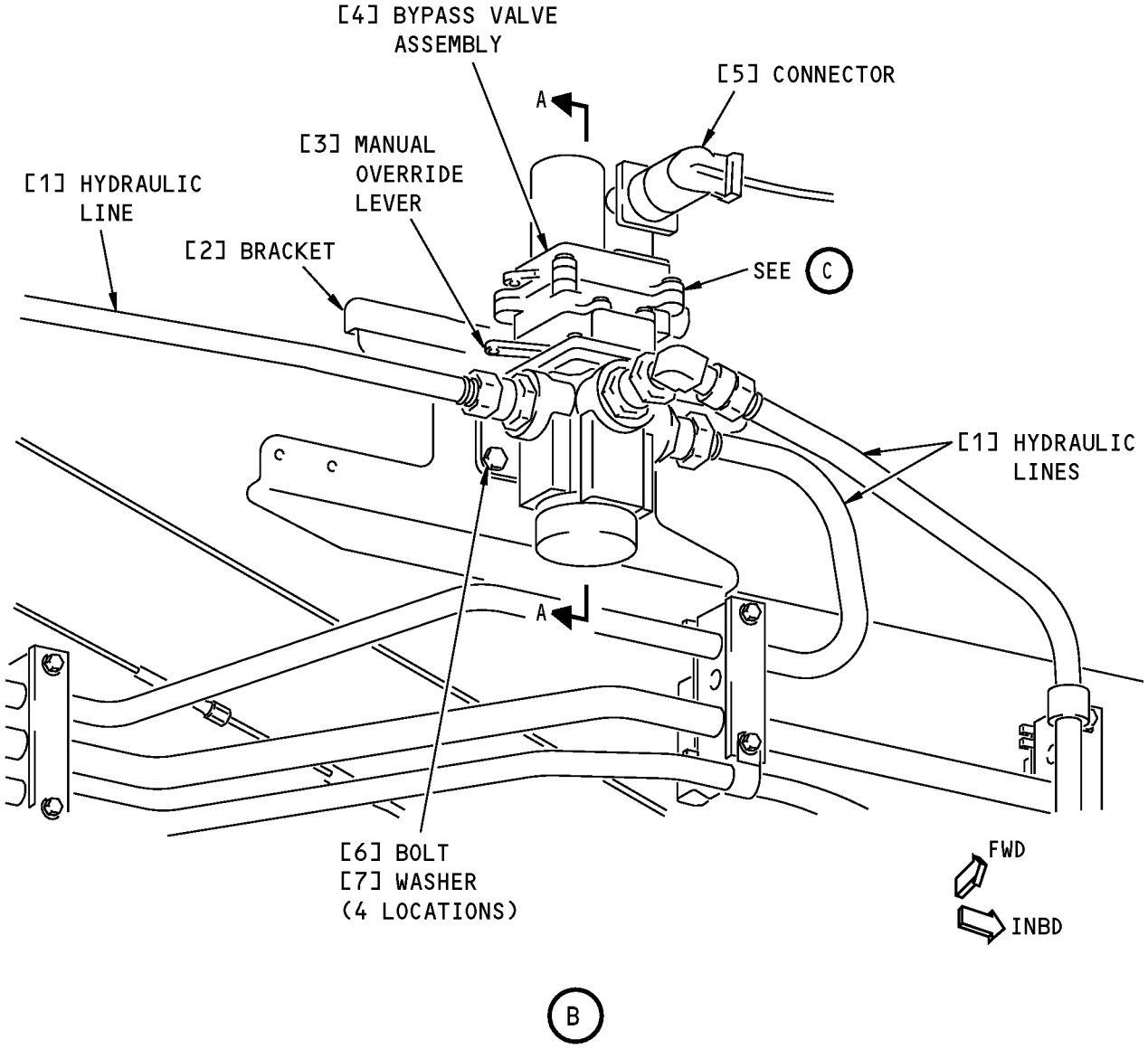

Trailing Edge Flap Bypass Valve Assembly Installation
Figure 401 (Sheet 2 of 4)/27-51-02-990-802

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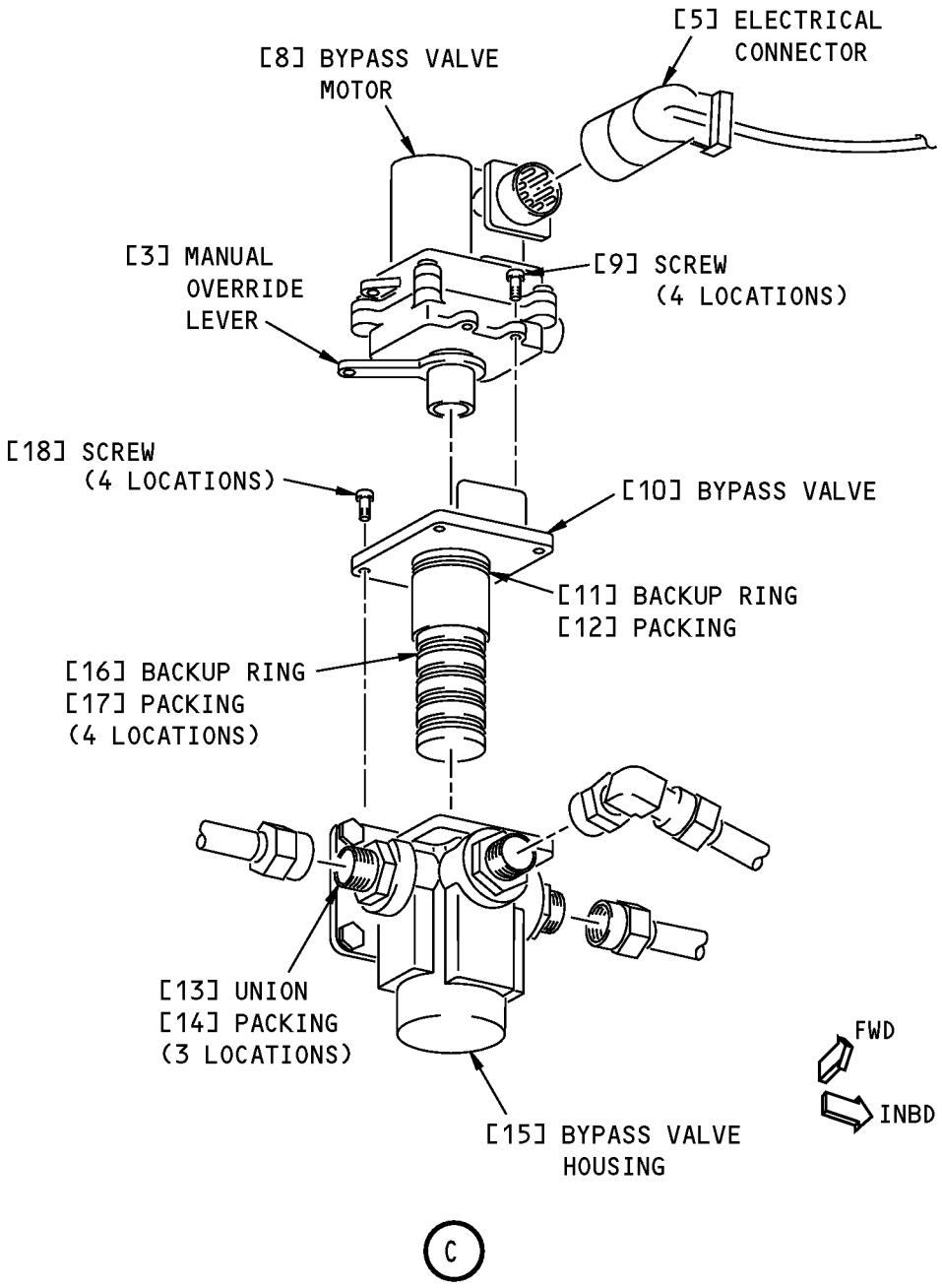

Trailing Edge Flap Bypass Valve Assembly Installation
Figure 401 (Sheet 3 of 4)/27-51-02-990-802

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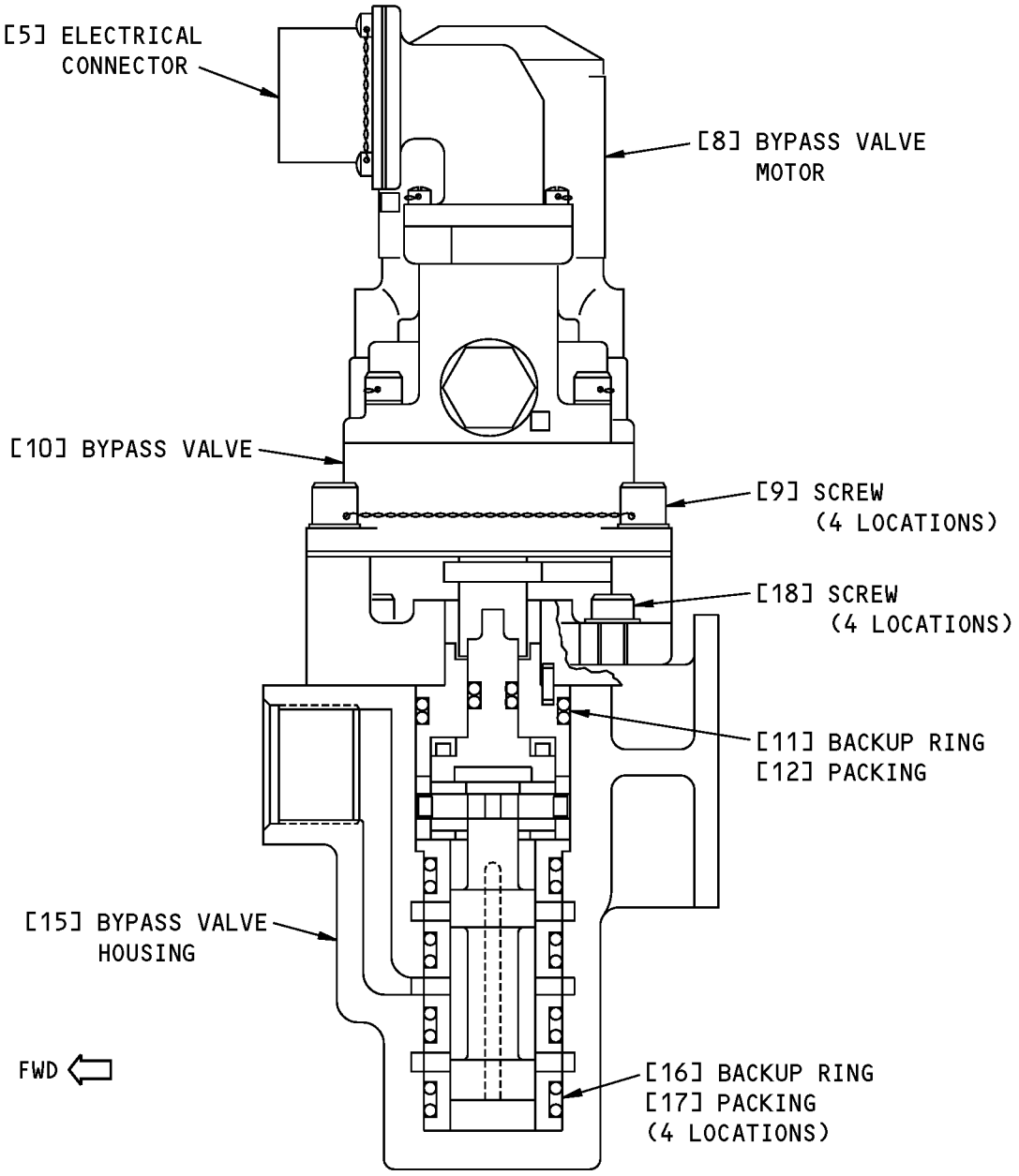

Trailing Edge Flap Bypass Valve Assembly Installation
Figure 401 (Sheet 4 of 4)/27-51-02-990-802

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TASK 27-51-02-400-801

3. Trailing Edge Flap Bypass Valve Assembly Installation

(Figure 401)

A. General

(1) This task includes the installation of the bypass valve assembly as a unit. The bypass valve assembly includes the housing, the valve and the valve motor.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-02-720-801	Trailing Edge Flap Bypass Valve Functional Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Valve assembly	27-51-02-01-005	HAP ALL
14	Packing	27-51-02-01-025	HAP ALL

E. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Trailing Edge Flap Bypass Valve Assembly Installation

SUBTASK 27-51-02-860-007

(1) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-51-02-420-001

(2) If they are not installed, install the unions [13] in the bypass valve assembly [4]:

(a) Apply MCS 352B fluid, D00054 or fluid, D00070 to the new packings [14].

(b) Put the packings [14] and the unions [13] in their location on the bypass valve assembly [4].

SUBTASK 27-51-02-420-002

(3) Install the bypass valve assembly [4]:

(a) Make sure the mating surface of the bypass valve assembly [4] and the bracket [2] are clean for electrical bonding.

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(b) Put the bypass valve assembly [4] in its position on the bracket [2].

(c) Install the bolts [6] and washers [7] to attach the bypass valve assembly [4] to the bracket [2].

(d) Make sure the bonding resistance between the bypass valve assembly [4] and the bracket [2] is less than 0.0025 ohm.

SUBTASK 27-51-02-420-003

(4) Connect the hydraulic lines [1] to the bypass valve assembly [4]:

(a) Remove the caps from the hydraulic lines [1] and the plugs from the ports.

(b) Connect the hydraulic lines [1] to the bypass valve assembly [4].

SUBTASK 27-51-02-210-003

(5) Before you connect the electrical electrical connector [5], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-51-02-420-004

(6) Connect the electrical electrical connector [5] to the bypass valve assembly [4].

SUBTASK 27-51-02-860-008

(7) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-51-02-440-001

(8) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-02-720-005

(9) Do this task: Trailing Edge Flap Bypass Valve Functional Test, TASK 27-51-02-720-801.

SUBTASK 27-51-02-210-001

(10) Make sure there are no hydraulic leaks from the bypass valve assembly [4].

——————— END OF TASK ———————

TASK 27-51-02-000-802

4. Trailing Edge Flap Bypass Valve and Bypass Valve Motor Removal

(Figure 401)

A. General

(1) This task includes the removal of the bypass valve and the bypass valve motor from the bypass valve housing.

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B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-51-02-480-002

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-02-040-002

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-02-860-009

(3) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-51-02-860-010

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

E. Trailing Edge Flap Bypass Valve and Bypass Valve Motor Removal

SUBTASK 27-51-02-020-005

(1) Disconnect the electrical connector [5] from the bypass valve motor [8].

SUBTASK 27-51-02-020-006

(2) Remove the flap bypass valve [10] and the bypass valve motor [8] as an assembly from the bypass valve housing [15]:

(a) Remove the screws [18] that attach the bypass valve [10] to the bypass valve housing [15].

(b) Carefully lift the bypass valve [10] and the bypass valve motor [8] out of the bypass valve housing [15].

(c) Put a cover over the bypass valve housing [15].

END OF TASK

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TASK 27-51-02-400-802

5. Trailing Edge Flap Bypass Valve and Bypass Valve Motor Installation

(Figure 401)

A. General

(1) This task includes the installation of the bypass valve and the bypass valve motor on the bypass valve housing.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-02-720-801	Trailing Edge Flap Bypass Valve Functional Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
D00559	Lubricant - White Lithium Multipurpose Grease, NLGI #1 - Lubriplate 630AA	
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
10	Valve	27-51-02-01-030	HAP ALL

E. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Trailing Edge Flap Bypass Valve and Bypass Valve Motor Installation

SUBTASK 27-51-02-860-011

(1) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-51-02-420-005

(2) Install the flap bypass valve [10] and the bypass valve motor [8] on the bypass valve housing [15]:

(a) Apply MCS 352B fluid, D00054 or fluid, D00070 to thepackings [17] and packing [12].

(b) If they are not installed, install the packing [12], packings [17], backup ring [11] and backup rings [16]on the bypass valve [10].

(c) Remove the cover from the bypass valve housing [15].

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(d) Carefully put the bypass valve [10] in its location on the bypass valve housing [15].

(e) Apply a thin layer of Lubriplate 630AA lubricant, D00559 to the threads of the screws [18].

(f) Install the screws [18] to attach the bypass valve [10] to the bypass valve housing [15].

(g) Tighten the screws [18] to 9-11 pound-inches (1.0-1.2 newton-meters).

(h) Install lockwire on the screws [18].

SUBTASK 27-51-02-210-004

(3) Before you connect the electrical connector [5], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-51-02-420-006

(4) Connect the electrical connector [5] to the bypass valve motor [8].

SUBTASK 27-51-02-860-012

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-51-02-440-002

(6) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-02-720-006

(7) Do this task: Trailing Edge Flap Bypass Valve Functional Test, TASK 27-51-02-720-801.

SUBTASK 27-51-02-210-002

(8) Make sure there are no hydraulic leaks from the bypass valve assembly [4].

———————— END OF TASK ————————

TASK 27-51-02-000-803

6. Trailing Edge Flap Bypass Valve Motor Removal

(Figure 401)

A. General

(1) This task includes the removal of the bypass valve motor from the bypass valve.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

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C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-51-02-480-003

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-02-040-003

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-02-860-013

(3) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

E. Trailing Edge Flap Bypass Valve Motor Removal

SUBTASK 27-51-02-020-007

(1) Disconnect the electrical connector [5] from the bypass valve motor [8].

SUBTASK 27-51-02-980-001

(2) Move thel manual override lever [3] to POSITION 2.

SUBTASK 27-51-02-020-008

(3) Remove the bypass valve motor [8] from the bypass valve [10]:

(a) Remove the screws [9] that attach the bypass valve motor [8] to the bypass valve [10].

(b) Carefully lift the bypass valve motor [8] off bypass valve [10].

——————— END OF TASK ———————

TASK 27-51-02-400-803

7. Trailing Edge Flap Bypass Valve Motor Installation

(Figure 401)

A. General

(1) This task includes the installation of the bypass valve motor on the bypass valve.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-02-720-801	Trailing Edge Flap Bypass Valve Functional Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

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C. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Trailing Edge Flap Bypass Valve Motor Installation

SUBTASK 27-51-02-860-014

(1) Make sure that this circuit breaker is open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-51-02-420-007

(2) Install the bypass valve motor [8] on the flap bypass valve [10]:

(a) Carefully put the bypass valve motor [8] in its location on the flap bypass valve [10].

(b) Install the screws [9] to attach the bypass valve motor [8] to the flap bypass valve [10].

(c) Tighten the screws [9] to 12-15 pound-inches (1.4-1.7 newton-meters).

(d) Install lockwire on the screws [9].

SUBTASK 27-51-02-210-005

(3) Before you connect the electrical connector [5], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-51-02-420-008

(4) Connect the electrical connector [5] to the bypass valve motor [8].

SUBTASK 27-51-02-860-015

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-51-02-440-003

(6) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-02-720-007

(7) Do this task: Trailing Edge Flap Bypass Valve Functional Test, TASK 27-51-02-720-801.

——————— END OF TASK ———————

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TRAILING EDGE FLAP BYPASS VALVE - ADJUSTMENT/TEST

1. General

A. This procedure has a functional test of the trailing edge flap bypass valve.

TASK 27-51-02-720-801

2. Trailing Edge Flap Bypass Valve Functional Test

(Figure 501)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-740-802	Trailing Edge Flap Asymmetry Skew System BITE Test (P/B 501)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Test

SUBTASK 27-51-02-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-02-860-002

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-02-860-003

(3) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

D. Trailing Edge Flap Bypass Valve Functional Test

SUBTASK 27-51-02-740-001

(1) Do this task: Trailing Edge Flap Asymmetry Skew System BITE Test, TASK 27-51-00-740-802.

SUBTASK 27-51-02-720-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do a test of the operational speed of the trailing edge flaps:

(a) Move the flap control lever to the UP position and wait for the flaps to reach the UP position.

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(b) Measure the time it takes for the trailing edge flaps to extend from the UP position to the 1-unit position:

1) Move the flap control lever to the 1-unit position to extend the flaps.

2) Make sure the time it takes for the flaps to extend to the 1-unit position is 11 to 14 seconds.

NOTE: If you will use the system B EMDP only, the extension time will be 34 to 39 seconds.

(c) Measure the time it takes for the trailing edge flaps to retract from the 1-unit position to the UP position:

1) Move the flap control lever to the UP position to retract the flaps.

2) Make sure the time it takes for the flaps to retract to the UP position is 11 to 14 seconds.

NOTE: If you will use the system B EMDP only, the retraction time will be 34 to 39 seconds.

SUBTASK 27-51-02-720-002

(3) Do a test of the operation of the bypass valve while the trailing edge flaps are moving:

NOTE: It is necessary to do the following two steps within approximately 10 seconds. The flaps must still be extending when you do the second step.

(a) Move the flap control lever to the 1-unit position.

(b) While the trailing edge flaps are extending, move the ALTERNATE FLAPS ARM switch to the ARM position.

(c) Make sure the flaps stop extending when you move the ARM switch.

SUBTASK 27-51-02-720-003

(4) Move the flap control lever to the UP position.

(a) Make sure the flaps do not move.

SUBTASK 27-51-02-720-004

(5) Put the ALTERNATE FLAPS ARM switch in the OFF position.

(a) Make sure the flaps retract to the retracted position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-02-860-004

(1) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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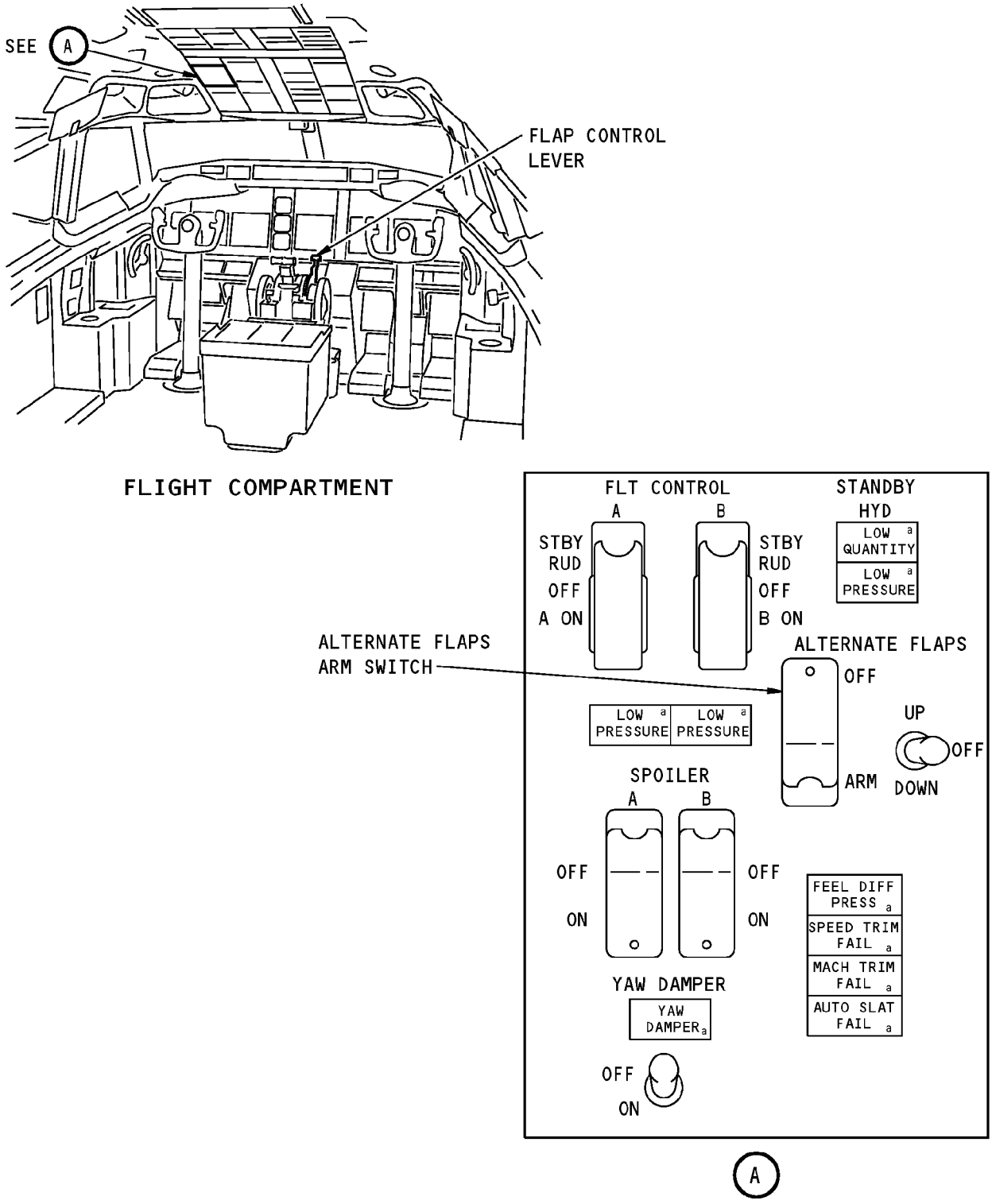

Trailing Edge Flap Bypass Valve Test
Figure 501/27-51-02-990-801

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FLAP PRIORITY VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap priority valve

(2) An installation of the flap priority valve

TASK 27-51-04-000-801

2. Flap Priority Valve Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1054	Container - Fuel Resistant, 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-51-04-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-04-860-001

(2) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

E. Flap Priority Valve Removal

SUBTASK 27-51-04-020-001

(1) Remove the flap priority valve [1]:

(a) Disconnect hydraulic line [2], hydraulic line [6], and hydraulic line [7] from the valve [1]:

1) Put a 5 gallon (19 liters) fuel resistant container, STD-1054 below the valve [1] to hold hydraulic fluid.

2) Disconnect hydraulic line [2], hydraulic line [6], and hydraulic line [7] from the valve [1].

3) Install plugs in hydraulic line [2], hydraulic line [6], and hydraulic line [7].

(b) Remove the nuts [11] and washers [12] and remove the valve [1] from the bracket [10].

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SUBTASK 27-51-04-020-002

(2) If you will install a new valve [1], remove the union [5], union [8] and reducer [3]:

(a) Remove the union [5], union [8] and reducer [3] and packings [4] and packing [9] from the valve [1].

——————— END OF TASK ———————

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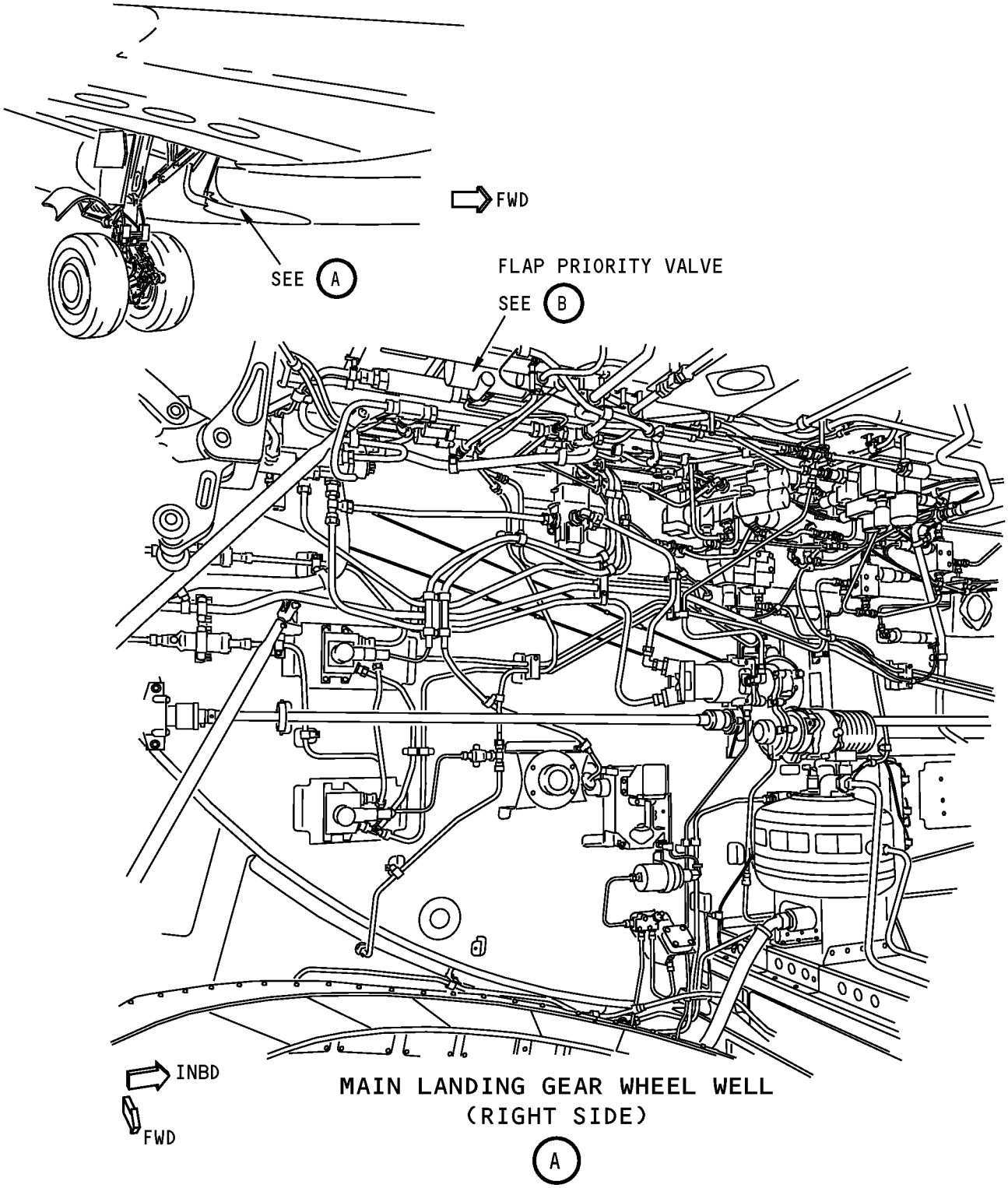

Flap Priority Valve Installation
Figure 401 (Sheet 1 of 2)/27-51-04-990-801

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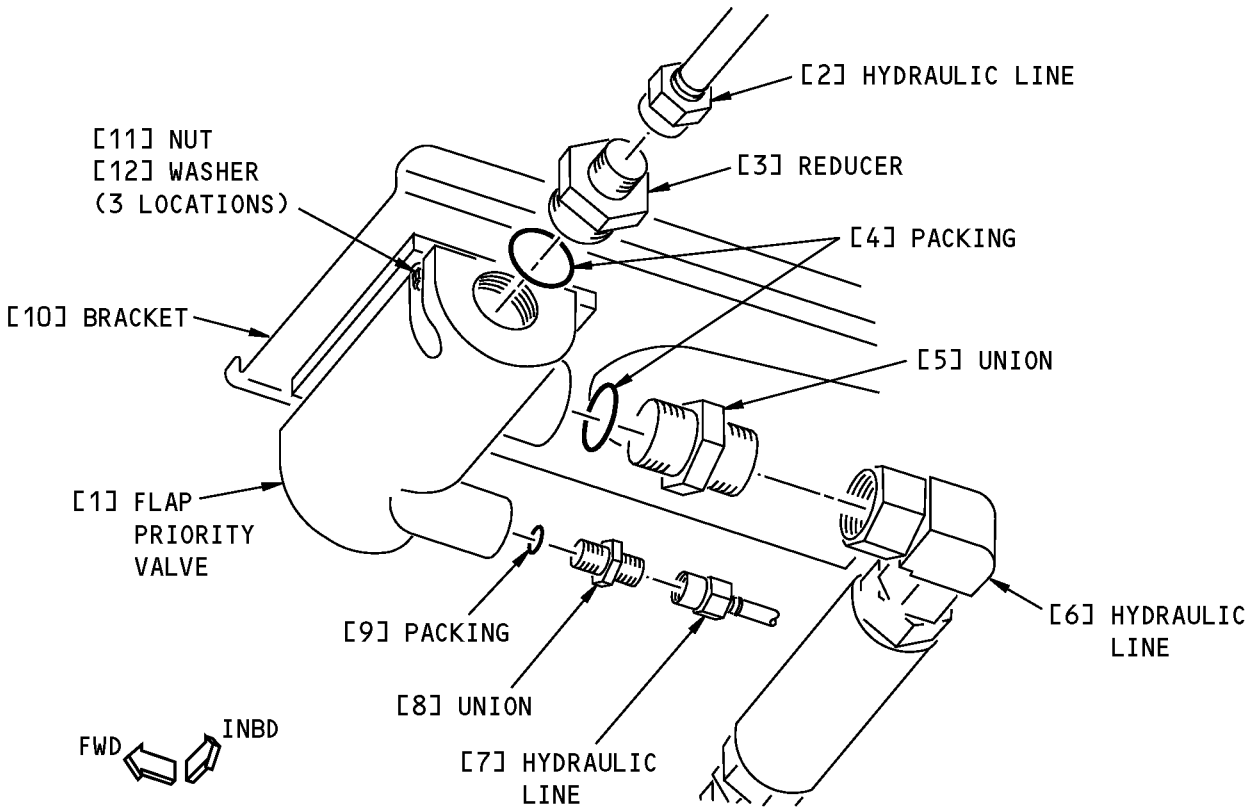

FLAP PRIORITY VALVE

B

Flap Priority Valve Installation
Figure 401 (Sheet 2 of 2)/27-51-04-990-801

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TASK 27-51-04-400-801

3. Flap Priority Valve Installation

(Figure 401)

A. References

Reference	Title
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Valve	27-51-04-01-005	HAP ALL
		27-51-04-01-050	HAP ALL
4	Packing	27-51-04-01-025	HAP ALL
		27-51-04-01-035	HAP ALL
9	Packing	27-51-04-01-045	HAP ALL

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Flap Priority Valve Installation

SUBTASK 27-51-04-420-001

(1) If you will install a new valve [1], install the union [5], union [8] and reducer [3] and packings [4] and packing [9] from the valve [1]:

(a) Apply MCS 352B fluid, D00054 or fluid, D00153 to the new packings [4] and packing [9].

(b) Put the packings [4] and packing [9] and the union [5], union [8] and reducer [3] in the valve [1].

SUBTASK 27-51-04-420-002

(2) Install the flap priority valve [1]:

(a) Apply compound, C00913 to the shank and threads of the bolts on the bracket [10].

(b) Put the valve [1] in its location on the bracket [10].

(c) Install the nuts [11] and washers [12] to hold the valve [1].

(d) Remove the plugs from hydraulic line [2], hydraulic line [6], and hydraulic line [7].

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(e) Connect hydraulic line [2], hydraulic line [6], and hydraulic line [7] to the valve [1].

SUBTASK 27-51-04-860-002

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-04-860-003

(4) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-04-210-001

(5) Examine the hydraulic fittings for leaks.

SUBTASK 27-51-04-860-004

(6) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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FLAP CONTROL LEVER POSITION SENSOR - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal of the flap control lever position sensor

(2) An installation of the flap control lever position sensor

(3) An adjustment of the flap control lever position sensor

(4) An system test of the flap control lever position sensor

(5) A detailed visual inspection of the flap control lever sensor, linkage and rod ends.

B. The flap control lever position sensor is installed in the control stand and operates from the flap control lever.

TASK 27-51-06-000-802

2. Flap Control Lever Position Sensor Removal

(Figure 201)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Prepare for the Removal

SUBTASK 27-51-06-860-011

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-51-06-010-007

(2) Remove the lower right side cover [3] from the lower right side of the control stand [7]:

(a) Remove the screws [5] and the pocket assembly [6] from the lower right side cover [3].

(b) Loosen the two lower screws [8] for the upper right side cover [1] on the right side of the control stand [7].

(c) Remove the screws [4] that attach the lower right side cover [3] to the control stand [7].

(d) Remove the lower right side cover [3] from the control stand [7].

NOTE: It is necessary to move the lower side cover [3] down, away from the upper side cover [1].

C. Flap Control Lever Position Sensor Removal

SUBTASK 27-51-06-020-005

(1) Disconnect the electrical connector [9] for the flap control lever position sensor [20].

SUBTASK 27-51-06-020-006

(2) Remove the flap control lever position sensor assembly [2]:

NOTE: The position sensor assembly [2] includes the position sensor [20], bracket assembly [23], bracket [24] and the crank [18].

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(a) Remove the bolt [15], washers [16] and clamp [14] that attach the wire for the electrical connector [9].

(b) Remove the bolts [11], washers [12], nuts [13] and clamps [10] that attach the wire for the electrical connector [9].

(c) Remove the bolt [22] and nut [21] that attach the link [17] to the crank [18].

(d) Remove the screws [19] that attach the flap control lever position sensor assembly [2] to the control stand [7].

SUBTASK 27-51-06-020-007

(3) Remove the flap control lever position sensor [20] from the position sensor assembly [2]:

(a) Remove the screw [27], washers [28] and nut [29] that attach the crank [18] to the shaft on the position sensor [20].

(b) Remove the screws [25] and washers [26] that attach the position sensor [20] to the bracket [24].

(c) Remove the flap control lever position sensor [20] from the bracket [24].

END OF TASK

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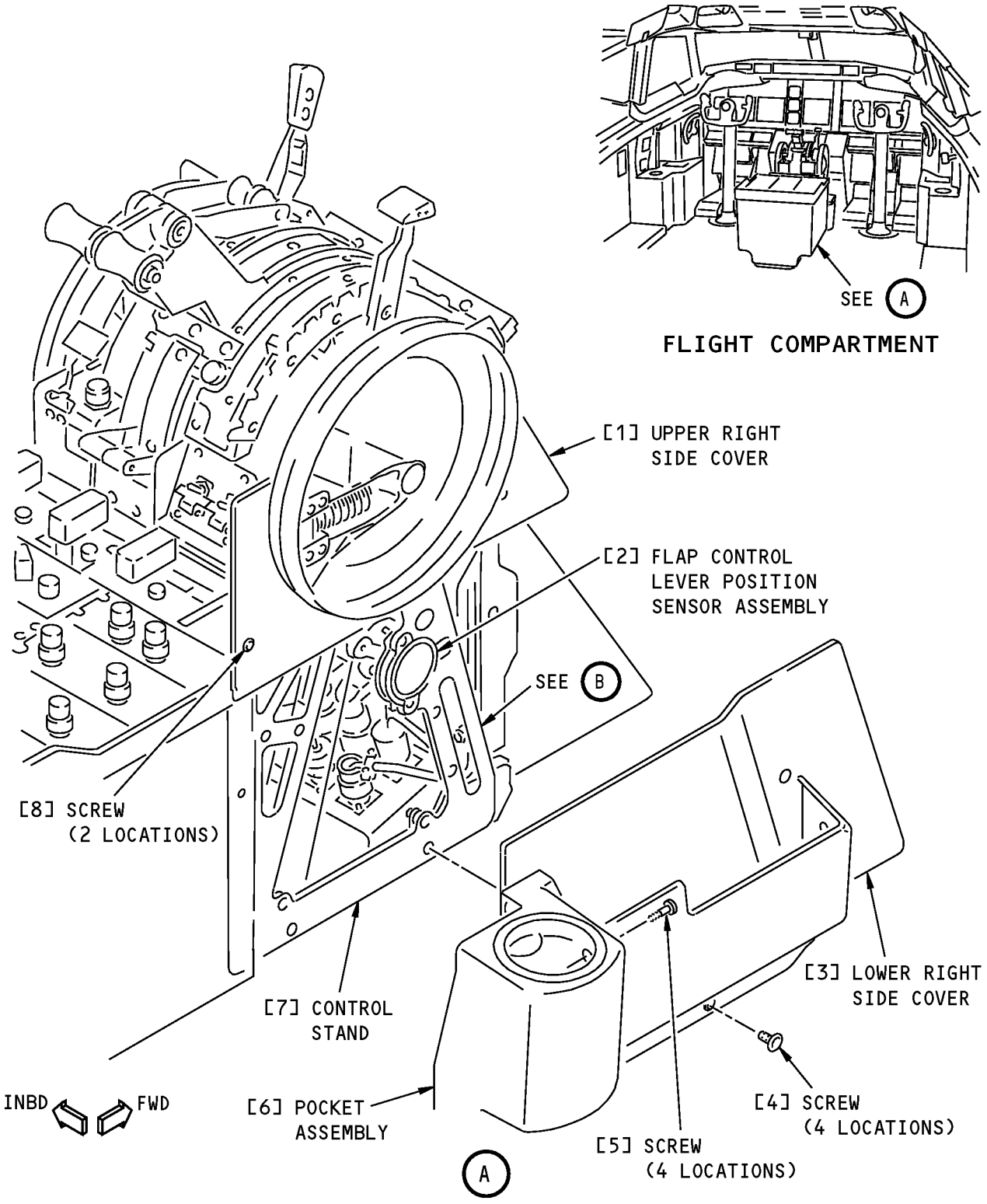

Flap Control Lever Position Sensor Installation
Figure 201 (Sheet 1 of 3)/27-51-06-990-801

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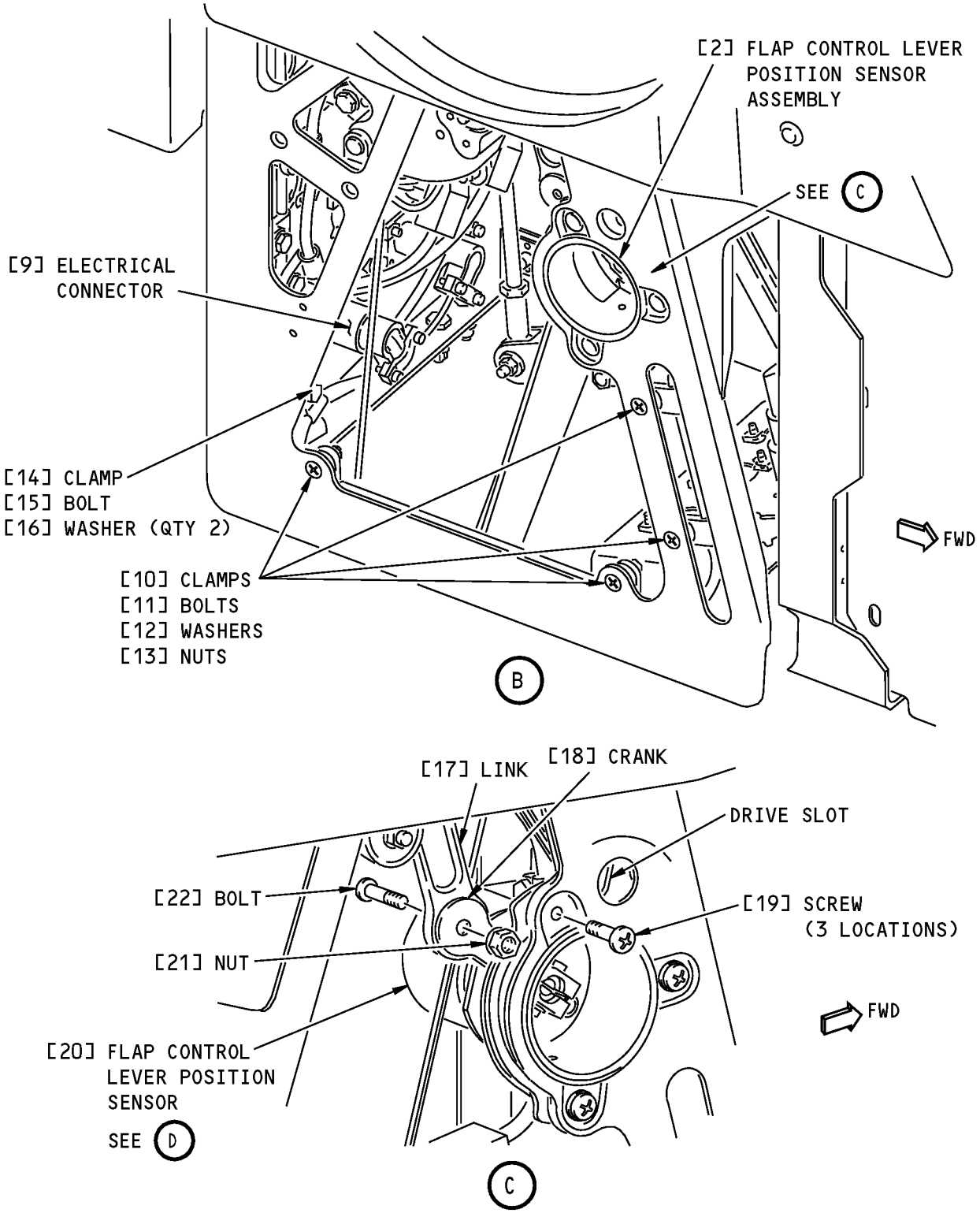

Flap Control Lever Position Sensor Installation
Figure 201 (Sheet 2 of 3)/27-51-06-990-801

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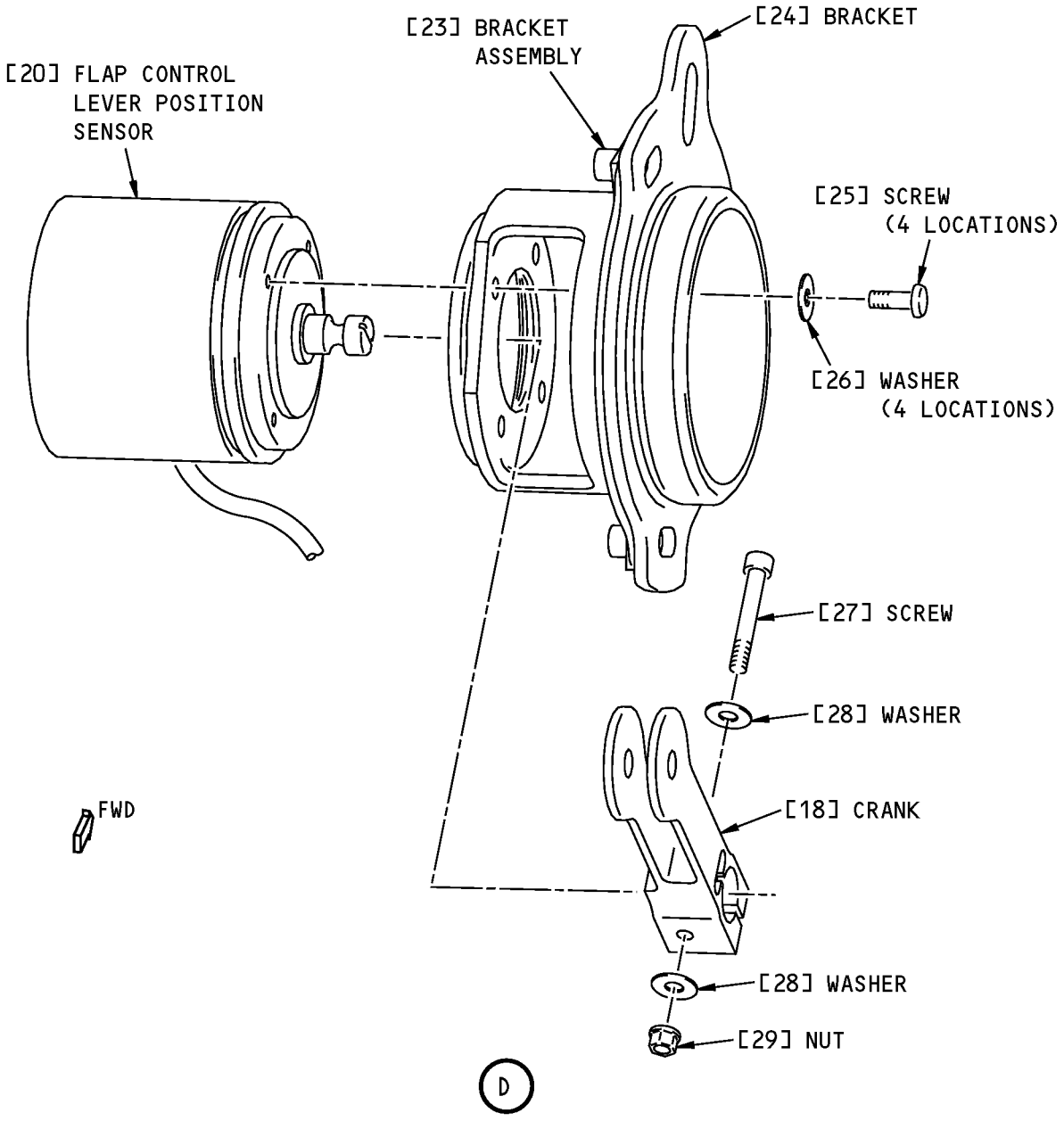

Flap Control Lever Position Sensor Installation
Figure 201 (Sheet 3 of 3)/27-51-06-990-801

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TASK 27-51-06-400-802

3. Flap Control Lever Position Sensor Installation

(Figure 201)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Flap Control Lever Position Sensor Installation

SUBTASK 27-51-06-860-012

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-51-06-010-008

(2) Install the flap control lever position sensor [20] on the position sensor assembly [2]:

NOTE: The position sensor assembly [2] includes the position sensor [20], bracket assembly [23], bracket [24] and the crank [18].

(a) Put the bracket assembly [23] in its position on the bracket [24].

(b) Put the crank [18] in its position through the slot in the bracket [24].

(c) Put the crank [18] on the shaft of the position sensor [20] and put the position sensor [20] in its position on the bracket [24].

(d) Install the screw [27], washers [28] and nut [29] to attach the crank [18] to the position sensor [20].

(e) Install the screws [25] and washers [26] to attach the position sensor [20] to the bracket [24].

NOTE: Make sure the wire for the electrical connector [9] is approximately 180° from the crank [18].

SUBTASK 27-51-06-420-006

(3) Install the flap control lever position sensor assembly [2]:

(a) Put the flap control lever position sensor assembly [2] in its position on the control stand [7].

(b) Install the screws [19] that attach the flap control lever position sensor assembly [2].

(c) Install the bolt [22]and nut [21] to attach the link [17] to the crank [18].

SUBTASK 27-51-06-420-007

(4) Connect the electrical connector [9] for the flap control lever position sensor [20].

SUBTASK 27-51-06-420-008

(5) Install the clamps [10] with the bolts [11], washers [12], and nuts [13] to attach the wire for the electrical connector [9] to the control stand [7].

SUBTASK 27-51-06-420-009

(6) Install the clamp [14] with the bolt [15] and washers [16] to attach the wire for the electrical connector [9] to the control stand [7].

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SUBTASK 27-51-06-860-013

(7) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-51-06-820-003

(8) Do this task: Flap Control Lever Position Sensor Adjustment, TASK 27-51-06-820-802.

SUBTASK 27-51-06-730-007

(9) Do this task: Flap Control Lever Position Sensor System Test, TASK 27-51-06-730-802.

C. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-06-410-007

(1) Install the lower right side cover [3] on the lower right side of the control stand [7]:

(a) Put the lower right side cover [3] in its position on the control stand [7].

NOTE: The lower side cover [3] goes under the upper side cover [1].

(b) Install the screws [4] that attach the lower right side cover [3] to the control stand [7].

(c) Tighten the lower screws [8] that attach the upper right side cover [1].

(d) Install the pocket assembly [6] with the screws [5] on the lower right side cover [3].

END OF TASK

TASK 27-51-06-820-802

4. Flap Control Lever Position Sensor Adjustment

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Adjustment

SUBTASK 27-51-06-860-014

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-51-06-860-015

(2) If it is supplied, remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

NOTE: If system B hydraulic power is supplied, the flaps and slats will operate during the adjustment.

SUBTASK 27-51-06-010-009

(3) Remove the lower right side cover [3] from the lower right side of the control stand [7] (Figure 201):

(a) Remove the screws [5] and the pocket assembly [6] from the lower right side cover [3].

(b) Loosen the two lower screws [8] for the upper right side cover [1] on the right side of the control stand [7].

(c) Remove the screws [4] that attach the lower right side cover [3] to the control stand [7].

(d) Remove the lower right side cover [3] from the control stand [7].

NOTE: It is necessary to move the lower side cover [3] down, away from the upper side cover [1].

SUBTASK 27-51-06-010-010

(4) To get access to the FSEU on the E1-1 shelf in the main equipment center, do this task.(Figure 202).

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

E. Flap Control Lever Position Sensor Adjustment

SUBTASK 27-51-06-860-016

(1) Move the flap control lever to the 10-unit position.

SUBTASK 27-51-06-740-003

(2) Use the FSEU to find the output of the flap control lever position sensor [20]:

(a) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

(b) Push the down arrow until OTHER FUNCTNS? shows on the display.

(c) Push the YES button to select OTHER FUNCTNS? on the FSEU.

(d) Push the down arrow until I/O MONITOR? shows on the display.

(e) Push the YES button to select I/O MONITOR? from the menu.

(f) Push the down arrow until SYNCHRO INPUTS? shows on the display.

(g) Push the YES button to select SYNCHRO INPUTS? from the menu.

(h) Make sure the LVR POS shows in the limit of 52.3 to 52.9 degrees.

SUBTASK 27-51-06-820-004

(3) If the output of the position sensor [20] shown on the FSEU is not in the limit, adjust the position sensor [20] (Figure 201):

(a) Loosen the screws [19] that attach the flap control lever position sensor assembly [2] to the control stand [7].

(b) Put a 1/4 inch square drive in the drive slot on the position flap control lever sensor assembly [2].

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(c) Carefully turn the position sensor assembly [2] until the FSEU shows the LVR POS in the limit of 52.3 to 52.9 degrees.

(d) Tighten the screws [19].

(e) Remove the 1/4 inch square drive from the drive slot.

(f) Make sure the LVR POS shows in the limit of 52.3 to 52.9 degrees.

SUBTASK 27-51-06-730-008

(4) Do this task: Flap Control Lever Position Sensor System Test, TASK 27-51-06-730-802.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-06-860-017

(1) Push the ON/OFF button on the front panel of the FSEU to turn it off.

SUBTASK 27-51-06-410-008

(2) For the main equipment center, do this task.

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-51-06-410-009

(3) Install the lower right side cover [3] on the lower right side of the control stand [7]:

(a) Put the lower right side cover [3] in its position on the control stand [7].

NOTE: The lower side cover [3] goes under the upper side cover [1].

(b) Install the screws [4] that attach the lower right side cover [3] to the control stand [7].

(c) Tighten the lower screws [8] that attach the upper right side cover [1]

(d) Install the pocket assembly [6] with the screws [5] on the lower right side cover [3].

END OF TASK

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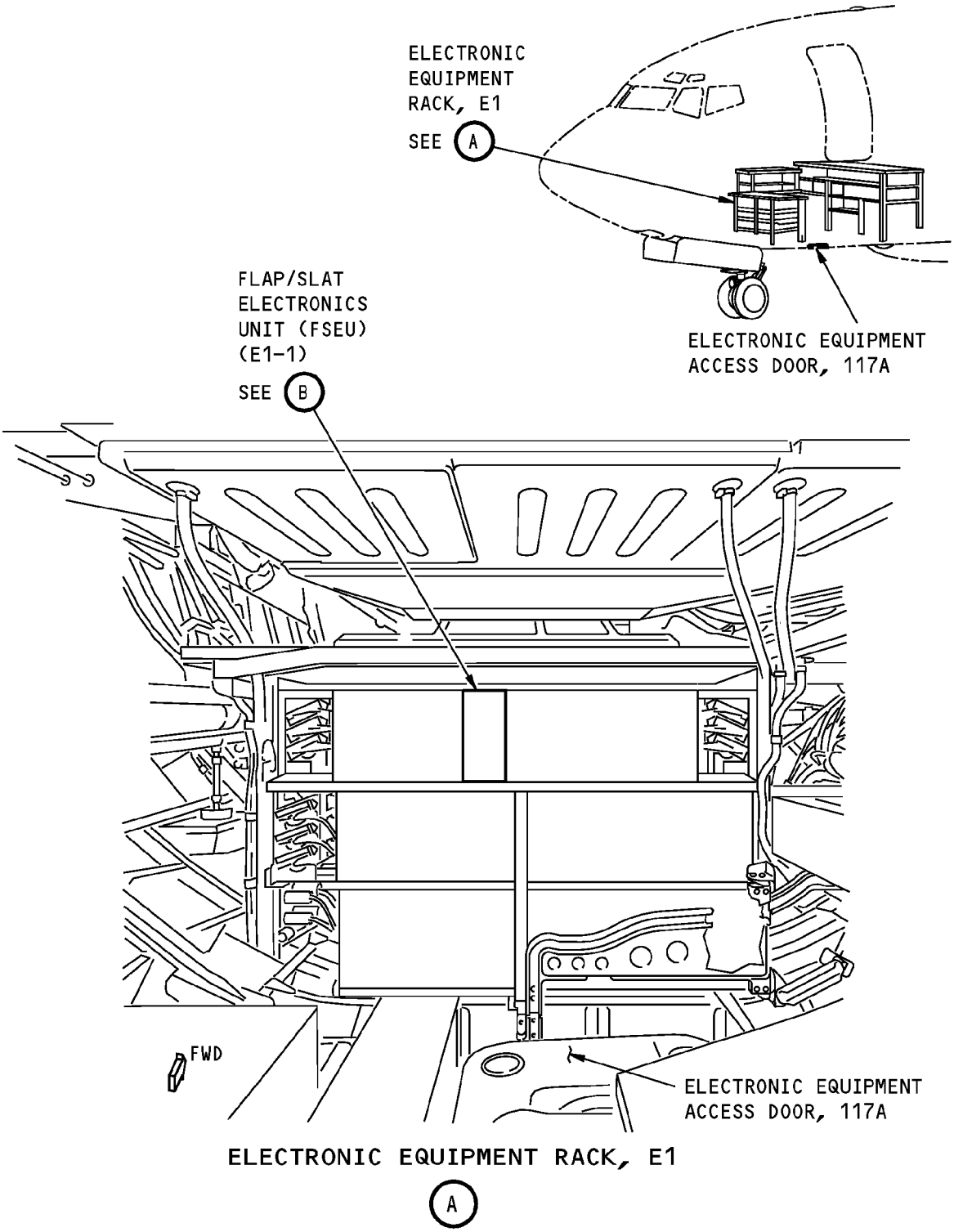

Flap/Slat Electronics Unit Installation
Figure 202 (Sheet 1 of 2)/27-51-06-990-802

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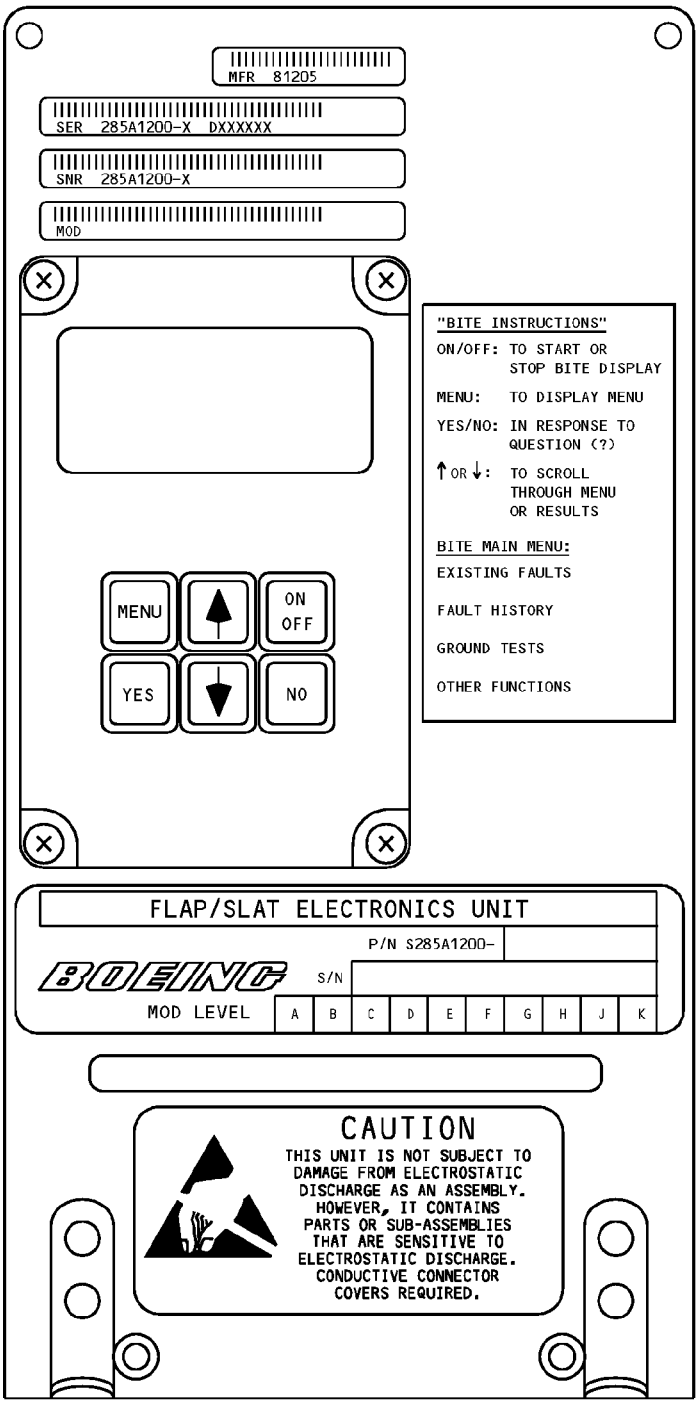

FLAP/SLAT ELECTRONICS UNIT (FSEU)

B

Flap/Slat Electronics Unit Installation
Figure 202 (Sheet 2 of 2)/27-51-06-990-802

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TASK 27-51-06-730-802

5. Flap Control Lever Position Sensor System Test

(Figure 202)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Test

SUBTASK 27-51-06-860-018

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-06-860-019

(2) If it is supplied, remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

NOTE: If system B hydraulic power is supplied, the flaps and slats will operate during the system test.

SUBTASK 27-51-06-010-011

(3) To get access to the FSEU on the E1-1 shelf in the main equipment center, do this task.

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

E. Flap Control Lever Position Sensor Test

SUBTASK 27-51-06-730-009

(1) Move the flap control lever to the UP position.

SUBTASK 27-51-06-740-004

(2) Use the FSEU to find the output of the flap control lever position sensor [20] in the UP position:

(a) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

(b) Push the down arrow until OTHER FUNCTNS? shows on the display.

(c) Push the YES button to select OTHER FUNCTNS? on the FSEU.

(d) Push the down arrow until I/O MONITOR? shows on the display.

(e) Push the YES button to select I/O MONITOR? from the menu.

(f) Push the down arrow until SYNCRO INPUTS? shows on the display.

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(g) Push the YES button to select SYNCHRO INPUTS? from the menu.

(h) Make sure the LVR POS shows on the FSEU in the limit of -2.8 to +2.8 degrees.

SUBTASK 27-51-06-730-010

(3) Move the flap control lever to the 10-unit position.

(a) Make sure the LVR POS shows in the limit of 50.6 to 54.6 degrees.

SUBTASK 27-51-06-730-011

(4) Move the flap control lever to the 40-unit position.

(a) Make sure the LVR POS shows in the limit of 105.4 to 110.9 degrees.

SUBTASK 27-51-06-730-012

(5) Move the flap control lever to the UP position.

(a) Make sure the LVR POS shows in the limit of -2.8 to +2.8 degrees.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-06-860-020

(1) Push the ON/OFF button on the front panel of the FSEU to turn it off.

SUBTASK 27-51-06-410-010

(2) For the main equipment center, do this task.

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

TASK 27-51-06-210-801

6. Flap Control Lever Position Sensor and Mechanism Visual Inspection

(Figure 203)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
212	Flight Compartment - Right

C. Prepare for the Inspection

SUBTASK 27-51-06-010-005

(1) Remove the stabilizer trim wheel [41] from the right side of the control stand [7]:

(a) Remove the bolt [42] that attaches the stabilizer trim wheel [41].

(b) Remove the stabilizer trim wheel [41] from the shaft.

SUBTASK 27-51-06-010-006

(2) Remove the upper right side cover [1] and lower right side cover [3] from the right side of the control stand [7]:

(a) Remove the screws [5] and the pocket assembly [6] from the lower right side cover [3].

(b) Remove the screws [8] that attach the upper right side cover [1] and the lower right side cover [3] to the control stand [7].

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(c) Remove the upper right side cover [1] and the lower side cover [3] from the control stand [7].

D. Flap Control Lever Position Sensor Visual Inspection

SUBTASK 27-51-06-020-004

(1) Do a detailed visual inspection of the flap control lever sensor assembly [2] and the crank [18].

SUBTASK 27-51-06-210-001

(2) Do a detailed visual inspection of the ends of the link [17].

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-06-410-005

(1) Install the upper right side cover [1] and the lower right side cover [3] on the right side of the control stand [7]:

(a) Put the upper right side cover [1] and the lower right side cover [3] in their position on the control stand [7].

NOTE: The lower side cover [3] goes under the upper side cover [1].

(b) Install the screws [8] that attach the upper right side cover [1] and lower right side cover [3] to the control stand [7].

(c) Install the pocket assembly [6] with the screws [5] on the lower right side cover [3].

SUBTASK 27-51-06-410-006

(2) Install the stabilizer trim wheel [41] on the right side of the control stand [7]:

(a) Put the stabilizer trim wheel [41] on the shaft.

NOTE: Make sure the handle on the stabilizer trim wheel is 75 to 105 degrees from the handle on the left stabilizer trim wheel.

(b) Install the bolt [42] to attach the stabilizer trim wheel [41].

——————— END OF TASK ———————

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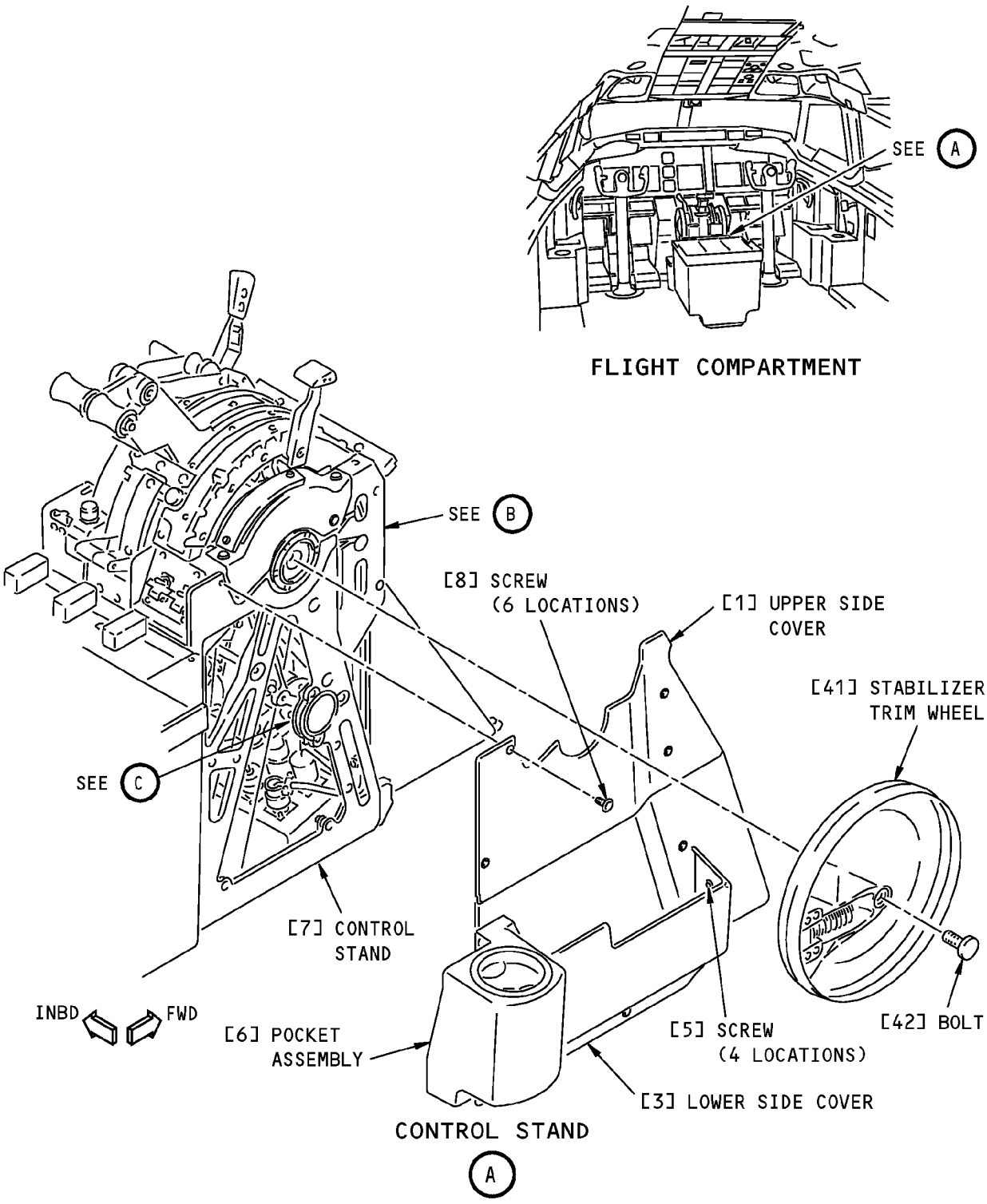

Flap Control Lever Position Sensor Inspection
Figure 203 (Sheet 1 of 2)/27-51-06-990-803

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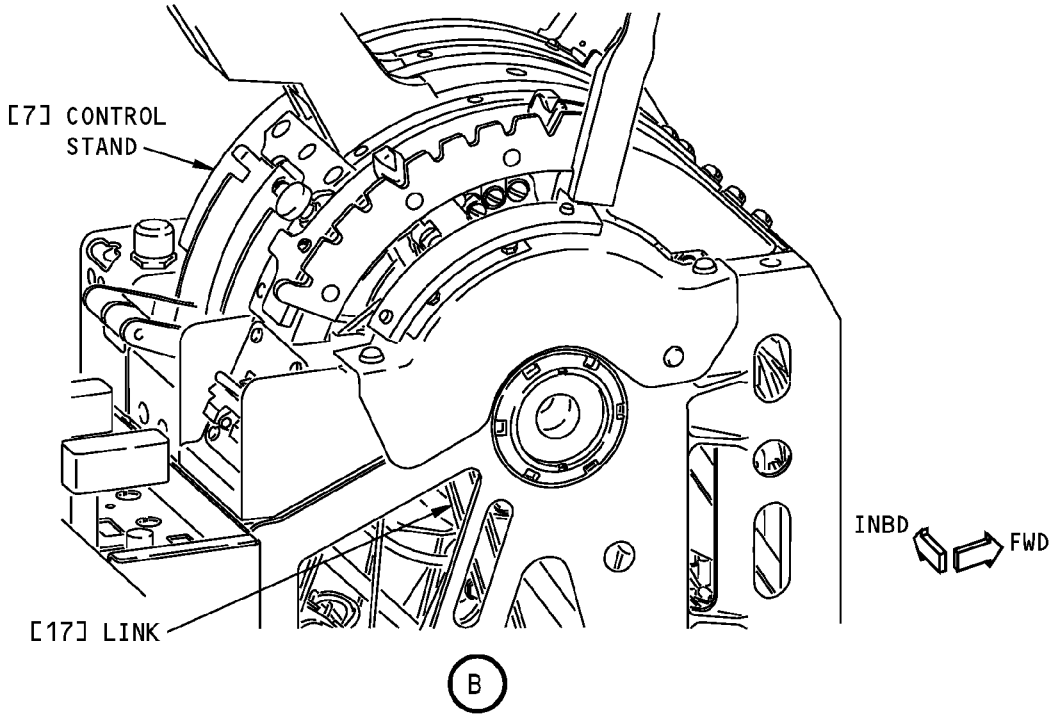

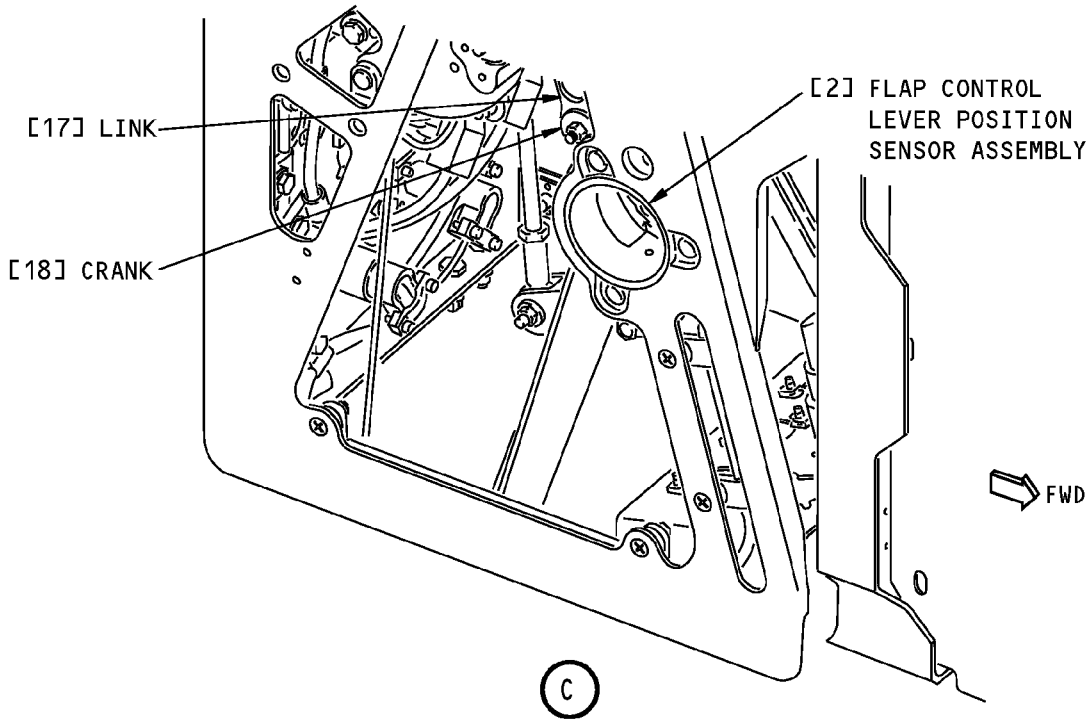

Flap Control Lever Position Sensor Inspection
Figure 203 (Sheet 2 of 2)/27-51-06-990-803

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FLAP LEVER POSITION SWITCHES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap lever position switches

(2) An installation of the flap lever position switches.

B. There are two flap lever position switches installed on the control stand.

(1) The flap lever 30-unit position switch

(2) the flap lever UP position switch

C. The flap lever position switches are installed on the control stand and operate with the flap control lever.

D. There are two options for removal and installation of the flap lever position switches:

(1) You can remove and install the two flap lever position switches as an assembly.

(2) You can remove and install the two flap lever position switches independently by cutting and splicing the wires.

TASK 27-51-08-000-801

2. Flap Lever Position Switch Removal

(Figure 401)

A. Location Zones

Zone	Area
212	Flight Compartment - Right

B. Access Panels

Number	Name/Location
112A	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-51-08-860-001

(1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	10	C00284	PANEL & INSTR ELEX PANEL

SUBTASK 27-51-08-010-001

(2) Remove the stabilizer trim wheel [8] from the right side of the control stand [13]:

(a) Remove the bolt [9] that attaches the stabilizer trim wheel [8].

(b) Remove the stabilizer trim wheel [8] from the shaft.

SUBTASK 27-51-08-010-002

(3) Remove the upper side cover [7] and lower side cover [11] from the right side of the control stand [13]:

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(a) Remove the screws [10] and the pocket assembly [12] from the lower side cover [11].

(b) Remove the screws [6] that attach the upper side cover [7] and the lower side cover [11] to the control stand [13].

(c) Remove the upper side cover [7] and the lower side cover [11] from the control stand [13].

SUBTASK 27-51-08-010-003

(4) Remove the stabilizer trim lightplate [3] from the control stand [13]:

(a) Remove the screws [4] and remove the stabilizer trim lightplate [3].

(b) Remove the nuts [17], washers [16] and washers [15] that attach the wires [14] to the stabilizer trim lightplate [3].

SUBTASK 27-51-08-010-004

(5) Remove the screws [2] and bolt [5] and remove the control stand cover [1] from the control stand [13].

D. Flap Lever Position Switch Removal

SUBTASK 27-51-08-020-001

(1) Disconnect the electrical connector [28] for the flap lever position switches [24]:

(a) To get access to the electrical connector [28] from below the control stand [13], do this task.

Open this access panel:

Number	Name/Location
112A	Forward Access Door

(b) Disconnect the electrical connector [28] from below.

(c) Remove the screws [29] and washers [30] that attach the electrical connector [18].

(d) Remove the electrical connector [18] from the control stand [13].

SUBTASK 27-51-08-020-002

(2) Remove the flap lever position switches [24] as an assembly:

(a) Remove the screws [22], screw [27] and washers [23] that attach the flap lever position switches [24] and the clamp [21] to the control stand [13].

(b) Remove the screw [25], washer [26] and clamp [21].

(c) Remove the screws [19], washers [20] and clamps [21] that attach the wires to the control stand [13].

SUBTASK 27-51-08-020-003

(3) Remove a flap lever position switch [24] independently:

(a) For the 30-unit flap lever position switch [24], remove the screws [22] and washers [23] that attach the flap lever position switch [24] to the control stand [13].

1) Remove the screw [25], washer [26] and clamp [21].

(b) For the UP flap lever position switch [24], remove the screw [22], screw [27] and washers [23] that attach the flap lever position switch [24] and the clamp [21] to the control stand [13].

(c) Remove the screw [19] and washer [20] from a sufficient number of clamps [21] to get access to cut the wires.

(d) Cut the wires for the applicable flap lever position switch [24].

END OF TASK

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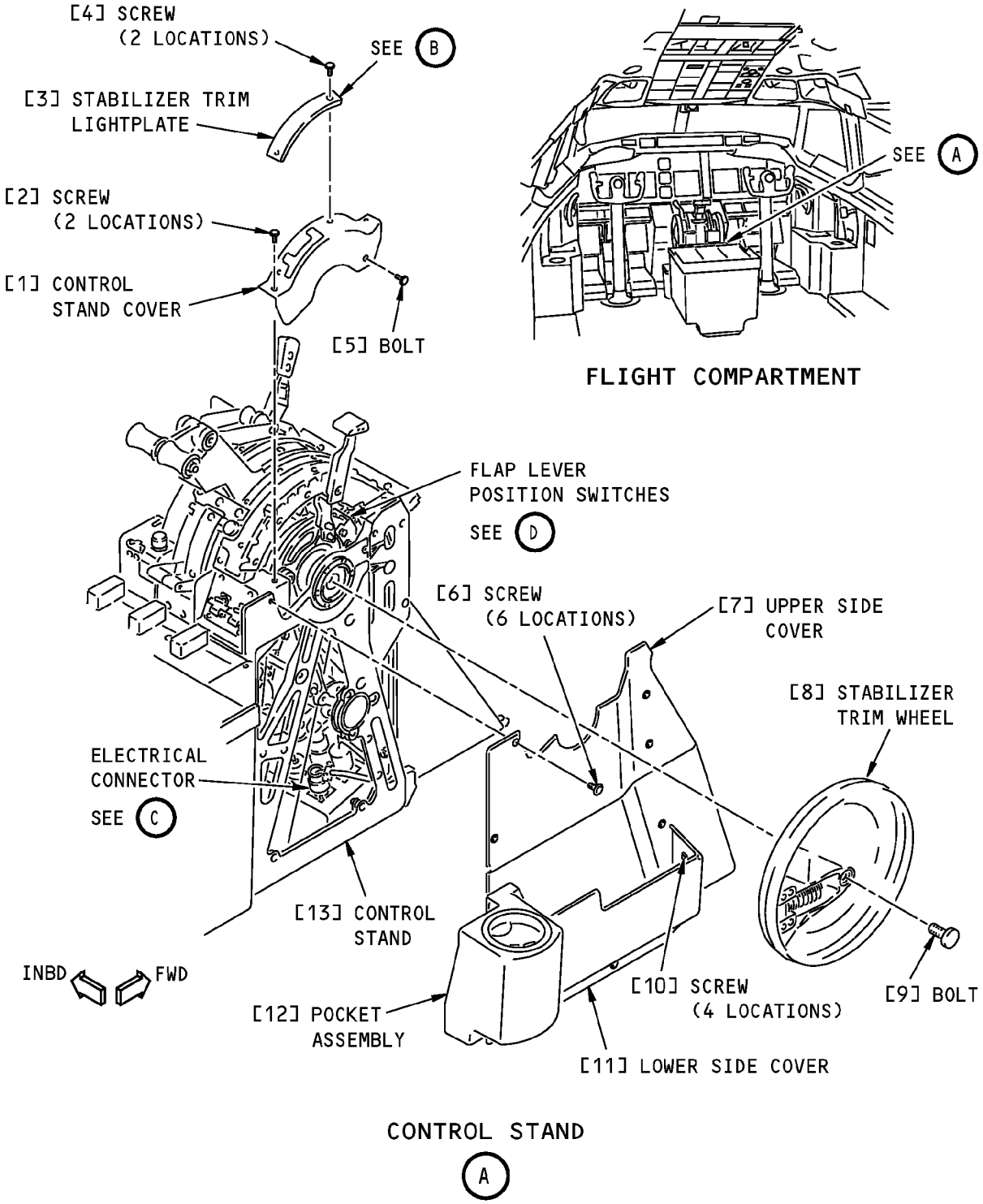

Flap Lever Position Switch Installation
Figure 401 (Sheet 1 of 5)/27-51-08-990-801

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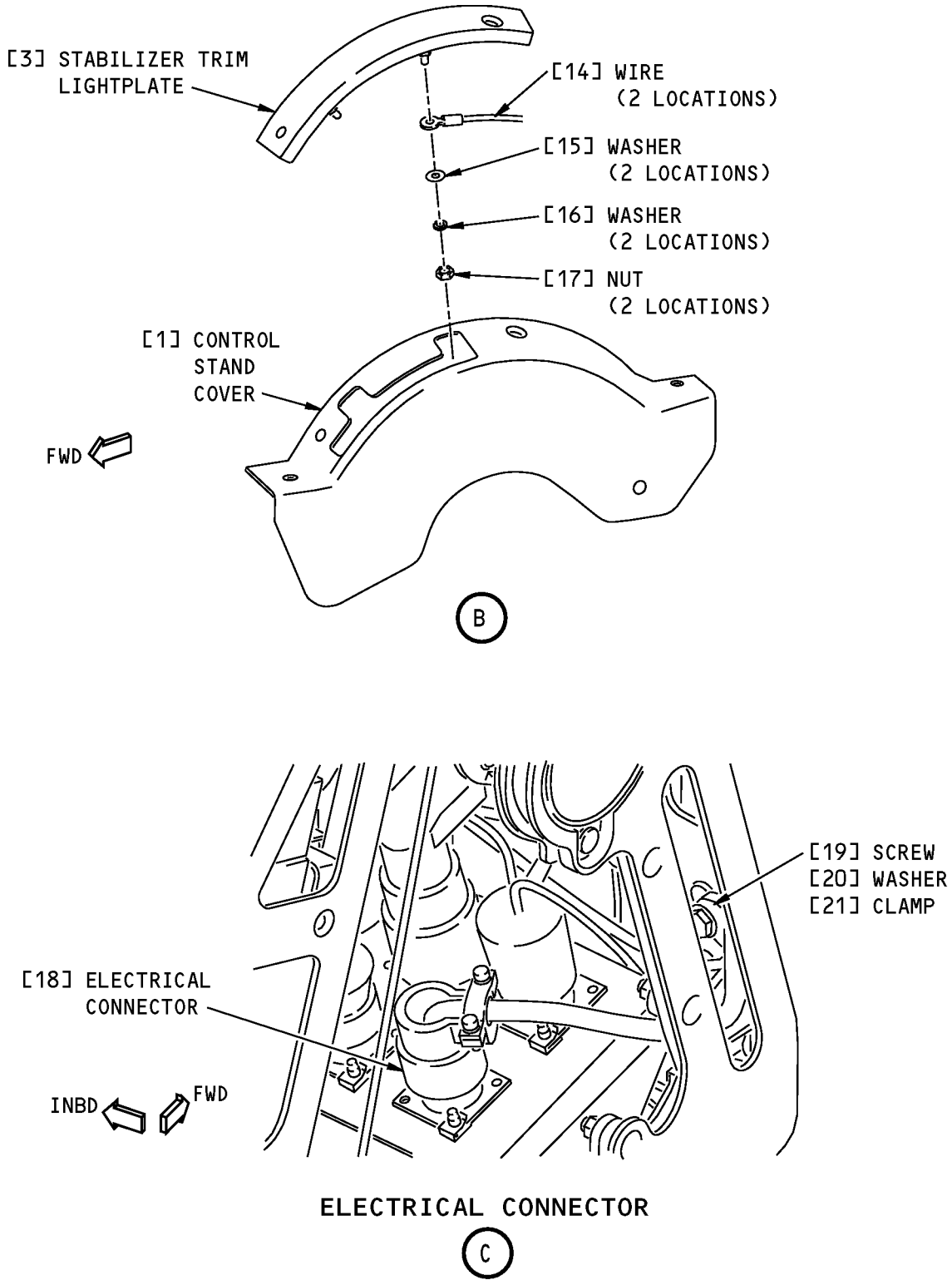

Flap Lever Position Switch Installation
Figure 401 (Sheet 2 of 5)/27-51-08-990-801

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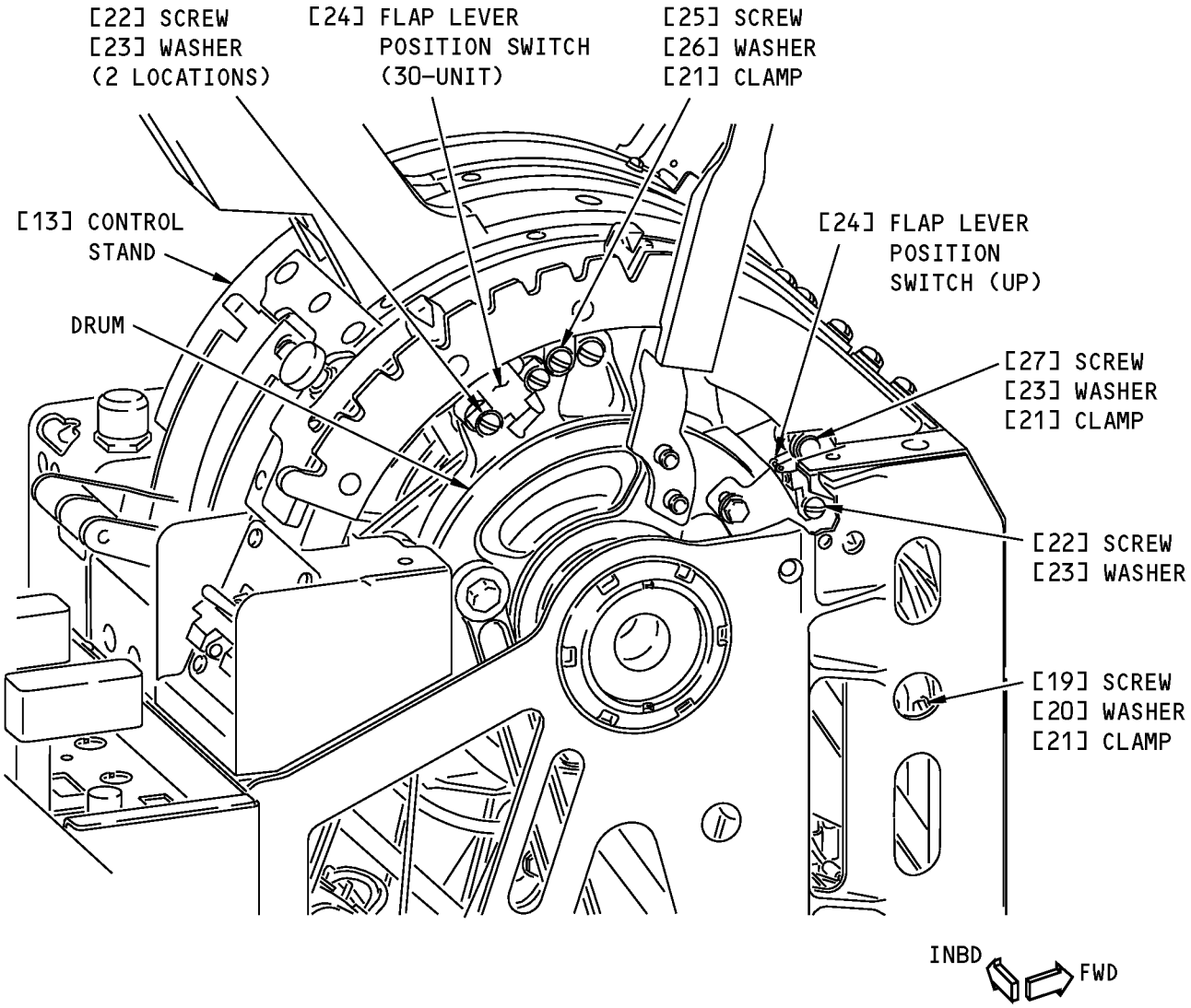

FLAP LEVER POSITION SWITCHES

D

Flap Lever Position Switch Installation
Figure 401 (Sheet 3 of 5)/27-51-08-990-801

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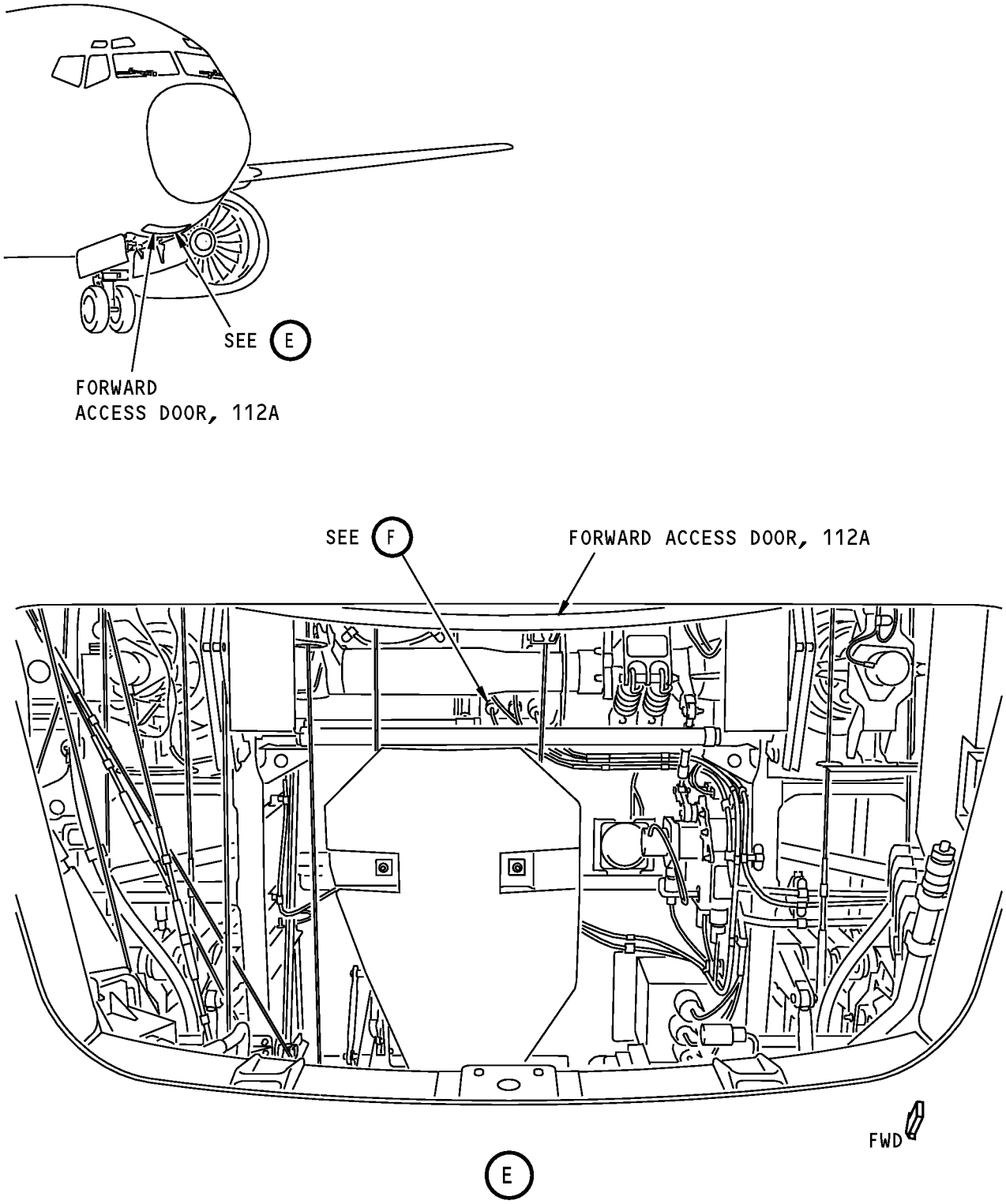

Flap Lever Position Switch Installation
Figure 401 (Sheet 4 of 5)/27-51-08-990-801

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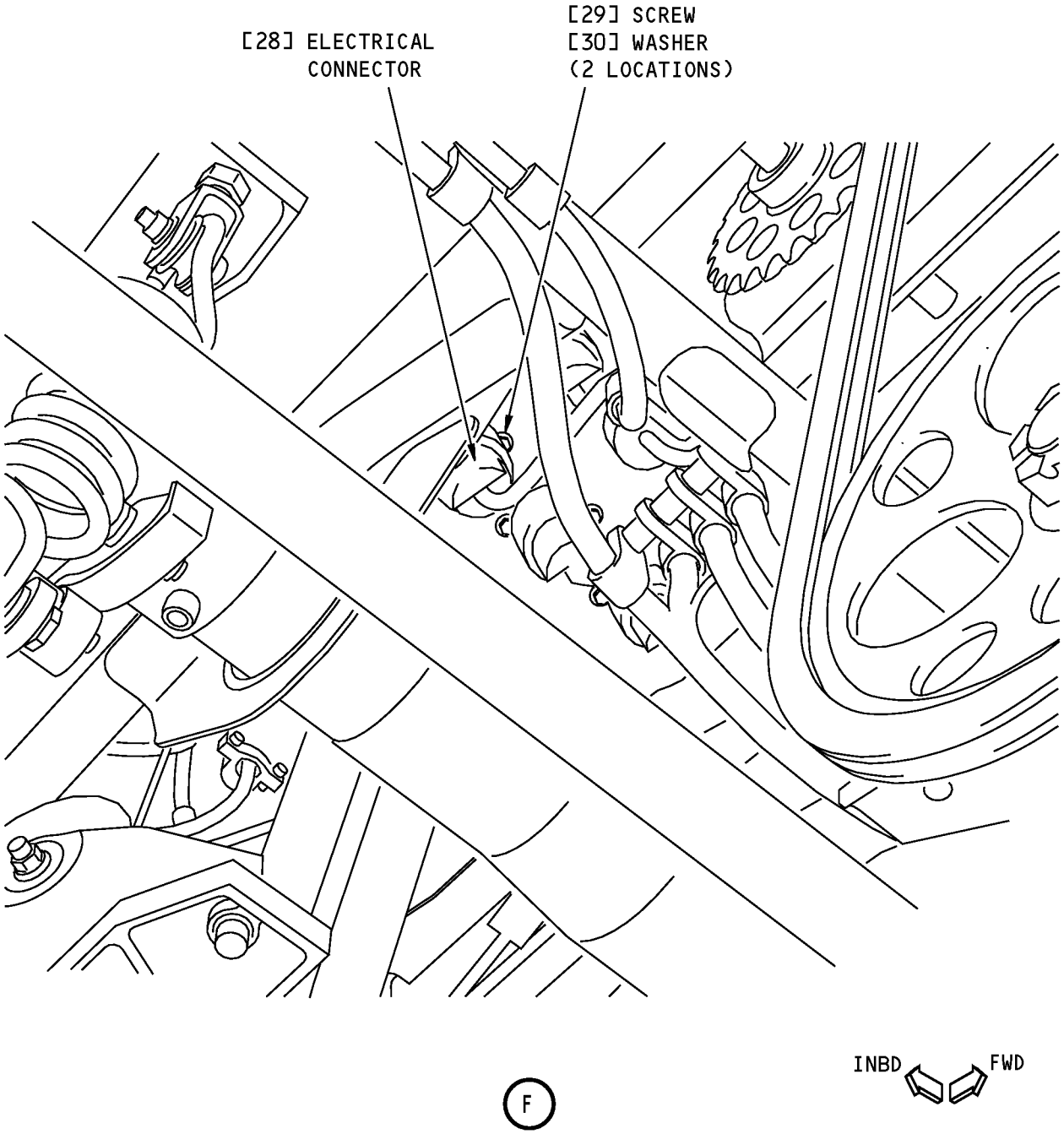

Flap Lever Position Switch Installation
Figure 401 (Sheet 5 of 5)/27-51-08-990-801

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TASK 27-51-08-400-801

3. Flap Lever Position Switch Installation

(Figure 401)

A. References

Reference	Title
27-51-00-740-803	Trailing Edge Flap Load Relief System BITE Test (P/B 501)
27-51-08-820-801	Flap Lever Position Switch Adjustment (P/B 501)
27-81-00-730-801	Leading Edge Cruise Depressurization Test (P/B 501)
SWPM 20-10-11	Standard Wiring Practices Manual

B. Location Zones

Zone	Area
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Flap Lever Position Switch Installation

SUBTASK 27-51-08-860-002

(1) Make sure that these circuit breakers are open and have safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	10	C00284	PANEL & INSTR ELEX PANEL

SUBTASK 27-51-08-420-001

(2) Install the flap lever position switches [24] as an assembly:

(a) Put the flap lever position switches [24] with the wires and electrical connector [18], in their position in the control stand [13].

(b) Install the screws [22], screw [27] and washers [23] that attach the flap lever position switches [24] and the clamp [21] to the control stand [13].

(c) Install the screw [25], washer [26] and clamps [21] that attach the wires to the control stand [13].

(d) Install the screws [19], washers [20] and clamps [21] that attach the wires to the control stand [13].

SUBTASK 27-51-08-420-002

(3) Install a flap lever position switch [24] independently:

(a) Splice the wires from the new flap lever position switch [24] with the wires in the control stand [13] (SWPM 20-10-11).

(b) For the 30-unit flap lever position switch [24], install the screws [22] and washers [23] that attach the flap lever position switch [24] to the control stand [13].

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1) Install the screw [25], washer [26] and clamps [21] that attach the wires to the control stand [13].

(c) For the UP flap lever position switch [24], install the screw [22], screw [27] and washers [23] that attach the flap lever position switch [24] and the clamp [21] to the control stand [13].

(d) Install the applicable screws [19], washers [20] and clamps [21] that attach the wires to the control stand [13].

SUBTASK 27-51-08-820-001

(4) Do this task: Flap Lever Position Switch Adjustment, TASK 27-51-08-820-801.

SUBTASK 27-51-08-420-003

(5) Connect the electrical connector [18]

(a) Put the electrical connector [18] in its position.

(b) Install the screws [29] and washers [30] to attach the electrical connector [18].

(c) Connect the electrical connector [28] from below the control stand [13].

(d) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-51-08-860-003

(6) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-51-08-740-001

(7) Do this task: Trailing Edge Flap Load Relief System BITE Test, TASK 27-51-00-740-803.

SUBTASK 27-51-08-730-001

(8) Do this task: Leading Edge Cruise Depressurization Test, TASK 27-81-00-730-801.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-08-410-001

(1) Install the control stand cover [1] on the control stand [13] with the screws [2] and the bolt [5].

SUBTASK 27-51-08-010-005

(2) Install the stabilizer trim lightplate [3] on the control stand [13]:

(a) Connect the wires [14] to the stabilizer trim lightplate [3]:

1) Put the wires [14] for in their position on the stabilizer trim lightplate [3].

2) Install the washers [15], washers [16] and nuts [17] to attach the wires [14].

(b) Put the stabilizer trim lightplate [3] in its location on the control stand [13].

(c) Loosely install the screws [4].

(d) Adjust the position of the stabilizer trim lightplate [3] to align with the stabilizer trim indicator.

(e) Tighten the screws [4].

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SUBTASK 27-51-08-410-002

(3) Install the upper side cover [7] and the lower side cover [11] on the right side of the control stand [13]:

(a) Put the upper side cover [7] and the lower side cover [11] in their position on the control stand [13].

NOTE: The lower side cover [11] goes under the upper side cover [7].

(b) Install the screws [6] that attach the upper side cover [7] and lower side cover [11] to the control stand [13].

(c) Install the pocket assembly [12] with the screws [10] on the lower side cover [11].

SUBTASK 27-51-08-410-003

(4) Install the stabilizer trim wheel [8] on the right side of the control stand [13]:

(a) Put the stabilizer trim wheel [8] on the shaft.

NOTE: Make sure the handle on the stabilizer trim wheel is 75 to 105 degrees from the handle on the left stabilizer trim wheel.

(b) Install the bolt [9] to attach the stabilizer trim wheel [8].

SUBTASK 27-51-08-860-007

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	10	C00284	PANEL & INSTR ELEX PANEL

END OF TASK

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FLAP LEVER POSITION SWITCHES - ADJUSTMENT/TEST

1. General

A. This procedure has an adjustment of the flap lever position switches.

B. The flap lever position switches are installed on the control stand and operate with the flap control lever.

TASK 27-51-08-820-801

2. Flap Lever Position Switch Adjustment

(Figure 501)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Access Panels

Number	Name/Location
112A	Forward Access Door

C. Prepare for the Adjustment

SUBTASK 27-51-08-860-008

(1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	10	C00284	PANEL & INSTR ELEX PANEL

SUBTASK 27-51-08-010-006

(2) Remove the stabilizer trim wheel [8] from the right side of the control stand [13]:

(a) Remove the bolt [9] that attaches the stabilizer trim wheel [8].

(b) Remove the stabilizer trim wheel [8] from the shaft.

SUBTASK 27-51-08-010-007

(3) Remove the upper side cover [7] and lower side cover [11] from the right side of the control stand [13]:

(a) Remove the screws [10] and the pocket assembly [12] from the lower side cover [11].

(b) Remove the screws [6] that attach the upper side cover [7] and the lower side cover [11] to the control stand [13].

(c) Remove the upper side cover [7] and the lower side cover [11] from the control stand [13].

SUBTASK 27-51-08-010-008

(4) Remove the stabilizer trim lightplate [3] from the control stand [13]:

(a) Remove the screws [4] and remove the stabilizer trim lightplate [3].

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(b) Remove the nuts [17], washers [16] and washers [15] that attach the wires [14] to the stabilizer trim lightplate [3].

SUBTASK 27-51-08-010-009

(5) Remove the screws [2] and bolt [5] and remove the control stand cover [1] from the control stand [13].

D. Flap Lever Position Switch Adjustment

NOTE: The adjustment of the flap lever position switches [19] is changed by moving the cam [21] on the flap control lever drum [20].

SUBTASK 27-51-08-020-004

(1) Disconnect the electrical connector [18] for the flap lever position switchs [19]:

(a) To get access to the electrical connector [23] below the control stand [13, do this task].

Open this access panel:

Number	Name/Location
112A	Forward Access Door

(b) Disconnect the electrical connector [23].

(c) Remove the screws [24] and washers [25] that attach the electrical connector [18].

(d) Remove the electrical connector [18] from the control stand [13].

SUBTASK 27-51-08-860-005

(2) Move the flap control lever to the 25-unit position.

SUBTASK 27-51-08-020-005

(3) Loosen the screws [22] that attach the cam [21] to the flap control lever drum [20].

SUBTASK 27-51-08-820-002

(4) Move the cam [21] fully forward.

SUBTASK 27-51-08-820-003

(5) Adjust the cam [21] on the flap control lever drum [20]:

(a) Do a continuity check between these pins on the electrical connector [18] D5150:

1) Make sure there is continuity between pins 8 and 9.

2) Make sure there is no continuity between pins 9 and 11.

(b) Move the flap control lever to the middle position between the 25-unit and 30-unit detents.

(c) Do a continuity check between these pins on the electrical connector [18] D5150:

1) Make sure there is continuity between pins 8 and 9.

2) Make sure there is no continuity between pins 9 and 11.

(d) Hold the flap control lever in the middle position between the 25-unit and 30-unit detents.

(e) Slowly move the cam [21] on the flap control lever drum [20] aft until the flap lever 30-unit switch operates.

1) Make sure there is no continuity between pins 8 and 9.

2) Make sure there is continuity between pins 9 and 11.

(f) Tighten the screws [22] that attach the cam [21] to the flap control lever drum [20].

1) Make sure there is no continuity between pins 8 and 9.

2) Make sure there is continuity between pins 9 and 11.

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SUBTASK 27-51-08-820-004

(6) Move the flap control lever to the 25-unit position.

(a) Make sure there is continuity between pins 8 and 9.

(b) Make sure there is no continuity between pins 9 and 11.

SUBTASK 27-51-08-820-005

(7) Move the flap control lever to the 30-unit position.

(a) Make sure there is no continuity between pins 8 and 9.

(b) Make sure there is continuity between pins 9 and 11.

SUBTASK 27-51-08-820-006

(8) Do a check of the adjustment of the flap lever position UP switch [19]:

NOTE: There is no independent adjustment of the flap lever position UP switch [19].

(a) Move the flap control lever to the UP position.

1) Make sure there is no continuity between pins 5 and 6.

2) Make sure there is continuity between pins 5 and 7.

(b) Move the flap control lever to the 1-unit position.

1) Make sure there is continuity between pins 5 and 6.

2) Make sure there is no continuity between pins 5 and 7.

(c) Move the flap control lever to the UP position.

1) Make sure there is no continuity between pins 5 and 6.

2) Make sure there is continuity between pins 5 and 7.

(d) If the cam [21] is not adjusted correctly for the flap lever position UP switch [19], then adjust the cam [21] again.

SUBTASK 27-51-08-820-007

(9) Do a check of the adjustment of the flap lever position switchs [19]:

(a) Move the flap control lever to the UP position.

(b) Do a continuity check between these pins on connector D5150:

1) Make sure there is no continuity between pins 5 and 6.

2) Make sure there is continuity between pins 5 and 7.

3) Make sure there is continuity between pins 8 and 9.

4) Make sure there is no continuity between pins 9 and 11.

(c) Move the flap control lever to the 1-unit position.

1) Make sure there is continuity between pins 5 and 6.

2) Make sure there is no continuity between pins 5 and 7.

3) Make sure there is continuity between pins 8 and 9.

4) Make sure there is no continuity between pins 9 and 11.

(d) Move the flap control lever to the 25-unit position.

1) Make sure there is continuity between pins 5 and 6.

2) Make sure there is no continuity between pins 5 and 7.

3) Make sure there is continuity between pins 8 and 9.

4) Make sure there is no continuity between pins 9 and 11.

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(e) Move the flap control lever to the 30-unit position.

1) Make sure there is continuity between pins 5 and 6.
2) Make sure there is no continuity between pins 5 and 7.
3) Make sure there is no continuity between pins 8 and 9.
4) Make sure there is continuity between pins 9 and 11.

(f) Move the flap control lever to the 40-unit position.

1) Make sure there is continuity between pins 5 and 6.
2) Make sure there is no continuity between pins 5 and 7.
3) Make sure there is no continuity between pins 8 and 9.
4) Make sure there is continuity between pins 9 and 11.

(g) Move the flap control lever to the UP position.

1) Make sure there is no continuity between pins 5 and 6.
2) Make sure there is continuity between pins 5 and 7.
3) Make sure there is continuity between pins 8 and 9.
4) Make sure there is no continuity between pins 9 and 11.

SUBTASK 27-51-08-420-004

(10) Connect the electrical connector [18].

(a) Put the electrical connector [18] in its position.

(b) Install the screws [24] and washers [25] to attach the electrical connector [18].

(c) Connect the electrical connector [23] from below the control stand [13].

(d) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-51-08-860-006

(11) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-08-410-004

(1) Install the control stand cover [1] on the control stand [13] with the screws [2] and the bolt [5].

SUBTASK 27-51-08-010-010

(2) Install the stabilizer trim lightplate [3] on the control stand [13]:

(a) Connect the wires [14] to the stabilizer trim lightplate [3]:

1) Put the wires [14] in their position on the stabilizer trim lightplate [3].
2) Install the washers [15], washers [16] and nuts [17] to attach the wires [14].

(b) Put the stabilizer trim lightplate [3] in its location on the control stand [13].

(c) Loosely install the screws [4].

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(d) Adjust the position of the stabilizer trim lightplate [3] to align with the stabilizer trim indicator.

(e) Tighten the screws [4].

SUBTASK 27-51-08-410-005

(3) Install the upper side cover [7] and the lower side cover [11] on the right side of the control stand [13]:

(a) Put the upper side cover [7] and the lower side cover [11] in their position on the control stand [13].

NOTE: The lower side cover [11] goes under the upper side cover [7].

(b) Install the screws [6] that attach the upper side cover [7] and lower side cover [11] to the control stand [13].

(c) Install the pocket assembly [12] with the screws [10] on the lower side cover [11].

SUBTASK 27-51-08-410-006

(4) Install the stabilizer trim wheel [8] on the right side of the control stand [13]:

(a) Put the stabilizer trim wheel [8] on the shaft.

NOTE: Make sure the handle on the stabilizer trim wheel is 75 to 105 degrees from the handle on the left stabilizer trim wheel.

(b) Install the bolt [9] to attach the stabilizer trim wheel [8].

SUBTASK 27-51-08-860-009

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
C	10	C00284	PANEL & INSTR ELEX PANEL

END OF TASK

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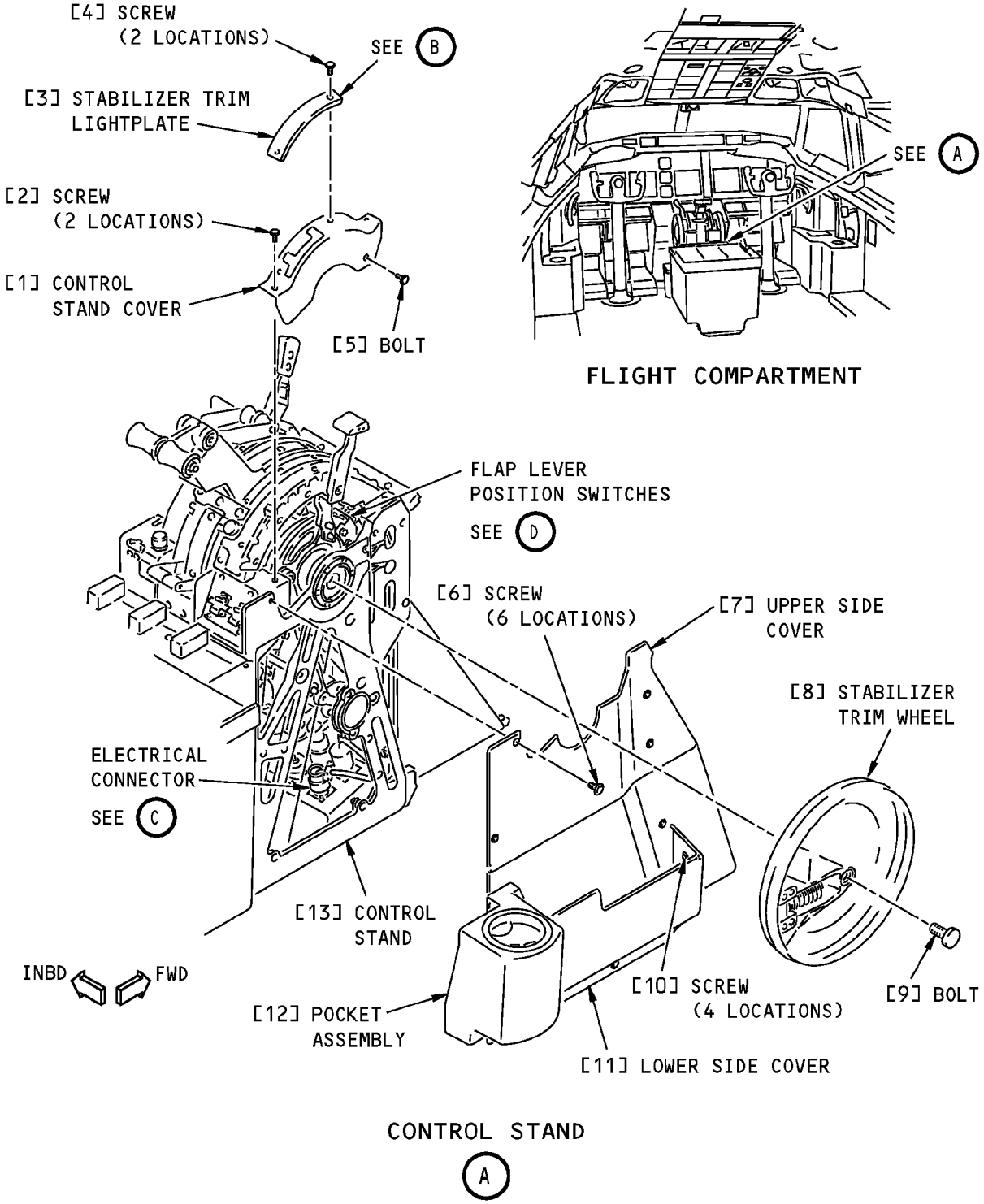

Flap Lever Position Switch Adjustment
Figure 501 (Sheet 1 of 5)/27-51-08-990-802

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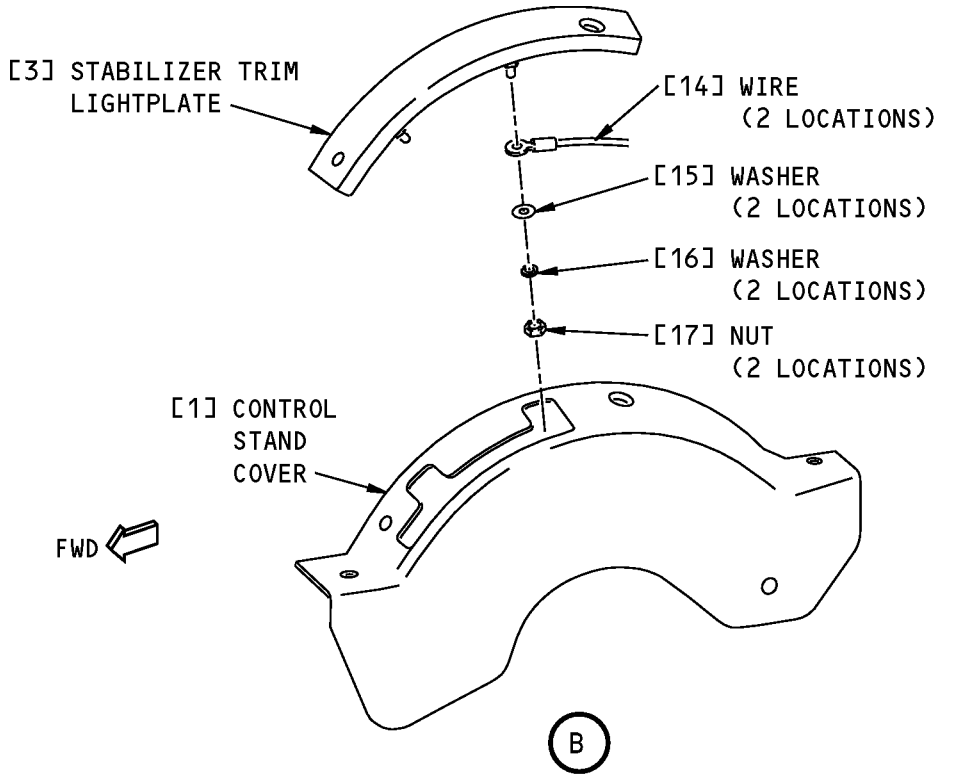

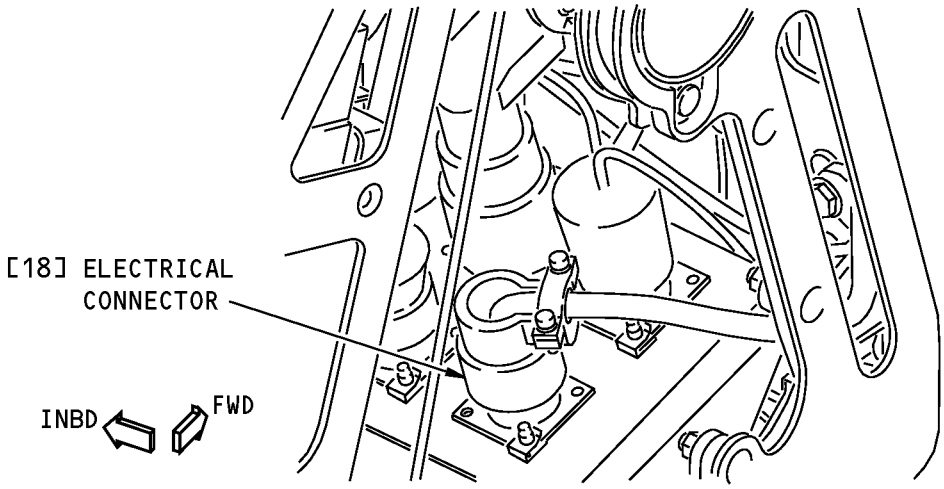

ELECTRICAL CONNECTOR

Flap Lever Position Switch Adjustment
Figure 501 (Sheet 2 of 5)/27-51-08-990-802

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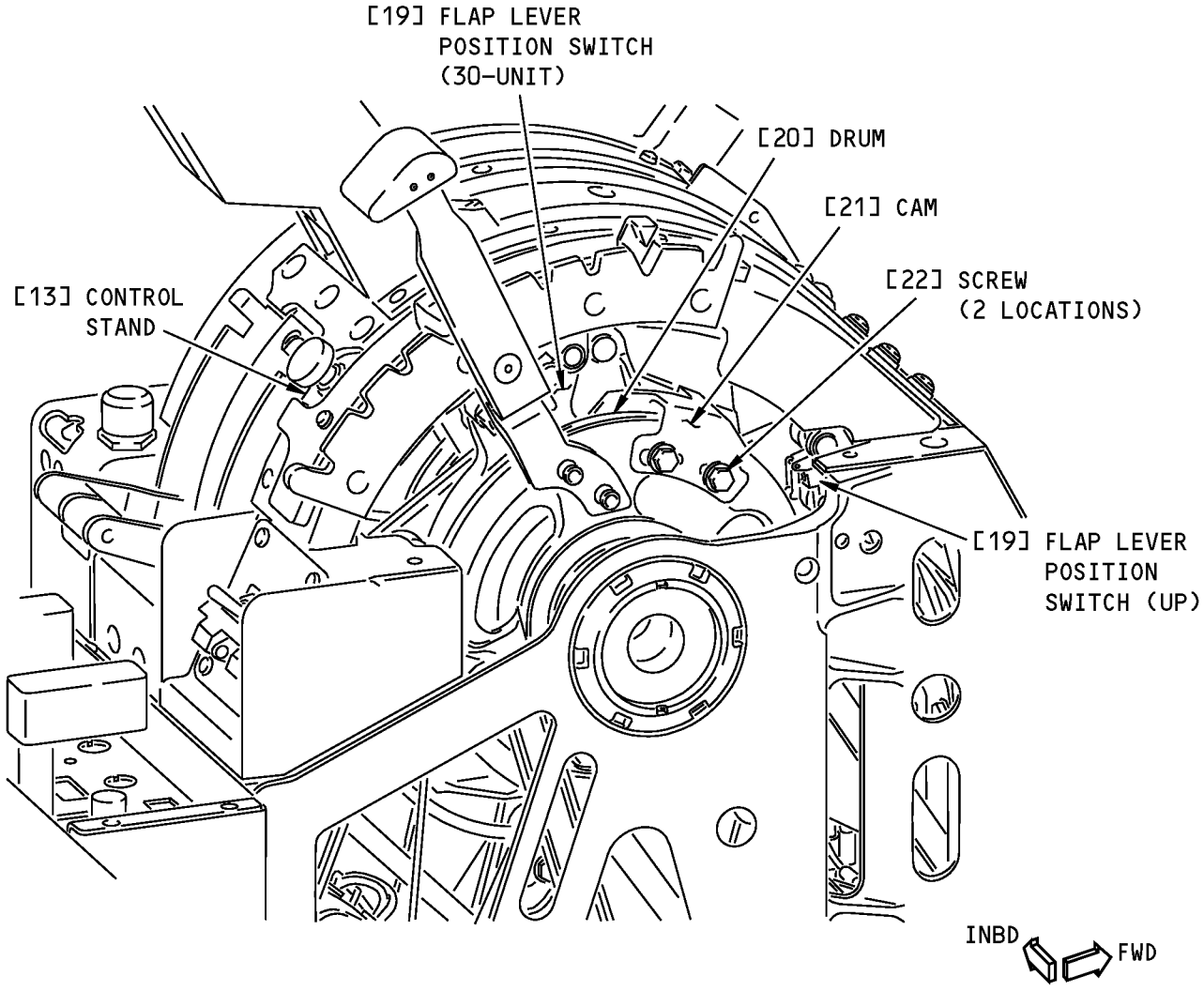

FLAP LEVER POSITION SWITCHES

D

Flap Lever Position Switch Adjustment
Figure 501 (Sheet 3 of 5)/27-51-08-990-802

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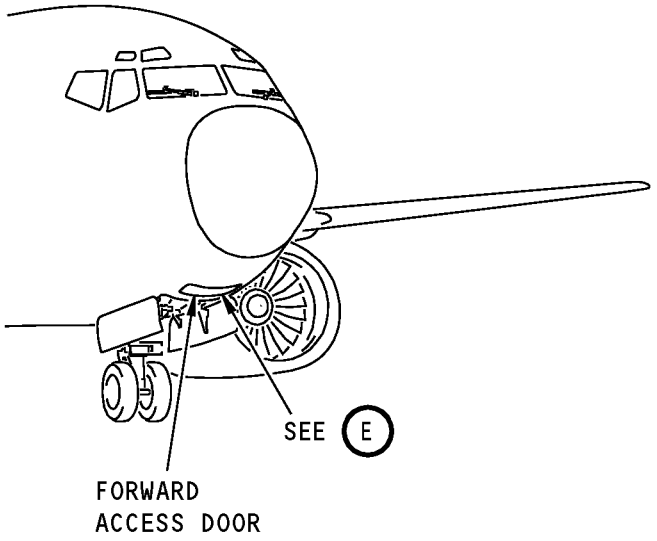

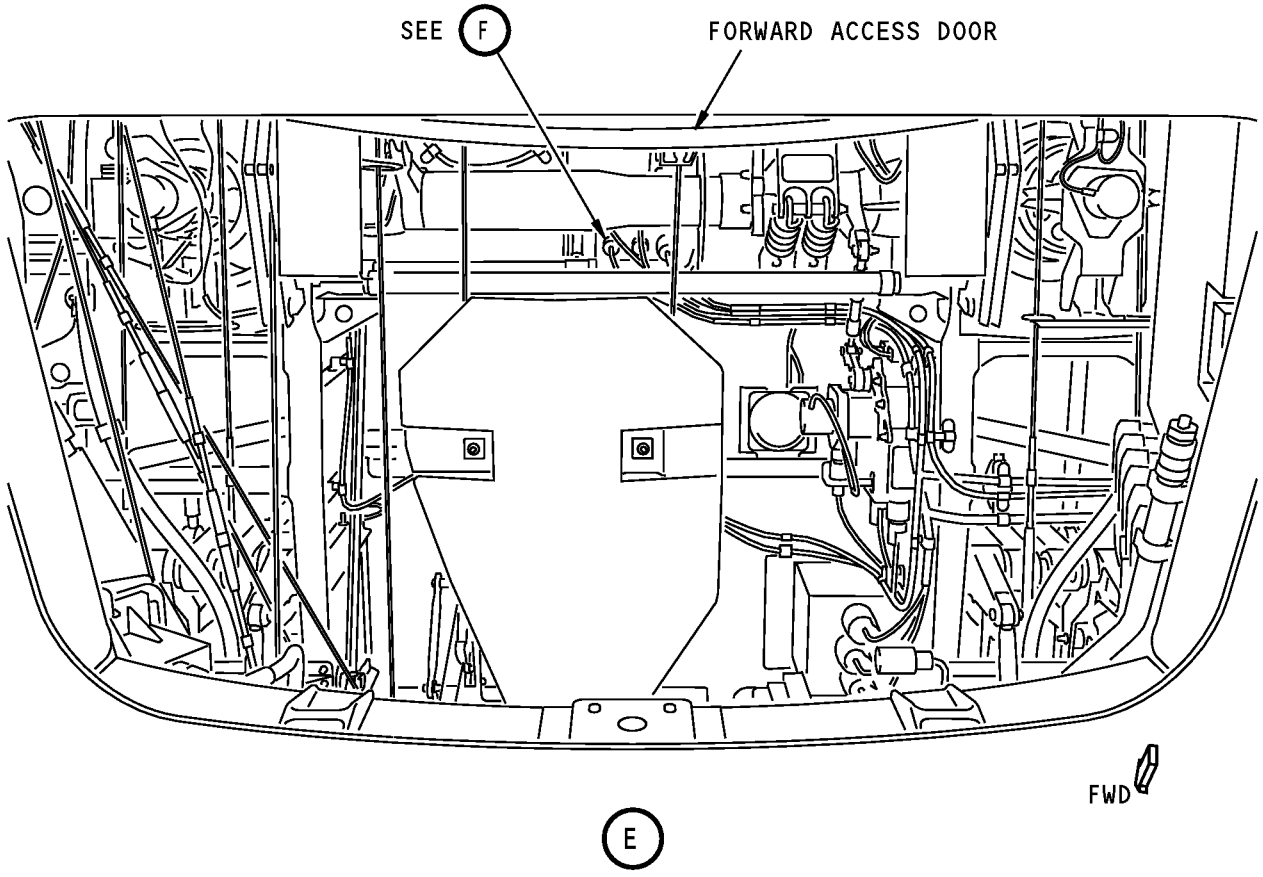

Flap Lever Position Switch Adjustment
Figure 501 (Sheet 4 of 5)/27-51-08-990-802

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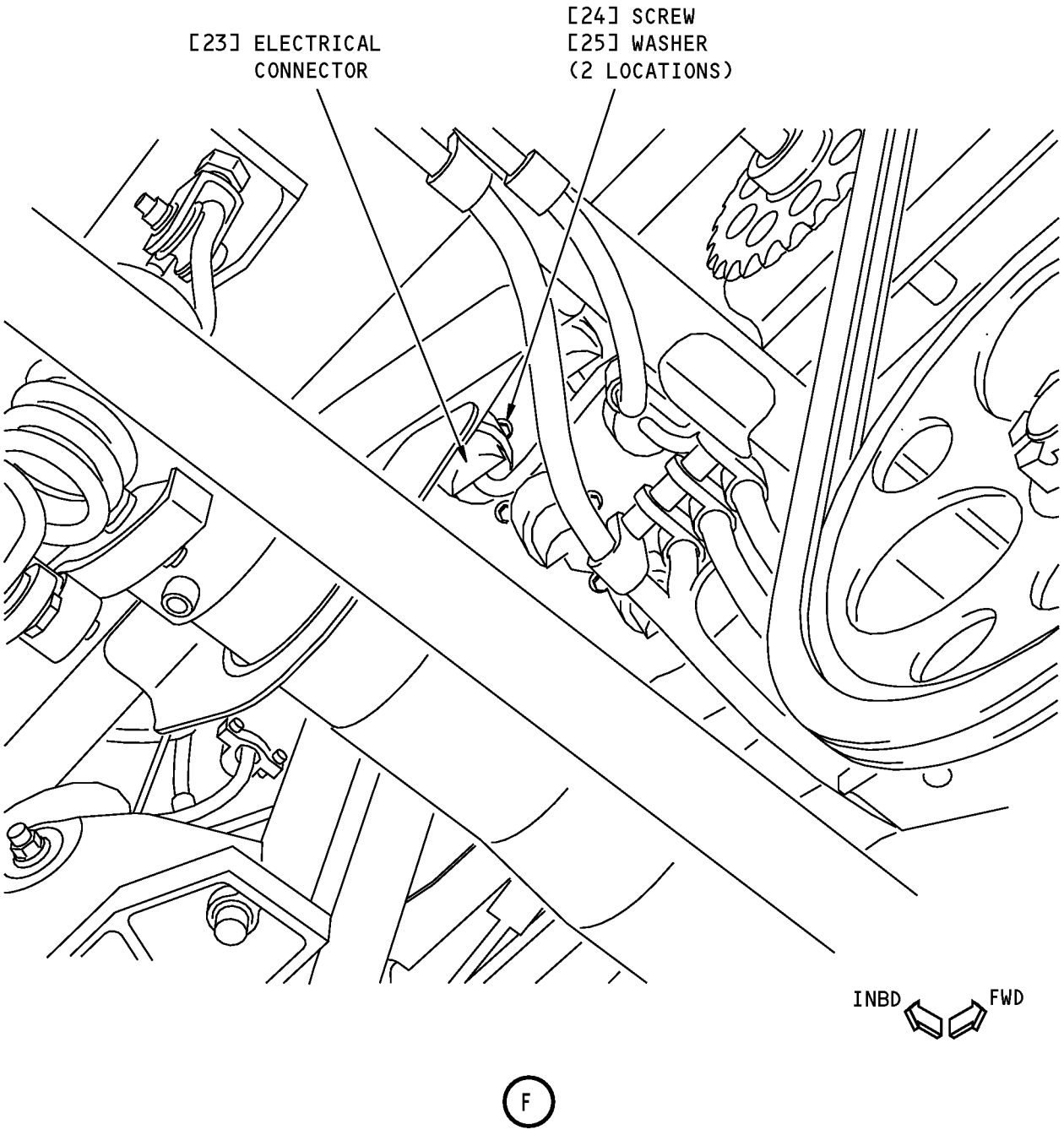

Flap Lever Position Switch Adjustment
Figure 501 (Sheet 5 of 5)/27-51-08-990-802

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INBOARD TRAILING EDGE FLAP - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard trailing edge flap

(2) An installation of the inboard trailing edge flap.

B. This procedure includes the removal and installation of the inboard main flap with the aft flap. You can remove and install the main flap with the aft flap either removed or installed. For procedures to remove and install the aft flap only, refer to (TASK 27-51-12-000-801).

C. The inboard main flap and aft flap together weigh approximately 333 pounds (151 kilograms). The main flap alone weighs approximately 300 pounds (136 kilograms).

TASK 27-51-11-000-801

2. Inboard Trailing Edge Flap Removal

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-18-000-802	Inboard Flap Support Aft Fairing Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1729	Sling - Equipment, Trailing Edge Flaps (Part #: C27052-25, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1095	Crane - Lift, 2000 Lb Capacity, 30 Foot Height

C. Location Zones

Zone	Area
553	Left Wing - Inboard Flap
653	Right Wing - Inboard Flap

D. Access Panels

Number	Name/Location
194BL	Flap Track Lubrication Panel - Aft
194BR	Flap Track Lubrication Panel - Aft
194CL	Aft Wing To Body Fairing Panel
194CR	Aft Wing To Body Fairing Panel

E. Prepare for the Removal

SUBTASK 27-51-11-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

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SUBTASK 27-51-11-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-860-002

(3) Use the manual drive system to extend the trailing edge flaps to the stops on the ballscrews. To extend the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-11-010-001

(4) Do this task: Inboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

SUBTASK 27-51-11-010-002

(5) Remove these panels from the wing to body fairing:

Number	Name/Location
194BL	Flap Track Lubrication Panel - Aft
194CL	Aft Wing To Body Fairing Panel

or open these access panels:

Number	Name/Location
194BR	Flap Track Lubrication Panel - Aft
194CR	Aft Wing To Body Fairing Panel

F. Inboard Trailing Edge Flap Removal

SUBTASK 27-51-11-020-006

(1) Disconnect the skew control rods for the skew mechanisms from the carriages (Figure 401):

(a) At the outboard carriage [13], remove the nut [8], washer [7], washer [5], bolt [4] and bushing [6] that attaches the skew control rod [3] to the outboard carriage [13].

(b) At the inboard carriage [52], remove the nut [47], washer [46], washer [44], bolt [43] and bushing [45] that attaches the skew control rod [41] to the inboard carriage [52].

SUBTASK 27-51-11-020-002

(2) Disconnect the aft flap drive rod [25] from the crankshaft [18]:

(a) Remove the pin [24], nut [23], washer [22], washer [20], bolt [19] and bushing [21] from the crankshaft [18].

(b) Move the aft flap drive rod [25] away from the inboard flap assembly [1].

SUBTASK 27-51-11-980-002

(3) If the aft flap [2] is installed, move the aft flap [2] to the retracted position on the inboard flap assembly [1]:

(a) Move the crankshaft [18] aft until the aft flap [2] is in the retracted position.

CAUTION: DO NOT USE A RIG PIN IN THE CRANKSHAFT TO HOLD THE AFT FLAP IN THE RETRACTED POSITION. THIS CAN CAUSE DAMAGE TO THE CRANKSHAFT OR THE FITTING ON THE MAIN FLAP.

(b) Install the restraint strap (part of the sling, SPL-1729) to hold the aft flap [2] in the retracted position.

SUBTASK 27-51-11-480-001

(4) Install the sling, SPL-1729 [82] on the inboard flap assembly [1] (Figure 402):

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(a) Remove the existing bolts [85] at the inboard and outboard ends of the front spar on the inboard flap assembly [1].

NOTE: Keep these bolts [85] for re-installation.

(b) Install the sling fittings [81] in the location of the bolts [85].

(c) Remove the existing bolts [86] at the rear spar at the aft end of the inboard flap assembly [1].

NOTE: Keep these bolts [86] for re-installation.

(d) Install the sling fitting [84] in the location of the bolts [86].

(e) Connect the sling, SPL-1729 [82] to the sling fittings [81] and sling fitting [84].

(f) Connect the sling, SPL-1729 [82] to a 30 foot height (2000 lbs capacity) lift crane, STD-1095.

(g) Use the sling, SPL-1729 [82] to hold the weight of the inboard flap assembly [1].

SUBTASK 27-51-11-020-003

(5) Remove the stop fittings from the flap tracks (Figure 401):

(a) On the flap track [39], remove the nut [56], washer [55], bushings [54] and bolt [53] from the end of the flap track [39].

(b) On the outboard flap track [14], remove the roller stop [30], roller stop [37] and the aft fairing support fitting [35]:

1) Remove the nuts [29], washers [28], bolt [27] and bolts [36] that attach the aft fairing support fitting [35] to the flap track [14].

2) Remove the nuts [34], washers [33], washers [32] and bolts [31] that attach the aft fairing support fitting [35], roller stop [30] and roller stop [37] to the flap track [14].

3) Remove the roller stop [30], roller stop [37] and the aft fairing support fitting [35] from the flap track [14].

SUBTASK 27-51-11-020-004

(6) Remove the inboard flap assembly [1]:

(a) Hold the weight of the inboard flap assembly [1] with the sling, SPL-1729 [82] and 30 foot height (2000 lbs capacity) lift crane, STD-1095.

(b) Disconnect the inboard carriage [52] from the gimbal [40]:

1) Install a support to hold the ballscrew [42] when it is disconnected from the inboard carriage [52].

2) Remove the nuts [50], washers [49] and bolts [48] that attach the carriage bushings [51] to the inboard carriage [52].

3) Remove the carriage bushings [51] from the inboard carriage [52].

4) Move the gimbal [40] away from the inboard carriage [52].

(c) Disconnect the outboard carriage [13] from the gimbal [16]:

1) Install a support to hold the ballscrew [17] when it is disconnected from the outboard carriage [13].

2) Remove the nut [11], washer [10] and bolt [9] that attach the carriage bushing assembly [15] and carriage bushing assembly [26] to the outboard carriage [13].

3) Remove the carriage bushing assembly [15] and carriage bushing [26] from the outboard carriage [13].

4) Move the gimbal [16] away from the outboard carriage [13].

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(d) Use the sling, SPL-1729 to move the inboard flap assembly [1] aft and down away from the flap tracks.

CAUTION: BE VERY CAREFUL WHEN YOU LOWER THE FLAP TO THE GROUND. YOU CAN CAUSE DAMAGE TO THE TRAILING EDGE OF THE FLAP.

(e) Use the sling, SPL-1729 to move the inboard flap assembly [1] outboard and aft away from the airplane.

SUBTASK 27-51-11-210-004

(7) Do a check of the configuration of the inboard flap carriage roller cartridges, and inboard seals:

(a) Do a check of the position of the index marks [120] for the carriage roller cartridges on the inboard and outboard carriages.

NOTE: Make a record of the position to use during the installation.

HAP 001-013, 015-026; AIRPLANES WITH SMALL BULLNOSE SEALS

(b) Do a check for undersize seals on the inboard end of the flap assembly [1].

NOTE: If undersize seals are installed on the inboard end of the flap, make a record to be used during the installation.

HAP 028-054, 101-999; AIRPLANES WITH LARGE BULLNOSE SEALS

(c) If you will install a different flap, remove and keep the shim and bullnose seal for the installation.

NOTE: Keep and install the same shim and bullnose seal you removed from the airplane. If you install a different bullnose seal or shim, it can cause unsatisfactory flight performance.

HAP ALL

——————— END OF TASK ———————

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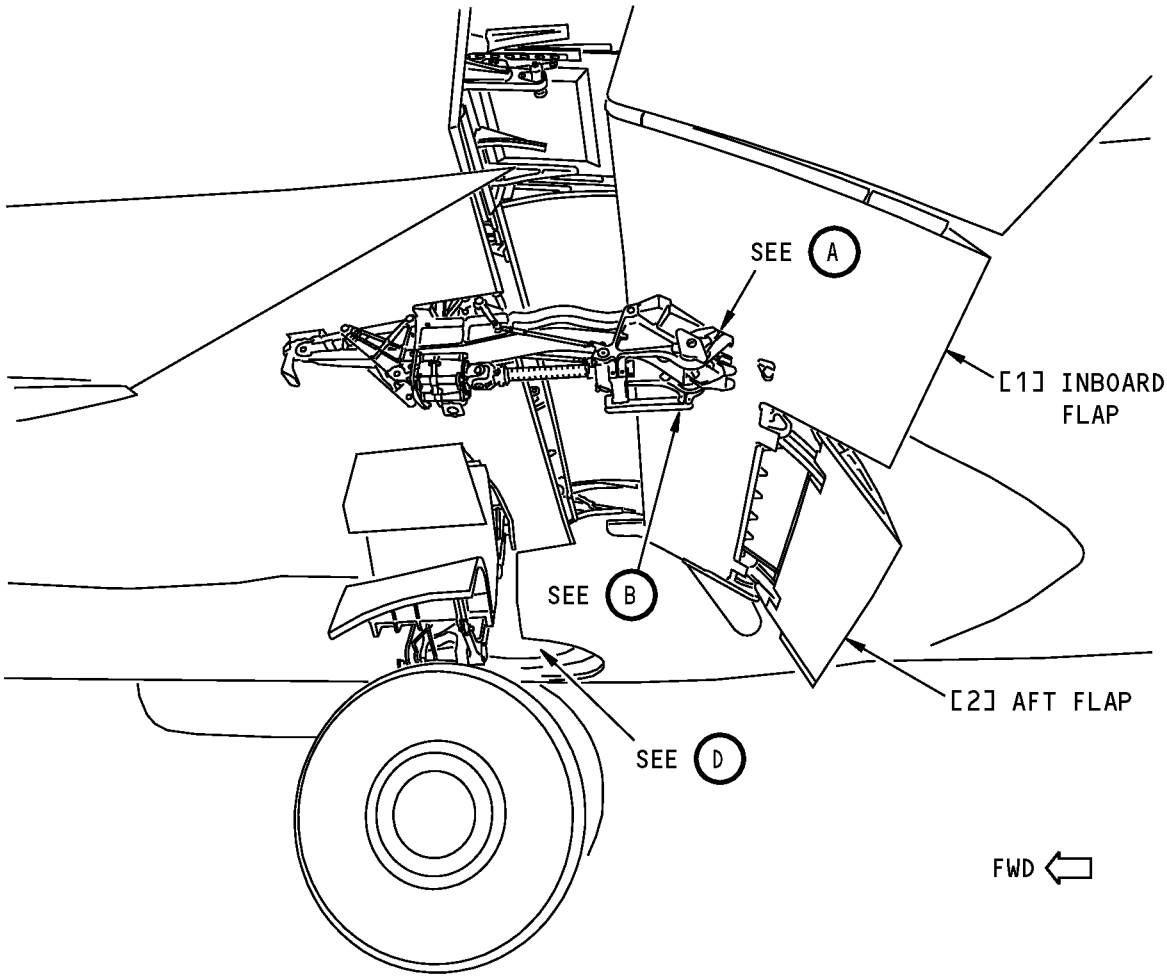

Inboard Trailing Edge Flap Installation
Figure 401 (Sheet 1 of 6)/27-51-11-990-801

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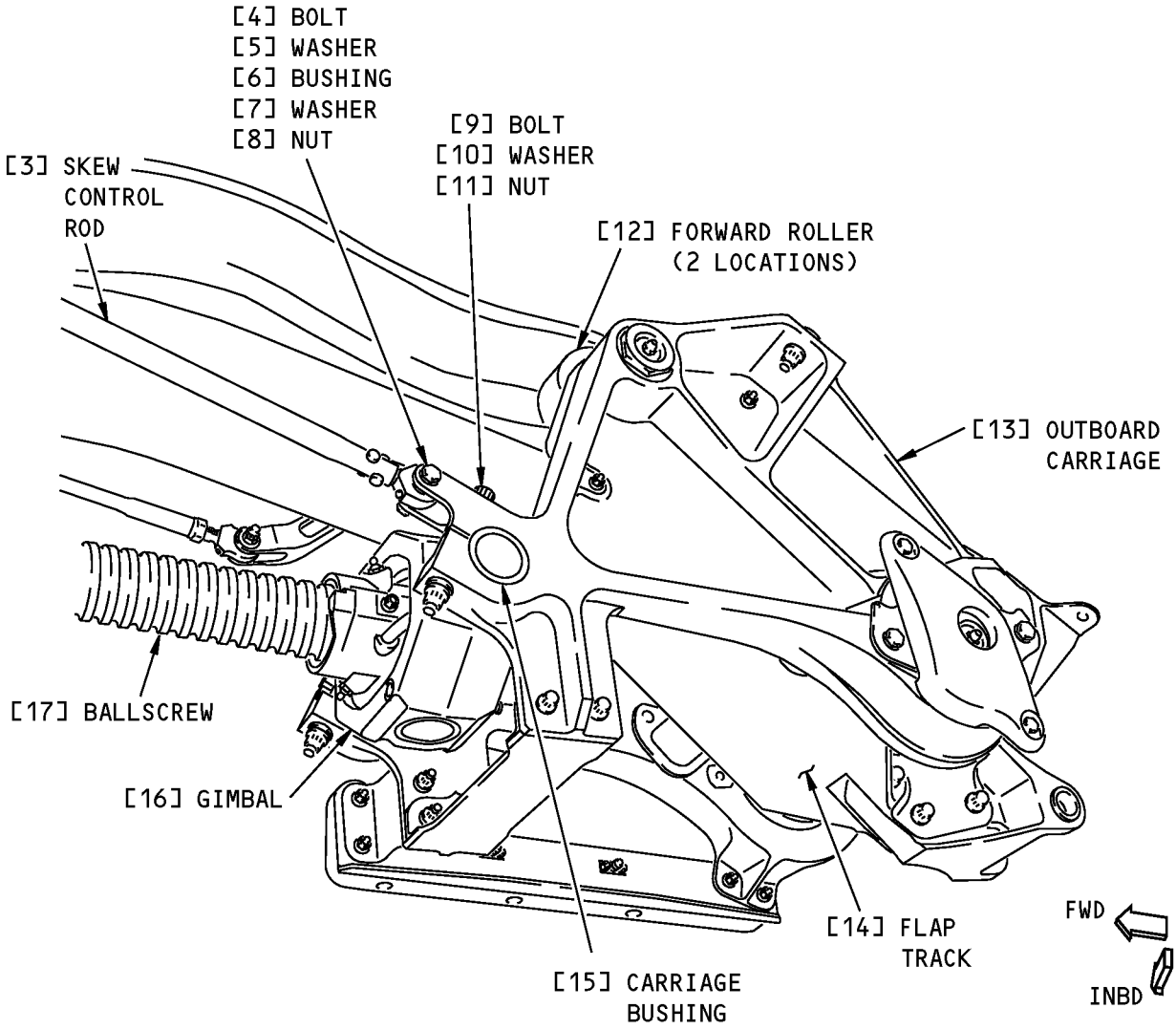

Inboard Trailing Edge Flap Installation
Figure 401 (Sheet 2 of 6)/27-51-11-990-801

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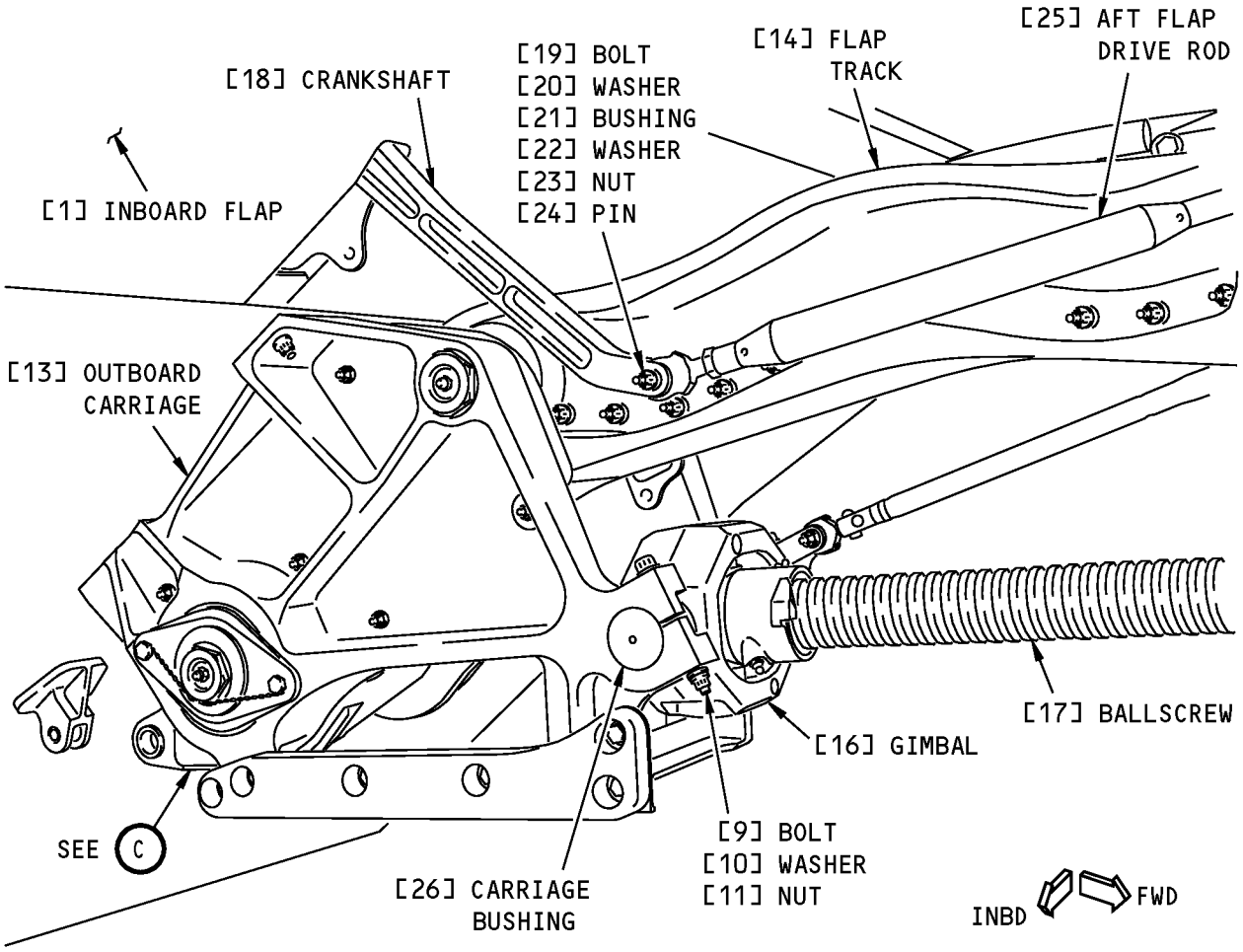

Inboard Trailing Edge Flap Installation
Figure 401 (Sheet 3 of 6)/27-51-11-990-801

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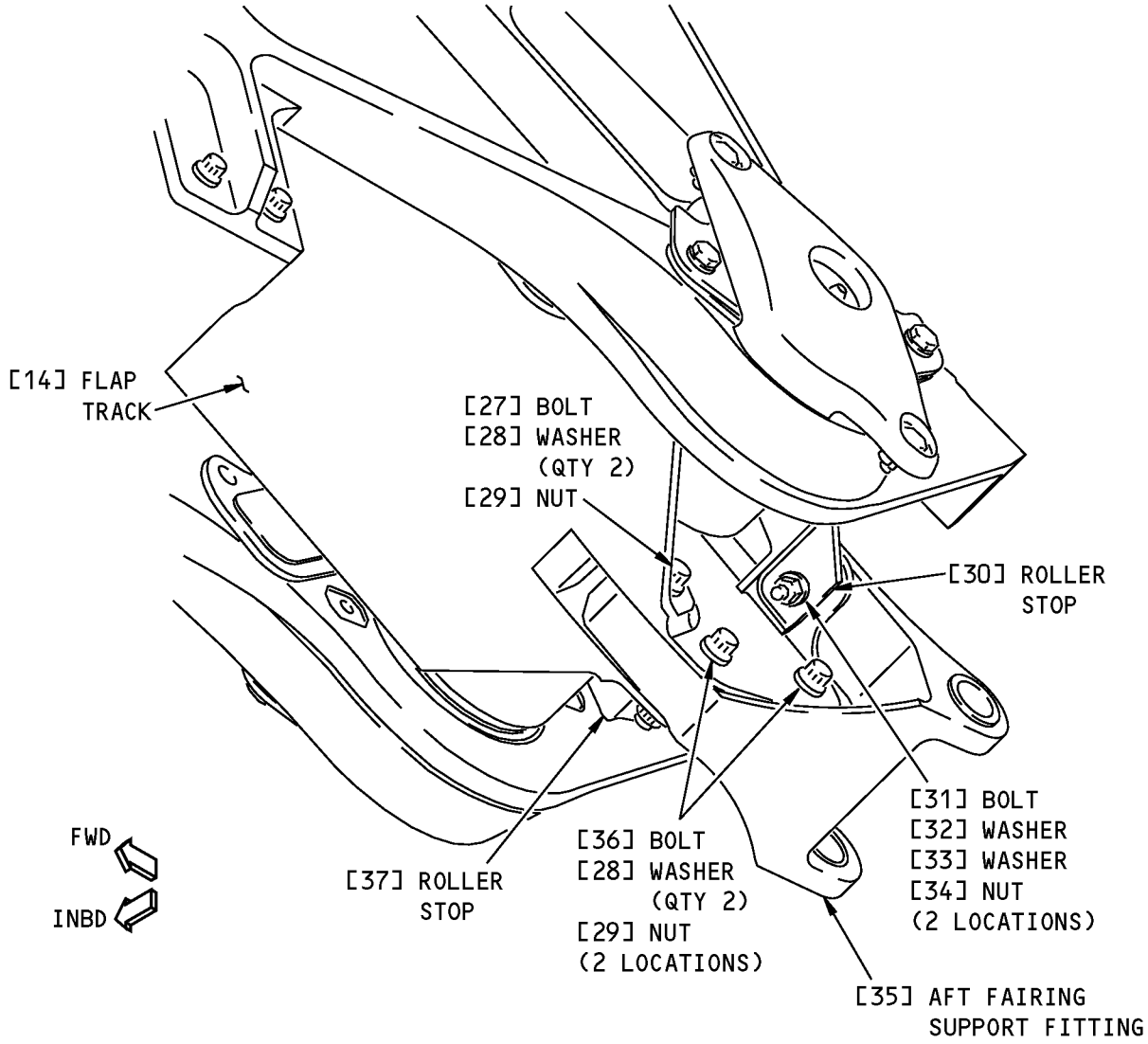

Inboard Trailing Edge Flap Installation
Figure 401 (Sheet 4 of 6)/27-51-11-990-801

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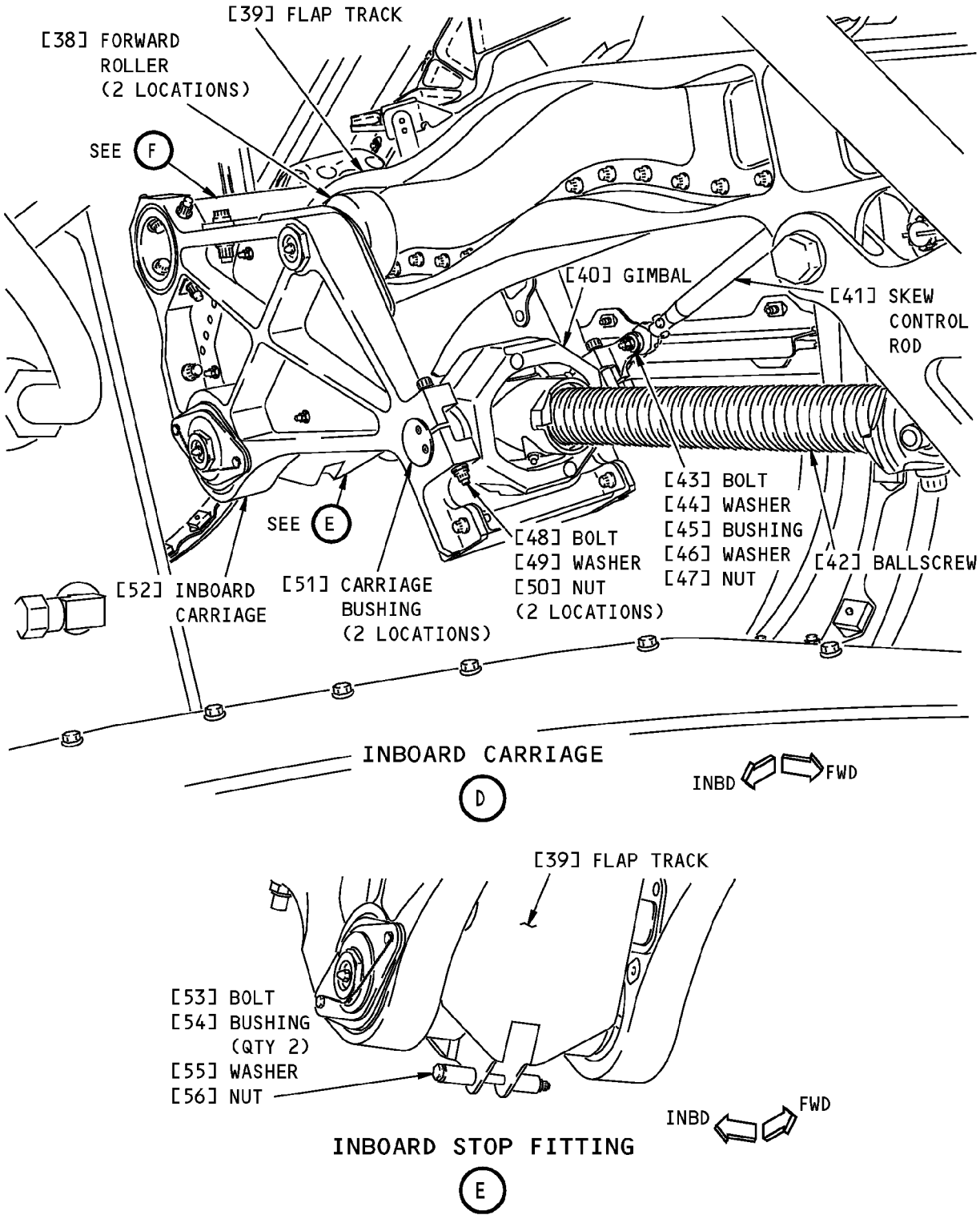

Inboard Trailing Edge Flap Installation
Figure 401 (Sheet 5 of 6)/27-51-11-990-801

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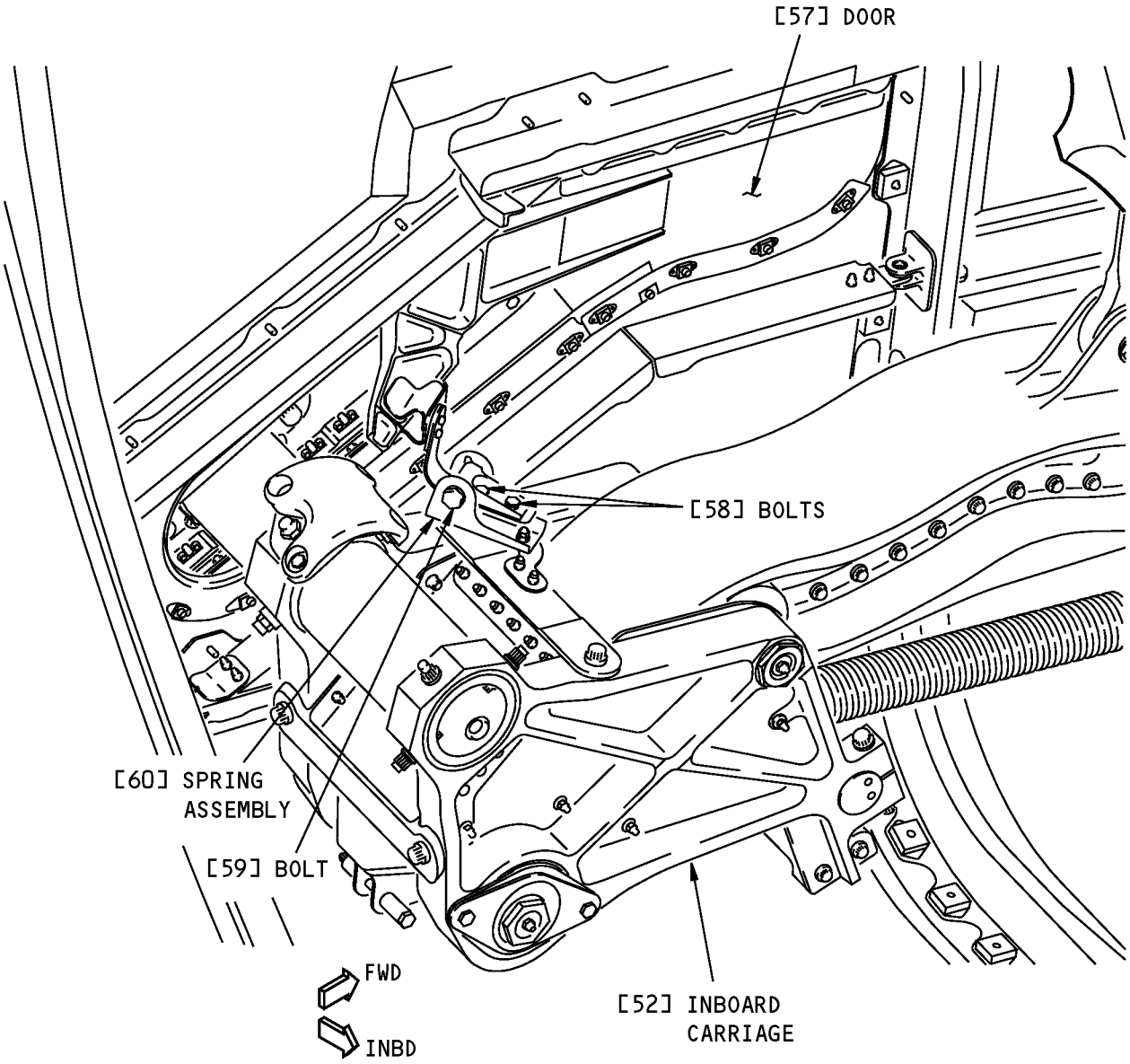

Inboard Trailing Edge Flap Installation
Figure 401 (Sheet 6 of 6)/27-51-11-990-801

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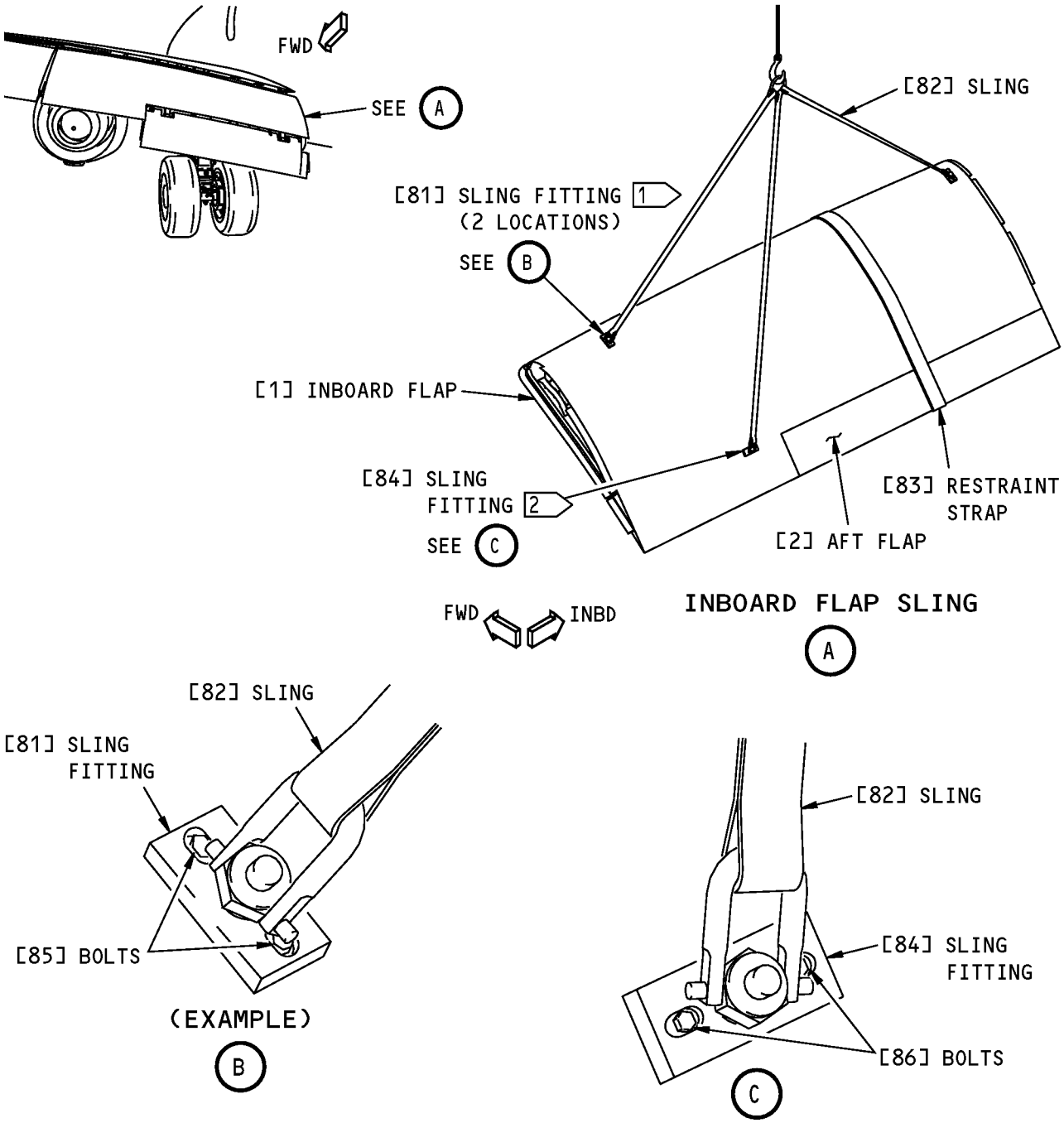

1 ITEF MFSTA 88.4, 175.5 FORWARD OF FLAP FRONT SPAR PLANE.

2 ITEF MFSTA 163.4, COMMON TO FLAP REAR SPAR PLANE.

Inboard Flap Sling
Figure 402/27-51-11-990-802

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TASK 27-51-11-400-801

3. Inboard Trailing Edge Flap Installation

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
27-51-18-400-802	Inboard Flap Support Aft Fairing Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1729	Sling - Equipment, Trailing Edge Flaps (Part #: C27052-25, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1095	Crane - Lift, 2000 Lb Capacity, 30 Foot Height

C. Consumable Materials

Reference	Description	Specification
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Flap assembly	27-51-11-01-010	HAP ALL
		27-51-11-01-015	HAP ALL
		27-51-14-02-065	HAP ALL
		57-52-00-06-040	HAP ALL
15	Bushing assembly	27-51-13-01-030	HAP 001-007
		27-51-13-01-060	HAP 008-013, 015-026
		27-51-13-01-075	HAP 001-013, 015-026
		27-51-13-01-080	HAP 028-054, 101-999
24	Pin	Not Specified	
26	Bushing assembly	27-51-13-01-025	HAP 001-007
		27-51-13-01-060	HAP 008-013, 015-026
		27-51-13-01-070	HAP 008-013, 015-026
119	Pin	27-51-13-02-380	HAP 001-013, 015-026, 028-030
		27-51-13-02-470	HAP 001-013, 015-026, 028-030
126	Pin	27-51-13-02-150	HAP 001-013, 015-026, 028-030

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
126 (cont.)		27-51-13-02-380	HAP 001-013, 015-026, 028-030

E. Location Zones

Zone	Area
553	Left Wing - Inboard Flap
653	Right Wing - Inboard Flap

F. Access Panels

Number	Name/Location
194BL	Flap Track Lubrication Panel - Aft
194BR	Flap Track Lubrication Panel - Aft
194CL	Aft Wing To Body Fairing Panel
194CR	Aft Wing To Body Fairing Panel

G. Prepare for the Installation

SUBTASK 27-51-11-820-001

(1) Make sure the carriage roller cartridges are in the correct position (Figure 403):

NOTE: If you will install a different inboard flap assembly [1] than the one you removed, make sure the carriage roller cartridges are in the same position as the flap you removed.

NOTE: If you did not record the position of the carriage roller from the flap you removed, then adjust the carriage roller cartridges to the nominal position. The nominal position for the carriage roller cartridges is -45 degrees for the left wing, and +30 for the right wing.

NOTE: There is no mismatch or alignment dimension to the fixed structure or the outboard flap that the flap is adjusted to meet. The carriage roller cartridges can be changed from the nominal position to meet lateral trim tolerances.

NOTE: Make sure the carriage roller cartridge [116] and cartridge [125] for the inboard flap assembly [1] are in the same position.

(a) If it is necessary, adjust the cartridge [125] on the inboard carriage [52]:

1) Loosen the nut [127] on the roller [123].
2) Turn the eccentric bushing [115] until the index mark [120] is in the correct position.
3) Tighten the nut [127] to 160-975 pound-inches (18.1-110.1 newton-meters).
4) Install the pin [126] in the nut [127].
5) Install lockwire between the bolts that attach the cartridge [125].

(b) If it is necessary, adjust the cartridge [116] or cartridge [125] on the outboard carriage [13]:

1) Adjust the outboard cartridge [116]:

a) Remove the bolts [113], washers [122] and the rub block [121] from the retainer [114].
b) Loosen the nut [118] on the roller [117].
c) Turn the eccentric bushing [115] until the index marks [120] are in the correct position.

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d) Tighten the nut [118] on the roller [117] to 160-975 pound-inches (18.1-110.1 newton-meters).

e) Install the pin [119] in the nut [118].

f) Put the rub block [121] in its position on the retainer [114] and install the bolts [113] and washers [122].

2) Adjust the inboard cartridge [125]:

a) Loosen the nut [127] on the roller [123].

b) Turn the eccentric bushing [115] until the index marks [120] are in the correct position.

c) Tighten the nut [127] on the roller [123] to 160-975 pound-inches (18.1-110.1 newton-meters).

d) Install the pin [126] in the nut [127].

e) Install lockwire between the bolts that attach the cartridge [125].

SUBTASK 27-51-11-210-006

HAP 001-013, 015-026

(2) If undersize seals were installed on the inboard end of the flap assembly [1] that was removed, make sure the new flap assembly [1] has undersize seals also.

HAP 028-054, 101-999; AIRPLANES WITH LARGE BULLNOSE SEALS

(3) If you will install a different flap, install the shim and bullnose seal you removed from the original flap.

NOTE: Keep and install the same shim and bullnose seal you removed from the airplane. If you install a different bullnose seal or shim, it can cause unsatisfactory flight performance.

HAP ALL

SUBTASK 27-51-11-020-005

(4) Make sure the stop fittings are not installed on the flap tracks.

SUBTASK 27-51-11-480-002

(5) If it is not installed, install the sling, SPL-1729 on the inboard flap assembly [1] (Figure 402):

(a) Remove the bolts [85] at the inboard and outboard ends of the front spar on the inboard flap assembly [1].

(b) Install the sling fittings [81] in the location of the bolts [85].

(c) Remove the bolts [86] at the rear spar at the aft end of the inboard flap assembly [1].

(d) Install the sling fitting [84] in the location of the bolts [86].

(e) Connect the sling, SPL-1729 [82] to the sling fittings [81] and sling fitting [84].

SUBTASK 27-51-11-980-003

(6) If it is installed, make sure the aft flap [2] is restrained in the retracted position on the inboard flap assembly [1]:

CAUTION: DO NOT USE A RIG PIN IN THE CRANKSHAFT TO HOLD THE AFT FLAP IN THE RETRACTED POSITION. THIS CAN CAUSE DAMAGE TO THE CRANKSHAFT OR THE FITTING ON THE MAIN FLAP.

(a) Install the restraint strap (part of the sling, SPL-1729) to hold the aft flap [2] in the retracted position.

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H. Inboard Trailing Edge Flap Installation

SUBTASK 27-51-11-420-001

(1) Install the inboard flap assembly [1] (Figure 401):

CAUTION: BE VERY CAREFUL WHEN YOU LIFT THE INBOARD FLAP FROM THE GROUND. YOU CAN CAUSE DAMAGE TO THE TRAILING EDGE OF THE FLAP.

(a) Use the sling, SPL-1729 and 30 foot height (2000 lbs capacity) lift crane, STD-1095 to move the inboard flap assembly [1] up into its position aft of the flap track [14] and flap track [39].

(b) Align the forward rollers [12] for the outboard carriage [13] with the flap track [14].

(c) Move the inboard flap track [39] to align with the forward rollers [38] for the inboard carriage [52].

CAUTION: DO NOT USE THE SLING TO MOVE THE INBOARD FLAP ON THE FLAP TRACK AFTER THE AFT ROLLERS ENGAGE. YOU CAN CAUSE DAMAGE TO THE FLAP.

(d) Move the inboard flap assembly [1] up and forward on the flap tracks until the carriages align with the gimbal [16] and gimbal [40].

(e) Connect the outboard carriage [13] to the gimbal [16]:

1) Remove the support from the ballscrew [17] and move the gimbal [16] to its position in the outboard carriage [13].

HAP 001-013, 015-026 PRE SB 737-57-1264

(f) Apply grease, D00633 to the inside and outside of the carriage bushing assembly [15] and carriage bushing assembly [26].

HAP 001-013, 015-026

(g) Install the carriage bushing assembly [15] and carriage bushing assembly [26] to attach the gimbal [16] to the outboard carriage [13].

HAP 028-054, 101-999

(h) Install the carriage bushing assembly [15] and carriage bushing [26] to attach the gimbal [16] to the outboard carriage [13].

HAP ALL

(i) Install the bolts [9], washers [10], and nuts [11] that attach the carriage bushing assembly [15] and carriage bushing assembly [26] to the outboard carriage [13].

(j) Tighten the nuts [11] to 65-75 pound-inches (7.4-8.4 newton-meters) more than the run-on torque.

(k) Connect the inboard carriage [52] to the gimbal [40]:

1) Remove the support from the ballscrew [42] and move the gimbal [40] to its position in the inboard carriage [52].

2) Apply grease, D00633 to the inside and outside of the carriage bushings [51].

3) Install the carriage bushings [51] to attach the gimbal [40] to the inboard carriage [52].

4) Install the bolts [48], washers [49] and nuts [50] that attach the carriage bushings [51] to the inboard carriage [52].

5) Tighten the nuts [50] to 65-75 pound-inchces (7.4-8.4 newton-meters) more than the run-on torque.

SUBTASK 27-51-11-420-002

(2) Install the stop fittings for the flap tracks:

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(a) On the inboard flap track [39], install the bolt [53], bushings [54], washer [55] and nut [56] on the end of the flap track [39].

(b) On the outboard flap track [14], install the roller stop [30], roller stop [37] and the aft fairing support fitting [35]:

1) Apply compound, C00913 to the mating surfaces of the aft fairing support fitting [35], roller stop [30], roller stop [37] and the flap track [14].

2) Put the roller stop [30] and roller stop [37] and the aft fairing support fitting [35] in their positions on the flap track [14].

NOTE: Make sure the roller stop [30] and roller stop [37] touch the web of the flap track [14].

3) Apply compound, C00913 to the shank and threads of the bolt [27], bolts [36] and bolts [31].

4) Install the bolts [31], washers [32], washers [33] and nuts [34] that attach the aft fairing support fitting [35], roller stop [30] and roller stop [37] to the flap track [14].

5) Install the bolts [36], bolt [27], washers [28] and nuts [29] that attach the aft fairing support fitting [35] to the flap track [14].

SUBTASK 27-51-11-080-001

(3) Remove the sling, SPL-1729 [82] from the inboard flap assembly [1] (Figure 402):

(a) Disconnect the sling, SPL-1729 [82] from the 30 foot height (2000 lbs capacity) lift crane, STD-1095.

(b) Disconnect the sling, SPL-1729 [82] from the sling fittings [81] and sling fitting [84].

(c) Remove the sling fittings [81] and sling fitting [84] from the inboard flap assembly [1].

(d) Apply compound, C00528 to the holes for the bolts [85] and bolts [86] in the inboard flap assembly [1].

(e) Install the bolts [85] at the inboard and outboard ends of the front spar on the inboard flap assembly [1].

(f) Install the bolts [86] at the aft end of the inboard flap assembly [1].

SUBTASK 27-51-11-980-004

(4) If the aft flap [2] is installed, move the aft flap [2] to the extended position on the inboard flap assembly [1]:

(a) Remove the restraint strap (part of the sling, SPL-1729) from the aft flap [2].

(b) Move the crankshaft [18] aft until the aft flap [2] is in the extended position.

SUBTASK 27-51-11-420-003

(5) Connect the aft flap drive rod [25] to the crankshaft [18] (Figure 401):

(a) Move the aft flap drive rod [25] to its position on the crankshaft [18].

(b) Install the bolt [19], washer [20], bushing [21], washer [22] and nut [23] that attach the aft aft flap drive rod [25] to the crankshaft [18].

NOTE: Make sure the head of the bolt [19] is on the inboard side.

(c) Tighten the nut [23] to 30-50 pound-inches (3.4-5.6 newton-meters).

(d) Install the pin [24] through the nut [23].

SUBTASK 27-51-11-420-004

(6) Connect the skew control rods for the skew mechanisms to the carriages:

(a) Connect the skew control rod [41] to the inboard carriage [52]:

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1) Apply compound, C00913 to the shank and threads of the bolt [43].

2) Install the bolt [43], washer [44], bushing [45], washer [46] and nut [47] to attach the skew control rod [41] to the inboard carriage [52].

NOTE: Install the bolt [43] with the head away from the center of the flap track [39].

(b) Connect the skew control rod [3] to the outboard carriage [13]:

1) Apply compound, C00913 to the shank and threads of the bolt [4].

2) Install the bolt [4], washer [5], bushing [6], washer [7] and nut [8] to attach the skew control rod [3] to the outboard carriage [13].

NOTE: Install the bolt [4] with the head away from the center of the flap track [14].

SUBTASK 27-51-11-410-004

(7) Install these access panels for the wing to body fairing:

Number	Name/Location
194BL	Flap Track Lubrication Panel - Aft
194CL	Aft Wing To Body Fairing Panel

or close these access panels:

Number	Name/Location
194BR	Flap Track Lubrication Panel - Aft
194CR	Aft Wing To Body Fairing Panel

SUBTASK 27-51-11-860-013

(8) Extend the trailing edge flaps:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-210-005

(9) With the flaps fully extended, make sure the full surface of the spring assembly [60] on the inboard carriage [52] touches the door [57] on the wing-to-body fairing and that it holds the door closed (Figure 401).

SUBTASK 27-51-11-820-015

(10) If the spring assembly [60] does not touch the door [57], or hold it closed, adjust the position of the spring assembly [60]:

(a) Loosen the bolts [58] and bolt [59] that hold the spring assembly [60] in its position.

(b) Move the spring assembly [60] until it touches the door [57] with its face parallel to the door.

(c) Tighten the bolts [58] and bolt [59].

SUBTASK 27-51-11-820-002

(11) Do this task: Inboard Trailing Edge Flap Adjustment, TASK 27-51-11-820-801.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-11-410-001

(1) Do this task: Inboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-11-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-11-860-004

(3) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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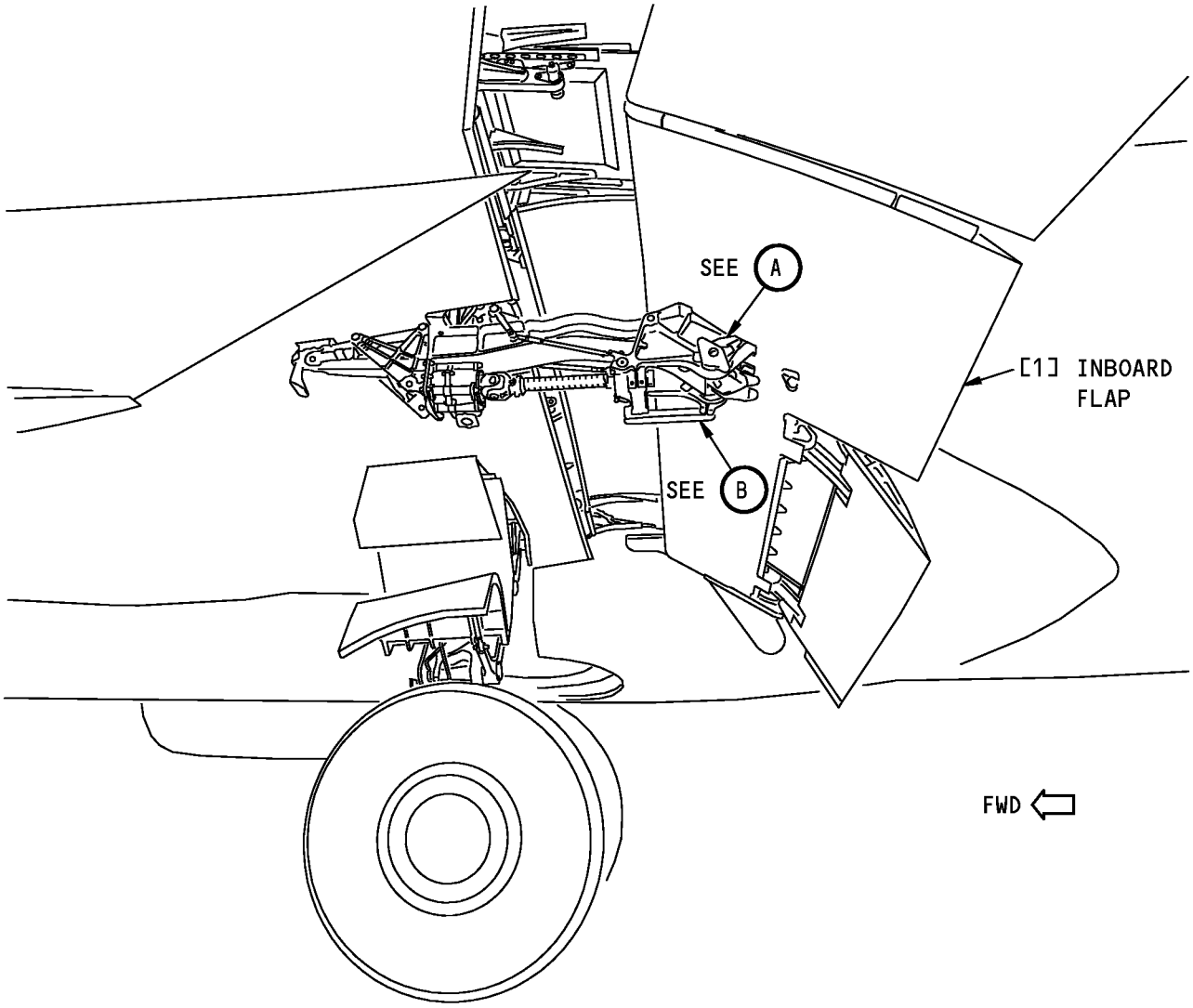

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Inboard Flap Roller Adjustment
Figure 403 (Sheet 1 of 3)/27-51-11-990-803

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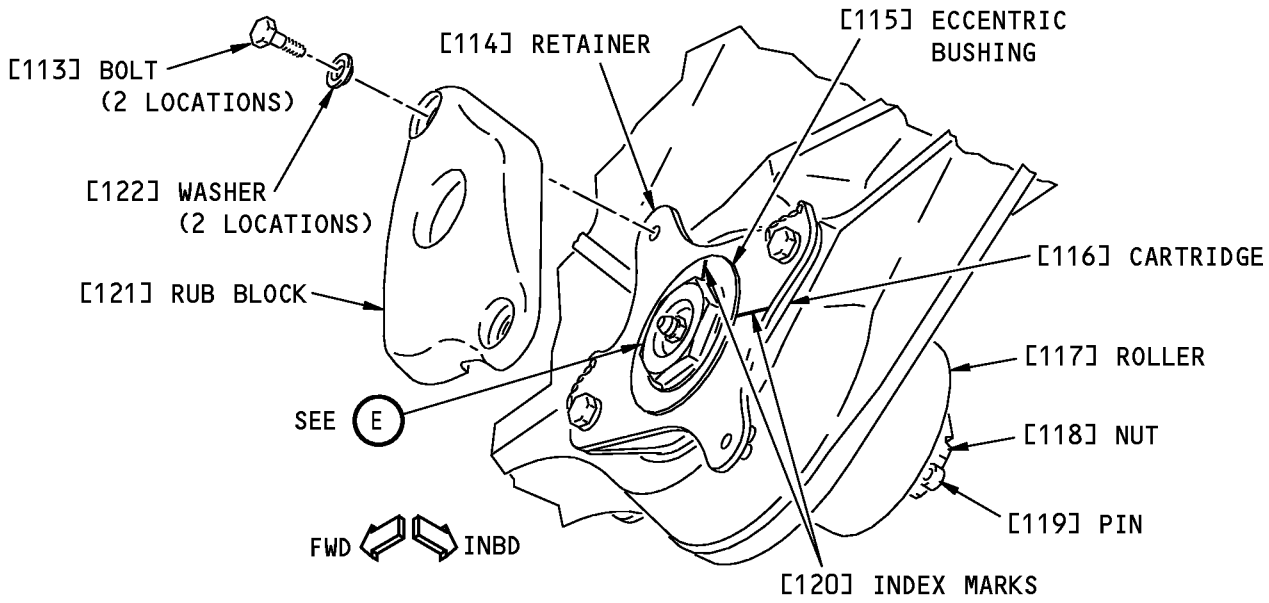
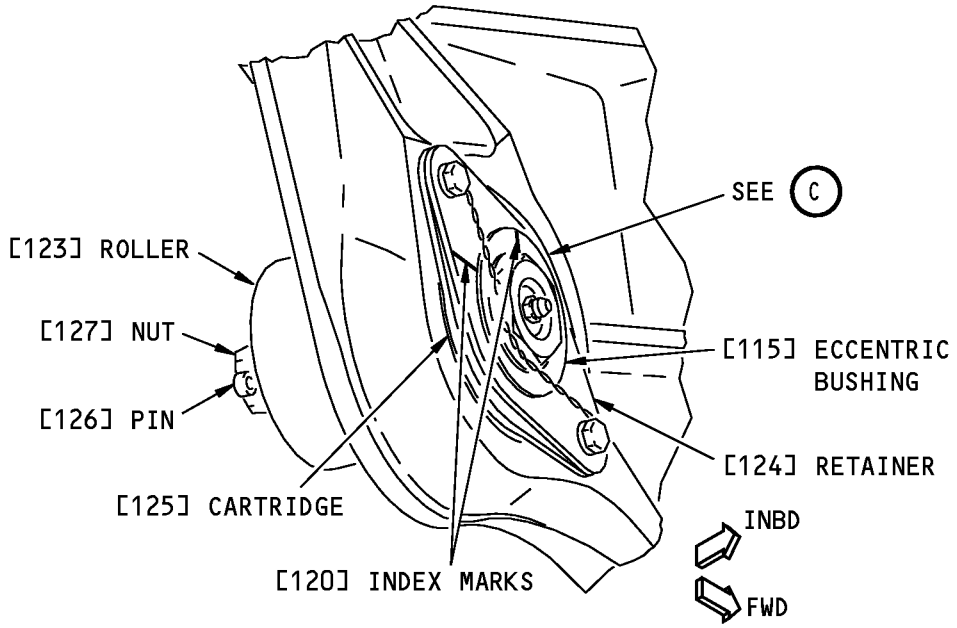


OUTBOARD CARRIAGE, OUTBOARD ROLLER CARTRIDGE

A



OUTBOARD CARRIAGE, INBOARD ROLLER CARTRIDGE
(INBOARD CARRIAGE IS EQUIVALENT)

B

F93343 S0006569987_V2

Inboard Flap Roller Adjustment
Figure 403 (Sheet 2 of 3)/27-51-11-990-803

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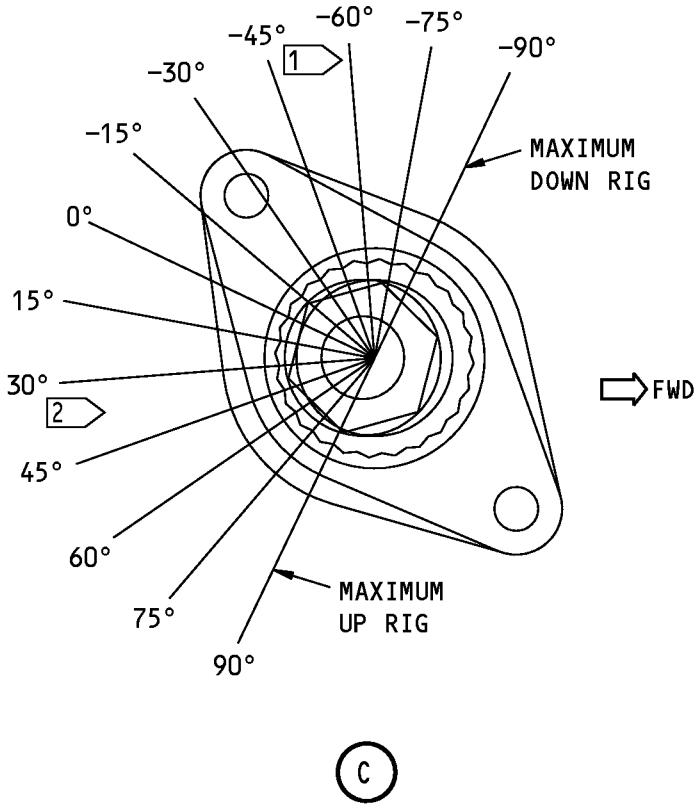

1 LEFT WING
NOMINAL POSITION

2 RIGHT WING
NOMINAL POSITION

H89005 S0006569988_V2

Inboard Flap Roller Adjustment
Figure 403 (Sheet 3 of 3)/27-51-11-990-803

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INBOARD TRAILING EDGE FLAP - ADJUSTMENT/TEST

1. General

A. This procedure has an adjustment of the inboard trailing edge flap.

B. This procedure includes the adjustment of the main flap with the aft flap either removed or installed.

C. The adjustment instructions included in this procedure are included in the Rigging Diagram - Inbd and Outbd Flaps, Wing Trailing Edge 113A3017.

TASK 27-51-11-820-801

2. Inboard Trailing Edge Flap Adjustment

A. References

Reference	Title
27-09-71-820-801	Trailing Edge Flap Adjustment for Lateral Trim (P/B 501)
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-18-000-802	Inboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-400-802	Inboard Flap Support Aft Fairing Installation (P/B 401)
27-51-21-820-801	Outboard Trailing Edge Flap Adjustment (P/B 501)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-4232	Pin, Rig, 0.2500 in (6.35 mm)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Pin	57-42-51-02-155	HAP ALL
25	Pin	27-51-13-02-150	HAP 001-013, 015-026, 028-030
		27-51-13-02-380	HAP 001-013, 015-026, 028-030
		27-51-13-02A-126	HAP 031-054, 101-999
34	Pin	27-51-13-02-470	HAP 001-013, 015-026, 028-030
		27-51-13-02A-126	HAP 031-054, 101-999
69	Seal	27-51-12-01-160	HAP ALL

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E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
542	Left Wing - Fairing Flap Support No. 3
553	Left Wing - Inboard Flap
641	Right Wing - Fairing Flap Support No. 5
642	Right Wing - Fairing Flap Support No. 6
653	Right Wing - Inboard Flap

F. Prepare For the Adjustment

SUBTASK 27-51-11-480-003

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-11-040-002

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-010-003

(3) Do this task: Inboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

SUBTASK 27-51-11-820-003

(4) Make sure the outboard flap [1] is adjusted correctly. To adjust the outboard flap [1], do this task: Outboard Trailing Edge Flap Adjustment, TASK 27-51-21-820-801.

G. Inboard Trailing Edge Flap Adjustment

NOTE: There is no mismatch, or alignment dimension to the outboard flap, or to fixed structure that the inboard flap is adjusted to meet. The eccentric carriage rollers can be changed from the nominal position to meet lateral trim tolerances.

SUBTASK 27-51-11-860-005

(1) Do a check of the adjustment of the deflection control roller [12] on the inboard end of the inboard flap assembly [2] (Figure 501):

(a) Manually extend and retract the inboard flap assembly [2] through its full travel. To extend and retract it, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

NOTE: While you retract the inboard flap assembly [2], monitor the deflection control roller [12] to see if there is preload when it engages the deflection control track [3].

(b) If there is preload when the deflection control roller [12] engages the deflection control track [3], then adjust the deflection control roller [12]:

1) Manually extend the inboard flap assembly [2] to get access to the deflection control roller [12]. To extend it, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

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2) Remove the bolt [6] and washer [5] that hold the retainer [4] and retainer [13] to the deflection control rib [14]

3) Remove the retainer [13] for the inboard eccentric bushing [10].

4) Remove the pin [7] and loosen the nut [8] on the bolt [11].

5) Turn the inboard eccentric bushing [10] to change the position of the inboard deflection control roller [12].

NOTE: Make sure you do not change the position of the outboard deflection control roller [9].

6) Install the retainer [13] for the inboard eccentric bushing [10].

7) Install the bolt [6] and washer [5] that hold the retainer [4] and retainer [13].

8) Tighten the nut [8] finger tight and install the pin [7].

NOTE: If it is necessary, tighten the nut [8] the minimum amount necessary to install the pin [7].

SUBTASK 27-51-11-860-006

(2) Retract the trailing edge flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-11-820-004

(3) Make sure carriage roller cartridges are in the correct position (Figure 501):

NOTE: It is necessary to keep the position of the cartridges on the inboard carriage the same as the cartridges on the outboard carriage.

(a) If you installed a different flap, then adjust the carriage roller cartridges to the same position as the original flap.

NOTE: The position of the original flap may have been adjusted for lateral trim per (TASK 27-09-71-820-801).

(b) If you do not know the original position of the carriage roller cartridges, then adjust them make sure they are in the nominal position.

NOTE: The nominal position for the carriage roller cartridges is -45 degrees for the left wing, and +30 for the right wing.

CAUTION: DO NOT REMOVE MORE THAN ONE CARTRIDGE FROM THE CARRIAGE AT A TIME. YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(c) If it is necessary, adjust the cartridge [24] and cartridge [31] on the outboard carriage:

NOTE: It is necessary to keep the position of the cartridges on the inboard carriage the same as the cartridges on the outboard carriage.

1) Adjust the outboard cartridge [31]:

a) Remove the bolts [28], washers [39] and the rub block [38] from the retainer [29].

b) Remove the bolts [36] and washers [37] that attach the cartridge [31] to the carriage.

c) Remove the cartridge [31] from the carriage.

d) Loosen the nut [33] on the roller [32].

e) Turn the eccentric bushing [30] until the index marks [35] are in the correct position.

f) Tighten the nut [33] on the roller [32] to 160-975 pound-inches (18.1 to 110.2 newton-meters).

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g) Install the pin [34] in the nut [33].

h) Put the cartridge [31] in its position in the carriage.

i) Install the bolts [36] and washers [37] to attach the cartridge [31].

j) Tighten the bolts [36] to 95-110 pound-inches (10.7 to 12.4 newton-meters).

k) Install lockwire between the bolts [36] and the retainer [29].

l) Put the rub block [38] in its position on the retainer [29] and install the bolts [28] and washers [39].

2) Adjust the inboard cartridge [24]:

a) Remove the bolts [21] and washers [22] that attach the cartridge [24] to the carriage.

b) Remove the cartridge [24] from the carriage.

c) Loosen the nut [26] on the roller [27].

d) Turn the eccentric bushing [19] until the index marks [23] are in the correct position.

e) Tighten the nut [26] on the roller [27] to 160-975 pound-inches (18.1 to 110.2 newton-meters).

f) Install the pin [25] in the nut [26].

g) Put the cartridge [24] in its position in the carriage.

h) Install the bolts [21] and washers [22] to attach the cartridge [24].

i) Tighten the bolts [21] to 95-110 pound-inches (10.7 to 12.4 newton-meters).

j) Install lockwire between the bolts [21].

CAUTION: DO NOT REMOVE MORE THAN ONE CARTRIDGE FROM THE CARRIAGE AT A TIME. YOU CAN CAUSE DAMAGE TO EQUIPMENT.

(d) If it is necessary, adjust the cartridges [24] on the inboard carriage:

NOTE: Adjust the cartridges [24] one at a time. It is necessary to keep the position of the cartridges on the inboard carriage the same as the cartridges on the outboard carriage.

1) Remove the bolts [21] and washers [22] that attach the cartridge [24] to the carriage.

2) Remove the cartridge [24] from the carriage.

3) Loosen the nut [26] on the roller [27].

4) Turn the eccentric bushing [19] until the index marks [23] are in the correct position.

5) Tighten the nut [26] to 160-975 pound-inches (18.1 to 110.2 newton-meters).

6) Install the pin [25] in the nut [26].

7) Put the cartridge [24] in its position in the carriage.

8) Install the bolts [21] and washers [22] to attach the cartridge [24]

9) Tighten the bolts [21] to 95-110 pound-inches (10.7 to 12.4 newton-meters).

10) Install lockwire between the bolts [21].

11) Adjust the other cartridge [24] on the inboard carriage.

SUBTASK 27-51-11-820-005

(4) Do a check of the adjustment of the aft flap drive rod [17]:

(a) Make sure the trailing edge flaps are in the retracted position.

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(b) Install the A/S-8 rig pin0.2500 in (6.35 mm) rig pin, STD-4232 from the kit rig pin kit, SPL-1585in the rig pin hole [18] in the crankshaft [16].

SUBTASK 27-51-11-820-006

(5) If you cannot install the rig pin, adjust the length of the aft flap drive rod [17]:

(a) Loosen the nuts [15] on the aft flap drive rod [17].

(b) Turn the aft flap drive rod [17] to change the length until you can install the rig pin in the crankshaft [16].

(c) Tighten the nuts [15] on the aft flap drive rod [17].

(d) Install lockwire on the nuts [15].

SUBTASK 27-51-11-080-002

(6) Remove the A/S-8 rig pin0.2500 in (6.35 mm) rig pin, STD-4232 from the kit rig pin kit, SPL-1585from the crankshaft [16].

SUBTASK 27-51-11-210-001

(7) Do a check of the adjustment of the seals [55] on the inboard end of the inboard flap assembly [2] (Figure 502):

HAP 001-013, 015-026

NOTE: If undersize seals [55] are installed on the inboard end of the flap assembly [2], it is not necessary to meet these seal compression requirements.

HAP ALL

(a) With the trailing edge flaps retracted, make sure the seals [55] on the inboard end of the inboard flap assembly [2] do not contact the wing-to-body fairing [56].

(b) Extend the trailing edge flaps to the 40-unit position:

1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

2) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(c) With the trailing edge flaps extended, make sure the seals [55] on the inboard end of the inboard flap assembly [2] do not contact the wing-to-body fairing [56].

SUBTASK 27-51-11-820-007

(8) Do this procedure to adjust the applicable seal [55] (Figure 502):

(a) Loosen the screws [67] that attach the seal [55] and the seal retainer [68] to the inboard flap assembly [2].

(b) Adjust the position of the seal [55] and the seal retainer [68] outboard, relative to the airplane.

NOTE: Make sure you move the seal [55] and the seal retainer [68] together as a unit.

(c) Take gap measurements on both inboard flap inboard ends, at these locations:

1) Aft end of the upper forward seal retainer.

2) Forward end of the upper forward seal retainer.

3) Forward end of the lower seal retainer.

(d) Use these measurements to find which side of the airplane has the smallest gaps at the measured locations from the wing-to-body fairing.

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(e) Tighten the screws [67] for the retainer assemblies on the flap with the smallest measured gaps.

(f) If the measurement between a given left-right pair is not within 0.10 inch (2.54 mm), or the gaps between the bulb seals and wing-to-body fairing are less than 0.30 inch (7.62 mm), adjust the seals until the symmetry and gap requirements are met, or until the maximum adjustment limit is reached.

(g) Tighten the screws [67].

(h) Apply sealant, A00247 to the inboard side of the seal retainer [68] and the threads of the screws [67].

SUBTASK 27-51-11-860-009

(9) Retract the trailing edge flaps:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-210-002

(10) Make sure the seals [62] on the wing-to-body fairing [56] touch the coverplate [63] on the inboard end of the inboard flap assembly [2].

SUBTASK 27-51-11-820-008

(11) If the seals [62] do not touch the coverplate [63], then adjust the applicable seal [62]:

(a) Loosen the screws [61] that attach the seal [62] and the seal retainer [60] to the wing-to-body fairing [56].

(b) Adjust the position of the seal [62] and the seal retainer [60].

NOTE: Make sure you move the seal [62] and the seal retainer [60] together as a unit.

(c) Tighten the screws [61].

(d) Apply sealant, A00247 to smooth the area around the retainer.

SUBTASK 27-51-11-820-012

(12) Do a check of the clearance at the aft flap seal [69]:

(a) At the aft end of the seal retainer [70], measure the distance between the base of the seal retainer [70] and the wing-to-body fairing [56].

NOTE: This distance is referred to as dimension A.

(b) Make sure the aft flap seal [69] is the correct part for the actual dimension A (Table 501).

Table 501/27-51-11-993-809

Dimension A Inches (mm)	Aft Flap Seal Part Number
Less Than 1.05 (26.7)	113A2700-5
1.05 to 1.30 (26.7 to 33.0)	113A3172-30
More Than 1.30 (33.0)	113A3172-33

(c) If the aft flap seal [69] is not the correct part number, then replace the aft flap with the correct part:

1) Remove the lockwire from the ends of the aft flap seal [69].

2) Remove the aft flap seal [69] from the seal retainer [70].

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3) Put the new aft flap seal [69] in the seal retainer [70].

4) Install lockwire on the ends of the aft flap seal [69].

SUBTASK 27-51-11-860-010

(13) Extend the trailing edge flaps:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-210-003

(14) With the flaps fully extended, make sure the full surface of the spring assembly [66] on the inboard carriage [59] touches the door [58] on the wing-to-body fairing [56] and that it holds the door closed.

SUBTASK 27-51-11-820-013

(15) If the spring assembly [66] does not touch the door [58], or hold it closed, adjust the position of the spring assembly [66]:

(a) Loosen the bolts [64] and bolt [65] that hold the spring assembly in its position.

(b) Move the spring assembly [66] until it touches the door [58].

(c) Tighten the bolts [64] and bolt [65].

SUBTASK 27-51-11-860-011

(16) Retract the trailing edge flaps:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-11-220-004

(17) Do a check of the adjustment of the seals between the inboard and outboard flaps:

(a) Measure the distance between the lower skin of the outboard flap [1] and the inboard flap [2].

NOTE: This distance is referred to as dimension B.

(b) Extend the trailing edge flaps:

1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

2) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(c) Measure the distance the outboard flap seal [51] extends past the skin of the outboard flap [1].

NOTE: The distance the outboard flap seal extends should be Dimension B minus 0.75 inch (1.91 centimeters).

(d) Measure the distance the inboard flap seal [52] extends past the skin of the inboard flap assembly [2].

NOTE: The distance the inboard flap seal extends should be Dimension B minus 0.70 inch (1.78 centimeters).

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SUBTASK 27-51-11-820-014

(18) If the inboard flap seal [52] and the outboard flap seal [51] are not in the correct position, then adjust the seals:

(a) Adjust the outboard flap seal [51]:

1) Loosen the screws [54] that attach the outboard flap seal [51] and the seal retainer to the outboard flap [1].

2) Adjust the position of the outboard flap seal [51].

3) Tighten the screws [54].

4) Make sure the outboard flap seal [51] extends Dimension B minus 0.75 inch from the edge of the outboard flap skin.

(b) Adjust the inboard flap seal [52]:

1) Loosen the screws [53] that attach the inboard flap seal [52] and the seal retainer to the inboard flap assembly [2].

2) Adjust the position of the inboard flap seal [52].

3) Tighten the screws [53].

4) Make sure the inboard flap seal [52] extends Dimension B minus 0.70 inch from the edge of the inboard flap skin.

SUBTASK 27-51-11-860-012

(19) Retract the trailing edge flaps:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

H. Inboard Fixed Panel Adjustment

SUBTASK 27-51-11-860-007

(1) Make sure the flap is in the retracted position.

SUBTASK 27-51-11-220-002

(2) Measure the mismatch between the fixed lower panels [85] and the lower surface of the inboard flap assembly [2] (Figure 503).

SUBTASK 27-51-11-820-009

(3) If the mismatch is not in the limit of 0.00 ±0.06 inch (0.00 to 1.52 millimeters), adjust the applicable fixed lower panel [85] (Figure 504):

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to get access to the rods for the fixed lower panels [85]. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(d) Adjust the position of the outboard fixed lower panel [93]:

1) Loosen the nuts [91] on the rod [92], rod [94], rod [95] and rod [98].

2) Adjust the length of the rod [92], rod [94], rod [95] and rod [98].

3) Tighten the nuts [91] on the rod [92], rod [94], rod [95] and rod [98].

(e) Adjust the position of the fixed lower panel [107]:

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1) Remove the nuts [105], washers [104], washers [103] and bolts [102] that attach the rod [106] to the fixed lower panel [107].
2) Adjust the length of the rods [106].
3) Install the bolts [102], washers [103], washers [104] and nuts [105] to attach the rods [106] to the fixed lower panel [107].
4) Install lockwire on the nuts [91].

(f) Adjust the position of the beam assembly [100]:

NOTE: The beam assembly [100] is between panel [107] and panel [101].

1) Loosen the nuts [91] on the rod [99].
2) Adjust the length of the rod [99].
3) Tighten the nuts [91] on the rod [99].
4) Install lockwire on the nuts [91].

(g) Adjust the position of the inboard fixed lower panel [101]:

1) Adjust the rods [111] on the inboard end of the fixed lower panel [101]:
   a) Remove the nut [115], washer [114], washer [113] and bolt [112] that attach the rods [111] to the fixed lower panel [101].
   b) Adjust the length of the rods [111].
   c) Install the bolt [112], washer [113], washer [114] and nut [115] to attach the rods [111] to the fixed lower panel [101].
   d) Install lockwire on the nut [91].
2) Adjust the rod [108], rod [109] and rod [110] for the fixed lower panel [101]:
   a) Loosen the nuts [91] on the rod [108], rod [109] and rod [110].
   b) Adjust the length of the rod [108], rod [109] and rod [110].
   c) Tighten the nuts [91] on the rod [108], rod [109] and rod [110].
   d) Install lockwire on the nuts [91].

(h) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(i) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(j) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(k) Make sure the mismatch between the fixed lower panels and the lower surface of the inboard flap assembly [2] is in the limits.

SUBTASK 27-51-11-220-003

(4) Do a check of the adjustment of the blade seals [84] on the fixed lower panels [85] (Figure 503):

(a) Measure the distance from the seam in the lower surface of the inboard flap assembly [2] to the aft end of the blade seal [84].

SUBTASK 27-51-11-820-010

(5) If the distance between the inboard flap assembly [2] and the blade seal [84] is not in the limit of 4.439 ±0.060 inch (112.75 ±1.52 millimeters), then adjust the position of the blade seal [84]:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to get access to the fasteners for the seal retainers [83]. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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(d) Loosen the screws [82] that attach the seal retainers [83] to the fixed lower panel [85].

(e) Move the seal retainers [83] to the correct position.

NOTE: Make sure you move the blade seal [84] and the seal retainer [83] together as a unit.

(f) Tighten the screws [82] that attach the seal retainers [83].

(g) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(h) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(i) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(j) Make sure the distance between the seam on the inboard flap assembly [2] and the blade seal [84] is in the limit.

SUBTASK 27-51-11-820-011

(6) Do a check of the adjustment of the bulb seals [81] on the fixed lower panels [85] (Figure 504):

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to get access bulb seals [81] on the fixed lower panels [85]. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(d) Measure the distance from the aft end of the blade seal [84] to the aft end of the bulb seal [81].

(e) If the distance between the blade seal [84] and the bulb seal [81] is not in the limit of 1.428 ±0.060 inch (36.27 ±1.52 millimeters), adjust the position of the bulb seal [81]:

1) Loosen the screws [82] that attach the bulb seal retainer [83].

2) Adjust the position of the bulb seal [81] and the seal retainer [83].

NOTE: Make sure you move the bulb seal [81] and the seal retainer [83] together as a unit.

3) Tighten the screws [82].

SUBTASK 27-51-11-410-005

(7) Measure the gap between the fixed upper panel, outboard of spoiler #6, and the upper surface of the inboard flap assembly [2] .

(8) If the gap between the panel trailing edge and the flap upper surface is not within 0.005 to 0.100 inches (0.127 to 2.54 mm), adjust the upper panelFigure 503:

(a) Loosen the two fasteners common to the serrated plates.

(b) Loosen the lower panel turnbuckle common to the upper panel support beam.

(c) Loosen the bolt [118], washer [119], washer [120] and nut [121] at each end of the upper panel turnbuckle rod assembly.

(d) Adjust the turnbuckle and serrated plates to set the gap between the panel trailing edge and the flap upper surface to within 0.005 to 0.100 inches (0.127 to 2.54 mm).Figure 503.

(e) Retighten all fasteners loosened or removed.

SUBTASK 27-51-11-410-011

(9) Do the following steps to adjust the upper fixed trailing edge panel inboard of spoiler #6:

(a) Loosen the fasteners at each end of the upper turnbuckle rod assembly.

(b) Loosen the fasteners at the panel attach lug.

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(c) Loosen the jam nuts on either end of the turnbuckles.

(d) Adjust the turnbuckles to set the gap between the panel trailing edge and the flap upper surface to within 0.005 to 0.100 inches (0.127 to 2.54 mm).Figure 503.

(e) Retighthen the fasteners at the panel attach lugs and at each end of the upper panel turnbuckle rod assemblies.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-11-410-003

(1) Do this task: Inboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-11-440-002

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-11-860-008

(3) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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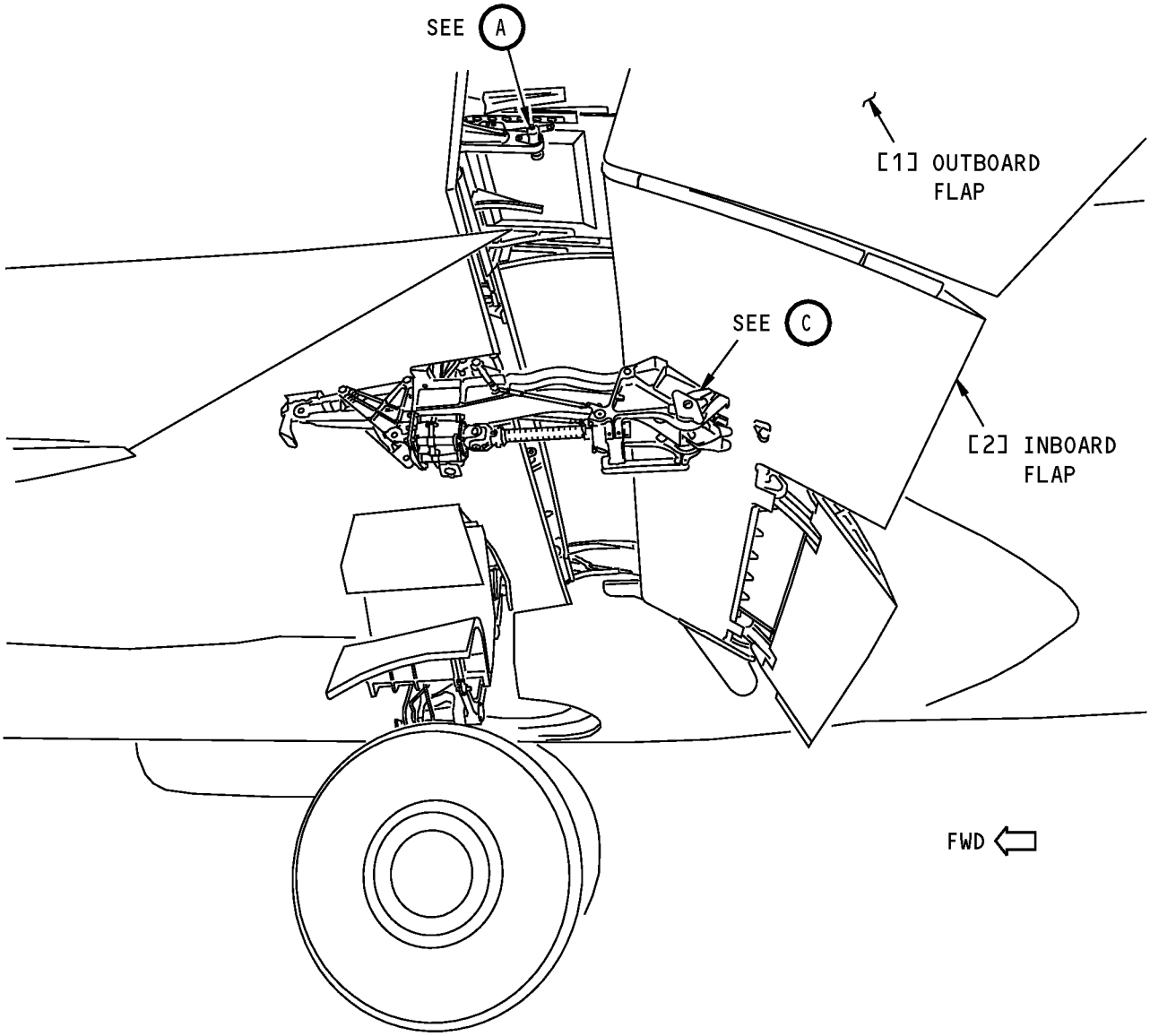

Inboard Trailing Edge Flap Adjustment
Figure 501 (Sheet 1 of 5)/27-51-11-990-804

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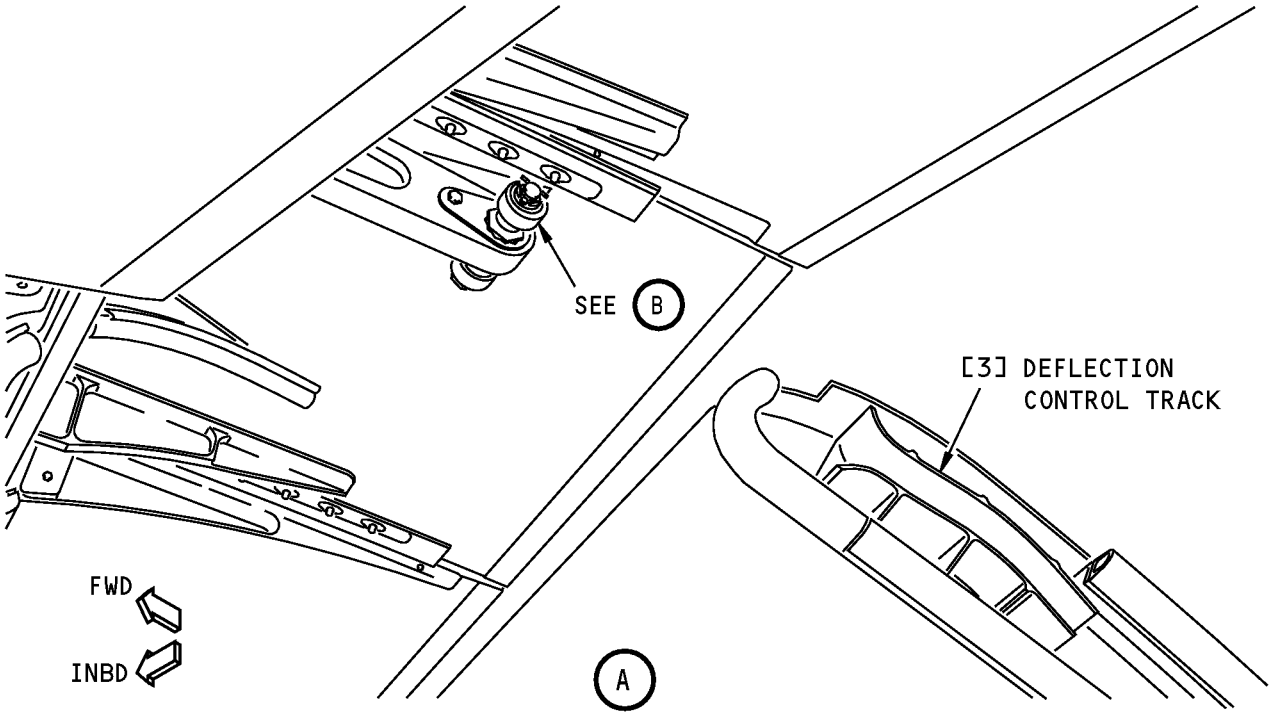

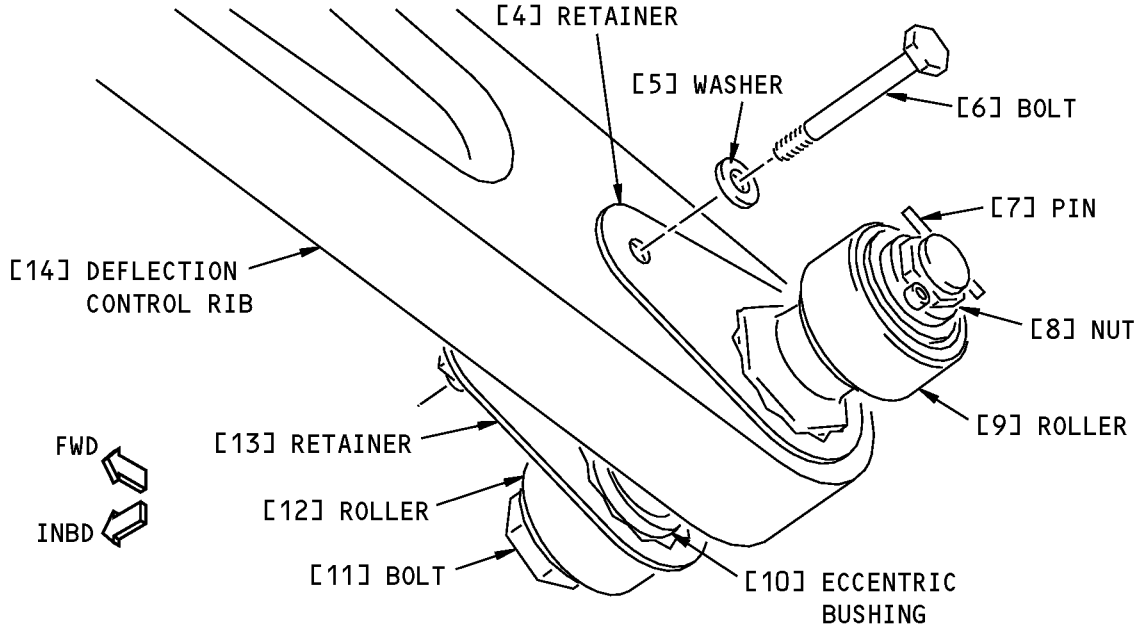

DEFLECTION CONTROL ROLLERS

B

Inboard Trailing Edge Flap Adjustment
Figure 501 (Sheet 2 of 5)/27-51-11-990-804

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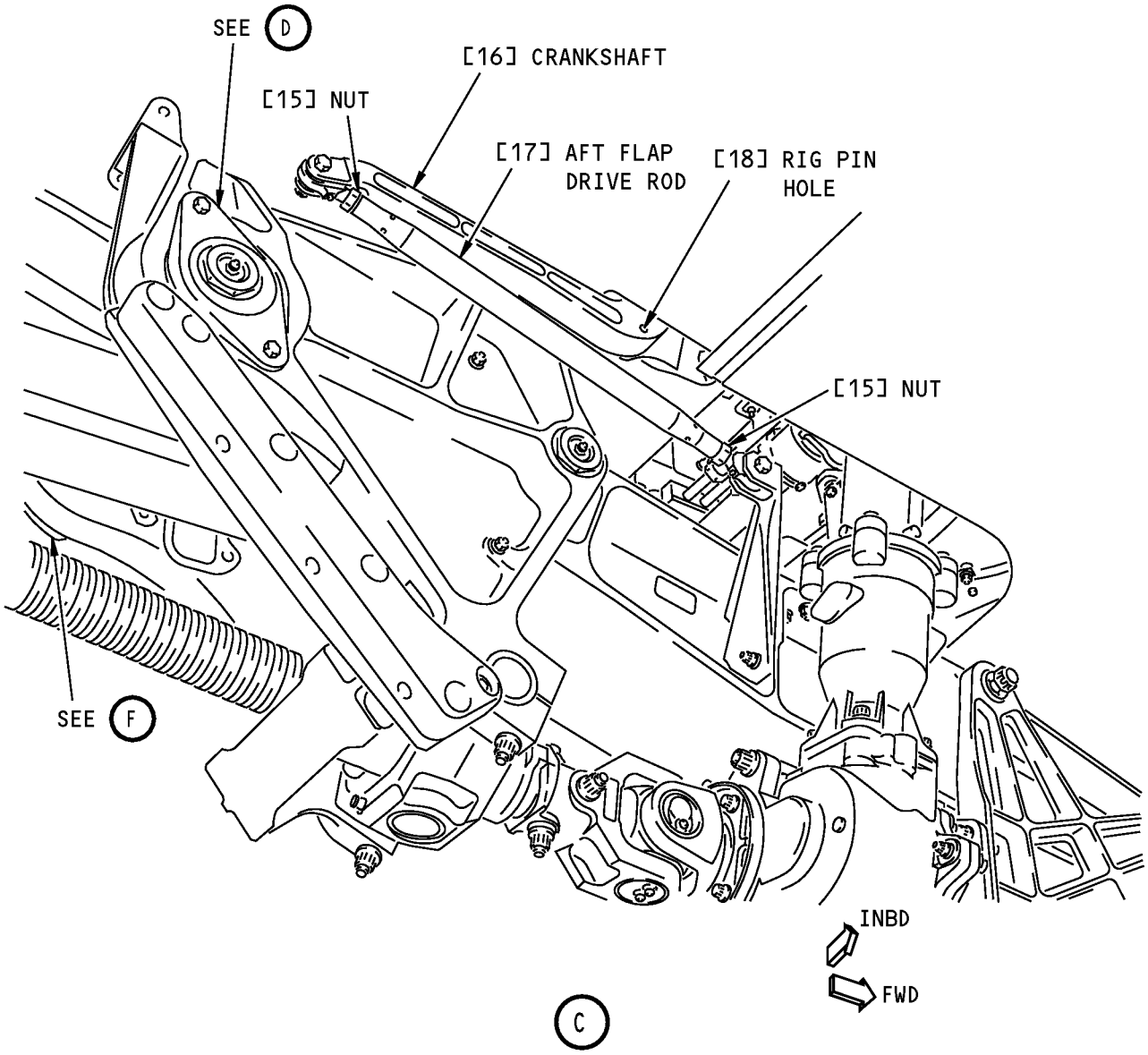

Inboard Trailing Edge Flap Adjustment
Figure 501 (Sheet 3 of 5)/27-51-11-990-804

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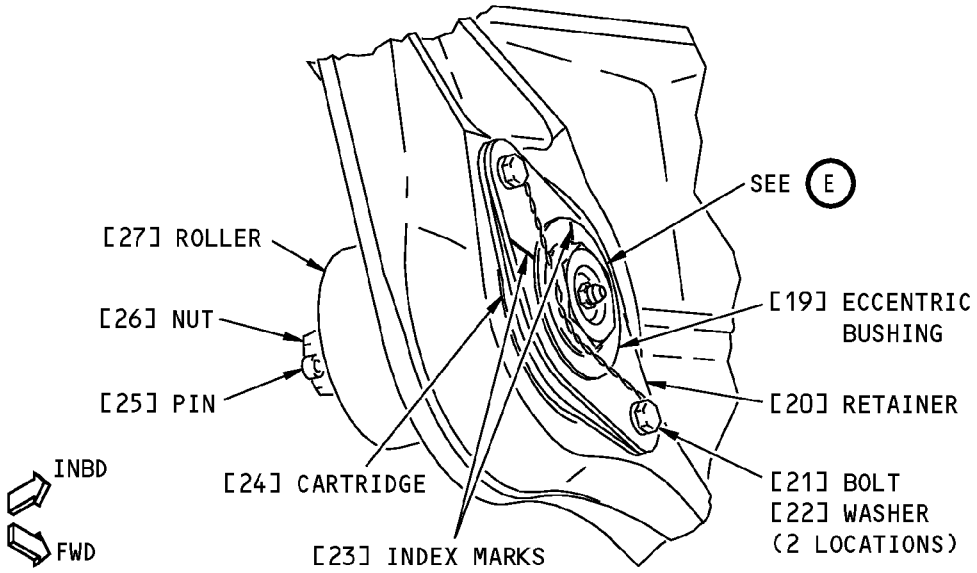
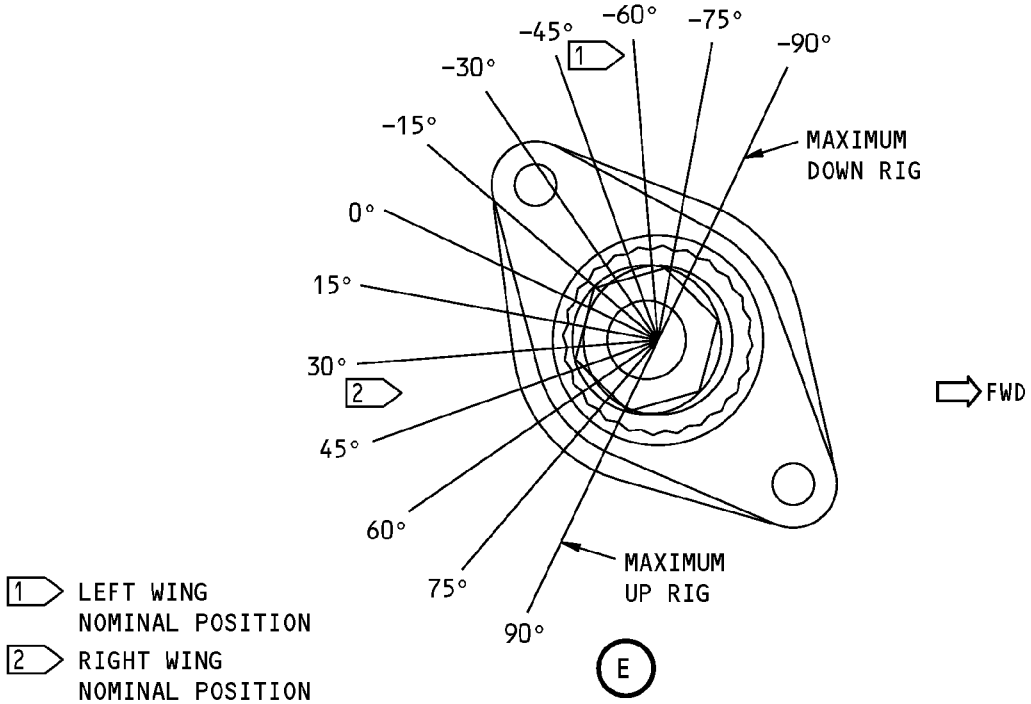


OUTBOARD CARRIAGE, INBOARD ROLLER CARTRIDGE
(INBOARD CARRIAGE ROLLERS ARE EQUIVALENT)

D



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Inboard Trailing Edge Flap Adjustment
Figure 501 (Sheet 4 of 5)/27-51-11-990-804

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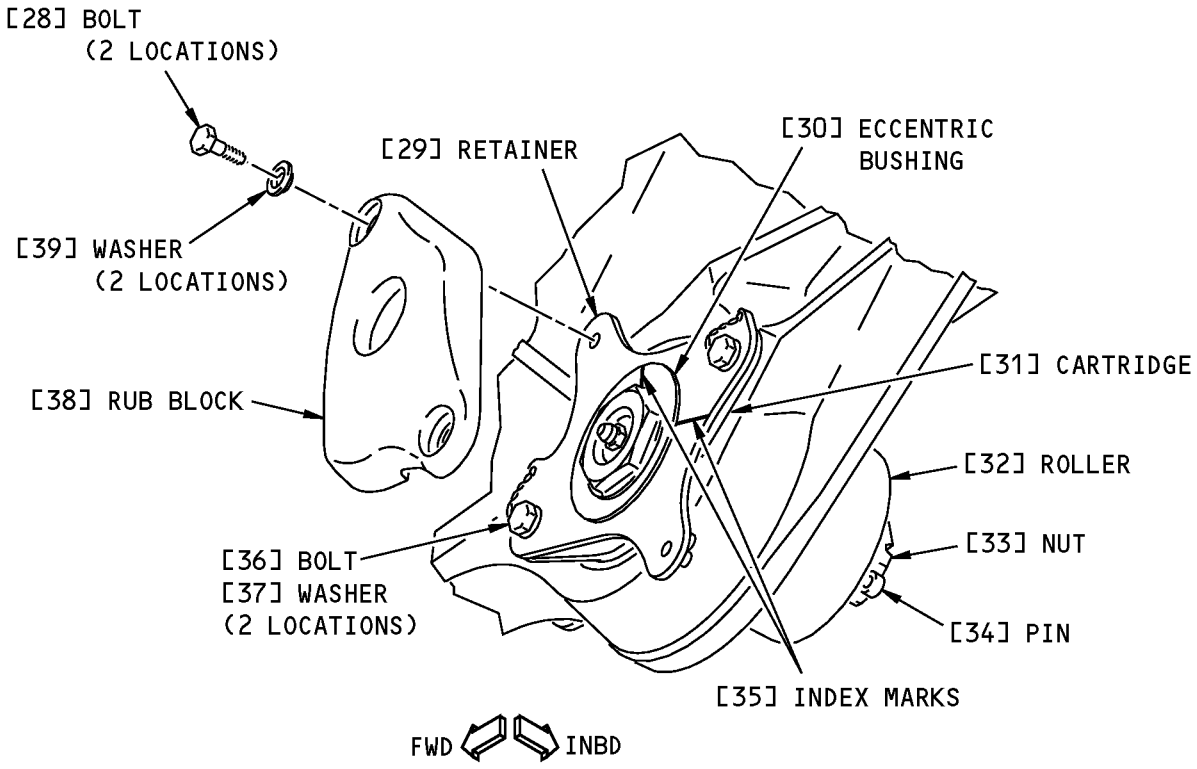

OUTBOARD CARRIAGE, OUTBOARD ROLLER CARTRIDGE

F

Inboard Trailing Edge Flap Adjustment
Figure 501 (Sheet 5 of 5)/27-51-11-990-804

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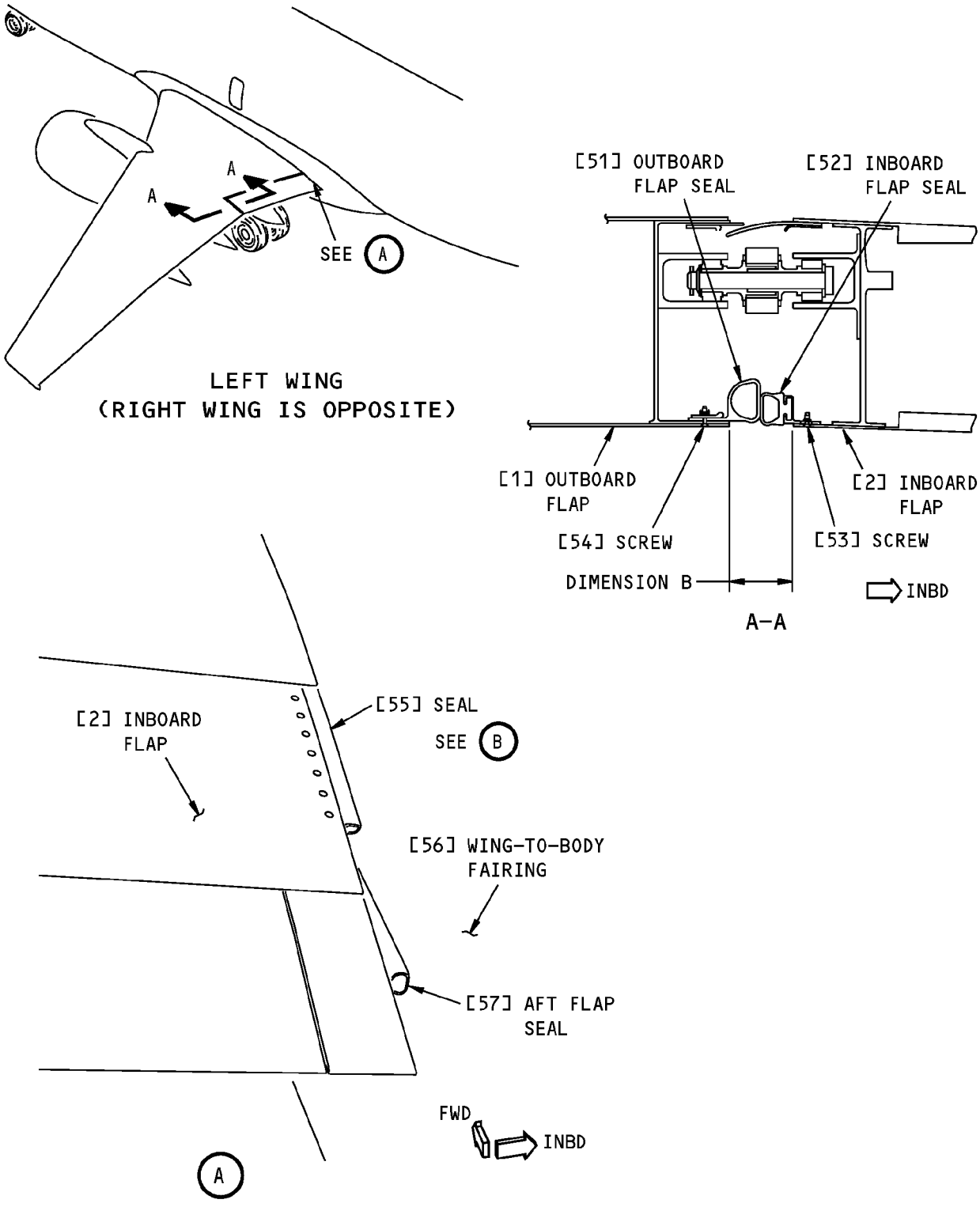

Inboard Flap Seal Adjustment
Figure 502 (Sheet 1 of 5)/27-51-11-990-805

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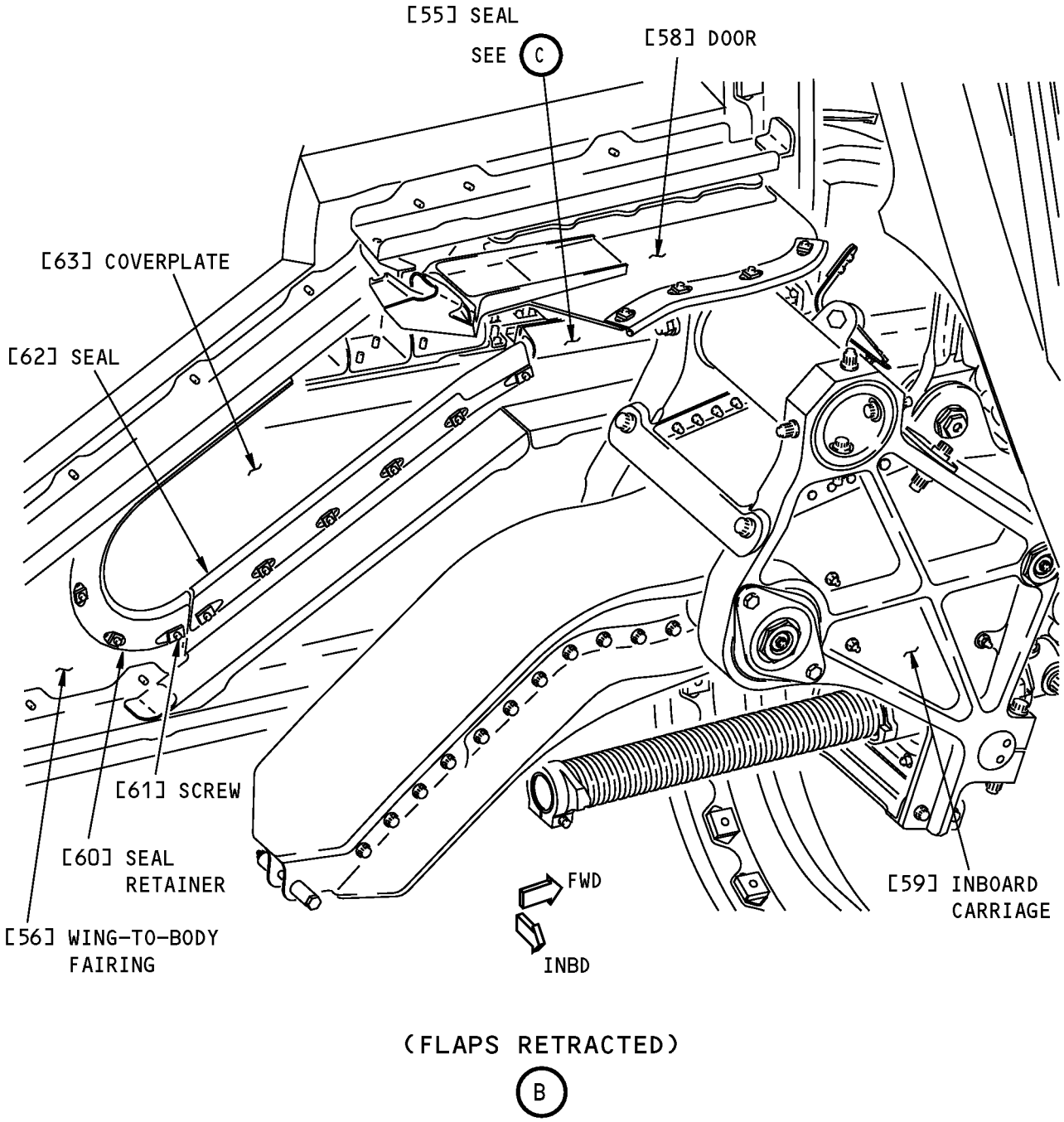

Inboard Flap Seal Adjustment
Figure 502 (Sheet 2 of 5)/27-51-11-990-805

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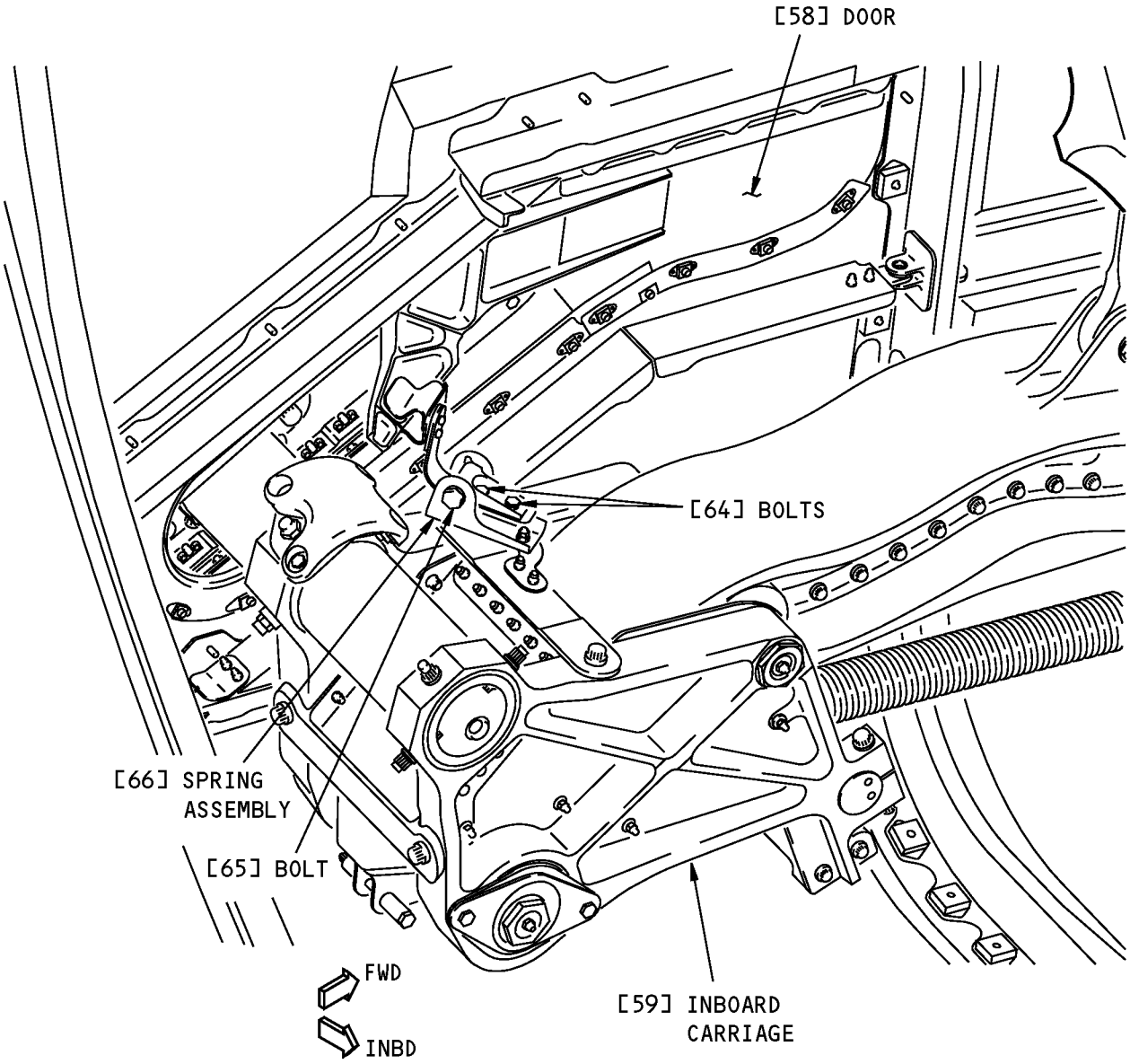

Inboard Flap Seal Adjustment
Figure 502 (Sheet 3 of 5)/27-51-11-990-805

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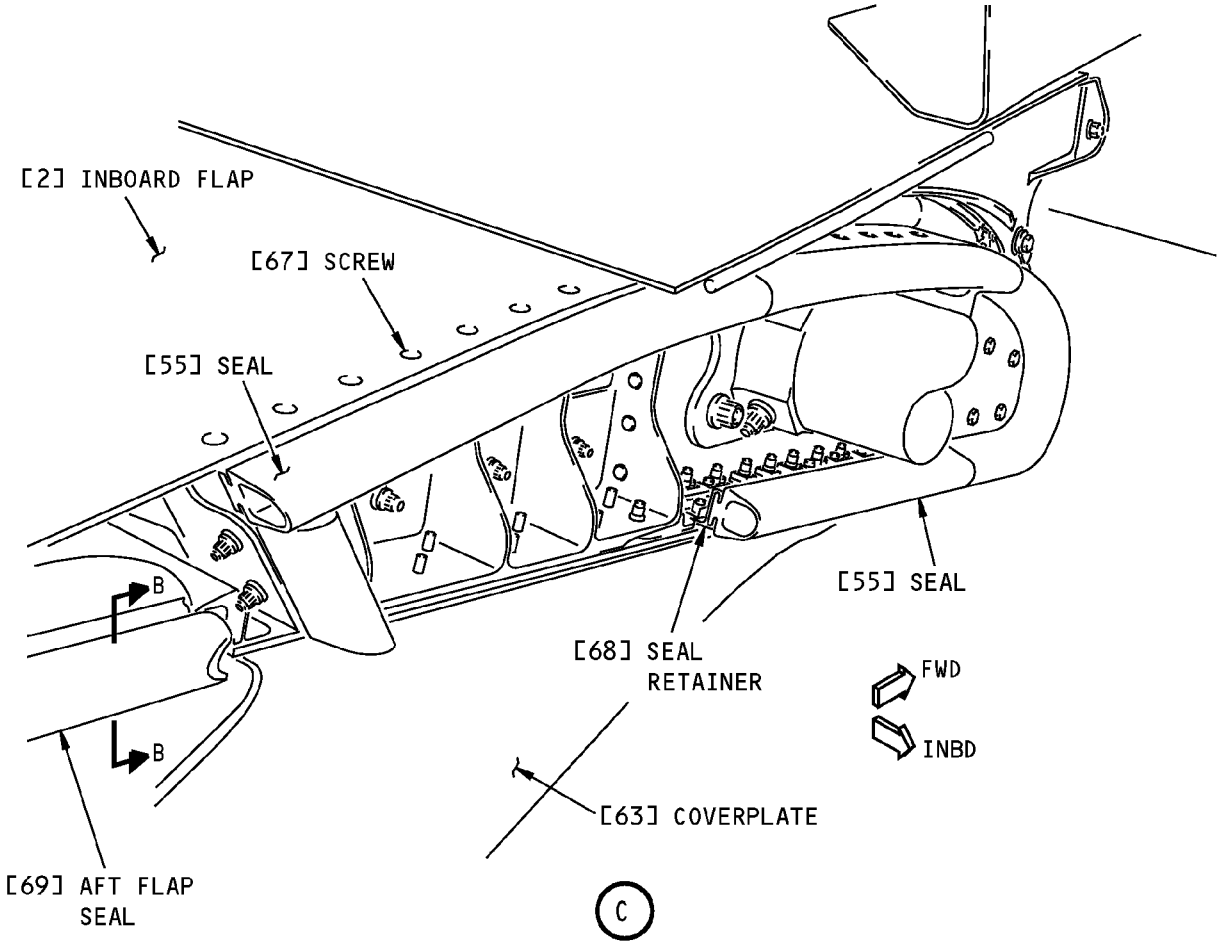

NOTE: WING-TO-BODY FAIRING
NOT SHOWN FOR CLARITY.

Inboard Flap Seal Adjustment
Figure 502 (Sheet 4 of 5)/27-51-11-990-805

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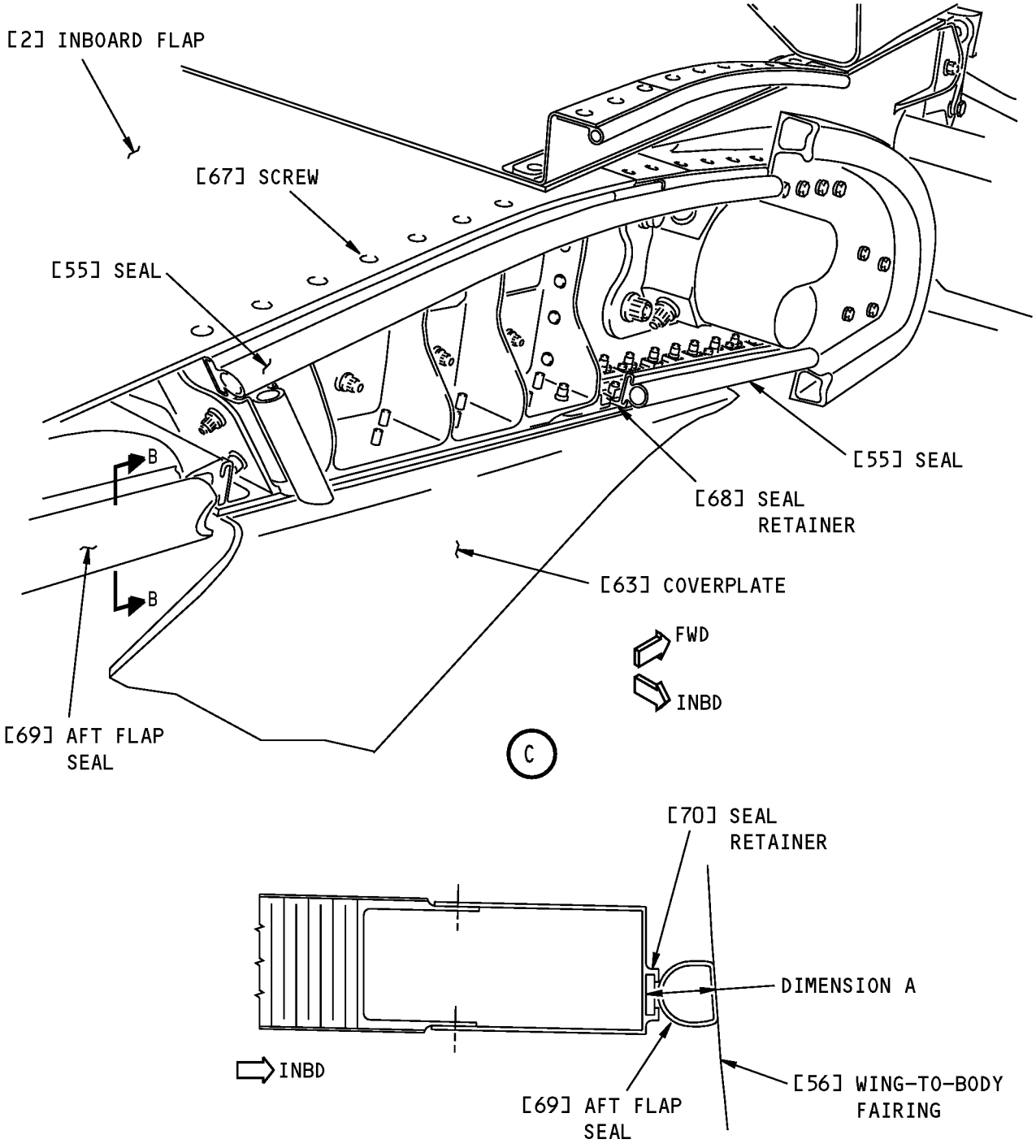

NOTE: WING-TO-BODY FAIRING
NOT SHOWN FOR CLARITY.

Inboard Flap Seal Adjustment
Figure 502 (Sheet 5 of 5)/27-51-11-990-805

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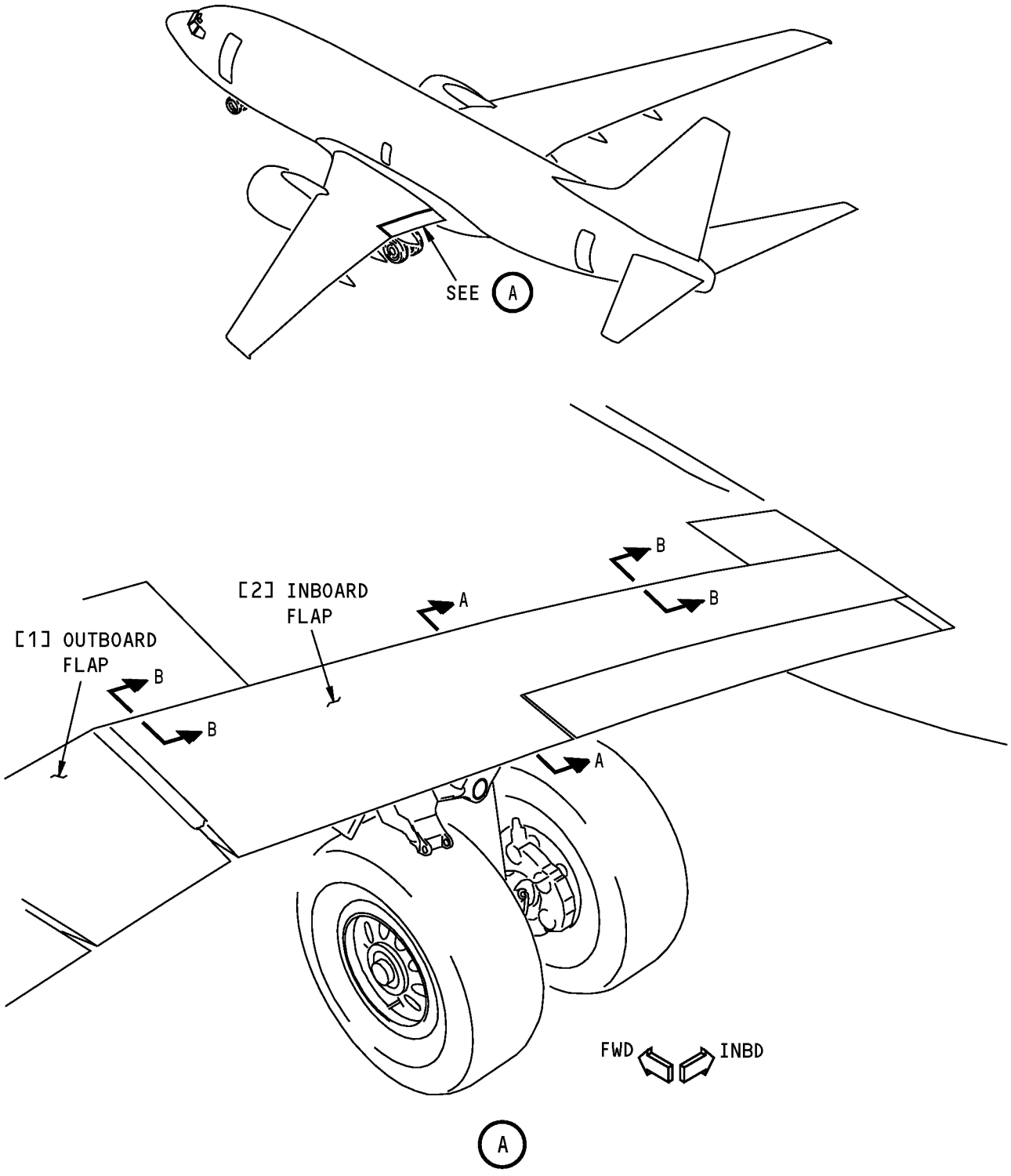

Inboard Trailing Edge Flap Clearances
Figure 503 (Sheet 1 of 2)/27-51-11-990-806

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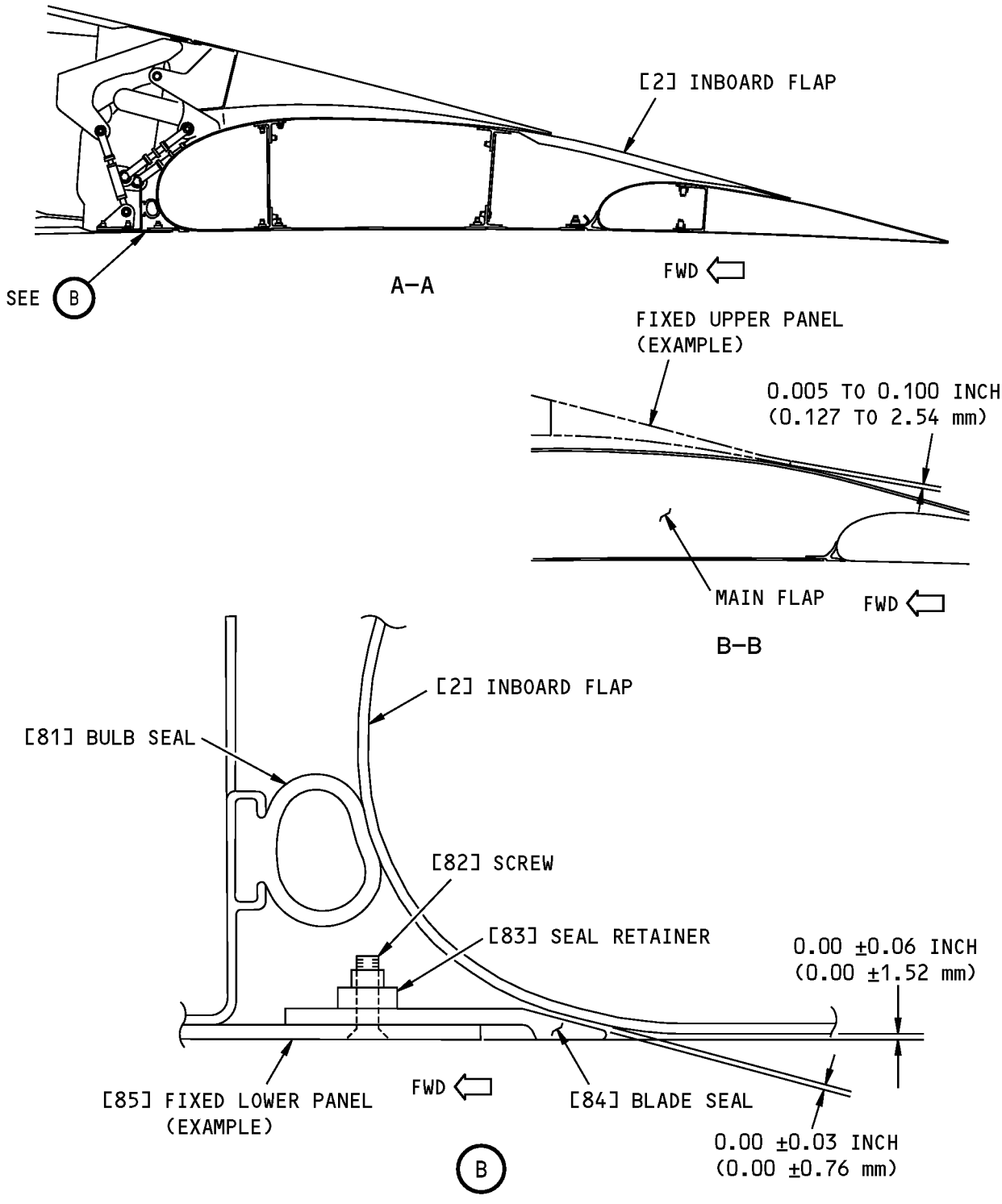

Inboard Trailing Edge Flap Clearances
Figure 503 (Sheet 2 of 2)/27-51-11-990-806

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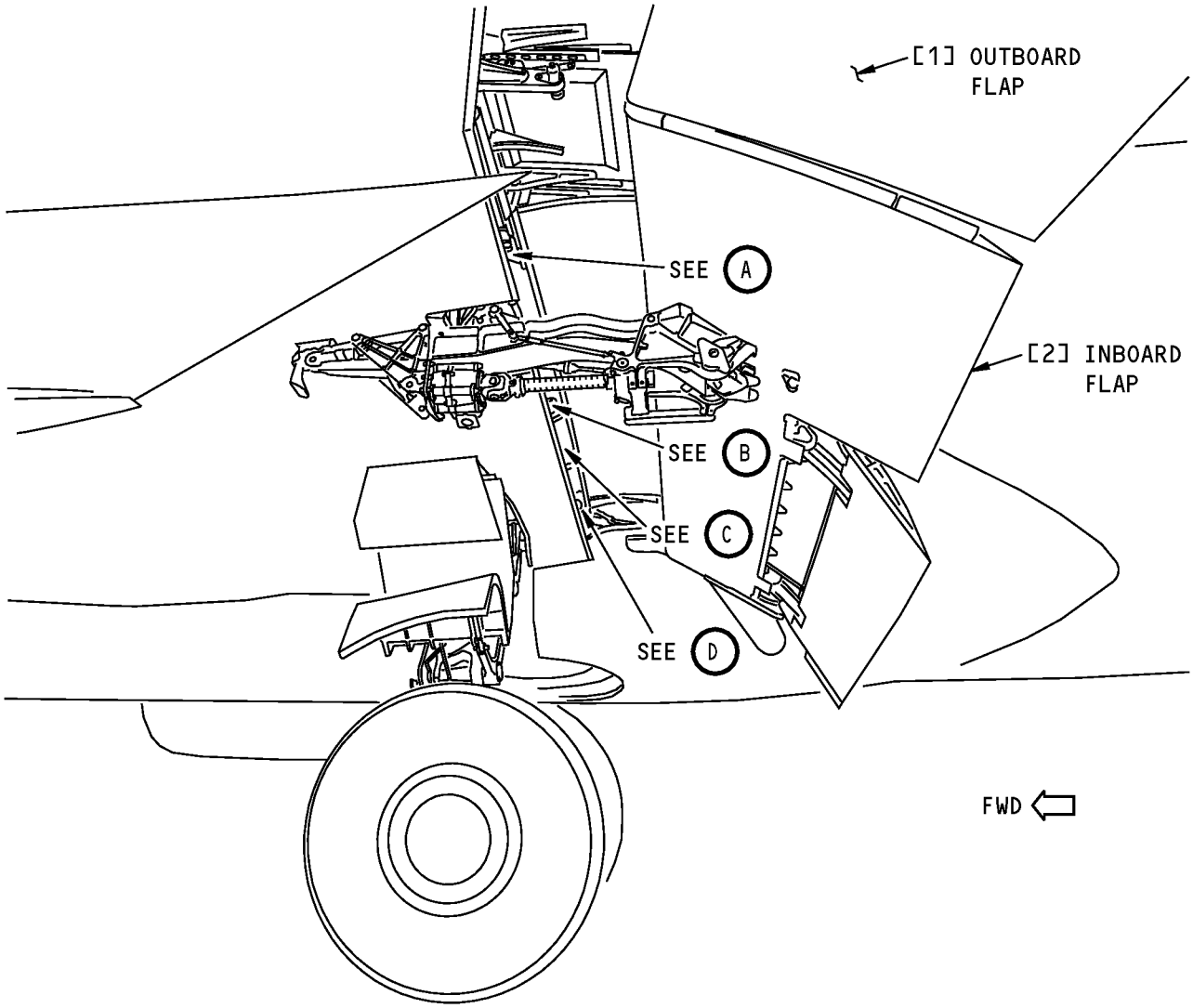

Inboard Fixed Panel Adjustment
Figure 504 (Sheet 1 of 5)/27-51-11-990-807

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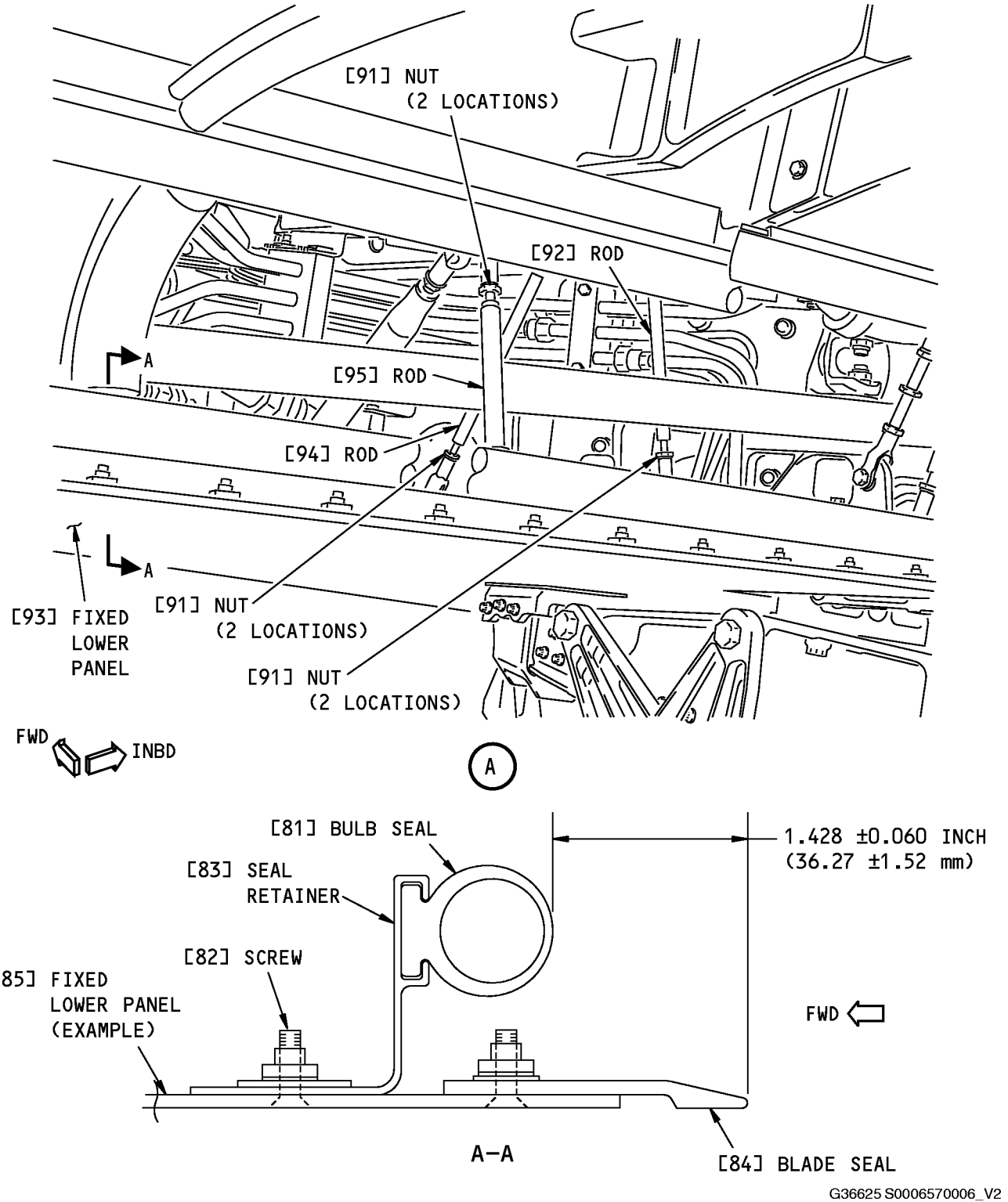

Inboard Fixed Panel Adjustment
Figure 504 (Sheet 2 of 5)/27-51-11-990-807

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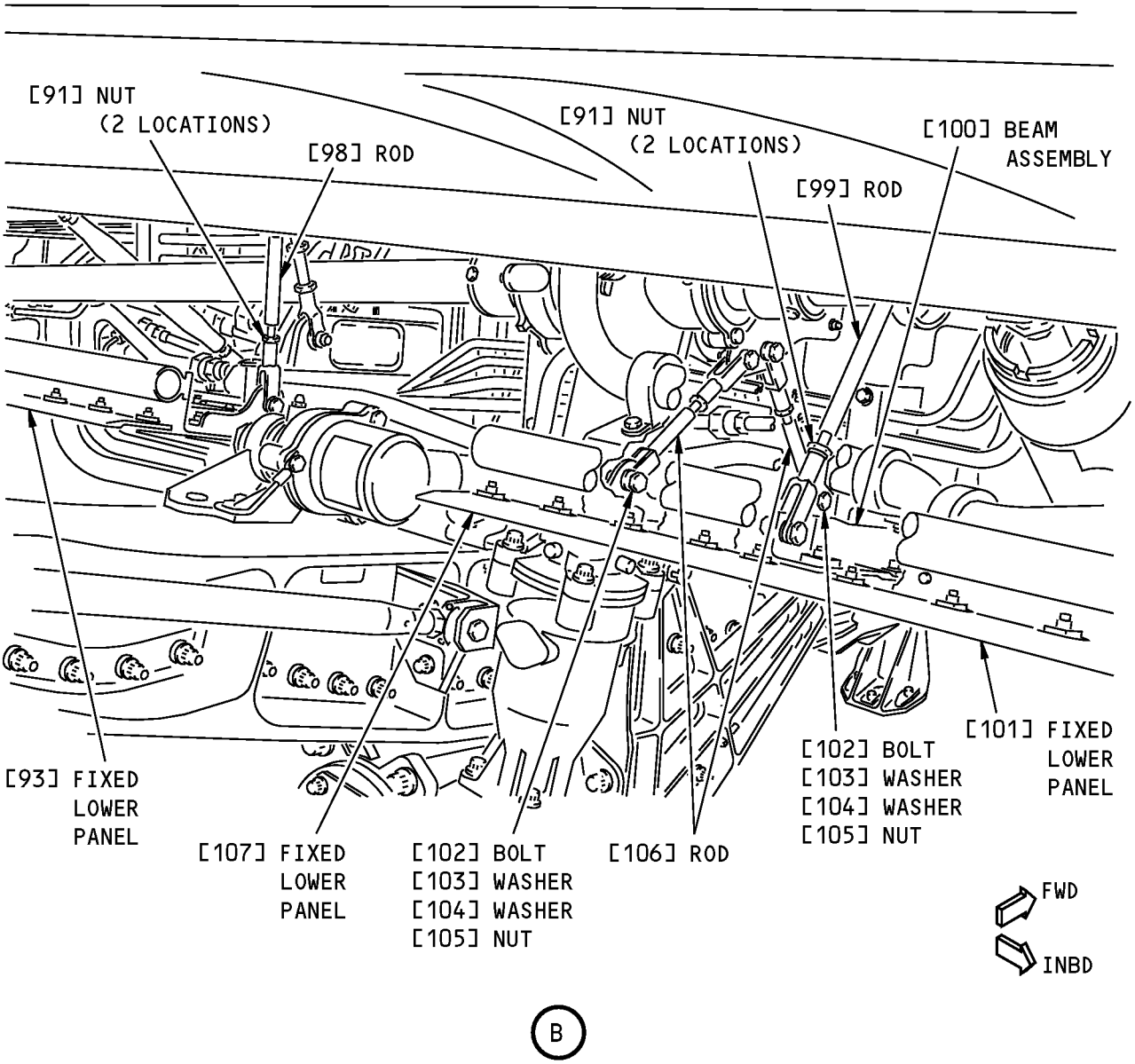

Inboard Fixed Panel Adjustment
Figure 504 (Sheet 3 of 5)/27-51-11-990-807

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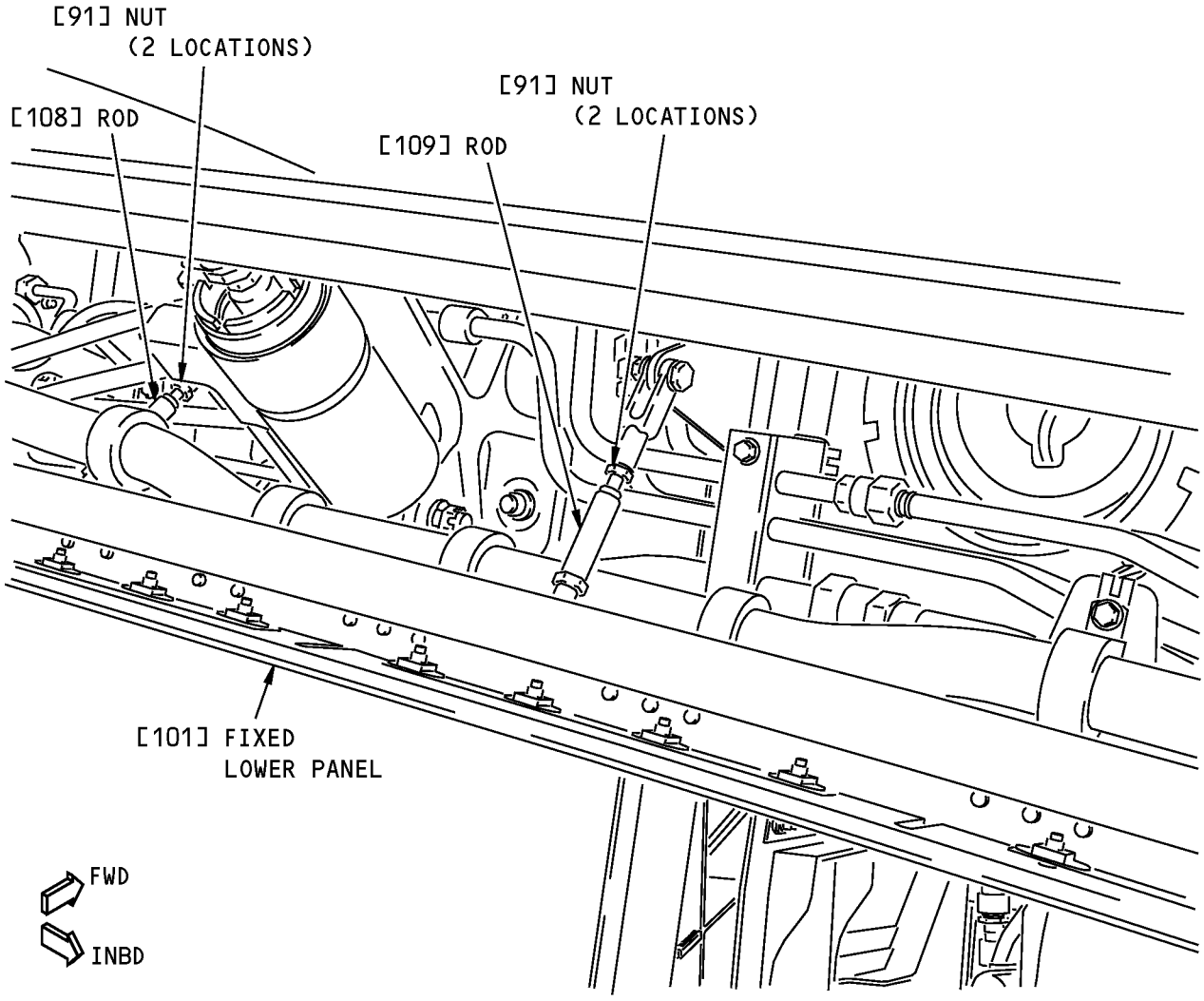

C

Inboard Fixed Panel Adjustment
Figure 504 (Sheet 4 of 5)/27-51-11-990-807

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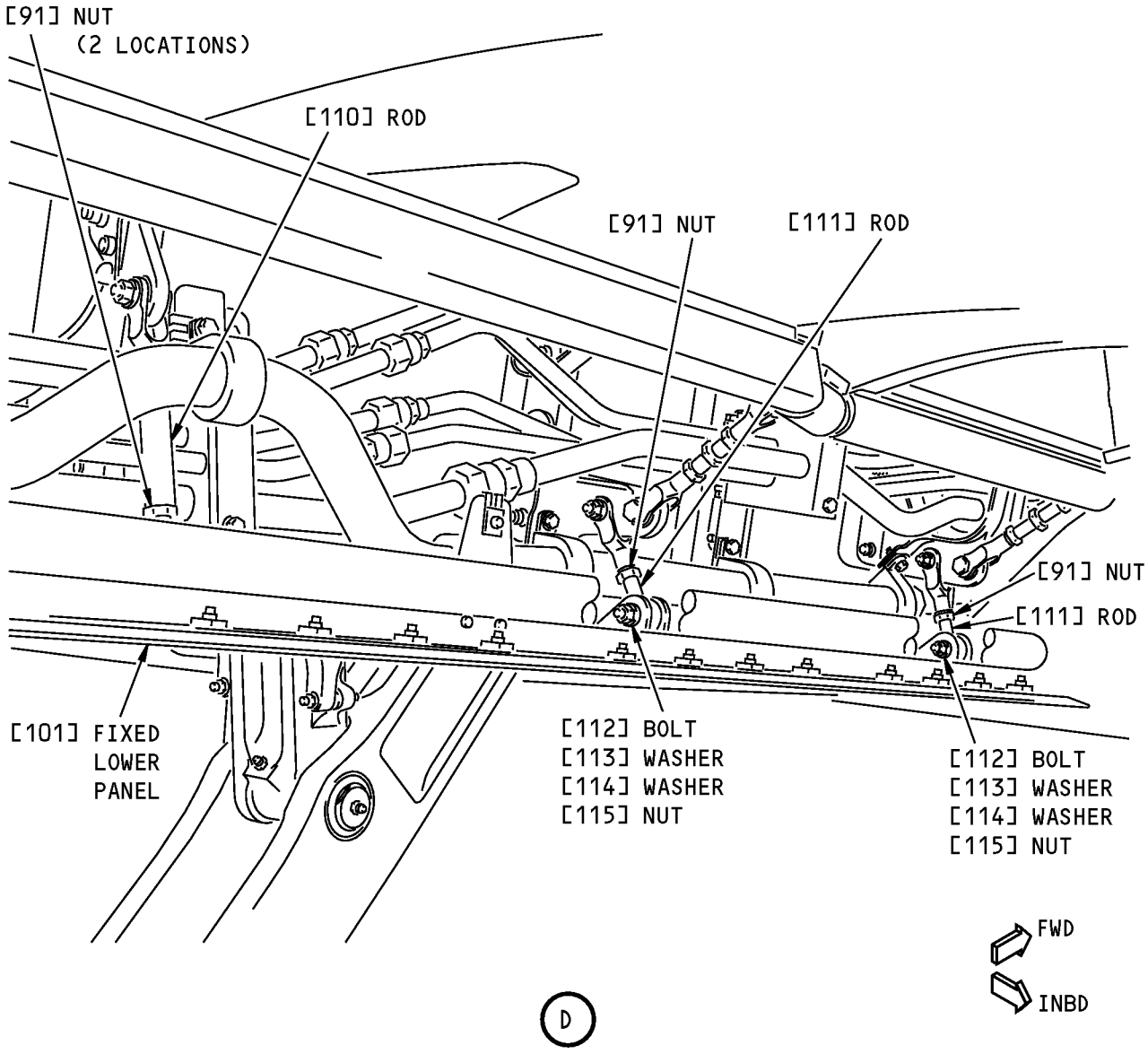

Inboard Fixed Panel Adjustment
Figure 504 (Sheet 5 of 5)/27-51-11-990-807

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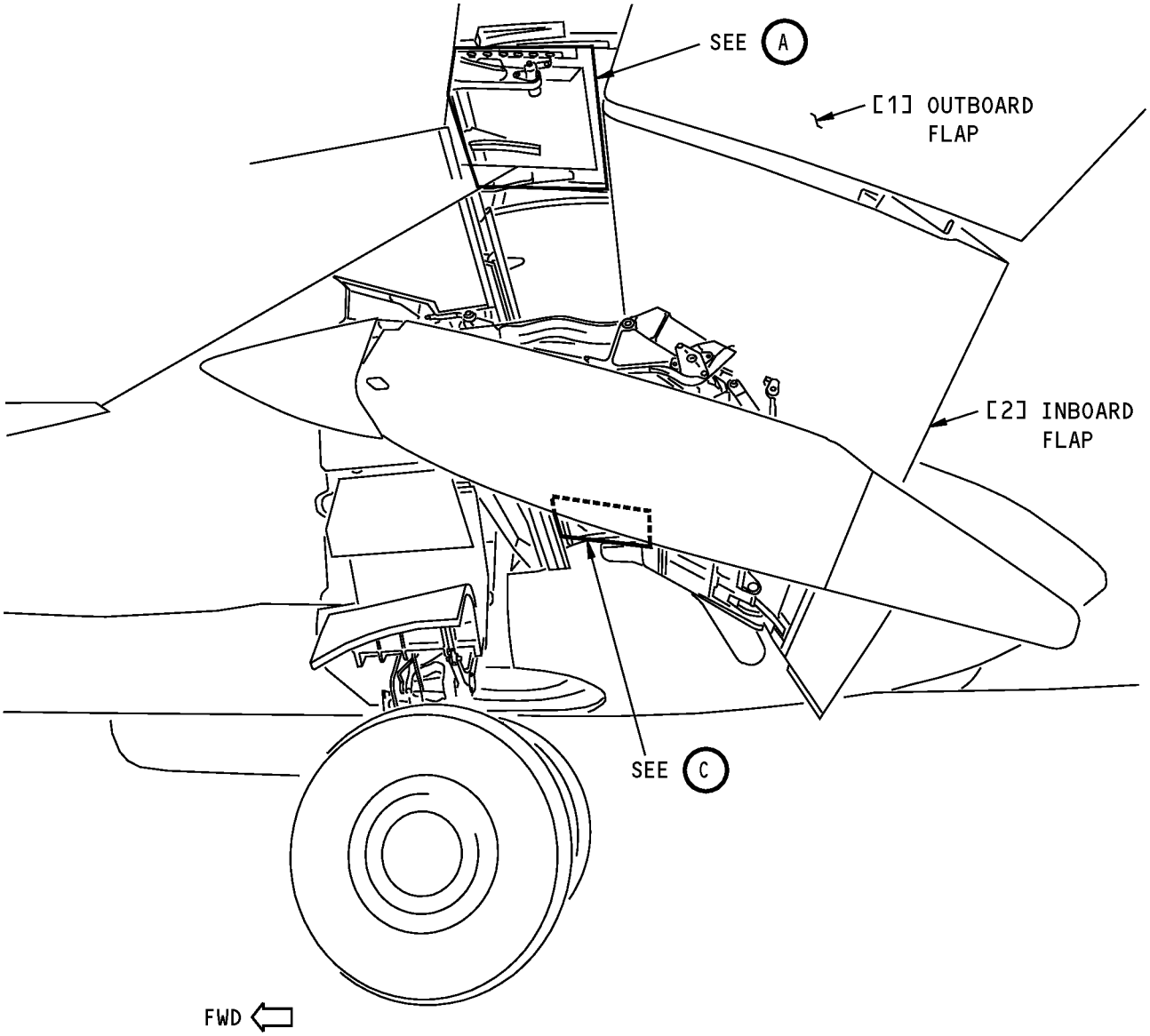

Inboard Fixed Upper Panel Adjustment
Figure 505 (Sheet 1 of 3)/27-51-11-990-809

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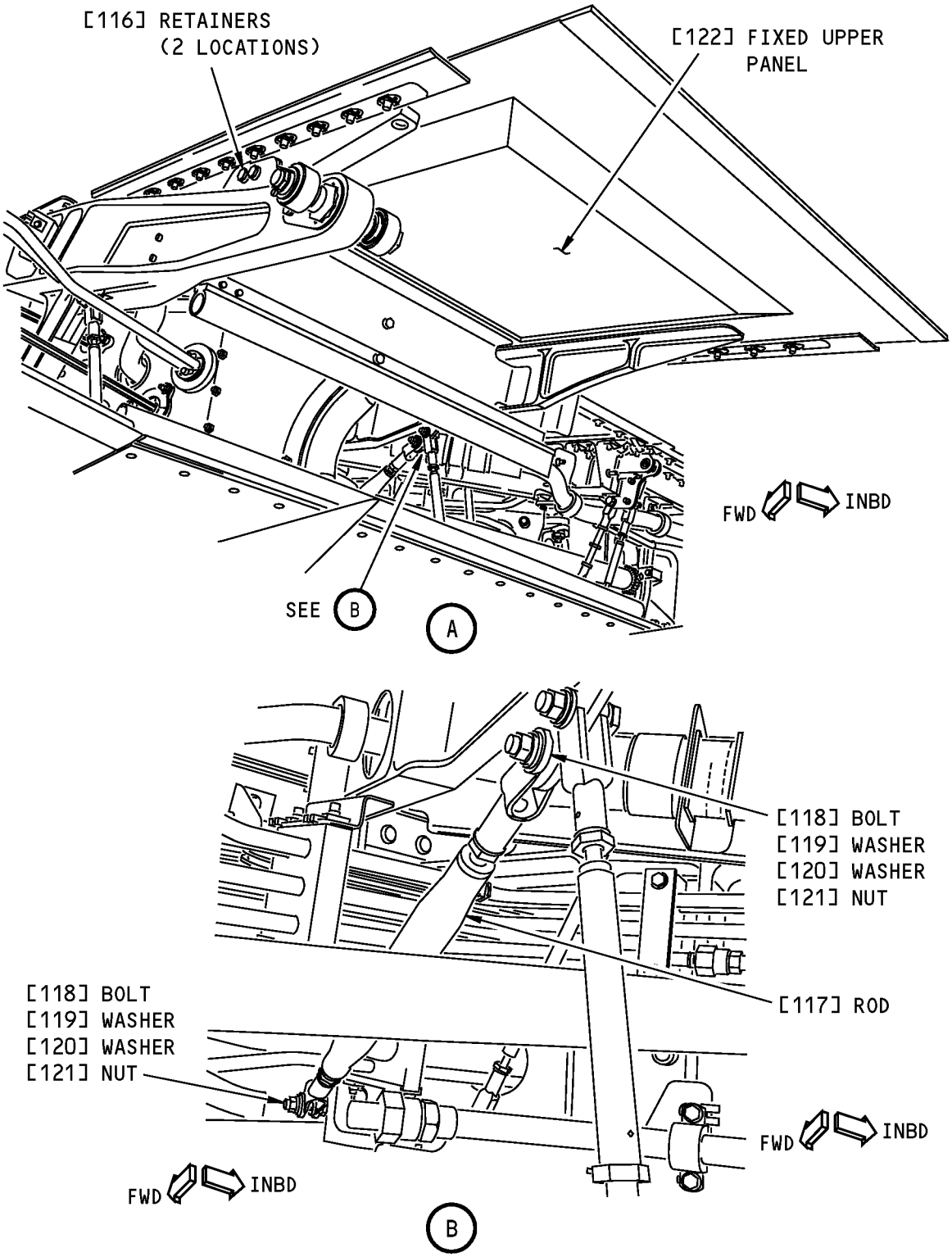

Inboard Fixed Upper Panel Adjustment
Figure 505 (Sheet 2 of 3)/27-51-11-990-809

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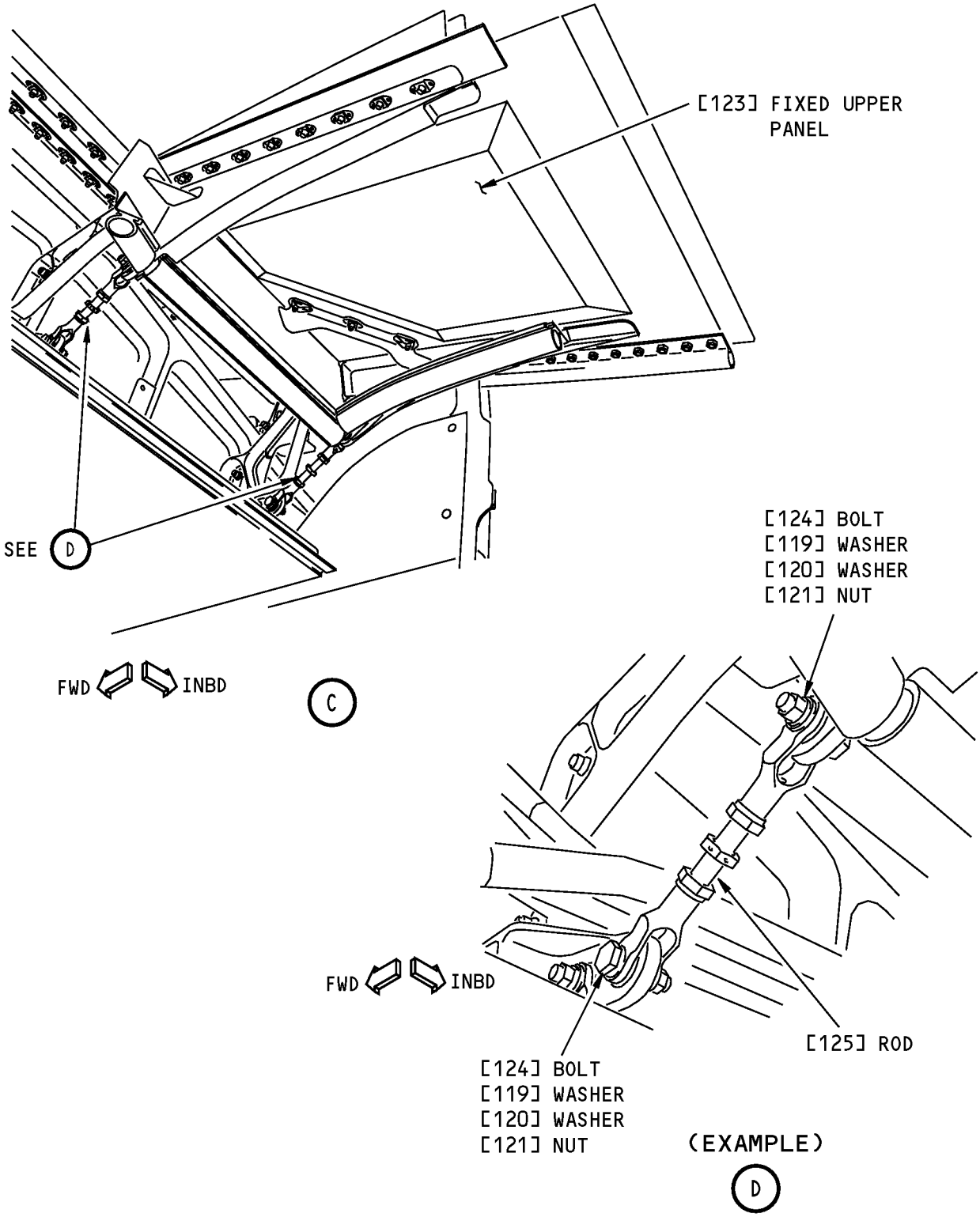

Inboard Fixed Upper Panel Adjustment
Figure 505 (Sheet 3 of 3)/27-51-11-990-809

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INBOARD AFT FLAP - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard aft flap

(2) An installation of the inboard aft flap.

B. The aft flap weighs approximately 60 pounds.

TASK 27-51-12-000-801

2. Inboard Aft Flap Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

B. Location Zones

Zone	Area
553	Left Wing - Inboard Flap
653	Right Wing - Inboard Flap

C. Prepare for the Removal

SUBTASK 27-51-12-860-003

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-12-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

D. Inboard Aft Flap Removal

SUBTASK 27-51-12-020-001

(1) At the outboard flap support, disconnect the crankshaft [3] from the aft flap drive rod [10]:

(a) Remove the nut [8], washer [7], bushing [6], washer [5] and bolt [4] that attach the crankshaft [3] to the aft flap drive rod [10].

SUBTASK 27-51-12-980-001

(2) Use the crankshaft [3] to manually move the aft flap assembly [2] to the extended position.

SUBTASK 27-51-12-020-002

(3) Disconnect the inboard and outboard aft flap pushrods [11]:

(a) Remove the nuts [18], washers [17], washers [15], bolts [14] and bushings [13] that attach the aft flap pushrod [11] to the aft flap assembly [2].

(b) Move the aft flap pushrod [11] away from the aft flap assembly [2].

SUBTASK 27-51-12-020-003

(4) Remove the aft flap assembly [2]:

NOTE: The aft flap assembly [2] weighs approximately 60 pounds.

(a) Support the aft flap assembly [2].

(b) Disconnect the aft flap tracks [21] from the aft flap assembly [2]:

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1) Remove the nuts [23], washers [24], washers [26], bolts [27] and bushings [25] that attach the aft flap tracks [21] to the aft flap assembly [2].
2) Move the aft flap tracks [21] forward, away from the aft flap assembly [2].

(c) Move the trailing edge of the aft flap assembly [2] down, until it is perpendicular to the main flap [1].

(d) Disengage the inboard and outboard rollers [28] from the programming tracks [38].

NOTE: Disengage the inboard roller [28] first.

——————— END OF TASK ———————

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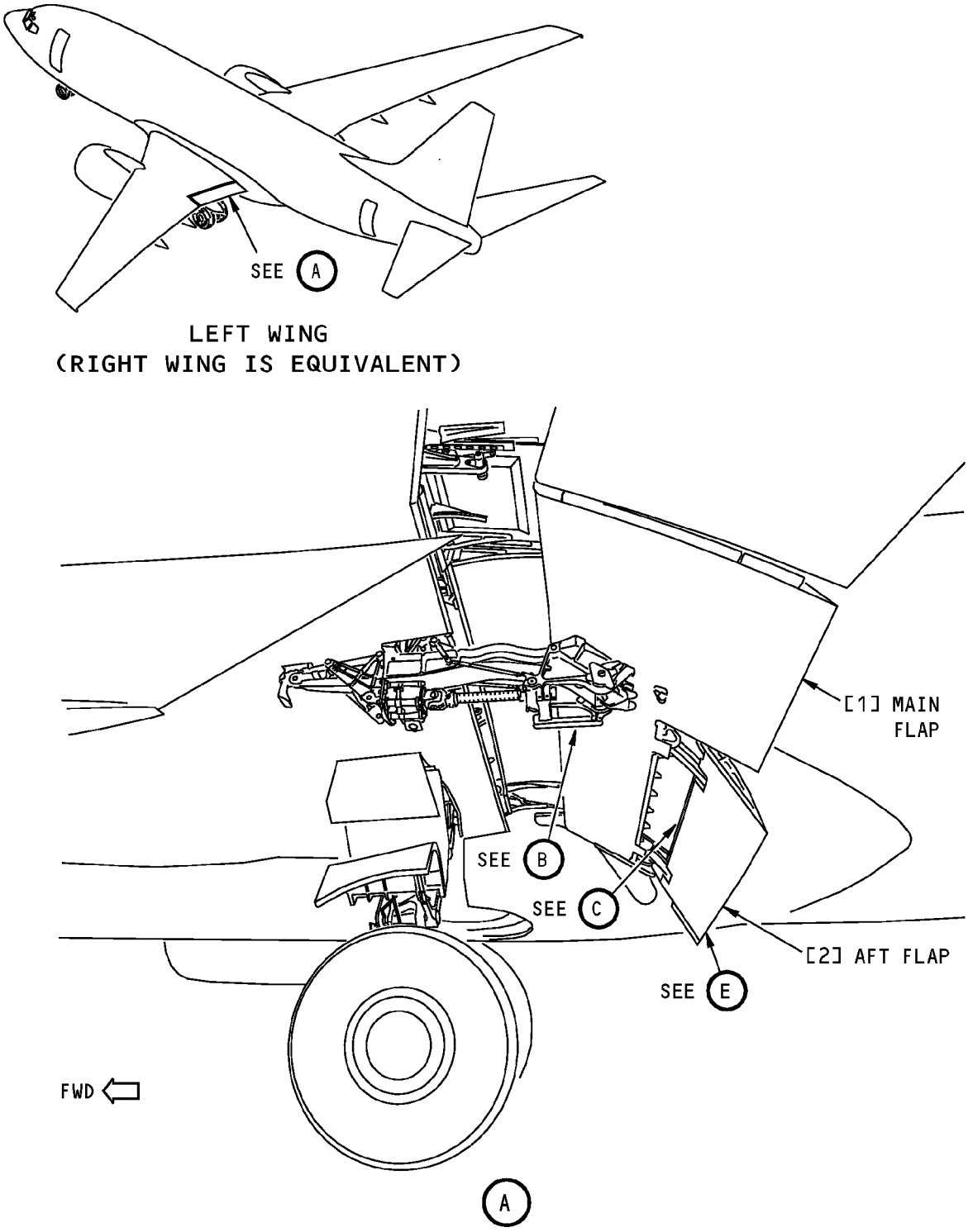

Inboard Aft Flap Installation
Figure 401 (Sheet 1 of 5)/27-51-12-990-801

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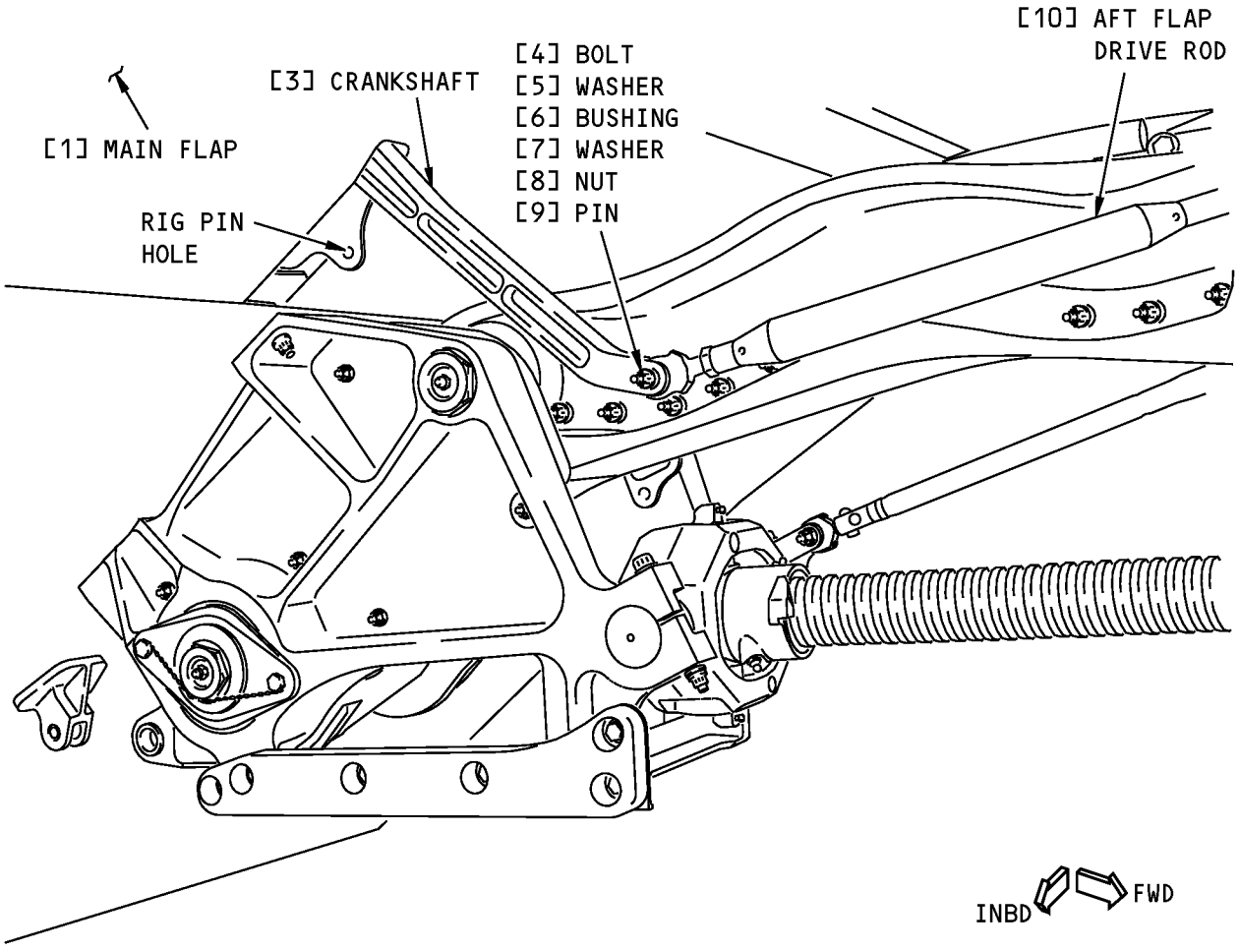

Inboard Aft Flap Installation
Figure 401 (Sheet 2 of 5)/27-51-12-990-801

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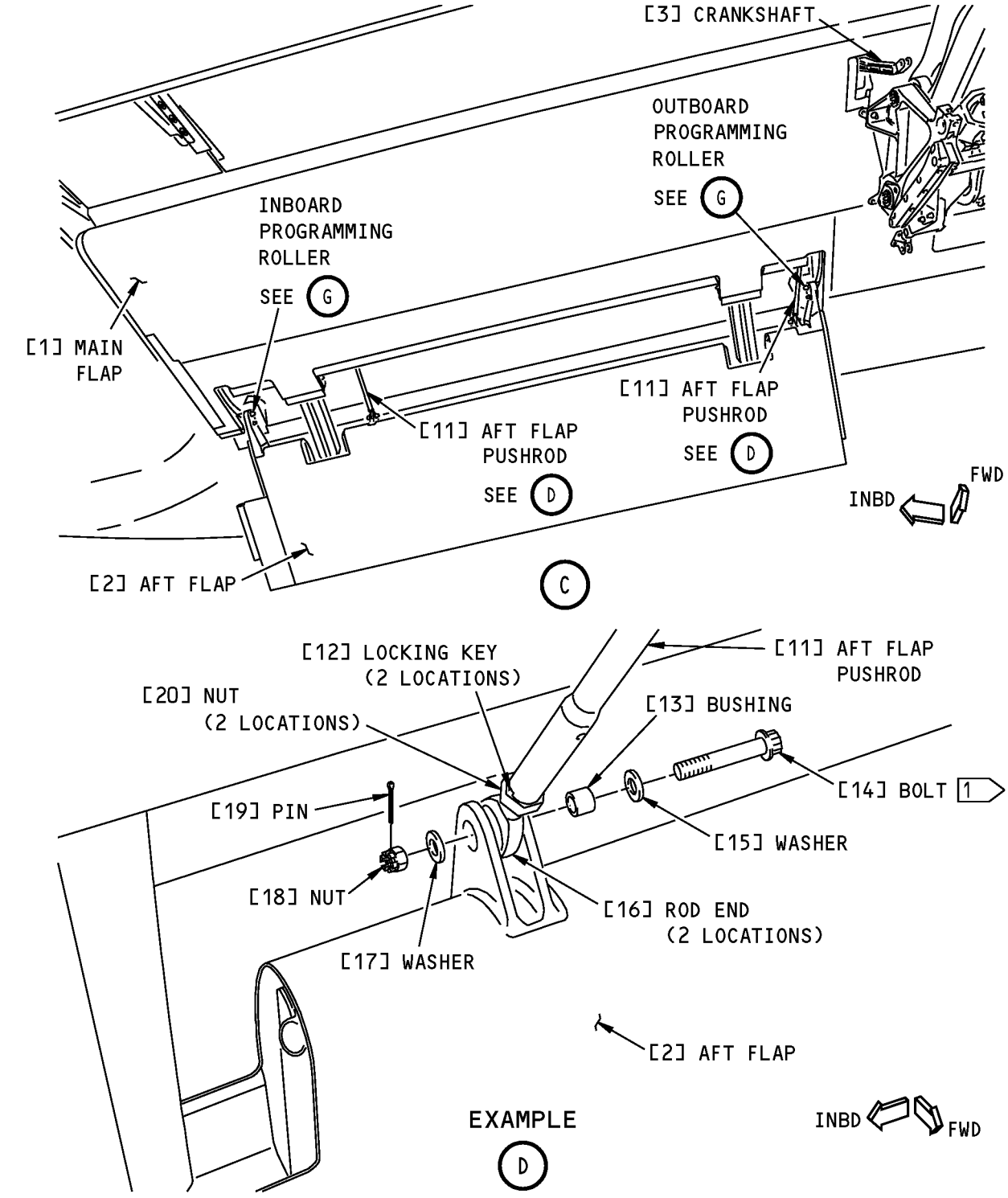

1 FOR THE OUTBOARD PUSHROD, THE BOLT HEAD IS INBOARD

Inboard Aft Flap Installation
Figure 401 (Sheet 3 of 5)/27-51-12-990-801

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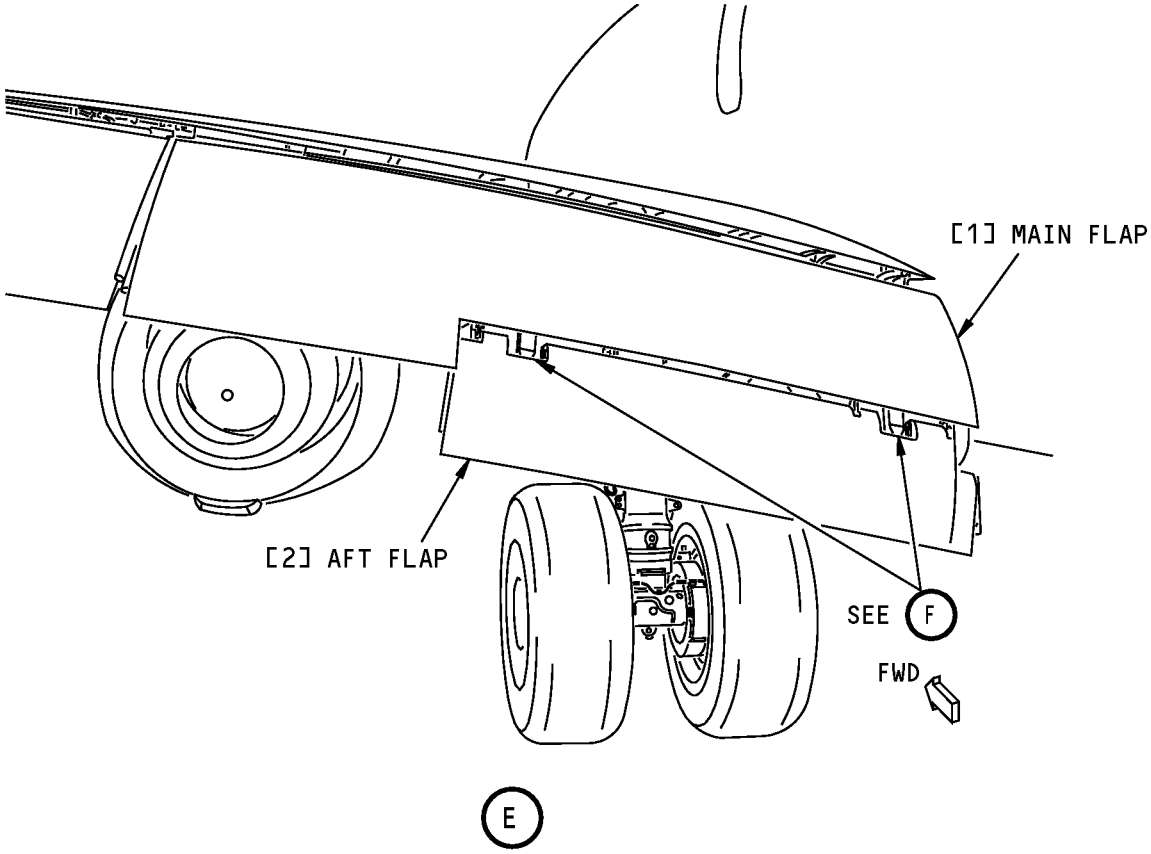

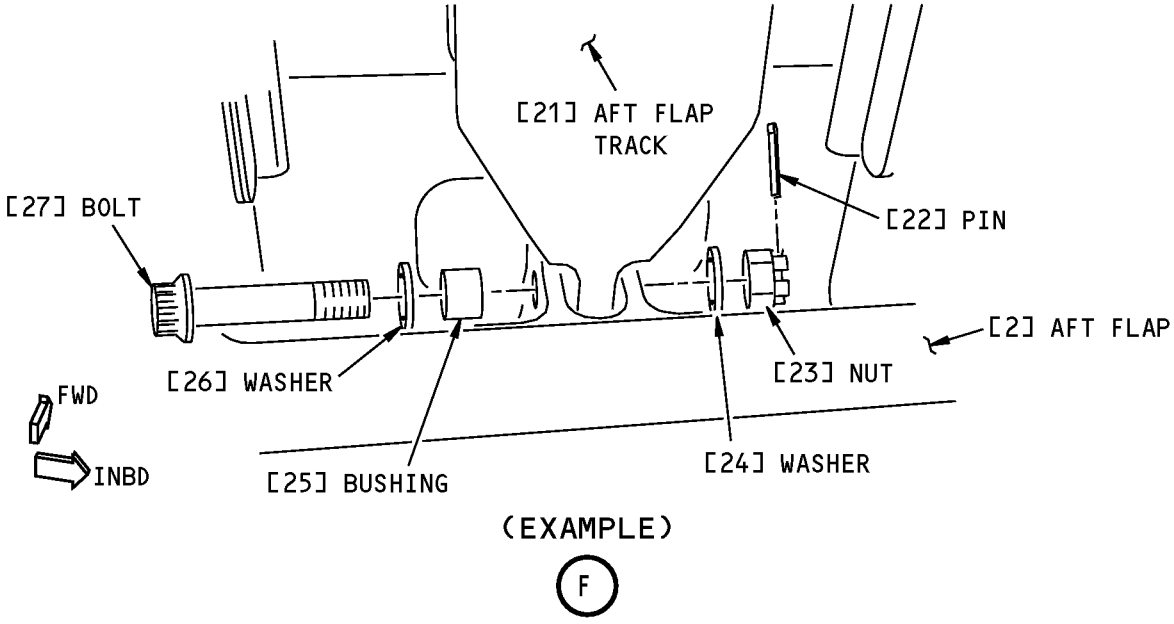

Inboard Aft Flap Installation
Figure 401 (Sheet 4 of 5)/27-51-12-990-801

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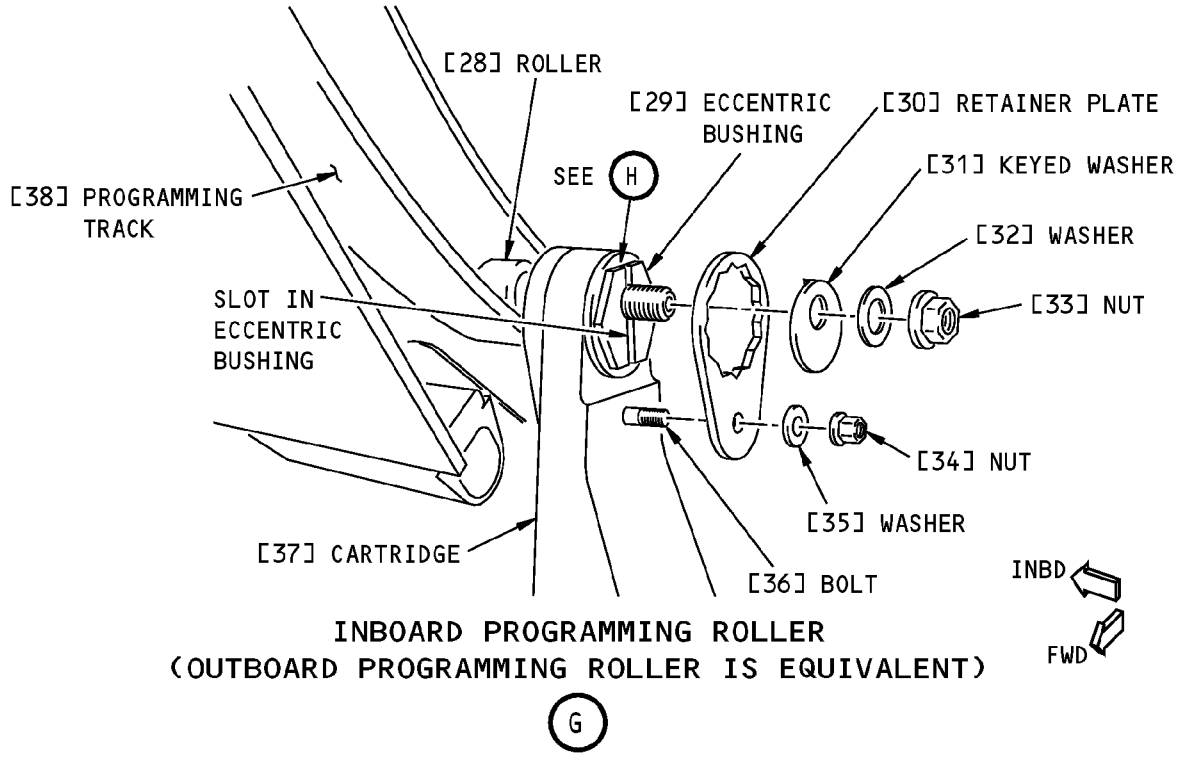

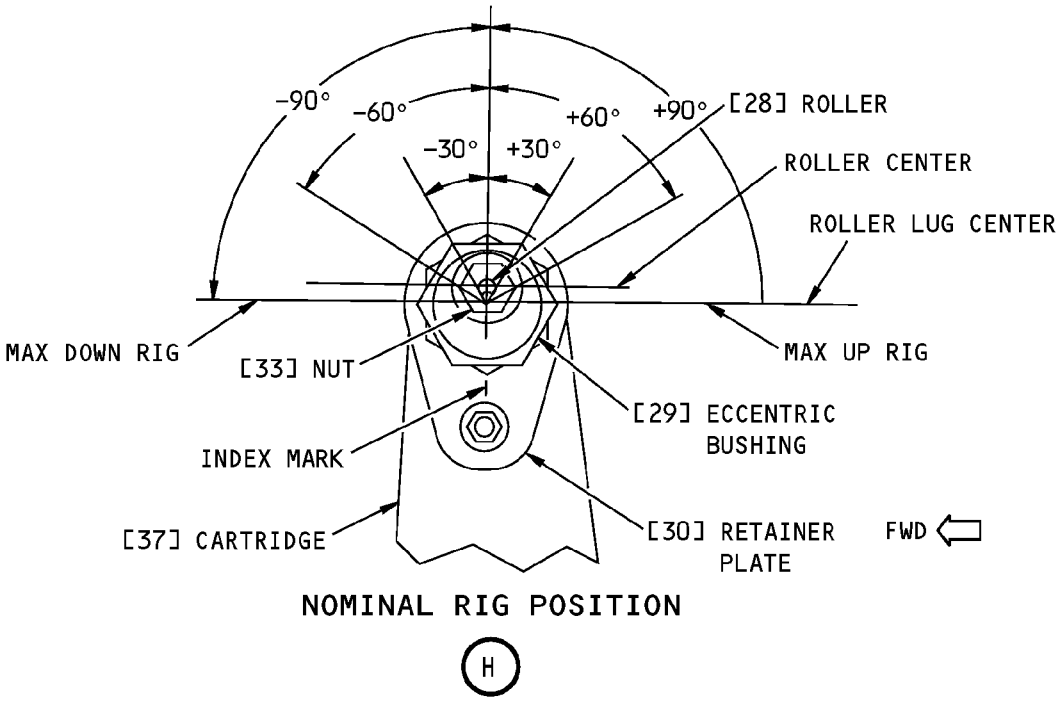

Inboard Aft Flap Installation
Figure 401 (Sheet 5 of 5)/27-51-12-990-801

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TASK 27-51-12-400-801

3. Inboard Aft Flap Installation

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-16-400-801	Inboard Aft Flap Track Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Flap assembly	27-51-12-01-010	HAP ALL
		27-51-12-01-015	HAP ALL
9	Pin	27-51-14-01-030	HAP ALL
19	Pin	27-51-14-02-010	HAP ALL
22	Pin	27-51-14-02-010	HAP ALL

D. Location Zones

Zone	Area
553	Left Wing - Inboard Flap
653	Right Wing - Inboard Flap

E. Prepare for the Installation

SUBTASK 27-51-12-820-001

(1) If you will not install the same aft flap assembly [2] and main flap [1], make sure the inboard and outboard rollers [28] are in the most forward position (Figure 401):

NOTE: With the rollers [28] in the most forward position, the slot in the eccentric bushing [29] will align with the index mark on the retainer plate [30].

(a) Remove the nut [34], washer [35] and retainer plate [30] that hold the eccentric bushing [29].

(b) Loosen the nut [33] on the roller [28].

(c) Turn the eccentric bushing [29] until the roller [28] is in the forward position and the slot aligns with the bolt [36].

NOTE: The bolt [36] will stay in its position.

(d) Apply sealant, A00247 to the threads of the bolt [36].

(e) Install the retainer plate [30] with the washer [35] and nut [34].

(f) Tighten the nut [33] on the roller [28] to 95-110 pound-inches.

SUBTASK 27-51-12-420-001

(2) Make sure the aft flap tracks are installed on the main flap [1] and are in the retracted position. If they are not installed, do this task: Inboard Aft Flap Track Installation, TASK 27-51-16-400-801.

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F. Inboard Aft Flap Installation

SUBTASK 27-51-12-420-002

(1) Install the aft flap assembly [2]:

(a) Hold the aft flap assembly [2] below and approximately perpendicular to the main flap [1].

(b) Engage the outboard roller [28] with the outboard programming track [38].

(c) Engage the inboard roller [28] with the inboard programming track [38].

(d) Lift the trailing edge of the aft flap assembly [2] and hold it in its usual position.

(e) Connect the aft flap assembly [2] to the aft flap tracks [21]:

1) Move the aft flap tracks [21] aft until they align with the aft flap assembly [2].

2) Install the bushings [25], bolts [27], washers [26], washers [24] and nuts [23] that attach the aft flap tracks [21] to the aft flap assembly [2].

3) Tighten the nuts [23] to 100-150 pound-inches 11.3 to 16.9 newton-meters).

4) Install the pins [22] in the nuts [23].

SUBTASK 27-51-12-020-004

(2) Connect the inboard and outboard aft flap pushrod [11]:

(a) Carefully pull the aft flap pushrod [11] through the cutouts to move them to the extended position.

NOTE: The crankshaft [3] will move when you pull on the aft flap pushrod [11].

(b) Install the bushings [13], bolts [14], washers [15], washers [17], and nuts [18] that attach the aft flap pushrod [11] to the aft flap assembly [2].

(c) Tighten the nuts [18] to 50-80 pound-inches (5.6 to 9.0 newton-meters).

(d) Install the pins [19] in the nuts [18].

SUBTASK 27-51-12-980-002

(3) Use the crankshaft [3] to manually move the aft flap assembly [2] to the retracted position.

G. Inboard Aft Flap Adjustment

SUBTASK 27-51-12-480-001

(1) Install the rig pin in the crankshaft [3].

SUBTASK 27-51-12-220-001

(2) Measure the distance between the trailing edge of the aft flap assembly [2] and the trailing edge of the upper cove panel [61] on the main flap [1] (Figure 402).

NOTE: Measure the distance aft of the inboard and outboard aft flap pushrods [11].

(a) At the outboard pushrod [11], make sure the distance is 9.2745 ±0.0600 inches (235.57 ±1.52 millimeters).

(b) At the inboard pushrod [11], make sure the distance is 9.2319 ±0.0600 inches (234.49 ±1.52 millimeters).

SUBTASK 27-51-12-820-002

(3) If the distance at the inboard or outboard pushrod [11] is not in the limit, then adjust the length of the applicable aft flap pushrod [11] (Figure 401):

(a) Remove the rig pin from the crankshaft [3].

(b) Use the crankshaft [3] to manually extend the aft flap assembly [2] to the extended position.

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(c) Adjust the length of the applicable aft flap pushrod [11]:

NOTE: For each 90 degree turn of the aft flap pushrod [11], the trailing edge of the aft flap will move 0.04 inches (1.02 millimeters)

1) Loosen the nuts [20] on the aft flap pushrod [11].
2) Adjust the length of the aft flap pushrod [11].
3) Apply a thin layer of compound, C00913 to the threads of the rod ends [16].
4) Tighten the nuts [20].
5) Install lockwire on the nuts [20] and the locking keys [12].

(d) Use the crankshaft [3] to manually retract the aft flap assembly [2] to the retracted position.

(e) Install the rig pin in the crankshaft [3].

(f) Make sure the distance from the trailing edge of the aft flap assembly [2] to the trailing edge of the upper cove panel [61] is in the limit.

SUBTASK 27-51-12-980-003

(4) Support the aft flap assembly [2] to make sure the programming rollers [28] touch the bottom surface of the programming tracks [38] and the aft rollers for the aft flap tracks [21] touch the top surface of the tracks.

NOTE: This is the position the rollers will be in with airloads applied to the aft flap assembly [2].

SUBTASK 27-51-12-220-002

(5) At the outboard end of the aft flap assembly [2], measure the vertical alignment at the trailing edge of the aft flap assembly [2] and the main flap [1] (Figure 402).

SUBTASK 27-51-12-820-003

(6) If the vertical alignment of the trailing edge is not in the limit of 0.000 ±0.100 inch (0.000 ±2.54 millimeters), then adjust the rollers [28] for the inboard and outboard programming tracks [38] (Figure 401):

NOTE: Make sure you keep the two rollers [28] adjusted to the same position.

(a) Remove the rig pin from the crankshaft [3].

(b) Use the crankshaft [3] to manually extend the aft flap assembly [2] to the extended position.

(c) Adjust the position of the rollers [28]:

1) Remove the nut [34], washer [35] and retainer plate [30] that hold the eccentric bushing [29].
2) Loosen the nut [33] on the roller [28].
3) Turn the eccentric bushing [29] to adjust the position of the roller [28].

NOTE: Refer to (Table 401) to determine how far you must turn the eccentric bushing [29].

Table 401/27-51-12-993-803 Programming Roller Eccentric Bushing Adjustment

Eccentric Bushing Position	Aft Flap Trailing Edge Movement Inches (Millimeters)
Nominal to +30	+0.046 (+1.168)
+30 to +60	+0.034 (+0.864)
+60 to +90	+0.013 (+0.330)
Nominal to -30	-0.046 (-1.168)

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(Continued)

Eccentric Bushing Position	Aft Flap Trailing Edge Movement Inches (Millimeters)
-30 to -60	-0.034 (-0.864)
-60 to -90	-0.013 (-0.330)

4) Apply sealant, A00247 to the threads of the bolt [36].

5) Install the retainer plate [30] with the washer [35] and nut [34].

6) Tighten the nut [34] on the roller [28] to 95-110 pound-inches (10.7 to 12.4 newton-meters).

(d) Use the crankshaft [3] to manually retract the aft flap assembly [2] to the retracted position.

(e) Install the rig pin in the crankshaft [3].

(f) Make sure the vertical alignment of the trailing edge of the aft flap assembly [2] and the main flap [1] is in the limit.

SUBTASK 27-51-12-220-003

(7) Measure the clearance between the upper cove panel [61] on the main flap [1] and the upper surface of the aft flap assembly [2] (Figure 402).

NOTE: Measure the clearance at all of the cove panel supports [62] and at the aft flap roller fittings [76].

SUBTASK 27-51-12-820-004

(8) If the clearance between the main flap [1] and the aft flap assembly [2] is not in the limit of 0.010 +0.100/-0.005 inch (0.254 +2.54/-0.12 millimeters), then change the thickness of the shims [75] on the cove panel support [62] and the aft flap roller fittings [76]:

(a) Remove the rig pin from the crankshaft [3].

(b) Use the crankshaft [3] to manually extend the aft flap assembly [2] until you can get access to the fasteners for the shims [75] and shims [77].

(c) If it is necessary, change the thickness of the shims [75] on the cove panel supports [62]:

1) Remove the nuts [74], washers [73] and bolts [72] that attach the upper cove panel [61] to the cove panel support [62].

2) Remove the shim [75] from the cove panel support [62] and the upper cove panel [61].

3) Change the thickness of the shim [75].

NOTE: The maximum permitted thickness of the shim [75] is 0.10 inch (2.54 millimeters).

4) Apply sealant, A00247 to the mating surfaces of the shim [75].

5) Put the shim [75] in its position between the cove panel support [62] and the upper cove panel [61].

6) Apply a layer of compound, C00913 to the shank and threads of the bolts [72].

7) Install the bolts [72], washers [73] and nuts [74].

(d) If it is necessary, change the thickness of the shims [77] on the aft flap roller fittings [76]:

1) Remove the nuts [80], washers [79] and bolts [78] that attach the upper cove panel [61] to the aft flap roller fitting [76].

2) Remove the shims [77] from the aft flap roller fitting [76] and the upper cove panel [61].

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3) Change the thickness of the shim [77].

NOTE: The maximum permitted thickness of the shim [77] is 0.10 inch (2.54 millimeters).

4) Apply sealant, A00247 to the mating surfaces of the shim [77].

5) Put the shim [77] in its position between the aft flap roller fitting [76] and the upper cove panel [61].

6) Apply a layer of compound, C00913 to the shank and threads of the bolts [78].

7) Install the bolts [78], washers [79] and nuts [80].

(e) Use the crankshaft [3] to manually retract the aft flap assembly [2] to the retracted position.

(f) Install the rig pin in the crankshaft [3].

(g) Make sure the clearance between the main flap [1] and the aft flap assembly [2] is in the limit.

SUBTASK 27-51-12-220-004

(9) Measure the clearance between the lower cove panel [68] on the main flap [1] and the lower surface of the aft flap assembly [2].

NOTE: Measure the clearance at the two lower cove panel supports [62].

SUBTASK 27-51-12-820-005

(10) If the clearance between the main flap [1] and the aft flap assembly [2] is not in the limit of 0.000 ±0.060 inch (0.000 ±1.52 millimeters), then change the thickness of the shims [81] on the lower cove panel [68] support:

(a) Remove the rig pin from the crankshaft [3].

(b) Use the crankshaft [3] to manually extend the aft flap assembly [2] until you can get access to the fasteners for the shims [81].

(c) Change the thickness of the shim [81] on the cove panel supports [62]:

1) Remove the nuts [71], washers [70], and bolts [69] that attach the lower cove panel [68] to the cove panel support [62].

2) Remove the shim [81] from the cove panel support [62] and the lower cove panel [68].

3) Change the thickness of the shim [81].

NOTE: The maximum permitted thickness of the shim [81] is 0.10 inch (2.54 millimeters).

4) Apply sealant, A00247 to the mating surfaces of the shim [81].

5) Put the shim [81] in its position between the cove panel support [62] and the lower cove panel [68].

6) Apply a layer of compound, C00913 to the shank and threads of the bolts [69].

7) Install the bolts [69], washers [70] and nuts [71].

(d) Use the crankshaft [3] to manually retract the aft flap assembly [2] to the retracted position.

(e) Install the rig pin in the crankshaft [3].

(f) Make sure the clearance between the main flap [1] and the aft flap assembly [2] is in the limit.

SUBTASK 27-51-12-220-005

(11) At the inboard end of the aft flap assembly [2], measure the compression of the seal [82] on the aft side of the main flap [1]:

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(a) Measure and record the distance between the trailing edge of the aft flap assembly [2] and the lower cove panel [68].

NOTE: This distance is referred to as Dimension A.

(b) Remove the rig pin from the crankshaft [3].

(c) Use the crankshaft [3] to manually extend the aft flap assembly [2] until the seal [82] is not compressed against the aft flap assembly [2].

(d) Measure and record the distance between the aft edge of the seal [82] and the lower cove panel [68].

NOTE: This distance is referred to as Dimension B.

SUBTASK 27-51-12-820-006

(12) If Dimension A minus Dimension B is not in the limit of 12.8393 ±0.100 inches (326.12 ±2.54 millimeters), then adjust the position of the seal [82]:

(a) Use the crankshaft [3] to manually extend the aft flap assembly [2] until you can get access to the fasteners for the seal [82].

(b) Loosen the nuts [86], washers [85] and bolts [84] that attach the retainer [83].

(c) Move the retainer [83] with the seal [82] to change the distance to the compression of the seal [82].

NOTE: This will change the Dimension B.

(d) Tighten the bolts [84], washers [85] and nuts [86] that attach the retainer [83].

(e) Use the crankshaft [3] to manually retract the aft flap assembly [2] to the retracted position.

(f) Install the rig pin in the crankshaft [3].

SUBTASK 27-51-12-220-006

(13) Outboard of the inboard aft flap track [21], measure the distance between the aft edge of the seal [63] and the seam on the lower surface of the aft flap assembly [2].

(a) If the distance between the seam on the aft flap assembly [2] and the seal [63] is not in the limit of 4.7091 ±0.100 inches (119.61 ±2.54 millimeters), then adjust the position of the seal [63]:

1) Remove the rig pin from the crankshaft [3].

2) Use the crankshaft [3] to manually extend the aft flap assembly [2] until you can get access to the fasteners for the seal [63].

3) Loosen the nuts [66], washers [65] and bolts [64] that attach the retainer [67].

4) Move the retainer [67] with the seal [63] to change the distance to the seam on the aft flap assembly [2].

5) Tighten the nuts [66], washers [65] and bolts [64] that attach the retainer [67].

6) Use the crankshaft [3] to manually retract the aft flap assembly [2] to the retracted position.

7) Install the rig pin in the crankshaft [3].

(b) Make sure the distance between the trailing edge of the aft flap assembly [2] and the seal [63] is in the limit.

SUBTASK 27-51-12-220-007

(14) Do a check of the adjustment of the seals at the inboard and outboard ends of the aft flap assembly [2]:

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(a) On the inboard and outboard ends of the aft flap assembly [2], measure the distance between the aft flap assembly [2] and the main flap [1].

(b) Remove the rig pin from the crankshaft [3].

(c) Use the crankshaft [3] to manually extend the aft flap assembly [2] until the seal [88] and seal [93] are clear of the main flap [1].

(d) Measure the distance the seal [88] and seal [93] extends away from the aft flap assembly [2].

(e) If the distance the seal [88] and seal [93] extends is not in the limit of the distance you measured plus 0.150 ±0.100 inches (3.81 ±2.54 millimeters), then adjust the position of the applicable seal [88] or seal [93]:

1) Loosen the nuts [87], washers [91] and bolts [92] that attach the retainer [90].

2) Move the retainer [90] and the seal [88] or seal [93] to change the distance the seal extends past the aft flap assembly [2].

3) Tighten the nuts [87], washers [91] and bolts [92] that attach the retainer [90].

(f) Use the crankshaft [3] to manually retract the aft flap assembly [2] to the retracted position.

NOTE: The seal [88] and seal [93] can extend a maximum of 0.5 inch (12.7 millimeters) below the lower surface of the main flap [1] when the seals are compressed.

SUBTASK 27-51-12-080-001

(15) Remove the rig pin from the crankshaft [3] if it is necessary.

SUBTASK 27-51-12-420-003

(16) At the outboard flap support, connect the crankshaft [3] to the aft flap drive rod [10] (Figure 401):

(a) Use the crankshaft [3] to manually extend the aft flap assembly [2] until the crankshaft [3] aligns with the aft flap drive rod [10].

(b) Install the bolt [4], washer [5], bushing [6], washer [7] and nut [8] that attach the crankshaft [3] to the aft flap drive rod [10].

NOTE: Make sure the head of the bolt [4] is on the inboard side.

(c) Tighten the nut [8] to 30-50 pound-inches (3.4 to 5.6 newton-meters).

(d) Install the pin [9] through the nut [8].

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-12-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-12-860-002

(2) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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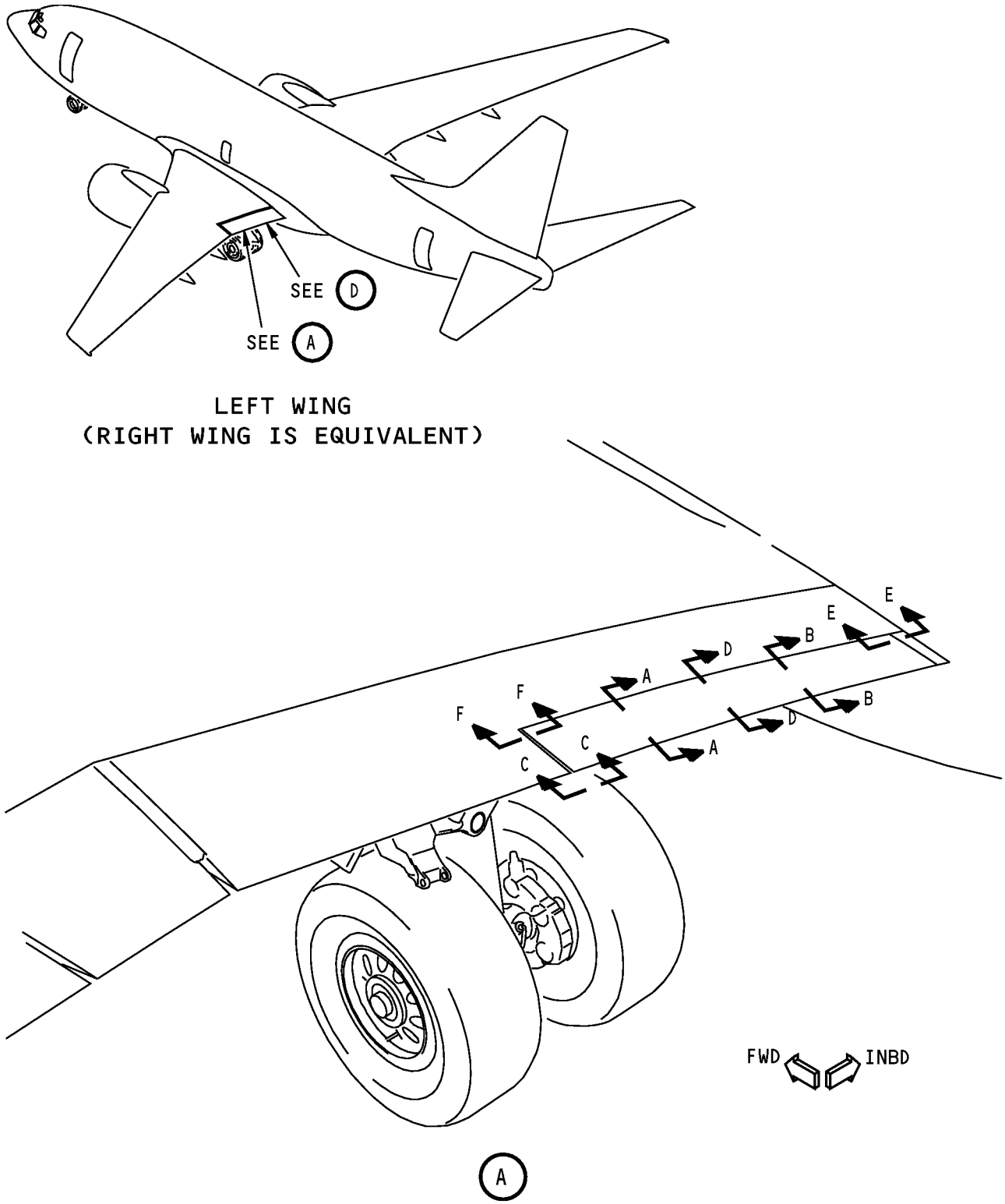

Inboard Aft Flap Adjustment
Figure 402 (Sheet 1 of 6)/27-51-12-990-802

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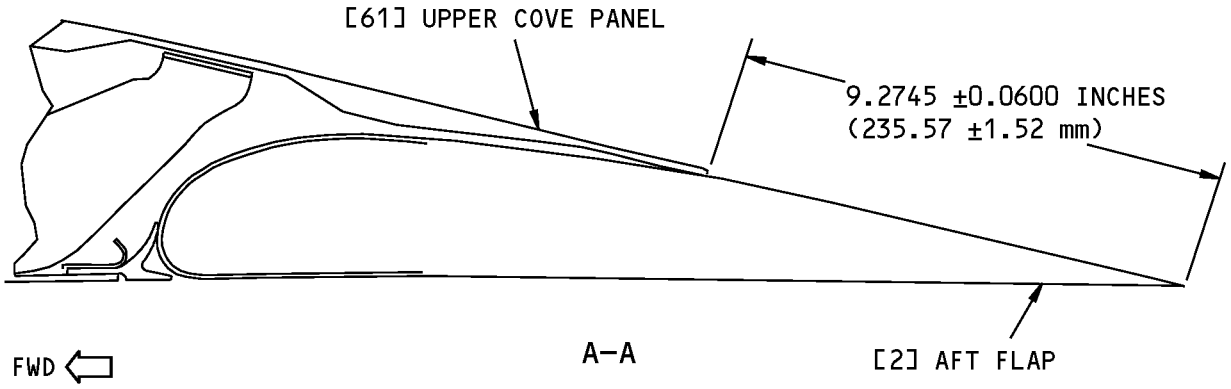

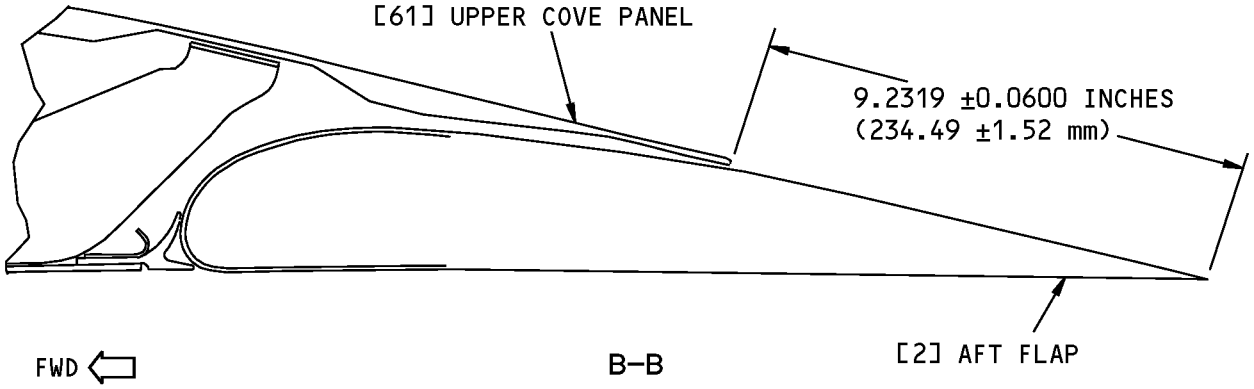

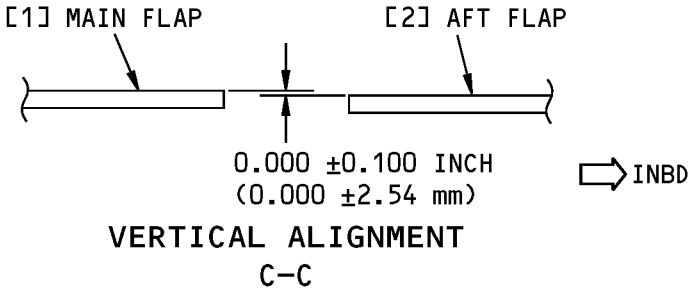

Inboard Aft Flap Adjustment
Figure 402 (Sheet 2 of 6)/27-51-12-990-802

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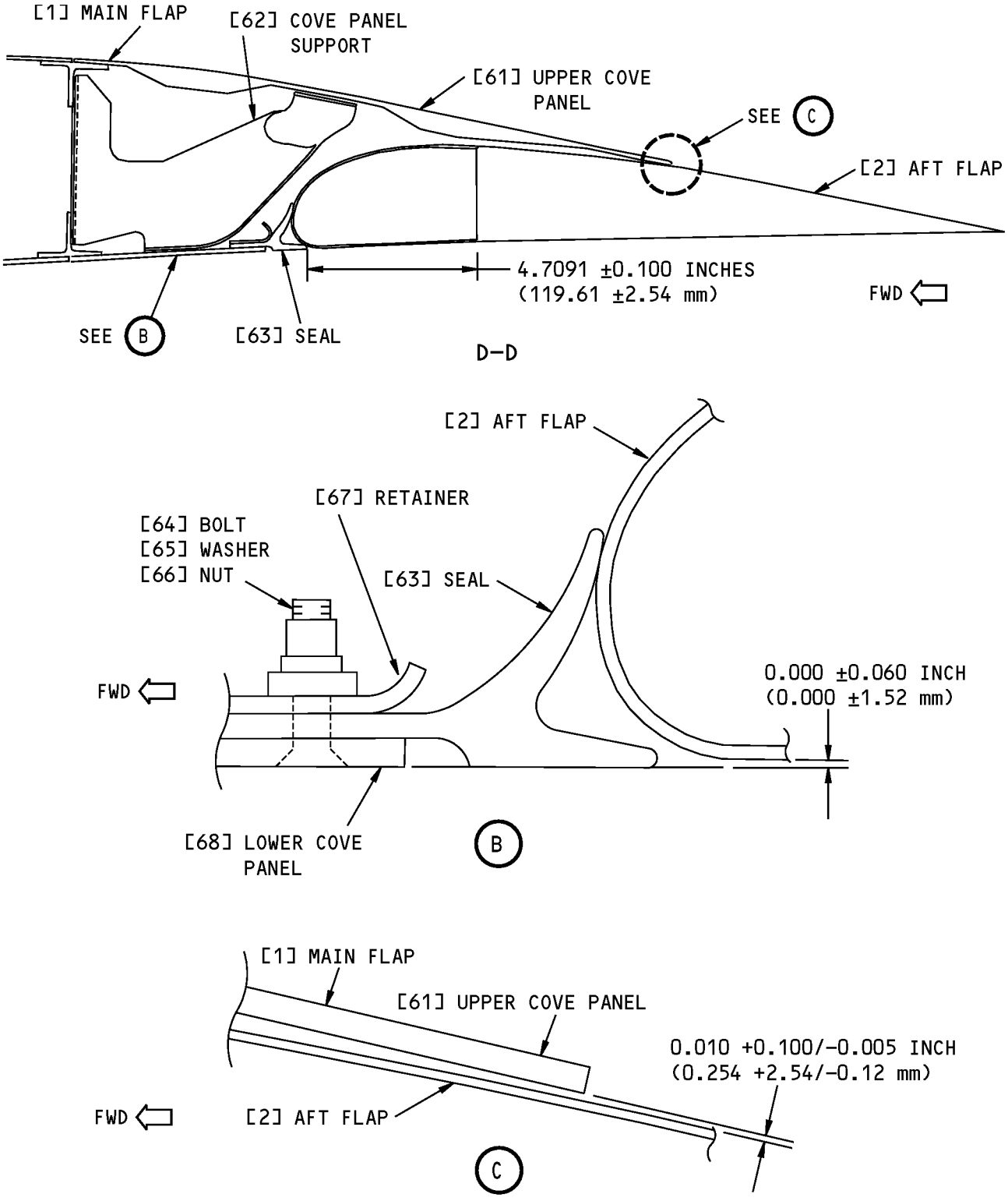

Inboard Aft Flap Adjustment
Figure 402 (Sheet 3 of 6)/27-51-12-990-802

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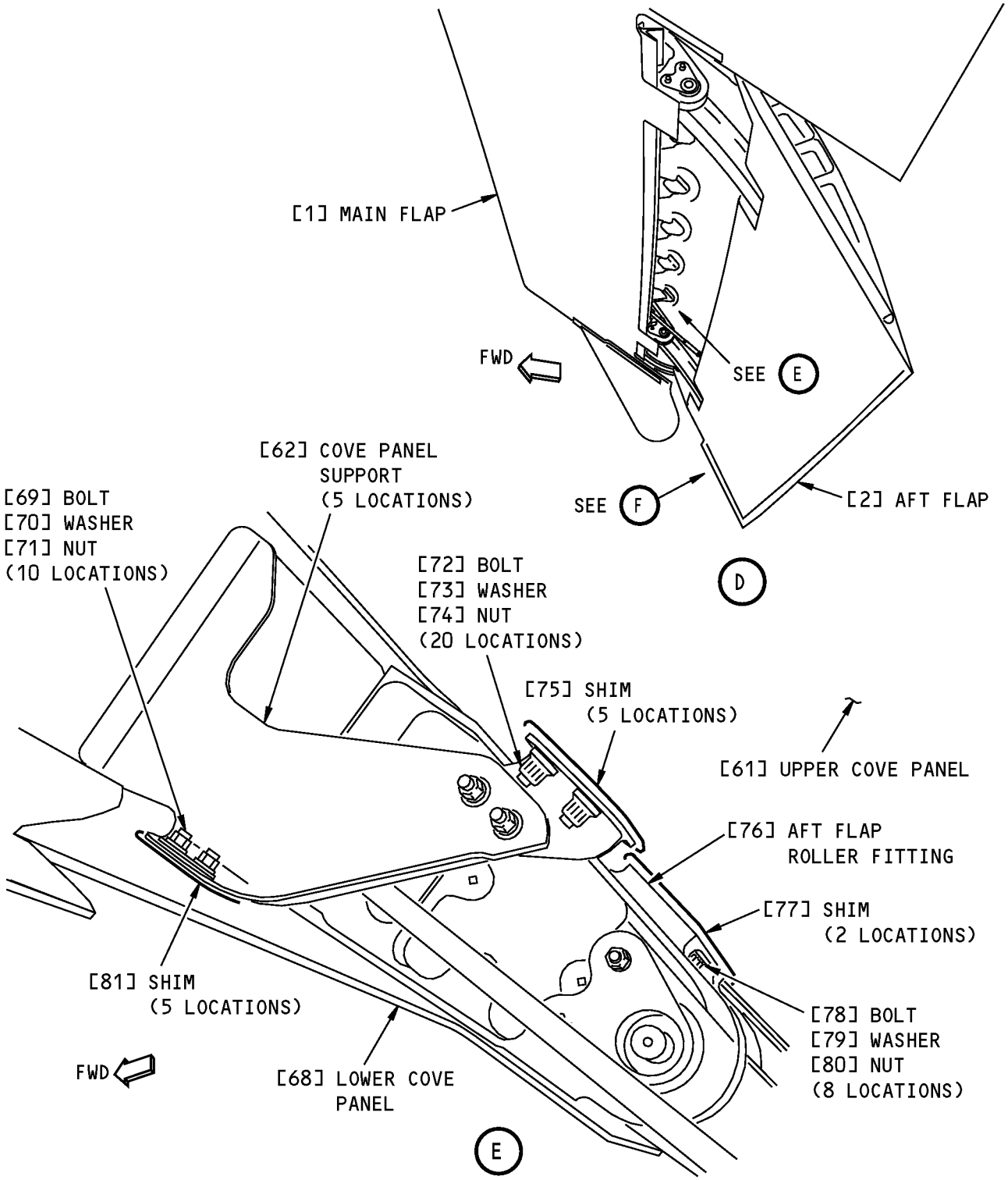

Inboard Aft Flap Adjustment
Figure 402 (Sheet 4 of 6)/27-51-12-990-802

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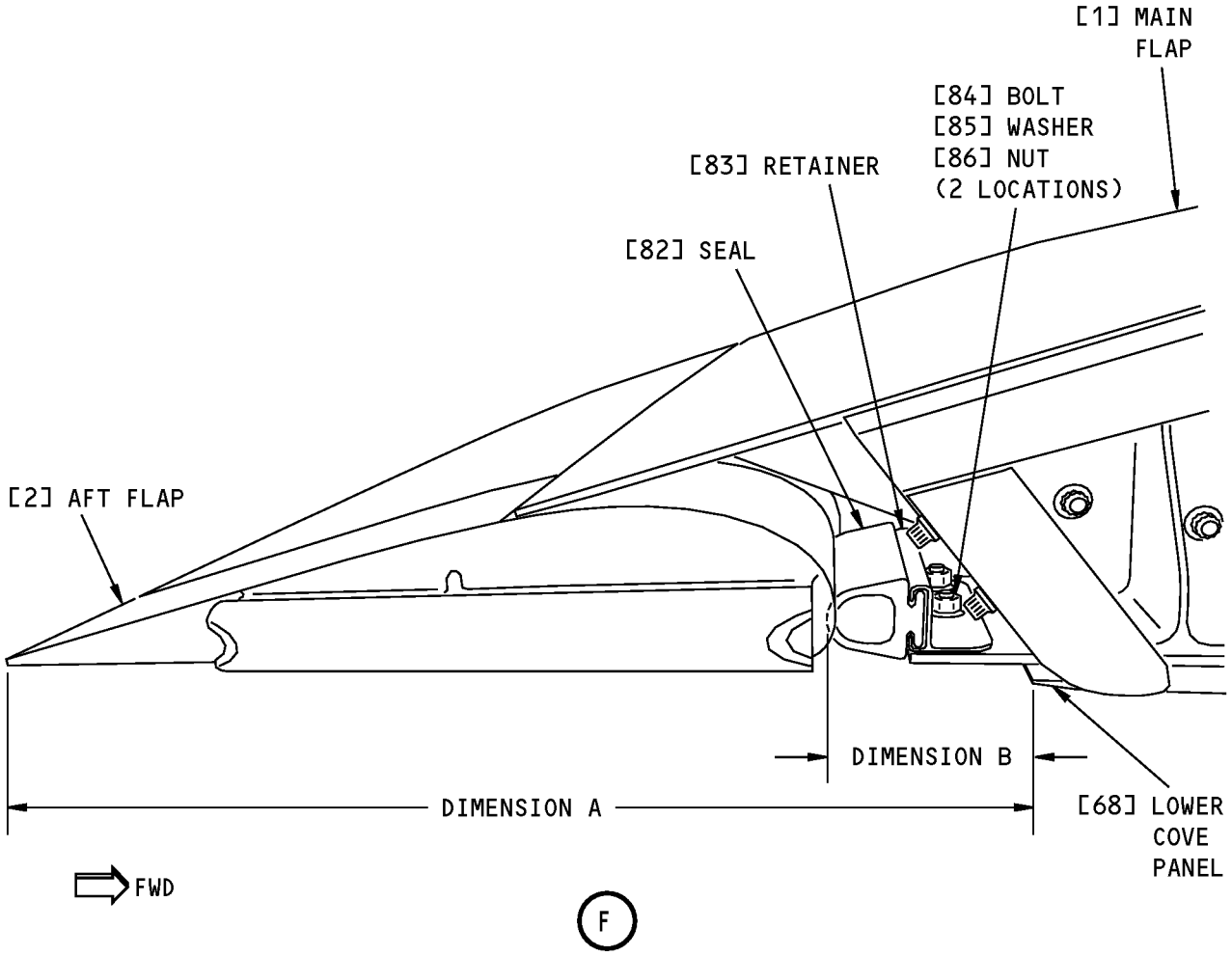

Inboard Aft Flap Adjustment
Figure 402 (Sheet 5 of 6)/27-51-12-990-802

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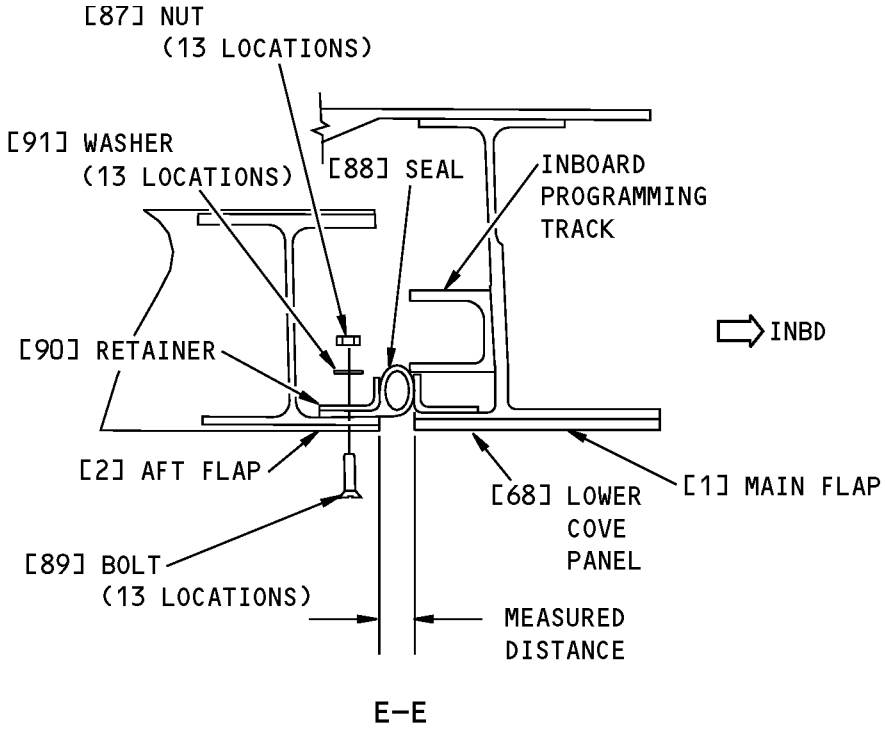

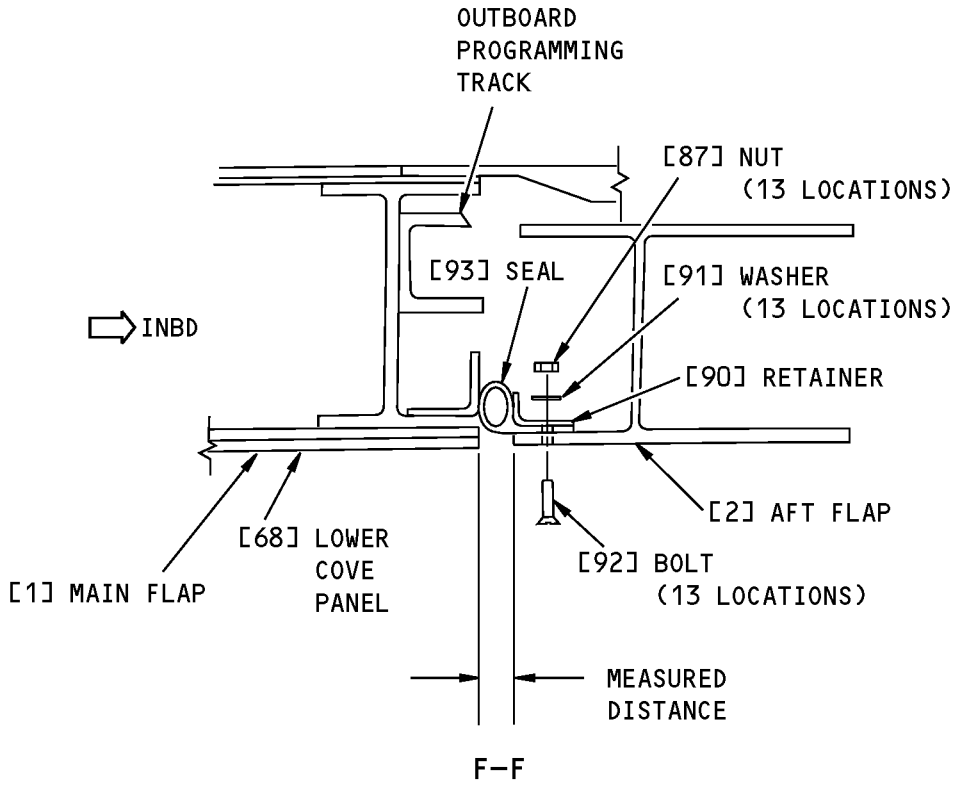

Inboard Aft Flap Adjustment
Figure 402 (Sheet 6 of 6)/27-51-12-990-802

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INBOARD AFT FLAP - INSPECTION/CHECK

1. General

A. This procedure contains a task to do an inspection of the attachment points for the inboard aft flap. The attachment points are the aft flap drive rods and the aft flap tracks.

TASK 27-51-12-200-801

2. Inboard Aft Flap Inspection

(Figure 601)

A. References

Reference	Title
27-51-12-000-801	Inboard Aft Flap Removal (P/B 401)
27-51-12-400-801	Inboard Aft Flap Installation (P/B 401)

B. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

C. Location Zones

Zone	Area
553	Left Wing - Inboard Flap
653	Right Wing - Inboard Flap

D. Procedure

SUBTASK 27-51-12-020-005

(1) Do this task: Inboard Aft Flap Removal, TASK 27-51-12-000-801.

SUBTASK 27-51-12-020-006

(2) Use these tools to do a check for wear on the part of the inboard aft flap:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-51-12-020-007

(3) Examine the parts of the inboard aft flap (Table 601):

(a) Remove the parts that you will measure.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

Table 601/27-51-12-993-805

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 BUSHING	I.D.	0.2500 in	0.2505 in	0.2545 in	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
		6.3500 mm	6.3627 mm	6.4643 mm	0.0050 in
#1 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2455 in 6.2357 mm	0.1270 mm
#2 ROD END	I.D.	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.0015 in
#2 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 9.3373 mm	0.2485 in 6.3119 mm	0.0381 mm
#3 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.6502 mm	0.3756 in 9.5402 mm	0.0016 in
#3 BUSHING	O.D.	0.3740 in 9.4993 mm	0.3745 in 9.5123 mm	0.3740 in 9.4996 mm	0.0406 mm
#4 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2545 in 6.4643 mm	0.0050 in
#4 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2455 in 6.2357 mm	0.1270 mm
#5 BUSHING	I.D.	0.3125 in 7.9375 mm	0.3130 in 7.9505 mm	0.3170 in 8.0518 mm	0.0050 in
#5 BOLT	O.D.	0.3110 in 7.8994 mm	0.3120 in 7.9248 mm	0.3080 in 7.8232 mm	0.1270 mm
#6 BUSHING	I.D.	0.4375 in 11.113 mm	0.4382 in 11.130 mm	0.4382 in 11.130 mm	0.0017 in
#6 BUSHING	O.D.	0.4365 in 11.087 mm	0.4370 in 11.100 mm	0.4365 in 11.087 mm	0.0431 mm
#7 TRACK	I.D.	0.3125 in	0.3130 in	0.3170 in	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
		7.9375 mm	7.9505 mm	8.0518 mm	0.0050 in
#7 BOLT	O.D.	0.3110 in 7.8994 mm	0.3120 in 7.9248 mm	0.3080 in 7.8232 mm	0.1270 mm
#8 BUSHING	I.D.	0.3125 in 7.9375 mm	0.3131 in 7.9527 mm	0.3170 in 8.0518 mm	0.0050 in
#8 BOLT	O.D.	0.3110 in 7.8994 mm	0.3120 in 7.9248 mm	0.3081 in 7.8257 mm	0.1270 mm

SUBTASK 27-51-12-420-004

(4) Do this task: Inboard Aft Flap Installation, TASK 27-51-12-400-801.

——————— END OF TASK ———————

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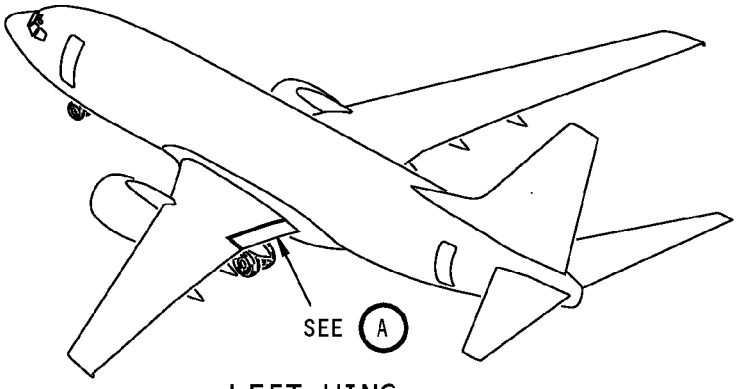

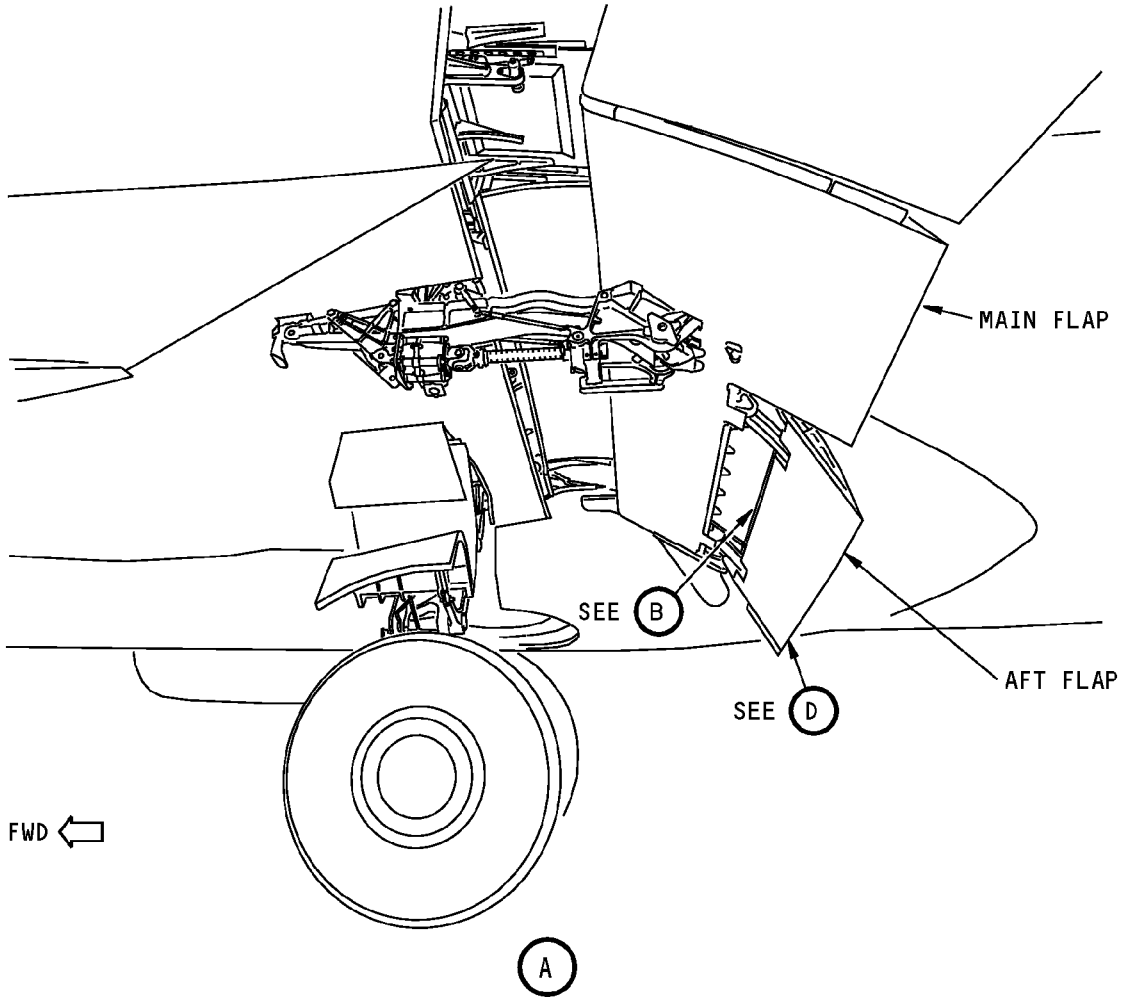

Inboard Aft Flap Inspection
Figure 601 (Sheet 1 of 4)/27-51-12-990-804

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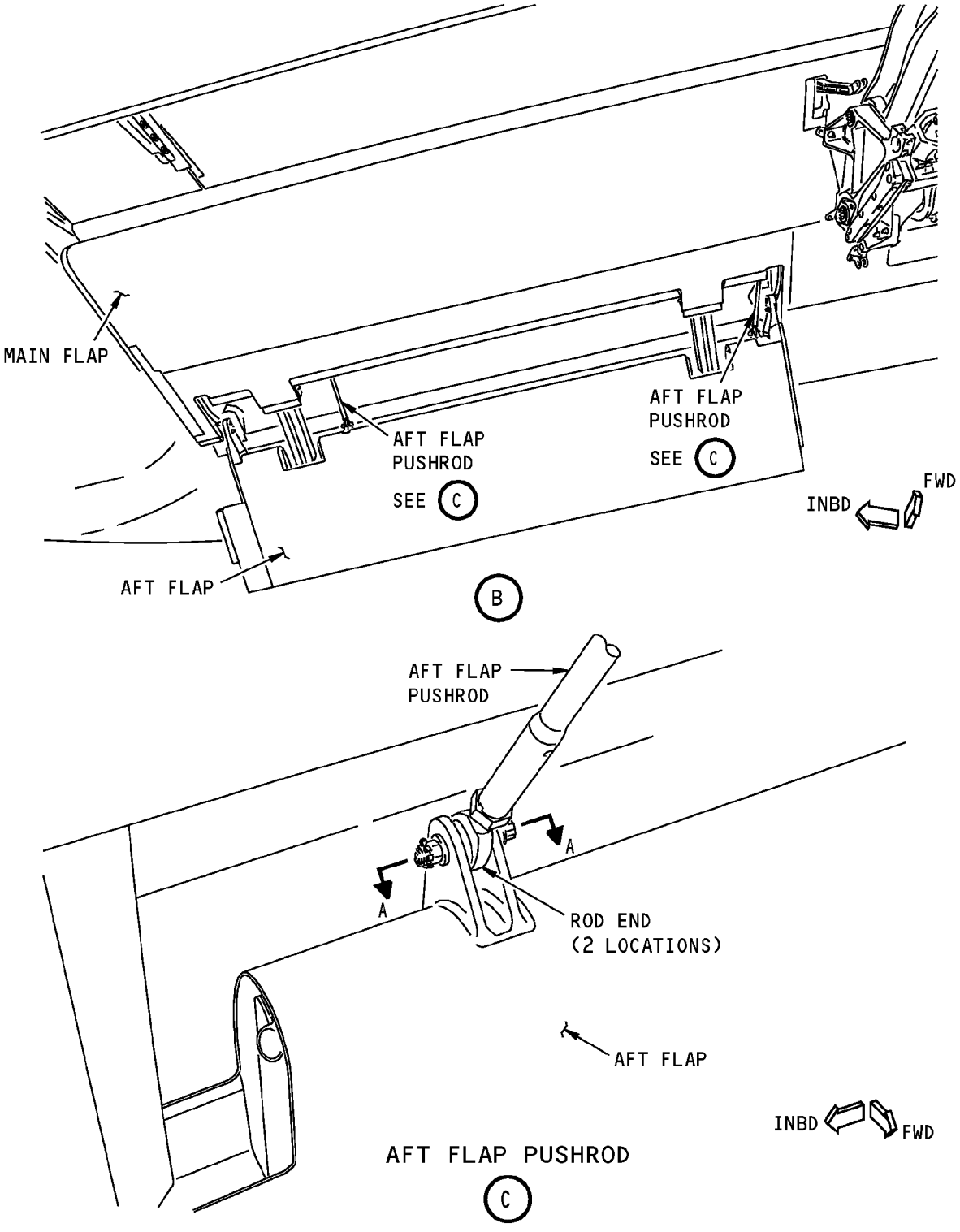

Inboard Aft Flap Inspection
Figure 601 (Sheet 2 of 4)/27-51-12-990-804

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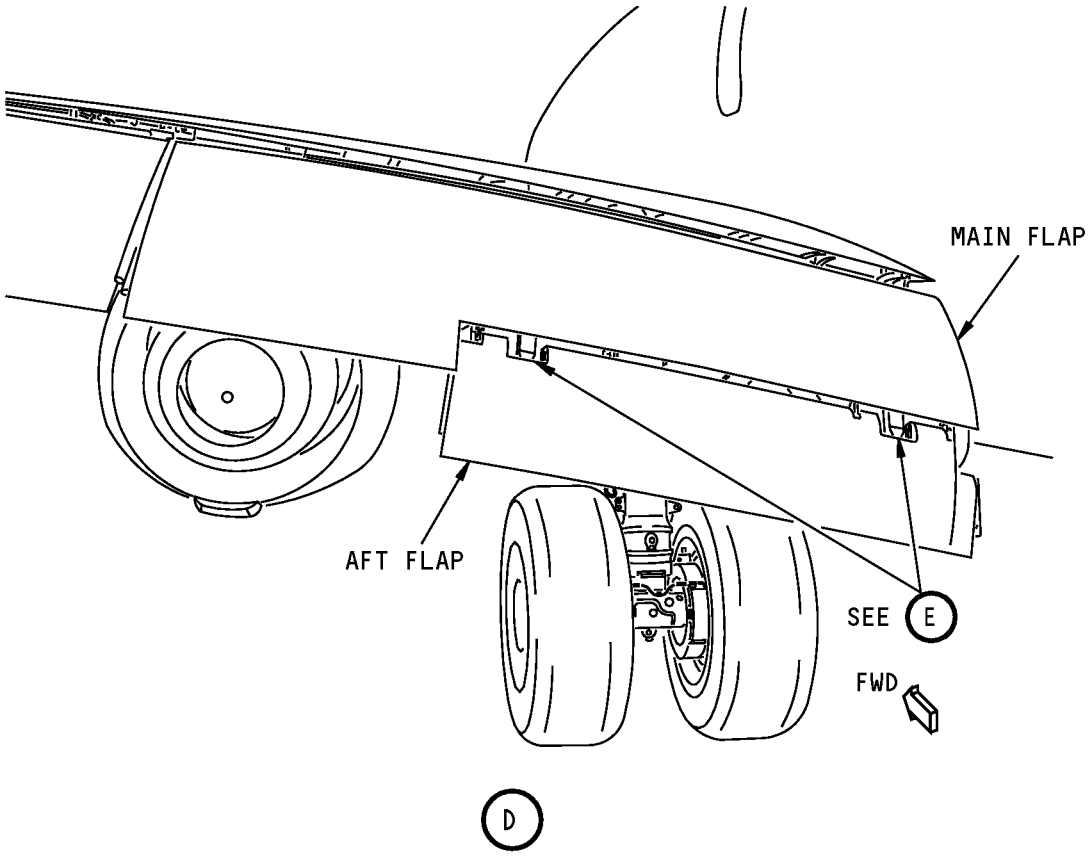

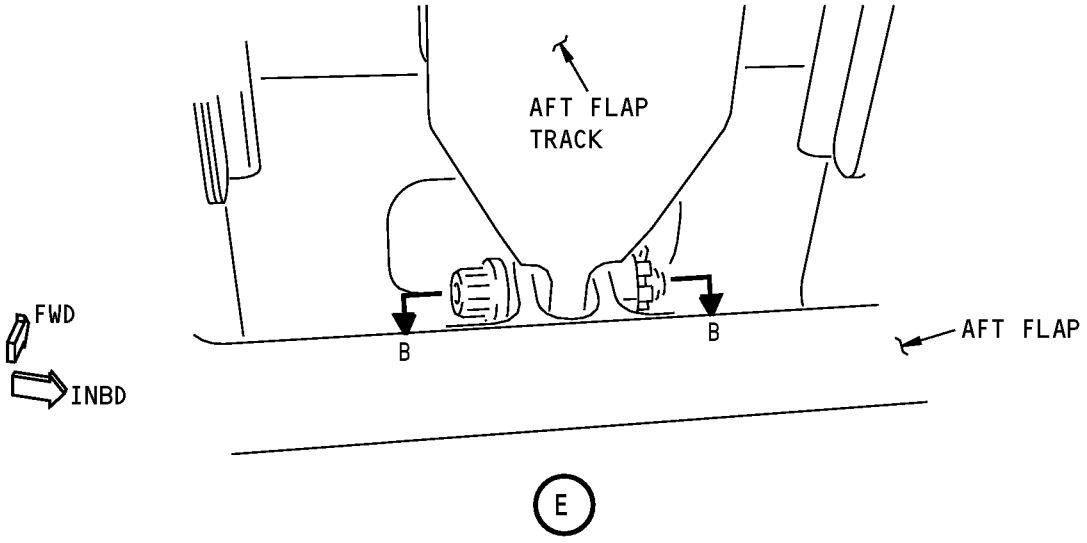

Inboard Aft Flap Inspection
Figure 601 (Sheet 3 of 4)/27-51-12-990-804

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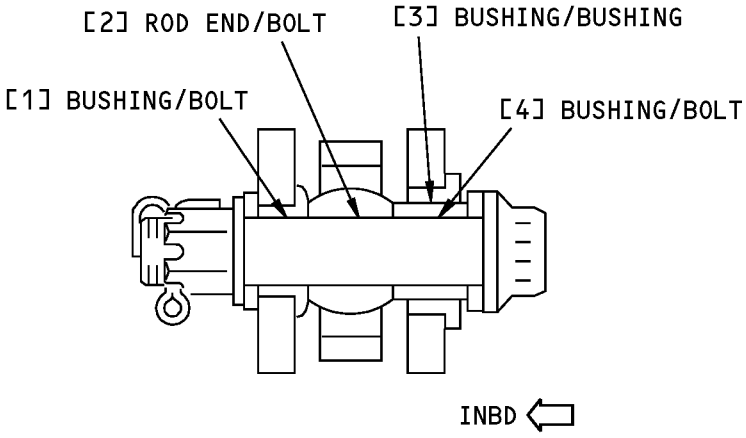

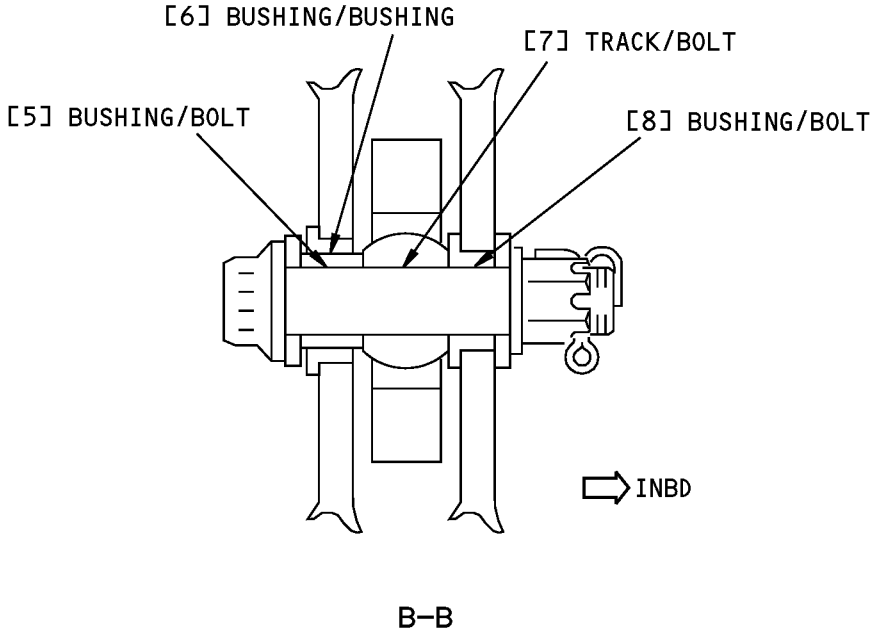

Inboard Aft Flap Inspection
Figure 601 (Sheet 4 of 4)/27-51-12-990-804

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INBOARD FLAP CARRIAGES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard carriage for the inboard flap

(2) An installation of the outboard carriage for the inboard flap

(3) A removal of the inboard carriage for the inboard flap

(4) An installation of the inboard carriage for the inboard flap.

TASK 27-51-13-000-801

2. Inboard Flap Outboard Carriage Removal

(Figure 401)

A. General

(1) This task is applicable to the flap carriages at flap supports No. 3 and 6.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-11-000-801	Inboard Trailing Edge Flap Removal (P/B 401)

C. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
553	Left Wing - Inboard Flap
642	Right Wing - Fairing Flap Support No. 6
653	Right Wing - Inboard Flap

D. Prepare for the Removal

SUBTASK 27-51-13-040-001

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-13-020-001

(2) Do this task: Inboard Trailing Edge Flap Removal, TASK 27-51-11-000-801.

E. Inboard Flap Outboard Carriage Removal

SUBTASK 27-51-13-010-001

(1) Remove the upper skin panel [3] from the main flap [1]:

(a) Remove the bolts [4] that attach the upper skin panel [3] to the main flap [1].

(b) Remove the upper skin panel [3].

SUBTASK 27-51-13-020-002

(2) Remove the carriage assembly [2] from the main flap [1]:

(a) Remove the nuts [15], washers [14], washers [13], bolts [12] and bolts [16] that attach the aft end of the carriage assembly [2].

(b) Remove the nuts [11], washers [10] and bolts [9] from the forward end of the carriage assembly [2].

(c) Remove the nuts [8], washers [7], bolts [5] and fillers [6] from the forward end of the carriage assembly [2].

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(d) Remove the carriage assembly [2] from the main flap [1].

END OF TASK

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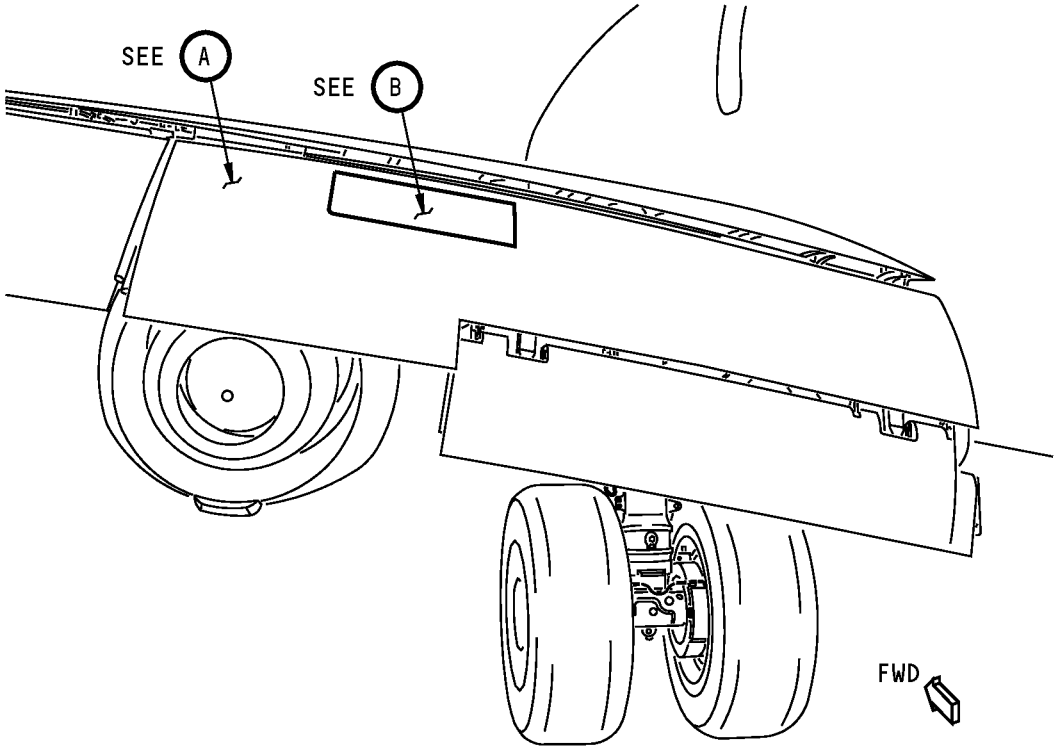
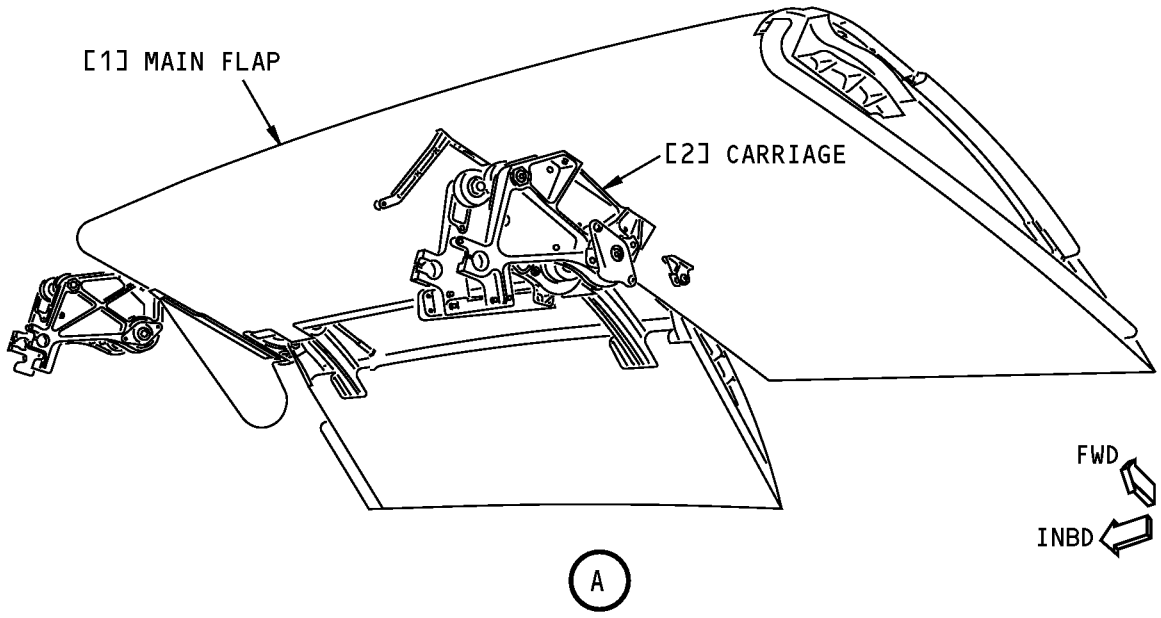


LEFT WING
(RIGHT WING IS EQUIVALENT)



Inboard Flap Outboard Carriage Installation
Figure 401 (Sheet 1 of 2)/27-51-13-990-801

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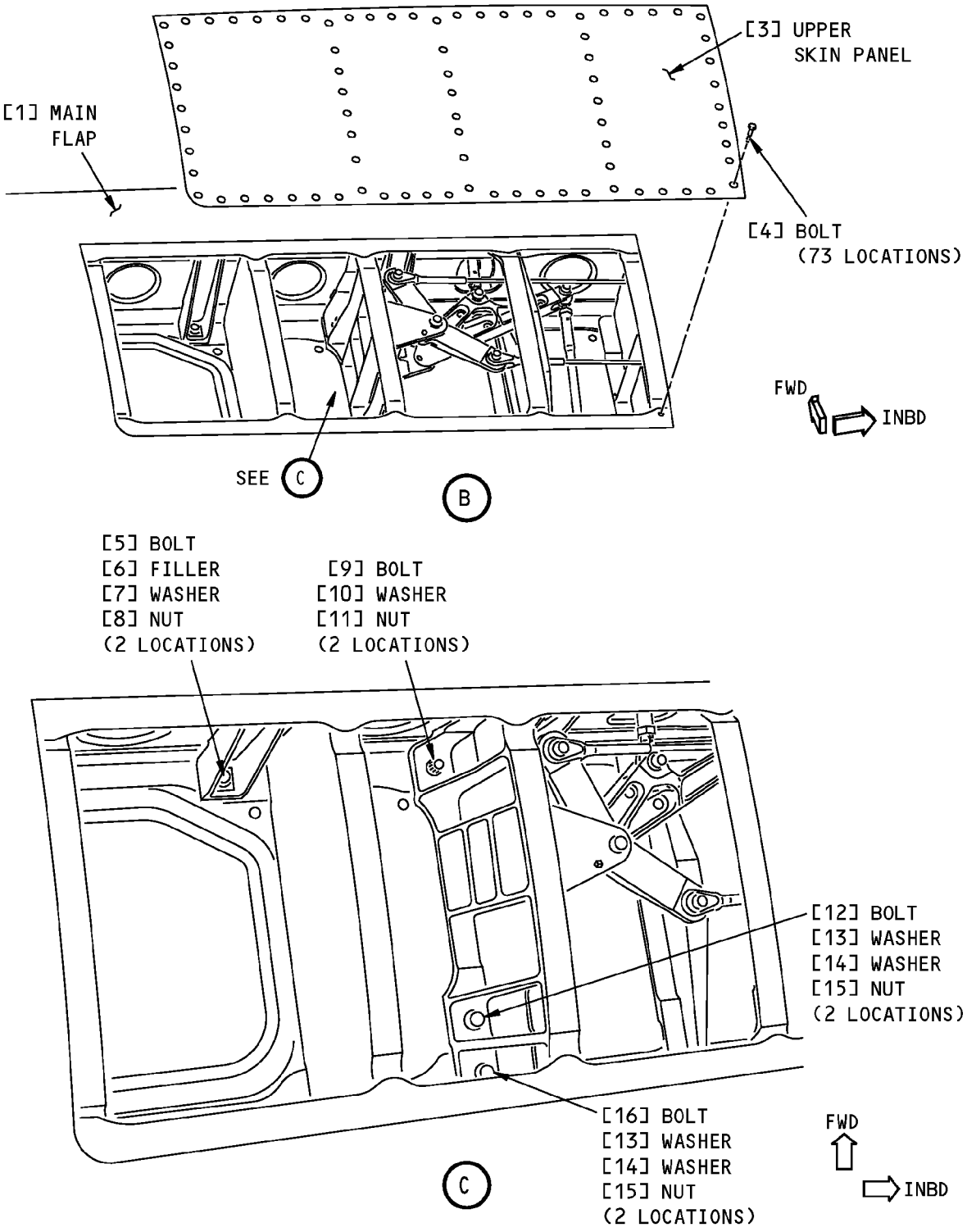

Inboard Flap Outboard Carriage Installation
Figure 401 (Sheet 2 of 2)/27-51-13-990-801

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TASK 27-51-13-400-801

3. Inboard Flap Outboard Carriage Installation

(Figure 401)

A. General

(1) This task is applicable to the flap carriages at flap supports No. 3 and 6.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-11-400-801	Inboard Trailing Edge Flap Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Carriage assembly	27-51-13-02-268	HAP 001-013, 015-026, 028-030
		27-51-13-02-270	HAP 001-013, 015-026, 028-030
		27-51-13-02A-120	HAP 031-054, 101-999
		27-51-13-02A-123	HAP 031-054, 101-999

E. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
553	Left Wing - Inboard Flap
642	Right Wing - Fairing Flap Support No. 6
653	Right Wing - Inboard Flap

F. Inboard Flap Outboard Carriage Installation

SUBTASK 27-51-13-420-001

(1) Install the carriage assembly [2] on the main flap [1]:

(a) Make sure the upper skin panel [3] is removed from the main flap [1].

(b) Apply sealant, A00247 to the mating surface of the carriage assembly [2] and the main flap [1].

(c) Put the carriage assembly [2] in its position on the main flap [1].

(d) Apply sealant, A00247 to the mating surface of the fillers [6] and the main flap [1].

(e) Put the fillers [6] in their location on the main flap [1].

(f) Apply sealant, A00247 to the shank and threads of the bolts [5], bolts [9], bolts [12] and bolts [16].

(g) Install the bolts [5], washers [7] and nuts [8] to attach the forward end of the carriage assembly [2] to the main flap [1].

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(h) Install the bolts [9], washers [10] and nuts [11] at the forward end of the carriage assembly [2].

NOTE: Install the bolts [9] with the heads down.

(i) Install the bolts [12], bolts [16], washers [13], washers [14] and nuts [15] to attach the aft end of the carriage assembly [2] to the main flap [1].

SUBTASK 27-51-13-410-001

(2) Install the upper skin panel [3] on the main flap [1]:

(a) Apply sealant, A00247 to the mating surface of the upper skin panel [3] and the main flap [1].

(b) Put the upper skin panel [3] in its position.

(c) Install the bolts [4]:

1) Apply compound, C00528 to the forward and aft rows of holes in the upper skin panel [3].

2) Install the bolts [4] in the forward and aft rows of holes.

3) Apply sealant, A00247 to the bolts [4] that go in the ribs and stiffeners in the main flap [1].

4) Install the bolts [4] in the ribs and stiffeners.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-13-420-002

(1) Do this task: Inboard Trailing Edge Flap Installation, TASK 27-51-11-400-801.

SUBTASK 27-51-13-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

TASK 27-51-13-000-802

4. Inboard Flap Inboard Carriage Removal

(Figure 402)

A. General

(1) This task is applicable to the flap carriages at flap supports No. 4 and 5.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-11-000-801	Inboard Trailing Edge Flap Removal (P/B 401)

C. Location Zones

Zone	Area
541	Left Wing - Fairing Flap Support No. 4
553	Left Wing - Inboard Flap
641	Right Wing - Fairing Flap Support No. 5
653	Right Wing - Inboard Flap

D. Prepare for the Removal

SUBTASK 27-51-13-040-002

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-51-13-020-003

(2) Do this task: Inboard Trailing Edge Flap Removal, TASK 27-51-11-000-801.

E. Inboard Flap Inboard Carriage Removal

SUBTASK 27-51-13-010-002

(1) Remove the upper skin panel [31] from the main flap [1]:

(a) Remove the bolts [32] that attach the upper skin panel [31] to the main flap [1].

(b) Remove the upper skin panel [31].

SUBTASK 27-51-13-020-004

(2) Remove the secondary torque tube [40] from the main flap [1]:

(a) Remove the retainer [39] from the secondary torque tube [40]:

1) Remove the bolt [41], washer [42], nut [44] and filler [43] that attach the secondary torque tube [40] to the main flap [1].

2) Remove the retainer [39] from the secondary torque tube [40].

(b) Remove the nuts [49], washers [48], washers [51], filler [53] and bolts [50] that attach the inboard end of the carriage assembly [34] and the secondary torque tube [40] to the primary torque tube [38].

(c) Remove the secondary torque tube [40].

SUBTASK 27-51-13-020-005

(3) Remove the carriage assembly [34] from the main flap [1]:

(a) Remove the nuts [46], washers [45], bolts [47], bolt [54] and spacers [52] that attach the carriage assembly [34], attach plate [37] and rub block [33] to the primary torque tube [38].

(b) Slide the carriage assembly [34] inboard, off of the primary torque tube [38].

———————— END OF TASK ————————

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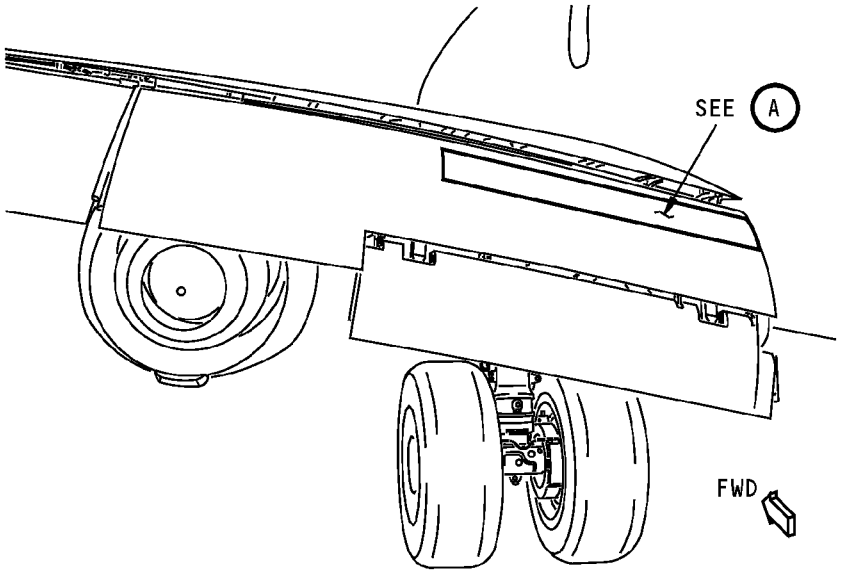
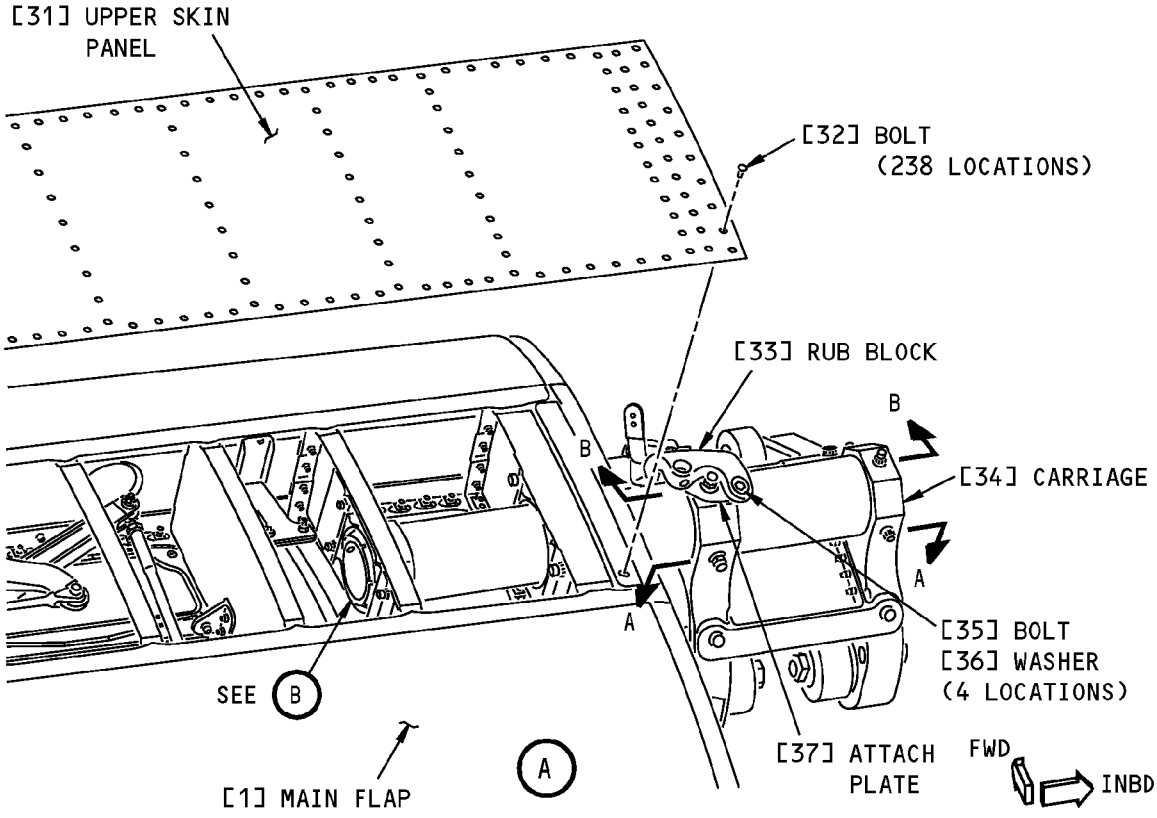


LEFT WING
(RIGHT WING IS EQUIVALENT)



Inboard Flap Inboard Carriage Installation
Figure 402 (Sheet 1 of 3)/27-51-13-990-802

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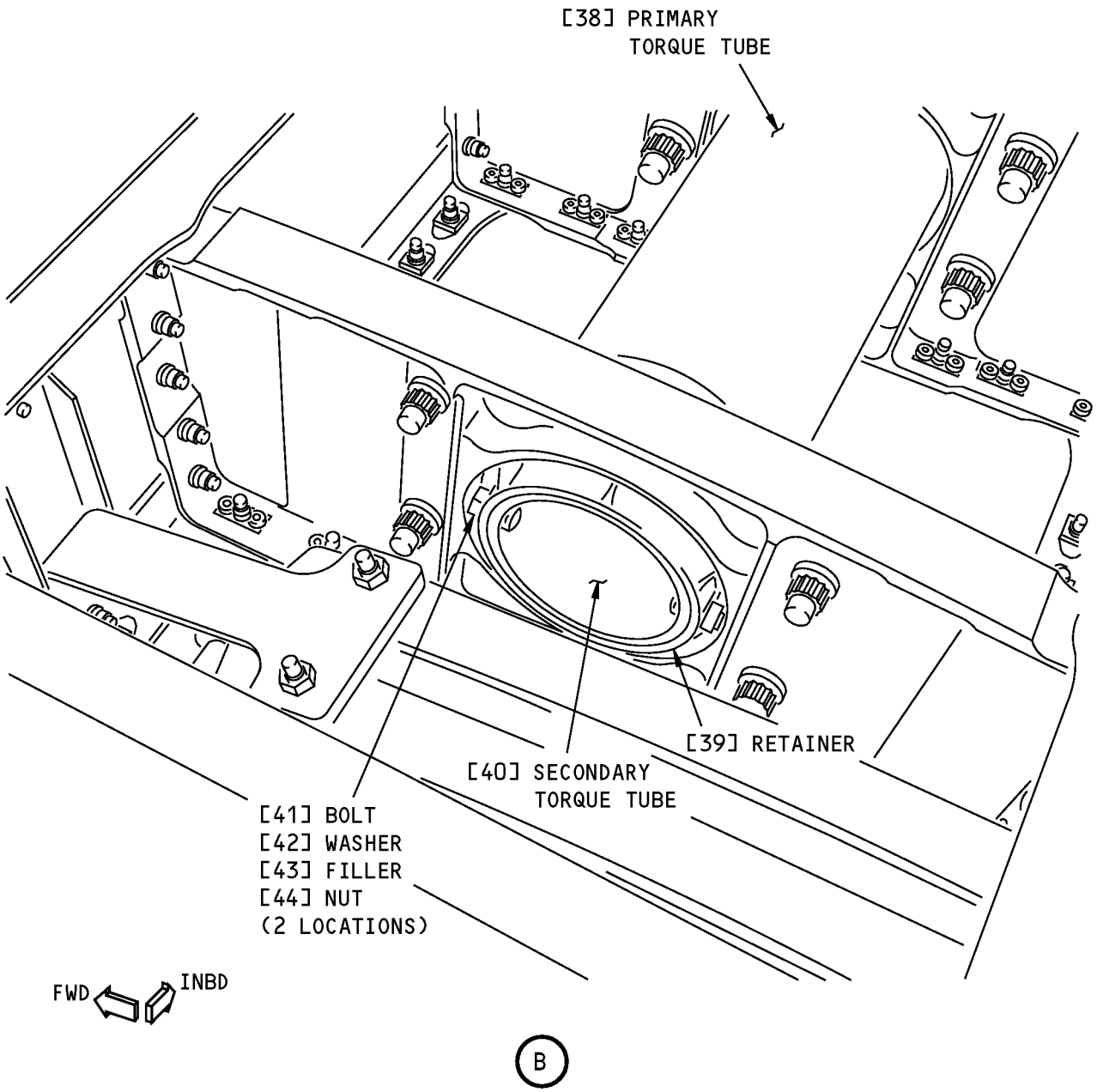

Inboard Flap Inboard Carriage Installation
Figure 402 (Sheet 2 of 3)/27-51-13-990-802

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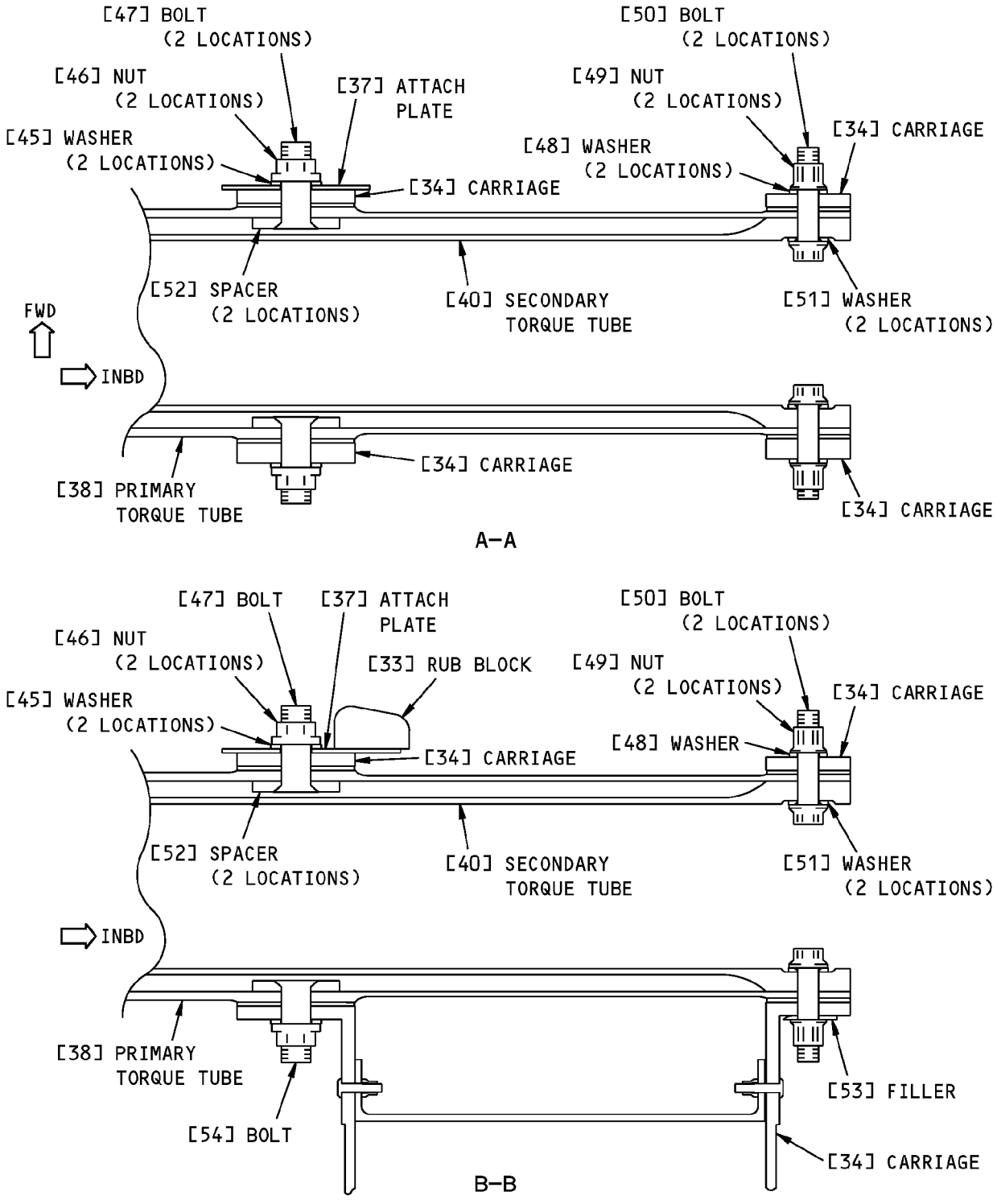

Inboard Flap Inboard Carriage Installation
Figure 402 (Sheet 3 of 3)/27-51-13-990-802

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TASK 27-51-13-400-802

5. Inboard Flap Inboard Carriage Installation

(Figure 402)

A. General

(1) This task is applicable to the flap carriages at flap supports No. 4 and 5.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-11-400-801	Inboard Trailing Edge Flap Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
34	Carriage assembly	27-51-13-02-010	HAP 001-013, 015-026, 028-030
		27-51-13-02-015	HAP 001-013, 015-026, 028-030
		27-51-13-02A-010	HAP 031-054, 101-999
		27-51-13-02A-015	HAP 031-054, 101-999
40	Torque tube	27-51-58-02-160	HAP ALL

E. Location Zones

Zone	Area
541	Left Wing - Fairing Flap Support No. 4
553	Left Wing - Inboard Flap
641	Right Wing - Fairing Flap Support No. 5
653	Right Wing - Inboard Flap

F. Inboard Flap Inboard Carriage Installation

SUBTASK 27-51-13-420-003

(1) Install the carriage assembly [34] on the main flap [1]:

(a) Put the carriage assembly [34] in its position on the primary torque tube [38].

(b) Apply sealant, A00247 to the mating surface of the spacers [52].

(c) Apply sealant, A00247 to the shank and threads of the bolts [47] and bolt [54].

(d) Install the bolts [47] and bolt [54] with the spacers [52] through the primary torque tube [38] and the carriage assembly [34].

(e) Put the attach plate [37] and rub block [33] in their position on the bolts [47].

(f) Install the washers [45] and nuts [46] on the bolts [47] and bolt [54].

1) Tighten the nuts [46] to 160 ±10 in-lb (18 ±1 N·m).

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(g) If they are not installed, install the bolts [35] and washers [36] that attach the rub block [33] to the attach plate [37].

SUBTASK 27-51-13-420-004

(2) Install the secondary torque tube [40] in the main flap [1]:

(a) Put the secondary torque tube [40] in its location in the primary torque tube [38].

(b) Install the bolts [50] and washers [51] through the secondary torque tube [40], primary torque tube [38] and the carriage assembly [34].

(c) Apply sealant, A00247 to the filler [53].

(d) Install the filler [53], washers [48] and nuts [49] on the bolts [50].

NOTE: Install the filler [53] on the bottom bolt [50].

(e) Install the retainer [39] on the secondary torque tube [40].

1) Turn the retainer [39] until the holes for the bolts [41] align.

2) Apply sealant, A00247 to the fillers [43].

3) Install the bolts [41], washers [42], fillers [43] and nuts [44].

SUBTASK 27-51-13-410-002

(3) Install the upper skin panel [31] on the main flap [1]:

(a) Apply sealant, A00247 to the mating surface of the upper skin panel [31] and the main flap [1].

(b) Put the upper skin panel [31] in its position.

(c) Install the bolts [32]:

1) Apply compound, C00528 to the forward and aft rows of holes in the upper skin panel [31].

2) Install the bolts [32] in the forward and aft rows of holes.

3) Apply sealant, A00247 to the bolts [32] that go in the ribs and stiffeners in the main flap [1].

4) Install the bolts [32] in the ribs and stiffeners.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-13-420-005

(1) Do this task: Inboard Trailing Edge Flap Installation, TASK 27-51-11-400-801.

SUBTASK 27-51-13-440-002

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

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INBOARD FLAP CARRIAGES - INSPECTION/CHECK

1. General

A. This procedure contains the task to do an inspection of the carriages for the inboard trailing edge flaps.

TASK 27-51-13-200-801

2. Inboard Flap Outboard Carriage Inspection

(Figure 601)

A. General

(1) This task gives wear limits for the outboard carriage on the inboard flap.

(2) This task is applicable to the carriages at flap supports No. 3 and 6.

B. References

Reference	Title
27-51-13-000-801	Inboard Flap Outboard Carriage Removal (P/B 401)
27-51-13-400-801	Inboard Flap Outboard Carriage Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

E. Procedure

SUBTASK 27-51-13-020-006

(1) Do this task: Inboard Flap Outboard Carriage Removal, TASK 27-51-13-000-801.

SUBTASK 27-51-13-020-007

(2) Use these tools to do a check for wear on the part of the inboard flap outboard carriage:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-51-13-020-008

(3) Examine the parts of the inboard flap outboard carriage (Table 601):

(a) Remove the parts that you will measure.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

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Table 601/27-51-13-993-805

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 BUSHING	I.D.	1.1870 in 30.150 mm	1.1878 in 30.170 mm	1.1915 in 30.264 mm	0.0050 in 0.1270 mm
#1 PIN	O.D.	1.1855 in 30.112 mm	1.1865 in 30.137 mm	1.1828 in 30.043 mm	
#2 ROLLER	I.D.	1.1868 in 30.145 mm	1.1875 in 30.163 mm	1.1915 in 30.264 mm	0.0050 in 0.1270 mm
#2 PIN	O.D.	1.1855 in 30.112 mm	1.1865 in 30.137 mm	1.1825 in 30.036 mm	
#3 ROLLER	O.D.	2.9990 in 76.175 mm	3.0010 in 76.225 mm	2.9970 in 76.124 mm	
#4 ECCENTRIC BUSHING	I.D.	1.2500 in 31.750 mm	1.2520 in 31.801 mm	1.2540 in 31.852 mm	0.0050 in 0.1270 mm
#4 PIN	O.D.	1.2480 in 31.699 mm	1.2490 in 31.725 mm	1.2470 in 31.674 mm	
#5 BUSHING	I.D.	3.3000 in 88.820 mm	3.3020 in 83.871 mm	3.3040 in 83.922 mm	0.0050 in 0.1270 mm
#5 CARTRIDGE	O.D.	3.2980 in 83.769 mm	3.2990 in 83.795 mm	3.2970 in 83.744 mm	
#6 ROLLER	I.D.	1.2493 in 31.732 mm	1.2500 in 31.750 mm	1.2540 in 31.852 mm	0.0050 in 0.1270 mm
#6 PIN	O.D.	1.2480 in 31.699 mm	1.2490 in 31.725 mm	1.2450 in 31.623 mm	
#7 ROLLER	O.D.	2.9990 in 76.175 mm	3.0010 in 76.225 mm	2.9970 in 76.124 mm	

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SUBTASK 27-51-13-420-006

(4) Do this task: Inboard Flap Outboard Carriage Installation, TASK 27-51-13-400-801.

END OF TASK

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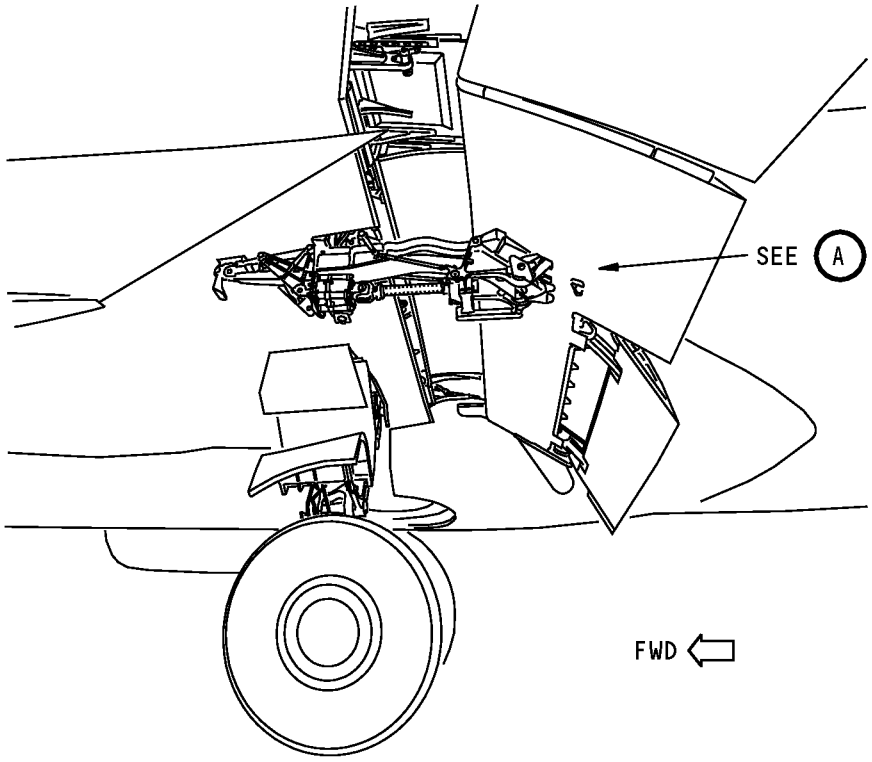
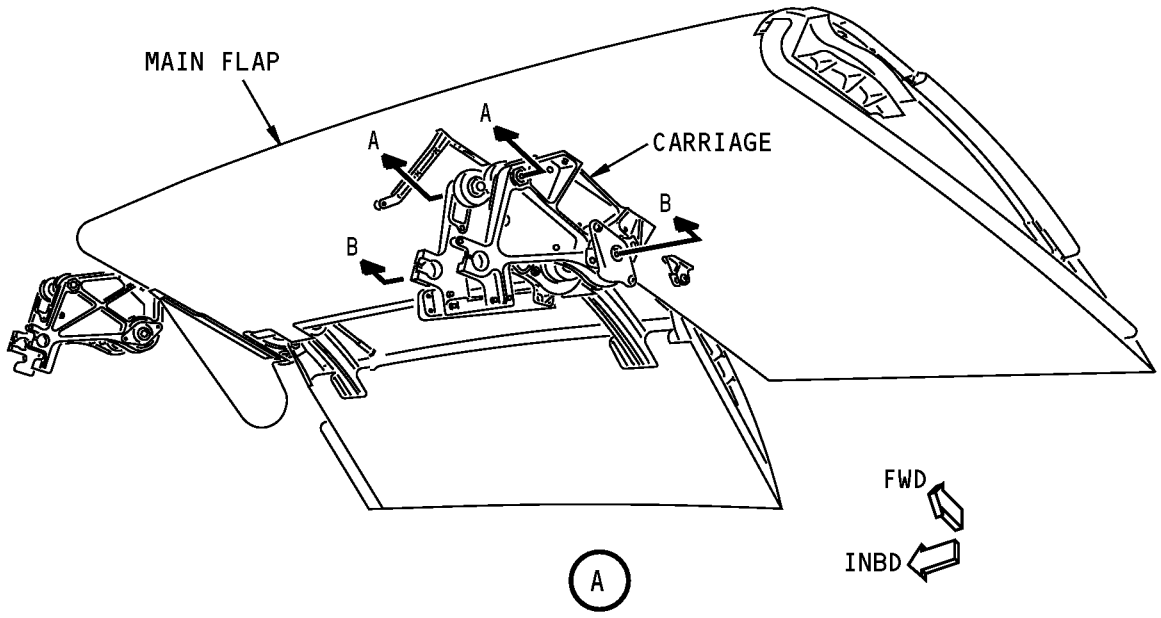


LEFT WING
(RIGHT WING IS EQUIVALENT)



Inboard Flap Outboard Carriage Inspection
Figure 601 (Sheet 1 of 2)/27-51-13-990-803

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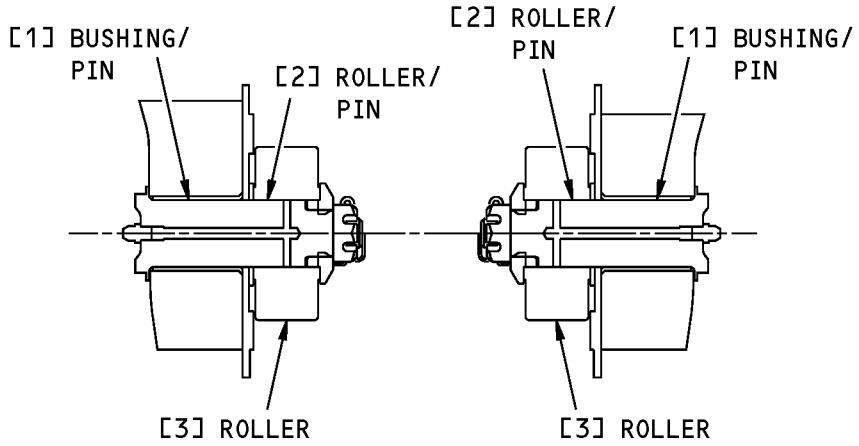

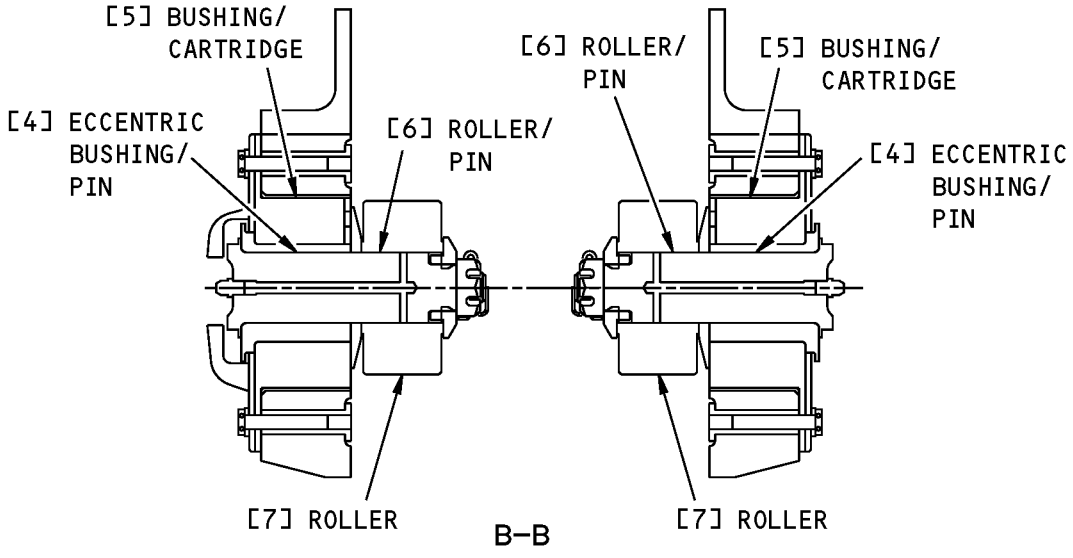

Inboard Flap Outboard Carriage Inspection
Figure 601 (Sheet 2 of 2)/27-51-13-990-803

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TASK 27-51-13-200-802

3. Inboard Flap Inboard Carriage Inspection

(Figure 602)

A. General

(1) This task gives wear limits for the inboard carriage on the inboard flap.

(2) This task is applicable to the carriages at flap supports No. 4 and 5.

B. References

Reference	Title
27-51-13-000-802	Inboard Flap Inboard Carriage Removal (P/B 401)
27-51-13-400-802	Inboard Flap Inboard Carriage Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

E. Procedure

SUBTASK 27-51-13-020-009

(1) Do this task: Inboard Flap Inboard Carriage Removal, TASK 27-51-13-000-802.

SUBTASK 27-51-13-020-010

(2) Use these tools to do a check for wear on the part of the inboard flap inboard carriage:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-51-13-020-011

(3) Examine the parts of the inboard flap inboard carriage (Table 602):

(a) Remove the parts that you will measure.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

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Table 602/27-51-13-993-806

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 BUSHING	I.D.	1.1870 in 30.150 mm	1.1878 in 30.170 mm	1.1915 in 30.264 mm	0.0050 in 0.1270 mm
#1 PIN	O.D.	1.1855 in 30.112 mm	1.1865 in 30.137 mm	1.1828 in 30.043 mm	
#2 ROLLER	I.D.	1.1868 in 30.145 mm	1.1875 in 30.163 mm	1.1915 in 30.264 mm	0.0050 in 0.1270 mm
#2 PIN	O.D.	1.1855 in 30.112 mm	1.1865 in 30.137 mm	1.1825 in 30.036 mm	
#3 ROLLER	O.D.	2.9990 in 76.175 mm	3.0010 in 76.225 mm	2.9970 in 76.124 mm	
#4 ECCENTRIC BUSHING	I.D.	1.2500 in 31.750 mm	1.2520 in 31.801 mm	1.2540 in 31.852 mm	0.0050 in 0.1270 mm
#4 PIN	O.D.	1.2480 in 31.699 mm	1.2490 in 31.725 mm	1.2470 in 31.674 mm	
#5 BUSHING	I.D.	3.3000 in 88.820 mm	3.3020 in 83.871 mm	3.3040 in 83.922 mm	0.0050 in 0.1270 mm
#5 CARTRIDGE	O.D.	3.2980 in 83.769 mm	3.2990 in 83.795 mm	3.2970 in 83.744 mm	
#6 ROLLER	I.D.	1.2493 in 31.732 mm	1.2500 in 31.750 mm	1.2540 in 31.852 mm	0.0050 in 0.1270 mm
#6 PIN	O.D.	1.2480 in 31.699 mm	1.2490 in 31.725 mm	1.2450 in 31.623 mm	
#7 ROLLER	O.D.	2.9990 in 76.175 mm	3.0010 in 76.225 mm	2.9970 in 76.124 mm	

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SUBTASK 27-51-13-420-007

(4) Do this task: Inboard Flap Inboard Carriage Installation, TASK 27-51-13-400-802.

——————— END OF TASK ———————

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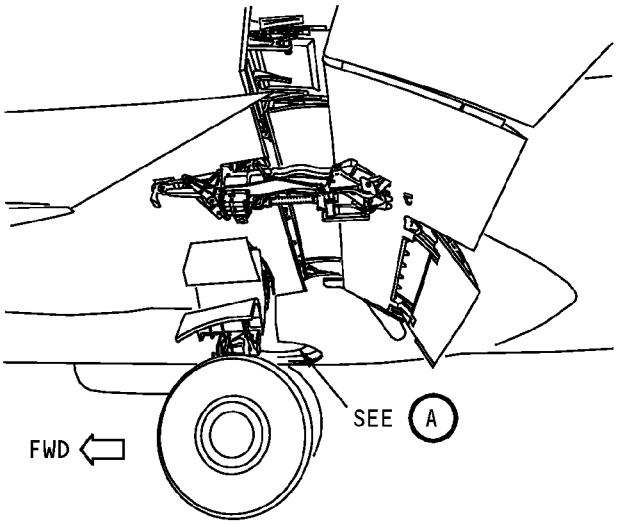

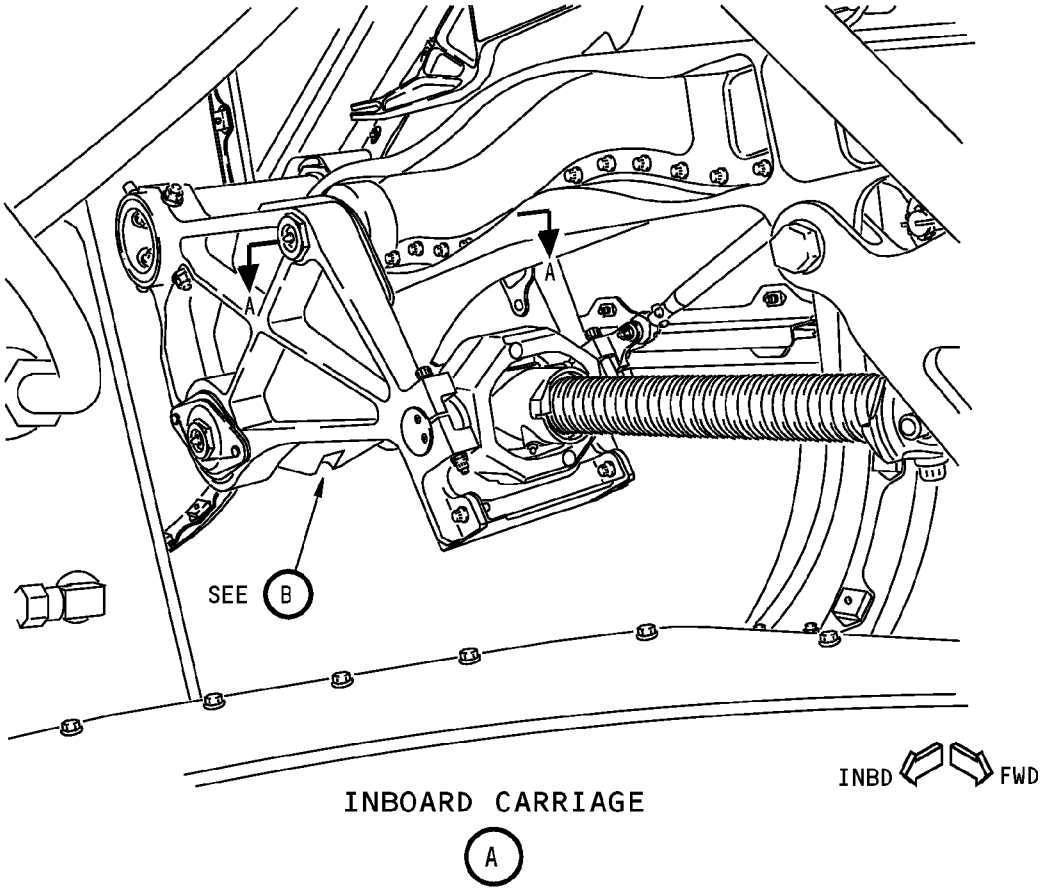

Inboard Flap Inboard Carriage Inspection
Figure 602 (Sheet 1 of 2)/27-51-13-990-804

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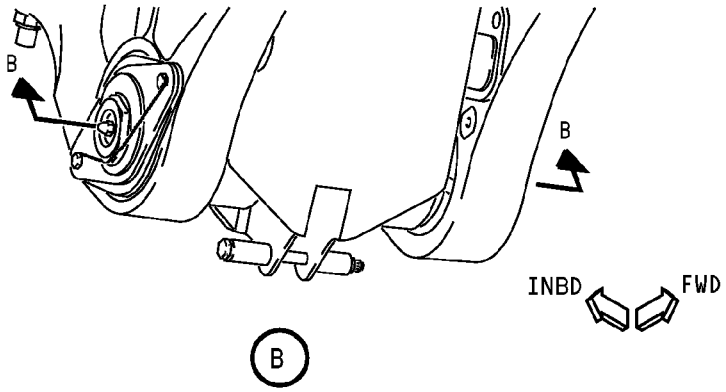

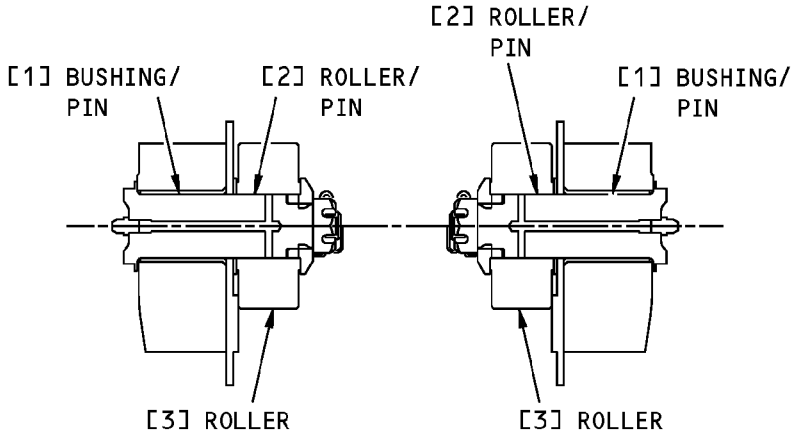

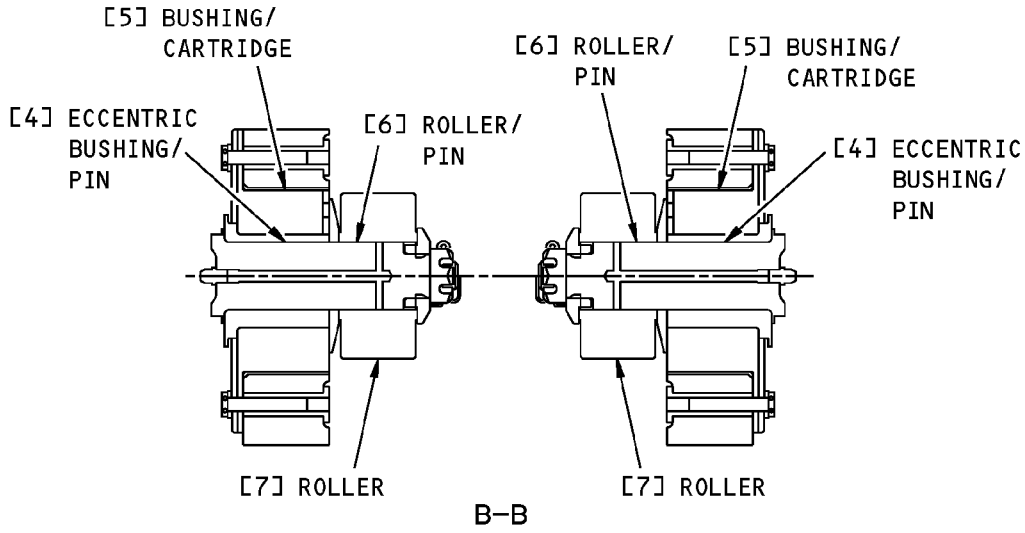

Inboard Flap Inboard Carriage Inspection
Figure 602 (Sheet 2 of 2)/27-51-13-990-804

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INBOARD AFT FLAP ACTUATING MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard aft flap actuating mechanism

(2) An installation of the inboard aft flap actuating mechanism.

B. The aft flap actuating mechanism includes these parts:

(1) The aft flap drive rod

(2) The interconnect pushrod

(3) The crankshaft

(4) The aft flap pushrods

(5) The cables

(6) The outboard bellcrank

(7) The inboard bellcrank

TASK 27-51-14-000-801

2. Inboard Aft Flap Actuating Mechanism Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-18-000-802	Inboard Flap Support Aft Fairing Removal (P/B 401)

B. Location Zones

Zone	Area
553	Left Wing - Inboard Flap
653	Right Wing - Inboard Flap

C. Prepare for the Removal

SUBTASK 27-51-14-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-14-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-14-010-001

(3) Do this task: Inboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

SUBTASK 27-51-14-010-002

(4) Remove the upper skin panel [4] from the outboard end of the main flap [1]:

(a) Remove the bolts [3] that attach the upper skin panel [4] to the main flap [1].

(b) Remove the upper skin panel [4].

SUBTASK 27-51-14-010-003

(5) Remove the lower skin panel [58] from the inboard end of the main flap [1]:

(a) Remove the bolts [57] that attach the lower skin panel [58] to the main flap [1].

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(b) Remove the lower skin panel [58].

SUBTASK 27-51-14-010-004

(6) Remove the leading edge panel [40] from the outboard end of the main flap [1]:

(a) Remove the bolts [42] that attach the leading edge panel [40] to the main flap [1].

(b) Remove the leading edge panel [40].

D. Inboard Aft Flap Mechanism Removal

SUBTASK 27-51-14-020-001

(1) Remove the aft flap drive rod assembly [43]:

(a) Remove the nuts [49], washers [48], bushings [47], washers [46] and bolts [45] that attach the aft flap drive rod assembly [43] to the drive rod fitting [44] and the crankshaft assembly [17].

(b) Remove the aft flap drive rod assembly [43].

SUBTASK 27-51-14-020-002

(2) Remove the interconnect push rod assembly [18]:

(a) Remove the nut [25], washer [24], washer [22], bolt [21] and bushing [23] that attach the interconnect push rod assembly [18] to the crankshaft assembly [17].

(b) Remove the nut [15], washer [14], washer [12], bolt [11] and bushing [13] that attach the interconnect push rod assembly [18] to the outboard bellcrank assembly [33].

(c) Remove the interconnect push rod assembly [18].

SUBTASK 27-51-14-020-003

(3) Remove the crankshaft assembly [17]:

(a) Remove the nut [55], washer [54], washers [52], bolts [51] and bushings [53] that attach the crankshaft assembly [17] to the ribs [41].

(b) Remove the crankshaft assembly [17].

SUBTASK 27-51-14-020-004

(4) Remove the aft flap push rod assemblies [34]:

(a) Remove the nut [31], washer [30], washer [28], bolt [27] and bushing [29] that attach the outboard aft flap push rod assembly [34] to the outboard bellcrank assembly [33].

(b) Remove the nut [31], washer [30], bushing [29], washer [28] and bolt [27] that attach the inboard aft flap push rod assembly [34] to the inboard bellcrank assembly [67].

(c) Remove the nut [79], washer [78], washer [76], bolt [75] and bushing [77] that attach the aft flap push rod assemblies [34] to the aft flap [2].

(d) Remove the aft flap push rod assemblies [34].

SUBTASK 27-51-14-020-005

(5) Remove the cable assemblies [19] and cable assemblies [64]:

(a) Remove the locking clips [66] from the turnbuckles [65].

(b) Turn the turnbuckles [65] to loosen the cable assemblies [19] and cable assemblies [64].

(c) Remove the nuts [62], washers [61], washers [60] and bolts [59]that attach the cable assemblies [64] to the inboard bellcrank assembly [67].

(d) Remove the nuts [38], washer [37], washers [36] and bolts [35] that attach the cable assemblies [19] to the outboard bellcrank assembly [33].

(e) Remove the cable assemblies [19] and cable assemblies [64].

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SUBTASK 27-51-14-020-006

(6) Remove the outboard bellcrank assembly [33]:

(a) Remove the nut [9], washer [8], washer [6], bolt [5] and bushings [7] that attach the outboard bellcrank assembly [33] to the main flap [1].

(b) Remove the outboard bellcrank assembly [33].

SUBTASK 27-51-14-020-007

(7) Remove the inboard bellcrank assembly [67]:

(a) Remove the nut [72], washer [71], washer [69], bolt [68] and bushings [70] that attach the inboard bellcrank assembly [67] to the main flap [1].

(b) Remove the inboard bellcrank assembly [67].

——————— END OF TASK ———————

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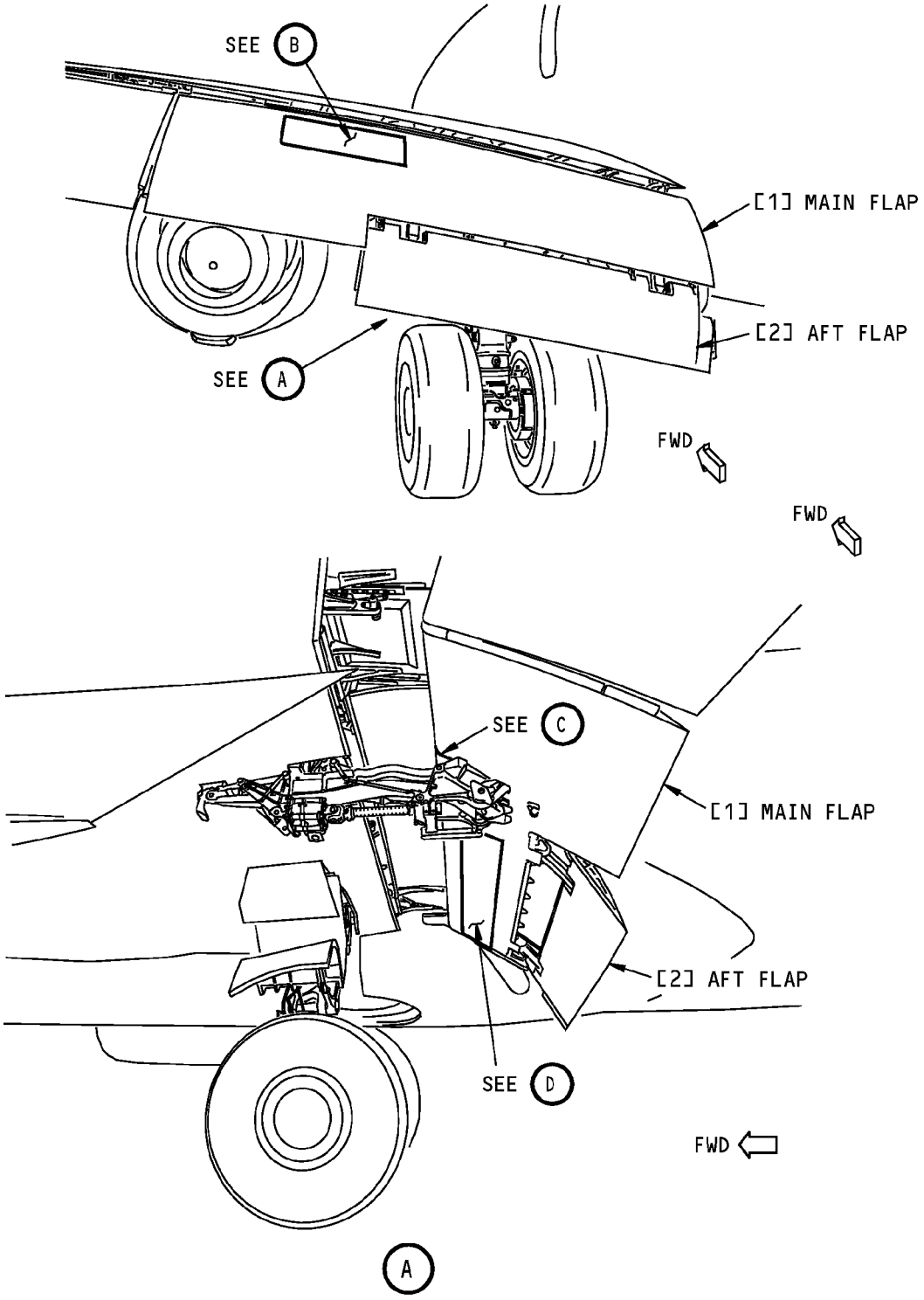

Inboard Aft Flap Actuating Mechanism Installation
Figure 401 (Sheet 1 of 5)/27-51-14-990-801

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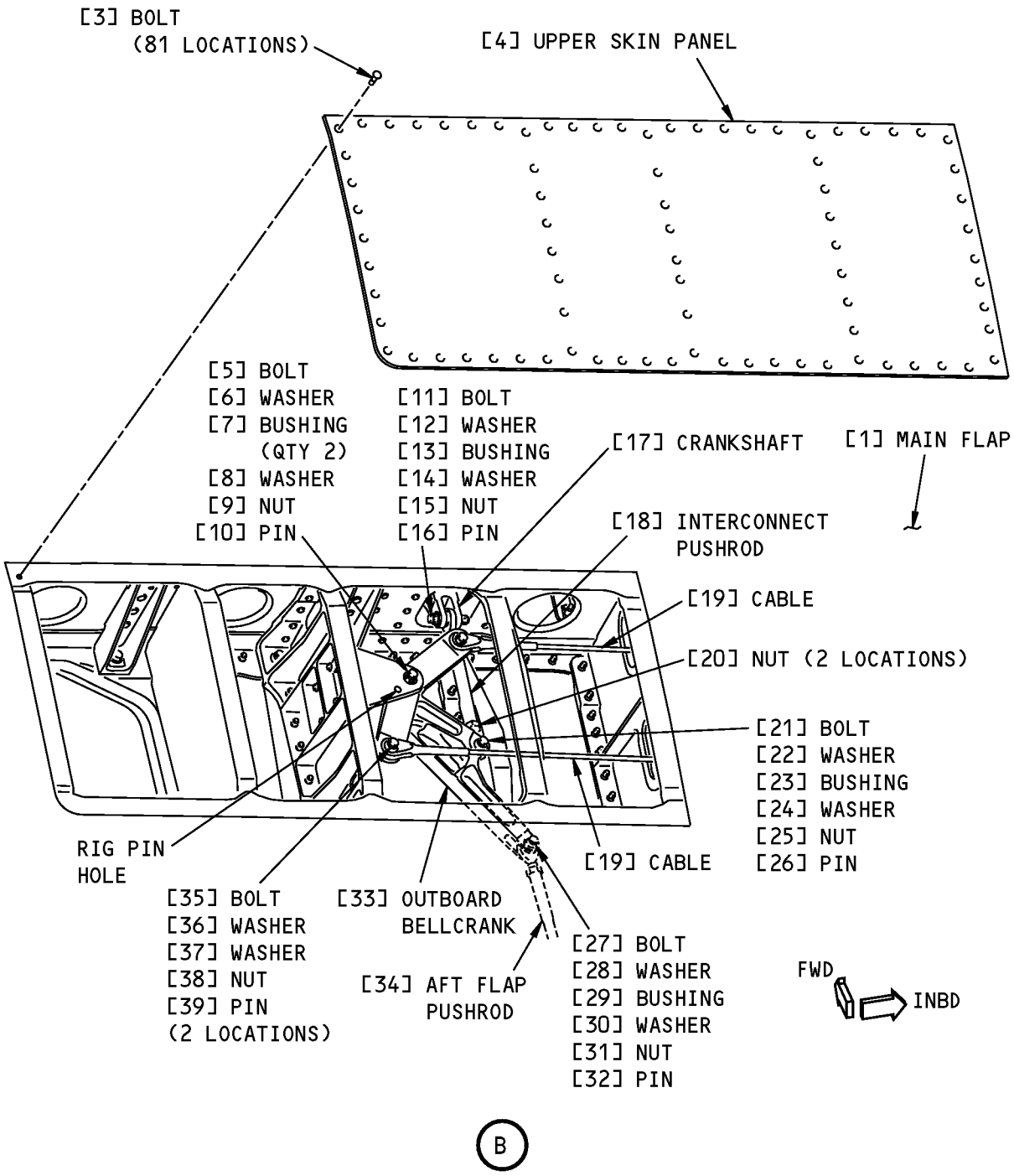

Inboard Aft Flap Actuating Mechanism Installation
Figure 401 (Sheet 2 of 5)/27-51-14-990-801

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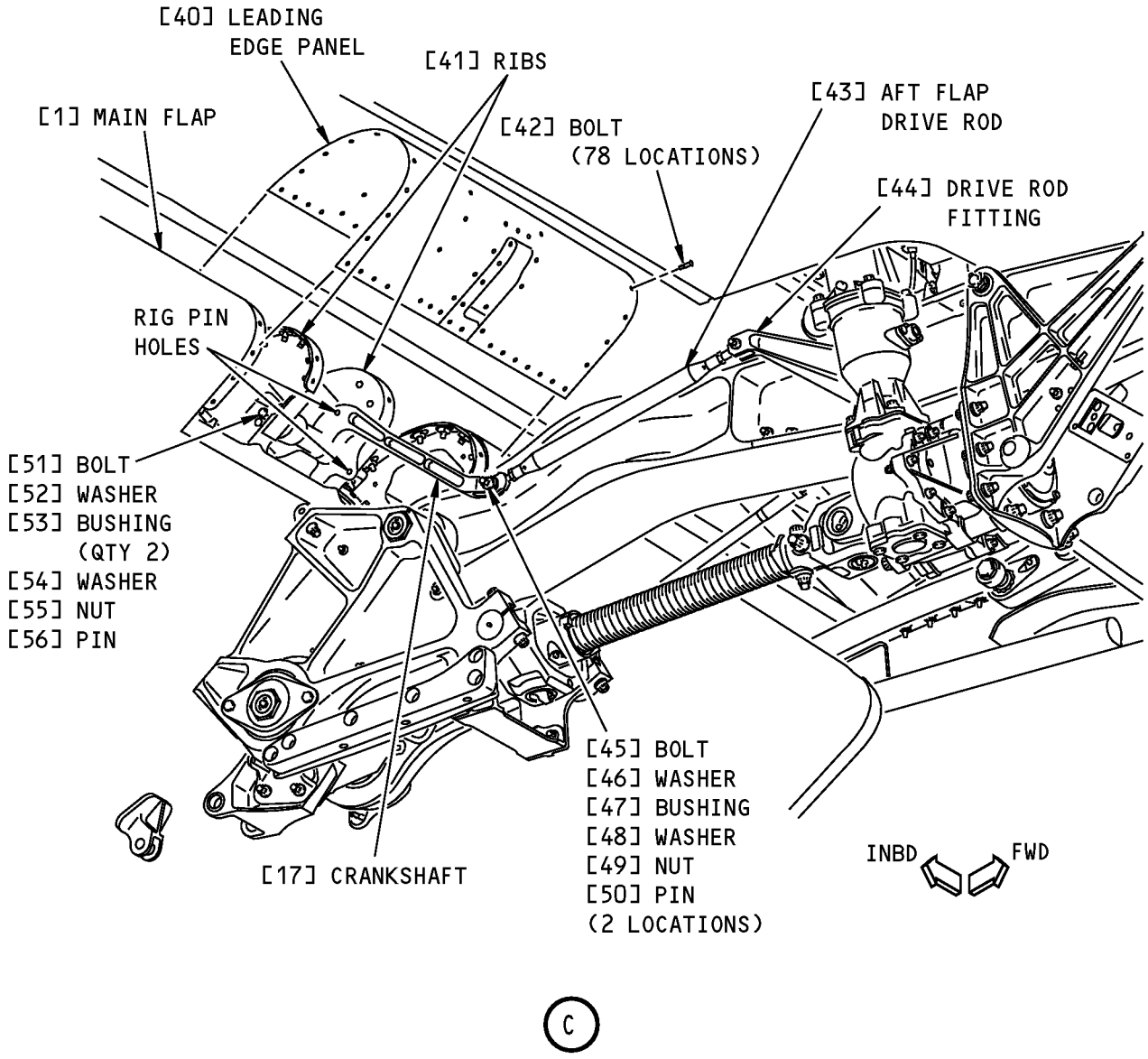

Inboard Aft Flap Actuating Mechanism Installation
Figure 401 (Sheet 3 of 5)/27-51-14-990-801

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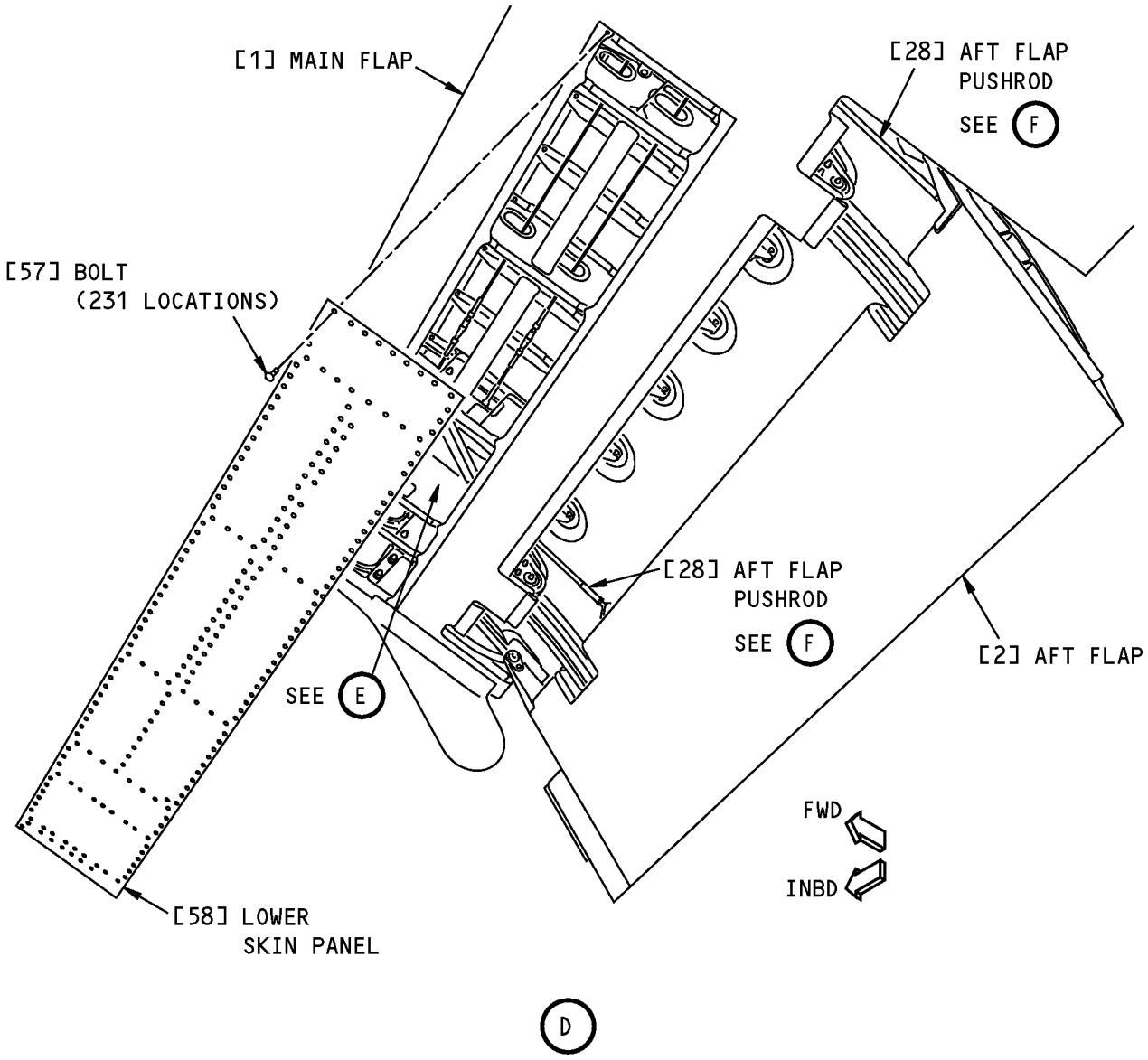

Inboard Aft Flap Actuating Mechanism Installation
Figure 401 (Sheet 4 of 5)/27-51-14-990-801

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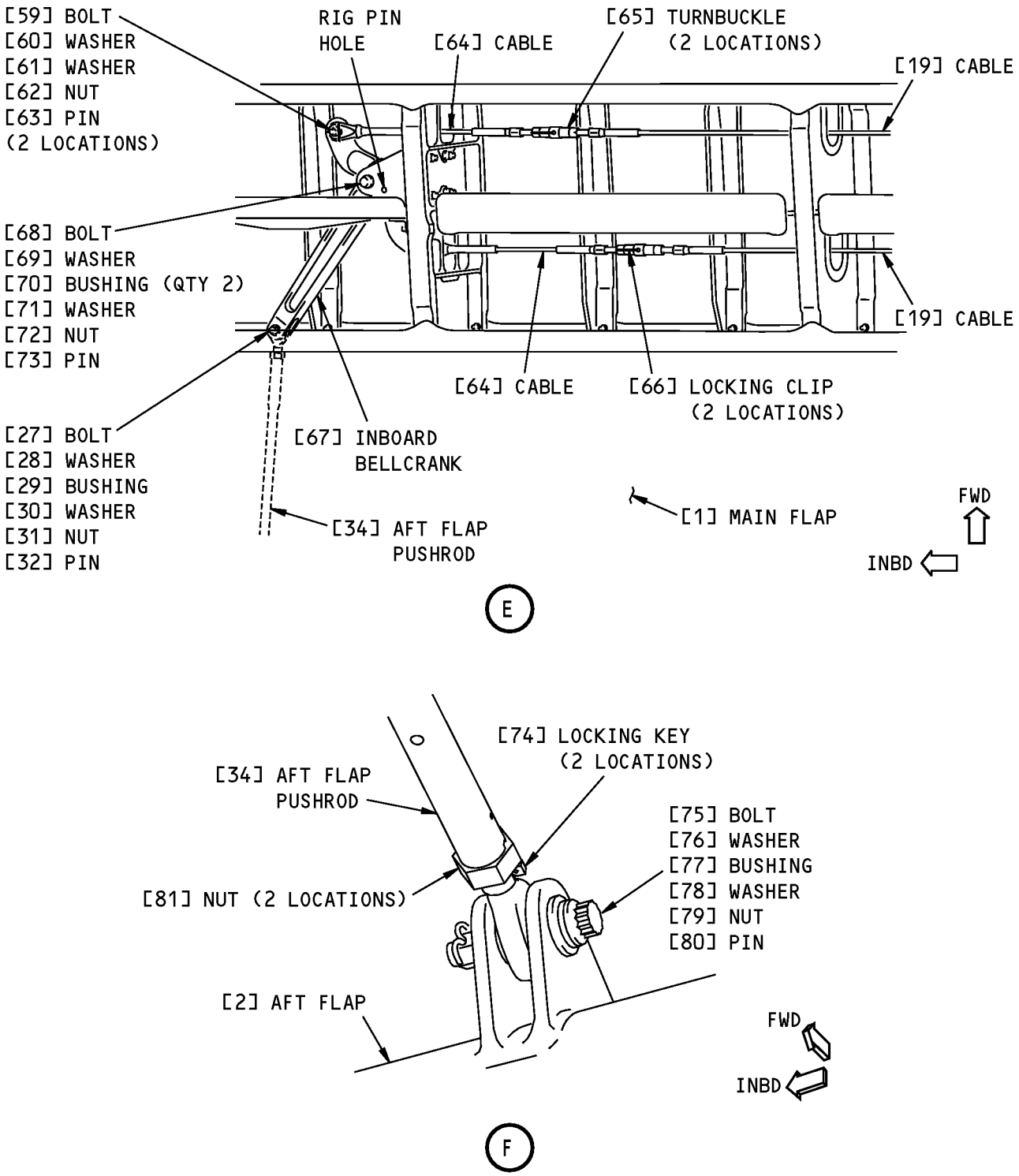

Inboard Aft Flap Actuating Mechanism Installation
Figure 401 (Sheet 5 of 5)/27-51-14-990-801

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TASK 27-51-14-400-801

3. Inboard Aft Flap Actuating Mechanism Installation

(Figure 401)

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-18-400-802	Inboard Flap Support Aft Fairing Installation (P/B 401)

B. Tools/Equipment

Reference	Description
STD-4232	Pin, Rig, 0.2500 in (6.35 mm)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
10	Pin	27-51-14-02-170	HAP ALL
16	Pin	27-51-14-02-285	HAP ALL
17	Crankshaft assembly	27-51-14-02-380	HAP ALL
		27-51-14-02-385	HAP ALL
18	Rod assembly	27-51-14-02-315	HAP ALL
19	Cable assembly	27-51-14-02-097	HAP ALL
26	Pin	27-51-14-02-103	HAP ALL
32	Pin	27-51-14-02-103	HAP ALL
33	Bellcrank assembly	27-51-14-02-240	HAP ALL
		27-51-14-02-245	HAP ALL
34	Rod assembly	27-51-14-02-135	HAP ALL
39	Pin	27-51-14-02-069	HAP ALL
43	Rod assembly	27-51-14-01-040	HAP ALL
50	Pin	27-51-14-01-030	HAP ALL
56	Pin	27-51-14-02-350	HAP ALL
63	Pin	27-51-14-02-350	HAP ALL
64	Cable assembly	27-51-14-02-095	HAP ALL
66	Clip	27-51-14-02-089	HAP ALL
67	Bellcrank assembly	27-51-14-02-200	HAP ALL
		27-51-14-02-205	HAP ALL
73	Pin	27-51-14-02-170	HAP ALL
80	Pin	27-51-14-02-010	HAP ALL

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E. Location Zones

Zone	Area
553	Left Wing - Inboard Flap
653	Right Wing - Inboard Flap

F. Inboard Aft Flap Actuating Mechanism Installation

SUBTASK 27-51-14-420-001

(1) Install the inboard bellcrank assembly [67]:

(a) Put the inboard bellcrank assembly [67] in its position in the main flap [1].

(b) Install the bushings [70], bolt [68], washer [69], washer [71] and nut [72] to attach the inboard bellcrank assembly [67].

NOTE: Install the bolt [68] with the head down.

(c) Tighten the nut [72] to 100-150 pound-inches (11.3-16.9 newton-meters).

(d) Install the pin [73] in the nut [72].

SUBTASK 27-51-14-420-002

(2) Install the outboard bellcrank assembly [33]:

(a) Put the outboard bellcrank assembly [33] in its position in the main flap [1].

(b) Install the bushings [7], bolt [5], washer [6], washer [8] and nut [9] to attach the outboard bellcrank assembly [33].

NOTE: Install the bolt [5] with the head up.

(c) Tighten the nut [9] to 100-150 pound-inches (11.3-16.9 newton-meters).

(d) Install the pin [10] in the nut [9].

SUBTASK 27-51-14-420-003

(3) Install the cable assemblies [19] and cable assemblies [64]:

(a) Put the cable assemblies [19] and cable assemblies [64] in their position in the main flap [1].

(b) Install the bolts [35], washers [36], washers [37] and nuts [38] to attach the cable assemblies [19] to the outboard bellcrank assembly [33].

(c) Install the bolts [59], washers [60], washers [61] and nuts [62] to attach the cable assemblies [64] to the inboard bellcrank assembly [67].

(d) Tighten the nuts [38] and nuts [62] to 50-80 pound-inches (5.6-9.0 newton-meters).

(e) Install the pins [39] in the nuts [38].

(f) Install the pins [63] in the nuts [62].

(g) Connect the cable assemblies [19] and cable assemblies [64] together at the turnbuckles [65].

NOTE: Do not tighten the turnbuckles [65] or install the locking clips [66] at this time.

SUBTASK 27-51-14-420-004

(4) Install the crankshaft assembly [17]:

(a) Put the crankshaft assembly [17] in its position between the ribs [41] on the leading edge of the main flap [1].

(b) Install the bushings [53], bolt [51], washer [52], washer [54], and nut [55] that attach the crankshaft assembly [17] to the ribs [41].

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(c) Tighten the nut [55] to 160-240 pound-inches (18.1-27.1 newton-meters).

(d) Install the pin [56] in the nut [55].

SUBTASK 27-51-14-420-005

(5) Install the interconnect push rod assembly [18]:

(a) Put the interconnect push rod assembly [18] in its position between the crankshaft assembly [17] and the outboard bellcrank assembly [33].

(b) Install the bushing [13], bolt [11], washer [12], washer [14] and nut [15] that attach the interconnect push rod assembly [18] to the crankshaft assembly [17].

NOTE: Install the bolt [11] with the head outboard.

(c) Install the bushing [23], bolt [21], washer [22], washer [24] and nut [25] that attach the interconnect push rod assembly [18] to the outboard bellcrank assembly [33].

NOTE: Install the bolt [21] with the head up.

(d) Tighten the nut [15] and nut [25] to 50-80 pound-inches (5.6-9.0 newton-meters).

(e) Install the pin [16] in the nut [15].

(f) Install the pin [26] in the nut [25].

SUBTASK 27-51-14-820-001

(6) Adjust the interconnect push rod assembly [18], cable assemblies [19] and cable assemblies [64]:

(a) Move the crankshaft assembly [17] to the retracted position.

(b) Install the 0.2500 in (6.35 mm) rig pin, STD-4232 in the crankshaft assembly [17].

(c) Install the0.2500 in (6.35 mm) rig pin, STD-4232 in the outboard bellcrank assembly [33].

(d) If you cannot install the rig pin in the outboard bellcrank assembly [33], adjust the length of the interconnect push rod assembly [18]:

1) Loosen the nuts [20] on the interconnect push rod assembly [18].

2) Turn the interconnect push rod assembly [18] until you can install the rig pin in the outboard bellcrank assembly [33].

3) Tighten the nuts [20] on the interconnect push rod assembly [18].

4) Install lockwire on the nuts [20].

(e) Install the 0.2500 in (6.35 mm) rig pin, STD-4232 in the inboard bellcrank assembly [67].

(f) If you cannot install the rig pin in the inboard bellcrank assembly [67], adjust the cables:

1) Remove the0.2500 in (6.35 mm) rig pin, STD-4232 from the crankshaft assembly [17].

2) If it is necessary, remove the tension from the forward cable assembly [19] and cable assembly [64]:

a) Remove the locking clips [66] from the turnbuckles [65].

b) Turn the turnbuckles [65].

3) Install the 0.2500 in (6.35 mm) rig pin, STD-4232 in the inboard bellcrank assembly [67] and the outboard bellcrank assembly [33].

4) Adjust the tension in the aft cable assembly [19] until it is in the limit of 200 ±25 pounds (889 ±110 newtons).

5) Adjust the tension in the forward cable assembly [19] until you can easily remove and install the rig pins in the bellcranks.

NOTE: Make sure the tension in the aft cable assembly [19] stays in the limit.

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(g) Install the locking clips [66] in the turnbuckles [65] for the cable assemblies [19] and cable assemblies [64].

(h) Remove the rig pins from the inboard bellcrank assembly [67], outboard bellcrank assembly [33] and the crankshaft assembly [17].

SUBTASK 27-51-14-420-006

(7) Install the aft flap push rod assemblies [34]:

(a) Put the aft flap push rod assemblies [34] in their location between the aft flap [2] and the bellcranks.

(b) Install the bolt [27], washer [28], bushing [29], washer [30] and nut [31] that attach the inboard aft flap push rod assembly [34] to the inboard bellcrank assembly [67].

(c) Install the bushing [29], bolt [27], washer [28], washer [30] and nut [31] that attach the outboard aft flap push rod assembly [34] to the outboard bellcrank assembly [33].

(d) Install the bushings [77],bolts [75], washers [76], washers [78] and nuts [79] that attach the aft flap push rod assemblies [34] to the aft flap [2].

(e) Tighten the nuts [31] and nuts [79] to 50-80 pound-inches (5.6-9.0 newton-meters).

(f) Install pins [32] in the nuts [31].

(g) Install pins [80] in the nuts [79].

SUBTASK 27-51-14-820-002

(8) If the aft flap [2] is installed, do an adjustment of the aft flap push rod assemblies [34]:

(a) Use the crankshaft assembly [17] to manually move the aft flap [2] to the retracted position.

(b) Install the 0.2500 in (6.35 mm) rig pin, STD-4232 in the crankshaft assembly [17].

(c) Measure the distance between the trailing edge of the aft flap [2] and the trailing edge of the upper cove panel [101] on the main flap [1] (Figure 402).

NOTE: Measure the distance aft of the inboard and outboard aft flap push rod assemblies [34].

1) At the outboard push rod assembly [34], make sure the distance is 9.2745 ±0.0600 inches (235.57 ±1.52 millimeters).

2) At the inboard push rod assembly [34], make sure the distance is 9.2319 ±0.0600 inches (234.49 ±1.52 millimeters).

(d) If the distance at the inboard or outboard pushrod is not in the limit, then adjust the length of the applicable aft flap push rod assembly [34] (Figure 401):

1) Remove the rig pin from the crankshaft assembly [17].

2) Use the crankshaft assembly [17] to manually extend the aft flap [2] to the extended position.

3) Adjust the length of the applicable aft flap push rod assembly [34]:

NOTE: For each 90 degree turn of the aft flap push rod assembly [34], the trailing edge of the aft flap will move 0.04 inches (1.02 millimeters).

a) Loosen the nuts [81] on the aft flap push rod assembly [34].

b) Adjust the length of the aft flap push rod assembly [34].

c) Tighten the nuts [81].

d) Install lockwire on the nuts [81] and the locking keys [74].

4) Use the crankshaft assembly [17] to manually retract the aft flap [2] to the retracted position.

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5) Install the 0.2500 in (6.35 mm) rig pin, STD-4232 in the crankshaft assembly [17].

6) Make sure the distance from the trailing edge of the aft flap [2] to the trailing edge of the upper cove panel [101] is in the limit.

(e) Remove the rig pin from the crankshaft assembly [17].

(f) Use the crankshaft assembly [17] to manually extend the aft flap [2] to the extended position.

SUBTASK 27-51-14-420-007

(9) Install the aft flap drive rod assembly [43]:

(a) Put the aft flap drive rod assembly [43] in its position between the drive rod fitting [44] and the crankshaft assembly [17].

(b) Install the bolts [45], washers [46], bushings [47], washers [48] and nuts [49] that attach the aft flap drive rod assembly [43] to the crankshaft assembly [17] and the drive rod fitting [44].

NOTE: Make sure the heads of the bolts [45] are on the inboard side.

(c) Tighten the nuts [49] to 30-50 pound-inches (3.4-5.6 newton-meters).

(d) Install the pins [50] through the nuts [49].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-14-410-001

(1) Install the leading edge panel [40] on the outboard end of the main flap [1]:

(a) Apply sealant, A00247 to the mating surface of the leading edge panel [40] and the main flap [1].

(b) Put the leading edge panel [40] in its position.

(c) Install the bolts [42]:

1) Apply compound, C00528 to the forward and aft rows of holes in the leading edge panel [40].

2) Install the bolts [42] in the forward and aft rows of holes.

3) Apply sealant, A00247 to the bolts [42] that go in the ribs and stiffeners in the main flap [1].

4) Install the bolts [42] in the ribs and stiffeners.

SUBTASK 27-51-14-410-002

(2) Install the upper skin panel [4] on the outboard end of the main flap [1]:

(a) Apply sealant, A00247 to the mating surface of the upper skin panel [4] and the main flap [1].

(b) Put the upper skin panel [4] in its position.

(c) Install the bolts [3]:

1) Apply compound, C00528 to the forward and aft rows of holes in the upper skin panel [4].

2) Install the bolts [3] in the forward and aft rows of holes.

3) Apply sealant, A00247 to the bolts [3] that go in the ribs and stiffeners in the main flap [1].

4) Install the bolts [3] in the ribs and stiffeners.

SUBTASK 27-51-14-410-003

(3) Install the lower skin panel [58] on the inboard end of the main flap [1]:

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(a) Apply sealant, A00247 to the mating surface of the lower skin panel [58] and the main flap [1].

(b) Put the lower skin panel [58] in its position.

(c) Install the bolts [57]:

1) Apply compound, C00528 to the forward and aft rows of holes in the lower skin panel [58].

2) Install the bolts [57] in the forward and aft rows of holes.

3) Apply sealant, A00247 to the bolts [57] that go in the ribs and stiffeners in the main flap [1].

4) Install the bolts [57] in the ribs and stiffeners.

SUBTASK 27-51-14-410-004

(4) Do this task: Inboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-14-440-001

(5) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-14-860-002

(6) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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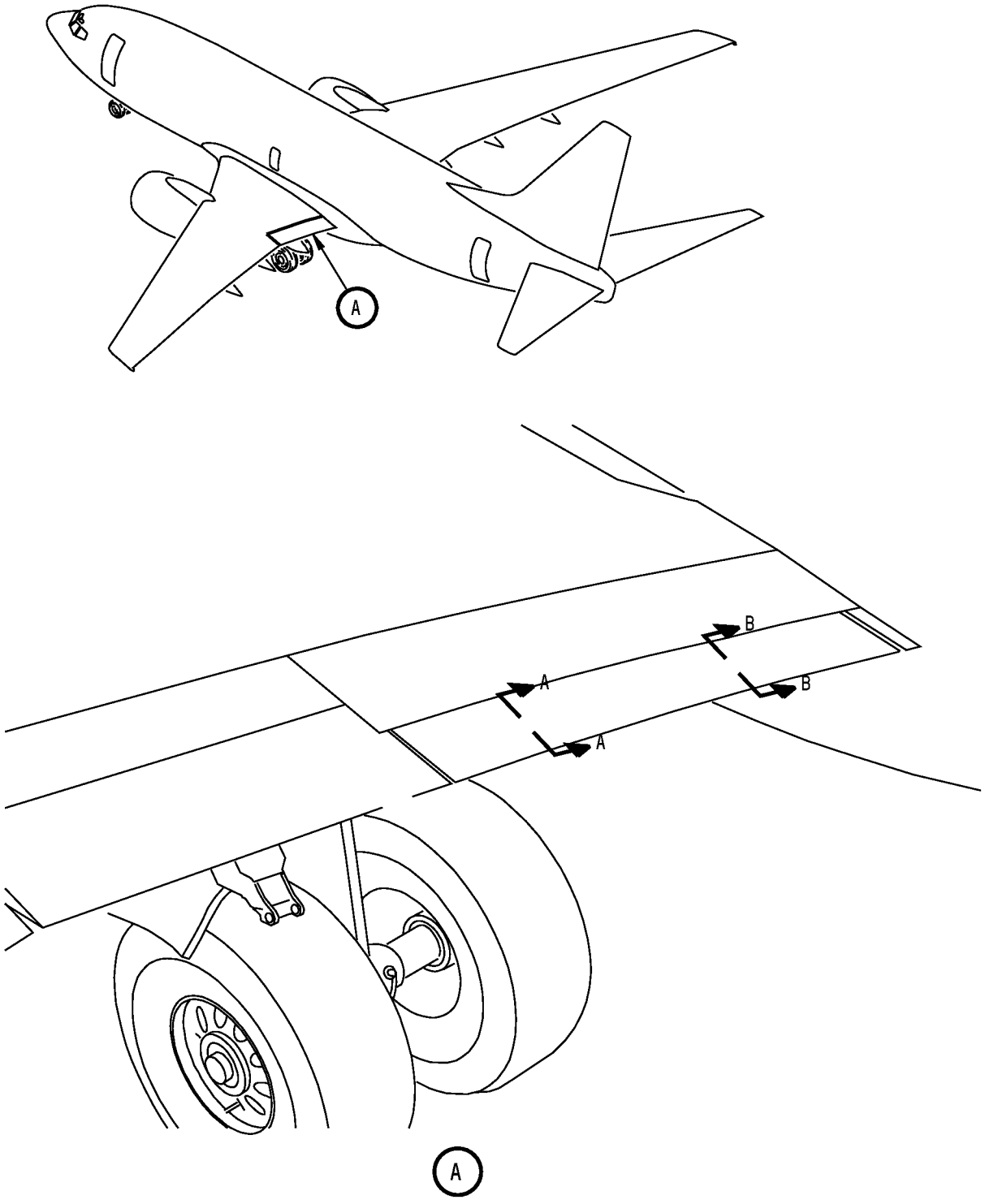

Inboard Aft Flap Pushrod Adjustment
Figure 402 (Sheet 1 of 2)/27-51-14-990-802

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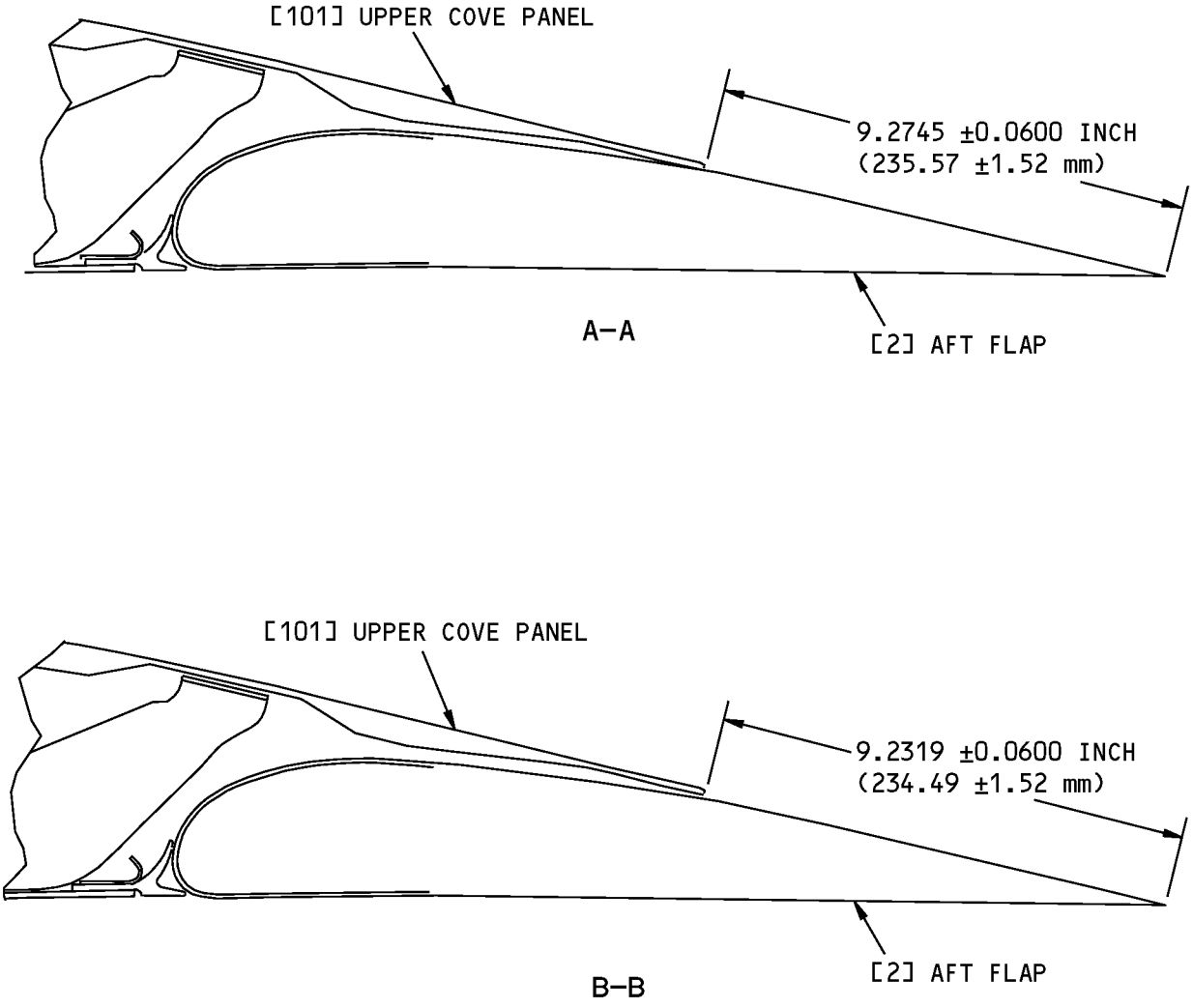

Inboard Aft Flap Pushrod Adjustment
Figure 402 (Sheet 2 of 2)/27-51-14-990-802

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INBOARD FLAP TRACKS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard track for the inboard flap

(2) An installation of the outboard track for the inboard flap

(3) A removal of the inboard track for the inboard flap

(4) An installation of the inboard track for the inboard flap.

TASK 27-51-15-000-801

2. Inboard Flap Outboard Track Removal

(Figure 401)

A. General

(1) This task is applicable to the flap tracks at flap supports No. 3 and 6.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-11-000-801	Inboard Trailing Edge Flap Removal (P/B 401)
27-51-18-000-801	Inboard Flap Support Forward Fairing Removal (P/B 401)
27-51-18-000-802	Inboard Flap Support Aft Fairing Removal (P/B 401)
27-51-31-000-801	Inboard Flap Outboard Transmission Removal (P/B 401)
27-59-02-000-803	Inboard Flap Outboard Skew Mechanism Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1568	Jack - Hydraulic, General Low Profile (Part #: B67563, Supplier: 36251, A/P Effectivity: 737-ALL) (Part #: HW93718, Supplier: 28047, A/P Effectivity: 737-ALL) (Opt Part #: W93718, Supplier: 36251, A/P Effectivity: 737-ALL)
SPL-1733	Adapter - Hoist, Removal/Installation, Flap Track (Part #: C27040-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

E. Prepare for the Removal

SUBTASK 27-51-15-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-15-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-51-15-010-001

(3) Remove the fairings for the outboard track on the inboard flap:

(a) Do this task: Inboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-801.

(b) Do this task: Inboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

SUBTASK 27-51-15-020-001

(4) Do this task: Inboard Trailing Edge Flap Removal, TASK 27-51-11-000-801.

SUBTASK 27-51-15-020-002

(5) Do this task: Inboard Flap Outboard Skew Mechanism Removal, TASK 27-59-02-000-803.

SUBTASK 27-51-15-020-003

(6) Do this task: Inboard Flap Outboard Transmission Removal, TASK 27-51-31-000-801.

F. Inboard Flap Outboard Track Removal

NOTE: Make sure you support the flap track while you disconnect it.

SUBTASK 27-51-15-480-002

(1) If you will use the adapter, SPL-1733, install it on the flap track assembly [1]:

(a) Install the adapter, SPL-1733 on the flap track assembly [1] approximately 35 inches (89 cm) aft of the track attach fitting.

(b) Put a low profile hydraulic jack, COM-1568 below the adapter, SPL-1733 to support the flap track assembly [1].

SUBTASK 27-51-15-020-004

(2) Disconnect the forward end of the flap track assembly [1] from the track attach fitting:

(a) Remove the bolts [13] and washers [12] that attach the failsafe fitting assembly [14] to the track attach fitting.

(b) Remove the nut [17], washer [16] and fuse pin [15] from the forward end of the flap track assembly [1].

SUBTASK 27-51-15-020-005

(3) Disconnect the aft end of the flap track assembly [1] from the structure:

(a) Remove the bolt [8], washer [9], washer [10] and nut [11] from the outboard side of the flap track assembly [1].

(b) Remove the bolt [7], washer [6], washer [4] and nut [3] from the inboard side of the flap track assembly [1].

(c) Measure the thickness of the shim [5].

SUBTASK 27-51-15-020-006

(4) If you will install a new flap track assembly [1], remove the transmission attach fitting assembly [2] from the flap track assembly [1]:

(a) Remove the bolt [19], washer [26] and nut [24] that attach the forward end of the transmission attach fitting assembly [2].

(b) Remove the bolt [20], washer [21] and nut [22] that attach the aft end of the transmission attach fitting assembly [2].

——————— END OF TASK ———————

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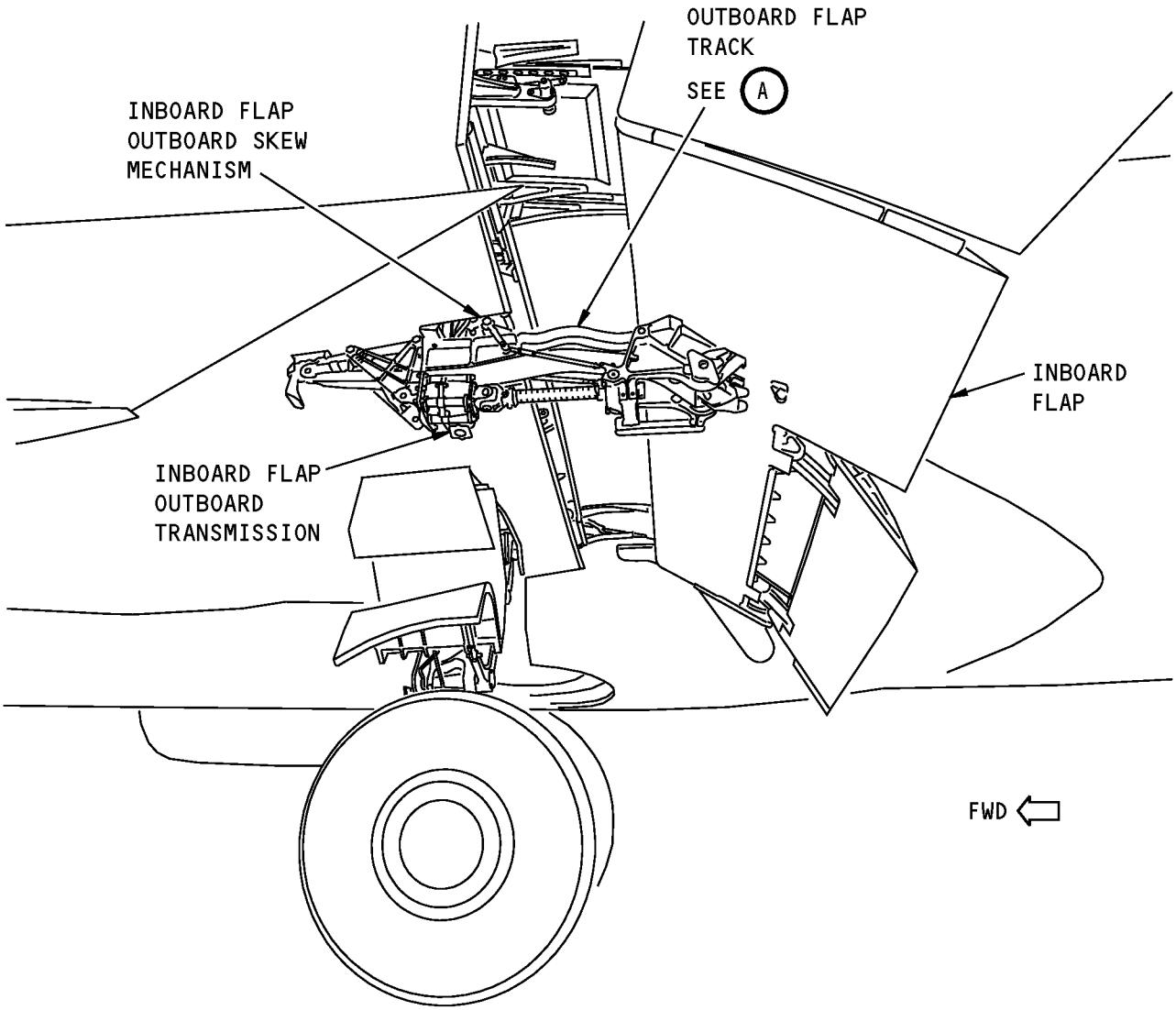

Inboard Flap Outboard Flap Track Installation
Figure 401 (Sheet 1 of 4)/27-51-15-990-801

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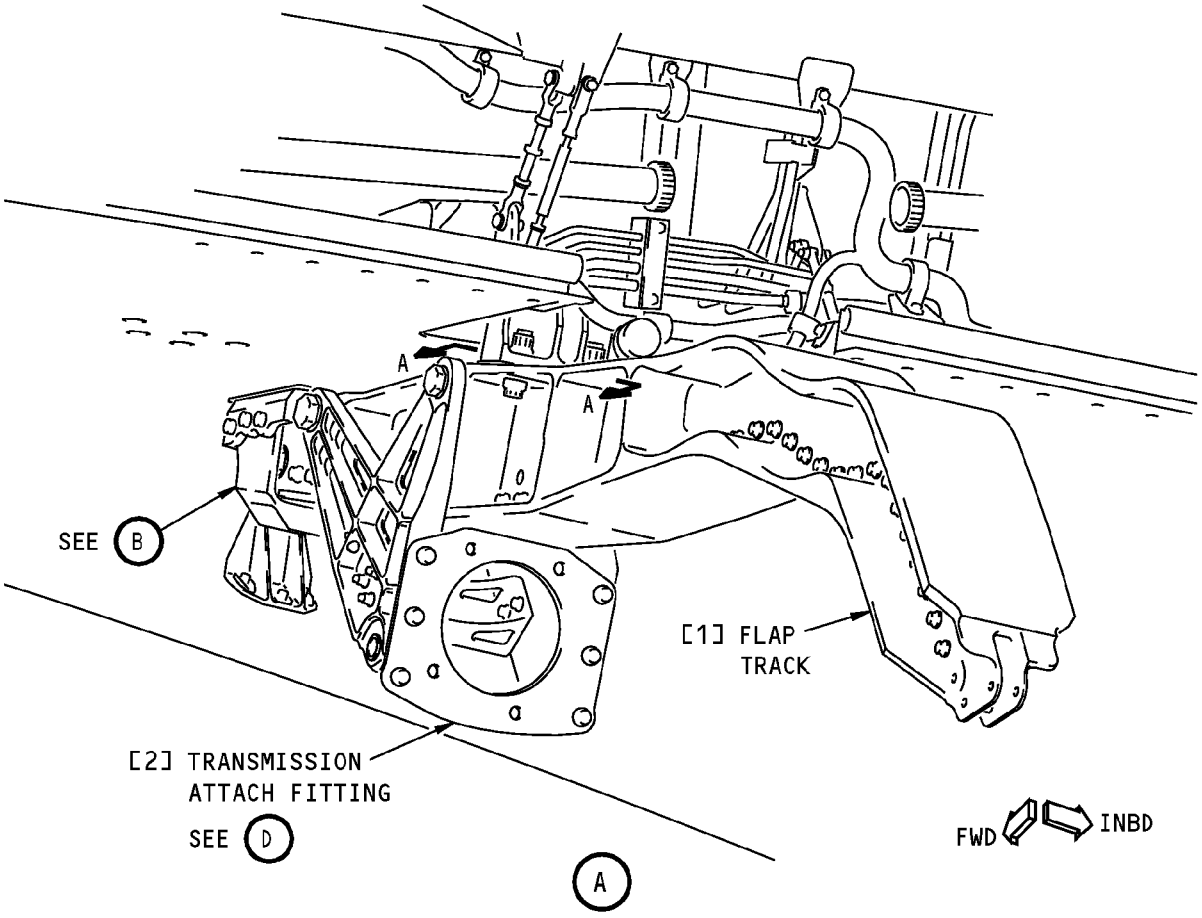

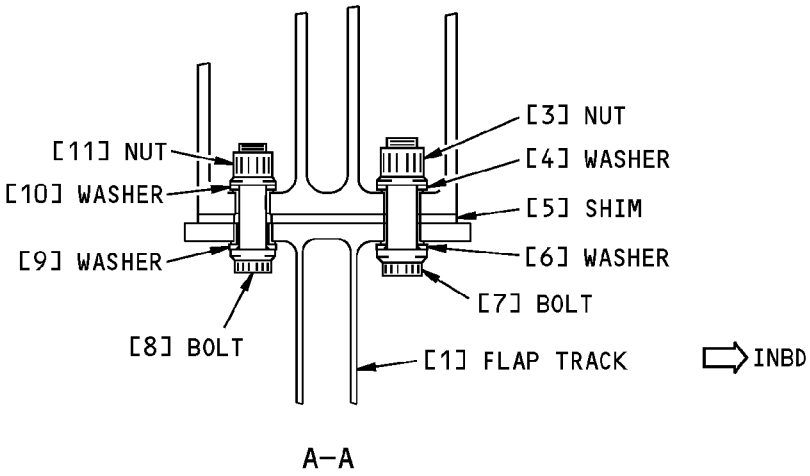

Inboard Flap Outboard Flap Track Installation
Figure 401 (Sheet 2 of 4)/27-51-15-990-801

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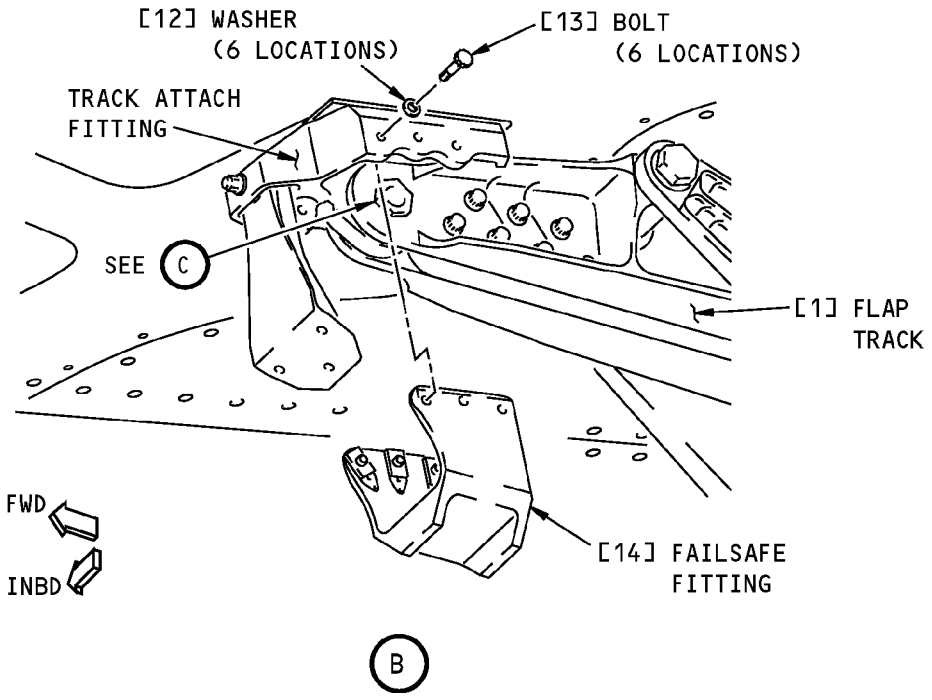

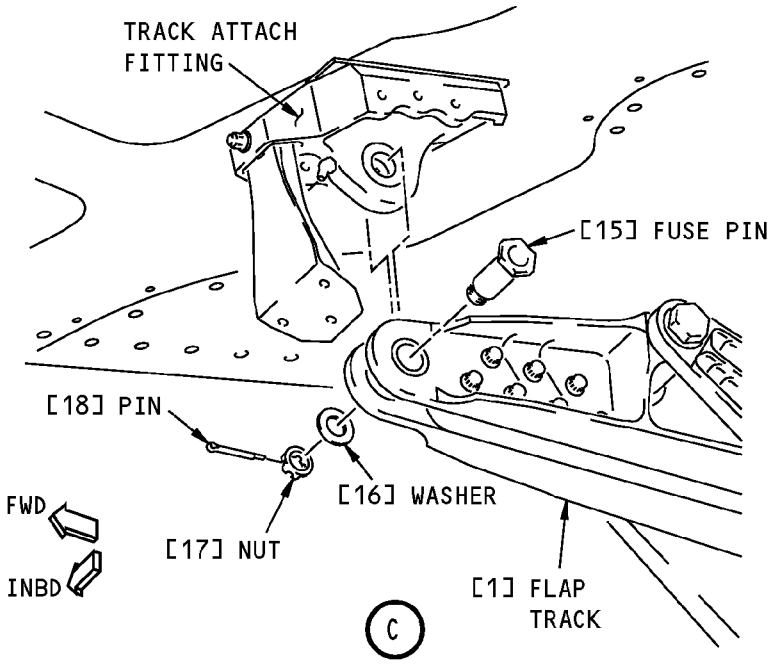

Inboard Flap Outboard Flap Track Installation
Figure 401 (Sheet 3 of 4)/27-51-15-990-801

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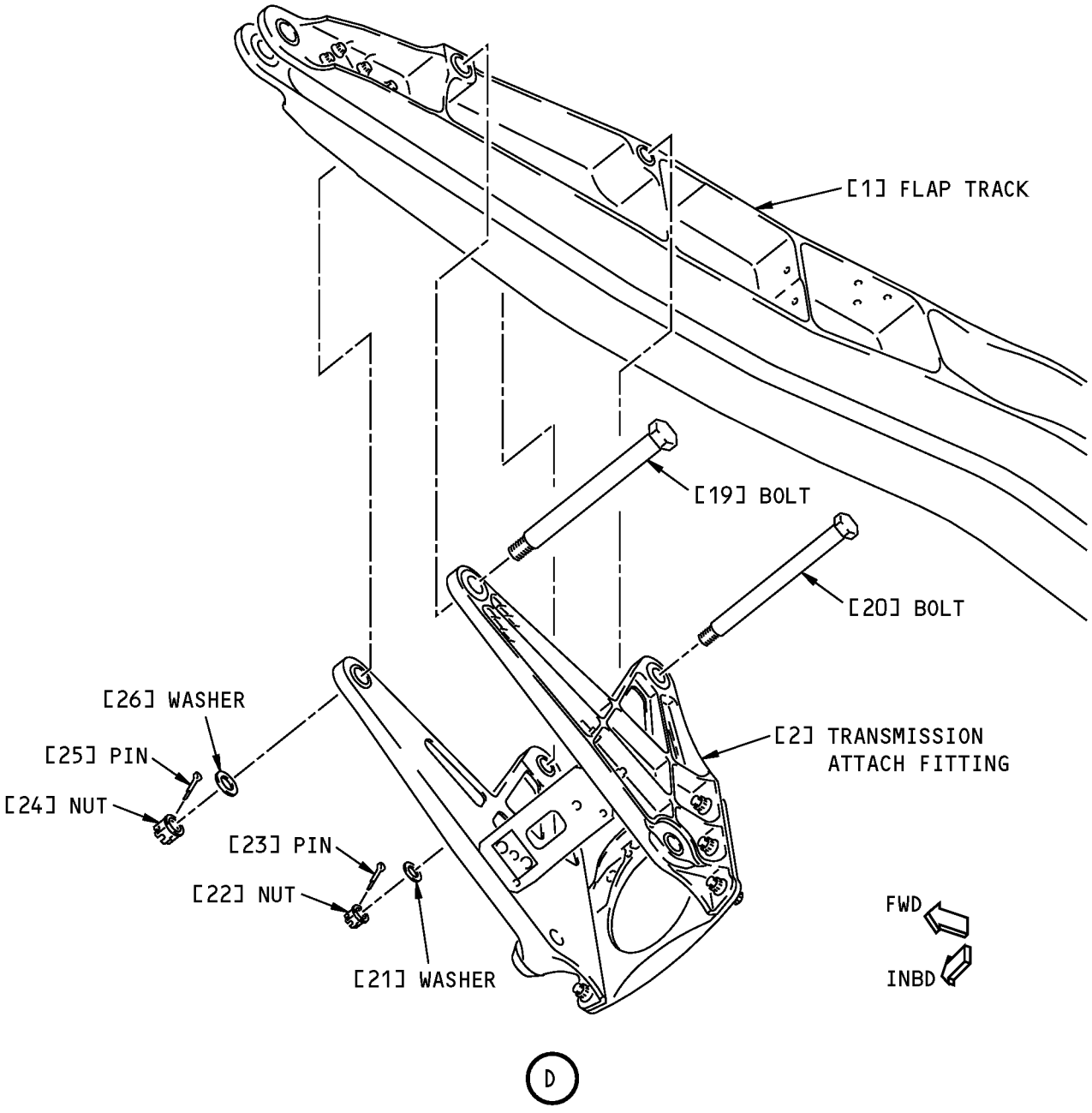

Inboard Flap Outboard Flap Track Installation
Figure 401 (Sheet 4 of 4)/27-51-15-990-801

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TASK 27-51-15-400-801

3. Inboard Flap Outboard Track Installation

(Figure 401)

A. General

(1) This task is applicable to the flap tracks at flap supports No. 3 and 6.

B. References

Reference	Title
12-22-51-640-814	Inboard Flap Outboard Flap Track Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-11-400-801	Inboard Trailing Edge Flap Installation (P/B 401)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
27-51-18-400-801	Inboard Flap Support Forward Fairing Installation (P/B 401)
27-51-18-400-802	Inboard Flap Support Aft Fairing Installation (P/B 401)
27-51-31-400-801	Inboard Flap Outboard Transmission Installation (P/B 401)
27-59-00-820-801	Flap Skew Detection System Adjustment (P/B 501)
27-59-02-400-803	Inboard Flap Outboard Skew Mechanism Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1568	Jack - Hydraulic, General Low Profile (Part #: B67563, Supplier: 36251, A/P Effectivity: 737-ALL) (Part #: HW93718, Supplier: 28047, A/P Effectivity: 737-ALL) (Opt Part #: W93718, Supplier: 36251, A/P Effectivity: 737-ALL)
SPL-1733	Adapter - Hoist, Removal/Installation, Flap Track (Part #: C27040-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Track assembly	27-51-00-18-265	HAP 008-013, 015-026, 028-036
		27-51-15-01-135	HAP 001-007
		27-51-15-03-140	HAP 001-007
		27-51-15-05A-130	HAP 008-013, 015-026, 028-054, 101-999
		27-51-15-05A-135	HAP 008-013, 015-026, 028-054, 101-999
2	Fitting assembly	27-51-00-18-215	HAP 008-013, 015-026, 028-036

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
2 (cont.)		27-51-15-03-050	HAP 001-007
		27-51-15-03-055	HAP 001-007
		27-51-15-05A-215	HAP 008-013, 015-026, 028-054, 101-999
		27-51-15-05A-220	HAP 008-013, 015-026, 028-054, 101-999
14	Fitting assembly	27-51-00-18-070	HAP 001-013, 015-026, 028-036
		27-51-15-05-075	HAP 001-007
		27-51-15-05A-080	HAP 008-013, 015-026, 028-054, 101-999
15	Pin	27-51-00-18-115	HAP 001-013, 015-026, 028-036
		27-51-15-05A-125	HAP 008-013, 015-026, 028-054, 101-999
18	Pin	27-51-00-18-100	HAP 001-013, 015-026, 028-036
		27-51-15-05A-110	HAP 008-013, 015-026, 028-054, 101-999
23	Pin	27-51-00-18-180	HAP 008-013, 015-026, 028-036
		27-51-15-03-015	HAP 001-007
		27-51-15-05A-180	HAP 008-013, 015-026, 028-054, 101-999
25	Pin	27-51-00-18-175	HAP 008-013, 015-026, 028-036
		27-51-15-03-010	HAP 001-007
		27-51-15-05A-175	HAP 008-013, 015-026, 028-054, 101-999

F. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

G. Inboard Flap Outboard Track Installation

SUBTASK 27-51-15-420-001

(1) If it is not installed, install the transmission attach fitting assembly [2]:

(a) Put the transmission attach fitting assembly [2] in its position on the flap track assembly [1].

(b) Install the bolt [20], washer [21] and nut [22] that attach the aft end of the transmission attach fitting assembly [2] to the flap track assembly [1].

(c) Install the pin [23] in the nut [22].

(d) Install the bolt [19], washer [26] and nut [24] that attach the forward end of the transmission attach fitting assembly [2] to the flap track assembly [1].

(e) Install the pin [25] in the nut [24].

SUBTASK 27-51-15-480-003

(2) If you will use the adapter, SPL-1733, install it on the flap track assembly [1]:

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(a) Install the adapter, SPL-1733 on the flap track assembly [1] approximately 35 inches (89 cm) aft of the track attach fitting.

(b) Put a low profile hydraulic jack, COM-1568 below the adapter, SPL-1733 to support the flap track assembly [1].

SUBTASK 27-51-15-420-002

(3) Install the flap track assembly [1]:

(a) If it is not installed, install the shim [5] on the structure:

NOTE: Make sure the shim [5] is the same thickness as the shim [5] that you removed.

1) Apply sealant, A00247 to the mating surface of the shim [5] and the structure.

2) Put the shim [5] in its location

(b) Attach the aft end of the flap track assembly [1]:

1) Lift the flap track assembly [1] to its location on the structure.

2) Install the bolt [7], washer [6], washer [4] and nut [3] that attach the inboard end of the flap track assembly [1].

3) Install the bolt [8], washer [9], washer [10] and nut [11] that attach the outboard end of the flap track assembly [1].

(c) Attach the forward end of the flap track assembly [1]:

1) Apply grease, D00633 to the outside of the fuse pin [15] and the inside of the bushings.

2) Install the fuse pin [15] to attach the forward end of the flap track assembly [1] to the track attach fitting.

(d) Tighten the nut [3] to 1000-1470 pound-inches (113-166 newton-meters).

(e) Tighten the nut [11] to 630-1070 pound-inches (71.2-120.8 newton-meters).

(f) Make sure you can turn the fuse pin [15] in the joint with a maximum of 10 pound-inches torque.

NOTE: You can push up on the forward end of the flap track assembly [1] to take the weight off the fuse pin [15] when you measure the torque.

(g) Install the washer [16] and nut [17] on the fuse pin [15].

(h) Tighten the nut [17] to 330-350 pound-inches.

(i) Loosen the nut [17] to align the hole for the pin [18].

(j) Install the pin [18] in the nut [17].

SUBTASK 27-51-15-420-003

(4) Install the failsafe fitting assembly [14] on the track attach fitting:

(a) Put the failsafe fitting assembly [14] in its location on the track attach fitting.

(b) Install the bolts [13] and washers [12] to attach the failsafe fitting assembly [14].

SUBTASK 27-51-15-480-004

(5) If it is necessary, remove the adapter, SPL-1733 from the flap track assembly [1].

SUBTASK 27-51-15-420-004

(6) Do this task: Inboard Flap Outboard Transmission Installation, TASK 27-51-31-400-801.

SUBTASK 27-51-15-420-005

(7) Do this task: Inboard Flap Outboard Skew Mechanism Installation, TASK 27-59-02-400-803.

SUBTASK 27-51-15-420-006

(8) Do this task: Inboard Trailing Edge Flap Installation, TASK 27-51-11-400-801.

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SUBTASK 27-51-15-820-001

(9) Do this task: Inboard Trailing Edge Flap Adjustment, TASK 27-51-11-820-801.

SUBTASK 27-51-15-820-002

(10) Do this task: Flap Skew Detection System Adjustment, TASK 27-59-00-820-801.

SUBTASK 27-51-15-640-001

(11) Do this task: Inboard Flap Outboard Flap Track Lubrication, TASK 12-22-51-640-814.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-15-410-001

(1) Install the fairings for the outboard track on the inboard flap:

(a) Do this task: Inboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

(b) Do this task: Inboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-801.

SUBTASK 27-51-15-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-15-860-002

(3) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

TASK 27-51-15-000-802

4. Inboard Flap Inboard Track Removal

(Figure 402)

A. General

(1) This task is applicable to the flap tracks at flap supports No. 4 and 5.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-11-000-801	Inboard Trailing Edge Flap Removal (P/B 401)
27-51-31-000-802	Inboard Flap Inboard Transmission Removal (P/B 401)
27-59-02-000-804	Inboard Flap Inboard Skew Mechanism Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1568	Jack - Hydraulic, General Low Profile (Part #: B67563, Supplier: 36251, A/P Effectivity: 737-ALL) (Part #: HW93718, Supplier: 28047, A/P Effectivity: 737-ALL) (Opt Part #: W93718, Supplier: 36251, A/P Effectivity: 737-ALL)
SPL-1733	Adapter - Hoist, Removal/Installation, Flap Track (Part #: C27040-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

E. Prepare for the Removal

SUBTASK 27-51-15-860-003

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-15-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-15-040-002

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-15-020-007

(4) Do this task: Inboard Trailing Edge Flap Removal, TASK 27-51-11-000-801.

SUBTASK 27-51-15-020-008

(5) Do this task: Inboard Flap Inboard Skew Mechanism Removal, TASK 27-59-02-000-804.

SUBTASK 27-51-15-020-009

(6) Do this task: Inboard Flap Inboard Transmission Removal, TASK 27-51-31-000-802.

F. Inboard Flap Inboard Track Removal

NOTE: Make sure you support the flap track assemblies [41] while you disconnect it.

SUBTASK 27-51-15-480-005

(1) If you will use the adapter, SPL-1733, install it on the flap track assemblies [41]:

(a) Install the adapter, SPL-1733 on the flap track assemblies [41] approximately 20 inches (50 cm) aft of the track forward attach fitting.

(b) Put a low profile hydraulic jack, COM-1568 below the adapter, SPL-1733 to support the flap track assemblies [41].

SUBTASK 27-51-15-020-010

(2) Disconnect the link assembly [45] from the structure:

(a) Remove the nut [43], washer [42] and bolt [46] from the bolt [49].

(b) Remove the nut [48] and washer [47] from the bolt [49].

(c) Remove the bolt [49] that attaches the link assembly [45] to the structure.

SUBTASK 27-51-15-020-011

(3) Disconnect the forward end of the flap track assemblies [41]:

(a) Remove the nut [56], washer [55] and bolt [52] that attach the flap track assemblies [41] to the forward attach assembly [50].

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(b) Remove the nut [58], washer [54] and bolt [51] that attach the flap track assemblies [41] to the forward attach assembly [50].

SUBTASK 27-51-15-020-012

(4) If you will install a new flap track assemblies [41], remove the transmission attach fitting [53] and the link assembly [45] from the flap track assemblies [41]:

(a) Remove the bolts [60], bolt [64], washers [61] and nuts [62] that attach the transmission attach fitting [53] to the flap track assemblies [41].

(b) Disconnect the link assembly [45] from the flap track assemblies [41]:

1) Remove the nut [67], washer [65] and bolt [68] from the bolt [72].

2) Remove the nut [71], washer [70] and washer [69] from the bolt [72].

3) Remove the bolt [72] that attaches the link assembly [45] to the flap track assemblies [41].

——————— END OF TASK ———————

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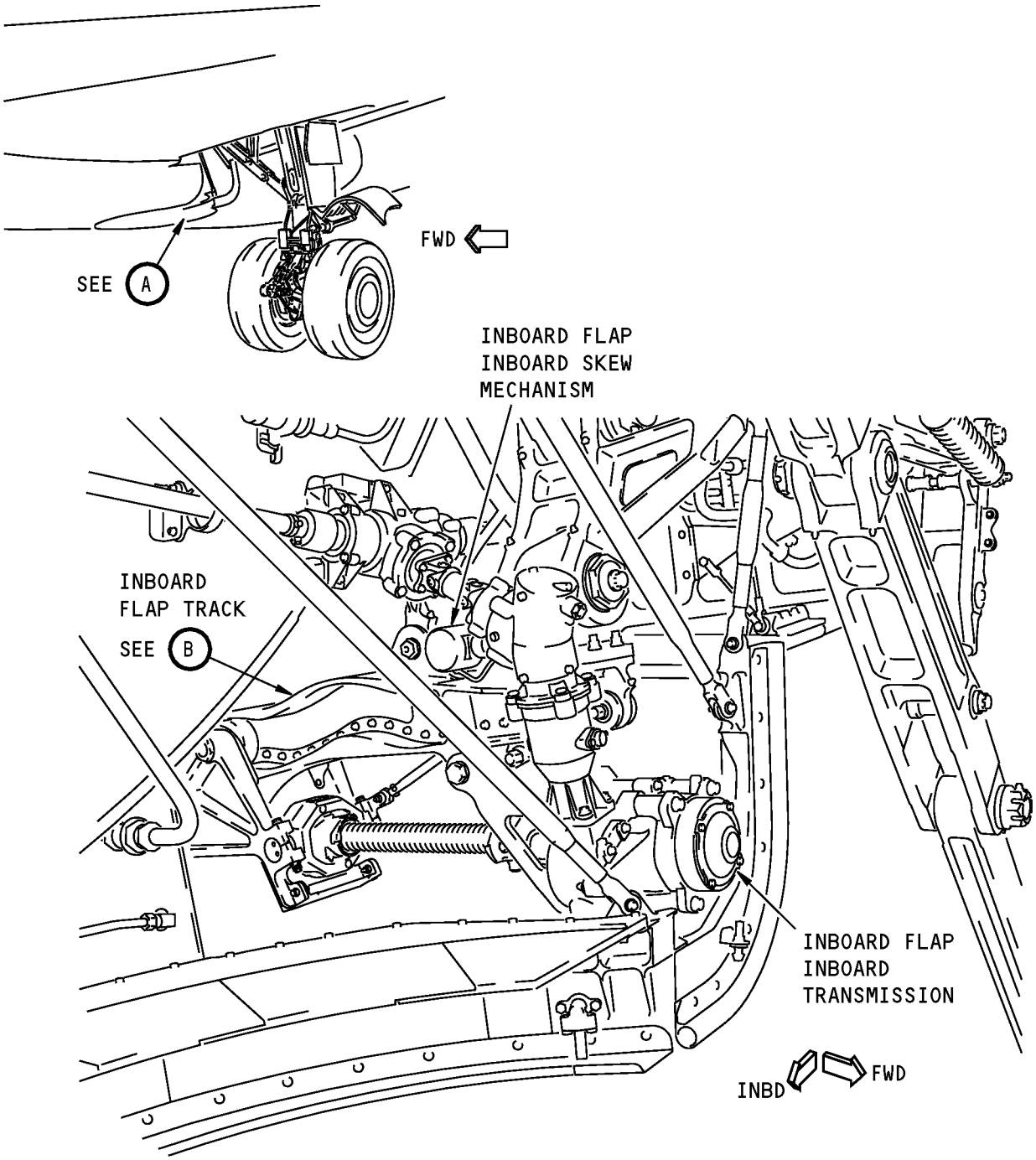

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

Inboard Flap Inboard Flap Track Installation
Figure 402 (Sheet 1 of 4)/27-51-15-990-802

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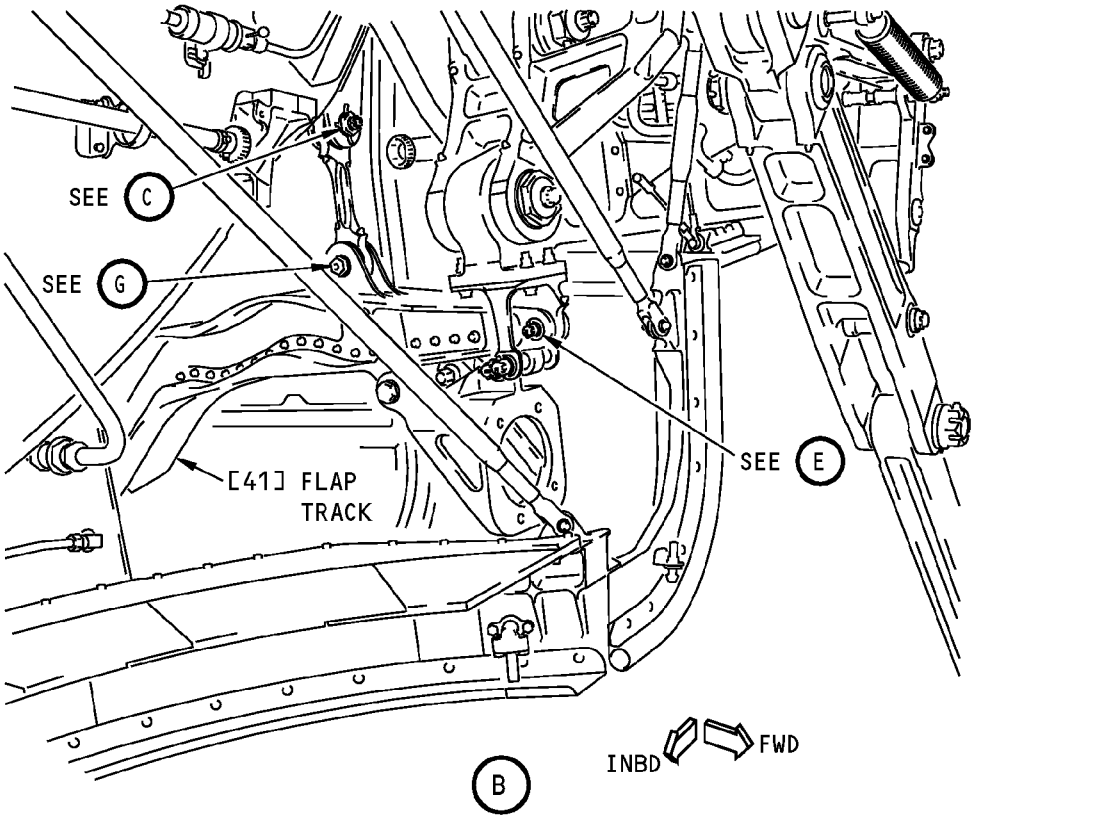

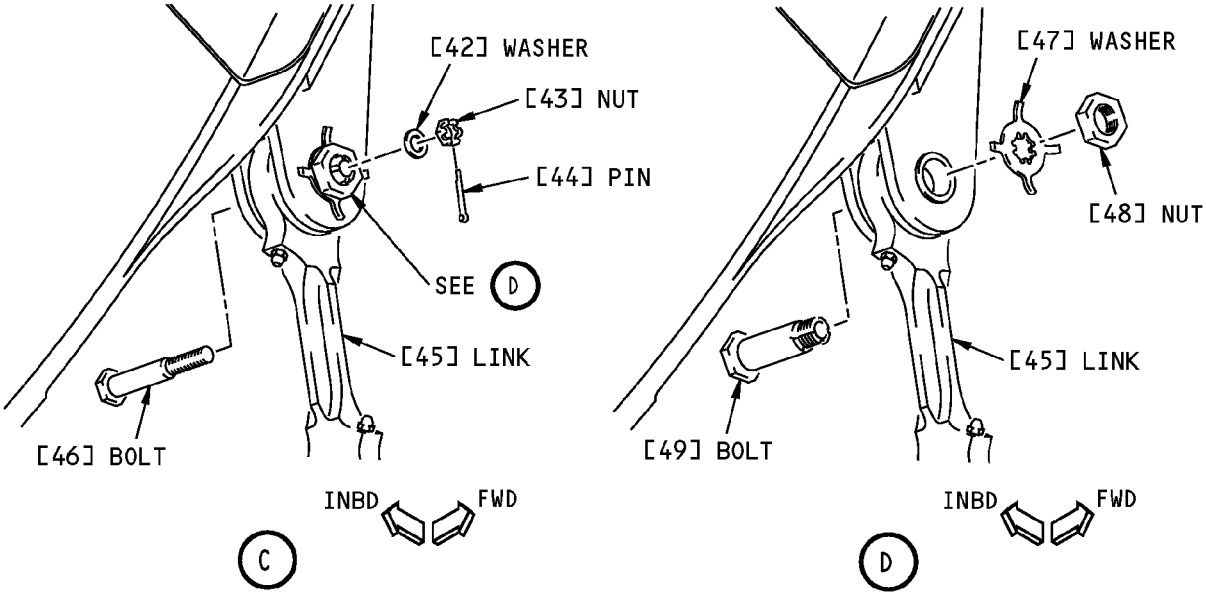

Inboard Flap Inboard Flap Track Installation
Figure 402 (Sheet 2 of 4)/27-51-15-990-802

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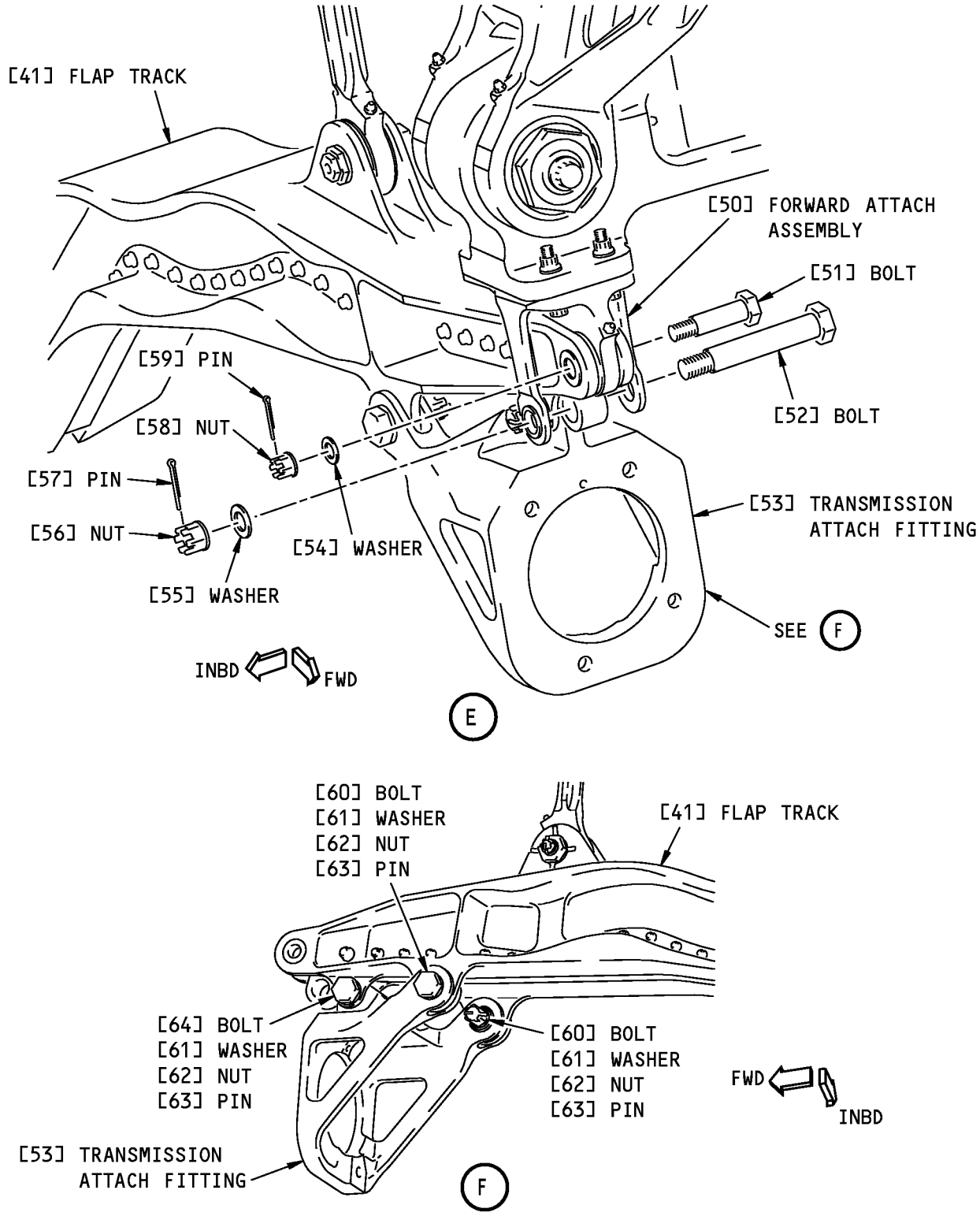

Inboard Flap Inboard Flap Track Installation
Figure 402 (Sheet 3 of 4)/27-51-15-990-802

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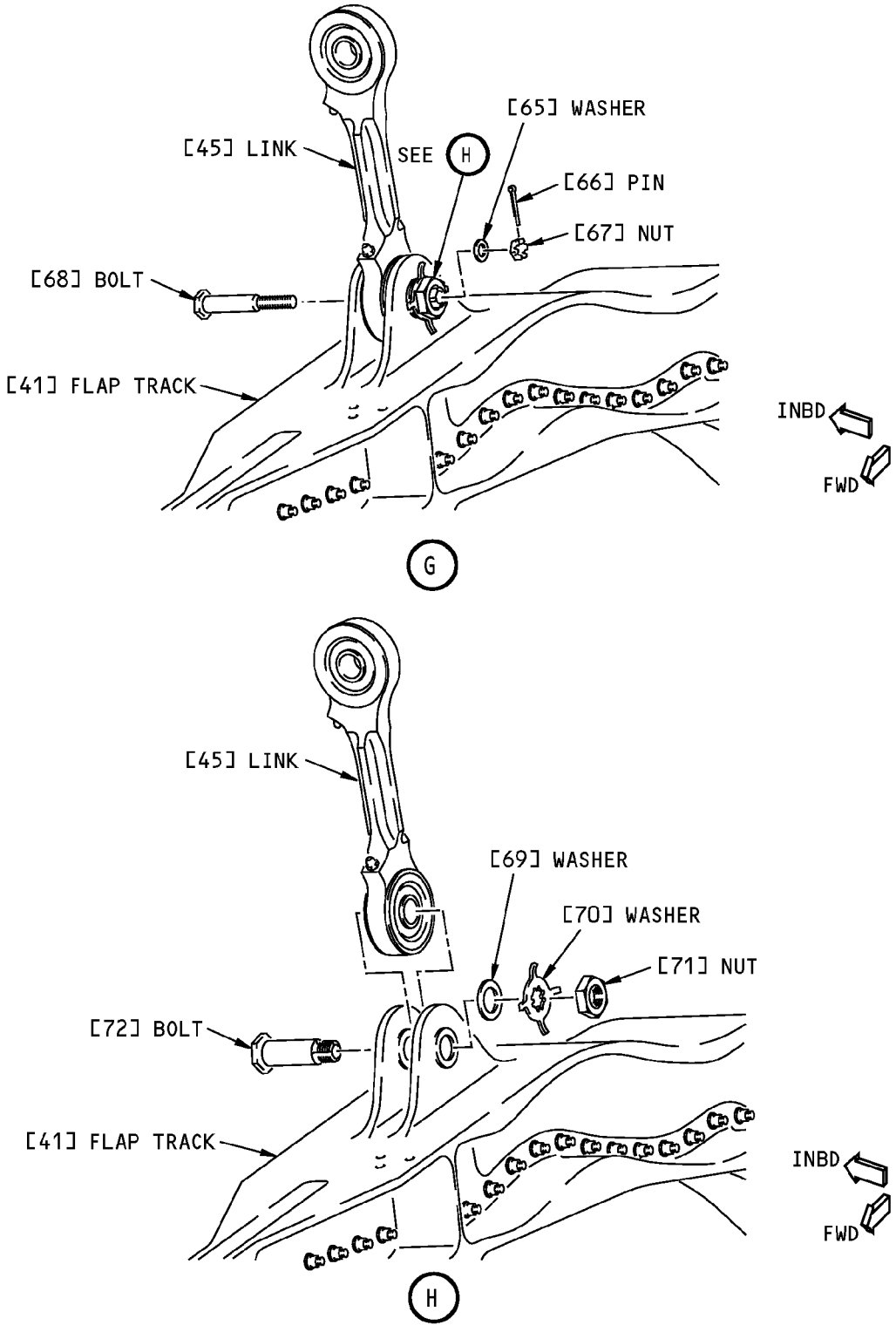

Inboard Flap Inboard Flap Track Installation
Figure 402 (Sheet 4 of 4)/27-51-15-990-802

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TASK 27-51-15-400-802

5. Inboard Flap Inboard Track Installation

(Figure 402)

A. General

(1) This task is applicable to the flap tracks at flap supports No. 4 and 5.

B. References

Reference	Title
12-22-51-640-813	Inboard Flap Inboard Flap Track Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-11-400-801	Inboard Trailing Edge Flap Installation (P/B 401)
27-51-11-820-801	Inboard Trailing Edge Flap Adjustment (P/B 501)
27-51-31-400-802	Inboard Flap Inboard Transmission Installation (P/B 401)
27-59-00-820-801	Flap Skew Detection System Adjustment (P/B 501)
27-59-02-400-804	Inboard Flap Inboard Skew Mechanism Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1568	Jack - Hydraulic, General Low Profile (Part #: B67563, Supplier: 36251, A/P Effectivity: 737-ALL) (Part #: HW93718, Supplier: 28047, A/P Effectivity: 737-ALL) (Opt Part #: W93718, Supplier: 36251, A/P Effectivity: 737-ALL)
SPL-1733	Adapter - Hoist, Removal/Installation, Flap Track (Part #: C27040-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
41	Track assembly	27-51-00-08-165	HAP 008-013, 015-026, 028-036
		27-51-00-08-170	HAP 008-013, 015-026, 028-036
		27-51-15-01-135	HAP 001-007
		27-51-15-04A-155	HAP 008-013, 015-026, 028-054, 101-999
		27-51-15-04A-160	HAP 008-013, 015-026, 028-054, 101-999
44	Pin	27-51-00-08-130	HAP 001-013, 015-026, 028-036
		27-51-15-04-135	HAP 001-007
		27-51-15-04A-123	HAP 008-013, 015-026, 028-054, 101-999
45	Link assembly	27-51-00-08-235	HAP 008-013, 015-026, 028-036
		27-51-15-01-055	HAP 001-007
		27-51-15-04A-225	HAP 008-013, 015-026, 028-054, 101-999

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
57	Pin	27-51-00-08-050	HAP 001-013, 015-026, 028-036
		27-51-15-04-050	HAP 001-007
		27-51-15-04A-045	HAP 008-013, 015-026, 028-054, 101-999
59	Pin	27-51-00-08-045	HAP 001-013, 015-026, 028-036
		27-51-15-04-045	HAP 001-007
		27-51-15-04A-040	HAP 008-013, 015-026, 028-054, 101-999
63	Pin	27-51-00-08-260	HAP 008-013, 015-026, 028-036
		27-51-15-01-080	HAP 001-007
		27-51-15-04A-250	HAP 008-013, 015-026, 028-054, 101-999
66	Pin	27-51-00-08-195	HAP 008-013, 015-026, 028-036
		27-51-15-04A-185	HAP 008-013, 015-026, 028-054, 101-999

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

F. Inboard Flap Inboard Track Installation

SUBTASK 27-51-15-420-007

(1) If they are not installed, install the transmission attach fitting [53] and link assembly [45] on the flap track assemblies [41]:

(a) Install the transmission attach fitting [53]:

1) Put the transmission attach fitting [53] in its position on the flap track assemblies [41].

2) Install the bolts [60], bolt [64], washers [61] and nuts [62] that attach the transmission attach fitting [53] to the flap track assemblies [41].

3) Install the pins [63] in the nuts [62].

(b) Install the link assembly [45] on the flap track assemblies [41]:

1) Put the link assembly [45] in its position on the flap track assemblies [41].

2) Install the bolt [72], washer [69], washer [70] and nut [71] to attach the link assembly [45] to the flap track assemblies [41].

3) Tighten the nut [71] to 290-510 pound-inches (32.8-57.6 newton-meters).

4) Install lockwire between the nut [71] and the washer [70].

5) Install the bolt [68], washer [65] and nut [67] in the bolt [72].

6) Tighten the nut [67] to 30-60 pound-inches (3.4-6.7 newton-meters).

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7) Install the pin [66] in the nut [67].

SUBTASK 27-51-15-480-006

(2) If you will use the adapter, SPL-1733, install it on the flap track assemblies [41]:

(a) Install the adapter, SPL-1733 on the flap track assemblies [41] approximately 20 inches (50 cm) aft of the track forward attach fitting.

(b) Put a low profile hydraulic jack, COM-1568 below the adapter, SPL-1733 to support the flap track assemblies [41].

SUBTASK 27-51-15-420-008

(3) Connect the forward end of the flap track assemblies [41]:

(a) Put the flap track assemblies [41] in its position on the forward attach assembly [50].

(b) Install the bolt [51], washer [54] and nut [58] that attach the flap track assemblies [41] to the forward attach assembly [50].

(c) Install the pin [59] in the nut [58].

(d) Install the bolt [52], washer [55] and nut [56] that attach the flap track assemblies [41] to the forward attach assembly [50].

(e) Install the pin [57] in the nut [56].

SUBTASK 27-51-15-020-013

(4) Connect the link assembly [45] to the structure:

(a) Put the link assembly [45] in its position on the structure.

(b) Install the bolt [49], washer [47] and nut [48] to attach the link assembly [45] to the structure.

(c) Tighten the nut [48] to 290-510 pound-inches (32.8-57.6 newton-meters).

(d) Install lockwire between the nut [48] and the washer [47].

(e) Install the bolt [46], washer [42] and nut [43] in the bolt [49].

(f) Tighten the nut [43] to 30-60 pound-inches (3.4-6.7 newton-meters).

(g) Install the pin [44] in the nut [43].

SUBTASK 27-51-15-480-007

(5) If it is necessary, remove the adapter, SPL-1733 from the flap track assemblies [41].

SUBTASK 27-51-15-420-009

(6) Do this task: Inboard Flap Inboard Transmission Installation, TASK 27-51-31-400-802.

SUBTASK 27-51-15-420-010

(7) Do this task: Inboard Flap Inboard Skew Mechanism Installation, TASK 27-59-02-400-804.

SUBTASK 27-51-15-420-011

(8) Do this task: Inboard Trailing Edge Flap Installation, TASK 27-51-11-400-801.

SUBTASK 27-51-15-820-003

(9) Do this task: Inboard Trailing Edge Flap Adjustment, TASK 27-51-11-820-801.

SUBTASK 27-51-15-820-004

(10) Do this task: Flap Skew Detection System Adjustment, TASK 27-59-00-820-801.

SUBTASK 27-51-15-640-002

(11) Do this task: Inboard Flap Inboard Flap Track Lubrication, TASK 12-22-51-640-813.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-15-440-002

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-15-860-004

(2) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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INBOARD FLAP TRACKS - INSPECTION/CHECK

1. General

A. This procedure contains the task to do an inspection of the flap tracks for the inboard trailing edge flaps.

TASK 27-51-15-200-801

2. Inboard Flap Outboard Track Inspection

(Figure 601)

A. General

(1) This task gives wear limits for the outboard track on the inboard flap.

(2) this task is applicable to the flap tracks at flap supports No. 3 and 6.

B. References

Reference	Title
27-51-15-000-801	Inboard Flap Outboard Track Removal (P/B 401)
27-51-15-400-801	Inboard Flap Outboard Track Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

E. Procedure

SUBTASK 27-51-15-020-014

(1) Do this task: Inboard Flap Outboard Track Removal, TASK 27-51-15-000-801.

SUBTASK 27-51-15-020-015

(2) Use these tools to do a check for wear on the part of the inboard flap outboard track:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-51-15-020-016

(3) Examine the parts of the inboard flap outboard track (Table 601):

(a) Remove the parts that you will measure.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

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Table 601/27-51-15-993-805

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 BUSHING	I.D.	0.8080 in 20.523 mm	0.8175 in 20.764 mm	0.8198 in 20.822 mm	0.0313 in
#1 FUSE PIN	O.D.	0.7880 in 20.015 mm	0.7885 in 20.028 mm	0.7862 in 19.969 mm	0.7950 mm
#2 BUSHING	I.D.	0.8080 in 20.523 mm	0.8175 in 20.764 mm	0.8198 in 20.822 mm	0.0313 in
#2 FUSE PIN	O.D.	0.7880 in 20.015 mm	0.7885 in 20.028 mm	0.7862 in 19.969 mm	0.7950 mm
#3 BUSHING	I.D.	0.5000 in 12.700 mm	0.5050 in 12.827 mm	0.5050 in 12.827 mm	0.0065 in
#3 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4985 in 12.662 mm	0.1651 mm
#4 BEARING	I.D.	0.5620 in 14.275 mm	0.5670 in 14.402 mm	0.5670 in 14.402 mm	0.0065 in
#4 BOLT	O.D.	0.5605 in 14.237 mm	0.5615 in 14.262 mm	0.5605 in 14.237 mm	0.1651 mm
#5 BUSHING	I.D.	0.5620 in 14.275 mm	0.5670 in 14.402 mm	0.5695 in 14.465 mm	0.0080 in
#5 BOLT	O.D.	0.5605 in 14.237 mm	0.5615 in 14.262 mm	0.5590 in 14.199 mm	0.2032 mm
#6 BUSHING	I.D.	0.5620 in 14.275 mm	0.5670 in 14.402 mm	0.5695 in 14.464 mm	0.0700 in
#6 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4970 in 12.624 mm	1.7780 mm

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SUBTASK 27-51-15-420-012

(4) Do this task: Inboard Flap Outboard Track Installation, TASK 27-51-15-400-801.

——————— END OF TASK ———————

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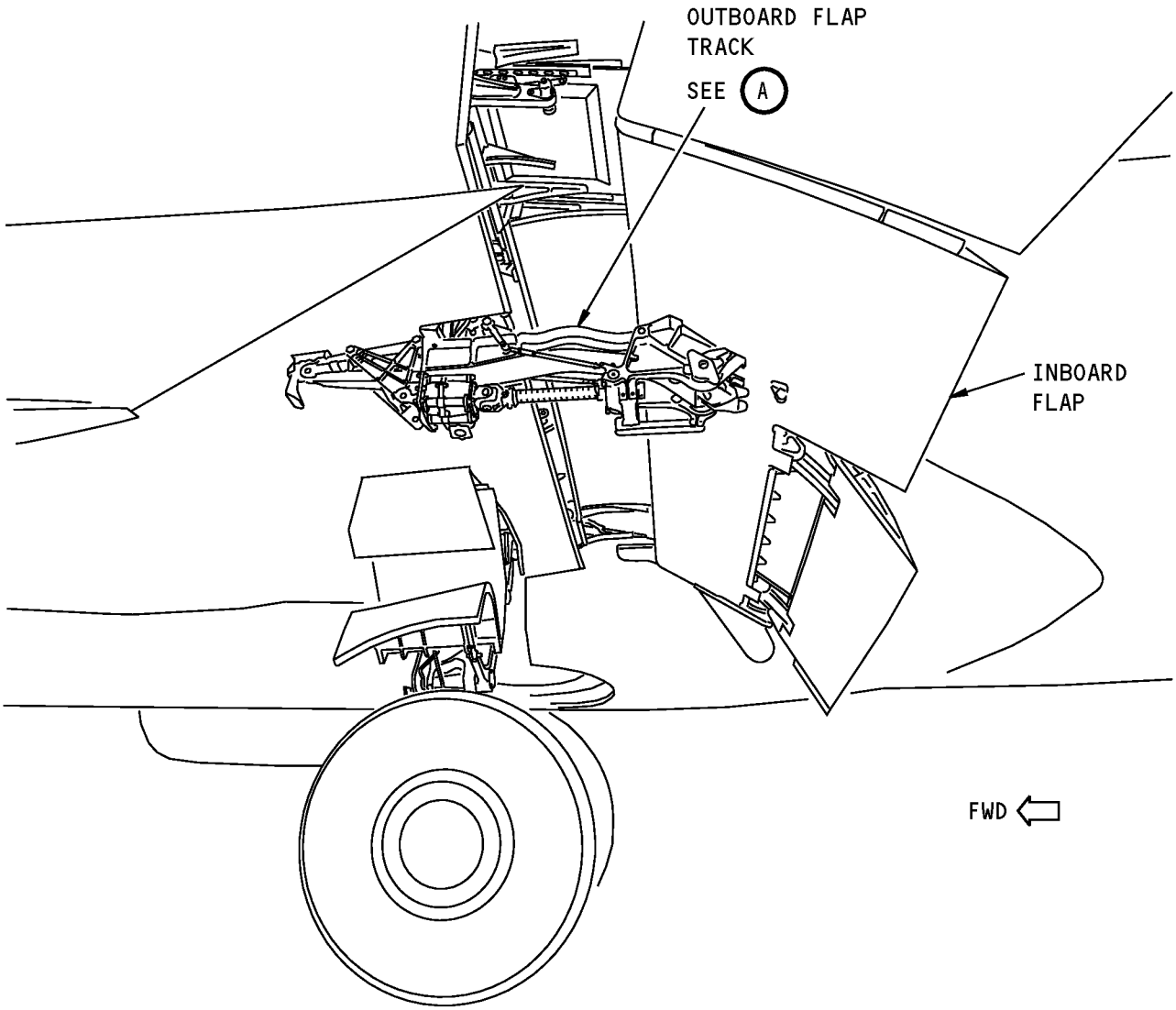

Inboard Flap Outboard Flap Track Wear Limits
Figure 601 (Sheet 1 of 2)/27-51-15-990-803

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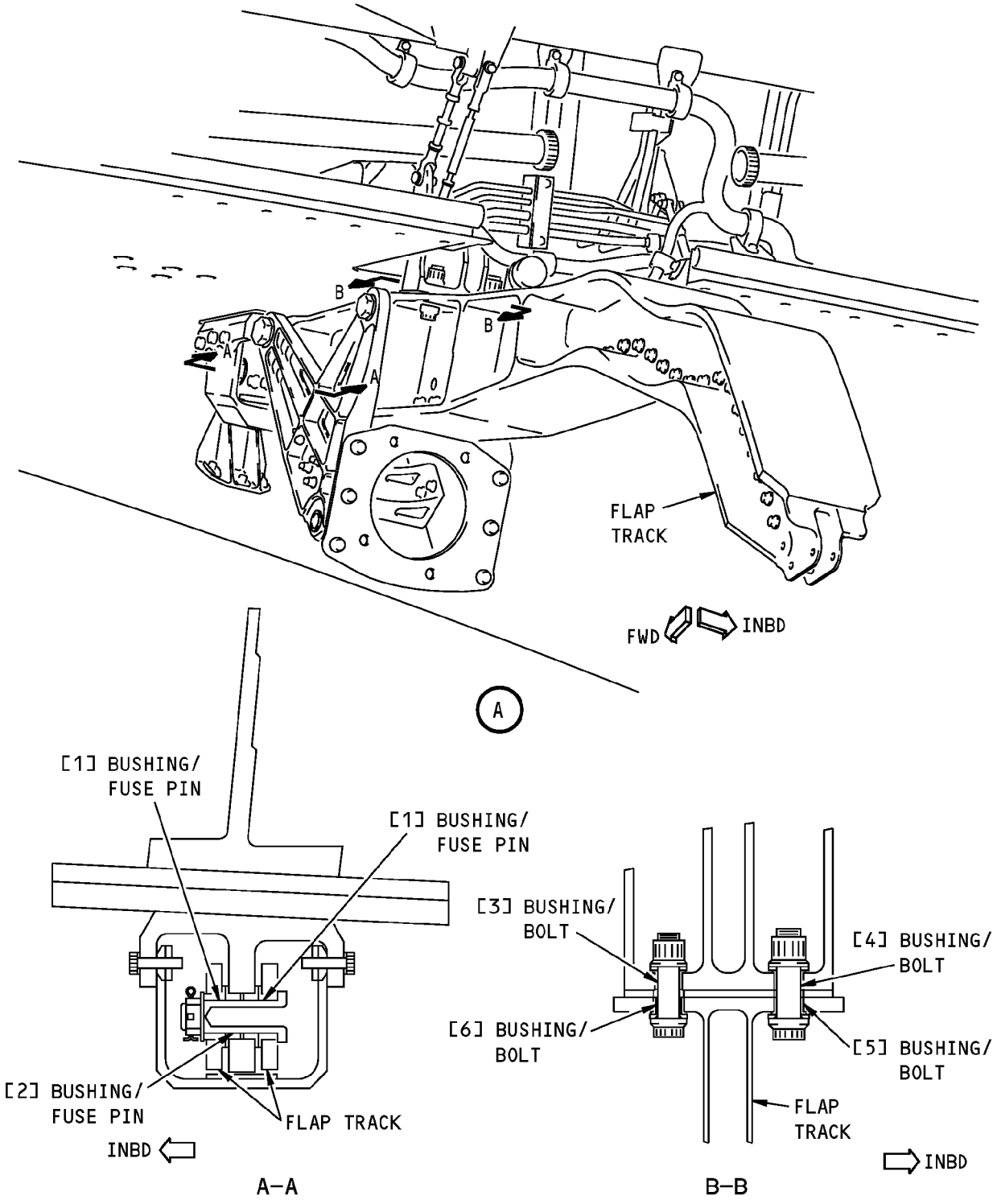

Inboard Flap Outboard Flap Track Wear Limits
Figure 601 (Sheet 2 of 2)/27-51-15-990-803

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TASK 27-51-15-200-802

3. Inboard Flap Inboard Track Inspection

(Figure 602)

A. General

(1) This task gives wear limits for the inboard track on the inboard flap.

(2) this task is applicable to the flap tracks at flap supports No. 4 and 5.

B. References

Reference	Title
27-51-15-000-802	Inboard Flap Inboard Track Removal (P/B 401)
27-51-15-400-802	Inboard Flap Inboard Track Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

E. Procedure

SUBTASK 27-51-15-020-017

(1) Do this task: Inboard Flap Inboard Track Removal, TASK 27-51-15-000-802.

SUBTASK 27-51-15-020-018

(2) Use these tools to do a check for wear on the part of the inboard flap inboard track:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-51-15-020-019

(3) Examine the parts of the inboard flap inboard track (Table 602):

(a) Remove the parts that you will measure.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

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Table 602/27-51-15-993-806

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 BOLT	I.D.	0.4960 in 12.598 mm	0.4990 in 12.675 mm	0.4990 in 12.675 mm	0.0090 in 0.2286 mm
#1 BOLT	O.D.	0.4900 in 12.446 mm	0.4930 in 12.522 mm	0.4900 in 12.446 mm	
#2 BUSHING	I.D.	0.6245 in 15.862 mm	0.6252 in 15.880 mm	0.6278 in 15.946 mm	0.0064 in 0.1626 mm
#2 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6214 in 15.784 mm	
#3 FITTING	I.D.	0.6250 in 15.875 mm	0.6255 in 15.888 mm	0.6255 in 15.888 mm	0.0025 in 0.0635 mm
#3 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6230 in 15.824 mm	
#4 BUSHING	I.D.	0.7500 in 19.050 mm	0.7507 in 19.068 mm	0.7507 in 19.068 mm	0.0027 in 0.0686 mm
#4 BOLT	I.D.	0.7480 in 18.999 mm	0.7490 in 19.025 mm	0.7480 in 18.999 mm	

SUBTASK 27-51-15-420-013

(4) Do this task: Inboard Flap Inboard Track Installation, TASK 27-51-15-400-802.

———————— END OF TASK ————————

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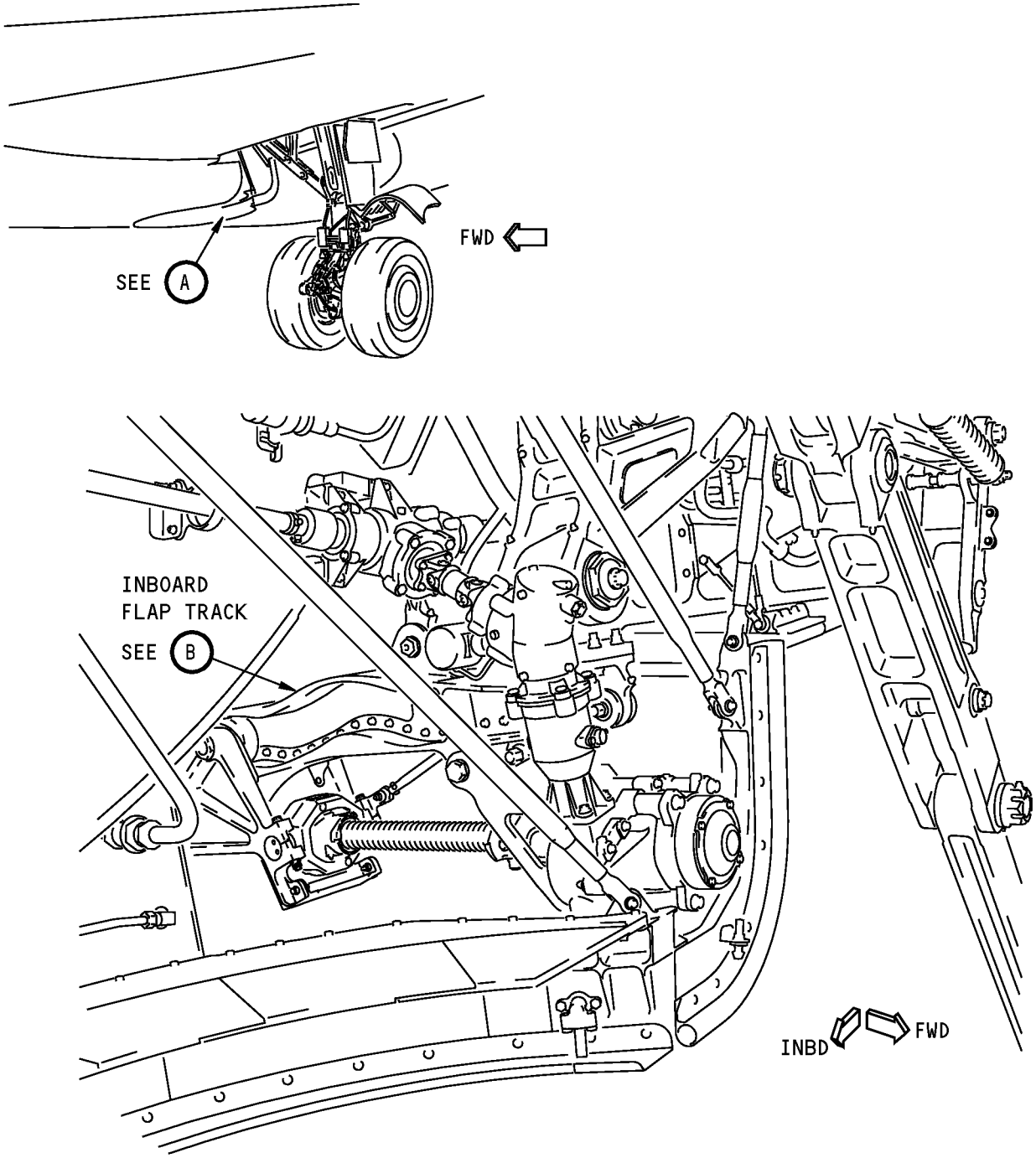

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

Inboard Flap Inboard Flap Track Inspection
Figure 602 (Sheet 1 of 3)/27-51-15-990-804

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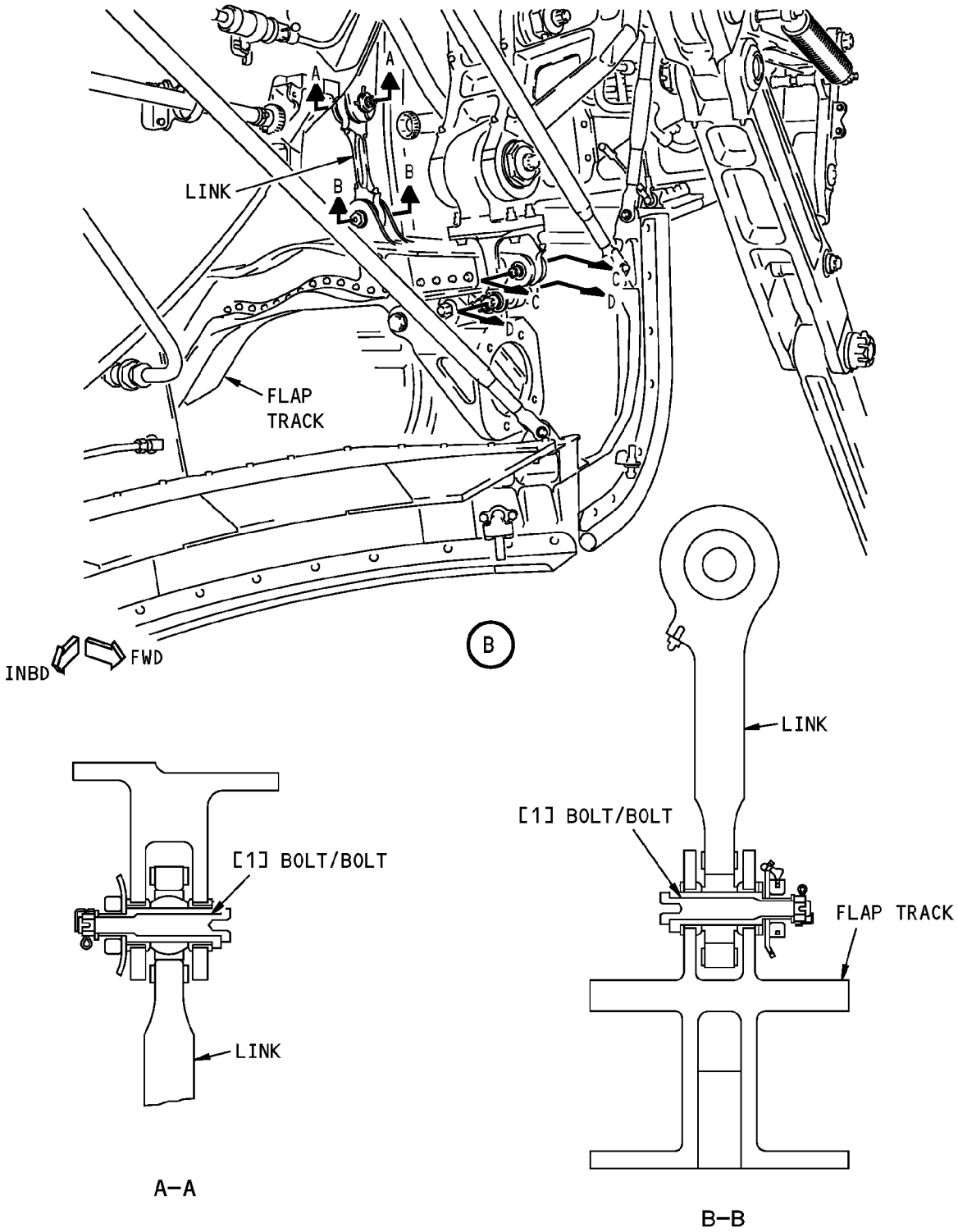

Inboard Flap Inboard Flap Track Inspection
Figure 602 (Sheet 2 of 3)/27-51-15-990-804

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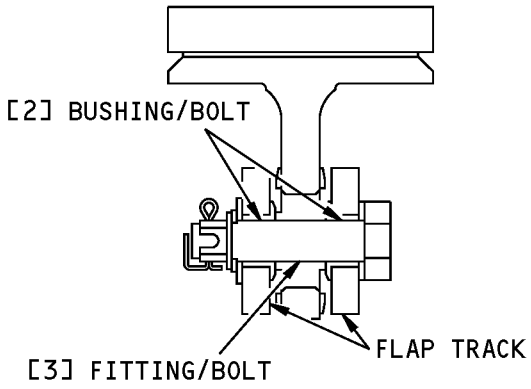
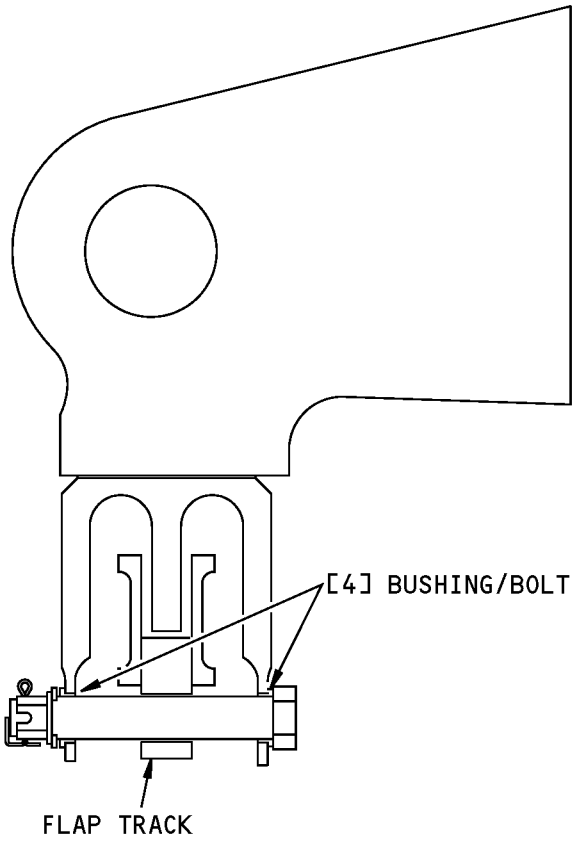


C–C



D–D

Inboard Flap Inboard Flap Track Inspection
Figure 602 (Sheet 3 of 3)/27-51-15-990-804

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INBOARD AFT FLAP TRACKS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aft flap tracks for the inboard flap

(2) An installation of the aft flap tracks for the inboard flaps.

B. This procedure is applicable to the two aft flap tracks on the inboard flap.

TASK 27-51-16-000-801

2. Inboard Aft Flap Track Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-12-000-801	Inboard Aft Flap Removal (P/B 401)
27-51-18-000-802	Inboard Flap Support Aft Fairing Removal (P/B 401)

B. Location Zones

Zone	Area
553	Left Wing - Inboard Flap
653	Right Wing - Inboard Flap

C. Prepare for the Removal

SUBTASK 27-51-16-010-001

(1) Do this task: Inboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

SUBTASK 27-51-16-860-001

(2) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-16-040-001

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-16-020-001

(4) Do this task: Inboard Aft Flap Removal, TASK 27-51-12-000-801.

D. Inboard Aft Flap Track Removal

SUBTASK 27-51-16-020-002

(1) Remove aft flap track [2] from the main flap [1]:

(a) Remove the nuts [4] that attach the cartridge assemblies [3] and cartridge assemblies [5] to the aft flap track support [6] on the main flap [1].

NOTE: There are two cartridge assemblies [3] and two cartridge assemblies [5] on the inboard and the outboard aft flap track supports.

(b) Remove the cartridge assemblies [3] and cartridge assemblies [5] from the aft flap track support [6].

(c) Carefully remove the aft flap track [2] from the aft flap track support [6].

END OF TASK

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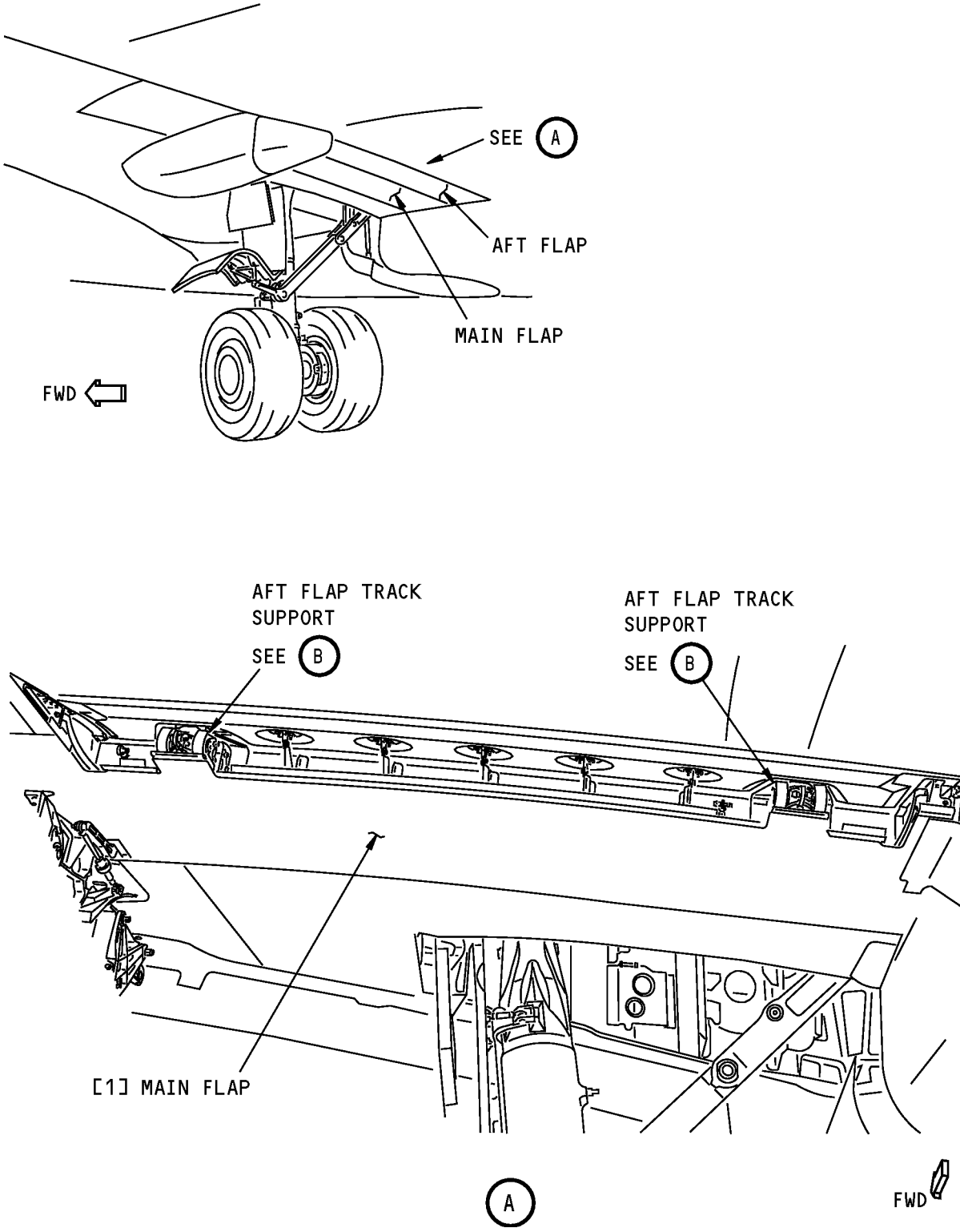

Inboard Aft Flap Track Installation
Figure 401 (Sheet 1 of 2)/27-51-16-990-801

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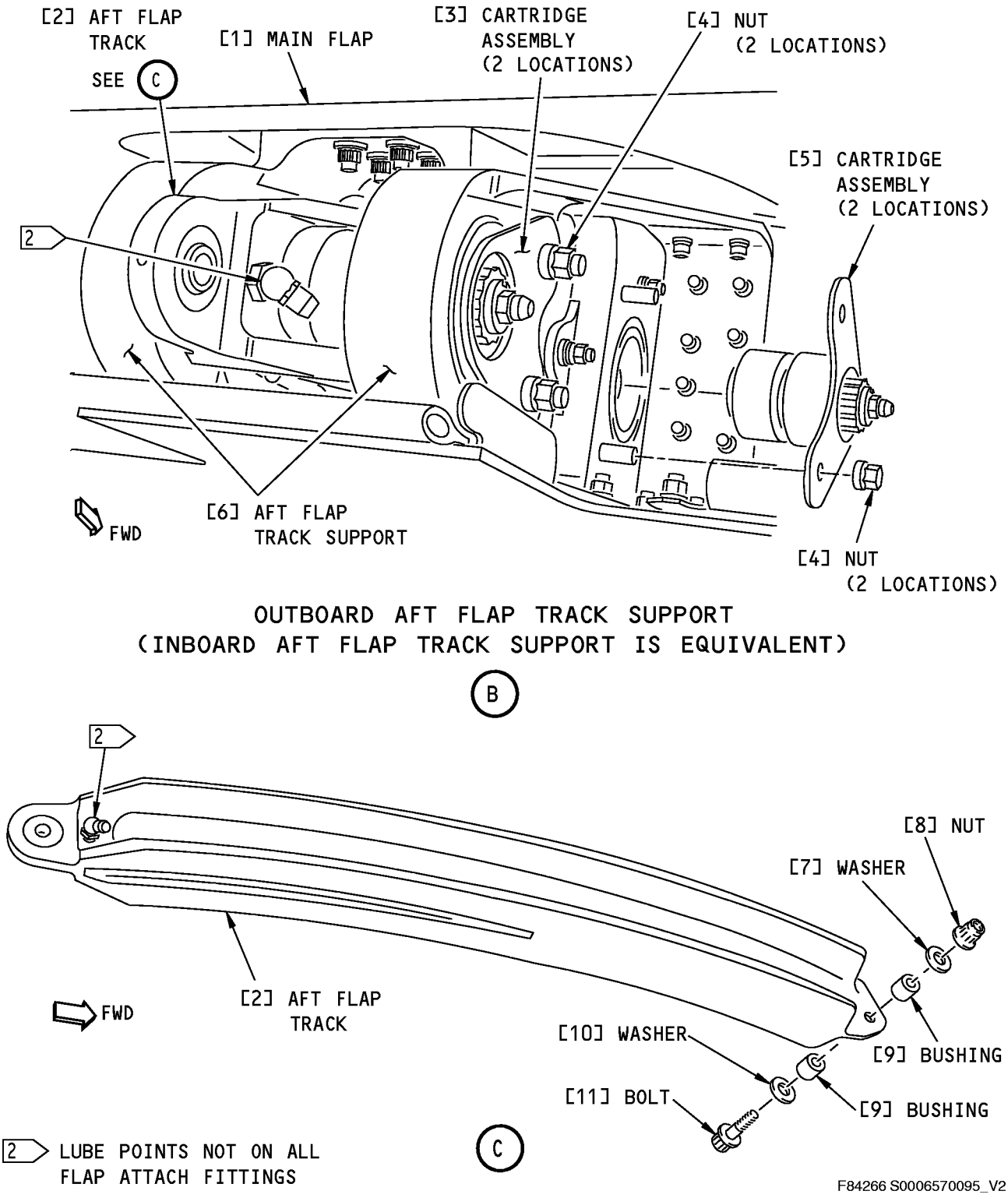

Inboard Aft Flap Track Installation
Figure 401 (Sheet 2 of 2)/27-51-16-990-801

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TASK 27-51-16-400-801

3. Inboard Aft Flap Track Installation

(Figure 401)

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-12-400-801	Inboard Aft Flap Installation (P/B 401)
27-51-18-400-802	Inboard Flap Support Aft Fairing Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Track	27-51-16-01-070	HAP ALL
3	Cartridge assembly	27-51-15-02-030	HAP ALL
5	Cartridge assembly	27-51-15-02-025	HAP ALL

D. Location Zones

Zone	Area
553	Left Wing - Inboard Flap
653	Right Wing - Inboard Flap

E. Inboard Aft Flap Track Installation

SUBTASK 27-51-16-420-001

(1) If the downstop is not installed on the aft flap track [2], do these steps:

(a) Install the bolt [11], bushings [9], washer [10], washer [7] and nut [8] on the aft flap track [2].

(b) Tighten the nut [8] to 50-75 pound-inches (5.7-8.4 newton-meters).

SUBTASK 27-51-16-420-002

(2) Install the aft flap track [2] in the main flap [1]:

(a) Carefully put the aft flap track [2] in its position in the aft flap track support [6] in the main flap [1].

NOTE: Make sure the downstop is forward of the forward cartridge assemblies [5].

(b) Apply a layer of sealant, A00247 to the mating surface of the cartridge assemblies [3] and cartridge assemblies [5] and the aft flap track support [6].

(c) Put the cartridge assemblies [3] and cartridge assemblies [5] in their position in the aft flap track support [6].

(d) Install the nuts [4] that attach the cartridge assemblies [3] and cartridge assemblies [5] to the aft flap track support [6].

SUBTASK 27-51-16-420-003

(3) Do this task: Inboard Aft Flap Installation, TASK 27-51-12-400-801.

NOTE: It is necessary to do the aft flap adjustment after you install the aft flap.

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F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-16-410-001

(1) Do this task: Inboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-16-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-16-860-002

(3) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

END OF TASK

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INBOARD FLAP SUPPORT FAIRING - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the forward fairing for the outboard flap support on the inboard flap.

(2) An installation of the forward fairing for the outboard flap support on the inboard flap.

(3) A removal of the aft fairing for the outboard flap support on the inboard flap.

(4) An installation of the aft fairing for the outboard flap support on the inboard flap.

TASK 27-51-18-000-801

2. Inboard Flap Support Forward Fairing Removal

(Figure 401)

A. General

(1) This task is applicable to the forward fairing on the No. 3 and No. 6 flap supports.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)

C. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

D. Procedure

SUBTASK 27-51-18-040-001

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-18-020-001

(2) Remove the forward fairing assembly [1]:

(a) Remove the bolts [5] that attach the forward end of the forward fairing assembly [1].

(b) Support the forward fairing assembly [1] and remove the bolts [3] and washers [4] that attach the forward fairing assembly [1] to the fairing attach fitting [13].

(c) Lower the forward fairing assembly [1] until you can get access to the nuts [11] on the jumper wires [23].

(d) Remove the nuts [11] and washers [12] that attach the jumper wires [23].

(e) Remove the forward fairing assembly [1].

SUBTASK 27-51-18-020-002

(3) If it is necessary, remove the fairing attach fitting [13]:

(a) Remove the bolts [8] and washers [9] that attach the fairing attach fitting [13] to the transmission attach fitting [10].

END OF TASK

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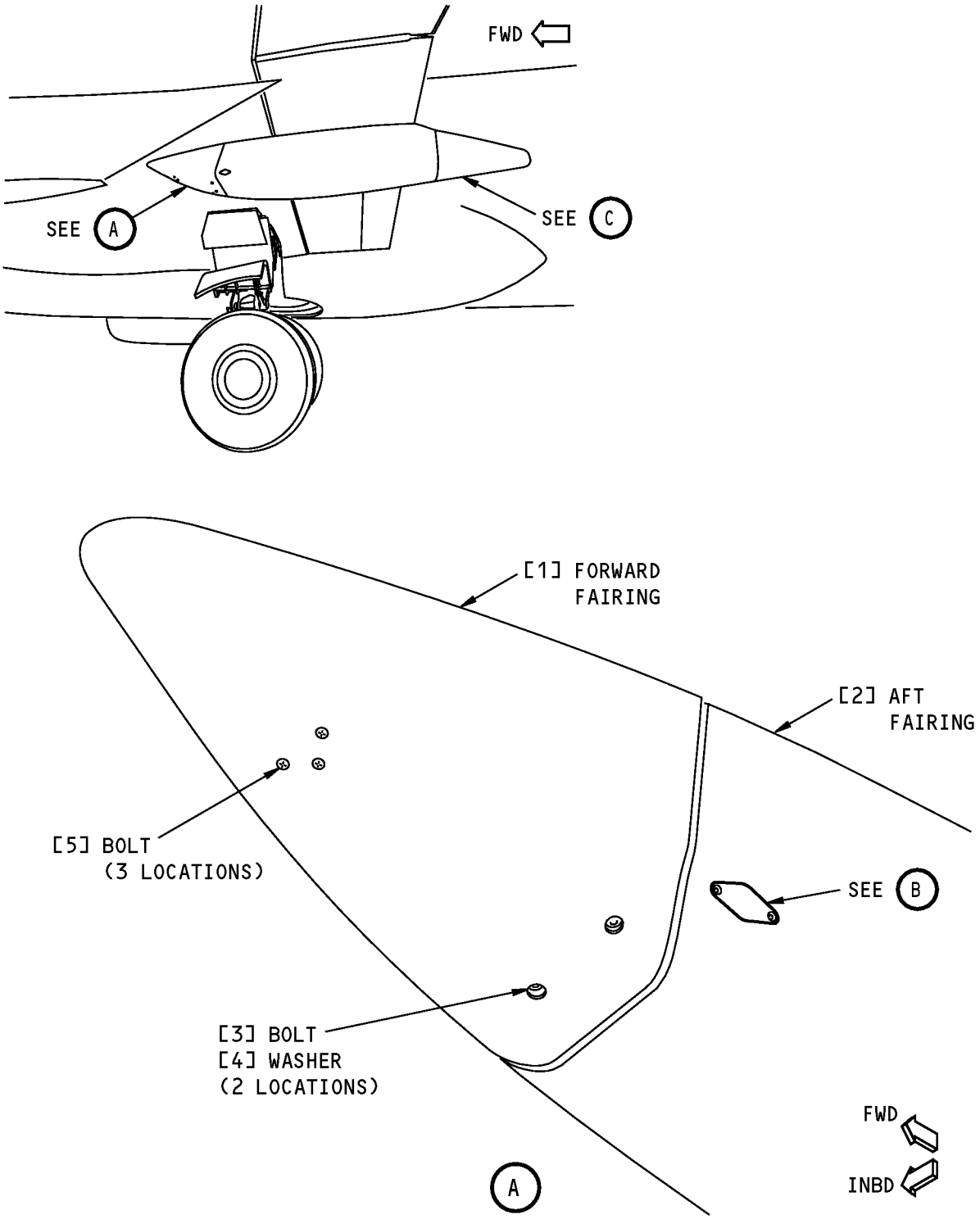

Inboard Flap Support Fairing Installation
Figure 401 (Sheet 1 of 5)/27-51-18-990-801

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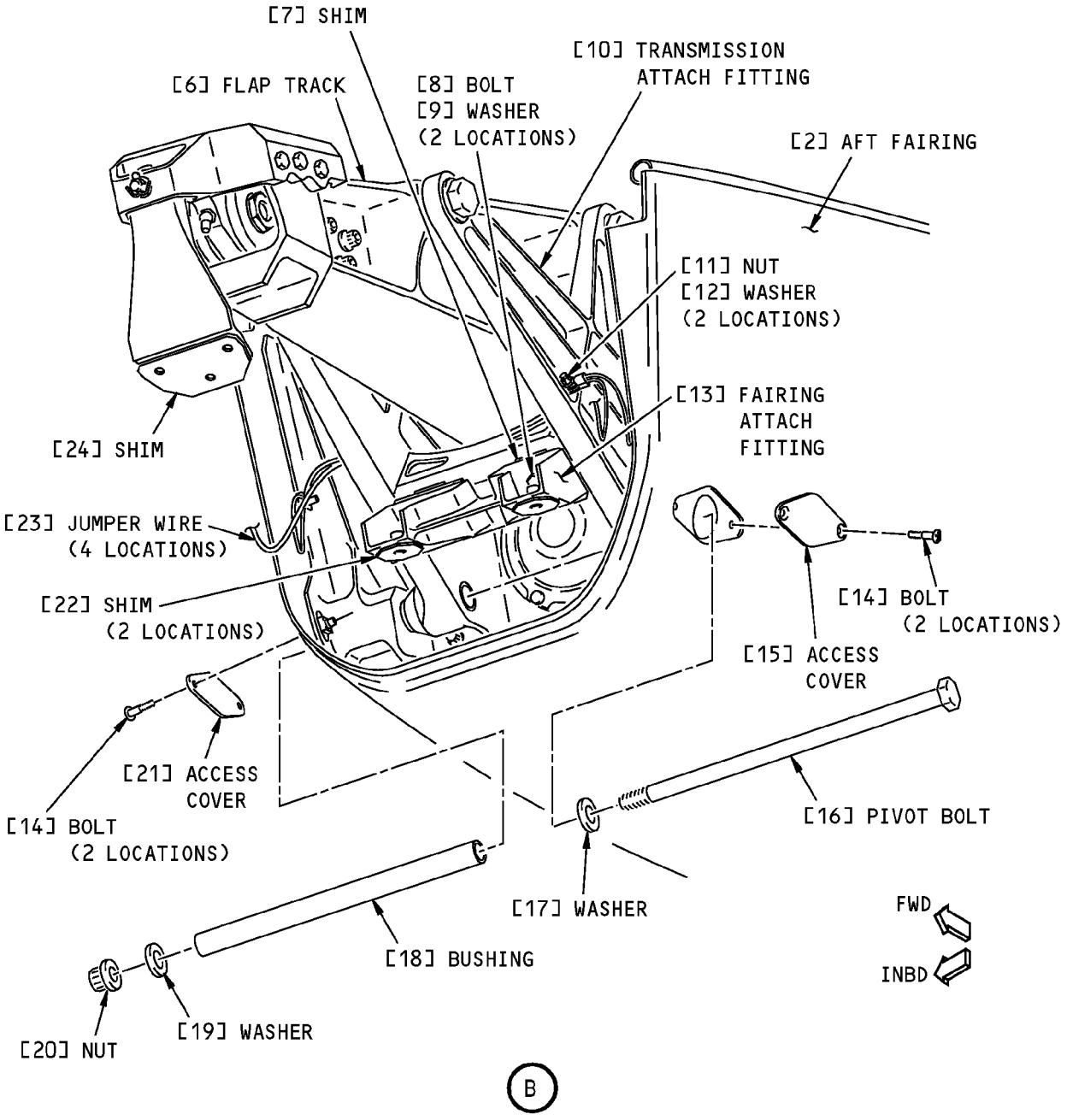

Inboard Flap Support Fairing Installation
Figure 401 (Sheet 2 of 5)/27-51-18-990-801

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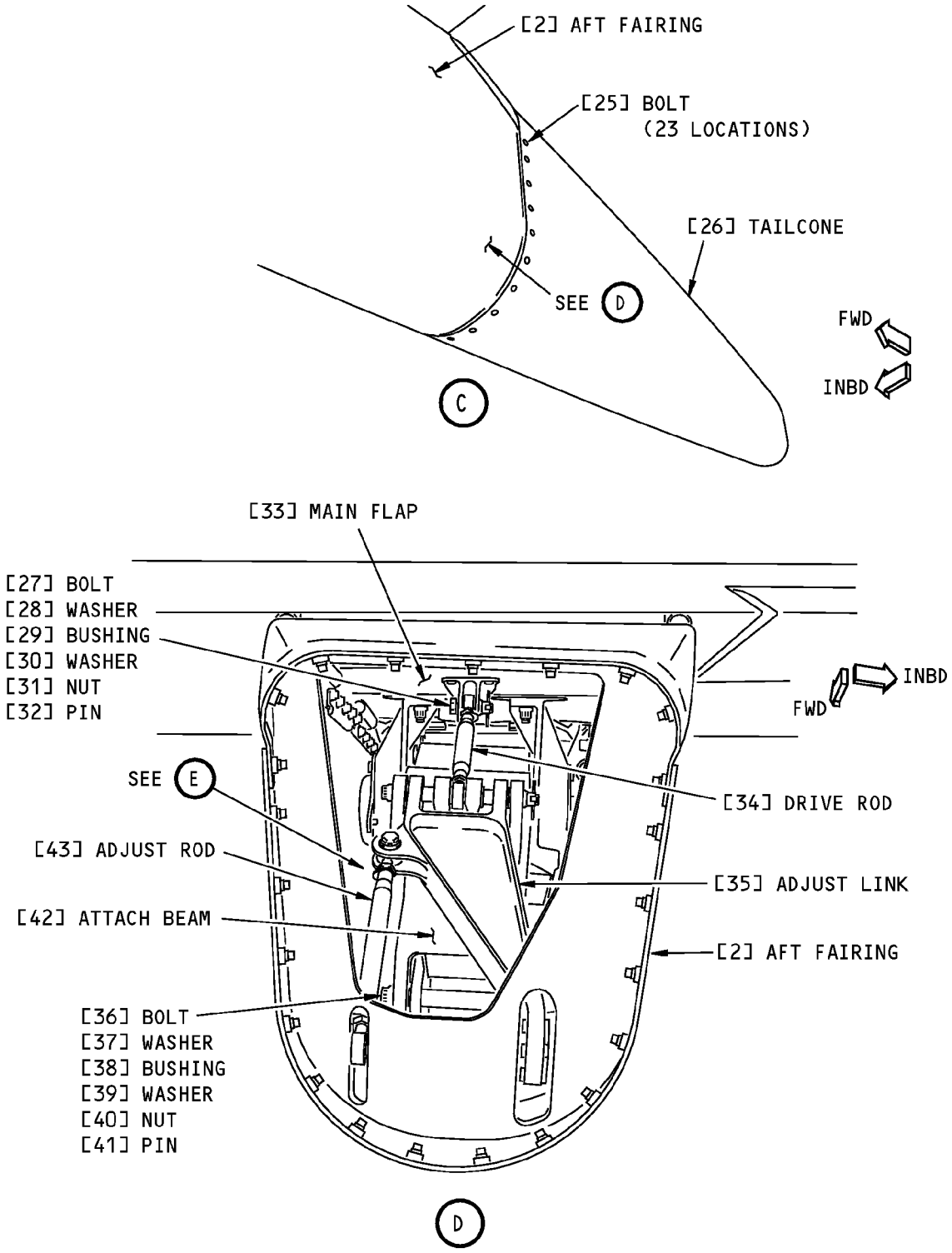

Inboard Flap Support Fairing Installation
Figure 401 (Sheet 3 of 5)/27-51-18-990-801

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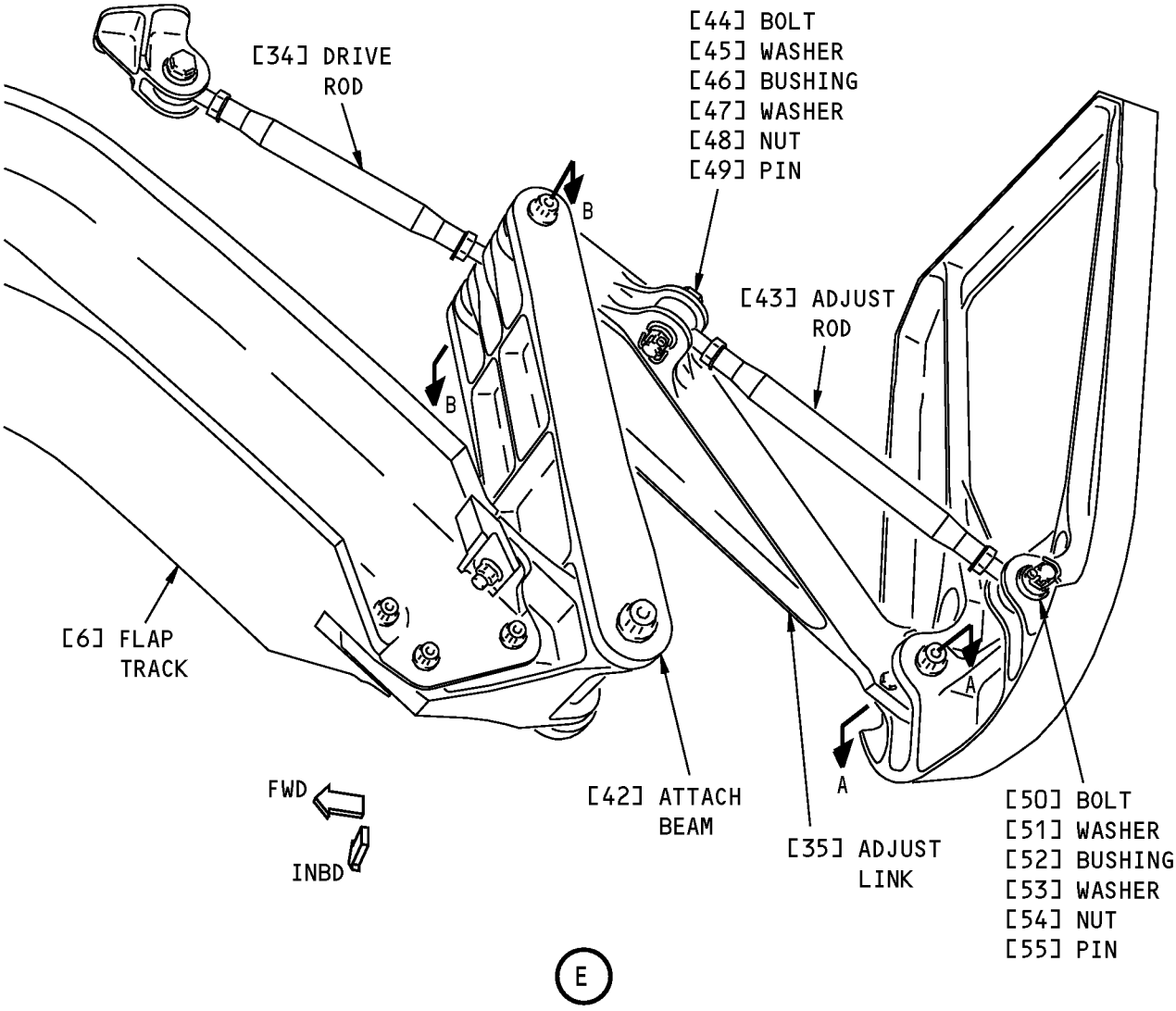

Inboard Flap Support Fairing Installation
Figure 401 (Sheet 4 of 5)/27-51-18-990-801

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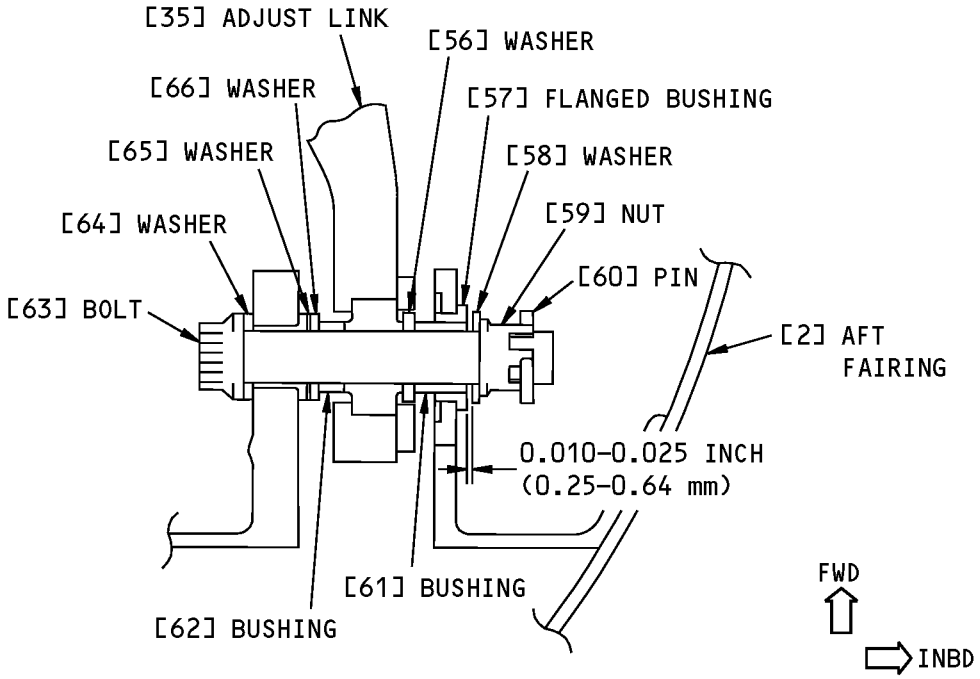

Inboard Flap Support Fairing Installation
Figure 401 (Sheet 5 of 5)/27-51-18-990-801

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TASK 27-51-18-400-801

3. Inboard Flap Support Forward Fairing Installation

(Figure 401)

A. General

(1) This task is applicable to the forward fairing on the No. 3 and No. 6 flap supports.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-18-820-801	Inboard Flap Support Fairing Adjustment (P/B 501)

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Fairing assembly	27-51-18-01-106	HAP ALL
		27-51-18-01-108	HAP ALL

E. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

F. Forward Fairing Installation

SUBTASK 27-51-18-420-001

(1) If it is not installed, install the fairing attach fitting [13] on the transmission attach fitting [10]:

(a) Apply primer, C00259 to the mating surfaces of the shim [7].

(b) Put the fairing attach fitting [13] and shim [7] in their location on the transmission attach fitting [10].

(c) Apply compound, C00528 to the bolts [8].

(d) Install the bolts [8] and washers [9] to attach the fairing attach fitting [13].

(e) Install lockwire on the bolts [8].

SUBTASK 27-51-18-420-002

(2) Install the forward fairing assembly [1]:

(a) Connect the jumper wires [23]:

1) Lift the forward fairing assembly [1] until you can put the jumper wires [23] on the studs.

2) Install the washers [12] and nuts [11] to attach the jumper wires [23].

3) Apply sealant, A02315 to the nuts [11].

(b) Apply primer, C00259 to the mating surfaces of the shims [22] and shim [24].

(c) If you removed the shims [22] or shim [24], put the shims [22] or shim [24] in its position.

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(d) Apply compound, C00528 to the bolts [3] and bolts [5].

(e) Install the bolts [3] and washers [4] to attach the forward fairing assembly [1] to the fairing attach fitting [13].

(f) Install the bolts [5] to attach the forward end of the forward fairing assembly [1].

SUBTASK 27-51-18-820-001

(3) Do this task: Inboard Flap Support Fairing Adjustment, TASK 27-51-18-820-801.

SUBTASK 27-51-18-390-001

(4) Fill the clearance between the front of the forward fairing assembly [1] and the lower surface of the wing with sealant, A02315.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-18-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

TASK 27-51-18-000-802

4. Inboard Flap Support Aft Fairing Removal

(Figure 401)

A. General

(1) This task is applicable to the aft fairing on the No. 3 and No. 6 flap supports.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)

C. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

D. Access Panels

Number	Name/Location
542CL	Flap Support No. 3, Access Cover
542CR	Flap Support No. 3, Access Cover
642CL	Flap Support No. 6, Access Cover
642CR	Flap Support No. 6, Access Cover

E. Procedure

SUBTASK 27-51-18-040-002

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-18-010-001

(2) Remove the tailcone assembly [26] from the aft end of the aft fairing assembly [2]:

(a) Remove the bolts [25] that attach the tailcone assembly [26] to the aft fairing assembly [2].

(b) Remove the tailcone assembly [26] from the aft fairing assembly [2].

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SUBTASK 27-51-18-010-002

(3) Remove the access cover [15] and access cover [21] from the forward end of the aft fairing assembly [2]:

(a) These are the panels:

Number	Name/Location
542CL	Flap Support No. 3, Access Cover
542CR	Flap Support No. 3, Access Cover
642CL	Flap Support No. 6, Access Cover
642CR	Flap Support No. 6, Access Cover

(b) Remove the bolts [14] that attach the access cover [15] and access cover [21] to the aft fairing assembly [2].

(c) Remove the access cover [15] and access cover [21].

SUBTASK 27-51-18-020-003

(4) Remove the aft fairing assembly [2]:

(a) Disconnect the aft end of the aft fairing assembly [2]:

NOTE: Support the aft end of the aft fairing assembly [2] while you remove the bolt [36].

1) Remove the nut [40], washer [39], washer [37], bolt [36] and bushing [38] that attach the lower end of the attach beam assembly [42] to the flap track [6].

2) Remove the nut [31], washer [30], washer [28], bolt [27] and bushing [29] that attach the drive rod assembly [34] to the main flap [33].

(b) Disconnect the forward end of the aft fairing assembly [2]:

1) Remove the nut [20] and washer [19] from the pivot bolt [16].

2) Remove the pivot bolt [16], washer [17] and bushing [18] that attach the aft fairing assembly [2] to the transmission attach fitting [10].

(c) Lower the aft fairing assembly [2] until you can get access to the nuts [11] on the jumper wires [23].

(d) Remove the nuts [11] and washers [12] that attach the jumper wires [23].

(e) Remove the jumper wires [23] from the studs.

(f) Lower the aft fairing assembly [2].

SUBTASK 27-51-18-020-004

(5) If you will install a new aft fairing assembly [2], remove the fairing drive linkage from the aft fairing assembly [2]:

NOTE: The fairing drive linkage includes the drive rod assembly [34], adjust link [35], adjust rod assembly [43] and the attach beam assembly [42].

(a) Remove the nut [54], washer [53], washer [51], bolt [50] and bushing [52] that attach the adjust rod assembly [43] to the aft fairing assembly [2].

(b) Remove the adjust link [35] from the aft fairing assembly [2]:

1) Remove the nut [59] and washer [58] from the bolt [63].

2) Remove the bolt [63], washer [64], washer [65], washer [66] and washer [56].

NOTE: Make a note of the quantity, thickness and location of the washer [56], washer [65] and washer [66].

3) Remove the bushing [61] and bushing [62] from the aft fairing assembly [2].

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(c) Disconnect the drive rod assembly [34] and adjust link [35] from the attach beam assembly [42]:

1) Remove the nut [73] and washer [72] from the bolt [67].

2) Remove the bolt [67], washer [68], washer [70], bushing [69] and bushing [71].

(d) Remove the nut [48], washer [47], washer [45], bolt [44] and bushing [46] that attach the adjust rod assembly [43] to the adjust link [35].

——————— END OF TASK ———————

TASK 27-51-18-400-802

5. Inboard Flap Support Aft Fairing Installation

(Figure 401)

A. General

(1) This task is applicable to the aft fairing on the No. 3 and No. 6 flap supports.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-18-820-801	Inboard Flap Support Fairing Adjustment (P/B 501)

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Fairing assembly	27-51-18-01-420	HAP ALL
		27-51-18-01-425	HAP ALL
26	Tailcone assembly	27-51-18-01-430	HAP ALL
32	Pin	27-51-18-01-187	HAP ALL
34	Rod assembly	27-51-18-01-300	HAP ALL
35	Link	27-51-18-01-410	HAP ALL
41	Pin	27-51-18-01-187	HAP ALL
42	Beam assembly	27-51-18-01-335	HAP ALL
43	Rod assembly	27-51-18-01-157	HAP ALL
49	Pin	27-51-18-01-130	HAP 001-013, 015-026, 028-046, 054, 101-104
		27-51-18-01-132	HAP 047-053, 105-999
55	Pin	27-51-18-01-187	HAP ALL
60	Pin	27-51-18-01-187	HAP ALL
74	Pin	27-51-18-01-187	HAP ALL

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E. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

F. Access Panels

Number	Name/Location
542CL	Flap Support No. 3, Access Cover
542CR	Flap Support No. 3, Access Cover
642CL	Flap Support No. 6, Access Cover
642CR	Flap Support No. 6, Access Cover

G. Inboard Flap Support Fairing Installation

SUBTASK 27-51-18-020-005

(1) If the fairing drive linkage is not installed on the aft fairing assembly [2], do these steps:

NOTE: The fairing drive linkage includes the drive rod assembly [34], adjust link [35], adjust rod assembly [43] and the attach beam assembly [42].

(a) Connect the adjust rod assembly [43] to the adjust link [35]:

1) Install the bushing [46], bolt [44], washer [45], washer [47] and nut [48] that attach the adjust rod assembly [43] to the adjust link [35].

NOTE: For the left wing, install the bolt [44] with the head on the same side of the adjust link [35] as the bushing [46]. For the right wing, install the bolt [44] with the head on the opposite side of the adjust link [35] as the bushing [46].

2) Install the pin [49] in the nut [48].

(b) Connect the drive rod assembly [34] and adjust link [35] to the attach beam assembly [42]:

1) Put the adjust link [35] in its location on the attach beam assembly [42] with the bushing [69] and bushing [71].

2) Put the drive rod assembly [34] in its position on the attach beam assembly [42].

3) Install the bolt [67], washer [68], washer [70], washer [72] and nut [73].

4) Tighten the nut [73]:

a) Tighten the nut [73] to 330-410 pound-inches (37.3-46.3 newton-meters) if the bolt [67] is not lubricated.

b) Tighten the nut [73] to 210-250 pound-inches 23.7-28.2 newton-meters) if the bolt [67] is lubricated with grease, D00633 or grease, D00013.

5) Install the pin [74].

(c) Connect the adjust link [35] to the aft fairing assembly [2]:

1) Put the adjust link [35] in its location on the aft fairing assembly [2] with the washer [65], washer [66], washer [56], bushing [61] and bushing [62].

NOTE: Install the same number of washers [65], washers [66] and washers [56] in the same location as you removed.

2) Install the bolt [63], washer [64], washer [58] and nut [59].

3) Measure the clearance between the washer [58] and the flange on the flanged bushing [57].

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4) If the clearance is not 0.010 to 0.025 inch (0.25 to 0.64 millimeters), change the location of the washer [65], washer [66] and washer [56]:
   a) Remove the nut [59], washer [58], washer [65], washer [66], washer [56], washer [64], bolt [63], bushing [61] and bushing [62].
   b) Change the location of the washer [65], washer [66] and washer [56].
   c) Install the bushing [61], bushing [62], bolt [63], washer [64], washer [65], washer [66], washer [56], washer [58] and nut [59].
   d) Make sure the clearance between the washer [58] and the flange on the flanged bushing [57] is in the limit of 0.010 to 0.025 inch (0.25 to 0.64 millimeters).
5) Install the pin [60] in the nut [59].

(d) Connect the adjust rod assembly [43] to the aft fairing assembly [2]:
1) Install the bushing [52], bolt [50], washer [51], washer [53] and nut [54] to attach the adjust rod assembly [43] to the aft fairing assembly [2].
2) Install the pin [55] in the nut [54].

SUBTASK 27-51-18-420-003

(2) Install the aft fairing assembly [2]:
(a) Connect the jumper wires [23]:
1) Lift the forward end of the aft fairing assembly [2] until you can put the jumper wires [23] on the studs.
2) Install the washers [12] and nuts [11] to attach the jumper wires [23].
3) Apply sealant, A02315 to the nuts [11].

(b) Connect the forward end of the aft fairing assembly [2] to the transmission attach fitting [10]:
1) Lift the forward end of the aft fairing assembly [2] until it aligns with the transmission attach fitting [10].
2) Install the bushing [18], pivot bolt [16], washer [17], washer [19] and nut [20].
3) Tighten the nut [20]:
   a) Tighten the nut [20] to 630-700 pound-inches (71.2-79.1 newton-meters) if the pivot bolt [16] is not lubricated.
   b) Tighten the nut [20] to 440-470 pound-inches (49.7-53.1 newton-meters) if the pivot bolt [16] is lubricated with grease, D00633 or grease, D00013.

(c) Connect the aft end of the aft fairing assembly [2]:
1) Move the attach beam assembly [42] until it aligns with the flap track [6].
2) Install the bushing [38], bolt [36], washer [37], washer [39] and nut [40].
3) Tighten the nut [40]:
   a) Tighten the nut [40] to 630-825 pound-inches (71.2-79.1 newton-meters) if the bolt [36] is not lubricated.
   b) Tighten the nut [40] to 440-530 pound-inches (49.7-53.1 newton-meters) if the bolt [36] is lubricated with grease, D00633 or grease, D00013.
4) Install the pin [41] in the nut [40].
5) Align the drive rod assembly [34] with the main flap [33].
6) Install the bushing [29], bolt [27], washer [28], washer [30] and nut [31].
7) Install the pin [32] in the nut [31].

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SUBTASK 27-51-18-820-002

(3) Do this task: Inboard Flap Support Fairing Adjustment, TASK 27-51-18-820-801.

SUBTASK 27-51-18-410-001

(4) Install the access cover [15] and access cover [21] on the forward end of the aft fairing assembly [2]:

(a) These are the panels:

Number	Name/Location
542CL	Flap Support No. 3, Access Cover
542CR	Flap Support No. 3, Access Cover
642CL	Flap Support No. 6, Access Cover
642CR	Flap Support No. 6, Access Cover

(b) Put the access cover [15] and access cover [21] in their locations on the aft fairing assembly [2].

(c) Install the bolts [14] that attach the access cover [15] and access cover [21].

SUBTASK 27-51-18-010-003

(5) Install the tailcone assembly [26] on the aft fairing assembly [2]:

(a) Put the tailcone assembly [26] in its location on the aft fairing assembly [2].

(b) Install the bolts [25] that attach the tailcone assembly [26].

(c) Fill and aerodynamically fair the clearance between the tailcone assembly [26] and the aft fairing assembly [2] with sealant, A02315.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-18-440-002

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

END OF TASK

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INBOARD FLAP SUPPORT FAIRING - ADJUSTMENT/TEST

1. General

A. This procedure has a task to do the adjustment of the outboard flap support fairings for the inboard flap.

TASK 27-51-18-820-801

2. Inboard Flap Support Fairing Adjustment

(Figure 501)

A. General

(1) This task is applicable to the flap support fairing at supports No. 3 and 6.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-18-000-801	Inboard Flap Support Forward Fairing Removal (P/B 401)
27-51-18-400-801	Inboard Flap Support Forward Fairing Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Fairing assembly	27-51-18-01-106	HAP ALL
		27-51-18-01-108	HAP ALL
3	Fairing assembly	27-51-18-01-420	HAP ALL
		27-51-18-01-425	HAP ALL
4	Tailcone assembly	27-51-18-01-430	HAP ALL
17	Pin	27-51-18-01-187	HAP ALL

E. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

F. Prepare for the Adjustment

SUBTASK 27-51-18-860-001

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-18-040-003

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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G. Inboard Flap Outboard Aft Fairing Adjustment

SUBTASK 27-51-18-220-001

(1) Measure the clearance between the top surface of the aft fairing assembly [3] and the inboard flap [1].

NOTE: Measure the clearance at the aft edge of the inboard flap [1] on the inboard and outboard sides of the aft fairing assembly [3].

(a) Make sure the clearance is in the limit of 0.2884 ±0.050 inch (7.325 ±1.27 millimeters).

NOTE: The aft seal [5] should be compressed 20 to 40 percent.

(b) Make sure the clearance is approximately the same on the inboard and outboard sides of the aft fairing assembly [3].

SUBTASK 27-51-18-820-003

(2) If the clearance is not in the limit, or if it is not the same on the inboard and outboard sides, adjust the position of the aft fairing assembly [3]:

(a) Remove the bolts [6] and remove the tailcone assembly [4] from the aft fairing assembly [3].

(b) If the clearance is not the same on the inboard and outboard sides, adjust the length of the adjust rod [11]:

1) Loosen the locknuts [10] on the adjust rod [11].

2) Adjust the length of the adjust rod [11] until the clearance is the same on the inboard and outboard sides of the aft fairing assembly [3].

3) Tighten the locknuts [10] on the adjust rod [11].

4) Install lockwire on the locknuts [10].

(c) If the clearance is not in the limit, adjust the length of the drive rod [8]:

1) Loosen the locknuts [7] on the drive rod [8].

2) Adjust the length of the drive rod [8] until the clearance is in the limit.

3) Tighten the locknuts [7] on the drive rod [8].

4) Install lockwire on the locknuts [7].

(d) Make sure the clearance is in the limit and it is the same on the inboard and outboard sides of the aft fairing assembly [3].

SUBTASK 27-51-18-220-002

(3) Make sure the seals [18] on the sides of the aft fairing assembly [3] are compressed evenly against the lower surface of the inboard flap [1].

SUBTASK 27-51-18-820-004

(4) If the seals [18] are not compressed evenly against the lower surface of the inboard flap [1], adjust the position of the seals [18]:

(a) Remove the nut [16], washer [15], washer [13], bolt [12] and bushing [14] that attach the drive rod [8] to the inboard flap [1].

(b) Lower the aft end of the aft fairing assembly [3] to get access to the fasteners for the seals [18].

(c) Loosen the nuts [19] on the retainer [20].

(d) Move the seal [18] and the retainer [20].

NOTE: Make sure you move the seal [18] and the retainer [20] together as a unit.

(e) Tighten the nuts [19] that hold the retainer [20].

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(f) Lift the aft end of the aft fairing assembly [3] to align the drive rod [8] with the inboard flap [1].

(g) Install the bushing [14], bolt [12], washer [13], washer [15] and nut [16].

(h) Install the pin [17] in the nut [16].

H. Inboard Flap Outboard Forward Fairing Adjustment

SUBTASK 27-51-18-220-003

(1) Measure the mismatch between the forward fairing assembly [2] and the aft fairing assembly [3].

NOTE: Measure the mismatch on the inboard side and on the bottom of the forward fairing assembly [2].

(a) Make sure the mismatch is in the limit of +0.03 to -0.01 inch (+0.76 to -0.25 millimeter).

NOTE: A positive (+) mismatch is when the forward fairing assembly [2] extends past the aft fairing assembly [3]. A negative (-) mismatch is when the aft fairing assembly [3] extends past the forward fairing assembly [2].

SUBTASK 27-51-18-220-004

(2) Make sure the seals [26] on the sides of the forward fairing assembly [2] are compressed evenly against the lower surface of the wing.

SUBTASK 27-51-18-020-006

(3) If the mismatch is not in the limit or if the seals [26] are not compressed evenly, do this task: Inboard Flap Support Forward Fairing Removal, TASK 27-51-18-000-801.

SUBTASK 27-51-18-820-005

(4) If the mismatch between the forward fairing assembly [2] and the aft fairing assembly [3] is not in the limit, then adjust the position of the forward fairing assembly [2]:

(a) If the mismatch is not in the limit on the inboard side of the forward fairing assembly [2], adjust the position of the fairing attach fitting [24]:

1) Loosen the bolts [23] that attach the fairing attach fitting [24] to the transmission attach fitting [21].

2) Move the fairing attach fitting [24] inboard or outboard to get the mismatch in the limit.

3) Tighten the bolts [23].

(b) If the mismatch is not in the limit on the bottom of the forward fairing assembly [2], change the thickness of the shims [25].

1) Apply primer, C00259 to the mating surfaces of the shims [25] and the fairing attach fitting [24].

SUBTASK 27-51-18-820-006

(5) If the seals [26] are not compressed evenly against the lower surface of the wing, adjust the position of the seals [26]:

(a) Loosen the nuts [27] on the retainer [28].

(b) Move the seal [26] and the retainer [28].

NOTE: Make sure you move the seal [26] and the retainer [28] together as a unit.

(c) Tighten the nuts [27] that hold the retainer [28].

SUBTASK 27-51-18-420-004

(6) If you removed the forward fairing assembly [2], do this task: Inboard Flap Support Forward Fairing Installation, TASK 27-51-18-400-801.

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I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-18-010-004

(1) Install the tailcone assembly [4] on the aft fairing assembly [3]:

(a) Put the tailcone assembly [4] in its location on the aft fairing assembly [3].

(b) Install the bolts [6] that attach the tailcone assembly [4].

(c) Fill and aerodynamically fair the clearance between the tailcone assembly [4] and the aft fairing assembly [3] with sealant, A02315.

SUBTASK 27-51-18-440-003

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

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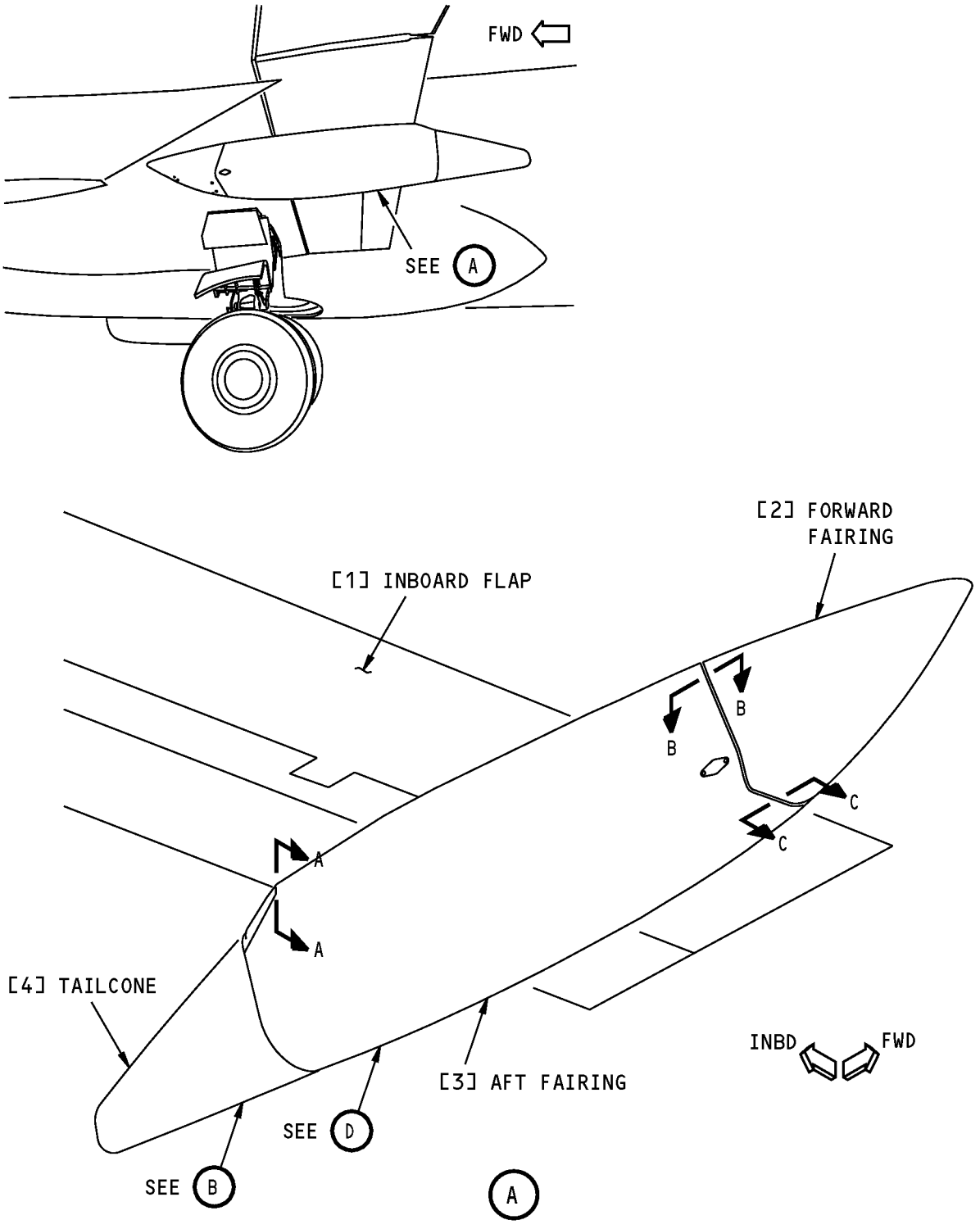

Inboard Flap Support Fairing Adjustment
Figure 501 (Sheet 1 of 4)/27-51-18-990-802

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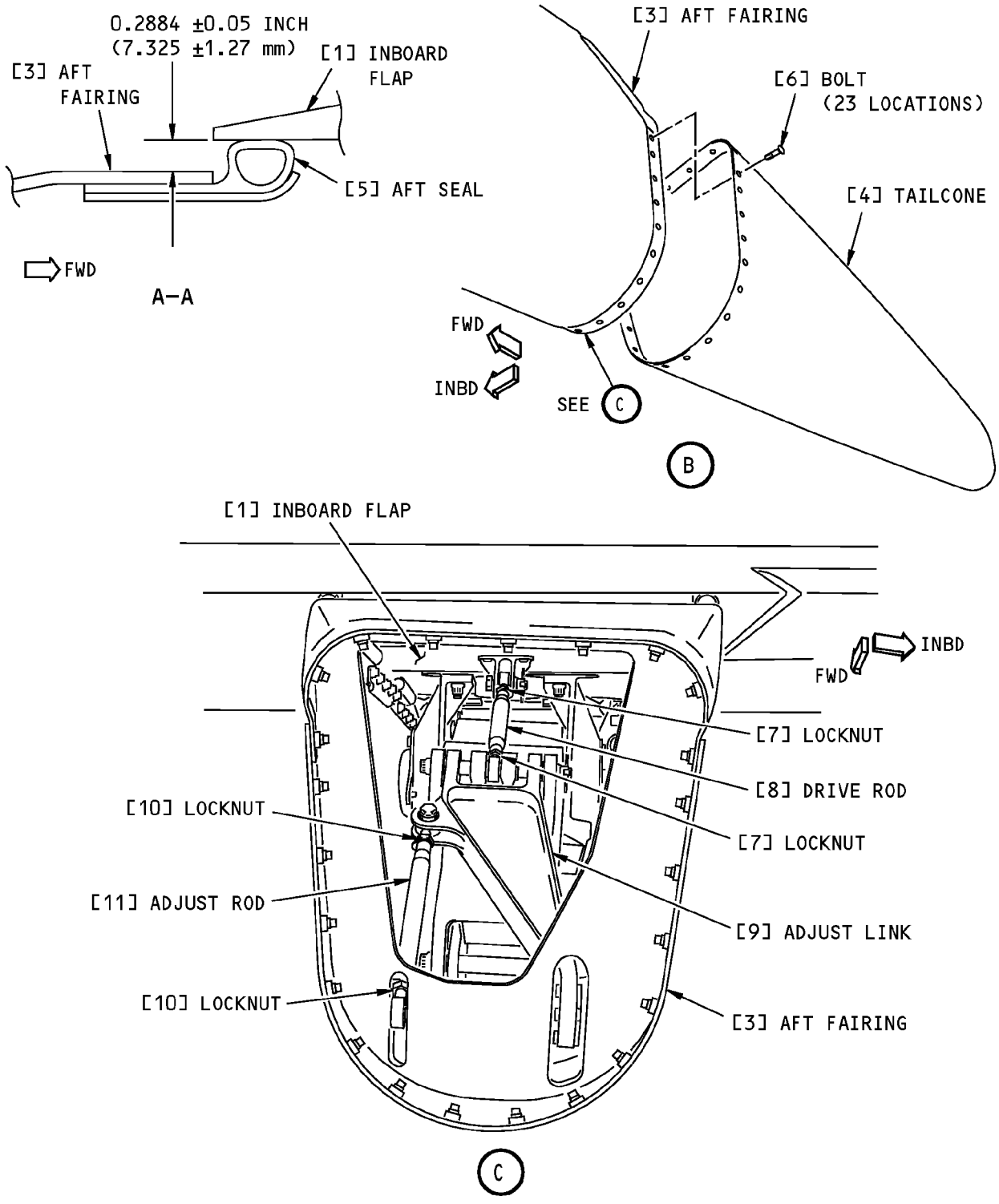

Inboard Flap Support Fairing Adjustment
Figure 501 (Sheet 2 of 4)/27-51-18-990-802

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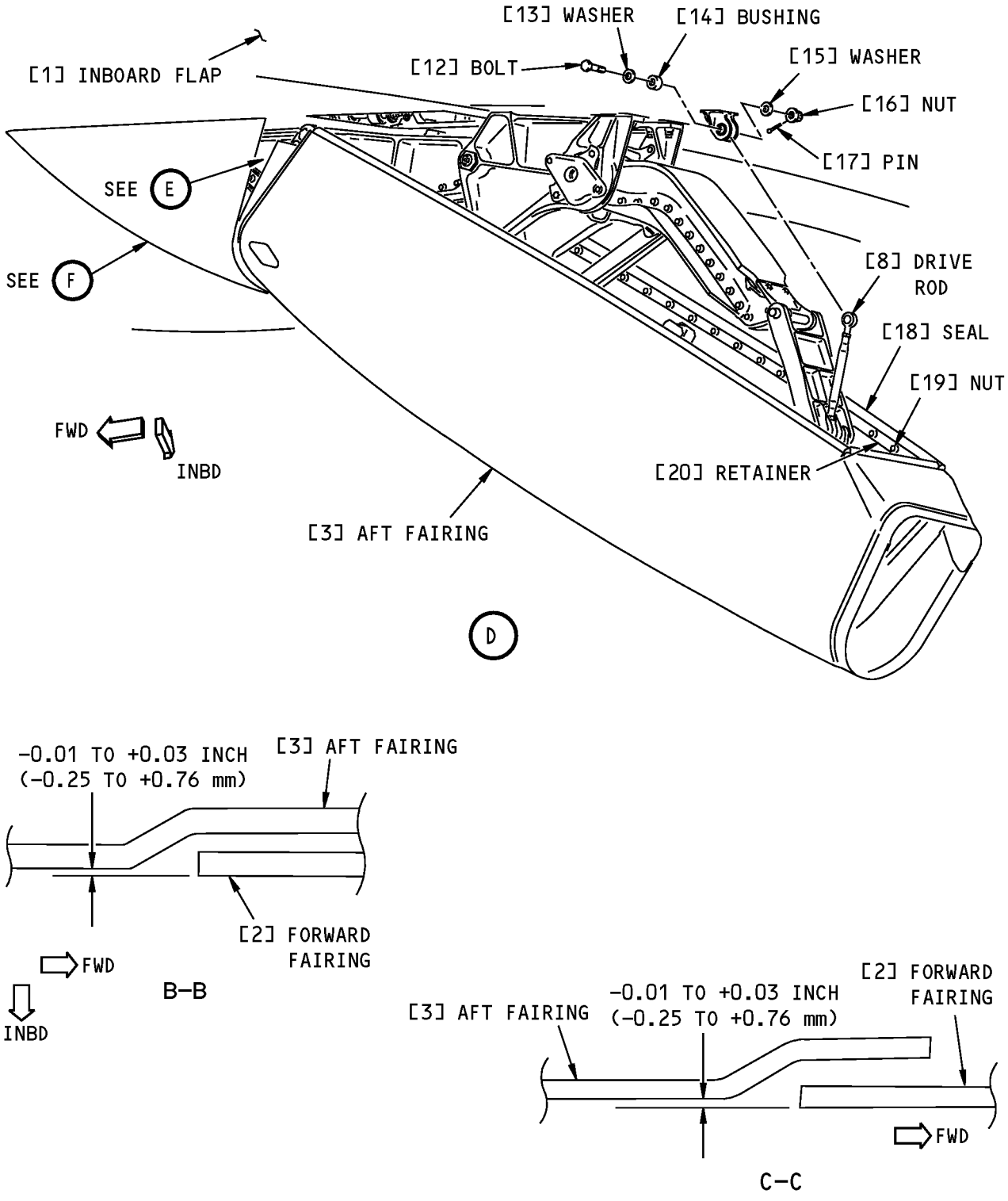

Inboard Flap Support Fairing Adjustment
Figure 501 (Sheet 3 of 4)/27-51-18-990-802

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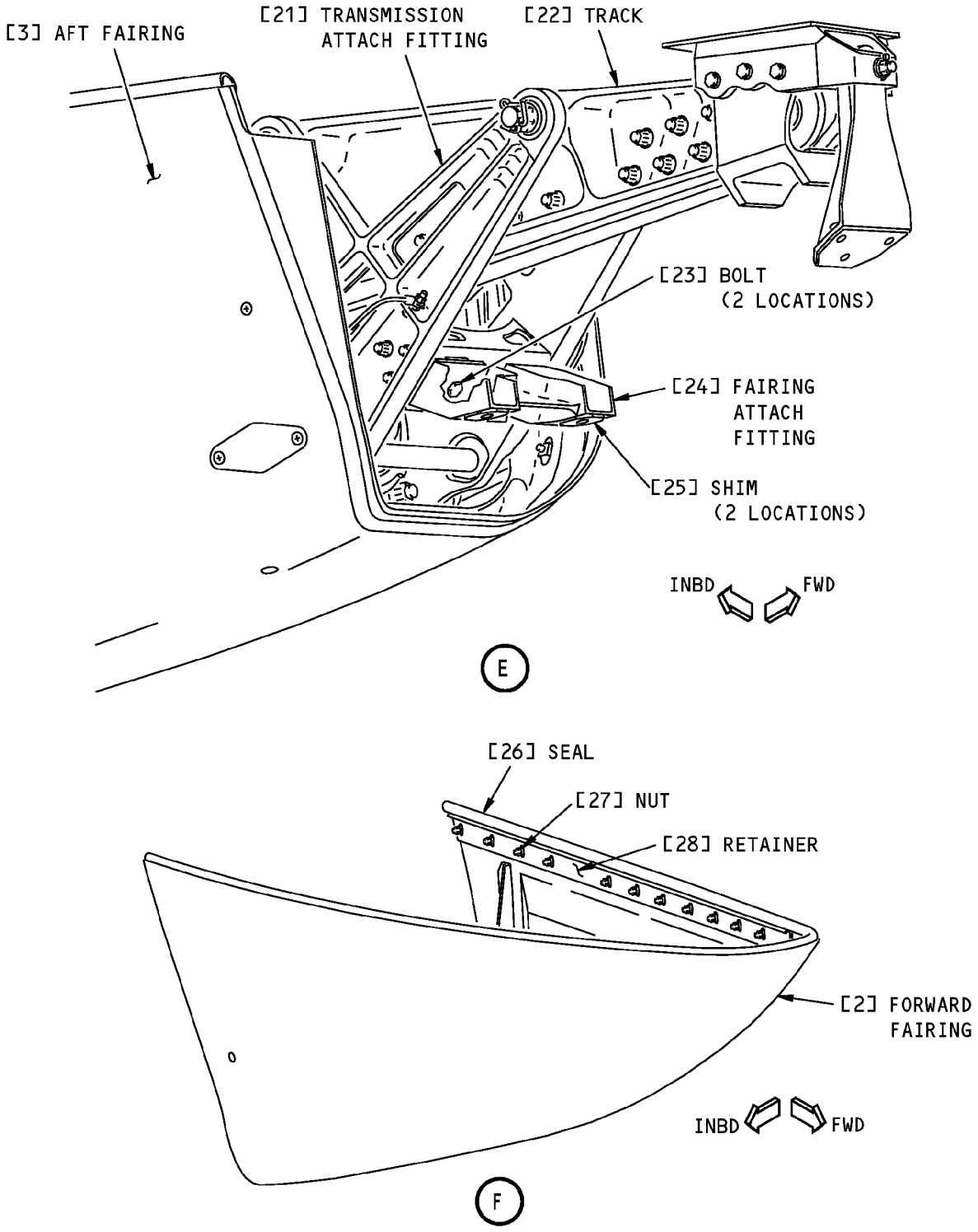

Inboard Flap Support Fairing Adjustment
Figure 501 (Sheet 4 of 4)/27-51-18-990-802

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OUTBOARD TRAILING EDGE FLAP - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard trailing edge flap

(2) An installation of the outboard trailing edge flap.

B. This procedure includes the removal and installation of the main flap with the aft flap. You can remove and install the main flap with the aft flap either removed or installed. For procedures to remove and install the aft flap only, refer to (TASK 27-51-22-400-801).

C. The outboard main flap and aft flap together weigh approximately 388 pounds (176 kilograms). The main flap alone weighs approximately 341 pounds (155 kilograms).

TASK 27-51-21-000-801

2. Outboard Trailing Edge Flap Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-28-000-802	Outboard Flap Outboard Support Aft Fairing Removal (P/B 401)
27-51-28-000-804	Outboard Flap Inboard Support Aft Fairing Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1729	Sling - Equipment, Trailing Edge Flaps (Part #: C27052-25, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1095	Crane - Lift, 2000 Lb Capacity, 30 Foot Height

C. Location Zones

Zone	Area
567	Left Wing - Outboard Flap
667	Right Wing - Outboard Flap

D. Access Panels

Number	Name/Location
567BT	Flap, Forward Carriage Bearing And Fitting
667BT	Flap, Forward Carriage Bearing And Fitting

E. Prepare for the Removal

SUBTASK 27-51-21-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-21-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-51-21-010-001

(3) Do this task: Outboard Flap Outboard Support Aft Fairing Removal, TASK 27-51-28-000-802.

SUBTASK 27-51-21-010-002

(4) Do this task: Outboard Flap Inboard Support Aft Fairing Removal, TASK 27-51-28-000-804.

F. Outboard Trailing Edge Flap Removal

SUBTASK 27-51-21-020-001

(1) Disconnect the skew control rod [3] from the inboard and outboard carriage [13]:

(a) Remove the nut [18], washer [17], bushing [16], washer [15] and bolt [14] that attach the skew control rod [3] to the carriage [13].

(b) Move the skew control rod [3] away from the carriage [13].

SUBTASK 27-51-21-020-002

(2) Disconnect the aft flap drive rods [11] from the inboard and outboard drive rod attach fittings [10]:

(a) Remove the nut [8], washer [7], washer [5], bolt [4] and bushing [6] that attach the aft flap drive rod [11] to the drive rod attach fitting [10].

NOTE: The aft flap [2] will move down approximately 2 inches when you remove the bolts [4].

(b) Move the aft flap drive rods [11] away from the drive rod attach fittings [10].

SUBTASK 27-51-21-010-004

(3) Remove the leading edge skin panel [55] from the main flap assembly [1] forward of the inboard carriage [13]:

(a) These are the panels:

Number	Name/Location
567BT	Flap, Forward Carriage Bearing And Fitting
667BT	Flap, Forward Carriage Bearing And Fitting

(b) Remove the bolts [56] that attach the leading edge skin panel [55].

(c) Remove the leading edge skin panel [55] from the main flap assembly [1].

SUBTASK 27-51-21-480-001

(4) Install the sling, SPL-1729 on the main flap assembly [1] (Figure 402):

(a) Remove the bolts [74] at the inboard end and outboard ends of the main flap assembly [1].

NOTE: The bolts [74] are located along the rear spar, above the inboard and outboard carriages [13].

(b) Remove the bolts [75] at the front spar on the main flap assembly [1].

(c) Install the sling fittings [71] in the location of the bolts [74] and bolts [75].

(d) Connect the sling, SPL-1729 [72] to a 30 foot height (2000 lbs capacity) lift crane, STD-1095.

(e) Use the sling, SPL-1729 [72] to hold the weight of the outboard flap.

SUBTASK 27-51-21-020-003

(5) Remove the stop fittings from the flap tracks (Figure 401):

(a) On the outboard track [41], remove the roller stop [32], roller stop [42] and fairing attach fitting [36]:

1) Remove the nuts [40], washers [39], washers [38] and bolts [37] that attach the roller stop [32], roller stop [42] and fairing attach fitting [36] to the outboard track [41].

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2) Remove the roller stop [32] and roller stop [42] from the outboard track [41].

3) Remove the nuts [35], washers [34] and bolts [33] that attach the fairing attach fitting [36] to the outboard track [41].

4) Remove the fairing attach fitting [36] from the outboard track [41].

(b) On the inboard track [53], remove the roller stop [46], roller stop [54] and fairing attach fitting [51]:

1) Remove the nuts [50], washers [49], washers [48] and bolts [47] that attach the roller stop [46], roller stop [54] and fairing attach fitting [51] to the inboard track [53].

2) Remove the roller stop [46] and roller stop [54] from the inboard track [53].

3) Remove the nuts [45], washers [44], bolt [43] and bolts [52] that attach the fairing attach fitting [51] to the inboard track [53].

4) Remove the fairing attach fitting [51] from the inboard track [53].

SUBTASK 27-51-21-020-004

(6) Remove the main flap assembly [1]:

(a) Hold the weight of the main flap assembly [1] with the sling, SPL-1729 [71].

(b) Disconnect the carriages [13] from the gimbals [20]:

1) Install a support to hold the ballscrews [19] and gimbals [20] when they are disconnected from the carriages [13].

2) Remove the nuts [24], washers [23] and bolts [22] from the carriages [13].

3) Remove the inboard carriage bushings [27] and the outboard carriage bushings [21] from the gimbals [20] and the carriages [13].

(c) Move the gimbals [20] away from the carriages [13].

CAUTION: BE VERY CAREFUL WHEN YOU LOWER THE FLAP TO THE GROUND. YOU CAN CAUSE DAMAGE TO THE TRAILING EDGE OF THE FLAP.

(d) Use the sling, SPL-1729 and the 30 foot height (2000 lbs capacity) lift crane, STD-1095 to move the main flap assembly [1] aft and down away from the tracks.

SUBTASK 27-51-21-220-004

(7) Measure and record the thickness of the shims [95] at the inboard carriage [96] and the outboard carriage [101].

NOTE: You will use this dimension during the installation.

———————— END OF TASK ————————

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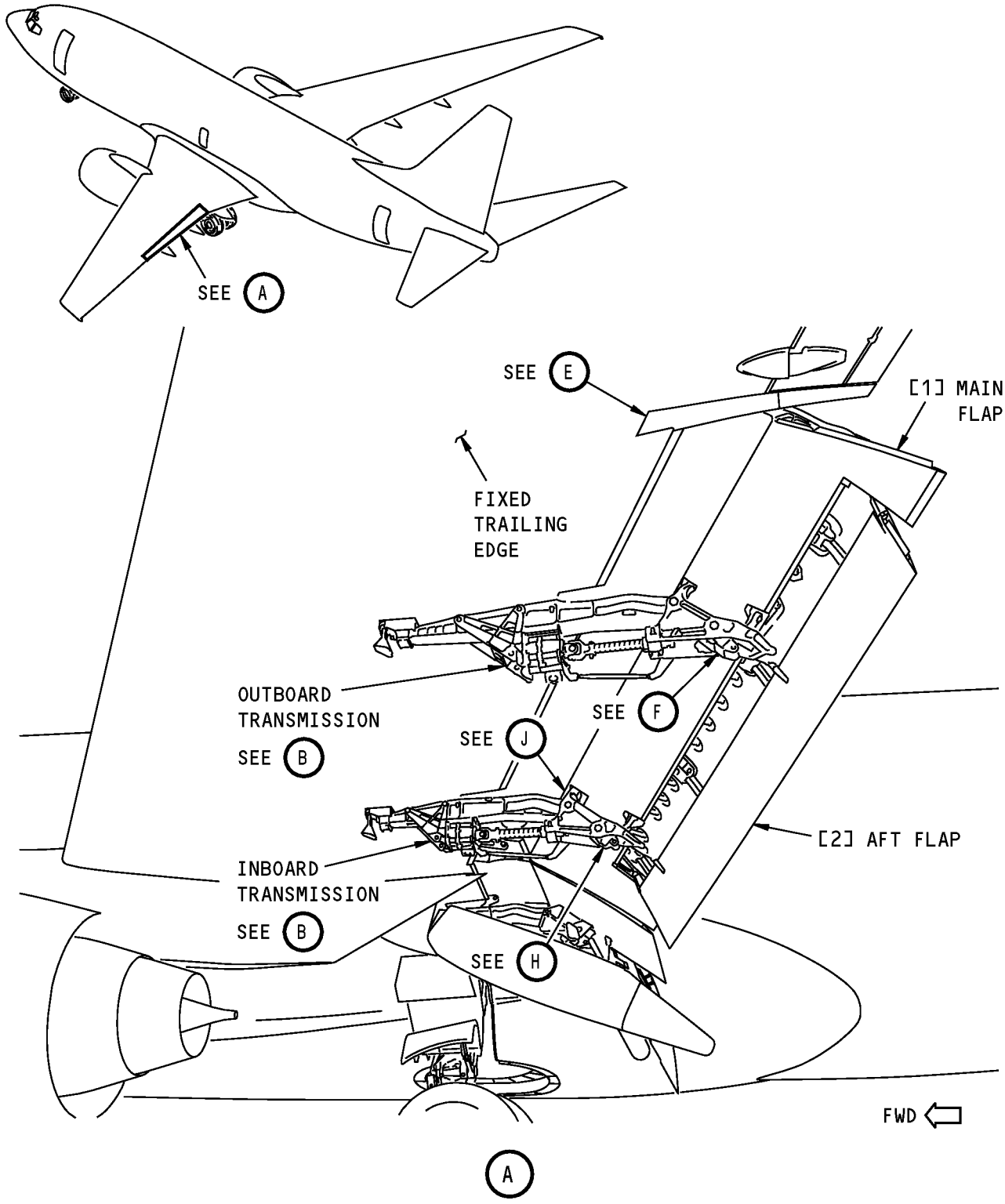

Outboard Trailing Edge Flap Installation
Figure 401 (Sheet 1 of 7)/27-51-21-990-801

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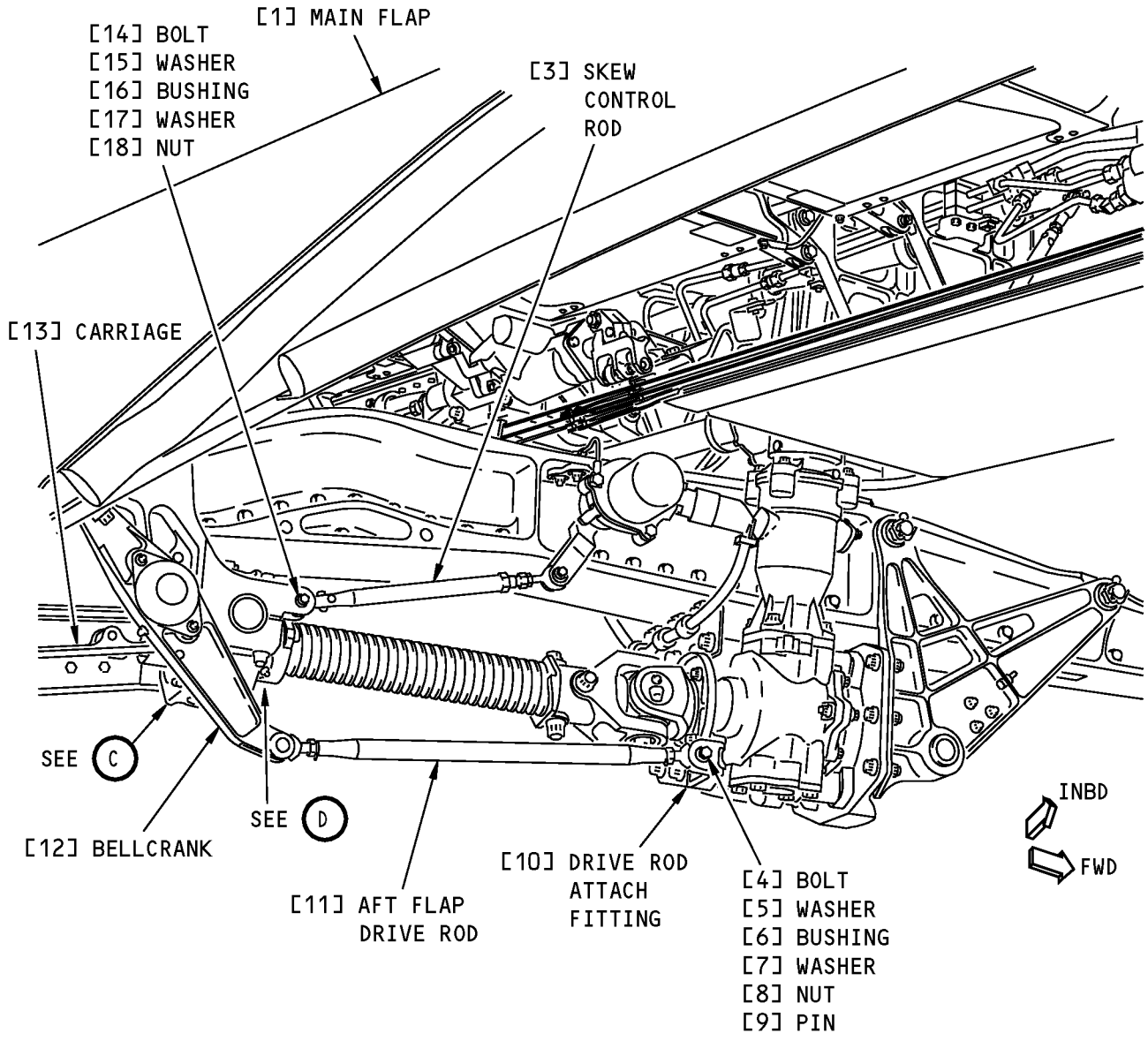

INBOARD TRANSMISSION
(OUTBOARD TRANSMISSION IS EQUIVALENT)

B

Outboard Trailing Edge Flap Installation
Figure 401 (Sheet 2 of 7)/27-51-21-990-801

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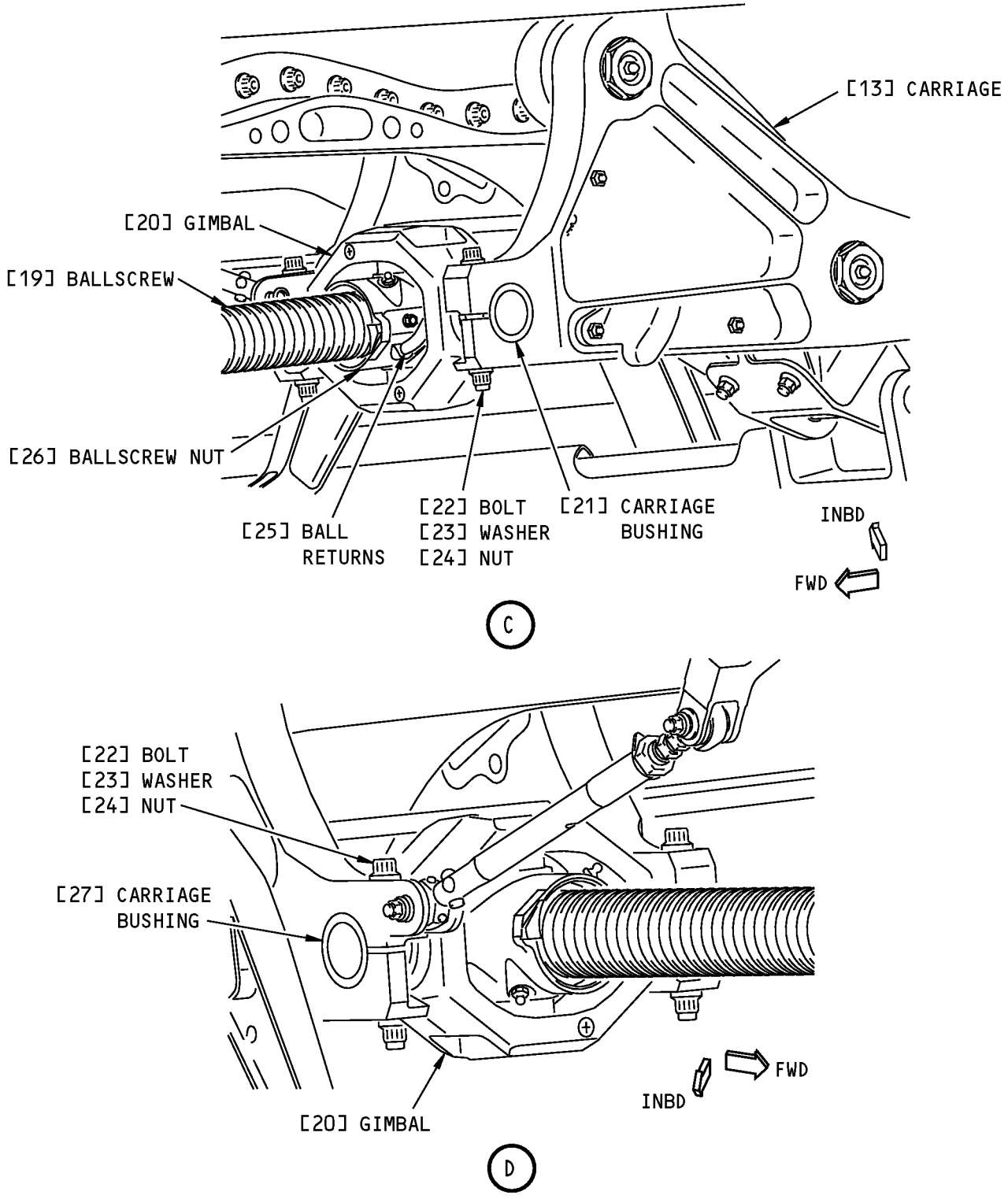

Outboard Trailing Edge Flap Installation
Figure 401 (Sheet 3 of 7)/27-51-21-990-801

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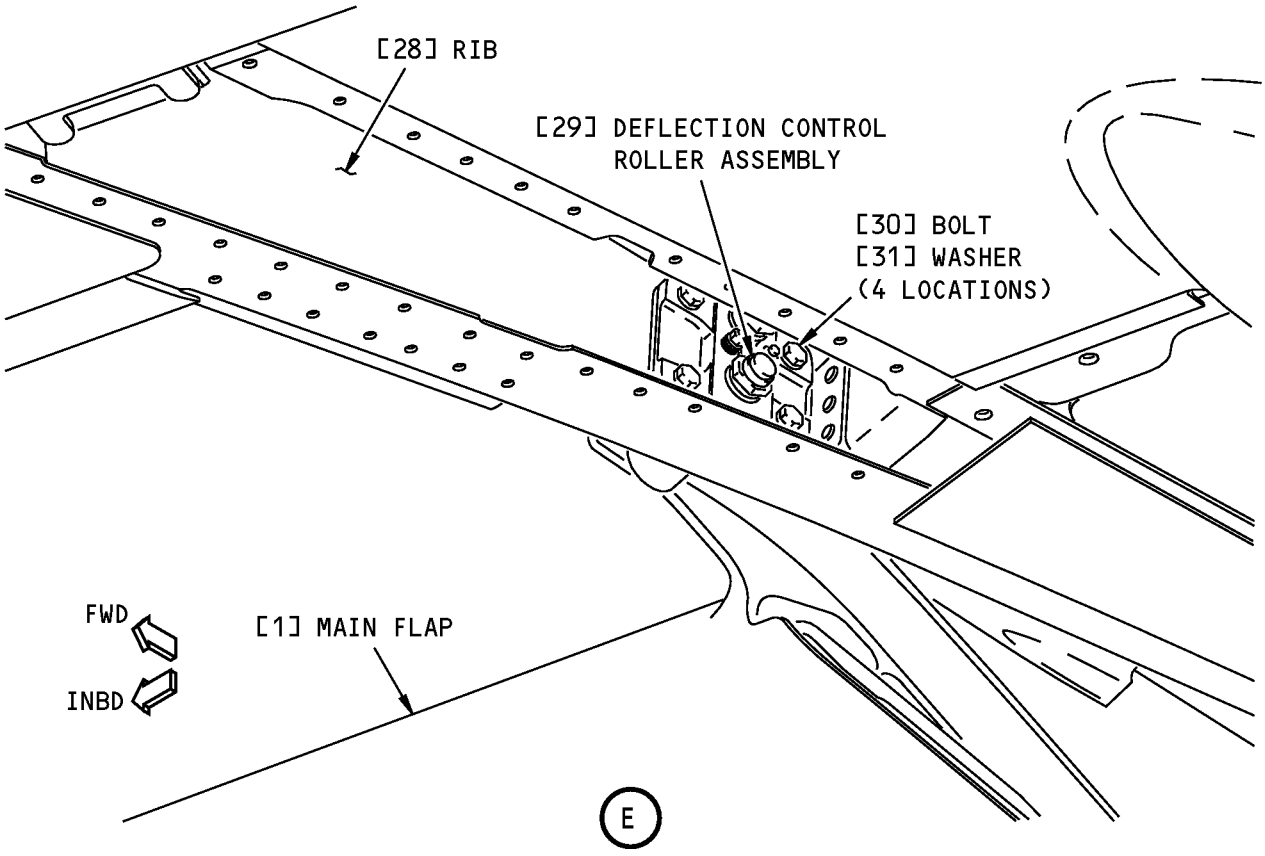

Outboard Trailing Edge Flap Installation
Figure 401 (Sheet 4 of 7)/27-51-21-990-801

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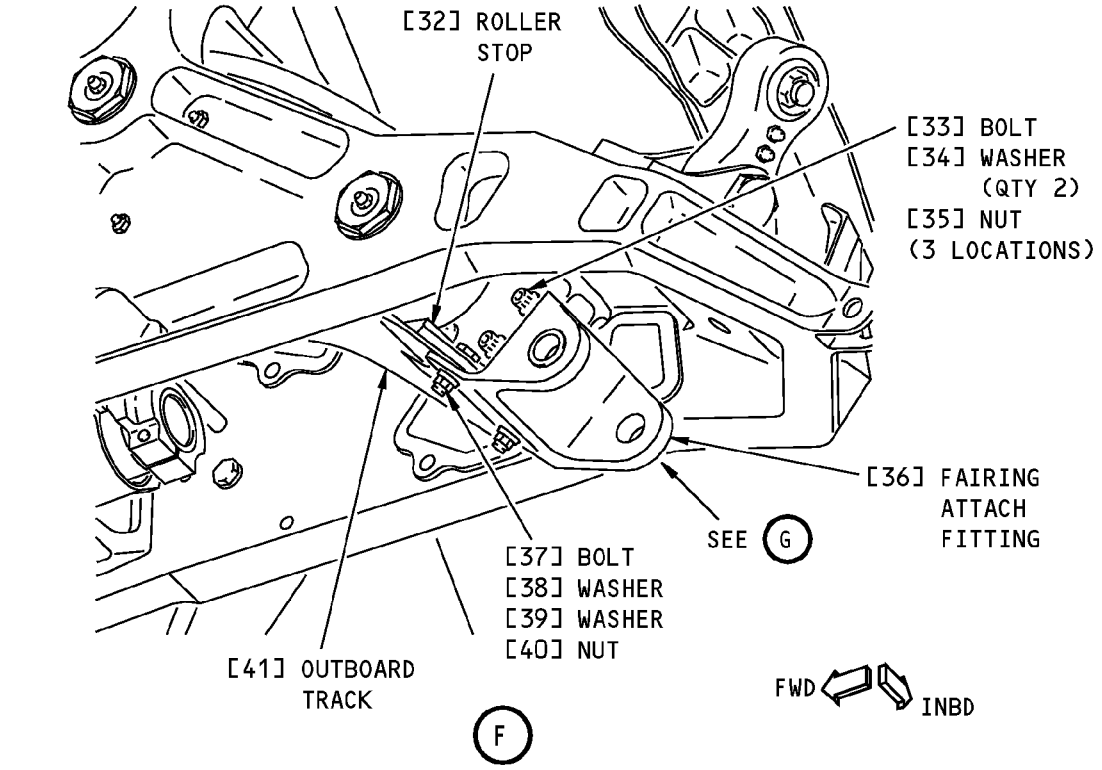

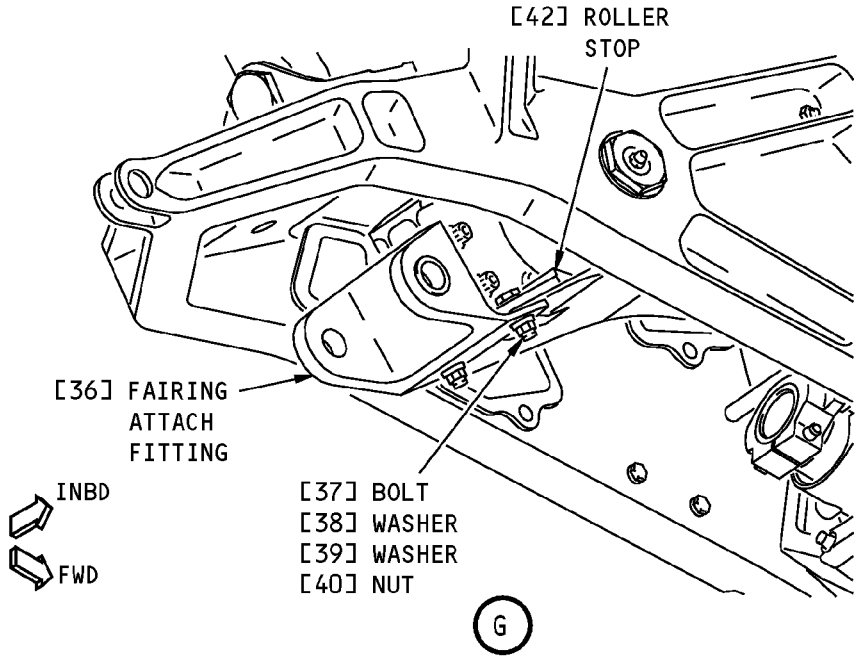

Outboard Trailing Edge Flap Installation
Figure 401 (Sheet 5 of 7)/27-51-21-990-801

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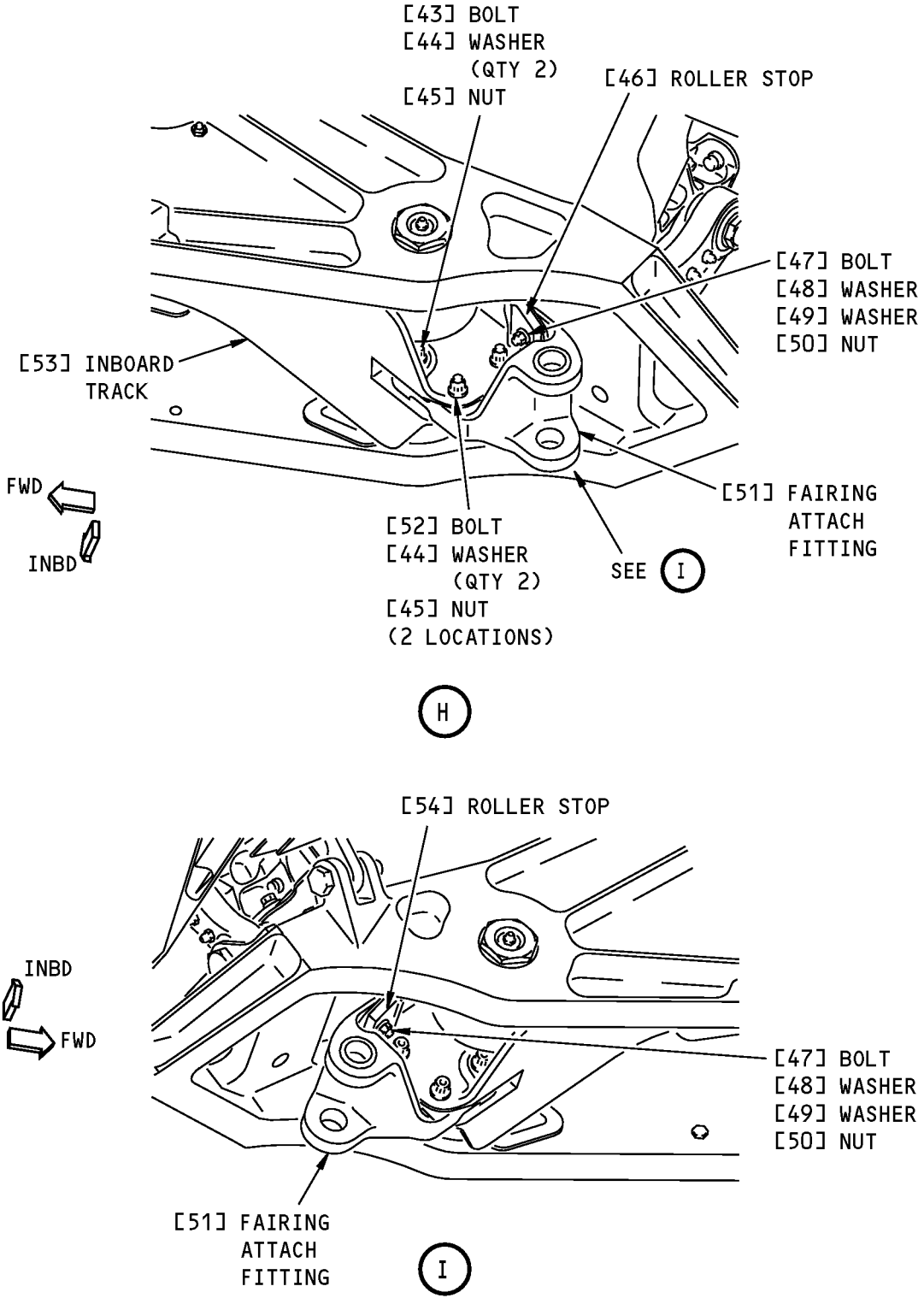

Outboard Trailing Edge Flap Installation
Figure 401 (Sheet 6 of 7)/27-51-21-990-801

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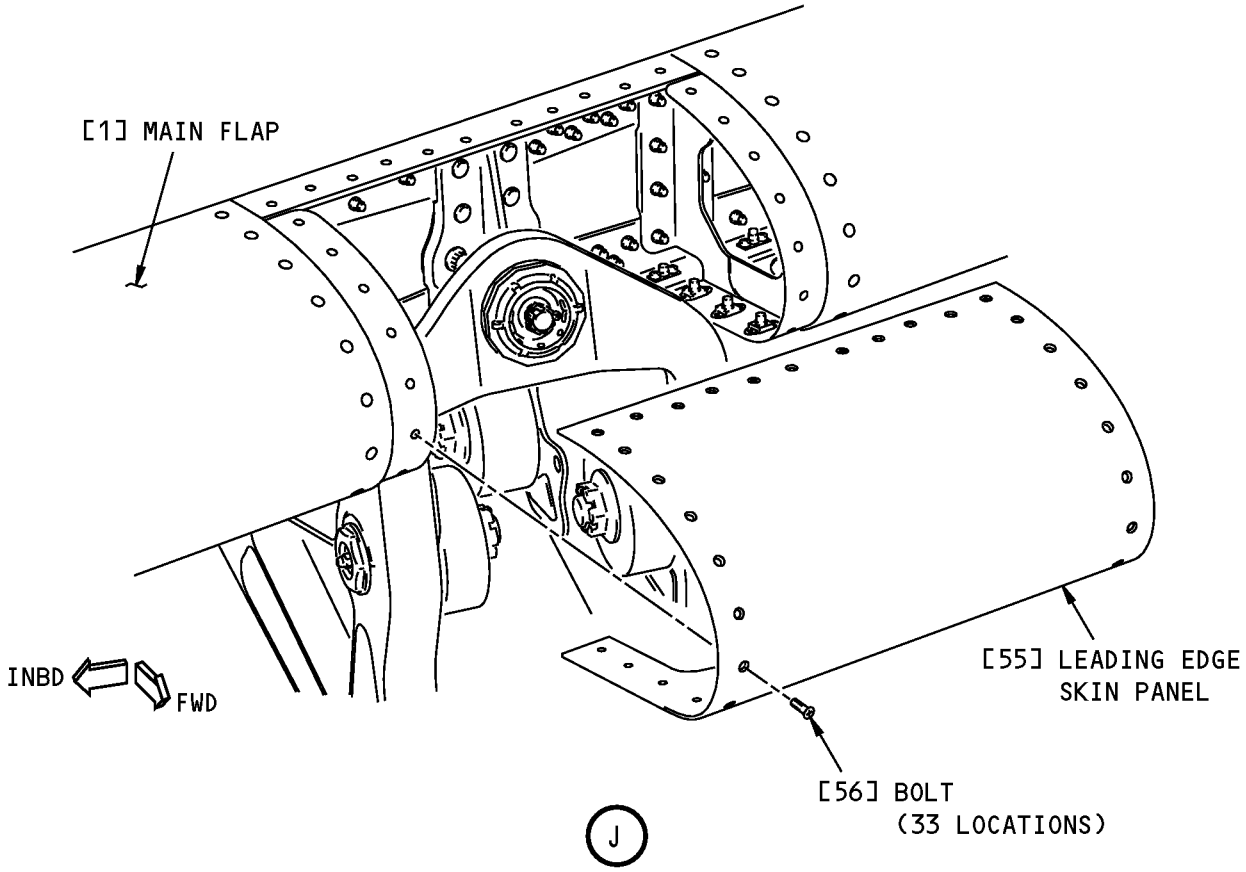

Outboard Trailing Edge Flap Installation
Figure 401 (Sheet 7 of 7)/27-51-21-990-801

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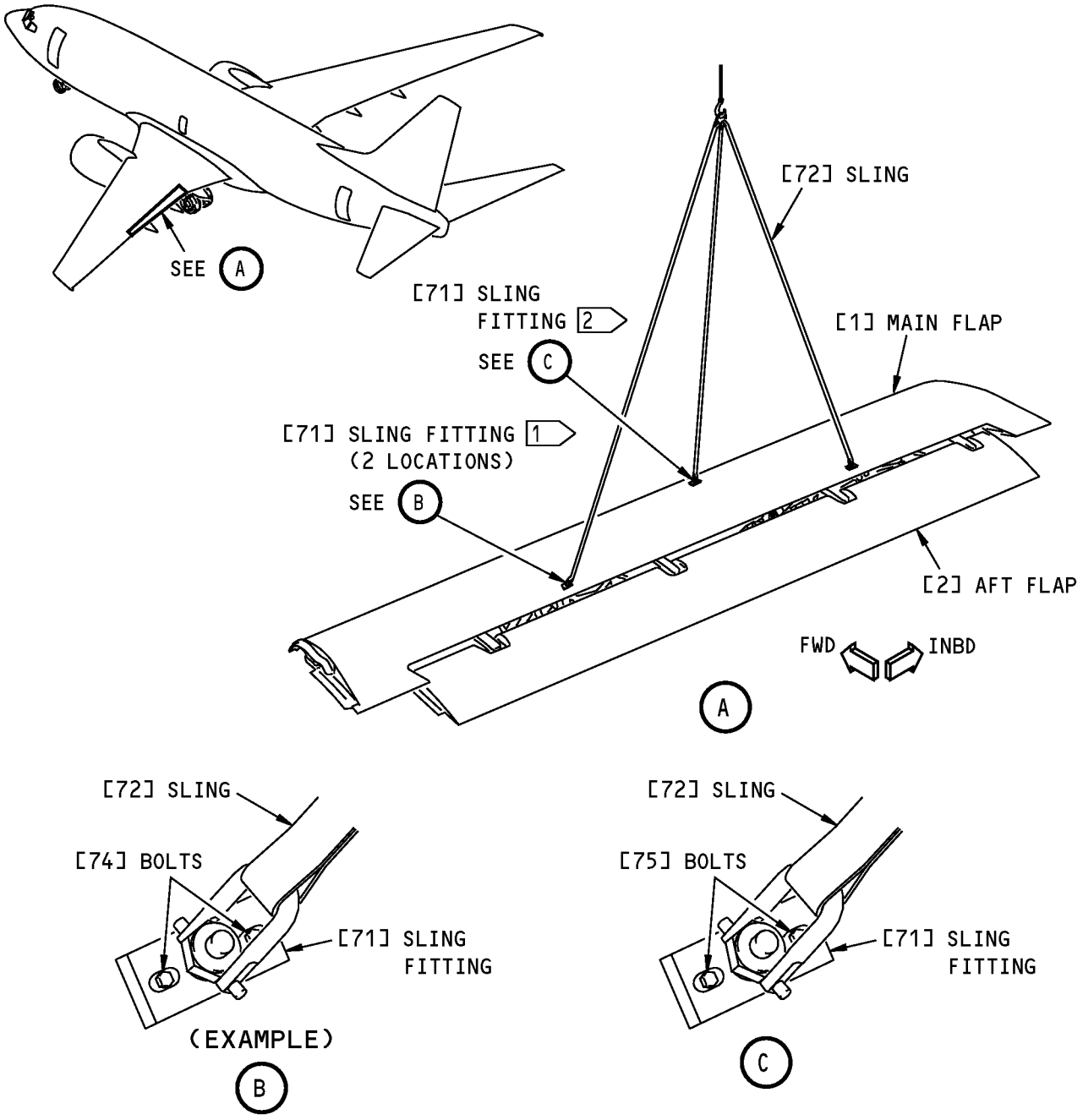

1 COMMON TO FLAP TRACKS 1 AND 8 AT WBL 357.6 AND FLAP TRACKS 2 AND 7 AT WBL 254.

2 OTEF MFSTA 126.4, FORWARD OF FLAP FRONT SPAR PLANE.

Outboard Trailing Edge Flap Sling Installation
Figure 402/27-51-21-990-802

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TASK 27-51-21-400-801

3. Outboard Trailing Edge Flap Installation

(Figure 403)

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-21-820-801	Outboard Trailing Edge Flap Adjustment (P/B 501)
27-51-28-400-802	Outboard Flap Outboard Support Aft Fairing Installation (P/B 401)
27-51-28-400-804	Outboard Flap Inboard Support Aft Fairing Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1729	Sling - Equipment, Trailing Edge Flaps (Part #: C27052-25, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-1095	Crane - Lift, 2000 Lb Capacity, 30 Foot Height

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Flap assembly	27-51-21-01-055	HAP ALL
		27-51-21-01-060	HAP ALL
9	Pin	27-51-24-01-010	HAP ALL

E. Location Zones

Zone	Area
567	Left Wing - Outboard Flap
667	Right Wing - Outboard Flap

F. Access Panels

Number	Name/Location
567BT	Flap, Forward Carriage Bearing And Fitting
571AB	Lower Outboard Fixed Trailing Edge Access Panel at Deflector Rib
667BT	Flap, Forward Carriage Bearing And Fitting
671AB	Lower Outboard Fixed Trailing Edge Access Panel

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G. Prepare for the Installation

SUBTASK 27-51-21-220-005

(1) If you will install a different flap than the one you removed, do a check of the thickness of the shims [95] on the inboard carriage [101] and the outboard carriage [96].

NOTE: There is no mismatch, or alignment dimension to fixed structure that the flap is adjusted to meet. The flap shims can be changed from the nominal dimension to meet lateral trim tolerances.

(a) Make sure the thickness of the shims [95] is the same as it was on the previous flap.

SUBTASK 27-51-21-820-006

(2) If the shims [95] are not the correct thickness, then change the thickness of the shims [95] on the inboard carriage [101] and the outboard carriage [96].

(a) At the outboard carriage [96], change the thickness of the shims [95]:

1) Remove the nuts [94], washers [93] and bolts [92] that attach the aft link fitting [91] to the outboard carriage [96].

2) Add or remove shims [95] between the aft link fitting [91] and the outboard carriage [96] to get the correct shim thickness.

3) Apply sealant, A00247 to the mating surfaces of the shims [95].

4) Put the shims [95] in their location between the aft link fitting [91] and the outboard carriage [96].

NOTE: The nominal thickness of the shims [95] is 0.25 inch (6.35 mm). The maximum thickness of the shims [95] is 0.50 inch (12.7 mm). The minimum thickness of the shims [95] is 0.00 inch.

5) Apply compound, C00913 to the shank and threads of the bolts [92].

6) Install the bolts [92], washers [93] and nuts [94] that attach the aft link fitting [91] to the outboard carriage [96].

(b) At the inboard carriage [101], change the thickness of the shims [95]:

1) Remove the nuts [100], washers [99] and bolts [98] that attach the aft link fitting [97] to the inboard carriage [101].

2) Add or remove shims [95] between the aft link fitting [97] and the inboard carriage [101] to get the correct shim thickness.

3) Apply sealant, A00247 to the mating surfaces of the shims [95].

4) Put the shims [95] in their location between the aft link fitting [97] and the inboard carriage [101].

NOTE: The nominal thickness of the shims [95] is 0.25 inch (6.35 mm). The maximum thickness of the shims [95] is 0.50 inch (12.7 mm). The minimum thickness of the shims [95] is 0.00 inch.

5) Apply compound, C00913 to the shank and threads of the bolts [98].

6) Install the bolts [98], washers [99] and nuts [100] that attach the aft link fitting [97] to the inboard carriage [101].

SUBTASK 27-51-21-020-005

(3) Remove the outboard deflection control roller assembly [29] from the rib [28] (Figure 401):

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(a) Remove these access panels, below the roller assembly [29]:

Number	Name/Location
571AB	Lower Outboard Fixed Trailing Edge Access Panel at Deflector Rib
671AB	Lower Outboard Fixed Trailing Edge Access Panel

(b) Remove the bolts [30] and washers [31] that attach the deflection control roller assembly [29] to the rib [28].

(c) Remove the deflection control roller assembly [29] from the rib [28].

SUBTASK 27-51-21-010-005

(4) If it is installed, remove the leading edge skin panel [55] from the main flap assembly [1] forward of the inboard carriage [13]:

NOTE: This panel comes very close to the flap track [41] when you engage the inboard carriage [13].

(a) These panels are:

Number	Name/Location
567BT	Flap, Forward Carriage Bearing And Fitting
667BT	Flap, Forward Carriage Bearing And Fitting

(b) Remove the bolts [56] that attach the leading edge skin panel [55].

(c) Remove the leading edge skin panel [55] from the main flap assembly [1].

SUBTASK 27-51-21-020-006

(5) Make sure the stop fittings are not installed on the flap tracks.

SUBTASK 27-51-21-480-002

(6) If it is not installed, install the sling, SPL-1729 on the main flap assembly [1] (Figure 402):

(a) Remove the bolts [75] at the front spar on the main flap assembly [1].

(b) Remove the bolts [74] at the inboard end and outboard ends of the main flap assembly [1].

NOTE: The bolts [74] are located along the rear spar, above the inboard and outboard carriages [13].

(c) Install the sling fittings [71] in the location of the bolts [74] and bolts [75].

(d) Connect the sling, SPL-1729 to a 30 foot height (2000 lbs capacity) lift crane, STD-1095.

H. Outboard Trailing Edge Flap Installation

SUBTASK 27-51-21-420-001

(1) Install the main flap assembly [1] (Figure 401):

CAUTION: BE VERY CAREFUL WHEN YOU LIFT THE OUTBOARD FLAP FROM THE GROUND. YOU CAN CAUSE DAMAGE TO THE TRAILING EDGE OF THE FLAP.

(a) Use the sling, SPL-1729 and the 30 foot height (2000 lbs capacity) lift crane, STD-1095 to move the main flap assembly [1] up into its position aft of the main tracks.

(b) If the aft flap [2] is installed, make sure it is in the extended position.

(c) Engage the rollers on the carriages [13] with the outboard track [41] and inboard track [53].

NOTE: Engage the rollers for the outboard carriage [13] with the flap track [41] first. The installation is easier if the rollers for the outboard carriage [13] start to engage the flap track [41] before the rollers for the inboard carriage [13].

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(d) Use the sling, SPL-1729 to move the main flap assembly [1] up and forward on the flap tracks until the carriages [13] align with the gimbals [20].

(e) Connect the carriages [13] to the gimbals [20]:

1) Remove the support from the ballscrew [19] and move the gimbal [20] to its position in the carriage [13].

2) On the left wing, make sure the ball returns [25] on the ballscrew nuts [26] are outboard.

3) On the right wing, make sure the ball returns [25] on the ballscrew nut [26] are inboard.

NOTE: This is the preferred position for maintenance.

HAP 001-013, 015-026 PRE SB 737-57-1264; AIRPLANES WITH LUBRICATION FITTINGS ON THE CARRIAGE AND GIMBAL BUSHINGS

(f) Apply grease, D00633 to the inside and outside surfaces of the carriage bushing [21] and carriage bushing [27].

1) Install the carriage bushing [21] and carriage bushing [27] to attach the gimbal [20] to the carriage [13].

CAUTION: MAKE SURE THE CARRIAGE BUSHINGS ALIGN WITH THE CARRIAGE BEFORE YOU INSTALL THE BOLTS. THE THREADS ON THE BOLTS CAN CAUSE DAMAGE TO THE CARRIAGE BUSHINGS IF THEY DO NOT ALIGN.

2) Turn the carriage bushing [21] and carriage bushing [27] in the carriage [13] to make sure the groove aligns with the bolt hole.

3) Install the bolts [22], washers [23] and nuts [24] to hold the carriage bushing [21] and carriage bushing [27] in the carriage [13].

4) Tighten the nuts [24] to 65-75 pound-inches (6.8-8.4 newton-meters) more than the run-on torque.

HAP ALL

SUBTASK 27-51-21-420-002

(2) Install the stop fittings on the flap tracks:

(a) On the outboard track [41], install the roller stop [32], roller stop [42] and fairing attach fitting [36]:

1) Apply compound, C00913 to the mating surfaces of the fairing attach fitting [36], roller stop [32] and roller stop [42].

2) Put the roller stop [32], roller stop [42] and fairing attach fitting [36] in their positions on the outboard track [41].

NOTE: Make sure the roller stop [32] and roller stop [42] touch the web of the outboard track [41].

3) Apply compound, C00913 to the shank and threads of the bolts [33] and bolts [37].

4) Install the bolts [37], washers [38], washers [39] and nuts [40] that attach the roller stop [32], roller stop [42] and fairing attach fitting [36] to the outboard track [41].

5) Install the bolts [33], washers [34] and nuts [35] that attach the fairing attach fitting [36] to the outboard track [41].

NOTE: Install the washers [34] with the countersunk outside diameter against the outboard track [41].

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(b) On the inboard track [53], install the roller stop [46], roller stop [54] and fairing attach fitting [51]:

1) Apply compound, C00913 to the mating surfaces of the fairing attach fitting [51], roller stop [46] and roller stop [54].

2) Put the roller stop [46], roller stop [54] and fairing attach fitting [51] in their positions on the inboard track [53].

NOTE: Make sure the roller stop [46] and roller stop [54] touch the web of the inboard track [53].

3) Apply compound, C00913 to the shank and threads of the bolts [47], bolts [52] and bolt [43].

4) Install the bolts [47], washers [48], washers [49] and nuts [50] that attach the roller stop [46], roller stop [54] and fairing attach fitting [51] to the inboard track [53].

5) Install the bolts [52], bolt [43], washers [44] and nuts [45] that attach the fairing attach fitting [51] to the inboard track [53].

NOTE: Install the washers [44] with the countersunk outside diameter against the inboard track [53].

SUBTASK 27-51-21-080-001

(3) Remove the sling, SPL-1729 from the main flap assembly [1] (Figure 402):

(a) Disconnect the sling, SPL-1729 [72] from the 30 foot height (2000 lbs capacity) lift crane, STD-1095.

(b) Disconnect the sling, SPL-1729 [72] from the sling fittings [71].

(c) Remove the sling fittings [71] from the main flap assembly [1].

(d) Apply compound, C00528 to the holes for the bolts [74] and bolts [75] in the main flap assembly [1].

(e) Install the bolts [74] at the inboard and outboard ends of the main flap assembly [1].

(f) Install the bolts [75] at the front spar of the main flap assembly [1].

SUBTASK 27-51-21-410-005

(4) Install the leading edge skin panel [55] on the main flap assembly [1] forward of the inboard carriage [12]:

(a) These panels are:

Number	Name/Location
567BT	Flap, Forward Carriage Bearing And Fitting
667BT	Flap, Forward Carriage Bearing And Fitting

(b) Put the leading edge skin panel [55] in its location on the leading edge of the main flap assembly [1].

(c) Apply compound, C00528 to the holes for the bolts [56].

(d) Install the bolts [56] to attach the leading edge skin panel [55].

(e) Apply sealant, A00247 to fill all of the clearances around the leading edge skin panel [55] that are more than 0.05 inch (1.3 millimeters).

SUBTASK 27-51-21-420-003

(5) Connect the aft flap drive rods [11] to the drive rod attach fitting [10] (Figure 401):

(a) Move the aft flap drive rod [11] to its position on the drive rod attach fitting [10].

(b) Apply a layer of grease, D00633 to the inside of the bushing [6] and the shank of the bolt [4].

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(c) Install the bushing [6], bolt [4] and washer [5] to attach the aft flap drive rod [11] to the drive rod attach fitting [10].

NOTE: Install the bolt [4] with the head on the inboard side.

(d) Carefully clean the grease, D00633 from the threads of the bolt [4]

(e) Install the washer [7] and nut [8] on the bolt [4].

(f) Tighten the nut [8] to 65-100 pound-inches (7.4-11.2 newton-meters).

(g) Install the cotter pin [9] in the nut [8].

SUBTASK 27-51-21-420-004

(6) Connect the skew control rods [3] to the inboard carriage [13] and the outboard carriage [13]:

(a) Apply compound, C00913 to the shank and threads of the bolts [14].

(b) Move the skew control rod [3] to its position on the carriage [13].

(c) Install the bolts [14], washers [15], bushings [16], washers [17] and nuts [18] that attach the skew control rods [3] to the carriages [13].

NOTE: Install the bolts [14] with the heads toward the center of the track.

SUBTASK 27-51-21-820-001

(7) Do this task: Outboard Trailing Edge Flap Adjustment, TASK 27-51-21-820-801.

NOTE: This task will include the installation of the deflection control roller assembly [29].

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-21-410-001

(1) Install these access panels, below the roller assembly [29]:

Number	Name/Location
571AB	Lower Outboard Fixed Trailing Edge Access Panel at Deflector Rib
671AB	Lower Outboard Fixed Trailing Edge Access Panel

SUBTASK 27-51-21-410-002

(2) Do this task: Outboard Flap Outboard Support Aft Fairing Installation, TASK 27-51-28-400-802.

SUBTASK 27-51-21-410-003

(3) Do this task: Outboard Flap Inboard Support Aft Fairing Installation, TASK 27-51-28-400-804.

SUBTASK 27-51-21-440-001

(4) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-21-860-002

(5) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

END OF TASK

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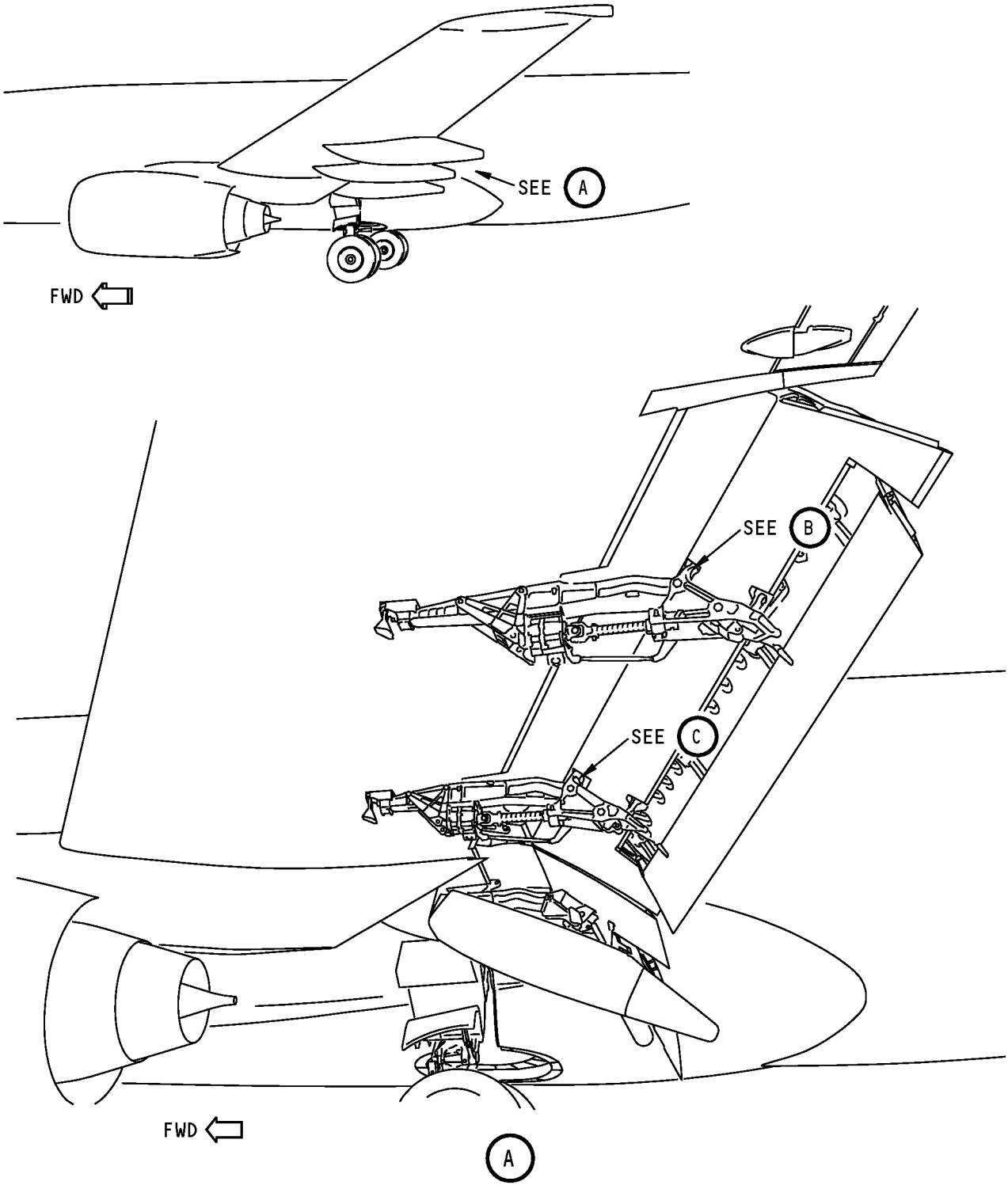

Outboard Trailing Edge Flap Shim Adjustment
Figure 403 (Sheet 1 of 2)/27-51-21-990-808

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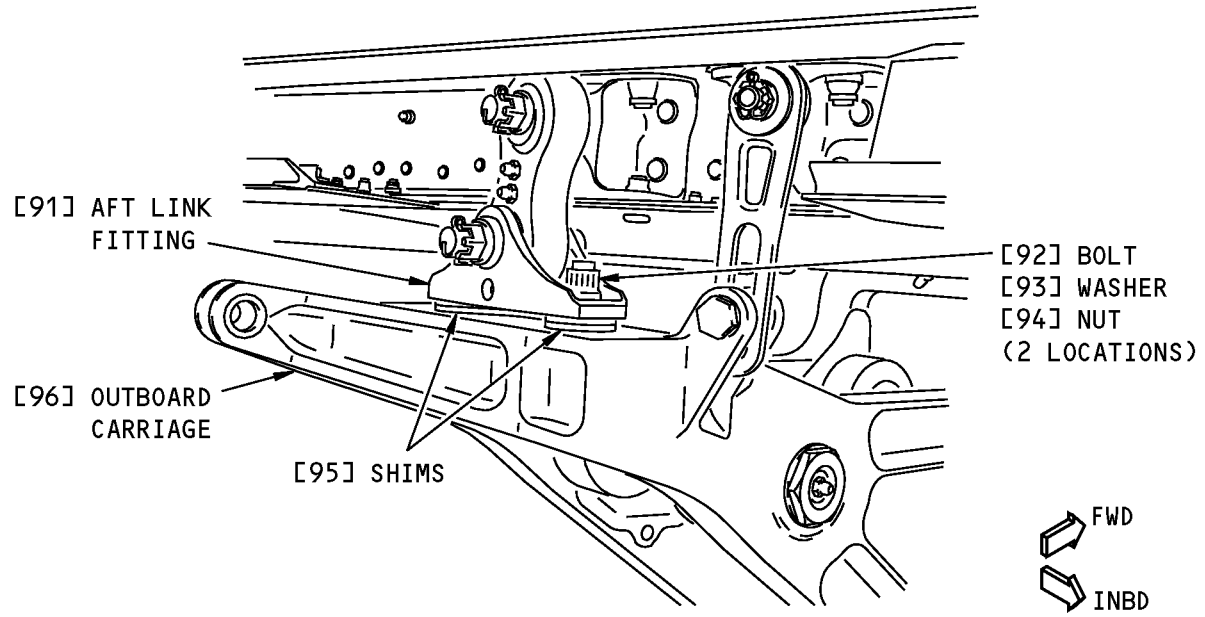

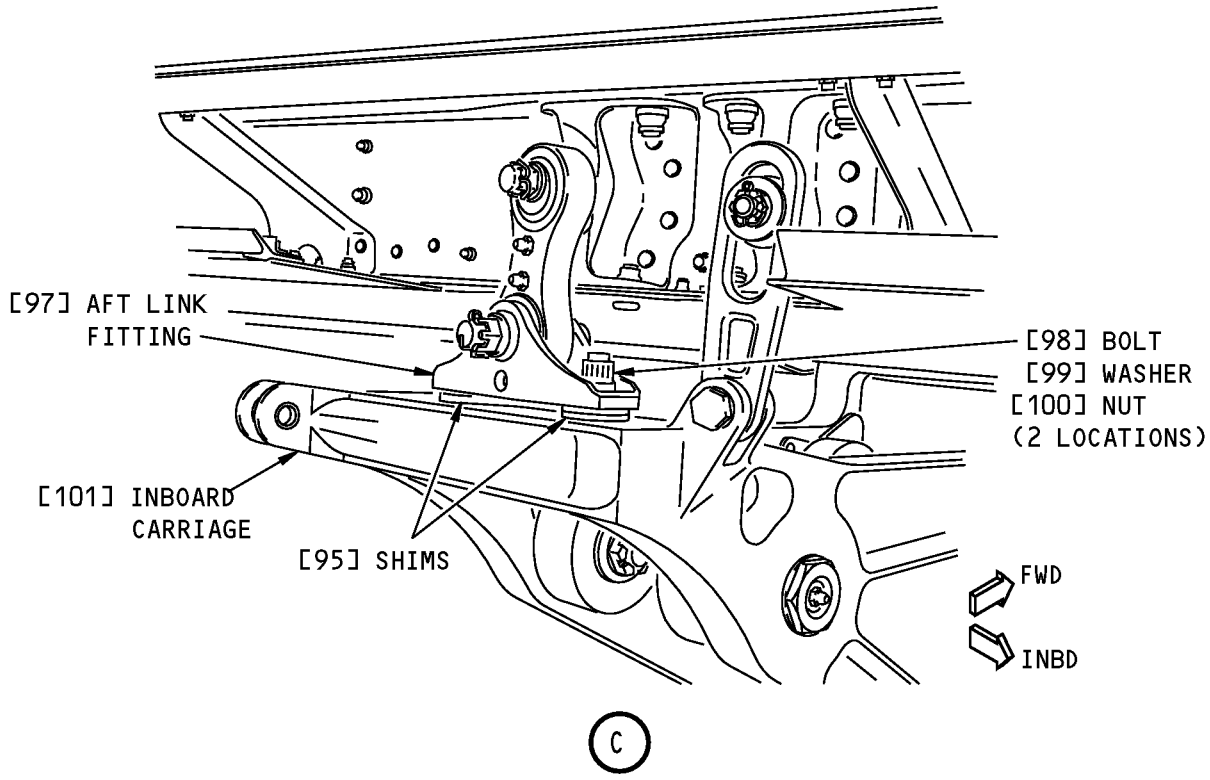

Outboard Trailing Edge Flap Shim Adjustment
Figure 403 (Sheet 2 of 2)/27-51-21-990-808

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OUTBOARD TRAILING EDGE FLAP - ADJUSTMENT/TEST

1. General

A. This procedure has an adjustment of the outboard trailing edge flap.

B. This procedure includes the adjustment of the main flap with the aft flap with the aft flap either removed or installed.

C. The adjustment instructions included in this procedure are included in the Rigging Diagram - Inbd and Outbd Flaps, Wing Trailing Edge 113A3017.

TASK 27-51-21-820-801

2. Outboard Trailing Edge Flap Adjustment

A. References

Reference	Title
27-09-71-820-801	Trailing Edge Flap Adjustment for Lateral Trim (P/B 501)
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-000-802	Outboard Flap Outboard Support Aft Fairing Removal (P/B 401)
27-51-28-000-804	Outboard Flap Inboard Support Aft Fairing Removal (P/B 401)
27-51-28-400-802	Outboard Flap Outboard Support Aft Fairing Installation (P/B 401)
27-51-28-400-804	Outboard Flap Inboard Support Aft Fairing Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Flap assembly	27-51-21-01-055	HAP ALL
		27-51-21-01-060	HAP ALL
20	Pin	57-42-51-02-155	HAP ALL

D. Location Zones

Zone	Area
567	Left Wing - Outboard Flap
667	Right Wing - Outboard Flap

E. Access Panels

Number	Name/Location
571AB	Lower Outboard Fixed Trailing Edge Access Panel at Deflector Rib
671AB	Lower Outboard Fixed Trailing Edge Access Panel

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F. Prepare for the Adjustment

SUBTASK 27-51-21-860-003

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-21-040-002

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-21-010-003

(3) Remove the aft fairings from the flap supports:

(a) Do this task: Outboard Flap Outboard Support Aft Fairing Removal, TASK 27-51-28-000-802.

(b) Do this task: Outboard Flap Inboard Support Aft Fairing Removal, TASK 27-51-28-000-804.

SUBTASK 27-51-21-020-007

(4) Remove the outboard deflection control roller assembly [2] from the rib [1] (Figure 501):

(a) Remove or open the applicable access panels below the roller assembly [2]:

Number	Name/Location
571AB	Lower Outboard Fixed Trailing Edge Access Panel at Deflector Rib
671AB	Lower Outboard Fixed Trailing Edge Access Panel

(b) Remove the bolts [3] and washers [4] that attach the deflection control roller assembly [2] to the rib [1].

(c) Remove the deflection control roller assembly [2] from the rib [1].

G. Outboard Trailing Edge Flap Adjustment

NOTE: There is no mismatch, or alignment dimension to fixed structure that the flap is adjusted to meet. The flap shims can be changed from the nominal to meet lateral trim tolerances.

SUBTASK 27-51-21-220-006

(1) If you installed a different flap, then adjust the thickness of the shims [65] to the same thickness as the original flap.

NOTE: The thickness of the shims [65] on the original flap may have been adjusted for lateral trim per (TASK 27-09-71-820-801).

(a) If you do not know the original thickness of the shims [65], then change the thickness to the nominal dimension.

NOTE: The nominal thickness of the shims [65] is 0.25 inch (6.35 mm).

SUBTASK 27-51-21-210-001

(2) On the inboard and outboard carriage [43], make sure three of the four main track rollers [44] touch the flap track [45] (Figure 502).

NOTE: If you cannot get three of the four main track rollers [44] to touch, it is permitted for the two forward rollers, or the two aft rollers to touch.

SUBTASK 27-51-21-820-002

(3) If it is necessary, then adjust the position of the main flap assembly [6] (Figure 503):

NOTE: To adjust the position of the main flap assembly [6], you will change the thickness of the shims [65] at the aft link fitting [61] and aft link fitting [67] on the inboard and outboard carriages.

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(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(d) At the outboard carriage [66], change the thickness of the shims [65]:

1) Remove the nuts [64], washers [63] and bolts [62] that attach the aft link fitting [61] to the outboard carriage [66].

2) Add or remove shims [65] between the aft link fitting [61] and the outboard carriage [66] to get the correct shim thickness.

3) Apply sealant, A00247 to the mating surfaces of the shims [65].

4) Put the shims [65] in their location between the aft link fitting [61] and the outboard carriage [66].

NOTE: The nominal thickness of the shims [65] is 0.25 inch (6.35). The maximum thickness of the shims [65] is 0.50 inch (12.7 mm). The minimum thickness of the shims [65] is 0.00 inch.

5) Apply compound, C00913 to the shank and threads of the bolts [62].

6) Install the bolts [62], washers [63] and nuts [64] that attach the aft link fitting [61] to the outboard carriage [66].

(e) At the inboard carriage [71], change the thickness of the shims [65]:

1) Remove the nuts [70], washers [69] and bolts [68] that attach the aft link fitting [67] to the inboard carriage [71].

2) Add or remove shims [65] between the aft link fitting [67] and the inboard carriage [71] to get the correct shim thickness.

3) Apply sealant, A00247 to the mating surfaces of the shims [65].

4) Put the shims [65] in their location between the aft link fitting [67] and the inboard carriage [71].

NOTE: The nominal thickness of the shims [65] is 0.25 inch (6.35 mm). The maximum thickness of the shims [65] is 0.50 inch (12.7 mm). The minimum thickness of the shims [65] is 0.00 inch.

5) Apply compound, C00913 to the shank and threads of the bolts [68].

6) Install the bolts [68], washers [69] and nuts [70] that attach the aft link fitting [67] to the inboard carriage [71].

(f) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(g) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(h) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(i) On the inboard and outboard carriage [43], make sure a minimum of three main track rollers [44] touch the flap track [45].

NOTE: If you cannot get three of the four main track rollers [44] to touch, it is permitted for the two forward rollers, or the two aft rollers to touch.

(j) If a minimum of main track rollers do not touch, then add or remove shims again.

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SUBTASK 27-51-21-820-003

(4) Install and adjust the outboard deflection control roller assembly [2] (Figure 501):

NOTE: When you adjust the outboard deflection control assembly [2], make sure the flaps are in the retracted position.

(a) Put the roller assembly [2] in its location on the rib [1].

(b) Apply compound, C00528 to the holes in the rib [1] for the bolts [3].

(c) Loosely install the bolts [3] and washers [4] that attach the roller assembly [2] to the rib [1].

(d) Move the roller assembly [2] until the upper roller [8] touches the upper surface of the deflection control track [5].

(e) Tighten the bolts [3] to 55-90 pound-inches (6.2-10.1 newton-meters).

(f) Measure the distance from the outboard edge of the deflection control track [5] to the outboard edge of the rollers [8].

(g) If the distance is not in the limit of 0.00 to 0.06 inch (0-1.52 mm), then adjust the position of the rollers [8]:

NOTE: The rollers [8] must not be over the edge of the deflection control track [5].

1) Remove the bolts [3] and washers [4] that attach the roller assembly [2] to the rib [1].

2) Remove the nuts [12], bushings [11], bushings [9] and rollers [8] from the roller assembly [2].

3) Change the position of the bushings [9] or bushings [11] to adjust the position of the rollers [8].

4) Install the rollers [8], bushings [9], bushings [11] and nuts [12] on the roller assembly [2].

5) Tighten the nuts [12] to 300-410 pound-inches (33.9-46.3 newton-meters).

6) Put the roller assembly [2] in its location on the rib [1].

7) Apply compound, C00528 to the holes in the rib [1] for the bolts [3].

8) Loosely install the bolts [3] and washers [4] that attach the roller assembly [2] to the rib [1].

9) Move the roller assembly [2] until the upper roller [8] touches the upper surface of the deflection control track [5].

10) Tighten the bolts [3] to 55-90 pound-inches (6.2-10.1 newton-meters).

(h) Measure the clearance between the deflection control track [5] and the rub pad [10] on the roller assembly [2].

(i) If the clearance is not in the limit of 0.1248 ±0.050 inch (3.1699 ±1.27 mm), then adjust the position of the rub pad [10]:

1) Remove the bolts [3] and washers [4] that attach the roller assembly [2] to the rib [1].

2) Remove the nuts [15], washers [14], fillers [7], bolts [13] and rub pad [10] from the roller assembly [2].

3) Add or remove fillers [7] to the rub pad [10].

NOTE: For each filler [7] that you remove, install two additional washers [14] under the nut [15]. For each additional filler [7] you install, remove two washers [14] from under the nut [15].

4) Install the bolts [13], fillers [7], rub pad [10], washers [14] and nuts [15] on the roller assembly [2].

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5) Put the roller assembly [2] in its location on the rib [1].

6) Apply compound, C00528 to the holes in the rib [1] for the bolts [3].

7) Loosely install the bolts [3] and washers [4] that attach the roller assembly [2] to the rib [1].

8) Move the roller assembly [2] until the upper roller [8] touches the upper surface of the deflection control track [5].

9) Tighten the bolts [3] to 55-90 pound-inches (6.2-10.1 mm).

(j) Install or close the applicable access panels below the roller assembly [2]:

Number	Name/Location
571AB	Lower Outboard Fixed Trailing Edge Access Panel at Deflector Rib
671AB	Lower Outboard Fixed Trailing Edge Access Panel

SUBTASK 27-51-21-860-008

(5) Extend the trailing edge flaps to do a check of the inboard deflection control roller [22] (Figure 501):

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-21-860-005

(6) Adjust the inboard deflection control roller [22] for the outboard flap:

(a) Use the manual or alternate system to retract trailing edge flaps until the deflection control roller [22] engages the deflection control track [16]. To retract the flap, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

NOTE: While you retract the flaps, monitor the deflection control roller [22] to see if the outboard flap deflects when it engages the deflection control track [16].

(b) Make sure the deflection control track [16] touches the upper surface of the deflection control roller [22].

(c) If the flap deflects when the deflection control roller [22] engages the track [16], or if the track [16] does not touch the upper surface of the roller [22], then adjust the deflection control roller [22]:

1) Extend the trailing edge flaps to get access to the deflection control roller [22]. To extend the flap, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

2) Remove the bolt [19] and washer [18] that hold the retainer [17] and retainer [26] to the deflection control rib [27].

3) Remove the retainer [17] for the outboard eccentric bushing [23].

4) Remove the pin [20] and loosen the nut [21] on the bolt [24].

5) Turn the outboard eccentric bushing [23] to change the position of the outboard deflection control roller [22].

NOTE: Make sure you do not change the position of the inboard deflection control roller [25].

6) Install the retainer [17] for the outboard eccentric bushing [23].

7) Install the bolt [19] and washer [18] that hold the retainer [17] and retainer [26].

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8) Tighten the nut [21] finger tight and install the pin [20].

NOTE: If it is necessary, tighten the nut [21] the minimum amount necessary to install the pin [20].

SUBTASK 27-51-21-860-006

(7) Retract the trailing edge flaps to the retracted position:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-21-220-002

(8) Measure the mismatch between the lower surface of the main flap assembly [6] and the lower fixed panels [41] (Figure 502).

(a) Make sure the mismatch is in the limit of 0.00 ±0.06 inch (0-1.52 mm).

SUBTASK 27-51-21-820-004

(9) If the mismatch is not in the limit, adjust the position of the lower fixed panels [41] (Figure 504):

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(d) Adjust the applicable links [92] for the lower fixed panels [41]:

1) Remove the nut [97], washer [96], washers [95], washer [94] and bolt [93] that attach the link [92] to the lower fixed panel [41].

2) Loosen the nuts [91] and adjust the length of the links [92].

NOTE: Make sure you can see the threads through the inspection hole in the links [92].

3) Install the bolt [93], washer [94], washer [95]], washer [96] and nut [97] to attach the link [92] to the lower fixed panel [41].

4) Tighten the nuts [91] on the links [92].

(e) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(f) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(g) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(h) Make sure the mismatch between the lower surface of the main flap assembly [6] and the lower fixed panels [41] is in the limits.

SUBTASK 27-51-21-220-003

(10) Make sure the seals [42] on the lower fixed panels [41] are compressed against the leading edge of the main flap assembly [6] (Figure 502).

SUBTASK 27-51-21-820-005

(11) If the seals [42] are not compressed against the main flap assembly [6], adjust the position of the seals [42] (Figure 504):

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Extend the trailing edge flaps to the get access to the seals [42]. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

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(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

(d) Loosen the bolts [98] that attach the seals [42] to the lower fixed panel [41].

(e) Adjust the position of the seals [42].

(f) Tighten the bolts [98] that attach the seals [42].

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-21-410-004

(1) Install the aft fairings on the flap supports:

(a) Do this task: Outboard Flap Outboard Support Aft Fairing Installation, TASK 27-51-28-400-802.

(b) Do this task: Outboard Flap Inboard Support Aft Fairing Installation, TASK 27-51-28-400-804.

SUBTASK 27-51-21-440-002

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-21-860-007

(3) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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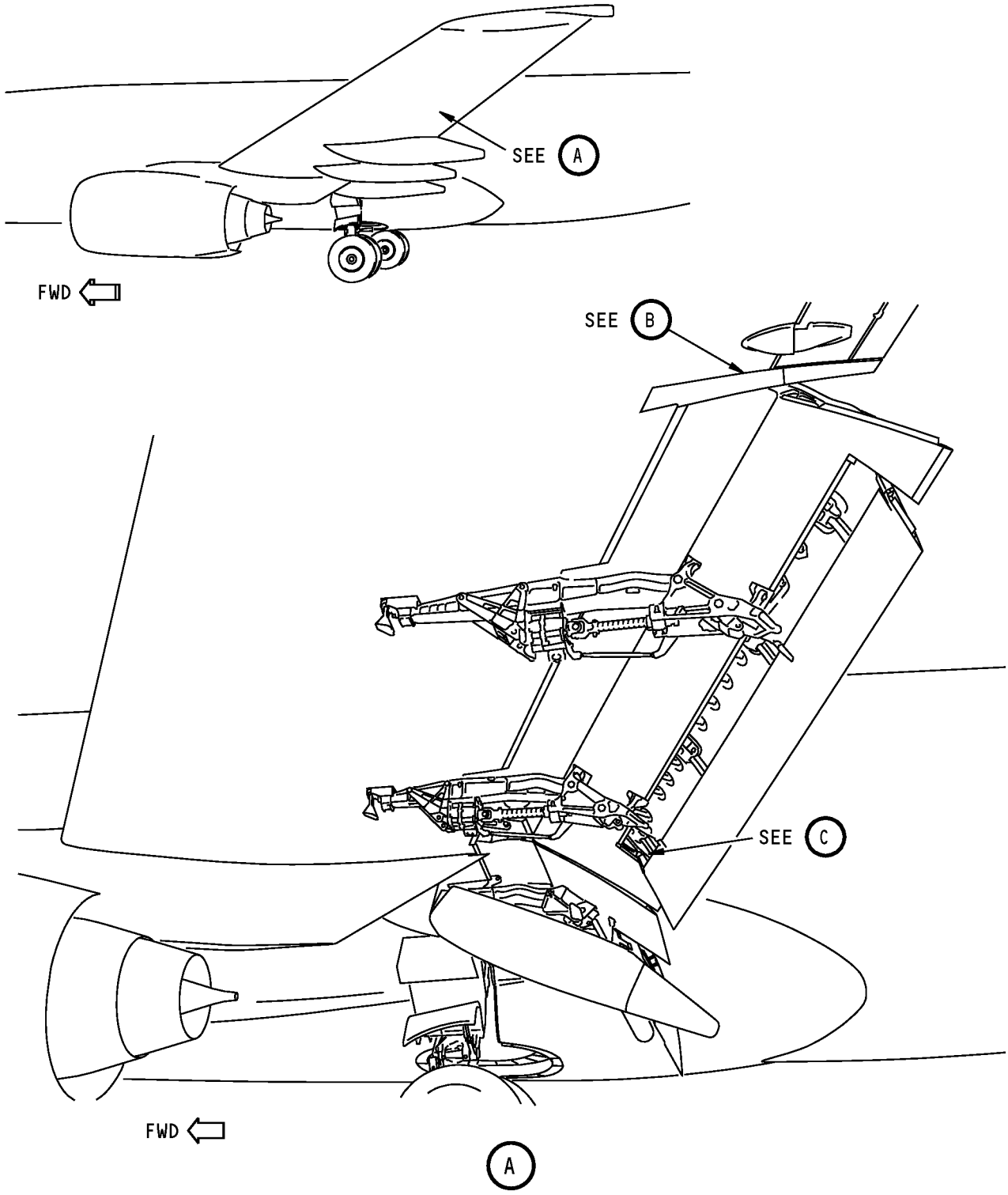

Outboard Trailing Edge Flap Deflection Control Rollers
Figure 501 (Sheet 1 of 3)/27-51-21-990-803

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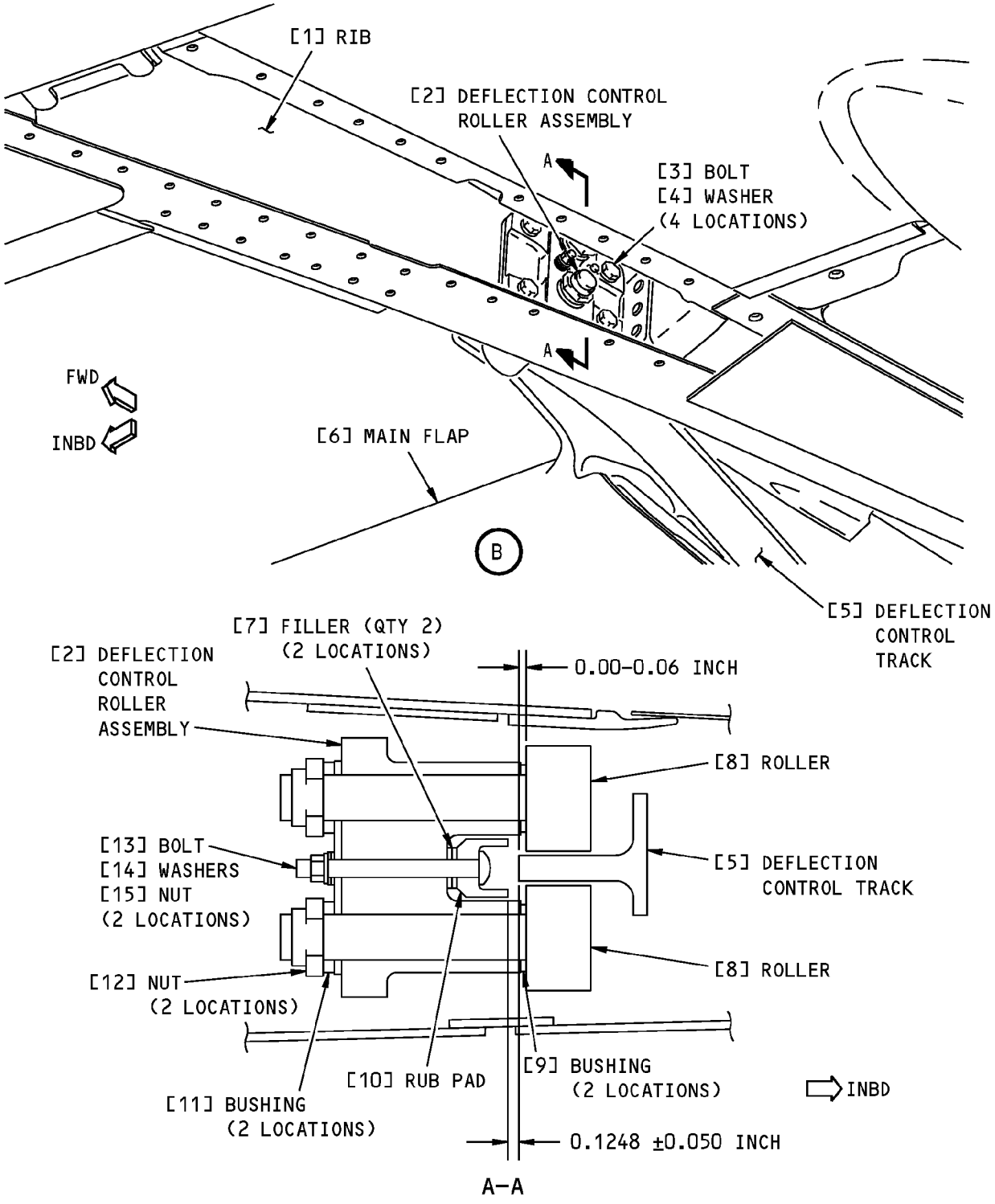

Outboard Trailing Edge Flap Deflection Control Rollers
Figure 501 (Sheet 2 of 3)/27-51-21-990-803

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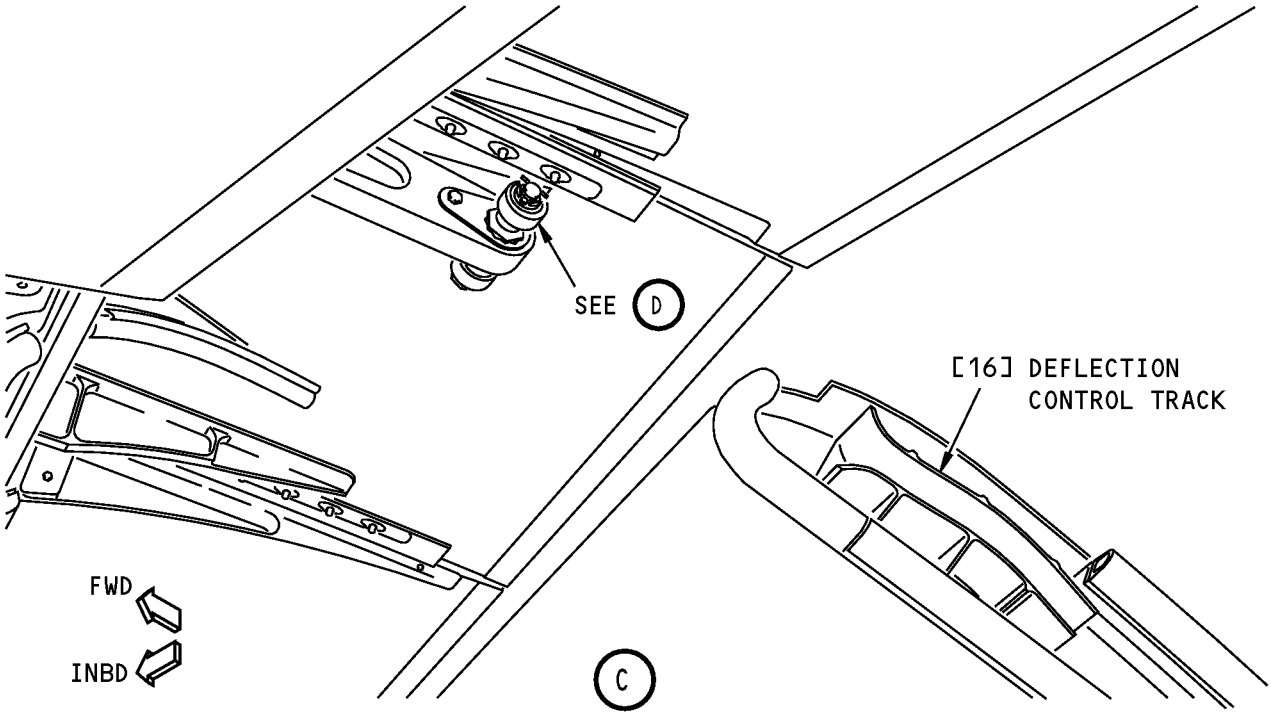

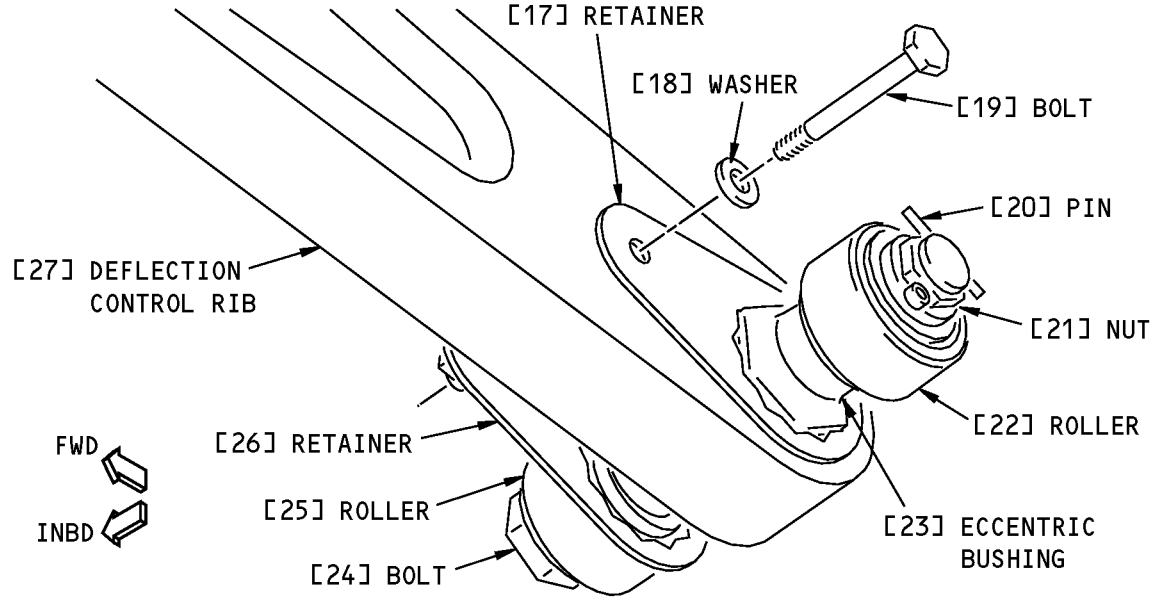

INBOARD DEFLECTION CONTROL ROLLER

D

Outboard Trailing Edge Flap Deflection Control Rollers
Figure 501 (Sheet 3 of 3)/27-51-21-990-803

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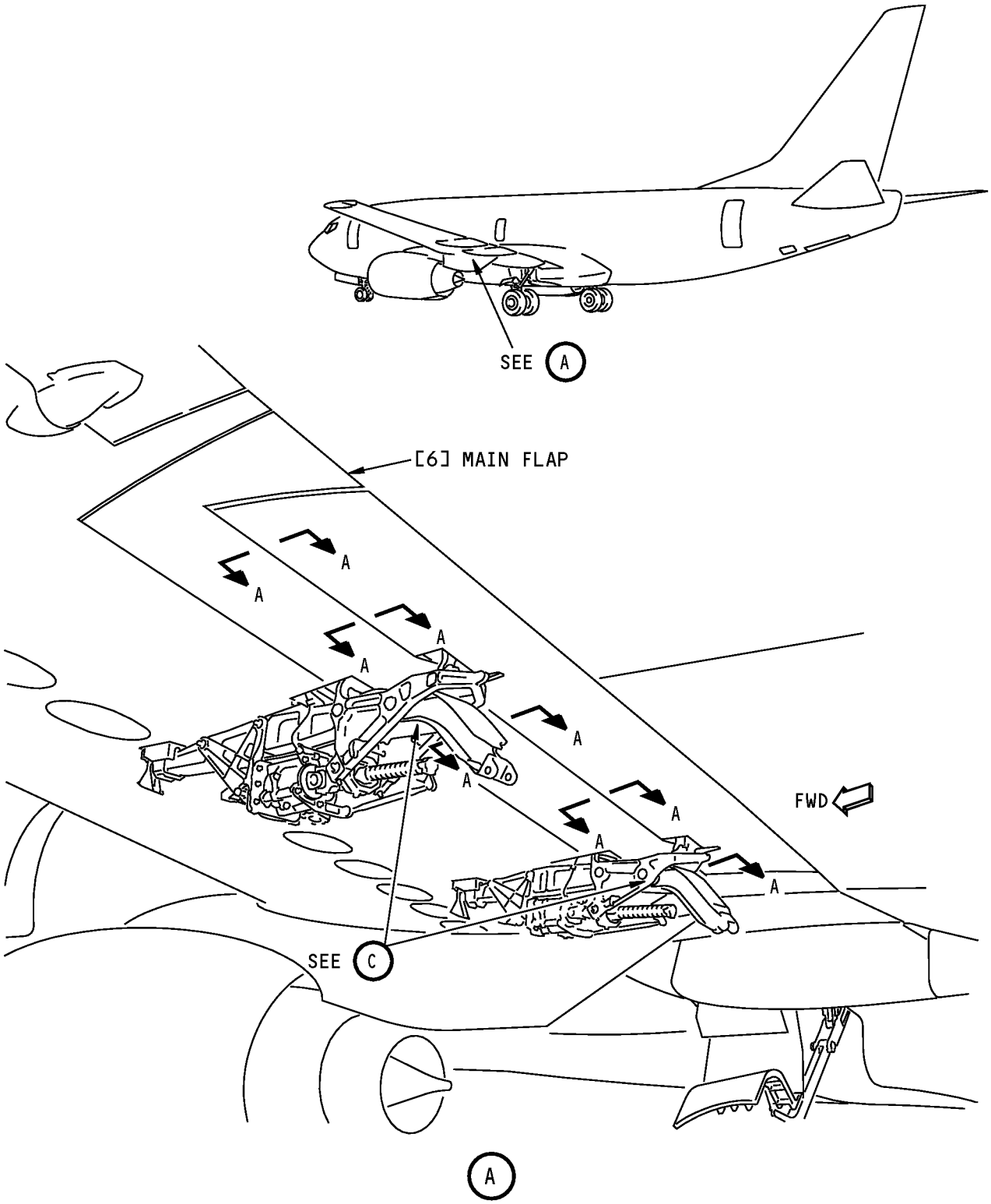

Outboard Trailing Edge Flap Clearances
Figure 502 (Sheet 1 of 3)/27-51-21-990-804

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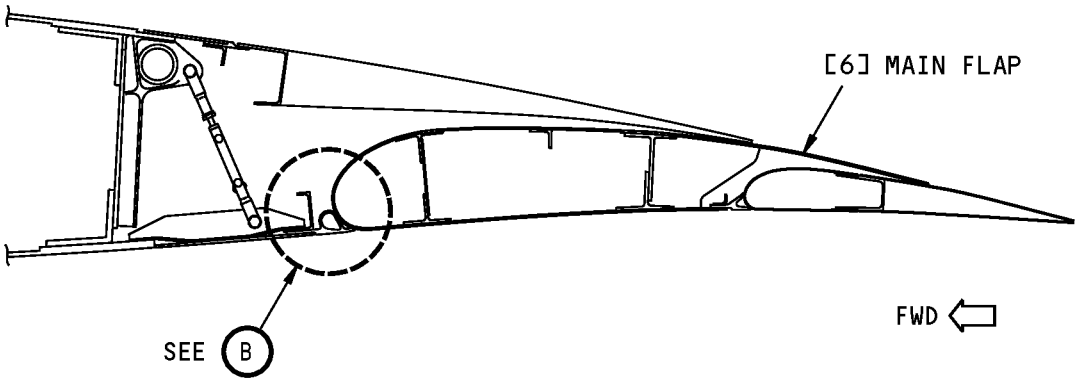
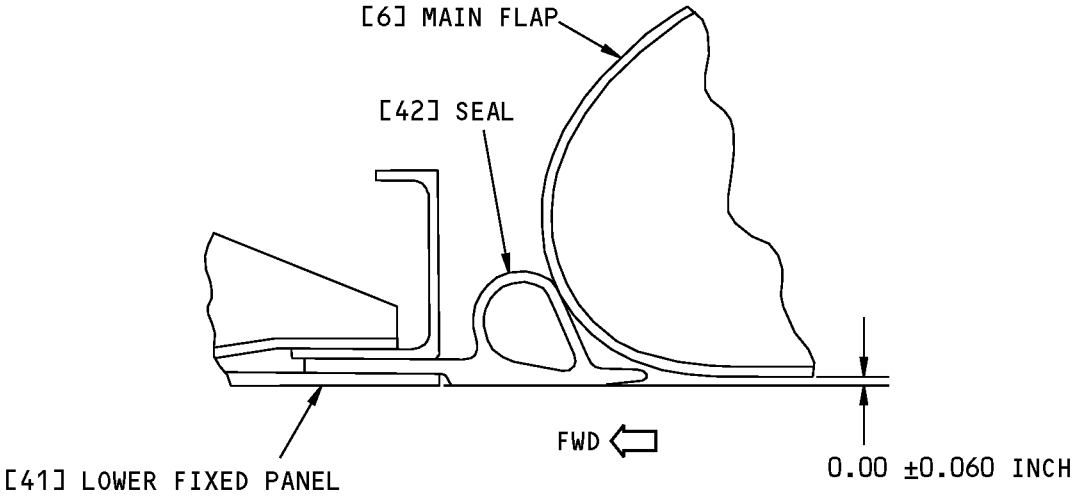


A–A



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Outboard Trailing Edge Flap Clearances
Figure 502 (Sheet 2 of 3)/27-51-21-990-804

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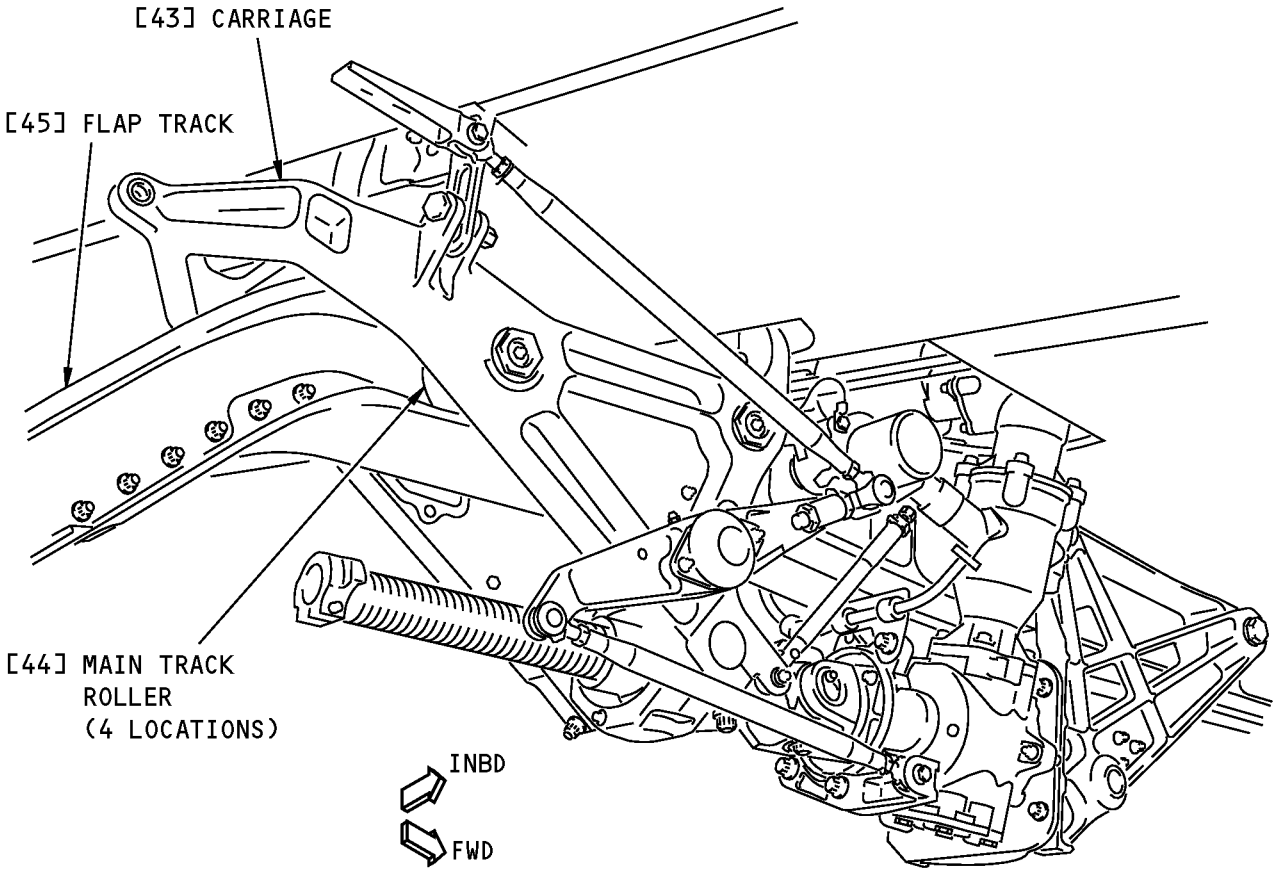

NO. 1 FLAP SUPPORT
(NO. 2 FLAP SUPPORT IS EQUIVALENT)

C

Outboard Trailing Edge Flap Clearances
Figure 502 (Sheet 3 of 3)/27-51-21-990-804

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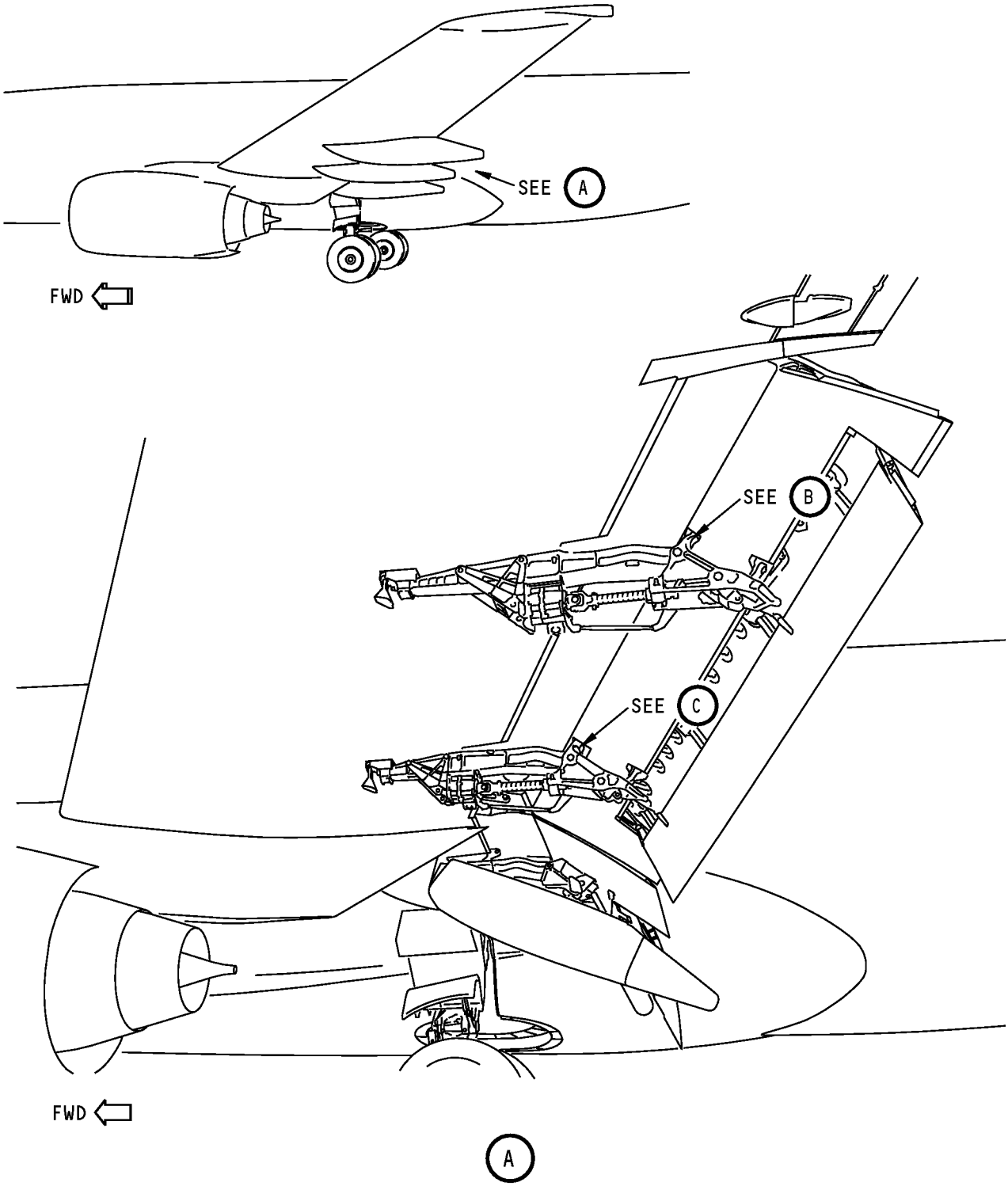

Outboard Trailing Edge Flap Adjustment
Figure 503 (Sheet 1 of 2)/27-51-21-990-805

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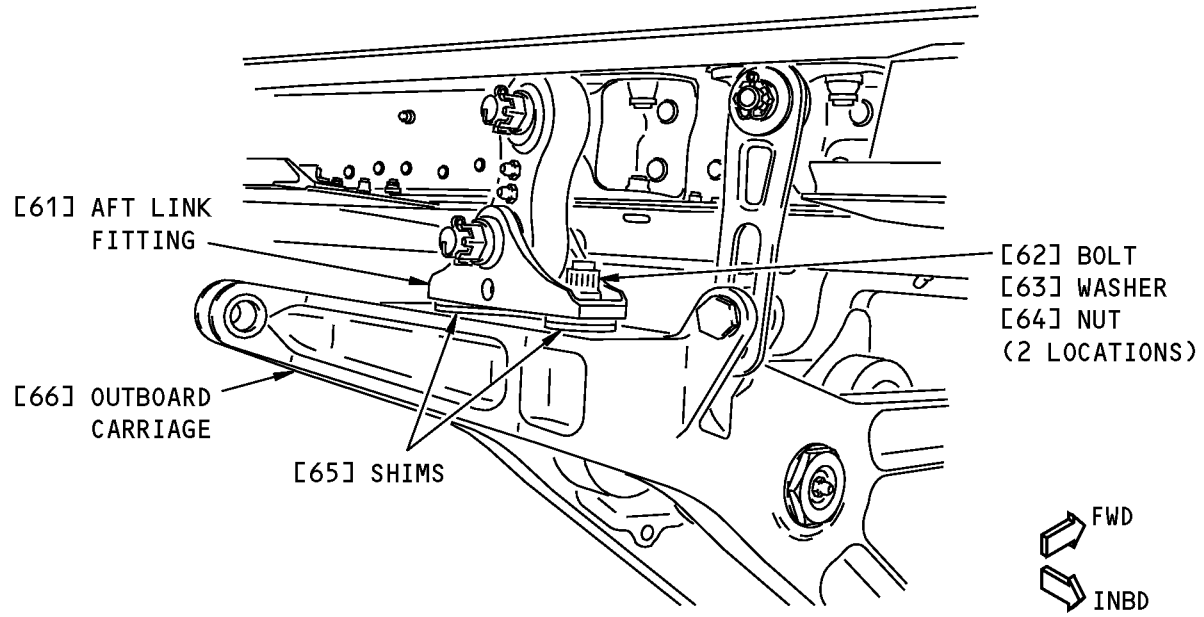

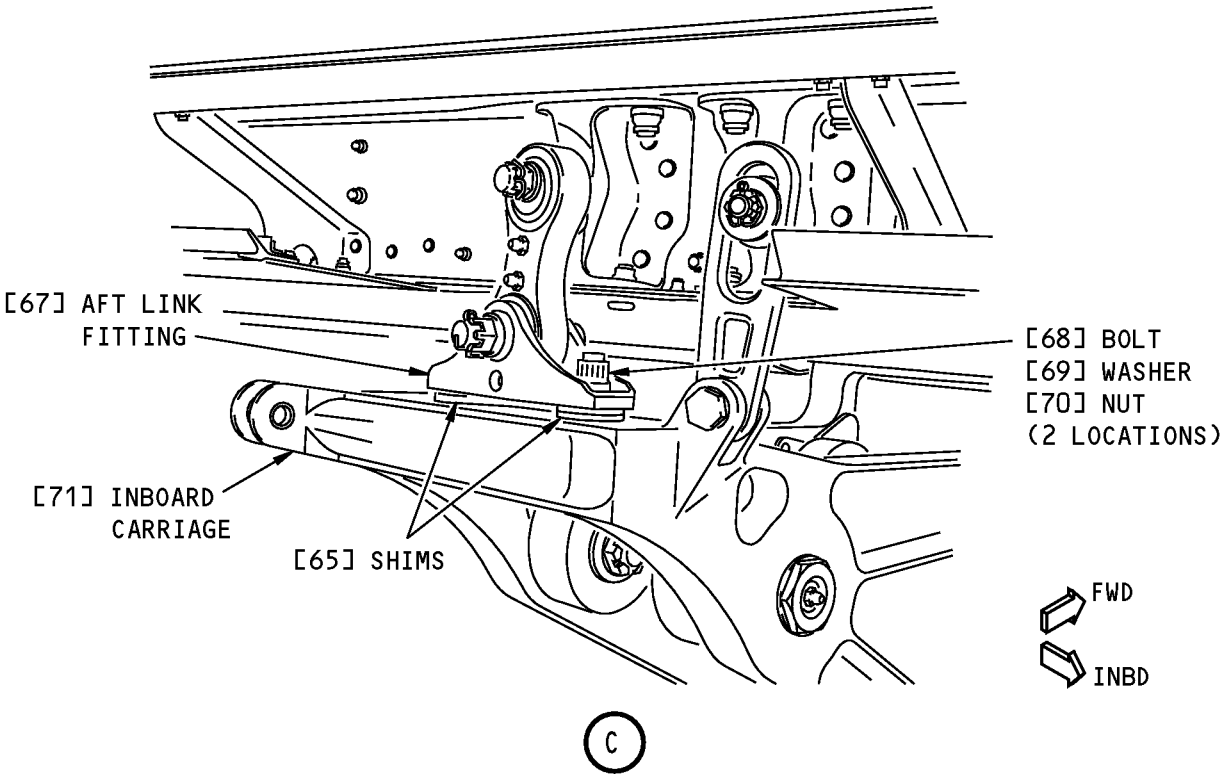

Outboard Trailing Edge Flap Adjustment
Figure 503 (Sheet 2 of 2)/27-51-21-990-805

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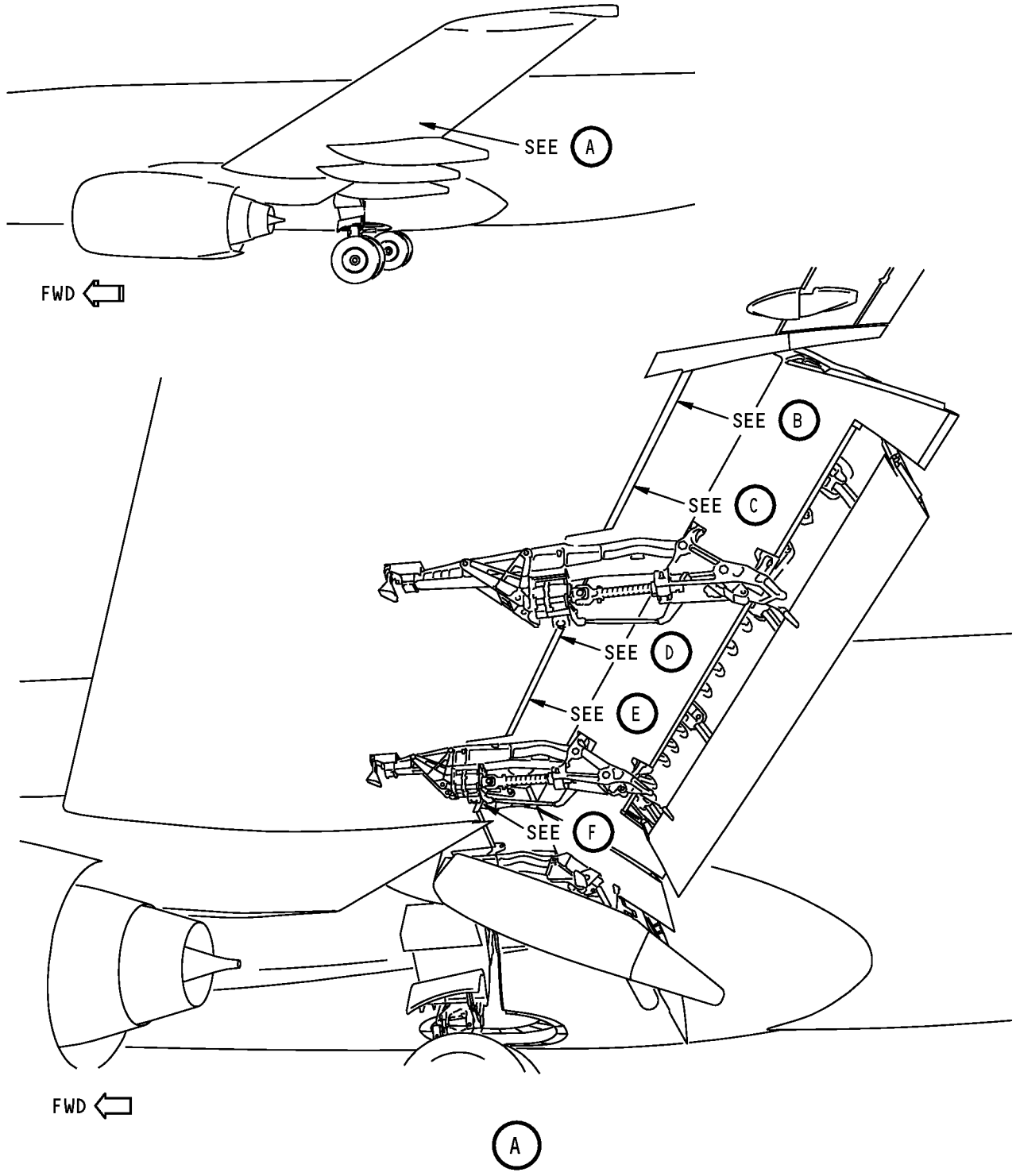

Outboard Trailing Edge Flap Lower Panel Adjustment
Figure 504 (Sheet 1 of 4)/27-51-21-990-806

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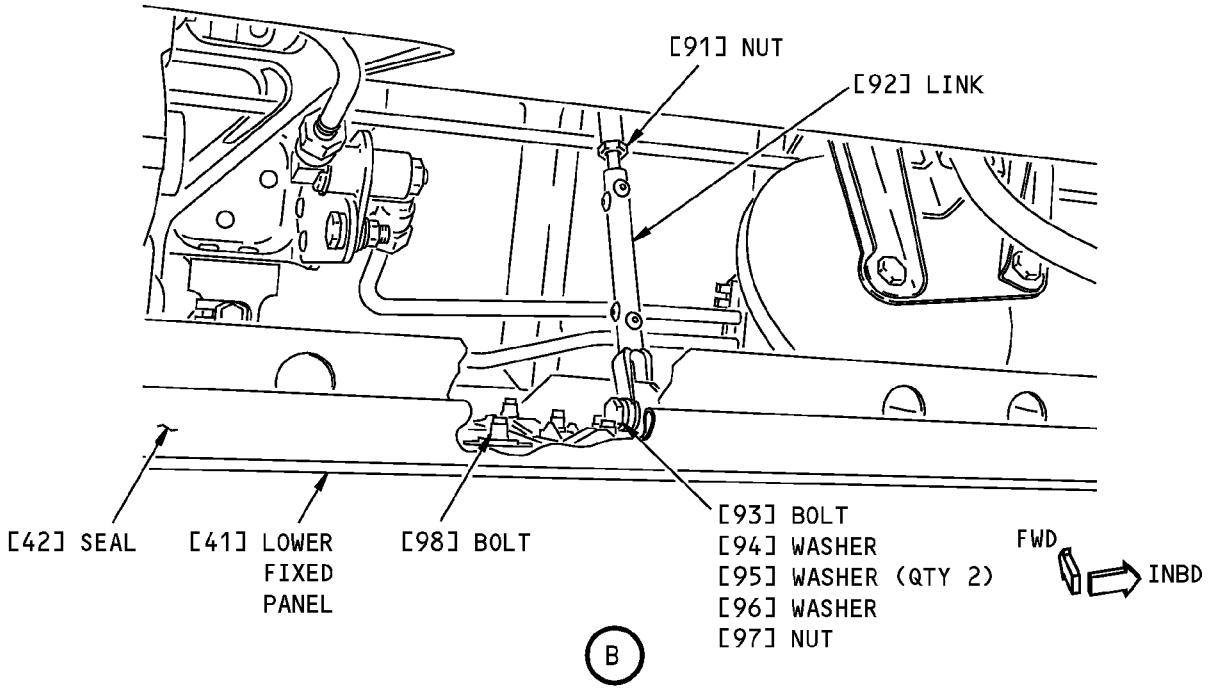

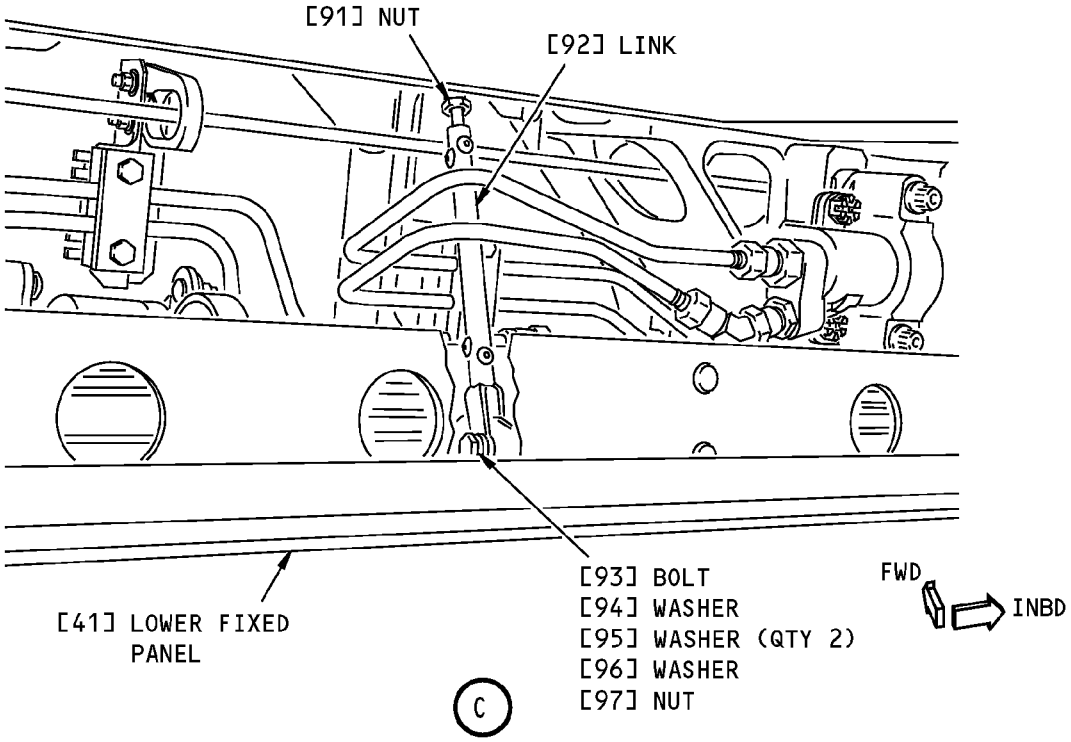

Outboard Trailing Edge Flap Lower Panel Adjustment
Figure 504 (Sheet 2 of 4)/27-51-21-990-806

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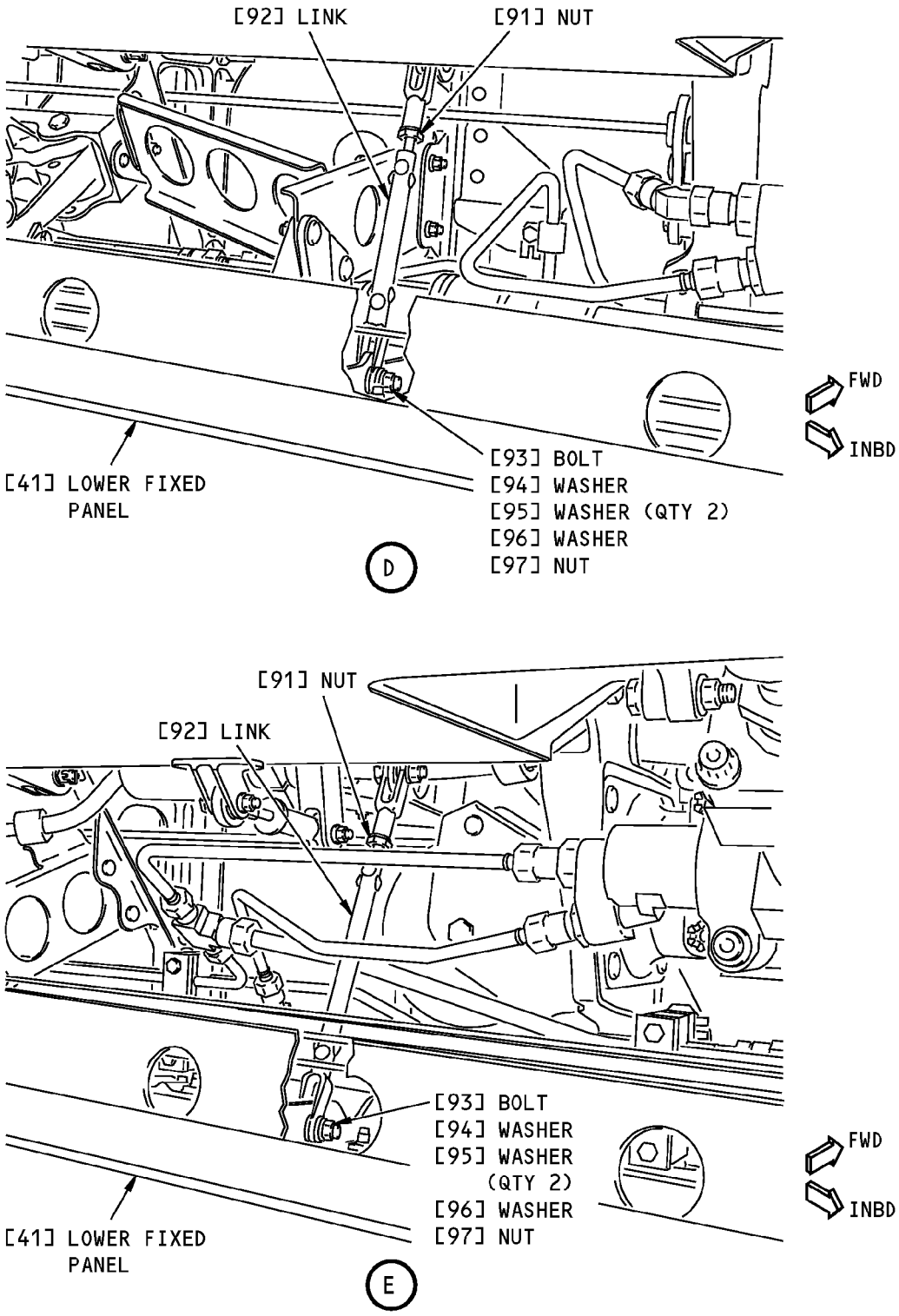

Outboard Trailing Edge Flap Lower Panel Adjustment
Figure 504 (Sheet 3 of 4)/27-51-21-990-806

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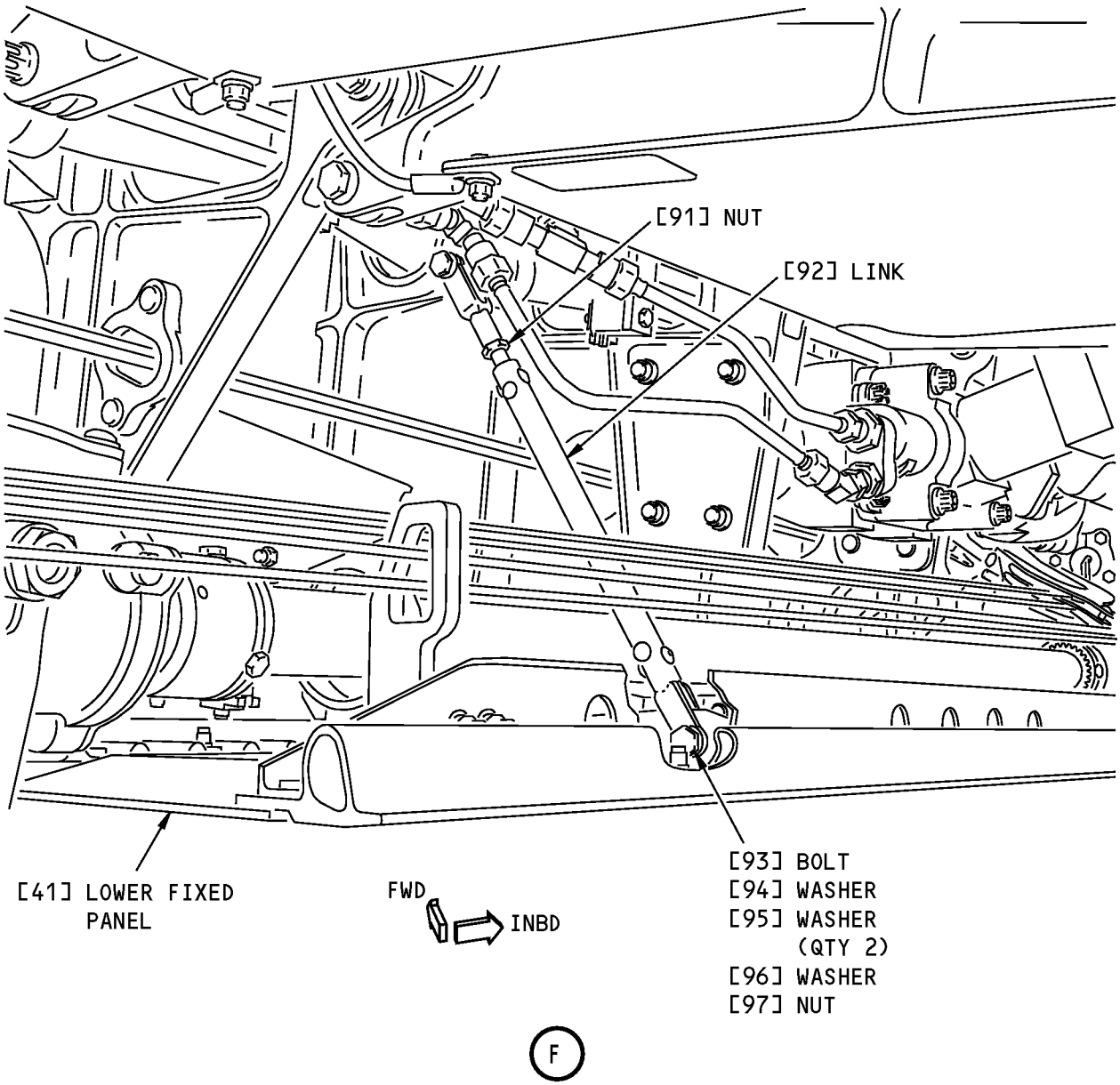

Outboard Trailing Edge Flap Lower Panel Adjustment
Figure 504 (Sheet 4 of 4)/27-51-21-990-806

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OUTBOARD AFT FLAP - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard aft flap

(2) An installation of the outboard aft flap.

B. An outboard aft flap weighs approximately 50 pounds (23 kilograms).

TASK 27-51-22-000-801

2. Outboard Aft Flap Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-000-802	Outboard Flap Outboard Support Aft Fairing Removal (P/B 401)
27-51-28-000-804	Outboard Flap Inboard Support Aft Fairing Removal (P/B 401)

B. Location Zones

Zone	Area
567	Left Wing - Outboard Flap
667	Right Wing - Outboard Flap

C. Prepare for the Removal

SUBTASK 27-51-22-010-001

(1) Do this task: Outboard Flap Outboard Support Aft Fairing Removal, TASK 27-51-28-000-802.

SUBTASK 27-51-22-010-002

(2) Do this task: Outboard Flap Inboard Support Aft Fairing Removal, TASK 27-51-28-000-804.

SUBTASK 27-51-22-860-001

(3) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-22-040-001

(4) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

D. Outboard Aft Flap Removal

SUBTASK 27-51-22-020-001

WARNING: SUPPORT THE AFT FLAP ASSY IN ITS POSITION WHEN YOU DISCONNECT THE RODS [11]. THE AFT FLAP ASSY WILL MOVE AFT WHEN YOU DISCONNECT THE RODS [11]. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Disconnect the aft flap assembly [2] from the rods [11]:

(a) Hold the aft flap assembly [2] so it cannot move aft when you disconnect the rods [11].

(b) Remove the pins [8], nuts [7], washers [6], washers [4], bolts [3] and bushings [5] that attach the rods [11] to the aft flap assembly [2].

(c) Move the rods [11] down, away from the aft flap assembly [2].

SUBTASK 27-51-22-010-003

(2) Remove the coverplate [22] for the outboard roller [21]:

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(a) Remove the bolts [23] that attach the coverplate [22].

(b) Remove the coverplate [22] from the main flap [1].

SUBTASK 27-51-22-020-002

(3) Remove the aft flap assembly [2]:

NOTE: The aft flap weighs approximately 50 pounds (23 kilograms).

(a) Support the aft flap assembly [2].

(b) Carefully move the aft flap assembly [2] aft, until it stops.

(c) At the outboard aft flap track [13], remove the pin [35], nut [34], washer [33], washer [31], bolt [30] and bushing [32] that attach the aft flap track [13] to the aft flap assembly [2].

WARNING: SUPPORT THE AFT FLAP ASSY WHEN YOU REMOVE THE BOLTS [36]. WHEN YOU REMOVE THE LAST BOLT [36], THE AFT FLAP ASSY CAN TURN FREELY ON THE ROLLERS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(d) At the remaining aft flap tracks [14], remove the pins [41], nuts [40], washers [39], washers [37], bolts [36] and bushings [38] that attach the aft flap tracks [14] to the aft flap assembly [2].

(e) Move the aft flap tracks [14] and aft flap track [13] forward, away from the aft flap assembly [2].

(f) Move the trailing edge of the aft flap assembly [2] down, until it is perpendicular to the main flap [1] and disengage the rollers [21] from the outboard programming track [20] and the inboard programming track [28].

——————— END OF TASK ———————

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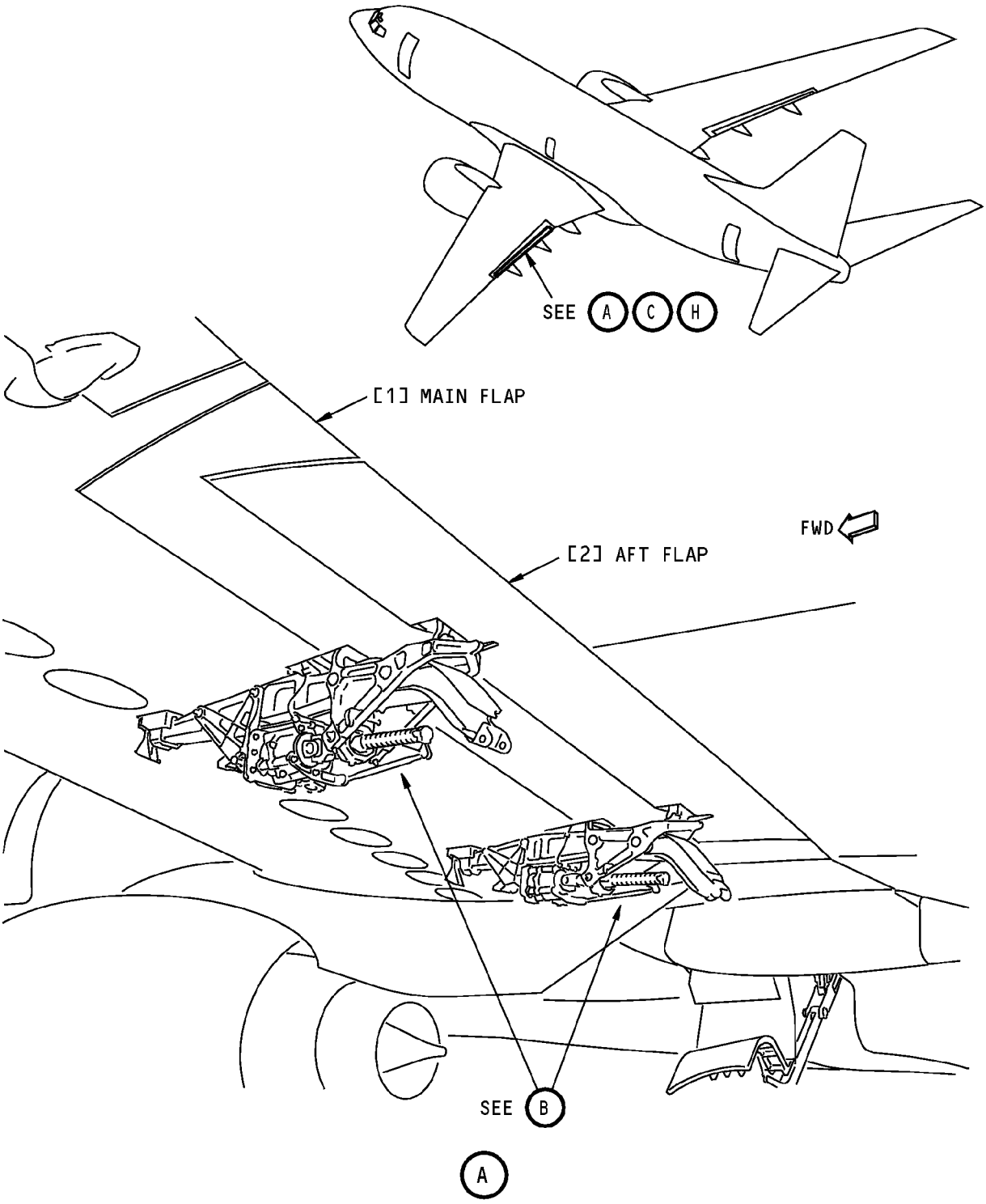

Outboard Aft Flap Installation
Figure 401 (Sheet 1 of 6)/27-51-22-990-801

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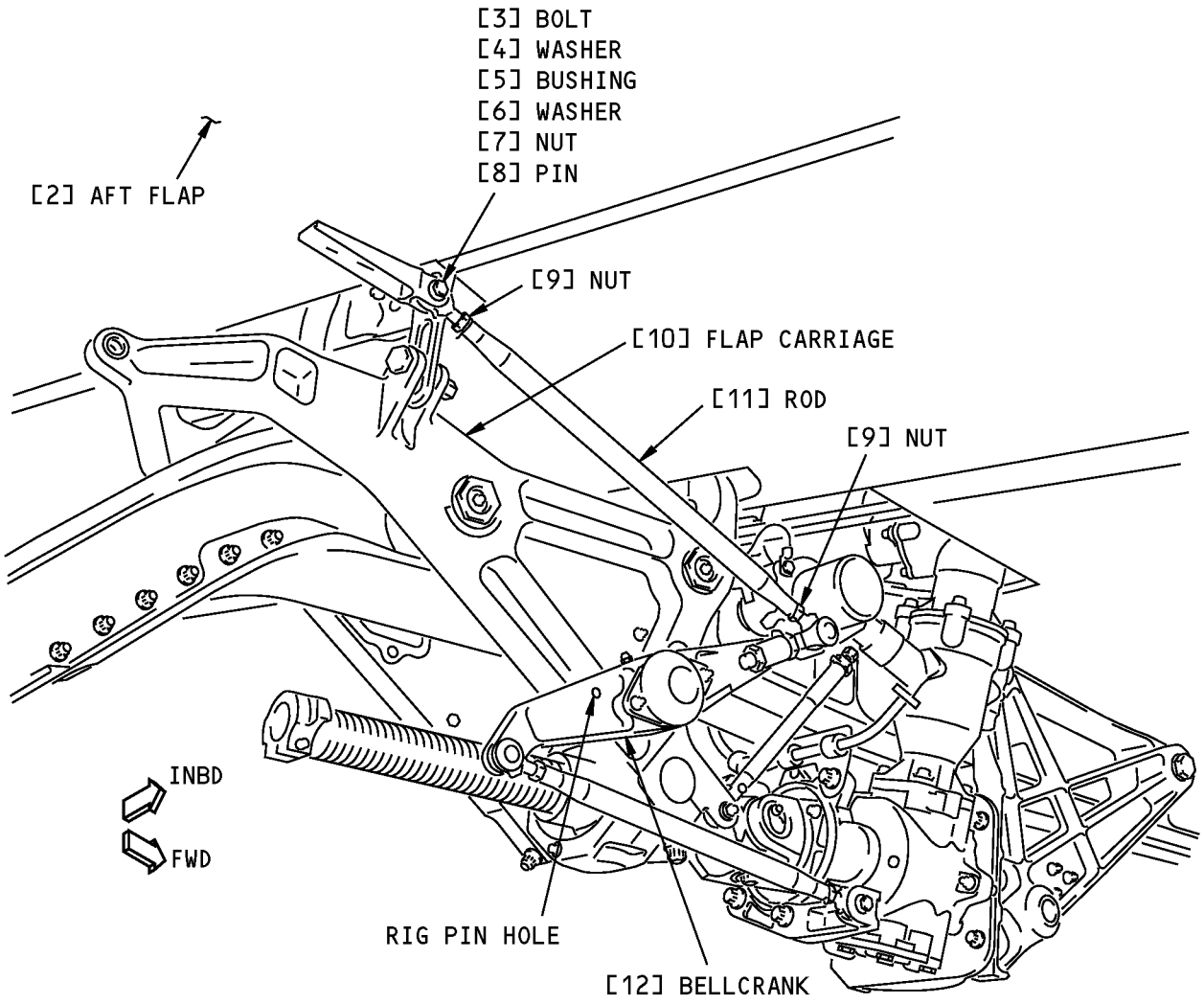

NO. 1 FLAP SUPPORT
(NO. 2 IS EQUIVALENT)

B

Outboard Aft Flap Installation
Figure 401 (Sheet 2 of 6)/27-51-22-990-801

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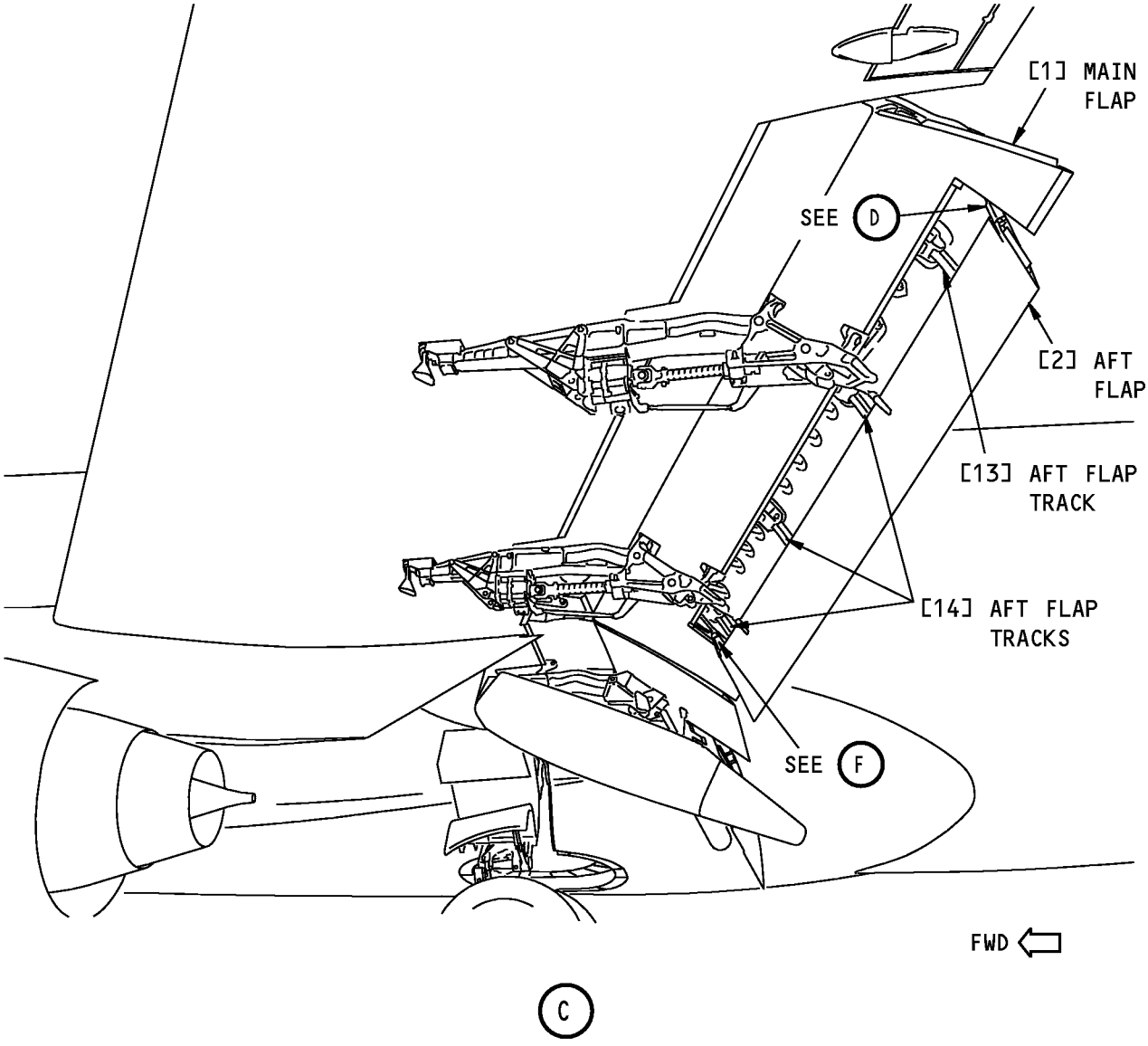

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Outboard Aft Flap Installation
Figure 401 (Sheet 3 of 6)/27-51-22-990-801

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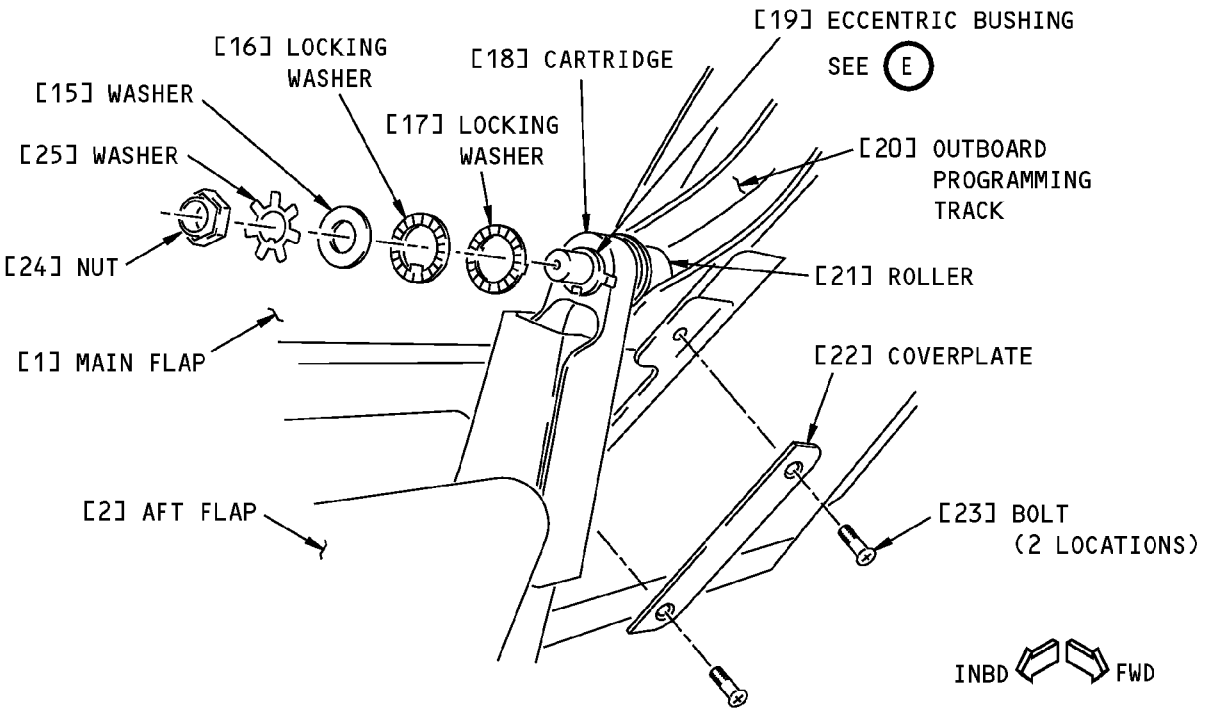
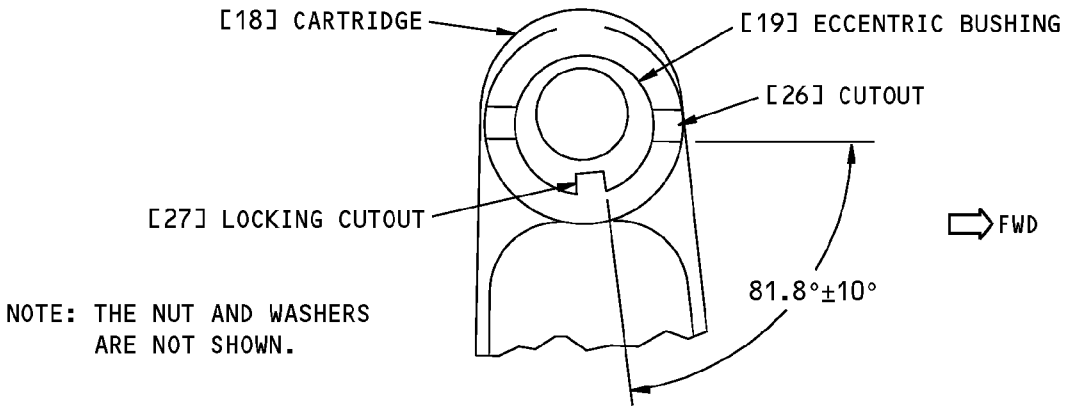


OUTBOARD PROGRAMMING ROLLER

D



NOMINAL POSITION

E

Outboard Aft Flap Installation
Figure 401 (Sheet 4 of 6)/27-51-22-990-801

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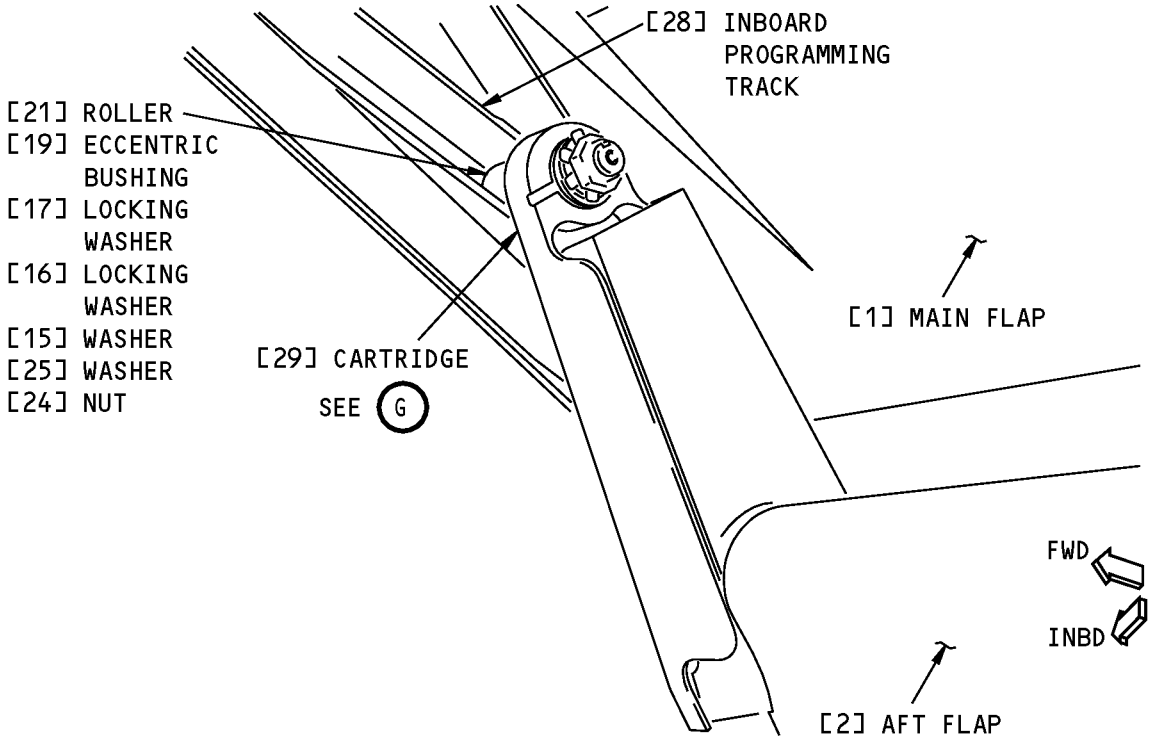
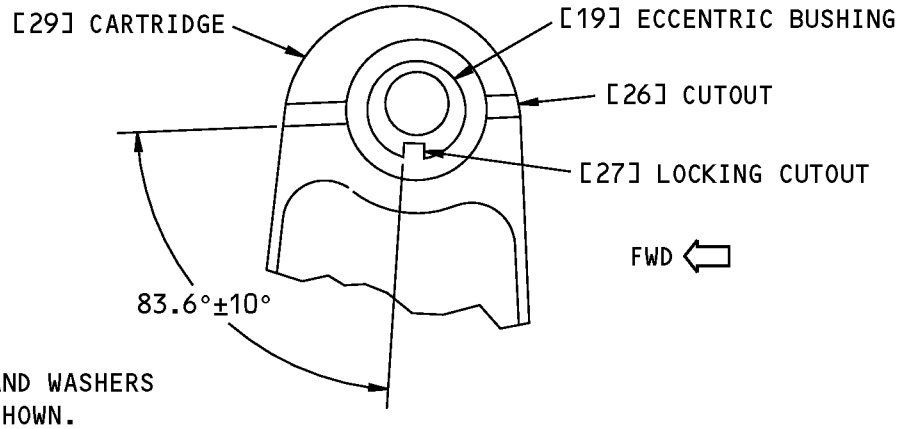


INBOARD PROGRAMMING ROLLER

F



NOTE: THE NUT AND WASHERS ARE NOT SHOWN.

NOMINAL POSITION

G

Outboard Aft Flap Installation
Figure 401 (Sheet 5 of 6)/27-51-22-990-801

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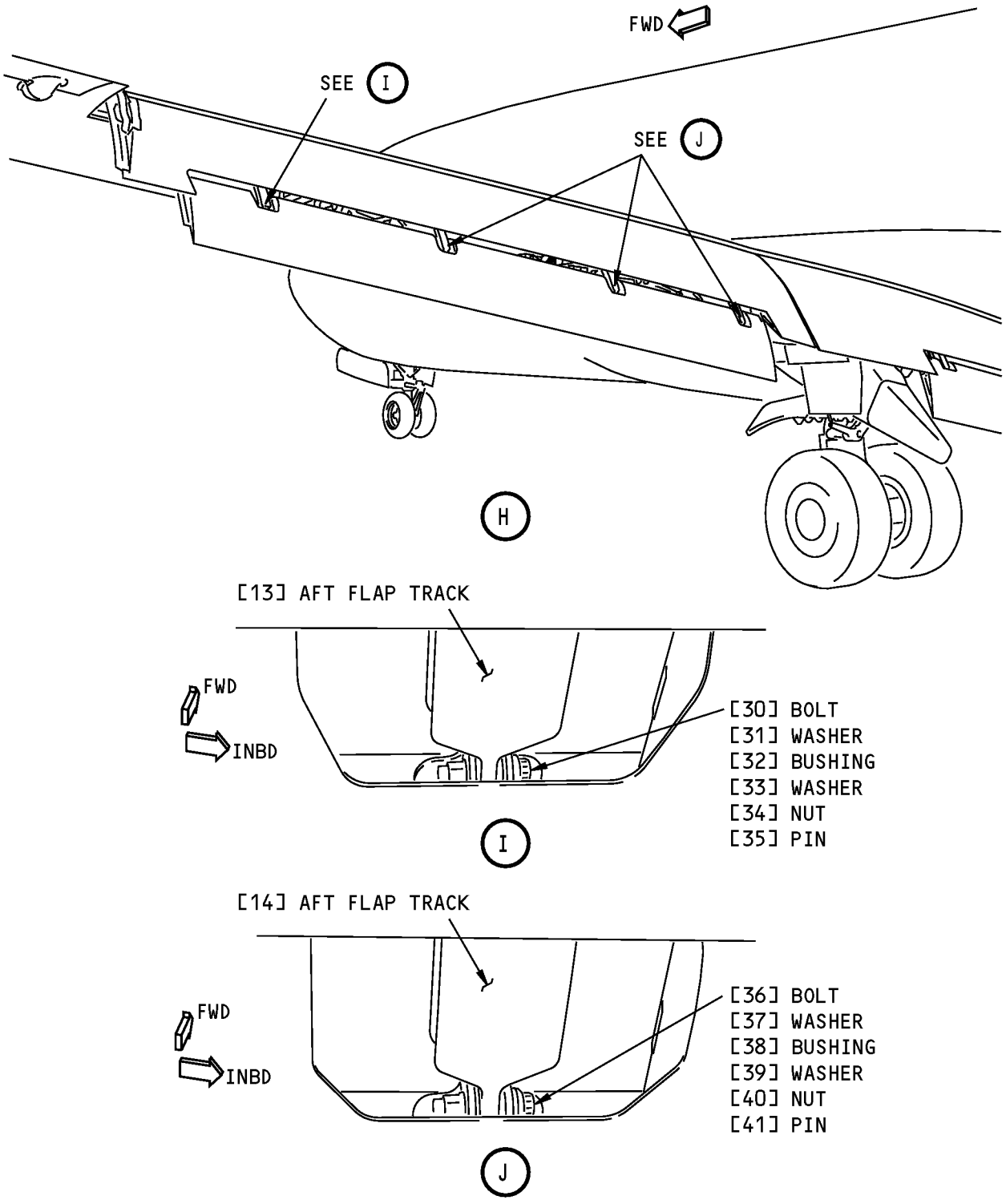

Outboard Aft Flap Installation
Figure 401 (Sheet 6 of 6)/27-51-22-990-801

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TASK 27-51-22-400-801

3. Outboard Aft Flap Installation

A. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-26-400-801	Outboard Aft Flap Track Installation (P/B 401)
27-51-28-400-802	Outboard Flap Outboard Support Aft Fairing Installation (P/B 401)
27-51-28-400-804	Outboard Flap Inboard Support Aft Fairing Installation (P/B 401)
51-21-81-370-801	Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I (P/B 701)
51-51-00-340-802	Bonded Phenolic or Stainless Steel Rub Pad Repair (Heat Source Available) (P/B 801)

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Flap assembly	27-51-22-01-010	HAP ALL
		27-51-22-01-015	HAP ALL
8	Pin	27-51-24-01-010	HAP ALL
35	Pin	27-51-26-01-060	HAP ALL
41	Pin	27-51-26-01-060	HAP ALL

D. Location Zones

Zone	Area
567	Left Wing - Outboard Flap
667	Right Wing - Outboard Flap

E. Outboard Aft Flap Installation

SUBTASK 27-51-22-820-001

(1) If you will not install the same aft flap assembly [2] and main flap [1], make sure the inboard and outboard rollers [21] are in the nominal position (Figure 401):

(a) The outboard roller [21] is in the nominal position when the locking cutout [27] is 81.8 ± 10.0 degrees from the lower cutout [26] on the cartridge [18].

(b) The inboard roller [21] is in the nominal position when the locking cutout [27] is 83.6 ± 10.0 degrees from the lower cutout [26] on the cartridge [29].

(c) If the rollers [21] are not in the nominal position, adjust the position of the rollers [21]:

(d) Remove the nut [24], washer [25] and washer [15] from the roller [21].

(e) Disengage the locking washer [16] from the locking washer [17].

(f) Turn eccentric bushing [19] until the roller [21] is in the nominal position.

(g) Engage the locking washer [16] with the locking washer [17].

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(h) Install the washer [15], washer [25] and nut [24] on the roller [21].

(i) Tighten the nut [24] to 95-110 pound-inches (10.7-12.4 newton-meters).

(j) Bend the tabs of the washer [25] to hold the nut [24] in its position.

SUBTASK 27-51-22-010-004

(2) If it is installed on the main flap [1], remove the coverplate [22] for the outboard roller [21]:

(a) Remove the bolts [23] that attach the coverplate [22].

(b) Remove the coverplate [22] from the main flap [1].

SUBTASK 27-51-22-420-001

(3) Make sure the aft flap track [13]and aft flap tracks [14] are installed on the main flap [1] and are in the retracted position. To install the aft flap tracks, do this task: Outboard Aft Flap Track Installation, TASK 27-51-26-400-801.

SUBTASK 27-51-22-420-002

(4) Install the aft flap assembly [2]:

(a) Hold the aft flap assembly [2] below and approximately perpendicular to the main flap [1].

(b) Engage the inboard roller [21] with the inboard programming track [28].

(c) Engage the outboard roller [21] with the outboard programming track [20].

(d) Lift the trailing edge of the aft flap assembly [2] and hold it in its usual position.

(e) Connect the aft flap assembly [2] to the aft flap track [13] and aft flap tracks [14]:

1) Move the aft flap track [13] and aft flap tracks [14] to align with the aft flap assembly [2].

2) Apply grease, D00633 to the shank of the bolt [30]and bolts [36] and the inside of the bushing [32] and bushings [38].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolt [30] and bolts [36].

3) Install the bushings [38], bolts [36] and washers [37] that attach the aft flap tracks [14] to the aft flap assembly [2].

4) Install the bushing [32], bolt [30] and washer [31] that attach the aft flap track [13] to the aft flap assembly [2].

5) Carefully clean all of the grease, D00633 from the threads of the bolts [36] and bolt [30].

6) On the outboard aft flap track [13], install the washer [33] and nut [34] on the bolt [30].

7) Tighten the nut [34] to 65-100 pound-inches (7.3-11.2 newton-meters).

8) Install the pin [35] in the nut [34].

9) On the remaining aft flap tracks [14], install the washers [39] and nuts [40] on the bolts [36].

10) Tighten the nuts [40] to 130-200 pound-inches (14.7-22.5 newton-meters).

11) Install the pins [41] in the nuts [40].

SUBTASK 27-51-22-410-001

(5) Install the coverplate [22] for the outboard roller [21] on the main flap [1]:

(a) Put the coverplate [22] in its position on the main flap [1].

(b) Install the bolts [23] that attach the coverplate [22].

SUBTASK 27-51-22-420-003

(6) Connect the aft flap assembly [2] to the rods [11]:

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WARNING: SUPPORT THE AFT FLAP ASSY IN ITS POSITION WHEN THE RODS [11] ARE DISCONNECTED. THE AFT FLAP ASSY WILL MOVE AFT WHEN THE RODS [11] ARE DISCONNECTED. THIS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(a) Move the aft flap assembly [2] until it aligns with the rods [11].

(b) Apply grease, D00633 to the shank of the bolts [3] and the inside of the bushings [5].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolts [3].

(c) Install the bushings [5], bolts [3] and washers [4] to attach the rods [11] to the aft flap assembly [2].

NOTE: Make sure the heads of the bolts [3] are inboard.

(d) Carefully clean all of the grease, D00633 from the threads of the bolts [3].

(e) Install the nuts [7] and washers [6] on the bolts [3].

(f) Tighten the nuts [7] to 65-100 pound-inches (7.3-11.2 newton-meters).

(g) Install the pins [8] in the nuts [7].

F. Outboard Aft Flap Adjustment

SUBTASK 27-51-22-480-001

(1) Install the rig pins in the rig pin holes in the inboard and outboard bellcranks [12] and the flap carriages [10].

(a) If it is necessary, move the aft flap assembly [2] or the main flap [1] until you can install the rig pins.

SUBTASK 27-51-22-220-001

(2) At the inboard and outboard ends of the aft flap assembly [2], measure the mismatch between the trailing edge of the aft flap assembly [2] and the main flap [1] (Views D and E) (Figure 402).

SUBTASK 27-51-22-820-002

(3) If the mismatch at the inboard and outboard ends of the aft flap assembly [2] is not in the limit of 0.00 ±0.060 inches (1.524 mm), then adjust the length of the applicable rod [11] (Figure 401):

(a) Loosen the nuts [9] on the rod [11].

(b) If you cannot get access to the nuts [9], extend the aft flap assembly [2]:

1) Remove the rig pins from the bellcranks [12].

2) Extend the aft flap assembly [2], until you can get access to the nuts [9]. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Turn the applicable rod [11] until the mismatch is in the limit at the inboard and outboard ends of the aft flap assembly [2].

NOTE: For each 1/4 turn of the rod [11], the trailing edge of the aft flap assembly [2] will move approximately 0.04 inch (1.016 mm).

(d) Tighten the nuts [9] on the rod [11].

(e) Install lockwire on the nuts [9].

(f) If you extended the aft flap assembly [2] to get access to the nuts [9], then do these steps:

1) Retract the aft flap assembly [2] until you can install the rig pins in the bellcranks [12]. To retract the flap, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

2) Install the rig pins in the bellcranks [12].

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(g) Make sure the mismatch at the inboard and outboard ends of the aft flap assembly [2] is in the limit.

SUBTASK 27-51-22-980-001

(4) Support the aft flap assembly [2] to make sure the programming rollers [21] touch the bottom surface of the programming tracks and the aft rollers for the four inner aft flap tracks touch the top surface of the tracks.

NOTE: This is the position the rollers will be in with airloads applied to the flap.

SUBTASK 27-51-22-220-002

(5) At the inboard and outboard ends of the aft flap assembly [2], measure the vertical alignment at the trailing edge of the aft flap assembly [2] and the main flap [1] (Views B-B and C-C) (Figure 402).

(a) If the vertical alignment of the trailing edge is not in the limit of 0.000 ±0.100 inch (2.54 mm), then adjust the rollers [21] for the inboard or outboard programming tracks.

SUBTASK 27-51-22-220-003

(6) At the lower cove panels on the main flap [1], measure the mismatch between the aft flap assembly [2] and the main flap [1] (View B)Figure 402.

(a) If the mismatch is not in the limit of 0.000 ±0.060 inch (1.524 mm), then adjust the rollers [21] for the inboard and outboard programming tracks.

SUBTASK 27-51-22-820-003

(7) If it is necessary, adjust the rollers [21] for the applicable inboard and outboard programming tracks (Figure 401):

NOTE: If you cannot get the aft flap assembly [2] vertical alignment and the lower surface mismatch in the limits, make sure the vertical alignment is in the limit.

(a) Remove the rig pins from the bellcranks [12].

(b) Extend the aft flap assembly [2], until you can get access to the rollers [21]. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Remove the nut [24], washer [25] and washer [15] from the roller [21].

(d) Disengage the locking washer [16] from the locking washer [17].

(e) Turn eccentric bushing [19], until the vertical alignment and the lower surface mismatch are in the limits.

NOTE: If you turn the eccentric bushing [19] 90 degrees, it will move the trailing edge of the aft flap assembly [2] approximately 0.050 inches (1.27 mm).

(f) Engage the locking washer [16] with locking washer [17].

(g) Install the washer [15], washer [25] and nut [14] on the roller [21].

(h) Tighten the nut [24] to 95-110 pound-inches (10.7-12.4 newton-meters).

(i) Retract the aft flap assembly [2] until you can install the rig pins in the bellcranks [12]. To retract the flap, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(j) Install the rig pins in the bellcranks [12].

(k) Make sure the vertical alignment and the lower surface mismatch are in the limits.

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SUBTASK 27-51-22-980-002

(8) Support the aft flap assembly [2] to make sure the programming rollers [21] touch the bottom surface of the programming tracks and the aft rollers for the aft flap tracks touch the top surface of the tracks.

NOTE: This is the position the rollers will be in with airloads applied to the aft flap assembly [2].

SUBTASK 27-51-22-220-004

(9) Measure the clearance between the main flap [1] and the upper surface of the aft flap assembly [2] (View C) (Figure 402).

NOTE: Measure the clearance at all of the cove panel supports [51] and at the aft flap roller fittings [60].

SUBTASK 27-51-22-220-007

(10) Make sure that the rub strip [50] and teflon coating on the upper surface of the aft flap assembly [2] are not damaged (View C) (Figure 402).

(a) If the rub strip [50] is damaged or missing, then do this task, do this task: Bonded Phenolic or Stainless Steel Rub Pad Repair (Heat Source Available), TASK 51-51-00-340-802.

(b) If the telfon coating is damaged, then do this task, do this task: Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I, TASK 51-21-81-370-801.

SUBTASK 27-51-22-820-004

(11) If the clearance between the main flap [1] and the aft flap assembly [2] is not in the limit of 0.010 +0.100/-0.010 inch (0.25 +2.54/-0.25 mm), then change the thickness of the shims [58] on the cove panel support [51] or the shims [59] on the aft flap roller fittings [60].

(a) Remove the rig pins from the bellcranks [12].

(b) Extend the aft flap assembly [2], until you can get access to the fasteners for the shims [58] and [59]. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) If it is necessary, change the thickness of the shims [58] on the cove panel supports [51]:

1) Remove the nuts [57], washers [56] and bolts [55] that attach the cove panel [52] to the cove panel support [51].

2) Remove the shim [58] from the cove panel support [51] and the cove panel [52].

3) Change the thickness of the shim [58].

NOTE: The maximum permitted thickness of the shim [58] is 0.050 inch (1.27 mm).

4) Apply sealant, A00247 to the mating surfaces of the shim [58].

5) Put the shim [58] in its position between the cove panel support [51] and the cove panel [52].

6) Install the bolts [55], washers [56] and nuts [57].

(d) If it is necessary, change the thickness of the shims [59] on the aft flap roller fittings [60]:

1) Remove the nuts [63], washers [62] and bolts [61] that attach the cove panel [52] to the aft flap roller fitting [60].

2) Remove the shims [59] from the aft flap roller fitting [60] and the cove panel [52].

3) Change the thickness of the shims [59].

NOTE: The maximum permitted thickness of the shim [59] is 0.050 inch (1.27 mm).

4) Apply sealant, A00247 to the mating surfaces of the shims [59].

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5) Put the shims [59] in their position between the aft flap roller fitting [60] and the cove panel [52].

6) Install the bolts [61], washers [62] and nuts [63].

7) If it is necessary, trim the excess shim [59] that extends past the aft flap roller fitting [60].

(e) Retract the aft flap assembly [2] until you can install the rig pins in the bellcranks [12]. To retract the flap, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(f) Install the rig pins in the bellcranks [12].

(g) Make sure the clearance between the main flap [1] and the upper surface of the aft flap assembly [2] is in the limit.

SUBTASK 27-51-22-220-006

(12) Measure the deflection of the upper cove panel [52] of the main flap [1] at the inboard and outboard ends of the aft flap assembly [2]:

NOTE: The aft flap assembly [2] can push up on the upper cove panel [52] and cause the panel to deflect.

(a) Make sure the delection is a maximum of 0.200 inch (5.08 mm).

SUBTASK 27-51-22-220-005

(13) Make sure the seals on the aft lower surface of the main flap [1] are in the correct position:

(a) Measure the distance between the aft edge of the seal [54] and the seam on the lower surface of the aft flap assembly [2] (View A-A).

NOTE: This distance is called DIMENSION Y.

(b) At the inboard end of the aft flap assembly [2], make sure that DIMENSION Y is 5.76 ±0.10 inch (146.3 ±2.54 mm).

(c) At the inboard side of the inboard flap support, make sure that DIMENSION Y is 5.57 ±0.10 inch (141.48 ±2.54 mm).

(d) At the outboard side of the inboard flap support, make sure that DIMENSION Y is 5.46 ±0.10 inch (138.68 ±2.54 mm).

(e) At the inboard side of the outboard flap support, make sure that DIMENSION Y is 4.61 ±0.10 inch (117.094 ±2.54 mm).

(f) At the outboard side of the outboard flap support, make sure that DIMENSION Y is 4.46 ±0.10 inch (113.284 ±2.54 mm).

(g) At the outboard end of the aft flap, make sure that DIMENSION Y is 4.06 ±0.10 inch (103.124 ±2.54 mm).

SUBTASK 27-51-22-820-005

(14) If the position of the seals [54] are not in the limits, adjust the position of the seals [54]:

(a) Remove the rig pins from the bellcranks [12].

(b) Extend the aft flap assembly [2], until you can get access to the fasteners for the seals [54]. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) Adjust the position of the applicable seal [54]:

1) Loosen the bolts [53] that attach the seal [54].

2) Move the seal [54] forward or aft.

3) Tighten the bolts [53].

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(d) Retract the aft flap assembly [2] until you can install the rig pins in the bellcranks [12]. To retract the flap, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(e) Install the rig pins in the bellcranks [12].

(f) Make sure the distance between the seals [54] and the aft flap assembly [2] are in the limit.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-22-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-22-410-002

(2) Do this task: Outboard Flap Outboard Support Aft Fairing Installation, TASK 27-51-28-400-802.

SUBTASK 27-51-22-410-003

(3) Do this task: Outboard Flap Inboard Support Aft Fairing Installation, TASK 27-51-28-400-804.

SUBTASK 27-51-22-860-002

(4) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

END OF TASK

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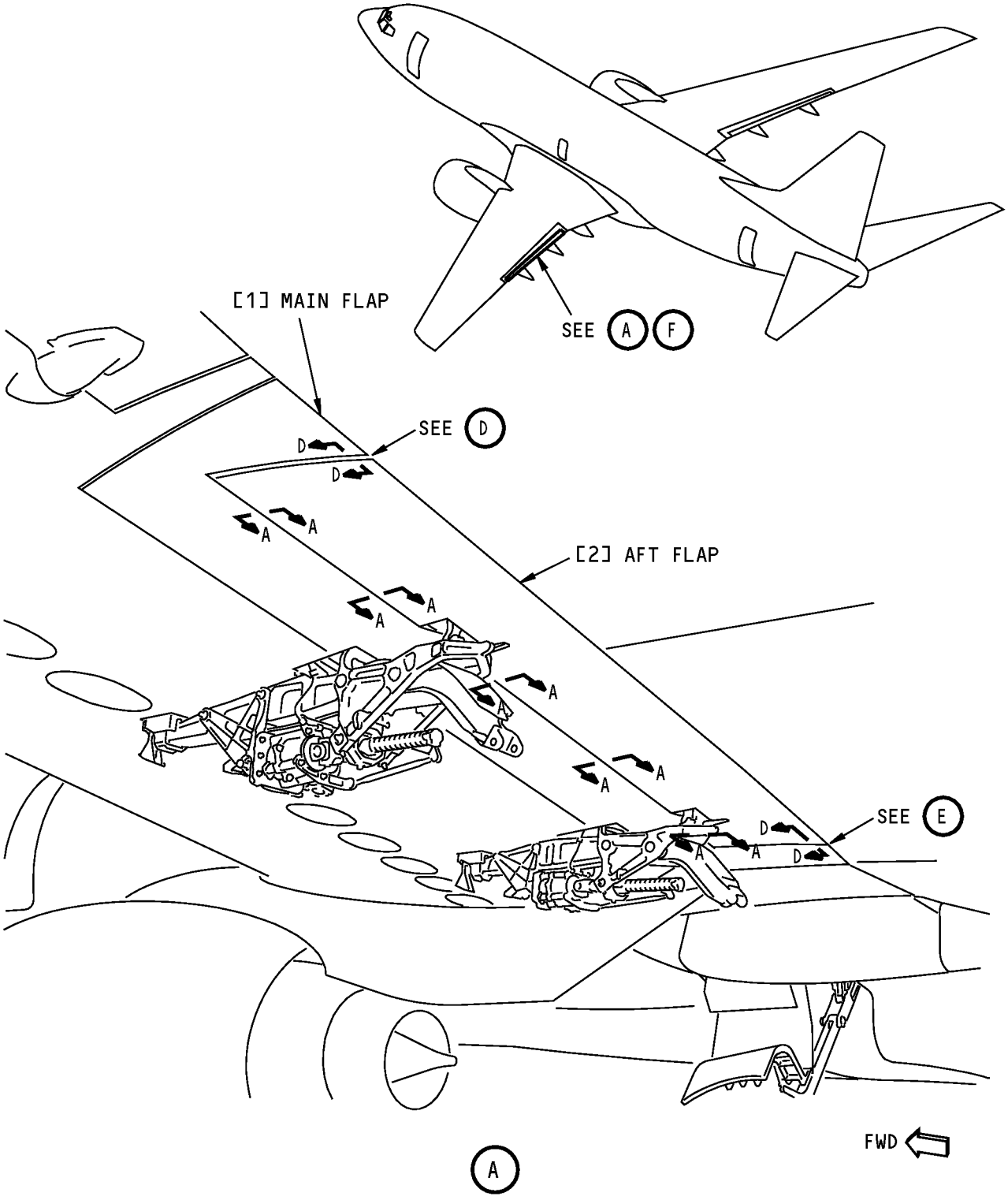

Outboard Aft Flap Adjustment
Figure 402 (Sheet 1 of 4)/27-51-22-990-802

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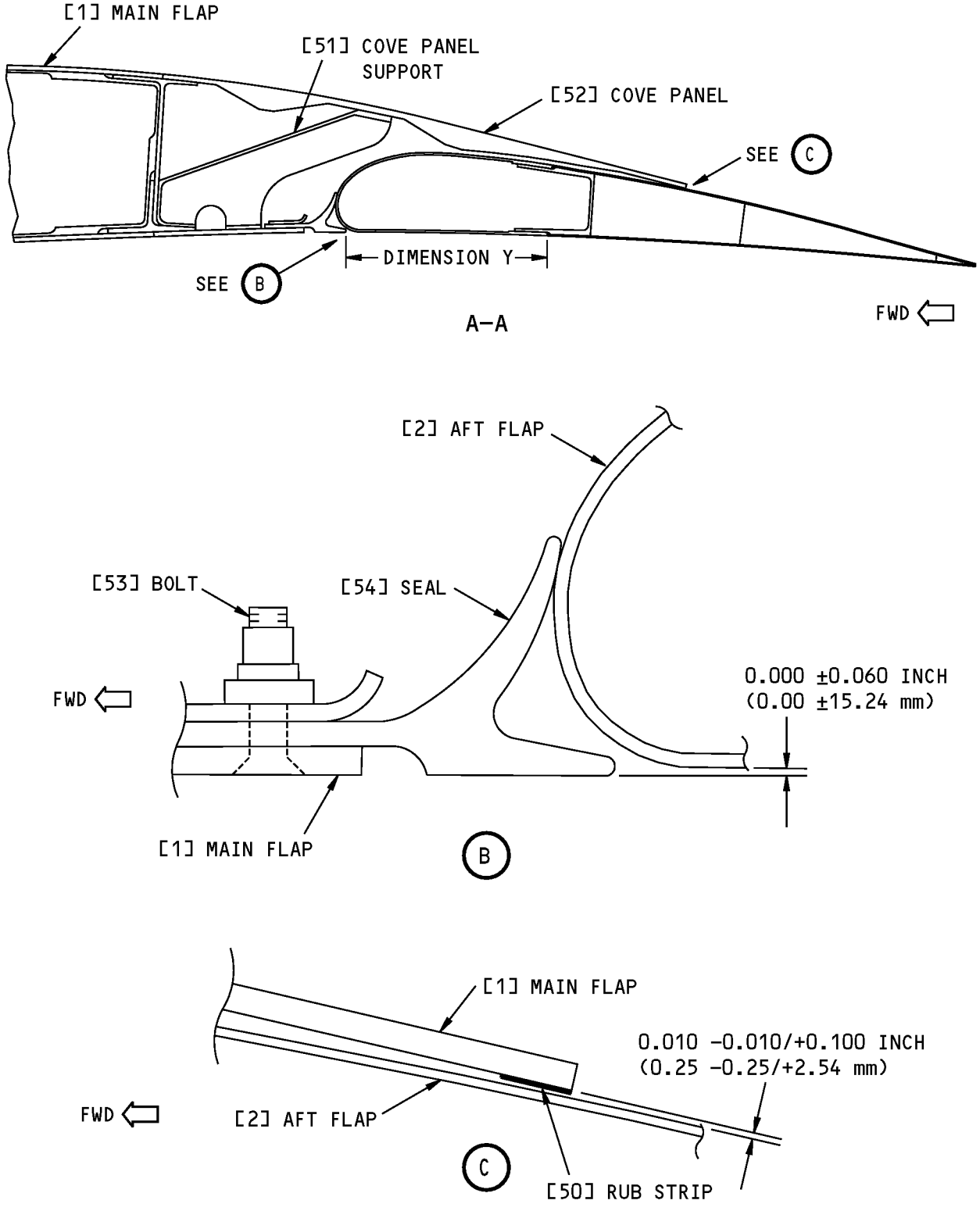

Outboard Aft Flap Adjustment
Figure 402 (Sheet 2 of 4)/27-51-22-990-802

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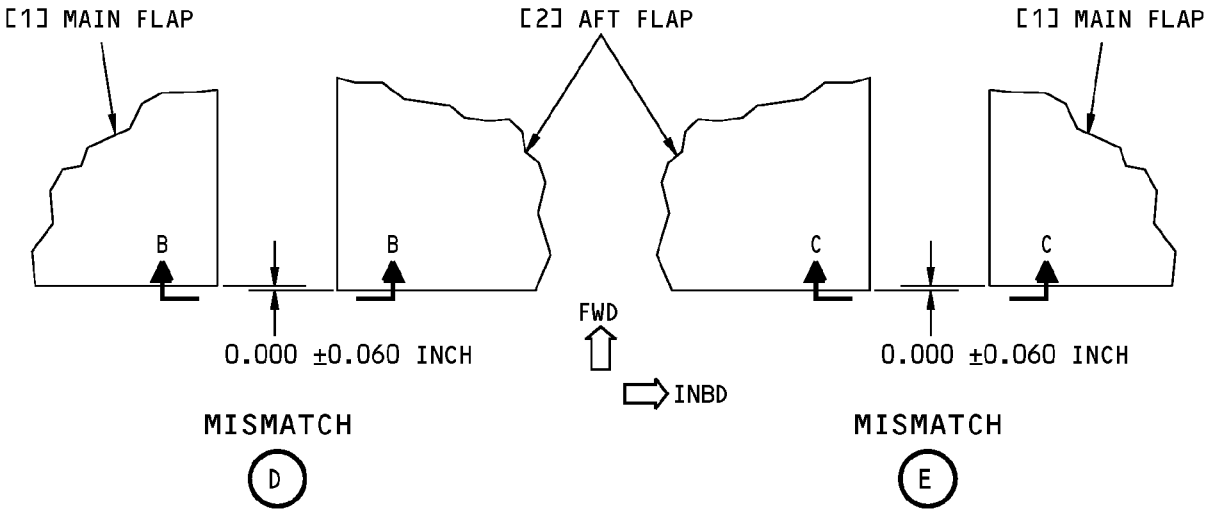

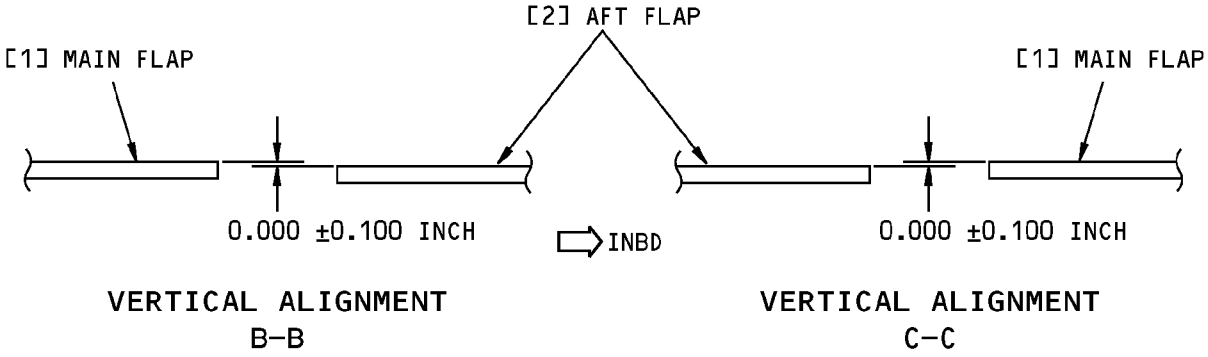

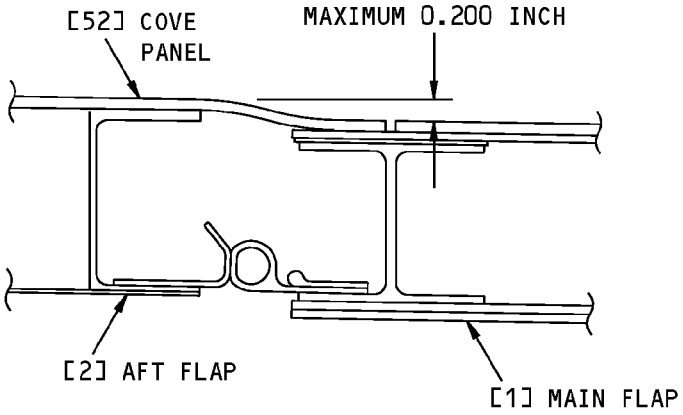

Outboard Aft Flap Adjustment
Figure 402 (Sheet 3 of 4)/27-51-22-990-802

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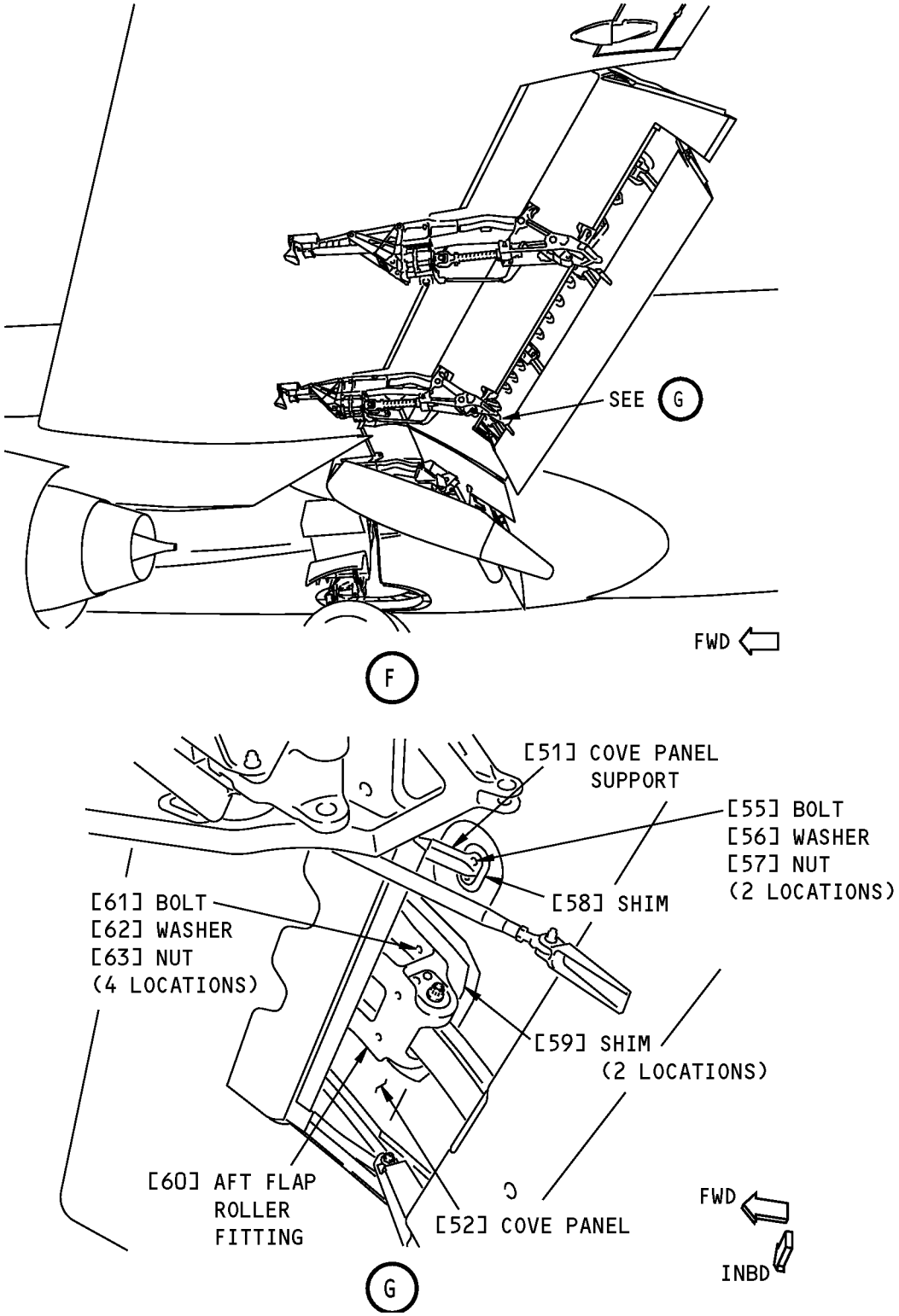

Outboard Aft Flap Adjustment
Figure 402 (Sheet 4 of 4)/27-51-22-990-802

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OUTBOARD AFT FLAP - INSPECTION/CHECK

1. General

A. This procedure contains a task to do an inspection of the attachment points for the outboard aft flap. The attachment points are the aft flap drive rods and the aft flap tracks.

TASK 27-51-22-200-801

2. Outboard Aft Flap Inspection

(Figure 601)

A. References

Reference	Title
27-51-22-000-801	Outboard Aft Flap Removal (P/B 401)
27-51-22-400-801	Outboard Aft Flap Installation (P/B 401)

B. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

C. Location Zones

Zone	Area
567	Left Wing - Outboard Flap
667	Right Wing - Outboard Flap

D. Procedure

SUBTASK 27-51-22-020-003

(1) Do this task: Outboard Aft Flap Removal, TASK 27-51-22-000-801.

SUBTASK 27-51-22-020-004

(2) Use these tools to do a check for wear on the part of the outboard aft flap:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-51-22-020-005

(3) Examine the parts of the outboard aft flap (Table 601):

(a) Remove the parts that you will measure.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

Table 601/27-51-22-993-804

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 BUSHING	I.D.	0.2500 in	0.2505 in	0.2505 in	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
		6.3500 mm	6.3627 mm	6.3627 mm	0.0015 in
#1 BOLT	O.D.	0.2490 in 6.3246 mm	0.2495 in 6.3373 mm	0.2490 in 6.3246 mm	0.0381 mm
#2 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3756 in 9.5102 mm	0.0016 in
#2 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3740 in 9.4996 mm	0.0406 mm
#3 ROD END	I.D.	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.0010 in
#3 BOLT	O.D.	0.2490 in 6.3246 mm	0.2495 in 6.3373 mm	0.2490 in 6.3246 mm	0.0254 mm
#4 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2506 in 6.3652 mm	0.2506 in 6.3652 mm	0.0016 in
#4 BOLT	O.D.	0.2490 in 6.3246 mm	0.2495 in 6.3373 mm	0.2490 in 6.3246 mm	0.0406 mm
#5 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2505 in 6.3627 mm	0.0015 in
#5 BOLT	O.D.	0.2490 in 6.3246 mm	0.2495 in 6.3373 mm	0.2490 in 6.3246 mm	0.0381 mm
#6 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3756 in 9.5402 mm	0.0016 in
#6 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3740 in 9.4996 mm	0.0406 mm
#7 ROD END	I.D.	0.2500 in	0.2500 in	0.2500 in	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
		6.3500 mm	6.3500 mm	6.3500 mm	0.0010 in
#7 BOLT	O.D.	0.2490 in 6.3246 mm	0.2495 in 6.3373 mm	0.2490 in 6.3246 mm	0.0254 mm
#8 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2505 in 6.3627 mm	0.0015 in
#8 BOLT	O.D.	0.2490 in 6.3246 mm	0.2495 in 6.3373 mm	0.2490 in 6.3246 mm	0.0381 mm
#9 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2545 in 6.4643 mm	0.0050 in
#9 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2455 in 6.2357 mm	0.1270 mm
#10 TRACK	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2545 in 6.4643 mm	0.0050 in
#10 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2455 in 6.2357 mm	0.1270 mm
#11 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3756 in 9.5402 mm	0.0016 in
#11 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3740 in 9.4996 mm	0.0406 mm
#12 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2545 in 6.4643 mm	0.0050 in
#12 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2455 in 6.2357 mm	0.1270 mm
#13 BUSHING	I.D.	0.3125 in	0.3131 in	0.3170 in	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
		7.9375 mm	7.9527 mm	8.0518 mm	0.0050 in
#13 BOLT	O.D.	0.3110 in 7.8994 mm	0.3120 in 7.9248 mm	0.3081 in 7.8257 mm	0.1270 mm
#14 TRACK	I.D.	0.3125 in 7.9375 mm	0.3130 in 7.9502 mm	0.3170 in 8.0518 mm	0.0050 in
#14 BOLT	O.D.	0.3110 in 7.8994 mm	0.3120 in 7.9248 mm	0.3080 in 7.8232 mm	0.1270 mm
#15 BUSHING	I.D.	0.4375 in 11.113 mm	0.4382 in 11.130 mm	0.4382 in 11.1300 mm	0.0017 in
#15 BUSHING	O.D.	0.4365 in 11.087 mm	0.4370 in 11.100 mm	0.4365 in 11.0870 mm	0.0431 mm
#16 BUSHING	I.D.	0.3125 in 7.9375 mm	0.3130 in 7.9502 mm	0.3170 in 8.0518 mm	0.0050 in
#16 BOLT	O.D.	0.3110 in 7.8994 mm	0.3120 in 7.9248 mm	0.3080 in 7.8232 mm	0.1270 mm

SUBTASK 27-51-22-420-004

(4) Do this task: Outboard Aft Flap Installation, TASK 27-51-22-400-801.

——————— END OF TASK ———————

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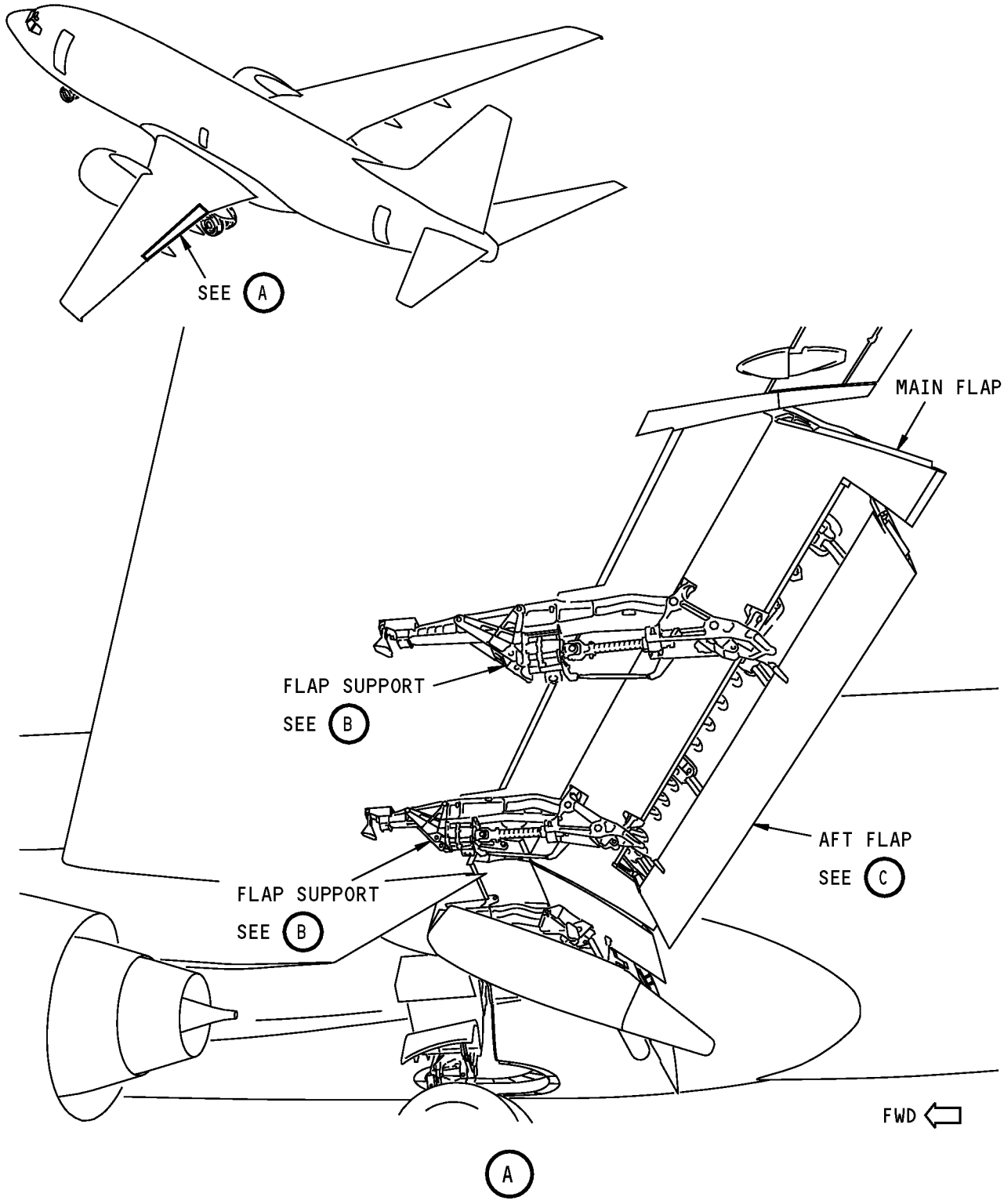

Outboard Aft Flap Inspection
Figure 601 (Sheet 1 of 4)/27-51-22-990-803

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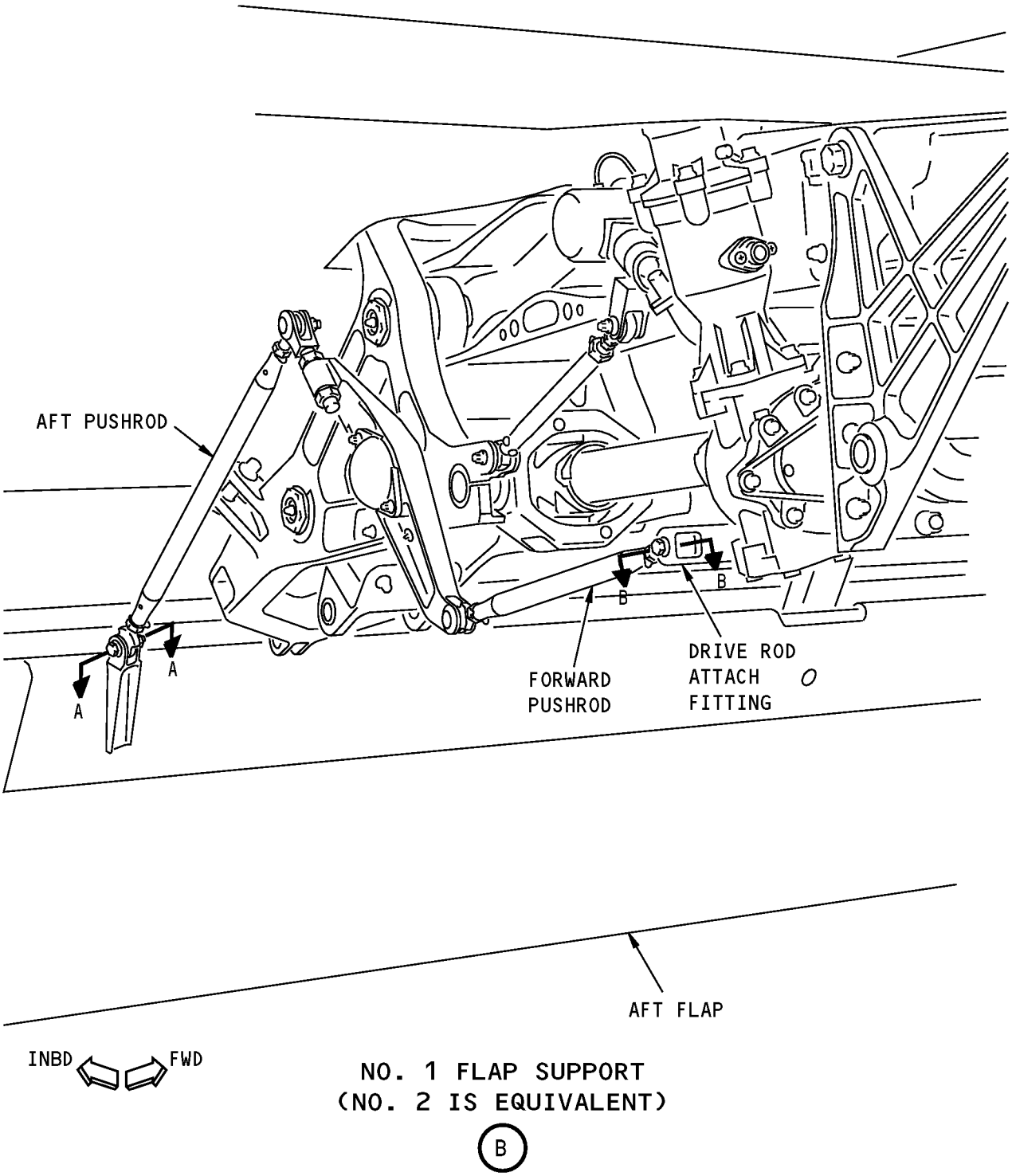

Outboard Aft Flap Inspection
Figure 601 (Sheet 2 of 4)/27-51-22-990-803

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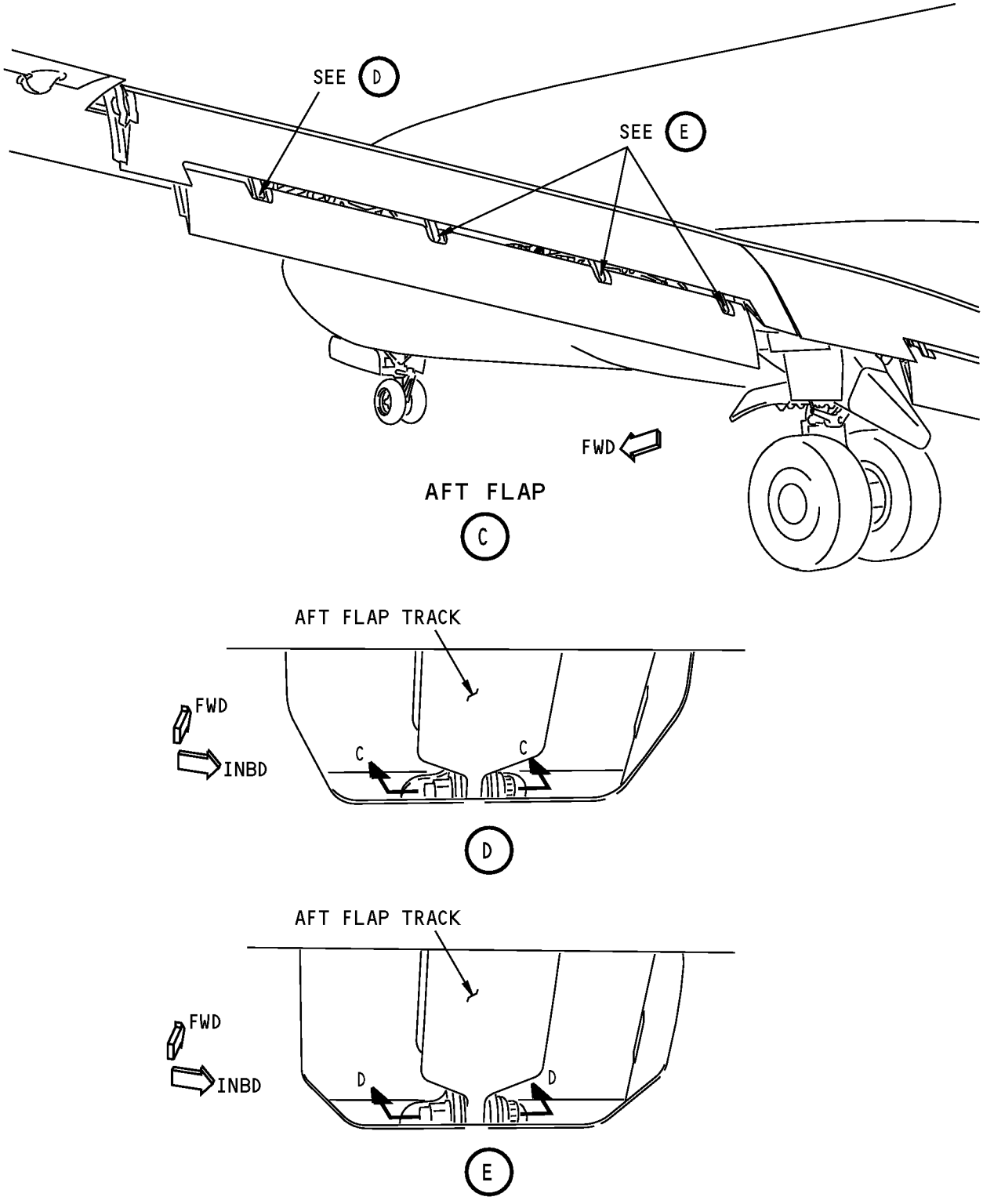

Outboard Aft Flap Inspection
Figure 601 (Sheet 3 of 4)/27-51-22-990-803

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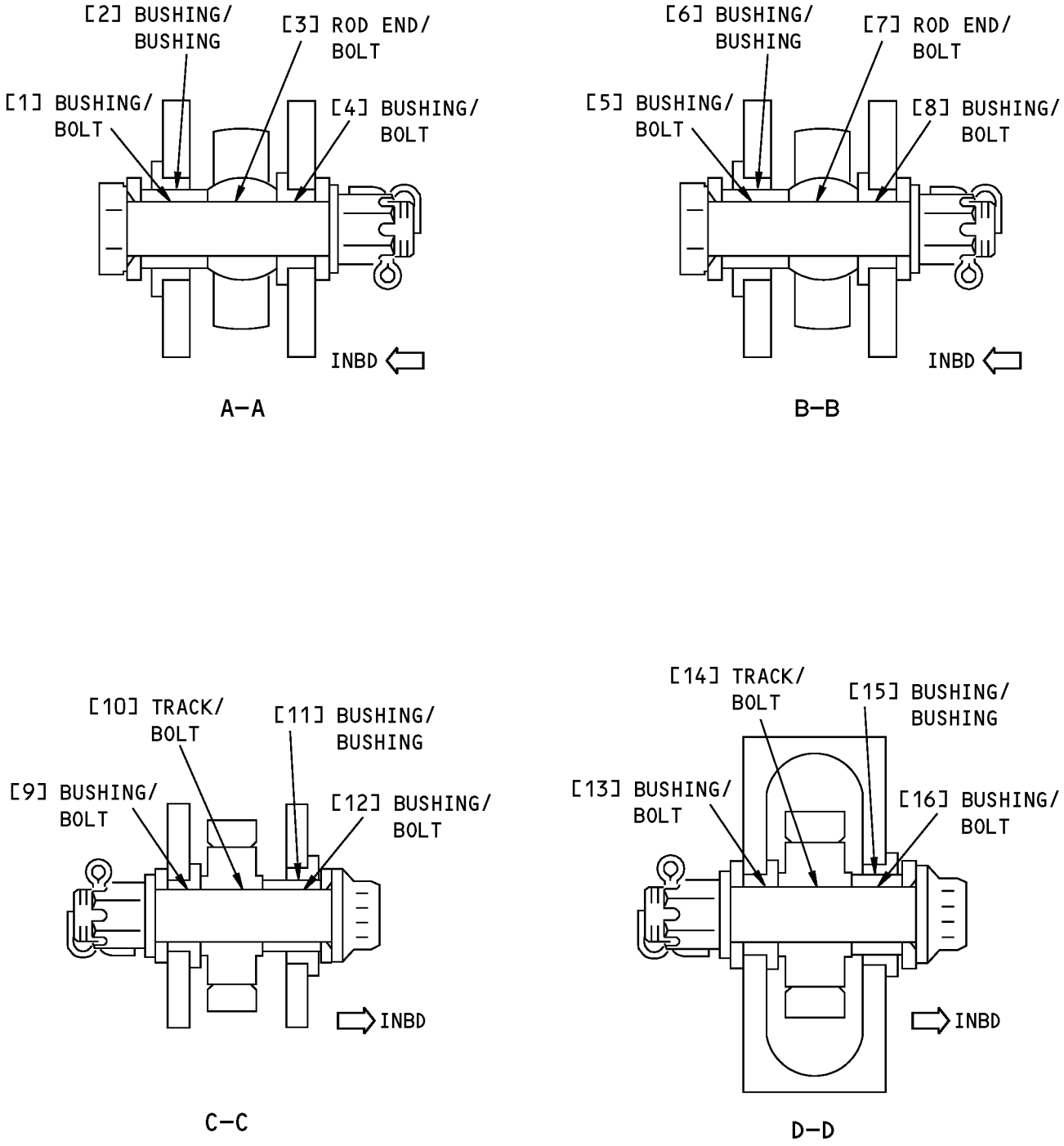

Outboard Aft Flap Inspection
Figure 601 (Sheet 4 of 4)/27-51-22-990-803

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OUTBOARD FLAP CARRIAGES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard carriage for the outboard flap

(2) An installation of the outboard carriage for the outboard flap

(3) A removal of the inboard carriage for the outboard flap

(4) An installation of the inboard carriage for the outboard flap.

TASK 27-51-23-000-801

2. Outboard Flap Outboard Carriage Removal

(Figure 401)

A. General

(1) This task is applicable to the flap carriages at flap supports No. 1 and 8.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-21-000-801	Outboard Trailing Edge Flap Removal (P/B 401)

C. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
567	Left Wing - Outboard Flap
644	Right Wing - Fairing Flap Support No. 8
667	Right Wing - Outboard Flap

D. Prepare for the Removal

SUBTASK 27-51-23-040-001

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-23-020-001

(2) Do this task: Outboard Trailing Edge Flap Removal, TASK 27-51-21-000-801.

E. Outboard Flap Outboard Carriage Removal

SUBTASK 27-51-23-020-002

(1) Remove the nut [13], washer [12], washer [10], bolt [9] and bushing [11] that attach the aft flap pushrod [16] to the aft flap [3].

SUBTASK 27-51-23-020-003

(2) Remove the bellcrank assembly [19] from the carriage assembly [1]:

NOTE: You can remove the aft flap drive rod [18] and the aft flap pushrod [16] with the bellcrank assembly [19].

(a) Remove the nuts [28], washers [27], bolt [20] and bolt [26] that attach the rubcap [17] to the bellcrank assembly [19].

(b) Remove the nut [24], washer [23], washer [22] and bolt [21] that attach the bellcrank assembly [19] to the carriage assembly [1].

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(c) Measure and record the distance between the center of the bolt hole in the adjustment fitting [54] and the bellcrank assembly [19].

NOTE: This distance is referred to as Dimension A. This dimension will be used during the installation of the bellcrank assembly [19].

SUBTASK 27-51-23-980-001

(3) Manually extend the aft flap [3] away from the main flap [2].

SUBTASK 27-51-23-010-001

(4) Remove the leading edge skin panel [33] from the main flap [2] forward of the carriage assembly [1]:

(a) Remove the bolts [34] that attach the leading edge skin panel [33].

(b) Remove the leading edge skin panel [33] from the main flap [2].

SUBTASK 27-51-23-020-004

(5) Remove the nut [7], washer [6], washer [5] and bolt [4] that attach the failsafe link [15] to the carriage assembly [1].

(a) Move the failsafe link [15] away from the carriage assembly [1].

SUBTASK 27-51-23-020-005

(6) Remove the carriage assembly [1] from the main flap [2]:

(a) Remove the nut [52], washer [51], bushing [50], washer [49] and bolt [48] that attach the aft link assembly [35] to the aft link fitting assembly [47].

(b) Remove the nut [36] and washer [37] that attach the aft link assembly [35] to the main flap [2].

(c) Remove the aft link assembly [35] from the aft link fitting assembly [47] and the main flap [2].

(d) Remove the nut [30] and washer [31] that attach the forward end of the carriage assembly [1] to the main flap [2].

(e) Move the carriage assembly [1] forward, away from the main flap [2].

SUBTASK 27-51-23-020-006

(7) If it is necessary, remove the nut [42], washer [43] and washer [44] that attach the failsafe link [15] to the main flap [2].

SUBTASK 27-51-23-020-007

(8) If it is necessary, remove the aft link fitting assembly [47] from the carriage assembly [1]:

(a) Remove the nuts [41], washers [40] and bolts [39] that attach the aft link fitting assembly [47] to the carriage assembly [1].

(b) Measure and record the thickness of the shims [46].

END OF TASK

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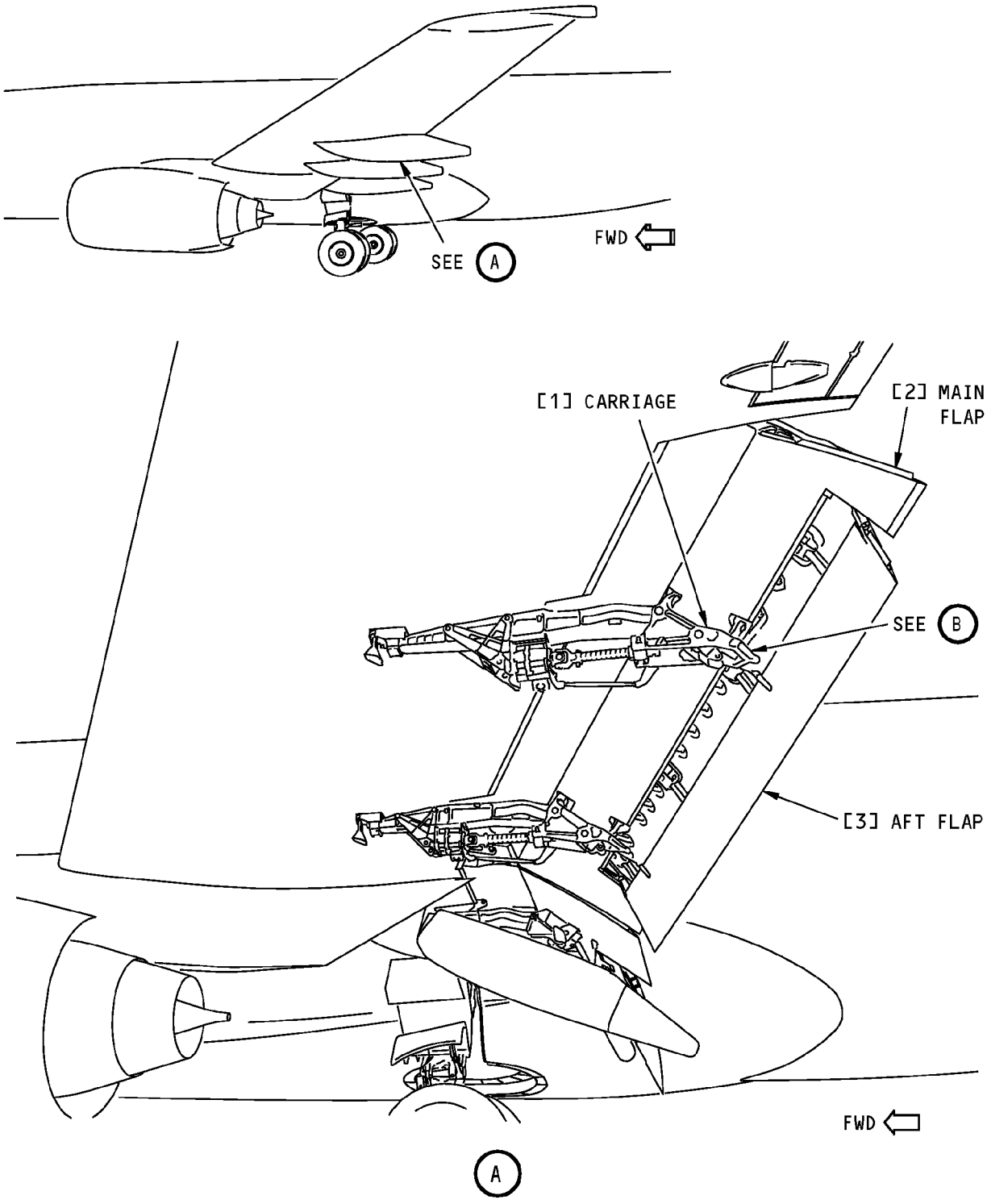

Outboard Flap Outboard Carriage Installation
Figure 401 (Sheet 1 of 4)/27-51-23-990-801

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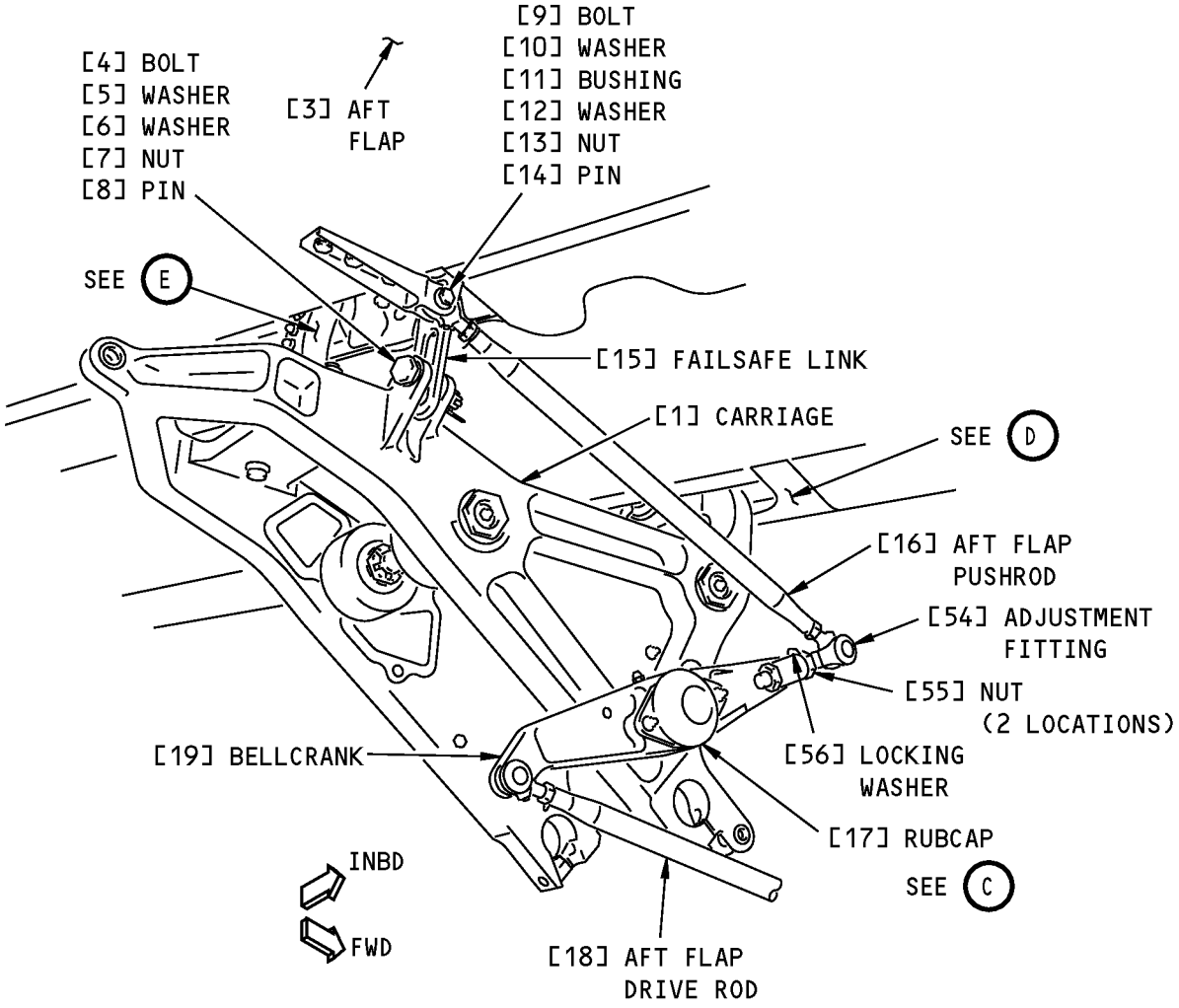

OUTBOARD FLAP OUTBOARD CARRIAGE

B

Outboard Flap Outboard Carriage Installation
Figure 401 (Sheet 2 of 4)/27-51-23-990-801

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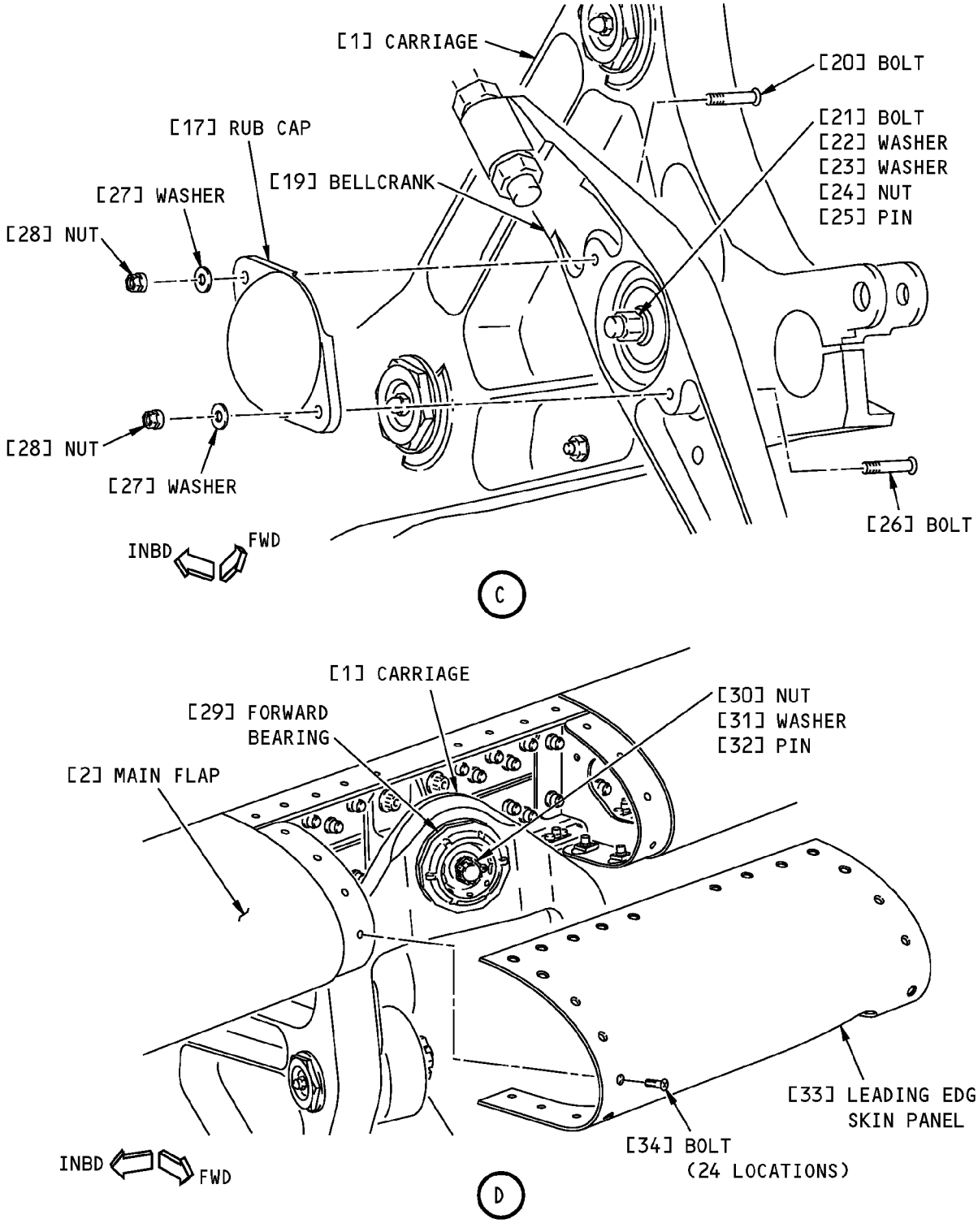

Outboard Flap Outboard Carriage Installation
Figure 401 (Sheet 3 of 4)/27-51-23-990-801

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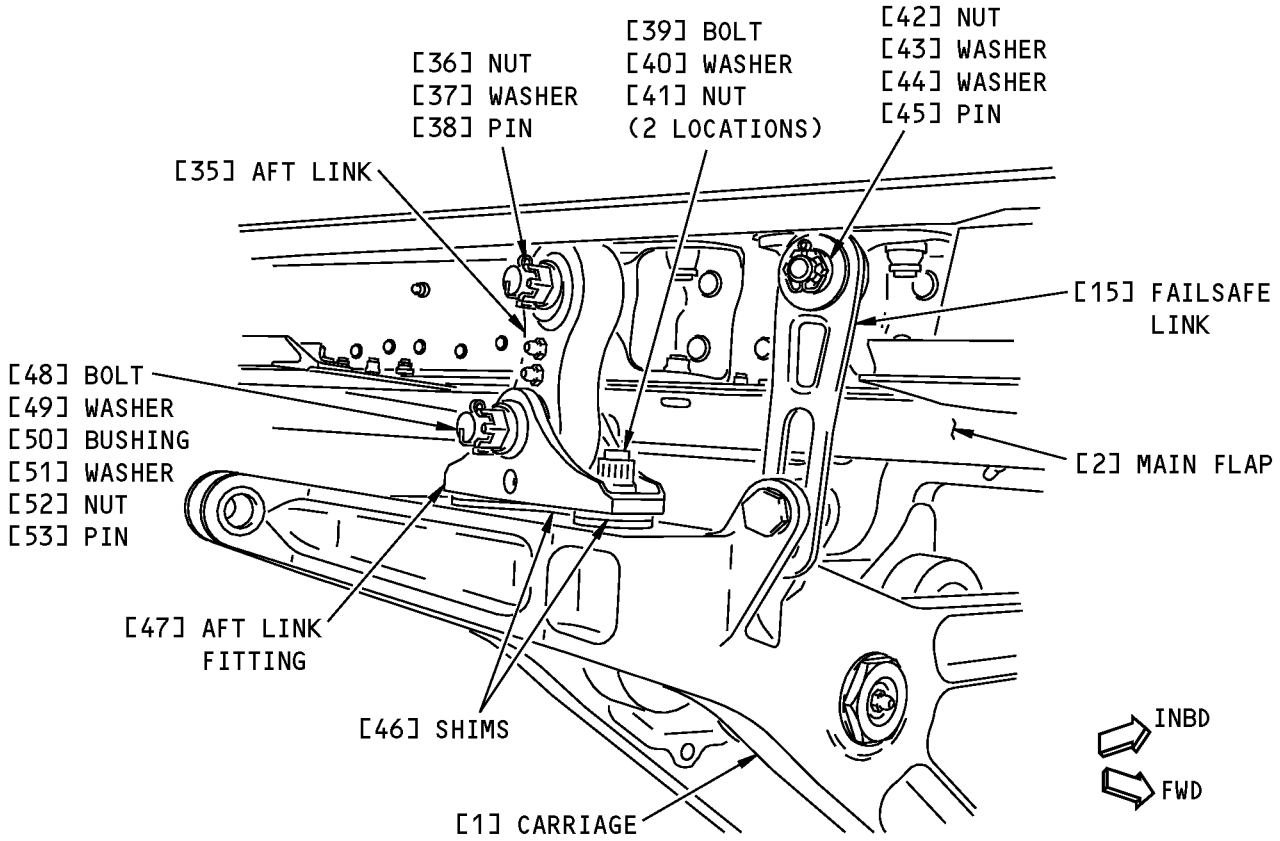

Outboard Flap Outboard Carriage Installation
Figure 401 (Sheet 4 of 4)/27-51-23-990-801

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TASK 27-51-23-400-801

3. Outboard Flap Outboard Carriage Installation

(Figure 401)

A. General

(1) This task is applicable to the flap carriages at flap supports No. 1 and 8.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-21-400-801	Outboard Trailing Edge Flap Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Carriage assembly	27-51-23-01-050	HAP ALL
		27-51-23-01-055	HAP ALL
		27-51-23-01-400	HAP ALL
		27-51-23-01-405	HAP ALL
8	Pin	27-51-23-01-010	HAP ALL
14	Pin	27-51-24-01-010	HAP ALL
15	Link	27-51-23-01-045	HAP ALL
17	Rubcap	27-51-24-01-150	HAP ALL
19	Bellcrank assembly	27-51-24-01-350	HAP 001-013, 015-026, 028-030
		27-51-24-01-352	HAP ALL
		27-51-24-01-355	HAP 001-013, 015-026, 028-030
		27-51-24-01-356	HAP ALL
25	Pin	27-51-21-01-010	HAP 031-054, 101-999
		27-51-24-01-155	HAP ALL
32	Pin	27-51-23-01-130	HAP ALL
		27-51-23-01-465	HAP ALL
35	Link assembly	27-51-23-01-095	HAP ALL
		27-51-23-01-435	HAP ALL
38	Pin	27-51-21-01-015	HAP 001, 006, 007, 031-054, 101-999
45	Pin	27-51-21-01-010	HAP 031-054, 101-999
47	Fitting assembly	27-51-23-01-105	HAP ALL
		27-51-23-01-440	HAP ALL
53	Pin	27-51-23-01-070	HAP ALL

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
53 (cont.)		27-51-23-01-410	HAP ALL

E. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
567	Left Wing - Outboard Flap
644	Right Wing - Fairing Flap Support No. 8
667	Right Wing - Outboard Flap

F. Outboard Flap Outboard Carriage Installation

SUBTASK 27-51-23-020-008

(1) If it is installed, remove the aft link assembly [35] from the carriage assembly [1].

(a) Remove the nut [52], washer [51], bushing [50], washer [49] and bolt [48] that attach the aft link assembly [35] to the aft link fitting assembly [47].

SUBTASK 27-51-23-420-001

(2) If it is not installed, install the aft link fitting assembly [47] on the carriage assembly [1]:

(a) Apply sealant, A00247 to the mating surfaces of the shims [46].

(b) Put the shims [46] in their location between the aft link fitting assembly [47] and the carriage assembly [1].

NOTE: Use the same thickness of shims that you removed. The maximum total thickness of the shims [46] is 0.50 inch (12.7 mm). The minimum total thickness of the shims [46] is 0.00 inch (0.0 mm).

(c) Apply compound, C00913 to the shank and threads of the bolts [39].

(d) Install the bolts [39], washers [40] and nuts [41] to attach the aft link fitting assembly [47] to the carriage assembly [1].

SUBTASK 27-51-23-420-002

(3) Install the outboard carriage assembly [1] on the main flap [2]:

(a) Put the carriage assembly [1] in its location on the main flap [2], with the forward spindle on the main flap [2] through the forward bearing [29].

(b) Install the washer [31] and nut [30] that attach the forward end of the carriage assembly [1] to the main flap [2].

(c) Tighten the nut [30] to 500-700 pound-inches (56.5-79.0 newton-meters).

(d) Install the pin [32] in the nut [30].

(e) Install the aft link assembly [35] on the main flap [2] and the aft link fitting assembly [47]:

1) Put the aft link assembly [35] in its position on the main flap [2].

NOTE: Make sure the lubrication fittings on the aft link assembly [35] are on the aft side.

2) Install the bolt [48], washer [49], bushing [50], washer [51] and nut [52] that attach the aft link assembly [35] to the aft link fitting assembly [47].

3) Install the pin [53] in the nut [52].

4) Install the washer [37] and nut [36] that attach the aft link assembly [35] to the main flap [2].

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5) Tighten the nut [36] to 1000-1300 pound-inches (113.0-146.8 newton-meters).

6) Install the pin [38] in the nut [36].

SUBTASK 27-51-23-420-003

(4) If it is not installed, install the failsafe link [15] on the main flap [2]:

(a) Put the failsafe link [15] in its position on the main flap [2].

NOTE: Make sure the slot on the failsafe link [15] is down.

(b) Install the washer [44], washer [43], and nut [42] to attach the failsafe link [15] to the main flap [2].

(c) Tighten the nut [42] to 270-300 pound-inches (30.6-33.8 newton-meters).

(d) Install the cotter pin [45] in the nut [42].

SUBTASK 27-51-23-420-004

(5) Connect the failsafe link [15] to the carriage assembly [1]:

(a) Apply compound, C00528 to the holes in the carriage assembly [1] for the bolt [4].

(b) Install the bolt [4], washer [5], washer [6] and nut [7] that connect the failsafe link [15] to the carriage assembly [1].

(c) Tighten the nut [7] to 270-300 pound-inches (30.6-33.8 newton-meters).

(d) Install the pin [8] in the nut [7].

SUBTASK 27-51-23-410-001

(6) Install the leading edge skin panel [33] on the main flap [2] forward of the carriage assembly [1]:

(a) Put the leading edge skin panel [33] in its location on the leading edge of the main flap [2].

(b) Apply compound, C00528 to the holes for the bolts [34].

(c) Install the bolts [34] to attach the leading edge skin panel [33].

(d) Apply sealant, A00247 to fill all of the clearances around the leading edge skin panel [33] that are more than 0.05 inch (1.27 millimeters).

SUBTASK 27-51-23-420-005

(7) Install the bellcrank assembly [19] on the carriage assembly [1]:

(a) Make sure the bellcrank assembly [19] is the correct length:

NOTE: The length of the bellcrank assembly [19] can be changed to adjust for lateral trim problems.

1) Measure the distance between the center of the bolt hole in the adjustment fitting [54]and the bellcrank assembly [19].

NOTE: This distance is referred to as Dimension A.

2) Make sure the Dimension A on the bellcrank assembly [19] you will install is the same as the bellcrank assembly [19] that you removed.

NOTE: The nominal dimension of the outboard bellcrank assembly [19] is 13.74 inches.

3) If the bellcrank assembly [19] is not the correct length, adjust the bellcrank assembly [19]:

a) Loosen the nuts [55] on the adjustment fitting [54] until the locking washer [56] is disengaged from the bellcrank assembly [19].

b) Change the position of the adjustment fitting [54].

c) Engage the locking washer [56] with the bellcrank assembly [19].

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d) Tighten the nuts [55] on the adjustment fitting [54].

e) Install lockwire on the nuts [55].

(b) Apply grease, D00633 to the shank of the bolt [21].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolt [21].

(c) Put the bellcrank assembly [19] in its position on the carriage assembly [1].

(d) Install the bolt [21] and washer [22] that attach the bellcrank assembly [19] to the carriage assembly [1].

(e) Carefully clean all of the grease, D00633 from the threads of the bolt [21].

(f) Install the nut [24] and washer [23] on the bolt [21].

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-57-1278

(g) Tighten the nut [24] to 760-840 pound-inches (96-121 newton-meters).

HAP 001-013, 015-026, 028-030 PRE SB 737-57-1278

(h) Tighten the nut [24] to 240-410 pound-inches (27-46 newton-meters).

HAP ALL

(i) Install the pin [25] in the nut [24].

(j) Attach the rubcap [17] to the bellcrank assembly [19] with the bolt [20], bolt [26], washers [27] and nuts [28].

SUBTASK 27-51-23-420-006

(8) Connect the aft flap pushrod [16] to the aft flap [3]:

(a) Apply grease, D00633 to the shank of the bolt [9] and the inside of the bushing [11].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolt [9].

(b) Install the bushing [11], bolt [9] and washer [10] to attach the aft flap pushrod [16] to the aft flap [3].

NOTE: Make sure the head of the bolt [9] is inboard.

(c) Carefully clean all of the grease, D00633 from the threads of the bolt [9].

(d) Install the nut [13] and washer [12] on the bolt [9].

(e) Tighten the nut [13] to 65-100 pound-inches (7.4-11.2 newton-meters).

(f) Install the pin [14] in the nut [13].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-23-420-007

(1) Do this task: Outboard Trailing Edge Flap Installation, TASK 27-51-21-400-801.

SUBTASK 27-51-23-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

TASK 27-51-23-000-802

4. Outboard Flap Inboard Carriage Removal

(Figure 402)

A. General

(1) This task is applicable to the flap carriages at flap supports No. 2 and 7.

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B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-21-000-801	Outboard Trailing Edge Flap Removal (P/B 401)

C. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
567	Left Wing - Outboard Flap
643	Right Wing - Fairing Flap Support No. 7
667	Right Wing - Outboard Flap

D. Prepare for the Removal

SUBTASK 27-51-23-040-002

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-23-020-009

(2) Do this task: Outboard Trailing Edge Flap Removal, TASK 27-51-21-000-801.

E. Inboard Flap Inboard Carriage Removal

SUBTASK 27-51-23-020-010

(1) Remove the nut [81], washer [80], washer [78], bolt [77] and bushing [79] that attach the aft flap pushrod [84] to the aft flap [3].

SUBTASK 27-51-23-020-011

(2) Remove the bellcrank assembly [85] from the carriage assembly [71]:

NOTE: You can remove the aft flap drive rod [87] and the aft flap pushrod [84] with the bellcrank assembly [85].

(a) Remove the nuts [96], washers [95], bolt [88] and bolt [94] that attach the rubcap [86] to the bellcrank assembly [85].

(b) Remove the nut [92], washer [91], washer [90] and bolt [89] that attach the bellcrank assembly [85] to the carriage assembly [71].

(c) Measure and record the distance between the center of the bolt hole in the adjustment fitting [122] and the bellcrank assembly [85].

NOTE: This distance is referred to as Dimension A. This dimension will be used during the installation of the bellcrank assembly [85].

SUBTASK 27-51-23-980-002

(3) Manually extend the aft flap [3] away from the main flap [2].

SUBTASK 27-51-23-010-002

(4) Remove the leading edge skin panel [100] from the main flap [2] forward of the carriage assembly [71]:

(a) Remove the bolts [101] that attach the leading edge skin panel [100].

(b) Remove the ileading edge skin panel [100] from the main flap [2].

SUBTASK 27-51-23-020-012

(5) Remove the nut [75], washer [74], washer [73] and bolt [72] that attach the failsafe link [83] to the carriage assembly [71].

(a) Move the failsafe link [83] away from the carriage assembly [71].

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SUBTASK 27-51-23-020-013

(6) Remove the carriage assembly [71] from the main flap [2]:

(a) Remove the nut [120], washer [119], bushing [118], washer [117] and bolt [116] that attach the aft link assembly [103] to the aft link fitting assembly [115].

(b) Remove the nut [104] and washer [105] that attach the aft link assembly [103] to the main flap [2].

(c) Remove the aft link assembly [103] from the aft link fitting assembly [115] and the main flap [2].

(d) Remove the nut [97] and washer [98] that attach the forward end of the carriage assembly [71] to the main flap [2].

(e) Move the carriage assembly [71] forward, away from the main flap [2].

SUBTASK 27-51-23-020-014

(7) If it is necessary, remove the nut [107], washer [108] and washer [109] that attach the failsafe link [83] to the main flap [2].

SUBTASK 27-51-23-020-015

(8) If it is necessary, remove the aft link fitting assembly [115] from the carriage assembly [71]:

(a) Remove the nuts [113], washers [112] and bolts [111] that attach the aft link fitting assembly [115] to the carriage assembly [71].

(b) Measure and record the thickness of the shims [114].

———————— END OF TASK ————————

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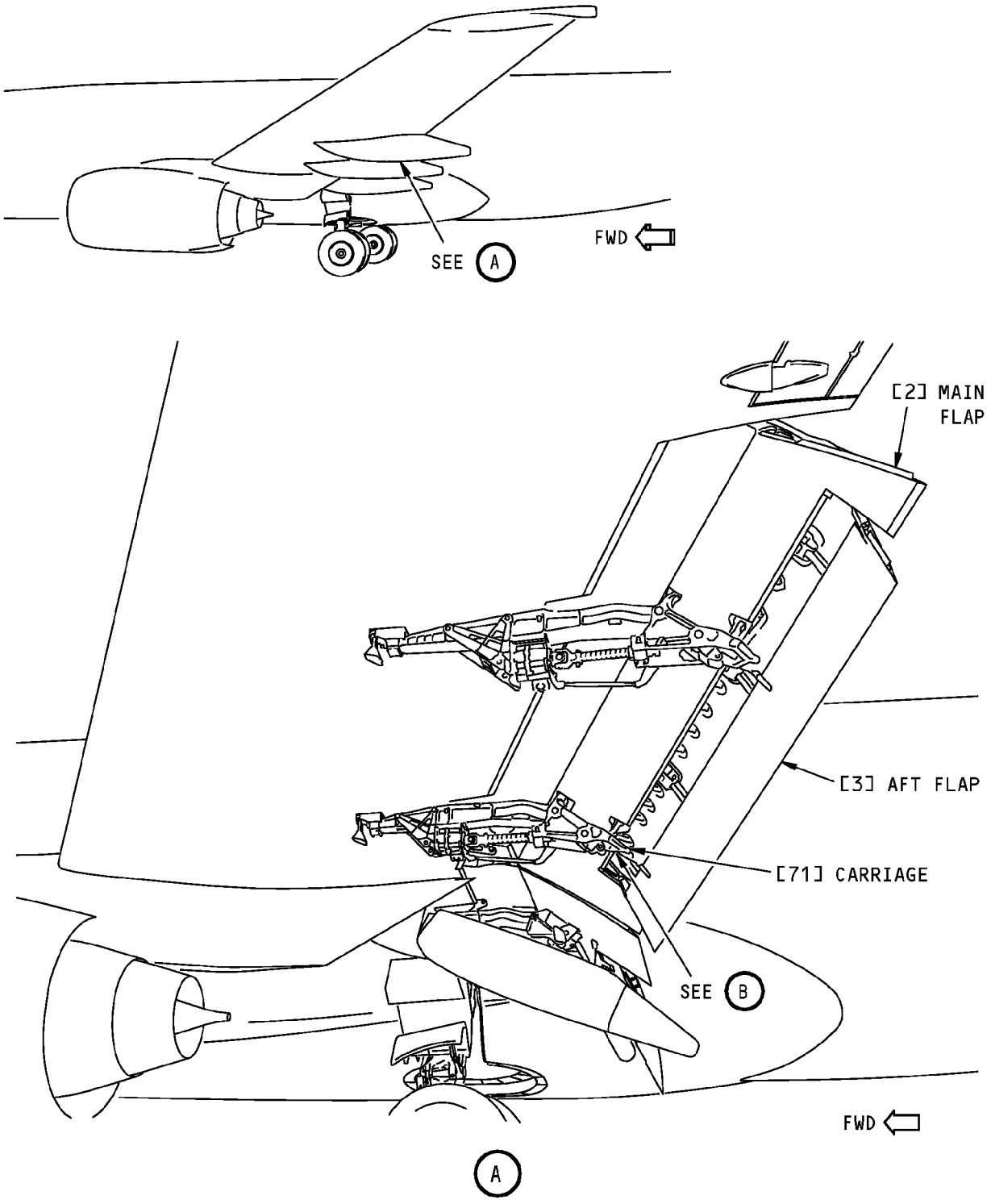

Outboard Flap Inboard Carriage Installation
Figure 402 (Sheet 1 of 4)/27-51-23-990-802

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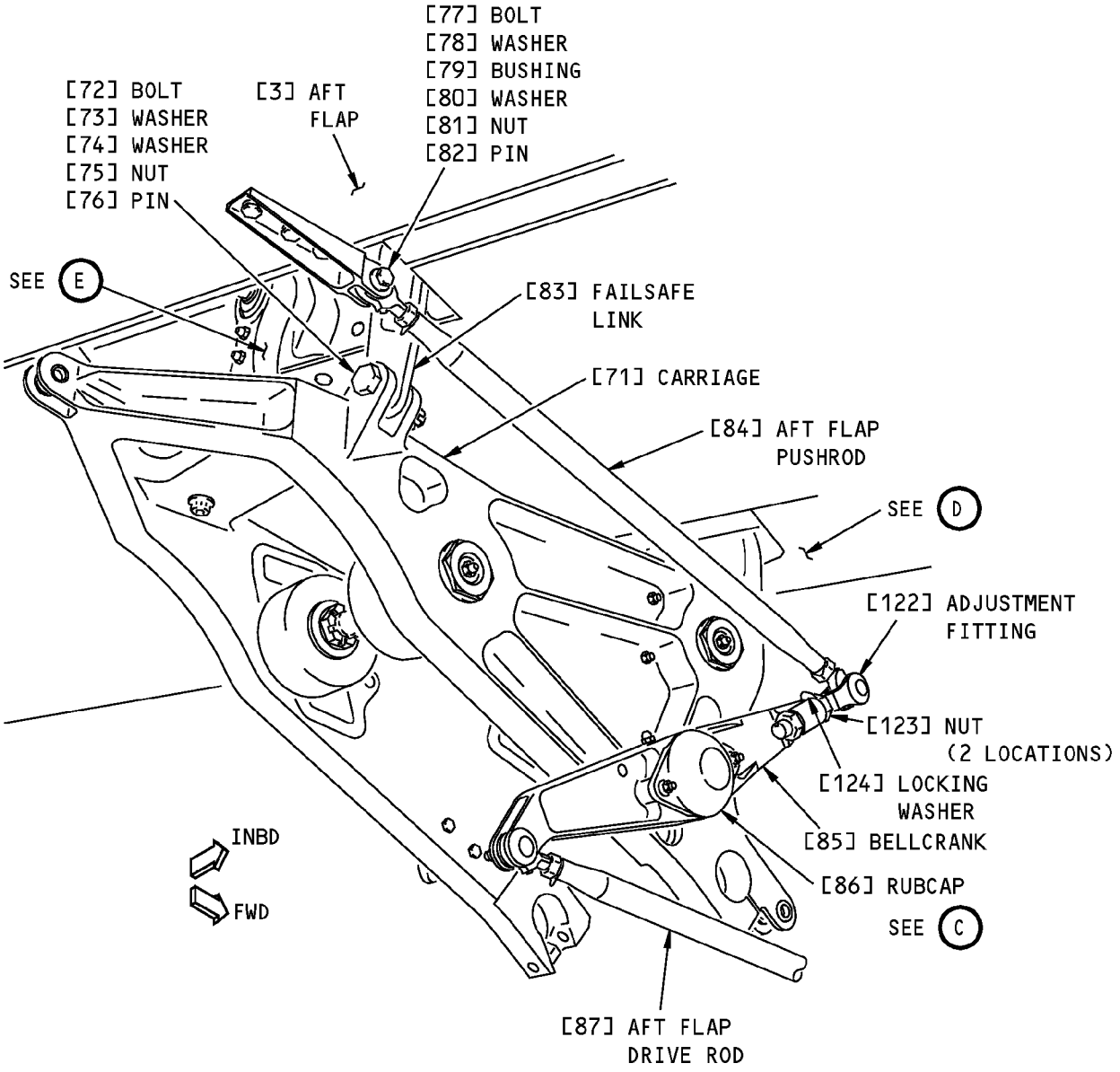

OUTBOARD FLAP INBOARD CARRIAGE

B

Outboard Flap Inboard Carriage Installation
Figure 402 (Sheet 2 of 4)/27-51-23-990-802

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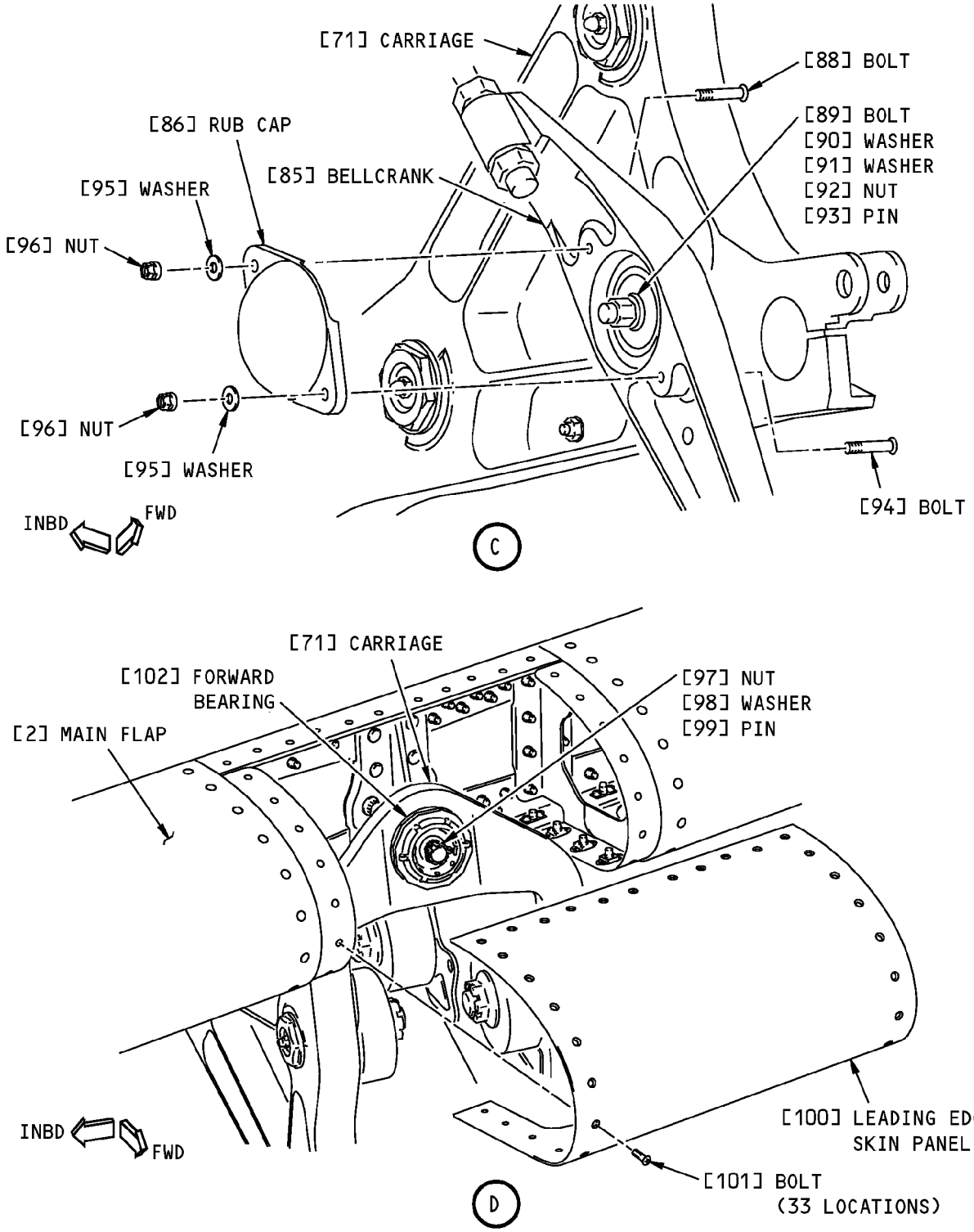

Outboard Flap Inboard Carriage Installation
Figure 402 (Sheet 3 of 4)/27-51-23-990-802

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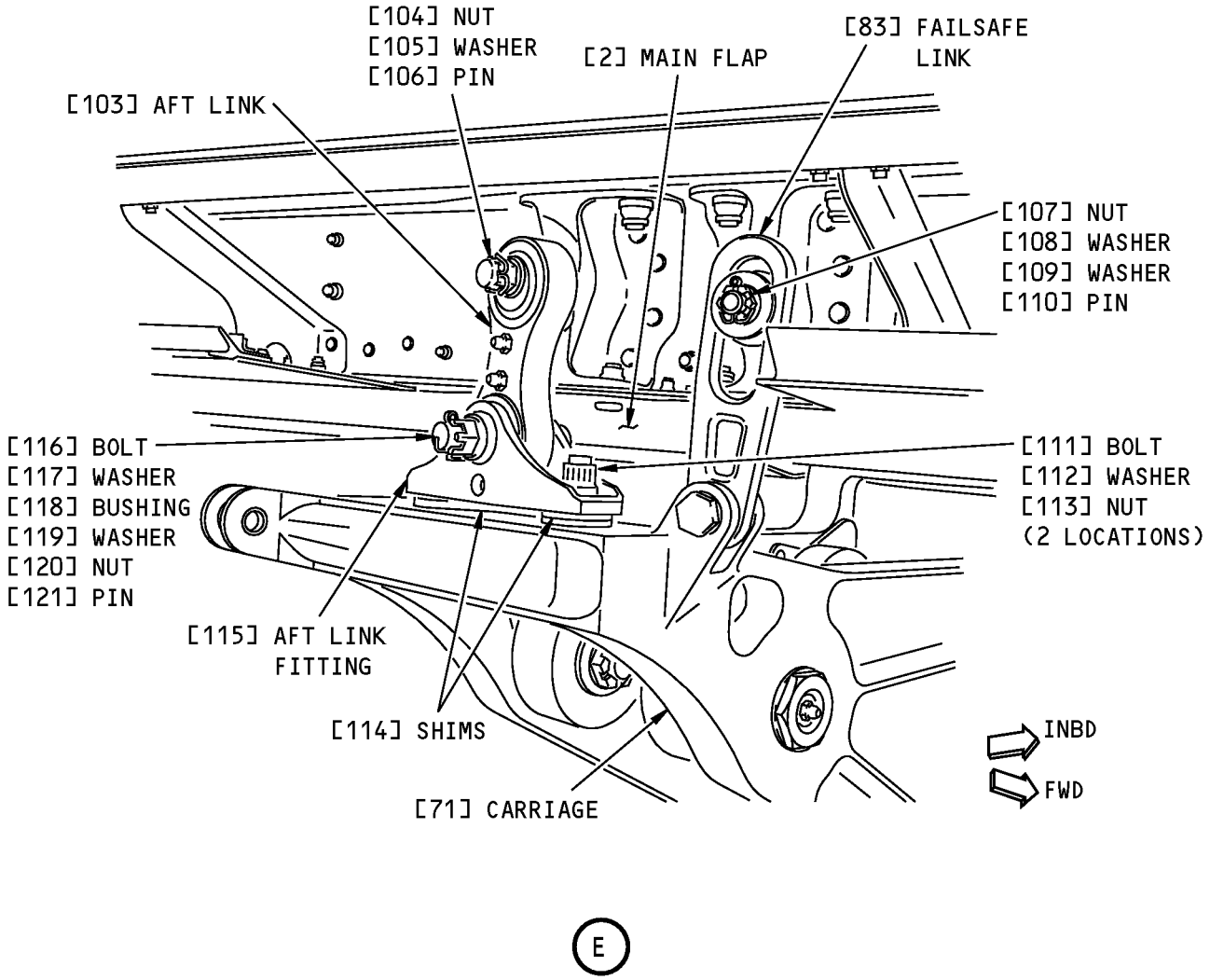

Outboard Flap Inboard Carriage Installation
Figure 402 (Sheet 4 of 4)/27-51-23-990-802

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TASK 27-51-23-400-802

5. Outboard Flap Inboard Carriage Installation

(Figure 402)

A. General

(1) This task is applicable to the flap carriages at flap supports No. 2 and 7.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-21-400-801	Outboard Trailing Edge Flap Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
71	Carriage assembly	27-51-23-01-050	HAP ALL
		27-51-23-01-055	HAP ALL
76	Pin	27-51-23-01-010	HAP ALL
82	Pin	27-51-24-01-010	HAP ALL
83	Link	27-51-23-01-040	HAP ALL
85	Bellcrank assembly	27-51-24-01-180	HAP 001-013, 015-026, 028-030
		27-51-24-01-181	HAP ALL
		27-51-24-01-182	HAP 001-013, 015-026, 028-030
		27-51-24-01-183	HAP ALL
86	Rubcap	27-51-24-01-150	HAP ALL
93	Pin	27-51-21-01-010	HAP 031-054, 101-999
		27-51-24-01-155	HAP ALL
99	Pin	27-51-21-01-010	HAP 031-054, 101-999
		27-51-23-01-130	HAP ALL
		27-51-23-01-465	HAP ALL
103	Link assembly	27-51-23-01-095	HAP ALL
106	Pin	27-51-21-01-015	HAP 001, 006, 007, 031-054, 101-999
110	Pin	27-51-21-01-010	HAP 031-054, 101-999
115	Fitting assembly	27-51-23-01-105	HAP ALL
121	Pin	27-51-23-01-070	HAP ALL
		27-51-23-01-410	HAP ALL

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E. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
567	Left Wing - Outboard Flap
643	Right Wing - Fairing Flap Support No. 7
667	Right Wing - Outboard Flap

F. Outboard Flap Inboard Carriage Installation

SUBTASK 27-51-23-020-016

(1) If it is installed, remove the aft link assembly [103] from the carriage assembly [71].

(a) Remove the nut [120], washer [119], bushing [118], washer [117] and bolt [116] that attach the aft link assembly [103] to the aft link fitting assembly [115].

SUBTASK 27-51-23-420-008

(2) If it is not installed, install the aft link fitting assembly [115] on the carriage assembly [71]:

(a) Apply sealant, A00247 to the mating surfaces of the shims [114].

(b) Put the shims [114] in their location between the aft link fitting assembly [115] and the carriage assembly [71].

NOTE: Use the same thickness of shims [114] that you removed. The maximum total thickness of the shims [114] is 0.50 inch (12.7 mm). The minimum total thickness of the shims [114] is 0.00 inch (0.0 mm).

(c) Apply compound, C00913 to the shank and threads of the bolts [111].

(d) Install the bolts [111], washers [112] and nuts [113] to attach the aft link fitting assembly [115] to the carriage assembly [71].

SUBTASK 27-51-23-420-009

(3) Install the outboard carriage assembly [71] on the main flap [2]:

(a) Put the carriage assembly [71] in its location on the main flap [2], with the forward spindle through the forward bearing [102].

(b) Install the washer [98] and nut [97] to attach the forward end of the carriage assembly [71] to the main flap [2].

(c) Tighten the inut [97] to 500-700 pound-inches (56.5-79.0 newton-meters).

(d) Install the pin [99] in the nut [97].

(e) Install the aft link assembly [103] on the main flap [2] and the aft link fitting assembly [115]:

1) Put the aft link assembly [103] in its position on the main flap [2].

NOTE: Make sure the lubrication fittings on the aft link assembly [103] are on the aft side.

2) Install the bolt [116], washer [117], bushing [118], washer [119] and nut [120] that attach the aft link assembly [103] to the aft link fitting assembly [115].

3) Install the pin [121] in the nut [120].

4) Install the washer [105] and nut [104] that attach the aft link assembly [103] to the main flap [2].

5) Tighten the nut [104] to 1000-1300 pound-inches (113.0-146.8 newton-meters).

6) Install the pin [106] in the nut [104].

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SUBTASK 27-51-23-420-010

(4) If it is not installed, install the failsafe link [83] on the main flap [2]:

(a) Put the failsafe link [83] in its position on the main flap [2].

NOTE: Make sure the slot on the failsafe link [83] is up.

(b) Install the washer [109], washer [108] and nut [107] to attach the failsafe link [83] to the main flap [2].

(c) Tighten the nut [107] to 270-300 pound-inches (30.5-33.8 newton-meters).

(d) Install the pin [110] in the nut [107].

SUBTASK 27-51-23-420-011

(5) Connect the failsafe link [83] to the carriage assembly [71]:

(a) Apply compound, C00528 to the holes in the carriage assembly [71] for the bolt [72].

(b) Install the bolt [72], washer [73], washer [74] and nut [75] that connect the failsafe link [83] to the carriage assembly [71].

NOTE: Bolt direction is optional; bolt head forward is preferred.

(c) Tighten the nut [75] to 270-300 pound-inches (30.5-33.8 newton-meters).

(d) Install the pin [76] in the nut [75].

SUBTASK 27-51-23-410-002

(6) Install the leading edge skin panel [100] on the main flap [2] forward of the carriage assembly [71]:

(a) Put the leading edge skin panel [100] in its location on the leading edge of the main flap [2].

(b) Apply compound, C00528 to the holes for the bolts [101].

(c) Install the bolts [101] to attach the leading edge skin panel [100].

(d) Apply sealant, A00247 to fill all of the clearances around the leading edge skin panel [100] that are more than 0.05 inch (1.3 millimeters).

SUBTASK 27-51-23-420-012

(7) Install the bellcrank assembly [85] on the carriage assembly [71]:

(a) Make sure the bellcrank assembly [85] is the correct length:

NOTE: The length of the bellcrank assembly [85] can be changed to adjust for lateral trim problems.

1) Measure the distance between the center of the bolt hole in the adjustment fitting [122] and the bellcrank assembly [85].

NOTE: This distance is referred to as Dimension A.

2) Make sure the Dimension A on the bellcrank assembly [85] you will install is the same as the bellcrank assembly [85] that you removed.

NOTE: The nominal dimension of the inboard bellcrank assembly [85] is 14.56 inches.

3) If the bellcrank assembly [85] is not the correct length, adjust the bellcrank assembly [85]:

a) Loosen the nuts [123] on the adjustment fitting [122] until the locking washer [124] is disengaged from the bellcrank assembly [85].

b) Change the position of the adjustment fitting [122].

c) Engage the locking washer [124] with the bellcrank assembly [85].

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d) Tighten the nuts [123] on the adjustment fitting [122].

e) Install lockwire on the nuts [123].

(b) Apply grease, D00633 to the shank of the bolt [89].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolt [89].

(c) Put the bellcrank assembly [85] in its position on the carriage assembly [71].

(d) Install the bolt [89] and to attach the bellcrank assembly [85] to the carriage assembly [71].

(e) Carefully clean all of the grease, D00633 from the threads of the bolt [89].

(f) Install the nut [92] and washer [91] on the bolt [89].

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-57-1278

(g) Tighten the nut [92] to 760-840 pound-inches (27.2-46.3 newton-meters).

HAP 001-013, 015-026, 028-030 PRE SB 737-57-1278

(h) Tighten the nut [92] to 240-410 pound-inches (27.2-46.3 newton-meters).

HAP ALL

(i) Install the pin [93] in the nut [92].

(j) Attach the rubcap [86] to the bellcrank assembly [85] with the bolt [88], bolt [94], washer [95] and nut [96].

SUBTASK 27-51-23-420-013

(8) Connect the aft flap pushrod [84] to the aft flap [3]:

(a) Apply grease, D00633 to the shank of the bolt [77] and the inside of the bushing [79].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolt [77].

(b) Install the bushing [79], bolt [77] and washer [78] to attach the aft flap pushrod [84] to the aft flap [3].

NOTE: Make sure the head of the bolt [77] is inboard.

(c) Carefully clean all of the grease, D00633 from the threads of the bolt [77].

(d) Install the nut [81] and washer [80] on the bolt [77].

(e) Tighten the nut [81] to 65-100 pound-inches (7.4-11.2 newton-meters).

(f) Install the pin [82] in the nut [81].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-23-420-014

(1) Do this task: Outboard Trailing Edge Flap Installation, TASK 27-51-21-400-801.

SUBTASK 27-51-23-440-002

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

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OUTBOARD FLAP CARRIAGES - INSPECTION/CHECK

1. General

A. This procedure contains the task to do an inspection of the carriages for the inboard trailing edge flaps.

TASK 27-51-23-200-801

2. Outboard Flap Outboard Carriage Inspection

(Figure 601)

A. General

(1) This task gives wear limits for the outboard carriage on the outboard flap.

(2) This task is applicable to the carriages at flap supports No. 1 and 8.

B. References

Reference	Title
27-51-23-000-801	Outboard Flap Outboard Carriage Removal (P/B 401)
27-51-23-400-801	Outboard Flap Outboard Carriage Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

E. Procedure

SUBTASK 27-51-23-020-017

(1) Do this task: Outboard Flap Outboard Carriage Removal, TASK 27-51-23-000-801.

SUBTASK 27-51-23-020-018

(2) Use these tools to do a check for wear on the part of the outboard flap outboard carriage:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-51-23-020-019

(3) Examine the parts of the outboard flap outboard carriage (Table 601):

(a) Remove the parts that you will measure.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

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Table 601/27-51-23-993-805

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 BUSHING	I.D.	1.2495 in 31.737 mm	1.2505 in 31.763 mm	1.2523 in 31.808 mm	0.0050 in 0.1270 mm
#1 PIN	O.D.	1.2480 in 31.699 mm	1.2490 in 31.725 mm	1.2463 in 31.656 mm	
#2 ROLLER	I.D.	1.2493 in 31.732 mm	1.2500 in 31.750 mm	1.2510 in 31.775 mm	0.0050 in 0.1270 mm
#2 PIN	O.D.	1.2480 in 31.699 mm	1.2490 in 31.725 mm	1.2470 in 31.674 mm	
#3 ROLLER	O.D.	2.9990 in 76.175 mm	3.0010 in 76.225 mm	2.9970 in 76.124 mm	
#4 BUSHING	I.D.	1.1870 in 30.150 mm	1.1878 in 30.170 mm	1.1888 in 30.196 mm	0.0050 in 0.1270 mm
#4 PIN	O.D.	1.1855 in 30.111 mm	1.1865 in 30.137 mm	1.1845 in 30.086 mm	
#5 ROLLER	I.D.	1.1868 in 30.145 mm	1.1875 in 30.163 mm	1.1885 in 30.188 mm	0.0050 in 0.1270 mm
#5 PIN	O.D.	1.1855 in 30.112 mm	1.1865 in 30.137 mm	1.1855 in 30.112 mm	
#6 ROLLER	O.D.	2.9990 in 76.175 mm	3.0010 in 76.225 mm	2.9970 in 76.124 mm	
#7 BUSHING	I.D.	0.5620 in 14.275 mm	0.5625 in 14.288 mm	0.5625 in 14.288 mm	0.0015 in 0.0381 mm
#7 BOLT	O.D.	0.5610 in 14.249 mm	0.5615 in 14.262 mm	0.5610 in 14.249 mm	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#8 BUSHING	I.D.	0.8120 in 20.625 mm	0.8128 in 20.645 mm	0.8128 in 20.645 mm	0.0018 in 0.0457 mm
#8 BUSHING	O.D.	0.8110 in 20.599 mm	0.8115 in 20.612 mm	0.8110 in 20.599 mm	
#9 BEARING	I.D.	0.5620 in 14.275 mm	0.5628 in 14.295 mm	0.5628 in 14.295 mm	0.0018 in 0.0457 mm
#9 BOLT	O.D.	0.5610 in 14.249 mm	0.5615 in 14.262 mm	0.5610 in 14.249 mm	
#10 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2505 in 6.3627 mm	0.0020 in 0.0508 mm
#10 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	
#11 BEARING	I.D.	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.0015 in 0.0381 mm
#11 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	
#12 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2505 in 6.3627 mm	0.0020 in 0.0508 mm
#12 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	
#13 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3756 in 9.5402 mm	0.0016 in 0.0406 mm
#13 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3740 in 9.4996 mm	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#14 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2505 in 6.3627 mm	0.0020 in 0.0508 mm
#14 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	
#15 BEARING	I.D.	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.0015 in 0.0381 mm
#15 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	
#16 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2506 in 6.3627 mm	0.2506 in 6.3652 mm	0.0021 in 0.0533 mm
#16 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	
#17 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3756 in 9.5402 mm	0.0016 in 0.0406 mm
#17 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3740 in 9.4996 mm	

SUBTASK 27-51-23-420-015

(4) Do this task: Outboard Flap Outboard Carriage Installation, TASK 27-51-23-400-801.

———————— END OF TASK ————————

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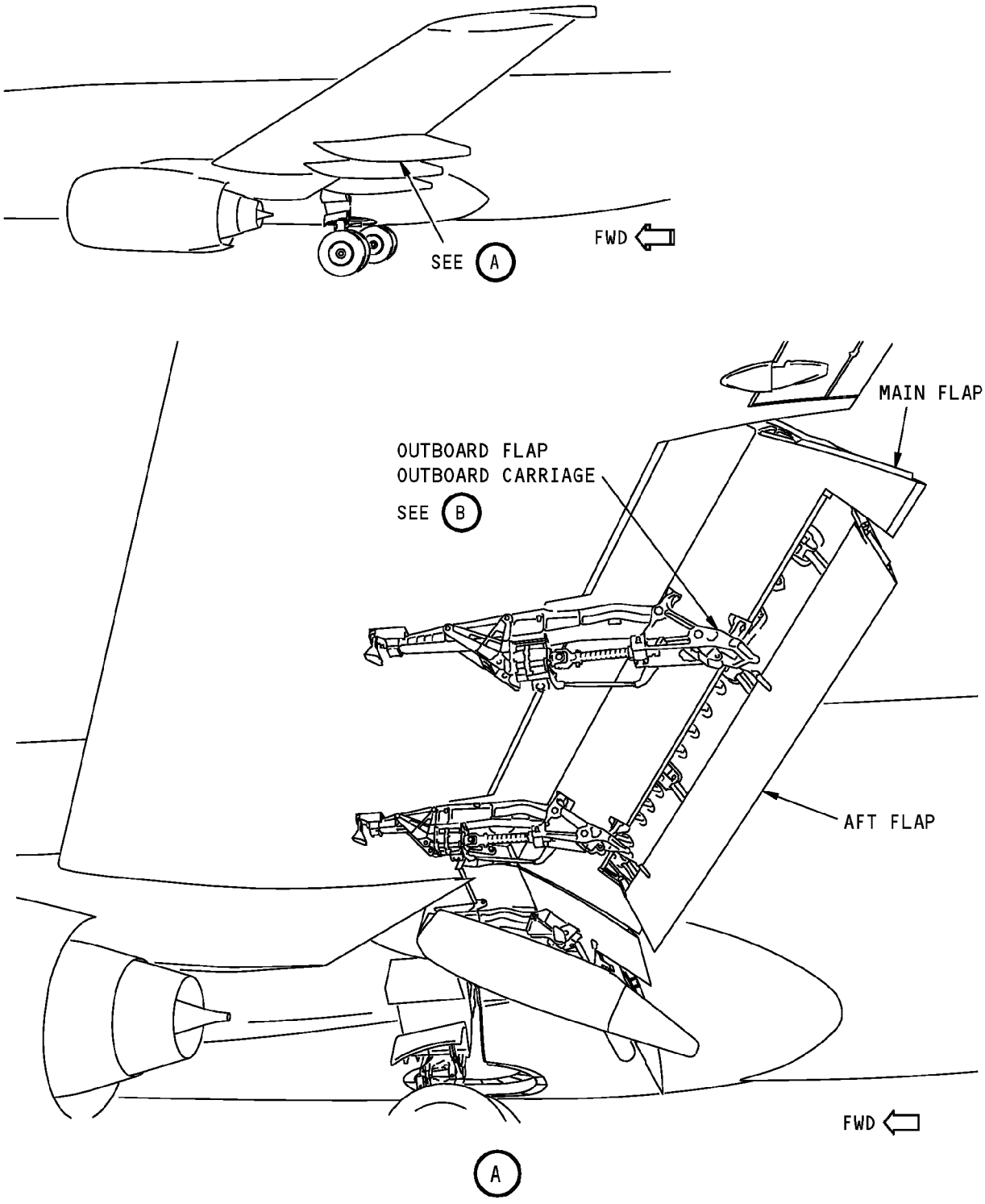

Outboard Flap Outboard Carriage Wear Limits
Figure 601 (Sheet 1 of 4)/27-51-23-990-803

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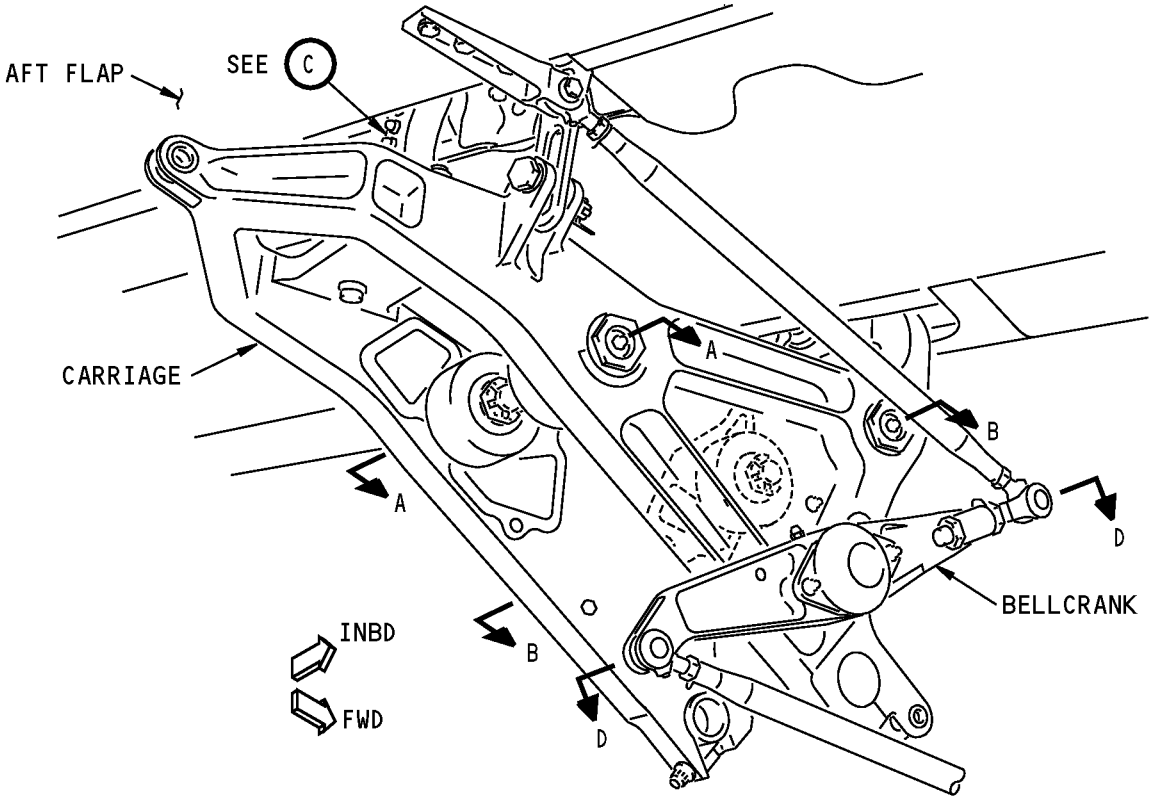
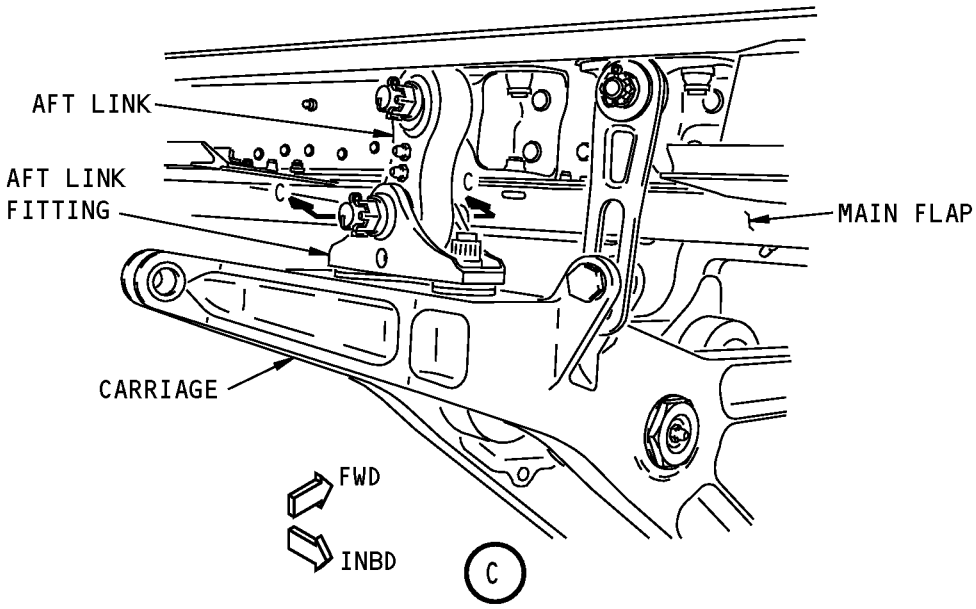


OUTBOARD FLAP OUTBOARD CARRIAGE

B



Outboard Flap Outboard Carriage Wear Limits
Figure 601 (Sheet 2 of 4)/27-51-23-990-803

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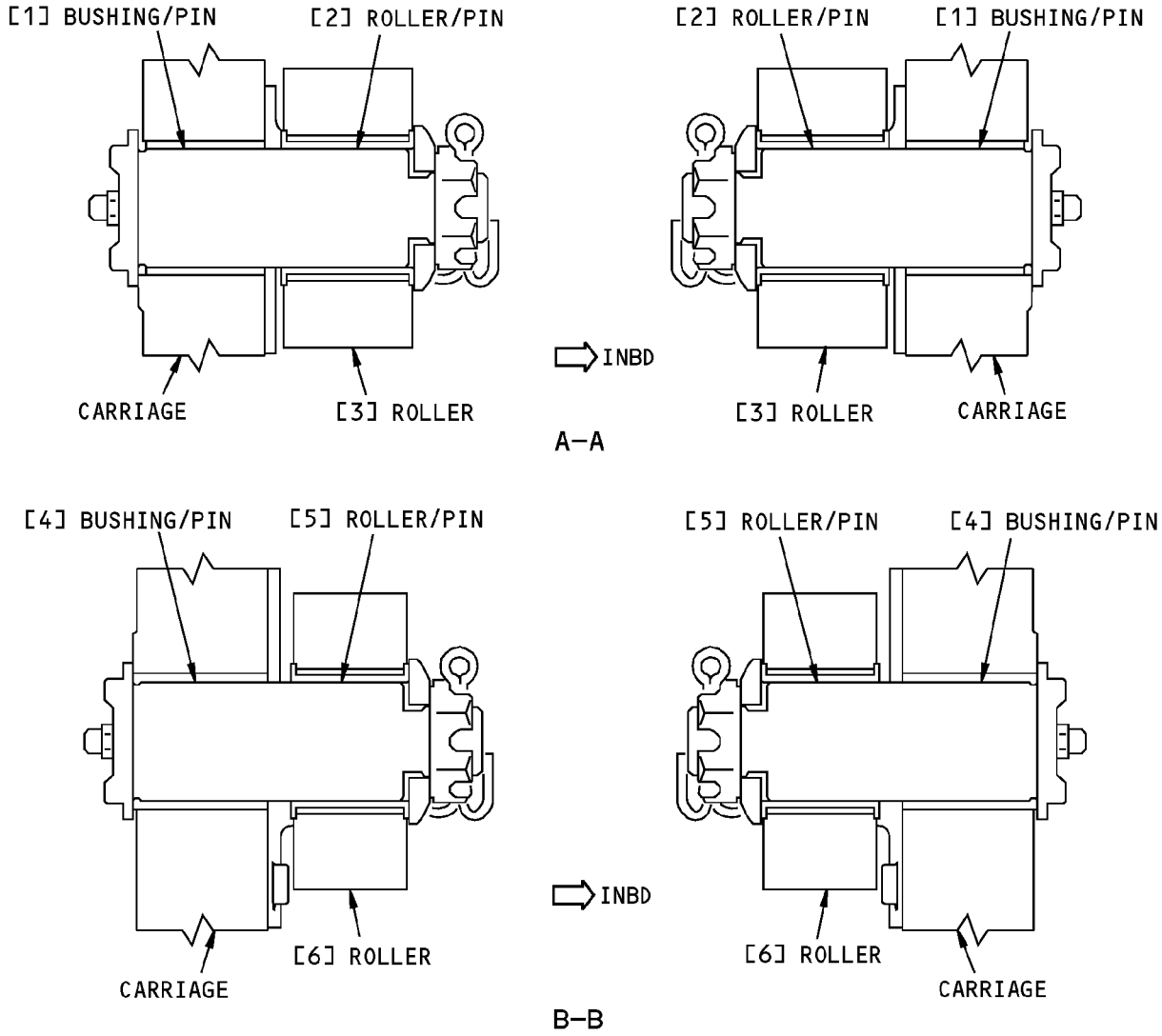

Outboard Flap Outboard Carriage Wear Limits
Figure 601 (Sheet 3 of 4)/27-51-23-990-803

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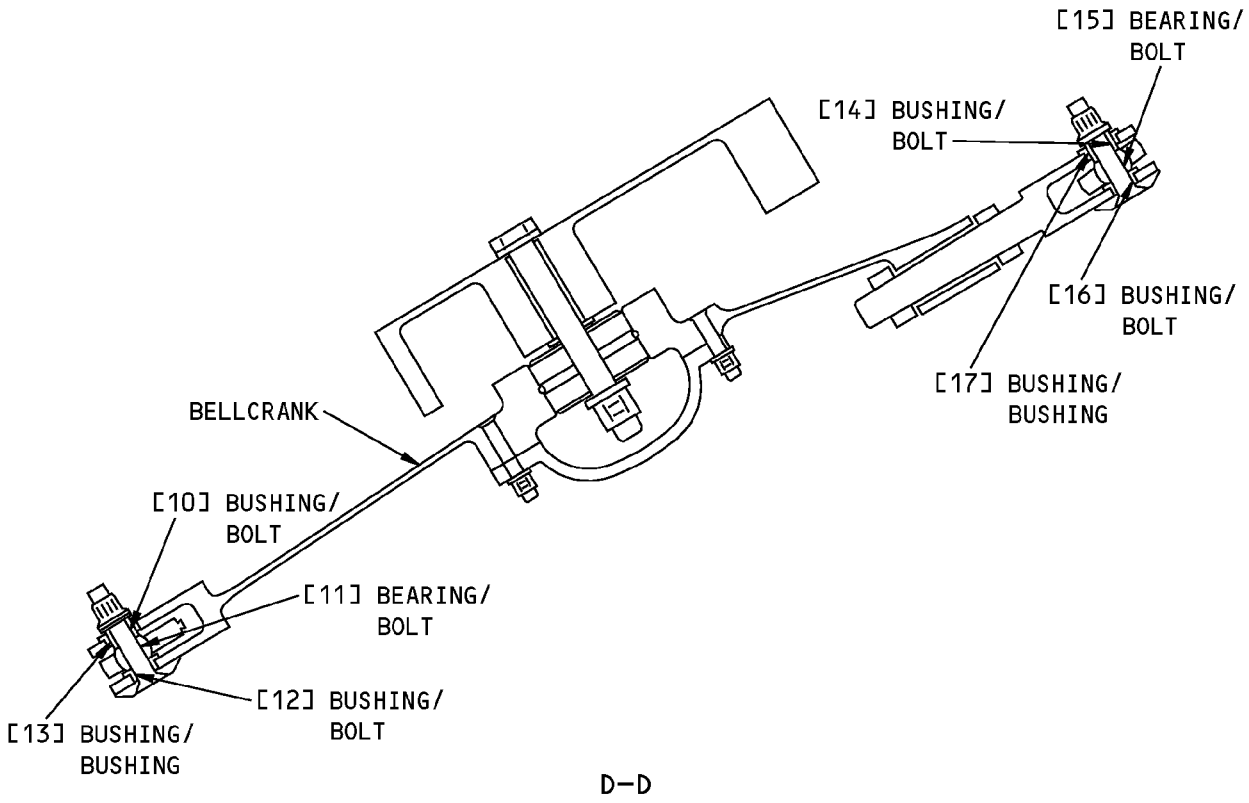

Outboard Flap Outboard Carriage Wear Limits
Figure 601 (Sheet 4 of 4)/27-51-23-990-803

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TASK 27-51-23-200-802

3. Outboard Flap Inboard Carriage Inspection

(Figure 602)

A. General

(1) This task gives wear limits for the inboard carriage on the outboard flap.

(2) This task is applicable to the carriages at flap supports No. 2 and 7.

B. References

Reference	Title
27-51-23-000-802	Outboard Flap Inboard Carriage Removal (P/B 401)
27-51-23-400-802	Outboard Flap Inboard Carriage Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

E. Procedure

SUBTASK 27-51-23-020-020

(1) Do this task: Outboard Flap Inboard Carriage Removal, TASK 27-51-23-000-802.

SUBTASK 27-51-23-020-021

(2) Use these tools to do a check for wear on the part of the outboard flap inboard carriage:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-51-23-020-022

(3) Examine the parts of the outboard flap inboard carriage (Table 602):

(a) Remove the parts that you will measure.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

Table 602/27-51-23-993-806

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 BUSHING	I.D.	1.3120 in 33.325 mm	1.3130 in 33.350 mm	1.3145 in 33.388 mm	0.0050 in

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 PIN	O.D.	1.3105 in 3.3287 mm	1.3115 in 33.312 mm	1.3093 in 33.256 mm	0.1270 mm
#2 ROLLER	I.D.	1.3118 in 33.320 mm	1.3125 in 33.338 mm	1.3135 in 33.363 mm	0.0050 in
#2 PIN	O.D.	1.3105 in 33.287 mm	1.3115 in 33.312 mm	1.3095 in 33.261 mm	0.1270 mm
#3 ROLLER	O.D.	3.4365 in 87.287 mm	3.4385 in 87.338 mm	3.4345 in 87.236 mm	
#4 BUSHING	I.D.	1.2495 in 31.737 mm	1.2505 in 31.763 mm	1.2515 in 31.788 mm	0.0050 in
#4 PIN	O.D.	1.2480 in 31.699 mm	1.2490 in 31.725 mm	1.2470 in 31.674 mm	0.1270 mm
#5 ROLLER	I.D.	1.2493 in 31.732 mm	1.2500 in 31.750 mm	1.2515 in 31.788 mm	0.0050 in
#5 PIN	O.D.	1.2480 in 31.699 mm	1.2490 in 31.725 mm	1.2470 in 31.674 mm	0.1270 mm
#6 ROLLER	O.D.	3.4365 in 87.287 mm	3.4385 in 87.338 mm	3.4345 in 87.236 mm	
#7 BUSHING	I.D.	0.5620 in 14.275 mm	0.5625 in 14.288 mm	0.5625 in 14.288 mm	0.0015 in
#7 BOLT	O.D.	0.5610 in 14.249 mm	0.5615 in 14.262 mm	0.5610 in 14.249 mm	0.0381 mm
#8 BUSHING	I.D.	0.8120 in	0.8128 in	0.8128 in	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
		20.625 mm	20.645 mm	20.645 mm	0.0018 in
#8 BUSHING	O.D.	0.8110 in 20.599 mm	0.8115 in 20.612 mm	0.8110 in 20.599 mm	0.0457 mm
#9 BEARING	I.D.	0.5620 in 14.275 mm	0.5628 in 14.295 mm	0.5628 in 14.295 mm	0.0018 in
#9 BOLT	O.D.	0.5610 in 14.249 mm	0.5615 in 14.262 mm	0.5610 in 14.249 mm	0.0457 mm
#10 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2505 in 6.3627 mm	0.0020 in
#10 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	0.0508 mm
#11 BEARING	I.D.	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.0015 in
#11 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	0.0381 mm
#12 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2505 in 6.3627 mm	0.2505 in 6.3627 mm	0.0020 in
#12 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	0.0508 mm
#13 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3756 in 9.5402 mm	0.0016 in
#13 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3740 in 9.4996 mm	0.0406 mm
#14 BUSHING	I.D.	0.2500 in	0.2505 in	0.2505 in	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
		6.3500 mm	6.3627 mm	6.3627 mm	0.0020 in
#14 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	0.0508 mm
#15 BEARING	I.D.	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.2500 in 6.3500 mm	0.0015 in
#15 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	0.0381 mm
#16 BUSHING	I.D.	0.2500 in 6.3500 mm	0.2506 in 6.3627 mm	0.2506 in 6.3652 mm	0.0021 in
#16 BOLT	O.D.	0.2485 in 6.3119 mm	0.2495 in 6.3373 mm	0.2485 in 6.3119 mm	0.0533 mm
#17 BUSHING	I.D.	0.3750 in 9.5250 mm	0.3756 in 9.5402 mm	0.3756 in 9.5402 mm	0.0016 in
#17 BUSHING	O.D.	0.3740 in 9.4996 mm	0.3745 in 9.5123 mm	0.3740 in 9.4996 mm	0.0406 mm

SUBTASK 27-51-23-420-016

(4) Do this task: Outboard Flap Inboard Carriage Installation, TASK 27-51-23-400-802.

——————— END OF TASK ———————

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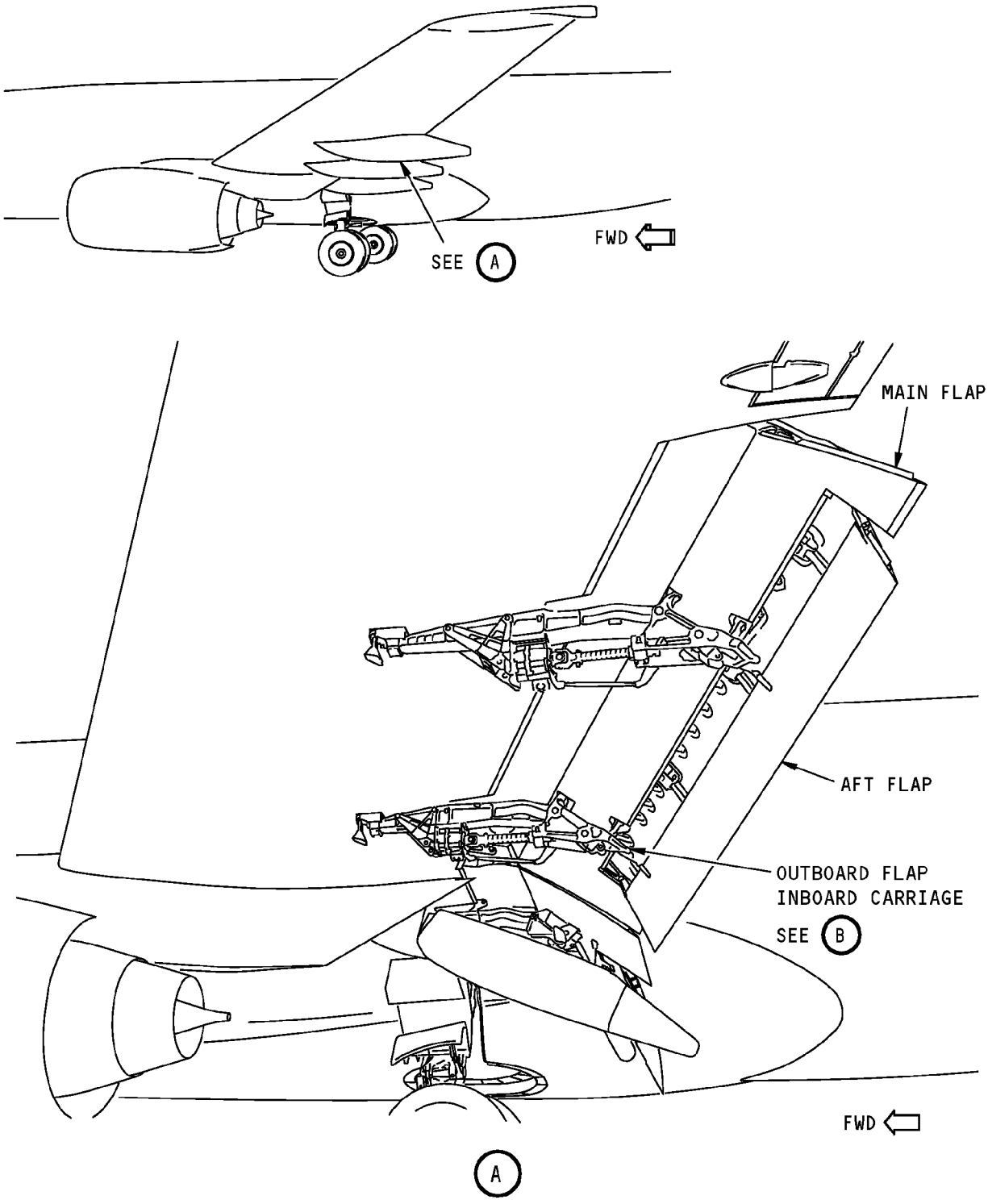

Outboard Flap Inboard Carriage Wear Limits
Figure 602 (Sheet 1 of 4)/27-51-23-990-804

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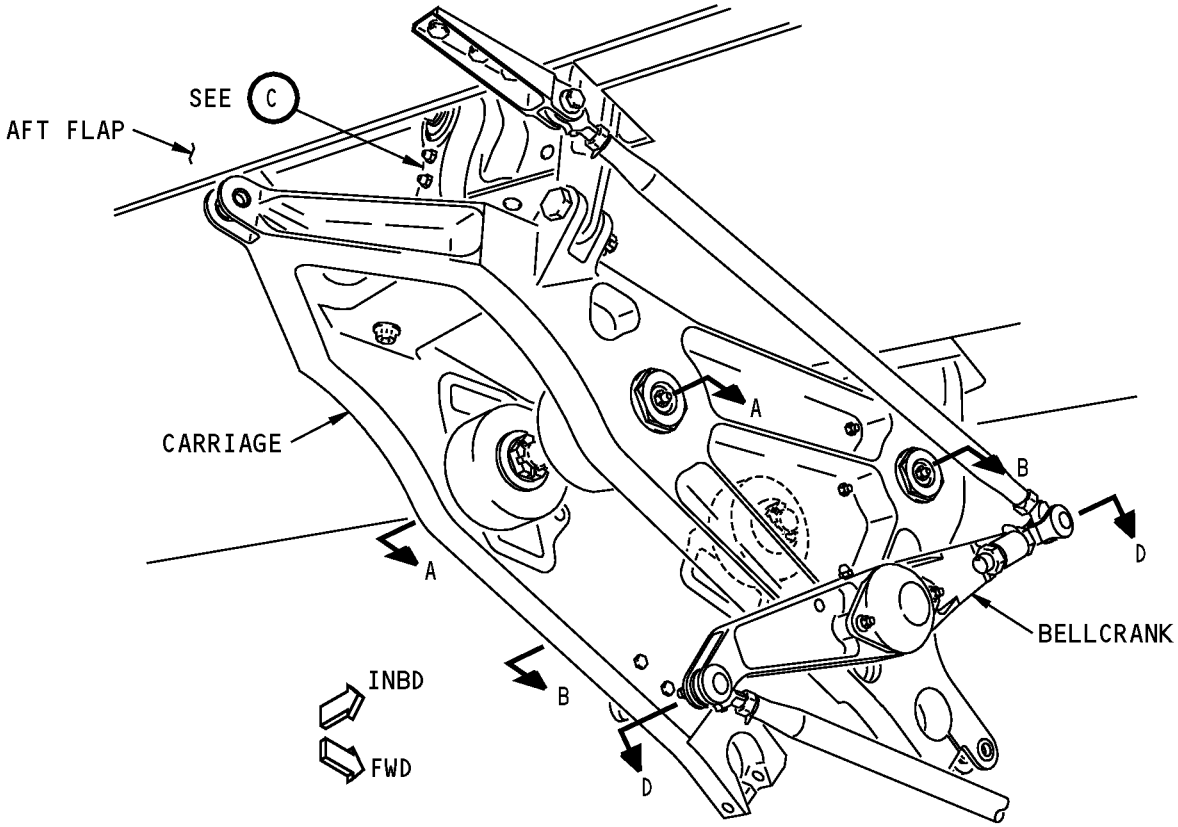
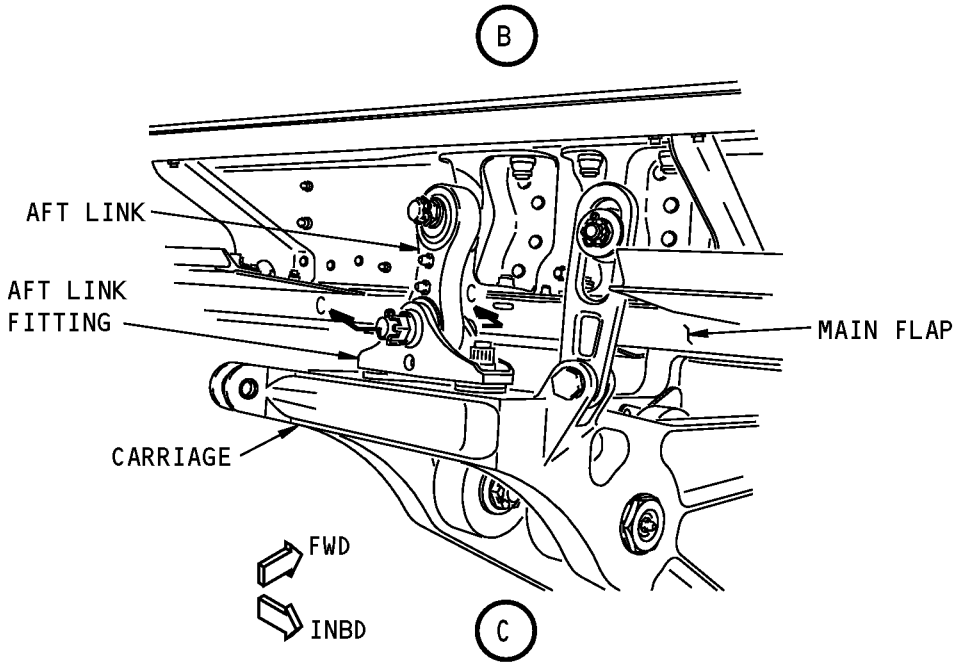


OUTBOARD FLAP INBOARD CARRIAGE



Outboard Flap Inboard Carriage Wear Limits
Figure 602 (Sheet 2 of 4)/27-51-23-990-804

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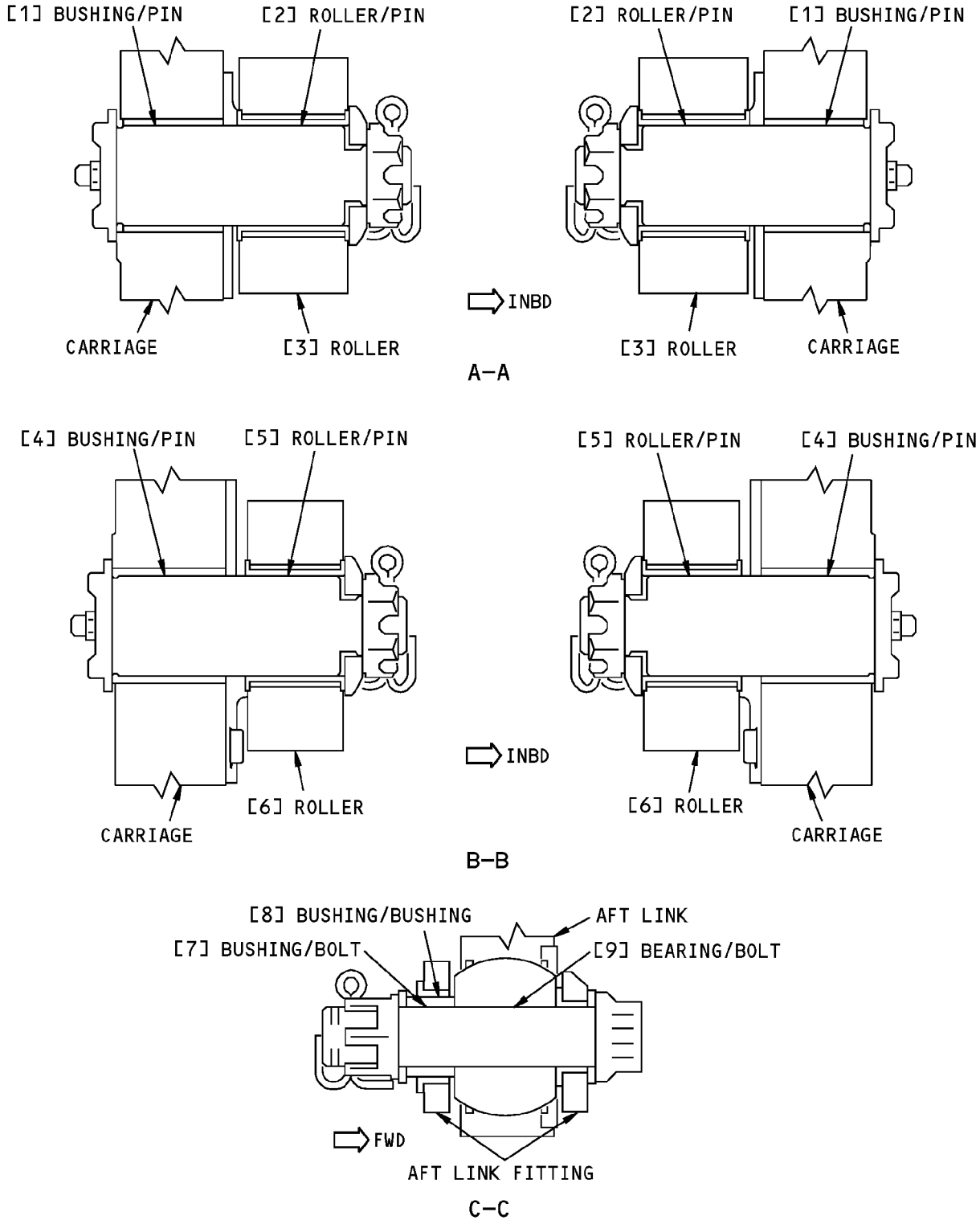

Outboard Flap Inboard Carriage Wear Limits
Figure 602 (Sheet 3 of 4)/27-51-23-990-804

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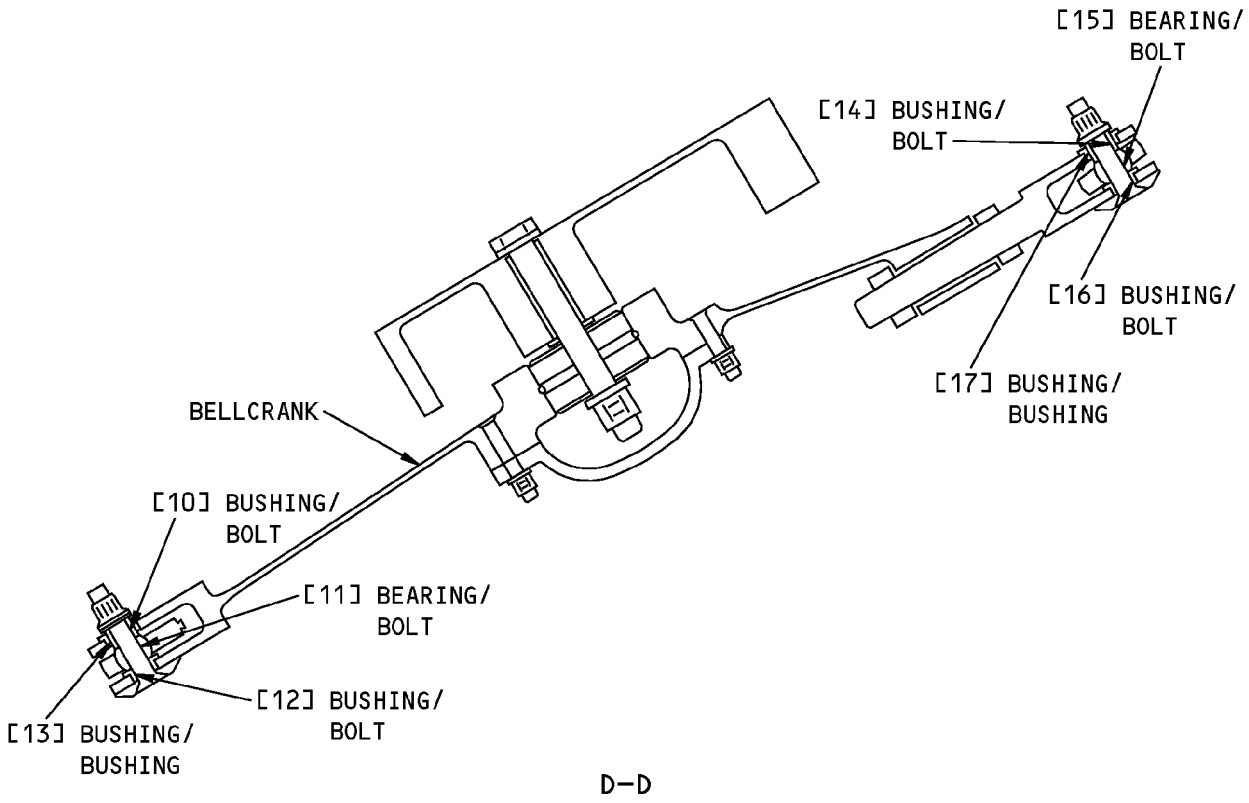

Outboard Flap Inboard Carriage Wear Limits
Figure 602 (Sheet 4 of 4)/27-51-23-990-804

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OUTBOARD AFT FLAP ACTUATING MECHANISM - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aft flap actuating mechanisms for the outboard flaps

(2) An installation of the aft flap actuating mechanisms for the outboard flaps.

B. The aft flap actuating mechanisms includes the bellcranks, the forward pushrod and the aft pushrod.

TASK 27-51-24-000-801

2. Outboard Aft Flap Actuating Mechanism Removal

(Figure 401)

A. General

(1) This task is applicable to the aft flap actuating mechanism on the inboard flap support and the outboard flap support on the outboard flap.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-28-000-802	Outboard Flap Outboard Support Aft Fairing Removal (P/B 401)
27-51-28-000-804	Outboard Flap Inboard Support Aft Fairing Removal (P/B 401)

C. Location Zones

Zone	Area
567	Left Wing - Outboard Flap
667	Right Wing - Outboard Flap

D. Prepare for the Removal

SUBTASK 27-51-24-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-24-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-24-010-001

(3) Remove the applicable fairing from the outboard flap:

(a) Do this task: Outboard Flap Outboard Support Aft Fairing Removal, TASK 27-51-28-000-802.

(b) Do this task: Outboard Flap Inboard Support Aft Fairing Removal, TASK 27-51-28-000-804.

E. Outboard Aft Flap Actuating Mechanism Removal

SUBTASK 27-51-24-020-001

(1) Remove the nut [23], washer [22], washer [20], bolt [19] and bushing [21] that attach the aft rod assembly [2] to the aft flap [1].

NOTE: When you disconnect the aft rod assembly [2] from the aft flap [1], the aft flap [1] can move a small distance.

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SUBTASK 27-51-24-020-002

(2) Remove the nut [14], washer [13], washer [11], bolt [10] and bushing [12] that attach the forward rod assembly [16] to the drive rod attach fitting [9].

SUBTASK 27-51-24-020-003

(3) Remove the nuts [7], washers [6], bushings [5], washers [4] and bolts [3] that attach the aft rod assembly [2] and the forward rod assembly [16] to the bellcrank assembly [17].

SUBTASK 27-51-24-020-004

(4) Remove the bellcrank assembly [17] from the flap carriage [18]:

(a) Remove the nuts [26] and washers [27] from the bolts [28] that attach the rubcap [25] to the bellcrank assembly [17].

(b) Remove the nut [32], washer [31], washer [30] and bolt [29] that attach the bellcrank assembly [17] to the flap carriage [18].

(c) Measure and record the distance between the center of the bolt hole in the adjustment fitting [36] and the bellcrank assembly [17].

NOTE: This distance is referred to as Dimension A.

——————— END OF TASK ———————

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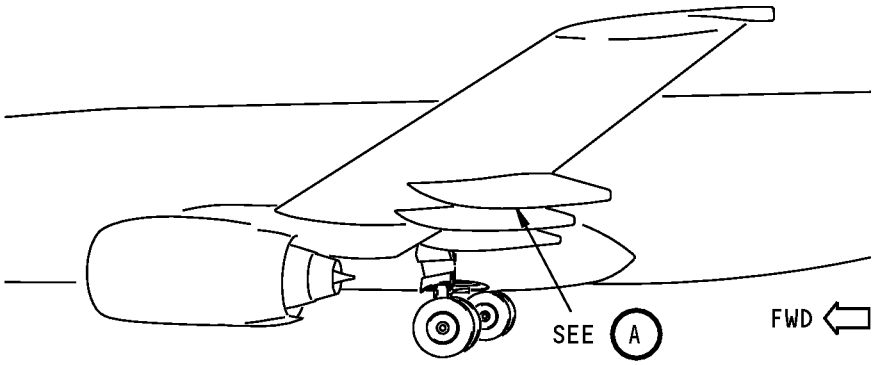

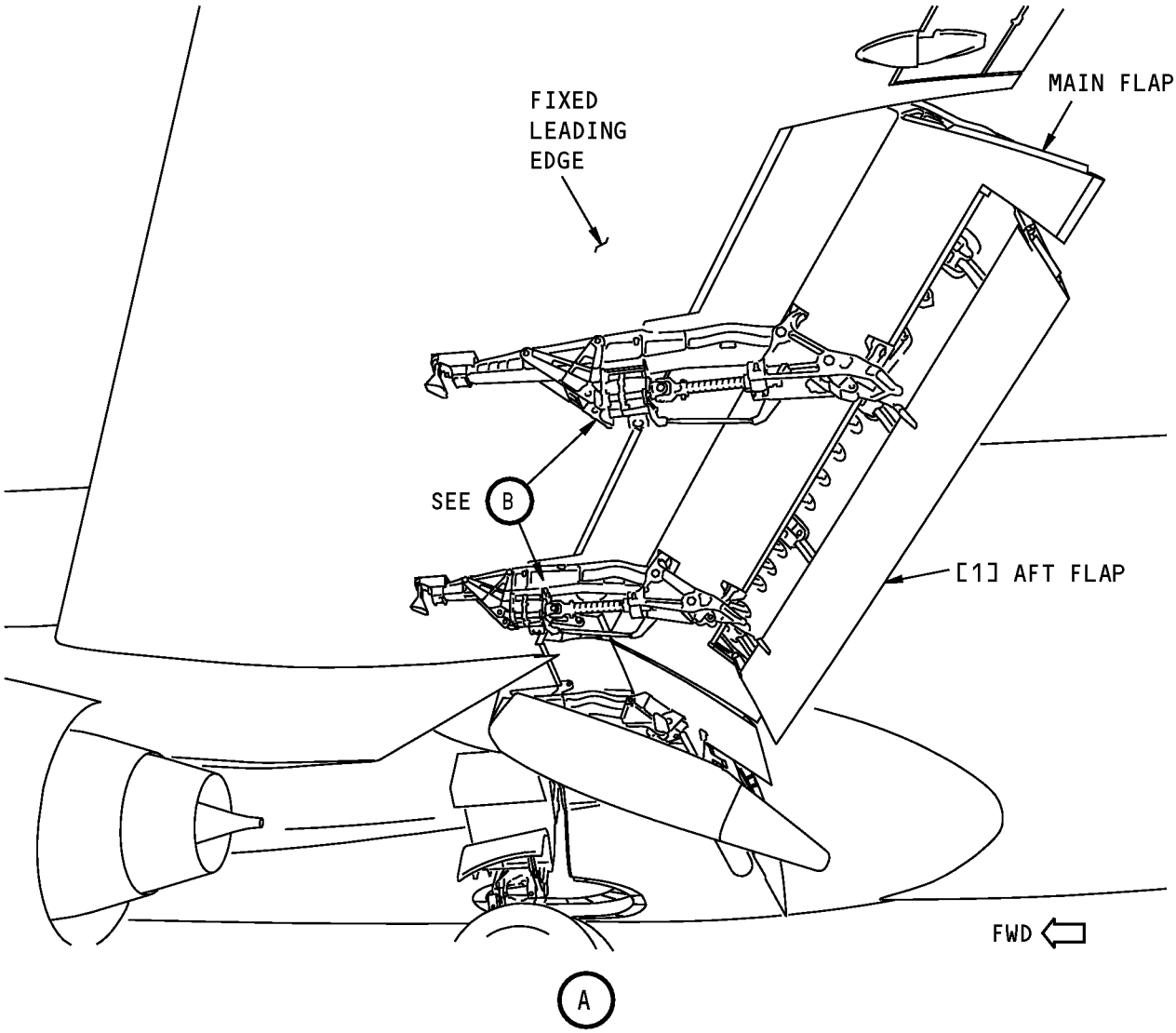

Outboard Aft Flap Drive Mechanism Installation
Figure 401 (Sheet 1 of 3)/27-51-24-990-801

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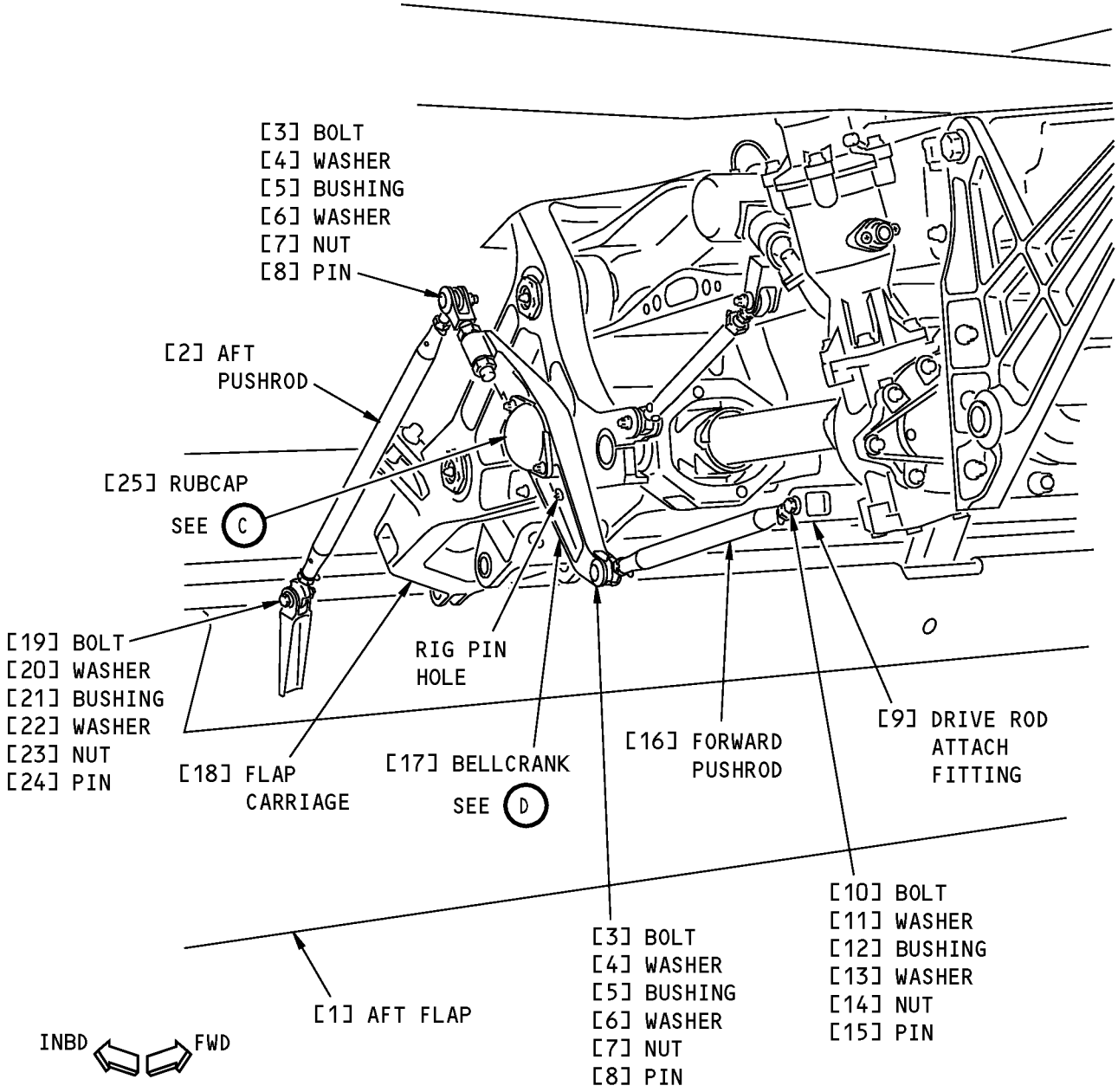

NO. 1 FLAP SUPPORT
(NO.2 IS EQUIVALENT)

B

Outboard Aft Flap Drive Mechanism Installation
Figure 401 (Sheet 2 of 3)/27-51-24-990-801

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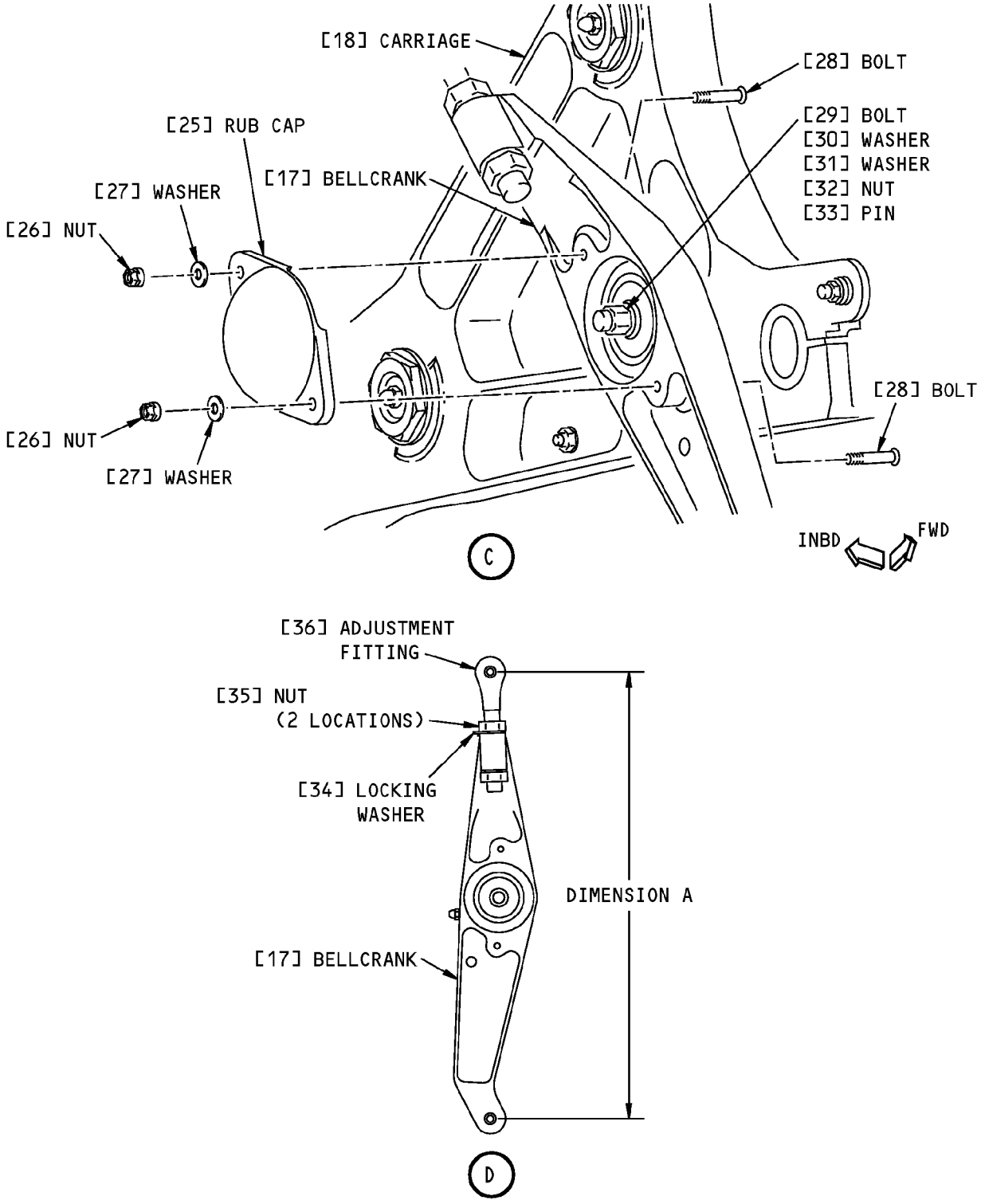

Outboard Aft Flap Drive Mechanism Installation
Figure 401 (Sheet 3 of 3)/27-51-24-990-801

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TASK 27-51-24-400-801

3. Outboard Aft Flap Actuating Mechanism Installation

(Figure 401)

A. General

(1) This task is applicable to the aft flap actuating mechanism on the inboard flap support and the outboard flap support on the outboard flap.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-400-802	Outboard Flap Outboard Support Aft Fairing Installation (P/B 401)
27-51-28-400-804	Outboard Flap Inboard Support Aft Fairing Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
STD-4233	Pin, Rig, 0.3125 in (7.938 mm)

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Rod assembly	27-51-24-01-075	HAP ALL
		27-51-24-01-080	HAP ALL
		27-51-24-01-090	HAP ALL
		27-51-24-01-095	HAP ALL
8	Pin	27-51-24-01-010	HAP ALL
15	Pin	27-51-24-01-010	HAP ALL
16	Rod assembly	27-51-24-01-070	HAP ALL
		27-51-24-01-085	HAP ALL
17	Bellcrank assembly	27-51-24-01-180	HAP 001-013, 015-026, 028-030
		27-51-24-01-182	HAP 001-013, 015-026, 028-030
		27-51-24-01-350	HAP 001-013, 015-026, 028-030
		27-51-24-01-352	HAP ALL
		27-51-24-01-355	HAP 001-013, 015-026, 028-030
24	Pin	27-51-24-01-010	HAP ALL
25	Rubcap	27-51-24-01-150	HAP ALL

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F. Location Zones

Zone	Area
567	Left Wing - Outboard Flap
667	Right Wing - Outboard Flap

G. Prepare for the Installation

SUBTASK 27-51-24-820-001

(1) Make sure the bellcrank assembly [17] is the correct length:

NOTE: The length of the bellcrank assembly [17] can be changed to adjust for lateral trim problems.

(a) Measure the distance between the center of the bolt hole in the adjustment fitting [36] and the bellcrank assembly [17].

NOTE: This distance is referred to as Dimension A.

(b) Make sure the Dimension A on the bellcrank assembly [17] you will install is the same as the bellcrank assembly [17] that you removed.

NOTE: The nominal dimension of the inboard bellcrank assembly [17] is 14.56 inches (36.98 cm). The nominal dimension of the outboard bellcrank assembly [17] is 13.74 inches (34.9 cm).

1) If the inboard and outboard bellcrank assembly [17] are not at the nominal length, they should both be the same distance from the nominal dimension.

(c) If the bellcrank assembly [17] is not the correct length, adjust the bellcrank assembly [17]:

1) Loosen the nuts [35] on the adjustment fitting [36] until the locking washer [34] is disengaged from the bellcrank assembly [17].

2) Change the position of the adjustment fitting [36].

3) Engage the locking washer [34] with the bellcrank assembly [17].

4) Tighten the nuts [35] on the adjustment fitting [36].

5) Install lockwire on the nut [35].

H. Outboard Aft Flap Actuating Mechanism Installation

SUBTASK 27-51-24-420-001

(1) Install the bellcrank assembly [17] on the flap carriage [18]:

(a) Apply grease, D00633 to the shank of the bolt [29].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolt [29].

(b) Install the bolts [28] in the bellcrank assembly [17].

(c) Put the bellcrank assembly [17] in its position on the flap carriage [18].

(d) Install the bolt [29] and washer [30] that attach the bellcrank assembly [17] to the flap carriage [18].

(e) Carefully clean all of the grease, D00633 from the threads of the bolt [29].

(f) Install the washer [31] and nut [32] on the bolt [29].

HAP 031-054, 101-999; HAP 001-013, 015-026, 028-030 POST SB 737-57-1278

(g) Tighten the nut [32] to 760-840 pound-inches (96-121 newton-meters).

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HAP 001-013, 015-026, 028-030 PRE SB 737-57-1278

(h) Tighten the nut [32] to 240-410 pound-inches (27-46 newton-meters).

HAP ALL

(i) Install the pin [33] in the nut [32].

(j) Attach the rubcap [25] to the bellcrank assembly [17] with the washers [27] and nuts [26].

SUBTASK 27-51-24-420-002

(2) Connect the aft rod assembly [2] and the forward rod assembly [16] to the bellcrank assembly [17]:

(a) Apply grease, D00633 to the shank of the bolts [3] and the inside of the bushings [5].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolts [3].

(b) Install the bolts [3], washers [4] and bushings [5] to attach the aft rod assembly [2] and the forward rod assembly [16] to the bellcrank assembly [17].

NOTE: Make sure the heads of the bolts [3] are inboard.

(c) Carefully clean all of the grease, D00633 from the threads of the bolts [3].

(d) Install the washers [6] and nuts [7] on the bolts [3].

(e) Tighten the nuts [7] to 65-100 pound-inches (7.3-11.3 newton-meters).

(f) Install the pins [8] in the nuts [7].

SUBTASK 27-51-24-420-003

(3) Connect the forward rod assembly [16] to the drive rod attach fitting [9]:

(a) Apply grease, D00633 to the shank of the bolt [10] and the inside of the bushing [12].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolts [10].

(b) Install the bushing [12], bolt [10] and washer [11] to attach the forward rod assembly [16] to the drive rod attach fitting [9].

NOTE: Make sure the head of the bolt [10] is inboard.

(c) Carefully clean all of the grease, D00633 from the threads of the bolt [10].

(d) Install the washer [13] and nut [14] on the bolt [10].

(e) Tighten the nut [14] to 65-100 pound-inches (7.3-11.3 newton-meters).

(f) Install the pin [15] in the nut [14].

SUBTASK 27-51-24-420-004

(4) Connect the aft rod assembly [2] to the aft flap [1]:

(a) Apply grease, D00633 to the shank of the bolt [19] and the inside of the bushing [21].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolt [19].

(b) Install the bushing [21], bolt [19] and washer [20] to attach the aft rod assembly [2] to the aft flap [1].

NOTE: Make sure the head of the bolt [19] is inboard.

(c) Carefully clean all of the grease, D00633 from the threads of the bolt [19].

(d) Install the washer [22] and nut [23] on the bolt [19].

(e) Tighten the nut [23] to 65-100 pound-inches (7.3-11.3 newton-meters).

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(f) Install the pin [24] in the nut [23].

I. Aft Flap Drive Mechanism Adjustment

SUBTASK 27-51-24-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-24-860-002

(2) Retract the trailing edge flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-24-480-001

(3) Install the 0.3125 in (7.938 mm) rig pin, STD-4233 from the rig pin kit, SPL-1585 in the rig pin holes in the bellcrank assembly [17] and the flap carriage [18] (Figure 402).

(a) If it is necessary, move the aft flap [1] or the main flap until you can install the rig pins.

SUBTASK 27-51-24-220-001

(4) Measure the mismatch at the between the aft flap [1] and the main flap at the inboard and outboard ends of the aft flap [1].

SUBTASK 27-51-24-820-002

(5) If the mismatch at the inboard and outboard ends of the aft flap [1]is not in the limit of 0.00 ±0.060 inches (1.524 mm), then adjust the length of the applicable aft rod assembly [2]:

(a) Loosen the nuts [51] on the aft rod assembly [2].

(b) Turn the applicable aft rod assembly [2] until the mismatch is in the limit at the inboard and outboard ends of the aft flap [1].

NOTE: For each 1/4 turn of the aft rod assembly [2], the trailing edge of the aft flap [1] will move approximately 0.04 inch (1.016 mm).

(c) Tighten the nuts [51] on the aft rod assembly [2].

(d) Install lockwire on the nuts [51].

SUBTASK 27-51-24-080-001

(6) Remove the 0.3125 in (7.938 mm) rig pin, STD-4233 from the bellcrank assembly [17].

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-24-410-001

(1) Install the aft fairings on the flap supports:

(a) Do this task: Outboard Flap Outboard Support Aft Fairing Installation, TASK 27-51-28-400-802.

(b) Do this task: Outboard Flap Inboard Support Aft Fairing Installation, TASK 27-51-28-400-804.

SUBTASK 27-51-24-440-002

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-24-860-003

(3) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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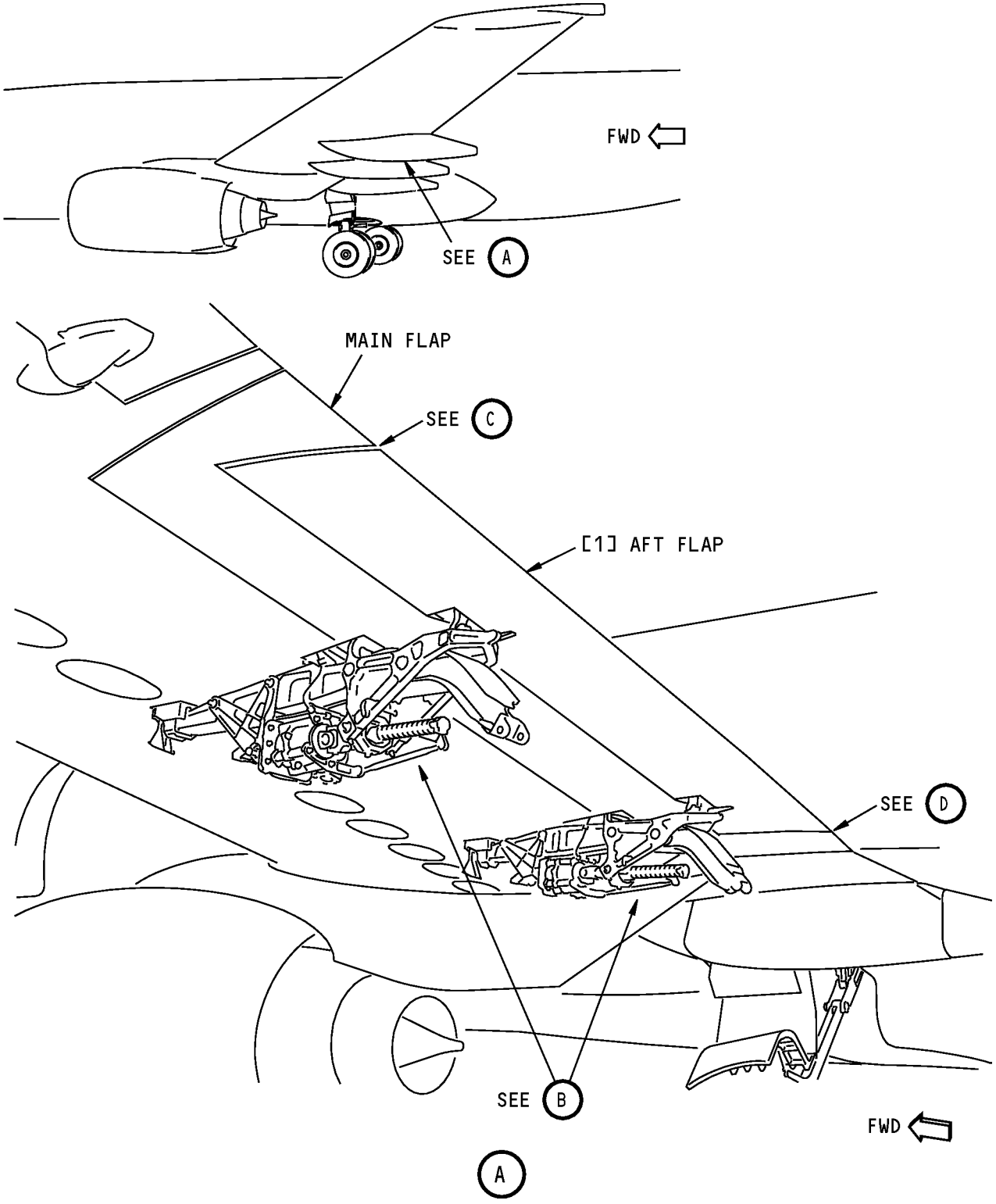

Outboard Aft Flap Drive Mechanism Adjustment
Figure 402 (Sheet 1 of 3)/27-51-24-990-802

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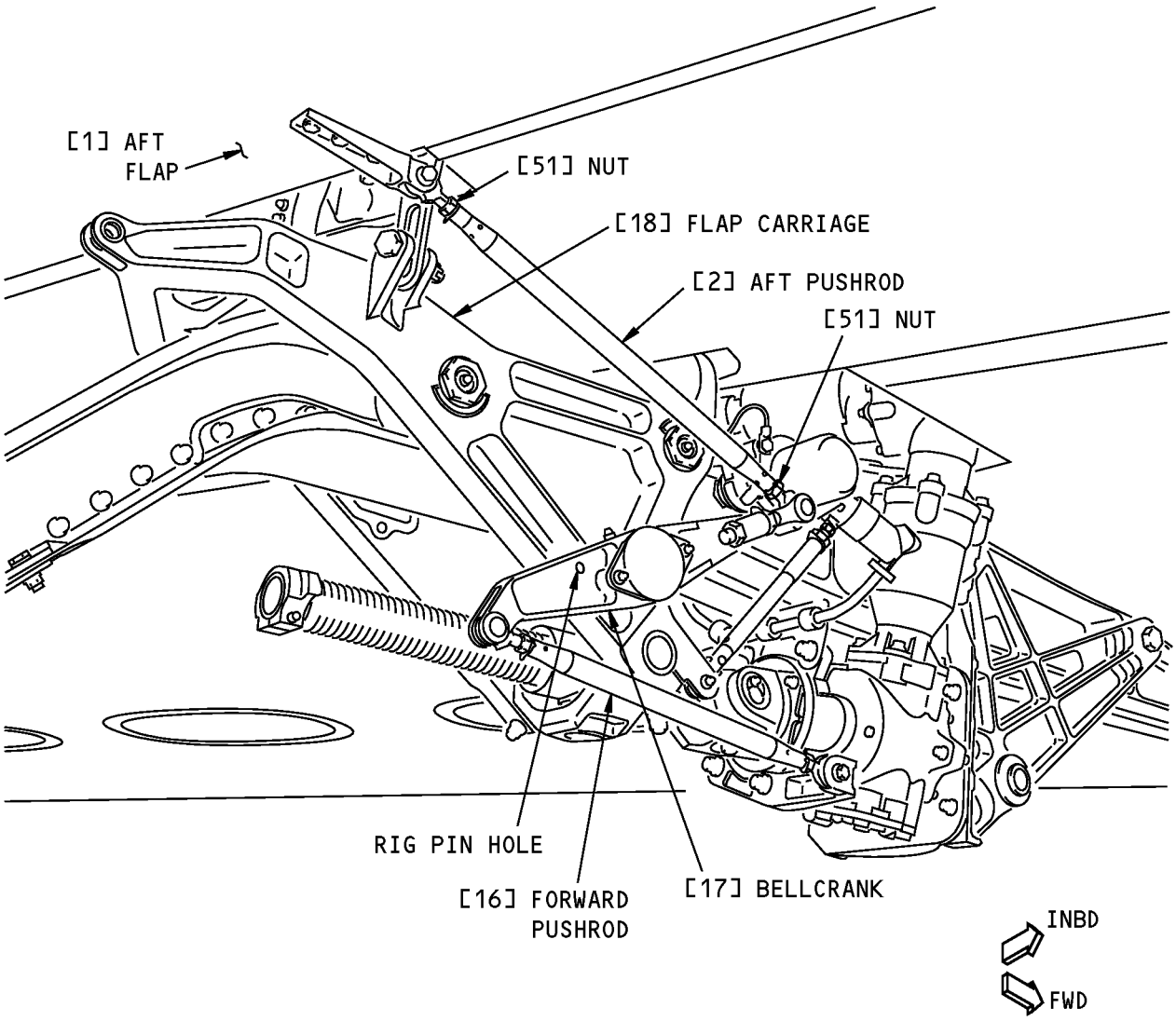

NO. 1 FLAP SUPPORT
(NO. 2 IS EQUIVALENT)

B

Outboard Aft Flap Drive Mechanism Adjustment
Figure 402 (Sheet 2 of 3)/27-51-24-990-802

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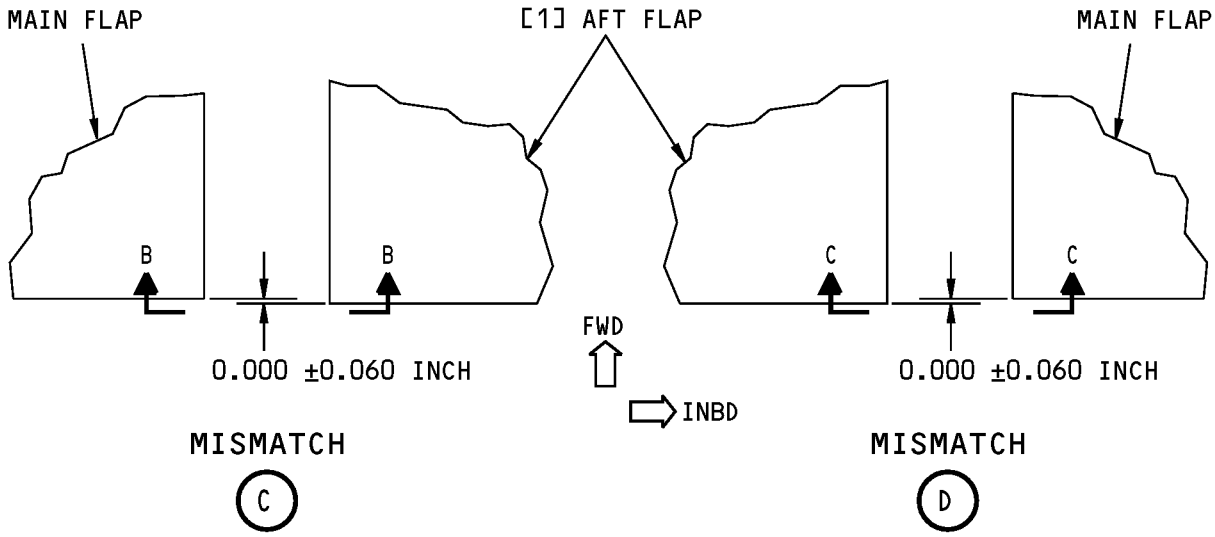

Outboard Aft Flap Drive Mechanism Adjustment
Figure 402 (Sheet 3 of 3)/27-51-24-990-802

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OUTBOARD FLAP TRACKS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard track for the outboard flap

(2) An installation of the outboard track for the outboard flap

(3) A removal of the inboard track for the outboard flap

(4) An installation of the inboard track for the outboard flap.

TASK 27-51-25-000-801

2. Outboard Flap Outboard Track Removal

(Figure 401)

A. General

(1) This task is applicable to the flap tracks at flap supports No. 1 and 8.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-21-000-801	Outboard Trailing Edge Flap Removal (P/B 401)
27-51-28-000-801	Outboard Flap Outboard Support Forward Fairing Removal (P/B 401)
27-51-28-000-802	Outboard Flap Outboard Support Aft Fairing Removal (P/B 401)
27-51-41-000-801	Outboard Flap Outboard Transmission Removal (P/B 401)
27-59-02-000-801	Outboard Flap Outboard Skew Mechanism Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1568	Jack - Hydraulic, General Low Profile (Part #: B67563, Supplier: 36251, A/P Effectivity: 737-ALL) (Part #: HW93718, Supplier: 28047, A/P Effectivity: 737-ALL) (Opt Part #: W93718, Supplier: 36251, A/P Effectivity: 737-ALL)
SPL-1733	Adapter - Hoist, Removal/Installation, Flap Track (Part #: C27040-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

E. Prepare for the Removal

SUBTASK 27-51-25-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-25-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-51-25-010-001

(3) Remove the fairings for the outboard track on the outboard flap:

(a) Do this task: Outboard Flap Outboard Support Forward Fairing Removal, TASK 27-51-28-000-801.

(b) Do this task: Outboard Flap Outboard Support Aft Fairing Removal, TASK 27-51-28-000-802.

SUBTASK 27-51-25-020-001

(4) Do this task: Outboard Trailing Edge Flap Removal, TASK 27-51-21-000-801.

SUBTASK 27-51-25-020-002

(5) Do this task: Outboard Flap Outboard Skew Mechanism Removal, TASK 27-59-02-000-801.

SUBTASK 27-51-25-020-003

(6) Do this task: Outboard Flap Outboard Transmission Removal, TASK 27-51-41-000-801.

F. Outboard Flap Outboard Track Removal

NOTE: Make sure you support the flap track while you disconnect it. The outboard track for the outboard flap weighs approximately 110 pounds (50 kilograms).

SUBTASK 27-51-25-480-001

(1) If you will use the adapter, SPL-1733, install it on the flap track [1]:

(a) Install the adapter, SPL-1733 on the flap track [1] approximately 33 inches (84 cm) aft of the track attach fitting.

(b) Put a low profile hydraulic jack, COM-1568 below the adapter, SPL-1733 to support the flap track [1].

SUBTASK 27-51-25-020-004

(2) Remove the nut [15], washer [14], washer [12] and bolt [13] to disconnect the jumper wire [16] from the flap track [1].

SUBTASK 27-51-25-020-005

(3) Disconnect the forward end of the flap track [1]:

(a) Remove the bolts [18] and washers [17] that attach the failsafe fitting assembly [19] to the track attach fitting.

(b) Remove the nut [22], washer [21] and fuse pin [20] from the forward end of the flap track [1].

SUBTASK 27-51-25-020-006

(4) Disconnect the aft end of the flap track [1] from the structure:

(a) Remove the nut [6], washer [5], washer [4] and bolt [3] that attach the outboard side of the flap track [1] to the structure.

(b) Remove the nut [7], washer [8], washer [10] and bolt [11] that attach the inboard side of the flap track [1] to the structure.

(c) Measure the thickness of the shim [9].

SUBTASK 27-51-25-020-007

(5) If you will install a new flap track [1], remove the transmission attach fitting assembly [2] from the flap track [1]:

(a) Remove the nuts [26], washers [24] and bolts [27] that attach the transmission attach fitting assembly [2] to flap track [1].

END OF TASK

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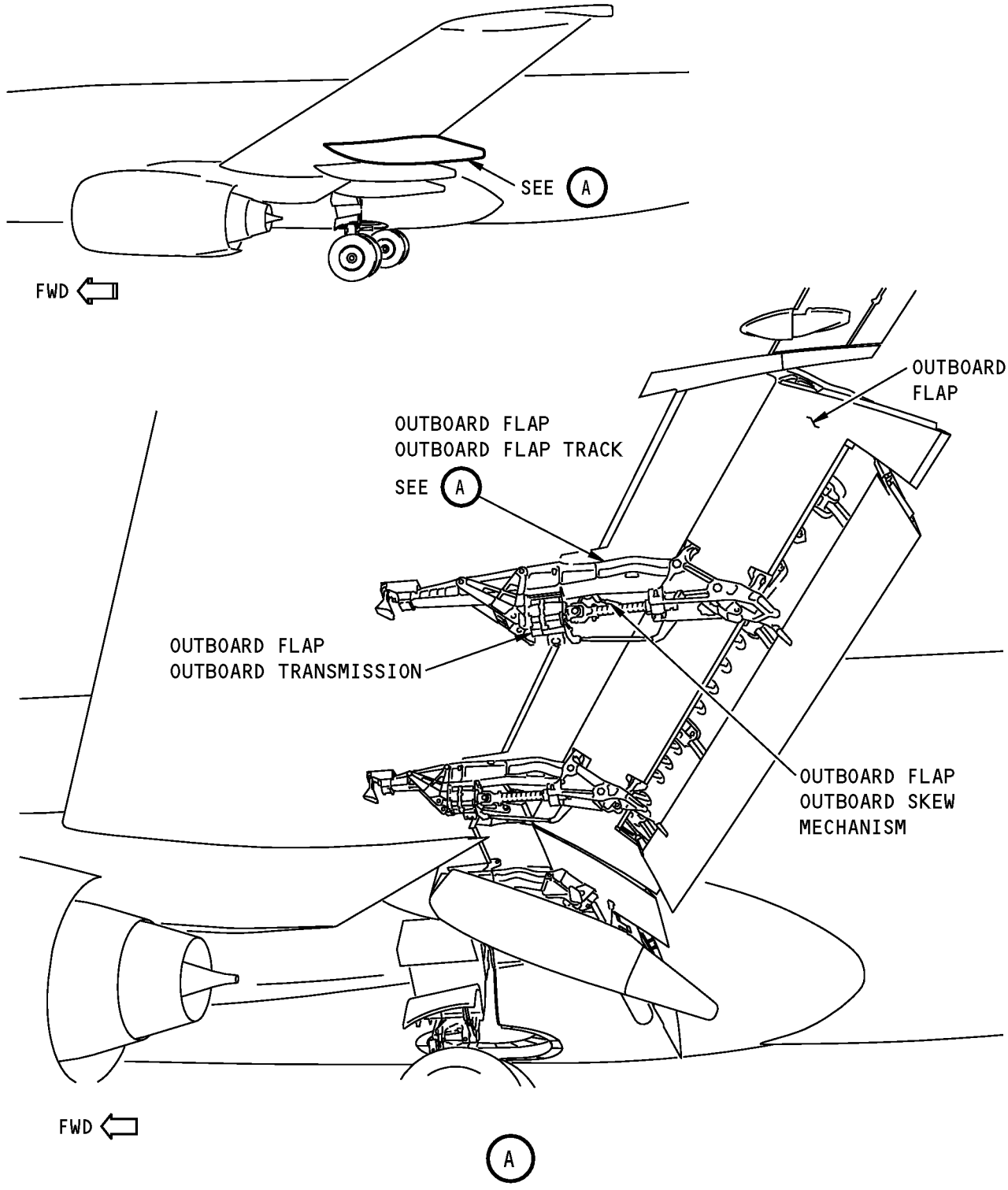

Outboard Flap Outboard Track Installation
Figure 401 (Sheet 1 of 4)/27-51-25-990-801

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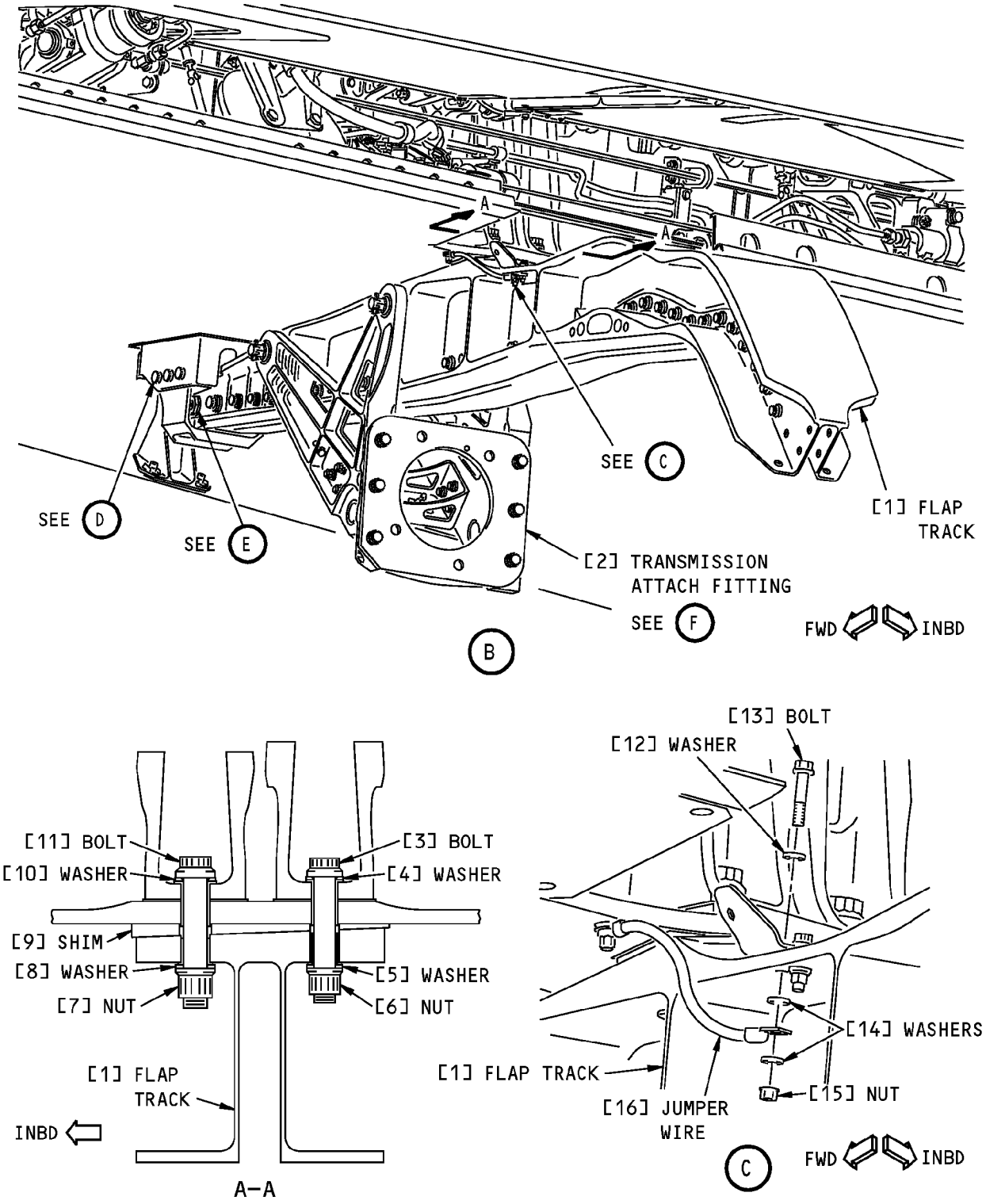

Outboard Flap Outboard Track Installation
Figure 401 (Sheet 2 of 4)/27-51-25-990-801

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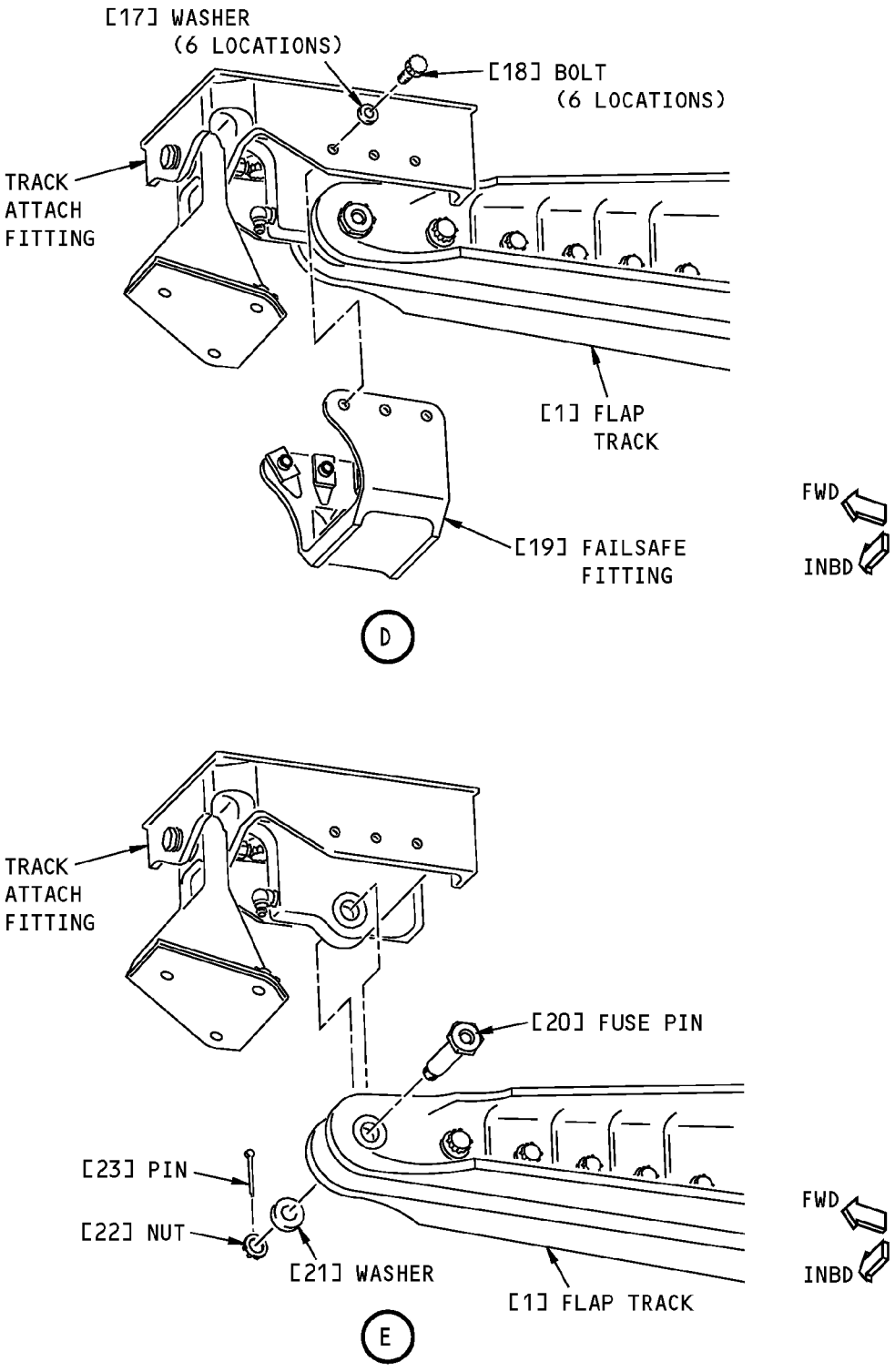

Outboard Flap Outboard Track Installation
Figure 401 (Sheet 3 of 4)/27-51-25-990-801

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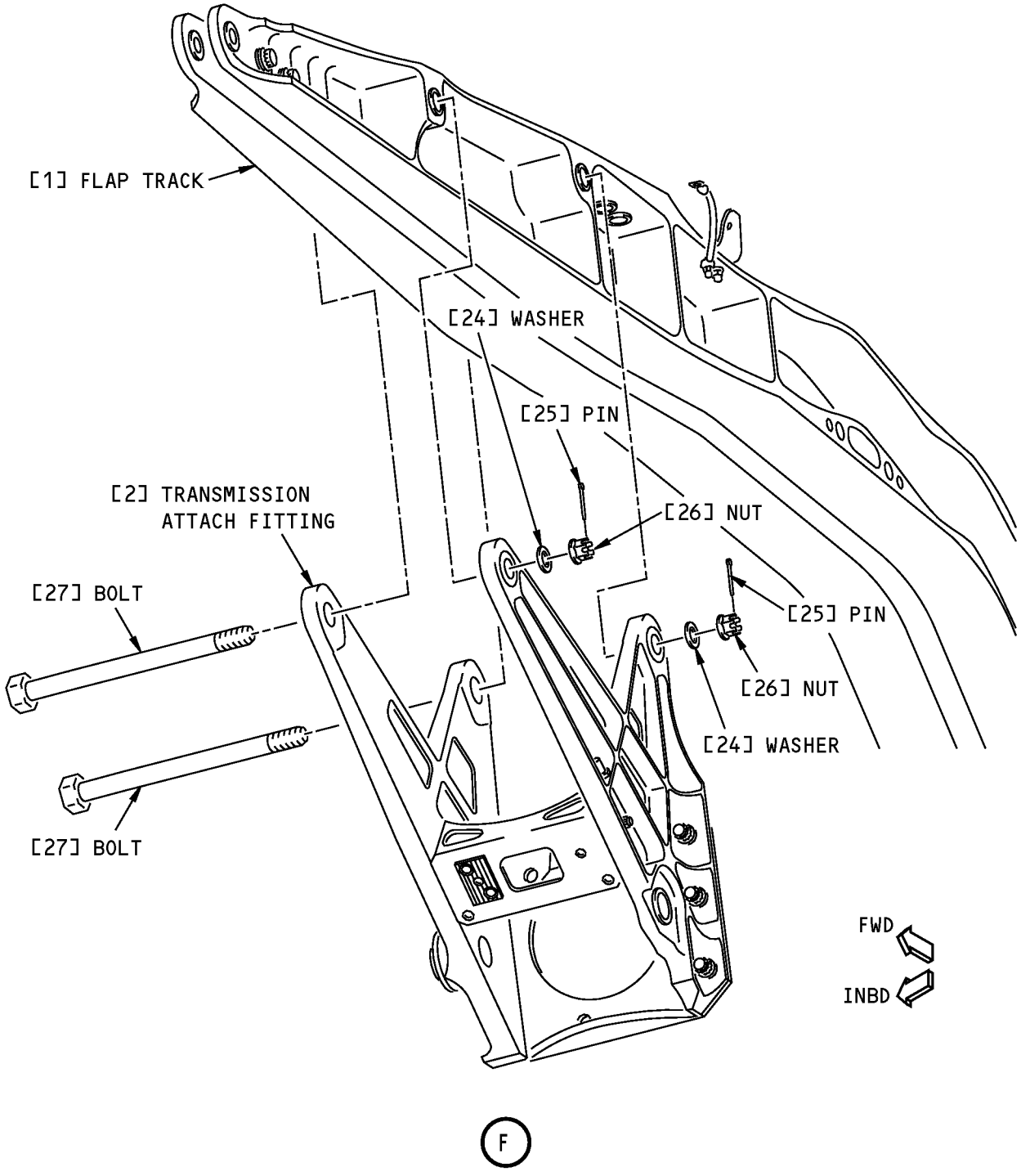

Outboard Flap Outboard Track Installation
Figure 401 (Sheet 4 of 4)/27-51-25-990-801

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TASK 27-51-25-400-801

3. Outboard Flap Outboard Track Installation

(Figure 401)

A. General

(1) This task is applicable to the flap tracks at flap supports No. 1 and 8.

B. References

Reference	Title
12-22-51-640-816	Outboard Flap Outboard Flap Track Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-21-400-801	Outboard Trailing Edge Flap Installation (P/B 401)
27-51-21-820-801	Outboard Trailing Edge Flap Adjustment (P/B 501)
27-51-28-400-801	Outboard Flap Outboard Support Forward Fairing Installation (P/B 401)
27-51-28-400-802	Outboard Flap Outboard Support Aft Fairing Installation (P/B 401)
27-51-41-400-801	Outboard Flap Outboard Transmission Installation (P/B 401)
27-59-00-820-801	Flap Skew Detection System Adjustment (P/B 501)
27-59-02-400-801	Outboard Flap Outboard Skew Mechanism Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1568	Jack - Hydraulic, General Low Profile (Part #: B67563, Supplier: 36251, A/P Effectivity: 737-ALL) (Part #: HW93718, Supplier: 28047, A/P Effectivity: 737-ALL) (Opt Part #: W93718, Supplier: 36251, A/P Effectivity: 737-ALL)
SPL-1733	Adapter - Hoist, Removal/Installation, Flap Track (Part #: C27040-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Track	27-51-00-19-220	HAP 008-013, 015-026, 028-036
		27-51-25-02-235	HAP 001-007
		27-51-25-04A-145	HAP 008-013, 015-026, 028-054, 101-999
		27-51-25-04A-150	HAP 008-013, 015-026, 028-054, 101-999
2	Fitting assembly	27-51-00-19-165	HAP 008-013, 015-026, 028-036

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
2 (cont.)		27-51-00-19-170	HAP 008-013, 015-026, 028-036
		27-51-25-02-065	HAP 001-007
		27-51-25-02-070	HAP 001-007
		27-51-25-04A-175	HAP 008-013, 015-026, 028-054, 101-999
		27-51-25-04A-180	HAP 008-013, 015-026, 028-054, 101-999
19	Fitting assembly	27-51-00-19-085	HAP 001-013, 015-026, 028-036
		27-51-25-04-100	HAP 001-007
		27-51-25-04A-100	HAP 008-013, 015-026, 028-054, 101-999
20	Pin	27-51-00-19-125	HAP 001-013, 015-026, 028-036
		27-51-25-04A-140	HAP 008-013, 015-026, 028-054, 101-999
23	Pin	27-51-00-19-110	HAP 001-013, 015-026, 028-036
		27-51-25-04A-125	HAP 008-013, 015-026, 028-054, 101-999
25	Pin	27-51-00-19-145	HAP 008-013, 015-026, 028-036
		27-51-25-02-080	HAP 001-007
		27-51-25-04A-155	HAP 008-013, 015-026, 028-054, 101-999

F. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

G. Outboard Flap Outboard Track Installation

SUBTASK 27-51-25-420-001

(1) If it is not installed, install the transmission attach fitting assembly [2]:

(a) Put the transmission attach fitting assembly [2] in its location on the flap track [1].

(b) Install the bolts [27], washers [24] and nuts [26] that attach the transmission attach fitting assembly [2] to the flap track [1].

(c) Install the pins [25] in the nuts [26].

SUBTASK 27-51-25-480-002

(2) If you will use the adapter, SPL-1733, install it on the flap track [1]:

(a) Install the adapter, SPL-1733 on the flap track [1] approximately 33 inches (84 cm) aft of the track attach fitting.

(b) Put a low profile hydraulic jack, COM-1568 below the adapter, SPL-1733 to support the flap track [1].

SUBTASK 27-51-25-420-002

(3) Install the flap track [1]:

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(a) If it is not installed, install the shim [9] on the structure:

NOTE: Make sure the shim [9] is the same thickness as the shim [9] that you removed. The original thickness of the shim [9] is on a marker on the structure.

1) Apply sealant, A00247 to the mating surface of the shim [9] and the structure.
2) Put the shim [9] in its position.
3) Apply a fillet seal of sealant, A00247 around the shim [9].

(b) Attach the aft end of the flap track [1] to the structure:

1) Lift the flap track [1] to its location on the structure.
2) Install the bolt [11], washer [10], washer [8] and nut [7] that attaches the inboard side of the flap track [1] to the structure.
3) Install the bolt [3], washer [4], washer [5] and nut [6] that attaches the outboard side of the flap track [1] to the structure.

(c) Attach the forward end of the flap track [1]:

1) Apply grease, D00633 to the outside of the fuse pin [20] and the inside of the bushings.
2) Install the fuse pin [20] that attaches the forward end of the flap track [1] to the track attach fitting.

(d) Tighten the nut [7] to 1300-1800 pound-inches (146.9-203.3 newton-meters).

(e) Tighten the nut [6] to 870-1300 pound-inches (98.3-146.9 newton-meters).

(f) Make sure you can turn the fuse pin [20] in the joint with a maximum of 10 pound-inches (1.1 newton-meters) torque.

NOTE: You can push up on the forward end of the flap track [1] to take the weight off the fuse pin [20] when you measure the torque.

(g) Install the washer [21] and nut [22] on the fuse pin [20].

(h) Tighten the nut [22] to 110-130 pound-inches (12.4-14.6 newton-meters).

(i) Loosen the nut [22] to align the hole for the pin [23].

(j) Install the pin [23] in the nut [22].

SUBTASK 27-51-25-420-003

(4) Install the failsafe fitting assembly [19] on the track attach fitting:

(a) Put the failsafe fitting assembly [19] in its location on the track attach fitting.

(b) Install the bolts [18] and washers [17] to attach the failsafe fitting assembly [19].

SUBTASK 27-51-25-480-003

(5) If it is necessary, remove the adapter, SPL-1733 from the flap track [1].

SUBTASK 27-51-25-020-008

(6) Install the bolt [13], washer [12], washers [14] and nut [15] to connect the jumper wire [16] to the flap track [1].

SUBTASK 27-51-25-420-004

(7) Do this task: Outboard Flap Outboard Transmission Installation, TASK 27-51-41-400-801.

SUBTASK 27-51-25-420-005

(8) Do this task: Outboard Trailing Edge Flap Installation, TASK 27-51-21-400-801.

SUBTASK 27-51-25-420-006

(9) Do this task: Outboard Flap Outboard Skew Mechanism Installation, TASK 27-59-02-400-801.

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SUBTASK 27-51-25-820-001

(10) Do this task: Outboard Trailing Edge Flap Adjustment, TASK 27-51-21-820-801.

SUBTASK 27-51-25-820-002

(11) Do this task: Flap Skew Detection System Adjustment, TASK 27-59-00-820-801.

SUBTASK 27-51-25-640-001

(12) Do this task: Outboard Flap Outboard Flap Track Lubrication, TASK 12-22-51-640-816.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-25-410-001

(1) Install the fairings for the outboard track on the outboard flap:

(a) Do this task: Outboard Flap Outboard Support Aft Fairing Installation, TASK 27-51-28-400-802.

(b) Do this task: Outboard Flap Outboard Support Forward Fairing Installation, TASK 27-51-28-400-801.

SUBTASK 27-51-25-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-25-860-002

(3) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

TASK 27-51-25-000-802

4. Outboard Flap Inboard Track Removal

(Figure 402)

A. General

(1) This task is applicable to the flap tracks at flap supports No. 2 and 7.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-21-000-801	Outboard Trailing Edge Flap Removal (P/B 401)
27-51-28-000-803	Outboard Flap Inboard Support Forward Fairing Removal (P/B 401)
27-51-28-000-804	Outboard Flap Inboard Support Aft Fairing Removal (P/B 401)
27-51-41-000-802	Outboard Flap Inboard Transmission Removal (P/B 401)
27-59-02-000-802	Outboard Flap Inboard Skew Mechanism Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1568	Jack - Hydraulic, General Low Profile (Part #: B67563, Supplier: 36251, A/P Effectivity: 737-ALL) (Part #: HW93718, Supplier: 28047, A/P Effectivity: 737-ALL) (Opt Part #: W93718, Supplier: 36251, A/P Effectivity: 737-ALL)
SPL-1733	Adapter - Hoist, Removal/Installation, Flap Track (Part #: C27040-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

E. Prepare for the Removal

SUBTASK 27-51-25-860-003

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-25-040-002

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-25-010-002

(3) Remove the fairings for the inboard track on the outboard flap:

(a) Do this task: Outboard Flap Inboard Support Forward Fairing Removal, TASK 27-51-28-000-803.

(b) Do this task: Outboard Flap Inboard Support Aft Fairing Removal, TASK 27-51-28-000-804.

SUBTASK 27-51-25-020-009

(4) Do this task: Outboard Trailing Edge Flap Removal, TASK 27-51-21-000-801.

SUBTASK 27-51-25-020-010

(5) Do this task: Outboard Flap Inboard Skew Mechanism Removal, TASK 27-59-02-000-802.

SUBTASK 27-51-25-020-011

(6) Do this task: Outboard Flap Inboard Transmission Removal, TASK 27-51-41-000-802.

F. Outboard Flap Inboard Track Removal

NOTE: Make sure you support the flap track while you disconnect it.

SUBTASK 27-51-25-480-004

(1) If you will use the adapter, SPL-1733, install it on the flap track [41]:

(a) Install the adapter, SPL-1733 on the flap track [41] approximately 33 inches (84 cm) aft of the track attach fitting.

(b) Put a low profile hydraulic jack, COM-1568 below the adapter, SPL-1733 to support the flap track [41].

SUBTASK 27-51-25-020-012

(2) Remove the nut [56], washer [55], washer [54], washer [53] and bolt [52] to disconnect the jumper wire [57] from the flap track [41].

SUBTASK 27-51-25-020-013

(3) Disconnect the forward end of the flap track [41]:

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(a) Remove the bolts [59] and washers [58] that attach the failsafe fitting assembly [60] to the track attach fitting.

(b) Remove the nut [63], washer [62] and fuse pin [61] from the forward end of the flap track [41].

SUBTASK 27-51-25-020-014

(4) Disconnect the aft end of the flap track [41] from the structure:

(a) Remove the nut [46], washer [45], washer [44] and bolt [43] that attach the outboard side of the flap track [41] to the structure.

(b) Remove the nut [47], washer [48], washer [50] and bolt [51] that attach the inboard side of the flap track [41] to the structure.

(c) Measure the thickness of the shim [49].

SUBTASK 27-51-25-020-015

(5) If you will install a new flap track [41], remove the transmission attach fitting assembly [42] from the flap track [41]:

(a) Remove the nuts [67], washers [66] and bolts [65] that attach the transmission attach fitting assembly [42] to the flap track [41].

——————— END OF TASK ———————

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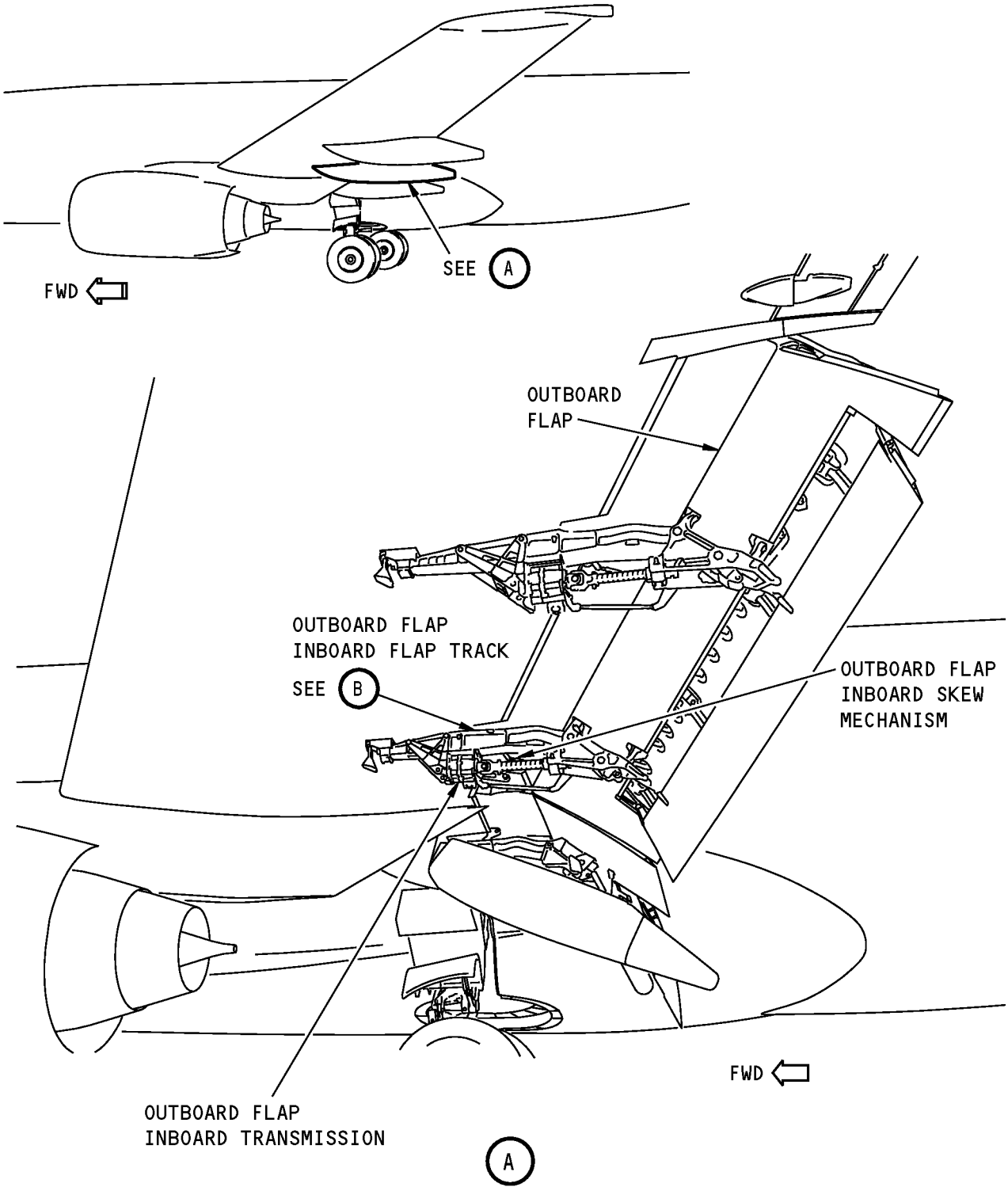

Outboard Flap Inboard Track Installation
Figure 402 (Sheet 1 of 4)/27-51-25-990-802

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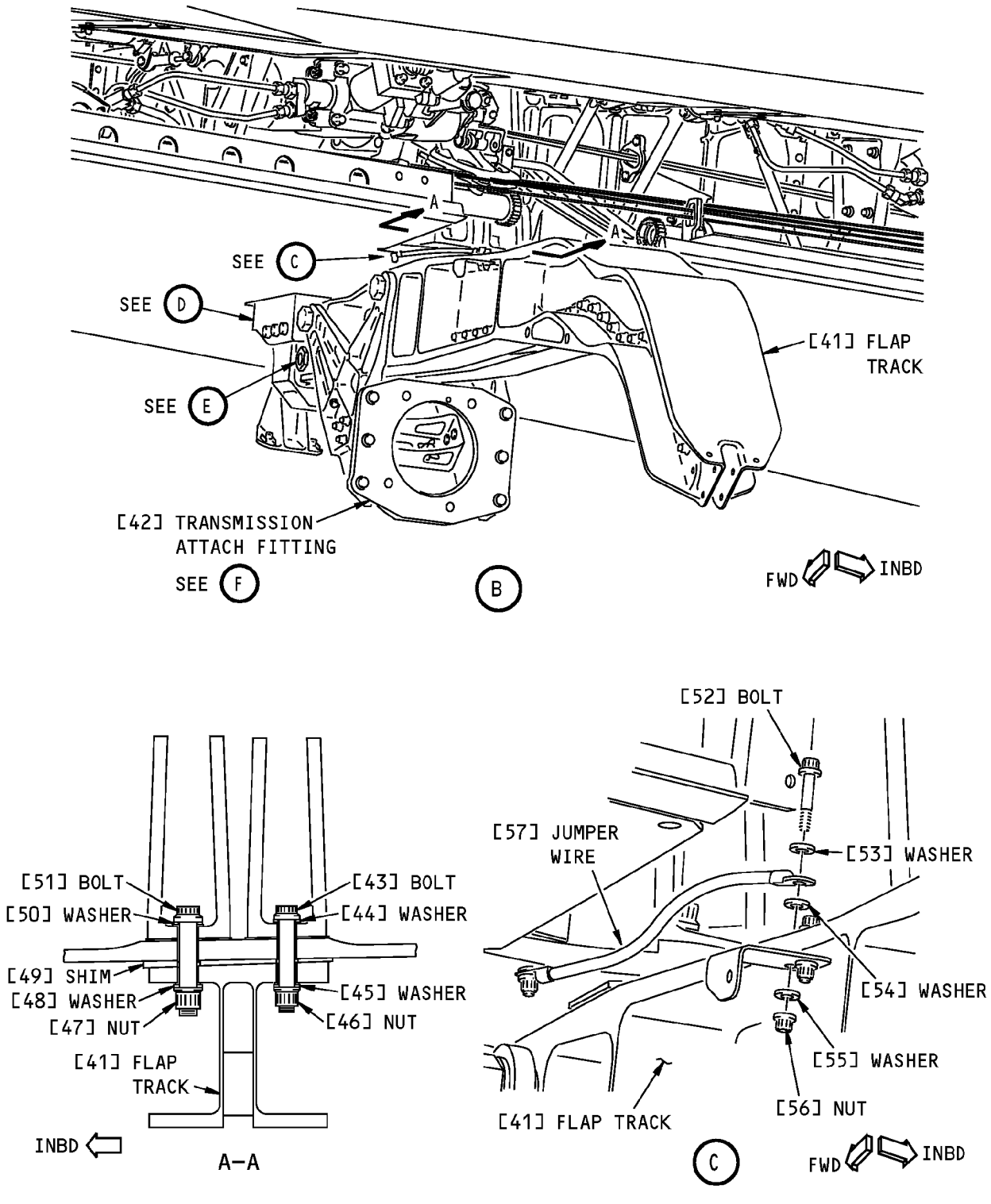

Outboard Flap Inboard Track Installation
Figure 402 (Sheet 2 of 4)/27-51-25-990-802

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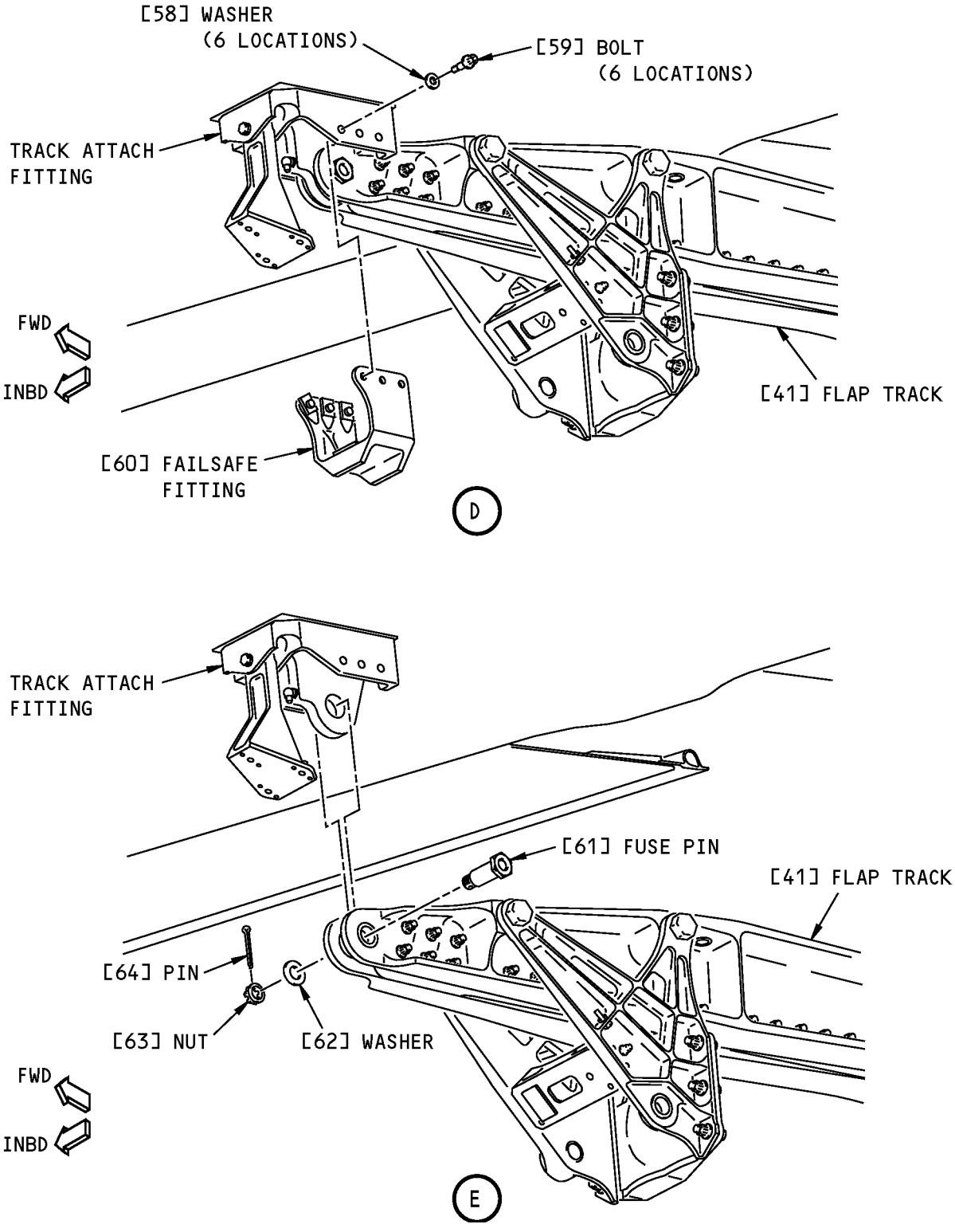

Outboard Flap Inboard Track Installation
Figure 402 (Sheet 3 of 4)/27-51-25-990-802

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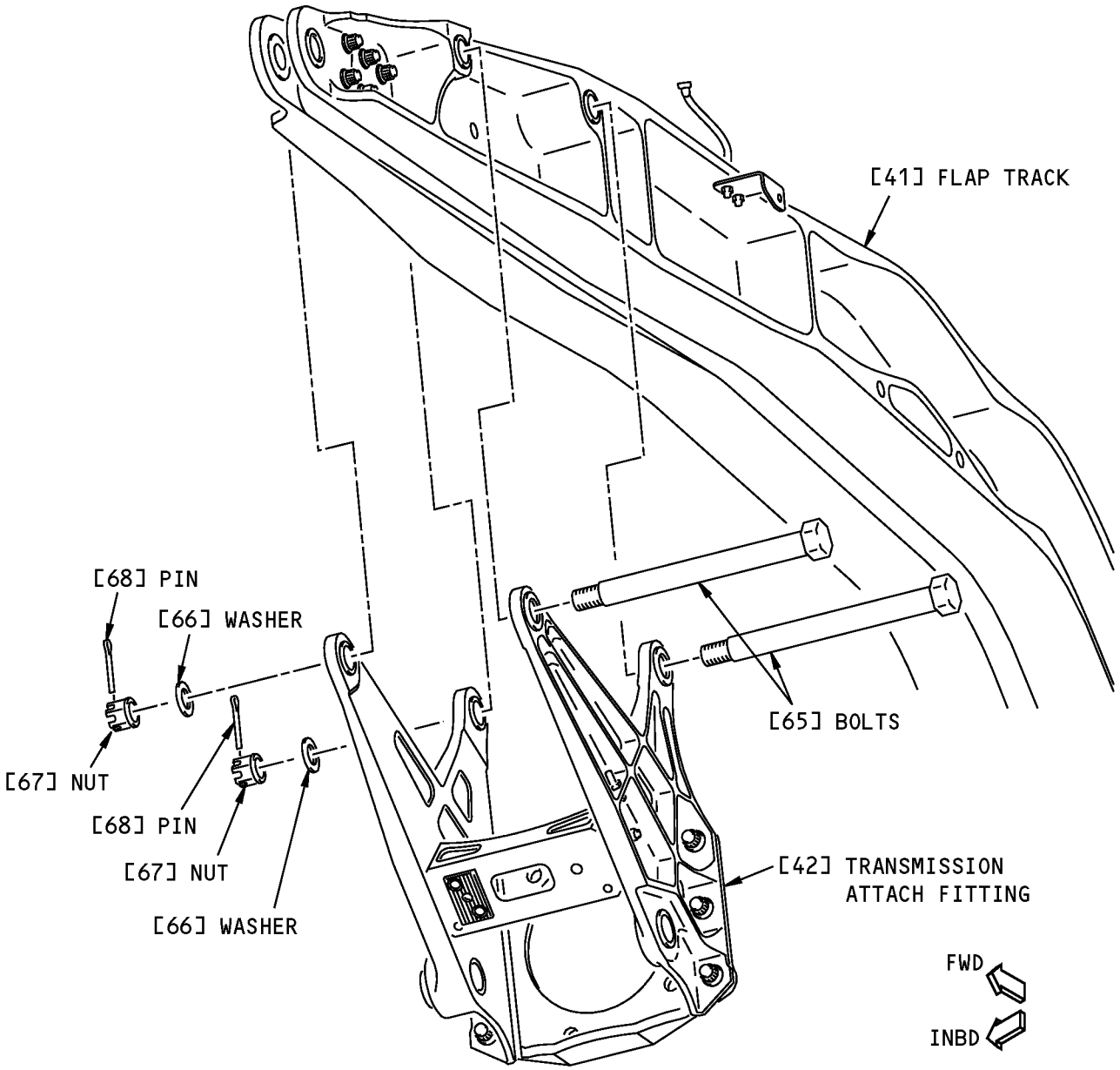

Outboard Flap Inboard Track Installation
Figure 402 (Sheet 4 of 4)/27-51-25-990-802

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TASK 27-51-25-400-802

5. Outboard Flap Inboard Track Installation

(Figure 402)

A. General

(1) This task is applicable to the flap tracks at flap supports No. 2 and 7.

B. References

Reference	Title
12-22-51-640-815	Outboard Flap Inboard Flap Track Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-21-400-801	Outboard Trailing Edge Flap Installation (P/B 401)
27-51-21-820-801	Outboard Trailing Edge Flap Adjustment (P/B 501)
27-51-28-400-803	Outboard Flap Inboard Support Forward Fairing Installation (P/B 401)
27-51-28-400-804	Outboard Flap Inboard Support Aft Fairing Installation (P/B 401)
27-51-41-400-802	Outboard Flap Inboard Transmission Installation (P/B 401)
27-59-00-820-801	Flap Skew Detection System Adjustment (P/B 501)
27-59-02-400-802	Outboard Flap Inboard Skew Mechanism Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1568	Jack - Hydraulic, General Low Profile (Part #: B67563, Supplier: 36251, A/P Effectivity: 737-ALL) (Part #: HW93718, Supplier: 28047, A/P Effectivity: 737-ALL) (Opt Part #: W93718, Supplier: 36251, A/P Effectivity: 737-ALL)
SPL-1733	Adapter - Hoist, Removal/Installation, Flap Track (Part #: C27040-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
41	Track	27-51-00-07-215	HAP 008-013, 015-026, 028-036
		27-51-25-01-220	HAP 001-007
		27-51-25-03A-135	HAP 008-013, 015-026, 028-054, 101-999
		27-51-25-03A-140	HAP 008-013, 015-026, 028-054, 101-999
42	Fitting assembly	27-51-25-01-065	HAP 001-007
		27-51-25-01-070	HAP 001-007

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
42 (cont.)		27-51-25-03A-165	HAP 008-013, 015-026, 028-054, 101-999
		27-51-25-03A-170	HAP 008-013, 015-026, 028-054, 101-999
60	Fitting assembly	27-51-00-07-010	HAP 001-013, 015-026, 028-036
		27-51-25-03A-015	HAP 008-013, 015-026, 028-054, 101-999
61	Pin	27-51-00-07-050	HAP 001-013, 015-026, 028-036
		27-51-25-03-115	HAP 001-007
		27-51-25-03A-050	HAP 008-013, 015-026, 028-054, 101-999
64	Pin	27-51-00-07-045	HAP 001-013, 015-026, 028-036
		27-51-25-03-110	HAP 001-007
		27-51-25-03A-045	HAP 008-013, 015-026, 028-054, 101-999
68	Pin	27-51-00-07-140	HAP 008-013, 015-026, 028-036
		27-51-25-01-080	HAP 001-007
		27-51-25-03A-145	HAP 008-013, 015-026, 028-054, 101-999

F. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

G. Outboard Flap Inboard Track Installation

SUBTASK 27-51-25-420-007

(1) If it is not installed, install the transmission attach fitting assembly [42]:

(a) Put the transmission attach fitting assembly [42] in its location on the flap track [41].

(b) Install the bolts [65], washers [66] and nuts [67] that attach the aft end of the transmission attach fitting assembly [42] to the flap track [41].

(c) Install the pins [68] in the nuts [67].

SUBTASK 27-51-25-480-005

(2) If you will use the adapter, SPL-1733, install it on the flap track [41]:

(a) Install the adapter, SPL-1733 on the flap track [41] approximately 33 inches (84 cm) aft of the track attach fitting.

(b) Put a low profile hydraulic jack, COM-1568 below the adapter, SPL-1733 to support the flap track [41].

SUBTASK 27-51-25-420-008

(3) Install the flap track [41]:

(a) If it is not installed, install the shim [49] on the structure:

NOTE: Make sure the shim [49] is the same thickness as the shim [49] that you removed. The original thickness of the shim [49] is on a marker on the structure.

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1) Apply sealant, A00247 to the mating surface of the shim [49] and the structure.
2) Put the shim [49] in its position.
3) Apply a fillet seal of sealant, A00247 around the shim [49].

(b) Attach the aft end of the flap track [41] to the structure:
1) Lift the flap track [41] to its location on the structure.
2) Install the bolt [51], washer [50], washer [48] and nut [47] that attaches the inboard side of the flap track [41] to the structure.
3) Install the bolt [43], washer [44], washer [45] and nut [46] that attaches the outboard side of the flap track [41] to the structure.

(c) Attach the forward end of the flap track [41]:
1) Apply grease, D00633 to the outside of the fuse pin [61] and the inside of the bushings.
2) Install the fuse pin [61] that attaches the forward end of the flap track [41] to the track attach fitting.

(d) Tighten the nut [47] to 1300-1800 pound-inches (146.9-203.3 newton-meters).

(e) Tighten the nut [46] to 870-1300 pound-inches (98.3-146.9 newton-meters).

(f) Make sure you can turn the fuse pin [61] in the joint with a maximum of 10 pound-inches (1.1 newton-meters) torque.

NOTE: You can push up on the forward end of the flap track [41] to take the weight off the fuse pin [61] when you measure the torque.

(g) Install the washer [62] and nut [63] on the fuse pin [61].

(h) Tighten the nut [63] to 330-350 pound-inches (37.3-39.5 newton-meters).

(i) Loosen the nut [63] to align the hole for the pin [64].

(j) Install the pin [64] in the nut [63].

SUBTASK 27-51-25-420-009

(4) Install the failsafe fitting assembly [60] on the track attach fitting:
(a) Put the failsafe fitting assembly [60] in its location on the track attach fitting.
(b) Install the bolts [59] and washers [58] to attach the failsafe fitting assembly [60].

SUBTASK 27-51-25-480-006

(5) If it is necessary, remove the adapter, SPL-1733 from the flap track [41].

SUBTASK 27-51-25-020-016

(6) Install the bolt [52], washer [53], washer [54], washer [55] and nut [56] to connect the jumper wire [57] to the flap track [41].

SUBTASK 27-51-25-420-010

(7) Do this task: Outboard Flap Inboard Transmission Installation, TASK 27-51-41-400-802.

SUBTASK 27-51-25-420-011

(8) Do this task: Outboard Trailing Edge Flap Installation, TASK 27-51-21-400-801.

SUBTASK 27-51-25-420-012

(9) Do this task: Outboard Flap Inboard Skew Mechanism Installation, TASK 27-59-02-400-802.

SUBTASK 27-51-25-820-003

(10) Do this task: Outboard Trailing Edge Flap Adjustment, TASK 27-51-21-820-801.

SUBTASK 27-51-25-820-004

(11) Do this task: Flap Skew Detection System Adjustment, TASK 27-59-00-820-801.

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SUBTASK 27-51-25-640-002

(12) Do this task: Outboard Flap Inboard Flap Track Lubrication, TASK 12-22-51-640-815.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-25-410-002

(1) Install the fairings for the inboard track on the outboard flap:

(a) Do this task: Outboard Flap Inboard Support Aft Fairing Installation, TASK 27-51-28-400-804.

(b) Do this task: Outboard Flap Inboard Support Forward Fairing Installation, TASK 27-51-28-400-803.

SUBTASK 27-51-25-440-002

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-25-860-004

(3) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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OUTBOARD FLAP TRACKS - INSPECTION/CHECK

1. General

A. This procedure contains the task to do an inspection of the flap tracks for the outboard trailing edge flaps.

TASK 27-51-25-200-801

2. Outboard Flap Outboard Track Inspection

(Figure 601)

A. General

(1) This task gives wear limits for the outboard track on the outboard flap.

(2) this task is applicable to the flap tracks at flap supports No. 1 and 8.

B. References

Reference	Title
27-51-25-000-801	Outboard Flap Outboard Track Removal (P/B 401)
27-51-25-400-801	Outboard Flap Outboard Track Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

E. Procedure

SUBTASK 27-51-25-020-017

(1) Do this task: Outboard Flap Outboard Track Removal, TASK 27-51-25-000-801.

SUBTASK 27-51-25-020-018

(2) Use these tools to do a check for wear on the part of the outboard flap outboard track:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-51-25-020-019

(3) Examine the parts of the outboard flap outboard track (Table 601):

(a) Remove the parts that you will measure.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

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Table 601/27-51-25-993-805

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 BUSHING	I.D.	0.4800 in 12.192 mm	0.4896 in 12.436 mm	0.4911 in 12.474 mm	0.0306 in
#1 FUSE PIN	O.D.	0.4600 in 11.684 mm	0.4605 in 11.697 mm	0.4590 in 11.659 mm	0.7772 mm
#2 BUSHING	I.D.	0.4700 in 11.938 mm	0.4796 in 12.182 mm	0.4796 in 12.182 mm	0.0196 in
#2 FUSE PIN	O.D.	0.4600 in 11.684 mm	0.4606 in 11.699 mm	0.4600 in 11.684 mm	0.4978 mm
#3 BUSHING	I.D.	0.5620 in 14.275 mm	0.5670 in 14.402 mm	0.5670 in 14.402 mm	0.0065 in
#3 BOLT	O.D.	0.5605 in 14.237 mm	0.5615 in 14.262 mm	0.5605 in 14.237 mm	0.1651 mm
#4 BUSHING	I.D.	0.5000 in 12.700 mm	0.5050 in 12.827 mm	0.5050 in 12.827 mm	0.0065 in
#4 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4985 in 12.662 mm	0.1651 mm
#5 BUSHING	I.D.	0.5620 in 14.275 mm	0.5670 in 14.402 mm	0.5695 in 14.465 mm	0.0700 in
#5 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4970 in 12.624 mm	1.7780 mm
#6 BUSHING	I.D.	0.5620 in 14.275 mm	0.5670 in 14.402 mm	0.5695 in 14.465 mm	0.0080 in
#6 BOLT	O.D.	0.5605 in 14.237 mm	0.5615 in 14.262 mm	0.5590 in 14.199 mm	0.2032 mm

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SUBTASK 27-51-25-420-013

(4) Do this task: Outboard Flap Outboard Track Installation, TASK 27-51-25-400-801.

END OF TASK

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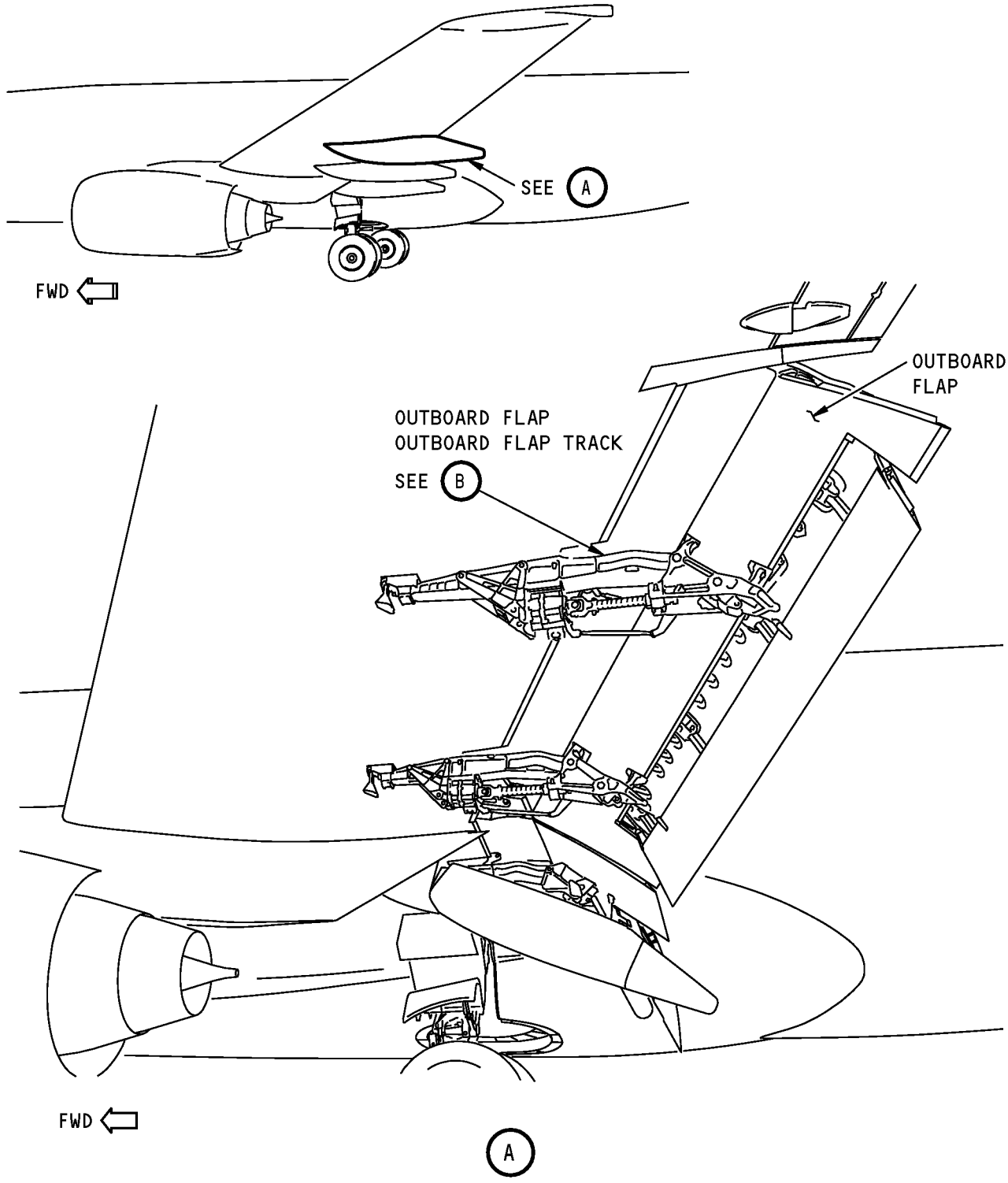

Outboard Flap Outboard Track Wear Limits
Figure 601 (Sheet 1 of 2)/27-51-25-990-803

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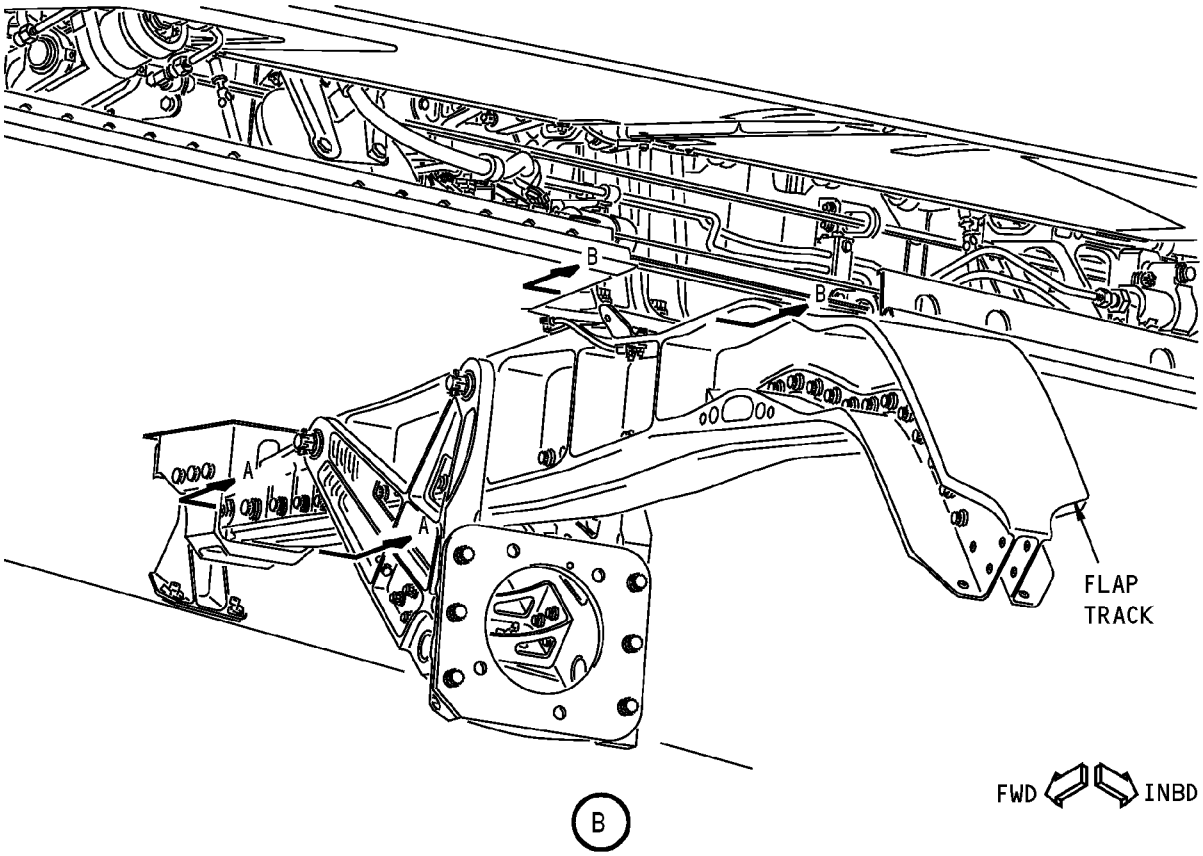

Outboard Flap Outboard Track Wear Limits
Figure 601 (Sheet 2 of 2)/27-51-25-990-803

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TASK 27-51-25-200-802

3. Outboard Flap Inboard Track Inspection

(Figure 602)

A. General

(1) This task gives wear limits for the inboard track on the outboard flap.

(2) this task is applicable to the flap tracks at flap supports No. 2 and 3.

B. References

Reference	Title
27-51-25-000-802	Outboard Flap Inboard Track Removal (P/B 401)
27-51-25-400-802	Outboard Flap Inboard Track Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

E. Procedure

SUBTASK 27-51-25-020-020

(1) Do this task: Outboard Flap Inboard Track Removal, TASK 27-51-25-000-802.

SUBTASK 27-51-25-020-021

(2) Use these tools to do a check for wear on the part of the inboard flap inboard track:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-51-25-020-022

(3) Examine the parts of the inboard flap inboard track (Table 602):

(a) Remove the parts that you will measure.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are not in tolerance, replace or repair the parts.

Table 602/27-51-25-993-806

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 BUSHING	I.D.	0.8080 in 20.523 mm	0.8175 in 20.765 mm	0.8198 in 20.823 mm	0.0313 in

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE CLEARANCE inches/mm
#1 FUSE PIN	O.D.	0.7880 in 20.015 mm	0.7885 in 20.028 mm	0.7862 in 19.969 mm	0.7950 mm
#2 BUSHING	I.D.	0.8080 in 20.523 mm	0.8175 in 20.765 mm	0.8198 in 20.823 mm	0.0313 in
#2 FUSE PIN	O.D.	0.7880 in 20.015 mm	0.7885 in 20.028 mm	0.7862 in 19.969 mm	0.7950 mm
#3 BUSHING	I.D.	0.5620 in 14.275 mm	0.5670 in 14.402 mm	0.5670 in 14.402 mm	0.0065 in
#3 BOLT	O.D.	0.5605 in 14.237 mm	0.5615 in 14.262 mm	0.5605 in 14.267 mm	0.1651 mm
#4 BUSHING	I.D.	0.5000 in 12.700 mm	0.5050 in 12.827 mm	0.5050 in 12.827 mm	0.0065 in
#4 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4985 in 12.662 mm	0.1651 mm
#5 BUSHING	I.D.	0.5620 in 14.275 mm	0.5670 in 14.402 mm	0.5695 in 14.465 mm	0.0700 in
#5 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4970 in 12.624 mm	1.7780 mm
#6 BUSHING	I.D.	0.5620 in 14.275 mm	0.5670 in 14.402 mm	0.5695 in 14.465 mm	0.0080 in
#6 BOLT	O.D.	0.5605 in 14.237 mm	0.5615 in 14.262 mm	0.5590 in 14.199 mm	0.2032 mm

SUBTASK 27-51-25-420-014

(4) Do this task: Outboard Flap Inboard Track Installation, TASK 27-51-25-400-802.

END OF TASK

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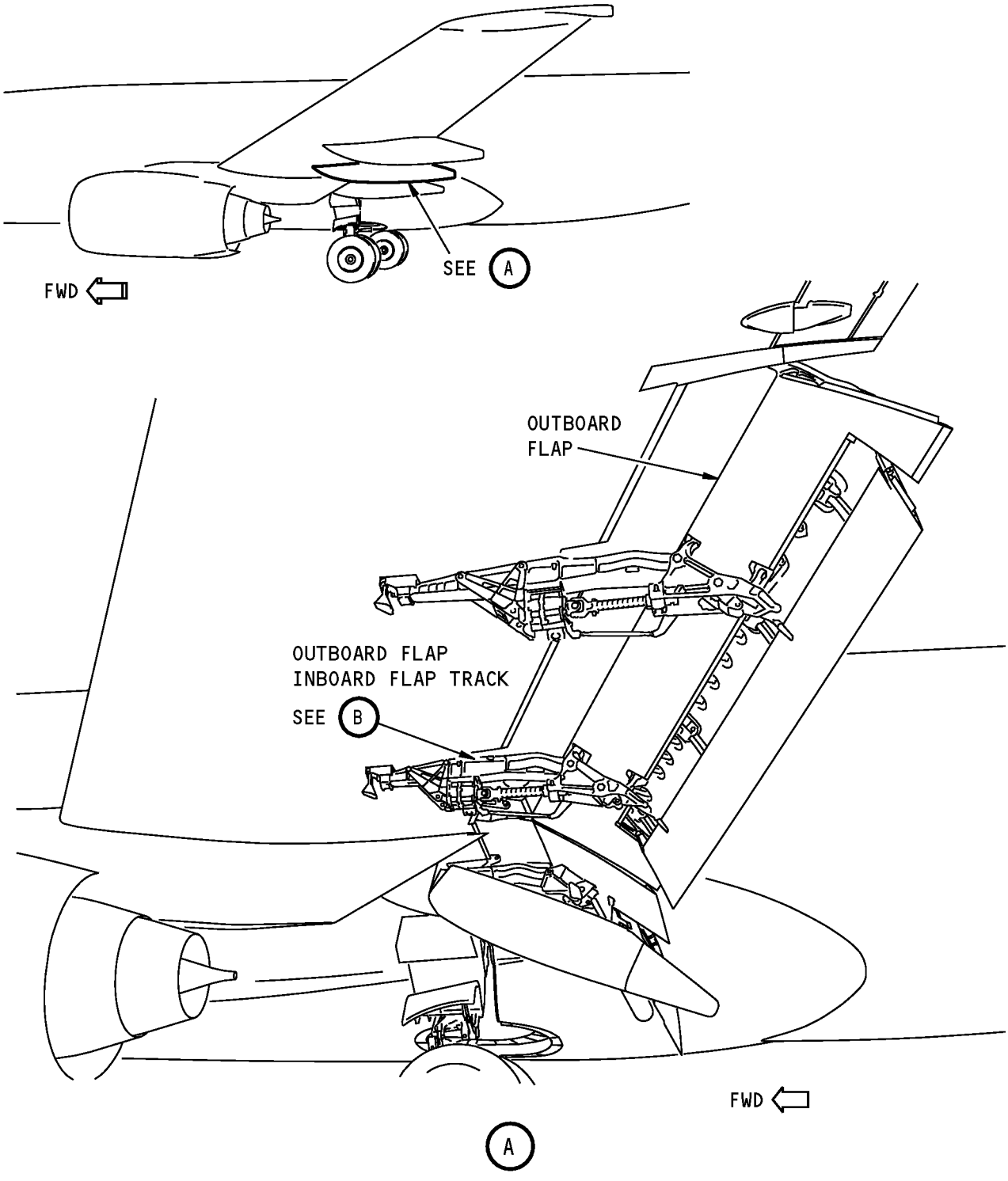

Outboard Flap Inboard Track Wear Limits
Figure 602 (Sheet 1 of 2)/27-51-25-990-804

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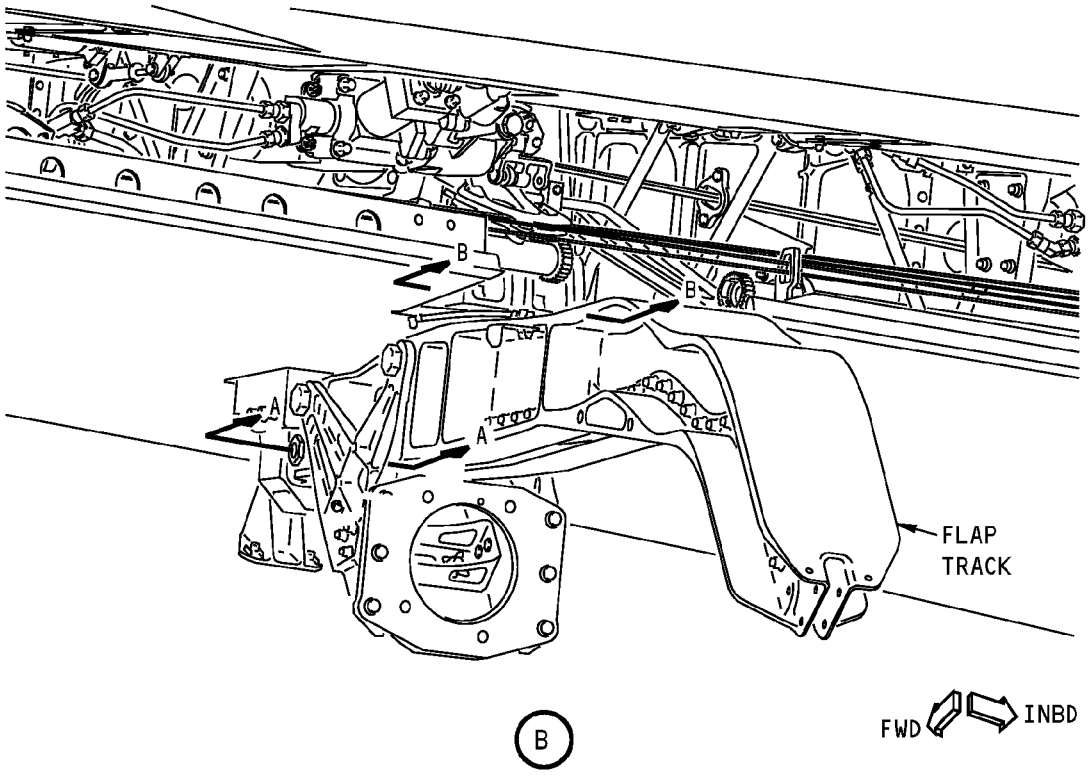

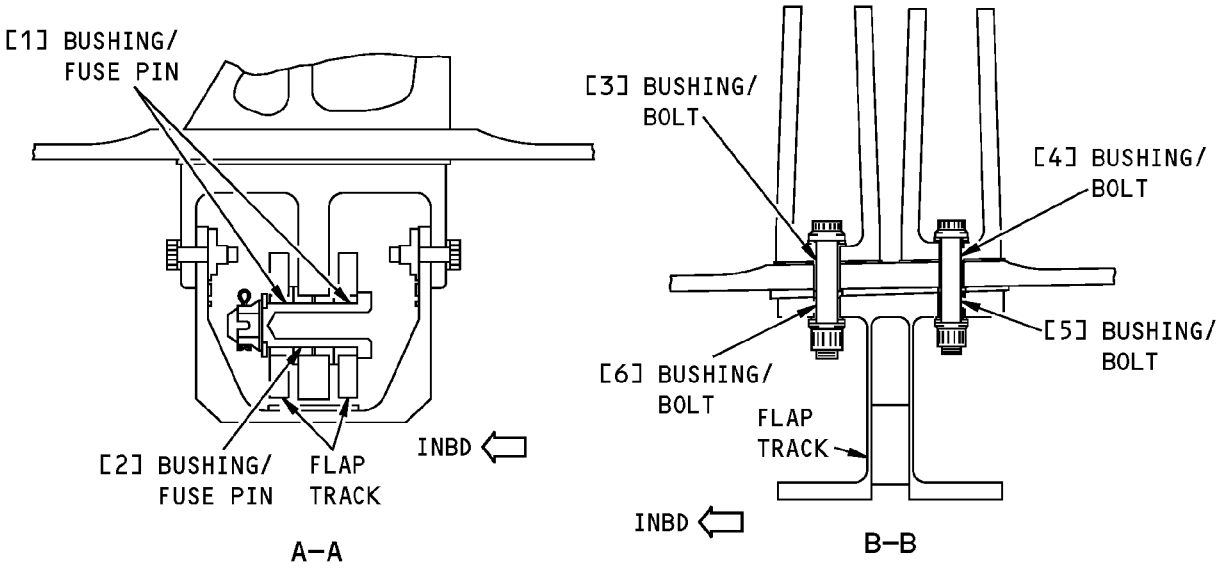

Outboard Flap Inboard Track Wear Limits
Figure 602 (Sheet 2 of 2)/27-51-25-990-804

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OUTBOARD AFT FLAP TRACKS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the aft flap tracks for the outboard flap

(2) An installation of the aft flap tracks for the outboard flap.

B. There are four aft flap tracks on the outboard flaps. You can use this procedure to remove and install one or more of the aft flap tracks. If you remove more than two aft flap tracks, it is necessary to remove the aft flap from the main flap.

TASK 27-51-26-000-801

2. Outboard Aft Flap Track Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-22-000-801	Outboard Aft Flap Removal (P/B 401)

B. Location Zones

Zone	Area
567	Left Wing - Outboard Flap
667	Right Wing - Outboard Flap

C. Prepare for the Removal

SUBTASK 27-51-26-020-001

(1) If you will remove more than two aft flap tracks, then remove the aft flap [2]. To remove the aft flap [2], do this task: Outboard Aft Flap Removal, TASK 27-51-22-000-801.

SUBTASK 27-51-26-860-001

(2) If you will remove one or two aft flap tracks, then extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-26-040-001

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

D. Outboard Aft Flap Track Removal

SUBTASK 27-51-26-020-002

(1) For the outboard aft flap track assembly [3], remove the pin [12], nut [11], washer [10], washer [8], bolt [7] and bushing [9] that attach it to the aft flap [2].

SUBTASK 27-51-26-020-003

(2) For aft flap track assembly [4], aft flap track assembly [5] or aft flap track assembly [6], remove the pin [18], nut [17], washer [16], washer [14], bolt [13] and bushing [15] that attach it to the aft flap [2].

SUBTASK 27-51-26-020-004

(3) Remove aft flap track assembly [6] from the main flap [1] (View D):

(a) Remove the bolts [19] and washers [20] that attach the cartridge assemblies [21] to the track support rib [22] on the main flap [1].

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(b) Remove the cartridge assemblies [21] from the track support rib [22].

NOTE: There are four cartridge assemblies [21] on the track support rib [22].

(c) Carefully remove the aft flap track assembly [6] from the track support rib [22].

SUBTASK 27-51-26-020-005

(4) Remove the aft flap track assembly [5] from the main flap [1] (View E):

(a) Remove the bolts [23] and washers [24] that attach the cartridge assemblies [21] to the track support rib [22] on the main flap [1].

(b) Remove the cartridge assemblies [21] from the track support rib [22].

NOTE: There are four cartridge assemblies [21] on the track support rib [22].

(c) Carefully remove the aft flap track assembly [5] from the track support rib [22].

SUBTASK 27-51-26-020-006

(5) Remove aft flap track assembly [3] or aft flap track assembly [4], from the main flap [1] (View F):

(a) Remove the bolts [23] and washers [24] that attach the cartridge assemblies [25] to the track support rib [22] on the main flap [1].

(b) Remove the cartridge assemblies [25] from the track support rib [22].

(c) Carefully remove the aft flap track assembly [3] or aft flap track assembly [4] from the track support rib [22].

END OF TASK

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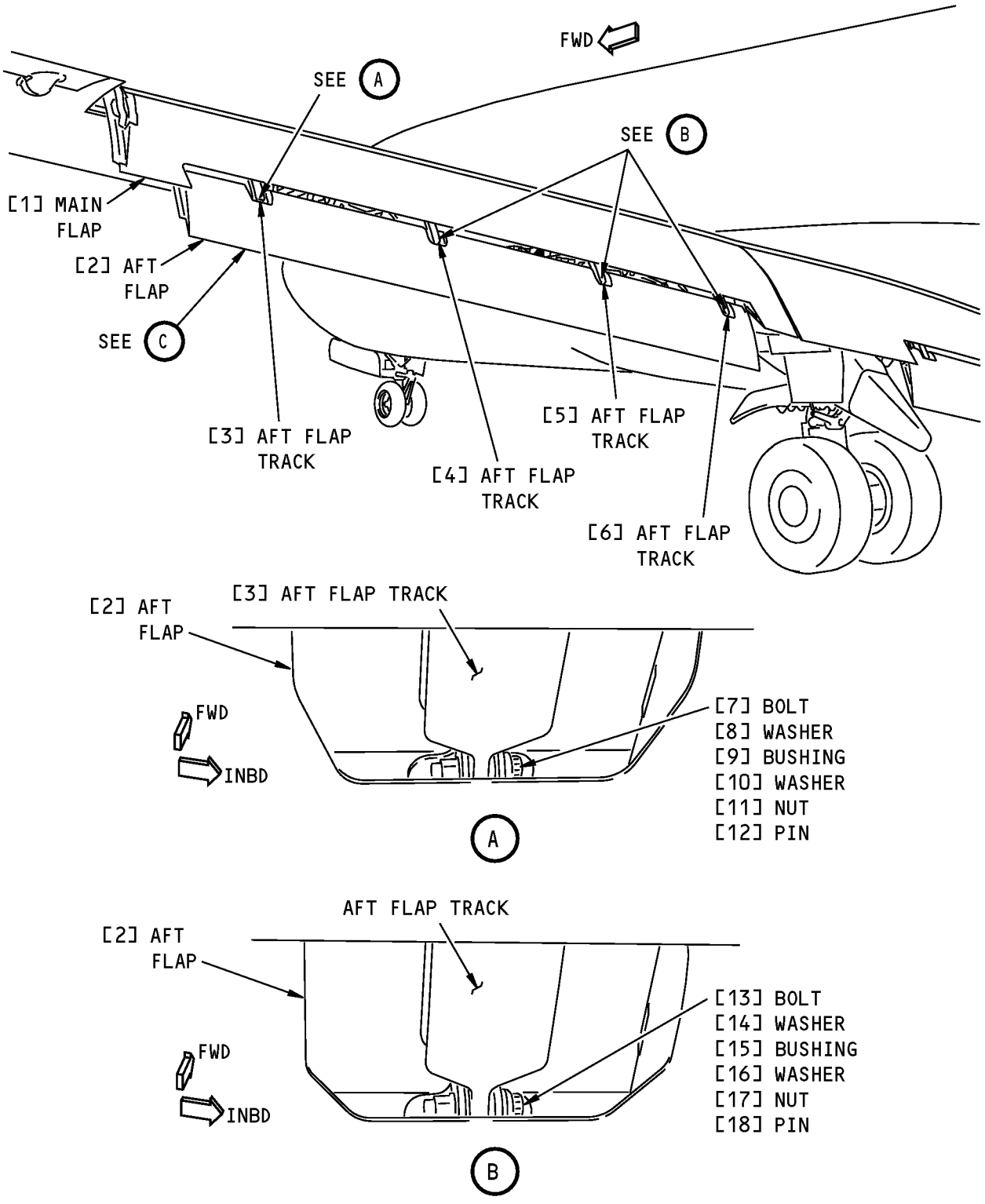

Outboard Aft Flap Track Installation
Figure 401 (Sheet 1 of 3)/27-51-26-990-801

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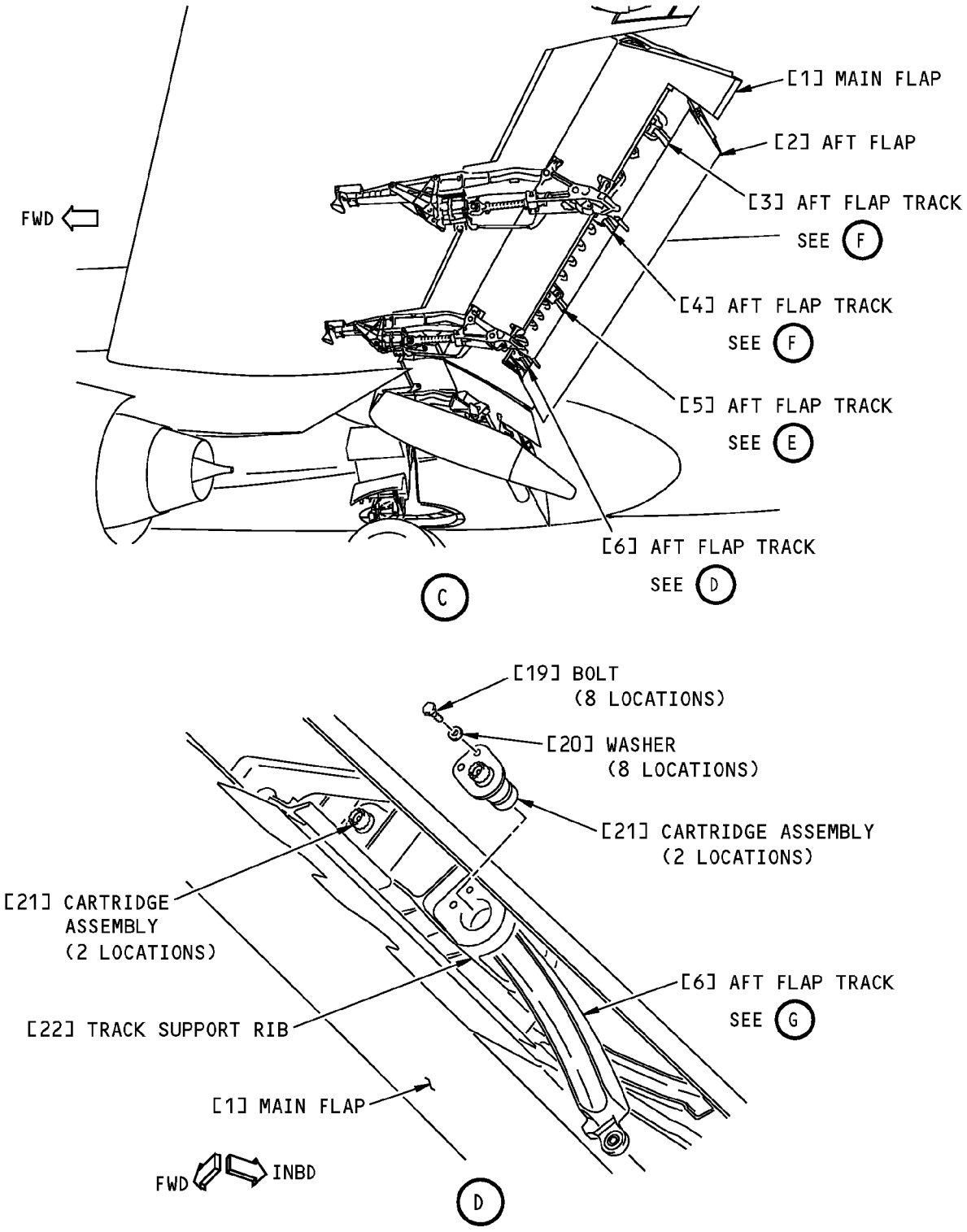

Outboard Aft Flap Track Installation
Figure 401 (Sheet 2 of 3)/27-51-26-990-801

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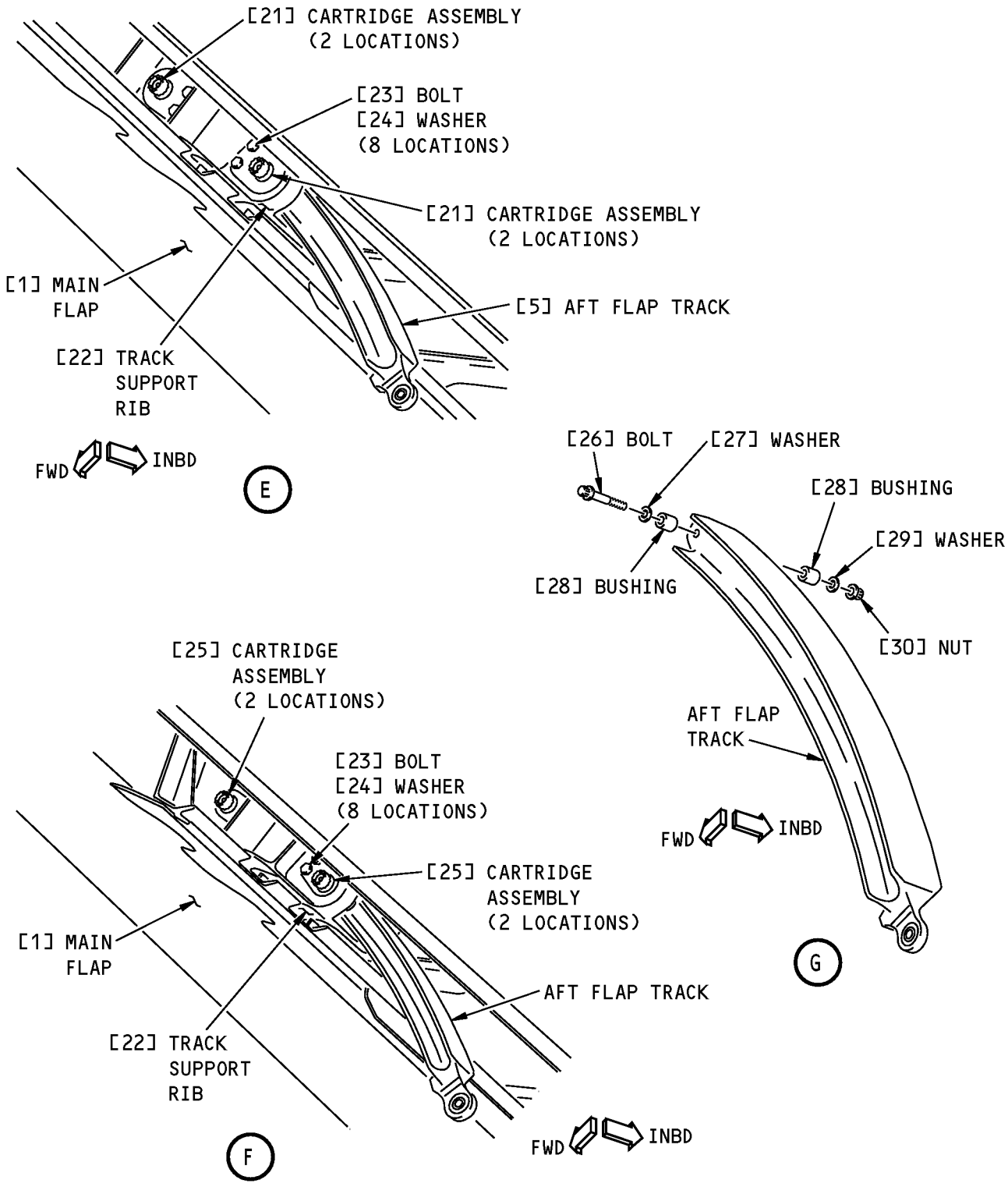

Outboard Aft Flap Track Installation
Figure 401 (Sheet 3 of 3)/27-51-26-990-801

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TASK 27-51-26-400-801

3. Outboard Aft Flap Track Installation

(Figure 401)

A. References

Reference	Title
12-22-51-640-812	Outboard Main Flap and Aft Flap Roller and Linkage Lubrication (P/B 301)
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-22-400-801	Outboard Aft Flap Installation (P/B 401)
51-21-81-370-801	Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I (P/B 701)
51-51-00-340-802	Bonded Phenolic or Stainless Steel Rub Pad Repair (Heat Source Available) (P/B 801)

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Track assembly	27-51-26-01-140	HAP ALL
4	Track assembly	27-51-26-01-120	HAP ALL
5	Track assembly	27-51-26-01-100	HAP ALL
6	Track assembly	27-51-26-01-080	HAP ALL
12	Pin	27-51-26-01-060	HAP ALL
18	Pin	27-51-26-01-060	HAP ALL
21	Cartridge assembly	27-51-21-01-210	HAP ALL
		27-51-21-01-365	HAP ALL
25	Cartridge assembly	27-51-21-01-510	HAP ALL
		27-51-21-01-655	HAP ALL

D. Location Zones

Zone	Area
567	Left Wing - Outboard Flap
667	Right Wing - Outboard Flap

E. Outboard Aft Flap Track Installation

SUBTASK 27-51-26-420-001

(1) If the downstop is not installed on the applicable aft flap track, do these steps:

(a) Install the bolt [26], bushings [28], washer [27], washer [29] and nut [30] on the aft flap track.

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(b) Tighten the nut [30] the minimum amount to necessary to hold the bushings [28] tight.

SUBTASK 27-51-26-420-002

(2) Install the aft flap track assembly [6] in the main flap [1] (View D):

(a) Carefully put the aft flap track assembly [6] in its position in the track support rib [22] in the main flap [1].

NOTE: Make sure the downstop is forward of the forward cartridge location.

(b) Apply a layer of grease, D00633 or grease, D00015 to the outside of the cartridge assemblies [21] and the inside diameter of the track support rib [22].

(c) Put the cartridge assemblies [21] in their position in the track support rib [22].

NOTE: Hold the aft flap track assembly [6] in its position while you install the cartridge assemblies [21].

(d) Install the bolts [19] and washers [20] that attach the cartridge assemblies [21] to the track support rib [22].

SUBTASK 27-51-26-420-003

(3) Install the aft flap track assembly [5] in the main flap [1] (View E):

(a) Carefully put the aft flap track assembly [5] in its position in the track support rib [22] in the main flap [1].

NOTE: Make sure the downstop is forward of the forward cartridge location.

(b) Apply a layer of grease, D00633 or grease, D00015 to the outside of the cartridge assemblies [21] and the inside diameter of the track support rib [22].

(c) Put the cartridge assemblies [21] in their position in the track support rib [22].

NOTE: Hold the aft flap track assembly [5] in its position while you install the cartridge assemblies [21].

(d) Install the bolts [23] and washers [24] that attach the cartridge assemblies [21] to the track support rib [22].

SUBTASK 27-51-26-420-004

(4) Install the aft flap track assembly [3] or aft flap track assembly [4] in the main flap [1] (View F):

(a) Carefully put the aft flap track assembly [3] or aft flap track assembly [4] in its position in the track support rib [22] in the main flap [1].

NOTE: Make sure the downstop is forward of the forward cartridge location.

(b) Apply a layer of grease, D00633 or grease, D00015 to the outside of the cartridge assemblies [25] and the inside diameter of the track support rib [22].

(c) Put the cartridge assemblies [25] in their position in the track support rib [22].

NOTE: Hold the aft flap track assembly [3] or aft flap track assembly [4] in its position while you install the cartridge assemblies [25].

(d) Install the bolts [23] and washers [24] that attach the cartridge assemblies [25] to the track support rib [22].

SUBTASK 27-51-26-420-005

(5) If the aft flap [2] is installed, connect the applicable aft flap track to the aft flap [2]:

(a) Connect the aft flap track assembly [3] to the aft flap [2]:

1) Move the aft flap track assembly [3] until it aligns with the aft flap [2].

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2) Apply grease, D00633 to the shank of the bolt [7] and the inside of the bushing [9].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolt [7].

3) Install the bushing [9], bolt [7] and washer [8] that attach the aft flap track assembly [3] to the aft flap [2].

4) Carefully clean all of the grease, D00633 from the threads of the bolt [7].

5) Install the washer [10] and nut [11] on the bolt [7].

6) Tighten the nut [11] to 65-100 pound-inches (7.3-11.3 newton-meters).

7) Install the pin [12] in the nut [11].

(b) Connect the aft flap track assembly [4], aft flap track assembly [5] or aft flap track assembly [6] to the aft flap [2]:

1) Move the applicable aft flap track until it aligns with the aft flap [2].

2) Apply grease, D00633 to the shank of the bolt [13] and the inside of the bushing [15].

NOTE: Make sure you do not get grease, D00633 on the threads of the bolt [13].

3) Install the bushing [15], bolt [13] and washer [14] that attach the aft flap track assembly [4], aft flap track assembly [5] or aft flap track assembly [6] to the aft flap [2].

4) Carefully clean all of the grease, D00633 from the threads of the bolt [13].

5) Install the washer [16] and nut [17] on the bolt [13].

6) Tighten the nut [17] to 130-200 pound-inches (14.7-22.6 newton-meters).

7) Install the pin [18] in the nut [17].

SUBTASK 27-51-26-420-006

(6) If it is not installed, install the aft flap [2]. To install the aft flap [2], do this task: Outboard Aft Flap Installation, TASK 27-51-22-400-801.

SUBTASK 27-51-26-640-001

(7) Lubricate the cartridge assemblies [21] and cartridge assemblies [25] with grease, D00633. To lubricate the cartridges, do this task: Outboard Main Flap and Aft Flap Roller and Linkage Lubrication, TASK 12-22-51-640-812.

SUBTASK 27-51-26-860-002

(8) If the trailing edge flaps are not in the retracted position, retract the flaps:

(a) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

(b) Retract the flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

F. Outboard Aft Flap Adjustment

SUBTASK 27-51-26-480-001

(1) On the inboard and outboard flap supports, install the rig pins in the rig pin holes in the bellcrank [51] and the flap carriage (Figure 402).

(a) If it is necessary, move the aft flap [2] or the main flap [1] until you can install the rig pins.

SUBTASK 27-51-26-980-001

(2) Support the aft flap [2] to make sure the programming rollers touch the bottom surface of the programming tracks and the aft rollers for the aft flap tracks touch the top surface of the tracks.

NOTE: This is the position the rollers will be in with airloads applied to the flap.

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SUBTASK 27-51-26-220-001

(3) Measure the clearance between the main flap [1] and the upper surface of the aft flap [2] (View C) (Figure 402).

NOTE: Measure the clearance at all of the cove panel supports [53] and at the track support ribs [22].

SUBTASK 27-51-26-220-002

(4) Make sure that the rub strip [50] and teflon coating on the upper surface of the aft flap [2] are not damaged (View C) (Figure 402).

(a) If the rub strip [50] is damaged or missing, then do this task, do this task: Bonded Phenolic or Stainless Steel Rub Pad Repair (Heat Source Available), TASK 51-51-00-340-802.

(b) If the telfon coating is damaged, then do this task, do this task: Apply The Abrasion-Resistant Teflon Finish, BMS 10-86 Type I, TASK 51-21-81-370-801.

SUBTASK 27-51-26-820-001

(5) If the clearance between the main flap [1] and the aft flap [2] is not in the limit of 0.010 +0.100/-0.010 inch (0.25 +2.54/-0.25 mm), then change the thickness of the shims [61] on the cove panel support [52] or the shims [61] on the track support ribs [22].

(a) Remove the rig pins from the bellcranks [51].

(b) Extend the aft flap [2], until you can get access to the fasteners for the shims [57] and [61]. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(c) If it is necessary, change the thickness of the shims [61] on the cove panel supports [52]:

1) Remove the nuts [56], washers [55] and bolts [54] that attach the cove panel [53] to the cove panel support [52].

2) Remove the shim [57] from the cove panel support [52] and the cove panel [53].

3) Change the thickness of the shim [57].

NOTE: The maximum permitted thickness of the shim [57] is 0.050 inch.

4) Apply sealant, A00247 to the mating surfaces of the shim [57].

5) Put the shim [57] in its position between the cove panel support [52] and the cove panel [53].

6) Install the bolts [54], washers [55] and nuts [56].

(d) If it is necessary, change the thickness of the shims [61] on the track support rib [22]:

1) Remove the nuts [60], washers [59] and bolts [58] that attach the cove panel [53] to the track support rib [22].

2) Remove the shims [61] from the track support rib [22] and the cove panel [53].

3) Change the thickness of the shims [61].

NOTE: The maximum permitted thickness of the shim [61] is 0.050 inch (1.27 mm).

4) Apply sealant, A00247 to the mating surfaces of the shims [61].

5) Put the shims [61] in their position between the track support rib [22] and the cove panel [53].

6) Install the bolts [58], washers [59] and nuts [60].

7) If it is necessary, trim the excess shim [61] that extends past the track support rib [22].

(e) Retract the aft flap [2] until you can install the rig pins in the bellcranks [51]. To retract the flap, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

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(f) Install the rig pins in the bellcranks [51].

(g) Make sure the clearance between the main flap [1] and the upper surface of the aft flap [2] is in the limit.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-26-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-26-860-003

(2) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

——————— END OF TASK ———————

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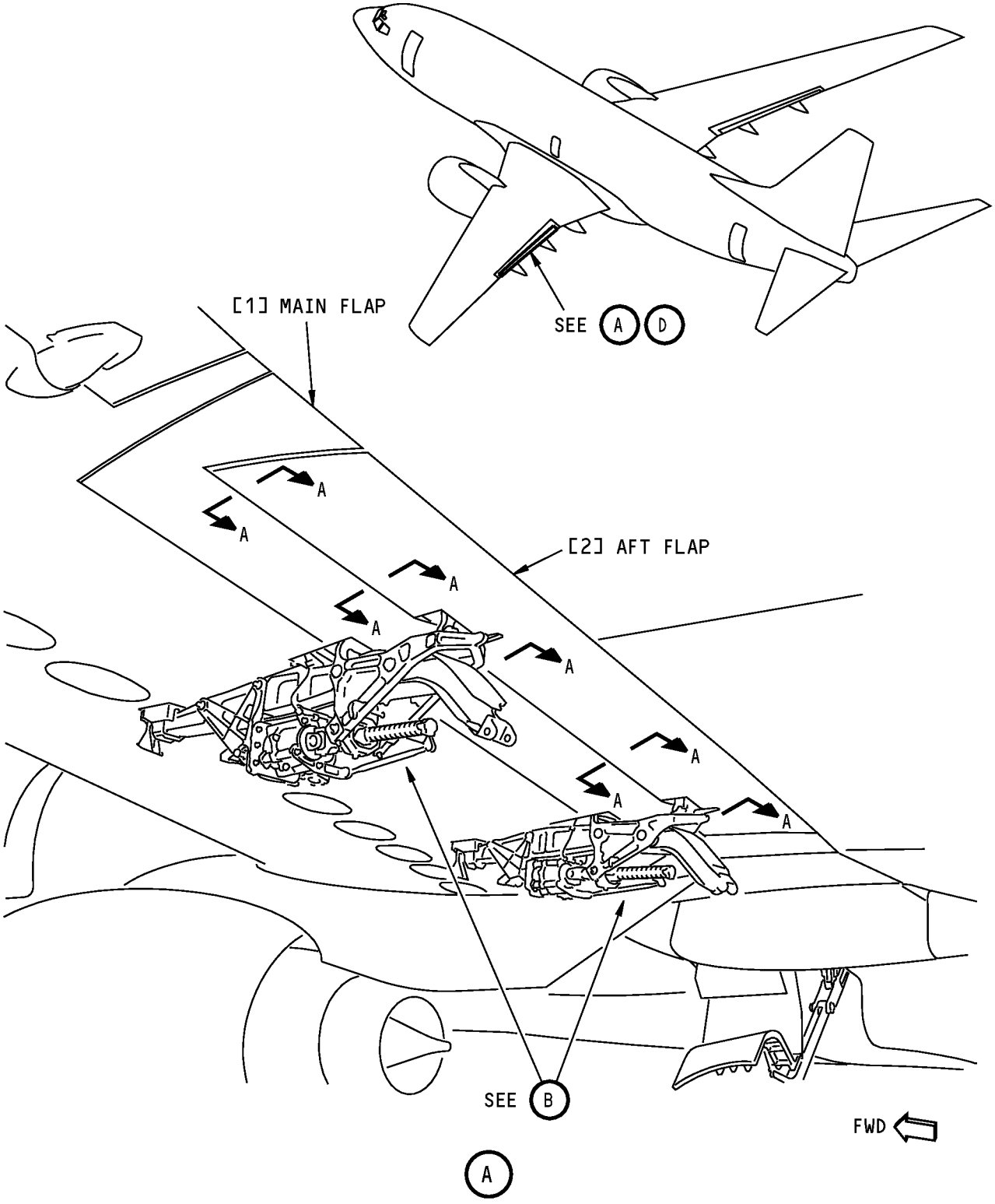

Outboard Aft Flap Track Adjustment
Figure 402 (Sheet 1 of 4)/27-51-26-990-802

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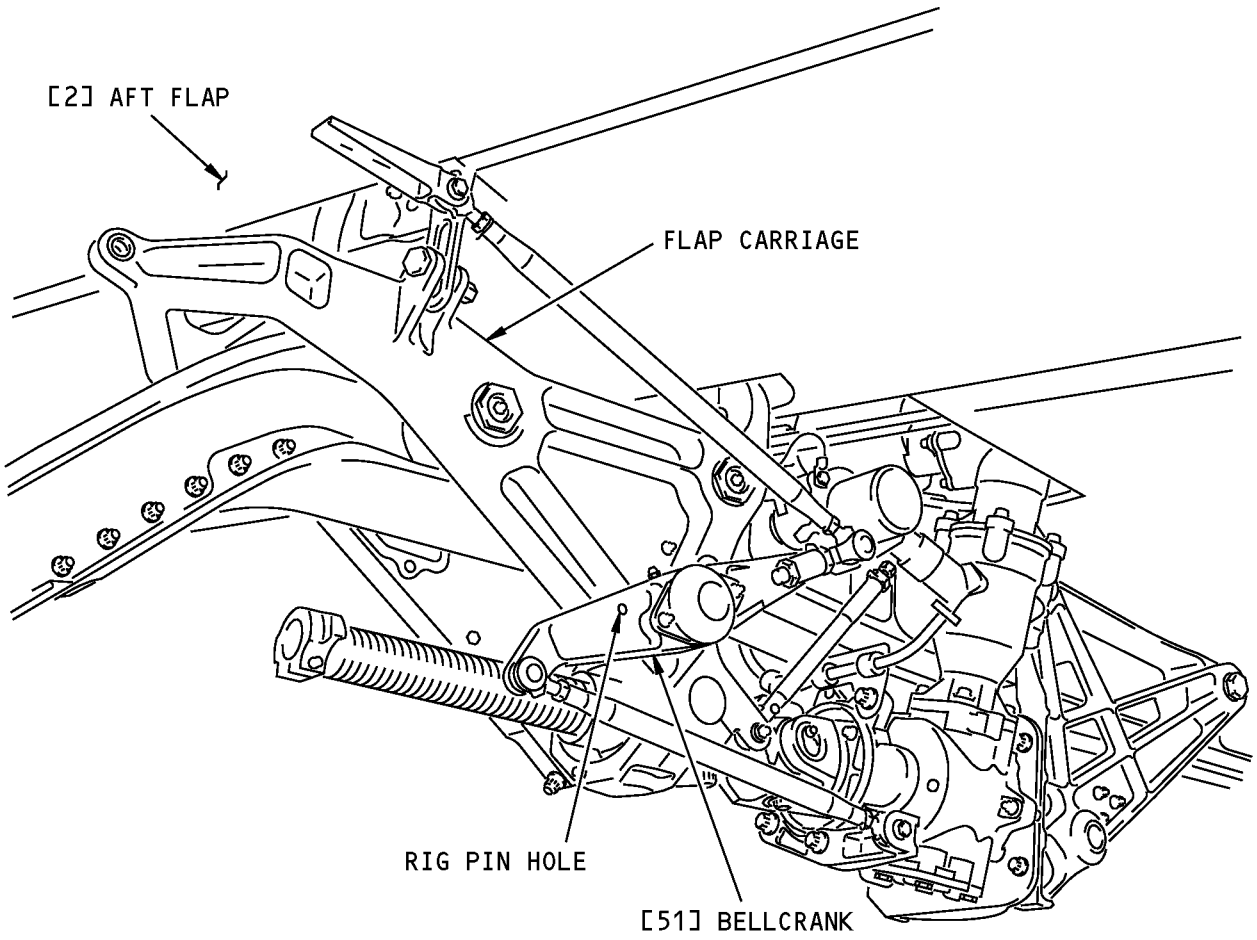

Outboard Aft Flap Track Adjustment
Figure 402 (Sheet 2 of 4)/27-51-26-990-802

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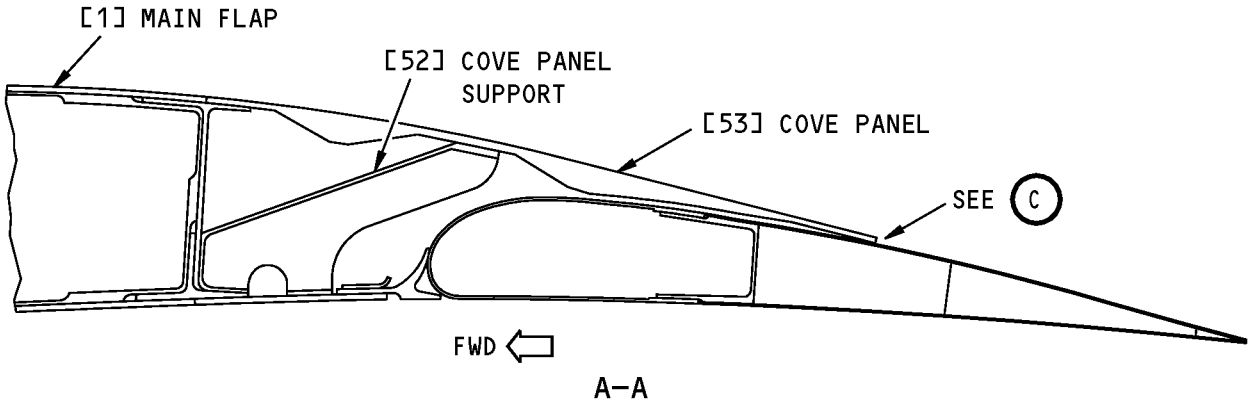

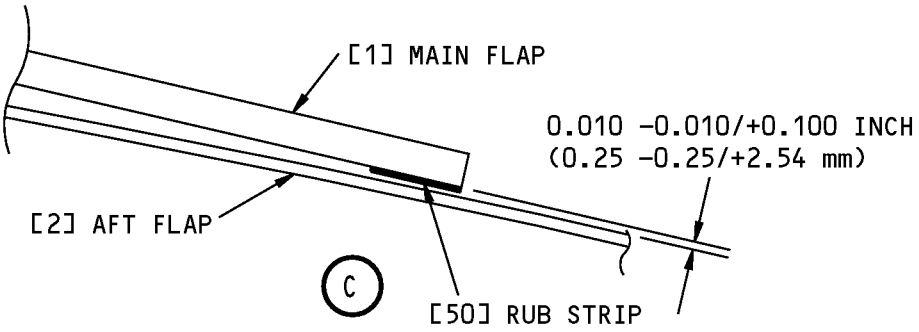

Outboard Aft Flap Track Adjustment
Figure 402 (Sheet 3 of 4)/27-51-26-990-802

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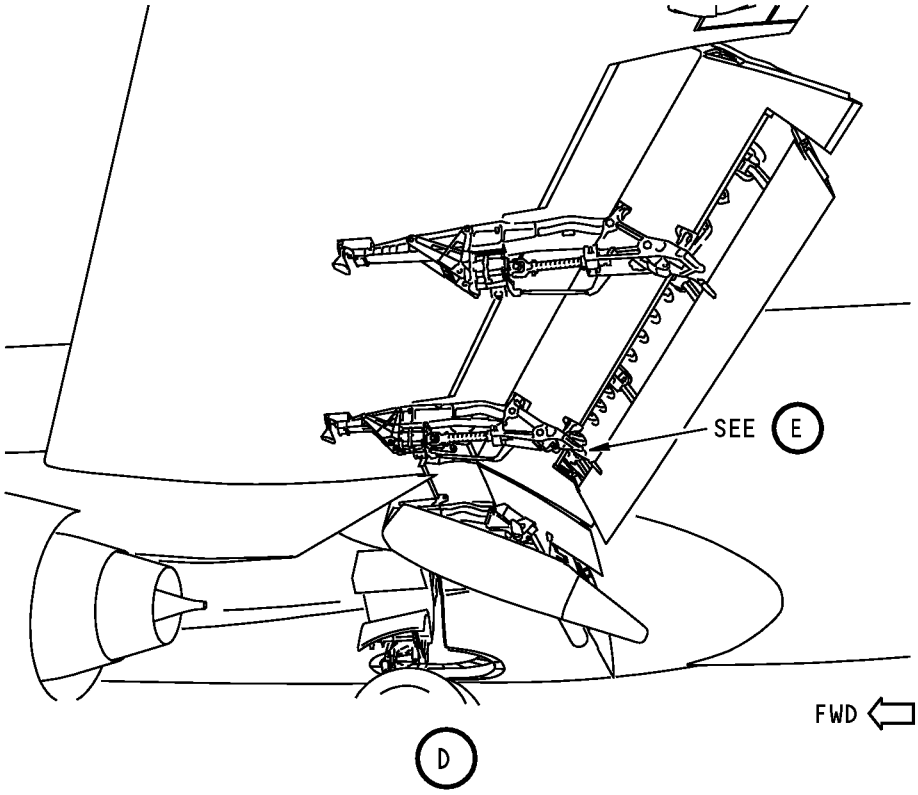

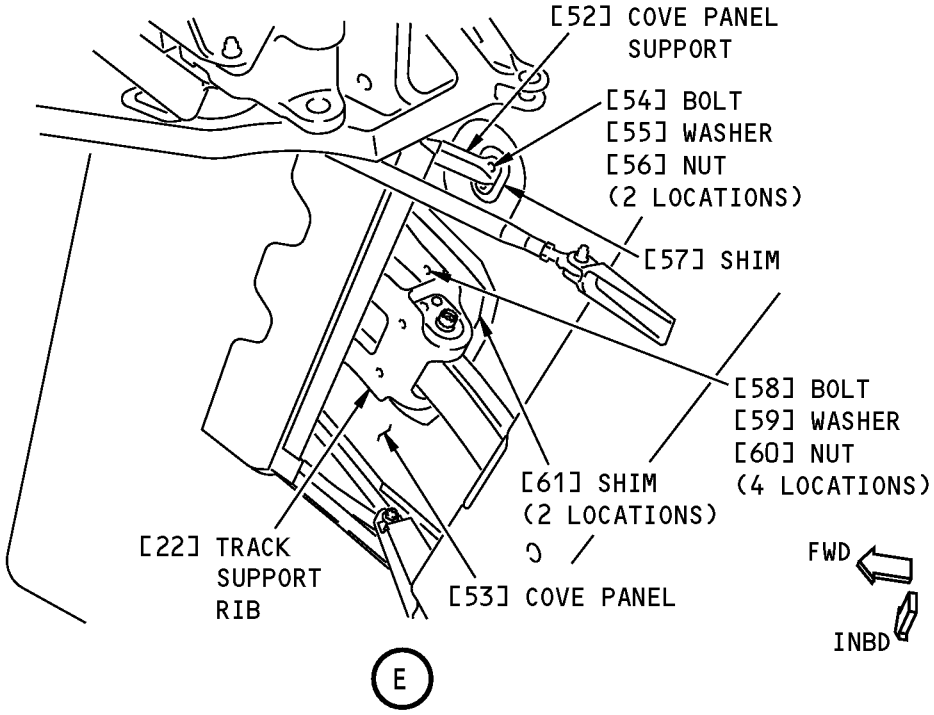

Outboard Aft Flap Track Adjustment
Figure 402 (Sheet 4 of 4)/27-51-26-990-802

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OUTBOARD FLAP SUPPORT FAIRINGS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) For the outboard flap support on the outboard flap:

(a) A removal of the forward fairing.

(b) An installation of the forward fairing.

(c) A removal of the aft fairing.

(d) An installation of the aft fairing.

(2) For the inboard flap support on the outboard flap:

(a) A removal of the forward fairing.

(b) An installation of the forward fairing.

(c) A removal of the aft fairing.

(d) An installation of the aft fairing.

TASK 27-51-28-000-801

2. Outboard Flap Outboard Support Forward Fairing Removal

(Figure 401)

A. General

(1) This task is applicable to the forward fairing on the No. 1 and No. 8 flap supports.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)

C. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

D. Procedure

SUBTASK 27-51-28-040-001

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-28-020-001

(2) Remove the forward fairing assembly [1]:

(a) Remove the bolts [6] that attach the forward end of the forward fairing assembly [1].

(b) Support the forward fairing assembly [1] and remove the bolts [4] and washers [5] that attach the forward fairing assembly [1] to the fairing attach fitting assembly [13].

(c) Lower the forward fairing assembly [1] until you can get access to the nuts [11] on the jumper wires [22].

(d) Remove the nuts [11] and washers [12] that attach the jumper wires [22] .

(e) Remove the jumper wires [22] from the studs.

(f) Remove the forward fairing assembly [1].

SUBTASK 27-51-28-020-002

(3) If it is necessary, remove the fairing attach fitting assembly [13]:

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(a) Remove the bolts [8] and washers [9] that attach the fairing attach fitting assembly [13] to the transmission attach fitting [10].

END OF TASK

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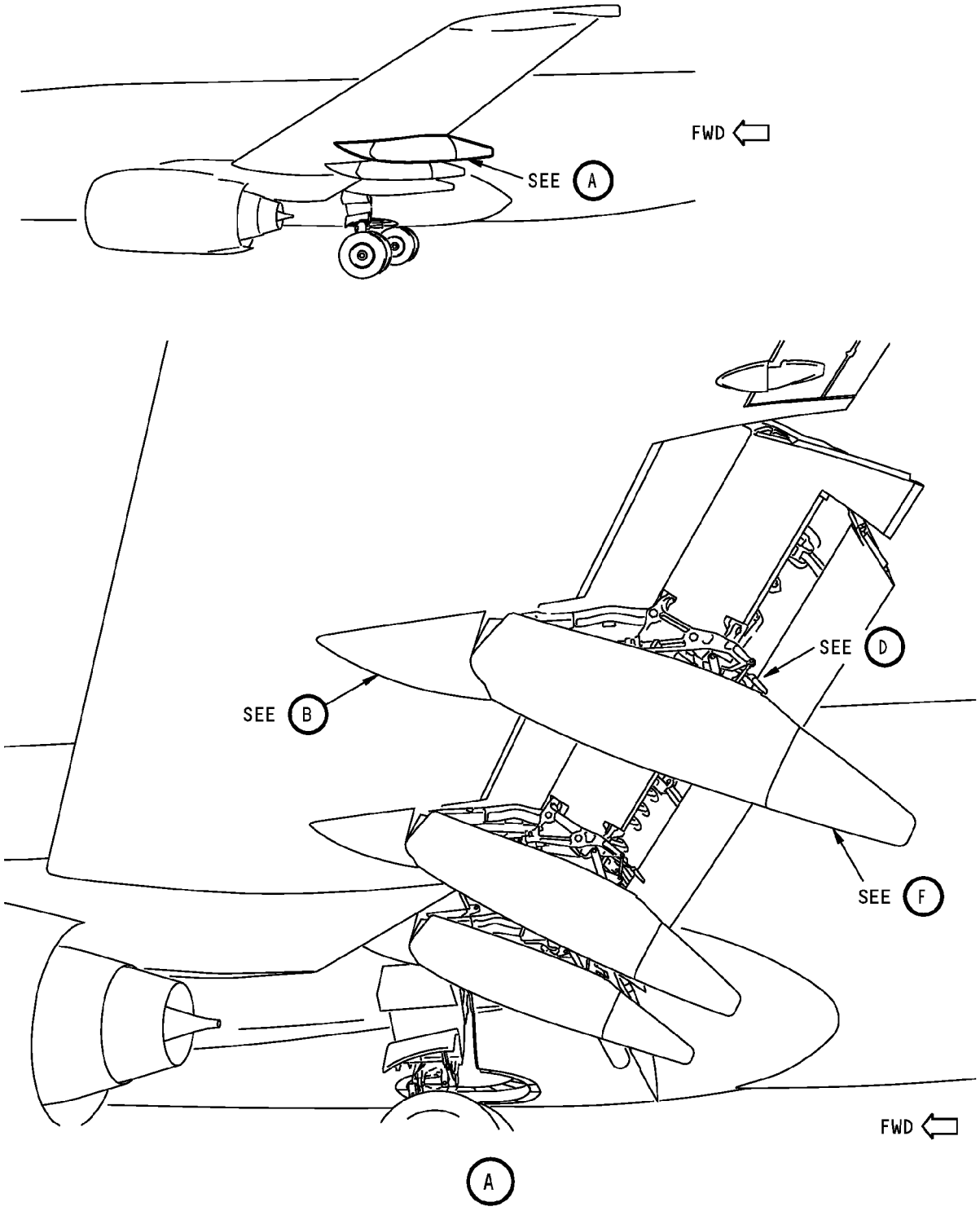

Outboard Flap Outboard Support Fairing Installation
Figure 401 (Sheet 1 of 5)/27-51-28-990-801

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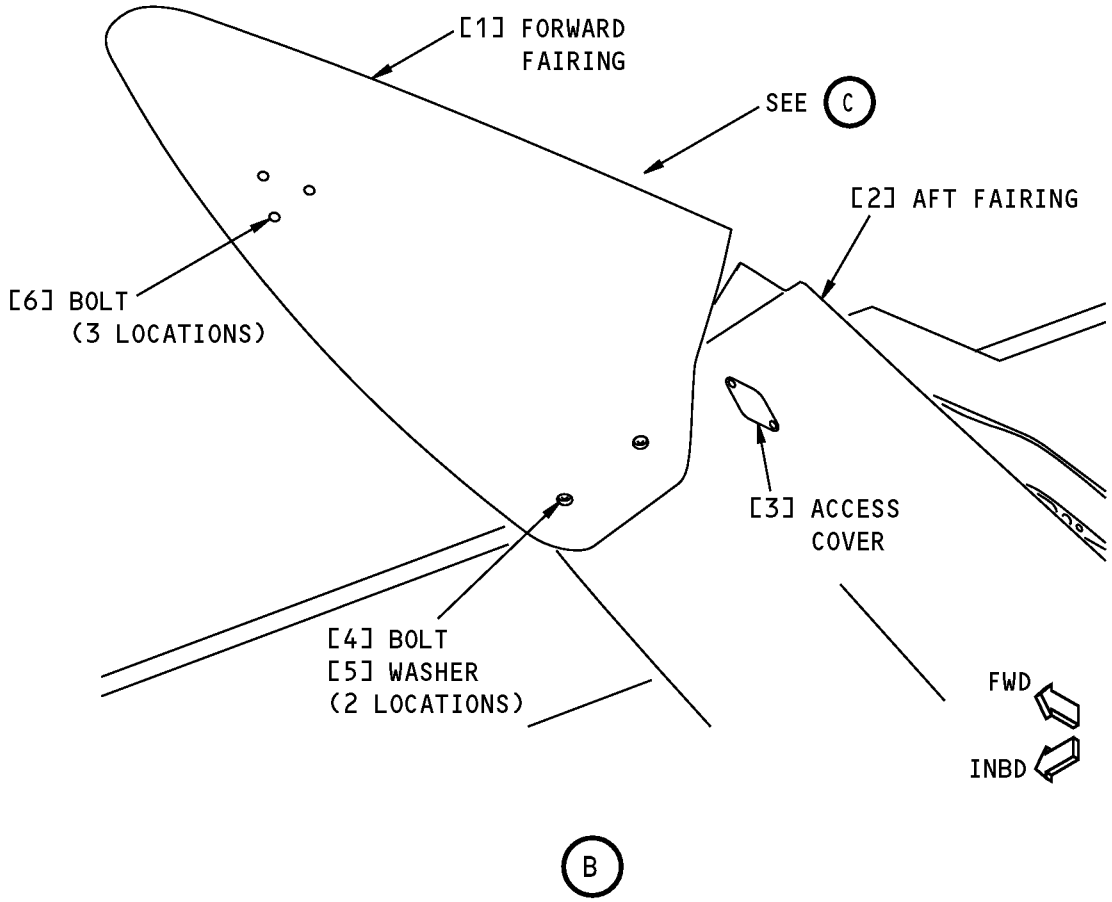

Outboard Flap Outboard Support Fairing Installation
Figure 401 (Sheet 2 of 5)/27-51-28-990-801

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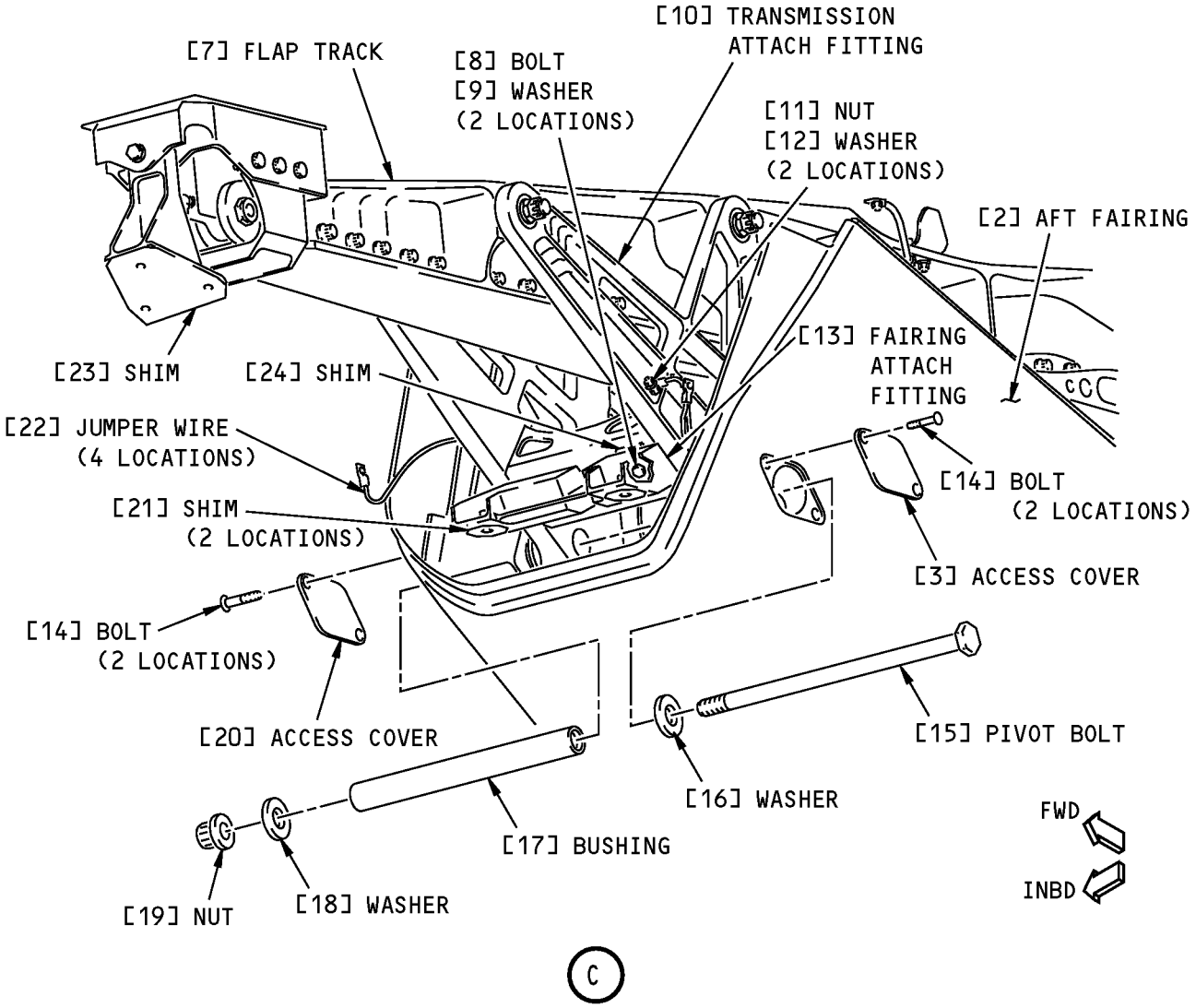

Outboard Flap Outboard Support Fairing Installation
Figure 401 (Sheet 3 of 5)/27-51-28-990-801

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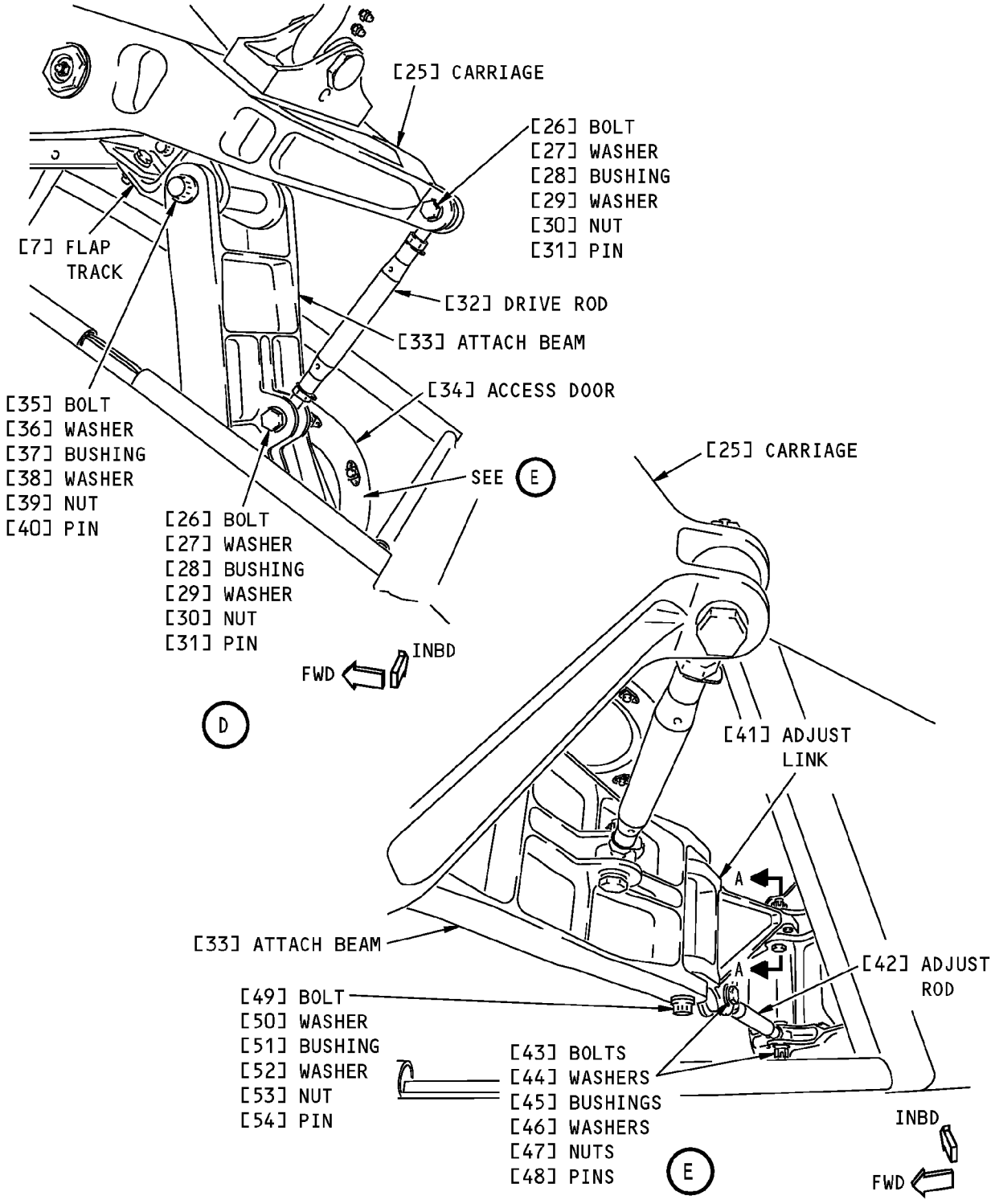

Outboard Flap Outboard Support Fairing Installation
Figure 401 (Sheet 4 of 5)/27-51-28-990-801

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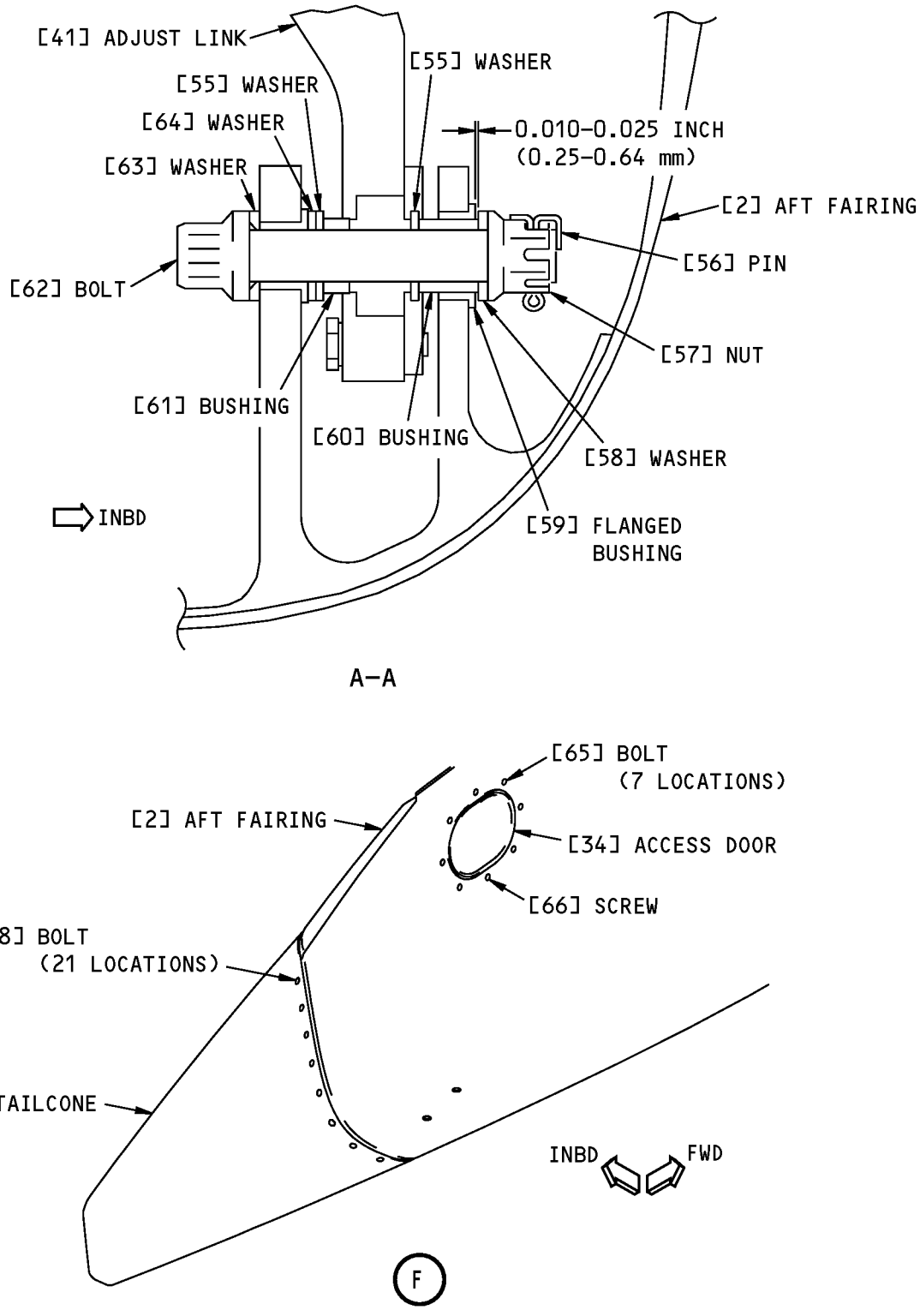

Outboard Flap Outboard Support Fairing Installation
Figure 401 (Sheet 5 of 5)/27-51-28-990-801

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TASK 27-51-28-400-801

3. Outboard Flap Outboard Support Forward Fairing Installation

(Figure 401)

A. General

(1) This task is applicable to the forward fairing on the No. 1 and No. 8 flap supports.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-28-820-801	Outboard Flap Outboard Support Fairing Adjustment (P/B 501)

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Fairing assembly	27-51-28-01-025	HAP ALL
		27-51-28-01-030	HAP ALL
13	Fitting assembly	27-51-28-01-045	HAP ALL
		27-51-28-01-050	HAP ALL

E. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

F. Forward Fairing Installation

SUBTASK 27-51-28-420-001

(1) If it is not installed, install the fairing attach fitting assembly [13] on the transmission attach fitting [10]:

(a) Apply primer, C00259 to the mating surfaces of the shim [24].

(b) Put the fairing attach fitting assembly [13] and shim [24] in their location on the transmission attach fitting [10].

(c) Apply compound, C00528 to the holes for the bolts [8].

(d) Install the bolts [8] and washers [9] to attach the fairing attach fitting assembly [13] to the transmission attach fitting [10].

(e) Install lockwire between the bolts [8] and the fairing attach fitting assembly [13].

SUBTASK 27-51-28-420-002

(2) Install the forward fairing assembly [1]:

(a) Connect the jumper wires [22].:

1) Lift the forward fairing assembly [1] until you can put the jumper wires [22] on the studs.

2) Install the washers [12] and nuts [11] to attach the jumper wires [22].

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3) Apply sealant, A02315 to the nuts [11].

(b) Apply primer, C00259 to the mating surfaces of the shims [21] and shim [23].

(c) If you removed the shims [21] or shim [23], put the shims [21] or shim [23] in its position.

(d) Apply compound, C00528 to the holes for the bolts [4] and bolts [6].

(e) Install the bolts [4] and washers [5] to attach the forward fairing assembly [1] to the fairing attach fitting assembly [13].

(f) Install the bolts [6] to attach the forward end of the forward fairing assembly [1].

SUBTASK 27-51-28-820-001

(3) Do this task: Outboard Flap Outboard Support Fairing Adjustment, TASK 27-51-28-820-801.

NOTE: The aft fairing assembly [2] must be installed and adjusted before you can do the adjustment of the forward fairing assembly [1].

SUBTASK 27-51-28-390-001

(4) Fill the clearance between the front of the forward fairing assembly [1] and the lower surface of the wing with sealant, A02315.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-28-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

TASK 27-51-28-000-802

4. Outboard Flap Outboard Support Aft Fairing Removal

(Figure 401)

A. General

(1) This task is applicable to the aft fairing on the No. 1 and No. 8 flap supports.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

D. Access Panels

Number	Name/Location
544CL	Flap Support No. 1 Access Cover
544CR	Flap Support No. 1 Access Cover
544DR	Flap Support No. 1 Access Door
644CL	Flap Support No. 8, Access Cover
644CR	Flap Support No. 8, Access Cover
644DL	Flap Support No. 8, Access Door

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E. Procedure

SUBTASK 27-51-28-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

NOTE: If you cannot extend the flaps, it will be necessary to open the access door [34] on the aft fairing assembly [2].

SUBTASK 27-51-28-010-001

(2) If it is necessary, open the access door [34] on the aft fairing assembly [2]:

(a) These are the doors:

Number	Name/Location
544DR	Flap Support No. 1 Access Door
644DL	Flap Support No. 8, Access Door

(b) Remove the bolts [65] that attach the access door [34] to the aft fairing assembly [2].

(c) Loosen the screw [66] on the access door [34].

NOTE: The screw [66] has a cotter pin installed on the inboard side.

(d) Turn the access door [34] around the screw [66].

SUBTASK 27-51-28-040-002

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-28-010-002

(4) Remove the access cover [3] and access cover [20] from the forward end of the aft fairing assembly [2]:

(a) These are the covers:

Number	Name/Location
544CL	Flap Support No. 1 Access Cover
544CR	Flap Support No. 1 Access Cover
644CL	Flap Support No. 8, Access Cover
644CR	Flap Support No. 8, Access Cover

(b) Remove the bolts [14] that attach the access cover [3] and access cover [20] to the aft fairing assembly [2].

(c) Remove the access cover [3] and access cover [20].

SUBTASK 27-51-28-020-003

(5) Remove the aft fairing assembly [2]:

(a) Support the aft fairing assembly [2].

(b) Disconnect the aft end of the aft fairing assembly [2]:

1) Remove the nut [30], washer [29], washer [27], bolt [26] and bushing [28] that attach the drive rod assembly [32] to the carriage [25].

2) Remove the nut [39], washer [38], washer [36], bolt [35] and bushing [37] that attach the attach beam assembly [33] to the flap track [7].

(c) Disconnect the forward end of the aft fairing assembly [2]:

1) Remove the nut [19] and washer [18] from the pivot bolt [15].

2) Remove the pivot bolt [15], washer [16] and bushing [17] that attach the aft fairing assembly [2] to the transmission attach fitting [10].

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(d) Lower the aft fairing assembly [2] until you can get access to the nuts [11] on the jumper wires [22].

(e) Remove the nuts [11] and washers [12] that attach the jumper wires [22].

(f) Remove the jumper wires [22] from the studs.

(g) Lower the aft fairing assembly [2].

SUBTASK 27-51-28-020-004

(6) If you will install a new aft fairing assembly [2], remove the fairing drive linkage from the aft fairing assembly [2]:

NOTE: The fairing drive linkage includes the drive rod assembly [32], adjust link assembly [41], adjust rod assembly [42] and the attach beam assembly [33].

(a) Remove the nut [47], washer [46], washer [44], bolt [43] and bushing [45] that attach the adjust rod assembly [42] to the aft fairing assembly [2].

(b) Remove the adjust link assembly [41] from the aft fairing assembly [2]:

1) Remove the nut [57] and washer [58] from the bolt [62].

2) Remove the bolt [62], washer [63], washer [64] and washers [55].

NOTE: Make a note of the thickness and location of the washers [55].

3) Remove the bushing [60] and bushing [61] from the aft fairing assembly [2].

(c) Remove the nut [53], washer [52], washer [50], bolt [49] and bushing [51] that attach the adjust link assembly [41] to the attach beam assembly [33].

(d) Remove the nut [30], washer [29], washer [27], bolt [26] and bushing [28] that attach the drive rod assembly [32] to the attach beam assembly [33].

(e) Remove the nut [47], washer [46], washer [44], bolt [43] and bushing [45] that attach the adjust rod assembly [42] to the adjust link assembly [41].

SUBTASK 27-51-28-010-003

(7) If it is necessary, remove the tailcone assembly [67] from the aft fairing assembly [2]:

(a) Remove the bolts [68] that attach the tailcone assembly [67] to the aft fairing assembly [2].

(b) Remove the tailcone assembly [67] from the aft fairing assembly [2].

——————— END OF TASK ———————

TASK 27-51-28-400-802

5. Outboard Flap Outboard Support Aft Fairing Installation

(Figure 401)

A. General

(1) This task is applicable to the aft fairing on the No. 1 and No. 8 flap supports.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-820-801	Outboard Flap Outboard Support Fairing Adjustment (P/B 501)

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C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Fairing assembly	27-51-28-01-210	HAP ALL
		27-51-28-01-215	HAP ALL
31	Pin	27-51-28-01-110	HAP ALL
		27-51-28-01-430	HAP ALL
32	Rod assembly	27-51-28-01-395	HAP ALL
33	Beam assembly	27-51-28-01-460	HAP ALL
		27-51-28-01-465	HAP ALL
40	Pin	27-51-28-01-220	HAP ALL
41	Link assembly	27-51-28-01-315	HAP ALL
42	Rod assembly	27-51-28-01-250	HAP ALL
48	Pin	27-51-28-01-285	HAP ALL
56	Pin	27-51-28-01-365	HAP ALL
67	Tailcone assembly	27-51-28-01-510	HAP ALL

E. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

F. Access Panels

Number	Name/Location
544CL	Flap Support No. 1 Access Cover
544CR	Flap Support No. 1 Access Cover
544DR	Flap Support No. 1 Access Door
644CL	Flap Support No. 8, Access Cover
644CR	Flap Support No. 8, Access Cover
644DL	Flap Support No. 8, Access Door

G. Outboard Flap Outboard Support Aft Fairing Installation

SUBTASK 27-51-28-020-005

(1) If the fairing drive linkage is not installed on the aft fairing assembly [2], do these steps:

NOTE: The fairing drive linkage includes the drive rod assembly [32], adjust link assembly [41], adjust rod assembly [42] and the attach beam assembly [33].

(a) Connect the adjust rod assembly [42] to the adjust link assembly [41]:

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1) Install the bushing [45], bolt [43], washer [44], washer [46] and nut [47] that attach the adjust rod assembly [42] to the adjust link assembly [41].

NOTE: For the left wing, install the bolt [43] with the head on the same side of the adjust link assembly [41] as the bushing [45]. For the right wing, install the bolt [43] with the head on the opposite side of the adjust link assembly [41] as the bushing [45].

2) Install the pin [48] in the nut [47].

(b) Connect the adjust link assembly [41] to the attach beam assembly [33]:

1) Put the adjust link assembly [41] in its position on the attach beam assembly [33].

2) Install the bushing [51], bolt [49], washer [50], washer [52] and nut [53] to attach the adjust link assembly [41] to the attach beam assembly [33].

3) Tighten the nut [53]:

a) Tighten the nut [53] to 370-475 pound-inches (41.8-53.7 newton-meters) if the bolt [49] is not lubricated.

b) Tighten the nut [53] to 260-310 pound-inches (29.4-35.0 newton-meters) if the bolt [49] is lubricated with grease, D00633 or grease, D00013.

4) Install the pin [54] in the nut [53].

(c) Connect the drive rod assembly [32] to the attach beam assembly [33]:

1) Put the drive rod assembly [32] in its position on the attach beam assembly [33].

2) Install the bushing [28], bolt [26], washer [27], washer [29] and nut [30] to attach the drive rod assembly [32] to the attach beam assembly [33].

3) Install the pin [31] in the nut [30].

(d) Connect the adjust link assembly [41] to the aft fairing assembly [2]:

1) Put the adjust link assembly [41] in its location on the aft fairing assembly [2] with the washers [55], washers [64], bushing [60] and bushing [61].

NOTE: Install the same number of washers [55] in the same location as you removed them.

2) Install the bolt [62], washer [63], washer [58] and nut [57].

3) Tighten the nut [57]:

a) Tighten the nut [57] to 530-690 pound-inches (59.9-77.9 newton-meters) if the bolt [62] is not lubricated.

b) Tighten the nut [57] to 345-425 pound-inches (39.0-48.0 newton-meters) if the bolt [62] is lubricated with grease, D00633 or grease, D00013.

4) Measure the clearance between the washer [58] and the flange on the flanged bushing [59].

5) If the clearance is not 0.010 to 0.025 inch (0.25 to 0.64 millimeter), change the location of the washers [55]:

a) Remove the nut [57], washer [58], washers [55], washers [64], washer [63], bolt [62], bushing [60] and bushing [61].

b) Change the location of the washer [55].

c) Install the bushing [60], bushing [61], bolt [62], washer [63], washer [55], washers [64], washer [58] and nut [57].

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d) Make sure the clearance between the washer [58] and the flange on the flanged bushing [59] is in the limit of 0.010 to 0.025 inch.

e) Tighten the nut [57] to 530-690 pound-inches (59.9-77.9 newton-meters) if the bolt [62] is not lubricated.

f) Tighten the nut [57] to 345-425 pound-inches (39.0-48.0 newton-meters) if the bolt [62] is lubricated with grease, D00633 or grease, D00013.

6) Install the pin [56] in the nut [57].

(e) Connect the adjust rod assembly [42] to the aft fairing assembly [2]:

1) Install the bushing [45], bolt [43], washer [44], washer [46] and nut [47] that attach the adjust rod assembly [42] to the aft fairing assembly [2].

2) Install the pin [48] in the nut [47].

SUBTASK 27-51-28-420-003

(2) Install the aft fairing assembly [2]:

(a) Connect the jumper wires [22]:

1) Lift the forward end of the aft fairing assembly [2] until you can put the jumper wires [22] on the studs.

2) Install the washers [12] and nuts [11] to attach the jumper wires [22].

3) Apply sealant, A02315 to the nuts [11].

(b) Connect the forward end of the aft fairing assembly [2] to the transmission attach fitting [10]:

1) Lift the forward end of the aft fairing assembly [2] until it aligns with the transmission attach fitting [10].

2) Install the bushing [17], pivot bolt [15], washer [18], washer [16] and nut [19].

3) Tighten the nut [19]:

a) Tighten the nut [19] to 1200-1410 pound-inches (135.6-159.3 newton-meters) if the bolt [15] is not lubricated.

b) Tighten the nut [19] to 920-1000 pound-inches (103.9-112.9 newton-meters) if the bolt [15] is lubricated with grease, D00633 or grease, D00013.

(c) Connect the aft end of the aft fairing assembly [2]:

1) Move the attach beam assembly [33] until it aligns with the flap track [7].

2) Install the bushing [37], bolt [35], washer [36], washer [38] and nut [39].

3) Tighten the nut [39]:

a) Tighten the nut [39] to 870-1070 pound-inches (98.3-120.9 newton-meters) if the bolt [35] is not lubricated.

b) Tighten the nut [39] to 555-650 pound-inches (62.7-73.4 newton-meters) if the bolt [35] is lubricated with grease, D00633 or grease, D00013.

4) Install the pin [40] in the nut [39].

5) Align the drive rod assembly [32] with the carriage [25].

6) Install the bushing [28], bolt [26], washer [27], washer [29] and nut [30].

NOTE: Install the bolt [26] with the head on the outboard side.

7) Install the pin [31] in the nut [30].

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-28-440-002

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-28-860-002

(2) Retract the flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-28-820-002

(3) Do this task: Outboard Flap Outboard Support Fairing Adjustment, TASK 27-51-28-820-801.

SUBTASK 27-51-28-410-001

(4) Install the access cover [3] and access cover [20] on the forward end of the aft fairing assembly [2]:

(a) These are the covers:

Number	Name/Location
544CL	Flap Support No. 1 Access Cover
544CR	Flap Support No. 1 Access Cover
644CL	Flap Support No. 8, Access Cover
644CR	Flap Support No. 8, Access Cover

(b) Put the access cover [3] and access cover [20] in their locations on the aft fairing assembly [2].

(c) Install the bolts [14] that attach the access cover [3] and access cover [20].

SUBTASK 27-51-28-410-002

(5) If it is open, close the access door [34] on the aft fairing assembly [2]:

(a) These are the doors:

Number	Name/Location
544DR	Flap Support No. 1 Access Door
644DL	Flap Support No. 8, Access Door

(b) Turn the access door [34] around the screw [66] until it is in its position.

(c) Install the bolts [65] that attach the access door [34] to the aft fairing assembly [2].

(d) Tighten the screw [66] on the access door [34].

SUBTASK 27-51-28-410-003

(6) If it is not installed, install the tailcone assembly [67] on the aft fairing assembly [2]:

(a) Put the tailcone assembly [67] in its location on the aft fairing assembly [2].

(b) Install the bolts [68] that attach the tailcone assembly [67].

(c) Fill and aerodynamically fair the clearance between the tailcone assembly [67] and the aft fairing assembly [2] with sealant, A02315.

END OF TASK

TASK 27-51-28-000-803

6. Outboard Flap Inboard Support Forward Fairing Removal

(Figure 402)

A. General

(1) This task is applicable to the forward fairing on the No. 2 and No. 7 flap supports.

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B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)

C. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

D. Procedure

SUBTASK 27-51-28-040-003

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-28-020-006

(2) Remove the forward fairing assembly [81]:

(a) Remove the bolts [86] that attach the forward end of the forward fairing assembly [81].

(b) Remove the bolts [84] and washers [85] that attach the forward fairing assembly [81] to the fairing attach fitting assembly [95].

NOTE: Support the forward fairing assembly [81] when you remove the bolts [84].

(c) Lower the forward fairing assembly [81] until you can get access to the nuts [92] on the jumper wires [103].

(d) Remove the nuts [92] and washers [93] that attach the jumper wires [103].

(e) Remove the jumper wires [103] from the studs.

(f) Remove the forward fairing assembly [81].

SUBTASK 27-51-28-020-007

(3) If it is necessary, remove the fairing attach fitting assembly [95]:

(a) Remove the bolts [89] and washers [90] that attach the fairing attach fitting assembly [95] to the transmission attach fitting [91].

——————— END OF TASK ———————

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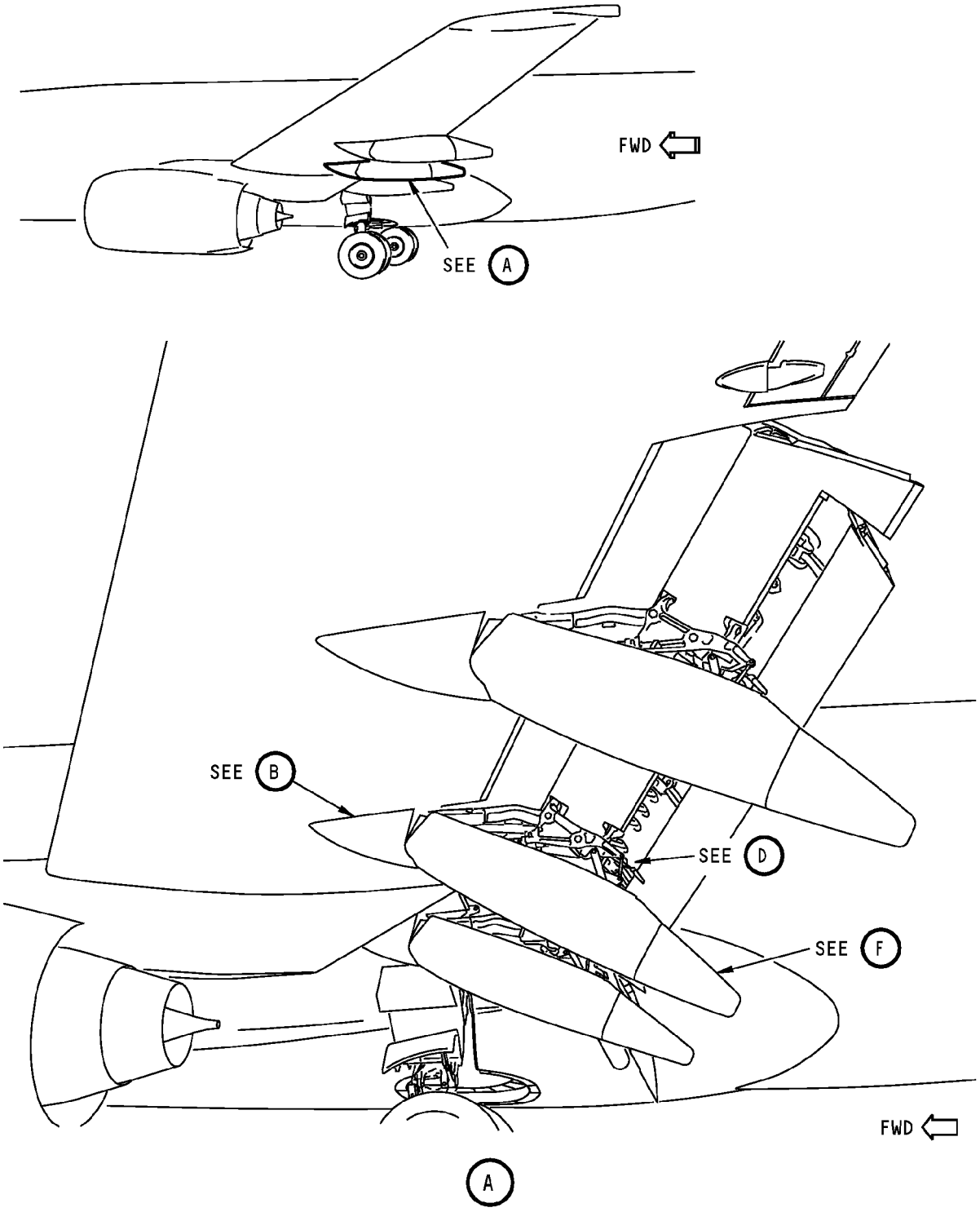

Outboard Flap Inboard Support Fairing Installation
Figure 402 (Sheet 1 of 5)/27-51-28-990-802

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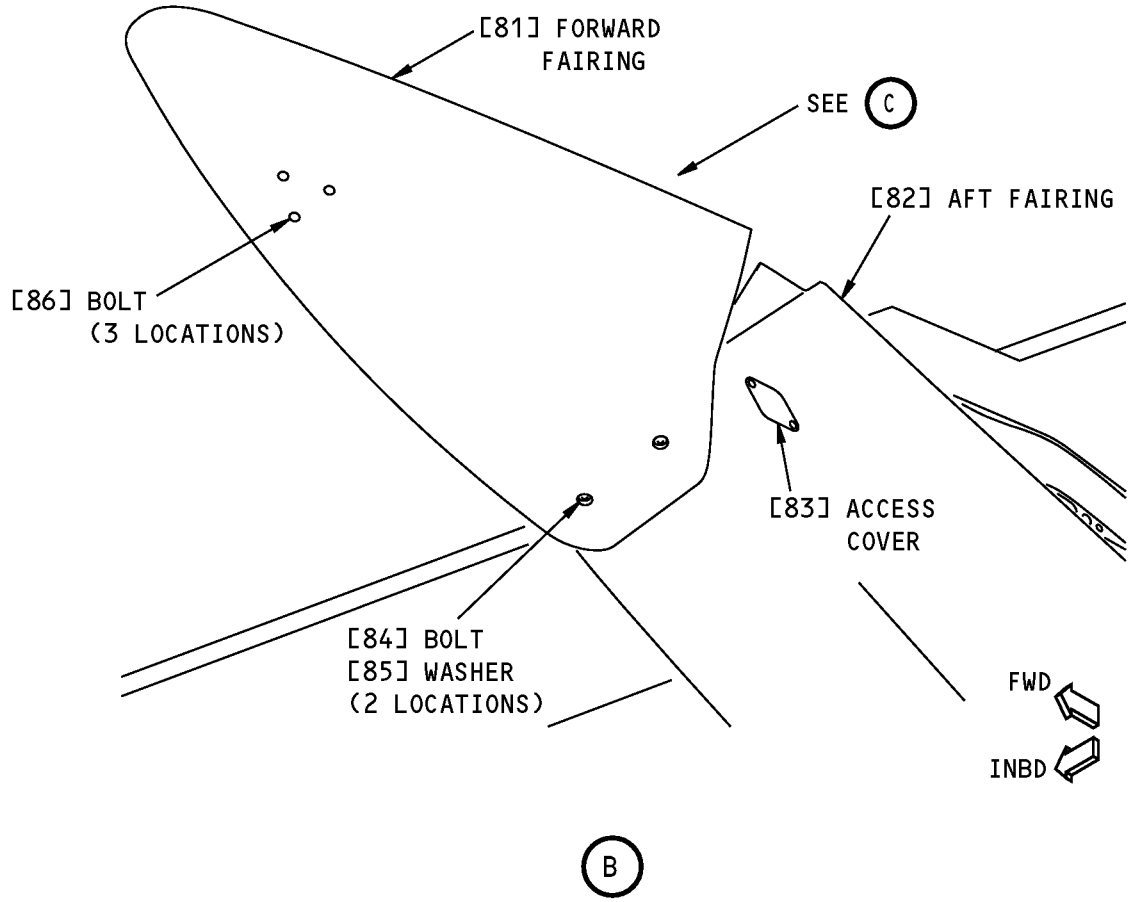

Outboard Flap Inboard Support Fairing Installation
Figure 402 (Sheet 2 of 5)/27-51-28-990-802

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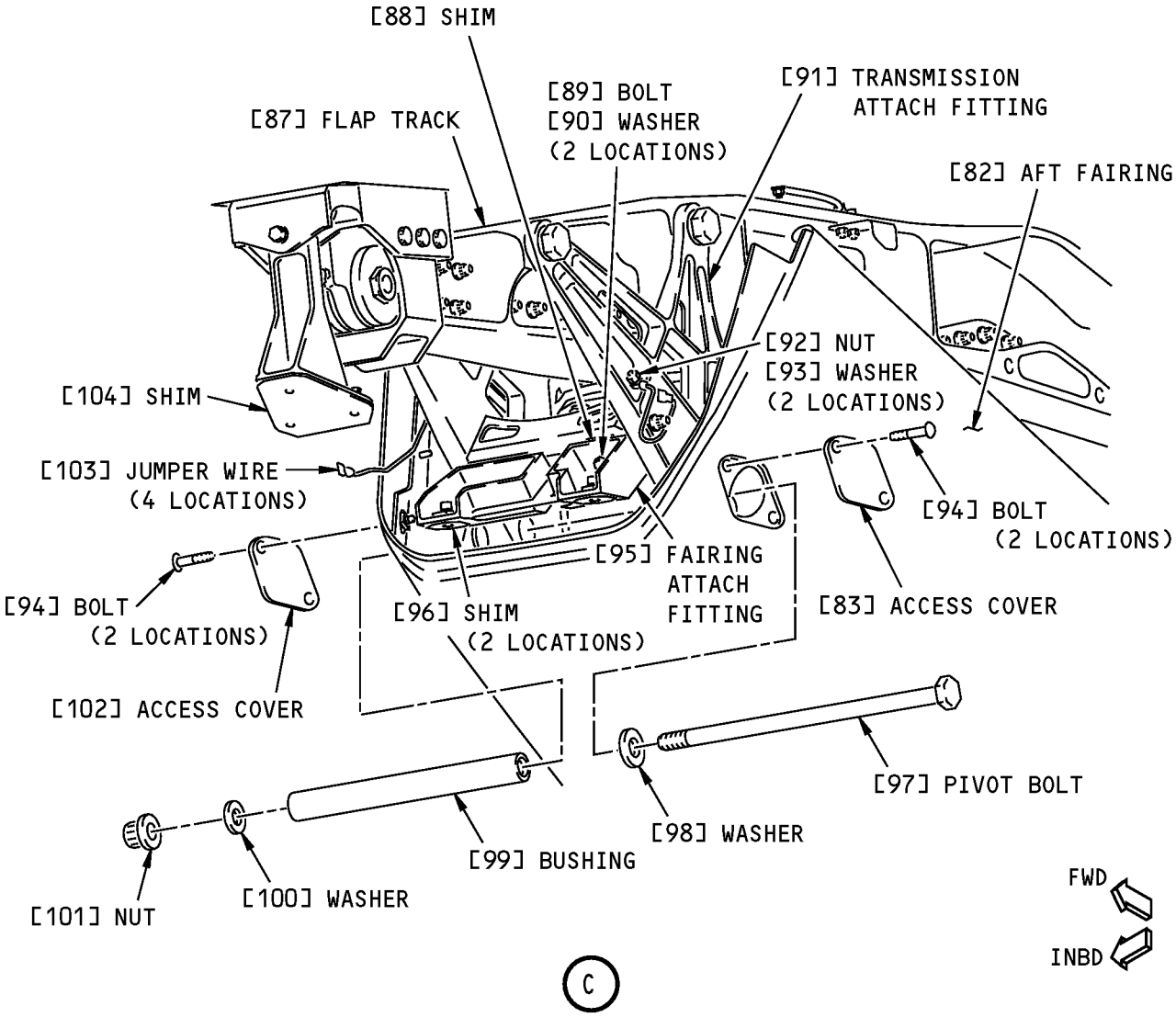

Outboard Flap Inboard Support Fairing Installation
Figure 402 (Sheet 3 of 5)/27-51-28-990-802

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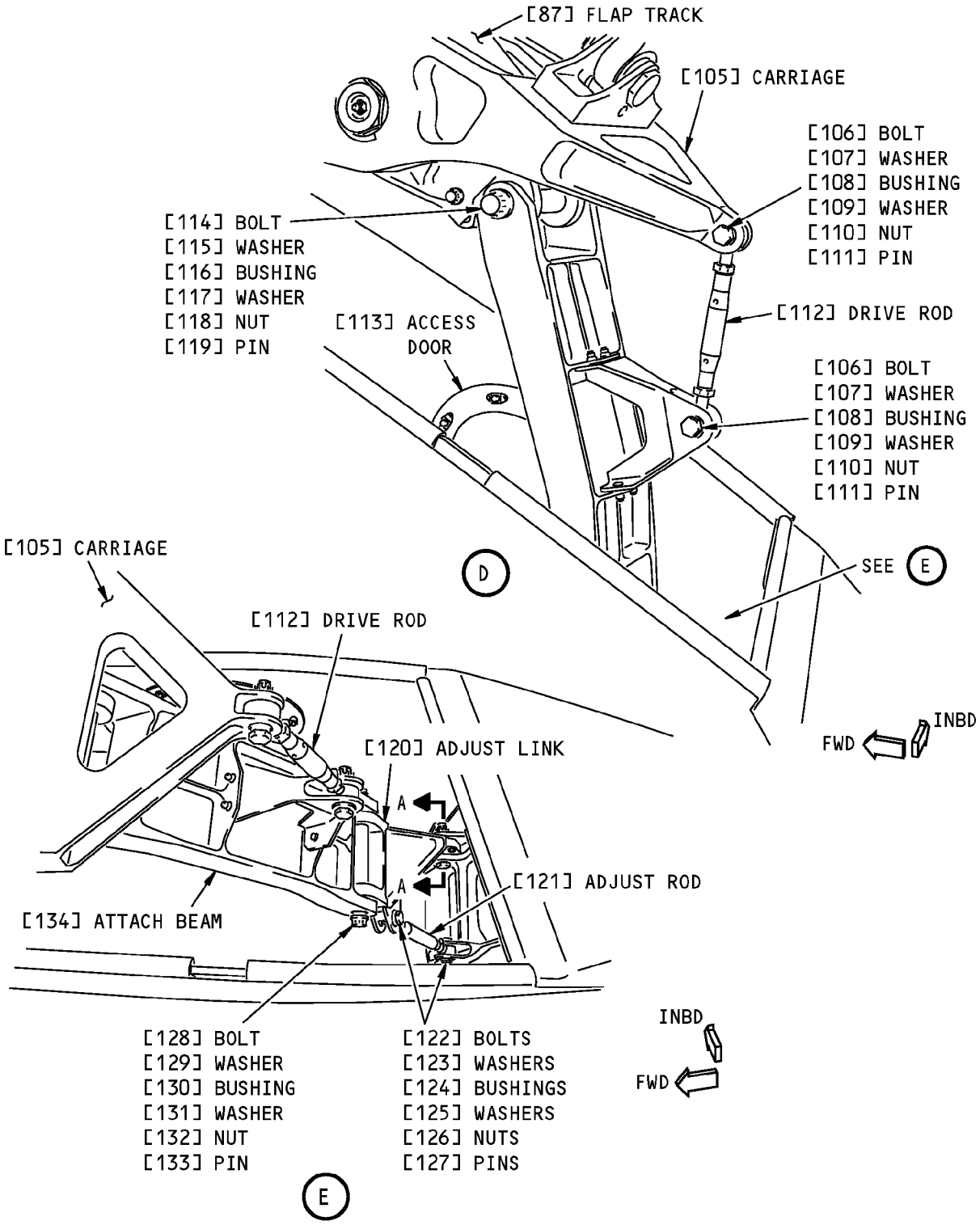

Outboard Flap Inboard Support Fairing Installation
Figure 402 (Sheet 4 of 5)/27-51-28-990-802

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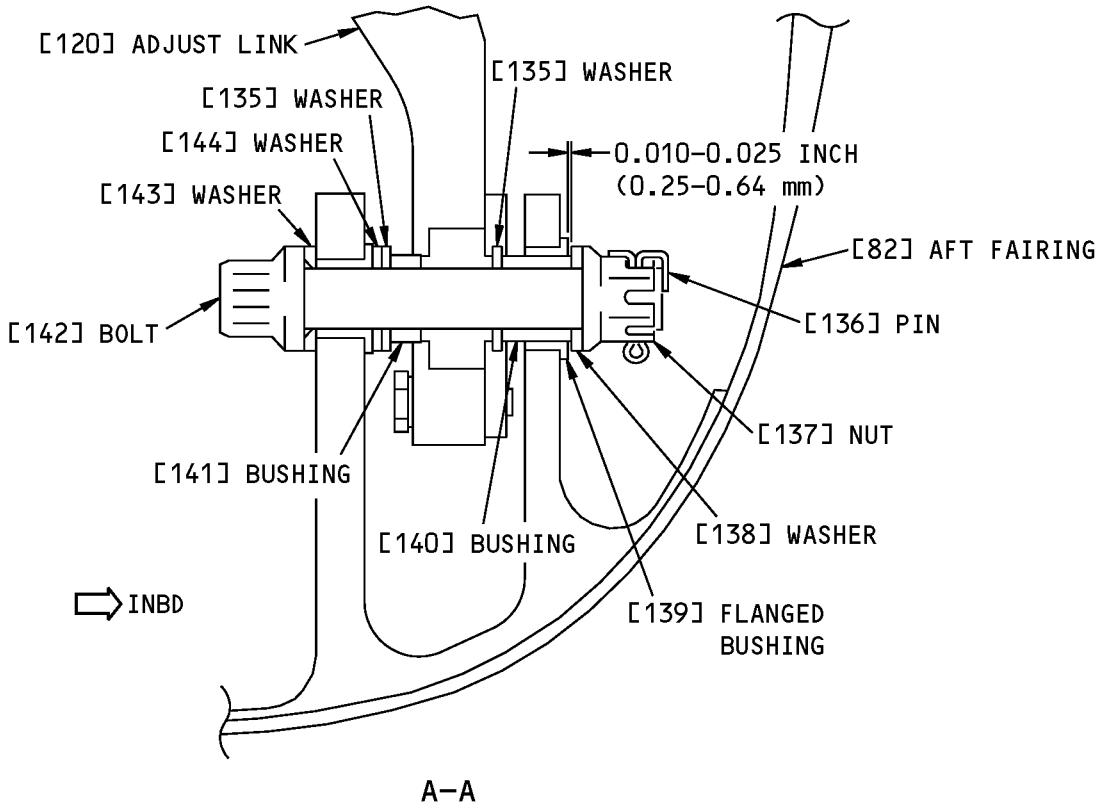

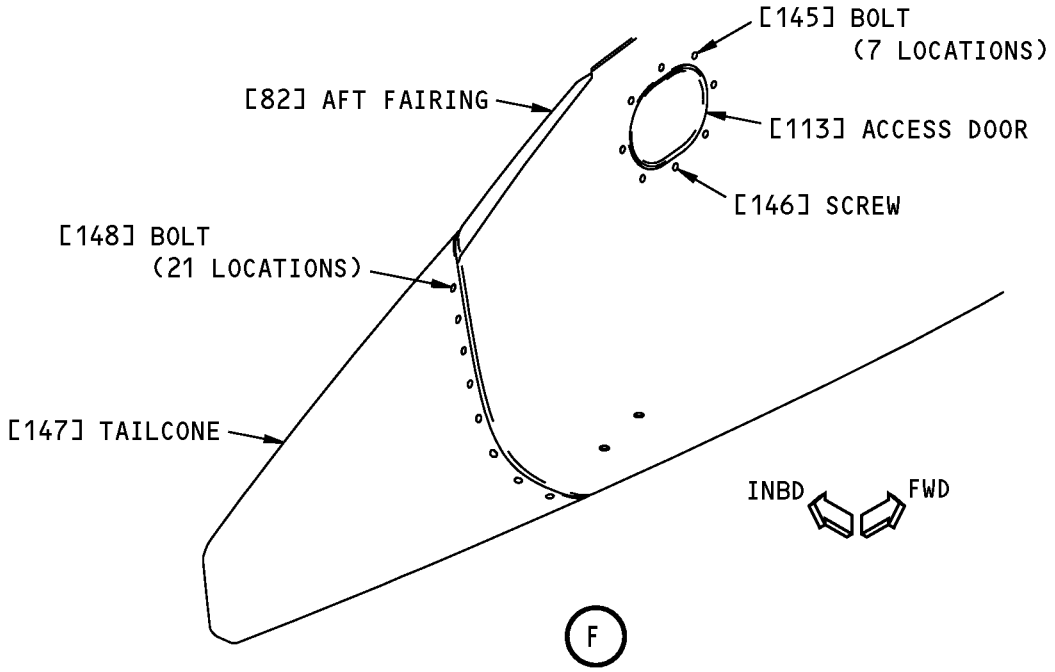

Outboard Flap Inboard Support Fairing Installation
Figure 402 (Sheet 5 of 5)/27-51-28-990-802

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TASK 27-51-28-400-803

7. Outboard Flap Inboard Support Forward Fairing Installation

(Figure 402)

A. General

(1) This task is applicable to the forward fairing on the No. 2 and No. 7 flap supports.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-28-820-802	Outboard Flap Inboard Support Fairing Adjustment (P/B 501)

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
81	Fairing assembly	27-51-28-04-020	HAP ALL
		27-51-28-04-025	HAP ALL
95	Fitting assembly	27-51-28-04-040	HAP ALL
		27-51-28-04-045	HAP ALL

E. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

F. Forward Fairing Installation

SUBTASK 27-51-28-420-004

(1) If it is not installed, install the fairing attach fitting assembly [95] on the transmission attach fitting [91]:

(a) Apply primer, C00259 to the mating surfaces of the shim [88].

(b) Put the fairing attach fitting assembly [95] and shim [88] in their location on the transmission attach fitting [91].

(c) Apply compound, C00528 to the holes for the bolts [89].

(d) Install the bolts [89] and washers [90] to attach the fairing attach fitting assembly [95].

(e) Install lockwire between the bolts [89] and the fairing attach fitting assembly [95].

SUBTASK 27-51-28-420-005

(2) Install the forward fairing assembly [81]:

(a) Connect the jumper wire [103]:

1) Lift the forward fairing assembly [81] until you can put the jumper wires [103] on the studs.

2) Install the washers [93] and nuts [92] to attach the jumper wires [103].

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3) Apply sealant, A02315 to the nuts [92].

(b) Apply primer, C00259 to the mating surfaces of the shims [96] and shim [104].

(c) If you removed the shims [96] or shim [104], put the shims [96] or shim [104] in its position.

(d) Apply compound, C00528 to the holes for the bolt [84] and bolts [86].

(e) Install the bolts [84] and washers [85] to attach the forward fairing assembly [81] to the fairing attach fitting assembly [95].

(f) Install the bolts [86] to attach the forward end of the forward fairing assembly [81].

SUBTASK 27-51-28-820-003

(3) Do this task: Outboard Flap Inboard Support Fairing Adjustment, TASK 27-51-28-820-802.

NOTE: The aft fairing assembly [82] must be installed and adjusted before you can do the adjustment of the forward fairing assembly [81].

SUBTASK 27-51-28-390-002

(4) Fill the clearance between the front of the forward fairing assembly [81] and the lower surface of the wing with sealant, A02315.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-28-440-003

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

TASK 27-51-28-000-804

8. Outboard Flap Inboard Support Aft Fairing Removal

(Figure 402)

A. General

(1) This task is applicable to the aft fairing at flap supports No. 2 and 7.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

D. Access Panels

Number	Name/Location
543CL	Flap Support No. 2 Access Cover
543CR	Flap Support No. 2 Access Cover
543DR	Flap Support No. 2 Access Door
643CL	Flap Support No. 7, Access Cover
643CR	Flap Support No. 7, Access Cover
643DL	Flap Support No. 7, Access Door

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E. Procedure

SUBTASK 27-51-28-860-003

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

NOTE: If you cannot extend the flaps, it will be necessary to open the access door [113] on the aft fairing assembly [82].

SUBTASK 27-51-28-010-004

(2) If it is necessary, open the access door [113] on the aft fairing assembly [82]:

(a) These are the doors:

Number	Name/Location
543DR	Flap Support No. 2 Access Door
643DL	Flap Support No. 7, Access Door

(b) Remove the bolts [145] that attach the access door [113] to the aft fairing assembly [82].

(c) Loosen the screw [146] on the access door [113].

NOTE: The screw [146] has a cotter pin installed on the inboard side.

(d) Turn the access door [113] around the screw [146].

SUBTASK 27-51-28-040-004

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-28-010-005

(4) Remove the access cover [83] and access cover [102] from the forward end of the aft fairing assembly [82]:

(a) These are the covers:

Number	Name/Location
543CL	Flap Support No. 2 Access Cover
543CR	Flap Support No. 2 Access Cover
643CL	Flap Support No. 7, Access Cover
643CR	Flap Support No. 7, Access Cover

(b) Remove the bolts [94] that attach the access cover [83] and access cover [102] to the aft fairing assembly [82].

(c) Remove the access cover [83] and access cover [102].

SUBTASK 27-51-28-020-008

(5) Remove the aft fairing assembly [82]:

(a) Support the aft fairing assembly [82].

(b) Disconnect the aft end of the aft fairing assembly [82]:

1) Remove the nut [110], washer [109], washer [107], bolt [106] and bushing [108] that attach the drive rod assembly [112] to the carriage [105].

2) Remove the nut [118], washer [117], washer [115], bolt [114] and bushing [116] that attach the end of the attach beam assembly [134] to the flap track [87].

(c) Disconnect the forward end of the aft fairing assembly [82]:

1) Remove the nut [101] and washer [100] from the pivot bolt [97].

2) Remove the pivot bolt [97], washer [98] and bushing [99] that attach the aft fairing assembly [82] to the transmission attach fitting [91].

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(d) Lower the aft fairing assembly [82] until you can get access to the nuts [92] on the jumper wires [103].

(e) Remove the nuts [92] and washers [93] that attach the jumper wires [103].

(f) Remove the jumper wires [103] from the studs.

(g) Lower the aft fairing assembly [82].

SUBTASK 27-51-28-020-009

(6) If you will install a new aft fairing assembly [82], remove the fairing drive linkage from the aft fairing assembly [82]:

NOTE: The fairing drive linkage includes the drive rod assembly [112], adjust link assembly [120], adjust rod assembly [121] and the attach beam assembly [134].

(a) Remove the nut [126], washer [125], washer [123], bolt [122] and bushing [124] that attach the adjust rod assembly [121] to the aft fairing assembly [82].

(b) Remove the adjust link assembly [120] from the aft fairing assembly [82]:

1) Remove the nut [137] and washer [138] from the bolt [142].

2) Remove the bolt [142], washer [143], washer [144] and washers [135].

NOTE: Make a note of the thickness and location of the washers [135].

3) Remove the bushing [140] and bushing [141] from the aft fairing assembly [82].

(c) Remove the nut [132], washer [131], washer [129], bolt [128] and bushing [130] that attach the adjust link assembly [120] to the attach beam assembly [134].

(d) Remove the nut [110], washer [109], washer [107], bolt [106] and bushing [108] that attach the drive rod assembly [112] to the attach beam assembly [134].

(e) Remove the nut [126], washer [125], washer [123], bolt [122] and bushing [124] that attach the adjust rod assembly [121] to the adjust link assembly [120].

SUBTASK 27-51-28-010-006

(7) If it is necessary, remove the tailcone assembly [147] from the aft fairing assembly [82]:

(a) Remove the bolts [148] that attach the tailcone assembly [147] to the aft fairing assembly [82].

(b) Remove the tailcone assembly [147] from the aft fairing assembly [82].

——————— END OF TASK ———————

TASK 27-51-28-400-804

9. Outboard Flap Inboard Support Aft Fairing Installation

(Figure 402)

A. General

(1) This task is applicable to the aft fairing at flap supports No. 2 and 7.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-820-802	Outboard Flap Inboard Support Fairing Adjustment (P/B 501)

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C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
82	Fairing assembly	27-51-28-04-210	HAP ALL
		27-51-28-04-215	HAP ALL
111	Pin	27-51-28-04-365	HAP ALL
112	Rod assembly	27-51-28-04-395	HAP ALL
120	Link assembly	27-51-28-04-315	HAP ALL
121	Rod assembly	27-51-28-04-250	HAP ALL
127	Pin	27-51-28-04-220	HAP ALL
133	Pin	27-51-28-04-285	HAP ALL
134	Beam assembly	27-51-28-04-460	HAP ALL
		27-51-28-04-465	HAP ALL
147	Tailcone assembly	27-51-28-04-545	HAP ALL

E. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

F. Access Panels

Number	Name/Location
543CL	Flap Support No. 2 Access Cover
543CR	Flap Support No. 2 Access Cover
543DR	Flap Support No. 2 Access Door
643CL	Flap Support No. 7, Access Cover
643CR	Flap Support No. 7, Access Cover
643DL	Flap Support No. 7, Access Door

G. Outboard Flap Inboard Support Aft Fairing Installation

SUBTASK 27-51-28-020-010

(1) If the fairing drive linkage is not installed on the aft fairing assembly [82], do these steps:

NOTE: The fairing drive linkage includes the drive rod assembly [112], adjust link assembly [120], adjust rod assembly [121] and the attach beam assembly [134].

(a) Connect the adjust rod assembly [121] to the adjust link assembly [120]:

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1) Install the bushing [124], bolt [122], washer [123], washer [125] and nut [126] that attach the adjust rod assembly [121] to the adjust link assembly [120].

NOTE: For the left wing, install the bolt [122] with the head on the same side of the adjust link assembly [120] as the bushing [124]. For the right wing, install the bolt [122] with the head on the opposite side of the adjust link assembly [120] as the bushing [124].

2) Install the pin pin [127] in the nut [126].

(b) Connect the adjust link assembly [120] to the attach beam assembly [134]:

1) Put the adjust link assembly [120] in its position on the attach beam assembly [134].

2) Install the bushing [130], bolt [128], washer [129], washer [131] and nut [132] to attach the adjust link assembly [120] to the attach beam assembly [134].

3) Tighten the nut [132]:

a) Tighten the nut [132] to 370-475 pound-inches (41.8-53.6 newton-meters) if the bolt [128] is not lubricated.

b) Tighten the nut [132] to 260-310 pound-inches (39.4-35.0 newton-meters) if the bolt [128] is lubricated with grease, D00633 or grease, D00013.

4) Install the pin [133] in the nut [132].

(c) Connect the drive rod assembly [112] to the attach beam assembly [134]:

1) Put the drive rod assembly [112] in its position on the attach beam assembly [134].

2) Install the bushing [108], bolt [106], washer [107], washer [109] and nut [110] to attach the drive rod assembly [112] to the attach beam assembly [134].

3) Install the pin [111] in the nut [110].

(d) Connect the adjust link assembly [120] to the aft fairing assembly [82]:

1) Put the adjust link link assembly [120] in its location on the aft fairing assembly [82] with the washers [135], washer [144], bushing [140] and bushing [141].

NOTE: Install the same number of washers [135] in the same location as you removed them.

2) Install the bolt [142], washer [143], washer [138] and nut [137].

3) Tighten the nut [137]:

a) Tighten the nut [137] to 530-690 pound-inches (59.9-77.9 newton-meters) if the bolt [142] is not lubricated.

b) Tighten the nut [137] to 345-425 pound-inches (39.0-48.0 newton-meters) if the bolt [142] is lubricated with grease, D00633 or grease, D00013.

4) Measure the clearance between the washer [138] and the flange on the flanged bushing [139].

5) If the clearance is not 0.010 to 0.025 inch (0.25-0.64 millimeter), change the location of the washers [135]:

a) Remove the nut [137], washer [138], washers [143], washers [135], washer [144], bolt [142], bushing [141] and bushing [140].

b) Change the location of the washers [135].

c) Install the bushing [140], bushing [141], bolt [142], washer [143], washers [135], washer [144], washer [138] and nut [137].

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d) Make sure the clearance between the washer [138] and the flange on the flanged bushing [139] is in the limit of 0.010 to 0.025 inch (0.25-0.64 millimeter).

e) Tighten the nut [137] to 530-690 pound-inches (59.9-77.9 newton-meters) if the bolt [142] is not lubricated.

f) Tighten the nut [137] to 345-425 pound-inches (39.0-48.0 newton-meters) if the bolt [142] is lubricated with grease, D00633 or grease, D00013.

6) Install the cotter pin [136] in the nut [137].

(e) Connect the adjust rod assembly [121] to the aft fairing assembly [82]:

1) Install the bushing [124], bolt [122], washer [123], washer [125] and nut [126] that attach the adjust rod assembly [121] to the aft fairing assembly [82].

2) Install the pin [127] in the nut [126].

SUBTASK 27-51-28-420-006

(2) Install the aft fairing assembly [82]:

(a) Connect the jumper wires [103]:

1) Lift the forward end of the aft fairing assembly [82] until you can put the jumper wires [103] on the studs.

2) Install the washers [93] and nuts [92] to attach the jumper wires [103].

3) Apply sealant, A02315 to the nuts [92].

(b) Connect the forward end of the aft fairing assembly [82] to the transmission attach fitting [91]:

1) Lift the forward end of the aft fairing assembly [82] until it aligns with the transmission attach fitting [91].

2) Install the bushing [99], pivot bolt [97], washer [98], washer [100] and nut [101].

3) Tighten the nut [101]:

a) Tighten the nut [101] to 1200-1410 pound-inches (135.6-159.3 newton-meters) if the pivot bolt [97] is not lubricated.

b) Tighten the nut [101] to 920-1000 pound-inches (103.9-112.9 newton-meters) if the pivot bolt [97] is lubricated with grease, D00633 or grease, D00013.

(c) Connect the aft end of the aft fairing assembly [82]:

1) Move the attach beam assembly [134] until it aligns with the flap track [87].

2) Install the bushing [116], bolt [114], washer [115], washer [117] and nut [118].

3) Tighten the nut [118]:

a) Tighten the nut [118] to 1300-1470 pound-inches (146.9-166.1 newton-meters) if the bolt [114] is not lubricated.

b) Tighten the nut [118] to 840-920 pound-inches (94.9-103.9 newton-meters) if the bolt [114] is lubricated with grease, D00633 or grease, D00013.

4) Install the pin [119] in the nut [118].

5) Align the drive rod assembly [112] with the carriage [105].

6) Install the bushing [108], bolt [106], washer [107], washer [109] and nut [110].

NOTE: Install the bolt [106] with the head on the outboard side.

7) Install the pin [111] in the nut [110].

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-28-440-004

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-28-860-004

(2) Retract the flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-28-820-004

(3) Do this task: Outboard Flap Inboard Support Fairing Adjustment, TASK 27-51-28-820-802.

SUBTASK 27-51-28-410-004

(4) Install the access cover [83] and access cover [102] on the forward end of the aft fairing assembly [82]:

(a) These are the covers:

Number	Name/Location
543CL	Flap Support No. 2 Access Cover
543CR	Flap Support No. 2 Access Cover
643CL	Flap Support No. 7, Access Cover
643CR	Flap Support No. 7, Access Cover

(b) Put the access cover [83] and access cover [102] in their locations on the aft fairing assembly [82].

(c) Install the bolts [94] that attach the access cover [83] and access cover [102].

SUBTASK 27-51-28-410-005

(5) If it is open, close the access door [113] on the aft fairing assembly [82]:

(a) These are the doors:

Number	Name/Location
543DR	Flap Support No. 2 Access Door
643DL	Flap Support No. 7, Access Door

(b) Turn the access door [113] around the screw [146] until it is in its position.

(c) Install the bolts [145] that attach the access door [113] to the aft fairing assembly [82].

(d) Tighten the screw [146] on the access door [113].

SUBTASK 27-51-28-410-006

(6) If it is not installed, install the tailcone assembly [147] on the aft fairing assembly [82]:

(a) Put the tailcone assembly [147] in its location on the aft fairing assembly [82].

(b) Install the bolts [148] that attach the tailcone assembly [147].

(c) Fill and aerodynamically fair the clearance between the tailcone assembly [147] and the aft fairing assembly [82] with sealant, A02315.

END OF TASK

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OUTBOARD FLAP SUPPORT FAIRINGS - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An adjustment of the outboard flap support fairing for the outboard flap

(2) An adjustment of the inboard flap support fairing for the outboard flap.

TASK 27-51-28-820-801

2. Outboard Flap Outboard Support Fairing Adjustment

(Figure 501)

A. General

(1) This task is applicable to the fairings at flap supports No. 1 and 8.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-000-801	Outboard Flap Outboard Support Forward Fairing Removal (P/B 401)
27-51-28-400-801	Outboard Flap Outboard Support Forward Fairing Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Fairing assembly	27-51-28-01-025	HAP ALL
		27-51-28-01-030	HAP ALL
4	Fairing assembly	27-51-28-01-210	HAP ALL
		27-51-28-01-215	HAP ALL
15	Pin	27-51-28-01-110	HAP ALL

E. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

F. Access Panels

Number	Name/Location
544DR	Flap Support No. 1 Access Door
644DL	Flap Support No. 8, Access Door

G. Prepare for the Adjustment

SUBTASK 27-51-28-860-005

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

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SUBTASK 27-51-28-040-005

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

H. Outboard Flap Outboard Support Aft Fairing Adjustment

SUBTASK 27-51-28-480-001

(1) Apply a 150 pound (68 kilogram) weight to preload the aft fairing assembly [4]:

(a) Put a strap across the top of the aft fairing assembly [4] at the line of fasteners for the tailcone [5].

(b) Attach a 150 pound (68 kilogram) weight to the strap.

NOTE: Make sure the weight is evenly applied to the inboard and outboard sides of the aft fairing assembly [4].

SUBTASK 27-51-28-820-005

(2) Move the preload pads [7] away from the aft flap [1]:

NOTE: It is necessary to move the preload pads [7] to correctly measure the clearance between the aft flap [1] and the aft fairing assembly [4].

(a) Loosen the bolts [8] that attach the preload pads [7] to the aft fairing assembly [4].

(b) Move the preload pads [7] away from the lower surface of the aft flap [1].

SUBTASK 27-51-28-220-001

(3) Measure the clearance between the top surface of the aft fairing assembly [4] and the aft flap [1].

NOTE: Measure the clearance at the aft edge of the aft flap [1] on the sides of the aft fairing assembly [4].

(a) Make sure the clearance is in the limit of 0.2639 ±0.05 inch (6.703 ±1.27 millimeters).

(b) Make sure the clearance is approximately the same on the inboard and outboard sides of the aft fairing assembly [4].

SUBTASK 27-51-28-820-006

(4) If the clearance is not in the limit, or if it is not the same on the inboard and outboard sides, then adjust the position of the aft fairing assembly [4]:

(a) On the side of the aft fairing assembly [4].

Open the applicable access panels:

Number	Name/Location
544DR	Flap Support No. 1 Access Door
644DL	Flap Support No. 8, Access Door

(b) If the clearance is not the same on the inboard and outboard sides, adjust the length of the adjust rod [21]:

1) Remove the weight from the aft fairing assembly [4].

2) Remove the nut [14], washer [13], washer [11], bolt [10] and bushing [12] that attach the drive rod [17] to the carriage [9].

NOTE: Support the aft fairing assembly [4] when you remove the bolt [10].

3) Lower the aft end of the aft fairing assembly [4] to get access to the adjust rod [21].

4) Loosen the locknuts [20] on the adjust rod [21].

5) Adjust the length of the adjust rod [21] until the clearance is the same on the inboard and outboard sides of the aft fairing assembly [4].

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6) Tighten the locknuts [20] on the adjust rod [21] .

7) Install lockwire on the locknuts [20].

8) Lift the aft end of the aft fairing assembly [4] and align the drive rod [17] with the carriage [9].

9) Install the bushing [12], bolt [10], washer [11], washer [13] and nut [14] to attach the drive rod [17] to the carriage [9].

NOTE: Install the bolt [10] with the head on the outboard side.

10) Install the cotter pin [15] in the nut [14].

(c) If the clearance is not in the limit, adjust the length of the drive rod [17]:

1) Loosen the locknuts [16] on the drive rod [17] .

2) Adjust the length of the drive rod [17] until the clearance is in the limit.

3) Tighten the locknuts [16] on the drive rod [17].

4) Install the lockwire on the locknuts [16].

(d) Make sure the clearance is in the limit and that it is the same on the inboard and outboard sides of the aft fairing assembly [4].

SUBTASK 27-51-28-820-007

(5) Adjust the position of the preload pads [7]:

(a) With the 150 pound (68 kilogram) weight applied to the aft fairing assembly [4], move the preload pads [7] up until they touch the lower surface of the aft flap [1].

(b) Tighten the bolts [8] that attach the preload pads [7].

SUBTASK 27-51-28-080-001

(6) Remove the 150 pound (68 kilogram) weight and the strap from the aft fairing assembly [4].

SUBTASK 27-51-28-210-001

(7) Make sure the seals [6] on the sides of the aft fairing assembly [4] are compressed 10 to 25 percent against the lower surface of the flap.

SUBTASK 27-51-28-820-008

(8) If the seals [6] are not compressed correctly against the lower surface of the flap, adjust the position of the seals [6]:

(a) Remove the nut [14], washer [13], washer [11], bolt [10] and bushing [12] that attach the drive rod [17] to the carriage [9].

(b) Lower the aft end of the aft fairing assembly [4] to get access to the fasteners for the seals [6].

(c) Loosen the nuts [18] on the retainer [19].

(d) Move the seal [6] and the retainer [19].

NOTE: Make sure you move the seal [6] and the retainer [19] together as a unit.

(e) Tighten the nuts [18] on the retainer [19].

(f) Lift the aft end of the aft fairing assembly [4] and align the drive rod [17] with the carriage [9].

(g) Install the bushing [12], bolt [10], washer [11], washer [13] and nut [14] to attach the drive rod [17] to the carriage [9].

NOTE: Install the bolt [10] with the head on the outboard side.

(h) Install the cotter pin [15] in the nut [14].

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SUBTASK 27-51-28-410-007

(9) On the side of the aft fairing assembly [4].

Close the applicable access panels:

Number	Name/Location
544DR	Flap Support No. 1 Access Door
644DL	Flap Support No. 8, Access Door

I. Outboard Flap Outboard Forward Fairing Adjustment

SUBTASK 27-51-28-220-002

(1) Measure the mismatch between the forward fairing assembly [3] and the aft fairing assembly [4].

NOTE: Measure the mismatch on the inboard side and on the bottom of the forward fairing assembly [3].

(a) Make sure the mismatch is in the limit of +0.03 to -0.01 inch (+0.76 to -0.25 millimeters).

NOTE: A positive (+) mismatch is when the forward fairing assembly [3] extends past the aft fairing assembly [4]. A negative (-) mismatch is when the aft fairing assembly [4] extends past the forward fairing assembly [3].

SUBTASK 27-51-28-220-003

(2) Make sure the seals [26] on the sides of the forward fairing assembly [3] are compressed 10 to 25 percent against the lower surface of the main flap [2].

SUBTASK 27-51-28-020-011

(3) If the mismatch is not in the limit or if the seals [26] are not compressed correctly, do this task: Outboard Flap Outboard Support Forward Fairing Removal, TASK 27-51-28-000-801.

SUBTASK 27-51-28-820-009

(4) If the mismatch between the forward fairing assembly [3] and the aft fairing assembly [4] is not in the limit, then adjust the position of the forward fairing assembly [3]:

(a) If the mismatch is not in the limit on the inboard side of the forward fairing assembly [3], then adjust the position of the fairing attach fitting [24]:

1) Loosen the bolts [23] that attach the fairing attach fitting [24] to the transmission attach fitting [22].

2) Move the fairing attach fitting [24] inboard or outboard to get the mismatch in the clearance.

3) Tighten the bolts [23].

4) Install lockwire on bolts [23].

(b) If the mismatch is not in the limit on the bottom of the forward fairing assembly [3], change the thickness of the shims [25].

1) Apply primer, C00259 to the mating surfaces of the shim [25] and the fairing attach fitting [24].

SUBTASK 27-51-28-820-010

(5) If the seals [26] are not compressed evenly against the lower surface of the main flap [2], then adjust the position of the seals [26]:

(a) Loosen the nuts [27] on the retainer [28].

(b) Move the seal [26] and the retainer [28].

(c) Tighten the nuts [27] that hold the retainer [28].

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SUBTASK 27-51-28-420-007

(6) If you removed the forward fairing assembly [3], do this task: Outboard Flap Outboard Support Forward Fairing Installation, TASK 27-51-28-400-801.

J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-28-440-005

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

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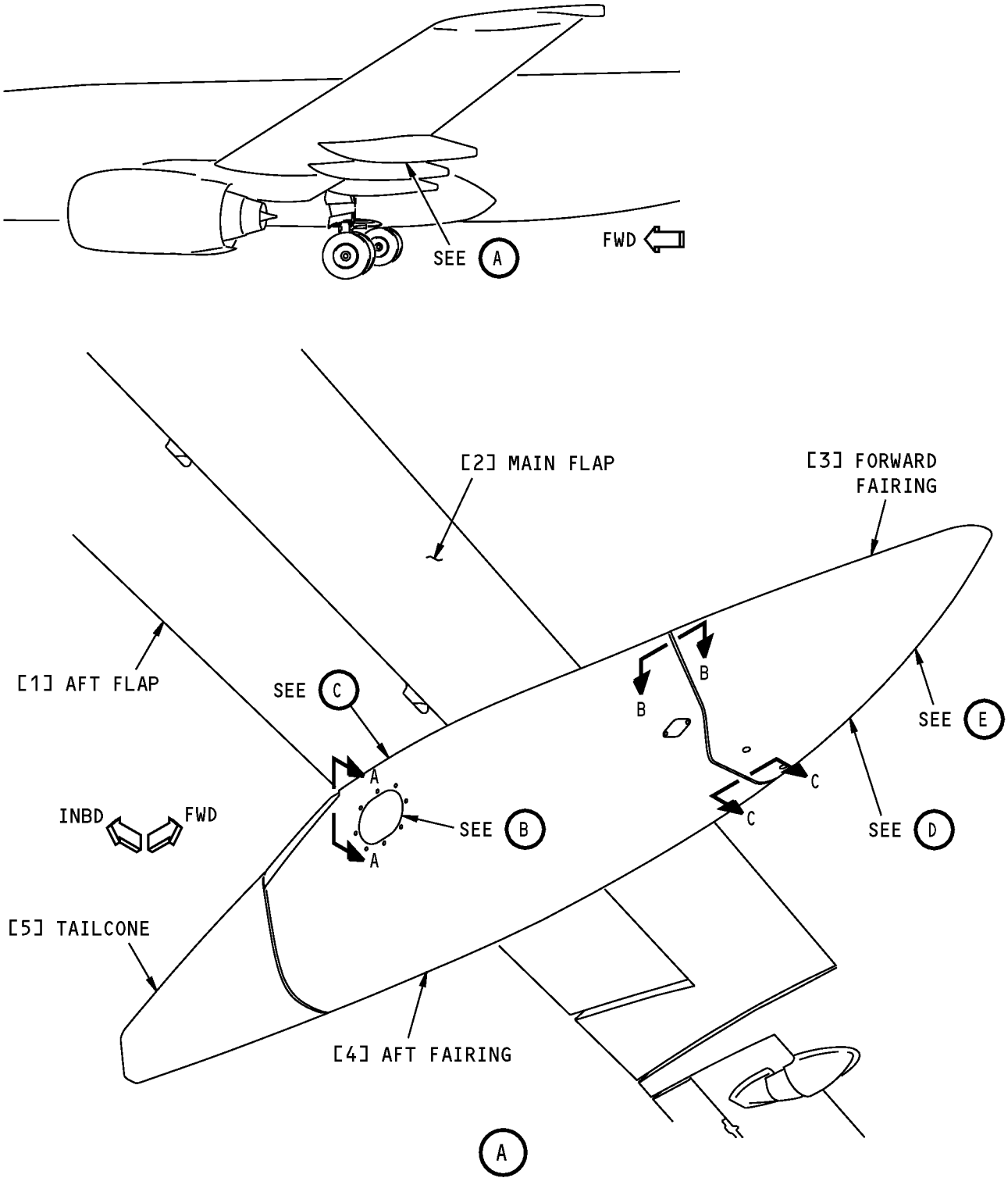

Outboard Flap Outboard Support Fairing Adjustment
Figure 501 (Sheet 1 of 4)/27-51-28-990-803

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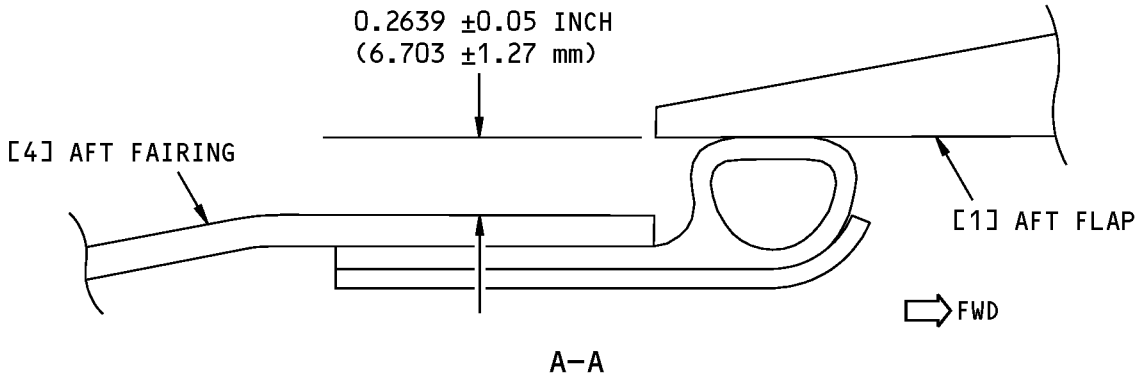

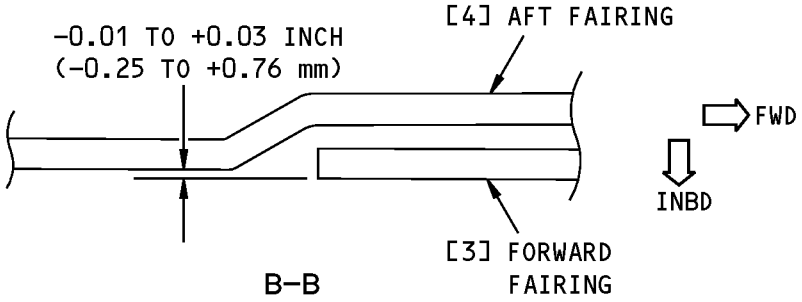

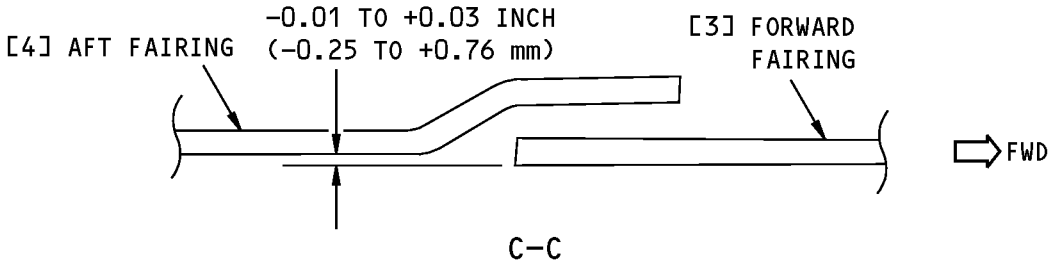

Outboard Flap Outboard Support Fairing Adjustment
Figure 501 (Sheet 2 of 4)/27-51-28-990-803

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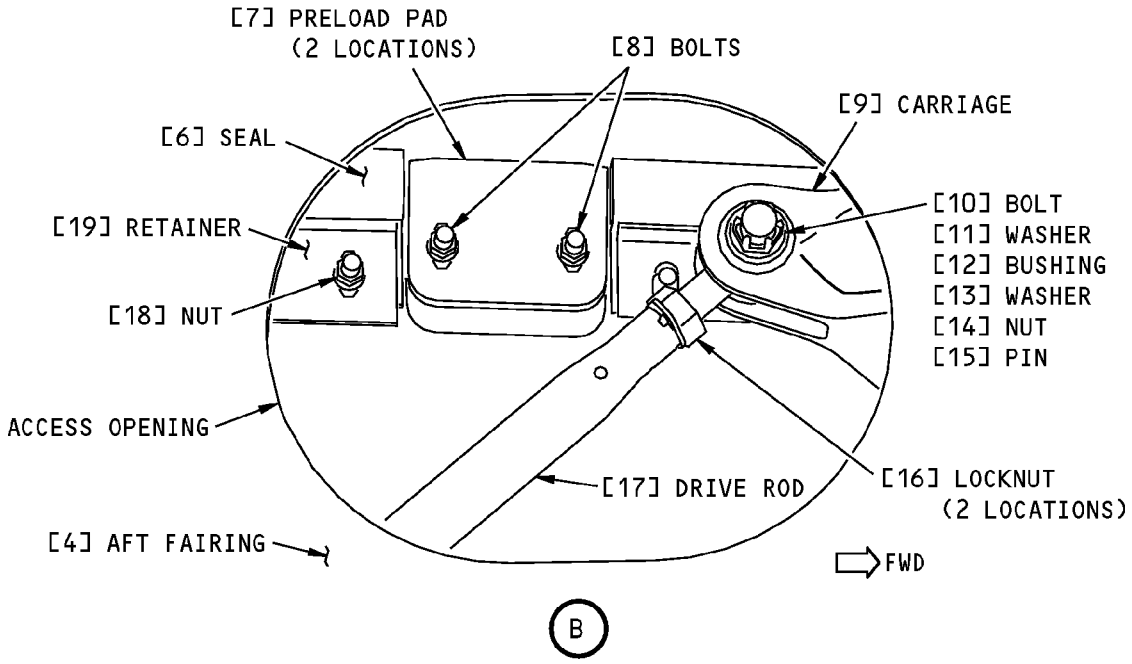

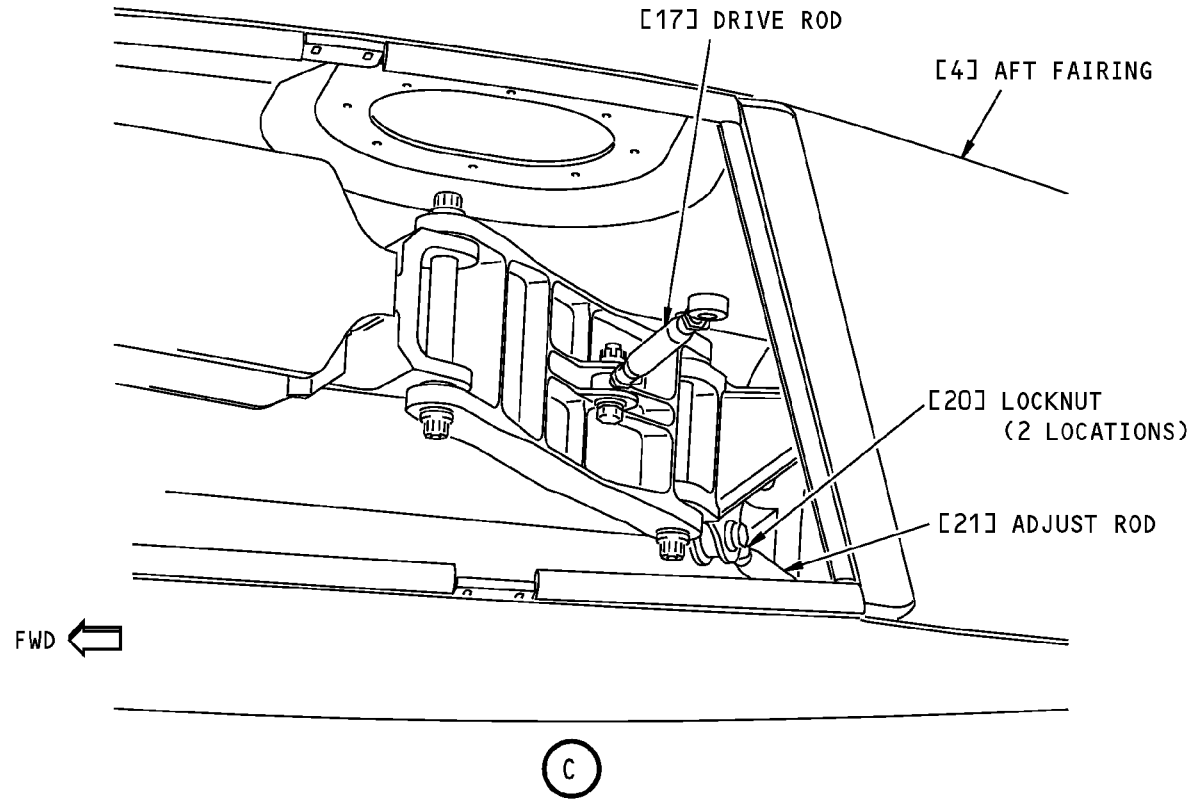

Outboard Flap Outboard Support Fairing Adjustment
Figure 501 (Sheet 3 of 4)/27-51-28-990-803

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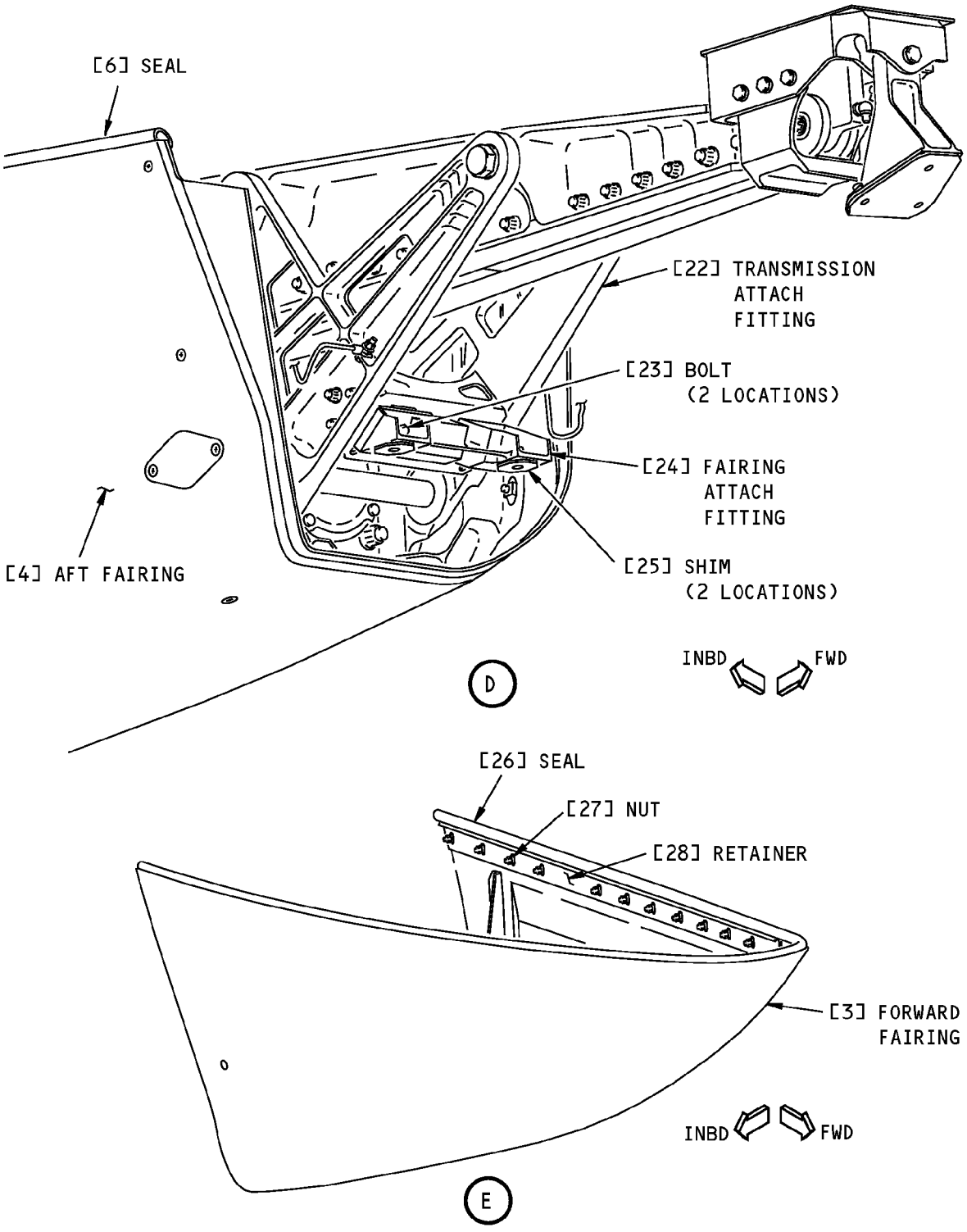

Outboard Flap Outboard Support Fairing Adjustment
Figure 501 (Sheet 4 of 4)/27-51-28-990-803

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TASK 27-51-28-820-802

3. Outboard Flap Inboard Support Fairing Adjustment

(Figure 502)

A. General

(1) This task is applicable to the fairings at flap supports No. 2 and 7.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-000-803	Outboard Flap Inboard Support Forward Fairing Removal (P/B 401)
27-51-28-400-803	Outboard Flap Inboard Support Forward Fairing Installation (P/B 401)

C. Consumable Materials

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
43	Fairing assembly	27-51-28-04-020	HAP ALL
		27-51-28-04-025	HAP ALL
44	Fairing assembly	27-51-28-04-210	HAP ALL
		27-51-28-04-215	HAP ALL

E. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

F. Access Panels

Number	Name/Location
543DR	Flap Support No. 2 Access Door
643DL	Flap Support No. 7, Access Door

G. Prepare for the Adjustment

SUBTASK 27-51-28-860-006

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-28-040-006

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

H. Outboard Flap Inboard Support Aft Fairing Adjustment

SUBTASK 27-51-28-480-002

(1) Apply a 150 pound (68 kilogram) weight to preload the aft fairing assembly [44]:

(a) Put a strap across the top of the aft fairing assembly [44] at the line of fasteners for the tailcone [45].

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(b) Attach a 150 pound (68 kilogram) weight to the strap.

NOTE: Make sure the weight is evenly applied to the inboard and outboard sides of the aft fairing assembly [44].

SUBTASK 27-51-28-820-011

(2) Move the preload pads [59] away from the aft flap [41]:

NOTE: It is necessary to move the preload pads [59] to correctly measure the clearance between the aft flap [41] and the aft fairing assembly [44].

(a) Loosen the bolts [58] that attach the preload pads [59] to the aft fairing assembly [44].

(b) Move the preload pad [59] away from the lower surface of the aft flap [41].

SUBTASK 27-51-28-220-004

(3) Measure the clearance between the top surface of the aft fairing assembly [44] and the aft flap [41].

NOTE: Measure the clearance at the aft edge of the aft flap [41] on the sides of the aft fairing assembly [44].

(a) Make sure the clearance is in the limit of 0.2639 ±0.05 inch (6.703 ±1.27 millimeters).

(b) Make sure the clearance is approximately the same on the inboard and outboard sides of the aft fairing assembly [44].

SUBTASK 27-51-28-820-012

(4) If the clearance is not in the limit, or if it is not the same on the inboard and outboard sides, then adjust the position of the aft fairing assembly [44]:

(a) On the side of the aft fairing assembly [44].

Open the applicable access panels:

Number	Name/Location
543DR	Flap Support No. 2 Access Door
643DL	Flap Support No. 7, Access Door

(b) If the clearance is not the same on the inboard and outboard sides, adjust the length of the adjust rod [60]:

1) Remove the weight from the aft fairing assembly [44].

2) Remove the nut [54], washer [53], washer [51], bolt [50] and bushing [52] that attach the drive rod [57] to the carriage [49].

NOTE: Support the aft fairing assembly [44] when you remove the bolt [50].

3) Lower the aft end of the aft fairing assembly [44] to get access to the adjust rod [60].

4) Loosen the locknuts [61] on the adjust rod [60].

5) Adjust the length of the adjust rod [60] until the clearance is the same on the inboard and outboard sides of the aft fairing assembly [44].

6) Tighten the locknuts [61] on the adjust rod [60].

7) Install lockwire on the locknuts [61].

8) Lift the aft end of the aft fairing assembly [44] and align the drive rod [57] with the carriage [49].

9) Install the bushing [52], bolt [50], washer [51], washer [53] and nut [54] to attach the drive rod [57] to the carriage [49].

NOTE: Install the bolt [50] with the head on the outboard side.

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10) Install the cotter pin [55] in the nut [54].

(c) If the clearance is not in the limit, adjust the length of the drive rod [57]:

1) Loosen the locknuts [56]l on the drive rod [57].

2) Adjust the length of the drive rod [57] until the clearance is in the limit.

3) Tighten the locknuts [56] on the drive rod [57].

4) Instal the lockwire on the locknuts [56].

(d) Make sure the clearance is in the limit and that it is the same on the inboard and outboard sides of the aft fairing assembly [44].

SUBTASK 27-51-28-820-013

(5) Adjust the position of the preload pads [59]:

(a) With the 150 pound weight applied to the aft fairing assembly [44], move the preload pads [59] up until they touch the lower surface of the aft flap [41].

(b) Tighten the bolts [58] that attach the preload pads [59].

SUBTASK 27-51-28-080-002

(6) Remove the weight from the aft fairing assembly [44].

SUBTASK 27-51-28-210-002

(7) Make sure the seals [6] on the sides of the aft fairing assembly [44] are compressed 10 to 25 percent against the lower surface of the flap.

SUBTASK 27-51-28-820-014

(8) If the seals [47] are not compressed correctly against the lower surface of the flap, adjust the position of the seals [47]:

(a) Remove the nut [54], washer [53], washer [51], bolt [50] and bushing [52] that attach the drive rod [57] to the carriage [49].

(b) Lower the aft end of the aft fairing assembly [44] to get access to the fasteners for the seals [47].

(c) Loosen the nuts [46] on the retainer [48].

(d) Move the seal [47] and the retainer [48].

NOTE: Make sure you move the seal [47] and the retainer [48] together as a unit.

(e) Tighten the nuts [46] on the retainer [48].

(f) Lift the aft end of the aft fairing assembly [44] to align the drive rod [57] with the carriage [49].

(g) Install the bushing [52], bolt [50], washer [51], washer [53] and nut [54] to attach the drive rod [57] to the carriage [49].

NOTE: Install the bolt [50] with the head on the outboard side.

(h) Install the cotter pin [55] in the nut [54].

SUBTASK 27-51-28-410-008

(9) On the side of the aft fairing assembly [44].

Close the applicable access panels:

Number	Name/Location
543DR	Flap Support No. 2 Access Door
643DL	Flap Support No. 7, Access Door

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I. Outboard Flap Inboard Forward Fairing Adjustment

SUBTASK 27-51-28-220-005

(1) Measure the mismatch between the forward fairing assembly [43] and the aft fairing assembly [44].

NOTE: Measure the mismatch on the inboard side and on the bottom of the forward fairing assembly [43].

(a) Make sure the mismatch is in the limit of +0.03 to -0.01 inch (+0.76 to -0.25 millimeter).

NOTE: A positive (+) mismatch is when the forward fairing assembly [43] extends past the aft fairing assembly [44]. A negative (-) mismatch is when the aft fairing assembly [44] extends past the forward fairing assembly [43].

SUBTASK 27-51-28-220-006

(2) Make sure the seals [66] on the sides of the forward fairing assembly [43] are compressed 10 to 25 percent against the lower surface of the main flap [42].

SUBTASK 27-51-28-020-012

(3) If the mismatch is not in the limit or if the seals [66] are not compressed correctly, do this task: Outboard Flap Inboard Support Forward Fairing Removal, TASK 27-51-28-000-803.

SUBTASK 27-51-28-820-015

(4) If the mismatch between the forward fairing assembly [43] and the aft fairing assembly [44] is not in the limit, then adjust the position of the forward fairing assembly [43]:

(a) If the mismatch is not in the limit on the inboard side of the forward fairing assembly [43], adjust the position of the fairing attach fitting [64]:

1) Loosen the bolts [63] that attach the fairing attach fitting [64] to the transmission attach fitting [62].

2) Move the fairing attach fitting [64] inboard or outboard to get the mismatch in the clearance.

3) Tighten the bolts [63].

4) Install lockwire on bolts [63].

(b) If the mismatch is not in the limit on the bottom of the forward fairing assembly [43], change the thickness of the shims [65].

1) Apply primer, C00259 to the mating surfaces of the shim [65] and the fairing attach fitting [64].

SUBTASK 27-51-28-820-016

(5) If the seals [66] are not compressed evenly against the lower surface of the main flap [42], adjust the position of the seal [66]:

(a) Loosen the nuts [67] on the retainer [68].

(b) Move the seal [66] and the retainer [68].

(c) Tighten the nuts [67] that hold the retainer [68].

SUBTASK 27-51-28-420-008

(6) If you removed the forward fairing assembly [43], do this task: Outboard Flap Inboard Support Forward Fairing Installation, TASK 27-51-28-400-803.

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J. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-28-440-006

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

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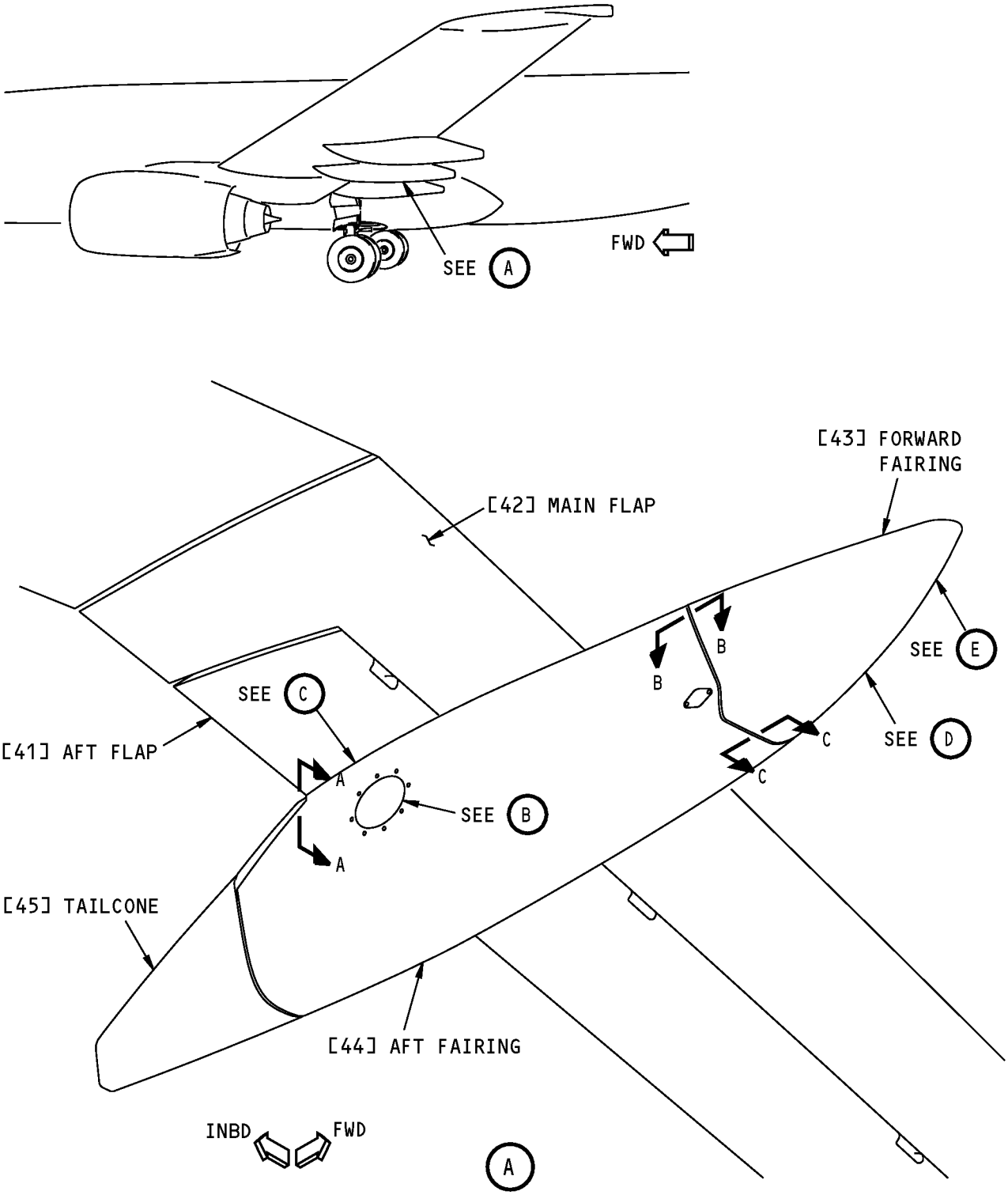

Outboard Flap Inboard Support Fairing Adjustment
Figure 502 (Sheet 1 of 4)/27-51-28-990-804

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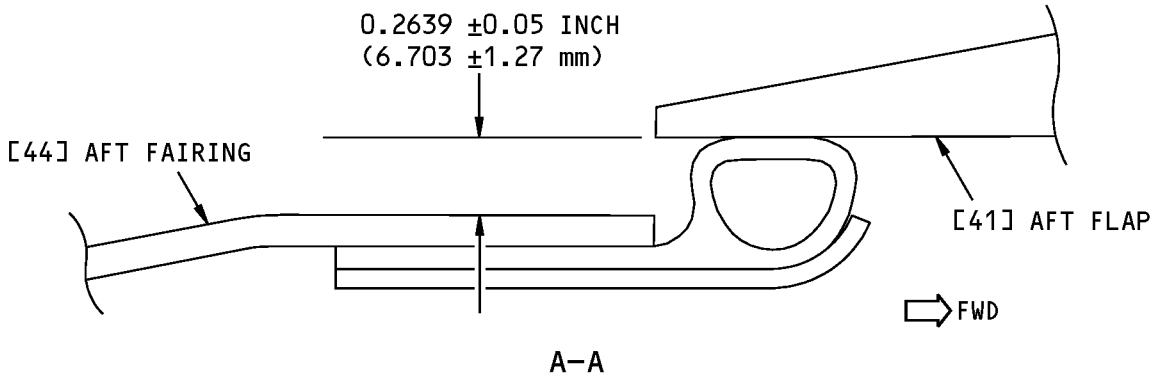

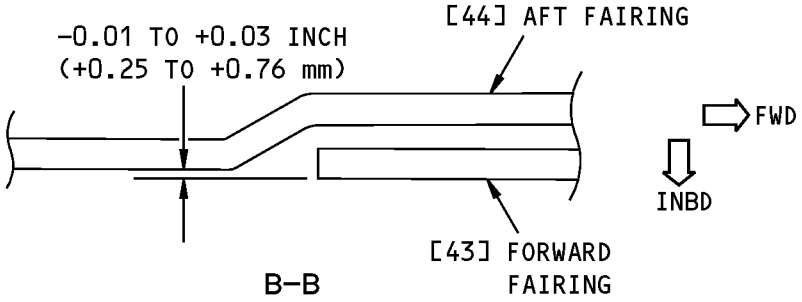

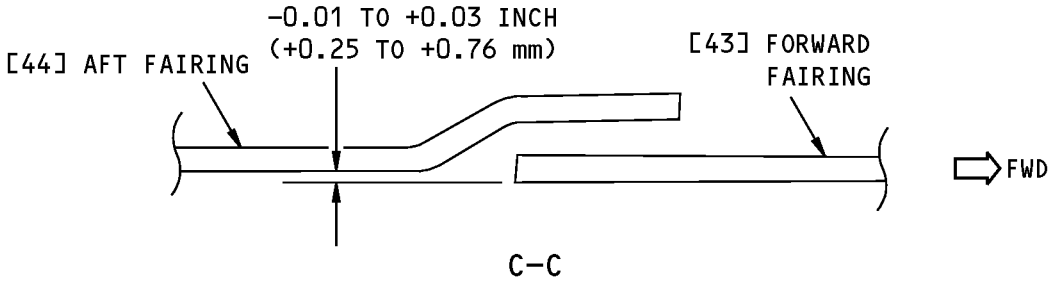

Outboard Flap Inboard Support Fairing Adjustment
Figure 502 (Sheet 2 of 4)/27-51-28-990-804

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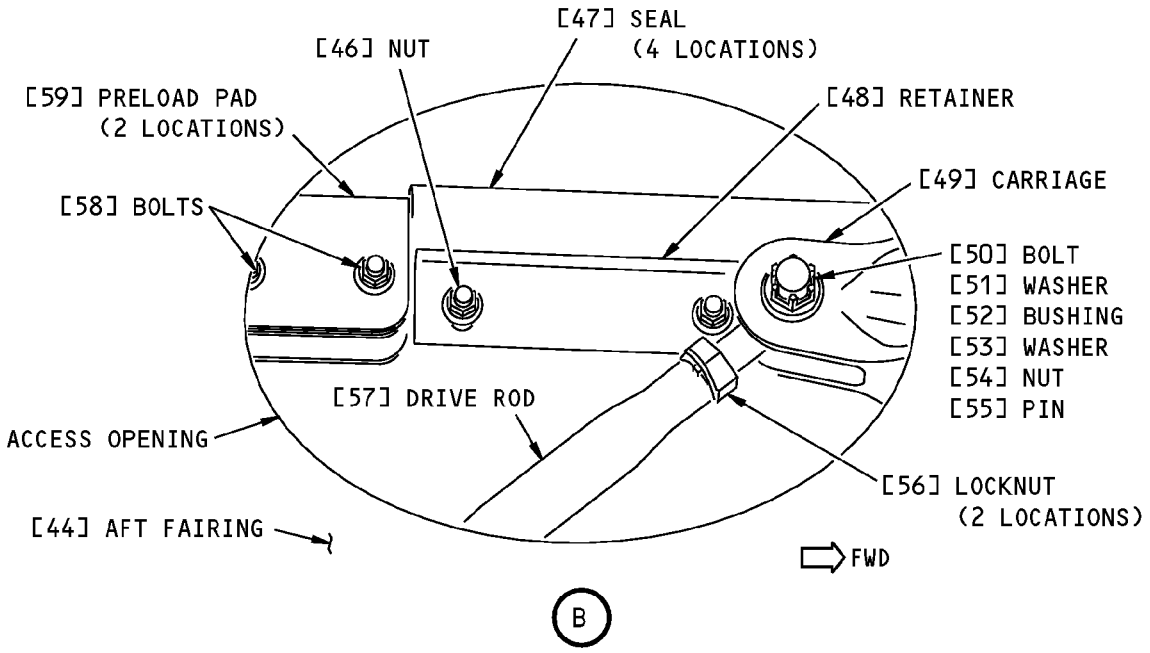

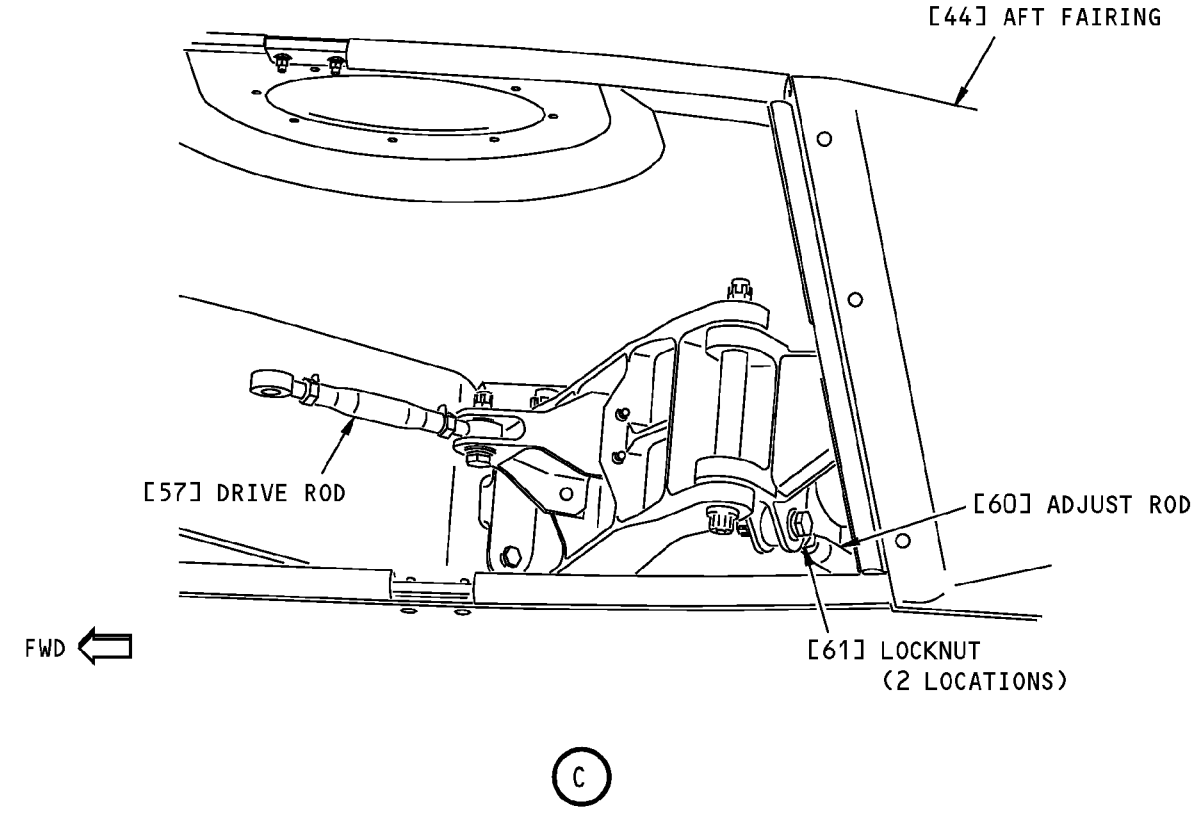

Outboard Flap Inboard Support Fairing Adjustment
Figure 502 (Sheet 3 of 4)/27-51-28-990-804

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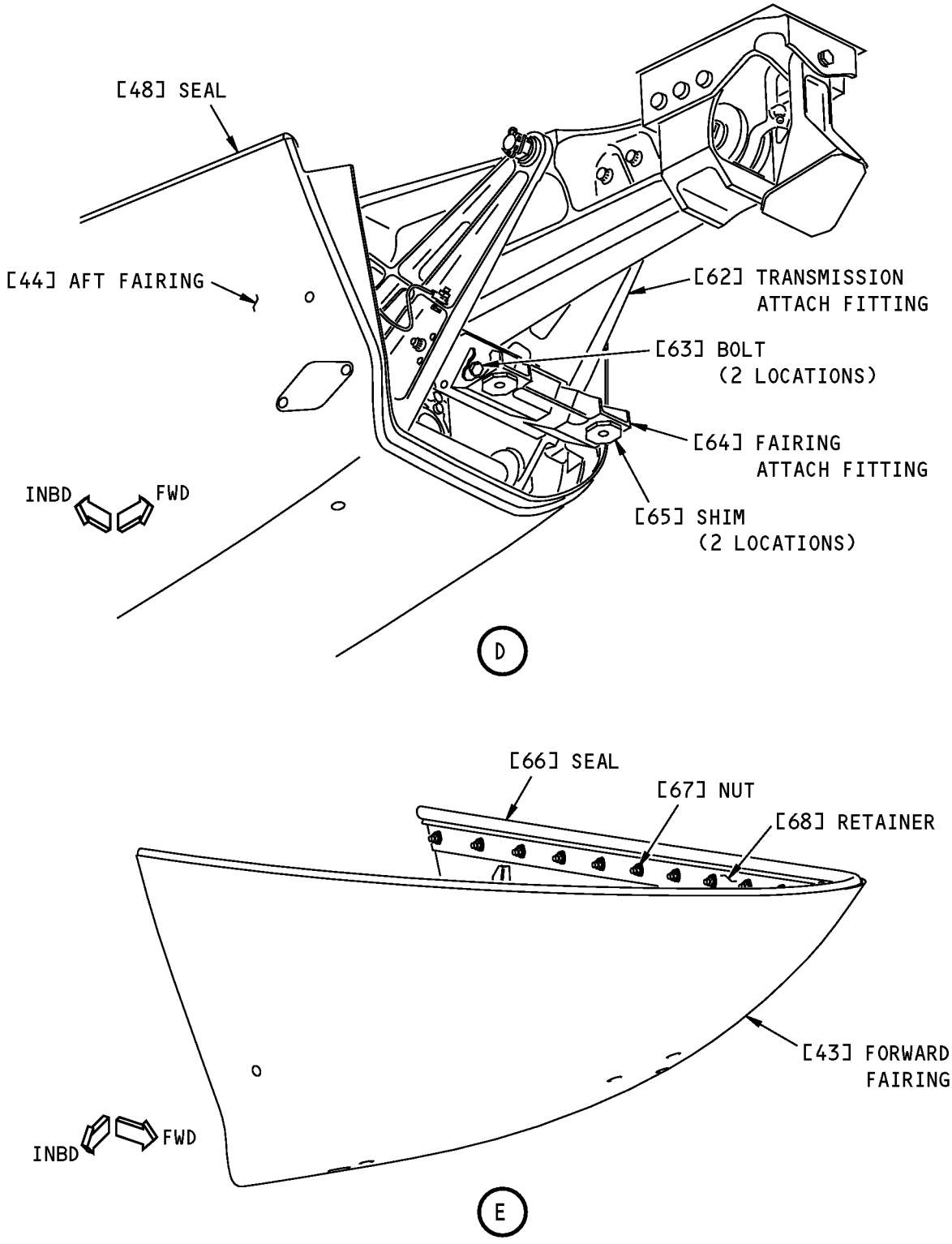

Outboard Flap Inboard Support Fairing Adjustment
Figure 502 (Sheet 4 of 4)/27-51-28-990-804

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INBOARD FLAP TRANSMISSIONS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard transmission for the inboard flap

(2) An installation of the outboard transmission for the inboard flap

(3) A removal of the inboard transmission for the inboard flap

(4) An installation of the inboard transmission for the inboard flap.

TASK 27-51-31-000-801

2. Inboard Flap Outboard Transmission Removal

(Figure 401)

A. General

(1) This task is applicable to the transmissions at flap supports No. 3 and 6.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-18-000-802	Inboard Flap Support Aft Fairing Removal (P/B 401)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
553	Left Wing - Inboard Flap
642	Right Wing - Fairing Flap Support No. 6
653	Right Wing - Inboard Flap

D. Prepare for the Removal

SUBTASK 27-51-31-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-31-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-31-040-001

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-31-010-001

(4) Do this task: Inboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

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E. Inboard Flap Outboard Transmission Removal

SUBTASK 27-51-31-980-001

(1) Manually extend the trailing edge flaps to the downstop on the ballscrew. To extend them, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-31-020-001

(2) Disconnect the torque tubes [1] from the transmission assembly [4]:

(a) Remove the screws [3] that attach the coupling sleeves [2] to the splined couplings [5] on the torque tubes [1].

(b) Move the coupling sleeves [2] off the splined couplings [5].

SUBTASK 27-51-31-020-002

CAUTION: MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(3) Disconnect the ballscrew assembly [6] with the gimbal [14] from the carriage [8]:

(a) Install a support to hold the ballscrew assembly [6] when it is disconnected from the carriage [8].

(b) Remove the nuts [11], washers [12] and bolts [7] that attach the carriage bushing [9] and carriage bushing [13] to the carriage [8].

(c) Remove the carriage bushing [9] and carriage bushing [13] from the carriage [8].

(d) Move the gimbal [14] away from the carriage [8].

SUBTASK 27-51-31-020-003

(4) Disconnect the ballscrew assembly [6] from the yoke [16] on the transmission assembly [4]:

(a) Remove the nuts [20], washers [19], washers [18] and bolts [17] that attach the ballscrew assembly [6] to the yoke [16].

(b) Remove the ballscrew assembly [6] from the yoke [16].

NOTE: You can turn the ballscrew assembly [6] and the gimbal [14] to remove the ballscrew assembly [6].

(c) Remove the ballscrew assembly [6] with the gimbal [14].

SUBTASK 27-51-31-020-004

(5) Remove the transmission assembly [4]:

NOTE: The transmission assembly [4] weighs approximately 50 pounds (23 kilograms).

(a) Support the transmission assembly [4] while you disconnect it from the transmission attach fitting [15].

(b) Remove the nuts [24], washers [23], washers [22] and bolts [21] that attach the transmission assembly [4] to the transmission attach fitting [15].

(c) Carefully lower the transmission assembly [4].

——————— END OF TASK ———————

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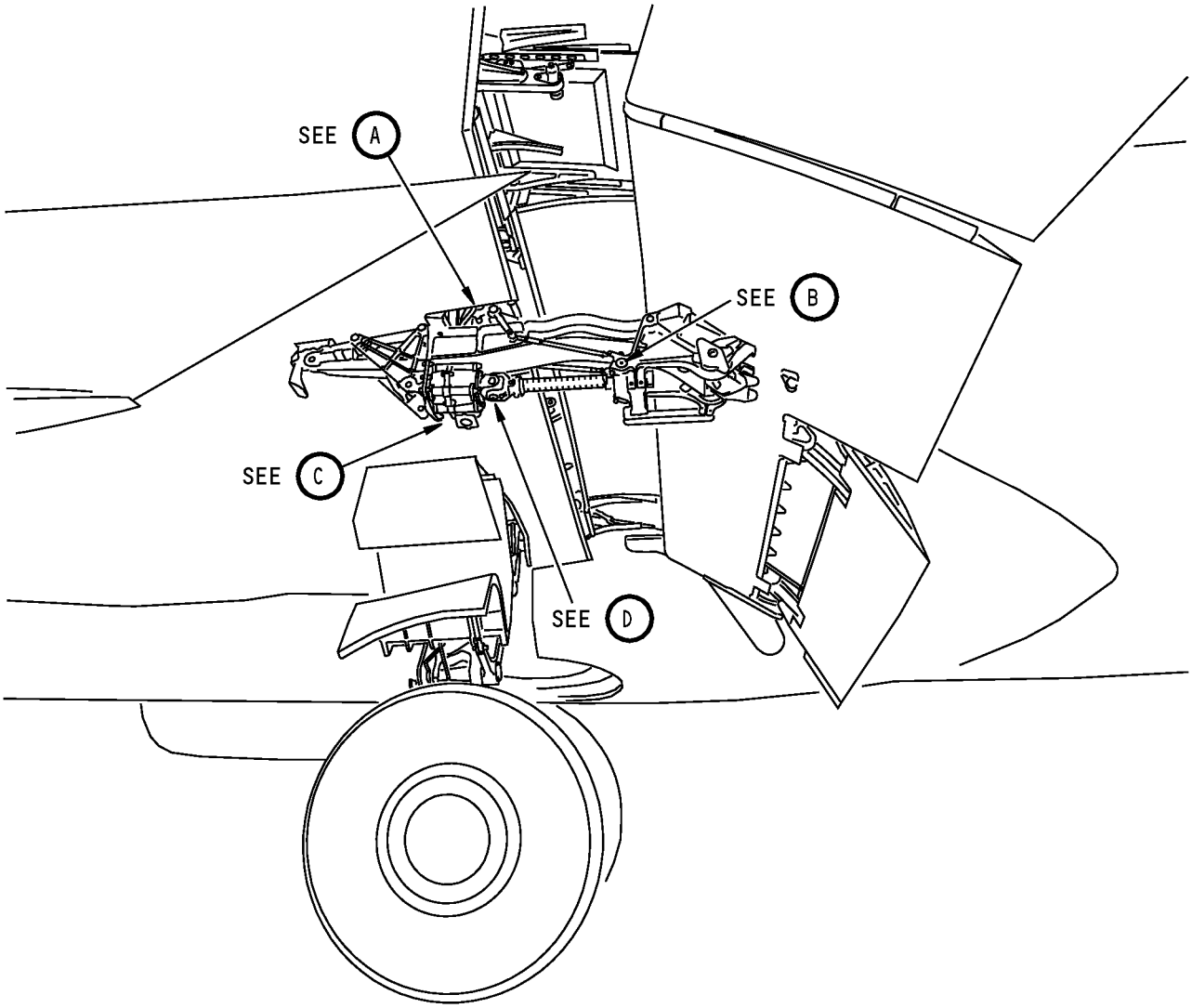

Inboard Flap Outboard Transmission Installation
Figure 401 (Sheet 1 of 4)/27-51-31-990-801

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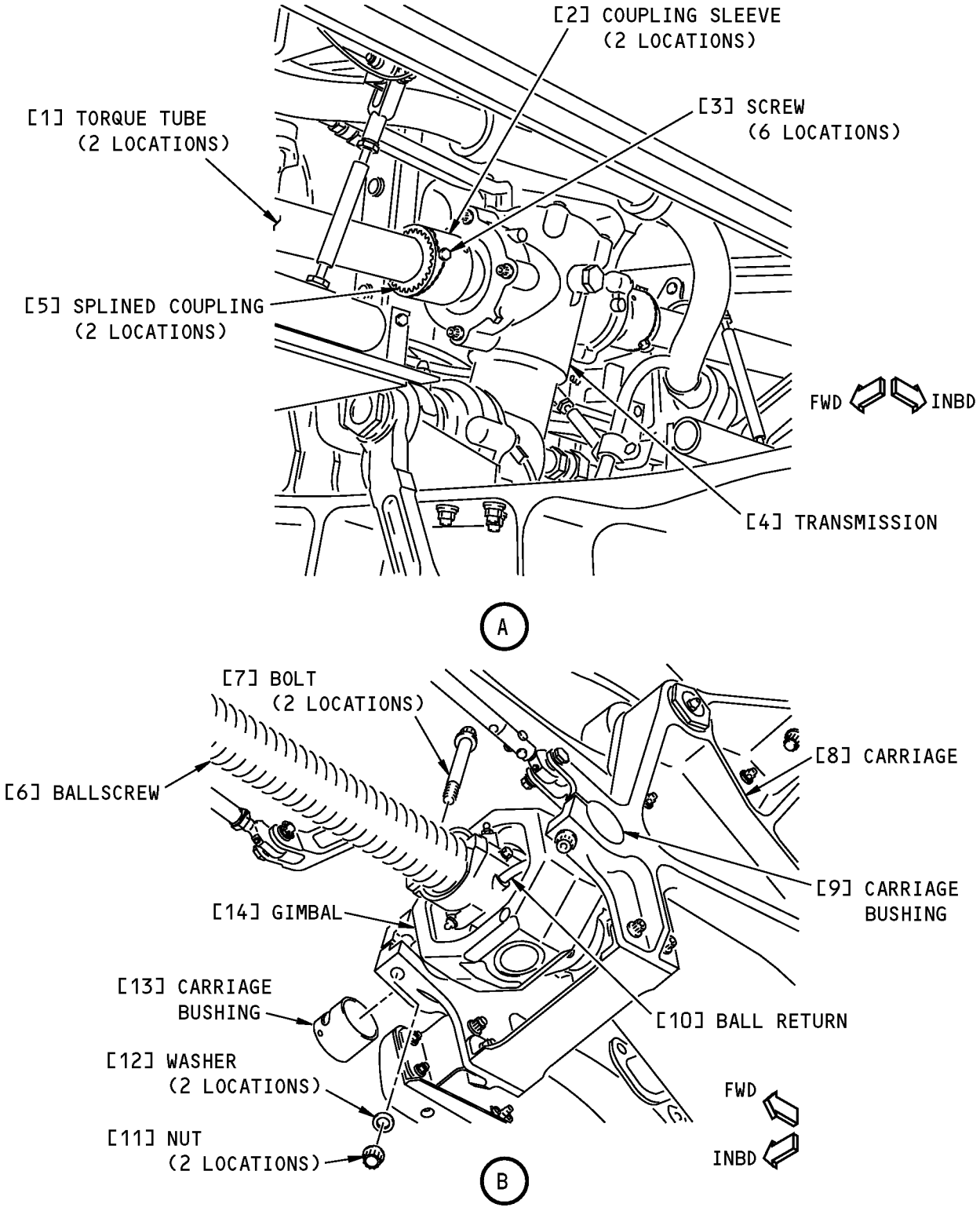

Inboard Flap Outboard Transmission Installation
Figure 401 (Sheet 2 of 4)/27-51-31-990-801

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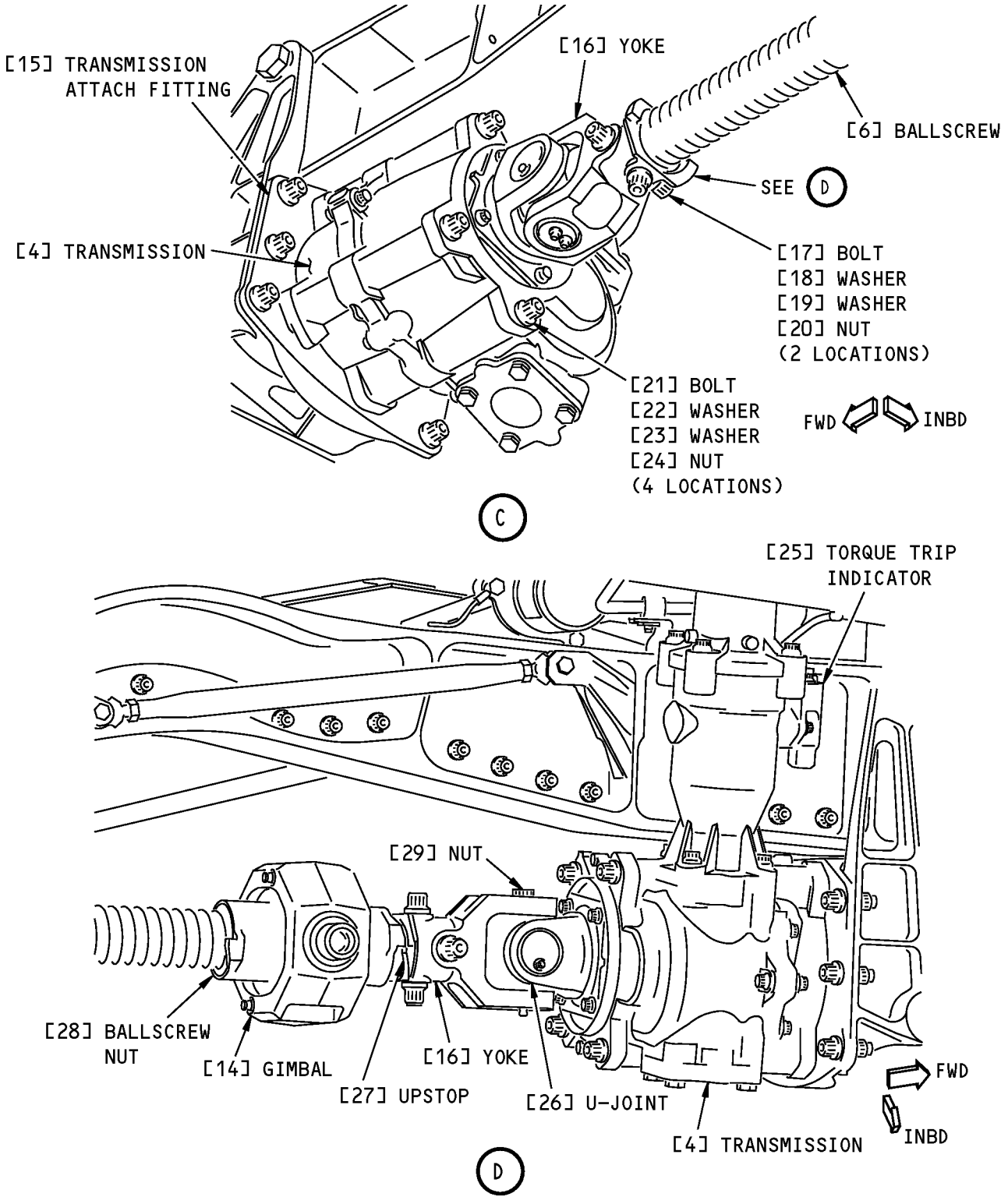

Inboard Flap Outboard Transmission Installation
Figure 401 (Sheet 3 of 4)/27-51-31-990-801

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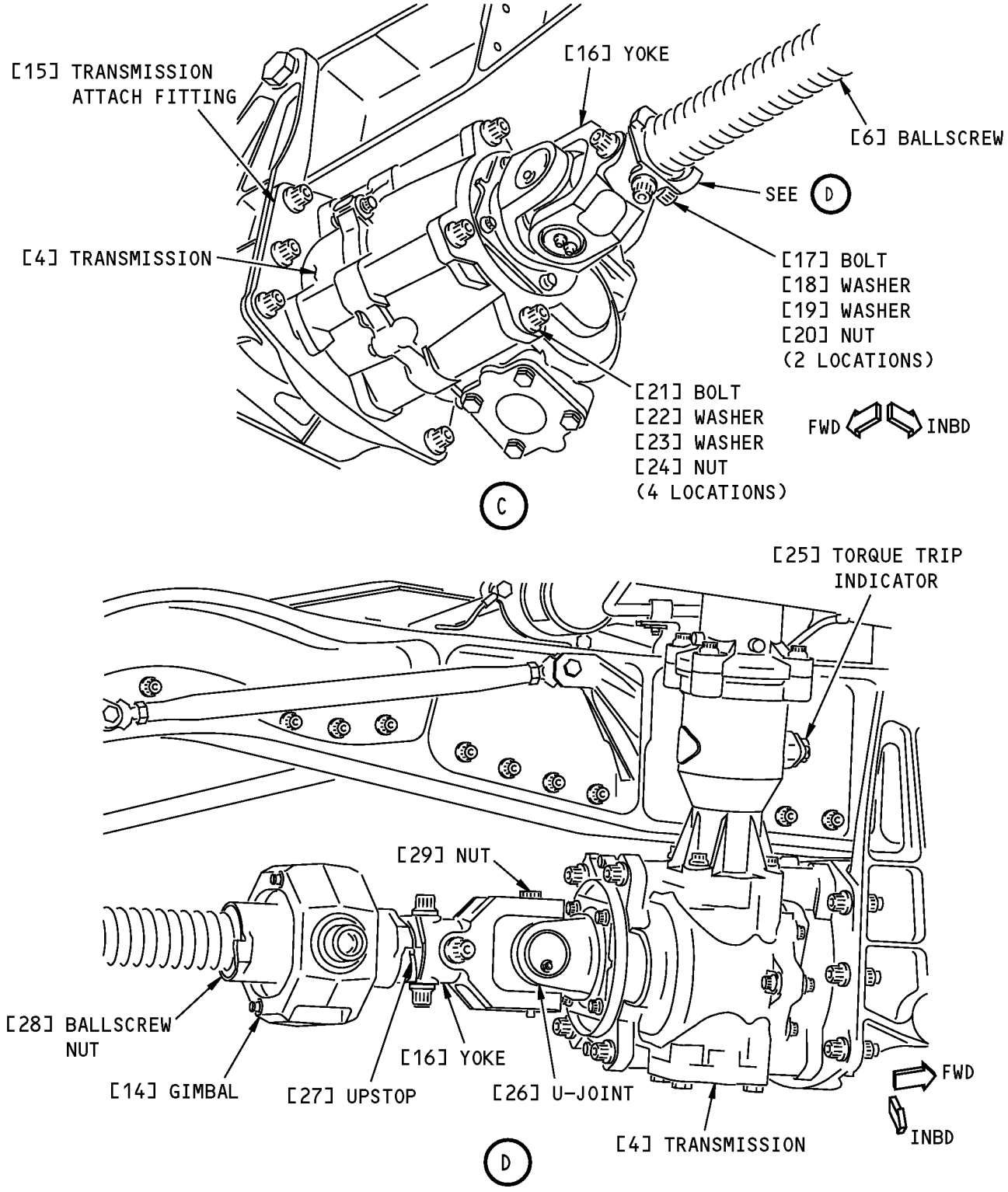

Inboard Flap Outboard Transmission Installation
Figure 401 (Sheet 4 of 4)/27-51-31-990-801

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TASK 27-51-31-400-801

3. Inboard Flap Outboard Transmission Installation

(Figure 401)

A. General

(1) This task is applicable to the transmissions at flap supports No. 3 and 6.

B. References

Reference	Title
12-22-51-640-803	Inboard Flap Outboard Ballscrew and Gimbal Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-18-400-802	Inboard Flap Support Aft Fairing Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Transmission assembly	27-51-31-10-055	HAP 001-013, 015-026, 028-030
		27-51-31-10-060	HAP 001-013, 015-026, 028-030
		27-51-31-12-030	HAP 031-054, 101-999
		27-51-31-12-035	HAP 031-054, 101-999
6	Ballscrew assembly	27-51-32-01-028	HAP 001-013, 015-026, 028-030
		27-51-32-02-050	HAP 001-013, 015-026, 028-030
		27-51-32-03-030	HAP 031-054, 101-999
		27-51-32-04-055	HAP 031-054, 101-999

E. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
553	Left Wing - Inboard Flap
642	Right Wing - Fairing Flap Support No. 6
653	Right Wing - Inboard Flap

F. Inboard Flap Outboard Transmission Installation

SUBTASK 27-51-31-420-001

(1) Install the transmission assembly [4]:

NOTE: The transmission assembly [4] weighs approximately 50 pounds (23 kilograms).

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(a) Apply a thin layer of compound, C00913 to the mating surface of the transmission assembly [4] and the transmission attach fitting [15].

(b) Apply a layer of compound, C00913 to the bolt holes in the transmission assembly [4].

(c) Apply a layer of compound, C00913 to the shank and threads of the bolts [21].

(d) Carefully lift the transmission assembly [4] to its position on the transmission attach fitting [15].

(e) Install the bolts [21], washers [22], washers [23] and nuts [24] to attach the transmission assembly [4] to the transmission attach fitting [15].

(f) Tighten the nuts [24] to 500-550 pound-inches (56.5-62.1 newton-meters) more than the run-on torque.

SUBTASK 27-51-31-420-002

(2) Connect the ballscrew assembly [6] to the yoke [16] on the transmission assembly [4]:

(a) Turn the ballscrew nut [28] until it is at the forward end of the ballscrew assembly [6].

(b) Apply a layer of grease, D00633 to the mating surfaces of the yoke [16] and the ballscrew assembly [6].

(c) Put the ballscrew assembly [6] into the yoke [16].

(d) Apply a layer of grease, D00633 to the shank and threads of the bolts [17].

(e) Install the bolts [17], washers [18], washers [19] and nuts [20] to attach the ballscrew assembly [6] to the yoke [16].

(f) Make sure the ballscrew assembly [6] is installed correctly in the yoke [16]:

1) Turn the transmission assembly [4] until the nut [29] on the U-joint [26] is up.

2) Turn the ballscrew nut [28] until the upstop is 180° from the upstop [27] on the yoke [16].

3) If the ball returns [10] on the ballscrew nut [28] are not in the correct position, then change the position of the ballscrew assembly [6]:

NOTE: On transmission No. 3, make sure the ball returns [10] are on the outboard side. On transmission No. 6, make sure the ball returns [10] are on the inboard side.

a) Remove the nuts [20], washers [19], washers [18] and bolts [17] that attach the ballscrew assembly [6] to the yoke [16].

b) Turn the ballscrew assembly [6] 180° in the yoke [16].

c) Install the bolts [17], washers [18], washers [19] and nuts [20].

(g) Tighten the nuts [20].

SUBTASK 27-51-31-420-003

(3) Connect the ballscrew assembly [6] with the gimbal [14] to the carriage [8]:

(a) Move the gimbal [14] to the downstop on the ballscrew assembly [6].

NOTE: On transmission No. 3, make sure the ball returns [10] on the ballscrew nut [28] are on the outboard side. On transmission No. 6, make sure the ball returns [10] on the ballscrew nut [28] are on the inboard side.

(b) Move the carriage [8] to align with the gimbal [14].

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HAP 001-013, 015-026 PRE SB 737-57-1264

(c) Apply grease, D00633 to the inside and outside surfaces of the carriage bushing [9] and carriage bushing [13].

HAP ALL

(d) Install the carriage bushing [9] and carriage bushing [13] to attach the gimbal [14] to the carriage [8].

(e) Install the bolts [7], washers [12] and nuts [11] that attach the gimbal bushing [9] and gimbal bushing [13] to the carriage [14].

(f) Tighten the nuts [11] to 65-75 pound-inches (7.4-8.4 newton-meters) more than the run-on torque.

SUBTASK 27-51-31-420-004

(4) Connect the torque tubes [1] to the transmission assembly [4]:

(a) Apply grease, D00633 to the coupling sleeves [2].

(b) Put the splined couplings [5] in the coupling sleeves [2].

(c) Install the screws [3] to attach the torque tubes [1] to the transmission assembly [4].

(d) Install lockwire on the screws [3].

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-31-640-003

(5) Apply grease, D00633 to the end of the plunger on the torque trip indicator [25] and push it down around the sides of the plunger.

HAP ALL

SUBTASK 27-51-31-640-001

(6) Lubricate the transmission assembly [4], ballscrew assembly [6] and gimbal [14], do this task: Inboard Flap Outboard Ballscrew and Gimbal Lubrication, TASK 12-22-51-640-803.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-31-210-001

(7) Make sure the torque trip indicator [25] on the transmission assembly [4] is set.

HAP ALL

SUBTASK 27-51-31-820-001

(8) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-31-410-001

(1) Do this task: Inboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-31-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-31-860-011

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-31-860-003

(4) Use the primary system to retract the flaps to the retracted position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-31-860-004

(5) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-31-210-002

(6) Make sure the torque trip indicator [25] on the transmission assembly [4] is set.

HAP ALL

SUBTASK 27-51-31-860-012

(7) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK

TASK 27-51-31-000-802

4. Inboard Flap Inboard Transmission Removal

(Figure 402)

A. General

(1) This task is applicable to the transmissions at flap supports No. 4 and 5.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

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D. Prepare for the Removal

SUBTASK 27-51-31-860-006

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-31-480-002

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-31-040-002

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

E. Inboard Flap Inboard Transmission Removal

SUBTASK 27-51-31-980-002

(1) Manually extend the trailing edge flaps to the downstop on the ballscrew. To extend them, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-31-020-005

(2) Remove the u joint assembly [70]:

(a) Remove the bolts [66], washers [67] and nuts [68] that attach the u joint assembly [70] to the transmission assembly [49] and the tee angle gearbox [69].

(b) Remove the u joint assembly [70] from the transmission assembly [49].

SUBTASK 27-51-31-020-006

CAUTION: MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(3) Disconnect the ballscrew assembly [42] with the gimbal [43] from the carriage [47]:

(a) Install a support to hold the ballscrew assembly [42] when it is disconnected from the carriage [47].

(b) Remove the nuts [44], washers [45] and bolts [41] that attach the carriage bushings [46] to the carriage [47].

(c) Remove the carriage bushings [46] from the carriage [47].

(d) Move the gimbal [43] away from the carriage [47].

SUBTASK 27-51-31-020-007

(4) Disconnect the ballscrew assembly [42] from the yoke [53] on the transmission assembly [49]:

(a) Remove the nuts [59], washers [58], washers [57] and bolts [56] that attach the ballscrew assembly [42] to the yoke [53].

(b) Remove the ballscrew assembly [42] from the yoke [53].

NOTE: You can turn the ballscrew assembly [42] and the gimbal [43] to get access to remove the ballscrew assembly [42].

(c) Remove the ballscrew assembly [42] with the gimbal [43].

SUBTASK 27-51-31-020-008

(5) Remove the transmission assembly [49]:

NOTE: The transmission assembly [49] weighs approximately 50 pounds (23 kilograms).

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(a) Support the transmission assembly [49] while you disconnect it from the transmission attach fitting [51].

(b) Remove the nuts [63], washers [62], washers [61], bolts [60], bolt [64] and bolt [65] that attach the transmission assembly [49] to the transmission attach fitting [51].

(c) Carefully remove the transmission assembly [49].

——————— END OF TASK ———————

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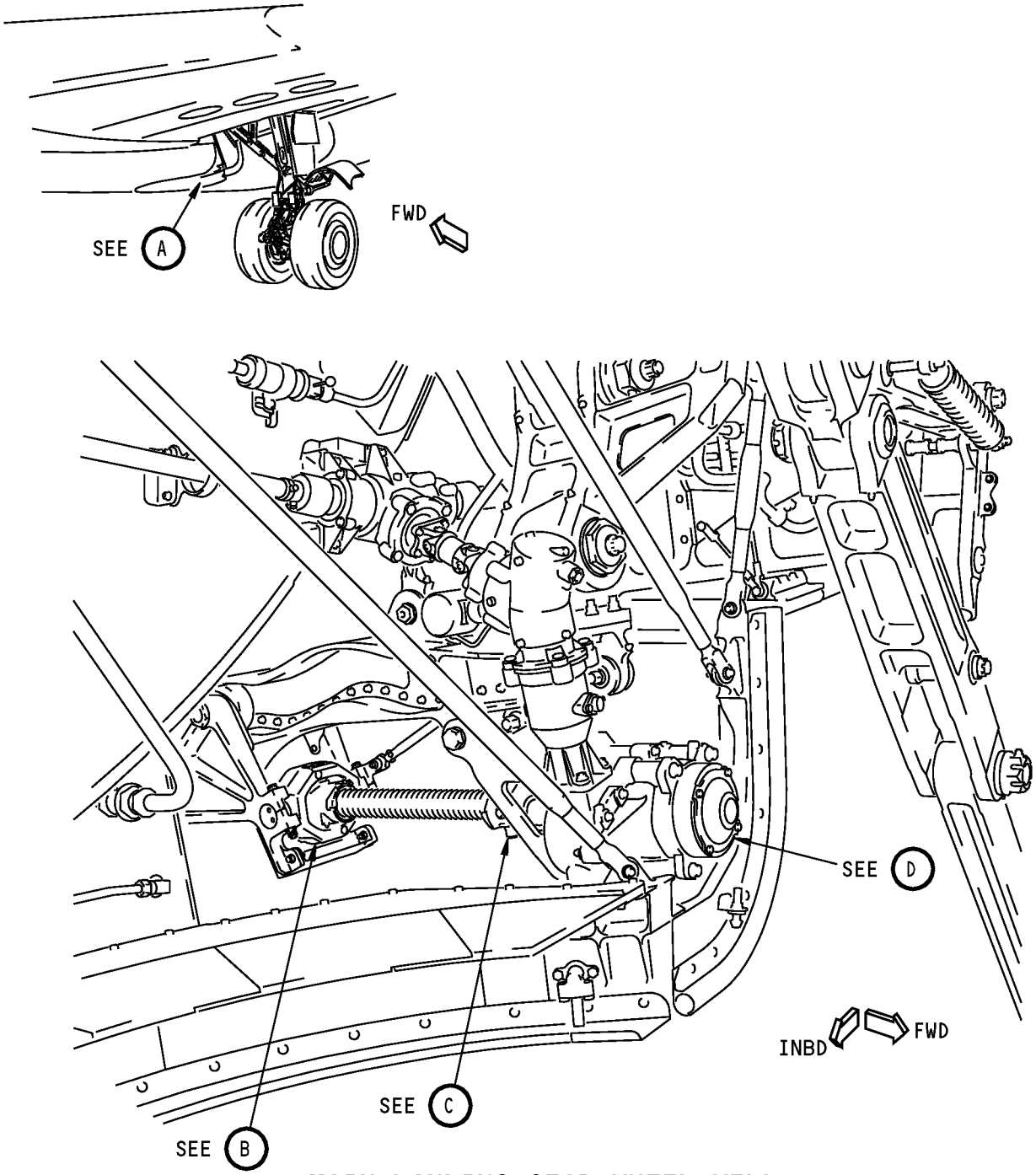

Inboard Flap Inboard Transmission Installation
Figure 402 (Sheet 1 of 4)/27-51-31-990-802

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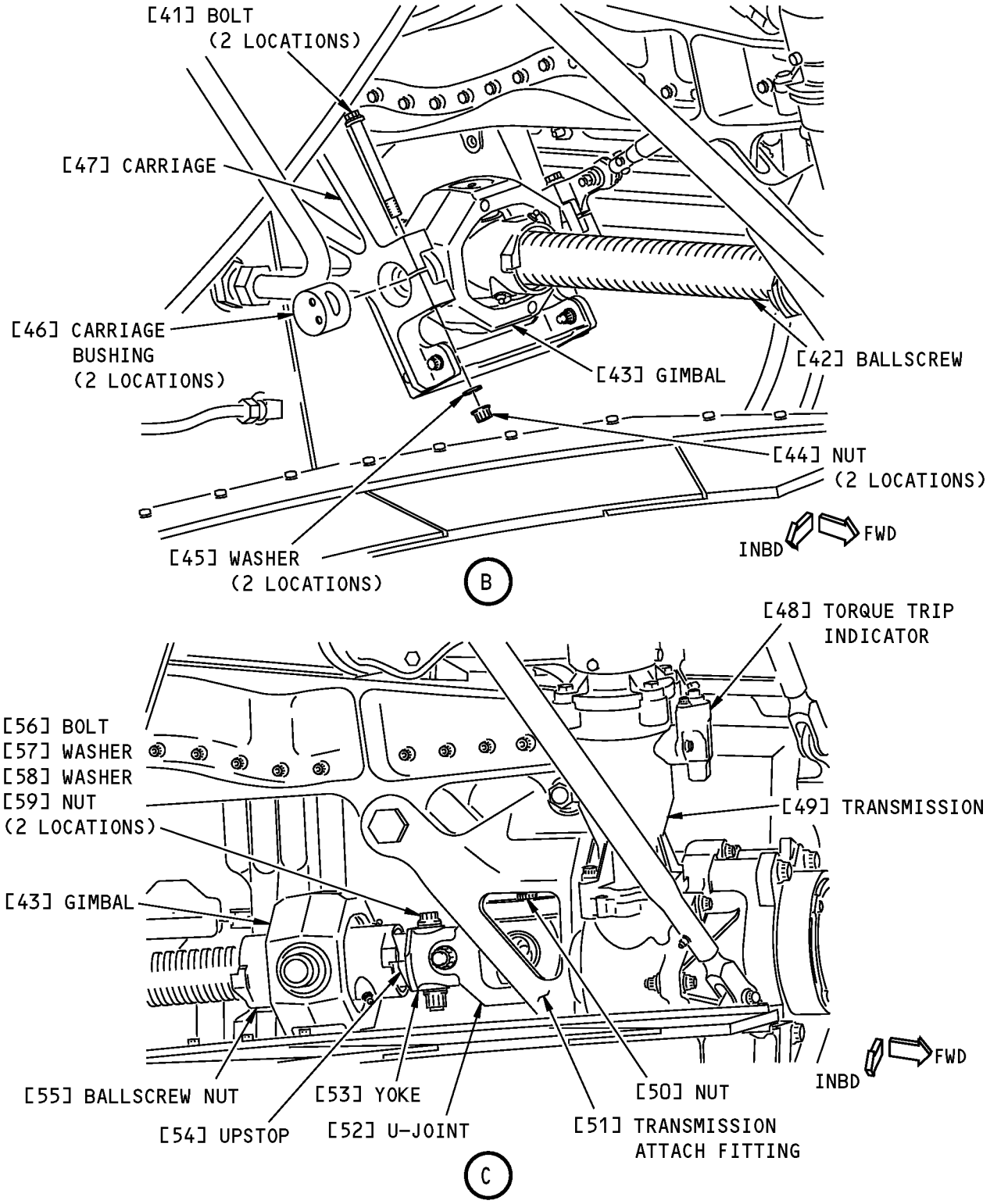

Inboard Flap Inboard Transmission Installation
Figure 402 (Sheet 2 of 4)/27-51-31-990-802

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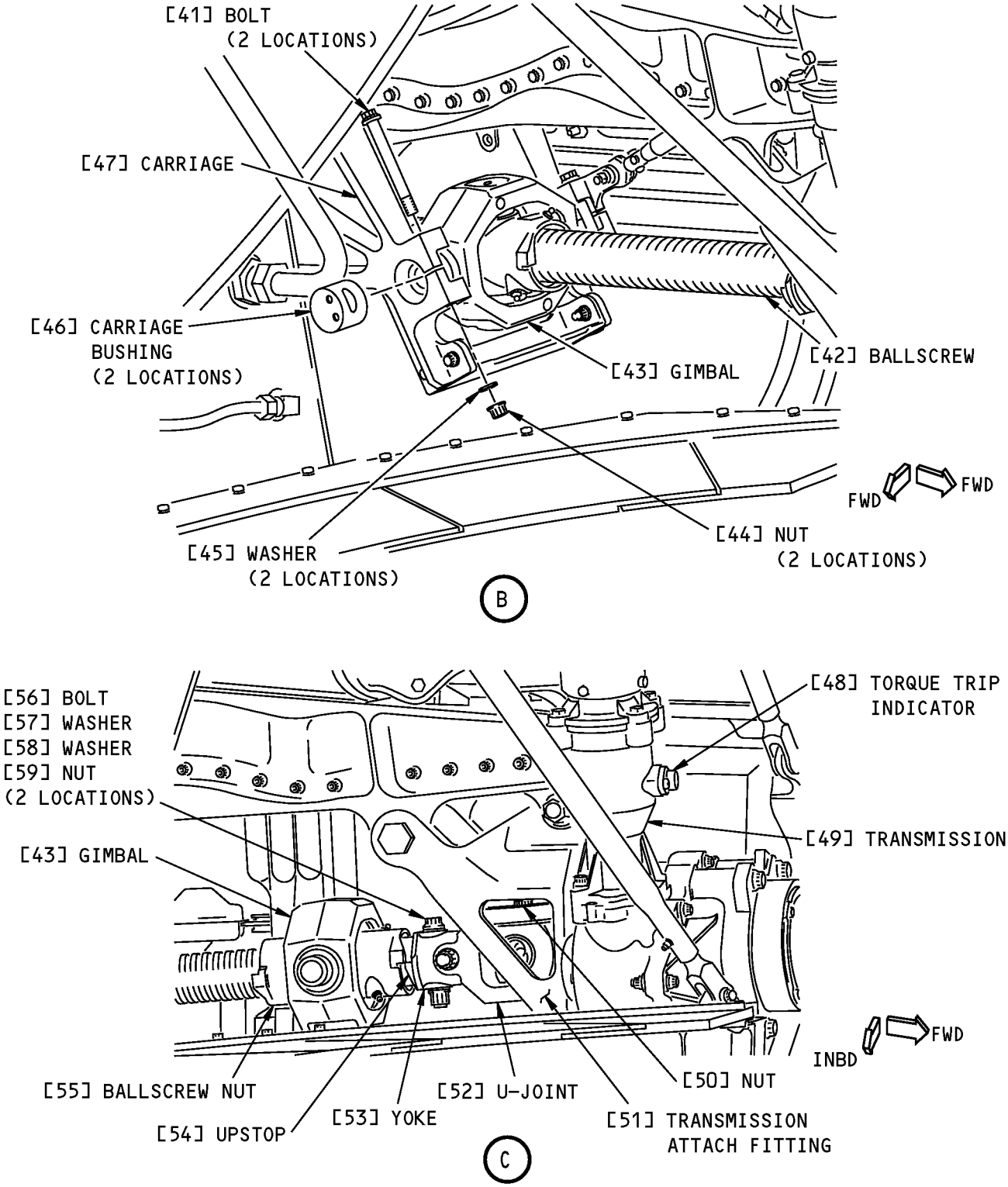

Inboard Flap Inboard Transmission Installation
Figure 402 (Sheet 3 of 4)/27-51-31-990-802

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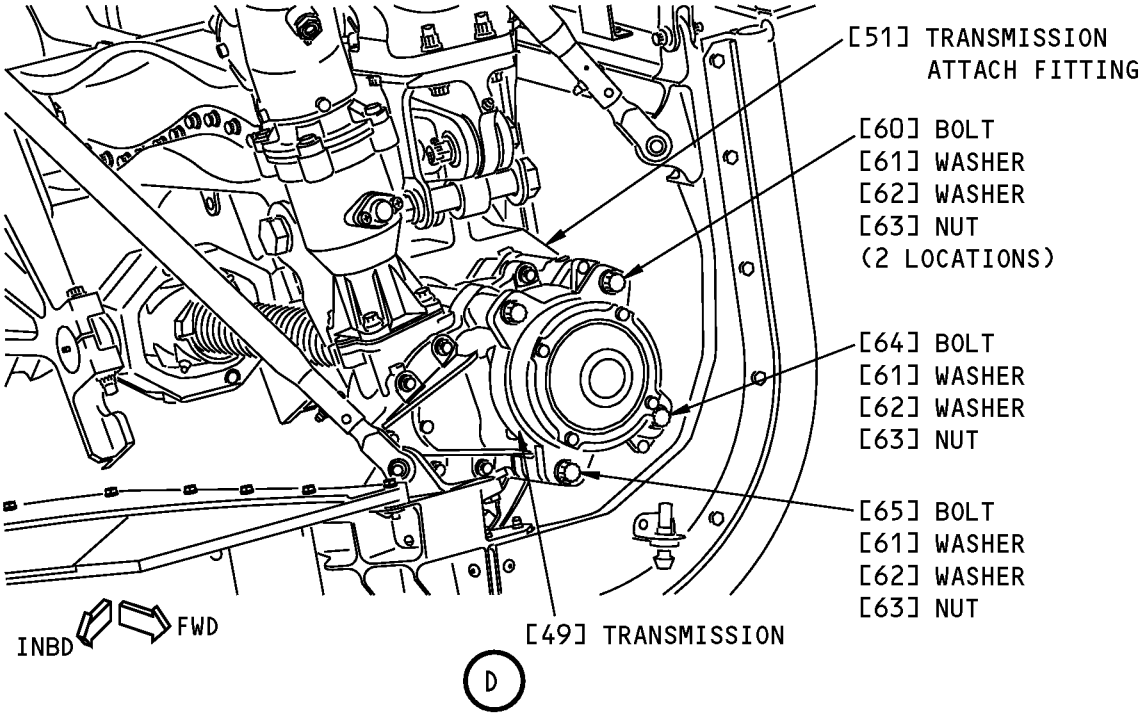

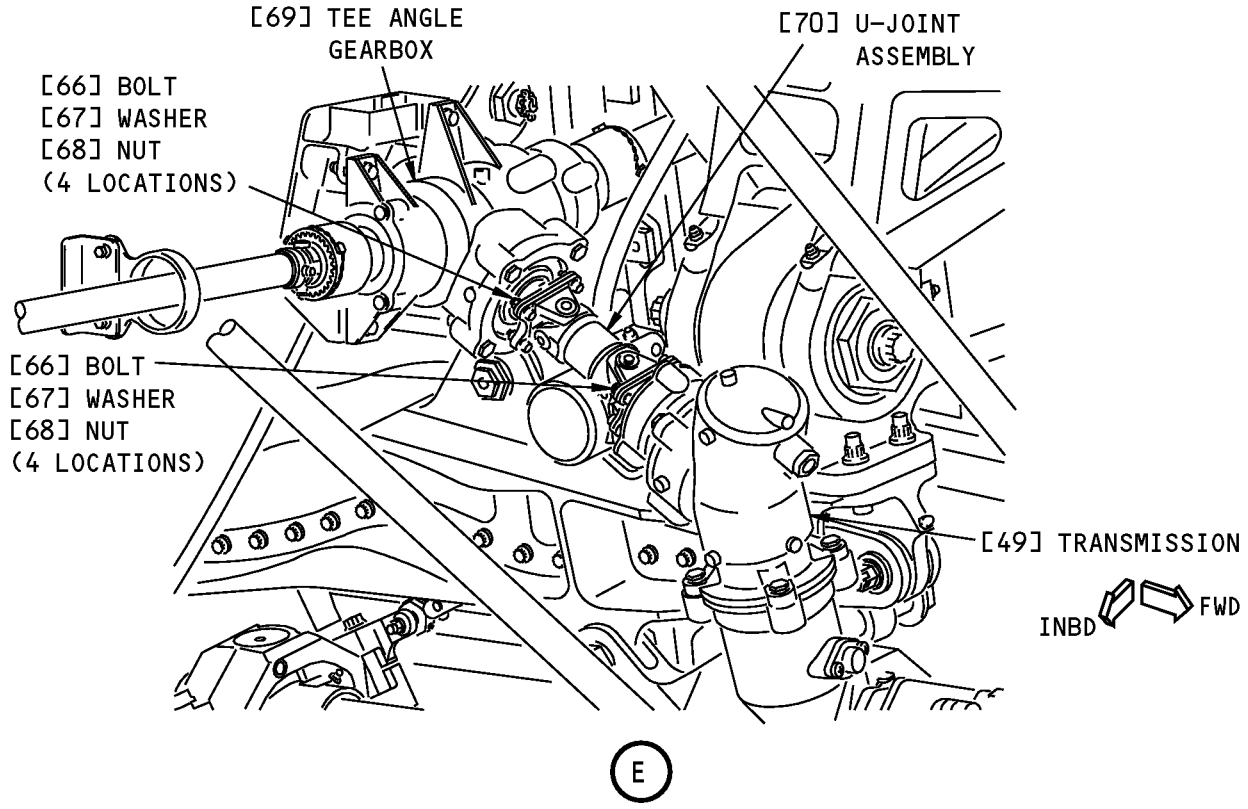

Inboard Flap Inboard Transmission Installation
Figure 402 (Sheet 4 of 4)/27-51-31-990-802

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TASK 27-51-31-400-802

5. Inboard Flap Inboard Transmission Installation

(Figure 402)

A. General

(1) This task is applicable to the transmissions at flap supports No. 4 and 5.

B. References

Reference	Title
12-22-51-640-802	Inboard Flap Inboard Ballscrew Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
42	Ballscrew assembly	27-51-32-02-050	HAP 001-013, 015-026, 028-030
		27-51-32-04-055	HAP 031-054, 101-999
49	Transmission assembly	27-51-31-11-045	HAP 001-013, 015-026, 028-030
		27-51-31-11-050	HAP 001-013, 015-026, 028-030
		27-51-31-14-040	HAP 031-054, 101-999
		27-51-31-14-045	HAP 031-054, 101-999
70	U joint assembly	27-51-24-04-010	HAP ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

F. Inboard Flap Inboard Transmission Installation

SUBTASK 27-51-31-420-005

(1) Install the transmission assembly [49]:

NOTE: The transmission assembly [49] weighs approximately 50 pounds (23 kilograms).

(a) Apply a thin layer of compound, C00913 to the mating surface of the transmission assembly [49] and the transmission attach fitting [51].

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(b) Apply a layer of compound, C00913 to the bolt holes in the transmission assembly [49].

(c) Apply a layer of compound, C00913 to the shank and threads of the bolts [60], bolt [64] and bolt [65].

(d) Carefully lift the transmission assembly [49] to its position on the transmission attach fitting [51].

(e) Install the bolts [60], bolt [64], bolt [65], washers [61], washers [62] and nuts [63] to attach the transmission assembly [49] to the transmission attach fitting [51].

(f) Tighten the nuts [63] to 500-550 pound-inches (56.5-62.1 newton-meters) more than the run-on torque.

SUBTASK 27-51-31-420-006

(2) Connect the ballscrew assembly [42] to the yoke [53] on the transmission assembly [49]:

(a) Turn the ballscrew nut [55] until it is at the forward end of the ballscrew assembly [42].

(b) Apply a layer of grease, D00633 to the mating surfaces of the yoke [53] and the ballscrew assembly [42].

(c) Put the ballscrew assembly [42] into the yoke [53].

(d) Apply a layer of grease, D00633 to the shank and threads of the bolts [56].

(e) Install the bolts [56], washers [57], washers [58] and nuts [59] to attach the ballscrew assembly [42] to the yoke [53].

(f) Make sure the ballscrew assembly [42] is installed correctly in the yoke [53]:

1) Turn the transmission assembly [49] until the nut [50] on the U-joint [52] is up.

2) Turn the ballscrew nut [55] until the upstop is 180° from the upstop [54] on the yoke [53].

3) If the ball returns on the ballscrew nut [55] are not in the correct position, then change the position of the ballscrew assembly [42]:

NOTE: On transmission No. 4, make sure the ball returns are on the outboard side. On transmission No. 5, make sure the ball returns are on the inboard side.

a) Remove the nuts [59], washers [58], washers [57] and bolts [56] that attach the ballscrew assembly [42] to the yoke [53].

b) Turn the ballscrew assembly [42] 180° in the yoke [53].

c) Install the bolts [56], washers [57], washers [58] and nuts [59].

(g) Tighten the nuts [59].

SUBTASK 27-51-31-420-007

(3) Connect the ballscrew assembly [42] with the gimbal [43] to the carriage [47]:

(a) Move the gimbal [43] to the downstop on the ballscrew assembly [42].

NOTE: On transmission No. 4, make sure the ball returns on the ballscrew nut [55] are on the outboard side. On transmission No. 5, make sure the ball returns on the ballscrew nut [55] are on the inboard side.

(b) Move the carriage [47] to align with the gimbal [43].

(c) Install the carriage bushings [46] to attach the gimbal [43] to the carriage [47].

(d) Install the bolts [41], washers [45] and nuts [44] that attach the gimbal bushing [46] to the carriage [47].

(e) Tighten the nuts [44] to 65-75 pound-inches (7.4-8.4 newton-meters) more than the run-on torque.

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SUBTASK 27-51-31-420-008

(4) Install the u joint assembly [70]:

(a) Put the u joint assembly [70] in its position between the transmission assembly [49] and the tee angle gearbox [69].

(b) Install the bolts [66] and nuts [67] that attach the u joint assembly [70] to the transmission assembly [49] and the tee angle gearbox [69].

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-31-640-004

(5) Apply grease, D00633 to the end of the plunger on the torque trip indicator [48] and push it down around the sides of the plunger.

HAP ALL

SUBTASK 27-51-31-640-002

(6) Lubricate the transmission assembly [49] and ballscrew assembly [42], do this task: Inboard Flap Inboard Ballscrew Lubrication, TASK 12-22-51-640-802.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-31-210-003

(7) Make sure the torque trip indicator [48] on the transmission assembly [49] is set.

HAP ALL

SUBTASK 27-51-31-820-002

(8) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-31-440-002

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-31-860-013

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-31-860-008

(3) Use the primary system to retract the flaps to the retracted position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-31-860-009

(4) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-31-210-004

(5) Make sure the torque trip indicator [48] on the transmission assembly [49] is set.

HAP ALL

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SUBTASK 27-51-31-860-014

(6) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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INBOARD FLAP BALLSCREWS AND GIMBALS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard ballscrew and gimbal for the inboard flap

(2) An installation of the outboard ballscrew and gimbal for the inboard flap

(3) A removal of the inboard ballscrew and gimbal for the inboard flap

(4) An installation of the inboard ballscrew and gimbal for the inboard flap.

TASK 27-51-32-000-801

2. Inboard Flap Outboard Ballscrew and Gimbal Removal

(Figure 401)

A. General

(1) This task is applicable to the ballscrew and gimbal at flap supports No. 3 and 6.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-18-000-802	Inboard Flap Support Aft Fairing Removal (P/B 401)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
553	Left Wing - Inboard Flap
642	Right Wing - Fairing Flap Support No. 6
653	Right Wing - Inboard Flap

D. Prepare for the Removal

SUBTASK 27-51-32-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-32-480-006

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-32-040-001

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-32-010-001

(4) Do this task: Inboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

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E. Inboard Flap Outboard Ballscrew and Gimbal Removal

SUBTASK 27-51-32-980-001

(1) Manually extend the trailing edge flaps to the downstop on the ballscrew. To extend them, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-32-020-001

CAUTION: MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(2) Disconnect the ballscrew assembly [1] with the gimbal assembly [12] from the carriage [3]:

(a) Install a support to hold the ballscrew assembly [1] when it is disconnected from the carriage [3].

(b) Remove the nuts [9], washers [10] and bolts [2] that attach the carriage bushing [4] and carriage bushing [11] to the carriage [3].

(c) Remove the carriage bushing [4] and carriage bushing [11] from the carriage [3].

(d) Move the gimbal assembly [12] away from the carriage [3].

SUBTASK 27-51-32-020-002

(3) Disconnect the ballscrew assembly [1] from the yoke [17] on the transmission [15]:

(a) Remove the nuts [21], washers [20], washers [19] and bolts [18] that attach the ballscrew assembly [1] to the yoke [17].

(b) Remove the ballscrew assembly [1] from the yoke [17].

NOTE: You can turn the ballscrew assembly [1] and the gimbal assembly [12] to remove the ballscrew [62].

(c) Remove the ballscrew assembly [1] with the gimbal assembly [12].

SUBTASK 27-51-32-020-003

(4) If it is necessary, remove the gimbal assembly [12] from the ballscrew nut [22]:

(a) Remove the bolts [13], washers [6] and collars [7] that attach the gimbal bushings [8] to the gimbal assembly [12].

(b) Remove the gimbal assembly [12] from the ballscrew nut [22].

END OF TASK

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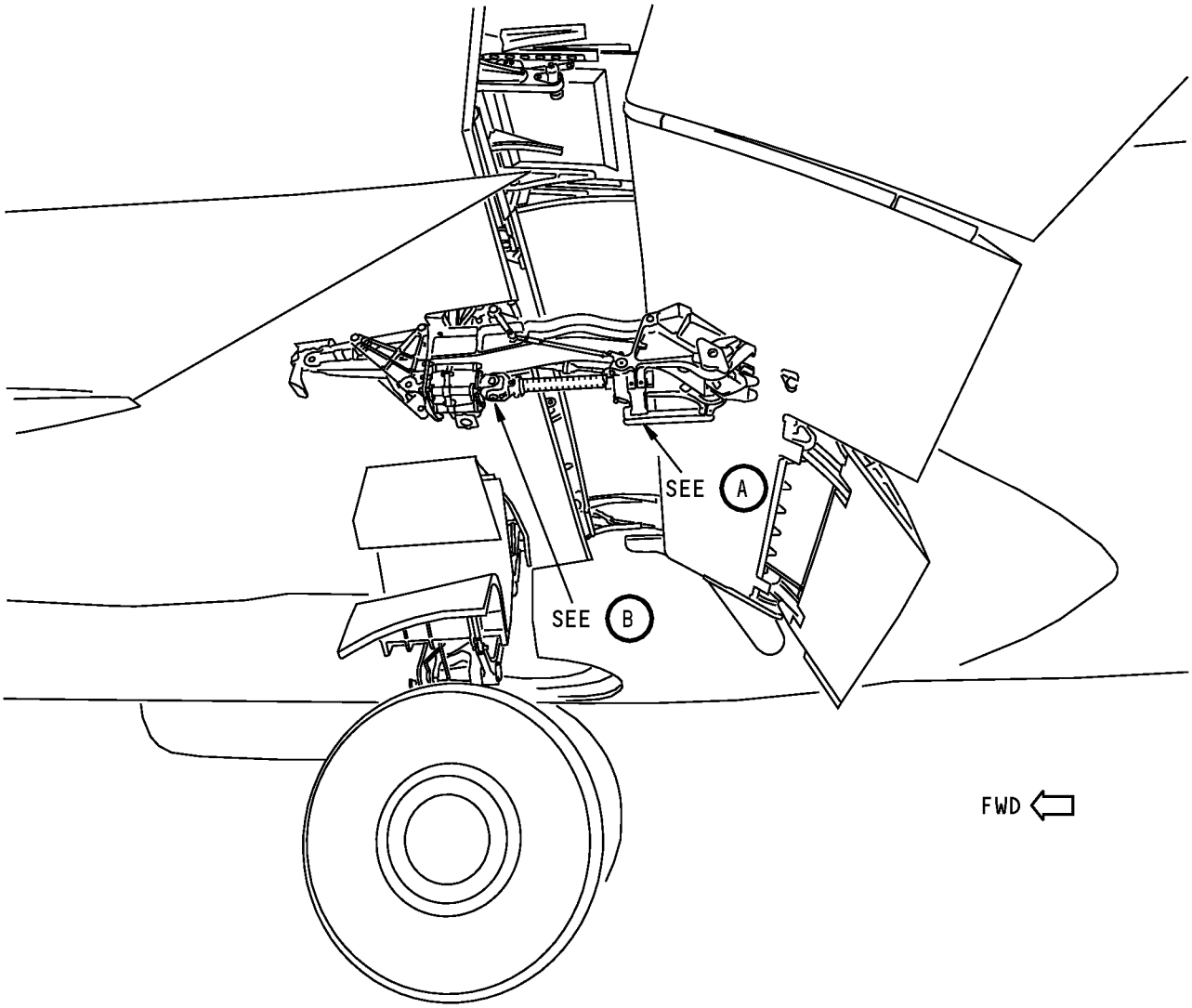

Inboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401 (Sheet 1 of 3)/27-51-32-990-801

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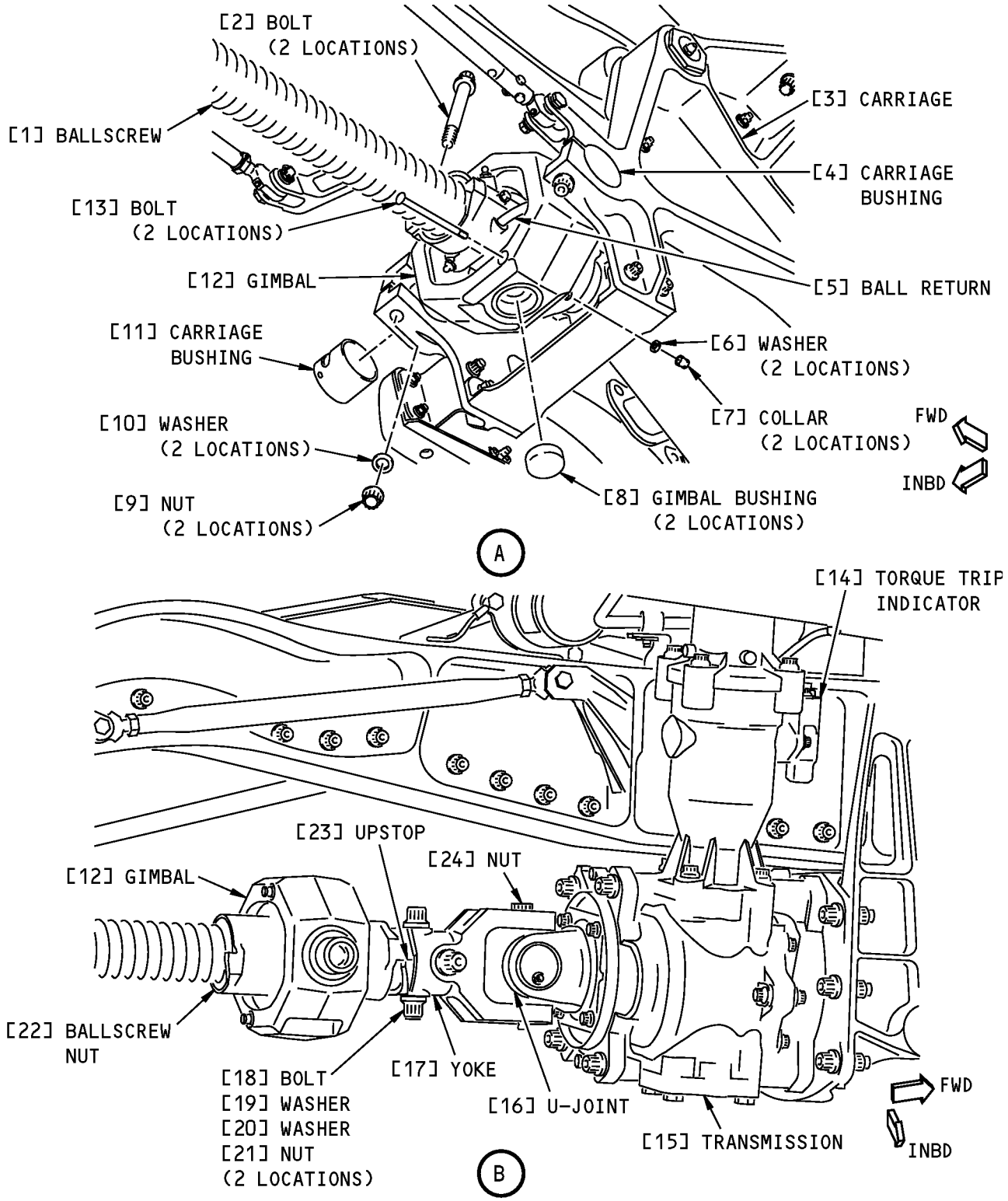

Inboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401 (Sheet 2 of 3)/27-51-32-990-801

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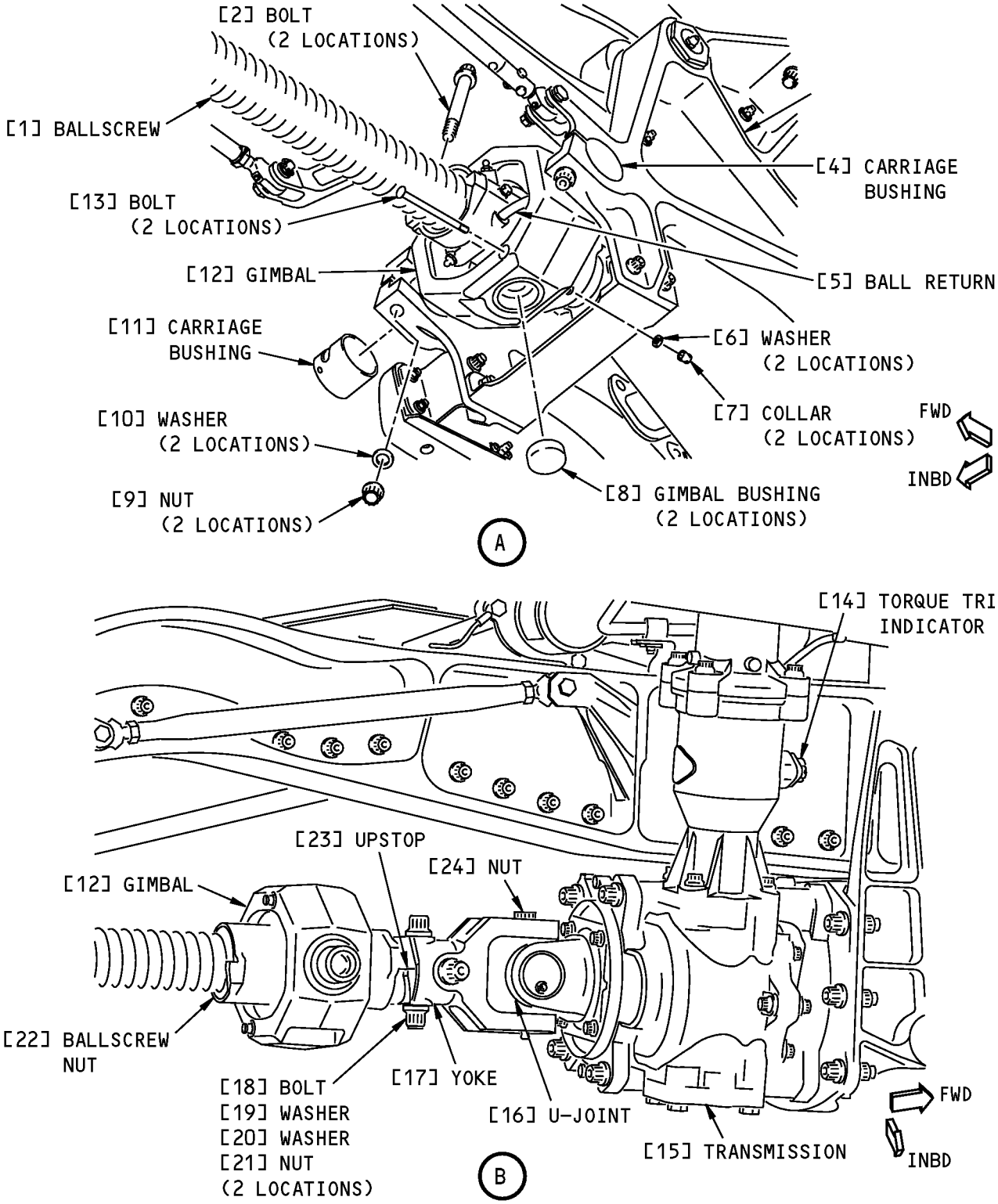

Inboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401 (Sheet 3 of 3)/27-51-32-990-801

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TASK 27-51-32-400-801

3. Inboard Flap Outboard Ballscrew and Gimbal Installation

(Figure 401)

A. General

(1) This task is applicable to the ballscrew and gimbal at flap supports No. 3 and 6.

B. References

Reference	Title
12-22-51-640-803	Inboard Flap Outboard Ballscrew and Gimbal Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-18-400-802	Inboard Flap Support Aft Fairing Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Ballscrew assembly	27-51-32-01-028	HAP 001-013, 015-026, 028-030
		27-51-32-03-030	HAP 031-054, 101-999
7	Collar	27-51-32-01-020	HAP 001-013, 015-026, 028-030
		27-51-32-03-025	HAP 031-054, 101-999
12	Gimbal assembly	27-51-32-01-050	HAP 001-013, 015-026, 028-030
		27-51-32-03-060	HAP 031-054, 101-999
		27-51-41-10-119C	HAP 001-013, 015-026, 028-030
		27-51-41-12-095	HAP 031-054, 101-999

E. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
553	Left Wing - Inboard Flap
642	Right Wing - Fairing Flap Support No. 6
653	Right Wing - Inboard Flap

F. Inboard Flap Outboard Ballscrew and Gimbal Installation

SUBTASK 27-51-32-420-001

(1) If you removed it, install the gimbal assembly [12] on the ballscrew nut [22]:

(a) Apply grease, D00633 to the inside and outside mating surfaces of the gimbal bushings [8].

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HAP 028-054, 101-999; HAP 001-013, 015-026 POST 737-SL-57-077

(b) Apply grease, D00633 to the outside surfaces of the gimbal bushings [8].

HAP ALL

(c) Put the gimbal assembly [12] in its location on the ballscrew nut [22].

(d) Install the gimbal bushings [8] through the gimbal assembly [12] on the ballscrew nut [22].

(e) Install the bolts [13], washers [6] and collars [7] that attach the gimbal bushings [8] to the gimbal assembly [12].

SUBTASK 27-51-32-420-002

(2) Connect the ballscrew assembly [1] to the yoke [17] on the transmission [15]:

(a) Turn the ballscrew nut [22] until it is at the forward end of the ballscrew assembly [1].

(b) Apply a layer of grease, D00633 to the mating surfaces of the yoke [17] and the ballscrew assembly [1].

(c) Put the ballscrew assembly [1] into the yoke [17].

(d) Apply a layer of grease, D00633 to the shank and threads of the bolts [18].

(e) Install the bolts [18], washers [19], washers [20] and nuts [21] to attach the ballscrew assembly [1] to the yoke [17].

(f) Make sure the ballscrew assembly [1] is installed correctly in the yoke [17]:

1) Turn the transmission [15] until the nut [24] on the u-joint [16] is up.

2) Turn the ballscrew nut [22] until the upstop is 180° from the upstop [23] on the yoke [17].

3) If the ball return [5] on the ballscrew nut [22] are not in the correct position, then change the position of the ballscrew assembly [1]:

NOTE: On transmission No. 3, make sure the ball returns [5] on the ballscrew nut [22] are on the outboard side. On transmission No. 6, make sure the ball returns [5] on the ballscrew nut [22] are on the inboard side.

a) Remove the nuts [21], washers [20], washers [19] and bolts [18] that attach the ballscrew assembly [1] to the yoke [17].

b) Turn the ballscrew assembly [1] 180° in the yoke [17].

c) Install the bolts [18], washers [19], washers [20] and nuts [21].

(g) Tighten the nuts [21].

SUBTASK 27-51-32-420-003

(3) Connect the ballscrew assembly [1] with the gimbal assembly [12] to the carriage [3]:

(a) Move the gimbal assembly [12] to the downstop on the ballscrew assembly [1].

NOTE: On transmission No. 3, make sure the ball returns [5] on the ballscrew nut [22] are on the outboard side. On transmission No. 6, make sure the ball returns [5] on the ballscrew nut [22] are on the inboard side.

(b) Move the carriage [3] to align with the gimbal assembly [12].

(c) Apply grease, D00633 to the inside and outside surfaces of the carriage bushing [4] and carriage bushing [11].

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HAP 028-054, 101-999; HAP 001-013, 015-026 POST 737-SL-57-077

(d) Apply grease, D00633 to the outside surfaces of the carriage bushing [4] and carriage bushing [11].

HAP ALL

(e) Install the carriage bushing [4] and carriage bushing [11] to attach the gimbal assembly [12] to the carriage [3].

(f) Install the bolts [2], washers [10] and nuts [9] that attach the carriage bushing [4] and carriage bushing [11] to the carriage [3].

(g) Tighten the nuts [9] to 65-75 pound-inches (7.4-8.4 newton-meters) more than the run-on torque.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-32-210-005

(4) Make sure the torque trip indicator [14] on the transmission [15] is set.

SUBTASK 27-51-32-640-003

(5) Apply grease, D00633 to the end of the plunger on the torque trip indicator [14] and push it down around the sides of the plunger.

HAP ALL

SUBTASK 27-51-32-640-001

(6) Lubricate the transmission [15], ballscrew assembly [1] and gimbal assembly [12], do this task: Inboard Flap Outboard Ballscrew and Gimbal Lubrication, TASK 12-22-51-640-803.

SUBTASK 27-51-32-820-001

(7) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-32-410-001

(1) Do this task: Inboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-32-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-32-860-002

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-32-860-003

(4) Use the primary system to retract the flaps to the retracted position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-32-860-004

(5) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

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HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-32-210-002

(6) Make sure the torque trip indicator [14] on the transmission [15] is set.

HAP ALL

SUBTASK 27-51-32-860-005

(7) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

TASK 27-51-32-000-802

4. Inboard Flap Inboard Ballscrew and Gimbal Removal

(Figure 402)

A. General

(1) This task is applicable to the ballscrew and gimbal at flap supports No. 4 and 5.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

D. Prepare for the Removal

SUBTASK 27-51-32-860-006

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-32-480-007

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-32-040-002

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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E. Inboard Flap Inboard Ballscrew and Gimbal Removal

SUBTASK 27-51-32-980-002

(1) Manually extend the trailing edge flaps to the downstop on the ballscrew. To extend them, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-32-020-004

CAUTION: MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(2) Disconnect the ballscrew assembly [44] with the gimbal assembly [45] from the carriage [49]:

(a) Install a support to hold the ballscrew assembly [44] when it is disconnected from the carriage [49].

(b) Remove the nuts [46], washers [47] and bolts [50] that attach the carriage bushings [48] to the carriage [49].

(c) Remove the carriage bushings [48] from the carriage [49].

(d) Move the gimbal assembly [45] away from the carriage [49].

SUBTASK 27-51-32-020-005

(3) Disconnect the ballscrew assembly [44] from the yoke [56] on the transmission [53]:

(a) Remove the nuts [62], washers [61], washers [60] and bolts [59] that attach the ballscrew assembly [44] to the yoke [56].

(b) Remove the ballscrew assembly [44] from the yoke [56].

NOTE: You can turn the ballscrew assembly [44] and the gimbal assembly [45] to remove the ballscrew assembly [44].

(c) Remove the ballscrew assembly [44] with the gimbal assembly [45].

SUBTASK 27-51-32-020-006

(4) If it is necessary, remove the gimbal assembly [45] from the ballscrew nut [58]:

(a) Remove the bolts [43], washers [41] and collars [51] that attach the gimbal bushings [42] to the gimbal assembly [45].

(b) Remove the gimbal assembly [45] from the ballscrew nut [58].

END OF TASK

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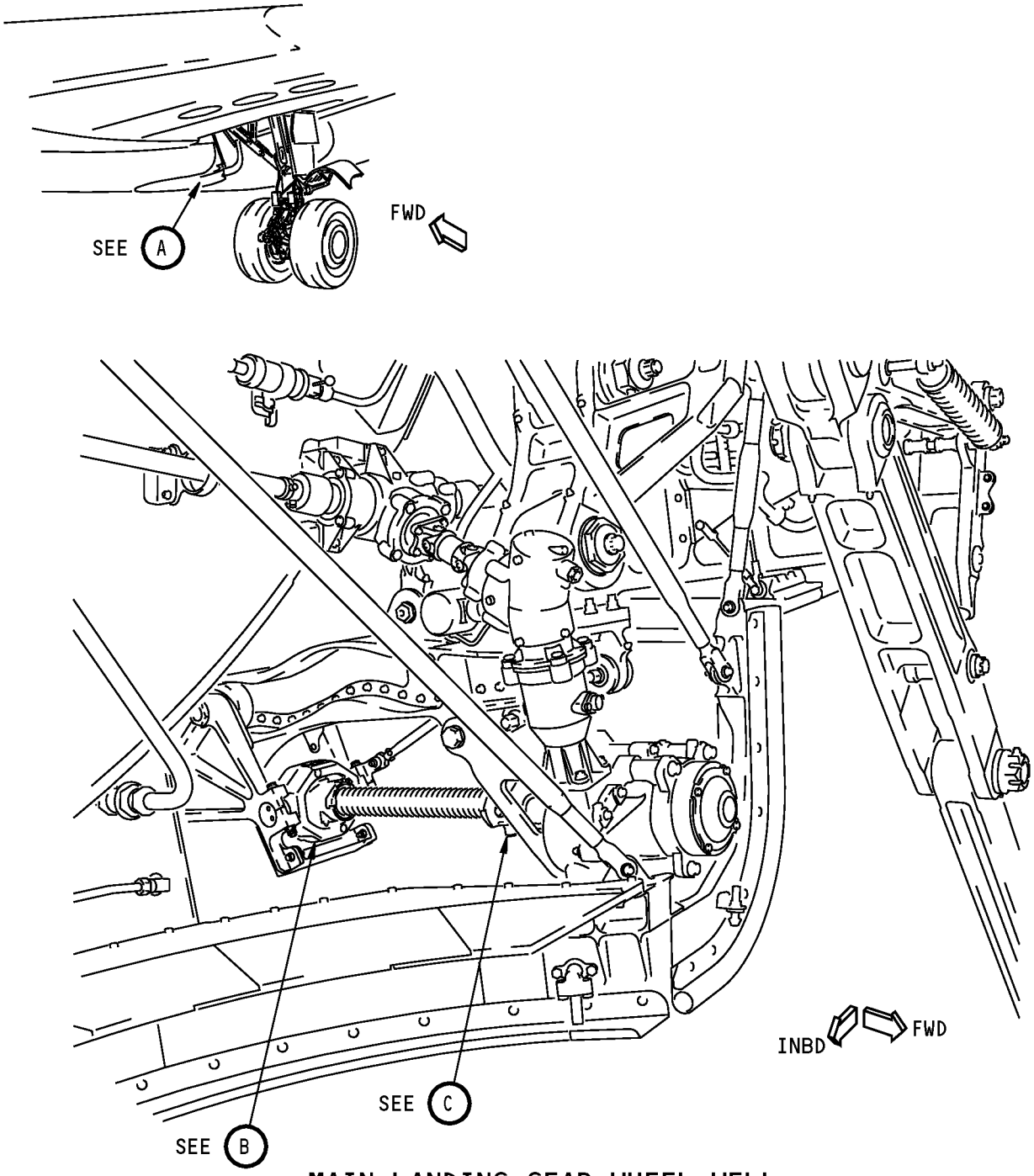

Inboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402 (Sheet 1 of 3)/27-51-32-990-802

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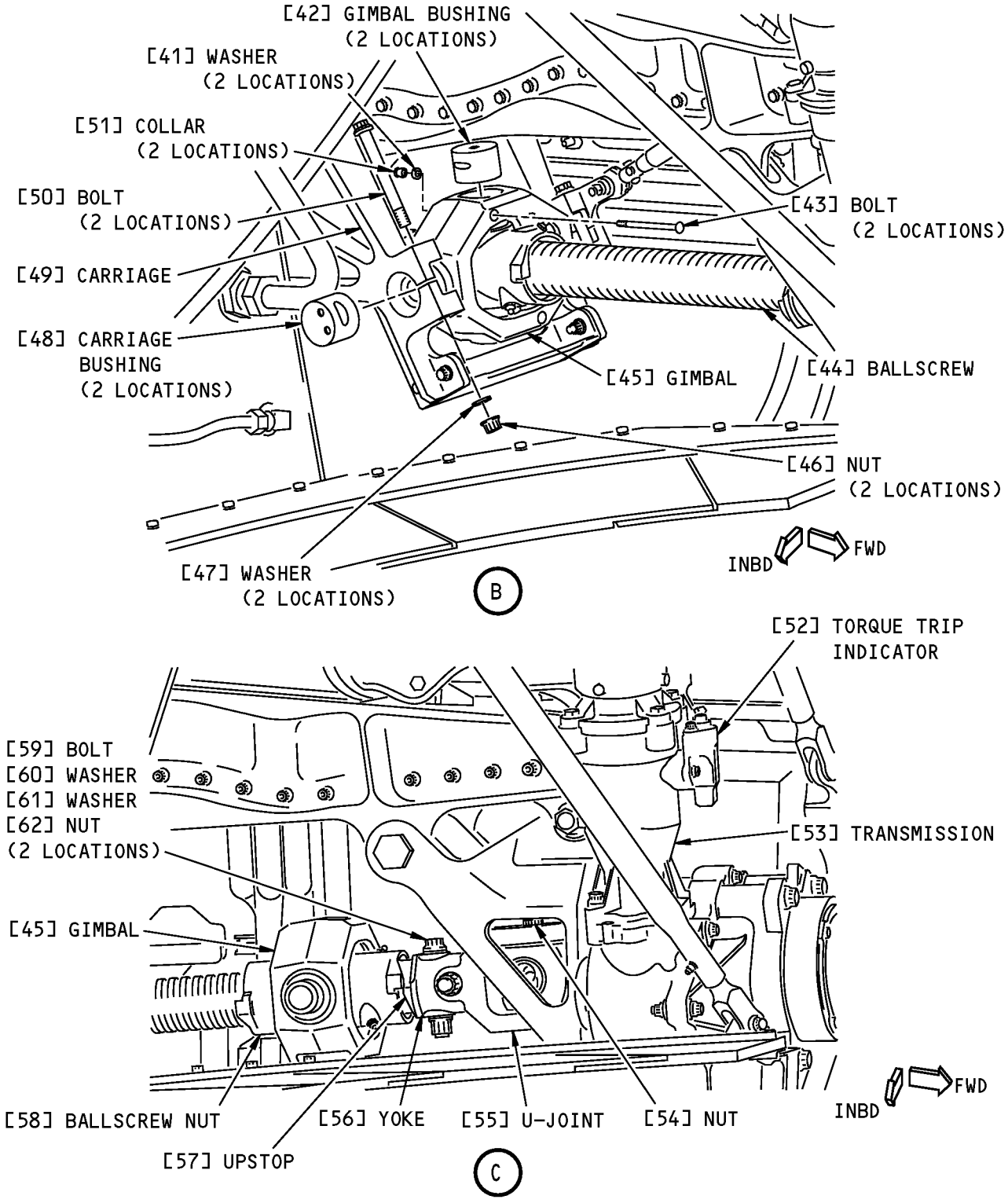

Inboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402 (Sheet 2 of 3)/27-51-32-990-802

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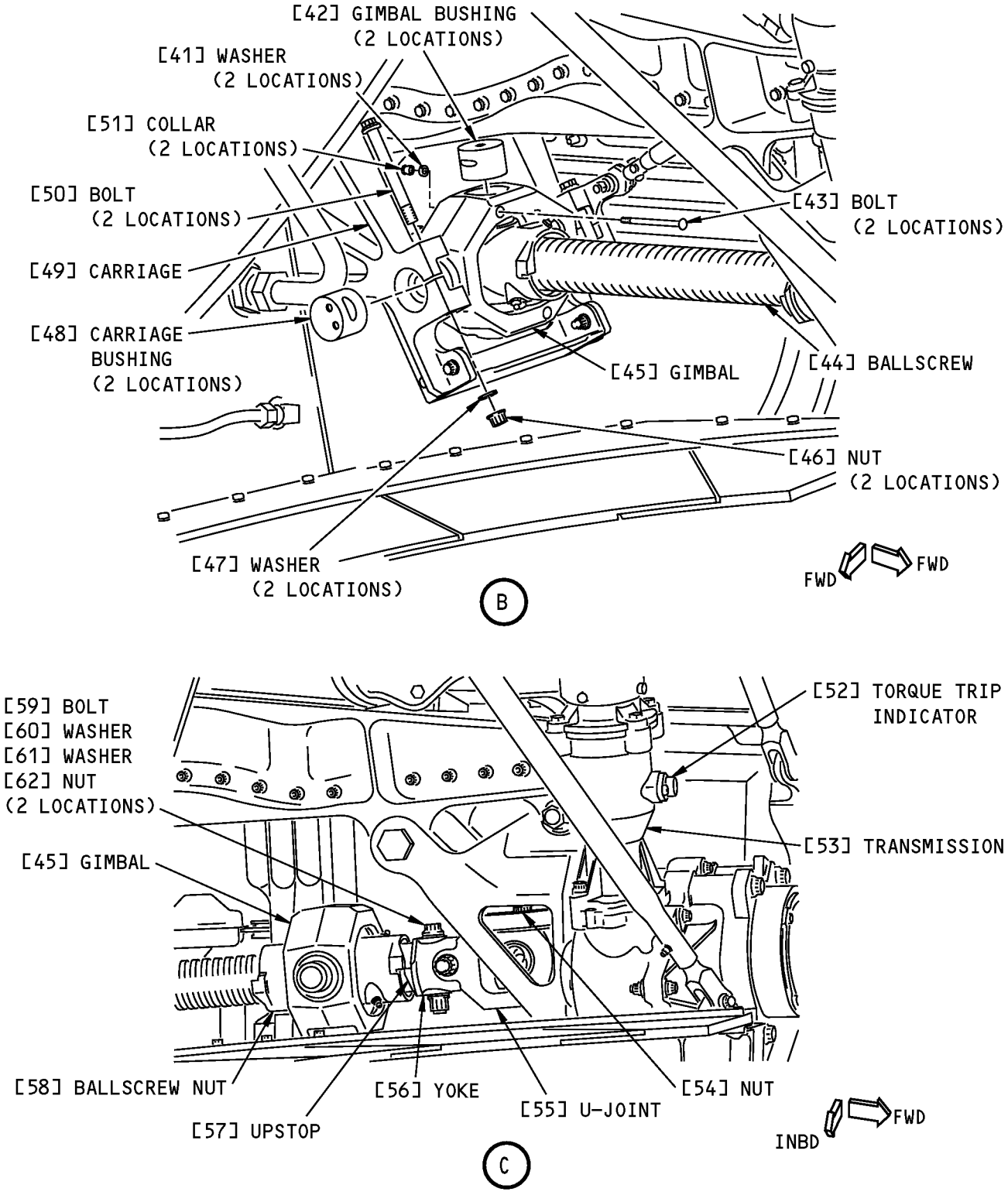

Inboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402 (Sheet 3 of 3)/27-51-32-990-802

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TASK 27-51-32-400-802

5. Inboard Flap Inboard Ballscrew and Gimbal Installation

(Figure 402)

A. General

(1) This task is applicable to the ballscrew and gimbal at flap supports No. 4 and 5.

B. References

Reference	Title
12-22-51-640-802	Inboard Flap Inboard Ballscrew Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
44	Ballscrew assembly	27-51-32-02-050	HAP 001-013, 015-026, 028-030
		27-51-32-04-055	HAP 031-054, 101-999
45	Gimbal assembly	27-51-32-02-025	HAP 001-013, 015-026, 028-030
		27-51-32-04-030	HAP 031-054, 101-999

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

F. Inboard Flap Inboard Ballscrew and Gimbal Installation

SUBTASK 27-51-32-420-004

(1) If you removed it, install the gimbal assembly [45] on the ballscrew nut [58]:

(a) Put the gimbal assembly [45] in its location on the ballscrew nut [58].

(b) Install the gimbal bushings [42] through the gimbal assembly [45] on the ballscrew nut [58].

(c) Install the bolts [43], washers [41] and washers [41] to attach the gimbal bushing [42] to the gimbal assembly [45].

SUBTASK 27-51-32-420-005

(2) Connect the ballscrew assembly [44] to the yoke [56] on the transmission [53]:

(a) Turn the ballscrew nut [58] until it is at the forward end of the ballscrew assembly [44].

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(b) Apply a layer of grease, D00633 to the mating surfaces of the yoke [56] and the ballscrew assembly [44].

(c) Put the ballscrew assembly [44] into the yoke [56].

(d) Apply a layer of grease, D00633 to the shank and threads of the bolts [59].

(e) Install the bolts [59], washers [60], washers [61] and nuts [62] to attach the ballscrew assembly [44] to the yoke [56].

(f) Make sure the ballscrew assembly [44] is installed correctly in the yoke [56]:

1) Turn the transmission [53] until the nut [54] on the U-joint [55] is up.

2) Turn the ballscrew nut [58] until the upstop is 180° from the upstop [57] on the yoke [56].

3) If the ball returns on the ballscrew nut [58] are not in the correct position, then change the position of the ballscrew assembly [44]:

NOTE: On transmission No. 4, make sure the ball returns on the ballscrew nut [58] are on the outboard side. On transmission No. 5, make sure the ball returns on the ballscrew nut [58] are on the inboard side.

a) Remove the nuts [62], washers [61], washers [60] and bolts [59] that attach the ballscrew assembly [44] to the yoke [56].

b) Turn the ballscrew assembly [44] 180° in the yoke [56].

c) Install the bolts [59], washers [60], washers [61] and nuts [62].

(g) Tighten the nuts [62].

SUBTASK 27-51-32-420-006

(3) Connect the ballscrew assembly [44] with the gimbal assembly [45] to the carriage [49]:

(a) Move the gimbal assembly [45] to the downstop on the ballscrew assembly [44].

NOTE: On transmission No. 4, make sure the ball returns on the ballscrew nut [58] are on the outboard side. On transmission No. 5, make sure the ball returns on the ballscrew nut [58] are on the inboard side.

(b) Move the carriage [49] to align with the gimbal assembly [45].

(c) Install the carriage bushings [48] to attach the gimbal assembly [45] to the carriage [49].

(d) Install the bolts [50], washers [47] and nuts [46] that attach the carriage bushing [48] to the carriage [49].

(e) Tighten the nuts [46] to 65-75 pound-inches (7.4-8.4 newton-meters) more than the run-on torque.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-32-210-006

(4) Make sure the torque trip indicator [52] on the transmission [53] is set.

SUBTASK 27-51-32-640-004

(5) Apply grease, D00633 to the end of the plunger on the torque trip indicator [52] and push it down around the sides of the plunger.

HAP ALL

SUBTASK 27-51-32-640-002

(6) Lubricate the transmission [53] and ballscrew assembly [44], do this task: Inboard Flap Inboard Ballscrew Lubrication, TASK 12-22-51-640-802.

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SUBTASK 27-51-32-820-002

(7) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-32-440-002

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-32-860-007

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-32-860-008

(3) Use the primary system to retract the flaps to the retracted position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-32-860-009

(4) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-32-210-004

(5) Make sure the torque trip indicator [52] on the transmission [53] is set.

HAP ALL

SUBTASK 27-51-32-860-010

(6) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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INBOARD FLAP BALLSCREWS AND GIMBALS - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A check of the backlash in the outboard ballscrew for the inboard flap

(2) A check of the backlash in the inboard ballscrew for the inboard flap.

TASK 27-51-32-220-801

2. Inboard Flap Outboard Ballscrew Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This task is applicable to the ballscrew at flap supports No. 3 and 6.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-18-000-802	Inboard Flap Support Aft Fairing Removal (P/B 401)
27-51-18-400-802	Inboard Flap Support Aft Fairing Installation (P/B 401)
27-51-32-000-801	Inboard Flap Outboard Ballscrew and Gimbal Removal (P/B 401)
27-51-32-400-801	Inboard Flap Outboard Ballscrew and Gimbal Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1753	Equipment - Test, Flap Screw Backlash - 777 / 737-600/700/800/900 (Part #: C27030-49, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
553	Left Wing - Inboard Flap
642	Right Wing - Fairing Flap Support No. 6
653	Right Wing - Inboard Flap

E. Prepare for the Inspection

SUBTASK 27-51-32-860-011

(1) Extend the trailing edge flaps to the 15-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-32-040-003

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-51-32-010-002

(3) Do this task: Inboard Flap Support Aft Fairing Removal, TASK 27-51-18-000-802.

F. Inboard Flap Outboard Ballscrew Backlash Check

SUBTASK 27-51-32-480-001

(1) Install the lever and clamp tool on the ballscrew:

NOTE: The lever and clamp tool is a part of the tester, SPL-1753.

(a) Put the lever and clamp tool in its position on the ballscrew aft of the ballscrew nut.

NOTE: Make sure the load surfaces of the lever and clamp tool touch the aft side of the ballscrew nut.

(b) Tighten the clamp-up bolt to 200-300 pound-inches (22.6 to 33.8 newton-meters).

NOTE: Make sure the handles of the lever and clamp tool are in the relaxed position.

SUBTASK 27-51-32-480-002

(2) Install the dial indicator assembly on the ballscrew:

NOTE: The dial indicator assembly is a part of the tester, SPL-1753.

(a) Put the dial indicator assembly on the ballscrew.

NOTE: Make sure the pointer touches the forward end of the ballscrew nut.

(b) Put the strap around the ballscrew to help hold the dial indicator assembly on the ballscrew.

(c) Adjust the dial indicator to zero.

SUBTASK 27-51-32-220-001

(3) Measure the backlash of the ballscrew and ballscrew nut:

(a) Move the handles of the lever and clamp tool together until the dial indicator stops.

NOTE: This will apply a load to the ballscrew nut, and move it forward on the ballscrew.

(b) Use the dial indicator to measure the movement of the ballscrew nut.

NOTE: The movement of the ballscrew nut is the backlash.

(c) Do these steps a total of five times to make sure the movement of the dial indicator is repeatable.

SUBTASK 27-51-32-960-001

(4) If the backlash is more than 0.0073 inch (0.185 millimeter), then replace the ballscrew assembly.

These are the tasks:

Inboard Flap Outboard Ballscrew and Gimbal Removal, TASK 27-51-32-000-801,

Inboard Flap Outboard Ballscrew and Gimbal Installation, TASK 27-51-32-400-801.

SUBTASK 27-51-32-080-001

(5) Remove the dial indicator assembly and the lever and clamp tool from the ballscrew.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-32-410-002

(1) Do this task: Inboard Flap Support Aft Fairing Installation, TASK 27-51-18-400-802.

SUBTASK 27-51-32-440-003

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-51-32-860-012

(3) Retract the trailing edge flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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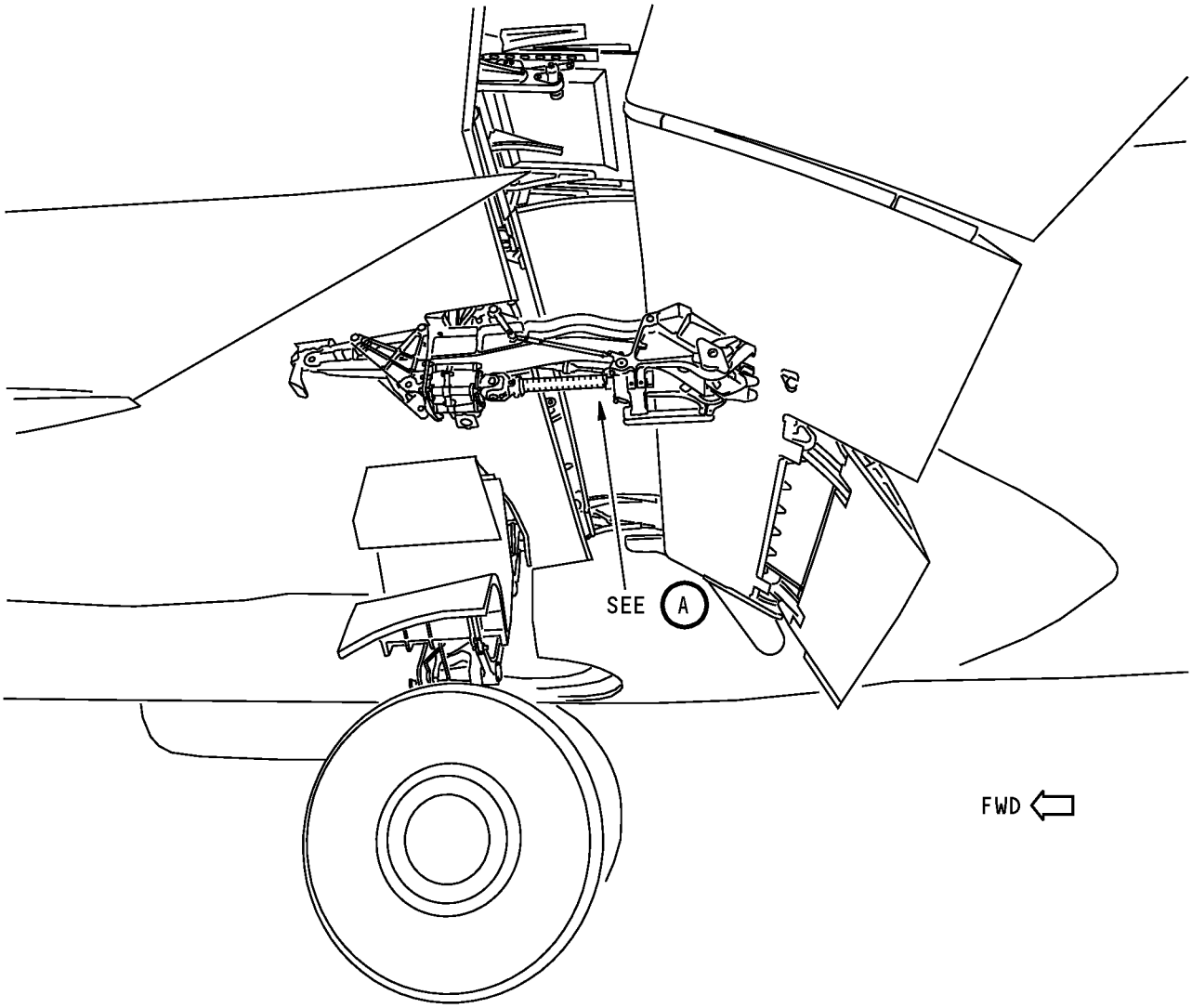

Inboard Flap Outboard Ballscrew and Gimbal Inspection
Figure 601 (Sheet 1 of 2)/27-51-32-990-803

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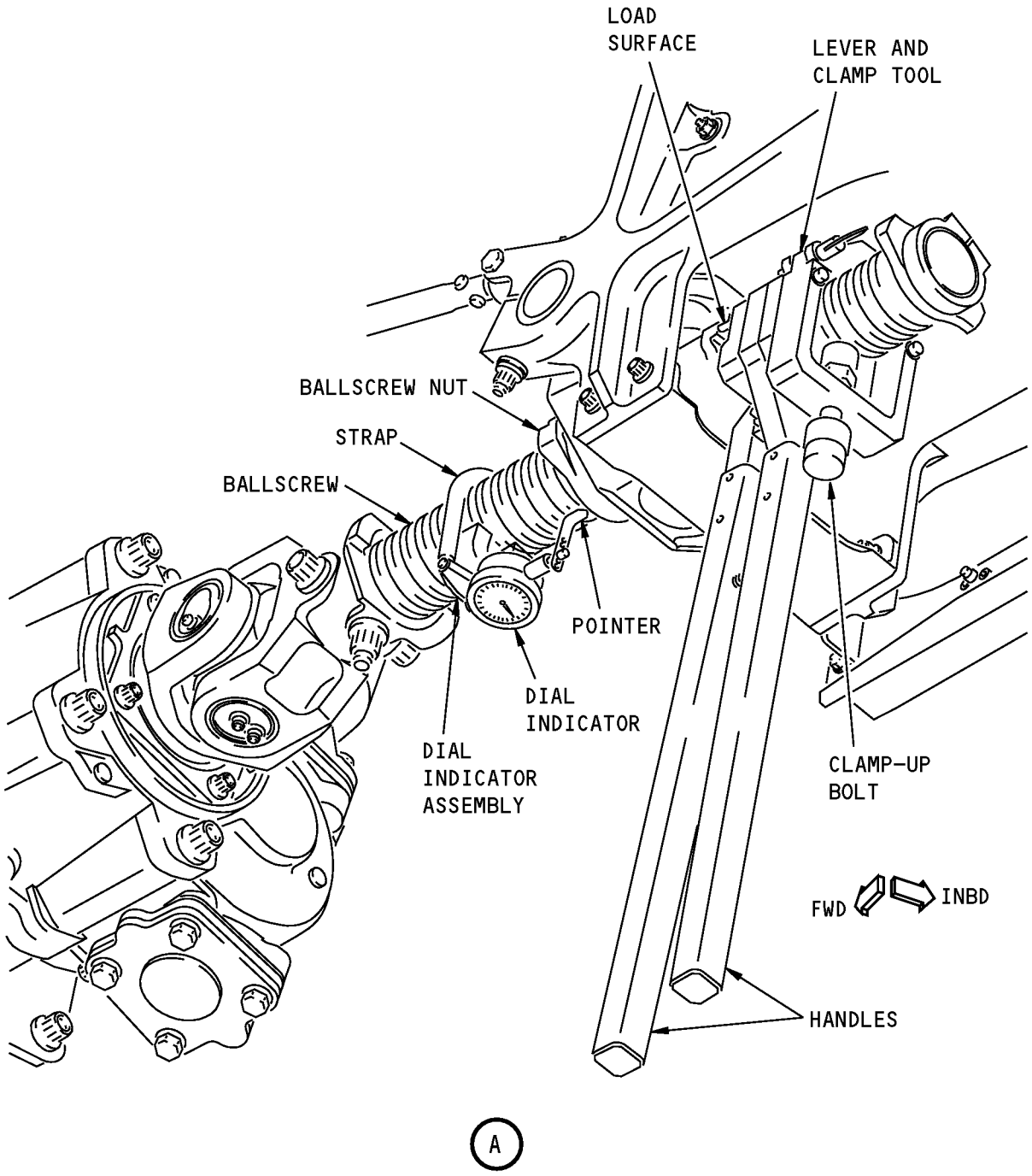

Inboard Flap Outboard Ballscrew and Gimbal Inspection
Figure 601 (Sheet 2 of 2)/27-51-32-990-803

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TASK 27-51-32-220-802

3. Inboard Flap Inboard Ballscrew Inspection

(Figure 602)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This task is applicable to the ballscrew and gimbal at flap supports No. 4 and 5.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-32-000-802	Inboard Flap Inboard Ballscrew and Gimbal Removal (P/B 401)
27-51-32-400-802	Inboard Flap Inboard Ballscrew and Gimbal Installation (P/B 401)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1753	Equipment - Test, Flap Screw Backlash - 777 / 737-600/700/800/900 (Part #: C27030-49, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

E. Prepare for the Inspection

SUBTASK 27-51-32-860-013

(1) Extend the trailing edge flaps to the 15-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-32-480-005

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-32-040-004

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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F. Inboard Flap Inboard Ballscrew Backlash Check

SUBTASK 27-51-32-480-003

(1) Install the lever and clamp tool on the ballscrew:

NOTE: The lever and clamp tool is a part of the tester, SPL-1753.

(a) Put the lever and clamp tool in its position on the ballscrew aft of the ballscrew nut.

NOTE: Make sure the load surfaces of the lever and clamp tool touch the aft side of the ballscrew nut.

(b) Tighten the clamp-up bolt to 200-300 pound-inches (22.6 to 33.8 newton-meters).

NOTE: Make sure the handles of the lever and clamp tool are in the relaxed position.

SUBTASK 27-51-32-480-004

(2) Install the dial indicator assembly on the ballscrew:

NOTE: The dial indicator assembly is a part of the tester, SPL-1753.

(a) Put the dial indicator assembly on the ballscrew.

NOTE: Make sure the pointer touches the forward end of the ballscrew nut.

(b) Put the strap around the ballscrew to help hold the dial indicator assembly on the ballscrew.

(c) Adjust the dial indicator to zero.

SUBTASK 27-51-32-220-002

(3) Measure the backlash of the ballscrew and ballscrew nut:

(a) Move the handles of the lever and clamp tool together until the dial indicator stops.

NOTE: This will apply a load to the ballscrew nut, and move it forward on the ballscrew.

(b) Use the dial indicator to measure the movement of the ballscrew nut.

NOTE: The movement of the ballscrew nut is the backlash.

(c) Do these steps a total of five times to make sure the movement of the dial indicator is repeatable.

SUBTASK 27-51-32-960-002

(4) If the backlash is more than 0.0073 inch (0.185 millimeter), then replace the ballscrew assembly.

These are the tasks:

Inboard Flap Inboard Ballscrew and Gimbal Removal, TASK 27-51-32-000-802,

Inboard Flap Inboard Ballscrew and Gimbal Installation, TASK 27-51-32-400-802.

SUBTASK 27-51-32-080-002

(5) Remove the dial indicator assembly and the lever and clamp tool from the ballscrew.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-32-440-004

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-32-860-014

(2) Retract the trailing edge flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

END OF TASK

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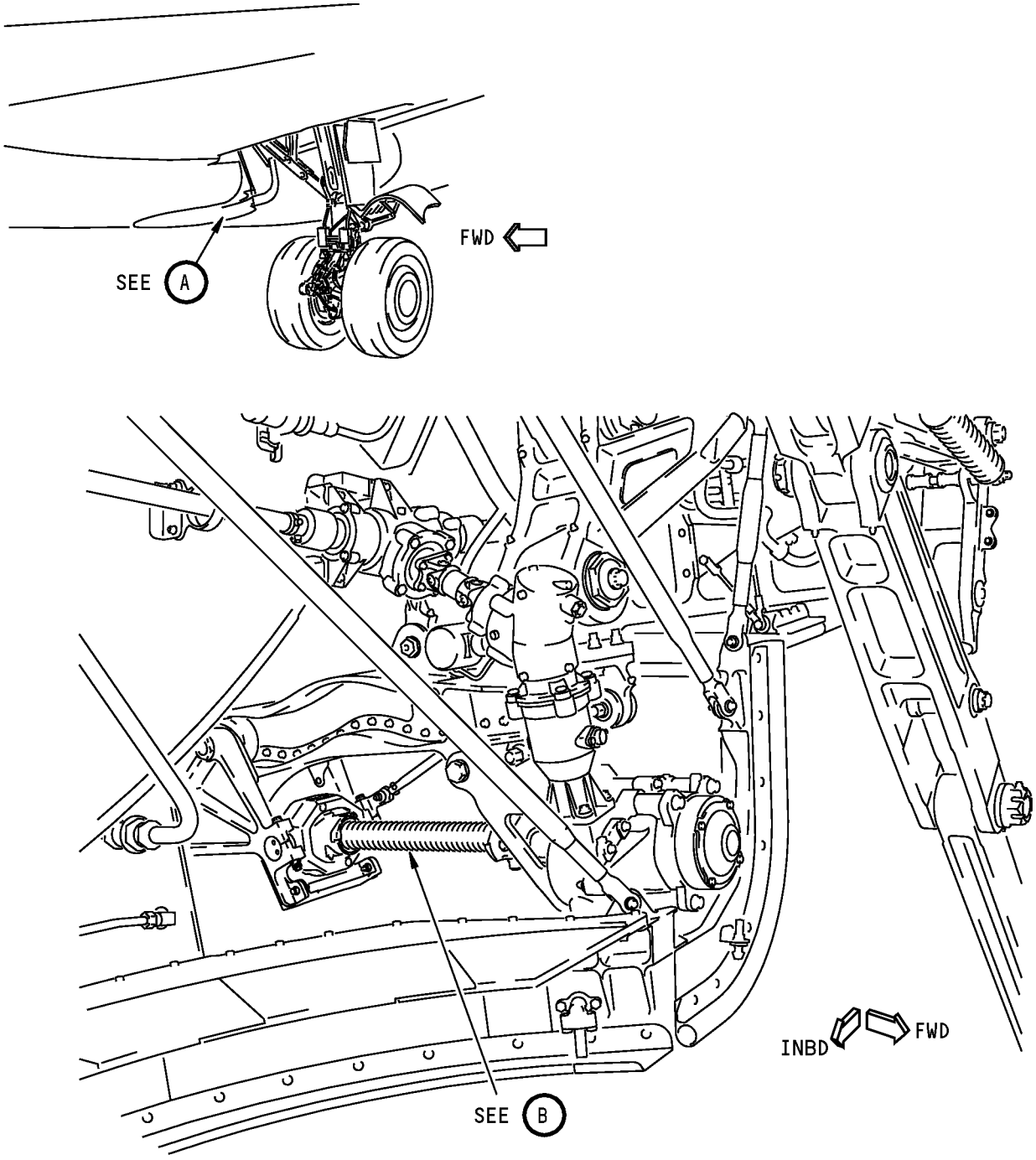

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

Inboard Flap Inboard Ballscrew and Gimbal Inspection
Figure 602 (Sheet 1 of 2)/27-51-32-990-804

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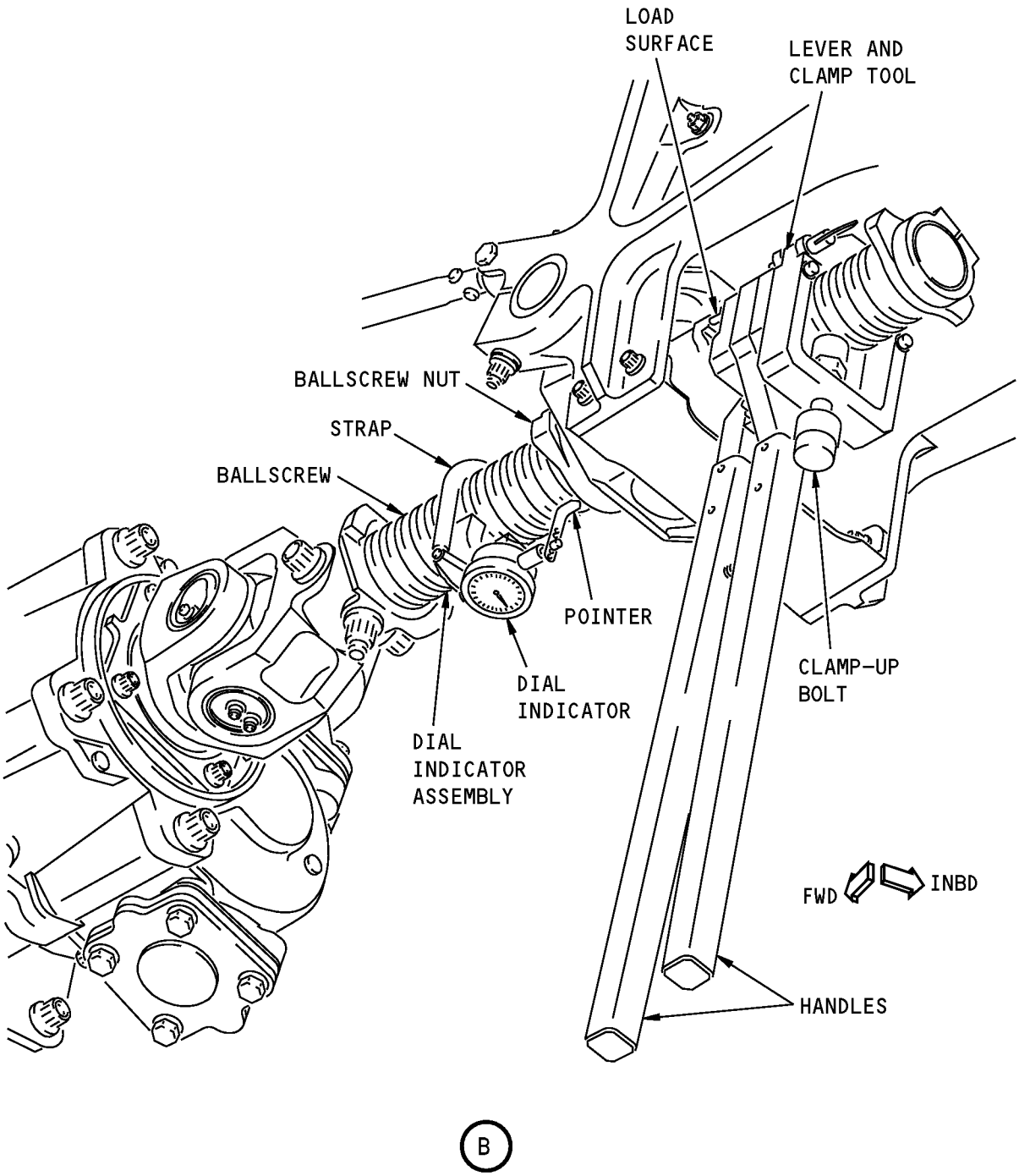

Inboard Flap Inboard Ballscrew and Gimbal Inspection
Figure 602 (Sheet 2 of 2)/27-51-32-990-804

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OUTBOARD FLAP TRANSMISSIONS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard transmission for the outboard flap

(2) An installation of the outboard transmission for the outboard flap

(3) A removal of the inboard transmission for the outboard flap

(4) An installation of the inboard transmission for the outboard flap.

TASK 27-51-41-000-801

2. Outboard Flap Outboard Transmission Removal

(Figure 401)

A. General

(1) This task is applicable to the transmissions at flap supports No. 1 and 8.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-28-000-802	Outboard Flap Outboard Support Aft Fairing Removal (P/B 401)
27-58-01-000-801	Flap Position Transmitter Removal (P/B 401)

C. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
567	Left Wing - Outboard Flap
644	Right Wing - Fairing Flap Support No. 8
667	Right Wing - Outboard Flap

D. Prepare for the Removal

SUBTASK 27-51-41-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-41-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-41-010-001

(3) Do this task: Outboard Flap Outboard Support Aft Fairing Removal, TASK 27-51-28-000-802.

E. Outboard Flap Outboard Transmission Removal

SUBTASK 27-51-41-980-001

(1) Manually extend the trailing edge flaps to the downstop on the ballscrew. To extend them, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-41-020-001

(2) Do this task: Flap Position Transmitter Removal, TASK 27-58-01-000-801.

SUBTASK 27-51-41-020-002

(3) Disconnect the torque tube [9] from the transmission assembly [4]:

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(a) Remove the screws [11] that attach the coupling sleeve [8] to the splined coupling [10] on the torque tube [9].

(b) Move the coupling sleeve [8] off the splined coupling [10].

SUBTASK 27-51-41-020-003

(4) Disconnect the aft flap drive rod [6] from the drive rod attach fitting [37]:

(a) Remove the nut [35], washer [34], washer [32], bolt [31] and bushing [33] that attach the aft flap drive rod [6] to the drive rod attach fitting [37].

(b) Move the aft flap drive rod [6] away from the drive rod attach fitting [37].

SUBTASK 27-51-41-020-004

CAUTION: MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(5) Disconnect the ballscrew assembly [2] with the gimbal [13] from the carriage [1]:

NOTE: When you disconnect the ballscrew assembly [2] from the carriage [1], the outboard flap can move a small distance to the downstop on the flap track.

(a) Remove the nuts [15], washers [16] and bolts [17] from the carriage [1].

(b) Remove the inboard carriage bushing [20] and the outboard carriage bushing [14] from the gimbal [13] and the carriage [1].

(c) Move the ballscrew assembly [2] and gimbal [13] away from the carriage [1].

SUBTASK 27-51-41-020-005

(6) Disconnect the ballscrew assembly [2] from the yoke [5] on the transmission assembly [4]:

(a) Remove the nuts [24], washers [22], washers [23] and bolts [21] that attach the ballscrew assembly [2] to the yoke [5].

(b) Remove the ballscrew assembly [2] from the yoke [5].

NOTE: You can turn the ballscrew assembly [2] and the gimbal [13] to get access to remove the ballscrew assembly [2].

(c) Remove the ballscrew assembly [2] with the gimbal [13].

SUBTASK 27-51-41-020-006

(7) Remove the transmission assembly [4]:

NOTE: The transmission assembly [4] weighs approximately 50 pounds (23 kilograms).

(a) Support the transmission assembly [4] while you disconnect it from the transmission attach fitting [3].

(b) Remove the nuts [30] and washers [29] that attach the transmission assembly [4] to the transmission attach fitting [3].

(c) Remove the upper bolts [27] and washers [28] that attach the wire bracket [26] and the transmission assembly [4].

(d) Move the wire bracket [26] with the wires away from the transmission assembly [4].

(e) Remove the lower bolt [38] and bolt [39] and washers [28] that attach the drive rod attach fitting [37] and the transmission assembly [4].

(f) Carefully lower the transmission assembly [4].

END OF TASK

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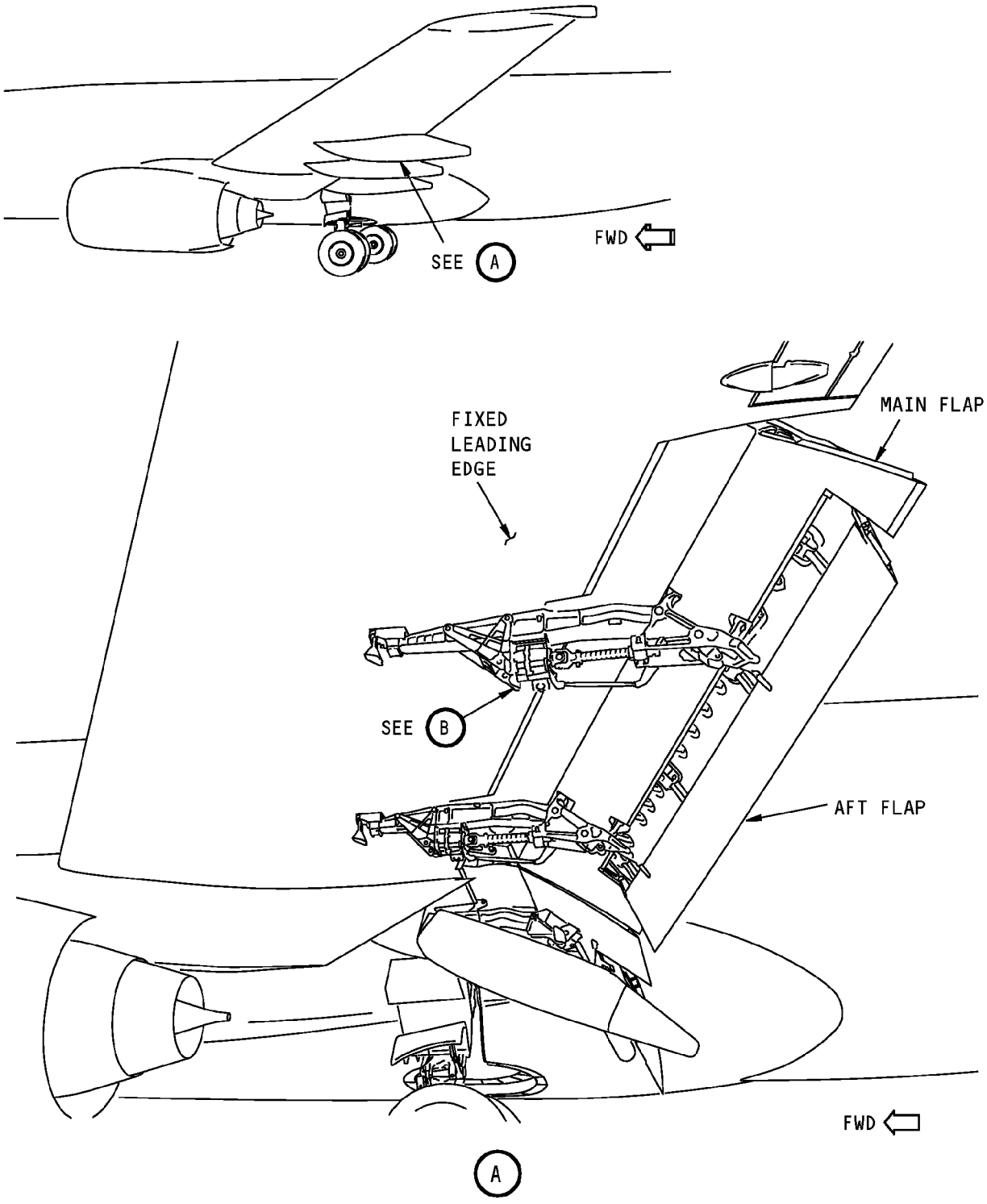

Outboard Flap Outboard Transmission Installation
Figure 401 (Sheet 1 of 6)/27-51-41-990-801

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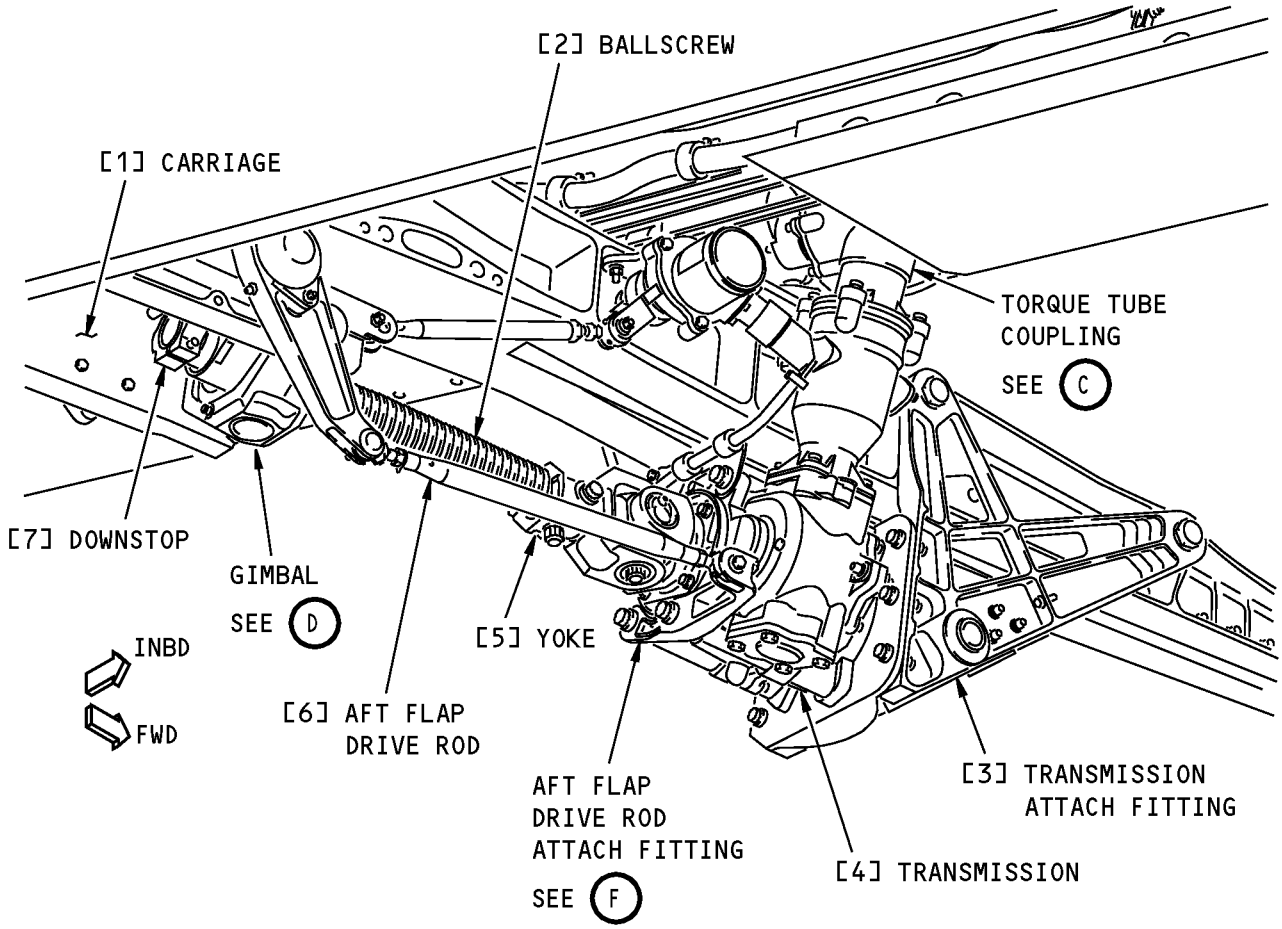

Outboard Flap Outboard Transmission Installation
Figure 401 (Sheet 2 of 6)/27-51-41-990-801

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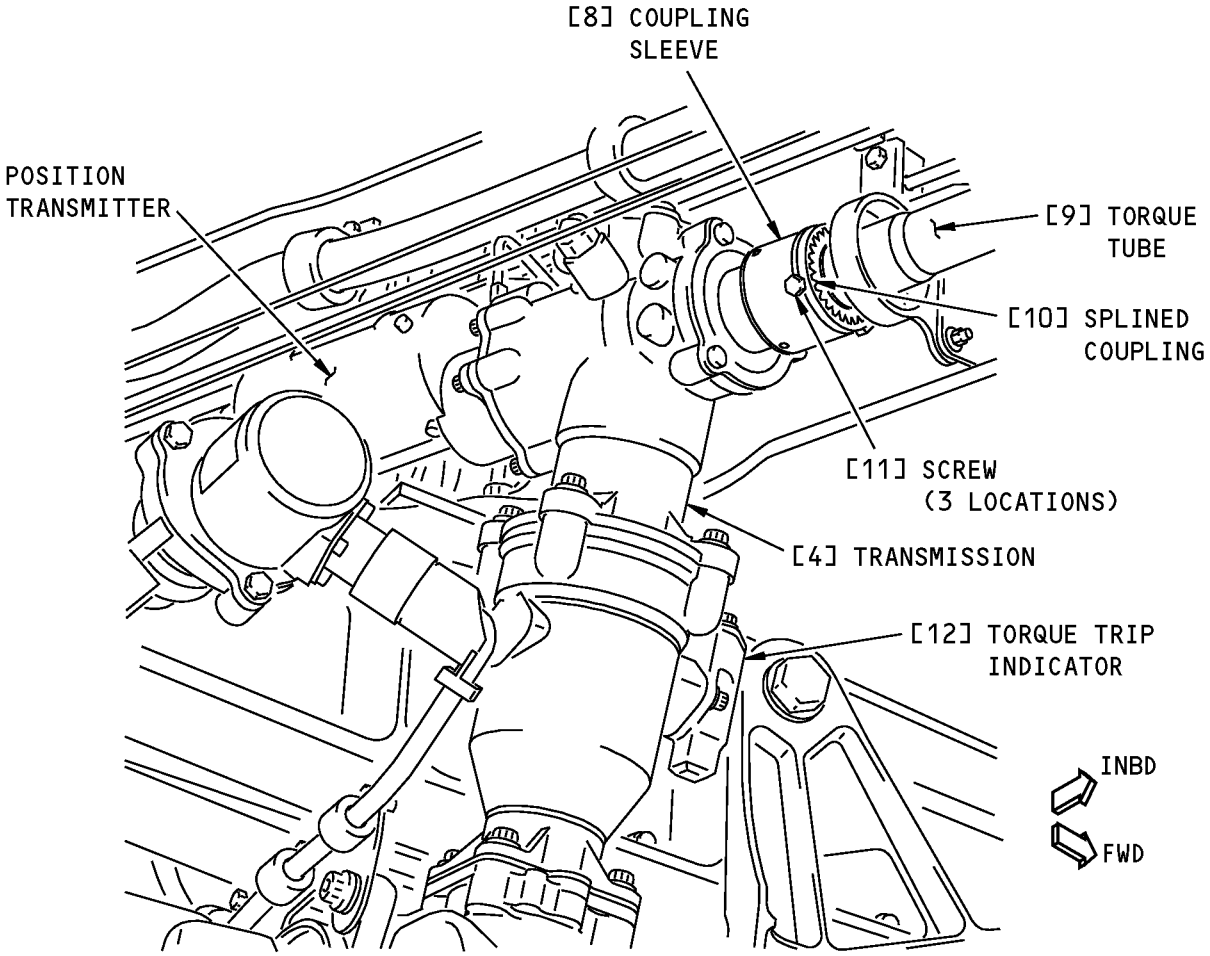

TORQUE TUBE COUPLING

C

Outboard Flap Outboard Transmission Installation
Figure 401 (Sheet 3 of 6)/27-51-41-990-801

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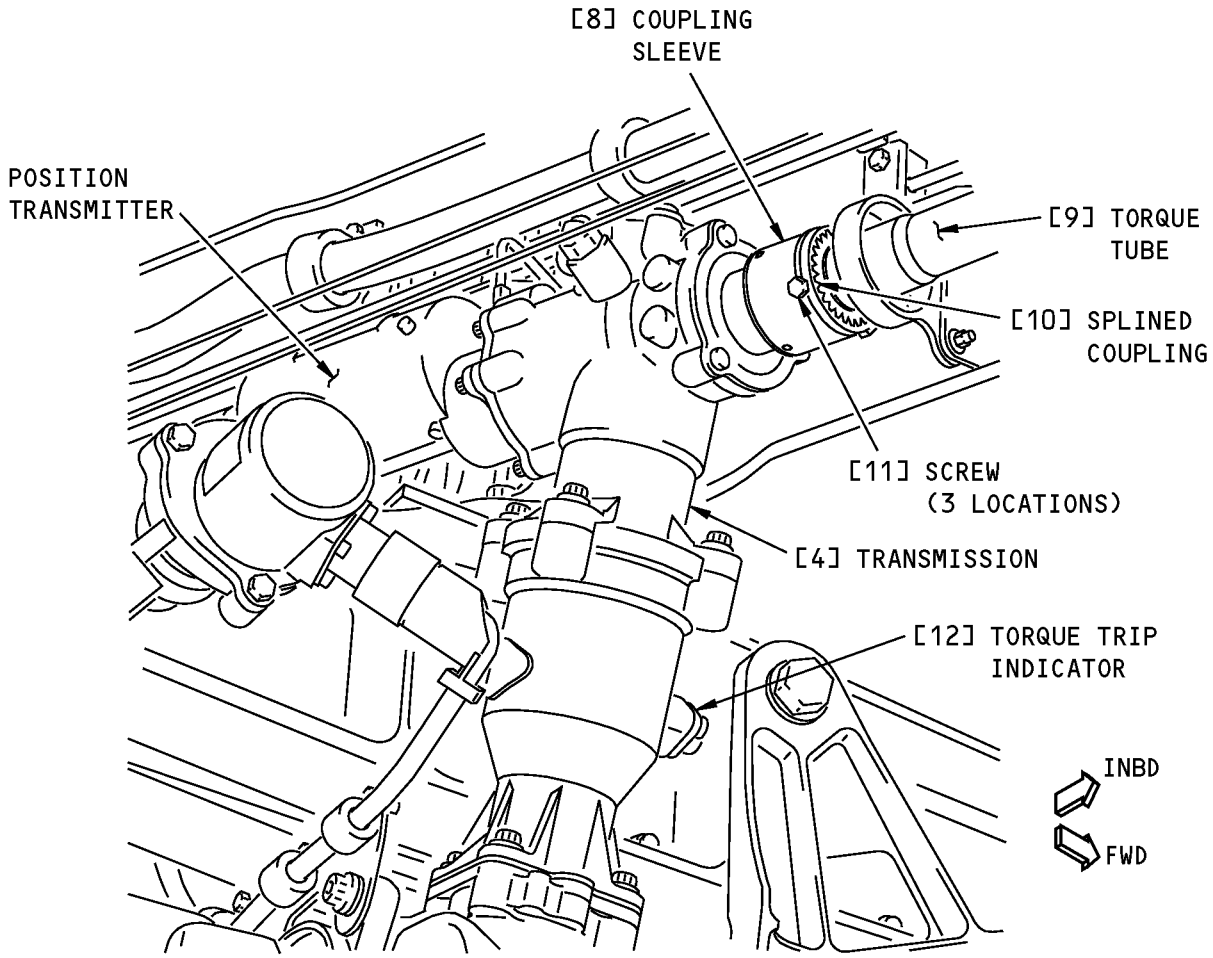

TORQUE TUBE COUPLING

C

Outboard Flap Outboard Transmission Installation
Figure 401 (Sheet 4 of 6)/27-51-41-990-801

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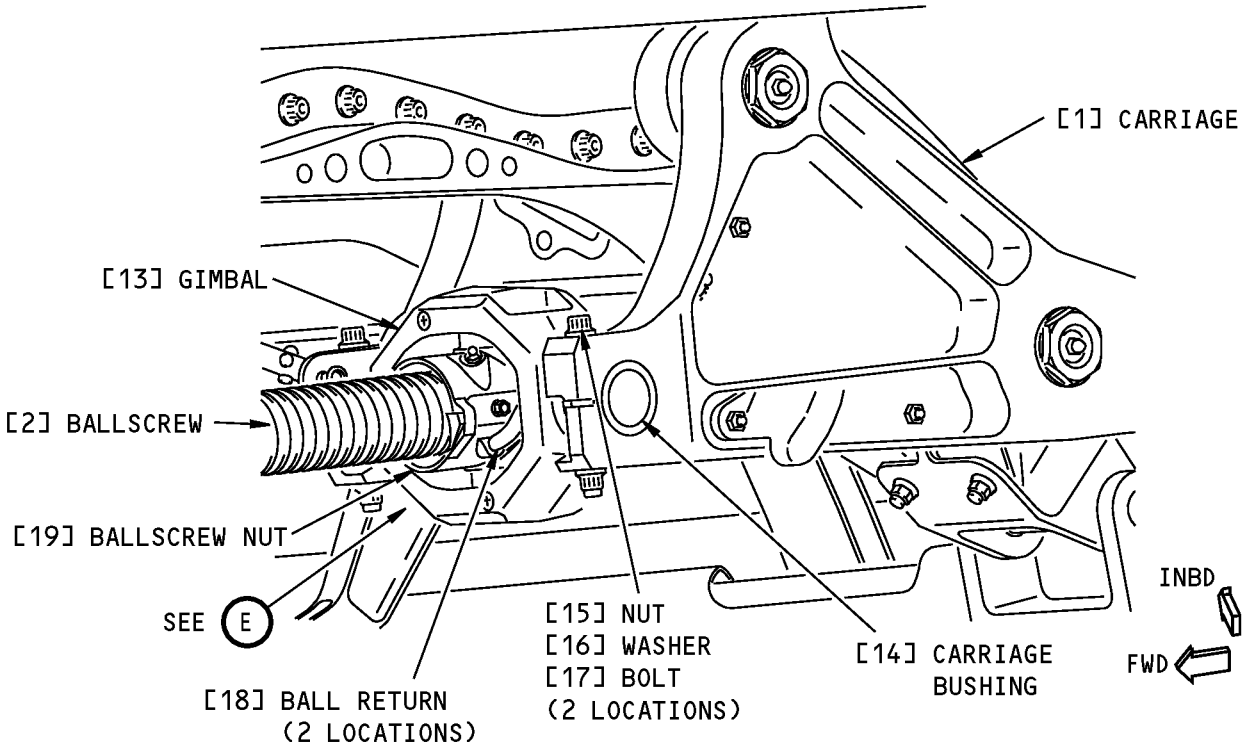
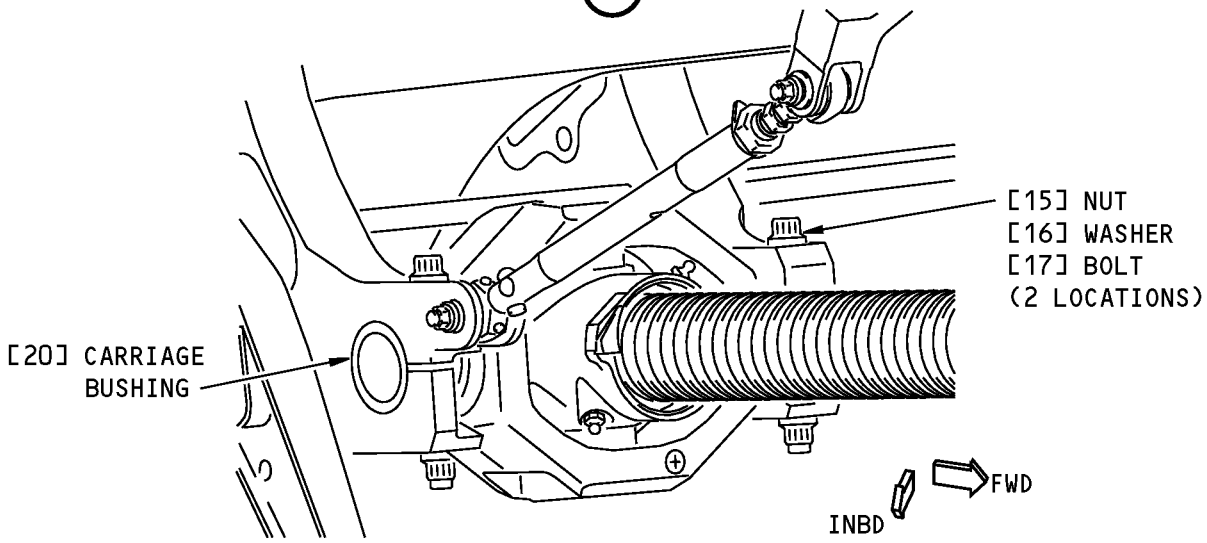


GIMBAL

D



CARRIAGE BUSHING

E

Outboard Flap Outboard Transmission Installation
Figure 401 (Sheet 5 of 6)/27-51-41-990-801

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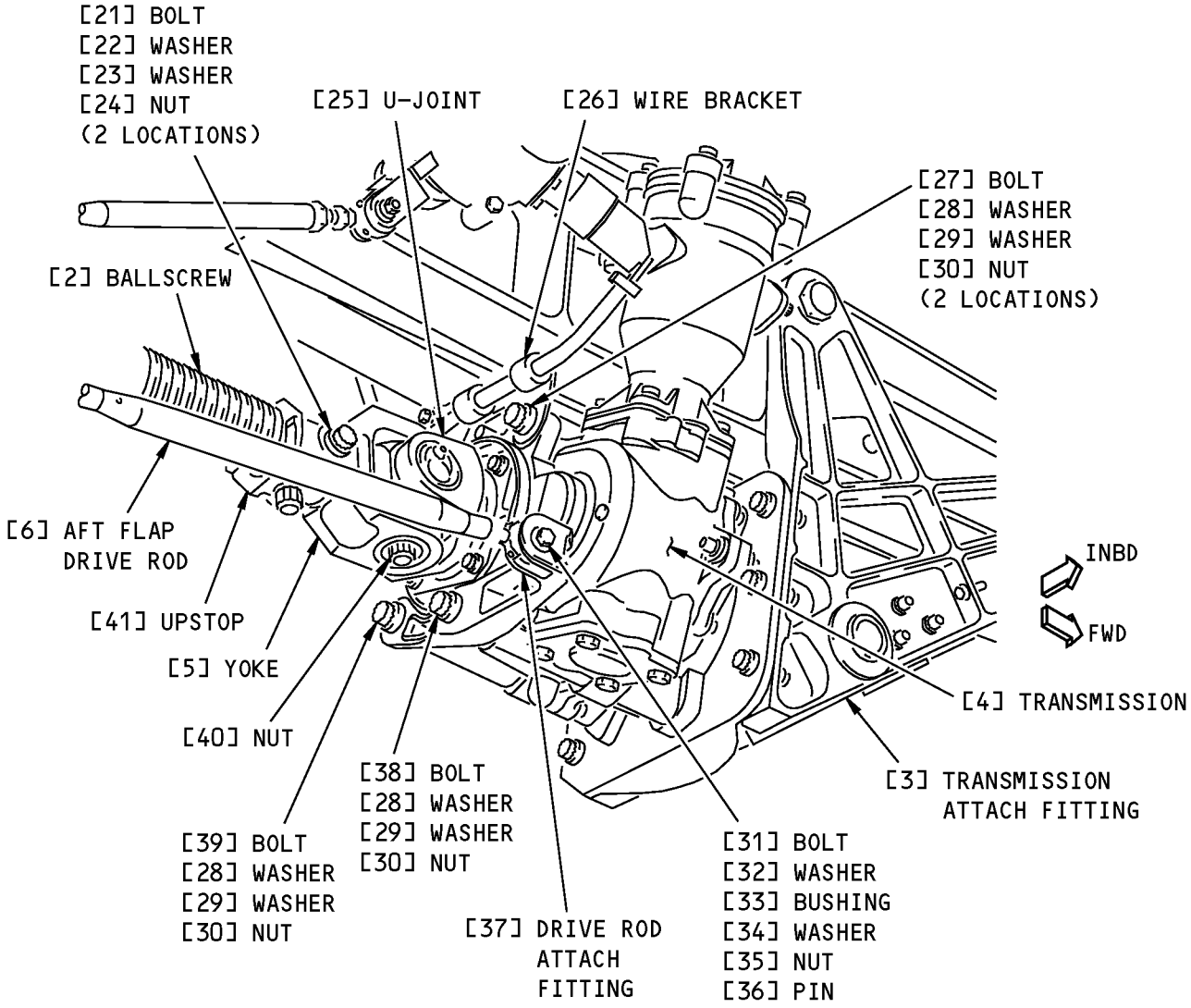

AFT FLAP DRIVE ROD ATTACH FITTING

F

Outboard Flap Outboard Transmission Installation
Figure 401 (Sheet 6 of 6)/27-51-41-990-801

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TASK 27-51-41-400-801

3. Outboard Flap Outboard Transmission Installation

(Figure 401)

A. General

(1) This task is applicable to the transmissions at flap supports No. 1 and 8.

B. References

Reference	Title
12-22-51-640-805	Outboard Flap Outboard Ballscrew and Gimbal Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-28-400-802	Outboard Flap Outboard Support Aft Fairing Installation (P/B 401)
27-58-01-400-801	Flap Position Transmitter Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Ballscrew assembly	27-51-42-01-120	HAP 001-013, 015-026, 028-030
		27-51-42-03-055	HAP 031-054, 101-999
4	Transmission assembly	27-51-41-10-120	HAP 001-013, 015-026, 028-030
		27-51-41-10-125	HAP 001-013, 015-026, 028-030
		27-51-41-12-100	HAP 031-054, 101-999
		27-51-41-12-105	HAP 031-054, 101-999
36	Pin	57-52-00-05-030	HAP 001-013, 015-026, 028-030, 048-053, 107-999

E. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
567	Left Wing - Outboard Flap
644	Right Wing - Fairing Flap Support No. 8
667	Right Wing - Outboard Flap

F. Outboard Flap Outboard Transmission Installation

SUBTASK 27-51-41-420-001

(1) Install the transmission assembly [4]:

NOTE: The transmission assembly [4] weighs approximately 50 pounds (23 kilograms).

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(a) Apply a thin layer of compound, C00913 to the mating surfaces of the transmission assembly [4], the transmission attach fitting [3], the drive rod attach fitting [37] and the wire bracket [26].

(b) Apply a layer of compound, C00913 to the bolt holes in the transmission assembly [4].

(c) Apply a layer of compound, C00913 to the shank and threads of the bolts [27], bolt [38] and bolt [39].

(d) Carefully lift the transmission assembly [4] to its position on the transmission attach fitting [3].

(e) Put the drive rod attach fitting [37] in its position on the transmission assembly [4] and install the bolt [38] and bolt [39] and washers [28] through the lower bolt holes.

(f) Loosely install the washers [29] and nuts [30] on the bolt [38] and bolt [39] to hold the transmission assembly [4].

(g) Put the wire bracket [26] in its position on the transmission assembly [4].

(h) Install the bolts [27], washers [28], washers [29] and nuts [30] to attach the transmission assembly [4] and the wire bracket [26].

(i) Tighten the nuts [30] to 500-550 pound-inches (56.5-62.1 newton-meters) more than the run-on torque.

SUBTASK 27-51-41-420-002

(2) Connect the ballscrew assembly [2] to the yoke [5] on the transmission assembly [4]:

(a) Turn the ballscrew nut [19] until it is at the forward end of the ballscrew assembly [2].

(b) Apply a layer of grease, D00633 to the mating surfaces of the yoke [5] and the ballscrew assembly [2].

(c) Put the ballscrew assembly [2] into the yoke [5].

(d) Apply a layer of grease, D00633 to the shank and threads of the bolts [21].

(e) Install the bolts [21], washers [22], washers [23] and nuts [24] to attach the ballscrew assembly [2] to the yoke [5].

(f) Make sure the ballscrew assembly [2] is installed correctly in the yoke [5]:

1) Turn the transmission assembly [4] until the nut [40] on the U-joint [25] is down.

2) Turn the ballscrew nut [19] until the upstop is 180° from the upstop [41] on the yoke [5].

3) If the ball returns [18] on the ballscrew nut [19] are not on the outboard side, change the position of the ballscrew assembly [2]:

a) Remove the nuts [24], washers [23], washers [22] and bolts [21] that attach the ballscrew assembly [2] to the yoke [5].

b) Turn the ballscrew assembly [2] 180° in the yoke [5].

c) Install the bolts [21], washers [22], washers [23] and nuts [24].

(g) Tighten the nuts [24] to 100-120 pound-inches (11.3-13.5 newton-meters) more than the run-on torque.

SUBTASK 27-51-41-420-003

(3) Connect the ballscrew assembly [2] with the gimbal [13] to the carriage [1]:

(a) Move the gimbal [13] aft on the ballscrew assembly [2] until it is at the down stop [7].

(b) On transmission No. 1, make sure the ball returns [18] on the ballscrew nut [19] are outboard and the grease vent is on the lower side.

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(c) On transmission No. 8, make sure the ball returns [18] on the ballscrew nut [19] are inboard and the grease vent is on the lower side.

NOTE: This is the preferred position for maintenance.

HAP 001-013, 015-026 PRE SB 737-57-1264

(d) Apply grease, D00633 to the inside and outside surfaces of the carriage bushing [14] and carriage bushing [20].

HAP ALL

(e) Lift the outboard flap until the carriage [1] aligns with the gimbal [13].

(f) Install the carriage bushing [14] and carriage bushing [20] to attach the gimbal [13] to the carriage [1].

(g) Install the bolts [17], washers [16] and nuts [15] to hold the carriage bushing [14] and carriage bushing [20] in the carriage [1].

(h) Tighten the nuts [15] to 65-75 pound-inches (7.4-8.4 newton-meters) more than the run-on torque.

SUBTASK 27-51-41-420-004

(4) Connect the aft flap drive rod [6] to the drive rod attach fitting [37]:

(a) Put the aft flap drive rod [6] in its position in the drive rod attach fitting [37].

(b) Apply a layer of grease, D00633 to the inside of the bushing [33] and the shank of the bolt [31].

(c) Install the bushing [33], bolt [31] and washer [32] to attach the aft flap drive rod [6] to the drive rod attach fitting [37].

(d) Carefully clean the grease, D00633 from the threads of the bolt [31].

(e) Install the washer [34] and nut [35] on the bolt [31].

(f) Tighten the nut [35] to 65-100 pound-inches (7.4-11.2 newton-meters).

(g) Install the pin [36] in the nut [35].

SUBTASK 27-51-41-420-005

(5) Connect the torque tube [9] to the transmission assembly [4]:

(a) Apply grease, D00633 to the coupling sleeve [8].

(b) Put the splined coupling [10] in the coupling sleeve [8].

(c) Install the screws [11] to attach the torque tube [9] to the transmission assembly [4].

(d) Install lockwire on the screws [11].

SUBTASK 27-51-41-420-006

(6) Do this task: Flap Position Transmitter Installation, TASK 27-58-01-400-801.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-41-640-003

(7) Apply grease, D00633 to the end of the plunger on the torque trip indicator [12] and push it down around the sides of the plunger.

SUBTASK 27-51-41-210-001

(8) Make sure the torque trip indicator [12] on the transmission assembly [4] is set.

HAP ALL

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SUBTASK 27-51-41-640-001

(9) Lubricate the transmission assembly [4], ballscrew assembly [2] and gimbal [13]. To lubricate them, do this task: Outboard Flap Outboard Ballscrew and Gimbal Lubrication, TASK 12-22-51-640-805.

SUBTASK 27-51-41-820-001

(10) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-41-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-41-860-002

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-41-860-003

(3) Use the primary system to retract the flaps to the retracted position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-41-860-004

(4) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-41-210-002

(5) Make sure the torque trip indicator [12] on the transmission assembly [4] is set.

HAP ALL

SUBTASK 27-51-41-210-003

(6) Make sure the flap position indicator on the center instrument panel shows the UP position.

SUBTASK 27-51-41-860-005

(7) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-41-410-001

(8) Do this task: Outboard Flap Outboard Support Aft Fairing Installation, TASK 27-51-28-400-802.

——————— END OF TASK ———————

TASK 27-51-41-000-802

4. Outboard Flap Inboard Transmission Removal

(Figure 402)

A. General

(1) This task is applicable to the transmissions at flap supports No. 2 and 7.

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B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-28-000-804	Outboard Flap Inboard Support Aft Fairing Removal (P/B 401)

C. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
567	Left Wing - Outboard Flap
643	Right Wing - Fairing Flap Support No. 7
667	Right Wing - Outboard Flap

D. Prepare for the Removal

SUBTASK 27-51-41-860-006

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-41-040-002

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-41-010-002

(3) Do this task: Outboard Flap Inboard Support Aft Fairing Removal, TASK 27-51-28-000-804.

E. Outboard Flap Inboard Transmission Removal

SUBTASK 27-51-41-980-002

(1) Manually extend the trailing edge flaps to the downstop on the ballscrew. To extend them, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-41-020-007

(2) Disconnect the torque tubes [68] from the transmission assembly [64]:

(a) Remove the screws [70] that attach the coupling sleeves [67] to the splined couplings [69] on the torque tubes [68].

(b) Move the coupling sleeves [67] off the splined couplings [69].

SUBTASK 27-51-41-020-008

(3) Disconnect the aft flap drive rod [66] from the drive rod attach fitting [96]:

(a) Remove the nut [94], washer [93], washer [91], bolt [90] and bushing [92] that attach the aft flap drive rod [66] to the drive rod attach fitting [96].

(b) Move the aft flap drive rod [66] away from the drive rod attach fitting [96].

SUBTASK 27-51-41-020-009

CAUTION: MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(4) Disconnect the ballscrew assembly [62] with the gimbal [72] from the carriage [61]:

NOTE: When you disconnect the ballscrew assembly [62] from the carriage [61], the outboard flap can move a small distance to the downstop on the flap track.

(a) Remove the nut [74], washer [75] and bolt [76] from the carriage [61].

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(b) Remove the inboard carriage bushing [79] and outboard carriage bushing [73] from the gimbal [72] and the carriage [61].

(c) Move the ballscrew assembly [62] and gimbal away from the carriage [61].

SUBTASK 27-51-41-020-010

(5) Disconnect the ballscrew assembly [62] from the yoke [65] on the transmission assembly [64]:

(a) Remove the nuts [83], washers [82], washers [81] and bolts [80] that attach the ballscrew assembly [62] to the yoke [65].

(b) Remove the ballscrew assembly [62] from the yoke [65].

NOTE: You can turn the ballscrew assembly [62] and the gimbal [72] to get access to remove the ballscrew assembly [62].

(c) Remove the ballscrew assembly [62] with the gimbal [72].

SUBTASK 27-51-41-020-011

(6) Remove the transmission assembly [64]:

NOTE: The transmission assembly [64] weighs approximately 50 pounds (23 kilograms).

(a) Support the transmission assembly [64] while you disconnect it from the transmission attach fitting [63].

(b) Remove the nuts [89] and washers [88] that attach the transmission assembly [64] to the transmission attach fitting [63].

(c) Remove the upper bolts [86] and washers [87] that attach the wire bracket [85] and the transmission assembly [64].

(d) Move the wire bracket [85] with the wires away from the transmission assembly [64].

(e) Remove the lower bolt [97] and bolt [98] and washers [87] that attach the drive rod attach fitting [96] and the transmission assembly [64].

(f) Carefully lower the transmission assembly [64].

——————— END OF TASK ———————

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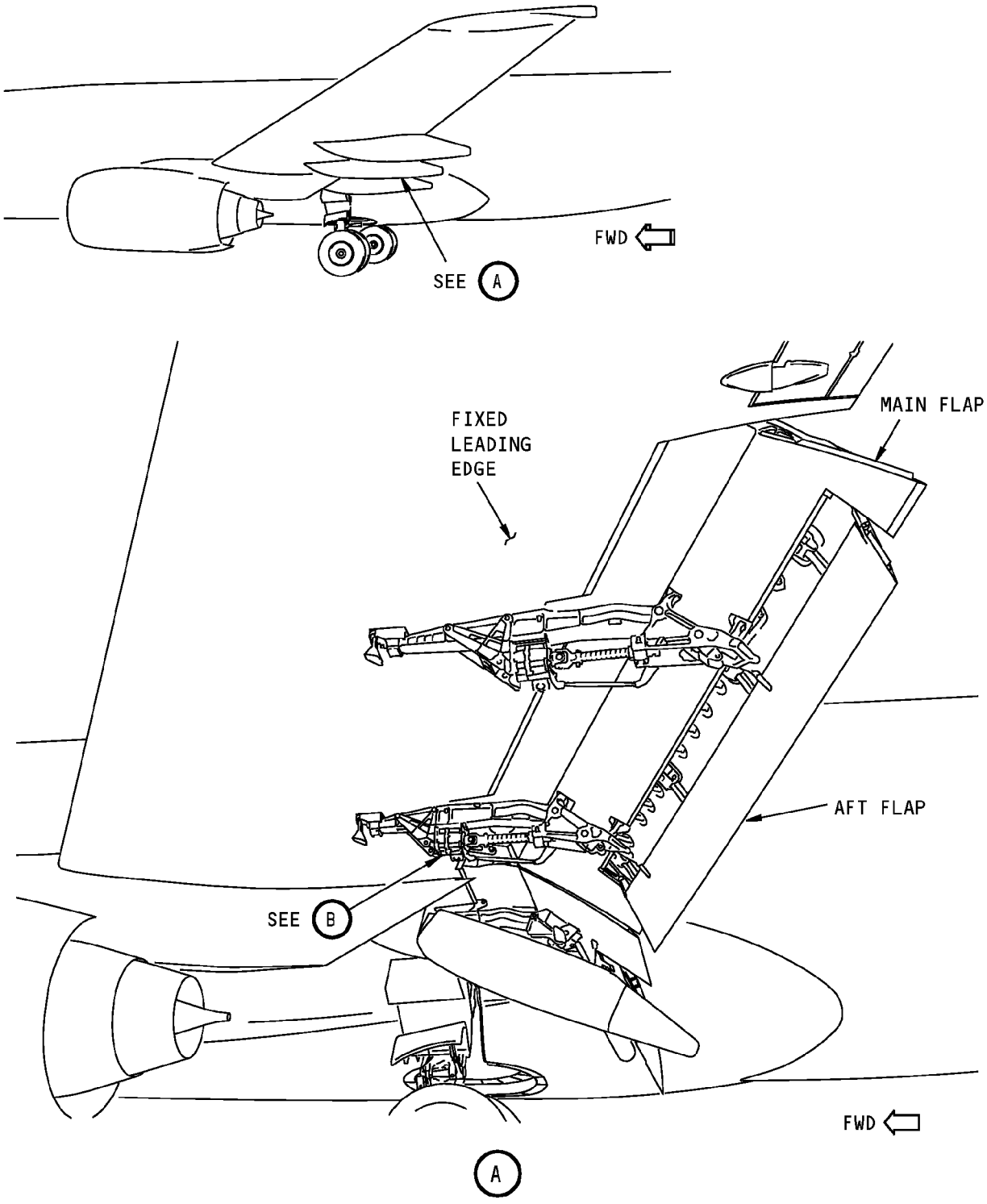

Outboard Flap Inboard Transmission Installation
Figure 402 (Sheet 1 of 6)/27-51-41-990-802

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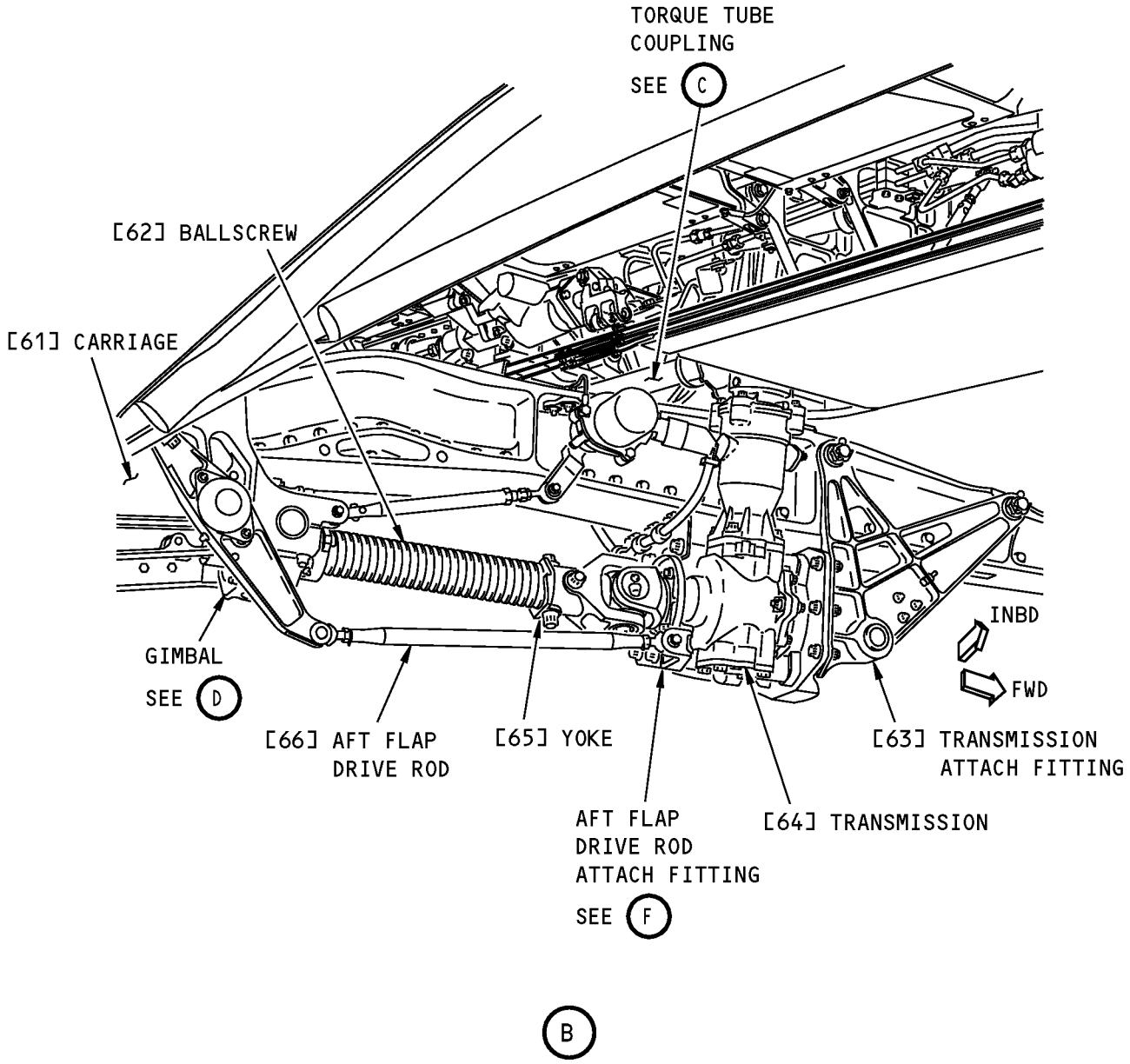

Outboard Flap Inboard Transmission Installation
Figure 402 (Sheet 2 of 6)/27-51-41-990-802

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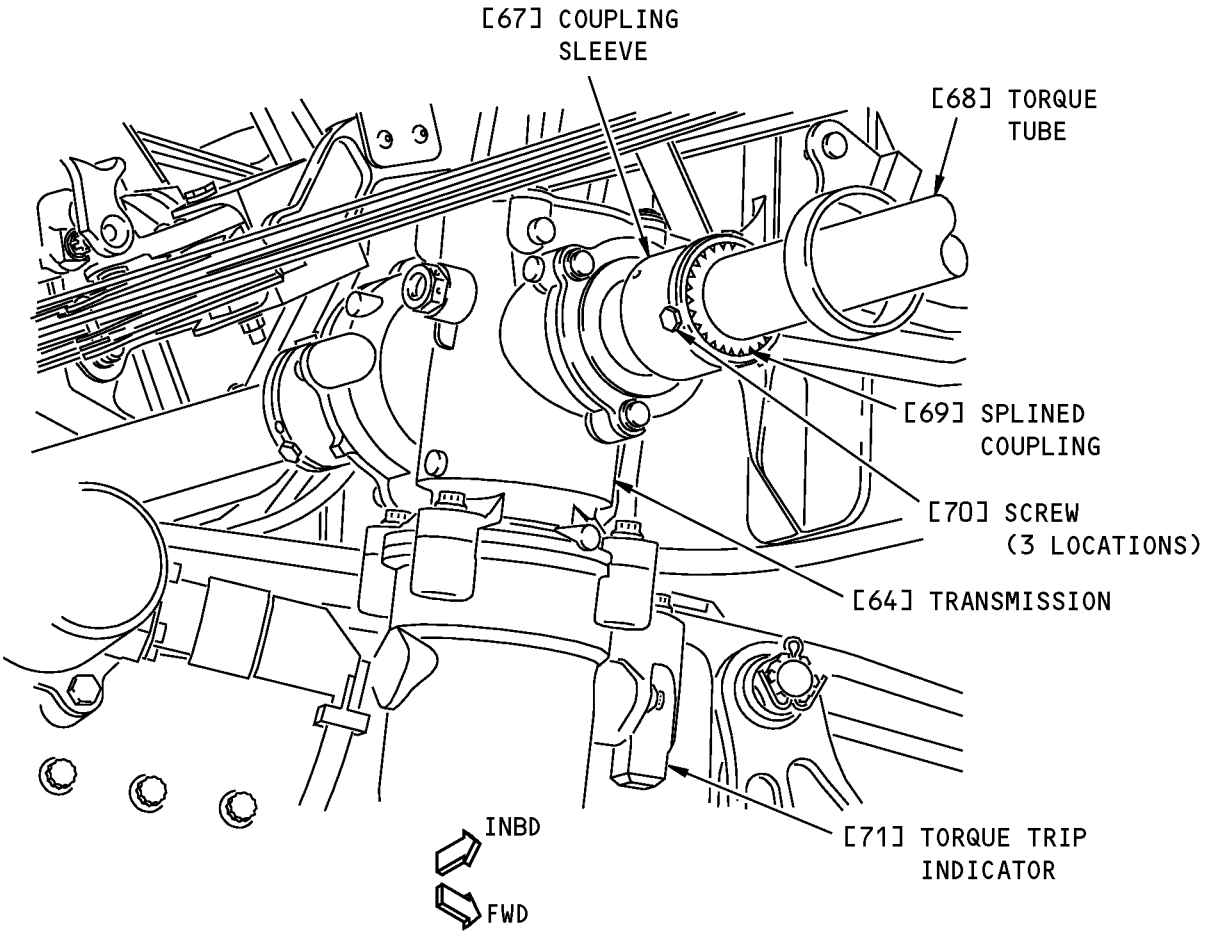

TORQUE TUBE COUPLING

C

Outboard Flap Inboard Transmission Installation
Figure 402 (Sheet 3 of 6)/27-51-41-990-802

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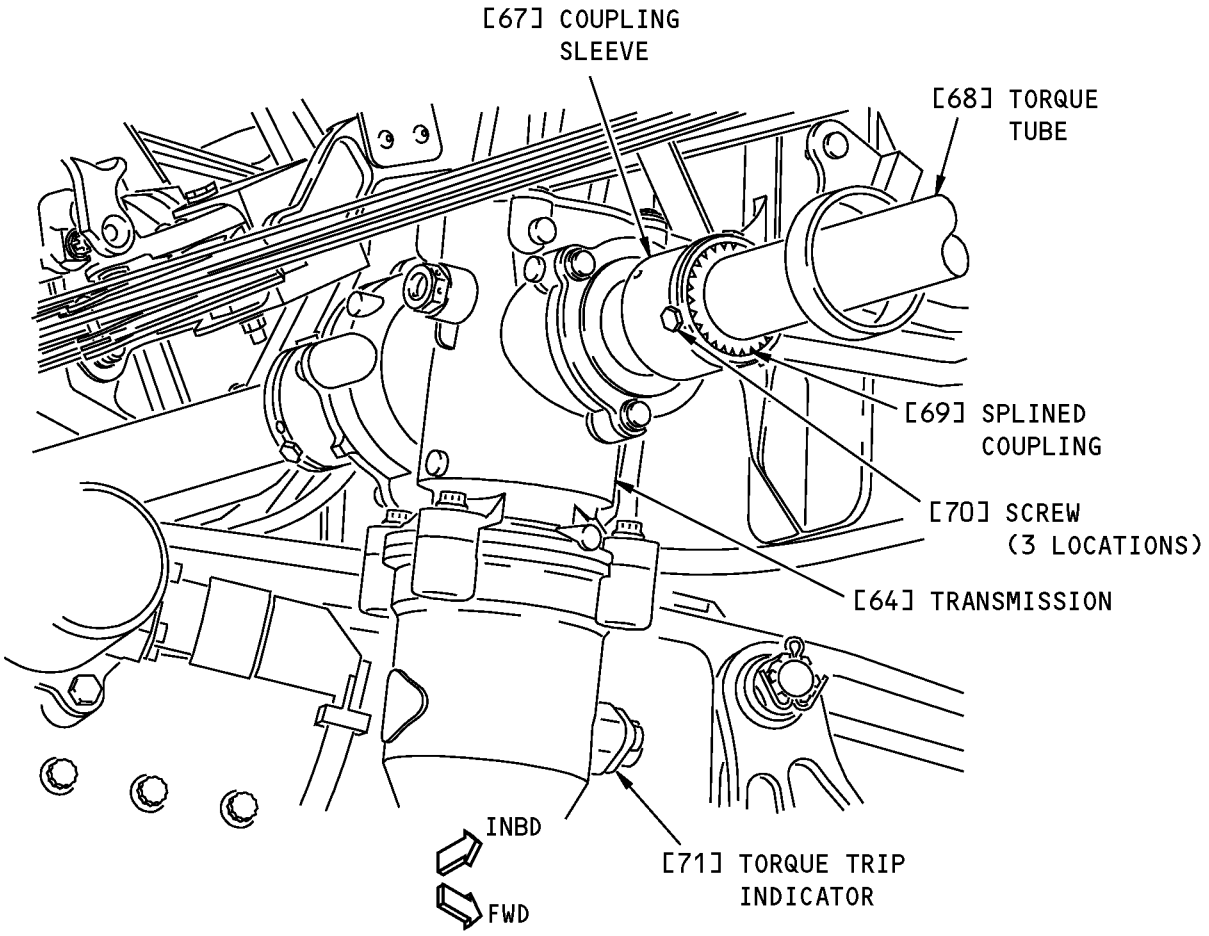

TORQUE TUBE COUPLING

C

Outboard Flap Inboard Transmission Installation
Figure 402 (Sheet 4 of 6)/27-51-41-990-802

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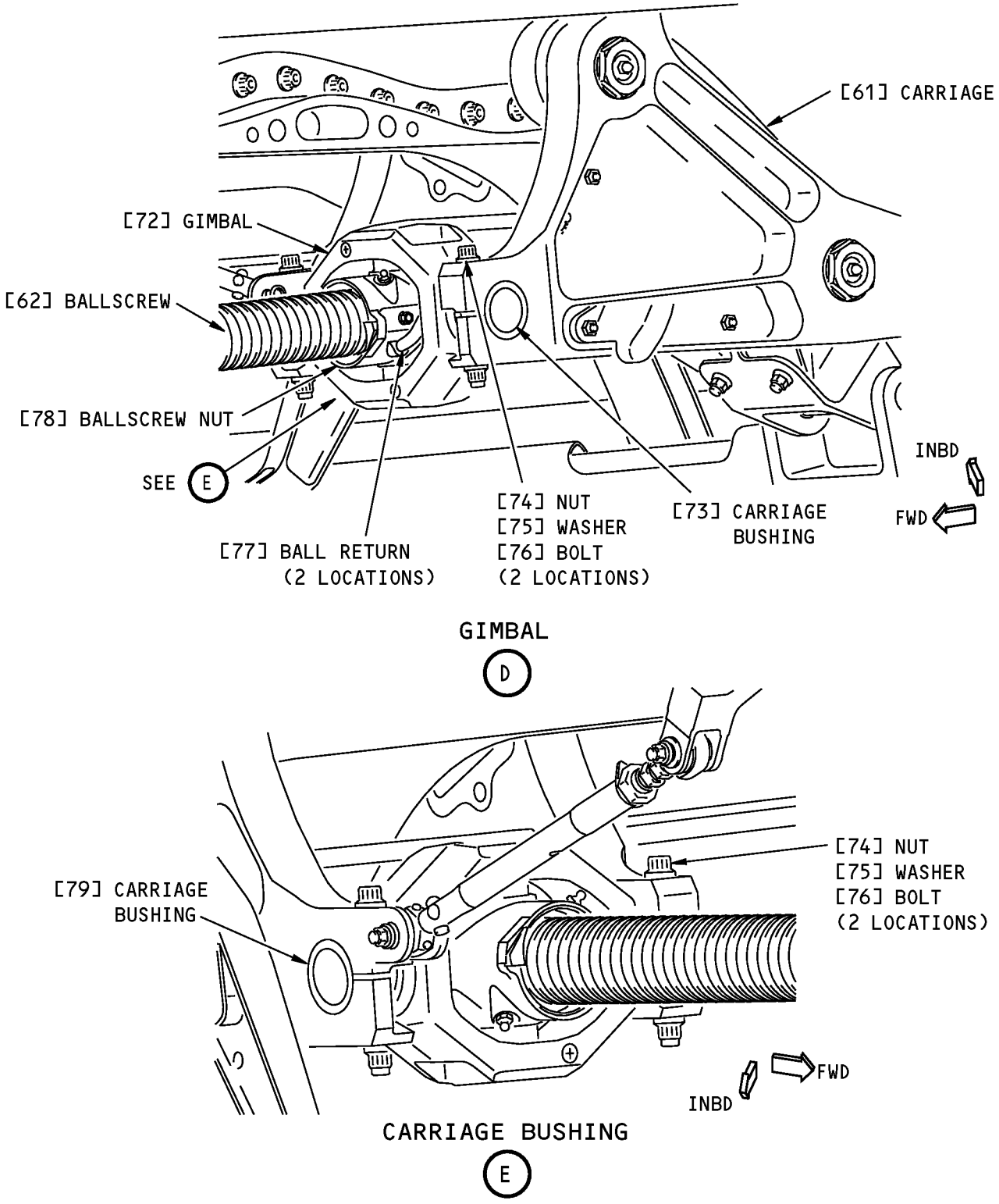

Outboard Flap Inboard Transmission Installation
Figure 402 (Sheet 5 of 6)/27-51-41-990-802

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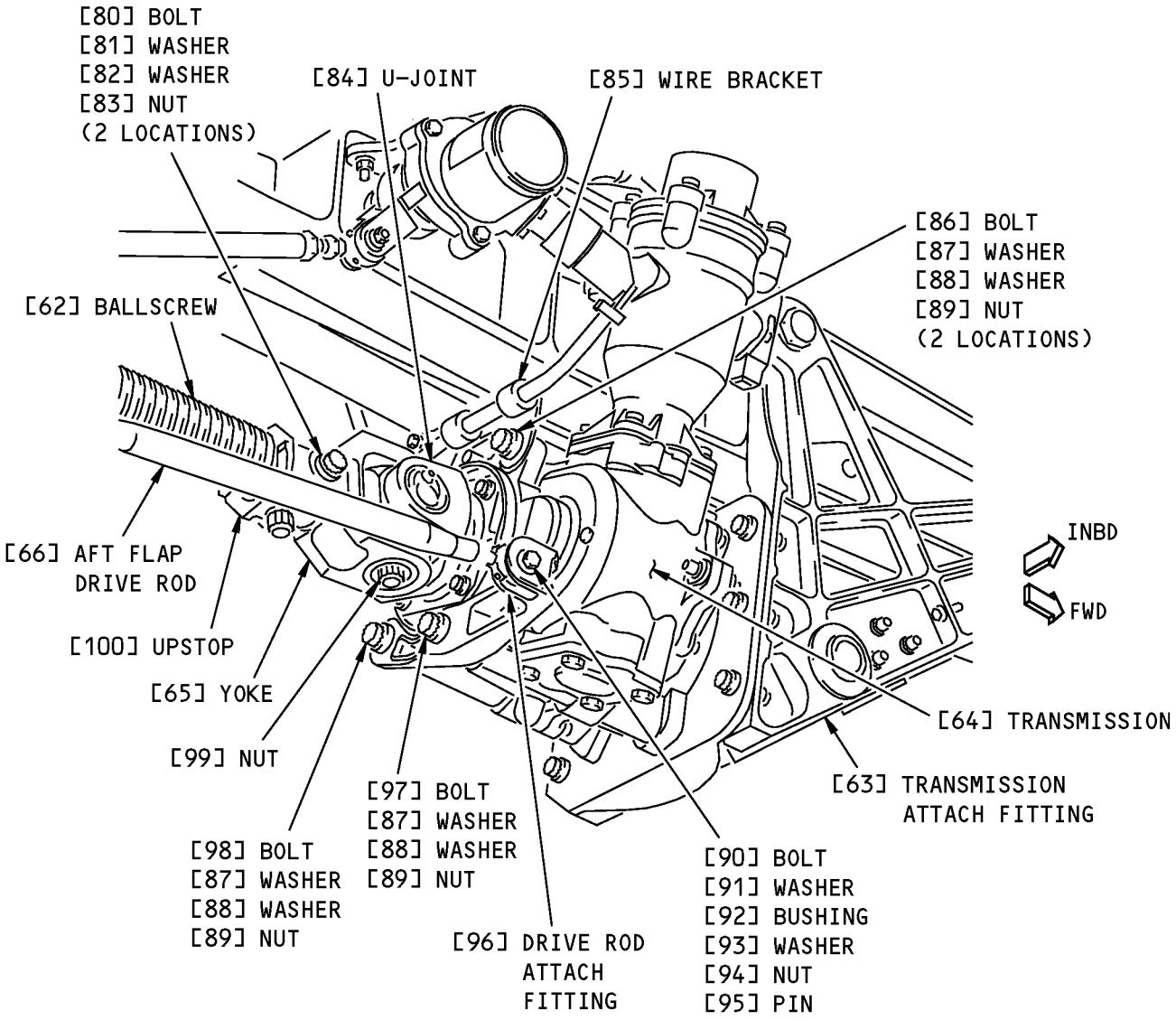

AFT FLAP DRIVE ROD ATTACH FITTING

F

Outboard Flap Inboard Transmission Installation
Figure 402 (Sheet 6 of 6)/27-51-41-990-802

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TASK 27-51-41-400-802

5. Outboard Flap Inboard Transmission Installation

(Figure 402)

A. General

(1) This task is applicable to the transmissions at flap supports No. 2 and 7.

B. References

Reference	Title
12-22-51-640-804	Outboard Flap Inboard Ballscrew and Gimbal Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-28-400-804	Outboard Flap Inboard Support Aft Fairing Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
62	Ballscrew assembly	27-51-42-02-025	HAP 001-013, 015-026, 028-030
		27-51-42-04-025	HAP 031-054, 101-999
64	Transmission assembly	27-51-41-11-120	HAP 001-013, 015-026, 028-030
		27-51-41-11-125	HAP 001-013, 015-026, 028-030
		27-51-41-13-095	HAP 031-054, 101-999
		27-51-41-13-100	HAP 031-054, 101-999
95	Pin	57-52-00-05-030	HAP 001-013, 015-026, 028-030, 048-053, 107-999

E. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
567	Left Wing - Outboard Flap
643	Right Wing - Fairing Flap Support No. 7
667	Right Wing - Outboard Flap

F. Outboard Flap Inboard Transmission Installation

SUBTASK 27-51-41-420-007

(1) Install the transmission assembly [64]:

NOTE: The transmission assembly [64] weighs approximately 50 pounds (23 kilograms).

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(a) Apply a thin layer of compound, C00913 to the mating surface of the transmission assembly [64], the transmission attach fitting [63], the drive rod attach fitting [96] and the wire bracket [85].

(b) Apply a layer of compound, C00913 to the bolt holes in the transmission assembly [64].

(c) Apply a layer of compound, C00913 to the shank and threads of the bolts [86], bolt [97] and bolt [98].

(d) Carefully lift the transmission assembly [64] to its position on the transmission attach fitting [63].

(e) Put the drive rod attach fitting [96] in its position on the transmission assembly [64] and install the bolt [97] and bolt [98] and washers [87] through the lower bolt holes.

(f) Loosely install the washers [88] and nuts [89] on the bolt [97] and bolt [98] to hold the transmission assembly [64].

(g) Put the wire bracket [85] in its position on the transmission assembly [64].

(h) Install the bolts [86], washers [87], washers [88] and nuts [89] to attach the transmission assembly [64] and the wire bracket [85].

(i) Tighten the nuts [89] to 500-550 pound-inches (56.5-62.1 newton-meters) more than the run-on torque.

SUBTASK 27-51-41-420-008

(2) Connect the ballscrew assembly [62] to the yoke [65] on the transmission assembly [64]:

(a) Turn the ballscrew nut [78] until it is at the forward end of the ballscrew assembly [62].

(b) Apply a layer of grease, D00633 to the mating surfaces of the yoke [65] and the ballscrew assembly [62].

(c) Put the ballscrew assembly [62] into the yoke [65].

(d) Apply a layer of grease, D00633 to the shank and threads of the bolts [80].

(e) Install the bolts [80], washers [81], washers [82] and nuts [83] to attach the ballscrew assembly [62] to the yoke [65].

(f) Make sure the ballscrew assembly [62] is installed correctly in the yoke [65]:

1) Turn the transmission assembly [64] until the nut [99] on the U-joint [84] is down.

2) Turn the ballscrew nut [78] until the upstop is 180° from the upstop [100] on the yoke [65].

3) If the ball returns [77] on the ballscrew nut [78] are not on the outboard side, change the position of the ballscrew assembly [62]:

a) Remove the nuts [83], washers [82], washers [81] and bolts [80] that attach the ballscrew assembly [62] to the yoke [65].

b) Turn the ballscrew assembly [62] 180° in the yoke [65].

c) Install the bolts [80], washers [81], washers [82] and nuts [83].

(g) Tighten the nuts [83] to 100-120 pound-inches (11.3-13.5 newton-meters) more than the run-on torque.

SUBTASK 27-51-41-420-009

(3) Connect the ballscrew assembly [62] with the gimbal [72] to the carriage [61]:

(a) Move the gimbal [72] aft on the ballscrew assembly [62] until it is at the downstop.

(b) On transmission No. 2, make sure the ball returns [77] on the ballscrew nut [78] are outboard and the grease vent is on the lower side.

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(c) On transmission No. 7, make sure the ball returns [77] on the ballscrew nut [78] are inboard and the grease vent is on the lower side.

NOTE: This is the preferred position for maintenance.

HAP 001-013, 015-026 PRE SB 737-57-1264

(d) Apply grease, D00633 to the inside and outside surfaces of the carriage bushing [73] and carriage bushing [79].

HAP ALL

(e) Lift the outboard flap until the carriage [61] aligns with the gimbal [72].

(f) Install the carriage bushing [73] and carriage bushing [79] to attach the gimbal [72] to the carriage [61].

(g) Install the bolts [76], washers [75] and nuts [74] to hold the carriage bushing [73] and carriage bushing [79] in the carriage [61].

(h) Tighten the nuts [74] to 65-75 pound-inches (7.4-8.4 newton-meters) more than the run on torque.

SUBTASK 27-51-41-420-010

(4) Connect the aft flap drive rod [66] to the drive rod attach fitting [96]:

(a) Put the aft flap drive rod [66] in its position in the drive rod attach fitting [96].

(b) Apply a layer of grease, D00633 to the inside of the bushing [92] and the shank of the bolt [90].

(c) Install the bushing [92], bolt [90] and washer [91] to attach the aft flap drive rod [66] to the drive rod attach fitting [96].

(d) Carefully clean the grease, D00633 from the threads of the bolt [90].

(e) Install the washer [93] and nut [94] on the bolt [90].

(f) Tighten the nut [94] to 65-100 pound-inches (7.4-11.3 newton-meters).

(g) Install the pin [95] in the nut [94].

SUBTASK 27-51-41-420-011

(5) Connect the torque tubes [68] to the transmission assembly [64]:

(a) Apply grease, D00633 to the coupling sleeves [67].

(b) Put the splined couplings [69] in the coupling sleeves [67].

(c) Install the screws [70] to attach the torque tubes [68] to the transmission assembly [64].

(d) Install lockwire on the screws [70].

SUBTASK 27-51-41-640-002

(6) Lubricate the transmission assembly [64], ballscrew assembly [62] and gimbal [72]. To lubricate them, do this task: Outboard Flap Inboard Ballscrew and Gimbal Lubrication, TASK 12-22-51-640-804.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-41-640-004

(7) Apply grease, D00633 to the end of the plunger on the torque trip indicator [71] and push it down around the sides of the plunger.

SUBTASK 27-51-41-210-004

(8) Make sure the torque trip indicator [71] on the transmission assembly [64] is set.

HAP ALL

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SUBTASK 27-51-41-820-002

(9) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-41-410-002

(1) Do this task: Outboard Flap Inboard Support Aft Fairing Installation, TASK 27-51-28-400-804.

SUBTASK 27-51-41-440-002

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-41-860-007

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-41-860-008

(4) Use the primary system to retract the flaps to the retracted position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-41-860-009

(5) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

HAP 005, 008-013, 015-026, 028-054, 101-999

SUBTASK 27-51-41-210-005

(6) Make sure the torque trip indicator [71] on the transmission assembly [64] is set.

HAP ALL

SUBTASK 27-51-41-210-006

(7) Make sure the flap position indicator on the center instrument panel shows the UP position.

SUBTASK 27-51-41-860-010

(8) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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OUTBOARD FLAP BALLSCREWS AND GIMBALS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard ballscrew and gimbal for the outboard flap

(2) An installation of the outboard ballscrew and gimbal for the outboard flap

(3) A removal of the inboard ballscrew and gimbal for the outboard flap

(4) An installation of the inboard ballscrew and gimbal for the outboard flap.

TASK 27-51-42-000-801

2. Outboard Flap Outboard Ballscrew and Gimbal Removal

(Figure 401)

A. General

(1) This task is applicable to the ballscrew and gimbal at flap supports No. 1 and 8.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-28-000-802	Outboard Flap Outboard Support Aft Fairing Removal (P/B 401)

C. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
567	Left Wing - Outboard Flap
644	Right Wing - Fairing Flap Support No. 8
667	Right Wing - Outboard Flap

D. Prepare for the Removal

SUBTASK 27-51-42-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-42-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-42-010-001

(3) Do this task: Outboard Flap Outboard Support Aft Fairing Removal, TASK 27-51-28-000-802.

E. Outboard Flap Outboard Ballscrew and Gimbal Removal

SUBTASK 27-51-42-980-001

(1) Manually extend the trailing edge flaps to the downstop on the ballscrew. To extend them, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

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SUBTASK 27-51-42-020-001

CAUTION: MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(2) Disconnect the ballscrew assembly [2] with the gimbal assembly [14] from the carriage [1]:

NOTE: When you disconnect the ballscrew assembly [2] from the carriage [1], the outboard flap can move a small distance to the downstop on the flap track.

(a) Remove the nut [8], washer [7] and bolt [6] from the carriage [1].

(b) Remove the inboard carriage bushing [9] and outboard carriage bushing [15] from the gimbal assembly [14] and the carriage [1].

(c) Move the ballscrew assembly [2] and gimbal assembly [14] away from the carriage [1].

SUBTASK 27-51-42-020-002

(3) Disconnect the ballscrew assembly [2] from the yoke [4] on the transmission [3]:

(a) Remove the nuts [19], washers [18], washers [17] and bolts [16] that attach the ballscrew assembly [2] to the yoke [4].

(b) Remove the ballscrew assembly [2] from the yoke [4].

NOTE: You can turn the ballscrew assembly [2] and the gimbal assembly [14] to get access to remove the ballscrew assembly [2].

(c) Remove the ballscrew assembly [2] with the gimbal assembly [14].

SUBTASK 27-51-42-020-003

(4) If it is necessary, remove the gimbal assembly [14] from the ballscrew nut [13]:

(a) Remove the bolts [12], washers [11] and collars [10] that attach the gimbal bushings [5] to the gimbal assembly [14].

(b) Remove the gimbal assembly [14] from the ballscrew nut [13].

END OF TASK

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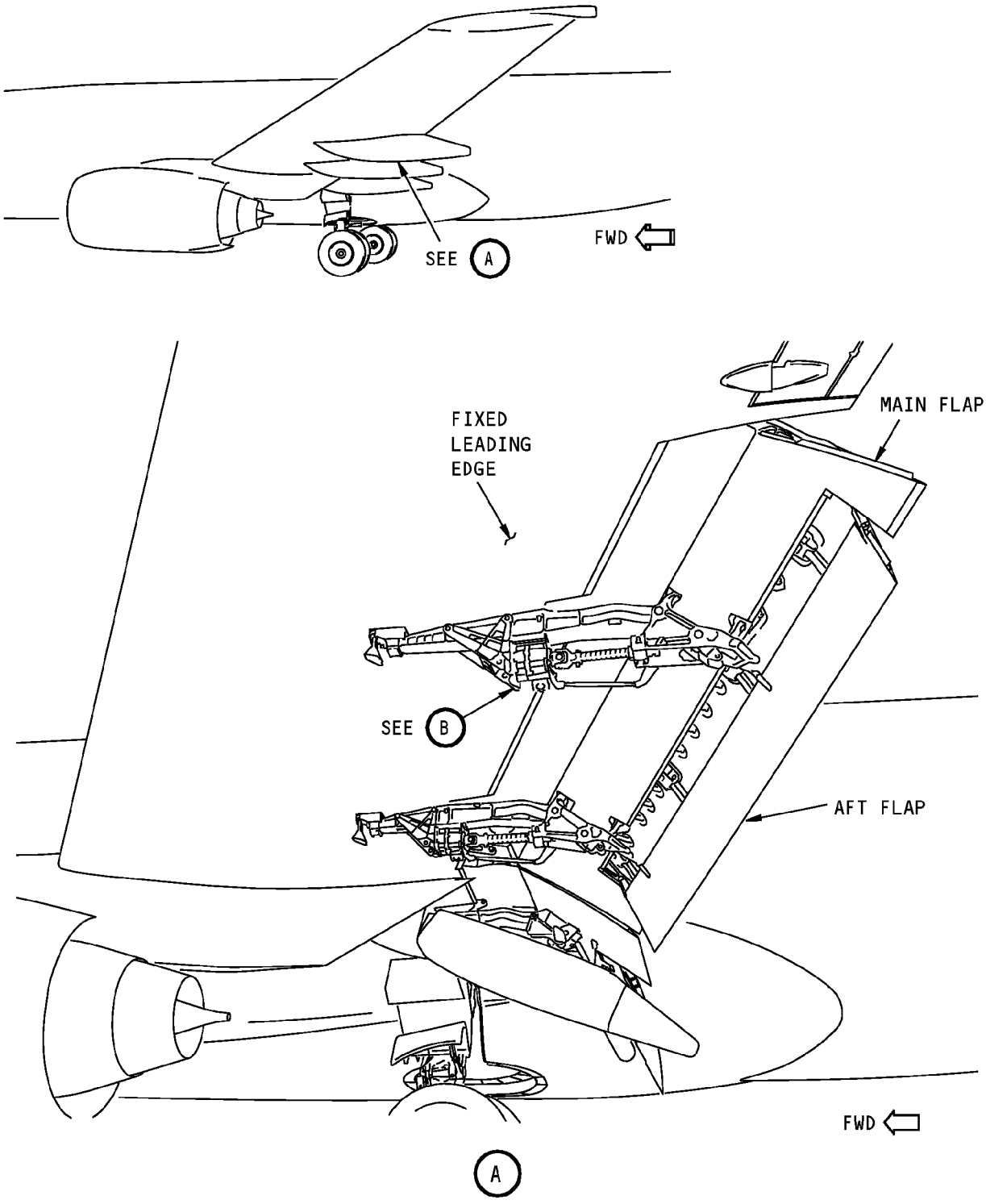

Outboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401 (Sheet 1 of 4)/27-51-42-990-801

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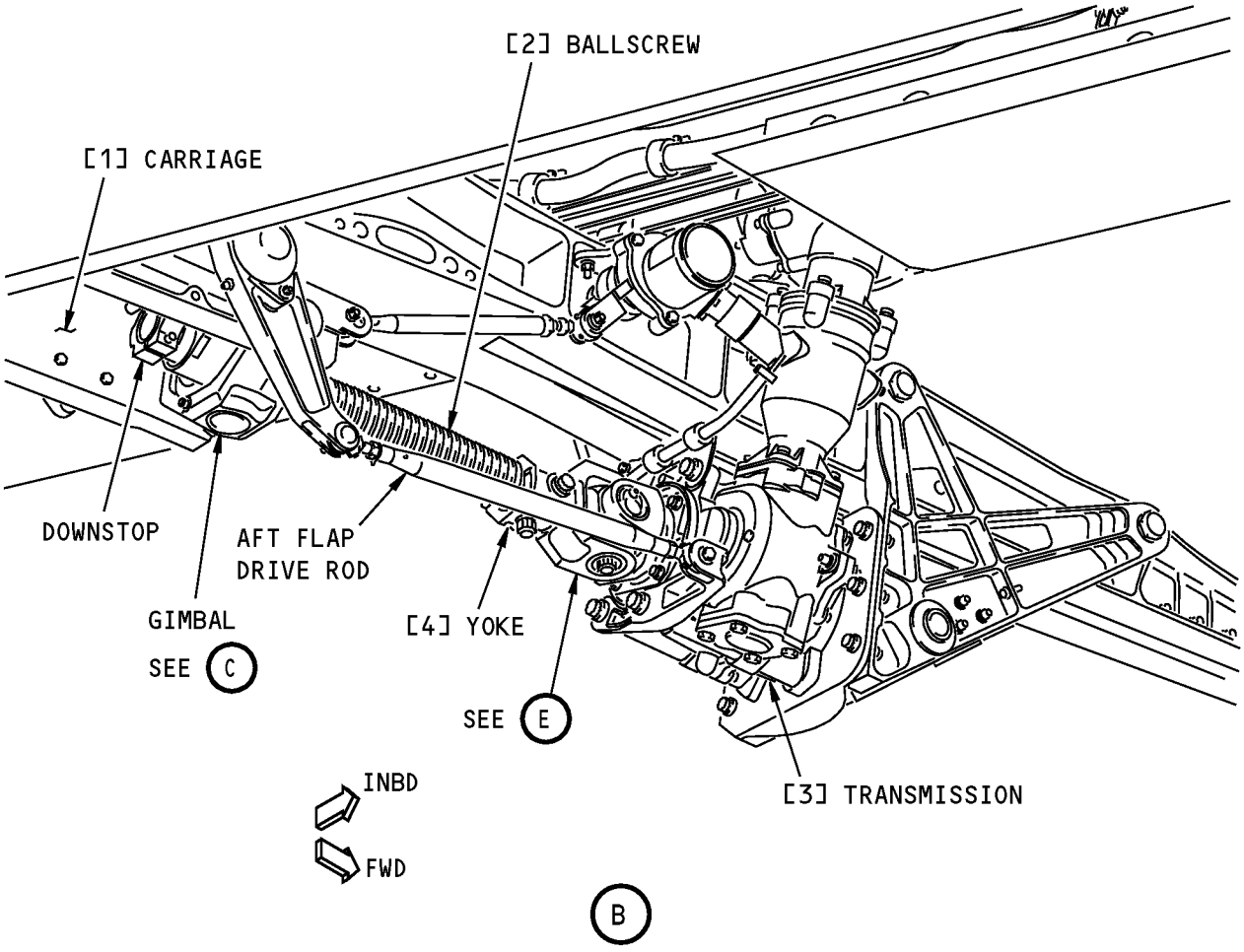

Outboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401 (Sheet 2 of 4)/27-51-42-990-801

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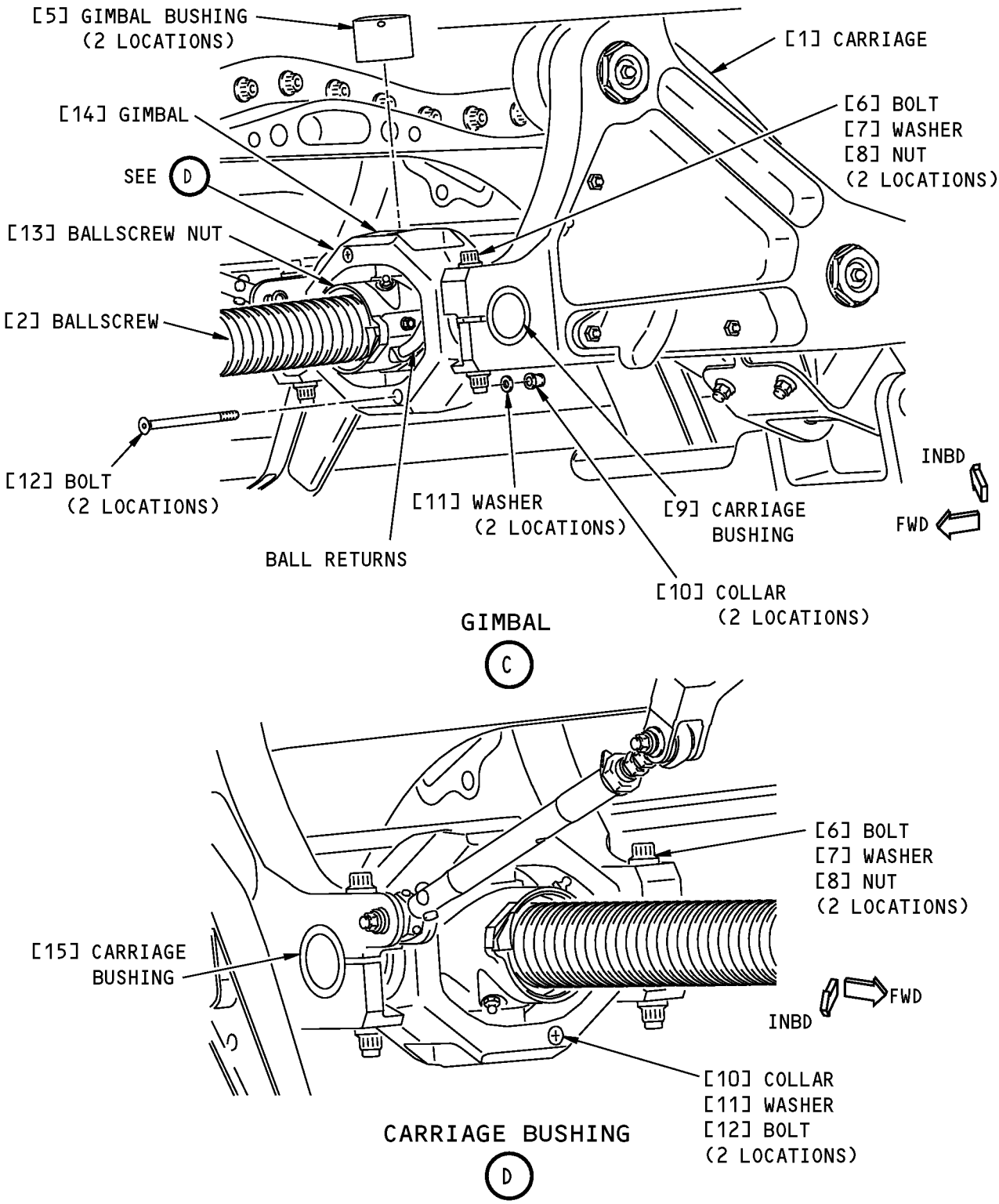

Outboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401 (Sheet 3 of 4)/27-51-42-990-801

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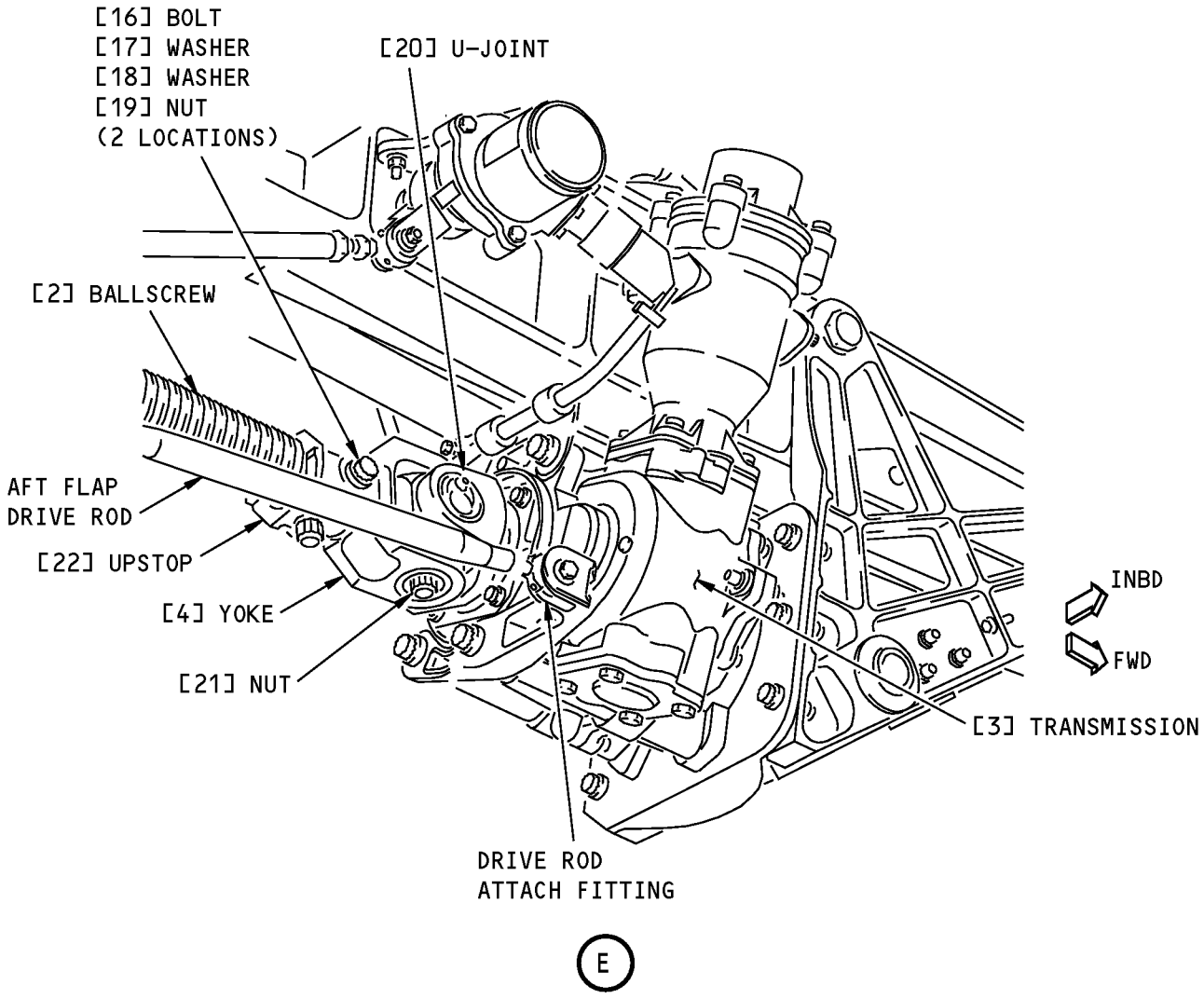

Outboard Flap Outboard Ballscrew and Gimbal Installation
Figure 401 (Sheet 4 of 4)/27-51-42-990-801

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TASK 27-51-42-400-801

3. Outboard Flap Outboard Ballscrew and Gimbal Installation

(Figure 401)

A. General

(1) This task is applicable to the ballscrew and gimbal at flap supports No. 1 and 8.

B. References

Reference	Title
12-22-51-640-805	Outboard Flap Outboard Ballscrew and Gimbal Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-28-400-802	Outboard Flap Outboard Support Aft Fairing Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Ballscrew assembly	27-51-42-01-120	HAP 001-013, 015-026, 028-030
		27-51-42-03-055	HAP 031-054, 101-999
14	Gimbal assembly	27-51-42-01-115	HAP 001-013, 015-026, 028-030
		27-51-42-03-050	HAP 031-054, 101-999

E. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
567	Left Wing - Outboard Flap
644	Right Wing - Fairing Flap Support No. 8
667	Right Wing - Outboard Flap

F. Outboard Flap Outboard Ballscrew and Gimbal Installation

SUBTASK 27-51-42-420-001

(1) If you removed it, install the gimbal assembly [14] on the ballscrew nut [13]:

(a) Apply grease, D00633 to the inside and outside mating surfaces of the gimbal bushings [5].

HAP 028-054, 101-999; HAP 001-013, 015-026 POST 737-SL-57-077

(b) Apply grease, D00633 to the outside surfaces of the gimbal bushings [5].

HAP ALL

(c) Put the gimbal assembly [14] in its location on the ballscrew nut [13].

(d) Install the gimbal bushings [5] through the gimbal assembly [14] on the ballscrew nut [13].

(e) Install the bolts [12], washers [11] and collars [10] to attach the gimbal bushings [5] to the gimbal assembly [14].

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SUBTASK 27-51-42-420-002

(2) Connect the ballscrew assembly [2] to the yoke [4] on the transmission [3]:

(a) Turn the ballscrew nut [13] until it is at the forward end of the ballscrew assembly [2].

(b) Apply a layer of grease, D00633 to the mating surfaces of the yoke [4] and the ballscrew assembly [2].

(c) Put the ballscrew assembly [2] into the yoke [4].

(d) Apply a layer of grease, D00633 to the shank and threads of the bolts [16].

(e) Install the bolts [16], washers [17], washers [18] and nuts [19] to attach the ballscrew assembly [2] to the yoke [4].

(f) Make sure the ballscrew assembly [2] is installed correctly in the yoke [4]:

1) Turn the transmission [3] until the nut [21] on the U-joint [20] is down.

2) Turn the ballscrew nut [13] until the upstop is 180° from the upstop [22] on the yoke [4].

3) If the ball returns on the ballscrew nut [13] are not on the outboard side, change the position of the ballscrew assembly [2]:

a) Remove the nuts [19], washers [18], washers [17] and bolts [16] that attach the ballscrew assembly [2] to the yoke [4].

b) Turn the ballscrew assembly [2] 180° in the yoke [4].

c) Install the bolts [16], washers [17], washers [18] and nuts [19].

(g) Tighten the nuts [19].

SUBTASK 27-51-42-420-003

(3) Connect the ballscrew assembly [2] with the gimbal assembly [14] to the carriage [1]:

(a) Move the gimbal assembly [14] aft on the ballscrew assembly [2] until it is at the downstop.

(b) On transmission No. 1, make sure the ball returns on the ballscrew nut [13] are on the outboard side.

(c) On transmission No. 8, make sure the ball returns on the ballscrew nut [13] are on the inboard side.

HAP 001-013, 015-026 PRE SB 737-57-1264

(d) Apply grease, D00633 to the inside and outside surfaces of the carriage bushing [9] and carriage bushing [15].

HAP 028-054, 101-999; HAP 001-013, 015-026 POST SB 737-57-1264

(e) Apply grease, D00633 to the outside surfaces of the carriage bushing [9] and carriage bushing [15]

HAP ALL

(f) Lift the outboard flap until the carriage [1] aligns with the gimbal assembly [14].

(g) Install the carriage bushing [9] and carriage bushing [15] to attach the gimbal assembly [14] to the carriage [1].

(h) Install the bolts [6], washers [7] and nuts [8] to hold the carriage bushing [9] and carriage bushing [15] in the carriage [1].

(i) Tighten the nuts [8] to 65-75 pound-inches (7.4-8.4 newton-meters) more than the run on torque.

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SUBTASK 27-51-42-640-001

(4) Lubricate the transmission [3], ballscrew assembly [2] and gimbal assembly [14]. To lubricate them, do this task: Outboard Flap Outboard Ballscrew and Gimbal Lubrication, TASK 12-22-51-640-805.

SUBTASK 27-51-42-820-001

(5) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-42-410-001

(1) Do this task: Outboard Flap Outboard Support Aft Fairing Installation, TASK 27-51-28-400-802.

SUBTASK 27-51-42-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-42-860-002

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-42-860-003

(4) Use the primary system to retract the flaps to the retracted position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-42-860-004

(5) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-42-860-005

(6) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

TASK 27-51-42-000-802

4. Outboard Flap Inboard Ballscrew and Gimbal Removal

(Figure 402)

A. General

(1) This task is applicable to the ballscrew and gimbal at flap supports No. 2 and 7.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-51-28-000-804	Outboard Flap Inboard Support Aft Fairing Removal (P/B 401)

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C. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
567	Left Wing - Outboard Flap
643	Right Wing - Fairing Flap Support No. 7
667	Right Wing - Outboard Flap

D. Prepare for the Removal

SUBTASK 27-51-42-860-006

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-42-040-002

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-42-010-002

(3) Do this task: Outboard Flap Inboard Support Aft Fairing Removal, TASK 27-51-28-000-804.

E. Outboard Flap Inboard Ballscrew and Gimbal Removal

SUBTASK 27-51-42-980-002

(1) Manually extend the trailing edge flaps to the downstop on the ballscrew. To extend them, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-42-020-004

CAUTION: MAKE SURE YOU HOLD THE BALLSCREW WHILE YOU DISCONNECT IT. IF YOU LET THE U-JOINT HOLD THE BALLSCREW, YOU WILL CAUSE DAMAGE TO THE U-JOINT.

(2) Disconnect the ballscrew assembly [42] with the gimbal [54] from the carriage [41]:

NOTE: When you disconnect the ballscrew assembly [42] from the carriage [41], the outboard flap can move a small distance to the downstop on the flap track.

(a) Remove the nut [48], washer [47] and bolt [46] from the carriage [41].

(b) Remove the inboard carriage bushing [49] and outboard carriage bushing [55] from the gimbal [54] and the carriage [41].

(c) Move the ballscrew assembly [42] and gimbal [54] away from the carriage [41].

SUBTASK 27-51-42-020-005

(3) Disconnect the ballscrew assembly [42] from the yoke [44] on the transmission [43]:

(a) Remove the nuts [59], washers [58], washers [57] and bolts [56] that attach the ballscrew assembly [42] to the yoke [44].

(b) Remove the ballscrew assembly [42] from the yoke [44].

NOTE: You can turn the ballscrew assembly [42] and the gimbal [54] to get access to remove the ballscrew assembly [42].

(c) Remove the ballscrew assembly [42] with the gimbal [54].

SUBTASK 27-51-42-020-006

(4) If it is necessary, remove the gimbal [54] from the ballscrew nut [53]:

(a) Remove the bolts [52], washers [51] and collars [50] that attach the gimbal bushings [45] to the gimbal [54].

(b) Remove the gimbal bushings [45] from the ballscrew nut [53].

END OF TASK

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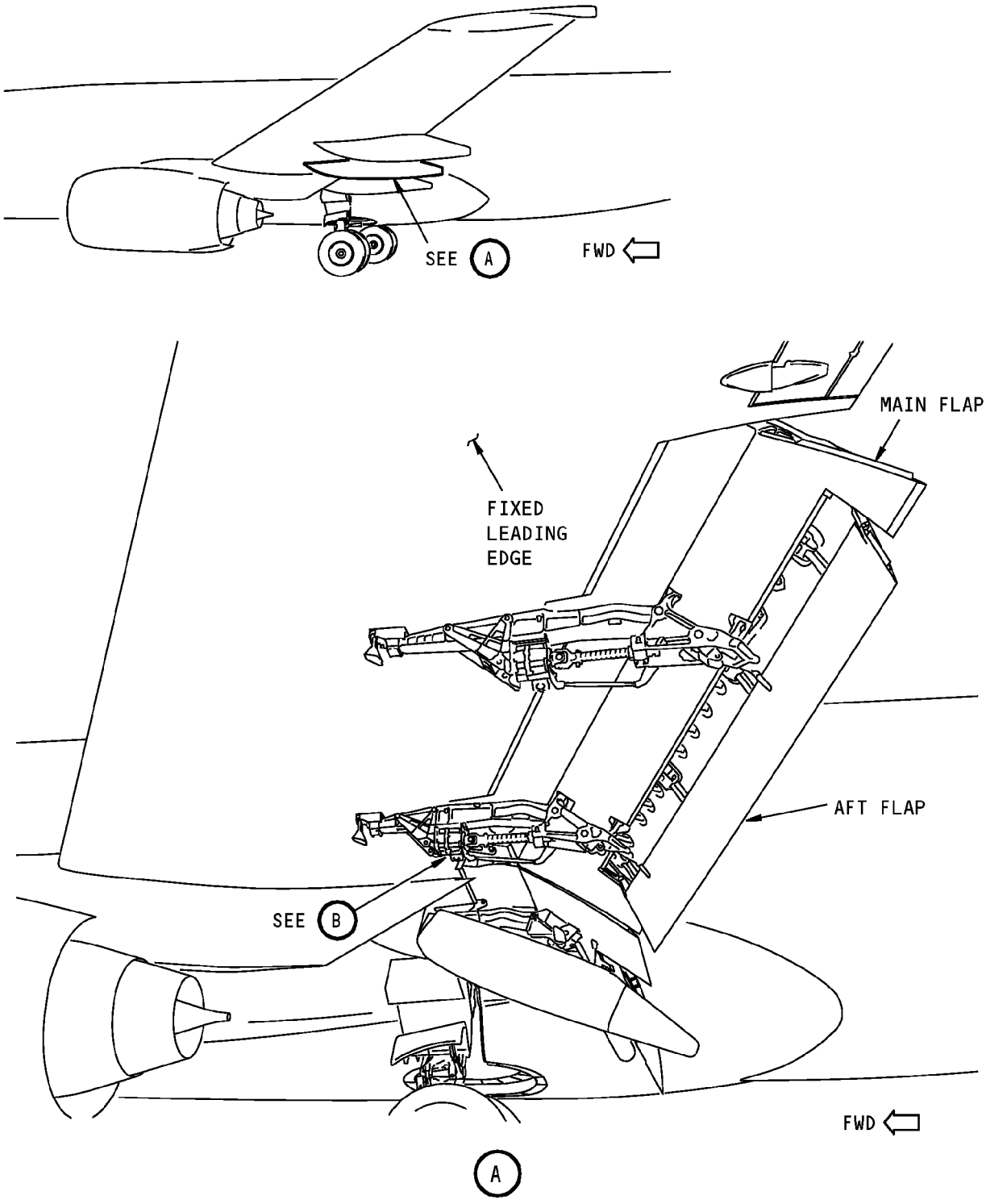

Outboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402 (Sheet 1 of 4)/27-51-42-990-802

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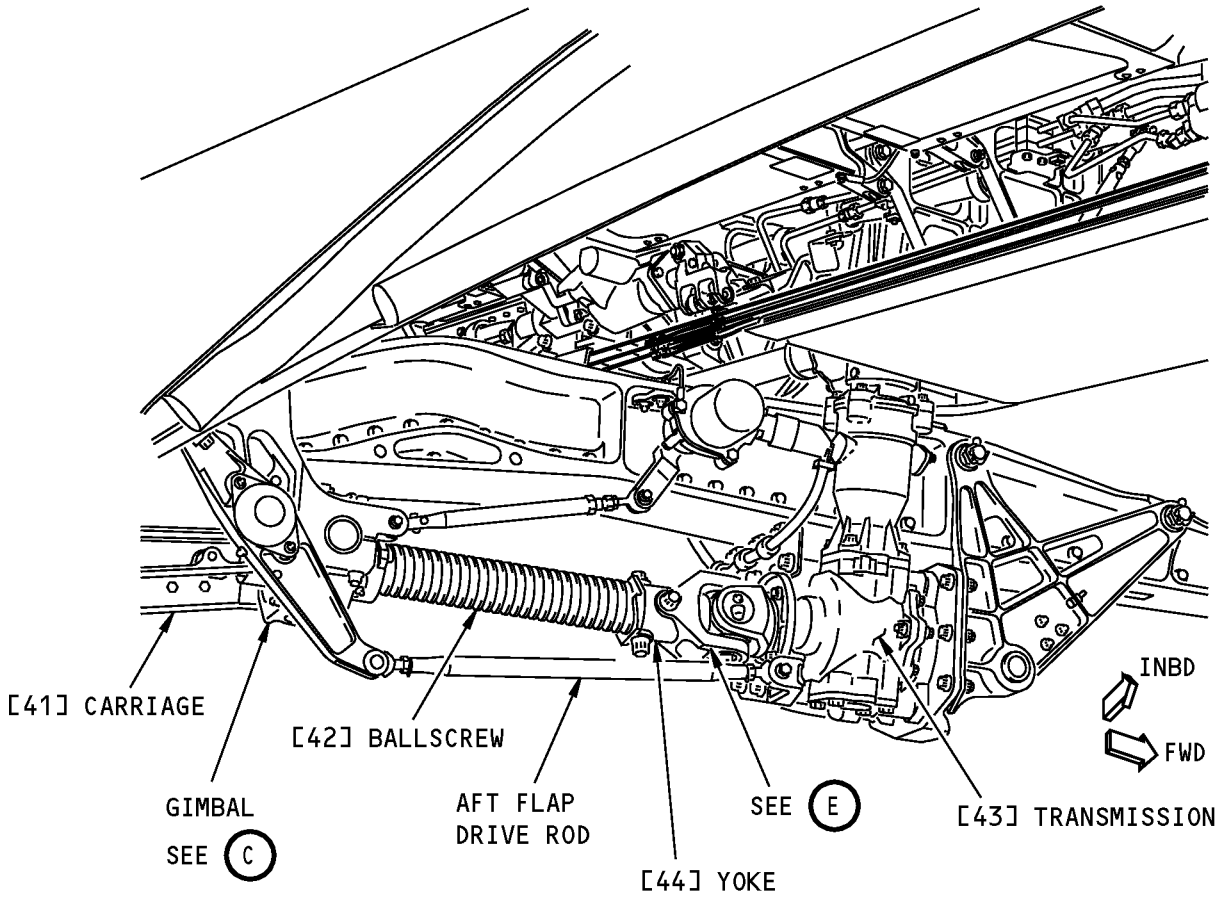

Outboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402 (Sheet 2 of 4)/27-51-42-990-802

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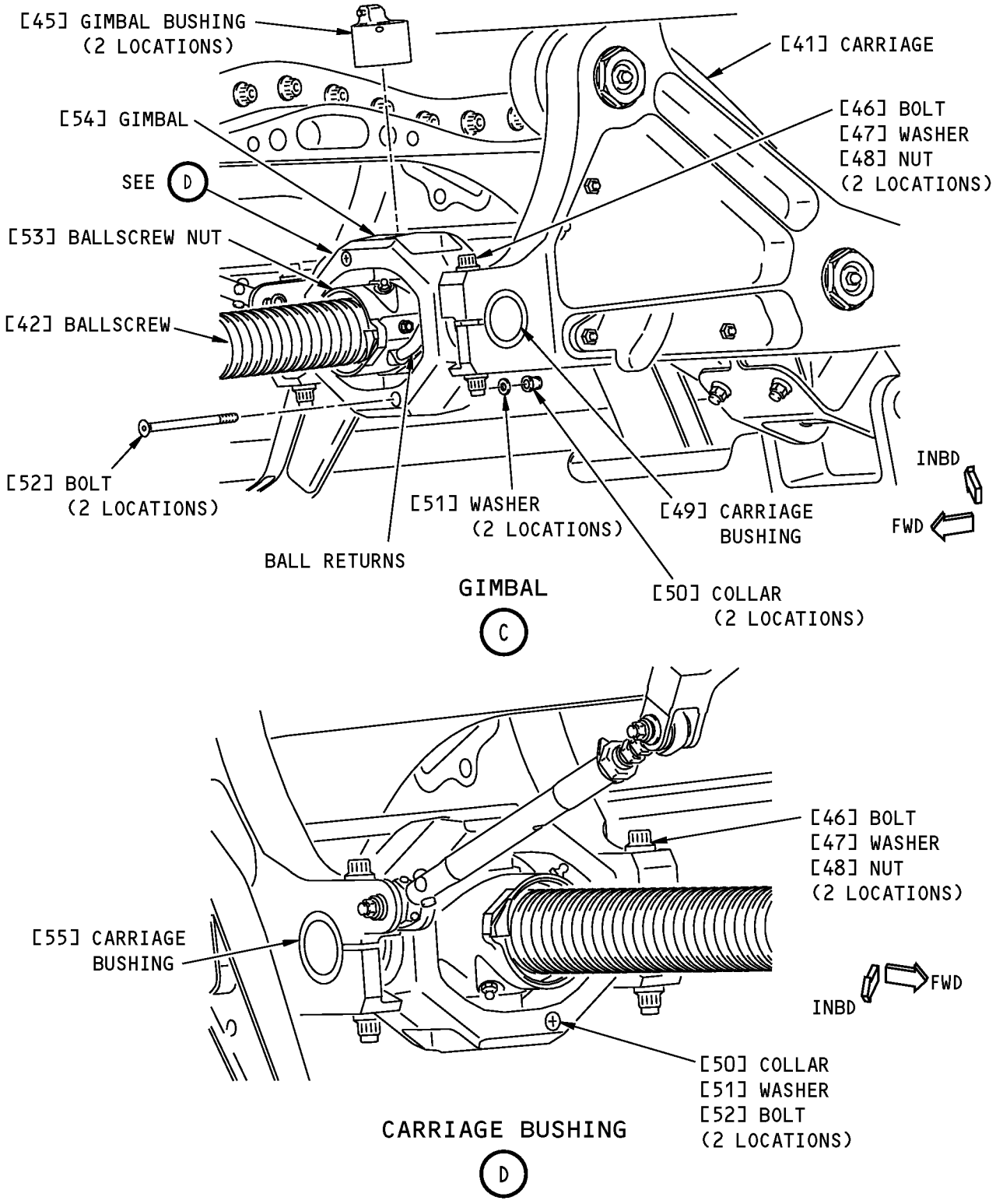

Outboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402 (Sheet 3 of 4)/27-51-42-990-802

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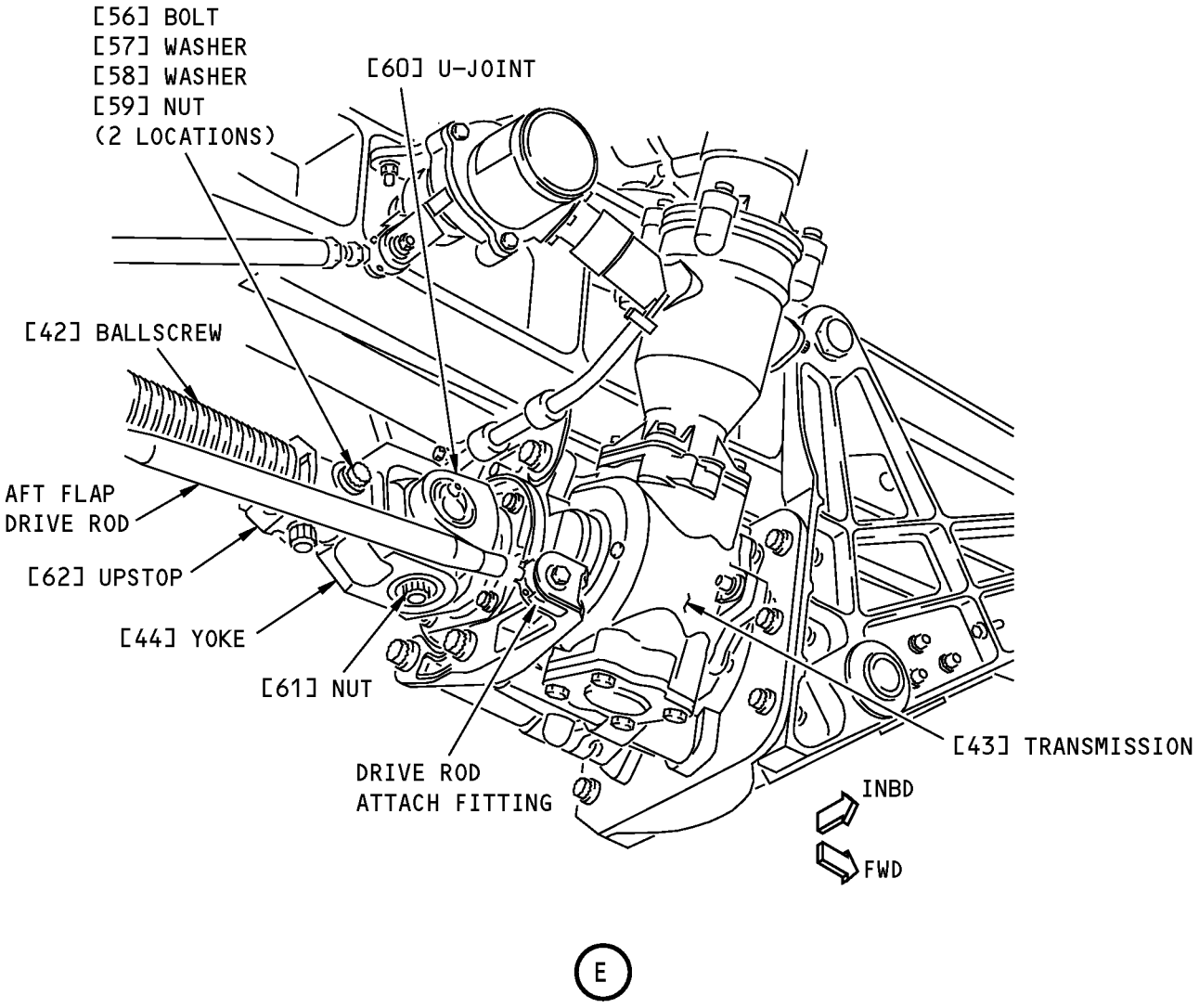

Outboard Flap Inboard Ballscrew and Gimbal Installation
Figure 402 (Sheet 4 of 4)/27-51-42-990-802

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TASK 27-51-42-400-802

5. Outboard Flap Inboard Ballscrew and Gimbal Installation

(Figure 402)

A. General

(1) This task is applicable to the ballscrew and gimbal at flap supports No. 2 and 7.

B. References

Reference	Title
12-22-51-640-804	Outboard Flap Inboard Ballscrew and Gimbal Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-28-400-804	Outboard Flap Inboard Support Aft Fairing Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
42	Ballscrew assembly	27-51-42-02-025	HAP 001-013, 015-026, 028-030
		27-51-42-04-025	HAP 031-054, 101-999
50	Collar	27-51-42-02-020	HAP 001-013, 015-026, 028-030
		27-51-42-04-020	HAP 031-054, 101-999
54	Gimbal	27-51-42-02-050	HAP 001-013, 015-026, 028-030
		27-51-42-04-050	HAP 031-054, 101-999

E. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
567	Left Wing - Outboard Flap
643	Right Wing - Fairing Flap Support No. 7
667	Right Wing - Outboard Flap

F. Outboard Flap Inboard Ballscrew and Gimbal Installation

SUBTASK 27-51-42-420-004

(1) If you removed it, install the gimbal [54] on the ballscrew nut [53]:

(a)

Apply grease, D00633 to the inside and outside mating surfaces of the gimbal bushings [45].

HAP 028-054, 101-999; HAP 001-013, 015-026 POST 737-SL-57-077

(b) Apply grease, D00633 to the outside surfaces of the gimbal bushing [45].

HAP ALL

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(c) Put the gimbal [54] in its location on the ballscrew nut [53].

(d) Install the gimbal bushings [45] through the gimbal [54] on the ballscrew nut [53].

(e) Install the bolts [52], washers [51] and collars [50] to attach the gimbal bushings [45] to the gimbal [54].

SUBTASK 27-51-42-420-005

(2) Connect the ballscrew assembly [42] to the yoke [44] on the transmission [43]:

(a) Turn the ballscrew nut [53] until it is at the forward end of the ballscrew assembly [42].

(b) Apply a layer of grease, D00633 to the mating surfaces of the yoke [44] and the ballscrew assembly [42].

(c) Put the ballscrew assembly [42] into the yoke [44].

(d) Apply a layer of grease, D00633 to the shank and threads of the bolts [56].

(e) Install the bolts [56], washers [57], washers [58] and nuts [59] to attach the ballscrew assembly [42] to the yoke [44].

(f) Make sure the ballscrew assembly [42] is installed correctly in the yoke [44]:

1) Turn the transmission [43] until the nut [61] on the U-joint [60] is down.

2) Turn the ballscrew nut [53] until the upstop is 180° from the upstop [62] on the yoke [44].

3) If the ball returns on the ballscrew nut [53] are not on the outboard side, change the position of the ballscrew assembly [42]:

a) Remove the nuts [59], washers [58], washers [57] and bolts [56] that attach the ballscrew assembly [42] to the yoke [44].

b) Turn the ballscrew assembly [42] 180° in the yoke [44].

c) Install the bolts [56], washers [57], washers [58] and nuts [59].

(g) Tighten the nuts [59].

SUBTASK 27-51-42-420-006

(3) Connect the ballscrew assembly [42] with the gimbal [54] to the carriage [41]:

(a) Move the gimbal [54] aft on the ballscrew assembly [42] until it is at the downstop.

(b) On transmission No. 2, make sure the ball returns on the ballscrew nut [53] are on the outboard side.

(c) On transmission No. 7, make sure the ball returns on the ballscrew nut [53] are on the inboard side.

HAP 001-013, 015-026 PRE SB 737-57-1264

(d) Apply grease, D00633 to the inside and outside surfaces of the carriage bushing [49] and carriage bushing [55].

HAP 028-054, 101-999; HAP 001-013, 015-026 POST SB 737-57-1264

(e) Apply grease, D00633 to the outside surfaces of the carriage bushing [49] and carriage bushing [55].

HAP ALL

(f) Lift the outboard flap until the carriage [41] aligns with the gimbal [54].

(g) Install the carriage bushing [49] and carriage bushing [55] to attach the gimbal [54] to the carriage [41].

(h) Install the bolts [46], washers [47] and nuts [48] to hold the carriage bushing [49] and carriage bushing [55] in the carriage [41].

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(i) Tighten the nuts [48] to 65-75 pound-inches (7.4-8.4 newton-meters) more than the run on torque.

SUBTASK 27-51-42-640-002

(4) Lubricate the transmission [43], ballscrew assembly [42] and gimbal [54]. To lubricate them, do this task: Outboard Flap Inboard Ballscrew and Gimbal Lubrication, TASK 12-22-51-640-804.

SUBTASK 27-51-42-820-002

(5) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-42-410-002

(1) Do this task: Outboard Flap Inboard Support Aft Fairing Installation, TASK 27-51-28-400-804.

SUBTASK 27-51-42-440-002

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-42-860-007

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-42-860-008

(4) Use the primary system to retract the flaps to the retracted position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-42-860-009

(5) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-42-860-010

(6) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK

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OUTBOARD FLAP BALLSCREWS AND GIMBALS - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A check of the backlash in the outboard ballscrew on the outboard flap

(2) A check of the backlash in the inboard ballscrew on the outboard flap

TASK 27-51-42-220-801

2. Outboard Flap Outboard Ballscrew Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This task is applicable to the ballscrew and ballscrew nut at flap supports No. 1 and 8.

(3) There are two methods that you can use to apply a load to the ballscrew nut to measure the movement on the ballscrew. This procedure gives instructions for each method.

(a) You can push up on the trailing edge of the flap to apply the load.

(b) You can use the lever and clamp tool to apply the load to the ballscrew nut.

(4) It is not necessary to use the two methods to apply the load.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-000-802	Outboard Flap Outboard Support Aft Fairing Removal (P/B 401)
27-51-28-400-802	Outboard Flap Outboard Support Aft Fairing Installation (P/B 401)
27-51-42-000-801	Outboard Flap Outboard Ballscrew and Gimbal Removal (P/B 401)
27-51-42-400-801	Outboard Flap Outboard Ballscrew and Gimbal Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1753	Equipment - Test, Flap Screw Backlash - 777 / 737-600/700/800/900 (Part #: C27030-49, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
567	Left Wing - Outboard Flap
644	Right Wing - Fairing Flap Support No. 8
667	Right Wing - Outboard Flap

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E. Prepare for the Inspection

SUBTASK 27-51-42-860-011

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-42-040-003

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

F. Outboard Flap Outboard Ballscrew Backlash Check Without the Lever and Clamp Tool

NOTE: With this method, you manually push on the trailing edge of the flap to apply the load to the ballscrew nut.

SUBTASK 27-51-42-480-001

(1) Install the dial indicator assembly on the ballscrew:

NOTE: The dial indicator assembly is a part of the tester, SPL-1753.

(a) Put the dial indicator assembly on the ballscrew.

NOTE: Make sure the pointer touches the forward end of the ballscrew nut.

(b) Put the strap around the ballscrew to help hold the dial indicator assembly on the ballscrew.

(c) Adjust the dial indicator to zero.

SUBTASK 27-51-42-220-001

(2) Measure the backlash of the ballscrew and ballscrew nut:

(a) Push up on the outboard trailing edge of the outboard flap.

NOTE: This will apply a load to the ballscrew nut, and move it forward on the ballscrew.

(b) Use the dial indicator to measure the movement of the ballscrew nut.

NOTE: The movement of the ballscrew nut is the backlash.

(c) Do these steps a total of five times to make sure the movement of the dial indicator is repeatable.

SUBTASK 27-51-42-960-001

(3) If the backlash is more than 0.0073 inch (0.185 millimeter), then replace the ballscrew assembly.

These are the tasks:

Outboard Flap Outboard Ballscrew and Gimbal Removal, TASK 27-51-42-000-801,

Outboard Flap Outboard Ballscrew and Gimbal Installation, TASK 27-51-42-400-801.

SUBTASK 27-51-42-080-001

(4) Remove the dial indicator assembly from the ballscrew.

SUBTASK 27-51-42-440-003

(5) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-42-860-012

(6) Retract the trailing edge flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

G. Outboard Flap Outboard Ballscrew Backlash Check With the Lever and Clamp Tool

NOTE: With this method, you use the lever and clamp tool to apply the load to the ballscrew nut.

SUBTASK 27-51-42-010-003

(1) Do this task: Outboard Flap Outboard Support Aft Fairing Removal, TASK 27-51-28-000-802.

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SUBTASK 27-51-42-440-004

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-42-860-013

(3) Retract the trailing edge flaps to the 15-unit position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-42-040-004

(4) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-42-480-002

(5) Install the lever and clamp tool on the ballscrew:

NOTE: The lever and clamp tool is a part of the tester, SPL-1753.

(a) Put the lever and clamp tool in its position on the ballscrew aft of the ballscrew nut.

NOTE: Make sure the load surfaces of the lever and clamp tool touch the aft side of the ballscrew nut.

(b) Tighten the clamp-up bolt to 200-300 pound-inches (22.6-33.8 newton-meters).

NOTE: Make sure the handles of the lever and clamp tool are in the relaxed position.

SUBTASK 27-51-42-480-003

(6) Install the dial indicator assembly on the ballscrew:

NOTE: The dial indicator assembly is a part of the tester, SPL-1753.

(a) Put the dial indicator assembly on the ballscrew.

NOTE: Make sure the pointer touches the forward end of the ballscrew nut.

(b) Put the strap around the ballscrew to help hold the dial indicator assembly on the ballscrew.

(c) Adjust the dial indicator to zero.

SUBTASK 27-51-42-220-002

(7) Measure the backlash of the ballscrew and ballscrew nut:

(a) Move the handles of the lever and clamp tool together until the dial indicator stops.

NOTE: This will apply a load to the ballscrew nut, and move it forward on the ballscrew.

(b) Use the dial indicator to measure the movement of the ballscrew nut.

NOTE: The movement of the ballscrew nut is the backlash.

(c) Do these steps a total of five times to make sure the movement of the dial indicator is repeatable.

SUBTASK 27-51-42-960-002

(8) If the backlash is more than 0.0073 inch (0.185 millimeter), then replace the ballscrew assembly.

These are the tasks:

Outboard Flap Outboard Ballscrew and Gimbal Removal, TASK 27-51-42-000-801,

Outboard Flap Outboard Ballscrew and Gimbal Installation, TASK 27-51-42-400-801.

SUBTASK 27-51-42-080-002

(9) Remove the dial indicator assembly and the lever and clamp tool from the ballscrew.

SUBTASK 27-51-42-410-003

(10) Do this task: Outboard Flap Outboard Support Aft Fairing Installation, TASK 27-51-28-400-802.

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SUBTASK 27-51-42-440-005

(11) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-42-860-014

(12) Retract the trailing edge flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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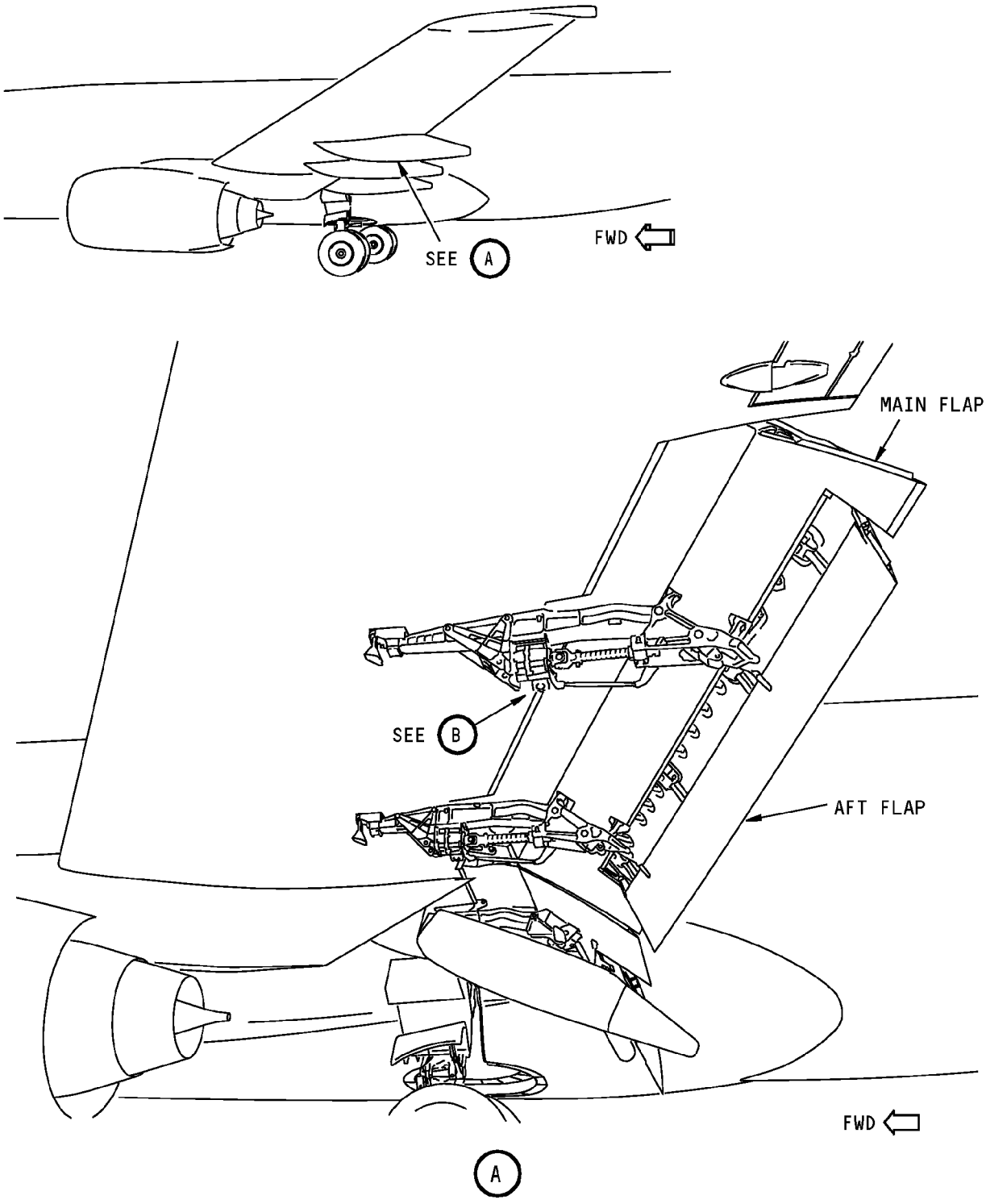

Outboard Flap Ballscrew and Gimbal Inspection
Figure 601 (Sheet 1 of 2)/27-51-42-990-803

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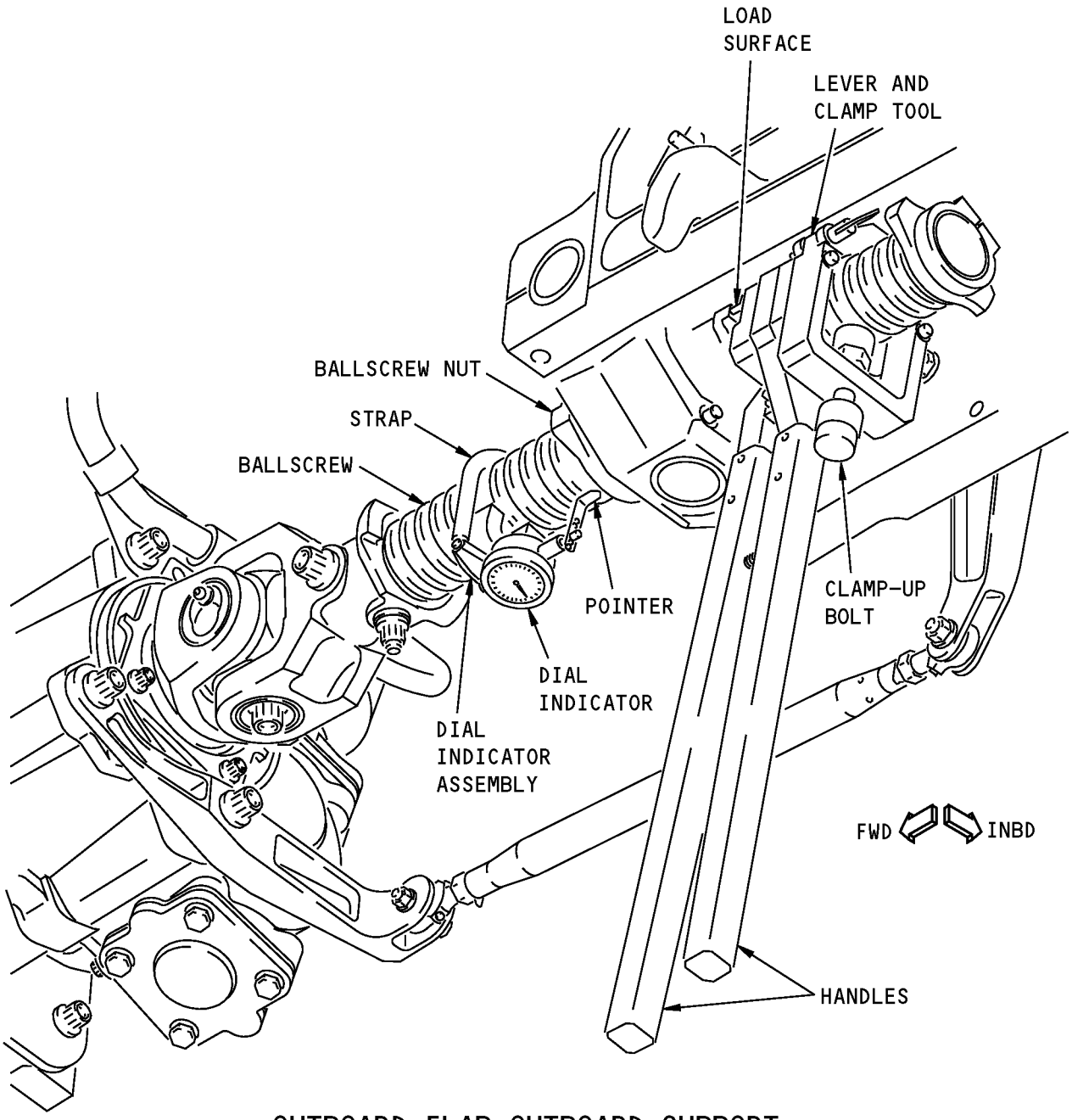

OUTBOARD FLAP OUTBOARD SUPPORT
(OUTBOARD FLAP INBOARD SUPPORT EQUIVALENT)

B

Outboard Flap Ballscrew and Gimbal Inspection
Figure 601 (Sheet 2 of 2)/27-51-42-990-803

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TASK 27-51-42-220-802

3. Outboard Flap Inboard Ballscrew Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This task is applicable to the ballscrew and ballscrew nut at flap supports No. 2 and 7.

(3) There are two methods that you can use to apply a load to the ballscrew nut to measure the movement on the ballscrew. This procedure gives instructions for each method.

(a) You can push up on the trailing edge of the flap to apply the load.

(b) You can use the lever and clamp tool to apply the load to the ballscrew nut.

(4) It is not necessary to use the two methods to apply the load.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-28-000-804	Outboard Flap Inboard Support Aft Fairing Removal (P/B 401)
27-51-28-400-804	Outboard Flap Inboard Support Aft Fairing Installation (P/B 401)
27-51-42-000-802	Outboard Flap Inboard Ballscrew and Gimbal Removal (P/B 401)
27-51-42-400-802	Outboard Flap Inboard Ballscrew and Gimbal Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1753	Equipment - Test, Flap Screw Backlash - 777 / 737-600/700/800/900 (Part #: C27030-49, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
567	Left Wing - Outboard Flap
643	Right Wing - Fairing Flap Support No. 7
667	Right Wing - Outboard Flap

E. Prepare for the Inspection

SUBTASK 27-51-42-860-015

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-42-040-005

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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F. Outboard Flap Inboard Ballscrew Backlash Check Without the Lever and Clamp Tool

NOTE: With this method, you manually push on the trailing edge of the flap to apply the load to the ballscrew nut.

SUBTASK 27-51-42-480-004

(1) Install the dial indicator assembly on the ballscrew:

NOTE: The dial indicator assembly is a part of the tester, SPL-1753.

(a) Put the dial indicator assembly on the ballscrew.

NOTE: Make sure the pointer touches the forward end of the ballscrew nut.

(b) Put the strap around the ballscrew to help hold the dial indicator assembly on the ballscrew.

(c) Adjust the dial indicator to zero.

SUBTASK 27-51-42-220-003

(2) Measure the backlash of the ballscrew and ballscrew nut:

(a) Push up on the outboard trailing edge of the outboard flap.

NOTE: This will apply a load to the ballscrew nut, and move it forward on the ballscrew.

(b) Use the dial indicator to measure the movement of the ballscrew nut.

NOTE: The movement of the ballscrew nut is the backlash.

(c) Do these steps a total of five times to make sure the movement of the dial indicator is repeatable.

SUBTASK 27-51-42-960-003

(3) If the backlash is more than 0.0073 inch (0.185 millimeter), then replace the ballscrew assembly.

These are the tasks:

Outboard Flap Inboard Ballscrew and Gimbal Removal, TASK 27-51-42-000-802,

Outboard Flap Inboard Ballscrew and Gimbal Installation, TASK 27-51-42-400-802.

SUBTASK 27-51-42-080-003

(4) Remove the dial indicator assembly from the ballscrew.

SUBTASK 27-51-42-440-006

(5) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-42-860-016

(6) Retract the trailing edge flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

G. Outboard Flap Inboard Ballscrew Backlash Check With the Lever and Clamp Tool

NOTE: With this method, you use the lever and clamp tool to apply the load to the ballscrew nut.

SUBTASK 27-51-42-010-004

(1) Do this task: Outboard Flap Inboard Support Aft Fairing Removal, TASK 27-51-28-000-804.

SUBTASK 27-51-42-860-017

(2) Retract the trailing edge flaps to the 15-unit position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-42-040-006

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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SUBTASK 27-51-42-480-005

(4) Install the lever and clamp tool on the ballscrew:

NOTE: The lever and clamp tool is a part of the tester, SPL-1753.

(a) Put the lever and clamp tool in its position on the ballscrew aft of the ballscrew nut.

NOTE: Make sure the load surfaces of the lever and clamp tool touch the aft side of the ballscrew nut.

(b) Tighten the clamp-up bolt to 200-300 pound-inches (22.6-33.8 newton-meters).

NOTE: Make sure the handles of the lever and clamp tool are in the relaxed position.

SUBTASK 27-51-42-480-006

(5) Install the dial indicator assembly on the ballscrew:

NOTE: The dial indicator assembly is a part of the tester, SPL-1753.

(a) Put the dial indicator assembly on the ballscrew.

NOTE: Make sure the pointer touches the forward end of the ballscrew nut.

(b) Put the strap around the ballscrew to help hold the dial indicator assembly on the ballscrew.

(c) Adjust the dial indicator to zero.

SUBTASK 27-51-42-220-004

(6) Measure the backlash of the ballscrew and ballscrew nut:

(a) Move the handles of the lever and clamp tool together until the dial indicator stops.

NOTE: This will apply a load to the ballscrew nut, and move it forward on the ballscrew.

(b) Use the dial indicator to measure the movement of the ballscrew nut.

NOTE: The movement of the ballscrew nut is the backlash.

(c) Do these steps a total of five times to make sure the movement of the dial indicator is repeatable.

SUBTASK 27-51-42-960-004

(7) If the backlash is more than 0.0073 inch (0.185 millimeter), then replace the ballscrew assembly.

These are the tasks:

Outboard Flap Inboard Ballscrew and Gimbal Removal, TASK 27-51-42-000-802,

Outboard Flap Inboard Ballscrew and Gimbal Installation, TASK 27-51-42-400-802.

SUBTASK 27-51-42-080-004

(8) Remove the dial indicator assembly and the lever and clamp tool from the ballscrew.

SUBTASK 27-51-42-410-004

(9) Do this task: Outboard Flap Inboard Support Aft Fairing Installation, TASK 27-51-28-400-804.

SUBTASK 27-51-42-440-007

(10) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-42-860-018

(11) Retract the trailing edge flaps to the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

END OF TASK

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FLAP POWER DRIVE UNIT (PDU) - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap power drive unit (PDU)

(2) An installation of the flap power drive unit (PDU)

(3) A replacement of the shearout for the manual drive on the flap power drive unit (PDU).

(4) A removal of the hydraulic and electric motor seals from the flap power drive unit (PDU).

(5) An installation of the hydraulic and electric motor seals from the flap power drive unit (PDU).

TASK 27-51-51-000-801

2. Flap Power Drive Unit (PDU) Removal

(Figure 401)

A. General

(1) You can remove and install the flap power drive unit with the hydraulic and electric motors either removed or installed. This procedure covers the PDU removal with the hydraulic and electric motors installed.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Removal

SUBTASK 27-51-51-860-001

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

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SUBTASK 27-51-51-480-003

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-51-040-001

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-51-860-002

(4) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

F. Flap Power Drive Unit Removal

SUBTASK 27-51-51-860-003

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-51-51-020-001

(2) Disconnect the electrical connector [18] from the electric motor [19].

SUBTASK 27-51-51-020-002

(3) Disconnect the three hydraulic lines [1] and the case drain line [20] from the hydraulic motor [22]:

(a) Disconnect the hydraulic lines [1].

(b) Install caps on the hydraulic lines [1].

(c) Disconnect the case drain line [20].

(d) Install a cap on the case drain line [20].

(e) Install plugs in the ports on the hydraulic motor [22].

SUBTASK 27-51-51-020-003

(4) Remove the nut [17], washer [16] and screw [15] that attach the jumper wire [13] to the electrical connector [18].

SUBTASK 27-51-51-010-001

(5) Remove the lower pan [25] from the flap control unit [23]:

(a) Remove the screws [24] that attach the lower pan [25] to the flap control unit [23].

(b) Remove the lower pan [25].

SUBTASK 27-51-51-480-001

(6) Install the rig pin kit, SPL-1585, flap actuator rig pin, through the cam follower arm [27] and the valve cam [26].

SUBTASK 27-51-51-480-002

(7) Install the clamp set, SPL-1726 on the torque tubes [12] on both sides of the power drive unit [21].

SUBTASK 27-51-51-020-004

(8) Disconnect the torque tubes [12] from the power drive unit [21]:

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(a) Remove the screws [35] that attach the coupling sleeves [36] to the splined couplings [37] on the torque tubes [12].

(b) Move the coupling sleeves [36] off the splined couplings [37].

SUBTASK 27-51-51-020-005

(9) Disconnect the cables [6] from the cables [2] on the flap control unit [23]:

NOTE: The lower cables are WFFA and the upper cables are WFFB.

(a) Install a label on the cables [2] to identify them.

(b) Remove the clips [3] from the turnbuckles [4].

(c) Disconnect the turnbuckles [4].

SUBTASK 27-51-51-020-006

(10) Remove the power drive unit [21]:

(a) Remove the nuts [10], washers [9], washers [8], bolts [14] and bolt [7] attach the power drive unit [21] to the structure.

(b) Remove the power drive unit [21].

SUBTASK 27-51-51-020-007

(11) If it is necessary, remove the cables [6] from the power drive unit [21]:

(a) Remove the pins [33] that attach the cable [6] to the cable drum [34].

(b) Remove the cables [6] from the cable drum [34].

END OF TASK

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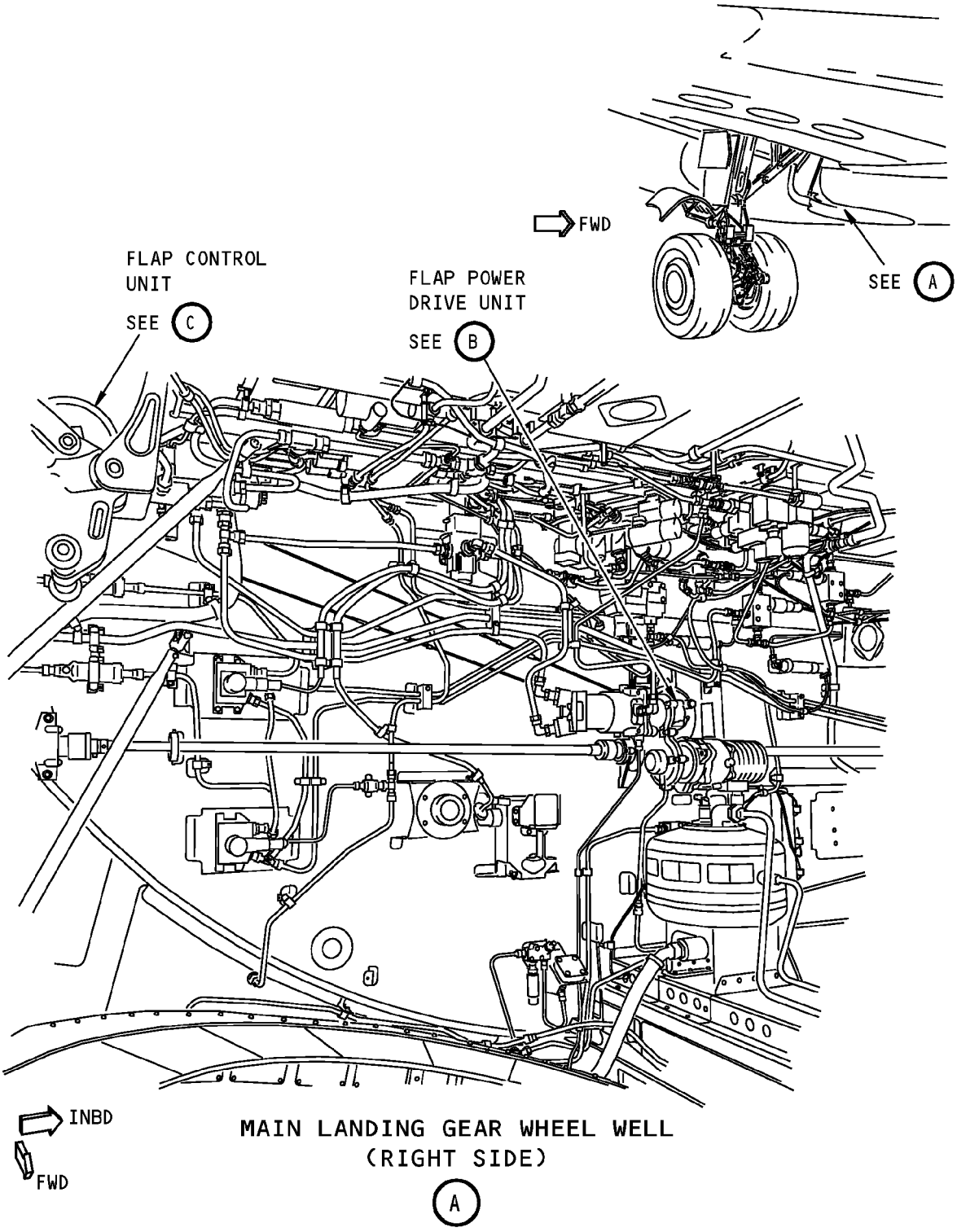

Flap Power Drive Unit Installation
Figure 401 (Sheet 1 of 5)/27-51-51-990-801

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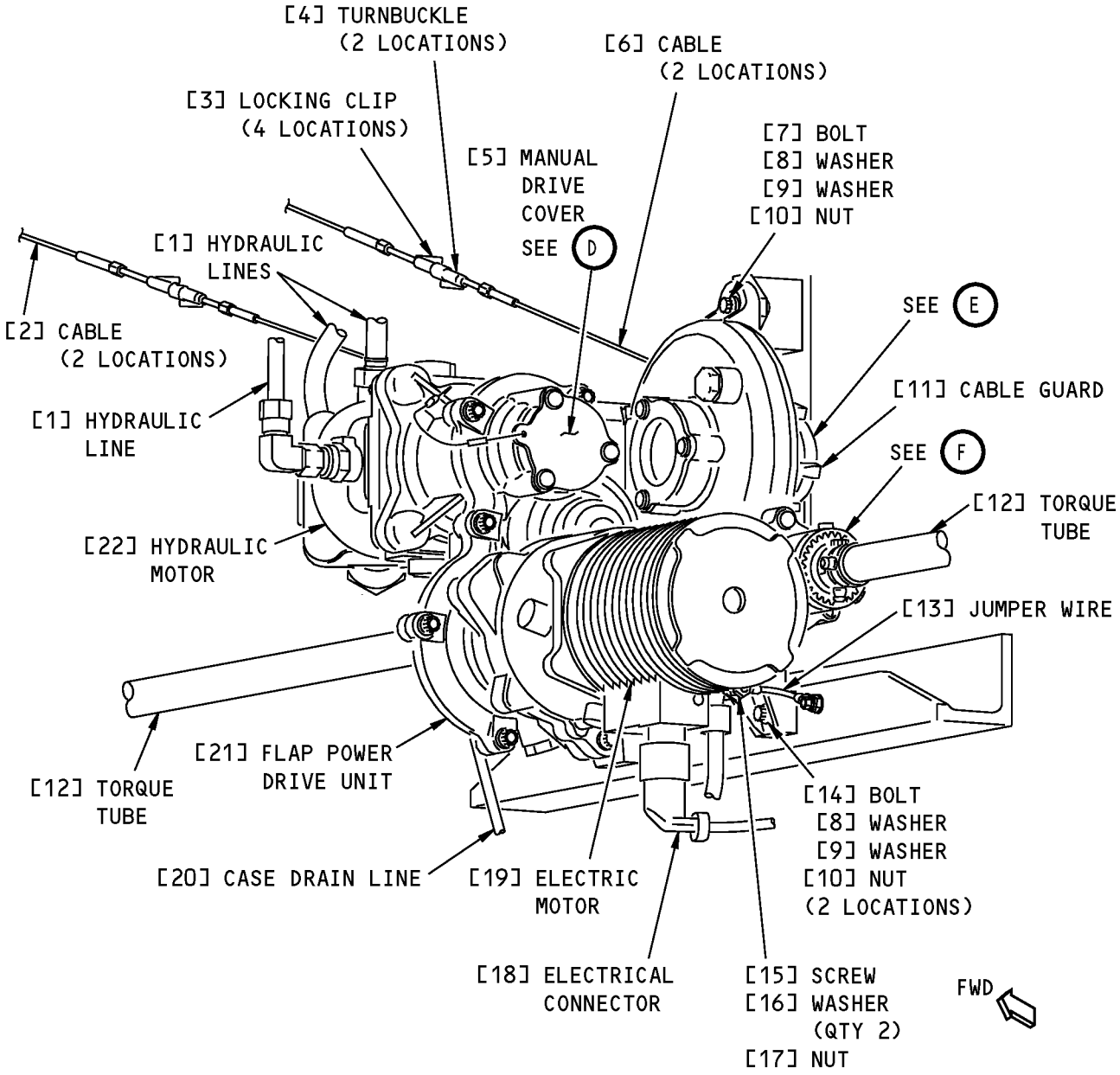

FLAP POWER DRIVE UNIT

B

Flap Power Drive Unit Installation
Figure 401 (Sheet 2 of 5)/27-51-51-990-801

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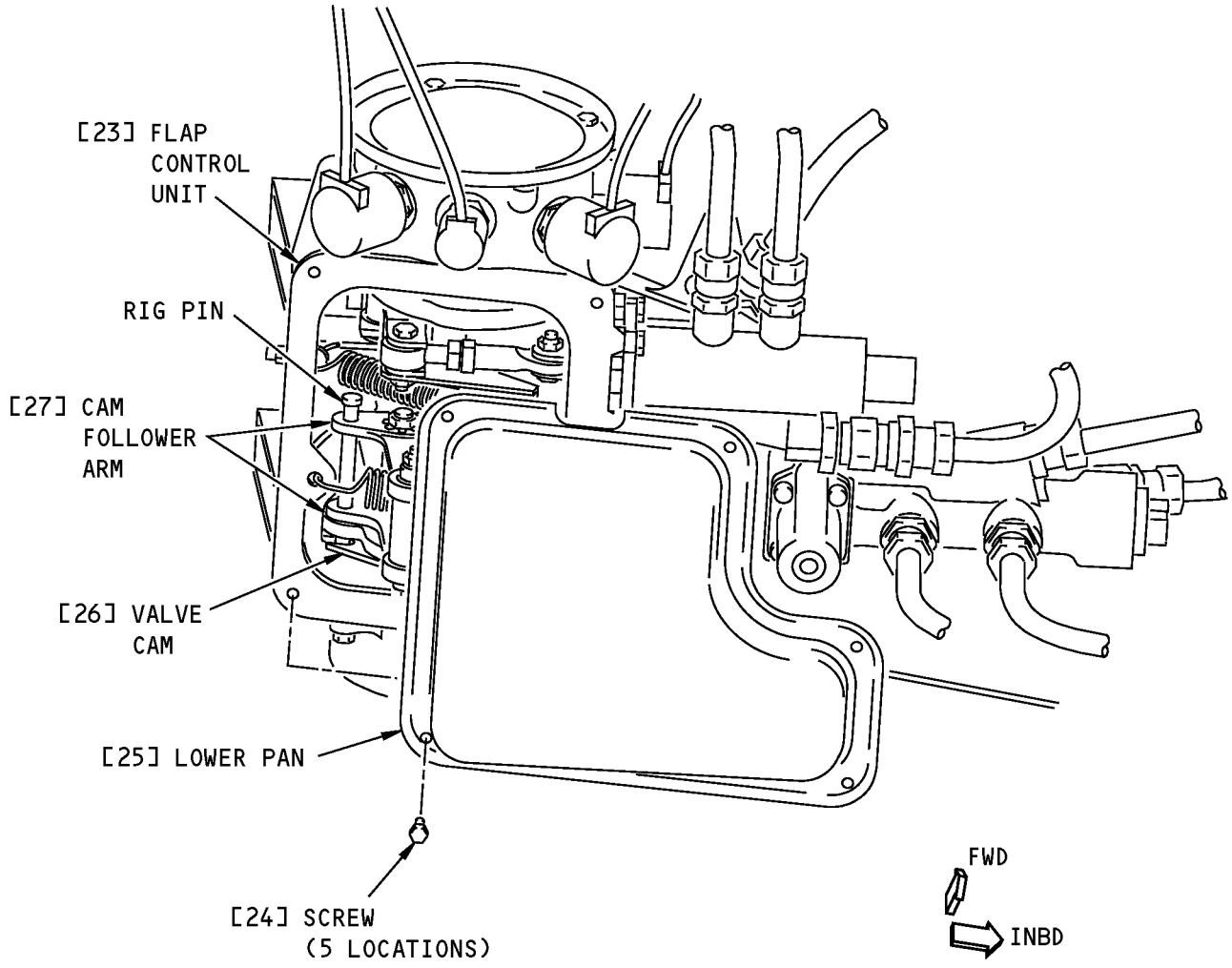

Flap Power Drive Unit Installation
Figure 401 (Sheet 3 of 5)/27-51-51-990-801

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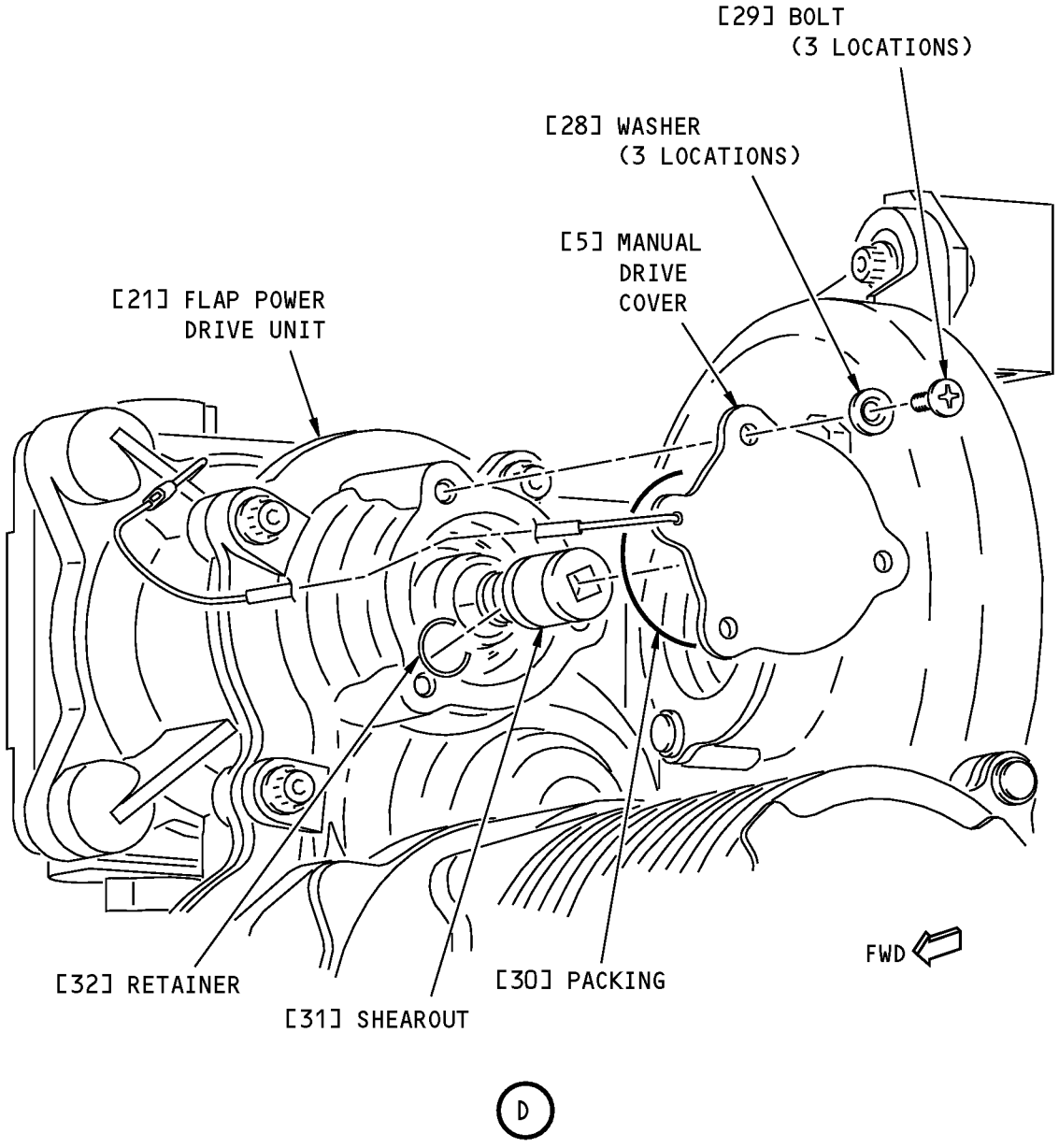

Flap Power Drive Unit Installation
Figure 401 (Sheet 4 of 5)/27-51-51-990-801

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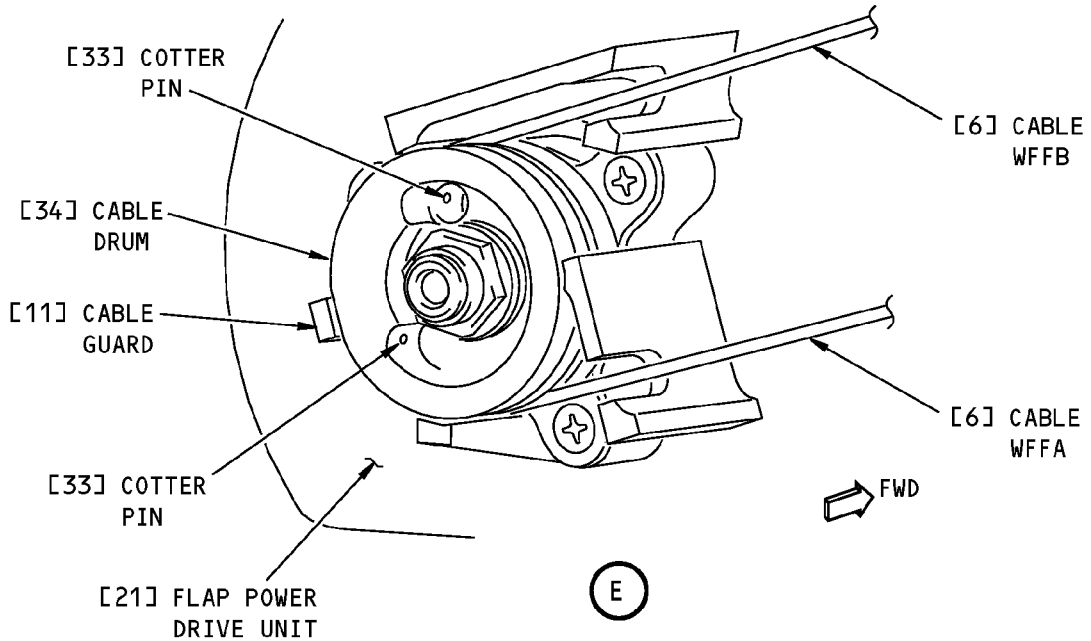

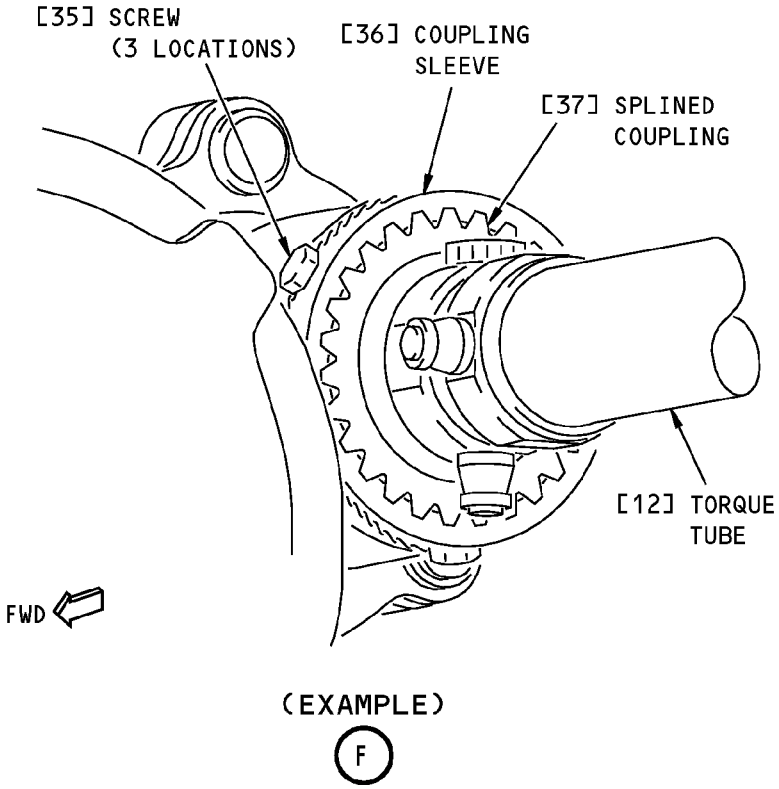

Flap Power Drive Unit Installation
Figure 401 (Sheet 5 of 5)/27-51-51-990-801

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TASK 27-51-51-400-801

3. Flap Power Drive Unit (PDU) Installation

(Figure 401)

A. General

(1) You can remove and install the flap power drive unit with the hydraulic and electric motors either removed or installed. This procedure covers the PDU installation with the hydraulic and electric motors installed.

B. References

Reference	Title
12-22-51-610-801	Trailing Edge Flap Power Drive Unit Servicing (P/B 301)
12-22-51-640-801	Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-801	Trailing Edge Flap Control System Adjustment (P/B 501)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-51-000-802	Flap Power Drive Unit Functional Test (P/B 501)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Clip	27-51-00-21-005	HAP 001-013, 015-026, 028-054
		27-51-00-24-005	HAP 101-999
21	Power drive unit	27-51-51-01-055	HAP ALL
33	Pin	27-51-55-02-328	HAP ALL

F. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

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G. Flap Power Drive Unit Installation

SUBTASK 27-51-51-860-004

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-51-51-860-005

(2) Make sure the flaps are in the retracted position.

SUBTASK 27-51-51-420-001

(3) If they are not installed, install the cables [6] on the power drive unit [21]:

(a) Put the cables [6] in their position on the cable drum [34].

(b) Install the pins [33] to attach the cable [6] to the cable drum [34].

SUBTASK 27-51-51-820-001

(4) Make sure the cables [6] and the cable drum [34] are in the correct position:

(a) Turn the power drive unit [21] until the black rig marks on the cable drum [34] align with the white cable guard [11] on the power drive unit [21].

(b) Make sure the lower cable [6] wraps around the cable drum [34] 2 to 2 1/2 turns.

NOTE: This is cable WFFA.

(c) Make sure the upper cable [6] wraps around the cable drum [34] 0 to 1/2 turns.

NOTE: This is cable WFFB.

SUBTASK 27-51-51-420-002

(5) Install the power drive unit [21]:

(a) Put the power drive unit [21] in its position on the structure.

(b) Apply compound, C00913 to the shank and threads of the bolt [7] and bolts [14].

(c) Install the bolt [7], bolts [14], washers [8], washers [9] and nuts [10] to attach the power drive unit [21].

SUBTASK 27-51-51-420-003

(6) Connect the cables [6] to the cables [2] for the flap control unit [23]:

(a) Connect the cables [2] and cables [6] at the turnbuckles [4].

(b) Remove the labels from the cables [2].

(c) Tighten the cables [2] to 125 ±10 pounds (556 ±45 newtons).

NOTE: This is an initial cable tension. The cables [2] will be adjusted to their final tension during the trailing edge flap control system adjustment.

(d) Install the locking clips [3] on the turnbuckles [4].

SUBTASK 27-51-51-420-004

(7) Connect the torque tubes [12] to the power drive unit [21]:

NOTE: Do not rotate the torque tubes more than 5 spline teeth, in either direction, to the nearest position where the bolt holes align at the torque tube coupling connection. Do not rotate the PDU at this step.

(a) Apply grease, D00633 to the coupling sleeve [36].

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(b) Put the splined couplings [37] in the coupling sleeves [36].

(c) Install the screws [35] to attach the coupling sleeves [36] to the splined couplings [37].

(d) Install lockwire on the screws [35].

SUBTASK 27-51-51-420-005

(8) Connect the jumper wire [13] for the electric motor [19]:

(a) Install the screw [15], washers [16] and nut [17] that attach the jumper wire [13].

(b) Make sure the resistance between the jumper wire [13] and the electric motor [19] is less than 0.4 milliohms.

NOTE: When you measure the resistance, the probe can be closer than 0.25 inches (6.4 millimeters) to the jumper terminal.

(c) Put a fillet seal of sealant, A02315 or sealant, A00247 around the two ends of the screw [15].

SUBTASK 27-51-51-080-001

(9) Remove the clamp set, SPL-1726 from the torque tubes [12].

SUBTASK 27-51-51-420-006

(10) Connect the hydraulic lines [1] and the case drain line [20] to the hydraulic motor [22]:

(a) Remove the plugs from the ports on the hydraulic motor [22].

(b) Remove the caps from the hydraulic lines [1].

(c) Connect the hydraulic lines [1] to the hydraulic motor [22].

(d) Remove the cap from the case drain line [20].

(e) Connect the case drain line [20] to the power drive unit [21].

SUBTASK 27-51-51-420-007

(11) Connect the electrical connector [18] to the electric motor [19].

(12) Do this task:Trailing Edge Flap Power Drive Unit Servicing, TASK 12-22-51-610-801.

SUBTASK 27-51-51-820-002

(13) Do this task: Trailing Edge Flap Control System Adjustment, TASK 27-51-00-820-801.

NOTE: This adjustment will include the final adjustment of the cables WFFA and WFFB.

SUBTASK 27-51-51-080-002

(14) Remove the rig pin from the flap control unit [23]:

SUBTASK 27-51-51-820-003

(15) Do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

SUBTASK 27-51-51-640-001

(16) Lubricate the torque tube couplings. To lubricate the couplings, do this task: Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication, TASK 12-22-51-640-801.

SUBTASK 27-51-51-410-001

(17) Install the lower pan [25] on the flap control unit [23]:

(a) Put the lower pan [25] in its location on the flap control unit [23].

(b) Apply a layer of compound, C00913 to the shank and threads of the screws [24].

(c) Install the screws [24] to attach the lower pan [25].

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SUBTASK 27-51-51-860-006

(18) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-51-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-51-720-001

(2) Do this task: Flap Power Drive Unit Functional Test, TASK 27-51-51-000-802.

END OF TASK

TASK 27-51-51-960-801

4. Flap Power Drive Unit Manual Drive Shearout Replacement

(Figure 401)

A. General

(1) The manual drive input on the power drive unit [21] has a shearout feature. The shearout is designed to break if too much torque is applied to the manual drive.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1281	Screw - No. 6 (0.1380-32 UNC-2B) x 2 Inch Minimum Length

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00467	Fluid - Landing Gear Shock Strut	BMS3-32, Type II
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Cover	27-51-55-02-110	HAP ALL
30	Packing	27-51-55-02-115	HAP ALL
31	Shearout	27-51-55-02-130	HAP ALL
32	Retainer	27-51-55-02-130	HAP ALL

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F. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

G. Prepare for the Removal

SUBTASK 27-51-51-040-002

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-51-860-007

(2) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

H. Flap Power Drive Unit Manual Drive Shearout Replacement

SUBTASK 27-51-51-010-002

(1) Remove the manual drive cover [5] from the power drive unit [21]:

(a) Remove the bolts [29] and washers [28] that attach the manual drive cover [5].

(b) Remove the manual drive cover [5] from the power drive unit [21].

SUBTASK 27-51-51-020-008

(2) Remove the shearout [31] from the power drive unit [21]:

(a) Install a screw, STD-1281 in the threaded part of the shearout [31].

(b) Pull on the screw, STD-1281 to remove the shearout [31] with the retainer [32] from the power drive unit [21].

NOTE: It will take approximately 30 pounds (130 newtons) of force to remove the shearout [31].

SUBTASK 27-51-51-420-008

(3) Install a new shearout [31] in the power drive unit [21]:

(a) Put a new retainer [32] on the shearout [31].

(b) Apply grease, D00633 to the splines on the shearout [31].

(c) Use a 3/8-inch square drive to push the shearout [31] in the power drive unit [21] until you feel the retainer [32] engage.

SUBTASK 27-51-51-710-001

(4) Use the manual drive to extend and retract the trailing edge flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

SUBTASK 27-51-51-410-002

(5) Install the manual drive cover [5] on the power drive unit [21]:

(a) Apply fluid, D00467 to the packing [30] on the manual drive cover [5].

(b) Apply compound, C00913 to the mating surface of the manual drive cover [5] and the power drive unit [21].

(c) Apply compound, C00913 to the shank and threads of the bolts [29].

(d) Put the manual drive cover [5] and the packing [30] on the power drive unit [21].

(e) Install the bolts [29] and washers [28] to attach the manual drive cover [5].

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SUBTASK 27-51-51-440-002

(6) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

TASK 27-51-51-000-803

5. Flap Power Drive Unit (PDU) Seal Removal

(Figure 402)

A. General

(1) This procedure is applicable to the input and output seals on the power drive unit (PDU) at the attachment of the hydraulic motor, the electric motor, and the torque tubes.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-52-000-801	Flap Hydraulic Motor Removal (P/B 401)
27-51-53-000-801	Flap Electric Motor Removal (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-5384	Wrench - Coupling Sleeve Flap Actuation (Part #: C27041-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)
STD-203	Container - Oil Resistant, 1 U.S.-Gal (3.8 l)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Removal

SUBTASK 27-51-51-480-004

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

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SUBTASK 27-51-51-040-003

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-51-860-013

(3) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

F. Input Seal Removal

SUBTASK 27-51-51-010-004

(1) To replace the seal [53] for the hydraulic motor [22], remove the hydraulic motor [22] from the power drive unit [21]. To remove it, do this task: Flap Hydraulic Motor Removal, TASK 27-51-52-000-801.

SUBTASK 27-51-51-010-005

(2) To replace the seal [53] for the electric motor [19], remove the electric motor [19] from the power drive unit [21]. To remove it, do this task: Flap Electric Motor Removal, TASK 27-51-53-000-801.

SUBTASK 27-51-51-680-001

(3) Drain the fluid from the power drive unit [21]:

(a) Put a 1 U.S.-gal (3.81 l) oil resistant container, STD-203 below the drain port to catch the fluid.

(b) Remove the drain plug [51] and thepacking [52] from the drain port.

(c) Wait for the fluid to drain from the power drive unit [21].

SUBTASK 27-51-51-020-009

(4) Remove the seal [53] from the power drive unit [21]:

(a) Remove the screws [55] and the retainer [54] from the power drive unit [21].

CAUTION: USE CAUTION WHEN YOU REMOVE THE SEAL FROM THE POWER DRIVE UNIT. YOU CAN SCRATCH THE PINION GEAR SHAFT, OR THE PDU HOUSING. SCRATCHES, OR OTHER DAMAGE CAN CAUSE FLUID LEAKS PAST THE NEW SEAL.

(b) Carefully remove the seal [53] from the power drive unit [21].

G. Output Seal Removal

SUBTASK 27-51-51-000-001

(1) To replace theseal [56] for the output shaft, remove the torque tube [12] from the power drive unit [21]. To remove the torque tubes, do these tasks:

(a) If the trailing edge flaps are not in the retracted position, do this task:Retract the Trailing Edge Flaps, TASK 27-51-00-860-804

WARNING: MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR AND THE TAIL SKID. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT, AND THE TAIL SKID CAN EXTEND. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(b) If the downlock pins are not installed in the nose and main landing gear,do this task:Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801

(c) Do this task:Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801

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(d) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task:Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802or Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802

(e) Install the clamp set, SPL-1726 on the torque tubes [12] on both sides of the power drive unit [21].

(f) Disconnect the torque tubes [12] from the power drive unit [21]:

1) Remove the screws [35] that attach the coupling sleeves [36] to the splined couplings [37] on the torque tubes [12].

2) Move the coupling sleeves [36] off the splined couplings [37].

SUBTASK 27-51-51-680-003

(2) Drain the fluid from thepower drive unit [21] :

(a) Put a1 U.S.-gal (3.81 l) oil resistant container, STD-203 below the drain port to catch the fluid.

(b) Remove the drain plug [51] and thepacking [52] from the drain port.

(c) Wait for the fluid to drain from the power drive unit [21].

SUBTASK 27-51-51-020-011

(3) Remove the seals [56] from the power drive unit [21]:

(a) Remove the coupling sleeves [65]:

1) Use thecoupling sleeve wrench, SPL-5384 , to hold the coupling sleeves [65] while you remove the retainer bolts [67] and packings [66].

2) Remove the coupling seals [63], coupling halves [64], coupling sleeves [65] and seal shields [62].

3) Remove the bolts [61], washers [60] and retainers [59] from the power drive unit [21]

CAUTION: USE SOFT TOOLS TO REMOVE THE SEALS OR SEAL RINGS FROM THE COMPONENT. HARD TOOLS CAN CAUSE DAMAGE TO THE COMPONENT MATING SURFACES AND LEAKAGE CAN OCCUR.

4) Remove the seals [56], seal rings [57] and the packings [58] from the power drive unit [21]

——————— END OF TASK ———————

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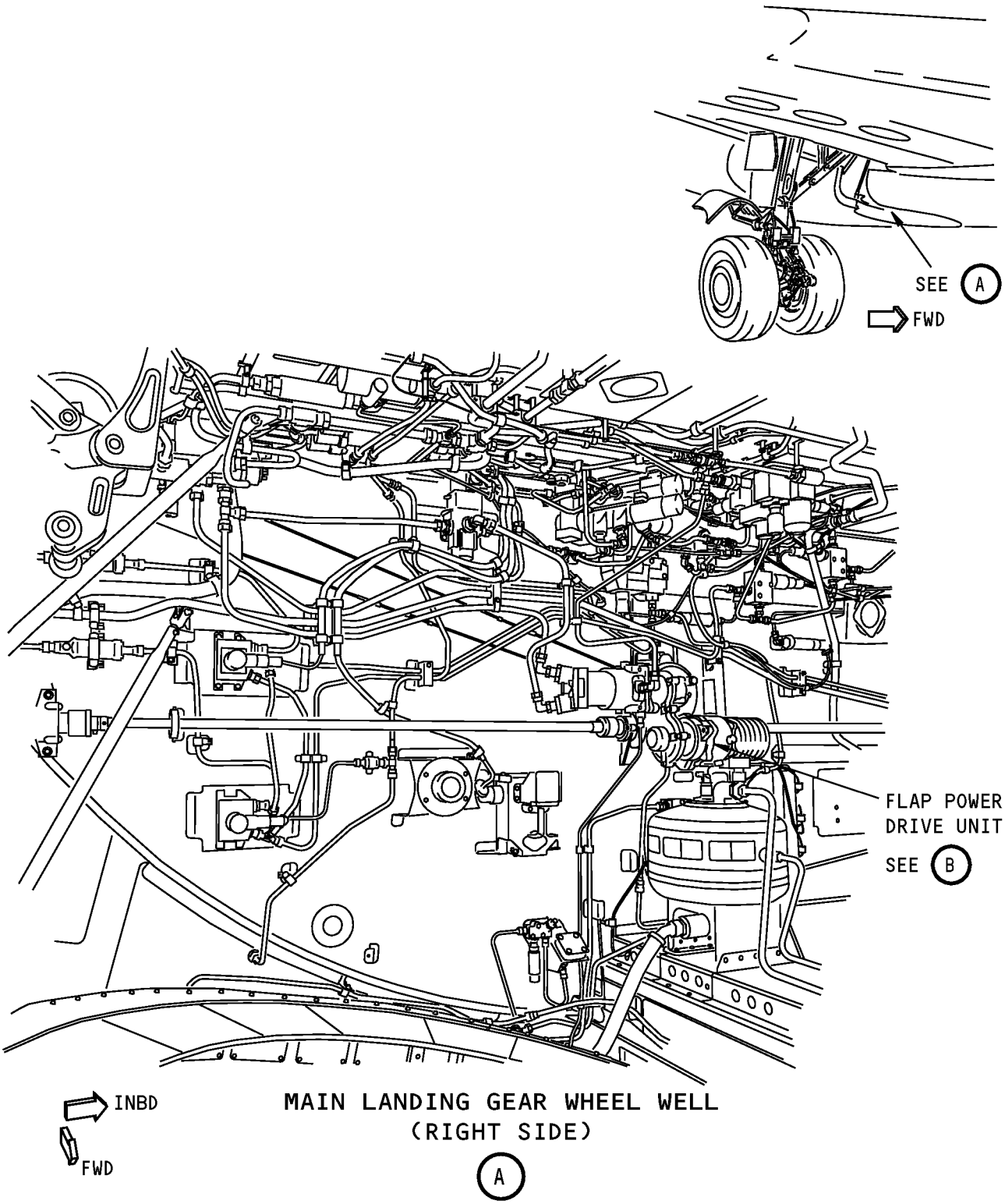

Flap Power Drive Unit Seal Installation
Figure 402 (Sheet 1 of 3)/27-51-51-990-804

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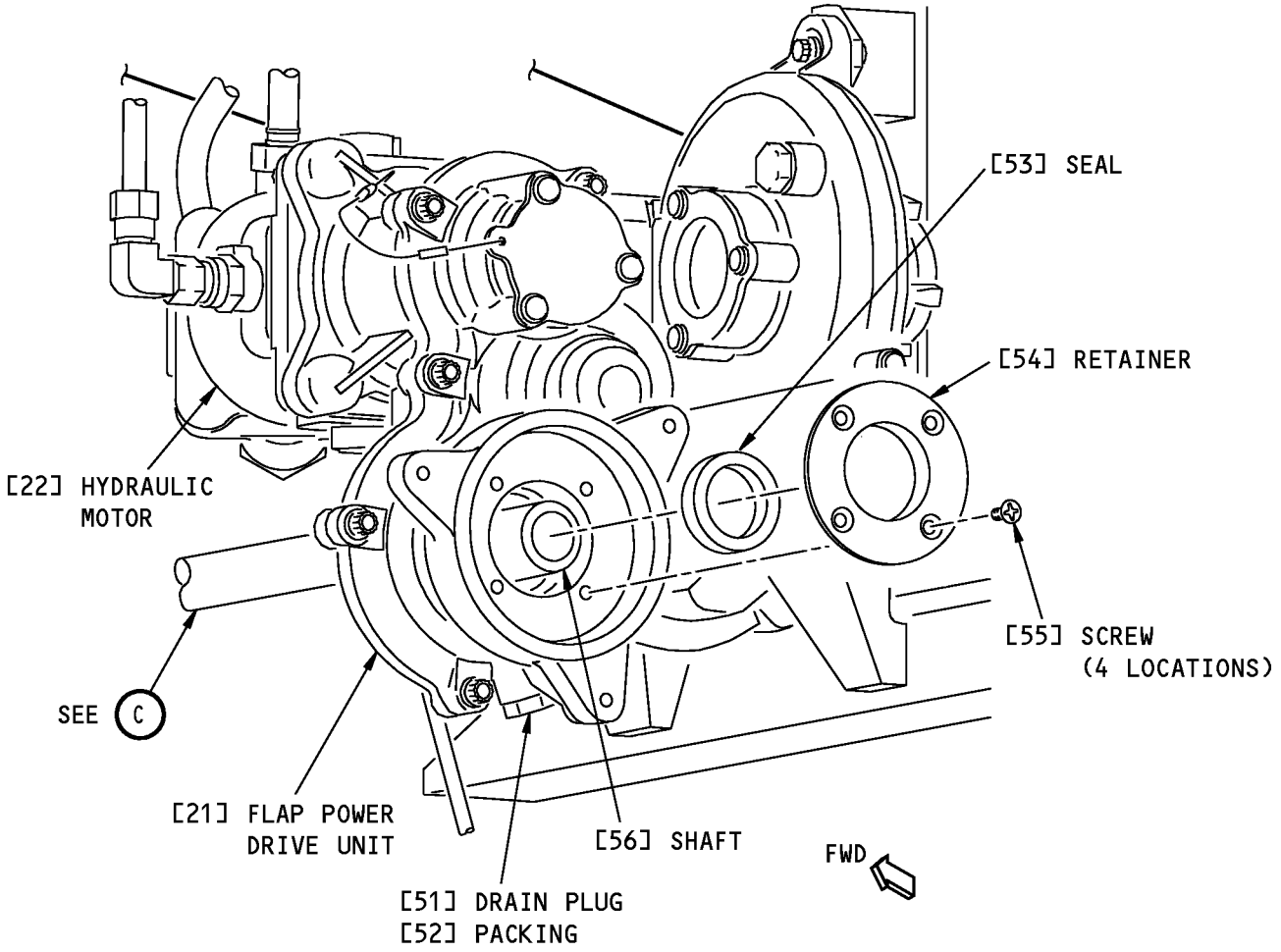

FLAP POWER DRIVE UNIT (MOTOR REMOVED)
(RIGHT SIDE IS SHOWN, LEFT SIDE IS EQUIVALENT)

B

L78028 S0006570347_V2

Flap Power Drive Unit Seal Installation
Figure 402 (Sheet 2 of 3)/27-51-51-990-804

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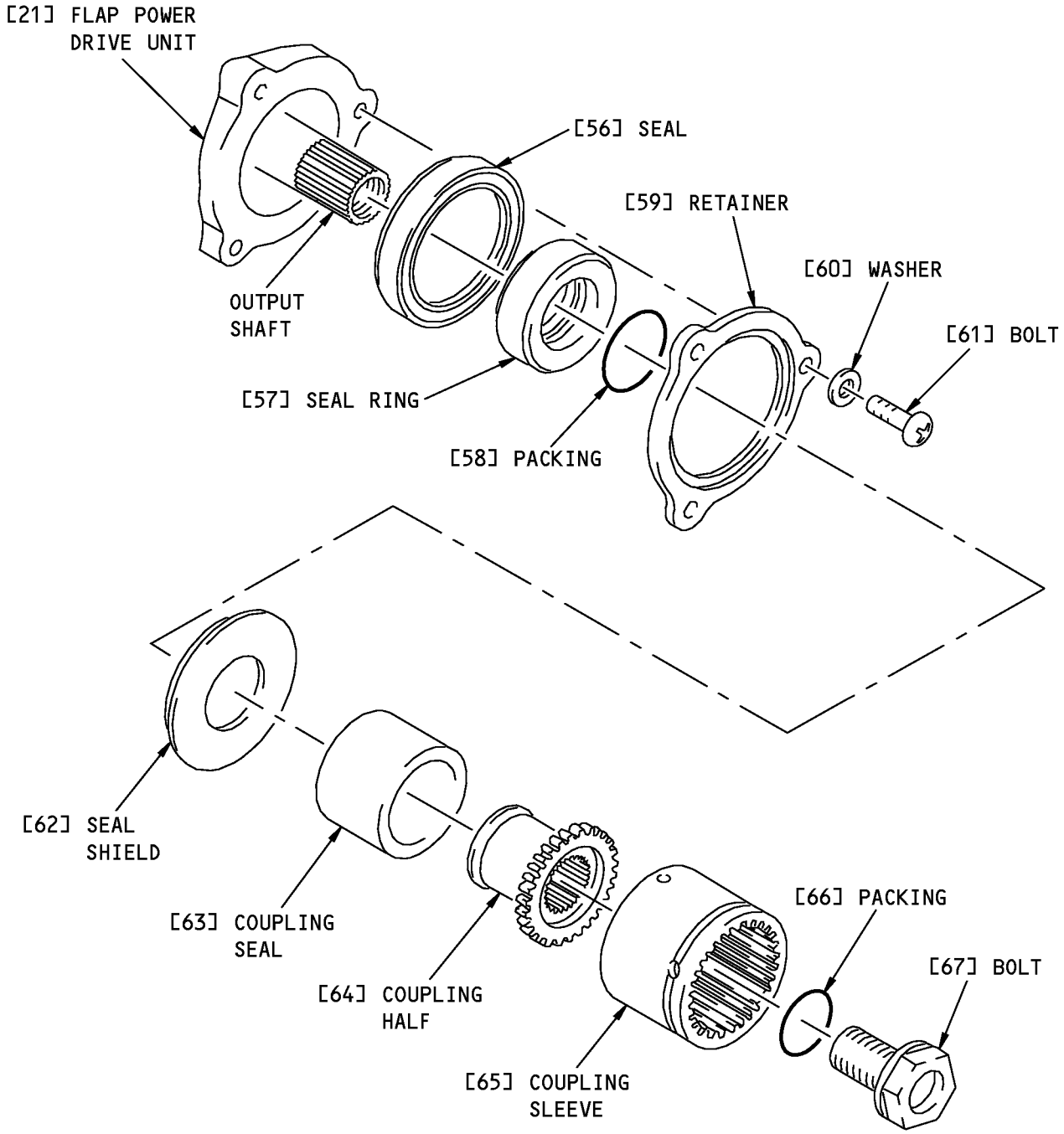

FLAP POWER DRIVE UNIT (TORQUE TUBE REMOVED)
(RIGHT SIDE IS SHOWN, LEFT SIDE IS EQUIVALENT)

1560780 S0000288821_V2

Flap Power Drive Unit Seal Installation
Figure 402 (Sheet 3 of 3)/27-51-51-990-804

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TASK 27-51-51-400-802

6. Flap Power Drive Unit (PDU) Seal Installation

(Figure 402)

A. General

(1) This procedure is applicable to the input and output seals on the power drive unit (PDU) at the attachment of the hydraulic motor, the electric motor, and the output torque tubes.

B. References

Reference	Title
12-22-51-610-801	Trailing Edge Flap Power Drive Unit Servicing (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-52-400-801	Flap Hydraulic Motor Installation (P/B 401)
27-51-53-400-801	Flap Electric Motor Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1755	Sleeve - Tool Set, Seal Installation (-17 is Part of -1 Set) (Part #: J27058-17, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-5384	Wrench - Coupling Sleeve Flap Actuation (Part #: C27041-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
D00467	Fluid - Landing Gear Shock Strut	BMS3-32, Type II
D00633	Grease - Aircraft General Purpose	BMS3-33
D50011	Grease - Perfluoropolyether - Christo-lube MCG111	
G50136	Paste - Corrosion Inhibiting, Non-drying	BMS 3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
52	Packing	27-51-55-02-440	HAP ALL
53	Seal	27-51-55-02-095	HAP ALL
		27-51-55-02-295	HAP ALL
54	Retainer	27-51-55-02-085	HAP ALL
		27-51-55-02-285	HAP ALL

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F. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

G. Input Seal Installation

SUBTASK 27-51-51-020-010

(1) Install the seal [53] on the power drive unit [21]:

(a) Make sure the seal [53], and the mating surfaces on the power drive unit [21] are clean.

(b) Lubricate the new seal [53], and the mating surfaces on the power drive unit [21] with fluid, D00070.

CAUTION: MAKE SURE YOU PROTECT THE SEAL LIP DURING THE INSTALLATION. THE SPLINES ON THE SHAFT [56] CAN CAUSE DAMAGE TO THE SEAL.

(c) Use a seal installation sleeve, SPL-1755 to install the seal [53] in the power drive unit [21].

NOTE: If the sleeve is not available, you can use hand pressure to install the seal [53]. You can use the retainer [54] to protect the seal lip, and to get the correct seal depth.

1) Insert the seal [53] to a depth of 0.32 to 0.33 inch (8.13 to 8.38 mm).

NOTE: There are two types of seal retainers used on the PDU. They are only interchangeable at the hydraulic motor input shaft location.

(d) To install the plain retainer [54], do the following steps:

1) Apply a layer of compound, C00913 to the flange of the retainer [54], and to the shank and threads of the screws [55].

2) Install the retainer [54] and the screws [55] on the power drive unit [21].

(e) To install the retainer [54], with the excluder seal (and O-ring), do the following steps:

1) Apply a layer of corrosion inhibiting non-drying paste, G50136 to the flange of the retainer [54], and to the shank and threads of the screws [55].

2) Make sure the seal bore in the power drive unit [21] is clean.

3) Lubricate the seal bore in power drive unit [21] the with the Christo-lube MCG111 grease, D50011.

4) Lubricate the excluder seal lips (and O-ring) on the retainer [54] with the Christo-lube MCG111 grease, D50011.

(f) Install the retainer [54] and the screws [55] on the power drive unit [21].

SUBTASK 27-51-51-410-004

(2) If you removed the electric motor [19], then, do this task: Flap Electric Motor Installation, TASK 27-51-53-400-801

SUBTASK 27-51-51-410-005

(3) If you removed the hydraulic motor [22], then, do this task: Flap Hydraulic Motor Installation, TASK 27-51-52-400-801

SUBTASK 27-51-51-680-002

(4) Install the drain plug [51] in the power drive unit [21]:

(a) Lubricate the new packing [52] with fluid, D00467.

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(b) Install the drain plug [51] and the packing [52] in the drain port.

(c) Tighten the drain plug [51] to 110-130 pound-inches more than the run-on torque.

(d) Install lockwire on the drain plug [51].

SUBTASK 27-51-51-610-001

(5) Fill the power drive unit [21] with fluid, D00467. To fill it, (TASK 12-22-51-610-801).

SUBTASK 27-51-51-790-001

(6) Make sure there are no hydraulic leaks from the power drive unit [21]:

(a) Do this task:Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801

(b) Operate the flaps full up to full down a minimum of 3 cycles while checking for leaks from the new PDU seal.

H. Output Seal Installation

SUBTASK 27-51-51-420-009

(1) Install the seal [56] on the power drive unit [21]:

(a) Make sure the seal [56] and the mating surfaces on the power drive unit [21] are clean.

(b) Lubricate the packing [58] with fluid, D00467.

(c) Install the packing [58] in the seal ring {57].

(d) Install the seal ring [57] and the packing [58] on the output shaft of the power drive unit [21].

(e) Lubricate the seal [56] and the mating surfaces on the power drive unit [21] with fluid, D00070.

(f) Use a seal installation sleeve, SPL-1755 to install the seal [56] in the power drive unit [21].

NOTE: If the sleeve is not available, you can use hand pressure to install the seal [56]. You can use the retainer [59] to protect the seal lip, and to get the correct seal depth.

(g) Insert the seal [56] to a depth of 0.17 - 0.18 inch (4.31 - 4.57 mm).

SUBTASK 27-51-51-410-006

(2) Install the coupling sleeve [65] on the power drive unit [21]:

WARNING: DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR WHEN YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. CLEAN BARE SKIN FULLY AFTER YOU USE THIS MATERIAL. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Apply a thin layer of compound, C00913 to the flange of the retainer [59] and to the shank and threads of the bolts [61].

(b) Install the retainer [59], the washers [60] and the bolts [61] on the power drive unit [21]

(c) Fill the space between the seal ring [57] and retainer [59] with grease, D00633.

(d) Install the seal shield [62], flat side outboard, on the retainer [59].

(e) Install the coupling seal [63] on the coupling half [64].

(f) Apply grease, D00633 to the splines of the coupling sleeve [65].

(g) Install the coupling half [64] on the power drive unit [21].

(h) Lubricate the packing [66] on the bolt [67] with grease, D00633

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(i) Apply grease, D00633 under the head of the bolt [67].

(j) Install the bolt [67] and the packing [66] in the output shaft of the power drive unit [21]

(k) Use the coupling sleeve wrench, SPL-5384, to hold the coupling sleeve [65] and tighten the bolt [67] to 600 - 700 inch-pounds (67.79 - 79.08 Nm) more than the run-on torque.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-51-440-003

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

END OF TASK

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FLAP POWER DRIVE UNIT - ADJUSTMENT/TEST

1. General

A. This procedure has a functional test of the flap power drive unit.

TASK 27-51-51-000-802

2. Flap Power Drive Unit Functional Test

(Figure 501)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Test

SUBTASK 27-51-51-860-008

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-51-010-003

(2) To get access to the main equipment center, do this step:

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-51-51-860-009

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: Do not use the EMDP for this test. It does not create enough pressure to meet the extend and retract time limits.

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E. Flap Power Drive Unit Functional Test

SUBTASK 27-51-51-730-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do a test of the primary operation of the trailing edge flaps:

(a) Move the flap control lever to the UP position and wait for the flaps to reach the UP position.

(b) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

(c) Do a check of the flap lever sensor, position sensors and skew sensor inputs to the FSEU:

1) Push the down arrow until OTHER FUNCTNS? shows on the display.

2) Push the YES button to select OTHER FUNCTNS? on the FSEU.

3) Push the down arrow until I/O MONITOR? shows on the display.

4) Push the YES button to select I/O MONITOR? from the menu.

5) Push the down arrow until SYNCHRO INPUTS? shows on the display.

6) Push the YES button to select SYNCHRO INPUTS? from the menu.

7) Make sure the inputs for the sensors are in the limits shown in (Table 501) for the UP position.

NOTE: Push the arrow keys to step through the sensor values.

Table 501/27-51-51-993-803

Display (Sensor)	Sensor Input (Flap Position)		
	UP	1-Unit	40-Units
LVR POS	-2.8 to 2.8	13.8 to 21.4	105.4 to 110.9
L FL POS	-3.7 to 1.8	34.5 to 40.8	267.1 to 273.3
R FL POS	-3.7 to 1.8	34.5 to 40.8	267.1 to 273.3
F1 SKEW	295.7 to 311.0	12.2 to 29.1	224.4 to 242.1
F2 SKEW	330.5 to 346.0	60.9 to 78.1	279.2 to 296.9
F3 SKEW	0.0 to 13.2	82.9 to 99.2	288.7 to 305.5
F4 SKEW	332.8 to 346.9	24.3 to 40.0	265.1 to 282.1
F5 SKEW	13.1 to 27.2	320.0 to 336.7	77.9 to 94.9
F6 SKEW	346.8 to 360.0	260.8 to 277.1	54.5 to 71.3
F7 SKEW	14.0 to 29.5	281.9 to 299.1	63.1 to 80.8
F8 SKEW	49.0 to 64.3	330.9 to 347.8	117.9 to 135.6

(d) Move the flap control lever to the 1-unit position to extend the flaps.

(e) Make sure the inputs for the sensors are in the limits shown in (Table 501) for the 1-unit position.

NOTE: Push the arrow keys to step through the sensor values.

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(f) Move the flap control lever to the 40-unit position to extend the flaps.

NOTE: Measure the time it takes for the trailing edge flaps to extend from the 1-unit position to the 40-unit position.

(g) Make sure the time it takes for the flaps to extend is 22 to 27 seconds.

(h) Make sure the inputs for the sensors are in the limits shown in (Table 501) for the 40-unit position.

NOTE: Push the arrow keys to step through the sensor values.

(i) Move the flap control lever to the 1-unit position to retract the flaps.

NOTE: Measure the time it takes for the trailing edge flaps to retract from the 40-unit position to the 1-unit position.

(j) Make sure the time it takes for the flaps to retract is 22 to 27 seconds.

(k) Move the flap control lever to the UP position to retract the flaps.

SUBTASK 27-51-51-720-002

(2) Do a test of the power supply for the flap electric motor:

(a) Move the flap control lever to the 1-unit position to extend the flaps.

(b) Make sure the pointers on the flap position indicator are in the 1-unit white band.

(c) Open this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

(d) Move the ALTERNATE FLAPS ARM switch to the ARM position.

(e) Move and hold the ALTERNATE FLAPS CONTROL switch in the UP position for 5 seconds.

NOTE: With the circuit breaker open, the electric motor will not operate.

(f) Make sure the flaps do not retract.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE SLATS. THE SLATS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT

(g) Move and hold the ALTERNATE FLAPS CONTROL switch in the DOWN position for 5 seconds.

NOTE: The leading edge slats will extend.

(h) Make sure the trailing edge flaps do not extend.

(i) Close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-51-51-720-003

(3) Do a test of the time necessary to retract the flaps with the alternate system:

(a) Move and hold the ALTERNATE FLAPS CONTROL switch in the UP position until the flaps stop.

(b) Make sure the time necessary to retract the flaps is 47 to 58 seconds.

(c) Make sure the pointers on the flap position indicator are in the UP white band.

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SUBTASK 27-51-51-860-010

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Move the flap control lever to the UP position to retract the flaps.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-51-860-011

(1) Push the ON/OFF button on the front panel of the FSEU to turn it off.

SUBTASK 27-51-51-410-003

(2) For the main equipment center, do this task:

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-51-51-860-012

(3) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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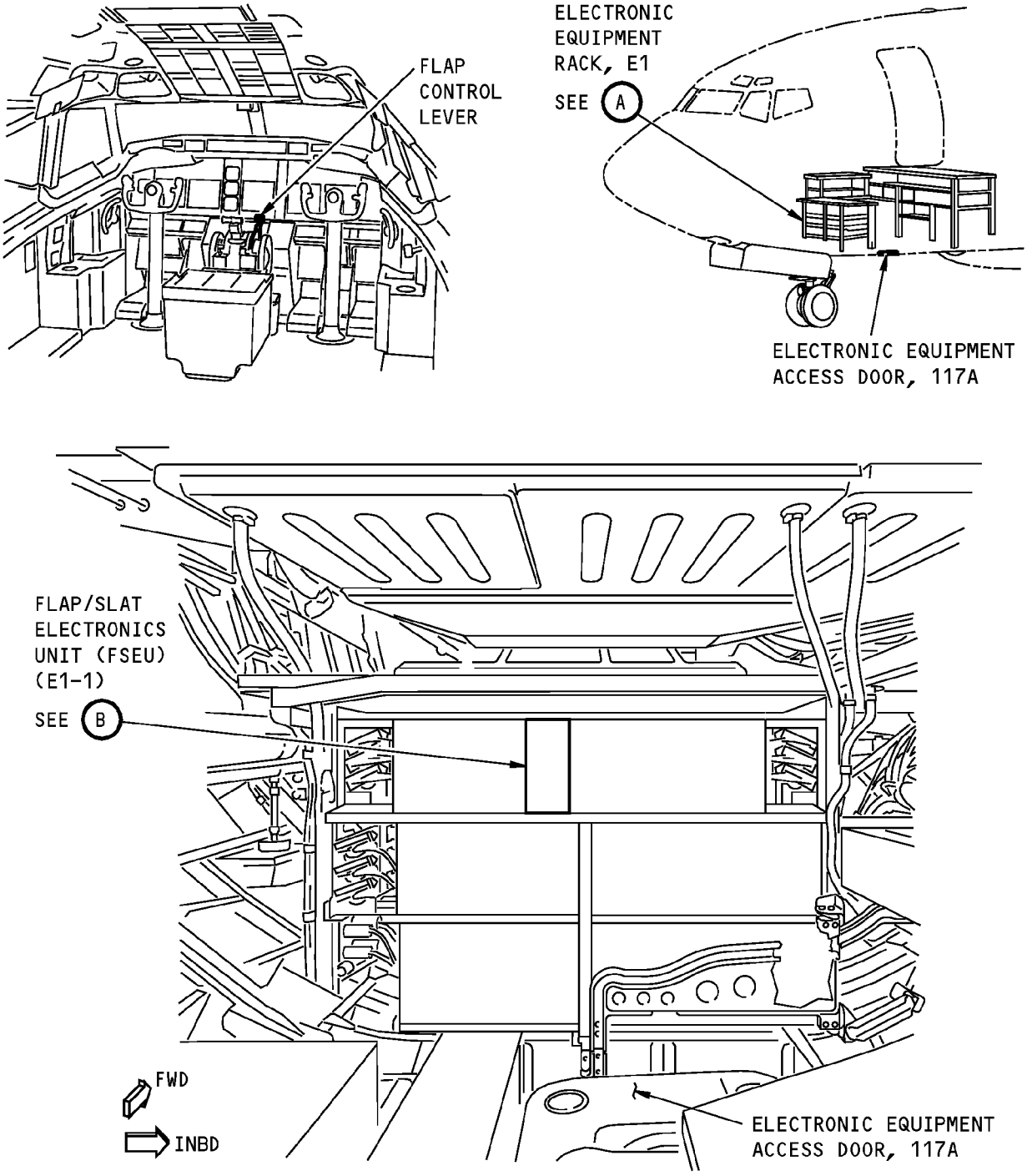

Flap Power Drive Unit Test
Figure 501 (Sheet 1 of 2)/27-51-51-990-802

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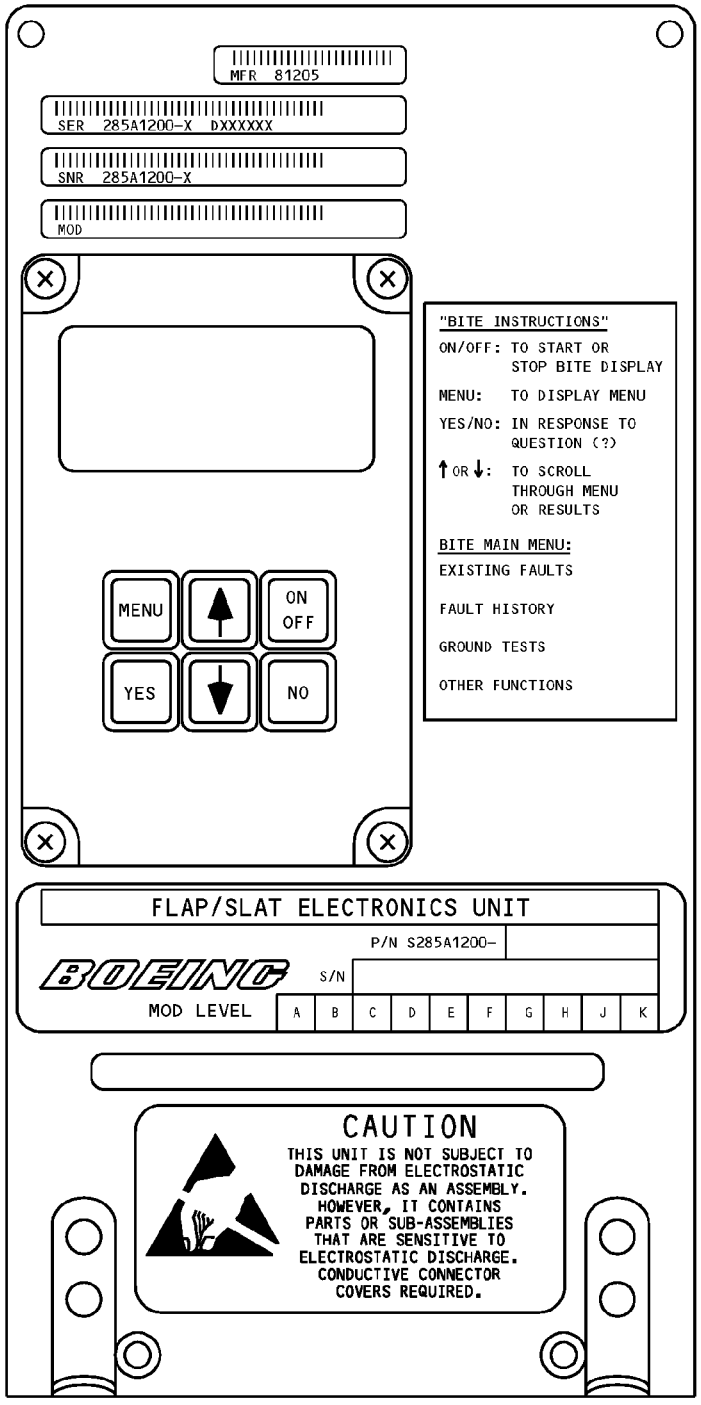

FLAP/SLAT ELECTRONICS UNIT (FSEU)

B

Flap Power Drive Unit Test
Figure 501 (Sheet 2 of 2)/27-51-51-990-802

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FLAP HYDRAULIC MOTOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap hydraulic motor

(2) An installation of the flap hydraulic motor.

B. The flap hydraulic motor is installed on the flap power drive unit (PDU) in the main landing gear wheel well.

TASK 27-51-52-000-801

2. Flap Hydraulic Motor Removal

(Figure 401)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Prepare for the Removal

SUBTASK 27-51-52-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-52-860-001

(2) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

D. Flap Hydraulic Motor Removal

SUBTASK 27-51-52-020-001

(1) Disconnect the three hydraulic lines [1]:

(a) Disconnect the hydraulic lines [1] from the motor assembly [3].

(b) Install caps on the hydraulic lines [1].

(c) Install plugs in the ports on the motor assembly [3].

SUBTASK 27-51-52-020-002

(2) Remove the motor assembly [3]:

(a) Remove the bolts [6] and washers [7] that attach the motor assembly [3] to the power drive unit [2].

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(b) Remove the motor assembly [3] from the power drive unit [2].

SUBTASK 27-51-52-020-003

(3) If you will install a new motor assembly [3], remove the reducers [4], elbow [9], valve [11] and packings [5], packing [10] and packing [12] from the motor assembly [3].

——————— END OF TASK ———————

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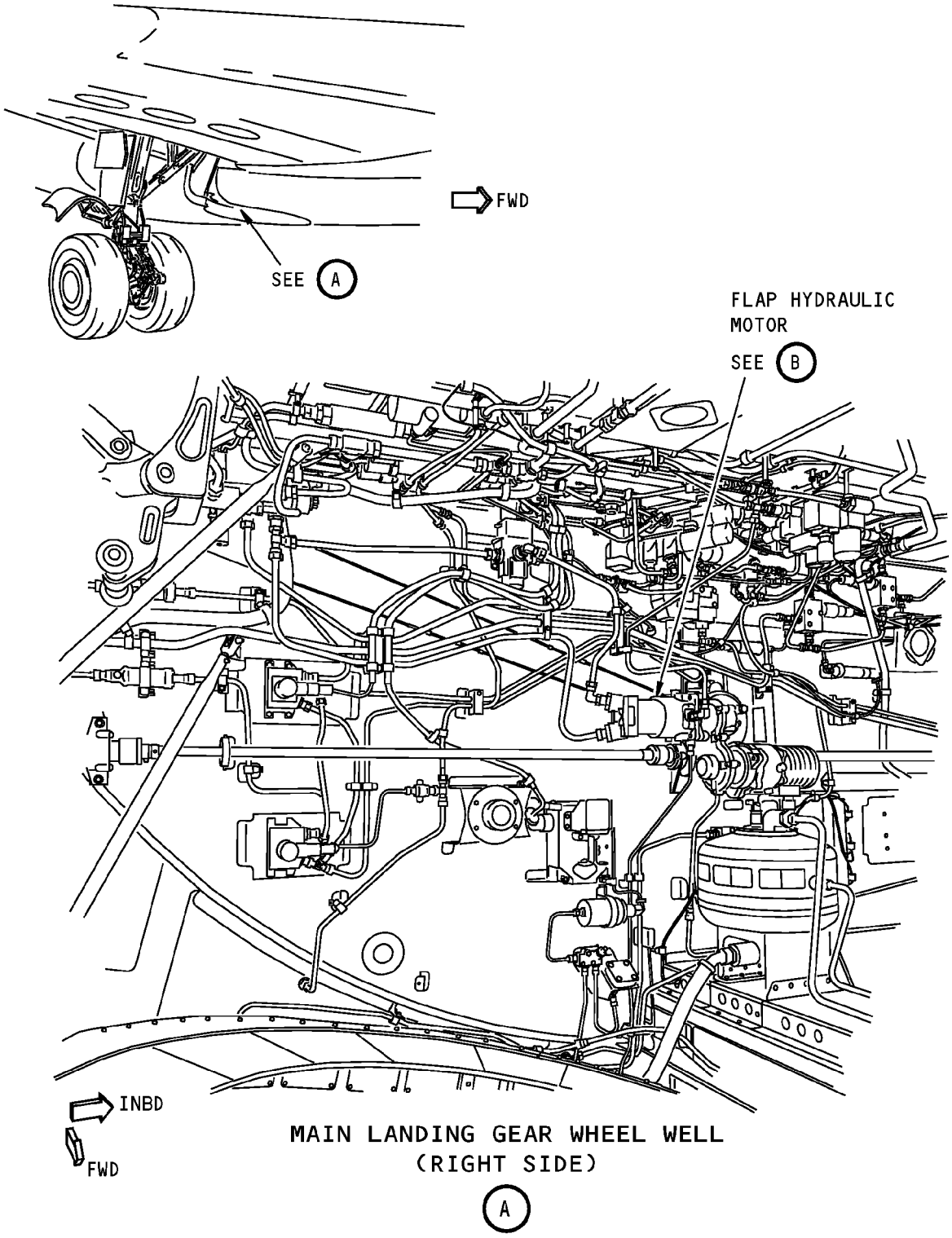

Flap Hydraulic Motor Installation
Figure 401 (Sheet 1 of 2)/27-51-52-990-801

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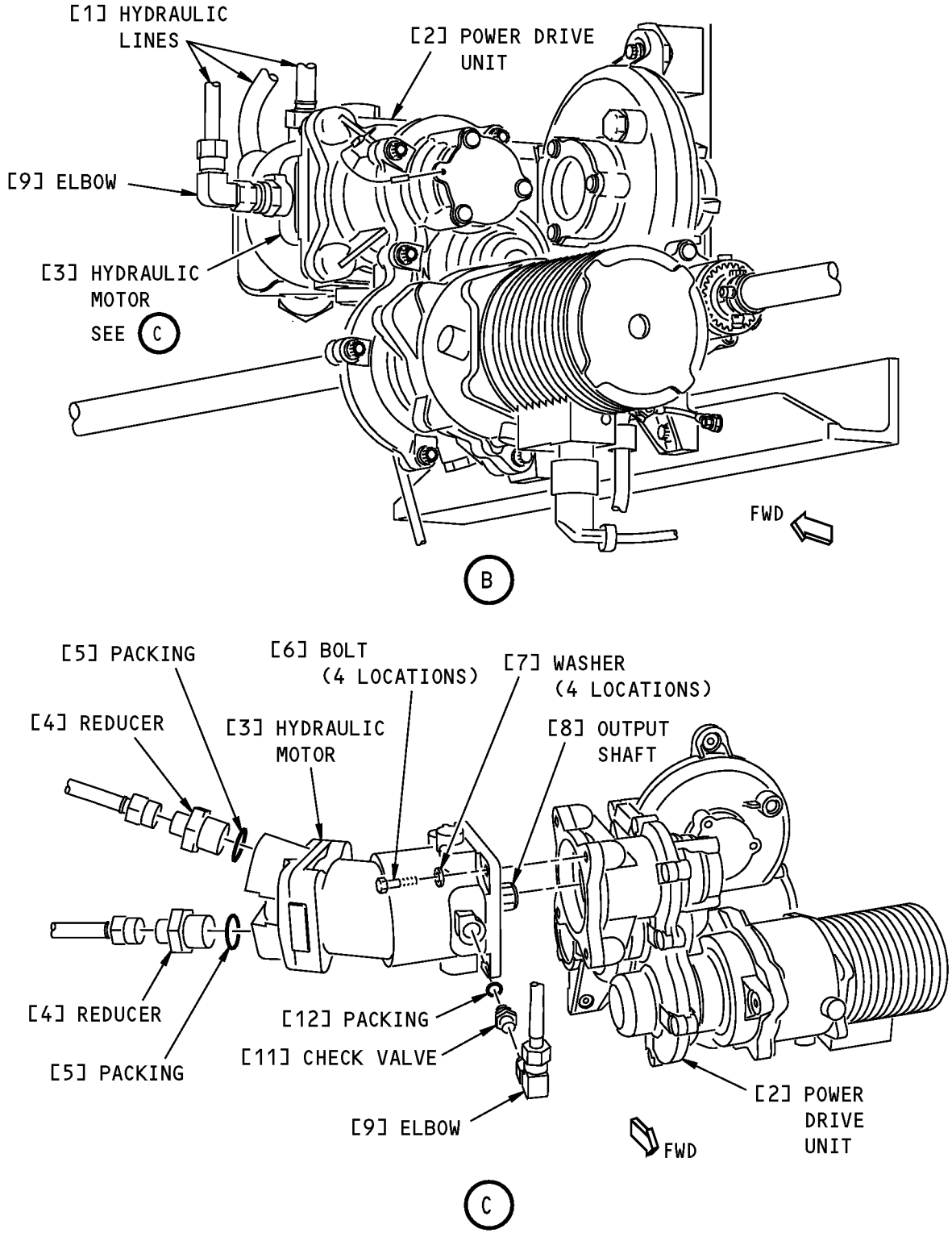

Flap Hydraulic Motor Installation
Figure 401 (Sheet 2 of 2)/27-51-52-990-801

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TASK 27-51-52-400-801

3. Flap Hydraulic Motor Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Motor assembly	27-51-51-01-110	HAP ALL
4	Reducer	27-51-51-01-100	HAP ALL
5	Packing	27-51-51-01-105	HAP ALL
6	Bolt	27-51-51-01-075	HAP ALL
11	Valve	27-51-51-01-095	HAP ALL
12	Packing	27-51-51-01-107	HAP ALL

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Flap Hydraulic Motor Installation

SUBTASK 27-51-52-420-001

(1) If you will install a new motor assembly [3], install the reducers [4], elbow [9], valve [11], packings [5], packing [12] as follows:

(a) Apply MCS 352B fluid, D00054 or fluid, D00153 to the new packings [5] and packing [12].

(b) Install the packings [5] and the reducers [4] in the motor assembly [3].

(c) Install the packing [12] and the valve [11] in the motor assembly [3].

(d) Install the elbow [9] in the valve [11].

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SUBTASK 27-51-52-420-002

(2) Install the motor assembly [3]:

(a) Apply grease, D00633 to the splines on the output shaft [8] of the motor assembly [3]:

(b) Fill the space between the motor assembly [3] and the power drive unit [2] with grease, D00633.

(c) Apply a thin layer of compound, C00913 to the mating surface of the motor assembly [3] and the power drive unit [2].

(d) Put the motor assembly [3] in its location on the power drive unit [2].

(e) Apply compound, C00913 to the shank and threads of the bolts [6].

(f) Install the bolts [6] and washers [7] to attach the motor assembly [3].

(g) Tighten the bolts [6] to 95-115 pound-inches (10.8-13.0 newton-meters).

SUBTASK 27-51-52-420-003

(3) Connect the hydraulic lines [1] to the motor assembly [3]:

(a) Remove the caps from the hydraulic lines [1].

(b) Remove the plugs from the ports on the motor assembly [3].

(c) Install the hydraulic lines [1] in the motor assembly [3].

SUBTASK 27-51-52-860-002

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-52-710-001

(5) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-52-210-001

(6) Make sure there are no hydraulic leaks from the motor assembly [3].

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-52-860-003

(1) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-52-610-001

(2) If it is necessary, fill the system B hydraulic reservoir. To fill the reservoir, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

END OF TASK

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FLAP ELECTRIC MOTOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap electric motor

(2) An installation of the flap electric motor.

B. The flap electric motor is installed on the flap power drive unit (PDU) in the main wheel well.

C. The flap electric motor weighs approximately 16 pounds (7.3 kilograms).

TASK 27-51-53-000-801

2. Flap Electric Motor Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Prepare for the Removal

SUBTASK 27-51-53-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-53-860-001

(2) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

D. Flap Electric Motor Removal

SUBTASK 27-51-53-860-002

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-51-53-020-001

(2) Disconnect the electrical connector [5] from the motor assembly [2].

SUBTASK 27-51-53-020-002

(3) Remove the motor assembly [2]:

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(a) Remove the screw [8], washers [9] and nut [10] that attach the jumper wire [7] to the motor assembly [2].

(b) Remove the bolts [4] and washers [3] that attach the motor assembly [2] to the power drive unit [1].

(c) Remove the motor assembly [2] from the power drive unit [1].

——————— END OF TASK ———————

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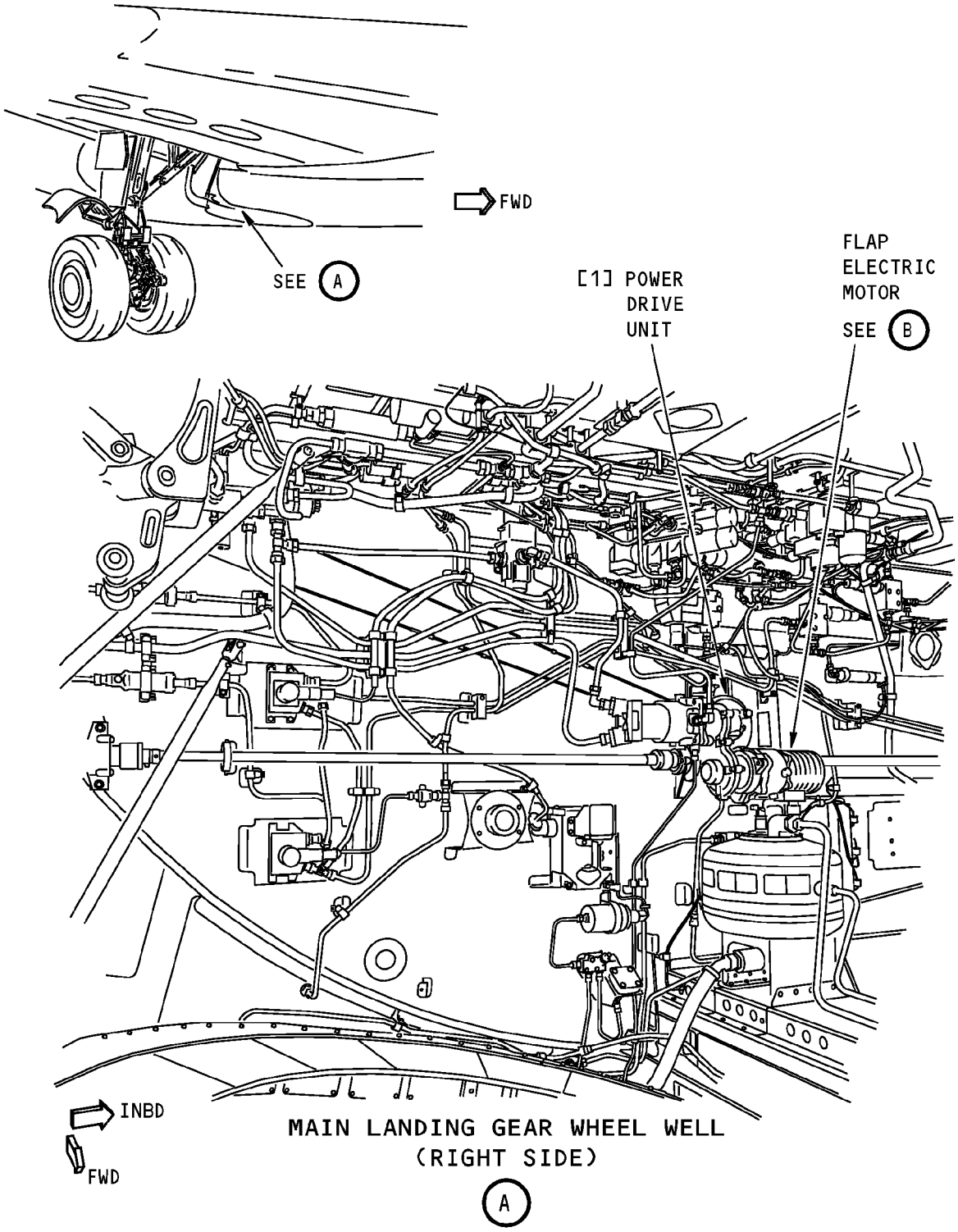

Flap Electric Motor Installation
Figure 401 (Sheet 1 of 2)/27-51-53-990-801

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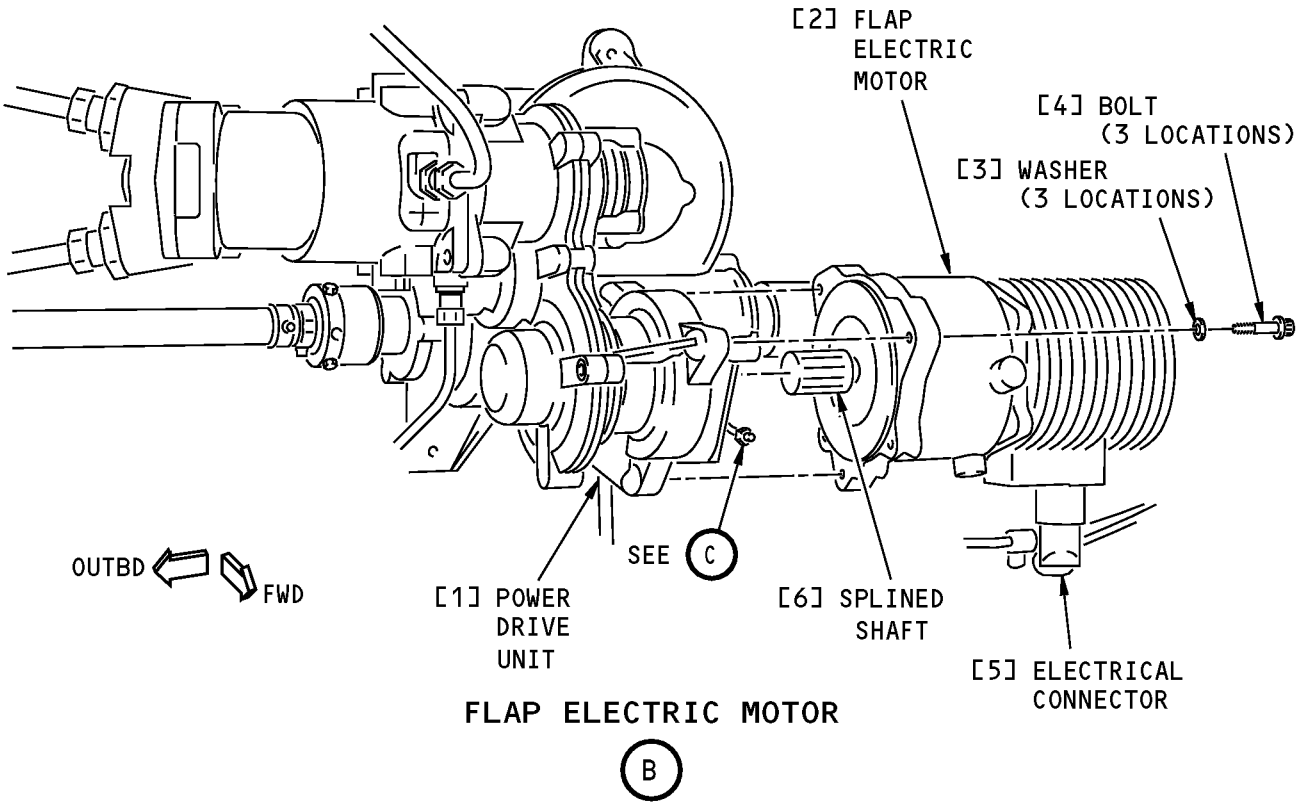

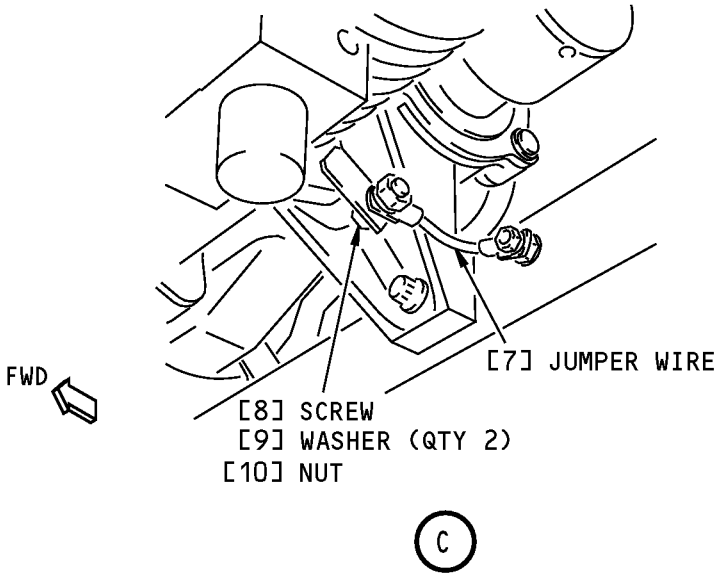

Flap Electric Motor Installation
Figure 401 (Sheet 2 of 2)/27-51-53-990-801

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TASK 27-51-53-400-801

3. Flap Electric Motor Installation

(Figure 401)

A. References

Reference	Title
12-22-51-610-805	Trailing Edge Flap Electric Motor Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-802	Trailing Edge Flap System Operation With Alternate Control (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Motor assembly	27-51-51-01-060	HAP ALL

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Flap Electric Motor Installation

SUBTASK 27-51-53-860-003

(1) Make sure that this circuit breaker is open and has safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-51-53-420-001

(2) Install the motor assembly [2]:

(a) Apply a layer of grease, D00633 to the splined shaft [6] on the motor assembly [2].

(b) Fill the area between the motor assembly [2] and the power drive unit [1] with grease, D00633.

(c) Apply a thin layer of compound, C00913 to the mating surface of the motor assembly [2] and the power drive unit [1].

(d) Put the motor assembly [2] in its position on the power drive unit [1].

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(e) Apply compound, C00913 to the shank and threads of the bolts [4].

(f) Install the bolts [4] and washers [3] to attach the motor assembly [2] to the power drive unit [1].

(g) Tighten the bolts [4] to 50-60 pound-inches (5.7-6.7 newton-meters) more than the run-on torque.

(h) Install lockwire on the bolts [4].

SUBTASK 27-51-53-420-002

(3) Connect the jumper wire [7] to the motor assembly [2]:

(a) Install the screw [8], washers [9] and nut [10] to attach the jumper wire [7].

(b) Make sure the resistance between the jumper wire [7] and the motor assembly [2] is less than 0.4 milliohms.

NOTE: When you measure the resistance, the probe can be closer than 0.25 inches (6.4 millimeters) to the jumper terminal.

(c) Put a fillet seal of sealant, A02315 or sealant, A00247 around the two ends of the screw [8].

SUBTASK 27-51-53-210-001

(4) Before you connect the electrical connector [5], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-51-53-420-003

(5) Connect the electrical connector [5] to the motor assembly [2].

(6) Service the motor assembly [2](Trailing Edge Flap Electric Motor Servicing, TASK 12-22-51-610-805).

F. Flap Electric Motor Installation Test

SUBTASK 27-51-53-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-53-860-005

(2) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-51-53-710-001

(3) Use the alternate system to extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Alternate Control, TASK 27-51-00-860-802.

——————— END OF TASK ———————

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TEE ANGLE GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the tee angle gearbox

(2) An installation of the tee angle gearbox.

B. The tee angle gearbox is installed on the bulkhead aft of the inboard transmissions for the inboard flap.

TASK 27-51-55-000-801

2. Tee Angle Gearbox Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-51-55-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-55-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

E. Tee Angle Gearbox Removal

SUBTASK 27-51-55-020-001

(1) Disconnect the torque tubes [13] from the tee angle gearbox assembly [1]:

(a) Install a clamp set, SPL-1726 on the torque tube [13] outboard of the tee angle gearbox assembly [1].

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(b) Remove the screws [3] that attach the coupling sleeves [2] to the splined couplings [14].

(c) Move the coupling sleeves [2] off the splined couplings [14].

SUBTASK 27-51-55-020-002

(2) Remove the u joint assembly [8]:

(a) Remove the nuts [12], washers [11] and bolts [10] that attach the u joint assembly [8] to the transmission [9] and the tee angle gearbox assembly [1].

(b) Remove the u joint assembly [8].

HAP 029-054, 101-999

(c) Remove the wire bundle from the bracket on the tee angle gearbox assembly [1].

HAP ALL

SUBTASK 27-51-55-020-003

(3) Remove the tee angle gearbox assembly [1]:

(a) Remove the nuts [7], washers [6], washers [5] and bolts [4] that attach the tee angle gearbox assembly [1] to the structure.

(b) Remove the tee angle gearbox assembly [1].

——————— END OF TASK ———————

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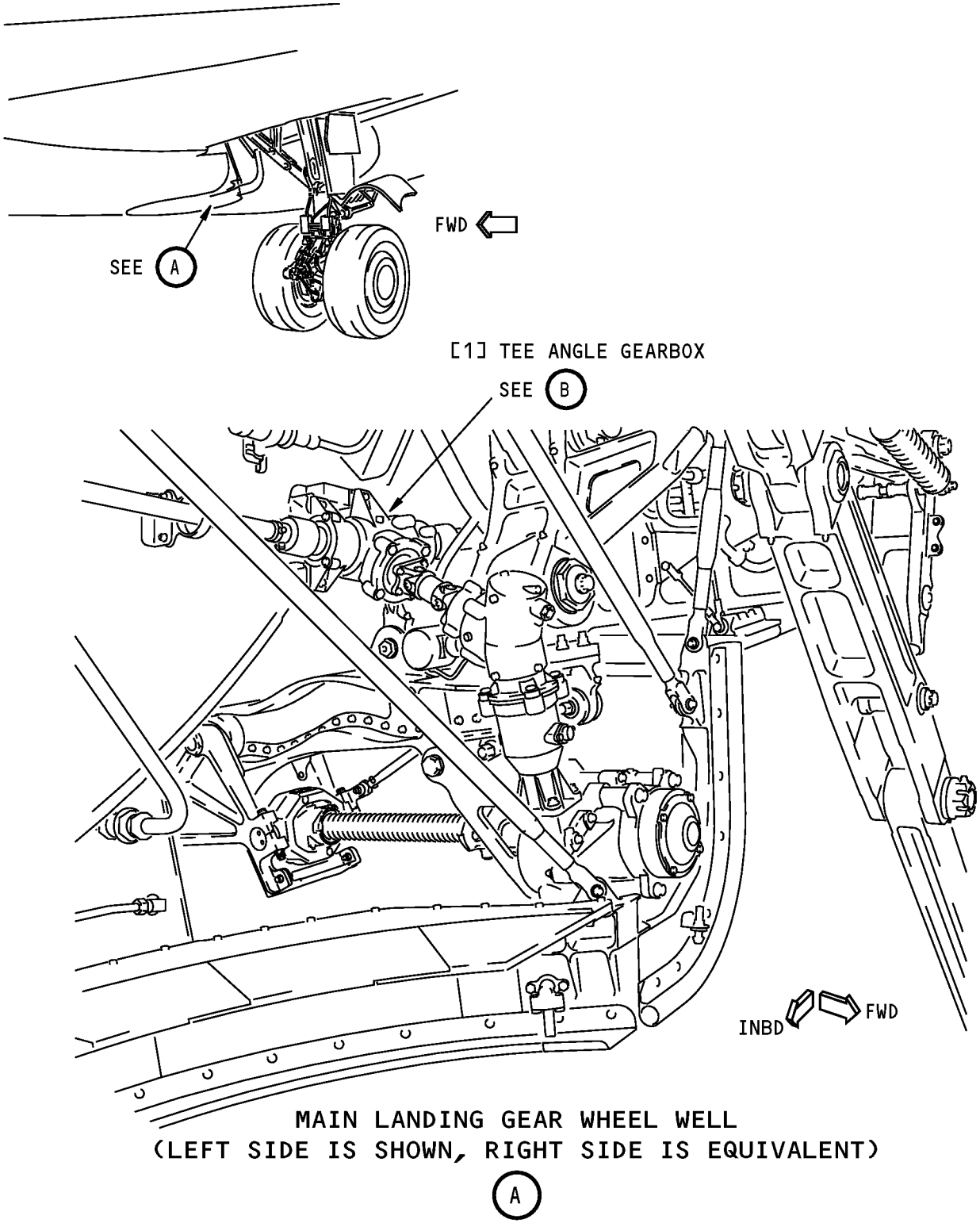

Tee Angle Gearbox Installation
Figure 401 (Sheet 1 of 2)/27-51-55-990-801

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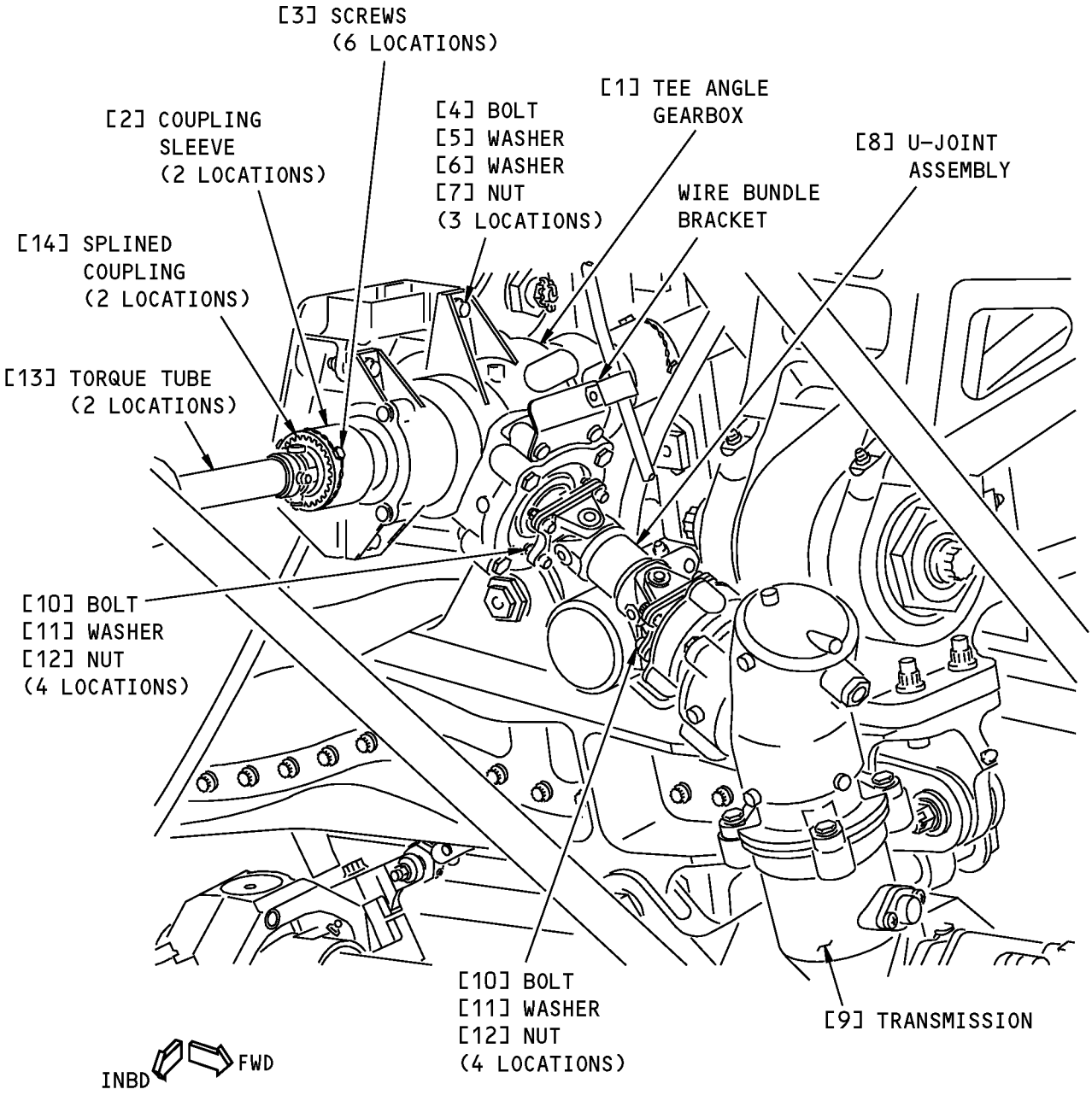

Tee Angle Gearbox Installation
Figure 401 (Sheet 2 of 2)/27-51-55-990-801

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TASK 27-51-55-400-801

3. Tee Angle Gearbox Installation

(Figure 401)

A. References

Reference	Title
12-22-51-640-801	Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication (P/B 301)
12-22-51-640-806	U-Joint and Tee Angle Gearbox Lubrication (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Gearbox assembly	27-51-55-01-020	HAP 001-013, 015-026
		27-51-55-01-023	HAP 001-013, 015-026
		27-51-55-01A-030	HAP 028-054, 101-999
		27-51-55-01A-035	HAP 028-054, 101-999
8	U joint assembly	27-51-24-04-010	HAP ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Tee Angle Gearbox Installation

SUBTASK 27-51-55-420-001

(1) Install the tee angle gearbox assembly [1]:

(a) Apply compound, C00913 to the shank and threads of the bolts [4].

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(b) Put the tee angle gearbox assembly [1] in its position on the structure.

(c) Install the bolts [4], washers [5], washers [6] and nuts [7] to attach the tee angle gearbox assembly [1].

SUBTASK 27-51-55-420-002

(2) Install the u joint assembly [8]:

(a) Put the u joint assembly [8] in its position between the transmission [9] and the tee angle gearbox assembly [1].

(b) Install the bolts [10], washers [11] and nuts [12] that attach the u joint assembly [8] to the transmission [9] and the tee angle gearbox assembly [1].

HAP 029-054, 101-999

(c) Install the wire bundle on the bracket on the tee angle gearbox assy [1].

HAP ALL

SUBTASK 27-51-55-420-003

(3) Connect the torque tubes [13] to the tee angle gearbox assembly [1]:

(a) Apply grease, D00633 to the coupling sleeves [2].

(b) Put the splined couplings [14] in the coupling sleeves [2].

(c) Install the screws [3] to attach the torque tubes [13] to the tee angle gearbox assembly [1].

(d) Install lockwire on the screws [3].

(e) Remove the clamp set, SPL-1726 from the torque tube [13] outboard of the tee angle gearbox assembly [1].

SUBTASK 27-51-55-820-001

(4) If the torque tubes [13] moved, while they were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

SUBTASK 27-51-55-640-001

(5) Lubricate the torque tubes [13], u joint assembly [8] and tee angle gearbox assembly [1]:

(a) To lubricate the torque tubes [13], do this task: Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication, TASK 12-22-51-640-801.

(b) To lubricate the u joint assembly [8] and the tee angle gearbox assembly [1], do this task: U-Joint and Tee Angle Gearbox Lubrication, TASK 12-22-51-640-806.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-55-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-55-860-001

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-55-860-002

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-51-55-710-001

(4) Use the primary system to extend the flaps to the 40-unit position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the 40-unit white band.

SUBTASK 27-51-55-710-002

(5) Use the primary system to retract the flaps to the UP position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the UP white band.

SUBTASK 27-51-55-860-003

(6) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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MLG BEAM ANGLE GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the main landing gear beam angle gearbox

(2) An installation of the main landing gear beam angle gearbox.

B. The main landing gear beam angle gearbox is installed on the main landing gear beam between the transmissions for the inboard flap.

TASK 27-51-56-000-801

2. Main Landing Gear Beam Angle Gearbox Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
550	Subzone - Left Wing: Trailing Edge, Aft of Rear Spar, Inbd of Outboard Trailing Edge Flap
553	Left Wing - Inboard Flap
650	Subzone - Right Wing: Trailing Edge, Aft of Rear Spar, Inboard of Outboard Trailing Edge Flap
653	Right Wing - Inboard Flap

D. Prepare for the Removal

SUBTASK 27-51-56-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-56-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

E. MLG Beam Angle Gearbox Removal

SUBTASK 27-51-56-020-001

(1) Disconnect the torque tubes [10] from the gearbox assembly [1]:

(a) Install clamp set, SPL-1726 on the torque tube [10] outboard of the gearbox assembly [1].

(b) Remove the screws [3] that attach the coupling sleeves [4] to the splined couplings [2].

(c) Move the coupling sleeves [4] off the splined couplings [2].

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SUBTASK 27-51-56-020-002

(2) Remove the angle gearbox assembly [1]:

(a) Remove the nuts [8], washers [7], washer [6] and bolts [5] that attach the gearbox assembly [1] to the main landing gear beam [9].

(b) Remove the gearbox assembly [1].

——————— END OF TASK ———————

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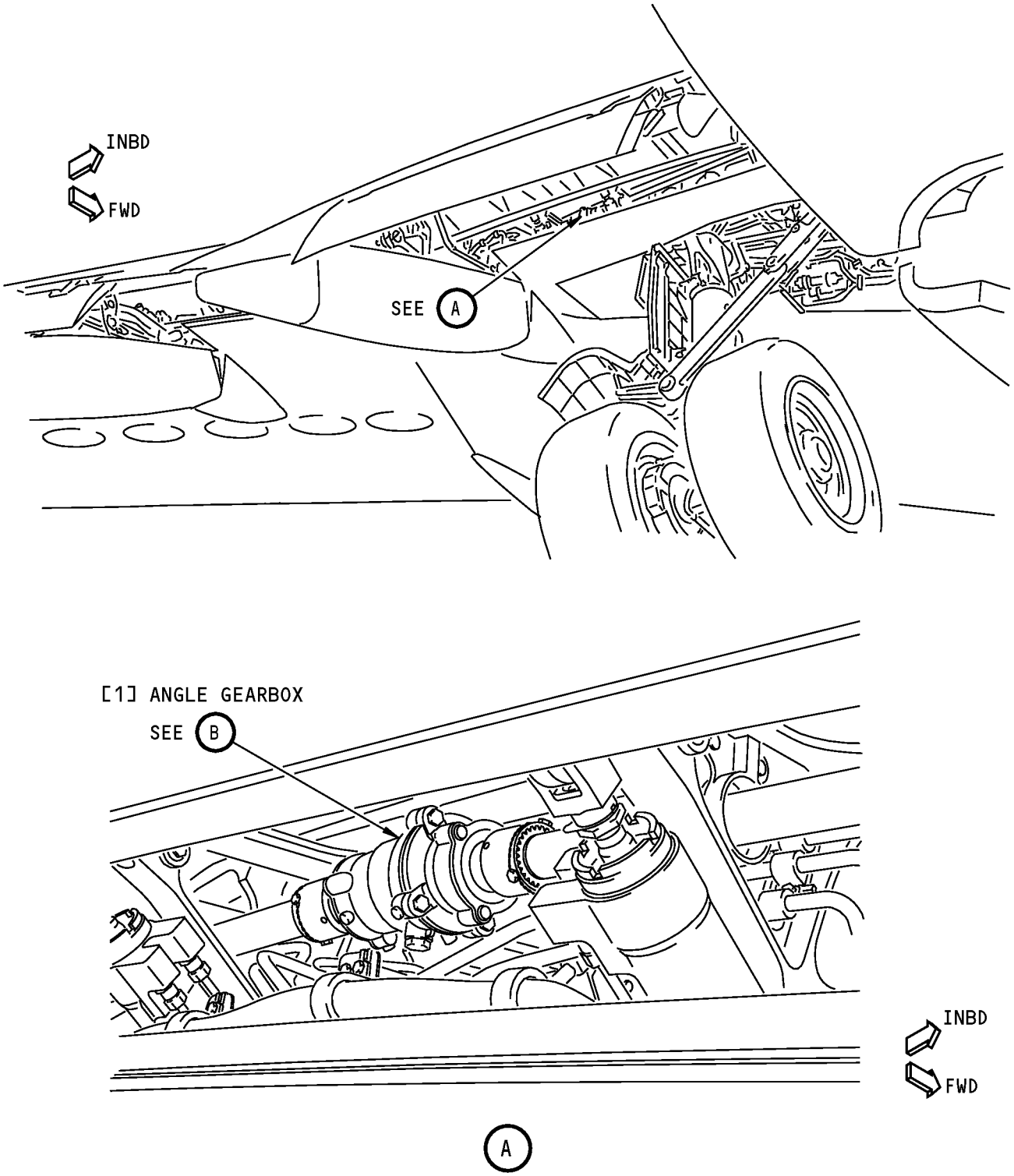

MLG Beam Angle Gearbox Installation
Figure 401 (Sheet 1 of 2)/27-51-56-990-801

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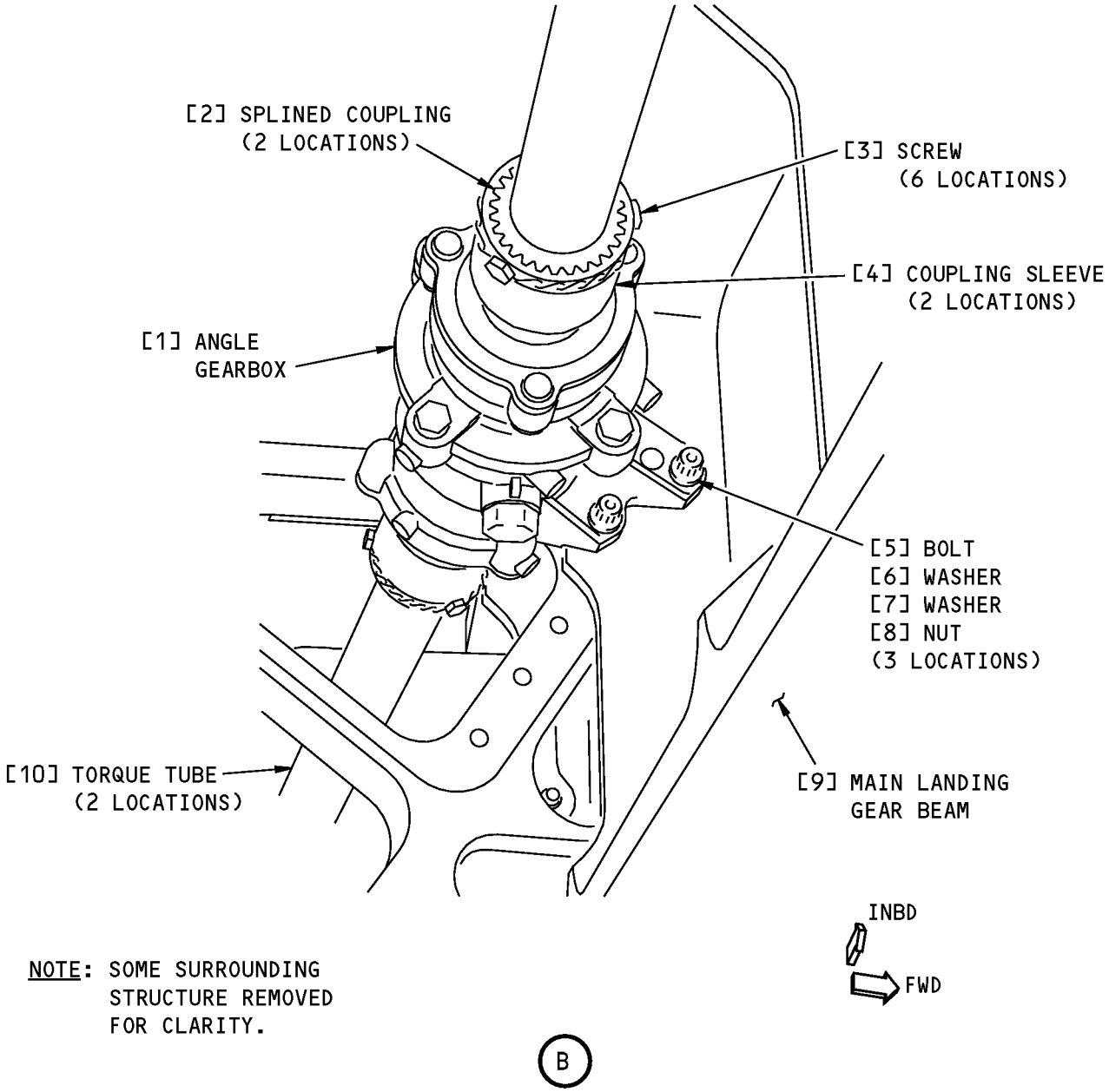

MLG Beam Angle Gearbox Installation
Figure 401 (Sheet 2 of 2)/27-51-56-990-801

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TASK 27-51-56-400-801

3. Main Landing Gear Beam Angle Gearbox Installation

(Figure 401)

A. References

Reference	Title
12-22-51-640-801	Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Gearbox assembly	27-51-56-01-010	HAP ALL
		27-51-56-01-015	HAP ALL

E. Location Zones

Zone	Area
550	Subzone - Left Wing: Trailing Edge, Aft of Rear Spar, Inbd of Outboard Trailing Edge Flap
553	Left Wing - Inboard Flap
650	Subzone - Right Wing: Trailing Edge, Aft of Rear Spar, Inboard of Outboard Trailing Edge Flap
653	Right Wing - Inboard Flap

F. MLG Beam Angle Gearbox Installation

SUBTASK 27-51-56-420-001

(1) Install the angle gearbox assembly [1]:

(a) Apply a layer of compound, C00913 to the mating surface of the gearbox assembly [1] and the main landing gear beam [9].

(b) Put the angle gearbox assembly [1] in its position on the main landing gear beam [9].

(c) Apply compound, C00913 to the shank and threads of the bolts [5].

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(d) Install the bolts [5], washers [6], washers [7] and nuts [8] to attach the gearbox assembly [1] to the main landing gear beam [9].

SUBTASK 27-51-56-420-002

(2) Connect the torque tubes [10] to the gearbox assembly [1]:

(a) Apply grease, D00633 to the coupling sleeves [4].

(b) Put the splined couplings [2] in the coupling sleeves [4].

(c) Install the screws [3] to attach the torque tubes [10] to the gearbox assembly [1].

(d) Install lockwire on the screws [3].

(e) Remove the clamp set, SPL-1726 from the torque tubes [10] outboard of the gearbox assembly [1].

SUBTASK 27-51-56-820-001

(3) If the torque tubes [10] moved, while they were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

SUBTASK 27-51-56-600-001

(4) Lubricate the torque tubes [10]. To lubricate the torque tubes [10], do this task: Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication, TASK 12-22-51-640-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-56-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-56-710-001

(2) Use the primary system to retract the flaps to the UP position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the UP white band.

SUBTASK 27-51-56-710-002

(3) Use the primary system to extend the flaps to the 40-unit position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the 40-unit white band.

SUBTASK 27-51-56-860-002

(4) Use the primary system to retract the flaps to the UP position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

——————— END OF TASK ———————

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SEAL RIB ANGLE GEARBOX - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the seal rib angle gearbox

(2) An installation of the seal rib angle gearbox.

B. The seal rib angle gearbox is installed between the seal ribs between the inboard and outboard flap.

TASK 27-51-57-000-801

2. Seal Rib Angle Gearbox Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
561	Left Wing - Rear Spar to Trailing Edge, Outboard Of Inboard Flap, Inboard of Fixed Trailing Edge
661	Right Wing - Rear Spar to Trailing Edge, Outboard of Inboard Flap, Inboard of Fixed Trailing Edge

D. Access Panels

Number	Name/Location
561AB	Midspan Fixed Trailing Edge Access Panel - WBL 224
661AB	Midspan Fixed T.E. Panel

E. Prepare for the Removal

SUBTASK 27-51-57-040-001

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-57-010-001

(2) Below the seal rib angle gear assembly [5], do this task:

Remove this access panel:

Number	Name/Location
561AB	Midspan Fixed Trailing Edge Access Panel - WBL 224

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or open this access panel:

Number	Name/Location
661AB	Midspan Fixed T.E. Panel

F. Seal Rib Angle Gearbox Removal

SUBTASK 27-51-57-020-001

(1) Disconnect the torque tubes [3] from the seal rib angle gear assembly [5]:

(a) Install clamp set, SPL-1726 on the torque tube [3] outboard of the seal rib angle gear assembly [5].

(b) Remove the screws [4] that attach the coupling sleeves [1] to the splined couplings [2].

(c) Move the coupling sleeves [1] off the splined couplings [2].

SUBTASK 27-51-57-020-002

(2) Remove the seal rib angle gear assembly [5]:

(a) Remove the nuts [9], washers [8], washers [7] and bolts [6] that attach the seal rib angle gear assembly [5] to the rib [10].

(b) Remove the seal rib angle gear assembly [5].

END OF TASK

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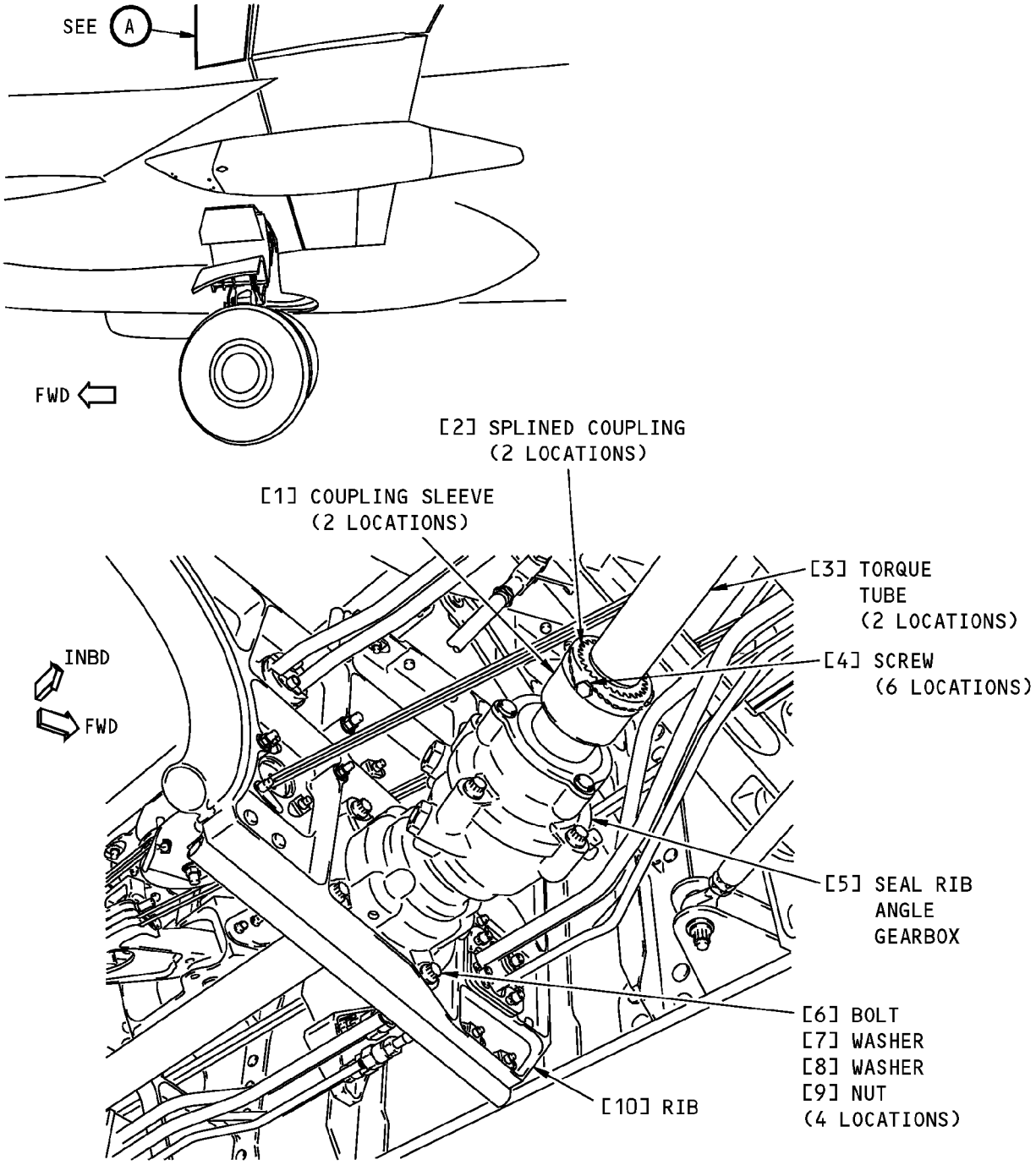

Seal Rib Angle Gearbox Installation
Figure 401/27-51-57-990-801

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TASK 27-51-57-400-801

3. Seal Rib Angle Gearbox Installation

(Figure 401)

A. References

Reference	Title
12-22-51-640-801	Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
5	Gear assembly	27-51-57-01-010	HAP ALL

E. Location Zones

Zone	Area
561	Left Wing - Rear Spar to Trailing Edge, Outboard Of Inboard Flap, Inboard of Fixed Trailing Edge
661	Right Wing - Rear Spar to Trailing Edge, Outboard of Inboard Flap, Inboard of Fixed Trailing Edge

F. Access Panels

Number	Name/Location
561AB	Midspan Fixed Trailing Edge Access Panel - WBL 224
661AB	Midspan Fixed T.E. Panel

G. Seal Rib Angle Gearbox Installation

SUBTASK 27-51-57-420-001

(1) Install the seal rib angle gear assembly [5]:

(a) Put the seal rib angle gear assembly [5] in its position on the rib [10].

(b) Apply compound, C00913 to the shank and threads of the bolts [6].

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(c) Install the bolts [6], washers [7], washers [8] and nuts [9] to attach the seal rib angle gear assembly [5] to the rib [10].

SUBTASK 27-51-57-420-002

(2) Connect the torque tubes [3] to the seal rib angle gear assembly [5]:

(a) Apply grease, D00633 to the coupling sleeves [1].

(b) Put the splined couplings [2] in the coupling sleeves [1].

(c) Install the screws [4] to attach the torque tubes [3] to the seal rib angle gear assembly [5].

(d) Install lockwire on the screws [4].

(e) Remove the clamp set, SPL-1726 from the torque tubes [3] outboard of the seal rib angle gear assembly [5].

SUBTASK 27-51-57-820-001

(3) If the torque tubes [3] moved, while they were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

SUBTASK 27-51-57-640-001

(4) Lubricate the torque tubes [3]. To lubricate the torque tube, do this task: Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication, TASK 12-22-51-640-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-57-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-57-710-001

(2) Use the primary system to extend the flaps to the 40-unit position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the 40-unit white band.

SUBTASK 27-51-57-710-002

(3) Use the primary system to retract the flaps to the UP position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the UP white band.

SUBTASK 27-51-57-410-001

(4) Below the seal rib seal rib angle gear assembly [5], do this task:

Install this access panel:

Number	Name/Location
561AB	Midspan Fixed Trailing Edge Access Panel - WBL 224

or close this access panel:

Number	Name/Location
661AB	Midspan Fixed T.E. Panel

END OF TASK

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FLAP TORQUE TUBES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard wing flap torque tubes

(2) An installation of the outboard wing flap torque tubes

(3) A removal of the inboard wing flap torque tubes

(4) An installation of the inboard wing flap torque tubes

(5) A removal of the flap torque tubes in the wheel well area

(6) An installation of the flap torque tubes in the wheel well area.

TASK 27-51-58-000-801

2. Outboard Wing Flap Torque Tube Removal

(Figure 401)

A. General

(1) This task is applicable to the torque tubes outboard of the seal rib angle gearbox.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
561	Left Wing - Rear Spar to Trailing Edge, Outboard Of Inboard Flap, Inboard of Fixed Trailing Edge
567	Left Wing - Outboard Flap
661	Right Wing - Rear Spar to Trailing Edge, Outboard of Inboard Flap, Inboard of Fixed Trailing Edge
667	Right Wing - Outboard Flap

E. Prepare for the Removal

SUBTASK 27-51-58-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-58-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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F. Outboard Wing Flap Torque Tube Removal

SUBTASK 27-51-58-480-001

(1) Install the clamp set, SPL-1726 on the torque tubes inboard and outboard of the applicable torque tube (Figure 402):

NOTE: The clamp set can be used to stop inadvertent movement of the flap drive system while the torque tubes are disconnected. If the flap drive system moves, then it will be necessary to do the flap drive system adjustment.

(a) Put the clamp assembly in its location on the applicable torque tube.

(b) Turn the knob to tighten the clamp assembly on the torque tube.

(c) Turn the rod until it touches the structure to make sure the clamp assembly does not turn.

SUBTASK 27-51-58-020-001

(2) Remove the applicable torque tube guard [10]:

(a) Remove the nuts [9], washers [8] and the bolts [7], bolts [11] or bolts [12] that attach the torque tube guard [10].

(b) Remove the torque tube guard [10] from the torque tube.

SUBTASK 27-51-58-020-002

(3) Remove the tube assembly [1], tube assembly [2] or tube assembly [3]:

(a) Remove the screws [6] that attach the coupling sleeves [5] to the splined couplings [4].

(b) Move the coupling sleeves [5] off the splined couplings [4].

(c) Remove the tube assembly [1], tube assembly [2] or tube assembly [3].

———————— END OF TASK ————————

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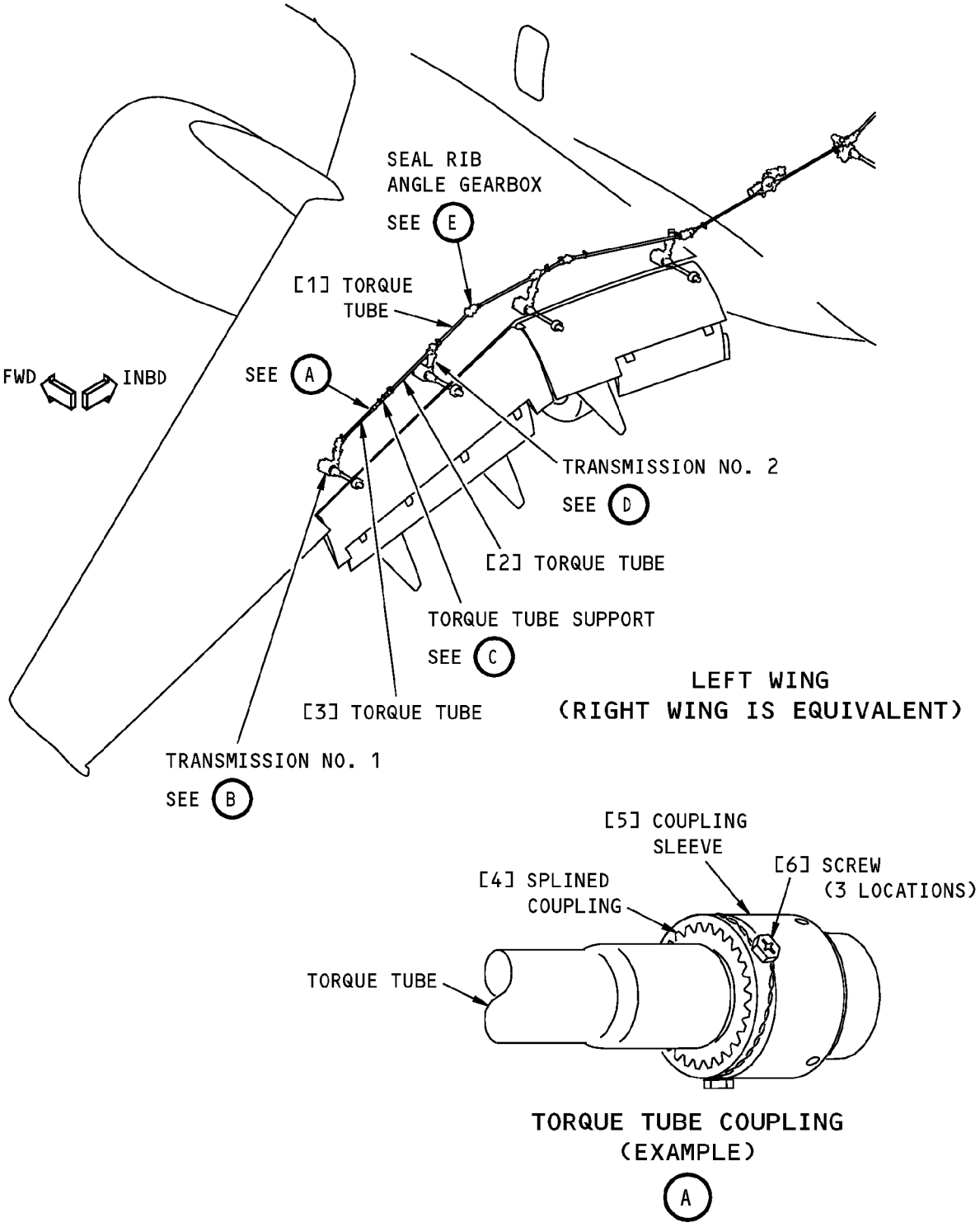

Outboard Wing Flap Torque Tube Installation
Figure 401 (Sheet 1 of 3)/27-51-58-990-801

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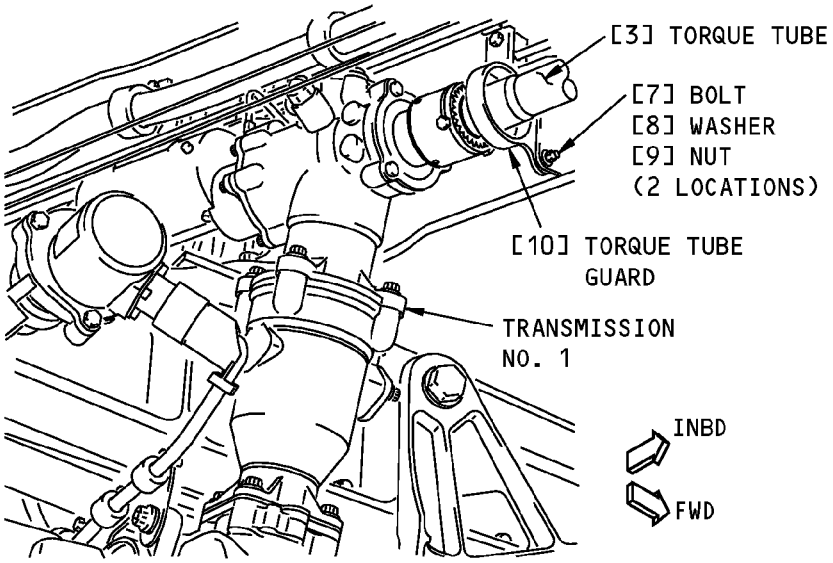

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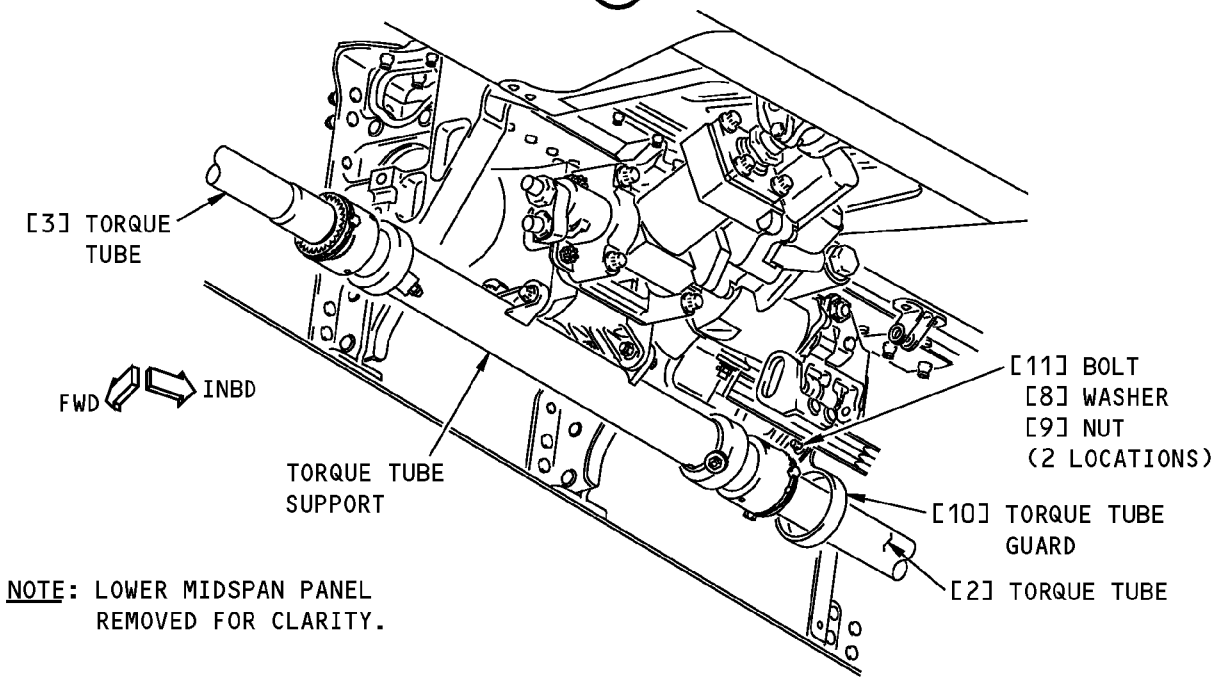

TORQUE TUBE SUPPORT

C

Outboard Wing Flap Torque Tube Installation
Figure 401 (Sheet 2 of 3)/27-51-58-990-801

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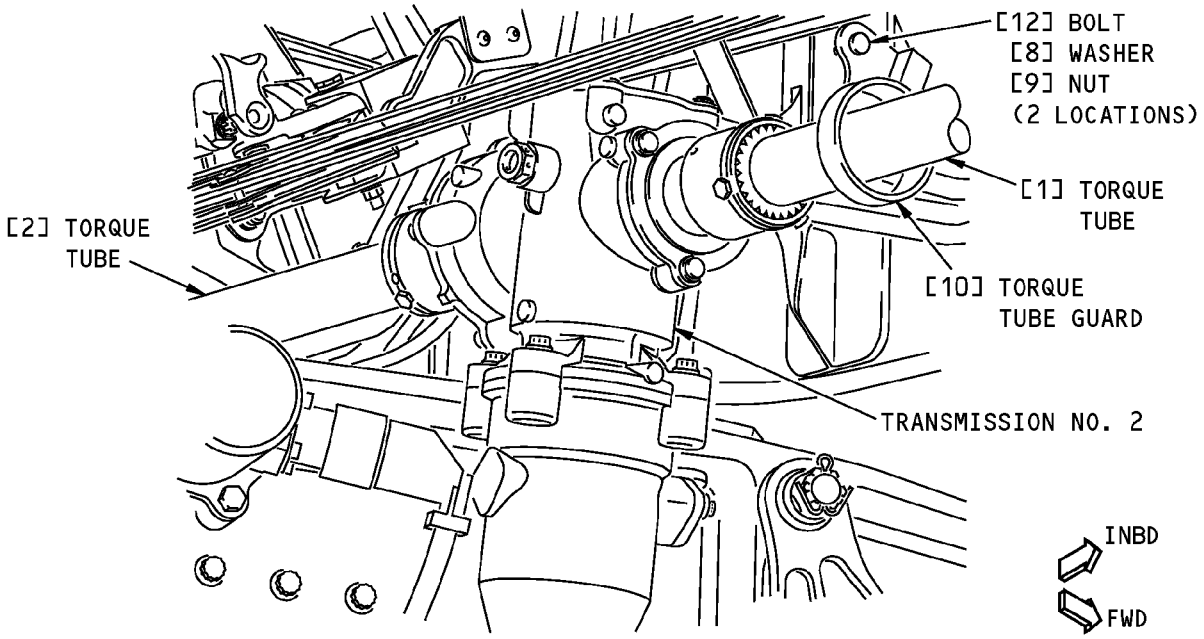

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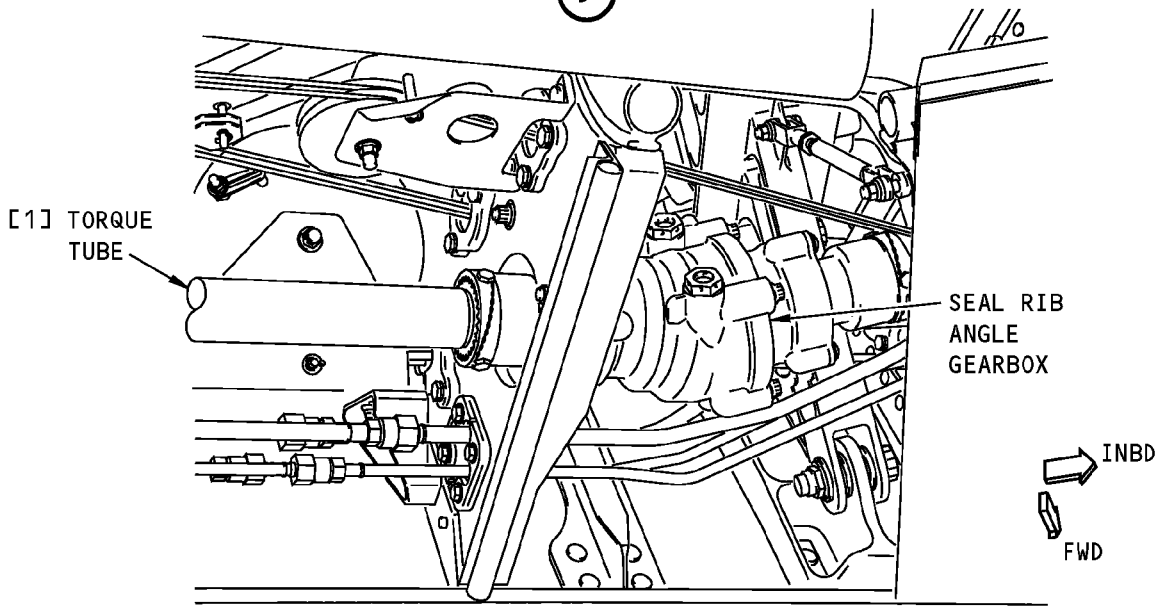

SEAL RIB ANGLE GEARBOX

E

Outboard Wing Flap Torque Tube Installation
Figure 401 (Sheet 3 of 3)/27-51-58-990-801

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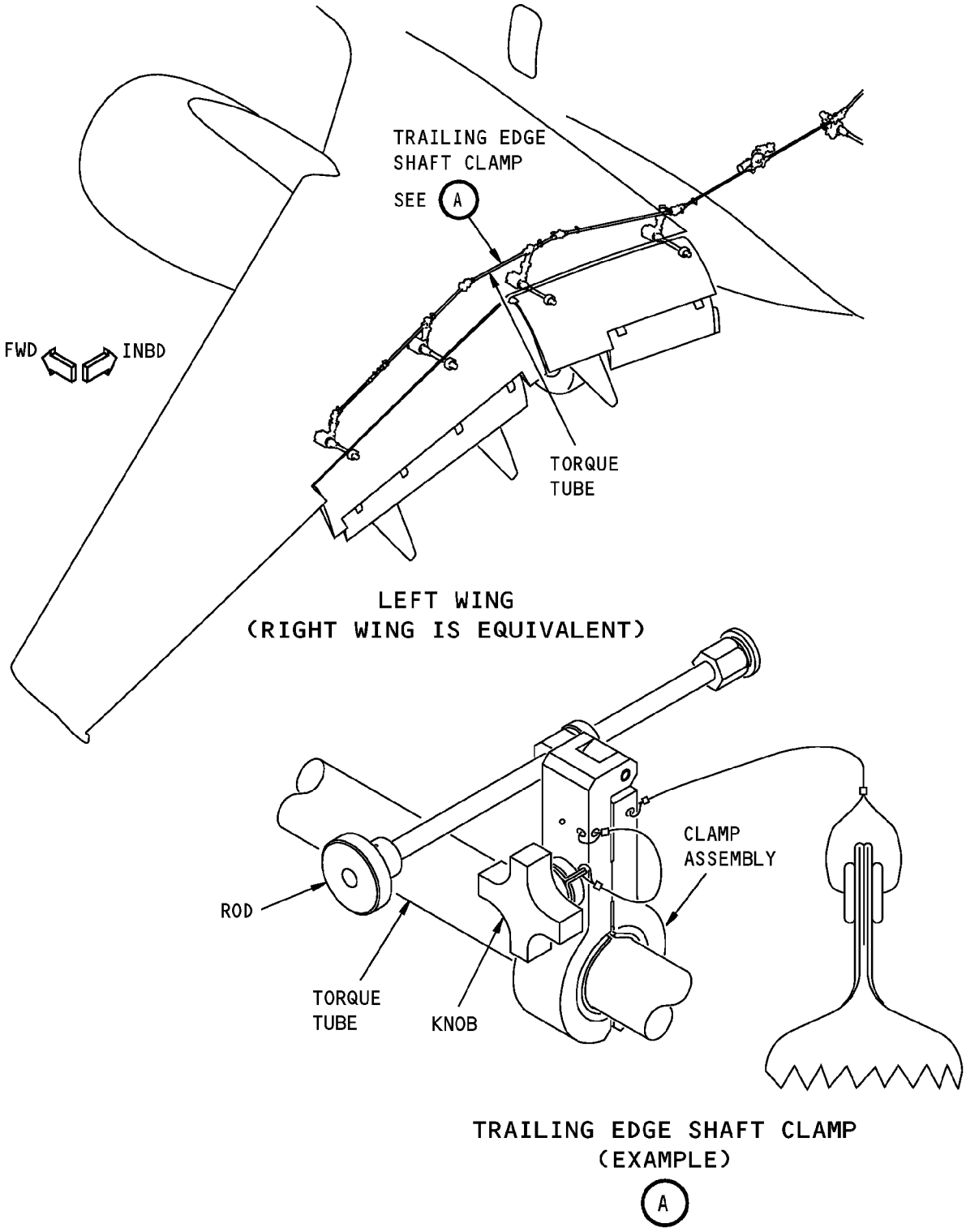

Torque Tube Clamp Installation
Figure 402/27-51-58-990-802

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TASK 27-51-58-400-801

3. Outboard Wing Flap Torque Tube Installation

(Figure 401)

A. General

(1) This task is applicable to the torque tubes outboard of the seal rib angle gearbox.

B. References

Reference	Title
12-22-51-640-801	Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Tube assembly	27-51-58-10-025	HAP ALL
2	Tube assembly	27-51-58-01-005	HAP ALL
		27-51-58-10-020	HAP ALL
3	Tube assembly	27-51-58-10-015	HAP ALL

F. Location Zones

Zone	Area
561	Left Wing - Rear Spar to Trailing Edge, Outboard Of Inboard Flap, Inboard of Fixed Trailing Edge
567	Left Wing - Outboard Flap
661	Right Wing - Rear Spar to Trailing Edge, Outboard of Inboard Flap, Inboard of Fixed Trailing Edge
667	Right Wing - Outboard Flap

G. Outboard Wing Flap Torque Tube Installation

SUBTASK 27-51-58-420-001

(1) Install the tube assembly [1], tube assembly [2] or tube assembly [3]:

(a) Apply grease, D00633 to the coupling sleeves [5].

(b) Put the tube assembly [1], tube assembly [2] or tube assembly [3] in its position.

(c) Put the coupling sleeves [5] on the splined couplings [4].

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(d) Install the screws [6] to attach the coupling sleeves [5] to the splined couplings [4].

(e) Install the lockwire on the screws [6].

SUBTASK 27-51-58-080-001

(2) Remove the clamp set, SPL-1726 from the torque tubes.

SUBTASK 27-51-58-420-002

(3) Install the applicable torque tube guard [10]:

(a) Put the torque tube guard [10] on the torque tube.

(b) Install the bolts [7], bolts [11], or bolts [12], washers [8] and nuts [9] that attach the torque tube guard [10].

SUBTASK 27-51-58-820-001

(4) If a torque tube turned while the torque tubes were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-58-640-001

(1) For the applicable torque tube, do this task: Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication, TASK 12-22-51-640-801.

SUBTASK 27-51-58-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-58-710-001

(3) Use the primary system to retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the UP white band.

SUBTASK 27-51-58-710-002

(4) Use the primary system to extend the flaps to the 40-unit position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the 40-unit white band.

SUBTASK 27-51-58-710-003

(5) Use the primary system to retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

——————— END OF TASK ———————

TASK 27-51-58-000-802

4. Inboard Wing Flap Torque Tube Removal

(Figure 403)

A. General

(1) This task is applicable to the torque tubes inboard of the seal rib angle gearbox and outboard of the Tee angle gearbox.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

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C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
550	Subzone - Left Wing: Trailing Edge, Aft of Rear Spar, Inbd of Outboard Trailing Edge Flap
553	Left Wing - Inboard Flap
650	Subzone - Right Wing: Trailing Edge, Aft of Rear Spar, Inboard of Outboard Trailing Edge Flap
653	Right Wing - Inboard Flap

E. Prepare for the Removal

SUBTASK 27-51-58-860-002

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-58-480-004

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-58-040-002

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

F. Inboard Wing Flap Torque Tube Removal

SUBTASK 27-51-58-480-002

(1) Install the clamp set, SPL-1726 on the torque tubes inboard and outboard of the applicable torque tube (Figure 402):

NOTE: The clamp set can be used to stop inadvertent movement of the flap drive system while the torque tubes are disconnected. If the flap drive system moves, then it will be necessary to do the flap drive system adjustment.

(a) Put the clamp assembly in its location on the applicable torque tube.

(b) Turn the knob to tighten the clamp assembly on the torque tube.

(c) Turn the rod until it touches the structure to make sure the clamp assembly does not turn.

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SUBTASK 27-51-58-020-003

(2) For tube assembly [32] or tube assembly [33], remove the applicable torque tube guard [37]:

NOTE: The tube assembly [31] does not have a torque tube guard [37].

(a) Remove the nuts [36], washers [35], bolts [34] or bolts [38] that attach the torque tube guard [37].

(b) Remove the torque tube guard [37] from the torque tube.

SUBTASK 27-51-58-020-004

(3) Remove the tube assembly [31], tube assembly [32] or tube assembly [33]:

(a) Remove the screws [6] that attach the coupling sleeves [5] to the splined couplings [4].

(b) Move the coupling sleeves [5] off the splined couplings [4].

(c) Remove the tube assembly [31], tube assembly [32] or tube assembly [33].

——————— END OF TASK ———————

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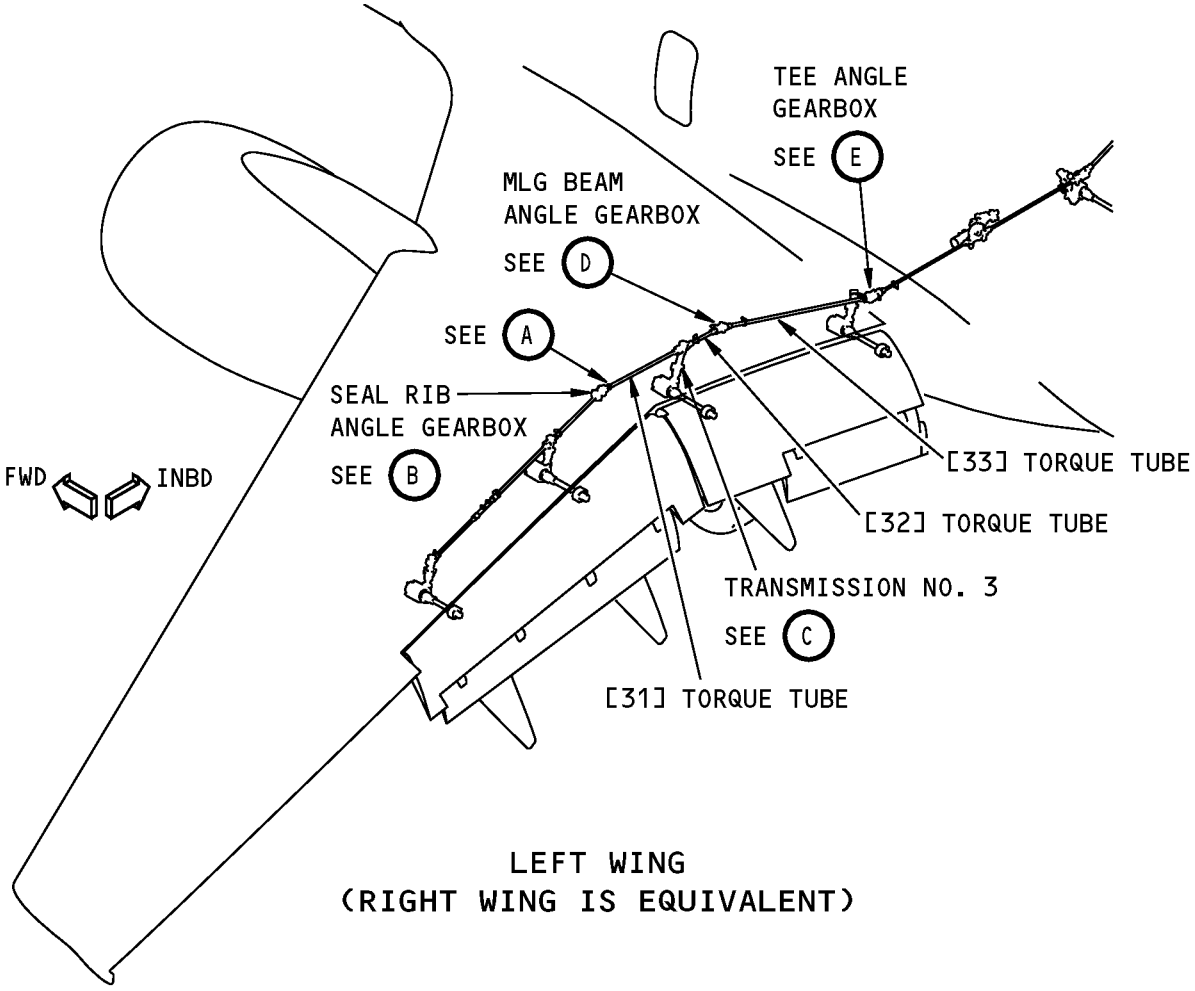

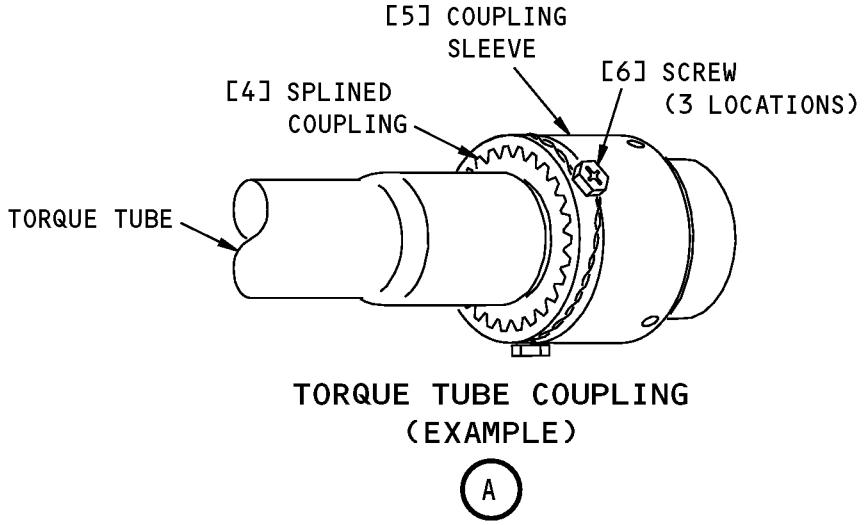

Inboard Wing Flap Torque Tube Installation
Figure 403 (Sheet 1 of 3)/27-51-58-990-803

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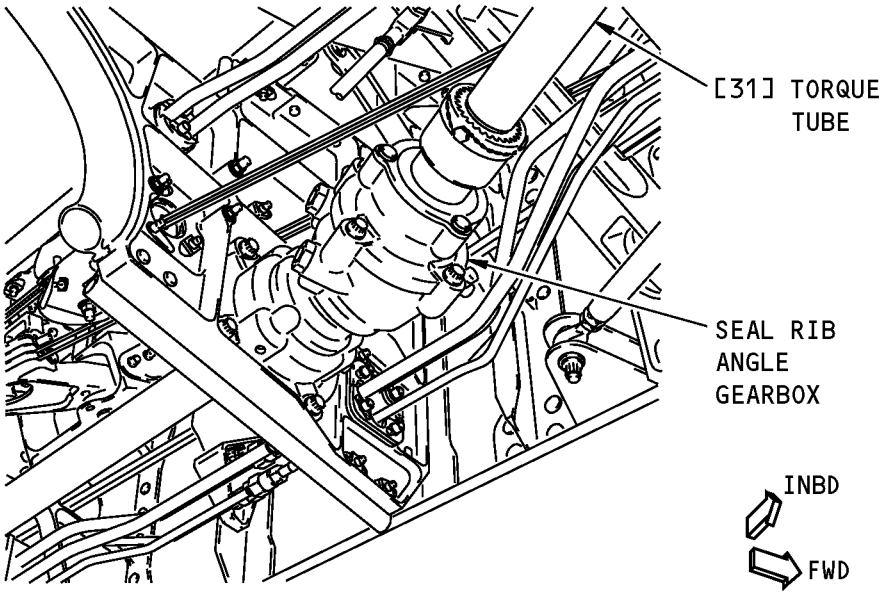
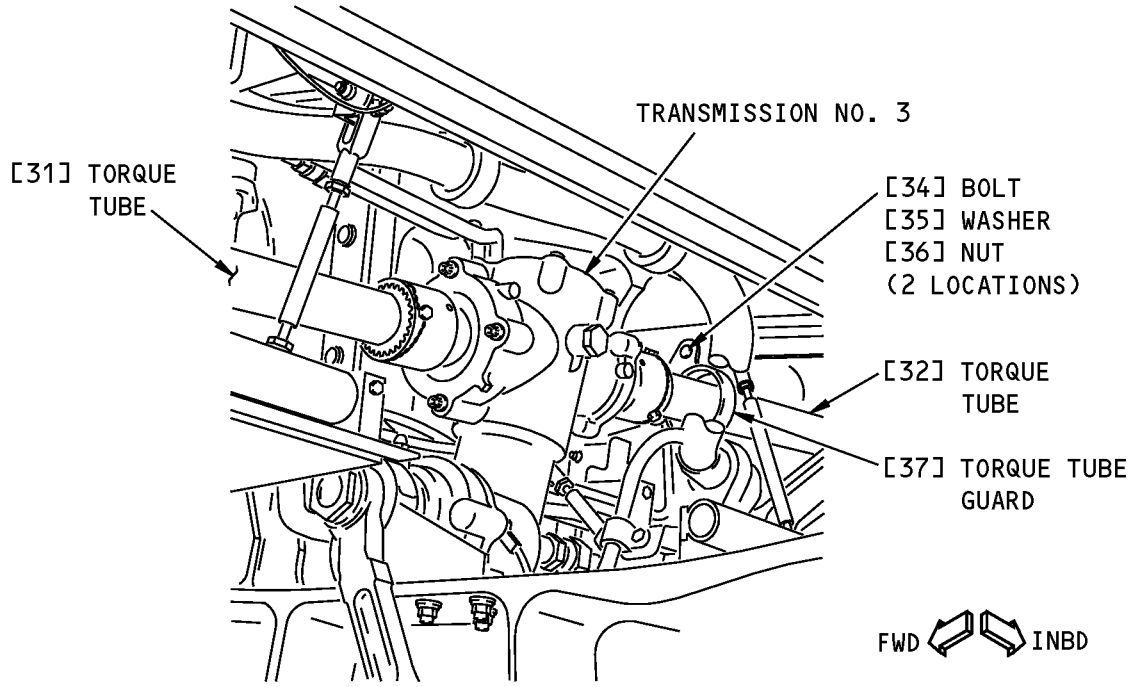


SEAL RIB ANGLE GEARBOX

B



TRANSMISSION NO. 3

C

Inboard Wing Flap Torque Tube Installation
Figure 403 (Sheet 2 of 3)/27-51-58-990-803

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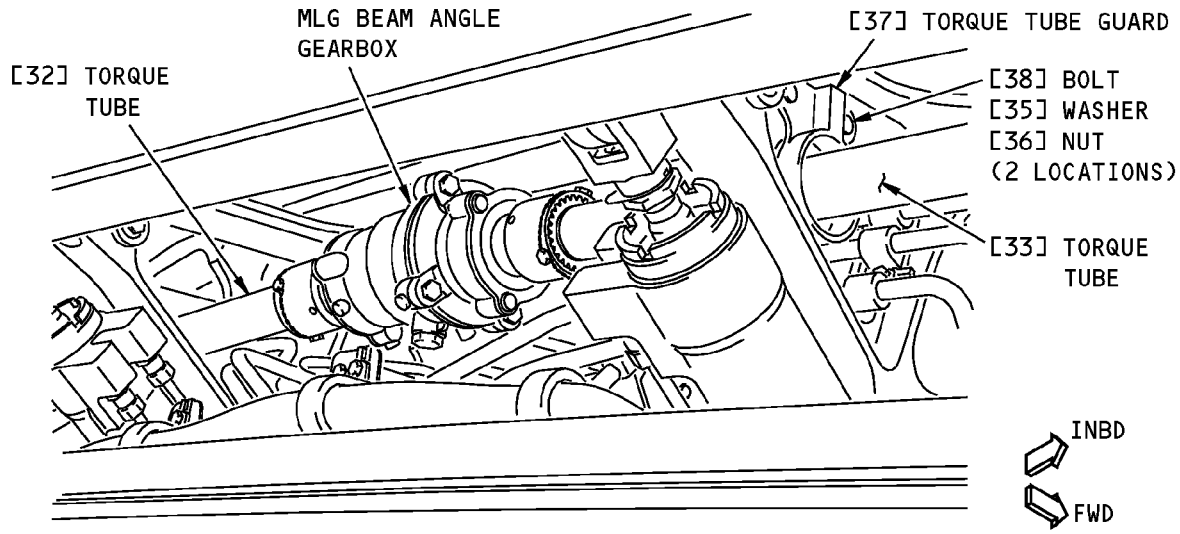
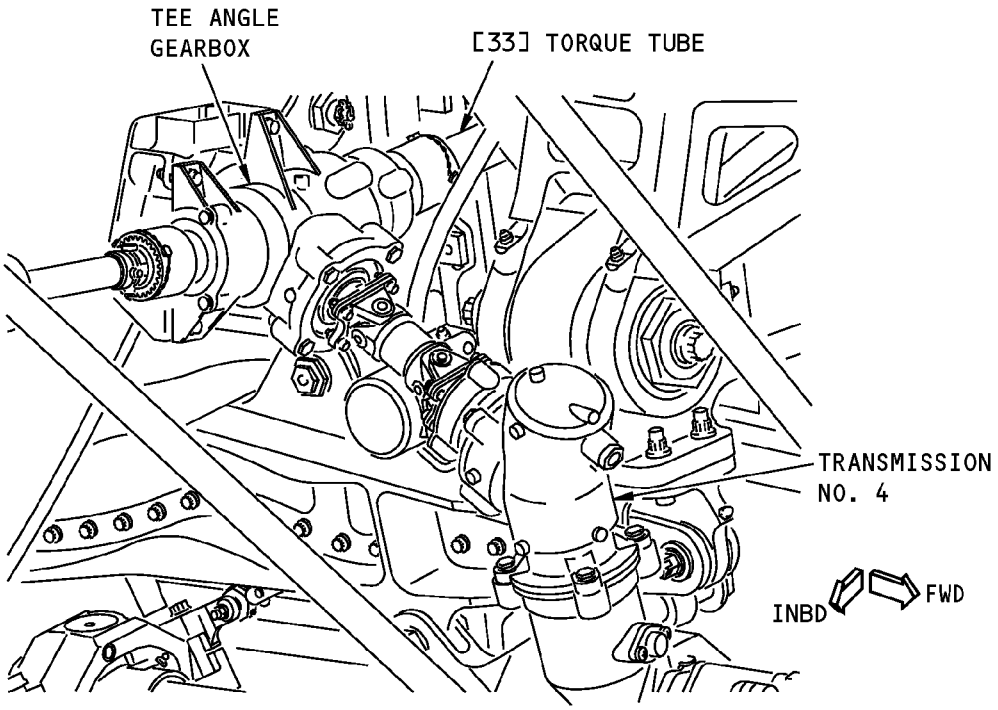


MLG BEAM ANGLE GEARBOX

D



TEE ANGLE GEARBOX

E

Inboard Wing Flap Torque Tube Installation
Figure 403 (Sheet 3 of 3)/27-51-58-990-803

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TASK 27-51-58-400-802

5. Inboard Wing Flap Torque Tube Installation

(Figure 403)

A. General

(1) This task is applicable to the torque tubes inboard of the seal rib angle gearbox and outboard of the Tee angle gearbox.

B. References

Reference	Title
12-22-51-640-801	Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
31	Tube assembly	27-51-58-10-030	HAP ALL
32	Tube assembly	27-51-58-10-035	HAP ALL
33	Tube assembly	27-51-58-03-030	HAP ALL

F. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
550	Subzone - Left Wing: Trailing Edge, Aft of Rear Spar, Inbd of Outboard Trailing Edge Flap
553	Left Wing - Inboard Flap
650	Subzone - Right Wing: Trailing Edge, Aft of Rear Spar, Inboard of Outboard Trailing Edge Flap
653	Right Wing - Inboard Flap

G. Inboard Wing Flap Torque Tube Installation

SUBTASK 27-51-58-420-003

(1) Install the tube assembly [31], tube assembly [32] or tube assembly [33]:

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(a) Apply grease, D00633 to the coupling sleeves [5].

(b) Put the tube assembly [31], tube assembly [32] or tube assembly [33] in its position.

(c) Put the coupling sleeves [5] on the splined couplings [4].

(d) Install the screws [6] to attach the coupling sleeves [5] to the splined couplings [4].

(e) Install the lockwire on the screws [6].

SUBTASK 27-51-58-080-002

(2) Remove the clamp set, SPL-1726 from the torque tubes.

SUBTASK 27-51-58-420-004

(3) For tube assembly [32] or tube assembly [33], install the applicable torque tube guard [37]:

(a) Put the torque tube guard [37] on the torque tube.

(b) Install the bolts [34], or bolts [38], washers [35] and nuts [36] that attach the torque tube guard [37].

SUBTASK 27-51-58-820-002

(4) If a torque tube turned while the torque tubes were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-58-640-002

(1) For the applicable torque tube, do this task: Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication, TASK 12-22-51-640-801.

SUBTASK 27-51-58-440-002

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-58-710-004

(3) Use the primary system to retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the UP white band.

SUBTASK 27-51-58-710-005

(4) Use the primary system to extend the flaps to the 40-unit position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the 40-unit white band.

SUBTASK 27-51-58-710-006

(5) Use the primary system to retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

——————— END OF TASK ———————

TASK 27-51-58-000-803

6. Wheel Well Flap Torque Tube Removal

(Figure 404)

A. General

(1) This task is applicable to the torque tubes in the wheel well between the Tee angle gearboxes.

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B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Removal

SUBTASK 27-51-58-480-005

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-58-040-003

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

F. Wheel Well Flap Torque Tube Removal

SUBTASK 27-51-58-480-003

(1) Install the clamp set, SPL-1726 on a torque tube outboard of the applicable torque tube (Figure 402):

NOTE: The clamp set can be used to stop inadvertent movement of the flap drive system while the torque tubes are disconnected. If the flap drive system moves, then it will be necessary to do the flap drive system adjustment.

(a) Put the clamp assembly in its location on the applicable torque tube.

(b) Turn the knob to tighten the clamp assembly on the torque tube.

(c) Turn the rod until it touches the structure to make sure the clamp assembly does not turn.

SUBTASK 27-51-58-020-005

(2) Remove the torque tube guard [52]:

(a) Remove the nuts [55] , washers [54] and bolts [53] that attach the torque tube guard [52].

(b) Remove the torque tube guard [52] from the tube assembly [51].

SUBTASK 27-51-58-020-006

(3) Remove the tube assembly [51]:

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(a) Remove the screws [6] that attach the coupling sleeves [5] to the splined couplings [4].

(b) Move the coupling sleeves [5] off the splined couplings [4].

(c) Remove the tube assembly [51].

——————— END OF TASK ———————

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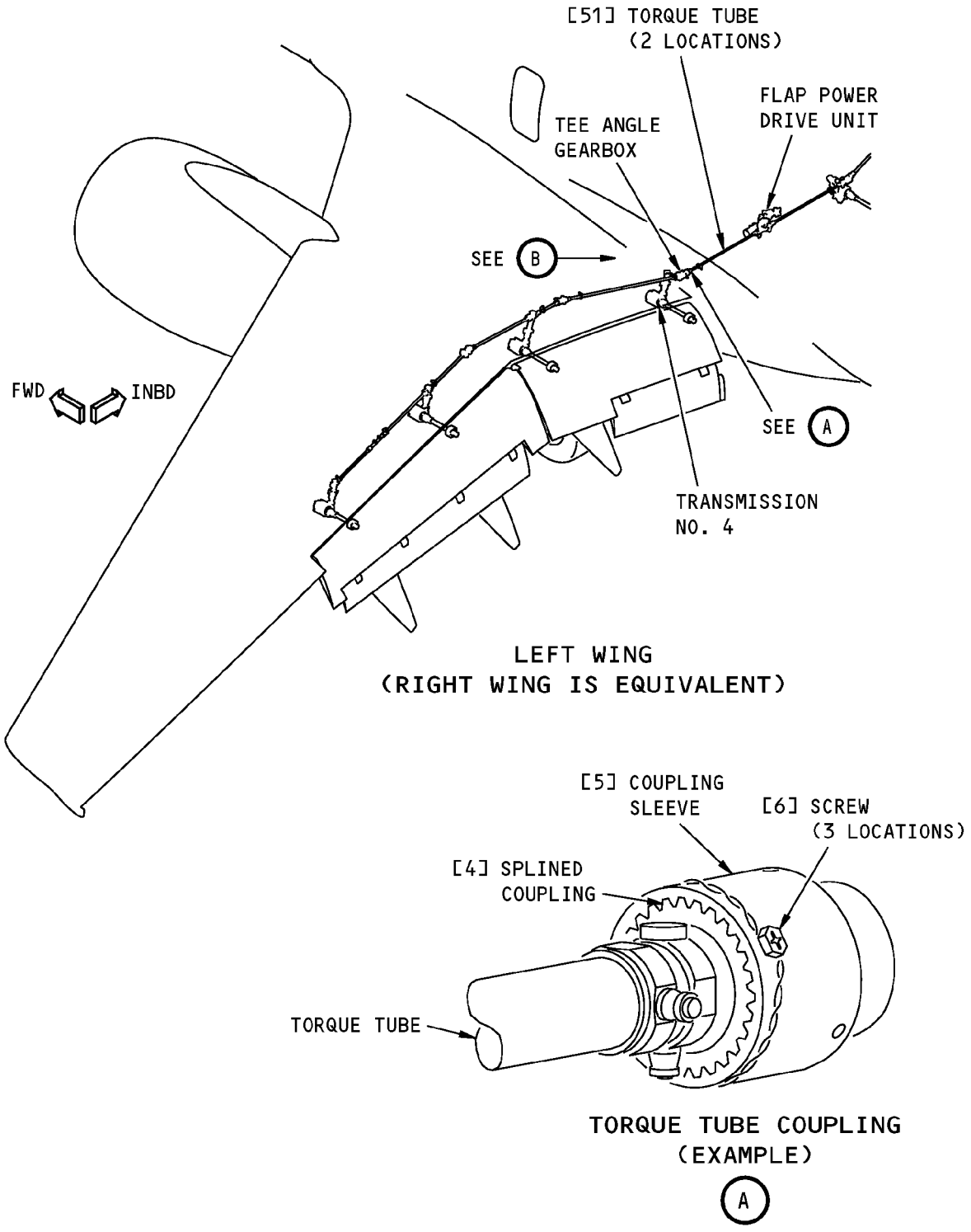

Wheel Well Flap Torque Tube Installation
Figure 404 (Sheet 1 of 3)/27-51-58-990-804

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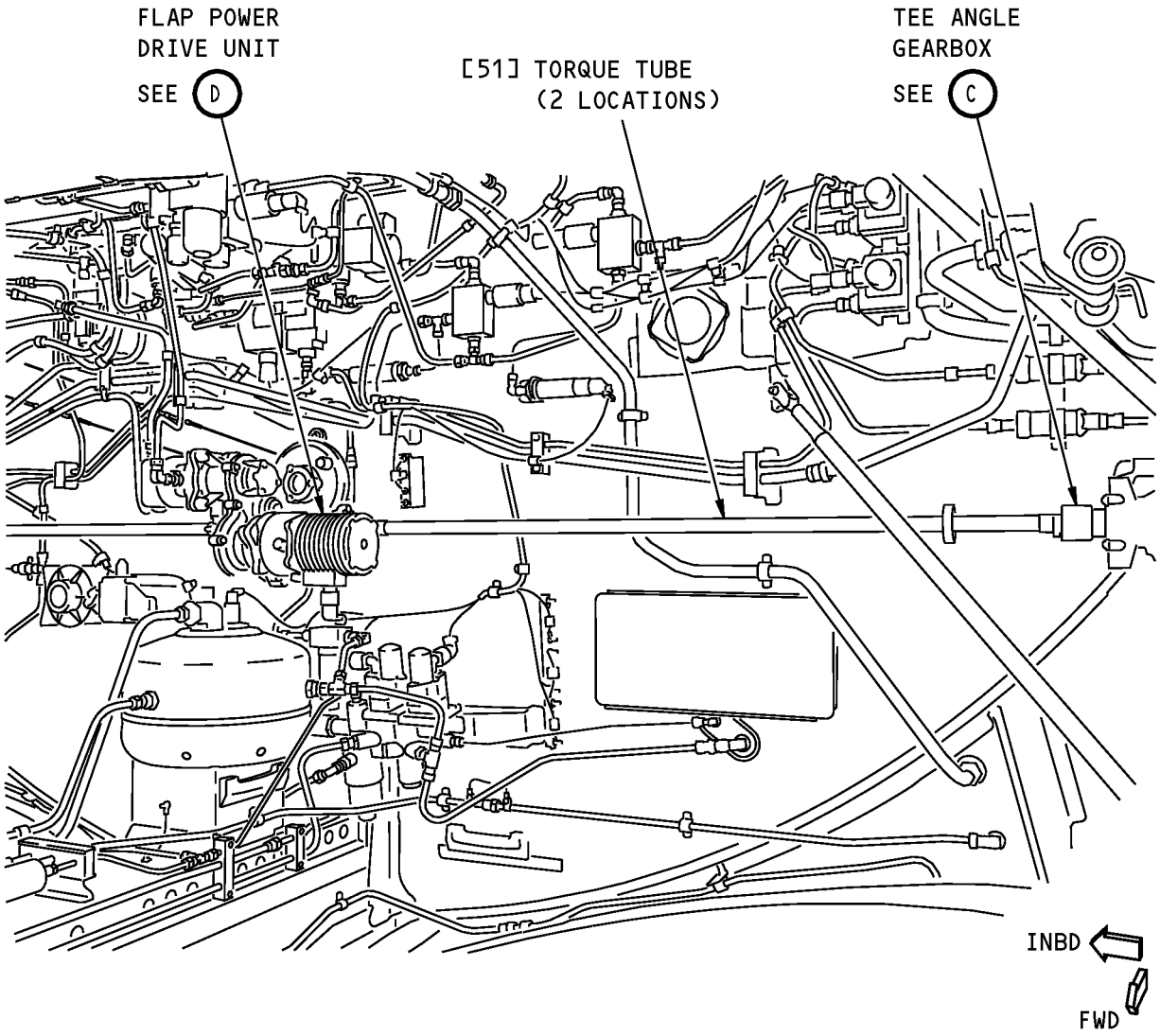

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)

B

Wheel Well Flap Torque Tube Installation
Figure 404 (Sheet 2 of 3)/27-51-58-990-804

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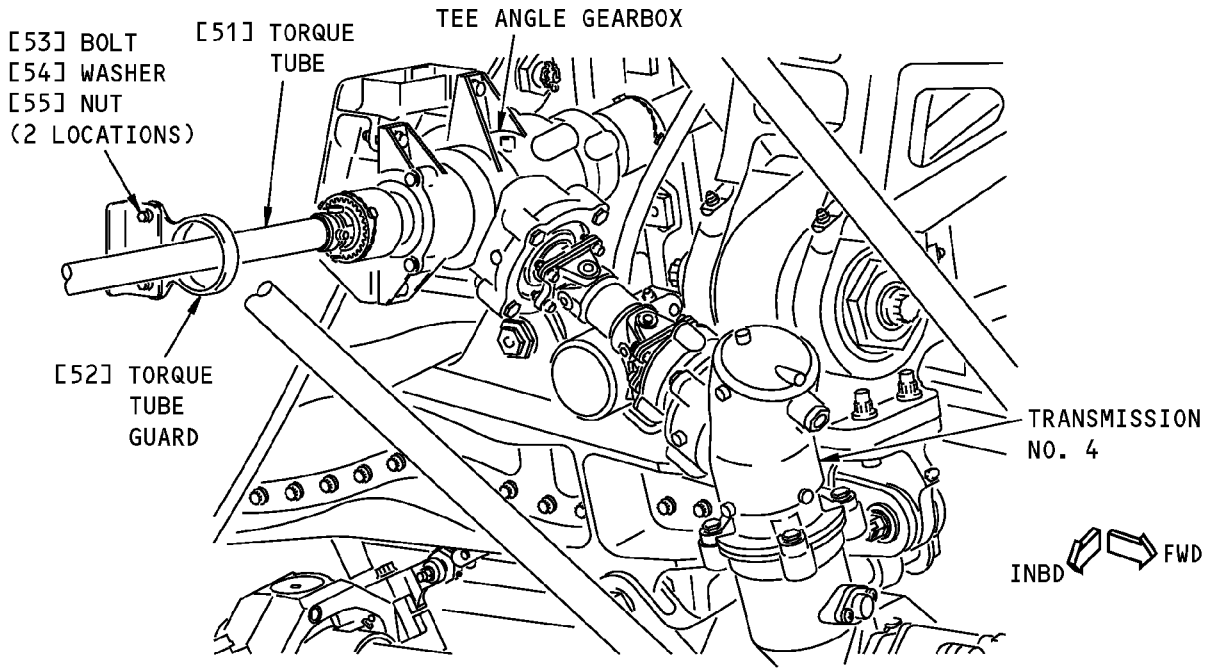
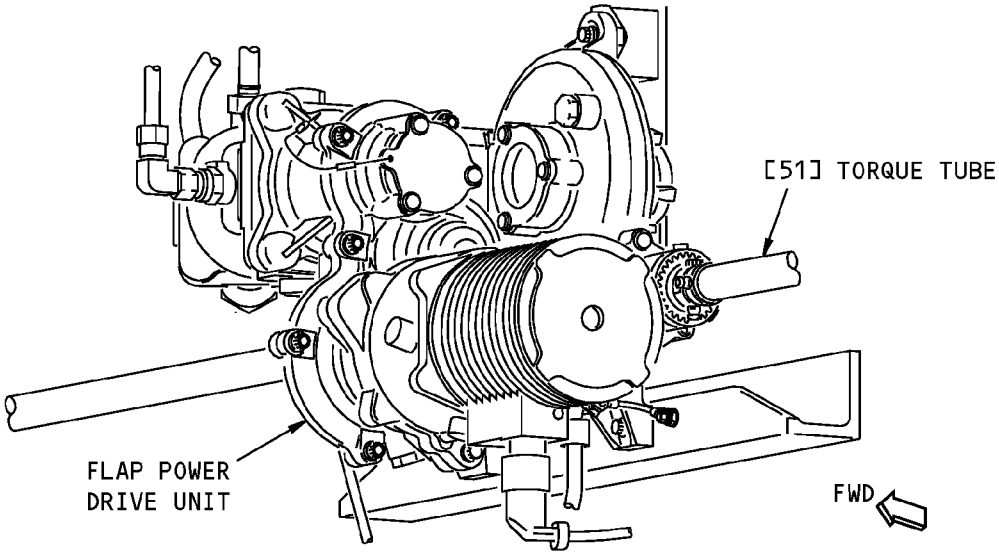


TEE ANGLE GEARBOX

C



FLAP POWER DRIVE UNIT

D

Wheel Well Flap Torque Tube Installation
Figure 404 (Sheet 3 of 3)/27-51-58-990-804

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TASK 27-51-58-400-803

7. Wheel Well Flap Torque Tube Installation

(Figure 404)

A. General

(1) This task is applicable to the torque tubes in the wheel well between the Tee angle gearboxes.

B. References

Reference	Title
12-22-51-640-801	Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
51	Tube assembly	27-51-58-03-060	HAP ALL

F. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

G. Wheel Well Flap Torque Tube Installation

SUBTASK 27-51-58-420-005

(1) Install the tube assembly [51]:

(a) Apply grease, D00633 to the coupling sleeves [5].

(b) Put the tube assembly [51] in its position.

(c) Put the coupling sleeves [5] on the splined couplings [4].

(d) Install the screws [6] to attach the coupling sleeves [5] to the splined couplings [4].

(e) Install the lockwire on the screws [6].

SUBTASK 27-51-58-080-003

(2) Remove the clamp set, SPL-1726 from the torque tubes.

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SUBTASK 27-51-58-420-006

(3) Install the torque tube guard [52]:

(a) Put the torque tube guard [52] on the tube assembly [51].

(b) Install the bolts [53], washers [54] and nuts [55] that attach the torque tube guard [52].

SUBTASK 27-51-58-820-003

(4) If a torque tube turned while the torque tubes were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-58-640-003

(1) For the applicable torque tube, do this task: Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication, TASK 12-22-51-640-801.

SUBTASK 27-51-58-440-003

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-58-710-007

(3) Use the primary system to extend the flaps to the 40-unit position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the 40-unit white band.

SUBTASK 27-51-58-710-008

(4) Use the primary system to retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

(a) Make sure the pointers for the flap position indicators are in the UP white band.

——————— END OF TASK ———————

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FLAP TORQUE TUBE SUPPORT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap torque tube support

(2) An installation of the flap torque tube support.

TASK 27-51-59-000-801

2. Flap Torque Tube Support Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
561	Left Wing - Rear Spar to Trailing Edge, Outboard Of Inboard Flap, Inboard of Fixed Trailing Edge
567	Left Wing - Outboard Flap
661	Right Wing - Rear Spar to Trailing Edge, Outboard of Inboard Flap, Inboard of Fixed Trailing Edge
667	Right Wing - Outboard Flap

D. Prepare for the Removal

SUBTASK 27-51-59-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-51-59-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

E. Flap Torque Tube Support Removal

SUBTASK 27-51-59-020-001

(1) Disconnect the torque tubes [4] from the support assembly [6]:

(a) Install clamp set, SPL-1726 on the torque tubes [4] inboard and outboard of the support assembly [6].

(b) Remove the screws [5] that attach the coupling sleeves [3] to the splined couplings [1].

(c) Move the coupling sleeves [3] off the splined couplings [1].

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SUBTASK 27-51-59-020-002

(2) Remove the torque tube support assembly [6]:

(a) Remove the nuts [15], washers [14], washers [13] and bolts [12] that attach the support assembly [6] to the spoiler actuator support [2].

(b) Remove the nuts [11], washers [10], washers [8], bolts [7] and bushings [9] that attach the support assembly [6] to the spoiler actuator support [2].

(c) Remove the support assembly [6].

——————— END OF TASK ———————

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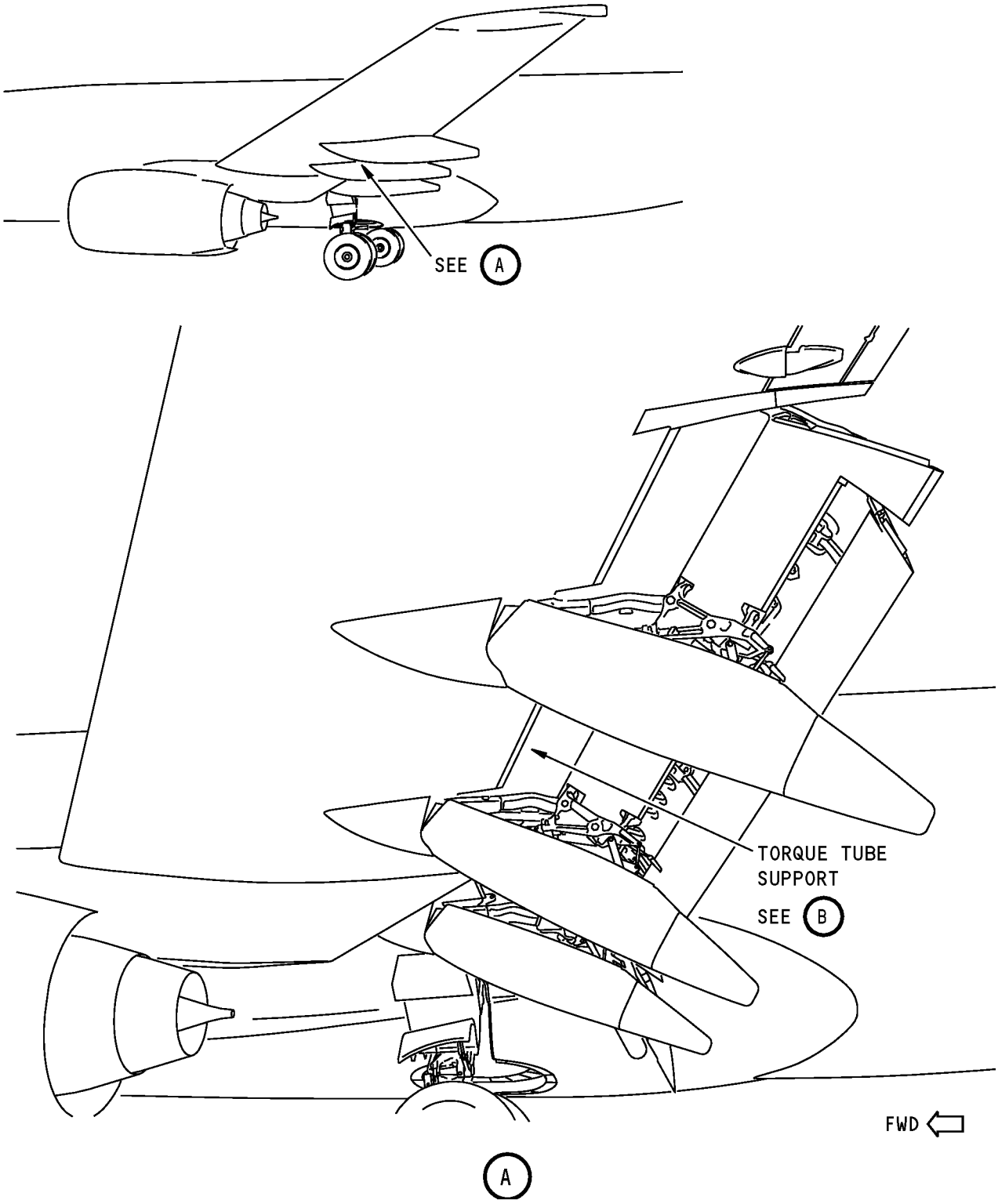

Flap Torque Tube Support Installation
Figure 401 (Sheet 1 of 2)/27-51-59-990-801

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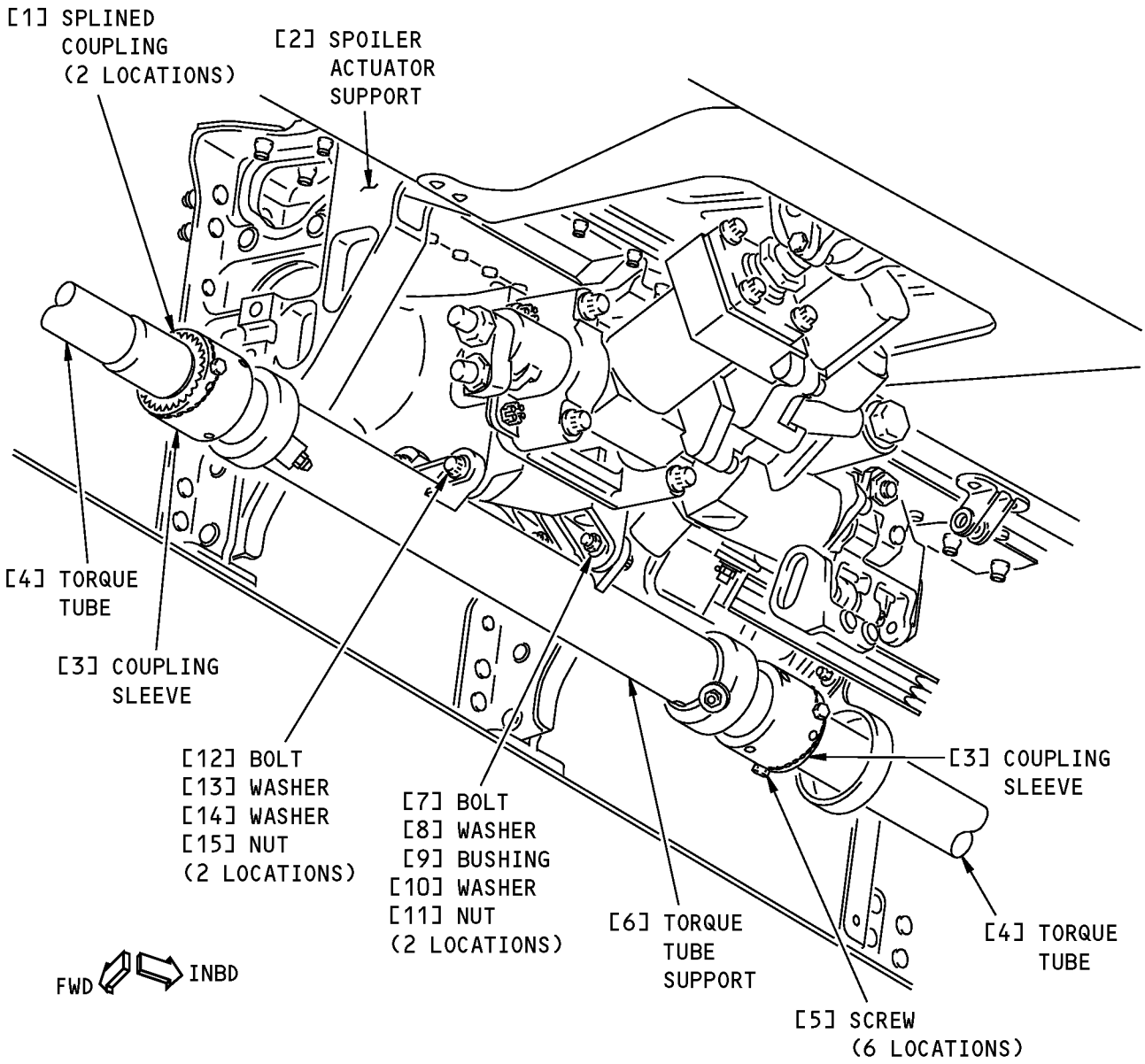

TORQUE TUBE SUPPORT
(LOWER MIDSPAN PANEL REMOVED
FOR CLARITY)

B

Flap Torque Tube Support Installation
Figure 401 (Sheet 2 of 2)/27-51-59-990-801

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TASK 27-51-59-400-801

3. Flap Torque Tube Support Installation

(Figure 401)

A. References

Reference	Title
12-22-51-640-801	Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication (P/B 301)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
6	Support assembly	27-51-59-01-040	HAP ALL
		27-51-59-01-045	HAP ALL

E. Location Zones

Zone	Area
561	Left Wing - Rear Spar to Trailing Edge, Outboard Of Inboard Flap, Inboard of Fixed Trailing Edge
567	Left Wing - Outboard Flap
661	Right Wing - Rear Spar to Trailing Edge, Outboard of Inboard Flap, Inboard of Fixed Trailing Edge
667	Right Wing - Outboard Flap

F. Flap Torque Tube Support Installation

SUBTASK 27-51-59-420-001

(1) Install the torque tube support assembly [6]:

(a) Put the support assembly [6] in its position on the spoiler actuator support [2].

(b) Apply compound, C00913 to the shank and threads of the bolts [7] and bolts [12].

(c) Install the bolts [12], washers [13], washers [14] and nuts [15] to attach the outboard side of the support assembly [6] to the spoiler actuator support [2].

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(d) Install the bushings [9], bolts [7], washers [8], washers [10] and nuts [11] to attach the inboard side of the support assembly [6] to the spoiler actuator support [2].

SUBTASK 27-51-59-420-002

(2) Connect the torque tubes [4] to the support assembly [6]:

(a) Apply grease, D00633 to the coupling sleeves [3].

(b) Put the splined couplings [1] in the coupling sleeves [3].

(c) Install the screws [5] to attach the torque tubes [4] to the support assembly [6].

(d) Install lockwire on the screws [5].

(e) Remove the clamp set, SPL-1726 from the torque tubes [4] inboard and outboard of the support assembly [6].

SUBTASK 27-51-59-820-001

(3) If the torque tubes [4] turned while they were disconnected, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

SUBTASK 27-51-59-640-001

(4) Lubricate the torque tubes [4] and the support assembly [6]. To lubricate the torque tube support assembly [6], do this task: Trailing Edge Flap Torque Tube and Torque Tube Support Lubrication, TASK 12-22-51-640-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-59-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-59-860-002

(2) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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FLAP CONTROL UNIT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap control unit

(2) An installation of the flap control unit.

B. The flap control unit includes the flap control valves for the leading edge and the trailing edge, the control linkage, follow-up linkage, and the flap limit switch cams.

C. The flap limit switches are installed on the flap control unit. It is necessary to remove the flap limit switches from the flap control unit.

TASK 27-51-61-000-801

2. Flap Control Unit Removal

A. References

Reference	Title
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-63-000-801	Flap Limit Switch Removal (P/B 401)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
31-51-01-000-801	Flap Landing Warning Switch Removal (P/B 401)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
53-21-00-000-801	Passenger Cabin Floor Panel Removal (P/B 401)

B. Location Zones

Zone	Area
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. Access Panels

Number	Name/Location
112A	Forward Access Door
114AC	Fwd Nose Wheel Well Upper Access Panel

D. Prepare for the Removal

SUBTASK 27-51-61-860-001

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-61-860-002

(2) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

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SUBTASK 27-51-61-860-003

(3) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 27-51-61-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-61-010-001

(5) Remove the floor panel to get access to the top of the flap control unit assembly [9], do this task: Passenger Cabin Floor Panel Removal, TASK 53-21-00-000-801

(Figure 401).

NOTE: The floor panel is located between stations 706 and 727B on the right side of the airplane.

E. Flap Control Unit Removal

SUBTASK 27-51-61-020-001

(1) Disconnect the cable assembly [1], WFA and WFB from the quadrant [5]:

(a) To get access to the turnbuckles [3], do this task:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

or remove this access panel:

Number	Name/Location
114AC	Fwd Nose Wheel Well Upper Access Panel

(b) Remove the locking clips [2] and loosen the turnbuckles [3] on the cable assembly [1].

(c) Remove the pin [8], pin [6] and the two spacers [7] from the quadrant [5].

(d) Remove the straps [10] that attach the cable assembly [1] to the quadrant [5].

(e) Remove the pins [4] that attach the cable assembly [1] to the quadrant [5].

(f) Remove the cable assembly [1] from the quadrant [5].

SUBTASK 27-51-61-020-002

(2) Remove the quadrant [5] from the flap control unit assembly [9]:

(a) Remove the nut [11] and washer [17] that attach the quadrant [5] to the flap control unit assembly [9].

HAP 001-004, 006, 007

(b) Remove the quadrant [5] and the washer [16] from the flap control unit assembly [9].

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HAP 005, 008-013, 015-026, 028-054, 101-999

(c) Remove the quadrant [5] from the flap control unit assembly [9].

HAP ALL

SUBTASK 27-51-61-020-003

(3) Remove the flap limit switchs [39] from the flap control unit assembly [9] (Figure 402):

NOTE: It is not necessary to disconnect the wires for the flap limit switches [39].

(a) Remove the screws [40] and washers [56] and the switch cover [31] from the flap control unit assembly [9].

(b) For the Flap UP limit switch, S245, Flap Up limit switch, S1051 and the Flap DOWN limit switch, S246, do this task: Flap Limit Switch Removal, TASK 27-51-63-000-801.

(c) For the Landing Warning Switch, S138, do this task: Flap Landing Warning Switch Removal, TASK 31-51-01-000-801.

SUBTASK 27-51-61-020-004

(4) Disconnect the cables [48], WFFA and WFFB at the turnbuckles [50]:

NOTE: It is necessary to remove the cables [49] with the flap control unit assembly [9].

(a) Remove the locking clips [49] and disconnect the turnbuckles [50] on the cables [48].

(b) Put a label on the cables [48] to identify them.

SUBTASK 27-51-61-020-005

(5) Disconnect the electrical connector [33] from the trailing edge control valve [34].

SUBTASK 27-51-61-020-006

(6) Disconnect the hydraulic lines [32]:

(a) Disconnect the hydraulic lines [32] from the trailing edge control valve [34].

(b) Disconnect the hydraulic lines [32] from the leading edge control valve [35].

SUBTASK 27-51-61-020-007

(7) Remove the flap control unit assembly [9]:

(a) Remove the bolts [15] and washers [14] from above the flap control unit assembly [9] (Figure 401).

(b) Remove the bolts [41] and washers [42] from below the flap control unit assembly [9] (Figure 402).

(c) Remove the flap control unit assembly [9].

——————— END OF TASK ———————

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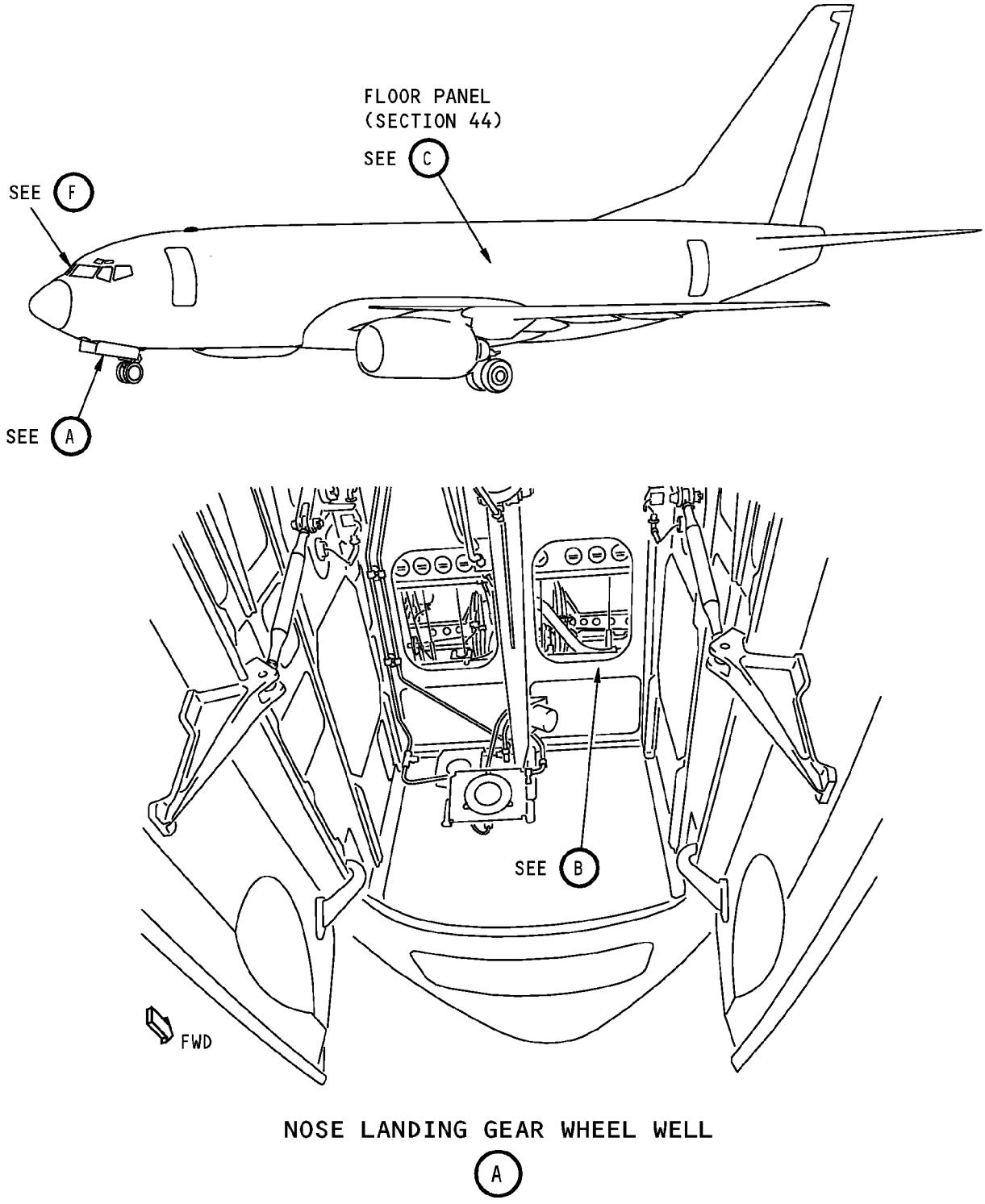

Flap Control Unit Quadrant Installation
Figure 401 (Sheet 1 of 5)/27-51-61-990-801

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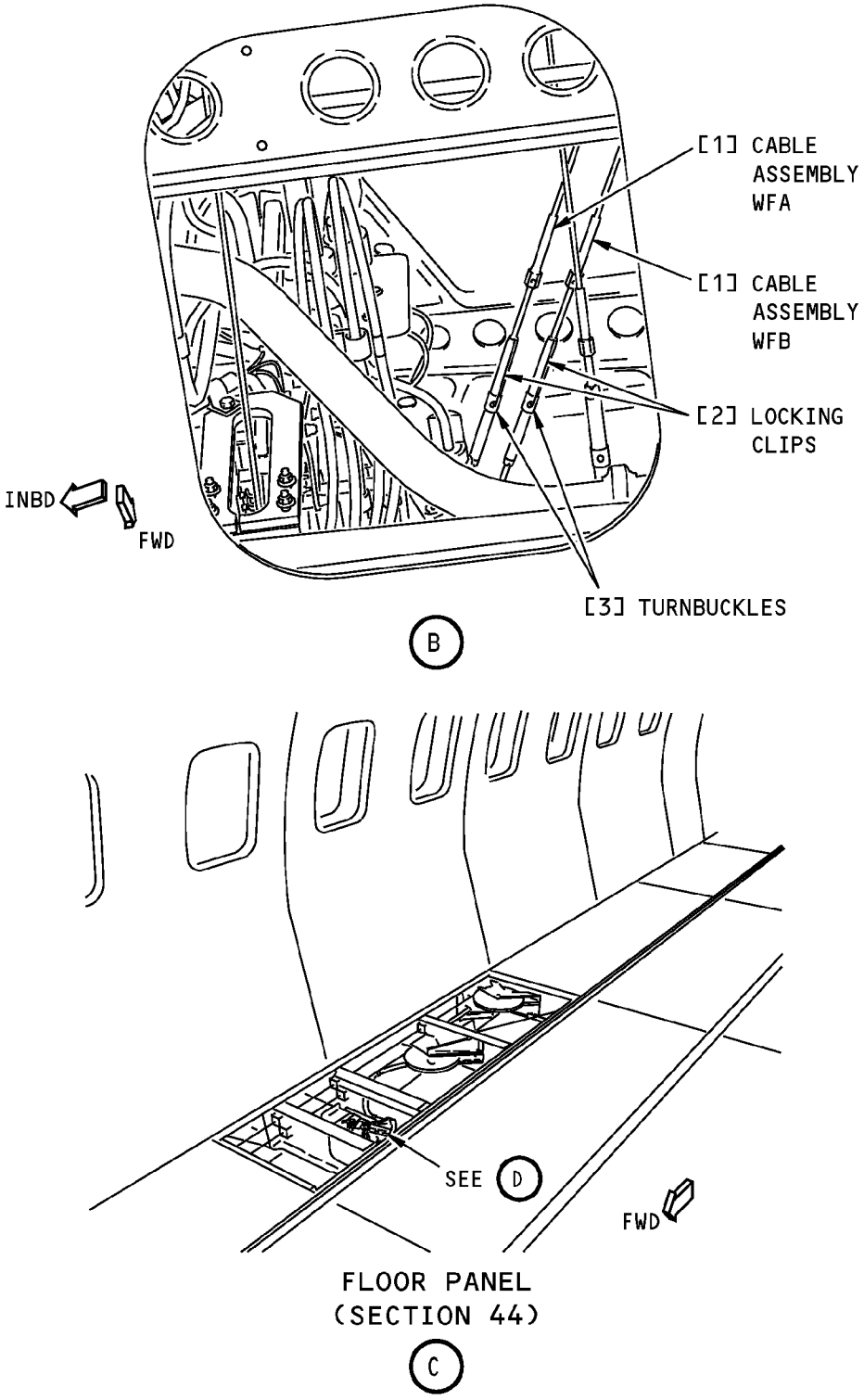

Flap Control Unit Quadrant Installation
Figure 401 (Sheet 2 of 5)/27-51-61-990-801

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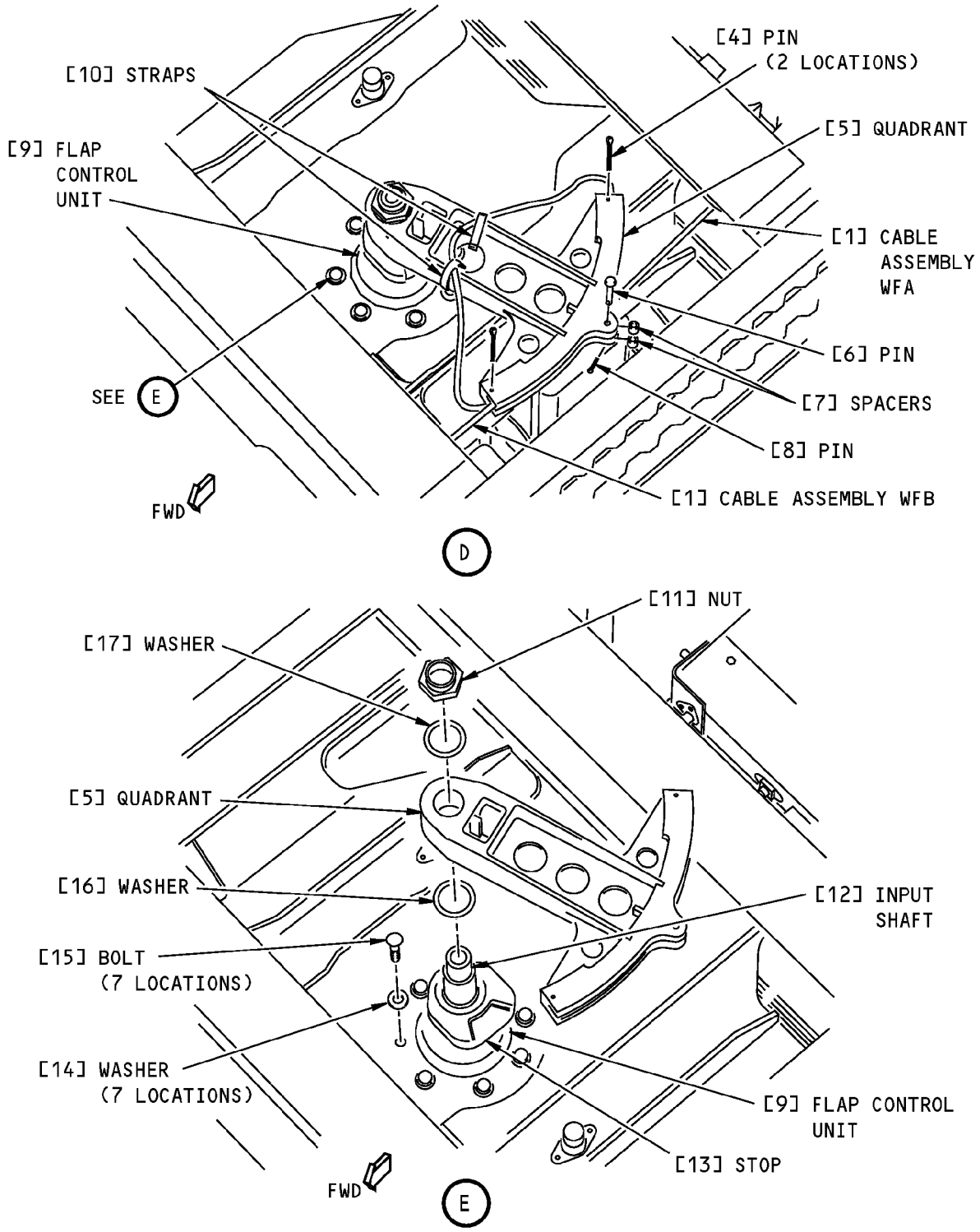

Flap Control Unit Quadrant Installation
Figure 401 (Sheet 3 of 5)/27-51-61-990-801

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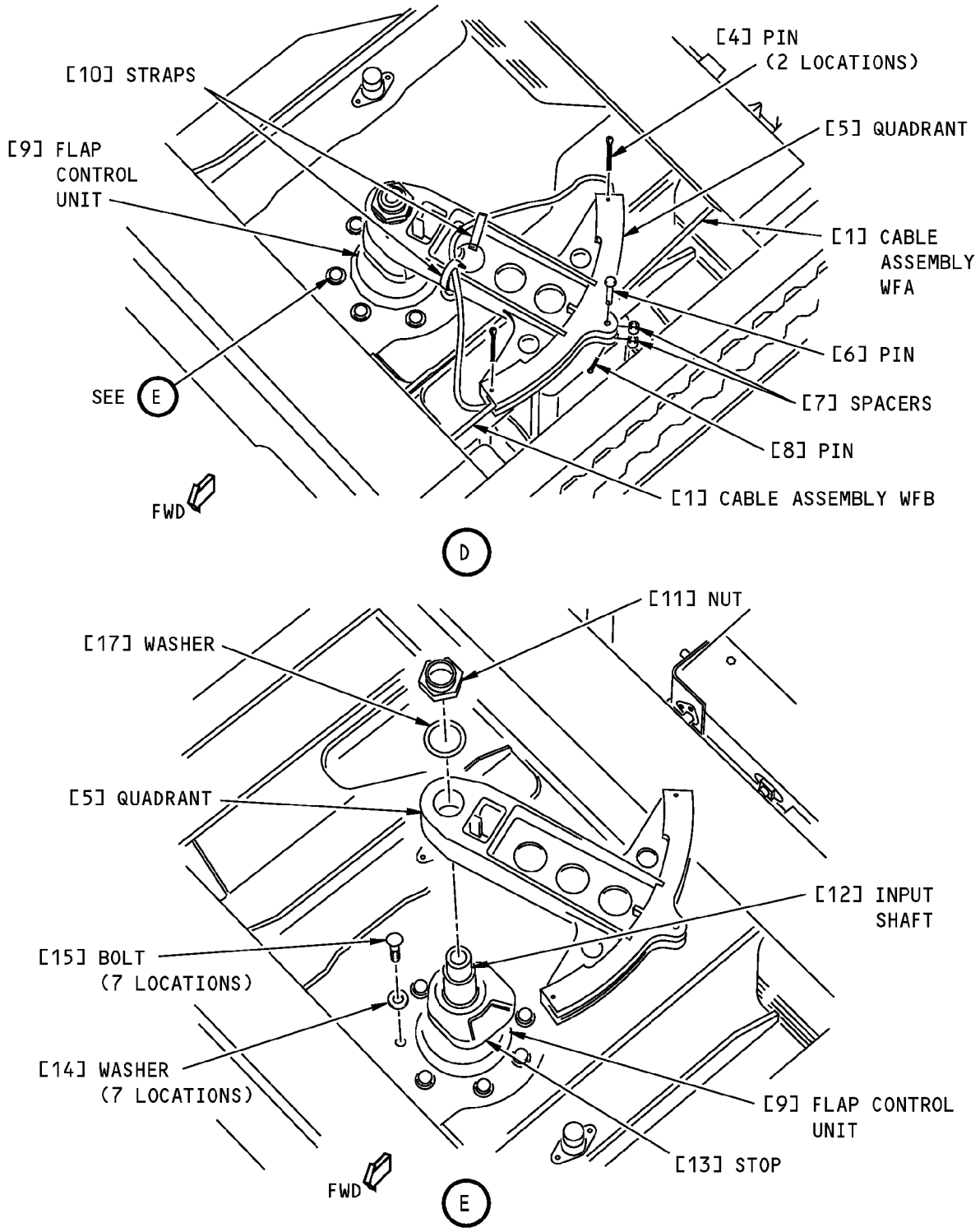

Flap Control Unit Quadrant Installation
Figure 401 (Sheet 4 of 5)/27-51-61-990-801

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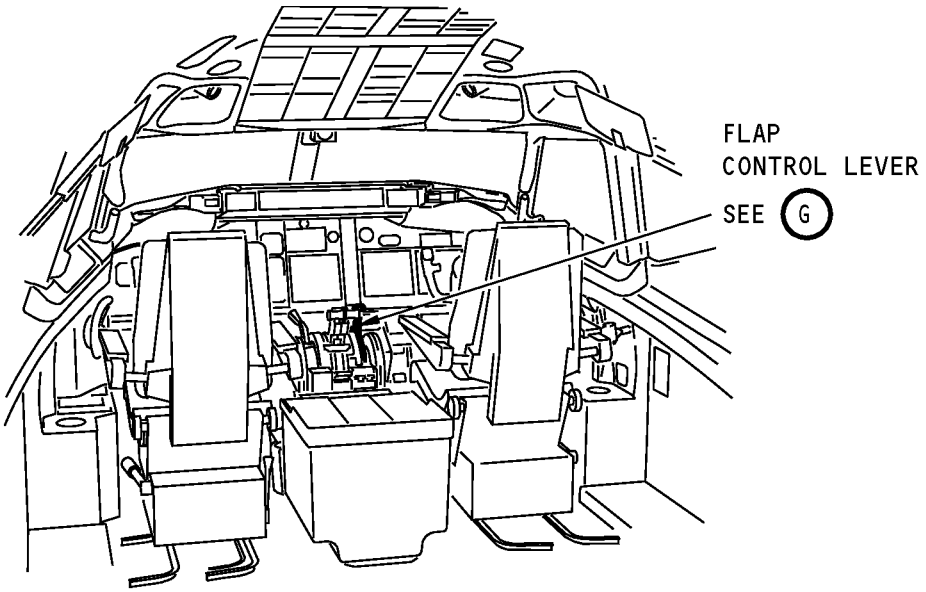
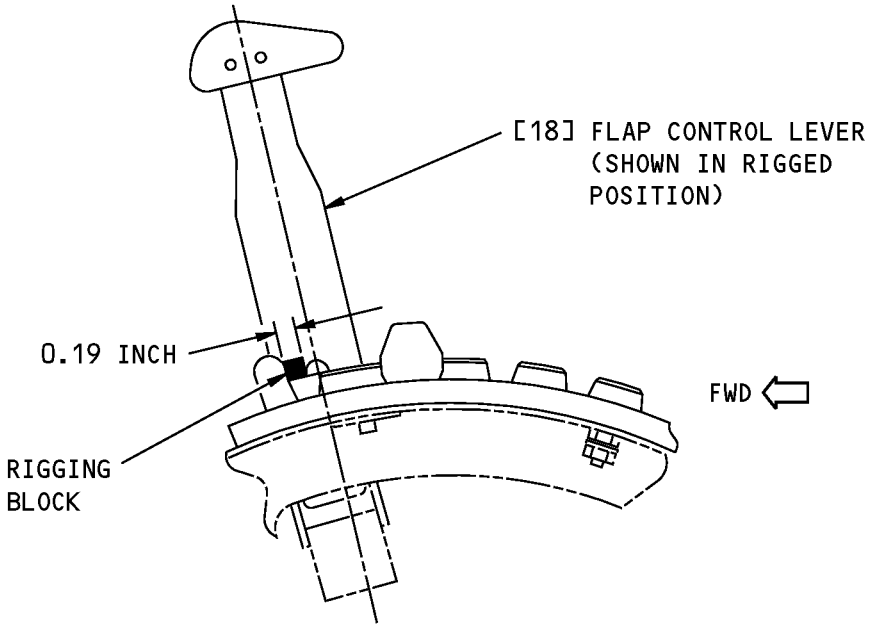


FLIGHT COMPARTMENT

F



G

Flap Control Unit Quadrant Installation
Figure 401 (Sheet 5 of 5)/27-51-61-990-801

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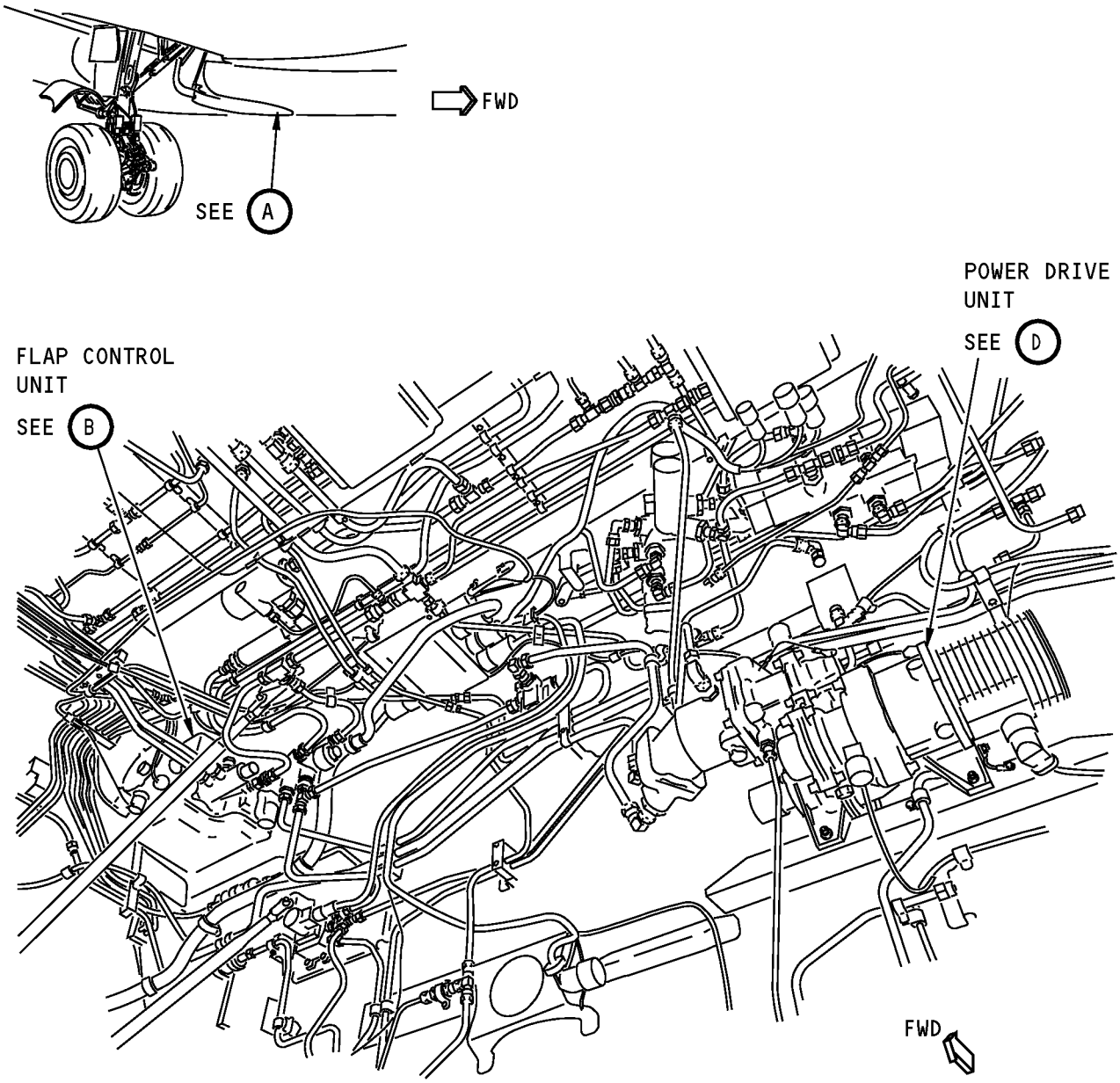

Flap Control Unit Installation
Figure 402 (Sheet 1 of 4)/27-51-61-990-802

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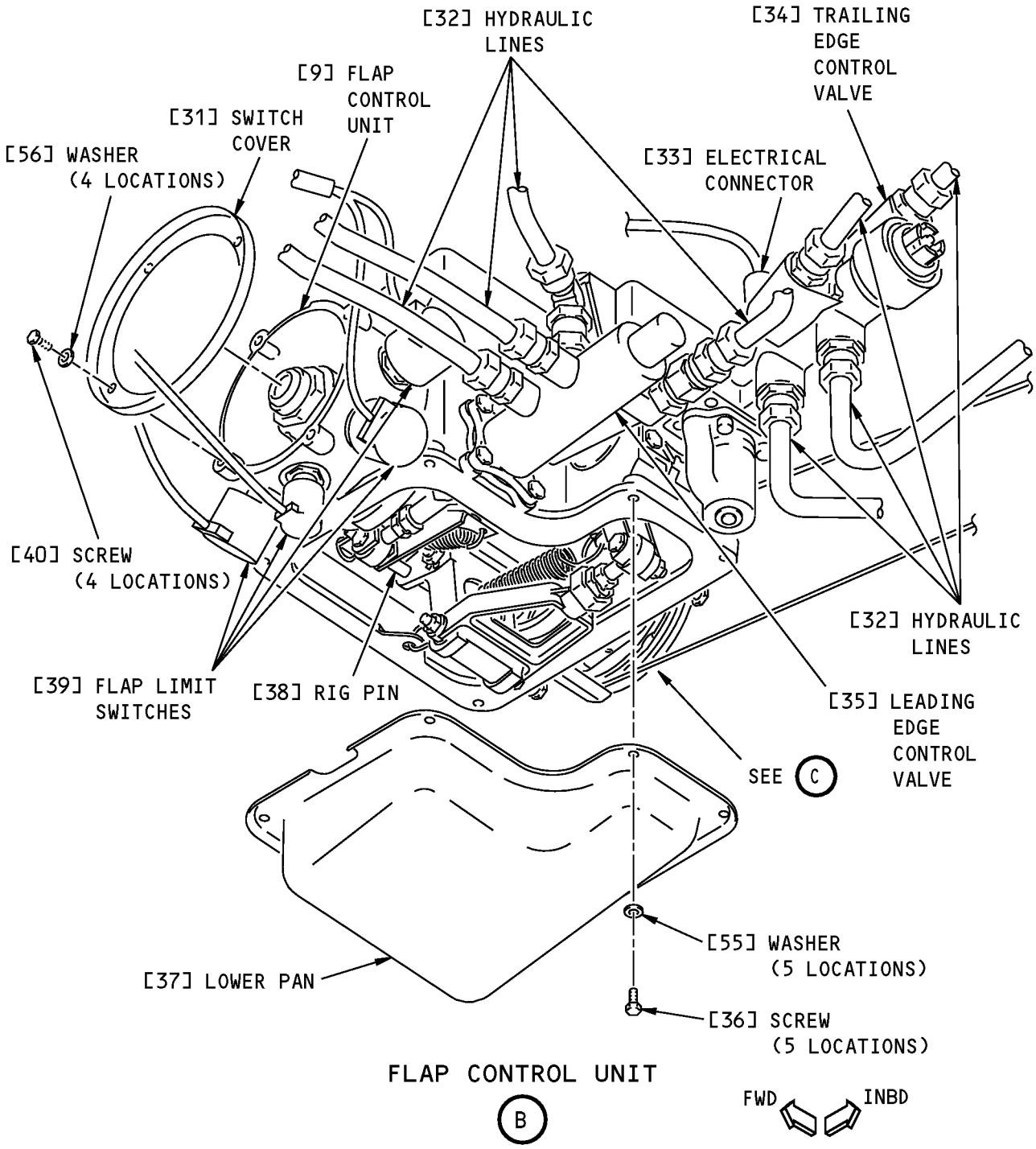

Flap Control Unit Installation
Figure 402 (Sheet 2 of 4)/27-51-61-990-802

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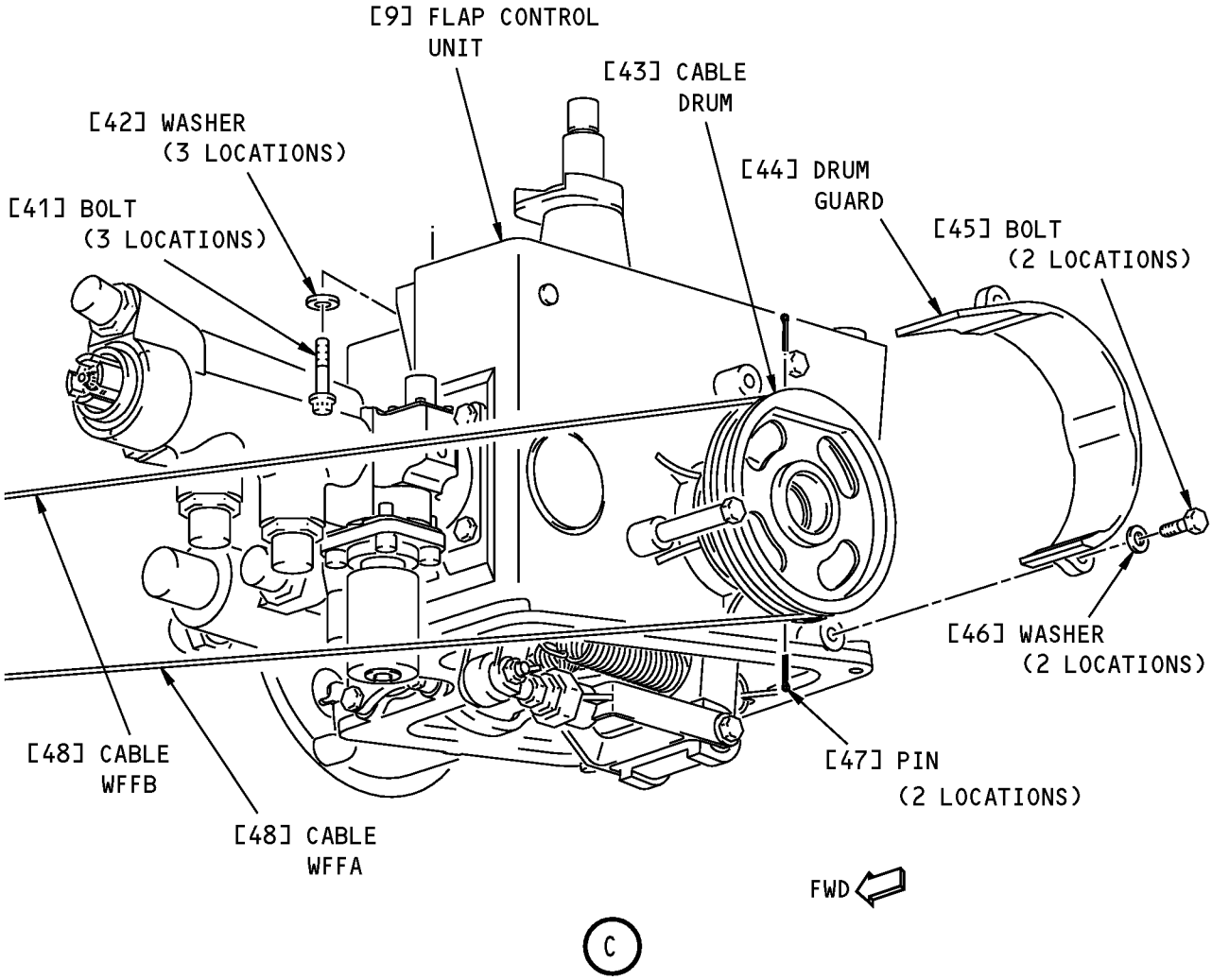

Flap Control Unit Installation
Figure 402 (Sheet 3 of 4)/27-51-61-990-802

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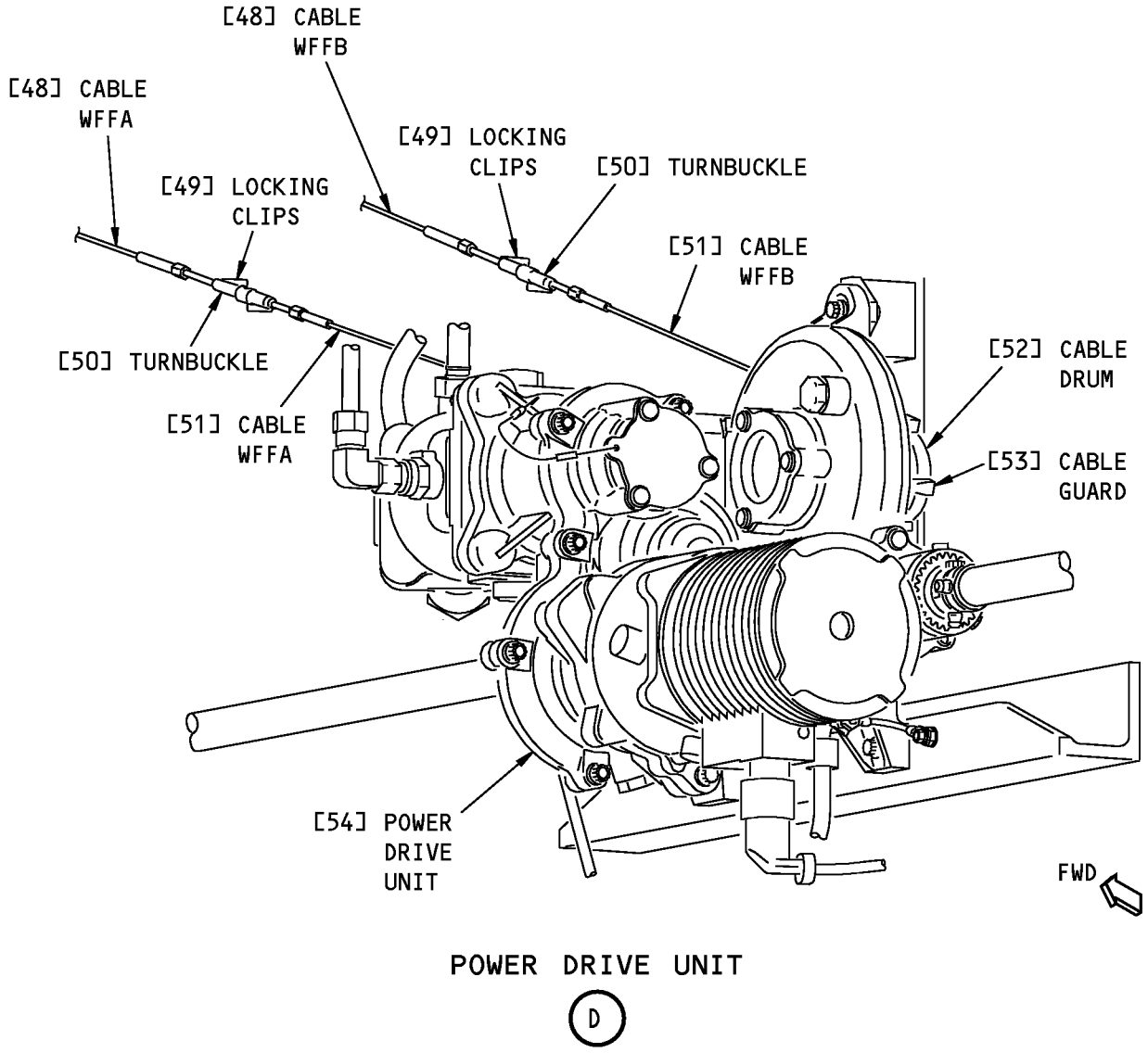

G11606 S0006570418_V2

Flap Control Unit Installation
Figure 402 (Sheet 4 of 4)/27-51-61-990-802

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TASK 27-51-61-400-801

3. Flap Control Unit Installation

A. References

Reference	Title
27-51-00-730-801	Trailing Edge Flap System Test (P/B 501)
27-51-00-820-801	Trailing Edge Flap Control System Adjustment (P/B 501)
27-51-63-400-801	Flap Limit Switch Installation (P/B 401)
27-51-63-820-801	Flaps Limit Switch Adjustment (P/B 501)
31-51-01-400-801	Flap Landing Warning Switch Installation (P/B 401)
31-51-01-820-801	Flap Landing Warning Switch Adjustment (P/B 401)
53-21-00-400-801	Passenger Cabin Floor Panel Installation (P/B 401)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Clip	27-51-00-21-005	HAP 001-013, 015-026, 028-054
		27-51-00-24-005	HAP 101-999
4	Pin	27-51-00-21-150	HAP 001-013, 015-026, 028-054
		27-51-00-24-125	HAP 101-999
5	Quadrant	27-51-61-02-015	HAP 001-013, 015-026, 028-036, 101-999
		27-51-62-01-020	HAP 001-013, 015-026, 028-036, 101-999
6	Pin	27-51-62-01-010	HAP 001-013, 015-026, 028-036, 101-999
		27-51-62-01A-010	HAP 037-054
8	Pin	27-51-62-01-005	HAP 001-013, 015-026, 028-036, 101-999
		27-51-62-01A-005	HAP 037-054
9	Unit assembly	27-51-61-02-050	HAP 001-013, 015-026, 028-036, 101-999
		27-51-61-02A-040	HAP 037-054
10	Strap	27-51-00-21-155	HAP 001-013, 015-026, 028-054
		27-51-00-24-120	HAP 101-999
47	Pin	27-51-61-01-080	HAP 001-013, 015-026, 028-036, 101-999

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
47 (cont.)		27-51-61-01A-065	HAP 037-054
49	Clip	27-51-00-21-010	HAP 001-013, 015-026, 028-054
		27-51-00-24-130	HAP 101-999

D. Location Zones

Zone	Area
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
212	Flight Compartment - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

E. Access Panels

Number	Name/Location
112A	Forward Access Door
114AC	Fwd Nose Wheel Well Upper Access Panel

F. Prepare for the Installation

SUBTASK 27-51-61-820-001

(1) Install the rig pin [38] in the flap control unit assembly [9] (Figure 402):

NOTE: This will make sure the flap control unit assembly [9] is in the adjusted position.

(a) Remove the screws [36] and washers [55] and the lower pan [37] from the flap control unit assembly [9].

(b) Install the rig pin through the cam follower arm and the valve cam.

SUBTASK 27-51-61-420-001

(2) If they are not installed, install the cables [48] WFFA and WFFB on the flap control unit assembly [9]:

(a) Remove the bolts [45], washers [46] and the drum guard [44] from the flap control unit assembly [9].

(b) Put the cables [48] in their location on the cable drum [43].

NOTE: Wrap cable WFFA around the cable drum [43] 1/2 turns. Wrap cable WFFB around the cable drum [43] 1 1/2 turn.

(c) Install the cotter pins [47] to hold the cables [48] on the cable drum [43].

(d) Put the drum guard [44] in its location on the flap control unit assembly [9].

(e) Apply compound, C00913 to the shank and threads of the bolts [45].

(f) Install the bolts [45] and washers [46] to attach the drum guard [44].

G. Flap Control Unit Installation

SUBTASK 27-51-61-420-002

(1) Install the flap control unit assembly [9]:

(a) Make sure the area around four of the seven holes for the bolts [15] on the flap control unit assembly [9] is clean for electrical bonding.

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(b) Apply a layer of sealant, A00247 to the mating surface of the flap control unit assembly [9] and the structure.

(c) Apply a layer of compound, C00913 to the shank and threads of the bolts [41].

(d) Lift the flap control unit assembly [9] to its position.

(e) Install the bolts [41] and washers [42] to attach the flap control unit assembly [9].

(f) Install the bolts [15] and washers [14] from above to attach the flap control unit assembly [9] (Figure 401).

(g) Make sure the resistance between the flap control unit assembly [9] and the structure is a maximum of 8 milliohms.

(h) Apply a bead of sealant, A02315 to the heads of the bolt [15].

SUBTASK 27-51-61-420-003

(2) Install the quadrant [5] on the flap control unit assembly [9] (Figure 401):

HAP 001-004, 006, 007

(a) Put the washer [16] and the quadrant [5] in their position on the input shaft [12] for the flap control unit assembly [9].

HAP 005, 008-013, 015-026, 028-054, 101-999

(b) Put the quadrant [5] in its position on the input shaft [12] for the flap control unit assembly [9].

HAP ALL

(c) Apply grease, D00633 to the threads on the input shaft [12].

(d) Install the washer [17] and nut [11] on the input shaft [12].

(e) Tighten the nut [11] to 250-300 pound-inches (28.3-33.8 newton-meters) more than the run-on torque.

SUBTASK 27-51-61-420-004

(3) Connect the cable assembly [1] WFA and WFB to the quadrant [5]:

(a) Put the flap control lever [18] in the rigged position:

1) Put a 0.19 ±0.005 inch (4.83 ±0.13 mm) thick rigging block between the detent pin on the flap control lever [18] and the upstop on the detent plate.

NOTE: Make sure the rigging block does not go into the flap UP detent.

2) Install a clamp to hold the quadrant [5] against the aft side of the stop [13] on the flap control unit assembly [9].

(b) Put the cable assembly [1] in its position on the quadrant [5].

NOTE: The cable assembly [1] attaches to the quadrant [5] in two locations. There is a loop of cable that goes through the straps [10].

(c) Install the pins [4] and straps [10] to attach the cable assembly [1] to the quadrant [5].

(d) Install the pin [6], spacers [7] and pin [8] on the quadrant [5].

(e) Use the turnbuckles [3] to tighten the cable assembly [1] until the tension is 275 ±15 pounds (125 ±6.8 kilograms).

NOTE: You will adjust the cable assembly [1] to the final tension and remove the tools from the flap control unit during the flap control unit adjustment procedure.

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SUBTASK 27-51-61-420-005

(4) Connect the hydraulic lines [32] (Figure 402):

(a) Remove the plugs from the ports of the leading edge control valve [35] and the trailing edge control valve [34].

(b) Remove the caps from the hydraulic lines [32].

(c) Connect the hydraulic lines [32] to the leading edge control valve [35].

(d) Connect the hydraulic lines [32] to the trailing edge control valve [34].

SUBTASK 27-51-61-210-001

(5) Before you connect the electrical connector [33], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-51-61-420-006

(6) Connect the electrical connector [33] to the trailing edge control valve [34].

SUBTASK 27-51-61-420-007

(7) Connect the cables [48] WFFA and WFFB at the turnbuckles [50]:

(a) Make sure the flap power drive unit [54] is in the rigged position:

1) Make sure the black rig mark on the cable drum [52] extends past the white cable guard [53] a minimum of 0.03 inches (0.76 millimeters) on each side.

WARNING: DO NOT RETRACT THE POWER DRIVE UNIT PAST THE RIG MARK IN THE UP DIRECTION. YOU CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

2) If the power drive unit [54] is not in the rigged position, use the manual drive to move the power drive unit [54].

(b) Connect the cables [48] to the cables [51] at the turnbuckles [50].

NOTE: Cable WFFA is the lower cable [51].

(c) Use the turnbuckles [50] to tighten the cables [48] until the tension is 125 ±10 pounds (556 ±45 newtons).

NOTE: You will adjust the cables [48] to the final tension during the flap control system adjustment procedure.

SUBTASK 27-51-61-820-002

(8) Do this task: Trailing Edge Flap Control System Adjustment, TASK 27-51-00-820-801.

NOTE: This task includes the adjustment of the cables, the removal of the rig pin and the clamp from the flap control unit assembly [9] and the removal of the rigging tool from the flap control lever.

SUBTASK 27-51-61-420-008

(9) Install the locking clips [2] on the turnbuckles [3] for cable assembly [1] WFA and WFB (Figure 401).

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SUBTASK 27-51-61-420-009

(10) Install the locking clips [49] on the turnbuckles [50] for cables [48] WFFA and WFFB (Figure 402).

SUBTASK 27-51-61-420-010

(11) Install the flap limit switchs [39] in the flap control unit assembly [9]:

(a) For the Landing Warning Switch, S138, do this task: Flap Landing Warning Switch Installation, TASK 31-51-01-400-801.

(b) For the Flap UP limit switch, S245, the Flap DOWN limit switch, S246 and the Flap UP limit switch, S1051, do this task: Flap Limit Switch Installation, TASK 27-51-63-400-801.

SUBTASK 27-51-61-420-011

(12) Do the adjustment of the flap limit switchs [39] in the flap control unit assembly [9]:

(a) For the Landing Warning Switch, S138, do this task: Flap Landing Warning Switch Adjustment, TASK 31-51-01-820-801.

(b) For the Flap UP limit switch, S245, the Flap DOWN limit switch, S246 and the Flap UP limit switch, S1051, do this task: Flaps Limit Switch Adjustment, TASK 27-51-63-820-801.

SUBTASK 27-51-61-410-005

(13) Do this task:

Close these access panels:

Number	Name/Location
112A	Forward Access Door
114AC	Fwd Nose Wheel Well Upper Access Panel

SUBTASK 27-51-61-860-004

(14) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 27-51-61-730-001

(15) Do this task: Trailing Edge Flap System Test, TASK 27-51-00-730-801.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-61-410-002

(1) Install the lower pan [37] on the flap control unit assembly [9]:

(a) Put the lower pan [37] in its location on the flap control unit assembly [9].

(b) Apply compound, C00913 to the shank and threads of the screws [36].

(c) Install the washers [55] and screws [36] to attach the lower pan [37].

SUBTASK 27-51-61-410-003

(2) Install the switch cover [31] on the flap control unit assembly [9]:

(a) Put the switch cover [31] in its location on the flap control unit assembly [9].

(b) Apply compound, C00913 to the shank and threads of the screws [40].

(c) Install the washers [56] and screws [40] to attach the switch cover [31].

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SUBTASK 27-51-61-410-004

(3) Install the floor panel above the flap control unit assembly [9], do this task: Passenger Cabin Floor Panel Installation, TASK 53-21-00-400-801.

——————— END OF TASK ———————

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FLAP CONTROL QUADRANT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap control quadrant

(2) An installation of the flap control quadrant.

TASK 27-51-62-000-801

2. Flap Control Quadrant Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
53-21-00-000-801	Passenger Cabin Floor Panel Removal (P/B 401)

B. Location Zones

Zone	Area
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

C. Access Panels

Number	Name/Location
112A	Forward Access Door
114AC	Fwd Nose Wheel Well Upper Access Panel

D. Prepare for the Removal

SUBTASK 27-51-62-860-001

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-62-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-62-040-001

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-62-010-001

(4) Remove the floor panel to get access to the top of the flap control unit [9], do this task: Passenger Cabin Floor Panel Removal, TASK 53-21-00-000-801.

NOTE: The floor panel is located between stations 706 and 727B on the right side of the airplane.

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E. Flap Control Quadrant Removal

SUBTASK 27-51-62-020-001

(1) Disconnect the cable assembly [1], WFA and WFB from the quadrant [5]:

(a) To get access to the turnbuckles [3], do this task:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

or remove this access panel:

Number	Name/Location
114AC	Fwd Nose Wheel Well Upper Access Panel

(b) Remove the locking clips [2] and loosen the turnbuckles [3] on the cable assembly [1].

(c) Remove the pin [8], pin [6] and the two spacers [7] from the quadrant [5].

(d) Remove the straps [10] that attach the cable assembly [1] to the quadrant [5].

(e) Remove the pins [4] that attach the cable assembly [1] to the quadrant [5].

(f) Remove the cable assembly [1] from the quadrant [5].

SUBTASK 27-51-62-020-002

(2) Remove the quadrant [5] from the flap control unit [9]:

(a) Remove the nut [11] and washer [15] that attach the quadrant [5] to the flap control unit [9].

HAP 001-004, 006, 007

1) Remove the quadrant [5] and the washer [14] from the flap control unit [9].

HAP 005, 008-013, 015-026, 028-054, 101-999

(b) Remove the quadrant [5] from the flap control unit [9].

HAP ALL

——————— END OF TASK ———————

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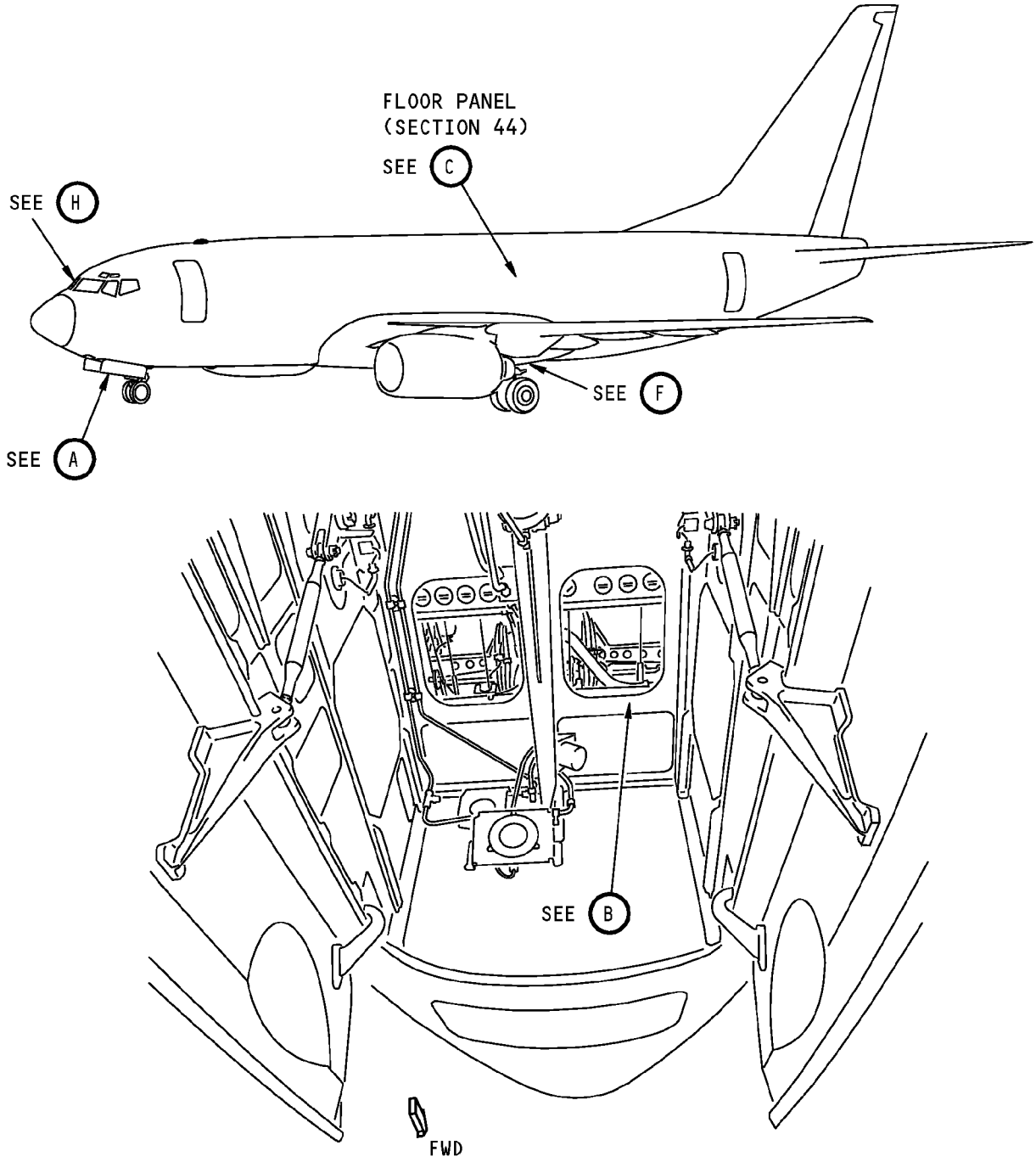

Flap Control Quadrant Installation
Figure 401 (Sheet 1 of 7)/27-51-62-990-801

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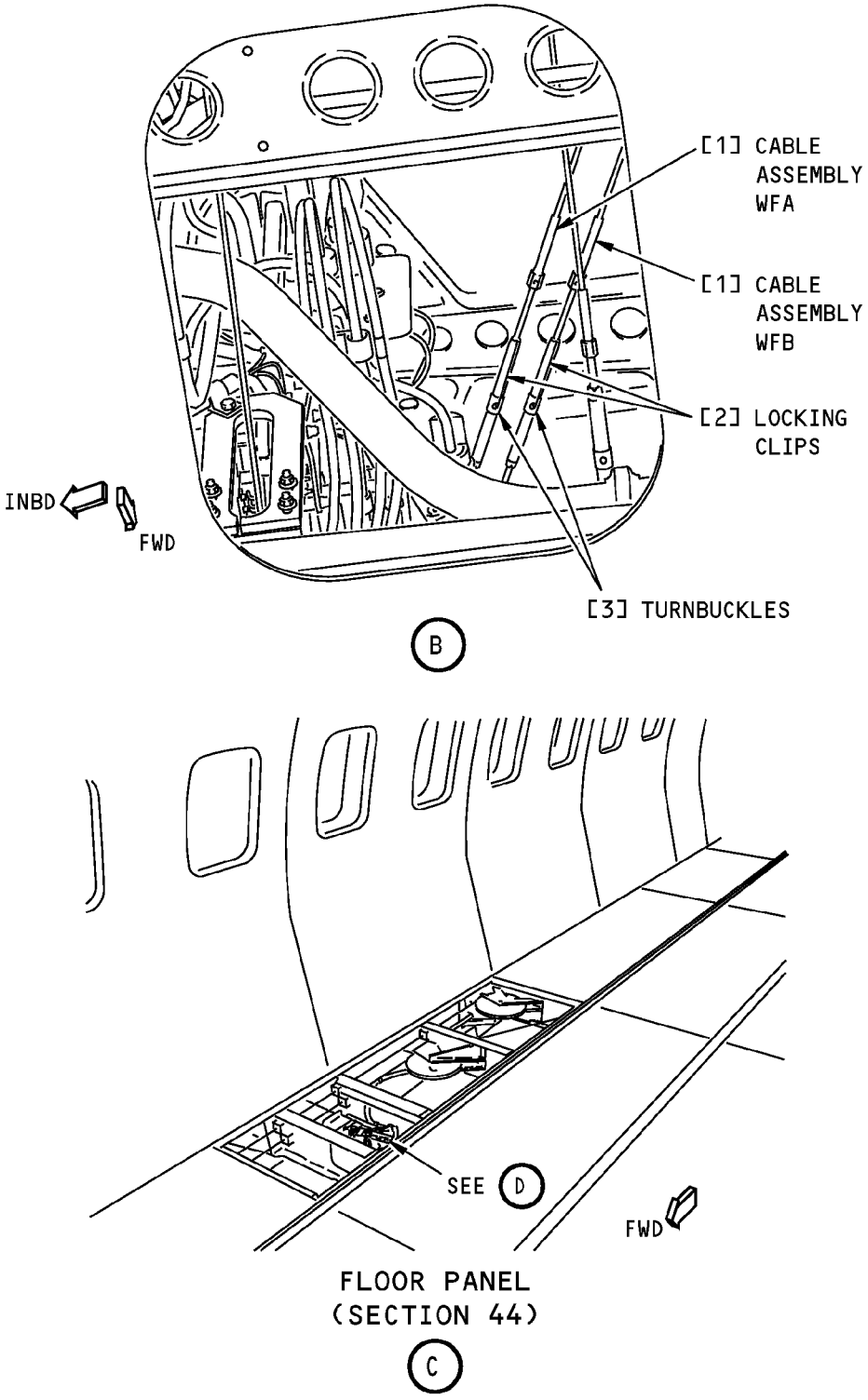

Flap Control Quadrant Installation
Figure 401 (Sheet 2 of 7)/27-51-62-990-801

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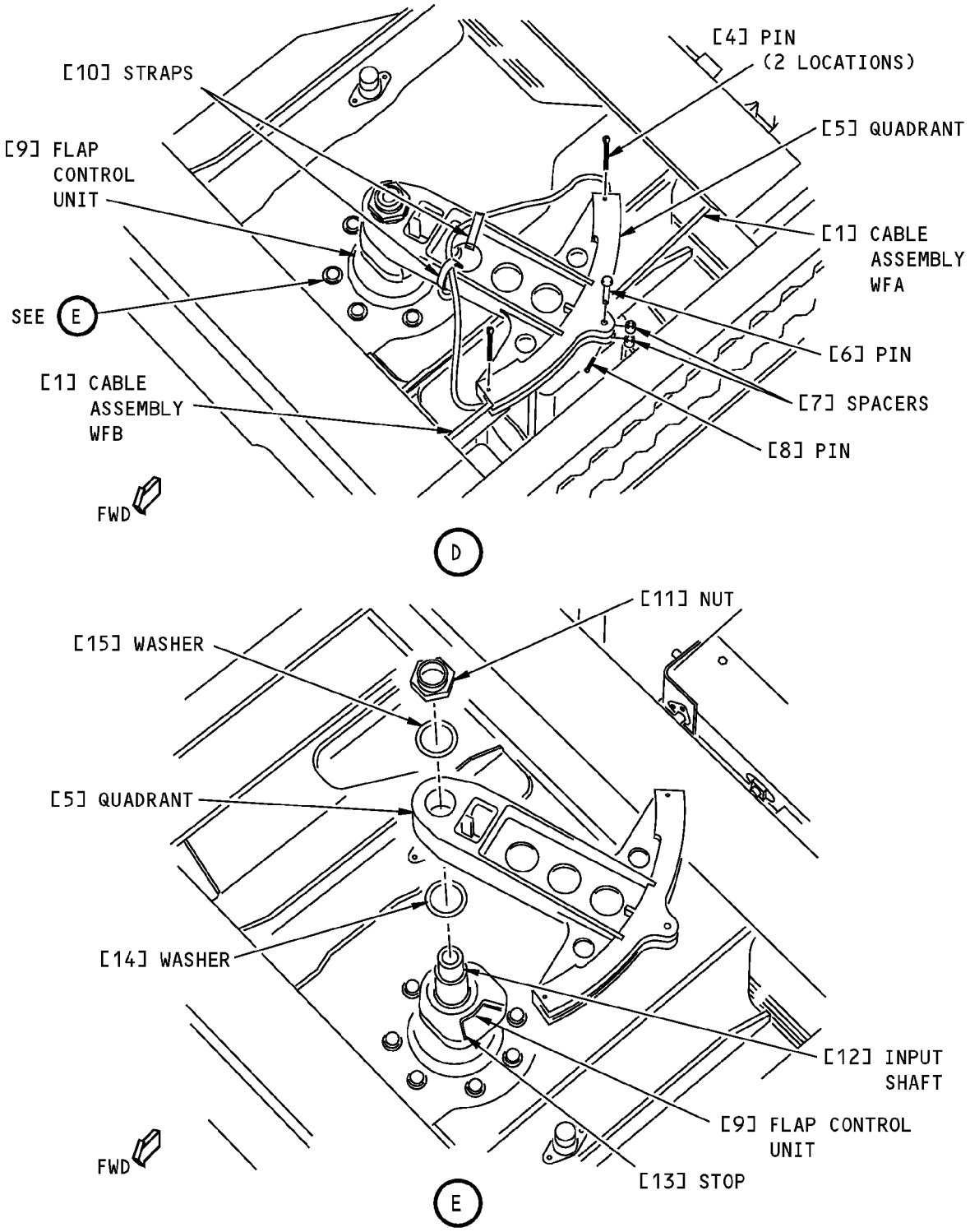

Flap Control Quadrant Installation
Figure 401 (Sheet 3 of 7)/27-51-62-990-801

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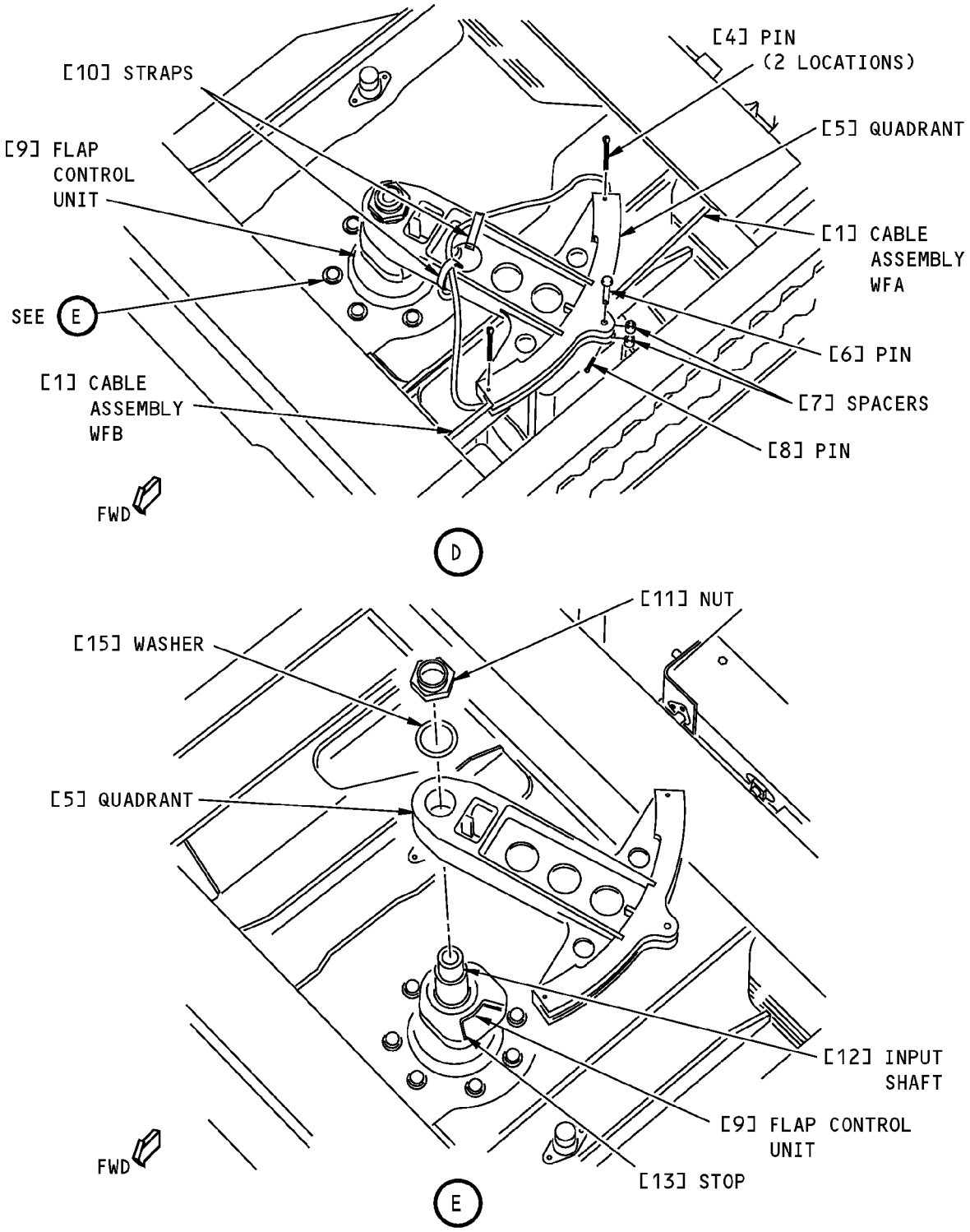

Flap Control Quadrant Installation
Figure 401 (Sheet 4 of 7)/27-51-62-990-801

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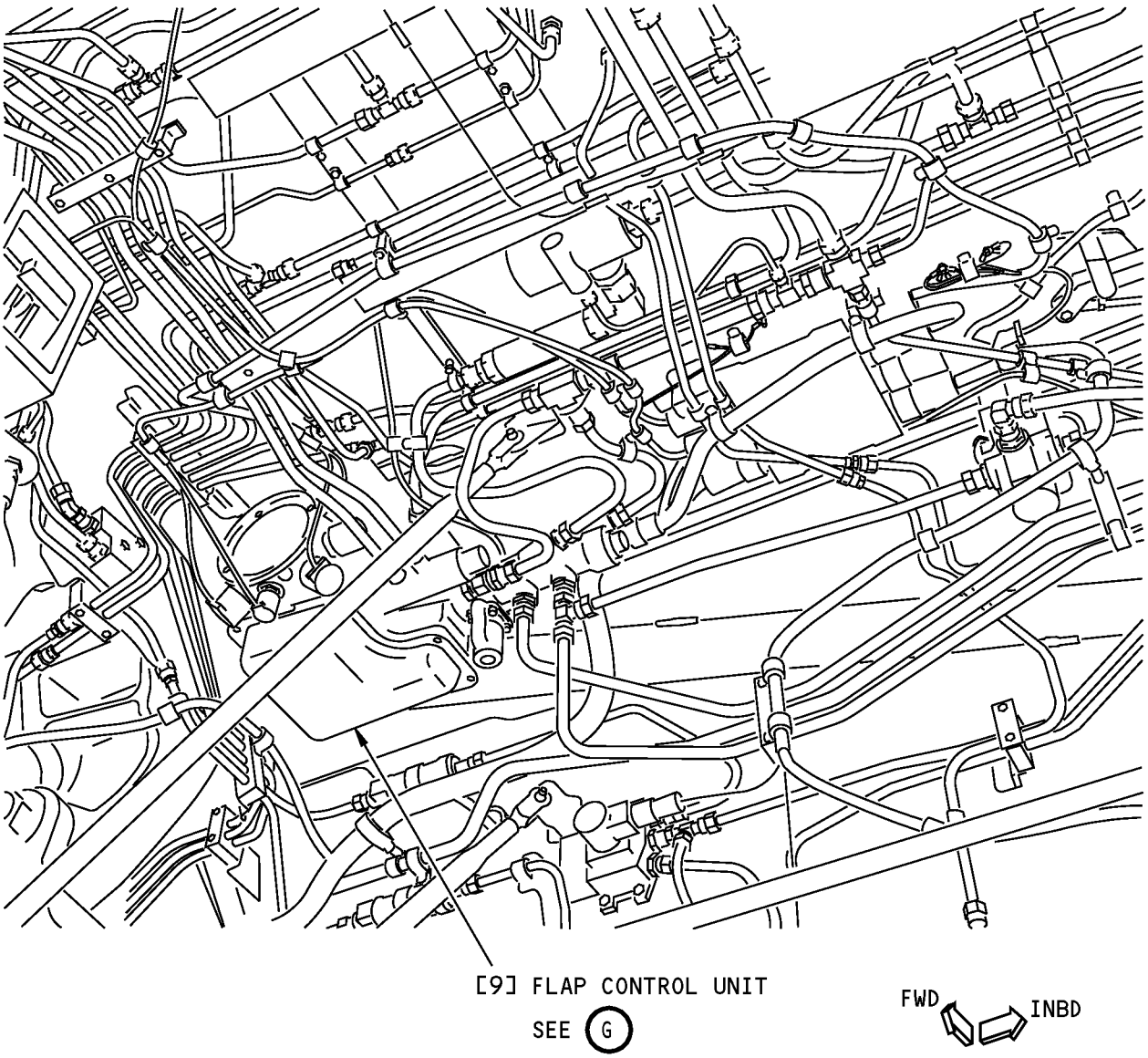

Flap Control Quadrant Installation
Figure 401 (Sheet 5 of 7)/27-51-62-990-801

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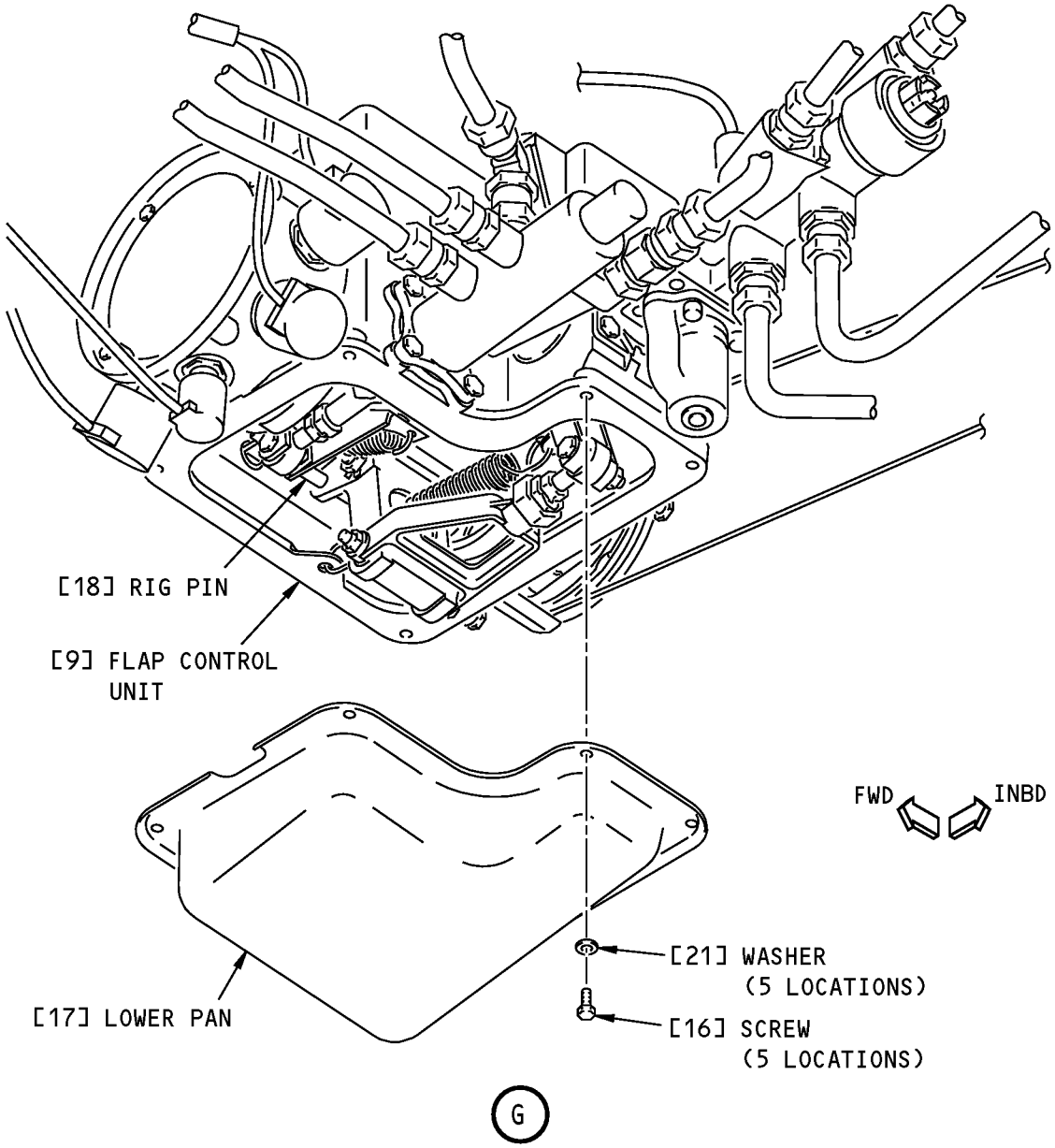

Flap Control Quadrant Installation
Figure 401 (Sheet 6 of 7)/27-51-62-990-801

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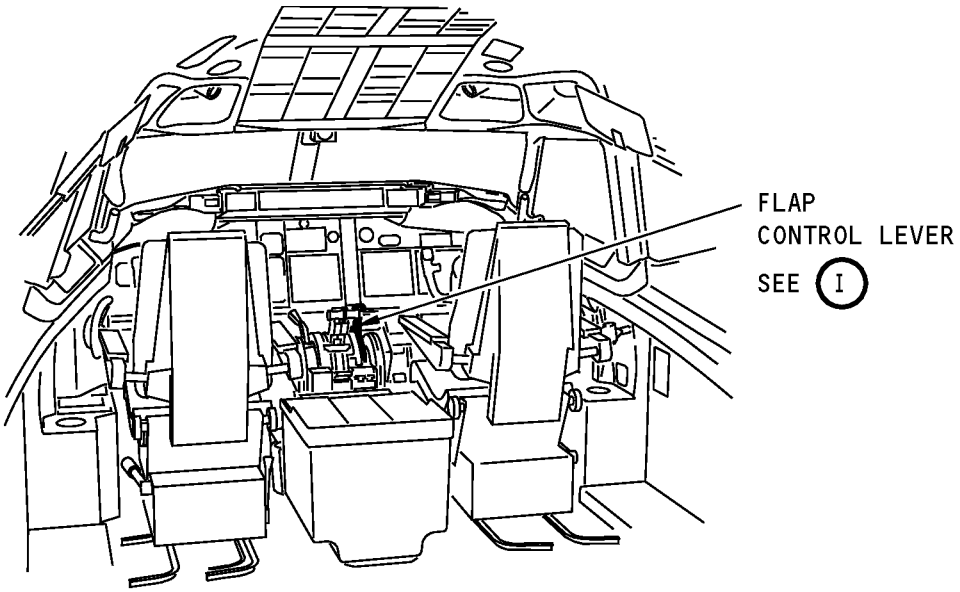

FLIGHT COMPARTMENT

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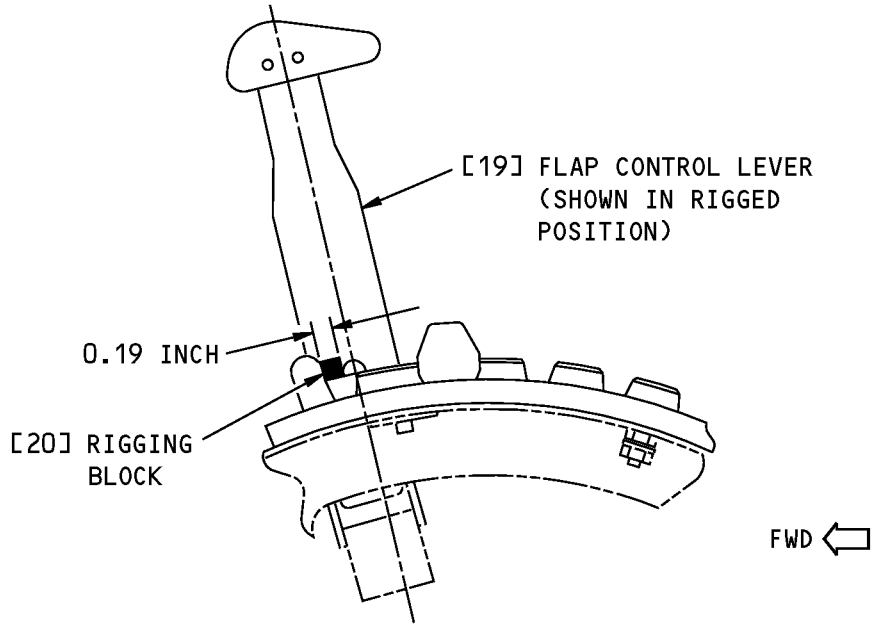

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Flap Control Quadrant Installation
Figure 401 (Sheet 7 of 7)/27-51-62-990-801

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TASK 27-51-62-400-801

3. Flap Control Quadrant Installation

(Figure 401)

A. References

Reference	Title
27-51-00-820-801	Trailing Edge Flap Control System Adjustment (P/B 501)
53-21-00-400-801	Passenger Cabin Floor Panel Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Clip	27-51-00-21-005	HAP 001-013, 015-026, 028-054
		27-51-00-24-005	HAP 101-999
4	Pin	27-51-00-21-150	HAP 001-013, 015-026, 028-054
		27-51-00-24-125	HAP 101-999
5	Quadrant	27-51-61-02-015	HAP 001-013, 015-026, 028-036, 101-999
		27-51-62-01-020	HAP 001-013, 015-026, 028-036, 101-999
		27-51-62-01A-020	HAP 037-054
6	Pin	27-51-62-01-010	HAP 001-013, 015-026, 028-036, 101-999
		27-51-62-01A-010	HAP 037-054
8	Pin	27-51-62-01-005	HAP 001-013, 015-026, 028-036, 101-999
		27-51-62-01A-005	HAP 037-054
10	Strap	27-51-00-21-155	HAP 001-013, 015-026, 028-054
		27-51-00-24-120	HAP 101-999

D. Location Zones

Zone	Area
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

E. Access Panels

Number	Name/Location
112A	Forward Access Door
114AC	Fwd Nose Wheel Well Upper Access Panel

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F. Flap Control Quadrant Installation

SUBTASK 27-51-62-820-001

(1) Install the rig pin [18] in the flap control unit [9]:

NOTE: This will make sure the flap control unit [9] is in the adjusted position.

(a) Remove the screws [16] and washers [21] and the lower pan [17] from the flap control unit [9].

(b) Install the rig pin [18] through the cam follower arm and the valve cam.

SUBTASK 27-51-62-420-001

(2) Install the quadrant [5] on the flap control unit [9]:

HAP 001-004, 006, 007

(a) Put the washer [14] and the quadrant [5] in their position on the input shaft [12] for the flap control unit [9].

HAP 005, 008-013, 015-026, 028-054, 101-999

(b) Put the quadrant [5] in its position on the input shaft [12] for the flap control unit [9].

HAP ALL

(c) Apply grease, D00633 to the threads on the input shaft [12].

(d) Install the washer [15] and nut [11] on the input shaft [12].

(e) Tighten the nut [11] to 250-300 pound-inches (28.3-33.8 newton-meters) more than the run-on torque.

SUBTASK 27-51-62-420-002

(3) Connect the cable assembly [1] WFA and WFB to the quadrant [5]:

(a) Put the flap control lever [19] in the rigged position:

1) Put a 0.19 in. (4.83 mm) thick rigging block [20] between the detent pin on the flap control lever [19] and the upstop on the detent plate.

NOTE: Make sure the rigging block [20] does not go into the flap UP detent.

2) Install a clamp to hold the quadrant [5] against the aft side of the stop [13] on the flap control unit [9].

(b) Put the cable assembly [1] in its position on the quadrant [5].

NOTE: The cable assembly [1] attaches to the quadrant [5] in two locations. There is a loop of cable that goes through the straps [10].

(c) Install the pins [4] and straps [10] to attach the cable assembly [1] to the quadrant [5].

(d) Install the pin [6], spacers [7] and pin [8] on the quadrant [5].

(e) Use the turnbuckles [3] to tighten the cable assembly [1] until the tension is 275 ±15 pounds (1223 ±67 newtons).

NOTE: You will adjust the cable assembly [1] to the final tension and remove the tools from the flap control unit during the flap control system adjustment procedure.

SUBTASK 27-51-62-820-002

(4) Do this task: Trailing Edge Flap Control System Adjustment, TASK 27-51-00-820-801.

NOTE: This task includes the removal of the rig pin and the clamp from the flap control unit [9] and the removal of the rigging tool from the flap control lever.

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SUBTASK 27-51-62-420-003

(5) Install the locking clips [2] on the turnbuckles [3] for cable assembly [1] WFA and WFB.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-62-410-001

(1) Install the lower pan [17] on the flap control unit [9]:

(a) Put the lower pan [17] in its location on the flap control unit [9].

(b) Apply compound, C00913 to the shank and threads of the screws [16].

(c) Install the washers [21] and screws [16] to attach the lower pan [17].

SUBTASK 27-51-62-410-002

(2) To get access to the turnbuckles [3], do this task:

Close this access panel:

Number	Name/Location
112A	Forward Access Door

or install this access panel:

Number	Name/Location
114AC	Fwd Nose Wheel Well Upper Access Panel

SUBTASK 27-51-62-410-003

(3) Install the floor panel above the flap control unit [9], do this task: Passenger Cabin Floor Panel Installation, TASK 53-21-00-400-801.

——————— END OF TASK ———————

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FLAP LIMIT SWITCHES - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap limit switches

(2) An installation of the flap limit switches.

B. This procedure is applicable to these switches on the flap control unit:

(1) S245 TE Flaps UP Switch

(2) S246 TE Flaps DOWN Switch

(3) S1051 TE Flaps UP Switch

C. The S138 Landing Warning Switch is also installed on the flap control unit. The removal procedure is covered in (TASK 31-51-01-000-801).

TASK 27-51-63-000-801

2. Flap Limit Switch Removal

(Figure 401)

A. General

(1) This task is applicable to the TE Flaps UP switch, S245, the TE Flaps DOWN switch, S246 and the TE Flaps UP switch S1051.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-51-63-860-001

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-63-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-63-040-001

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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E. Flap Limit Switch Removal

HAP ALL; AIRPLANES WITH TRAILING EDGE FLAPS UP SWITCH S00245

SUBTASK 27-51-63-860-002

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	11	C00442	PASSENGER CABIN SIGNS PASS SIGN CONT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

HAP ALL; AIRPLANES WITH TRAILING EDGE FLAPS UP SWITCH S00246

SUBTASK 27-51-63-860-003

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

HAP ALL

SUBTASK 27-51-63-860-004

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2
B	8	C01464	FLIGHT CONTROL ELEV TAB VLV RIGHT
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	14	C00316	INDICATOR MASTER DIM SECT 4

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
HAP 101-999			
A	8	C00265	AIR CONDITIONING RAM AIR MOD CONT LEFT

HAP ALL

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SUBTASK 27-51-63-010-001

(4) Remove the switch cover [8] from the flap control unit [1]:

(a) Remove the screws [7] and washers [21] that attach the switch cover [8].

(b) Remove the switch cover [8] from the flap control unit [1].

SUBTASK 27-51-63-020-001

(5) Disconnect the electrical wires from the applicable limit switch:

(a) Disconnect the connectors [6] for the wire bundle [5].

(b) Remove the screws [4] and the six clamps [3] for the wire bundle [2].

(c) Cut the wire bundle ties and isolate the switch wires from the remaining wires in the wire bundle [2].

(d) Remove the switch leads from the connector [6].

SUBTASK 27-51-63-020-002

(6) Remove the limit switch [9]:

(a) Remove the roller guide lock ring [12] from the roller guide [11].

(b) Remove the roller guide [11] from the limit switch [9].

(c) Remove the nut [13] and washer [14] from the limit switch [9].

(d) Remove the limit switch [9] with the nut [13] and washer [15] from the flap control unit [1].

(e) Put the nut [13], washer [14], roller guide [11] and the roller guide lock ring [12] on the limit switch [9] to keep the parts together.

SUBTASK 27-51-63-020-003

(7) Remove the limit switch [10]:

(a) Remove the roller guide lock ring [17] from the roller guide [16].

(b) Remove the roller guide [16] from the limit switch [10].

(c) Remove the nut [18] and washer [19] from the limit switch [10].

(d) Remove the limit switch [10] with the nut [18] and washer [20] from the flap control unit [1].

(e) Put the nut [18], washer [19], roller guide [16] and the roller guide lock ring [17] on the limit switch [10] to keep the parts together.

———————— END OF TASK ————————

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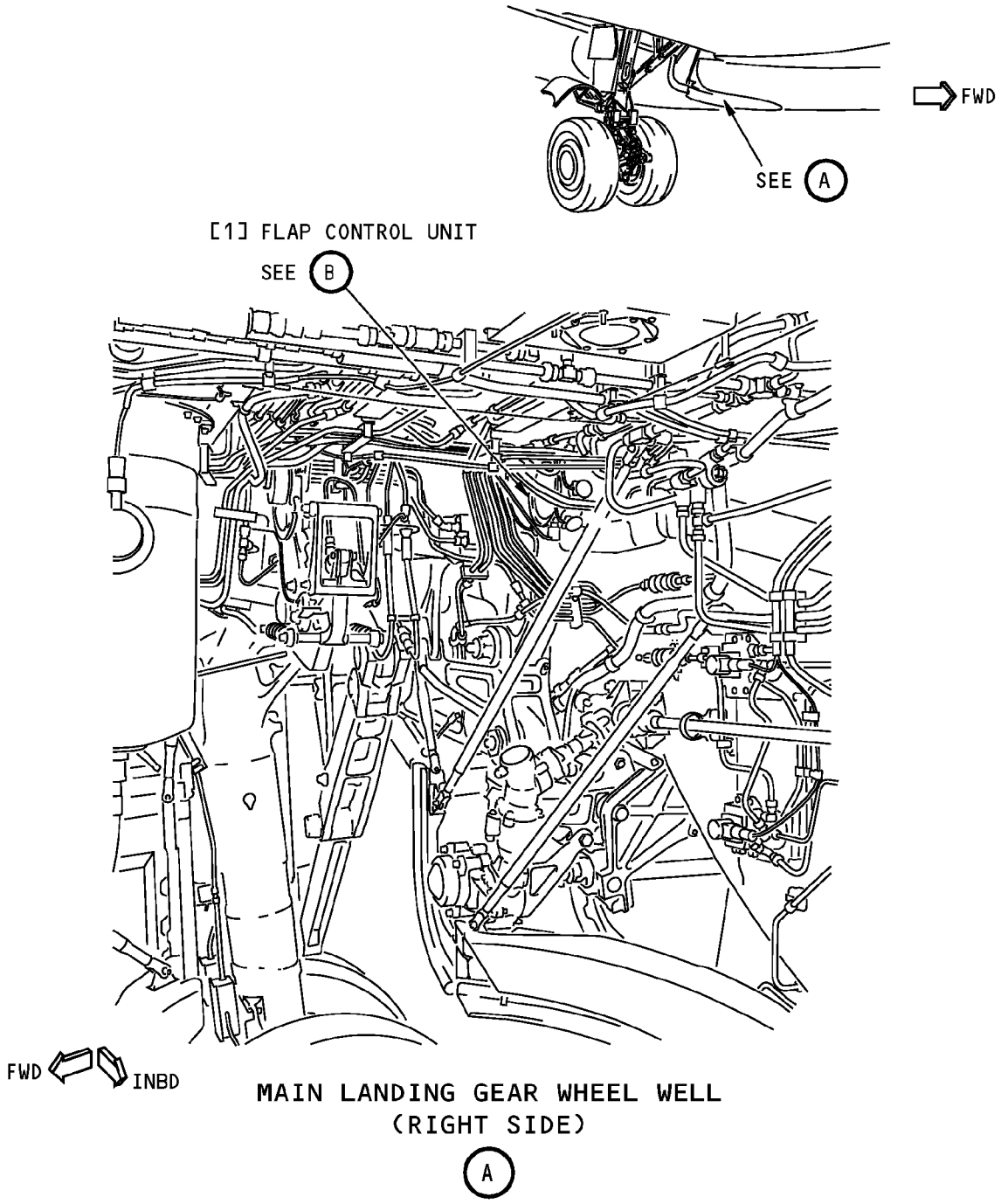

Flap Limit Switch Installation
Figure 401 (Sheet 1 of 4)/27-51-63-990-801

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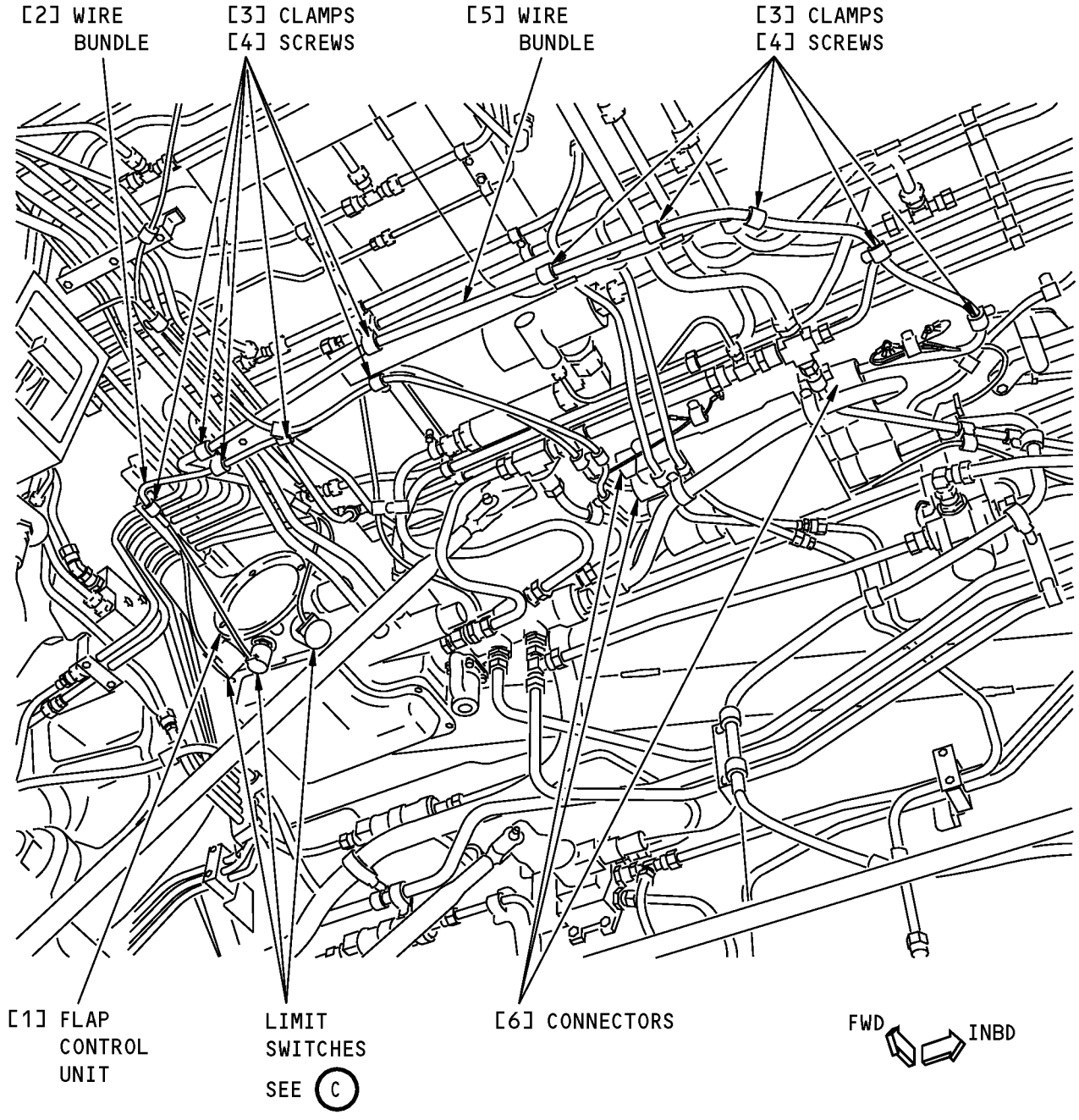

Flap Limit Switch Installation
Figure 401 (Sheet 2 of 4)/27-51-63-990-801

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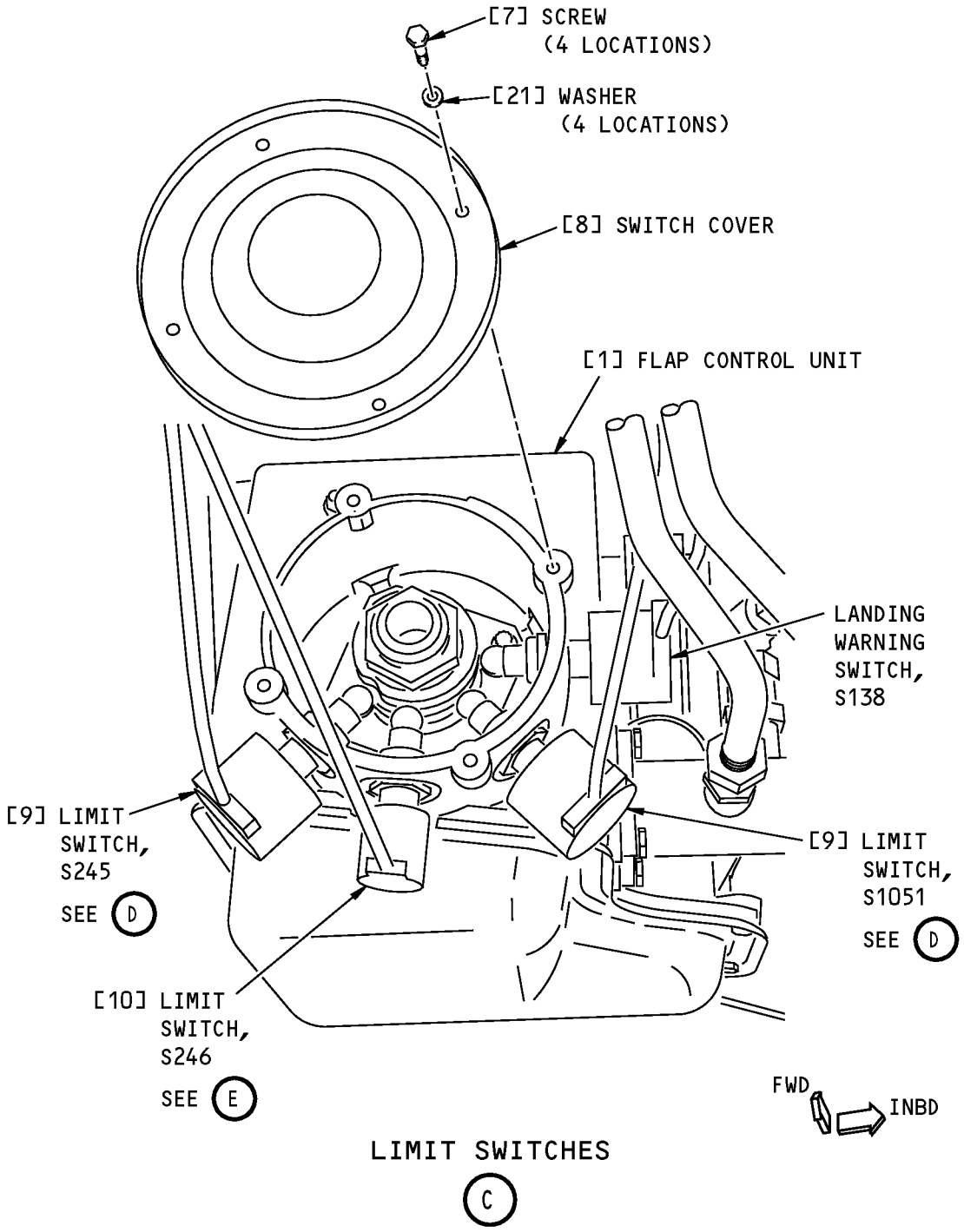

Flap Limit Switch Installation
Figure 401 (Sheet 3 of 4)/27-51-63-990-801

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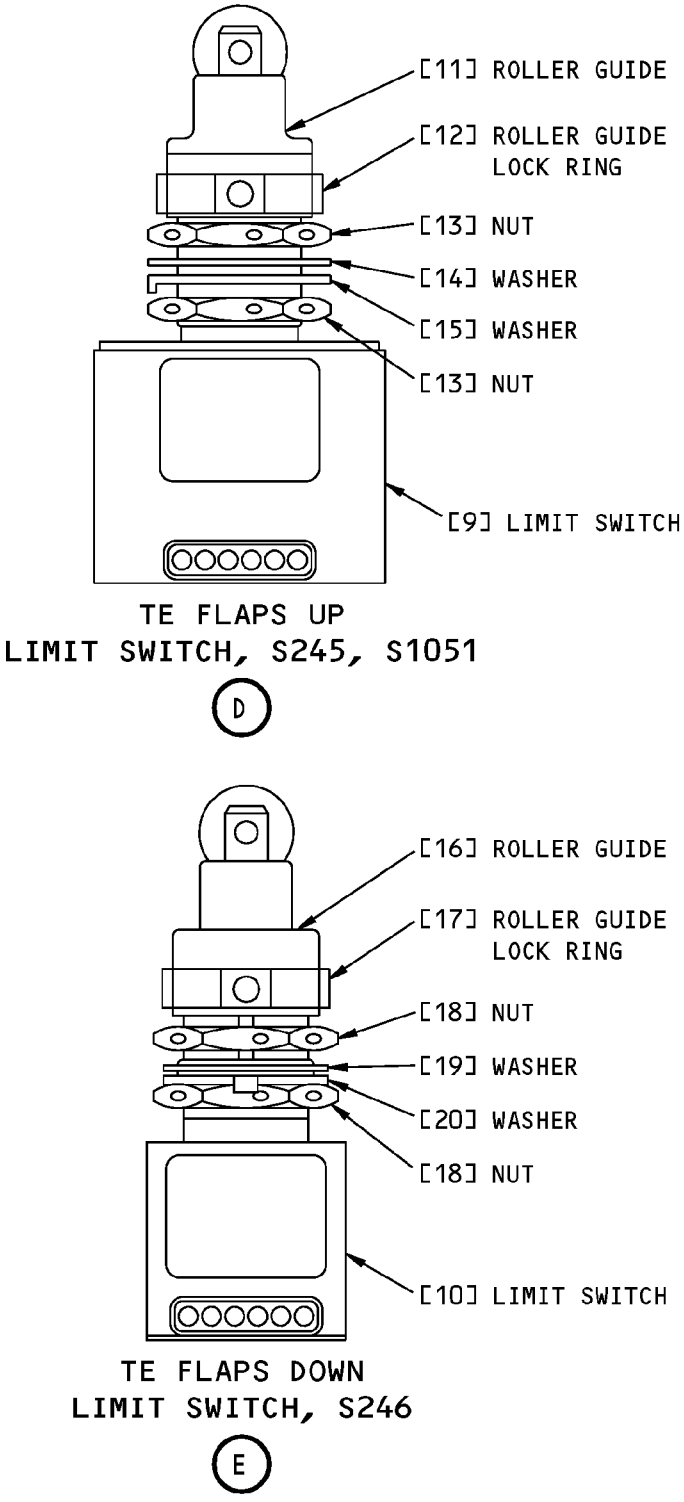

Flap Limit Switch Installation
Figure 401 (Sheet 4 of 4)/27-51-63-990-801

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TASK 27-51-63-400-801

3. Flap Limit Switch Installation

(Figure 401)

A. General

(1) This task is applicable to the TE Flaps UP switch, S245, the TE Flaps DOWN switch, S246 and the TE Flaps UP switch S1051.

B. References

Reference	Title
27-31-00-700-811	Feel Differential Pressure Light - Test (P/B 501)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-63-720-801	Flaps UP Limit Switch, S245 Functional Test (P/B 501)
27-51-63-720-802	Flaps DOWN Limit Switch, S246 Functional Test (P/B 501)
27-51-63-820-801	Flaps Limit Switch Adjustment (P/B 501)

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Flap Limit Switch Installation

SUBTASK 27-51-63-420-001

(1) Install the limit switch [9]:

(a) Remove the roller guide lock ring [12], roller guide [11], nut [13] and washer [14] from the limit switch [9].

(b) Put the limit switch [9] with the washer [15] and nut [13] in its location on the flap control unit [1].

(c) Install the washer [14] and nut [13] to hold the limit switch [9] in its position.

(d) Put the roller guide [11] in its position on the limit switch [9].

(e) Install the roller guide lock ring [12] to hold the roller guide [11] in its position.

SUBTASK 27-51-63-420-002

(2) Install the limit switch [10]:

(a) Remove the roller guide lock ring [17], roller guide [16], nut [18] and washer [19] from the limit switch [10].

(b) Put the limit switch [10] with the washer [20] and nut [18] in its location on the flap control unit [1].

(c) Install the washer [19] and nut [18] to hold the limit switch [10] in its position.

(d) Put the roller guide [16] in its position on the limit switch [10].

(e) Install the roller guide lock ring [17] to hold the roller guide [16] in its position.

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SUBTASK 27-51-63-760-001

(3) Make sure the resistance between the limit switch and the flap control unit [1] is less than 2.5 milliohms.

SUBTASK 27-51-63-420-003

(4) Attach the electrical wires for the limit switch:

(a) Connect the switch leads to the connectors [6].

(b) Attach the connectors [6].

(c) Install new wire bundle ties on the wire bundle [2].

(d) Put the clamps [3] in their locations on the wire bundle [2].

(e) install the screws [4] to attach the clamps [3].

HAP ALL; AIRPLANES WITH TRAILING EDGE FLAPS UP SWITCH S00245

SUBTASK 27-51-63-860-005

(5) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	7	C00285	YAW DAMPER AC

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
D	11	C00442	PASSENGER CABIN SIGNS PASS SIGN CONT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES
B	10	C00207	FLIGHT CONTROL STAB TRIM CONT

HAP ALL; AIRPLANES WITH TRAILING EDGE FLAPS UP SWITCH S00246

SUBTASK 27-51-63-860-006

(6) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

HAP ALL; AIRPLANES WITH TRAILING EDGE FLAPS UP SWITCH S01051

SUBTASK 27-51-63-860-007

(7) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2
B	8	C01464	FLIGHT CONTROL ELEV TAB VLV RIGHT
B	13	C00363	FLIGHT CONTROL SHUTOFF VALVES FLT CONT
C	13	C01074	FLIGHT CONTROL SHUTOFF VALVES FLT CONT

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F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	14	C00316	INDICATOR MASTER DIM SECT 4

F/O Electrical System Panel, P6-4

Row	Col	Number	Name
HAP 101-999			
A	8	C00265	AIR CONDITIONING RAM AIR MOD CONT LEFT

HAP ALL

SUBTASK 27-51-63-820-001

(8) Adjust the applicable limit switch [9] or limit switch [10]. To adjust the limit switch, do this task: Flaps Limit Switch Adjustment, TASK 27-51-63-820-801.

SUBTASK 27-51-63-420-004

(9) Install lockwire on the nuts [18] for the limit switch [10].

SUBTASK 27-51-63-420-005

(10) Install lockwire on the nuts [13] for the limit switch [9].

SUBTASK 27-51-63-410-001

(11) Install the switch cover [8] on the flap control unit [1]:

(a) Put the switch cover [8] in its location on the flap control unit [1].

(b) Apply compound, C00913 to the shank and threads of the screws [7].

(c) Install the washer [21] and screws [7] that attach the switch cover [8].

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-63-440-001

(1) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-51-63-720-001

(2) Do the applicable test of the limit switch:

(a) For the TE Flap UP switch [9], S245, do this task: Flaps UP Limit Switch, S245 Functional Test, TASK 27-51-63-720-801.

(b) For the TE Flap Down switch [10], S246, do this task: Flaps DOWN Limit Switch, S246 Functional Test, TASK 27-51-63-720-802.

(c) For the TE Flap UP switch [9], S1051, do this task: Feel Differential Pressure Light - Test, TASK 27-31-00-700-811.

——————— END OF TASK ———————

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FLAP LIMIT SWITCHES - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An adjustment of the flap limit switches

(2) A functional test of the Flaps UP limit switch S245

(3) A functional test of the Flaps DOWN limit switch S246.

TASK 27-51-63-820-801

2. Flaps Limit Switch Adjustment

(Figure 501)

A. General

(1) This task is applicable to the TE Flaps UP switch, S245, the TE Flaps DOWN switch, S246, and the TE Flaps UP switch S1051.

(2) The flap drive system and the cables must be correctly adjusted before you do this task.

B. References

Reference	Title
27-31-00-700-815	Elevator Tab Control System - Operational Test (P/B 501)
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
29-22-00-710-801	Power Transfer Unit Operational Test (P/B 501)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Prepare for the Adjustment

SUBTASK 27-51-63-860-008

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

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SUBTASK 27-51-63-480-002

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-51-63-040-002

(3) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-51-63-010-002

(4) Remove the switch cover [3] from the flap control unit [1]:

(a) Remove the screws [2] and washers [11] that attach the switch cover [3].

(b) Remove the switch cover [3] from the flap control unit [1].

F. Flaps UP Limit Switch S245 Adjustment

SUBTASK 27-51-63-860-009

(1) Move the trailing edge flaps until the Dimension X on the Number 4 or 5 ballscrew is 0.79 ±0.03 inches (20.07 ±0.76 millimeters), do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

NOTE: You will only extend the trailing edge flaps a small distance to get to this position. Do not disconnect the torque tubes from the power drive unit to extend the flaps.

SUBTASK 27-51-63-820-002

(2) Adjust the position of the Flaps UP limit switch [4], S245:

NOTE: It is necessary to move the limit switch [4] away from the cam [6] for the adjustment. There will be no continuity through the switch pins 1 and 3 when the switch operates. Check for no continuity between pin 12 and ground at connector D46044P.

(a) Loosen the nuts [8] on the limit switch [4].

(b) Use the nuts [8] to adjust the position of the limit switch [4] until it is depressed against the cam [6].

NOTE: There will be continuity between pins 1 and 3 on the limit switch [4]. Check for continuity between pin 12 and ground at connector D46044P.

(c) Carefully loosen the inside nut [8], and then tighten the outside nut [8] to move the limit switch [4] away from the cam [6] until there is not continuity through the pins.

(d) Make sure the limit switch [4] is in the correct position:

1) Pull the cable [12] WFFB to the side to turn the cam [6] slightly in the extend direction.

NOTE: Pull on the cable to deflect it approximately 1.2 inch (30.5 millimeters). Cable WFFB [12] is the upper cable between the flap power drive unit and the flap control unit [1].

2) Make sure there is continuity between the pins.

3) Pull the cable WFFA [12] to the side to turn the cam [6] slightly in the retract direction.

NOTE: Pull on the cable to deflect it approximately 1.2 inch (30.5 millimeters). Cable WFFA [12] is the lower cable between the flap power drive unit and the flap control unit [1].

4) Make sure there is no continuity between the pins.

5) Make fine adjustments of the nuts [8] until the limit switch [4] is in the correct position.

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(e) Tighten the nuts [8] on the limit switch [4] to a minimum of 15 inch-pounds (1.695 Nm).

(f) Install lockwire on the nuts [8].

(g) Fillet seal with sealant, A02315

SUBTASK 27-51-63-730-001

(3) Do the test of the Flaps UP limit switch [4], S245, do this task: Flaps UP Limit Switch, S245 Functional Test, TASK 27-51-63-720-801.

G. Flaps UP Limit Switch S1051 Adjustment

SUBTASK 27-51-63-860-010

(1) Move the trailing edge flaps until the Dimension X on the Number 4 or 5 ballscrew is 1.18 ±0.03 inches (29.97 ±0.76 millimeters), do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

NOTE: This position is approximately 1 1/2 turn of the ballscrew from the upstop. Do not disconnect the torque tubes from the power drive unit to extend the flaps.

SUBTASK 27-51-63-820-003

(2) Adjust the position of the Flaps UP limit switch [4], S1051:

NOTE: It is necessary to move the limit switch [4] away from the cam for adjustment. There will be no continuity through the switch pins 1 and 3 when the switch operates. Check for no continuity between pins 5 and 15 at connector D46040P.

(a) Loosen the nuts [8] on the limit switch [4].

(b) Use the nuts [8] to adjust the position of the limit switch [4] until the switch is depressed against the cam [6].

NOTE: There will be continuity between pins 1 and 3 on the limit switch [4]. Check for continuity between pins 5 and 15 at connector D46040P.

(c) Carefully loosen the inside nut [8], and then tighten the outside nut [8] to move the limit switch [4] away from the cam [6] until there is not continuity through the pins.

(d) Make sure the limit switch [4] is in the correct position:

1) Pull the cable WFFB [12] to the side to turn the cam [6] slightly in the extend direction.

NOTE: Pull on the cable to deflect it approximately 1.2 inch (30.5 millimeters). Cable WFFB [12] is the upper cable between the flap power drive unit and the flap control unit [1].

2) Make sure there is continuity between the pins.

3) Pull the cable WFFA [12] to the side to turn the cam [6] slightly in the retract direction.

NOTE: Pull on the cable to deflect it approximately 1.2 inch (30.5 millimeters). Cable WFFA [12] is the lower cable between the flap power drive unit and the flap control unit [1].

4) Make sure there is no continuity between the pins.

5) Make fine adjustments of the nuts [8] until the limit switch [4] is in the correct position.

(e) Tighten the nuts [8] on the limit switch [4] to a minimum of 15 inch-pounds (1.695 Nm).

(f) Install lockwire on the nuts [8].

(g) Fillet seal with sealant, A02315

SUBTASK 27-51-63-730-002

(3) Do the test of the Flaps UP limit switch [4], S1051, do this task:Elevator Tab Control System - Operational Test, TASK 27-31-00-700-815

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SUBTASK 27-51-63-710-012

(4) Do the test of the Flaps UP limit switch [4], S1051, do this task:Power Transfer Unit Operational Test, TASK 29-22-00-710-801

SUBTASK 27-51-63-710-013

(5) Do a test of the ram air door function.

(a) Extend the trailing edge flaps to position 1. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(b) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801

(c) Retract the trailing edge flaps to full up position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804

(d) Wait for the ram air actuator to fully extend.

HAP 101-999

(e) Remove the electrical connector D1288 (D1290) from the ram air sensor.

NOTE: The actuator will retract when the connector is removed.

HAP 001-013, 015-026, 028-054

(f) Remove the electrical connector D3916 (D3918) from the ram air sensor.

NOTE: The actuator will retract when the connector is removed.

HAP 101-999

(g) Install a jumper wire between pins 1 and 2.

HAP ALL

(h) Extend the trailing edge flaps to position 1. To extend the flaps, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

NOTE: The actuator will retract slightly.

(i) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802

1) Make sure the actuator moves to the fully retracted position.

(j) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801

1) Make sure that the deflector door closes and is faired with the ram air inlet ramp.

(k) Retract the trailing edge flaps to full up position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

HAP 101-999

(6) Remove the jumper from pins 1 and 2 of the electrical connector D1288 (D1290) to the ram air sensor.

HAP 001-013, 015-026, 028-054

(7) Install the electrical connector D3916 (D3918) on the ram air sensor.

HAP 101-999

(8) Install the electrical connector D1288 (D1290) on the ram air sensor.

HAP ALL

(9) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802

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H. Flaps Down Limit Switch S246 Adjustment

SUBTASK 27-51-63-860-011

(1) Move the trailing edge flaps until the Dimension X on the Number 4 or 5 ballscrew is 11.90 ±0.03 inches (302.26 ±0.76 millimeters), do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

NOTE: The trailing edge flaps will be in approximately the 40-unit position. Do not disconnect the torque tubes from the power drive unit to extend the flaps.

SUBTASK 27-51-63-820-004

(2) Adjust the position of the Flaps DOWN limit switch [5], S246:

NOTE: It is necessary to move the limit switch [5] away from the cam for the adjustment. There will be no continuity through the switch pins 1 and 3 when the switch operates.

(a) Loosen the nuts [10] on the limit switch [5].

(b) Use the nuts [10] to adjust the position of the limit switch [5] until the switch is depressed against the cam [6].

NOTE: There will be continuity between pins 1 and 3 on the limit switch [5].

(c) Carefully loosen the inside nut [10], and then tighten the outside nut [10] to move the limit switch [5] away from the cam [6] until there is not continuity through the pins.

(d) Make sure the limit switch [5] is in the correct position:

1) Pull the cable [12] WFFB to the side to turn the cam [6] slightly in the extend direction.

NOTE: Pull on the cable to deflect it approximately 1.2 inch (30.5 millimeters). Cable WFFB [12] is the upper cable between the flap power drive unit and the flap control unit [1].

2) Make sure there is continuity between the pins.

3) Pull the cable [12] WFFA to the side to turn the cam [6] slightly in the retract direction.

NOTE: Pull on the cable to deflect it approximately 1.2 inch (30.5 millimeters). Cable WFFA [12] is the lower cable between the flap power drive unit and the flap control unit [1].

4) Make sure there is no continuity between the pins.

5) Make fine adjustments of the nuts [10] until the limit switch [4] is in the correct position.

(e) Tighten the nuts [10] on the limit switch [5] to a minimum of 15 inch-pounds (1.695 Nm).

(f) Install lockwire on the nuts [10].

(g) Fillet seal with sealant, A02315

SUBTASK 27-51-63-730-003

(3) Do the test of the Flaps DOWN limit switch [5], S246, do this task: Flaps DOWN Limit Switch, S246 Functional Test, TASK 27-51-63-720-802.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-63-410-002

(1) Install the switch cover [3] on the flap control unit [1]:

(a) Put the switch cover [3] in its location on the flap control unit [1].

(b) Apply compound, C00913 to the shank and threads of the screws [2].

(c) Install the washers [11] and screws [2] that attach the switch cover [3].

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SUBTASK 27-51-63-440-002

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

——————— END OF TASK ———————

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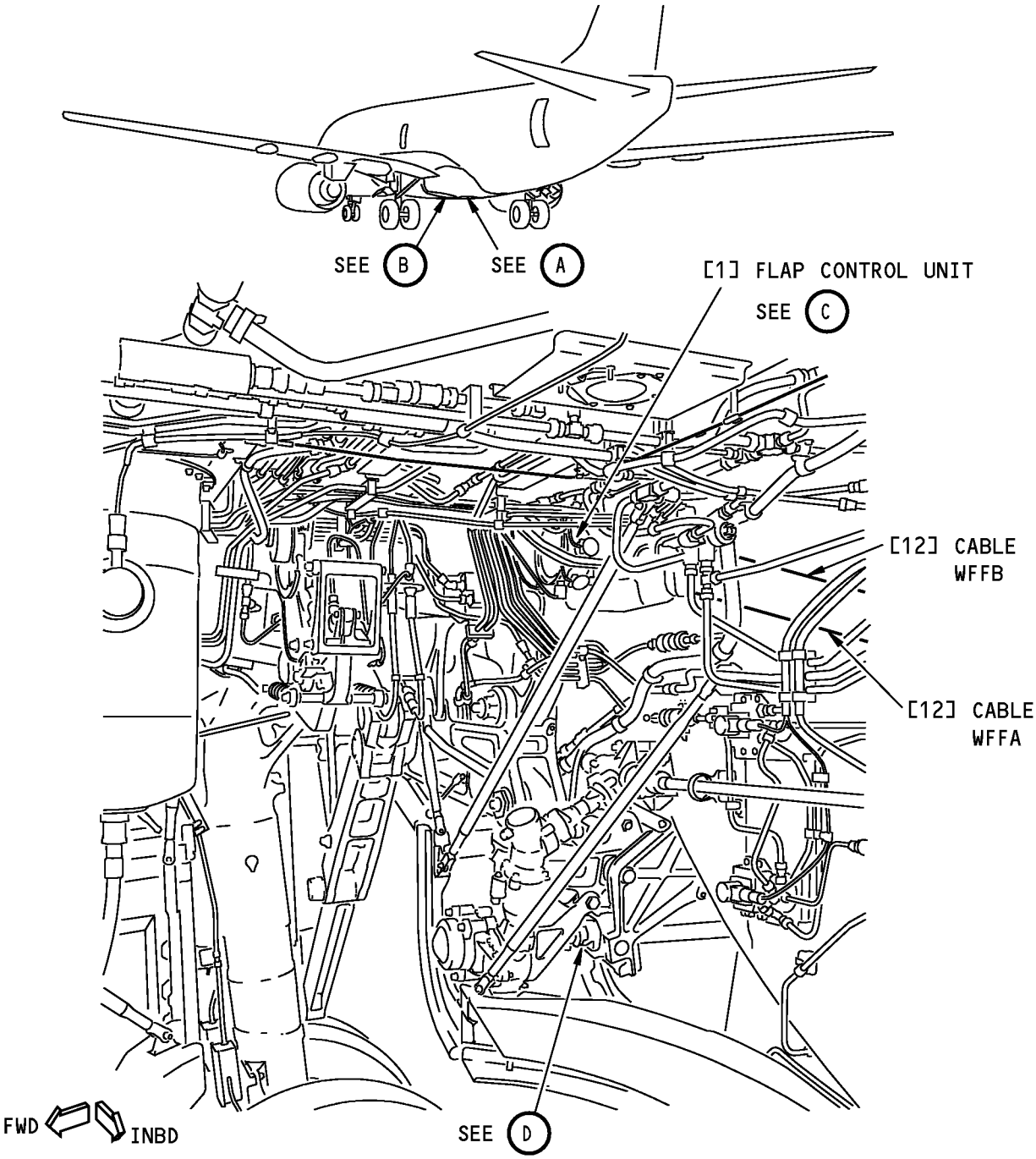

Flap Limit Switches Adjustment
Figure 501 (Sheet 1 of 4)/27-51-63-990-802

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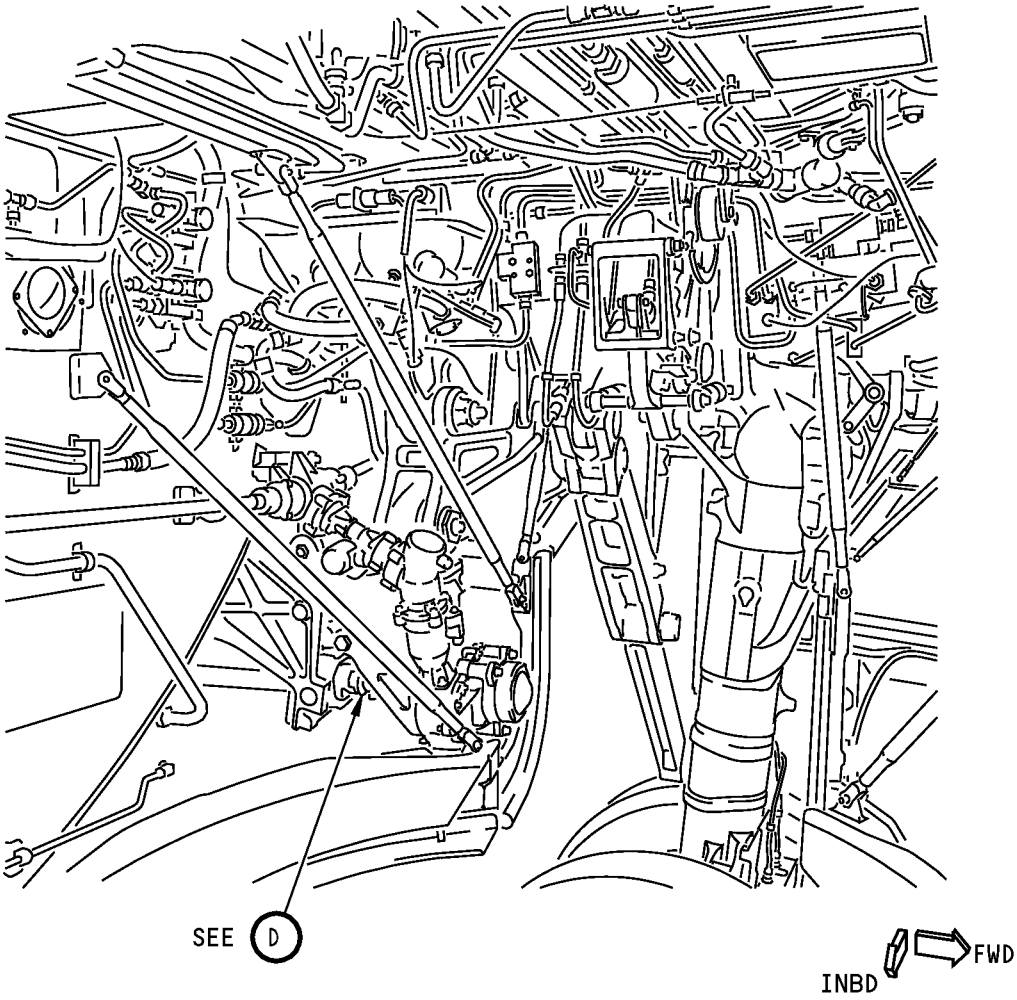

Flap Limit Switches Adjustment
Figure 501 (Sheet 2 of 4)/27-51-63-990-802

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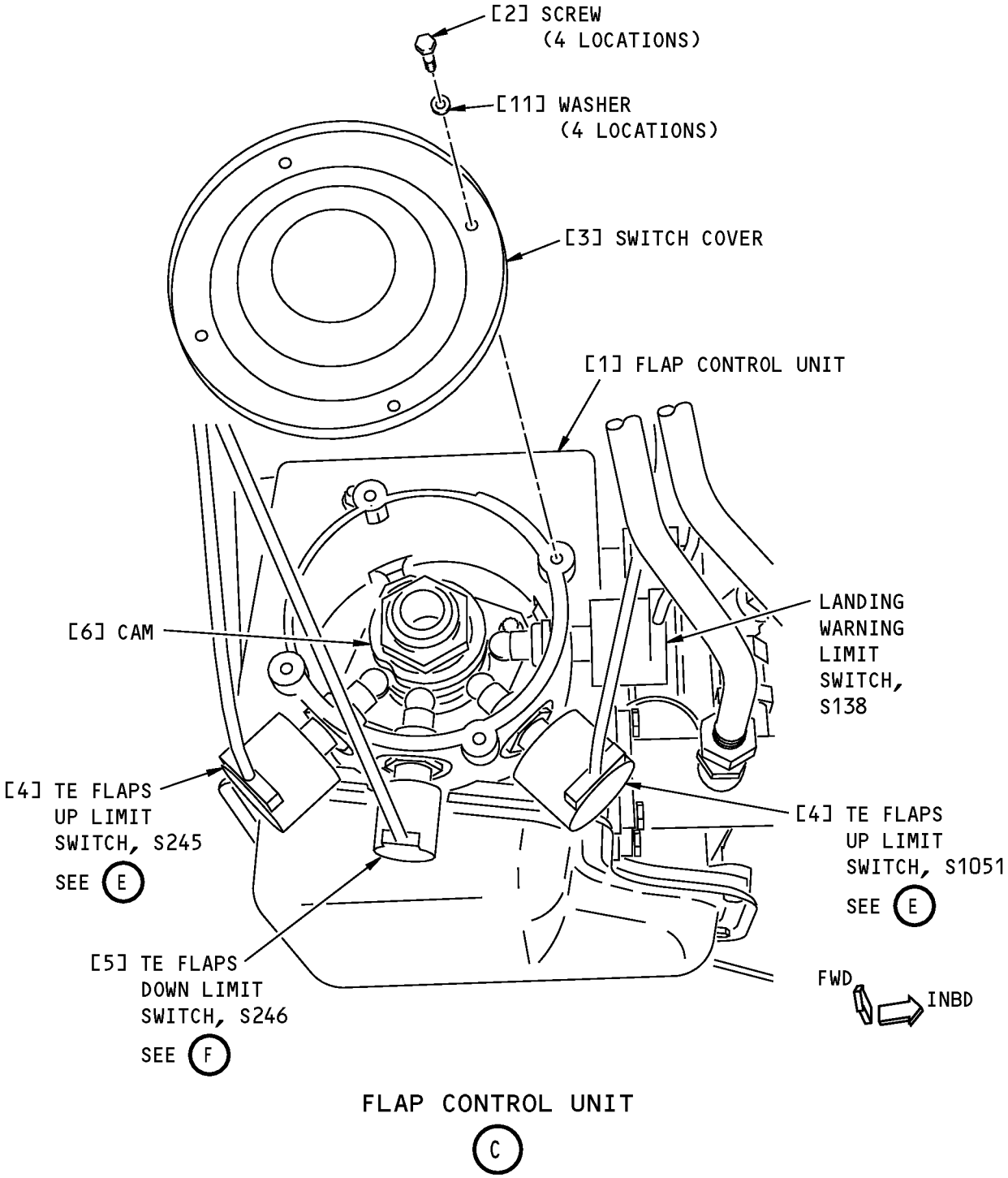

Flap Limit Switches Adjustment
Figure 501 (Sheet 3 of 4)/27-51-63-990-802

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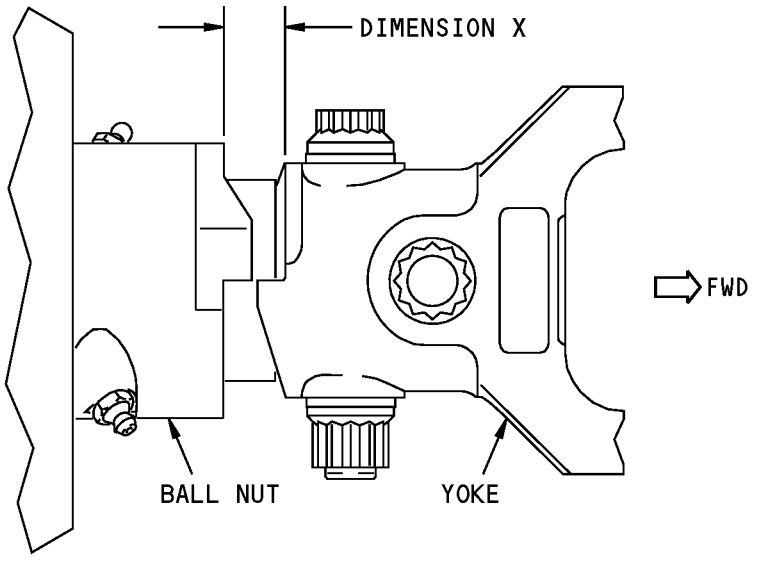

(EXAMPLE)

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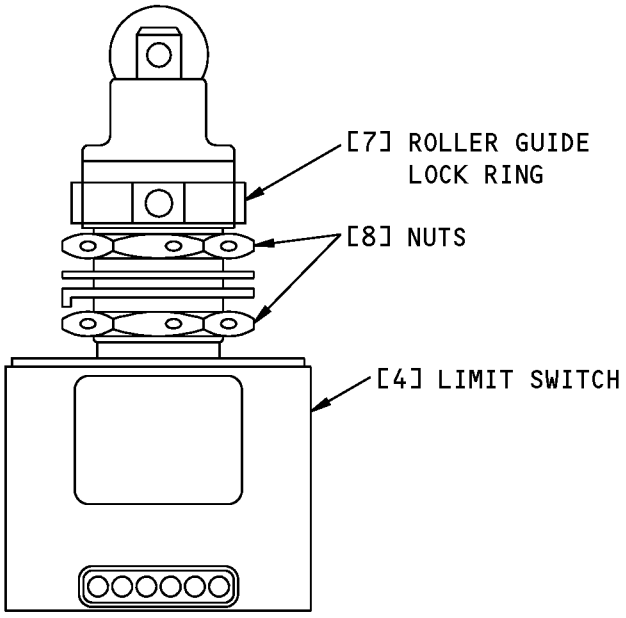
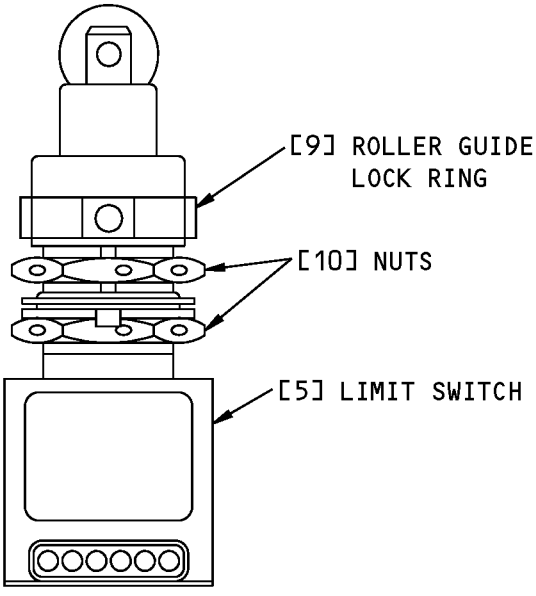


TE FLAPS UP LIMIT SWITCHES, S245, S1051

E



TE FLAPS DOWN LIMIT SWITCH, S246

F

Flap Limit Switches Adjustment
Figure 501 (Sheet 4 of 4)/27-51-63-990-802

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TASK 27-51-63-720-801

3. Flaps UP Limit Switch, S245 Functional Test

(Figure 502)

A. General

(1) This task is applicable to the Flaps UP Limit Switch, S245.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-41-71-700-801	Stabilizer Trim Motor Test (P/B 501)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
34-21-00-820-801	Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201)
34-21-00-820-802	Air Data Inertial Reference System - Alignment from the ISDU (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Flaps UP Limit Switch, S245 Test

SUBTASK 27-51-63-860-012

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-63-010-003

(2) To gain access to the Electronic Equipment Center, do this step:

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-51-63-860-013

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-51-63-860-014

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE AWAY FROM THE TRAILING EDGE FLAPS AND THE LEADING EDGE FLAPS AND SLATS. THE FLAPS AND SLATS WILL MOVE. THIS CAN CAUSE INJURIES TO PERSON AND DAMAGE TO EQUIPMENT.

(4) Move the flap control lever to the 1-unit position. Wait for the flaps and slats to move to the 1-unit position.

SUBTASK 27-51-63-710-001

(5) Move the ALTERNATE FLAPS ARM switch to the ARM position.

SUBTASK 27-51-63-710-004

(6) Move the ALTERNATE FLAPS control switch to the UP position and hold it until the trailing edge flaps stop moving.

SUBTASK 27-51-63-740-001

(7) Use the FSEU to do a check of the position of the trailing edge flaps:

(a) Push the ON/OFF button on the front panel of the FSEU to turn the display on.

NOTE: The display will show EXISTING FAULTS?.

(b) Push the down arrow until OTHER FUNCTNS? shows on the display.

(c) Push the YES button to select OTHER FUNCTNS? on the FSEU.

(d) Push the down arrow until I/O MONITOR? shows on the display.

(e) Push the YES button to select I/O MONITOR? from the menu.

(f) Push the down arrow until SYNCRO INPUTS? shows on the display.

(g) Push the YES button to select SYNCHRO INPUTS? from the menu.

(h) Push the down arrow to find the L FL POS and R FL POS indications on the menu.

(i) Make sure that the L FL POS and R FL POS indications are in the limit of -1.2 to 4.7.

(j) Push the ON/OFF button on the front panel of the FSEU to turn the front panel display off.

SUBTASK 27-51-63-860-017

(8) Move the flap control lever to the UP position to agree with the position of the flaps.

SUBTASK 27-51-63-710-005

(9) Move the ALTERNATE FLAPS ARM switch to the OFF position.

SUBTASK 27-51-63-720-002

(10) Align the air data inertial reference system. To do this, do this task: Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801orAir Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801.

(a) Do a test of the stall management yaw damper (SMYD) function of the S245 flap limit switch.

(b) Push the ON/OFF button on the SMYD 1 and 2 BITE panel to turn on the BITE display.

(c) Make sure the SMYD BITE display shows ''EXISTING FAULTS?''.

(d) Push the down arrow button to the selection ''GROUND TESTS?''

(e) Push the YES button.

(f) Push the down arrow button to the selection ''DISCRETE INPUTS?''.

(g) Push the YES button.

(h) Push the down arrow button as necessary until the display shows ''FLAP UP = UP''.

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WARNING: MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE FLAPS AND SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(i) Move the flap control lever to the 1-unit position. Wait for the flaps and slats to move to the 1-unit position.

(j) Make sure the SMYD BITE display shows ''FLAP UP = NOT UP''.

WARNING: MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE FLAPS AND SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(k) Move the flap control lever to the UP position.

(l) Make sure the SMYD BITE display shows ''FLAP UP = UP''.

(m) Push the ON/OFF button on the SMYD 1 and 2 BITE panel to turn off the BITE display.

SUBTASK 27-51-63-720-003

(11) Do this task:Stabilizer Trim Motor Test, TASK 27-41-71-700-801

HAP 001-013, 015-026, 028-030

SUBTASK 27-51-63-710-011

(12) Do this test of the passenger information signs:SUBTASK 33-20-00-710-006-001

HAP ALL

SUBTASK 27-51-63-860-018

(13) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-63-940-001

(14) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

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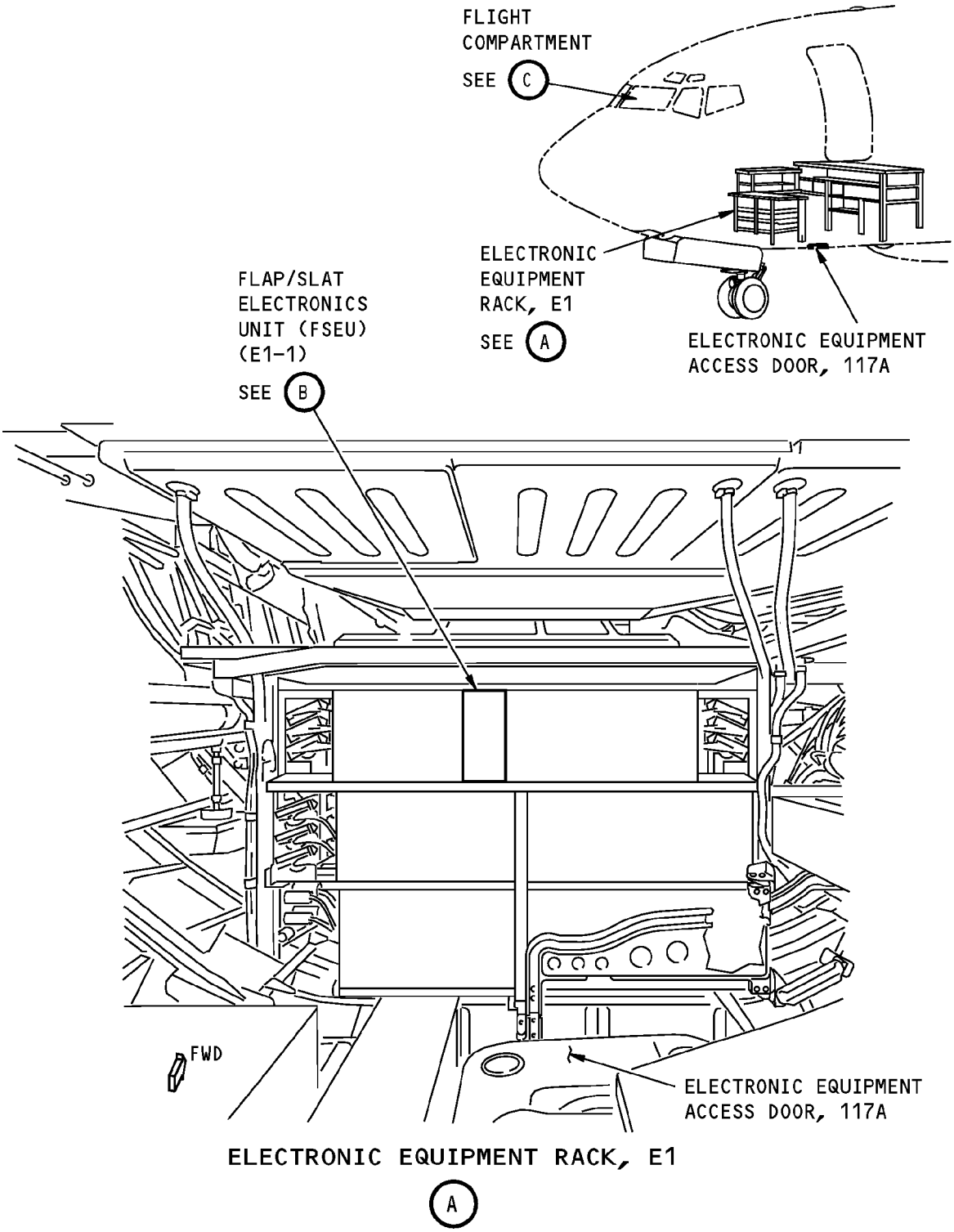

Flap Limit Switch Test
Figure 502 (Sheet 1 of 3)/27-51-63-990-803

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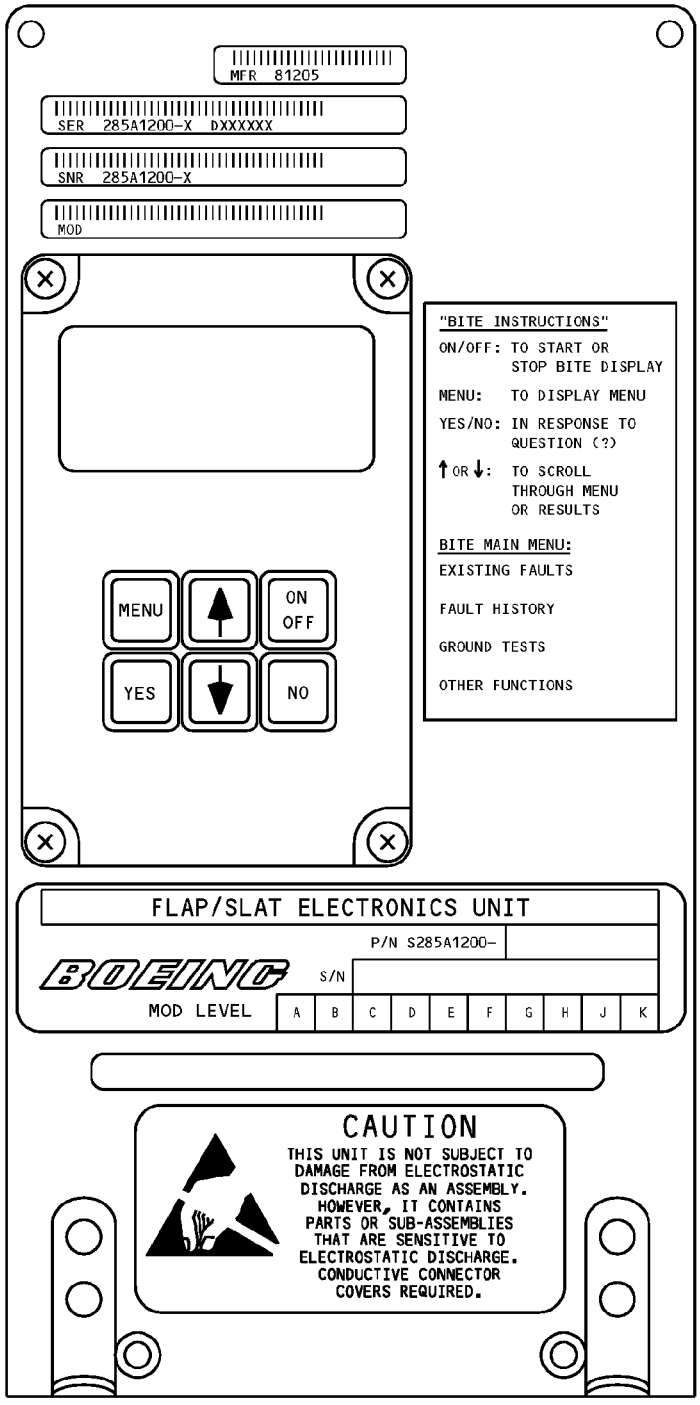

FLAP/SLAT ELECTRONICS UNIT (FSEU)

B

Flap Limit Switch Test
Figure 502 (Sheet 2 of 3)/27-51-63-990-803

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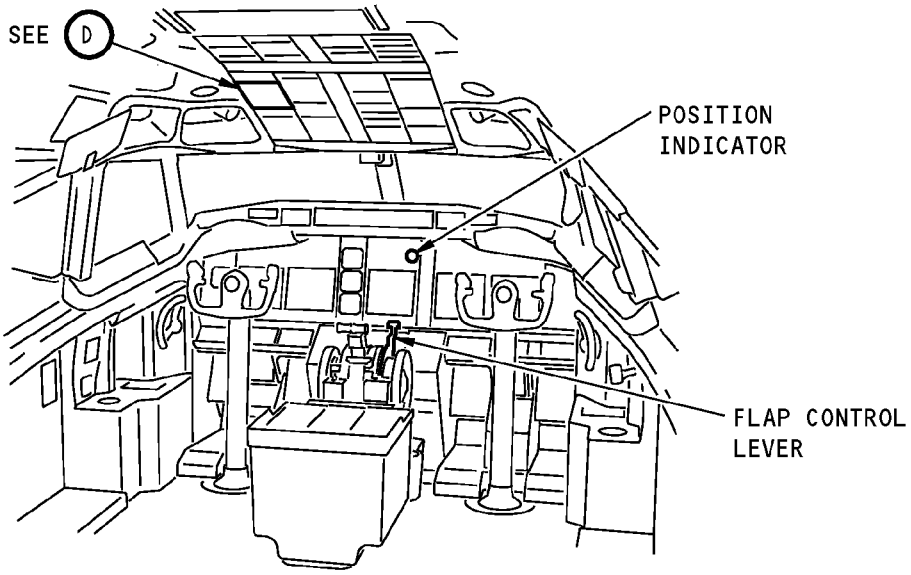
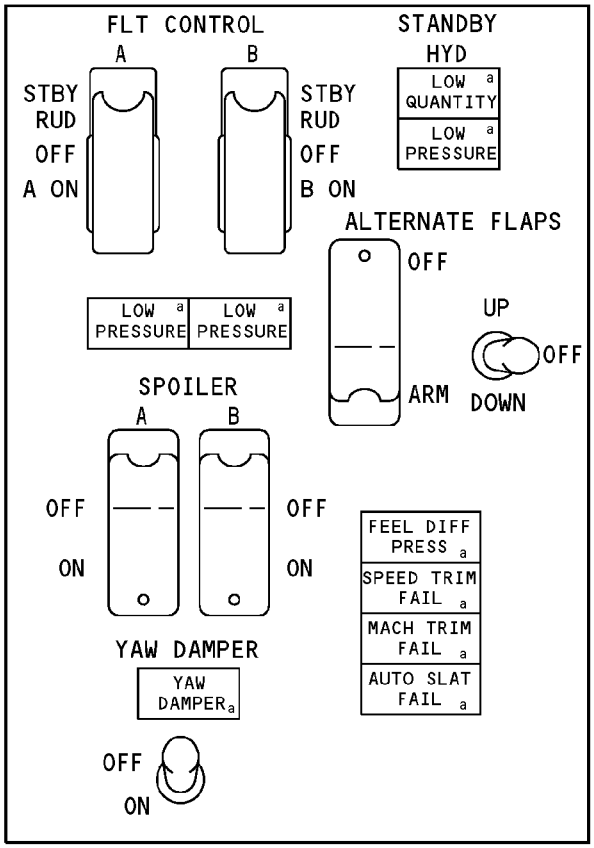


FLIGHT COMPARTMENT

C



D

Flap Limit Switch Test
Figure 502 (Sheet 3 of 3)/27-51-63-990-803

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TASK 27-51-63-720-802

4. Flaps DOWN Limit Switch, S246 Functional Test

(Figure 502)

A. General

(1) This task is applicable to the Flaps DOWN Limit Switch, S246.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Flaps DOWN Limit Switch, S246 Test

SUBTASK 27-51-63-860-019

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-51-63-010-004

(2) To gain access to the Electronic Equipment Center, do this step:

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-51-63-860-020

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-63-860-021

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE AWAY FROM THE TRAILING EDGE FLAPS AND THE LEADING EDGE FLAPS AND SLATS. THE FLAPS AND SLATS WILL MOVE. THIS CAN CAUSE INJURIES TO PERSON AND DAMAGE TO EQUIPMENT.

(4) Move the flap control lever to the 30-unit position. Wait for the flaps to move to the 30-unit position.

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SUBTASK 27-51-63-710-006

(5) Move the ALTERNATE FLAPS ARM switch to the ARM position.

SUBTASK 27-51-63-860-027

(6) Move the flap control lever to the 40-unit position.

NOTE: The flaps should not move when you move the flap control lever.

SUBTASK 27-51-63-710-009

(7) Move the ALTERNATE FLAPS control switch to the DOWN position and hold it until the trailing edge flaps stop moving.

SUBTASK 27-51-63-740-002

(8) Use the FSEU to do a check of the position of the trailing edge flaps:

(a) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?.

(b) Push the down arrow until OTHER FUNCTNS? shows on the display.

(c) Push the YES button to select OTHER FUNCTNS? on the FSEU.

(d) Push the down arrow until I/O MONITOR? shows on the display.

(e) Push the YES button to select I/O MONITOR? from the menu.

(f) Push the down arrow until SYNCHRO INPUTS? shows on the display.

(g) Push the YES button to select SYNCHRO INPUTS? from the menu.

(h) Push the down arrow to find the L FL POS and R FL POS indications.

(i) Make sure that the L FL POS and R FL POS indications are in the limit of 259.9 to 270.3.

(j) Push the ON/OFF button on the front panel of the FSEU to turn the front panel display off.

SUBTASK 27-51-63-710-010

(9) Move the ALTERNATE FLAPS ARM switch to the OFF position.

SUBTASK 27-51-63-860-025

(10) Move the flap control lever to the UP position to retract the flaps.

SUBTASK 27-51-63-860-026

(11) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-63-940-002

(12) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

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TRAILING EDGE FLAP CONTROL VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the trailing edge flap control valve

(2) An installation of the trailing edge flap control valve

(3) A removal of the flap load limiter solenoid valve

(4) An installation of the flap load limiter solenoid valve.

B. The trailing edge flap control valve is installed on the flap control unit in the main wheel well.

TASK 27-51-65-000-801

2. Trailing Edge Flap Control Valve Removal

(Figure 401)

A. References

Reference	Title
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Prepare for the Removal

SUBTASK 27-51-65-860-001

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-65-860-002

(2) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-51-65-480-004

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

D. Trailing Edge Flap Control Valve Removal

SUBTASK 27-51-65-860-003

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

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SUBTASK 27-51-65-010-001

(2) Remove the lower pan [11] from the flap control unit [1]:

(a) Remove the screws [10] and washers [23] that attach the lower pan [11] to the flap control unit [1].

(b) Remove the lower pan [11] from the flap control unit [1].

SUBTASK 27-51-65-480-001

(3) Install the rig pin [14] through the cam follower arm [13] and the valve cam [12]:

SUBTASK 27-51-65-020-001

(4) Remove the flap control valve assembly [6]:

(a) Disconnect the four hydraulic lines [2] from the flap control valve assembly [6].

1) Install caps on the hydraulic lines [2].

2) Install plugs in the hydraulic ports of the flap control valve assembly [6].

(b) Disconnect the electrical connector [3] from the flap control valve assembly [6].

(c) Disconnect the flap control valve assembly [6] from the cam follower arm [13]:

1) Remove the plug [9] from the forward side of the flap control unit [1].

2) Remove the bolt [15], washers [16], bushings [17] and nut [18] that attach the flap control valve assembly [6] to the cam follower arm [13].

(d) Remove the bolts [7] and washers [8] that attach the flap control valve assembly [6] to the flap control unit [1].

(e) Remove the flap control valve assembly [6] from the flap control unit [1].

SUBTASK 27-51-65-020-002

(5) If you will install a new flap control valve assembly [6], remove the unions [5] and packings [4].

——————— END OF TASK ———————

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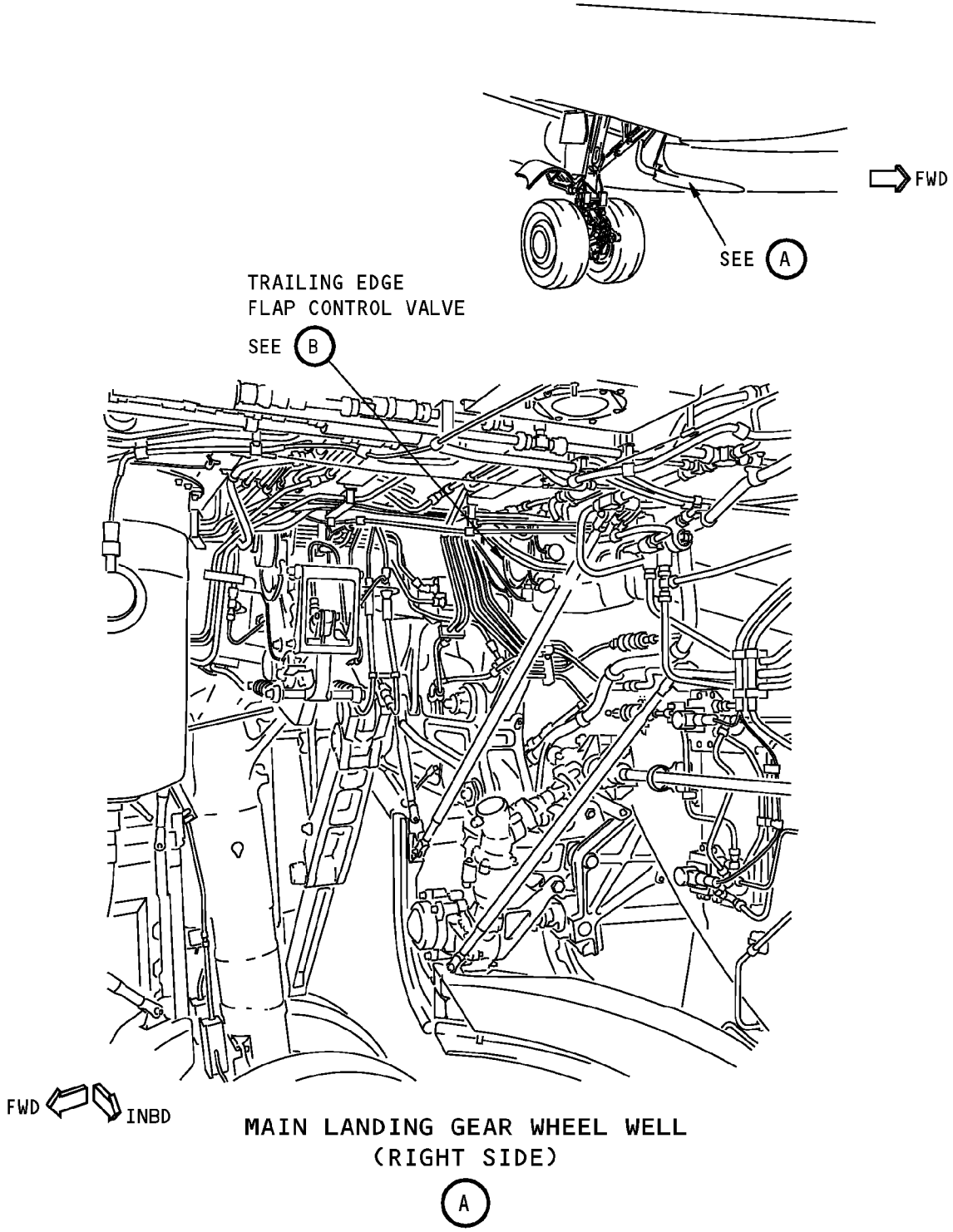

Trailing Edge Flap Control Valve Installation
Figure 401 (Sheet 1 of 4)/27-51-65-990-801

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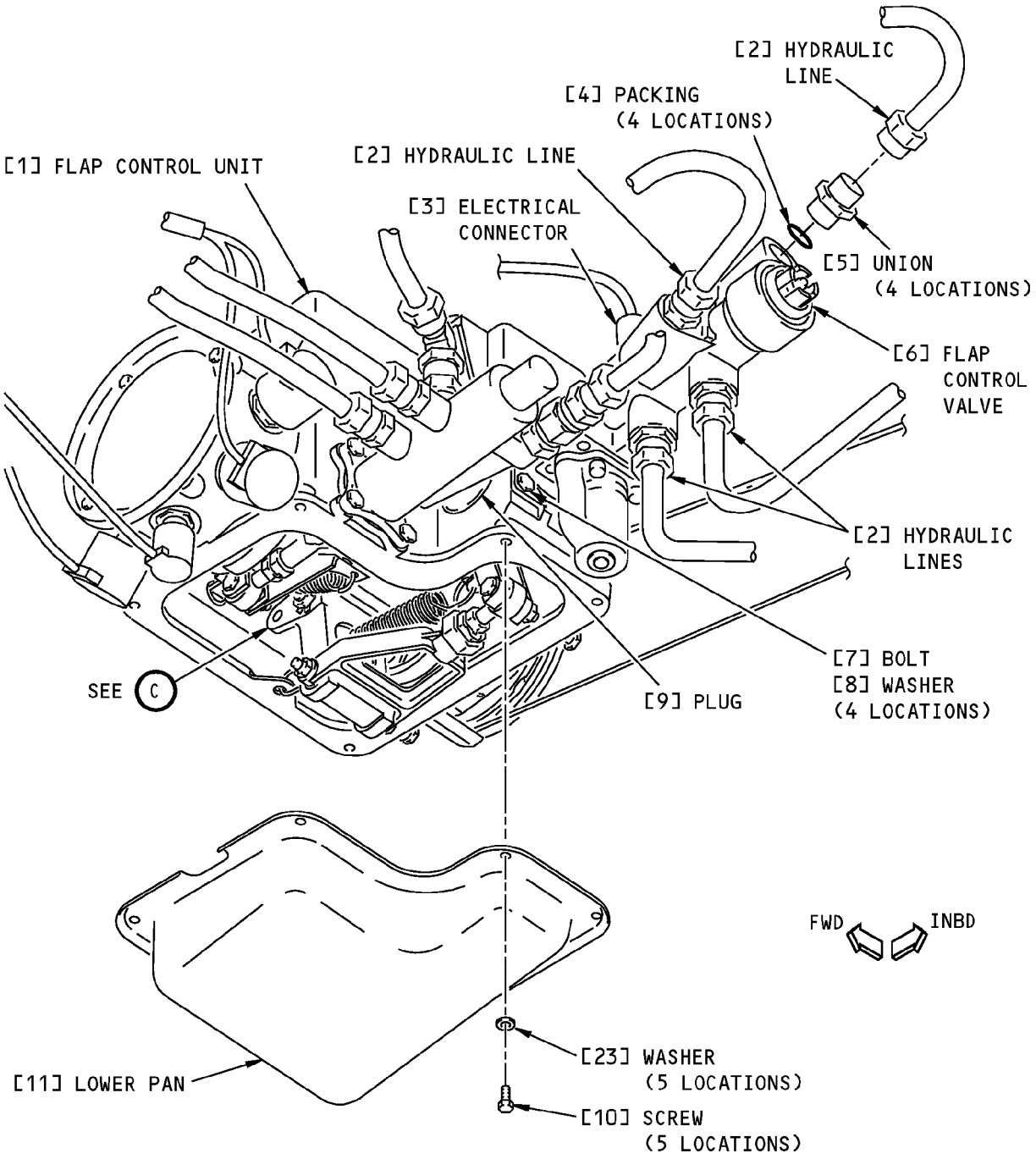

TRAILING EDGE FLAP CONTROL VALVE

B

Trailing Edge Flap Control Valve Installation
Figure 401 (Sheet 2 of 4)/27-51-65-990-801

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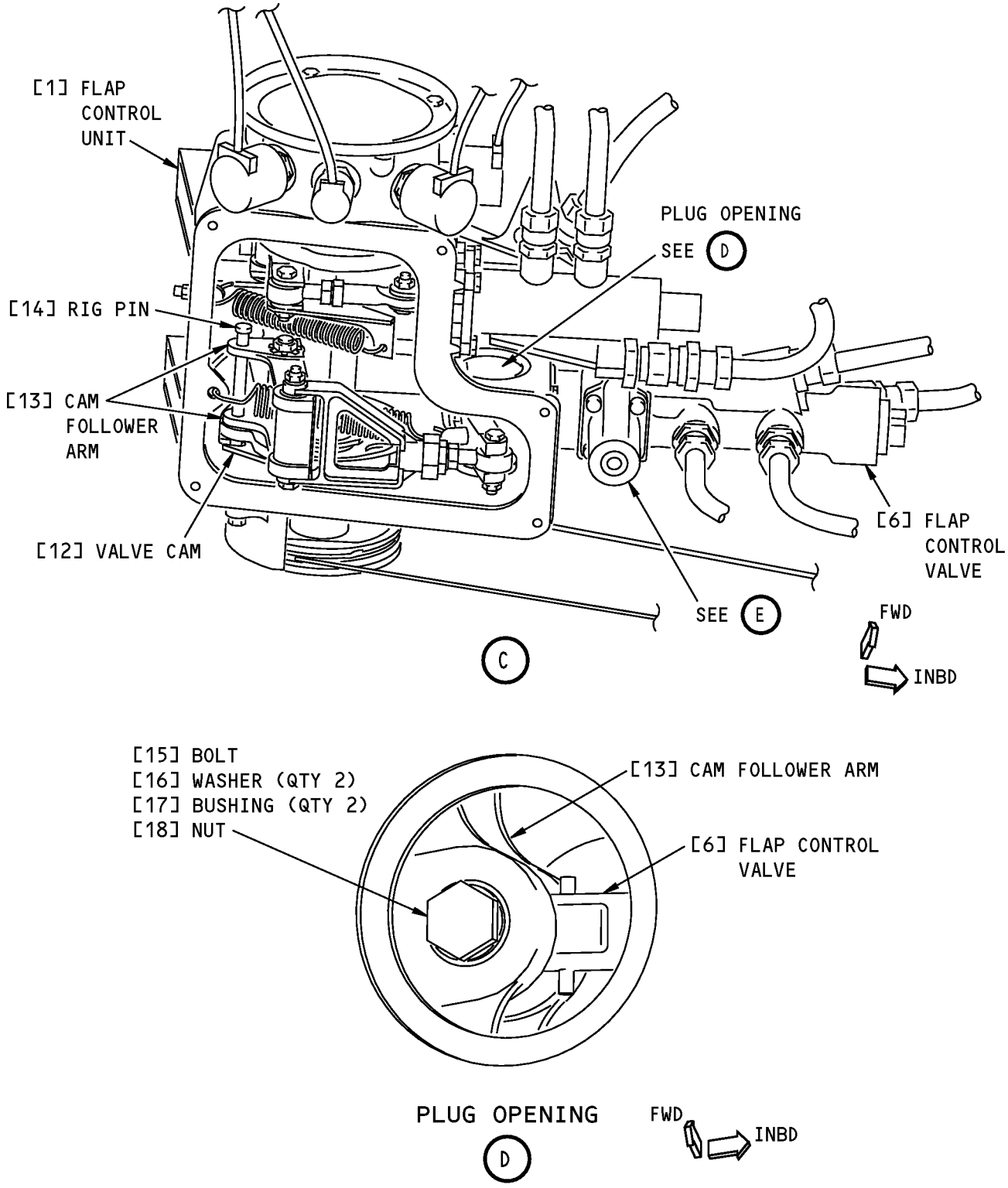

Trailing Edge Flap Control Valve Installation
Figure 401 (Sheet 3 of 4)/27-51-65-990-801

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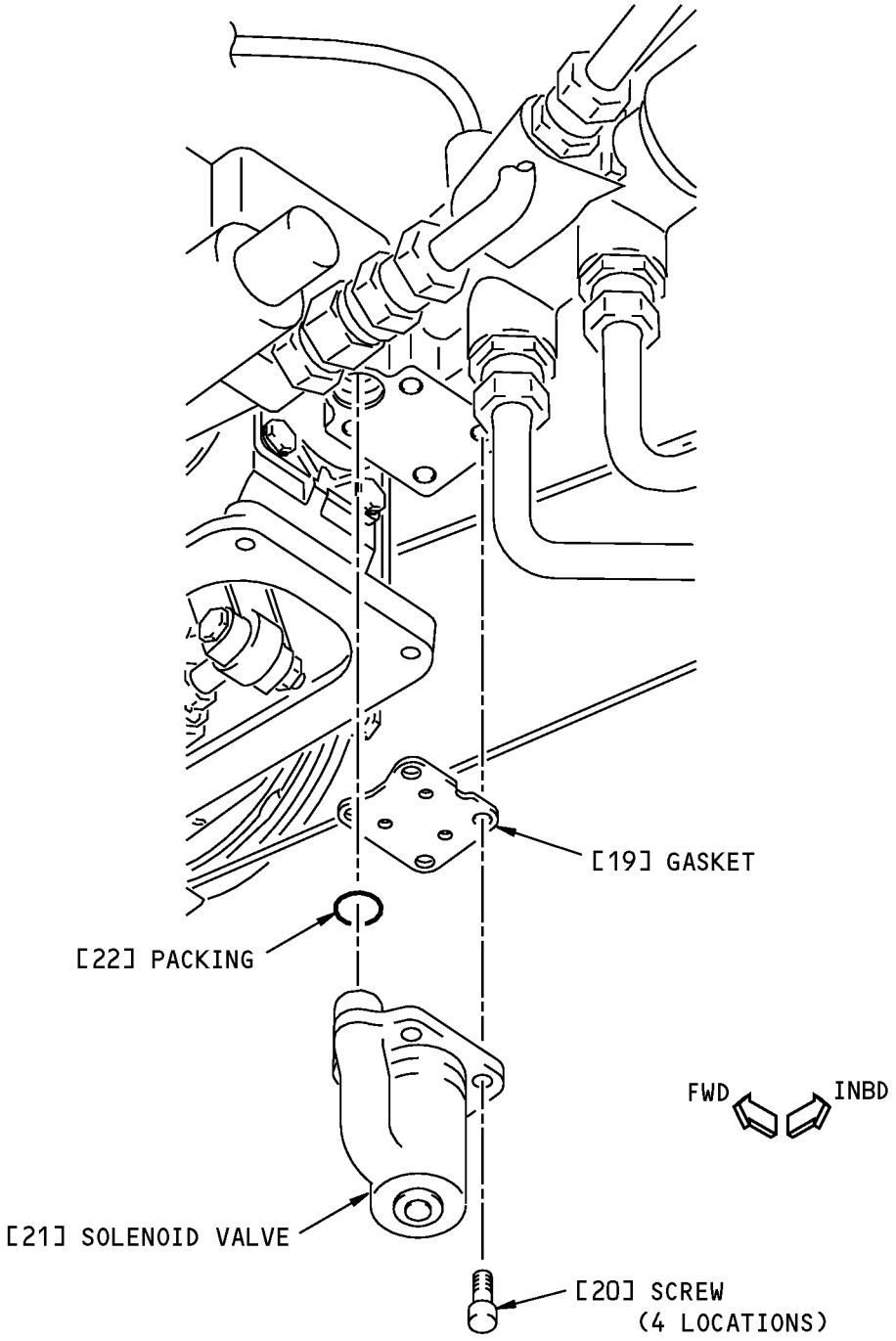

Trailing Edge Flap Control Valve Installation
Figure 401 (Sheet 4 of 4)/27-51-65-990-801

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TASK 27-51-65-400-801

3. Trailing Edge Flap Control Valve Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-65-820-801	Trailing Edge Flap Control Valve Adjustment (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
D00633	Grease - Aircraft General Purpose	BMS3-33
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Packing	27-51-61-01-280	HAP 001-013, 015-026, 028-036, 101-999
		27-51-61-01A-260	HAP 037-054
6	Valve assembly	27-51-61-01-265	HAP 001-013, 015-026, 028-036, 101-999
		27-51-61-01A-245	HAP 037-054
9	Plug	27-51-61-01-260	HAP 001-013, 015-026, 028-036, 101-999
		27-51-61-01A-240	HAP 037-054

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Trailing Edge Flap Control Valve Installation

SUBTASK 27-51-65-420-001

(1) If they are not installed, install the unions [5] and packings [4] in the ports of the flap control valve assembly [6]:

(a) Apply fluid, D00153, or MCS 352B fluid, D00054 to the new packings [4].

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(b) Put the packings [4] and unions [5] in their location on the flap control valve assembly [6].

SUBTASK 27-51-65-420-002

(2) Install the flap control valve assembly [6] in the flap control unit [1]:

(a) Put the flap control valve assembly [6] in its location on the flap control unit [1].

(b) Apply compound, C00913 to the shank and threads of the bolts [7].

(c) Install the bolts [7] and washers [8] to attach the flap control valve assembly [6].

(d) Install lockwire on the bolts [7].

(e) Connect the flap control valve assembly [6] to the cam follower arm [13]:

1) Apply grease, D00633 to the inside of the bushings [17] .

2) Install the bushings [17], washers [16], bolt [15] and nut [18] that attach the flap control valve assembly [6] to the cam follower arm [13].

3) Install the plug [9] on the forward side of the flap control unit [1].

4) Apply a bead of sealant, A00247 around the plug [9].

(f) Connect the hydraulic lines [2] to the flap control valve assembly [6]:

1) Remove the caps from the hydraulic lines [2].

2) Remove the plugs from the hydraulic ports on the flap control valve assembly [6].

3) Connect the hydraulic lines [2] to the flap control valve assembly [6].

(g) Before you connect the electrical connector [3], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(h) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(i) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(j) Connect the electrical connector [3] to the flap control valve assembly [6].

SUBTASK 27-51-65-080-001

(3) Remove the rig pin from the flap control unit [1]:

SUBTASK 27-51-65-860-004

(4) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 27-51-65-860-005

(5) Use the primary system to extend and retract the trailing edge flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-65-210-001

(6) Make sure there are no hydraulic leaks from the flap control valve assembly [6].

SUBTASK 27-51-65-820-001

(7) Do this task: Trailing Edge Flap Control Valve Adjustment, TASK 27-51-65-820-801.

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SUBTASK 27-51-65-410-001

(8) Install the lower pan [11] on the flap control unit [1]:

(a) Put the lower pan [11] in its location on the flap control unit [1].

(b) Apply compound, C00913 to the shank and threads of the screws [10].

(c) Install the washers [23] and screws [10] to attach the lower pan [11] to the flap control unit [1].

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-65-610-001

(1) Service the system B hydraulic reservoir. To service the reservoir, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

TASK 27-51-65-000-802

4. Flap Load Limiter Solenoid Valve Removal

(Figure 401)

A. References

Reference	Title
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Prepare for the Removal

SUBTASK 27-51-65-860-006

(1) If the trailing edge flaps are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-51-65-860-007

(2) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-51-65-480-005

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

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D. Flap Load Limiter Solenoid Valve Removal

SUBTASK 27-51-65-860-008

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 27-51-65-020-003

(2) Remove the solenoid valve assembly [21] from the flap control valve assembly [6]:

(a) Remove the screws [20] that attach the solenoid valve assembly [21] to the flap control valve assembly [6].

(b) Remove the solenoid valve assembly [21] from the flap control valve assembly [6] with the gasket [19] and packing [22].

———————— END OF TASK ————————

TASK 27-51-65-400-802

5. Flap Load Limiter Solenoid Valve Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-51-00-740-803	Trailing Edge Flap Load Relief System BITE Test (P/B 501)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Procedure

SUBTASK 27-51-65-420-003

(1) Install solenoid valve assembly [21] in the flap control valve assembly [6]:

(a) Apply fluid, D00153, or MCS 352B fluid, D00054 to the new packing [22].

(b) Put the packing [22] and gasket [19] in their locations on the solenoid valve assembly [21].

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(c) Put the solenoid valve assembly [21] in its position on the flap control valve assembly [6].

NOTE: Make sure the electrical connector on the solenoid valve assembly [21] engages the electrical connector in the flap control valve assembly [6].

(d) Install the screws [20] to attach the solenoid valve assembly [21] to the flap control valve assembly [6].

(e) Tighten the screws [20] to 25-35 pound-inches (2.9-3.9 newton-meters).

(f) Install lockwire on the screws [20].

SUBTASK 27-51-65-860-009

(2) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	6	C00566	FLIGHT CONTROL FLAP LOAD RELIEF

SUBTASK 27-51-65-860-010

(3) Use the primary system to extend and retract the flaps. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-65-210-002

(4) Make sure there are no hydraulic leaks from the flap control valve assembly [6].

SUBTASK 27-51-65-720-001

(5) Do this task: Trailing Edge Flap Load Relief System BITE Test, TASK 27-51-00-740-803.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-65-610-002

(1) Service the system B hydraulic reservoir. To service the reservoir, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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TRAILING EDGE FLAP CONTROL VALVE - ADJUSTMENT/TEST

1. General

A. This procedure has an adjustment of the trailing edge flap control valve.

TASK 27-51-65-820-801

2. Trailing Edge Flap Control Valve Adjustment

(Figure 501)

A. References

Reference	Title
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-4592	Rig Pin, 0.310-0.312 in diameter

C. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Valve assembly	27-51-61-01-265	HAP 001-013, 015-026, 028-036, 101-999
		27-51-61-01A-245	HAP 037-054

E. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

F. Prepare for the Adjustment

SUBTASK 27-51-65-860-011

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-65-860-012

(2) Extend the trailing edge flaps to the 40-unit position. To extend the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

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SUBTASK 27-51-65-860-013

(3) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

NOTE: Wait a minimum of 2 minutes before you remove the hydraulic power. The flaps can move a small distance during this time.

SUBTASK 27-51-65-860-014

(4) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-65-010-002

(5) Remove the lower pan [10] from the flap control unit [1]:

(a) Remove the screws [11] and washers [21] that attach the lower pan [10] to the flap control unit [1].

(b) Remove the lower pan [10] from the flap control unit [1].

G. Adjustment of the Trailing Edge Flap Control Valve

SUBTASK 27-51-65-820-002

(1) Do a check of the adjustment of the flap control valve assembly [4]:

NOTE: This will make sure the flap power drive unit [20] and the flap control unit [1] moved to the correct position when you retracted the flaps.

(a) Make sure you can easily install the rig pin, STD-4592 [14] through the cam follower arm [13] and the valve cam [12].

(b) Make sure the black rig mark on the cable drum [18] for the flap power drive unit [20] extends past the cable guard [19] a minimum of 0.03 inch on each side.

SUBTASK 27-51-65-820-003

(2) If you cannot easily install the rig pin, STD-4592 [14], or if the flap power drive unit [20] is not in the correct position, then adjust the flap control valve assembly [4]:

(a) Loosen the nut [16] and nut [17] on the adjustable sleeve [9].

(b) Turn the adjustable sleeve [9] to change the position of the rod end [8].

NOTE: This will change the alignment of the valve slide [15] and the index surface [3] on the flap control valve assembly [4].

(c) Tighten the nut [16] and nut [17] on the adjustable sleeve [9].

NOTE: Make sure the distance between the center of the rod end [8] and the nut [17] is less than 0.94 inch. Make sure the distance between the nut [16] and the hex on the adjustable sleeve [9] is less than 0.19 inch.

CAUTION: MAKE SURE HYDRAULIC POWER IS REMOVED BEFORE YOU DISCONNECT THE ROD END FROM THE SUMMING LEVER. IF YOU DISCONNECT THE ROD END WITH HYDRAULIC POWER ON YOU CAN CAUSE DAMAGE TO THE FLAP CONTROL UNIT.

(d) If it is necessary, disconnect the rod end [8] from the summing lever [2]]:

NOTE: It is necessary to disconnect the rod end [8] if you cannot adjust the flap control valve assembly [4] while the adjustable sleeve [9] is in the limits.

1) Remove the nut [7], washer [6] and bolt [5] that attach the rod end [8] to the summing lever [2].

2) Change the position of the adjustable sleeve [9].

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3) Install the bolt [5], washer [6] and nut [7] to attach the rod end [8] to the summing lever [2].

(e) Tighten the nut [16] and the nut [17].

(f) Install lockwire on the nut [16], nut [17] and the adjustable sleeve [9].

SUBTASK 27-51-65-080-002

(3) Remove the rig pin, STD-4592 [14] from the cam follower arm [13] and the valve cam [12].

SUBTASK 27-51-65-860-015

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-65-860-016

(5) Extend and retract the trailing edge flaps five times. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

NOTE: Wait a minimum of 2 minutes before you remove the hydraulic power. The flaps can move a small distance during this time.

SUBTASK 27-51-65-860-017

(6) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-51-65-820-004

(7) Do a check of the adjustment of the flap control valve assembly [4] again:

(a) Make sure the black rig mark on the cable drum [18] for the flap power drive unit [20] extends past the cable guard [19] a minimum of 0.03 inch on each side.

(b) Make sure you can easily install the rig pin, STD-4592 [14] through the cam follower arm [13] and the valve cam [12].

SUBTASK 27-51-65-480-002

(8) If you cannot easily install the rig pin, STD-4592 [14], or if the flap power drive unit [20] is not in the correct position, then adjust the trailing edge flap control valve assembly [4] again.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-65-080-003

(1) Remove the rig pin, STD-4592 [14] from the cam follower arm [13] and the valve cam [12].

SUBTASK 27-51-65-410-002

(2) Install the lower pan [10] on the flap control unit [1]:

(a) Put the lower pan [10] in its location on the flap control unit [1].

(b) Apply compound, C00913 to the shank and threads of the screws [11].

(c) Install the washers [21] and screws [11] to attach the lower pan [10] to the flap control unit [1].

END OF TASK

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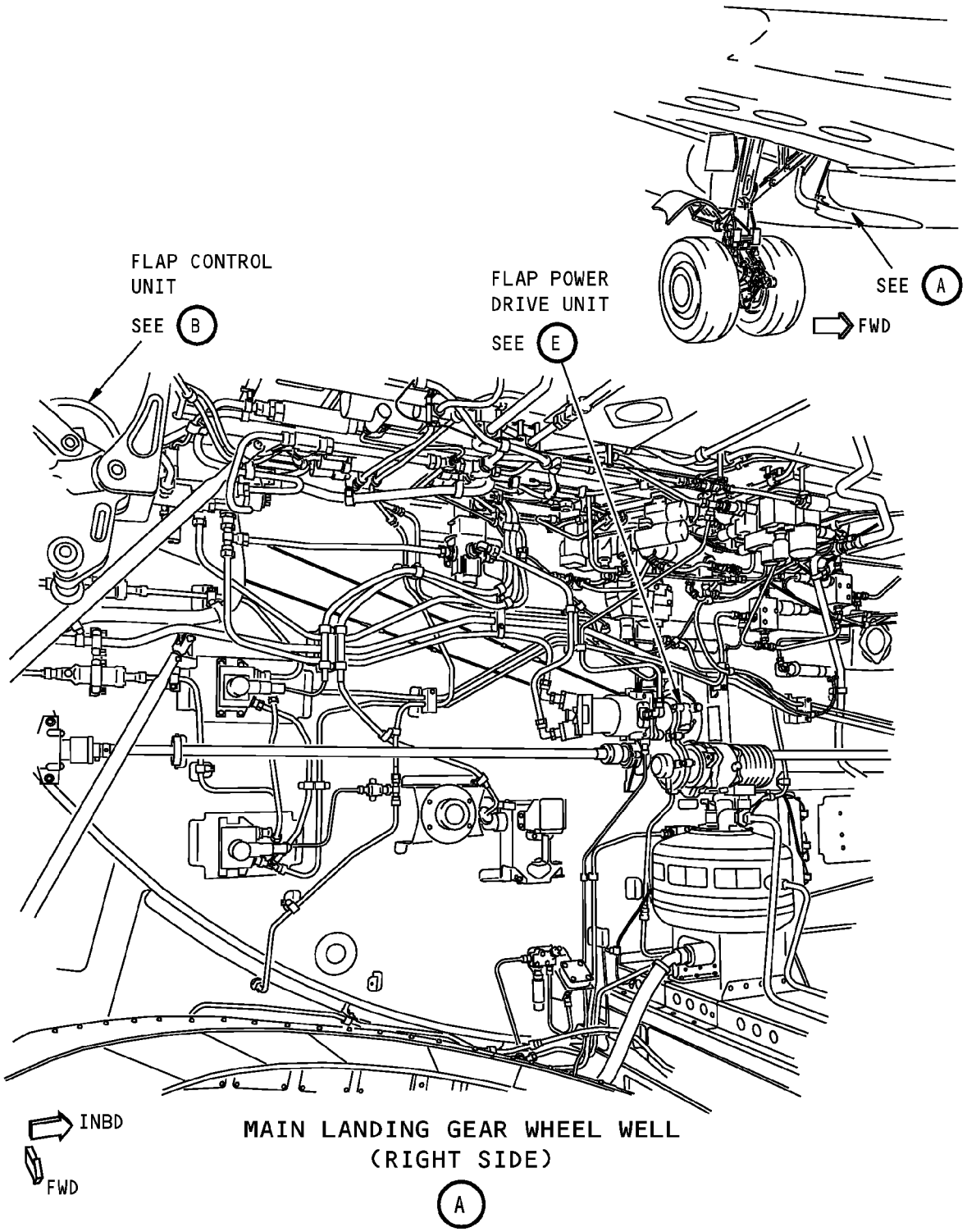

Trailing Edge Flap Control Valve Adjustment
Figure 501 (Sheet 1 of 4)/27-51-65-990-802

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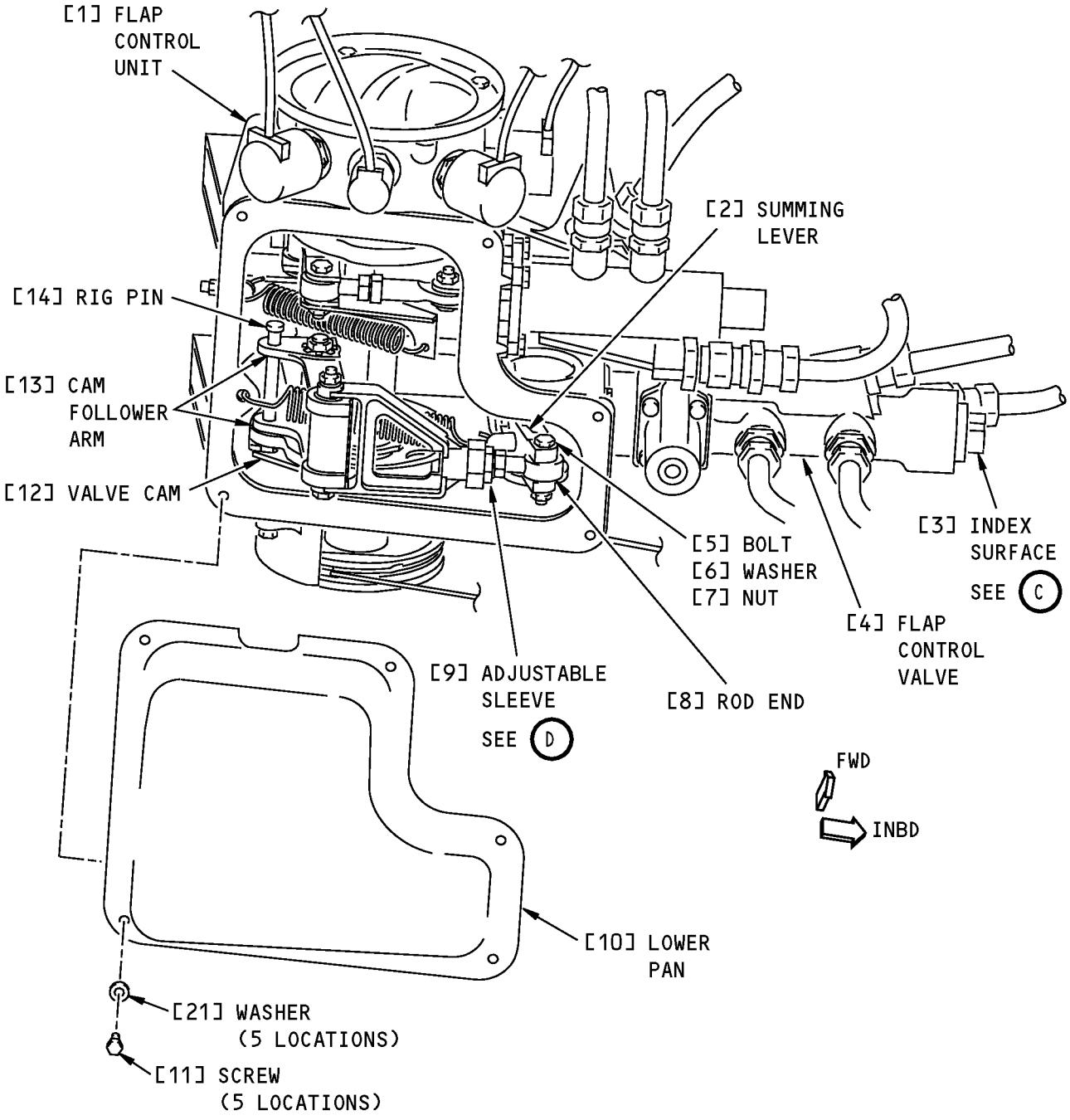

Trailing Edge Flap Control Valve Adjustment
Figure 501 (Sheet 2 of 4)/27-51-65-990-802

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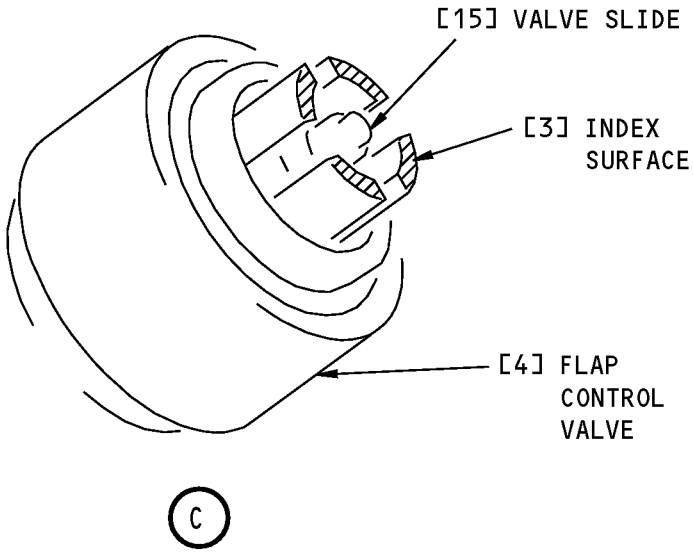

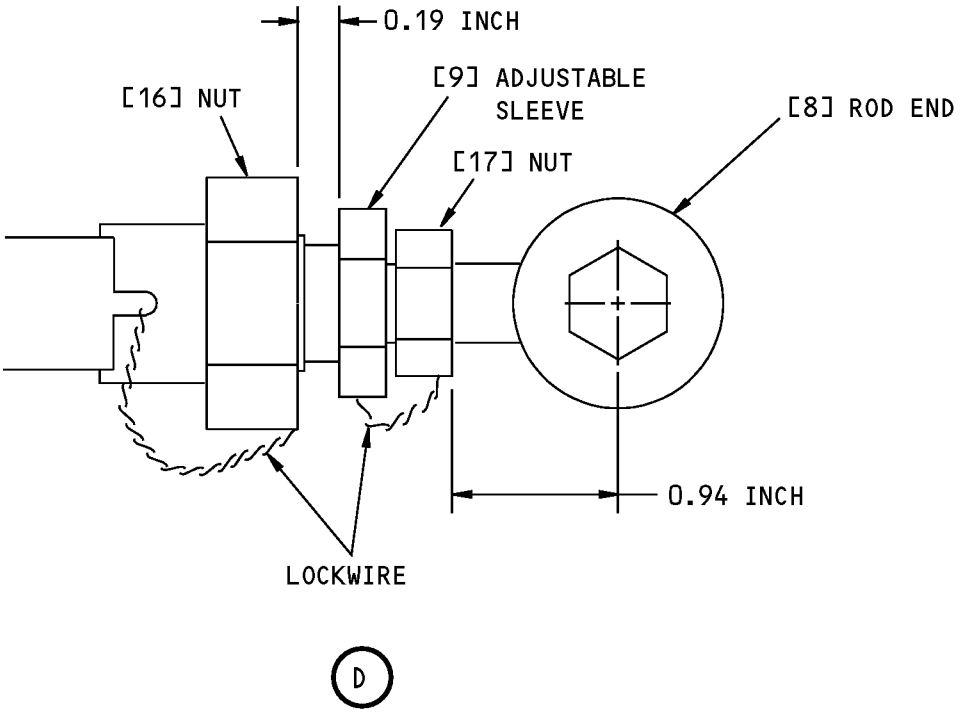

Trailing Edge Flap Control Valve Adjustment
Figure 501 (Sheet 3 of 4)/27-51-65-990-802

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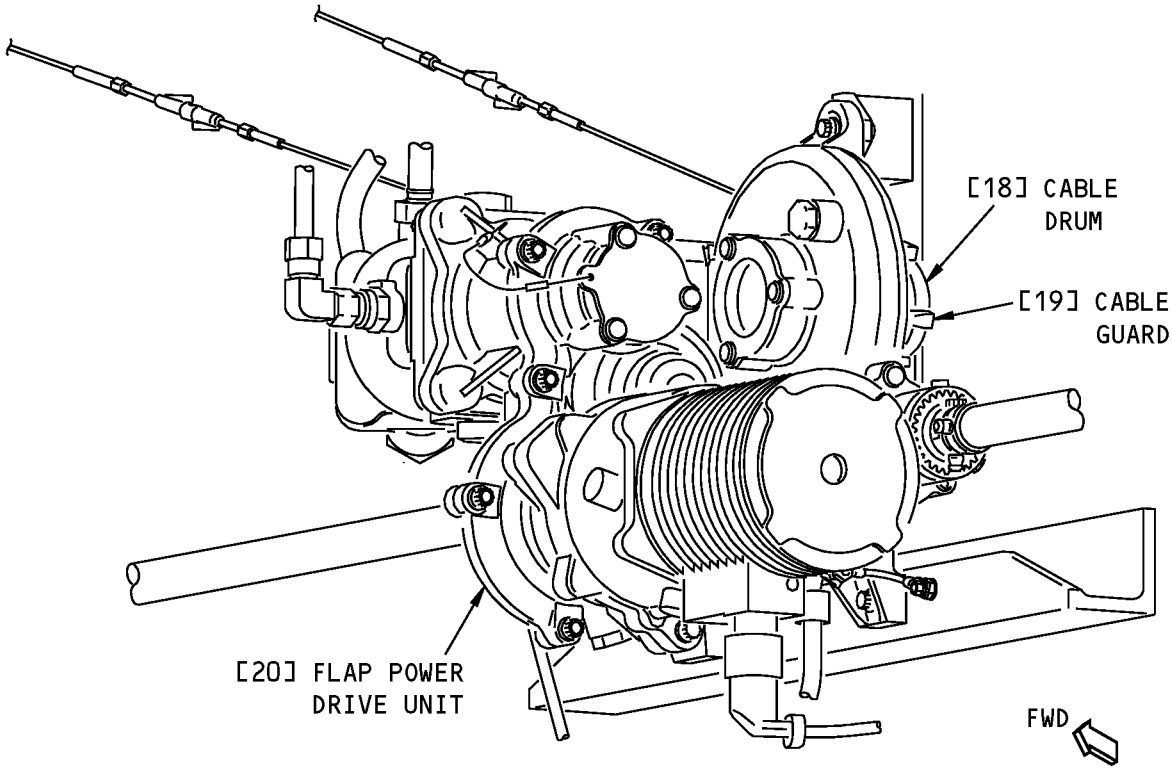

FLAP POWER DRIVE UNIT

E

Trailing Edge Flap Control Valve Adjustment
Figure 501 (Sheet 4 of 4)/27-51-65-990-802

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TRAILING EDGE FLAP CONTROL VALVE - REPAIRS

1. General

A. This procedure includes a repair of the trailing edge flap control valve.

B. You can use this procedure if there is too much internal leakage in the control valve. This procedure can reduce the internal leakage by approximately one-half. It is not necessary to remove the control valve from the airplane to do this procedure.

TASK 27-51-65-360-801

2. Trailing Edge Flap Control Valve Internal Leakage Repair

(Figure 801)

A. References

Reference	Title
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
27-51-65-820-801	Trailing Edge Flap Control Valve Adjustment (P/B 501)
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Valve assembly	27-51-61-01-265	HAP 001-013, 015-026, 028-036, 101-999
		27-51-61-01A-245	HAP 037-054

D. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Procedure

SUBTASK 27-51-65-480-003

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

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SUBTASK 27-51-65-860-018

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-65-860-019

(3) Extend the trailing edge flaps to the 40-unit position. To extend the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-51-65-860-020

(4) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

NOTE: Wait a minimum of 2 minutes before you remove the hydraulic power. The flaps can move a small distance during this time.

SUBTASK 27-51-65-860-021

(5) Remove the pressure from the system B hydraulic reservoir. To remove the pressure, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-51-65-360-001

(6) Turn the sleeve [2] on the flap control valve assembly [3] 45 degrees.

NOTE: This will move the eroded parts of the flap control valve slide [9] with respect to the rectangular slots in the sleeve [2].

SUBTASK 27-51-65-860-023

(7) Move the flap control lever to the 40-unit detent.

SUBTASK 27-51-65-860-024

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-51-65-860-025

(9) Move the flap control lever to the UP position to retract the flaps.

SUBTASK 27-51-65-720-002

(10) Do this test of the flap control valve assembly [3]:

(a) Fully extend and retract the trailing edge flaps five times. To extend and retract the flaps, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

NOTE: Wait a minimum of 2 minutes before you remove the hydraulic power. The flaps can move a small distance during this time.

(b) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(c) Remove the lower pan [4] from the flap control unit [1]:

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1) Remove the screw [5] that attach the lower pan [4] to the flap control unit [1].

2) Remove the lower pan [4] from the flap control unit [1].

(d) Do a check of the adjustment of the flap control valve assembly [3]:

NOTE: This will make sure the flap power drive unit [12] and the flap control unit [1] moved to the correct position when you retracted the flaps.

1) Make sure you can easily install the rig pin [8] through the cam follower arm [7] and the valve cam [6].

2) Make sure the black rig mark on the cable drum [10] for the flap power drive unit [12] extends past the cable guard [11] a minimum of 0.03 inch (.762 mm) on each side.

(e) If you cannot install the rig pin [8], or if the flap power drive unit [12] is not in the correct position, then, do this task: Trailing Edge Flap Control Valve Adjustment, TASK 27-51-65-820-801.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-51-65-080-004

(1) Remove the rig pin [8] from the cam follower arm [7] and the valve cam [6].

SUBTASK 27-51-65-410-003

(2) Install the lower pan [4] on the flap control unit [1]:

(a) Put the lower pan [4] in its location on the flap control unit [1].

(b) Apply compound, C00913 to the shank and threads of the screws [5].

(c) Install the screws [5] to attach the lower pan [4] to the flap control unit [1].

———————— END OF TASK ————————

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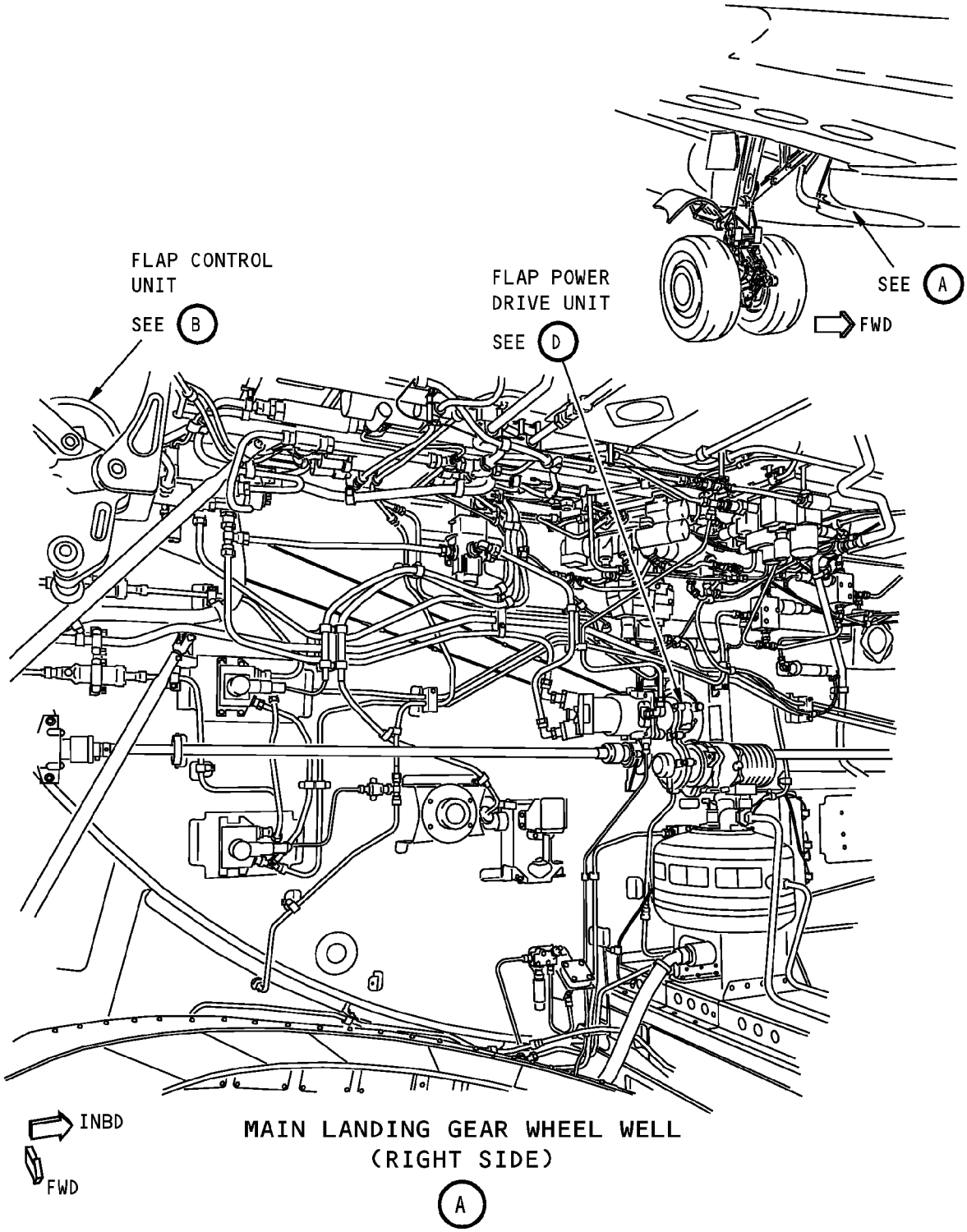

Trailing Edge Flap Control Valve Repair
Figure 801 (Sheet 1 of 3)/27-51-65-990-803

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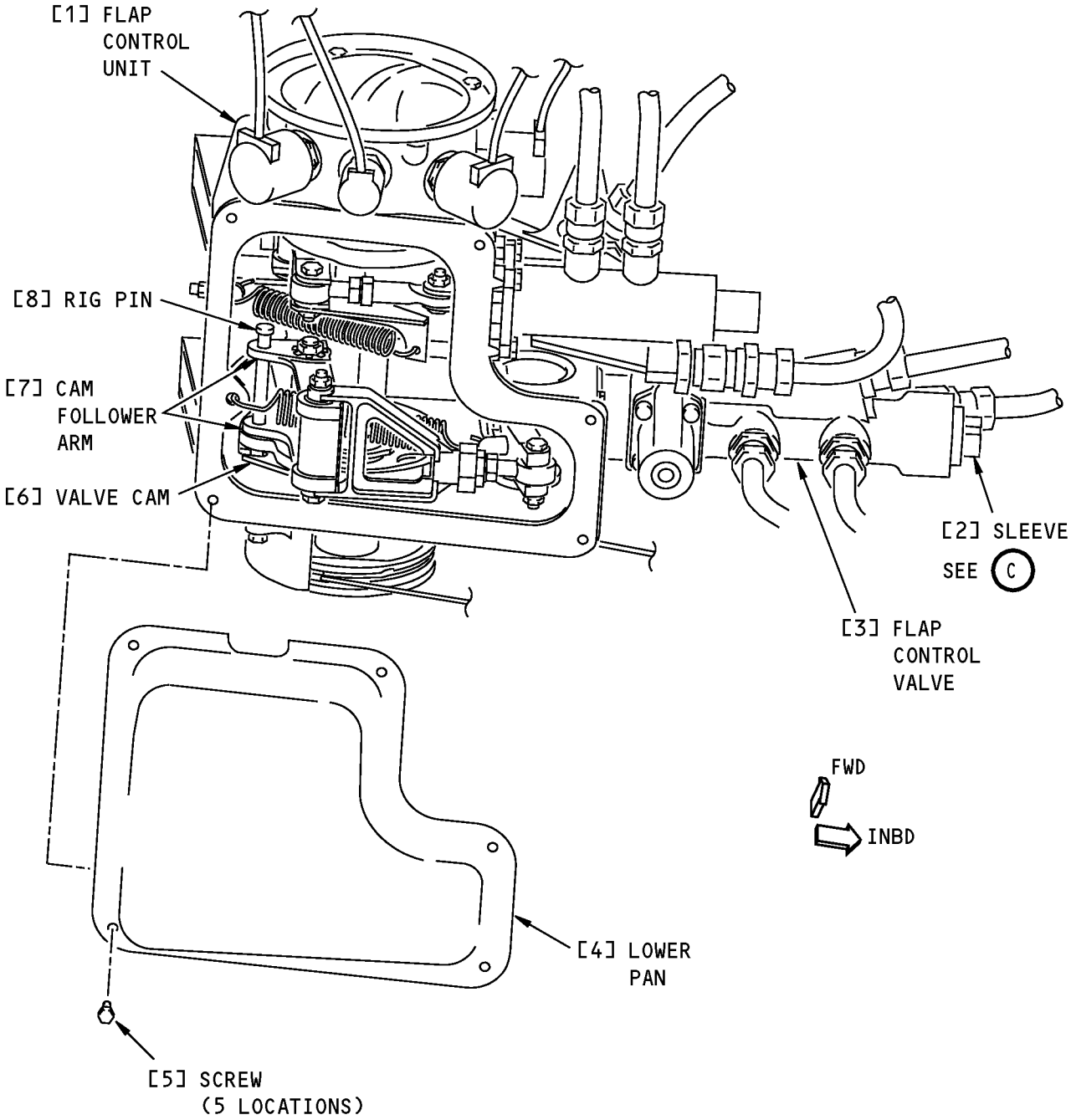

FLAP CONTROL UNIT
B

Trailing Edge Flap Control Valve Repair
Figure 801 (Sheet 2 of 3)/27-51-65-990-803

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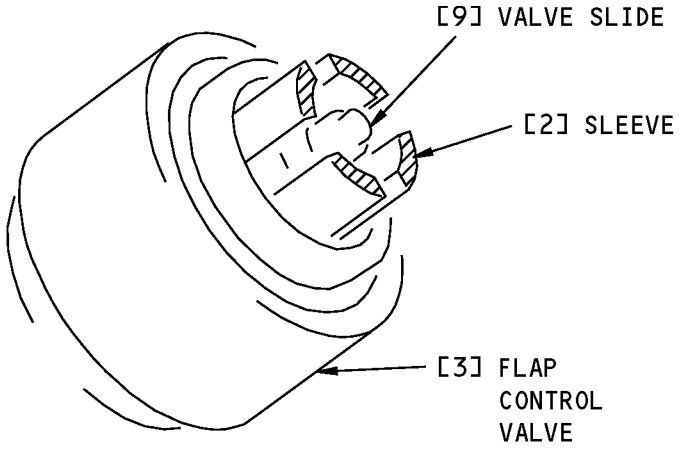

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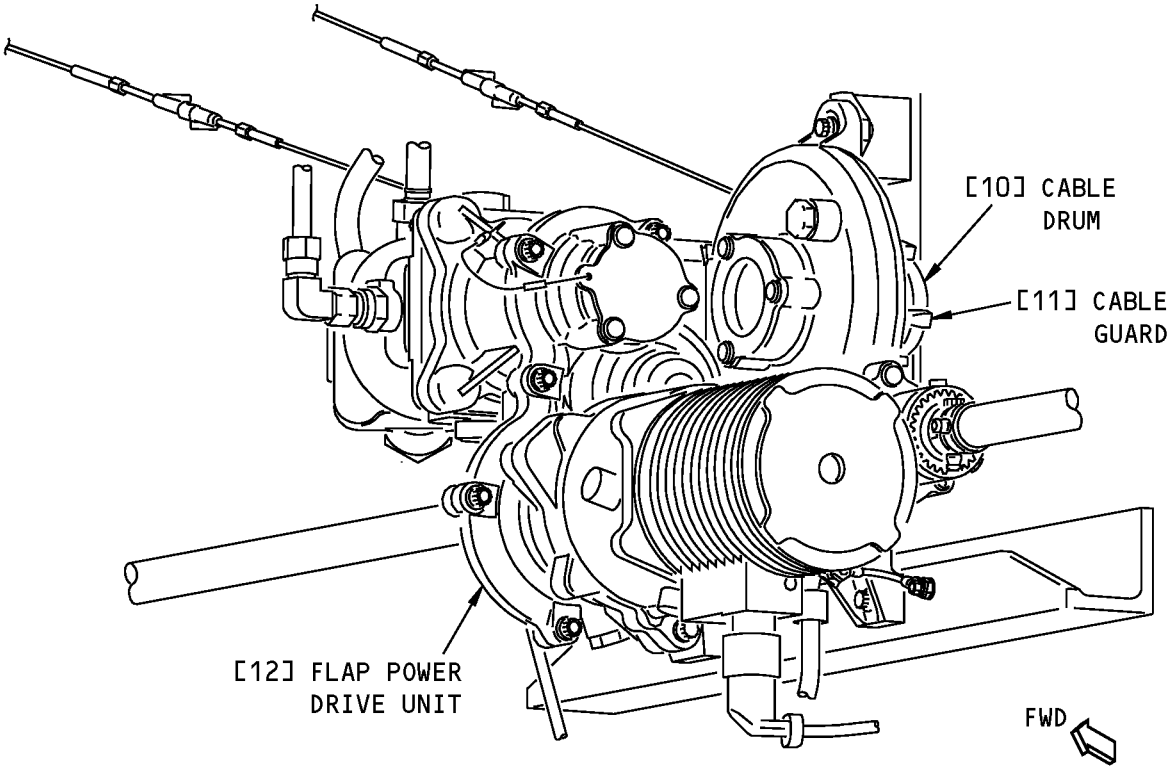

FLAP POWER DRIVE UNIT

D

Trailing Edge Flap Control Valve Repair
Figure 801 (Sheet 3 of 3)/27-51-65-990-803

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FLAP POSITION TRANSMITTER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap position transmitter

(2) An installation of the flap position transmitter.

B. The flap position transmitters are installed on the outboard end of transmissions No. 1 and 8.

C. The flap position transmitters include additional syncros that are used in the autopilot and the stall management systems.

TASK 27-58-01-000-801

2. Flap Position Transmitter Removal

(Figure 401)

A. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

C. Prepare for the Removal

SUBTASK 27-58-01-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801

SUBTASK 27-58-01-860-022

(3) Put the SPOILER A and B switches to the OFF position to remove the hydraulic power from the flight spoilers.

NOTE: SPOILER A and B switches are on the flight control panel (P5-3).

SUBTASK 27-58-01-860-023

(4) Put the speed brake lever in the UP position to lift the spoilers.

SUBTASK 27-58-01-860-024

(5) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-58-01-040-001

(6) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

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D. Flap Position Transmitter Removal

SUBTASK 27-58-01-860-002

(1) For the left flap position transmitter [2] T427, do this step;

Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	5	C01041	AFCS SYS A SNSR EXC AC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-58-01-860-003

(2) For the right flap position transmitter [2] T428, do this step;

Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	6	C01205	SMYD-1 SNSR EXC AC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
C	2	C01042	AFCS SYS B SNSR EXC AC

SUBTASK 27-58-01-980-001

(3) Manually extend the trailing edge flaps until the ballscrew nut [14] touches the downstop [12] on the ballscrew [13] on transmission No. 4 or No. 5. To manually extend the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

NOTE: This is the flaps extend overtravel stop position.

SUBTASK 27-58-01-020-001

(4) Disconnect the electrical connector [1] from the flap position transmitter [2].

SUBTASK 27-58-01-020-002

(5) Remove the flap position transmitter [2]:

(a) Remove the bolt [3] and washer [4] and washer [6] that attaches the jumper wire [5] and the flap position transmitter [2] to the transmission [7].

(b) Remove the bolts [11] and washers [10] that attach the flap position transmitter [2] to the transmission [7].

(c) Remove the flap position transmitter [2] from the transmission [7].

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(d) Install the rig lock mechanism to the flap position transmitter [2].

HAP 001-013, 015-026, 028-036; AIRPLANES WITHOUT THROW AWAY RIG LOCK (18-1738-12)

NOTE: The rig lock mechanism is already installed on the flap position transmitter [2].

HAP ALL

——————— END OF TASK ———————

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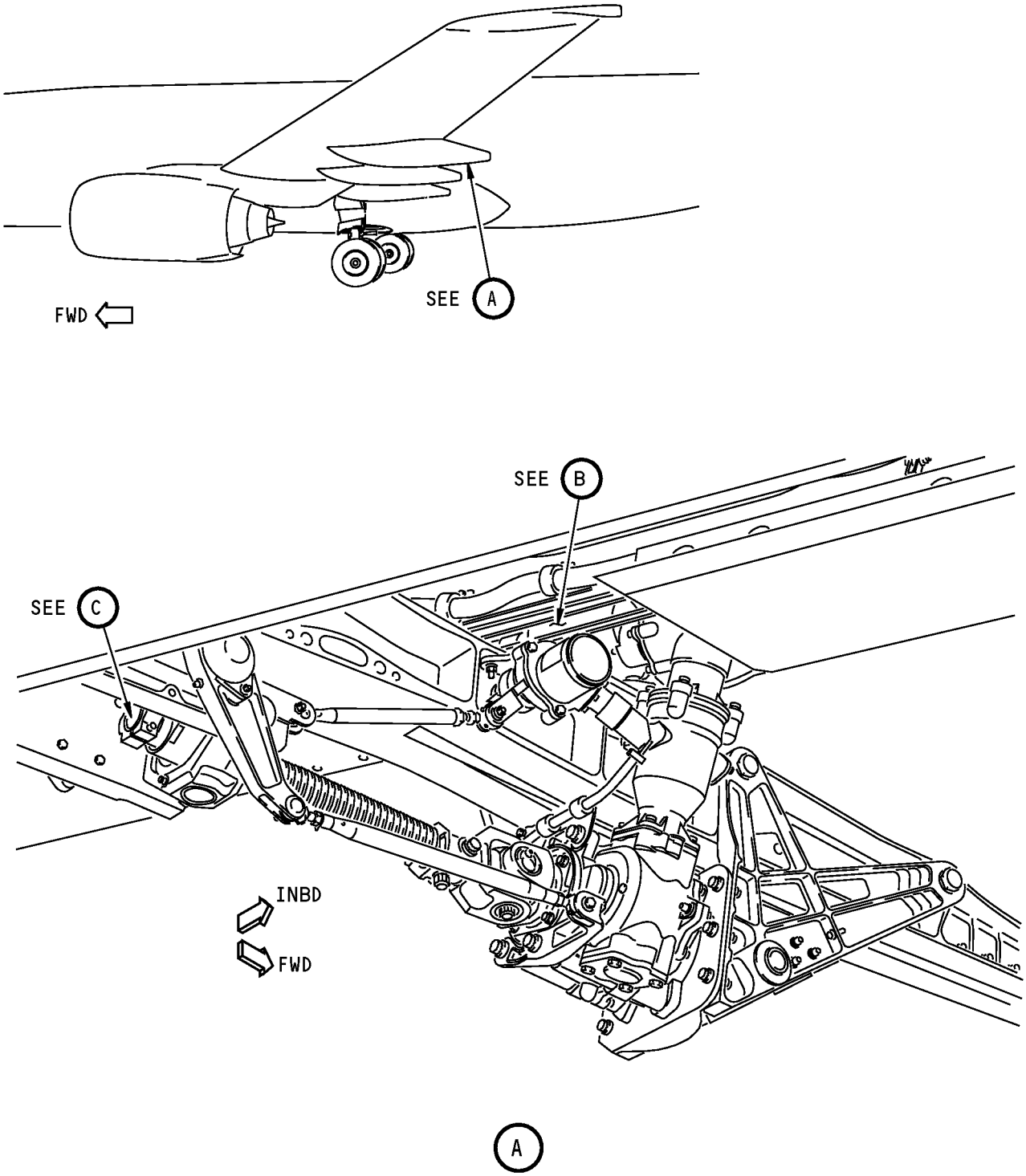

Flap Position Transmitter Installation
Figure 401 (Sheet 1 of 4)/27-58-01-990-801

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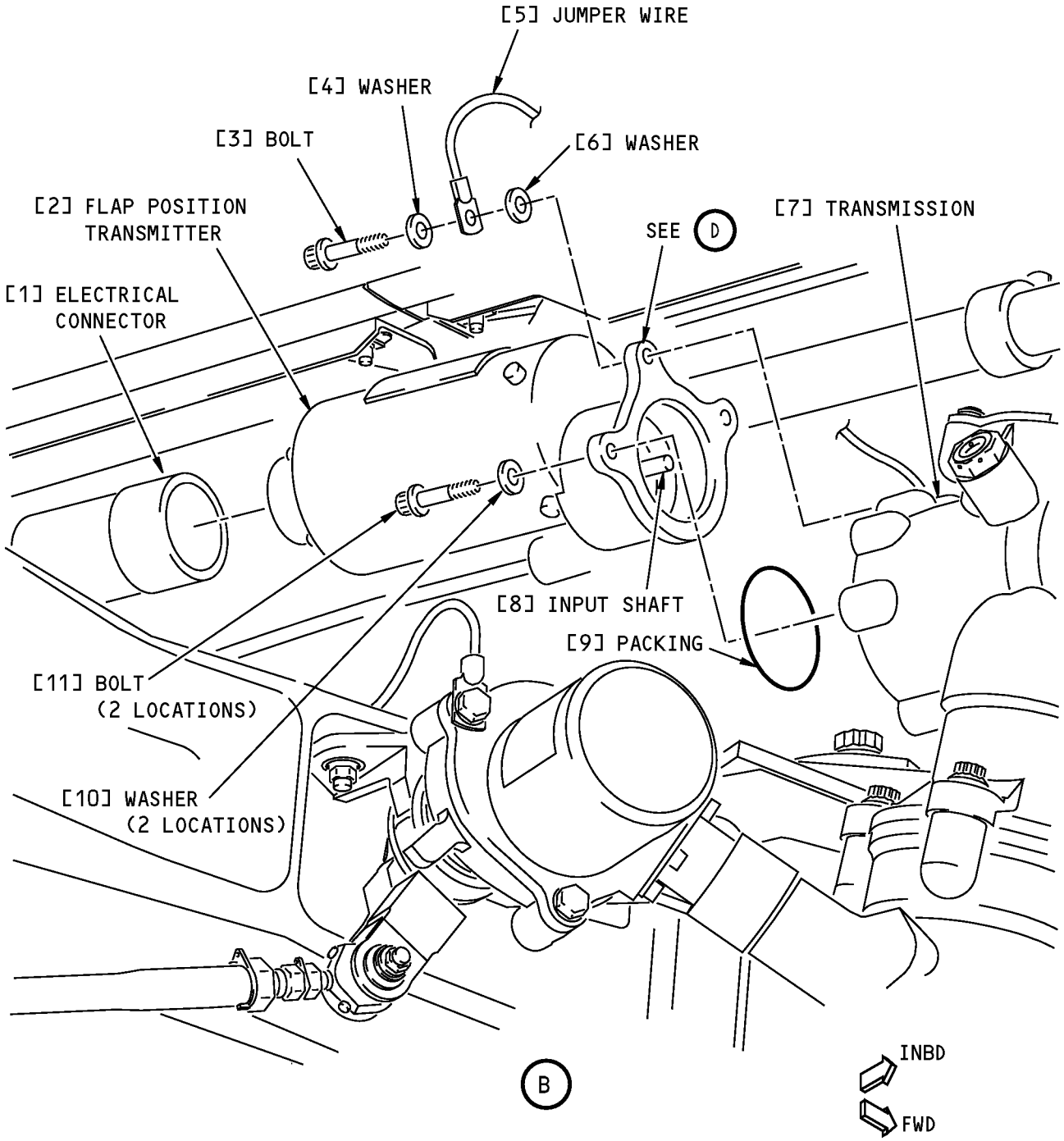

Flap Position Transmitter Installation
Figure 401 (Sheet 2 of 4)/27-58-01-990-801

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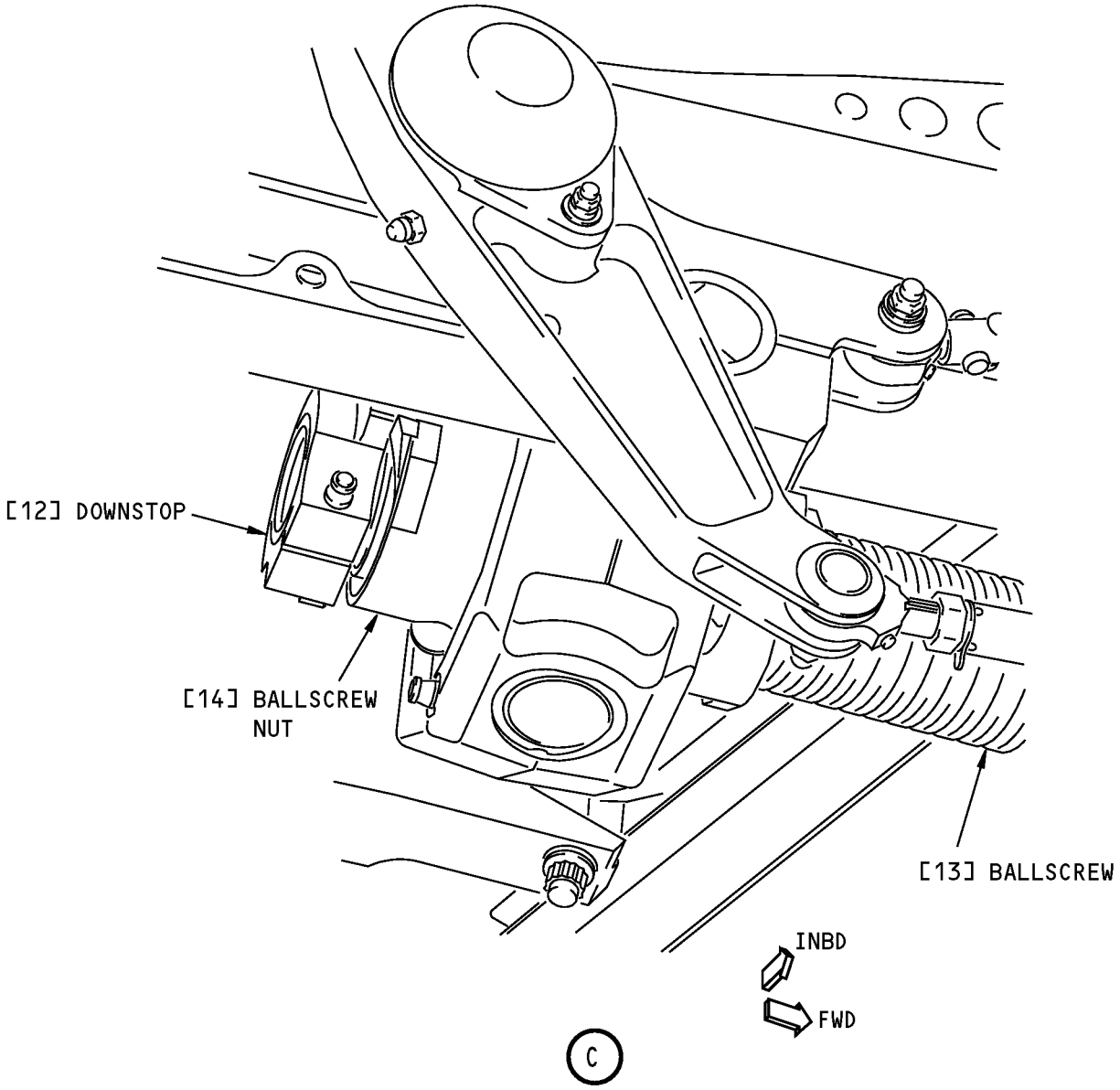

Flap Position Transmitter Installation
Figure 401 (Sheet 3 of 4)/27-58-01-990-801

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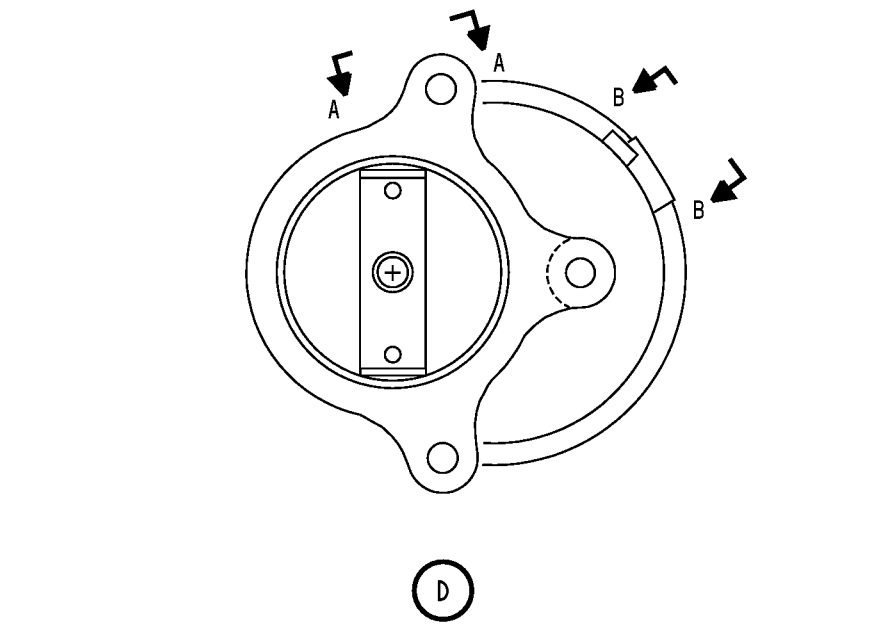

Flap Position Transmitter Installation
Figure 401 (Sheet 4 of 4)/27-58-01-990-801

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TASK 27-58-01-400-801

3. Flap Position Transmitter Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-710-801	Trailing Edge Flap System Operational Test (P/B 501)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D50011	Grease - Perfluoropolyether - Christo-lube MCG111	
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

C. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

D. Flap Position Transmitter Installation

SUBTASK 27-58-01-090-001

(1) Remove the rig lock mechanism from the flap position transmitter [2].

HAP 001-013, 015-026, 028-036; AIRPLANES WITHOUT THROW AWAY RIG LOCK (18-1738-12)

NOTE: Do not remove the rig lock mechanism. The rig lock mechanism is attached to the flap position transmitter [2].

HAP ALL

SUBTASK 27-58-01-210-001

(2) Make sure the ballscrew nuts [14] touch the downstop [12] on the ballscrew [13] on transmission No. 4 or No. 5.

SUBTASK 27-58-01-420-001

(3) Install the flap position transmitter [2]:

NOTE: Do not turn the shaft for the flap position transmitter [2]. When it is not installed, a lock holds the input shaft [8]. The lock is disengaged when you install the flap position transmitter [2].

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(a) Make sure that the two rig marks on the flap position transmitter [2] are visible and aligned in the transmitter window.

NOTE: The alignment marks in the rig indicator windows must align before installation. If they do not, you must push on the shaft lock and turn the shaft until the alignment marks are aligned. To do this, it may be necessary to turn the shaft up to 800 turns.

(b) Apply Christo-lube MCG111 grease, D50011 to the packing [9] in the transmission [7].

(c) Apply Christo-lube MCG111 grease, D50011 to the splines on the input shaft [8] for the flap position transmitter [2].

(d) Apply compound, C00913 to the mating surface of the flap position transmitter [2] and the transmission [7].

CAUTION: PUT THE FLAP POSITION TRANSMITTER [2] IN ITS POSITION WITHOUT BINDING OR TURNING THE INPUT SHAFT [8] UNTIL THE MATING SURFACES TOUCH. AFTER THE MATING SURFACES TOUCH, YOU CAN TURN THE TRANSMITTER TO ALIGN THE BOLT HOLES. IF YOU TURN OR BIND THE INPUT SHAFT BEFORE THE MATING SURFACES TOUCH, YOU CAN CAUSE DAMAGE TO THE INPUT SHAFT.

(e) Put the flap position transmitter [2] in its location on the transmission [7].

(f) Apply compound, C00913 to the shank and threads of the bolts [11].

CAUTION: MAKE SURE THAT THERE IS NO CLEARANCE BETWEEN THE TRANSMITTER AND THE TRANSMISSION. IF YOU TIGHTEN THE BOLTS WITH CLEARANCE, YOU CAN CAUSE DAMAGE TO THE TRANSMITTER.

(g) Install the bolts [11] and washers [10] that attach the flap position transmitter [2].

(h) Put the jumper wire [5] in its position on the flap position transmitter [2].

(i) Install the bolt [3], washer [4] and washer [6] that attach the jumper wire [5] and the flap position transmitter [2].

(j) Make sure the bonding resistance between the jumper wire [5] and the flap position transmitter [2] is less than 8 milliohms.

(k) ON AIRPLANES WITH LOCKWIRE HOLES;

Install lockwire on the bolt [3], bolts [11] and the bolts on the transmission [7].

NOTE: If the bolts have holes for lockwire then install two separate sets of lockwire, both of them on three bolts.

SUBTASK 27-58-01-210-003

(4) Before you connect the electrical connector [1], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-58-01-420-002

(5) Connect the electrical connector [1] to the flap position transmitter [2].

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SUBTASK 27-58-01-860-004

(6) For the left flap position transmitter [2], T427;

Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
C	5	C01041	AFCS SYS A SNSR EXC AC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	4	C01207	SMYD-2 SNSR EXC AC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-58-01-860-005

(7) For the right flap position transmitter [2], T428;

Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	6	C01205	SMYD-1 SNSR EXC AC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
C	2	C01042	AFCS SYS B SNSR EXC AC

SUBTASK 27-58-01-440-001

(8) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

E. Flap Position Transmitter Test

SUBTASK 27-58-01-860-006

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-58-01-860-007

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-58-01-860-008

(3) Move the flap control lever to the UP position to retract the trailing edge flaps.

(a) Wait for the trailing edge flaps to move to the retracted position.

SUBTASK 27-58-01-210-002

(4) Make sure the pointers on the flap position indicator are in the UP white band.

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SUBTASK 27-58-01-710-001

(5) Do this task: Trailing Edge Flap System Operational Test, TASK 27-51-00-710-801.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-58-01-860-009

(1) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK

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FLAP POSITION TRANSMITTER - ADJUSTMENT/TEST

1. General

A. This procedure has a task to adjust the trailing edge flap position transmitters.

B. The flap position transmitters are installed on the outboard end of transmissions No. 1 and 8.

C. The flap position transmitters include additional syncros that are used in the autopilot and the stall management systems.

TASK 27-58-01-820-801

2. Flap Position Transmitter Adjustment

(Figure 501)

A. General

(1) This task uses the Flap/Slat Electronics Unit (FSEU) to adjust the flap position transmitters.

(2) This task should only be used in the situation where the adjustment of a flap position transmitter has been changed during the installation process.

(a) This adjustment is not as accurate as the installation process of a new flap position transmitter due to these reasons:

1) The reliance on the ability of the trailing edge flap drive system to accurately drive the flaps to the 15-unit position.

2) The reliance on the tolerances of the particular flap position transmitter at the 15-unit position.

3) The reliance on the ability of the FSEU to read the flap position transmitter at the 15-unit position.

(b) The flap position transmitter is capable of being used on the left and right wings. Because of this, it is necessary to be careful not to set the position transmitter at the incorrect 15-unit position. If the flap position transmitter is set at the incorrect position for the wing it is on, it will appear to operate backward.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-58-01-000-801	Flap Position Transmitter Removal (P/B 401)
27-58-01-400-801	Flap Position Transmitter Installation (P/B 401)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
212	Flight Compartment - Right
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

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D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Adjustment

SUBTASK 27-58-01-860-010

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-58-01-860-011

(2) Make sure the system B hydraulic power is off. If it is on, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-58-01-420-003

(3) If the flap position transmitter is not installed, then install it. To install the flap position transmitter, do this task: Flap Position Transmitter Installation, TASK 27-58-01-400-801.

F. Flap Position Transmitter Adjustment

SUBTASK 27-58-01-010-001

(1) To get access to the FSEU in the main equipment center, do this step.

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-58-01-730-001

(2) Use the FSEU to read the sensor inputs from the applicable flap position transmitter to the FSEU:

(a) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

(b) Push the down arrow until OTHER FUNCTNS? shows on the display.

(c) Push the YES button to select OTHER FUNCTNS? on the FSEU.

(d) Push the down arrow until I/O MONITOR? shows on the display.

(e) Push the YES button to select I/O MONITOR? from the menu.

(f) Push the down arrow until SYNCRO INPUTS? shows on the display.

(g) Push the YES button to select SYNCHRO INPUTS? from the menu.

(h) Push the down arrow until the applicable L FL POS, or R FL POS shows on the display.

NOTE: The FSEU will continue to show the applicable left or right position transmitter output.

NOTE: If you do not push any buttons for five minutes, the display will turn off. To keep the display active, push the down arrow and then the up arrow buttons occasionally.

SUBTASK 27-58-01-860-012

WARNING: MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE TRAILING EDGE FLAPS, AND THE LEADING EDGE FLAPS AND SLATS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Move the ALTERNATE FLAPS ARM switch on the P5 panel to arm the alternate control system.

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SUBTASK 27-58-01-860-013

CAUTION: WAIT A MINIMUM OF 15 SECONDS AFTER THE FLAPS STOP BEFORE YOU USE THE ALTERNATE SYSTEM TO MOVE THE FLAPS AGAIN. YOU CAN CAUSE DAMAGE TO THE FLAP ALTERNATE MOTOR.

(4) Move the ALTERNATE FLAPS control switch to UP or DOWN to move the trailing edge flaps. Move the trailing edge flaps until the L FL POS or R FL POS indication on the FSEU is approximately 180 degrees.

NOTE: This is an initial position for the flaps. The position of the flaps will be set more accurately in subsequent steps.

SUBTASK 27-58-01-860-014

(5) Move the ALTERNATE FLAPS control switch to DOWN to make sure the indication on the FSEU increases.

(a) If the indication decreases, the flap position transmitter is installed on the wrong wing.

SUBTASK 27-58-01-860-015

(6) Move the trailing edge flaps until the L FL POS or R FL POS indication is at 180.0 ±0.4 degrees.

NOTE: You can use the manual drive on the flap power drive unit, or the alternate flaps control to move the flaps.

(a) To use the manual drive to move the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

(b) To use the alternate flaps control, move the ALTERNATE FLAPS control switch until the indication is in the limit.

SUBTASK 27-58-01-860-016

(7) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	8	C00211	FLIGHT CONTROL FSEU DC 1
A	9	C01468	FLIGHT CONTROL FSEU DC 2

SUBTASK 27-58-01-860-017

WARNING: MOVE ALL PERSONS AND EQUIPMENT AWAY FROM THE TRAILING EDGE FLAPS, AND THE LEADING EDGE FLAPS AND SLATS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

(8) Move the ALTERNATE FLAPS ARM switch to the OFF position to disarm the alternate control system.

SUBTASK 27-58-01-020-003

(9) Remove the flap position transmitter from the airplane. To remove the transmitter, do this task: Flap Position Transmitter Removal, TASK 27-58-01-000-801.

NOTE: Do not move the flaps to the extended position to remove the position transmitter. Be careful not to move the shaft on the position transmitter when you remove it.

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SUBTASK 27-58-01-860-018

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(10) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: You can use the ACMP to pressurize the hydraulic system.

SUBTASK 27-58-01-860-019

(11) Move the flap control lever to the 15-unit position to move the trailing edge flaps.

(a) Wait for the trailing edge flaps to move to the 15 unit position.

SUBTASK 27-58-01-860-020

(12) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-58-01-860-021

(13) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	8	C00211	FLIGHT CONTROL FSEU DC 1
A	9	C01468	FLIGHT CONTROL FSEU DC 2

SUBTASK 27-58-01-420-004

(14) Install the flap position transmitter. To install the flap position transmitter, do this task: Flap Position Transmitter Installation, TASK 27-58-01-400-801.

NOTE: Do not move the flaps to the extended position to install the position transmitter. Be careful not to move the shaft on the position transmitter more than necessary when you install it.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-58-01-010-002

(1) To get access to the main equipment center, do this step.

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

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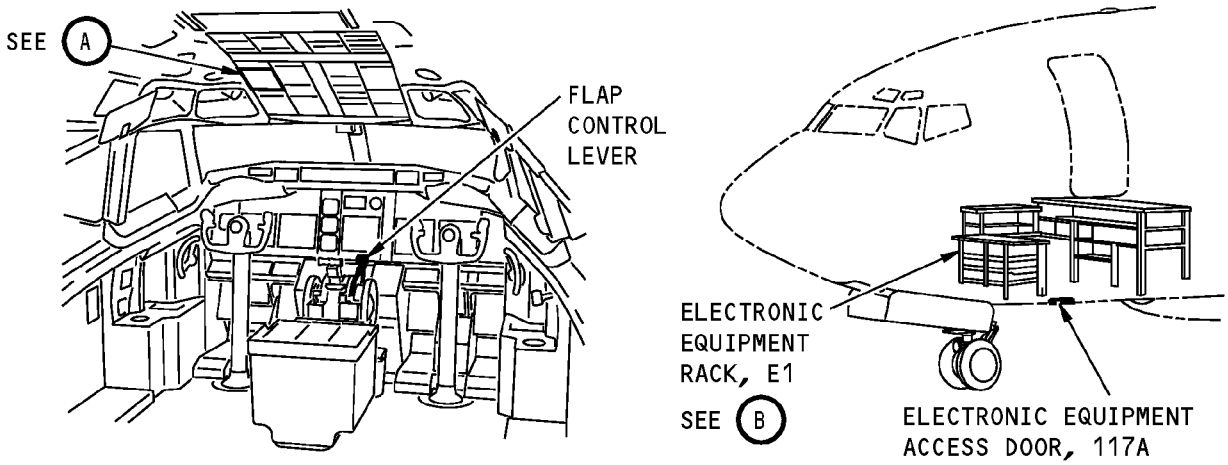

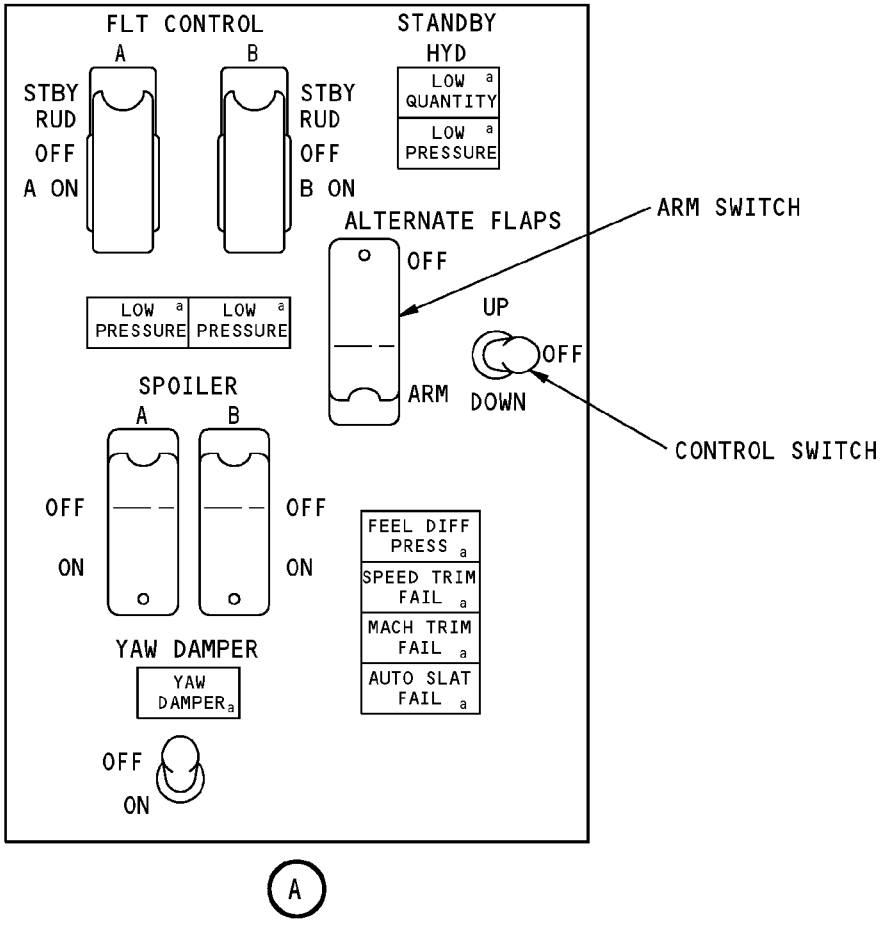

Trailing Edge Flap System Controls
Figure 501 (Sheet 1 of 3)/27-58-01-990-802

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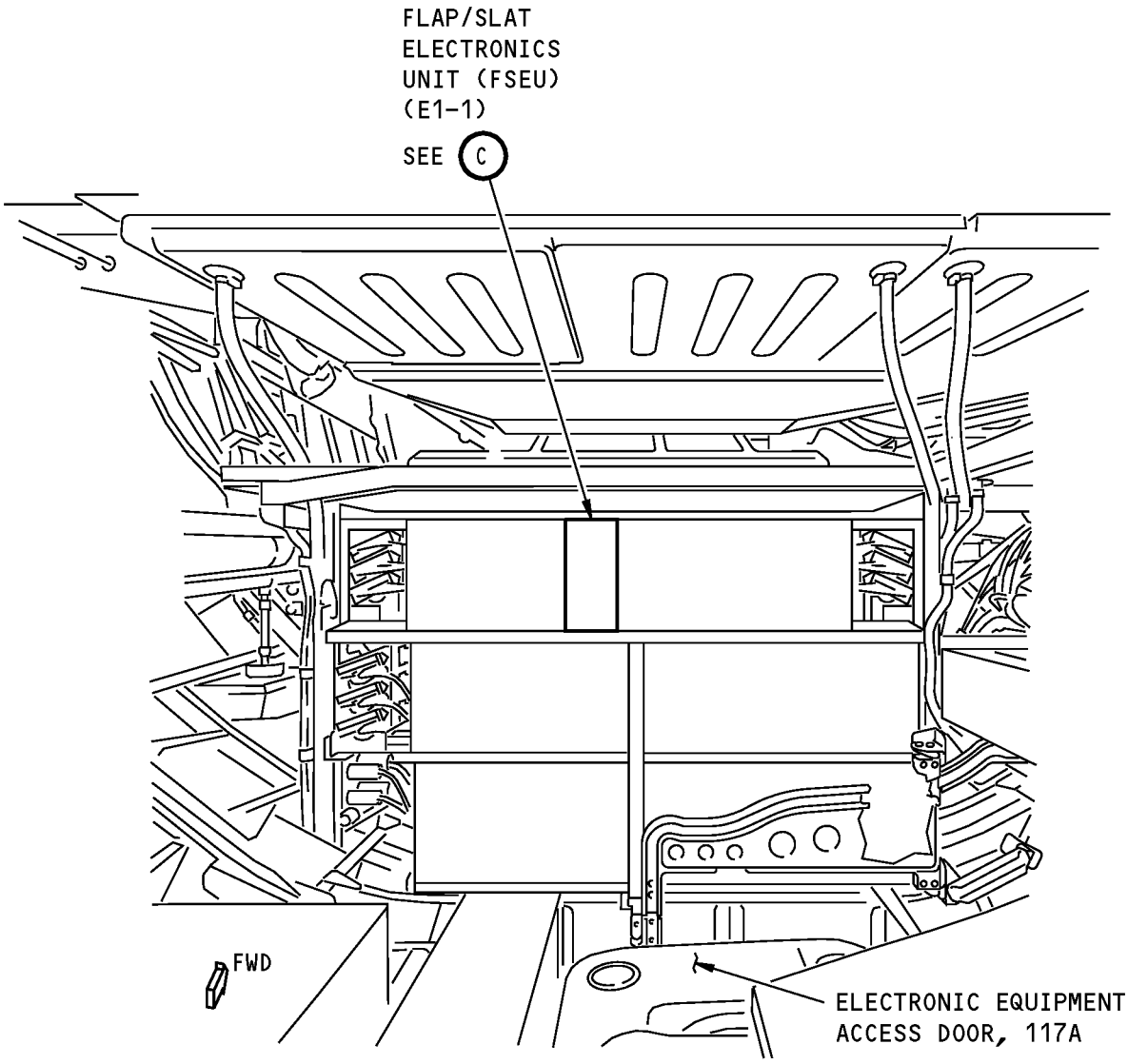

ELECTRONIC EQUIPMENT RACK, E1

B

Trailing Edge Flap System Controls
Figure 501 (Sheet 2 of 3)/27-58-01-990-802

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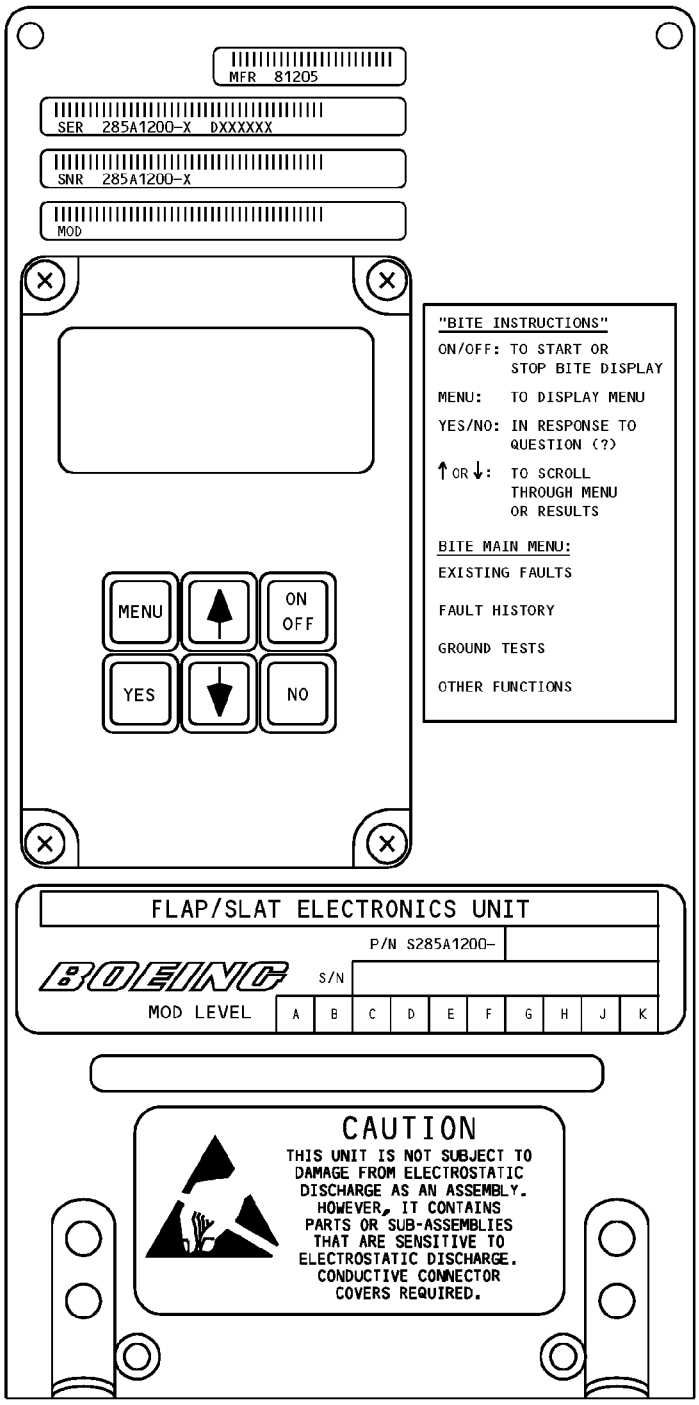

FLAP/SLAT ELECTRONICS UNIT (FSEU)

C

Trailing Edge Flap System Controls
Figure 501 (Sheet 3 of 3)/27-58-01-990-802

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FLAP POSITION INDICATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flap position indicator

(2) An installation of the flap position indicator.

TASK 27-58-02-000-801

2. Flap Position Indicator Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Procedure

SUBTASK 27-58-02-860-001

(1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-58-02-020-001

(2) Remove the flap position indicator [1] from the panel:

(a) Turn the adjustment screw [4] to loosen the clamp [3].

(b) Remove the flap position indicator [1] from the panel.

(c) Disconnect the electrical connector [2] from the flap position indicator [1].

——————— END OF TASK ———————

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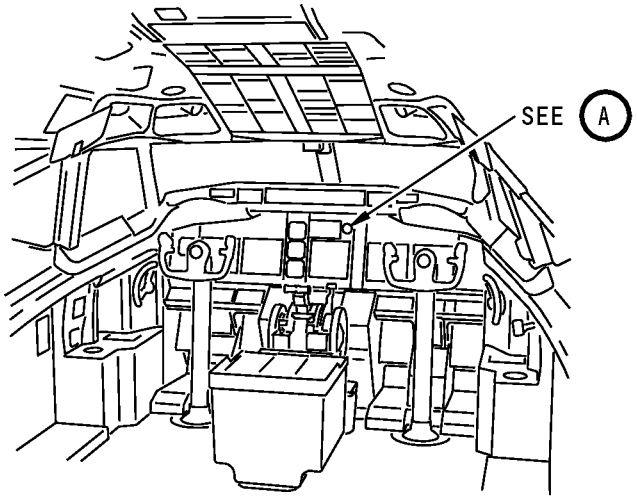
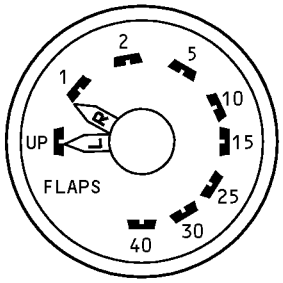
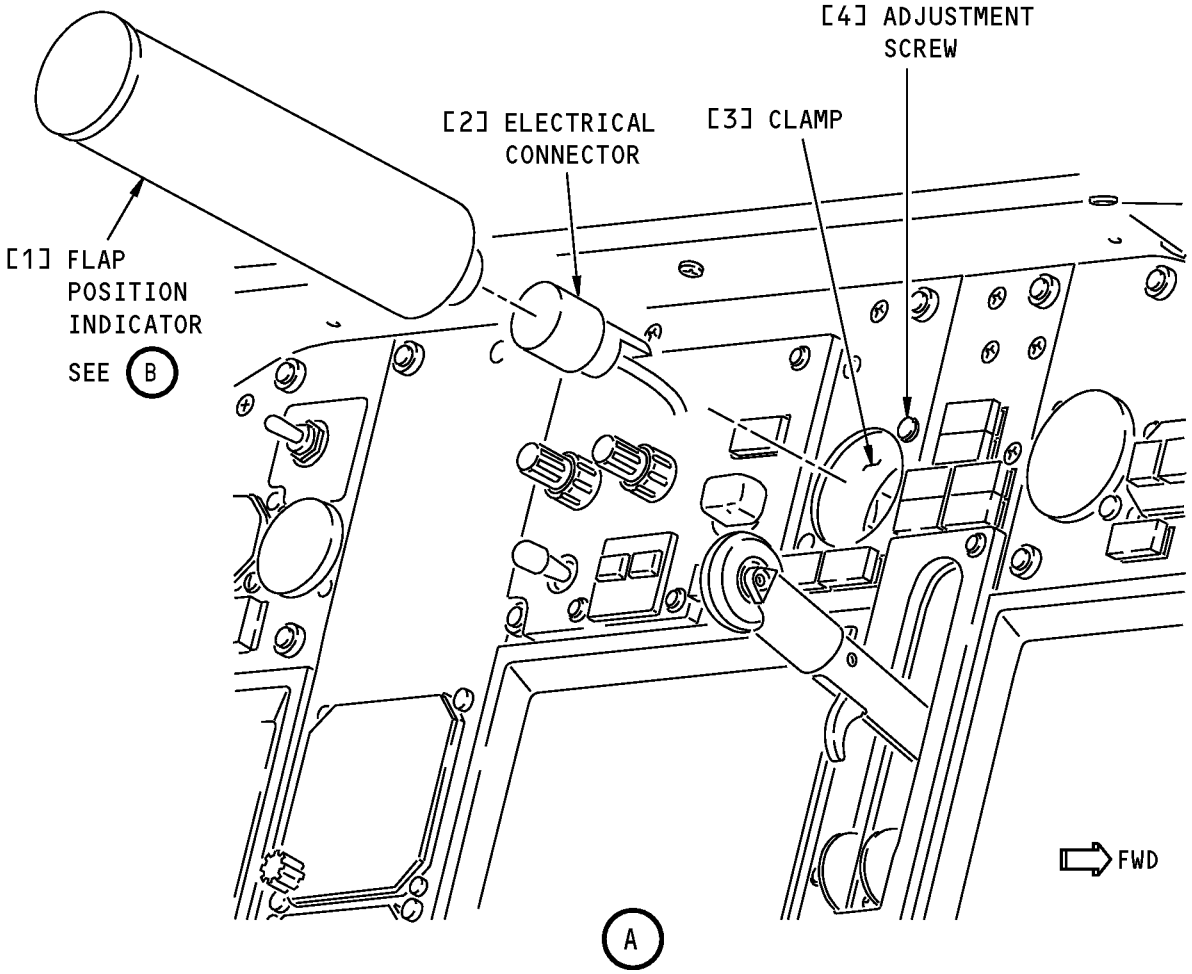


FLIGHT COMPARTMENT



FLAP POSITION INDICATOR

B



Flap Position Indicator Installation
Figure 401/27-58-02-990-801

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TASK 27-58-02-400-801

3. Flap Position Indicator Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-801	Trailing Edge Flap System Operation With Primary Control (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Indicator	27-58-02-01-050	HAP 001-013, 015-026, 028-030
		27-58-02-02-020	HAP 031-054, 101-999

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Flap Position Indicator Installation

SUBTASK 27-58-02-420-001

(1) Install the flap position indicator [1] in the panel:

(a) Connect the electrical connector [2] to the flap position indicator [1].

(b) Put the flap position indicator [1] in its position in the panel.

(c) Tighten the adjustment screw [4] on the clamp [3] to hold the flap position indicator [1].

SUBTASK 27-58-02-860-002

(2) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

E. Flap Position Indicator Test

SUBTASK 27-58-02-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-58-02-860-004

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-58-02-860-005

(3) If the trailing edge flaps are not in the retracted position, do this task: Trailing Edge Flap System Operation With Primary Control, TASK 27-51-00-860-801.

SUBTASK 27-58-02-710-001

(4) Do the test of the flap position indicator [1] in the UP position:

(a) Make sure the pointers on the flap position indicator [1] are in the UP white band.

(b) Make sure the tips of the pointers on the flap position indicator [1] align in the limit of 0.06 inch (1.5 millimeters).

SUBTASK 27-58-02-860-006

(5) Move the flap control lever to the 40-unit position to extend the flaps.

SUBTASK 27-58-02-710-002

(6) Do the test of the flap position indicator [1] in the 40-unit position:

(a) Make sure the pointers on the flap position indicator [1] are in the 40-unit white band.

(b) Make sure the tips of the pointers on the flap position indicator [1] align in the limit of 0.06 inch (1.5 millimeters).

SUBTASK 27-58-02-720-001

(7) Do a test of the separation of the pointers:

(a) Move the ALTN FLAPS ARM switch to the ARM position.

(b) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

(c) Move the flap control lever to the 30-unit position.

NOTE: This will reduce the load on the electric motor.

(d) Move the ALTN FLAP control switch to the UP position and hold it until the right pointer is in the 30-unit white band on the flap position indicator [].

(e) Make sure the left pointer is in the 40-unit white band.

(f) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

(g) Make sure the left pointer moves to the 30-unit white band.

(h) Make sure the tips of the pointers align in the limit of 0.06 inch (1.5 millimeters).

(i) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT

(j) Move the flap control lever to the 40-unit position.

NOTE: This will reduce the load on the electric motor.

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(k) Move the ALTN FLAP control switch to the DOWN position and hold it until the flaps stop moving.

(l) Make sure the left pointer is in the 40-unit white band and the right pointer is in the 30-unit white band.

(m) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT

(n) Make sure the right pointer moves to the 40-unit white band.

(o) Make sure the tips of the pointers align in the limit of 0.06 inch (1.5 millimeters).

(p) Move the ALTN FLAPS ARM switch to the OFF position.

SUBTASK 27-58-02-860-007

(8) Move the flap control lever to the UP position to retract the flaps.

SUBTASK 27-58-02-710-003

(9) Do the test of the flap position indicator [1] in the UP position:

(a) Make sure the pointers on the flap position indicator [1] are in the UP white band.

(b) Make sure the tips of the pointers on the flap position indicator [1] align in the limit of 0.06 inch (1.5 millimeters).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-58-02-860-008

(1) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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FLAP SKEW DETECTION SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

Table 501/27-59-00-993-805

Display (Sensor)	Skew Sensor Input (Flap Position)		
	UP	10-Unit	40-Units
F1 SKEW	295.7 to 311.0	95.9 to 113.6	224.4 to 242.1
F2 SKEW	330.5 to 346.0	149.1 to 166.7	279.2 to 296.9
F3 SKEW	0.0 to 13.2	164.7 to 181.5	288.7 to 305.5
F4 SKEW	332.8 to 346.9	121.0 to 138.5	265.1 to 282.1
F5 SKEW	13.1 to 27.2	221.5 to 239.0	77.9 to 94.9
F6 SKEW	346.8 to 360.0	178.5 to 195.3	54.5 to 71.3
F7 SKEW	14.0 to 29.5	193.3 to 210.9	63.1 to 80.8
F8 SKEW	49.0 to 64.3	246.4 to 264.1	117.9 to 135.6

(1) An adjustment of the mechanisms for the flap skew detection system.

(2) A functional test of the flap skew detection system.

TASK 27-59-00-820-801

2. Flap Skew Detection System Adjustment

A. General

(1) This task includes the adjustment of the flap skew mechanisms on all of the flap supports.

(2) It is not necessary for the flap skew sensors to be installed on the flap skew mechanism when you do the adjustment.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-820-802	Trailing Edge Flap Drive System Adjustment (P/B 501)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-51-00-980-801	Trailing Edge Flap System Manual Operation (P/B 201)
27-58-01-000-801	Flap Position Transmitter Removal (P/B 401)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1679	Adapter - Drive, Flap Torque Tube Spline (Part #: F70300-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1726	Clamp Set - Trailing Edge Flap Torque Tube (Part #: C27022-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
542	Left Wing - Fairing Flap Support No. 3
543	Left Wing - Fairing Flap Support No. 2
544	Left Wing - Fairing Flap Support No. 1
641	Right Wing - Fairing Flap Support No. 5
642	Right Wing - Fairing Flap Support No. 6
643	Right Wing - Fairing Flap Support No. 7
644	Right Wing - Fairing Flap Support No. 8

F. Prepare for the Adjustment

SUBTASK 27-59-00-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-59-00-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-59-00-980-001

(3) Manually extend the flaps until the ballscrew nuts touch the downstops on the ballscrews (Figure 501). To manually extend the flaps, do this task: Trailing Edge Flap System Manual Operation, TASK 27-51-00-980-801.

NOTE: The ballscrew nut for transmission No. 4 or 5 will touch first.

G. Flap Skew Mechanism Adjustment

NOTE: This is applicable to the flap skew mechanisms on all of the flap supports.

SUBTASK 27-59-00-820-001

(1) If the ballscrew nut for the applicable flap support does not touch the downstop, do these steps (Figure 501):

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(a) For the flap position transmitters on the left and right wings, do this task: Flap Position Transmitter Removal, TASK 27-58-01-000-801.

NOTE: If you do not remove the flap position transmitters before you disconnect the torque tubes, they will become incorrectly adjusted.

(b) Disconnect the torque tubes [3] from the transmission:

1) Install a clamp set, SPL-1726 on a torque tube [3] outboard of the transmission.
2) Remove the screws [2] that attach the coupling sleeves [1] to the splined couplings [4].
3) Move the coupling sleeves [1] off the splined couplings [4].
4) Move the torque tubes [3] away from the transmission.

CAUTION: DO NOT MOVE ONE END OF A FLAP MORE THAN 1.4 INCHES (35.56 MM) OF BALLSCREW TRAVEL MORE THAN THE OTHER END. YOU CAN CAUSE THE FLAP TO SKEW EXCESSIVELY. THIS CAN CAUSE DAMAGE TO THE FLAP.

(c) Use an adapter, SPL-1679 on one of the couplings on the transmission to extend the transmission until the ballscrew nut touches the downstop on the ballscrew.

SUBTASK 27-59-00-220-001

(2) Measure the mismatch between the crank arm [23] and the flat side of the rigging flange [21] on the sensor input assembly [22] (Figure 502).

SUBTASK 27-59-00-820-002

(3) If the mismatch between the crank arm [23] and the rigging flange [21] is not in the limit of 0.005 to 0.015 inch (.127 to .381 mm), then adjust the length of the skew control rod [24] (Figure 502):

NOTE: The crank arm [23] must be past the rigging flange [21].

(a) To make a large adjustment to the length of the skew control rod [24], do these steps:

1) Loosen the nut [26].
2) Remove the nut [33], washer [32], bushing [31], washer [30], and bolt [29] that attach the rod end [34] to the crank arm [23].
3) Turn the adjustment sleeve [27] with the rod end [34] in the control rod [24] to adjust the length of the control rod [24].

NOTE: Make sure the threads of the adjustment sleeve [27] cover a minimum of half the inspection hole in the control rod [24].

4) Apply compound, C00913 to the shank and threads of the bolt [29].
5) Put the control rod [24] in its position in the crank arm [23].
6) Install the bolt [29], washer [30], bushing [31], washer [32] and nut [33] to attach the control rod [24] to the crank arm [23].

NOTE: Install the bolt [29] with the head toward the center of the flap track.

(b) To make a small adjustment to the length of the control rod [24], do these steps:

1) Loosen the nut [26] and the nut [35].
2) Turn the adjustment sleeve [27] in the control rod [24] with the rod end [34] attached to the crank arm [23].

NOTE: Make sure the threads of the adjustment sleeve [27] cover a minimum of half the inspection hole in the control rod [24]. Make sure the threads of the rod end [34] cover a minimum of half the inspection hole in the adjustment sleeve [27].

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(c) Tighten the nut [26] to 125-175 pound-inches (14.1-19.7 newton-meters).

(d) Tighten the nut [35] to 30-50 pound-inches (3.4-5.6 newton-meters).

(e) Make sure the mismatch between the crank arm [23] and the rigging flange [21] is in the limit.

(f) Install lockwire between the nut [35] and the locking key [28].

(g) Install lockwire between the nut [26] and the locking key [25].

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-59-00-820-003

(1) If it was necessary to disconnect the torque tubes from the transmission, adjust the flap drive system (Figure 501). To adjust the flap drive system, do this task: Trailing Edge Flap Drive System Adjustment, TASK 27-51-00-820-802.

NOTE: You will connect the torque tube [3] to the transmission and install the flap position transmitters in the adjustment procedure.

SUBTASK 27-59-00-440-001

(2) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-00-860-001

(3) Retract the trailing edge flaps to the retracted position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

——————— END OF TASK ———————

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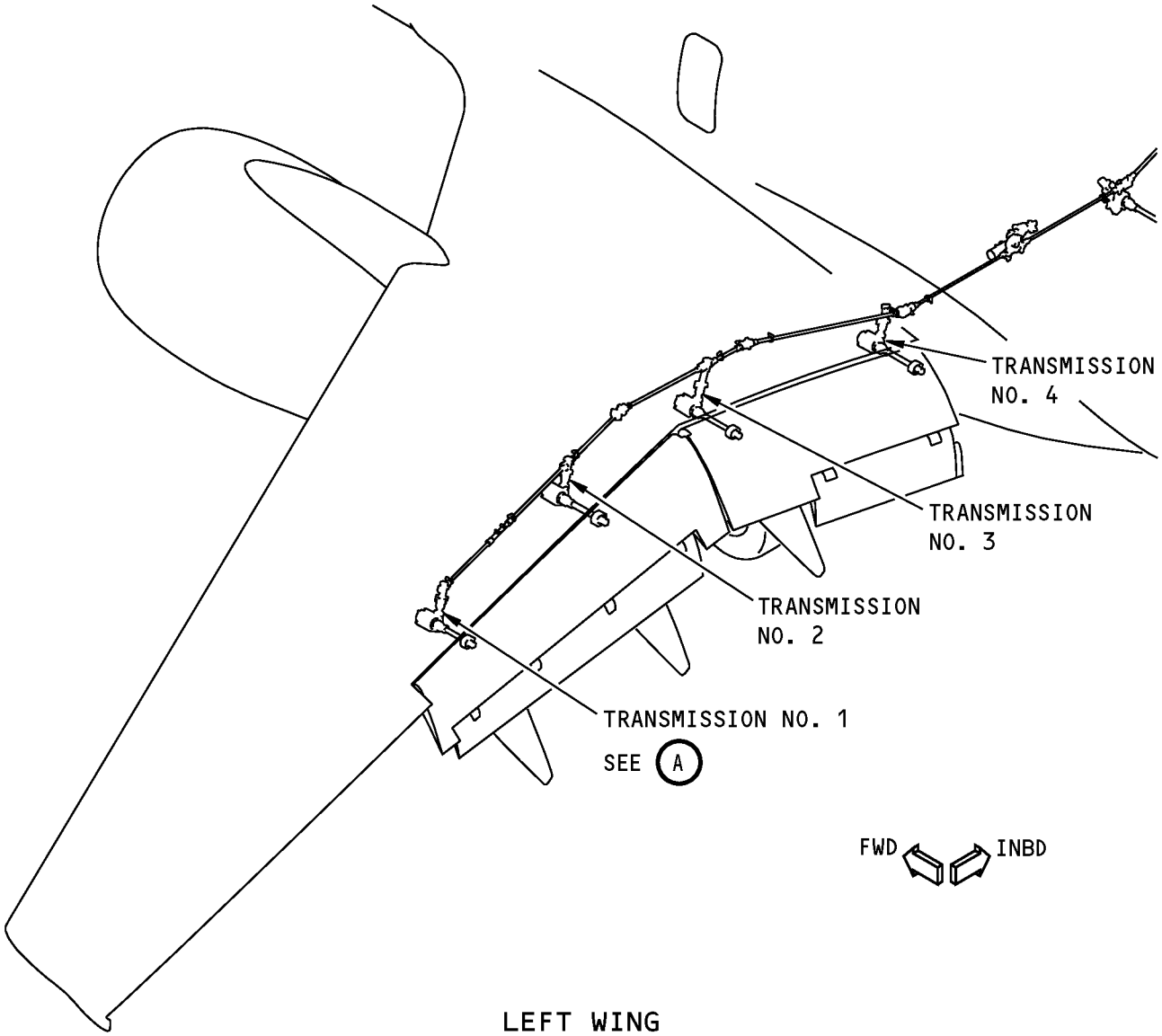

LEFT WING
(RIGHT WING IS EQUIVALENT)

Trailing Edge Flap Drive System
Figure 501 (Sheet 1 of 2)/27-59-00-990-801

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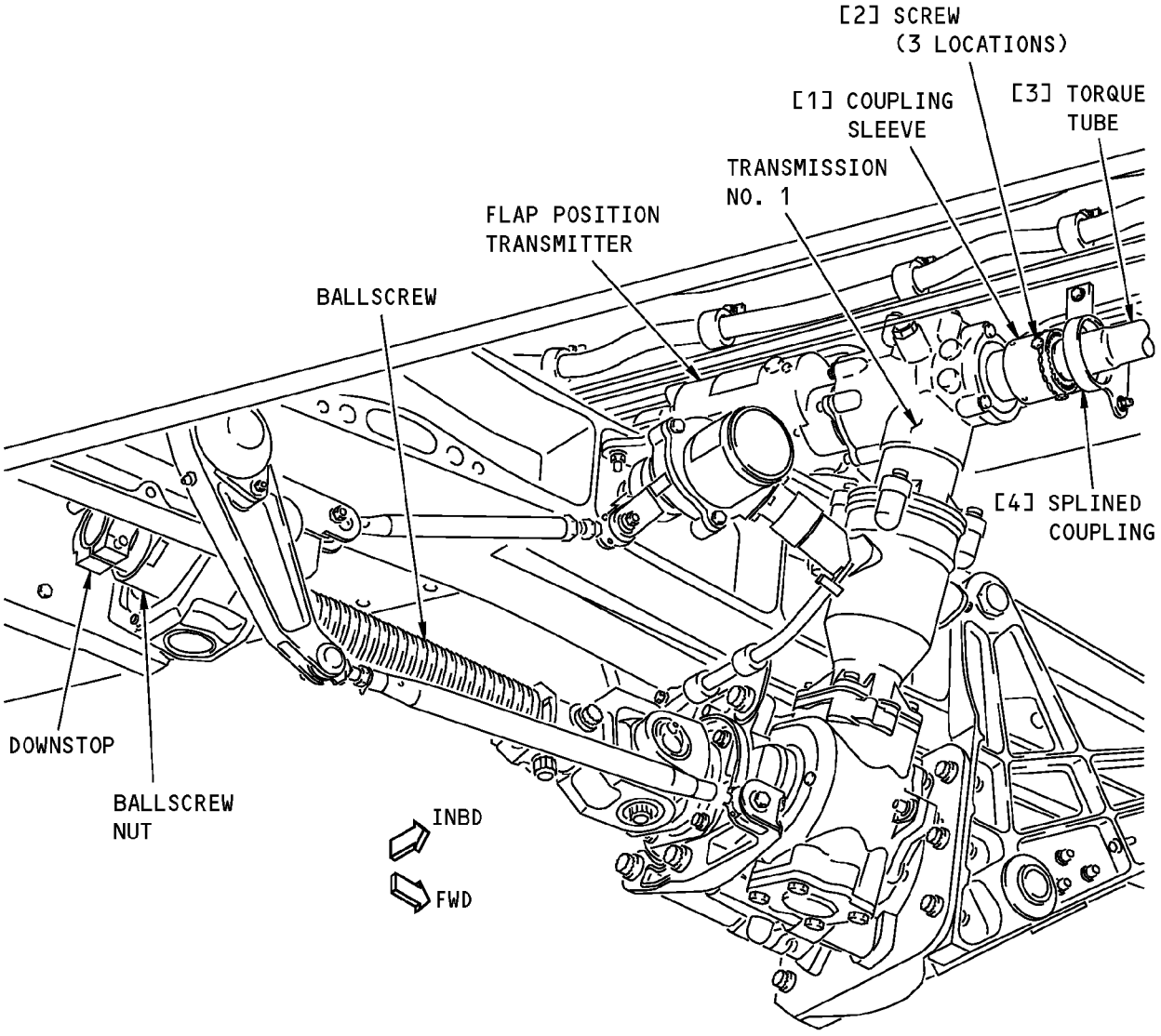

TRANSMISSION NO. 1
(EXAMPLE)

A

Trailing Edge Flap Drive System
Figure 501 (Sheet 2 of 2)/27-59-00-990-801

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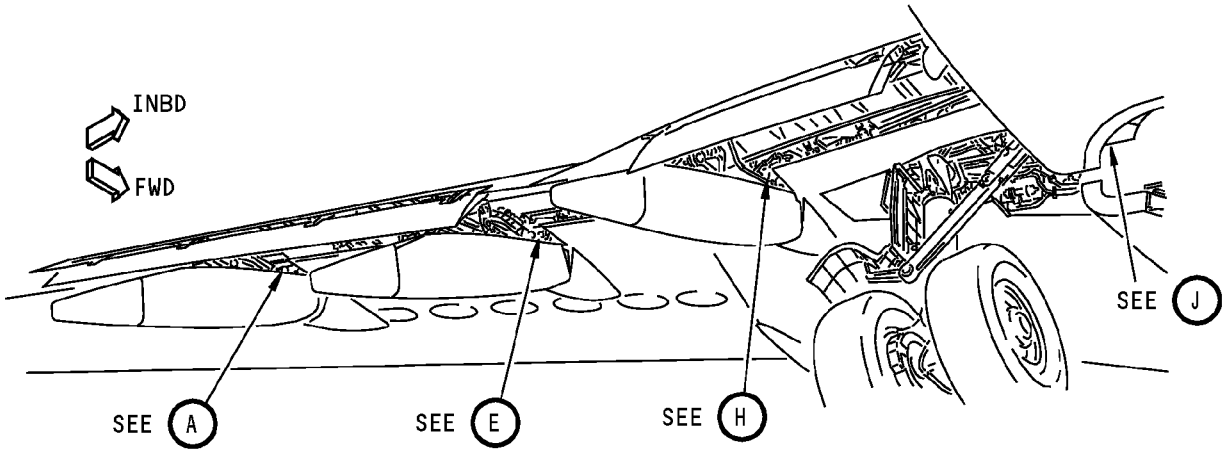
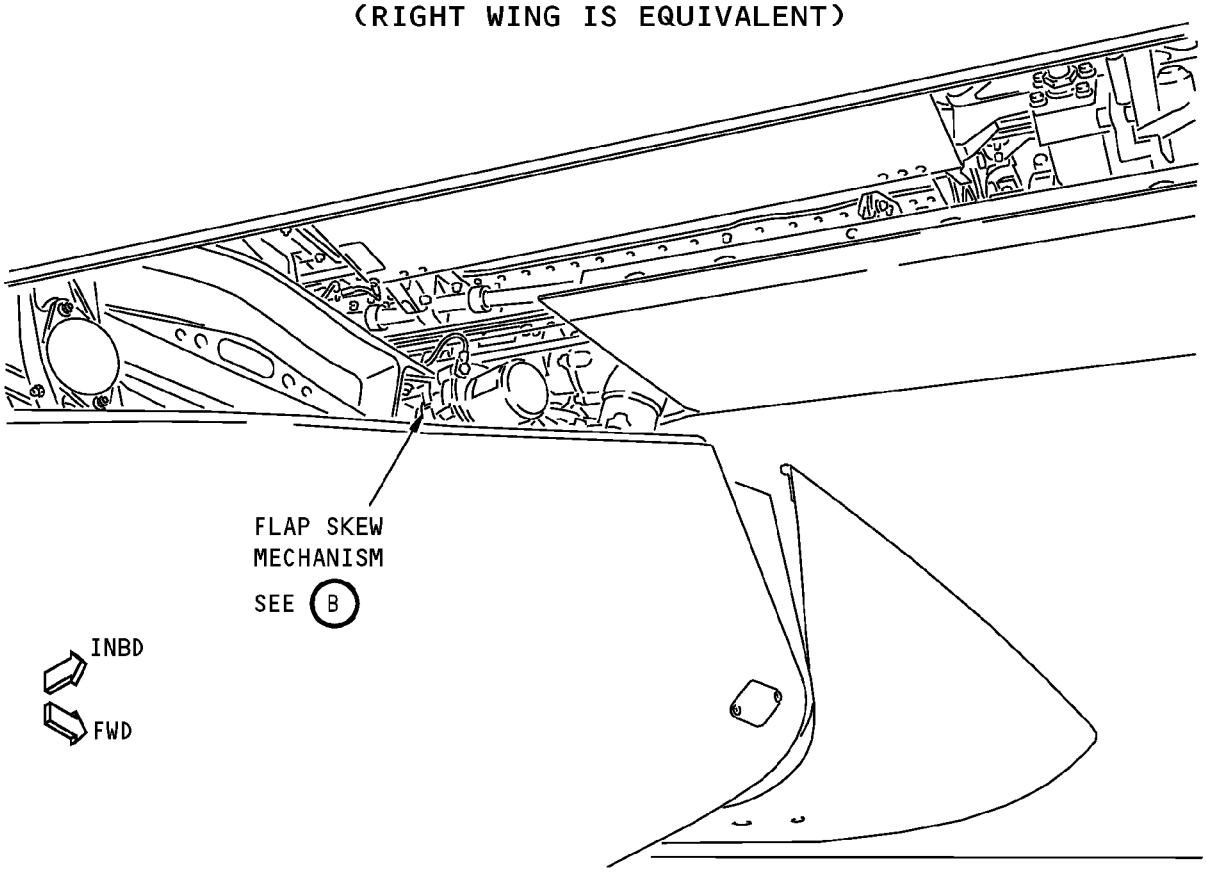


LEFT WING
(RIGHT WING IS EQUIVALENT)



FLAP SUPPORT NO. 1
A

Trailing Edge Flap Skew System Adjustment
Figure 502 (Sheet 1 of 5)/27-59-00-990-802

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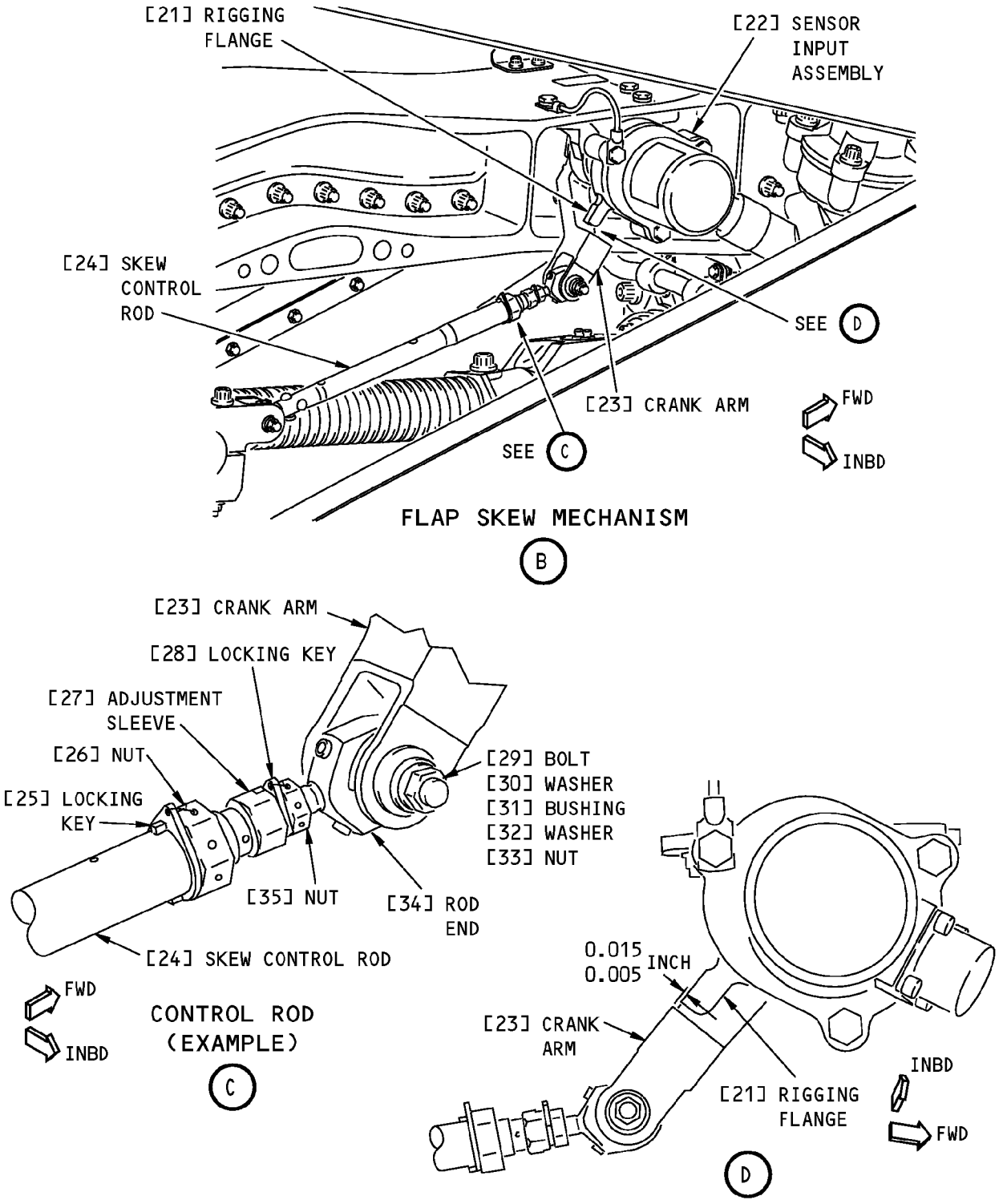

Trailing Edge Flap Skew System Adjustment
Figure 502 (Sheet 2 of 5)/27-59-00-990-802

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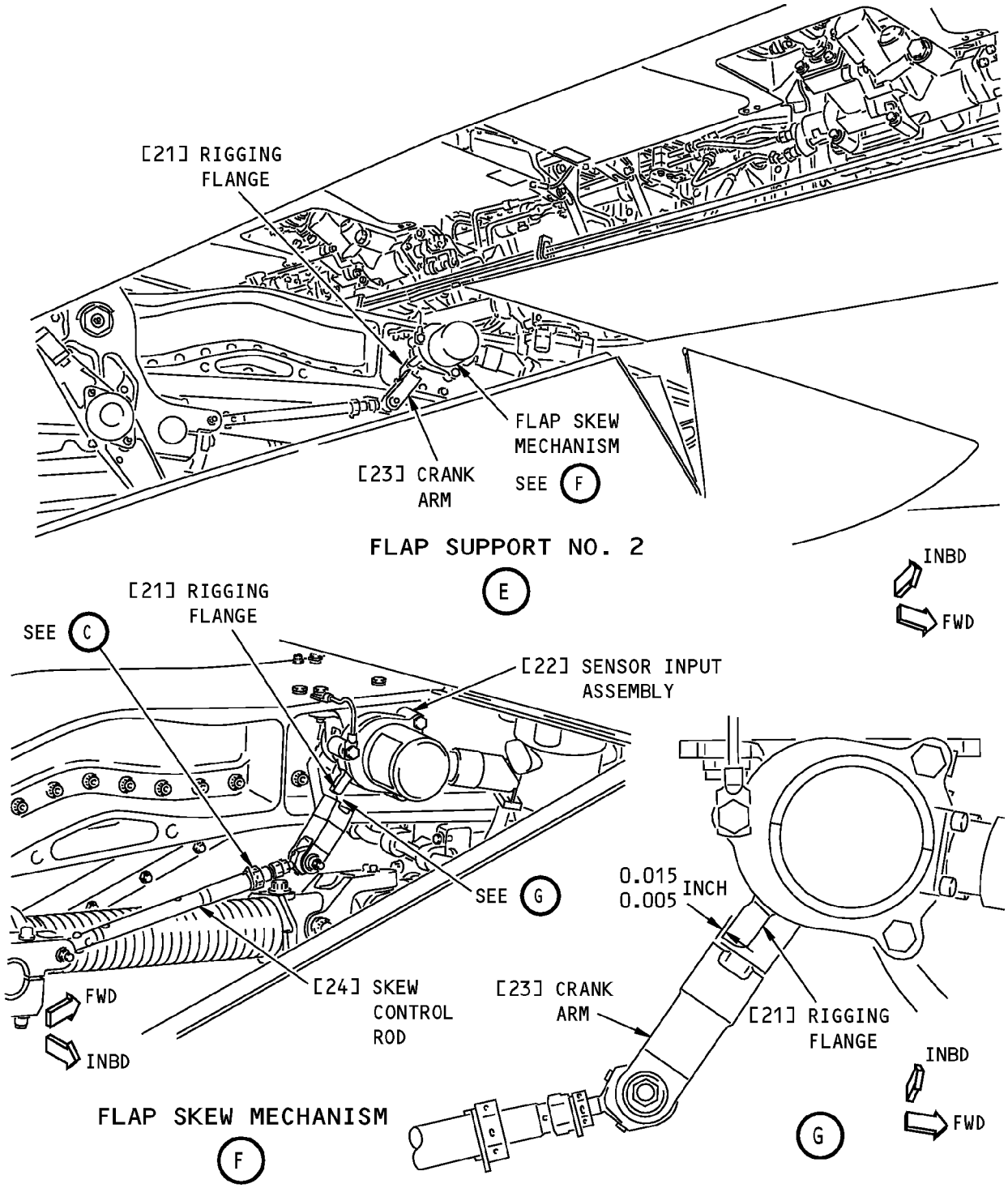

Trailing Edge Flap Skew System Adjustment
Figure 502 (Sheet 3 of 5)/27-59-00-990-802

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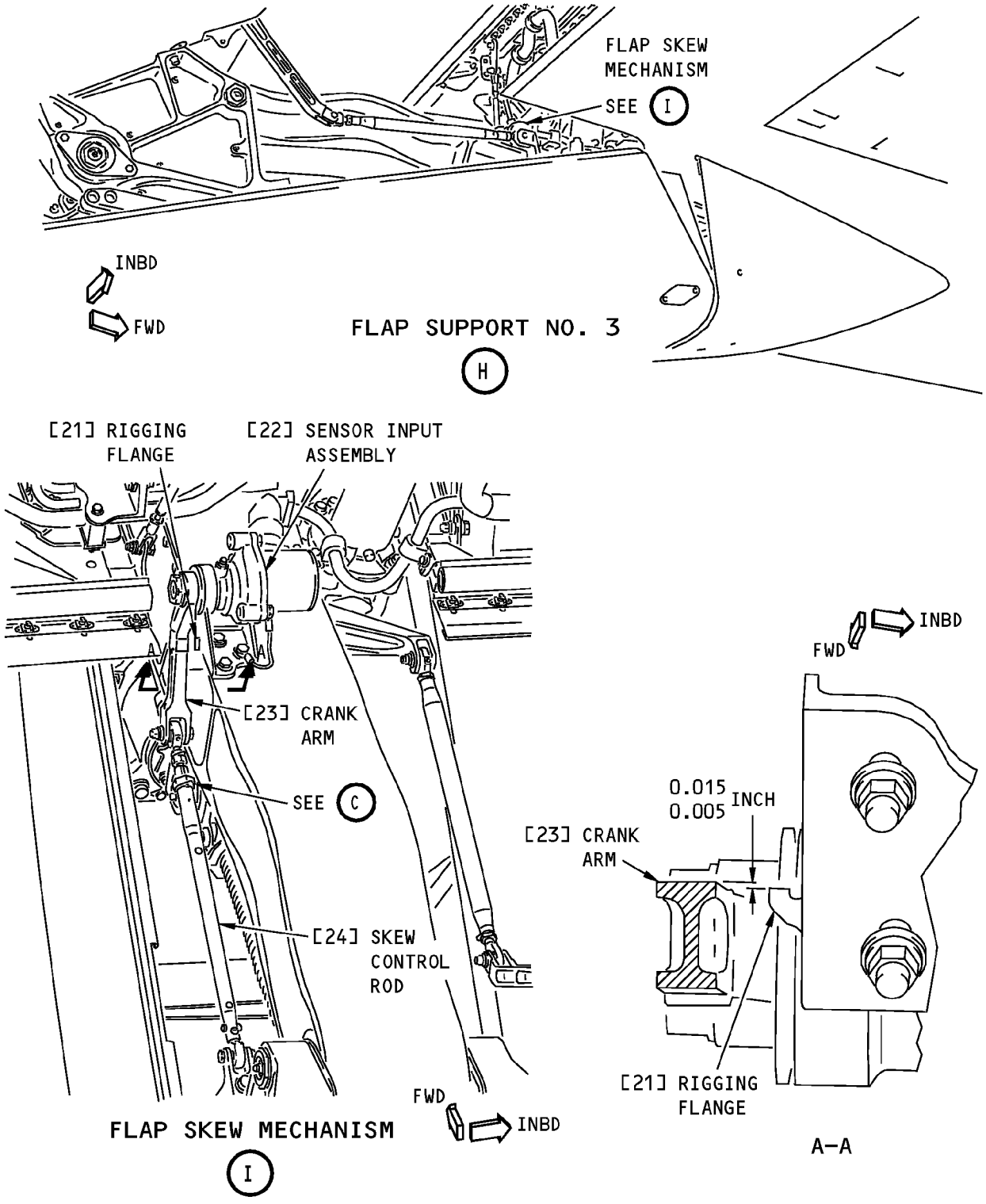

Trailing Edge Flap Skew System Adjustment
Figure 502 (Sheet 4 of 5)/27-59-00-990-802

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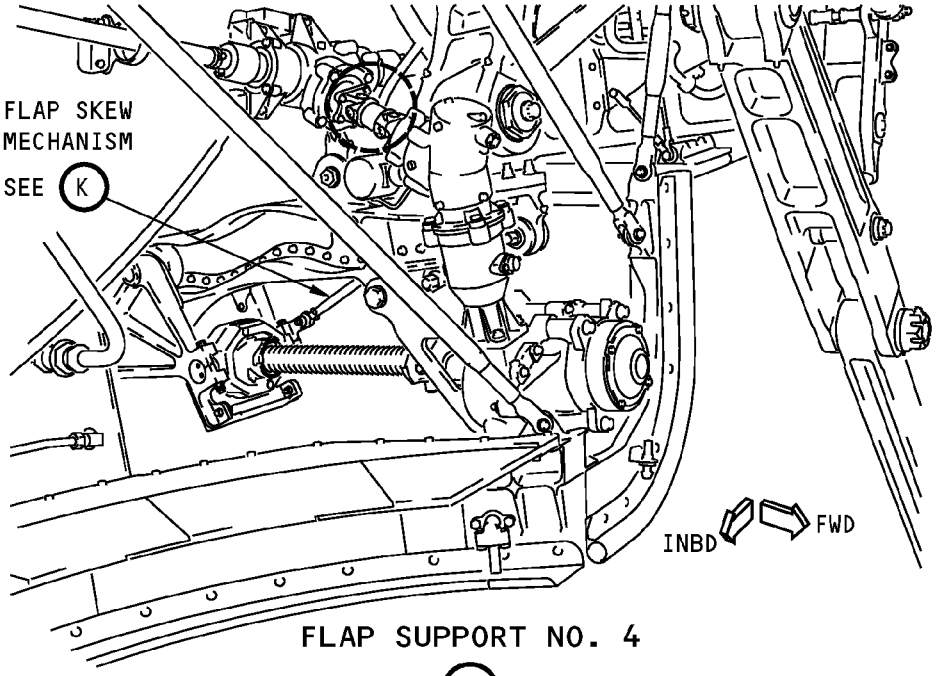
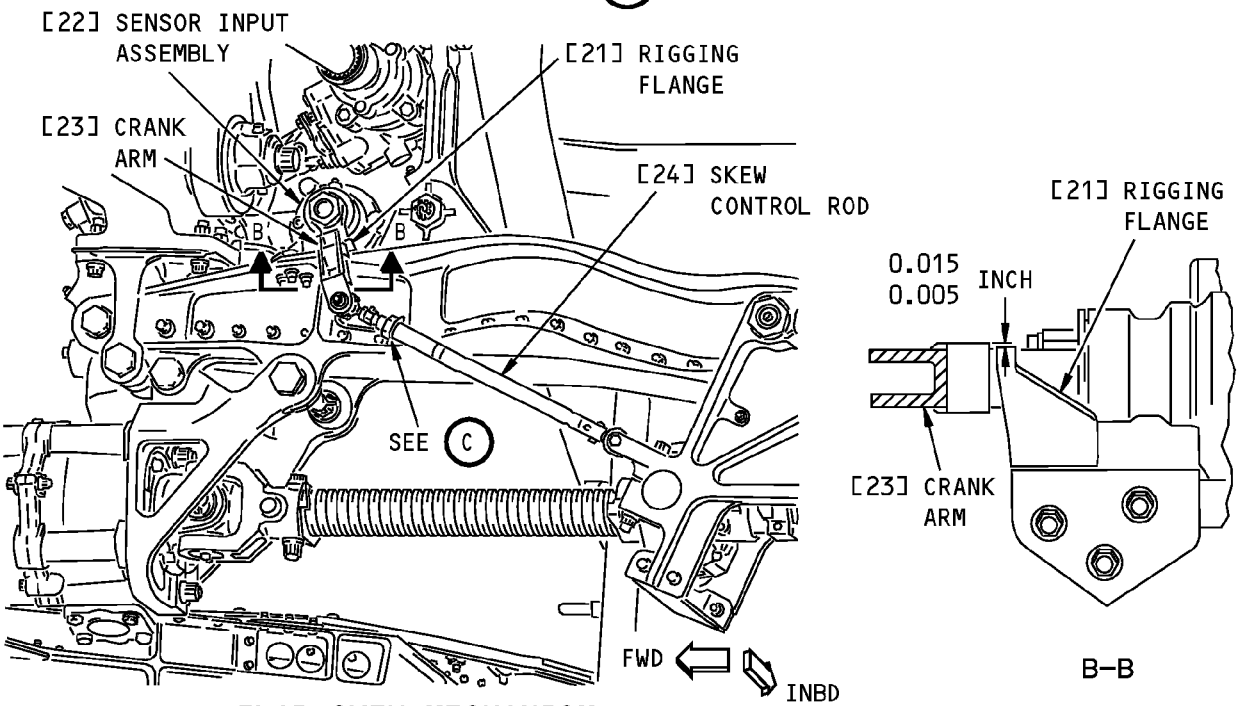


FLAP SUPPORT NO. 4

J



FLAP SKEW MECHANISM

K

Trailing Edge Flap Skew System Adjustment
Figure 502 (Sheet 5 of 5)/27-59-00-990-802

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TASK 27-59-00-730-801

3. Flap Skew Detection System Functional Test

(Figure 503)

A. General

(1) This test does a check of the output from the flap skew sensors to the FSEU.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 27-59-00-860-002

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-59-00-010-001

(2) To get access to the main equipment center, do this step:

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

F. Flap Skew Detection System Functional Test

SUBTASK 27-59-00-860-003

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: The EMDP will not supply sufficient hydraulic power to meet the flap retraction time limit.

SUBTASK 27-59-00-860-004

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LE AND TE FLAPS AND FLAP DRIVE MECHANISMS. THE FLAPS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Move the flap control lever to the UP position and wait for the flaps to reach the UP position.

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(a) Make sure the pointers on the flap position indicator are in the UP white band.

SUBTASK 27-59-00-730-001

(3) Do a check of the skew sensor inputs to the FSEU:

(a) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

(b) Push the down arrow until OTHER FUNCTNS? shows on the display.

(c) Push the YES button to select OTHER FUNCTNS? on the FSEU.

(d) Push the down arrow until I/O MONITOR? shows on the display.

(e) Push the YES button to select I/O MONITOR? from the menu.

(f) Push the down arrow until SYNCRO INPUTS? shows on the display.

(g) Push the YES button to select SYNCHRO INPUTS? from the menu.

(h) Make sure the inputs for the skew sensors are in the limits shown in (Table 502) for the UP position.

NOTE: Push the down arrow key to step through the sensor values.

Table 502/27-59-00-993-804

Display (Sensor)	Skew Sensor Input (Flap Position)		
	UP	10-Unit	40-Units
F1 SKEW	295.7 to 311.0	95.9 to 113.6	224.4 to 242.1
F2 SKEW	330.5 to 346.0	149.1 to 166.7	279.2 to 296.9
F3 SKEW	0.0 to 13.2	164.7 to 181.5	288.7 to 305.5
F4 SKEW	332.8 to 346.9	121.0 to 138.5	265.1 to 282.1
F5 SKEW	13.1 to 27.2	221.5 to 239.0	77.9 to 94.9
F6 SKEW	346.8 to 360.0	178.5 to 195.3	54.5 to 71.3
F7 SKEW	14.0 to 29.5	193.3 to 210.9	63.1 to 80.8
F8 SKEW	49.0 to 64.3	246.4 to 264.1	117.9 to 135.6

(i) Move the flap control lever to the 10-unit position to extend the flaps.

(j) Make sure the pointers on the flap position indicator are in the 10-unit white band.

(k) Make sure the inputs for the skew sensors are in the limits shown in (Table 502) for the 10-unit position.

NOTE: Push the down arrow key to step through the sensor values.

(l) Move the flap control lever to the 40-unit position to extend the flaps.

(m) Make sure the pointers on the flap position indicator are in the 40-unit white band.

(n) Make sure the inputs for the skew sensors are in the limits shown in (Table 502) for the 40-unit position.

NOTE: Push the down arrow key to step through the sensor values.

(o) Move the flap control lever to the 1-unit position to retract the flaps.

1) Measure the time it takes for the trailing edge flaps to retract from the 40-unit position to the 1-unit position.

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a) Make sure the time is in the limit of 22–27 seconds.

(p) Push the ON/OFF button on the front panel of the FSEU to turn it off.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-59-00-860-005

(1) Move the flap control lever to the UP position to retract the flaps.

SUBTASK 27-59-00-410-001

(2) For the main equipment center.

Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-59-00-860-006

(3) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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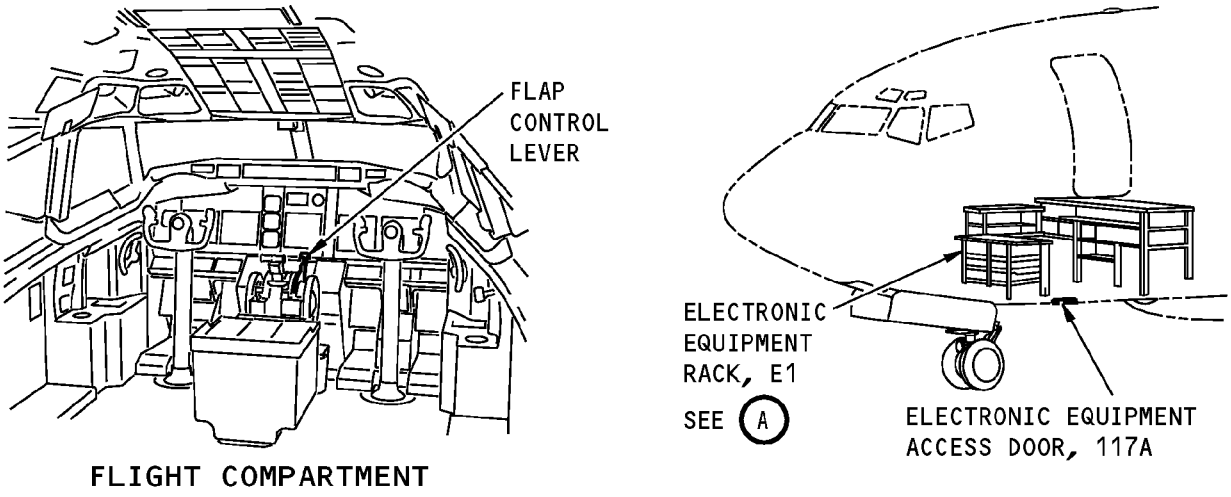

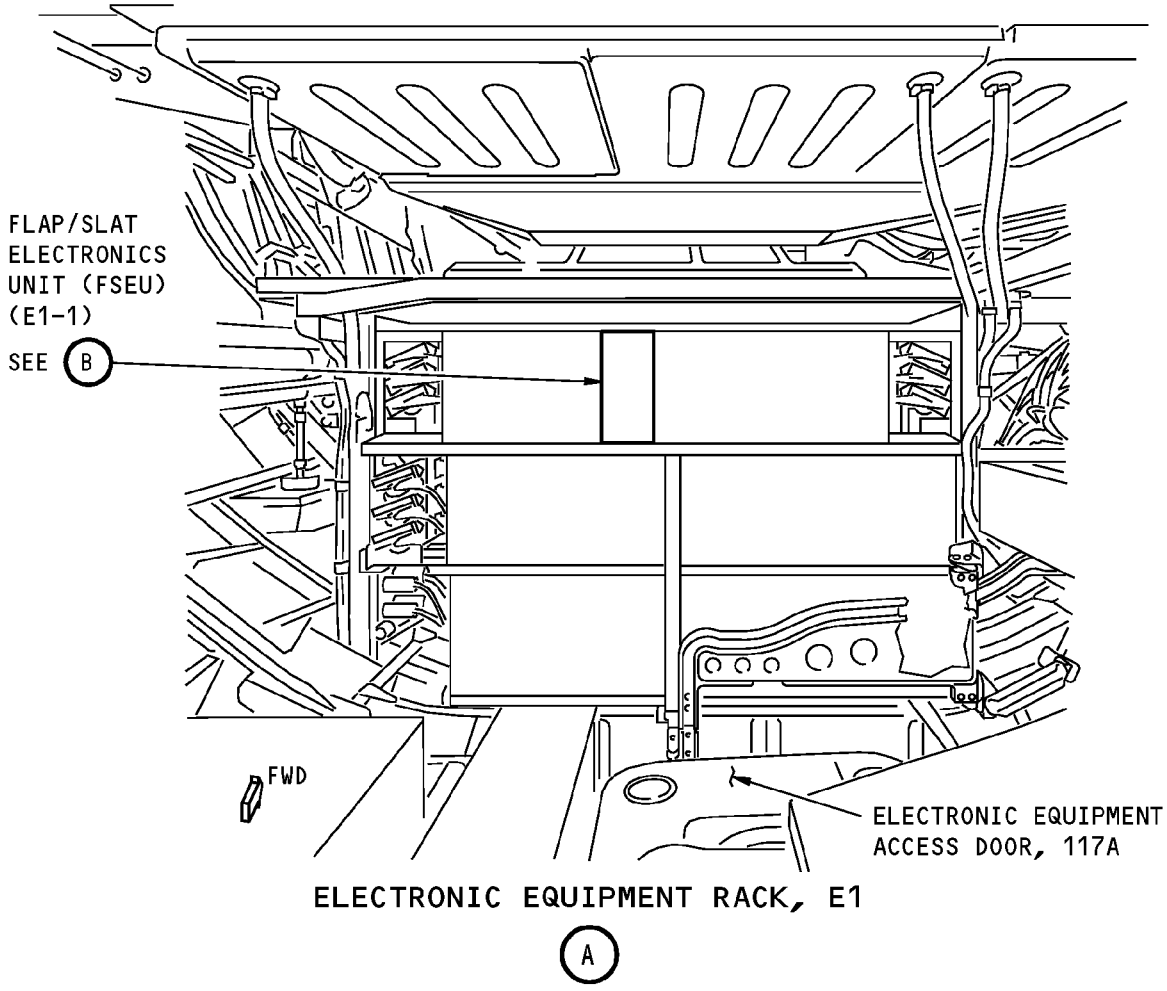

Trailing Edge Flap Skew Detection System Test
Figure 503 (Sheet 1 of 2)/27-59-00-990-803

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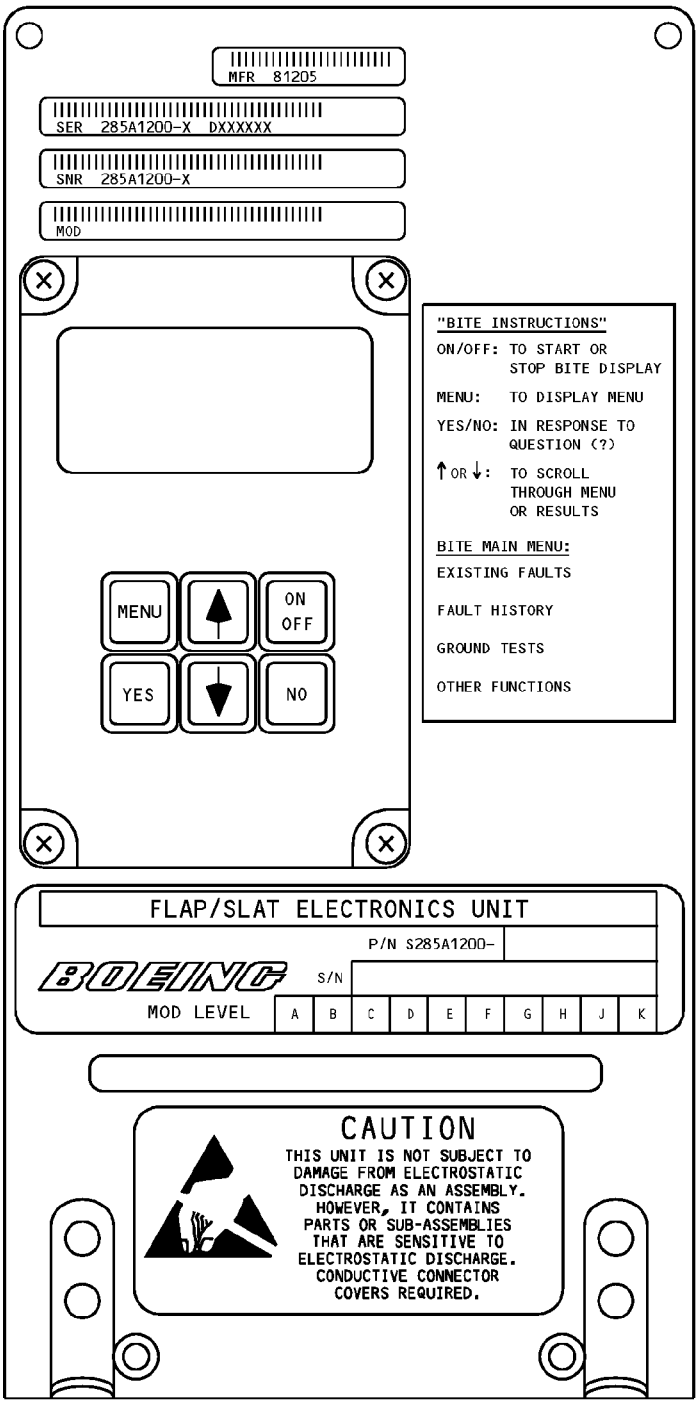

FLAP/SLAT ELECTRONICS UNIT (FSEU)

B

Trailing Edge Flap Skew Detection System Test
Figure 503 (Sheet 2 of 2)/27-59-00-990-803

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FLAP SKEW SENSORS - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal of the outboard flap skew sensor for the outboard flap

(2) An installation of the outboard flap skew sensor for the outboard flap

(3) A removal of the inboard flap skew sensor for the outboard flap

(4) An installation of the inboard flap skew sensor for the outboard flap

(5) A removal of the outboard flap skew sensor for the inboard flap

(6) An installation of the outboard flap skew sensor for the inboard flap

(7) A removal of the inboard flap skew sensor for the inboard flap

(8) An installation of the inboard flap skew sensor for the inboard flap.

B. There are eight flap skew sensors on the trailing edge flaps. One at each of the flap supports.

TASK 27-59-01-000-801

2. Outboard Flap Outboard Skew Sensor Removal

(Figure 201)

A. General

(1) This task is applicable to the flap skew sensors installed on flap supports No. 1 and 8.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

D. Procedure

SUBTASK 27-59-01-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-59-01-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-59-01-860-002

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-020-001

(4) Disconnect the electrical connector [8] from the flap skew sensor [5].

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SUBTASK 27-59-01-020-002

(5) Remove the flap skew sensor [5]:

(a) Remove the bolt [4], washer [3] and washer [1] that attach the jumper wire [2] to the flap skew sensor [5].

(b) Remove the bolts [6] and washers [7] that attach the flap skew sensor [5] to the sensor input assembly [10].

(c) Remove the flap skew sensor [5] from the sensor input assembly [10].

——————— END OF TASK ———————

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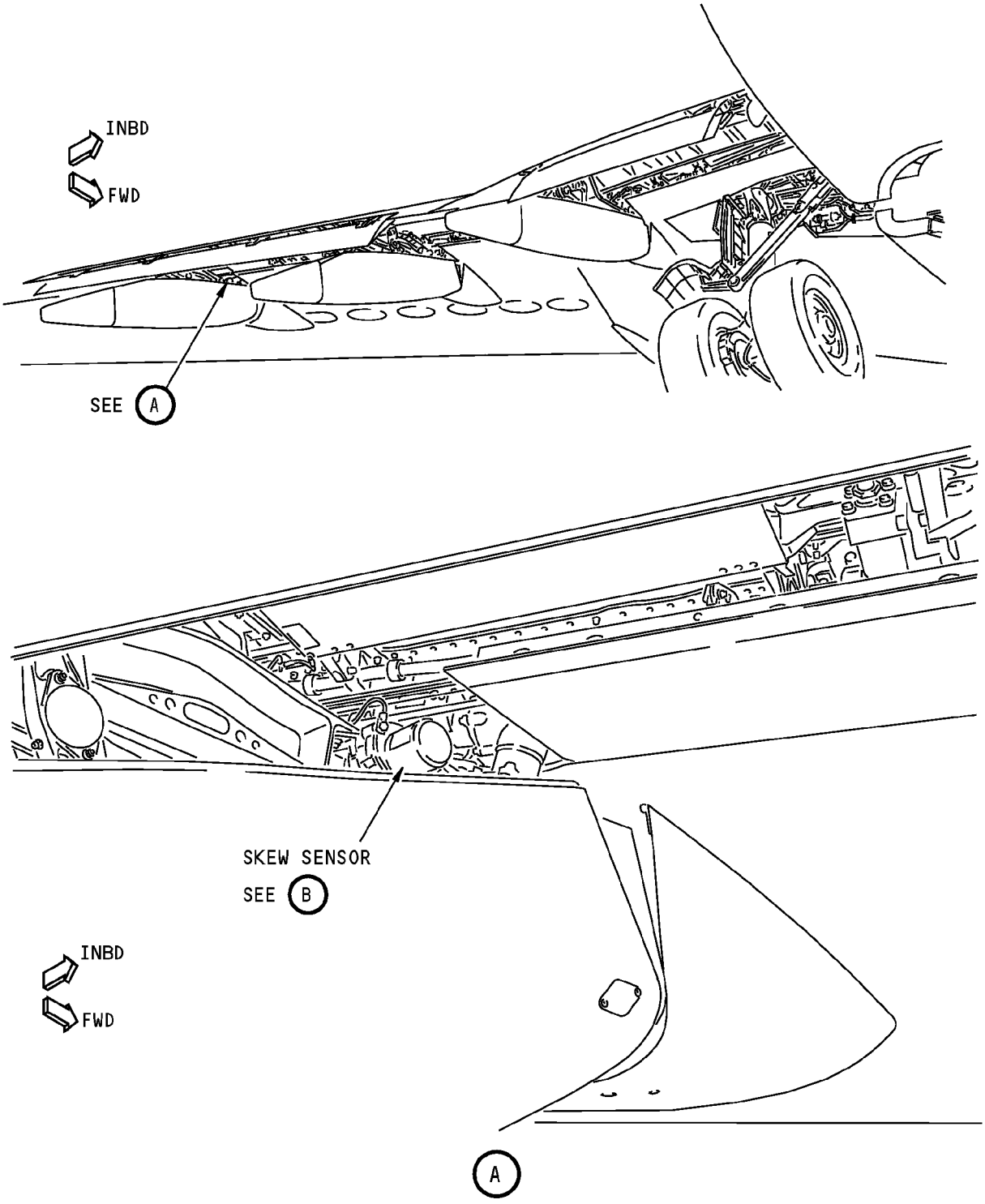

Outboard Flap Outboard Skew Sensor Installation
Figure 201 (Sheet 1 of 2)/27-59-01-990-801

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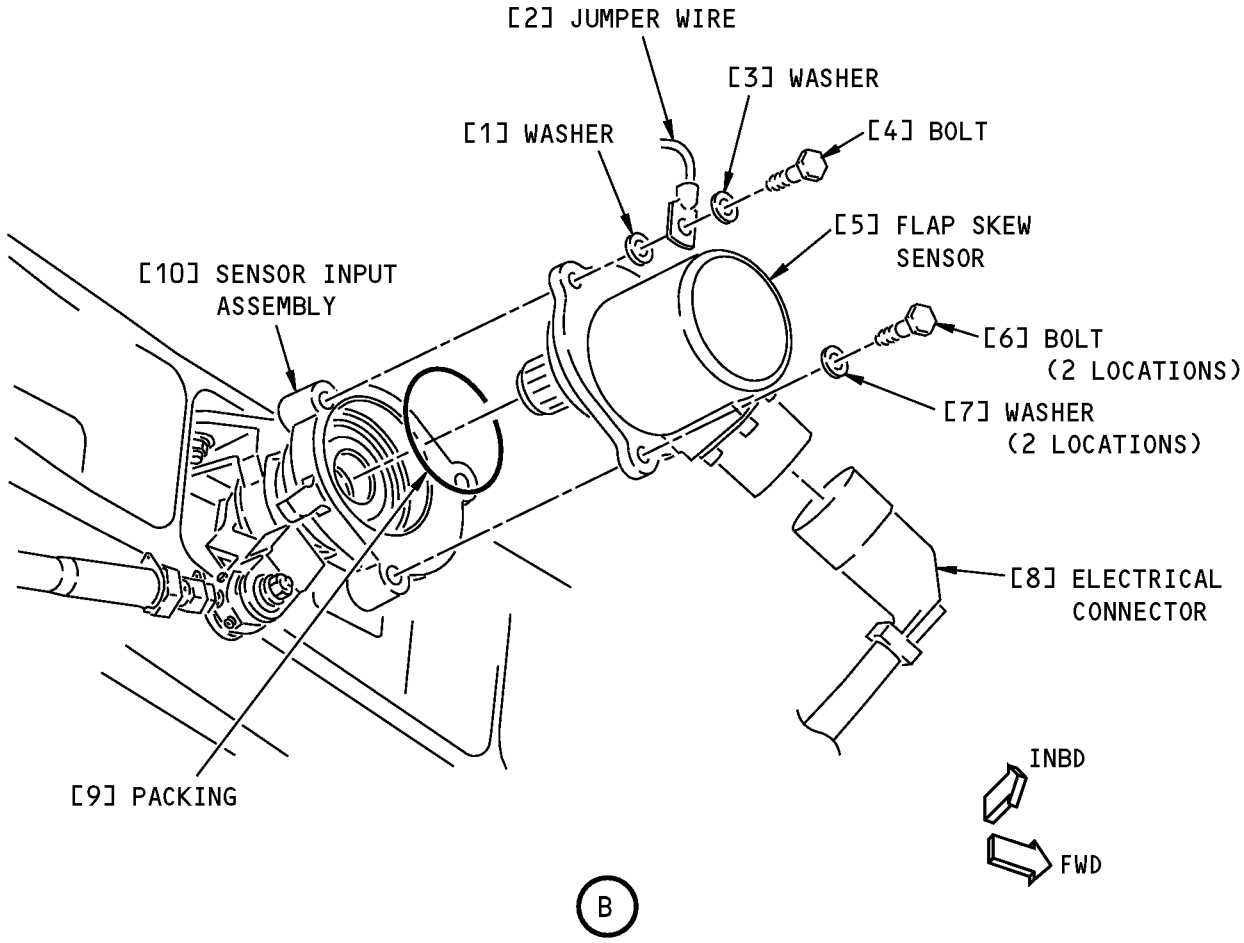

Outboard Flap Outboard Skew Sensor Installation
Figure 201 (Sheet 2 of 2)/27-59-01-990-801

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TASK 27-59-01-400-801

3. Outboard Flap Outboard Skew Sensor Installation

(Figure 201)

A. General

(1) This task is applicable to the flap skew sensors installed on flap supports No. 1 and 8.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-730-801	Flap Skew Detection System Functional Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

E. Procedure

SUBTASK 27-59-01-860-003

(1) Make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-420-001

(2) Install the flap skew sensor [5]:

(a) Apply grease, D00633 to the packing [9].

(b) Install the packing [9] on the flap skew sensor [5].

(c) Apply grease, D00633 to the shaft of the flap skew sensor [5] and the splines on the sensor input assembly [10].

(d) Apply a thin layer of compound, C00913 to the mating surface of the flap skew sensor [5] and the sensor input assembly [10].

(e) Engage the shaft on the flap skew sensor [5] with the sensor input assembly [10].

NOTE: The shaft has a missing tooth on the splines.

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(f) Engage the alignment pin on the sensor input assembly [10] with the hole in the flap skew sensor [5].

(g) Apply compound, C00913 to the shank and threads of the bolts [6].

(h) Install the bolts [6] and washers [7] to attach the flap skew sensor [5].

(i) Install the bolt [4], washer [3] and washer [1] to attach the jumper wire [2] to the flap skew sensor [5].

(j) Make sure the bonding resistance between the flap skew sensor [5] and the jumper wire [2] is less than 8 milliohms.

(k) Apply a bead of sealant, A02315 or sealant, A00247 to the head of the bolt [4].

SUBTASK 27-59-01-210-001

(3) Before you connect the electrical connector [8], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-59-01-420-002

(4) Connect the electrical connector [8] to the flap skew sensor [5].

SUBTASK 27-59-01-860-004

(5) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-440-001

(6) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-01-860-005

(7) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-01-730-001

(8) Do this task: Flap Skew Detection System Functional Test, TASK 27-59-00-730-801.

——————— END OF TASK ———————

TASK 27-59-01-000-802

4. Outboard Flap Inboard Skew Sensor Removal

(Figure 202)

A. General

(1) This task is applicable to the flap skew sensors installed on flap supports No. 2 and 7.

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B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

D. Procedure

SUBTASK 27-59-01-860-006

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-59-01-040-002

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-59-01-860-007

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-020-003

(4) Disconnect the electrical connector [38] from the flap skew sensor [35].

SUBTASK 27-59-01-020-004

(5) Remove the flap skew sensor [35]:

(a) Remove the bolt [34], washer [33] and washer [31] that attach the jumper wire [32] to the flap skew sensor [35].

(b) Remove the bolts [36] and washers [37] that attach the flap skew sensor [35] to the sensor input assembly [39].

(c) Remove the flap skew sensor [35] from the sensor input assembly [39].

———————— END OF TASK ————————

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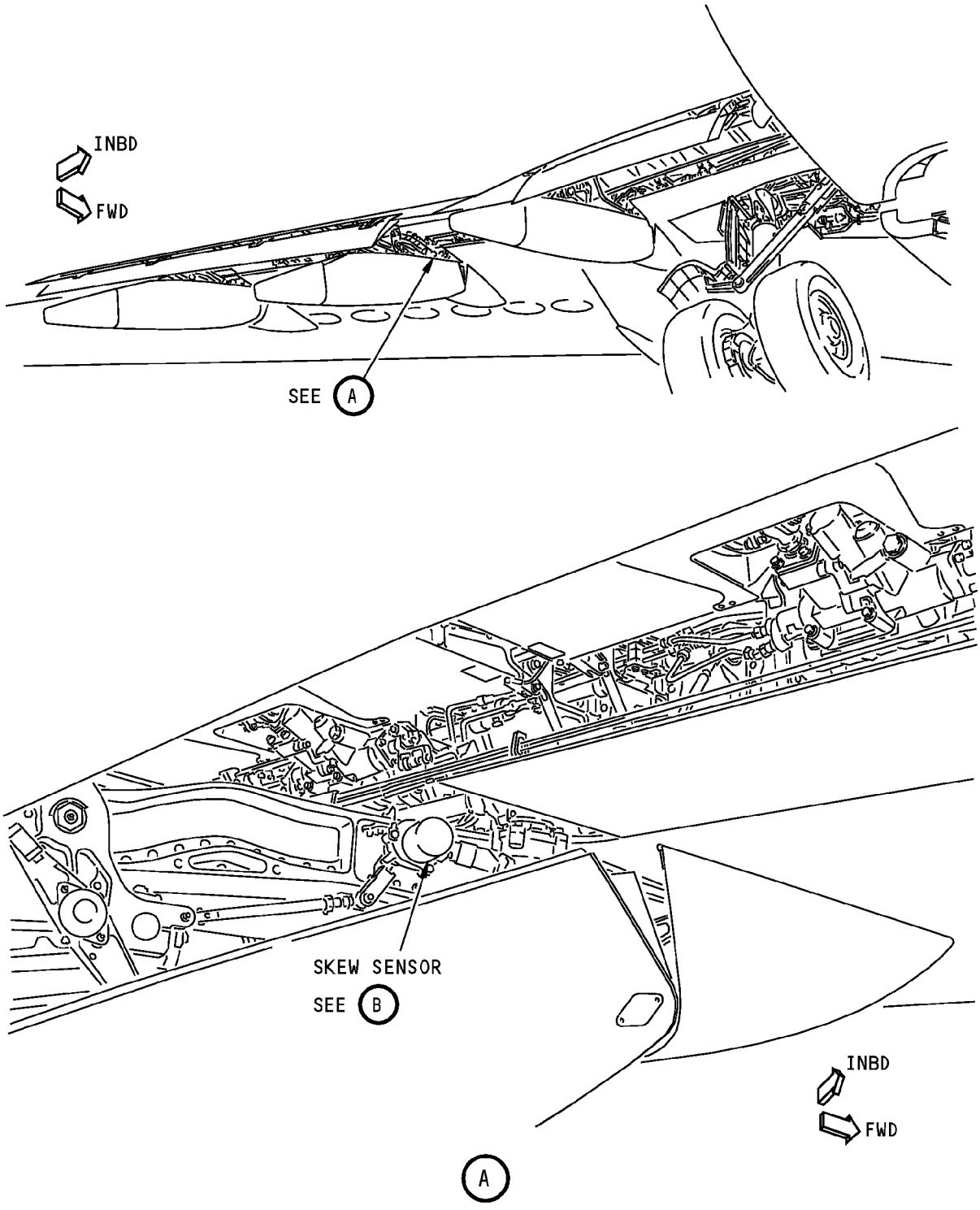

Outboard Flap Inboard Skew Sensor Installation
Figure 202 (Sheet 1 of 2)/27-59-01-990-802

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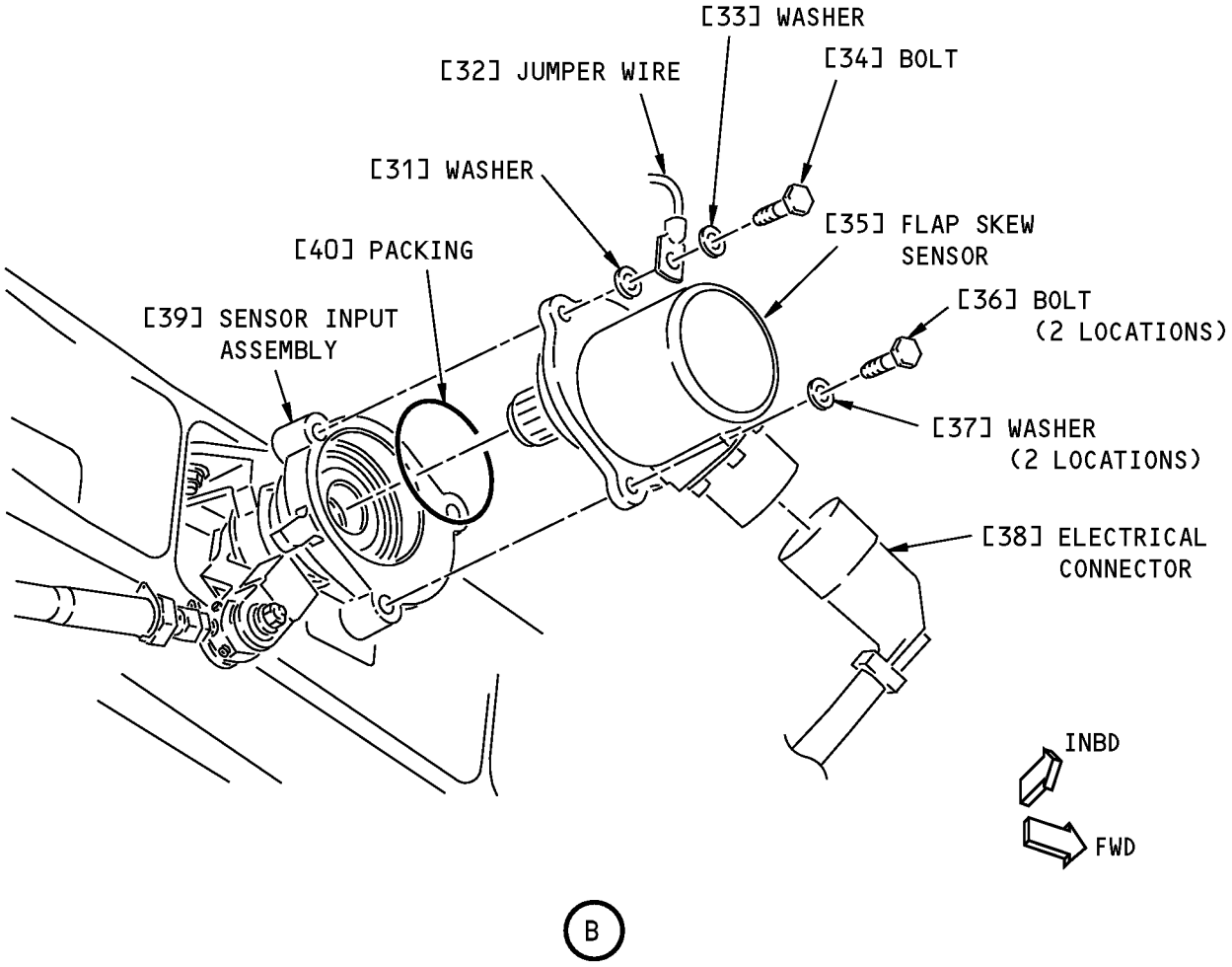

Outboard Flap Inboard Skew Sensor Installation
Figure 202 (Sheet 2 of 2)/27-59-01-990-802

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TASK 27-59-01-400-802

5. Outboard Flap Inboard Skew Sensor Installation

(Figure 202)

A. General

(1) This task is applicable to the flap skew sensors installed on flap supports No. 2 and 7.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-730-801	Flap Skew Detection System Functional Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

E. Procedure

SUBTASK 27-59-01-860-008

(1) Make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-420-003

(2) Install the flap skew sensor [35]:

(a) Apply grease, D00633 to the packing [40].

(b) Install the packing [40] on the flap skew sensor [35].

(c) Apply grease, D00633 to the shaft of the flap skew sensor [35] and the splines on the sensor input assembly [39].

(d) Apply a thin layer of compound, C00913 to the mating surface of the flap skew sensor [35] and the sensor input assembly [39].

(e) Engage the shaft on the flap skew sensor [35] with the sensor input assembly [39].

NOTE: The shaft has a missing tooth on the splines.

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(f) Engage the alignment pin on the sensor input assembly [39] with the hole in the flap skew sensor [35].

(g) Apply compound, C00913 to the shank and threads of the bolts [36].

(h) Install the bolts [36] and washers [37] to attach the flap skew sensor [35].

(i) Install the bolt [34], washer [33] and washer [31] to attach the jumper wire [32] to the flap skew sensor [35].

(j) Make sure the bonding resistance between the flap skew sensor [35] and the jumper wire [32] is less than 8 milliohms.

(k) Apply a bead of sealant, A02315 or sealant, A00247 to the head of the bolt [34].

SUBTASK 27-59-01-210-002

(3) Before you connect the electrical connector [38], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-59-01-420-004

(4) Connect the electrical connector [38] to the flap skew sensor [35].

SUBTASK 27-59-01-860-009

(5) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-440-002

(6) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-01-860-010

(7) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-01-730-002

(8) Do this task: Flap Skew Detection System Functional Test, TASK 27-59-00-730-801.

END OF TASK

TASK 27-59-01-000-803

6. Inboard Flap Outboard Skew Sensor Removal

(Figure 203)

A. General

(1) This task is applicable to the flap skew sensors installed on flap supports No. 3 and 6.

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B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

D. Procedure

SUBTASK 27-59-01-860-011

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-59-01-040-003

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-59-01-860-012

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-020-005

(4) Disconnect the electrical connector [62] from the flap skew sensor [67].

SUBTASK 27-59-01-020-006

(5) Remove the flap skew sensor [67]:

(a) Remove the bolt [65], washer [66] and washer [69] that attach the jumper wire [68] to the flap skew sensor [67].

(b) Remove the bolts [64] and washers [63] that attach the flap skew sensor [67] to the sensor input assembly [61].

(c) Remove the flap skew sensor [67] from the sensor input assembly [61].

———————— END OF TASK ————————

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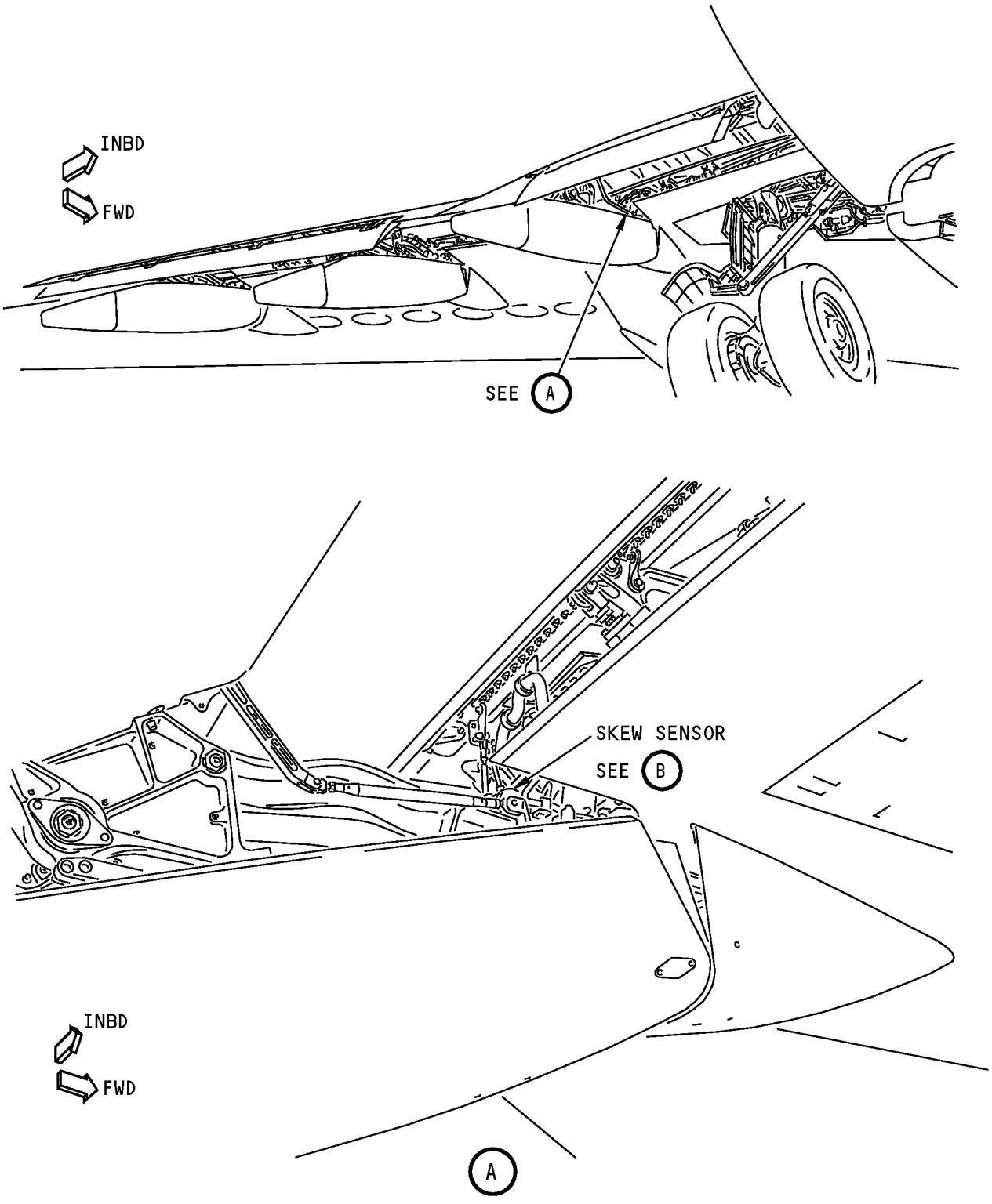

Inboard Flap Outboard Skew Sensor Installation
Figure 203 (Sheet 1 of 2)/27-59-01-990-803

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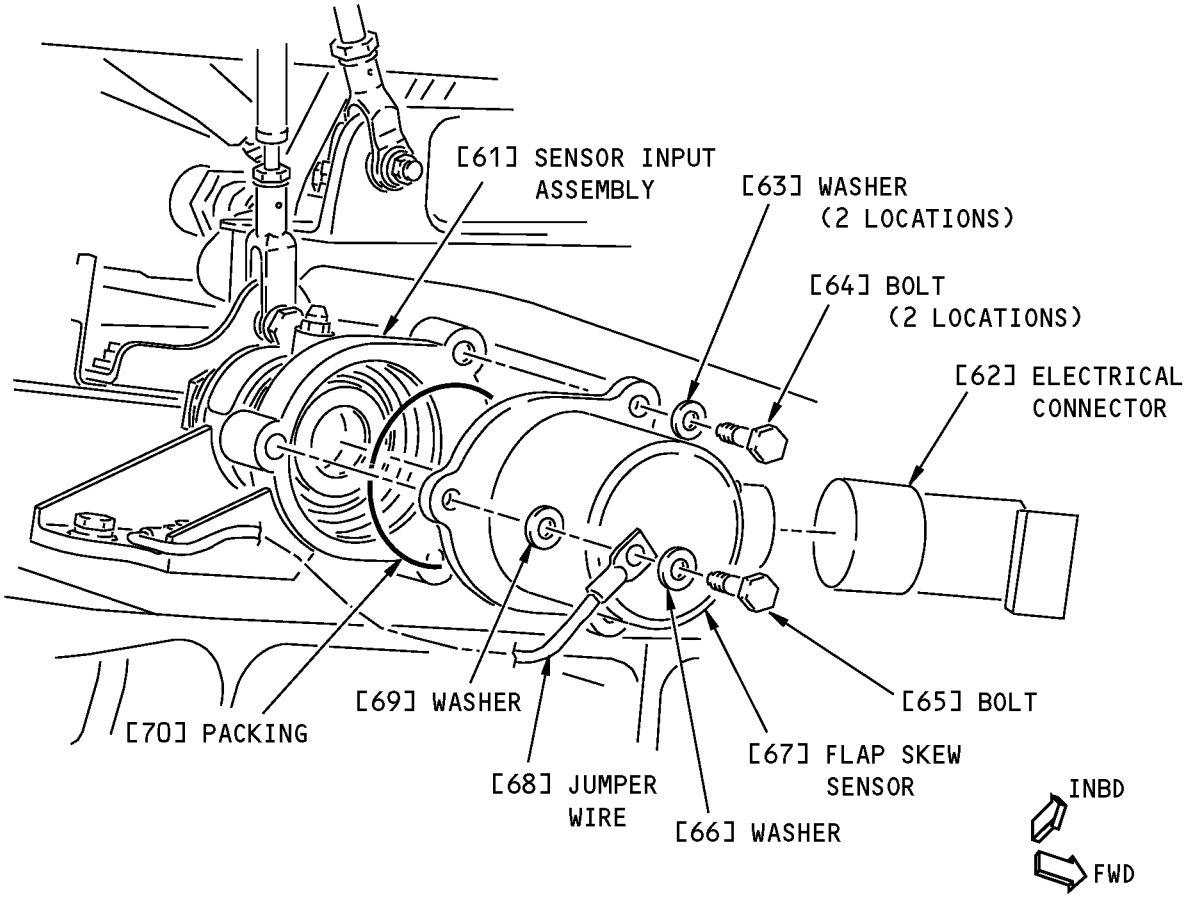

Inboard Flap Outboard Skew Sensor Installation
Figure 203 (Sheet 2 of 2)/27-59-01-990-803

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TASK 27-59-01-400-803

7. Inboard Flap Outboard Skew Sensor Installation

(Figure 203)

A. General

(1) This task is applicable to the flap skew sensors installed on flap supports No. 3 and 6.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-730-801	Flap Skew Detection System Functional Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

E. Procedure

SUBTASK 27-59-01-860-013

(1) Make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-420-005

(2) Install the flap skew sensor [67]:

(a) Apply grease, D00633 to the packing [70].

(b) Install the packing [70] on the flap skew sensor [67].

(c) Apply grease, D00633 to the shaft of the flap sensor [67] and the splines on the sensor input assembly [61].

(d) Apply a thin layer of compound, C00913 to the mating surface of the flap skew sensor [67] and the sensor input assembly [61].

(e) Engage the shaft on the flap skew sensor [67] with the sensor input assembly [61].

NOTE: The shaft has a missing tooth on the splines.

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(f) Engage the alignment pin on the sensor input assembly [61] with the hole in the flap skew sensor [67].

(g) Apply compound, C00913 to the shank and threads of the bolts [64].

(h) Install the bolts [64] and washers [63] to attach the flap skew sensor [67].

(i) Install the bolt [65], washer [66] and washer [69] to attach the jumper wire [68] to the flap skew sensor [67].

(j) Make sure the bonding resistance between the flap skew sensor [67] and the jumper wire [68] is less than 8 milliohms.

(k) Apply a bead of sealant, A02315 or sealant, A00247 to the head of the bolt [65].

SUBTASK 27-59-01-210-003

(3) Before you connect the electrical connector [62], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-59-01-420-006

(4) Connect the electrical connector [62] to the flap skew sensor [67].

SUBTASK 27-59-01-860-014

(5) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-440-003

(6) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-01-860-015

(7) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-01-730-003

(8) Do this task: Flap Skew Detection System Functional Test, TASK 27-59-00-730-801.

——————— END OF TASK ———————

TASK 27-59-01-000-804

8. Inboard Flap Inboard Skew Sensor Removal

(Figure 204)

A. General

(1) This task is applicable to the flap skew sensors installed on flap supports No. 4 and 5.

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B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

D. Procedure

SUBTASK 27-59-01-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-59-01-040-004

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-59-01-860-016

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-020-007

(4) Disconnect the electrical connector [93] from the flap skew sensor [100].

SUBTASK 27-59-01-020-008

(5) Remove the flap skew sensor [100]:

(a) Remove the bolt [99], washer [98] and washer [96] that attach the jumper wire [97] to the flap skew sensor [100].

(b) Remove the bolts [91] and washers [92] that attach the flap skew sensor [100] to the sensor input assembly [94].

(c) Remove the flap skew sensor [100] from the sensor input assembly [94].

———————— END OF TASK ————————

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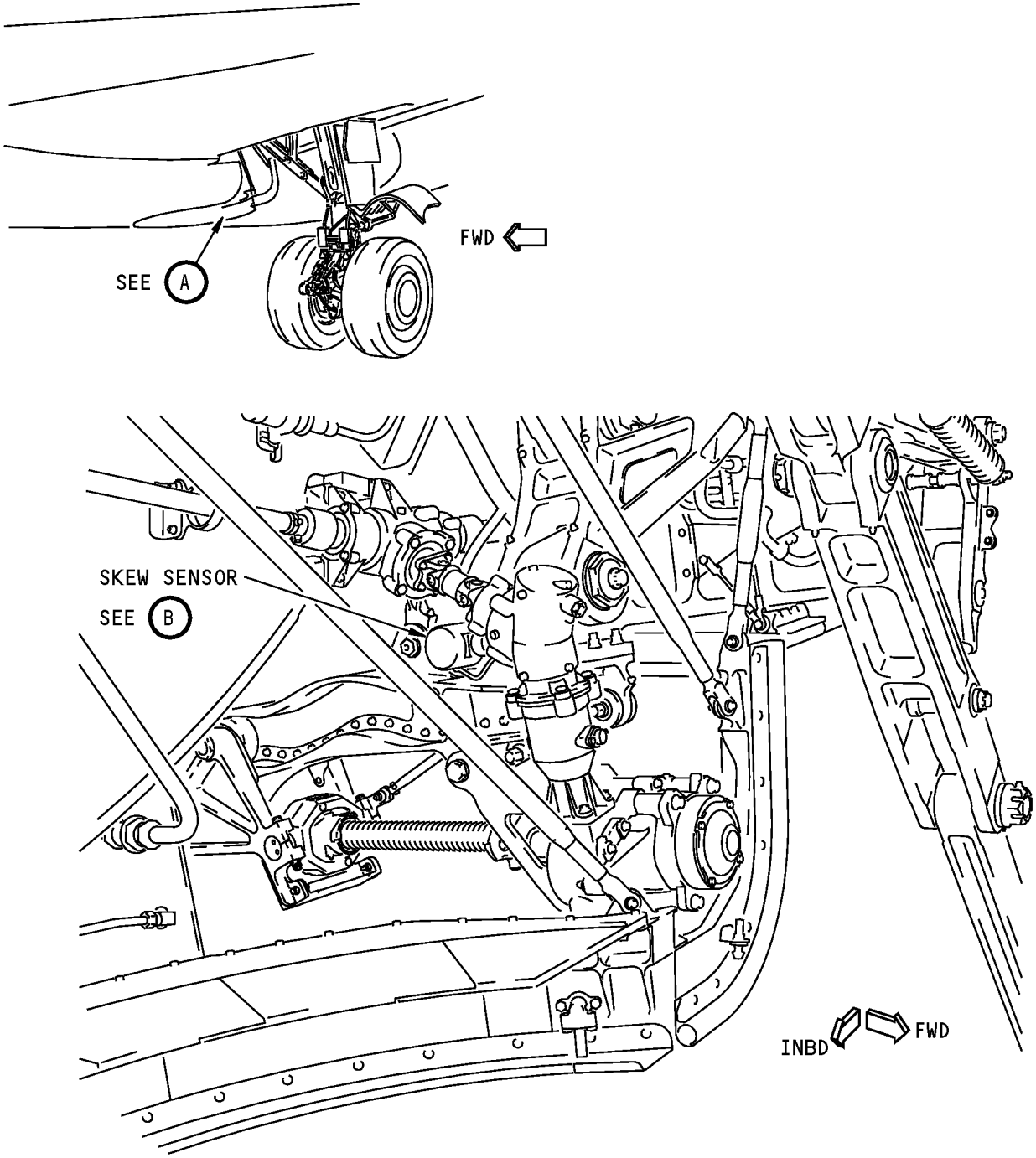

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

Inboard Flap Inboard Skew Sensor Installation
Figure 204 (Sheet 1 of 2)/27-59-01-990-804

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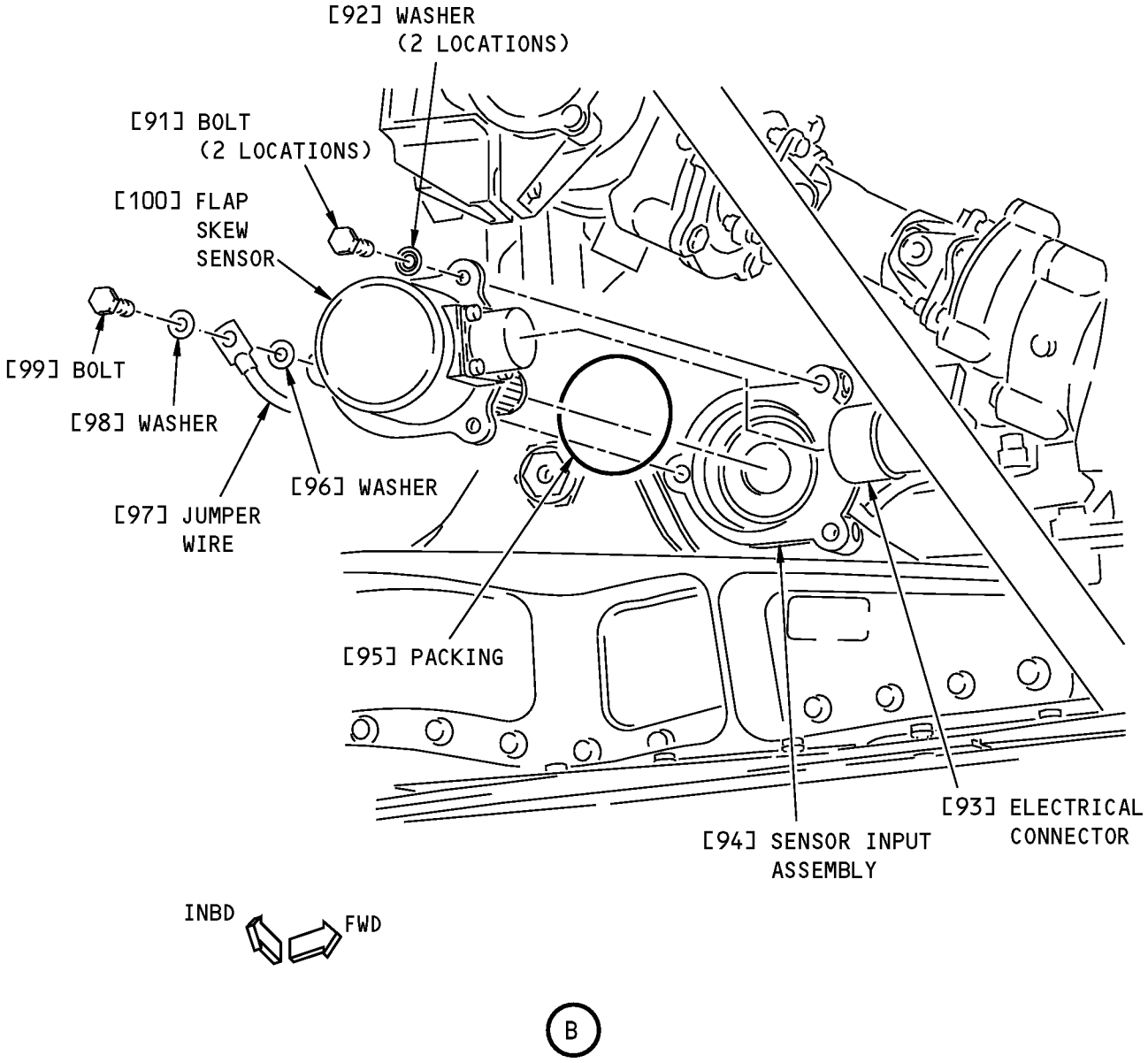

Inboard Flap Inboard Skew Sensor Installation
Figure 204 (Sheet 2 of 2)/27-59-01-990-804

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TASK 27-59-01-400-804

9. Inboard Flap Inboard Skew Sensor Installation

(Figure 204)

A. General

(1) This task is applicable to the flap skew sensors installed on flap supports No. 4 and 5.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-730-801	Flap Skew Detection System Functional Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
95	Packing	27-59-00-04-034	HAP ALL
100	Sensor	27-59-00-04-022	HAP ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

F. Procedure

SUBTASK 27-59-01-860-017

(1) Make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-420-007

(2) Install the flap skew sensor [100]:

(a) Apply grease, D00633 to the packing [95].

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(b) Install the packing [95] on the flap skew sensor [100].

(c) Apply grease, D00633 to the shaft of the flap skew sensor [100] and the splines on the sensor input assembly [94].

(d) Apply a thin layer of compound, C00913 to the mating surface of the flap skew sensor [100] and the sensor input assembly [94].

(e) Engage the shaft on the flap skew sensor [100] with the sensor input assembly [94].

NOTE: The shaft has a missing tooth on the splines.

(f) Engage the alignment pin on the sensor input assembly [94] with the hole in the flap skew sensor [100].

(g) Apply compound, C00913 to the shank and threads of the bolts [91].

(h) Install the bolts [91] and washers [92] to attach the flap skew sensor [100].

(i) Install the bolt [99], washer [98] and washer [96] to attach the jumper wire [97] to the flap skew sensor [100].

(j) Make sure the bonding resistance between the flap skew sensor [100] and the jumper wire [97] is less than 8 milliohms.

(k) Apply a bead of sealant, A02315 or sealant, A00247 to the head of the bolt [99].

SUBTASK 27-59-01-210-004

(3) Before you connect the electrical connector [93], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-59-01-420-008

(4) Connect the electrical connector [93] to the flap skew sensor [100].

SUBTASK 27-59-01-860-018

(5) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-01-440-004

(6) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-01-860-019

(7) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-01-730-004

(8) Do this task: Flap Skew Detection System Functional Test, TASK 27-59-00-730-801.

END OF TASK

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FLAP SKEW MECHANISM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal of the outboard flap skew mechanism for the outboard flap

(2) An installation of the outboard flap skew mechanism for the outboard flap

(3) A removal of the inboard flap skew mechanism for the outboard flap

(4) An installation of the inboard flap skew mechanism for the outboard flap

(5) A removal of the outboard flap skew mechanism for the inboard flap

(6) An installation of the outboard flap skew mechanism for the inboard flap

(7) A removal of the inboard flap skew mechanism for the inboard flap

(8) An installation of the inboard flap skew mechanism for the inboard flap.

B. There are eight flap skew mechanisms and sensors for the trailing edge flaps. One at each of the flap supports.

C. The flap skew mechanisms include a sensor input assembly and a control rod.

TASK 27-59-02-000-801

2. Outboard Flap Outboard Skew Mechanism Removal

(Figure 201)

A. General

(1) This task is applicable to the flap skew mechanisms installed on flap supports No. 1 and 8.

(2) You can remove the flap skew mechanism with the flap skew sensor [13] either removed or installed. This task shows the removal with the flap skew sensor [13] installed.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

D. Procedure

SUBTASK 27-59-02-860-001

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-59-02-040-001

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-59-02-860-002

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT

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Row	Col	Number	Name
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-02-020-001

(4) Disconnect the electrical connector [14] from the flap skew sensor [13].

SUBTASK 27-59-02-020-002

(5) Remove the nuts [20], washers [19], bushings [18], washers [17] and bolts [16] that attach the control rod [21] to the crank arm [15] and to the carriage [22].

SUBTASK 27-59-02-020-003

(6) Remove the sensor input assembly [2]:

(a) Remove the nut [7], washer [6], washer [5], washer [4] and bolt [3] that attach the sensor input assembly [2] and the jumper wire [8] to the flap track [1].

(b) Remove the nuts [12], washers [11], washers [10] and bolts [9] that attach the sensor input assembly [2] to the flap track [1].

(c) Remove the sensor input assembly [2] from the flap track [1].

———————— END OF TASK ————————

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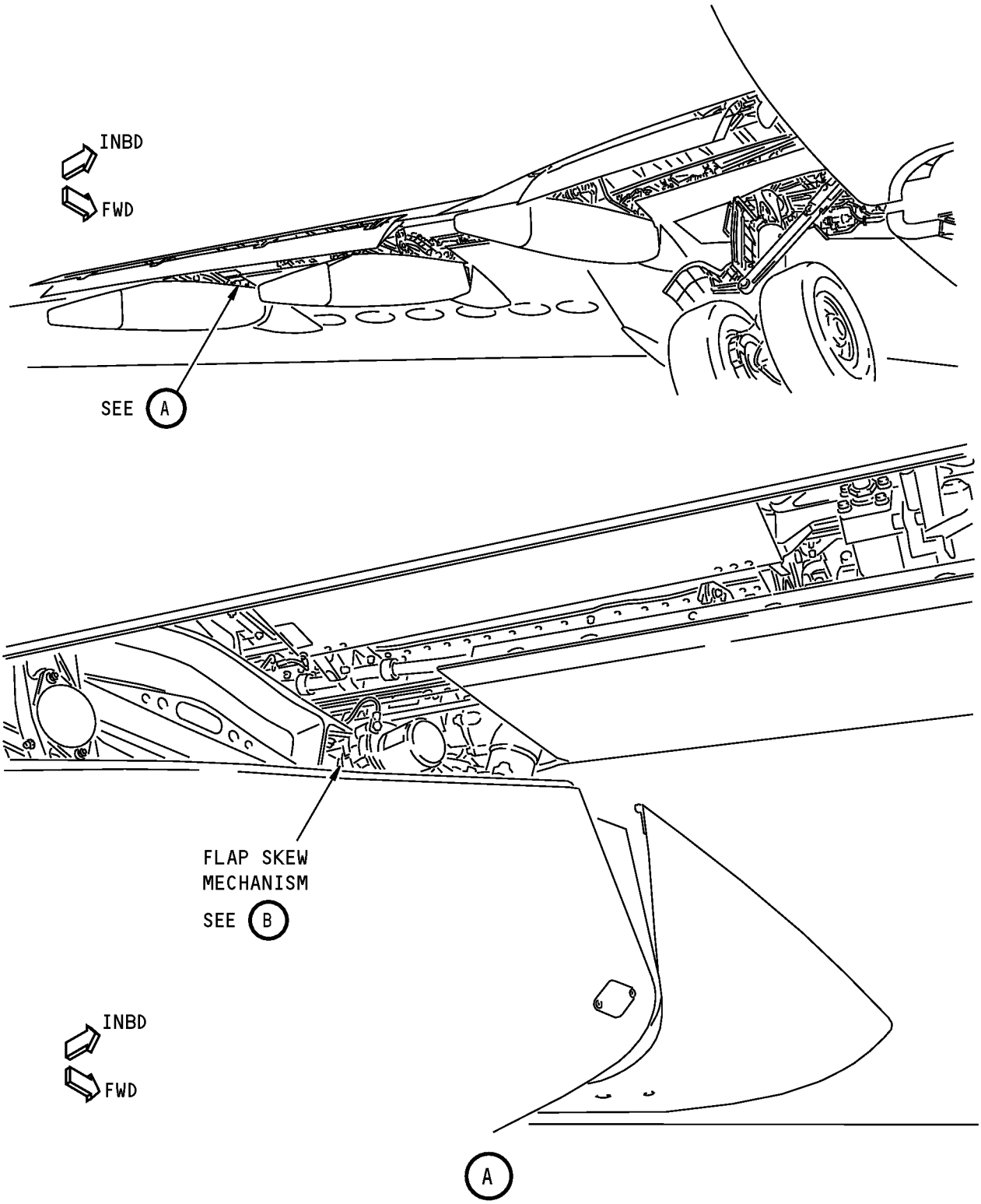

Outboard Flap Outboard Skew Mechanism Installation
Figure 201 (Sheet 1 of 2)/27-59-02-990-801

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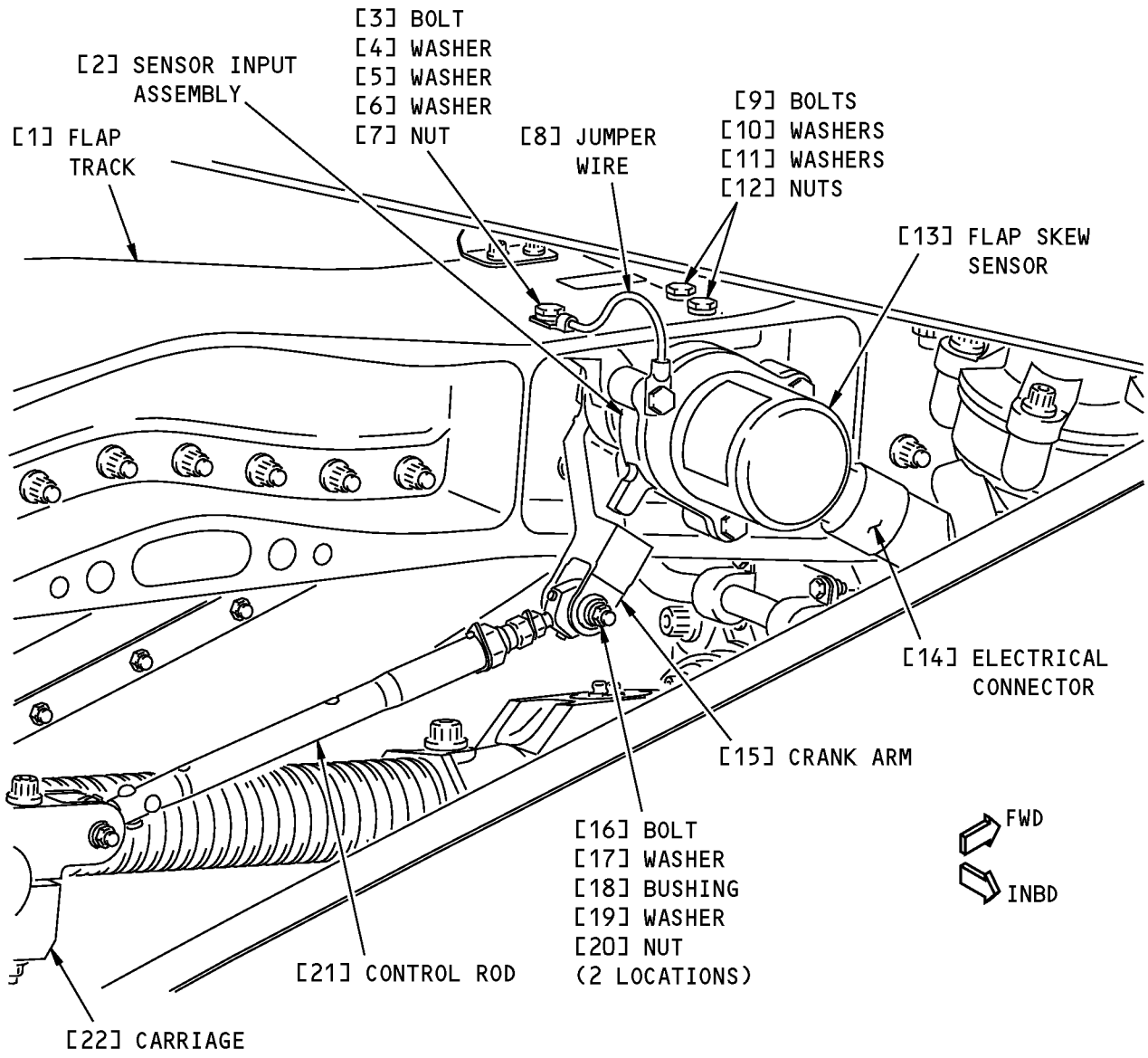

FLAP SKEW MECHANISM

B

Outboard Flap Outboard Skew Mechanism Installation
Figure 201 (Sheet 2 of 2)/27-59-02-990-801

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TASK 27-59-02-400-801

3. Outboard Flap Outboard Skew Mechanism Installation

(Figure 201)

A. General

(1) This task is applicable to the flap skew mechanisms installed on flap supports No. 1 and 8.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-730-801	Flap Skew Detection System Functional Test (P/B 501)
27-59-00-820-801	Flap Skew Detection System Adjustment (P/B 501)
27-59-01-400-801	Outboard Flap Outboard Skew Sensor Installation (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Input assembly	27-59-00-03-055	HAP ALL
		27-59-00-03-060	HAP ALL

E. Location Zones

Zone	Area
544	Left Wing - Fairing Flap Support No. 1
644	Right Wing - Fairing Flap Support No. 8

F. Procedure

SUBTASK 27-59-02-860-003

(1) Make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-02-420-001

(2) Install the sensor input assembly [2]:

(a) Apply a layer of compound, C00913 to the mating surface of the sensor input assembly [2] and the flap track [1].

(b) Apply compound, C00913 to the shank and threads of the bolts [9].

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(c) Put the sensor input assembly [2] in its location on the flap track [1].

(d) Install the bolts [9], washers [10], washers [11] and nuts [12] that attach the sensor input assembly [2] to the flap track [1].

(e) Install the bolt [3], washer [4], washer [5], washer [6] and nut [7] to attach the jumper wire [8] and the sensor input assembly [2] to the flap track [1].

NOTE: Install the washer [5] under the jumper wire [8].

(f) Make sure the bonding resistance between the flap track [1] and the jumper wire [8] is less than 8 milliohms.

(g) Apply a bead of sealant, A02315 or sealant, A00247 around the bolt [3] and the nut [7].

SUBTASK 27-59-02-420-002

(3) Install the control rod [21]:

(a) Apply compound, C00913 to the shank and threads of the bolts [16].

(b) Put the control rod [21] in its position between the carriage [22] and the crank arm [15].

NOTE: Make sure the adjustable end of the control rod [21] attaches to the crank arm [15].

(c) Install the bolts [16], washers [17], bushings [18], washers [19] and nuts [20] to attach the control rod [21].

NOTE: Install the bolts [16] with the heads toward the center of the flap track [1].

SUBTASK 27-59-02-820-001

(4) Do this task: Flap Skew Detection System Adjustment, TASK 27-59-00-820-801.

SUBTASK 27-59-02-420-003

(5) If the flap skew sensor [13] is not installed, do this task: Outboard Flap Outboard Skew Sensor Installation, TASK 27-59-01-400-801.

SUBTASK 27-59-02-210-001

(6) Before you connect the electrical connector [14], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-59-02-420-004

(7) Connect the electrical connector [14] to the flap skew sensor [13].

SUBTASK 27-59-02-860-004

(8) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-02-440-001

(9) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-59-02-860-005

(10) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-02-730-001

(11) Do this task: Flap Skew Detection System Functional Test, TASK 27-59-00-730-801.

——————— END OF TASK ———————

TASK 27-59-02-000-802

4. Outboard Flap Inboard Skew Mechanism Removal

(Figure 202)

A. General

(1) This task is applicable to the flap skew mechanisms installed on flap supports No. 2 and 7.

(2) You can remove the flap skew mechanism with the flap skew sensor [53] either removed or installed. This task shows the removal with the flap skew sensor [53] installed.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

D. Procedure

SUBTASK 27-59-02-860-006

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-59-02-040-002

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-59-02-860-007

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-02-020-004

(4) Disconnect the electrical connector [54] from the flap skew sensor [53].

SUBTASK 27-59-02-020-005

(5) Remove the nuts [60], washers [59], bushings [58], washers [57] and bolts [56] that attach the control rod [61] to the crank arm [55] and to the carriage [62].

SUBTASK 27-59-02-020-006

(6) Remove the sensor input assembly [42]:

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(a) Remove the nut [47], washer [46], washer [45], washer [44] and bolt [43] that attach the sensor input assembly [42] and the jumper wire [48] to the flap track [48].

(b) Remove the nuts [52], washers [51], washers [50] and bolts [49] that attach the sensor input assembly [42] to the flap track [41].

(c) Remove the sensor input assembly [42] from the flap track [41].

——————— END OF TASK ———————

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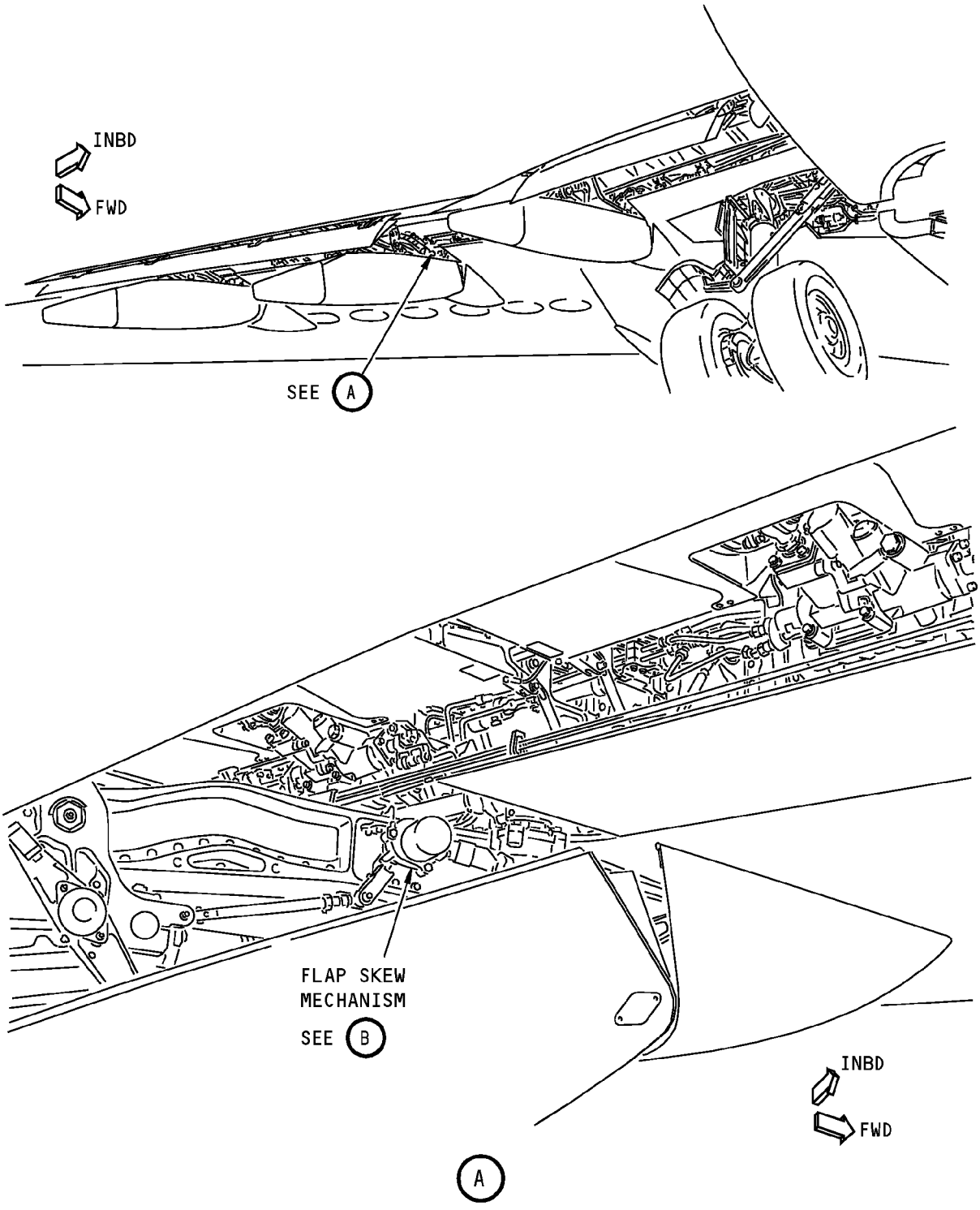

Outboard Flap Inboard Skew Mechanism Installation
Figure 202 (Sheet 1 of 2)/27-59-02-990-802

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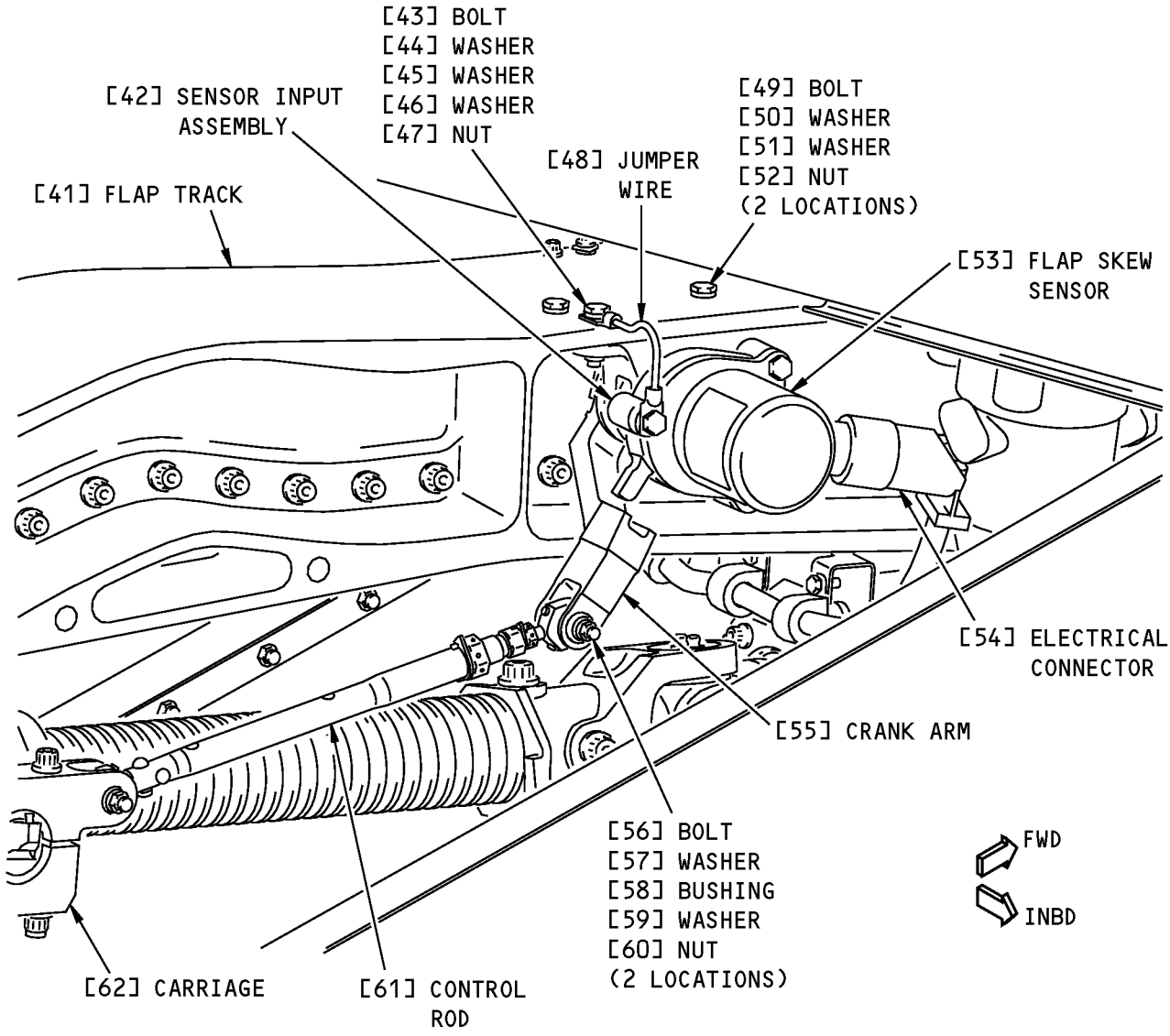

FLAP SKEW MECHANISM

B

Outboard Flap Inboard Skew Mechanism Installation
Figure 202 (Sheet 2 of 2)/27-59-02-990-802

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TASK 27-59-02-400-802

5. Outboard Flap Inboard Skew Mechanism Installation

(Figure 202)

A. General

(1) This task is applicable to the flap skew mechanisms installed on flap supports No. 2 and 7.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-730-801	Flap Skew Detection System Functional Test (P/B 501)
27-59-00-820-801	Flap Skew Detection System Adjustment (P/B 501)
27-59-01-400-802	Outboard Flap Inboard Skew Sensor Installation (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
42	Input assembly	27-59-00-10-050	HAP ALL
		27-59-00-10-055	HAP ALL

E. Location Zones

Zone	Area
543	Left Wing - Fairing Flap Support No. 2
643	Right Wing - Fairing Flap Support No. 7

F. Procedure

SUBTASK 27-59-02-860-008

(1) Make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-02-420-005

(2) Install the sensor input assembly [42]:

(a) Apply a layer of compound, C00913 to the mating surface of the sensor input assembly [42] and the flap track [41].

(b) Apply compound, C00913 to the shank and threads of the bolts [49].

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(c) Put the sensor input assembly [42] in its location on the flap track [41].

(d) Install the bolts [49], washers [50], washers [51] and nuts [52] that attach the sensor input assembly [42] to the flap track [41].

(e) Install the bolt [43], washer [44], washer [45], washer [46] and nut [47] to attach the jumper wire [48] and the sensor input assembly [42] to the flap track [41].

NOTE: Install the washer [45] under the jumper wire [48].

(f) Make sure the bonding resistance between the flap track [41] and the jumper wire [48] is less than 8 milliohms.

(g) Apply a bead of sealant, A02315 or sealant, A00247 around the bolt [43] and the nut [47].

SUBTASK 27-59-02-420-006

(3) Install the control rod [61]:

(a) Apply compound, C00913 to the shank and threads of the bolts [56].

(b) Put the control rod [61] in its position between the carriage [62] and the crank arm [55].

NOTE: Make sure the adjustable end of the control rod [61] attaches to the crank arm [55].

(c) Install the bolts [56], washers [57], bushings [58], washers [59] and nuts [60] to attach the control rod [61].

NOTE: Install the bolts [56] with the heads toward the center of the flap track [41].

SUBTASK 27-59-02-820-002

(4) Do this task: Flap Skew Detection System Adjustment, TASK 27-59-00-820-801.

SUBTASK 27-59-02-420-007

(5) If the flap skew sensor [53] is not installed, do this task: Outboard Flap Inboard Skew Sensor Installation, TASK 27-59-01-400-802.

SUBTASK 27-59-02-210-002

(6) Before you connect the electrical connector [54], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-59-02-420-008

(7) Connect the electrical connector [54] to the flap skew sensor [53].

SUBTASK 27-59-02-860-009

(8) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-02-440-002

(9) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

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SUBTASK 27-59-02-860-010

(10) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-02-730-002

(11) Do this task: Flap Skew Detection System Functional Test, TASK 27-59-00-730-801.

——————— END OF TASK ———————

TASK 27-59-02-000-803

6. Inboard Flap Outboard Skew Mechanism Removal

(Figure 203)

A. General

(1) This task is applicable to the flap skew mechanisms installed on flap supports No. 3 and 6.

(2) You can remove the flap skew mechanism with the flap skew sensor [83] either removed or installed. This task shows the removal with the flap skew sensor [83] installed.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)

C. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

D. Procedure

SUBTASK 27-59-02-860-011

(1) Extend the trailing edge flaps to the 40-unit position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-59-02-040-003

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-59-02-860-012

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-02-020-007

(4) Disconnect the electrical connector [82] from the flap skew sensor [83].

SUBTASK 27-59-02-020-008

(5) Remove the nuts [97], washers [96], bushings [95], washers [94] and bolts [93] that attach the control rod [92] to the crank arm [98] and to the carriage [91].

SUBTASK 27-59-02-020-009

(6) Remove the sensor input assembly [81]:

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(a) Remove the nut [89], washer [88], washer [87], washer [86] and bolt [85] that attach the sensor input assembly [81] and the jumper wire [84] to the flap track [90].

(b) Remove the nuts [102], washers [101], washers [100] and bolts [99] that attach the sensor input assembly [81] to the flap track [90].

(c) Remove the sensor input assembly [81] from the flap track [90].

——————— END OF TASK ———————

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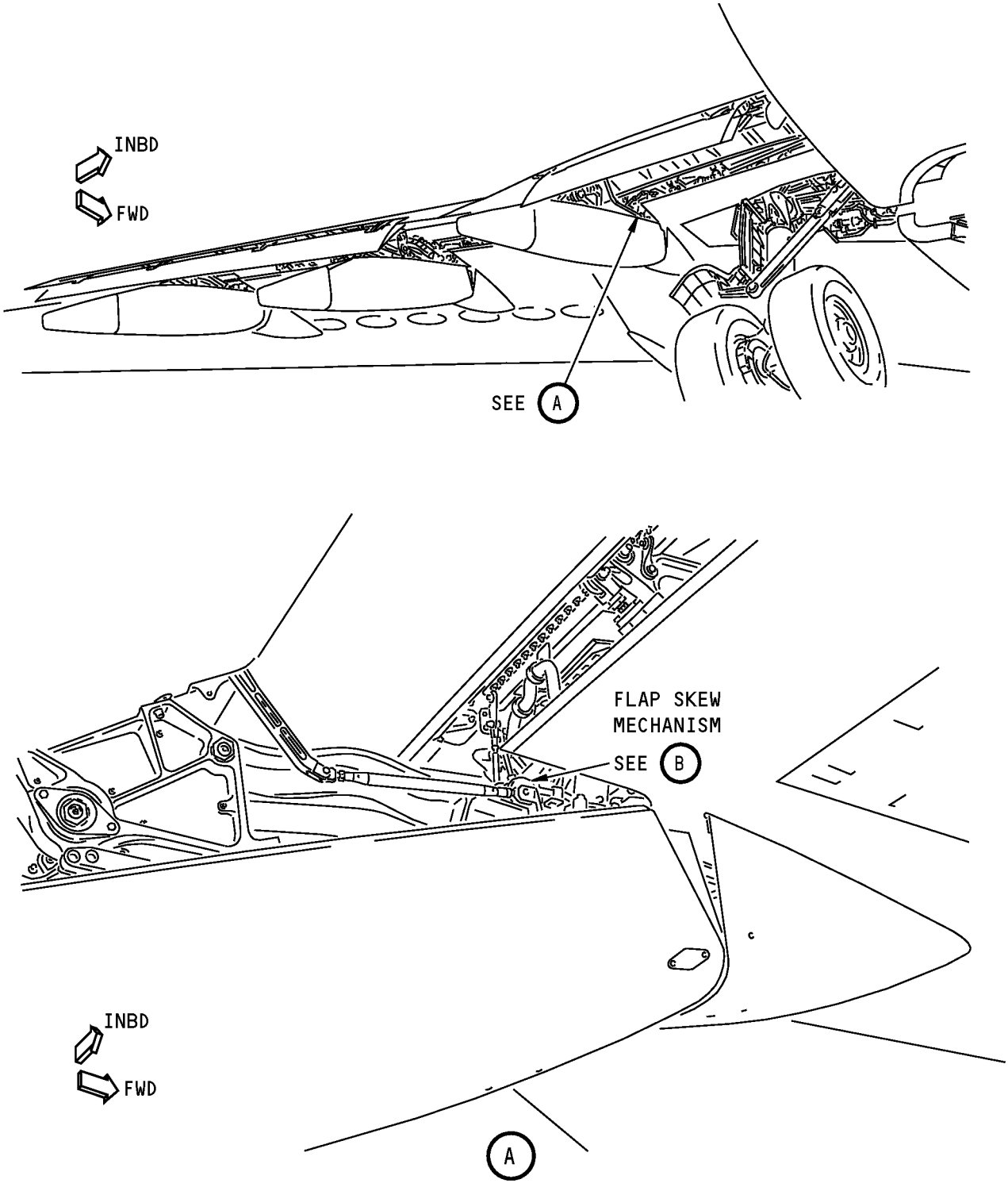

Inboard Flap Outboard Skew Mechanism Installation
Figure 203 (Sheet 1 of 2)/27-59-02-990-803

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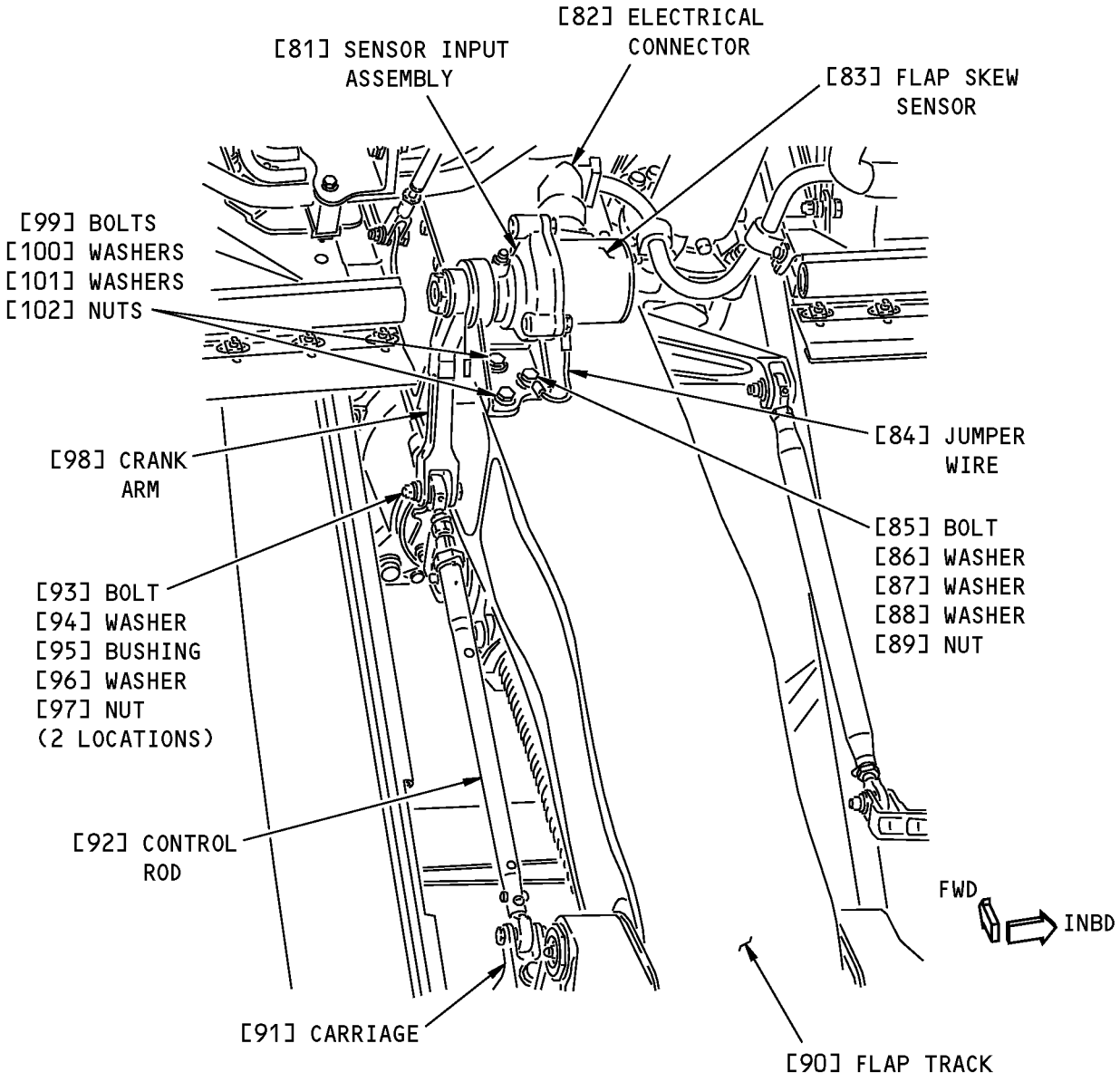

FLAP SKEW MECHANISM

B

Inboard Flap Outboard Skew Mechanism Installation
Figure 203 (Sheet 2 of 2)/27-59-02-990-803

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TASK 27-59-02-400-803

7. Inboard Flap Outboard Skew Mechanism Installation

(Figure 203)

A. General

(1) This task is applicable to the flap skew mechanisms installed on flap supports No. 3 and 6.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-730-801	Flap Skew Detection System Functional Test (P/B 501)
27-59-00-820-801	Flap Skew Detection System Adjustment (P/B 501)
27-59-01-400-803	Inboard Flap Outboard Skew Sensor Installation (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
81	Input assembly	27-59-00-02-060	HAP ALL
		27-59-00-02-065	HAP ALL

E. Location Zones

Zone	Area
542	Left Wing - Fairing Flap Support No. 3
642	Right Wing - Fairing Flap Support No. 6

F. Procedure

SUBTASK 27-59-02-860-013

(1) Make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-02-420-009

(2) Install the sensor input assembly [81]:

(a) Apply a layer of compound, C00913 to the mating surface of the sensor input assembly [81] and the flap track [90].

(b) Apply compound, C00913 to the shank and threads of the bolts [99].

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(c) Put the sensor input assembly [81] in its location on the flap track [90].

(d) Install the bolts [99], washers [100], washers [101] and nuts [102] that attach the sensor input assembly [81] to the flap track [90].

(e) Install the bolt [85], washer [86], washer [87], washer [88] and nut [89] to attach the jumper wire [84] and the sensor input assembly [81] to the flap track [90].

NOTE: Install the washer [87] under the jumper wire [84].

(f) Make sure the bonding resistance between the flap track [90] and the jumper wire [84] is less than 8 milliohms.

(g) Apply a bead of sealant, A02315 or sealant, A00247 around the bolt [85] and the nut [89].

SUBTASK 27-59-02-420-010

(3) Install the control rod [92]:

(a) Apply compound, C00913 to the shank and threads of the bolts [93].

(b) Put the control rod [92] in its position between the carriage [91] and the crank arm [98].

NOTE: Make sure the adjustable end of the control rod [92] attaches to the crank arm [98].

(c) Install the bolts [93], washers [94], bushings [95], washers [96] and nuts [97] to attach the control rod [92].

NOTE: Install the bolt [93] that attaches the control rod [92] to the crank arm with the head toward the center of the flap track [90]. Install the bolt [93] that attaches the control rod [92] to the carriage [91] with the head away from the center of the flap track [90].

SUBTASK 27-59-02-820-003

(4) Do this task: Flap Skew Detection System Adjustment, TASK 27-59-00-820-801.

SUBTASK 27-59-02-420-011

(5) If the flap skew sensor [83] is not installed, do this task: Inboard Flap Outboard Skew Sensor Installation, TASK 27-59-01-400-803.

SUBTASK 27-59-02-210-003

(6) Before you connect the electrical connector [82], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-59-02-420-012

(7) Connect the electrical connector [82] to the flap skew sensor [83].

SUBTASK 27-59-02-860-014

(8) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

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SUBTASK 27-59-02-440-003

(9) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-02-860-015

(10) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-02-730-003

(11) Do this task: Flap Skew Detection System Functional Test, TASK 27-59-00-730-801.

——————— END OF TASK ———————

TASK 27-59-02-000-804

8. Inboard Flap Inboard Skew Mechanism Removal

(Figure 204)

A. General

(1) This task is applicable to the flap skew mechanisms installed on flap supports No. 4 and 5.

(2) You can remove the flap skew mechanism with the flap skew sensor [121] either removed or installed. This task shows the removal with the flap skew sensor [121] installed.

B. References

Reference	Title
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

D. Procedure

SUBTASK 27-59-02-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-59-02-040-004

(2) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-59-02-860-016

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

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SUBTASK 27-59-02-020-010

(4) Disconnect the electrical connector [123] from the flap skew sensor [121].

SUBTASK 27-59-02-020-011

(5) Remove the nuts [134], washers [133], bushings [132], washers [131] and bolts [130] that attach the control rod [129] to the crank arm [137] and to the carriage [135].

SUBTASK 27-59-02-020-012

(6) If the flap skew sensor [121] is installed, remove the bolt [138], washer [139] and washer [140] that attach the jumper wire [128] to the flap skew sensor [121].

SUBTASK 27-59-02-020-013

(7) Remove the sensor input assembly [122]:

(a) Remove the nuts [127], washers [126], washers [125] and bolts [124] that attach the sensor input assembly [122] to the flap track [136].

(b) Remove the sensor input assembly [122] from the flap track [136].

——————— END OF TASK ———————

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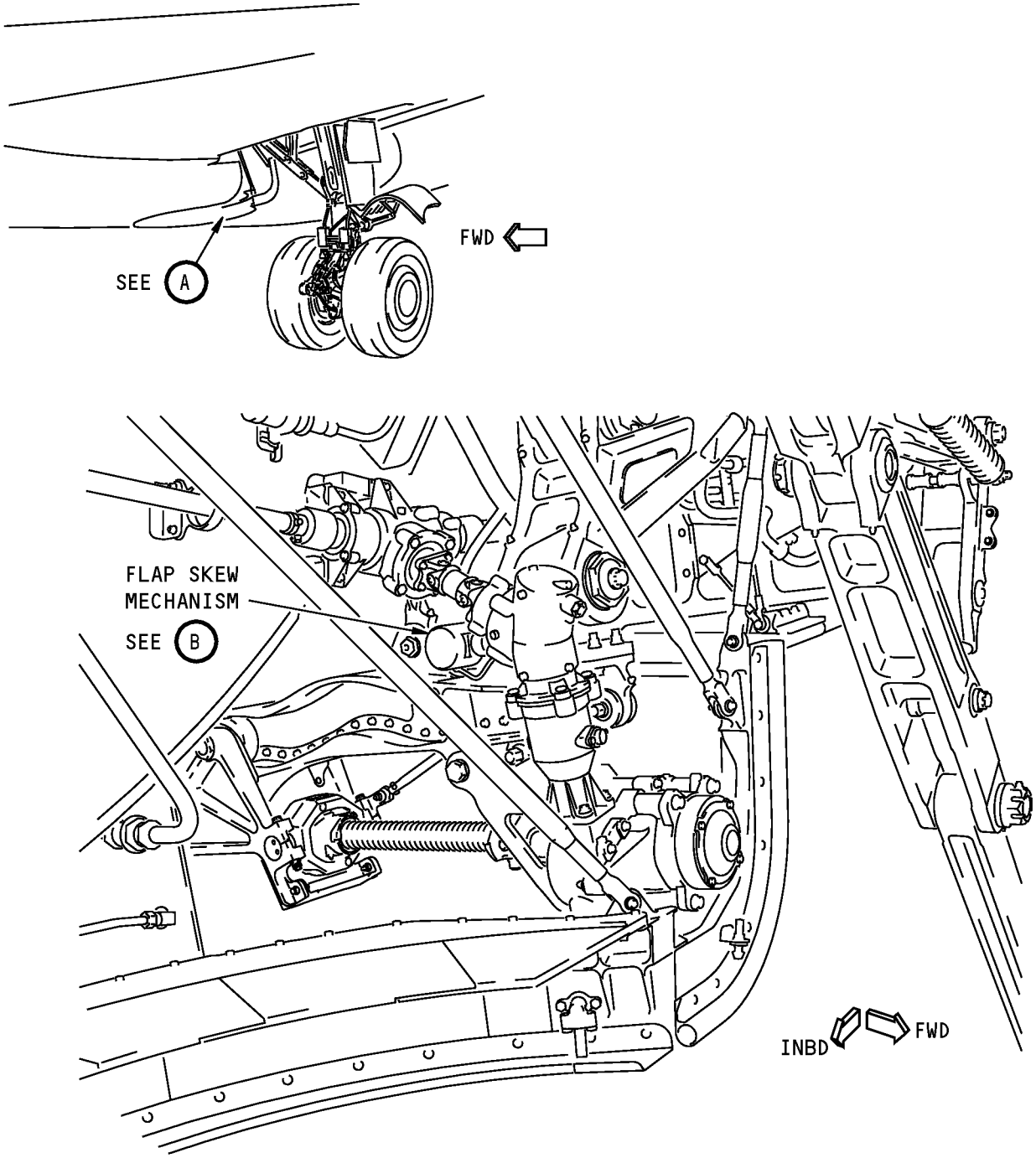

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

Inboard Flap Inboard Skew Mechanism Installation
Figure 204 (Sheet 1 of 2)/27-59-02-990-804

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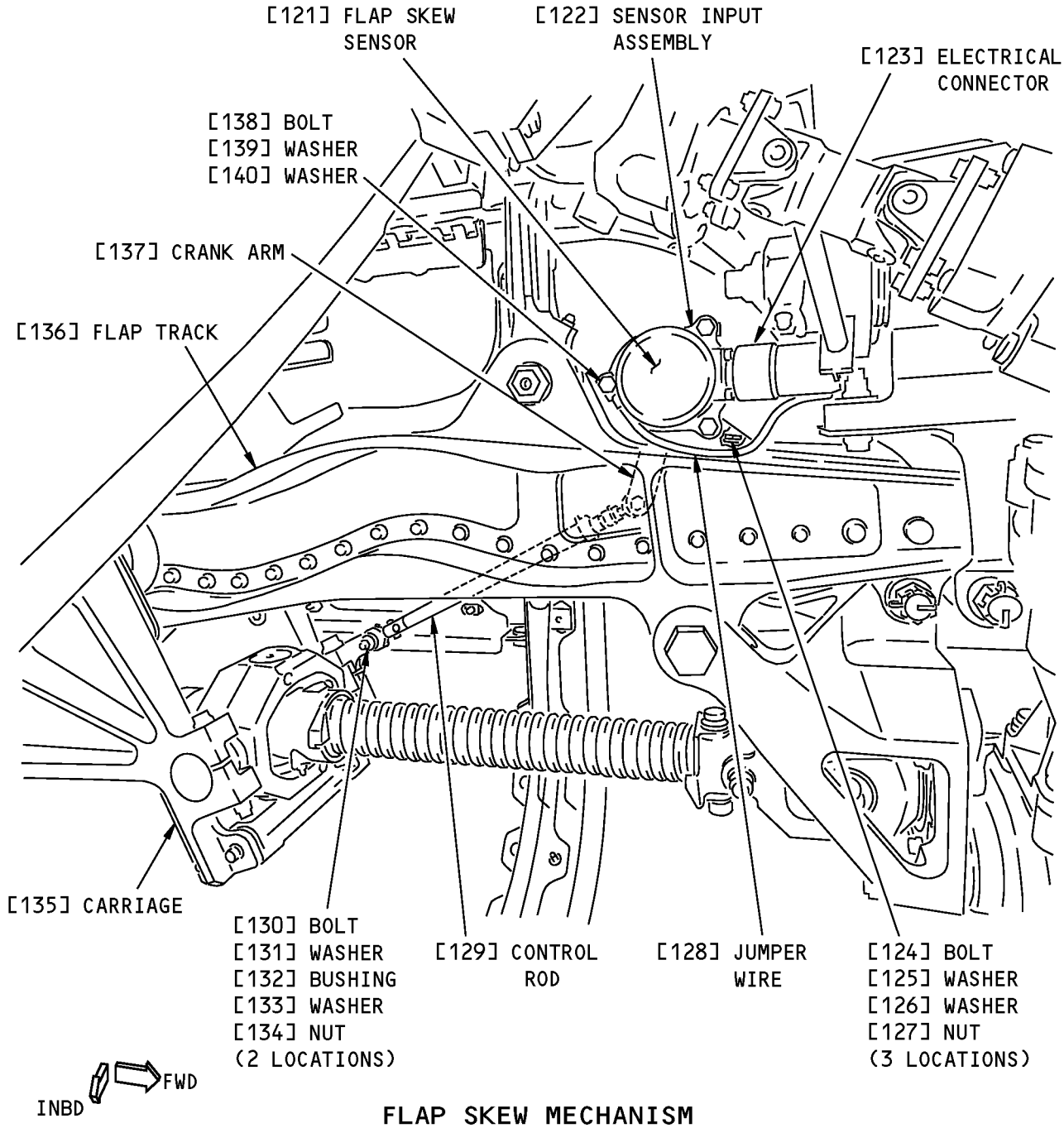

Inboard Flap Inboard Skew Mechanism Installation
Figure 204 (Sheet 2 of 2)/27-59-02-990-804

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TASK 27-59-02-400-804

9. Inboard Flap Inboard Skew Mechanism Installation

(Figure 204)

A. General

(1) This task is applicable to the flap skew mechanisms installed on flap supports No. 4 and 5.

B. References

Reference	Title
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-59-00-730-801	Flap Skew Detection System Functional Test (P/B 501)
27-59-00-820-801	Flap Skew Detection System Adjustment (P/B 501)
27-59-01-400-804	Inboard Flap Inboard Skew Sensor Installation (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
122	Sensor input assembly	27-59-00-04-022	HAP ALL
		27-59-00-04-024	HAP ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
541	Left Wing - Fairing Flap Support No. 4
641	Right Wing - Fairing Flap Support No. 5

F. Procedure

SUBTASK 27-59-02-860-017

(1) Make sure that these circuit breakers are open:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-02-420-013

(2) Install the sensor input assembly [122]:

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(a) Apply a layer of compound, C00913 to the mating surface of the sensor input assembly [122] and the flap track [136].

(b) Apply compound, C00913 to the shank and threads of the bolts [124].

(c) Put the sensor input assembly [122] in its location on the flap track [136].

(d) Install the bolts [124], washers [125], washers [126] and nuts [127] that attach the sensor input assembly [122] to the flap track [136].

SUBTASK 27-59-02-420-014

(3) Install the control rod [129]:

(a) Apply compound, C00913 to the shank and threads of the bolts [130].

(b) Put the control rod [129] in its position between the carriage [135] and the crank arm [137].

NOTE: Make sure the adjustable end of the control rod [129] attaches to the crank arm [137].

(c) Install the bolts [130], washers [131], bushings [132], washers [133] and nuts [134] to attach the control rod [129].

NOTE: Install the bolt [130] that attaches the control rod [129] to the carriage [135] with the head away from the center of the flap track [136]. You can install the bolt [130] that attaches the control rod [129] to the crank arm [137] with the head in either direction.

SUBTASK 27-59-02-820-004

(4) Do this task: Flap Skew Detection System Adjustment, TASK 27-59-00-820-801.

SUBTASK 27-59-02-020-014

(5) If the flap skew sensor [121] is installed, connect the jumper wire [128] to the flap skew sensor [121].

(a) Install the bolt [138], washer [139] and washer [140] to attach the jumper wire [128] to the flap skew sensor [121].

(b) Make sure the bonding resistance between the flap skew sensor [121] and the jumper wire [128] is less than 8 milliohms.

(c) Apply a bead of sealant, A02315 or sealant, A00247 to the head of the bolt [138].

SUBTASK 27-59-02-420-015

(6) If the flap skew sensor [121] is not installed, do this task: Inboard Flap Inboard Skew Sensor Installation, TASK 27-59-01-400-804.

SUBTASK 27-59-02-210-004

(7) Before you connect the electrical connector [123], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

SUBTASK 27-59-02-420-016

(8) Connect the electrical connector [123] to the flap skew sensor [121].

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SUBTASK 27-59-02-860-018

(9) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT

SUBTASK 27-59-02-440-004

(10) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-59-02-860-019

(11) Retract the trailing edge flaps to the UP position. To retract the flaps, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-59-02-730-004

(12) Do this task: Flap Skew Detection System Functional Test, TASK 27-59-00-730-801.

END OF TASK

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SPOILER CONTROL SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Spoiler Hydraulic Systems A and B Pressurization

(2) Put the Spoiler Hydraulic Systems A and B Back to the Condition before the Pressurization

(3) Remove Pressure from the Spoiler Hydraulic Systems A and B

(4) Put the Spoiler Hydraulic Systems A and B Back to the Condition before the Pressure Removal

B. Hydraulic systems A, B must have pressure removed before maintenance is done on the spoiler control system. This is to prevent injury to persons because of accidental operation of the control system while you do maintenance. You must be careful to put maintenance stands and equipment away from control surface travel.

C. Electric pump 1 pressurizes the hydraulic system B and electric pump 2 pressurizes the hydraulic system A. Electric pump 1 heat exchanger is installed in the fuel tank 2. Electric pump 2 heat exchanger is installed in the fuel tank 1.

D. This procedure operates the electric hydraulic system A or B pumps to pressurize the hydraulic systems A and B. Pressurization of the hydraulic systems with the engine-driven hydraulic pumps is not included in this procedure.

TASK 27-61-00-800-801

2. Spoiler Hydraulic Systems A and B Pressurization

(Figure 201)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 27-61-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-00-860-055

CAUTION: DO NOT OPERATE THE SYSTEM A OR B HYDRAULIC PUMPS FOR MORE THAN TWO MINUTES WITHOUT FUEL IN THE FUEL TANKS. THE NO. 1 (FOR SYSTEM A) AND NO. 2 (FOR SYSTEM B) FUEL TANKS MUST HAVE A MINIMUM OF 250 GALLONS (1675 POUNDS/760 KILOGRAMS) OF FUEL IN THEM. IF THERE IS NOT SUFFICIENT FUEL IN THE FUEL TANKS, THE HYDRAULIC SYSTEMS WILL BECOME TOO HOT.

(2) Make sure the No. 1 and No. 2 fuel tanks each have 250 gallons (1675 pounds/760 kilograms) of fuel in them.

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SUBTASK 27-61-00-210-001

(3) Make sure the hydraulic reservoirs are full. To fill it, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 27-61-00-860-002

(4) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 27-61-00-860-003

(5) Set the parking brake.

SUBTASK 27-61-00-480-001

WARNING: MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR BEFORE YOU PRESSURIZE THE HYDRAULIC SYSTEMS. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Install the ground lock assemblies in the nose gear. To install them, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-61-00-860-004

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Pressurize the spoiler hydraulic systems A and B:

(a) Set the ELEC 2, HYD PUMPS A or ELEC 1, HYD PUMPS B switch on the forward overhead panel to the ON position.

(b) To pressurize the hydraulic system A, set the SPOILER A switch on the forward overhead panel to the ON position.

(c) To pressurize the hydraulic system B, set the SPOILER B switch on the forward overhead panel to the ON position.

———————— END OF TASK ————————

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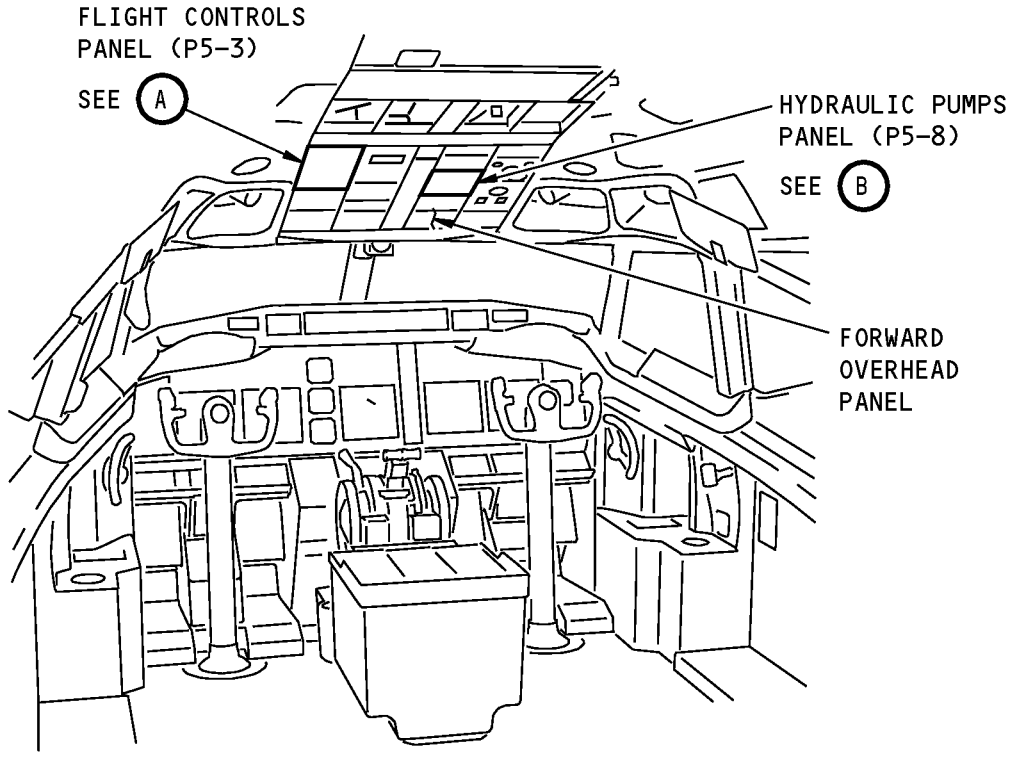
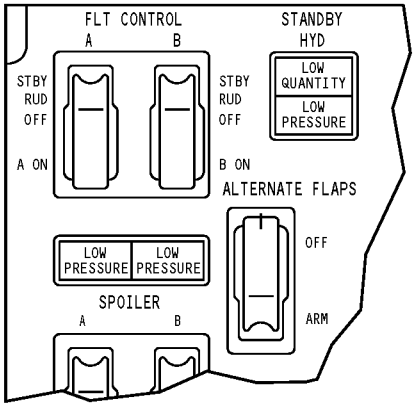
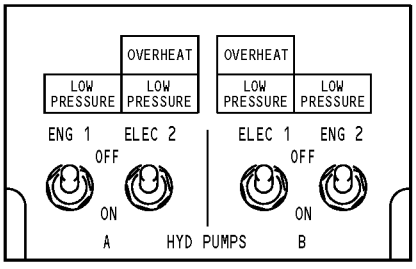


FLIGHT COMPARTMENT



FLIGHT CONTROLS PANEL (P5-3)

A



HYDRAULIC PUMPS PANEL (P5-8)

B

Spoiler Power Control Switches
Figure 201/27-61-00-990-801

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TASK 27-61-00-840-801

3. Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization

(Figure 201)

A. References

Reference	Title
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 27-61-00-860-005

(1) Set the ELEC 2, HYD PUMPS A and the ELEC 1, HYD PUMPS B switches on the forward overhead panel to the OFF position.

SUBTASK 27-61-00-860-006

(2) Set the SPOILER A and B switches on the forward overhead panel to the OFF position.

SUBTASK 27-61-00-080-001

(3) Remove the ground lock assemblies from the nose gear. To remove them, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

———————— END OF TASK ————————

TASK 27-61-00-800-802

4. Remove Pressure from the Spoiler Hydraulic Systems A and B

(Figure 201, Figure 202)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Procedure

SUBTASK 27-61-00-860-007

(1) Set the SPOILER A and B switches on the forward overhead panel to the OFF position.

SUBTASK 27-61-00-860-008

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 27-61-00-860-009

(3) Set the ELEC 2, HYD PUMPS A and the ELEC 1, HYD PUMPS B switches on the forward overhead panel to the OFF position.

SUBTASK 27-61-00-870-001

(4) Operate the rudder pedals to decrease the remaining hydraulic system pressure.

SUBTASK 27-61-00-860-010

(5) If it is necessary to open a hydraulic line, you must release pressure from the reservoir for the applicable hydraulic system. To release it, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-61-00-480-002

(6) Install the flight controls hydraulic module locks (Figure 202):

(a) Disconnect the electrical connector from the spoiler shutoff valve at the flight controls hydraulic modules A and B.

(b) Put the manual override lever at the two spoiler shutoff valves in the position 2 (OFF position).

(c) Install the lock, SPL-1675 on the two spoiler shutoff valves.

1) Install the lockpins.

END OF TASK

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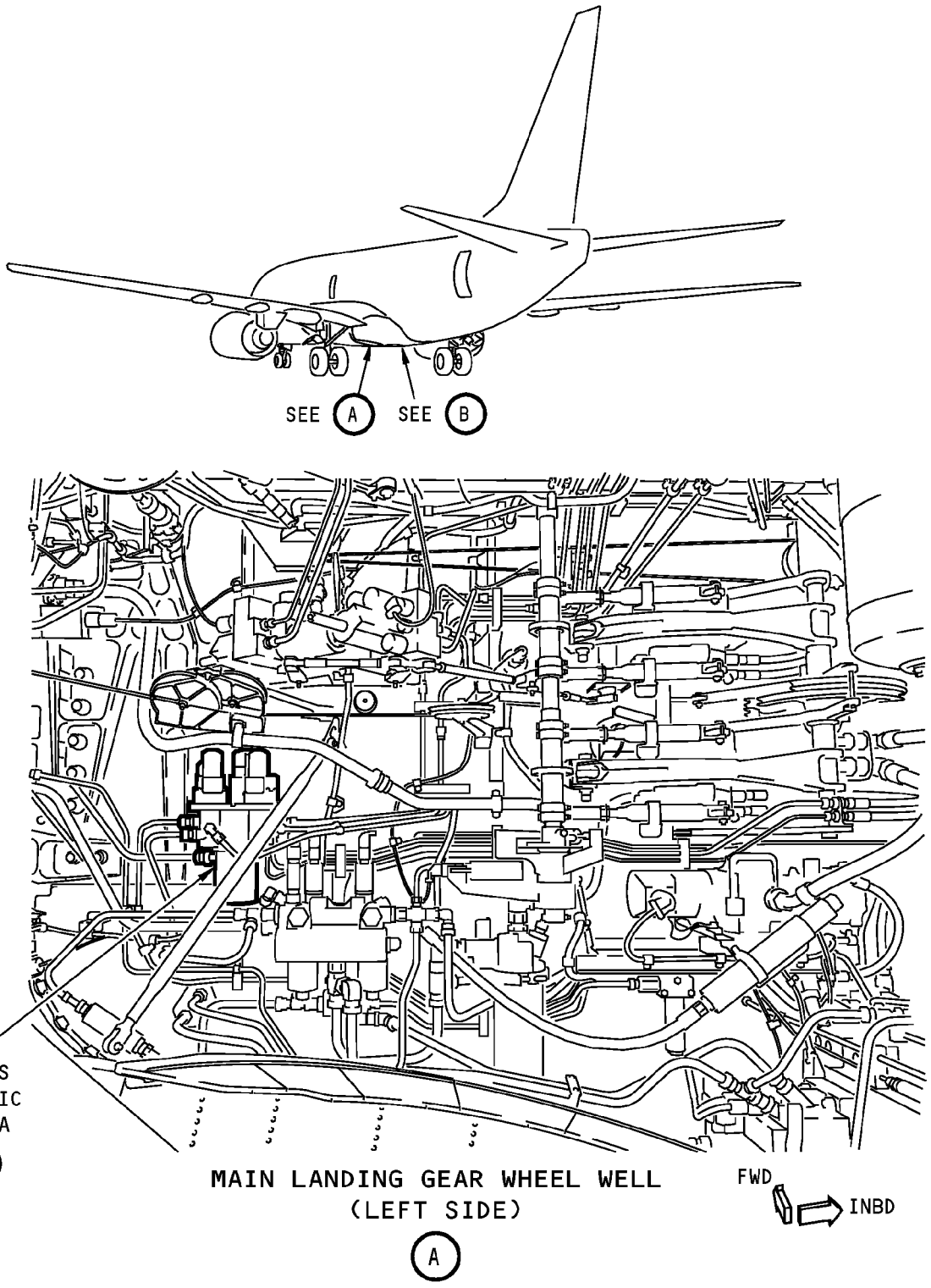

Spoiler Control System Installation
Figure 202 (Sheet 1 of 3)/27-61-00-990-802

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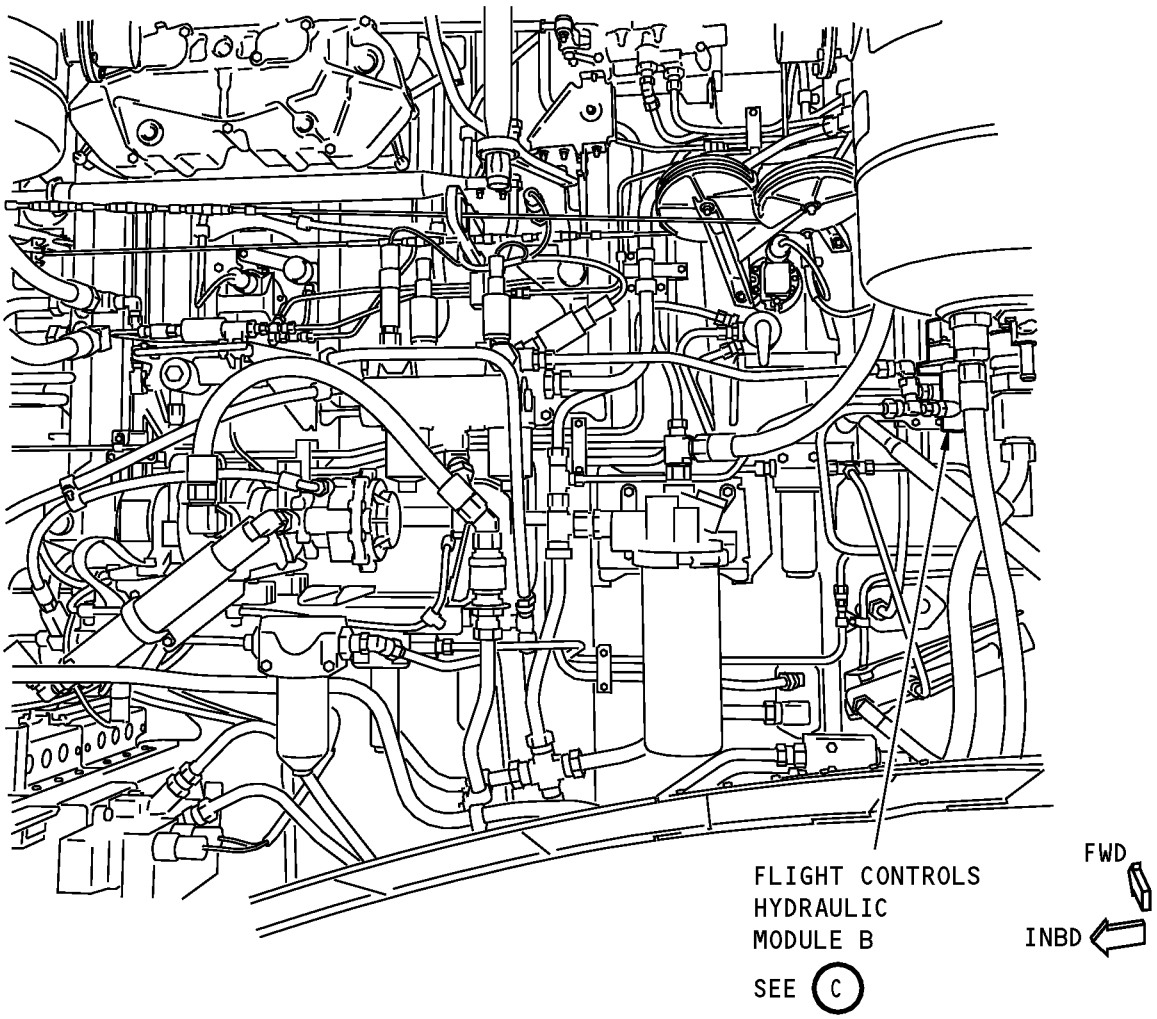

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)
B

Spoiler Control System Installation
Figure 202 (Sheet 2 of 3)/27-61-00-990-802

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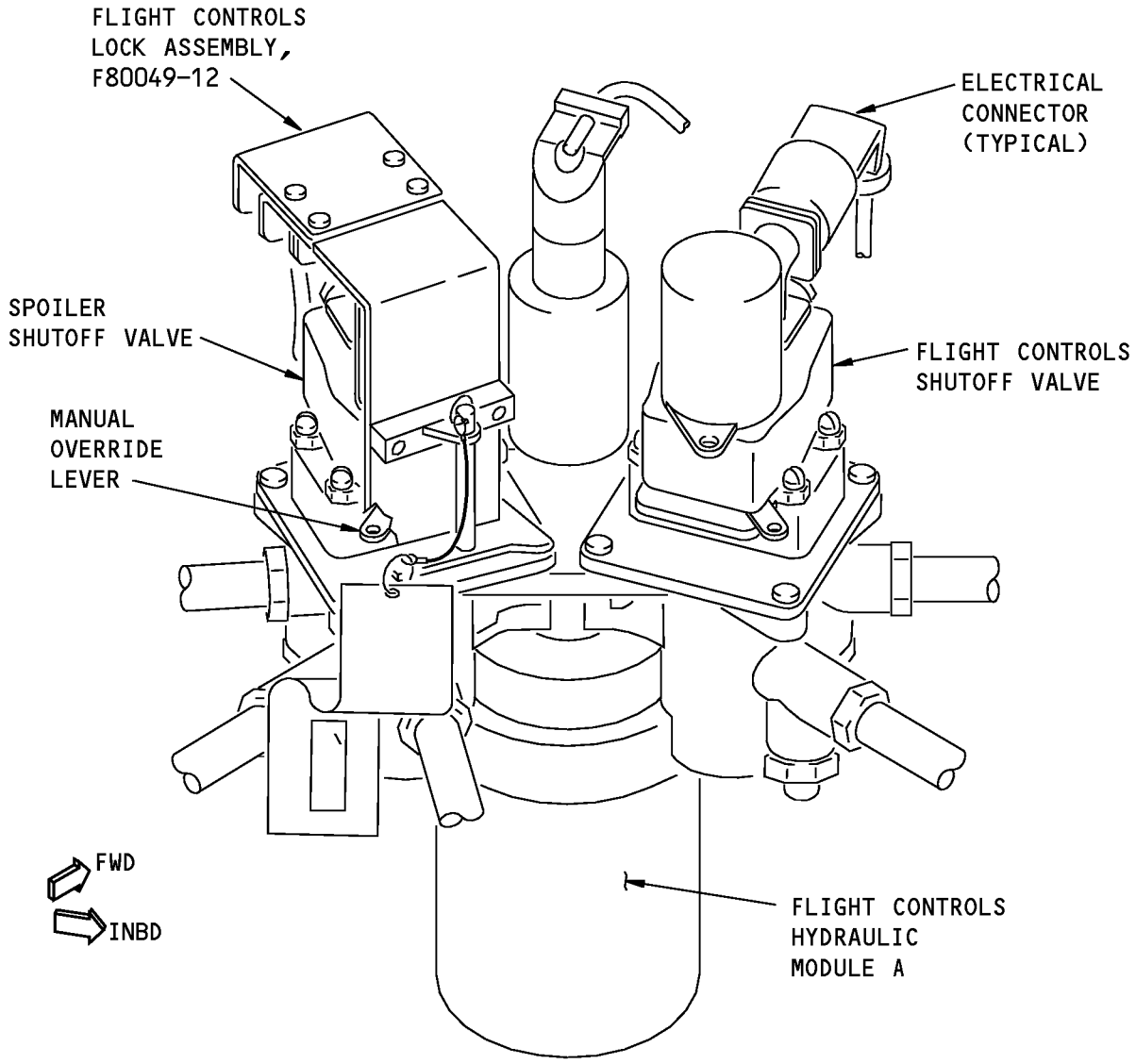

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Spoiler Control System Installation
Figure 202 (Sheet 3 of 3)/27-61-00-990-802

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TASK 27-61-00-840-802

5. Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal

(Figure 201, Figure 202)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Procedure

SUBTASK 27-61-00-080-002

(1) Remove the flight controls hydraulic module locks from the spoiler shutoff valves.

(a) Remove the lockpins.

(b) Remove the lock, SPL-1675 from the two spoiler shutoff valves.

(c) Put the manual override lever at the two spoiler shutoff valves in the position 1 (ON position).

(d) Before you connect the electrical connector, examine the connector for corrosion.

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WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(e) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(f) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03)

(g) Connect the electrical connector to the spoiler shutoff valve at the spoiler hydraulic modules A and B.

SUBTASK 27-61-00-860-011

(2) Set the SPOILER A and B switches on the forward overhead panel to the ON position.

SUBTASK 27-61-00-860-012

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 27-61-00-860-013

(4) Pressurize the hydraulic reservoirs if it is necessary. To pressurize them, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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SPOILER CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Spoiler Control System Operational Test

(a) This test can be used to quickly give the status of the spoiler control system. This test can be done without special tools or equipment.

(2) Spoiler Control Cables Adjustment

(3) Ratio Changer Input Rod Adjustment

(4) Flight Spoiler Adjustment

(a) An adjustment of the clearance between the flight spoilers and the flaps.

(5) Spoiler Actuator Linkage Adjustment

(6) Spoiler Mixer Adjustment

(7) Spoiler Position Sensor Adjustment

(a) This is an adjustment and test of the operation of the spoiler position sensors No. 3 and 10.

(8) Flight Spoiler System Test

(a) This is a test of the operation of the flight spoilers No. 2, 3, 4, 5, 8, 9, 10, and 11.

(9) Spoiler Manual Operation Test

(10) Spoiler Operation Time Test

(11) Alternate Spoiler Position Sensor Test

(a) This is a test of the operation of the spoiler position sensors No. 4 and 9.

(12) Spoiler Mixer No-Back Assembly Test

(13) Spoiler Mixer Centering Mechanism Operational Test

C. The spoiler control system gives lateral control and speed brake signals to the flight spoiler actuators through the spoiler mixer. The speed brake signals also control the ground spoilers.

D. You must not use the decals installed on the aileron control wheels during the adjustment or the test of the spoiler control system. The decals are for flight crew use only.

TASK 27-61-00-710-801

2. Spoiler Control System Operational Test

A. References

Reference	Title
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

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C. Prepare for the Test

SUBTASK 27-61-00-860-014

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

D. Spoiler Control System Operational Test

SUBTASK 27-61-00-020-001

(1) Turn the captain's aileron control wheel fully clockwise.

(a) Make sure the No. 8, 9, 10, and 11 flight spoilers move to the up position.

SUBTASK 27-61-00-020-002

(2) Turn the captain's aileron control wheel fully counterclockwise.

(a) Make sure the No. 2, 3, 4 and 5 flight spoilers move to the up position.

SUBTASK 27-61-00-020-003

(3) Turn the captain's aileron control wheel to the neutral position.

(a) Make sure the flight spoilers move to the retracted position.

SUBTASK 27-61-00-020-004

(4) Move the speed brake lever from the DOWN position to the UP position.

(a) Make sure the spoilers move to the UP position.

SUBTASK 27-61-00-020-005

(5) Move the speed brake lever from the UP position to the DOWN position.

(a) Make sure the flight spoilers move to the retracted position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-410-001

(1) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

——————— END OF TASK ———————

TASK 27-61-00-820-801

3. Spoiler Control Cables Adjustment

(Figure 501)

A. General

(1) Before you do cable adjustment, permit a minimum of one hour at a constant ambient temperature of ±5°F for the airframe temperature to become stable.

(a) The cable tension values will not be correct when there are temperature differences along the cable run.

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B. References

Reference	Title
27-61-00-800-802	Remove Pressure from the Spoiler Hydraulic Systems A and B (P/B 201)
27-61-00-840-802	Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1554	Tensiometer - Cable (40-600 LB) (Part #: ACM-600, Supplier: 13331, A/P Effectivity: 737-ALL) (Part #: T5-8008-106-00, Supplier: 0N8U4, A/P Effectivity: 737-ALL) (Part #: T60-1001-C9-1A, Supplier: 0N8U4, A/P Effectivity: 737-ALL)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1671	Straightedge - Control Wheel (Part #: SE27-0001, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G00370	Tape - Lacing And Tying (Nylon)	A-A-52080

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

F. Access Panels

Number	Name/Location
112A	Forward Access Door

G. Prepare for the Adjustment

SUBTASK 27-61-00-860-015

(1) Do this task: Remove Pressure from the Spoiler Hydraulic Systems A and B, TASK 27-61-00-800-802.

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SUBTASK 27-61-00-860-016

(2) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-00-860-017

(3) Make sure the captain's and the first officer's control wheels are in the neutral position.

SUBTASK 27-61-00-480-003

(4) Use a 40 - 600 lb cable tensiometer, COM-1554 to do a check of the cable tension.

H. Spoiler Control Cables Adjustment

SUBTASK 27-61-00-020-006

(1) If you install new cables WSA1, WSA2, WSB1, and WSB2, do these steps to adjust the cables:

(a) Attach the straightedge, SPL-1671 across the top ends of the two control wheels.

NOTE: One end of the first officer's control wheel cannot be farther than 0.20 inch (5.08 millimeters) from the straightedge, SPL-1671.

(b) Adjust the cable to get the tension two times the specified rigging load (Table 501).

Table 501/27-61-00-993-808

Temp Deg F (C)	Cable Rigging Load Lbs (newtons)	
	WSA 1 & 2, WSB 1 & 2	
	High	Low
110 (43.3)	91 (405)	81 (360)
109 (42.8)	91 (405)	81 (360)
108 (42.2)	90 (400)	80 (356)
107 (41.7)	90 (400)	80 (356)
106 (41.1)	90 (400)	80 (356)
105 (40.5)	90 (400)	80 (356)
104 (40.0)	89 (396)	79 (351)
103 (39.4)	89 (396)	79 (351)
102 (38.9)	89 (396)	79 (351)
101 (38.3)	89 (396)	79 (351)
100 (37.8)	88 (391)	78 (347)
99 (37.2)	88 (391)	78 (347)
98 (36.7)	88 (391)	78 (347)
97 (36.1)	87 (387)	77 (343)
96 (35.5)	87 (387)	77 (343)
95 (35.0)	87 (387)	77 (343)
94 (34.4)	87 (387)	77 (343)
93 (33.9)	86 (383)	76 (338)
92 (33.3)	86 (383)	76 (338)

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(Continued)

Temp Deg F (C)	Cable Rigging Load Lbs (newtons)	
	WSA 1 & 2, WSB 1 & 2	
	High	Low
91 (32.8)	86 (383)	76 (338)
90 (32.2)	86 (383)	76 (338)
89 (31.7)	85 (378)	75 (334)
88 (31.1)	85 (378)	75 (334)
87 (30.5)	85 (378)	75 (334)
86 (30.0)	84 (374)	74 (329)
85 (29.4)	84 (374)	74 (329)
84 (28.9)	84 (374)	74 (329)
83 (28.3)	84 (374)	74 (329)
82 (27.8)	83 (369)	73 (325)
81 (27.2)	83 (369)	73 (325)
80 (26.7)	83 (369)	73 (325)
79 (26.1)	82 (365)	72 (320)
78 (25.5)	82 (365)	72 (320)
77 (25.0)	82 (365)	72 (320)
76 (24.4)	82 (365)	72 (320)
75 (23.9)	81 (360)	71 (316)
74 (23.3)	81 (360)	71 (316)
73 (22.8)	81 (360)	71 (316)
72 (22.2)	81 (360)	71 (316)
71 (21.7)	80 (356)	70 (311)
70 (21.1)	80 (356)	70 (311)
69 (20.5)	80 (356)	70 (311)
68 (20.0)	80 (356)	70 (311)
67 (19.4)	79 (351)	69 (307)
66 (18.9)	79 (351)	69 (307)
65 (18.3)	79 (351)	69 (307)
64 (17.8)	79 (351)	69 (307)
63 (17.2)	78 (347)	68 (302)
62 (16.7)	78 (347)	68 (302)

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(Continued)

Temp Deg F (C)	Cable Rigging Load Lbs (newtons)	
	WSA 1 & 2, WSB 1 & 2	
	High	Low
61 (16.1)	78 (347)	68 (302)
60 (15.5)	78 (347)	68 (302)
59 (15.0)	77 (343)	67 (298)
58 (14.4)	77 (343)	67 (298)
57 (13.9)	77 (343)	67 (298)
56 (13.3)	77 (343)	67 (298)
55 (12.8)	76 (338)	66 (294)
54 (12.2)	76 (338)	66 (294)
53 (11.7)	76 (338)	66 (294)
52 (11.1)	76 (338)	66 (294)
51 (10.5)	75 (334)	65 (289)
50 (10.0)	75 (334)	65 (289)
49 (9.4)	75 (334)	65 (289)
48 (8.9)	75 (334)	65 (289)
47 (8.3)	74 (329)	64 (285)
46 (7.8)	74 (329)	64 (285)
45 (7.2)	74 (329)	64 (285)
44 (6.7)	74 (329)	64 (285)
43 (6.1)	73 (325)	63 (280)
42 (5.5)	73 (325)	63 (280)
41 (5.0)	73 (325)	63 (280)
40 (4.4)	73 (325)	63 (280)
39 (3.9)	72 (320)	62 (276)
38 (3.3)	72 (320)	62 (276)
37 (2.8)	72 (320)	62 (276)
36 (2.2)	72 (320)	62 (276)
35 (1.7)	71 (316)	61 (271)
34 (1.1)	71 (316)	61 (271)
33 (0.5)	71 (316)	61 (271)
32 (0.0)	71 (316)	61 (271)

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(Continued)

Temp Deg F (C)	Cable Rigging Load Lbs (newtons)	
	WSA 1 & 2, WSB 1 & 2	
	High	Low
31 (-0.5)	70 (311)	60 (267)
30 (-1.1)	70 (311)	60 (267)
29 (-1.7)	70 (311)	60 (267)
28 (-2.2)	70 (311)	60 (267)
27 (-2.8)	69 (307)	59 (262)
26 (-3.3)	69 (307)	59 (262)
25 (-3.9)	69 (307)	59 (262)
24 (-4.4)	69 (307)	59 (262)
23 (-5.0)	68 (302)	58 (258)
22 (-5.5)	68 (302)	58 (258)
21 (-6.1)	68 (302)	58 (258)
20 (-6.7)	68 (302)	58 (258)
19 (-7.2)	67 (298)	57 (254)
18 (-7.8)	67 (298)	57 (254)
17 (-8.3)	67 (298)	57 (254)
16 (-8.9)	67 (298)	57 (254)
15 (-9.4)	66 (294)	56 (249)
14 (-10.0)	66 (294)	56 (249)
13 (-10.5)	66 (294)	56 (249)
12 (-11.1)	66 (294)	56 (249)
11 (-11.7)	65 (289)	55 (245)
10 (-12.2)	65 (289)	55 (245)
09 (-12.8)	65 (289)	55 (245)
08 (-13.3)	65 (289)	55 (245)
07 (-13.9)	64 (285)	54 (240)
06 (-14.4)	64 (285)	54 (240)
05 (-15.0)	64 (285)	54 (240)
04 (-15.5)	64 (285)	54 (240)
03 (-16.1)	63 (280)	53 (236)
02 (-16.7)	63 (280)	53 (236)

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(Continued)

Temp Deg F (C)	Cable Rigging Load Lbs (newtons)	
	WSA 1 & 2, WSB 1 & 2	
	High	Low
01 (-17.2)	63 (280)	53 (236)
00 (-17.8)	63 (280)	53 (236)
-01 (-18.3)	62 (276)	52 (231)
-02 (-18.9)	62 (276)	52 (231)
-03 (-19.4)	62 (276)	52 (231)
-04 (-20.0)	62 (276)	52 (231)
-05 (-20.5)	61 (271)	51 (227)
-06 (-21.1)	61 (271)	51 (227)
-07 (-21.7)	61 (271)	51 (227)
-08 (-22.2)	61 (271)	51 (227)
-09 (-22.8)	60 (267)	50 (222)
-10 (-23.3)	60 (267)	50 (222)
-11 (-23.9)	60 (267)	50 (222)
-12 (-24.4)	60 (267)	50 (222)
-13 (-25.0)	59 (262)	49 (218)
-14 (-25.5)	59 (262)	49 (218)
-15 (-26.1)	59 (262)	49 (218)
-16 (-26.7)	59 (262)	49 (218)
-17 (-27.2)	58 (258)	48 (214)
-18 (-27.8)	58 (258)	48 (214)
-19 (-28.3)	58 (258)	48 (214)
-20 (-28.9)	58 (258)	48 (214)
-21 (-29.4)	57 (254)	47 (209)
-22 (-30.0)	57 (254)	47 (209)
-23 (-30.5)	57 (254)	47 (209)
-24 (-31.1)	57 (254)	47 (209)
-25 (-31.7)	56 (249)	46 (205)
-26 (-32.2)	56 (249)	46 (205)
-27 (-32.8)	56 (249)	46 (205)
-28 (-33.3)	56 (249)	46 (205)

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(Continued)

Temp Deg F (C)	Cable Rigging Load Lbs (newtons)	
	WSA 1 & 2, WSB 1 & 2	
	High	Low
-29 (-33.9)	55 (245)	45 (200)
-30 (-34.4)	55 (245)	45 (200)
-31 (-35.0)	55 (245)	45 (200)
-32 (-35.5)	55 (245)	45 (200)
-33 (-36.1)	54 (240)	44 (196)
-34 (-36.7)	54 (240)	44 (196)
-35 (-37.2)	54 (240)	44 (196)
-36 (-37.8)	54 (240)	44 (196)
-37 (-38.3)	53 (236)	43 (191)
-38 (-38.9)	53 (236)	43 (191)
-39 (-39.4)	53 (236)	43 (191)
-40 (-40.0)	53 (236)	43 (191)

(c) Remove the straightedge, SPL-1671 from the control wheels.

(d) Operate the captain's control wheel for 20 times.

NOTE: The spoiler mixer must be installed to move the cables.

1) Do not turn the control wheel more than 100 degrees from the neutral position.

(e) Move the speed brake lever to the UP position.

(f) Operate the captain's control wheel for 20 times.

NOTE: The spoiler mixer must be installed to move the cables.

1) Do not turn the control wheel more than 100 degrees from the neutral position.

(g) Move the speed brake lever to the DOWN position.

(h) Decrease the tension in the cables to get the correct tension (Table 501).

(i) Operate the captain's control wheel two to three times.

(j) Put the captain's control wheel back to the neutral position.

SUBTASK 27-61-00-820-001

(2) If the cables WSA1, WSA2, WSB1, and WSB2 are not new, do these steps to adjust the cables:

(a) Adjust the tension in the cables until you get the correct value (Table 501).

1) To adjust the cables, loosen one cable and tighten the other cable the same amount.

(b) Move the speed brake lever to the UP position.

(c) Operate the captain's control wheel two to three times.

(d) Put the captain's control wheel back to the neutral position.

(e) Move the speed brake lever to the DOWN position.

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SUBTASK 27-61-00-010-001

(3) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-61-00-080-003

(4) Make sure you can easily install and remove the rig pins A/S-14, S/B-2, A/S-8, A/S-9, A/S-10 and A/S-11 from the rig pin kit, SPL-1585.

SUBTASK 27-61-00-480-005

(5) Attach the straightedge, SPL-1671 on the captain's and first officer's control wheels.

(a) Make sure the top ends of the control wheels touch the straightedge, SPL-1671.

NOTE: One end of the first officer's control wheel cannot be farther than 0.20 inch (5.08 millimeters) from the straightedge, SPL-1671.

SUBTASK 27-61-00-200-001

(6) Measure the cable tensions.

(a) Make sure the cable tensions are not out of tolerance (Table 501).

SUBTASK 27-61-00-420-001

(7) Install the lock clips on the turnbuckles.

SUBTASK 27-61-00-480-015

(8) Install the lockstitch on the cable turnbuckles as follows:

(a) The tape, G00370 should be installed in the same configuration that it was in before it was removed (on either side of each turnbuckle) (Figure 501).

NOTE: In normal operation, the cables move together. If one cable fails, the lockstitch will allow the remaining cable to move past the broken cable.

(b) Use the tape, G00370 to tie a clove hitch around the two cables (Figure 501). Be sure to tie the knot as tight as possible.

SUBTASK 27-61-00-080-004

(9) Remove the straightedge, SPL-1671 on the captain's and first officer's control wheels.

SUBTASK 27-61-00-410-002

(10) Close this access panel:

Number	Name/Location
112A	Forward Access Door

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-410-003

(1) Do this task: Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-61-00-840-802.

———————— END OF TASK ————————

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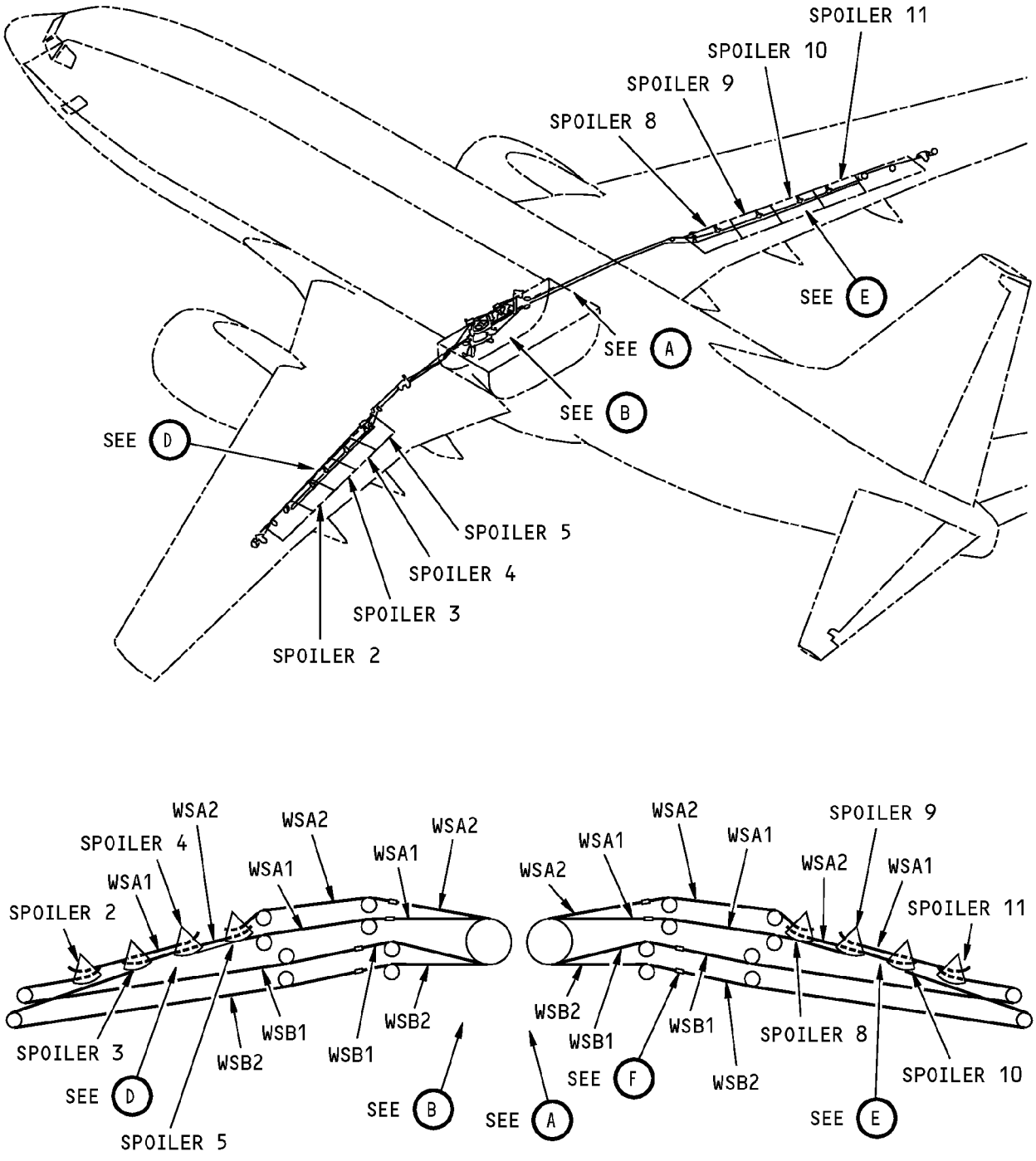

Spoiler Control Cables Adjustment
Figure 501 (Sheet 1 of 6)/27-61-00-990-803

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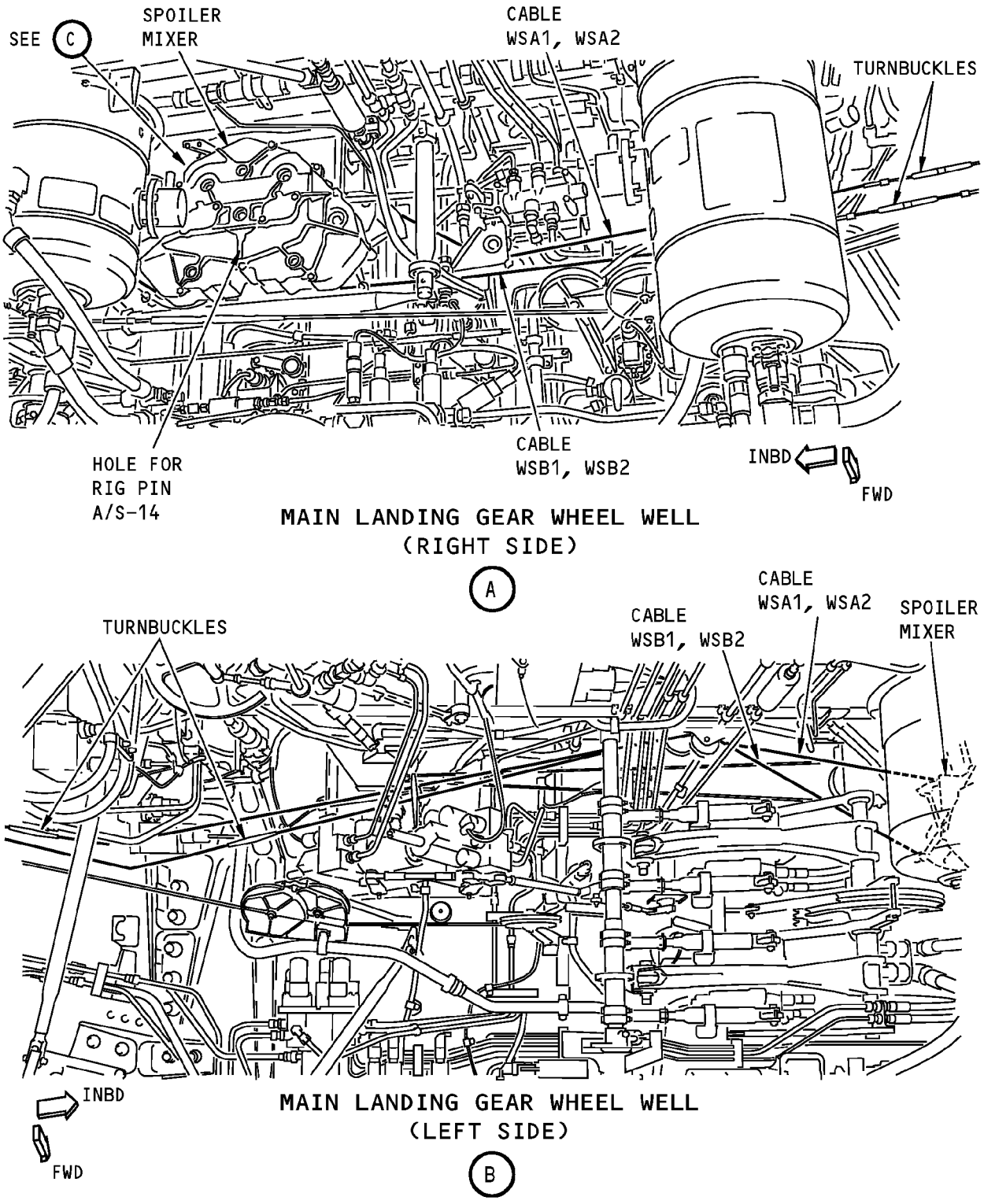

Spoiler Control Cables Adjustment
Figure 501 (Sheet 2 of 6)/27-61-00-990-803

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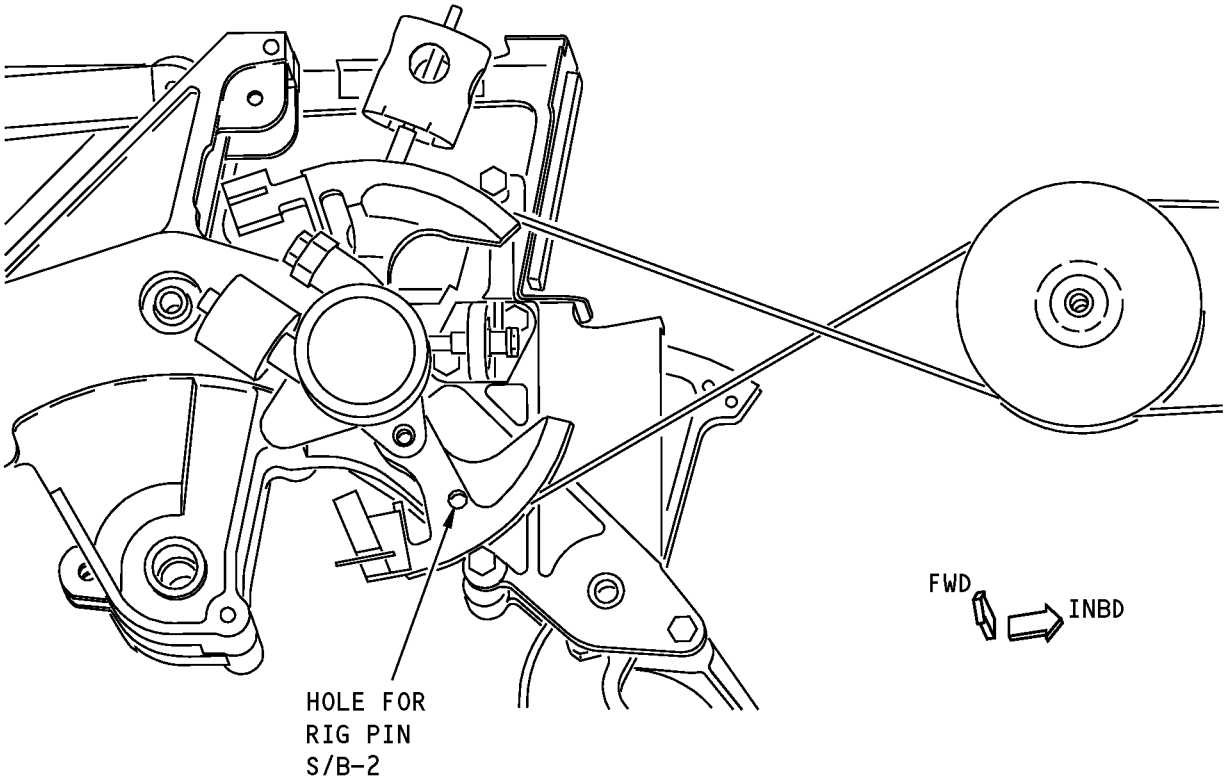

Spoiler Control Cables Adjustment
Figure 501 (Sheet 3 of 6)/27-61-00-990-803

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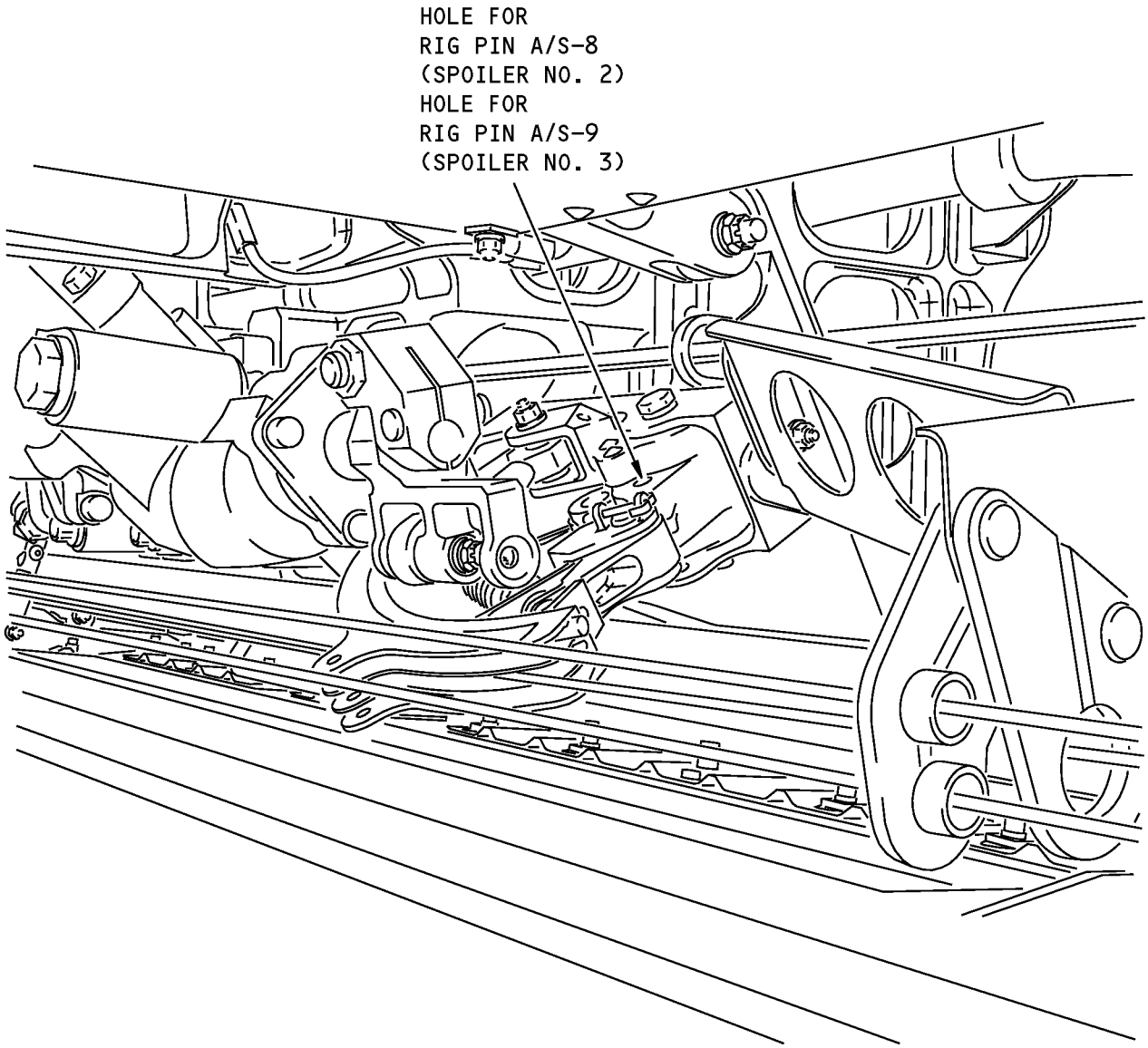

FLIGHT SPOILER ACTUATOR QUADRANT
(NO. 2 AND 3 ARE EQUIVALENT)

D

Spoiler Control Cables Adjustment
Figure 501 (Sheet 4 of 6)/27-61-00-990-803

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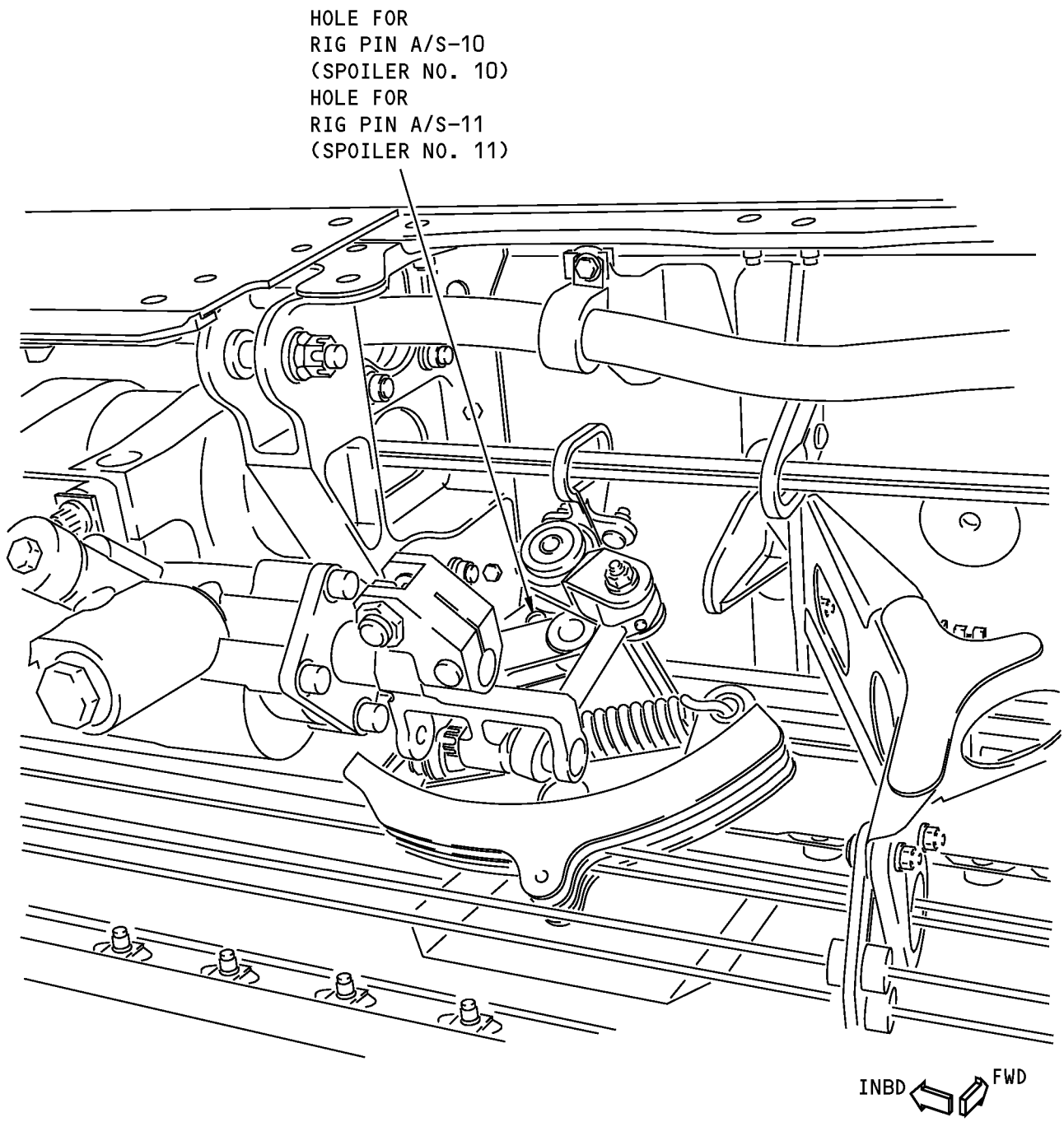

FLIGHT SPOILER ACTUATOR QUADRANT
(NO. 10 AND 11 ARE EQUIVALENT)

E

Spoiler Control Cables Adjustment
Figure 501 (Sheet 5 of 6)/27-61-00-990-803

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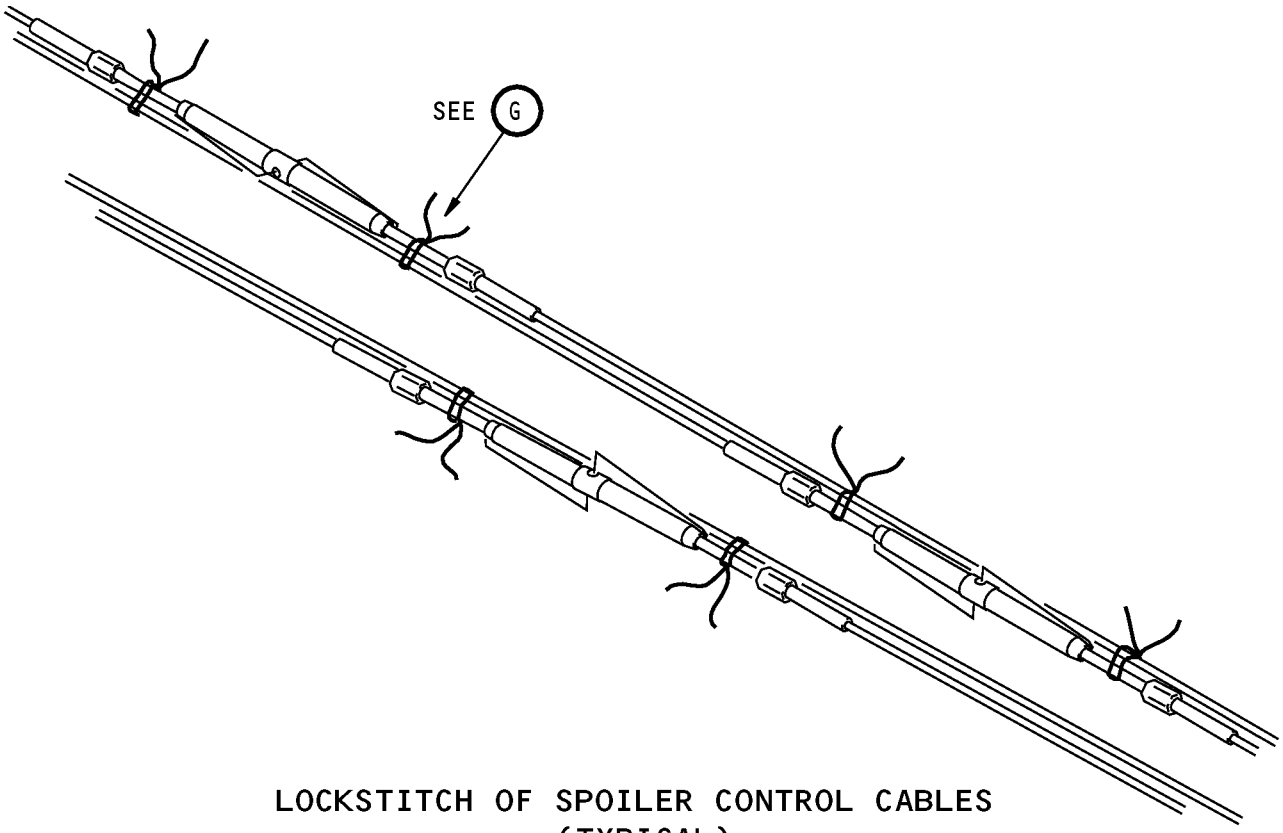
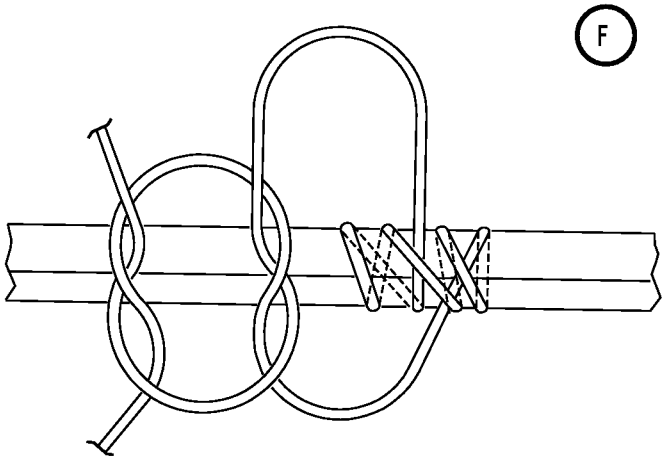


LOCKSTITCH OF SPOILER CONTROL CABLES
(TYPICAL)
F



LOCKSTITCH KNOT
(TYPICAL)
G

LOCKSTITCH CONFIGURATION

Spoiler Control Cables Adjustment
Figure 501 (Sheet 6 of 6)/27-61-00-990-803

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TASK 27-61-00-820-802

4. Ratio Changer Input Rod Adjustment

(Figure 501, Figure 502)

A. References

Reference	Title
27-61-00-800-802	Remove Pressure from the Spoiler Hydraulic Systems A and B (P/B 201)
27-61-00-840-802	Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Prepare for the Adjustment

SUBTASK 27-61-00-860-018

(1) Do this task: Remove Pressure from the Spoiler Hydraulic Systems A and B, TASK 27-61-00-800-802.

E. Ratio Changer Input Rod Adjustment

SUBTASK 27-61-00-020-007

(1) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-00-020-008

(2) Make sure the aileron control system is in the neutral position.

SUBTASK 27-61-00-820-002

(3) Install the rig pin A/S-14 from the rig pin kit, SPL-1585 in the spoiler mixer.

SUBTASK 27-61-00-820-003

(4) Install the rig pin S/B-2 from the rig pin kit, SPL-1585 in the ratio changer (Figure 501).

SUBTASK 27-61-00-820-004

(5) Make sure that you can easily install the rig pin A/S-3 from the rig pin kit, SPL-1585 in the spoiler control quadrant.

SUBTASK 27-61-00-820-005

(6) If you cannot easily install the rig pin A/S-3, adjust the ratio changer input rod [37]:

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(a) Remove the bolt [32], washer [33], washer [34] and nut [35] that connects the ratio changer input rod [37] to the input crank [31].

(b) Install the rig pin A/S-3 from the rig pin kit, SPL-1585 in the spoiler control quadrant.

(c) Loosen the checknut [38] on the ratio changer input rod [37].

(d) Adjust the rod end until you can install the bolt to attach the input rod.

NOTE: It must be possible to install the bolt without excessive force.

(e) Install the bolt [32] with the head up, washer [33], washer [34] and nut [35].

(f) Tighten the checknut [38] on the ratio changer input rod [37].

SUBTASK 27-61-00-820-006

(7) Remove the rig pins A/S-3, A/S-14, and S/B-2.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-410-004

(1) Do this task: Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-61-00-840-802.

——————— END OF TASK ———————

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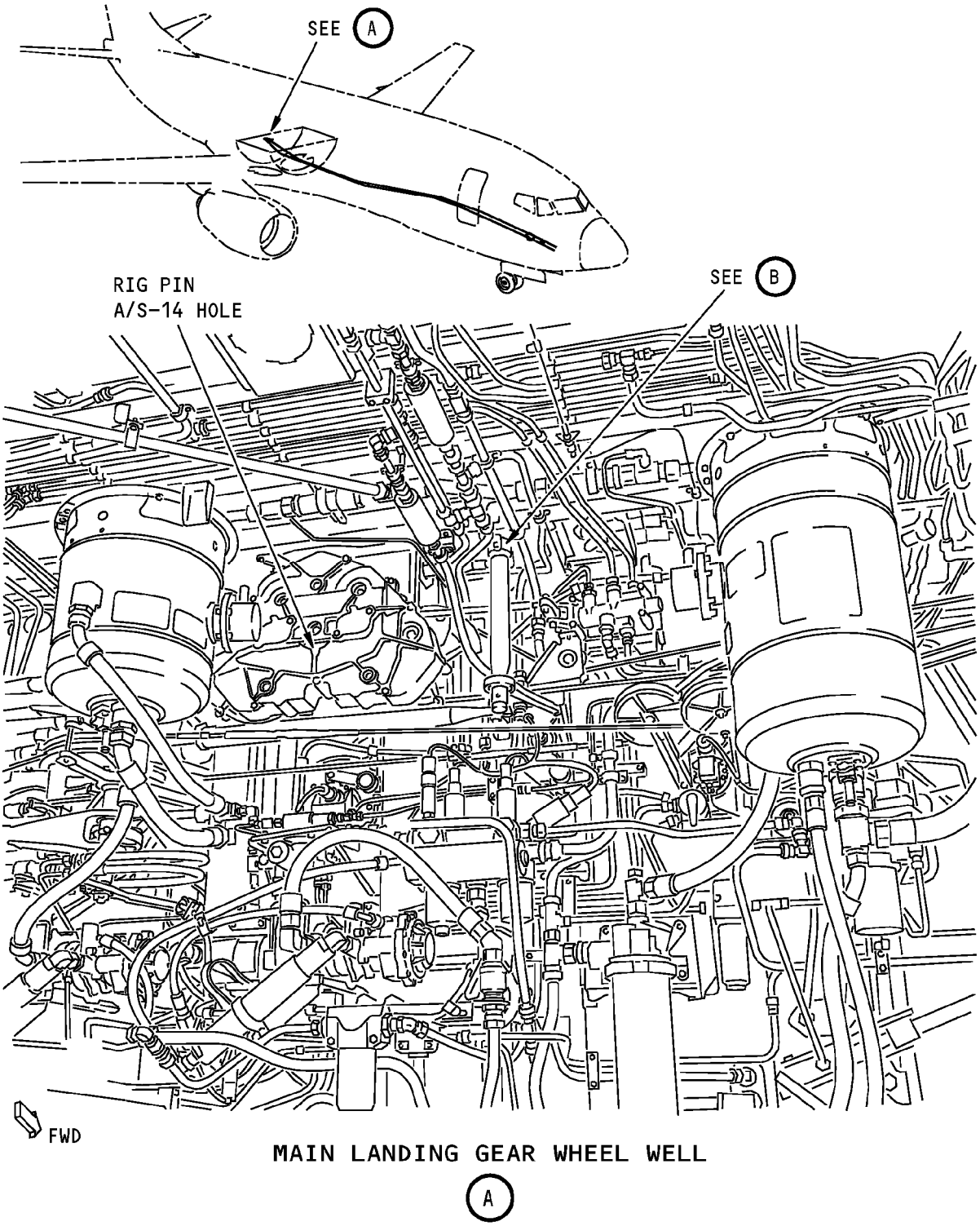

Ratio Changer Input Rod Adjustment
Figure 502 (Sheet 1 of 2)/27-61-00-990-804

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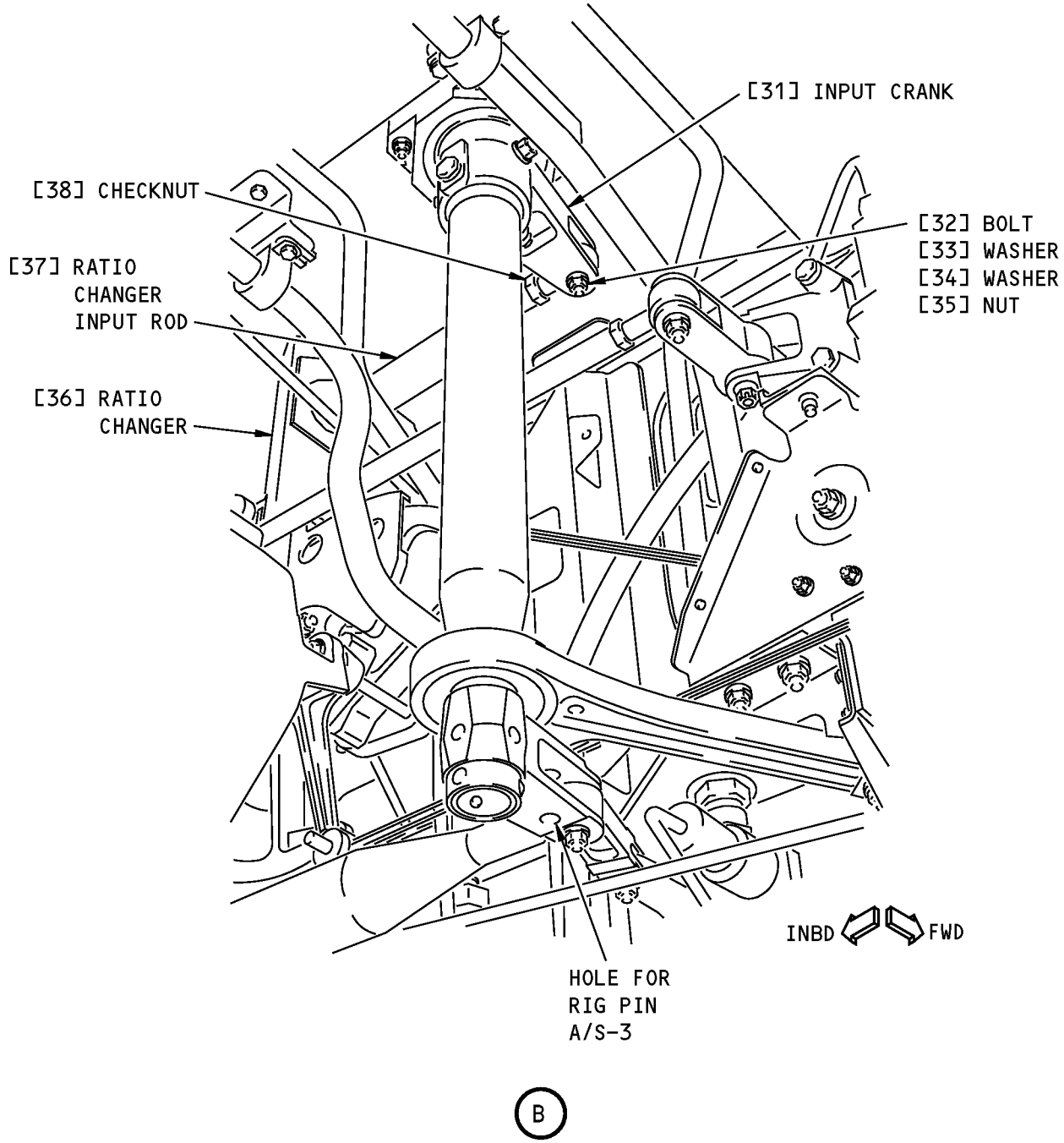

Ratio Changer Input Rod Adjustment
Figure 502 (Sheet 2 of 2)/27-61-00-990-804

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TASK 27-61-00-820-803

5. Flight Spoiler Adjustment

(Figure 501, Figure 502, Figure 503)

A. References

Reference	Title
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84/201) - Series 84	
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

E. Prepare for the Adjustment

SUBTASK 27-61-00-480-006

(1) Make sure that you can easily install these rig pins for the rig pin kit, SPL-1585:

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(a) A/S-1 and A/S-1A in the aileron transfer mechanism.

(b) A/S-3 in the aileron pogo.

(c) A/S-4 in the aileron bus drums.

(d) A/S-14 in the spoiler mixer (Figure 502).

(e) A/S-15 in the aileron trim actuator.

SUBTASK 27-61-00-080-005

(2) Remove all rig pins.

SUBTASK 27-61-00-860-019

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-00-860-020

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-61-00-866-005

(5) Extend the flaps (Extend the Trailing Edge Flaps, TASK 27-51-00-860-803).

SUBTASK 27-61-00-860-021

(6) Move the speed brake lever to the full up position to fully extend the spoilers.

SUBTASK 27-61-00-820-007

(7) Turn adjustment screw [51] clockwise 2 full turns, or until the stop is reached.

(a) Tighten the check nut [52].

SUBTASK 27-61-00-860-022

(8) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-00-860-023

(9) Slowly move the speed brake lever to the DOWN position.

F. Flight Spoiler Adjustment

SUBTASK 27-61-00-860-024

(1) Measure the clearance between the trailing edge of the spoiler panels and the flaps near the centerline of the spoiler actuators.

SUBTASK 27-61-00-860-075

(2) Make sure the clearance between the spoilers No. 5 and 8 and the flaps is 0.085 +0.000/-0.060 inch (2.16 +0.00/-1.52 millimeters).

NOTE: Measure the clearance aft of the spoiler actuator rod end. A larger or smaller clearance is permitted at other locations along the spoiler.

SUBTASK 27-61-00-860-076

(3) Make sure the clearance between the spoilers No. 3, 4, 9 and 10 and the flaps is 0.250 +0.050/-0.010 inch (6.35 +1.27/-0.25 millimeters).

NOTE: Measure the clearance aft of the spoiler actuator rod end. A larger or smaller clearance is permitted at other locations along the spoiler.

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SUBTASK 27-61-00-860-025

(4) Make sure the clearance between the spoilers No. 2 and 11 and the flaps is 0.300 +0.050/-0.010 inch (7.62 +1.27/-0.25 millimeters).

NOTE: Measure the clearance aft of the spoiler actuator rod end. A larger or smaller clearance is permitted at other locations along the spoiler.

SUBTASK 27-61-00-860-028

(5) If the clearances between the spoiler panels and the flaps are not in the limits, adjust the clearance:

(a) Make a record of the clearance.

(b) Lift the spoiler and extend the flaps to get access to the spoiler actuator:

1) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

2) Move the speed brake lever to the UP position to lift the spoilers.

3) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

(c) Loosen the check nut [55] on the actuator rod end [56].

(d) Turn the piston rod on the spoiler actuator to adjust the clearance between the spoiler and the flaps.

NOTE: Turning the piston rod 1/4 turn will change the clearance by approximately 0.09 inches.

(e) Tighten the check nut [55].

(f) Check the adjustment.

1) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

2) Retract the flaps (Retract the Trailing Edge Flaps, TASK 27-51-00-860-804).

3) Slowly move the speed brake lever to the DOWN position.

4) Make sure the clearances between the spoilers and the flaps are within the tolerances.

5) Turn the control wheel fully clockwise.

a) Make sure spoilers No. 2, 3, 4, and 5 do not move down.

b) If the spoilers move down, go back to the start of the task.

NOTE: You do not need to check the fit of the rig pins a second time.

6) Turn the control wheel back to neutral to retract the flight spoilers.

7) Turn the control wheel fully counterclockwise.

a) Make sure spoilers No. 8, 9, 10, and 11 do not move down.

b) If the spoilers move down, go back to the start of the task.

NOTE: You do not need to check the fit of the rig pins a second time.

(g) Extend the flaps (Extend the Trailing Edge Flaps, TASK 27-51-00-860-803).

(h) Move the speed brake lever to the full up position to extend the spoilers.

(i) Clean all grease from the piston rod and the actuator rod end [56] threads with Series 84 solvent, B01004 (TASK 20-30-84-910-801).

(j) Apply a layer of the corrosion preventive compound to the threads of the actuator rod end [56].

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(k) Tighten the check nut [55] to 250 - 300 pound-inches (28.2 - 33.9 newton-meters).

(l) Install the lockwire, G01912 on the check nut [55].

(m) Apply a bead of sealant, A00247 to the check nut [55].

SUBTASK 27-61-00-860-122

(6) Check the adjustment of the spoiler actuator linkage. Do this task Spoiler Actuator Linkage Adjustment, TASK 27-61-00-820-804.

SUBTASK 27-61-00-820-038

(7) Do this task: Flight Spoiler System Test (Alternate Method), TASK 27-61-00-000-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-029

(1) Move the speed brake lever to the DOWN position to lower the spoilers, if it is necessary.

SUBTASK 27-61-00-860-030

(2) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-00-860-031

(3) Make sure the clearance between the spoiler and the flap is in the limits.

SUBTASK 27-61-00-860-032

(4) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

——————— END OF TASK ———————

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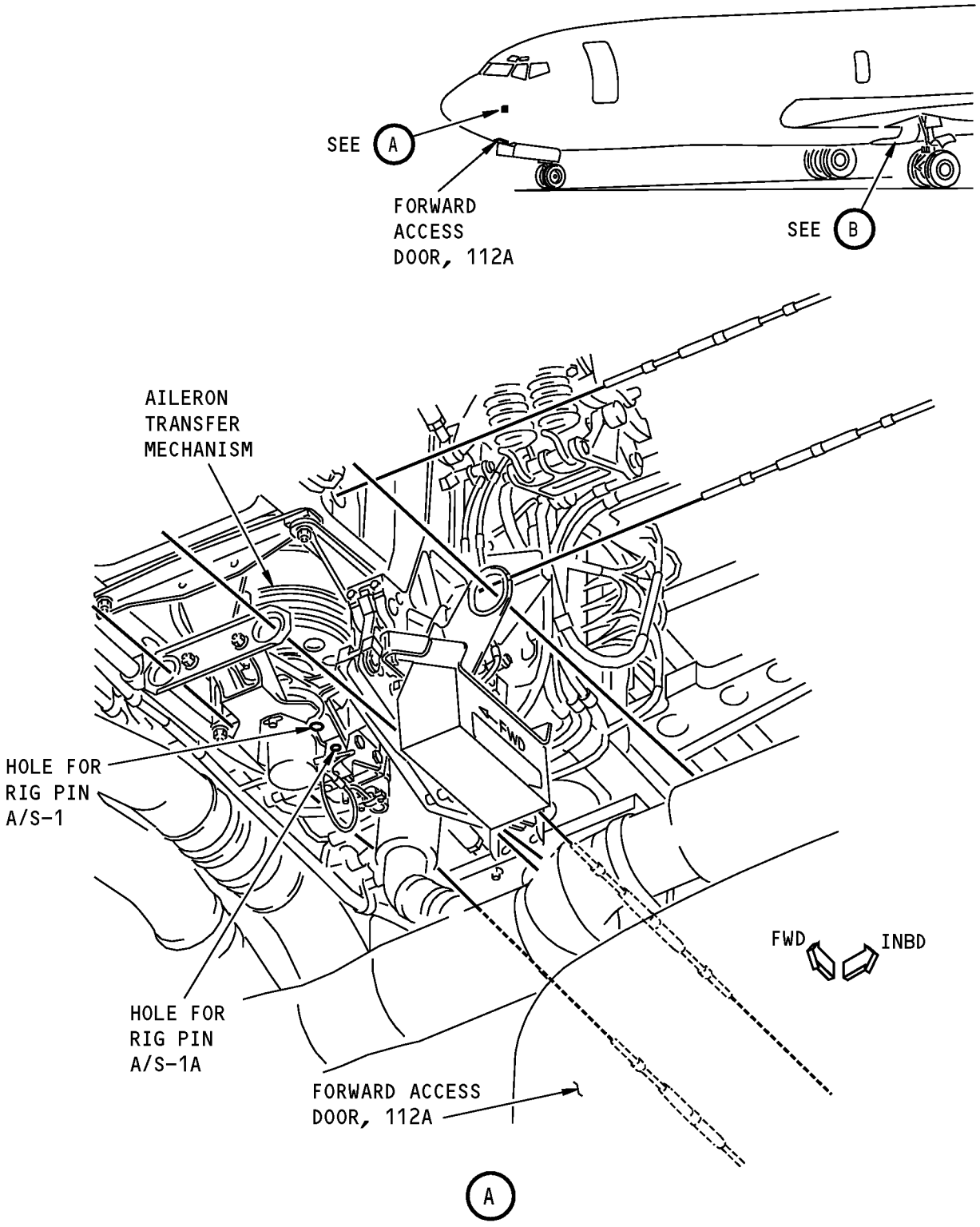

Flight Spoiler Adjustment
Figure 503 (Sheet 1 of 4)/27-61-00-990-805

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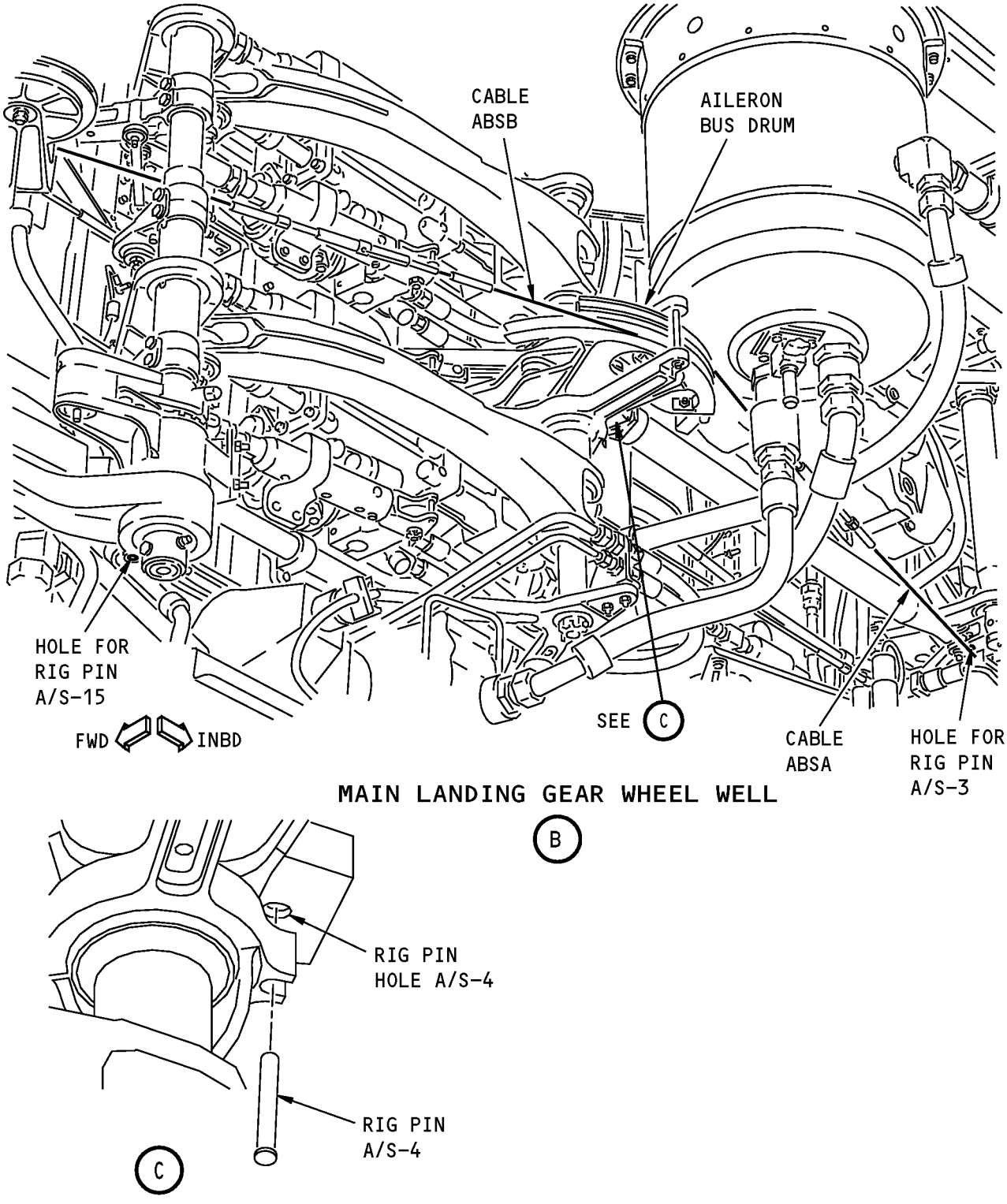

Flight Spoiler Adjustment
Figure 503 (Sheet 2 of 4)/27-61-00-990-805

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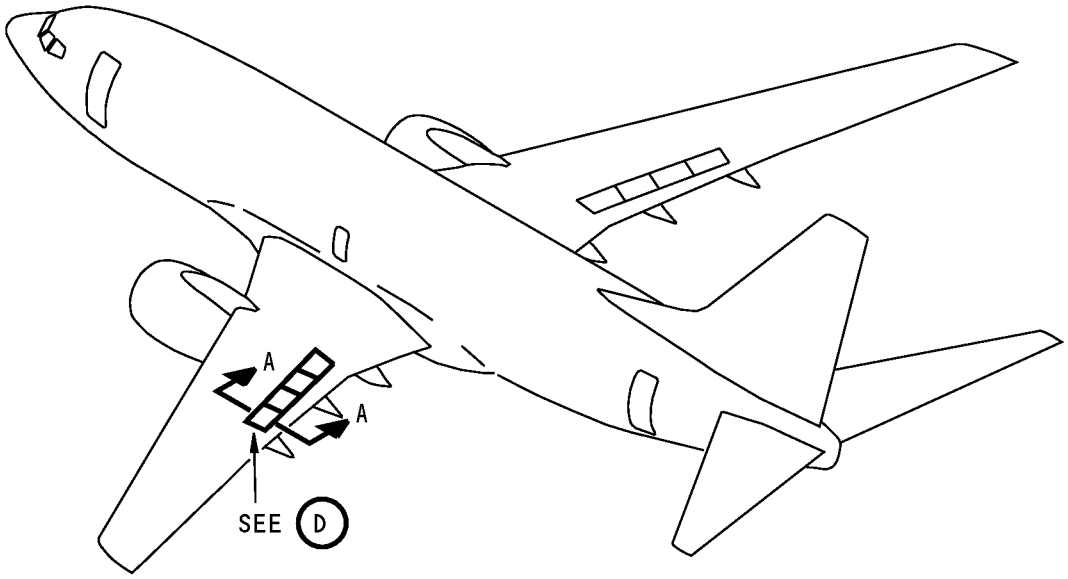

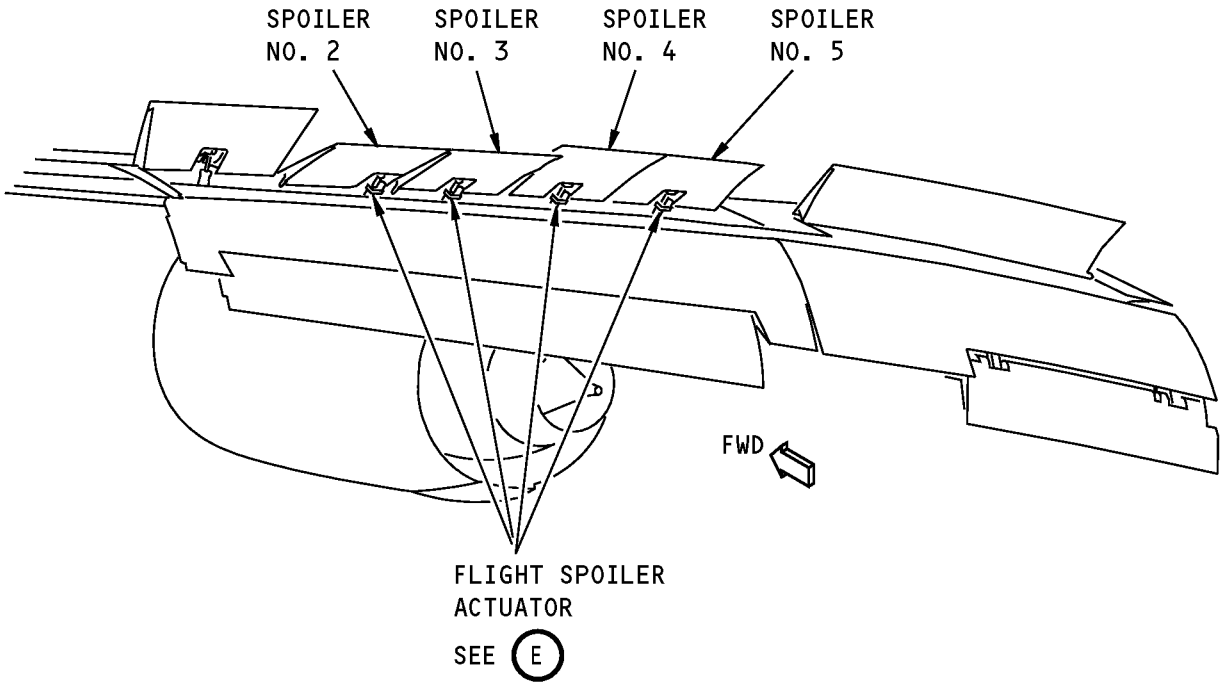

(LEFT WING IS SHOWN, RIGHT WING IS EQUIVALENT)

D

Flight Spoiler Adjustment
Figure 503 (Sheet 3 of 4)/27-61-00-990-805

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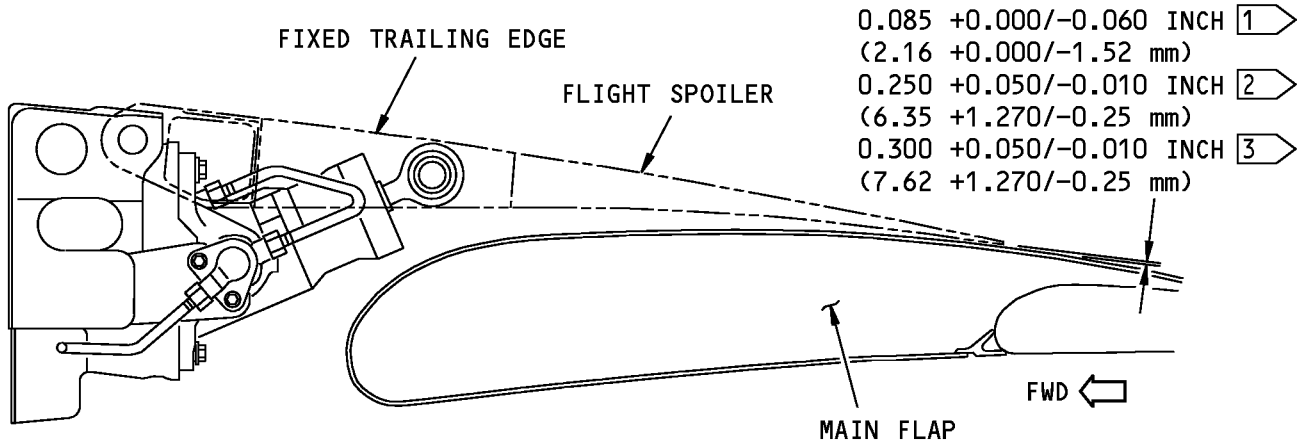
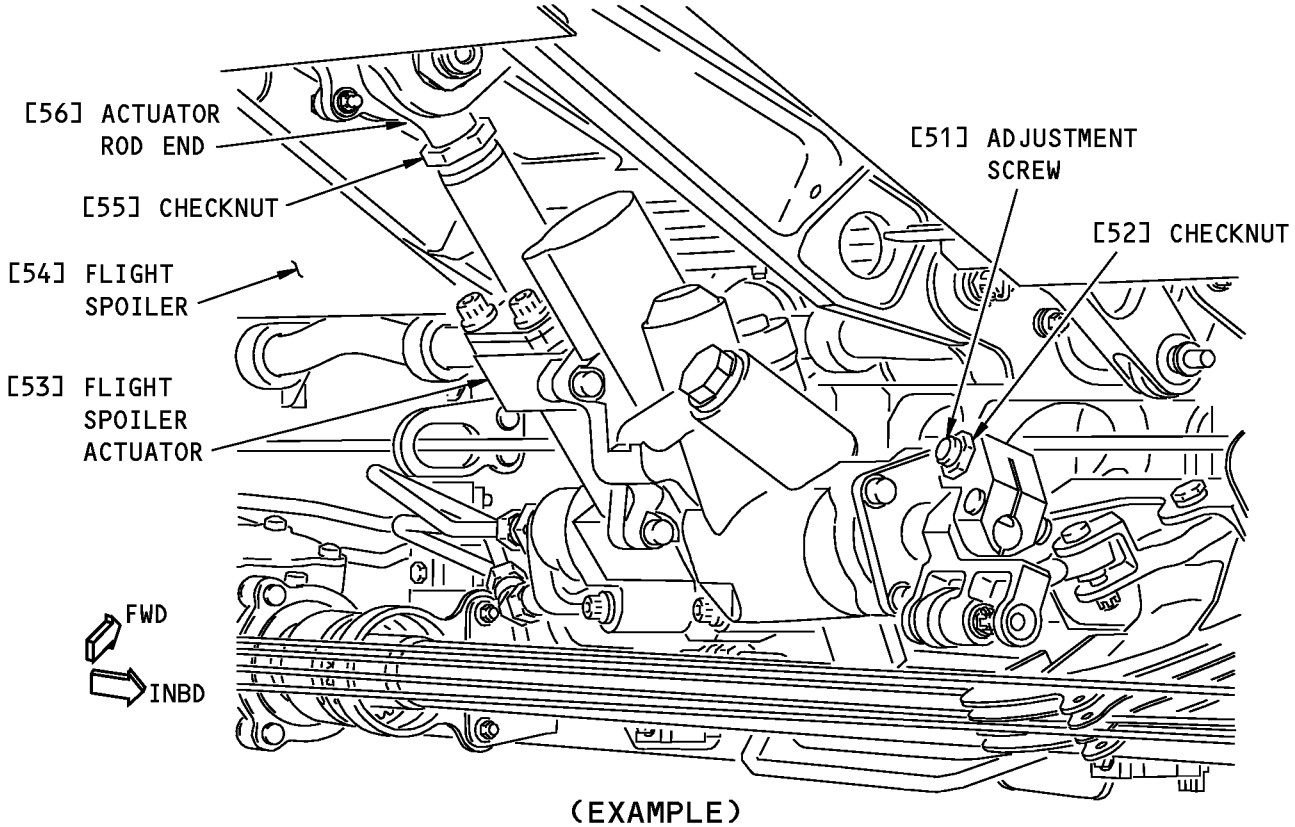


(EXAMPLE)
A-A



(EXAMPLE)

E

1 SPOILERS NO. 5 AND 8
2 SPOILERS NO. 3, 4, 9 AND 10
3 SPOILERS NO. 2 AND 11

Flight Spoiler Adjustment
Figure 503 (Sheet 4 of 4)/27-61-00-990-805

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TASK 27-61-00-820-804

6. Spoiler Actuator Linkage Adjustment

(Figure 503)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10

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(Continued)

Zone	Area
665	Right Wing - Spoiler No. 11

E. Prepare for the Adjustment

SUBTASK 27-61-00-860-033

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-00-860-034

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-61-00-480-007

(3) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 on the captain's aileron control wheel.

SUBTASK 27-61-00-860-035

(4) Put the ailerons in the neutral position.

SUBTASK 27-61-00-480-008

(5) Adjust control column assembly protractor, SPL-1680 to zero.

SUBTASK 27-61-00-860-036

(6) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-00-480-031

(7) Install the protractors, COM-1691, on the flight spoilers.

NOTE: If eight protractors, COM-1691 are not available, or if all of the actuator linkages do not need to be adjusted, you can adjust the actuator linkages two at a time. Install protractors, COM-1691 on both of the spoilers in a symmetrical pair. You can repeat the adjustment as needed for the other spoiler pairs. Symmetrical spoiler pairs are:

- Spoilers No. 2 and No. 11
- Spoilers No. 3 and No. 10
- Spoilers No. 4 and No. 9
- Spoilers No. 5 and No. 8

F. Spoiler Actuator Linkage Adjustment

SUBTASK 27-61-00-700-002

(1) Check the adjustment of the spoiler actuator linkages for spoilers No. 2, 3, 4, and 5.

(a) Turn the captain's aileron control wheel fully clockwise to make sure the spoilers No. 2, 3, 4, and 5 are in the fully retracted position.

(b) Turn the control wheel 30.0 +/- 0.5 degrees counterclockwise from the neutral position.

NOTE: Do not turn the control wheel past 30.5 degrees. If you do this, return the control wheel to neutral and move the control wheel slowly to 30.0 +/- 0.5 degrees again.

1) Make sure the spoilers No. 2, 3, 4, and 5 are extended to the positions shown in Table 502.

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Table 502/27-61-00-993-811

Control Wheel Position (Degrees CCW)	Spoiler Number	Panel Position (Degrees)
30	2	3.5 +1.0/-0.0
30	3	5.5 +1.0/-0.0
30	4	10.5 +1.0/-0.0
30	5	10.5 +1.0/-0.0

SUBTASK 27-61-00-820-008

(2) If the spoilers panel positions are not in the specified limits, adjust the linkage for spoilers No. 2, 3, 4, and 5.

(a) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(b) Hold the control wheel 30.0 +/- 0.5 degrees counterclockwise from the neutral position.

(c) Loosen the check nut [52] on the linkage (Figure 503).

NOTE: You may have to turn the control wheel past 30.5 degrees to turn the check nut or adjustment screw.

(d) Turn the adjustment screw [51] to adjust the actuator linkage.

NOTE: A 1/4 turn of the adjustment screw will change the panel position by approximately 0.75 degrees.

(e) Tighten the check nut [52] on the linkage.

(f) Turn the contol wheel to neutral and back to 30.0 ± 0.5 degrees counterclockwise.

(g) Make sure the spoilers No. 2, 3, 4, and 5 are extended to the positions shown in Table 502.

NOTE: Each spoiler has a different full-down position. The measurements in the table need to be made from that position.

SUBTASK 27-61-00-700-003

(3) Check the adjustment of the spoiler actuator linkages for spoilers No. 8, 9, 10 and 11.

(a) Turn the captain's aileron control wheel fully counterclockwise to make sure the spoilers No. 8, 9, 10 and 11 are in the fully retracted position.

(b) Turn the control wheel 30.0 +/- 0.5 degrees clockwise from the neutral position.

NOTE: Do not turn the control wheel past 30.5 degrees. If you do this, return the control wheel to neutral and move the control wheel slowly to 30.0 +/- 0.5 degrees again.

1) Make sure the spoilers No. 8, 9, 10, 11 are extended to the positions shown in Table 503.

Table 503/27-61-00-993-812

Control Wheel Position (Degrees CW)	Spoiler Number	Panel Position (Degrees)
30	8	10.5 +1.0/-0.0
30	9	10.5 +1.0/-0.0
30	10	5.5 +1.0/-0.0
30	11	3.5 +1.0/-0.0

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SUBTASK 27-61-00-820-021

(4) If the spoilers panel positions are not in the specified limits, adjust the linkage for spoilers No. 8, 9, 10, and 11.

(a) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(b) Hold the control wheel 30.0 +/- 0.5 degrees clockwise from the neutral position.

(c) Loosen the check nut [52] on the linkage (Figure 503).

NOTE: You may have to turn the control wheel past 30.5 degrees to turn the check nut or adjustment screw.

(d) Turn the adjustment screw [51] to adjust the actuator linkage.

NOTE: A 1/4 turn of the adjustment screw will change the panel position by approximately 0.75 degrees.

(e) Tighten the check nut [52] on the linkage.

(f) Turn the contol wheel to neutral and back to 30.0 ± 0.5 degrees counterclockwise.

(g) Make sure the spoilers No. 8, 9, 10, and 11 are extended to the positions shown in Table 503.

NOTE: Each spoiler has a different full-down position. The measurements in the table need to be made from that position.

SUBTASK 27-61-00-220-002

(5) Check the spoiler symmetry at partial speedbrake extension.

(a) Move the control wheel to the neutral position.

(b) Move the speedbrake lever until spoiler No. 3 or No. 4 is up 15 ± 0.5 degrees.

(c) Make sure spoilers No. 4 and No. 9 align in the limit of ± 0.5 degree.

(d) If spoilers No. 4 and No. 9 do not align, do these steps:

1) Loosen the check nut [52] on the spoiler you will adjust.

2) Turn the adjustment screw [51] to adjust the spoiler panel position to align the spoilers.

NOTE: A 1/4 turn of the adjustment screw will change the panel position by approximately 0.75 degrees.

3) Tighten the check nut [52].

4) Move the speed brake lever to the DOWN postition.

5) If you adjusted spoiler No. 4, turn the control wheel to 30.0 ± 0.5 degrees counterclockwise from the neutral position.

a) Make sure the position of spoiler No. 4 is within the limit of Table 502.

6) If you adjusted spoiler No. 9, turn the control wheel to 30.0 ± 0.5 degrees clockwise from the neutral position.

a) Make sure the position of spoiler No. 9 is within the limit of Table 503.

7) If the spoiler angle is not within the limits, repeat the linkage adjustment and partial speedbrake extension check until both requirements are met.

(e) Make sure spoilers No. 5 and No. 8 align in the limit of ± 0.5 degree.

(f) If spoilers No. 5 and No. 8 do not align, do these steps:

1) Loosen the check nut [52] on the spoiler you will adjust.

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2) Turn the adjustment screw [51] to adjust the spoiler panel position to align the spoilers.

NOTE: A 1/4 turn of the adjustment screw will change the panel position by approximately 0.75 degrees.

3) Tighten the check nut [52].

4) Move the speed brake lever to the DOWN postition.

5) If you adjusted spoiler No. 5, turn the control wheel to 30.0 ± 0.5 degrees counterclockwise from the neutral position.

a) Make sure the position of spoiler No. 5 is within the limit of Table 502.

6) If you adjusted spoiler No. 8, turn the control wheel to 30.0 ± 0.5 degrees clockwise from the neutral position.

a) Make sure the position of spoiler No. 8 is within the limit of Table 503.

7) If the spoiler angle is not within the limits, repeat the linkage adjustment and partial speedbrake extension check until both requirements are met.

(g) Move the speedbrake lever until spoiler No. 2 or No. 3 is up 15 ± 0.5 degrees.

(h) Make sure spoilers No. 2 and No. 11 align in the limit of ± 0.5 degree.

(i) If spoilers No. 2 and No. 11 do not align, do these steps:

1) Loosen the check nut [52] on the spoiler you will adjust.

2) Turn the adjustment screw [51] to adjust the spoiler panel position to align the spoilers.

NOTE: A 1/4 turn of the adjustment screw will change the panel position by approximately 0.75 degrees.

3) Tighten the check nut [52].

4) Move the speed brake lever to the DOWN postition.

5) If you adjusted spoiler No. 2, turn the control wheel to 30.0 ± 0.5 degrees counterclockwise from the neutral position.

a) Make sure the position of spoiler No. 2 is within the limit of Table 502.

6) If you adjusted spoiler No. 11, turn the control wheel to 30.0 ± 0.5 degrees clockwise from the neutral position.

a) Make sure the position of spoiler No. 11 is within the limit of Table 503.

7) If the spoiler angle is not within the limits, repeat the linkage adjustment and partial speedbrake extension check until both requirements are met.

(j) Make sure spoilers No. 3 and No. 10 align in the limit of ± 0.5 degree.

(k) If spoilers No. 3 and No. 10 do not align, do these steps:

1) Loosen the check nut [52] on the spoiler you will adjust.

2) Turn the adjustment screw [51] to adjust the spoiler panel position to align the spoilers.

NOTE: A 1/4 turn of the adjustment screw will change the panel position by approximately 0.75 degrees.

3) Tighten the check nut [52].

4) Move the speed brake lever to the DOWN postition.

5) If you adjusted spoiler No. 3, turn the control wheel to 30.0 ± 0.5 degrees counterclockwise from the neutral position.

a) Make sure the position of spoiler No. 3 is within the limit of Table 502.

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6) If you adjusted spoiler No. 10, turn the control wheel to 30.0 ± 0.5 degrees clockwise from the neutral position.

a) Make sure the position of spoiler No. 10 is within the limit of Table 503.

7) If the spoiler angle is not within the limits, repeat the linkage adjustment and partial speedbrake extension check until both requirements are met.

SUBTASK 27-61-00-430-002

(6) When the linkage adjustment and partial speedbrake extension check are complete, install the lockwire, G01912 on the check nut [52].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-866-006

(1) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-00-860-037

(2) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-61-00-080-016

(3) Remove the protractors, COM-1691 from the spoilers.

SUBTASK 27-61-00-480-009

(4) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the captain's aileron control wheel.

——————— END OF TASK ———————

TASK 27-61-00-820-805

7. Spoiler Mixer Adjustment

(Figure 504)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-820-802	Speed Brake Control Cable Adjustment (P/B 501)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Prepare for the Adjustment

SUBTASK 27-61-00-860-038

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-61-00-860-039

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

D. Spoiler Mixer Adjustment

SUBTASK 27-61-00-010-002

(1) Remove the roller access covers [71] to get access to the roller on the spoiler mixer [72].

(a) Remove bolts [73] and washers [74].

SUBTASK 27-61-00-860-088

(2) Make sure the speedbrake lever is in the DOWN position.

SUBTASK 27-61-00-860-089

(3) Turn the control wheel counter-clockwise 87 degrees from the neutral position.

SUBTASK 27-61-00-700-004

(4) Look at the spoiler mixer [72] cam through the left roller access cover [71].

(a) Make sure the left cam is on the maximum rise part of the spoiler mixer [72].

SUBTASK 27-61-00-860-040

(5) Turn the control wheel to the neutral position.

SUBTASK 27-61-00-860-041

(6) Turn the control wheel clockwise 87 degrees from the neutral position.

SUBTASK 27-61-00-700-005

(7) Look at the spoiler mixer [72] cam through the right roller access cover [71].

(a) Make sure the right cam is on the maximum rise part of the spoiler mixer [72].

SUBTASK 27-61-00-860-042

(8) Turn the control wheel to the neutral position.

SUBTASK 27-61-00-820-010

(9) If the cam followers are not on the maximum rise when you turn the control wheel, adjust the SBA and SBB cables.

(a) Use the turnbuckles to make the cable SBB shorter by one-half turn and make the cable SBA longer by one-half turn.

NOTE: The cable SBB is the lower cable on the speed brake quadrant on the ratio changer. When you look forward, the speed brake quadrant will turn clockwise when you tighten the cable SBB.

(b) To check the adjustment of cables SBA and SBB, do this task: Speed Brake Control Cable Adjustment, TASK 27-62-00-820-802.

NOTE: After the adjustment it is not necessary for the rig pin S/B-2 to fit in the rig pin hole.

(c) Make sure the cam followers are on the maximum rise when you turn the control wheel.

SUBTASK 27-61-00-010-003

(10) Install washers [74] and bolts [73] to close the roller access covers [71] on the spoiler mixer [72].

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SUBTASK 27-61-00-730-001

(11) Do this task: Flight Spoiler System Test (Alternate Method), TASK 27-61-00-000-801.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-043

(1) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

——————— END OF TASK ———————

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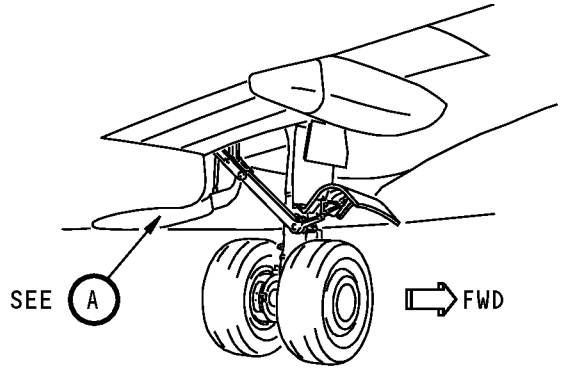

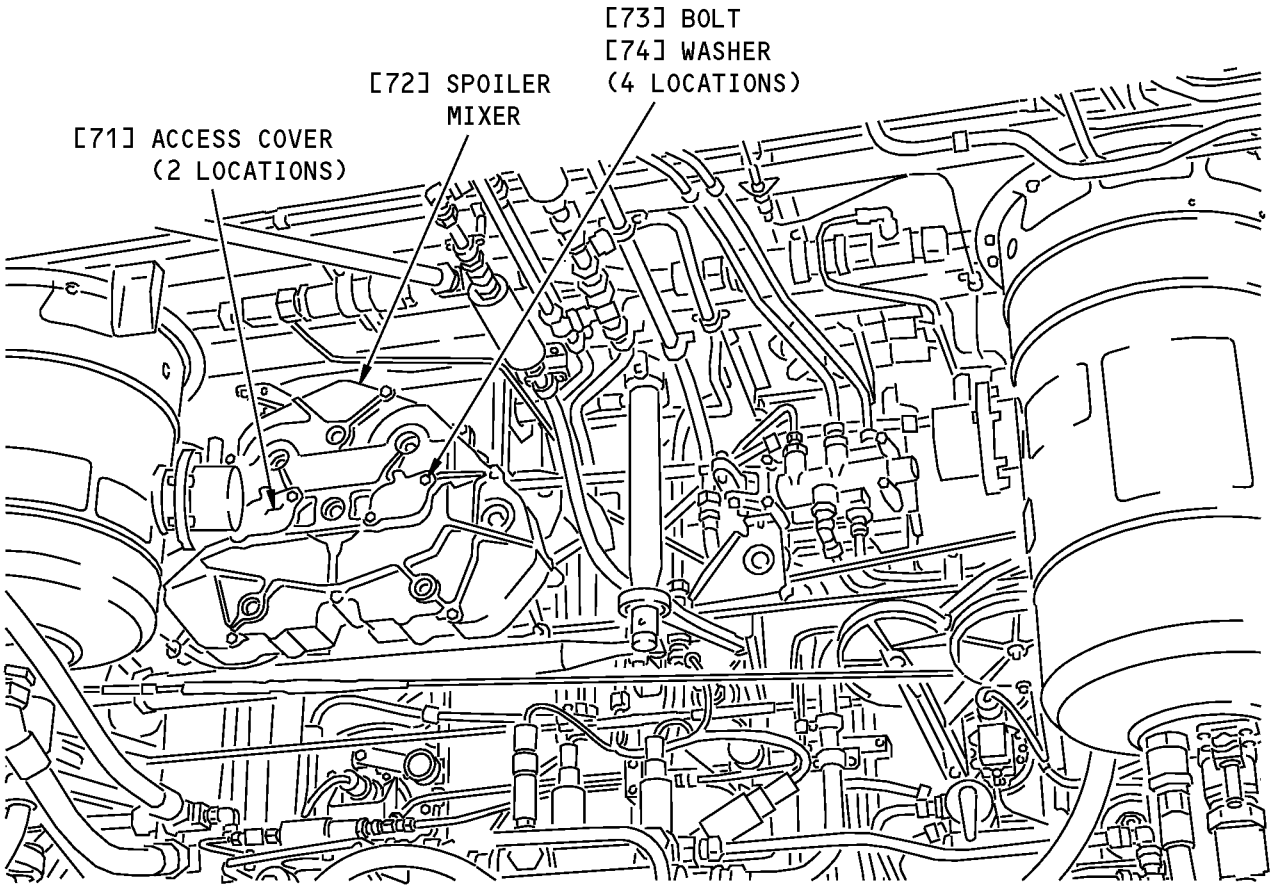

MAIN LANDING GEAR WHEEL WELL

A

Spoiler Mixer Adjustment
Figure 504/27-61-00-990-806

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TASK 27-61-00-820-808

8. Spoiler Position Sensor Adjustment

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-913	Download Unit - Handheld (Part #: 964-0446-001, Supplier: 97896, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER)
COM-1807	Tester - DFDAU (Part #: 2229738-7, Supplier: 98571, A/P Effectivity: 737-200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: HT717-1, Supplier: 0H231, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: 2229738-8, Supplier: 98571, A/P Effectivity: 737-200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1808	Cable - Adapter, Teledyne Tester (Use with Teledyne DFDAU Tester) (Part #: A31007-59, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
564	Left Wing - Spoiler No. 3
664	Right Wing - Spoiler No. 10

D. Prepare for the adjustment.

SUBTASK 27-61-00-861-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-00-480-032

(2) Use one of the testers listed below to perform the adjustment:

NOTE: When a task uses subframe 0 it indicates that a parameter is on all 4 subframes. Some portable testers do not have a selection switch for subframe 0. On these testers, you can make a selection of subframes 1 through 4 when a task uses subframe 0.

(a) Do these steps to prepare the Teledyne portable tester, COM-1807.

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1) Remove the shorting plug from the system test plug on the P18 panel.
2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

3) Use the portable tester cable, SPL-1808, to connect the tester to the system test plug.
4) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

5) Make sure the DFDAU switch on portable tester cable, SPL-1808, is in the OUTPUT TO DFDR position.
6) Make sure the FDEP switch on the portable tester cable, SPL-1808, is in the DISCONNECT position.
7) Set the portable tester, COM-1807, to read 256 WPS.

(b) Do the steps below to prepare the Handheld Download handheld download unit, COM-913 for the adjustment.

NOTE: The Handheld Download unit can only be used on airplanes with AlliedSignal/ Honeywell solid state flight data recorder (FDR) installed.

1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

2) Connect the Handheld Download handheld download unit, COM-913 to the connector on the FDR.
3) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	9	C00109	FLIGHT RECORDER AC
C	10	C00468	FLIGHT RECORDER DC

4) Push the red button on the handheld download unit, COM-913.
5) Set the DSDU switch on the handheld download unit, COM-913.
6) Set the BASE switch on the handheld download unit, COM-913.

SUBTASK 27-61-00-820-039

(3) Put the NORMAL/TEST switch on the flight recorder panel, P5, to the TEST position.

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SUBTASK 27-61-00-820-040

(4) Set the WORD and SUBFRAME as specified.

NOTE: The HHDLU does not have a selection for subframe 0. Make a selection of subframe ALL or subframe 1 thru 4 when a task uses subframe 0.

(a) If you are adjusting the sensor on spoiler No. 3, set the tester to subframe 0, word 91.

(b) If you are adjusting the sensor on spoiler No. 10, set the tester to subframe 0, word 96.

HAP 037-054

SUBTASK 27-61-00-865-003

(5) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	4	C01662	SPOILER PCU SOV SYS A
A	5	C01663	SPOILER PCU SOV SYS B

HAP ALL

SUBTASK 27-61-00-865-004

(6) Make sure that this circuit breaker is closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
C	8	C00544	FLIGHT RECORDER POSITION SENSOR

SUBTASK 27-61-00-863-001

WARNING: KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(7) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-61-00-866-007

(8) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803

SUBTASK 27-61-00-866-008

(9) Make sure the speed brake lever is in the DOWN position.

SUBTASK 27-61-00-866-009

(10) Make sure the control wheel is in the neutral postition.

E. Adjust the spoiler position sensor

SUBTASK 27-61-00-030-001

(1) Loosen the bolt on the mounting bracket until you can turn the spoiler position sensor.

NOTE: You do not have to remove the bolt, washer, washer, and nut.

SUBTASK 27-61-00-820-041

(2) Turn the spoiler position sensor until the tester shows 7735 to 0042.

SUBTASK 27-61-00-820-042

(3) Rotate the thumb nut on the adjustment rod until the tester shows a value as close to 0000 (or 7777) as possible.

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SUBTASK 27-61-00-430-003

(4) Lockwire the thumbnut.

SUBTASK 27-61-00-430-004

(5) Tighten the bolt on the mounting bracket to 8-12 pound-inches (0.9-1.4 newton-meters).

F. Check the adjustment

SUBTASK 27-61-00-866-016

(1) Put the captain's control wheel in the neutral position.

SUBTASK 27-61-00-866-010

(2) Move the speed brake lever to the full UP position.

SUBTASK 27-61-00-866-011

(3) If you are adjusting the sensor on spoiler No. 3, do these steps.

HAP 001-013, 015-026, 028-036, 101-999

(a) Rotate the captain's control wheel fully counterclockwise.

(b) Make sure the tester shows 1032 to 1154.

HAP 037-054

(c) Make sure the tester shows 0525 to 0631.

HAP ALL

SUBTASK 27-61-00-866-012

(4) If you are adjusting the sensor on spoiler No. 10, do these steps.

HAP 001-013, 015-026, 028-036, 101-999

(a) Rotate the captain's control wheel fully clockwise.

(b) Make sure the tester shows 6623 to 6745.

HAP 037-054

(c) Make sure the tester shows 7146 to 7253.

HAP 001-013, 015-026, 028-036, 101-999

SUBTASK 27-61-00-866-013

(5) Put the captain's control wheel in the neutral position.

HAP ALL

SUBTASK 27-61-00-866-014

(6) Move the speed brake lever to the DOWN postition.

(a) Make sure the tester shows 7735 to 0042.

G. Put the Airplane Back to its Usual Condition

SUBTASK 27-61-00-820-043

(1) Put the flight data recorder TEST-NORMAL switch on the P5 panel to the NORM position.

SUBTASK 27-61-00-862-001

(2) Remove power from the tester.

SUBTASK 27-61-00-080-017

(3) Remove the tester from the flight data recorder system.

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SUBTASK 27-61-00-866-015

(4) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

HAP 037-054

SUBTASK 27-61-00-865-005

(5) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	4	C01662	SPOILER PCU SOV SYS A
A	5	C01663	SPOILER PCU SOV SYS B

HAP ALL

SUBTASK 27-61-00-864-001

(6) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-61-00-862-002

(7) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

TASK 27-61-00-000-801

9. Flight Spoiler System Test (Alternate Method)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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(Continued)

Reference	Description
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

E. Prepare for the Test

SUBTASK 27-61-00-860-044

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

HAP 037-054

SUBTASK 27-61-00-865-001

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	4	C01662	SPOILER PCU SOV SYS A
A	5	C01663	SPOILER PCU SOV SYS B

HAP ALL

SUBTASK 27-61-00-860-045

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-61-00-480-010

(4) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 on the captain's aileron control wheel.

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SUBTASK 27-61-00-820-011

(5) Adjust the control column assembly protractor, SPL-1680 to zero.

SUBTASK 27-61-00-860-046

(6) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-00-860-047

(7) Put the ailerons in the neutral position.

SUBTASK 27-61-00-480-011

(8) Install the protractor, COM-1691 on the flight spoilers 2, 3, 4, 5, 8, 9, 10 and 11.

SUBTASK 27-61-00-820-012

(9) Adjust the protractor, COM-1691 to zero.

F. Flight Spoiler System Test

SUBTASK 27-61-00-020-009

(1) Turn the control wheel to 30 degrees clockwise.

(a) Make sure that the spoilers No. 8 and No. 9 are up 10.5 +1.0/-0.0 degrees.

(b) Make sure that the spoiler No. 10 is up 5.5 +1.0/-0.0 degrees.

(c) Make sure that the spoiler No. 11 is up 3.5 +1.0/-0.0 degrees.

HAP 001-013, 015-026, 028-036, 101-999

SUBTASK 27-61-00-020-010

(2) Turn the control wheel to 82 (+10/-1) degrees clockwise.

(a) Make sure that the spoiler No. 9 is up 37 ± 2 degrees.

(b) Make sure spoiler No. 9 and spoiler No. 8 align in the limit of ± 2 degrees.

(c) Make sure that the spoiler No. 10 is up 32 ± 2 degrees.

(d) Make sure spoiler No. 10 and spoiler No. 11 align in the limit of ± 2 degrees.

(e) Make sure that the spoilers No. 2, 3, 4 and 5 are in the fully down position.

HAP 037-054

SUBTASK 27-61-00-020-027

(3) Turn the control wheel to 82 (+10/-1) degrees clockwise.

(a) Make sure that the spoilers No. 8 and No. 9 are up 39-48 degrees.

(b) Make sure that the spoiler No. 10 is up 32-39 degrees.

(c) Make sure that spoiler No. 11 is up 30-38 degrees.

(d) Make sure that the spoilers No. 2, 3, 4 and 5 are in the fully down position.

HAP ALL

SUBTASK 27-61-00-020-011

(4) Turn the wheel counterclockwise until the spoiler No. 9 starts to move down.

(a) Make sure the spoiler starts to move down when the control wheel is a minimum of 65 degrees clockwise.

SUBTASK 27-61-00-820-013

(5) Turn the control wheel counterclockwise until the spoiler No. 9 is in the fully down position.

(a) Make sure the spoiler is in the fully down position when the control wheel is 5 ± 3 degrees clockwise.

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SUBTASK 27-61-00-820-014

(6) Turn the control wheel to 30 degrees counterclockwise.

(a) Make sure that the spoilers No. 4 and No. 5 are up 10.5 +1.0/-0.0 degrees.

(b) Make sure that the spoiler No. 3 is up 5.5 +1.0/-0.0 degrees.

(c) Make sure that the spoiler No. 2 is up 3.5 +1.0/-0.0 degrees.

HAP 001-013, 015-026, 028-036, 101-999

SUBTASK 27-61-00-820-015

(7) Turn the control wheel to 82 (+10/-1) degrees counterclockwise.

(a) Make sure that the spoiler No. 4 is up 37 ± 2 degrees.

(b) Make sure that spoiler No. 4 and spoiler No. 5 align in the limit of ± 2 degrees.

(c) Make sure that the spoiler No. 3 is up 32 ± 2 degrees.

(d) Make sure that spoiler No. 3 and Spoiler No. 2 align in the limit of ± 2 degrees.

(e) Make sure that the spoilers No. 8, No. 9, No. 10 and No. 11 are in the fully down position.

HAP 037-054

SUBTASK 27-61-00-820-034

(8) Turn the control wheel to 87 (+10/-1) degrees counterclockwise.

(a) Make sure that the spoilers No. 4 and No. 5 are up 39-48 degrees.

(b) Make sure that the spoiler No. 3 is up 32-39 degrees.

(c) Make sure that the spoiler No. 2 is up 30-38 degrees.

(d) Make sure that the spoilers No. 8, No. 9, No. 10 and No. 11 are in the fully down position.

HAP ALL

SUBTASK 27-61-00-820-016

(9) Turn the control wheel clockwise until the spoiler No. 4 starts to move down.

(a) Make sure the spoiler starts to move down when the control wheel is a minimum of 65 degrees counterclockwise.

SUBTASK 27-61-00-820-017

(10) Turn the control wheel clockwise until the spoiler No. 4 is in the fully down position.

(a) Make sure the spoiler is in the fully down position when the control wheel is 5 ± 3 degrees counterclockwise.

SUBTASK 27-61-00-730-014

(11) Shake the control wheel at 0 degrees.

SUBTASK 27-61-00-730-002

(12) Move the speed brake lever to the ARMED detent.

(a) Make sure that spoilers No. 2, 3, 4, 5, 8, 9, 10 and 11 do not extend more than 1.50 degrees.

SUBTASK 27-61-00-710-001

(13) Make sure the speed brakes extend the same when you move the speed brake lever:

(a) Move the speed brake lever until the spoiler No. 4 is up 15 ± 1/2 degrees.

1) Make sure spoiler No. 4 and spoiler No. 9 align in the limit of ± 1/2 degree.

2) Make sure spoiler No. 5 and spoiler No. 8 align in the limit of ± 1/2 degree.

(b) Move the speed brake lever until the spoiler No. 3 is up 15 ± 1/2 degrees.

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1) Make sure spoiler No. 3 and spoiler No. 10 align within the limit of ± 1/2 degree.
2) Make sure spoiler No. 2 and spoiler No. 11 align in the limit of ± 1/2 degree.

SUBTASK 27-61-00-730-003

(14) Do a test of the spoilers with the speed brake lever in the FLIGHT DETENT position.
(a) Move the speed brake lever to the FLIGHT DETENT position.
1) Make sure spoiler No. 2 and spoiler No. 11 align in the limit of ± 1 degree.
2) Make sure spoiler No. 3 and spoiler No. 10 align in the limit of ± 1 degree.
3) Make sure spoilers No. 2 and No. 11 measure between 14 and 18.5 degrees.
4) Make sure spoilers No. 3 and No. 10 measure between 16 and 18.5 degrees.
5) Make sure spoiler No. 4 and spoiler No. 9 align in the limit of ± 1 degree.
6) Make sure spoiler No. 5 and spoiler No. 8 align in the limit of ± 1 degree.
7) Make sure spoilers No. 4, 5, 8, and 9 measure between 21 and 25.5 degrees.

SUBTASK 27-61-00-730-004

(15) Do a test of the spoilers with the speed brake lever in the UP position:
(a) Make sure the ailerons are in the neutral position.
(b) Move the speed brake lever to the UP position.
1) Make sure spoiler No. 2 and spoiler No. 11 align in the limit of ± 2 degrees.
2) Make sure spoiler No. 3 and spoiler No. 10 align in the limit of ± 2 degrees.
3) Make sure spoilers No. 2 and No. 11 measure between 30 and 35.5 degrees.
4) Make sure spoilers No. 3 and No. 10 measure between 32 and 37.5 degrees.
5) Make sure spoiler No. 4 and spoiler No. 9 align in the limit of ± 2 degrees.
6) Make sure spoiler No. 5 and spoiler No. 8 align in the limit of ± 2 degrees.
7) Make sure spoilers No. 4, 5, 8, and 9 measure between 37.5 and 44.5 degrees.

HAP 001-013, 015-026, 028-036, 101-999

(c) Turn the captain's control wheel 87 degrees counterclockwise from the neutral position.
1) Make sure spoiler No. 3 is up 32 ± 3 degrees.
2) Make sure spoiler No. 4 is up 37 ± 3 degrees.
3) Make sure spoilers No. 8, 9, 10, and 11 move partially down.

HAP 037-054

(d) Turn the captain's control wheel 87 degrees counterclockwise from the neutral position.
1) Make sure spoilers No. 2, 3, 4, and 5 move upward.
2) Make sure spoilers No. 8, 9, 10, and 11 move partially down.

HAP 001-013, 015-026, 028-036, 101-999

(e) Turn the captain's control wheel 87 degrees clockwise from the neutral position.
1) Make sure spoiler No. 9 is up 37 ± 3 degrees.
2) Make sure spoiler No. 10 is up 32 ± 3 degrees.
3) Make sure spoilers No. 2, 3, 4, and 5 move partially down.

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HAP 037-054

(f) Turn the captain's control wheel 87 degrees clockwise from the neutral position.

1) Make sure spoilers No. 8, 9, 10, and 11 move upward.

2) Make sure spoilers No. 2, 3, 4, and 5 move partially down.

HAP ALL

SUBTASK 27-61-00-730-015

(16) Turn the control wheel to 0 degrees.

SUBTASK 27-61-00-730-005

(17) Make sure the spoilers move to the down position.

(a) Move the speed brake lever to the DOWN detent.

(b) Make sure that the spoilers No. 2, 3, 4, 5, 8, 9, 10 and 11 are in the fully retracted position.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-064

(1) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

HAP 037-054

SUBTASK 27-61-00-865-002

(2) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	4	C01662	SPOILER PCU SOV SYS A
A	5	C01663	SPOILER PCU SOV SYS B

HAP ALL

SUBTASK 27-61-00-080-006

(3) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the captain's aileron control wheel.

SUBTASK 27-61-00-080-007

(4) Remove the protractor, COM-1691 from the spoilers No. 2, 3, 4, 5, 8, 9, 10 and 11.

——————— END OF TASK ———————

TASK 27-61-00-000-803

10. Flight Spoiler System Test (Recommended Method)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

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B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

D. Prepare for the Test

SUBTASK 27-61-00-860-093

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-00-860-094

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-61-00-480-016

(3) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 on the captain's aileron control wheel.

SUBTASK 27-61-00-820-022

(4) Adjust the control column assembly protractor, SPL-1680 to zero.

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SUBTASK 27-61-00-860-095

(5) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-00-860-096

(6) Put the ailerons in the neutral position.

E. Flight Spoiler System Test

SUBTASK 27-61-00-480-017

(1) Do these steps in turn for spoiler panels 2, 3, 4 and 5.

(a) Install the protractor, COM-1691 on the spoiler panel.

1) Note the location of the protractor.

2) Adjust the protractor, COM-1691 to zero.

(b) Make sure that rig pin number 15 fits freely in the Aileron Trim Actuator located in the left main landing gear wheel well.

NOTE: Do not adjust the aileron trim for the remainder of this procedure.

(c) Turn the control wheel counterclockwise to 30 degrees and hold.

1) Using the spoiler protractor, note the position of spoiler panel.

NOTE: If you have to remove the protractor to measure the angle of the spoiler panel, make sure you replace it in the same location from where it came.

(d) Continue to turn the control wheel counterclockwise to 87 degrees.

1) Using the spoiler protractor, note the new position of spoiler panel.

(e) Make sure the right wing flight spoiler panels 8, 9, 10 and 11 stay in the full down position.

(f) Shake-out and center the control wheel.

HAP 001-013, 015-026, 028-036, 101-999

SUBTASK 27-61-00-220-003

(2) Make sure that the noted position of the spoiler panel is within the spoiler position limits shown in Table 504.

Table 504/27-61-00-993-819

Wheel Position	30 +/- 1/2 CCW	87 +/- 1 CCW
Spoiler 2 Position (Degrees)	3.5-4.5	33 +1/-3
Spoiler 3 Position (Degrees)	5.5-6.5	33 +1/-3
Spoiler 4 Position (Degrees)	10.5-11.5	38 +1/-3
Spoiler 5 Position (Degrees)	10.5-11.5	38 +1/-3
Spoilers 8, 9 10, 11 Position	Full Down	Full Down

HAP 037-054

SUBTASK 27-61-00-020-017

(3) Make sure that the noted position of the spoiler panel is within the spoiler position limits shown in Table 505.

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HAP 037-054 (Continued)

Table 505/27-61-00-993-824

Wheel Position	30 +/- 1/2 CCW	87 +/- 1 CCW
Spoiler 2 Position (Degrees)	3.5-4.5	30-38
Spoiler 3 Position (Degrees)	5.5-6.5	32-39
Spoiler 4 Position (Degrees)	10.5-11.5	39-48
Spoiler 5 Position (Degrees)	10.5-11.5	39-48
Spoilers 8, 9 10, 11 Position	Full Down	Full Down

HAP ALL

SUBTASK 27-61-00-860-097

(4) Do the following steps:

(a) Turn the control wheel to 87 degrees in the counterclockwise direction.

(b) Slowly turn the control wheel in the clockwise direction.

(c) Stop turning the control wheel when spoiler panels 2, 3, 4 and 5 start to move down.

1) Record the control wheel position.

(d) Slowly begin turning the control wheel to the neutral position.

(e) Stop turning the control wheel when spoiler panels 4 and 5 reach the full down position.

NOTE: In the FULL DOWN position it is normal for spoiler panel 5 to be slightly higher than spoiler panel 4.

1) Record the control wheel position.

(f) Make sure the noted control wheel positions are within the limits shown in Table 506.

Table 506/27-61-00-993-826

Spoiler Position	Required Position	Actual Position
Spoilers 2, 3 4 and 5 are starting to move down.	Control wheel should be at 65 degrees minimum	Control Wheel was at _____ degrees
Spoilers 2, 3 4 and 5 are fully down.	Control wheel should be at 5 +/- 3 degrees	Control Wheel was at _____ degrees

SUBTASK 27-61-00-860-099

(5) Shake-out and center the control wheel.

SUBTASK 27-61-00-480-018

(6) Do these steps in turn for spoiler panels 8, 9, 10 and 11.

(a) Install the protractor, COM-1691 on the spoiler panel.

1) Note the location of the protractor.

2) Adjust the protractor, COM-1691 to zero.

(b) Turn the control wheel clockwise to 30 degrees and hold.

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1) Using the spoiler protractor, note the position of spoiler panel.

NOTE: If you have to remove the protractor to measure the angle of the spoiler panel, make sure you replace it in the same location from where it came.

(c) Continue to turn the control wheel clockwise to 87 degrees.

1) Using the spoiler protractor, note the new position of the spoiler panel.

(d) Make sure the left wing flight spoiler panels 2, 3, 4 and 5 stay in the full down position.

(e) Shake-out and center the control wheel.

HAP 001-013, 015-026, 028-036, 101-999

SUBTASK 27-61-00-020-018

(7) Make sure that the noted position of the spoiler panel is within the spoiler position limits shown in Table 507.

Table 507/27-61-00-993-825

Wheel Position	30 +/- 1/2 CW	87 +/- 1 CW
Spoiler 8 Position (Degrees)	10.5-11.5	38 +1/-3
Spoiler 9 Position (Degrees)	10.5-11.5	38 +1/-3
Spoiler 10 Position (Degrees)	5.5-6.5	33 +1/-3
Spoiler 11 Position (Degrees)	3.5-4.5	33 +1/-3
Spoilers 2, 3, 4, 5 Position	Full Down	Full Down

HAP 037-054

SUBTASK 27-61-00-212-001

(8) Make sure that the noted position of the spoiler panel is within the spoiler position limits shown in Table 508.

Table 508/27-61-00-993-827

Wheel Position	30 +/- 1/2 CW	87 +/- 1 CW
Spoiler 8 Position (Degrees)	10.5-11.5	39-48
Spoiler 9 Position (Degrees)	10.5-11.5	39-48
Spoiler 10 Position (Degrees)	5.5-6.5	32-39
Spoiler 11 Position (Degrees)	3.5-4.5	30-38
Spoilers 2, 3, 4, 5 Position	Full Down	Full Down

HAP ALL

SUBTASK 27-61-00-860-101

(9) Do the following steps:

(a) Turn the control wheel to 87 degrees in the clockwise direction.

(b) Slowly turn the control wheel in the counterclockwise direction.

(c) Stop turning the control wheel when spoiler panels 8, 9, 10 and 11 start to move down.

1) Record the control wheel position.

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(d) Slowly begin turning the control wheel to the neutral position.

(e) Stop turning the control wheel when spoiler panels 8 and 9 reach the full down position.

NOTE: In the FULL DOWN position it is normal for spoiler panel 8 to be slightly higher than spoiler panel 9.

1) Record the control wheel position.

(f) Make sure the noted control wheel positions are within the limits shown in Table 509.

Table 509/27-61-00-993-822

Spoiler Position	Required Position	Actual Position
Spoilers 8, 9 10 and 11 are starting to move down.	Control wheel should be at 65 degrees minimum	Control Wheel was at _____ degrees
Spoilers 8, 9 10 and 11 are fully down.	Control wheel should be at 5 +/- 3 degrees	Control Wheel was at _____ degrees

SUBTASK 27-61-00-860-102

(10) Shake-out and center the control wheel.

SUBTASK 27-61-00-860-103

(11) Do the following steps to test spoiler panel response at the 'ARMED' detent position.

(a) Move the speed brake lever from DOWN to FULL UP at least six times.

(b) Move the speedbrake lever to the down and locked position.

(c) Move the speed brake lever to the 'ARMED' detent position.

(d) Make sure that flight spoilers 2, 3, 4, 5, 8, 9, 10 and 11 are not extended more than 1.50 degrees (0.63 inch) at the trailing edge.

NOTE: Make sure to zero the protractor on each panel in the down position prior to measuring panel angle.

(e) Move the speed brake to the DOWN and LOCKED position.

SUBTASK 27-61-00-860-104

(12) Do the following steps to test spoiler equalization with partial Speed Brake (Table 510).

NOTE: These steps must be carried out separately for corresponding spoiler panels 2 and 11, 3 and 10, 4 and 9 and 5 and 8.

(a) Adjust the spoiler panel protractor to read zero degrees on the left wing spoiler panel in the DOWN position

(b) Note the location of the protractor on the spoiler panel.

(c) Move the speed brake lever from the down and locked position until the left wing spoiler panel is raised 15 +/- 1 degrees.

(d) Using the protractor, measure the position of the left wing spoiler panel.

(e) Return the protractor to the location noted on the spoiler panel.

(f) Measure and record the position of the right wing spoiler panel.

NOTE: Do NOT adjust the protractor zero for this measurement.

(g) Note the location of the protractor on the spoiler panel.

(h) When measuring the UP position of right wing spoiler panel, note the +/- reading on the protractor.

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(i) Move the speed brake lever to the DOWN position.

(j) Measure and record the down position of spoiler panel #11.

NOTE: Make sure to place the protractor in the same location as noted on spoiler panel 11. Do not adjust the protractor zero for this measurement.

(k) Note the +/- reading on the protractor.

(l) Calculate the total travel for right wing spoiler panel by subtracting the DOWN position measurement from the UP position measurement.

(m) Verify there is not more than 1/2 degree difference between each corresponding spoiler panel.

Table 510/27-61-00-993-814

	Required	Actual
Left Wing Spoiler Panel	15 +/- 1 Degree	
Right Wing Spoiler Panel UP	Measured	
Right Wing Spoiler Panel DOWN	Measured	
Calculated Travel Right Wing Panel	Calculated Figure	
Verify Symmetry	1/2 Degree	

SUBTASK 27-61-00-860-105

(13) Do the following steps to test Spoiler response at FLIGHT DETENT position:

(a) Adjust the spoiler panel protractor to read zero degrees on panel 2 in the DOWN position (Table 511).

NOTE: Make sure to note the location of the protractor on the spoiler panel.

(b) Measure and record the position of spoiler panels 3, 4, 5, 8, 9, 10 and 11.

NOTE: Make sure to note the position of the protractor on each spoiler panel.

(c) Move the speed brake lever to the FLIGHT DETENT position.

(d) Measure and record the position of spoiler panels 3, 4, 5, 8, 9, 10 and 11.

NOTE: Make sure to place the protractor in the same positions as noted above. Do not adjust the protractor zero for this measurement.

(e) Note the +/- reading on the protractor while measuring the UP position.

(f) Calculate and record the total travel for spoiler panels 2, 3, 4, 5, 8, 9, 10 and 11 by subtracting the DOWN position measurement from the FLIGHT DETENT measurement.

Table 511/27-61-00-993-815

Panel Number	Panels Down	Flight Detent	Calc. Travel
Panel 2			
Panel 3			
Panel 4			
Panel 5			
Panel 8			

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(Continued)

Panel Number	Panels Down	Flight Detent	Calc. Travel
Panel 9			
Panel 10			
Panel 11			

SUBTASK 27-61-00-860-106

(14) Make sure that there is no more than a one degree difference between opposite spoiler panel pairs: 2 and 11, 3 and 10, 4 and 9, and 5 and 8 (Table 512).

Table 512/27-61-00-993-816

Difference	Required	Actual
Panel 2 and 11	1 Degree Max.	
Panel 3 and 10	1 Degree Max.	
Panel 4 and 9	1 Degree Max.	
Panel 5 and 8	1 Degree Max.	

SUBTASK 27-61-00-860-107

(15) Do these steps to test spoiler response at Full Speed Brake.

NOTE: In order to complete these steps, you must have noted the measurements for the DOWN position of spoiler panels 3, 4, 5, 8, 9, 10 and 11.

(a) Move the Speed Brake lever into the FULL UP position.

(b) Measure and record the position of Spoiler panels 2, 3, 4, 5, 8, 9, 10 and 11 (Table 513).

NOTE: Make sure to place the protractor in the same positions as noted above. Do not adjust the protractor zero for this measurement.

(c) Note the +/- reading on the protractor as this value must be used to calculate total panel travel.

(d) Calculate the total travel for each spoiler panel by subtracting the DOWN position measurement from the full UP position measurement.

Table 513/27-61-00-993-817

Panel Number	Panels Down	Full Up	Calc. Travel
Panel 2	zero		
Panel 3			
Panel 4			
Panel 5			
Panel 8			
Panel 9			
Panel 10			
Panel 11			

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(e) Make sure that there is no more than 2 degrees difference between symmetric spoiler panel pairs: 2 and 11, 3 and 10, 4 and 9, 5 and 8.

(f) Turn the captain's control wheel clockwise to 87 degrees and hold.

HAP 001-013, 015-026, 028-036, 101-999

(g) Measure and record the position of flight spoilers 8, 9, 10 and 11 (Table 514).

NOTE: If spoiler panels 8, 9, 10 and 11 do not move, use the calculated panel travel from above instead.

(h) Make sure spoiler panels 2, 3, 4 and 5 are partially raised.

Table 514/27-61-00-993-818

Panels	Required Position Degrees	Actual Position Degrees
8 and 9	37 +/- 3	
10 and 11	32 +/- 3	
2, 3, 4, 5	Partially Raised	Yes/ No

HAP 037-054

(i) Make sure spoilers 8, 9, 10, and 11 move upward.

(j) Make sure spoilers 2, 3, 4, and 5 move partially down.

HAP ALL

(k) Turn the captain's control wheel counterclockwise to 87 degrees and hold.

HAP 001-013, 015-026, 028-036, 101-999

(l) Measure and record the position of flight spoilers 2, 3, 4 and 5.

NOTE: If spoiler panels 2, 3, 4 and 5 do not move, use the calculated panel travel from above instead.

(m) Make sure spoiler panels 8, 9, 10 and 11 are partially raised.

Table 515/27-61-00-993-823

Panels	Required Position Degrees	Actual Position Degrees
2 and 3	32 +/- 3	
4 and 5	37 +/- 3	
8, 9, 10, 11	Partially Raised	Yes/ No

HAP 037-054

(n) Make sure spoilers 2, 3, 4, and 5 move upward.

(o) Make sure spoilers 8, 9, 10, and 11 move partially down.

HAP ALL

SUBTASK 27-61-00-860-108

(16) Do these steps to check for spoiler laydown:

(a) Put the control wheel back in the neutral or zero position.

(b) Move the speed brake lever to the DOWN postition.

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(c) Make sure all spoiler panels are in the full down position.

SUBTASK 27-61-00-820-023

(17) Do these steps to test spoiler operation with one system hydraulic power.

(a) Turn off the System A hydraulic power by switching the SPOILER A switch on the forward overhead panel to OFF.

(b) Move the speed brake lever to the full up position.

(c) Make sure spoilers 3, 5, 8 and 10 are fully up.

(d) Make sure spoilers 2, 4, 9 and 11 are fully down.

(e) Move the speed brake lever to the DOWN position.

(f) Change SPOILER A switch to ON and SPOILER B switch to OFF on the forward overhead panel.

(g) Move the speedbrake lever to the full UP position.

(h) Make sure that spoilers 2, 4, 9 and 11 are fully up.

(i) Make sure that spoilers 3, 5, 8, and 10 are in the fully down position.

(j) Return the speed brake lever to the down position

(k) Make sure that all spoiler panels are down.

SUBTASK 27-61-00-480-019

(18) Restore the aircraft to its usual configuration.

(a) Position the SPOILER B switch on the forward overhead panel to ON.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-109

(1) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-61-00-080-012

(2) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the captain's aileron control wheel.

SUBTASK 27-61-00-080-013

(3) Remove the protractor, COM-1691 from the spoilers No. 2, 3, 4, 5, 8, 9, 10 and 11.

——————— END OF TASK ———————

TASK 27-61-00-000-802

11. Spoiler Manual Operation Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

D. Prepare for the Test

SUBTASK 27-61-00-860-065

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-00-860-066

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-61-00-860-067

(3) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-00-860-068

(4) Put the ailerons in the neutral position.

SUBTASK 27-61-00-480-014

(5) Install the protractor, COM-1691 on spoilers 1, 6, 7 and 12.

SUBTASK 27-61-00-820-020

(6) Adjust the protractor, COM-1691 to zero.

SUBTASK 27-61-00-860-069

(7) Make sure spoilers No. 1, 6, 7, and 12 are in the fully down position.

E. Spoiler Manual Operation Test

SUBTASK 27-61-00-020-012

(1) Move the speed brake lever aft until spoilers No. 1, 6, 7 and 12 move to the up position.

(a) Make sure the speed lever is 29 +/-2 degrees (2.66 +/-0.20 inches measured along the indicator surface) aft of the DOWN position.

SUBTASK 27-61-00-020-013

(2) Move the speed brake lever forward until spoilers No. 1, 6, 7 and 12 retract.

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(a) Make sure the speed lever is 21 +/-2 degrees (1.93 +/-0.40 inches measured along the indicator surface) aft of the DOWN position.

SUBTASK 27-61-00-020-014

(3) Move the speed brake control lever to the UP position.

(a) Make sure that the spoiler No. 1 is up 60 +/-2 degrees.

(b) Make sure that the spoiler No. 6 is up 52 +/-2 degrees.

(c) Make sure that the spoiler No. 7 is up 52 +/-2 degrees.

(d) Make sure that the spoiler No. 12 is up 60 +/-2 degrees.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-070

(1) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-61-00-080-008

(2) Remove the protractor, COM-1691 from the spoilers No. 1, 6, 7, and 12.

———————— END OF TASK ————————

TASK 27-61-00-820-806

12. Spoiler Operation Time Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

C. Prepare for the Test

SUBTASK 27-61-00-860-048

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-61-00-860-049

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

D. Spoiler Operation Time Test

SUBTASK 27-61-00-700-006

(1) Quickly move the speed brake lever from the DOWN position to the UP position.

(a) Make sure all flight spoilers move to the extended position in less than 1 second.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-410-006

(1) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

——————— END OF TASK ———————

TASK 27-61-00-820-812

13. Alternate Spoiler Position Sensor Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
563	Left Wing - Spoiler No. 4
663	Right Wing - Spoiler No. 9

C. Prepare for the Test

SUBTASK 27-61-00-860-114

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY ELECTRICAL POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY ELECTRICAL POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-61-00-860-115

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-61-00-860-116

(3) Move the speed brake lever to the full DOWN position.

SUBTASK 27-61-00-860-117

(4) Move the captain's aileron control wheel to the neutral position.

D. Alternate Spoiler Position Sensor Test

SUBTASK 27-61-00-740-001

(1) Do this BITE test on the control display unit (CDU):

NOTE: Only spoilers 4 and 9 can be tested using the BITE. Spoiler position sensors 3 and 10 cannot be tested using the BITE.

(a) Push the INIT REF key on the CDU keyboard.

(b) Push the Line Select Key (LSK) that is adjacent to these selections:

NOTE: Use the NEXT PAGE or PREV PAGE key to change page if it is necessary. During the BITE test, if the "CONTINUE" shows, then push the LSK that is adjacent to "CONTINUE" after you do the instructions that show on the CDU display.

1) INDEX
2) MAINT
3) DFCS
4) EXTENDED MAINTENANCE
5) RIGGING
6) AILERON
7) CONTINUE

(c) Do the instructions that show on the CDU and push the LSK adjacent to these selections:

1) CONTINUE
2) Select SPOILER
3) CONTINUE

SUBTASK 27-61-00-740-002

(2) The CDU will display a screen showing UL, LL, A and B values for spoiler number 4 (speedbrake lever in the FULL DOWN position). Do the following:

(a) Make sure that the A and B values are within the UL and LL limits.

(b) Record the values of A and B for spoiler 4.

1) Select CONTINUE

SUBTASK 27-61-00-740-003

(3) The CDU will display a screen showing UL, LL, A and B values for spoiler number 9 (speed brake lever in the FULL DOWN position). Do the following:

(a) Make sure that the A and B values are within the UL and LL limits.

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(b) Record the values of A and B for spoiler 9.

1) Select CONTINUE

SUBTASK 27-61-00-700-021

(4) Move the speed brake lever to the FLIGHT DETENT position.

(a) Select CONTINUE

SUBTASK 27-61-00-700-022

(5) The CDU will display a screen showing UL, LL, A and B values for spoiler number 4 (speed brake lever in the FLIGHT DETENT position). Do the following:

(a) Make sure that the A and B values are within the UL and LL limits.

(b) Record the values of A and B for spoiler 4.

1) Select CONTINUE

SUBTASK 27-61-00-740-004

(6) The CDU will display a screen showing UL, LL, A and B values for spoiler number 9 (speed brake lever in the FLIGHT DETENT position). Do the following:

(a) Make sure that the A and B values are within the UL and LL limits.

(b) Record the values of A and B for spoiler 9.

1) Select CONTINUE

SUBTASK 27-61-00-740-008

(7) Push the INIT/REF key to exit the BITE.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-118

(1) Move the speed brake lever to the DOWN detent.

SUBTASK 27-61-00-860-119

(2) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-61-00-860-120

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

TASK 27-61-00-820-809

14. Spoiler Ratio Changer No-Back Assembly Test

(Figure 505)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-61-21-000-801	Spoiler Mixer Removal (P/B 401)
27-61-21-400-801	Spoiler Mixer Installation (P/B 401)
27-61-31-400-801	Spoiler Ratio Changer Installation (P/B 401)
27-62-00-820-802	Speed Brake Control Cable Adjustment (P/B 501)

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C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-6251	Wrench - Crowfoot (Part #: SCO36, Supplier: 55719, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Spoiler Ratio Changer No-Back Assembly Test

SUBTASK 27-61-00-020-015

(1) Do this task: Spoiler Mixer Removal, TASK 27-61-21-000-801.

SUBTASK 27-61-00-860-074

(2) Disconnect the speed brake control cables SBA and SBB from the ratio changer:

(a) Install the cable clamps at the pressure seals in the main landing gear wheel well to keep a small tension on the speed brake control cables SBA and SBB.

(b) Remove the lock clips from the turnbuckles in the lower nose compartment.

(c) Release the tension in the speed brake control cables SBA and SBB.

NOTE: Do not disconnect the turnbuckles.

(d) Attach a tag to the speed brake control cables SBA and SBB for identification during the installation.

(e) Remove the speed brake control cables SBA and SBB from the ratio changer.

SUBTASK 27-61-00-480-022

(3) Install a crowfoot wrench, COM-6251 on the coupling [91] of the no-back output shaft on the ratio changer.

SUBTASK 27-61-00-700-018

(4) Apply a torque of 120 +/-10 pound-inches (13.6 +/-1.1 newton-meters) clockwise to the crowfoot wrench, COM-6251.

NOTE: For accurate torque measurement, the axis of the torque wrench should be 90 degrees from the axis of the crowfoot wrench.

(a) Make sure the speed brake input quadrant moves less than 2 degrees (0.125 inch (3.18 millimeters) at the radius of the cable groove on the input quadrant).

SUBTASK 27-61-00-700-019

(5) Apply a torque of 120 +/-10 pound-inches (13.6 +/-1.1 newton-meters) counterclockwise to the crowfoot wrench, COM-6251.

NOTE: For accurate torque measurement, the axis of the torque wrench should be 90 degrees from the axis of the crowfoot wrench.

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(a) Make sure the speed brake input quadrant moves less than 2 degrees (0.125 inch (3.18 millimeters) at the radius of the cable groove on the input quadrant).

SUBTASK 27-61-00-020-026

(6) If the no-back output shaft on the spoiler ratio changer is not in the specified limits (of movement less than 2 degrees in the clockwise and counterclockwise directions), then replace the ratio changer. Do this task: Spoiler Ratio Changer Installation, TASK 27-61-31-400-801.

SUBTASK 27-61-00-420-004

(7) Attach the speed brake cables SBA and SBB to the ratio changer.

SUBTASK 27-61-00-090-001

(8) Remove the cable clamps from the speed brake cables SBA and SBB.

SUBTASK 27-61-00-420-005

(9) Do this task: Spoiler Mixer Installation, TASK 27-61-21-400-801.

NOTE: It is not necessary to adjust the output cam of the spoiler mixer at this time.

SUBTASK 27-61-00-420-007

(10) Do this task: Speed Brake Control Cable Adjustment, TASK 27-62-00-820-802.

SUBTASK 27-61-00-700-024

(11) Do this task: Spoiler Mixer Adjustment, TASK 27-61-00-820-805.

——————— END OF TASK ———————

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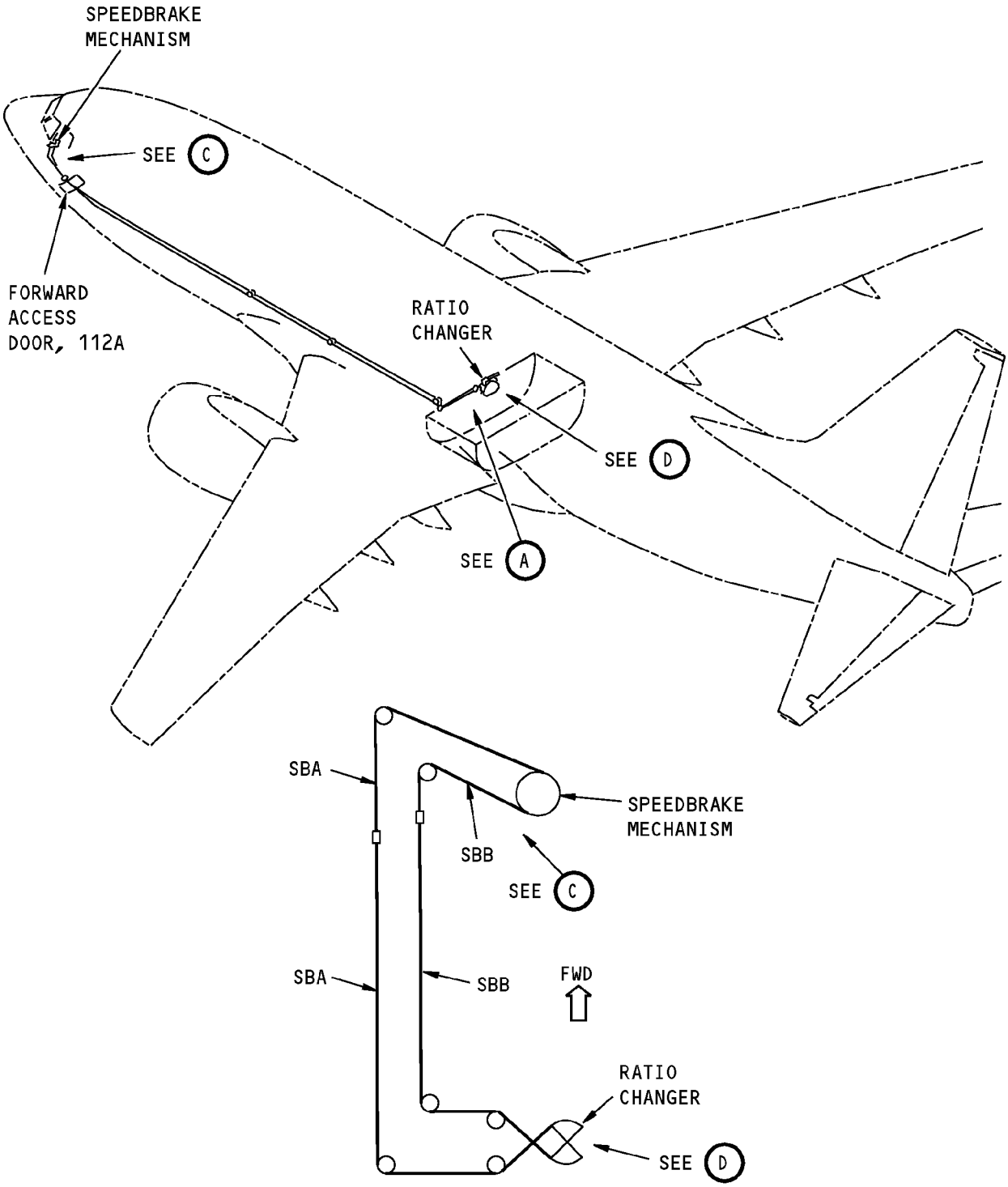

Spoiler Ratio Changer No-Back Assembly Test
Figure 505 (Sheet 1 of 5)/27-61-00-990-809

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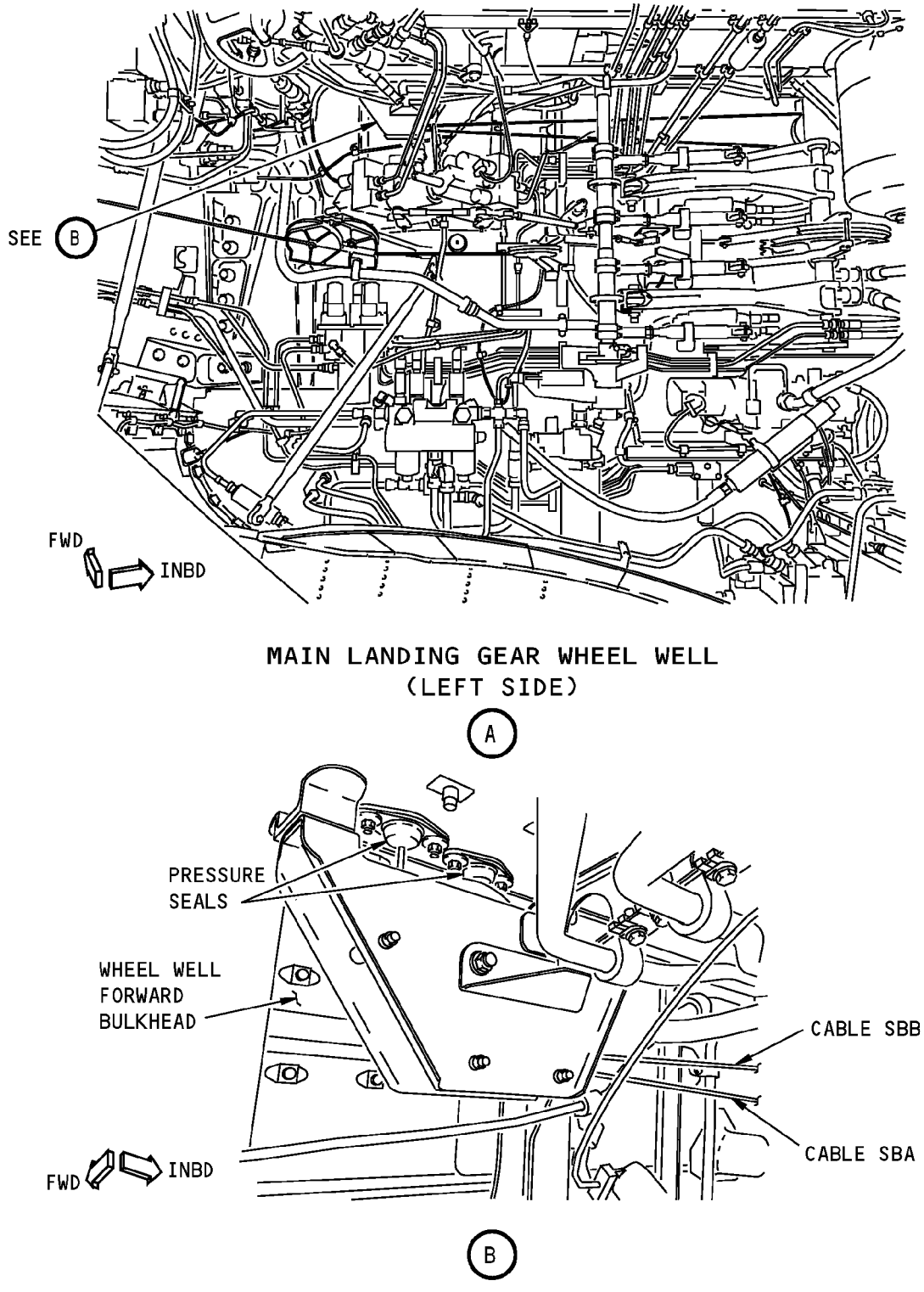

Spoiler Ratio Changer No-Back Assembly Test
Figure 505 (Sheet 2 of 5)/27-61-00-990-809

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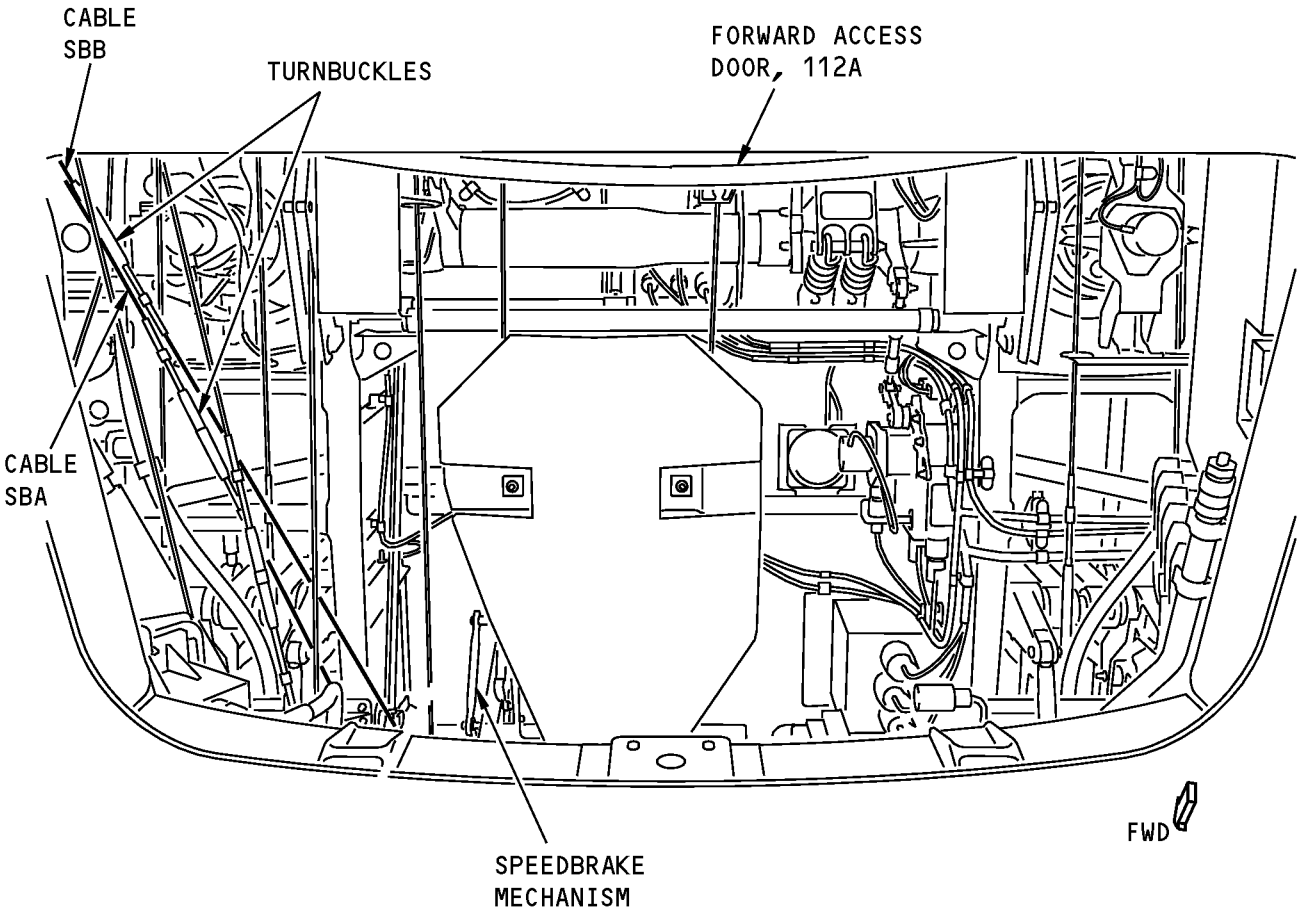

VIEW THROUGH THE FORWARD
ACCESS DOOR, 112A

C

Spoiler Ratio Changer No-Back Assembly Test
Figure 505 (Sheet 3 of 5)/27-61-00-990-809

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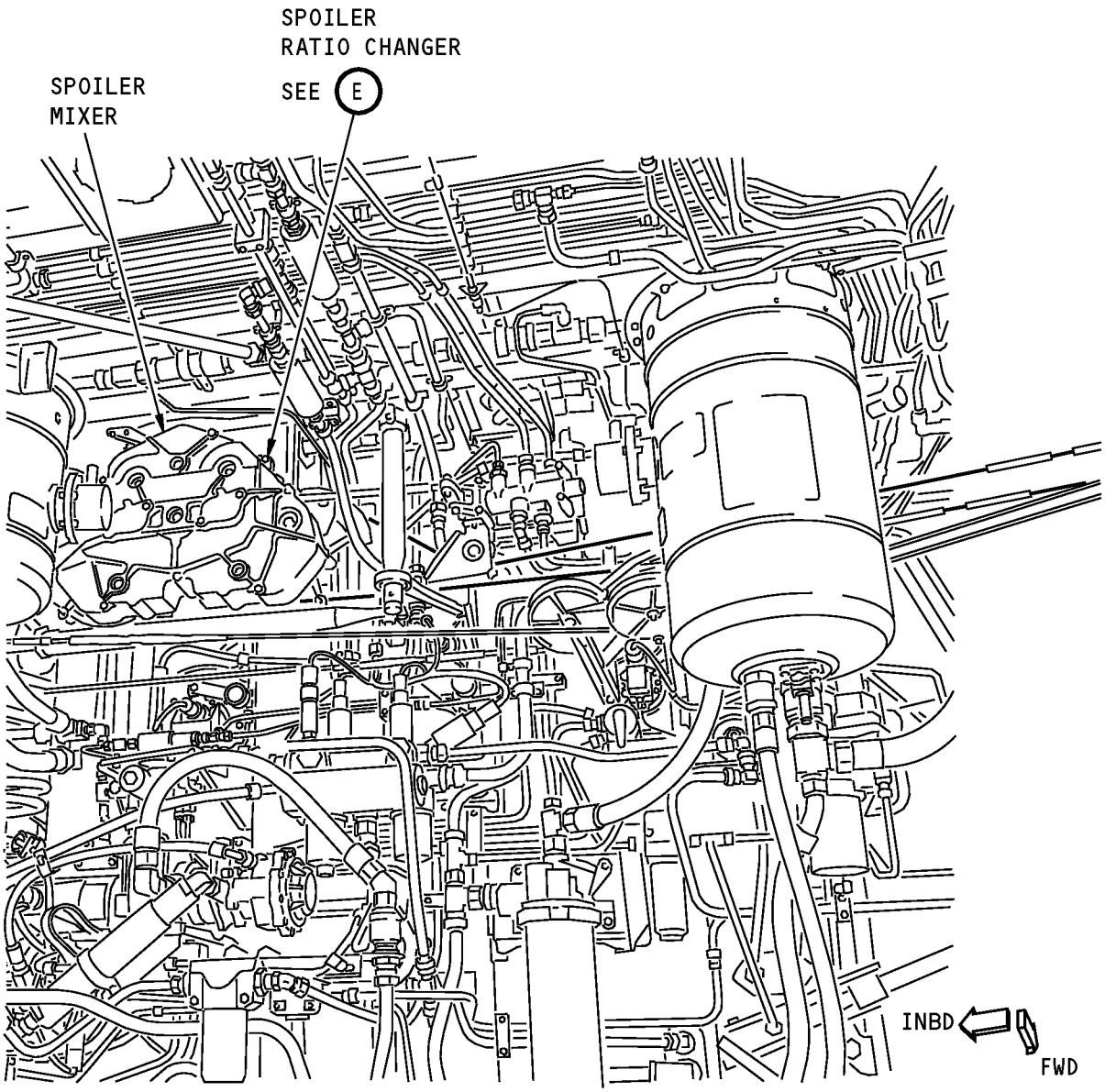

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

D

Spoiler Ratio Changer No-Back Assembly Test
Figure 505 (Sheet 4 of 5)/27-61-00-990-809

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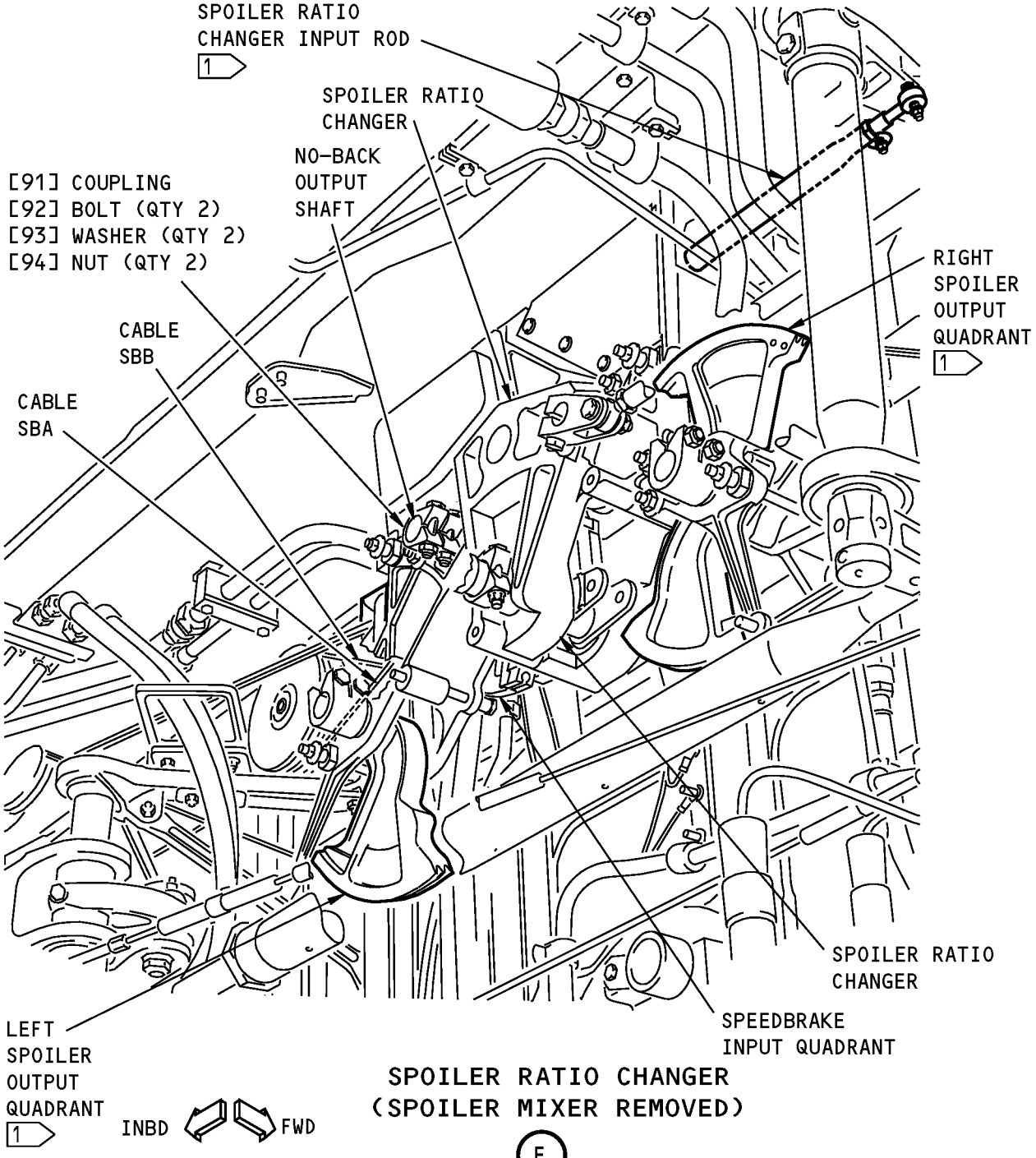

1 THE LEFT AND RIGHT SPOILER OUTPUT QUADRANT AND THE SPOILER RATIO CHANGER INPUT ROD MOVE AT THE SAME RATE UNLESS THE BREAKOUT MECHANISM IS ENGAGED.

Spoiler Ratio Changer No-Back Assembly Test
Figure 505 (Sheet 5 of 5)/27-61-00-990-809

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TASK 27-61-00-820-810

15. Flight Spoiler Actuator Override Quadrant Operational Test

(Figure 506)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This is an operational test of the flight spoiler actuator override quadrant that verifies that the other flight spoilers will work if one is not operational.

B. References

Reference	Title
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

E. Prepare for the Test

SUBTASK 27-61-00-860-079

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU INSTALL HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU INSTALL HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

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SUBTASK 27-61-00-860-080

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU MOVE THE SPEEDBRAKE LEVER. CONTROL SURFACES CAN MOVE QUICKLY WHEN YOU MOVE THE SPEEDBRAKE LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Verify that the speedbrake lever is in the down and locked position.

SUBTASK 27-61-00-860-081

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU MOVE THE CONTROL WHEEL. CONTROL SURFACES CAN MOVE QUICKLY WHEN YOU MOVE THE CONTROL WHEEL. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Move the ailerons to neutral.

(a) Verify that the control wheels are at neutral.

(b) Verify that the aileron trim is at neutral.

(c) Install rig pin A/S-15, from the rig pin kit, SPL-1585, in the aileron feel and centering unit (Figure 506).

SUBTASK 27-61-00-860-082

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU EXTEND THE FLAPS. CONTROL SURFACES CAN MOVE QUICKLY WHEN YOU MOVE THE FLAPS LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Move the flaps to the flaps 40 position. To extend them, do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-61-00-860-090

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU REMOVE HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU REMOVE HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

F. Flight Spoiler Actuator Override Quadrant Operational Test

SUBTASK 27-61-00-710-008

(1) Install a plastic tie strap through the open hole of the input lever [3] on the spoiler PCU.

SUBTASK 27-61-00-710-009

(2) Pull the input lever [3] of the PCU aft, to the full limit of travel, and verify that the hub assembly [1] rotates and that the follower arm [2] moves in the slot of the quadrant control assembly [5].

(a) Verify that the spring [4] extends.

SUBTASK 27-61-00-710-010

(3) Release the PCU input lever [3].

(a) Verify that the hub assembly [1] rotates back to the neutral position.

(b) Verify that the follower arm [2] returns to center.

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SUBTASK 27-61-00-700-020

(4) Repeat the procedure, as necessary, for spoilers 2, 3, 4, 5, 8, 9, 10, and 11.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-083

(1) Remove rig pin A/S-15 from the aileron feel and centering unit.

(2) Remove the plastic tie strap from the input lever [3].

SUBTASK 27-61-00-860-091

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU INSTALL HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU INSTALL HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-61-00-860-084

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU EXTEND THE FLAPS. CONTROL SURFACES CAN MOVE QUICKLY WHEN YOU MOVE THE FLAPS LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Return the flaps to the retracted position. To retract them, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-00-860-092

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU REMOVE HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU REMOVE HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

END OF TASK

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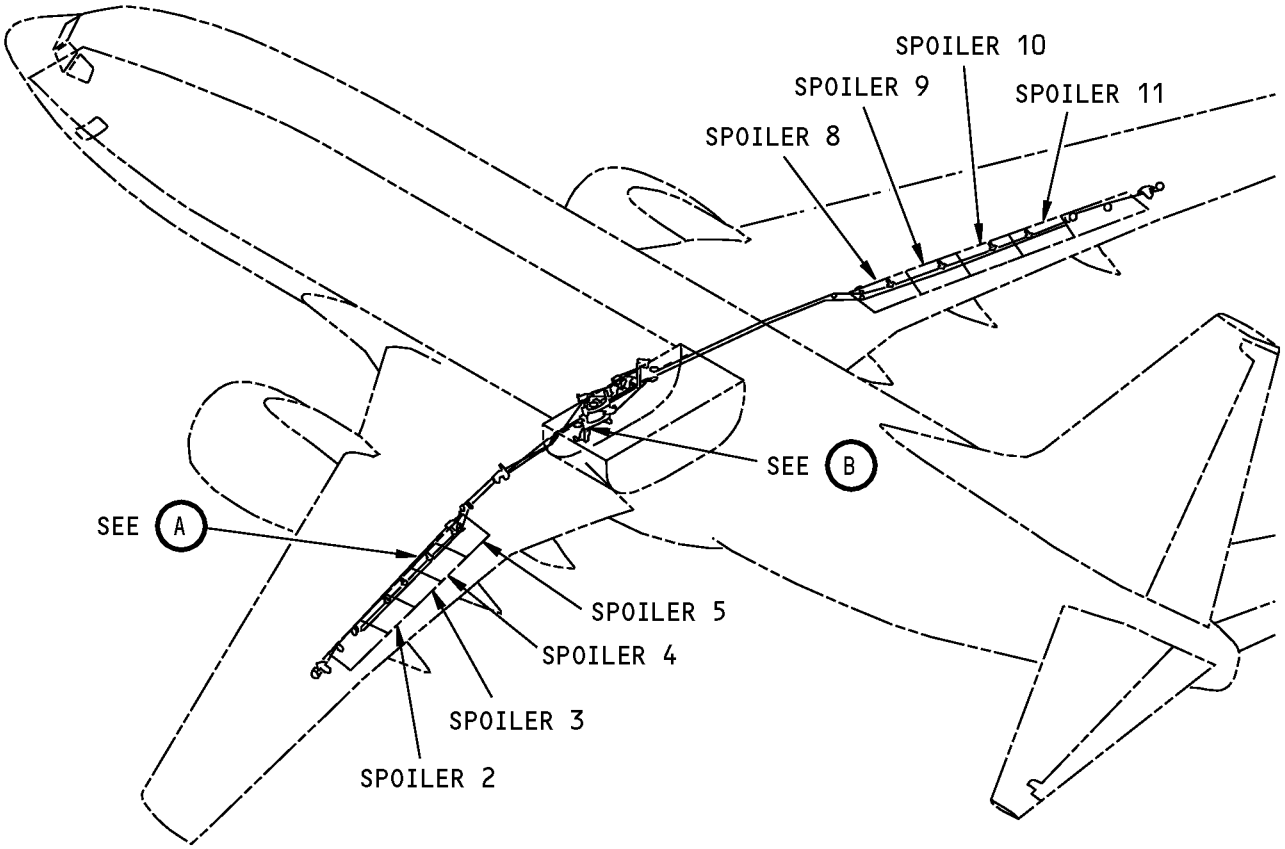

Flight Spoiler Actuator Override Quadrant Operational Test
Figure 506 (Sheet 1 of 3)/27-61-00-990-810

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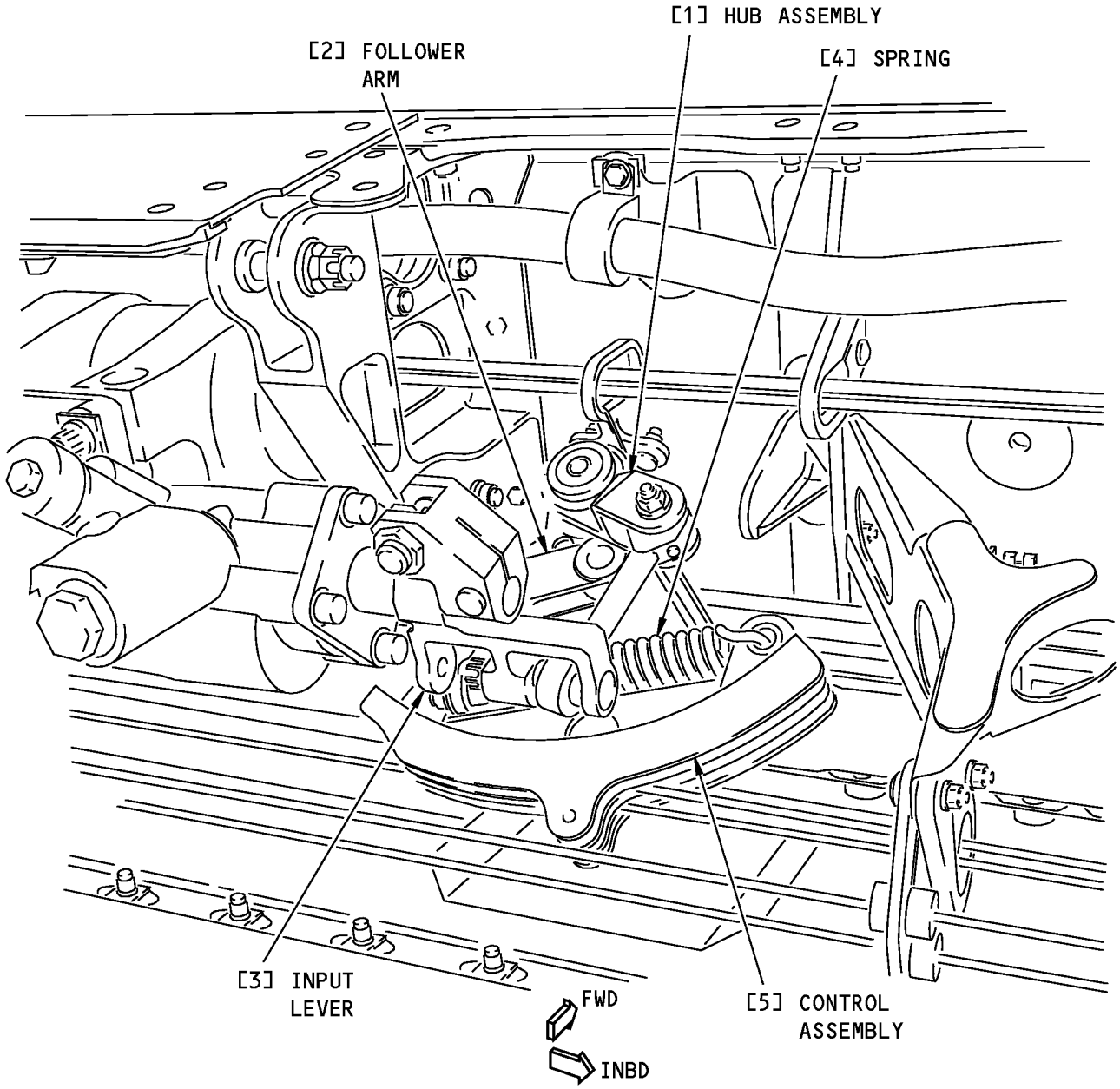

FLIGHT SPOILER ACTUATOR ASSEMBLY
(EXAMPLE)

A

NOTE: FLIGHT SPOILER ACTUATOR ASSEMBLY NO. 4 IS SHOWN.
FLIGHT SPOILER ACTUATOR ASSEMBLY NO. 2, 3, AND 5 ARE EQUIVALENT.
FLIGHT SPOILER ACTUATOR ASSEMBLY NO. 8, 9, 10 AND 11 ARE OPPOSITE.

Flight Spoiler Actuator Override Quadrant Operational Test
Figure 506 (Sheet 2 of 3)/27-61-00-990-810

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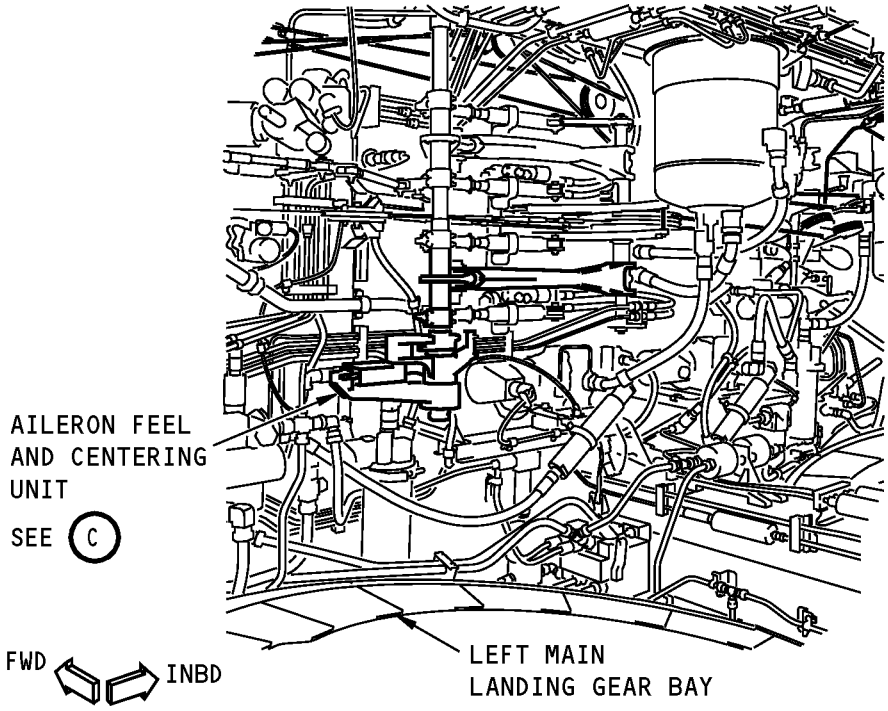
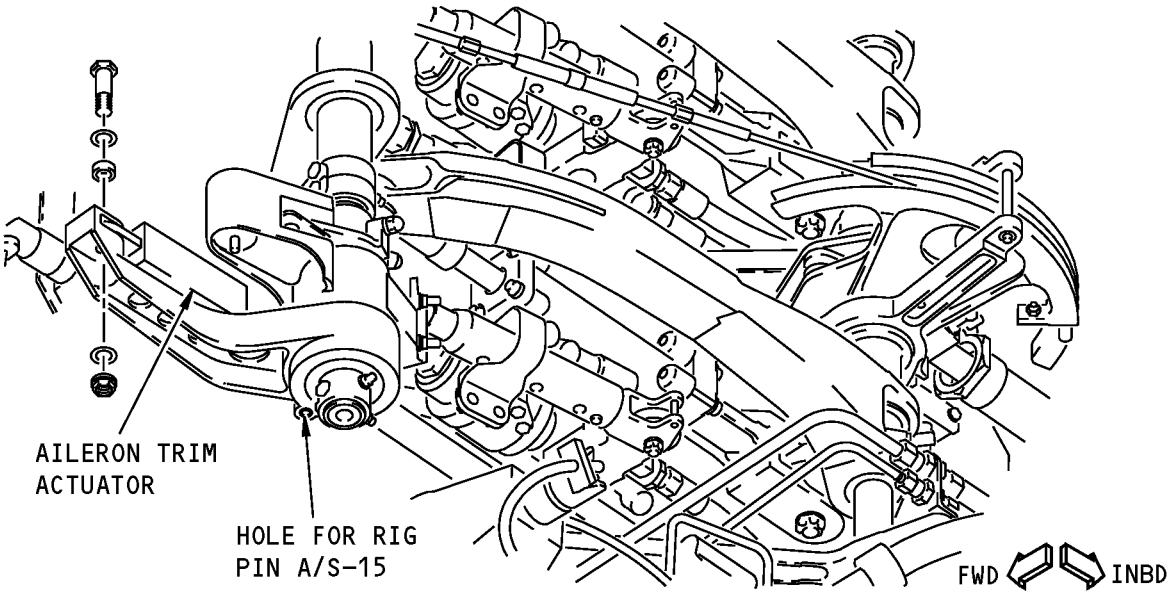


INSTALLATION OF RIG PIN A/S-15

B



INSTALLATION OF RIG PIN A/S-15

C

Flight Spoiler Actuator Override Quadrant Operational Test
Figure 506 (Sheet 3 of 3)/27-61-00-990-810

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TASK 27-61-00-710-802

16. Spoiler Mixer Centering Mechanism Operational Test

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

D. Prepare for the Test

SUBTASK 27-61-00-860-077

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task:Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801 .

E. Spoiler Mixer Centering Mechanism Operational Test

SUBTASK 27-61-00-710-002

(1) Turn the captain's aileron control wheel fully counterclockwise.

(a) Make sure the override mechanism (within the spoiler mixer) is operating properly.

NOTE: This operational test checks the internal function of the spoiler mixer unit. The left spoiler output quadrant, lever and spoiler ratio changer input rod must all move together with no override breakout or mechanical interference.

SUBTASK 27-61-00-710-005

(2) Turn the captain's aileron control wheel fully clockwise.

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(a) Make sure the override mechanism (within the spoiler mixer) is operating properly.

NOTE: This operational test checks the internal function of the spoiler mixer unit. The right spoiler output quadrant, lever and spoiler ratio changer input rod must all move together with no override breakout or mechanical interference.

SUBTASK 27-61-00-710-003

(3) Turn the captain's aileron control wheel fully counterclockwise and hold.

(a) Make sure the No. 2, 3, 4, and 5 flight spoilers move to the up position.

SUBTASK 27-61-00-710-006

(4) Release the captain's control wheel.

(a) Make sure the No. 2, 3, 4, and 5 flight spoilers move to the down position.

SUBTASK 27-61-00-710-004

(5) Turn the captain's aileron control wheel fully clockwise and hold.

(a) Make sure the No. 8, 9, 10 and 11 flight spoilers move to the up position.

SUBTASK 27-61-00-710-007

(6) Release the captain's control wheel.

(a) Make sure the No. 8, 9, 10, and 11 flight spoilers move to the down position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-00-860-078

(1) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

———————— END OF TASK ————————

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SPOILER CONTROL SYSTEM - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

TASK 27-61-00-210-801

2. Spoiler Wheel Well Mechanical Components Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

(2) This task is a general visual inspection of the spoiler mechanical components in the wheel well.

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Procedure

SUBTASK 27-61-00-210-004

(1) Inspect the spoiler mechanical components in the wheel well (Figure 601).

(a) Do a general visual inspection of all spoiler mechnical components, including the following:

1) Spoiler mixer

2) Spoiler ratio changer and input rod

3) Spoiler control quadrant shaft

4) Aileron spring cartridge

END OF TASK

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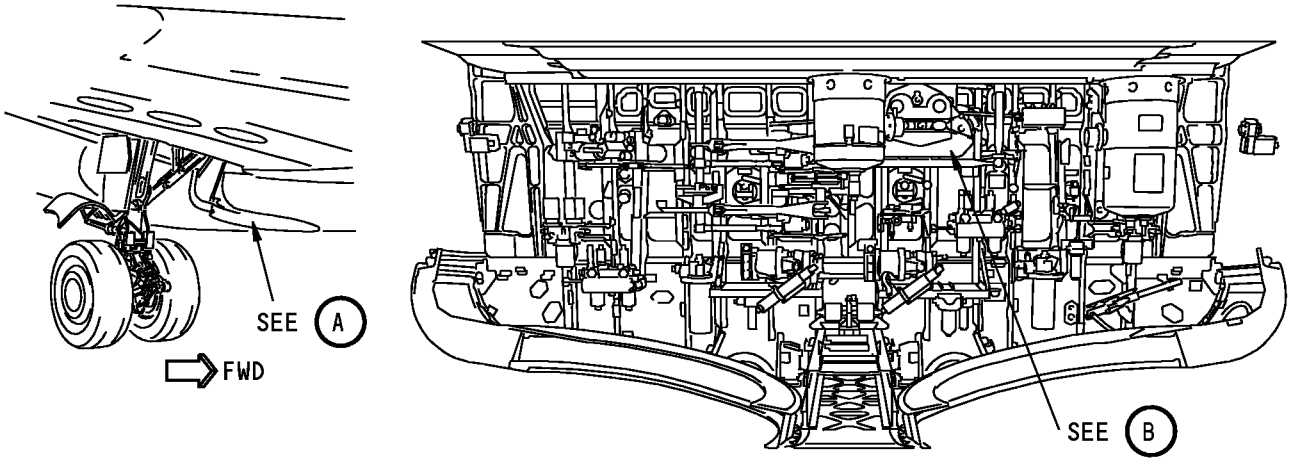

Spoiler Wheel Well Mechanical Components Inspection
Figure 601/27-61-00-990-813

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TASK 27-61-00-210-802

3. Spoiler Control Quadrant Inspection

(Figure 602)

A. General

(1) This task is a general visual inspection of the spoiler control quadrant.

B. References

Reference	Title
25-22-00-000-801	Passenger Seat Removal (P/B 401)
25-22-00-400-802	Passenger Seat Installation (P/B 401)
25-27-15-000-801	Carpet Removal (P/B 401)
25-27-15-400-801	Carpet Installation (P/B 401)
53-21-00-000-801	Passenger Cabin Floor Panel Removal (P/B 401)
53-21-00-400-801	Passenger Cabin Floor Panel Installation (P/B 401)

C. Location Zones

Zone	Area
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

D. Procedure

SUBTASK 27-61-00-210-007

(1) Inspect the spoiler control quadrant (Figure 602).

(a) Remove the right floor panel between the seat tracks at the second window aft of the wing escape hatch:

1) Do this task: Passenger Seat Removal, TASK 25-22-00-000-801.

2) Do this task: Carpet Removal, TASK 25-27-15-000-801.

3) Do this task: Passenger Cabin Floor Panel Removal, TASK 53-21-00-000-801.

(b) Do a general visual inspection of the spoiler control quadrant.

(c) Install the right floor panel:

1) Do this task: Passenger Cabin Floor Panel Installation, TASK 53-21-00-400-801.

2) Do this task: Carpet Installation, TASK 25-27-15-400-801.

3) Do this task: Passenger Seat Installation, TASK 25-22-00-400-802.

END OF TASK

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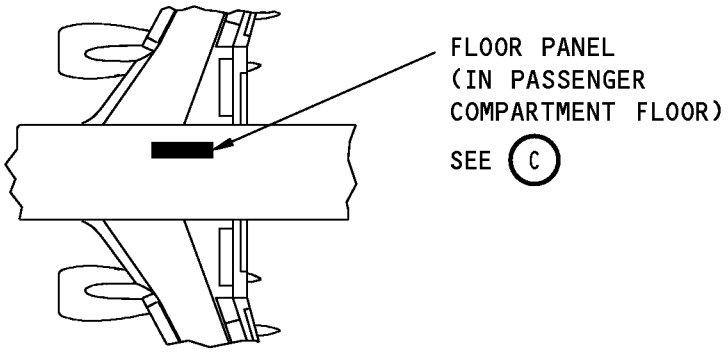

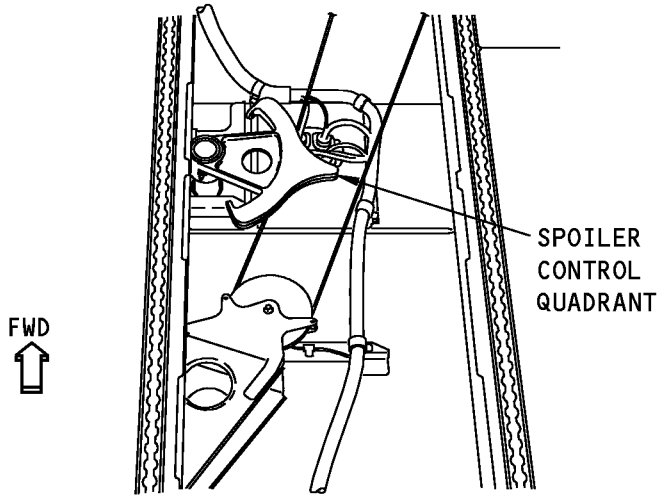

PASSENGER COMPARTMENT FLOOR
(LOOKING DOWN THROUGH THE FLOOR PANEL)
C

Spoiler Control Quadrant Inspection
Figure 602/27-61-00-990-814

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SPOILER POSITION SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) The removal of a spoiler position sensor.

(2) The installation of a spoiler position sensor.

B. There are four spoiler position sensors. The spoiler position sensors No. 3 and No. 10 are for the flight spoiler system and spoiler position sensors No. 4 and No. 9 are for the autopilot system.

C. This procedure only contains the tasks for the spoiler position sensors No. 3 and No. 10. For the removal and installation procedures of the spoiler position sensors No. 4 and No. 9, refer to (TASK 22-11-27-000-801).

D. The spoiler position sensor No. 3 (T539) is installed on the left wing spoiler No. 3. The spoiler position sensor (T540) No. 10 is installed on the right wing spoiler No. 10. To get access to the spoiler position sensors, you must extend the spoilers.

TASK 27-61-04-000-801

2. Spoiler Position Sensor Removal

(Figure 401 or Figure 402)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1745	Set - Lock, Flight Spoiler Actuator (Contains 8 Lock Assemblies) (Part #: C27047-41, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ) (Opt Part #: C27047-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
564	Left Wing - Spoiler No. 3
664	Right Wing - Spoiler No. 10

D. Prepare for the Removal

SUBTASK 27-61-04-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-61-04-860-002

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, STABILIZER AND NOSE GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-61-04-860-003

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-61-04-860-004

(4) Do this step to extend the spoiler:

(a) Move the speedbrake lever to the UP position.

SUBTASK 27-61-04-860-005

(5) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-61-04-860-006

(6) Install set, SPL-1745 on the spoiler actuator No. 3 or No. 10.

E. Procedure

SUBTASK 27-61-04-020-001

(1) Do these steps to disconnect the electrical connectors of the spoiler position sensor [1], (Figure 401 or Figure 402):

(a) Remove the lockwire.

(b) Disconnect the electrical connector.

SUBTASK 27-61-04-020-002

(2) Do these steps to remove the spoiler position sensor [1]:

(a) Remove the bolt [7], washer [8] and nut [5] in the crank [9].

(b) Remove the bolt [2], washer [3] and nut [5] in the mounting bracket [6].

(c) Remove the spoiler position sensor [1].

——————— END OF TASK ———————

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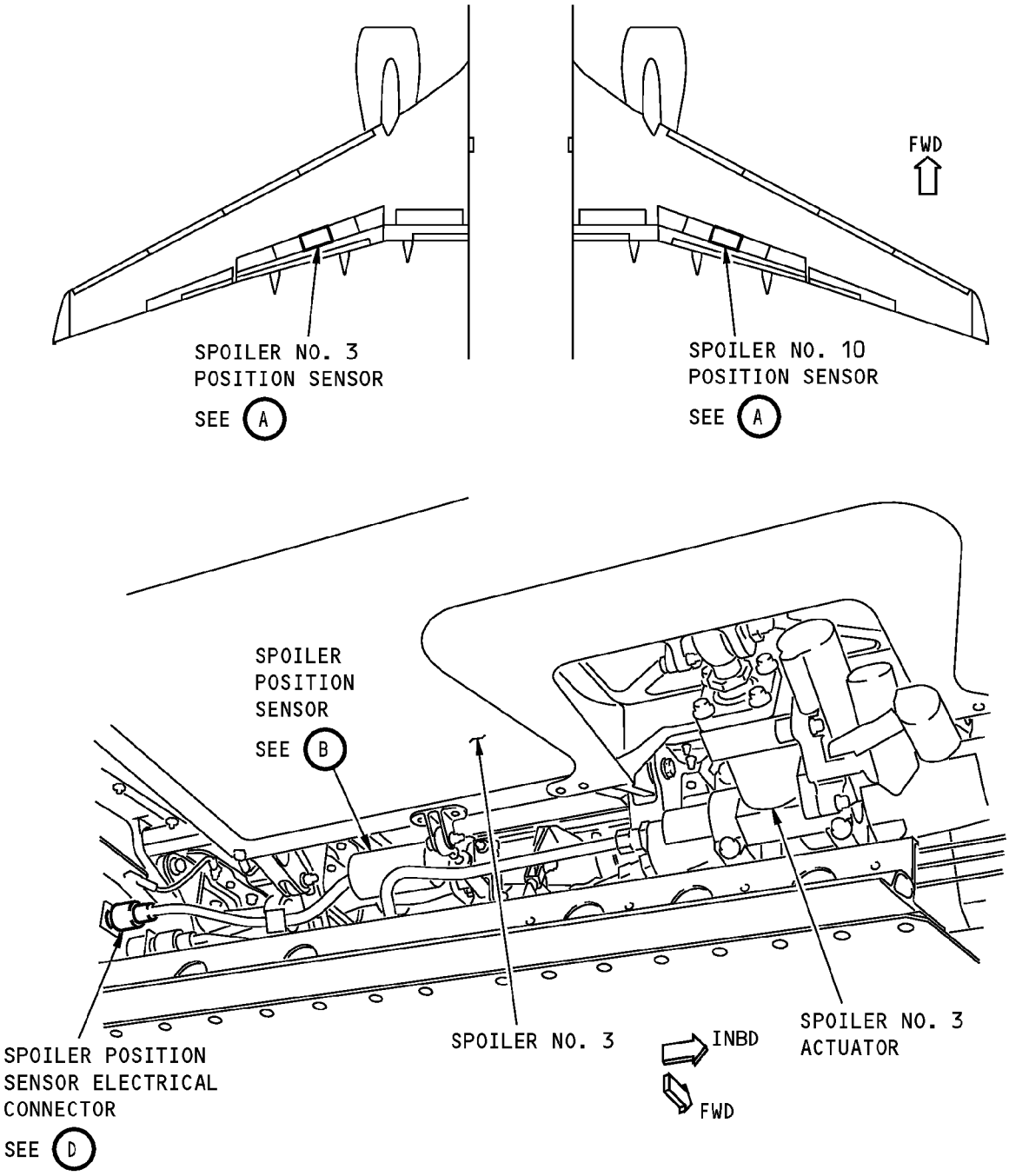

Spoiler Position Sensor Installation
Figure 401 (Sheet 1 of 2)/27-61-04-990-801

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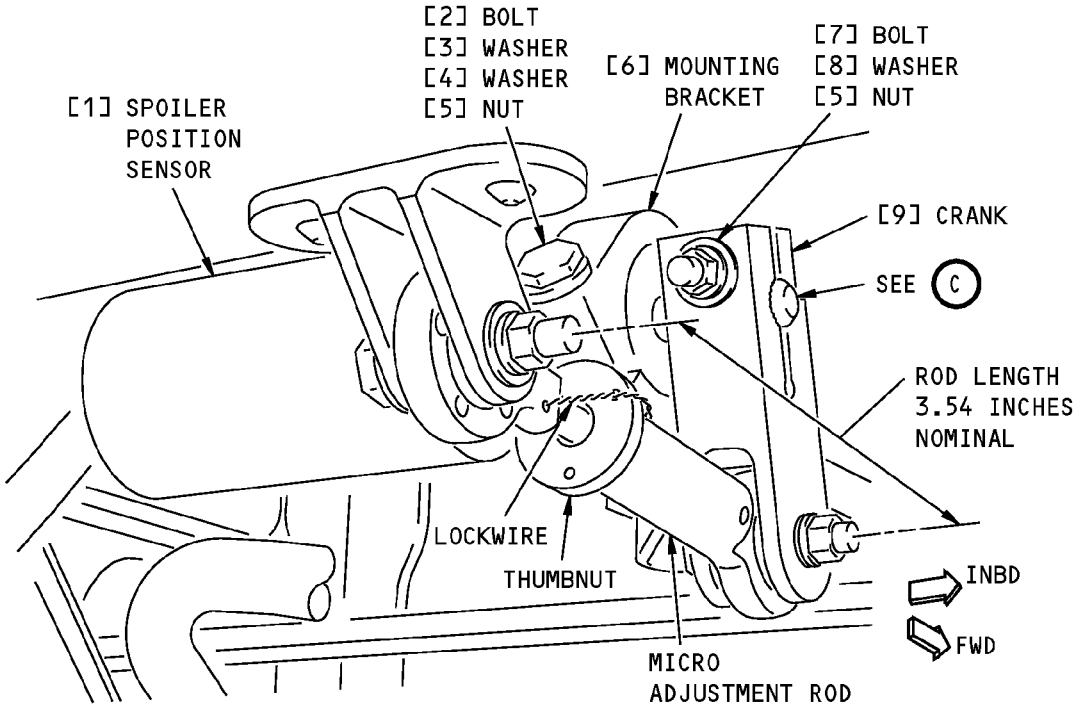
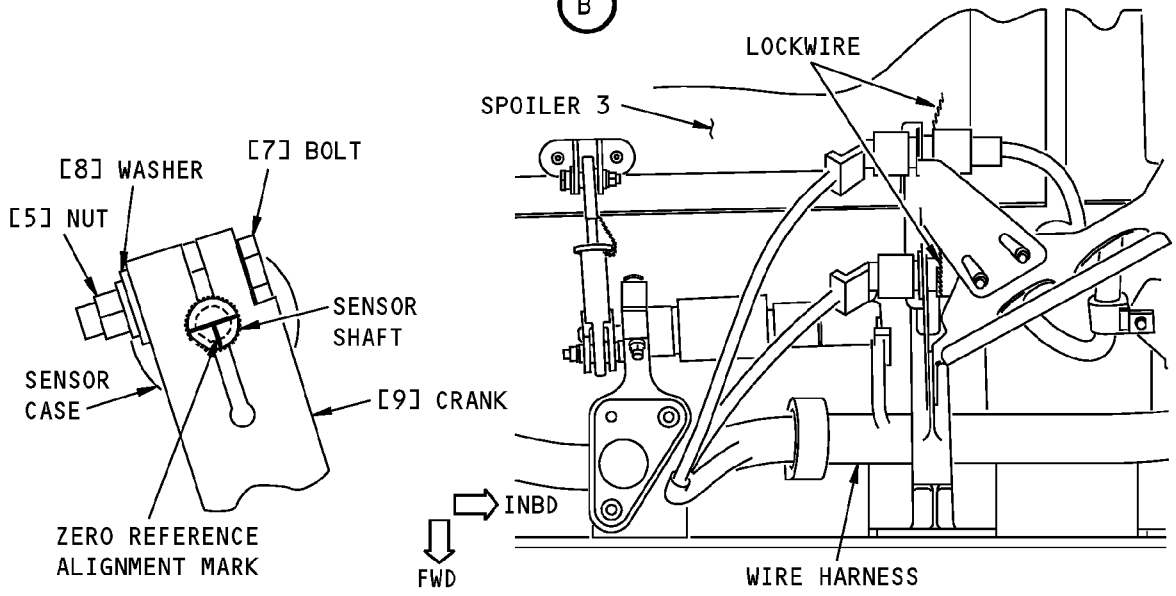


SPOILER POSITION SENSOR

B



C

LOCKWIRE ON POSITION SENSOR ELECTRICAL CONNECTORS

D

Spoiler Position Sensor Installation
Figure 401 (Sheet 2 of 2)/27-61-04-990-801

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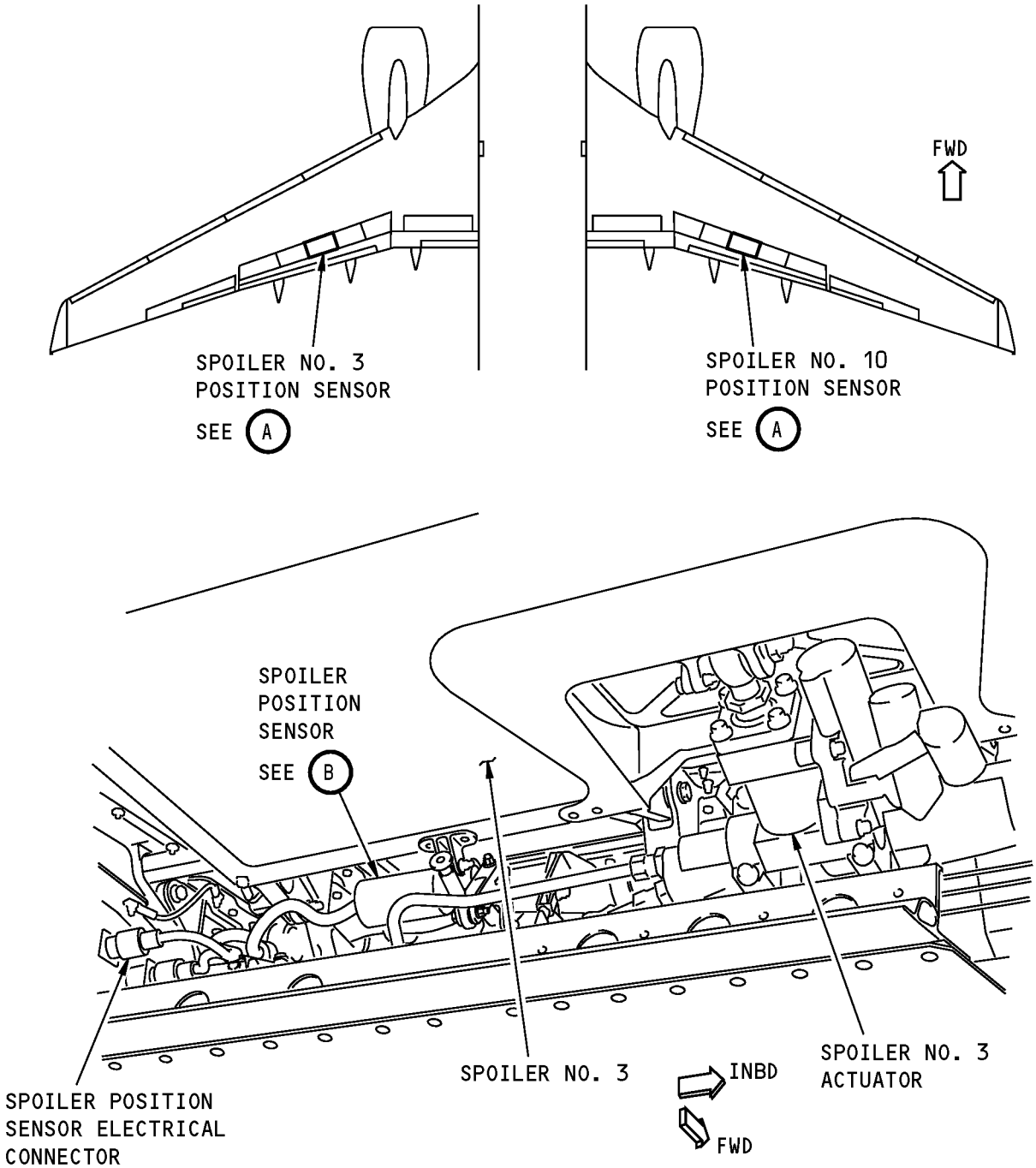

Spoiler Position Sensor Installation
Figure 402 (Sheet 1 of 2)/27-61-04-990-802

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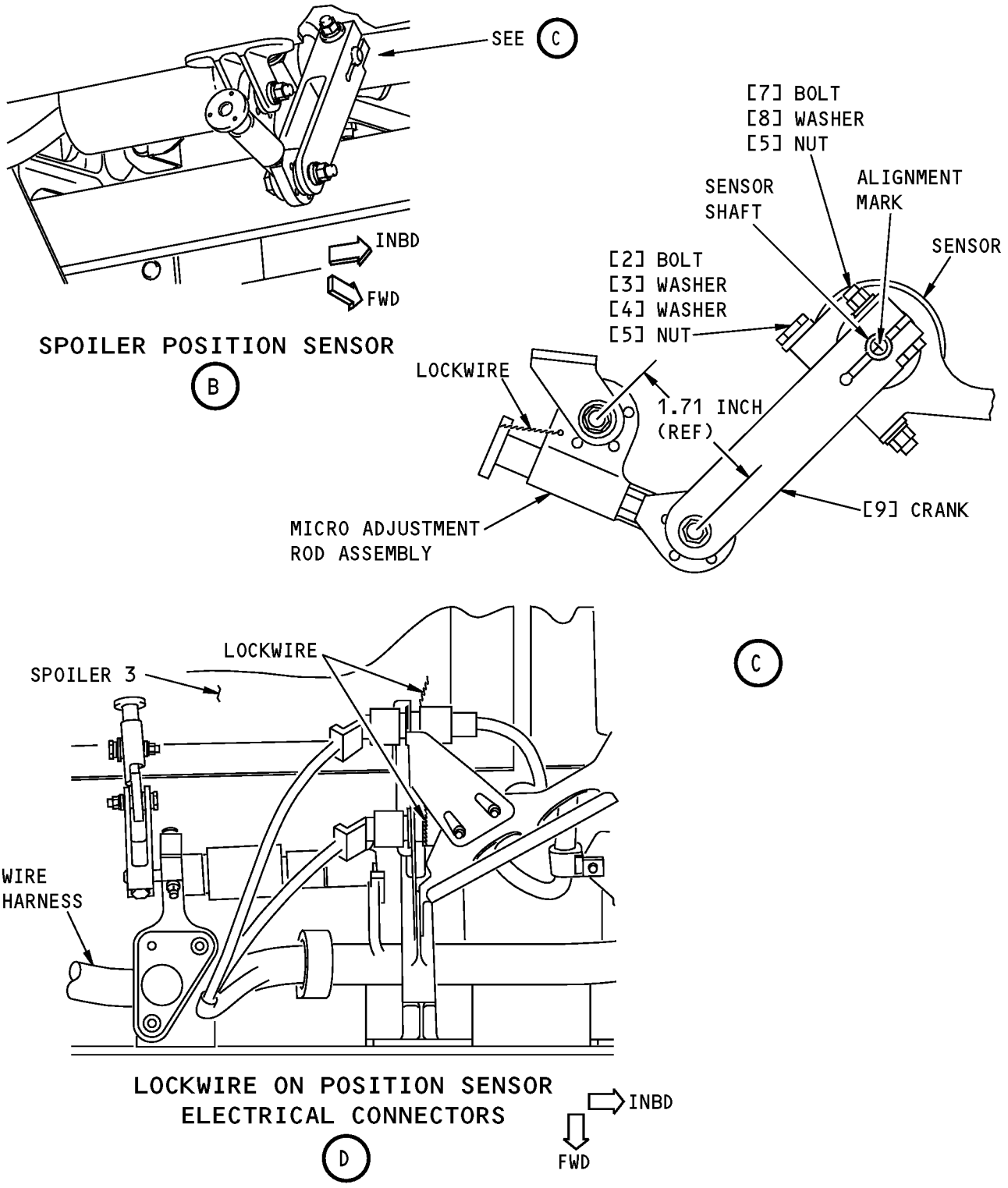

Spoiler Position Sensor Installation
Figure 402 (Sheet 2 of 2)/27-61-04-990-802

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TASK 27-61-04-400-801

3. Spoiler Position Sensor Installation

(Figure 401 or Figure 402)

A. References

Reference	Title
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-800-802	Remove Pressure from the Spoiler Hydraulic Systems A and B (P/B 201)
27-61-00-820-808	Spoiler Position Sensor Adjustment (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1745	Set - Lock, Flight Spoiler Actuator (Contains 8 Lock Assemblies) (Part #: C27047-41, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ) (Opt Part #: C27047-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G02166	Lockwire - Nickel-Copper Alloy (Monel)(0.020 inch Diameter)	NASM20995N~ C20
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
564	Left Wing - Spoiler No. 3
664	Right Wing - Spoiler No. 10

E. Prepare for the Installation

SUBTASK 27-61-04-860-007

(1) Make sure that you do these steps:

(a) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

(b) Set the speedbrake control lever to the UP position.

(c) Do this task: Remove Pressure from the Spoiler Hydraulic Systems A and B, TASK 27-61-00-800-802.

(d) Make sure set, SPL-1745 is installed on the spoiler actuator No. 3 or No. 10.

F. Procedure

SUBTASK 27-61-04-820-001

(1) Align the reference marks on the sensor case and the sensor shaft.

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SUBTASK 27-61-04-420-001

(2) Do the following steps to install the spoiler position sensor [1] (Figure 401 or Figure 402):

(a) Put the spoiler position sensor [1] in the mounting bracket [6] and the crank [9] with the zero reference alignment mark aligned with the slot in the crank [9].

(b) Tighten the bolt [7] in the crank [9] to 25-35 pound-inches (2.8-4.0 newton-meters).

(c) Tighten the bolt [2] in the mounting bracket [6] to 8-12 pound-inches (.9-1.4 newton-meters).

SUBTASK 27-61-04-420-002

(3) Do these steps to install the electrical connectors:

(a) Before you connect the electrical connectors, examine the connectors for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(b) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(c) Apply the D5026NS or ZC-026 compound, G50171 to the connectors (SWPM 20-60-03).

(d) Connect the electrical connectors.

(e) Install lockwire, G02166 on the electrical connectors.

SUBTASK 27-61-04-800-001

(4) Remove the set, SPL-1745 from the spoiler actuator.

SUBTASK 27-61-04-820-002

(5) Do this task: Spoiler Position Sensor Adjustment, TASK 27-61-00-820-808.

SUBTASK 27-61-04-860-008

(6) Move the speedbrake lever to the DOWN position.

SUBTASK 27-61-04-860-009

(7) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

END OF TASK

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FLIGHT SPOILER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flight spoilers.

(2) An installation of the flight spoilers.

B. This procedure is applicable to the left and right flight spoilers.

TASK 27-61-11-000-801

2. Flight Spoiler Removal

(Figure 401)

A. References

Reference	Title
22-11-27-000-801	Spoiler Position Sensor Removal (P/B 401)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-61-04-000-801	Spoiler Position Sensor Removal (P/B 401)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1745	Set - Lock, Flight Spoiler Actuator (Contains 8 Lock Assemblies) (Part #: C27047-41, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ) (Opt Part #: C27047-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

D. Prepare for the Removal

SUBTASK 27-61-11-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-61-11-860-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-61-11-860-003

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-61-11-860-004

(4) Put the speed brake lever in the UP position to lift the spoilers.

SUBTASK 27-61-11-480-001

(5) Install the set, SPL-1745 on the actuator for the applicable flight spoiler.

SUBTASK 27-61-11-860-006

(6) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

E. Flight Spoiler Removal

SUBTASK 27-61-11-020-001

(1) For flight spoiler no. 2 [1]:

(a) Remove the nut [26], washer [25], washer [24] and bolt [23].

(b) Remove the nut [22], washer [21] and pin [20] that attach the rod end of the spoiler actuator assembly [27] to flight spoiler no. 2 [1].

(c) Remove the nut [6] and washers [5] to disconnect the bonding jumper [13] from the structure.

(d) Remove the nut [29] and washers [28] to disconnect the bonding jumper [30] from the structure.

(e) Remove pin [12], nut [11], washer [10], bushing [9], washer [8] and bolt [7].

(f) Remove pin [19], nut [18], washer [17], bushing [16], washer [15] and bolt [14].

(g) Remove pin [36], nut [35], washer [34], bushing [33], washer [32] and bolt [31].

(h) Remove flight spoiler no. 2 [1] from the airplane.

SUBTASK 27-61-11-020-002

(2) For flight spoiler no. 3 [2], spoiler no. 4 [3] or spoiler no. 5 [4]:

(a) Remove the nut [58], washer [57], washer [56] and bolt [55].

(b) Remove the nut [54], washer [53] and pin [52] that attach the rod end of the spoiler actuator [59] to the flight spoiler.

(c) Remove the nut [38] and washers [37] to disconnect the bonding jumper [45] from the structure.

(d) Remove the nut [67] and washers [66] to disconnect the bonding jumper [68] from the structure.

(e) Disconnect the aft end of the control rod for the spoiler position sensor from the flight spoiler no. 3 [2]. To disconnect it, do this task: Spoiler Position Sensor Removal, TASK 27-61-04-000-801.

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(f) Disconnect the aft end of the control rod for the spoiler position sensor from the flight spoiler no. 4 [3]. To disconnect it, do this task: Spoiler Position Sensor Removal, TASK 22-11-27-000-801.

(g) Remove pin [44], nut [43], washer [42], bushing [41], washer [40] and bolt [39].

(h) Remove pin [51], nut [50], washer [49], bushing [48], washer [47] and bolt [46].

(i) Remove pin [65], nut [64], washer [63], bushing [62], washer [61] and bolt [60].

(j) Remove pin [74], nut [73], washer [72], bushing [71], washer [70], and bolt [69].

(k) Remove the flight spoiler from the airplane.

END OF TASK

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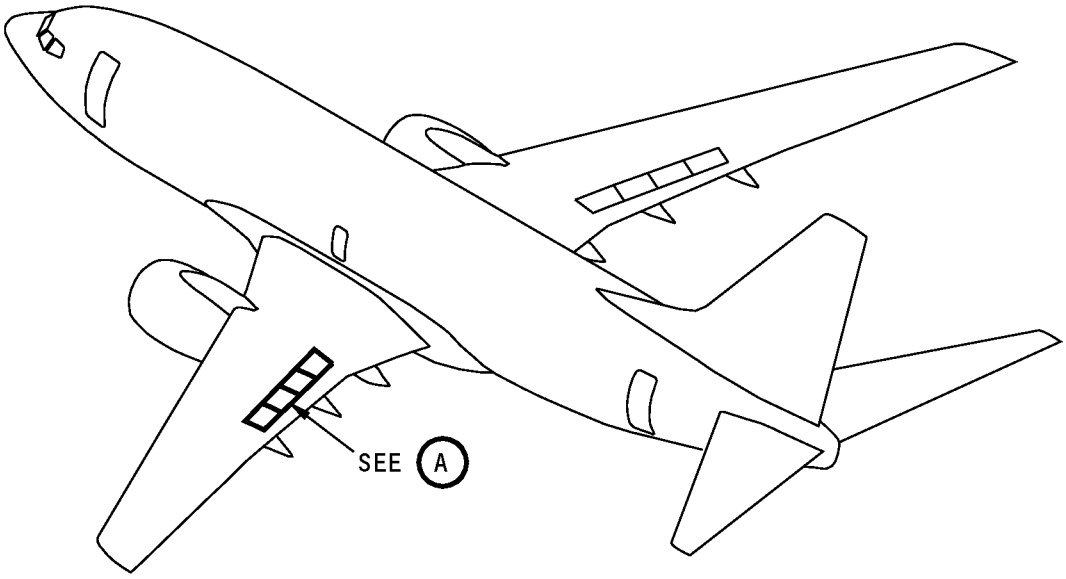

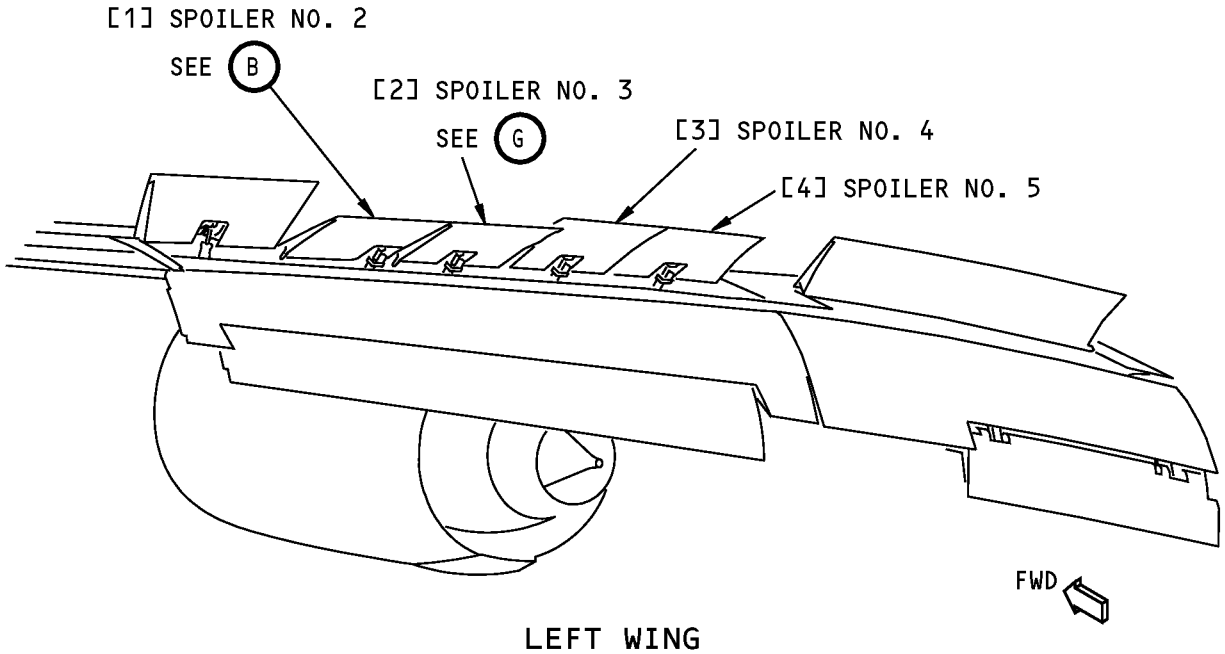

LEFT WING
(RIGHT WING IS EQUIVALENT)

A

Flight Spoiler Hinge Link Installation
Figure 401 (Sheet 1 of 8)/27-61-11-990-801

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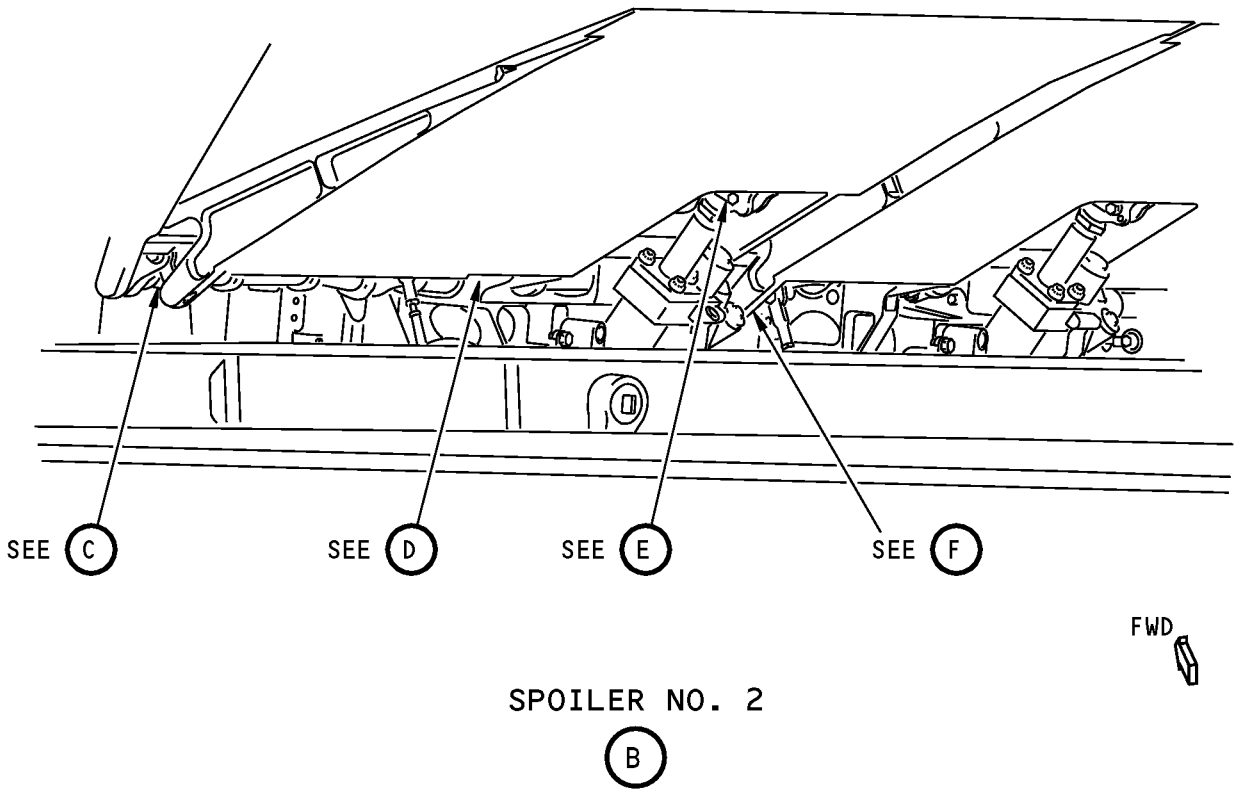

Flight Spoiler Hinge Link Installation
Figure 401 (Sheet 2 of 8)/27-61-11-990-801

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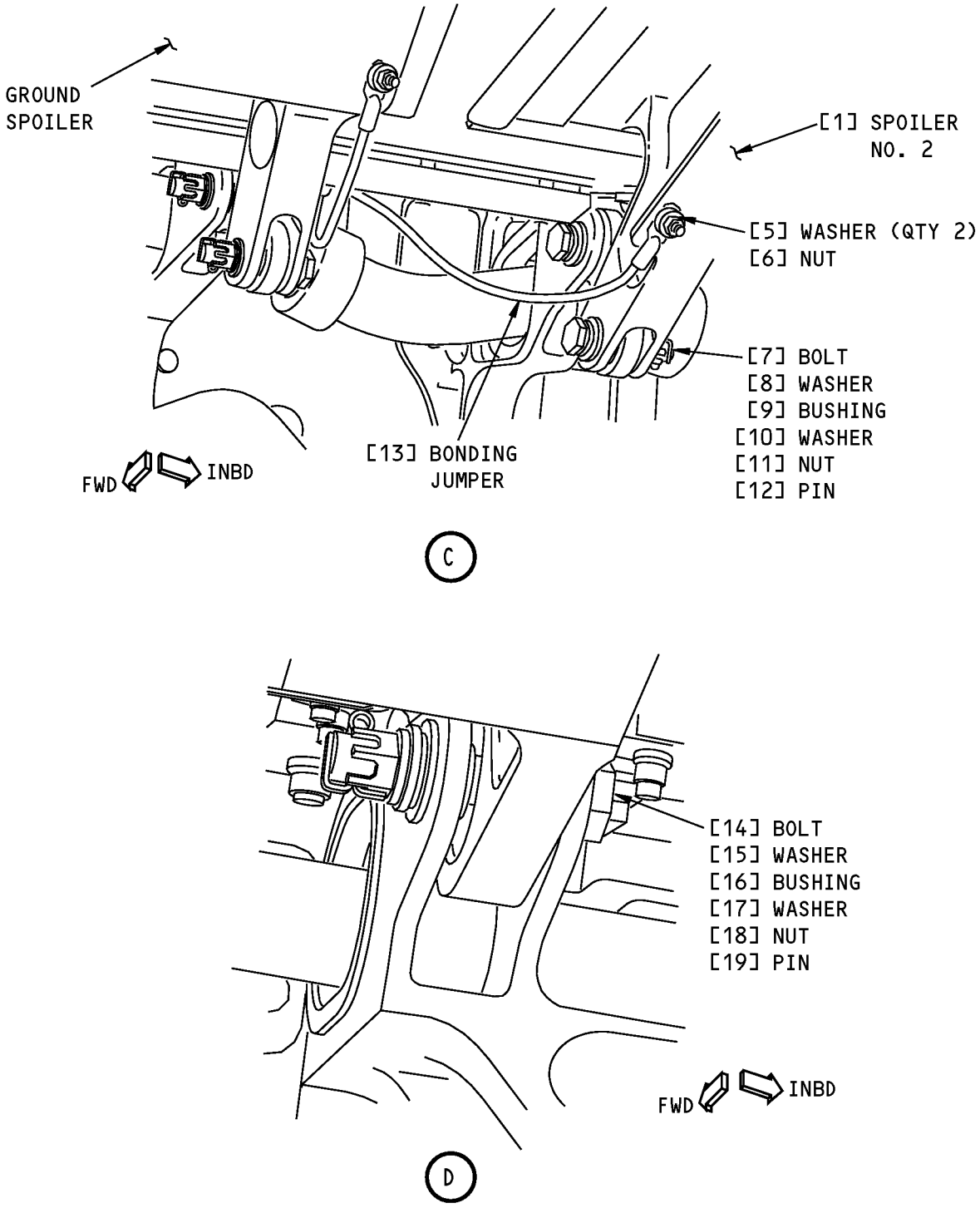

Flight Spoiler Hinge Link Installation
Figure 401 (Sheet 3 of 8)/27-61-11-990-801

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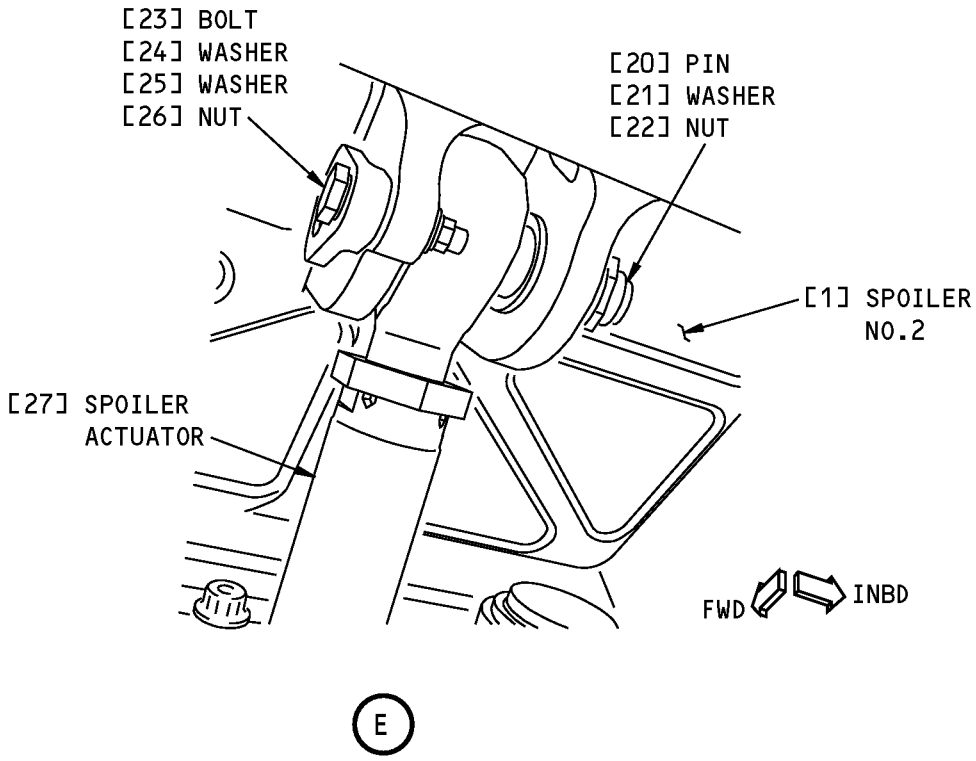

Flight Spoiler Hinge Link Installation
Figure 401 (Sheet 4 of 8)/27-61-11-990-801

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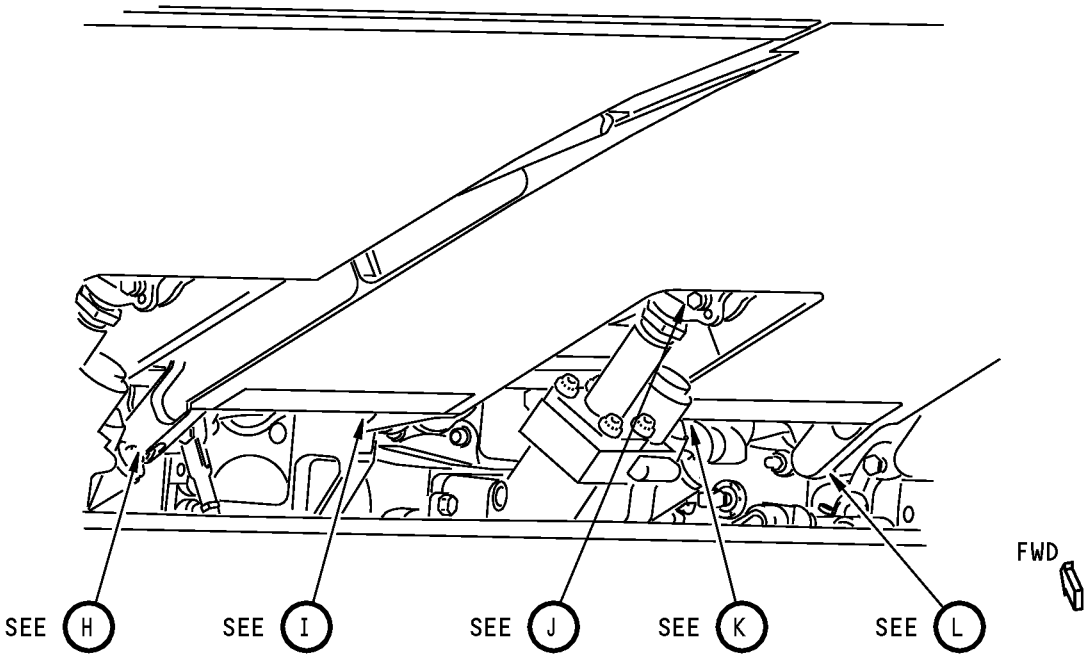

SPOILER NO. 3
(SPOILER NO. 4 AND 5 EQUIVALENT)
G

Flight Spoiler Hinge Link Installation
Figure 401 (Sheet 5 of 8)/27-61-11-990-801

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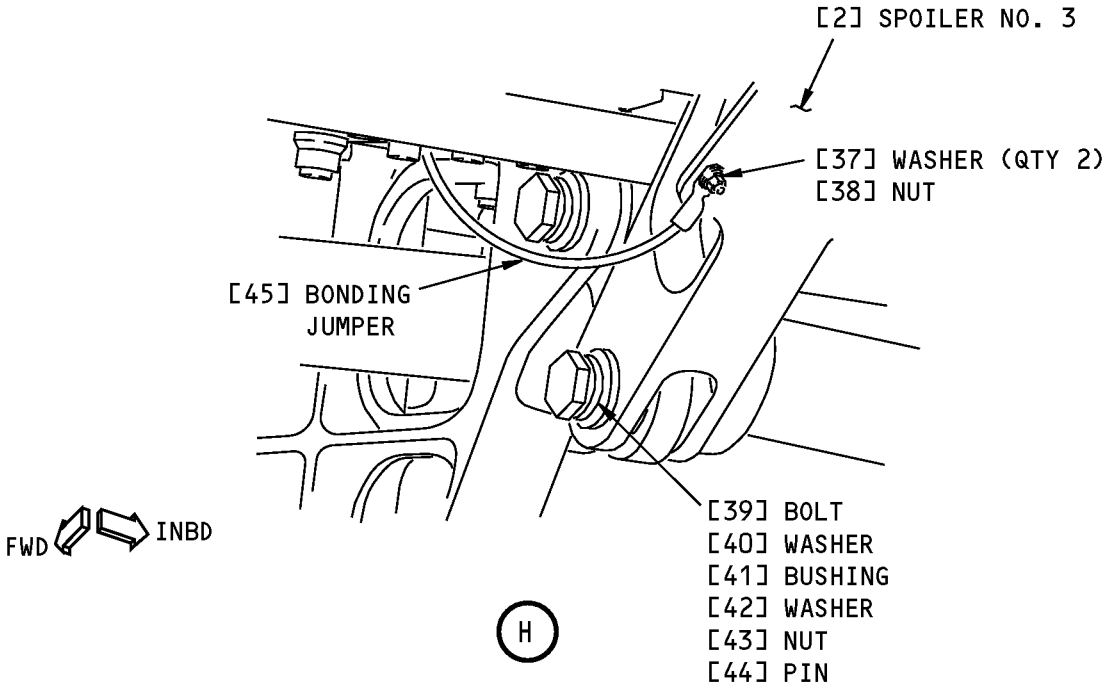

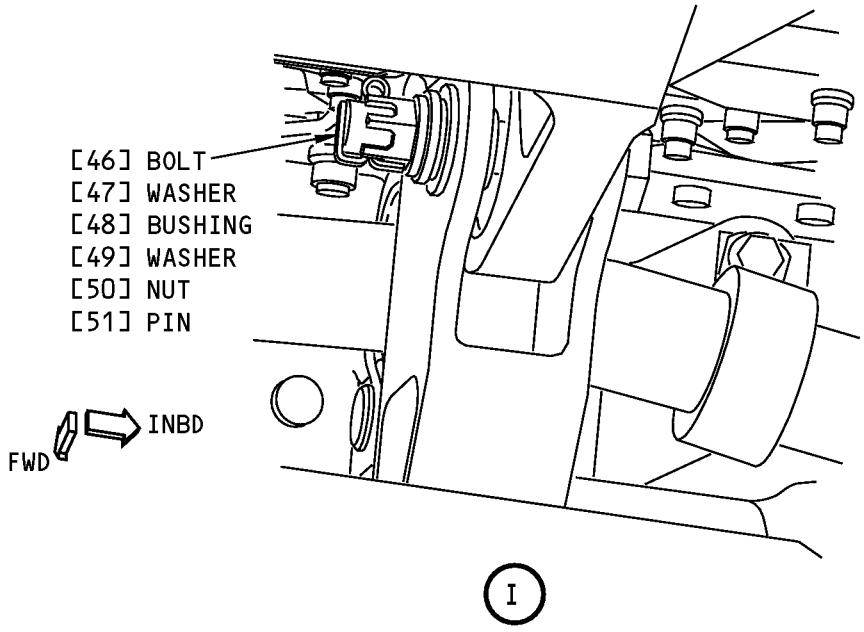

Flight Spoiler Hinge Link Installation
Figure 401 (Sheet 6 of 8)/27-61-11-990-801

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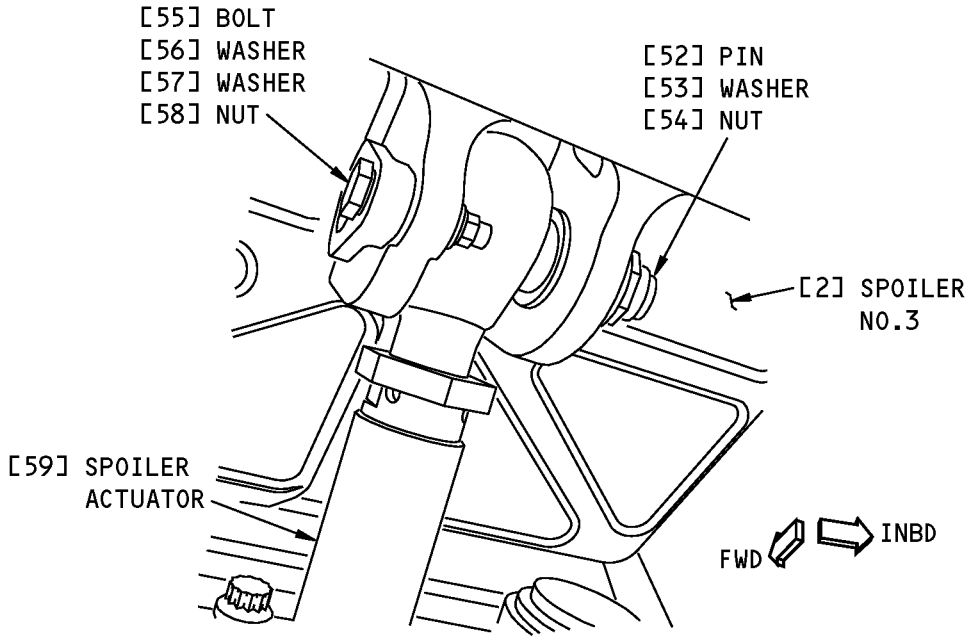
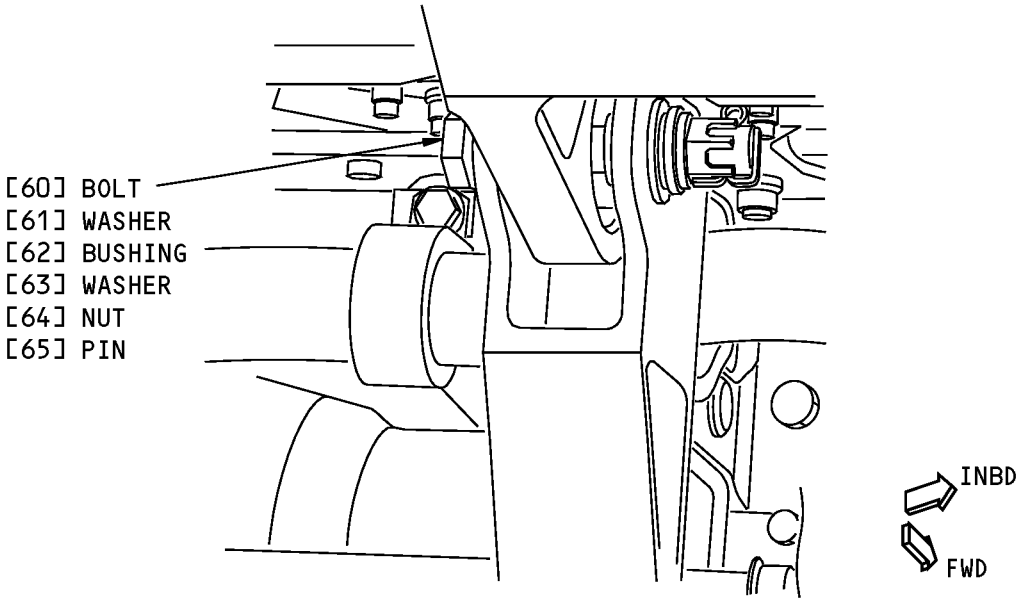


J



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Flight Spoiler Hinge Link Installation
Figure 401 (Sheet 7 of 8)/27-61-11-990-801

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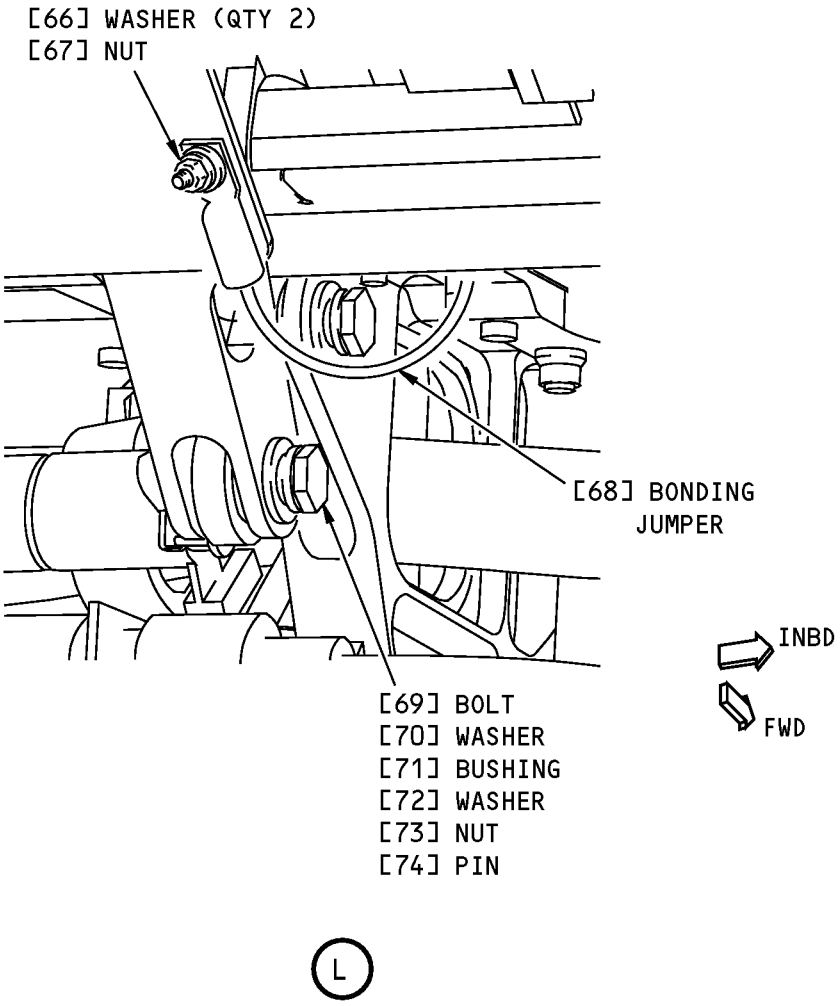

Flight Spoiler Hinge Link Installation
Figure 401 (Sheet 8 of 8)/27-61-11-990-801

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TASK 27-61-11-400-801

3. Flight Spoiler Installation

(Figure 401)

A. References

Reference	Title
22-11-27-400-801	Spoiler Position Sensor Installation (P/B 401)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-000-801	Flight Spoiler System Test (Alternate Method) (P/B 501)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-820-803	Flight Spoiler Adjustment (P/B 501)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-61-00-840-802	Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
27-61-04-400-801	Spoiler Position Sensor Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1745	Set - Lock, Flight Spoiler Actuator (Contains 8 Lock Assemblies) (Part #: C27047-41, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ) (Opt Part #: C27047-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Spoiler no. 2	57-70-00-10-135	HAP 031-054, 101-999
		57-70-00-10C-135	HAP 001-013, 015-026, 028-030
2	Spoiler no. 3	57-70-00-10-145	HAP 031-054, 101-999
		57-70-00-10C-145	HAP 001-013, 015-026, 028-030
3	Spoiler no. 4	57-70-00-10-155	HAP 031-054, 101-999
		57-70-00-10C-155	HAP 001-013, 015-026, 028-030
4	Spoiler no. 5	57-70-00-10-165	HAP 031-054, 101-999
		57-70-00-10C-165	HAP 001-013, 015-026, 028-030
12	Pin	57-42-00-04-010	HAP 031-054, 101-999
		57-42-00-04B-010	HAP 001-013, 015-026, 028-030
19	Pin	57-42-00-04-055	HAP 031-054, 101-999

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
19 (cont.)		57-42-00-04B-055	HAP 001-013, 015-026, 028-030
20	Pin	27-61-51-01-095	HAP 001-013, 015-026, 028-036, 101-999
		27-61-51-02-100	HAP 037-054
27	Actuator assembly	27-61-51-01-100	HAP 001-013, 015-026, 028-036, 101-999
		27-61-51-01-155	HAP 001-013, 015-026, 028-036, 101-999
		27-61-51-02-105	HAP 037-054
36	Pin	57-42-00-04-055	HAP 031-054, 101-999
		57-42-00-04B-055	HAP 001-013, 015-026, 028-030
44	Pin	57-42-00-04-010	HAP 031-054, 101-999
		57-42-00-04B-010	HAP 001-013, 015-026, 028-030
51	Pin	57-42-00-04-055	HAP 031-054, 101-999
		57-42-00-04B-055	HAP 001-013, 015-026, 028-030
52	Pin	27-61-51-01-095	HAP 001-013, 015-026, 028-036, 101-999
		27-61-51-02-100	HAP 037-054
65	Pin	57-42-00-04-055	HAP 031-054, 101-999
		57-42-00-04B-055	HAP 001-013, 015-026, 028-030
74	Pin	57-42-00-04-010	HAP 031-054, 101-999
		57-42-00-04B-010	HAP 001-013, 015-026, 028-030

E. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

F. Procedure

SUBTASK 27-61-11-420-001

(1) Install the flight spoiler no. 2 [1]:

(a) Put the flight spoiler no. 2 [1] in its position on the airplane.

(b) Install bolt [7] with head outboard, washer [8], bushing [9], washer [10], nut [11] and pin [12].

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(c) Install bolt [14] with head inboard, washer [15] bushing [16], washer [17], nut [18] and pin [19].

(d) Install bolt [31] with head outboard, washer [32], bushing [33], washer [34], nut [35] and pin [36].

(e) Install nut [6] and washers [5] to connect the bonding jumper [13] to the structure.

(f) Install nut [29] and washers [28] to connect the bonding jumper [30] to the structure.

(g) Connect the rod end of the spoiler actuator assembly [27] to flight spoiler no. 2 [1]:

1) Apply grease, D00633 to the outer diameter of pin [20].

2) Install pin [20], washer [21] and nut [22].

3) Tighten nut [22] to 540-660 pound-inches (61.0-74.6 newton-meters.

4) Install bolt [23], washer [24], washer [25], and nut [26].

SUBTASK 27-61-11-420-002

(2) For flight spoiler no. 3 [2], spoiler no. 4 [3], or spoiler no. 5 [4]:

(a) Put the flight spoiler in its position on the airplane.

(b) Install bolt [39] with head outboard, washer [40], bushing [41], washer [42], nut [43] and pin [44].

(c) Install bolt [46] with head inboard, washer [47] bushing [48], washer [49], nut [50] and pin [51].

(d) Install bolt [60] with head outboard, washer [61], bushing [62], washer [63], nut [64] and pin [65].

(e) Install bolt [69] with head inboard, washer [70], bushing [71], washer [72], nut [73] and pin [74].

(f) Install nut [38] and washers [37] to connect the bonding jumper [45] to the structure.

(g) Install nut [67] and washers [66] to connect the bonding jumper [68] to the structure.

(h) Connect the aft end of the control rod for the spoiler position sensor from the flight spoiler no. 3 [2]. To connect it, do, do this task: Spoiler Position Sensor Installation, TASK 27-61-04-400-801.

(i) Connect the aft end of the control rod for the spoiler position sensor from the flight spoiler no. 4 [3]. To connect it, do this task: Spoiler Position Sensor Installation, TASK 22-11-27-400-801.

(j) Connect the rod end of the spoiler actuator [59] to flight spoiler no. 3 [2]:

1) Apply grease, D00633 to the outer diameter of pin [52].

2) Install pin [52], washer [53] and nut [54].

3) Tighten nut [54] to 540-660 pound-inches (61.0-74.6 newton-meters).

4) Install bolt [55], washer [56], washer [57], and nut [58].

SUBTASK 27-61-11-080-001

(3) Remove set, SPL-1745.

SUBTASK 27-61-11-860-008

(4) Do this task: Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-61-00-840-802.

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SUBTASK 27-61-11-860-009

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-61-11-860-010

(6) Move the speed brake lever to the DOWN position to lower the spoilers.

SUBTASK 27-61-11-860-011

(7) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-11-860-012

(8) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-61-11-820-001

(9) Do this task: Flight Spoiler Adjustment, TASK 27-61-00-820-803.

SUBTASK 27-61-11-720-001

(10) Do this task: Flight Spoiler System Test (Alternate Method), TASK 27-61-00-000-801.

——————— END OF TASK ———————

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SPOILER SHUTOFF VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the spoiler shutoff valve

(2) An installation of the spoiler shutoff valve

(3) A removal of the spoiler shutoff valve motor

(4) An installation of the spoiler shutoff valve motor.

B. The spoiler shutoff valve and the flight controls shutoff valve are parts of the flight controls hydraulic module.

C. The spoiler shutoff valve is referred to as the "valve" and the spoiler shutoff valve motor is referred to as the "valve motor" in this procedure.

D. You can replace the valve motor with the valve installed in the flight controls hydraulic module.

TASK 27-61-12-000-801

2. Spoiler Shutoff Valve Removal

(Figure 401)

A. General

(1) This task is the removal of the spoiler shutoff valve assembly, which contains the motor and the valve.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1154	Container - 5 Gallon (19 Liters)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the Removal

SUBTASK 27-61-12-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAMGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

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SUBTASK 27-61-12-860-001

(2) For applicable hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

NOTE: Remove power from hydraulic system A for the valve in the left wheel weel. Remove power from hydraulic system B for the valve in the right wheel well.

SUBTASK 27-61-12-860-002

(3) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-61-12-860-003

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

F. Spoiler Shutoff Valve Removal

SUBTASK 27-61-12-020-001

(1) Remove the housing valve assembly [12]:

(a) Disconnect the electrical connector [1] from the valve motor [7].

(b) Put a 5 gallon (19 liter) container, STD-1154 below the housing valve assembly [12] to catch hydraulic fluid that drains from the housing valve assembly [12].

(c) Remove the four bolts [4] and washers [5] that attach the housing valve assembly [12] to the hydraulic module housing [2].

(d) Carefully lift the housing valve assembly [12] straight up to remove it from the hydraulic module housing [2].

(e) Put a cover on the hydraulic module housing [2] to keep contamination out of the open valve hole.

——————— END OF TASK ———————

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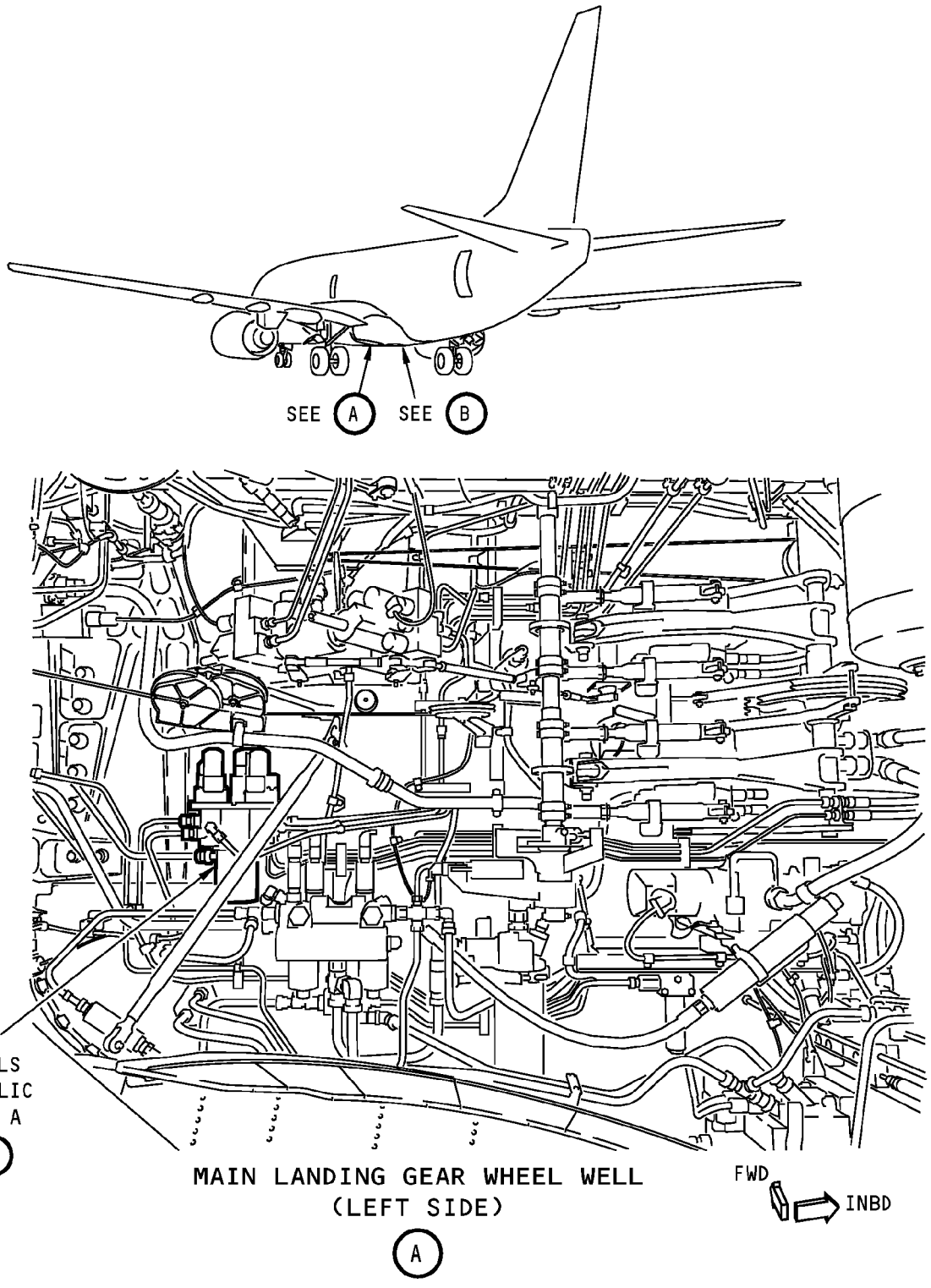

Spoiler Shutoff Valve Installation
Figure 401 (Sheet 1 of 4)/27-61-12-990-801

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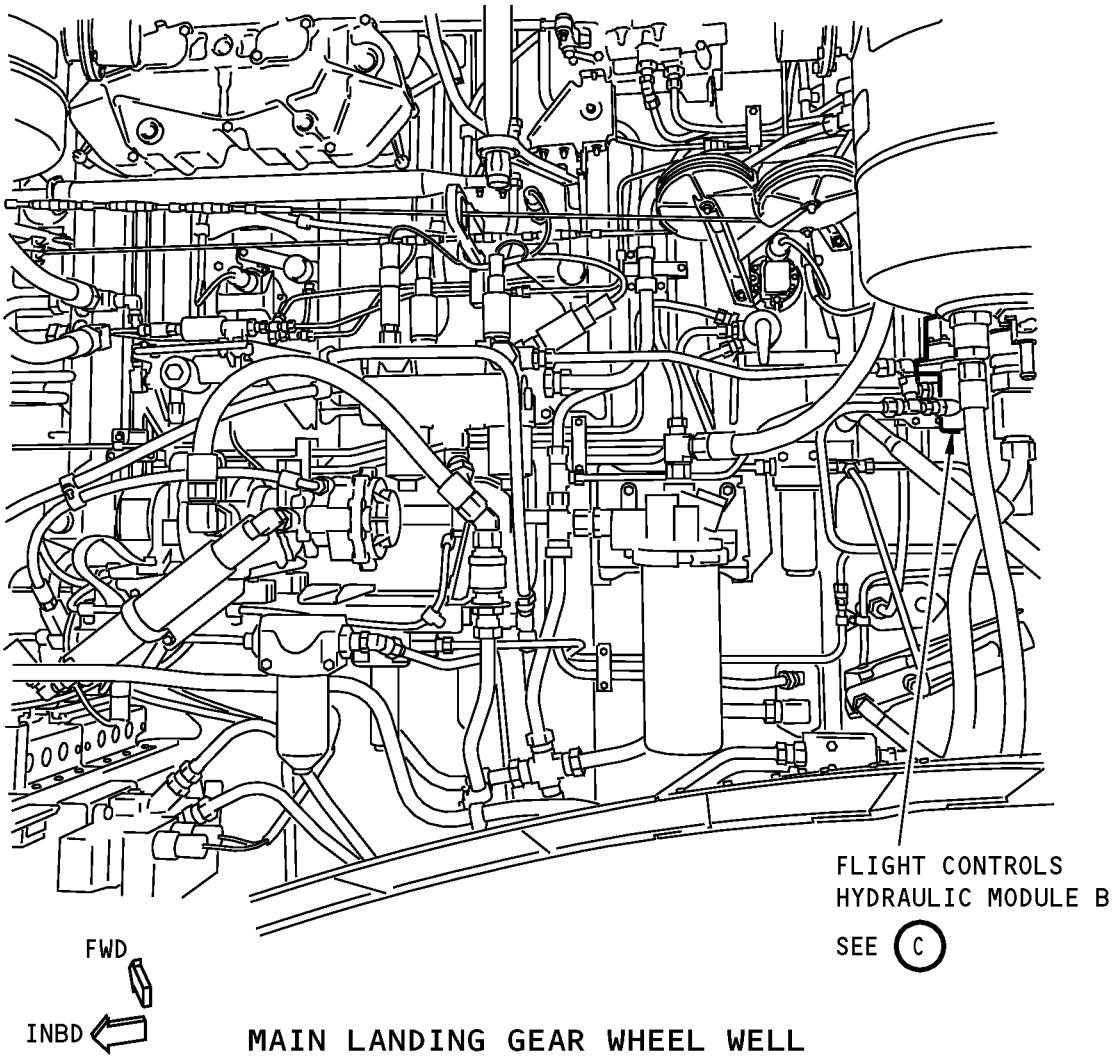

Spoiler Shutoff Valve Installation
Figure 401 (Sheet 2 of 4)/27-61-12-990-801

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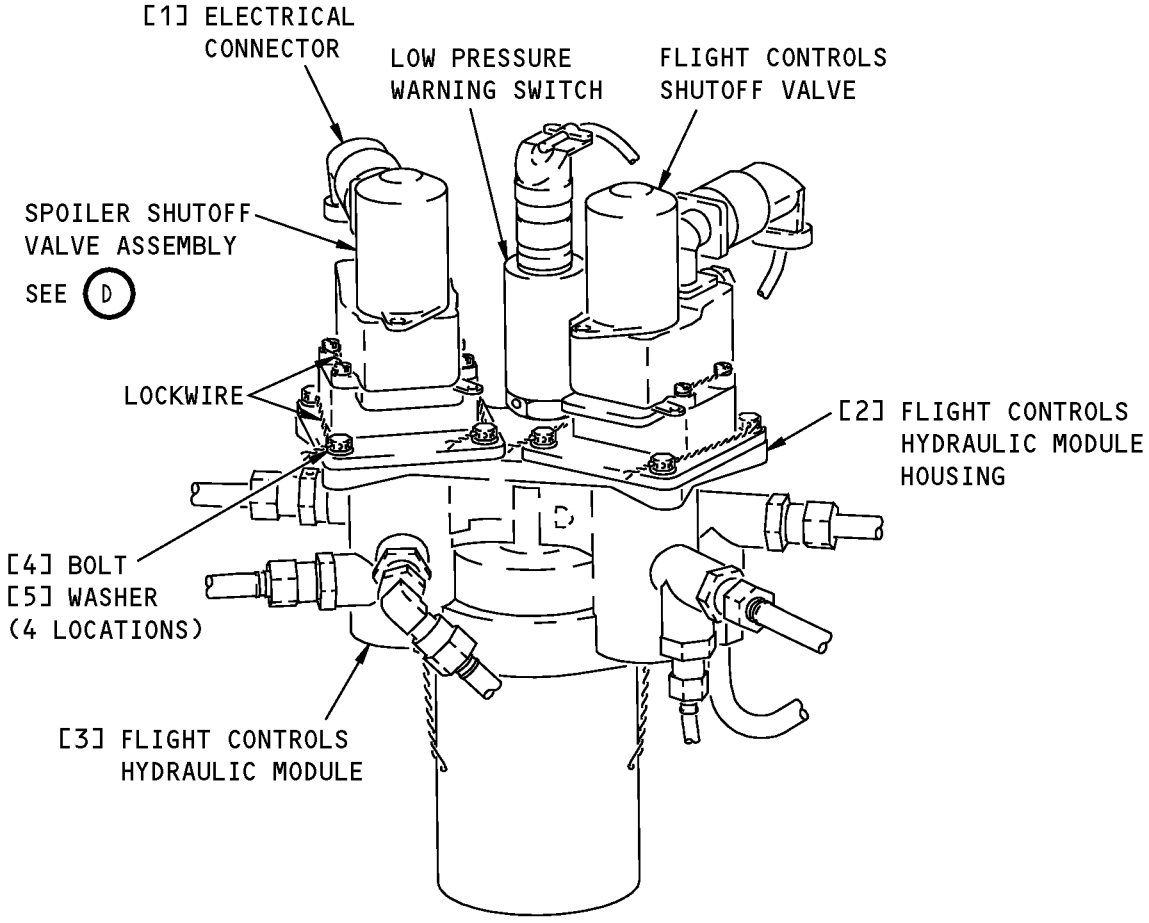

FLIGHT CONTROLS HYDRAULIC MODULE A
(MODULE B IS EQUIVALENT)

C

Spoiler Shutoff Valve Installation
Figure 401 (Sheet 3 of 4)/27-61-12-990-801

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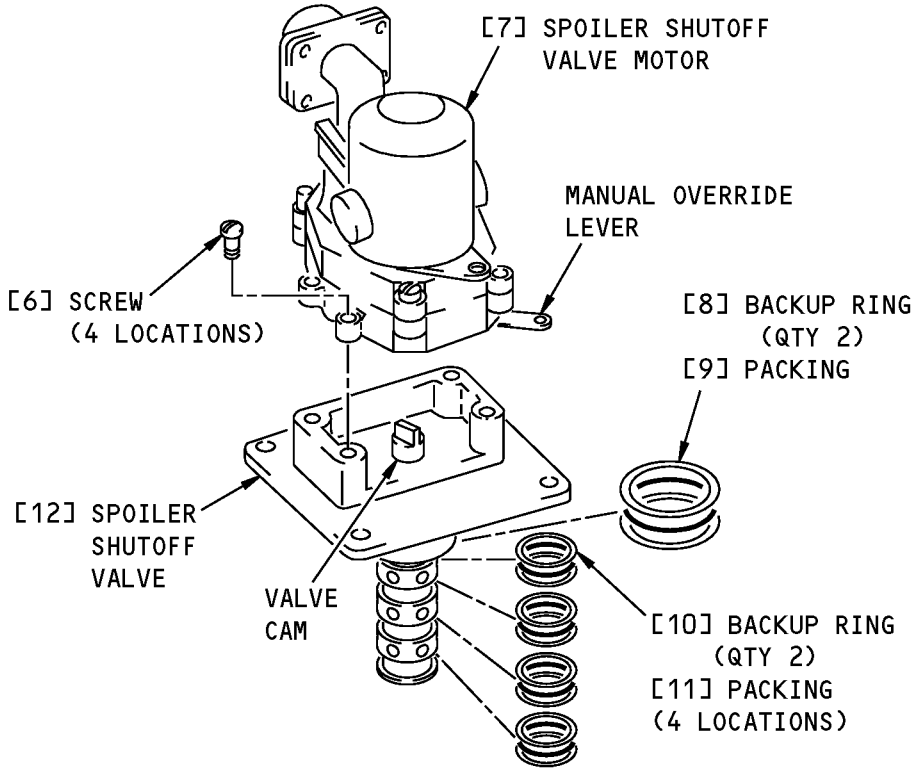

SPOILER SHUTOFF VALVE

D

Spoiler Shutoff Valve Installation
Figure 401 (Sheet 4 of 4)/27-61-12-990-801

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TASK 27-61-12-400-801

3. Spoiler Shutoff Valve Installation

(Figure 401)

A. General

(1) This task is the installation of the spoiler shutoff valve assembly, which contains the motor and the valve.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-61-12-400-803	Spoiler Shutoff Valve Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜C32 (QQ-N-281)
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Packing	27-09-21-01-105	HAP ALL
11	Packing	27-09-21-01-115	HAP ALL
12	Housing valve assembly	27-09-21-01-125	HAP ALL

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Spoiler Shutoff Valve Installation

SUBTASK 27-61-12-420-001

(1) If they are not installed, install the packing [9], backup rings [8], packing [11] and backup rings [10].

(a) Apply fluid, D00153 to the packing [9], backup rings [8], packing [11] and backup rings [10].

(b) Install the packing [9], backup rings [8], packing [11] and backup rings [10] on the housing valve assembly [12].

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SUBTASK 27-61-12-420-002

(2) Install the housing valve assembly [12]:

(a) Carefully install the housing valve assembly [12] in the hydraulic module housing [2].

(b) Install the bolts [4] and washers [5] to attach the housing valve assembly [12] to the hydraulic module housing [2].

(c) Tighten the bolts [4] to 30-40 pound-inches (3.4-4.5 newton-meters).

(d) Install the lockwire, G01912 on the four bolts [4].

(e) Before you connect the electrical connector [1], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(f) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(g) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(h) Connect the electrical connector [1] to the valve motor [7].

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-12-860-004

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 27-61-12-610-001

(2) If it is necessary to service the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 27-61-12-730-001

(3) Do this task: Spoiler Shutoff Valve Test, TASK 27-61-12-400-803.

——————— END OF TASK ———————

TASK 27-61-12-000-802

4. Spoiler Shutoff Valve Motor Removal

(Figure 401)

A. General

(1) You can remove the valve motor with the valve installed in the flight controls hydraulic module.

B. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

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C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Removal

SUBTASK 27-61-12-480-002

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAMGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-61-12-860-005

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

E. Spoiler Shutoff Valve Motor Removal

SUBTASK 27-61-12-020-002

(1) Remove the valve motor [7]:

(a) Disconnect the electrical connector [1] from the valve motor [7].

(b) Set the manual override lever on the valve motor [7] to position 2.

(c) Remove the screws [6] that attach the valve motor [7] to the housing valve assembly [12].

(d) Remove the valve motor [7] from the housing valve assembly [12].

———————— END OF TASK ————————

TASK 27-61-12-400-802

5. Spoiler Shutoff Valve Motor Installation

(Figure 401)

A. General

(1) You can install the valve motor with the valve installed in the flight controls hydraulic module.

B. References

Reference	Title
27-61-12-400-803	Spoiler Shutoff Valve Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

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C. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Spoiler Shutoff Valve Motor Installation

SUBTASK 27-61-12-420-003

(1) Install the valve motor [7]:

(a) Make sure the manual override lever on the valve motor [7] is set to position 2.

(b) Set the valve motor [7] on the housing valve assembly [12].

(c) Engage the valve motor [7] with the valve cam.

(d) Install the four screws [6].

(e) Install the lockwire, G01912 on the screws [6].

(f) Before you connect the electrical connector [1], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(g) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(h) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(i) Connect the electrical connector [1] to the valve motor [7].

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-12-860-006

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 27-61-12-730-002

(2) Do this task: Spoiler Shutoff Valve Test, TASK 27-61-12-400-803.

END OF TASK

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SPOILER SHUTOFF VALVE - ADJUSTMENT/TEST

1. General

A. There is one task in this procedure which is the test of the spoiler shutoff valve.

B. The spoiler shutoff valve is part of the flight controls hydraulic module. The spoiler shutoff valve is installed on the left side of the flight controls hydraulic module.

C. The flight controls hydraulic module for the hydraulic system A is installed in the left main wheel well. The flight controls hydraulic module for the hydraulic system B is installed in the right main wheel well.

TASK 27-61-12-400-803

2. Spoiler Shutoff Valve Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Operational Test

SUBTASK 27-61-12-860-007

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-12-860-008

(2) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 27-61-12-860-009

(3) To pressurize hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

D. Spoiler Shutoff Valve Test

SUBTASK 27-61-12-720-001

(1) Do the test of the spoiler shutoff valve [1]:

(a) Move the two SPOILER switches, on the P5-3 Flights Control panel, to the OFF position and then to the ON position (Figure 501).

(b) Make sure the manual override levers [2] of the two spoiler shutoff valves [1] are in position 1 (Figure 502).

(c) Move one of the two aileron control wheels to bleed the hydraulic system.

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(d) Make sure there is no leakage of hydraulic fluid at the spoiler shutoff valves [1].

(e) Move the aileron control wheel to make sure the flight spoilers operate correctly.

(f) Set the two SPOILER switches to the OFF position.

(g) Make sure the manual override levers [2] of the two spoiler shutoff valves [1] are in position 2.

(h) Move the aileron control wheel to make sure that the flight spoilers do not operate.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-12-860-010

(1) Set the SPOILER switches to the ON position.

SUBTASK 27-61-12-860-011

(2) To remove power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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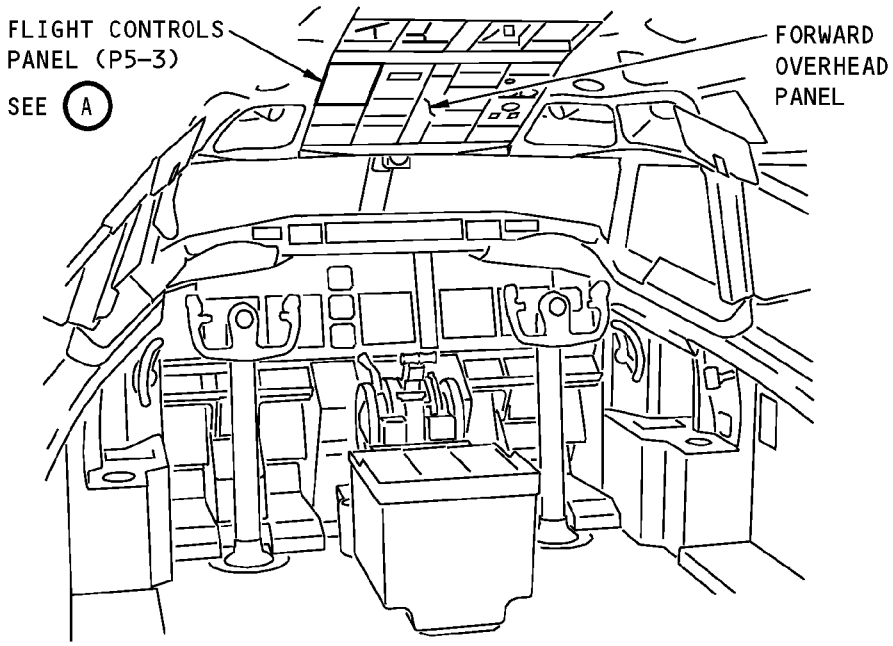
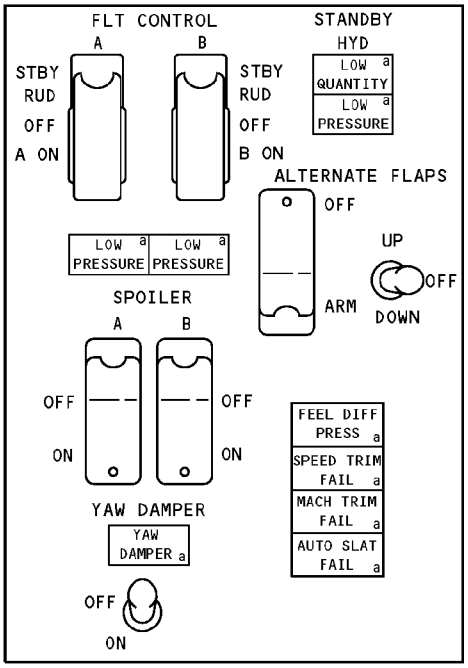


FLIGHT COMPARTMENT



FLIGHT CONTROLS PANEL (P5-3)

A

Flight Controls Panel
Figure 501/27-61-12-990-802

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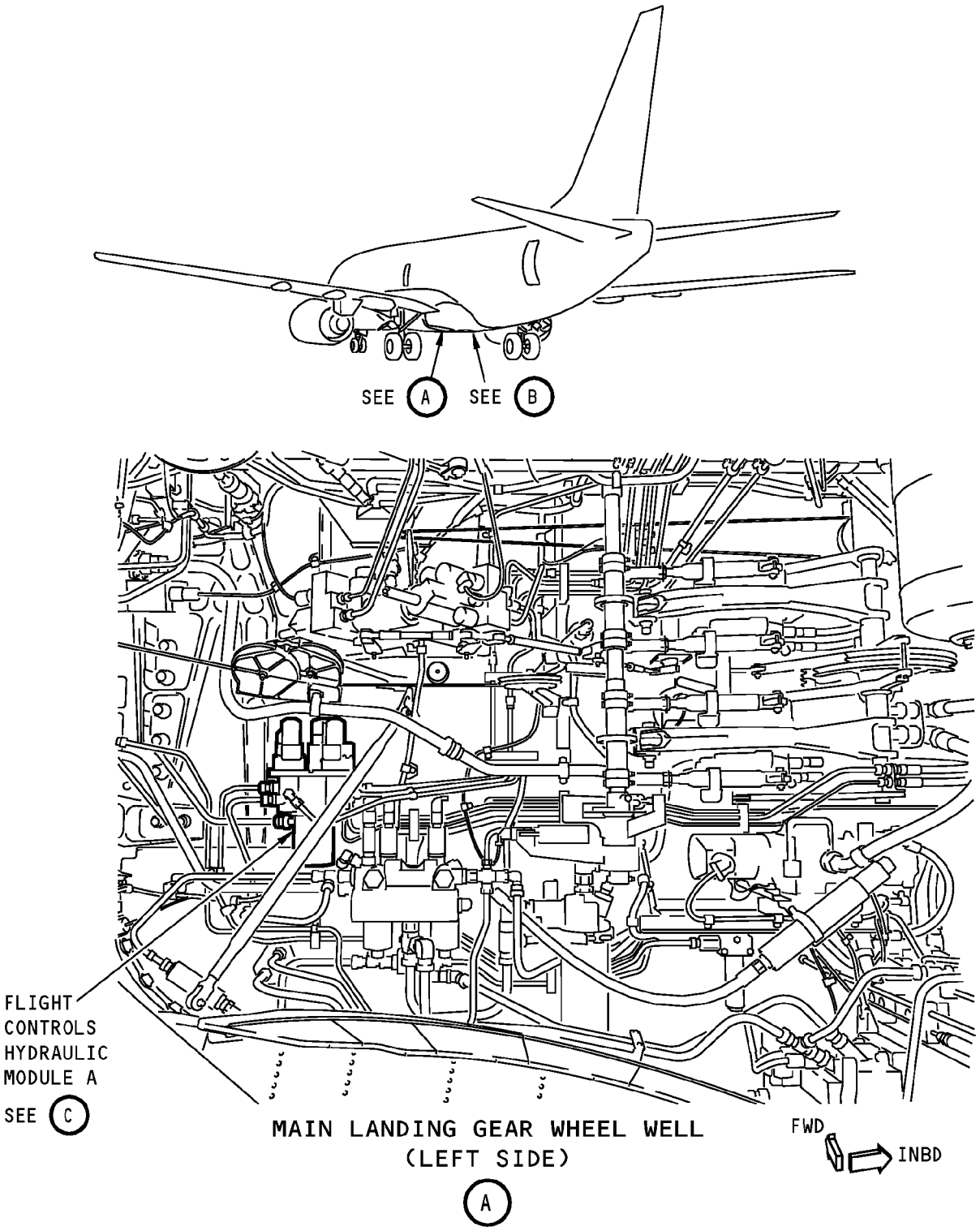

Spoiler Shutoff Valve Test
Figure 502 (Sheet 1 of 3)/27-61-12-990-803

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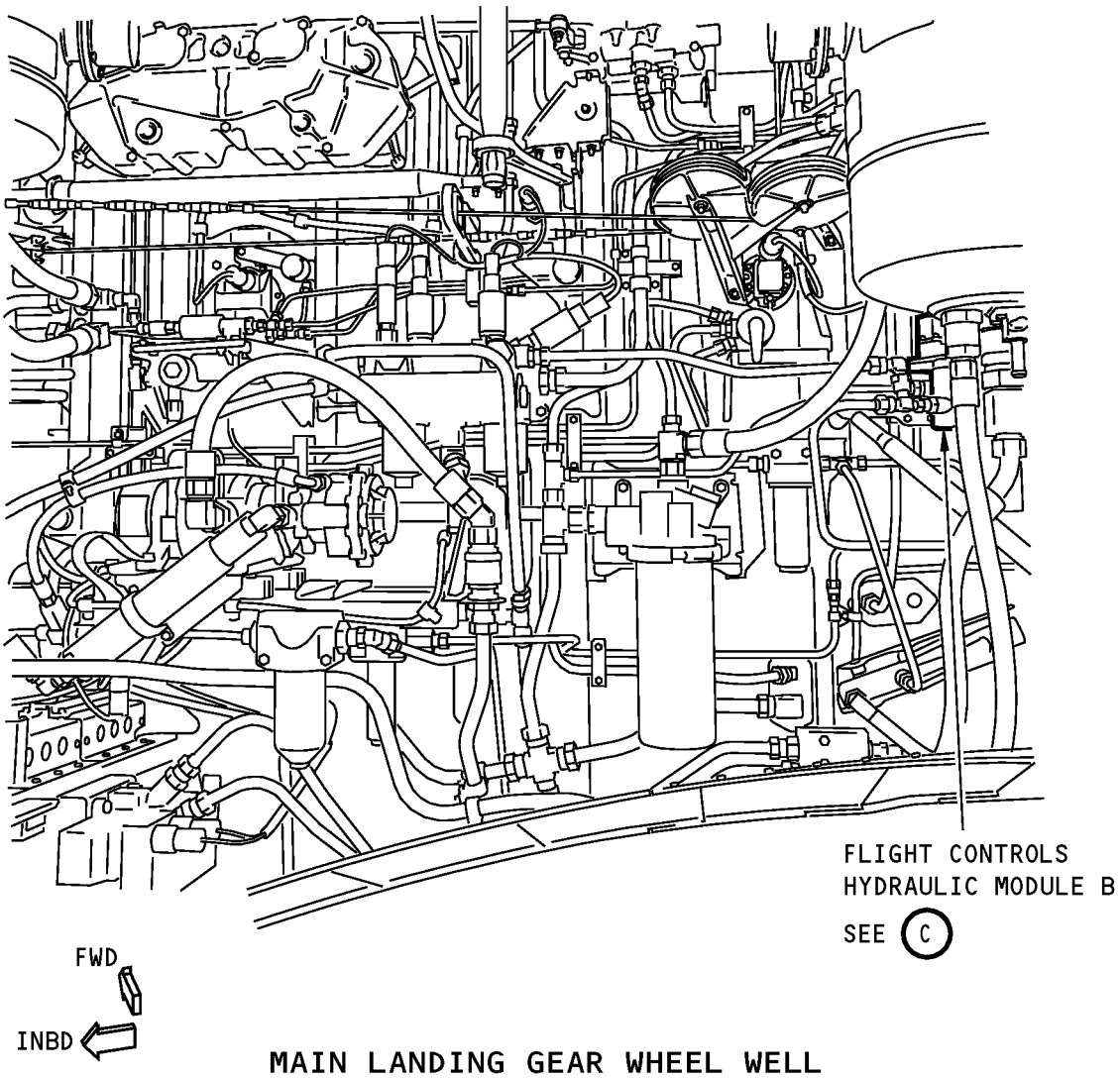

Spoiler Shutoff Valve Test
Figure 502 (Sheet 2 of 3)/27-61-12-990-803

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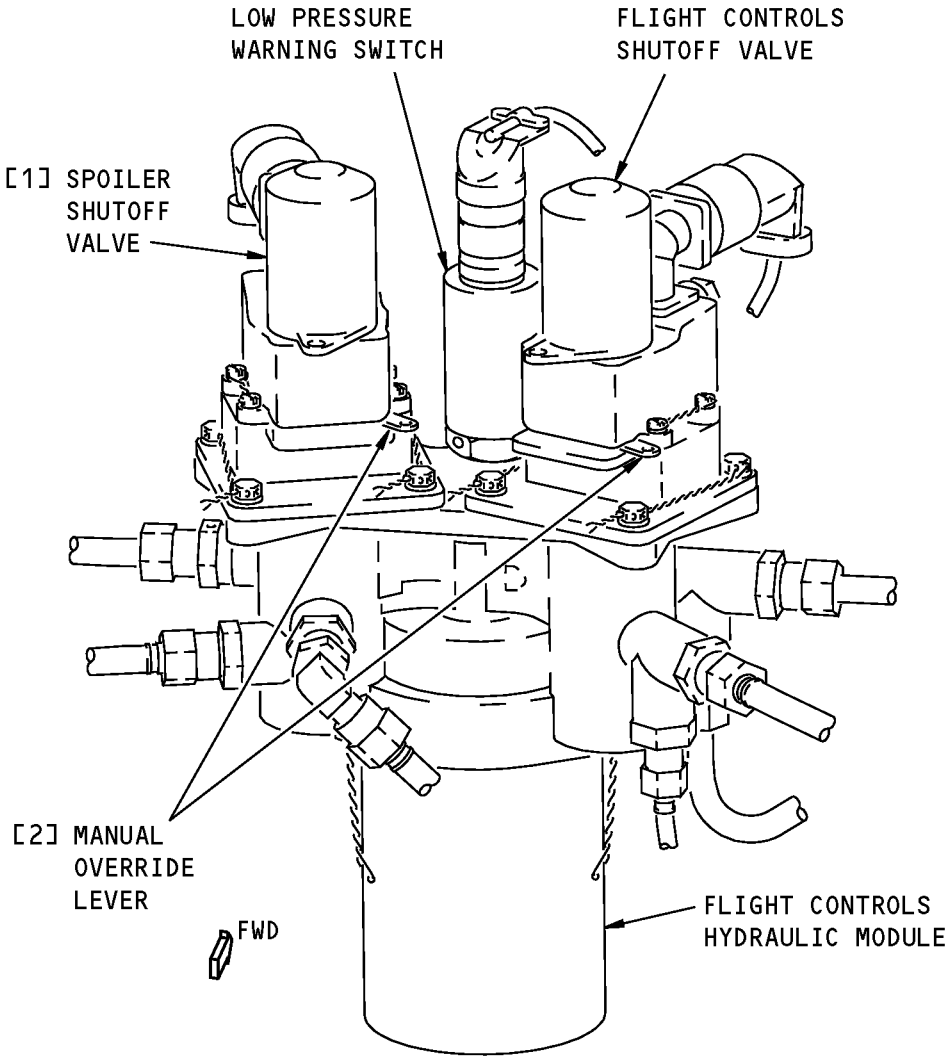

FLIGHT CONTROLS HYDRAULIC MODULE A
(MODULE B IS EQUIVALENT)

C

Spoiler Shutoff Valve Test
Figure 502 (Sheet 3 of 3)/27-61-12-990-803

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FLIGHT SPOILER HINGE LINK - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flight spoiler hinge links.

(2) An installation of the flight spoiler hinge links.

B. This procedure is applicable to the left and right flight spoiler hinge links.

TASK 27-61-15-000-801

2. Flight Spoiler Hinge Link Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-800-802	Remove Pressure from the Spoiler Hydraulic Systems A and B (P/B 201)
27-61-11-000-801	Flight Spoiler Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1745	Set - Lock, Flight Spoiler Actuator (Contains 8 Lock Assemblies) (Part #: C27047-41, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ) (Opt Part #: C27047-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

D. Prepare for the Removal

SUBTASK 27-61-15-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-61-15-860-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-61-15-860-003

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-61-15-860-004

(4) Put the speed brake lever in the UP position to lift the spoilers.

SUBTASK 27-61-15-480-001

(5) Install the set, SPL-1745 on the actuator for the applicable flight spoiler.

SUBTASK 27-61-15-860-005

(6) Do this task: Remove Pressure from the Spoiler Hydraulic Systems A and B, TASK 27-61-00-800-802.

SUBTASK 27-61-15-020-001

(7) Do this task: Flight Spoiler Removal, TASK 27-61-11-000-801.

E. Flight Spoiler Hinge Link Removal

SUBTASK 27-61-15-020-002

(1) Remove the spoiler hinge link [5]:

(a) Remove pin [11], nut [10], washer [9], bushing [8], washer [7] and bolt [6].

(b) Remove flight spoiler hinge link [5] from the airplane.

——————— END OF TASK ———————

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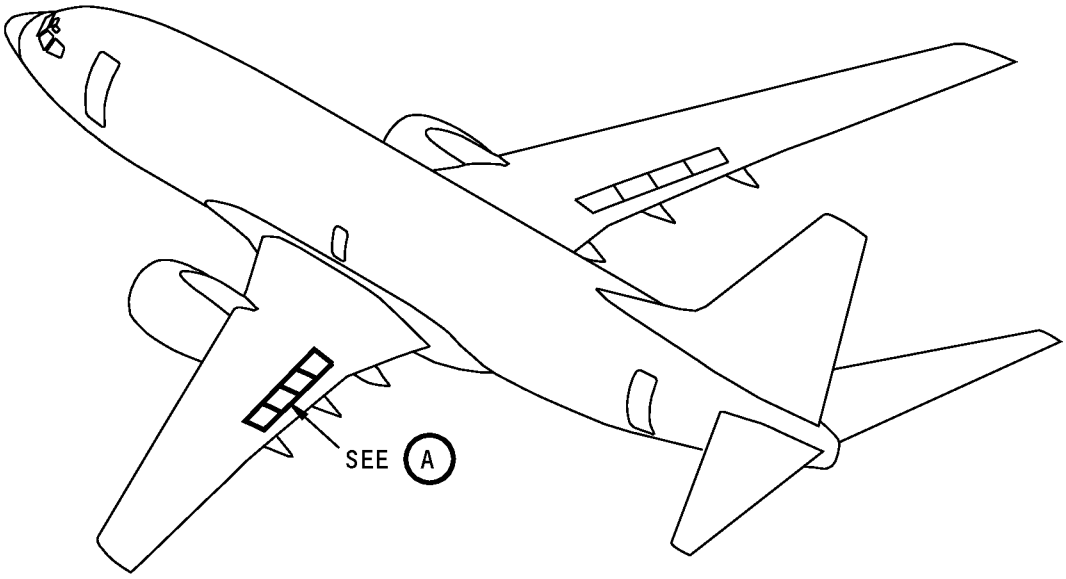

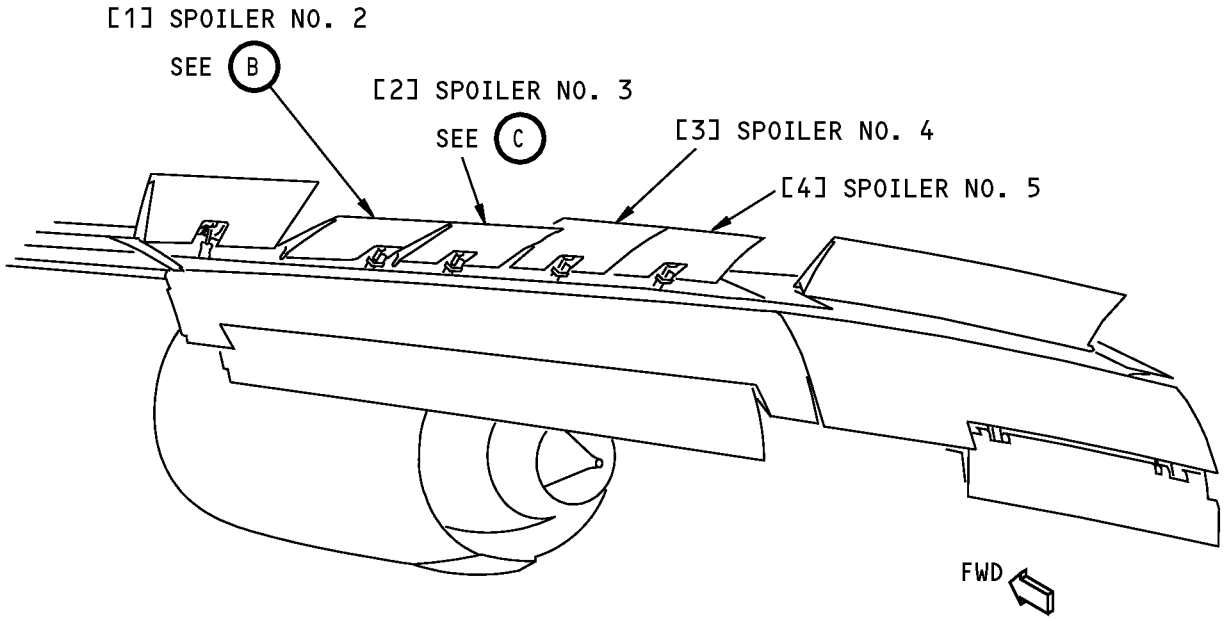

LEFT WING
(RIGHT WING IS EQUIVALENT)

A

Flight Spoilers Hinge Link Installation
Figure 401 (Sheet 1 of 4)/27-61-15-990-801

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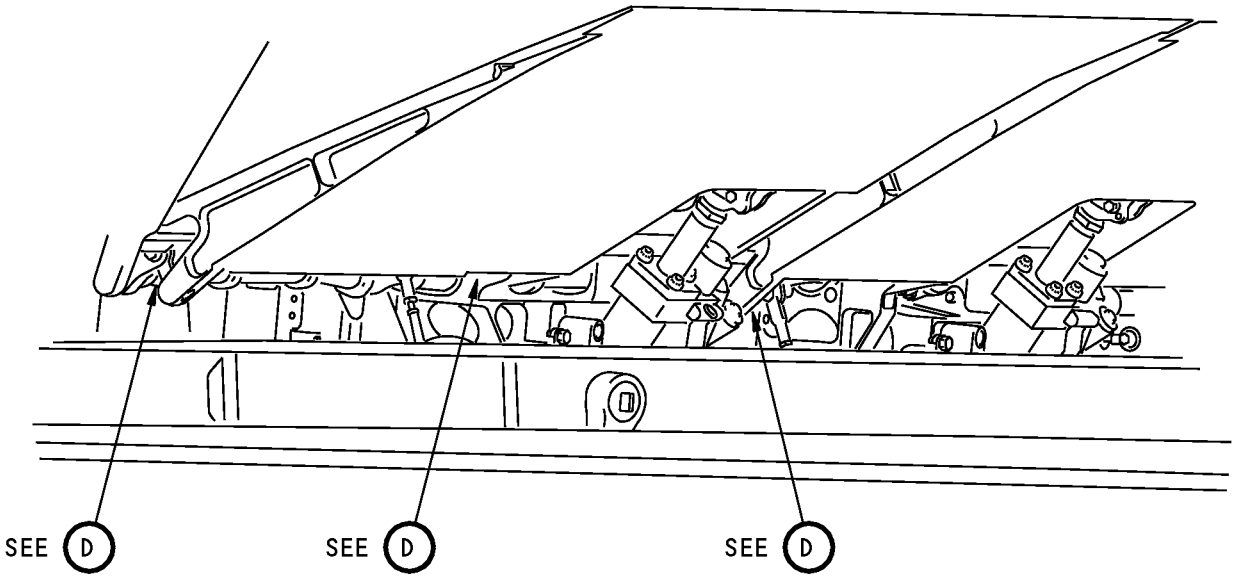

Flight Spoilers Hinge Link Installation
Figure 401 (Sheet 2 of 4)/27-61-15-990-801

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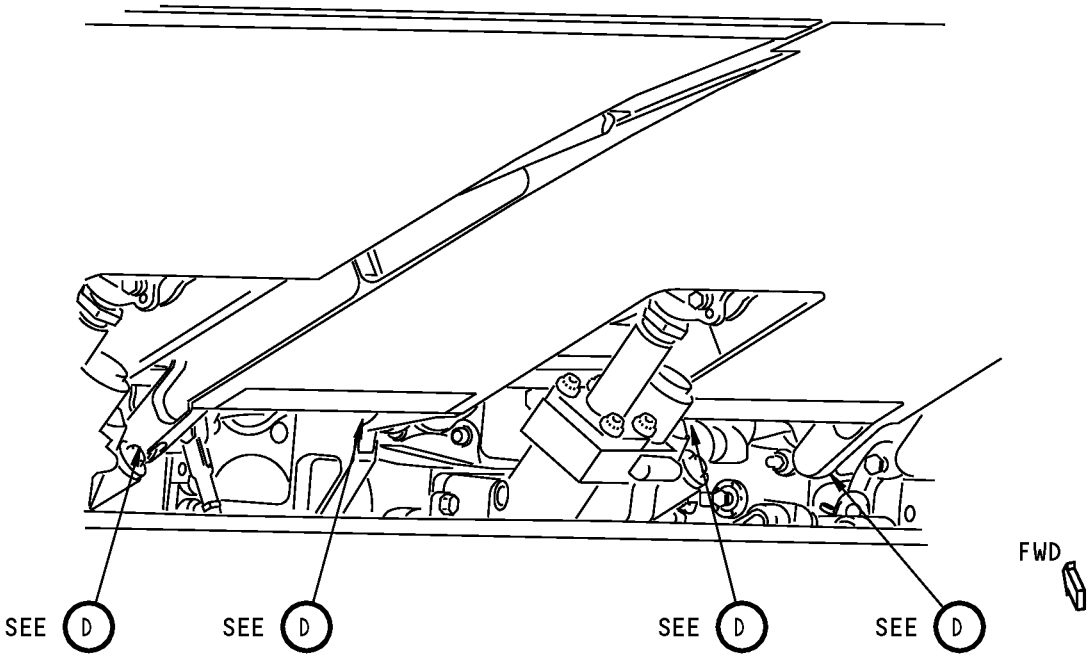

SPOILER NO. 3
(SPOILER NO. 4 AND 5 EQUIVALENT)
C

Flight Spoilers Hinge Link Installation
Figure 401 (Sheet 3 of 4)/27-61-15-990-801

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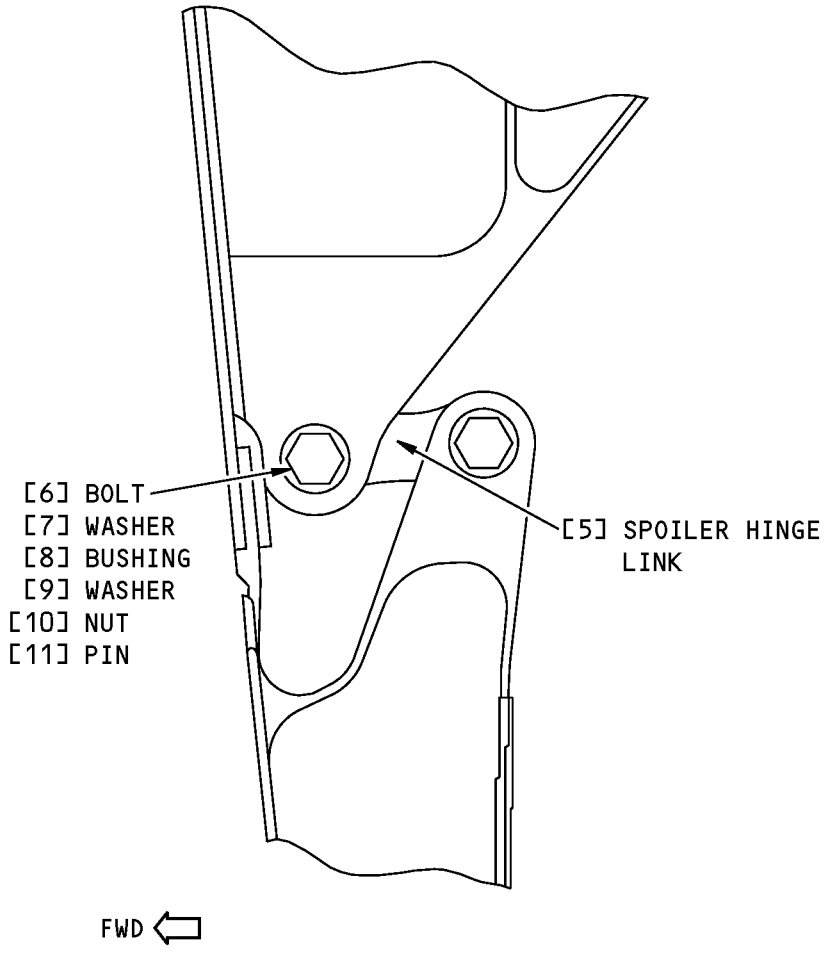

HINGE LINK
(EXAMPLE)
D

Flight Spoilers Hinge Link Installation
Figure 401 (Sheet 4 of 4)/27-61-15-990-801

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TASK 27-61-15-400-801

3. Flight Spoiler Hinge Link Installation

(Figure 401)

A. References

Reference	Title
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-000-801	Flight Spoiler System Test (Alternate Method) (P/B 501)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-820-803	Flight Spoiler Adjustment (P/B 501)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-61-00-840-802	Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1745	Set - Lock, Flight Spoiler Actuator (Contains 8 Lock Assemblies) (Part #: C27047-41, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ) (Opt Part #: C27047-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

D. Flight Spoiler Hinge Link Installation

SUBTASK 27-61-15-420-001

(1) Install the bolt [6], washer [7], bushing [8], washer [9], nut [10] and pin [11] to install the hinge link [5].

SUBTASK 27-61-15-860-006

(2) Make sure hydraulic power is not on. To remove it, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-61-15-080-001

(3) Remove set, SPL-1745.

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SUBTASK 27-61-15-860-011

(4) Do this task: Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-61-00-840-802.

SUBTASK 27-61-15-860-007

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-61-15-860-008

(6) Move the speed brake lever to the DOWN position to lower the spoilers.

SUBTASK 27-61-15-860-009

(7) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-15-860-010

(8) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-61-15-820-001

(9) Do this task: Flight Spoiler Adjustment, TASK 27-61-00-820-803.

SUBTASK 27-61-15-720-001

(10) Do this task: Flight Spoiler System Test (Alternate Method), TASK 27-61-00-000-801.

——————— END OF TASK ———————

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SPOILER MIXER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the spoiler mixer.

(2) An installation of the spoiler mixer.

TASK 27-61-21-000-801

2. Spoiler Mixer Removal

(Figure 401)

A. References

Reference	Title
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-61-21-860-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-61-21-860-002

(2) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-21-860-003

(3) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

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SUBTASK 27-61-21-860-004

(4) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-61-21-480-001

(5) Install the rig pin A/S-3 from the test set rig pin kit, SPL-1585 in the lower crank for the aileron spring cartridge.

SUBTASK 27-61-21-480-002

(6) Install the rig pin A/S-4 from the test set rig pin kit, SPL-1585 in the aileron bus drum.

SUBTASK 27-61-21-480-003

CAUTION: KEEP THE RIG PIN A/S-14 INSTALLED WHILE THE SPOILER MIXER IS REMOVED. THE SPOILER MIXER CAN BE DAMAGED IF YOU REMOVE THE RIG PIN.

(7) Install the rig pin A/S-14 from the test set rig pin kit, SPL-1585 in the spoiler mixer

E. Spoiler Mixer Removal

SUBTASK 27-61-21-020-001

(1) Remove the spoiler mixer [1]:

(a) Remove the nut [9], washer [8], washer [7], and bolt [6] that attaches the control rod [5] to ground spoiler control valve lever [11].

(b) Remove nut [15], washer [14], washer [13] and bolt [12] to disconnect the aileron spring cartridge [17] from the aileron input crank [16].

(c) Move the aileron spring cartridge [17] to get access to the couplings [27] and coupling [18].

(d) Loosen the nuts [30] on the two couplings [27].

(e) Loosen the nuts [21] on the coupling [18].

(f) Loosen the nut [37] on the coupling [34].

(g) Remove the nuts [2], and washers [3] from the four mounting studs [4].

(h) Remove the spoiler mixer [1] from the airplane.

SUBTASK 27-61-21-020-002

(2) Remove the nuts [30], nuts [21], washers [29], washers [20], bolts [28], bolts [19], couplings [27], and coupling [18].

NOTE: You must keep the coupling [34] with the spoiler mixer [1].

SUBTASK 27-61-21-020-003

(3) Remove the control rod [5] from the spoiler mixer [1]:

(a) Remove nut [26], washer [25], washer [24], and bolt [23] and disconnect the control rod [5] from the spoiler mixer [1].

———————— END OF TASK ————————

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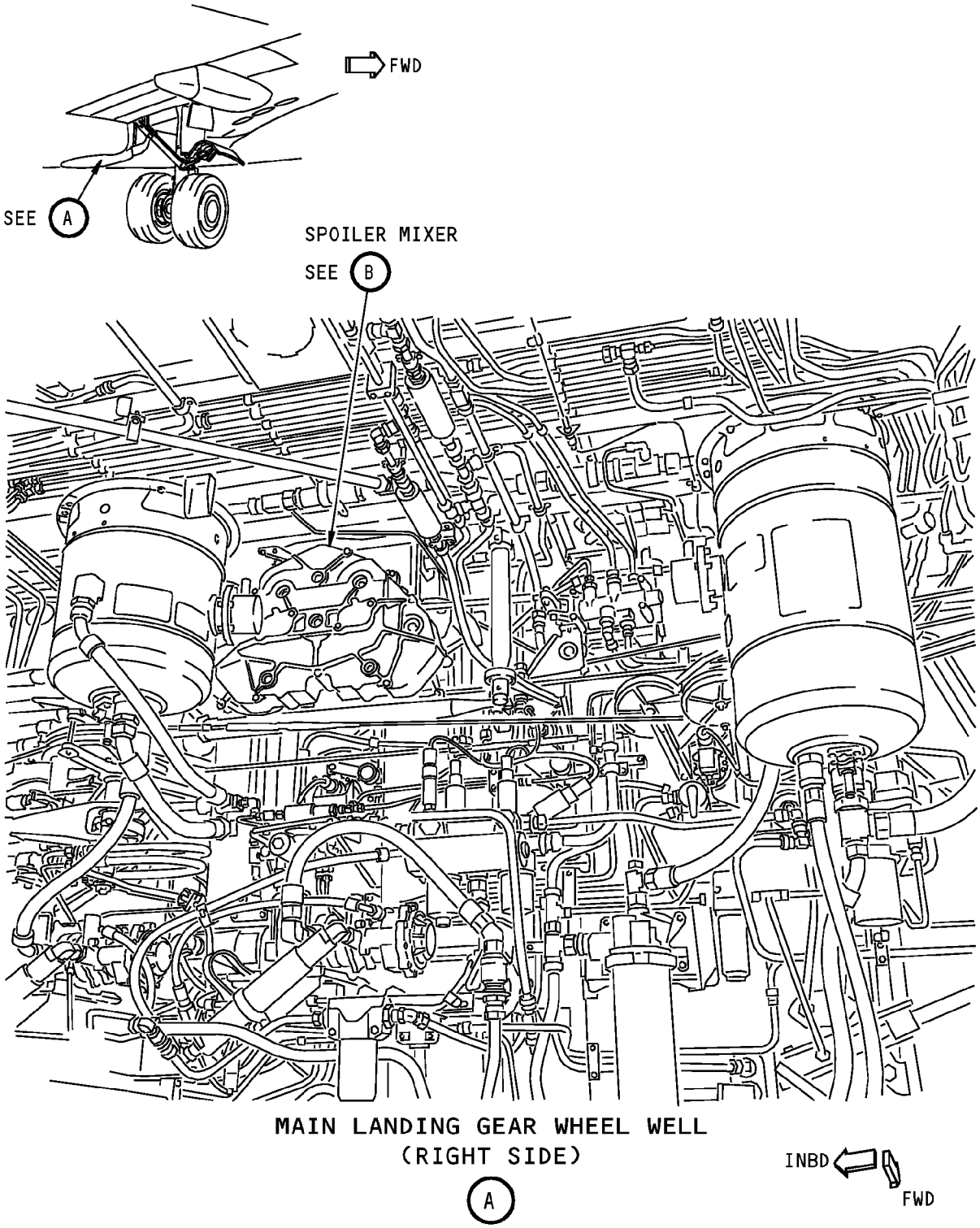

Spoiler Mixer Installation
Figure 401 (Sheet 1 of 5)/27-61-21-990-801

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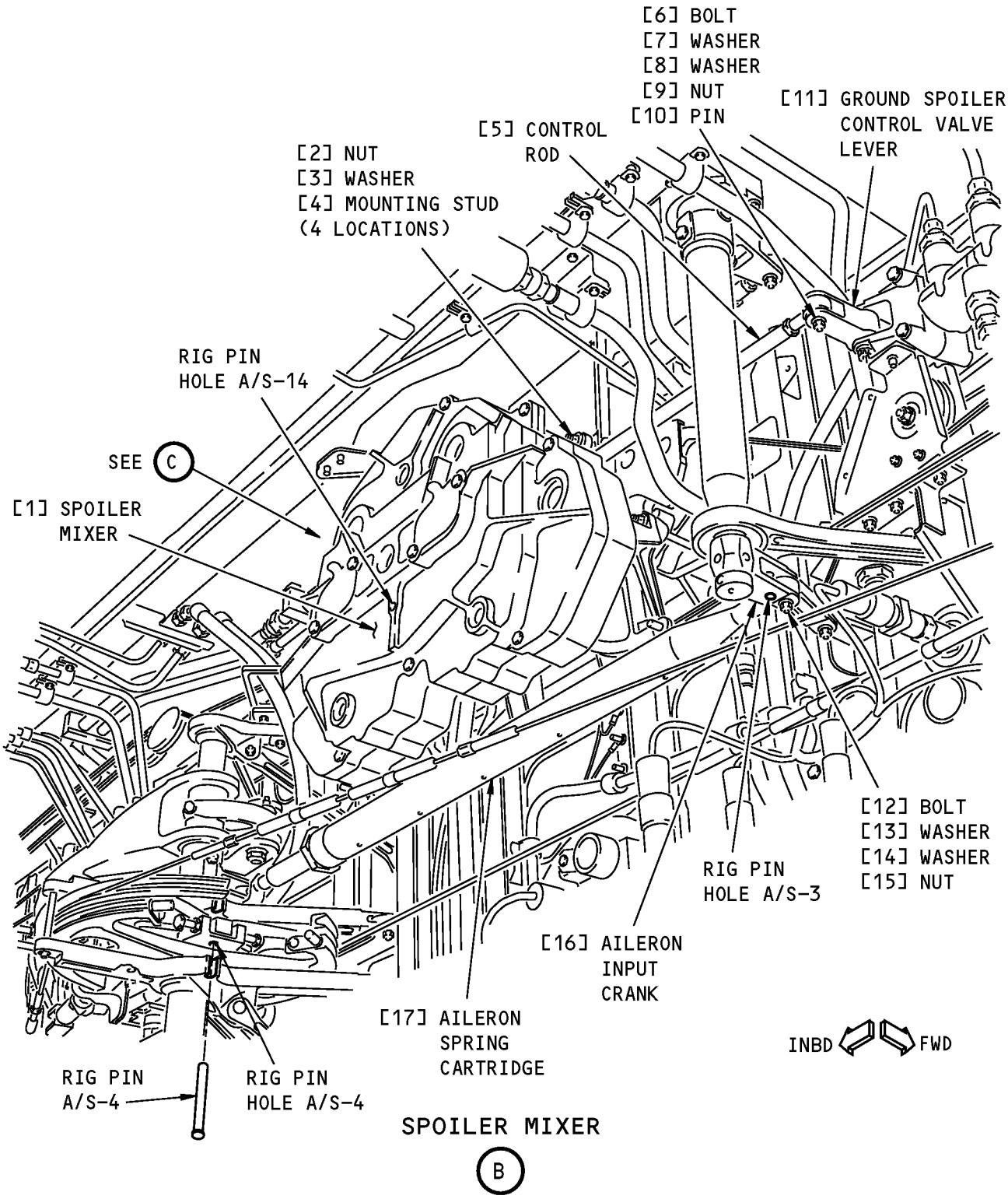

Spoiler Mixer Installation
Figure 401 (Sheet 2 of 5)/27-61-21-990-801

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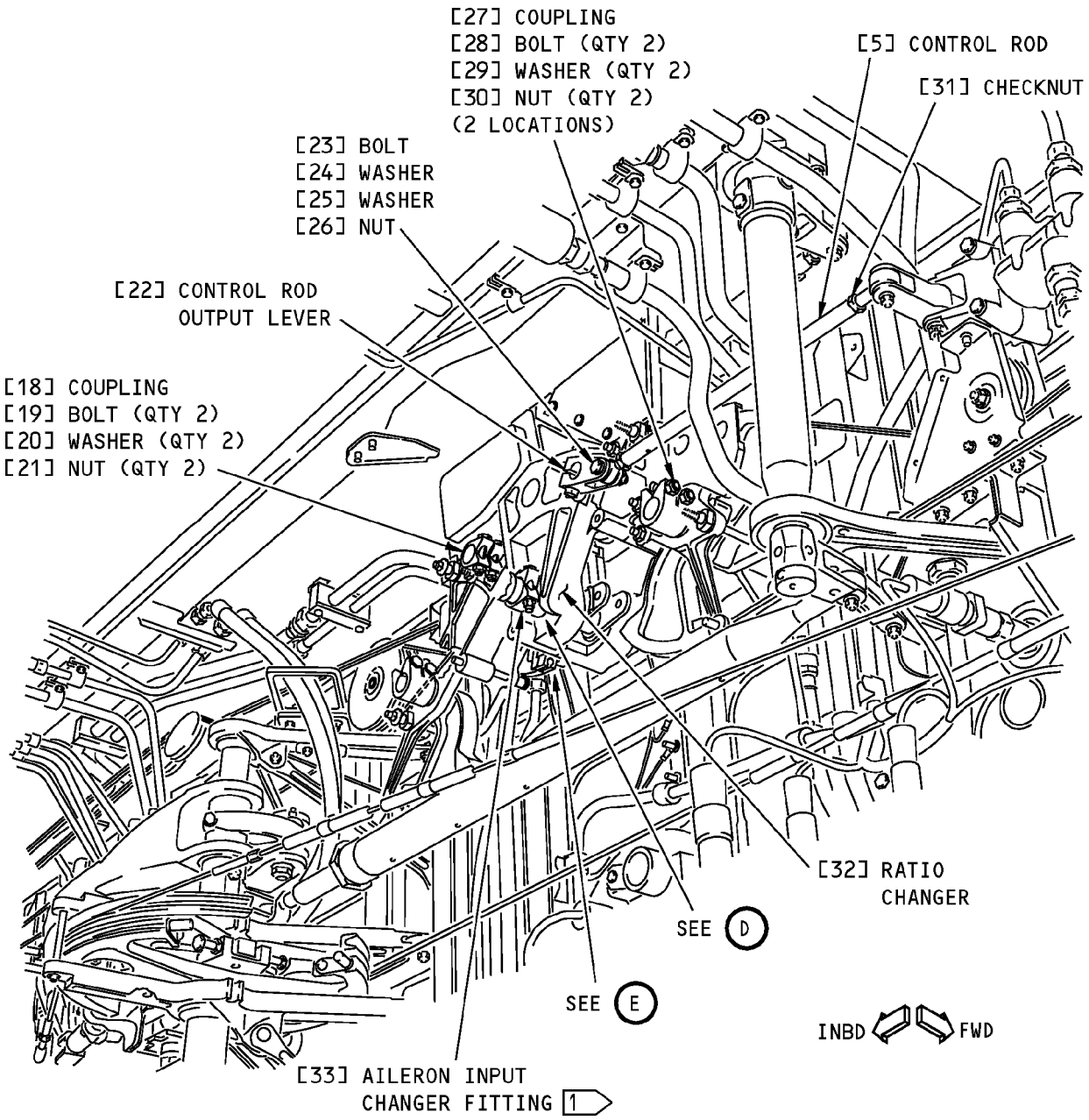

Spoiler Mixer Installation
Figure 401 (Sheet 3 of 5)/27-61-21-990-801

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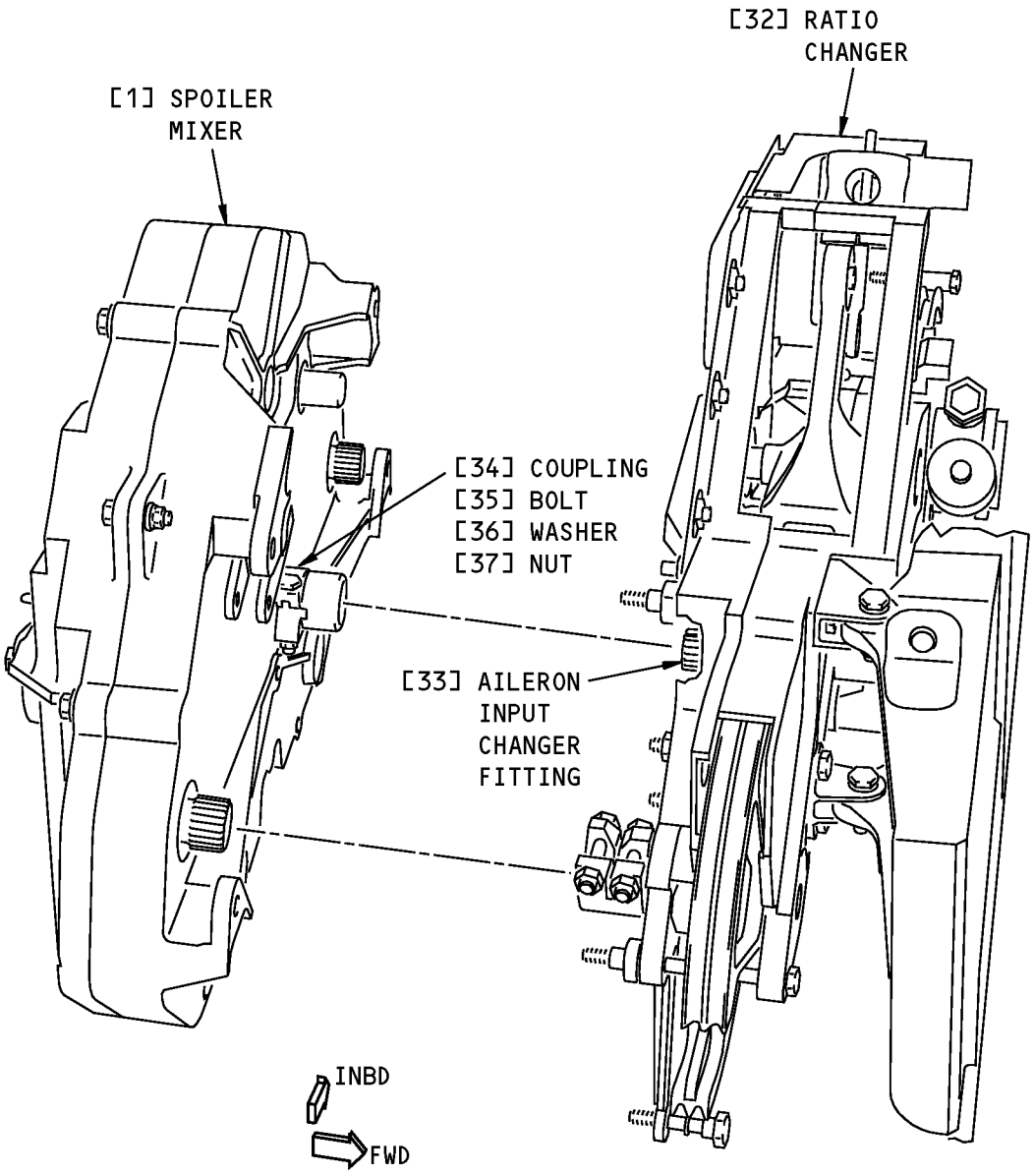

SPOILER MIXER AND RATIO CHANGER

D

Spoiler Mixer Installation
Figure 401 (Sheet 4 of 5)/27-61-21-990-801

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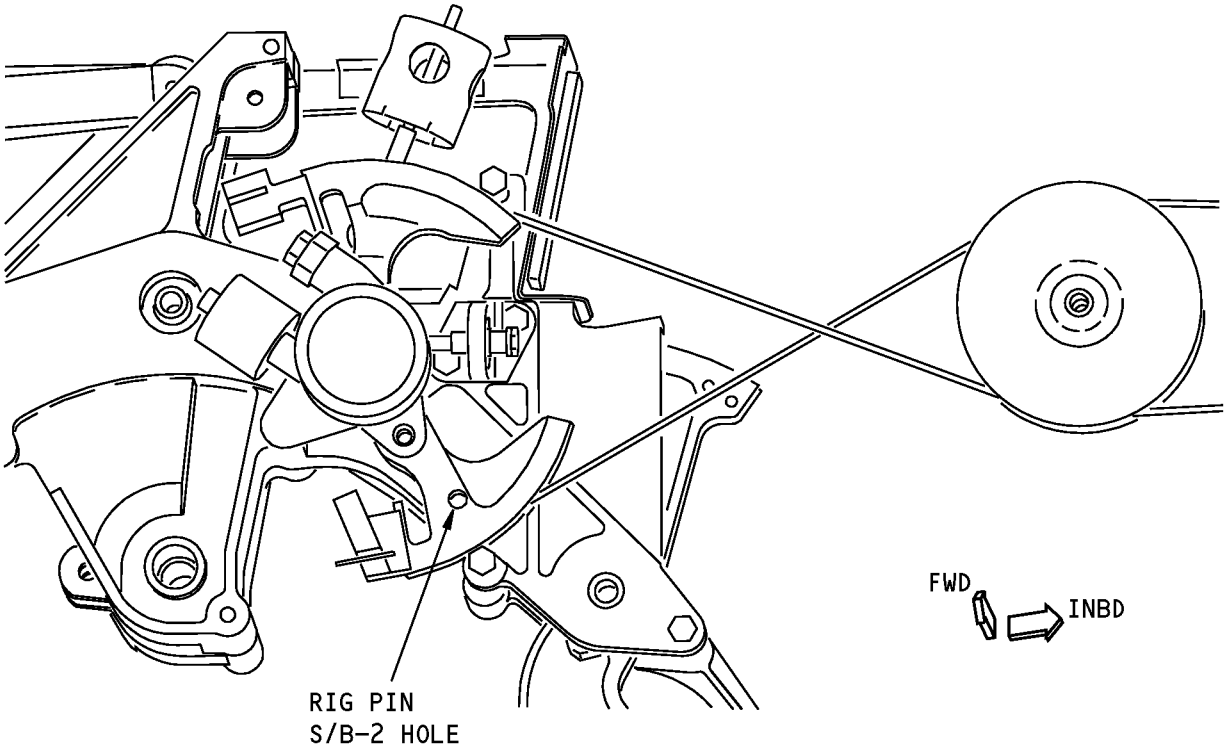

Spoiler Mixer Installation
Figure 401 (Sheet 5 of 5)/27-61-21-990-801

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TASK 27-61-21-400-801

3. Spoiler Mixer Installation

(Figure 401)

A. References

Reference	Title
27-61-00-000-801	Flight Spoiler System Test (Alternate Method) (P/B 501)
27-61-00-820-805	Spoiler Mixer Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Spoiler Mixer Installation

SUBTASK 27-61-21-860-005

(1) Make sure the speed brake lever is in the DOWN position.

SUBTASK 27-61-21-420-002

(2) Make sure you can easily install the rig pin S/B-2 from the test set rig pin kit, SPL-1585 in the speed brake quadrant.

(a) Remove the rig pin S/B-2 from the test set rig pin kit, SPL-1585 from the speed brake quadrant.

SUBTASK 27-61-21-420-006

(3) Connect the control rod [5] to the spoiler mixer [1]:

(a) Put the control rod [5] in the position where you can connect the fixed rod end to the control rod output lever [22].

(b) Install the bolt [23] with the head to the side of the spoiler mixer [1].

(c) Install the washer [24], washer [25], and nut [26] on the bolt [23].

SUBTASK 27-61-21-420-003

(4) Install the spoiler mixer [1]:

(a) Connect the couplings [27] and coupling [18] to the ratio changer [32]:

1) Put the couplings [27] in position on the ratio changer [32].

2) Install the bolts [28], washers [29] and nuts [30]. Do not tighten the nuts [30].

3) Put the coupling [18] in position on the ratio changer [32].

4) Install the bolts [19], washers [20] and nuts [21]. Do not tighten the nuts [21].

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(b) Install coupling [34] on the spoiler mixer [1]:

1) Make sure the end of the coupling [34] with the bolt [35] is on the aileron input shaft on the spoiler mixer [1].

2) Install the bolt [34] on the outboard side of the aileron input shaft with the head up.

3) Install the washer [36] and nut [37] on the bolt [35]. Do not tighten the nut [35].

(c) Put the spoiler mixer [1] in its position and engage the couplings [27], coupling [18], coupling [34] and the mounting studs [4].

(d) Make sure the control rod [5] aligns with the ground spoiler control valve lever [11].

(e) Attach the spoiler mixer [1] to the four mounting studs [4]:

1) Install the washers [3] and the nuts [2].

2) Tighten the nuts [2] to 50-70 pound-inches (5.6-7.9 newton-meters).

(f) Tighten the nuts [30] on the couplings [27] to 50-70 pound-inches (5.6-7.9 newton-meters).

(g) Tighten the nuts [21] on the couplings [18] to 50-70 pound-inches (5.6-7.9 newton-meters).

(h) Tighten the nut [37] on the coupling [34] to 50-70 pound-inches (5.6-7.9 newton-meters).

SUBTASK 27-61-21-820-001

(5) Attach the control rod [5] to the ground spoiler control valve lever [11]:

(a) Align the control rod [5] hole until you can install the bolt [6].

(b) Install the washer [7], washer [8], nut [9], cotter pin [10], and bolt [6].

SUBTASK 27-61-21-420-004

(6) Install the aileron spring cartridge [17]:

(a) Make sure the rig pins A/S-3 and A/S-4 from the test set rig pin kit, SPL-1585 are installed.

(b) Connect the aileron spring cartridge [17] to the aileron input crank [16]:

1) Install the bolt [12], washer [13], washer [14], and nut [15] to attach the aileron spring cartridge [17] to the aileron input crank [16].

SUBTASK 27-61-21-080-001

(7) Remove all of the rig pins.

SUBTASK 27-61-21-820-002

(8) Do this task: Spoiler Mixer Adjustment, TASK 27-61-00-820-805.

SUBTASK 27-61-21-720-001

(9) Do this task: Flight Spoiler System Test (Alternate Method), TASK 27-61-00-000-801.

——————— END OF TASK ———————

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SPOILER RATIO CHANGER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the spoiler ratio changer.

(2) An installation of the spoiler ratio changer.

TASK 27-61-31-000-801

2. Spoiler Ratio Changer Removal

(Figure 401)

A. References

Reference	Title
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-61-21-000-801	Spoiler Mixer Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable (Part #: A20005-9, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Prepare for the Removal

SUBTASK 27-61-31-860-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

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SUBTASK 27-61-31-860-002

(2) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-31-860-003

(3) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-61-31-020-001

(4) Do this task: Spoiler Mixer Removal, TASK 27-61-21-000-801.

F. Spoiler Ratio Changer Removal

SUBTASK 27-61-31-020-002

(1) If you will install a new spoiler ratio changer [8], remove the two-bolt couplings from the spoiler ratio changer [8].

(a) Remove nuts [24], washers [23], bolts [22] and couplings [21].

(b) Remove nuts [28], washers [27], bolts [26] and coupling [25].

SUBTASK 27-61-31-020-003

(2) Disconnect the spoiler control cables WSA1, WSA2 [5] and WSB1, WSB2 [7] from the left and right spoiler output quadrants [18]:

(a) Install a control cable clamp, SPL-1569 on the spoiler control cables WSA1, WSA2 [5] and on WSB1, WSB2 [7].

NOTE: This will keep a small tension on the control cables.

(b) Remove the lockstitch from the turnbuckles [6] in the main landing gear wheel well.

(c) Remove the lock clips from the turnbuckles [6].

(d) Release the tension in the spoiler control cables WSA1, WSA2 [5] and WSB1, WSB2 [7].

NOTE: Do not disconnect the turnbuckles [6].

(e) Attach a tag to the spoiler control cables WSA1, WSA2 [5] and WSB1, WSB2 [7] for identification during the installation.

(f) Remove the spoiler control cables WSA1, WSA2 [5] and WSB1, WSB2 [7] from the spoiler output quadrants [18].

SUBTASK 27-61-31-020-004

(3) Disconnect the speed brake control cables SBA [3] and SBB [2] from the speed brake input quadrant [19]:

(a) Open this access panel:

Number	Name/Location
112A	Forward Access Door

(b) Remove the lock clips from the turnbuckles [1] in the lower nose compartment.

(c) Release the tension in the speed brake control cables SBA [3] and SBB [2].

NOTE: Do not disconnect the turnbuckles [1].

(d) Install a control cable clamp, SPL-1569 on the speed brake control cable SBA [3] and on SBB [2] at the pressure seal in the main landing gear wheel well.

NOTE: This will keep a small tension on the cables.

(e) Attach a tag to the speed brake control cables SBA [3] and SBB [2] for identification during the installation.

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(f) Remove the speed brake control cable SBB [2] from the speed brake input quadrant [19].

SUBTASK 27-61-31-020-005

(4) Disconnect the spoiler ratio changer input rod [12] from the input crank [17]:

(a) Remove the nut [16], washer [15], washer [14], and bolt [13] that attach the spoiler ratio changer input rod [12] to the input crank [17].

(b) If you will install a new spoiler ratio changer [8], remove the rod end bolt from the spoiler ratio changer input rod [12].

SUBTASK 27-61-31-020-006

(5) Loosen the rod guard [11] to get access to the spoiler ratio changer [8]:

(a) Remove the bolts [9], and washers [10] that attach the rod guard [11].

(b) Move the rod guard [11] until you can get access to bolt [29], bolt [31] and bolt [35].

SUBTASK 27-61-31-020-007

(6) Remove the spoiler ratio changer [8]:

(a) Remove bolt [29] and bushing [30].

(b) Remove bolt [31], washer [32], bushing [33] and nut [34].

(c) Remove bolt [35], washer [36], bushing [37] and nut [38].

(d) Remove the spoiler ratio changer [8] from the airplane.

(e) Remove the speed brake control cable SBA [3] from the spoiler ratio changer [8].

(f) Remove the rod guard [11].

——————— END OF TASK ———————

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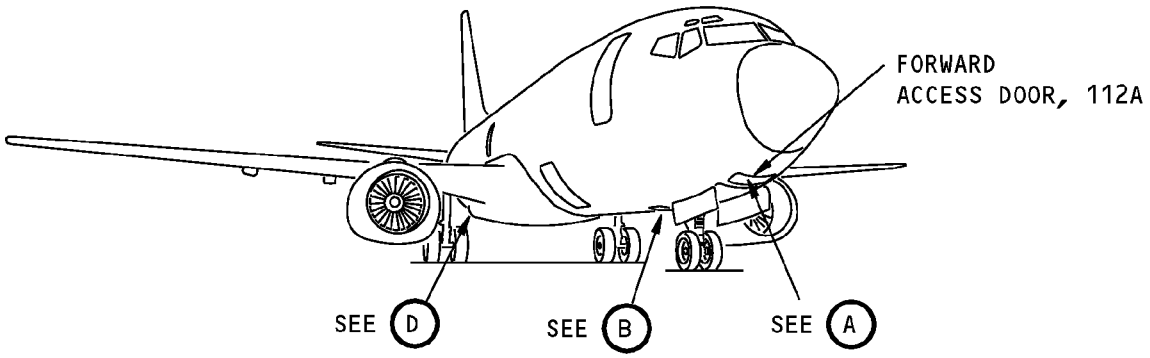

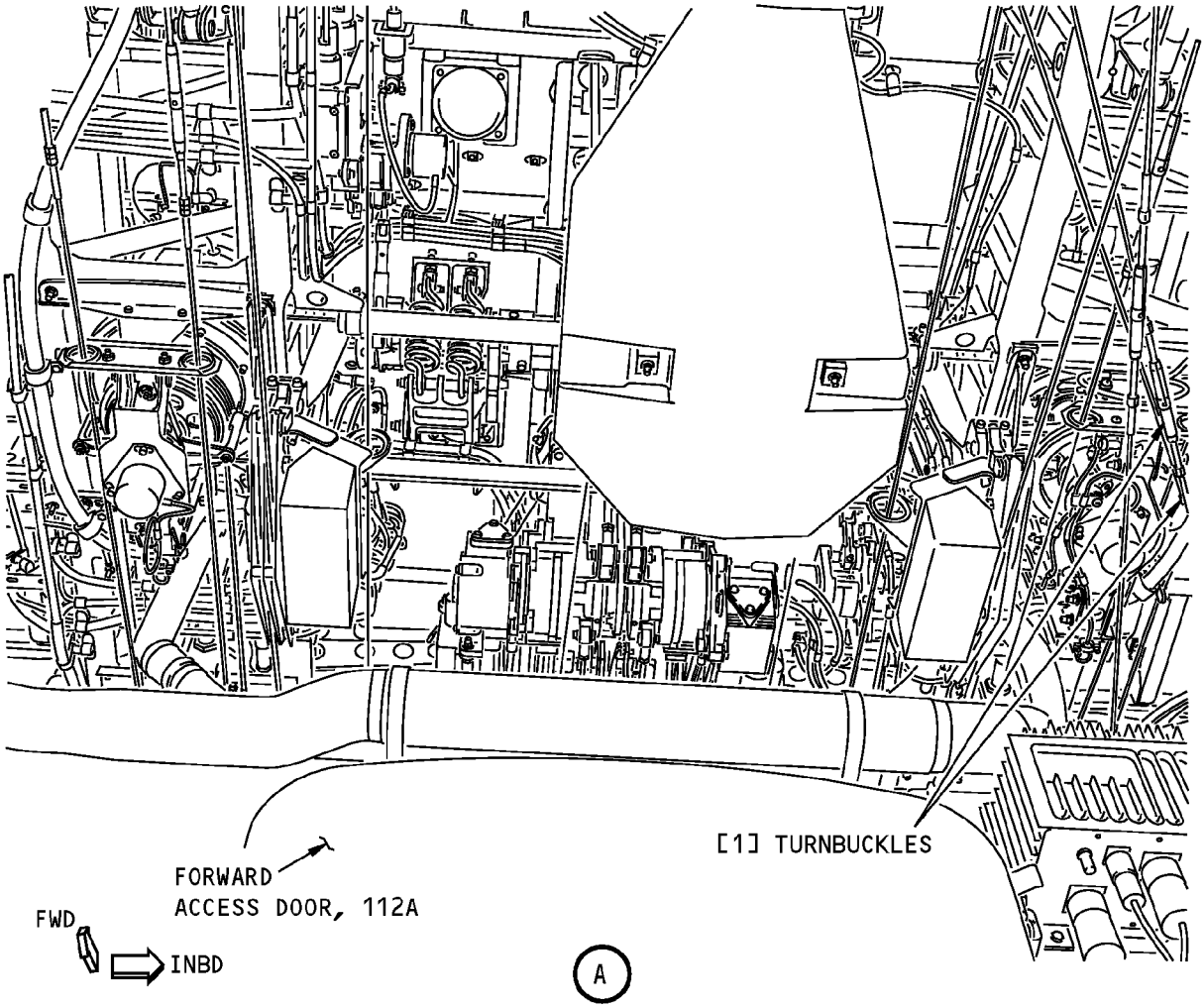

Spoiler Ratio Changer Installation
Figure 401 (Sheet 1 of 5)/27-61-31-990-801

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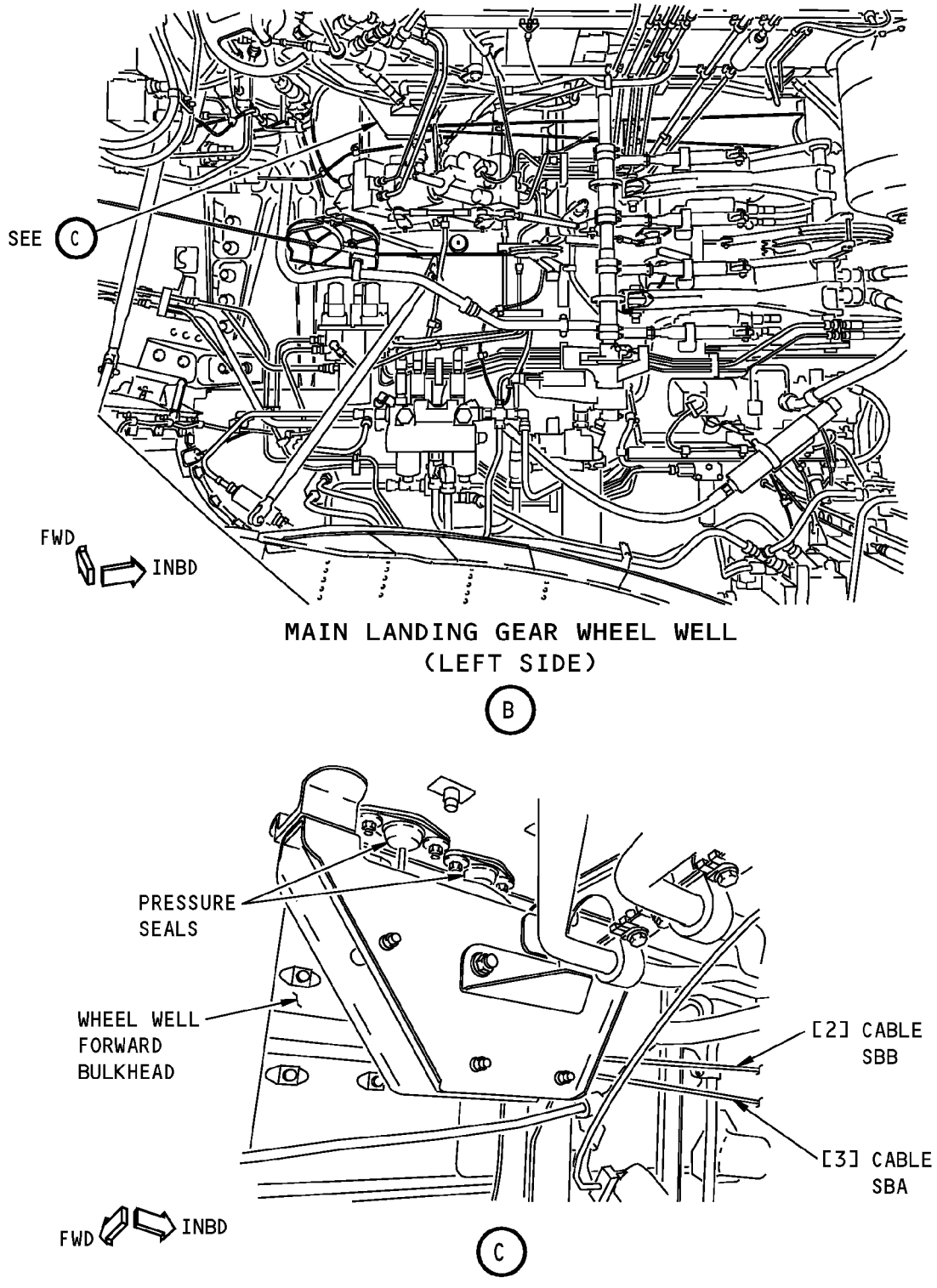

Spoiler Ratio Changer Installation
Figure 401 (Sheet 2 of 5)/27-61-31-990-801

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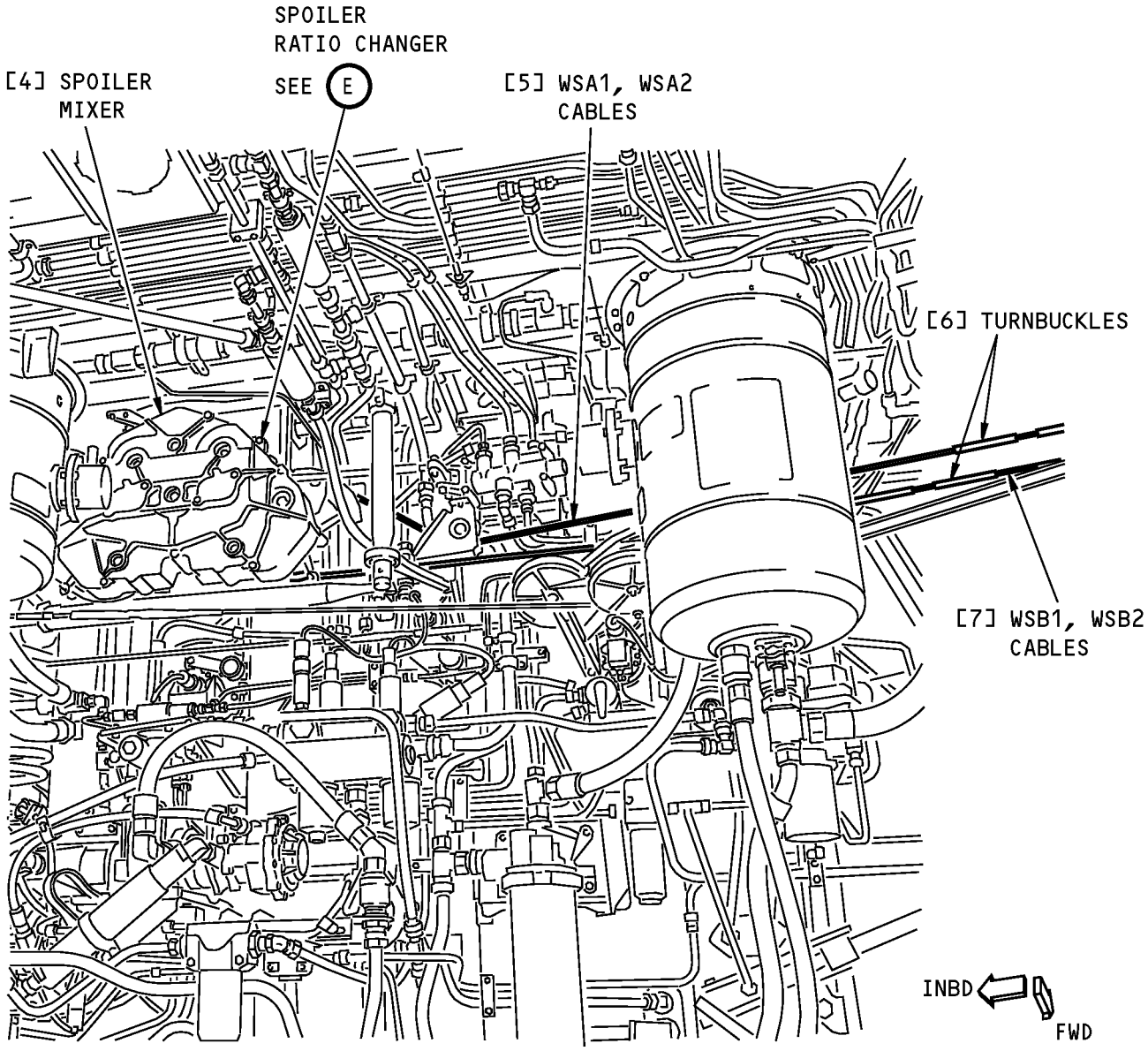

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

D

Spoiler Ratio Changer Installation
Figure 401 (Sheet 3 of 5)/27-61-31-990-801

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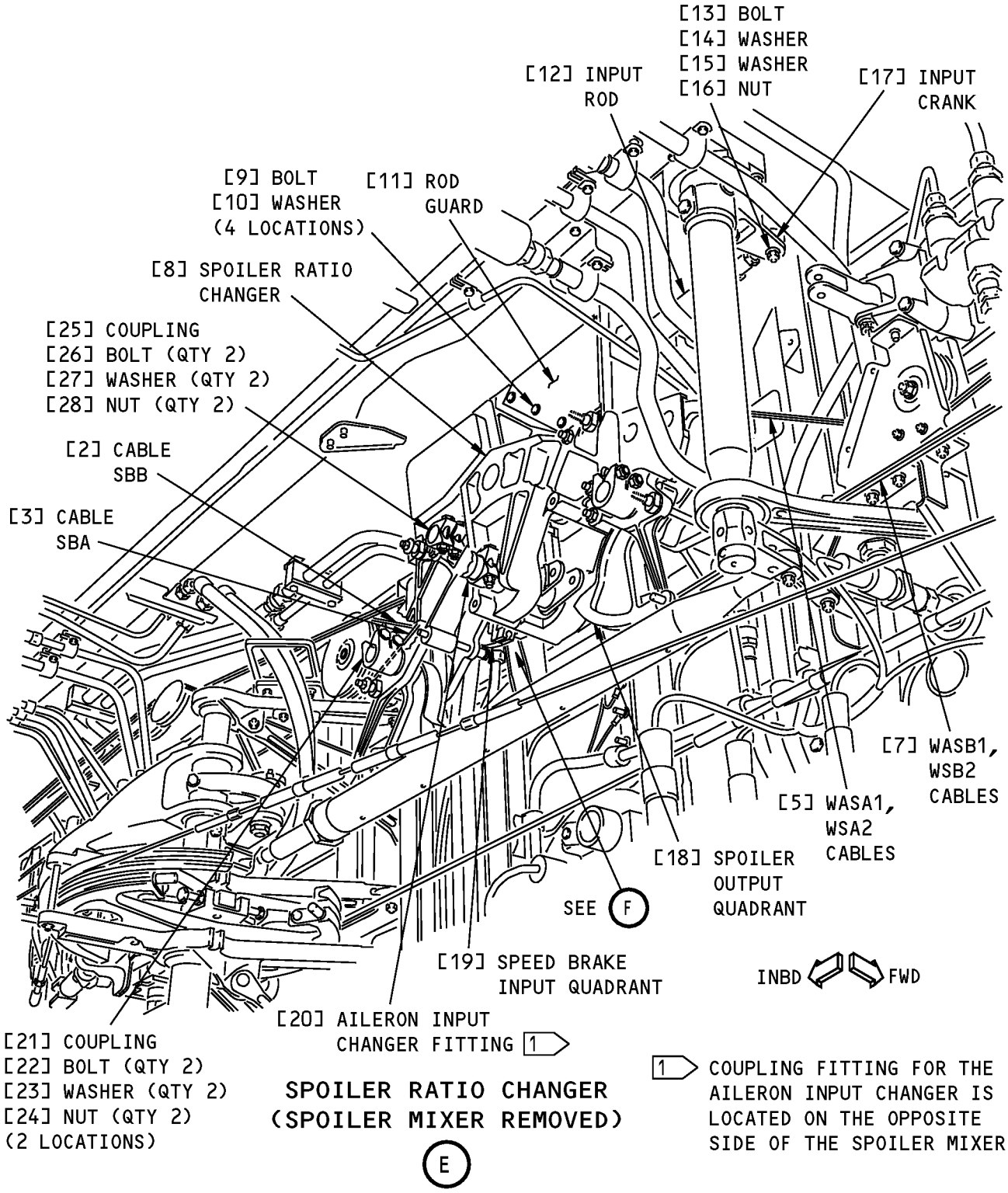

Spoiler Ratio Changer Installation
Figure 401 (Sheet 4 of 5)/27-61-31-990-801

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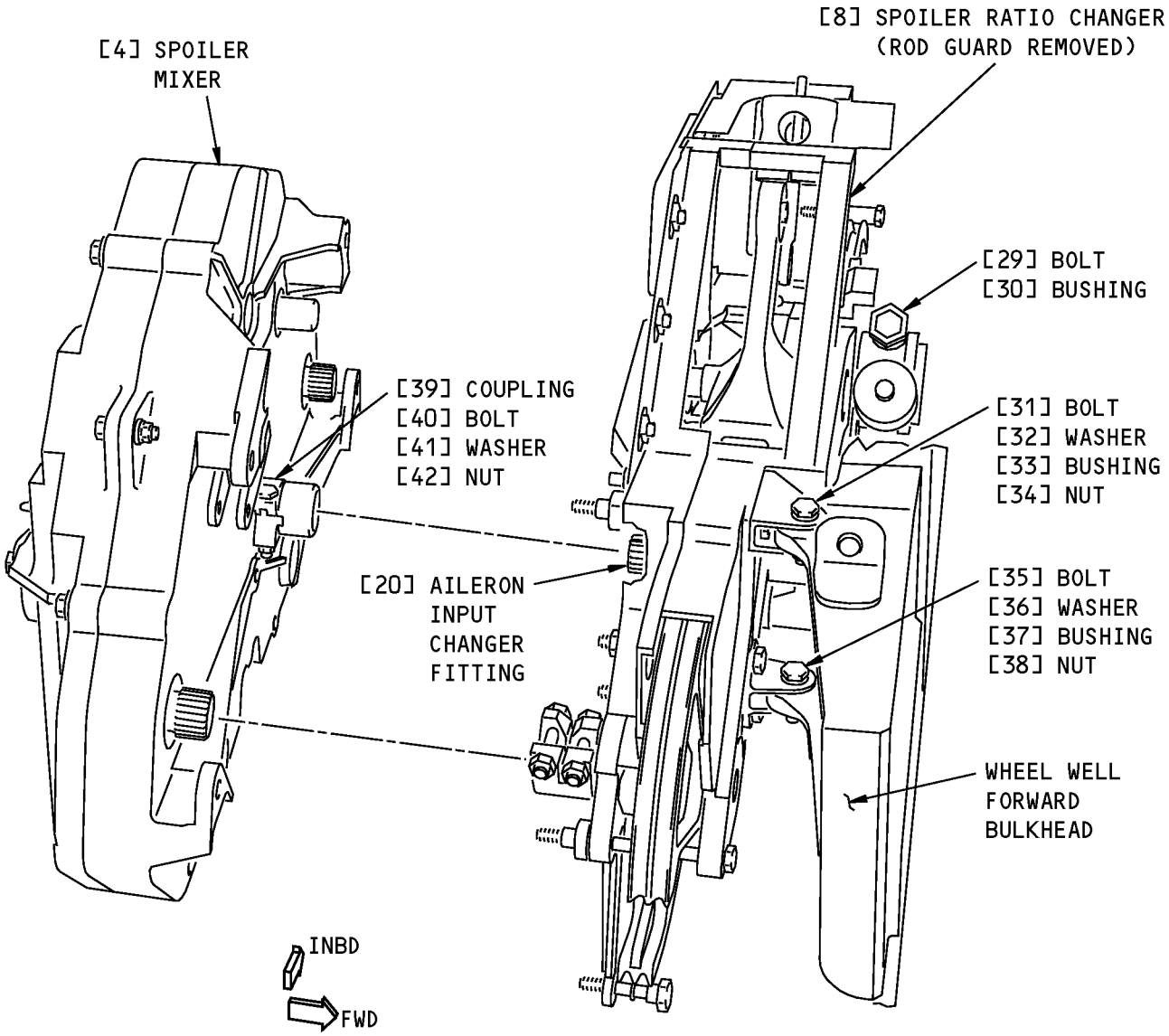

SPOILER MIXER AND RATIO CHANGER

F

Spoiler Ratio Changer Installation
Figure 401 (Sheet 5 of 5)/27-61-31-990-801

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TASK 27-61-31-400-801

3. Spoiler Ratio Changer Installation

(Figure 401)

A. References

Reference	Title
27-61-00-000-801	Flight Spoiler System Test (Alternate Method) (P/B 501)
27-61-00-000-802	Spoiler Manual Operation Test (P/B 501)
27-61-00-820-801	Spoiler Control Cables Adjustment (P/B 501)
27-61-00-820-802	Ratio Changer Input Rod Adjustment (P/B 501)
27-61-00-820-805	Spoiler Mixer Adjustment (P/B 501)
27-61-21-400-801	Spoiler Mixer Installation (P/B 401)
27-62-00-820-802	Speed Brake Control Cable Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1569	Clamp - Control Cable (Part #: A20005-9, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
113	Area Above and Outboard of Nose Landing Gear Wheel Well - Left
114	Area Above and Outboard of Nose Landing Gear Wheel Well - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Spoiler Ratio Changer Installation

SUBTASK 27-61-31-200-001

(1) Make sure the spoiler ratio changer [8] moves smoothly.

SUBTASK 27-61-31-420-001

(2) Put the rod guard [11] on the spoiler ratio changer input rod [12].

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SUBTASK 27-61-31-420-002

(3) Install the spoiler ratio changer [8]:

(a) Put the spoiler ratio changer [8] in the wheel well.

(b) Attach the speed brake control cable SBA [3] to the speed brake input quadrant [19].

(c) Put the spoiler ratio changer [8] in its position on the structure.

(d) Install bushing [30], bushing [33] and bushing [37]:

1) Apply a thin layer of grease, D00015 between bushing [30], bushing [33], bushing [37] and the mounting bearings.

2) Install bushing [30] with the shoulder inboard and bushing [33] and [37] with the shoulders up.

NOTE: Make sure bushing [30], bushing [33] and bushing [37] cam move freely in the mounting bearings.

(e) Install bolt [29], bolt [31] and bolt [35] to attach the spoiler ratio changer [8]:

1) Move the rod guard [11] if it is necessary to get access to bolt [29], bolt [31] and bolt [35].

2) Install bolt [29] with the head inboard.

3) Install bolt [31] with the head up.

4) Install bolt [35] with the head up.

5) Install washer [32] and nut [34].

6) Install washer [36] and nut [38].

7) Tighten bolt [29], nut [34], and nut [38] to 50-70 pound-inches (5.6-7.9 newton-meters).

SUBTASK 27-61-31-420-003

(4) Install the rod guard [11] on the spoiler ratio changer [8]:

(a) Move the rod guard [11] to its position on the spoiler ratio changer [8].

(b) Install washers [10] and bolts [9].

SUBTASK 27-61-31-420-004

(5) Attach speed brake control cable SBB [2] to the speed brake input quadrant [19].

(a) Tighten cables to remove slack and remove control cable clamp, SPL-1569.

SUBTASK 27-61-31-420-005

(6) Attach spoiler control cables WSA1, WSA2 [5] and WSB1, WSB2 [7] to the left and right spoiler output quadrant [18].

(a) Turn the spoiler output quadrant [18] if it is necessary to attach the spoiler control cables WSA1, WSA2 [5], WSB1, WSB2 [7] and the cable retainers.

(b) Tighten cables to remove slack and remove control cable clamp, SPL-1569.

SUBTASK 27-61-31-420-006

(7) Do this task: Spoiler Mixer Installation, TASK 27-61-21-400-801.

NOTE: It is not necessary to adjust the output cam of the spoiler mixer at this time.

SUBTASK 27-61-31-820-001

(8) Do this task: Speed Brake Control Cable Adjustment, TASK 27-62-00-820-802.

SUBTASK 27-61-31-820-002

(9) Do this task: Spoiler Control Cables Adjustment, TASK 27-61-00-820-801.

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SUBTASK 27-61-31-820-003

(10) Do this task: Ratio Changer Input Rod Adjustment, TASK 27-61-00-820-802.

SUBTASK 27-61-31-820-004

(11) Do this task: Spoiler Mixer Adjustment, TASK 27-61-00-820-805.

SUBTASK 27-61-31-720-001

(12) Do this task: Flight Spoiler System Test (Alternate Method), TASK 27-61-00-000-801.

SUBTASK 27-61-31-710-001

(13) Do this task: Spoiler Manual Operation Test, TASK 27-61-00-000-802.

SUBTASK 27-61-31-410-001

(14) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

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SPOILER RATIO CHANGER INPUT ROD - INSPECTION/CHECK

1. General

A. There is one task in this procedure, an inspection of the spoiler ratio changer input rod.

TASK 27-61-31-200-801

2. Spoiler Ratio Changer Inspection

(Figure 601)

A. General

(1) This procedure gives wear limits and repair data for the spoiler ratio changer input rod.

B. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Procedure

SUBTASK 27-61-31-020-008

(1) Disconnect the Spoiler Ratio Changer Input Rod from the upper control crank.

SUBTASK 27-61-31-020-009

(2) Use this tool to check for wear on the parts of the spoiler ratio changer input rod:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097

SUBTASK 27-61-31-020-010

(3) Examine the parts of the spoiler ratio changer rod for worn areas:

(a) Remove the parts to be checked.

(b) Measure the parts as necessary with the micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 and readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions that follow.

(d) If the parts are not in the tolerance, replace or repair the part as required.

Table 601/27-61-31-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MINIMUM SERVICE DIAMETRIC CLEARANCE
BEARING	I.D.	0.2497 in 6.342 mm	0.2500 in 6.350 mm	0.2505 in 6.363 mm	0.0020 in

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MINIMUM SERVICE DIAMETRIC CLEARANCE
BOLT	O.D.	0.2485 in 6.312 mm	0.2495 in 6.337 mm	0.2481 in 6.302 mm	0.051 mm

SUBTASK 27-61-31-020-011

(4) Connect the spoiler ratio controller input rod to the upper control crank.

———————— END OF TASK ————————

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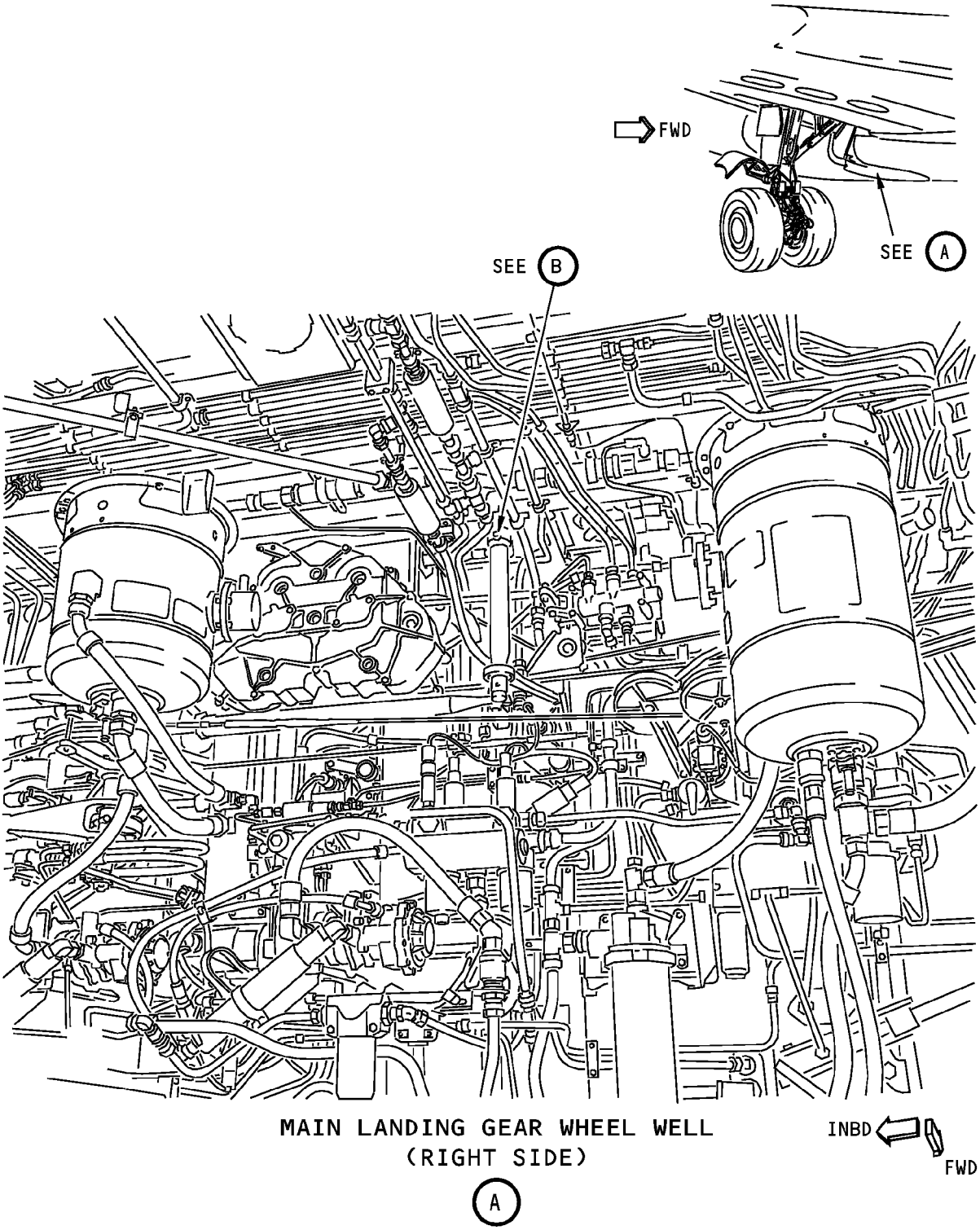

Spoiler Ratio Changer Wear Limits
Figure 601 (Sheet 1 of 2)/27-61-31-990-802

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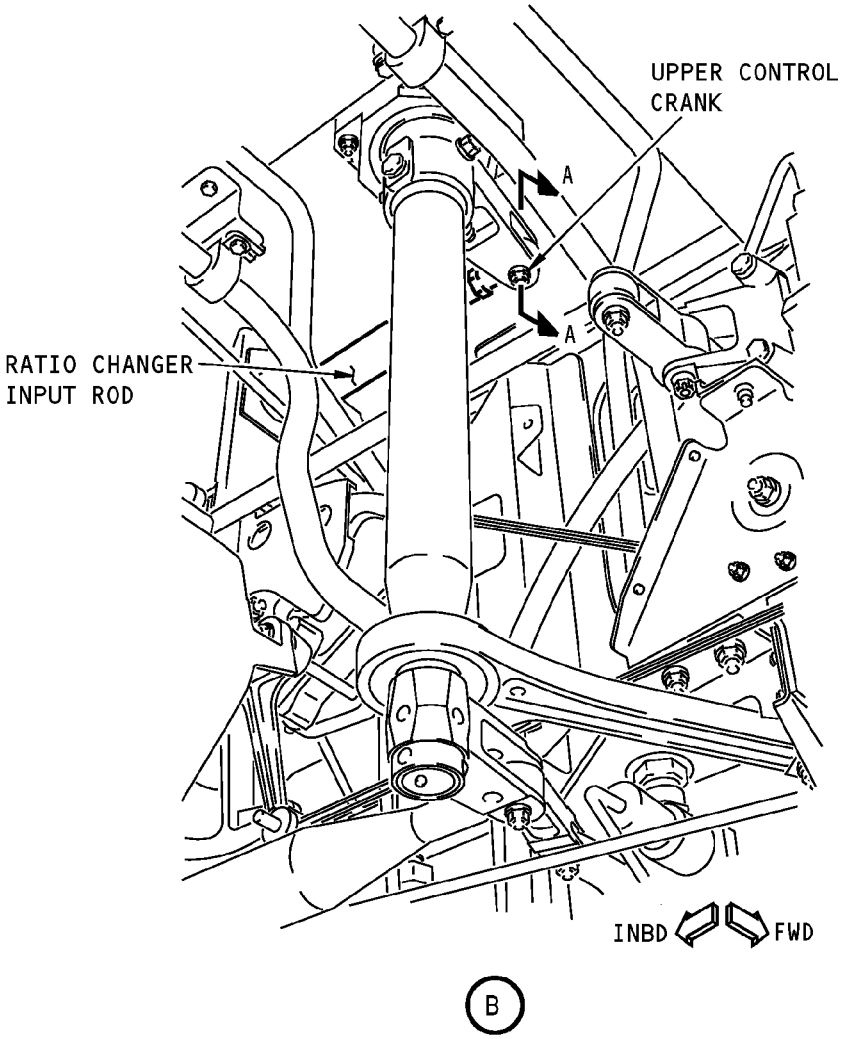

Spoiler Ratio Changer Wear Limits
Figure 601 (Sheet 2 of 2)/27-61-31-990-802

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SPOILER CONTROL QUADRANT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the spoiler control quadrant.

(2) An installation of the spoiler control quadrant.

(3) A functional test of the spoiler control quadrant.

TASK 27-61-41-000-801

2. Spoiler Control Quadrant Removal

(Figure 401)

A. References

Reference	Title
25-22-00-000-801	Passenger Seat Removal (P/B 401)
25-27-15-000-801	Carpet Removal (P/B 401)
53-21-00-000-801	Passenger Cabin Floor Panel Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Prepare for the Removal

SUBTASK 27-61-41-860-001

(1) Put the captain's and first officer's control wheels in the neutral position.

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SUBTASK 27-61-41-860-002

(2) Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-61-41-860-003

(3) Install the rig pins A/S-1 and A/S-1A from the test set rig pin kit, SPL-1585 in the aileron transfer mechanism.

(a) Make sure the rig pin A/S-1 is fully installed in the aileron transfer mechanism and will not fall out.

SUBTASK 27-61-41-860-004

(4) Remove the right floor panel between the seat tracks at the second window aft of the wing escape hatch:

(a) Do this task: Passenger Seat Removal, TASK 25-22-00-000-801.

(b) Do this task: Carpet Removal, TASK 25-27-15-000-801.

(c) Do this task: Passenger Cabin Floor Panel Removal, TASK 53-21-00-000-801.

F. Spoiler Control Quadrant Removal

SUBTASK 27-61-41-020-001

(1) Disconnect aileron control cable AA [1] and cable AB [3]:

(a) Install the turnbuckle clamps on the cable AA [1] and cable AB [3] to keep a small tension when you disconnect the cable turnbuckles [2].

(b) Disconnect the cable turnbuckles [2].

(c) Remove cable AA [1] and cable AB [3] from the spoiler cable quadrant [5].

(d) Install a tag on cable AA [1] and cable AB [3] for identification during the installation.

SUBTASK 27-61-41-020-002

(2) Remove the spoiler cable quadrant [5].

(a) Remove nuts [9], washers [8], washers [7] and bolts [6] that attach the spoiler cable quadrant [5] to the quadrant shaft [36].

(b) Remove the nut [19], washer [18], washer [17] and bolt [16] that attaches the ratio changer input rod [35] to the upper control crank [15].

(c) Remove the nut [30], washer [29], washer [28] and bolt [27] that attaches the aileron spring cartridge [31] to the aileron input crank [26].

(d) Remove the nuts [24], washers [23], washers [22] and bolts [21] that attach the quadrant shaft support bracket [25] to the forward bulkhead [20].

(e) Remove the nuts [14], washers [13], washers [12] and bolts [11] that attach the bearing retainer [38] to the wheel well ceiling [37].

(f) Break the pressure seal between the bearing retainer [38] and the wheel well ceiling [37].

(g) Disconnect the quadrant shaft [36] from the spoiler control quadrant [5].

(h) Lower the quadrant shaft [36] from the wheel well ceiling [37] and remove it from the airplane.

(i) Remove the spoiler cable quadrant [5] from the airplane.

END OF TASK

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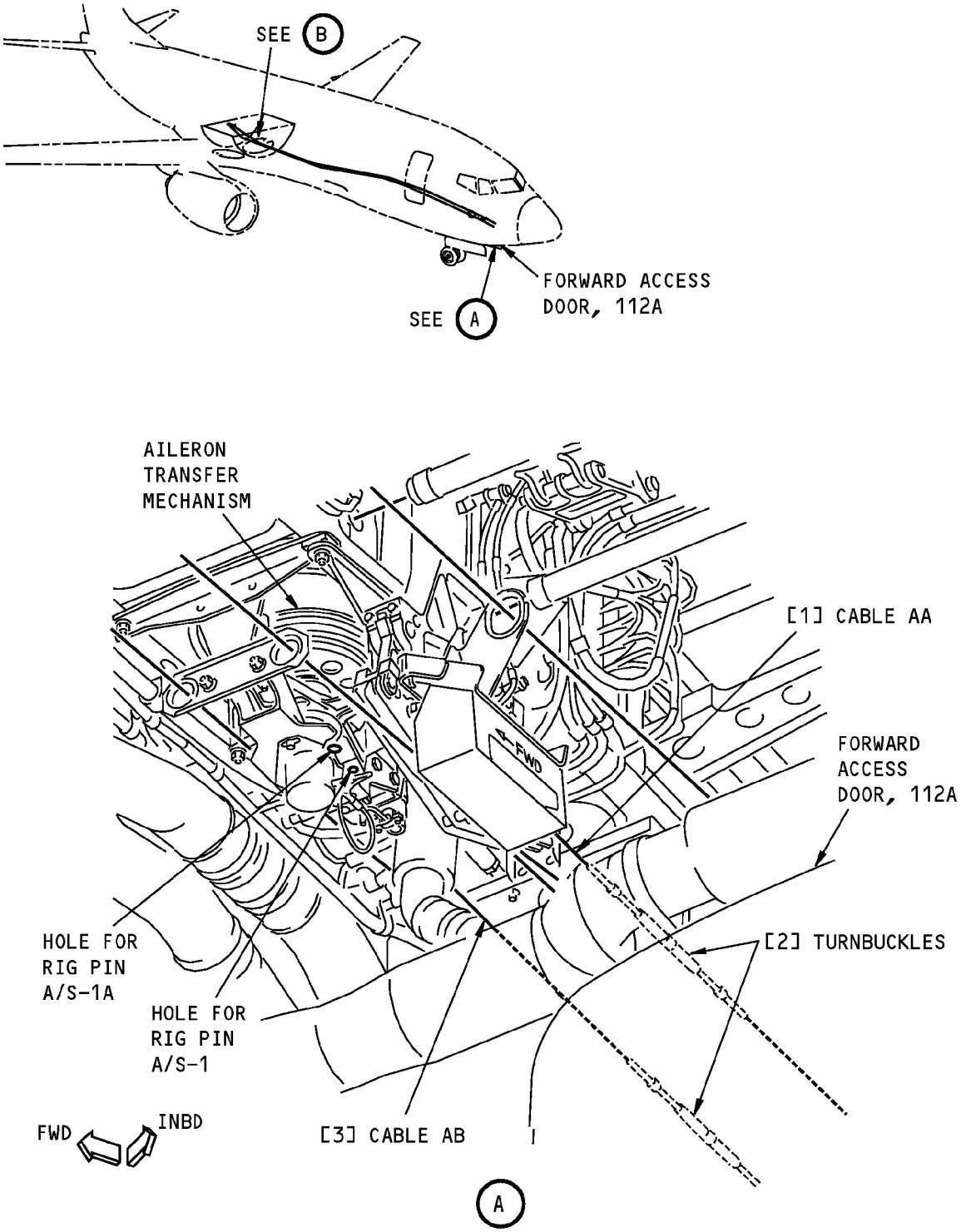

Spoiler Control Quadrant Installation
Figure 401 (Sheet 1 of 5)/27-61-41-990-801

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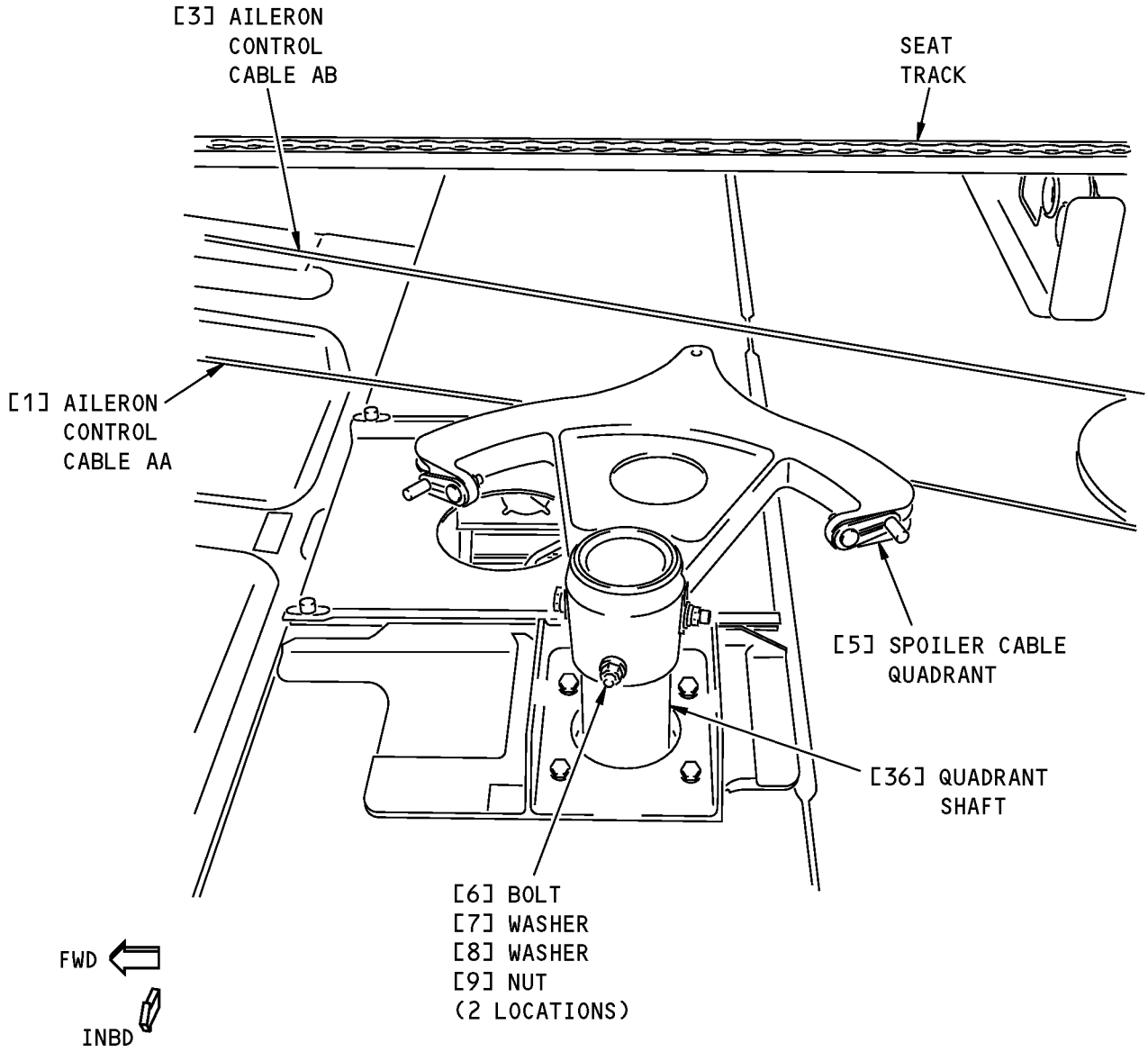

SPOILER CONTROL CABLE QUADRANT
(WITH FLOOR PANEL, RUG AND PASSENGER SEATS REMOVED)

B

Spoiler Control Quadrant Installation
Figure 401 (Sheet 2 of 5)/27-61-41-990-801

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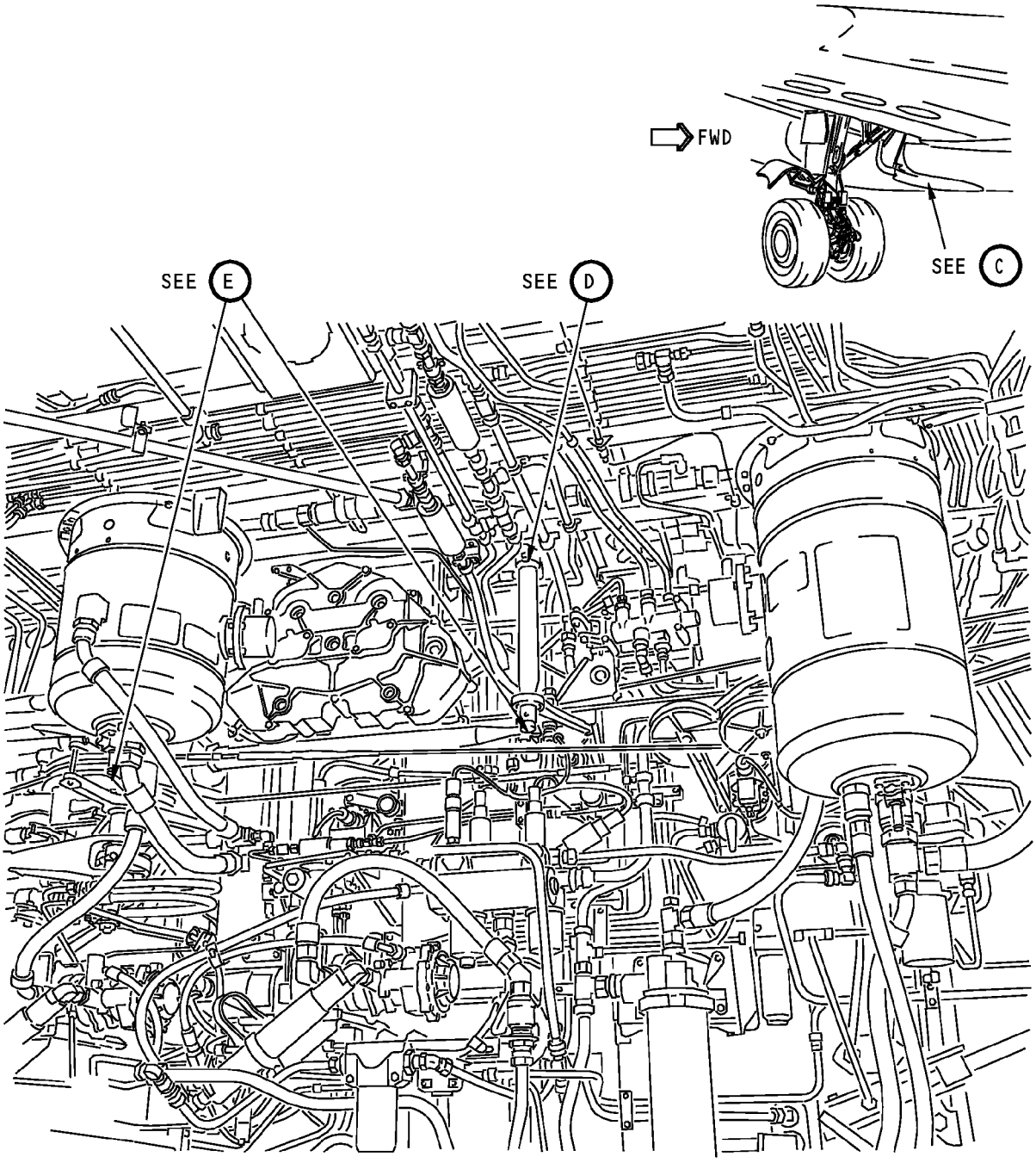

Spoiler Control Quadrant Installation
Figure 401 (Sheet 3 of 5)/27-61-41-990-801

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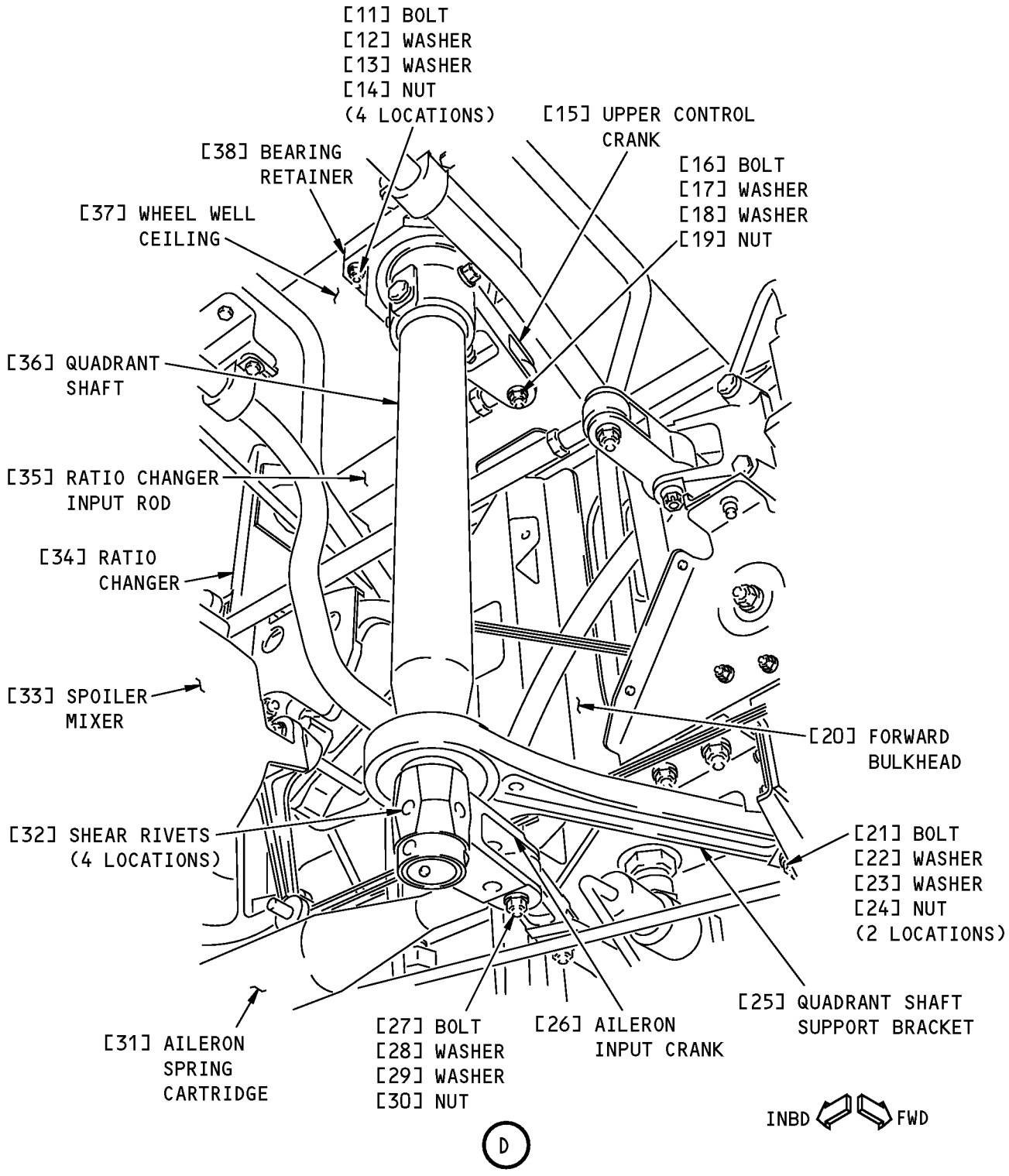

Spoiler Control Quadrant Installation
Figure 401 (Sheet 4 of 5)/27-61-41-990-801

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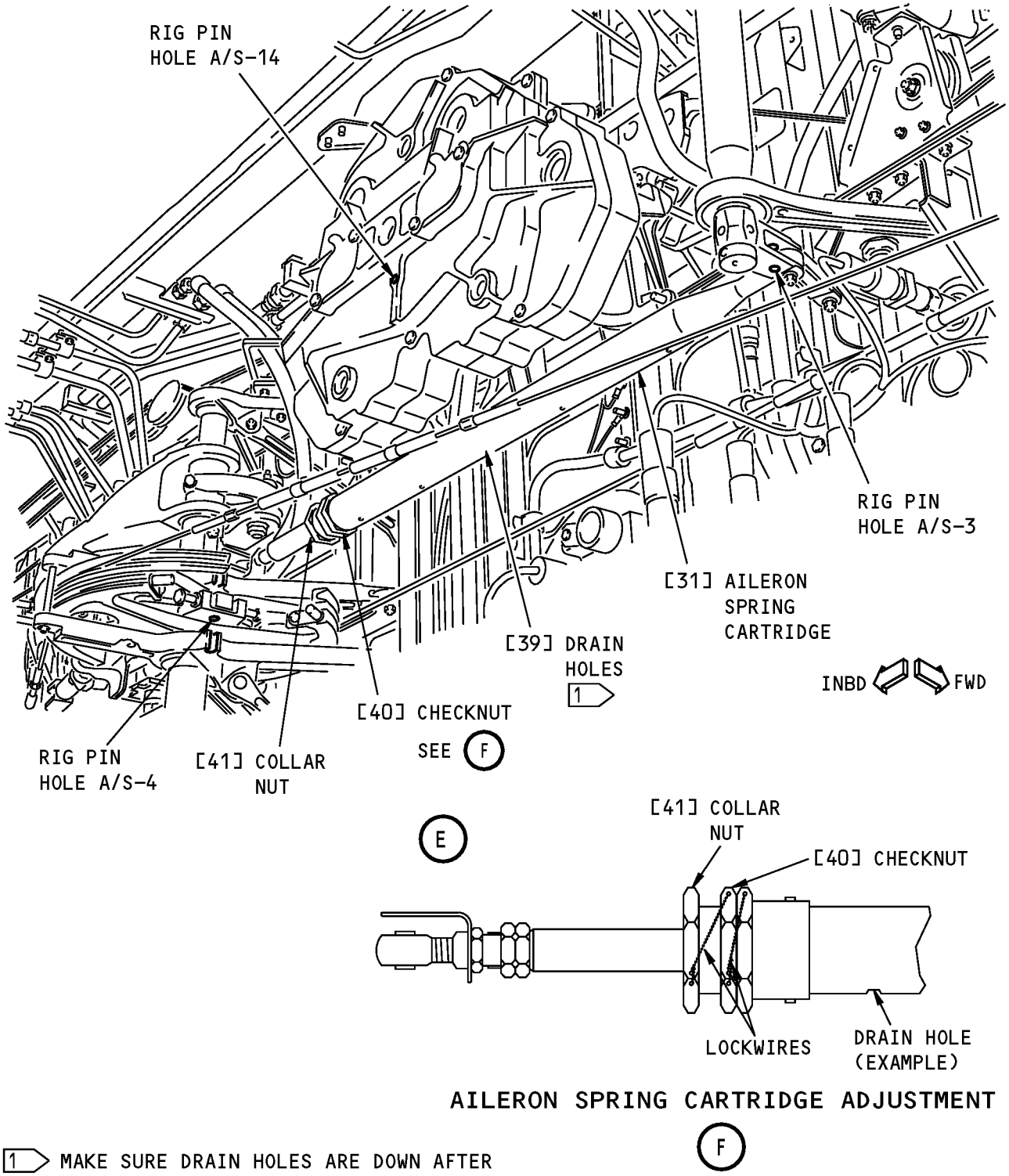

1 MAKE SURE DRAIN HOLES ARE DOWN AFTER INSTALLATION OF AILERON SPRING CARTRIDGE

Spoiler Control Quadrant Installation
Figure 401 (Sheet 5 of 5)/27-61-41-990-801

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TASK 27-61-41-400-801

3. Spoiler Control Quadrant Installation

(Figure 401)

A. References

Reference	Title
25-22-00-400-802	Passenger Seat Installation (P/B 401)
25-27-15-400-801	Carpet Installation (P/B 401)
27-11-00-820-801	Aileron Cables Adjustment (P/B 501)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
51-31-00-390-801	Non-Removable Faying (Mated) Surface Seal Application (P/B 201)
53-21-00-400-801	Passenger Cabin Floor Panel Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
231	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Left
232	Forward Passenger Compartment - Forward Entry Door to Sta 663.75 - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Spoiler Control Quadrant Installation

SUBTASK 27-61-41-020-003

(1) If you will install a new spoiler control quadrant, remove the spoiler cable quadrant [5] from the quadrant shaft [36].

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SUBTASK 27-61-41-200-001

(2) Do a check of the shear rivets [32] on the quadrant shaft [36] at the aileron input crank [26]:

(a) Make sure the witness hole in the aileron input crank [26] and the quadrant shaft [36] align correctly.

NOTE: The marker instructions are located on the quadrant shaft [36].

SUBTASK 27-61-41-420-001

(3) Connect the spoiler cable quadrant [5] to the quadrant shaft [36]:

(a) Put the quadrant shaft [36] through the opening in the wheel well ceiling [37].

(b) Engage the quadrant shaft [36] with the spoiler cable quadrant [5].

SUBTASK 27-61-41-420-002

(4) Attach the quadrant shaft [36] to the wheel well ceiling [37]:

(a) Apply a pressure seal to the bearing retainer [38] and the wheel well ceiling [37], to apply seal, do this task: Non-Removable Faying (Mated) Surface Seal Application, TASK 51-31-00-390-801.

NOTE: Make sure that the bearing housing is aligned with the correct bolt holes in the wheel well ceiling.

(b) Install bolts [11] with the heads up through the wheel well ceiling [37] to attach the bearing retainer [38].

(c) Install the washers [12], washers [13] and nuts [14] on the bolts [11].

(d) Tighten the nuts [14] to 20-25 pound-inches (2.3-2.8 newton-meters).

SUBTASK 27-61-41-420-003

(5) Install the quadrant shaft support bracket [25] on the wheel well forward bulkhead [20]:

(a) Put the quadrant shaft support bracket [25] in its position.

(b) Install the bolts [21], washers [22], washers [23] and nuts [24] to attach the quadrant shaft support bracket [25].

SUBTASK 27-61-41-420-004

(6) Install the aileron spring cartridge [31]:

(a) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

(b) Install the rig pins A/S-4 and A/S-3 from the test set rig pin kit, SPL-1585.

(c) If you cannot easily install and remove the rig pin A/S-3. adjust the aileron spring cartridge [31].

1) Loosen the checknut [40].

2) Use the collar nut [41] to adjust the length of the spring cartridge [31] until you can easily install and remove rig pin A/S-3.

a) Make sure the internal spring does not deflect.

b) Make sure there is no backlash.

3) Tighten the checknut [40] to 10 - 20 pound-inches (1.1 - 2.3 newton-meters).

4) Install lockwire, G01048 on the checknut [40] and collar nut [41].

(d) Connect the aileron spring cartridge [31] to the aileron input crank [26]:

1) Make sure the drain holes [39] on the aileron spring cartridge [31] are down.

2) Install the bolt [27] with the bolt head up.

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3) Install the washer [28], washer [29] and nut [30] on the bolt [27].

(e) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

(f) Remove the rig pin A/S-4.

SUBTASK 27-61-41-420-005

(7) Connect the ratio changer input rod [35] to the upper control crank [15]:

(a) Install the rig pin A/S-14 from the test set rig pin kit, SPL-1585 in the spoiler mixer [33].

(b) Make sure you can easily install the bolt [16] in the ratio changer input rod [35].

(c) If you cannot easily install the bolt [16], adjust the length of the rod:

1) Loosen the checknut on the ratio changer input rod [35].

2) Adjust the ratio changer input rod end [35] until you can easily install the bolt [16] in the rod end.

3) Tighten the checknut on the ratio changer input rod end [35].

(d) Install the bolt [16] to attach the ratio chanter input rod [35] to the upper control crank [15].

(e) Install the washer [17], washer [18] and nut [19] on the bolt [16].

(f) Remove the rig pin A/S-14.

SUBTASK 27-61-41-420-006

(8) Attach the spoiler cable quadrant [5] to the quadrant shaft [36]:

(a) Install the bolts [6] to attach the spoiler cable quadrant [5] to the quadrant shaft [36].

(b) Install the washers [7], washers [8] and nuts [9] on the bolt [6].

SUBTASK 27-61-41-420-007

(9) Connect the right aileron control cable AA [1] and cable AB [3]:

(a) Use the cable retaining plates to attach the cables to the spoiler cable quadrant [5].

(b) Connect aileron control cable AA [1] and cable AB [3] at the cable turnbuckles [2].

(c) Remove the cable clamps from aileron control cable AA [1] and cable AB [3].

(d) Remove the rig pins A/S-1, A/S-1A and A/S-3.

SUBTASK 27-61-41-820-001

(10) Do this task: Aileron Cables Adjustment, TASK 27-11-00-820-801.

SUBTASK 27-61-41-720-001

(11) Do this task: Spoiler Control Quadrant Functional Test, TASK 27-61-41-000-802.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-61-41-410-001

(1) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-61-41-410-002

(2) Install the right floor panel between the seat tracks at the second window aft of the wind escape hatch:

(a) Do this task: Passenger Cabin Floor Panel Installation, TASK 53-21-00-400-801.

(b) Do this task: Carpet Installation, TASK 25-27-15-400-801.

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(c) Do this task: Passenger Seat Installation, TASK 25-22-00-400-802.

—————— END OF TASK ——————

TASK 27-61-41-000-802

4. Spoiler Control Quadrant Functional Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
563	Left Wing - Spoiler No. 4
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
664	Right Wing - Spoiler No. 10

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D. Prepare for the Test

SUBTASK 27-61-41-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-41-860-006

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-61-41-480-001

(3) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 on the captain's aileron control wheel.

SUBTASK 27-61-41-860-007

(4) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-41-860-008

(5) Put the ailerons in the neutral position.

NOTE: The ailerons are in the neutral position when you can easily install the rig pin A/S-4 from the test set rig pin kit, SPL-1585 in the aileron bus drum.

(a) Remove the rig pin A/S-4.

SUBTASK 27-61-41-480-002

(6) Install the protractor, COM-1691 on the flight spoilers 2, 4, 8 and 10.

SUBTASK 27-61-41-820-002

(7) Adjust the protractor, COM-1691 to zero.

E. Spoiler Control Quadrant Test

SUBTASK 27-61-41-020-004

(1) Turn the captain's aileron control wheel 87 degrees counterclockwise:

(a) Make sure that the spoiler No. 2 moves 32 +/-3 degrees up from the retracted position.

(b) Make sure that the spoiler No. 4 moves 37 +/-3 degrees up from the retracted position

SUBTASK 27-61-41-020-005

(2) Turn the captain's aileron control wheel 87 degrees clockwise:

(a) Make sure that the spoiler No. 8 moves 37 +/-3 degrees up from the retracted position.

(b) Make sure that the spoiler No. 10 moves 32 +/-3 degrees up from the retracted position

SUBTASK 27-61-41-020-006

(3) Turn the wheel counterclockwise until the spoiler No. 8 starts to retract.

(a) Make sure the control wheel is a minimum of 70 degrees clockwise.

SUBTASK 27-61-41-020-007

(4) Turn the wheel clockwise until the spoiler No. 2 starts to retract.

(a) Make sure the control wheel is a minimum of 70 degrees counterclockwise.

SUBTASK 27-61-41-820-003

(5) Turn the captain's aileron control wheel to the neutral position.

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(a) Make sure the spoilers move to the retracted position.

SUBTASK 27-61-41-410-003

(6) Put the Airplane Back to Its Usual Condition

(a) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

(b) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the captain's aileron control wheel.

(c) Remove the protractor, COM-1691 from the spoilers No. 2, 4, 8 and 10.

END OF TASK

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SPOILER CONTROL QUADRANT - INSPECTION/CHECK

1. General

A. This task supplies the data for a dimensional inspection of the spoiler control quadrant.

TASK 27-61-41-200-802

2. Spoiler Control Quadrant Inspection

(Figure 601)

A. General

(1) This procedure gives wear limits and repair data for the spoiler control quadrant.

B. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Procedure

SUBTASK 27-61-41-020-010

(1) To inspect the spoiler control quadrant, disconnect the aileron spring cartridge from the aileron input crank.

SUBTASK 27-61-41-020-011

(2) Use these tools to check for wear on the parts of the spoiler control quadrant:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097

SUBTASK 27-61-41-020-012

(3) Examine the parts of the spoiler control quadrant for worn areas:

(a) Remove the parts to be checked.

(b) Measure the parts as necessary with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions that follow.

(d) If the parts are not in the tolerance, replace the part as required.

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Table 601/27-61-41-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 BEARING*[1]	I.D.	0.2497 in 6.34 mm	0.2500 in 6.35 mm	0.2500 in 6.35 mm	0.0019 in 0.05 mm
#1 BOLT	O.D.	0.2485 in 6.31 mm	0.2495 in 6.34 mm	0.2481 in 6.30 mm	

*[1] Maximum permitted radial play of the bearing is 0.0020 inch.

SUBTASK 27-61-41-020-013

(4) Connect the aileron spring cartridge to the aileron input crank.

———————— END OF TASK ————————

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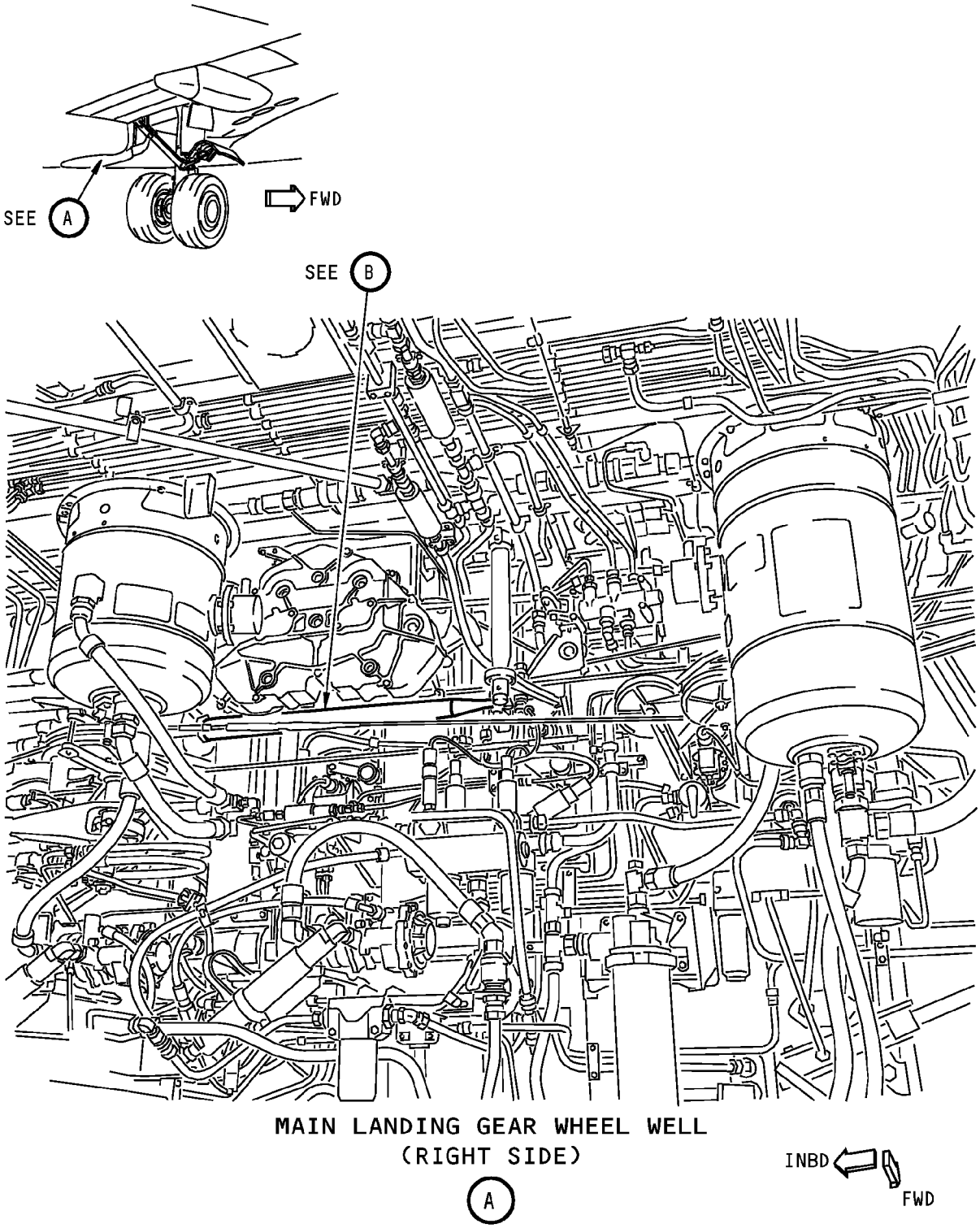

Spoiler Control Quadrant Wear Limits
Figure 601 (Sheet 1 of 2)/27-61-41-990-802

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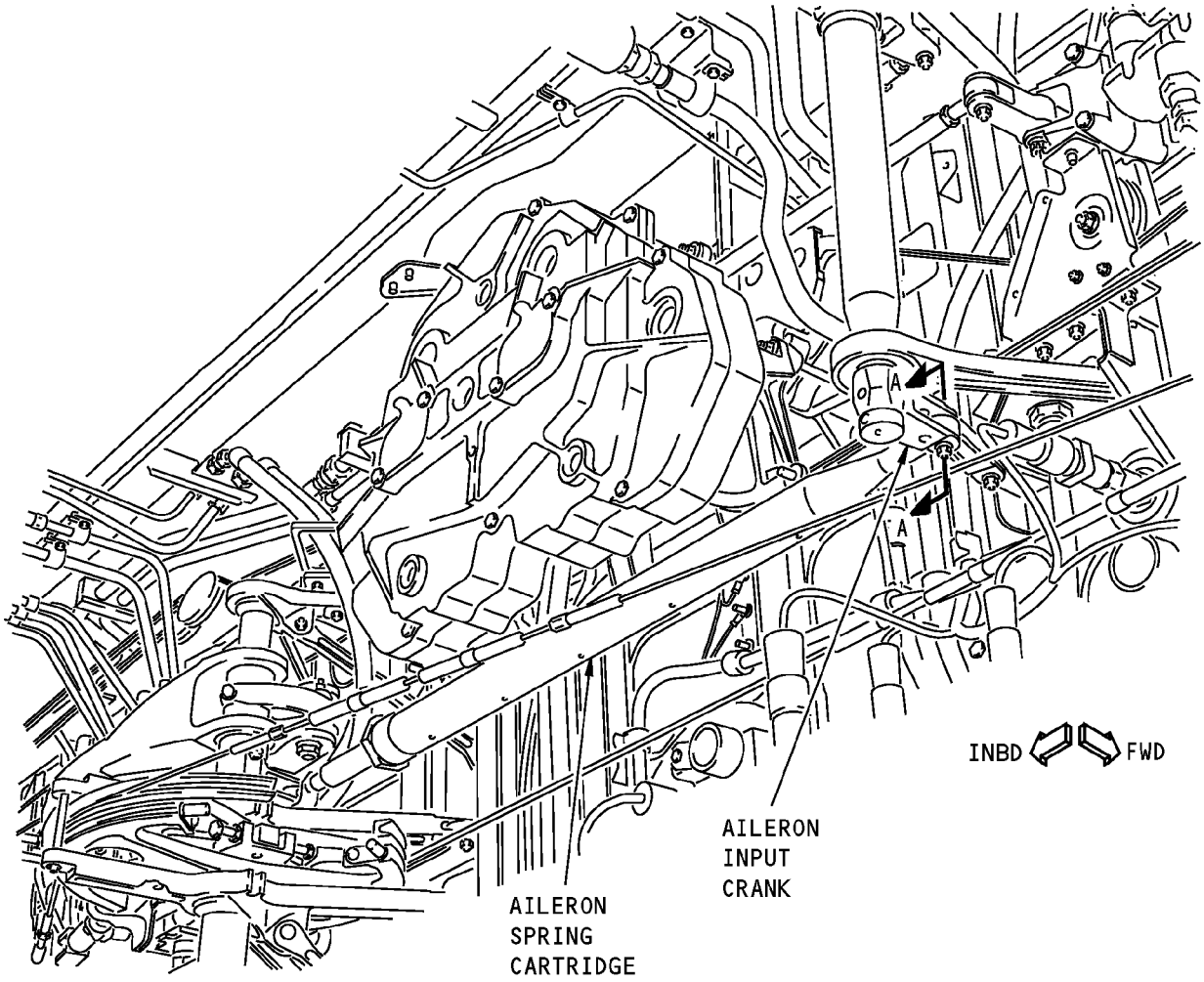
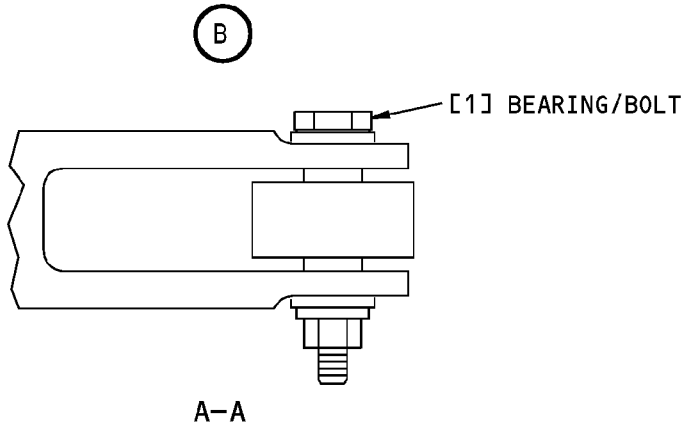


AILERON SPRING CARTRIDGE



Spoiler Control Quadrant Wear Limits
Figure 601 (Sheet 2 of 2)/27-61-41-990-802

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SPOILER CONTROL QUADRANT - REPAIRS

1. General

A. There is one task in this procedure, a repair of the spoiler control quadrant. The repair includes the replacement of the rivets that attach the aileron input crank to the spoiler control quadrant shaft.

B. This task does not remove or install the spoiler control quadrant, refer to the Spoiler Control Quadrant - Removal/Installation for procedures to remove and install the spoiler control quadrant.

TASK 27-61-41-200-801

2. Spoiler Control Quadrant Repairs

A. References

Reference	Title
27-61-41-000-801	Spoiler Control Quadrant Removal (P/B 401)
27-61-41-400-801	Spoiler Control Quadrant Installation (P/B 401)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Procedure

SUBTASK 27-61-41-020-008

(1) Remove the spoiler control quadrant shaft. To remove it, do this task: Spoiler Control Quadrant Removal, TASK 27-61-41-000-801.

SUBTASK 27-61-41-350-001

(2) Repair the quadrant shaft:

(a) Remove the broken parts of the rivets from the holes in the aileron input crank and the quadrant shaft.

(b) Install the new rivets.

(c) Examine the aluminum foil marker on the quadrant shaft.

1) Replace the marker if it is damaged or not there.

SUBTASK 27-61-41-020-009

(3) Examine the parts of the spoiler control quadrant for worn areas. Repair or replace worn parts, as necessary.

SUBTASK 27-61-41-020-014

(4) Install the spoiler control quadrant shaft. To install it, do this task: Spoiler Control Quadrant Installation, TASK 27-61-41-400-801.

——————— END OF TASK ———————

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FLIGHT SPOILER ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flight spoiler actuator.

(2) An installation of the flight spoiler actuator.

B. In this procedure the flight spoiler actuator is referred to as the "actuator".

TASK 27-61-51-000-801

2. Flight Spoiler Actuator Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-61-00-800-802	Remove Pressure from the Spoiler Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

D. Prepare for the Removal

SUBTASK 27-61-51-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-51-860-003

(2) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-61-51-860-009

(3) To remove hydraulic power from the spoiler system, do this task: Remove Pressure from the Spoiler Hydraulic Systems A and B, TASK 27-61-00-800-802.

SUBTASK 27-61-51-862-001

(4) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

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E. Actuator Removal

HAP 037-054

SUBTASK 27-61-51-030-001

(1) Disconnect the electrical connector [25] from the actuator [15].

HAP ALL

SUBTASK 27-61-51-020-001

(2) Disconnect the hydraulic lines [12] from the actuator [15].

(a) Put a 5 gallon (19 liters) hydraulic fluid resistant container, STD-1110 below the actuator [15] to catch the hydraulic fluid.

(b) Disconnect the hydraulic lines [12] from the actuator [15].

(c) Install the plugs in the hydraulic lines [12].

SUBTASK 27-61-51-020-002

(3) Disconnect the actuator rod end [17] from the flight spoiler [16]:

(a) Remove the bolt [1], washer [2], lockwire [23], pin [5] and washer [4] from the actuator rod end [17].

(b) Remove nut [7], washer [6] and pin [3] that attach the actuator rod end [17] to the flight spoiler [16].

SUBTASK 27-61-51-020-011

(4) Remove the pin [11], nut [10], washer [9], and bolt [8].

SUBTASK 27-61-51-020-003

(5) Disconnect the actuator [15] from the structure:

(a) Remove the bolts [21] and washers [22].

(b) Remove the bolt [19] and washer [20].

HAP 001-013, 015-026, 028-036, 101-999

(c) Remove the bolt [18].

HAP 037-054

(d) Remove the bolt [18] and washer [24].

HAP ALL

SUBTASK 27-61-51-020-005

(6) Remove the actuator [15] from the airplane.

SUBTASK 27-61-51-480-001

(7) If it is necessary, remove the unions [13] and o-rings [14] from the actuator [15].

(a) Install caps in the ports of the actuator [15].

——————— END OF TASK ———————

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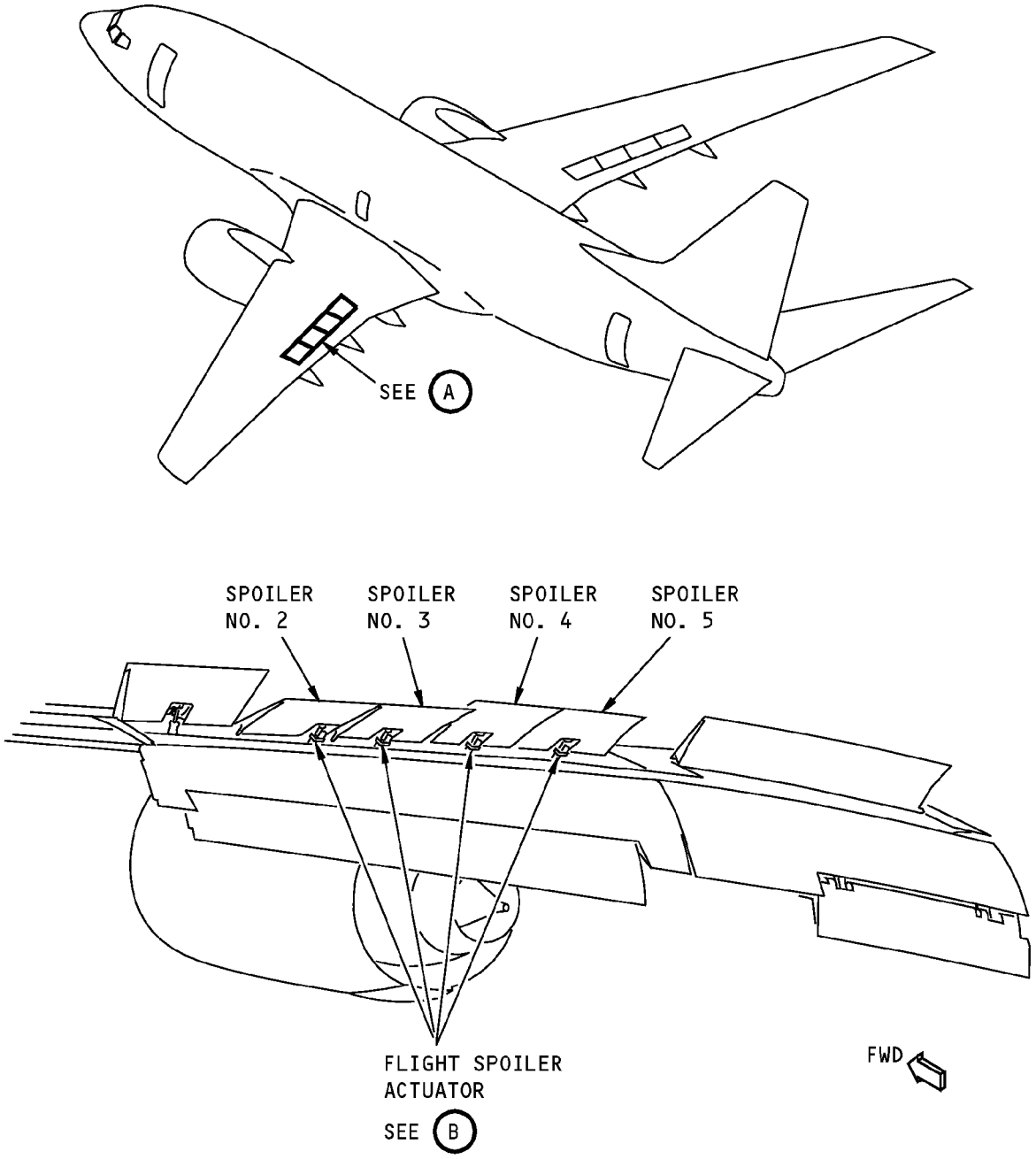

Flight Spoiler Actuator Installation
Figure 401 (Sheet 1 of 3)/27-61-51-990-801

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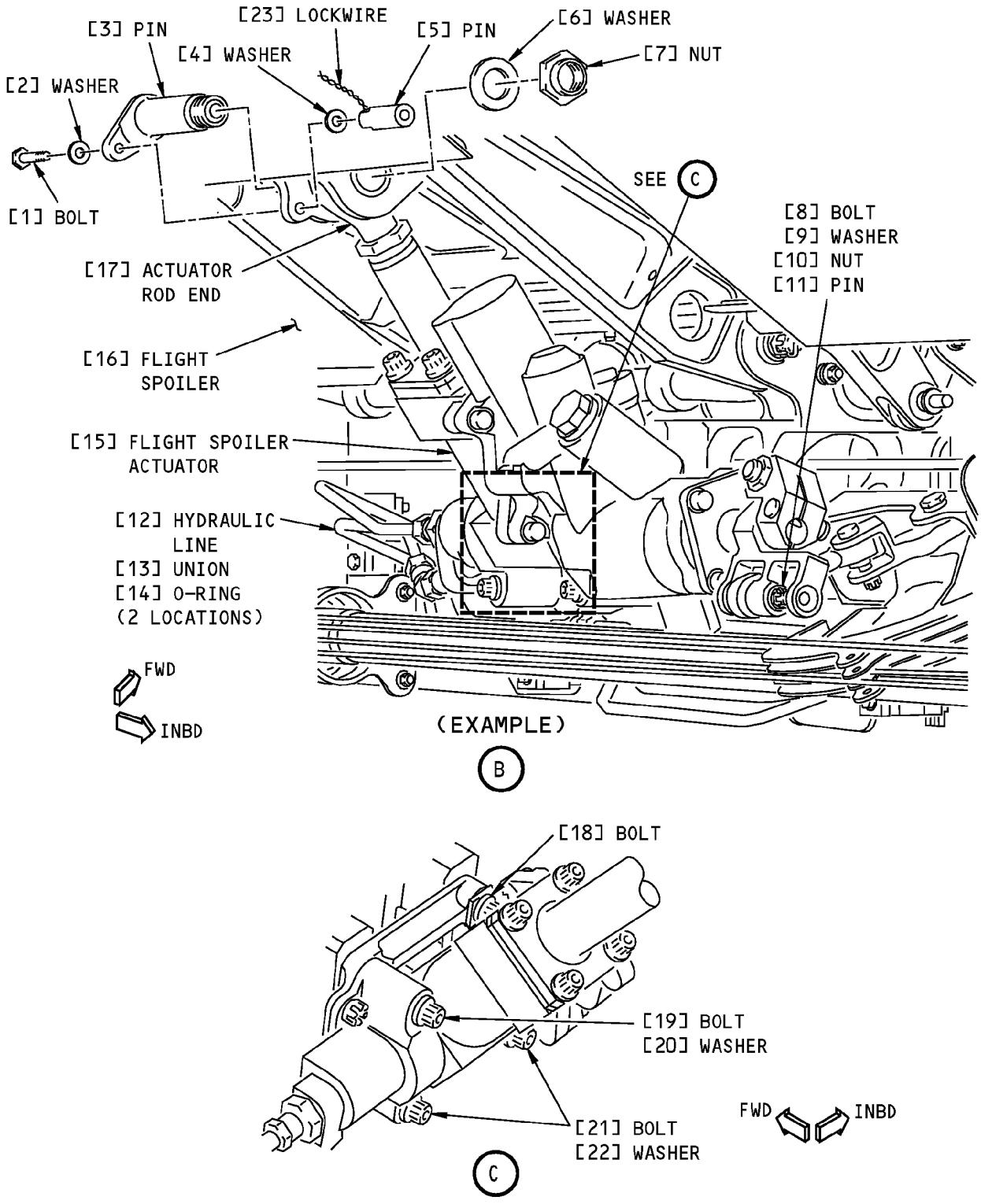

Flight Spoiler Actuator Installation
Figure 401 (Sheet 2 of 3)/27-61-51-990-801

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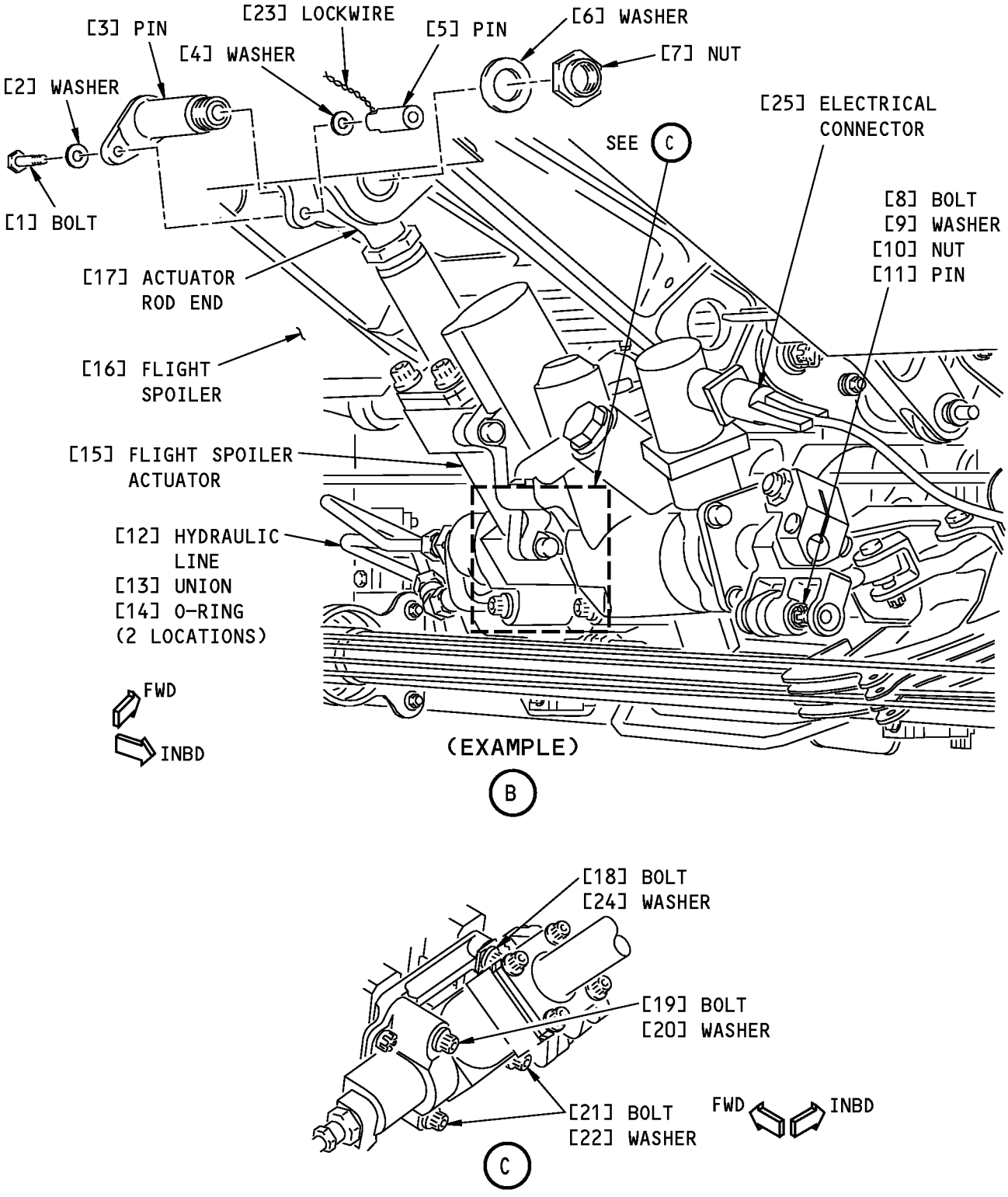

Flight Spoiler Actuator Installation
Figure 401 (Sheet 3 of 3)/27-61-51-990-801

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TASK 27-61-51-400-801

3. Flight Spoiler Actuator Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-000-801	Flight Spoiler System Test (Alternate Method) (P/B 501)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-820-803	Flight Spoiler Adjustment (P/B 501)
27-61-00-820-804	Spoiler Actuator Linkage Adjustment (P/B 501)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-61-00-840-802	Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
27-62-00-710-803	Speed Brake Solenoid Operated Valve Test (P/B 501)

B. Consumable Materials

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

D. Actuator Installation

SUBTASK 27-61-51-420-001

(1) If it is necessary, install the unions [13] in the actuator [15]:

(a) Apply fluid, D00153 to the o-rings [14].

(b) Remove the caps from the hydraulic ports.

(c) Install the o-rings [14] and the unions [13] in the actuator [15].

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SUBTASK 27-61-51-420-002

(2) Install the actuator [15]:

(a) Remove the plugs from the hydraulic lines [12].

(b) Put the actuator [15] in its position and make sure the hydraulic lines [12] align with the fittings.

(c) Loosely install the hydraulic lines [12] to the actuator [15].

(d) Connect the actuator [15] to the structure:

HAP 001-013, 015-026, 028-036, 101-999

CAUTION: MAKE SURE YOU DO NOT INSTALL A WASHER ON THE SHORT TOP BOLT [18]. THE BOLT [18] CAN TOUCH THE ACTUATOR [15] DURING THE OPERATION OF THE ACTUATOR [15]. YOU CAN CAUSE DAMAGE TO THE ACTUATOR [15].

1) Install the bolt [18] without a washer.

HAP 037-054

2) Install the bolt [18] and washer [24].

HAP ALL

3) Install the washer [20] and bolt [19].

4) Install the washers [22] and bolts [21].

5) Tighten bolts [21] to 225-275 pound-inches (25.4-31.0 newton-meters).

6) Tighten bolt [18] and bolt [19] to 450-550 pound-inches (50.8-62.1 newton-meters).

(e) Tighten the nut on the hydraulic lines [12] on the actuator [15].

(f) Install the bolt [18], washer [9], nut [10] and pin [11].

(g) Connect the actuator rod end [17] to the flight spoiler [16]:

1) Apply a layer of grease, D00633 to the outer diameter of pin [3].

2) Install pin [3], washer [6] and nut [7].

3) Tighten nut [7] to 540-660 pound-inches(61.0-74.6 newton-meters).

4) Install bolt [1], washer [2], washer [4], pin [5] and lockwire [23].

HAP 037-054

SUBTASK 27-61-51-430-001

(3) Connect the electrical connector [25] to the receptacle on the actuator [15].

HAP ALL

SUBTASK 27-61-51-860-010

(4) Do this task: Put the Spoiler Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-61-00-840-802.

SUBTASK 27-61-51-860-005

(5) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-61-51-860-006

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-61-51-870-001

(7) Move the speed brake control lever through its full cycle to bleed the spoiler actuators.

SUBTASK 27-61-51-700-001

(8) Make sure there are no leaks at the hydraulic lines.

SUBTASK 27-61-51-820-001

(9) Do this task: Flight Spoiler Adjustment, TASK 27-61-00-820-803.

SUBTASK 27-61-51-820-002

(10) Do this task: Spoiler Actuator Linkage Adjustment, TASK 27-61-00-820-804.

SUBTASK 27-61-51-730-001

(11) Do this task: Flight Spoiler System Test (Alternate Method), TASK 27-61-00-000-801.

HAP 037-054

SUBTASK 27-61-51-710-001

(12) Do this task: Speed Brake Solenoid Operated Valve Test, TASK 27-62-00-710-803.

HAP ALL

E. Put the Airplane Back to Its Usual Condition.

SUBTASK 27-61-51-860-007

(1) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-61-51-860-008

(2) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-61-51-610-001

(3) Fill the hydraulic reservoirs if it is necessary. To fill, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

———————— END OF TASK ————————

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FLIGHT SPOILER ACTUATOR - INSPECTION/CHECK

1. General

A. This task supplies the data for a dimensional inspection of the flight spoiler actuator.

B. This task does not remove or install the flight spoiler actuator, refer to the Flight Spoiler Actuator - Removal/Installation for procedures to remove and install the flight spoiler actuator.

TASK 27-61-51-200-801

2. Flight Spoiler Actuator Inspection

(Figure 601)

A. General

(1) This procedure gives wear limits and repair data for the flight spoiler actuators.

B. References

Reference	Title
27-61-51-000-801	Flight Spoiler Actuator Removal (P/B 401)
27-61-51-400-801	Flight Spoiler Actuator Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

E. Procedure

SUBTASK 27-61-51-020-006

(1) To inspect the flight spoiler actuator, you will need to remove it. To remove it, do this task: Flight Spoiler Actuator Removal, TASK 27-61-51-000-801.

SUBTASK 27-61-51-020-007

(2) Use these tools to check for wear on the parts of the flight spoiler actuator:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097

SUBTASK 27-61-51-020-008

(3) Examine the parts of the flight spoiler actuator for worn areas:

(a) Remove the parts to be checked.

(b) Measure the parts as necessary with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

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(c) Compare the dimensions you measured with the permitted wear dimensions that follow.

(d) If the parts are not in the tolerance, replace or repair the part as required.

Table 601/27-61-51-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 BUSHING	I.D.	0.7500 in 19.050 mm	0.7515 in 19.088 mm	0.7520 in 19.101 mm	0.0057 in 0.146 mm
#1 PIN	O.D.	0.7475 in 18.987 mm	0.7480 in 18.999 mm	0.7458 in 18.943 mm	
#2 BEARING	I.D.	0.7495 in 19.037 mm	0.7500 in 19.050 mm	0.7505 in 19.063 mm	0.0042 in 0.107 mm
#2 PIN	O.D.	0.7475 in 18.987 mm	0.7480 in 18.999 mm	0.7458 in 18.943 mm	
#3 BUSHING	I.D.	0.2500 in 6.350 mm	0.2515 in 6.388 mm	0.2525 in 6.414 mm	0.0040 in 0.102 mm
#3 BOLT	O.D.	0.2485 in 6.312 mm	0.2495 in 6.337 mm	0.2475 in 6.287 mm	
#4 BRACKET	I.D.	0.3765 in 9.563 mm	0.3771 in 9.578 mm	0.3777 in 9.594 mm	0.0028 in 0.072 mm
#4 BUSHING	O.D.	0.3755 in 9.538 mm	0.3761 in 9.553 mm	0.3743 in 9.507 mm	
#5 BEARING	I.D.	0.2497 in 6.342 mm	0.2500 in 6.350 mm	0.2510 in 6.375 mm	0.0025 in 0.063 mm
#5 BOLT	O.D.	0.2485 in 6.312 mm	0.2495 in 6.337 mm	0.2475 in 6.287 mm	
#6 BUSHING	I.D.	0.2500 in 6.350 mm	0.2515 in 6.388 mm	0.2525 in 6.414 mm	0.0040 in 0.102 mm
#6 BOLT	O.D.	0.2485 in	0.2495 in	0.2475 in	

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
		6.312 mm	6.337 mm	6.287 mm	

SUBTASK 27-61-51-020-009

(4) Reassemble the flight spoiler actuator, as necessary.

SUBTASK 27-61-51-020-010

(5) Install the flight spoiler actuator. To install it, do this task: Flight Spoiler Actuator Installation, TASK 27-61-51-400-801.

——————— END OF TASK ———————

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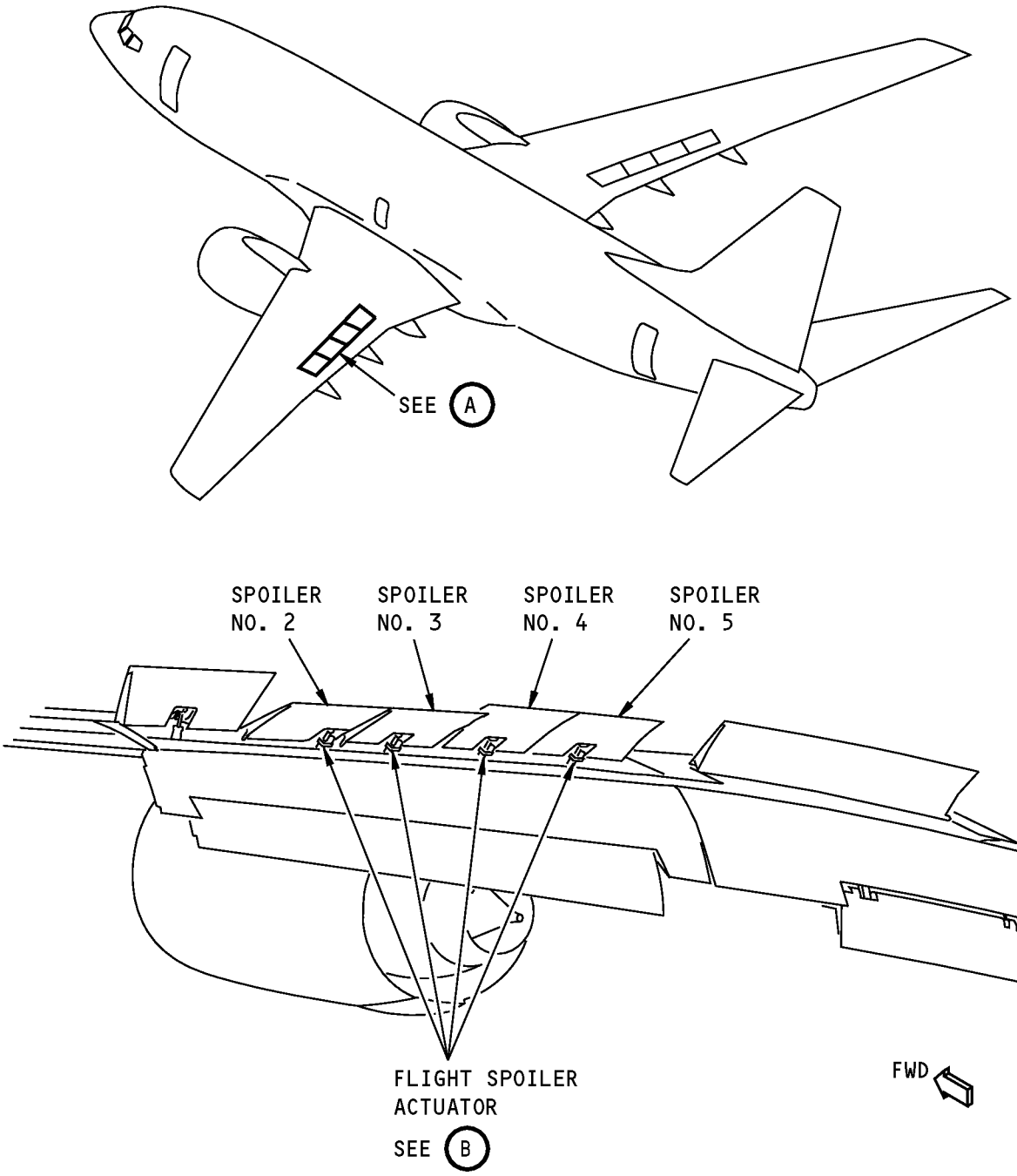

Flight Spoiler Actuator Wear Limits
Figure 601 (Sheet 1 of 3)/27-61-51-990-802

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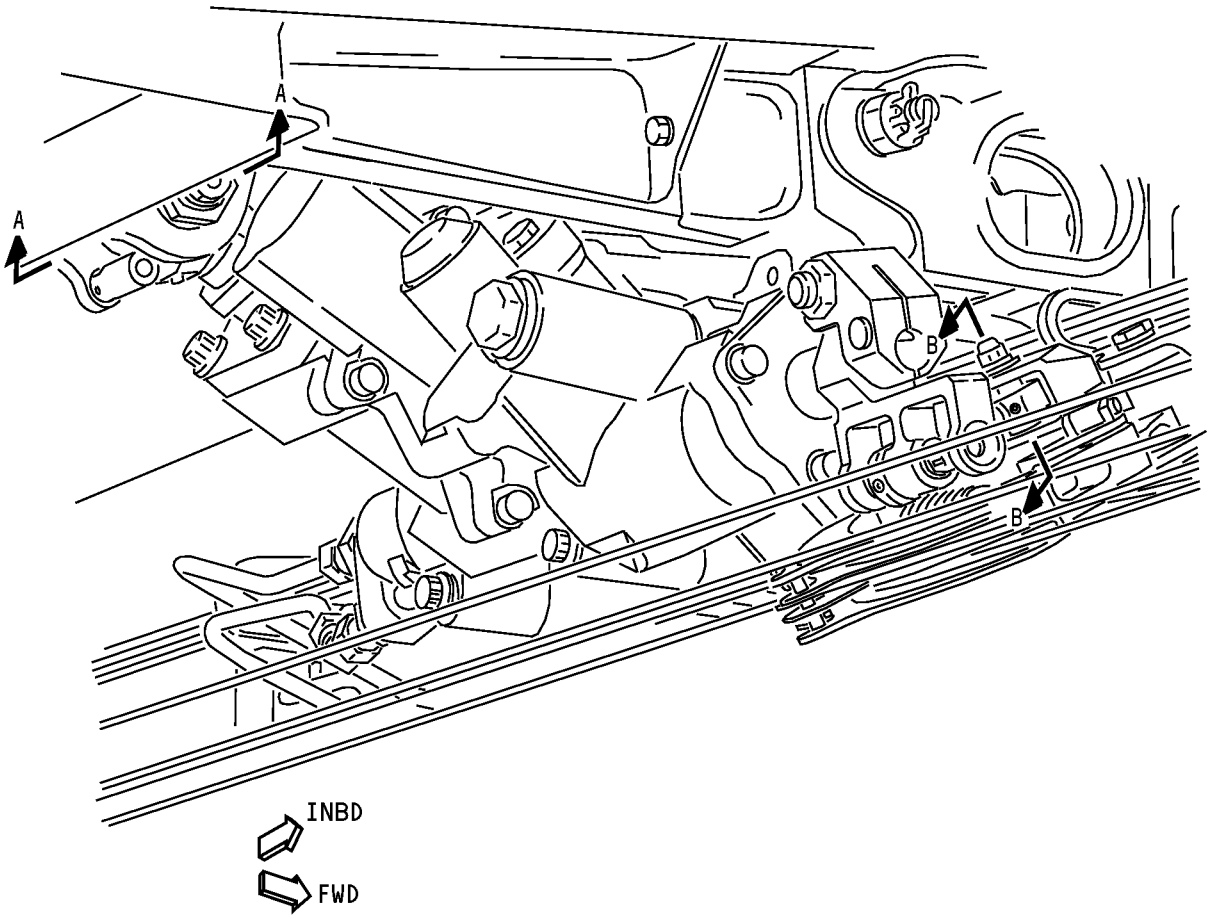

FLIGHT SPOILER ACTUATOR
(EXAMPLE)
B

Flight Spoiler Actuator Wear Limits
Figure 601 (Sheet 2 of 3)/27-61-51-990-802

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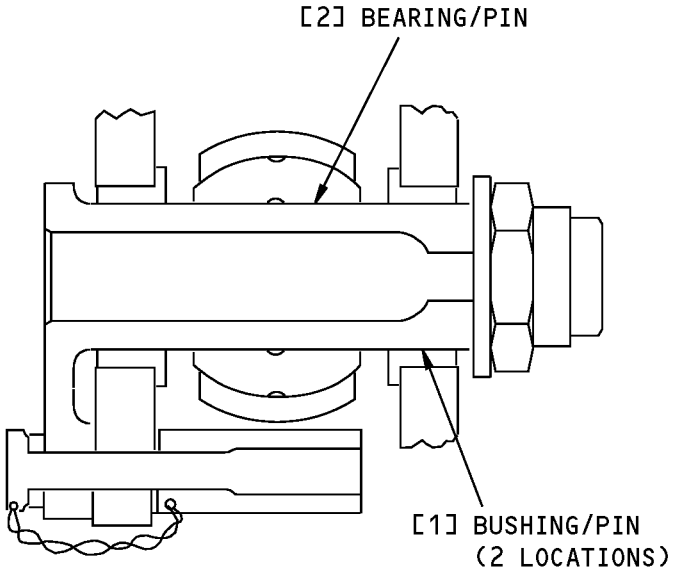
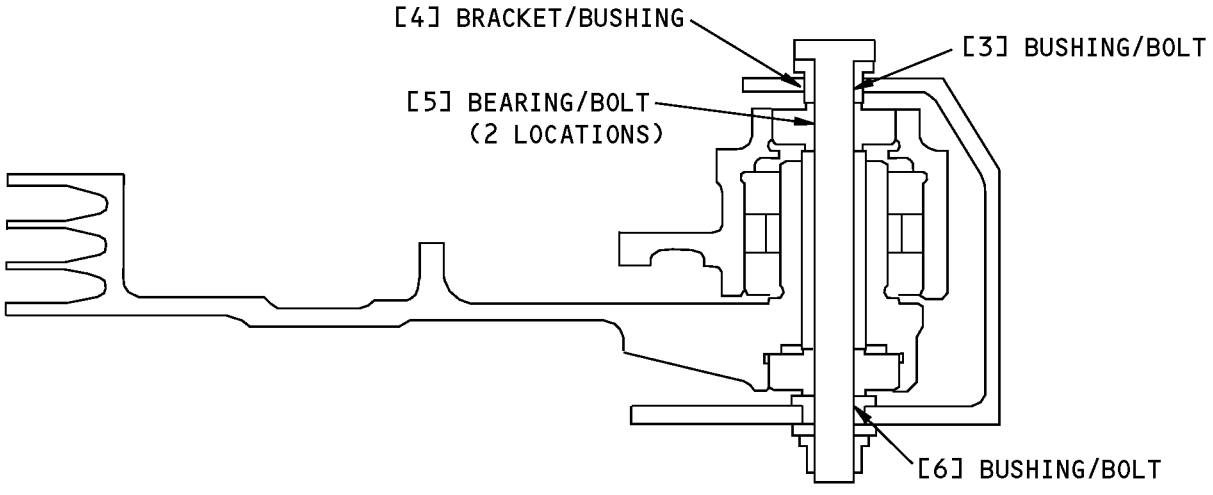


A–A



B–B

Flight Spoiler Actuator Wear Limits
Figure 601 (Sheet 3 of 3)/27-61-51-990-802

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FLIGHT SPOILER ACTUATOR QUADRANT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the flight spoiler actuator quadrants.

(2) An installation of the flight spoiler actuator quadrants.

(3) A functional test of the flight spoiler actuator quadrants.

B. In this procedure the flight spoiler actuator quadrant is referred to as the "quadrant".

C. This procedure is applicable to the left and right flight spoiler actuator quadrants.

TASK 27-61-61-000-801

2. Flight Spoiler Actuator Quadrant Removal

(Figure 401, Figure 402)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

C. Prepare for the Removal

SUBTASK 27-61-61-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-61-860-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

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SUBTASK 27-61-61-860-003

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-61-61-860-004

(4) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-61-860-005

(5) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-61-61-860-006

(6) Make sure the ailerons are in the neutral position.

D. Flight Spoiler Actuator Quadrant Removal

SUBTASK 27-61-61-020-001

(1) Disconnect the wing spoiler cables WSA [2] and WSB [4] from the applicable quadrant:

(a) Install the turnbuckle clamps to keep a small tension on the wing spoiler cables WSA [2] and WSB [4].

(b) Loosen the turnbuckles [3] for the cables.

(c) Remove the guard pin [34], guard [35] and pin [36].

(d) Remove the nuts [28], washers [27], bolts [26] and retainers [29].

(e) Remove the wing spoiler cables WSA [2] and WSB [4] from the quadrant [37].

SUBTASK 27-61-61-020-002

(2) Remove the flight spoiler actuator quadrant [37]:

(a) Remove the pin [33], nut [32], washer [31], and bolt [30] to disconnect the quadrant [37] from the actuator input arm [21].

(b) Remove the nut [25], washer [24], washer [23], and bolt [22] from the quadrant [37].

NOTE: Keep the bearings and bushing with the quadrant [37].

(c) Remove the quadrant [37] from the structure.

END OF TASK

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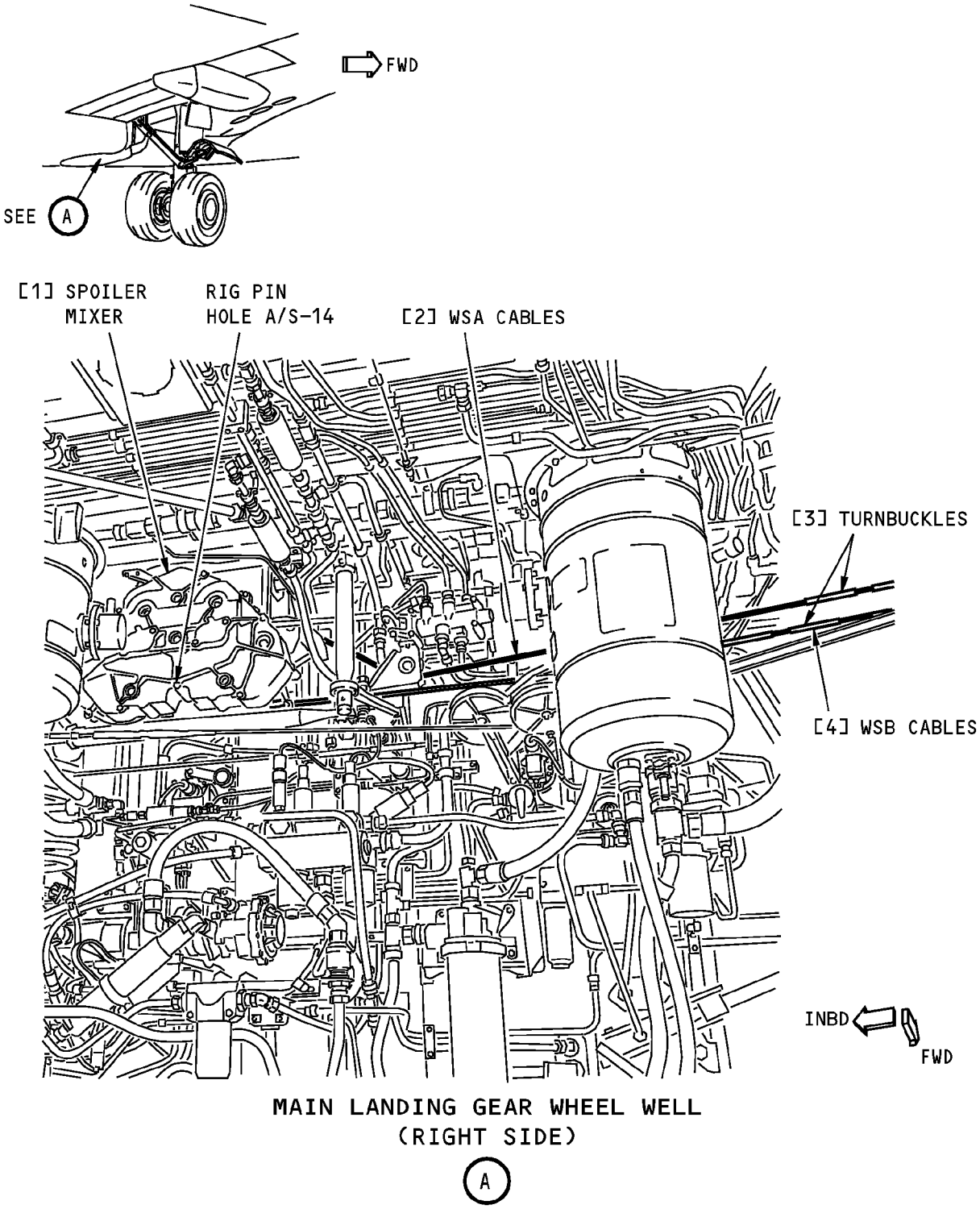

Flight Spoiler Cable Installation
Figure 401/27-61-61-990-801

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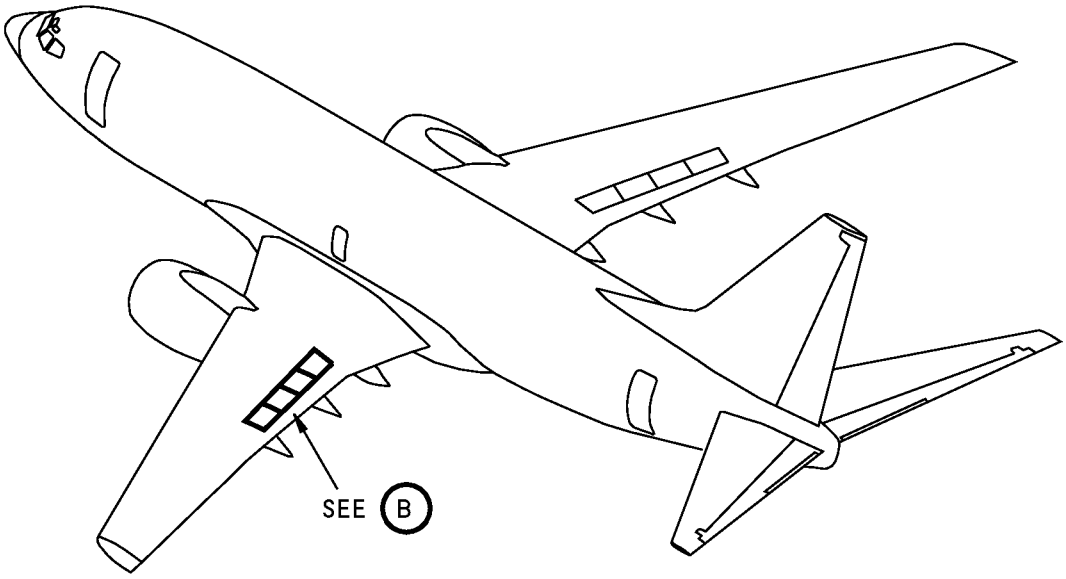

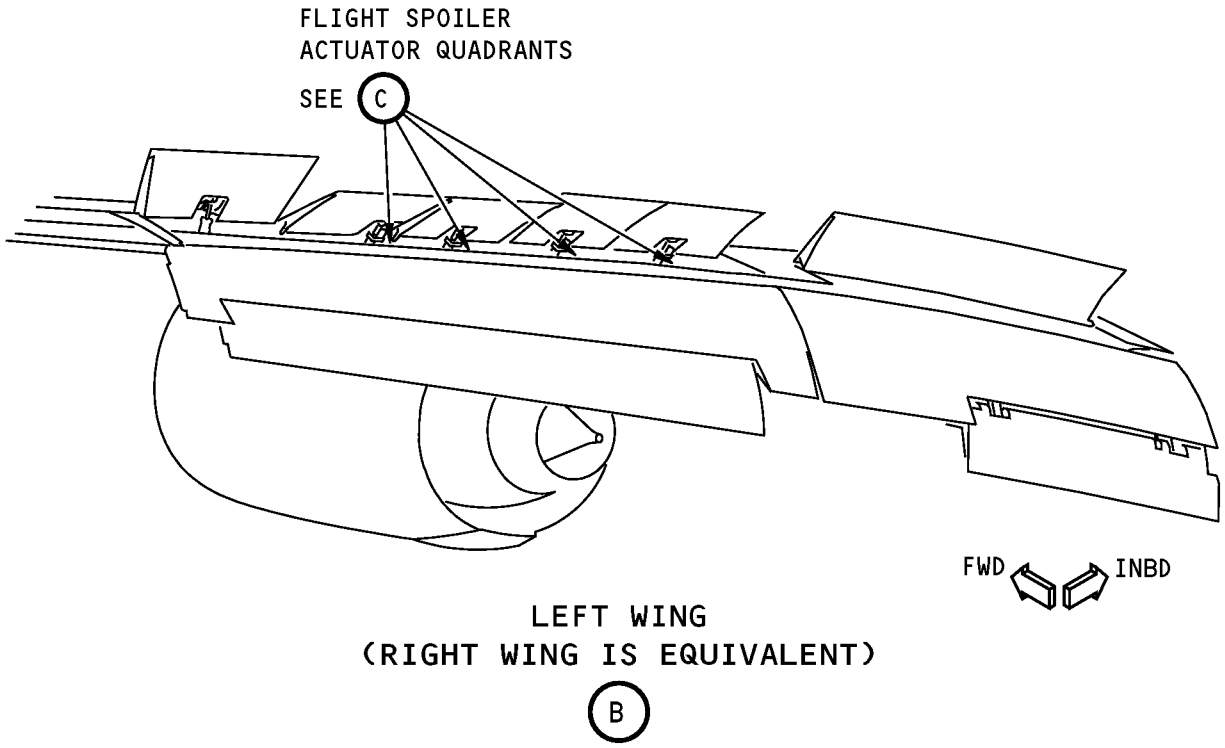

Flight Spoiler Actuator Quadrant
Figure 402 (Sheet 1 of 2)/27-61-61-990-802

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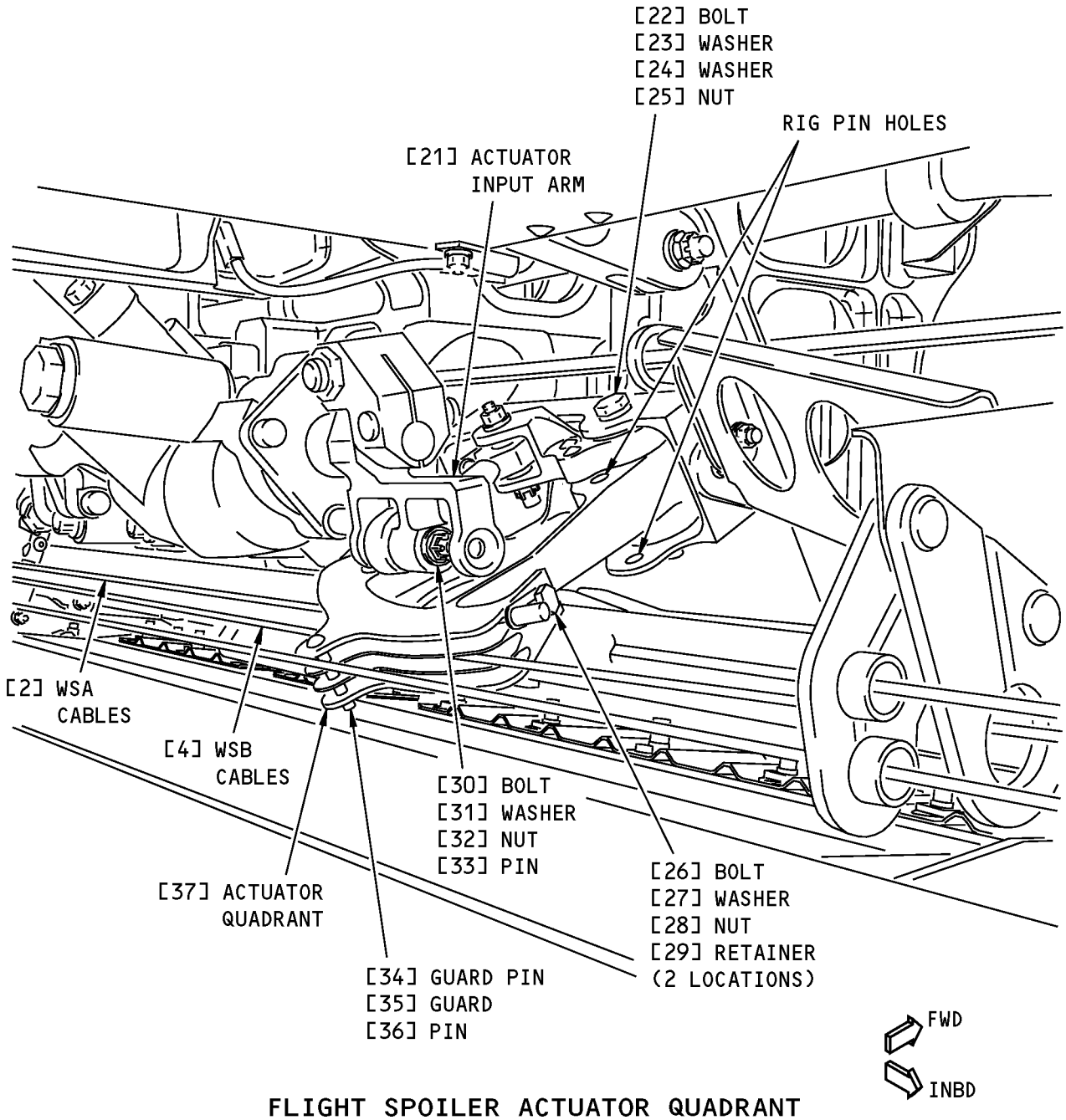

FLIGHT SPOILER ACTUATOR QUADRANT
(EXAMPLE)

C

Flight Spoiler Actuator Quadrant
Figure 402 (Sheet 2 of 2)/27-61-61-990-802

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TASK 27-61-61-400-801

3. Flight Spoiler Actuator Quadrant Installation

(Figure 401, Figure 402)

A. References

Reference	Title
12-22-61-600-802	Flight Spoiler Actuator Quadrant and Rod End Lubrication (P/B 301)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-800-802	Remove Pressure from the Spoiler Hydraulic Systems A and B (P/B 201)
27-61-00-820-801	Spoiler Control Cables Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

D. Flight Spoiler Actuator Quadrant Installation

SUBTASK 27-61-61-420-001

(1) Install the quadrant [37]:

(a) Put the quadrant [37] in its position on the structure.

(b) Install the bolt [22], washer [23], washer [24] and nut [25].

(c) Install the bolt [30], washer [31], nut [32] and pin [33] to attach the quadrant [37] to the actuator input arm [21].

SUBTASK 27-61-61-420-002

(2) Connect the wing spoiler cables WSA [2] and WSB [4] to the quadrant [37]:

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(a) Install the rig pins A/S-8 thru A/S-11 from the test set rig pin kit, SPL-1585 in the applicable rig pin hole.

(b) Install rig pin A/S-14 from the test set rig pin kit, SPL-1585 in the spoiler mixer [1].

(c) Remove the turnbuckle clamps and tags from the wing spoiler cables WSA [2] and WSB [4].

(d) Attach the wing spoiler cables WSA [2] and WSB [4] to the quadrant [37].

1) Install retainers [29], nuts [28], washers [27] and bolts [26].

2) Install pin [36], guard [35], and guard pin [34].

(e) Tighten the wing spoiler cables WSA [2] and WSB [4] at the turnbuckles [3] in the wheel well.

SUBTASK 27-61-61-820-001

(3) Do this task: Spoiler Control Cables Adjustment, TASK 27-61-00-820-801.

SUBTASK 27-61-61-820-002

(4) Do this task: Flight Spoiler Actuator Quadrant and Rod End Lubrication, TASK 12-22-61-600-802.

SUBTASK 27-61-61-720-001

(5) Do this task: Flight Spoiler Actuator Quadrant Functional Test, TASK 27-61-61-000-802.

SUBTASK 27-61-61-410-001

(6) Put the Airplane Back to Its Usual Condition

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

(b) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

(c) Do this task: Remove Pressure from the Spoiler Hydraulic Systems A and B, TASK 27-61-00-800-802.

——————— END OF TASK ———————

TASK 27-61-61-000-802

4. Flight Spoiler Actuator Quadrant Functional Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-61-00-820-804	Spoiler Actuator Linkage Adjustment (P/B 501)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Prepare for the Test

SUBTASK 27-61-61-860-007

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-61-61-860-008

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-61-61-480-001

(3) Install the mount, SPL-1670 and the control column assembly protractor, SPL-1680 on the captain's aileron control wheel.

SUBTASK 27-61-61-860-009

(4) Move the speed brake lever to the DOWN position.

SUBTASK 27-61-61-860-010

(5) Put the ailerons in the neutral position.

SUBTASK 27-61-61-480-002

(6) Install the protractor, COM-1691 on the flight spoilers 2, 4, 9 and 11.

SUBTASK 27-61-61-820-003

(7) Adjust the protractor, COM-1691 to zero.

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E. Flight Spoiler Actuator Quadrant Test

SUBTASK 27-61-61-020-003

(1) Turn the captain's aileron control wheel clockwise until the spoiler No. 9 starts to extend.

(a) Make sure the control wheel is 11 +/-1 degrees clockwise from zero.

SUBTASK 27-61-61-020-004

(2) Turn the control wheel 87 degrees clockwise:

(a) Make sure that the spoiler No. 9 moves 37 +/-3 degrees up from the retracted position.

(b) Make sure that the spoiler No. 11 moves 32 +/-3 degrees up from the retracted position.

(c) Make sure the spoiler No. 2 is in the retracted position.

SUBTASK 27-61-61-020-005

(3) Turn the wheel counterclockwise until the spoiler No. 9 starts to retract.

(a) Make sure the control wheel is a minimum of 70 degrees clockwise.

SUBTASK 27-61-61-020-006

(4) Turn the wheel counterclockwise until the spoiler No. 9 is fully retracted.

(a) Make sure the spoiler is fully retracted when the control wheel is 5 +/-3 degrees clockwise.

SUBTASK 27-61-61-020-007

(5) Turn the wheel counterclockwise until the spoiler No. 2 starts to extend.

(a) Make sure the control wheel is 11 +/-1 degrees counterclockwise from zero.

SUBTASK 27-61-61-020-008

(6) Turn the control wheel 87 degrees counterclockwise:

(a) Make sure that the spoiler No. 2 moves 32 +/-3 degrees up from the retracted position.

(b) Make sure that the spoiler No. 4 moves 37 +/-3 degrees up from the retracted position.

(c) Make sure the spoiler No. 9 is in the retracted position.

SUBTASK 27-61-61-020-009

(7) Turn the wheel clockwise until the spoiler No. 2 starts to retract.

(a) Make sure the control wheel is a minimum of 70 degrees counterclockwise.

SUBTASK 27-61-61-020-010

(8) Turn the wheel clockwise until the spoiler No. 2 is fully retracted.

(a) Make sure the spoiler is fully retracted when the control wheel is 5 +/-3 degrees counterclockwise.

SUBTASK 27-61-61-820-004

(9) If the operation of the spoilers is not in the limits, adjust the applicable flight spoiler actuator linkage. To adjust, do this task: Spoiler Actuator Linkage Adjustment, TASK 27-61-00-820-804.

SUBTASK 27-61-61-410-002

(10) Put the Airplane Back to Its Usual Condition

(a) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

(b) Remove the mount, SPL-1670 and the control column assembly protractor, SPL-1680 from the captain's aileron control wheel.

(c) Remove the protractor, COM-1691 from the spoilers No. 2, 4, 9 and 11.

END OF TASK

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SPEED BRAKE CONTROL SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) Speed brake Hydraulic Systems A and B Pressurization

(2) Put the Speed Brake Hydraulic Systems A and B Back to the Condition before the Pressurization

(3) Remove Pressure from the Speed Brake Hydraulic Systems A and B

(4) Put the Speed Brake Hydraulic Systems A and B Back to the Condition before the Pressure Removal

B. Hydraulic systems A, B must have pressure removed before maintenance is done on the speed brake control system. This is to prevent injury to persons because of accidental operation of the control system while you do maintenance. You must be careful to put maintenance stands and equipment away from control surface travel.

C. Electric pump 1 pressurizes the hydraulic system B and electric pump 2 pressurizes the hydraulic system A. Electric pump 1 heat exchanger is installed in the fuel tank 2. Electric pump 2 heat exchanger is installed in the fuel tank 1.

D. This procedure operates the electric hydraulic system A or B pumps to pressurize the hydraulic systems A and B. Pressurization of the hydraulic systems with the engine-driven hydraulic pumps is not included in this procedure.

TASK 27-62-00-800-801

2. Speed Brake Hydraulic Systems A and B Pressurization

(Figure 201)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 27-62-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-62-00-860-174

CAUTION: DO NOT OPERATE THE SYSTEM A OR B HYDRAULIC PUMPS FOR MORE THAN TWO MINUTES WITHOUT FUEL IN THE FUEL TANKS. THE NO. 1 (FOR SYSTEM A) AND NO. 2 (FOR SYSTEM B) FUEL TANKS MUST HAVE A MINIMUM OF 250 GALLONS (1675 POUNDS/760 KILOGRAMS) OF FUEL IN THEM. IF THERE IS NOT SUFFICIENT FUEL IN THE FUEL TANKS, THE HYDRAULIC SYSTEMS WILL BECOME TOO HOT.

(2) Make sure the No. 1 and No. 2 fuel tanks each have 250 gallons (1675 pounds/760 kilograms) of fuel in them.

SUBTASK 27-62-00-210-001

(3) Make sure the hydraulic reservoirs are full. To fill it, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 27-62-00-860-002

(4) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 27-62-00-860-003

(5) Set the parking brake.

SUBTASK 27-62-00-480-001

WARNING: MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR BEFORE YOU PRESSURIZE THE HYDRAULIC SYSTEMS. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Install the ground lock assemblies in the landing gear. To install them, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-62-00-860-004

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Pressurize the speed brake hydraulic systems A and B:

(a) Set the ELEC 2, HYD PUMPS A or ELEC 1, HYD PUMPS B switch on the forward overhead panel to the ON position.

(b) To pressurize the hydraulic system A, set the SPOILER A switch on the forward overhead panel to the ON position.

(c) To pressurize the hydraulic system B, set the SPOILER B switch on the forward overhead panel to the ON position.

———————— END OF TASK ————————

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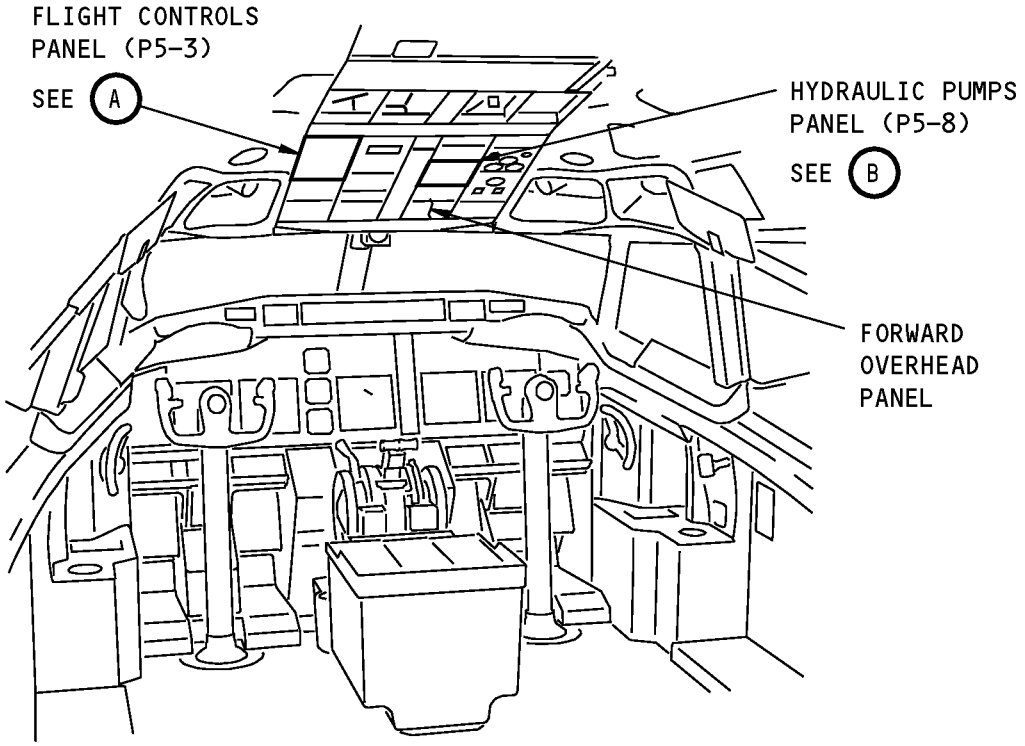
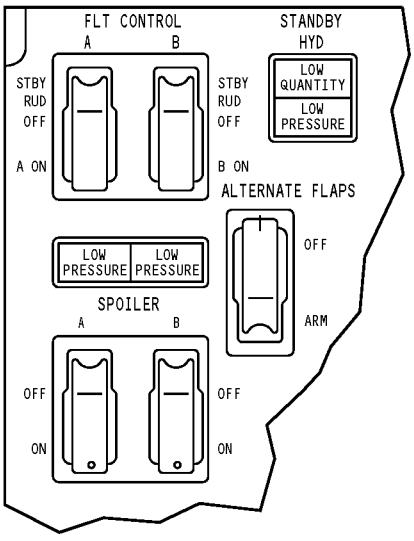
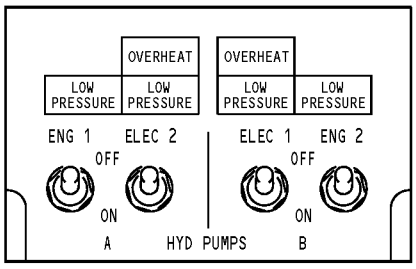


FLIGHT COMPARTMENT



FLIGHT CONTROLS PANEL (P5-3)

A



HYDRAULIC PUMPS PANEL (P5-8)

B

Speed Brake Power Control Switches
Figure 201/27-62-00-990-801

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TASK 27-62-00-840-801

3. Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization

(Figure 201)

A. References

Reference	Title
32-00-01-080-801	Landing Gear Downlock Pins Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Procedure

SUBTASK 27-62-00-860-005

(1) Set the ELEC 2, HYD PUMPS A and the ELEC 1, HYD PUMPS B switches on the forward overhead panel to the OFF position.

SUBTASK 27-62-00-860-006

(2) Set the SPOILER A and B switches on the forward overhead panel to the OFF position.

SUBTASK 27-62-00-080-001

(3) Remove the ground lock assemblies from the landing gear. To remove them, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

———————— END OF TASK ————————

TASK 27-62-00-800-802

4. Remove Pressure from the Speed Brake Hydraulic Systems A and B

(Figure 201, Figure 202)

A. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

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C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Procedure

SUBTASK 27-62-00-860-007

(1) Set the SPOILER A and B switches on the forward overhead panel to the OFF position.

SUBTASK 27-62-00-860-008

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 27-62-00-860-009

(3) Set the ELEC 2, HYD PUMPS A and the ELEC 1, HYD PUMPS B switches on the forward overhead panel to the OFF position.

SUBTASK 27-62-00-870-001

(4) Operate the rudder pedals to decrease the remaining hydraulic system pressure.

SUBTASK 27-62-00-860-010

(5) If it is necessary to open a hydraulic line, you must release pressure from the reservoir for the applicable hydraulic system. To release it, do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-62-00-480-002

(6) Install the flight controls hydraulic module locks (Figure 202):

(a) Disconnect the electrical connector from the spoiler shutoff valve at the flight controls hydraulic modules A and B.

(b) Put the manual override lever at the two spoiler shutoff valves in the position 2 (OFF position).

(c) Install the lock, SPL-1675 on the two spoiler shutoff valves.

1) Install the lockpins.

END OF TASK

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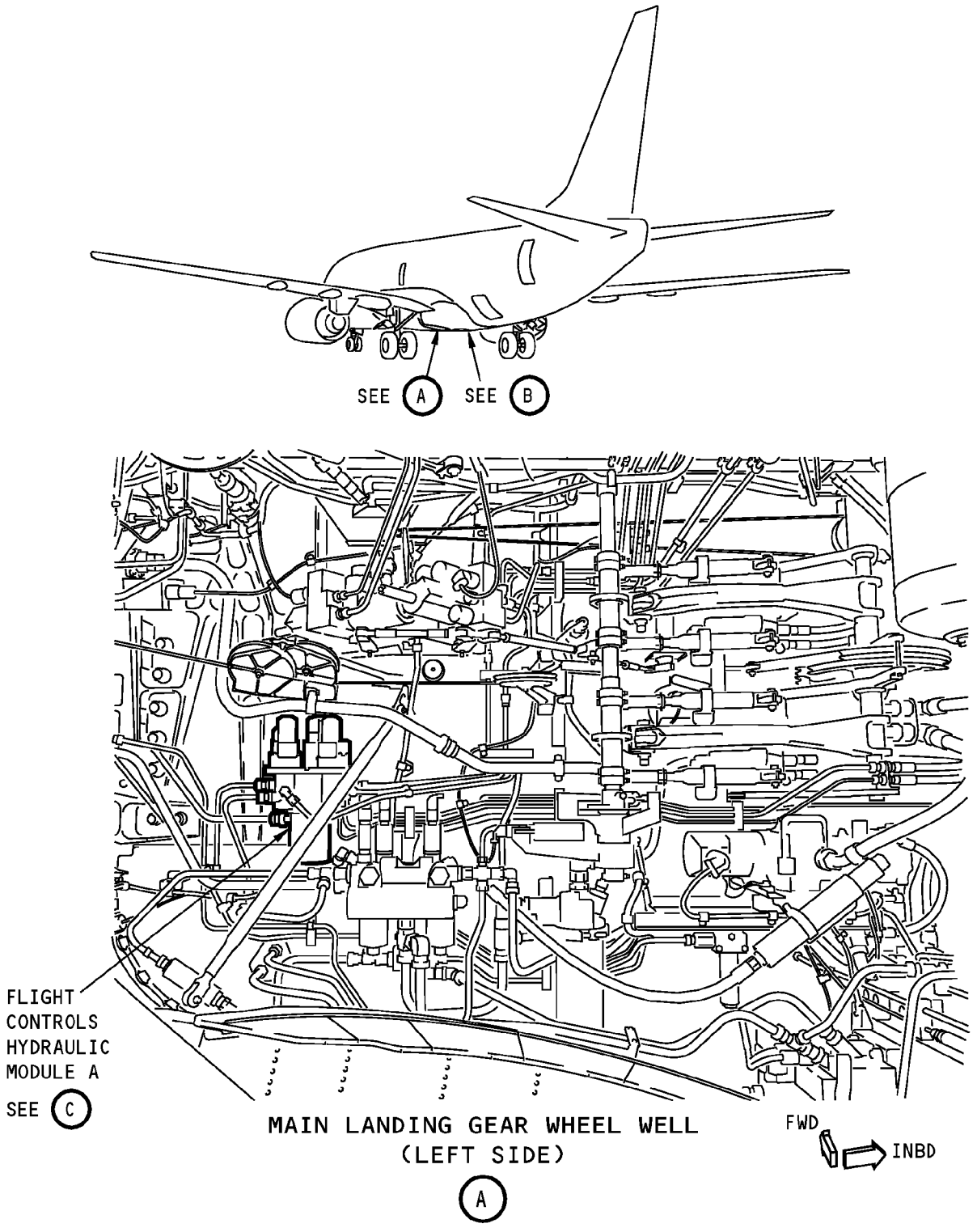

Flight Controls Hydraulic Module Lock Installation
Figure 202 (Sheet 1 of 3)/27-62-00-990-802

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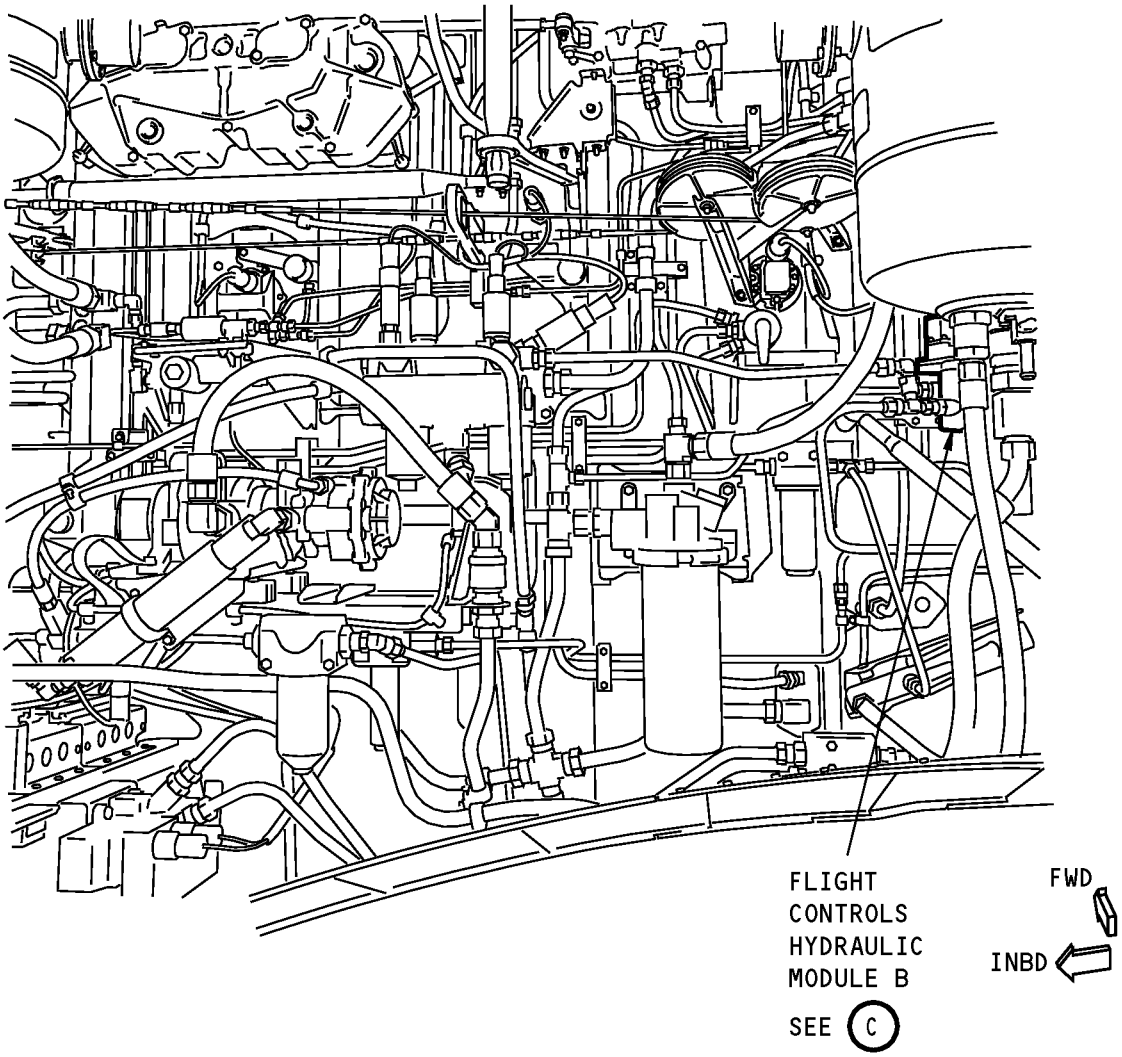

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

B

Flight Controls Hydraulic Module Lock Installation
Figure 202 (Sheet 2 of 3)/27-62-00-990-802

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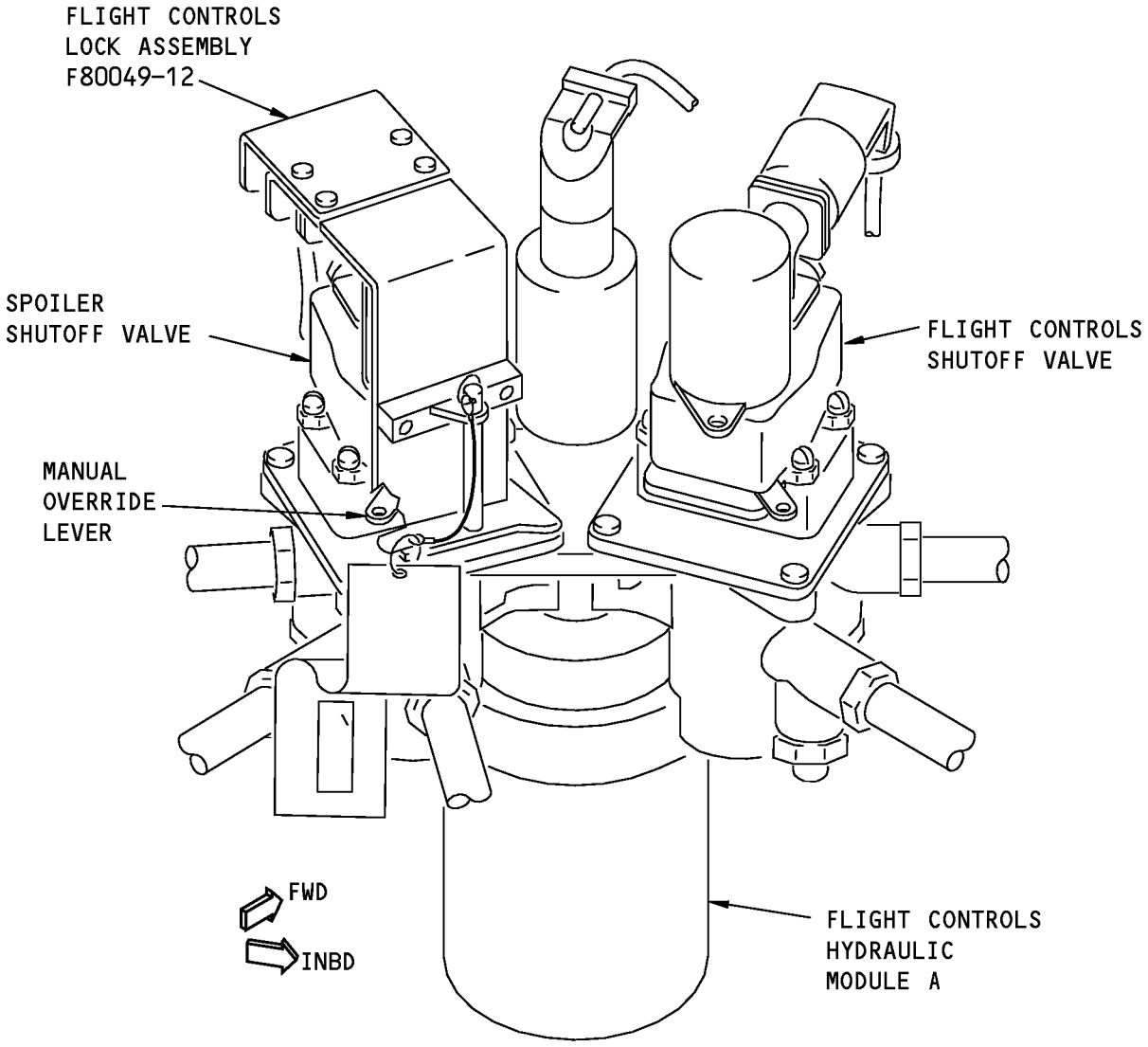

FLIGHT CONTROLS HYDRAULIC MODULE A
(MODULE B IS EQUIVALENT)

C

Flight Controls Hydraulic Module Lock Installation
Figure 202 (Sheet 3 of 3)/27-62-00-990-802

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TASK 27-62-00-840-802

5. Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal

(Figure 201, Figure 202)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Procedure

SUBTASK 27-62-00-080-002

(1) Remove the flight controls hydraulic module locks from the spoiler shutoff valves.

(a) Remove the lockpins.

(b) Remove the lock, SPL-1675 from the two spoiler shutoff valves.

(c) Put the manual override lever at the two spoiler shutoff valves in the position 1 (ON position).

(d) Before you connect the electrical connector, examine the connector for corrosion.

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WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(e) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(f) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(g) Connect the electrical connector to the spoiler shutoff valve at the spoiler hydraulic modules A and B.

SUBTASK 27-62-00-860-011

(2) Set the SPOILER A and B switches on the forward overhead panel to the ON position.

SUBTASK 27-62-00-860-012

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	12	C00204	FLIGHT CONTROL SHUTOFF VALVES SPOILER

SUBTASK 27-62-00-860-013

(4) Make sure the hydraulic reservoirs are full. To fill them, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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SPEED BRAKE CONTROL SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Speed Brake Control System Operational Test

HAP 037-054

(2) Speed Brake Lever Stop Test

HAP ALL

(3) Speed Brake Control Lever Adjustment

(4) Speed Brake Control Cable Adjustment

(5) Ground Spoiler Control Valve Adjustment

(6) Ground Spoiler Interlock Valve Adjustment

(7) Ground Spoiler Interlock Valve Adjustment (Alternate Method)

(8) Ground Spoiler Adjustment

(9) Speed Brake Lever Friction Test

(10) Spoiler Operation Time Test

(11) Speed Brake Throttle Switch Test

(12) Engine Throttle Switch (S1) Functional Test

(13) Speed Brake Antiskid Inoperative Test

(14) Speed Brake Squat Switch Test

(15) Speed Brake RTO Test

(16) Speed Brake Extended Light Test

(17) Speed Brake Lever Brake Backlash Adjustment

HAP 037-054

(18) Speed Brake Solenoid Operated Valve Relay Continuity Test

(19) Speed Brake Solenoid Operated Valve Test

HAP ALL

TASK 27-62-00-710-801

2. Speed Brake Control System Operational Test

A. General

(1) You can use this test to quickly give the status of the speed brake control system. You can use this test without special tools or equipment.

B. References

Reference	Title
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

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C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Procedure

SUBTASK 27-62-00-710-001

(1) Do the speed brake control system operational test:

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

HAP 037-054

(b) Move the flap lever to the FLAPS 1 detent.

HAP ALL

(c) Move the speed brake lever from the DOWN position to the UP position.

1) Make sure the speed brakes move to the UP position.

(d) Move the speed brake lever from the UP position to the DOWN position.

1) Make sure the speed brakes move to the retracted position.

(e) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

——————— END OF TASK ———————

HAP 037-054

TASK 27-62-00-710-802

3. Speed Brake Lever Stop Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Use this procedure to verify the Speed Brake Lever Stop operation.

B. References

Reference	Title
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

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HAP 037-054 (Continued)

D. Procedure

SUBTASK 27-62-00-860-225

WARNING: MAKE SURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-00-860-226

(2) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	4	C01662	SPOILER PCU SOV SYS A

SUBTASK 27-62-00-860-227

(3) Move the flaps to the UP position (stop is now engaged).

SUBTASK 27-62-00-730-002

(4) Verify the flaps are at the UP position.

SUBTASK 27-62-00-860-228

(5) Move the speed brake lever aft to the stop.

SUBTASK 27-62-00-730-003

(6) Verify the speed brake lever did not move beyond the FLIGHT position.

SUBTASK 27-62-00-860-247

(7) Move the speed brake lever to the ARM position.

SUBTASK 27-62-00-860-229

(8) Move the flap lever to the FLAPS 1 detent.

SUBTASK 27-62-00-730-004

(9) Verify the flaps move to the FLAPS 1 position (stop is not engaged).

SUBTASK 27-62-00-860-230

(10) Move the speed brake lever to the FULL UP position.

SUBTASK 27-62-00-730-005

(11) Verify the speed brake lever is in the FULL UP position.

E. Put the Airline Back to its Usual Condition

SUBTASK 27-62-00-860-231

(1) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

HAP ALL

END OF TASK

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TASK 27-62-00-820-801

4. Speed Brake Control Lever Adjustment

(Figure 501)

A. General

(1) Use this procedure to adjust the speed brake control lever [8].

B. References

Reference	Title
27-61-00-820-808	Spoiler Position Sensor Adjustment (P/B 501)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-34-400-802	Speed Brake Armed Switch and Speed Brake Handle Position Switch Adjustment (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Procedure

HAP 037-054

SUBTASK 27-62-00-866-005

(1) Move the flaps to FLAPS 1 to disengage the speed brake lever stop.

WARNING: KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

(b) Move the flap lever to the FLAPS 1 detent.

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HAP 037-054 (Continued)

(c) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

HAP ALL

SUBTASK 27-62-00-820-001

(2) Adjust the speed brake control lever [8]:

(a) Move the speed brake lever [8] to the DOWN position.

(b) Make sure the lever latch is in the DOWN detent on the control stand.

(c) Open this access panel:

Number	Name/Location
112A	Forward Access Door

(d) Make sure you can easily install the rig pin S/B-1 from the rig pin kit, SPL-1585 through the forward drum quadrant.

(e) Adjust the lower control rod [18] if you cannot easily install the rig pin:

1) Remove the lower cover plate [11].

a) Remove the screws [9] and washers [10].

2) Remove the nut [16], washer [15] and bolt [14] to disconnect the top end of the lower control rod [18] from the idler link [13].

3) Install the rig pin S/B-1 from the rig pin kit, SPL-1585.

4) Loosen the checknut [17] and adjust the lower control rod [18] end until you can install the bolt [14].

5) Install the bolt [14], washer [15] and nut [16] to attach the lower control rod [18] end to the idler link [13].

6) Tighten the checknut [17] on the rod end.

7) Make sure you can see the rod end through the inspection hole on the lower control rod [18].

8) Remove the rig pin S/B-1 from the rig pin kit, SPL-1585.

(f) Make sure the pointer on the aft face of the speed brake lever [8] aligns with the detents on the indicator plate:

1) Move the speed brake lever [8] to the DOWN position.

2) Make sure the pointer aligns with the center of the DOWN marker on the indicator plate.

3) Move the speed brake lever [8] to the ARMED position.

4) Make sure the pointer aligns with the center of the ARMED marker on the indicator plate.

5) Move the speed brake lever [8] to the FLIGHT DETENT position.

6) Make sure the pointer aligns with the center of the FLIGHT DETENT marker on the indicator plate.

7) Move the speed brake lever [8] to the UP position.

8) Make sure the pointer aligns with the center of the UP marker on the indicator plate.

9) Move the speed brake lever [8] to the DOWN position.

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(g) If the pointer does not align with the markers on the indicator plate or, adjust the speed brake lever [8]:

1) Make sure the lever latch is in the DOWN detent on the control stand.

2) If the pointer on the speed brake [8] lever does not align with the center of the DOWN detent, adjust the positions of the indicator plate:

a) Loosen the screws [19] that attach the indicator plate to the control stand.

b) Move the indicator plate until the center of the DOWN position aligns with the pointer on the speed brake lever [8].

c) Tighten the screws [19] on the indicator plate.

3) Do this task: Spoiler Position Sensor Adjustment, TASK 27-61-00-820-808.

4) Do this task: Speed Brake Armed Switch and Speed Brake Handle Position Switch Adjustment, TASK 27-62-34-400-802.

5) Move the speed brake lever [8] aft until the roller [6] is in the ARMED detent on the cam.

6) Make sure the pointer aligns with the ARMED indicator on the indicator plate.

7) If the pointer does not align, adjust the indicator plate with the speed brake lever [8] in the DOWN position again.

8) Move the speed brake lever aft until the roller [6] is in the flight detent on the cam.

9) Make sure the pointer aligns with the FLIGHT DETENT indicator on indicator plate.

10) If the pointer does not align, adjust the position of the indicator plate with the speed brake lever [8] in the DOWN position again.

(h) Install the lower cover plate [11].

1) Install the screws [9] and washers [10].

(i) Close this access panel:

Number	Name/Location
112A	Forward Access Door

HAP 037-054

SUBTASK 27-62-00-866-006

(3) Retract the flaps.

WARNING: KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

(b) Move the flap lever to the FLAPS UP position.

(c) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

HAP ALL

——————— END OF TASK ———————

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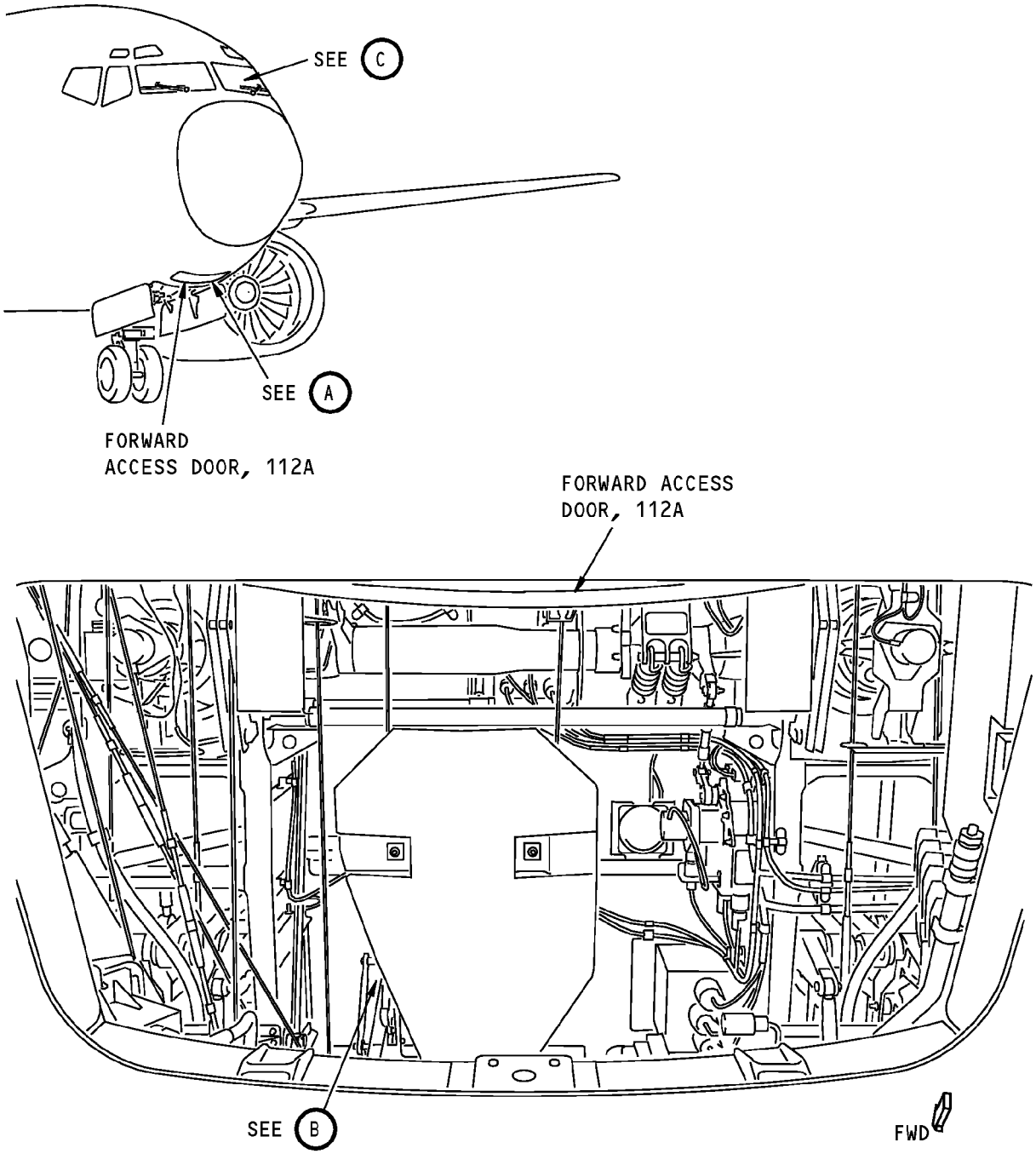

Speedbrake Control Lever Adjustment
Figure 501 (Sheet 1 of 5)/27-62-00-990-803

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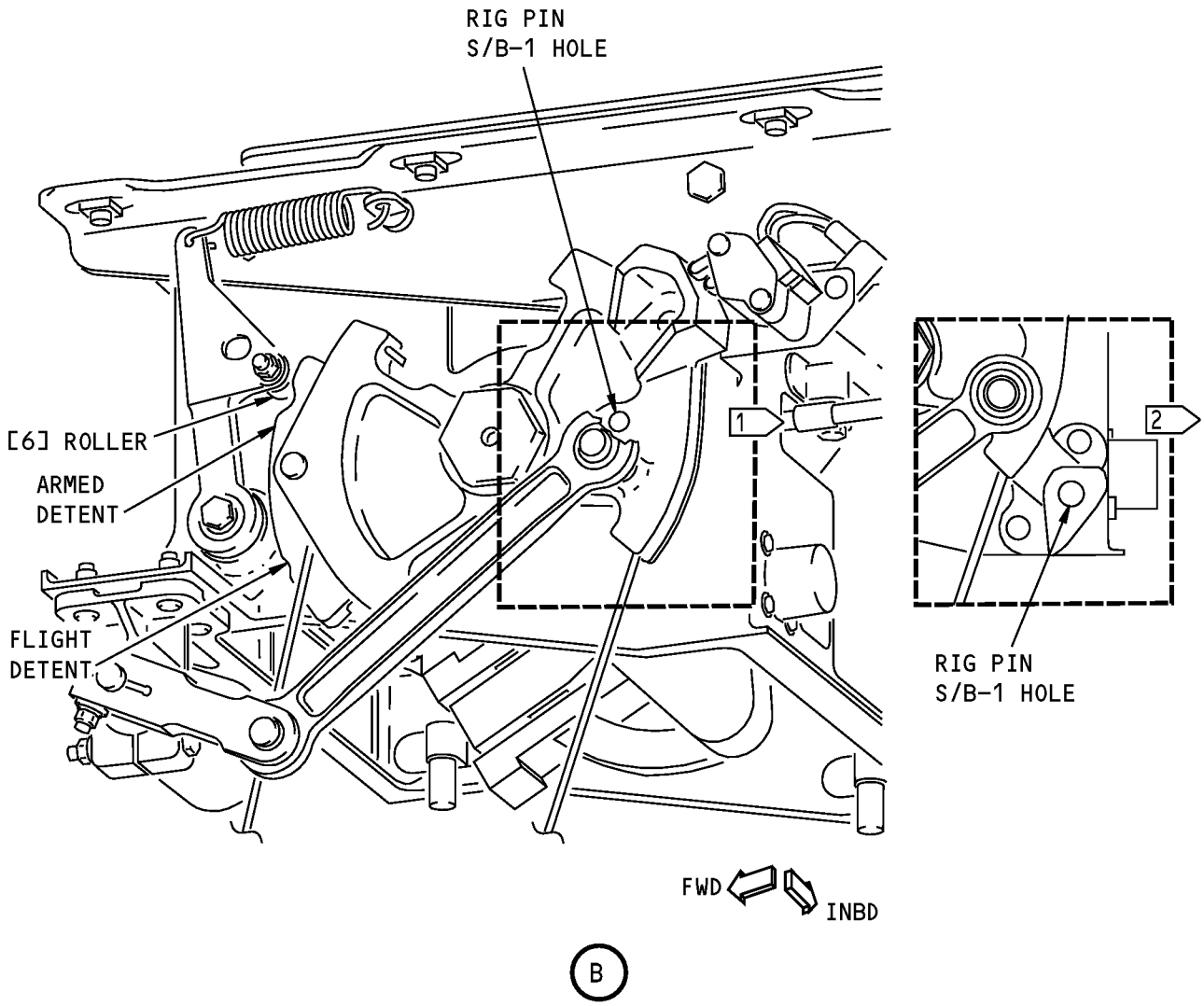

1 AIRPLANES WITH THE -3 FORWARD QUADRANT.

2 AIRPLANES WITH THE -5 FORWARD QUADRANT.

Speedbrake Control Lever Adjustment
Figure 501 (Sheet 2 of 5)/27-62-00-990-803

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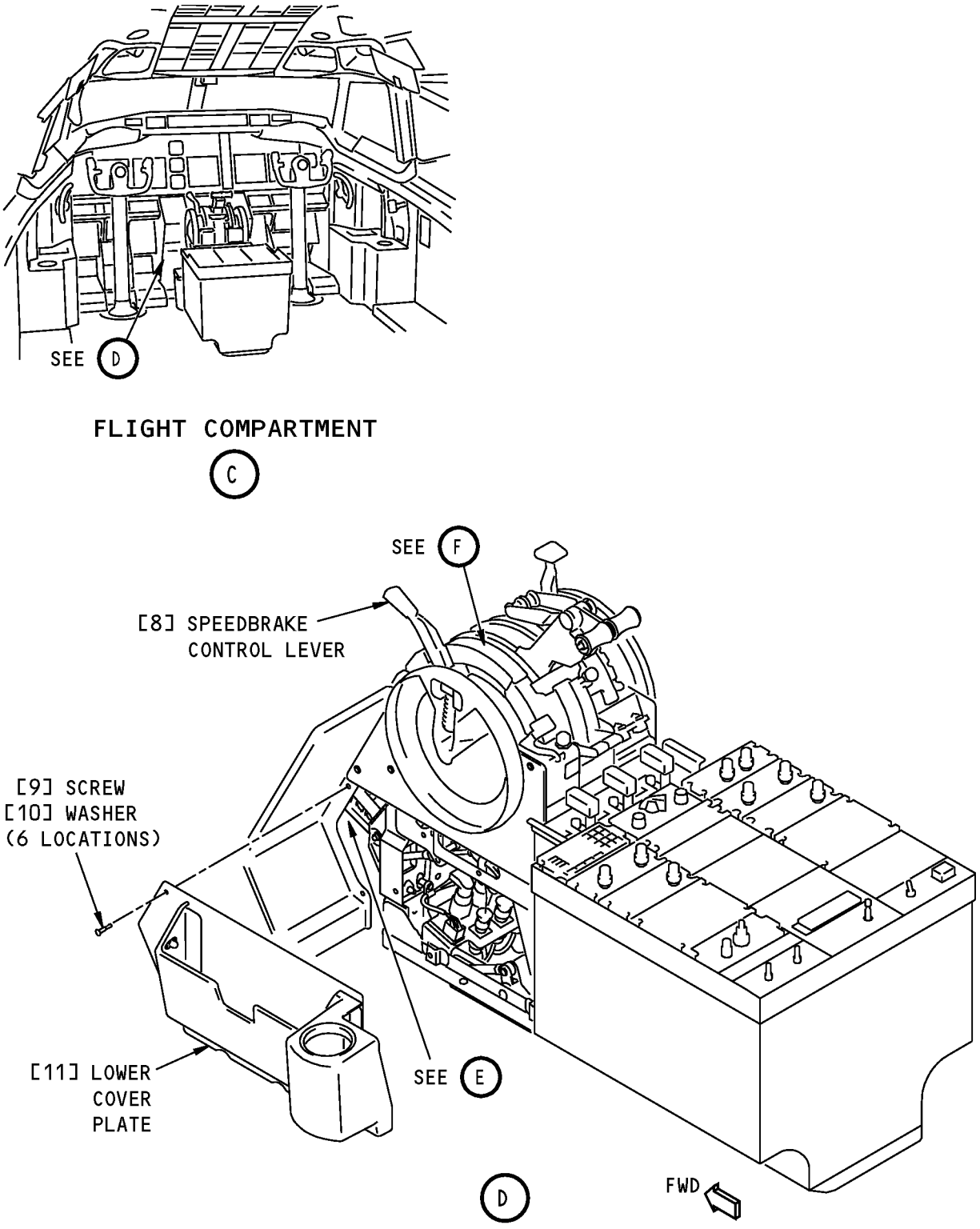

Speedbrake Control Lever Adjustment
Figure 501 (Sheet 3 of 5)/27-62-00-990-803

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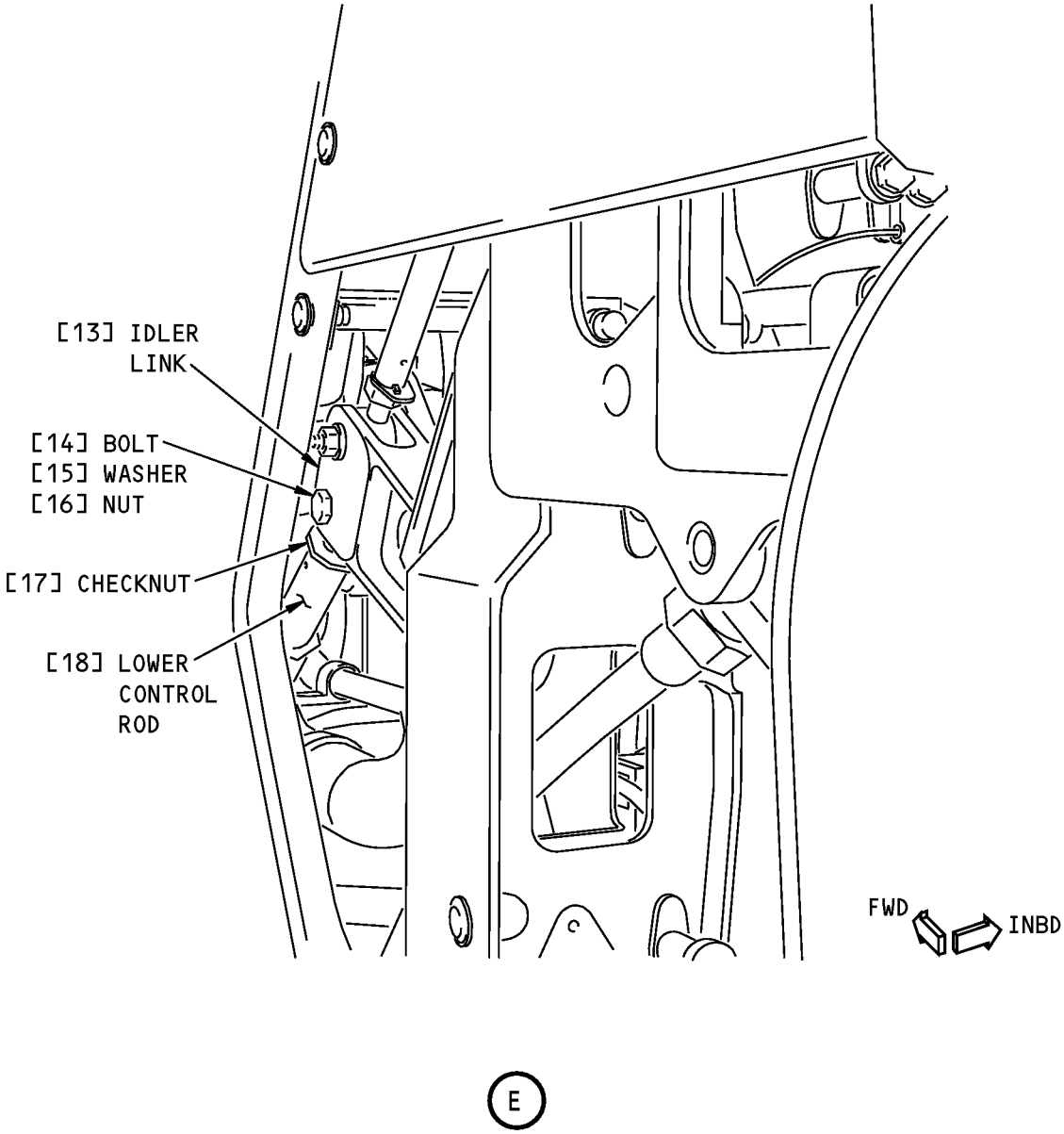

Speedbrake Control Lever Adjustment
Figure 501 (Sheet 4 of 5)/27-62-00-990-803

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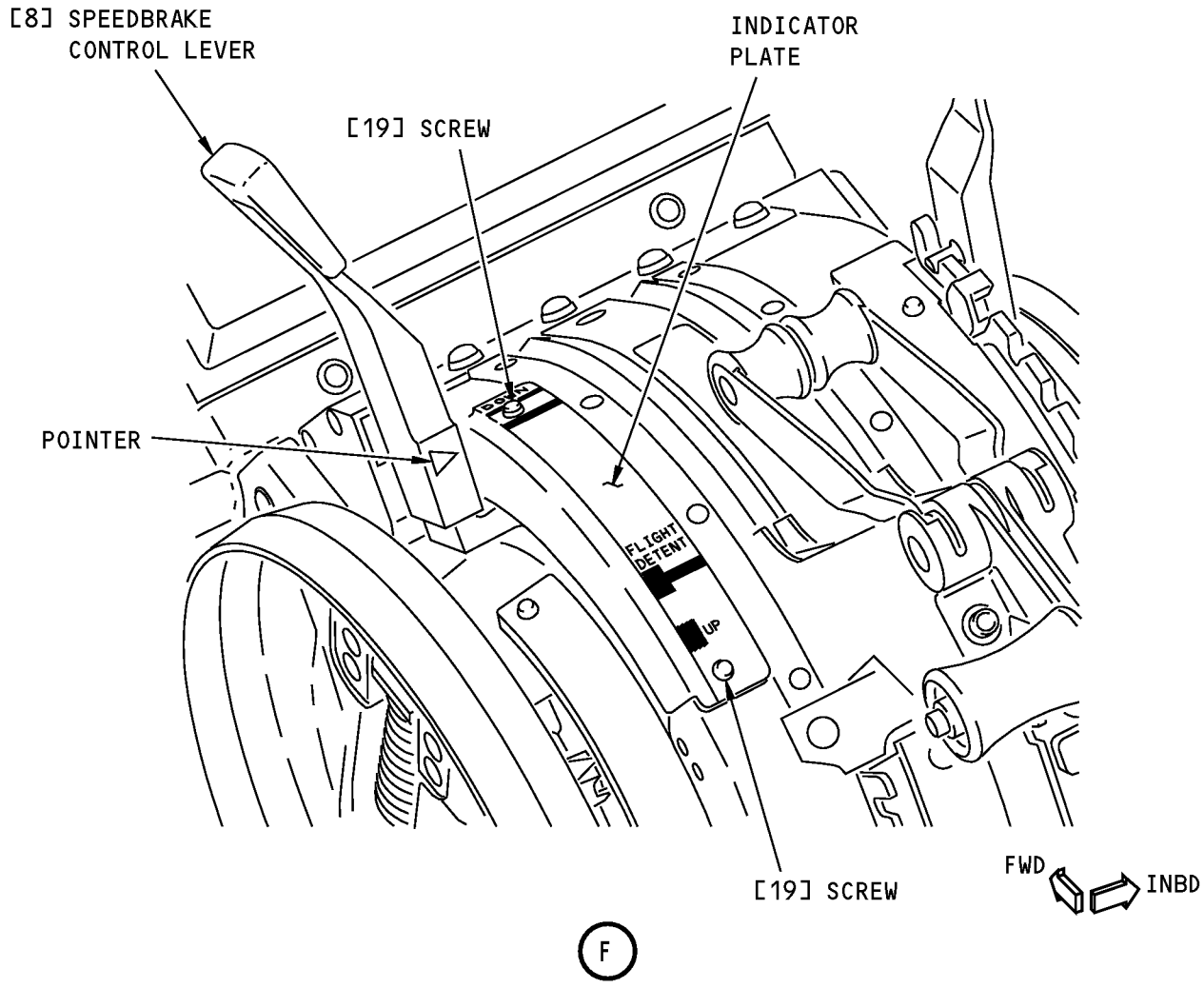

Speedbrake Control Lever Adjustment
Figure 501 (Sheet 5 of 5)/27-62-00-990-803

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TASK 27-62-00-820-802

5. Speed Brake Control Cable Adjustment

(Figure 501, Figure 502)

A. General

(1) Use this procedure to adjust the speed brake control cables SBA [35] and SBB [34].

(2) Before you do cable adjustment, permit a minimum of one hour at a constant ambient temperature of ±5°F (+/- 2.8°C) for the airframe temperature to become stable.

(a) The cable tension values will not be correct when there are temperature differences along the cable run.

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1554	Tensiometer - Cable (40-600 LB) (Part #: ACM-600, Supplier: 13331, A/P Effectivity: 737-ALL) (Part #: T5-8008-106-00, Supplier: 0N8U4, A/P Effectivity: 737-ALL) (Part #: T60-1001-C9-1A, Supplier: 0N8U4, A/P Effectivity: 737-ALL)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Procedure

SUBTASK 27-62-00-820-002

(1) Adjust the speed brake control cables SBA [35] and SBB [34]:

(a) Move the speed brake lever through one full cycle.

(b) Move the speed brake lever to the DOWN position.

(c) Open this access panel:

Number	Name/Location
112A	Forward Access Door

(d) Install the rig pin S/B-1 from rig pin kit, SPL-1585 in the forward drum (Figure 501).

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(e) Make sure you can easily install the rig pin S/B-2 from rig pin kit, SPL-1585 in the input quadrant for the speed brake.

(f) Use the 40 - 600 lb cable tensiometer, COM-1554 to make sure the tension in the cables SBA [35] and SBB [34] is in the limit of the High and Low tensions shown below (Table 501).

Table 501/27-62-00-993-809

Temp Deg F (Deg C)	Cable Rigging Load lbs (newtons)	
	SBA and SBB	
	High	Low
110 (43.3)	128 (569)	118 (525)
109 (42.8)	128 (569)	118 (525)
108 (42.2)	127 (565)	117 (520)
107 (41.7)	127 (565)	117 (520)
106 (41.1)	126 (560)	116 (516)
105 (40.6)	126 (560)	116 (516)
104 (40.0)	125 (556)	115 (512)
103 (39.4)	125 (556)	115 (512)
102 (38.9)	124 (552)	114 (507)
101 (38.3)	124 (552)	114 (507)
100 (37.8)	124 (552)	114 (507)
99 (37.2)	123 (547)	113 (503)
98 (36.7)	123 (547)	113 (503)
97 (36.1)	122 (543)	112 (498)
96 (35.6)	122 (543)	112 (498)
95 (35.0)	121 (538)	111 (494)
94 (34.4)	121 (538)	111 (494)
93 (33.9)	120 (534)	110 (489)
92 (33.3)	120 (534)	110 (489)
91 (32.8)	119 (529)	109 (485)
90 (32.2)	119 (529)	109 (485)
89 (31.7)	119 (529)	109 (485)
88 (31.1)	118 (525)	108 (480)
87 (30.6)	118 (525)	108 (480)
86 (30.0)	117 (520)	107 (476)
85 (29.4)	117 (520)	107 (476)
84 (28.9)	116 (516)	106 (472)

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(Continued)

Temp Deg F (Deg C)	Cable Rigging Load lbs (newtons)	
	SBA and SBB	
	High	Low
83 (28.3)	116 (516)	106 (472)
82 (27.8)	115 (512)	105 (467)
81 (27.2)	115 (512)	105 (467)
80 (26.7)	115 (512)	105 (467)
79 (26.1)	114 (507)	104 (463)
78 (25.6)	114 (507)	104 (463)
77 (25.0)	113 (503)	103 (458)
76 (24.4)	113 (503)	103 (458)
75 (23.9)	112 (498)	102 (454)
74 (23.3)	112 (498)	102 (454)
73 (22.8)	111 (494)	101 (449)
72 (22.2)	111 (494)	101 (449)
71 (21.7)	110 (489)	100 (445)
70 (21.1)	110 (489)	100 (445)
69 (20.6)	110 (489)	100 (445)
68 (20.0)	109 (485)	99 (440)
67 (19.4)	109 (485)	99 (440)
66 (18.9)	108 (480)	98 (436)
65 (18.3)	108 (480)	98 (436)
64 (17.8)	108 (480)	98 (436)
63 (17.2)	107 (476)	97 (431)
62 (16.7)	107 (476)	97 (431)
61 (16.1)	106 (472)	96 (427)
60 (15.6)	106 (472)	96 (427)
59 (15.0)	105 (467)	95 (423)
58 (14.4)	105 (467)	95 (423)
57 (13.9)	105 (467)	95 (423)
56 (13.3)	104 (463)	94 (418)
55 (12.8)	104 (463)	94 (418)
54 (12.2)	103 (458)	93 (414)

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(Continued)

Temp Deg F (Deg C)	Cable Rigging Load lbs (newtons)	
	SBA and SBB	
	High	Low
53 (11.7)	103 (458)	93 (414)
52 (11.1)	103 (458)	93 (414)
51 (10.6)	102 (454)	92 (409)
50 (10.0)	102 (454)	92 (409)
49 (9.4)	101 (449)	91 (405)
48 (8.9)	101 (449)	91 (405)
47 (8.3)	101 (449)	91 (405)
46 (7.8)	100 (445)	90 (400)
45 (7.2)	100 (445)	90 (400)
44 (6.7)	99 (440)	89 (396)
43 (6.1)	99 (440)	89 (396)
42 (5.6)	99 (440)	89 (396)
41 (5.0)	98 (436)	88 (391)
40 (4.4)	98 (436)	88 (391)
39 (3.9)	97 (431)	87 (387)
38 (3.3)	97 (431)	87 (387)
37 (2.8)	96 (427)	86 (383)
36 (2.2)	96 (427)	86 (383)
35 (1.7)	96 (427)	86 (383)
34 (1.1)	95 (423)	85 (378)
33 (0.6)	95 (423)	85 (378)
32 (0.0)	94 (418)	84 (374)
31 (-0.6)	94 (418)	84 (374)
30 (-1.1)	94 (418)	84 (374)
29 (-1.7)	93 (414)	83 (369)
28 (-2.2)	93 (414)	83 (369)
27 (-2.8)	92 (409)	82 (365)
26 (-3.3)	92 (409)	82 (365)
25 (-3.9)	92 (409)	82 (365)
24 (-4.4)	91 (405)	81 (360)

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(Continued)

Temp Deg F (Deg C)	Cable Rigging Load lbs (newtons)	
	SBA and SBB	
	High	Low
23 (-5.0)	91 (405)	81 (360)
22 (-5.6)	90 (400)	80 (356)
21 (-6.1)	90 (400)	80 (356)
20 (-6.7)	90 (400)	80 (356)
19 (-7.2)	89 (396)	79 (351)
18 (-7.8)	89 (396)	79 (351)
17 (-8.3)	88 (391)	78 (347)
16 (-8.9)	88 (391)	78 (347)
15 (-9.4)	87 (387)	77 (343)
14 (-10.0)	87 (387)	77 (343)
13 (-10.6)	87 (387)	77 (343)
12 (-11.1)	86 (383)	76 (338)
11 (-11.7)	86 (383)	76 (338)
10 (-12.2)	85 (378)	75 (334)
9 (-12.8)	85 (378)	75 (334)
8 (-13.3)	85 (378)	75 (334)
7 (-13.9)	84 (374)	74 (329)
6 (-14.4)	84 (374)	74 (329)
5 (-15.0)	83 (369)	73 (325)
4 (-15.6)	83 (369)	73 (325)
3 (-16.1)	83 (369)	73 (325)
2 (-16.7)	82 (365)	72 (320)
1 (-17.2)	82 (365)	72 (320)
0 (-17.8)	81 (360)	71 (316)
-1 (-18.3)	81 (360)	71 (316)
-2 (-18.9)	80 (356)	70 (311)
-3 (-19.4)	80 (356)	70 (311)
-4 (-20.0)	80 (356)	70 (311)
-5 (-20.6)	79 (351)	69 (307)
-6 (-21.1)	79 (351)	69 (307)

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(Continued)

Temp Deg F (Deg C)	Cable Rigging Load lbs (newtons)	
	SBA and SBB	
	High	Low
-7 (-21.7)	78 (347)	68 (302)
-8 (-22.2)	78 (347)	68 (302)
-9 (-22.8)	78 (347)	68 (302)
-10 (-23.3)	77 (343)	67 (298)
-11 (-23.9)	77 (343)	67 (298)
-12 (-24.4)	76 (338)	66 (294)
-13 (-25.0)	76 (338)	66 (294)
-14 (-25.6)	76 (338)	66 (294)
-15 (-26.1)	75 (334)	65 (289)
-16 (-26.7)	75 (334)	65 (289)
-17 (-27.2)	74 (329)	64 (285)
-18 (-27.8)	74 (329)	64 (285)
-19 (-28.3)	74 (329)	64 (285)
-20 (-28.9)	73 (325)	63 (280)
-21 (-29.4)	73 (325)	63 (280)
-22 (-30.0)	72 (320)	62 (276)
-23 (-30.6)	72 (320)	62 (276)
-24 (-31.1)	71 (316)	61 (271)
-25 (-31.7)	71 (316)	61 (271)
-26 (-32.2)	71 (316)	61 (271)
-27 (32.8)	70 (311)	60 (267)
-28 (-33.3)	70 (311)	60 (267)
-29 (-33.9)	69 (307)	59 (262)
-30 (-34.4)	69 (307)	59 (262)
-31 (-35.0)	69 (307)	59 (262)
-32 (-35.6)	68 (302)	58 (258)
-33 (-36.1)	68 (302)	58 (258)
-34 (-36.7)	67 (298)	57 (254)
-35 (-37.2)	67 (298)	57 (254)
-36 (-37.8)	67 (298)	57 (254)

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(Continued)

Temp Deg F (Deg C)	Cable Rigging Load lbs (newtons)	
	SBA and SBB	
	High	Low
-37 (-38.3)	66 (294)	56 (249)
-38 (-38.9)	66 (294)	56 (249)
-39 (-39.4)	65 (289)	55 (245)
-40 (-40.0)	65 (289)	55 (245)

(g) If you installed new SBA [35] or SBB [34] cables, then do these steps to stretch the cables:

1) Use the turnbuckles [31] to tighten the cables to two times the tension shown in (Table 501).
2) Remove the rig pins S/B-1 and S/B-2 from the rig pin kit, SPL-1585.
3) Move the speed brake lever through its full travel 20 times.
4) Install the rig pins S/B-1 and S/B-2 from the rig pin kit, SPL-1585.

(h) If you cannot easily install the rig pins, if the tension in the cables is not in the limits or you installed new cables, adjust the tension in the cables (Table 501):

1) Remove the locking clips from the turnbuckles [31].
2) Adjust the tension in the cables to +10/-0 pounds (+44.5/-0.0 newtons) of the tension shown in table above (Table 501).
3) Install the locking clips on the turnbuckles [31].

(i) Make sure the pressure seals in the left wheel well ceiling align with the cables SBA [35] and SBB [34].

(j) If the pressure seals do not align with the cables SBA [35] and SBB [34], adjust the position of the pressure seals:

1) Remove the bolts [32] and washers [33] that attach the pressure seals.
2) Move the pressure seals to align with the cables SBA [35] and SBB [34].
3) Install the washers [33] and bolts [32] that attach the pressure seals.

(k) Remove the rig pins S/B-1 and S/B-2 from the rig pin kit, SPL-1585.

(l) Close this access panel:

Number	Name/Location
112A	Forward Access Door

———————— END OF TASK ————————

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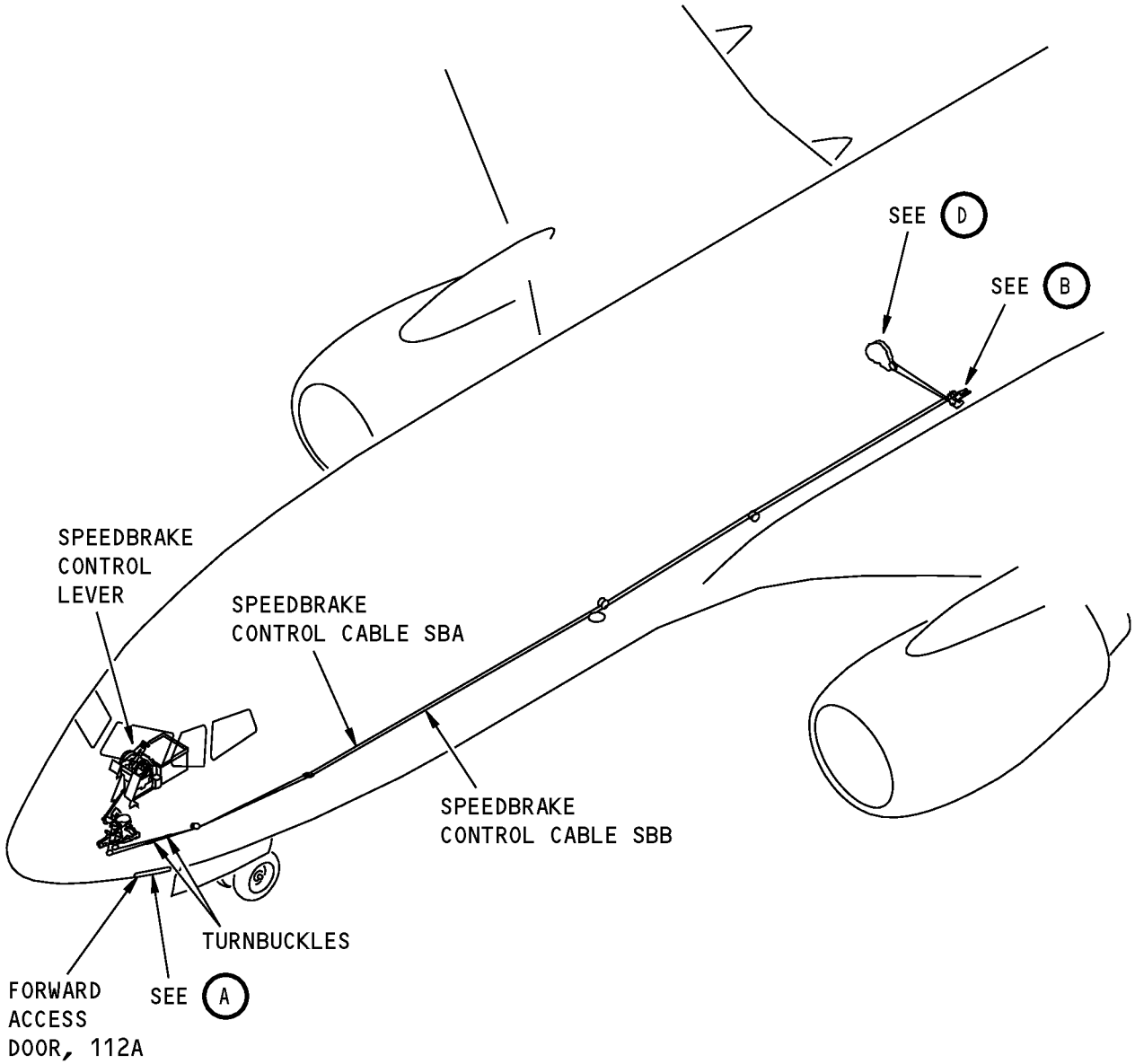

Speedbrake Control Cables Adjustment
Figure 502 (Sheet 1 of 4)/27-62-00-990-804

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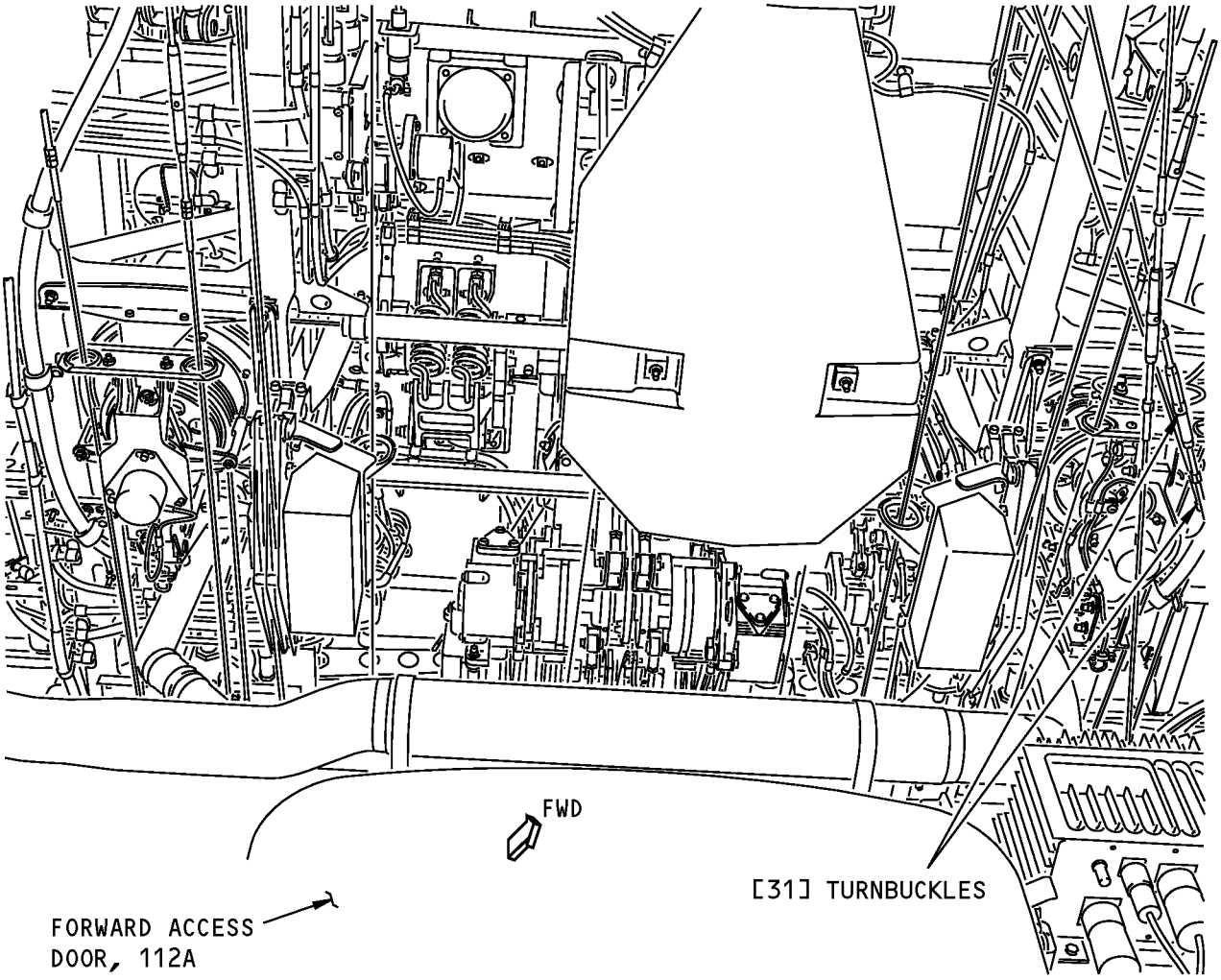

VIEW THROUGH THE FORWARD ACCESS DOOR, 112A
A

Speedbrake Control Cables Adjustment
Figure 502 (Sheet 2 of 4)/27-62-00-990-804

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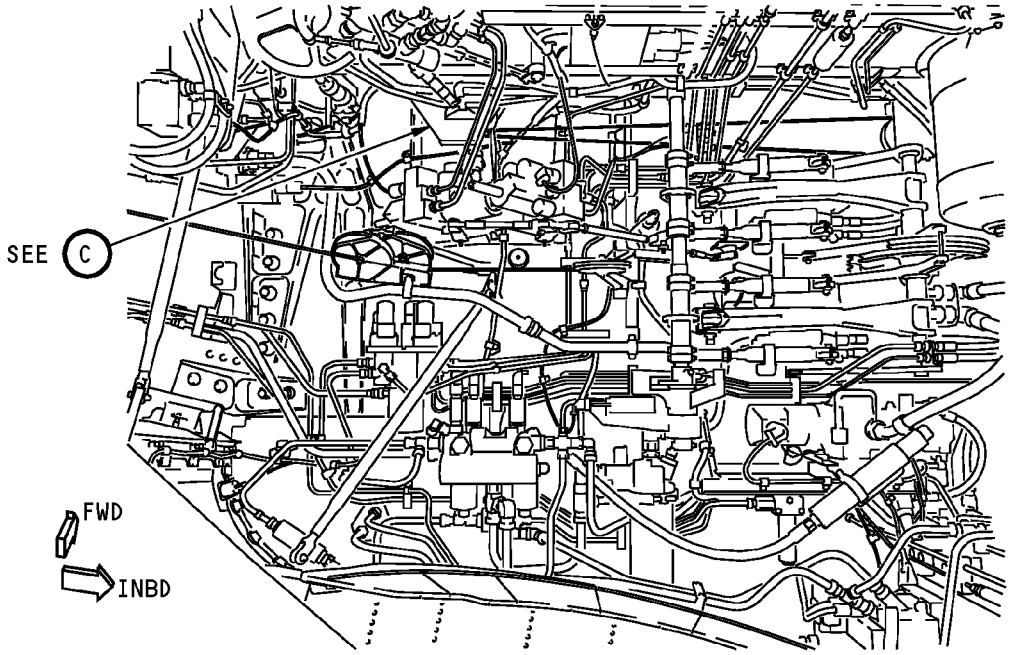
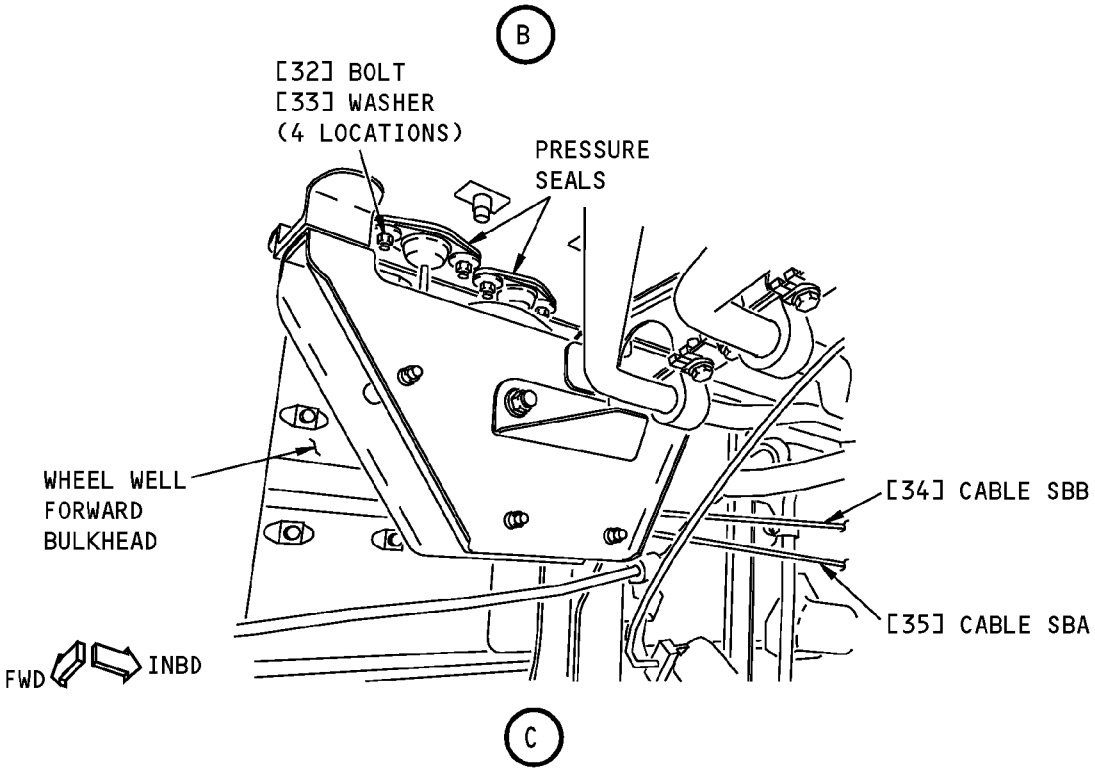


MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)



Speedbrake Control Cables Adjustment
Figure 502 (Sheet 3 of 4)/27-62-00-990-804

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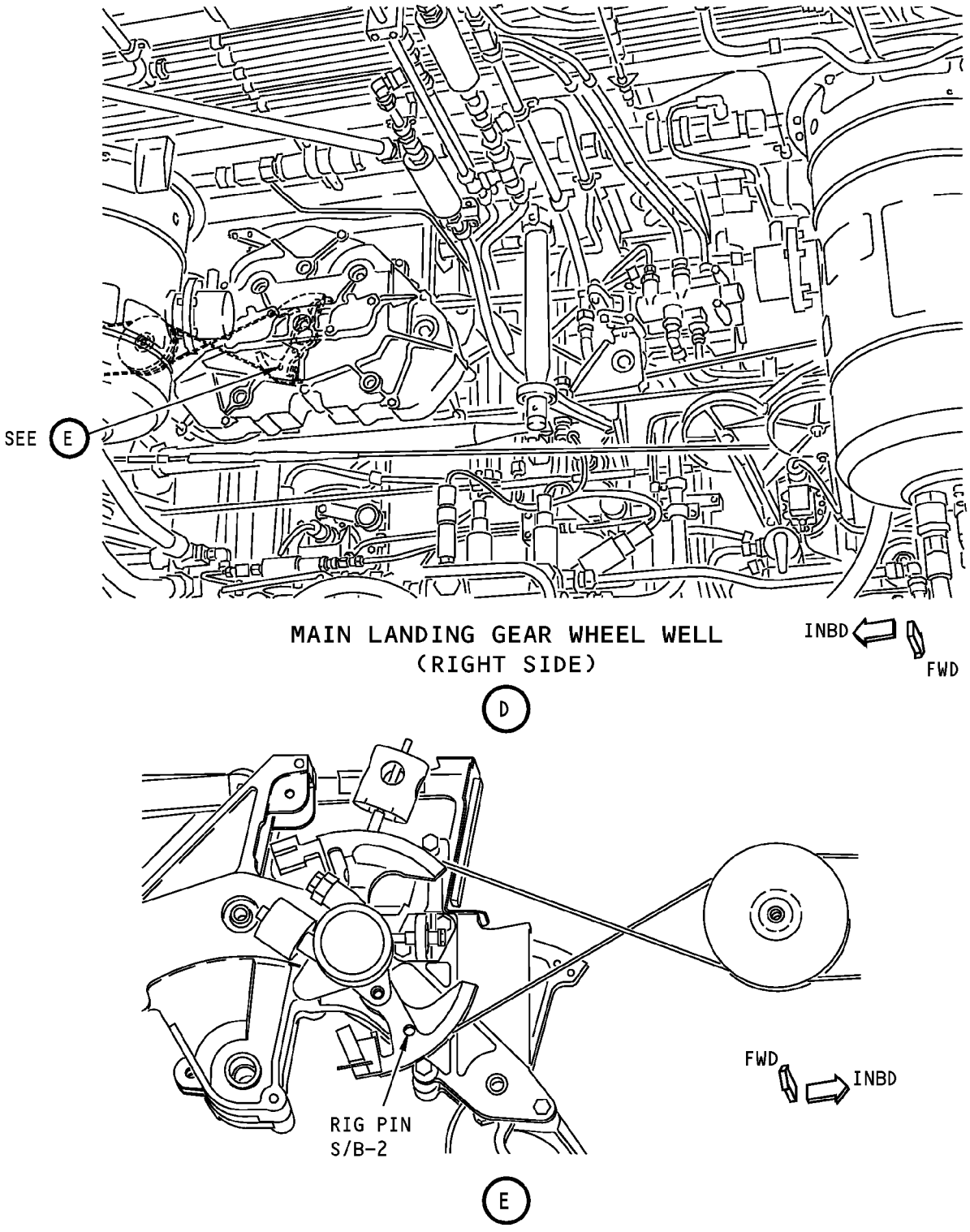

Speedbrake Control Cables Adjustment
Figure 502 (Sheet 4 of 4)/27-62-00-990-804

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TASK 27-62-00-000-801

6. Ground Spoiler Control Valve Adjustment

(Figure 503)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1232	Protractor - Digital

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Ground Spoiler Control Valve Adjustment

SUBTASK 27-62-00-860-014

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-00-860-015

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-00-210-002

(3) Examine the hydraulic connections on the ground spoiler control valve [51] for leakage.

SUBTASK 27-62-00-870-002

(4) Move the speed brake lever through more than one full cycle to bleed the hydraulic system.

SUBTASK 27-62-00-820-003

(5) Do the ground spoiler control valve [51] adjustment:

(a) Make sure the speed brake lever is in the DOWN position.

(b) Remove the bolt [52], washer [53] and nut [54] that attach the control rod [55] to the valve lever [56].

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(c) Use digital protractor, STD-1232 to position the speed brake lever to 29 +/-2 degrees aft of the DOWN position.

NOTE: 29 +/-2 degrees is equivalent to 2.78 +/-0.20 inches (70.6 +/- 5.1 mm) of the speed brake lever travel from the DOWN position measured along the top surface of the aisle stand light plate.

(d) By hand slowly move the valve lever [56] inboard until the inboard spoilers begin to move.

NOTE: The inboard spoilers will move before the outboard spoilers.

(e) Adjust the control rod [55]:

1) Loosen the checknut on the control rod [55].
2) Adjust the length of the control rod [55] until you can install the bolt [52].
3) Install the washer [53], nut [54] and bolt [52].
4) Make sure you can see the threads of the rod end through the inspection hole in the control rod [55].
5) Tighten the checknut.

(f) Move the speed brake lever to the DOWN position.

(g) Slowly move the speed brake lever aft.

(h) Make sure the inboard spoilers begin to move at speed brake lever position of 29 +/-2 degrees aft of the DOWN position.

(i) Adjust the control rod [55] if necessary.

SUBTASK 27-62-00-860-016

(6) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-00-610-001

(7) Fill the hydraulic reservoir if it is necessary. To fill, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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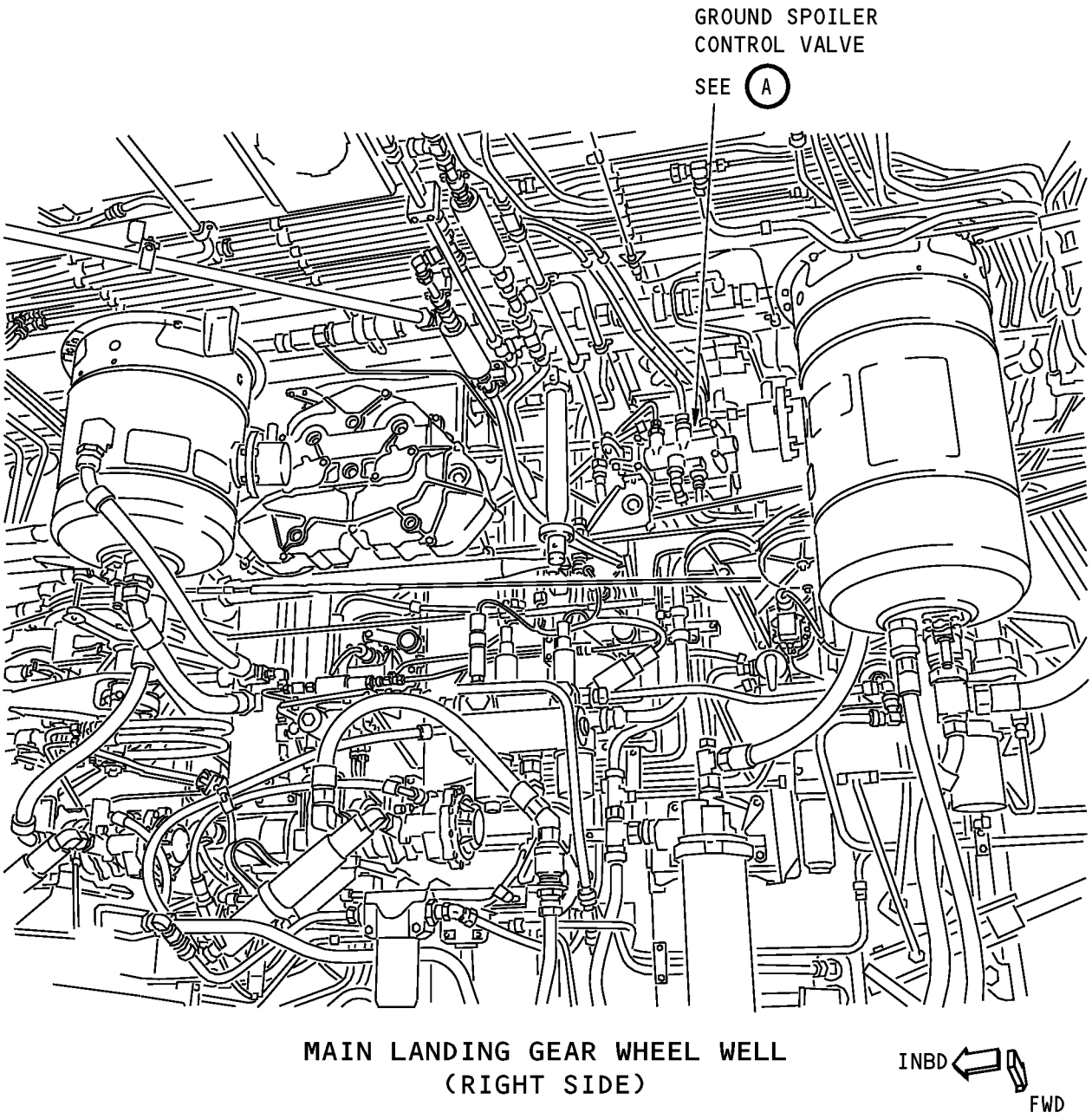

Ground Spoiler Control Valve Adjustment
Figure 503 (Sheet 1 of 2)/27-62-00-990-805

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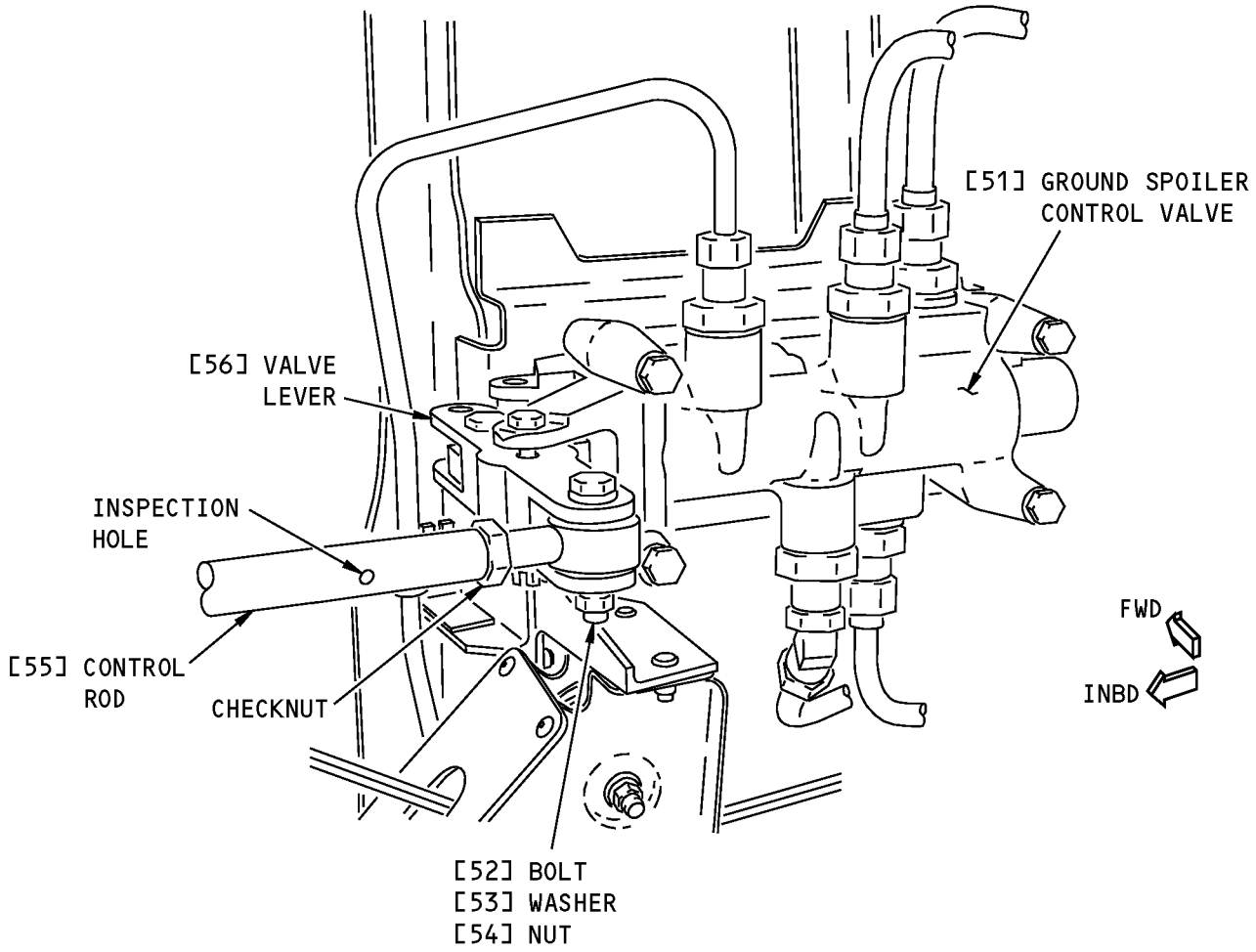

GROUND SPOILER CONTROL VALVE

A

Ground Spoiler Control Valve Adjustment
Figure 503 (Sheet 2 of 2)/27-62-00-990-805

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TASK 27-62-00-820-803

7. Ground Spoiler Interlock Valve Adjustment

(Figure 504)

A. References

Reference	Title
07-11-01-580-815	Lift the Airplane with the Jacks (P/B 201)
07-11-01-580-816	Lower the Airplane Off the Jacks (P/B 201)
27-62-61-400-805	Ground Spoiler Interlock Valve Functional Test - Jacking Method (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Ground Spoiler Interlock Valve Adjustment

SUBTASK 27-62-00-860-017

(1) Lift the airplane with the jacks until the right main gear shock strut is fully extended. To extend, do this task: Lift the Airplane with the Jacks, TASK 07-11-01-580-815.

SUBTASK 27-62-00-480-003

(2) Make sure you can easily install the rig pin S/B-3 from the rig pin kit, SPL-1585 through the yoke of the interlock valve.

SUBTASK 27-62-00-820-004

(3) If you cannot easily install the rig pin S/B-3 from the rig pin kit, SPL-1585, adjust the interlock valve cable:

(a) Remove the bolt [73], washer [74], washer [75] and nut [76] to disconnect the lower slider assembly [77] from the right main gear upper torque link.

(b) Remove lockwire from checknut.

(c) Loosen the checknut on the lower slider assembly [77].

(d) Adjust the lower slider assembly [77] until you can easily install rig pin S/B-3 from the rig pin kit, SPL-1585 through the yoke of the interlock valve.

(e) Make sure you can see the threads of the rod end through the inspection hole in the rod end.

(f) Install the bolt [73], washer [74], washer [75] and nut [76] to connect the lower slider assembly [77] to the right main gear upper torque link.

(g) Make sure rig pin S/B-3 from the rig pin kit, SPL-1585 can freely be installed.

(h) Tighten the checknut on the lower slider assembly [77].

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(i) Install lockwire on checknut.

(j) Do this task: Ground Spoiler Interlock Valve Functional Test - Jacking Method, TASK 27-62-61-400-805.

(k) Lower the airplane and remove the jacks. To lower, do this task: Lower the Airplane Off the Jacks, TASK 07-11-01-580-816.

——————— END OF TASK ———————

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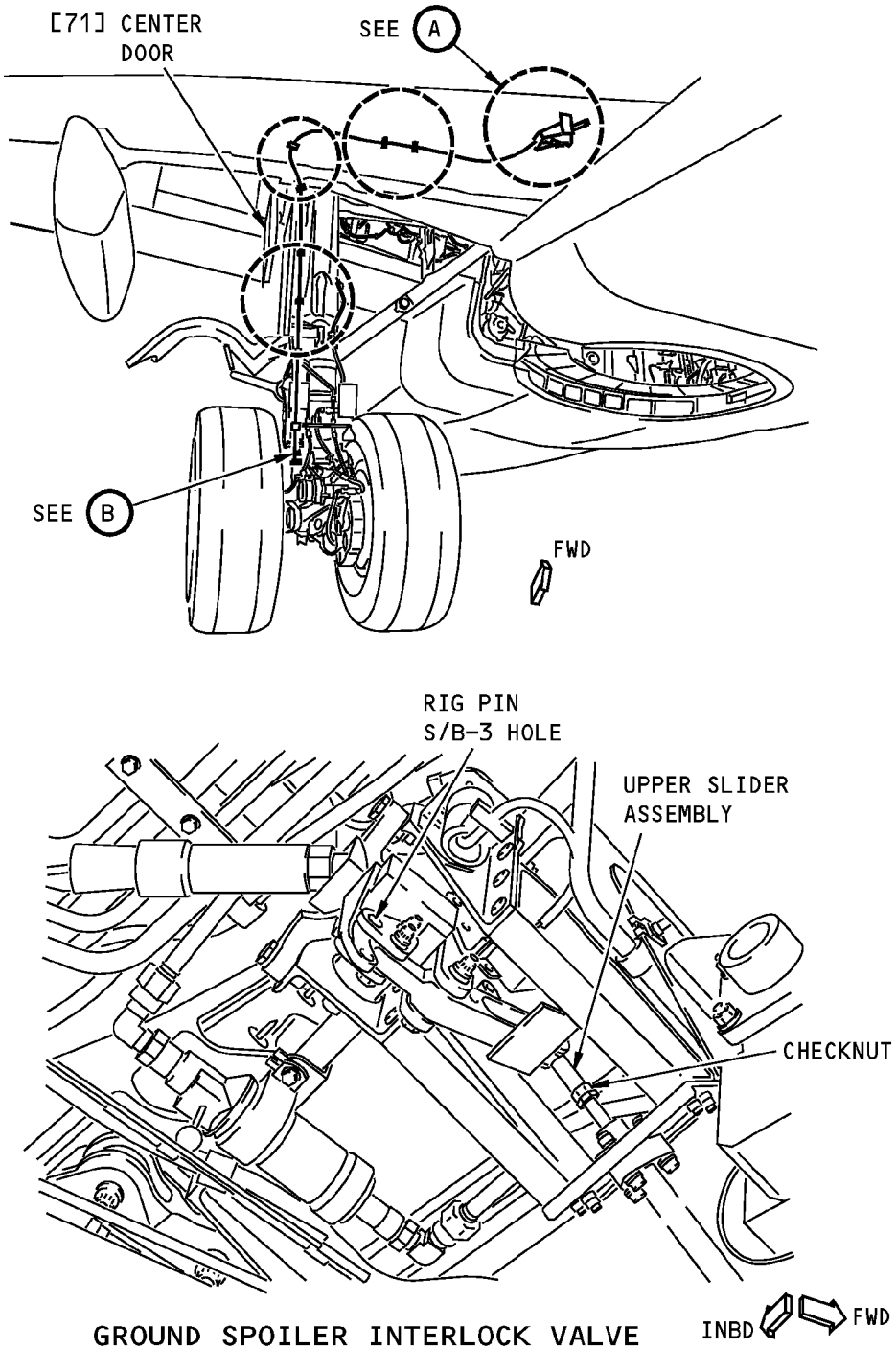

Ground Spoiler Interlock Valve Adjustment
Figure 504 (Sheet 1 of 2)/27-62-00-990-806

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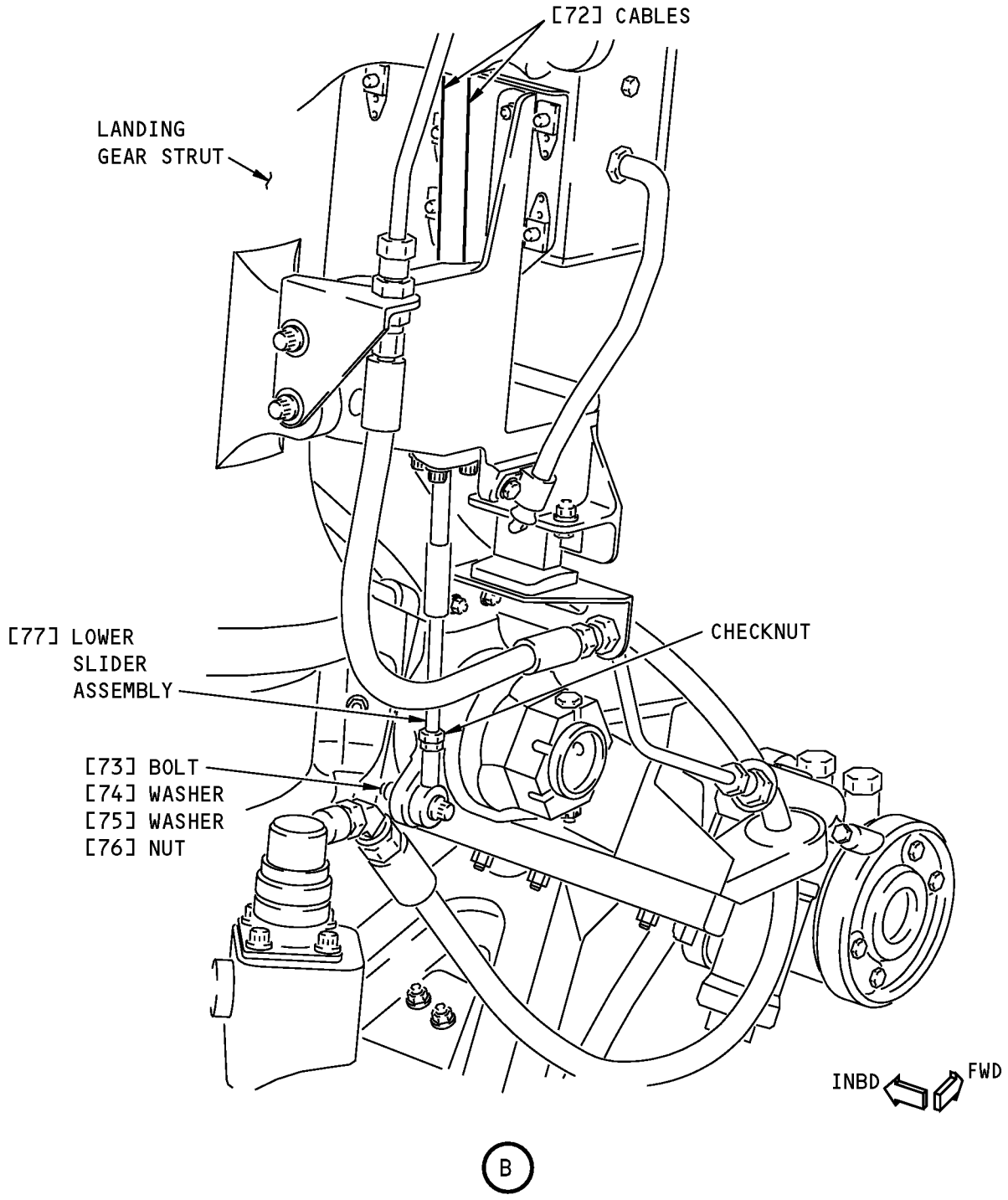

Ground Spoiler Interlock Valve Adjustment
Figure 504 (Sheet 2 of 2)/27-62-00-990-806

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TASK 27-62-00-820-811

8. Ground Spoiler Interlock Valve Adjustment (Alternate Method)

Figure 505

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)
27-62-61-400-808	Ground Spoiler Interlock Valve Functional Test - Rigging Tool Method (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1750	Equipment - Rigging, Interlock Valve Cable, Ground Spoiler (Part #: C27069-12, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Ground Spoiler Interlock Valve Adjustment

SUBTASK 27-62-00-860-233

(1) Remove system A hydraulic power.

(a) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-62-00-820-006

(2) Adjust the interlock valve cable.

(a) Disconnect the lower slider assembly [80] from the right main landing gear (MLG) upper torque link.

1) Remove the bolt [81], washer [82], washer [83], and nut [84].

(b) Manually retract and extend the cable assembly [85].

1) Make sure the cable assembly [85] and valve assembly move freely and do not bind.

(c) Install the rig pin S/B-3 from the rig pin kit, SPL-1585.

(d) Remove the lockwire [86] from the checknut [87]on the lower slider assembly [80].

(e) Loosen the checknut [87].

(f) Install the Interlock Valve Rigging Tool equipment, SPL-1750.

1) Put the large tool pivot pin in the end of the MLG torque link bolt.

2) Adjust the lower slider assembly [80] so it can be attached to the small pin on the equipment, SPL-1750.

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3) Install the scale assembly on the equipment bracket of the landing gear.

(g) Move equipment, SPL-1750 lever to Position A on the scale assembly, and hold it there.

(h) Adjust the lower slider assembly [80] unit the rod end can move freely on the pin of the equipment, SPL-1750.

1) Make sure the rod end threads cover at least 50% of the inspection hole on the lower slider assembly [80].

(i) Tighten the checknut [87].

(j) Install the lockwire [86].

(k) Do this task: Ground Spoiler Interlock Valve Functional Test - Rigging Tool Method, TASK 27-62-61-400-808.

——————— END OF TASK ———————

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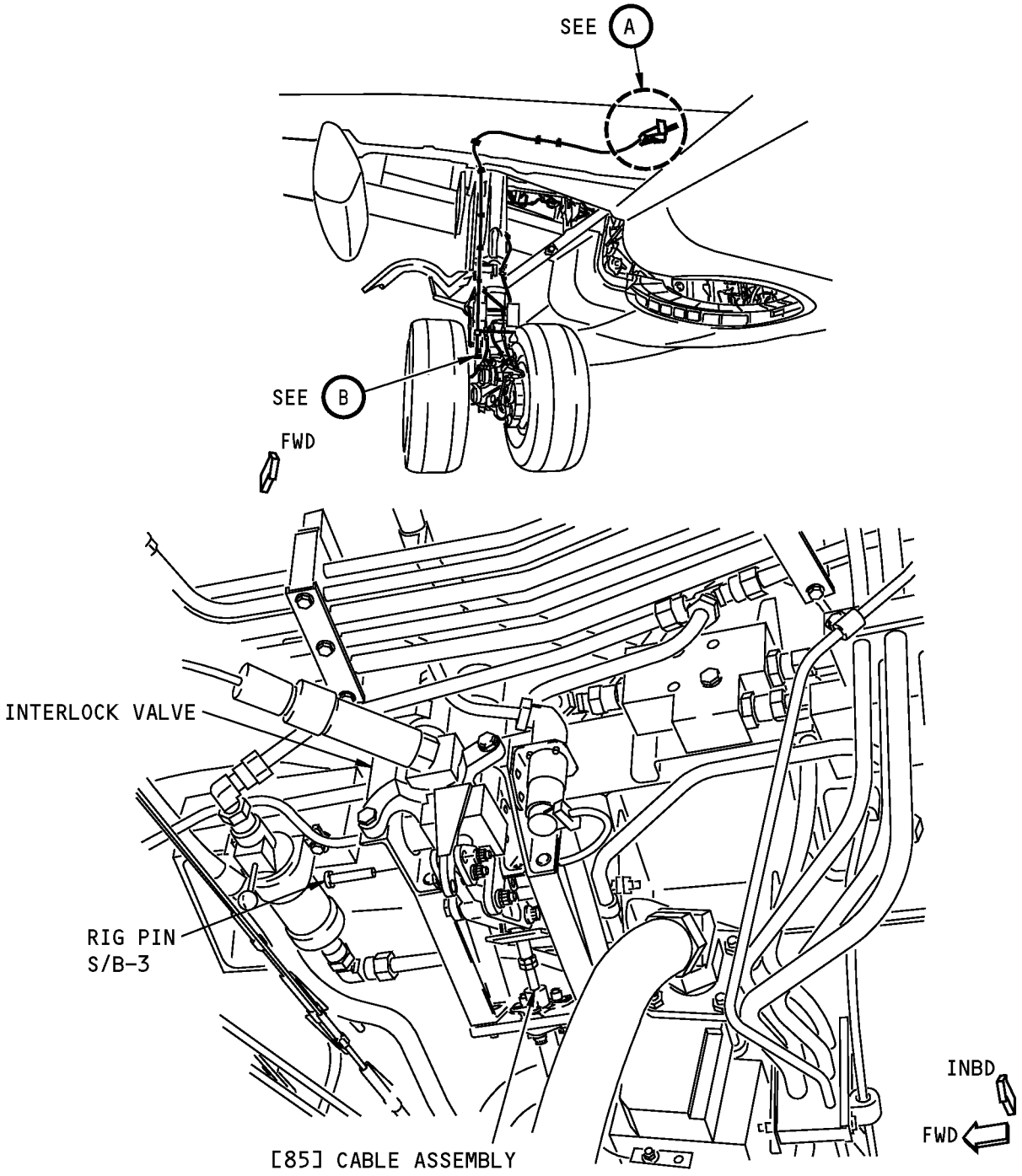

GROUND SPOILER INTERLOCK VALVE

A

Ground Spoiler Interlock Valve Adjustment
Figure 505 (Sheet 1 of 2)/27-62-00-990-812

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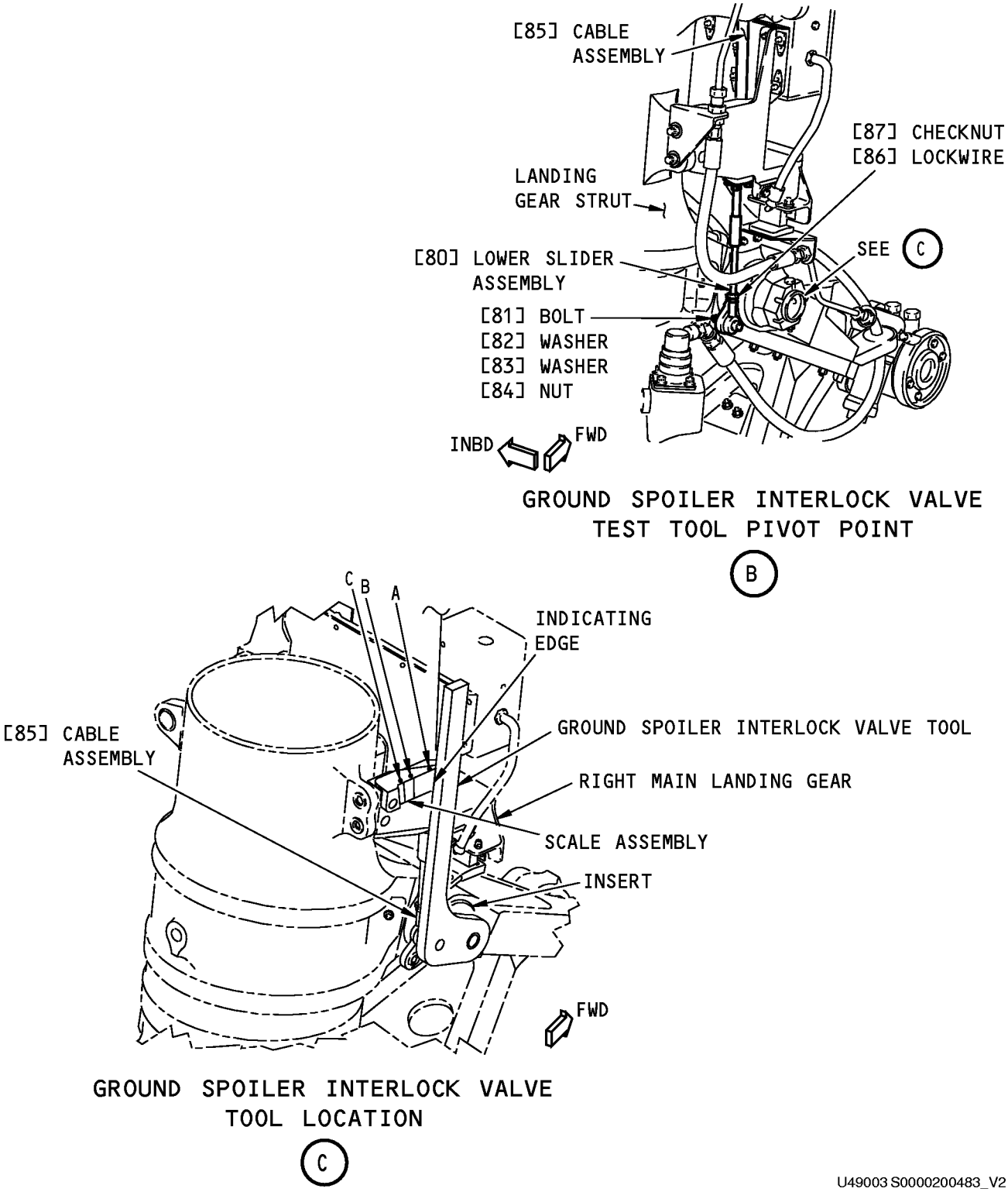

Ground Spoiler Interlock Valve Adjustment
Figure 505 (Sheet 2 of 2)/27-62-00-990-812

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TASK 27-62-00-820-804

9. Ground Spoiler Adjustment

(Figure 506)

A. References

Reference	Title
20-30-84-910-801	Final Cleaning of Metal Prior to Painting (Series 84) (P/B 201)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)
27-62-00-840-802	Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
B01004	Solvent - Final Cleaning Of Metal Prior To Painting (AMM 20-30-84/201) - Series 84	
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
552	Left Wing - Spoiler No. 6
566	Left Wing - Spoiler No. 1
652	Right Wing - Spoiler No. 7
666	Right Wing - Spoiler No. 12

D. Prepare for the Adjustment

SUBTASK 27-62-00-860-018

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-00-860-019

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-00-866-007

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

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SUBTASK 27-62-00-860-020

(4) Move the speed brake lever to the UP position to lift the spoilers.

SUBTASK 27-62-00-860-021

(5) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-62-00-860-022

(6) Move the speed brake lever to the DOWN position to lower the ground spoilers.

E. Ground Spoiler Adjustment

SUBTASK 27-62-00-860-023

(1) Measure the clearance between the trailing edge of the spoiler panels and the flaps near the centerline of the spoiler actuators.

SUBTASK 27-62-00-860-024

(2) Make sure the clearance between spoilers No. 6 and 7 and the flaps is 0.010 +0.090/-0.005 inch (0.25 +2.29/-0.13 mm) at the centerline of the outboard actuator.

NOTE: You do not need to check the clearance at the inboard actuator.

SUBTASK 27-62-00-860-025

(3) Make sure the clearance between the spoilers No. 1 and 12 and the flaps is 0.070 +0.050/-0.050 inch (1.78 +/- 1.27 mm).

SUBTASK 27-62-00-860-026

(4) Make sure there is a clearance between the trailing edge of the spoiler panels and the flaps for the full span of the spoiler.

SUBTASK 27-62-00-860-027

(5) If the clearances between the ground spoiler panels and the flaps are not in the limits, adjust the clearance:

(a) Make a record of the clearance.

(b) Lift the spoiler or extend the flaps to get access to the spoiler actuator:

1) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

2) Move the speed brake lever to the UP position to lift the spoilers.

3) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

(c) Loosen the checknut on the rod end of the ground spoiler actuator.

(d) Remove the locking key from the piston rod.

(e) Do the following to adjust the Outboard Ground Spoilers (No. 1 and 12):

1) Turn the piston rod on the spoiler actuator to adjust the clearance between the spoiler and the flaps to the correct tolerance.

2) Temporarily torque the actuator check nut to 100 - 200 pound-inches (11.3 - 22.6 newton-meters).

3) Move the speedbrake lever to the UP position.

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4) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.
5) Move the speedbrake lever to the DOWN position.
6) Check the clearance at the trailing edge of the ground spoilers.
   a) Make sure the clearance is within the limits (Figure 506).
7) If the clearance of the ground spoiler is not in the limits, do the following to adjust the actuator:
   a) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.
   b) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.
   c) Adjust the spoiler actuator again, as necessary.
8) If the clearance of the ground spoiler is in the limits, do the following:
   a) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.
   b) Move the speed brake lever to the UP position to extend the spoilers.

   WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

   c) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.
   d) Clean all grease from the piston rod and the rod end threads with Series 84 solvent, B01004 (TASK 20-30-84-910-801).
   e) Apply a layer of the corrosion preventive compound to the threads of the piston rod end.
   f) Install the locking key in the actuator rod end.
   g) Torque the checknut to 250-300 pound-inches (28.25-33.90 newton-meters).
   h) Install the lockwire, G01912 on the checknut.
   i) Apply a bead of sealant, A00247 to the rod end checknut.

(f) Do the following to adjust the Inboard Ground Spoilers (No. 6 and 7):
1) Turn the piston rod on the outboard spoiler actuator to adjust the clearance between the spoiler and the flaps to the correct tolerance.
2) Turn the piston rod on the inboard spoiler actuator until the pin that connects the rod end to the spoiler panel moves freely or is loose.

   NOTE: Make sure there is no force fight between the inboard and outboard actuators.

3) Temporarily torque the actuator check nut to 100 - 200 pound-inches (11.3 - 22.6 newton-meters).

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4) Move the speedbrake lever to the UP position.

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5) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.
6) Move the speedbrake lever to the DOWN position.
7) Check the clearance at the trailing edge of the ground spoilers.
   a) Make sure the clearance is within the limits (Figure 506).
8) If the clearance of the ground spoiler is not in the limits, do the following to adjust the actuator:
   a) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.
   b) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.
   c) Adjust the spoiler actuator again, as necessary.
9) If the clearance of the ground spoiler is in the limits, do the following:
   a) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.
   b) Move the speed brake lever to the UP position to extend the spoilers.

   WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

   c) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.
   d) Clean all grease from the piston rod and the rod end threads with Series 84 solvent, B01004 (TASK 20-30-84-910-801).
   e) Apply a layer of the corrosion preventive compound to the threads of the piston rod end.
   f) Install the locking key in the actuator rod end.
   g) Torque the checknut to 600 - 720 pound-inches (67.80 - 81.36 newton-meters).
   h) Install the lockwire, G01912 on the checknut.
   i) Apply a bead of sealant, A00247 to the rod end checknut.

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F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-00-860-223

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-00-860-030

(2) Move the speed brake lever to the DOWN position to lower the spoilers if it is necessary.

SUBTASK 27-62-00-860-031

(3) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-62-00-860-033

(4) Do this task: Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-62-00-840-802.

——————— END OF TASK ———————

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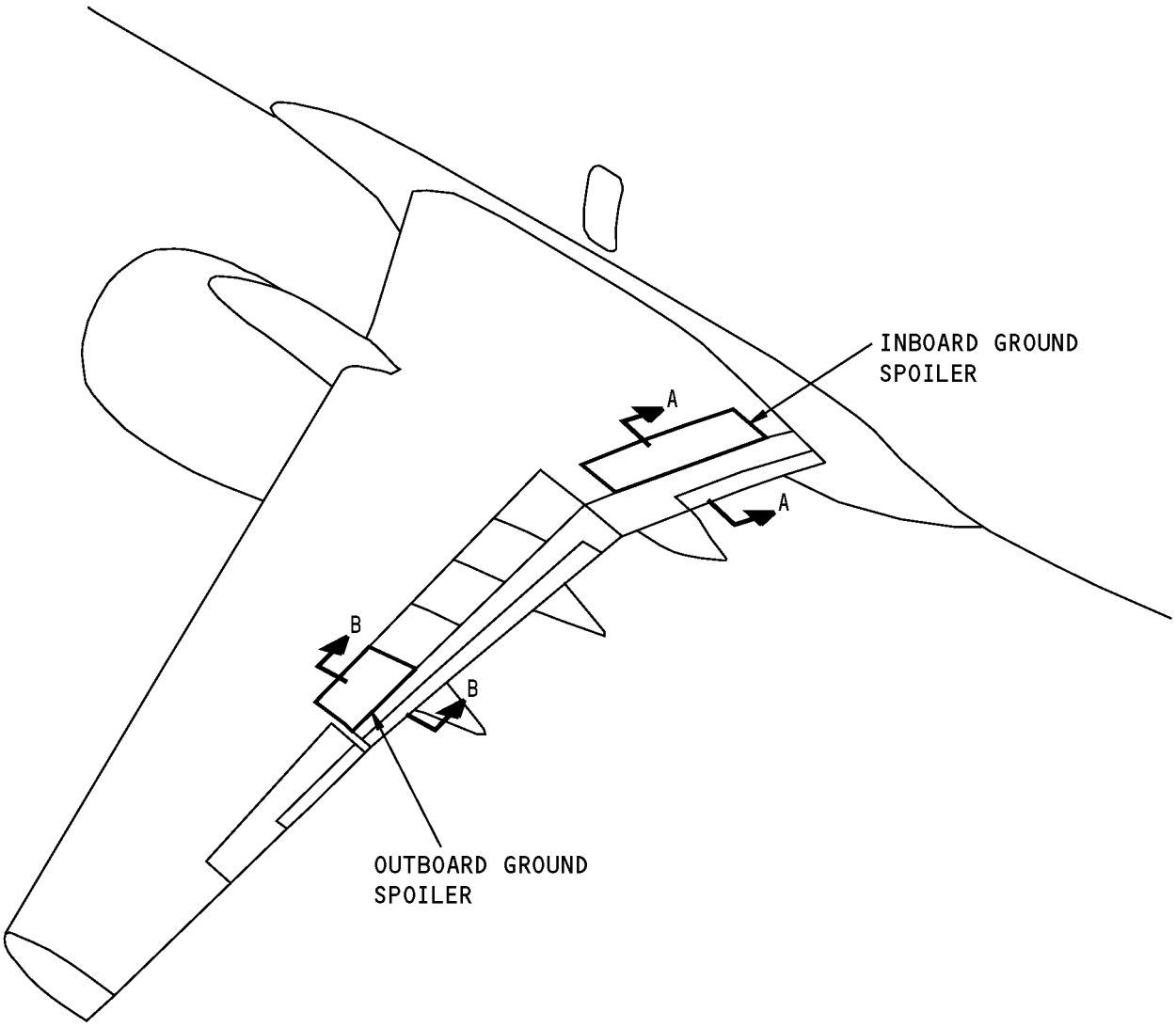

LEFT WING
(RIGHT WING IS EQUIVALENT)

Ground Spoiler Adjustment
Figure 506 (Sheet 1 of 3)/27-62-00-990-807

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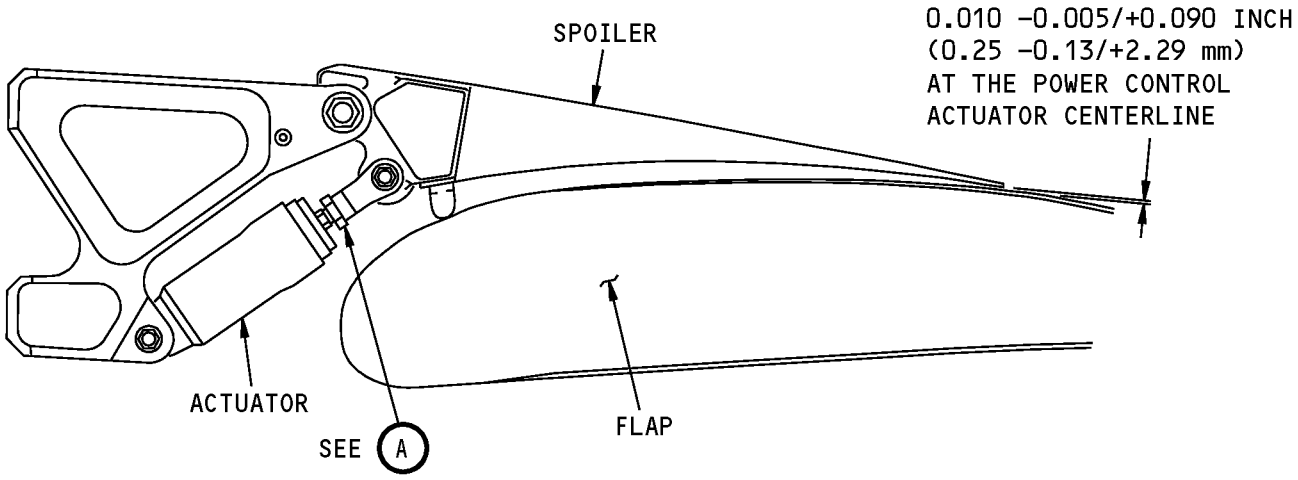
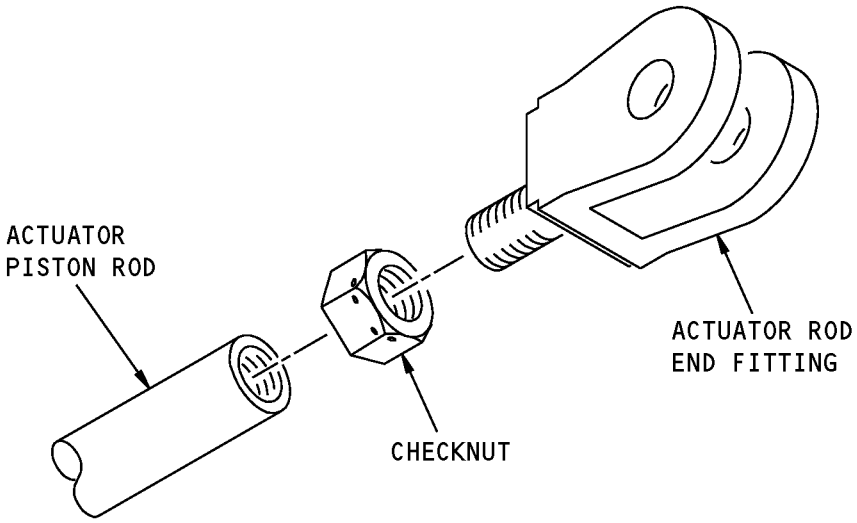


INBOARD GROUND SPOILER
(OUTBOARD ACTUATOR)
A-A



ACTUATOR ROD END
A

Ground Spoiler Adjustment
Figure 506 (Sheet 2 of 3)/27-62-00-990-807

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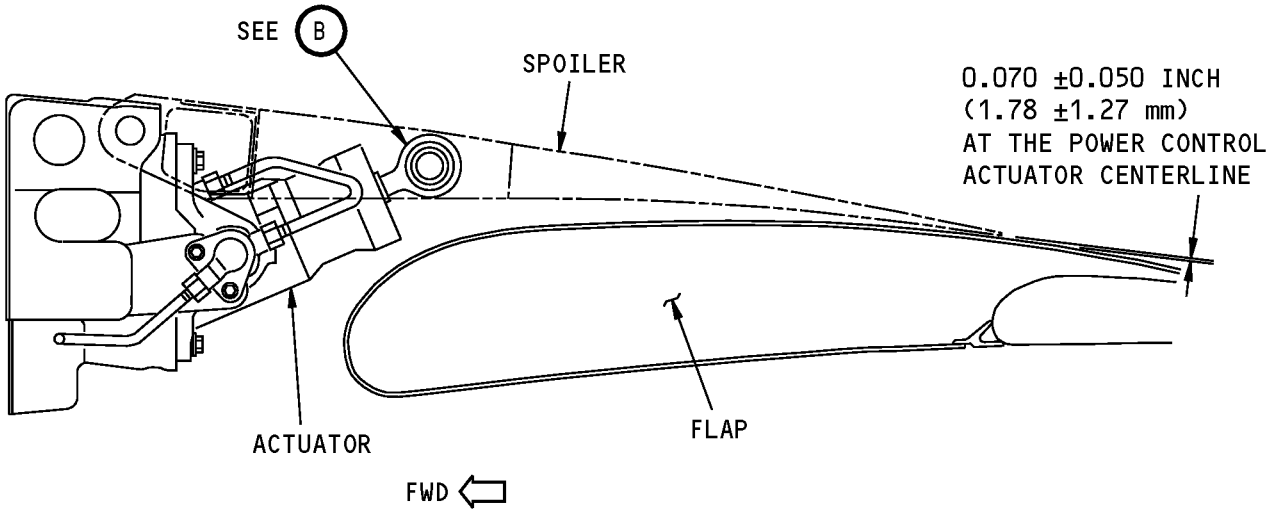
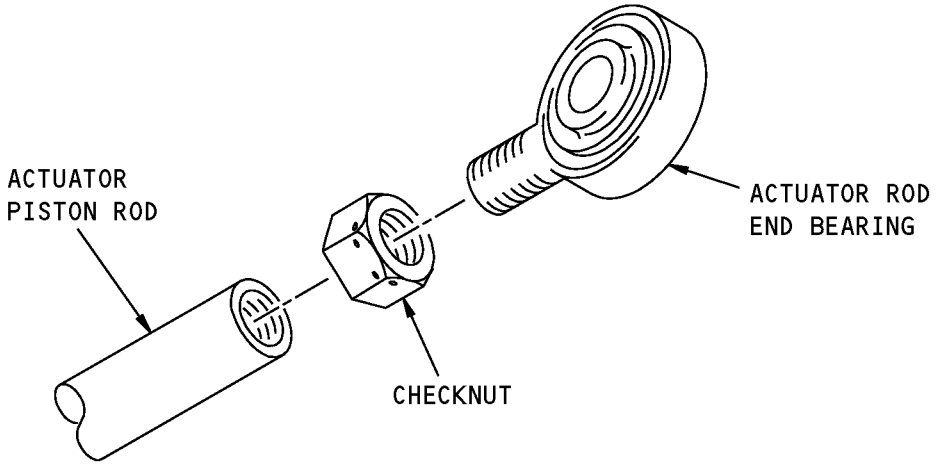


OUTBOARD GROUND SPOILER
B–B



ACTUATOR ROD END
B

Ground Spoiler Adjustment
Figure 506 (Sheet 3 of 3)/27-62-00-990-807

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TASK 27-62-00-800-803

10. Speed Brake Lever Friction Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
FIM 27-62 TASK 807	Speed Brake Lever Does Not Move Freely - Fault Isolation

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1557	Gauge - Force (Part #: DG-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPP-500G, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-150, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-200, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: DPPH-50, Supplier: 92456, A/P Effectivity: 737-ALL) (Part #: FDIX 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDIX 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: FDV 50, Supplier: 0BFD9, A/P Effectivity: 737-ALL) (Part #: LG-050, Supplier: 92456, A/P Effectivity: 737-ALL) (Opt Part #: FDI 100, Supplier: 0BFD9, A/P Effectivity: 737-ALL)

C. Consumable Materials

Reference	Description	Specification
D50116	Lubricant - Bonded Solid Film	BAC5811 Type 7
D50117	Lubricant - Solid Film, Air Cured, Corrosion Inhibiting	MIL-L-23398, Type II

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Speed Brake Lever Friction Test

SUBTASK 27-62-00-860-034

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-62-00-860-035

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

HAP 037-054

SUBTASK 27-62-00-866-009

(3) Move the flap lever to the FLAPS 1 detent.

HAP ALL

SUBTASK 27-62-00-860-036

(4) Install the force gauge, COM-1557 on the end of the speed brake lever.

SUBTASK 27-62-00-700-001

(5) Use the force gauge, COM-1557 to measure the force necessary to move the speed brake lever.

SUBTASK 27-62-00-700-002

(6) Make sure the forces necessary to move the speed brake lever are less than these force limits:

(a) From the DOWN to the FLIGHT DETENT position - 20 pounds (89.0 newtons).

(b) From the FLIGHT DETENT to the UP position - 28 pounds (124.6 newtons).

(c) From the UP to the FLIGHT DETENT position - 28 pounds (124.6 newtons).

(d) From the FLIGHT DETENT to the DOWN position - 20 pounds (89.0 newtons).

SUBTASK 27-62-00-810-001

(7) If the forces required to move the speed brake lever are excessive, do this task: Speed Brake Lever Does Not Move Freely - Fault Isolation, FIM 27-62 TASK 807. It has instructions to check the control cables, forward drum, lever brake, mixer, ratio changer, and control valve. It also has instructions to lubricate the lever with lubricant, D50116, or lubricant, D50117.

F. Put the airplane Back to Its Usual Condition

HAP 037-054

SUBTASK 27-62-00-866-008

(1) Move the flap lever to the FLAPS UP position.

HAP ALL

SUBTASK 27-62-00-860-175

(2) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

———————— END OF TASK ————————

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TASK 27-62-00-820-805

11. Spoiler Operation Time Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Prepare for Test

SUBTASK 27-62-00-860-037

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-00-860-038

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Use the Engine-Driven Pumps (EDP) or a ground service cart to pressurize the Speed Brake Hydraulic Systems A and B. Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

NOTE: The Electric Motor-Driven Pump (EMDP) flow rate is too low for the spoilers to operate in the permitted time.

SUBTASK 27-62-00-860-039

(3) Make sure the airplane is on its landing gear or compress the right main gear strut a minimum of 5 inches (127 mm).

NOTE: This will open the ground spoiler interlock valve.

SUBTASK 27-62-00-860-040

(4) Make sure the control wheel is at neutral.

SUBTASK 27-62-00-860-041

(5) Make sure the speed brake lever is in the DOWN position.

HAP 037-054

SUBTASK 27-62-00-866-010

(6) Move the flap lever to the FLAPS 1 detent.

HAP ALL

D. Spoiler Operation Time Test

SUBTASK 27-62-00-860-042

(1) Quickly move the speed brake lever from the DOWN position to the UP position.

(a) Make sure all of the spoilers move to the up position in less than 1 second.

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SUBTASK 27-62-00-860-043

(2) Quickly move the speed brake lever from the UP position to the DOWN position.

(a) Make sure all of the spoilers move to the retracted position in less than 1 second.

E. Put the Airplane Back to Its Usual Condition

HAP 037-054

SUBTASK 27-62-00-866-011

(1) Move the flap lever to the FLAPS UP position.

HAP ALL

SUBTASK 27-62-00-860-044

(2) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK

TASK 27-62-00-820-806

12. Speed Brake Throttle Switch Test

(Figure 507)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Test

SUBTASK 27-62-00-860-045

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-00-860-046

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

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HAP 037-054

SUBTASK 27-62-00-866-004

(3) Move the flap lever to the FLAPS 1 detent.

HAP ALL

SUBTASK 27-62-00-860-047

(4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-62-00-860-048

(5) Move the thrust levers No. 1 and 2 to the idle position.

SUBTASK 27-62-00-860-049

(6) Make sure the airplane is on its landing gear or compress the right main gear strut a minimum of 5 inches (127 mm).

NOTE: This will open the ground spoiler interlock valve.

SUBTASK 27-62-00-860-050

(7) Make sure the ground spoilers are in the down position.

SUBTASK 27-62-00-860-051

(8) Make sure the speed brake lever is in the DOWN position.

SUBTASK 27-62-00-760-001

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(9) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-00-860-052

(10) Move one of the thrust levers to the full forward position to retract the speed brake actuator.

SUBTASK 27-62-00-860-053

(11) Move the thrust lever to the idle position.

SUBTASK 27-62-00-860-054

(12) Make sure the parking brake is released.

SUBTASK 27-62-00-730-001

(13) If necessary, align the IRUs for AACU operation.

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SUBTASK 27-62-00-010-001

(14) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

E. Speed Brake Throttle Switch Test

SUBTASK 27-62-00-860-055

(1) Move the speed brake lever to the ARMED position.

(a) Make sure the SPEED BRAKE ARMED light comes on.

SUBTASK 27-62-00-860-056

(2) Move the TEST SELECTOR switch to the INBD position on the antiskid/autobrake control unit (AACU).

SUBTASK 27-62-00-860-057

(3) Push the ENABLE/VERIFY button and move the toggle switch to the PRESS/TEST position on the AACU.

(a) Make sure the spoilers move to the UP position.

SUBTASK 27-62-00-860-208

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-00-860-058

(5) Move the No. 1 thrust lever to the full forward position.

(a) Make sure all spoilers move to the down position.

(b) Make sure the speed brake lever moves to the DOWN position.

(c) Make sure the SPEED BRAKE ARMED and SPEED BRAKE DO NOT ARM lights are off.

SUBTASK 27-62-00-860-059

(6) Move the No. 1 thrust lever back to the idle position.

SUBTASK 27-62-00-860-060

(7) Release the ENABLE/VERIFY button and the PRESS/TEST switch on the AACU.

SUBTASK 27-62-00-860-061

(8) Do the test of the throttle switches again except move the TEST SELECTOR switch to the OUTBD position on the AACU and use the No. 2 thrust lever.

SUBTASK 27-62-00-860-190

(9) Move the TEST SELECTOR switch to the NORM position on the AACU.

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F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-00-860-062

(1) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-00-860-063

(2) Close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-62-00-410-001

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

——————— END OF TASK ———————

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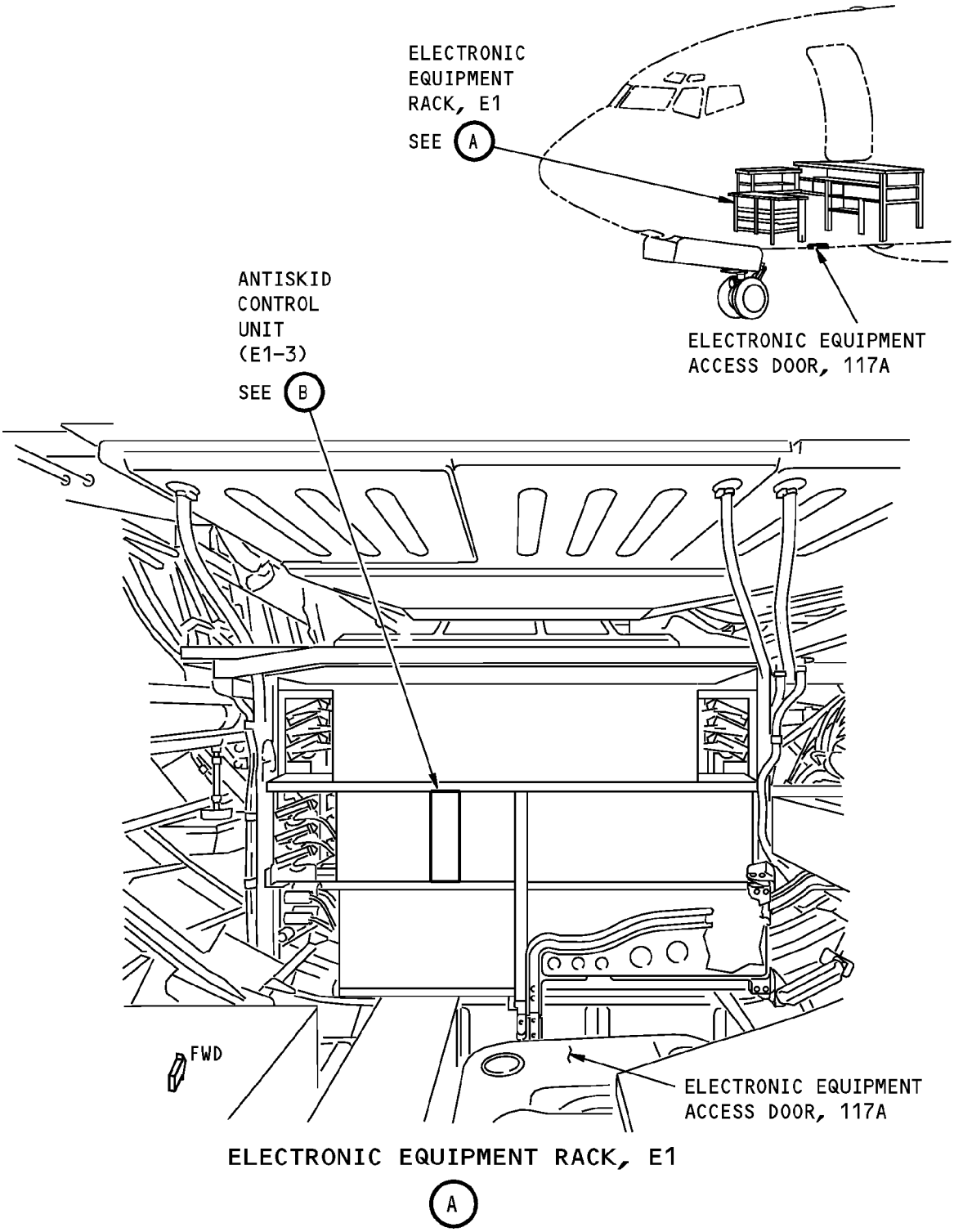

Antiskid/Autobrake Control Unit Adjustment
Figure 507 (Sheet 1 of 2)/27-62-00-990-808

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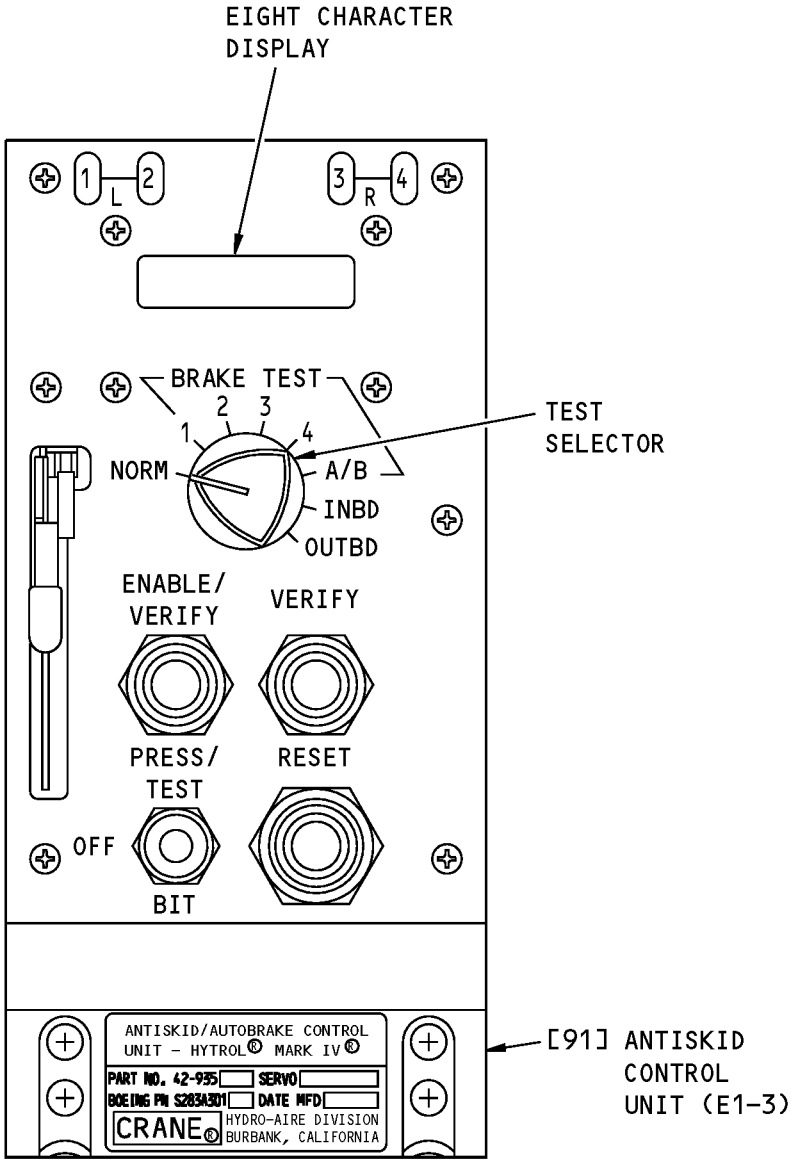

ANTISKID CONTROL UNIT (E1-3)

B

Antiskid/Autobrake Control Unit Adjustment
Figure 507 (Sheet 2 of 2)/27-62-00-990-808

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TASK 27-62-00-720-801

13. Engine Throttle Switch (S1) Functional Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Do a test of the Engine Throttle Switch (S1)

SUBTASK 27-62-00-700-003

(1) Do these steps to activate the auto speed brake system:

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

(b) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

HAP 037-054

(c) Move the flap lever to the FLAPS 1 detent.

HAP ALL

(d) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

(e) Make sure the thrust levers No. 1 and 2 are in the idle position.

WARNING: MAKE SURE THAT YOU PREPARE FOR THE AIR MODE BEFORE YOU OPEN THE CIRCUIT BREAKER THAT FOLLOWS. AUTOMATIC OPERATION OF THE AIRPLANE SYSTEMS IN THE AIR MODE CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(f) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	15	C01401	LANDING GEAR AIR/GND RELAY

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(g) Make sure the speed brake lever is in the DOWN position.

(h) Make sure the ground spoilers are in the fully down position.

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(i) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

(j) Move the thrust levers to full forward.

(k) Move the thrust levers back to the idle position.

SUBTASK 27-62-00-860-193

(2) Move the speed brake lever to the ARMED position.

(a) Make sure the SPEED BRAKE ARMED light comes on.

SUBTASK 27-62-00-860-194

(3) Do these steps to activate the antiskid/autobrake control unit to simulate high speed:

(a) Set the rotary switch on the antiskid/autobrake control unit, M162 to position INBD.

NOTE: The antiskid/autobrake control unit, M162 is on E1-3 shelf in the electronic equipment (EE) compartment.

(b) Push and hold the ENABLE/VERIFY switch on the antiskid/autobrake control unit.

(c) Push and hold the toggle switch on the antiskid/autobrake control unit to the PRESS/TEST position.

SUBTASK 27-62-00-860-195

(4) Make sure the flight spoilers and ground spoilers move to the full up position.

SUBTASK 27-62-00-860-209

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(5) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-00-700-004

(6) Move the No. 1 thrust lever to the fully forward position.

(a) Make sure the speed brake lever moves to the DOWN position.

(b) Make sure the spoilers move to the retracted position.

(c) Make sure the ARMED and the DO NOT ARM lights are off.

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SUBTASK 27-62-00-860-196

(7) Release the ENABLE/VERIFY switch and the toggle switch.

SUBTASK 27-62-00-860-197

(8) Set the rotary switch on the antiskid/autobrake control unit to the NORM position.

SUBTASK 27-62-00-860-198

(9) Move the No. 1 thrust lever back to the idle position.

SUBTASK 27-62-00-860-207

(10) Move the speed brake lever to the ARMED position.

(a) Make sure the SPEED BRAKE ARMED light comes on.

SUBTASK 27-62-00-860-199

(11) Do these steps to activate the antiskid/autobrake control unit to simulate high speed:

(a) Set the rotary switch on the antiskid/autobrake control unit, M162 to position OUTBD.

NOTE: The antiskid/autobrake control unit, M162 is on E1-3 shelf in the electronic equipment (EE) compartment.

(b) Push and hold the ENABLE/VERIFY switch on the antiskid/autobrake control unit.

(c) Push and hold the toggle switch on the antiskid/autobrake control unit to the PRESS/TEST position.

SUBTASK 27-62-00-860-200

(12) Make sure the flight spoilers and ground spoilers move to the full up position.

SUBTASK 27-62-00-860-210

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(13) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-00-700-005

(14) Move the No. 2 thrust lever to the fully forward position.

(a) Make sure the speed brake lever moves to the DOWN position.

(b) Make sure the spoilers move to the retracted position.

(c) Make sure the ARMED and the DO NOT ARM lights are off.

SUBTASK 27-62-00-860-201

(15) Release the ENABLE/VERIFY switch and the toggle switch.

SUBTASK 27-62-00-860-202

(16) Set the rotary switch on the antiskid/autobrake control unit to the NORM position.

SUBTASK 27-62-00-860-203

(17) Move the No. 2 thrust lever back to the idle position.

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SUBTASK 27-62-00-860-204

(18) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
D	15	C01401	LANDING GEAR AIR/GND RELAY

SUBTASK 27-62-00-860-205

(19) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

END OF TASK

TASK 27-62-00-820-807

14. Speed Brake Antiskid Inoperative Test

(Figure 507)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Test

SUBTASK 27-62-00-860-064

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-62-00-860-065

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-00-860-066

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-62-00-860-067

(4) Move the thrust levers No. 1 and 2 to the idle position.

SUBTASK 27-62-00-860-068

(5) Make sure the airplane is on its landing gear or compress the right main gear strut a minimum of 5 inches (127 mm).

NOTE: This will open the ground spoiler interlock valve.

SUBTASK 27-62-00-860-069

(6) Make sure the ground spoilers are in the down position.

SUBTASK 27-62-00-860-070

(7) Make sure the speed brake lever is in the DOWN position.

SUBTASK 27-62-00-860-211

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(8) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-00-860-071

(9) Move one of the thrust levers to the full forward position to retract the speed brake actuator.

SUBTASK 27-62-00-860-072

(10) Move the thrust lever to the idle position.

SUBTASK 27-62-00-010-002

(11) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

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SUBTASK 27-62-00-860-073

(12) Make sure the parking brake is released.

E. Speed Brake Antiskid Inoperative Test

SUBTASK 27-62-00-860-074

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	16	C00196	LANDING GEAR ANTISKID INBD

SUBTASK 27-62-00-860-075

(2) Move the speed brake lever to the ARMED position.

(a) Make sure the SPEED BRAKE ARMED light comes on.

SUBTASK 27-62-00-860-076

(3) Move the TEST SELECTOR switch to the 2 position on the antiskid/autobrake control unit (AACU).

SUBTASK 27-62-00-860-077

(4) Push the ENABLE/VERIFY and VERIFY buttons on the AACU.

(a) Make sure the SPEED BRAKE ARMED light stays on.

SUBTASK 27-62-00-860-078

(5) Release the ENABLE/VERIFY and VERIFY buttons on the AACU.

(a) Make sure the SPEED BRAKE ARMED light stays on.

(b) Make sure the spoilers do not move.

SUBTASK 27-62-00-860-079

(6) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	16	C00196	LANDING GEAR ANTISKID INBD

SUBTASK 27-62-00-860-080

(7) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	18	C00195	LANDING GEAR ANTISKID OUTBD

SUBTASK 27-62-00-860-081

(8) Make sure the speed brake lever is in the ARMED position.

(a) Make sure the SPEED BRAKE ARMED light comes on.

SUBTASK 27-62-00-860-082

(9) Move the TEST SELECTOR switch to the 1 position on the AACU.

SUBTASK 27-62-00-860-083

(10) Push the ENABLE/VERIFY and VERIFY buttons on the AACU.

(a) Make sure the SPEED BRAKE ARMED light stays on.

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SUBTASK 27-62-00-860-084

(11) Release the ENABLE/VERIFY and VERIFY buttons on the AACU.

(a) Make sure the SPEED BRAKE ARMED light stays on.

(b) Make sure the spoilers do not move.

SUBTASK 27-62-00-860-085

(12) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	18	C00195	LANDING GEAR ANTISKID OUTBD

SUBTASK 27-62-00-860-089

(13) Move the speed brake lever to the DOWN position.

SUBTASK 27-62-00-860-191

(14) Move the TEST SELECTOR switch to the NORM position on the AACU.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-00-860-090

(1) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-00-860-091

(2) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-62-00-410-002

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

——————— END OF TASK ———————

TASK 27-62-00-820-808

15. Speed Brake Squat Switch Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

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B. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Prepare for the Test

SUBTASK 27-62-00-860-092

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-00-860-093

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-00-860-094

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-62-00-860-095

(4) Move the thrust levers No. 1 and 2 to the idle position.

SUBTASK 27-62-00-860-096

(5) Make sure the airplane is on its landing gear or compress the right main gear strut a minimum of 5 inches (127 mm).

NOTE: This will open the ground spoiler interlock valve.

SUBTASK 27-62-00-860-097

(6) Make sure the ground spoilers are in the down position.

SUBTASK 27-62-00-860-098

(7) Make sure the speed brake lever is in the DOWN position.

SUBTASK 27-62-00-860-212

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(8) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

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SUBTASK 27-62-00-860-099

(9) Move one of the thrust levers to the full forward position to retract the speed brake actuator.

SUBTASK 27-62-00-860-100

(10) Move the thrust lever to the idle position.

SUBTASK 27-62-00-860-101

(11) Make sure the parking brake is released.

HAP 037-054

SUBTASK 27-62-00-866-012

(12) Move the flap lever to the FLAPS 1 detent.

HAP ALL

D. Speed Brake Squat Switch Test

SUBTASK 27-62-00-860-213

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-00-860-102

(2) Move one of the thrust levers forward to retract the speed brake actuator.

SUBTASK 27-62-00-860-103

(3) Move the thrust lever back to the idle position.

SUBTASK 27-62-00-860-104

(4) Move the speed brake lever to the ARMED position.

(a) Make sure the SPEED BRAKE ARMED light comes on.

SUBTASK 27-62-00-860-105

(5) Simulate air mode with the PSEU BITE. To simulate, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

NOTE: The SPEED BRAKE DO NOT ARM light can come on momentarily after you simulate air mode.

SUBTASK 27-62-00-860-176

(6) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

(a) Make sure the speed brake control lever moves to the UP position.

(b) Make sure the SPEED BRAKE ARMED light goes off.

(c) Make sure the SPEED BRAKE DO NOT ARM light comes on 4 +/-2 seconds after you return the airplane to ground mode.

(d) Make sure the ground spoilers move to the full up position.

(e) Make sure the flight spoilers move to the full up position.

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SUBTASK 27-62-00-860-214

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(7) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-00-860-106

(8) Move one of the thrust levers forward to retract the speed brake actuator.

SUBTASK 27-62-00-860-107

(9) Move the thrust lever back to the idle position.

(a) Make sure the SPEED BRAKE DO NOT ARM LIGHT goes off.

SUBTASK 27-62-00-860-108

(10) Move the speed brake lever to the ARMED position.

(a) Make sure the SPEED BRAKE ARMED light comes on.

SUBTASK 27-62-00-860-109

(11) Simulate air mode with the PSEU BITE. To simulate it, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 27-62-00-860-110

(12) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

(a) Make sure that the SPEED BRAKE DO NOT ARM light comes on for 4 +/2 seconds after you return the airplane to ground mode.

E. Put the Airplane Back to Its Usual Condition

HAP 037-054

SUBTASK 27-62-00-866-013

(1) Move the flap lever to the UP position.

HAP ALL

SUBTASK 27-62-00-860-111

(2) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-00-860-112

(3) Close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2

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Row	Col	Number	Name
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

—————— END OF TASK ——————

TASK 27-62-00-820-809

16. Speed Brake RTO Test

(Figure 507)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
78-31-00-700-804-F00	Thrust Reverser Engine Accessory Unit (EAU) Test (P/B 501)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 27-62-00-860-113

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-00-860-114

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-00-860-115

(3) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

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(3) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2

SUBTASK 27-62-00-860-116

(4) Move the thrust levers No. 1 and 2 to the idle position.

SUBTASK 27-62-00-860-117

(5) Make sure the airplane is on its landing gear or compress the right main gear strut a minimum of 5 inches (127 mm).

NOTE: This will open the ground spoiler interlock valve.

SUBTASK 27-62-00-860-118

(6) Make sure the ground spoilers are in the down position.

SUBTASK 27-62-00-860-119

(7) Make sure the speed brake lever is in the DOWN position.

SUBTASK 27-62-00-860-215

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(8) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-00-860-120

(9) Move one of the thrust levers to the full forward position to retract the auto speed brake actuator.

SUBTASK 27-62-00-860-121

(10) Move the thrust lever to the idle position.

SUBTASK 27-62-00-860-122

(11) Make sure the parking brake is released.

SUBTASK 27-62-00-010-004

(12) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

F. Speed Brake RTO Test

HAP 037-054

SUBTASK 27-62-00-860-232

(1) Move the flaps to a position other than the UP position, do this task Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

HAP ALL

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SUBTASK 27-62-00-860-217

(2) Move the engine ignition switches from OFF to CONTINUOUS.

SUBTASK 27-62-00-860-123

WARNING: KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE AREA AROUND THE THRUST REVERSERS. THE THRUST REVERSERS EXTEND AND RETRACT QUICKLY. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Move the No. 1 reverse thrust lever to the REVERSE thrust position.

(a) Make sure the SPEED BRAKE ARMED light comes on.

SUBTASK 27-62-00-860-124

(4) Move the TEST SELECTOR switch to the INBD position on the antiskid/autobrake control unit (AACU).

SUBTASK 27-62-00-860-125

(5) At the same time that you push and hold the ENABLE/VERIFY button, move the PRESS/TEST toggle switch up to the TEST position on the AACU.

(a) Make sure the speed brake lever moves to the UP position.

(b) Make sure the ground and flight spoilers move to the up position.

(c) Make sure the SPEED BRAKE ARMED light stays on.

NOTE: The SPEED BRAKE DO NOT ARM light will come on momentarily if you do not push the buttons at the same time.

HAP 037-054

(d) Make sure the SPEED BRAKE DO NOT ARM light is off.

(e) Open this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	4	C01662	SPOILER PCU SOV SYS A

(f) Make sure that all of the flight spoilers move to a smaller angle.

NOTE: If necessary, open and close of the circuit breaker to see each spoiler move.

(g) Make sure the SPEED BRAKE DO NOT ARM light is on.

NOTE: There will be a 3 second delay after the circuit breaker is opened and is normal.

(h) Open this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	5	C01663	SPOILER PCU SOV SYS B

(i) Make sure the SPEED BRAKE DO NOT ARM light is off.

(j) Close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	4	C01662	SPOILER PCU SOV SYS A

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HAP 037-054 (Continued)

(k) Close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	5	C01663	SPOILER PCU SOV SYS B

(l) Make sure the SPEED BRAKE DO NOT ARM light is off.

HAP ALL

SUBTASK 27-62-00-860-126

(6) Release the buttons.

(a) Make sure the SPEED BRAKE ARMED light is off.

(b) Make sure the SPEED BRAKE DO NOT ARM light comes on.

SUBTASK 27-62-00-860-177

(7) Move the No. 1 reverse thrust lever to the stowed position.

SUBTASK 27-62-00-860-127

(8) Move the No. 1 thrust lever forward.

(a) Make sure the speed brake control lever moves to the DOWN position.

(b) Make sure the ground and flight spoilers move to the full down position.

(c) Make sure the SPEED BRAKE DO NOT ARM light goes off.

SUBTASK 27-62-00-860-128

(9) Move the No. 1 thrust lever to the idle position.

SUBTASK 27-62-00-860-129

(10) Do the RTO test again with the No. 2 reverse thrust lever.

SUBTASK 27-62-00-860-192

(11) Move the TEST SELECTOR switch to the NORM position on the AACU.

SUBTASK 27-62-00-860-224

(12) Check the engine 1 reverser light on the P5 panel. If it is on, do this task: Thrust Reverser Engine Accessory Unit (EAU) Test, TASK 78-31-00-700-804-F00.

NOTE: The engine 1 reverser light can come on while doing Speed Brake RTO Test if there is a pressure drop in the Hydraulic System A.

(13) Move the engine ignition switches from CONTINUOUS to OFF.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-00-860-130

(1) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-00-860-131

(2) Close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

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F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-62-00-010-005

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

——————— END OF TASK ———————

TASK 27-62-00-820-810

17. Speed Brake Extended Light Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) Ignore the illumination of the SPEED BRAKE ARMED and SPEED BRAKE DO NOT ARM Lights during this test.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Speed Brakes Extended Light Test

SUBTASK 27-62-00-860-132

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-00-860-133

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

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SUBTASK 27-62-00-860-134

(3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
D	2	C01045	AFCS SYS A FCC DC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2
B	3	C01046	AFCS SYS B FCC DC
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-00-860-178

(4) Simulate air mode with the PSEU BITE. To simulate, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 27-62-00-860-135

(5) Move the flaps to the 15 unit position.

SUBTASK 27-62-00-860-136

(6) Move the speed brake lever to the ARMED position.

NOTE: The spoilers can move up during this step.

SUBTASK 27-62-00-860-137

(7) Make sure the SPEEDBRAKES EXTENDED light is off.

SUBTASK 27-62-00-860-140

(8) Move the speed brake lever 0.6 inch (15 mm) aft from the ARMED detent.

NOTE: The spoilers can move up during this step.

SUBTASK 27-62-00-860-141

(9) Make sure the SPEEDBRAKES EXTENDED light turns on.

SUBTASK 27-62-00-860-179

(10) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-62-00-860-180

(11) Make sure the SPEEDBRAKES EXTENDED light is off.

SUBTASK 27-62-00-860-181

(12) Move the flaps to the 15 unit position.

SUBTASK 27-62-00-860-182

(13) Make sure the SPEEDBRAKES EXTENDED light turns on.

SUBTASK 27-62-00-860-142

(14) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 27-62-00-860-143

(15) Make sure the SPEEDBRAKES EXTENDED light turns off.

SUBTASK 27-62-00-860-145

(16) Simulate air mode with the PSEU BITE. To simulate, do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

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SUBTASK 27-62-00-860-146

(17) Make sure the SPEEDBRAKES EXTENDED light turns on.

SUBTASK 27-62-00-860-148

(18) Move the speed brake lever to the ARMED position.

SUBTASK 27-62-00-860-183

(19) Make sure the SPEEDBRAKES EXTENDED light turns off.

SUBTASK 27-62-00-860-184

(20) Move the speed brake lever to the DOWN position.

NOTE: The spoilers can move down during this step.

SUBTASK 27-62-00-860-185

(21) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-62-00-860-206

(22) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 27-62-00-860-149

(23) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-00-860-150

(24) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
D	2	C01045	AFCS SYS A FCC DC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2
B	3	C01046	AFCS SYS B FCC DC
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

END OF TASK

TASK 27-62-00-000-802

18. Speed Brake Lever Brake Backlash Adjustment

(Figure 508)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

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C. Access Panels

Number	Name/Location
112A	Forward Access Door
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel

D. Prepare for the Adjustment

SUBTASK 27-62-00-860-219

(1) Make sure the systems A and B hydraulic power is off. To remove it, do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-62-00-860-220

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-00-860-221

(3) Put the speed brake lever in the DOWN position.

SUBTASK 27-62-00-010-008

(4) To get access to the forward equipment area,

Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-62-00-010-009

(5) To get access to the lever brake, (Figure 508).

Remove these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel

E. Speed Brake Lever Brake Adjustment

SUBTASK 27-62-00-200-001

(1) Adjust the secondary backlash of the speed brake lever brake.

(a) Apply a 4.5 pounds (20 newtons) load to setscrew C so that setscrew A touches the drive (Figure 508).

(b) Place a 0.036 - 0.037 inch (0.91 - 0.94 millimeter) feeler gauge between the drive and setscrew B.

(c) Adjust setscrew B until it is tight against the feeler gauge.

(d) Remove the feeler gauge.

(e) Place a 0.018 inch (0.46 millimeter) feeler gauge between the drive and setscrew A.

(f) Loosen the locknut on setscrew D.

(g) Apply a 1.5 pounds (6.7 newtons) load to setscrew C.

(h) Place a 0.010 - 0.011 inch (0.25 - 0.28 millimeter) between setscrew D and the adjacent shoe face.

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(i) Adjust setscrew D until it is tight against the feeler gauge.

(j) With the feeler gauge in place, tighten the locknut of setscrew D.

(k) Remove the feeler gauge.

(l) Place a 0.018 inch (0.46 millimeter) feeler gauge between the drive and setscrew B.

(m) Loosen the locknut on setscrew C.

(n) Apply a 1.5 pounds (6.7 newtons) load to setscrew D.

(o) Place a 0.010 - 0.011 inch (0.25 - 0.28 millimeter) between setscrew C and the adjacent shoe face.

(p) Adjust setscrew C until it is tight against the feeler gauge.

(q) With the feeler gauge in place, tighten the locknut of setscrew C.

(r) Remove the feeler gauge.

SUBTASK 27-62-00-200-002

(2) Verify the total primary backlash of the speed brake lever brake.

(a) Apply a 1.5 pounds (6.7 newtons) load to setscrew D.

(b) Verify that the total primary backlash at setscrew C is between 0.020 - 0.023 inches (0.51 - 0.58 millimeters).

(c) Apply a 1.5 pounds (6.7 newtons) load to setscrew C.

(d) Verify that the total primary backlash at setscrew D is between 0.020 - 0.023 inches (0.51 - 0.58 millimeters).

(e) If the total primary backlash of at setscrew C or setscrew D is not between 0.020 - 0.023 inches (0.51 - 0.58 millimeters), then repeat the secondary backlash adjustment procedure until the total primary backlash is within the limits.

SUBTASK 27-62-00-860-222

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-00-820-005

(4) Do this task: Speed Brake Lever Friction Test, TASK 27-62-00-800-803.

SUBTASK 27-62-00-710-002

(5) Do this task: Speed Brake Control System Operational Test, TASK 27-62-00-710-801.

SUBTASK 27-62-00-940-001

(6) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-62-00-410-005

(7) Install these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel

END OF TASK

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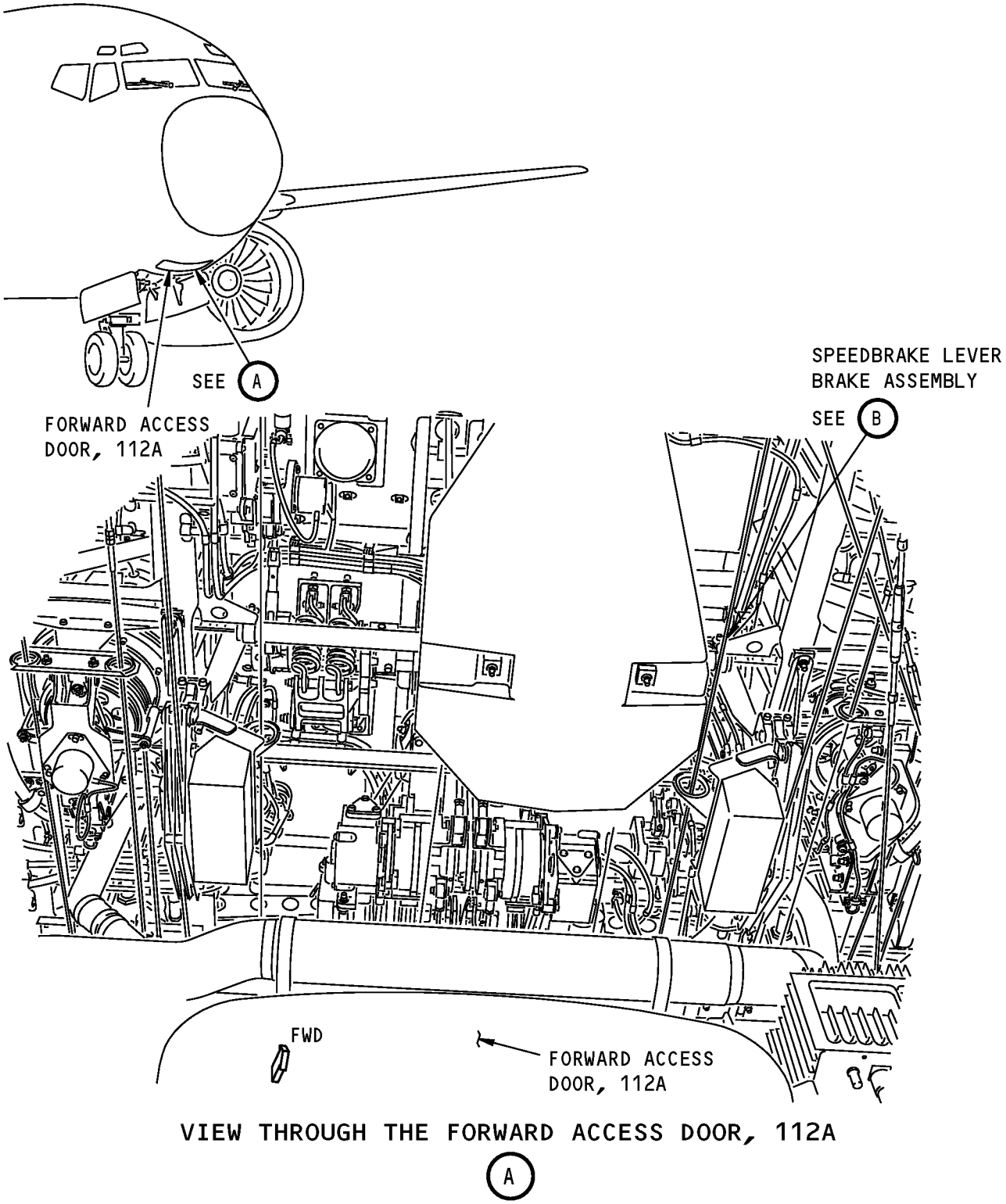

Speedbrake Lever Brake Backlash Adjustment
Figure 508 (Sheet 1 of 2)/27-62-00-990-811

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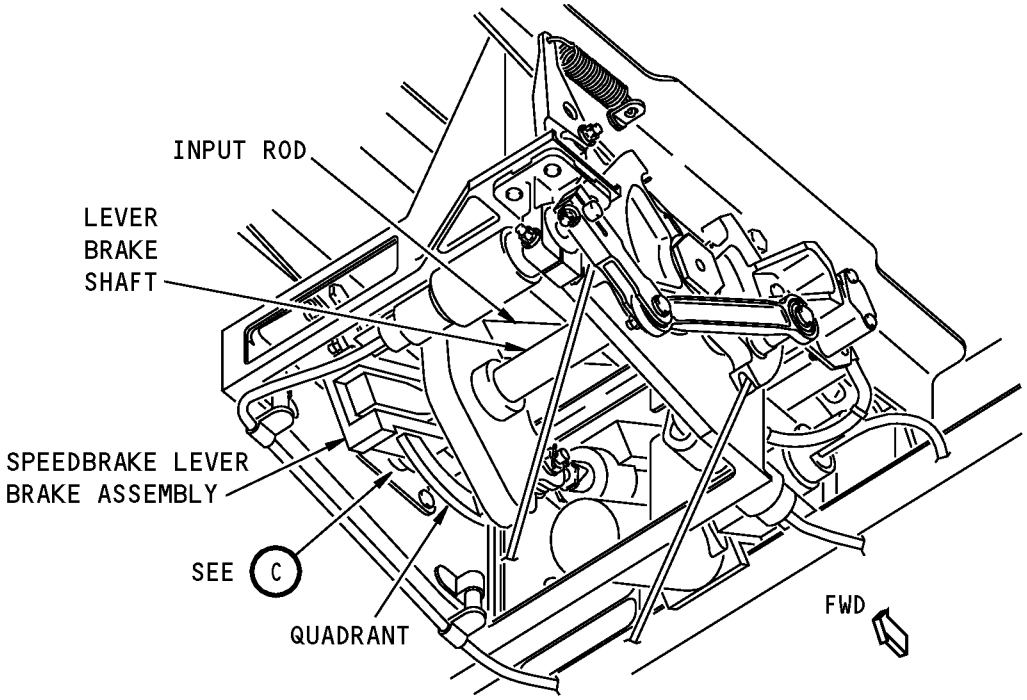
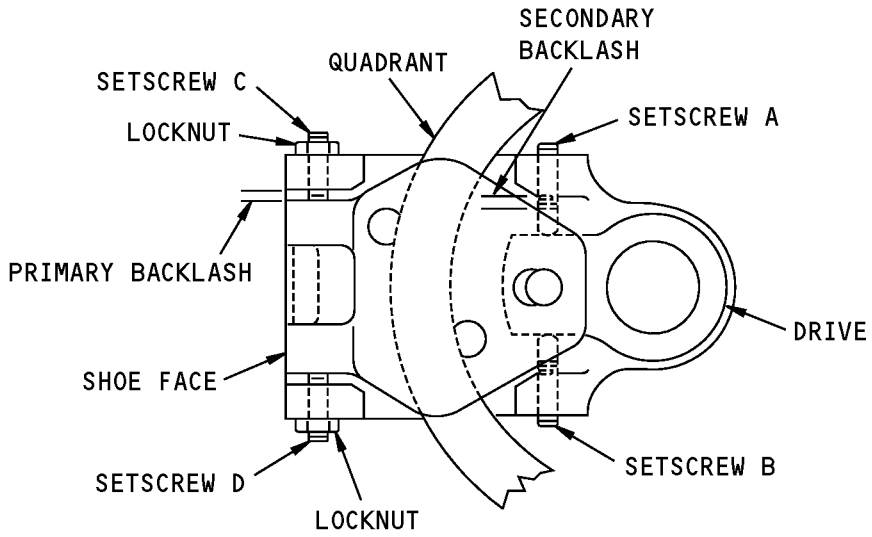


SPEEDBRAKE LEVER BRAKE ASSEMBLY

B



BACKLASH ADJUSTMENT

C

Speedbrake Lever Brake Backlash Adjustment
Figure 508 (Sheet 2 of 2)/27-62-00-990-811

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HAP 037-054

TASK 27-62-00-760-801

19. Speed Brake Solenoid Operated Valve Relay Continuity Test

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left

C. Check the Speed Brake SOV relays:

SUBTASK 27-62-00-760-002

(1) Remove the Spoiler SOV A relay R964 from the J39 junction box.

SUBTASK 27-62-00-760-003

(2) Do a continuity check on the R964 relay:

(a) Make sure there is continuity between pins A2 and A3.

(b) Make sure there is no continuity between pins A2 and A1.

(c) Make sure there is continuity between pins B2 and B3.

(d) Make sure there is no continuity between pins B2 and B1.

SUBTASK 27-62-00-760-004

(3) Remove the Spoiler SOV B relay R965 from the J39 junction box.

SUBTASK 27-62-00-760-005

(4) Do a continuity check on the R965 relay:

(a) Make sure there is continuity between pins A2 and A3.

(b) Make sure there is no continuity between pins A2 and A1.

(c) Make sure there is continuity between pins B2 and B3.

(d) Make sure there is no continuity between pins B2 and B1.

SUBTASK 27-62-00-760-006

(5) Remove the Spoiler SOV PWR relay R966 from the J39 junction box.

SUBTASK 27-62-00-760-007

(6) Do a continuity check on the R966 relay:

(a) Make sure there is continuity between pins A2 and A3.

(b) Make sure there is no continuity between pins A2 and A1.

(c) Make sure there is continuity between pins D2 and D3.

(d) Make sure there is no continuity between pins D2 and D1.

SUBTASK 27-62-00-420-001

(7) Install the three relays.

SUBTASK 27-62-00-710-003

(8) Do this task: Speed Brake Solenoid Operated Valve Test, TASK 27-62-00-710-803.

END OF TASK

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HAP 037-054 (Continued)

TASK 27-62-00-710-803

20. Speed Brake Solenoid Operated Valve Test

Figure 509

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Test

SUBTASK 27-62-00-010-010

(1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-62-00-861-001

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-00-865-001

WARNING: OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. WHEN YOU MOVE THE THRUST LEVER FORWARD, THE WEATHER RADAR SYSTEM COMES ON AUTOMATICALLY WHILE THE CIRCUIT BREAKER IS CLOSED. MAKE SURE THAT ALL PERSONNEL ARE MORE THAN 15 FT (5 M) FROM THE ANTENNA WHEN IT TRANSMITS RF ENERGY. RF ENERGY CAN KILL OR CAUSE INJURIES TO PERSONS, AND CAUSE DAMAGE TO EQUIPMENT.

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HAP 037-054 (Continued)

(WARNING PRECEDES)

(3) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-62-00-863-001

WARNING: KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-00-860-234

(5) Move the thrust levers to the IDLE position.

SUBTASK 27-62-00-860-235

(6) Make sure the Proximity Switch Electronics Unit (PSEU) is in the ground mode.

(a) If the PSEU is not in ground mode, do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 27-62-00-866-001

(7) Make sure the speed brake lever is in the DOWN position.

E. Speed Brake Solenoid Operated Valve (SOV) Test

SUBTASK 27-62-00-860-236

(1) Set the FLT CONTROL A and B switches on the flight controls panel, P5-3, to the ON position.

SUBTASK 27-62-00-860-237

(2) Set the SPOILER A and B switches on the flight controls panesl, P5-3 to the ON position.

SUBTASK 27-62-00-212-001

(3) Check that all spoilers are fully down.

SUBTASK 27-62-00-860-238

(4) Move either thrust lever to the full forward position.

SUBTASK 27-62-00-860-239

(5) Move the thrust lever back to the idle position.

SUBTASK 27-62-00-212-002

(6) Make sure the ANTISKID INOP light is OFF.

SUBTASK 27-62-00-860-240

(7) Make sure the parking brake is released.

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HAP 037-054 (Continued)

SUBTASK 27-62-00-866-002

(8) Move the flap lever to FLAPS 1 detent.

(a) Make sure the flaps move to the FLAPS 1 position.

SUBTASK 27-62-00-860-241

(9) Move the speed brake lever to the ARMED position.

SUBTASK 27-62-00-860-242

(10) Use the anitskid/autobrake control unit (AACU) to simulate wheel spin.

(a) Move the TEST SELECTOR switch to the INBD position.

(b) Move the toggle switch to the PRESS/TEST position. Hold the toggle switch while pressing the ENABLE/VERIFY button.

SUBTASK 27-62-00-212-003

(11) Make sure the flight spoilers move to the full UP position, approximately 60 degrees, similar to the ground spoilers.

NOTE: If the SOVs are not energized, the flight spoilers will only move to approximately 30 degrees, half of the movement of the ground spoilers.

F. Return the airplane to its usual condition.

SUBTASK 27-62-00-860-243

(1) Release the ENABLE/VERIFY button and PRESS/TEST switch.

SUBTASK 27-62-00-860-244

(2) Move the TEST SELECTOR switch to the NORM position.

SUBTASK 27-62-00-866-003

(3) Move the speed brake lever to the down position.

SUBTASK 27-62-00-860-245

(4) Move either thrust lever fully forward.

SUBTASK 27-62-00-860-246

(5) Move the thrust lever back to the IDLE position.

SUBTASK 27-62-00-863-002

(6) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-62-00-865-003

(7) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-62-00-862-001

(8) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

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HAP 037-054 (Continued)

SUBTASK 27-62-00-410-006

(9) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

———————— END OF TASK ————————

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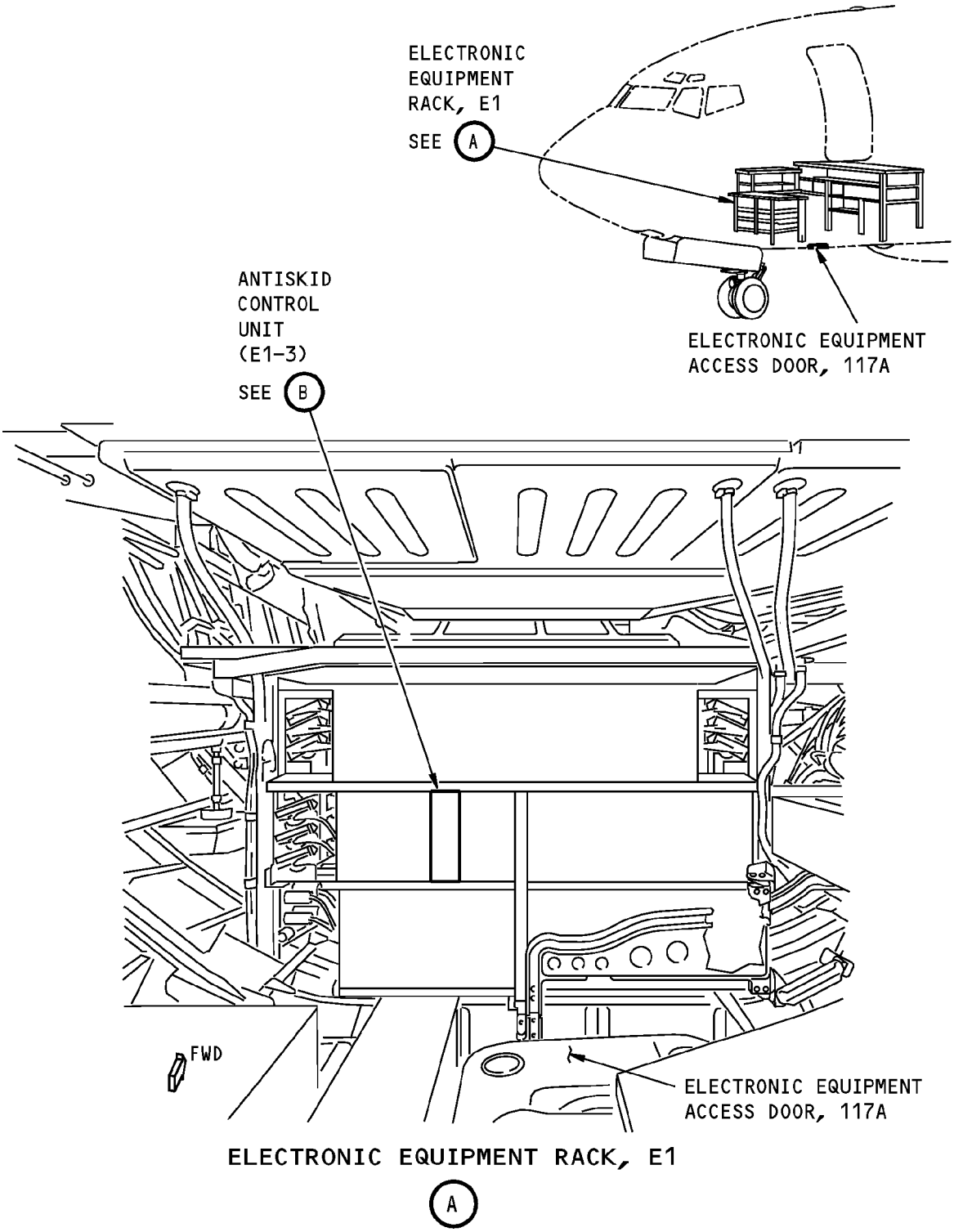

Speed Brake Solenoid Operated Valve Test
Figure 509 (Sheet 1 of 2)/27-62-00-990-813

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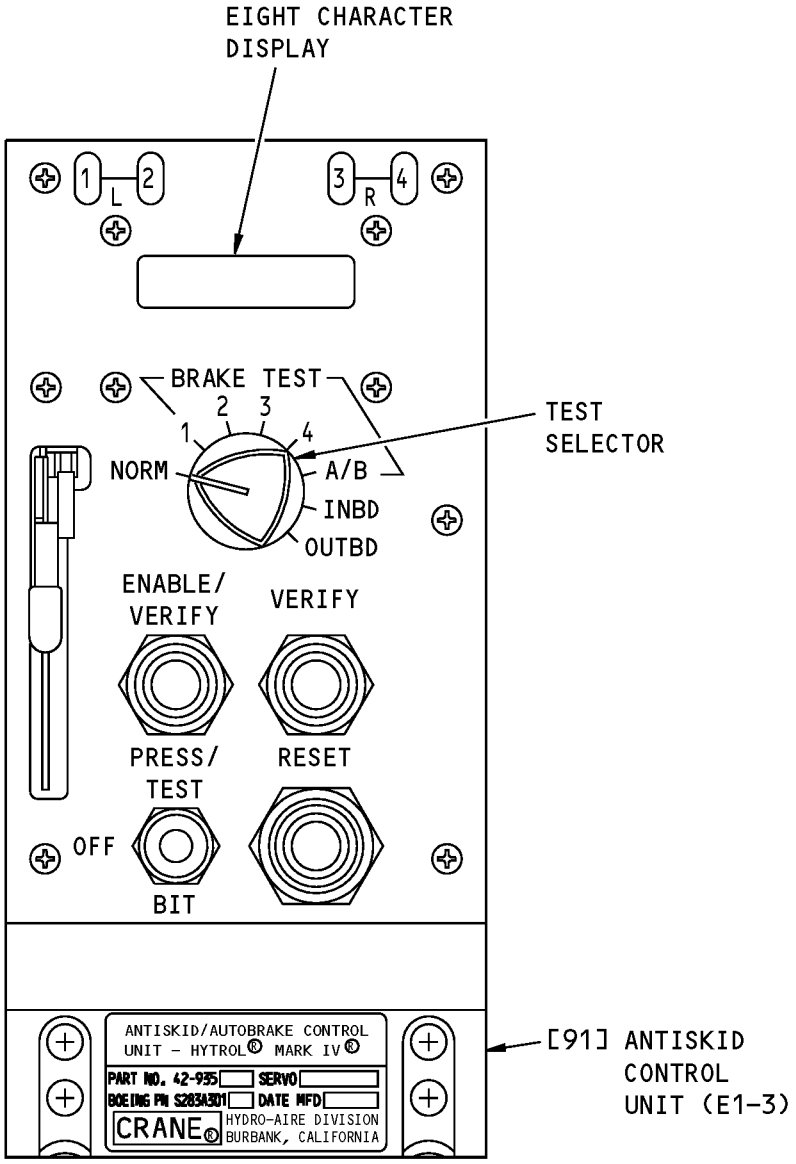

ANTISKID CONTROL UNIT (E1-3)

B

Speed Brake Solenoid Operated Valve Test
Figure 509 (Sheet 2 of 2)/27-62-00-990-813

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SPEED BRAKE CONTROL SYSTEM - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these inspection tasks:

(1) Speed Brake System Components

(2) Flight Spoiler and Ground Spoiler Actuators

TASK 27-62-00-210-801

2. Speed Brake System Components Inspection

(Figure 601)

A. General

(1) This procedure is a scheduled maintenance task.

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Procedure

SUBTASK 27-62-00-010-006

(1) To get access to the speed brake control system components,
Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-62-00-210-003

(2) Do a general visual inspection of these items:

(a) Speed Brake Lever Assembly

(b) Auto Speed Brake Actuator

(c) Actuator Rod End

(d) Forward Attachment Point

(e) Stabilizer Forward Trim Control Mechanism

SUBTASK 27-62-00-410-003

(3) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

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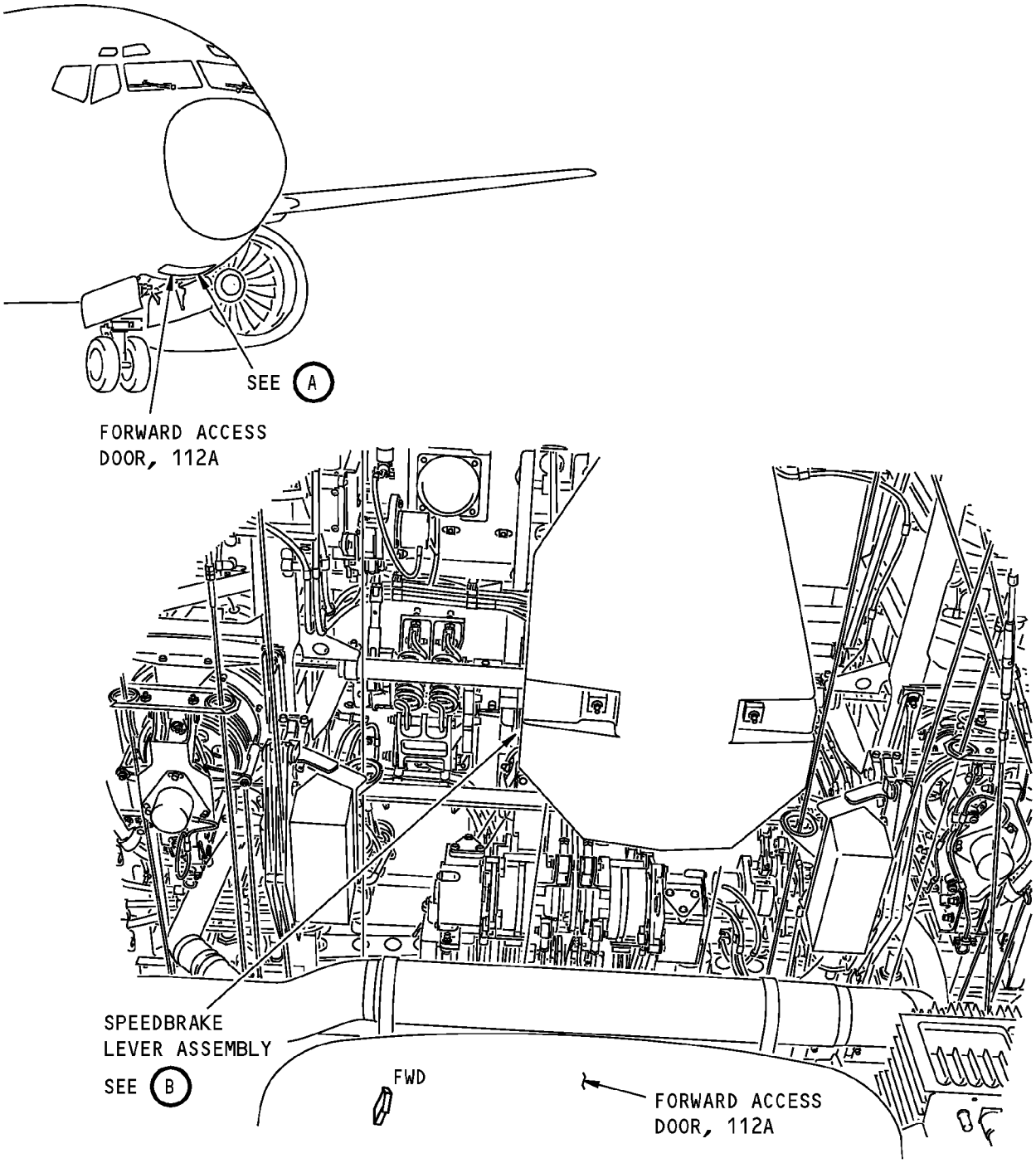

Speedbrake System Components Inspection
Figure 601 (Sheet 1 of 3)/27-62-00-990-810

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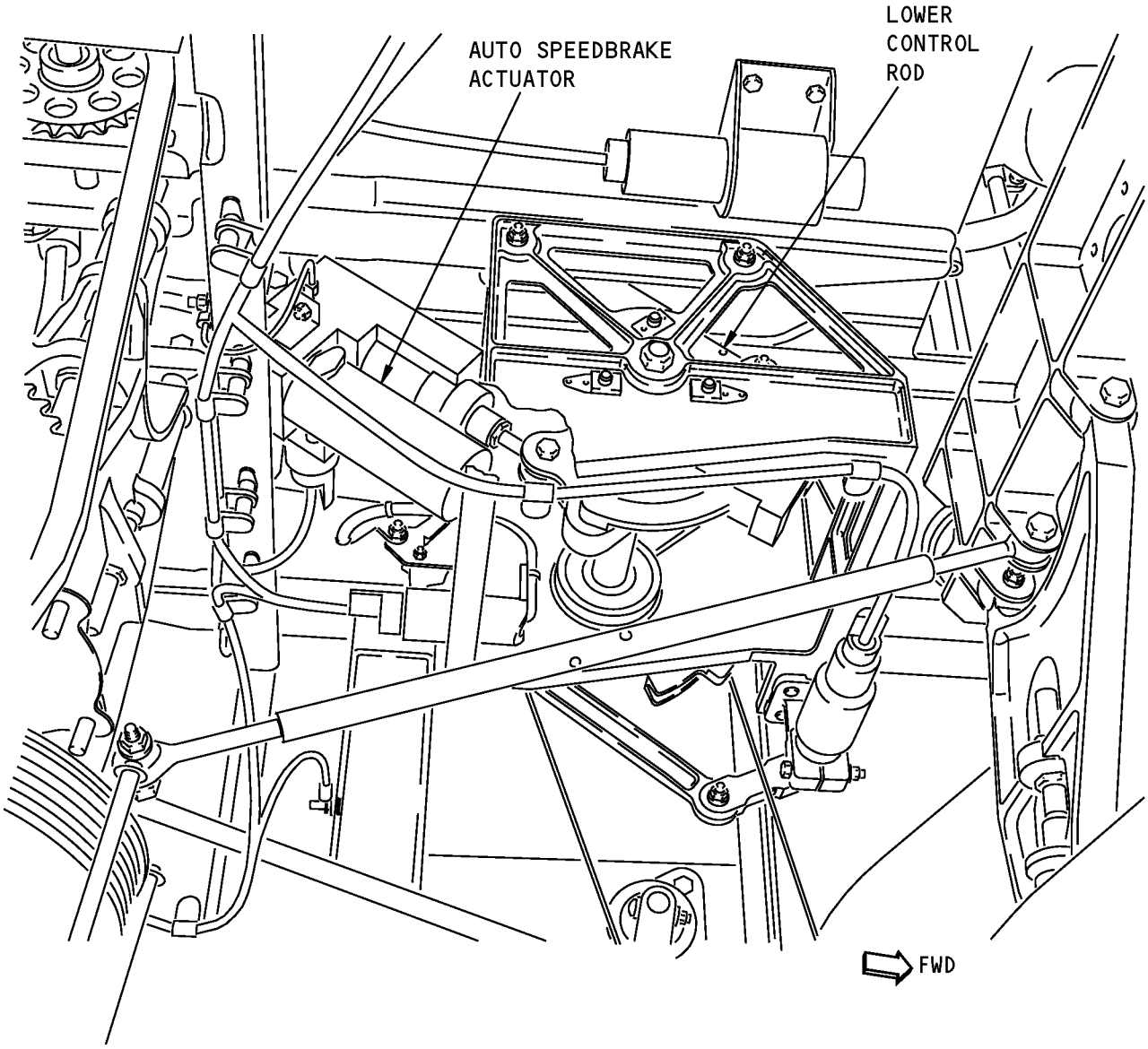

SPEEDBRAKE LEVER ASSEMBLY

B

Speedbrake System Components Inspection
Figure 601 (Sheet 2 of 3)/27-62-00-990-810

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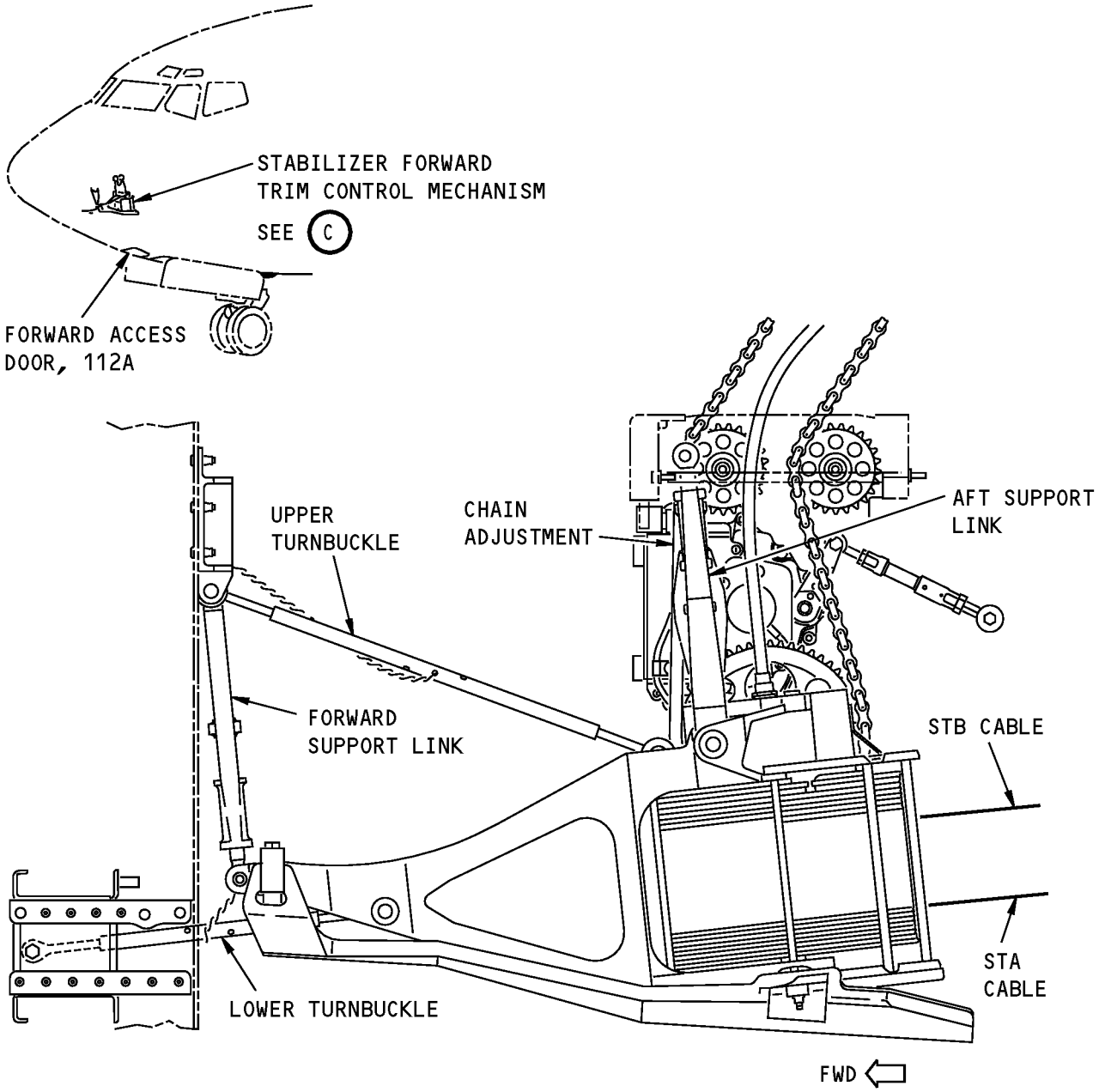

STABILIZER FORWARD TRIM CONTROL MECHANISM
(VIEW IN THE INBOARD DIRECTION)

C

Speedbrake System Components Inspection
Figure 601 (Sheet 3 of 3)/27-62-00-990-810

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TASK 27-62-00-210-802

3. Spoiler Actuator Inspection

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
552	Left Wing - Spoiler No. 6
562	Left Wing - Spoiler No. 5
563	Left Wing - Spoiler No. 4
564	Left Wing - Spoiler No. 3
565	Left Wing - Spoiler No. 2
566	Left Wing - Spoiler No. 1
652	Right Wing - Spoiler No. 7
662	Right Wing - Spoiler No. 8
663	Right Wing - Spoiler No. 9
664	Right Wing - Spoiler No. 10
665	Right Wing - Spoiler No. 11
666	Right Wing - Spoiler No. 12

D. Procedure

SUBTASK 27-62-00-010-007

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-00-860-187

(2) Move the speed brake lever from the DOWN position to the UP position.

SUBTASK 27-62-00-210-005

(3) Do a general visual inspection of the spoiler actuators and quadrants.

SUBTASK 27-62-00-860-188

(4) Move the speed brake lever from the UP position to the DOWN position.

SUBTASK 27-62-00-860-189

(5) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

END OF TASK

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INBOARD GROUND SPOILER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard ground spoilers

(2) An installation of the inboard ground spoilers

(3) A functional test of the inboard ground spoilers.

B. This procedure is applicable to the left and right inboard ground spoilers.

TASK 27-62-12-000-801

2. Inboard Ground Spoiler Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1744	Set - Lock, Inboard Ground Spoiler Actuator (Contains 4 Lock Assemblies) (Part #: C27046-13, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27046-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-5011	Set - Lock, Inboard Ground Spoiler Actuator, 737 SFP (Contains 4 Lock Assemblies) (Part #: C27046-13, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
552	Left Wing - Spoiler No. 6
652	Right Wing - Spoiler No. 7

D. Prepare for the Removal

SUBTASK 27-62-12-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-12-860-003

(2) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

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SUBTASK 27-62-12-860-004

(3) Put the SPOILER A and B switches to the OFF position to remove the hydraulic power from the flight spoilers.

NOTE: SPOILER A AND B switches are on the flight control panel (P5-3).

SUBTASK 27-62-12-860-005

(4) Put the speed brake lever in the UP position to lift the ground spoilers.

SUBTASK 27-62-12-480-001

(5) Install the set, SPL-1744 for the applicable ground spoiler.

HAP 037-054

SUBTASK 27-62-12-480-003

(6) Install the lock set, SPL-5011 for the applicable ground spoiler.

HAP ALL

SUBTASK 27-62-12-860-013

(7) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

E. Inboard Ground Spoiler Removal

SUBTASK 27-62-12-020-001

(1) Remove the pin [16], nut [17], washer [15], bushing [14], washer [13] and bolt [12] that attaches the rod end of the outboard actuator [24] to the Inboard Ground Spoiler [1].

SUBTASK 27-62-12-020-002

(2) Remove the pin [33], nut [32], nut [31], washer [34], bushing [35], washer [36] and bolt [37] that attach the rod end of the inboard actuator [38] to the Inboard Ground Spoiler [1].

SUBTASK 27-62-12-020-003

(3) Remove nut [11], washer [8], and washer [9], and disconnect the bonding jumper [10] from the structure.

SUBTASK 27-62-12-020-004

(4) Remove nut [47], washer [46], and washer [48] and disconnect the bonding jumper [45] from the structure.

SUBTASK 27-62-12-020-005

(5) Remove the Inboard Ground Spoiler [1]:

(a) Remove pin [5], nut [6], washer [7], bushing [4], washer [3] and bolt [2] to disconnect the outboard hinge fitting.

(b) Remove pin [19], nut [18], washer [20], bushing [21], washer [22] and bolt [21] to disconnect the center left hinge fitting.

(c) Remove pin [30], nut [29], washer [28], bushing [27], washer [26] and bolt [25] to disconnect the center right hinge fitting.

(d) Remove pin [44], nut [43], washer [42], bushing [39], washer [40] and bolt [41] to disconnect the inboard hinge fitting.

(e) Remove the Inboard Ground Spoiler [1] from the airplane.

END OF TASK

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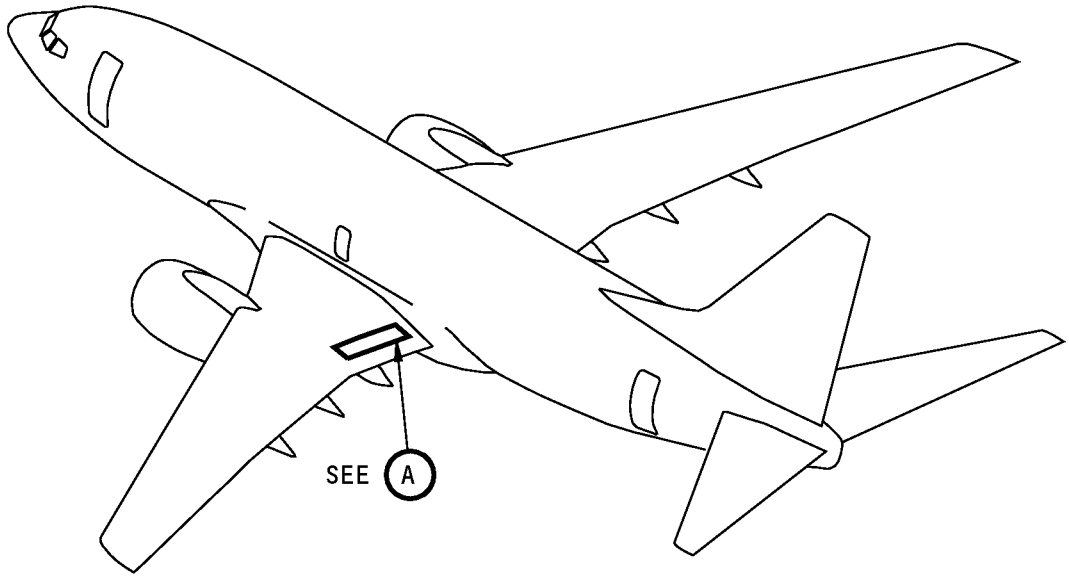

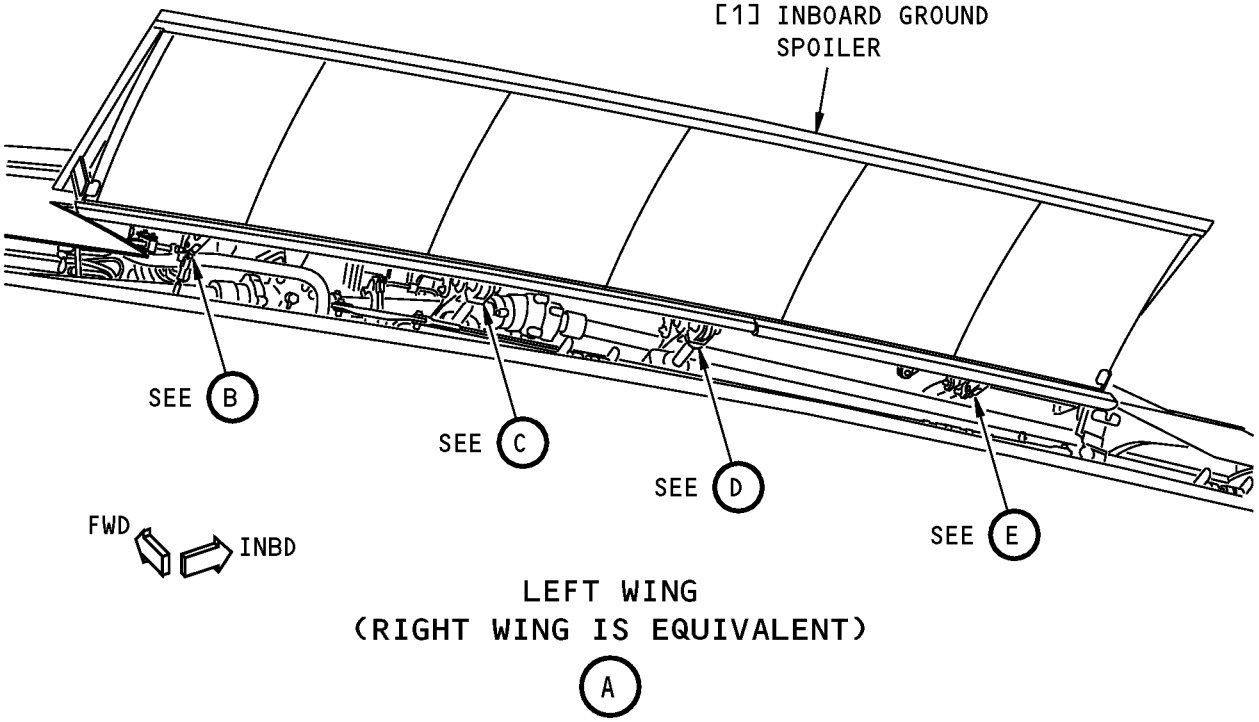

Inboard Ground Spoiler Installation
Figure 401 (Sheet 1 of 5)/27-62-12-990-801

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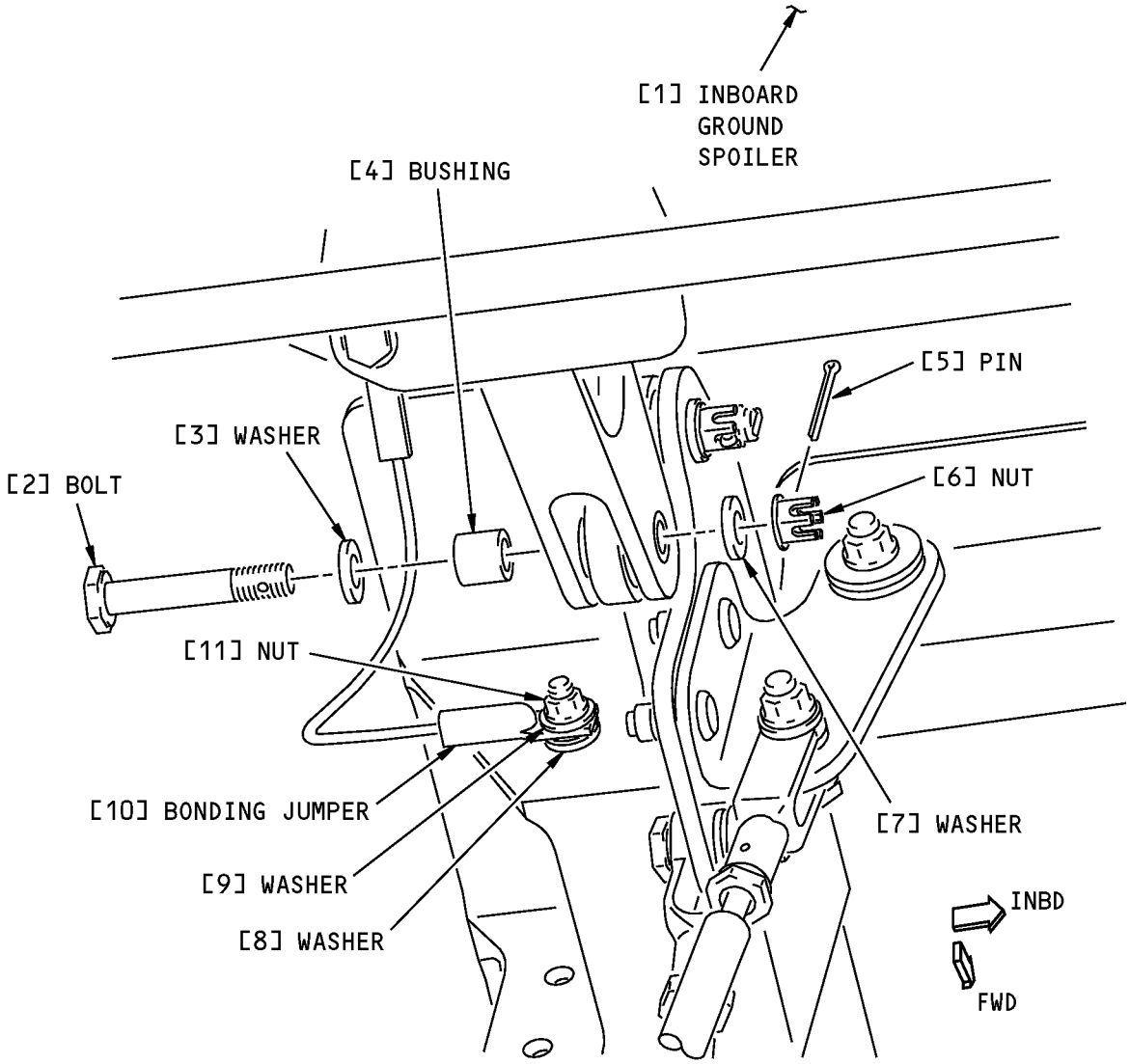

OUTBOARD HINGE FITTING

B

Inboard Ground Spoiler Installation
Figure 401 (Sheet 2 of 5)/27-62-12-990-801

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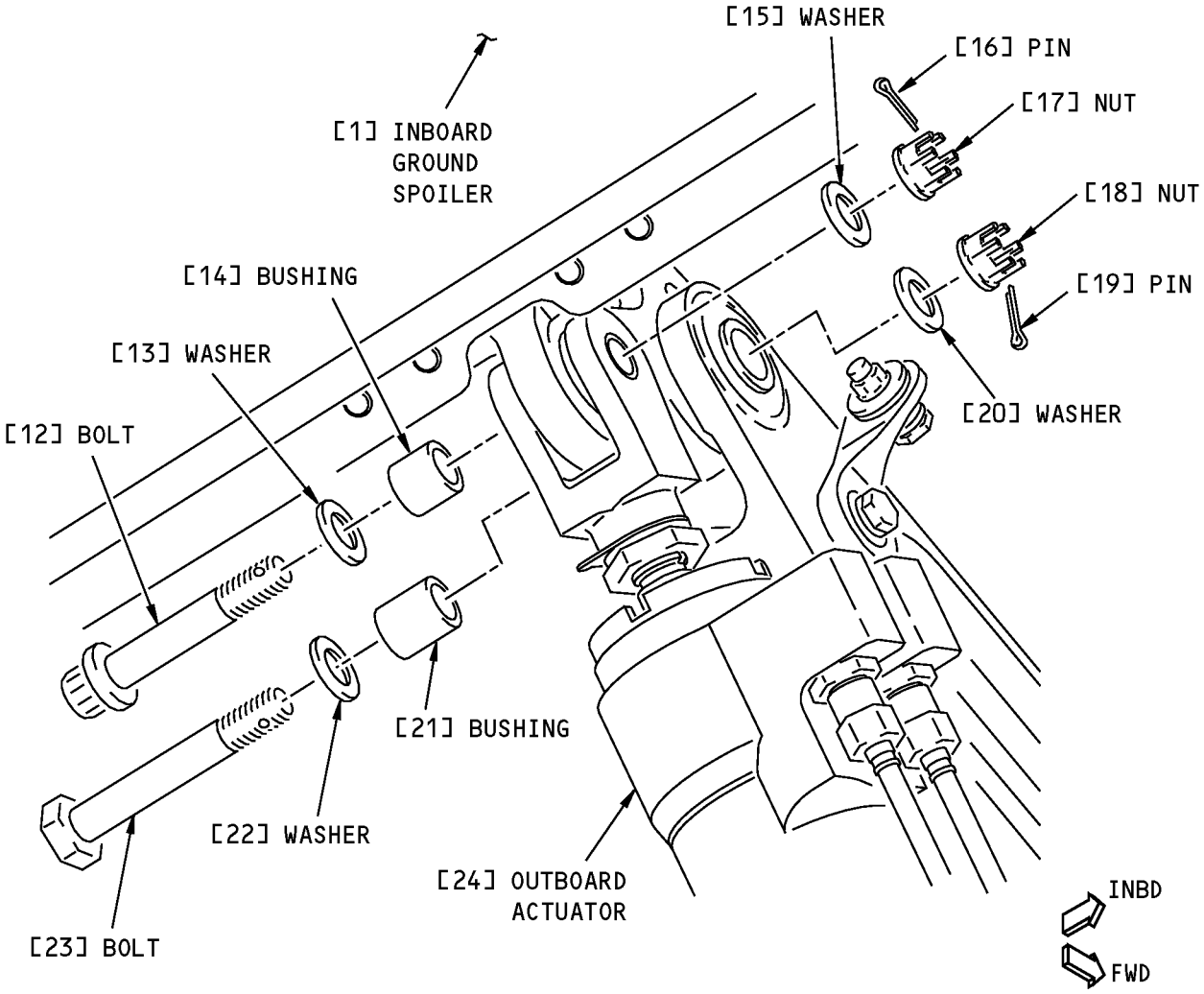

CENTER LEFT HINGE FITTING

C

Inboard Ground Spoiler Installation
Figure 401 (Sheet 3 of 5)/27-62-12-990-801

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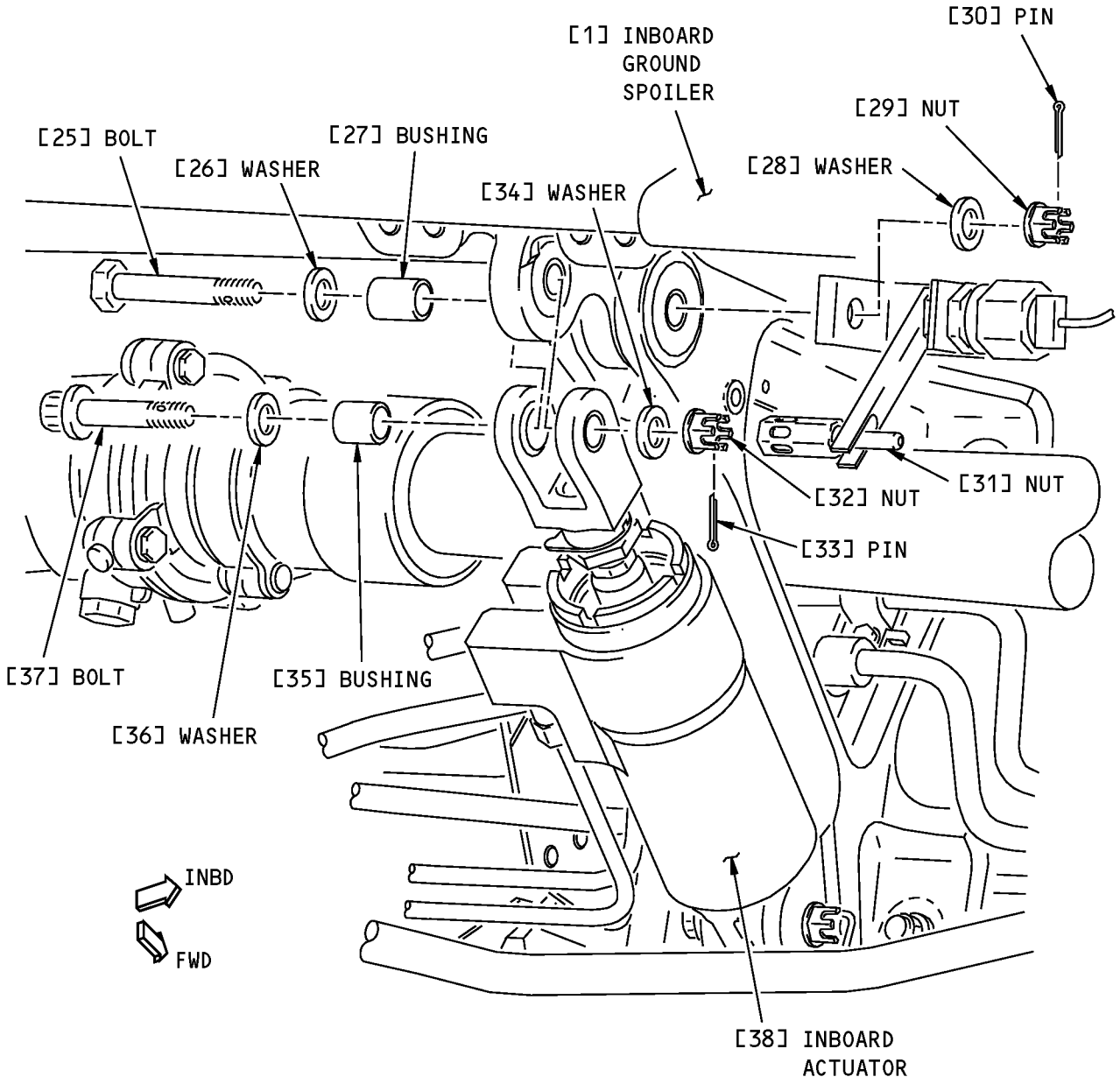

CENTER RIGHT HINGE FITTING

D

Inboard Ground Spoiler Installation
Figure 401 (Sheet 4 of 5)/27-62-12-990-801

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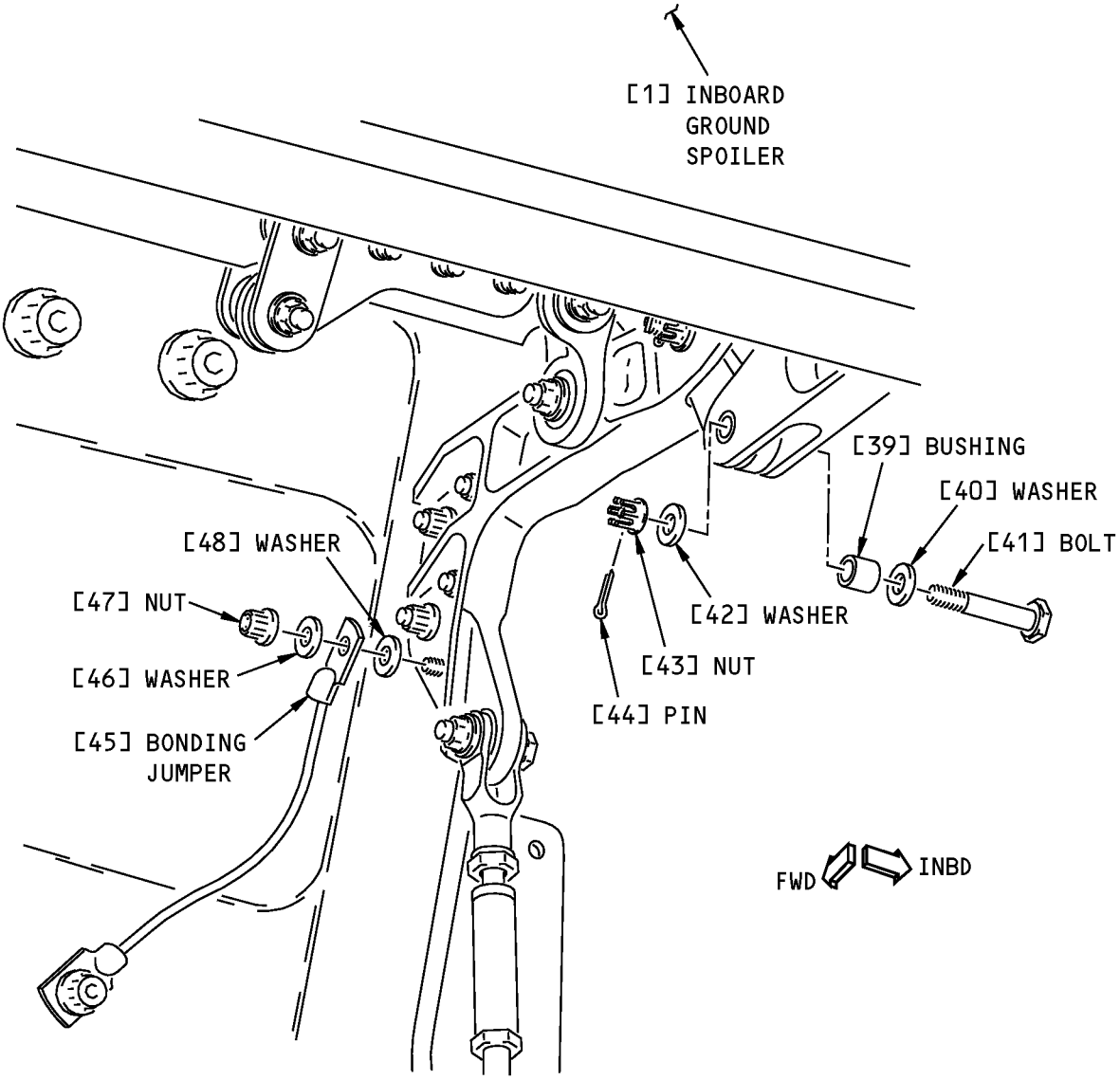

Inboard Ground Spoiler Installation
Figure 401 (Sheet 5 of 5)/27-62-12-990-801

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TASK 27-62-12-400-801

3. Inboard Ground Spoiler Installation

(Figure 401)

A. References

Reference	Title
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-820-804	Ground Spoiler Adjustment (P/B 501)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-840-802	Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1744	Set - Lock, Inboard Ground Spoiler Actuator (Contains 4 Lock Assemblies) (Part #: C27046-13, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27046-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-5011	Set - Lock, Inboard Ground Spoiler Actuator, 737 SFP (Contains 4 Lock Assemblies) (Part #: C27046-13, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Inboard Ground Spoiler	57-70-00-10-175	HAP 031-054, 101-999
		57-70-00-10-180	HAP 031-054, 101-999
		57-70-00-10C-175	HAP 001-013, 015-026, 028-030
		57-70-00-10C-180	HAP 001-013, 015-026, 028-030
5	Pin	57-42-00-04-010	HAP 031-054, 101-999
		57-42-00-04B-010	HAP 001-013, 015-026, 028-030
16	Pin	27-62-71-01-195	HAP ALL
19	Pin	57-42-00-04-055	HAP 031-054, 101-999
		57-42-00-04B-055	HAP 001-013, 015-026, 028-030
30	Pin	57-42-00-04-055	HAP 031-054, 101-999
		57-42-00-04B-055	HAP 001-013, 015-026, 028-030
33	Pin	27-62-71-01-195	HAP ALL

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
44	Pin	57-42-00-04-010	HAP 031-054, 101-999
		57-42-00-04B-010	HAP 001-013, 015-026, 028-030

E. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
552	Left Wing - Spoiler No. 6
652	Right Wing - Spoiler No. 7

F. Inboard Ground Spoiler Installation

SUBTASK 27-62-12-420-001

(1) Install the Inboard Ground Spoiler [1]:

(a) Put the Inboard Ground Spoiler [1] in its position on the airplane.

(b) Install the bolt [41] with the head inboard, washer [40], bushing [39], washer [42], nut [43], and pin [44] in the inboard hinge fitting.

(c) Install the bolt [25] with the head outboard, washer [26], bushing [27], washer [28], nut [29], and pin [30] in the center right hinge fitting.

(d) Install the bolt [23] with the head outboard, washer [22], bushing [21], washer [20], nut [18], and pin [19] in the center left hinge fitting.

(e) Install the bolt [2] with the head outboard, washer [3], bushing [4], washer [7], nut [6], and pin [5] in the outboard hinge fitting.

(f) Install washer [8], washer [9] and nut [11] and connect the bonding jumper [10] to the Inboard Ground Spoiler [1].

NOTE: Bend the bonding jumper 45 +/- 5 degrees away from the fitting.

(g) Install washer [46] washer [48] and nut [47] and connect the bonding jumper [45] to the Inboard Ground Spoiler [1].

NOTE: Bend the bonding jumper 45 +/- 5 degrees away from the fitting.

SUBTASK 27-62-12-980-001

(2) Move the Inboard Ground Spoiler [1] through its full travel.

(a) Make sure the Inboard Ground Spoiler [1] moves freely.

SUBTASK 27-62-12-420-002

(3) Install the bolt [12] that attaches the rod end of the outboard actuator [24] to the Inboard Ground Spoiler [1]:

(a) Apply a layer of grease, D00633 to the bolt [12].

(b) Install the bolt [12] with its head outboard.

(c) Install the washer [13], bushing [14], washer [15], and nut [17], and on the bolt [12].

(d) Tighten the nut [17].

(e) Install the pin [16].

(f) Apply grease, D00633 to the bolt [12], washer [13], bushing [14], washer [15], nut [17], and pin [16].

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SUBTASK 27-62-12-420-003

(4) Install the bolt [37] that attaches the rod end of the inboard actuator [38] to the Inboard Ground Spoiler [1]:

(a) Apply a layer of grease, D00633 to the bolt [37].

(b) Install the bolt [37] with its head outboard.

(c) Install the washer [36], bushing [35], washer [34], nut [32], nut [31] and pin [33] on the bolt [37].

(d) Apply grease, D00633 to the bolt [37], washer [36], bushing [35], washer [34], nut [32], nut [31] and pin [33].

SUBTASK 27-62-12-080-001

(5) Remove set, SPL-1744.

HAP 037-054

SUBTASK 27-62-12-080-003

(6) Remove lock set, SPL-5011.

HAP ALL

SUBTASK 27-62-12-860-008

(7) Do this task: Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-62-00-840-802.

SUBTASK 27-62-12-860-014

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-12-860-009

(9) Move the speed brake lever to the DOWN position to lower the spoilers.

SUBTASK 27-62-12-860-010

(10) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-12-820-001

(11) Adjust the inboard ground spoilers. To adjust, do this task: Ground Spoiler Adjustment, TASK 27-62-00-820-804.

SUBTASK 27-62-12-720-001

(12) Do this task: Inboard Ground Spoiler Functional Test, TASK 27-62-12-000-802.

END OF TASK

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TASK 27-62-12-000-802

4. Inboard Ground Spoiler Functional Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
552	Left Wing - Spoiler No. 6
652	Right Wing - Spoiler No. 7

D. Prepare for the Test

SUBTASK 27-62-12-860-011

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-12-860-012

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-12-480-002

(3) Install the protractor, COM-1691 on the inboard ground spoilers 6 and 7.

SUBTASK 27-62-12-820-002

(4) Adjust the protractor, COM-1691 to zero.

E. Inboard Ground Spoiler Functional Test

SUBTASK 27-62-12-020-006

(1) Move the speed brake lever to the UP position to lift the spoilers.

SUBTASK 27-62-12-020-007

(2) Make sure the spoilers No. 6 and 7 are 52 +/-2 degrees up from the retracted position.

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SUBTASK 27-62-12-020-008

(3) Make sure the ground spoilers No. 6 and 7 align in the limit of 2 degrees.

SUBTASK 27-62-12-020-009

(4) Move the speed brake lever to the DOWN position to lower the spoilers.

SUBTASK 27-62-12-820-003

(5) Make sure the spoilers move to the fully retracted position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-12-860-015

(1) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-62-12-080-002

(2) Remove the protractor, COM-1691 from the spoilers No. 6 and 7.

———————— END OF TASK ————————

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GROUND SPOILER HINGE LINK - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the ground spoiler hinge links.

(2) An installation of the ground spoiler hinge links.

B. This procedure is applicable to the left and right ground spoiler hinge links.

TASK 27-62-15-000-801

2. Ground Spoiler Hinge Link Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-800-802	Remove Pressure from the Spoiler Hydraulic Systems A and B (P/B 201)
27-62-12-000-801	Inboard Ground Spoiler Removal (P/B 401)
27-62-91-000-801	Outboard Ground Spoiler Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1743	Set - Ground Lock, Outboard Spoiler Actuators (Part #: C27001-35, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1744	Set - Lock, Inboard Ground Spoiler Actuator (Contains 4 Lock Assemblies) (Part #: C27046-13, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27046-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-5011	Set - Lock, Inboard Ground Spoiler Actuator, 737 SFP (Contains 4 Lock Assemblies) (Part #: C27046-13, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
552	Left Wing - Spoiler No. 6
566	Left Wing - Spoiler No. 1
652	Right Wing - Spoiler No. 7
666	Right Wing - Spoiler No. 12

D. Prepare for the Removal

SUBTASK 27-62-15-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-62-15-860-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-62-15-860-003

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-62-15-860-004

WARNING: MAKE SURE THE SPOILER WILL REMAIN IN THE OPEN POSITION DURING INSTALLATION OF THE LOCK-SET. PUT ONE PERSON IN THE FLIGHT COMPARTMENT TO MONITOR THE SPOILER CONTROL LEVER. IF THE SPOILER CONTROL LEVER CHANGES POSITION, THE SPOILER PANEL COULD MOVE AND CAUSE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Put the speed brake lever in the UP position to lift the spoilers.

HAP 001-013, 015-026, 028-036, 101-999

SUBTASK 27-62-15-480-001

(5) Install the set, SPL-1744 or the set, SPL-1743 on the actuator for the applicable ground spoiler.

HAP 037-054

SUBTASK 27-62-15-480-002

(6) Install the lock set, SPL-5011 on the actuator for the applicable ground spoiler.

HAP ALL

SUBTASK 27-62-15-860-005

(7) Do this task: Remove Pressure from the Spoiler Hydraulic Systems A and B, TASK 27-61-00-800-802.

SUBTASK 27-62-15-020-001

(8) To remove the outboard ground spoiler hinge link, do this task: Outboard Ground Spoiler Removal, TASK 27-62-91-000-801.

SUBTASK 27-62-15-020-002

(9) To remove the inboard ground spoiler hinge links, do this task: Inboard Ground Spoiler Removal, TASK 27-62-12-000-801.

E. Ground Spoiler Hinge Link Removal

SUBTASK 27-62-15-020-003

(1) Remove the spoiler hinge link [5]:

(a) Remove pin [11], nut [10], washer [9], bushing [8], washer [7] and bolt [6].

(b) Remove ground spoiler hinge link [5] from the airplane.

——————— END OF TASK ———————

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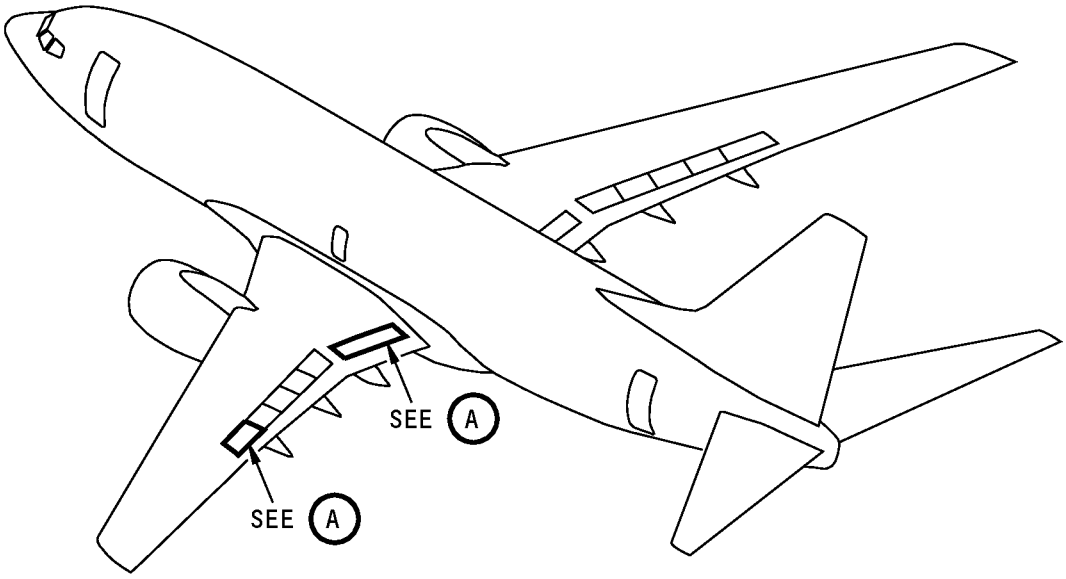

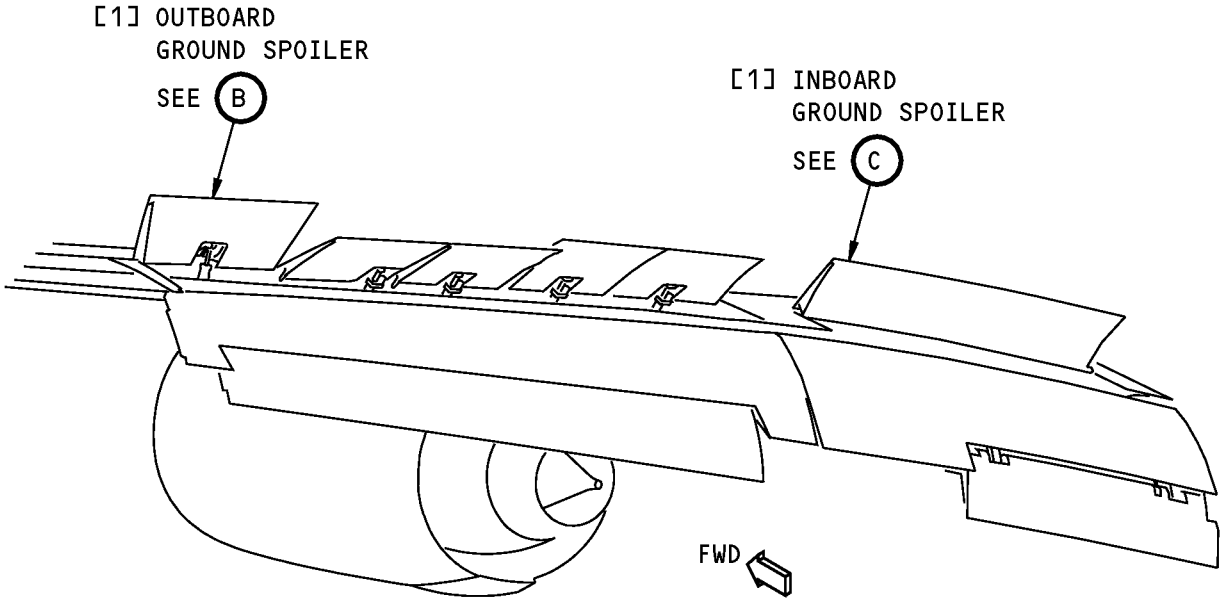

LEFT WING
(RIGHT WING IS EQUIVALENT)

A

Ground Spoiler Hinge Link Installation
Figure 401 (Sheet 1 of 3)/27-62-15-990-801

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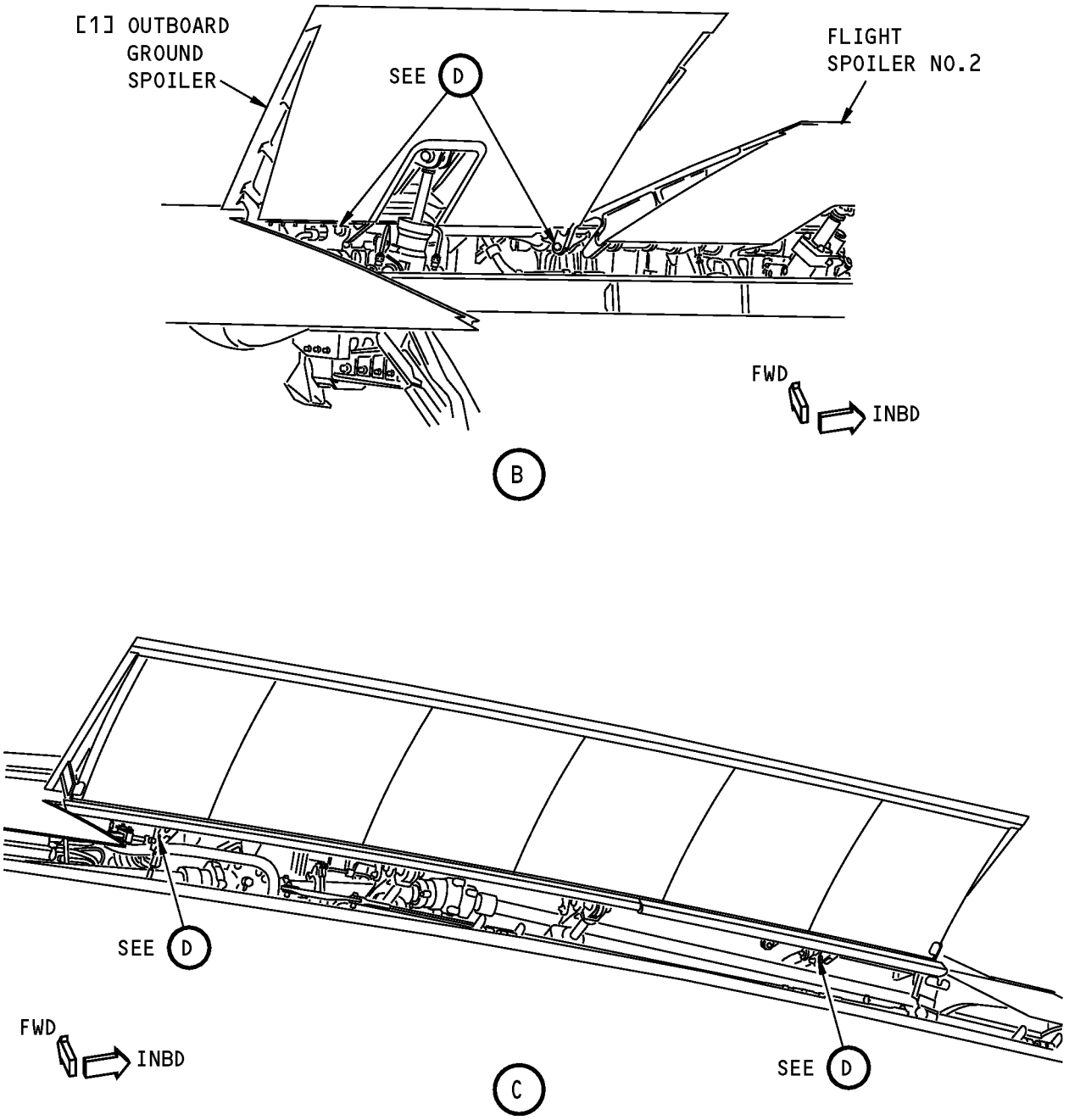

Ground Spoiler Hinge Link Installation
Figure 401 (Sheet 2 of 3)/27-62-15-990-801

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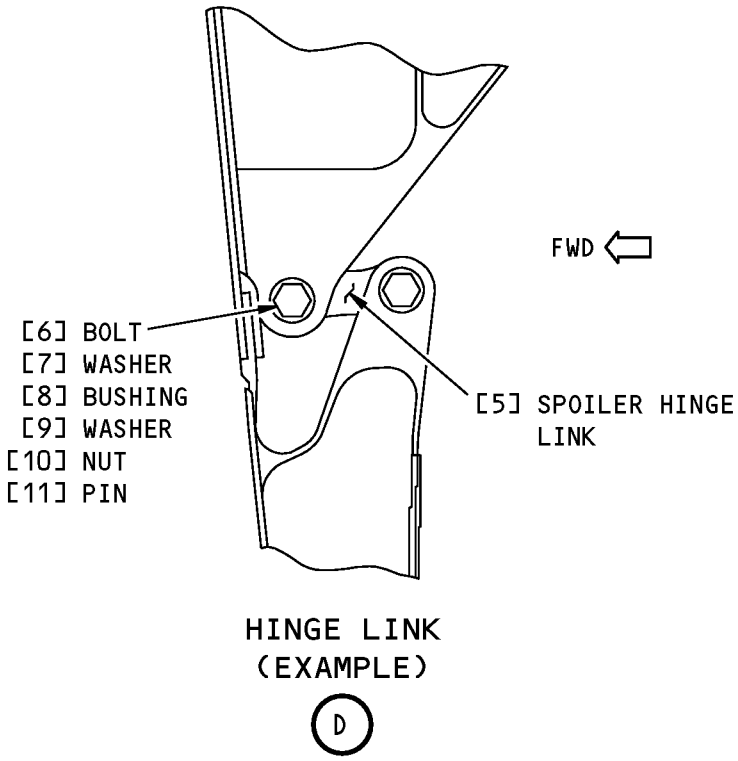

Ground Spoiler Hinge Link Installation
Figure 401 (Sheet 3 of 3)/27-62-15-990-801

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TASK 27-62-15-400-801

3. Ground Spoiler Hinge Link Installation

(Figure 401)

A. References

Reference	Title
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-61-00-800-801	Spoiler Hydraulic Systems A and B Pressurization (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-820-804	Ground Spoiler Adjustment (P/B 501)
27-62-12-400-801	Inboard Ground Spoiler Installation (P/B 401)
27-62-91-000-802	Outboard Ground Spoiler Test (P/B 401)
27-62-91-400-801	Outboard Ground Spoiler Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1743	Set - Ground Lock, Outboard Spoiler Actuators (Part #: C27001-35, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1744	Set - Lock, Inboard Ground Spoiler Actuator (Contains 4 Lock Assemblies) (Part #: C27046-13, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27046-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-5011	Set - Lock, Inboard Ground Spoiler Actuator, 737 SFP (Contains 4 Lock Assemblies) (Part #: C27046-13, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
552	Left Wing - Spoiler No. 6
566	Left Wing - Spoiler No. 1
652	Right Wing - Spoiler No. 7
666	Right Wing - Spoiler No. 12

D. Ground Spoiler Hinge Link Installation

SUBTASK 27-62-15-020-004

(1) Install the spoiler hinge link [5]:

(a) Install the bolt [6], washer [7], bushing [8], washer [9], nut [10] and pin [11].

SUBTASK 27-62-15-400-001

(2) If you removed the outboard ground spoiler hinge link, do this task: Outboard Ground Spoiler Installation, TASK 27-62-91-400-801.

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SUBTASK 27-62-15-400-002

(3) If you removed the inboard ground spoiler hinge links, do this task: Inboard Ground Spoiler Installation, TASK 27-62-12-400-801.

SUBTASK 27-62-15-860-006

(4) Make sure hydraulic power is not on.

HAP 001-013, 015-026, 028-036, 101-999

SUBTASK 27-62-15-080-001

(5) Remove set, SPL-1744 or the set, SPL-1743 from the applicable spoiler actuator.

HAP 037-054

SUBTASK 27-62-15-080-002

(6) Remove lock set, SPL-5011 from the applicable spoiler actuator.

HAP ALL

SUBTASK 27-62-15-860-007

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Do this task: Spoiler Hydraulic Systems A and B Pressurization, TASK 27-61-00-800-801.

SUBTASK 27-62-15-860-008

(8) Move the speed brake lever to the DOWN position to lower the spoilers.

SUBTASK 27-62-15-860-009

(9) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-62-15-860-010

(10) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

SUBTASK 27-62-15-820-001

(11) Do this task: Ground Spoiler Adjustment, TASK 27-62-00-820-804.

SUBTASK 27-62-15-720-001

(12) Do this task: Outboard Ground Spoiler Test, TASK 27-62-91-000-802.

———————— END OF TASK ————————

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SPEED BRAKE FORWARD DRUM AND LEVER BRAKE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the speed brake forward drum and lever brake

(2) An installation of the speed brake forward drum and lever brake.

TASK 27-62-21-000-801

2. Speed Brake Forward Drum and Lever Brake Removal

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel

D. Prepare for the Removal

SUBTASK 27-62-21-860-001

(1) Make sure the systems A and B hydraulic power is off. To remove it, do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-62-21-860-002

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-21-860-003

(3) Put the speed brake lever in the DOWN position.

SUBTASK 27-62-21-010-001

(4) To get access to the forward equipment area, do this step:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-62-21-010-003

(5) To get access to the speed brake forward drum [1] and lever brake [11], do this step:

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Remove these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel

E. Speed Brake Forward Drum and Lever Brake Removal

SUBTASK 27-62-21-020-001

(1) Remove bolt [3] and washer [4] to disconnect the lever arm assembly [2] and remove bushing [5].

SUBTASK 27-62-21-020-002

(2) Disconnect the speed brake control cables SBA and SBB:

(a) Install cable clamps on the cables to keep a small tension on the cables.

(b) Disconnect the turnbuckles installed in the aft part of the lower nose compartment.

(c) Install tags on the cables for identification.

(d) Remove the cable retainers and the cables from the speed brake forward drum [1].

SUBTASK 27-62-21-020-003

(3) Remove the speed brake forward drum [1]:

(a) Remove quadrant bolt [18] and spacer [17].

(b) Remove the speed brake forward drum [1] from the shaft.

1) Hold the cam roller lever arm [16] away from the speed brake forward drum [1].

SUBTASK 27-62-21-020-004

(4) Remove the lever brake assembly [11]:

(a) Remove the bolt [12], washer [13], and nut [14] to disconnect the input rod [15] from the lever brake assembly [11].

(b) Remove the bolt [7], washer [8], nut [9], and cotter pin [10] to disconnect the actuator [6] from the lever brake assembly [11].

(c) Remove the nut [21], bearing [19], and bearing [20] at the end of the lever brake shaft.

(d) Remove the lever brake assembly [11] from the airplane.

——————— END OF TASK ———————

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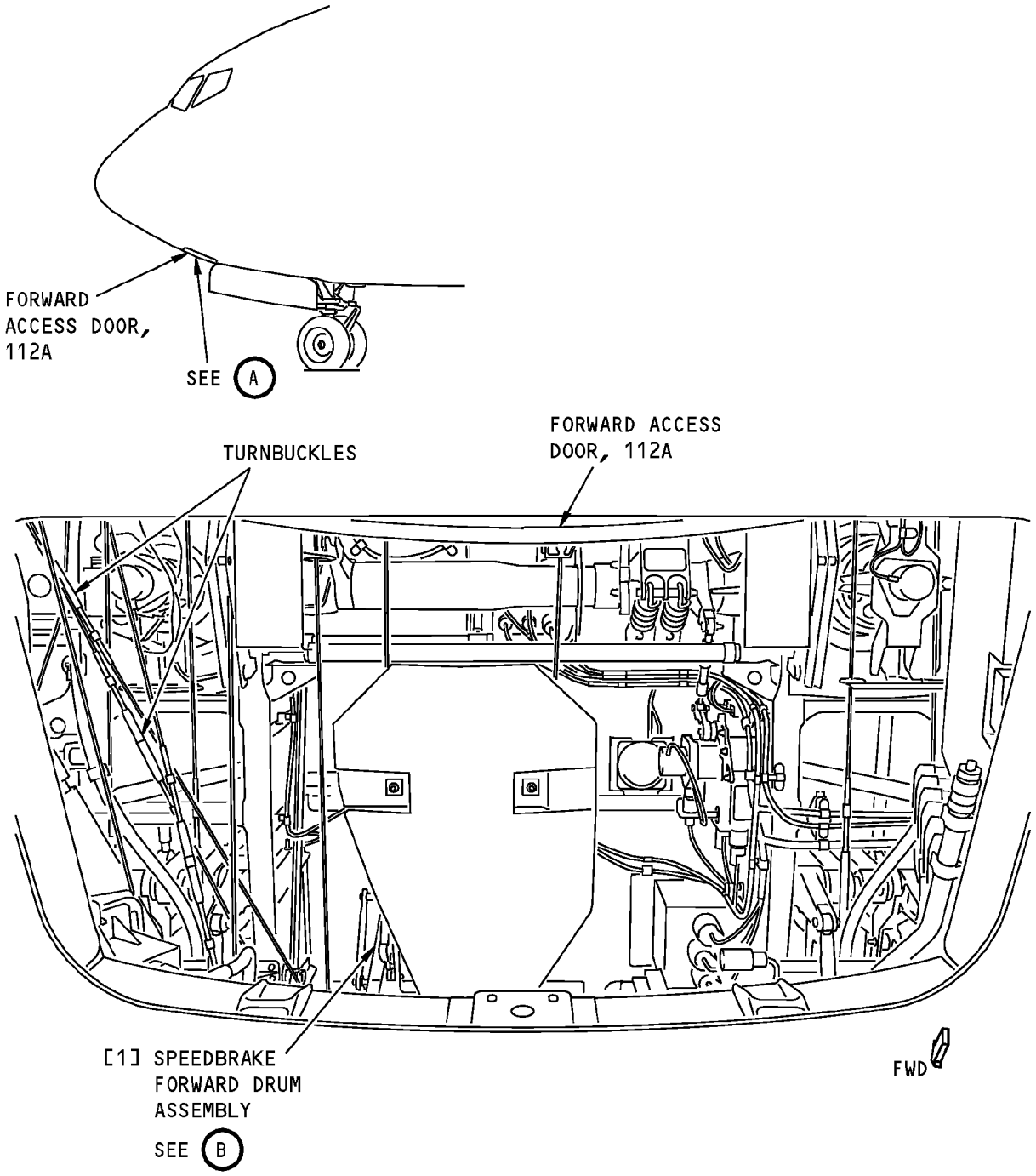

Speedbrake Forward Drum and Lever Brake Installation
Figure 401 (Sheet 1 of 2)/27-62-21-990-801

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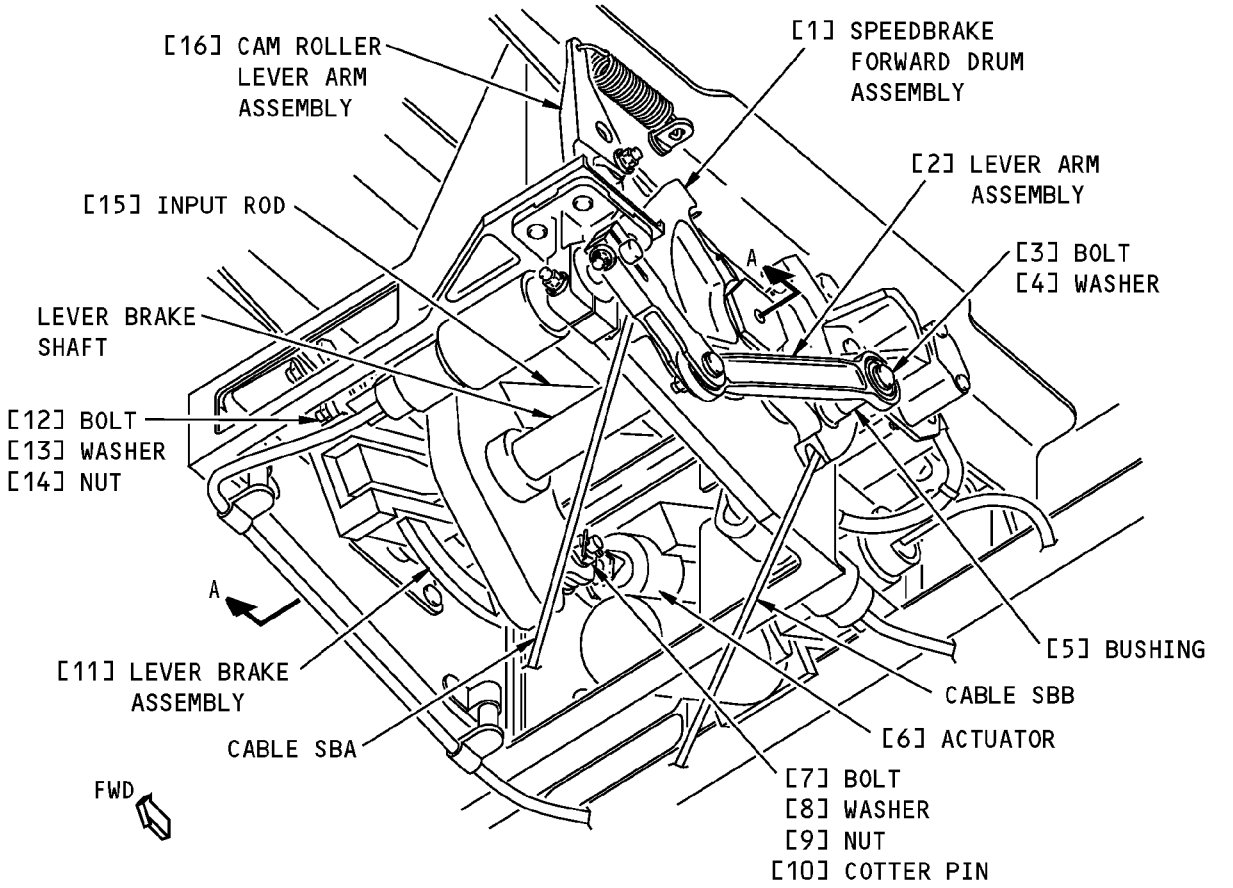

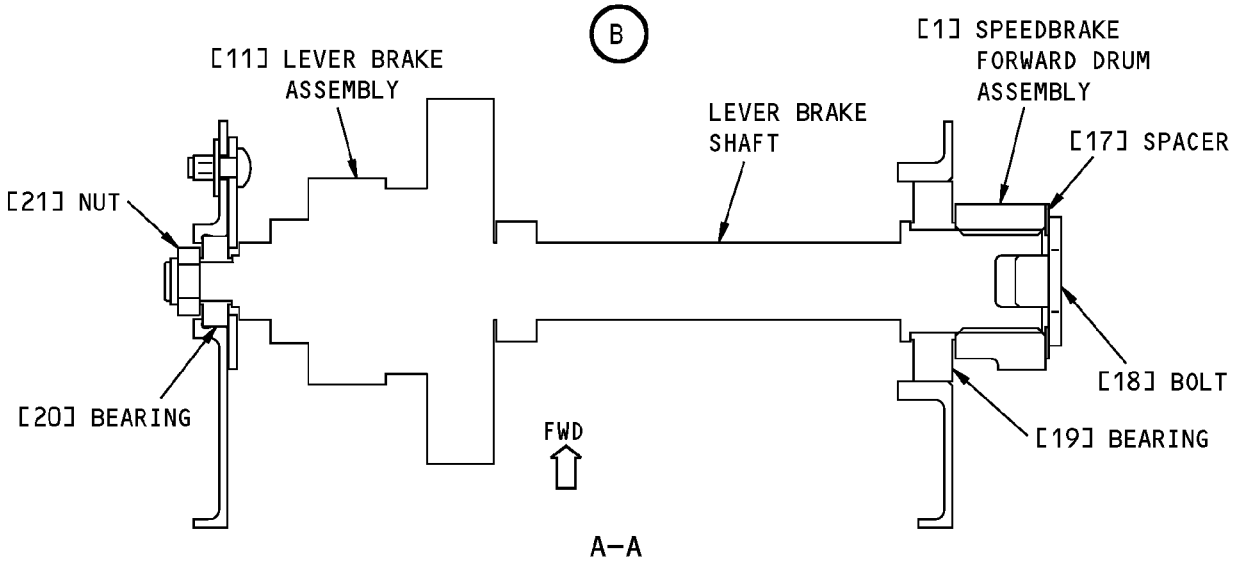

Speedbrake Forward Drum and Lever Brake Installation
Figure 401 (Sheet 2 of 2)/27-62-21-990-801

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TASK 27-62-21-400-801

3. Speed Brake Forward Drum and Lever Brake Installation

(Figure 401)

A. References

Reference	Title
27-62-00-710-801	Speed Brake Control System Operational Test (P/B 501)
27-62-00-820-802	Speed Brake Control Cable Adjustment (P/B 501)
27-62-37-400-802	Speed Brake Lever Position Sensor Adjustment (P/B 401)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Speed brake forward drum	27-62-31-02-145	HAP 001-013, 015-026, 028-036, 101-999
		27-62-31-03-160	HAP 037-054

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
112A	Forward Access Door
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel

E. Speed Brake Forward Drum and Lever Brake Installation.

SUBTASK 27-62-21-420-001

(1) Install the lever brake assembly [11]:

(a) Install the lever brake assembly [11] into position.

(b) Install the bearing [19], bearing [20], and nut [21] at the end of the lever brake shaft.

(c) Install the bolt [7], washer [8], nut [9], and cotter pin [10] to connect the actuator [6] to the lever brake assembly [11] .

(d) Install the bolt [12], washer [13], and nut [14] to connect the input rod [15] to the lever brake assembly [11].

SUBTASK 27-62-21-420-002

(2) Install the speed brake forward drum [1]:

(a) Install the speed brake forward drum [1] on the lever brake shaft.

1) Hold the cam roller lever arm [16] away from the speed brake forward drum [1].

(b) Install the quadrant bolt [18] and spacer [17].

SUBTASK 27-62-21-420-003

(3) Connect the speed brake control cables SBA and SBB:

(a) Install the cable retainers and the cables on the speed brake forward drum [1].

(b) Connect the turnbuckles installed in the aft part of the lower nose compartment.

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(c) Remove clamps on the cables.

(d) Remove tags on the cables.

SUBTASK 27-62-21-420-004

(4) Install bushing [5], bolt [3], and washer [4] to connect the lever arm assembly [2] to the speed brake forward drum [1].

SUBTASK 27-62-21-860-004

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-21-820-001

(6) Do this task: Speed Brake Control Cable Adjustment, TASK 27-62-00-820-802.

SUBTASK 27-62-21-820-002

(7) Do this task: Speed Brake Lever Position Sensor Adjustment, TASK 27-62-37-400-802.

SUBTASK 27-62-21-710-001

(8) Do this task: Speed Brake Control System Operational Test, TASK 27-62-00-710-801.

SUBTASK 27-62-21-940-001

(9) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-62-21-410-003

(10) Install these access panels:

Number	Name/Location
113AW	Forward Nose Wheel Well Panel
113BW	Forward Nose Wheel Well Panel

END OF TASK

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Speed Brake Lever Removal/Installation

1. General

A. This procedure has these tasks:

(1) A removal of the speed brake lever assembly.

(2) An installation of the speed brake lever assembly.

TASK 27-62-22-000-801

2. Speed Brake Lever Removal

Figure 401 Figure 402 Figure 403 Figure 404

A. References

Reference	Title
25-11-01-000-801	Captain's and First Officer's Seat Removal (P/B 401)
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)
27-51-00-040-801	Trailing Edge Flap System Deactivation (P/B 201)
76-11-03-000-801-F00	Lightplate Removal (P/B 401)
76-11-03-400-801-F00	Seals, Spacer and Retainer Removal (P/B 401)
76-11-03-400-803-F00	Covers and Stops Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2409	Dowel Set - Thrust Lever, Control Stand (Part #: F80195-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2411	Tool Set - Control Stand Disassembly (Part #: C76002-26, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the removal of the speed brake lever.

SUBTASK 27-62-22-040-001

(1) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 27-62-22-040-002

(2) Make sure the left and right engine start switches are off and install a DO-NOT-OPERATE tag.

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SUBTASK 27-62-22-040-003

(3) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	3	C01312	ENGINE 1 RUN/PWR
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

(4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

SUBTASK 27-62-22-040-004

(5) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	1	C00721	AUTOTHROTTLE DC 1

HAP 001-013, 015-026, 028-030

E	3	C01141	AUTOTHROTTLE DC 2

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F/O Electrical System Panel, P6-2

Row	Col	Number	Name
HAP ALL			
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-22-860-001

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKERS FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(6) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-22-040-005

(7) Deactivate the speed brakes and control lever:

(a) Move the speed brake lever to the DOWN position.

(b) Move to the forward bay below the flight compartment:

1) Install the rig pin S/B-1 from the rig pin kit, SPL-1585 into the forward drum of the speed brake mechanism.

SUBTASK 27-62-22-010-001

(8) Do this task: Captain's and First Officer's Seat Removal, TASK 25-11-01-000-801.

SUBTASK 27-62-22-010-002

(9) Put a protective mat on the aft electronics panel P8.

NOTE: This will prevent damage to the switches and glass surfaces of the indicators and displays.

SUBTASK 27-62-22-010-003

(10) Remove these lightplates to get access to the speed brake lever (Lightplate Removal, TASK 76-11-03-000-801-F00):

(a) The first officer's stabilizer trim lightplate.

(b) The captain's stabilizer trim lightplate.

(c) The flap indicator lever lightplate.

(d) The speed brake lightplate

SUBTASK 27-62-22-010-006

(11) Remove these retainers and seals to get access to the speed brake lever (Seals, Spacer and Retainer Removal, TASK 76-11-03-400-801-F00):

(a) The right seal retainer and the right seal.

(b) The left seal retainer and the left seal.

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SUBTASK 27-62-22-020-001

(12) Remove these covers and stops to get access to the control shaft components (Covers and Stops Removal, TASK 76-11-03-400-803-F00):

(a) The knob [6] for the stabilizer trim horn cutout switch.

(b) The forward thrust stop and the aft thrust stop.

(c) The right side cover.

(d) The left side cover.

SUBTASK 27-62-22-010-004

(13) Do these tasks to get access to the speed brake lever in the control stand (Figure 401):

(a) Remove the bolt [8] and the right stabilizer trim wheel [7].

NOTE: Keep the left stabilizer trim wheel attached at this time, so you can turn the assembled levers during removal.

(b) Remove the three screws [51] and the upper right cover [21].

(c) Remove four screws [2] and the left upper side panel [1].

(d) Remove five screws [2] and the left lower side panel [5].

(e) Remove four screws [2] and the right upper side panel [3].

(f) Remove four screws [2] and the right lower side panel [4].

(g) Do these steps to move the stabilizer trim switch panel [10] from the control stand:

1) Remove four screws [9].

2) Apply masking tape to prevent damage to the surface of the stabilizer trim switch panel [10].

3) Move the stabilizer trim switch panel [10] on to the mat.

E. Disconnect the Control Stand Components

SUBTASK 27-62-22-020-002

(1) Disconnect the flap indicator assembly:

(a) Go to the right side of the control stand.

(b) Remove the nut [16], the washer [14], the washer [15], and the bolt [17] from the lower end of the link assembly [13].

(c) Safety the link assembly to the control stand.

SUBTASK 27-62-22-020-003

(2) Disconnect the the flap lever position synchro assembly:

(a) Remove the nut [18] and the bolt [19] from the link assembly [20].

(b) Safety link assembly to the control stand.

SUBTASK 27-62-22-020-004

(3) Disconnect the stabilizer trim controls:

(a) Turn the left trim wheel until you find the link in the trim chain (Figure 402).

NOTE: This will help if it becomes necessary to disconnect the chain during installation.

(b) Safety the chain [31] to the stabilizer trim sprocket [32].

NOTE: Do not remove the chain from the sprocket.

(c) Move to the forward bay below the flight compartment to do this step:

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1) To release the tension from the stabilizer control chain, do this task: Stabilizer Control Cable and Chain Adjustment, TASK 27-41-00-820-801.

SUBTASK 27-62-22-020-005

(4) Do these steps to remove the control shaft components (Figure 401):

(a) Remove the bolt [8]and left stabilizer trim wheel [11].

(b) Remove the three screws [50] and the upper left cover [12].

(c) Carefully move the stabilizer trim shaft [27] to the left side of the control stand and do these steps at the same time (Figure 402):

1) Remove the bearing [35].

2) Remove the clamp-up bushing [36].

3) Be prepared to catch and remove the bushing [33] as the shaft is moved to the left.

NOTE: The bushing [33] is between thebearing [34] and the sprocket [32].

4) Be prepared to catch and move the sprocket and chain.

5) Move the shaft [27] to the left side until the sprocket [32] is clear of the shaft.

6) Move the sprocket and chain to the bottom of the control stand.

(d) Reach inside the short shaft [37] from the left side and remove the inside bearing [34].

(e) Remove the stabilizer trim shaft [27] from the control stand.

1) Remove the bearing [28].

2) Remove the long bushing [29].

3) Remove the clamp-up bushing [30].

SUBTASK 27-62-22-020-006

(5) Do these steps to remove the chain guard (Figure 403):

(a) Go to the opening where the switch panel [10] for the stabilizer trim cutout is found.

(b) Use the 90 degree screwdriver from the tool set, SPL-2411 to hold the screw [44].

(c) Remove the nut [42], the washer [43], and the screw [44].

(d) Remove the upper center screw [39] and the washer [38].

(e) Remove the forward screw [41] and the washer [40].

(f) Remove the chain gaurd [45].

F. Remove the speed brake lever

SUBTASK 27-62-22-030-001

(1) Do these steps to disconnect the speed brake lever [22] from the link assembly [23] (Figure 401).

(a) Remove the bolt [24], the washer [25], and the nut [26] from the speed brake lever [22].

SUBTASK 27-62-22-020-007

(2) Do these steps to disconnect the lockwasher and nut from the control shaft (Figure 404):

(a) Find the bent tab on the lockwasher [47].

(b) Use the lockwasher removal tool from the tool set, SPL-2411 to bend the tab.

(c) Bend the tab out of the notch in the nut [48].

(d) Put one control shaft wrench from the tool set, SPL-2411 on the left side of the long shaft [46] to hold it in position.

(e) Put one control shaft nut wrench from the tool set, SPL-2411 in position and remove the nut [48] from the long shaft [46].

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(f) Remove and discard the lockwasher [47].

SUBTASK 27-62-22-020-008

(3) Do the steps to remove the speed brake lever [22] (Figure 404):

(a) Put the dowel set, SPL-2409 against the right side end of the long shaft [46].

(b) Hit lightly (carefully tap) on the dowel.

NOTE: This will move the long control shaft off the control levers.

1) Move the dowel until the speed brake lever [22] is on the dowel.

(c) Do not move the long shaft [46] from this position.

NOTE: More movement will let the speed brake lever fall.

(d) Hold the speed brake lever [22] and move the dowel from the lever.

1) Stop the dowel movement when you can lift up the lever.

2) Make sure the washers [49] are still held by the dowel and control shaft.

(e) Remove the speed brake lever [22] through the top of the control stand.

(f) Make sure the that the washers [49] do not fall in to the control stand.

(g) Do not move the dowel from this position.

——————— END OF TASK ———————

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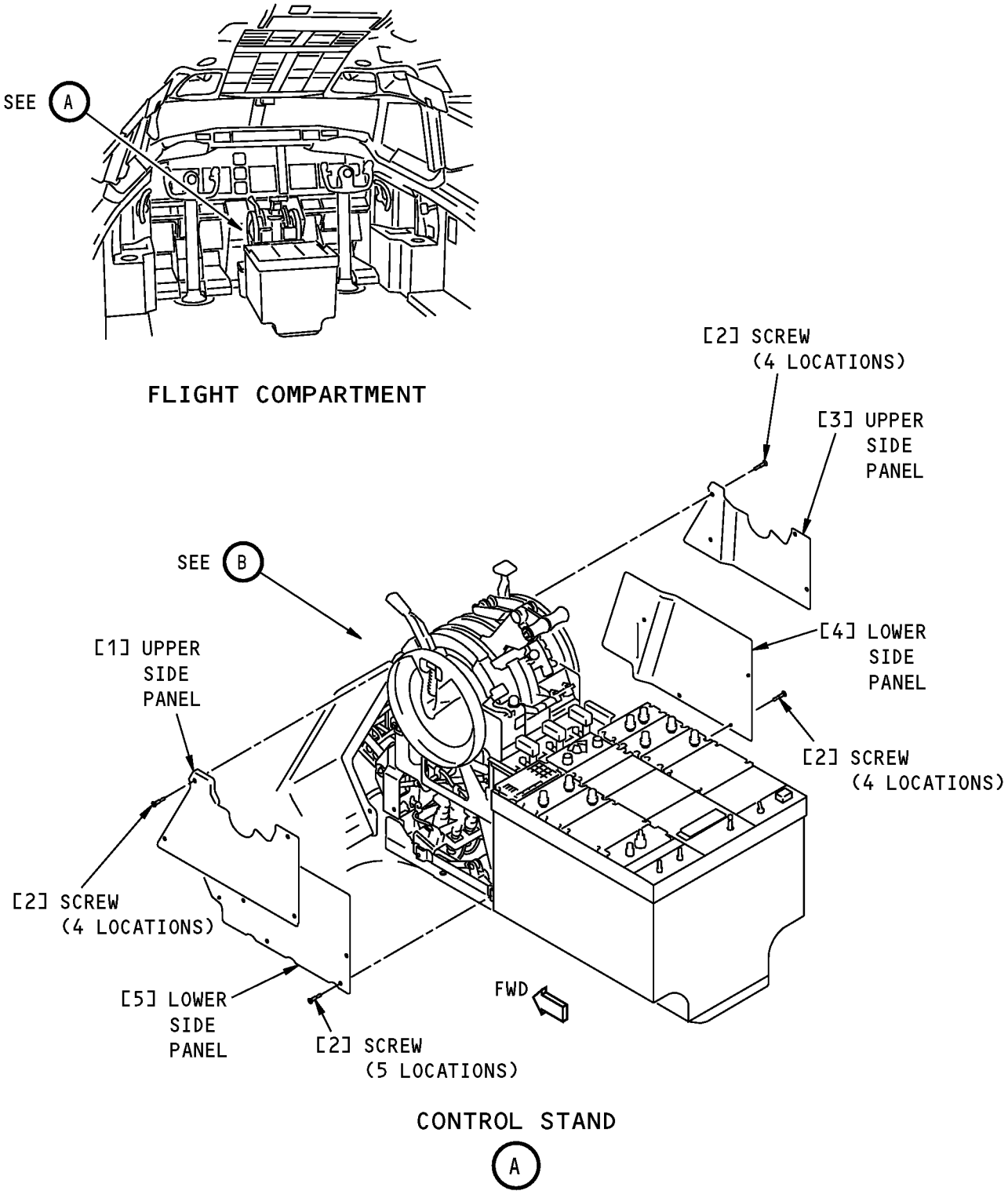

Control Stand Installation
Figure 401 (Sheet 1 of 4)/27-62-22-990-801

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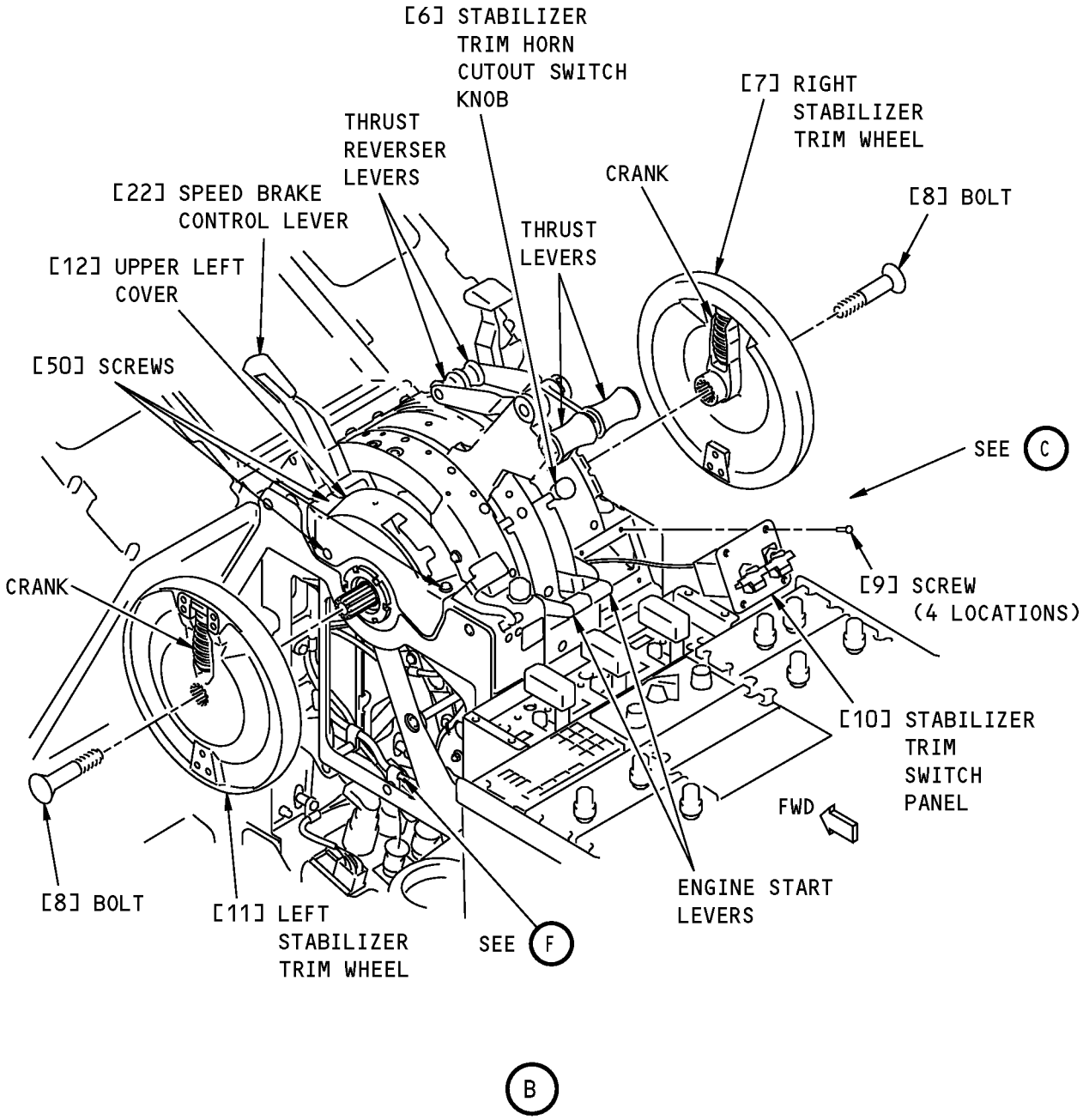

Control Stand Installation
Figure 401 (Sheet 2 of 4)/27-62-22-990-801

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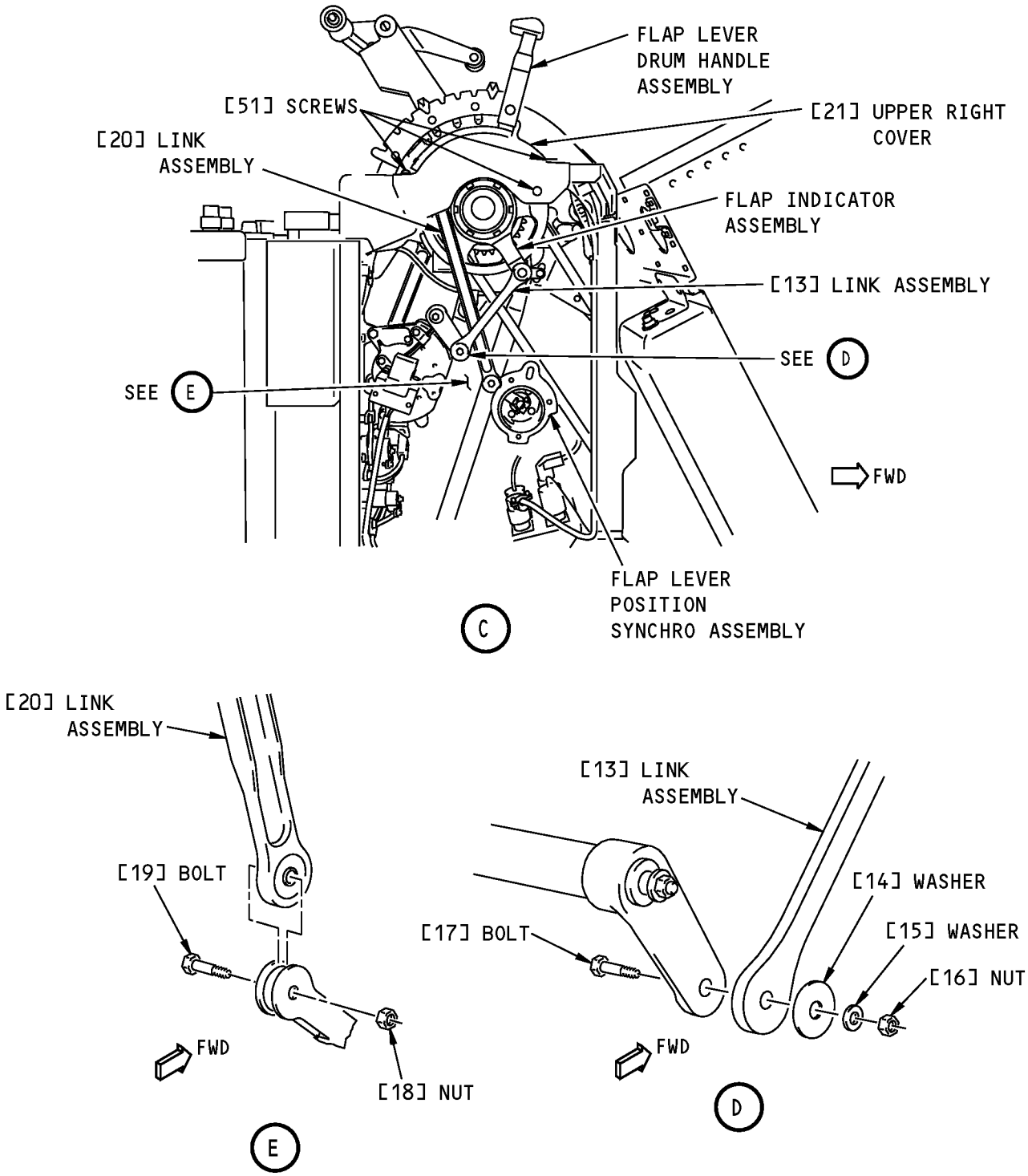

Control Stand Installation
Figure 401 (Sheet 3 of 4)/27-62-22-990-801

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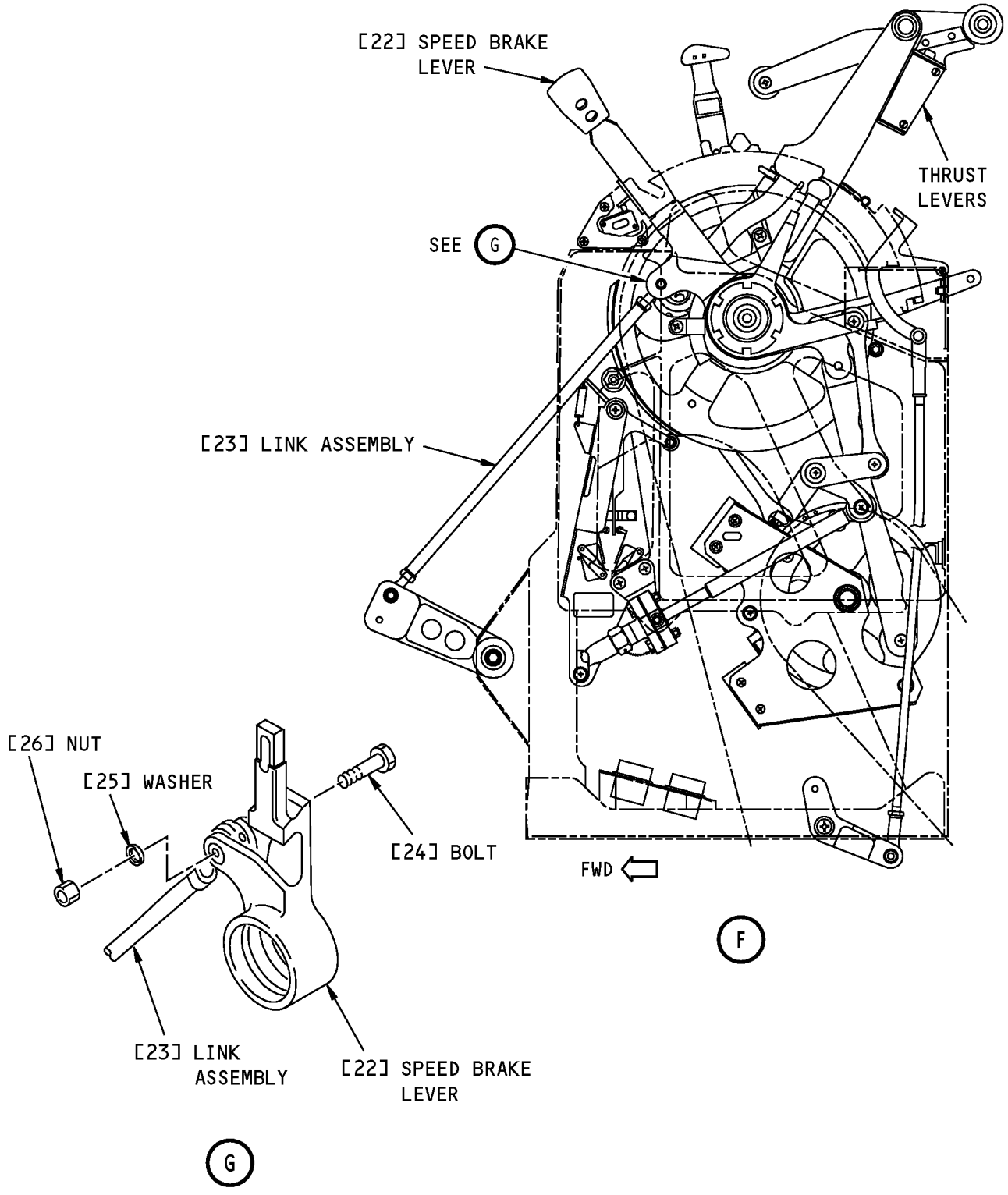

Control Stand Installation
Figure 401 (Sheet 4 of 4)/27-62-22-990-801

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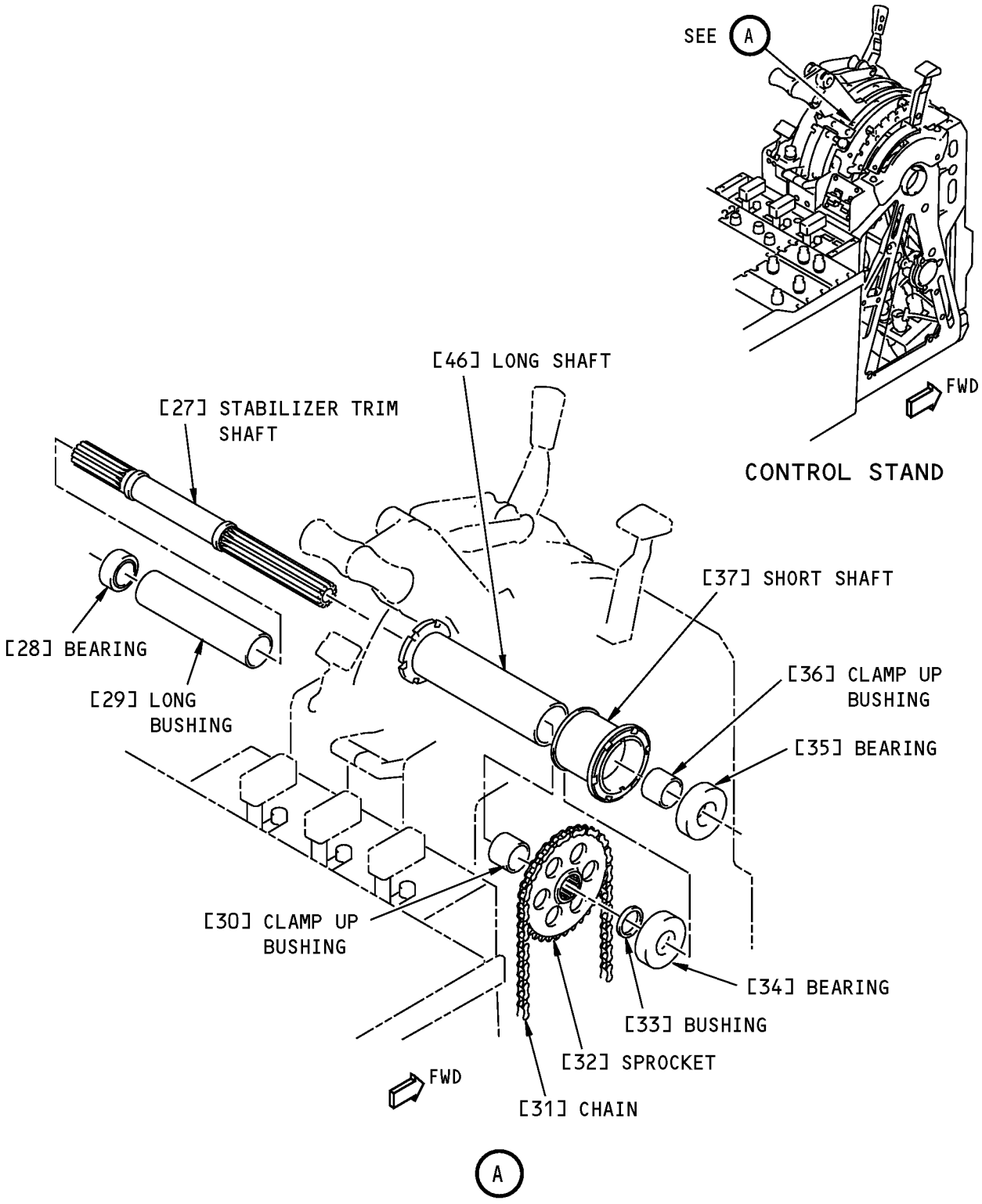

Control Shaft Components Installation
Figure 402 (Sheet 1 of 2)/27-62-22-990-802

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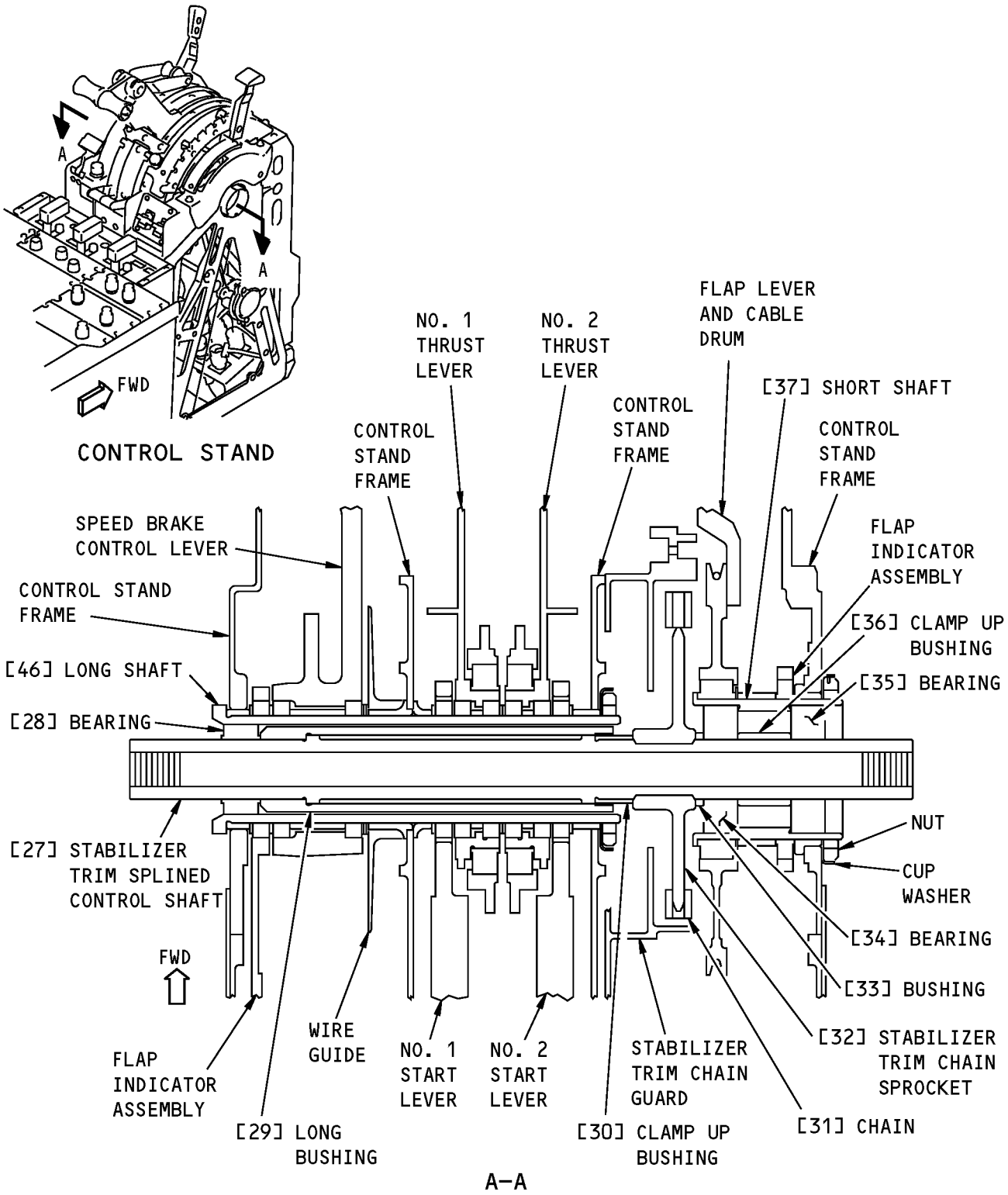

Control Shaft Components Installation
Figure 402 (Sheet 2 of 2)/27-62-22-990-802

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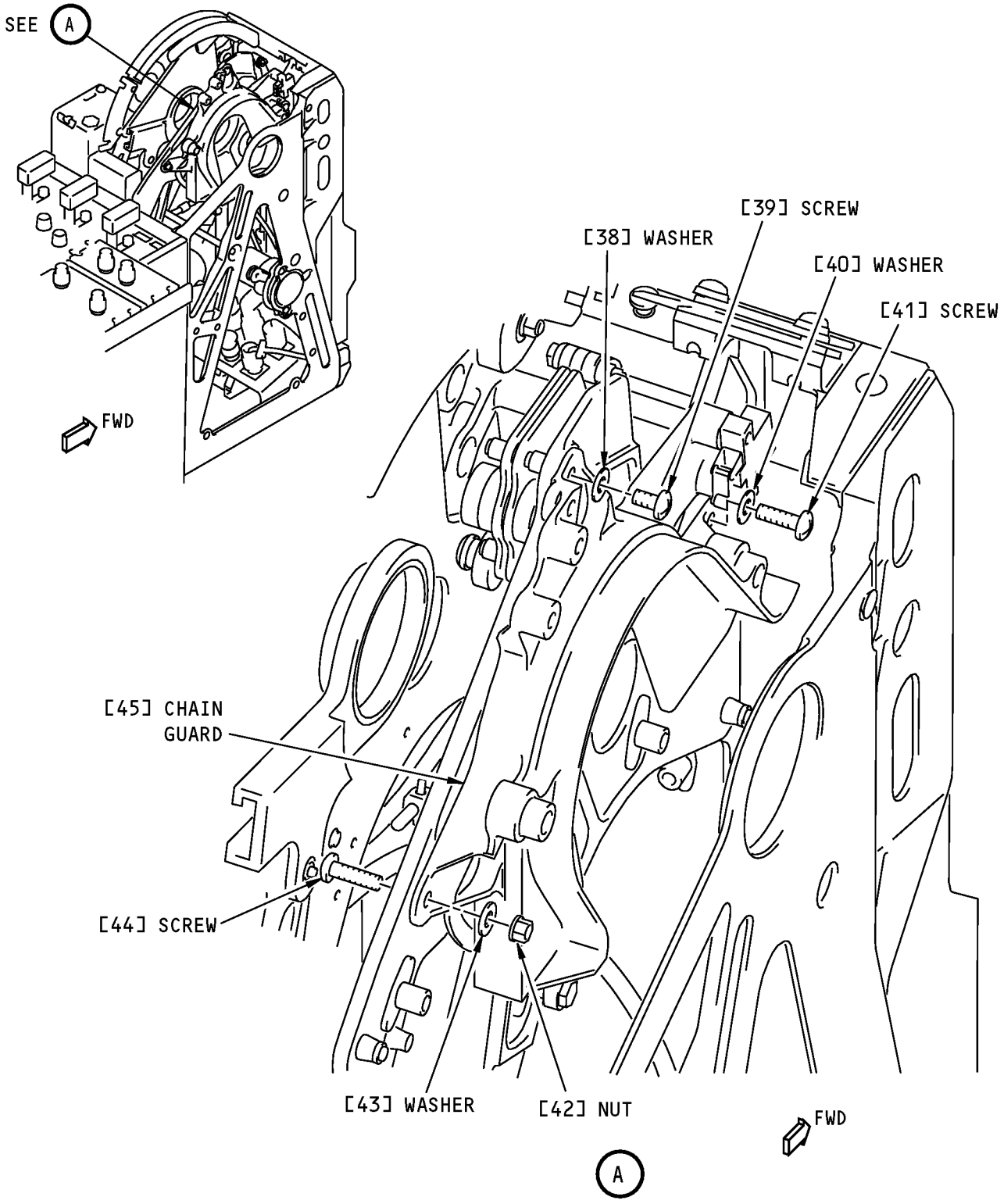

Chain Guard Assembly Installation
Figure 403/27-62-22-990-803

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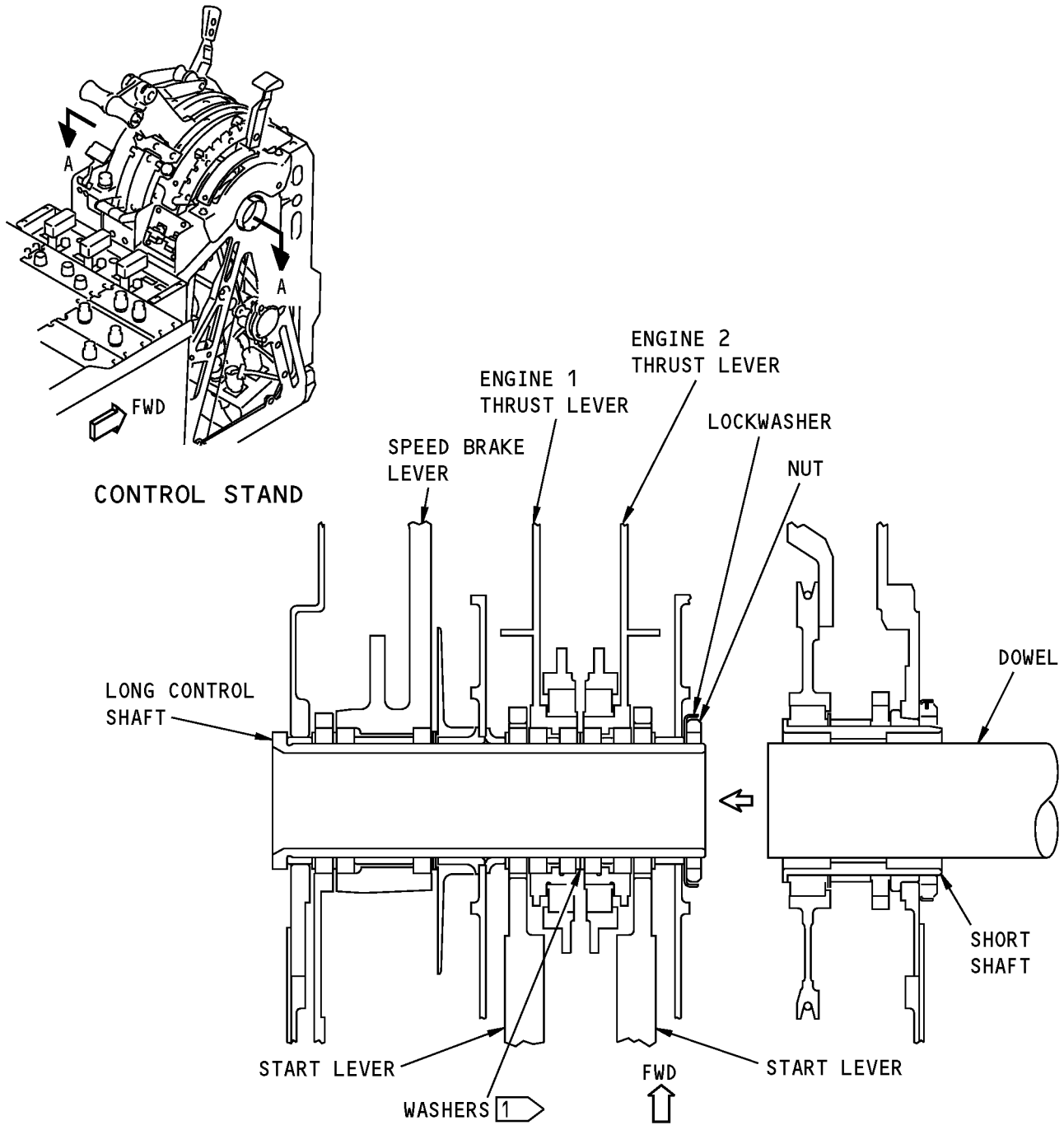

1 THE QUANTITY IS DIFFERENT FROM AIRPLANE TO AIRPLANE

Speed Brake Lever Installation
Figure 404 (Sheet 1 of 2)/27-62-22-990-804

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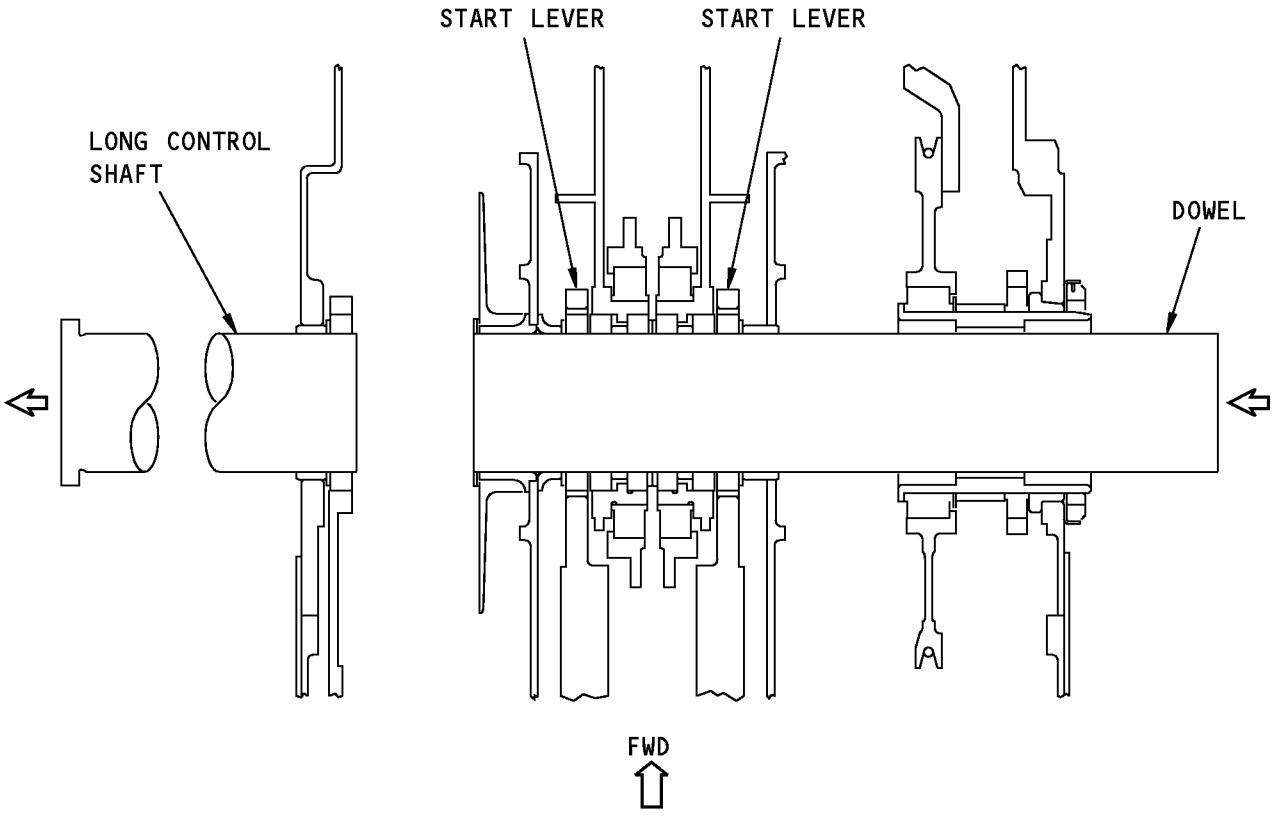

Speed Brake Lever Installation
Figure 404 (Sheet 2 of 2)/27-62-22-990-804

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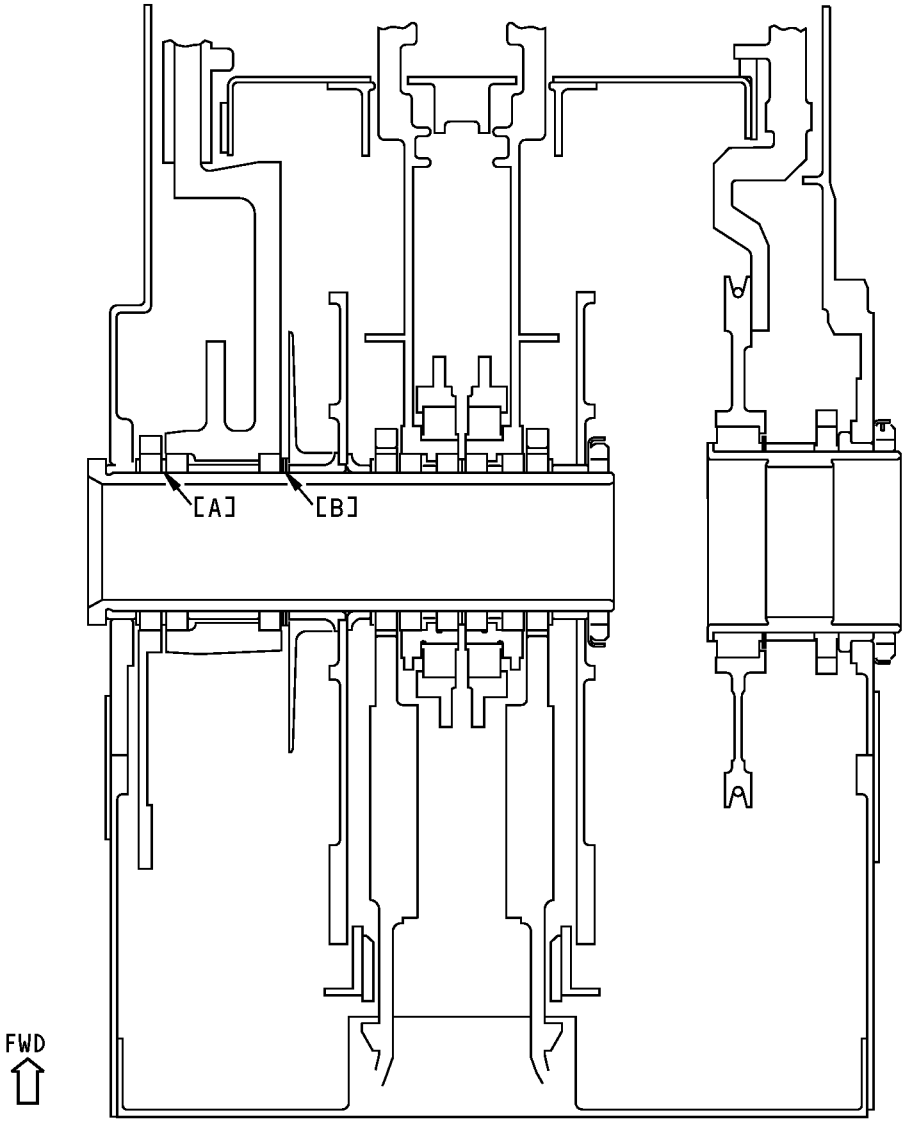

Control Shaft Washer (Shim) Limits
Figure 405 (Sheet 1 of 2)/27-62-22-990-805

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GAP LIMIT INCH (mm)	ACTUAL MEASUREMENT INCH (mm)	ADJUSTMENT NECESSARY TO GET GAP LIMIT (REFER TO TABLE B FOR SHIM QUANTITY)
0.030–0.060 (0.762–1.524)	> 0.100 (2.54)	MOVE THREE WASHERS FROM [B] TO [A] 1
	0.080–0.100 (2.032–2.54)	MOVE TWO WASHERS FROM [B] TO [A] 1
	0.060–0.080 (1.524–2.032)	MOVE ONE WASHER FROM [B] TO [A] 1
	< 0.030 (0.762)	MOVE ONE WASHER FROM [A] TO [B] 1

CONTROL SHAFT ADJUSTMENT GAP LIMITS
TABLE A

1 THE MAXIMUM NUMBER OF WASHERS IN LOCATIONS A AND B IS 4.

Control Shaft Washer (Shim) Limits
Figure 405 (Sheet 2 of 2)/27-62-22-990-805

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TASK 27-62-22-400-801

3. Speed Brake Lever Installation

Figure 401 Figure 402 Figure 403 Figure 404 Figure 405

A. References

Reference	Title
25-11-01-400-801	Captain's and First Officer's Seat Installation (P/B 401)
27-41-00-820-801	Stabilizer Control Cable and Chain Adjustment (P/B 501)
27-51-00-440-801	Trailing Edge Flap System Reactivation (P/B 201)
27-62-00-820-801	Speed Brake Control Lever Adjustment (P/B 501)
76-11-03-400-802-F00	Seals, Spacers and Retainer Installation (P/B 401)
76-11-03-400-804-F00	Covers and Stops Installation (P/B 401)
76-11-03-420-801-F00	Lightplate Installation (P/B 401)
76-11-05-820-801-F00	Thrust Lever Angle Resolver Adjustment (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2409	Dowel Set - Thrust Lever, Control Stand (Part #: F80195-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2411	Tool Set - Control Stand Disassembly (Part #: C76002-26, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
22	Speed brake lever	27-62-51-01-050	HAP ALL

E. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Install the Speed Brake Lever

SUBTASK 27-62-22-420-002

(1) Do these steps to install the speed brake lever [22] in the control stand (Figure 404):

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(a) Apply grease, D00013 to the inside of the speed brake lever [22].

(b) Apply a thin layer of grease, D00013 to each side of the washers [49] you install.

NOTE: The application of grease, D00013 will help to hold the washers to the speed brake lever.

(c) Hold the speed brake lever [22] and washers in the correct position.

(d) Move the long shaft [46] through the speed brake lever [22] and washers [49].

(e) Put the long shaft [46] against the right side end of the dowel set, SPL-2409.

(f) Move the speed brake lever [22] forward and aft.

NOTE: The lever and washers must move freely when you move them from the dowel to the long control shaft.

(g) Move the long shaft [46] and the dowel to the right until all the lever assemblies and washers are on the long shaft [46].

(h) Remove the dowel.

SUBTASK 27-62-22-420-003

(2) Do these steps to lock the speed brake lever:

(a) Set the keyway on the long shaft [46] at the top.

(b) Install a new lockwasher [47], but do not bend the tab at this time.

NOTE: Align the key tab on the lockwasher with the keyway on the long shaft.

(c) Put one control shaft wrench from the tool set, SPL-2411 on the left side of the long shaft [46] to hold it in position.

(d) Install the nut [48].

1) Use one control shaft nut wrench from the tool set, SPL-2411 to tighten the nut [48].

2) Tighten the nut [48] to 100 in-lb (11.3 N·m) - 150 in-lb (16.9 N·m).

SUBTASK 27-62-22-020-010

(3) Measure the gap after the lever is installed (Figure 405):

(a) If the gap is not in the limits, follow the instructions in Table A to get the correct limits:

1) Use the applicable steps in the removal and installation taks to adjust the washer [49] on the long shaft [46].

SUBTASK 27-62-22-420-004

(4) After the speed brake lever [22] is set correctly, lock the assembly in its position (Figure 404):

(a) Make sure the nut is tightened to 100 in-lb (11.3 N·m) - 150 in-lb (16.9 N·m).

(b) Bend the rim of the lockwasher [47] into one of the notches on the nut [48].

1) Use a chisel or the lockwasher break tool from the tool set, SPL-2411 to bend the rim of the lockwasher [47].

2) Make sure the bend in the lockwasher is not more than 0.15 in. (3.8 mm) into the notch on the nut.

SUBTASK 27-62-22-420-008

(5) Connect the speed brake lever to the link assembly.

(a) Install the bolt [24], washer [25], and nut [26] in the speed brake lever [22] and link assembly [23] (Figure 401).

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G. Install the control stand components

SUBTASK 27-62-22-020-011

(1) Do these steps to install the chain guard (Figure 403):

(a) Put the chain gaurd [45] in its position.

(b) Install the upper screw [39] and the washer [38].

(c) Install the forward screw [41] and washer [40].

(d) Install the screw [44] through the thrust lever opening.

(e) Use the 90 degree screwdriver from the tool set, SPL-2411 to hold the screw [44].

(f) Install the nut [42] and the washer [43].

SUBTASK 27-62-22-020-012

(2) Do these steps to install the control shaft components (Figure 402):

(a) Install the clamp-up bushing [30] and the long bushing [29] on the stabilizer trim shaft [27].

NOTE: Put the clamp-up bushing on the end with the longest splines.

(b) Put the bearing [34] into the inside end of the short shaft [37].

(c) Move the stabilizer trim shaft [27] into the control stand from the left side.

NOTE: Put the end of the shaft with the longest splines in first.

(d) Move the sprocket [32] and chain [31] up from the bottom of the control stand.

1) Put the sprocket [32] on the splined end of the shaft [27].

2) Move the shaft through the sprocket.

(e) Put the bushing [33] on the splined end of the shaft [27].

1) Move the shaft through the bushing.

(f) Move the shaft [27] through the bearing [34] until the end is moved out through the short shaft [37].

(g) Install the bearing [28] on the left side of the shaft.

(h) Install the clamp-up bushing [36] on the right side of the stabilizer trim shaft [27].

(i) Install the bearing [35] on the right side of the shaft [27].

(j) Lightly tap the shaft [27] from the left side.

NOTE: Do this step to make sure that the assembled parts are tight and in the correct position.

SUBTASK 27-62-22-420-005

(3) Do these steps to activate and adjust the stabilizer trim assembly:

(a) Remove the temporary wire tie from the chain [31] and sprocket [32].

(b) To adjust the stabilizer control chain, do this task: Stabilizer Control Cable and Chain Adjustment, TASK 27-41-00-820-801.

SUBTASK 27-62-22-410-001

(4) Do these steps to connect the flap lever syncro assembly (Figure 401):

(a) Put the link assembly [20] in the clevis for the flap lever position syncro assembly.

(b) Install the nut [18] and the bolt [19].

SUBTASK 27-62-22-410-007

(5) Do this step to connect the flap indicator assembly:

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(a) Install the bolt [17], washer [15], washer [14], and nut [16] in the link assembly [13] and indicator assembly arm.

SUBTASK 27-62-22-040-006

(6) Do these steps to activate the speed brake lever:

(a) Go into the access area under the forward flight compartment floor.

1) Remove the rig pin from the rig pin kit, SPL-1585 from the forward drum of the speed brake assembly.

2) Do this task: Speed Brake Control Lever Adjustment, TASK 27-62-00-820-801.

SUBTASK 27-62-22-420-006

(7) Install these covers on the control stand.

(a) Install the upper left cover [12].

1) Install the three screws [50].

(b) Install the upper right cover [21].

1) Install the three screws [51].

SUBTASK 27-62-22-010-007

(8) Install the control stand access covers:

(a) The left upper side panel [1].

1) Attach with four screws [2].

(b) The left lower side panel [5]:

1) Attach with five screws [2]

(c) The right upper side panel [3]:

1) Attach with four screws [2].

(d) The right lower side panel [4]:

1) Attach with four screws [2].

SUBTASK 27-62-22-420-007

(9) Install the stabilizer trim wheel assemblies:

(a) Install the right stabilizer trim wheel [7].

1) Install the right bolt [8].

2) Tighten the bolt [8] to 150 in-lb (16.9 N·m) - 170 in-lb (19.2 N·m)

(b) Install the left stabilizer trim wheel [11]:

1) Set the crank of the left stabilizer trim wheel [11] 75 to 105 degrees away from the setting of the crank on the right wheel.

NOTE: This can be set in either direction.

2) Install the left bolt [8].

3) Tighten the bolt [8] to 150 in-lb (16.9 N·m) - 170 in-lb (19.2 N·m).

SUBTASK 27-62-22-200-001

(10) Do a visual check of the assembly:

(a) Move each control through its usual range.

(b) Make sure that the electrical bundles do not touch parts.

SUBTASK 27-62-22-410-002

(11) Do these steps to install the switch panel [10] for the trim stabilizer.

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(a) Put the panel [10] on the control stand.

(b) Install the four screws [9].

SUBTASK 27-62-22-700-001

(12) Do this task: Thrust Lever Angle Resolver Adjustment, TASK 76-11-05-820-801-F00.

SUBTASK 27-62-22-410-003

(13) Install these covers and stops (Covers and Stops Installation, TASK 76-11-03-400-804-F00).

(a) The left side cover.

(b) The right cover.

(c) The forward thrust stop and the aft thrust stop.

(d) The knob [6] for the stabilizer trim horn cutout switch.

SUBTASK 27-62-22-410-004

(14) Install these seals and retainers (Seals, Spacers and Retainer Installation, TASK 76-11-03-400-802-F00).

(a) The right seal retainer and the right seal.

(b) The left seal retainer and left seal.

SUBTASK 27-62-22-410-005

(15) Install these lightplates (Lightplate Installation, TASK 76-11-03-420-801-F00).

(a) The first officer's stabilizer trim lightplate.

(b) The captain's stabilizer trim lightplate.

(c) The flap indicator lightplate.

(d) The speed brake lightplate.

SUBTASK 27-62-22-410-006

(16) Do this task: Captain's and First Officer's Seat Installation, TASK 25-11-01-400-801.

H. Put the Airplane Back to its Usual Condition:

SUBTASK 27-62-22-860-002

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-22-860-003

(2) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-1

Row	Col	Number	Name
E	1	C00721	AUTOTHROTTLE DC 1
HAP 001-013, 015-026, 028-030			
E	3	C01141	AUTOTHROTTLE DC 2

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
HAP ALL			
A	1	C00458	ENGINE 1 IGNITION RIGHT
A	3	C00153	ENGINE 1 IGNITION LEFT

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Row	Col	Number	Name
A	4	C01390	ENGINE 1 ALTN PWR CHAN B
A	5	C01314	ENGINE 1 ALTN PWR CHAN A
B	1	C01316	ENGINE 1 START LEVER CHAN A
B	2	C01317	ENGINE 1 START LEVER CHAN B
B	4	C01003	ENGINE 1 THRUST REVERSER IND
B	5	C00276	ENGINE 1 THRUST REVERSER CONT
B	6	C01412	ENGINE 1 THRUST REVERSER INTLK
B	7	C01266	ENGINE 1 THRUST REVERSER SYNC LOCK
B	8	C01103	ENGINE 1 START VALVE

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	5	C01320	ENGINE FUEL ENGINE 1 HPSOV CONT
E	6	C01395	ENGINE FUEL ENGINE 1 HPSOV IND

SUBTASK 27-62-22-860-004

(3) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	5	C01313	ENGINE 2 RUN/PWR
B	6	C01318	ENGINE 2 START LEVER CHAN A
B	7	C01319	ENGINE 2 START LEVER CHAN B
C	4	C00154	ENGINE 2 START VALVE
C	5	C01267	ENGINE 2 THRUST REVERSER SYNC LOCK
C	6	C01413	ENGINE 2 THRUST REVERSER INTLK
C	7	C00277	ENGINE 2 THRUST REVERSER CONT
C	8	C01004	ENGINE 2 THRUST REVERSER IND
D	4	C00459	ENGINE 2 IGNITION RIGHT
D	6	C00151	ENGINE 2 IGNITION LEFT
D	7	C01391	ENGINE 2 ALTN PWR CHAN B
D	8	C01315	ENGINE 2 ALTN PWR CHAN A

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
E	3	C01321	ENGINE FUEL ENGINE 2 HPSOV CONT
E	4	C01396	ENGINE FUEL ENGINE 2 HPSOV IND

SUBTASK 27-62-22-040-007

(4) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 27-62-22-860-005

(5) Remove the DO-NOT-OPERATE tag from the engine start panel.

END OF TASK

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SPEED BRAKE LEVER STOP ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the speed brake lever stop actuator

(2) An installation of the speed brake lever stop actuator

TASK 27-62-23-000-801

2. Speed Brake Lever Stop Actuator Removal

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Prepare for the Speed Brake Lever Stop Actuator Removal

SUBTASK 27-62-23-864-001

(1) Make sure the systems A and B hydraulic power is off. To remove hydraulic power, do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-62-23-865-001

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	4	C01662	SPOILER PCU SOV SYS A
A	5	C01663	SPOILER PCU SOV SYS B
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-23-860-001

(3) Put the speed brake lever in the DOWN position.

SUBTASK 27-62-23-010-001

(4) Open this access panel:

Number	Name/Location
112A	Forward Access Door

E. Remove the speed brake lever stop actuator.

SUBTASK 27-62-23-030-001

(1) Disconnect the electrical connector [9].

SUBTASK 27-62-23-030-002

(2) Disconnect the actuator [1] from the link [5].

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(a) Remove the bolt [2], washer [3], and nut [4].

SUBTASK 27-62-23-020-001

(3) Remove the actuator.

(a) Remove the bolts [6], washers [7], and nuts [8].

——————— END OF TASK ———————

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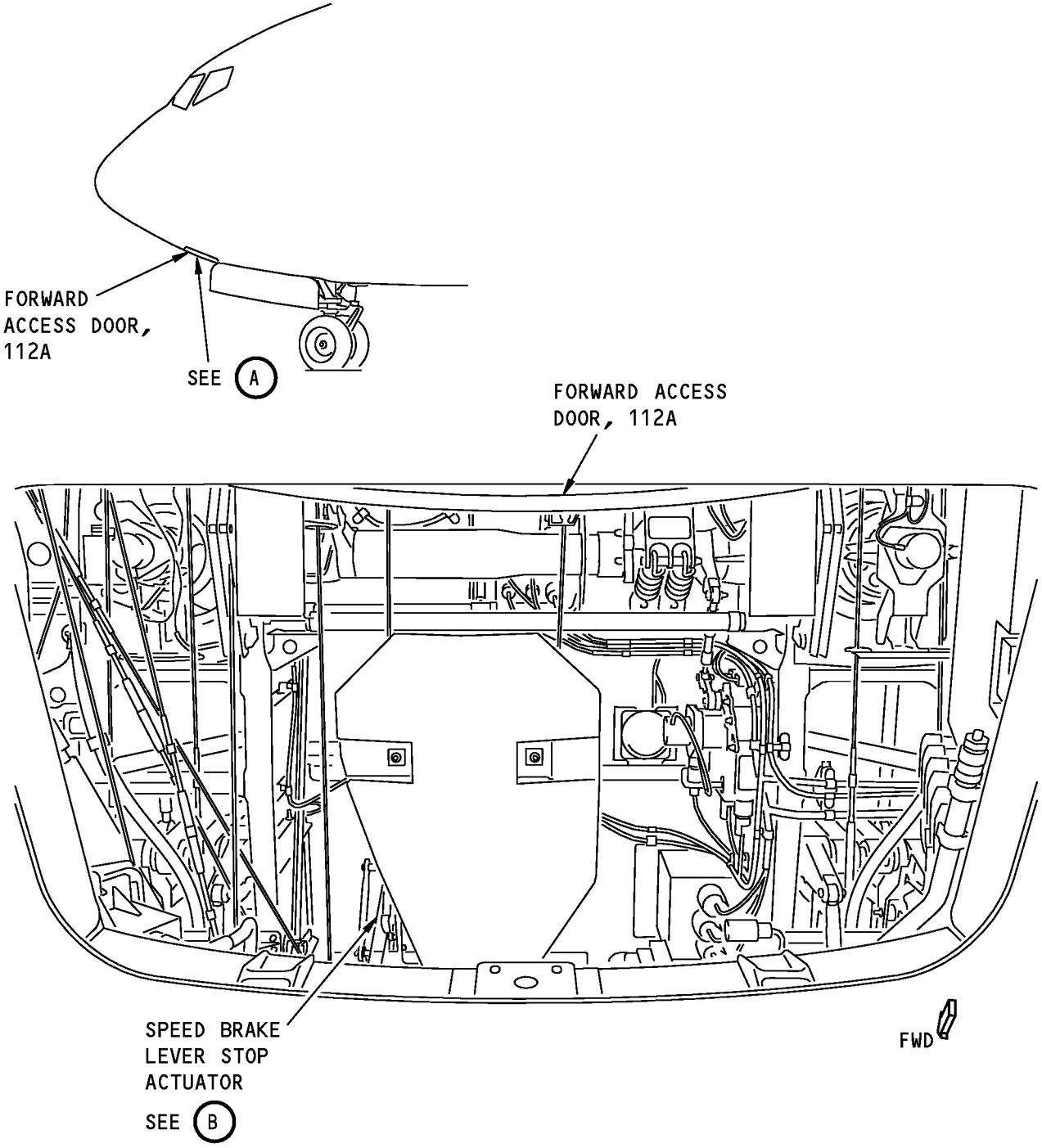

Speed Brake Lever Stop Actuator Installation
Figure 401 (Sheet 1 of 2)/27-62-23-990-801

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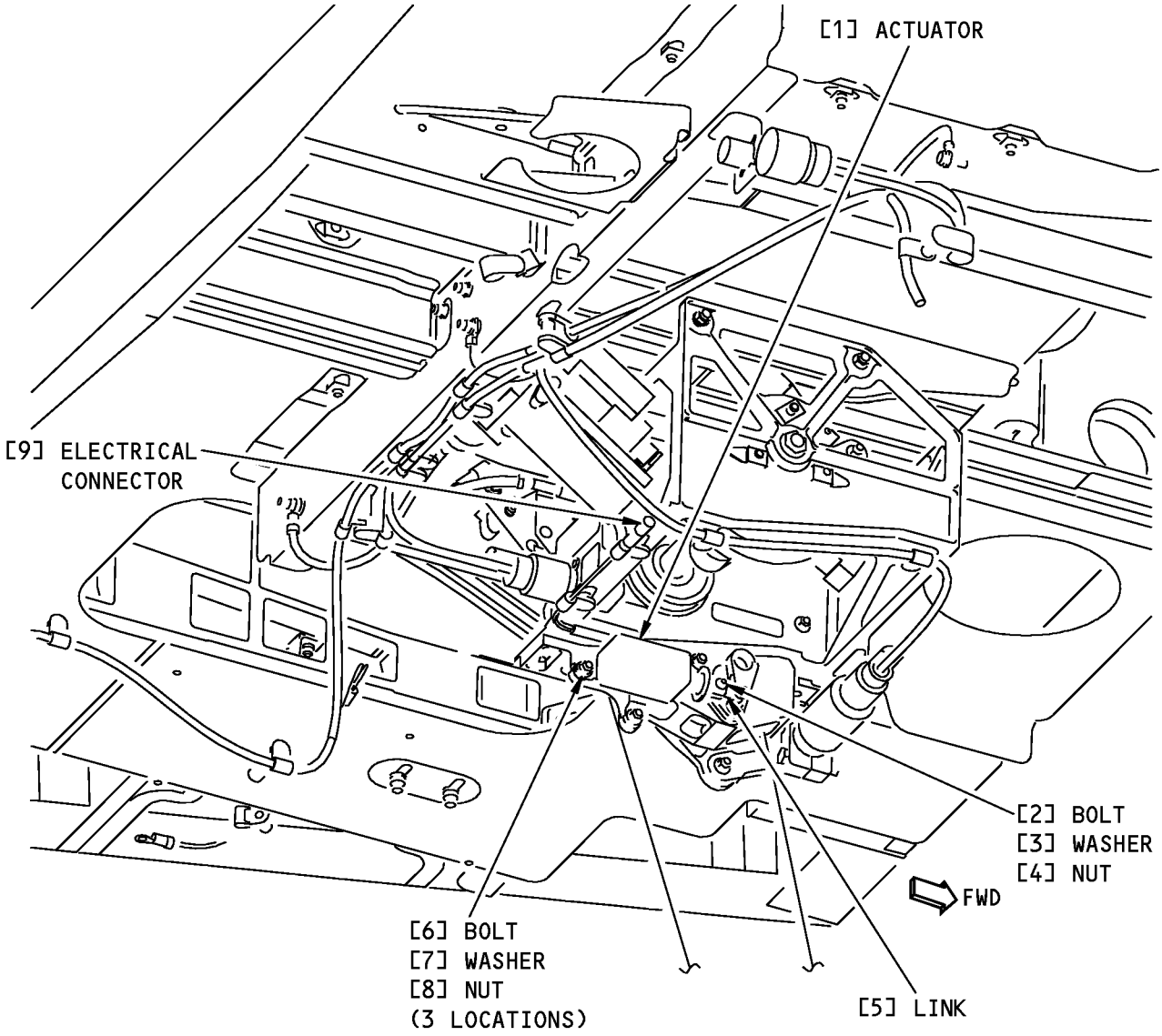

SPEED BRAKE LEVER STOP ACTUATOR

B

Speed Brake Lever Stop Actuator Installation
Figure 401 (Sheet 2 of 2)/27-62-23-990-801

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TASK 27-62-23-400-801

3. Speed Brake Lever Stop Installation

A. References

Reference	Title
27-62-00-710-802	Speed Brake Lever Stop Test (P/B 501)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Install the speed brake lever stop actuator.

SUBTASK 27-62-23-420-001

(1) Hold the actuator [1] in position and install the bolts [6], washers [7], and nuts [8].

SUBTASK 27-62-23-430-001

(2) Connect the actuator [1] to the link [5].

(a) Install the bolt [2], washer [3], and nut [4].

SUBTASK 27-62-23-430-002

(3) Connect the electrical connector [9].

SUBTASK 27-62-23-410-001

(4) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-62-23-865-002

(5) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	4	C01662	SPOILER PCU SOV SYS A
A	5	C01663	SPOILER PCU SOV SYS B
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-23-720-001

(6) Do this task: Speed Brake Lever Stop Test, TASK 27-62-00-710-802.

END OF TASK

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AUTO SPEED BRAKE ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the auto speed brake actuator.

(2) An installation of the auto speed brake actuator.

TASK 27-62-31-000-801

2. Auto Speed Brake Actuator Removal

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Prepare for the Removal

SUBTASK 27-62-31-860-001

(1) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-62-31-860-002

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-31-860-003

(3) Put the speed brake lever in the DOWN position.

SUBTASK 27-62-31-010-002

(4) Remove the lower cover plate [21]:

(a) Remove the screws [19] and washers [20].

SUBTASK 27-62-31-010-001

(5) To get access the auto speed brake actuator assembly [16].

Open this access panel:

Number	Name/Location
112A	Forward Access Door

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E. Auto Speed Brake Actuator Removal

SUBTASK 27-62-31-020-001

(1) Disconnect the electrical connector [17] from the auto speed brake actuator assembly [16].

SUBTASK 27-62-31-020-002

(2) Remove the nut [8], washer [6] and bolt [5] and disconnect the bonding jumper [7].

SUBTASK 27-62-31-020-003

(3) Remove the pin [13], nut [12] washer [11] and bolt [10] that connect the auto speed brake actuator assembly [16] to the brake lever [15].

SUBTASK 27-62-31-020-004

(4) Remove the lockwire [3], washer [2] and bolt [1] that connect the auto speed brake actuator assembly [16] to the structure.

SUBTASK 27-62-31-020-005

(5) Remove the auto speed brake actuator assembly [16] from the airplane.

——————— END OF TASK ———————

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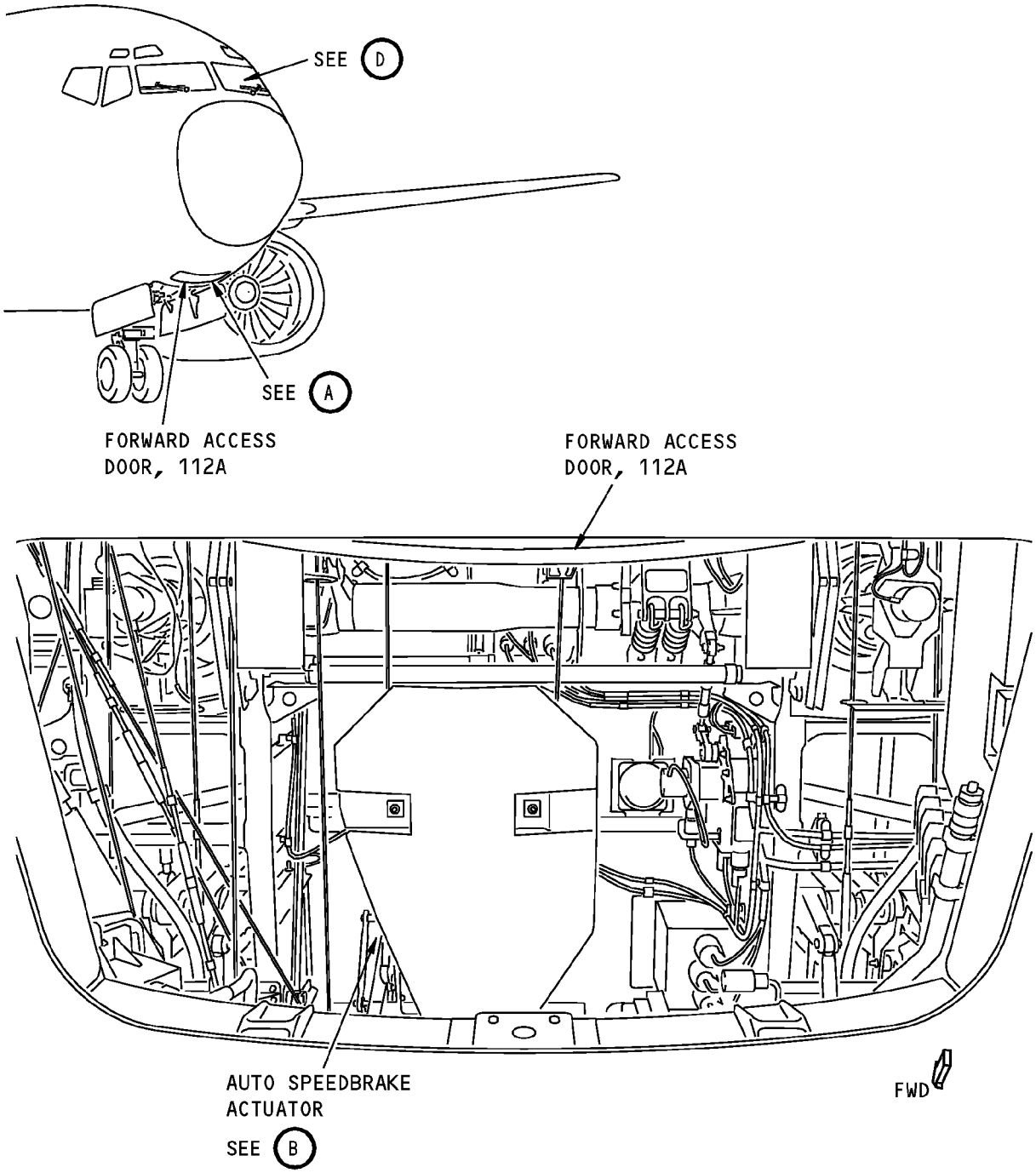

Auto Speedbrake Actuator Installation
Figure 401 (Sheet 1 of 5)/27-62-31-990-801

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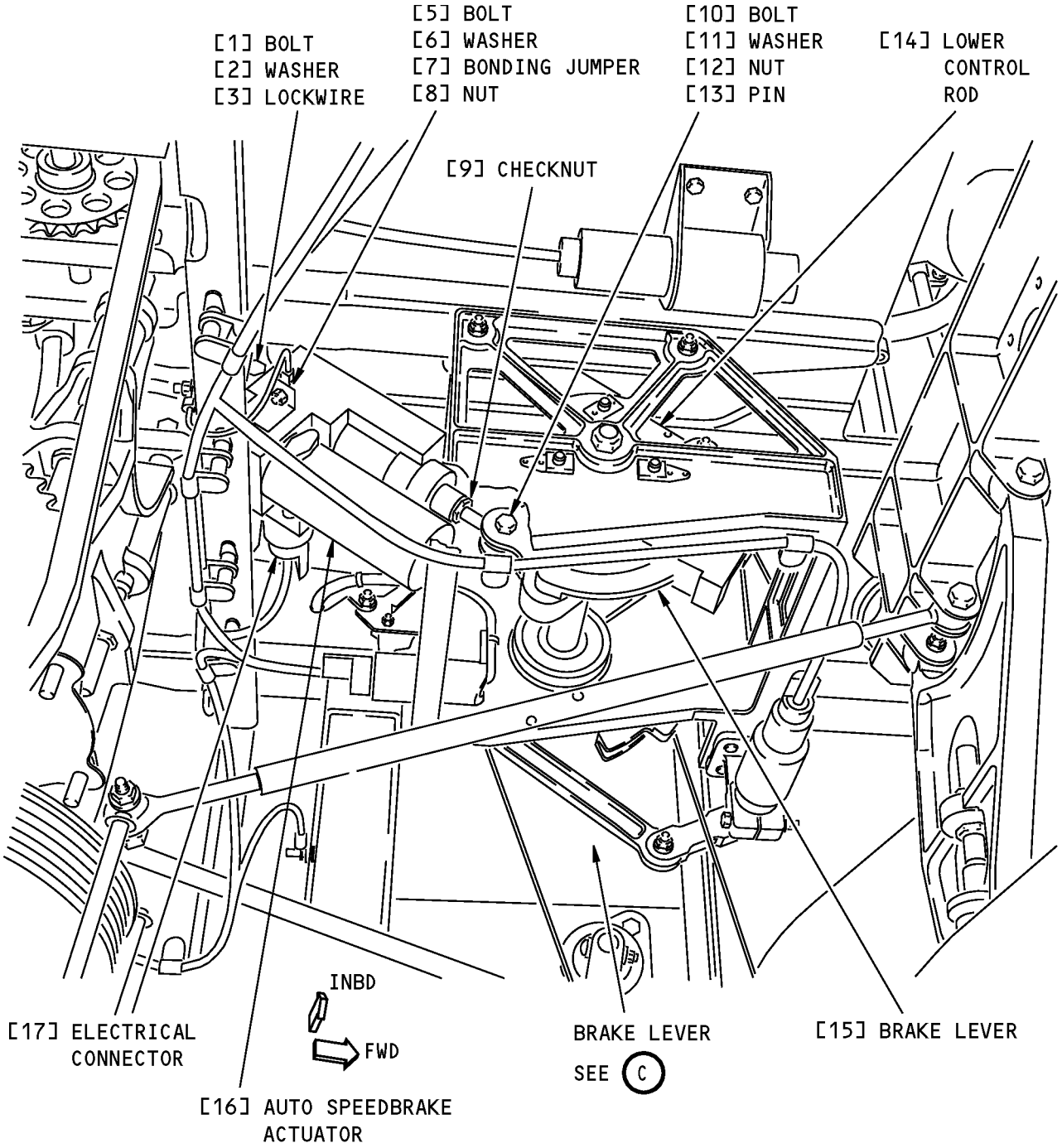

Auto Speedbrake Actuator Installation
Figure 401 (Sheet 2 of 5)/27-62-31-990-801

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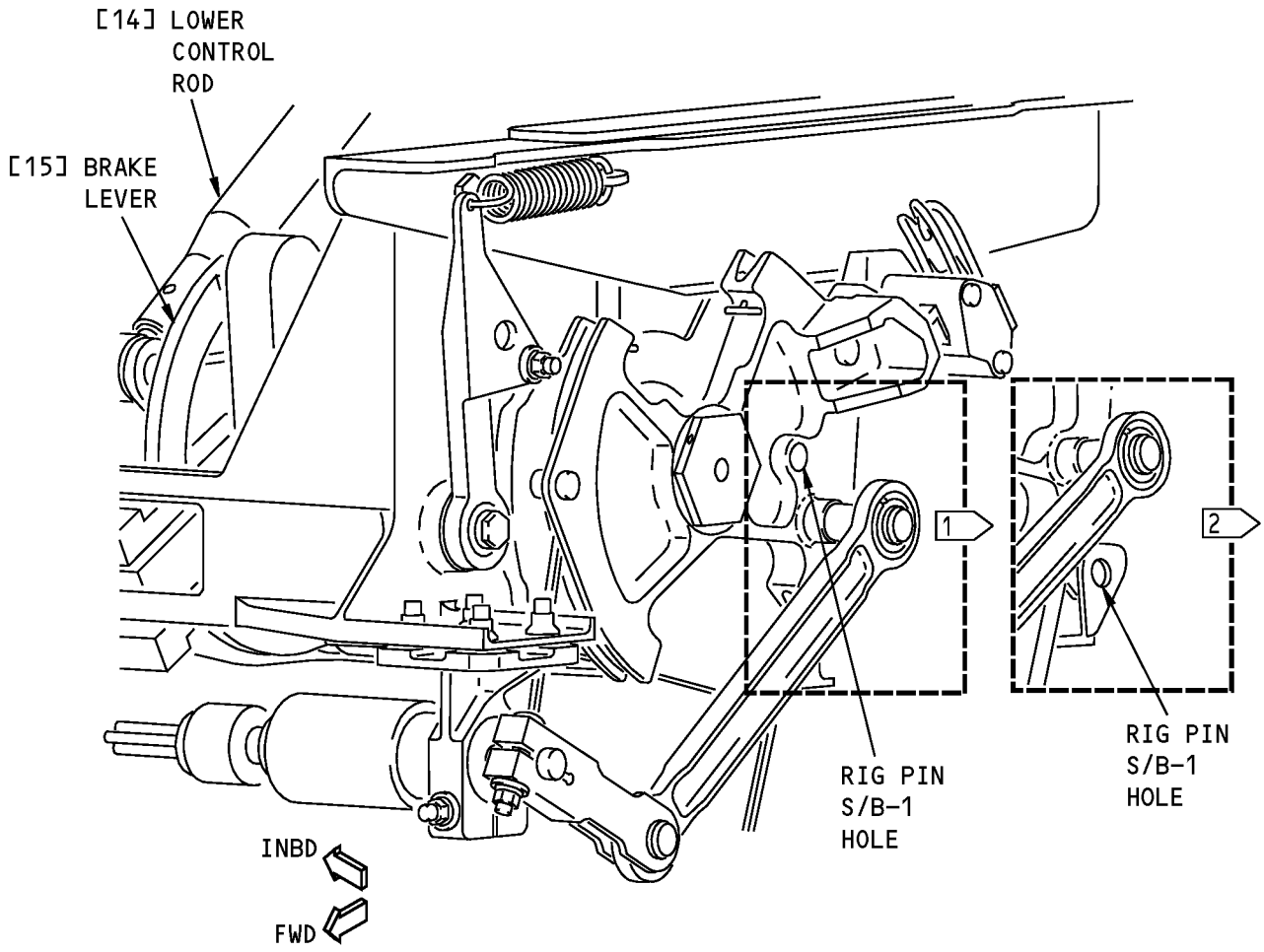

BRAKE LEVER

C

1 AIRPLANES WITH THE -3 FORWARD QUADRANT.

2 AIRPLANES WITH THE -5 FORWARD QUADRANT.

Auto Speedbrake Actuator Installation
Figure 401 (Sheet 3 of 5)/27-62-31-990-801

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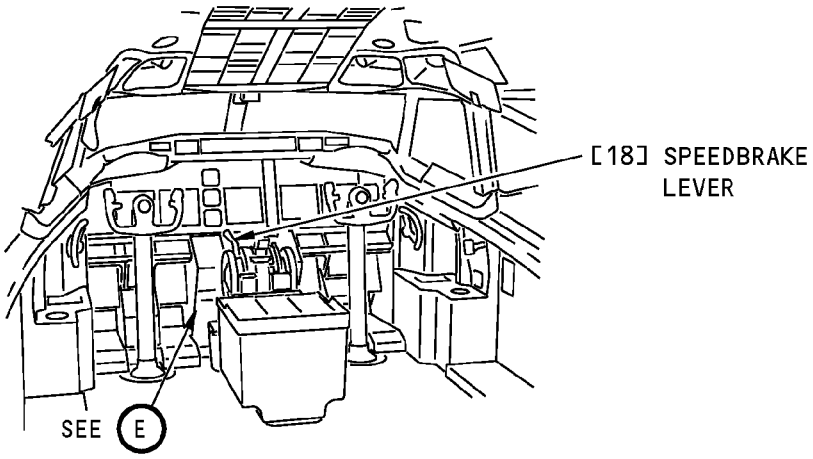
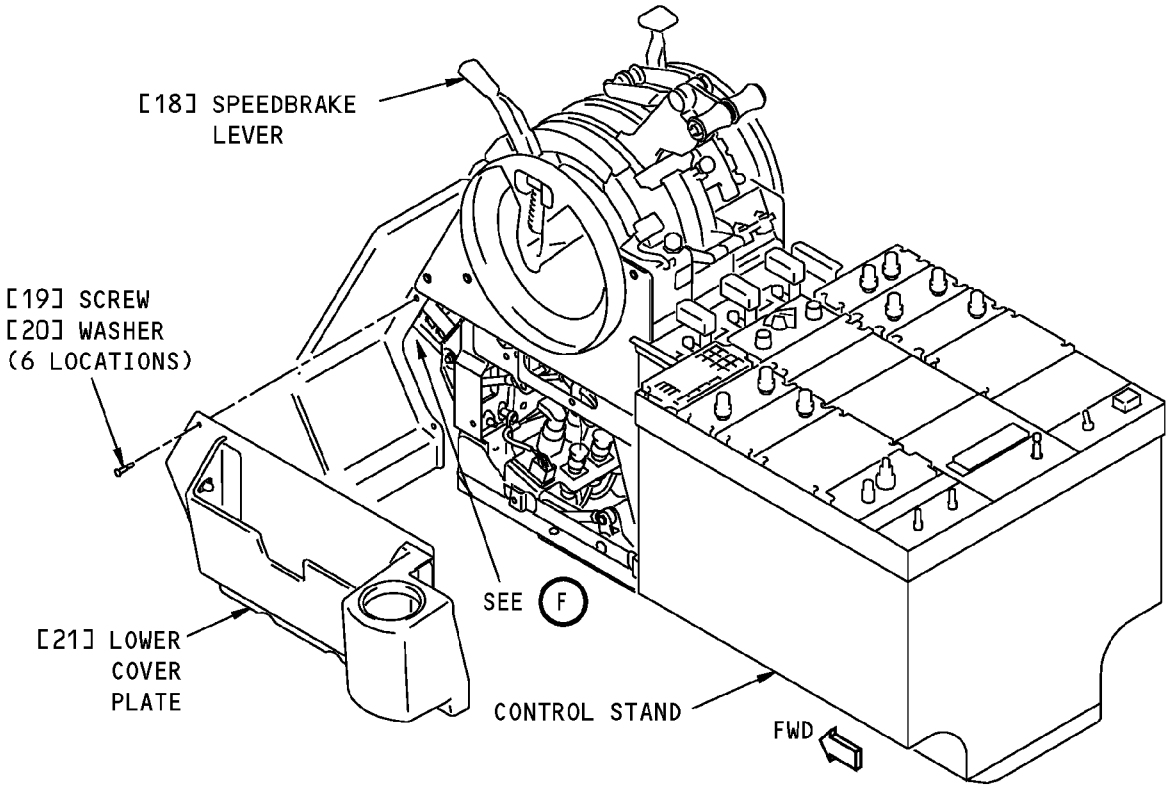


FLIGHT COMPARTMENT

D



SPEEDBRAKE LEVER

E

Auto Speedbrake Actuator Installation
Figure 401 (Sheet 4 of 5)/27-62-31-990-801

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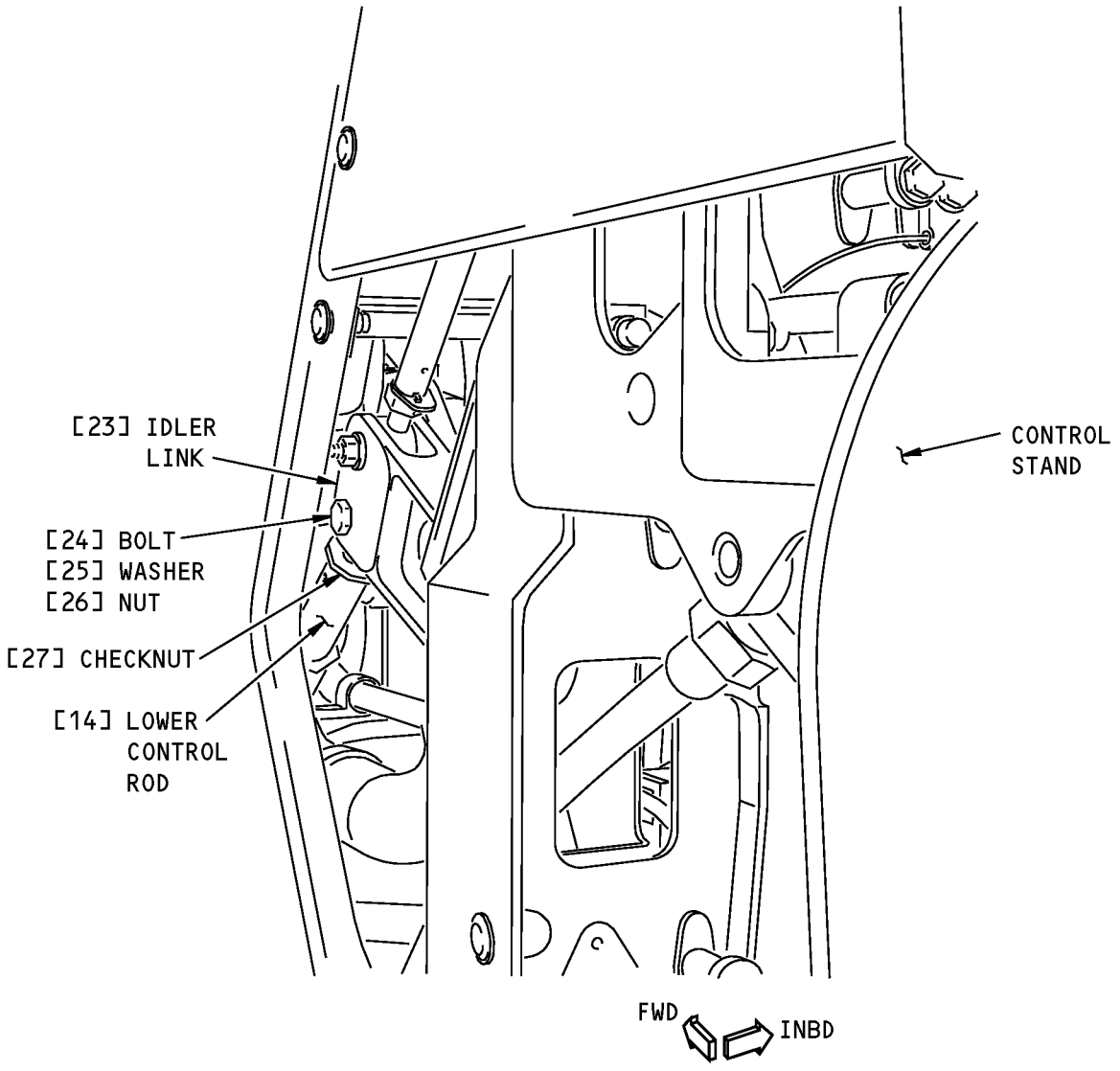

Auto Speedbrake Actuator Installation
Figure 401 (Sheet 5 of 5)/27-62-31-990-801

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TASK 27-62-31-400-801

3. Auto Speed Brake Actuator Installation

(Figure 401)

A. References

Reference	Title
27-62-00-820-806	Speed Brake Throttle Switch Test (P/B 501)
27-62-00-840-802	Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
13	Pin	27-62-31-02-120	HAP 001-013, 015-026, 028-036, 101-999
		27-62-31-03-130	HAP 037-054
16	Actuator assembly	27-62-31-02-140	HAP 001-013, 015-026, 028-036, 101-999
		27-62-31-03-155	HAP 037-054

D. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Access Panels

Number	Name/Location
112A	Forward Access Door

F. Auto Speed Brake Actuator Installation

SUBTASK 27-62-31-480-001

(1) Install the rig pin S/B-1 from the test rig pin kit, SPL-1585.

(a) Adjust the speed brake mechanism if you cannot easily install the rig pin:

1) Remove the nut [26], washer [25] and bolt [24] to disconnect the top end of the lower control rod [14] from the idler link [23].

2) Install the rig pin S/B-1.

3) Loosen the checknut [27] and adjust the lower control rod [14] end until you can install the bolt [24].

4) Install the bolt [24], washer [25] and nut [26] to attach the lower control rod [14] end to the idler link [23].

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5) Tighten the checknut [27] on the rod end.

SUBTASK 27-62-31-980-001

(2) Apply 28V DC to pins 1 and 7 on the auto speed brake to extend the auto speed brake actuator assembly [16].

NOTE: Use pin 1 as the ground. The pins on the actuator have numbers.

SUBTASK 27-62-31-420-001

(3) Install the auto speed brake actuator assembly [16]:

(a) Put the auto speed brake actuator assembly [16] in its position on the airplane.

(b) Install the bolt [1], washer [2], lockwire [3] that attaches the auto speed brake actuator assembly [16] to the structure.

(c) Manually turn the brake lever [15] forward until the internal stop touches.

(d) Adjust the rod end fitting on the auto speed brake actuator assembly [16].

1) Loosen the checknut [9] on the auto speed brake actuator assembly [16] rod end.

2) Adjust the auto speed brake actuator assembly [16] rod end until you can install the bolt [10] through the brake lever [15] and the auto speed brake actuator assembly [16].

NOTE: To make the alignment easier, you can loosen the brake lever [15] a distance equal to one-half turn of the auto speed brake actuator assembly [16] rod end.

3) Install the bolt [10] to attach the auto speed brake actuator assembly [16] to the brake lever [15].

4) Hand tighten the checknut [9] on the auto speed brake actuator assembly [16] rod end.

5) Remove the bolt [10] from the auto speed brake actuator assembly [16] rod end and brake lever [15].

6) Loosen the checknut [9]. Make sure the rod end doesn't turn while loosening the checknut.

7) Turn the auto speed brake actuator assembly [16] rod end in one full turn.

8) Tighten the checknut [9].

(e) Manually turn the brake lever [15] until it aligns with the auto speed brake actuator assembly [16] rod end.

(f) Install the bolt [10], washer [11], nut [12], and pin [13] to attach the auto speed brake actuator assembly [16] to the brake lever [15].

SUBTASK 27-62-31-080-001

(4) Remove the rig pin S/B-1 from test test rig pin kit, SPL-1585.

SUBTASK 27-62-31-980-002

(5) Apply 28V DC to pins 1 and 3 on the auto speed brake actuator assembly [16] to retract the auto speed brake actuator assembly [16].

SUBTASK 27-62-31-980-003

(6) Manually move the speed brake lever through the full travel to make sure it moves freely.

SUBTASK 27-62-31-420-003

(7) Install the bonding jumper [7]:

(a) Install the bolt [5], washer [6], and nut [8] to attach the bonding jumper [7].

(b) Make sure the bonding resistance between the auto speed brake actuator assembly [16] and the structure is less than 2.5 milliohms.

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SUBTASK 27-62-31-420-004

(8) Install the electrical connector [17].

SUBTASK 27-62-31-860-004

(9) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-31-860-005

(10) Do this task: Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-62-00-840-802.

SUBTASK 27-62-31-010-003

(11) Install the lower cover plate [21]:

(a) Install the screws [19] and washers [20].

SUBTASK 27-62-31-720-001

(12) Do this task: Speed Brake Throttle Switch Test, TASK 27-62-00-820-806.

SUBTASK 27-62-31-410-002

(13) Close this access panel:

Number	Name/Location
112A	Forward Access Door

——————— END OF TASK ———————

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SPEED BRAKE REFUSED TAKEOFF (RTO) SWITCH - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the speed brake refused takeoff (RTO) switch S650.

(2) An installation of the speed brake refused takeoff (RTO) switch S650.

(3) An adjustment of the speed brake refused takeoff (RTO) switch S650.

B. The speed brake refused takeoff switch (RTO) is installed in the left forward part of the control stand.

C. The speed brake refused takeoff switch (RTO) is operated by the movement of the reverse thrust levers in a reverse thrust direction. The RTO switch operates with an arm which lifts the speed brake lever out of the down detent to permit automatic extension of the speed brakes.

D. In this procedure the speed brake refused takeoff (RTO) switch is referred to as the "RTO switch".

TASK 27-62-32-000-801

2. Speed Brake Refused Takeoff (RTO) Switch Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left

B. Prepare for the Removal

SUBTASK 27-62-32-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

C. RTO Switch Removal

SUBTASK 27-62-32-020-001

(1) Remove screws [1] and washers [2] and the cover plate [3] on the control stand to get access to the RTO switch [13].

(a) Remove the screw [9] and screw [10] that attach the RTO switch [13] to the structure.

SUBTASK 27-62-32-020-002

(2) Remove the screws [6] and washers [7] to disconnect the electrical wires [8] from the RTO switch [13].

——————— END OF TASK ———————

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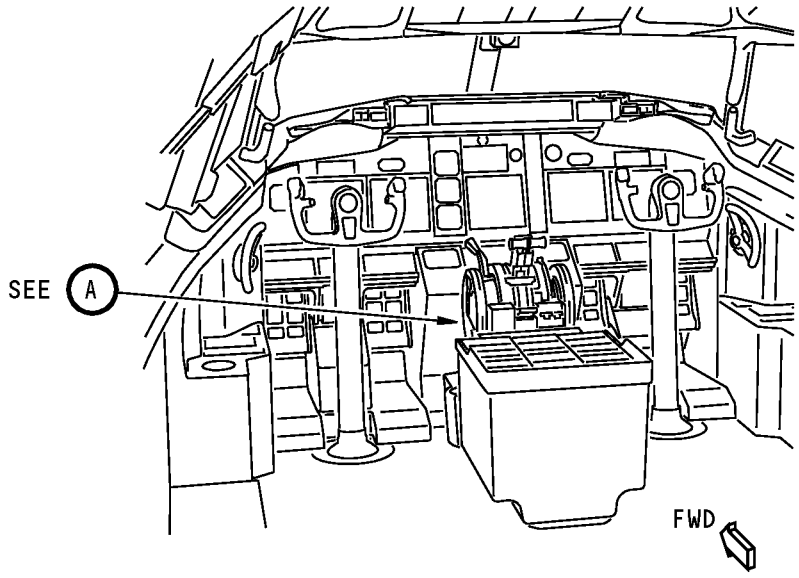

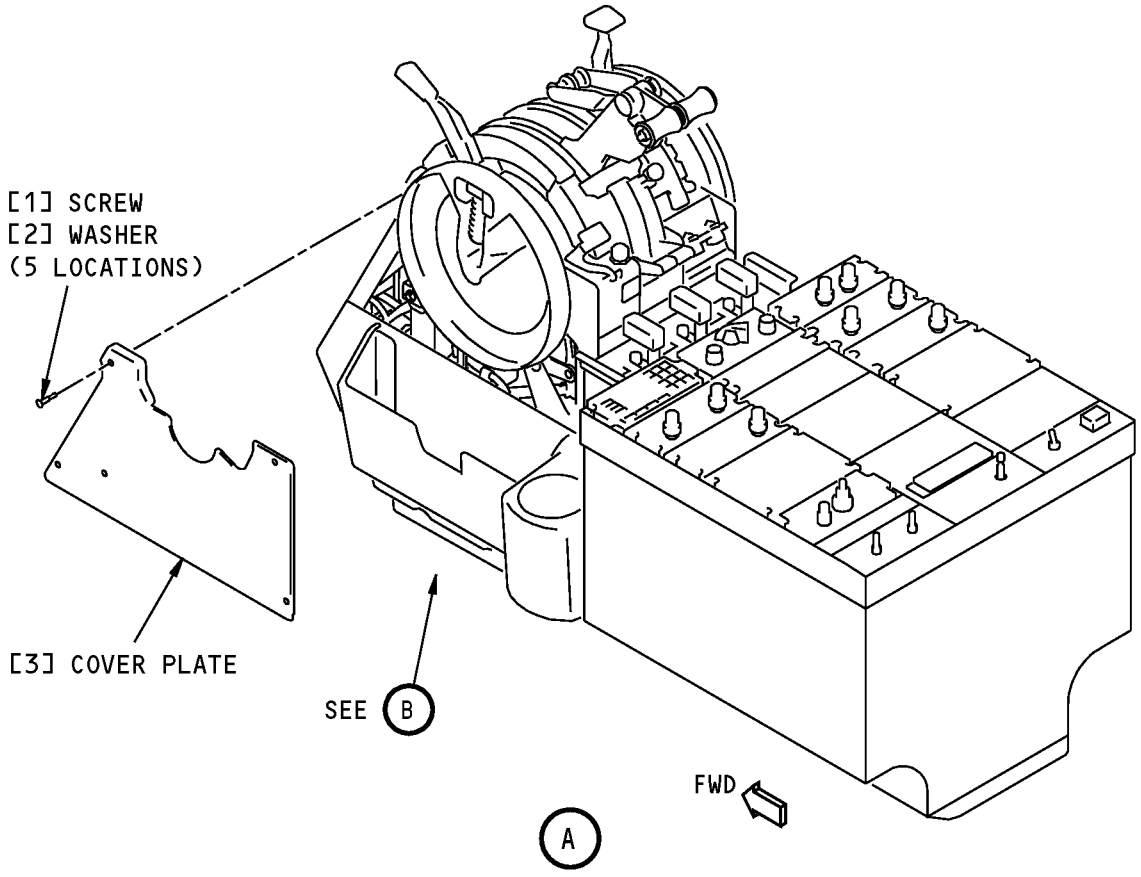

Speed Brake Refused Takeoff (RTO) Switch Installation
Figure 401 (Sheet 1 of 3)/27-62-32-990-801

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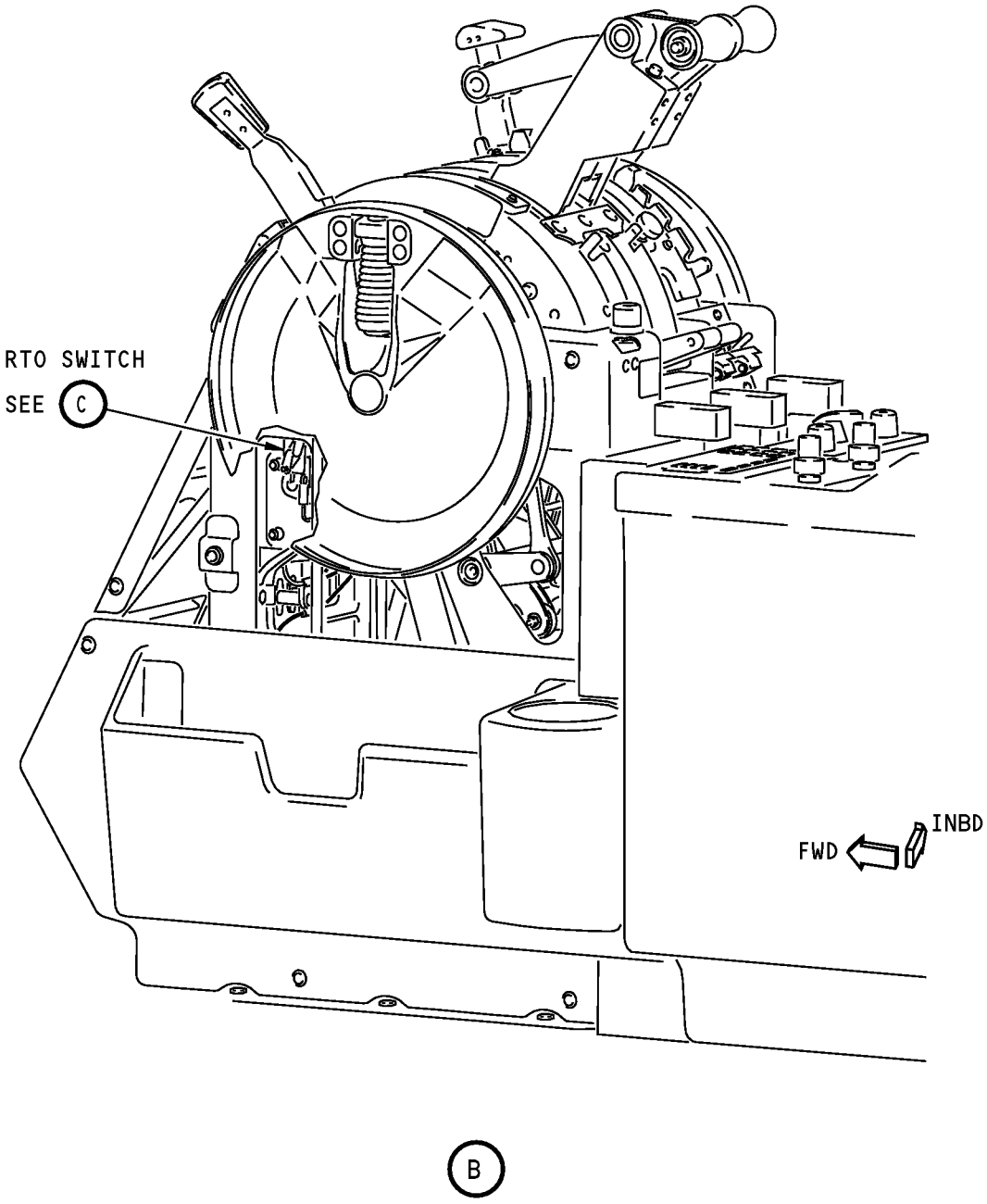

Speed Brake Refused Takeoff (RTO) Switch Installation
Figure 401 (Sheet 2 of 3)/27-62-32-990-801

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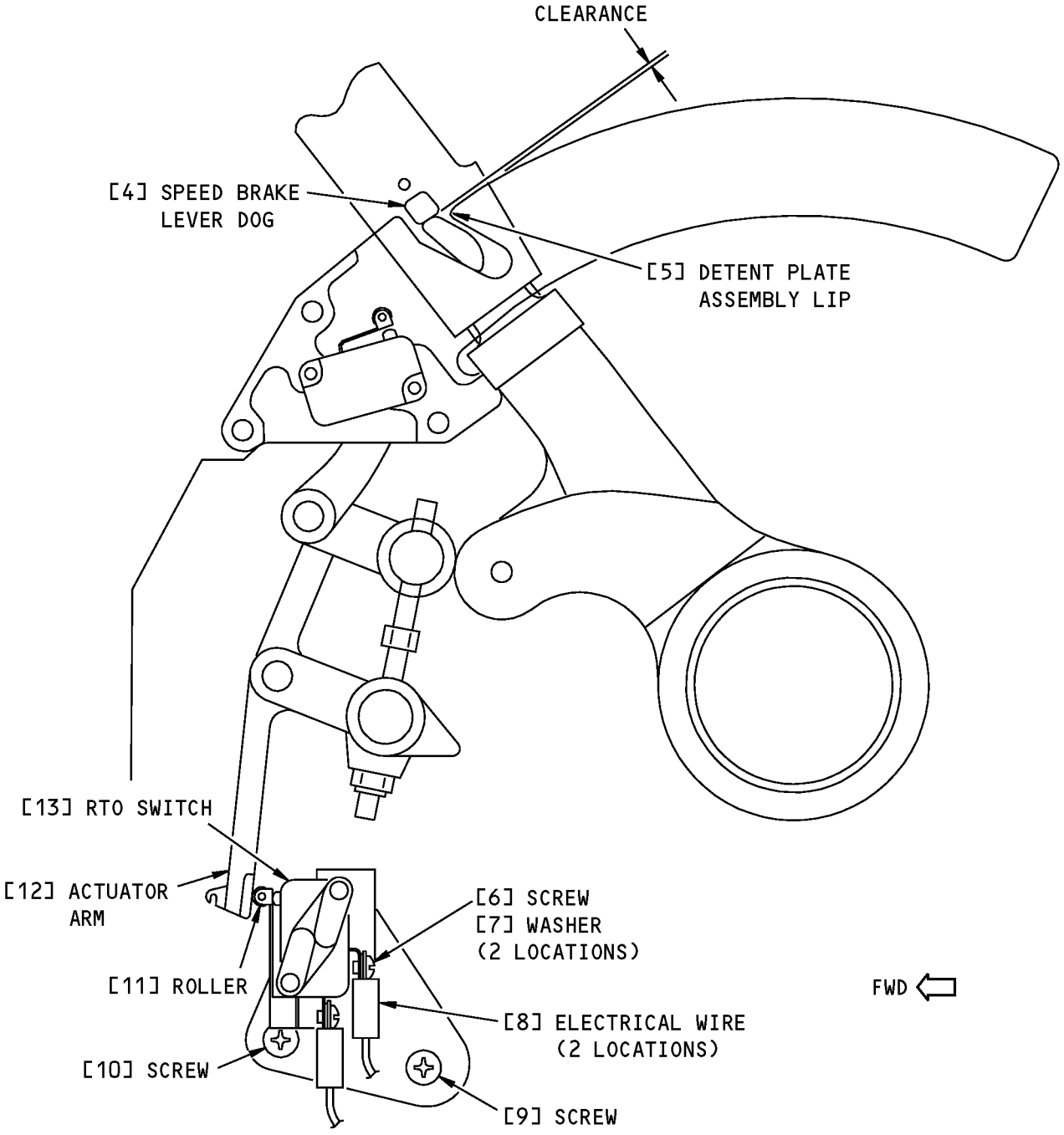

Speed Brake Refused Takeoff (RTO) Switch Installation
Figure 401 (Sheet 3 of 3)/27-62-32-990-801

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TASK 27-62-32-400-801

3. Speed Brake Refused Takeoff (RTO) Switch Installation

(Figure 401)

A. References

Reference	Title
27-62-00-820-809	Speed Brake RTO Test (P/B 501)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
13	Switch	27-62-32-01-035	HAP ALL

C. Location Zones

Zone	Area
211	Flight Compartment - Left

D. RTO Switch Installation

SUBTASK 27-62-32-420-001

(1) Install the RTO switch [13]:

(a) Put the RTO switch [13] in its position on the structure.

(b) Connect the electrical wires [8] to the RTO switch [13].

(c) Install the screw [9] and screw [10] that attach the RTO switch [13].

SUBTASK 27-62-32-860-002

(2) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-32-820-002

(3) Do this task: Speed Brake Refused Takeoff (RTO) Switch Adjustment, TASK 27-62-32-400-802.

SUBTASK 27-62-32-700-001

(4) Do this task: Speed Brake RTO Test, TASK 27-62-00-820-809.

——————— END OF TASK ———————

TASK 27-62-32-400-802

4. Speed Brake Refused Takeoff (RTO) Switch Adjustment

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment - Left

B. RTO Switch Adjustment

SUBTASK 27-62-32-820-003

(1) Adjust the RTO switch [13]:

(a) Make sure the thrust levers are at idle and the reverse thrust levers are down and stowed.

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(b) Make sure the speed brake lever is in the DOWN position.

(c) Disconnect the electrical wires [8] from the RTO switch [13].

(d) Loosen screw [9] and screw [10].

(e) Turn the RTO switch [13] as far aft as possible.

(f) Make sure there is no continuity between pin 8 and 9 of the D5148J connector.

(g) Move the left reverse thrust lever aft until there is a 0.0400 to 0.0600 inch (1.0160 to 1.5240 millimeters) clearance between the speed brake lever dog [4] and the detent plate assembly lip [5].

(h) Turn the RTO switch [13] until the roller [11] touches the actuator arm [12] and there is continuity between pins 8 and 9 of the D5148J connector.

(i) Tighten the screw [9] and screw [10].

(j) Slowly move the left thrust lever back to the down and stowed position.

1) Make sure there is no continuity between pins 8 and 9.

(k) Slowly move the left thrust lever aft until there is continuity between pins 8 and 9.

1) Make sure the clearance between the speed brake lever dog [4] and the detent plate assembly lip [5] is 0.0200 to 0.0400 inch (0.5080 to 1.0160 millimeters).

(l) Slowly move the left reverse thrust lever forward until there is no continuity between pins 8 and 9.

1) Make sure the speed brake lever dog [4] is 0.0100 inches (0.2540 millimeters) above the detent plate assembly lip [5].

(m) Move the left reverse thrust lever to the down and stowed position.

1) Make sure there is no continuity between pins 8 and 9.

(n) Slowly move and the right reverse thrust lever aft until there is continuity between pins 8 and 9.

1) Make sure the speed brake lever dog [4] is 0.0400 to 0.0600 inches (1.0160 to 1.5240 millimeters) above the detent plate assembly lip [5].

(o) Slowly move the right reverse thrust lever forward until there is no continuity between pins 8 and 9.

1) Make sure the speed brake lever dog [4] is 0.0100 inches (0.2540 millimeters) above the detent plate assembly lip [5].

(p) Move the right reverse thrust lever to the down and stowed position.

1) Make sure there is no continuity between pins 8 and 9.

SUBTASK 27-62-32-410-002

(2) Install screws [1] and washers [2] to attach the cover plate [3] on the control stand.

——————— END OF TASK ———————

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AUTOSTOW ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the speed brake autostow actuator.

(2) An installation of the speed brake autostow actuator.

(3) A removal of the speed brake autostow cam assembly.

(4) An installation of the speed brake autostow cam assembly.

B. The speed brake autostow actuator is installed on the floor panel forward of the lower left bulkhead of the control stand.

C. The speed brake autostow actuator positions the speedbrake linkage idler arm which moves the speedbrake handle to commanded positions determined by the SMYD. The cam assembly applies a breakout force to the speedbrake handle using a cam and roller mechanism.

TASK 27-62-33-000-801

2. Speed Brake Autostow Actuator Removal

(Figure 401, Figure 402)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Prepare for the Removal

SUBTASK 27-62-33-860-001

(1) Move the speedbrake to the DOWN detent.

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

SUBTASK 27-62-33-860-002

(3) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

D. Autostow Actuator Removal

SUBTASK 27-62-33-020-001

(1) Remove the screws [1], washers [2], and lower cover plates [3] (both the left and the right sides) from the control stand to get access to the autostow actuator (Figure 401).

SUBTASK 27-62-33-830-001

(2) Install the rig pin [23] through the cam housing [24] and cam assembly [22].

SUBTASK 27-62-33-830-013

(3) Install the rig pin in the lower speedbrake quadrant (located below the floor)

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SUBTASK 27-62-33-020-002

(4) Disconnect the electrical connector from the autostow actuator.

SUBTASK 27-62-33-020-003

(5) Disconnect the bonding jumper from the autostow actuator.

SUBTASK 27-62-33-020-004

(6) Remove the upper attach point nut [19], washer [21], and bolt [20] from the actuator rod end [18].

SUBTASK 27-62-33-020-005

(7) Remove the lower actuator attach point nut [13], washer [15], and bolt [14] from the autostow actuator [17] and the floor mount clevis.

SUBTASK 27-62-33-020-006

(8) Remove the autostow actuator [17] from the control stand.

——————— END OF TASK ———————

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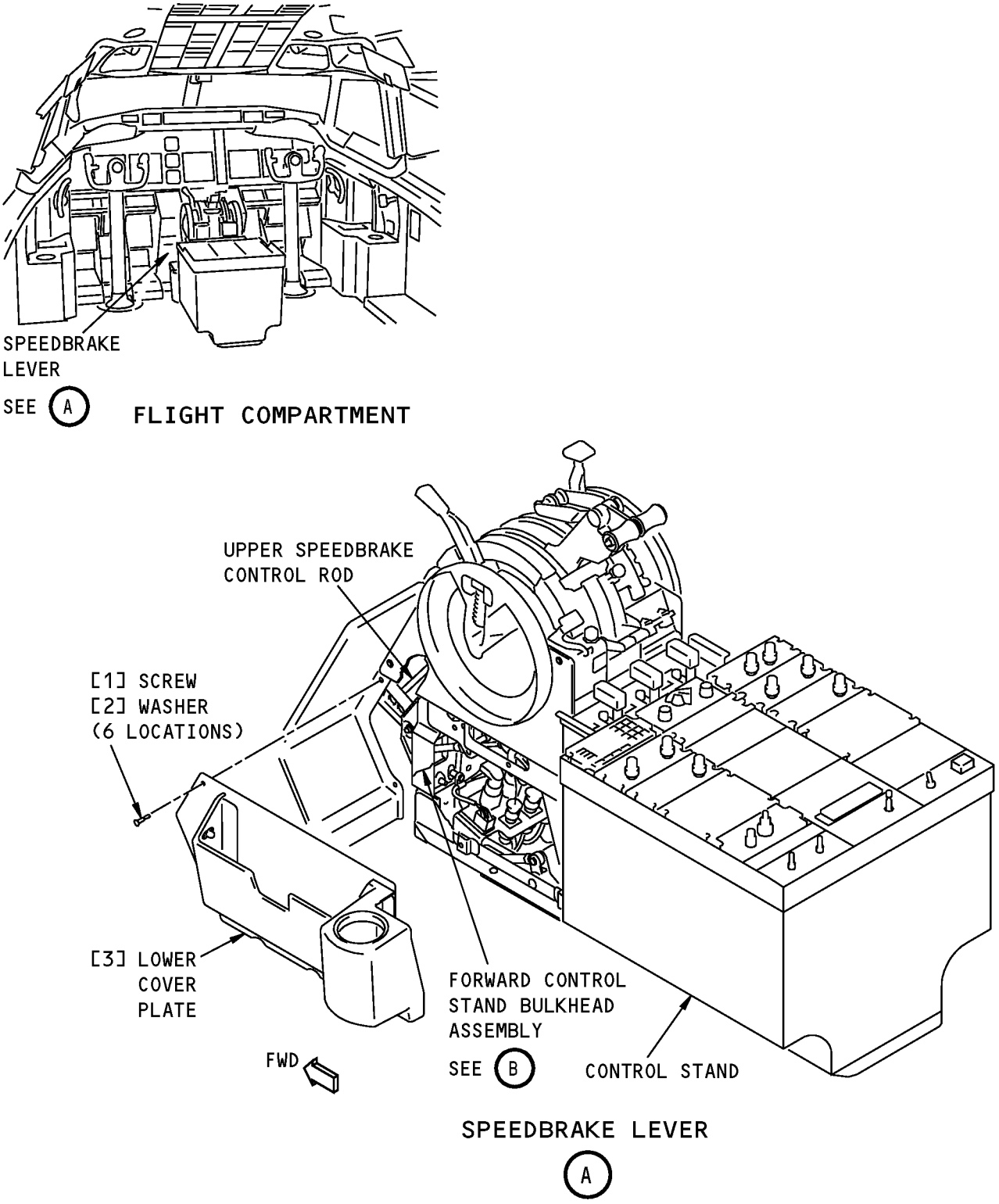

Speedbrake Autostow Actuator Installation
Figure 401 (Sheet 1 of 3)/27-62-33-990-801

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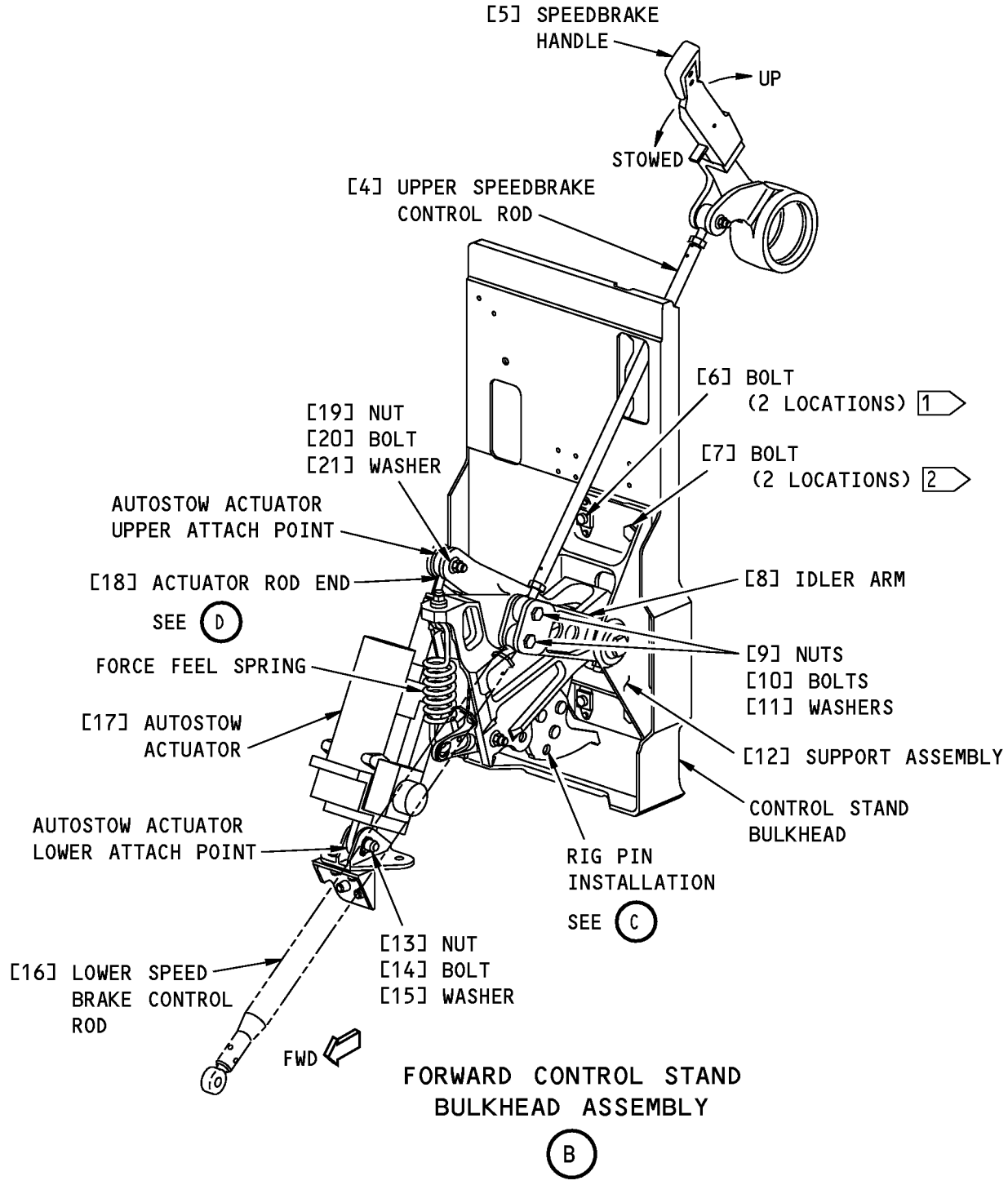

1 ACCESS THESE BOLTS FROM THE AFT SIDE OF CONTROL STAND BULKHEAD.

2 ACCESS THESE BOLTS FROM THE FORWARD SIDE OF THE CONTROL STAND BULKHEAD.

Speedbrake Autostow Actuator Installation
Figure 401 (Sheet 2 of 3)/27-62-33-990-801

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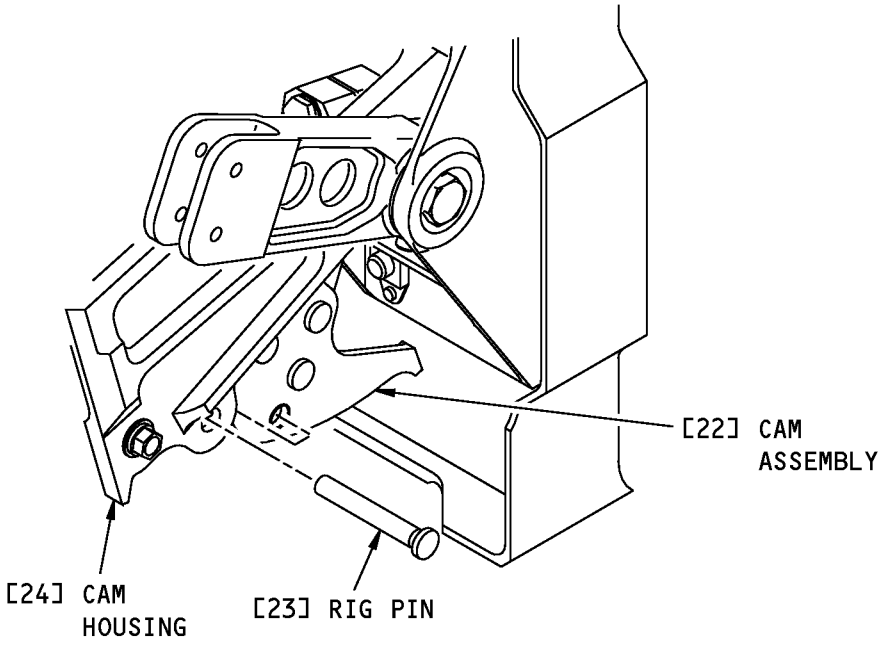
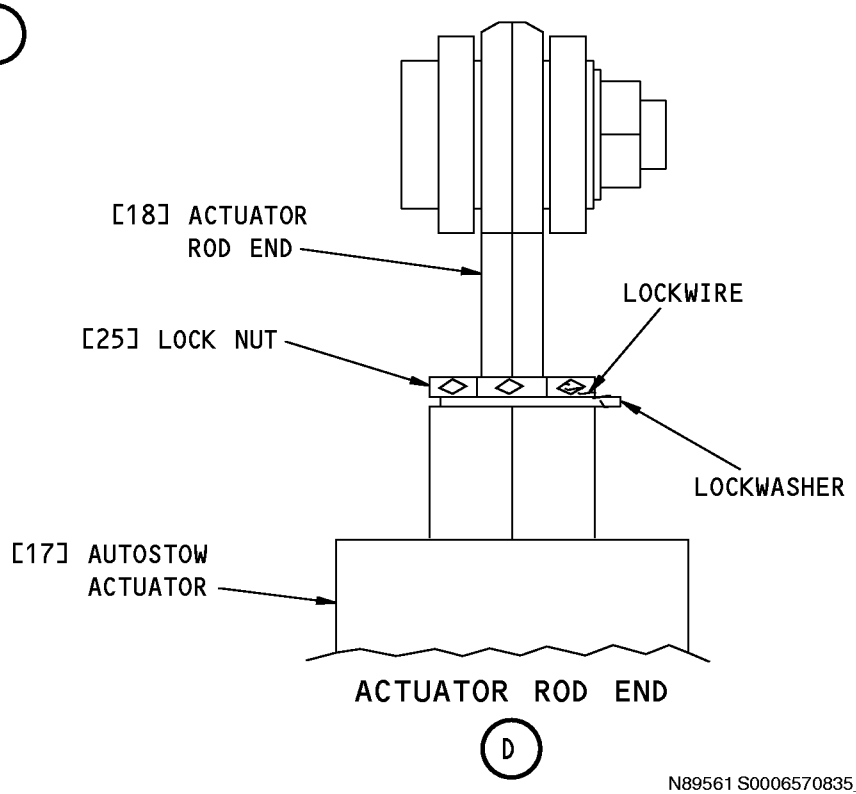


RIG PIN INSTALLATION

C



D

N89561 S0006570835_V3

Speedbrake Autostow Actuator Installation
Figure 401 (Sheet 3 of 3)/27-62-33-990-801

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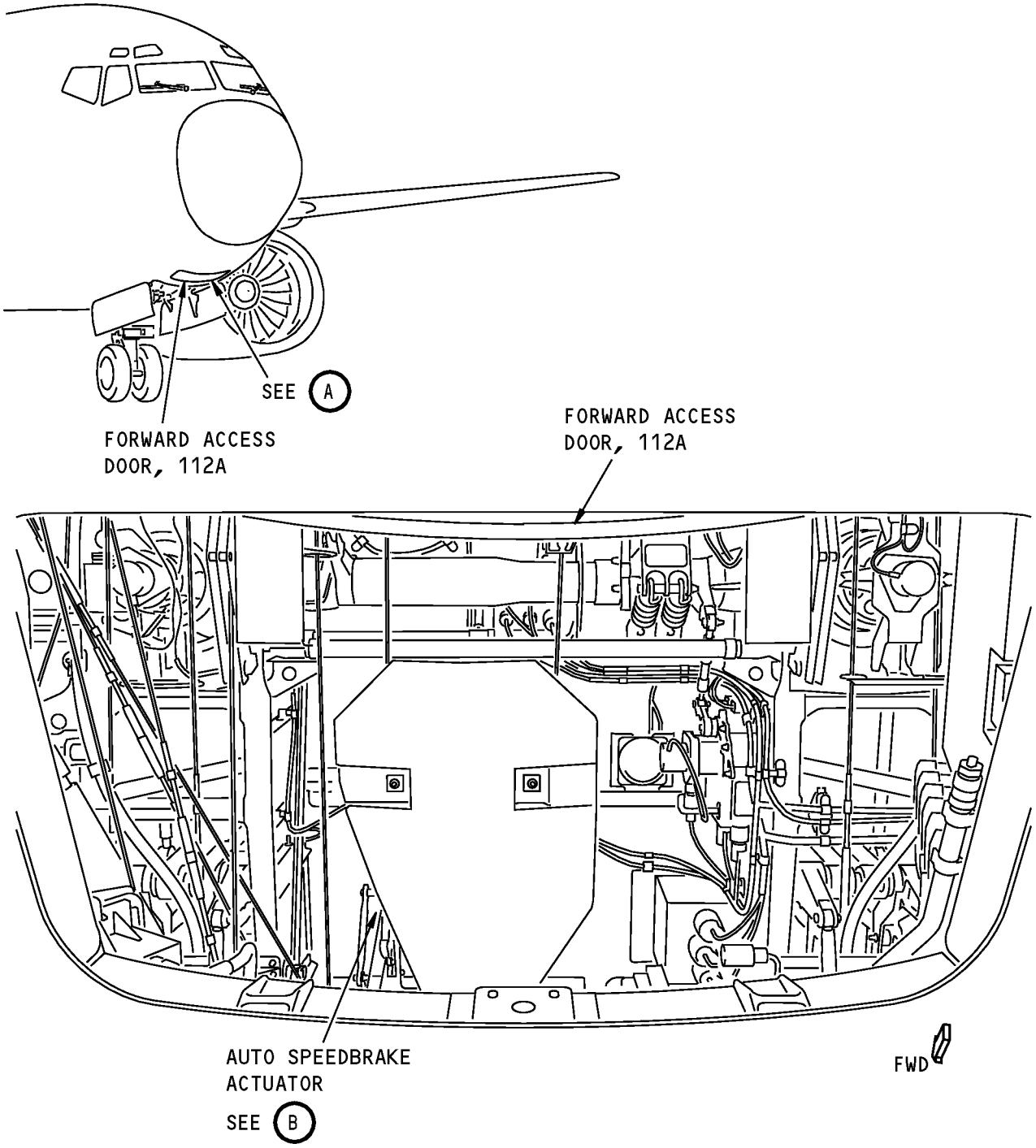

Speedbrake Autostow Actuator Rigging
Figure 402 (Sheet 1 of 3)/27-62-33-990-802

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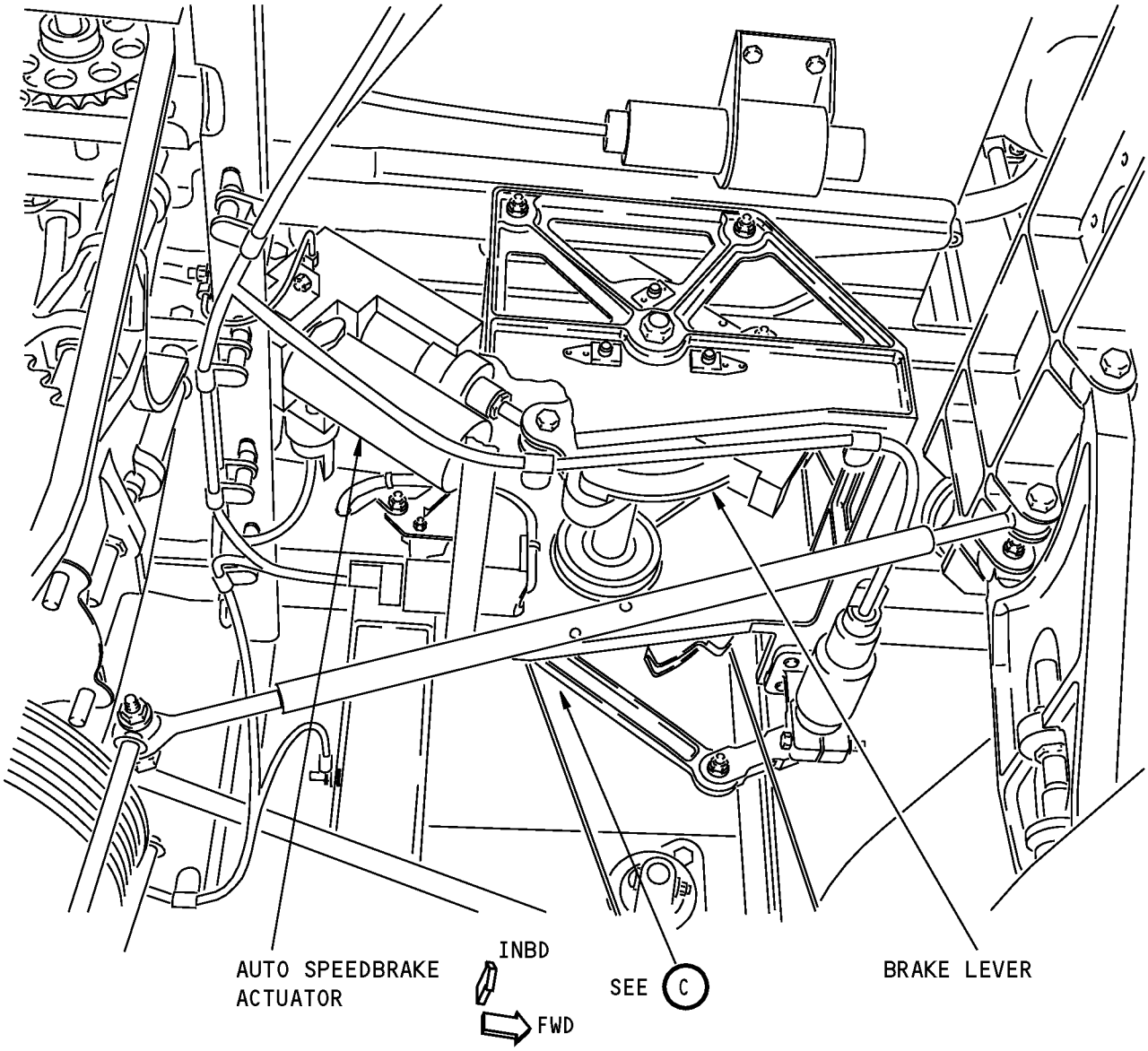

AUTO SPEEDBRAKER ACTUATOR

B

Speedbrake Autostow Actuator Rigging
Figure 402 (Sheet 2 of 3)/27-62-33-990-802

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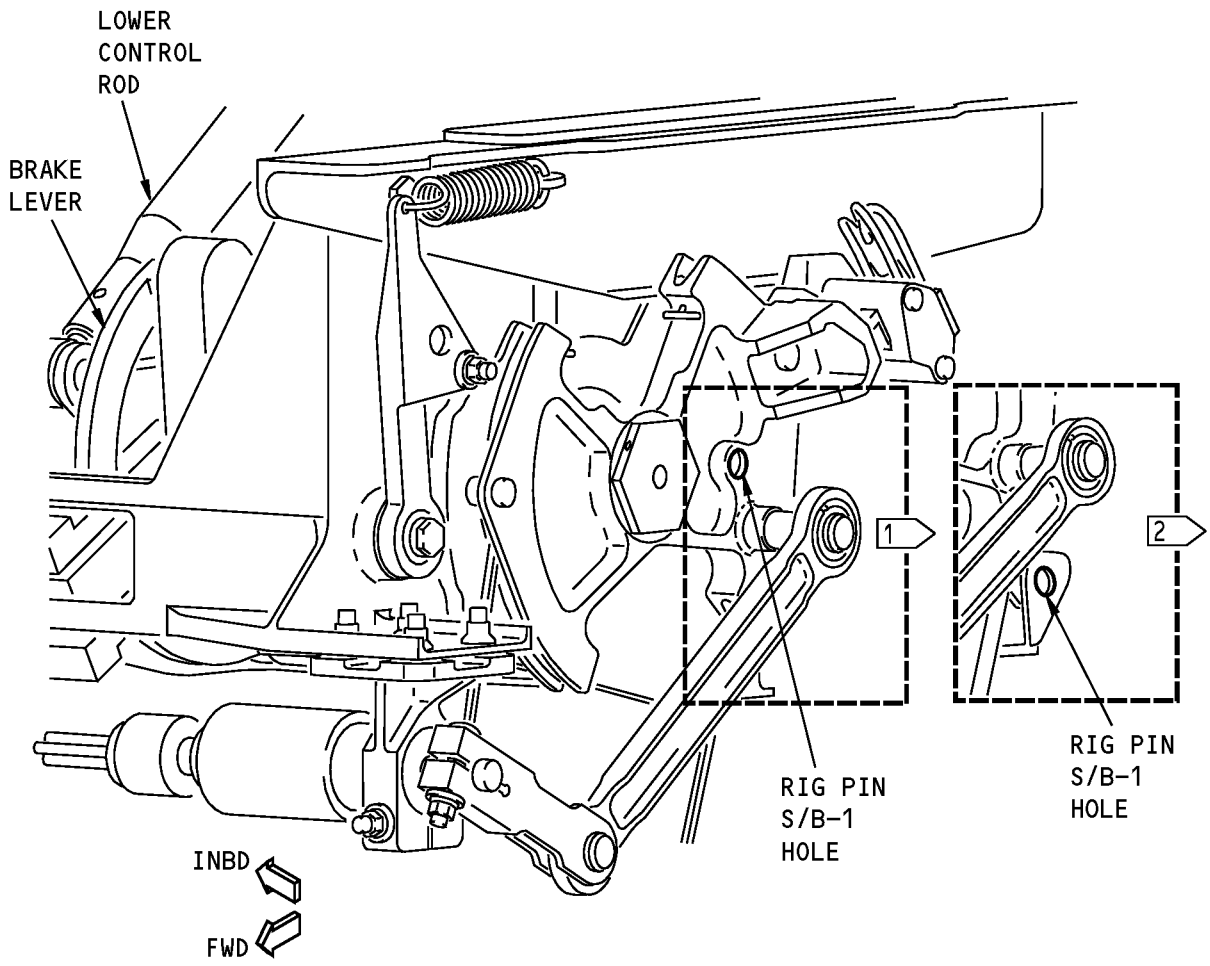

1 AIRPLANES WITH THE -3 FORWARD QUADRANT.

2 AIRPLANES WITH THE -5 FORWARD QUADRANT.

Speedbrake Autostow Actuator Rigging
Figure 402 (Sheet 3 of 3)/27-62-33-990-802

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TASK 27-62-33-400-801

3. Speed Brake Autostow Actuator Installation

(Figure 401, Figure 402)

A. References

Reference	Title
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-33-010-801	Speedbrake Autostow Actuator - Functional Test (P/B 501)

B. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

C. Location Zones

Zone	Area
211	Flight Compartment - Left

D. Autostow Actuator Installation

SUBTASK 27-62-33-860-036

(1) Ensure the speedbrake handle [5] is in the DOWN detent position.

SUBTASK 27-62-33-830-002

(2) Ensure the rig pin [23] has been installed through the cam housing [24] and cam assembly [22].

SUBTASK 27-62-33-830-014

(3) Ensure that the rig pin has been installed in the lower speedbrake quadrant (located below the floor).

SUBTASK 27-62-33-860-041

(4) Make sure the autostow actuator [17] is fully retracted. If it is not fully retracted, apply 28VDC to pin 3 and the ground to pin 1 of the electrical connector (WDM 27-32-21).

SUBTASK 27-62-33-420-001

(5) Install the autostow actuator [17] forward of the control stand:

(a) Install the mounting hardware (bolt [14], washer [15], and nut [13]) in the lower attach point of the autostow actuator [17] and the mounting clevis on the floor panel.

(b) Adjust the actuator rod end and re-attach the rod end to the upper attach point using the bolt [20], washer [21], and nut [19].

(c) Install the autostow actuator bonding jumper to the structure.

1) Measure the electrical resistance between the autostow actuator and the connection point on the structure.

NOTE: The resistance must not be greater than 0.0025 ohms.

SUBTASK 27-62-33-420-007

(6) Install the autostow actuator electrical connector

SUBTASK 27-62-33-830-003

(7) Remove the rig pin [23] from the cam housing [24] and nut [19].

SUBTASK 27-62-33-840-001

(8) Remove the rig pin from the lower speedbrake quadrant (located below the floor).

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SUBTASK 27-62-33-860-003

(9) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

SUBTASK 27-62-33-820-001

(10) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-33-700-001

(11) Complete the autostow actuator functional test, do this task: Speedbrake Autostow Actuator - Functional Test, TASK 27-62-33-010-801.

SUBTASK 27-62-33-430-003

(12) Make sure the lockwire, G01048 is installed on the lock nut [25].

SUBTASK 27-62-33-420-008

(13) Install the lower cover plates [3] (left and right) using the screws [1] and washers [2].

——————— END OF TASK ———————

TASK 27-62-33-000-802

4. Speedbrake Autostow Actuator Cam Assembly Removal

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Prepare for the Removal

SUBTASK 27-62-33-860-004

(1) Move the speedbrake to the DOWN detent.

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

SUBTASK 27-62-33-860-042

(3) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

D. Autostow Actuator Cam Assembly Removal

SUBTASK 27-62-33-020-013

(1) Remove screws [1] and washers [2] and the cover plate [3] (the right side also, if necessary) on the control stand to get access to the autostow actuator (Figure 401).

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SUBTASK 27-62-33-830-004

(2) Install the rig pin in the lower speedbrake quadrant (located below the floor)

SUBTASK 27-62-33-020-014

(3) Remove the two nuts [9], bolts [10] and washers [11] that attach the upper control rod [4] and lower control rod [16] to the idler arm [8].

SUBTASK 27-62-33-020-021

(4) Remove the nut [19], bolt [20] and washer [21] from the upper attach point for the actuator rod end [18].

SUBTASK 27-62-33-020-015

(5) Do the following to remove the cam assembly from the control stand forward bulkhead:

(a) Remove the two inboard bolts [6] from the control stand forward bulkhead assembly.

(b) Remove the two outboard bolts [7] from the forward side of the support fitting [12].

SUBTASK 27-62-33-020-016

(6) Remove the cam assembly from the control stand.

——————— END OF TASK ———————

TASK 27-62-33-400-802

5. Speed Brake Autostow Actuator Cam Assembly Installation

(Figure 401)

A. References

Reference	Title
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-33-010-801	Speedbrake Autostow Actuator - Functional Test (P/B 501)

B. Location Zones

Zone	Area
211	Flight Compartment - Left

C. Autostow Actuator Cam Assembly Installation

SUBTASK 27-62-33-860-037

(1) Ensure that the speedbrake handle [5] is in the DOWN detent position.

SUBTASK 27-62-33-830-005

(2) Ensure that the rig pin is installed in the lower speedbrake quadrant (located below the floor).

SUBTASK 27-62-33-420-004

(3) Place the cam assembly in the area in front of the control stand (Figure 401).

SUBTASK 27-62-33-420-005

(4) Do the following to attach the cam assembly to the control stand forward bulkhead:

(a) Install the two inboard bolts [6] in the control stand forward bulkhead assembly.

(b) Install the two outboard bolts [7] in the forward side of the support fitting [12].

SUBTASK 27-62-33-830-006

(5) Install the rig pin [23] through the cam [22] and cam housing [24].

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SUBTASK 27-62-33-420-003

(6) Install the two bolts [10], washers [11] and nuts [9] that attach the upper control rod [4] and lower control rod [16] to the idler arm [8].

SUBTASK 27-62-33-420-002

(7) Adjust the actuator rod end [18] (if necessary) and re-attach the rod end] to the upper mounting point using the bolt [20], washer [21] and nut [19].

SUBTASK 27-62-33-830-007

(8) Remove the rig pin [23] from the cam [22] and cam housing [24].

SUBTASK 27-62-33-830-008

(9) Remove the rig pin from the lower speedbrake quadrant (beneath the floor).

SUBTASK 27-62-33-860-006

(10) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

SUBTASK 27-62-33-860-043

(11) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-33-700-002

(12) If the autostow actuator rod end [18] was adjusted during installation, complete the autostow actuator functional test, do this task: Speedbrake Autostow Actuator - Functional Test, TASK 27-62-33-010-801.

SUBTASK 27-62-33-420-006

(13) Install the lower cover plates [3] (left and right) using the washers [2] and the screws [1].

———————— END OF TASK ————————

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SPEED BRAKE AUTOSTOW ACTUATOR - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Speed Brake Autostow Actuator System - Functional Test

(2) Speed Brake Autostow Actuator - Automatic Ground Test

(3) Speed Brake Autostow Actuator Rod End Adjustment

(4) Speed Brake Autostow Actuator Tension Spring Adjustment

TASK 27-62-33-010-801

2. Speedbrake Autostow Actuator - Functional Test

(Figure 501, Figure 502)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
FIM 27-32 TASK 801	Stall Management Yaw Damper BITE Procedure
FIM 27-62 TASK 812	SPEED BRAKE ARMED Light Does Not Operate During Autostow Actuator Functional Test - Fault Isolation

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)
SPL-1670	Mount - Control Wheel Protractor (Part #: F72790, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1680	Protractor - Assembly, Control Column (Part #: 4MIT65B80307-1, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: A27021-29, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: G76002-15, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right

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(Continued)

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Test

SUBTASK 27-62-33-860-007

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-33-860-008

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-33-860-009

(3) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

SUBTASK 27-62-33-860-010

(4) Move the Flight Control Switches A and B to the ON position.

SUBTASK 27-62-33-860-011

(5) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-62-33-860-012

(6) Perform the Stall Management Yaw Damper (SMYD) BITE test, do this task: FIM 27-32 TASK 801.

SUBTASK 27-62-33-860-013

(7) Check the SMYD #2 for autostow faults.

NOTE: You can ignore any other faults.

SUBTASK 27-62-33-760-001

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

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(WARNING PRECEDES)

(8) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-33-860-014

(9) Move either thrust lever full forward to retract the speed brake actuator, if it has been extended.

SUBTASK 27-62-33-480-003

(10) Install protractors, COM-1691 on spoilers 2, 3, 4, 5, 8, 9, 10, and 11.

NOTE: If eight protractors are not available, install as many on you have on the spoilers. The task can be repeated as many times as is necessary to measure the positions of each of the eight spoiler panels. Do not record the average spoiler panel position until each of the eight spoilers has been measured.

(a) Zero the protractors.

SUBTASK 27-62-33-860-015

(11) Measure the speed brake lever handle forces using a spring scale.

(a) Measure the force required to slowly move the speed brake lever to the FLIGHT DETENT position.

NOTE: The force required to move the speedbrake lever to this position should not exceed 20 pounds (89 newtons). Record this force.

(b) Measure the force required to slowly move the speed brake lever to the full UP position.

NOTE: The force required to move the speedbrake lever to this position should not exceed 28 pounds (125 newtons). Record this force.

(c) Measure the force required to slowly move the speed brake lever to the DOWN position.

NOTE: The force required to move the speedbrake lever to this position should not exceed 15 pounds (67 newtons). Record this force.

SUBTASK 27-62-33-860-016

(12) Move the speedbrake handle to the FLIGHT DETENT position.

(a) Verify that the SPEED BRAKE ARMED light illuminates.

1) If the SPEED BRAKE ARMED light does not illuminate, do this task: SPEED BRAKE ARMED Light Does Not Operate During Autostow Actuator Functional Test - Fault Isolation, FIM 27-62 TASK 812.

SUBTASK 27-62-33-860-017

(13) Do the autostow actuator test on the SMYD #2:

(a) Press and then release the ON/OFF button.

1) The display reads "EXISTING FAULTS?".

(b) Press and then release the up or down arrow until "GROUND TEST?" appears on the display.

1) Press and release the YES button to access ground test options.

(c) Press and then release the up or down arrow until "AUTOSTOW?" appears on the display.

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1) Press and then release the YES button to start the autostow test.

NOTE: The SPEEDBRAKE DO NOT ARM light will illuminate.

NOTE: The SPEEDBRAKE ARMED light will remain illuminated.

(d) When "AUTO TEST" appears on the display, press and then release the NO button.

(e) When "RETRACT ACTR" appears on the display, press and then release the YES button.

1) The autostow actuator will be commanded to retract.

NOTE: The actuator will be held in the retracted position until it is commanded to extend by the test operator.

SUBTASK 27-62-33-860-018

(14) Do the following to measure the average spoiler panel position:

(a) Do a shakeout of the lateral control system by doing the following:

1) Install a mount, SPL-1670 and a control column assembly protractor, SPL-1680 on the control wheel.

2) Rotate the control wheel slowly clockwise to 1.5 units of trim.

3) Rotate the control wheel slowly counterclockwise to 1.5 units of trim.

4) Rotate the control wheel slowly clockwise to zero units of trim.

(b) Use the protractors, COM-1691 to measure and record the spoiler panel positions for spoilers 2, 3, 4, 5, 8, 9, 10 and 11.

(c) Add the eight spoiler panel positions together from the previous step. Divide the total of the panel positions by eight (8) to get the average spoiler panel position.

1) The average spoiler panel position should be between 9.3 and 11.8 degrees.

(d) If the average spoiler position is more than 11.8 degrees or less than 9.3 degrees, do this task: Speedbrake Autostow Actuator Rod End Adjustment, TASK 27-62-33-820-802.

SUBTASK 27-62-33-730-001

(15) Do the following to test the speedbrake handle forces:

(a) Slowly move the speedbrake handle to the FLIGHT DETENT position while measuring the handle force with a spring scale.

NOTE: The handle force should not exceed 40 pounds (178 newtons).

1) Release the speedbrake handle.

NOTE: The speedbrake handle should move forward to the 50% position.

(b) Slowly move the speedbrake handle to the full UP position while measuring the handle force with a spring scale.

NOTE: The handle force should not exceed 55 pounds (245 newtons).

1) Release the speedbrake handle.

NOTE: The speedbrake handle should remain in the full UP position.

(c) Move the speedbrake handle to the DOWN position.

NOTE: The SPEEDBRAKE ARMED light should go out.

SUBTASK 27-62-33-010-001

(16) Go to the SMYD #2 and continue with the SMYD test:

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(a) When "EXTEND ACTR?" is displayed, press and then release the YES button once the actuator rigging is finished.

NOTE: If the SMYD detects a failure during the retract command, the SMYD will remove the retract command and display "TEST FAILED" followed by a list of the detected failure(s). Use the up and down arrows to scroll through the fault list. Press and release the YES button to see the details of each fault.

(b) When the YES button is pressed and released in response to the display "EXTEND ACTR?", the screen will quickly display "LEAVING RIG TEST". The SPEEDBRAKE DO NOT ARM light in the flight deck will go out and then the SMYD display will read "AUTOSTOW TEST?". Press and then release the ON/OFF button to start the shut down the SMYD display.

(c) Press and release the YES button to turn off the display.

SUBTASK 27-62-33-080-002

(17) Remove the protractors, COM-1691 from spoilers 2, 3, 4, 5, 8, 9, 10, and 11.

END OF TASK

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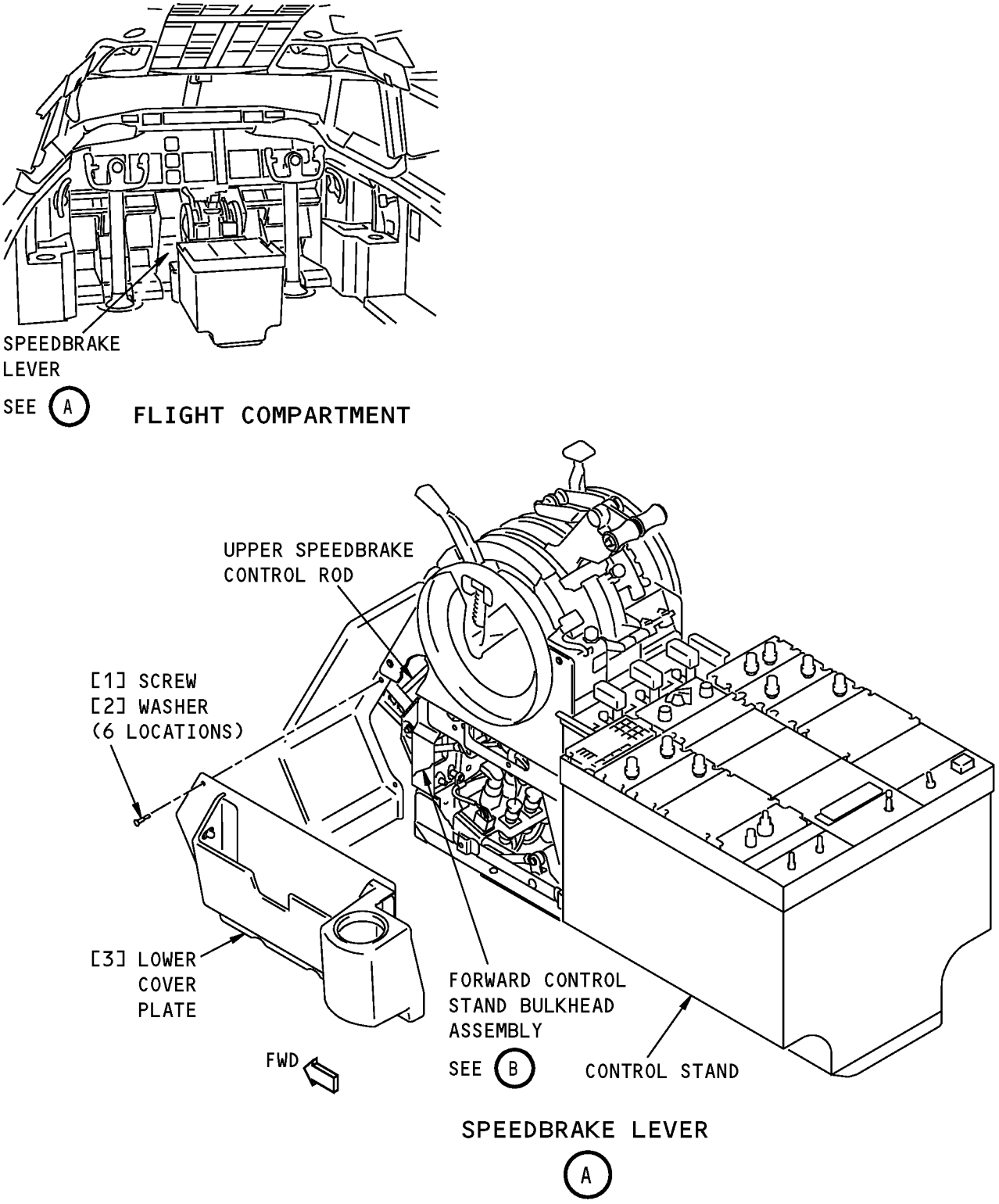

Speedbrake Autostow Actuator Adjustment
Figure 501 (Sheet 1 of 4)/27-62-33-990-803

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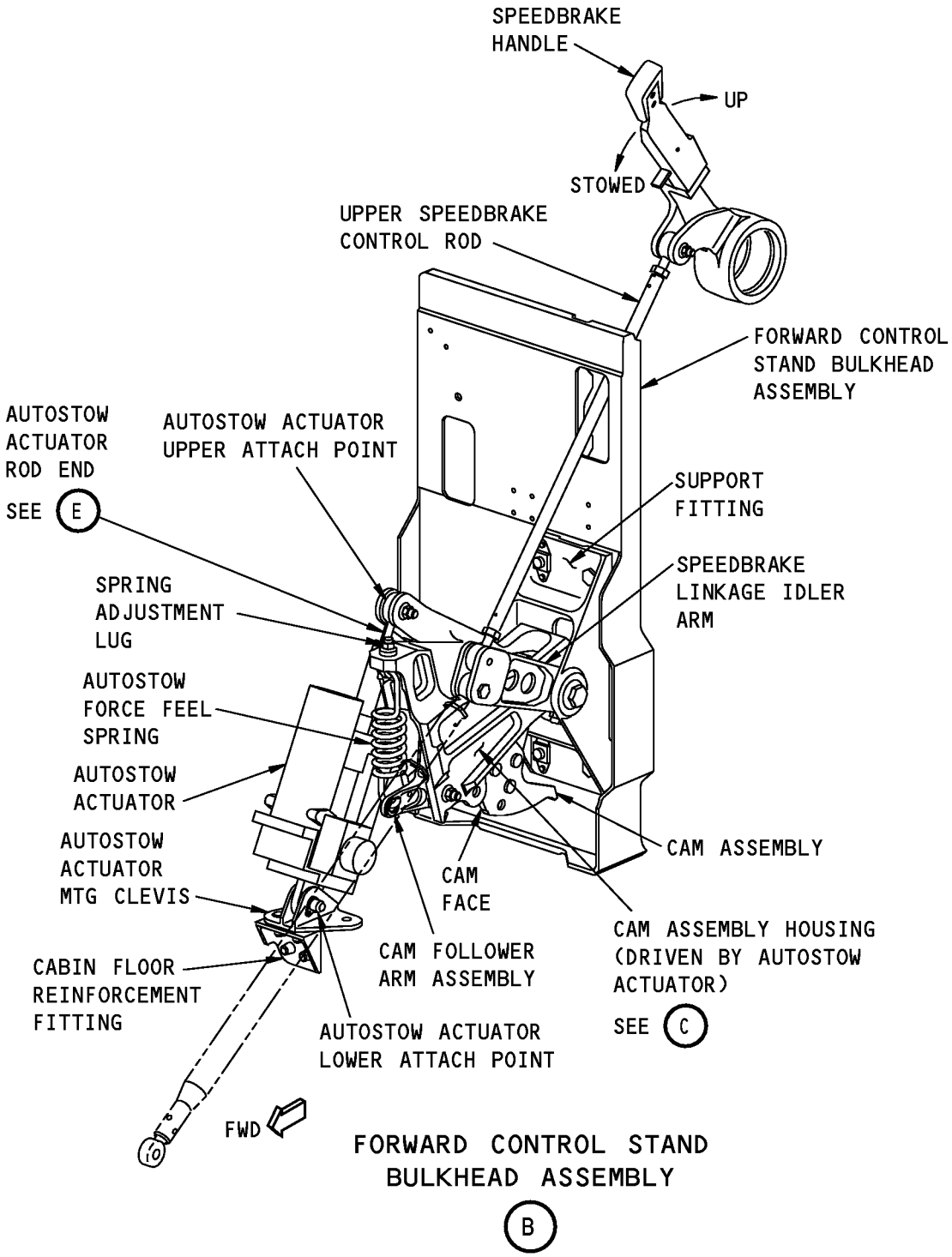

Speedbrake Autostow Actuator Adjustment
Figure 501 (Sheet 2 of 4)/27-62-33-990-803

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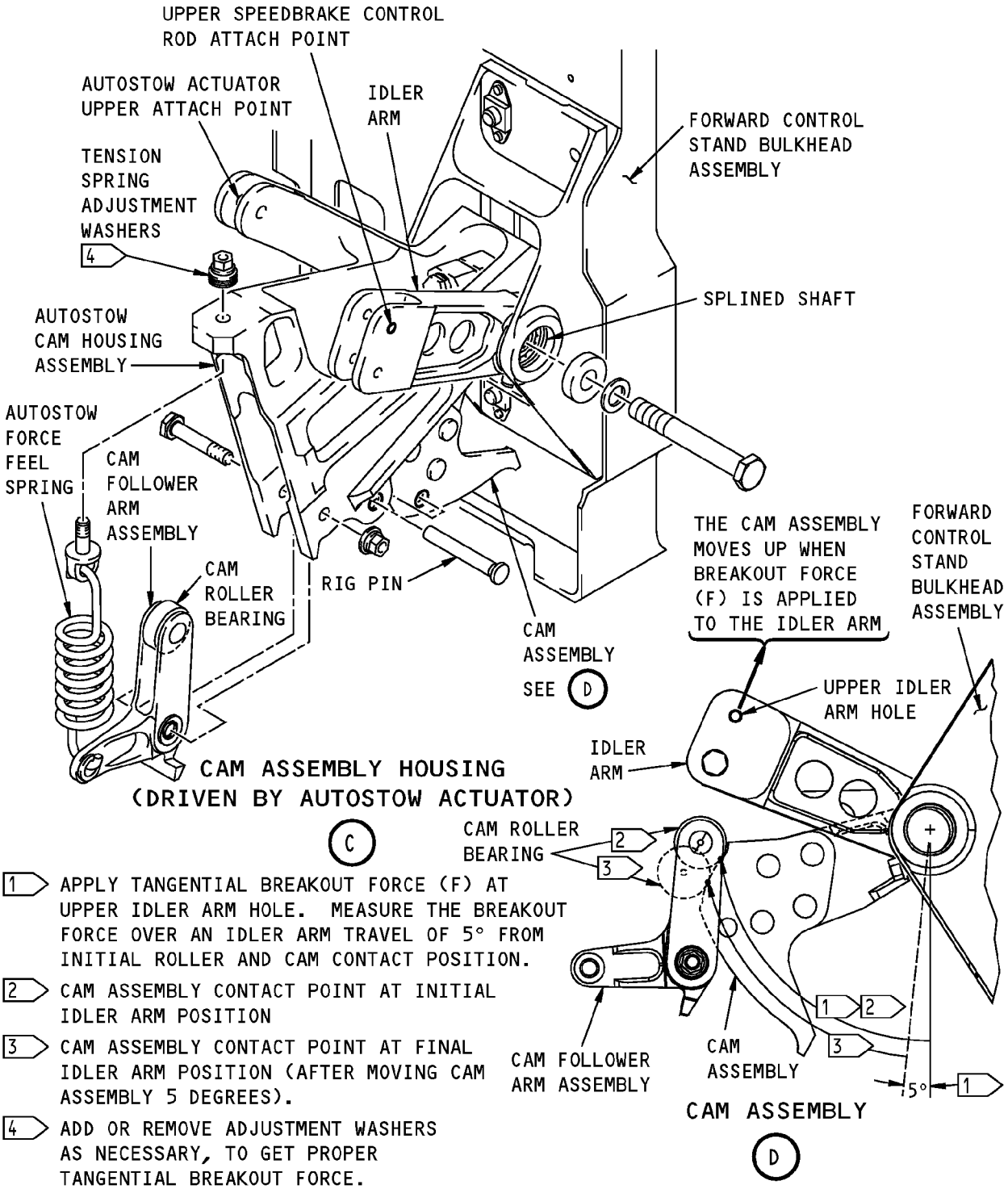

1 APPLY TANGENTIAL BREAKOUT FORCE (F) AT UPPER IDLER ARM HOLE. MEASURE THE BREAKOUT FORCE OVER AN IDLER ARM TRAVEL OF 5° FROM INITIAL ROLLER AND CAM CONTACT POSITION.

2 CAM ASSEMBLY CONTACT POINT AT INITIAL IDLER ARM POSITION

3 CAM ASSEMBLY CONTACT POINT AT FINAL IDLER ARM POSITION (AFTER MOVING CAM ASSEMBLY 5 DEGREES).

4 ADD OR REMOVE ADJUSTMENT WASHERS AS NECESSARY, TO GET PROPER TANGENTIAL BREAKOUT FORCE.

Speedbrake Autostow Actuator Adjustment
Figure 501 (Sheet 3 of 4)/27-62-33-990-803

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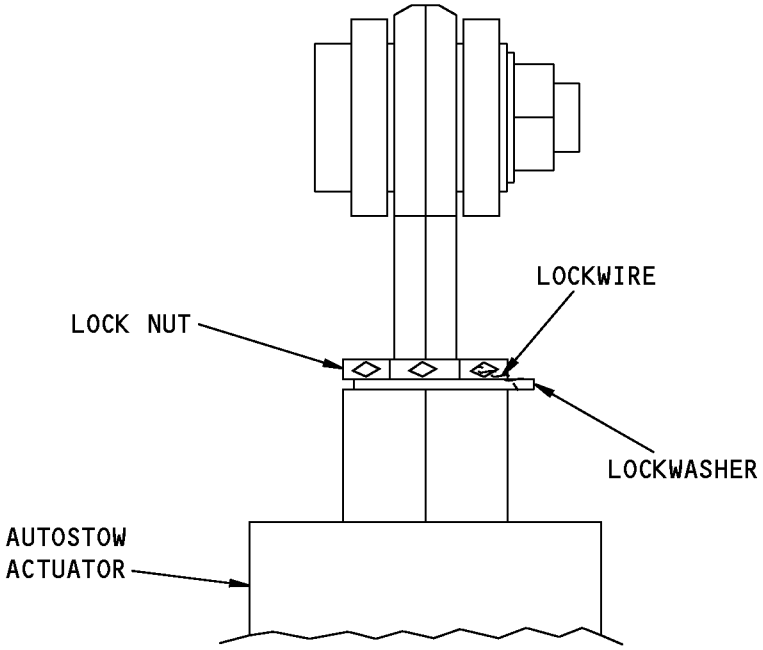

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Speedbrake Autostow Actuator Adjustment
Figure 501 (Sheet 4 of 4)/27-62-33-990-803

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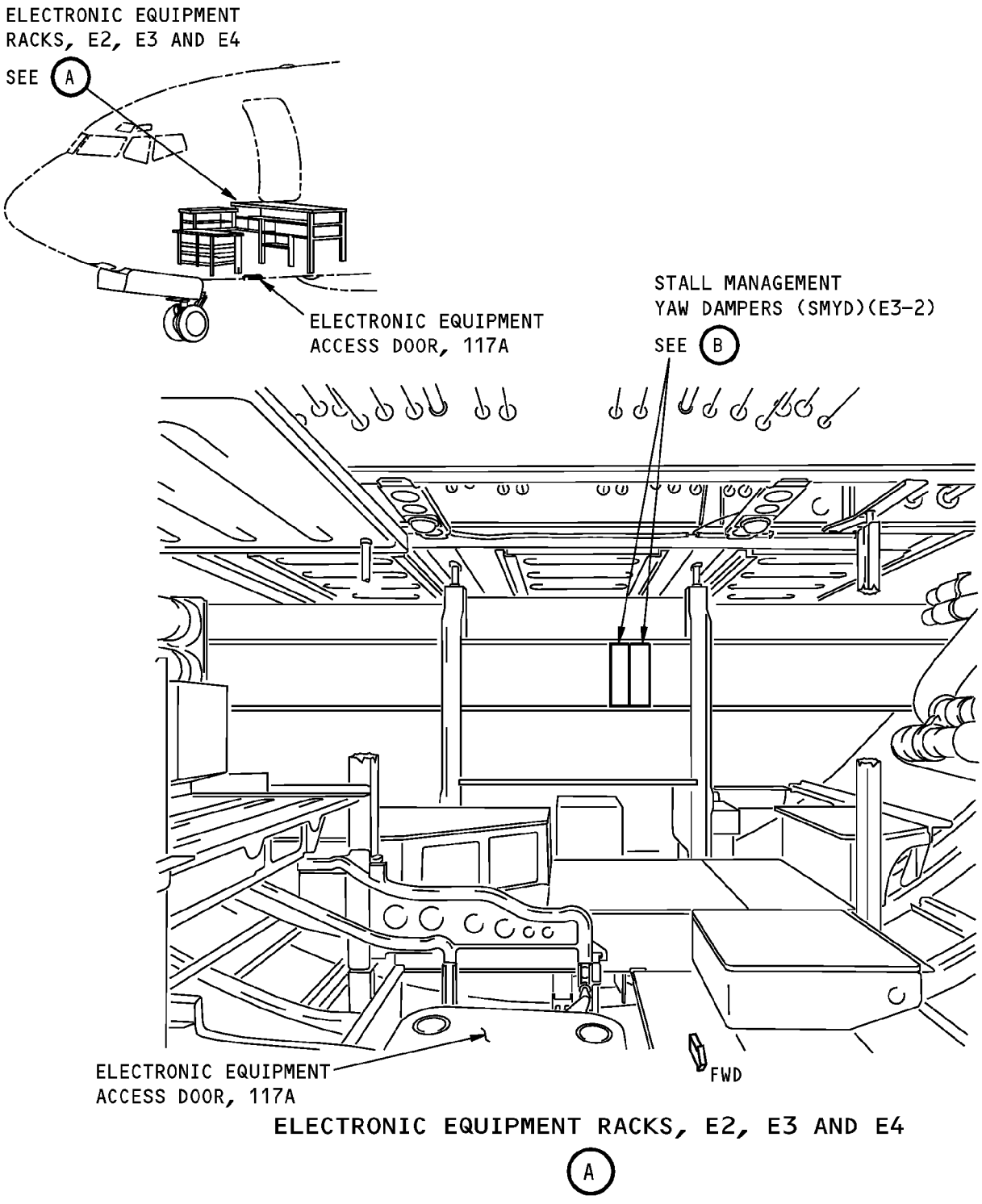

Stall Management Yaw Damper Module
Figure 502 (Sheet 1 of 2)/27-62-33-990-804

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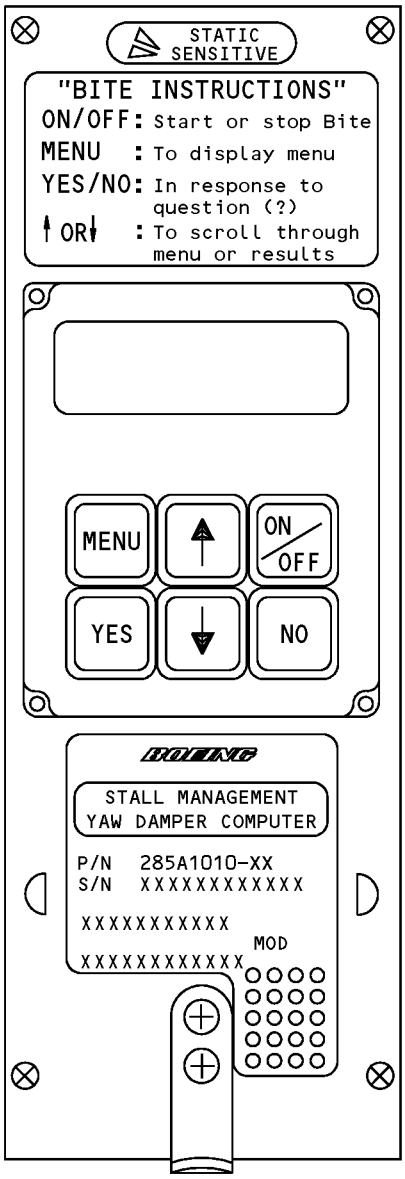

STALL MANAGEMENT YAW DAMPER
(EXAMPLE)

B

Stall Management Yaw Damper Module
Figure 502 (Sheet 2 of 2)/27-62-33-990-804

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TASK 27-62-33-820-801

3. Speedbrake Autostow Actuator Automatic Ground Test

(Figure 501, Figure 502)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
FIM 27-62 TASK 813	Speedbrake DO NOT ARM Light Does Not Operate During Autostow Actuator Automatic Ground Test - Fault Isolation

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 27-62-33-860-019

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-33-860-020

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-33-860-021

(3) Make sure that this circuit breaker is closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

SUBTASK 27-62-33-860-022

(4) Move the Flight Control Switches A and B to the ON position.

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SUBTASK 27-62-33-860-023

(5) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-62-33-740-001

(6) Check the Stall Management Yaw Damper (SMYD) computer for autostow faults.

NOTE: You can ignore any other faults.

SUBTASK 27-62-33-760-002

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(7) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-33-860-024

(8) Move the speedbrake handle to the FLIGHT DETENT position.

NOTE: The SPEEDBRAKE ARMED light will illuminate.

SUBTASK 27-62-33-710-001

(9) Do the autostow actuator automatic ground test on the SMYD #2:

(a) Press and then release the ON/OFF button.

1) The display reads "EXISTING FAULTS?".

(b) Press and then release the up or down arrow until "GROUND TEST?" appears on the display.

1) Press and release the YES button to access ground test options.

(c) Press and then release the up or down arrow until "AUTOSTOW?" appears on the display.

1) Press and then release the YES button to start the autostow test.

2) Verify that the SPEED BRAKE DO NOT ARM light illuminates.

NOTE: The SPEEDBRAKE ARMED light will remain illuminated.

a) If the SPPED BRAKE DO NOT ARM light does not illuminate, do this task: Speedbrake DO NOT ARM Light Does Not Operate During Autostow Actuator Automatic Ground Test - Fault Isolation, FIM 27-62 TASK 813.

(d) When "RUN AUTO TEST?" appears on the display, press and then release the YES button to initiate the autostow test.

1) The autostow actuator will be commanded to retract and then extend.

NOTE: "RETRACT IN TEST" will be displayed for 4 seconds. Then "EXTEND IN TEST" will be displayed for 4 seconds.

(e) When "TEST PASSED" is displayed, press and then release the ON/OFF button to start the shutdown of the display.

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1) Verify that the SPEEDBRAKE DO NOT ARM light in the flight deck goes out.

NOTE: If the SMYD detects a failure during the test,"TEST FAILED" will be displayed followed by a list of the detected failure(s) and the SPEEDBRAKE DO NOT ARM light will remain on. Use the up and down arrows to scroll through the fault list. Press and release the YES button to see the details of each fault.

(f) Press and release the YES button to turn off the display.

SUBTASK 27-62-33-860-025

(10) Move the speedbrake handle to the full UP position, then move it to the DOWN position.

NOTE: The SPEEDBRAKE ARMED light will go out.

(a) The speedbrake handle forces should be normal during the handle movement in the previous step.

——————— END OF TASK ———————

TASK 27-62-33-820-802

4. Speedbrake Autostow Actuator Rod End Adjustment

(Figure 501)

A. References

Reference	Title
27-62-00-820-801	Speed Brake Control Lever Adjustment (P/B 501)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Prepare for the Adjustment

SUBTASK 27-62-33-860-026

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

SUBTASK 27-62-33-866-001

(2) Make sure the speedbrake handle is in the DOWN position.

SUBTASK 27-62-33-480-001

(3) Install a rig pin in the lower speedbrake quadrant (located below the floor).

SUBTASK 27-62-33-860-027

(4) Do the following to access the autostow actuator rod end:

(a) Remove the screws [1] and washers [2] from the lower cover plate [3] (Figure 501)

(b) Remove the cover plate [3] to get access to the autostow actuator forward of the control stand bulkhead.

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D. Autostow Actuator Rod End Adjustment

SUBTASK 27-62-33-020-028

(1) Remove the nut, washer, and bolt from the autostow actuator upper attach point.

SUBTASK 27-62-33-480-002

(2) Install the rig pin in the autostow actuator cam housing and cam (Figure 501).

SUBTASK 27-62-33-820-004

(3) Make sure the autostow actuator is fully retracted.

(a) Apply 28V to pin 3 and ground pin 1.

SUBTASK 27-62-33-820-005

(4) Adjust the autostow actuator rod end.

(a) Loosen the locknut on the actuator rod end.

(b) Adjust the rod end as needed to align with the autostow actuator upper attach point.

(c) Install the bolt, washer, and nut in the autostow actuator upper attach point.

(d) Tighten the locknut finger tight.

SUBTASK 27-62-33-080-001

(5) Remove the rig pins from the autostow actuator cam and the lower speedbrake quadrant.

SUBTASK 27-62-33-720-001

(6) Do this task: Speedbrake Autostow Actuator - Functional Test, TASK 27-62-33-010-801.

NOTE: You do not need to measure the speedbrake handle forces.

(a) If the measured average spoiler panel position is between 9.3 and 11.8 degrees, you have correctly adjusted the autostow actuator rod end. Do the steps to Put the Airplane Back to Its Usual Condition.

(b) If the measured average spoiler panel position is not between 9.3 and 11.8 degrees, the autostow actuator rod end needs further adjustment. Do these steps to adjust the autostow actuator rod end.

NOTE: The rod end may be adjusted up to two full turns (720 degrees) (from its initial rigged position) in the clockwise or counterclockwise directions.

1) To adjust the spoiler panels in the down direction, loosen the locknut and rotate the rod end clockwise.

NOTE: One full rotation of the rod end (360 degrees) is equal to approximately 1.0 degree of spoiler panel travel.

2) To adjust the spoiler panels in the up direction, loosen the locknut and rotate the rod end counterclockwise.

NOTE: One full rotation of the rod end (360 degrees) is equal to approximately 1.0 degree of spoiler panel travel.

3) Tighten the locknut finger tight.

4) Repeat the Speedbrake Autostow Actuator - Functional Test, TASK 27-62-33-010-801.

NOTE: You do not need to measure the speedbrake handle forces.

a) If the measured average spoiler panel position is still not between 9.3 and 11.8 degrees, do the Speed Brake Control Lever Adjustment, TASK 27-62-00-820-801.

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E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-33-430-001

(1) Tighten the locknut.

SUBTASK 27-62-33-430-002

(2) Install the lockwire in the locknut.

SUBTASK 27-62-33-860-029

(3) Do the following to restore the rod end actuator and access panel:

(a) Install the cover plate [3] on the control stand.

(b) Install the screws [1] and washers [2] in the lower cover plate [3].

SUBTASK 27-62-33-860-030

(4) Close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

END OF TASK

TASK 27-62-33-820-803

5. Speedbrake Autostow Actuator Tension Spring Adjustment

(Figure 501)

A. References

Reference	Title
27-62-33-000-802	Speedbrake Autostow Actuator Cam Assembly Removal (P/B 401)
27-62-33-400-802	Speed Brake Autostow Actuator Cam Assembly Installation (P/B 401)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Prepare for the Test

SUBTASK 27-62-33-860-031

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

SUBTASK 27-62-33-860-032

(2) Do this task: Speedbrake Autostow Actuator Cam Assembly Removal, TASK 27-62-33-000-802.

SUBTASK 27-62-33-860-033

(3) Do the following to adjust the tension of the tension spring (Figure 501):

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(a) With the cam housing assembly restrained, move the idler arm up until the cam assembly contacts the cam roller bearing.

NOTE: All of the breakout force measurements must be reached within 5 degrees of cam travel, after the cam roller bearing has made contact with the cam assembly.

(b) Attach a spring scale to the upper speedbrake control rod attach point of the idler arm.

(c) Use the spring scale to apply a tangential force to the idler arm until you move the idler arm 5 degrees from the initial roller to cam contact point.

NOTE: This is the breakout force of the mechanism.

(d) Do the following to verify proper breakout force:

1) If the breakout force is between 60.2 pounds and 70.2 pounds (268 newtons and 312 newtons), it is within the tolerance and does not need to be adjusted.

2) If the breakout force is less than 60.2 pounds (268 newtons), then you need to add washers to increase the breakout force of the cam assembly.

a) Remove the nut that attaches the upper force feel spring lug to the cam housing and add washers, as necessary.

b) Install the nut.

c) Repeat the breakout force test until the breakout force is in the limits of 60.2 pounds and 70.2 pounds (268 newtons and 312 newtons).

3) If the breakout force is more than 70.2 pounds (312 newtons), then you need to remove washers to decrease the breakout force of the cam assembly:

a) Remove the nut that attaches the upper force feel spring lug to the cam housing and remove washers, as necessary.

b) Install the nut.

c) Repeat the breakout force test until the breakout force is in the limits of 60.2 pounds and 70.2 pounds (268 newtons and 312 newtons).

SUBTASK 27-62-33-860-034

(4) Do this task: Speed Brake Autostow Actuator Cam Assembly Installation, TASK 27-62-33-400-802.

D. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-33-860-035

(1) Close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	10	C01611	SPDBRK AUTOSTOW

END OF TASK

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SPEED BRAKE ARMED SWITCH AND SPEED BRAKE HANDLE POSITION SWITCH - REMOVAL/ INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the speed brake armed switch (S276) and the speed brake handle position switch (S918).

(2) An installation of the speed brake armed switch and the speed brake handle position switch.

(3) An adjustment of the speed brake armed switch and the speed brake handle position switch.

(a) The speed brake armed switch and the speed brake handle position switch must be adjusted together because they have the same attaching bolts.

TASK 27-62-34-000-801

2. Speed Brake Armed Switch and Speed Brake Handle Position Switch Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Access Panels

Number	Name/Location
112A	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-62-34-860-001

(1) Move the speed brake lever to a position in the middle of its travel.

SUBTASK 27-62-34-860-002

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-34-010-001

(3) To get access to the speed brake armed switch [1] and the speed handle position switch [6], do this step:

Open this access panel:

Number	Name/Location
112A	Forward Access Door

D. Switch Removal

SUBTASK 27-62-34-020-001

(1) Disconnect the electrical leads [2] from the speed brake armed switch [1] and the speed brake handle position switch [6].

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SUBTASK 27-62-34-020-002

(2) Remove the bolts [3], washers [4] and nuts [5].

SUBTASK 27-62-34-020-003

(3) Remove the speed brake armed switch [1] and the speed brake handle position switch [6].

——————— END OF TASK ———————

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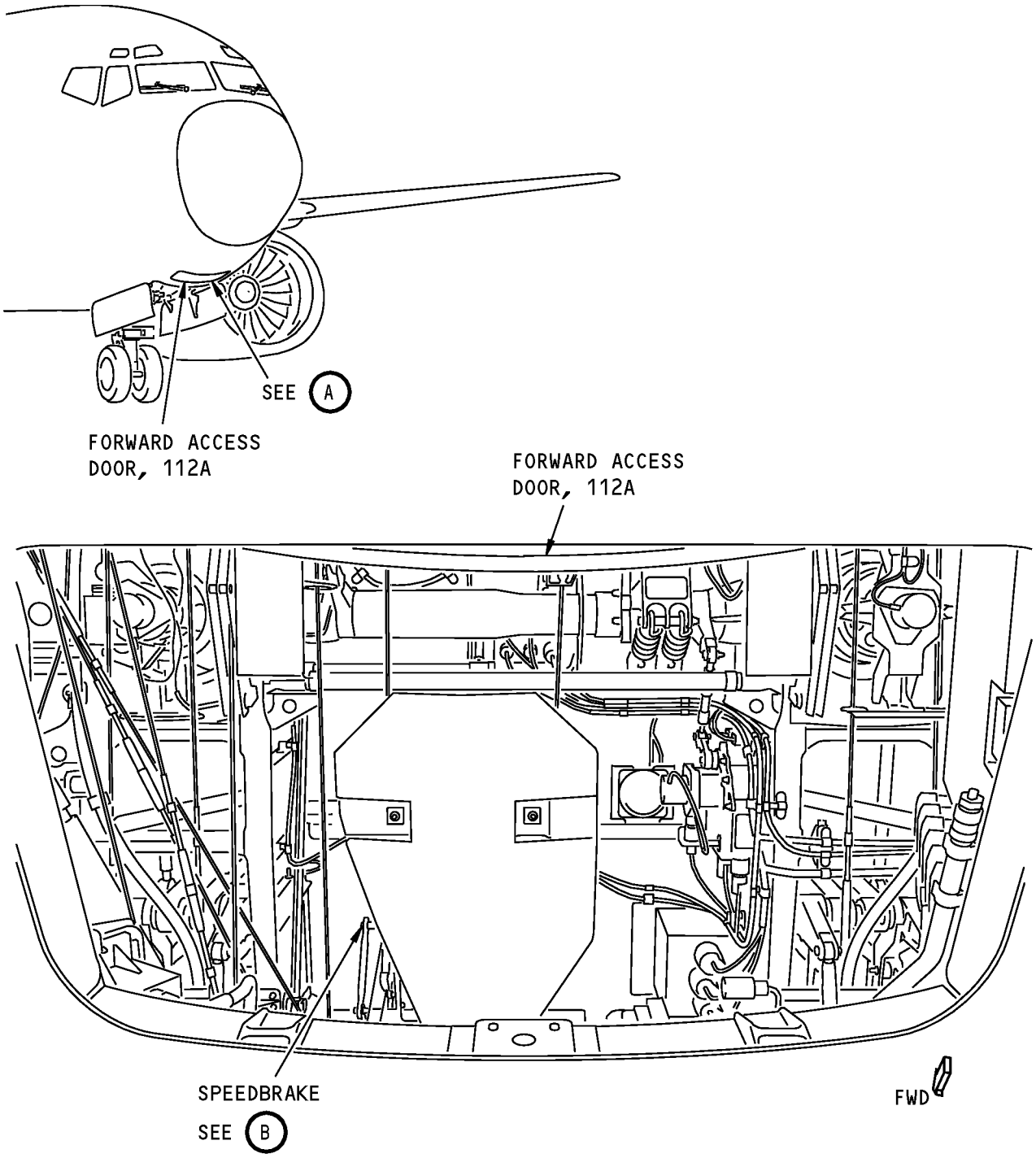

Speedbrake Armed Switch and Speedbrake Handle Position Switch Installation
Figure 401 (Sheet 1 of 2)/27-62-34-990-801

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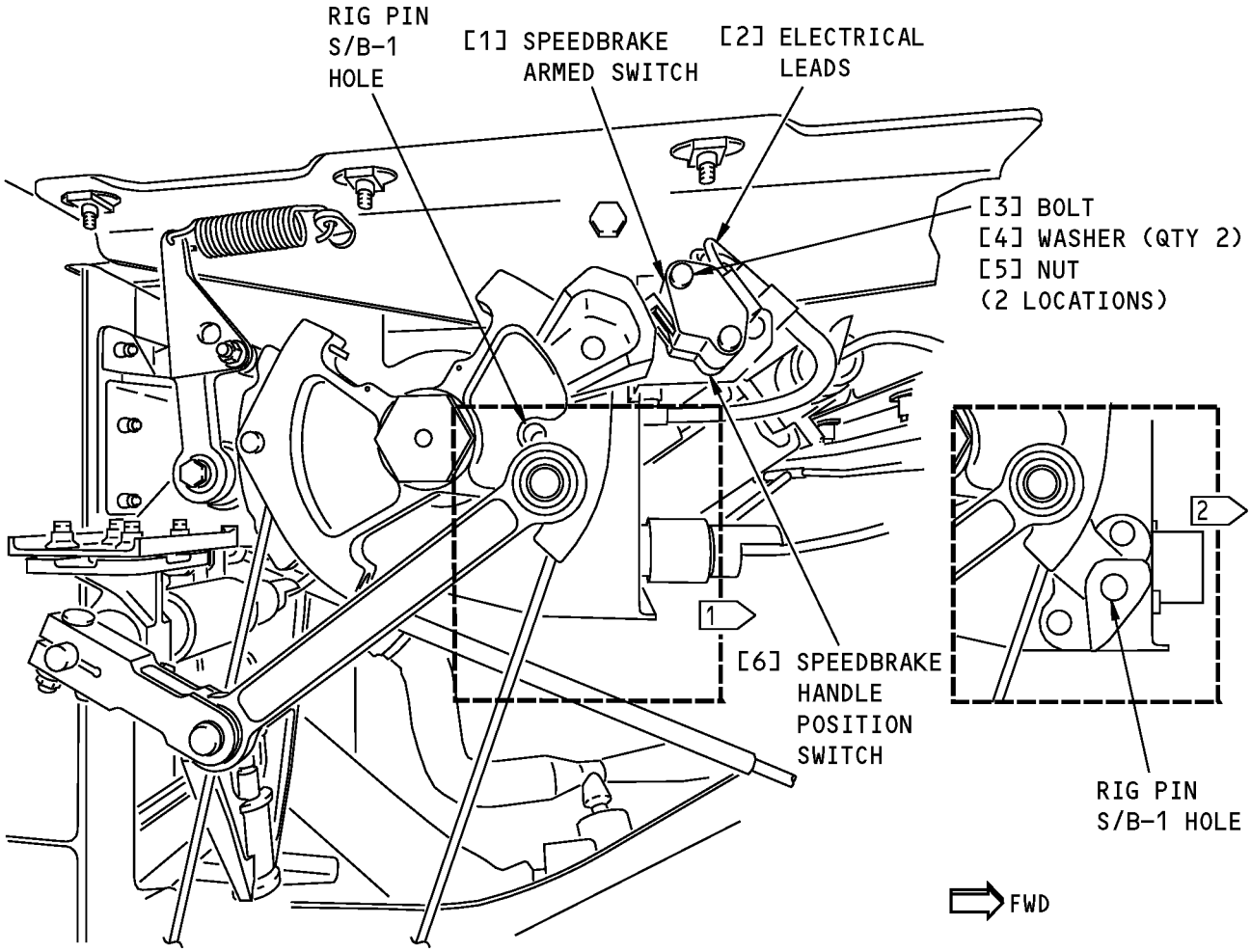

SPEEDBRAKE

B

1 AIRPLANES WITH THE -3 FORWARD QUADRANT.

2 AIRPLANES WITH THE -5 FORWARD QUADRANT.

Speedbrake Armed Switch and Speedbrake Handle Position Switch Installation
Figure 401 (Sheet 2 of 2)/27-62-34-990-801

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TASK 27-62-34-400-801

3. Speed Brake Armed Switch and Speed Brake Handle Position Switch Installation

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Switch Installation

SUBTASK 27-62-34-420-001

(1) Install the speed brake armed switch [1] and the speed brake handle position switch [6]:

(a) Put the speed brake armed switch [1] and the speed brake handle position switch [6] in position.

(b) Install the bolts [3], washers [4] and nuts [5].

(c) Attach the electrical leads [2].

SUBTASK 27-62-34-860-003

(2) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-34-820-001

(3) Do this task: Speed Brake Armed Switch and Speed Brake Handle Position Switch Adjustment, TASK 27-62-34-400-802.

——————— END OF TASK ———————

TASK 27-62-34-400-802

4. Speed Brake Armed Switch and Speed Brake Handle Position Switch Adjustment

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
112A	Forward Access Door

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D. Switch Adjustment

SUBTASK 27-62-34-820-002

(1) Adjust the speed brake armed switch [1]:

(a) Move the speed brake lever to the DOWN position.

(b) Move the speed brake lever to the FLIGHT DETENT position.

(c) Loosen the nuts [5].

(d) Move the speed brake lever forward until the aft surface of the detent pin is 0.20 +/-0.02 inches (5.08 +/-0.51 millimeters) from the aft edge of the DOWN detent.

CAUTION: DO NOT BEND THE SWITCH LEVER. TO ADJUST THE SWITCH LOOSEN THE ATTACHING BOLTS UNTIL THE SWITCH TURNS FREELY.

(e) Adjust the switch until there is continuity between the common and normally open terminals.

NOTE: Always adjust the switch from the no continuity position to the continuity position.

SUBTASK 27-62-34-820-003

(2) Adjust the speed brake handle position switch [6]:

(a) Move the speed brake lever to the ARMED DETENT position.

(b) Slowly move the speed brake lever aft 0.25 +0.05/-0.00 inches (6.35 +1.27/-0.00 millimeters).

CAUTION: DO NOT BEND THE SWITCH LEVER. TO ADJUST THE SWITCH LOOSEN THE ATTACHING BOLTS UNTIL THE SWITCH TURNS FREELY.

(c) Adjust the switch until the switch actuates and there is continuity between the common and normally open terminals.

NOTE: Always adjust the switch from the no continuity position to the continuity position.

CAUTION: DO NOT TIGHTEN THE NUTS TOO MUCH.

(d) Tighten the nuts [5].

SUBTASK 27-62-34-010-002

(3) Close this access panel:

Number	Name/Location
112A	Forward Access Door

E. Do a test of the switches:

SUBTASK 27-62-34-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-34-860-005

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-34-860-006

(3) Put the No. 1 and 2 thrust levers in the idle position.

SUBTASK 27-62-34-860-007

(4) Make sure the ground spoilers are in the fully down position.

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SUBTASK 27-62-34-700-001

WARNING: MAKE SURE THE SPEED BRAKE ARMED LIGHT IS ON WHEN YOU LIFT THE SPEED BRAKES WITH THE SPEED BRAKE LEVER. THE SPEED BRAKES CAN AUTOMATICALLY RETRACT. THIS CAN CAUSE INJURY TO PERSONS.

(5) Do a test of the switch:

NOTE: The SPEED BRAKE DO NOT ARM light will be off during this test.

(a) Make sure the speed brake lever is in the DOWN position.

WARNING: MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(b) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

(c) Move one of the two thrust levers forward to put the speed brake actuator in the down position.

1) Put the thrust lever back to the idle position.

(d) Slowly move the speed brake lever aft until the ARMED light comes on.

1) Make sure the ARMED light comes on before you move the speed brake lever more than 0.25 inch (6.35 millimeters) aft of the DOWN position.

NOTE: Measure the distance along the top surface of the speed brake indicator detent plate.

(e) Move the speed brake lever 1 to 2 inches (25 to 51 millimeters) aft.

(f) Slowly move the speed brake lever forward until the ARMED light is off.

1) Make sure the ARMED light is off before the speed brake lever is less than 0.10 inch (2.54 millimeters) aft of the DOWN position.

SUBTASK 27-62-34-860-009

(6) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
D	13	C00120	WEATHER RADAR RT

SUBTASK 27-62-34-860-008

(7) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

END OF TASK

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AUTO SPEED BRAKE MODULE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the auto speed brake module (M980).

(2) An installation of the auto speed brake module (M980).

B. In this procedure the auto speed brake module is referred to as the "module".

C. The module is mounted in the electronic equipment rack, E4-2, which is located in the main equipment center.

TASK 27-62-35-000-801

2. Auto Speed Brake Module Removal

(Figure 401)

A. References

Reference	Title
20-40-12-400-804	Conductive Dust Cap and Connector Cover Installation (P/B 201)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Removal

SUBTASK 27-62-35-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-35-010-001

(2) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

E. Module Removal

SUBTASK 27-62-35-020-001

(1) Remove the module [1] from the E4-2 rack.

SUBTASK 27-62-35-840-001

(2) Do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-804.

END OF TASK

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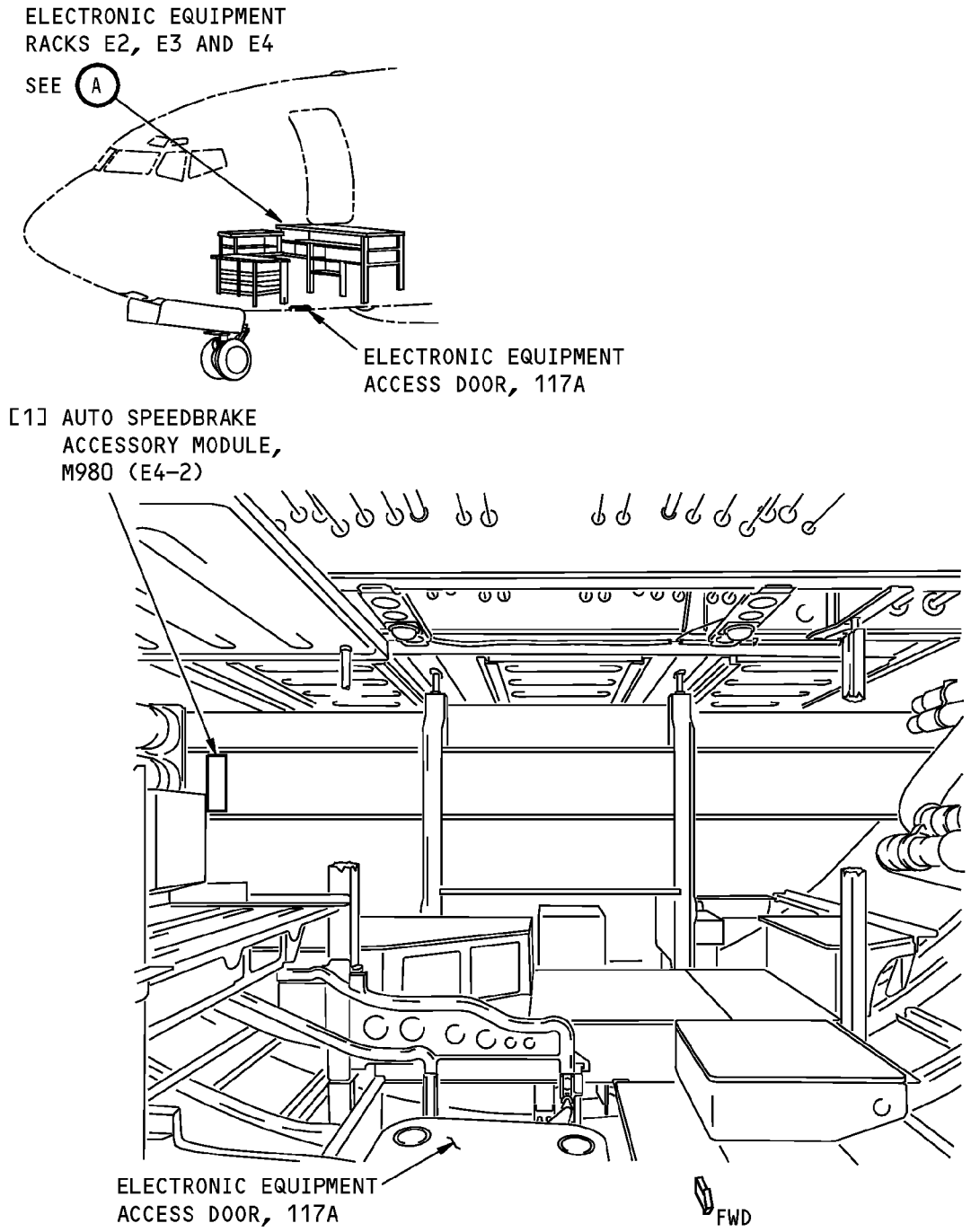

Auto Speedbrake Accessory Module Installation
Figure 401/27-62-35-990-801

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TASK 27-62-35-400-801

3. Auto Speed Brake Module Installation

(Figure 401)

A. References

Reference	Title
20-40-12-000-804	Conductive Dust Cap and Conductor Cover Removal (P/B 201)
27-62-00-820-806	Speed Brake Throttle Switch Test (P/B 501)

B. Location Zones

Zone	Area
118	Electrical and Electronics Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Module Installation

SUBTASK 27-62-35-840-002

(1) Do this task: Conductive Dust Cap and Conductor Cover Removal, TASK 20-40-12-000-804.

SUBTASK 27-62-35-420-001

(2) Install the module [1] on the E4-2 rack.

SUBTASK 27-62-35-860-002

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-35-410-001

(4) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-62-35-720-001

(5) Do this task: Speed Brake Throttle Switch Test, TASK 27-62-00-820-806.

———————— END OF TASK ————————

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SPEED BRAKE LEVER POSITION SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the speed brake lever position sensor.

(2) An installation of the speed brake lever position sensor.

(3) An adjustment of the speed brake lever position sensor.

B. In this procedure the speed brake lever position sensor is referred to as the "sensor".

TASK 27-62-37-000-801

2. Speed Brake Lever Position Sensor Removal

(Figure 401)

A. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Access Panels

Number	Name/Location
112A	Forward Access Door

C. Prepare for the Removal

SUBTASK 27-62-37-860-001

(1) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-37-860-002

(2) Put the speed brake lever in the DOWN position.

SUBTASK 27-62-37-010-001

(3) To get access to the sensor [1].

Open this access panel:

Number	Name/Location
112A	Forward Access Door

D. Sensor Removal

SUBTASK 27-62-37-020-001

(1) Disconnect the electrical connector [7] from the sensor [1].

SUBTASK 27-62-37-020-002

(2) Loosen the clamping bolt [5] from the crank [4].

SUBTASK 27-62-37-020-003

(3) loosen the clamping bolt [5] on the sensor support bracket [6].

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SUBTASK 27-62-37-020-004

(4) Remove the sensor [1].

END OF TASK

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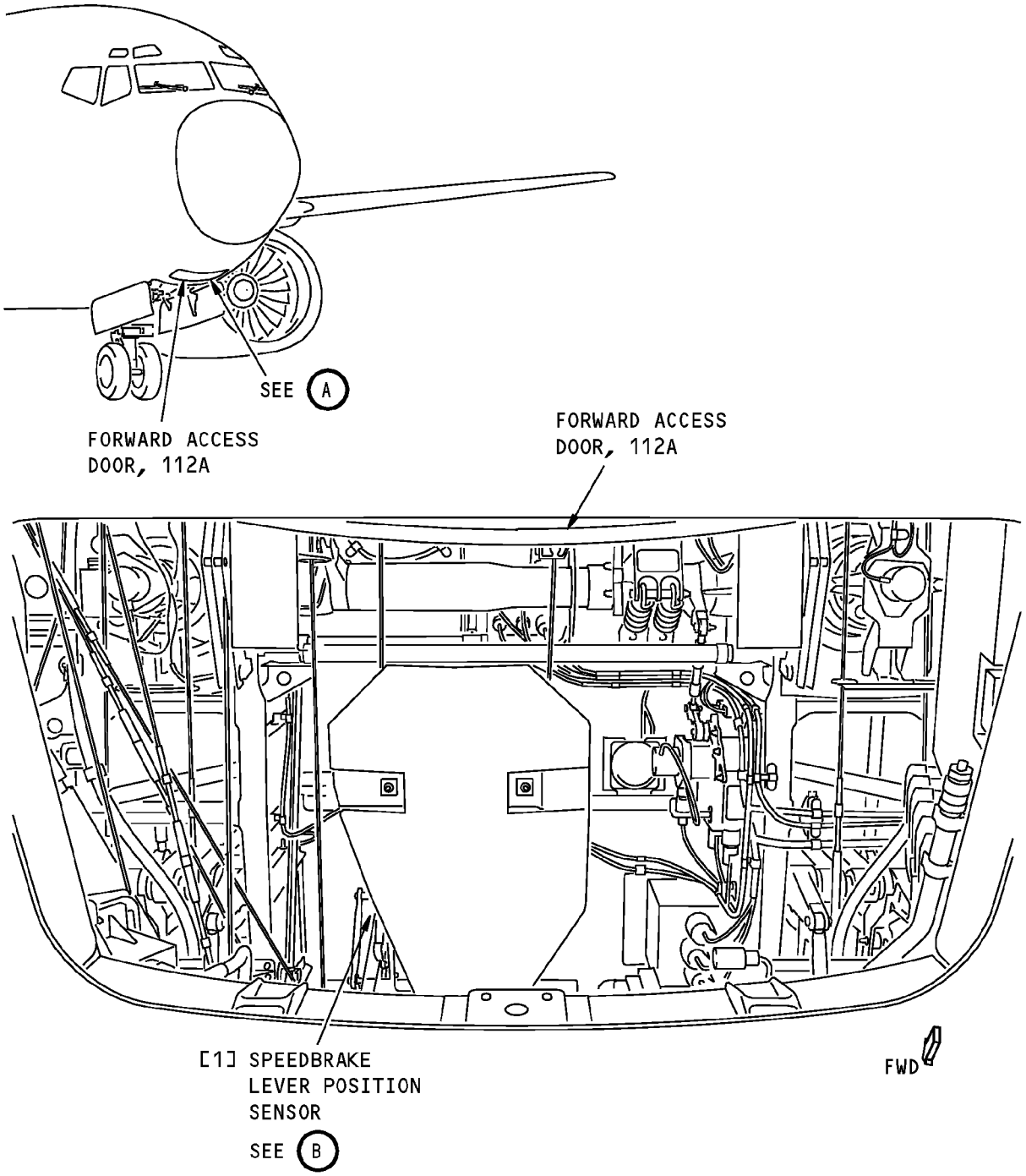

Speedbrake Lever Position Sensor Installation
Figure 401 (Sheet 1 of 2)/27-62-37-990-801

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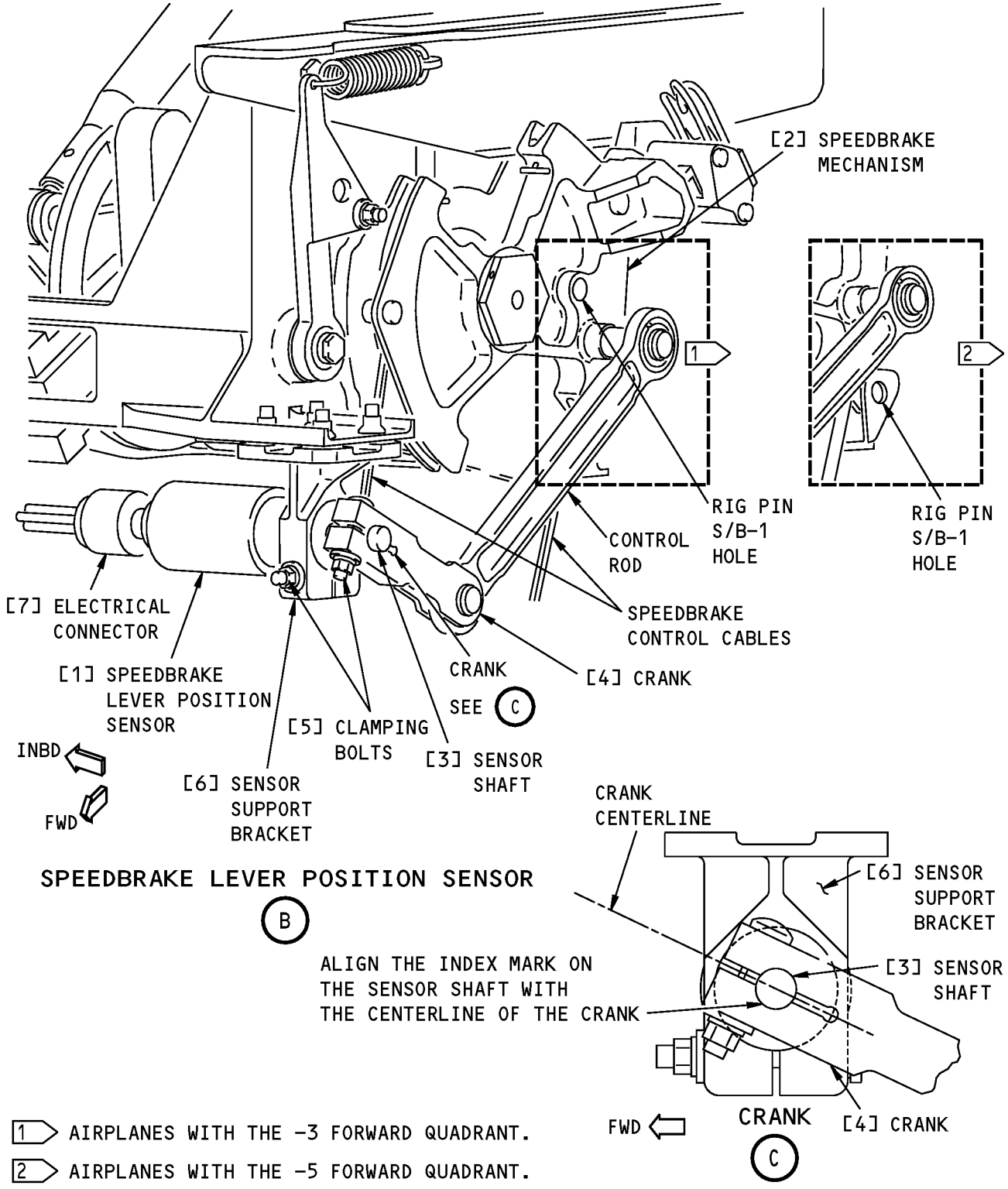

Speedbrake Lever Position Sensor Installation
Figure 401 (Sheet 2 of 2)/27-62-37-990-801

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TASK 27-62-37-400-801

3. Speed Brake Lever Position Sensor Installation

(Figure 401)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Sensor Installation

SUBTASK 27-62-37-420-001

(1) Install the sensor [1]:

(a) Put the sensor [1] in the sensor support bracket [6].

(b) Align the index mark on the sensor shaft [3] with the center line on the crank [4].

(c) Tighten the two clamping bolts [5].

SUBTASK 27-62-37-860-003

(2) Put the speed brake lever in the DOWN position.

SUBTASK 27-62-37-480-001

(3) Install the rig pin S/B-1 from the test set rig pin kit, SPL-1585 in the forward drum of the speed brake mechanism.

SUBTASK 27-62-37-420-002

(4) Connect the electrical connector [7] to the sensor [1].

SUBTASK 27-62-37-080-001

(5) Remove the rig pin S/B-1 from the forward drum of the speed brake mechanism.

SUBTASK 27-62-37-860-004

(6) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	9	C00440	FLIGHT CONTROL AUTO SPEED BRAKE

SUBTASK 27-62-37-820-001

(7) Do this task: Speed Brake Lever Position Sensor Adjustment, TASK 27-62-37-400-802.

——————— END OF TASK ———————

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TASK 27-62-37-400-802

4. Speed Brake Lever Position Sensor Adjustment

(Figure 401)

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1688	Indicator - Angle Position (Part #: 8810-S3204, Supplier: 0VGU1, A/P Effectivity: 737-300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Part #: 8810A, Supplier: 0VGU1, A/P Effectivity: 737-ALL)
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Sensor Adjustment

SUBTASK 27-62-37-010-002

(1) To get access to the sensor [1].

If necessary, open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-62-37-420-003

(2) Install the box, angle position indicator, COM-1688:

(a) Connect the box, angle position indicator, COM-1688 connector to the sensor [1].

(b) Connect the input jack on the box, angle position indicator, COM-1688 to 26v dc power.

SUBTASK 27-62-37-480-002

(3) Install the rig pin S/B-1 from the test set rig pin kit, SPL-1585 in the forward drum of the speed brake mechanism.

SUBTASK 27-62-37-820-002

(4) Adjust the sensor [1]:

(a) Loosen the clamping bolts [5].

(b) Turn the sensor until the indication on the angle position indicator, COM-1688 is 0.00 +/- 0.25 degrees.

(c) Tighten the clamping bolts [5].

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(d) Make sure the indication on the angle position indicator, COM-1688 is 0.00 +/-0.25 degrees.

SUBTASK 27-62-37-080-002

(5) Remove the rig pin S/B-1 from the forward drum of the speed brake mechanism.

SUBTASK 27-62-37-410-001

(6) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

TASK 27-62-37-400-803

5. Speed Brake Lever Position Sensor Adjustment (Alternate Method)

Figure 401

A. References

Reference	Title
31-31-00-730-801	Flight Data Recorder System - System Test (P/B 501)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Access Panels

Number	Name/Location
112A	Forward Access Door

D. Sensor Adjustment

SUBTASK 27-62-37-010-003

(1) To get access to the sensor [1]:

If necessary, open this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-62-37-840-001

(2) Do the ''Prepare the Portable Tester for the System Test'' part of this task: Flight Data Recorder System - System Test, TASK 31-31-00-730-801.

SUBTASK 27-62-37-280-001

(3) Do the ''Speedbrake Handle Position Analog Signal Test'' part of this task: Flight Data Recorder System - System Test, TASK 31-31-00-730-801.

SUBTASK 27-62-37-820-003

(4) If necessary, adjust the sensor [1].

(a) Loosen the clamping bolts [5].

(b) Turn the sensor until the tester shows the correct values at each speedbrake handle position.

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(c) Tighten the clamping bolts [5].

(d) Make sure the tester shows the correct values at each speedbrake handle position.

SUBTASK 27-62-37-840-002

(5) Do the ''Put the Airplane Back to Its Initial Condition'' part of this task: Flight Data Recorder System - System Test, TASK 31-31-00-730-801.

SUBTASK 27-62-37-410-002

(6) Close this access panel:

Number	Name/Location
112A	Forward Access Door

END OF TASK

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GROUND SPOILER CONTROL VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the ground spoiler control valve.

(2) An installation of the ground spoiler control valve.

(3) A functional test of the ground spoiler control valve.

B. In this procedure the ground spoiler control valve is referred to as the "valve assy".

TASK 27-62-41-000-801

2. Ground Spoiler Control Valve Removal

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-62-41-860-001

(1) Remove the pressure from the speed brake hydraulic system A. To remove, do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802

E. Valve Removal

SUBTASK 27-62-41-020-001

(1) Remove the bolt [12], washer [13], nut [14], and pin [15] that attaches the control rod [16] to the valve lever [17].

SUBTASK 27-62-41-020-002

(2) Disconnect hydraulic line [2] and hydraulic lines [11] from the valve assembly [8]:

(a) Put a 5 gallon (19 liters) hydraulic fluid resistant container, STD-1110 below the valve assembly [8] to catch the hydraulic fluid.

(b) Disconnect hydraulic line [2] and hydraulic lines [11] from the valve assembly [8].

(c) Install the plugs on the hydraulic line [2] and hydraulic lines [11].

SUBTASK 27-62-41-020-003

(3) Remove the bolts [5], washers [6], and nuts [7] that attach the valve assembly [8] to the bracket [1].

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SUBTASK 27-62-41-020-004

(4) Remove the valve assembly [8] from the airplane.

SUBTASK 27-62-41-020-005

(5) Remove the reducer [3] and the packing [4] from the hydraulic ports on the valve assembly [8].

SUBTASK 27-62-41-020-006

(6) Remove the reducers [10] and the packings [9] from the hydraulic ports on the valve assembly [8].

SUBTASK 27-62-41-020-007

(7) Install the caps on the hydraulic ports.

——————— END OF TASK ———————

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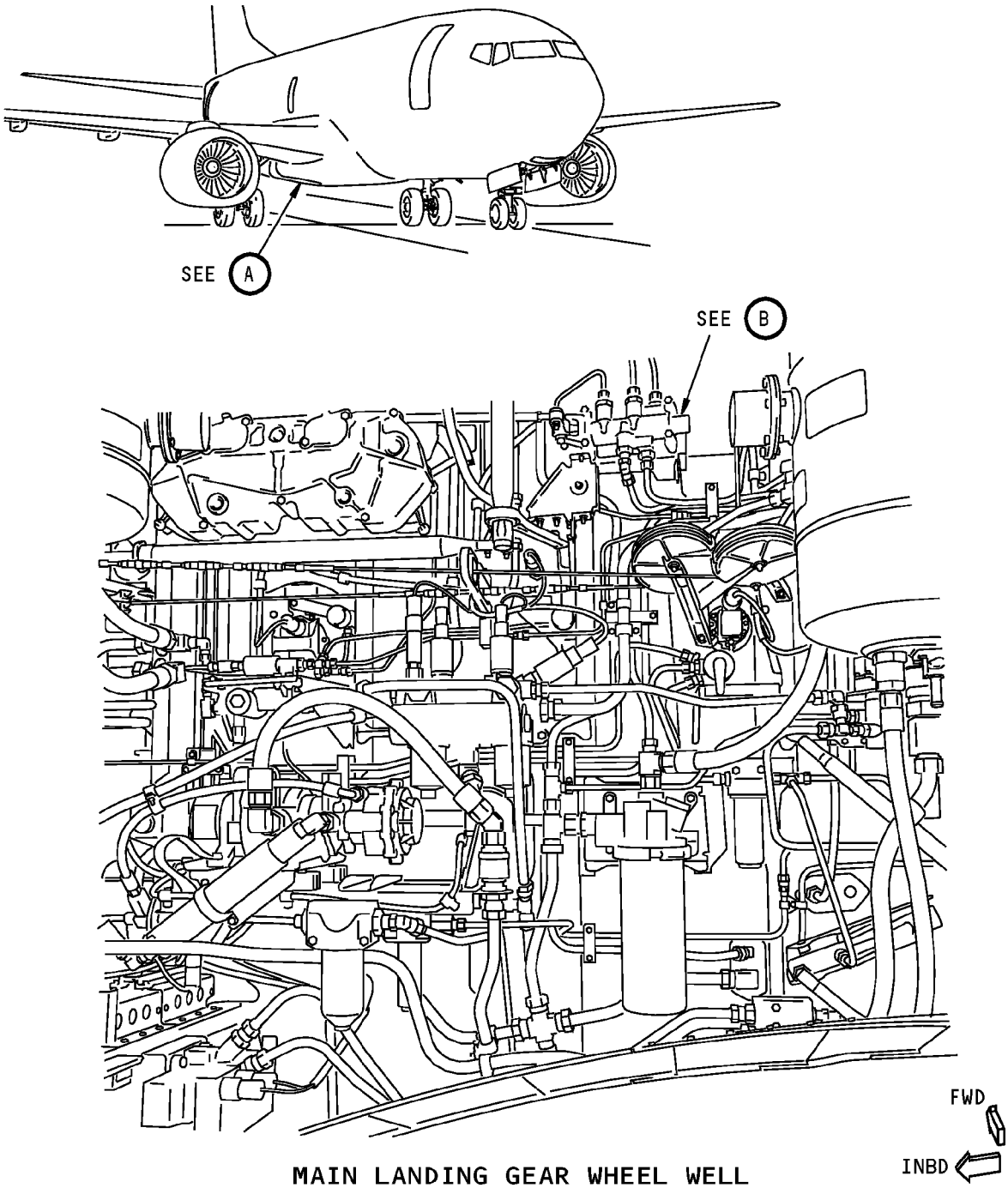

Ground Spoiler Control Valve Installation
Figure 401 (Sheet 1 of 2)/27-62-41-990-801

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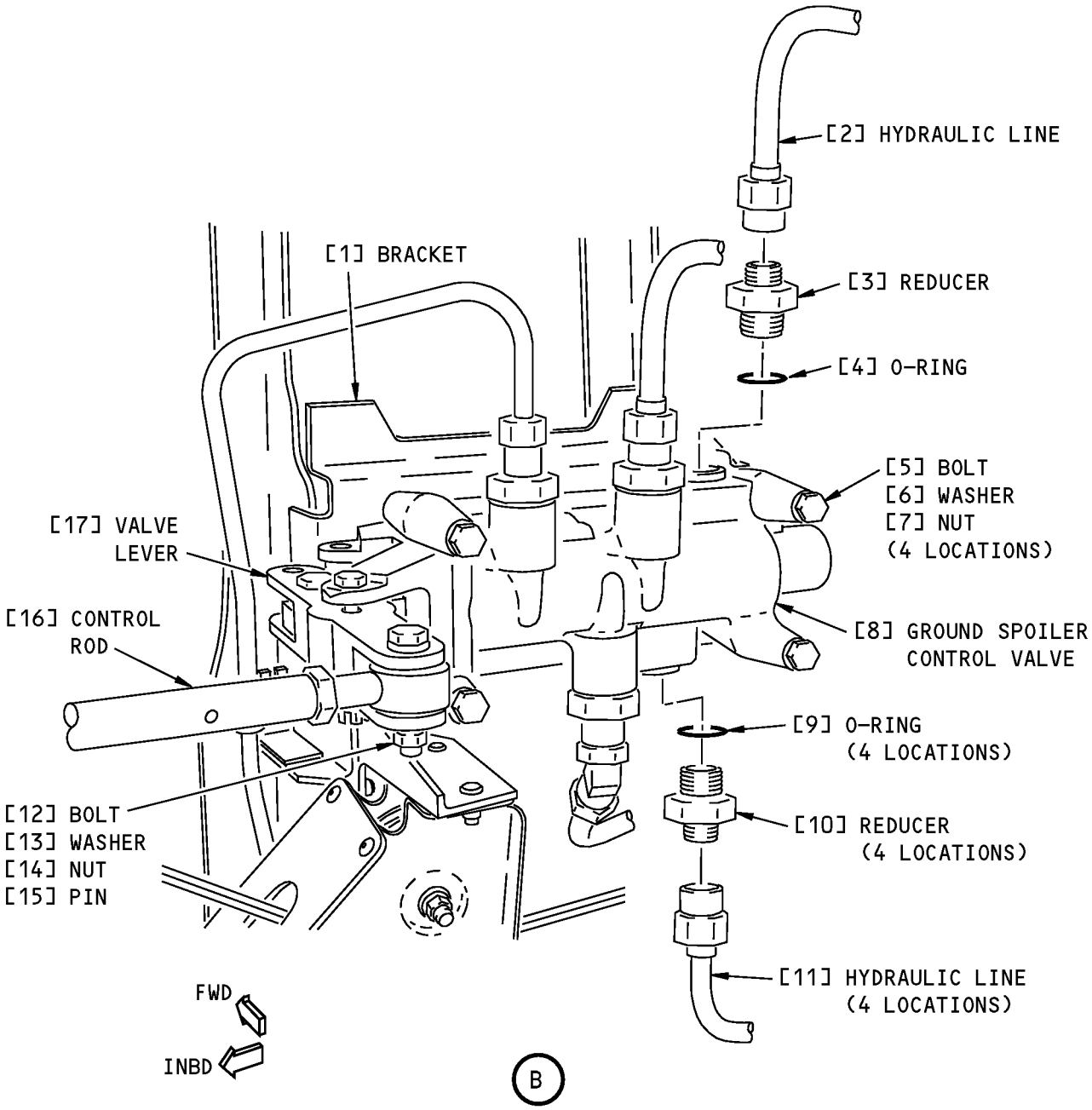

Ground Spoiler Control Valve Installation
Figure 401 (Sheet 2 of 2)/27-62-41-990-801

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TASK 27-62-41-400-801

3. Ground Spoiler Control Valve Installation

(Figure 401)

A. References

Reference	Title
27-62-00-000-801	Ground Spoiler Control Valve Adjustment (P/B 501)
27-62-00-840-802	Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Packing	27-62-41-01-030	HAP 001-013, 015-026, 028-030, 044-054, 102-999
8	Valve assembly	27-62-41-01-035	HAP ALL
9	Packing	27-62-41-01-030	HAP 001-013, 015-026, 028-030, 044-054, 102-999

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Valve Installation

SUBTASK 27-62-41-800-001

(1) Make sure the valve lever [17] move smoothly through the full range of travel.

SUBTASK 27-62-41-420-001

(2) Install the valve assembly [8]:

(a) Install the packing [4] and packings [9] and reducer [3] and reducers [10] in the hydraulic ports on the valve assembly [8]:

1) Remove the caps from the ports in the valve assembly [8].

2) Apply a thin layer of grease, D00633 on the packing [4] and packings [9].

3) Install the packing [4] and packings [9] and the reducer [3] and reducers [10] in the hydraulic ports.

(b) Remove the plugs from the hydraulic line [2] and hydraulic lines [11].

(c) Put the valve assembly [8] in its position on the bracket [1].

(d) Loosely install the connections for the hydraulic tubes on the valve assembly [8].

(e) Install nuts [7], washer [6] and bolts [5] that attach the valve assembly [8].

(f) Install bolt [12] with the bolt head up, washer [13], nut [14] and pin [15].

(g) Tighten the connections for the hydraulic lines.

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SUBTASK 27-62-41-860-002

(3) Put the speed brake system A back to the condition before the pressure removal. To do this, do this task: Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-62-00-840-802

SUBTASK 27-62-41-820-001

(4) Do this task: Ground Spoiler Control Valve Adjustment, TASK 27-62-00-000-801.

SUBTASK 27-62-41-720-001

(5) Do this task: Ground Spoiler Control Valve Functional Test, TASK 27-62-41-720-801.

——————— END OF TASK ———————

TASK 27-62-41-720-801

4. Ground Spoiler Control Valve Functional Test

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Valve Test

SUBTASK 27-62-41-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-41-860-004

(2) Pressurize speed brake hydraulic system A. To pressurize, do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801

SUBTASK 27-62-41-210-001

(3) Examine the hydraulic connections on the valve assembly [8] for leakage.

SUBTASK 27-62-41-870-001

(4) Move the speed brake lever through more than one full cycle to bleed the hydraulic system.

SUBTASK 27-62-41-720-002

(5) Do the test fo the valve assembly [8]:

(a) Make sure the speed brake lever is in the DOWN position.

(b) Move the speed brake lever aft until the ground spoilers move to the extended position.

(c) Make sure the speed brake lever is 29 +/-2 degrees (2.66 +/-0.20 inches) (67.6 +/-5.1 millimeters) aft of the DOWN position.

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(d) Move the speed brake lever to the UP position.

(e) Move the speed brake lever forward until the ground spoilers move to the retracted position.

(f) Make sure the speed brake lever is 21 +/-4 degrees (1.93 +/-0.40 inches) (49.0 +/-10.2 millimeters) aft of the DOWN position.

(g) Move the speed brake lever to the DOWN position.

SUBTASK 27-62-41-860-005

(6) Put the speed brake hydraulic system A back to the condition before pressurization. To do this, do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801

SUBTASK 27-62-41-610-001

(7) Make sure the hydraulic reservoirs are full. To fill them, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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GROUND SPOILER INTERLOCK VALVE CABLE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the lower slider

(2) An installation of the lower slider

(3) A removal of the ground spoiler interlock valve cable

(4) An installation of the ground spoiler interlock valve cable

B. In this procedure the ground spoiler interlock valve cable is referred to as the "cable".

TASK 27-62-51-000-802

2. Lower Slider Removal

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Prepare for the Removal

SUBTASK 27-62-51-860-003

(1) Make sure the hydraulic pressure is removed from system A. To remove it, do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

D. Lower Slider Removal

SUBTASK 27-62-51-020-004

(1) Remove the lower slider assembly [6] from the cable [1]:

(a) Remove the lockwires.

(b) Remove the nut [5], washer [4], washer [3], and bolt [2] which connect the lower slider assembly [6] to the landing gear.

(c) Turn the sleeve [7] on the lower slider assembly [6] until it is loose and slide it down so that you can get access to the quick disconnect.

(d) Disconnect the lower slider assembly [6] from the cable [1] at the quick disconnect.

(e) Remove the lower slider assembly [6] from the airplane.

———————— END OF TASK ————————

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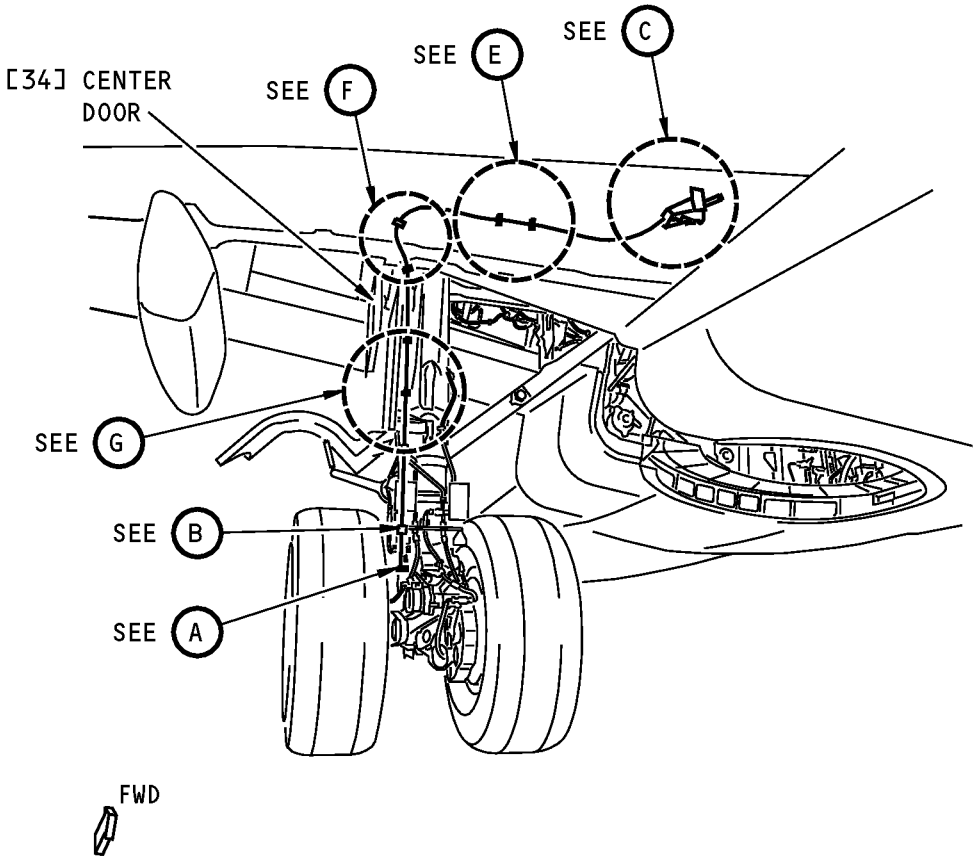

Ground Spoiler Interlock Valve Cable
Figure 401 (Sheet 1 of 7)/27-62-51-990-801

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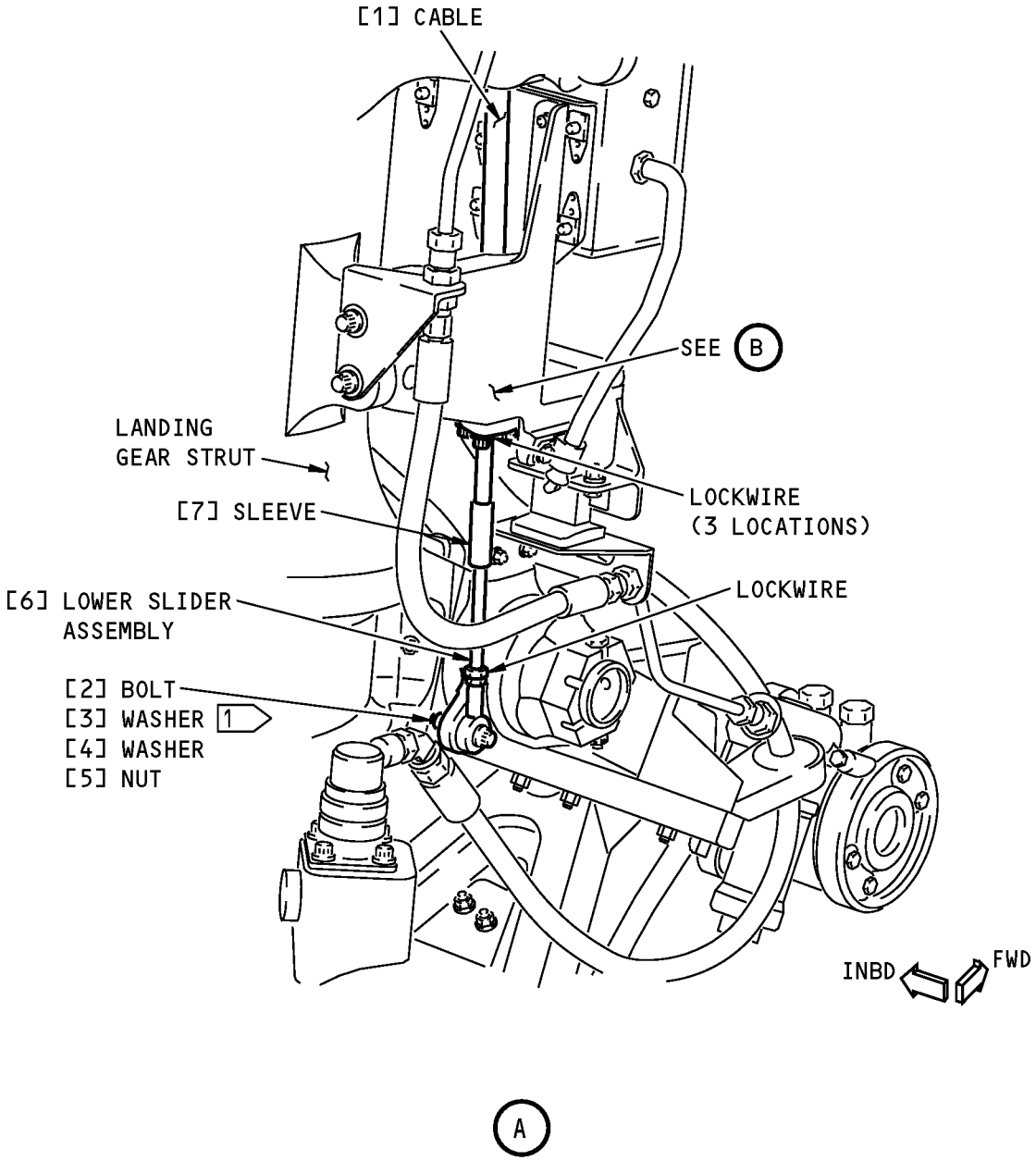

1 INSTALL COUNTERSUNK WASHER UNDER BOLT HEAD AND PLAIN WASHER UNDER NUT.

Ground Spoiler Interlock Valve Cable
Figure 401 (Sheet 2 of 7)/27-62-51-990-801

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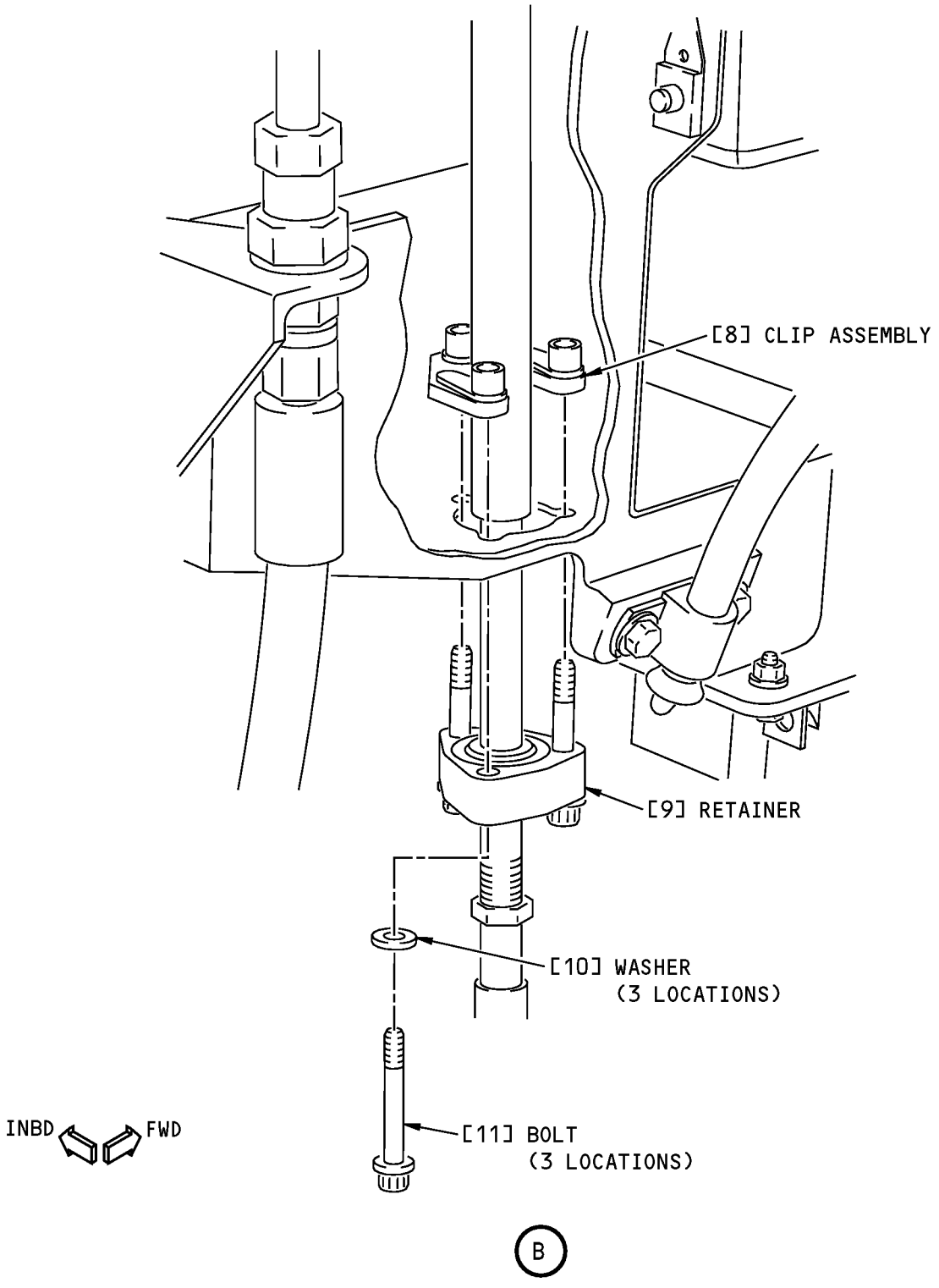

Ground Spoiler Interlock Valve Cable
Figure 401 (Sheet 3 of 7)/27-62-51-990-801

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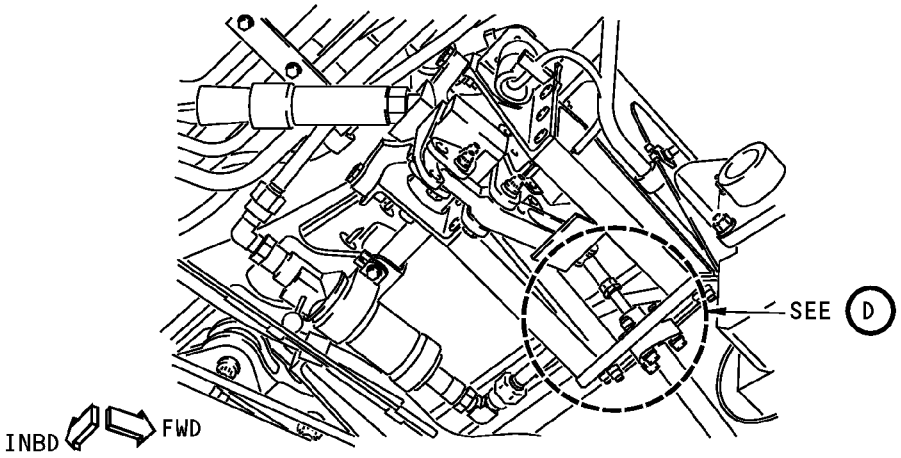
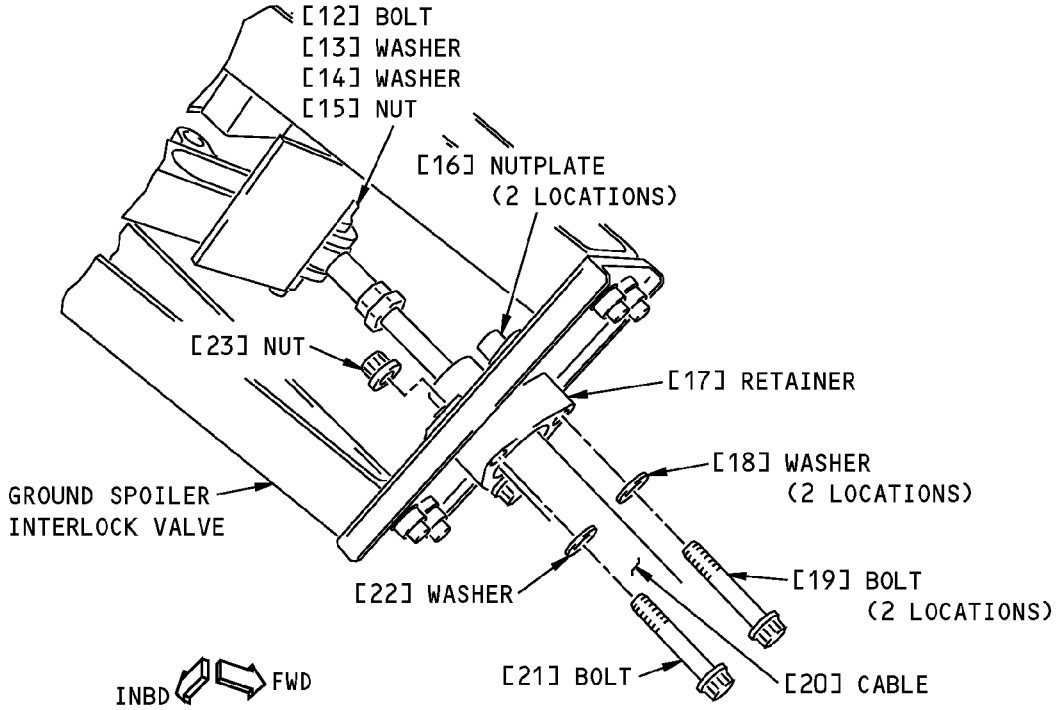


GROUND SPOILER INTERLOCK VALVE
AND CABLE CONNECTION

C



D

Ground Spoiler Interlock Valve Cable
Figure 401 (Sheet 4 of 7)/27-62-51-990-801

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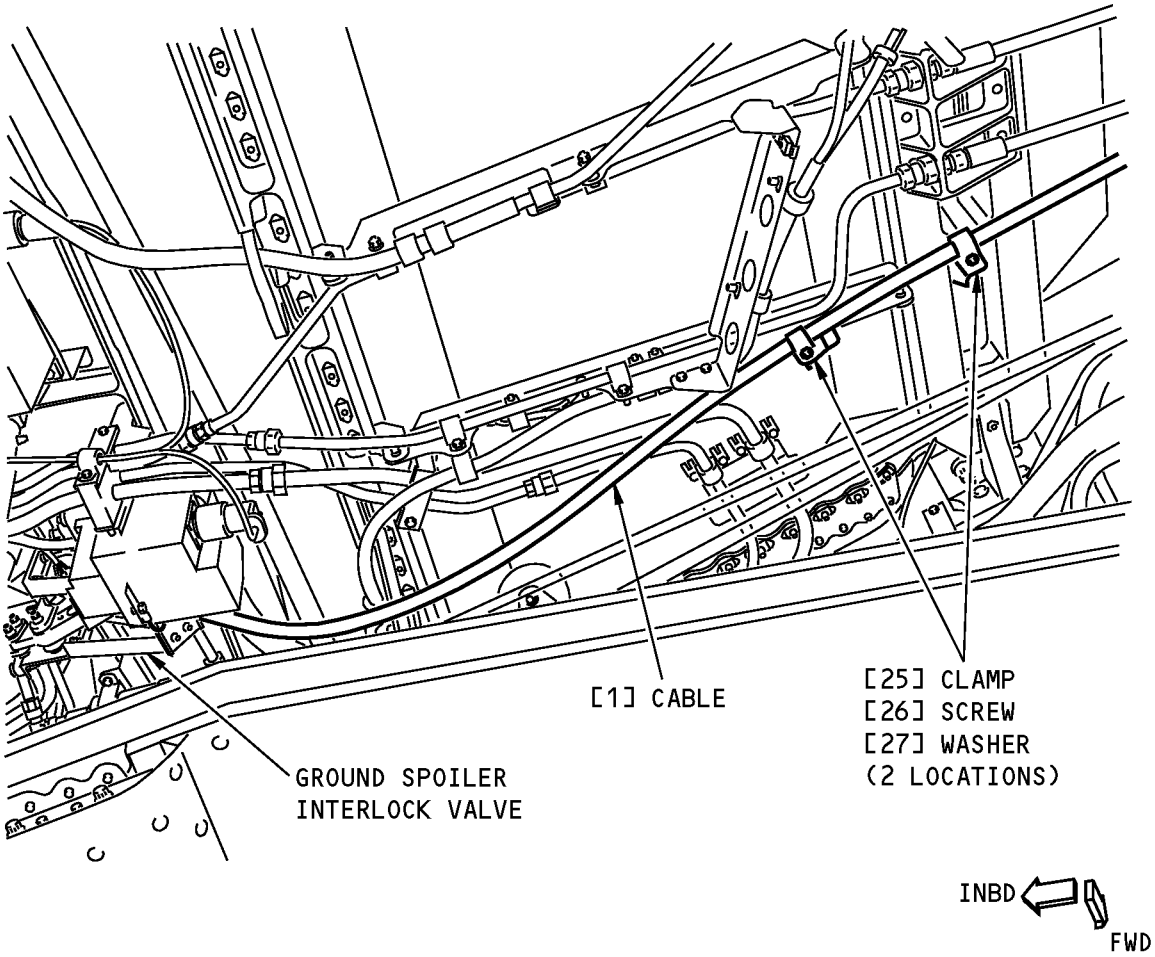

Ground Spoiler Interlock Valve Cable
Figure 401 (Sheet 5 of 7)/27-62-51-990-801

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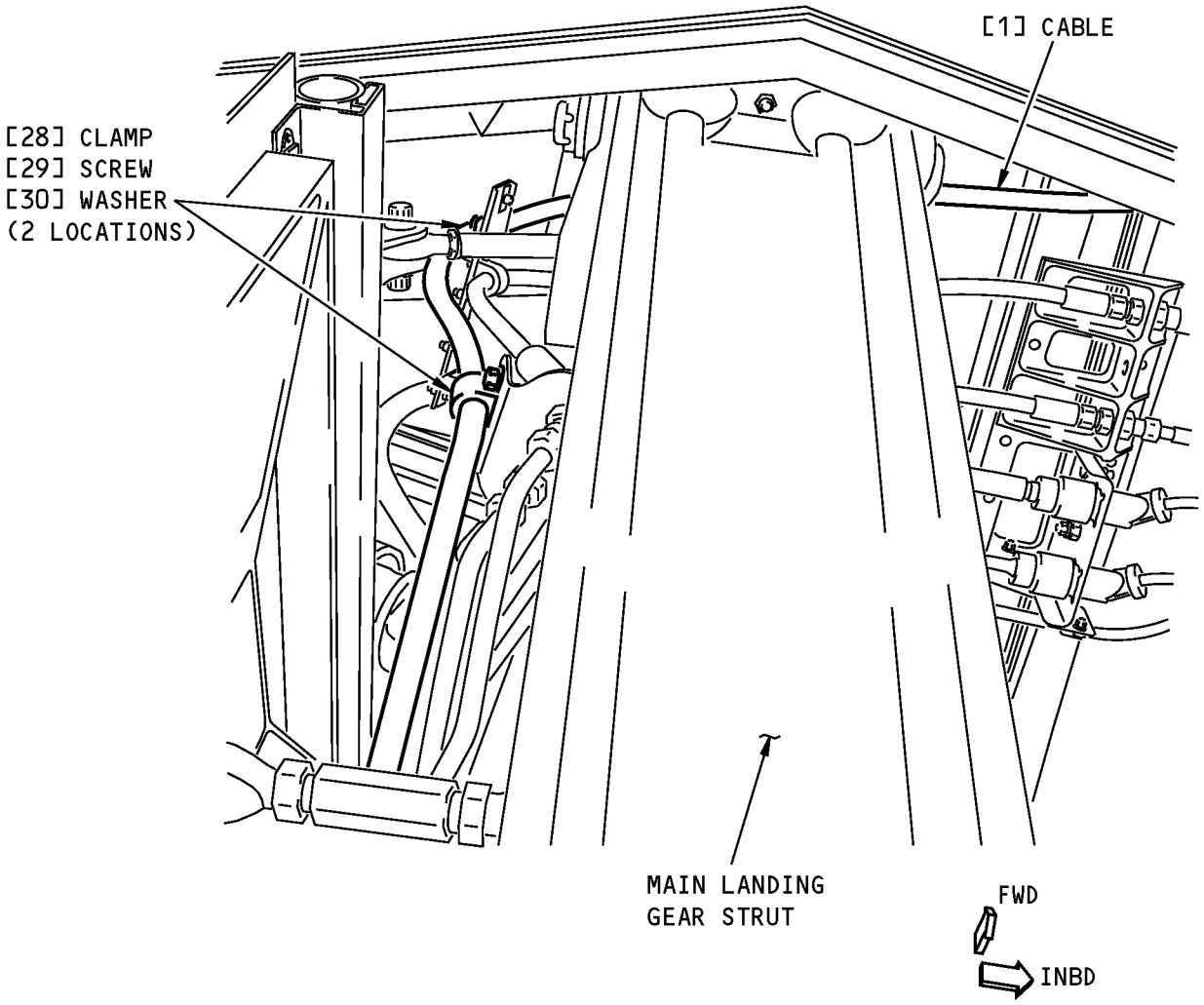

Ground Spoiler Interlock Valve Cable
Figure 401 (Sheet 6 of 7)/27-62-51-990-801

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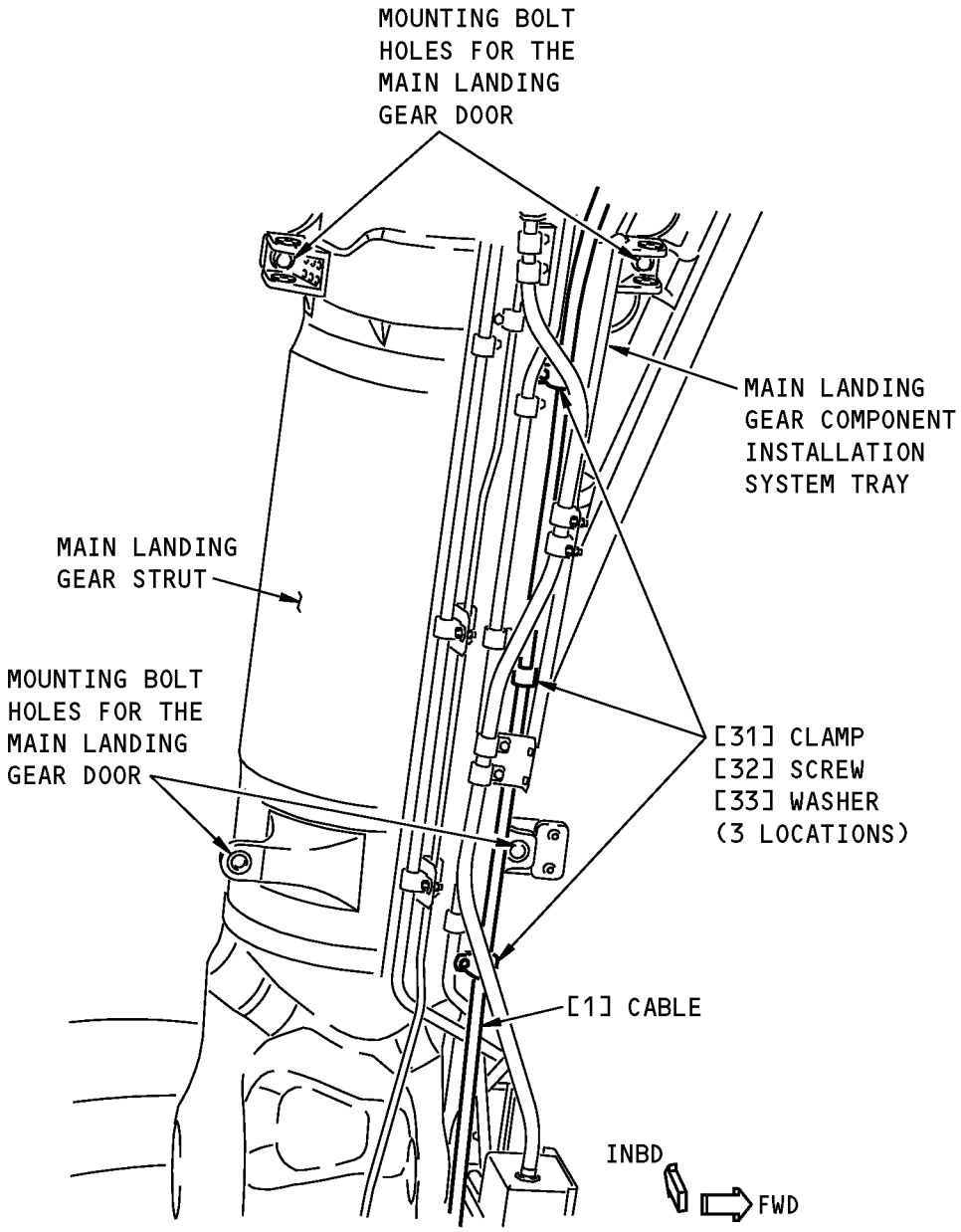

RIGHT MAIN LANDING GEAR STRUT
(MAIN LANDING GEAR DOOR
REMOVED TO GAIN ACCESS
TO CABLE CLAMPS)

G

Ground Spoiler Interlock Valve Cable
Figure 401 (Sheet 7 of 7)/27-62-51-990-801

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TASK 27-62-51-400-802

3. Lower Slider Installation

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)
27-62-00-820-803	Ground Spoiler Interlock Valve Adjustment (P/B 501)
27-62-00-820-811	Ground Spoiler Interlock Valve Adjustment (Alternate Method) (P/B 501)
27-62-00-840-802	Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Installation

SUBTASK 27-62-51-860-004

(1) Make sure the hydraulic pressure is removed from system A. To remove it, do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

E. Lower Slider Installation

SUBTASK 27-62-51-420-004

(1) Install the lower slider assembly [6] to the cable [1]:

(a) Connect the lower slider assembly [6] to the cable [1] at the quick disconnect, then turn and tighten the sleeve [7].

(b) Install the nut [5], washer [4], washer [3], and bolt [2] which connect the lower slider assembly [6] to the landing gear.

(c) Install the lockwire, G01912 to the sleeve [7] and bolts [11].

SUBTASK 27-62-51-860-005

(2) Do this task: Ground Spoiler Interlock Valve Adjustment, TASK 27-62-00-820-803 or this task: Ground Spoiler Interlock Valve Adjustment (Alternate Method), TASK 27-62-00-820-811.

(3) Do this task: Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-62-00-840-802.

END OF TASK

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TASK 27-62-51-000-801

4. Ground Spoiler Interlock Valve Cable Removal

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)
32-13-11-000-802	Main Landing Gear Center Door Removal (P/B 401)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Prepare for the Removal

SUBTASK 27-62-51-860-006

(1) Make sure the hydraulic pressure in system A is released, do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-62-51-020-005

(2) To remove the lower slider, do this task: Lower Slider Removal, TASK 27-62-51-000-802.

D. Cable Removal

SUBTASK 27-62-51-020-006

(1) Remove the cable [1]:

(a) Remove the lockwires.

(b) Remove the bolts [11] and washers [10] that attach the retainer [9] to the clip assembly [8].

(c) Remove the clip assembly [8].

(d) Remove the nut [15], washer [14], washer [13], and bolt [12].

(e) Remove the bolts [19] and washers [18] from the retainer [17].

(f) Remove the nut [23], washer [22], and bolt [21] from the retainer [17].

(g) To remove the center door [34], do this task: Main Landing Gear Center Door Removal, TASK 32-13-11-000-802.

(h) Remove the screws [26], washers [27], and clamps [25] that attach the cable [1] to the airplane structure.

(i) Remove the screws [29], washers [30], and clamps [28] that attach the cable [1] to the airplane structure.

(j) Remove the screws [32], washers [33], and clamps [31] that attach the cable [1] to the airplane structure.

(k) Remove the cable [1].

END OF TASK

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TASK 27-62-51-400-801

5. Ground Spoiler Interlock Valve Cable Installation

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)
27-62-00-820-803	Ground Spoiler Interlock Valve Adjustment (P/B 501)
27-62-00-820-811	Ground Spoiler Interlock Valve Adjustment (Alternate Method) (P/B 501)
27-62-00-840-802	Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
32-13-11-420-802	Main Landing Gear Center Door Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Installation

SUBTASK 27-62-51-860-007

(1) Make sure the hydraulic pressure is removed from system A. To remove it, do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

E. Cable Installation

SUBTASK 27-62-51-420-005

(1) Install the cable [1]:

(a) Install the screws [26], washers [27], and clamps [25] to attach the cable [1] to the airplane structure.

(b) Install the screws [29], washers [30], and clamps [28] to attach the cable [1] to the airplane structure.

(c) Install the screws [32], washers [33], and clamps [31] to attach the cable [1] to the airplane structure.

(d) To install the center door [34], do this task: Main Landing Gear Center Door Installation, TASK 32-13-11-420-802.

(e) Install the bolts [19] and washers [18] to attach the retainer [17] to the nutplates [16].

(f) Install the nut [23], washer [22], and bolt [21] in the retainer [19].

(g) Install the nut [15], washer [14], washer [13], and bolt [12] that attach the cable [1] to the airplane structure.

(h) Install the lockwire, G01912 to the bolts [19], and bolt [21].

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(i) Install the clip assembly [8].

(j) Install the bolts [11] and washers [10] to attach the retainer [9] to the clip assembly [8].

SUBTASK 27-62-51-420-006

(2) To install the lower slider, do this task: Lower Slider Installation, TASK 27-62-51-400-802.

SUBTASK 27-62-51-720-002

(3) Do this task: Ground Spoiler Interlock Valve Adjustment, TASK 27-62-00-820-803 or this task : Ground Spoiler Interlock Valve Adjustment (Alternate Method), TASK 27-62-00-820-811.

SUBTASK 27-62-51-860-008

(4) Do this task: Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-62-00-840-802.

——————— END OF TASK ———————

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GROUND SPOILER INTERLOCK VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the ground spoiler interlock valve.

(2) An installation of the ground spoiler interlock valve.

(3) A removal of the ground spoiler interlock valve proximity sensor.

(4) An installation of the ground spoiler interlock valve proximity sensor.

(5) A removal of the ground spoiler interlock valve pressure switch.

(6) An installation of the ground spoiler interlock valve pressure switch.

HAP 037-054

(7) A removal of the speed brake ground proximity sensor.

(8) An installation of the speed brake ground proximity sensor.

HAP ALL

B. In this procedure the ground spoiler interlock valve is referred to as the "valve".

TASK 27-62-61-000-801

2. Ground Spoiler Interlock Valve Removal

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-62-61-860-001

(1) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

E. Ground Spoiler Interlock Valve Removal

SUBTASK 27-62-61-020-001

(1) Remove the nut [10], washer [9], washer [8] and bolt [7] that attach the push-pull cable to the valve input lever [11].

NOTE: The valve input lever [11] is part of the valve [1] assembly. Do not remove the valve input lever [11] from the valve [1].

SUBTASK 27-62-61-020-002

(2) Disconnect the electrical connector [5] and the electrical connector [2].

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SUBTASK 27-62-61-020-003

(3) Disconnect the hydraulic lines [12] from the valve [1]:

(a) Put a 5 gallon (19 liters) hydraulic fluid resistant container, STD-1110 below the valve [1] to catch the hydraulic fluid.

(b) Disconnect the hydraulic lines [12] from the valve [1].

(c) Install the plugs in the hydraulic lines [12].

SUBTASK 27-62-61-020-004

(4) Remove the bolts [3] and washers [4] that attach the valve [1] to the structure.

SUBTASK 27-62-61-020-005

(5) Remove the valve [1] from the airplane.

SUBTASK 27-62-61-020-006

(6) Remove the reducers [13] and the packings [14] from the valve [1] ports.

SUBTASK 27-62-61-480-001

(7) Install caps in the hydraulic ports of the valve [1].

———————— END OF TASK ————————

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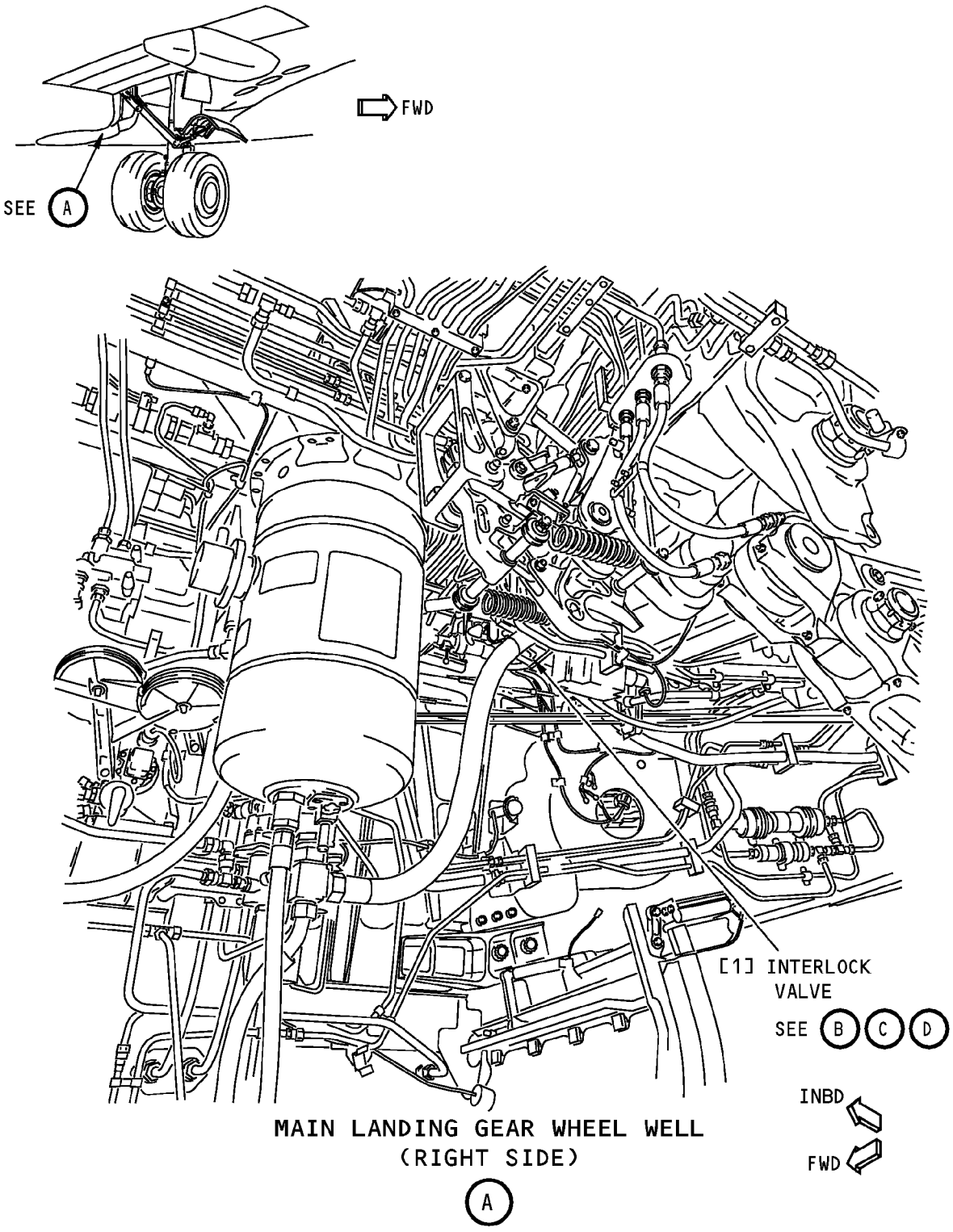

Ground Spoiler Interlock Valve Installation
Figure 401 (Sheet 1 of 5)/27-62-61-990-801

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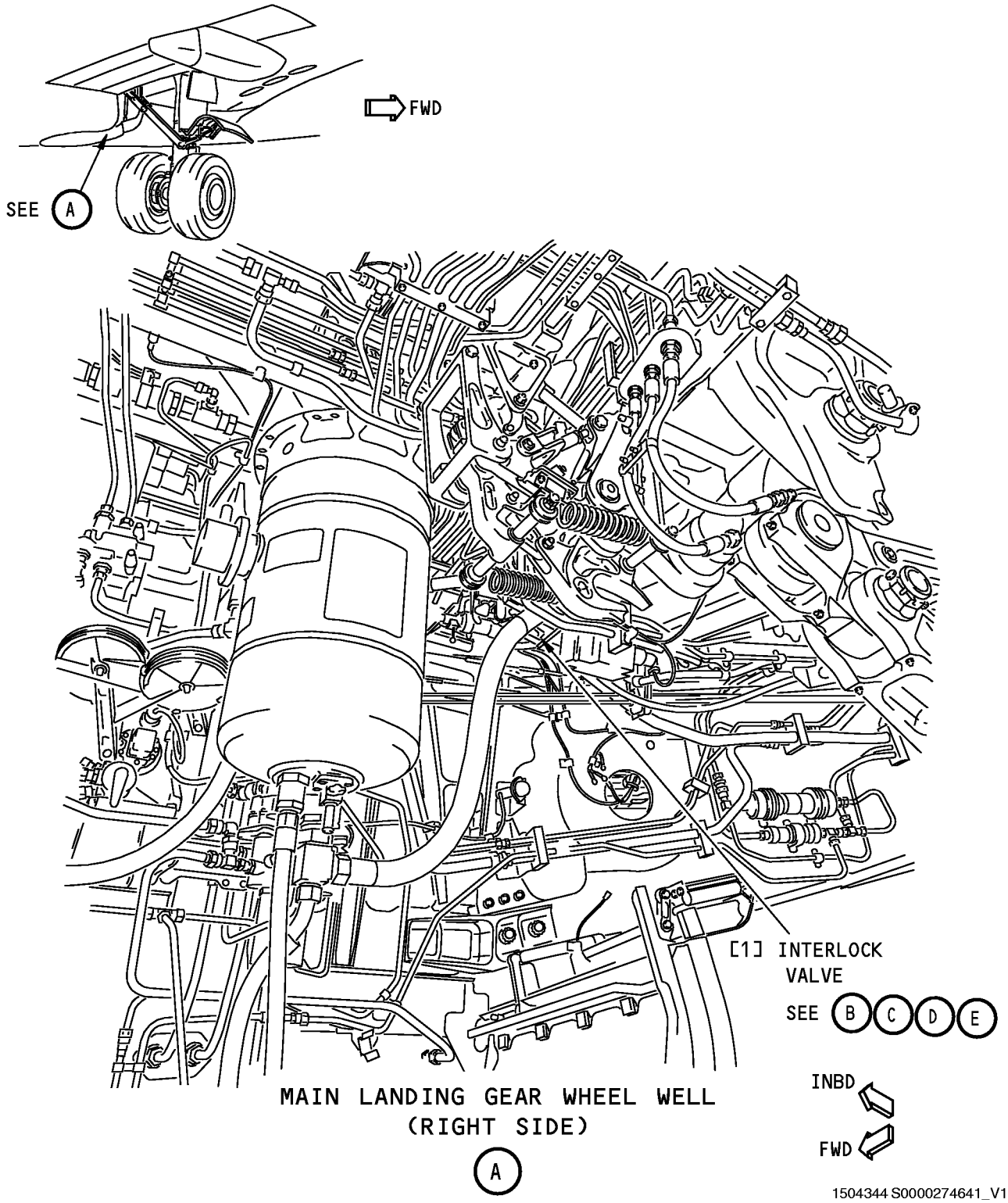

Ground Spoiler Interlock Valve Installation
Figure 401 (Sheet 2 of 5)/27-62-61-990-801

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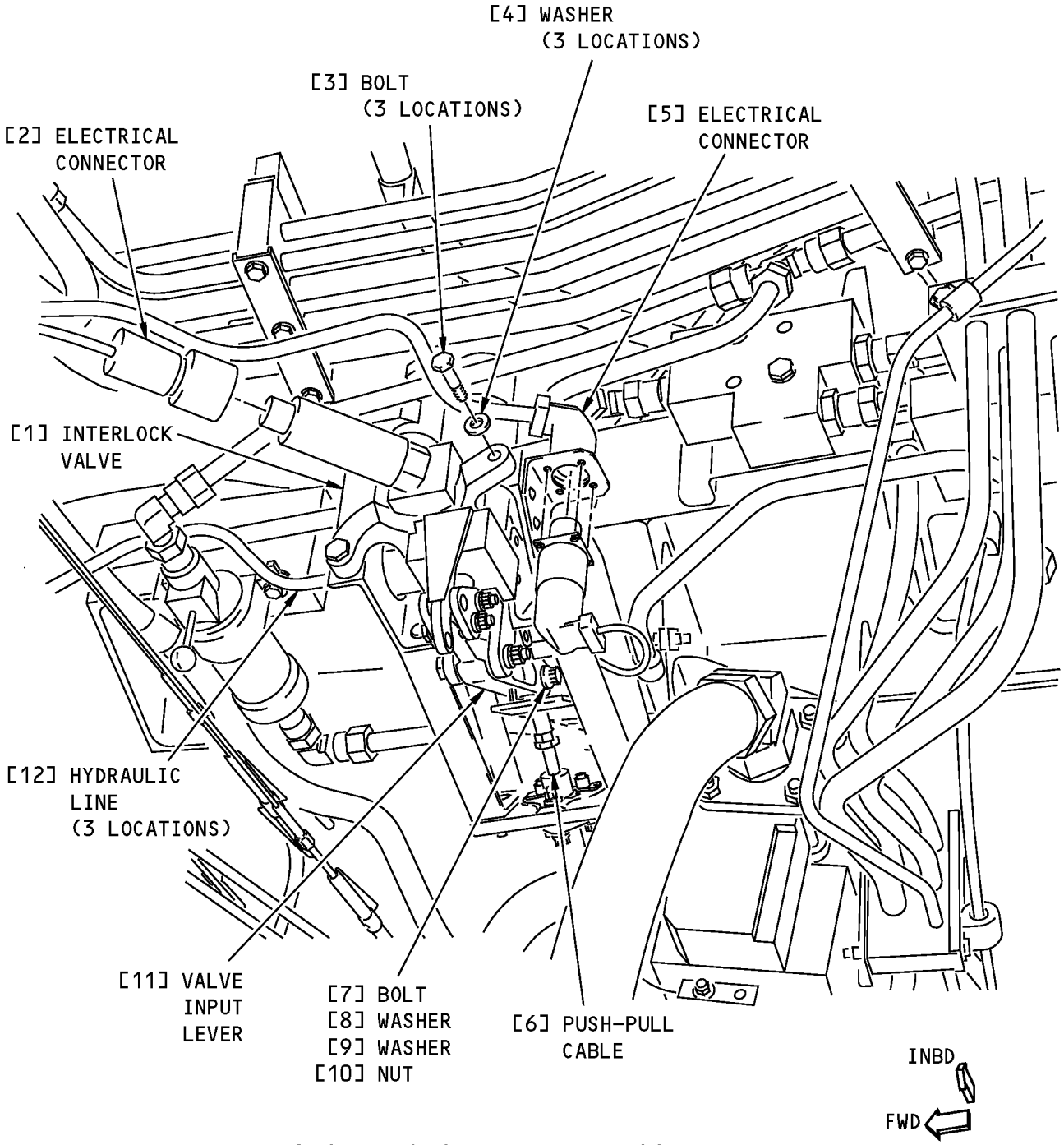

Ground Spoiler Interlock Valve Installation
Figure 401 (Sheet 3 of 5)/27-62-61-990-801

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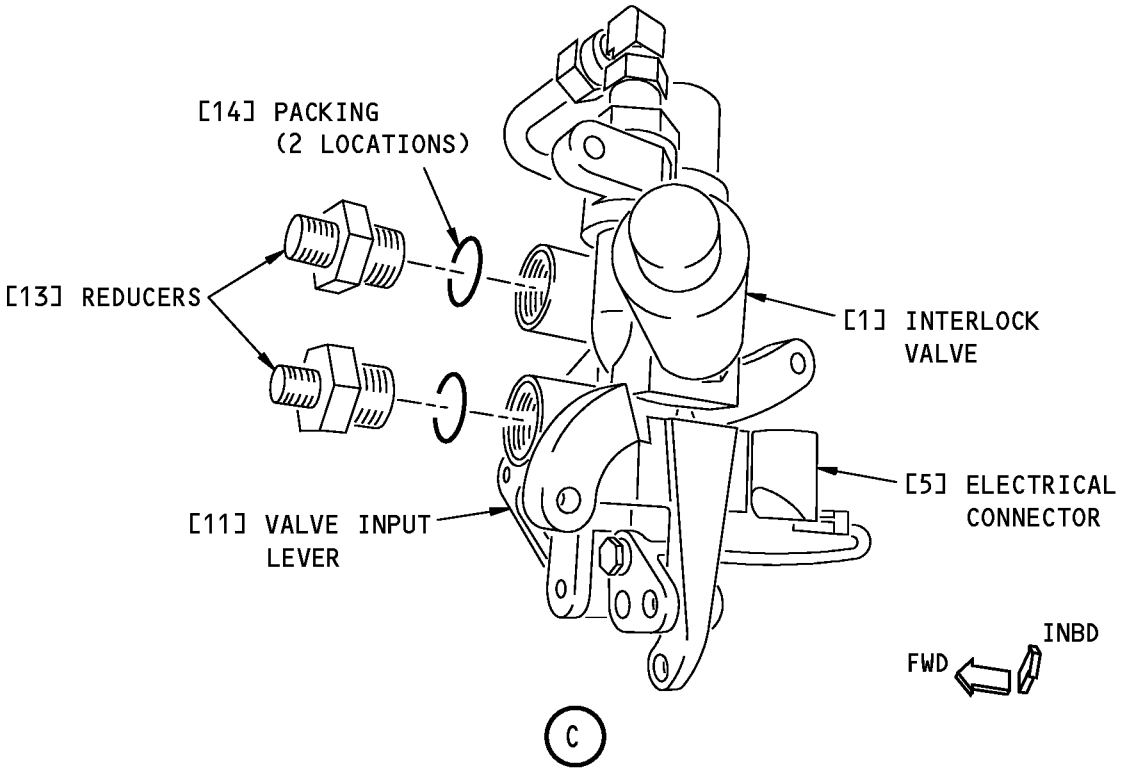

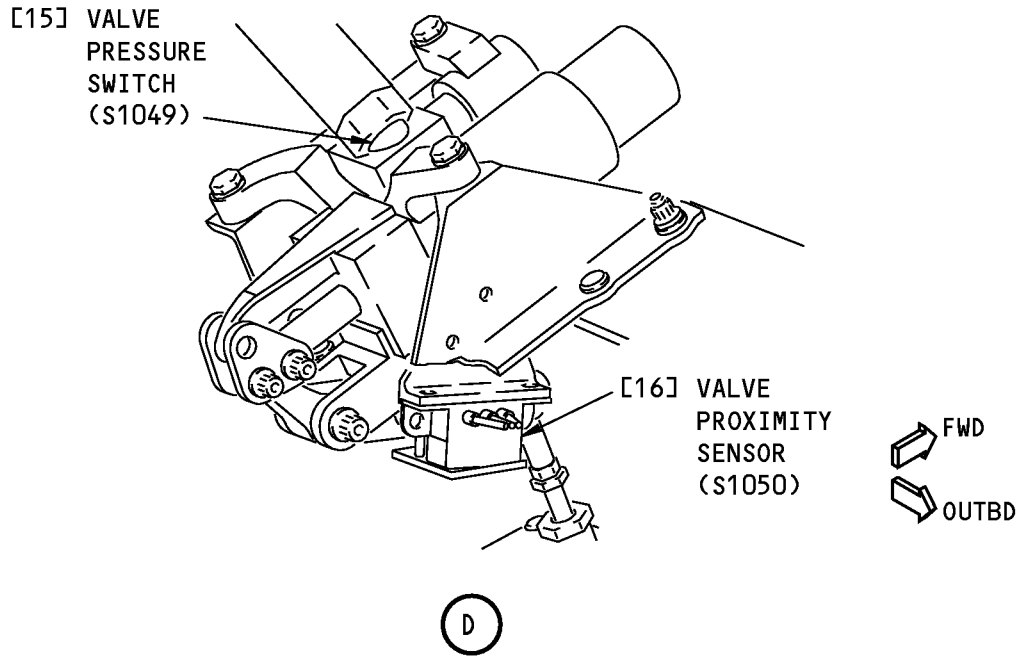

Ground Spoiler Interlock Valve Installation
Figure 401 (Sheet 4 of 5)/27-62-61-990-801

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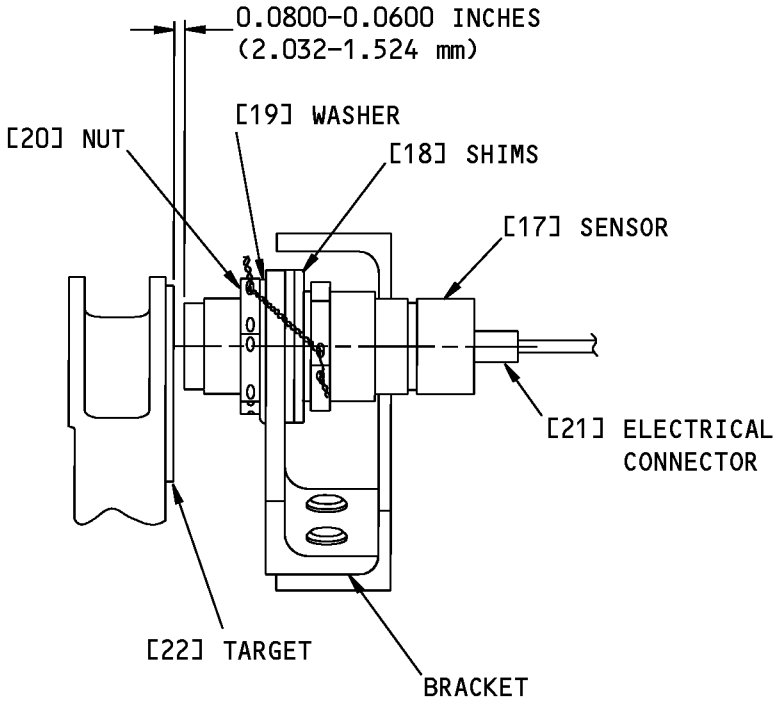

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Ground Spoiler Interlock Valve Installation
Figure 401 (Sheet 5 of 5)/27-62-61-990-801

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TASK 27-62-61-400-801

3. Ground Spoiler Interlock Valve Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-820-803	Ground Spoiler Interlock Valve Adjustment (P/B 501)
27-62-00-820-811	Ground Spoiler Interlock Valve Adjustment (Alternate Method) (P/B 501)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-840-802	Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Ground Spoiler Interlock Valve Installation

SUBTASK 27-62-61-800-001

(1) Make sure the valve [1] moves smoothly through its full travel.

SUBTASK 27-62-61-420-001

(2) Install the valve [1]:

(a) Install the reducers [13] and packings [14] in the ports of the valve [1]:

1) Remove the caps from the valve [1] ports.

2) Apply a thin layer of grease, D00633 on the packings [14].

3) Install the packings [14] and reducers [13] in the ports.

(b) Put the valve [1] in its position with the hydraulic lines [12] and ports aligned.

(c) Attach the valve [1] with washers [4] and bolts [3].

(d) Remove the plugs from the hydraulic lines [12].

(e) Connect the hydraulic lines [12] to the valve [1].

(f) Before you connect the electrical connector [2] and electrical connector [5], examine the connectors for corrosion.

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WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(g) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(h) Apply the D5026NS or ZC-026 compound, G50171 to the connectors (SWPM 20-60-03).

(i) Connect the electrical connector [5] and the electrical connector [2].

(j) Install bolt [7], washer [8], washer [9], and nut [10] to connect the push-pull cable [6] to the valve input lever [11].

SUBTASK 27-62-61-860-002

(3) Do this task: Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-62-00-840-802.

SUBTASK 27-62-61-860-003

(4) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-61-860-004

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-61-210-001

(6) Examine the hydraulic connections on the valve [1] for leakage.

SUBTASK 27-62-61-870-001

(7) Move the speed brake lever through its full cycle to bleed the hydraulic system.

SUBTASK 27-62-61-820-001

(8) Adjust the Ground Spoiler Interlock Valve. These are the tasks.

Ground Spoiler Interlock Valve Adjustment, TASK 27-62-00-820-803 or Ground Spoiler Interlock Valve Adjustment (Alternate Method), TASK 27-62-00-820-811

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-61-860-005

(1) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-61-600-001

(2) Fill the hydraulic reservoir if it is necessary, to fill, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

END OF TASK

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TASK 27-62-61-000-802

4. Ground Spoiler Interlock Valve Proximity Sensor Removal

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Ground Spoiler Interlock Valve Proximity Sensor Removal

SUBTASK 27-62-61-860-014

(1) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-62-61-020-009

(2) Remove the nuts and bolts that attach the valve proximity sensor [16] to the valve.

SUBTASK 27-62-61-020-010

(3) Remove the valve proximity sensor [16] from the valve.

——————— END OF TASK ———————

TASK 27-62-61-400-803

5. Ground Spoiler Interlock Valve Proximity Sensor Installation

(Figure 401)

A. References

Reference	Title
27-62-61-400-806	Ground Spoiler Interlock Valve Proximity Sensor Functional Test (P/B 501)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Ground Spoiler Interlock Valve Proximity Sensor Installation

SUBTASK 27-62-61-420-002

(1) Install the valve proximity sensor [16] on the valve with the washers and bolts.

SUBTASK 27-62-61-820-002

(2) Do this task: Ground Spoiler Interlock Valve Proximity Sensor Functional Test, TASK 27-62-61-400-806.

——————— END OF TASK ———————

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TASK 27-62-61-000-803

6. Ground Spoiler Interlock Valve Pressure Switch Removal

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Ground Spoiler Interlock Valve Pressure Switch Removal

SUBTASK 27-62-61-860-015

(1) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-62-61-020-011

(2) Remove the valve pressure switch [15] from the valve.

——————— END OF TASK ———————

TASK 27-62-61-400-804

7. Ground Spoiler Interlock Valve Pressure Switch Installation

(Figure 401)

A. References

Reference	Title
27-62-61-400-807	Ground Spoiler Interlock Valve Pressure Switch Functional Test (P/B 501)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Ground Spoiler Interlock Valve Pressure Switch Installation

SUBTASK 27-62-61-420-003

(1) Install the valve pressure switch [15] on the valve.

SUBTASK 27-62-61-820-003

(2) Do this task: Ground Spoiler Interlock Valve Pressure Switch Functional Test, TASK 27-62-61-400-807.

——————— END OF TASK ———————

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HAP 037-054

TASK 27-62-61-000-804

8. Speed Brake Ground Proximity Sensor Removal

(Figure 401)

A. References

Reference	Title
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

C. Procedure

SUBTASK 27-62-61-864-001

(1) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

SUBTASK 27-62-61-030-001

(2) Disconnect the electrical connector [21] from the sensor [17].

SUBTASK 27-62-61-020-018

(3) Remove the nut [20] and washer [19].

SUBTASK 27-62-61-020-019

(4) Remove the sensor [17].

——————— END OF TASK ———————

TASK 27-62-61-400-809

9. Speed Brake Ground Proximity Sensor Installation

(Figure 401)

A. References

Reference	Title
27-62-61-720-801	Speed Brake Ground Proximity Sensor Functional Test (P/B 501)

B. Consumable Materials

Reference	Description	Specification
A00436	Sealant - Fuel Tank	BMS5-45 (Supersedes BMS 5-26)
G50347	Lockwire - Nickel-copper, 0.032 inch diameter	NASM20995N˜ C32

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

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HAP 037-054 (Continued)

D. Procedure

SUBTASK 27-62-61-420-006

(1) Put the sensor [17] in place in the bracket.

SUBTASK 27-62-61-420-007

(2) Install the washer [19] with the tab in the index slot of the sensor [17] and bracket.

SUBTASK 27-62-61-420-008

(3) Install the nut [20] finger tight.

SUBTASK 27-62-61-220-001

(4) Measure the gap between the sensor [17] and the target. If the gap is not 0.0600-0.0800 inch (1.524-2.032 mm) do these steps:

(a) Remove the nut [20], washer [19], and sensor [17].

(b) Remove or install shims [18] as necessary to adjust the gap. Laminated layers can be removed from the shims [18] for adjustment.

NOTE: Each layer of lamination on the shims is 0.003 inches thick.

(c) Put the sensor [17] in place in the bracket.

(d) Install the washer [19] with the tab in the index slot of the sensor [17] and bracket.

(e) Install the nut [20] finger tight.

(f) Measure the gap between the sensor [17] and the target. If the gap is not 0.0600-0.0800 inch (1.524-2.032 mm), repeat the adjustment until the gap is correct.

SUBTASK 27-62-61-390-001

(5) Use a layer of sealant, A00436 to bond the shims [18] to the bracket.

SUBTASK 27-62-61-430-001

(6) Tighten the nut [20] to 140-160 pound-inches (15.8-18.1 N-m).

SUBTASK 27-62-61-430-002

(7) Connect the electrical connector [21] to the sensor [17].

SUBTASK 27-62-61-720-002

(8) Do this task: Speed Brake Ground Proximity Sensor Functional Test, TASK 27-62-61-720-801.

SUBTASK 27-62-61-430-003

(9) Install a lockwire, G50347 on the sensor [17] and nut [20].

END OF TASK

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GROUND SPOILER INTERLOCK VALVE - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) A functional test of the ground spoiler interlock valve (jacking method).

(2) A functional test of the ground spoiler interlock valve (rigging tool method).

(3) A functional test of the ground spoiler interlock valve proximity sensor (S1050).

(4) A functional test of the ground spoiler interlock valve pressure switch (S1049).

HAP 037-054

(5) A functional test of the speed brake ground proximity sensor (S01131).

HAP ALL

B. In this procedure the ground spoiler interlock valve is referred to as the "valve".

TASK 27-62-61-400-805

2. Ground Spoiler Interlock Valve Functional Test - Jacking Method

(Figure 501)

A. References

Reference	Title
07-11-01-580-815	Lift the Airplane with the Jacks (P/B 201)
07-11-01-580-816	Lower the Airplane Off the Jacks (P/B 201)
12-15-31-610-802	Main Landing Gear Shock Strut Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Prepare for the Test

SUBTASK 27-62-61-860-016

(1) Lift the airplane with the jacks until the right main gear strut is fully extended. To lift, do this task: Lift the Airplane with the Jacks, TASK 07-11-01-580-815

SUBTASK 27-62-61-860-017

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-61-860-018

(3) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

D. Ground Spoiler Interlock Valve Functional Test

SUBTASK 27-62-61-860-019

(1) Move the speed brake lever to the UP position.

(a) Make sure the ground spoilers do not move.

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SUBTASK 27-62-61-020-012

(2) Deflate the shock strut for the right main landing gear. To deflate, do this task: Main Landing Gear Shock Strut Servicing, TASK 12-15-31-610-802.

SUBTASK 27-62-61-860-020

(3) Slowly lift the right main gear axle to compress the right main gear shock strut until the ground spoiler interlock valve [1] opens.

(a) Make sure the ground spoilers move to the fully extended position.

(b) Make sure the inner cylinder of the right main gear shock strut moved 1.5 +1.5/-0.0 inches (38.1 +38.1/-0.0 millimeters) from the fully extended position.

SUBTASK 27-62-61-860-021

(4) Move the speed brake lever to the DOWN position.

(a) Make sure the ground spoilers retract.

SUBTASK 27-62-61-080-002

(5) Slowly lower the right main gear axle to extend the right main gear shock strut.

SUBTASK 27-62-61-020-013

(6) Inflate the shock strut for the right main landing gear. To inflate, do this task: Main Landing Gear Shock Strut Servicing, TASK 12-15-31-610-802.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-61-860-022

(1) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-61-860-023

(2) Lower the airplane off the jacks. To lower, do this task: Lower the Airplane Off the Jacks, TASK 07-11-01-580-816

END OF TASK

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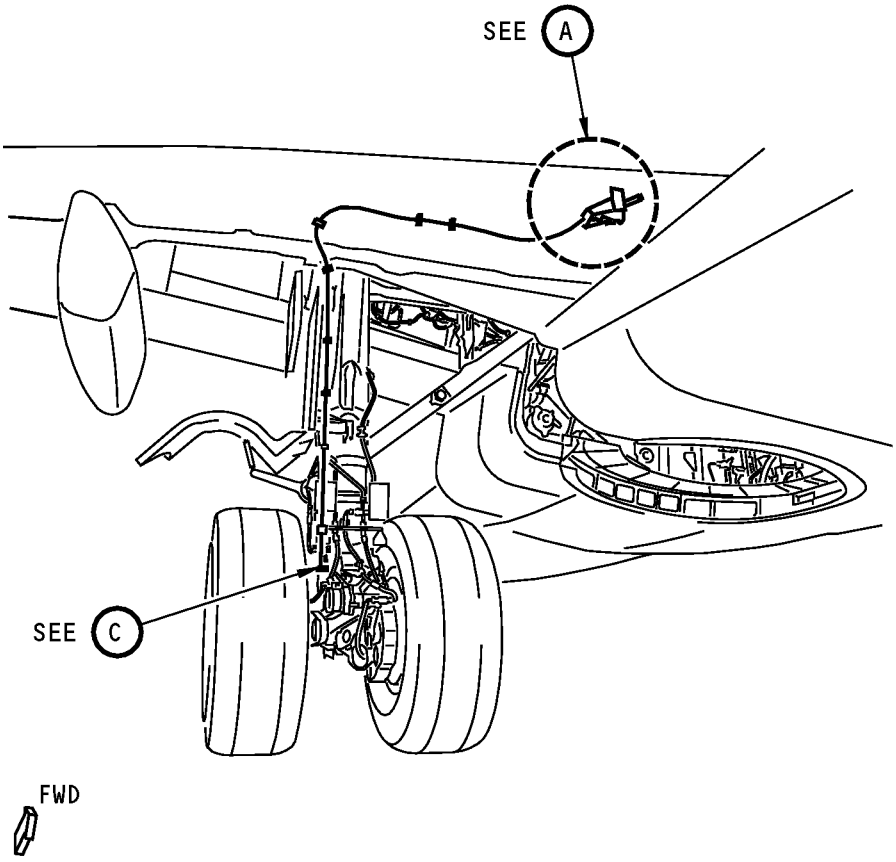

Ground Spoiler Interlock Valve Test
Figure 501 (Sheet 1 of 3)/27-62-61-990-802

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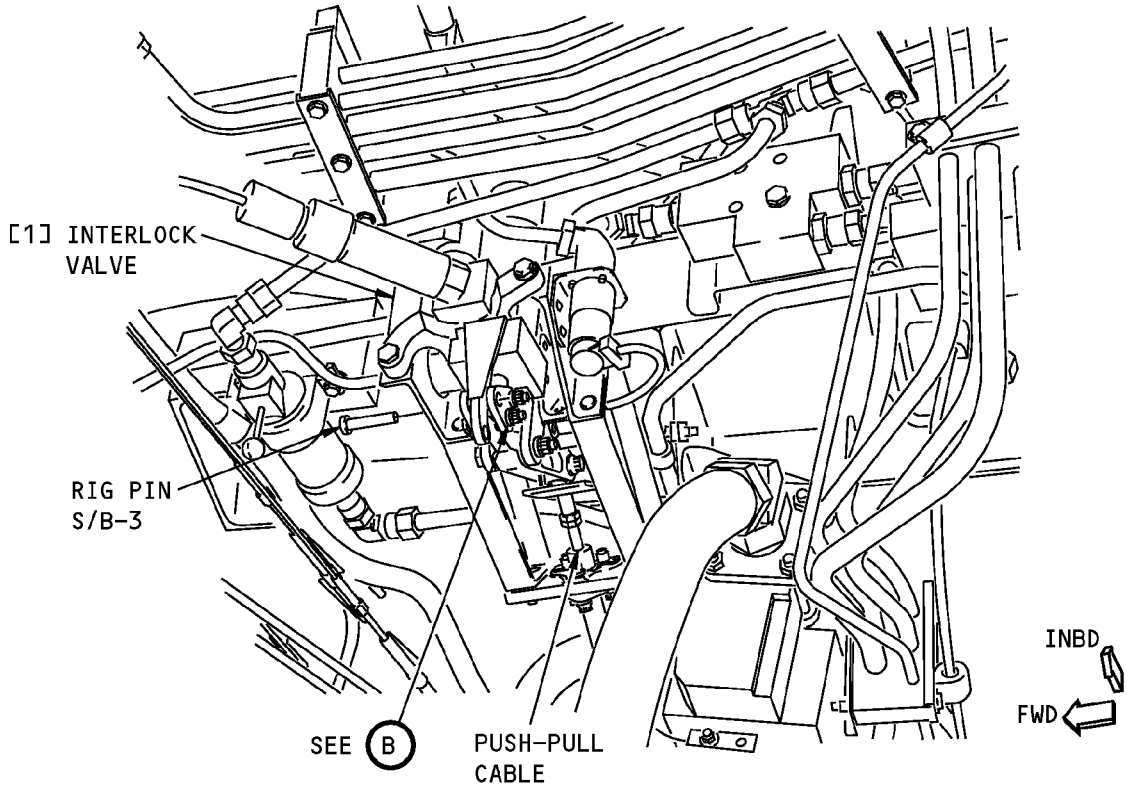
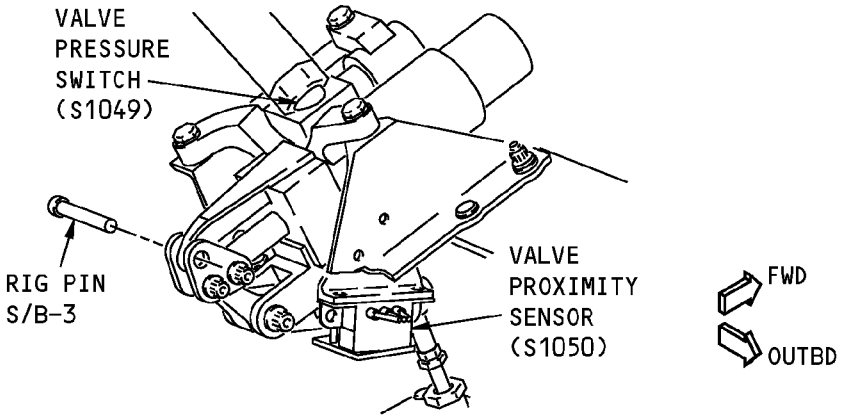


GROUND SPOILER INTERLOCK VALVE

A



VALVE PROXIMITY SENSOR
(SENSOR IN THE TEST POSITION)

B

Ground Spoiler Interlock Valve Test
Figure 501 (Sheet 2 of 3)/27-62-61-990-802

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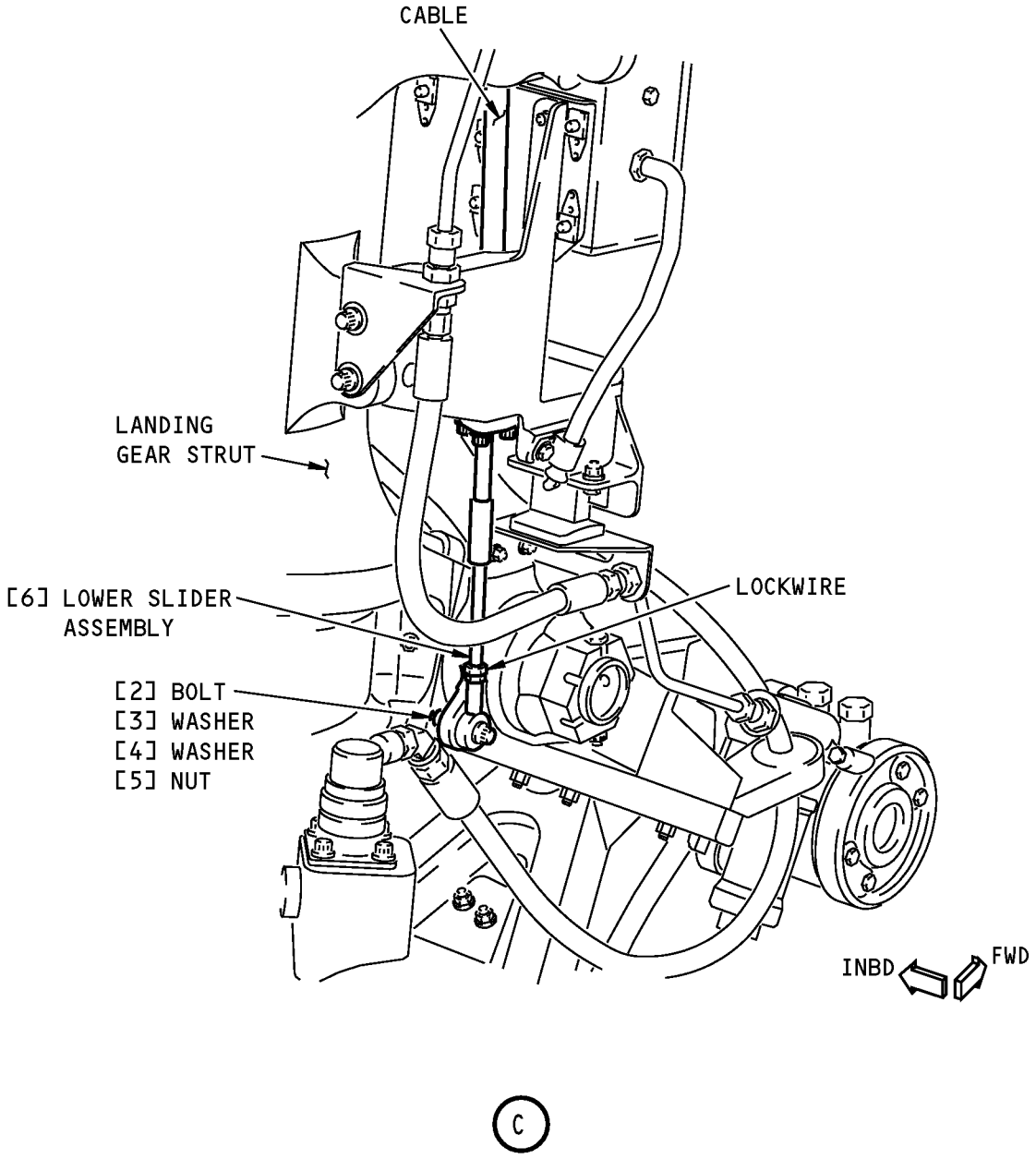

Ground Spoiler Interlock Valve Test
Figure 501 (Sheet 3 of 3)/27-62-61-990-802

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TASK 27-62-61-400-808

3. Ground Spoiler Interlock Valve Functional Test - Rigging Tool Method

(Figure 501)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-820-803	Ground Spoiler Interlock Valve Adjustment (P/B 501)
27-62-00-820-811	Ground Spoiler Interlock Valve Adjustment (Alternate Method) (P/B 501)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1750	Equipment - Rigging, Interlock Valve Cable, Ground Spoiler (Part #: C27069-12, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Prepare for the Test

SUBTASK 27-62-61-860-037

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

E. Ground Spoiler Interlock Valve Functional Test - Rigging Tool Method

SUBTASK 27-62-61-020-016

(1) Attach the Interlock Valve Rigging Tool equipment, SPL-1750 to the lower slider assembly [6], (Figure 502).

(a) Disconnect the lower slider assembly [6] from the Main Landing Gear (MLG) torque link by removing the bolt [2], washer [3], washer [4], and nut [5].

(b) Attach the equipment, SPL-1750 by placing the large tool pivot pin in the end of the MLG torque link bolt [7]. Attach the lower slider assembly end [6] to the small pin on the equipment, SPL-1750.

SUBTASK 27-62-61-860-040

(2) Install the scale assembly on the equipment bracket [8] of the landing gear.

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SUBTASK 27-62-61-860-041

(3) Move the equipment, SPL-1750 counterclockwise to position A on the scale assembly, and hold it there.

(a) Verify that the rig pin S/B-3 fits freely in the yoke of the interlock valve [1], (Figure 501).

NOTE: If the rig pin S/B-3 from the rig pin kit, SPL-1585, does not go into the hole, do this task Ground Spoiler Interlock Valve Adjustment, TASK 27-62-00-820-803 or this task Ground Spoiler Interlock Valve Adjustment (Alternate Method), TASK 27-62-00-820-811to adjust the cable.

SUBTASK 27-62-61-860-048

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE INSTALLING HYDRAULIC POWER. THE CONTROL SURFACES CAN MOVE SUDDENLY CAUSING INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-61-860-049

(5) Move the speed brake lever to the UP position.

(a) Make sure the ground spoilers do not move.

SUBTASK 27-62-61-700-001

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE DEPLOYING THE SPOILERS. THE SPOILERS CAN MOVE SUDDENLY CAUSING INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Use the Interlock Valve Rigging Tool equipment, SPL-1750 to deploy the spoilers.

(a) Move the tool counterclockwise until the spoilers begin to deploy.

(b) Verify that the leading edge of the equipment, SPL-1750 is between B and C on the rigging tool scale.

SUBTASK 27-62-61-860-042

(7) Move the speed brake lever to the DOWN position.

(a) Make sure the ground spoilers retract.

SUBTASK 27-62-61-860-043

(8) Release the equipment, SPL-1750.

SUBTASK 27-62-61-860-044

(9) Remove the scale assembly from the landing gear on the equipment bracket [8].

SUBTASK 27-62-61-020-017

(10) Attach the lower slider assembly [6] to the airplane.

(a) Remove the equipment, SPL-1750 from the lower slider assembly [6] and the Main Landing Gear (MLG) torque link bolt [7].

(b) Reconnect the lower slider assembly [6] to the MLG torque link by installing the bolt [2], washer [3], washer [4], and a new nut [5], (Figure 501).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-61-860-046

(1) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

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SUBTASK 27-62-61-860-047

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

——————— END OF TASK ———————

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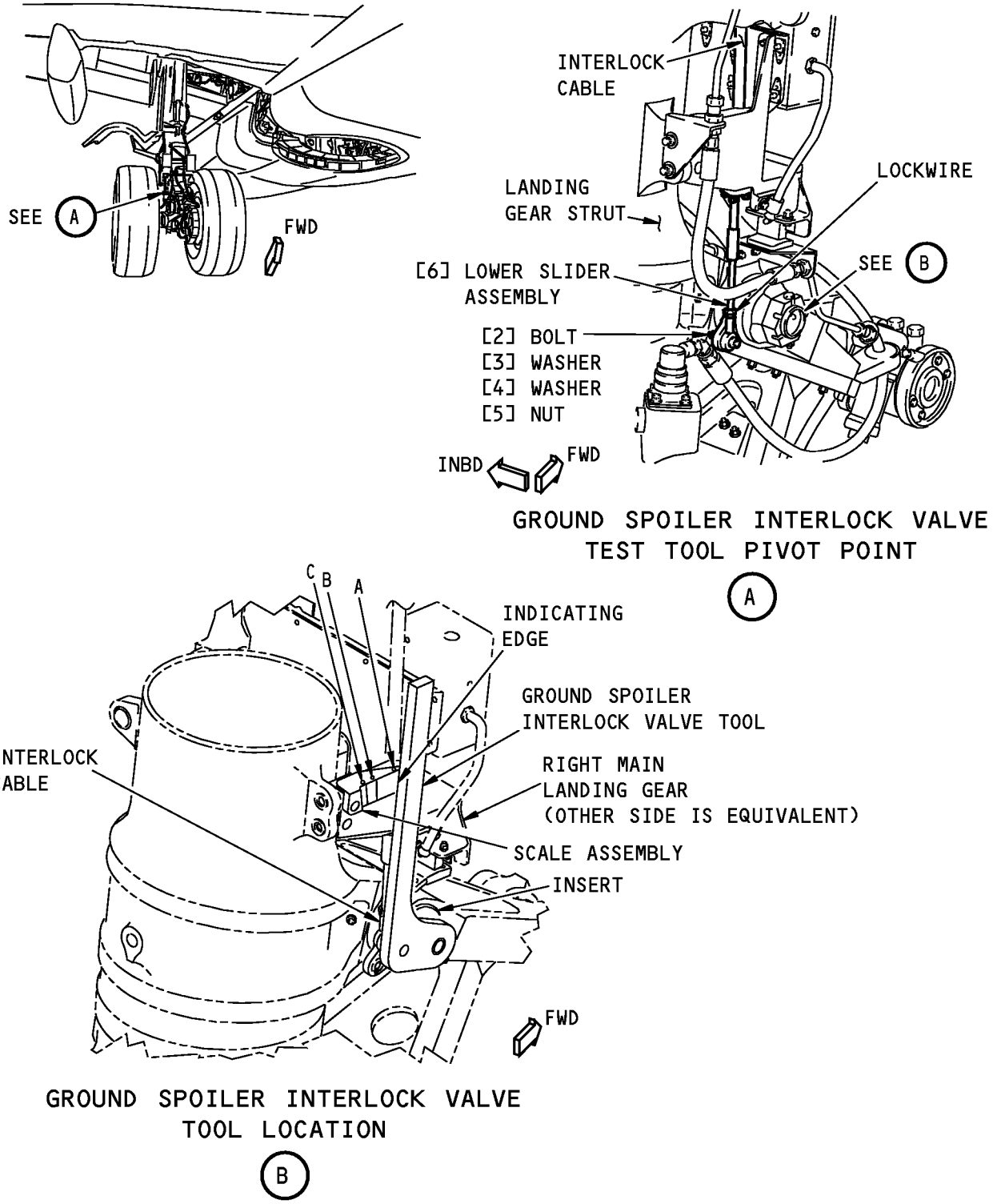

K99309 S0006570908_V2

Ground Spoiler Interlock Valve Tool Setup
Figure 502/27-62-61-990-803

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TASK 27-62-61-400-806

4. Ground Spoiler Interlock Valve Proximity Sensor Functional Test

(Figure 501)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1585	Kit - Rigging Pins, All Systems (Part #: F70207-109, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

D. Access Panels

Number	Name/Location
112A	Forward Access Door

E. Prepare for the Test

SUBTASK 27-62-61-860-024

(1) Remove system A and B hydraulic power. To remove, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805

SUBTASK 27-62-61-020-014

(2) Remove nut [5], washer [4], washer [3] and bolt [2] to disconnect lower slider assembly [6] from the lug on the right landing gear strut.

SUBTASK 27-62-61-980-001

(3) Retract the lower slider assembly [6].

SUBTASK 27-62-61-480-002

(4) Install rig pin S/B-3 from the rig pin kit, SPL-1585 through the yoke of the interlock valve.

SUBTASK 27-62-61-860-025

(5) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-62-61-010-001

(6) Open this access door:

Number	Name/Location
112A	Forward Access Door

F. Ground Spoiler Interlock Valve Proximity Sensor Functional Test

SUBTASK 27-62-61-740-001

(1) Use the PSEU BITE to test the sensor.

(a) Push the ON/OFF switch on the PSEU BITE display.

(b) Push the down arrow until OTHER? is displayed.

(c) Push the YES switch to select OTHER?.

(d) Push the down arrow until SENSOR RIGGING? is displayed.

(e) Push the YES switch to select SENSOR RIGGING?.

(f) Push the down arrow until the sensor number (S1050) is displayed.

1) Make sure the PSEU display shows the sensor clearance within tolerance.

(g) Push the MENU switch.

(h) Push the down arrow until OTHER? is displayed.

(i) Push the YES switch to select OTHER?.

(j) Push the down arrow until I/O MONITOR is displayed.

(k) Push the YES switch to select I/O MONITOR.

(l) Push the down arrow until the sensor number (S1050) is displayed.

SUBTASK 27-62-61-080-001

(2) Remove rig pin S/B-3 from the rig pin kit, SPL-1585 from the interlock valve yoke.

SUBTASK 27-62-61-860-026

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-61-860-027

(4) Move the speed brake lever to the UP position.

SUBTASK 27-62-61-980-002

(5) Slowly extend the lower slider assembly [6], stop and hold the slider in position when ground the spoilers extend.

SUBTASK 27-62-61-740-002

(6) Make sure the PSEU BITE displays TGT-FAR.

SUBTASK 27-62-61-980-003

(7) Slowly retract the lower slider assembly [6], stop and hold the slider in position until the PSEU BITE displays TGT-NEAR.

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SUBTASK 27-62-61-860-028

(8) Make sure that the interlock valve is closed:

(a) Move the speedbrake handle to the DOWN position.

(b) Move the speedbrake handle to the UP position.

(c) Make sure the ground spoilers retract and stay down.

SUBTASK 27-62-61-420-004

(9) Install bolt [2], washer [3], washer [4] and nut [5] to install the lower slider assembly [6] to the lug on the landing gear.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-61-860-029

(1) Push the ON/OFF switch on PSEU BITE display to turn the PSEU BITE off.

SUBTASK 27-62-61-840-001

(2) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-62-61-860-030

(3) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

——————— END OF TASK ———————

TASK 27-62-61-400-807

5. Ground Spoiler Interlock Valve Pressure Switch Functional Test

(Figure 501)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
112	Area Forward of Nose Landing Gear Wheel Well
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

C. Access Panels

Number	Name/Location
112A	Forward Access Door

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D. Prepare for the Test

SUBTASK 27-62-61-860-031

(1) Remove system A and B hydraulic power. To remove, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805

SUBTASK 27-62-61-020-015

(2) Remove the nut [5], washer [4], washer [3] and bolt [2] to disconnect the lower slider assembly [6] from the lug on the right landing gear strut.

SUBTASK 27-62-61-860-032

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-61-860-033

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-61-010-002

(5) Open this access door:

Number	Name/Location
112A	Forward Access Door

E. Ground Spoiler Interlock Valve Pressure Switch Functional Test

SUBTASK 27-62-61-740-003

(1) Use the PSEU BITE to test the switch:

(a) Push the ON/OFF switch on the PSEU BITE display. EXISTING FAULTS? will show on the display.

(b) Push the down arrow until OTHER FUNCTNS? is displayed.

(c) Push the YES button to select OTHER FUNCTNS?.

(d) Push the down arrow until I/O MONITOR? is displayed.

(e) Push the YES button to select I/O MONITOR?.

(f) Push the down arrow until INPUTS? is displayed.

(g) Push the YES button to select INPUTS?.

(h) Push the down arrow until CONN D10986? is displayed.

(i) Push the YES button to select CONN D10986?.

(j) Push the down arrow until PIN 14 is displayed.

SUBTASK 27-62-61-860-034

(2) Make sure the valve pressure switch operates as follows:

(a) Move the speedbrake handle to the DOWN position.

(b) Retract the lower slider assembly [6].

(c) Make sure the PSEU BITE displays NO GND

(d) Move the speedbrake handle to the UP position.

(e) Extend the lower slider assembly [6].

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(f) Make sure the PSEU BITE displays GND.

SUBTASK 27-62-61-420-005

(3) Install bolt [2], washer [3], washer [4] and nut [5] to install the lower slider assembly [6] to the lug on the right landing gear strut.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-62-61-860-035

(1) Push the ON/OFF switch on PSEU BITE display to turn the PSEU BITE off.

SUBTASK 27-62-61-840-002

(2) Close this access panel:

Number	Name/Location
112A	Forward Access Door

SUBTASK 27-62-61-860-036

(3) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

——————— END OF TASK ———————

HAP 037-054

TASK 27-62-61-720-801

6. Speed Brake Ground Proximity Sensor Functional Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
32-09-00-840-802	Return the Airplane Systems Back to Their Normal On Ground Condition (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)
32-09-00-860-802	Return the Airplane to the Ground Mode (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1690	Set - Actuators/Deactuators, Proximity Sensor Test (Part #: 8-758-01, Supplier: 08748, A/P Effectivity: 737-ALL) (Part #: A27092-106, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: A27092-84, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50

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HAP 037-054 (Continued)

D. Procedure

SUBTASK 27-62-61-860-050

(1) Make sure the airplane is in the Ground Mode.

(a) If the airplane is not in the Ground Mode, do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 27-62-61-861-001

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-61-860-051

(3) Make sure the speedbrake lever is in the DOWN position.

SUBTASK 27-62-61-210-002

(4) Make sure the spoilers are in the down position.

SUBTASK 27-62-61-865-002

(5) If the SPEEDBRAKE DO NOT ARM light is illuminated, do this step:

(a) Open and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	5	C01663	SPOILER PCU SOV SYS B

SUBTASK 27-62-61-480-003

(6) Attach a deactuator from the proximity sensor test set, SPL-1690 to the face of the sensor, S01131.

SUBTASK 27-62-61-860-052

(7) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

SUBTASK 27-62-61-210-003

(8) After 5 seconds, make sure the SPEEDBRAKE DO NOT ARM light is off.

SUBTASK 27-62-61-080-003

(9) Remove the deactuator (from the proximity sensor test set, SPL-1690) from the face of the sensor, S01131.

SUBTASK 27-62-61-21-001

(10) Make sure the SPEEDBRAKE DO NOT ARM light comes on within 5 seconds of removing the deactuator.

E. Put the Airplane Back to its Usual Condition

SUBTASK 27-62-61-860-053

(1) Do this task: Return the Airplane Systems Back to Their Normal On Ground Condition, TASK 32-09-00-840-802.

SUBTASK 27-62-61-865-003

(2) Open and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	5	C01663	SPOILER PCU SOV SYS B

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HAP 037-054 (Continued)

SUBTASK 27-62-61-862-001

(3) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———————— END OF TASK ————————

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INBOARD GROUND SPOILER ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the inboard ground spoiler actuator.

(2) An installation of the inboard ground spoiler actuator.

(3) A functional test of the inboard ground spoiler actuator.

B. In this procedure the inboard ground spoiler actuator is referred to as the "actuator".

C. This procedure is applicable to the left and right inboard ground spoiler actuators.

TASK 27-62-71-000-801

2. Inboard Ground Spoiler Actuator Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
552	Left Wing - Spoiler No. 6
652	Right Wing - Spoiler No. 7

D. Prepare for the Removal

SUBTASK 27-62-71-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-71-860-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-71-860-003

(3) Put the SPOILER A and B switches in the OFF position to remove the hydraulic power from the flight spoilers.

NOTE: SPOILER A and B switches are on the flight control panel (P5-3).

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SUBTASK 27-62-71-860-004

(4) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-62-71-860-005

(5) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

E. Actuator Removal

SUBTASK 27-62-71-020-001

(1) Disconnect the hydraulic lines [10] from the actuator [17]:

(a) Put a 5 gallon (19 liters) hydraulic fluid resistant container, STD-1110 below the actuator [17] to catch the hydraulic fluid.

(b) Disconnect the hydraulic lines [10] from the actuator [17].

(c) Install the plugs in the hydraulic lines [10].

SUBTASK 27-62-71-020-002

(2) Remove the pin [7], nut [6], washer [5], bushing [4], washer [5] and bolt [2] that attach the actuator [17] to the inboard ground spoiler [1].

SUBTASK 27-62-71-020-003

(3) Remove the pin [16], nut [15], washer [14], bushing [13], washer [12] and bolt [11] that attaches the actuator [17] to the structure.

SUBTASK 27-62-71-480-001

(4) Install caps in the hydraulic ports of the actuator [17].

——————— END OF TASK ———————

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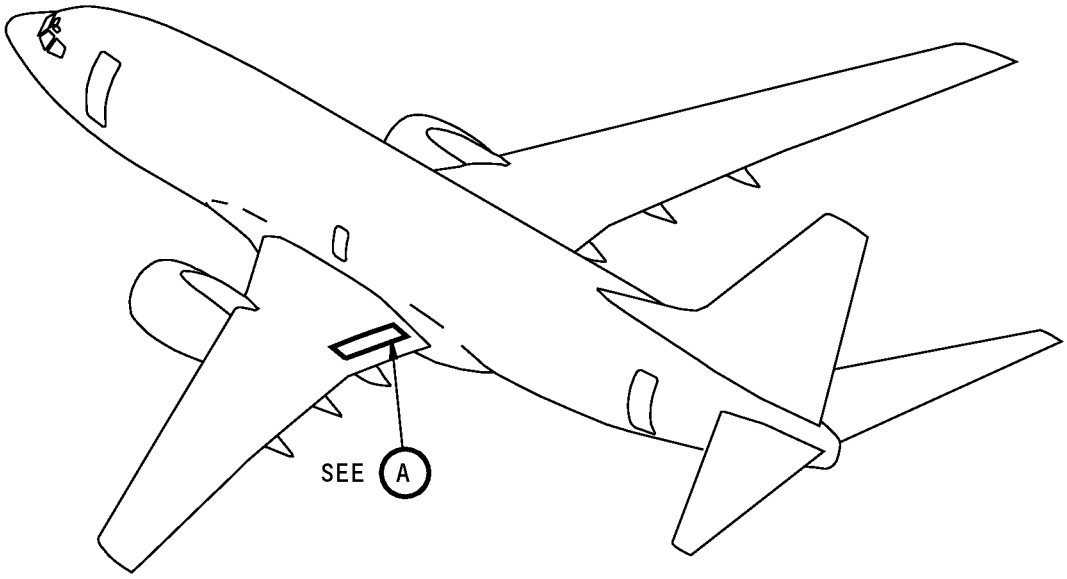
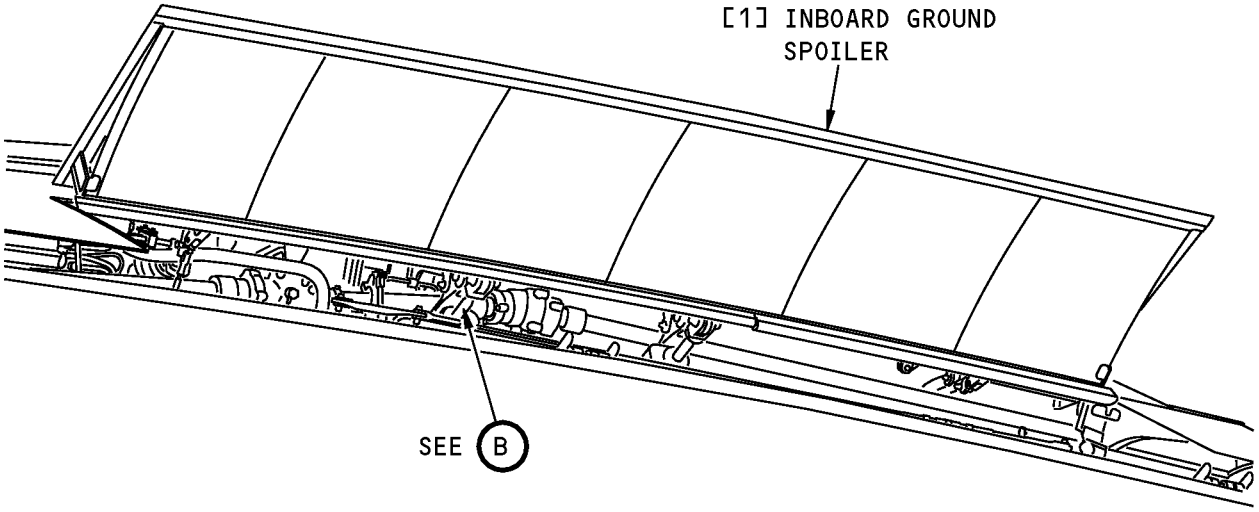


LEFT WING
(RIGHT WING IS EQUIIVALENT)



A

Inboard Ground Spoiler Actuator Installation
Figure 401 (Sheet 1 of 2)/27-62-71-990-801

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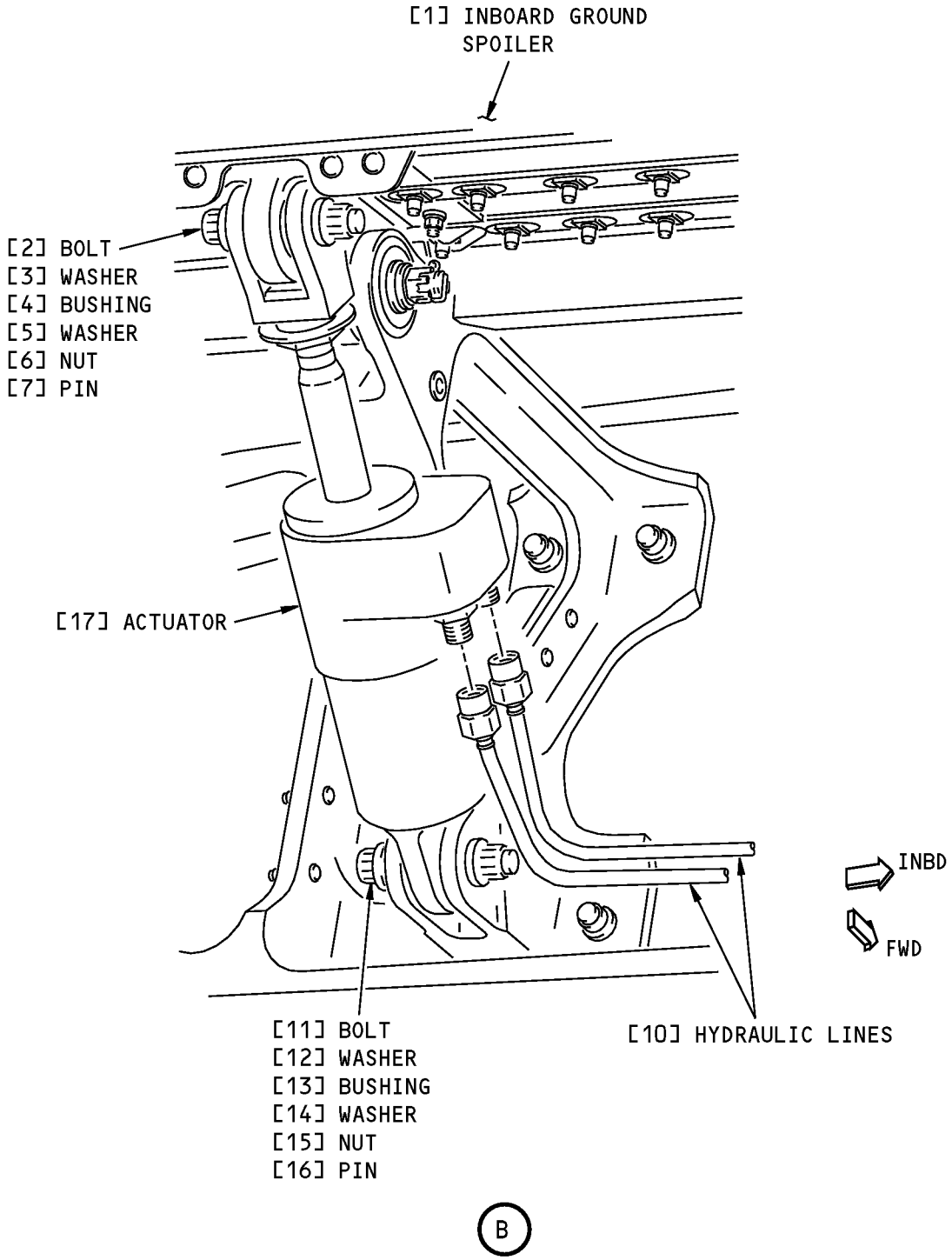

Inboard Ground Spoiler Actuator Installation
Figure 401 (Sheet 2 of 2)/27-62-71-990-801

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TASK 27-62-71-400-801

3. Inboard Ground Spoiler Actuator Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-820-804	Ground Spoiler Adjustment (P/B 501)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-840-802	Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
7	Pin	27-62-71-01-195	HAP ALL
16	Pin	27-62-71-01-195	HAP ALL
17	Actuator	27-62-71-01-225	HAP ALL

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
552	Left Wing - Spoiler No. 6
652	Right Wing - Spoiler No. 7

E. Actuator Installation

SUBTASK 27-62-71-420-001

(1) Install the actuator [17]:

(a) Remove the caps from the hydraulic ports of the actuator [17].

(b) Put the actuator [17] in its position and make sure the hydraulic lines [10] align with the fittings.

(c) Connect the actuator [17] rod end to the inboard ground spoiler [1]:

1) Apply grease, D00633 to the bolt [2].

2) Install bolt [2] with the head outboard, washer [3], bushing [4], washer [5], nut [6], and pin [7].

3) Tighten nut to 450-690 pound-inches (50.8-78.0 newton-meters).

(d) Connect the actuator [17] to the structure:

1) Apply grease, D00633 to the bolt [2].

2) Install bolt [11] with the head outboard, washer [12], bushing [13], washer [14], nut [15], and pin [16].

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3) Tighten nut to 450-690 pound-inches (50.8-78.0 newton-meters).

SUBTASK 27-62-71-420-002

(2) Connect the hydraulic lines [10] to the actuator [17]:

(a) Remove the plugs from the hydraulic lines [10].

(b) Connect the hydraulic lines [10] to the actuator [17].

(c) Tighten the hydraulic fittings.

SUBTASK 27-62-71-860-006

(3) Do this task: Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-62-00-840-802.

SUBTASK 27-62-71-860-007

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-71-870-001

(5) Move the speed brake control lever through its full cycle to bleed the spoiler actuators.

SUBTASK 27-62-71-700-001

(6) Make sure there are no leaks at the hydraulic lines.

SUBTASK 27-62-71-860-008

(7) Do the adjustment of the outboard ground spoiler acutator. To adjust it, do this task: Ground Spoiler Adjustment, TASK 27-62-00-820-804.

SUBTASK 27-62-71-820-001

(8) Do this task: Inboard Ground Spoiler Acutator Test, TASK 27-62-71-000-802.

F. Put the Airplane Back to Its Usual Condition.

SUBTASK 27-62-71-860-009

(1) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 27-62-71-860-010

(2) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-71-860-011

(3) Put the SPOILER A and B switches in the ON position.

SUBTASK 27-62-71-610-001

(4) Fill the hydraulic reservoirs if it is necessary. To fill, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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TASK 27-62-71-000-802

4. Inboard Ground Spoiler Acutator Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
552	Left Wing - Spoiler No. 6
652	Right Wing - Spoiler No. 7

D. Prepare for the Test

SUBTASK 27-62-71-860-012

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-71-860-013

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-71-480-002

(3) Install the protractor, COM-1691 on the inboard ground spoilers 6 and 7.

SUBTASK 27-62-71-820-002

(4) Adjust the protractor, COM-1691 to zero.

E. Inboard Ground Spoiler Actuator Functional Test

SUBTASK 27-62-71-020-004

(1) Move the speed brake lever to the UP position to lift the spoilers.

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HAP 001-013, 015-026, 028-036, 101-999

SUBTASK 27-62-71-020-005

(2) Make sure the spoilers No. 6 and 7 are 52 +/-2 degrees up from the retracted position.

HAP 037-054

SUBTASK 27-62-71-020-008

(3) Make sure the spoilers No. 6 and 7 are 60 +/-2 degrees up from the retracted position.

HAP ALL

SUBTASK 27-62-71-020-006

(4) Make sure the ground spoilers No. 6 and 7 align in the limit of 2 degrees.

SUBTASK 27-62-71-020-007

(5) Move the speed brake lever to the DOWN position to lower the spoilers.

SUBTASK 27-62-71-820-003

(6) Make sure the spoilers move to the fully retracted position.

SUBTASK 27-62-71-410-001

(7) Put the Airplane Back to Its Usual Condition

(a) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

(b) Remove the protractor, COM-1691 from the spoilers No. 6 and 7.

———————— END OF TASK ————————

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OUTBOARD GROUND SPOILER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard ground spoilers referred to as .

(2) An installation of the outboard ground spoilers.

(3) A functional test of the outboard ground spoilers.

B. This procedure is applicable to the left and right outboard ground spoilers.

TASK 27-62-91-000-801

2. Outboard Ground Spoiler Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1743	Set - Ground Lock, Outboard Spoiler Actuators (Part #: C27001-35, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
566	Left Wing - Spoiler No. 1
666	Right Wing - Spoiler No. 12

D. Prepare for the Removal

SUBTASK 27-62-91-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-91-860-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

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SUBTASK 27-62-91-860-003

(3) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-62-91-860-004

(4) Put the SPOILER A and B switches to the OFF position to remove the hydraulic power from the flight spoilers.

NOTE: SPOILER A AND B switches are on the flight control panel (P5-3).

SUBTASK 27-62-91-860-005

(5) Put the speed brake lever in the UP position to lift the ground spoilers.

SUBTASK 27-62-91-480-001

(6) Install the set, SPL-1743 for the applicable ground spoiler.

SUBTASK 27-62-91-860-006

(7) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

E. Outboard Ground Spoiler Removal

SUBTASK 27-62-91-020-001

(1) Remove the pin [24], nut [23], washer [22], bushing [21], bushing [20], washer [19] and bolt [18] that attaches the rod end of the actuator assembly [25] to the outboard ground spoiler [1].

SUBTASK 27-62-91-020-002

(2) Remove nut [2] and washers [3] and disconnect the bonding jumper [10] from the structure.

SUBTASK 27-62-91-020-003

(3) Remove nut [32] and washers [33] and disconnect the bonding jumper [40] from the structure.

SUBTASK 27-62-91-020-004

(4) Remove the outboard ground spoiler [1]:

(a) Remove pin [9], nut [8], washer [7], bushings [6], washer [5] and bolt [4] to disconnect the outboard hinge fitting.

(b) Remove pin [16], nut [15], washer [14], bushing [13], washer [12] and bolt [11] to disconnect the center left hinge fitting.

(c) Remove pin [31], nut [30], washer [29], bushing [28], washer [27] and bolt [26] to disconnect the center right hinge fitting.

(d) Remove pin [39], nut [38], washer [37], bushing [36], washer [35] and bolt [34] to disconnect the inboard hinge fitting.

(e) Remove the outboard ground spoiler [1] from the airplane.

———————— END OF TASK ————————

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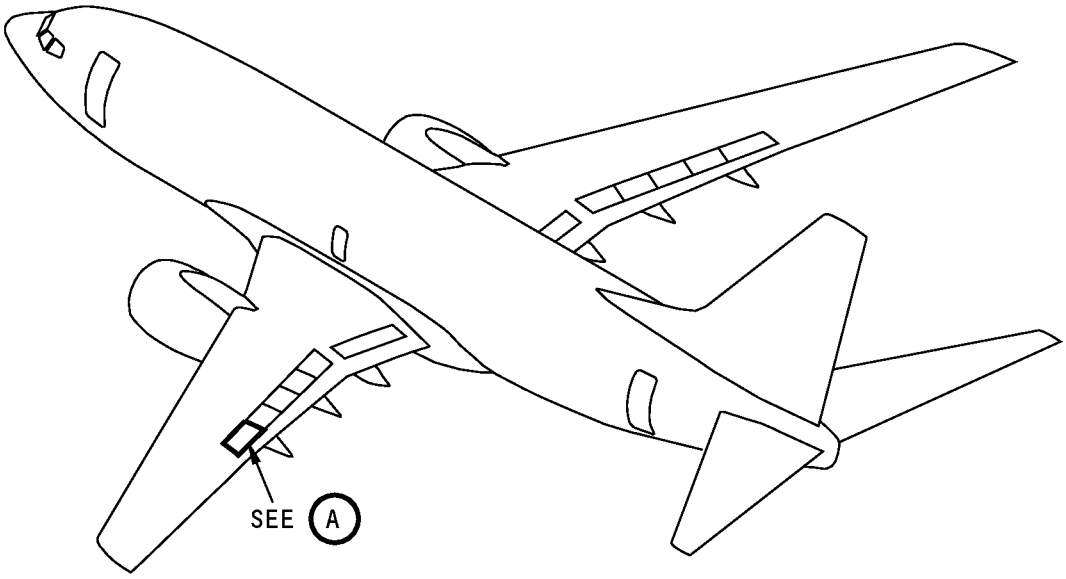

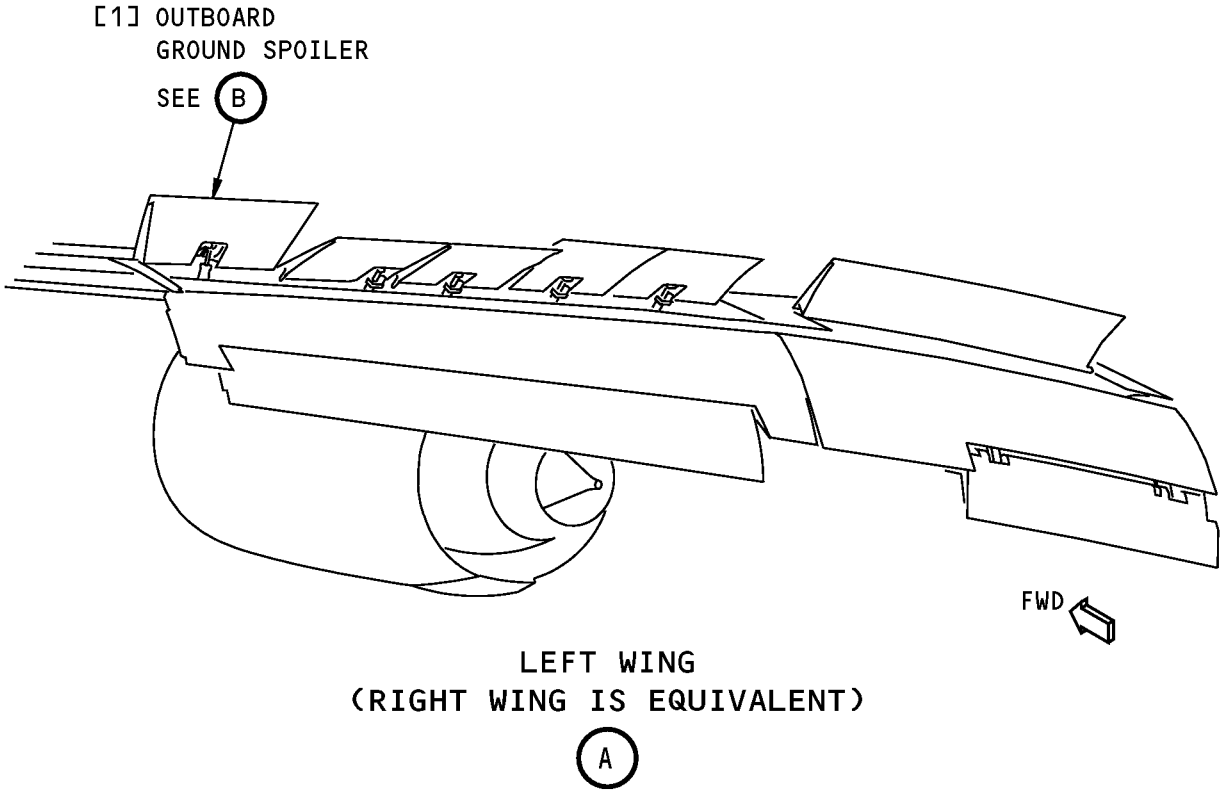

Outboard Ground Spoiler Installation
Figure 401 (Sheet 1 of 4)/27-62-91-990-801

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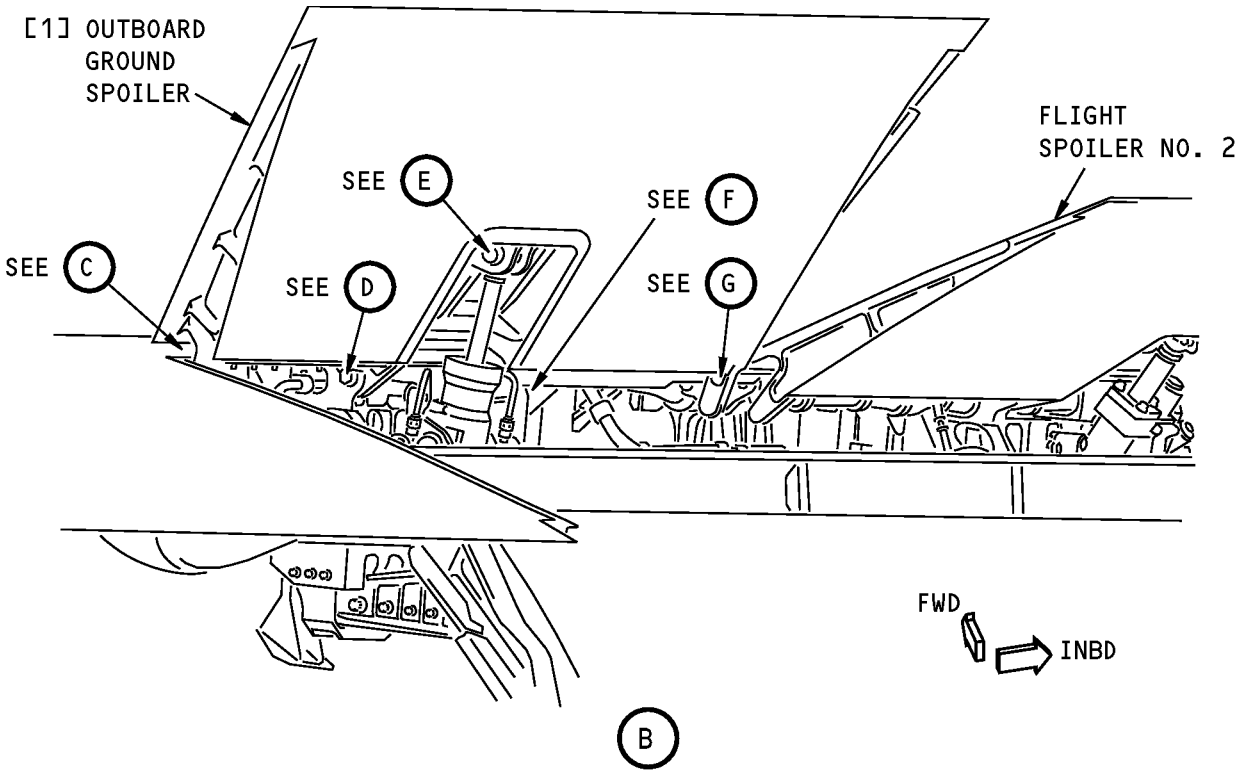

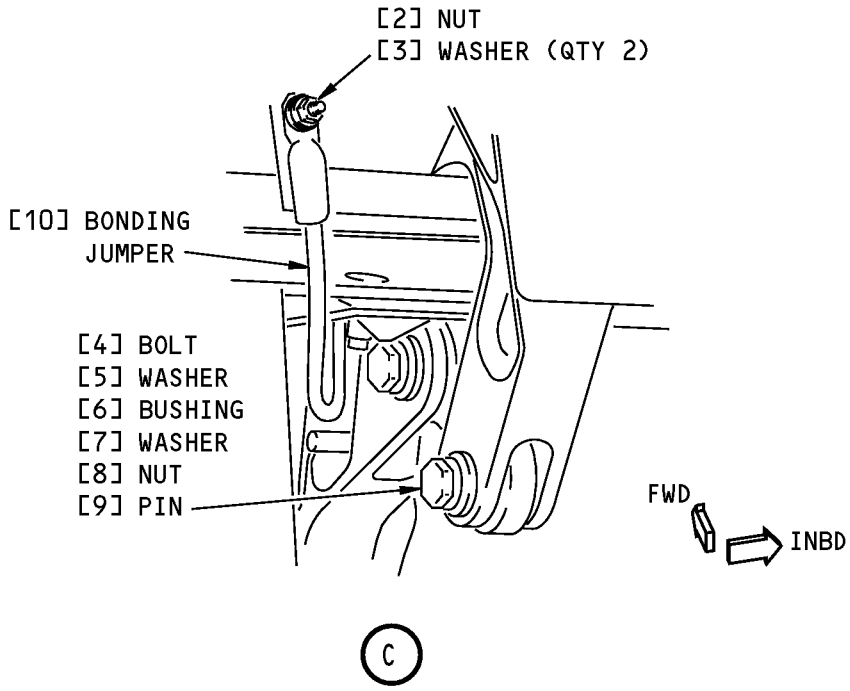

Outboard Ground Spoiler Installation
Figure 401 (Sheet 2 of 4)/27-62-91-990-801

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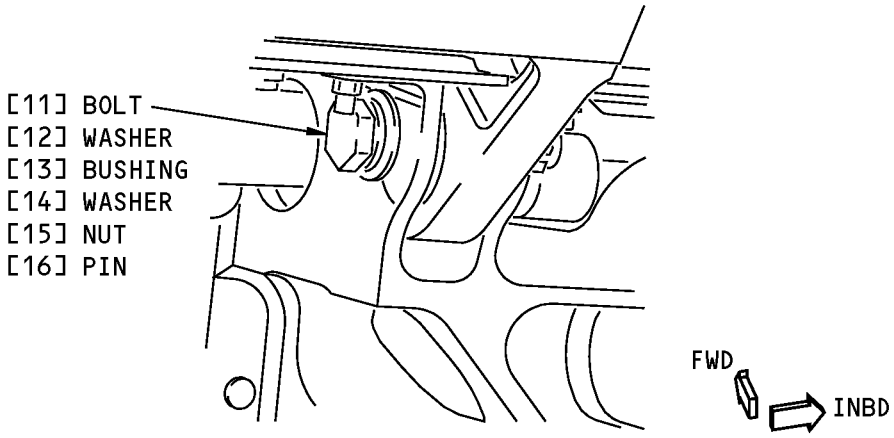

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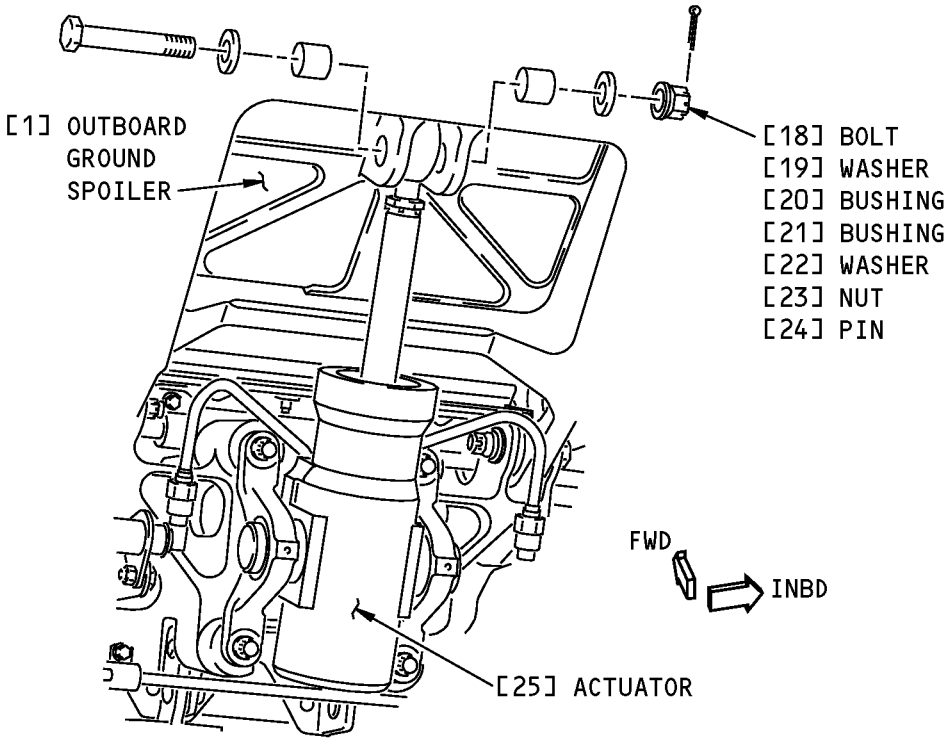

E

Outboard Ground Spoiler Installation
Figure 401 (Sheet 3 of 4)/27-62-91-990-801

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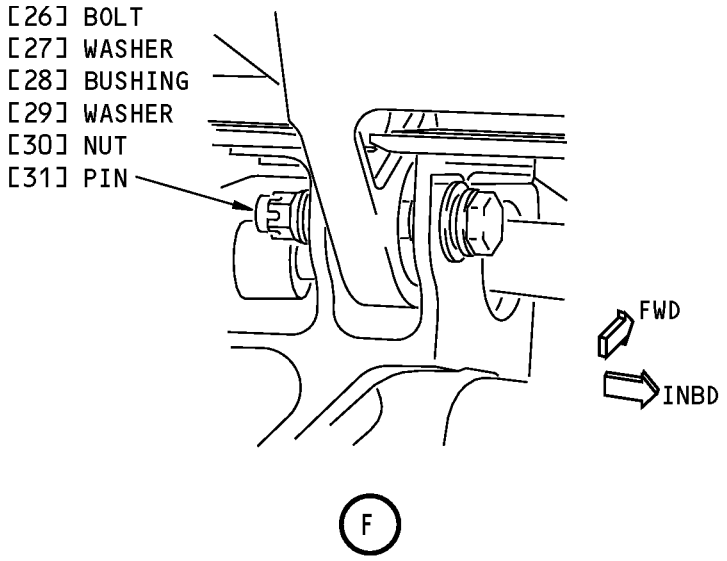

Outboard Ground Spoiler Installation
Figure 401 (Sheet 4 of 4)/27-62-91-990-801

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TASK 27-62-91-400-801

3. Outboard Ground Spoiler Installation

(Figure 401)

A. References

Reference	Title
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-820-804	Ground Spoiler Adjustment (P/B 501)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1743	Set - Ground Lock, Outboard Spoiler Actuators (Part #: C27001-35, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
9	Pin	27-31-41-01-110	HAP ALL
		57-42-00-04-010	HAP 031-054, 101-999
16	Pin	57-42-00-04-055	HAP 031-054, 101-999
		57-42-00-04B-055	HAP 001-013, 015-026, 028-030
24	Pin	27-62-94-01-125	HAP ALL
25	Actuator assembly	27-62-94-01-155	HAP ALL
31	Pin	57-42-00-04-055	HAP 031-054, 101-999
		57-42-00-04B-055	HAP 001-013, 015-026, 028-030
39	Pin	27-31-41-01-110	HAP ALL
		57-42-00-04-010	HAP 031-054, 101-999

E. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
566	Left Wing - Spoiler No. 1
666	Right Wing - Spoiler No. 12

F. Outboard Ground Spoiler Installation

SUBTASK 27-62-91-420-001

(1) Install the outboard ground spoiler [1]:

(a) Put the outboard ground spoiler [1] in its position on the airplane.

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(b) Install the bolt [34] with the head inboard, washer [35], bushing [36], washer [37], nut [38], and pin [39] in the inboard hinge.

(c) Install the bolt [26] with the head inboard, washer [27], bushing [28], washer [29], nut [30], and pin [31] in the center right hinge fitting.

(d) Install the bolt [11] with the head outboard, washer [12], bushing [13], washer [14], nut [15], and pin [16] in the center left hinge fitting.

(e) Install the bolt [4] with the head outboard, washer [5], bushing [6], washer [7], nut [8], and pin [9] in the outboard hinge fitting.

(f) Install washers [3] and nut [2] and connect the bonding jumper [10] to the outboard ground spoiler [1].

(g) Install washers [33] and nut [32] and connect the bonding jumper [40] to the outboard ground spoiler [1].

SUBTASK 27-62-91-980-001

(2) Move the outboard ground spoiler [1] through its full travel.

(a) Make sure the outboard ground spoiler [1] moves freely.

SUBTASK 27-62-91-420-002

(3) Install the bolt [18] that attaches the rod end for the spoiler actuator assembly [25] to the outboard ground spoiler [1].

(a) Apply a layer of grease, D00633 to the bolt [18].

(b) Install the bolt [18] with its head outboard.

(c) Install the washer [22], bushing [20], bushing [21], washer [19] and the nut [23] on the bolt [18].

(d) Tighten the nut [23] to 660-780 pound-inches (74.6-88.1 newton-meters).

(e) Install the pin [24].

(f) Apply grease, D00633 to the bolt [18], washer [19], bushing [20], bushing [21], washer [22], nut [23], and pin [24].

SUBTASK 27-62-91-860-007

(4) Make sure hydraulic power is not on.

SUBTASK 27-62-91-080-001

CAUTION: INSPECT THE LOCKWIRE AND LOCKING KEY FOR DAMAGE AFTER THE SPOILER TOOL IS REMOVED.

(5) Remove set, SPL-1743.

SUBTASK 27-62-91-860-008

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-91-860-009

(7) Move the speed brake lever to the DOWN position to lower the spoilers.

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SUBTASK 27-62-91-860-010

(8) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-91-820-001

(9) Do this task: Ground Spoiler Adjustment, TASK 27-62-00-820-804.

END OF TASK

TASK 27-62-91-000-802

4. Outboard Ground Spoiler Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
566	Left Wing - Spoiler No. 1
666	Right Wing - Spoiler No. 12

D. Prepare for the Test

SUBTASK 27-62-91-860-011

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-91-860-012

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-91-480-002

(3) Install the protractor, COM-1691 on the outboard ground spoilers 1 and 12.

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SUBTASK 27-62-91-820-002

(4) Adjust the protractor, COM-1691 to zero.

E. Outboard Ground Spoiler Functional Test

SUBTASK 27-62-91-020-005

(1) Move the speed brake lever to the UP position to lift the spoilers.

SUBTASK 27-62-91-020-006

(2) Make sure the spoilers No. 1 and 12 are 60 +/-2 degrees up from the retracted position.

SUBTASK 27-62-91-020-007

(3) Make sure the ground spoilers No. 1 and 12 align in the limit of 2 degrees.

SUBTASK 27-62-91-020-008

(4) Move the speed brake lever to the DOWN position to lower the spoilers.

SUBTASK 27-62-91-820-003

(5) Make sure the spoilers move to the fully retracted position.

SUBTASK 27-62-91-410-001

(6) Put the Airplane Back to Its Usual Condition

(a) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

(b) Remove the protractor, COM-1691 from the spoilers No. 1 and 12.

——————— END OF TASK ———————

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OUTBOARD GROUND SPOILER ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the outboard ground spoiler actuator.

(2) An installation of the outboard ground spoiler actuator.

(3) A functional test of the outboard ground spoiler actuator.

B. In this procedure the outboard ground spoiler actuator is referred to as the "actuator".

TASK 27-62-94-000-801

2. Outboard Ground Spoiler Actuator Removal

(Figure 401)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-803	Extend the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-800-802	Remove Pressure from the Speed Brake Hydraulic Systems A and B (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1110	Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
566	Left Wing - Spoiler No. 1
666	Right Wing - Spoiler No. 12

D. Prepare for the Removal

SUBTASK 27-62-94-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-94-860-002

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-94-860-003

(3) Put the SPOILER A and B switches to the OFF position to remove the hydraulic power from the flight spoilers.

NOTE: SPOILER A and B switches are on the flight control panel (P5-3).

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SUBTASK 27-62-94-860-004

(4) Put the speed brake lever in the UP position to lift the spoilers.

SUBTASK 27-62-94-860-005

(5) Do this task: Extend the Trailing Edge Flaps, TASK 27-51-00-860-803.

SUBTASK 27-62-94-860-006

(6) Do this task: Remove Pressure from the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-802.

E. Actuator Removal

SUBTASK 27-62-94-020-001

(1) Disconnect the piston rod end of the actuator assembly [10] from the spoiler [1]:

(a) Remove the pin [8], nut [7], washer [6], bushing [5], bushing [4], washer [3] and the bolt [2] in the piston rod end.

SUBTASK 27-62-94-020-002

(2) Disconnect the hydraulic lines [9] from the actuator assembly [10].

(a) Put a 5 gallon (19 liters) hydraulic fluid resistant container, STD-1110 below the actuator assembly [10] to catch the hydraulic fluid.

(b) Disconnect the hydraulic lines [9] from the actuator assembly [10].

(c) Turn the hydraulic lines [9] at the swivel joints to access the actuator assembly [10].

(d) Install the plugs in the hydraulic lines [9].

SUBTASK 27-62-94-020-003

(3) Remove the bolts [13], washers [14], pillow blocks [11], and split ball bearings [12] from the structure.

SUBTASK 27-62-94-020-004

(4) Remove the actuator assembly [10] from the airplane.

SUBTASK 27-62-94-480-001

(5) Install caps in the hydraulic ports of the actuator assembly [10].

—————— END OF TASK ——————

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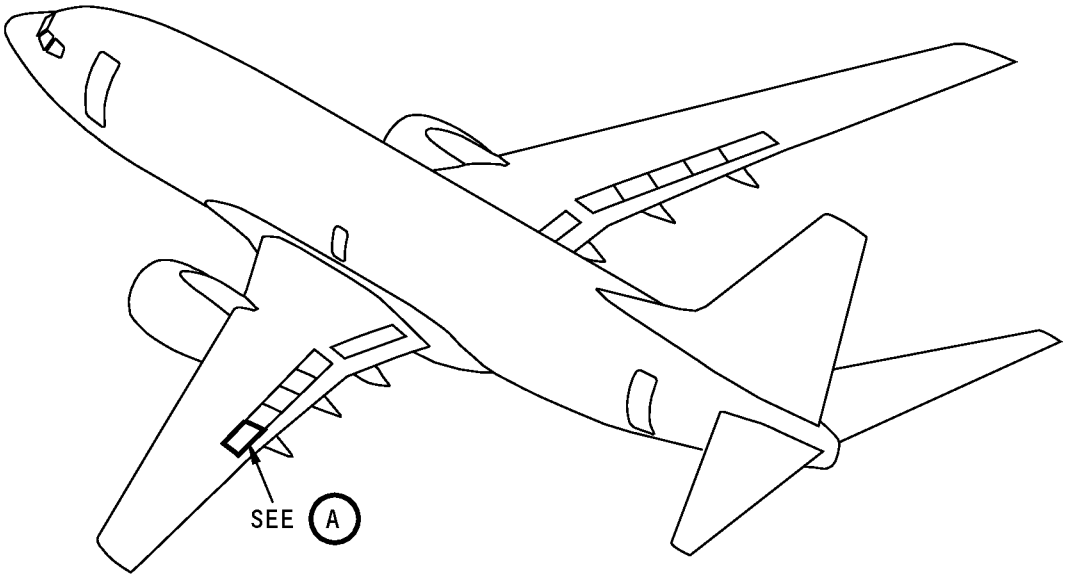

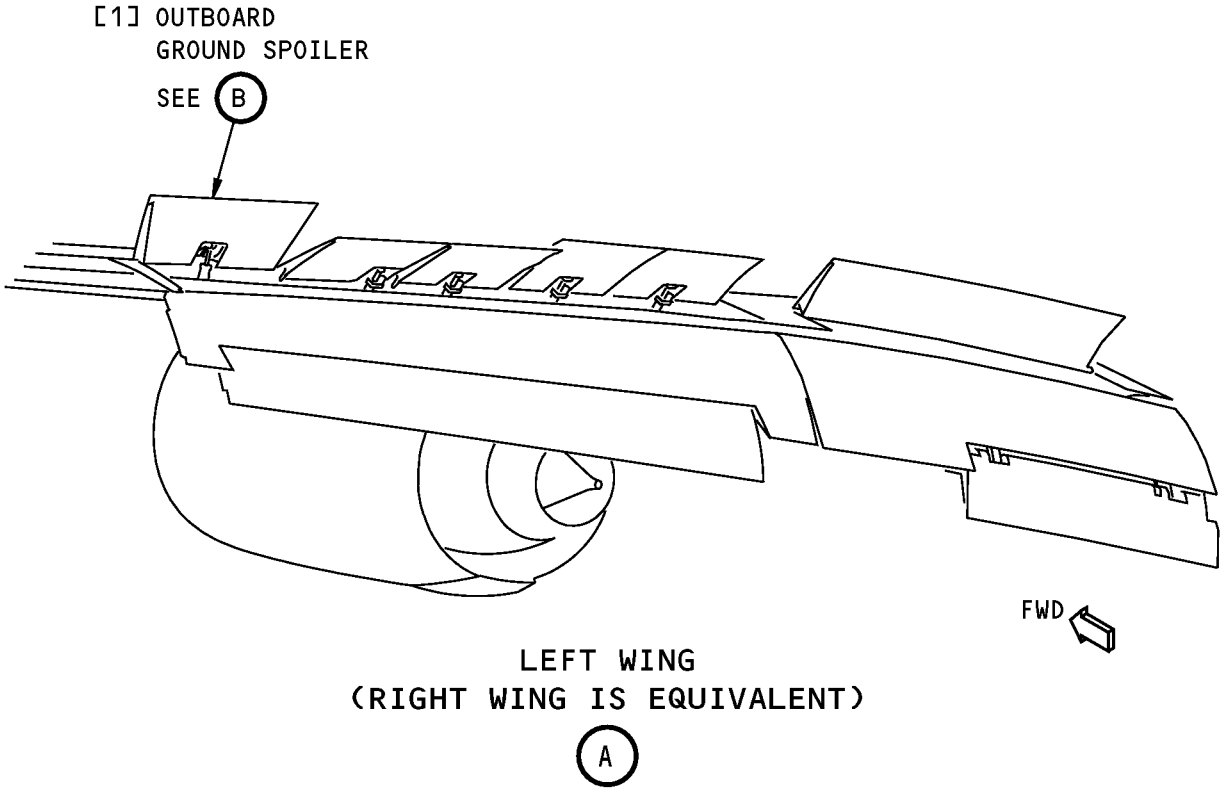

Outboard Ground Spoiler Actuator Installation
Figure 401 (Sheet 1 of 3)/27-62-94-990-801

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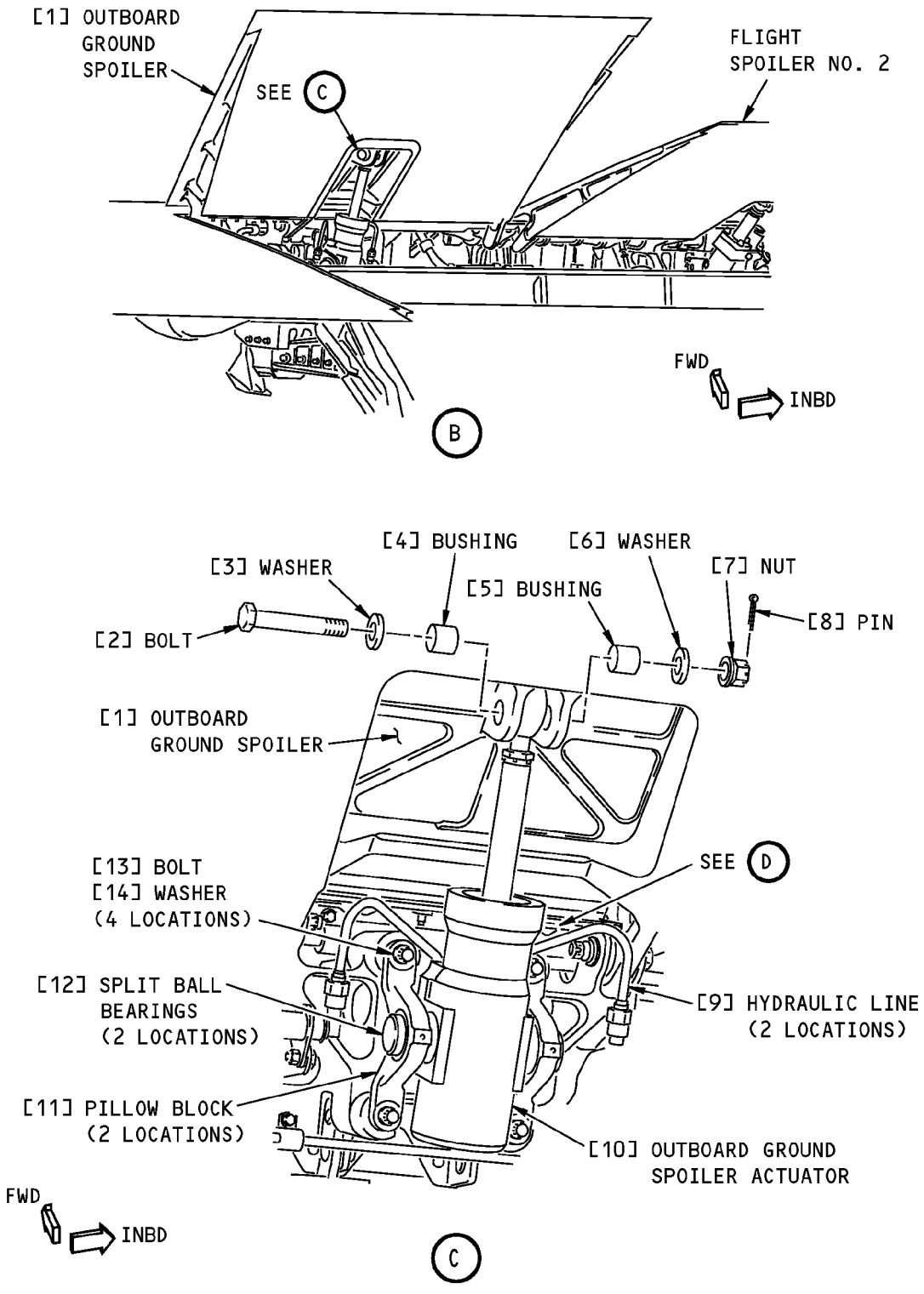

Outboard Ground Spoiler Actuator Installation
Figure 401 (Sheet 2 of 3)/27-62-94-990-801

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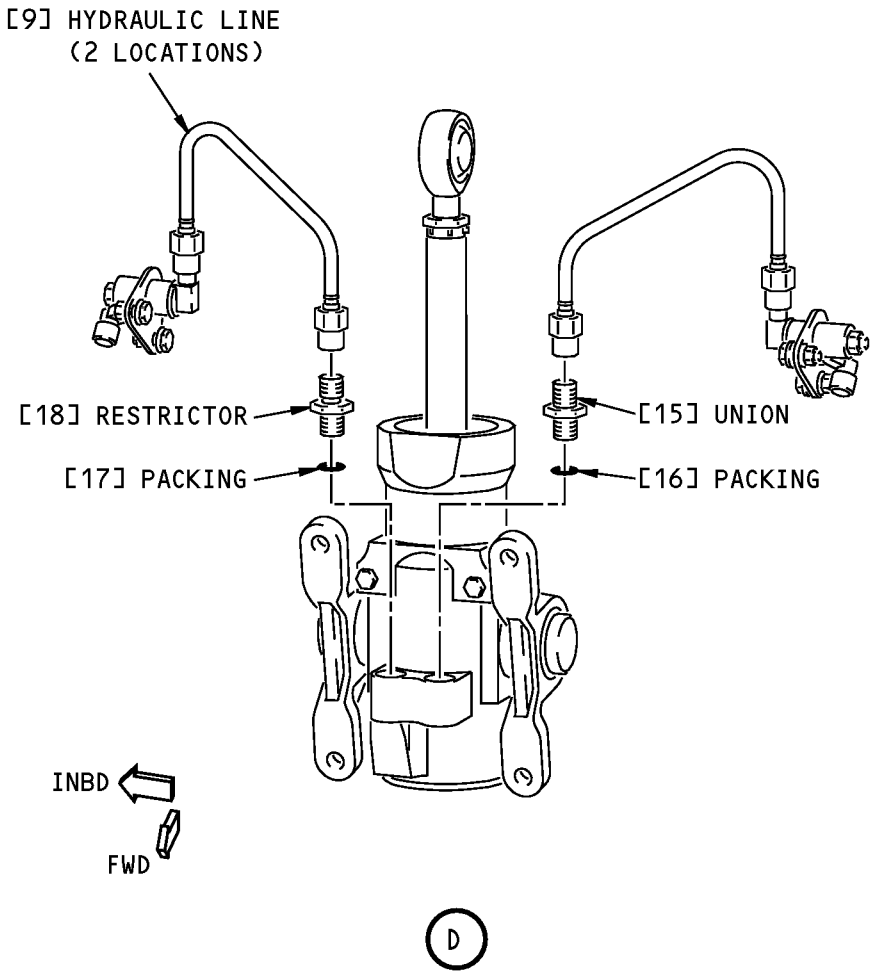

Outboard Ground Spoiler Actuator Installation
Figure 401 (Sheet 3 of 3)/27-62-94-990-801

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TASK 27-62-94-400-801

3. Outboard Ground Spoiler Actuator Installation

(Figure 401)

A. References

Reference	Title
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)
27-62-00-820-804	Ground Spoiler Adjustment (P/B 501)
27-62-00-840-801	Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-840-802	Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal (P/B 201)
27-62-91-000-802	Outboard Ground Spoiler Test (P/B 401)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)
D00633	Grease - Aircraft General Purpose	BMS3-33

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
8	Pin	27-62-94-01-125	HAP ALL
10	Actuator assembly	27-62-94-01-155	HAP ALL
16	Packing	27-62-94-01-180	HAP ALL
17	Packing	27-62-94-01-180	HAP ALL

D. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
566	Left Wing - Spoiler No. 1
666	Right Wing - Spoiler No. 12

E. Actuator Installation

SUBTASK 27-62-94-420-001

(1) Connect the hydraulic lines [9]:

(a) Remove the caps from the hydraulic ports.

(b) Apply MCS 352B fluid, D00054 or fluid, D00153 to the packing [16], packing [17], union [15] and restrictor [18].

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(c) Install the packing [16], packing [17], union [15], and restrictor [18] in the actuator assembly [10].

SUBTASK 27-62-94-420-002

(2) Install the actuator assembly [10]:

(a) Put the actuator assembly [10] in its position and make sure the hydraulic lines [9] align with the fittings.

(b) Install pillow blocks [11] on the actuator assembly [10]:

1) Apply grease, D00633 to the split ball bearings [12].

2) Assemble the split ball bearings [12].

3) Install split ball bearings [12] in pillow blocks [11].

4) Make sure the split ball bearings [12] move freely.

5) Apply compound, C00913 to the bolts [13].

6) Install the bolts [13] and washers [14].

7) Tighten the bolts [13] to 225-275 pounds-inches (25.4-31.1 newton-meters).

(c) Connect the piston rod to the ground spoiler [1]:

1) Apply grease, D00633 to all surfaces of the bolt [2], bushing [4] and bushing [5].

2) Install the bolt [2], washer [3], bushing [4], bushing [5] washer [6], nut [7] and pin [8] in the piston rod.

3) Tighten the nut [7] to 660-780 pound-inches (74.6-88.1 newton-meters).

SUBTASK 27-62-94-420-003

(3) Connect the hydraulic lines [9] to the actuator assembly [10]:

(a) Remove the plugs from the hydraulic lines [9].

(b) Connect the hydraulic lines [9] to the actuator assembly [10].

(c) Tighten the hydraulic fittings.

SUBTASK 27-62-94-860-007

(4) Do this task: Put the Speed Brake Systems A and B Back to the Condition Before the Pressure Removal, TASK 27-62-00-840-802.

SUBTASK 27-62-94-860-008

(5) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

SUBTASK 27-62-94-870-001

(6) Move the speed brake control lever to bleed the spoiler actuators.

SUBTASK 27-62-94-700-001

(7) Make sure there is no leakage of hydraulic fluid at the actuator assembly [10].

SUBTASK 27-62-94-820-001

(8) Do this task: Ground Spoiler Adjustment, TASK 27-62-00-820-804.

SUBTASK 27-62-94-820-002

(9) Do this task: Outboard Ground Spoiler Test, TASK 27-62-91-000-802.

F. Put the Airplane Back to Its Usual Condition.

SUBTASK 27-62-94-860-009

(1) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

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SUBTASK 27-62-94-860-010

(2) Move the speed brake lever to the DOWN position to the lower the spoilers.

SUBTASK 27-62-94-860-011

(3) Do this task: Put the Speed Brake Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-62-00-840-801.

SUBTASK 27-62-94-860-012

(4) Put the SPOILER A and B switches in the ON position.

———————— END OF TASK ————————

TASK 27-62-94-000-802

4. Outboard Ground Spoiler Actuator Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-61-00-840-801	Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization (P/B 201)
27-62-00-800-801	Speed Brake Hydraulic Systems A and B Pressurization (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)

C. Location Zones

Zone	Area
210	Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50
566	Left Wing - Spoiler No. 1
666	Right Wing - Spoiler No. 12

D. Prepare for the Test

SUBTASK 27-62-94-860-013

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-62-94-860-014

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDERS, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Speed Brake Hydraulic Systems A and B Pressurization, TASK 27-62-00-800-801.

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SUBTASK 27-62-94-480-002

(3) Install the protractor, COM-1691 on the outboard ground spoilers 1 and 12.

SUBTASK 27-62-94-820-003

(4) Adjust the protractor, COM-1691 to zero.

E. Outboard Ground Spoiler Actuator Functional Test

SUBTASK 27-62-94-020-005

(1) Move the speed brake lever to the UP position to lift the spoilers.

SUBTASK 27-62-94-020-006

(2) Make sure the spoilers No. 1 and 12 are 60 +/-2 degrees up from the retracted position.

SUBTASK 27-62-94-020-007

(3) Make sure the ground spoilers No. 1 and 12 align in the limit of 2 degrees.

SUBTASK 27-62-94-020-008

(4) Move the speed brake lever to the DOWN position to lower the spoilers.

SUBTASK 27-62-94-820-004

(5) Make sure the spoilers move to the fully retracted position.

SUBTASK 27-62-94-410-001

(6) Put the Airplane Back to Its Usual Condition

(a) Do this task: Put the Spoiler Hydraulic systems A and B Back to the Condition Before the Pressurization, TASK 27-61-00-840-801.

(b) Remove the protractor, COM-1691 from the spoilers No. 1 and 12.

——————— END OF TASK ———————

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OUTBOARD GROUND SPOILER ACTUATOR - INSPECTION/CHECK

1. General

A. This task supplies the data for a dimensional inspection of the outboard ground spoiler actuator.

B. This task does not remove or install the outboard ground spoiler actuator, refer to the Outboard Ground Spoiler Actuator - Removal/Installation for procedures to remove and install the outboard ground spoiler actuator.

TASK 27-62-94-200-801

2. Outboard Ground Spoiler Actuator Inspection

(Figure 601)

A. General

(1) This procedure gives wear limits and repair data for the outboard ground spoiler actuator.

B. References

Reference	Title
27-62-94-000-801	Outboard Ground Spoiler Actuator Removal (P/B 401)
27-62-94-400-801	Outboard Ground Spoiler Actuator Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
566	Left Wing - Spoiler No. 1
666	Right Wing - Spoiler No. 12

E. Procedure

SUBTASK 27-62-94-020-009

(1) Remove the outboard ground spoiler actuator. To remove it, do this task: Outboard Ground Spoiler Actuator Removal, TASK 27-62-94-000-801.

SUBTASK 27-62-94-020-010

(2) Use these tools to check for wear on the parts of the outboard ground spoiler actuator:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097

SUBTASK 27-62-94-020-011

(3) Examine the parts of the outboard ground spoiler actuator for worn areas:

(a) Remove the parts to be checked.

(b) Measure the bolts, bearing, and bushings as necessary with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions that follow.

(d) If the parts are not in the tolerance, replace the part as required.

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Table 601/27-62-94-993-801 WEAR LIMITS TABLE

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 BUSHING	I.D.	0.7500 in 19.05 mm	0.7515 in 19.09 mm	0.7535 in 19.14 mm	0.0050 in 0.13 mm
#1 BUSHING	O.D.	0.7485 in 19.01 mm	0.7490 in 19.02 mm	0.7470 in 18.97 mm	
#2 BUSHING	I.D.	0.6245 in 15.86 mm	0.6250 in 15.88 mm	0.6255 in 15.89 mm	0.0025 in 0.06 mm
#2 BOLT	O.D.	0.6230 in 15.82 mm	0.6240 in 15.85 mm	0.6226 in 15.81 mm	
#3 BEARING	I.D.	0.6245 in 15.86 mm	0.6250 in 15.88 mm	0.6255 in 15.89 mm	0.0025 in 0.06 mm
#3 BOLT	O.D.	0.6230 in 15.82 mm	0.6240 in 15.85 mm	0.6226 in 15.81 mm	

SUBTASK 27-62-94-020-012

(4) Install the outboard ground spoiler actuator. To install it, do this task: Outboard Ground Spoiler Actuator Installation, TASK 27-62-94-400-801.

——————— END OF TASK ———————

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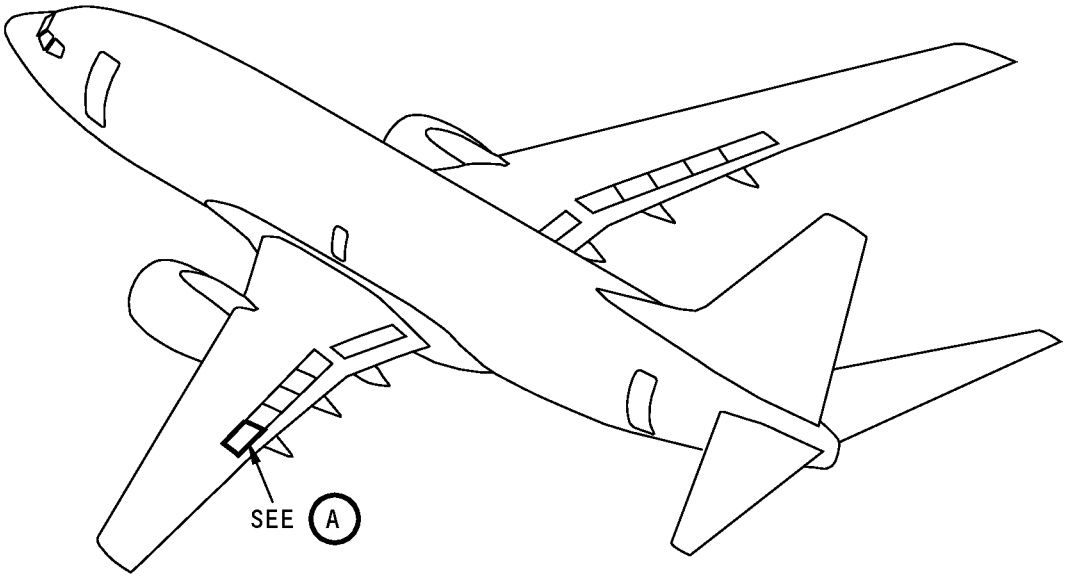

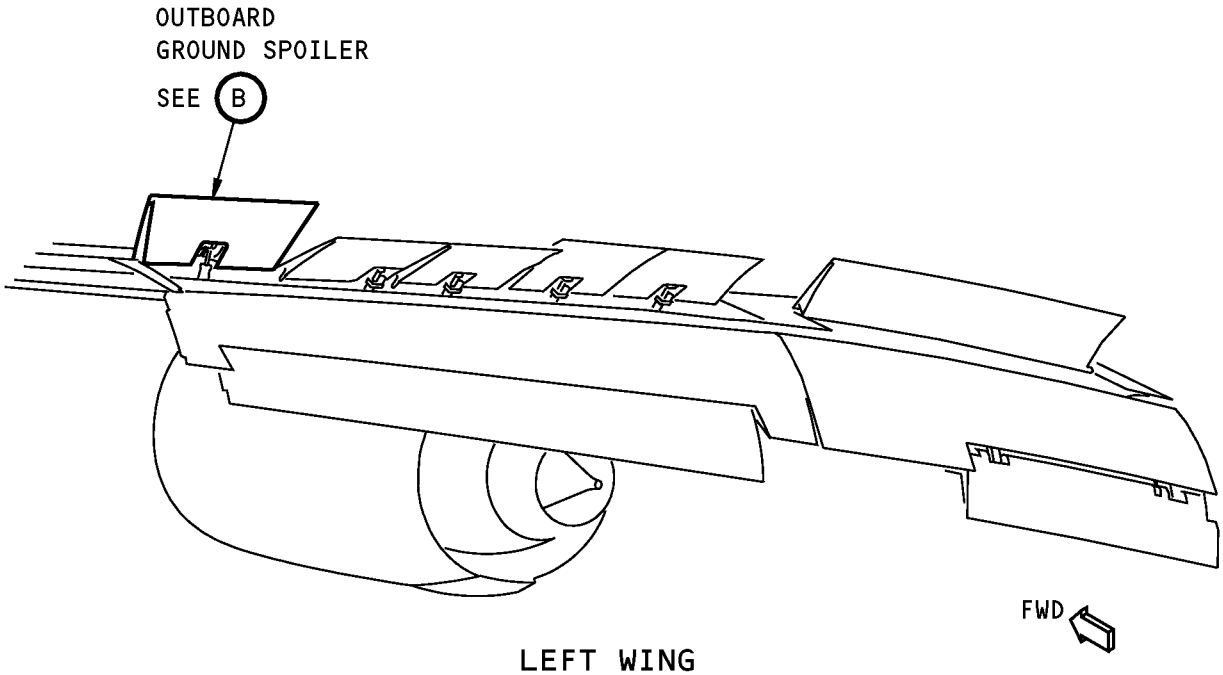

LEFT WING
(RIGHT WING IS EQUIVALENT)

A

Outboard Ground Spoiler Actuator Wear Limits
Figure 601 (Sheet 1 of 2)/27-62-94-990-802

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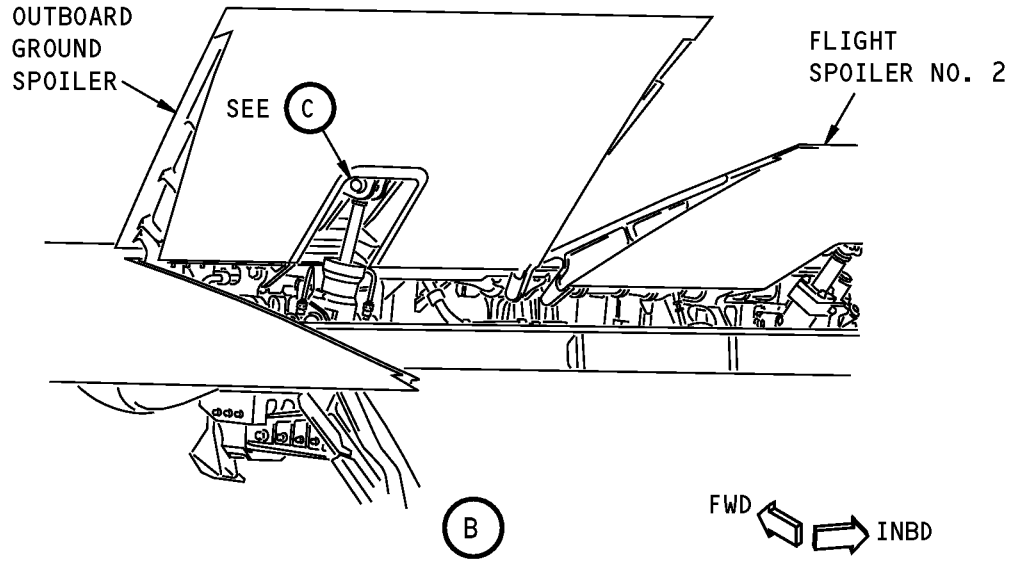

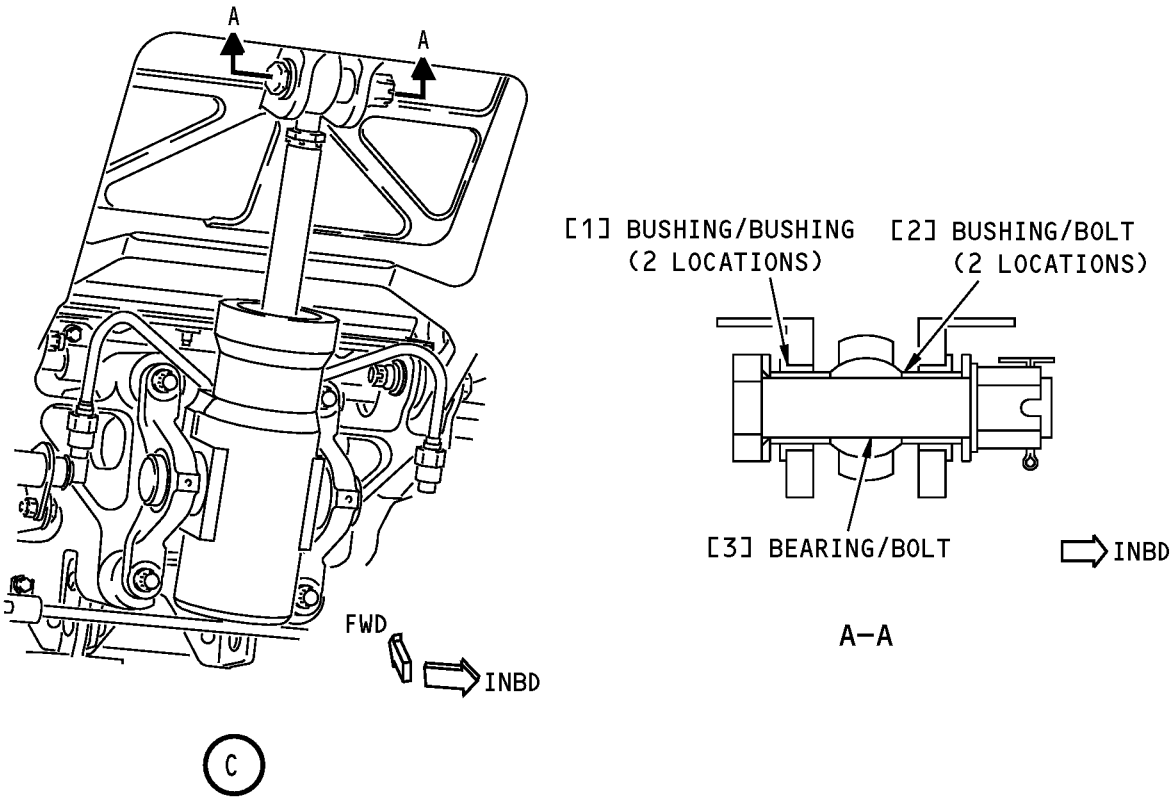

Outboard Ground Spoiler Actuator Wear Limits
Figure 601 (Sheet 2 of 2)/27-62-94-990-802

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LEADING EDGE FLAP AND SLAT CONTROL SYSTEM - MAINTENANCE PRACTICES

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure contains these tasks for the leading edge (LE) flap and slat control system:

(1) A task to deactivate the leading edge flaps and slats

(2) A task to reactivate the leading edge flaps and slats

(3) A task to operate the leading edge flaps and slats with primary control

(4) A task to operate the leading edge flaps and slats with alternate control

(5) A task to extend the leading edge flaps and slats

(6) A task to retract the leading edge flaps and slats

(7) A task to install the leading edge flap and slat locks

(8) A task to remove the leading edge flap and slat locks

TASK 27-81-00-040-801

2. Deactivate the Leading Edge Flaps and Slats

A. General

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Before you do maintenance on the leading edge flaps and slats, you must deactivate the leading edge control surfaces. This is to prevent injury to persons and damage to equipment because of accidental operation of the leading edge control surfaces.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-860-804	Retract the Trailing Edge Flaps (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-21-00-000-802	Standby Hydraulic System Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)
SPL-1746	Tool - Lockout, LE Shutoff Valves (Part #: C27038-6, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

E. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

F. Prepare for the Deactivation

SUBTASK 27-81-00-860-097

(1) Make sure the trailing edge flaps and the leading edge flaps and slats are in the retracted position. If they are not in the retracted position, do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

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SUBTASK 27-81-00-860-057

(2) If hydraulic systems A and B are pressurized, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-00-860-058

(3) If the standby hydraulic system is pressurized, do this task: Standby Hydraulic System Power Removal, TASK 29-21-00-000-802.

G. Deactivate the Leading Edge Flaps and Slats in the Retract (UP) Position

SUBTASK 27-81-00-480-009

WARNING: MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801

SUBTASK 27-81-00-210-001

(2) Attach a DO-NOT-OPERATE tag on the flap control lever and the ALTERNATE FLAPS switches.

SUBTASK 27-81-00-860-002

(3) Move the manual override handle on the LE cruise depressurization valve to the OFF position (Figure 201):

(a) If the valve has a tab, then cut the tab from the valve (SB 27-1242). This will prevent possible personnel injury.

(b) Remove the lockwire from the manual override handle on the LE cruise depressurization valve.

(c) Move the manual override handle on the LE cruise depressurization valve to the OFF position.

NOTE: Do not force movement of the handle with tools.

(d) If you cannot move the manual override handle, use the FSEU to operate the LE cruise depressurization valve:

1) To get access to the main equipment center, do this step:

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

3) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?

4) Push the NO button until OTHER FUNCTNS? shows on the display.

5) Push the YES button to select OTHER FUNCTNS? on the FSEU.

6) Push the YES button to select SET OUTPUTS? from the OTHER FUNCTNS? menu.

7) Push the YES button to select LE DEPR VALVE? from the SET OUTPUTS? menu.

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WARNING: MAKE SURE YOU MOVE THE MANUAL OVERRIDE HANDLE TO THE OFF POSITION AND INSTALL THE RIG PIN IN LESS THAN 75 SECONDS. THE FSEU WILL AUTOMATICALLY CHANGE THE POSITION OF THE VALVE AND THE OVERRIDE HANDLE AFTER 75 SECONDS. THE MANUAL OVERRIDE HANDLE CAN MOVE SUDDENLY AND CAUSE INJURY TO PERSONS.

8) Push the YES button at the SET ON? display.

NOTE: This will drive the valve to the closed position.

9) Move the manual override handle on the LE cruise depressurization valve to the OFF position.

NOTE: Do not force movement of the handle with tools.

10) If you still cannot move the manual override handle on the LE cruise depressurization valve, then do these steps :

a) Move the flaps and slats to the fully retracted position, if necessary.

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

b) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

c) Move the flap control lever to the UP position to retract the flaps and slats.

d) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

e) Use the FSEU to operate the valve again.

CAUTION: MAKE SURE THERE IS A -1003 VALVE INSTALLED ON THE AIRPLANE. THE OLDER -1001 VALVE WILL PERMIT MOVEMENT OF THE LEADING EDGE FLAPS AND SLATS, EVEN WITH THE LOCKOUT PIN SPL-1746 INSTALLED IN THE CRUISE DEPRESSURIZATION VALVE HANDLE WHEN HYDRAULIC POWER IS SUPPLIED. THIS CAN CAUSE DAMAGE TO THE AIRPLANE.

(e) Install the lockout pin tool, SPL-1746 in the manual override handle of the cruise depressurization valve to keep the handle in the OFF position.

(f) Attach a DO-NOT-REMOVE tag on the rig pin or tool, SPL-1746.

SUBTASK 27-81-00-860-062

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-81-00-480-001

(5) Install the lock, SPL-1675 on the standby hydraulic module to prevent LE devices extension by the standby hydraulic system. Do the steps that follow:

(a) Make sure the ALTERNATE FLAPS ARM switch is in the OFF position.

(b) Disconnect the electrical connector from the leading edge standby drive shutoff valve.

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(c) Make sure the manual override lever at the leading edge standby drive shutoff valve is in the Position 1 (standby hydraulic power OFF) .

(d) WARNING: MAKE SURE TO INSTALL THE GROUND LOCK ON THE STANDBY HYDRAULIC MODULE TO PREVENT ACCIDENTAL STANDBY SYSTEM OPERATION OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

Install the lock, SPL-1675 on the standby hydraulic module.

(e) Install the lockpin.

H. Deactivate the Leading Edge Flaps and Slats in the Full Extend Position

SUBTASK 27-81-00-480-010

(1) Install the lockout set, SPL-1734 to prevent retraction of the leading edge devices:

CAUTION: MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(a)

HAP 001-013, 015-026, 028-036, 101-999

If the leading edge flaps and slats are not in the full extend (10-unit) position, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

HAP 037-054

If the leading edge flaps and slats are not in the full extend (30-unit) position, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

HAP ALL

WARNING: MAKE SURE TO INSTALL THE LEADING EDGE FLAP AND SLAT ACTUATORS LOCKOUT SET TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) Install the lockout set, SPL-1734 on the extended actuators of the leading edge flaps and slats.

———————— END OF TASK ————————

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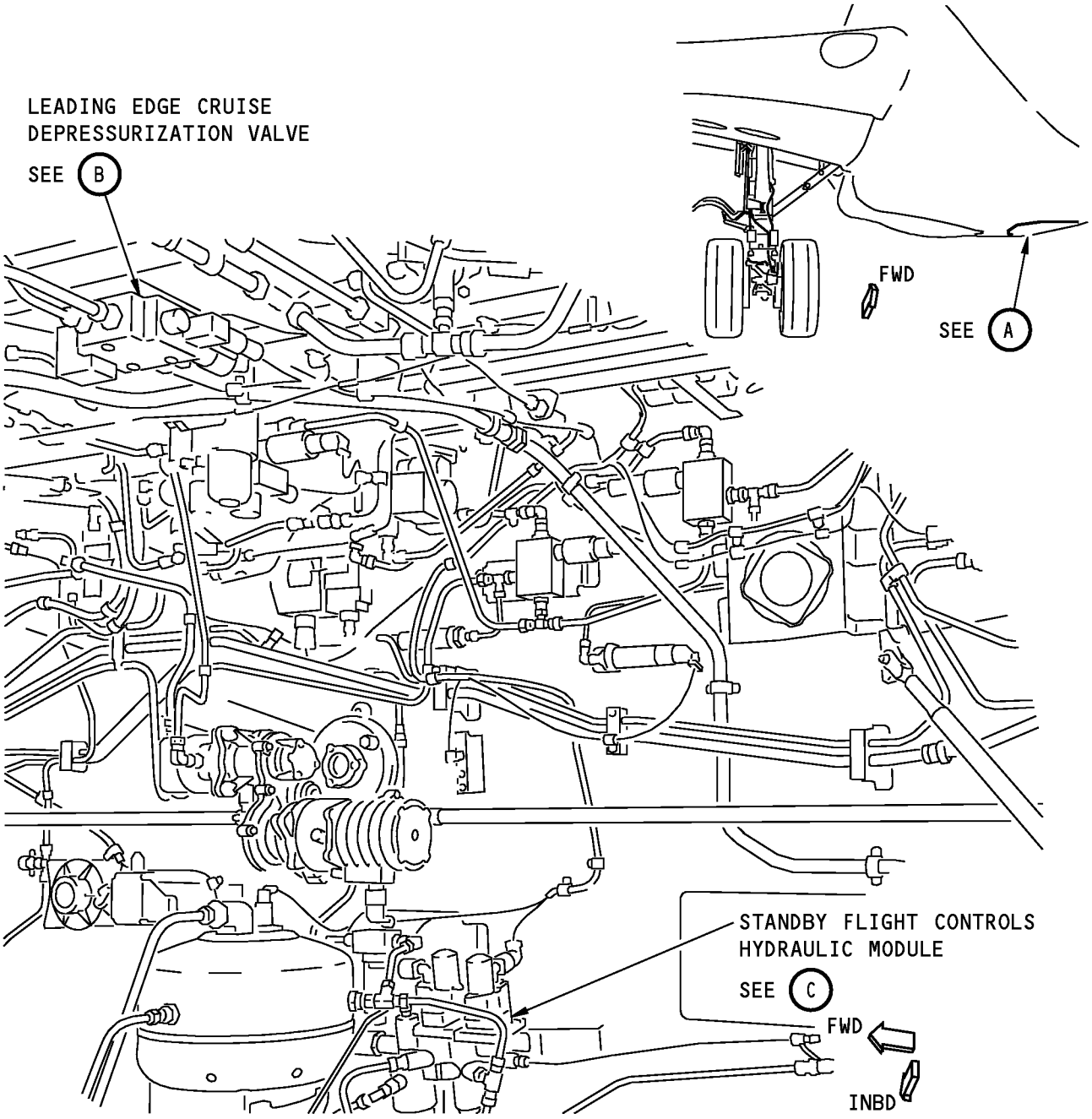

Leading Edge Cruise Depressurization Valve
Figure 201 (Sheet 1 of 4)/27-81-00-990-801

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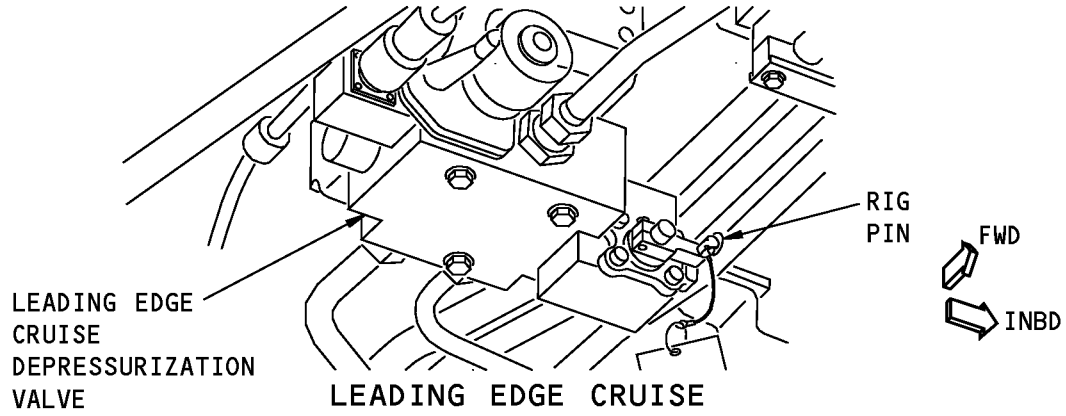
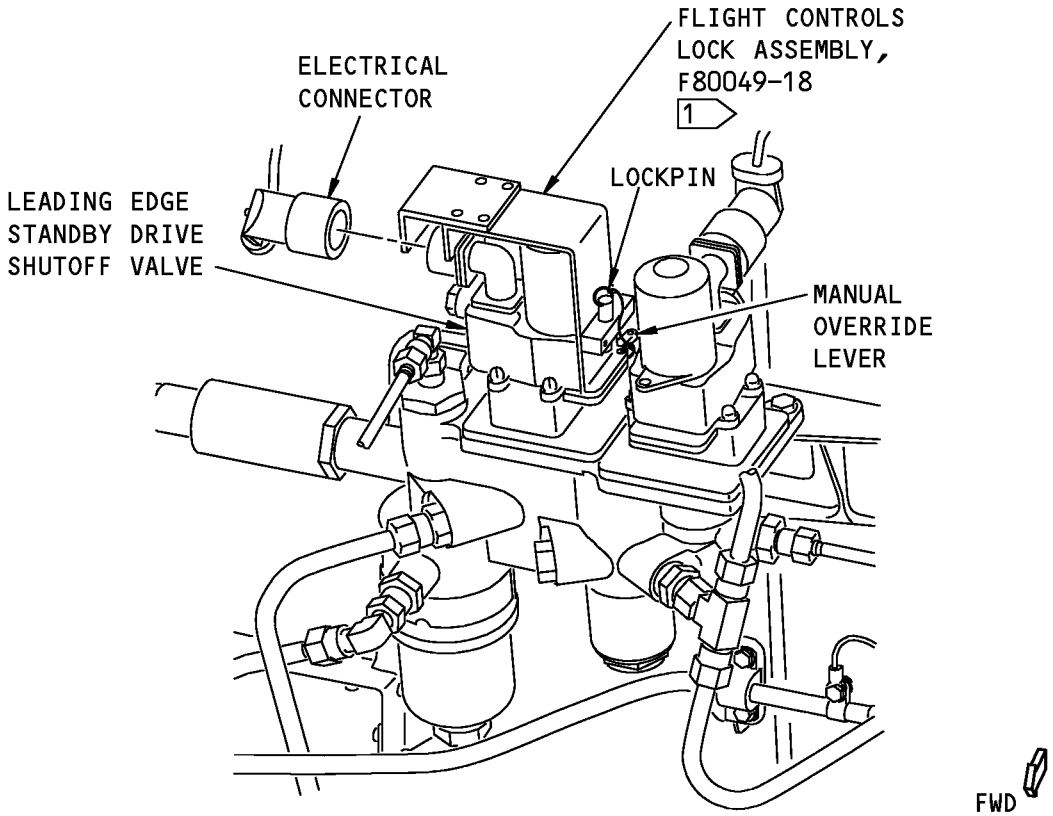


LEADING EDGE CRUISE
DEPRESSURIZATION VALVE
(EXAMPLE)

B



STANDBY FLIGHT CONTROLS
HYDRAULIC MODULE

C

1 F80049-12 OPTIONAL

1311567 S0000227685_V2

Leading Edge Cruise Depressurization Valve
Figure 201 (Sheet 2 of 4)/27-81-00-990-801

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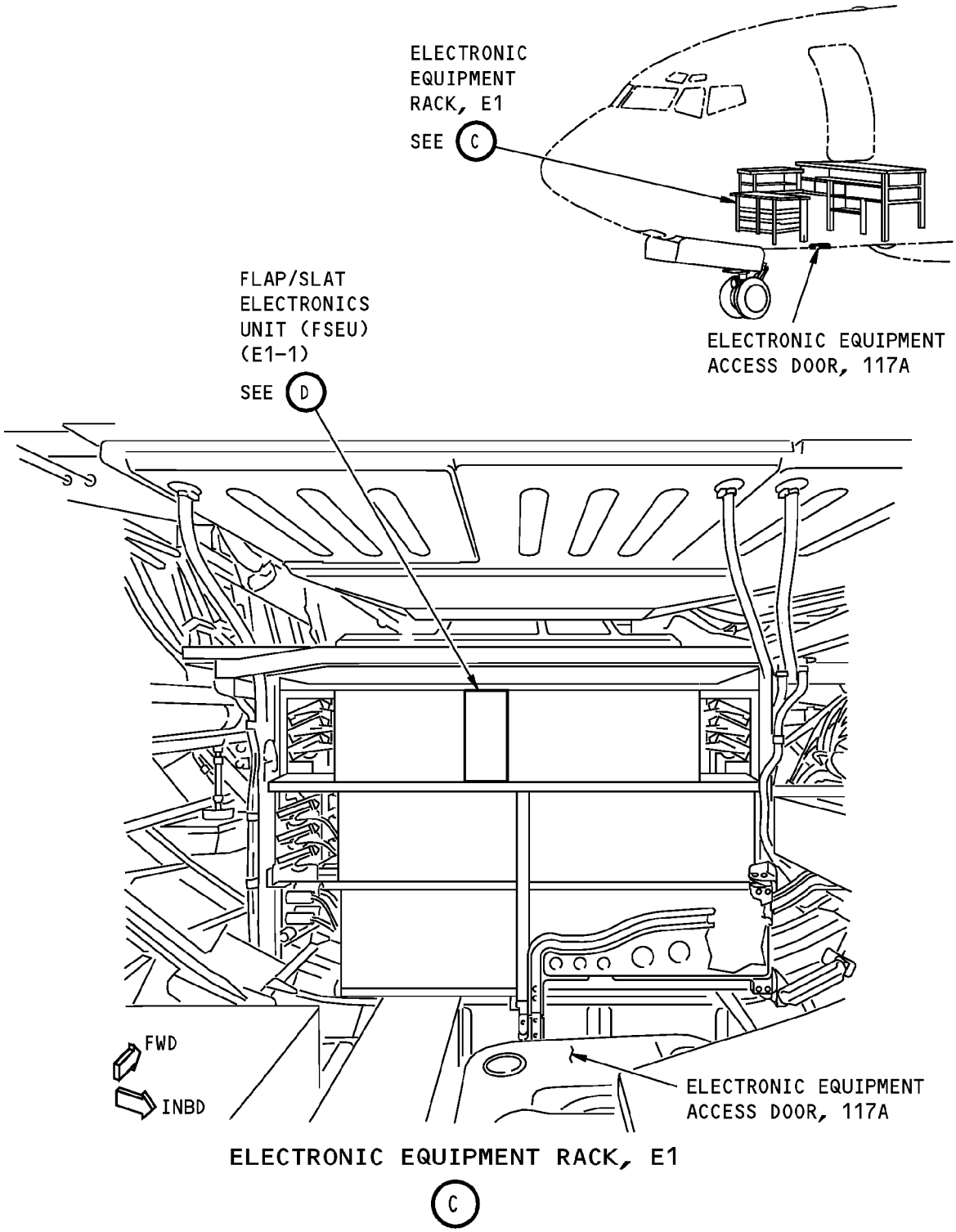

Leading Edge Cruise Depressurization Valve
Figure 201 (Sheet 3 of 4)/27-81-00-990-801

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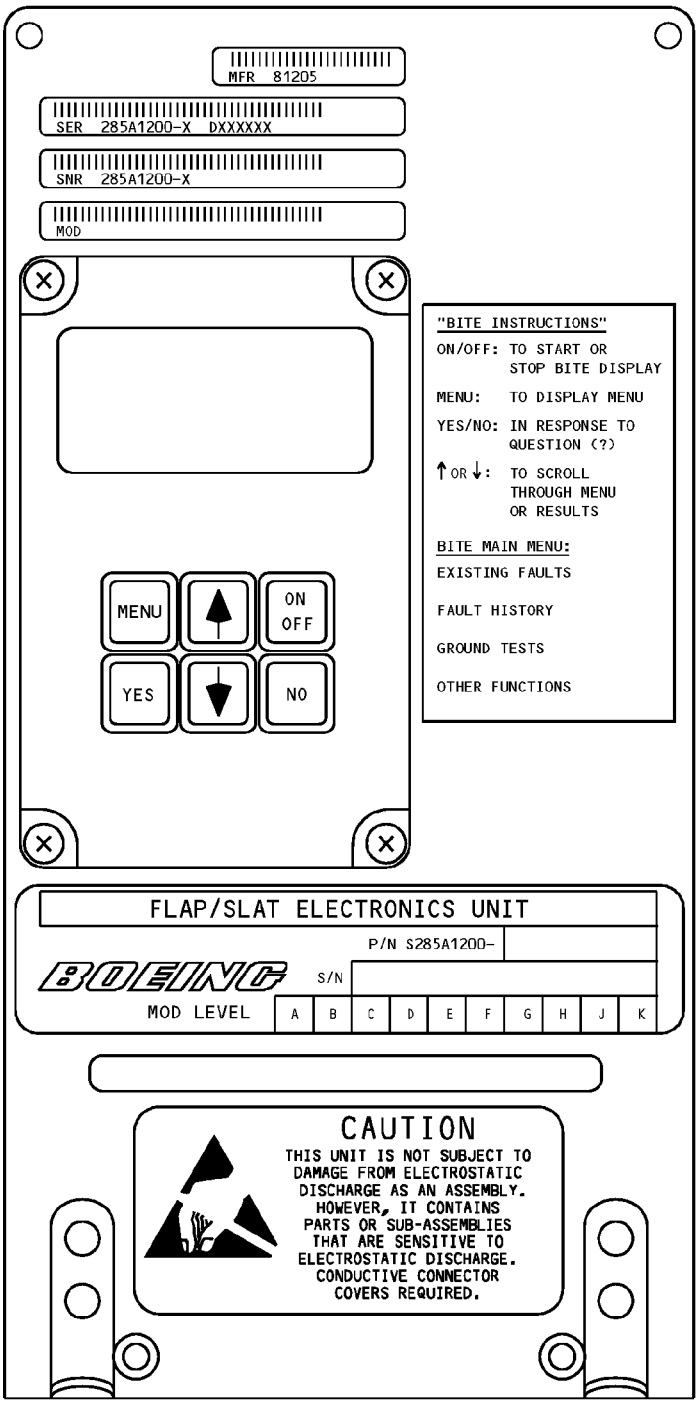

FLAP/SLAT ELECTRONICS UNIT (FSEU)

(D)

Leading Edge Cruise Depressurization Valve
Figure 201 (Sheet 4 of 4)/27-81-00-990-801

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TASK 27-81-00-440-801

3. Reactivate the Leading Edge Flaps and Slats

A. General

(1) If you do the deactivation procedure with the leading edge flaps and slats in the retract position, then do the steps to reactivate the leading edge flaps and slats in the retract position.

(2) If you do the deactivation procedure with the leading edge flaps and slats in the full extend position, then do the steps to reactivate the leading edge flaps and slats in the full extend position.

B. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)
SPL-1746	Tool - Lockout, LE Shutoff Valves (Part #: C27038-6, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

E. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

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F. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

G. Reactivate the Leading Edge Flaps and Slats In the Retract (UP) Position

SUBTASK 27-81-00-080-006

(1) Remove the lock, SPL-1675 from the standby hydraulic module Figure 202:

(a) Remove the lockpin.

(b) Remove the lock, SPL-1675 from the standby hydraulic module.

(c) Make sure the override lever at the leading edge standby drive shutoff valve is in the position 1.

(d) Before you connect the electrical connector, examine the connector for corrosion.

(e) If there was corrosion, refer to SWPM 20-60-03 to correct the problem.

(f) Apply the D5026NS or ZC-026 compound, G50171 to the connector SWPM 20-60-03.

(g) Connect the electrical connector to the leading edge standby drive shutoff valve.

(h) Remove the DO-NOT-OPERATE tag from the ALTERNATE FLAPS arm switch.

SUBTASK 27-81-00-020-001

(2) Remove the DO-NOT-REMOVE tag from the rig pin or tool, SPL-1746 in the manual override lever on the LE cruise depressurization valve.

SUBTASK 27-81-00-020-002

(3) Remove the rig pin or tool, SPL-1746 from the manual override lever on the LE cruise depressurization valve (Figure 201).

(a) Make sure the manual override lever moves from the OFF position to the ON position.

(b) Install lockwire on the manual override lever.

SUBTASK 27-81-00-020-003

(4) Remove the DO-NOT-OPERATE tags from the flap control lever and the ALTERNATE FLAPS switches.

SUBTASK 27-81-00-410-005

(5) If it is open, close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

H. Reactivate the Leading Edge Flaps and Slats In the Full Extend Position

SUBTASK 27-81-00-080-007

(1) Remove the lockout set, SPL-1734from the leading edge devices:

(a) If the hydraulic system B is pressurized, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

WARNING: REMOVE THE LOCK FROM LEADING EDGE FLAP ACTUATOR CAREFULLY TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(b) Remove the lockout set, SPL-1734 from the extended actuators of the leading edge flaps and slats.

(c) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

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I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-060

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

END OF TASK

TASK 27-81-00-860-801

4. Leading Edge Flap and Slat System Operation With Primary Control

A. General

(1) The primary control system uses the hydraulic system B to move the flaps and slats.

B. References

Reference	Title
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-81-00-860-004

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-00-860-005

HAP 001-013, 015-026, 028-036, 101-999

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR FROM THE LEADING EDGE FLAPS AND SLATS, AND THE TRAILING EDGE FLAPS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Move the flap control lever to the applicable detent position (Table 201).

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Table 201/27-81-00-993-803 Leading Edge (LE) Flap and Slat Position

Flap Control Lever Detent Position	LE Flap Position	LE Slat Position
UP	Retract	Retract
1 and 5	Full Extend	Extend
10 thru 40	Full Extend	Full Extend

HAP 037-054

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE MOVED AWAY FROM THE CONTROL SURFACES BEFORE YOU START MOVEMENT. THIS WILL PREVENT INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Move the flap control lever to the applicable detent position (Table 202).

Table 202/27-81-00-993-818 Leading Edge (LE) Flap and Slat Position

Flap Control Lever Detent Position	LE Flap Position	LE Slat Position
UP	Retract	Retract
1 thru 25	Full Extend	Extend
30 thru 40	Full Extend	Full Extend

HAP ALL

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-006

(1) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

TASK 27-81-00-860-802

5. Leading Edge Flap and Slat System Operation With Alternate Control

A. General

(1) This procedure is a scheduled maintenance task.

(2) The alternate control system uses electrical power to power the standby hydraulic system which moves the leading edge slats and flaps.

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B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-81-00-860-007

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-81-00-860-008

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS, AND THE TRAILING EDGE FLAPS. THESE SURFACES WILL MOVE AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Move the ALTERNATE FLAPS ARM switch on the P5 panel to the ARM position.

SUBTASK 27-81-00-860-009

(3) Move the ALTERNATE FLAPS control switch to the DOWN position to extend the flaps and slats as it is necessary.

NOTE: The leading edge flaps and slats will not retract with alternate control.

SUBTASK 27-81-00-860-010

(4) Move the ALTERNATE FLAPS control switch to the OFF position.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-011

WARNING: MAKE SURE THE POSITION OF THE FLAPS AND SLATS AGREES WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU PRESSURIZE THE HYDRAULIC SYSTEM B, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Move the ALTERNATE FLAPS control switch until the flaps and slats are in the same position as the flap control lever or move the flap control lever to the position of the flaps and slats.

SUBTASK 27-81-00-860-012

(2) Move the ALTERNATE FLAPS control switch to the OFF position.

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SUBTASK 27-81-00-860-013

(3) Move the ALTERNATE FLAPS ARM switch to the OFF position to disarm the alternate control system.

——————— END OF TASK ———————

TASK 27-81-00-860-803

6. Leading Edge Flaps and Slats Extension

A. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Procedure

SUBTASK 27-81-00-860-014

(1) Do one of these tasks to extend the leading edge flaps and slats:

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(a) To extend the flaps and slats with primary control, do this task: Leading Edge Flap and Slat System Operation With Primary Control, TASK 27-81-00-860-801.

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(b) To extend the flaps and slats with alternate control, do this task: Leading Edge Flap and Slat System Operation With Alternate Control, TASK 27-81-00-860-802.

——————— END OF TASK ———————

TASK 27-81-00-860-804

7. Leading Edge Flaps and Slats Retraction

A. General

(1) The leading edge flaps and slats will not retract with alternate control.

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

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(Continued)

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-81-00-860-015

(1) To retract the flaps and slats with primary control, do this task: Leading Edge Flap and Slat System Operation With Primary Control, TASK 27-81-00-860-801.

——————— END OF TASK ———————

TASK 27-81-00-480-801

8. Leading Edge Flap and Slat Locks Installation

A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

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C. Leading Edge Flap and Slat Locks Installation

SUBTASK 27-81-00-480-002

(1) Install the lockout set, SPL-1734 to prevent retraction of the leading edge devices:

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(a)

HAP 001-013, 015-026, 028-036, 101-999

If the leading edge flaps and slats are not in the full extend (10-unit) position, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

HAP 037-054

If the leading edge flaps and slats are not in the full extend (30-unit) position, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

HAP ALL

WARNING: MAKE SURE TO INSTALL THE LEADING EDGE FLAP AND SLAT ACTUATORS LOCKOUT SET TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) Install the lockout set, SPL-1734 on the extended actuators of the leading edge flaps and slats.

SUBTASK 27-81-00-480-003

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE DEVICES OPERATE BY SYSTEMS B OR THE POWER TRANSFER UNIT WITH SYSTEM A. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(2) Install the lock, SPL-1675 to prevent the movement of the leading edge devices by the standby hydraulic system (Figure 202).

(a) Make sure the ALTERNATE FLAP ARM switch is in the OFF position.

(b) Attach the DO-NOT-OPERATE tag on the ALTERNATE FLAPS ARM switch.

(c) Disconnect the electrical connector from the leading edge standby drive shutoff valve.

(d) Make sure the override lever at the leading edge standby drive shutoff valve is in the Position 1 (standby hydraulic power OFF).

WARNING: MAKE SURE TO INSTALL THE GROUND LOCK ON THE STANDBY HYDRAULIC MODULE TO PREVENT ACCIDENTAL STANDBY SYSTEM OPERATION OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(e) Install the lock, SPL-1675 on the standby hydraulic module.

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(f) Install the lockpin.

—————— END OF TASK ——————

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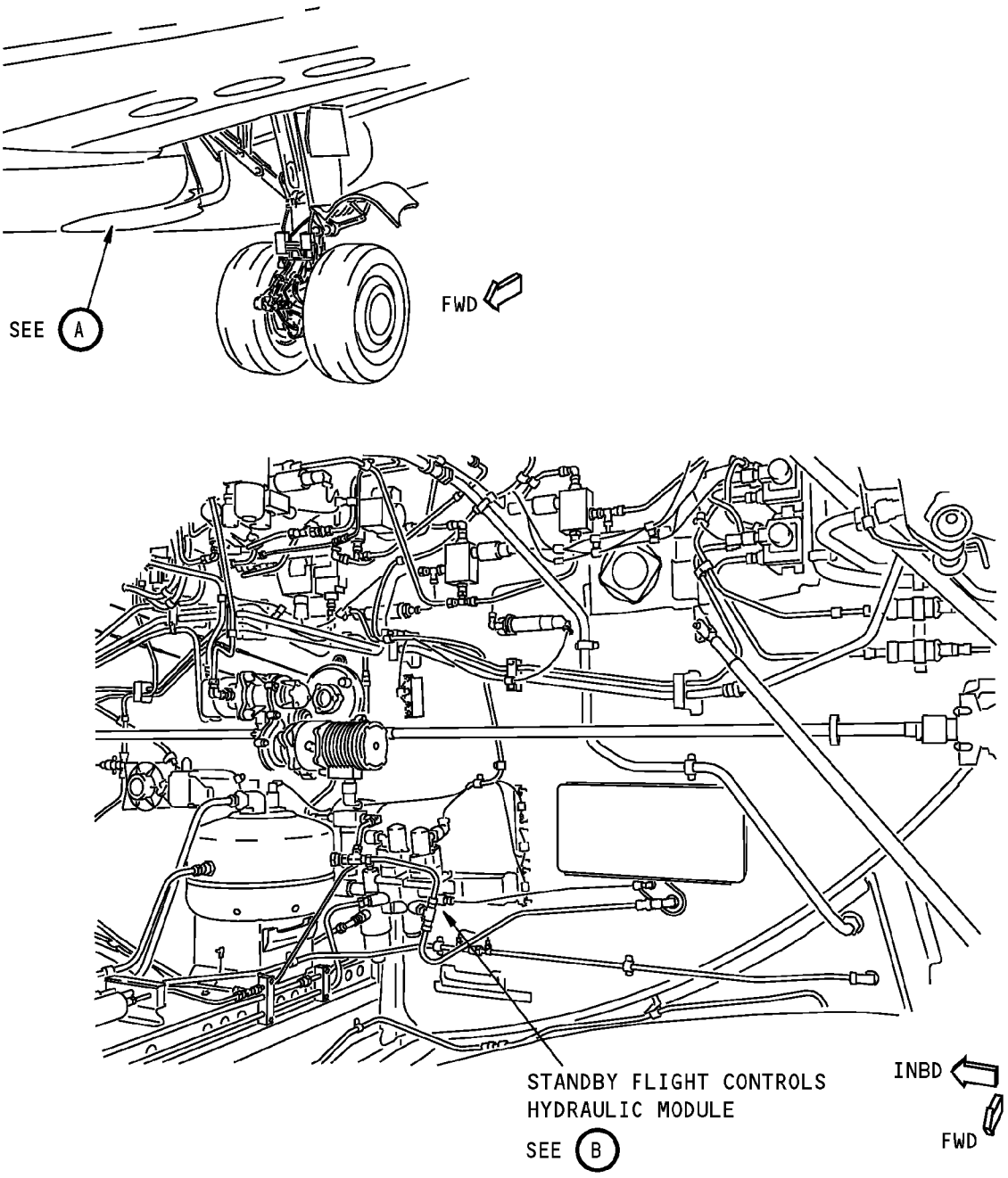

Hydraulic Module Lock Installation
Figure 202 (Sheet 1 of 2)/27-81-00-990-802

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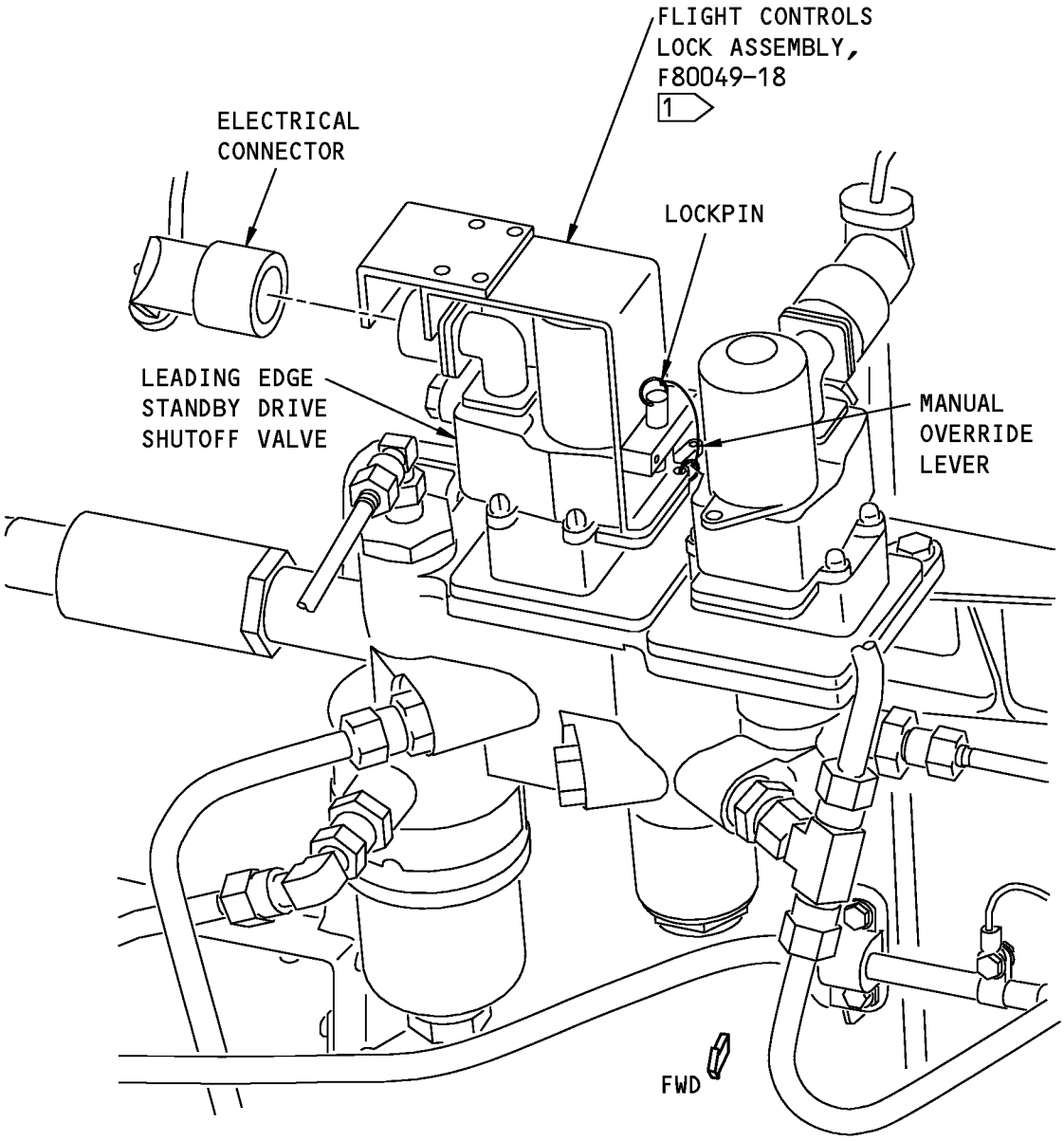

Hydraulic Module Lock Installation
Figure 202 (Sheet 2 of 2)/27-81-00-990-802

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TASK 27-81-00-080-801

9. Leading Edge Flap and Slat Locks Removal

A. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1675	Assembly - Lock, Flight Controls (used on valve p/n 10-60581-2) (Part #: F80049-18, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: F80049-12, Supplier: 81205, A/P Effectivity: 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

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E. Leading Edge Flap and Slat Locks Removal

SUBTASK 27-81-00-080-002

(1) Remove the lockout set, SPL-1734 from the leading edge devices:

(a) If the hydraulic system B is pressurized, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

WARNING: CAREFULLY REMOVE THE LEADING EDGE FLAP AND SLAT ACTUATORS LOCKOUT SET. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY IF YOU DO NOT REMOVE THE LOCKS CORRECTLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) Remove the lockout set, SPL-1734 from the extended actuators of the leading edge flaps and slats.

(c) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

SUBTASK 27-81-00-080-003

(2) Remove the lock, SPL-1675 from the standby hydraulic module (Figure 202):

(a) Remove the lockpin.

(b) Remove the lock, SPL-1675 from the standby hydraulic module.

(c) Make sure the override lever at the leading edge standby drive shutoff valve is in the position 1.

(d) Before you connect the electrical connector, examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(e) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(f) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(g) Connect the electrical connector to the leading edge standby drive shutoff valve.

(h) Remove the DO-NOT-OPERATE tag from the ALTERNATE FLAPS arm switch.

END OF TASK

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LEADING EDGE FLAP AND SLAT - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) An adjustment of the leading edge flaps

HAP 001-013, 015-026, 028-047, 054, 101-106 PRE SB 737-57A1302

(2) An adjustment of the leading edge actuators and main track downstops

HAP ALL

(3) An adjustment of the leading edge slats

(4) An operational test of the leading edge flaps and slats in primary mode

(5) A timing test of the leading edge flaps and slats in primary mode

(6) An opertional test of the leading edge flaps and slats in standby mode

(7) A timing test of the leading edge flaps and slats in standby mode

(8) A test of the leading edge cruise depressurization system

(9) A test of the leading edge uncommanded motion protection system

(10) A test of the standby hydraulic system leading edge uncommanded motion

TASK 27-81-00-820-801

2. Leading Edge Flaps Adjustment

(Figure 501)

A. References

Reference	Title
27-81-00-080-801	Leading Edge Flap and Slat Locks Removal (P/B 201)
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
27-81-00-860-803	Leading Edge Flaps and Slats Extension (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

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C. Consumable Materials

Reference	Description	Specification
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N~ C32 (QQ-N-281)

D. Location Zones

Zone	Area
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4

E. Prepare for the Adjustment

SUBTASK 27-81-00-860-016

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-00-860-017

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Move the flap control lever to the 1-unit detent position to extend the leading edge flaps.

SUBTASK 27-81-00-860-018

(3) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-00-480-004

WARNING: CAREFULLY INSTALL THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADINGE EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Install the lockout set, SPL-1734 on all the adjacent flaps that you will not adjust. To install the lockout set, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

F. Leading Edge Flaps Adjustment

SUBTASK 27-81-00-860-019

(1) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-81-00-860-020

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Move the flap control lever to the UP detent to retract the leading edge flaps.

SUBTASK 27-81-00-220-001

(3) Do a check of the full extend angle of the leading edge flap [1] or [2].

(a) Attach a protractor, COM-1691 to the inboard edge of the leading edge flap 1 [2] or outboard edge of the leading edge flap 2 [1].

(b) Set the protractor, COM-1691 to zero with the leading edge flaps retracted.

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(c) Move the flap control lever to the 1-unit detent to extend the leading edge flap.

(d) Make sure the full extend angle of the leading edge flap [1] or [2] is 98 +/- 0.5 degrees.

1) If the full extend angle is out of tolerance, do these steps to adjust the rod end [8] of the flap actuator [7];

a) Remove the pin [15], nut [14], washer [13], bushing [12], washer [11], and bolt [10] to disconnect the flap actuator [7] from the leading edge flap [1] or [2].

b) Loosen the nut [9] on the flap actuator [7].

c) Adjust the rod end [8] until you get the correct full extend angle.

NOTE: The limit for maximum adjustment is two full turns of the adjustment nut [8].

(e) Remove the protractor, COM-1691 from the inboard edge of the leading edge flap.

SUBTASK 27-81-00-220-002

(4) Make sure the mismatch between the inboard leading edge flap [1] and the outboard leading edge flap [2] is 0 +/- 0.040 inch (1.0 millimeters).

SUBTASK 27-81-00-860-021

(5) Apply preload at the flap bullnose to the leading edge flap [1] or [2].

(a) Make sure the flap bullnose touches the leading edge flap [1] or [2].

NOTE: To apply the correct preload, the flap bullnose must first touch the leading edge flap.

1) If the flap bullnose does not touch the leading edge flap [1] or [2], adjust the length of the flap rod.

(b) Adjust the flap rod an additional 1/2 turn to apply the correct preload at the flap bullnose to the leading edge flap [1] or [2].

(c) Install lockwire, G01912 on the flap rod.

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SUBTASK 27-81-00-860-022

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

SUBTASK 27-81-00-220-003

(7) Do a check of the gap and mismatch at the forward edge of the leading edge flap [1] or [2].

(a) Make sure the gap is 0.090 -0.030/+0.060 inch (2.3 -0.8/+1.5 millimeters).

Make sure the gap is 0.090 -0.030/+0.060 inch (2.3 -0.8/1.5 millimeters). For LH wing, the gap may be up to +0.160 inch for up to 20% of the total interface length.

Make sure the mismatch is -0.030 to +0.020 inch (-0.8 to +0.5 millimeters).

1) If it is necessary, adjust the mismatch dimension.

a) Loosen the nuts [3] to adjust the seal [4].

b) Adjust the seal [4] until you get the correct mismatch requirement.

c) Tighten the nuts [3].

SUBTASK 27-81-00-220-004

(8) Do a check of the gap and mismatch at the aft edge of the leading edge flap [1] or [2].

(a) Make sure the gap is 0.090 ±0.030 inch (2.3 ±0.8 millimeters) with a minimum gap of 0.050 inch (1.3 millimeters).

(b) Make sure the mismatch is -0.030 to +0.020 inch (-0.8 to +0.5 millimeters).

1) If the mismatch is out of tolerance, adjust the rod end [8] of the flap actuator [7] again.

SUBTASK 27-81-00-420-001

(9) If you made adjustment to the rod end [8] of the flap actuator [7], do these steps:

(a) Install the bolt [10], washer [11], bushing [12], washer [13] and nut [14] to connect the flap actuator [7] to the leading edge flap [1] or [2].

(b) Tighten the nut [14] to 660-980 pound-inches (74.6-110.7 newton-meters).

(c) Install the pin [15].

(d) Tighten the nut [9] to 550-650 pound-inches (62.1-73.4 newton-meters).

(e) Install the lockwire, G01912 on the nut [9].

SUBTASK 27-81-00-860-023

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(10) Extend the leading edge flaps to the 1-unit detent position with hydraulic power. To extend the leading edge flaps, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

SUBTASK 27-81-00-860-024

(11) Do a check of the flap panel clearances.

(a) For all but the aft 5 inches (127 millimeters) of the flap, make sure the gap between the inboard leading edge flap [1] and the outboard leading edge flap [2] is 0.060-0.150 inch (1.52-3.81 millimeters).

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(b) For the aft 5 inches (127 millimeters) of the flap, make sure the gap between the inboard leading edge flap [1] and the outboard leading edge flap [2] is 0.060-0.250 inch (1.52-6.35 millimeters).

SUBTASK 27-81-00-210-002

(12) If the flap panel clearances are out of tolerance, do a check of the wing and flap panel for damage or warpage.

NOTE: This check is to make sure that the flap and the wing align correctly. There is no adjustment that you can do.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-080-004

WARNING: CAREFULLY REMOVE THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADINGE EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Remove the lockout set, SPL-1734 from the leading flaps. To remove the lockout set, do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.

SUBTASK 27-81-00-860-025

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

END OF TASK

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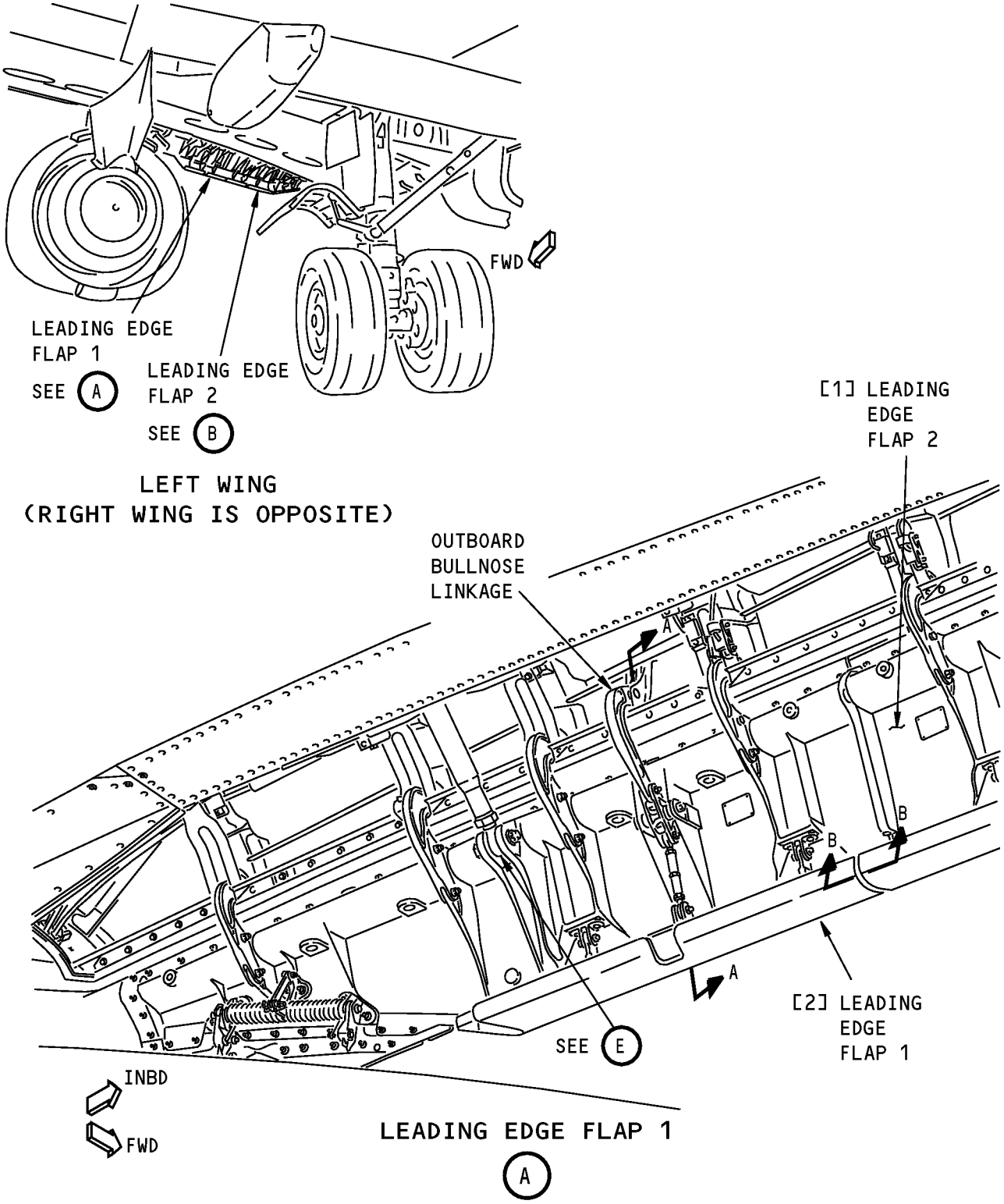

Leading Edge Flap Adjustment
Figure 501 (Sheet 1 of 5)/27-81-00-990-804

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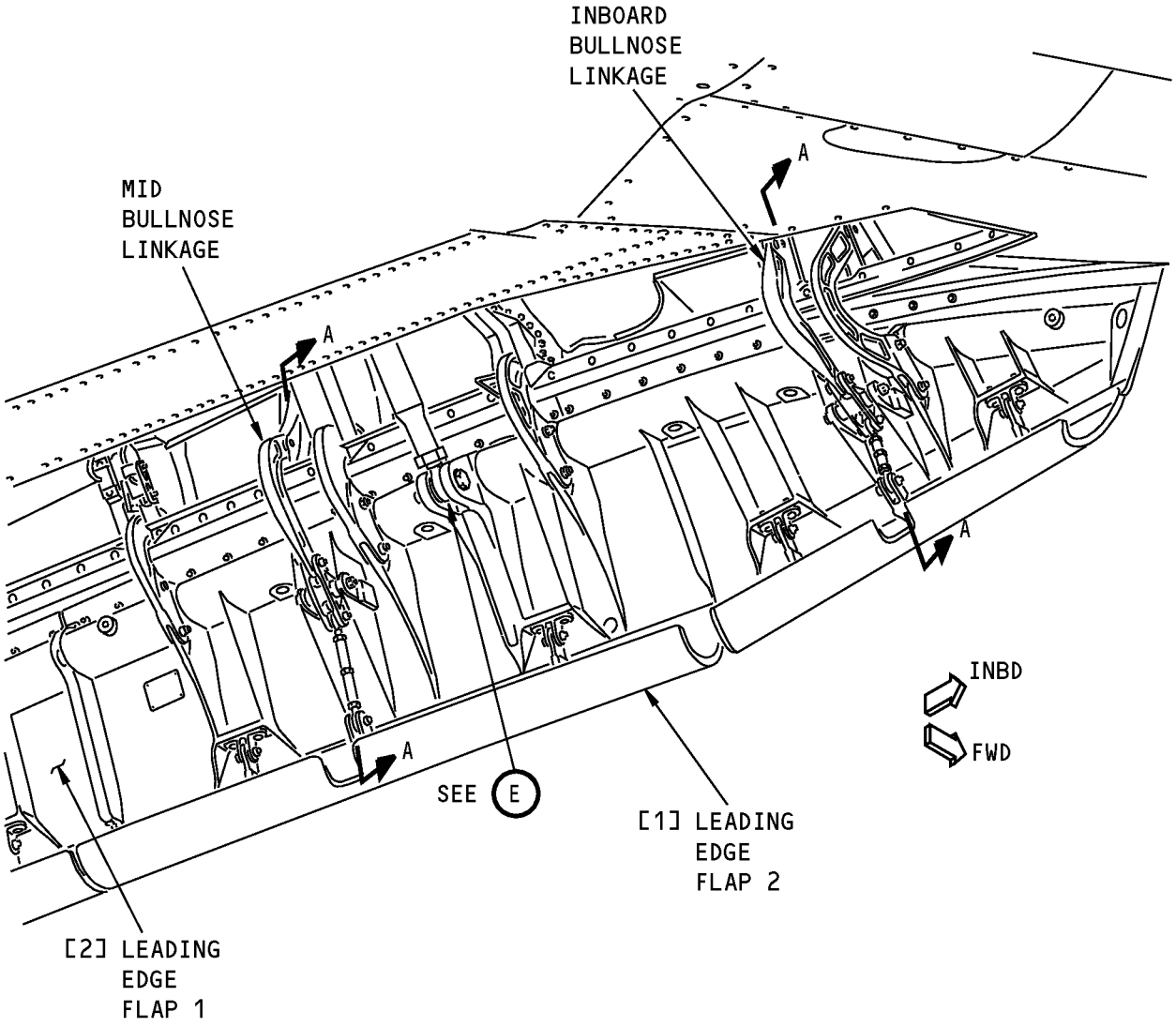

LEADING EDGE FLAP 2

B

Leading Edge Flap Adjustment
Figure 501 (Sheet 2 of 5)/27-81-00-990-804

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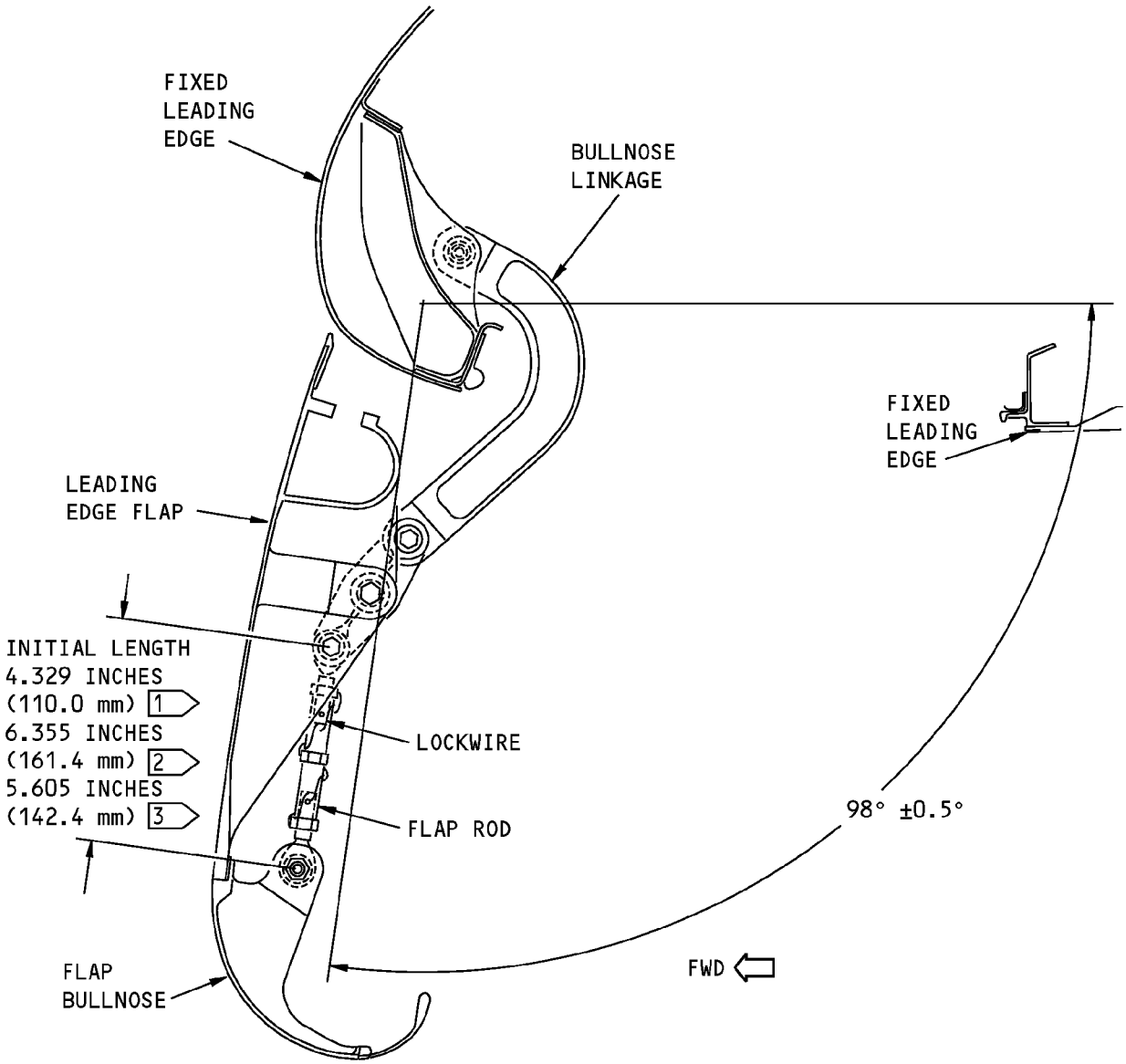

OUTBOARD BULLNOSE LINKAGE
(MID AND INBOARD BULLNOSE LINKAGES ARE EQUIVALENT)
(FLAP IS SHOWN EXTENDED)
A–A

1 INBOARD BULLNOSE LINKAGE

2 MID BULLNOSE LINKAGE

3 OUTBOARD BULLNOSE LINKAGE

Leading Edge Flap Adjustment
Figure 501 (Sheet 3 of 5)/27-81-00-990-804

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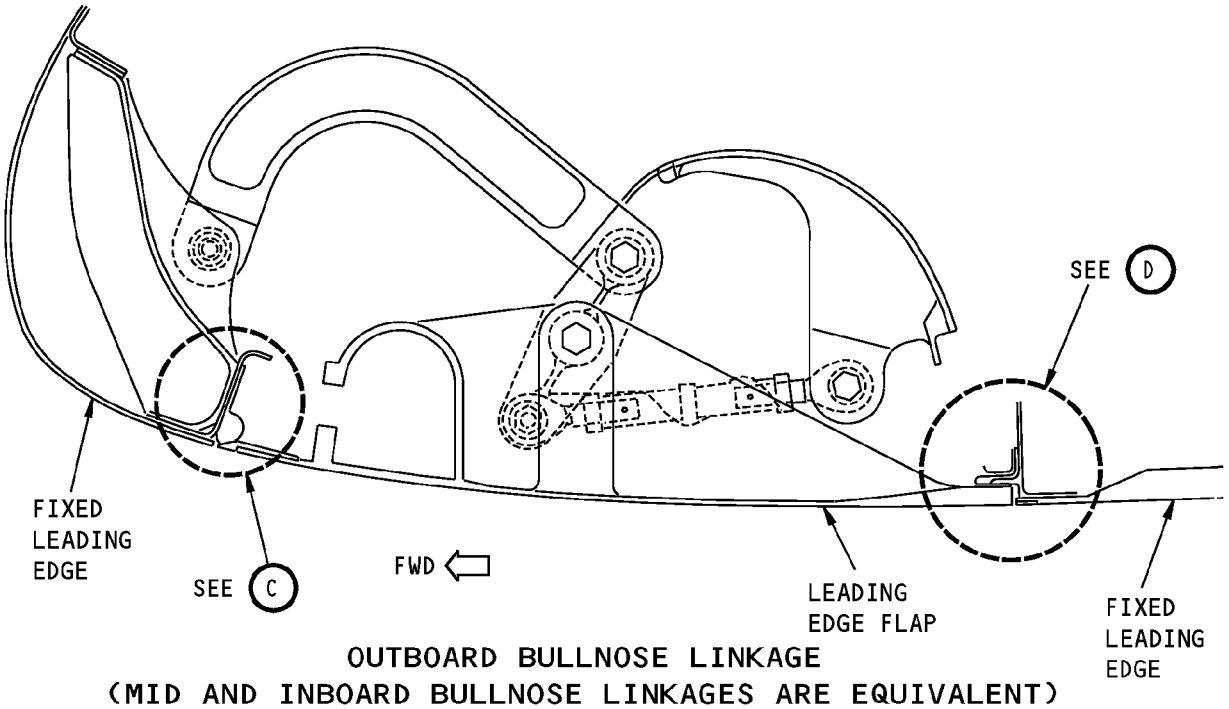
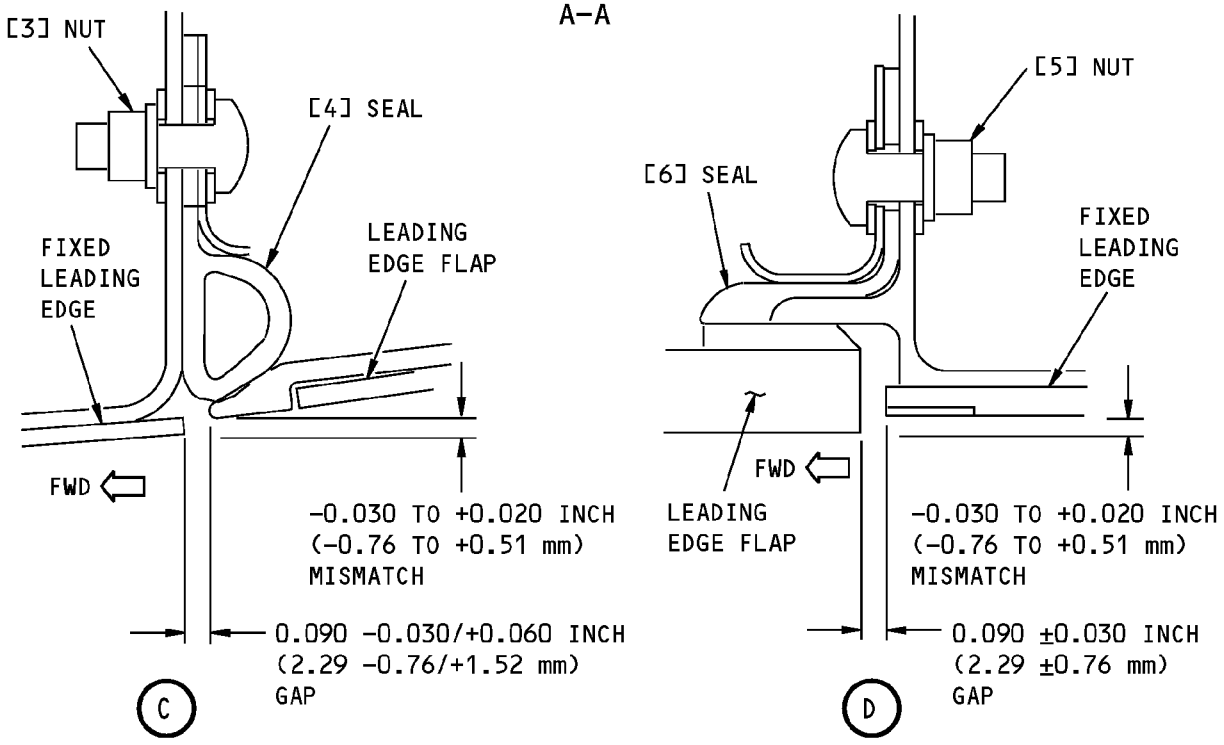


OUTBOARD BULLNOSE LINKAGE
(MID AND INBOARD BULLNOSE LINKAGES ARE EQUIVALENT)
(FLAP IS SHOWN RETRACTED)

A-A



Leading Edge Flap Adjustment
Figure 501 (Sheet 4 of 5)/27-81-00-990-804

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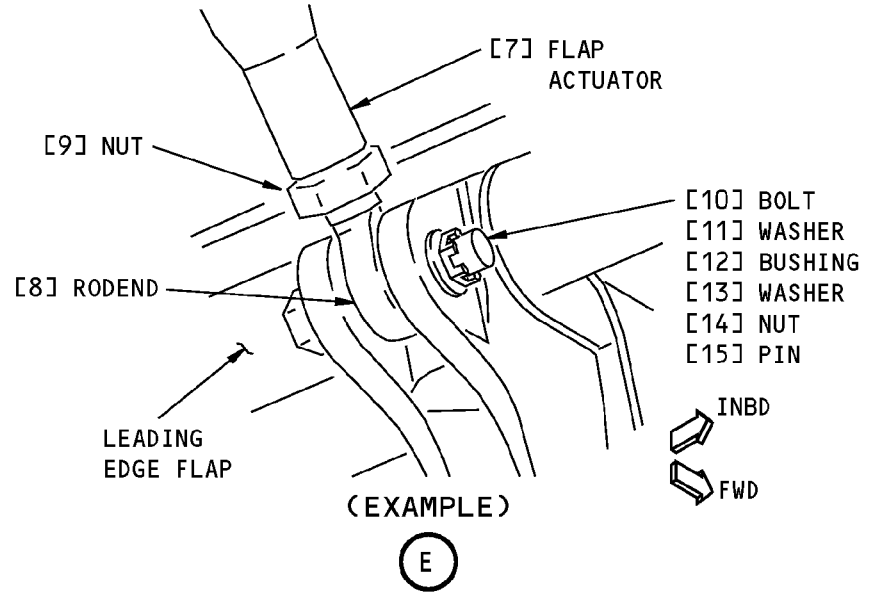
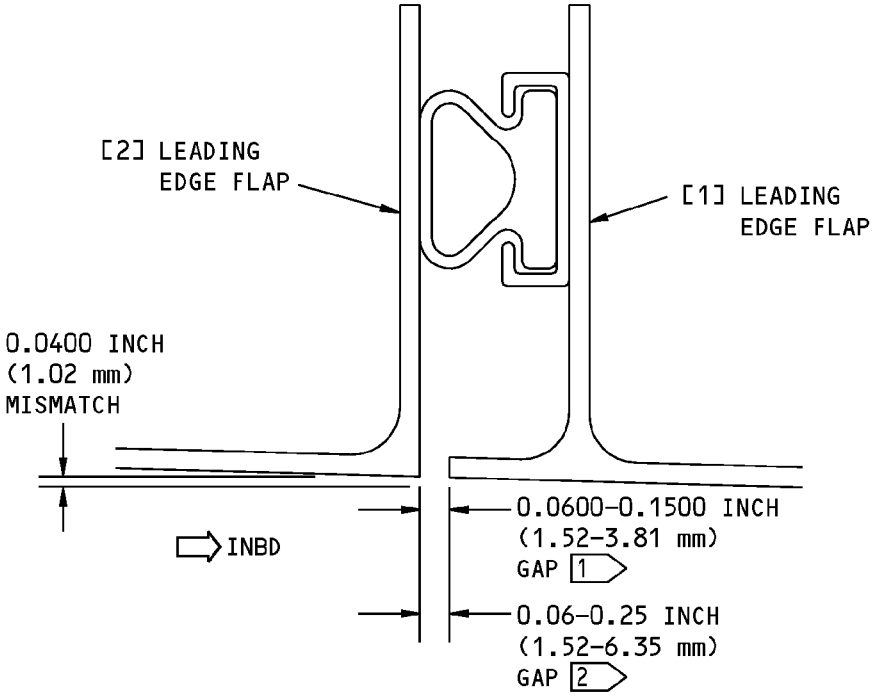


E



B–B

1 GAP BETWEEN ADJACENT FLAPS WITH FLAPS IN ANY POSITION OF TRAVEL. (METAL TO METAL CLEARANCE)

2 GAP FOR AFT FIVE INCHES OF FLAP.

Leading Edge Flap Adjustment
Figure 501 (Sheet 5 of 5)/27-81-00-990-804

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HAP 001-013, 015-026, 028-047, 054, 101-106 PRE SB 737-57A1302

TASK 27-81-00-820-802

3. Leading Edge Slat Actuator and Main Track Downstop Adjustment

(Figure 502)

A. General

(1) You must adjust the leading edge slats with the wing unsupported outboard of the engine nacelle. You can adjust the leading edge slats with the airplane on the gear or on jacks inboard of the engine nacelle. The airplane must not have fuel in the wing fuel tanks located outboard of the engine nacelle.

(2) This procedure is applicable only to the slat actuators with adjustable downstops installed on the slat main tracks. Slat actuators with non-adjustable downstops installed on the main tracks do not require downstop adjustment.

B. References

Reference	Title
27-81-00-080-801	Leading Edge Flap and Slat Locks Removal (P/B 201)
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)
SPL-1739	Kit - Slat Rigging Tools (Part #: C27045-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III

E. Location Zones

Zone	Area
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6

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(Continued)

Zone	Area
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

F. Slat Actuator and Main Track Downstop Adjustment

SUBTASK 27-81-00-860-026

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-00-860-061

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2)

HAP 001-013, 015-026, 028-036, 101-106 PRE SB 737-57A1302

Move the flap control lever to the 10-unit position to extend the leading edge slats to the full extend position.

HAP 037-047, 054 PRE SB 737-57A1302

Move the flap control lever to the 30-unit position to extend the leading edge slats to the full extend position.

HAP 001-013, 015-026, 028-047, 054, 101-106 PRE SB 737-57A1302

SUBTASK 27-81-00-480-008

WARNING: MAKE SURE TO INSTALL THE LEADING EDGE SLAT ACTUATOR LOCKOUT SET TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE SLATS. THE LEADING EDGE SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Install the lockout set, SPL-1734 on the adjacent leading edge slats. To install the lockout set, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

SUBTASK 27-81-00-860-027

(4) Move the flap control lever to the 1-unit position to retract the leading edge slat to the extend position.

NOTE: If the leading edge slat [31] is in the full extend position, the slat actuator [29] will be preloaded against the leading edge slat [31].

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SUBTASK 27-81-00-860-028

(5) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-00-200-004

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(6) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-00-020-004

(7) Remove the slat actuator door [39] from the slat actuator [40]:

(a) Remove the bolts [35], washers [36], washers [37], and nuts [38] that attach the slat actuator door [39] to the slat actuator [40].

(b) Remove the bolts [32], washers [33] and nuts [34] that attach the slat actuator door [39] and the bracket to the slat actuator [40].

(c) Remove the slat actuator door [39].

(d) Temporarily install the bolts [32], washers [33] and nuts [34] to attach the bracket to the slat actuator [40].

SUBTASK 27-81-00-020-005

(8) Disconnect the slat actuator [40] from the leading edge slat [31]:

(a) Remove the bolts [46] and washers [47] that attach the bolt retainers [48] to the leading edge slat [31].

(b) Remove the bolt retainers [48] from the leading edge slat [31].

WARNING: MAKE SURE YOU HOLD THE LEADING EDGE SLAT IN ITS POSITION. THE LEADING EDGE SLAT CAN FALL TO THE FULL EXTEND POSITION. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(c) Hold the leading edge slat [31] while you remove the nut [43], washer [42], bushing [41], washer [49] and bolt [50].

SUBTASK 27-81-00-860-029

(9) Carefully let the leading edge slat [31] move down to the full extend position.

SUBTASK 27-81-00-860-030

(10) Use hydraulic power to extend the slat actuator [40] to the full extend position:

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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(b)

HAP 001-013, 015-026, 028-036, 101-106 PRE SB 737-57A1302

Move the flap control lever to the 10-unit detent position to extend the slat actuator [40] to the full extend position.

HAP 037-047, 054 PRE SB 737-57A1302

Move the flap control lever to the 30-unit detent position to extend the slat actuator [40] to the full extend position.

HAP 001-013, 015-026, 028-047, 054, 101-106 PRE SB 737-57A1302

(c) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-00-820-001

(11) Do a check of the mismatch between the hole in the actuator rod end and the hole in the inboard lug:

(a) Use the gage assembly, which is part of the kit, SPL-1739, to make sure the actuator end fitting [45] is extended 0.0050-0.1000 inch (0.13-2.54 millimeters) farther than the lug [44] on the leading edge slat [31].

NOTE: It is not necessary to take any measurements when using the gage assembly.

(b) If the actuator end fitting [45] is not extended 0.0050-0.1000 inch (0.13-2.54 millimeters) farther than the lug [44], adjust the downstop [52] on the main tracks [51];

NOTE: The downstop [52] has three positions. The position with one mark facing the track has the least preload, the position with three marks has the most preload. The position with two marks is the nominal position.

1) Get access to the downstop [52] through the access holes in the ribs aft of the aft track rollers.
2) Loosen the nut [54] on the bolt [53].
3) Turn the downstop [52] to adjust the position of the leading edge slat [31].
4) Tighten the nut [54] to 50 in-lb (5.6 N·m) to 80 in-lb (9.0 N·m) or the bolt [53] to 72 in-lb (8.1 N·m) to 88 in-lb (9.9 N·m).

NOTE: Hold the bolt head while you tighten the nut to prevent downstop rotation. The recommended procedure is to tighten the nut. The optional procedure is to tighten the bolt.

CAUTION: MAKE SURE THAT THE WASHERS ARE INSTALLED CORRECTLY. IF THEY ARE NOT, THE MAIN TRACK/STRUCTURE JOINT CAN BECOME LOOSE. THE DOWNSTOP PARTS CAN DISCONNECT AND CAN CAUSE DAMAGE TO THE SLAT TRACK HOUSING.

5) Make sure by the visual inspection that the washers, downstops [52], and stop locator are all installed correctly.

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WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

6) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-00-860-031

(12) Use hydraulic power to retract the slat actuator [40] to the extend position:

NOTE: This will permit you to install the bolt [50].

(a) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(b) Move the flap control lever to the 1-unit detent position to retract the slat actuator to the extend position.

(c) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-00-420-002

(13) Connect the slat actuator [40] to the leading edge slat [31]:

(a) Move the leading edge slat [31] until it aligns with with the slat actuator [40].

(b) Install the bushing [41], bolt [50], washer [49], washer [42] and nut [43] to attach the slat actuator [40] to the leading edge slat [31].

NOTE: The head of the bolt [50] must be on the outboard side of the slat actuator [40].

(c) Tighten the nut [43] to 660-980 pound-inches (74.6-110.7 newton-meters) or the bolt [50] to 882-1078 pound-inches (99.7-121.8 newton-meters).

NOTE: The recommended method is to tighten the nut.

The optional method is to tighten the bolt.

(d) Install the bolt retainer [48];

1) Apply compound, C00528 to the shank and threads of the bolts [46].

2) Install the bolts [46] and washers [47] to attach the bolt retainer [48].

SUBTASK 27-81-00-420-003

(14) Install the slat actuator door [39] on the slat actuator [40]:

(a) Put the slat actuator door [39] in its position on the slat actuator [40].

(b) Remove the bolts [32], washers [33] and nuts [34] that attach the bracket to the slat actuator [40].

1) If there are three washers installed on the bolts [32], discard the thicker aluminum washer.

(c) Put the slat actuator door [39] in its position on the slat actuator [40].

(d) Install the bolts [32], washers [33] and nuts [34] that attach the slat actuator door [39] and bracket to the slat actuator [40].

(e) Install the bolts [35], washers [36], washers [37] and nuts [38] that attach the slat actuator door [39] and the bracket to the slat actuator [40].

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SUBTASK 27-81-00-200-005

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(15) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-080-005

WARNING: CAREFULLY REMOVE THE LEADING EDGE SLAT ACTUATOR LOCKOUT SET FROM THE LEADING EDE SLATS. THE LEADING EDGE SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.

SUBTASK 27-81-00-860-032

(2) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

——————— END OF TASK ———————

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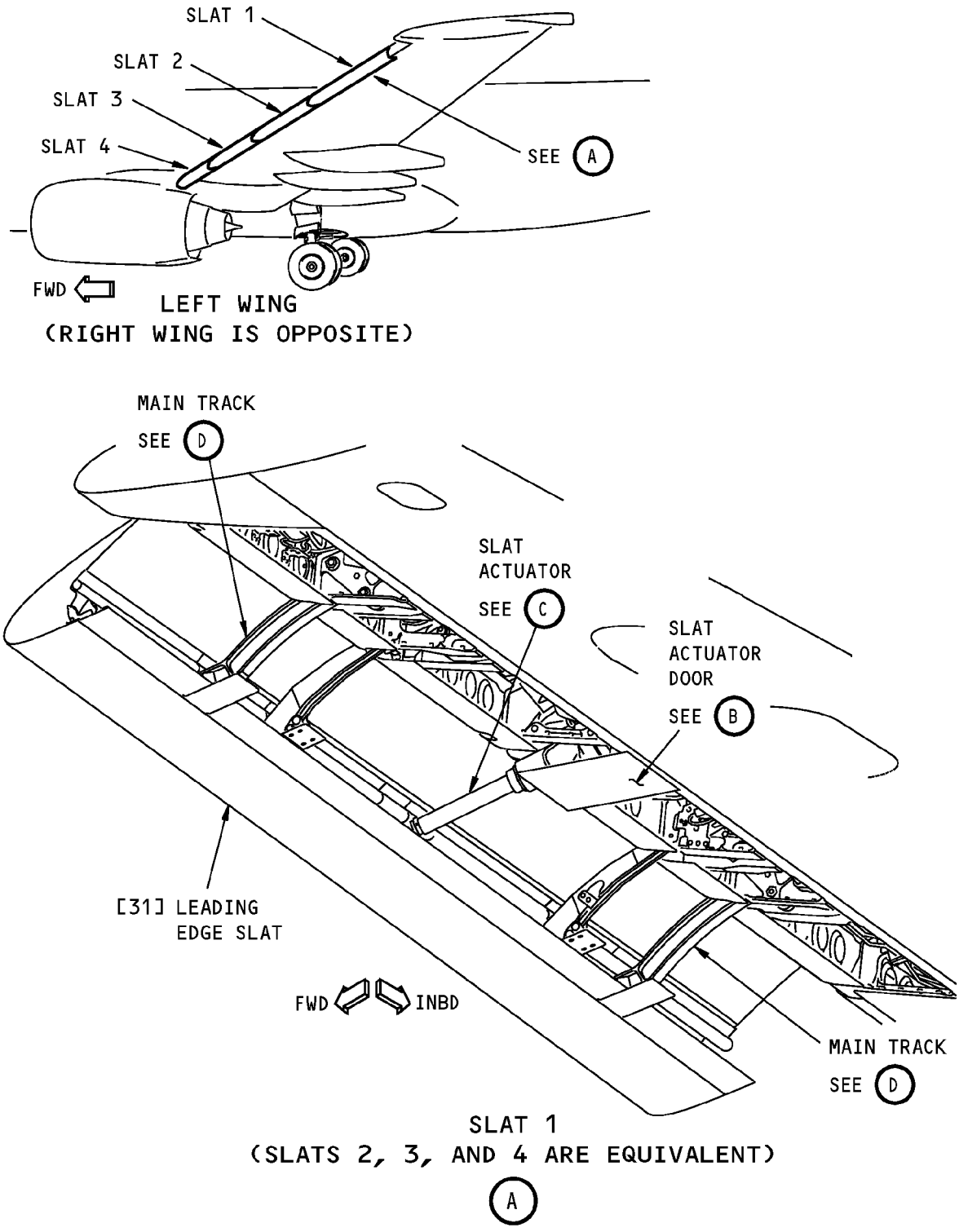

Leading Edge Slat Actuator and Main Track Downstop Adjustment
Figure 502 (Sheet 1 of 3)/27-81-00-990-805

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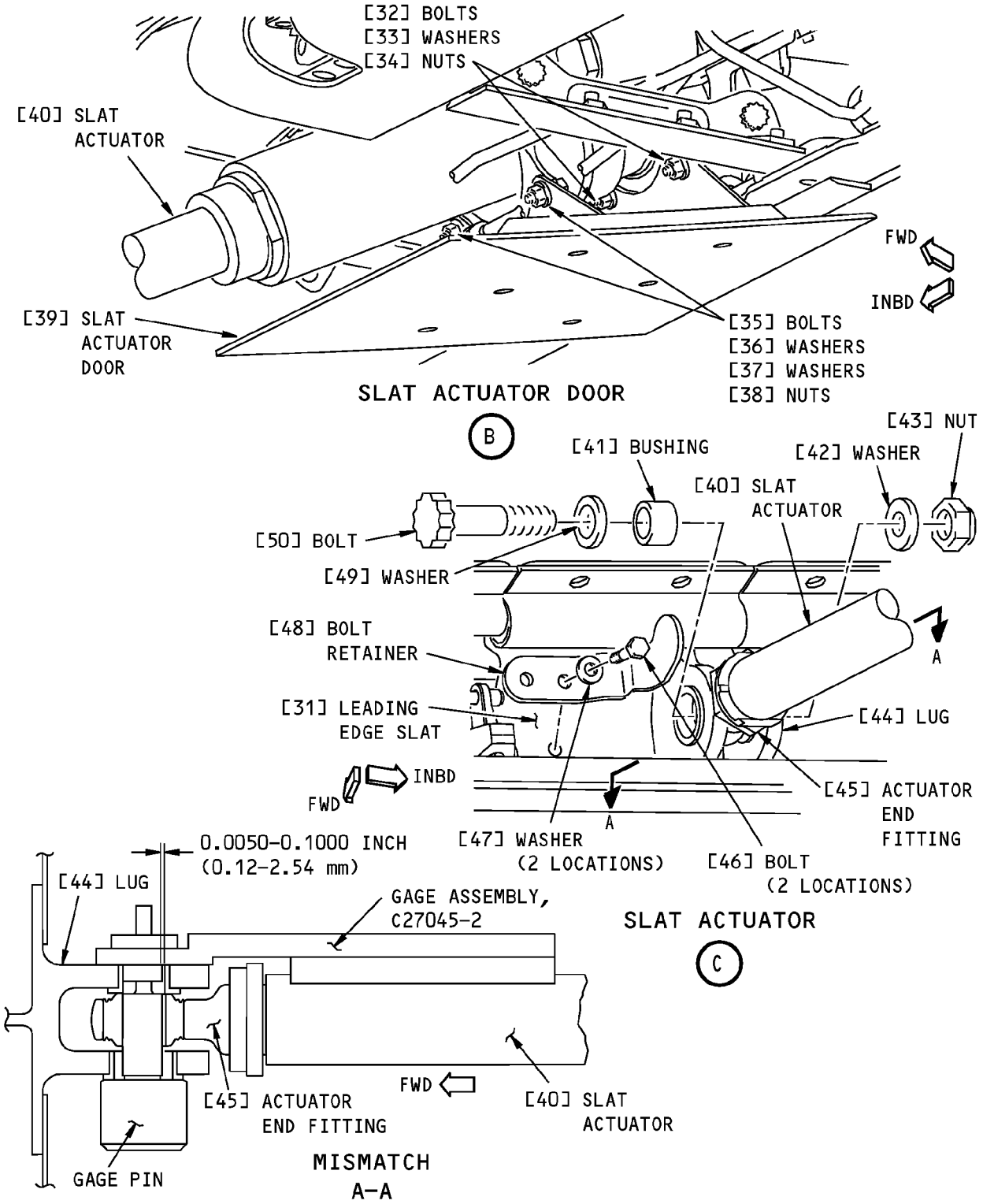

Leading Edge Slat Actuator and Main Track Downstop Adjustment
Figure 502 (Sheet 2 of 3)/27-81-00-990-805

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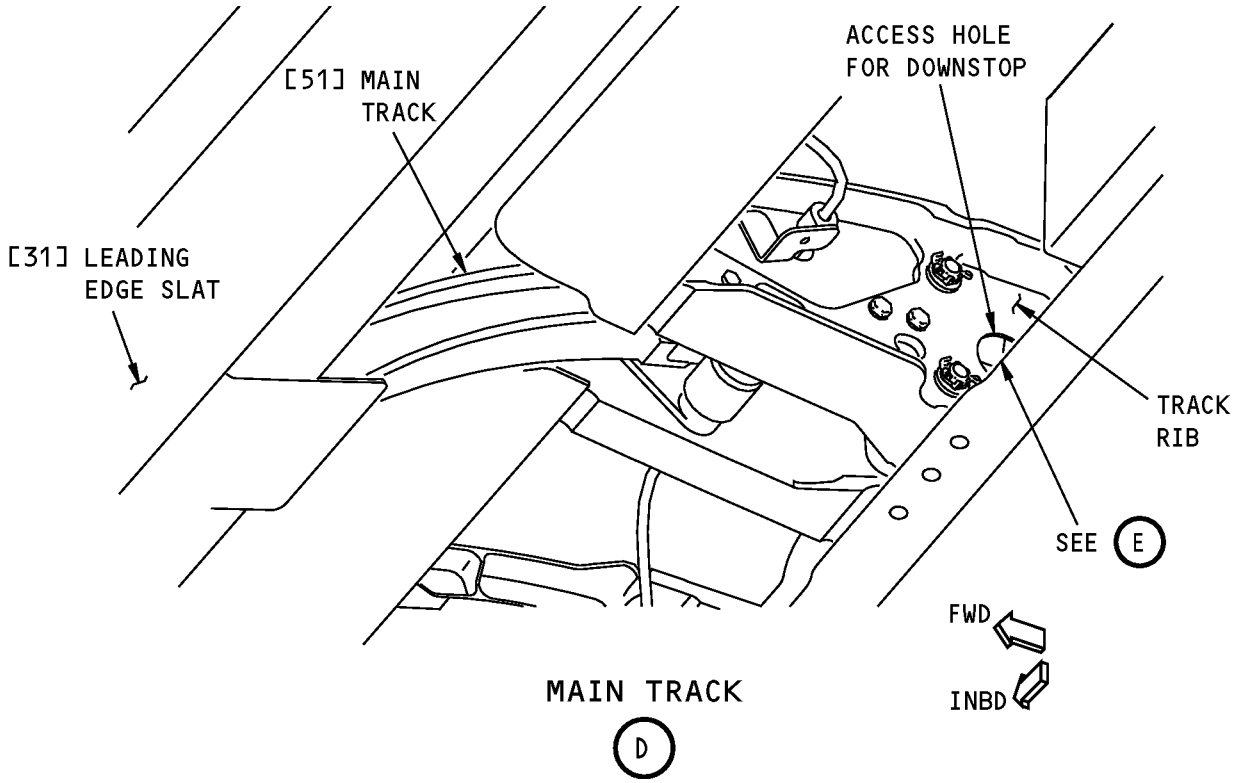

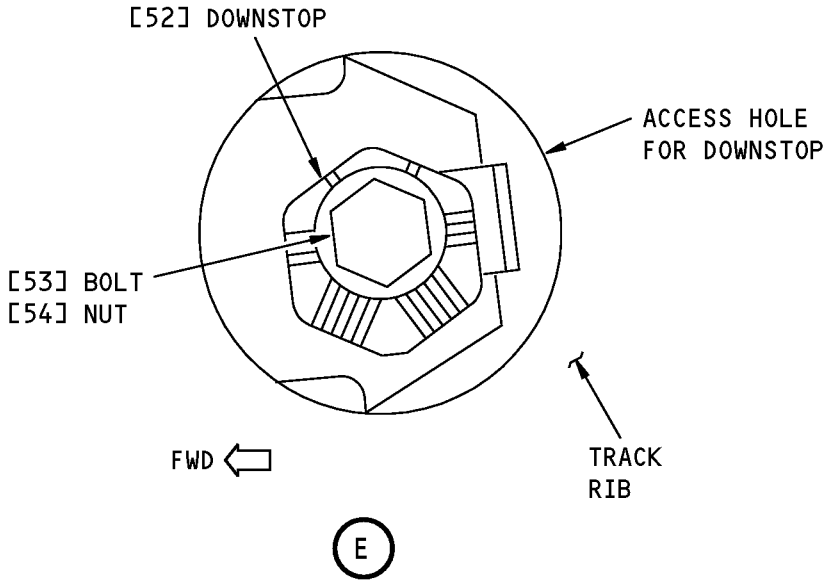

Leading Edge Slat Actuator and Main Track Downstop Adjustment
Figure 502 (Sheet 3 of 3)/27-81-00-990-805

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TASK 27-81-00-820-803

4. Leading Edge Slats Adjustment

A. General

(1) You must adjust the leading edge slats with the wing unsupported outboard of the engine nacelle. You can adjust the leading edge slats with the airplane on the gear or on jacks inboard of the engine nacelle. The airplane must not have fuel on the outboard wing.

(2) It is recommended that you do all the steps in this task, the full slat adjustment, for the most consistent and lowest drag adjustment.

(3) Where time and/or airplane condition do not support the use of the full slat adjustment, a minimum slat adjustment is permitted. Use of this minimum slat adjustment can result in increased drag compared with the full slat adjustment. In this task, all the steps that are not necessary for a minimum slat adjustment will be identified.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-81-00-860-803	Leading Edge Flaps and Slats Extension (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1739	Kit - Slat Rigging Tools (Part #: C27045-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

D. Consumable Materials

Reference	Description	Specification
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995~ C32

E. Location Zones

Zone	Area
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

F. Access Panels

Number	Name/Location
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38

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(Continued)

Number	Name/Location
521EB	Lower Leading Edge Access Panel - Slat Station 98.95
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521JB	Lower Leading Edge Access Panel - Slat Station 170.20
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621TB	Lower Leading Edge Access Panel - Slat Station 374.95
621VB	Lower Leading Edge Access Panel - Slat Station 415.79
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04

G. Prepare for the Adjustment

SUBTASK 27-81-00-010-001

(1) Remove the applicable access panels:

(a) For the left wing, remove these access panels:

Number	Name/Location
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521EB	Lower Leading Edge Access Panel - Slat Station 98.95
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521JB	Lower Leading Edge Access Panel - Slat Station 170.20
521KB	Lower Leading Edge Access Panel - Slat Station 188.12

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(Continued)

Number	Name/Location
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05

(b) For the left wing, remove these access panels:

Number	Name/Location
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621TB	Lower Leading Edge Access Panel - Slat Station 374.95
621VB	Lower Leading Edge Access Panel - Slat Station 415.79
621WB	Lower Leading Edge Access Panel - Slat Station 435.91

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(Continued)

Number	Name/Location
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04

SUBTASK 27-81-00-200-001

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(2) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-00-860-033

(3) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-81-00-820-002

(4) Do a preliminary adjustment of the auxiliary track forward support (Figure 503) (View A-A):

(a) Install the preload shim assembly, which is part of the kit, SPL-1739, at the forward supports for the auxiliary tracks.

1) Remove the nuts [74] and washers [75] from the clevis [76].

2) Lift the auxiliary track [72] with the clevis [76] through the auxiliary track support.

3) Install the preload shim assembly, which is part of the kit, SPL-1739, and the shims [77] on the clevis [76].

4) Put the clevis [76] back in its position on the auxiliary track support.

5) Install the washers [75] and nuts [74] on the clevis [76].

SUBTASK 27-81-00-820-003

(5) Do a preliminary adjustment of the auxiliary track aft support (Figure 503) (View B-B):

NOTE: If you do a minimum slat adjustment, preliminary adjustment of the auxiliary track aft suppport is not necessary.

(a) Loosen the upper aft aux track locking bolt [91].

1) Loosen the nut [90].

(b) Loosen the jam nut [82].

(c) Loosen the nut [80] on the locking bolt [79].

(d) Turn the adjusting nut [81] until the dimension A is as specified (Table 501).

Table 501/27-81-00-993-810

Location	Dimension A Inch (Millimeters)
Slat 1 and 8 (Outbd)	0.830 (21.08)
Slat 1 and 8 (Inbd)	0.950 (24.13)
Slat 2 and 7 (Outbd)	0.950 (24.13)
Slat 2 and 7 (Inbd)	1.450 (36.83)
Slat 3 and 6 (Outbd)	1.450 (36.83)

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(Continued)

Location	Dimension A Inch (Millimeters)
Slat 3 and 6 (Inbd)	1.450 (36.83)
Slat 4 and 5 (Outbd)	1.500 (38.10)
Slat 4 and 5 (Inbd)	2.100 (53.34)

(e) Tighten the nut [80] by hand on the locking bolt [79].

(f) Temporarily tighten the jam nut [82].

NOTE: Do not install lockwire on the jam nut.

(g) Temporarily tighen the upper aft aux track locking bolt [91].

SUBTASK 27-81-00-820-004

(6) Do a preliminary adjustment of the upstop pad:

(a) Remove the retainers [85], nut [86] and bolt [89].

(b) Add shims [87] under each of the stop pad [88].

NOTE: The total shim thickness will be 0.060 -0.002/+0.005 inch (1.52 -0.05/+0.13 millimeters).

(c) Install the bolts [89], nuts [86] and retainers [85].

SUBTASK 27-81-00-820-005

(7) Do a preliminary adjustment of the endstop pad:

NOTE: If you do a minimum slat adjustment, preliminary adjustment of the endstop pad is not necessary.

(a) Remove the retainers [85], nuts [86] and bolts [89].

(b) Add shims [87] under each of the stop pad [88].

NOTE: The total shim thickness will be 0.060 -0.002/+0.005 inch (1.52 -0.05/+0.13 millimeters).

(c) Install the bolts [89], nuts [86] and retainers [85].

SUBTASK 27-81-00-820-006

(8) Do a preliminary adjustment of the detent arm preload:

NOTE: If you do a minimum slat adjustment, preliminary adjustment of the detent arm preload is not necessary.

(a) Adjust all preload on the detent arm to zero.

1) Turn the preload adjustment bolt [73] clockwise to increase preload or counterclockwise to reduce preload.

2) Adjust the preload on all the detent arms [78] to zero pound.

SUBTASK 27-81-00-860-034

(9) Make sure the bolts [102] on the skin tab [92] are loose on the slat auxiliary arms.

NOTE: This is to prevent damage to the fixed leading edge when the slat is retracted during the adjustment.

H. Leading Edge Slats Adjustment

NOTE: The following operations may require slat position change to complete the adjustment requirements and may result in dimensional changes when moving the slats.

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SUBTASK 27-81-00-200-002

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-00-820-007

(2) Do the initial adjustment of the leading edge slat in the (intermediate) extend position:

NOTE: If you do a minimum slat adjustment, initial adjustment of the slat in the (intermediate) extend position is not necessary.

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Extend the leading edge slat to the (intermediate) extend (1-unit detent) position with hydraulic power. To do this, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

(b) Align the noses of the slats to get a mismatch of 0.0000 to 0.0600 inch (0.00 to 1.52 millimeters) between the adjacent slats.

(c) Adjust the forward support of the auxiliary track [72];

1) Remove the nut [74] and washer [75] from the clevis [76].

2) Lift the auxiliary track [72] with the clevis [76] through the auxiliary track support.

3) Add or remove the shim [77] until the gap between the slat and fixed leading edge is 0.0020 -0.0000/+0.0060 inch (0.05 -0.00/+0.15 millimeters).

NOTE: Measure the gap at the highest point, within 2.00 inches (50.8 millimeters) on either side of the each auxiliary track centerline. Measure the gap to a depth of 0.4000-0.6000 inch (10.16-15.24 millimeters).

4) Move the slat, if required, to remove shims [77].

5) Make sure the total shim thickness is 0.0300-0.2700 inch (0.76-6.86 millimeters).

6) Re-align the noses of the slats to get a mismatch of 0.0000 to 0.0600 inch (0.00 to 1.52 millimeters) between the adjacent slats, if/as required.

7) Put the clevis [76] back in its postions on the auxiliary track support.

8) Install the washer [75] and nut [74] on the clevis [76].

(d) Adjust the cam plate [83].

NOTE: The cam plates are located on the forward end of the detent arm and are used to align and hold the slats in the (intermediate) extend position.

1) Loosen the two nuts [84] that attach the cam plate [83] to the detent arm [78].

2) Move the cam plate [83] forward or aft, as required, until you get these conditions;

a) Engage the serrations in the required position and torque the nuts [84] on the cam plate [83] to 65 in-lb (7 N·m) to 100 in-lb (11 N·m) (preferred method) or the bolts [90] to 90 in-lb (10 N·m) to 110 in-lb (12 N·m) (optional method).

b) The detent roller touch the root of each detent arm [78].

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c) Make sure the gap between the detent roller and the aft surface of the cam plate is 0.000 to 0.030 inch (0.00 to 0.76 millimeters).

3) Cycle the slats and make sure the 0.0020 +0.0060 / -0.0000 in. (0.0508 +0.1524 / -0.0000 mm) gap is kept.

4) Adjust if/as required the alignment of the slat noses and the detent arm cam plates.

(e) Move the slat from the (intermediate) extend position until the detent roller is completely clear of the detent arm [78] and cam plate [83].

(f) On slats 1, 4, 5 and 8, adjust the detent arm preload to 75-85 pounds (334-378 newtons), measured with a spring force scale at the throat of the cam plate [83], and the 0.1000 +0.0600 / -0.0400 in. (2.5400 +1.5240 / -1.0160 mm) dimension at the lower portion of the detent arm [78].

NOTE: The arm preload adjustment bolt is located next to the auxiliary tracks at the far end of the torsion rod and is used to change the preload tension of the torsion rod and detent arm. Adjust the preload by rotating the preload adjustment bolt clockwise for increased preload and counterclockwise for reduced preload.

NOTE: If necessary, remove the nut at the lower auxiliary track attach bolt to see this gap.

(g) On slats 2, 3, 6 and 7, adjust the detent arm preload to 45-55 pounds (200-245 newtons), measured with a spring force scale at the throat of the cam plate [83], and the 0.1000 +0.0600 / -0.0400 in. (2.5400 +1.5240 / -1.0160 mm) dimension at the lower portion of the detent arm [78].

(h) Make sure there is 0.100 in. (2.540 mm) minimum clearance between the torsion rod and the shoulder bolt, if not, do the steps that follow:

1) Remove the preload from the detent arm.

2) Adjust the bolt assembly with the steps that follow:

a) Re-align the torsion rod by backing off torque on the bolt assembly nut by adjusting the bolt assembly up or down in the slotted hole in the torsion rod support braket assembly.

b) Torque the nut.

3) Adjust the detent arm preload.

4) Make sure you get the correct clearance.

SUBTASK 27-81-00-820-008

(3) Do the initial adjustment of the leading edge slat in the retract position:

NOTE: If you do a minimum slat adjustment, initial adjustment of the slat in the retract position is not necessary.

(a) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

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(b) Position the ends of the slats using the end stop pad adjustments to get a 0.0000-0.0500 inch fair between all adjacent slat ends; between the outboard end of slats 1 and 8 and on the adjacent fixed leading edge; and between the inboard end of slat 4 and 5 and the adjacent fixed leading edge.

NOTE: The end stops are located near both ends of each slat and can be used to adjust the trailing edge gap near the slat center, gap and misfair of the flex skin to the lower fixed leading edge panels, and misfair at the slat ends. Each stop location has a horizontal and vertical pad. To adjust each stop pad. add or subtract in any combination of 0.0100, 0.200, 0.0400,and 0.0630 inch thick solid shims. The total permitted shim thickness is 0.0000 to 0.1280 inch and must be such that the slat flex skin keeps solid contact with the fixed leading edge.

(c) Make sure the slat upstops touch the horizontal and vertical stop pads.

NOTE: The up stop pads are located 5.3 inches on either side of each actuator and can be used to adjust the trailing edge gap near the slat center, gap and misfair of the flex skin to the lower fixed leading edge panels, and misfair at the slat ends. Each stop location has a horizontal and vertical pad.

(d) If the slat upstops do not touch the horizontal and vertical stop pads, adjust the stop pad:

NOTE: Use these stops to adjust the slat nose to match the adjacent slats.

1) Remove the retainers [85], nuts [86] and bolts [89].
2) Add or remove shim [87] as it is necessary until the slat fairs with the adjacent slat.

NOTE: Add or remove only a minimum amount of shim necessary for the slat upstop to touch the stop pad. To adjust each stop pad, add or subtract in any combination of 0.0100, 0.0200, 0.0400,and 0.0630 inch thick solid shims. The total permitted shim thickness is 0.0000 to 0.1280 inch and must be such that the slat flex skin keeps solid contact with the fixed leading edge.

3) Install the bolts [89], nuts [86] and retainers [85].

(e) Adjust the aft support of the auxiliary track [72];

1) Loosen the upper aft aux track locking bolt [91].
   a) Loosen the nut [90].
2) Loosen the jam nut [82].
3) Loosen the nut [80] on the locking bolt [79].
4) Turn the adjusting nut [81] until the gap between the slat and the fixed leading edge is 0.0020 -0.0000/+0.0060 inch (0.05 -0.00/+0.15 millimeters).

NOTE: Measure the gap at the highest point, within 2.00 inches (50.8 millimeters) on either side of the each auxiliary track centerline. Measure the gap to a depth of 0.4000-0.6000 inch (10.16-15.24 millimeters).

5) Temporarily tighten the locking bolt [79].
6) Temporarily tighten the jam nut [82].
7) Temporarily tighen the upper aft aux track locking bolt [91].

(f) Measure and calculate the weighted average misfair.

1) Measure the misfair at six locations for each specified gap (Table 502);

NOTE: There will be a total of 30 locations on each wing that you will need to measure.

   a) The gap between all adjacent slat ends

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b) The gap between the outboard end of slats 1 and 8 and the adjacent fixed leading edge

c) The gap between the inboard end of slats 4 and 5 and the adjacent fixed leading edge.

Table 502/27-81-00-993-811

Point	Location	Value
F1	Outbd slat 1/8	
F2	Outbd slat 1/8	
F3	Outbd slat 1/8	
F4	Outbd slat 1/8	
F5	Outbd slat 1/8	
F6	Outbd slat 1/8	
F11	Inbd slat 1/8	
F12	Inbd slat 1/8	
F13	Inbd slat 1/8	
F14	Inbd slat 1/8	
F15	Inbd slat 1/8	
F16	Inbd slat 1/8	
F21	Inbd slat 2/7	
F22	Inbd slat 2/7	
F23	Inbd slat 2/7	
F24	Inbd slat 2/7	
F25	Inbd slat 2/7	
F26	Inbd slat 2/7	
F31	Inbd slat 3/6	
F32	Inbd slat 3/6	
F33	Inbd slat 3/6	
F34	Inbd slat 3/6	
F35	Inbd slat 3/6	
F36	Inbd slat 3/6	
F41	Inbd slat 4/5	
F42	Inbd slat 4/5	
F43	Inbd slat 4/5	
F44	Inbd slat 4/5	
F45	Inbd slat 4/5	

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(Continued)

Point	Location	Value
F46	Inbd slat 4/5	

2) Multiply all negative fair measurements by -0.5.

3) Add all the misfair values (positive and negative misfairs).

4) Divide the total misfair value by 6.

5) Make sure the result is 0.0000-0.0500 inch (0.00-1.27 millimeters).

(g) Make sure the slat endstops touch the horizontal and vertical stop pads.

(h) If the slat endstops do not touch the horizontal and vertical stop pads, adjust the stop pad:

1) Remove the retainers [85], nuts [86] and bolts [89].

2) Add or remove shim [87] as it is necessary until the slat fairs with the adjacent slat.

NOTE: Add or remove only a minimum amount of shim necessary for the slat upstop to touch the stop pad. To adjust each stop pad, add or subtract in any combination of 0.0100, 0.0200, 0.0400,and 0.0630 inch thick solid shims. The total permitted shim thickness is 0.0000 to 0.1280 inch and must be such that the slat flex skin keeps solid contact with the fixed leading edge.

3) Install the bolts [89], nuts [86] and retainers [85].

SUBTASK 27-81-00-820-009

(4) Do the final adjustment of the leading edge slat in the (intermediate) extend position:

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) To extend the leading edge slat to the (intermediate) extend (1-unit detent) position, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

(b) Align the noses of the slats to get a mismatch of 0.0000 to 0.0600 inch between adjacent slats.

(c) Make sure the detent roller touch the root of each detent arm.

(d) Make sure the gap between the detent roller and the aft surface of the cam plate is 0.0000 to 0.0300 inch (0.00-0.76 millimeters).

(e) If the detent roller does not touch the root of the detent arm and the gap between the detent roller and the cam plate [83] is out of tolerance, adjust the cam plate [83];

1) Loosen the two nuts [84] that attach the cam plate [83] to the detent arm [78].

2) Move the cam plate [83] forward or aft as it is necessary.

3) Temporarily tighten the two nuts [84].

(f) Make sure the the gap between the slat and the fixed leading edge is 0.0020 -0.0000/ +0.0060 inch (0.05 -0.00/ +0.15 millimeters) (Figure 503) (View D-D).

NOTE: Measure the gap at the highest point, within 2.00 inches (50.8 millimeters) on either side of each auxiliary track centerline. Measure the gap to a depth of 0.4000-0.6000 inch (10.16-15.24 millimeters).

(g) If the gap between the slat and fixed leading edge is not 0.0020 -0.0000/ +0.0060 inch (0.05 -0.00/ +0.15 millimeters), adjust the forward support of the auxiliary track;

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1) Remove the nut [74] and washer [75] from the clevis [76].
2) Lift the auxiliary track [72] with the clevis [76] through the auxiliary track support.
3) Add or remove the shim [77] to a total thickness of 0.0300-0.2700 inch (0.76-6.86 millimeters).
4) Put the clevis [76] back in its position on the auxiliary track support.
5) Install the washer [75] and nut [74] on the clevis [76].

(h) Remove the preload shim assembly, which is part of the kit, SPL-1739, at the forward supports for the auxiliary tracks:
1) Remove the nut [74] and washer [75] from the clevis [76].
2) Lift the auxiliary track [72] with the clevis [76] through the auxiliary track support.
3) Remove the preload shim assembly.
4) Put the clevis [76] back in its position on the auxiliary track support.
5) Install the washer [75] and nut [74] on the clevis [76].

(i) Make sure the minimum gap at these locations is 0.2000 inch (5.08 millimeters);
1) The gaps between all adjacent slat ends.
2) The gaps between the outboard end of slats 1 and 8 and the adjacent fixed leading edge.
3) The gap between the inboard end of slats 4 and 5 and the adjacent fixed leading edge.

(j) Extend the slat until the detent roller is completely clear of the detent arm [78] and cam plate [83].

(k) On slats 1, 4, 5 and 8, make sure the detent arm preload is 75-85 pounds (334-378 newtons), measured with a spring force scale at the throat of the cam plate [83],and 0.100 +0.060 / -0.040 in. (2.540 +1.524 / -1.016 mm) dimension at the lower portion of the detent arm [78].

(l) On slats 2, 3, 6 and 7, make sure the detent arm preload is 45-55 pounds (200-245 newtons), measured with a spring force scale at the throat of the cam plate [83], and 0.100 +0.060 / -0.040 in. (2.540 +1.524 / -1.016 mm) dimension at the lower portion of the detent arm [78].
1) If it is necessary, turn the preload adjustment bolt [73] clockwise to increase the preload or counterclockwise to reduce the preload.
2) Install lockwire, G01048 on the preload adjustment bolt [73].

(m) Make sure the gap at the lower portion of the detent arm slot is 0.100 +0.060 / -0.040 in. (2.540 +1.524 / -1.016 mm).

SUBTASK 27-81-00-820-010

(5) Do the final adjustment of the leading edge slat in the retract position:

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

(b) Make sure the slat upstops touch the horizontal and vertical stop pads.

(c) If the slat upstops do not touch the horizontal and vertical stop pads, adjust the stop pad:
1) Remove the retainers [85], nuts [86] and bolts [89].

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2) Add or remove shim [87] as it is necessary until the slat fairs with the adjacent slat.

NOTE: Add or remove only a minimum amount of shim necessary for the slat upstop to touch the stop pad. To adjust each stop pad, add or subtract in any combination of 0.0100, 0.0200, 0.0400,and 0.0630 inch thick solid shims. The total permitted shim thickness is 0.0000 to 0.1280 inch and must be such that the slat flex skin keeps solid contact with the fixed leading edge.

3) Install the bolts [89], nuts [86] and retainers [85].

(d) Make sure the the gap between the slat and the fixed leading edge is 0.0020 -0.0000/ +0.0060 inch (0.05 -0.00/+0.15 millimeters).

NOTE: Measure the gap at the highest point, within 2.00 inches (50.8 millimeters) on either side of each auxiliary track centerline. Measure the gap to a depth of 0.4000-0.6000 inch (10.16-15.24 millimeters).

(e) If the gap between the slat and fixed leading edge is not 0.0020 -0.0000/+0.0060 inch (0.05 -0.00/+0.15 millimeters), adjust the aft support of the auxiliary track;

1) Loosen the upper aft aux track locking bolt [91].

a) Loosen the nut [90].

2) Loosen the jam nut [82].

3) Loosen the nut [80] on the locking bolt [79].

4) Turn the adjusting nut [81] until the gap between the slat and the fixed leading edge is 0.0020 -0.0000/+0.0060 inch (0.05 -0.00/+0.15 millimeters).

5) Temporarily tighten the locking bolt [79].

6) Temporarily tighten the jam nut [82].

(f) Reduce the dimension A by 0.0210 ±0.0030 inch (0.53 ±0.08 millimeters) to preload the slat trailing edge;

1) Loosen the jam nut [82].

2) Loosen the nut [80] to loosen the locking bolt [79].

3) Turn the adjusting nut [81] 180 ±30 degrees clockwise, viewed from below.

(g) Temporarily tighten the locking bolts [79].

(h) Temporarily tighten the jam nuts [82].

(i) Make sure the weighted average misfair is 0.0000-0.0500 inch (0.00-1.27 millimeters).

(j) Make sure the slat endstops touch the horizontal and vertical stop pads.

(k) If the slat endstops do not touch the horizontal and vertical stop pads, adjust the stop pad:

1) Remove the retainers [85], nuts [86] and bolts [89].

2) Add or remove shim [87] as it is necessary until the slat fairs with the adjacent slat.

NOTE: Add or remove only a minimum amount of shim necessary for the slat upstop to touch the stop pad. To adjust each stop pad, add or subtract in any combination of 0.0100, 0.0200, 0.0400,and 0.0630 inch thick solid shims. The total permitted shim thickness is 0.0000 to 0.1280 inch and must be such that the slat flex skin keeps solid contact with the fixed leading edge.

3) Install the bolts [89], nuts [86] and retainers [85].

(l) Measure and write down the misfairs at six locations for each of these gaps (Table 502);

1) The gap between all adjacent slat ends

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2) The gap between the outboard end of slats 1 and 8 and the adjacent fixed leading edge

3) The gap between the inboard end of slats 4 and 5 and the adjacent fixed leading edge.

(m) Measure the slat end gap at three locations for each slat (Table 503).

Table 503/27-81-00-993-814

Point	Location	Value
G1	Outbd slat 1/8	
G2	Outbd slat 1/8	
G3	Outbd slat 1/8	
G11	Inbd slat 1/8	
G12	Inbd slat 1/8	
G13	Inbd slat 1/8	
G21	Inbd slat 2/7	
G22	Inbd slat 2/7	
G23	Inbd slat 2/7	
G31	Inbd slat 3/6	
G32	Inbd slat 3/6	
G33	Inbd slat 3/6	
G41	Inbd slat 4/5	
G42	Inbd slat 4/5	
G43	Inbd slat 4/5	

1) Make sure the gaps between all adjacent slat ends is 0.2600 -0.0600/+0.1500 inch (6.60 -1.52/+3.81 millimeters).

2) Make sure the gaps between the slat ends and the adjacent fixed leading edge is 0.2500 -0.0600/+0.1500 inch (6.35 -1.52/+3.81 millimeters).

SUBTASK 27-81-00-860-035

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6)

HAP 001-013, 015-026, 028-036, 101-999

To extend the leading edge slats to the full extend (10-unit detent) position, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

HAP 037-054

To extend the leading edge slats to the full extend (30-unit detent) position, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803

HAP ALL

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SUBTASK 27-81-00-220-005

(7) Make sure the minimum gap at these locations is 0.2000 inch (5.08 millimeters);

(a) The gaps between all adjacent slat ends.

(b) The gaps between the outboard end of slats 1 and 8 and the adjacent fixed leading edge.

(c) The gaps between the inboard end of slats 4 and 5 and the adjacent fixed leading edge.

SUBTASK 27-81-00-860-086

(8) To extend the leading edge slats to the (intermediate) extend (1-unit detent) position, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

SUBTASK 27-81-00-820-012

(9) Make sure the detent roller touch the root of each detent arm.

NOTE: You may manually apply load to the slats to help the slats meet the requirement.

SUBTASK 27-81-00-820-013

(10) Align the noses of the slats to get a mismatch of 0.0000 to 0.0600 inch (0.00 to 1.52 millimeters) between the adjacent slats.

(a) Measure the gap between the detent roller and the aft surface of the cam plate.

(b) Make sure the sum of all of the gaps is 0.000 to 0.060 inch (0.00 to 1.52 millimeters).

SUBTASK 27-81-00-420-004

(11) Tighen the locking bolts [79] for the auxiliary track aft support to 130-200 pound-inches (14.7-22.6 newton-meters).

SUBTASK 27-81-00-420-005

(12) Tighten the jam nut [82] on the auxiliary track aft support.

(a) Finger tight until the jam nut [82] touches the support shaft and tighten an additional quarter turn.

SUBTASK 27-81-00-420-010

(13) Tighen the upper aft aux track locking bolt [91] to 130-200 pound-inches (14.7-22.6 newton-meters).

SUBTASK 27-81-00-420-006

(14) Tighten the nut [74] on the auxiliary track forward support to 260-425 pound-inches (29.4-48.0 newton-meters).

SUBTASK 27-81-00-420-007

(15) Tighten the nuts [84] on the cam plate to 65-100 pound-inches (7.3-11.3 newton-meters) or the cam plate bolts [90] 90-110 pound-inches (10.2-12.4 newton-meters).

NOTE: The recommended method is to tighten the nuts; the optional method is to tighten the bolts.

SUBTASK 27-81-00-420-008

(16) Install lockwire, G01048 between the holes in the shim [77] of the auxiliary track forward support.

SUBTASK 27-81-00-420-009

(17) Install lockwire, G01048 on the preload adjustment bolt [73] on the detent arm [78].

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SUBTASK 27-81-00-200-003

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(18) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

I. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-036

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

SUBTASK 27-81-00-410-001

(2) Install the applicable access panels:

NOTE: At the main track locations, the clearance between the access panel and the flex tab must be 0.1000 -0.0400/+0.0800 inch (2.54 -1.02/+2.03 millimeters).

(a) For the left wing, install these access panels:

Number	Name/Location
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521EB	Lower Leading Edge Access Panel - Slat Station 98.95
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521JB	Lower Leading Edge Access Panel - Slat Station 170.20
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91

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(Continued)

Number	Name/Location
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05

(b) For the left wing, install these access panels:

Number	Name/Location
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621TB	Lower Leading Edge Access Panel - Slat Station 374.95
621VB	Lower Leading Edge Access Panel - Slat Station 415.79
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04

SUBTASK 27-81-00-820-011

(3) Adjust the auxiliary arm skin tabs [92] at the auxiliary track locations:

(a) Adjust the skin tab [92] to get the correct gap to the flex skin and the access panels [93];

1) Loosen the nuts [95] on the bolts [102].

2) Adjust the position of the skin tab [92] to get a gap of 0.1000 inch (2.54 millimeters) between the skin tab [92] and the flex skin.

3) Adjust the position of the skin tab [92] to get a gap of 0.1000 -0.0400/ + 0.0800 inch (2.54 - 1.02/ + 2.03 millimeters) between the skin tab [92] and the access panels [93].

4) Tighten the nuts [95].

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(b) Adjust the position of the skin tab [92] on the skin tab supports [97] to get the correct misfair;

1) Loosen the nuts [101] on the bolts [98].

2) Adjust the position of the skin tab [92] until you get these misfairs between the slat and the skin tab [92];

a) -0.0100 +/- 0.0200 inch (-0.25 +/- 0.51 millimeters) for a minimum of 75 percent of the slat span.

b) -0.0100 +/- 0.0400 inch (-0.25 +/-1.02 millimeters) for a maximum of 25 percent of the slat span.

3) Tighten the nuts [101].

END OF TASK

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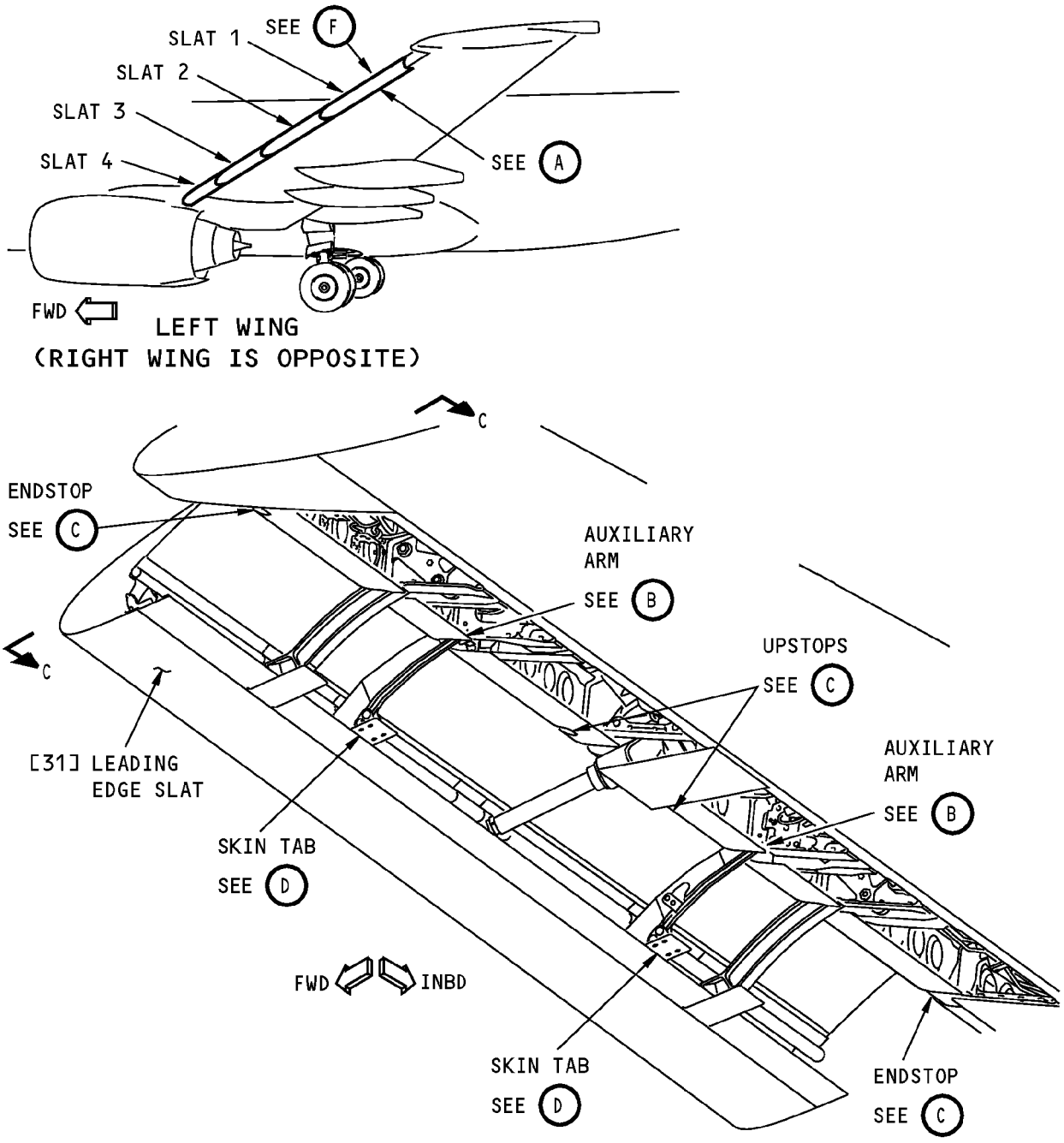

Leading Edge Slat Adjustment
Figure 503 (Sheet 1 of 9)/27-81-00-990-806

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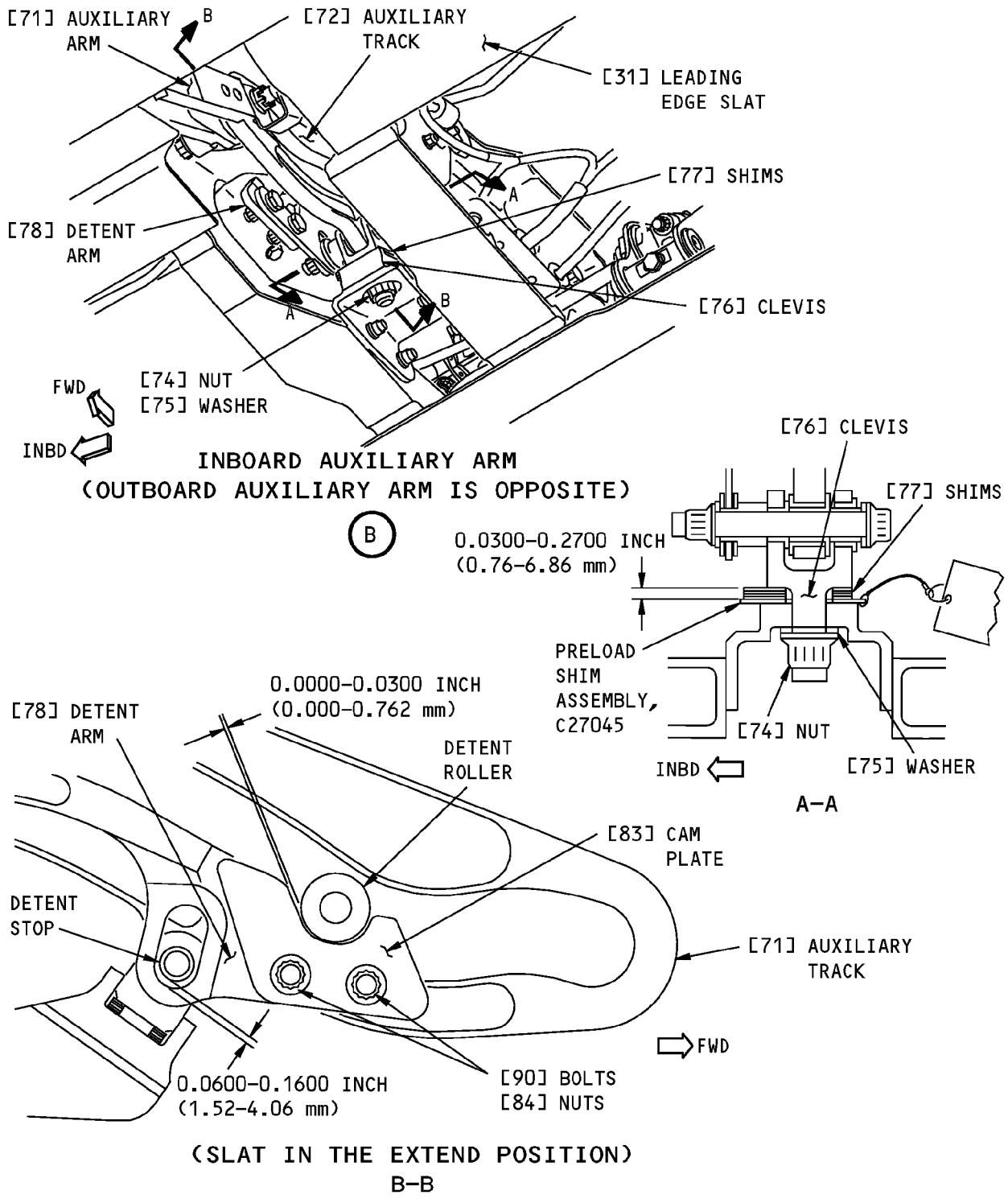

Leading Edge Slat Adjustment
Figure 503 (Sheet 2 of 9)/27-81-00-990-806

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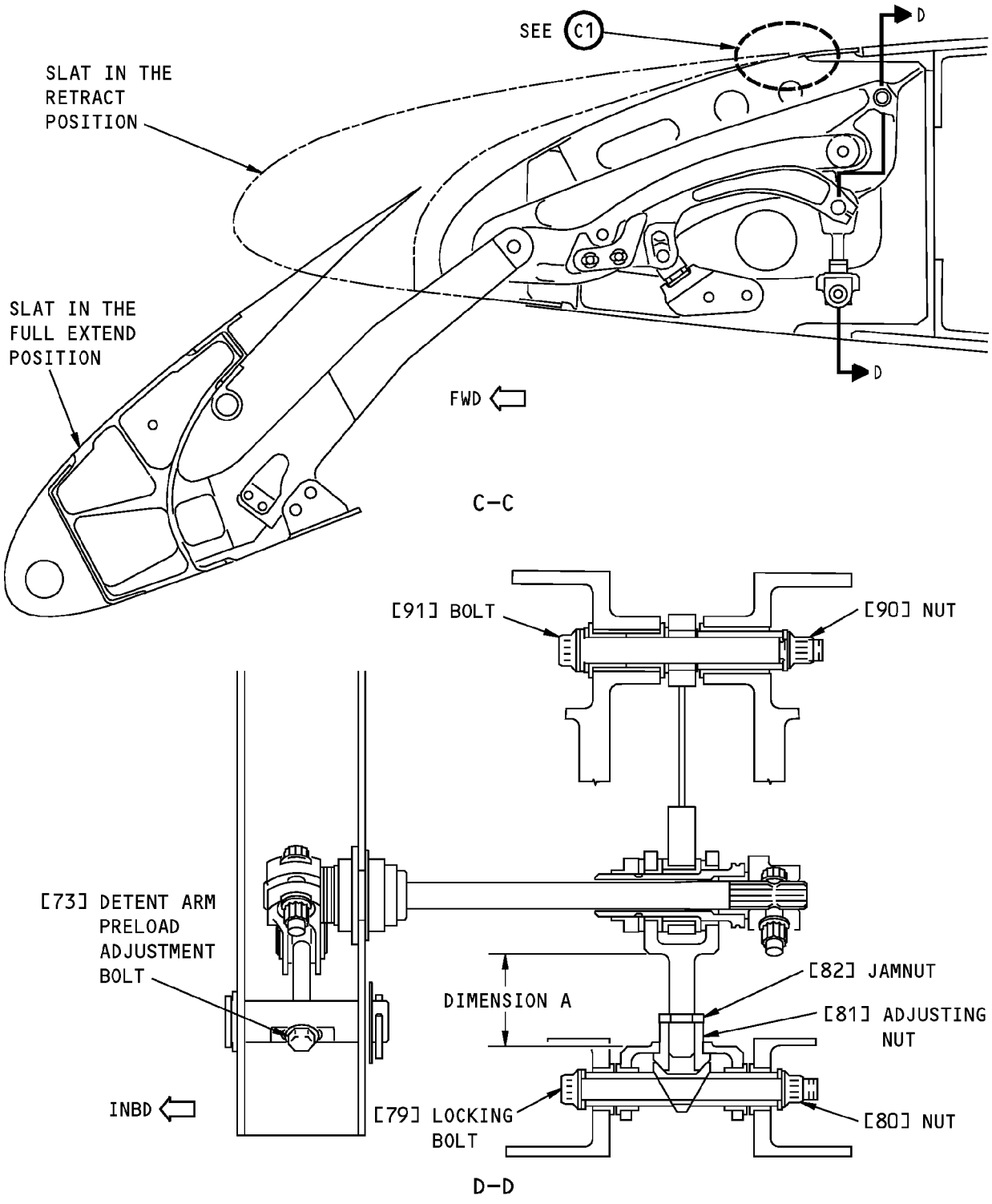

Leading Edge Slat Adjustment
Figure 503 (Sheet 3 of 9)/27-81-00-990-806

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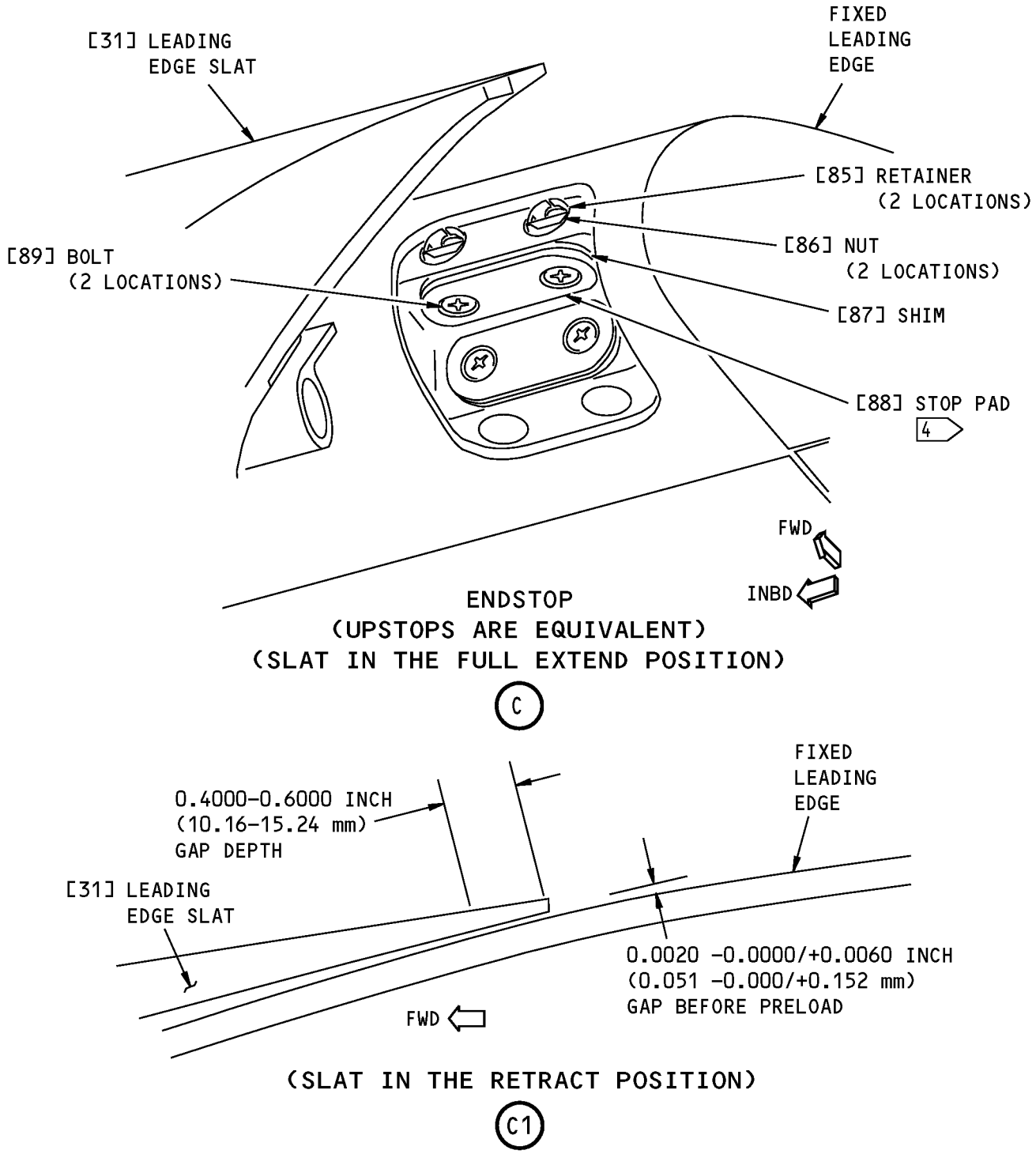

4 MINIMUM PERMITTED STOP PAD THICKNESS IS 0.050 INCH (1.27 mm)

Leading Edge Slat Adjustment
Figure 503 (Sheet 4 of 9)/27-81-00-990-806

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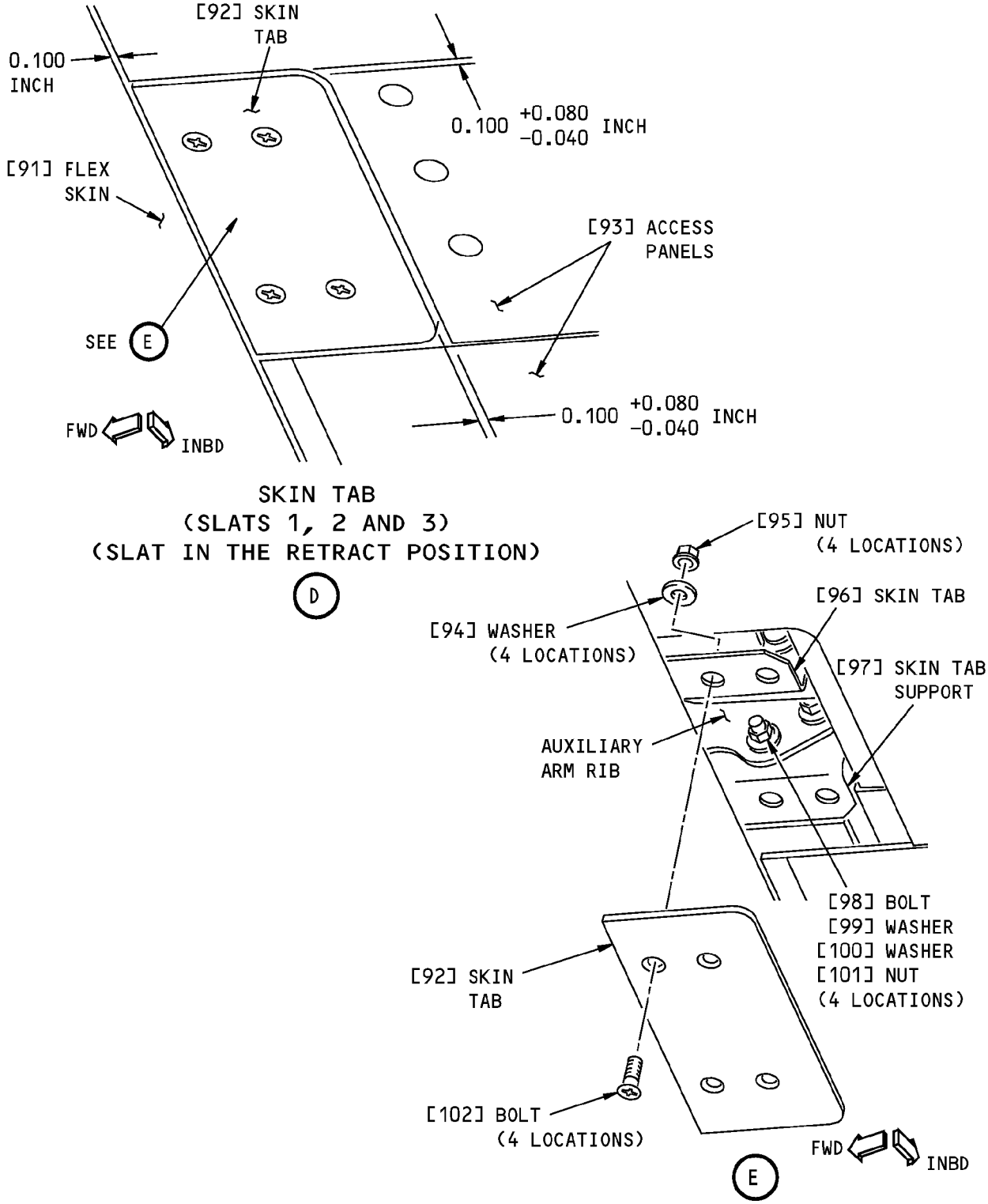

Leading Edge Slat Adjustment
Figure 503 (Sheet 5 of 9)/27-81-00-990-806

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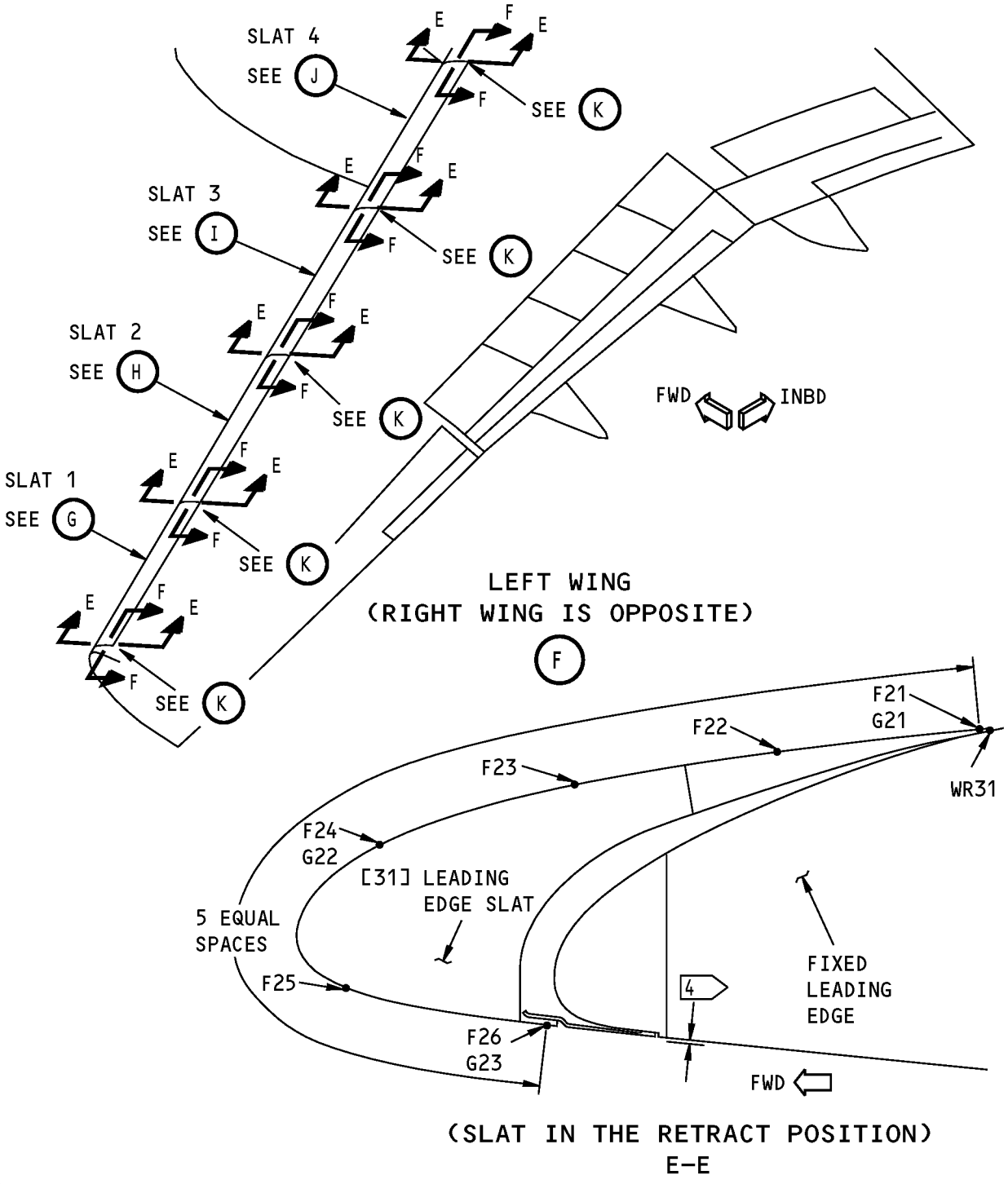

4 PERMITTED MISMATCH IS:
0.0100 ±0.0200 INCH FOR MINIMUM OF 75% SPAN.
0.0100 ±0.0400 INCH FOR MINIMUM OF 25% SPAN.

Leading Edge Slat Adjustment
Figure 503 (Sheet 6 of 9)/27-81-00-990-806

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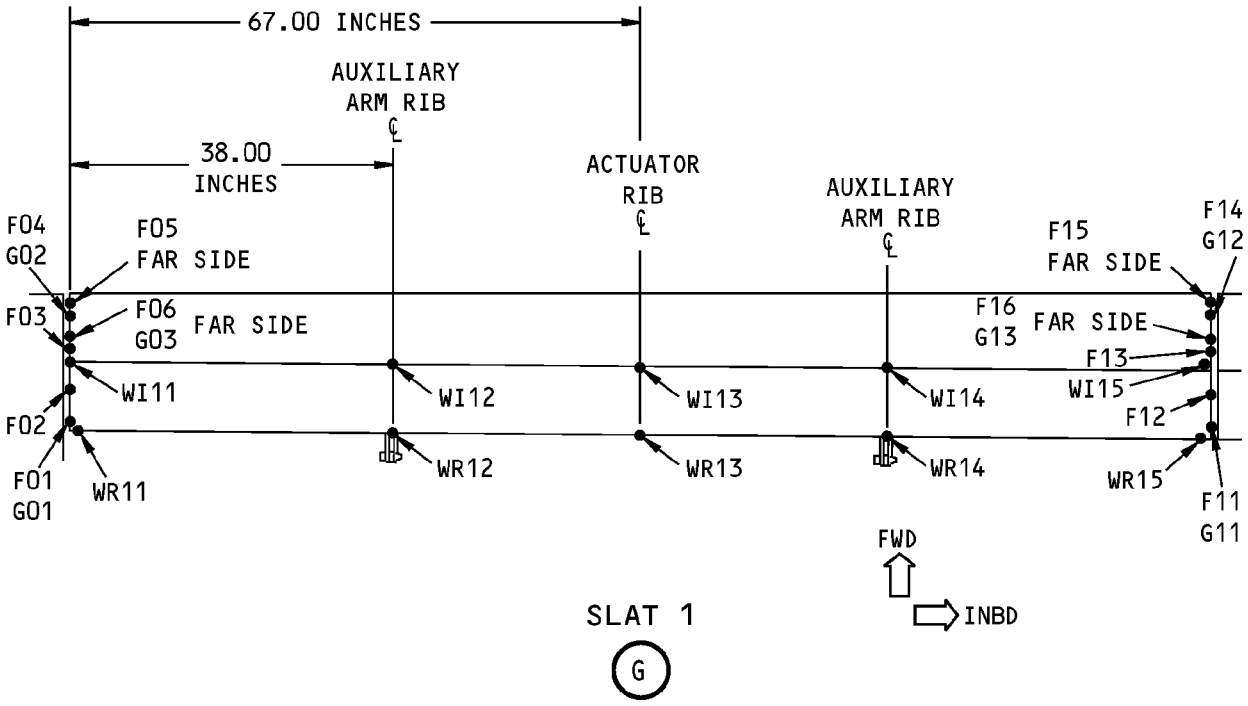

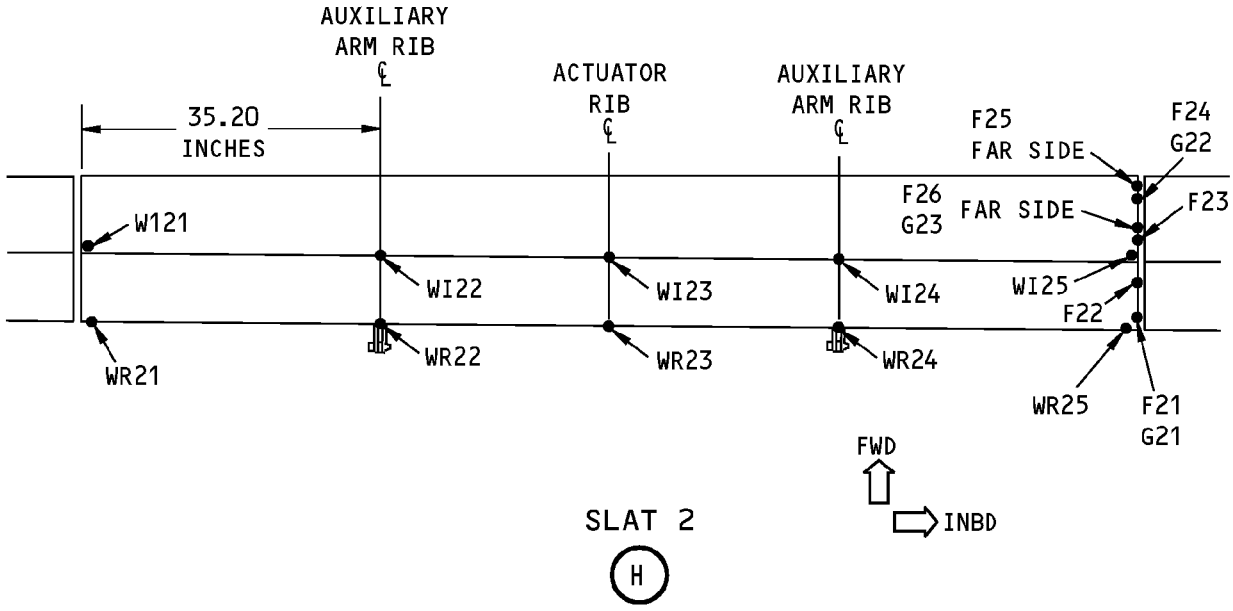

Leading Edge Slat Adjustment
Figure 503 (Sheet 7 of 9)/27-81-00-990-806

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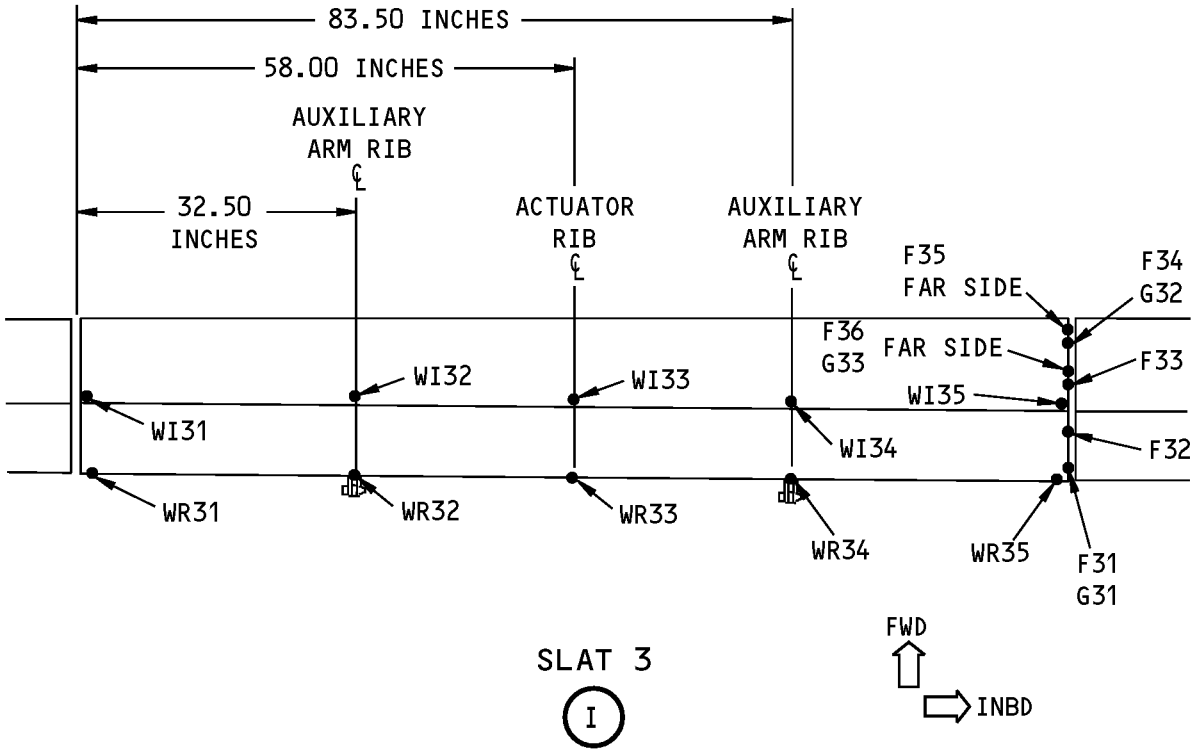

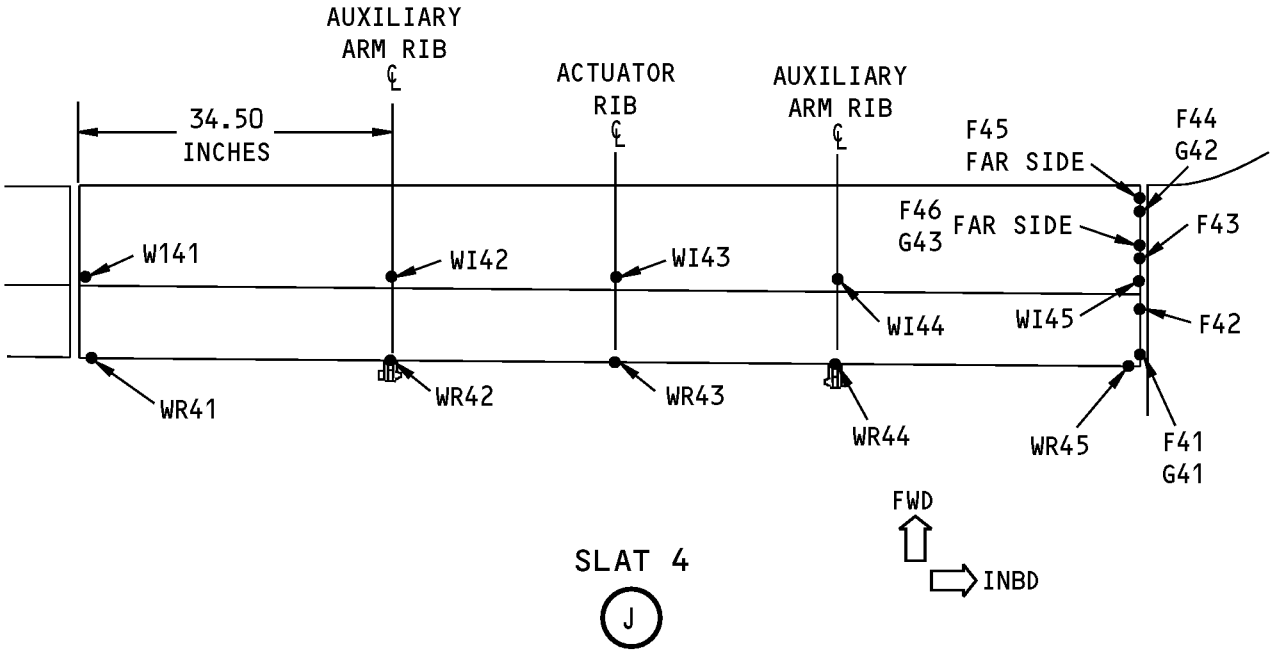

Leading Edge Slat Adjustment
Figure 503 (Sheet 8 of 9)/27-81-00-990-806

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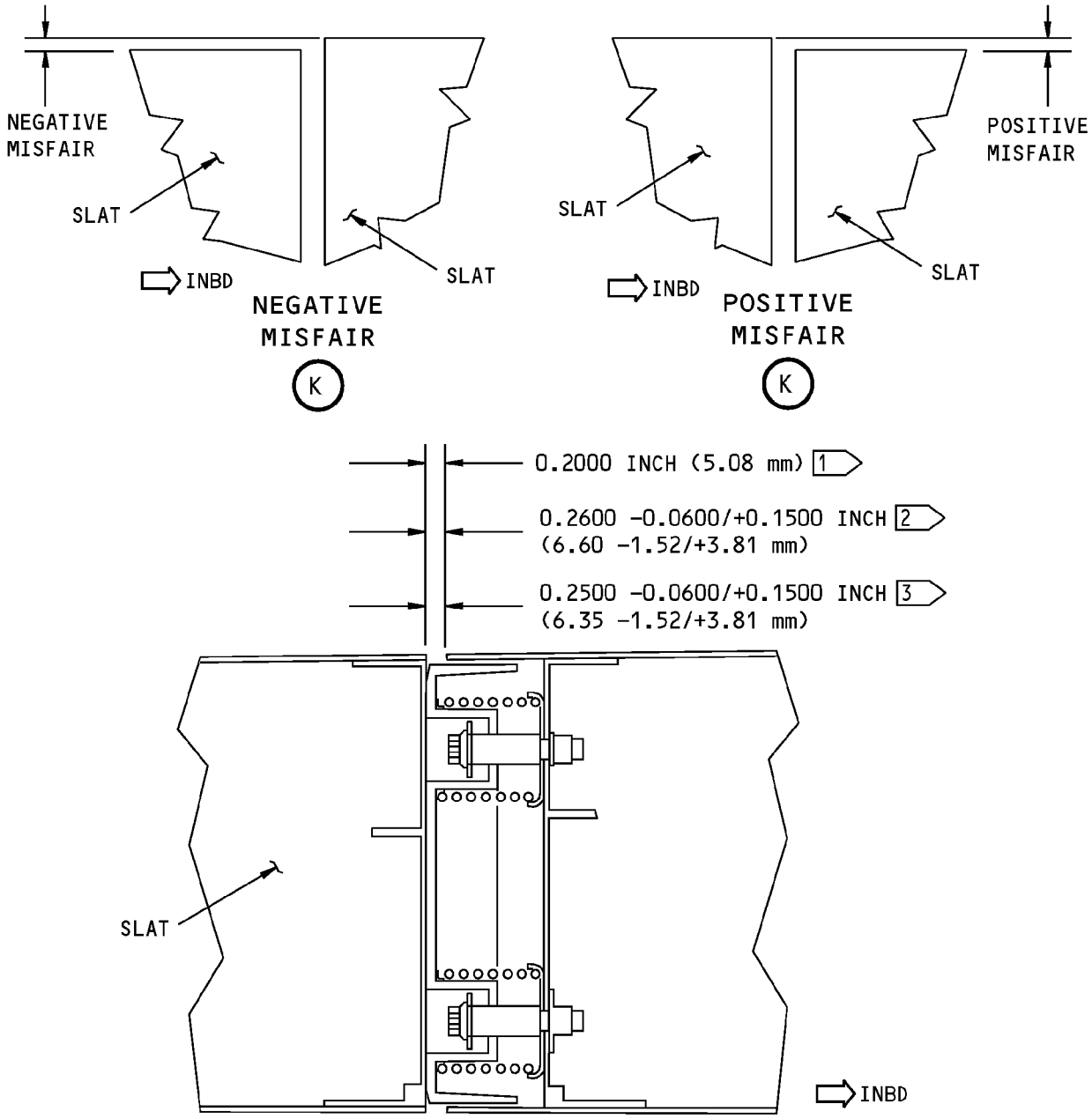

1 MIN FOR SLAT EXTEND AND FULL EXTEND POSITIONS.

2 SLAT TO SLAT

3 SLAT TO FIXED LEADING EDGE.

Leading Edge Slat Adjustment
Figure 503 (Sheet 9 of 9)/27-81-00-990-806

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TASK 27-81-00-700-801

5. Leading Edge Flap and Slat Operational Test in Primary Mode

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-740-801	FSEU Display and Existing Faults Test (P/B 501)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Test

SUBTASK 27-81-00-860-037

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-81-00-860-038

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-00-860-039

(3) If the flap control lever is not in the UP position, do these steps:

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Move the flap control lever to the UP position.

(b) Let the leading edge flaps and slats and the trailing edge flaps move to the retract position.

SUBTASK 27-81-00-010-002

(4) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

E. Leading Edge Flap and Slat Operational Test in Primary Mode

SUBTASK 27-81-00-740-002

(1) Do this task: FSEU Display and Existing Faults Test, TASK 27-51-00-740-801.

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SUBTASK 27-81-00-730-001

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Do a test of the leading edge flap and slat operational test in primary mode:

(a) Use the FSEU front panel to do a check of the position of the leading edge flaps and slats (Figure 504):

1) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?.

2) Push the down arrow until OTHER FUNCTNS? shows on the display.

3) Push the YES button to select OTHER FUNCTNS? on the FSEU.

4) Push the down arrow until I/O MONITOR? shows on the display.

5) Push the YES button to select I/O MONITOR? from the menu.

6) Push the YES button to select PROX SENSORS? from the I/O MONITOR? menu.

(b) Push the down arrow to step through the proximity sensor states at the LE flaps and slats UP position.

(c) Make sure these displays and the proximity sensor states show on the FSEU (Table 504):

Table 504/27-81-00-993-815

Display	State
S1 OUTBD	GAP NEAR
S1 INBD	GAP NEAR
S2 OUTBD	GAP FAR
S2 INBD	GAP FAR
S2 RETR	GAP NEAR
S3 OUTBD	GAP FAR
S3 INBD	GAP FAR
S3 RETR	GAP NEAR
S4 OUTBD	GAP FAR
S4 INBD	GAP FAR
S4 RETR	GAP NEAR
S5 OUTBD	GAP FAR
S5 INBD	GAP FAR
S5 RETR	GAP NEAR
S6 OUTBD	GAP FAR
S6 INBD	GAP FAR
S6 RETR	GAP NEAR

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(Continued)

Display	State
S7 OUTBD	GAP FAR
S7 INBD	GAP FAR
S7 RETR	GAP NEAR
S8 OUTBD	GAP NEAR
S8 INBD	GAP NEAR
F1 RETR	GAP NEAR
F1 EXT	GAP FAR
F2 RETR	GAP NEAR
F2 EXT	GAP FAR
F3 RETR	GAP NEAR
F3 EXT	GAP FAR
F4 RETR	GAP NEAR
F4 EXT	GAP FAR

(d) Move the flap control lever to the 1-unit detent position.

1) Make sure these lights come on during the flaps and slats extension and go off after extension (Figure 505);

a) The LE FLAPS TRANSIT light on the center instrument panel, P2

b) All the LE flaps and slats TRANSIT lights on the aft overhead panel, P5.

2) Push the down arrow on the FSEU to step through the proximity sensor states.

3) Make sure these displays and the proximity sensor states show on the FSEU (Table 505):

Table 505/27-81-00-993-816

Display	State
S1 OUTBD	GAP FAR
S1 INBD	GAP NEAR
S2 OUTBD	GAP FAR
S2 INBD	GAP NEAR
S2 RETR	GAP FAR
S3 OUTBD	GAP FAR
S3 INBD	GAP NEAR
S3 RETR	GAP FAR
S4 OUTBD	GAP FAR
S4 INBD	GAP NEAR

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(Continued)

Display	State
S4 RETR	GAP FAR
S5 OUTBD	GAP FAR
S5 INBD	GAP NEAR
S5 RETR	GAP FAR
S6 OUTBD	GAP FAR
S6 INBD	GAP NEAR
S6 RETR	GAP FAR
S7 OUTBD	GAP FAR
S7 INBD	GAP NEAR
S7 RETR	GAP FAR
S8 OUTBD	GAP FAR
S8 INBD	GAP NEAR
F1 RETR	GAP FAR
F1 EXT	GAP NEAR
F2 RETR	GAP FAR
F2 EXT	GAP NEAR
F3 RETR	GAP FAR
F3 EXT	GAP NEAR
F4 RETR	GAP FAR
F4 EXT	GAP NEAR

4) Make sure the LE FLAPS EXT light on the center instrument panel, P2, is on.

5) Make sure the LE flaps and slats EXT lights on the aft overhead panel, P5, are on.

(e)

HAP 001-013, 015-026, 028-036, 101-999

Move the flap control lever to the 10-unit detent position.

HAP 037-054

Move the flap control lever to the 30-unit detent position.

HAP ALL

1) Make sure these lights come on during the flaps and slats extension and go off after extension.

a) The LE FLAPS TRANSIT light on the center instrument panel, P2

b) All the LE slats TRANSIT lights on the aft overhead panel.

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2) Push the down arrow on the FSEU to step through the proximity sensor states.

3) Make sure these displays and the proximity sensor states show on the FSEU (Table 506):

Table 506/27-81-00-993-817

Display	State
S1 OUTBD	GAP NEAR
S1 INBD	GAP FAR
S2 OUTBD	GAP NEAR
S2 INBD	GAP FAR
S2 RETR	GAP FAR
S3 OUTBD	GAP NEAR
S3 INBD	GAP FAR
S3 RETR	GAP FAR
S4 OUTBD	GAP NEAR
S4 INBD	GAP FAR
S4 RETR	GAP FAR
S5 OUTBD	GAP NEAR
S5 INBD	GAP FAR
S5 RETR	GAP FAR
S6 OUTBD	GAP NEAR
S6 INBD	GAP FAR
S6 RETR	GAP FAR
S7 OUTBD	GAP NEAR
S7 INBD	GAP FAR
S7 RETR	GAP FAR
S8 OUTBD	GAP NEAR
S8 INBD	GAP FAR
F1 RETR	GAP FAR
F1 EXT	GAP NEAR
F2 RETR	GAP FAR
F2 EXT	GAP NEAR
F3 RETR	GAP FAR
F3 EXT	GAP NEAR
F4 RETR	GAP FAR

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(Continued)

Display	State
F4 EXT	GAP NEAR

4) Make sure the LE FLAPS EXT light on the center instrument pane, P2, is on.

5) Make sure the LE flaps EXTEND and slats FULL EXTEND lights on the aft overhead panel, P5, are on.

(f) Push the ON/OFF button on the front panel of the FSEU to turn the display off.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-040

(1) Move the flap control lever to the UP position.

SUBTASK 27-81-00-860-041

(2) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-00-410-002

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

END OF TASK

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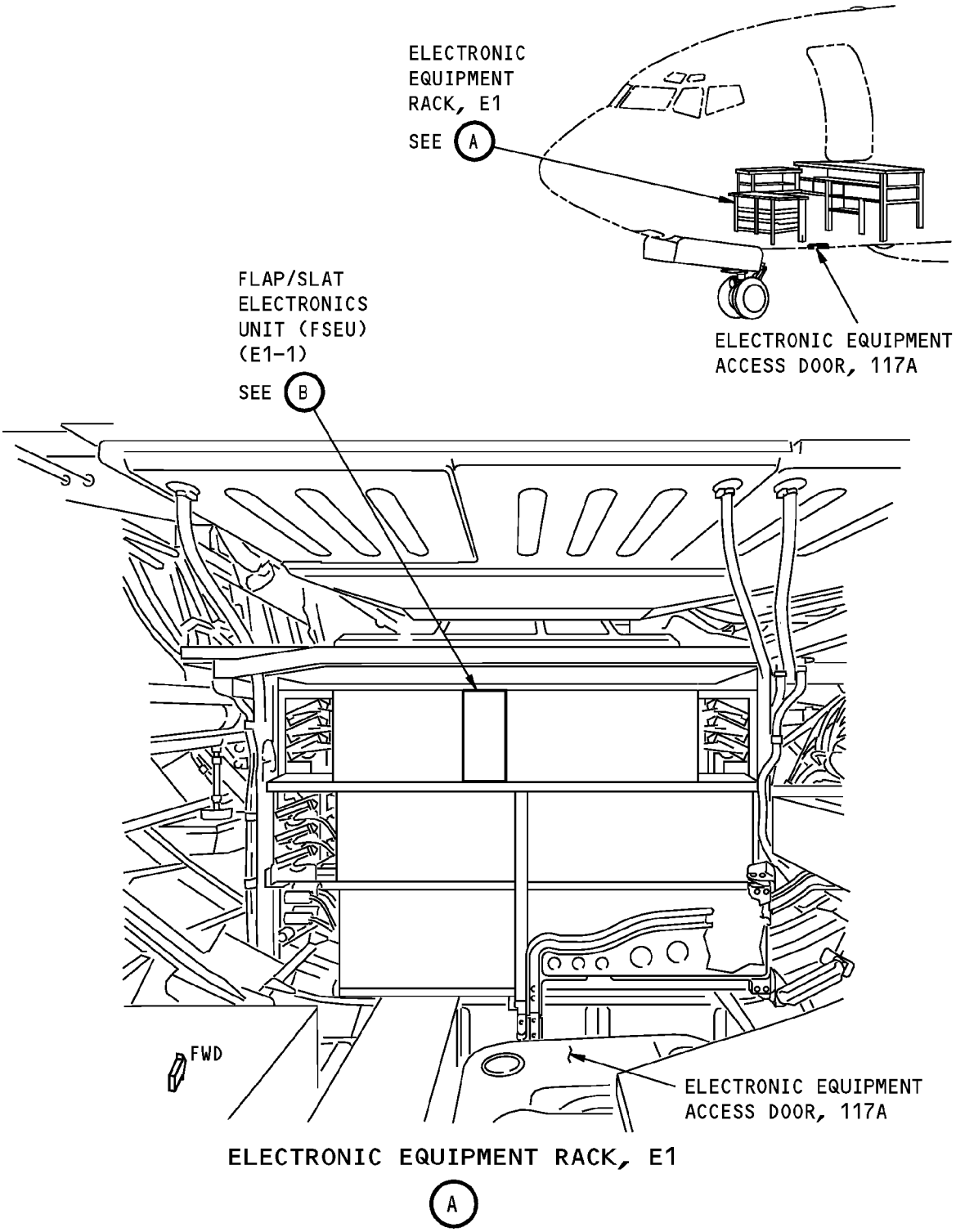

Flap/Slat Electronics Unit
Figure 504 (Sheet 1 of 2)/27-81-00-990-807

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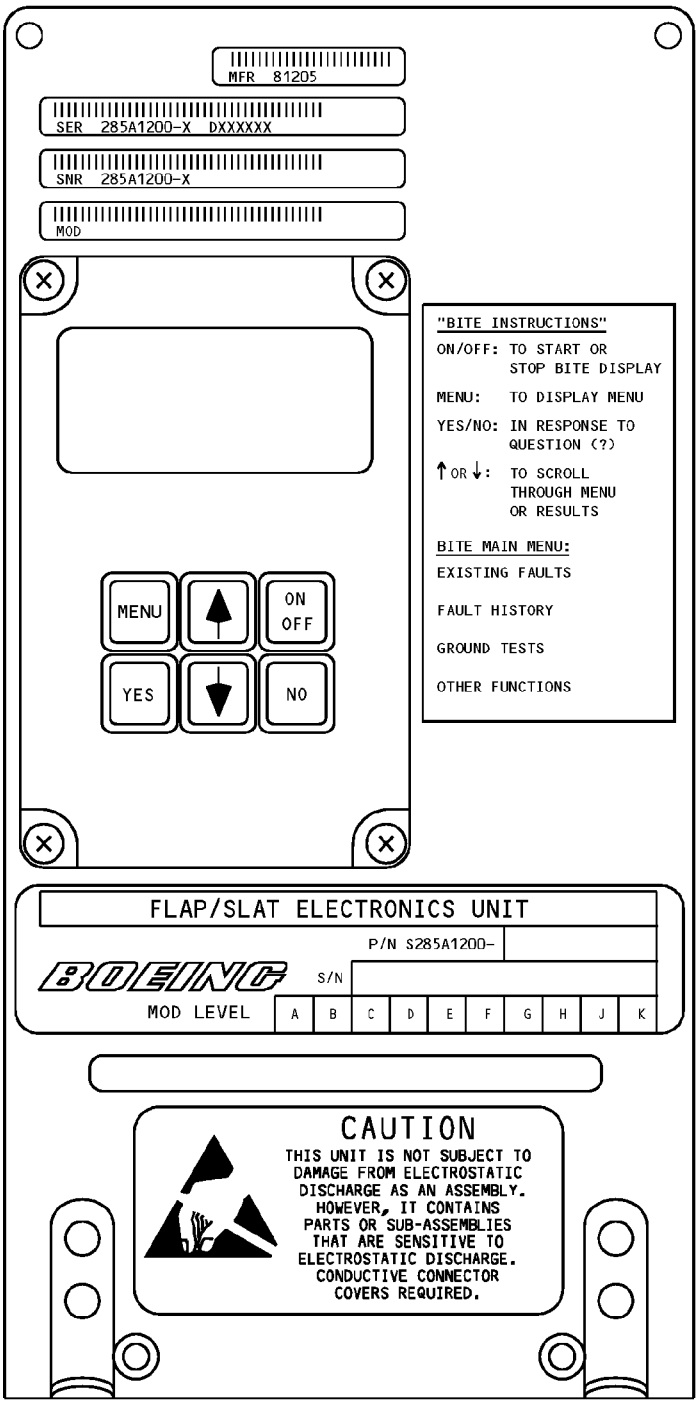

FLAP/SLAT ELECTRONICS UNIT (FSEU)

B

Flap/Slat Electronics Unit
Figure 504 (Sheet 2 of 2)/27-81-00-990-807

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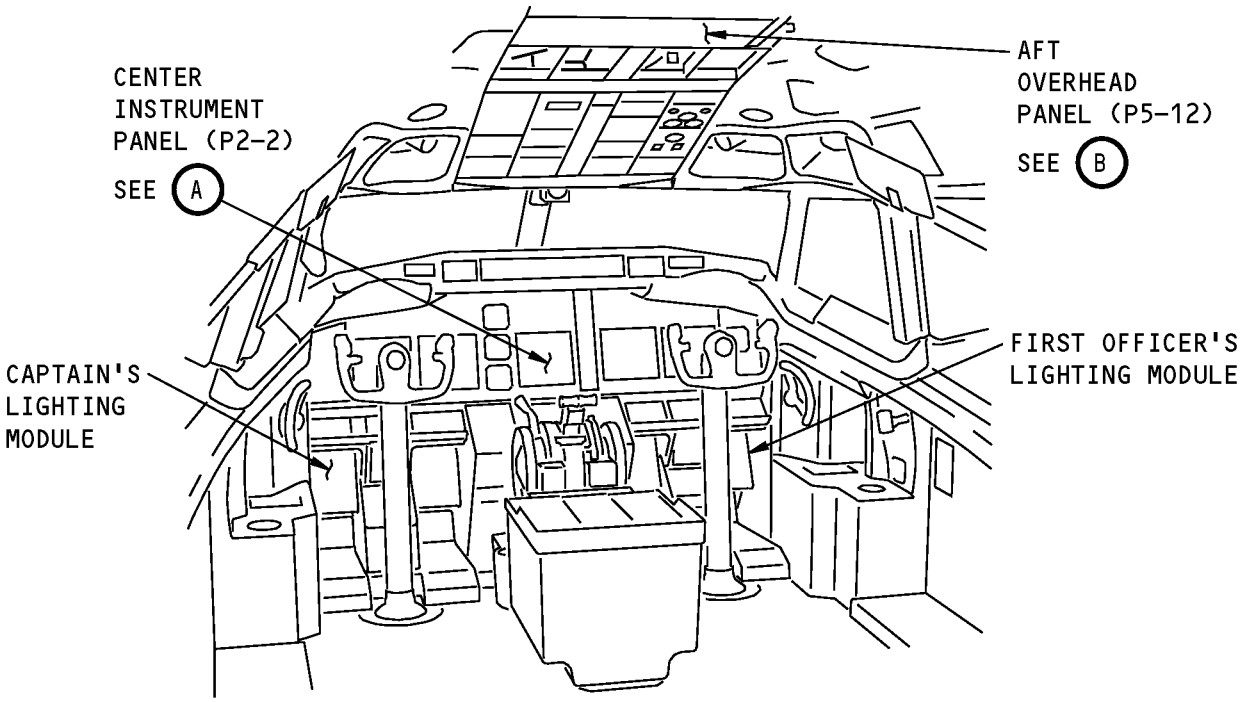
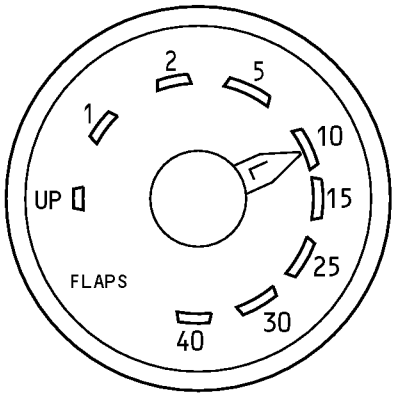


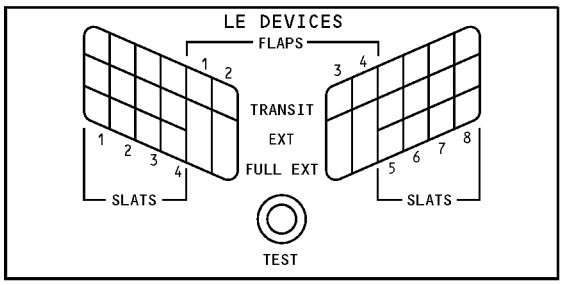
FLIGHT COMPARTMENT



LE FLAPS TRANSIT A	LE FLAPS EXT G

CENTER INSTRUMENT PANEL (P2-2)

A



AFT OVERHEAD PANEL (P5-12)

B

Leading Edge Flap and Slat Position Indicator
Figure 505/27-81-00-990-808

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TASK 27-81-00-700-802

6. Leading Edge Flap and Slat Timing Test in Primary Mode

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-804	Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP) (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Test

SUBTASK 27-81-00-860-042

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-81-00-860-043

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND THE NOSE GEAR WHEN HYDRAULIC POWER IS SUPPLIED. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, STABILIZER, AND THE NOSE GEAR ARE SUPPLIED WITH POWER BY THE HYDRAULIC SYSTEMS. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

(2) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization with an Engine-Driven Pump (EDP), TASK 29-11-00-860-804.

D. Leading Edge Flap and Slat Timing Test in Primary Mode

SUBTASK 27-81-00-720-001

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE AND TRAILING EDGE CONTROL SURFACES. THE LEADING EDGE AND TRAILING EDGE CONTROLS SURFACES CAN EXTEND AND RETRACT QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do a timing test of the leading edge flap and slat control system in primary mode:

NOTE: Measure the time intervals between the time the surfaces start to move to the time the surfaces stop moving.

(a) If the flap control lever is not in the UP position, do these steps:

1) Move the flap control lever to the UP position.

2) Let the leading edge flaps and slats and the trailing edge flaps move to the retract position.

(b) Move the flap control lever to the 5-unit detent position.

1) Make sure the leading edge flaps extend fully in 5.5 to 7.5 seconds.

2) Make sure the leading edge slats move to the extend position in 7.5 to 9.5 seconds.

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(c)

HAP 001-013, 015-026, 028-036, 101-999

Move the flap control lever to the 10-unit detent.

HAP 037-054

Move the flap control lever to the 30-unit detent.

HAP ALL

1) Make sure the leading edge slats move to the full extend position in 2.5 to 3.5 seconds.

(d) Make sure the LE indication flaps EXTEND and slats FULL EXTEND lights on the aft overhead panel are on (Figure 505).

(e) Move the flap control lever to the 1-unit detent position.

1) Make sure the leading edge slats move to the extend position in 3.5 to 4.5 seconds.

2) Let the trailing edge flaps move to the correct position.

(f) Move the flap control lever to the UP detent position.

1) Make sure the leading edge flaps move to the retract position in 7.0 to 9.0 seconds.

2) Make sure the leading edge slats move to the retract poisition in 6.5 to 8.5 seconds.

(g) Make sure the LE indication flaps and slats TRANSIT, EXTEND and FULL EXTEND lights on the aft overhead panel are off.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-044

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

TASK 27-81-00-710-801

7. Leading Edge Flap and Slat System Standby Actuation Operational Test

A. General

(1) This procedure is a scheduled maintenance task.

(2) The alternate control system uses electrical power to power the standby hydraulic system which moves the leading edge slats and flaps.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

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D. Prepare for the Operational Test

SUBTASK 27-81-00-860-063

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-81-00-860-064

(2) If the leading edge flaps and slats are not in the retract position, do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

E. Leading Edge Standby System Operational Test

SUBTASK 27-81-00-860-065

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, STABILIZER AND NOSE GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THAT THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED AND IN THE STOWED POSITION OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN COWL PANEL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Move the ALTERNATE FLAPS ARM switch on the P5 panel to the ARM position (Figure 506).

NOTE: The standby hydraulic pump motor will operate when the ALTERNATE FLAPS ARM switch is in the ARM position.

SUBTASK 27-81-00-860-066

(2)

HAP 001-013, 015-026, 028-036, 101-999

Move the flap control lever to the 10-unit position.

HAP 037-054

Move the flap control lever to the 30-unit position.

HAP ALL

NOTE: This will decrease the load on the flap electric motor. The leading edge and trailing edge surfaces will not move when you move the flap control lever.

SUBTASK 27-81-00-710-003

(3) Move the ALTERNATE FLAPS control switch to the DOWN position to extend the leading edge flaps and slats to the full extend position.

NOTE: It is not necessary to extend the trailing edge flaps past the 10-unit position.

(a) When the flaps and slats start to extend, make sure all the LE indication flaps and slats TRANSIT lights, on the aft overhead panel, P5, come on (Figure 505).

(b) Do these checks of the aft overhead lights when the leading edge flaps and slats are in the full extend position:

1) Make sure all the TRANSIT lights go off.

2) Make sure the flaps EXT lights come on.

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3) Make sure the slats FULL EXT lights come on.

SUBTASK 27-81-00-860-067

(4) Move the ALTERNATE FLAPS control switch to the OFF position.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-068

WARNING: MAKE SURE THE POSITION OF THE FLAPS AND SLATS AGREES WITH THE POSITION OF THE FLAP CONTROL LEVER. WHEN YOU PRESSURIZE HYDRAULIC SYSTEM B, THE FLAPS AND SLATS WILL MOVE AUTOMATICALLY TO THE POSITION OF THE FLAP CONTROL LEVER WITH THE ALTERNATE CONTROL DISARMED. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure the flap control lever is in the same position as the trailing edge flaps and leading edge flaps and slats.

SUBTASK 27-81-00-860-069

(2) Move the ALTERNATE FLAPS ARM switch to the OFF position to disarm the alternate control system.

SUBTASK 27-81-00-860-070

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-00-860-071

(4) Move the flap control lever to the UP position to retract the leading edge flaps and slats and the trailing edge flaps.

NOTE: The leading edge flaps and slats will not retract with alternate control.

SUBTASK 27-81-00-860-072

(5) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

TASK 27-81-00-700-803

8. Leading Edge Flap and Slat Timing Test in the Standby Mode

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

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C. Prepare for the Test

SUBTASK 27-81-00-860-045

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-81-00-860-046

(2) If the leading edge flaps and slats are not in the retract position, do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

D. Leading Edge Flap and Slat Timing in the Standby Mode

SUBTASK 27-81-00-710-001

(1) Do the leading edge flap and slat timing test in the standby mode:

NOTE: The leading edge flaps and slats do not retract in the standby mode.

(a) Put the ALTERNATE FLAPS arm switch, on the overhead panel, P5, in the ARM position (Figure 506).

(b) Move the ALTERNATE FLAPS control switch to the DOWN position for 5 seconds, then release.

(c) When the flaps and slats start to extend, make sure all the LE indication flaps and slats TRANSIT lights, on the aft overhead panel, P5, come on.

(d) Make sure the leading edge flaps extend in 29 to 37 seconds.

(e) Make sure the leading edge slats extend in 43 to 55 seconds.

(f) Do these checks when the leading edge flaps and slats are in the full extend position (Figure 505);

1) Make sure all the TRANSIT lights go off.

2) Make sure the flaps EXT lights come on.

3) Make sure the slats FULL EXT lights come on.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-047

(1) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

END OF TASK

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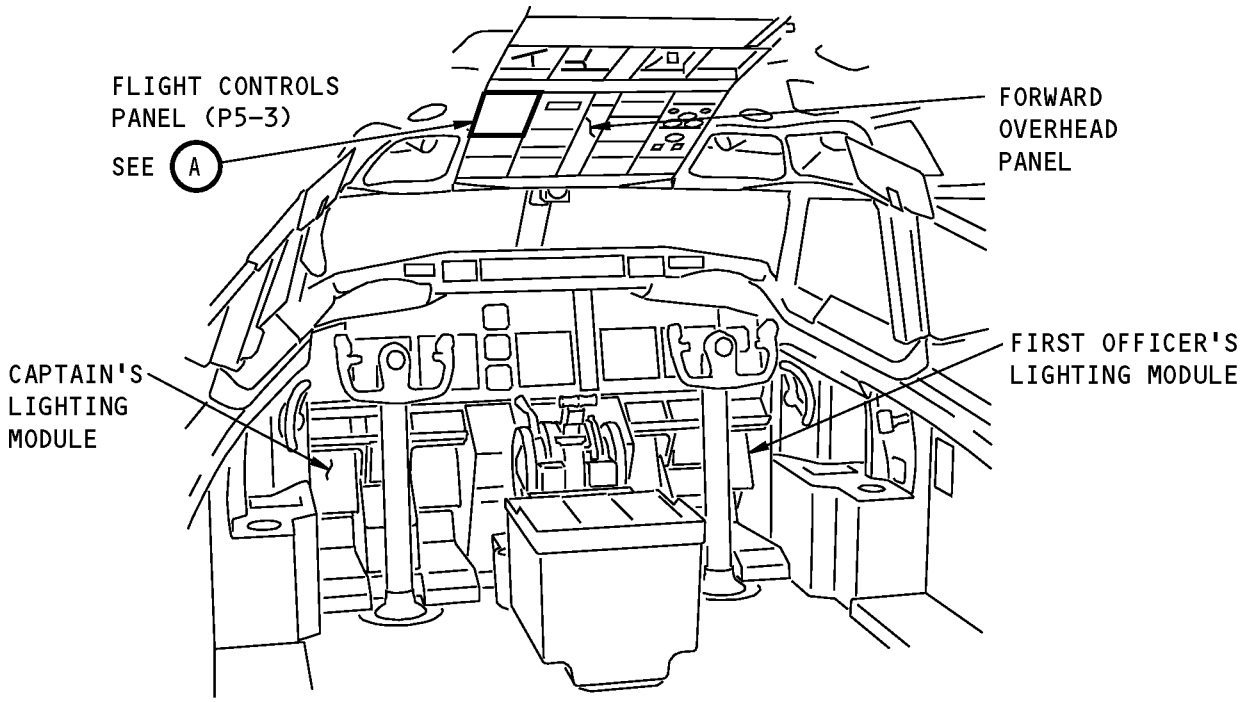
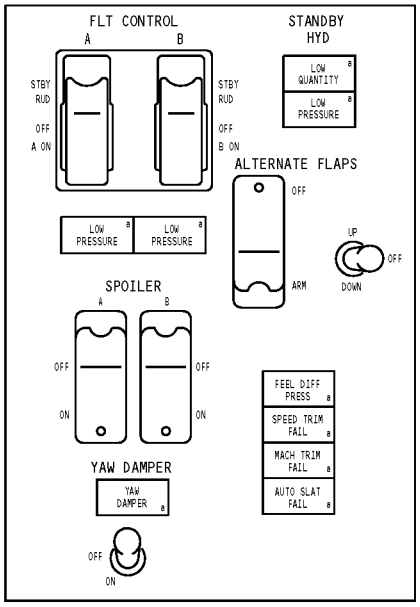


FLIGHT COMPARTMENT



FLIGHT CONTROLS PANEL (P5-3)

A

Flight Control Switches
Figure 506/27-81-00-990-809

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TASK 27-81-00-730-801

9. Leading Edge Cruise Depressurization Test

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

D. Prepare for the Test

SUBTASK 27-81-00-010-003

(1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-81-00-860-048

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-81-00-860-049

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) To pressurize the hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

E. Leading Edge Cruise Depressurization Test

SUBTASK 27-81-00-860-083

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Move the flap control lever to the 1-unit position to extend the leading edge flaps and slats and the trailing edge flaps.

SUBTASK 27-81-00-740-004

(2) Do this test of the leading edge cruise depressurization valve:

(a) Move the ALTERNATE FLAPS ARM switch on the P5-3 panel to the ARM position.

(b) Use the FSEU to operate the leading edge cruise depressurization valve:

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1) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?.

2) Push the down arrow until OTHER FUNCTNS? shows on the display.
3) Push the YES button to select OTHER FUNCTNS? on the FSEU.
4) Push the YES button to select SET OUTPUTS? from the OTHER FUNCTNS? menu.
5) Push the YES button to select LE DEPR VALVE? from the menu.
6) Push the YES button to select SET ON? on the display.

(c) Make sure the leading edge flaps and slats do not move.

(d) Wait until the FSEU display shows LE DEPR VALVE?.

NOTE: This will take approximately 75 seconds.

(e) Move the flap control lever to the UP position.

(f) Make sure the leading edge flaps and slats and the trailing edge flaps do not move to the retracted position.

(g) Push the YES button on the FSEU to display SET ON?.

(h) Push the YES button to select SET ON? on the display.

(i) Make sure the leading edge flaps and slats retract and that the trailing edge flaps stay extended.

NOTE: The LE FLAPS TRANSIT lights will stay on.

(j) Wait until the FSEU display shows LE DEPR VALVE?.

NOTE: This will take approximately 75 seconds.

(k) Make sure the leading edge flaps and slats move to the extend position.

(l) Move the ALTERNATE FLAPS ARM switch to the OFF position.

(m) Make sure the leading edge flaps and slats, and the trailing edge flaps move to the retracted position.

F. Put the Airplane Back to Its Usual Condition.

SUBTASK 27-81-00-860-084

(1) Push the ON/OFF button on the front panel of the FSEU to turn the display off.

SUBTASK 27-81-00-860-085

(2) Move the flap control lever to the UP position to retract the flaps and slats.

SUBTASK 27-81-00-410-003

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-81-00-860-051

(4) To remove pressure from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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TASK 27-81-00-700-804

10. Leading Edge Uncommanded Motion Protection Test

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Test

SUBTASK 27-81-00-010-004

(1) Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-81-00-860-052

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-81-00-860-053

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Pressurize hydraulic system B. To pressurize the hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

F. Leading Edge Uncommanded Motion Protection Test

SUBTASK 27-81-00-860-077

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Move the flap control lever to the 1-unit position to extend the leading edge flaps and slats and the trailing edge flaps.

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SUBTASK 27-81-00-740-003

(2) Do this test of the leading edge cruise depressurization valve:

(a) Move the ALTERNATE FLAPS ARM switch on the P5-3 panel to the ARM position.

(b) Use the FSEU to operate the leading edge cruise depressurization valve:

1) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?.

2) Push the down arrow until OTHER FUNCTNS? shows on the display.

3) When OTHER FUNCTNS? shows, press YES.

4) When SET OUTPUT? shows, press YES.

5) When LE DEPR VALVE? shows, press YES.

6) When SET ON? shows, press YES.

7) The FSEU display will show CMD ON/SET OFF? for approximately 75 seconds.

(c) Make sure the leading edge flaps and slats do not move.

(d) Wait until the FSEU display shows LE DEPR VALVE?.

NOTE: This will take approximately 75 seconds from the time CMD ON/SET OFF? shows on the display.

(e) Move the flap control lever to the UP position.

(f) Make sure the leading edge flaps and slats and the trailing edge flaps do not move to the retracted position.

(g) Push the YES button on the FSEU to display SET ON?.

(h) When SET ON? shows, press YES.

(i) Make sure the leading edge flaps and slats retract and that the trailing edge flaps stay extended.

NOTE: The LE FLAPS TRANSIT lights will stay on.

(j) Wait until the FSEU display shows LE DEPR VALVE?.

NOTE: This will take approximately 75 seconds.

(k) Make sure the leading edge flaps and slats move to the extend position.

(l) Move the ALTERNATE FLAPS ARM switch to the OFF position.

(m) Make sure the leading edge flaps and slats, and the trailing edge flaps move to the retracted position.

SUBTASK 27-81-00-720-002

(3) Do this test of the leading edge UCM shutoff valve:

(a) Make sure the flap control lever is in the UP detent position.

(b) LE DEPR VALVE? shows on the FSEU display, press the DOWN ARROW once to show LE UCM SHUTOFF?.

(c) When LE UCM SHUTOFF? shows, press YES.

(d) When SET ON? shows, press YES and move the flap control lever to the 1-unit detent position within 5 seconds .

NOTE: If you do not move the lever within 5 seconds, the test will not work.

(e) The FSEU display will show CMD ON/SET OFF? for approximately 75 seconds.

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1) Make sure the leading edge flaps and slats stay in the UP position and that the trailing edge flaps move to the 1-unit position.

NOTE: The LE FLAPS TRANSIT light on the center panel P2 will come on.

(f) Make sure all of the LE DEVICES, FLAPS and SLAT indications on the overhead panel P5 stay off.

(g) Wait until the FSEU display shows LE UCM SHUTOFF?.

NOTE: This will take approximately 75 seconds.

(h) Make sure the leading edge flaps and slats move to the extend position.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-078

(1) Push the ON/OFF button on the front panel of the FSEU to turn the display off.

SUBTASK 27-81-00-860-079

(2) Move the flap control lever to the UP position to retract the flaps and slats.

SUBTASK 27-81-00-410-004

(3) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

SUBTASK 27-81-00-860-055

(4) To remove pressure from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK

TASK 27-81-00-710-802

11. Standby Hydraulic System Leading Edge Uncommanded Motion Test

(Figure 506)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
24-22-00-860-812	Remove Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the test

SUBTASK 27-81-00-860-073

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

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SUBTASK 27-81-00-860-074

WARNING: BE CAREFUL WHEN YOU ACCESS CIRCUIT BREAKERS INSIDE THE P91 AND P92 PANELS AND POWER IS SUPPLIED TO THE PANELS. THERE IS A POTENTIAL FOR ELECTRIC SHOCK HAZARD. POSSIBLE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Make sure that these circuit breakers are closed:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	8	C00211	FLIGHT CONTROL FSEU DC 1
A	9	C01468	FLIGHT CONTROL FSEU DC 2
A	11	C01443	FC TE FLAP POS/SKEW SNSR & IND RIGHT
A	12	C00213	FC TE FLAP POS/SKEW SNSR & IND LEFT
C	11	C00362	FLIGHT CONTROL SHUTOFF VALVES STBY RUD

Power Distribution Panel Number 2, P92

Row	Col	Number	Name
F	2	C01449	STANDBY HYDRAULIC PUMP

SUBTASK 27-81-00-860-080

(3) Make sure the leading edge flaps and slats and the trailing edge flaps are in the retracted position:

WARNING: KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Supply system B hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(b) Move the flap control lever to the UP position to move the leadinge edge flaps and slats and the trailing edge flaps to the retracted position.

(c) Remove system B hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

E. Standby Hydraulic System Leading Edge Uncommanded Motion Test

SUBTASK 27-81-00-720-003

(1) Pressurize the standby hydraulic system:

(a) Set the ALTERNATE FLAPS on the forward overhead panel P5 to the ARM position.

NOTE: This will start the standby hydraulic pump.

(b) Make sure the STANDBY HYD LOW PRESSURE light on the P5 panel comes on and quickly goes out.

NOTE: This makes sure that the standby system is pressurized.

SUBTASK 27-81-00-210-004

(2) Observe the leading edges on both the left and right wings:

(a) Make sure that the leading edges do not move when you pressurize the standby hydraulic system.

NOTE: The leading edge flaps can slowly extend because of gravity.

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F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-00-860-075

(1) Move the ALTERNATE FLAPS ARM switch on the forward overhead panel to the OFF position.

NOTE: This will turn off the standby hydraulic system.

SUBTASK 27-81-00-860-076

(2) Do this task: Remove Electrical Power, TASK 24-22-00-860-812.

———————— END OF TASK ————————

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LEADING EDGE FLAP AND SLAT CONTROL SYSTEM - INSPECTION/CHECK

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has this inspection task:

(1) Wing Leading Edge Flap and Slat Actuators and Leading Edge Flap and Slat Actuation Mechanism

TASK 27-81-00-210-801

2. Leading Edge Flap and Slat Actuators and Actuation Mechanism Inspection

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
27-81-00-860-803	Leading Edge Flaps and Slats Extension (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)

C. Location Zones

Zone	Area
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

D. Procedure

SUBTASK 27-81-00-010-005

(1) Do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

SUBTASK 27-81-00-210-003

(2) Do a general visual inspection of the left and right wing leading edge flap and slat actuators and the leading edge flap and slat actuation mechanism.

SUBTASK 27-81-00-010-006

(3) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

———————— END OF TASK ————————

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LEADING EDGE FLAPS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the leading edge flaps.

(2) An installation of the leading edge flaps.

B. This procedure applies to the inboard and outboard leading edge flaps.

TASK 27-81-11-000-801

2. Leading Edge Flap Removal

(Figure 401)

A. References

Reference	Title
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Location Zones

Zone	Area
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4

D. Prepare for the Removal

SUBTASK 27-81-11-860-001

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-11-860-002

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS WILL EXTEND. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Move the flap control lever to the 1-unit detent to extend the leading edge flaps.

SUBTASK 27-81-11-860-003

(3) To remove power from hyraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-11-480-001

WARNING: CAREFULLY INSTALL THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Install the lockout set, SPL-1734 on the actuator of the adjacent leading edge flap. To do this, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

E. Leading Edge Flap Removal

SUBTASK 27-81-11-020-001

(1) Disconnect the flap actuator [4] from the Leading edge flap [1] or Leading edge flap [2]:

(a) Remove the pin [6], nut [7], washer [8], bushing [11], washer [10] and bolt [9] to disconnect the flap actuator [4] from the outboard Leading edge flap [2].

(b) Remove the pin [15], nut [16], washer [17], bushing [12], washer [13] and bolt [14] to disconnect the flap actuator [4] from the inboard Leading edge flap [1].

SUBTASK 27-81-11-020-002

(2) Do these steps to remove the outboard Leading edge flap [2] from the fixed leading edge:

(a) Disconnect the bullnose linkage [53] from the fixed leading edge flap.

1) Remove the pin [55], nut [54], washer [56], anti-rotation washers [41], bushing [44], washer [43] and bolt [42].

(b) Disconnect hinges 1 thru 4 on the Leading edge flap [2] from the fixed leading edge.

1) At hinges 1 and 4, remove the pins pin [21], nuts [22], washers [20], bushings [19], washers [24], and bolts [23].

2) At hinges 2 and 3, remove the pin [34], nuts [33], washers [25], bushings [26], washers [28], and bolts [27].

(c) Remove the nut [32], washers [31], and bolt [30] to disconnect the bonding jumper [29] from the fixed leading edge.

(d) Remove the Leading edge flap [2] from the wing.

SUBTASK 27-81-11-020-003

(3) Do these steps to remove the inboard Leading edge flap [1] from the fixed leading edge:

(a) Disconnect the bullnose linkages [53] from the fixed leading edge flap.

1) Remove the pin [55], nuts [54], washers [56], anti-rotation washers [41], bushings [44], washers [43] and bolts [42].

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(b) Disconnect hinges 5 thru 8 on the Leading edge flap [1] from the fixed leading edge flap.

1) At hinge 5, remove the pin [21], nut [22], washer [20], bushing [19], washer [24], and bolt [23].

2) At hinges 6 and 7, remove the pin [34], nuts [33], washers [25], bushings [26], washers [28], and bolts [27].

3) At hinge 8, remove the pin [40], nut [39], washer [35], bushing [38], washer [36], and bolt [37].

(c) Remove the nut [32], washers [31], and bolt [30] to disconnect the bonding jumper [29] from the Leading edge flap [1].

(d) Remove the Leading edge flap [1] from the wing.

END OF TASK

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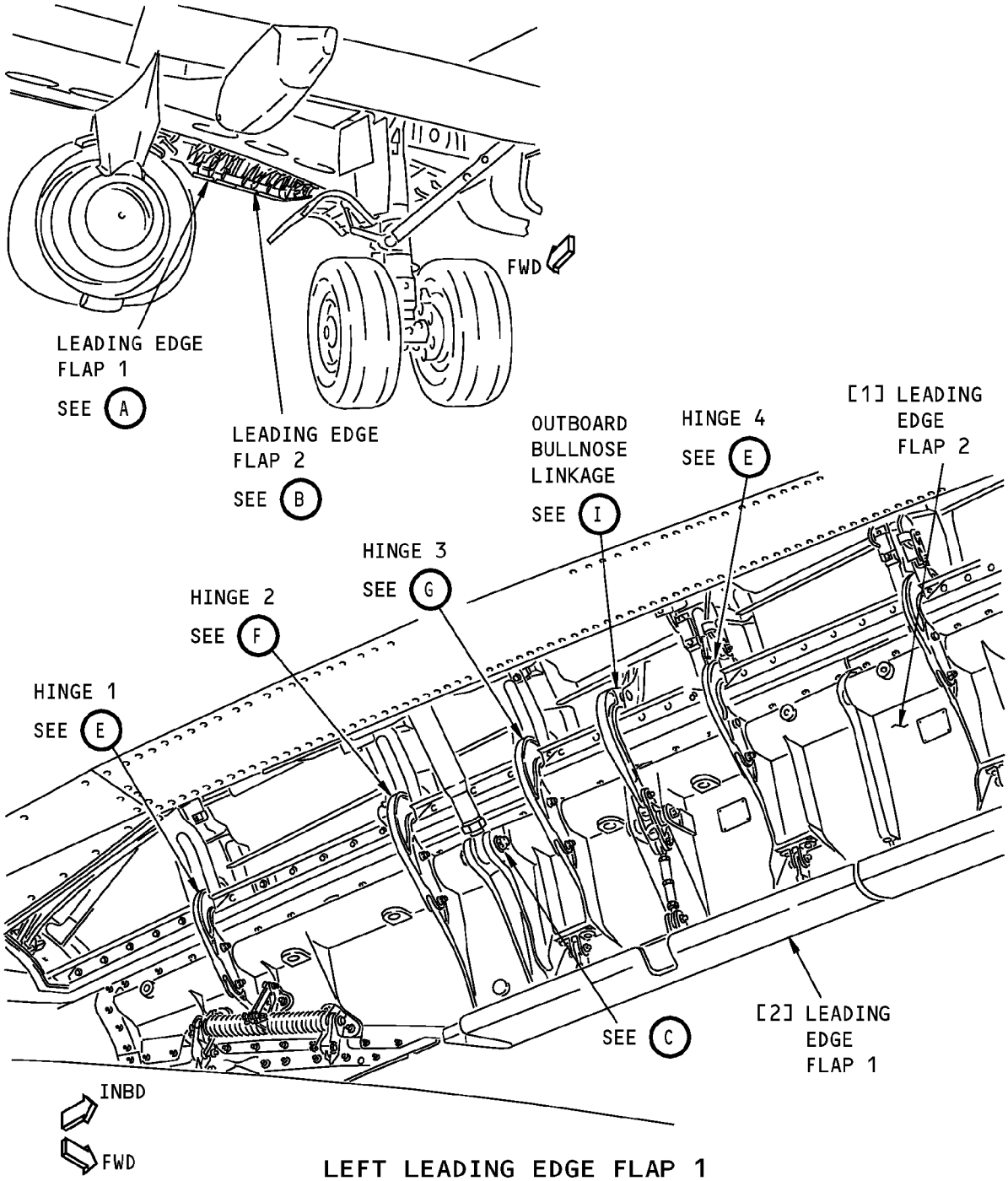

LEFT LEADING EDGE FLAP 1
(RIGHT LEADING EDGE FLAP 4 IS OPPOSITE)

A

Leading Edge Flap Installation
Figure 401 (Sheet 1 of 10)/27-81-11-990-801

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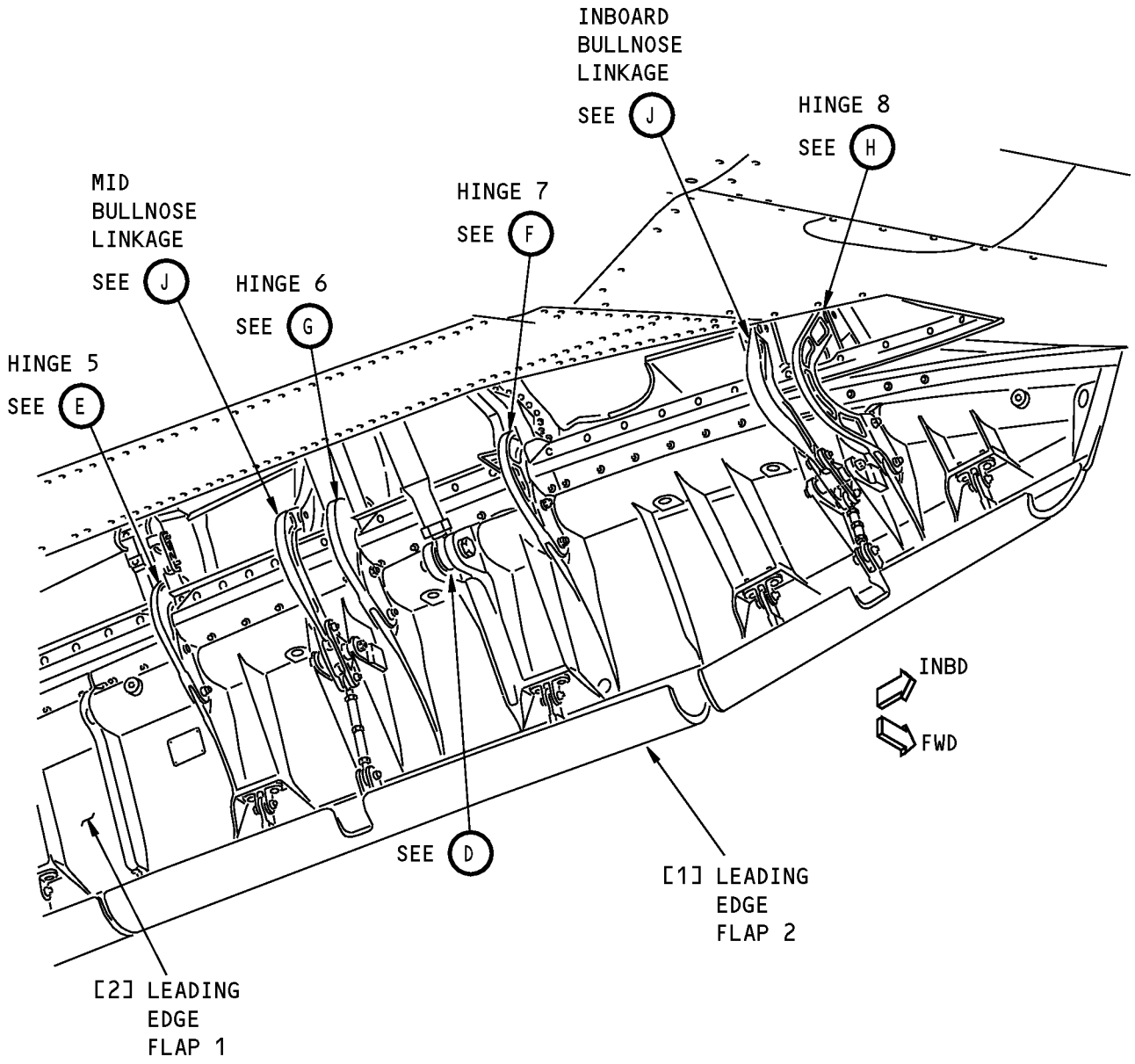

LEFT LEADING EDGE FLAP 2
(RIGHT LEADING EDGE FLAP 3 IS OPPOSITE)
B

Leading Edge Flap Installation
Figure 401 (Sheet 2 of 10)/27-81-11-990-801

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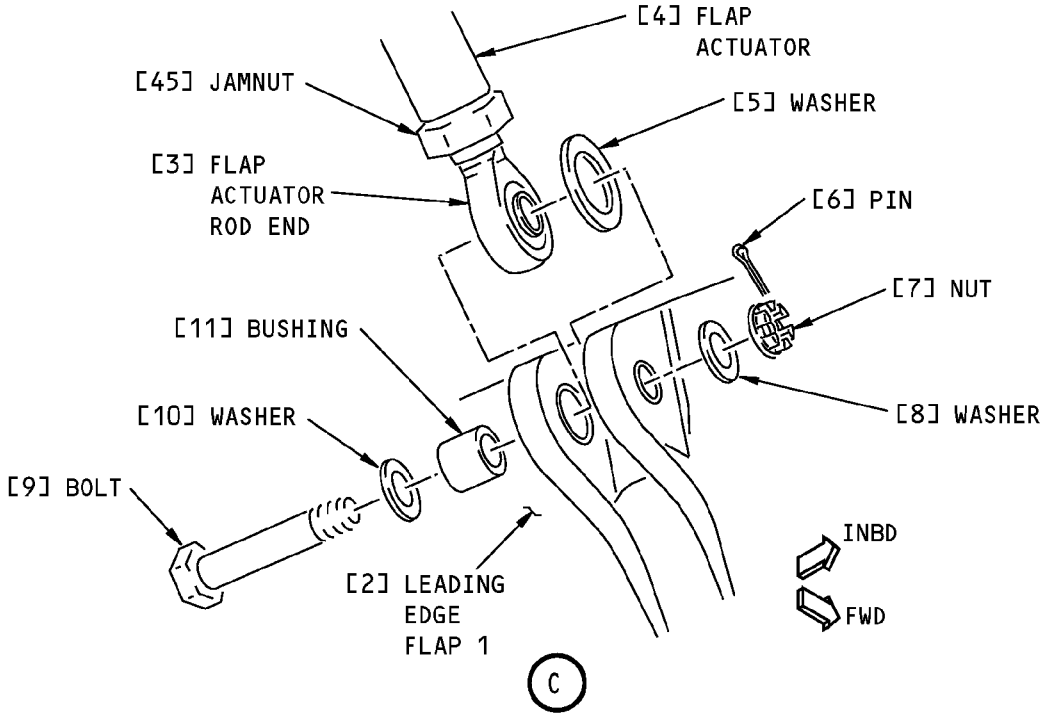

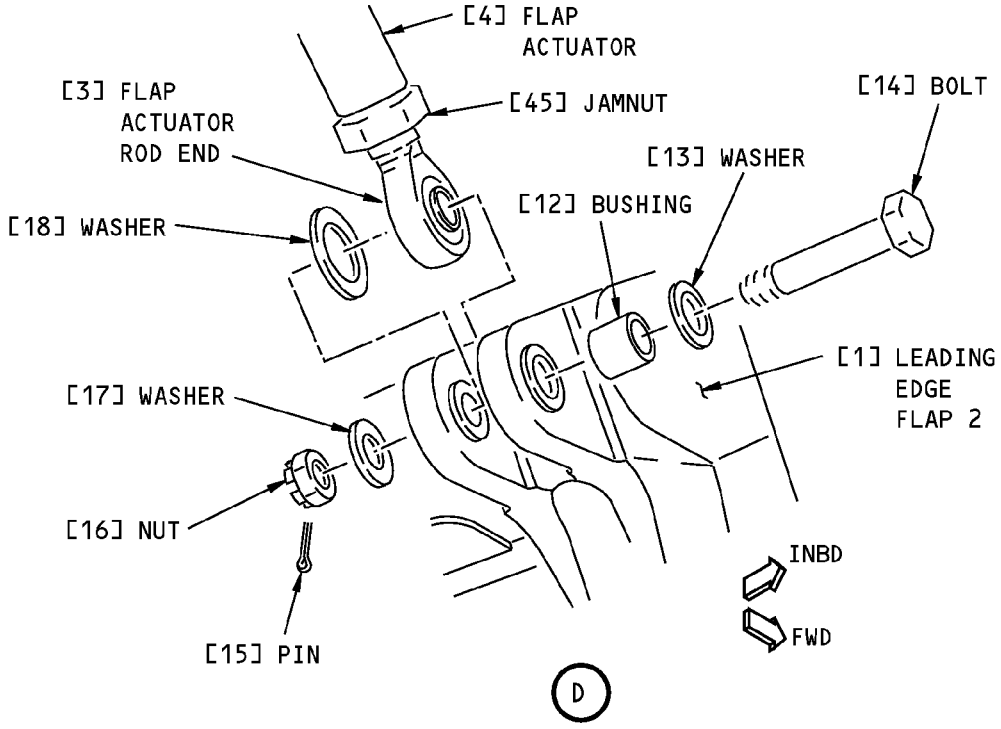

Leading Edge Flap Installation
Figure 401 (Sheet 3 of 10)/27-81-11-990-801

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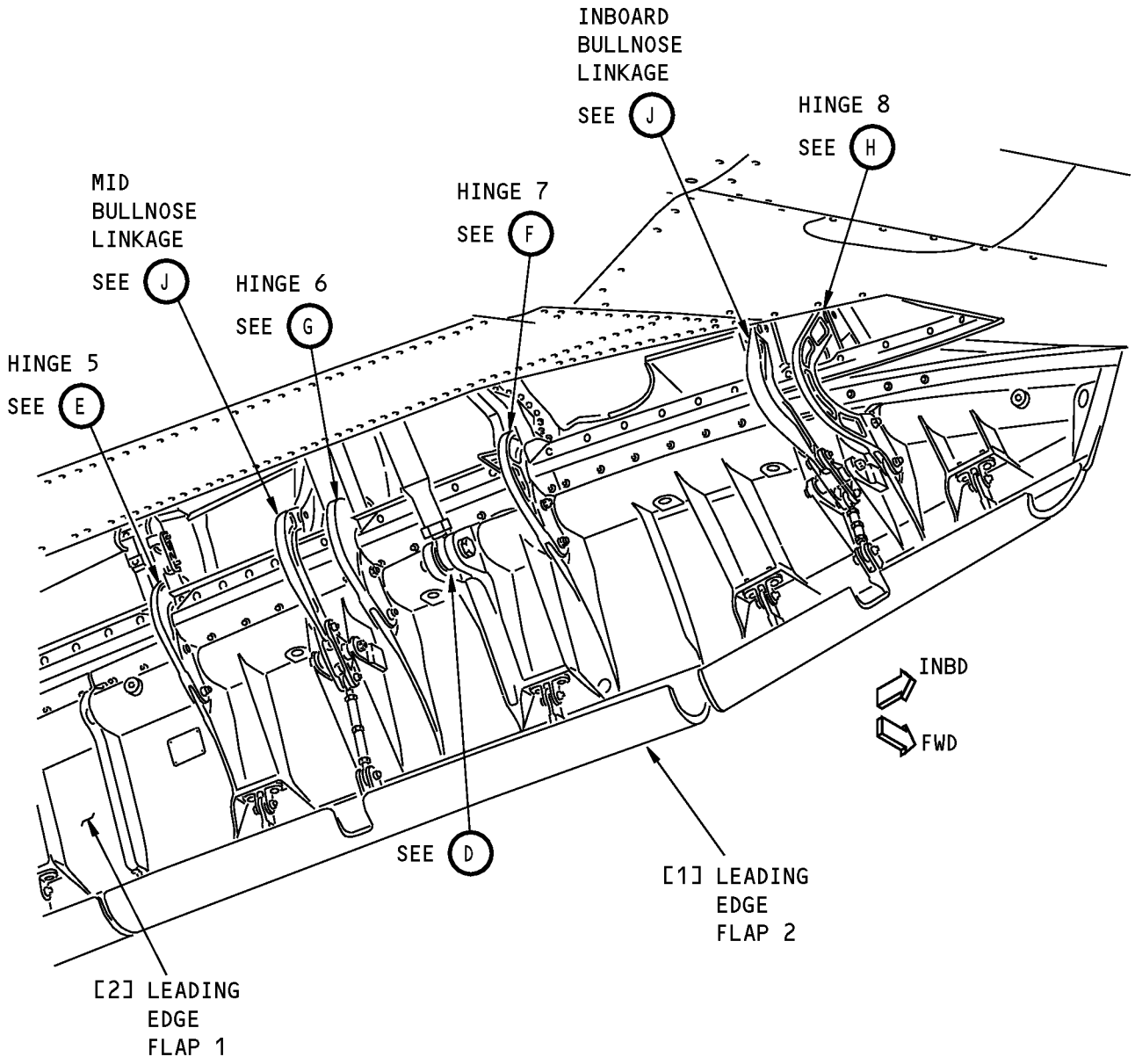

LEFT LEADING EDGE FLAP 2
(RIGHT LEADING EDGE FLAP 3 IS OPPOSITE)
B

Leading Edge Flap Installation
Figure 401 (Sheet 4 of 10)/27-81-11-990-801

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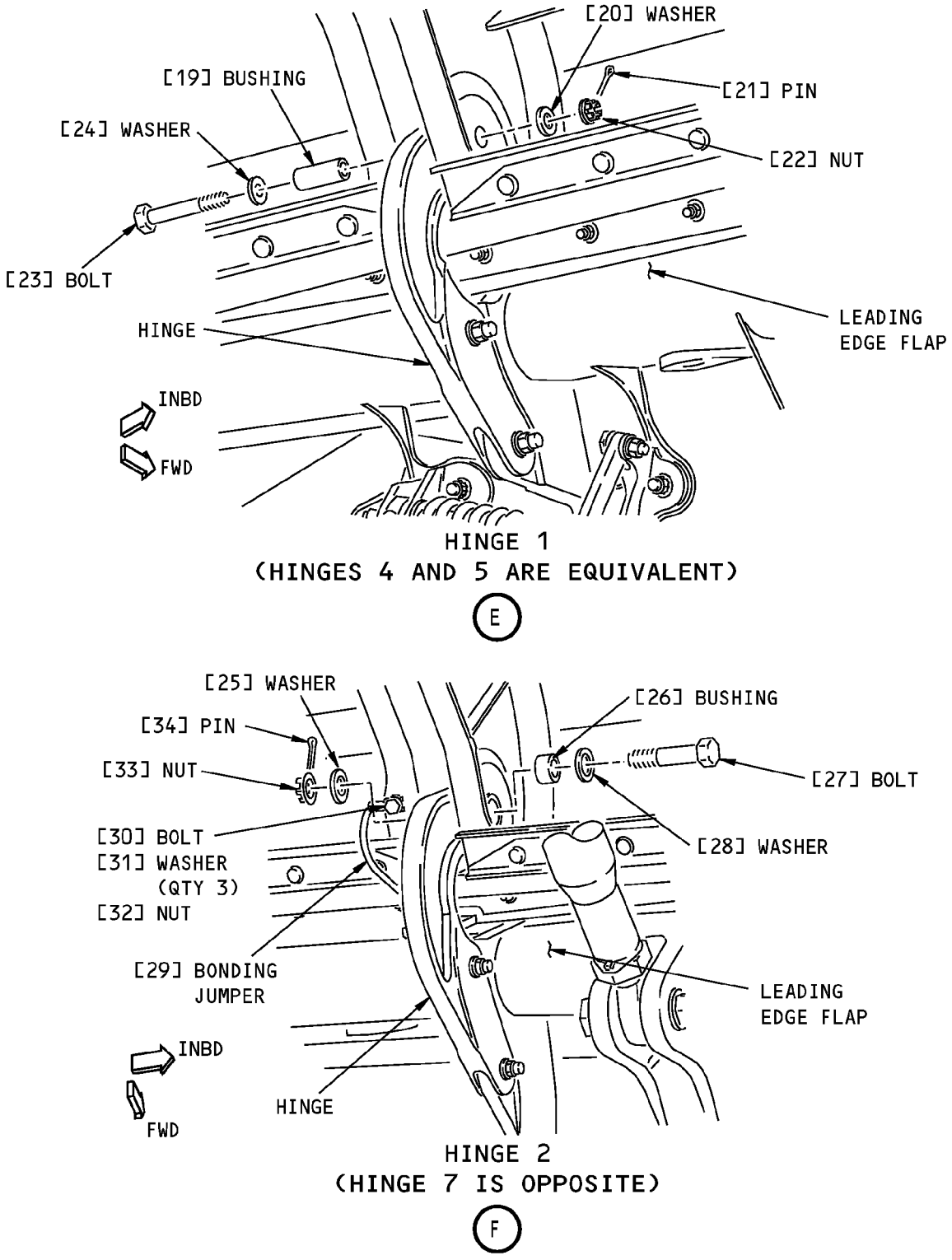

Leading Edge Flap Installation
Figure 401 (Sheet 5 of 10)/27-81-11-990-801

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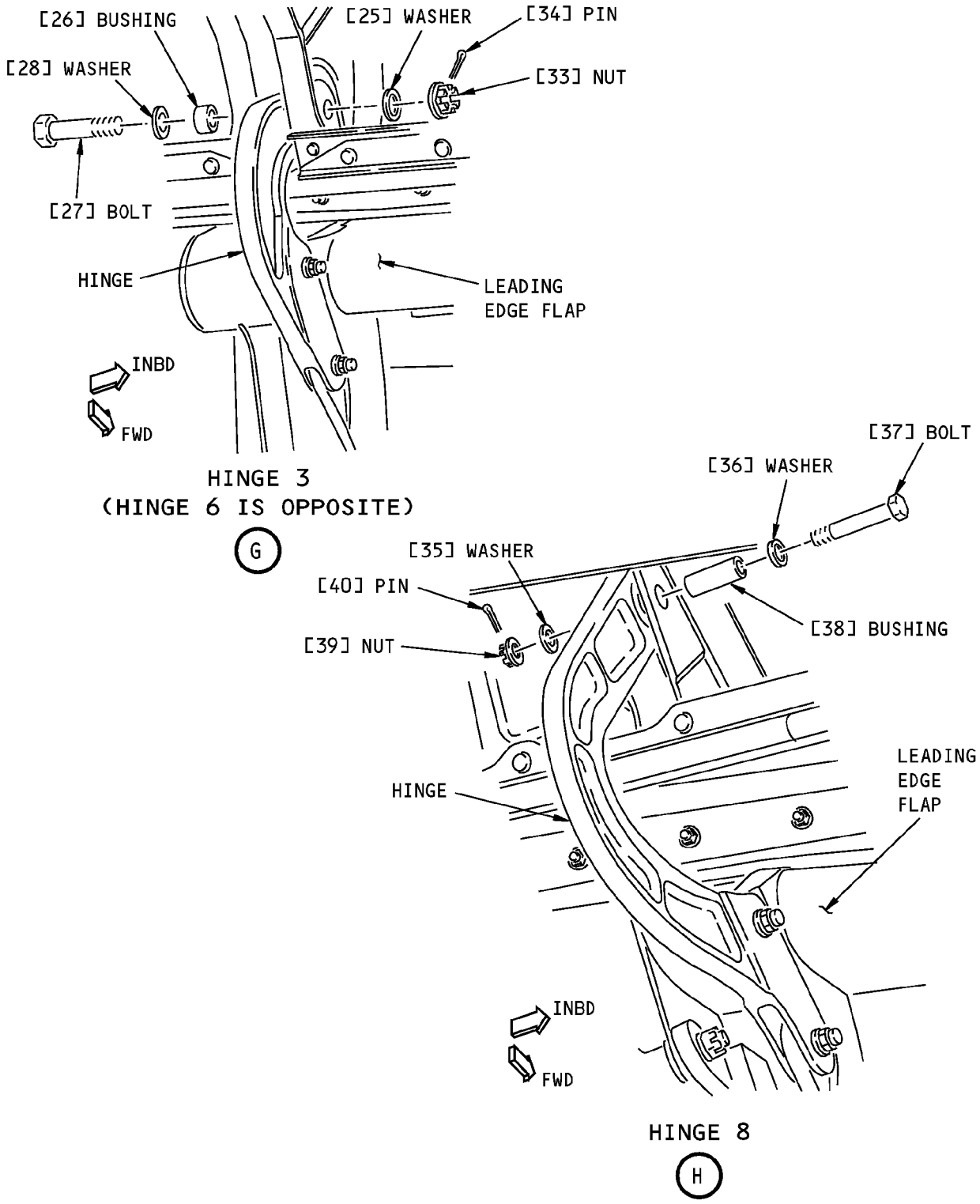

Leading Edge Flap Installation
Figure 401 (Sheet 6 of 10)/27-81-11-990-801

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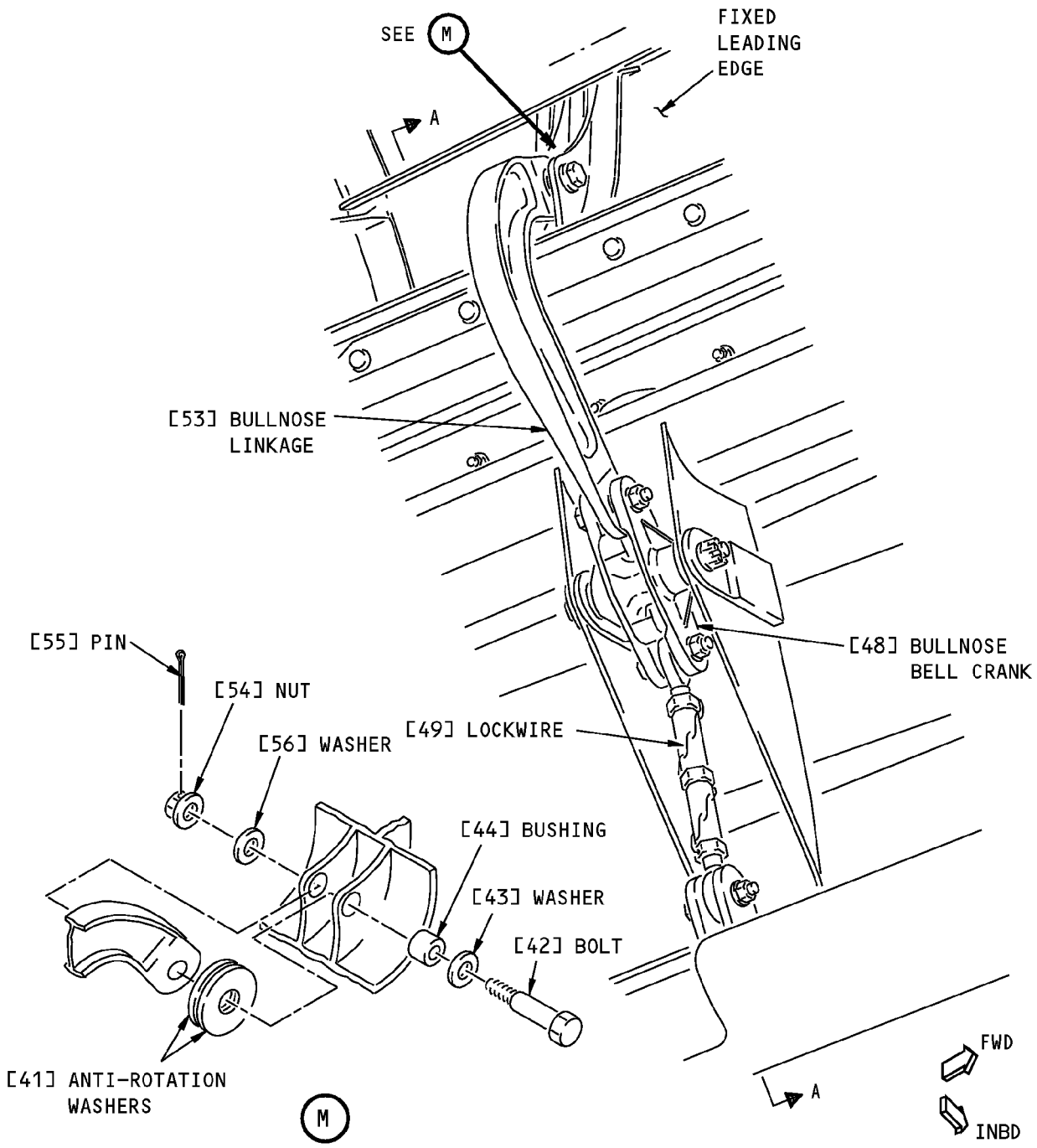

OUTBOARD BULLNOSE LINKAGE

I

Leading Edge Flap Installation
Figure 401 (Sheet 7 of 10)/27-81-11-990-801

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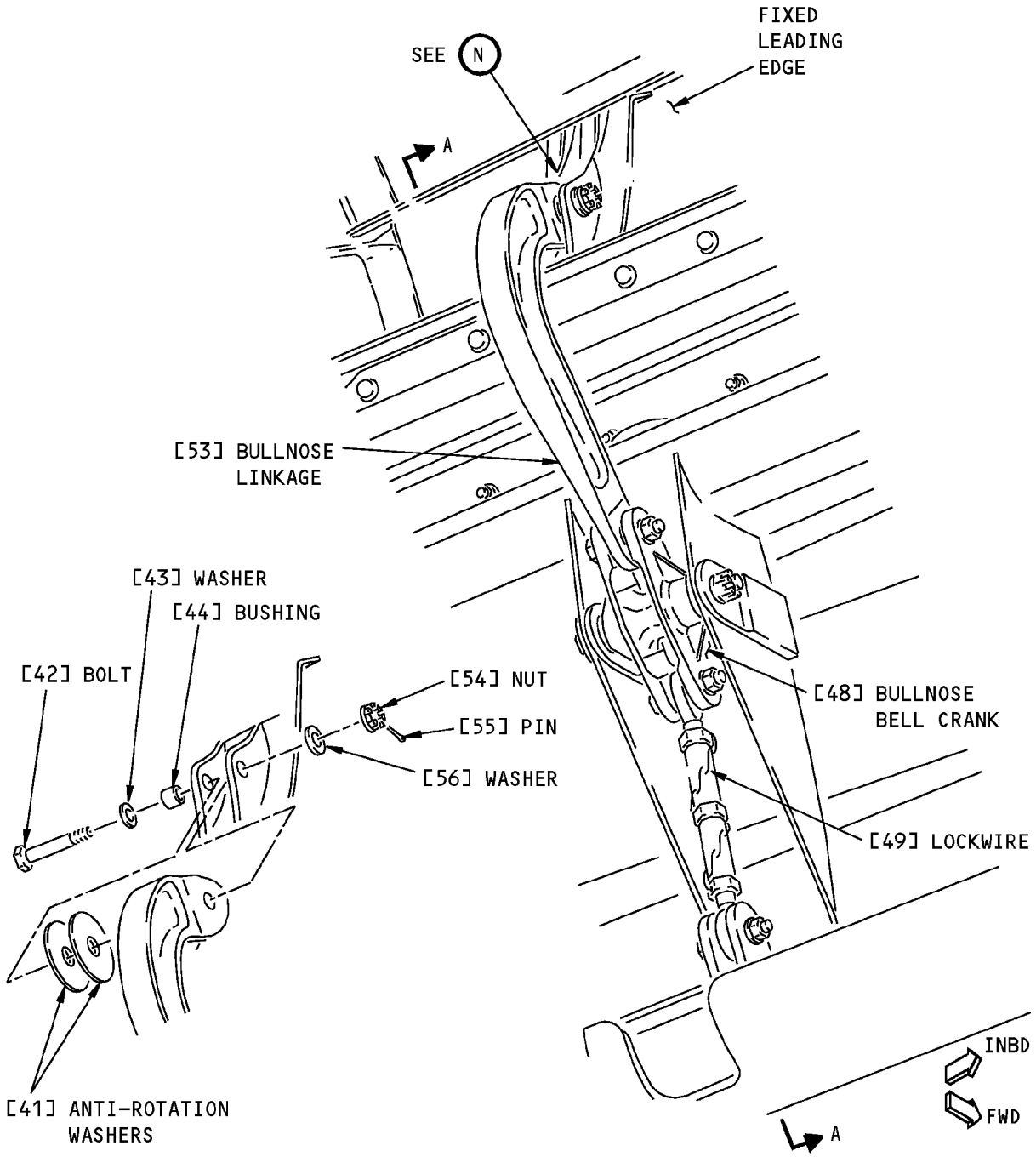

Leading Edge Flap Installation
Figure 401 (Sheet 8 of 10)/27-81-11-990-801

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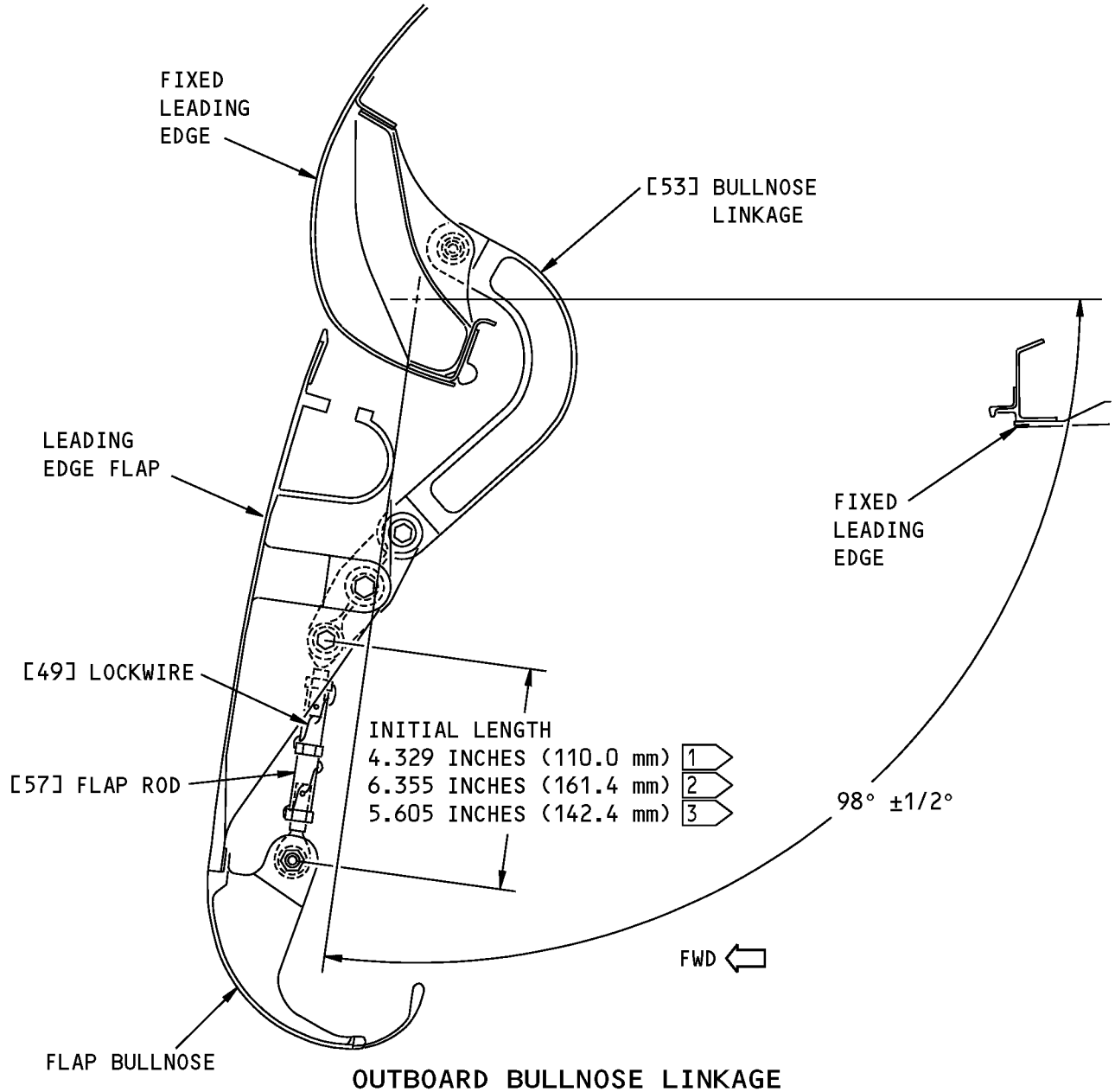

OUTBOARD BULLNOSE LINKAGE
(MID AND INBOARD BULLNOSE LINKAGES ARE EQUIVALENT)
(FLAP IS SHOWN EXTENDED)
A-A

1 INBOARD BULLNOSE LINKAGE

2 MID BULLNOSE LINKAGE

3 OUTBOARD BULLNOSE LINKAGE

Leading Edge Flap Installation
Figure 401 (Sheet 9 of 10)/27-81-11-990-801

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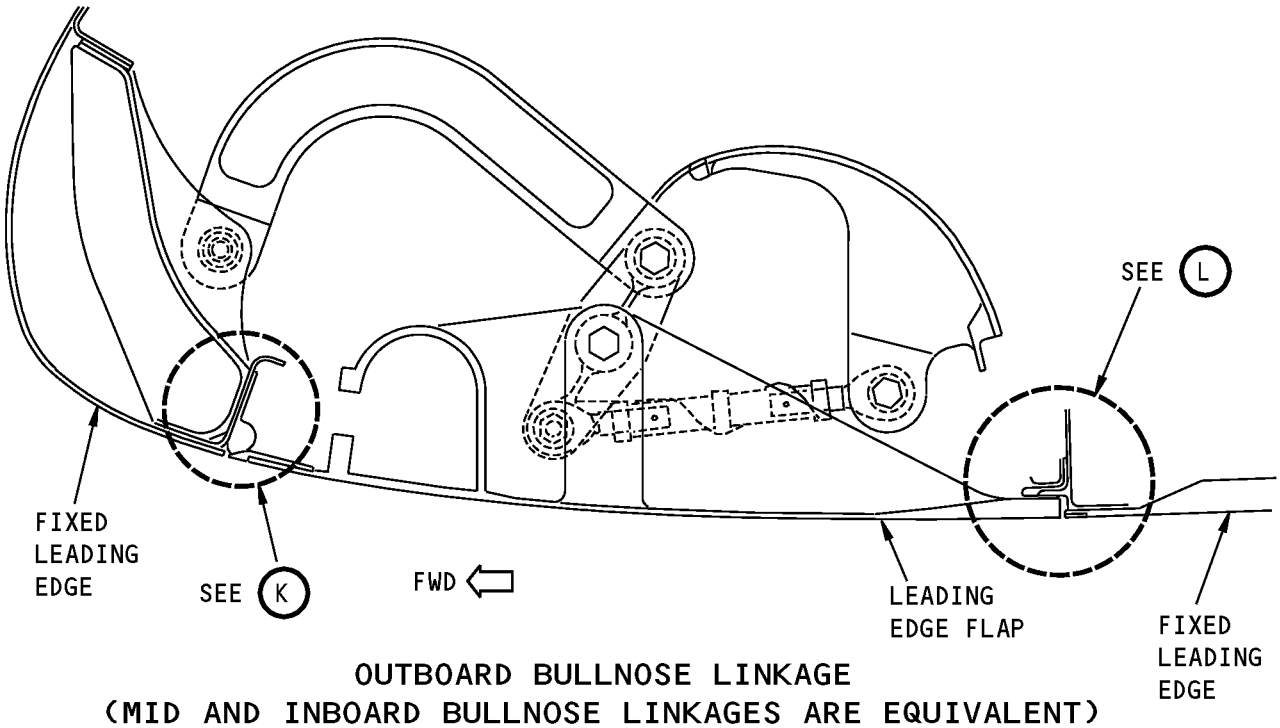
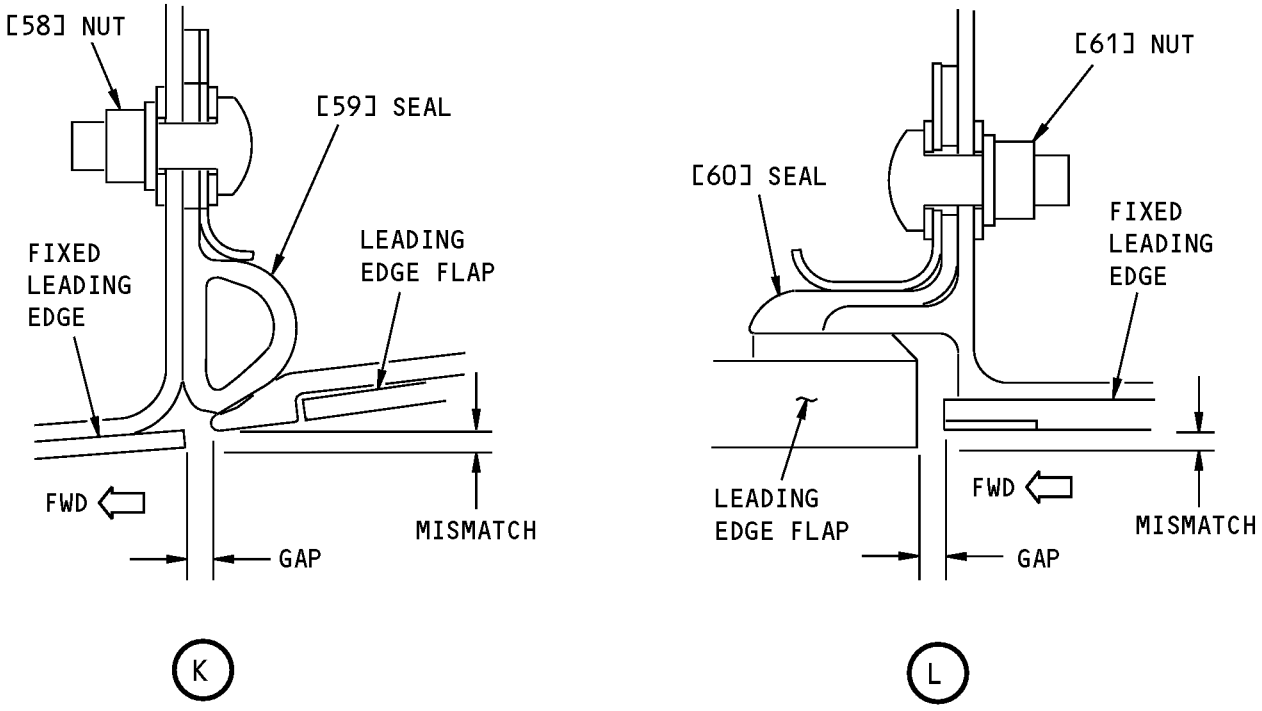


OUTBOARD BULLNOSE LINKAGE
(MID AND INBOARD BULLNOSE LINKAGES ARE EQUIVALENT)
(FLAP IS SHOWN RETRACTED)

A-A



Leading Edge Flap Installation
Figure 401 (Sheet 10 of 10)/27-81-11-990-801

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TASK 27-81-11-400-801

3. Leading Edge Flap Installation

(Figure 401)

A. References

Reference	Title
27-81-00-080-801	Leading Edge Flap and Slat Locks Removal (P/B 201)
27-81-11-200-801	Leading Edge Flap Inspection (P/B 601)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1691	Protractor - Digital, Vertical or Horizontal (Accurate to 0.1 degree) (Part #: KS5549, Supplier: 75245, A/P Effectivity: 737-ALL) (Part #: KS6005, Supplier: 75245, A/P Effectivity: 737-ALL)
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00633	Grease - Aircraft General Purpose	BMS3-33
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Leading edge flap	27-81-11-01-280	HAP 001-013, 015-026, 028-031, 044-054, 102-999
		27-81-11-02-195	HAP ALL
		27-81-11-02-200	HAP ALL
2	Leading edge flap	27-81-11-01-275	HAP 001-013, 015-026, 028-031, 044-054, 102-999
		27-81-11-01-278	HAP ALL
		27-81-11-01-280	HAP 001-013, 015-026, 028-031, 044-054, 102-999
		27-81-11-01-285	HAP ALL
6	Pin	27-62-94-01-125	HAP ALL
15	Pin	27-62-94-01-125	HAP ALL
21	Pin	27-81-31-05-010	HAP ALL

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(Continued)

AMM Item	Description	AIPC Reference	AIPC Effectivity
34	Pin	27-41-71-01-035	HAP ALL
40	Pin	27-81-31-05-010	HAP ALL
55	Pin	27-81-31-05-010	HAP ALL

E. Location Zones

Zone	Area
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4

F. Leading Edge Flap Installation

SUBTASK 27-81-11-220-005

(1) If you install used bearings, bushings and bolts, do this task: Leading Edge Flap Inspection, TASK 27-81-11-200-801.

SUBTASK 27-81-11-420-001

(2) If you removed the outboard Leading edge flap [2], connect the outboard Leading edge flap [2] to the fixed leading edge:

(a) Connect hinges 1 thru 4 on the Leading edge flap [2] to the fixed leading edge.

1) Apply grease, D00633 on the mating surfaces of the bolts [23] and bolts [27].

2) At hinges 1 and 4, install the bolts [23], washers [24], bushings [19], washers [20] and nuts [22].

NOTE: Install the bolts [23] with the head outboard.

3) Tighten the nuts [22] to 60-95 pound-inches (6.8-10.7 newton-meters).

4) Install the pin [21].

5) At hinges 2 and 3, install the bolts [27], washers [28], bushings [26], washers [25] and nuts [33].

NOTE: At hinge 2, install the bolt [27] with the head inboard. At hinge 3, install the bolt [27] with the head outboard.

6) Tighten the nuts [33] to 290-510 pound-inches (32.8-57.6 newton-meters).

7) Install the pin [34].

(b) Install the bolt [30], washers [31] and nut [32] to connect the bonding jumper [29] to the fixed leading edge.

(c) Connect the bullnose linkage [53] to the fixed leading edge.

1) Install the bolt [42], washer [43], bushing [44], anti-rotation washers [41], washer [56] and nut [54].

NOTE: Install the bolt [42] with the head inboard.

2) Tighten the nut [54] to 30-50 pound-inches (3.4-5.6 newton-meters).

3) Install the pin [55].

SUBTASK 27-81-11-420-002

(3) If you removed the inboard Leading edge flap [1], connect the inboard Leading edge flap [1] to the fixed leading edge:

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(a) Connect hinges 5 thru 8 on the Leading edge flap [1] to the fixed leading edge.

1) Apply grease, D00633 on the mating surfaces of the bolts [23] and bolts [27].

2) At hinge 5, install the bolt [23], washer [24], bushing [19], washer [20] and nut [22].

NOTE: Install the bolt [23] with the head outboard.

a) Tighten the nut [22] to 60-95 pound-inches (6.8 10.7 newton-meters).

b) Install the pin [21].

3) At hinges 6 and 7, install the bolts [27], washers [28], bushings [26], washers [25] and nuts [33].

NOTE: At hinge 6, install the bolt [27] with the head inboard. At hinge 7, install the bolt [27] with the head outboard.

a) Tighten the nuts [33] to 290-510 pound-inches (32.8-57.6 newton-meters).

b) Install the pin [34].

4) At hinge 8, install the bolt [37], washer [36], bushing [38], washer [35] and nut [39].

NOTE: Install the bolt [37] with the head inboard.

a) Tighten the nut [39] to 60-95 pound-inches (6.8-10.7 newton-meters).

b) Install the pin [40].

(b) Install the bolt [30], washers [31] and nut [32] to connect the bonding jumper [29] to the fixed leading edge.

(c) Connect the bullnose linkages [53] to the fixed leading edge.

1) Install the bolts [42], washers [43], bushings [44], anti-rotation washers [41], washers [56] and nuts [54].

NOTE: Install the bolts [42] with the heads outboard.

2) Tighten the nuts [54] to 30-50 pound-inches (3.4-5.6 newton-meters).

3) Install the pin [55].

SUBTASK 27-81-11-210-001

(4) Do a check of the clearances between the Leading edge flap [2] or Leading edge flap [1] and the fixed leading edge:

(a) Extend the flap actuator [4] until you can temporarily install the bolt [14].

(b) Fully extend the flap actuator [4].

1) Make sure the flap bullnose can move freely.

(c) Adjust the flap rod [57] until the flap bullnose touches the Leading edge flap [2] or Leading edge flap [1].

(d) Remove the bolt [14] from the flap actuator [3].

(e) Retract the flap actuator [3].

(f) Do this check while you retract the Leading edge flap [1] or Leading edge flap [2] by hand:

1) Make sure there is sufficient clearance exist between the Leading edge flap [1] or Leading edge flap [2] and the fixed leading edge.

SUBTASK 27-81-11-420-003

(5) Connect the flap actuator [4] to the Leading edge flap [2] or Leading edge flap [1].

(a) Apply grease, D00633 on the mating surfaces of the bolt [14] or [9].

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(b) For the outboard Leading edge flap [2], install the bolt [9], washer [10], bushing [11], washer [5], washer [8] and nut [7].

1) You can bond the washer [5] to the Leading edge flap [2] with sealant, A00247 for easier installation.

(c) For the inboard Leading edge flap [1], install the bolt [14], washer [13], bushing [12], washer [18], washer [17] and nut [16].

1) You can bond the washer [18] to the Leading edge flap [1] with sealant, A00247 for easier installation.

(d) Tighten the nut [7] or [16] to 660-980 pound-inches (74.6-110.7 newton-meters).

(e) Install the pin [6] or pin [15].

SUBTASK 27-81-11-860-004

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-11-860-005

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Move the flap control lever to the UP detent to retract the leading edge flaps.

SUBTASK 27-81-11-220-001

(8) Measure the full extend angle of the Leading edge flap [2] or Leading edge flap [1].

(a) Attach a protractor, COM-1691 to the inboard edge of the outboard Leading edge flap [2] or the outboard edge of the inboard Leading edge flap [1].

(b) Set the protractor, COM-1691 to zero with the leading edge flaps retracted.

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(c) Move the flap control lever to the 1-unit detent to extend the leading edge flaps.

(d) Make sure the full extend angle of the Leading edge flap [2] or Leading edge flap [1] is 98 +/- 0.5 degrees.

1) If the extend angle is out of tolerance, adjust the length of the flap actuator [4].

a) Loosen the jamnut [45] on the rod end [3].

b) Turn the rod end [3] until you get the correct full extend angle.

NOTE: The limit for maximum adjustment is two full turns.

c) Tighten the jamnut [45] to 550-650 pound-inches (62.1-73.4 newton-meters).

d) Install lockwire, G01912 on the jamnut [45].

(e) Remove the protractor, COM-1691.

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SUBTASK 27-81-11-220-002

(9) Make sure the mismatch between the inboard Leading edge flap [1] and the outboard Leading edge flap [2] is 0 +/- 0.040 inch (0 +/- 1.0 millimeters).

SUBTASK 27-81-11-860-006

(10) Apply preload at the flap bullnose to the Leading edge flap [2] or Leading edge flap [1].

(a) Make sure the flap bullnose touches the Leading edge flap [2] or Leading edge flap [1].

NOTE: To apply the correct preload, the flap bullnose must first touch the Leading edge flap [2] or Leading edge flap [1].

1) If the flap bullnose does not touch the Leading edge flap [2] or Leading edge flap [1], adjust the flap rod [57].

(b) Adjust the flap rod [57] an additional 1/2 turn to apply the correct preload at the flap bullnose to the Leading edge flap [2] or Leading edge flap [1].

(c) Install lockwire, G01912 on the flap rod [57].

SUBTASK 27-81-11-860-007

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(11) Move the flap control lever to the UP detent to retract the leading edge flaps.

SUBTASK 27-81-11-220-003

(12) Do a check of the gap at the edge of the Leading edge flap [2] or Leading edge flap [1].

(a) Check the gap at location 1-4, 6-10, 12-19, as shown on Leading Edge Gap/Misfair Measurement, SHEET (Fig. 402).

1) If all the measurements taken at locations 1-4, 6-10, 12-19 are less than 0.149 inch (3.8 millimeters), then the gap is satisfactory.

2) If one or more of the gap measurements exceeds 0.149 inch (3.8 millimeters), convert each of the measurements into a Net Effect Value (NEV), usingLeading Edge Gap/Misfair Measurement, SHEET .

3) Add the NEV measurements together and divide by the total number of measurements. This gives the total NEV.

4) The Net Effect Limit (NEL) for this measurement is 1.0. The calculated total NEV must be less than this NEL.

SUBTASK 27-81-11-220-006

(13) Do a check of the mismatch at the forward edge of the Leading edge flap [2] and the Leading edge flap [1] (View K, (Fig. 401).

(a) Check the mismatch at the forward edge of the Leading edge flap [2] and the Leading edge flap [1] at locations 1-4 and 6-10 as shown on Leading Edge Gap/Misfair Measurement, SHEET (Fig. 402).

1) If all the measurements taken at locations 1-4 and 6-10 are within the range -0.048 to +0.054 inch (-1.2 to +1.4 millimeters), the misfair at the forward edge of the Krueger flap is acceptable as is without any additional adjustments.

NOTE: See Leading Edge Gap/Misfair Measurement, SHEET for definition of negative and positive misfair measurements.

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2) If one or more of the misfair measurements is outside the range -0.048 to +0.054 inch (-1.2 to +1.4 millimeters), convert each of the measurements into a Net Effect Value (NEV), using Leading Edge Gap/Misfair Measurement, SHEET .

3) Add the NEV measurements together and divide by the total number of measurements. This gives the total NEV.

4) The Net Effect Limit (NEL) for this measurement is 1.0. The calculated total NEV must be less than this NEL.

5) If it is necessary, adjust the mismatch dimension.

a) Loosen the jamnut [45] on the rod end [3].

b) Turn the rod end [3] to adjust the length of the flap actuator [4] until you get the correct mismatch.

NOTE: The limit for maximum adjustment is two full turns.

c) Tighten the jamnut [45] to 550-650 pound-inches (62.1-73.4 newton-meters).

d) Install lockwire, G01912 on the jamnut [45].

SUBTASK 27-81-11-220-004

(14) Do a check of the mismatch at the aft edge of the Leading edge flap [2] and the Leading edge flap [1] (View L, Fig. 401).

(a) Check the mismatch at the aft edge of the Leading edge flap [2] and the Leading edge flap [1]at locations 12-19 as shown on Leading Edge Gap/Misfair Measurement, SHEET (Fig. 402).

1) If all the measurements taken at locations 12-19 are within the range -0.054 to +0.031 inch (-1.4 to +0.8 millimeters), the misfair at the aft edge of the Krueger flap is acceptable as is without any additional adjustments.

NOTE: See Leading Edge Gap/Misfair Measurement, SHEET for definition of negative and positive misfair measurements.

2) If one or more of the misfair measurements is outside the range -0.054 to +0.031 inch (-1.4 to +0.8 millimeters), convert each of the measurements into a Net Effect Value (NEV), using Leading Edge Gap/Misfair Measurement, SHEET .

3) Add the NEV measurements together and divide by the total number of measurements. This gives the total NEV.

4) The Net Effect Limit (NEL) for this measurement is 1.0. The calculated total NEV must be less than this NEL.

5) If the mismatch dimension is out of tolerance for the outboard Leading edge flap [2], do these steps:

a) Remove the nut [7], washer [8], washer [5], bushing [11], washer [10], and bolt [9] to disconnect the flap actuator [4] from the Leading edge flap [2].

b) Loosen the jamnut [45] on the rod end [3].

c) Turn the rod end [3] to adjust the length of the flap actuator [4] until you get the specified mismatch dimension.

NOTE: The limit for maximum adjustment is two full turns. The full extend angle of the Leading edge flap [2] must still be 98 ±0.5 degrees while you make this adjustment.

d) Tighten the jamnut [45] to 550-650 pound-inches (62.1-73.4 newton-meters).

e) Install the lockwire, G01912 on the jamnut [45].

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f) Connect the flap actuator [4] to the Leading edge flap [2] with bolt [9], washer [10], bushing [11], washer [5], washer [8] and nut [7].

6) If the mismatch dimension is out of tolerance for the inboard Leading edge flap [1], do these steps:

a) Remove the nut [16], washer [17], washer [18], bushing [12], washer [13], and bolt [14] to disconnect the flap actuator [4] from the Leading edge flap [1].

b) Loosen the jamnut [45] on the rod end [3].

c) Turn the rod end [3] to adjust the length of the flap actuator [4] until you get the specified mismatch dimension.

NOTE: The limit for maximum adjustment is two full turns. The full extend angle of the Leading edge flap [1] must still be 98 ±0.5 degrees while you make this adjustment.

d) Tighten the jamnut [45] to 550-650 pound-inches (62.1-73.4 newton-meters).

e) Install the lockwire, G01912 on the jamnut [45].

f) Connect the flap actuator [4] to the Leading edge flap [1] with bolt [14], washer [13], bushing [12], washer [18], washer [17] and nut [16].

SUBTASK 27-81-11-420-004

(15) Tighten the nut [7] or [16] to 660-980 pound-inches (74.6-110.7 newton-meters).

SUBTASK 27-81-11-420-005

(16) Install the pin [6] or pin [15].

SUBTASK 27-81-11-860-008

(17) Move the flap control lever to the 1-unit detent position to extend the leading edge flaps.

SUBTASK 27-81-11-080-001

WARNING: CAREFULLY REMOVE THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADINGE EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(18) Remove the lockout set, SPL-1734 from the actuator of the leading edge flap. To do this, do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.

SUBTASK 27-81-11-860-009

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(19) Move the flap control lever to the FLAP UP detent to retract the leading edge flaps.

SUBTASK 27-81-11-860-010

(20) Do a check of the flap panel clearances.

(a) For all but the aft 5 inches (127 millimeters) of the flap, make sure the gap between the inboard Leading edge flap [1] and the outboard Leading edge flap [2] is 0.060-0.150 inch (1.52-3.81 millimeters).

(b) For the aft 5 inches of the flap, make sure the gap between the inboard Leading edge flap [1] and the outboard Leading edge flap [2] is 0.060-0.250 inch (1.5-6.4 millimeters).

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SUBTASK 27-81-11-210-002

(21) If the flap panel clearances are out of tolerance, do a check of the wing and flap panel for damage or warpage.

NOTE: This check is to make sure that the flap and the wing align correctly. There is no adjustment that you can do.

SUBTASK 27-81-11-860-011

(22) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK

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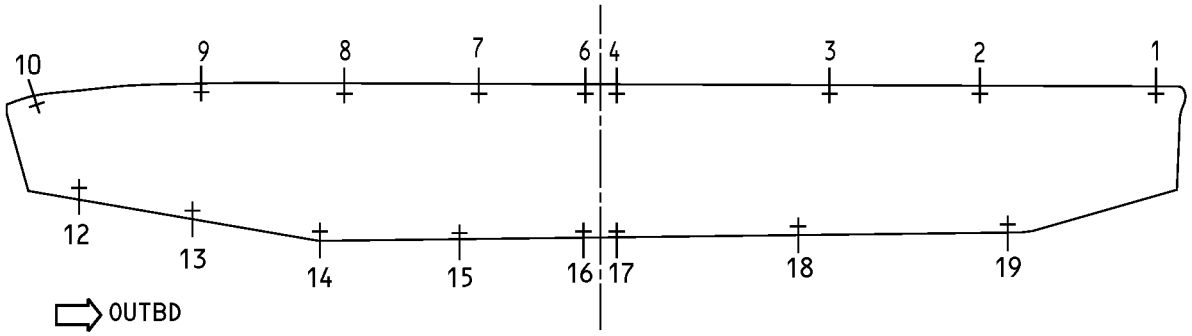
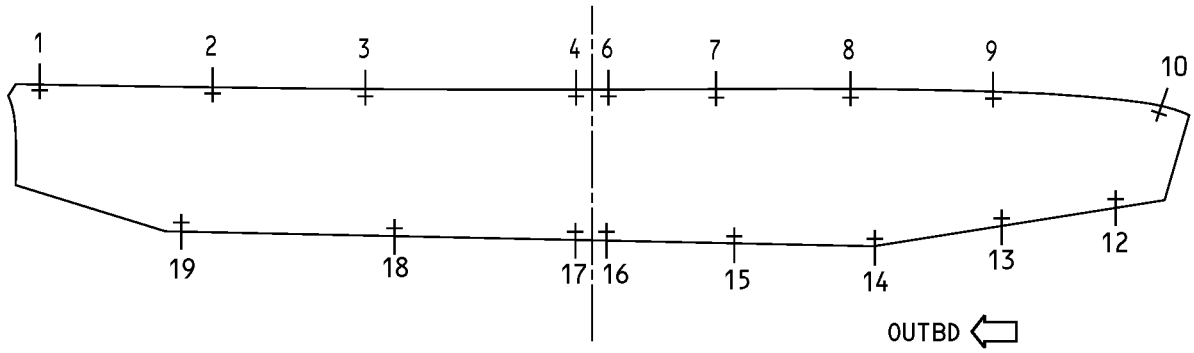


LEFT KRUEGER FLAP
(VIEW IN THE AFT DIRECTION)



RIGHT KRUEGER FLAP
(VIEW IN THE AFT DIRECTION)

POINT	DISTANCE FROM K-FLAP CENTERLINE, INCHES (mm) 1
1	56.62 (1438.14)
2	32.71 (830.83)
3	20.72 (526.28)
4	1.25 (31.75)
6	-1.12 (-28.44)
7	-20.04 (-509.01)
8	-33.95 (-862.33)
9	-51.23 (-1301.24)
10	-68.11 (-1729.99)

POINT	DISTANCE FROM K-FLAP CENTERLINE, INCHES (mm) 1
12	-63.90 (-1623.06)
13	-52.02 (-1321.30)
14	-37.76 (-959.10)
15	-23.76 (-603.50)
16	-1.06 (-26.92)
17	1.17 (29.71)
18	16.66 (423.16)
19	33.32 (846.32)

1 OUTBD DISTANCE ARE POSITIVE (+), INBOARD DISTANCES ARE NEGATIVE (-)

Leading Edge Gap/Misfair Measurement
Figure 402 (Sheet 1 of 4)/27-81-11-990-803

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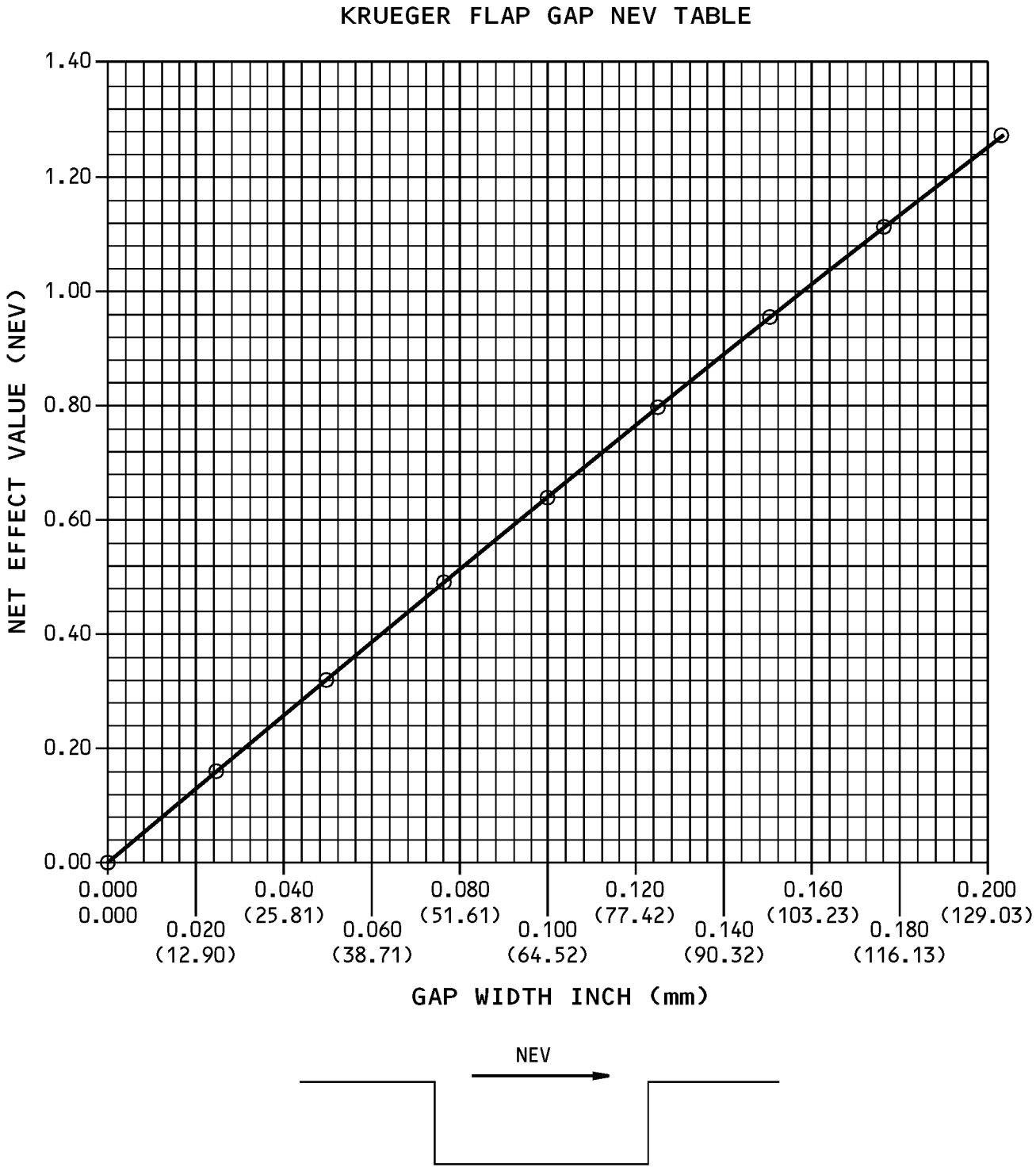

Leading Edge Gap/Misfair Measurement
Figure 402 (Sheet 2 of 4)/27-81-11-990-803

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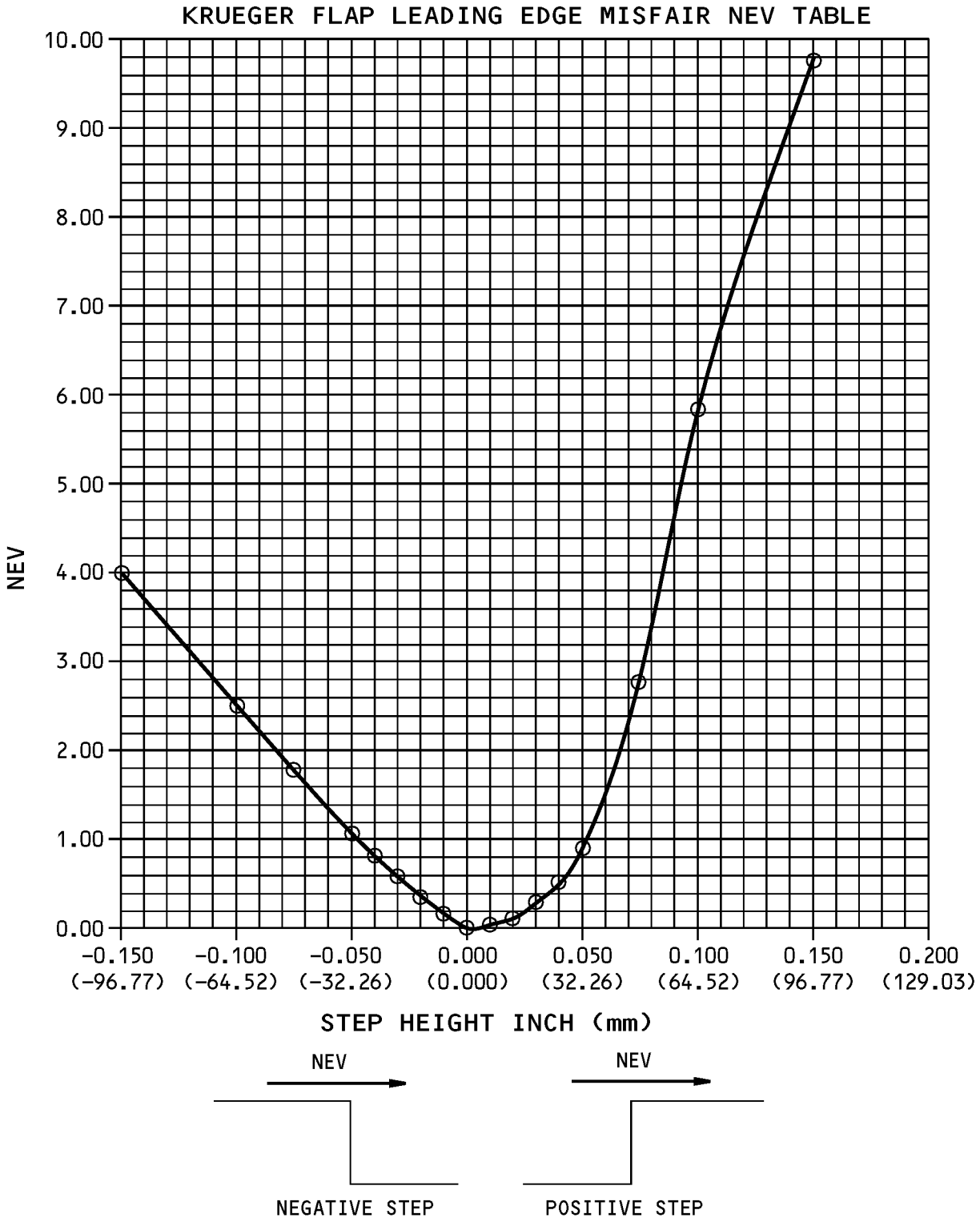

Leading Edge Gap/Misfair Measurement
Figure 402 (Sheet 3 of 4)/27-81-11-990-803

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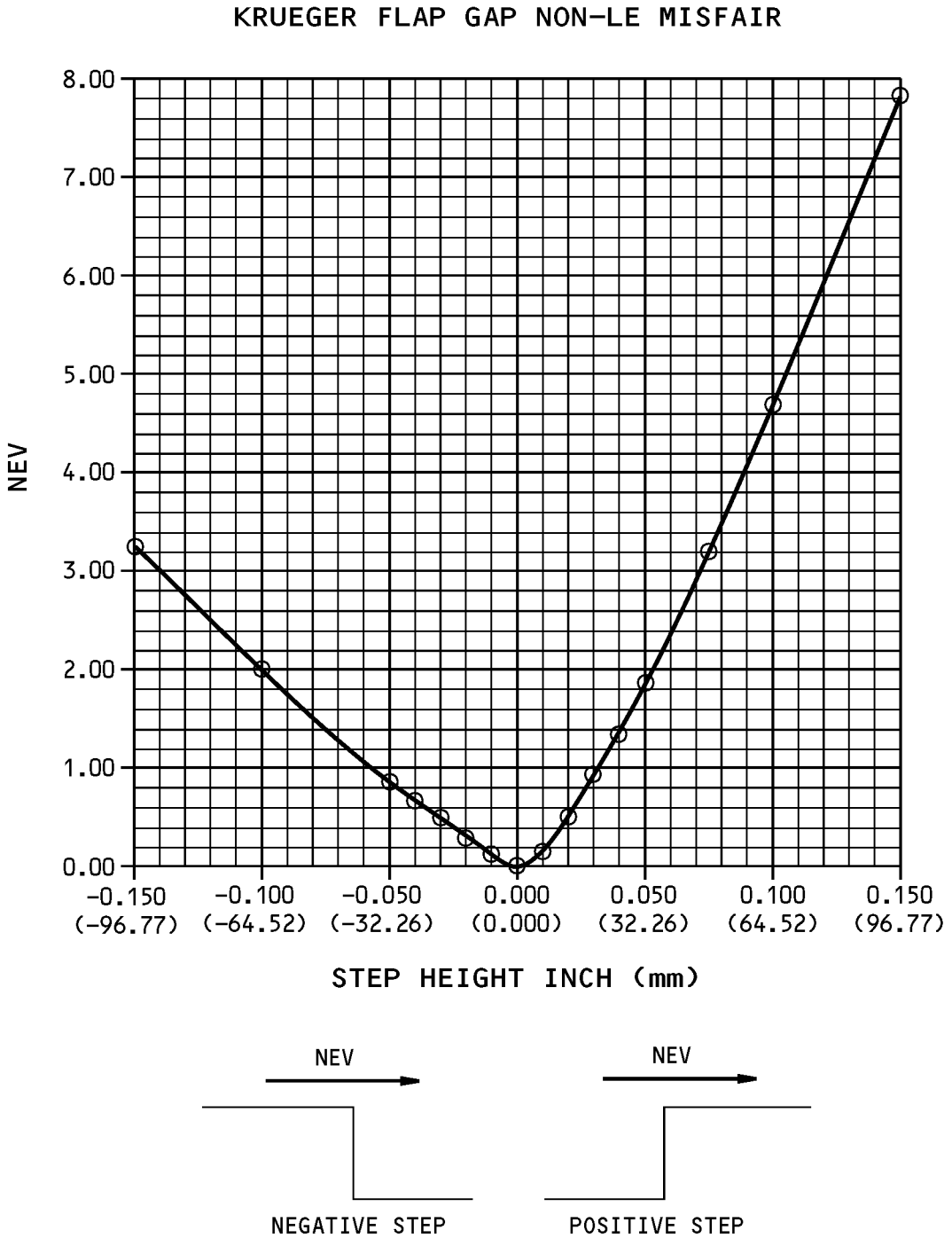

Leading Edge Gap/Misfair Measurement
Figure 402 (Sheet 4 of 4)/27-81-11-990-803

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LEADING EDGE FLAP - INSPECTION/CHECK

1. General

A. This procedure contains the task to do an inspection of the leading edge flap.

TASK 27-81-11-200-801

2. Leading Edge Flap Inspection

(Figure 601)

A. General

(1) This task gives wear limits and repair data for the leading edge flap inspection.

B. References

Reference	Title
27-81-11-000-801	Leading Edge Flap Removal (P/B 401)
27-81-11-400-801	Leading Edge Flap Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4

E. Procedure

SUBTASK 27-81-11-020-004

(1) Do this task: Leading Edge Flap Removal, TASK 27-81-11-000-801.

SUBTASK 27-81-11-020-005

(2) Use these tools to do a check for wear on the parts of the leading edge flap:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-81-11-020-006

(3) Examine the parts of the leading edge flap for worn areas:

(a) Remove the parts you want to do a check.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are out of tolerance, replace or repair the part if it is necessary.

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Table 601/27-81-11-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 BUSHING	I.D.	0.3125 in 7.938 mm	0.3130 in 7.950 mm	0.3150 in 8.000 mm	0.0030 in
#1 BOLT	O.D.	0.3110 in 7.899 mm	0.3120 in 7.924 mm	0.3100 in 7.874 mm	0.076 mm
#2 BUSHING	I.D.	0.3125 in 7.938 mm	0.3136 in 7.965 mm	0.3159 in 8.023 mm	0.0039 in
#2 BOLT	O.D.	0.3110 in 7.899 mm	0.3120 in 7.924 mm	0.3097 in 7.866 mm	0.099 mm
#3 BEARING	I.D.	0.4375 in 11.113 mm	0.4385 in 11.137 mm	0.4400 in 11.175 mm	0.0030 in
#3 BUSHING	O.D.	0.4365 in 11.087 mm	0.4370 in 11.099 mm	0.4350 in 11.061 mm	0.076 mm
#4 BUSHING	I.D.	0.4375 in 11.113 mm	0.4386 in 11.140 mm	0.4402 in 11.180 mm	0.0032 in
#4 BUSHING	O.D.	0.4365 in 11.087 mm	0.4370 in 11.099 mm	0.4354 in 11.059 mm	0.081 mm
#5 BUSHING	I.D.	0.5000 in 12.700 mm	0.5007 in 12.717 mm	0.5004 in 12.710 mm	0.0033 in
#5 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4974 in 12.634 mm	0.083 mm
#6 BUSHING	I.D.	0.6870 in 17.450 mm	0.6877 in 17.467 mm	0.6891 in 17.503 mm	0.0026 in
#6 BUSHING	O.D.	0.6860 in 17.424 mm	0.6865 in 17.437 mm	0.6851 in 17.401 mm	0.066 mm
#7 BUSHING	I.D.	0.5000 in 12.700 mm	0.5005 in 12.712 mm	0.5025 in 12.763 mm	0.0030 in
#7 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4975 in 12.636 mm	0.076 mm

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#8 BEARING	I.D.	0.5000 in 12.700 mm	0.5005 in 12.712 mm	0.5025 in 12.763 mm	0.0030 in
#8 BOLT	O.D.	0.4985 in 12.662 mm	0.4995 in 12.687 mm	0.4975 in 12.636 mm	0.076 mm
#9 BUSHING	I.D.	0.3125 in 7.938 mm	0.3136 in 7.965 mm	0.3159 in 8.023 mm	0.0039 in
#9 BOLT	O.D.	0.3110 in 7.899 mm	0.3120 in 7.924 mm	0.3097 in 7.866 mm	0.099 mm
#10 BUSHING	I.D.	0.3125 in 7.938 mm	0.3130 in 7.950 mm	0.3150 in 8.000 mm	0.0030 in
#10 BOLT	O.D.	0.3110 in 7.899	0.3120 in 7.924 mm	0.3100 in 7.874 mm	0.076 mm
#11 BUSHING	I.D.	0.4375 in 11.113 mm	0.4386 in 11.140 mm	0.4402 in 11.180 mm	0.0032 in
#11 BUSHING	O.D.	0.4365 in 11.087 mm	0.4370 in 11.099 mm	0.4354 in 11.059 mm	0.081 mm
#12 BEARING	I.D.	0.4375 in 1.113 mm	0.4385 in 11.137 mm	0.4400 in 11.175 mm	0.0030 in
#12 BUSHING	O.D.	0.4365 in 11.087 mm	0.4370 in 11.099 mm	0.4355 in 11.061 mm	0.076 mm
#13 BUSHING	I.D.	0.2500 in 6.350 mm	0.2505 in 6.362 mm	0.2525 in 6.340 mm	0.0030 in
#13 BOLT	O.D.	0.2485 in 6.312 mm	0.2495 in 6.337 mm	0.2475 in 6.286 mm	0.076 mm
#14 BUSHING	I.D.	0.2500 in 6.350 mm	0.2505 in 6.362 mm	0.2525 in 6.413 mm	0.0030 in

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#14 BOLT	O.D.	0.2485 in 6.312 mm	0.2495 in 6.337 mm	0.2475 in 6.286 mm	0.076 mm
#15 BUSHING	I.D.	0.3750 in 9.525 mm	0.3756 in 9.540 mm	0.3769 in 9.572 mm	0.0024 in
#15 BUSHING	O.D.	0.3740 in 9.500 mm	0.3745 in 9.512 mm	0.3732 in 9.480 mm	0.060 mm
#16 BEARING	I.D.	0.2500 in 6.350 mm	0.2505 in 6.362 mm	0.2525 in 6.413 mm	0.0030 in
#16 BOLT	O.D.	0.2485 in 6.311 mm	0.2495 in 6.337 mm	0.2475 in 6.286 mm	0.076 mm

SUBTASK 27-81-11-420-006

(4) Do this task: Leading Edge Flap Installation, TASK 27-81-11-400-801.

——————— END OF TASK ———————

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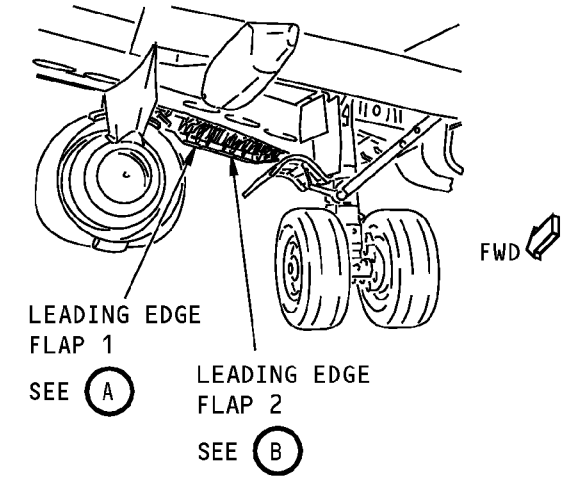
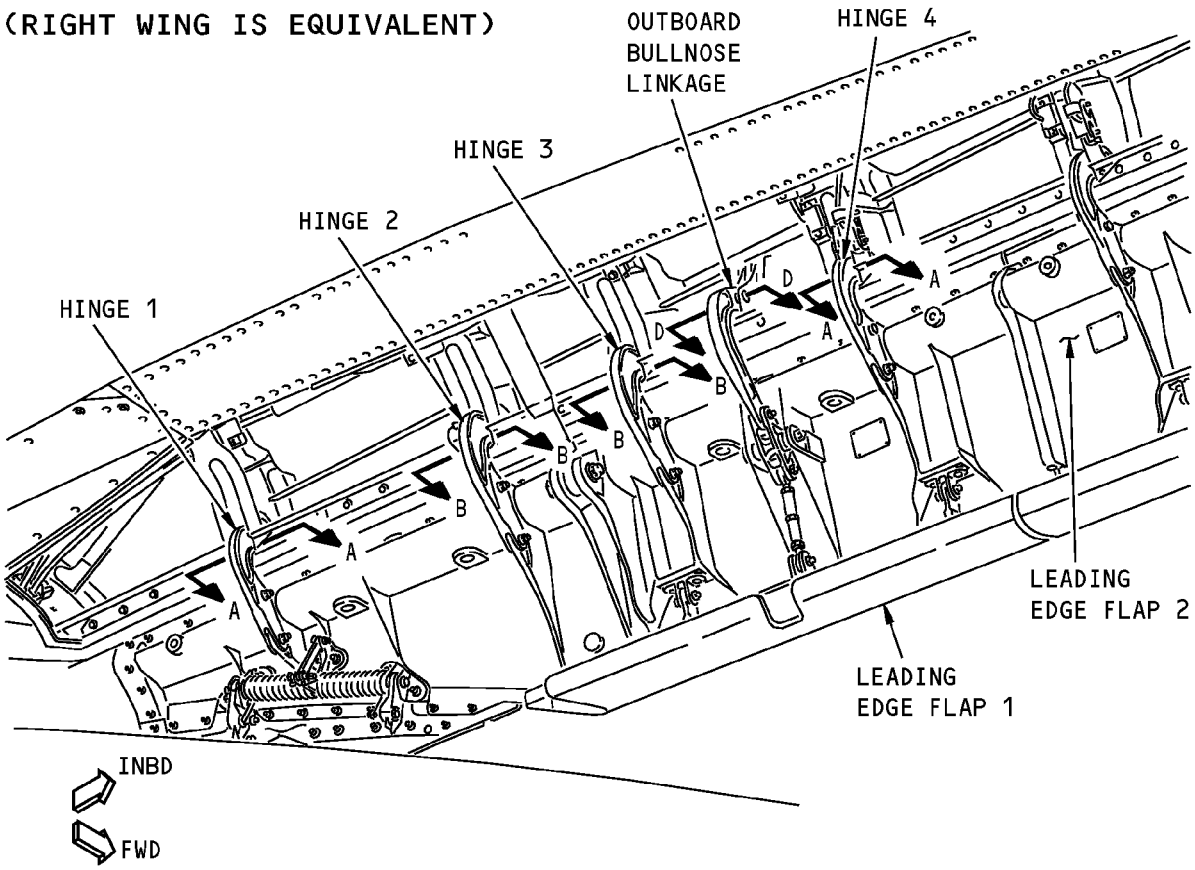


LEFT WING
(RIGHT WING IS EQUIVALENT)



LEFT LEADING EDGE FLAP 1
A

Leading Edge Flap Wear Limits
Figure 601 (Sheet 1 of 4)/27-81-11-990-802

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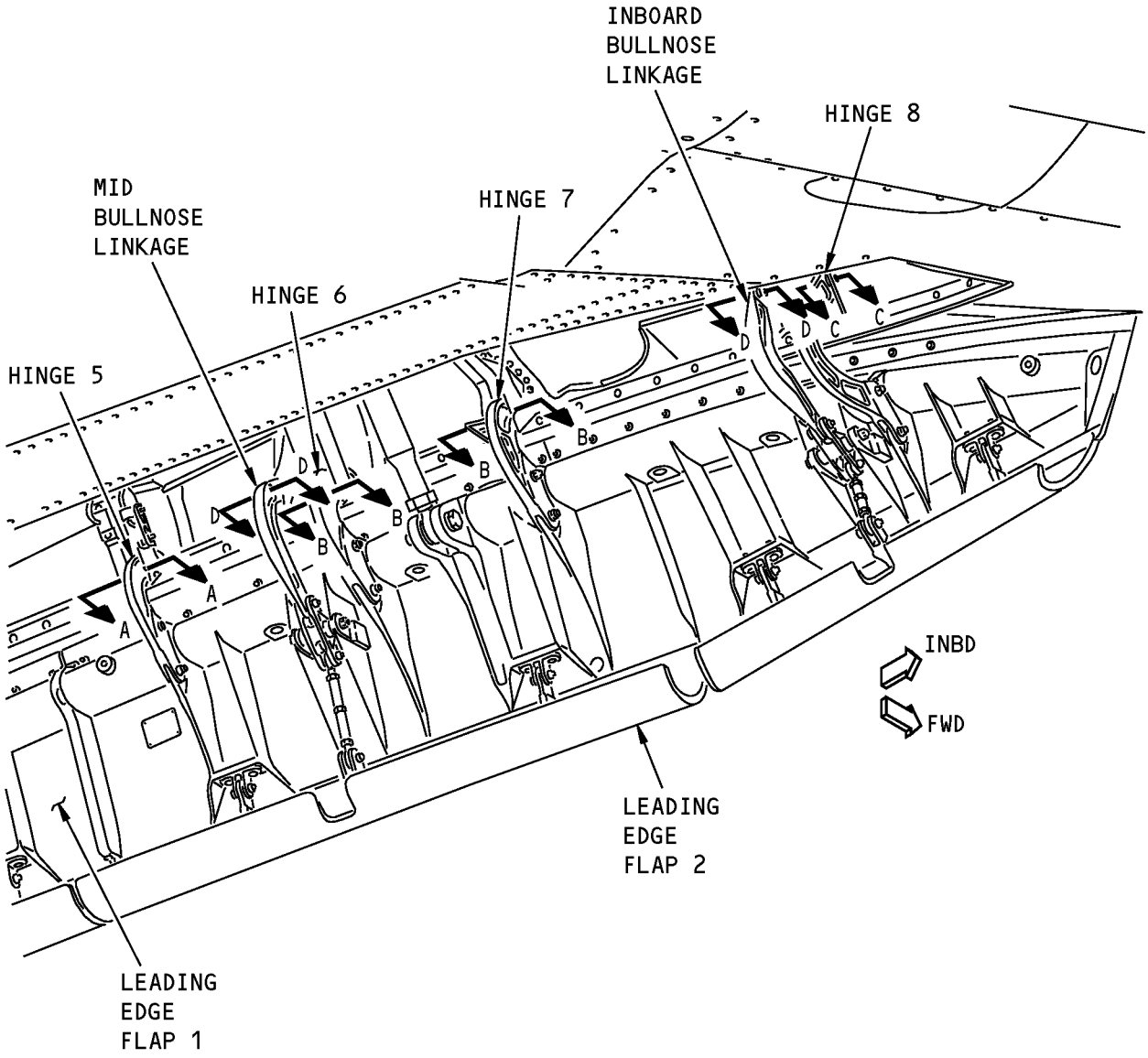

LEFT LEADING EDGE FLAP 2

B

Leading Edge Flap Wear Limits
Figure 601 (Sheet 2 of 4)/27-81-11-990-802

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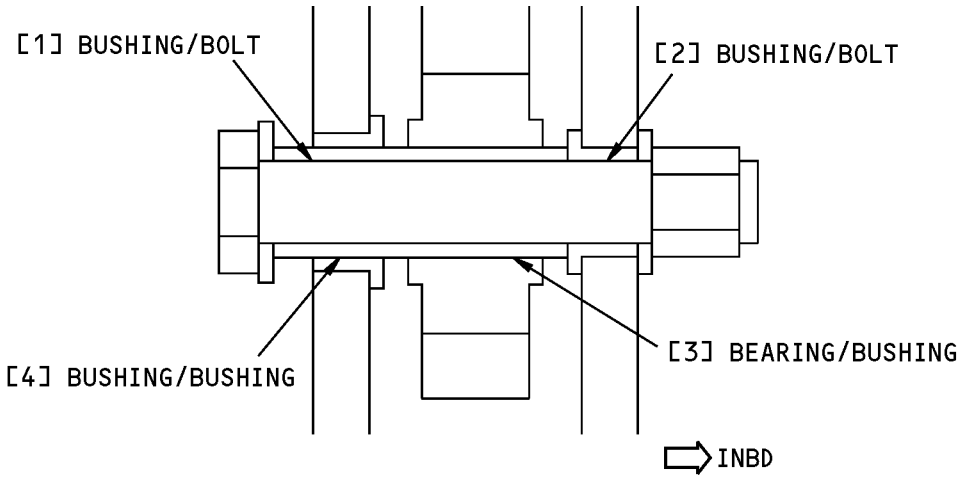
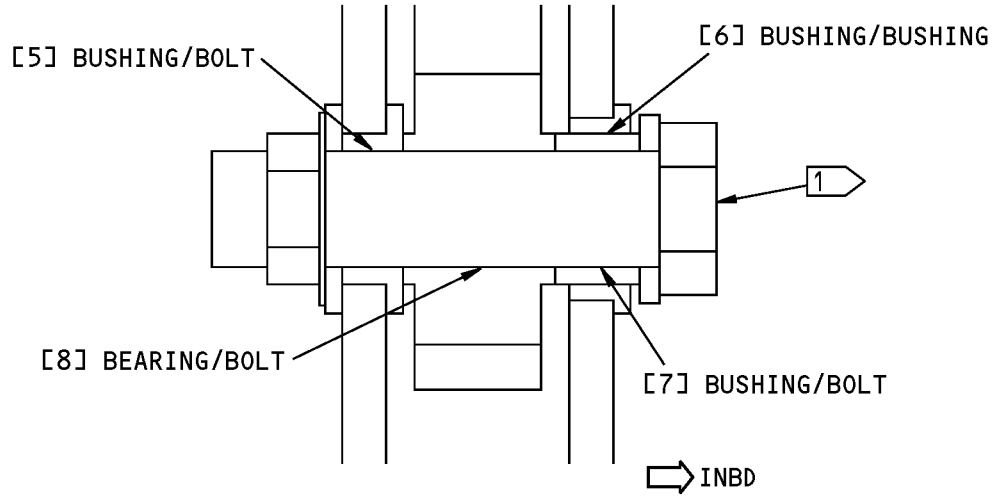


HINGE 1
(HINGES 4 AND 5 ARE EQUIVALENT)
A-A



HINGE 2
(HINGES 3, 6 AND 7 ARE EQUIVALENT)
B-B

1 THE BOLT HEAD IS INBOARD AT HINGES 2 AND 6, AND OUTBOARD AT HINGES 3 AND 7.

Leading Edge Flap Wear Limits
Figure 601 (Sheet 3 of 4)/27-81-11-990-802

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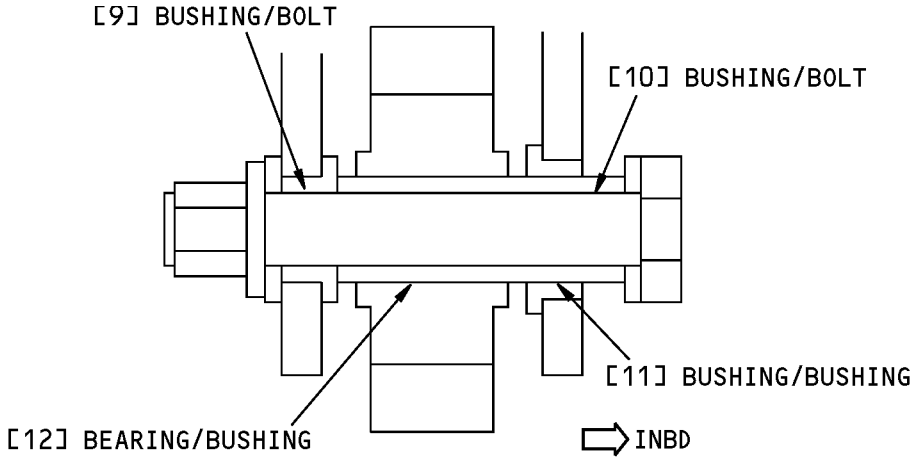
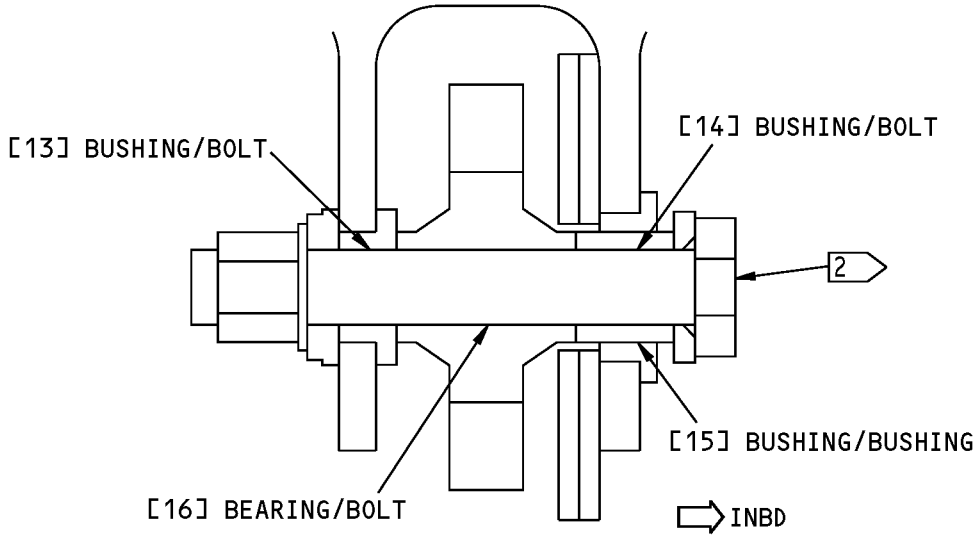


HINGE 8
C–C



OUTBOARD BULLNOSE LINKAGE
(MID AND INBOARD BULLNOSE LINKAGES ARE EQUIVALENT)
D–D

2 THE BOLT HEAD IS OUTBOARD AT THE MID AND INBOARD BULLNOSE LIKAGES.

Leading Edge Flap Wear Limits
Figure 601 (Sheet 4 of 4)/27-81-11-990-802

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LEADING EDGE SLAT - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the leading edge slat

(2) An installation of the leading edge slat.

B. There are four slats on each wing. This procedure is applicable for the leading edge slats 1 thru 8.

C. You can do this procedure with the airplane on jacks or off jacks, but the wing should not be supported outboard of the engines.

TASK 27-81-21-000-801

2. Leading Edge Slat Removal

A. References

Reference	Title
27-81-00-040-801	Deactivate the Leading Edge Flaps and Slats (P/B 201)
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
30-11-31-000-801	Wing Anti-Ice Telescoping Duct Seal Removal (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)
SPL-2041	Sling - Leading Edge Slat Removal/Installation (Part #: C27056-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Location Zones

Zone	Area
521	Left Wing - Leading Edge to Front Spar
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
621	Right Wing - Leading Edge to Front Spar
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

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D. Access Panels

Number	Name/Location
521AAB	Lower Leading Edge Access Panel - Slat Station 508.31
521BB	Engine Fuel Valve Shutoff Access Panel - Slat Station 36.02
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521GB	Lower Leading Edge Access Panel - Slat Station 125.27
521HB	Lower Leading Edge Access Panel - Slat Station 152.81
521JB	Lower Leading Edge Access Panel - Slat Station 170.20
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521NB	Lower Leading Edge Access Panel - Slat Station 252.04
521PB	Lower Leading Edge Access Panel - Slat Station 270.42
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521UB	Lower Leading Edge Access Panel - Slat Station 374.95
521VB	Lower Leading Edge Access Panel - Slat Station 395.64
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05
621BB	Engine Fuel Spar Valve Access Panel - Slat Station 36.02
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621EB	Defuel Access Panel - Slat Station 95.15
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621GB	Refuel Access Panel - Slat Station 143.27
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621MB	Lower Leading Edge Access Panel - Slat Station 252.04
621NB	Lower Leading Edge Access Panel - Slat Station 270.63
621PB	Lower Leading Edge Access Panel - Slat Station 289.18
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621TB	Lower Leading Edge Access Panel - Slat Station 374.95
621UB	Lower Leading Edge Access Panel - Slat Station 395.64
621VB	Lower Leading Edge Access Panel - Slat Station 415.79
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04
621ZB	Lower Leading Edge Access Panel - Slat Station 508.31

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E. Prepare for the Removal

SUBTASK 27-81-21-010-001

(1) Open these access doors on the lower surface of the fixed leading edge:

(a) For the left wing, open this access panel:

Number	Name/Location
521BB	Engine Fuel Valve Shutoff Access Panel - Slat Station 36.02

(b) For the right wing, open these access panels:

Number	Name/Location
621BB	Engine Fuel Spar Valve Access Panel - Slat Station 36.02
621EB	Defuel Access Panel - Slat Station 95.15
621GB	Refuel Access Panel - Slat Station 143.27

SUBTASK 27-81-21-010-003

(2) Remove these access panels from the lower surface of the fixed leading edge:

(a) For the left wing, open these access panels:

Number	Name/Location
521AAB	Lower Leading Edge Access Panel - Slat Station 508.31
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521GB	Lower Leading Edge Access Panel - Slat Station 125.27
521HB	Lower Leading Edge Access Panel - Slat Station 152.81
521JB	Lower Leading Edge Access Panel - Slat Station 170.20
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521NB	Lower Leading Edge Access Panel - Slat Station 252.04
521PB	Lower Leading Edge Access Panel - Slat Station 270.42
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62

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(Continued)

Number	Name/Location
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521UB	Lower Leading Edge Access Panel - Slat Station 374.95
521VB	Lower Leading Edge Access Panel - Slat Station 395.64
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05

(b) For the right wing, open these access panels:

Number	Name/Location
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621MB	Lower Leading Edge Access Panel - Slat Station 252.04
621NB	Lower Leading Edge Access Panel - Slat Station 270.63
621PB	Lower Leading Edge Access Panel - Slat Station 289.18
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621TB	Lower Leading Edge Access Panel - Slat Station 374.95
621UB	Lower Leading Edge Access Panel - Slat Station 395.64
621VB	Lower Leading Edge Access Panel - Slat Station 415.79

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(Continued)

Number	Name/Location
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04
621ZB	Lower Leading Edge Access Panel - Slat Station 508.31

SUBTASK 27-81-21-860-001

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Supply hydraulic power to system B. To supply hydraulic power, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-21-860-009

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS WILL EXTEND. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(4) Move the flap control lever to the 10-unit detent to extend the leading edge slats.

SUBTASK 27-81-21-480-005

WARNING: CAREFULLY INSTALL THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Install the lockout set, SPL-1734 on the actuators of the adjacent leading edge slats. To do this, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

SUBTASK 27-81-21-860-002

(6) Move the flap control lever to the 1-unit detent to retract the leading edge slat.

NOTE: If the slat is in the full extend position, the slat actuator [9] will be preloaded against the slat. Positioning the flap control lever to the 1-unit detent will remove the preload, allowing easier removal of the slat actuator.

SUBTASK 27-81-21-860-008

(7) Remove power from hydraulic system B. To remove hydraulic power, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

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SUBTASK 27-81-21-200-001

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(8) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

F. Leading Edge Slat Removal

SUBTASK 27-81-21-020-001

(1) Disconnect the slat actuator [9] from the leading edge slat assembly [17] (Figure 401):

(a) Remove the bolt retainer [18] from the slat assembly [17]:

1) Remove the bolts [15] and washers [16] that attach the bolt retainer [18] to the slat assembly [17].

2) Remove the bolt retainer [18] from the slat assembly [17].

WARNING: MAKE SURE YOU HOLD THE LEADING EDGE SLAT IN ITS POSITION. THE LEADING EDGE SLAT CAN FALL TO THE FULL EXTEND POSITION. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Hold the slat assembly [17] while you remove the nut [12], washer [11], bushing [10], washer [19], and bolt [20].

SUBTASK 27-81-21-980-001

(2) Carefully let the slat assembly [17] move down to the full extend position.

SUBTASK 27-81-21-860-003

(3) Use hydraulic power to retract the slat actuator [9]. To retract the slat actuator [9], do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

NOTE: The slat actuator [9] can hang from the upper fitting.

SUBTASK 27-81-21-040-001

(4) Do this task: Deactivate the Leading Edge Flaps and Slats, TASK 27-81-00-040-801.

SUBTASK 27-81-21-480-006

(5) If you use the sling, SPL-2041 to help with the removal of the leading edge slat assembly [17], do these steps to install the sling, SPL-2041 on the leading edge slat assembly [17] (Figure 402):

(a) Attach the wedges [69] on the trailing edge of the leading edge slat assembly [17] where they will line up with the main tracks.

(b) Attach the strap assembly [61] to the bottom of the leading edge slat assembly [17] with screws [64], washers [65] and nuts [66].

(c) Attach the end fittings [63] to the leading edge slat assembly [17] with screws [67] and washers [68].

(d) Attach the strap assembly [61] to the end fittings [63], wedges [69] and spreader bar [62].

SUBTASK 27-81-21-480-007

(6) Connect the overhead hoist to the sling, SPL-2041.

SUBTASK 27-81-21-020-003

(7) Remove the leading edge slat assembly [17] (Figure 401):

(a) Disconnect the auxiliary arms [28] from the auxiliary tracks [29]:

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1) Remove the pin [40], nuts [41], washer [42], targets [43], spacers [48], detent arm roller bearings [45], washers [47] and bolts [46].

2) Move the auxiliary arms [28] away from the auxiliary tracks [29].

3) Remove the auxiliary arm roller bearings [44] from the auxiliary tracks [29].

(b) Remove the main tracks [21] from the fixed leading edge:

1) Manually move the slat until downstops [22] on the main tracks [21] align with the access holes in the track ribs.

HAP 001-013, 015-026, 028-047, 054, 101-106 PRE SB 737-57A1302

2) Remove the nuts [27], washers [23], downstops [22], stop locators [26], sleeve [25], and bolts [24].

HAP 048-053, 107-999; HAP 001-013, 015-026, 028-047, 054, 101-106 POST SB 737-57A1302

3) Remove the cotter pins [53], nuts [52], washers [51], stop fitttings [49], and bolts [50].

HAP ALL

(c) Carefully move the leading edge slat assembly [17] forward until the main tracks [21] are clear of the roller ribs.

(d) Remove the leading edge slat assembly [17].

SUBTASK 27-81-21-020-004

(8) If you remove slats No. 2, 3, 4, 5, 6 or 7, disconnect the thermal anti-icing duct from the slat assembly [17]. To remove the duct, do this task: Wing Anti-Ice Telescoping Duct Seal Removal, TASK 30-11-31-000-801.

SUBTASK 27-81-21-200-003

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(9) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

END OF TASK

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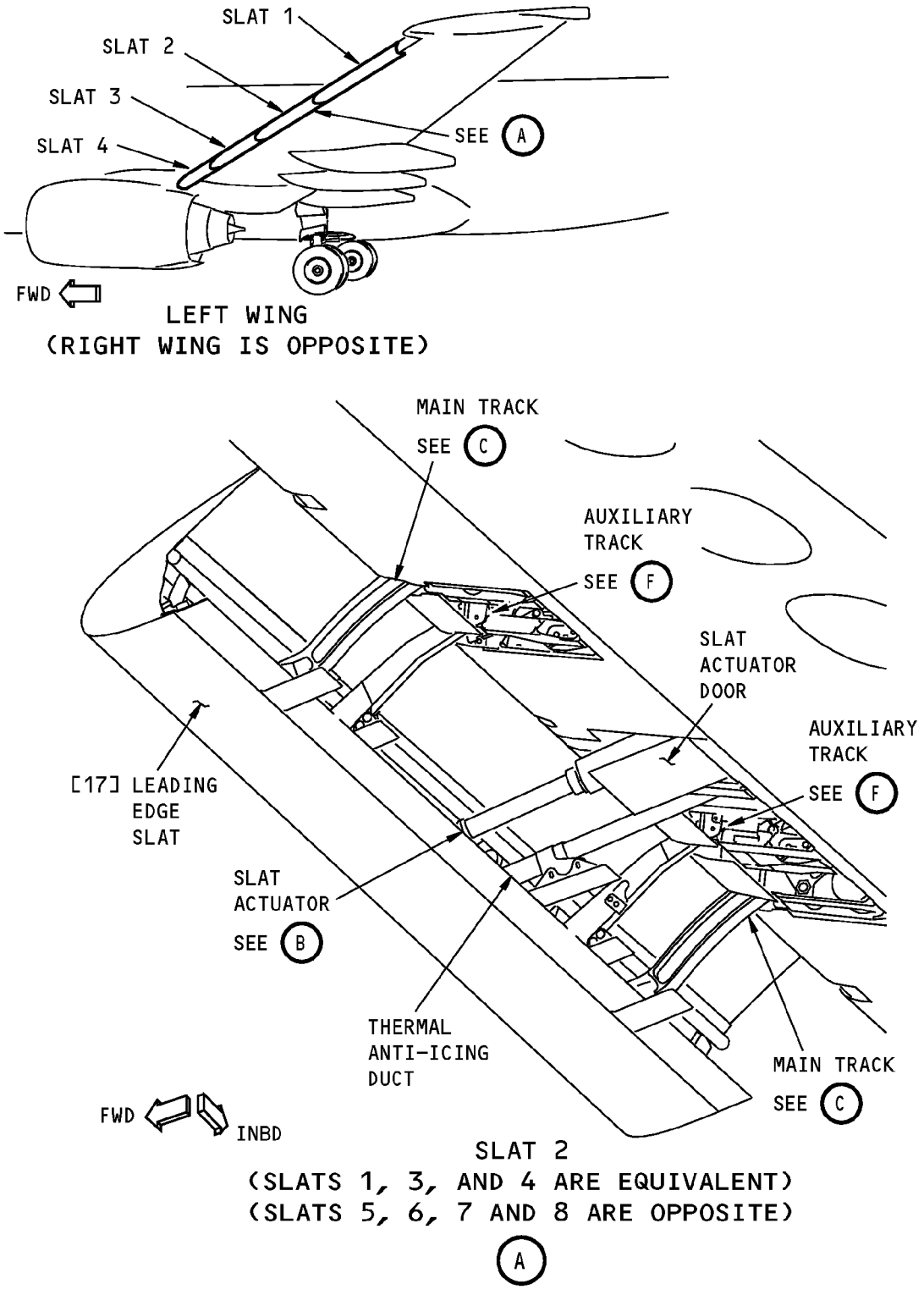

Leading Edge Slat Installation
Figure 401 (Sheet 1 of 7)/27-81-21-990-801

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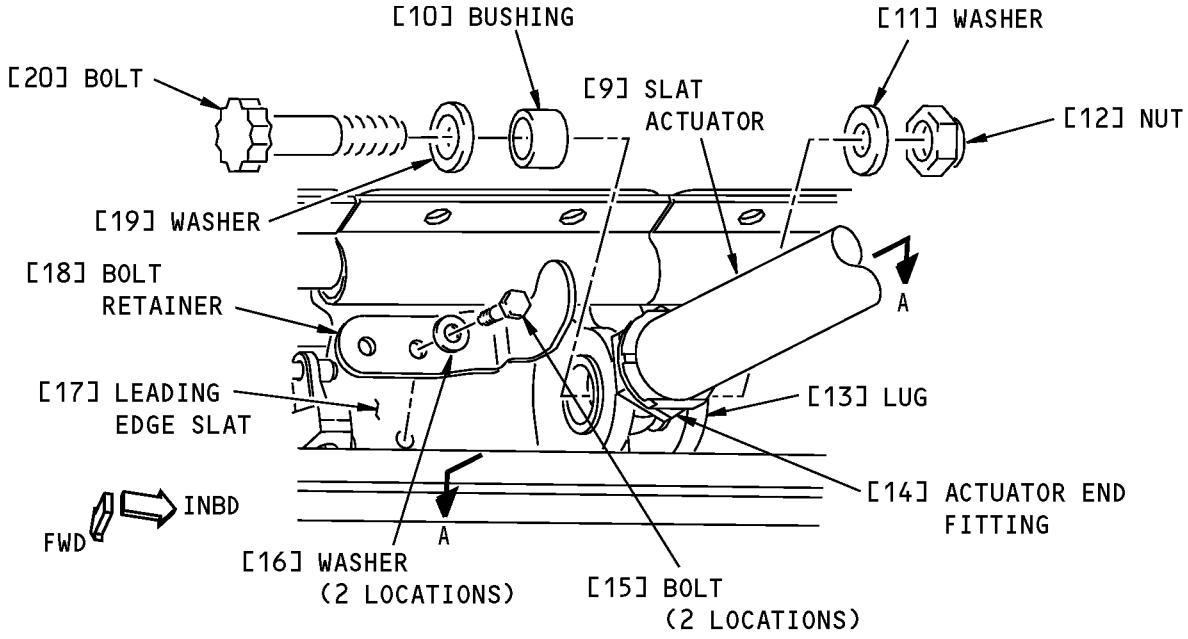
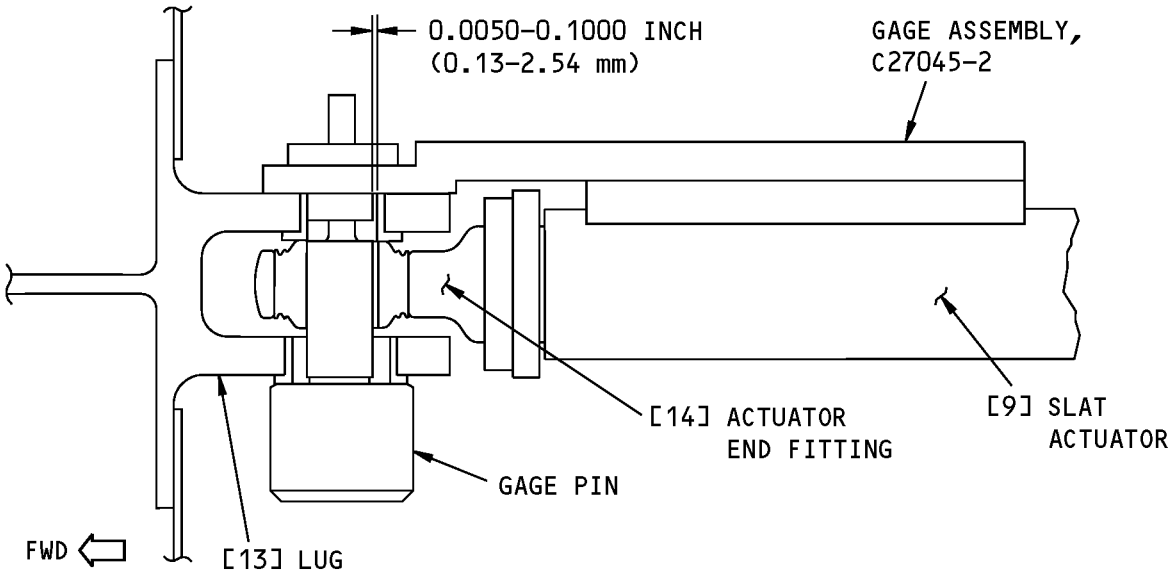


SLAT ACTUATOR

B



MISMATCH
A-A

Leading Edge Slat Installation
Figure 401 (Sheet 2 of 7)/27-81-21-990-801

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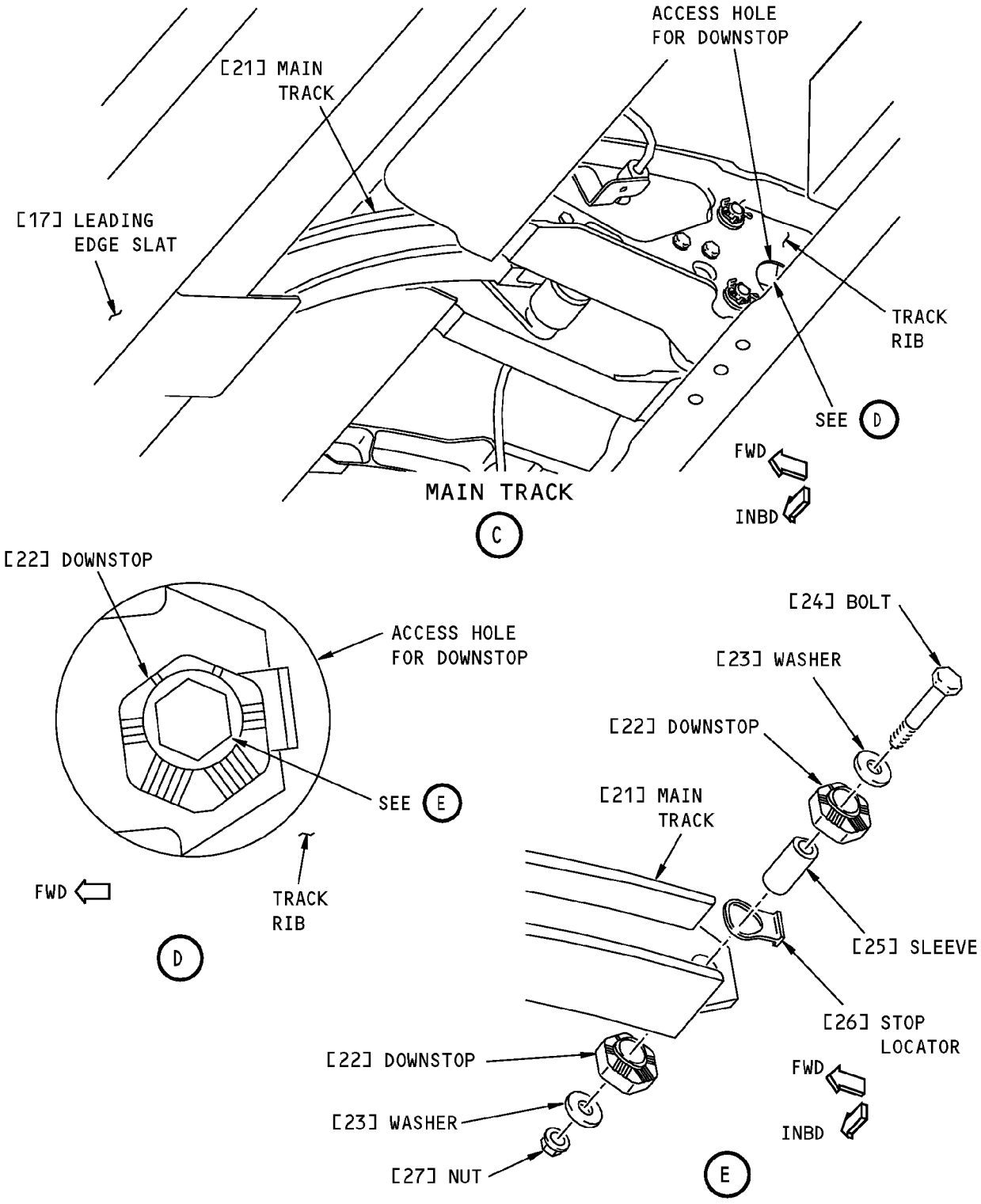

Leading Edge Slat Installation
Figure 401 (Sheet 3 of 7)/27-81-21-990-801

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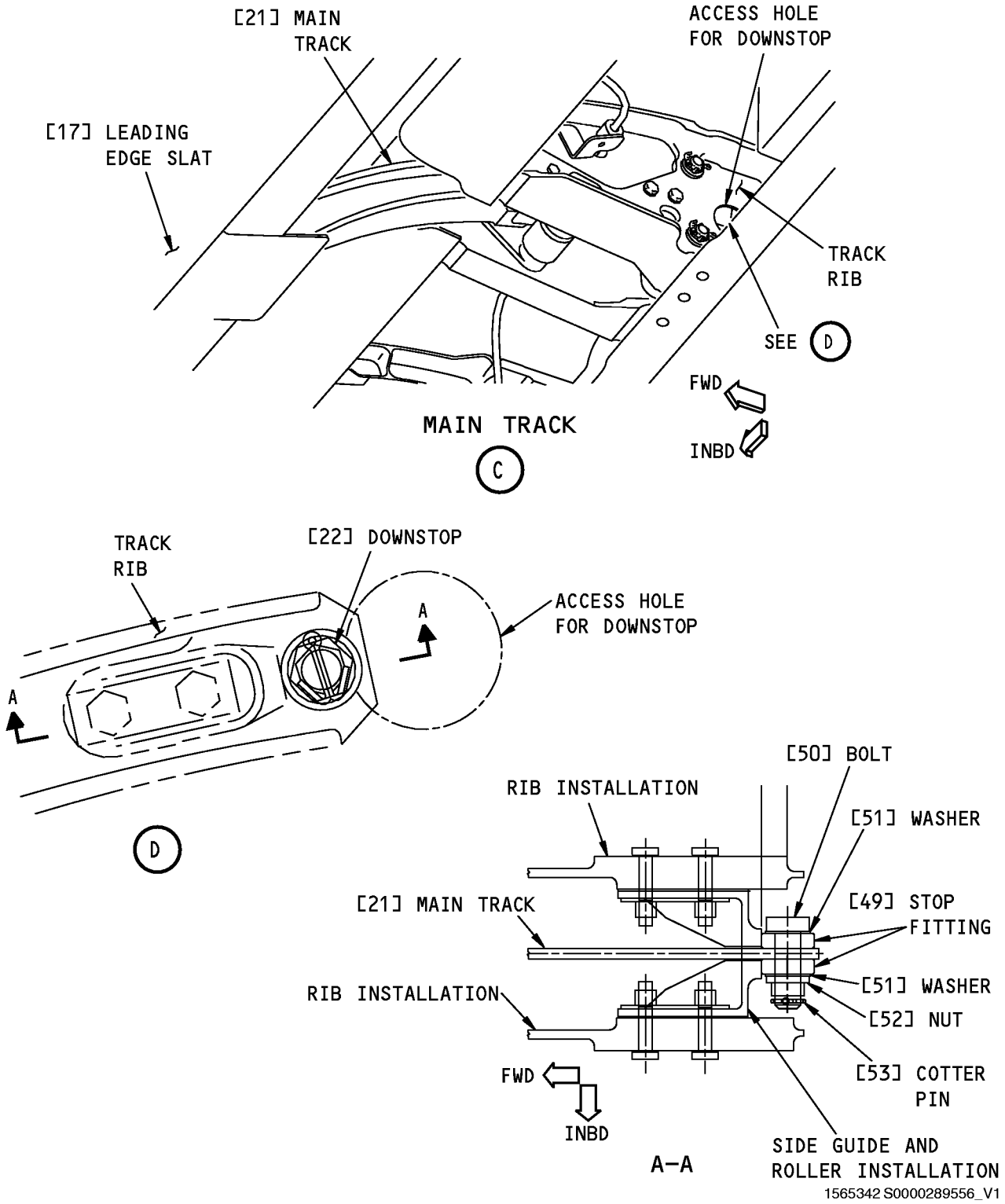

Leading Edge Slat Installation
Figure 401 (Sheet 4 of 7)/27-81-21-990-801

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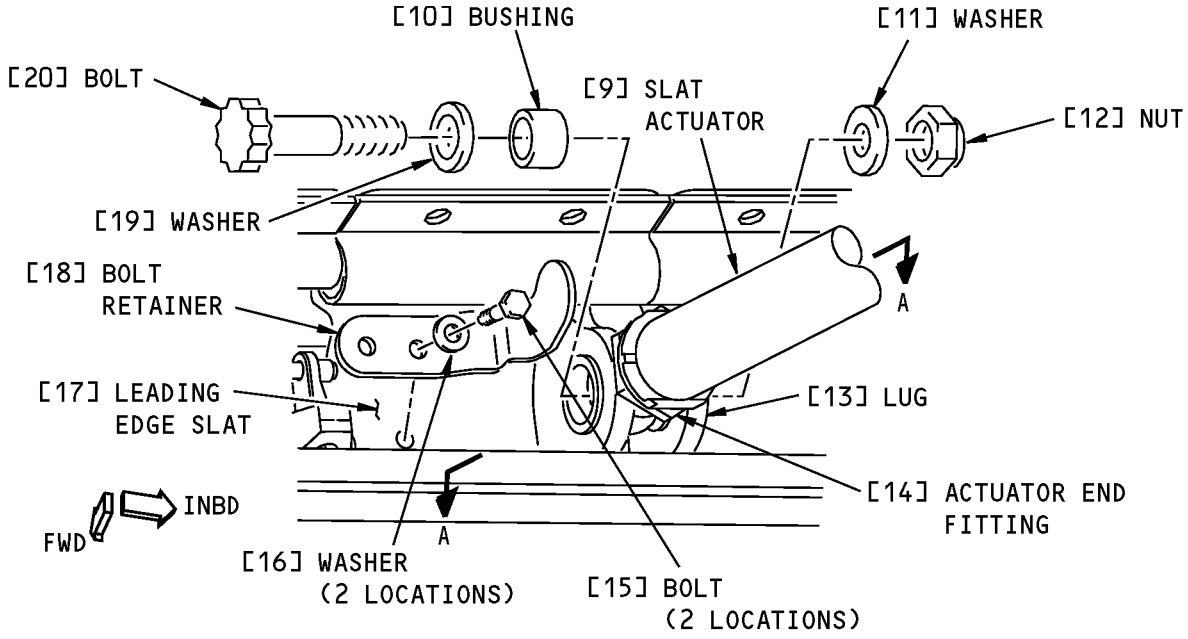
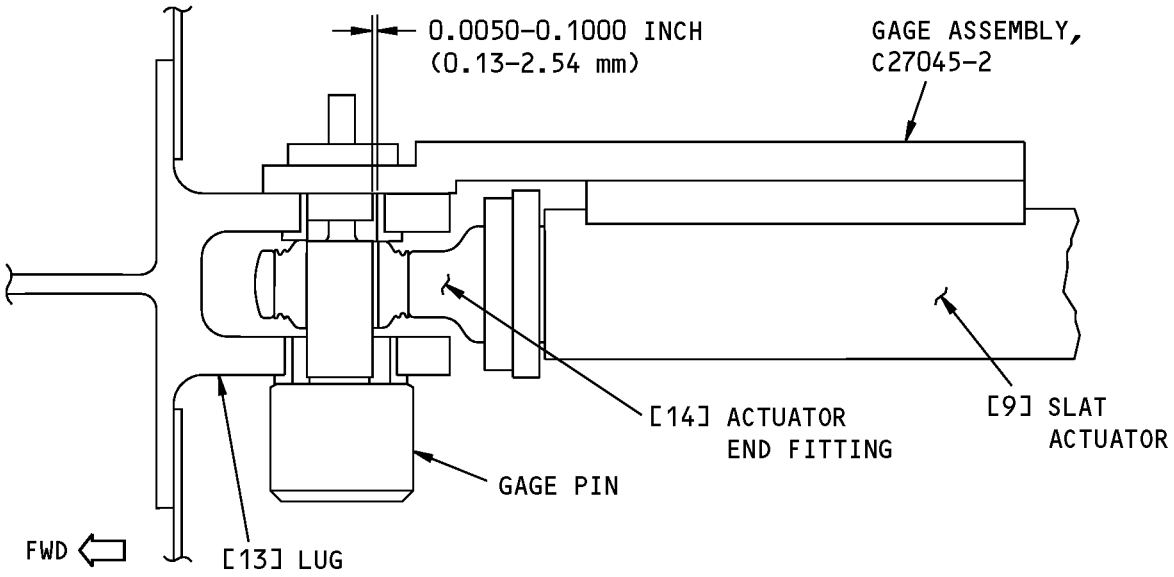


SLAT ACTUATOR

B



MISMATCH
A-A

Leading Edge Slat Installation
Figure 401 (Sheet 5 of 7)/27-81-21-990-801

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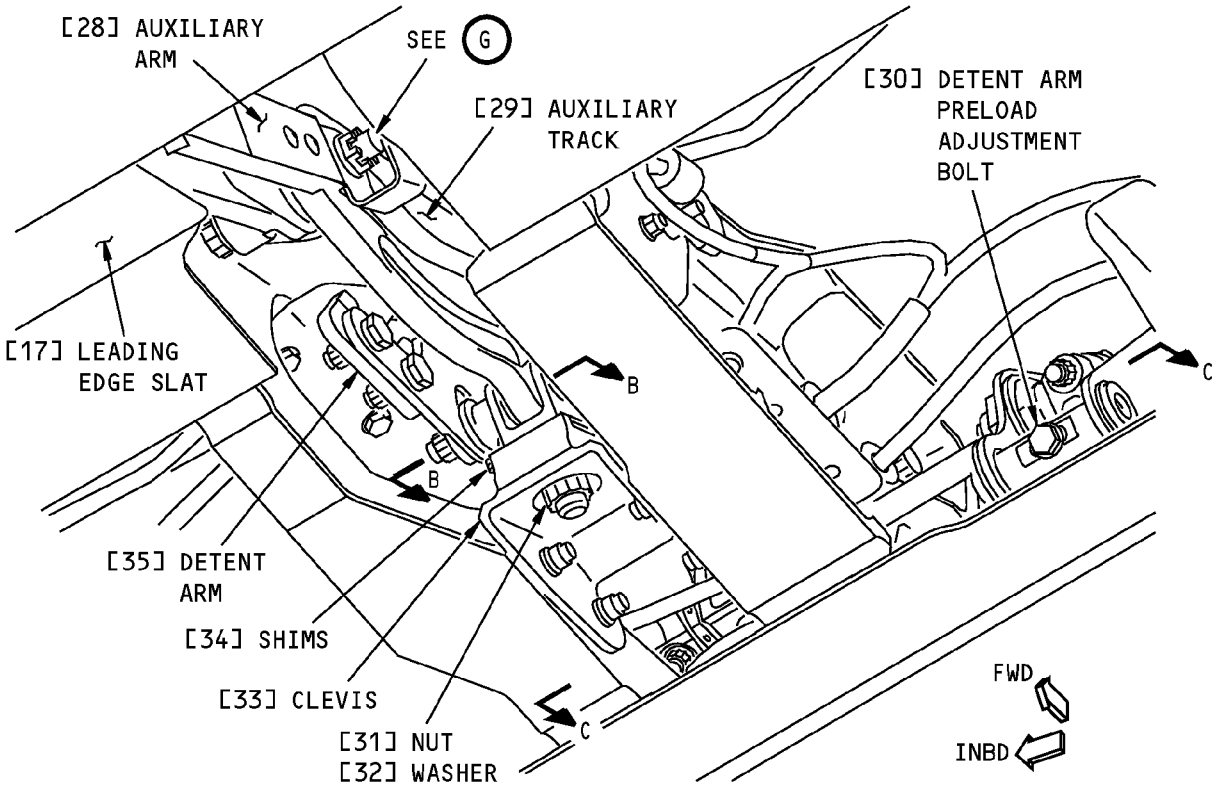
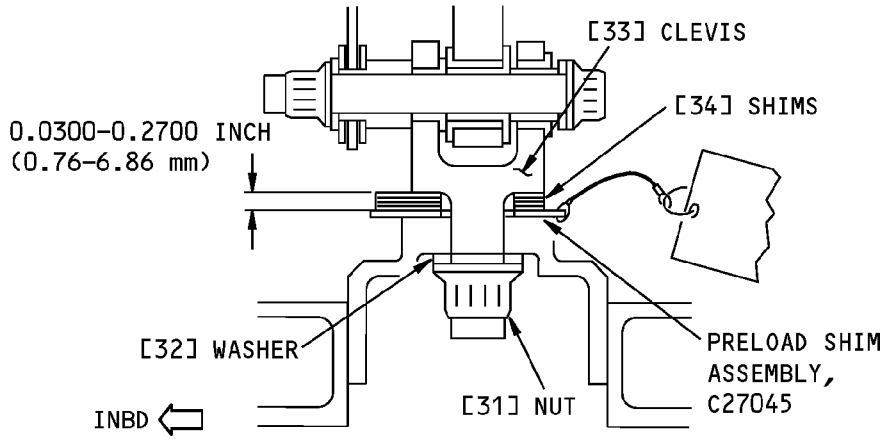


INBOARD AUXILIARY TRACK
(OUTBOARD AUXILIARY TRACK IS OPPOSITE)

F



B-B

Leading Edge Slat Installation
Figure 401 (Sheet 6 of 7)/27-81-21-990-801

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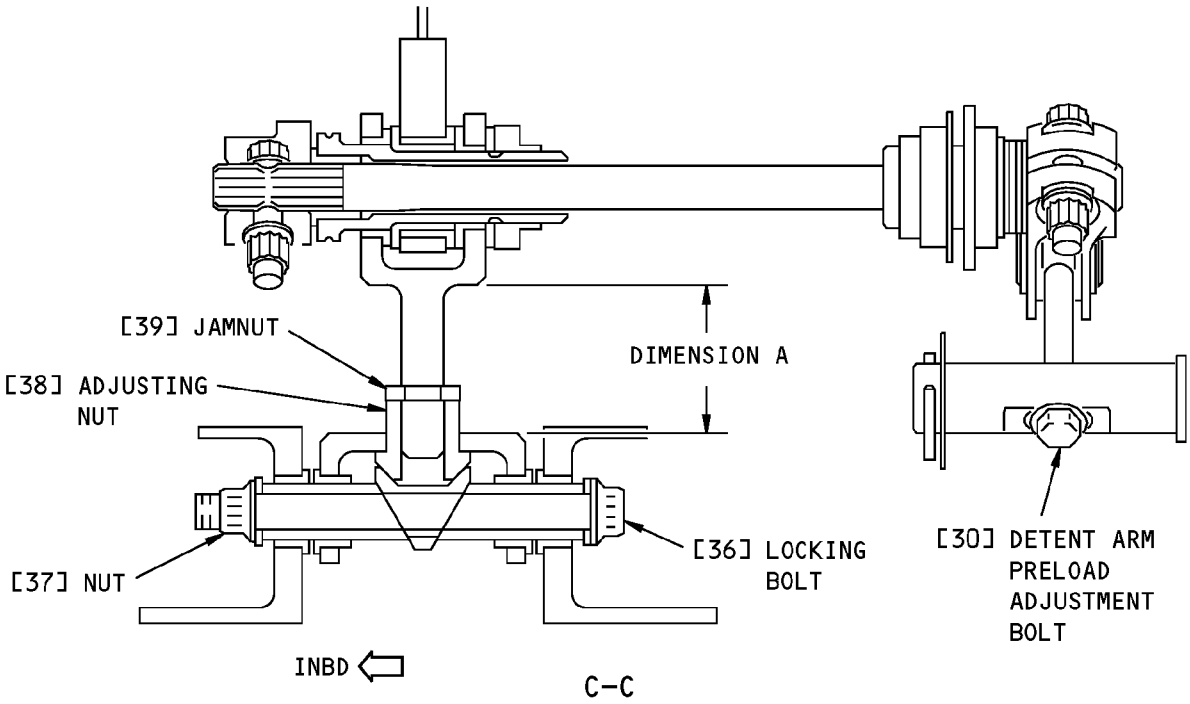

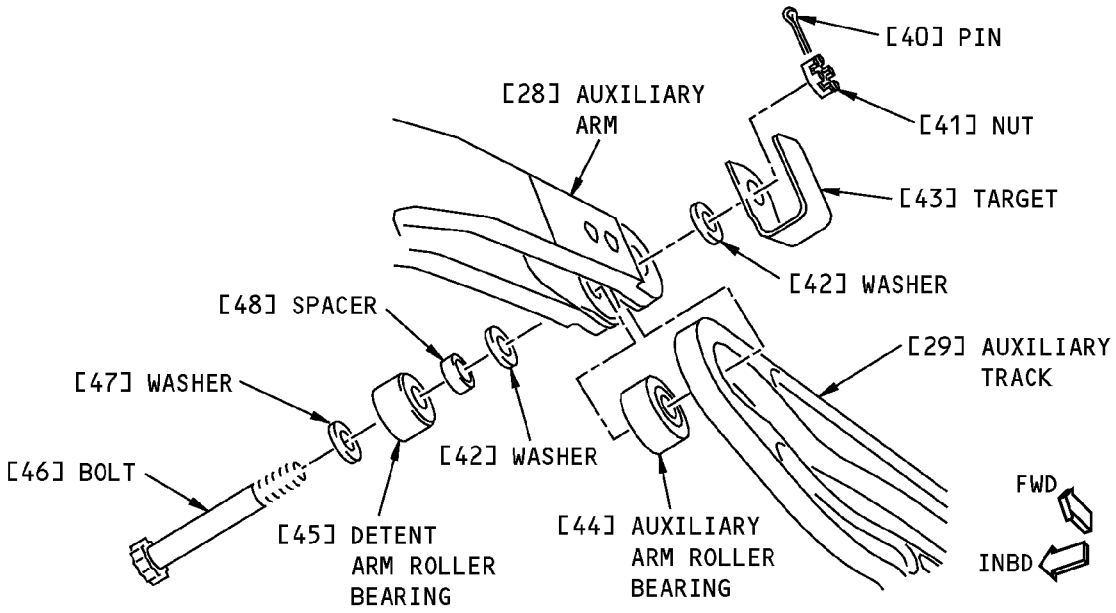

Leading Edge Slat Installation
Figure 401 (Sheet 7 of 7)/27-81-21-990-801

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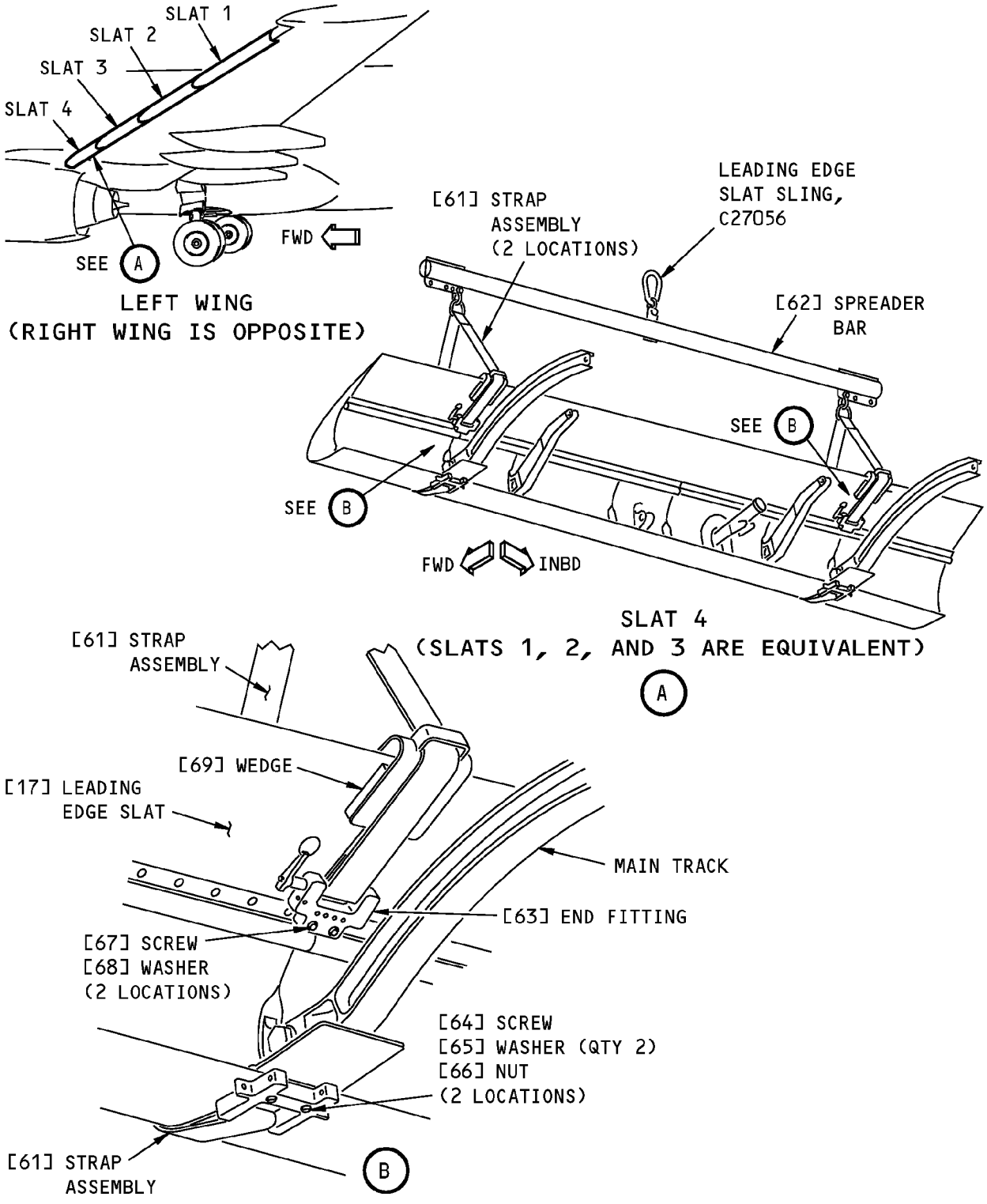

Leading Edge Slat Sling Installation
Figure 402/27-81-21-990-803

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TASK 27-81-21-400-801

3. Leading Edge Slat Installation

A. References

Reference	Title
27-81-00-440-801	Reactivate the Leading Edge Flaps and Slats (P/B 201)
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
27-81-00-820-803	Leading Edge Slats Adjustment (P/B 501)
27-81-00-860-803	Leading Edge Flaps and Slats Extension (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
30-11-31-400-801	Wing Anti-Ice Telescoping Duct Seal Installation (P/B 401)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)
SPL-1739	Kit - Slat Rigging Tools (Part #: C27045-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)
SPL-2041	Sling - Leading Edge Slat Removal/Installation (Part #: C27056-19, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00633	Grease - Aircraft General Purpose	BMS3-33
G50136	Paste - Corrosion Inhibiting, Non-drying	BMS 3-38
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS 3-38

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
40	Pin	27-81-00-01-040	HAP ALL

E. Location Zones

Zone	Area
521	Left Wing - Leading Edge to Front Spar
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1

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(Continued)

Zone	Area
621	Right Wing - Leading Edge to Front Spar
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

F. Access Panels

Number	Name/Location
521AAB	Lower Leading Edge Access Panel - Slat Station 508.31
521BB	Engine Fuel Valve Shutoff Access Panel - Slat Station 36.02
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521GB	Lower Leading Edge Access Panel - Slat Station 125.27
521HB	Lower Leading Edge Access Panel - Slat Station 152.81
521JB	Lower Leading Edge Access Panel - Slat Station 170.20
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521NB	Lower Leading Edge Access Panel - Slat Station 252.04
521PB	Lower Leading Edge Access Panel - Slat Station 270.42
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521UB	Lower Leading Edge Access Panel - Slat Station 374.95
521VB	Lower Leading Edge Access Panel - Slat Station 395.64
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05
621BB	Engine Fuel Spar Valve Access Panel - Slat Station 36.02
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621EB	Defuel Access Panel - Slat Station 95.15
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621GB	Refuel Access Panel - Slat Station 143.27
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621MB	Lower Leading Edge Access Panel - Slat Station 252.04
621NB	Lower Leading Edge Access Panel - Slat Station 270.63
621PB	Lower Leading Edge Access Panel - Slat Station 289.18
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62

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(Continued)

Number	Name/Location
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621TB	Lower Leading Edge Access Panel - Slat Station 374.95
621UB	Lower Leading Edge Access Panel - Slat Station 395.64
621VB	Lower Leading Edge Access Panel - Slat Station 415.79
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04
621ZB	Lower Leading Edge Access Panel - Slat Station 508.31

G. Procedure

SUBTASK 27-81-21-200-002

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-21-480-002

(2) Install the preload shim assembly, which is part of the kit, SPL-1739, at the forward supports for the auxiliary tracks [29] (Figure 401) (View B-B):

NOTE: This step is necessary to make sure the leading edge slat is not preloaded against the fixed leading edge.

(a) Remove the nuts [31] and washers [32] from the clevis [33].

(b) Lift the auxiliary track [29] with the clevis [33] through the auxiliary track support.

(c) Install the preload shim assembly, which is part of the kit, SPL-1739, with the shims [34] on the clevis [33].

(d) Put the clevis [33] back in its position on the auxiliary track support.

(e) Install the washers [32] and nuts [31] on the clevis [33].

SUBTASK 27-81-21-860-004

(3) Prepare the auxiliary tracks and the detent arm for the installation:

NOTE: If you will install the same slat that you removed, it is recommended that you do these steps but is not necessary.

(a) Adjust the aft support for the auxiliary tracks [29] (Figure 401) (View C-C).

1) Loosen the jam nut [39].

2) Loosen the nut [37] to loosen the locking bolt [36].

3) Turn the adjusting nut [38] until the dimension A is as specified (Table 401)

Table 401/27-81-21-993-802

Location	Dimension A Inches (Millimeters)
Slat 1 and 8 (Outbd)	0.830 (21.08)
Slat 1 and 8 (Inbd)	0.950 (24.13)
Slat 2 and 7 (Outbd)	0.950 (24.13)

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(Continued)

Location	Dimension A Inches (Millimeters)
Slat 2 and 7 (Inbd)	1.450 (36.83)
Slat 3 and 6 (Outbd)	1.450 (36.83)
Slat 3 and 6 (Inbd)	1.450 (36.83)
Slat 4 and 5 (Outbd)	1.500 (38.10)
Slat 4 and 5 (Inbd)	2.100 (53.34)

4) Tighten the nut [37] on the locking bolt [36].

5) Finger tighten jam nut [39] until in contact with adjusting nut [38].

6) Tighten jam nut [39] an additional quarter turn.

(b) Adjust the preload on the detent arm [35] to zero:

NOTE: It is recommended that you do these steps but it is not necessary.

1) Turn the preload adjustment bolt [30] clockwise to increase preload or counterclockwise to reduce preload.

2) Adjust the preload on all the detent arms [35] to zero pound.

SUBTASK 27-81-21-640-002

(4) Apply a layer of grease, D00633 to the surfaces of the main tracks [21], auxiliary tracks [29] and the side guards on the auxiliary arms [28].

SUBTASK 27-81-21-420-001

(5) With the main tracks [21] installed on the leading edge slat assembly [17], install the main tracks [21] between the roller ribs in the fixed leading edge.

SUBTASK 27-81-21-020-005

(6) If you removed slats No. 2, 3, 4, 5, 6 or 7, connect the thermal anti-icing duct to the slat assembly [17]. To install the duct, do this task: Wing Anti-Ice Telescoping Duct Seal Installation, TASK 30-11-31-400-801.

SUBTASK 27-81-21-420-003

CAUTION: MAKE SURE THE LOWER SURFACE OF THE SLAT TRAILING EDGE AND THE UPPER SKIN PANELS OF THE FIXED LEADING EDGE ARE SMOOTH BEFORE YOU INSTALL THE LEADING EDGE SLATS. MAKE SURE THE SURFACE AND PANELS ARE ALSO CLEAN AND FREE OF CONTAMINATIONS, NICKS, OR BURRS. DAMAGE TO EQUIPMENT CAN OCCUR IF THE SURFACE AND PANELS ARE NOT SMOOTH AND THERE ARE CONTAMINATIONS.

(7) Install the leading edge slat assembly [17] (Figure 401):

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(a) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

HAP 001-013, 015-026, 028-047, 054, 101-106 PRE SB 737-57A1302

(b) Install the main tracks [21] on the fixed leading edge (Fig. 401):

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1) Install the downstops [22] to the main tracks [21]:
   a) Make sure that you install all the necessary parts (use the Aircraft Illustrated Part Catalog) on the installation of the downstop [22].

      CAUTION: INSTALL THE WASHERS CORRECTLY. IF YOU DO NOT, THE MAIN TRACK/STRUCTURE JOINT CAN BECOME LOOSE AND THE DOWNSTOP ASSEMBLY CAN FALL. THIS CAN CAUSE DAMAGE TO THE SLAT TRACK HOUSING.

      <1> Make sure you install one washer [23] below the bolt head and one washer [23] below the nut.

      <2> Make sure the bolt [24} or the nut [27] are tighten to the required torque value.

   b) Get access to the downstops [22] through the access holes in the track ribs.
2) Apply compound, C00913 to the sleeves [25].
3) Install the sleeves [25], downstops [22] and stop locators [26] on the main tracks [21].
   a) Install the downstops [22] with the two marks point forward, which is the nominal position.

      NOTE: The downstop [22] has three positions. The position with one mark point forward has the least preload, the position with three marks has the most preload. The position with two marks is the nominal position.
4) Install the bolt [24], one washer [23] under the bolthead, one washer [23] under the nut [27], and the nut [27].

   NOTE: The head of the bolt [24] must be on the outboard of the main track [21] at all locations.
5) Tighten the nuts [27] to 50-80 pound-inches (5.6-9.0 newton-meters), or the bolts [24] to 72-88 pound-inches (8.1-9.9 newton-meters).

   NOTE: The recommended method is to tighten the nuts.

   The optional method is to tighten the bolts.

   a) Get an 100% quality assurance witness of the torque required.
6) Make sure by the visual inspection that the bolts [24], washers [23], downstops [22], stop locator [26], and nuts [27] are all installed correctly.
   a) Make sure that the slat main track housing (can) is free of unwanted material.

HAP 048-053, 107-999; HAP 001-013, 015-026, 028-047, 054, 101-106 POST SB 737-57A1302

(c) Install the main tracks [21] on the fixed leading edge (Fig. 401):
1) Install the stop fittings [49] to the main tracks [21]:
   a) Make sure that you install all the necessary parts (use the Aircraft Illustrated Part Catalog) on the installation of the stop fittings [49].

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CAUTION: INSTALL THE WASHERS CORRECTLY. IF YOU DO NOT, THE MAIN TRACK/STRUCTURE JOINT CAN BECOME LOOSE AND THE DOWNSTOP ASSEMBLY CAN FALL. THIS CAN CAUSE DAMAGE TO THE SLAT TRACK HOUSING.

<1> Make sure you install one washer [51] below the bolt head and one washer [23] below the nut.

NOTE: An additional washer is permitted under the bolt head, if required.

<2> Make sure the bolt [50] or the nut [52] are tighten to the required torque value.

b) Get access to the stop fittings [49] through the access holes in the track ribs.

2) Coat the shank of the bolt [50] and the face of the first stop fitting [49] with Cor-Ban 27L Compound, G50237 and all the surface of the hole in the main slat track [21].

3) Install one washer [51] under the bolt head and the first stop fitting [49] on the bolt [50].

NOTE: An additional washer is permitted under the bolt head, if required.

4) Install the bolt [50] attached to the washer [51] and the first stop fitting [49] to the main track [21].

5) Install the second stop fitting [49], one washer [51] and the nut [52] on the shank of the bolt [50] that you have it installed on the main track [21]

NOTE: No grip length increase is permitted on the bolt [50].

a) If the bolt will not enter the hole in the main track [21] using hand pressure, do the optional step that follow:

<1> Hand ream the hole for the stop fitting [49] in the main track [21] up to 0.4375 in. (11.1125 mm) diameter.

<2> Coat all hole surfaces with corrosion inhibiting non-drying paste, G50136

6) Tighten the nut [52] (preferred) or the bolt head to the torque range of 180 in-lb (20 N·m) to 200 in-lb (23 N·m)

NOTE: The recommended method is to tighten the nuts.

The optional method is to tighten the bolts.

a) Get a 100% quality assurance witness of the torque required.

7) Install the cotter pin [53].

a) Wrap the cotter pin [53] around the shank of the bolt [50].

8) Make sure by the visual inspection that the bolts [50], washers [51], stop fittings [49], nut [52] and cotter pins [53] are all installed correctly.

a) Make sure that the slat main track housing (can) is free of unwanted material.

HAP ALL

(d) Attach the auxiliary arms [28] to the auxiliary tracks [29].

1) Install the auxiliary arm roller bearings [44] to the auxiliary tracks [29].

2) Install the bolts [46], washers [47], detent arm roller bearings [45], spacers [48], washer [42], targets [43], and nuts [41].

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a) Add washer [42] under the nut [41] if and as it is necessary to align the cotter pin hole in the bolt [46] with the slot in the nut [41].

3) Tighten the nuts [41] to 95-160 pound-inches (10.7-18.1 newton-meters), or the bolts [46] to 144-176 pound-inches (16.3-19.9 newton-meters).

NOTE: The recommended method is to tighten the nuts.

The optional method is to tighten the bolts.

4) Install the pin [40].

SUBTASK 27-81-21-080-002

(8) If you installed the sling, SPL-2041, remove the sling, SPL-2041 from the leading edge slat assembly [17] (Figure 402):

(a) Hold and remove the spreader bar [62] from the overhead hoist.

(b) Remove the strap assembly [61] from end fittings [63] and the wedges [69].

(c) Remove the screws [67] and washers [68] to remove the end fittings [63].

(d) Remove the nuts [66], washers [65] and bolts [64] to remove the strap assembly [61] from bottom of the leading edge slat assembly [17].

(e) Remove the wedges [69] from the leading edge slat assembly [17].

SUBTASK 27-81-21-710-001

(9) Manually retract the leading edge slat.

(a) Make sure the main tracks move parallel with each other.

(b) Make sure the main tracks can move freely on the rollers.

SUBTASK 27-81-21-440-001

(10) Do this task: Reactivate the Leading Edge Flaps and Slats, TASK 27-81-00-440-801.

SUBTASK 27-81-21-860-005

(11) Use hydraulic power to extend the slat actuator [9] to the 10-unit position. To extend the slat actuator [9], do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

SUBTASK 27-81-21-820-001

(12) Make sure the slat assembly [17] is in the correct position (View A-A):

NOTE: The actuator end fitting [14] must be extended forward of the lug [13]. This allows the slat actuator [9] to be preloaded against the slat assembly [17] when it is fully extended.

(a) Use the gage assembly, which is part of the kit, SPL-1739, to make sure the actuator end fitting [14] is extended 0.0050-0.1000 inch (0.13-2.54 millimeters) farther than the lug [13] on the slat assembly [17].

NOTE: It is not necessary to take any measurements when using the gage assembly.

HAP 001-013, 015-026, 028-047, 054, 101-106 PRE SB 737-57A1302

(b) If the actuator end fitting [14] is not extended 0.0050-0.1000 inch (0.13-2.54 millimeters) farther than the lug [13], adjust the downstop [22] on the main tracks [21]:

NOTE: The downstop [22] has three positions. The position with one mark point forward has the least preload, the position with three marks has the most preload. The position with two marks is the nominal position.

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WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.
2) Get access to the downstop [22] through the access holes in the track ribs.
3) Loosen the nut [27] on the bolt [24].
4) Turn the downstop [22] to adjust the position of the slat assembly [17].
5) Make sure the stop locator [26] is in the correct position.
6) Tighten the nut [27] to 50-80 pound-inches (5.6-9.0 newton-meters) or the bolt [24] to 72-88 pound-inches (8.1-9.9 newton-meters).

   NOTE: The recommended method is to tighten the nuts.

   The optional method is to tighten the bolts.

   a) Get a 100% quality assurance witness of the torque required.

CAUTION: MAKE SURE THAT THE WASHERS ARE INSTALLED CORRECTLY. IF THEY ARE NOT, THE MAIN TRACK/STRUCTURE JOINT CAN BECOME LOOSE. THE DOWNSTOP PARTS CAN DISCONNECT AND CAN CAUSE DAMAGE TO THE SLAT TRACK HOUSING.

7) Make sure by the visual inspection that the bolts [24], washers [23], downstops [22], stop locator [26], and nuts [27] are all installed correctly.

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

8) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

HAP ALL

SUBTASK 27-81-21-860-006

(13) Use hydraulic power to retract the actuator [1] to the 1-unit position. To retract the actuator, do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

NOTE: This will permit you to install the bolt [20].

SUBTASK 27-81-21-420-004

(14) Connect the slat actuator [9] to the slat [7]:

(a) Move the slat assembly [17] until it aligns with the slat actuator [9].

(b) Install the bushing [10], bolt [20], washer [19], washer [11] and nut [12] to attach the slat actuator [9] to the slat assembly [17].

NOTE: Make sure the head of the bolt [20] is on the outboard side of the slat actuator [9].

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(c) Tighten the nut [12] to 660-980 pound-inches (74.6-110.7 newton-meters) or the bolt [20] to 882-1078 pound-inches (99.7-121.8 newton-meters).

NOTE: The recommended method is to tighten the nuts.

The optional method is to tighten the bolts.

(d) Install the bolt retainer [18]:

1) Apply compound, C00528 to the shank and threads of the bolts [15].

2) Install the bolts [15] and washers [16] to attach the bolt retainer [18].

SUBTASK 27-81-21-820-002

(15) Do this task: Leading Edge Slats Adjustment, TASK 27-81-00-820-803.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-21-080-003

WARNING: CAREFULLY REMOVE THE LEADING EDGE SLAT ACTUATORS LOCKOUT SET. THE LEADING EDGE SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Remove the lockout set, SPL-1734 from the actuators of the adjacent leading edge slats. To do this, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

SUBTASK 27-81-21-200-004

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(2) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-21-940-001

(3) Install these access panels on the lower surface of the fixed leading edge:

(a) For the left wing, close these access panels:

Number	Name/Location
521AAB	Lower Leading Edge Access Panel - Slat Station 508.31
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521GB	Lower Leading Edge Access Panel - Slat Station 125.27
521HB	Lower Leading Edge Access Panel - Slat Station 152.81
521JB	Lower Leading Edge Access Panel - Slat Station 170.20
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76

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(Continued)

Number	Name/Location
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521NB	Lower Leading Edge Access Panel - Slat Station 252.04
521PB	Lower Leading Edge Access Panel - Slat Station 270.42
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521UB	Lower Leading Edge Access Panel - Slat Station 374.95
521VB	Lower Leading Edge Access Panel - Slat Station 395.64
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05

(b) For the right wing, close these access panels:

Number	Name/Location
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621MB	Lower Leading Edge Access Panel - Slat Station 252.04
621NB	Lower Leading Edge Access Panel - Slat Station 270.63
621PB	Lower Leading Edge Access Panel - Slat Station 289.18

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(Continued)

Number	Name/Location
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621TB	Lower Leading Edge Access Panel - Slat Station 374.95
621UB	Lower Leading Edge Access Panel - Slat Station 395.64
621VB	Lower Leading Edge Access Panel - Slat Station 415.79
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04
621ZB	Lower Leading Edge Access Panel - Slat Station 508.31

SUBTASK 27-81-21-410-002

(4) Close these access doors on the lower surface of the fixed leading edge:

(a) For the left wing, close this access panel:

Number	Name/Location
521BB	Engine Fuel Valve Shutoff Access Panel - Slat Station 36.02

(b) For the right wing, close these access panels:

Number	Name/Location
621BB	Engine Fuel Spar Valve Access Panel - Slat Station 36.02
621EB	Defuel Access Panel - Slat Station 95.15
621GB	Refuel Access Panel - Slat Station 143.27

SUBTASK 27-81-21-860-007

(5) Do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

——————— END OF TASK ———————

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LEADING EDGE FLAP ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the leading edge flap actuator.

(2) An installation of the leading flap actuator.

B. The leading edge flap actuator is referred to as the actuator in this procedure.

TASK 27-81-31-000-801

2. Leading Edge Flap Actuator Removal

(Figure 401)

A. References

Reference	Title
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4

D. Prepare for the Removal

SUBTASK 27-81-31-860-001

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-81-31-860-002

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 27-81-31-860-003

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS WILL EXTEND. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Move the flap control lever to the 1-unit detent to extend the leading edge flaps.

SUBTASK 27-81-31-480-001

WARNING: CAREFULLY INSTALL THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Install the lockout set, SPL-1734 on the actuator for adjacent leading edge flap. To install the lock, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

E. Leading Edge Flap Actuator Removal

SUBTASK 27-81-31-020-001

(1) Disconnect the applicable actuator [11] or [12] from the leading edge flap:

(a) Remove the pin [19], nut [24], washer [23], washer [22], bushing [21], washer [20] and bolt [18] that attach the actuator [11] to the No. 1 leading edge flap [1].

(b) Remove the pin [26], nut [30], washer [29], washer [22], bushing [28], washer [27] and bolt [25] that attach the actuator [12] to the No. 2 leading edge flap [2].

SUBTASK 27-81-31-860-004

(2) Move the flap control lever to the UP detent to retract the applicable actuator [11] or [12].

SUBTASK 27-81-31-860-005

(3) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-31-020-002

(4) Remove the leading edge flap actuator [11] or [12]:

(a) Disconnect the three hydraulic lines [4], [9] and [10]:

1) Remove the screws [6], nuts [7] and clamps [5] that attach the hydraulic line [4] to the bracket [8].

2) Disconnect the hydraulic lines [4], [9] and [10] from the hydraulic fittings [3].

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3) Install the plugs in the hydraulic lines [4], [9] and [10].

4) Install caps in the hydraulic fittings [3].

(b) Remove the nut [17], washer [16], washer [14], bolt [13] and bushing [15] that attach the actuator [11] or [12] to the structure.

(c) Remove the actuator [11] or [12].

NOTE: Remove the hydraulic lines [4], [9] and [10] with the actuator [11] or [12].

SUBTASK 27-81-31-020-003

(5) If you will install a new actuator [11] or [12], remove the hydraulic lines [4], [9] and [10]:

(a) Remove the hydraulic lines [4], [9] and [10] from the actuator [11] or [12].

(b) Install the plugs in the ends of the hydraulic lines [4], [9] and [10].

(c) Install caps in the hydraulic ports on the actuator [11] or [12].

END OF TASK

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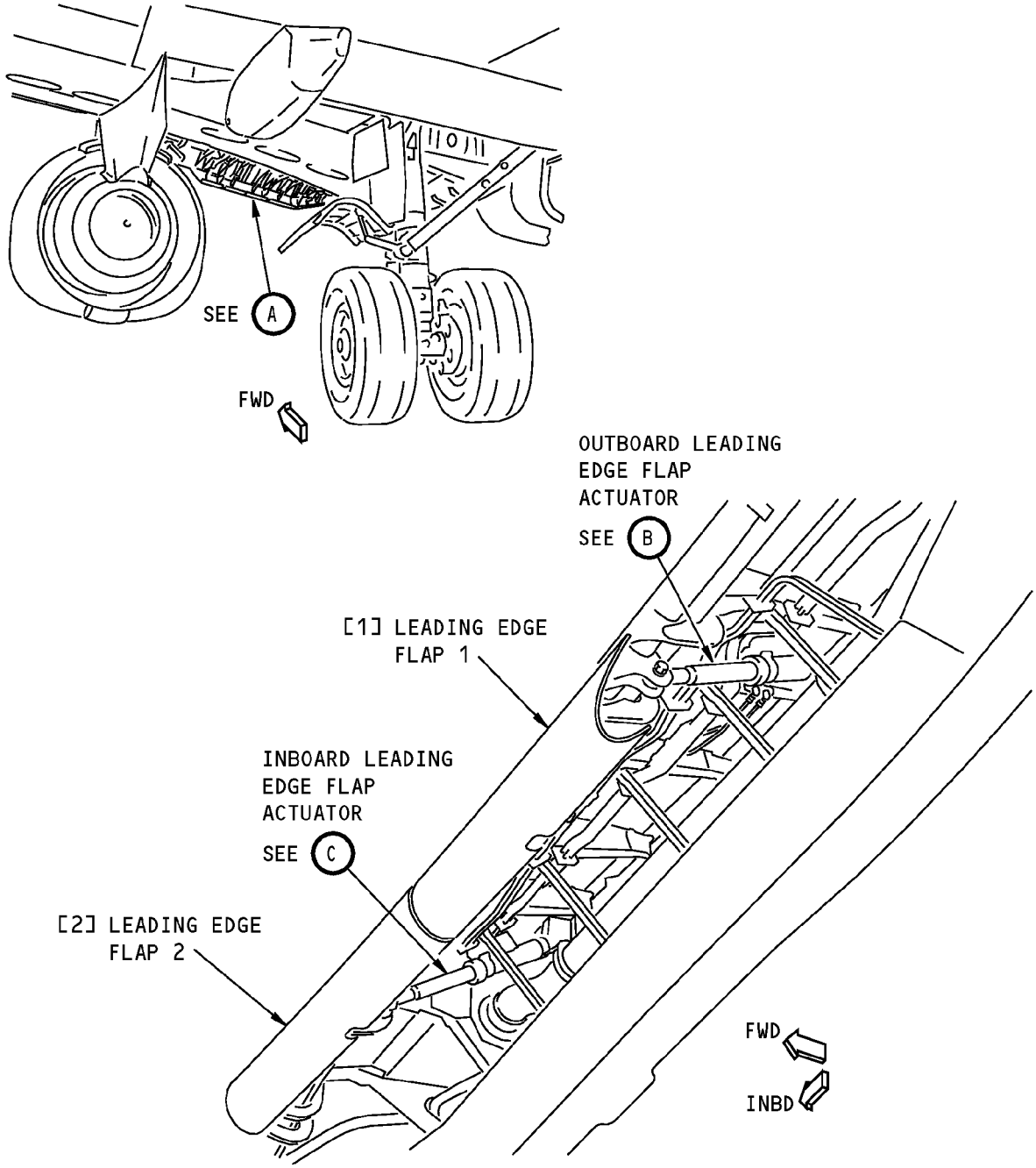

LEFT LEADING EDGE FLAPS 1 AND 2
(RIGHT LEADING EDGE FLAPS 3 AND 4 ARE OPPOSITE)

A

Leading Edge Flap Actuator Installation
Figure 401 (Sheet 1 of 3)/27-81-31-990-801

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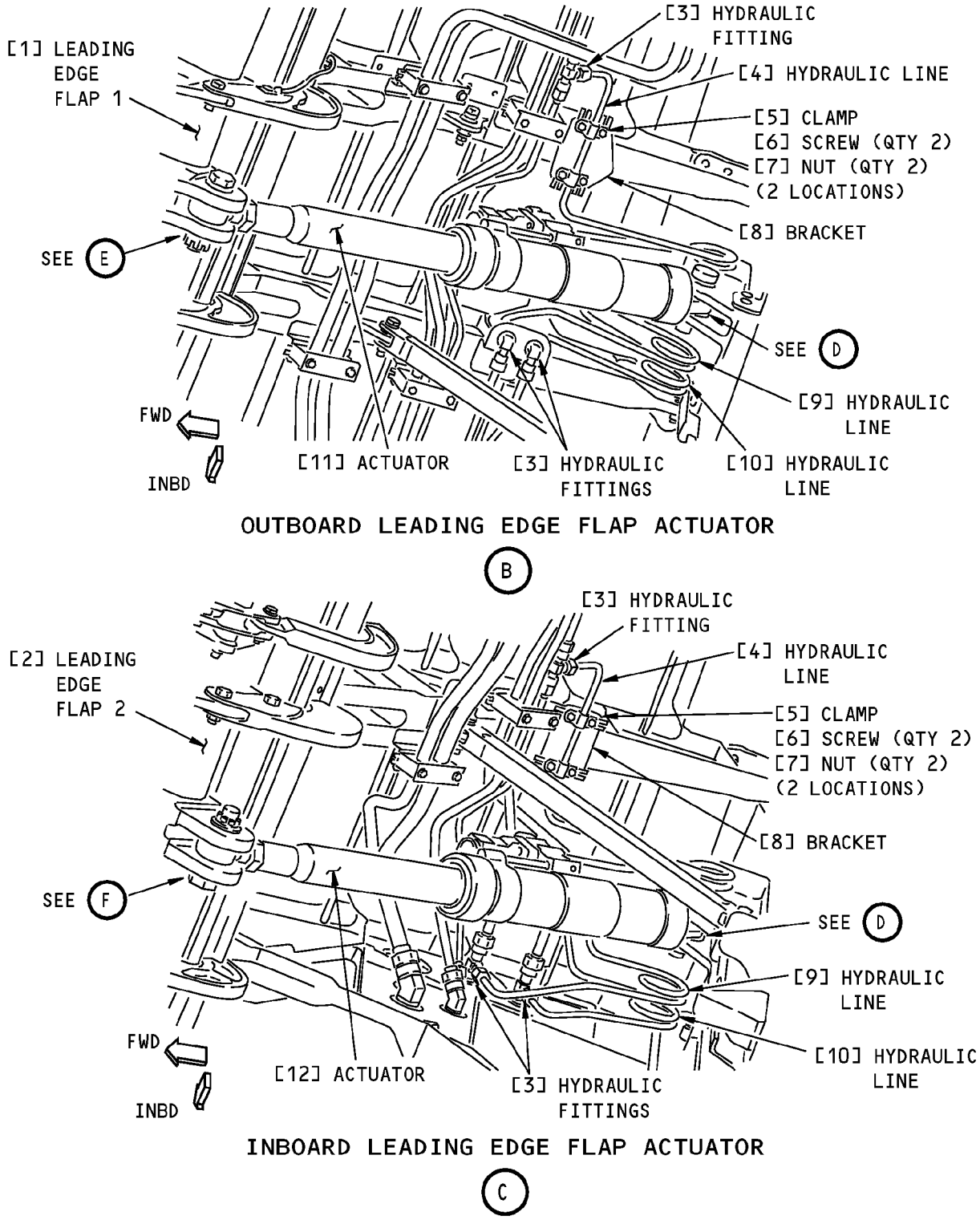

Leading Edge Flap Actuator Installation
Figure 401 (Sheet 2 of 3)/27-81-31-990-801

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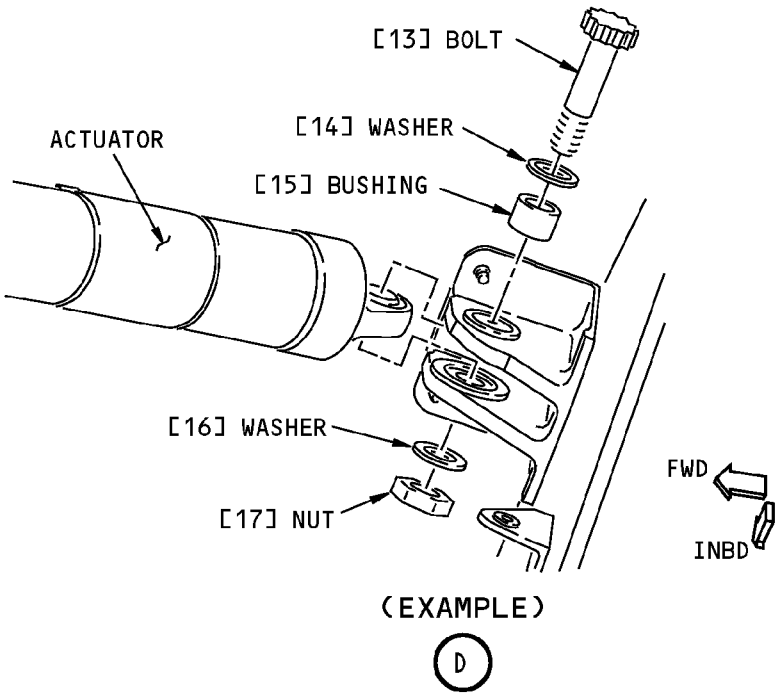

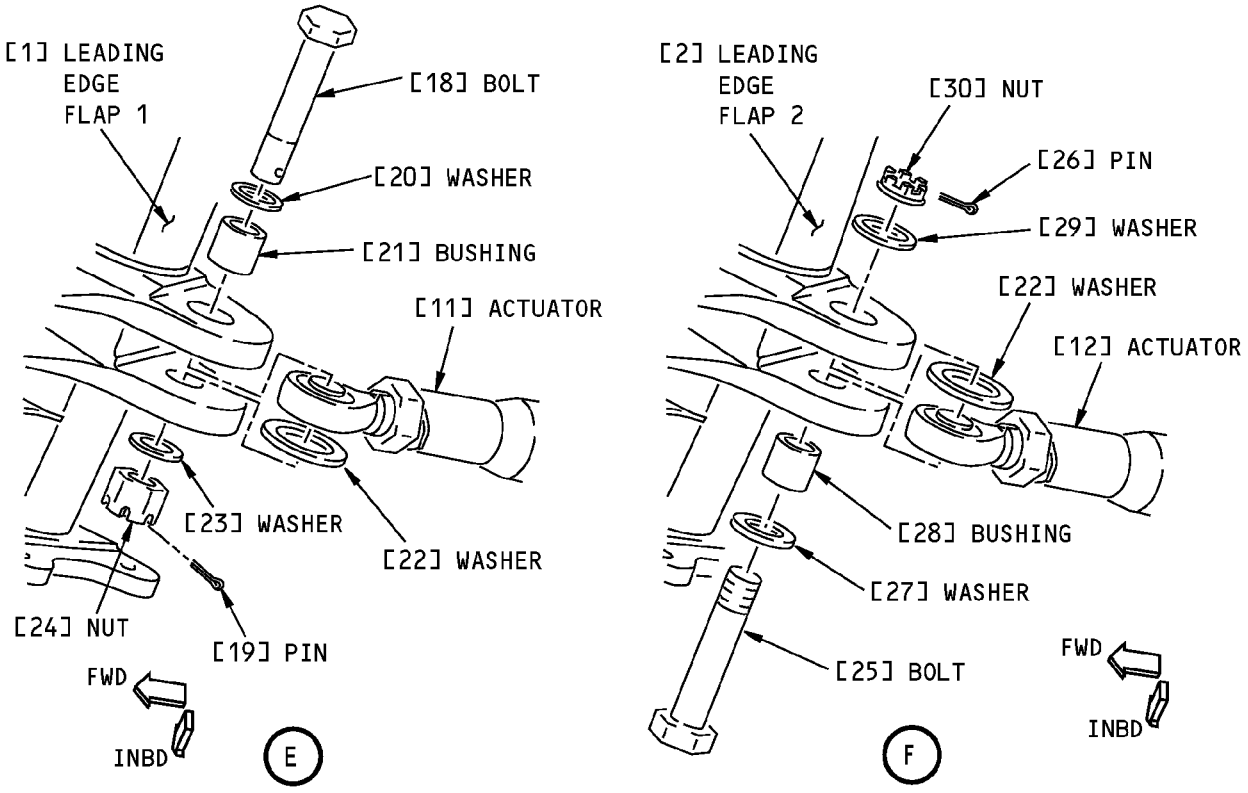

Leading Edge Flap Actuator Installation
Figure 401 (Sheet 3 of 3)/27-81-31-990-801

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TASK 27-81-31-400-801

3. Leading Edge Flap Actuator Installation

(Figure 401)

A. References

Reference	Title
27-81-00-080-801	Leading Edge Flap and Slat Locks Removal (P/B 201)
27-81-00-700-802	Leading Edge Flap and Slat Timing Test in Primary Mode (P/B 501)
27-81-00-710-801	Leading Edge Flap and Slat System Standby Actuation Operational Test (P/B 501)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
D00633	Grease - Aircraft General Purpose	BMS3-33
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4

D. Leading Edge Flap Actuator Installation

SUBTASK 27-81-31-420-001

(1) If the hydraulic lines are not installed on the actuator [11] or [12], connect the hydraulic lines [4], [9] and [10]:

(a) Remove the caps from the hydraulic ports in the actuator [11] or [12].

(b) Remove the plugs from the hydraulic lines [4], [9] and [10].

(c) Install the hydraulic lines [4], [9] and [10] in the ports on the actuator [11] or [12].

(d) Install lockwire on the nuts for the hydraulic lines [4], [9] and [10].

SUBTASK 27-81-31-420-002

(2) Install the leading edge flap actuator [11] or [12]:

(a) Put the actuator [11] or [12] in its location on the structure.

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(b) Install the bushing [15], washer [14], bolt [13], washer [16] and nut [17].

NOTE: On the left wing, the bolt [13], washer [14] and bushing [15] are installed on the outboard side of the fitting. On the right wing, the bushing [15] is installed on the inboard side of the fitting, and the head of the bolt [13] can be inboard or outboard. The countersunk washer [14] must be installed on the side of the fitting next to the head of the bolt [13].

(c) Tighten the nut [17] to 660-980 pound-inches (74.6-110.7 newton-meters).

(d) Connect the three hydraulic lines [4], [9] and [10]:

1) Remove the plugs from the hydraulic lines [4], [9] and [10].

2) Remove the caps from the hydraulic fittings [3].

3) Connect the hydraulic lines [4], [9] and [10] to the hydraulic fittings [3].

4) Install lockwire, G01912 on the nuts for the hydraulic lines [4], [9] and [10].

5) Install the clamps [5], screws [6] and nuts [7] that attach the hydraulic line [4] to the bracket [8].

SUBTASK 27-81-31-860-006

(3) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-31-860-007

(4) Move the flap control lever to the 1-unit detent to extend the actuator [11] or [12].

SUBTASK 27-81-31-860-008

(5) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-31-420-003

(6) Connect the actuator [11] or [12] to the leading edge flap:

(a) Align the rod end of the actuator [11] or [12] with the clevis on the leading edge flap.

(b) Apply grease, D00633 on the mating surfaces of the bolt [18] or [25].

(c) Install the bushing [21], bolt [18], washer [20], washer [22], washer [23] and nut [24] to connect the actuator [11] to the No. 1 leading edge flap [1].

1) You can bond the washer [22] to the leading edge flap [1] with sealant, A00247 for easier installation.

(d) Install the bushing [28], bolt [25], washer [27], washer [29], washer [22] and nut [30] to connect the actuator [12] to the No. 2 leading edge flap [2].

1) You can bond the washer [22] to the leading edge flap [2] with sealant, A00247 for easier installation.

(e) Tighten the nut [24] or [30] to 660-980 pound-inches (74.6-110.7 newton-meters).

(f) Align the cotter pin hole in the bolt [18] or [25] with the slot in the nut [24] or [30].

(g) Install the pin [19] or [26].

SUBTASK 27-81-31-080-001

WARNING: CAREFULLY REMOVE THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.

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SUBTASK 27-81-31-710-001

(8) Do a test of the actuator [11] or [12]:

(a) To pressurize hydraulic sytem B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

CAUTION: CAREFULLY WATCH THE FLAP NOSE CLEARANCE AND THE ACTUATOR CLEARANCES DURING THE FLAP EXTENSION AND RETRACTION. IF THERE IS NOT SUFFICIENT CLEARANCE, YOU CAN CAUSE DAMAGE TO STRUCTURE.

(b) Operate the leading edge flap through a minimum of two cycles to bleed air from the system.

NOTE: Leave the flaps in the extended position.

(c) Make sure there are no hydraulic leaks from the actuator [11] or [12] or the hydraulic lines [4], [9] and [10].

(d) Move the flap control lever to the UP position to retract the leading edge flaps.

(e) To remove power from system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-31-720-001

(9) Do this task: Leading Edge Flap and Slat Timing Test in Primary Mode, TASK 27-81-00-700-802.

SUBTASK 27-81-31-710-002

(10) Do this task: Leading Edge Flap and Slat System Standby Actuation Operational Test, TASK 27-81-00-710-801

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-31-860-009

(1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

END OF TASK

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LEADING EDGE FLAP ACTUATOR - INSPECTION/CHECK

1. General

A. This procedure contains the task to do a check of the leading edge flap actuator.

TASK 27-81-31-200-801

2. Leading Edge Flap Actuator Inspection

(Figure 601)

A. General

(1) This task gives wear limits and repair data for the leading edge flap actuator inspection.

B. References

Reference	Title
27-81-31-000-801	Leading Edge Flap Actuator Removal (P/B 401)
27-81-31-400-801	Leading Edge Flap Actuator Installation (P/B 401)

C. Tools/Equipment

Reference	Description
STD-1096	Micrometer - Depth, 0-1 Inch, Readable to 1/1000 Inch
STD-1097	Caliper - Vernier, 0-6 Inch, Readable to 1/1000 Inch

D. Location Zones

Zone	Area
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4

E. Procedure

SUBTASK 27-81-31-020-004

(1) Do this task: Leading Edge Flap Actuator Removal, TASK 27-81-31-000-801.

SUBTASK 27-81-31-020-005

(2) Use these tools to do a check for wear on the parts of the leading edge flap actuator:

(a) micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096

(b) readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

SUBTASK 27-81-31-020-006

(3) Examine the parts of the leading edge flap actuator for worn areas:

(a) Remove the parts you want to do a check.

(b) Measure the parts with a micrometer (0-1 Inch, readable to 1/1000 Inch), STD-1096 or a readable to 1/1000 inch vernier 0 - 6 inch caliper, STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions.

(d) If the parts are out of tolerance, replace or repair the parts if it is necessary.

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Table 601/27-81-31-993-801

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#1 BUSHING	I.D.	0.6245 in 15.862 mm	0.6252 in 15.880 mm	0.6258 in 15.895 mm	0.0033 in
#1 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6225 in 15.812 mm	0.084 mm
#2 BUSHING	I.D.	0.8745 in 22.212 mm	0.8753 in 22.233 mm	0.8757 in 22.243 mm	0.0027 in
#2 BUSHING	O.D.	0.8735 in 22.187 mm	0.8740 in 22.200 mm	0.8730 in 22.174 mm	0.069 mm
#3 BUSHING	I.D.	0.6245 in 15.862 mm	0.6250 in 15.875 mm	0.6255 in 15.888 mm	0.0030 in
#3 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6225 in 15.812 mm	0.076 mm
#4 BEARING	I.D.	0.6245 in 15.862 mm	0.6250 in 15.875 mm	0.6255 in 15.888 mm	0.0030 in
#4 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6225 in 15.812 mm	0.076 mm
#5 BUSHING	I.D.	0.6245 in 15.862 mm	0.6250 in 15.875 mm	0.6255 in 15.888 mm	0.0030 in
#5 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6225 in 15.812 mm	0.076 mm
#6 BEARING	I.D.	0.6245 in 15.862 mm	0.6250 in 15.875 mm	0.6255 in 15.888 mm	0.0030 in
#6 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6225 in 15.812 mm	mm
#7 BUSHING	I.D.	0.6245 in 15.862 mm	0.6252 in 15.880 mm	0.6258 in 15.895 mm	0.0033 in
#7 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6225 in 15.812 mm	0.084 mm

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(Continued)

NAME OF THE PARTS THAT ARE IN CONTACT	DIM.	DIAMETER DESIGN LIMITS		WEAR LIMITS	
		MINIMUM inches/mm	MAXIMUM inches/mm	PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART	MAXIMUM SERVICE DIAMETRIC CLEARANCE
#8 BUSHING	I.D.	0.8745 in 22.212 mm	0.8753 in 22.233 mm	0.8757 in 22.243 mm	0.0027 in
#8 BUSHING	O.D.	0.8735 in 22.187 mm	0.8740 in 22.200 mm	0.8730 in 22.174 mm	0.069 mm
#9 BUSHING	I.D.	0.6245 in 15.862 mm	0.6252 in 15.880 mm	0.6258 in 15.895 mm	0.0033 in
#9 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6225 in 15.812 mm	0.084 mm
#10 BUSHING	I.D.	0.8745 in 22.212 mm	0.8753 in 22.233 mm	0.8757 in 22.243 mm	0.0027 in
#10 BUSHING	O.D.	0.8735 in 22.187 mm	0.8740 in 22.200 mm	0.8730 in 22.174 mm	0.069 mm
#11 BUSHING	I.D.	0.6245 in 15.862 mm	0.6250 in 15.875 mm	0.6255 in 15.888 mm	0.0030 in
#11 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6225 in 15.812 mm	0.076 mm
#12 BEARING	I.D.	0.6245 in 15.862 mm	0.6250 in 15.875 mm	0.6255 in 15.888 mm	0.0030 in
#12 BOLT	O.D.	0.6230 in 15.824 mm	0.6240 in 15.850 mm	0.6225 in 15.812 mm	0.076 mm

SUBTASK 27-81-31-020-007

(4) Do this task: Leading Edge Flap Actuator Installation, TASK 27-81-31-400-801.

END OF TASK

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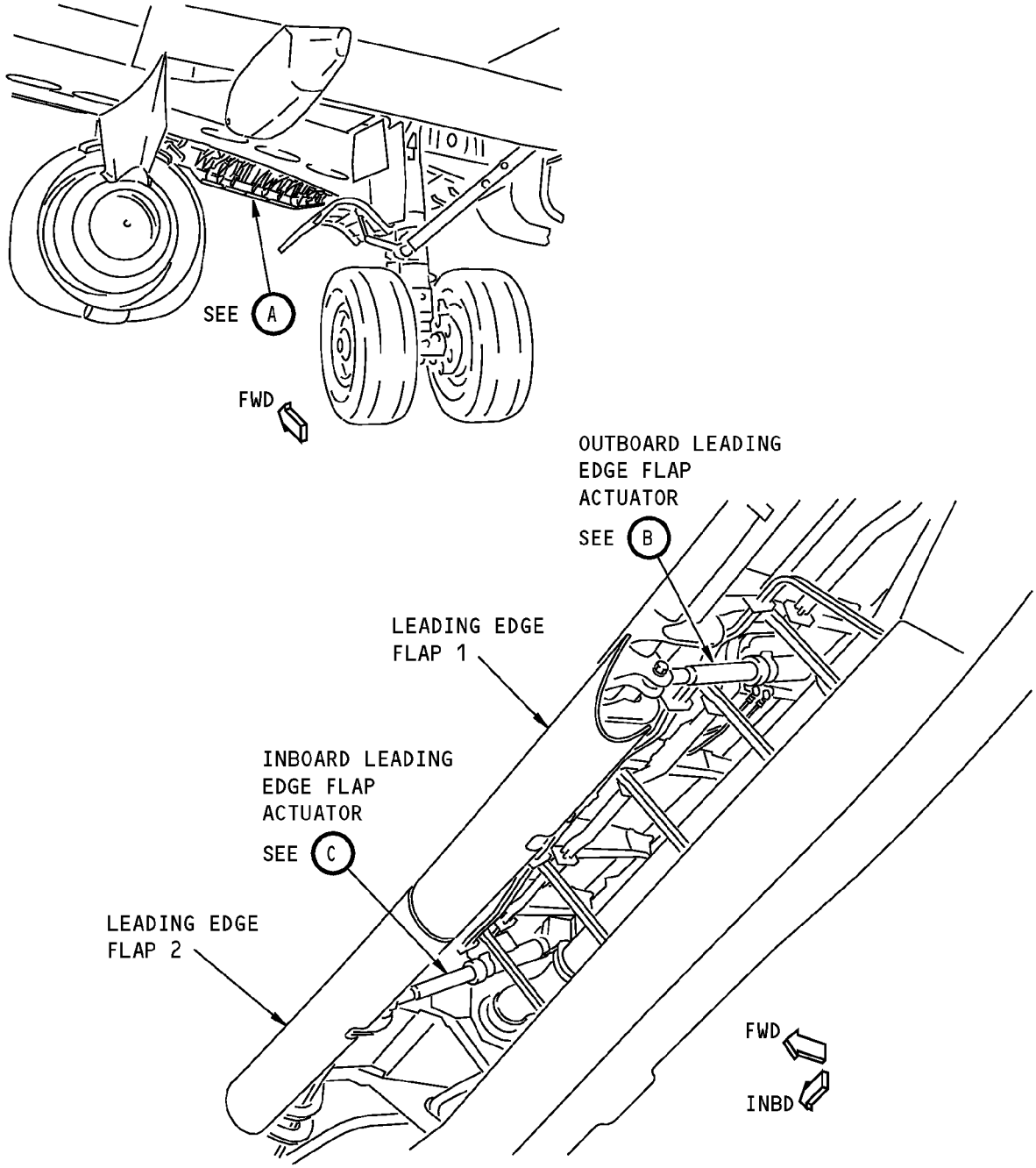

LEFT LEADING EDGE FLAPS 1 AND 2
(RIGHT LEADING EDGE FLAPS 3 AND 4 ARE OPPOSITE)

A

Leading Edge Flap Actuator Wear Limits
Figure 601 (Sheet 1 of 3)/27-81-31-990-802

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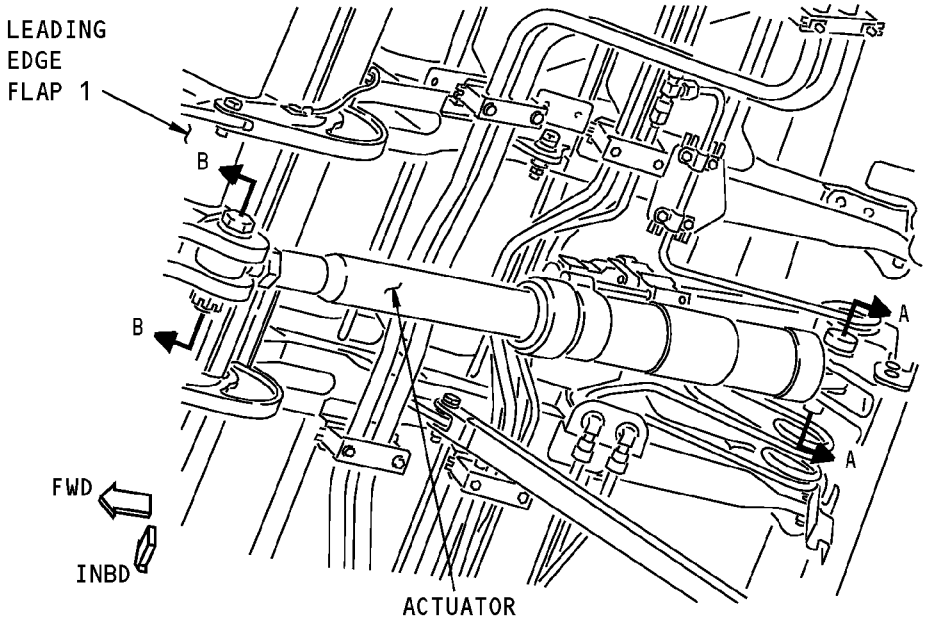
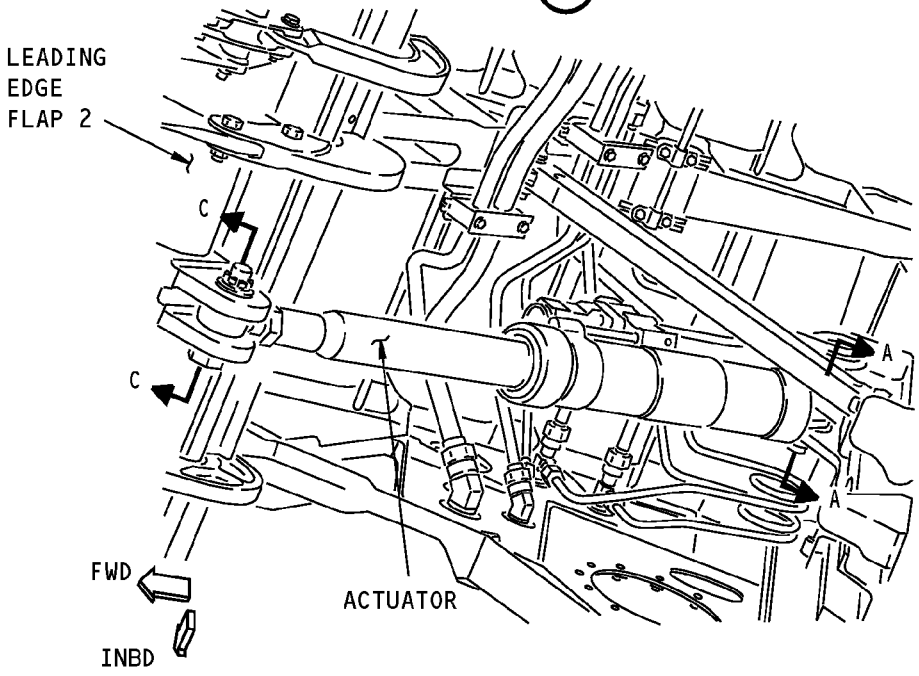


OUTBOARD LEADING EDGE FLAP ACTUATOR

B



INBOARD LEADING EDGE FLAP ACTUATOR

C

Leading Edge Flap Actuator Wear Limits
Figure 601 (Sheet 2 of 3)/27-81-31-990-802

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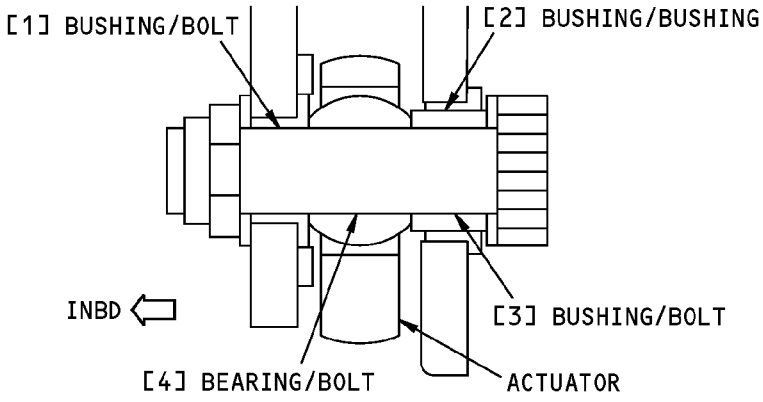
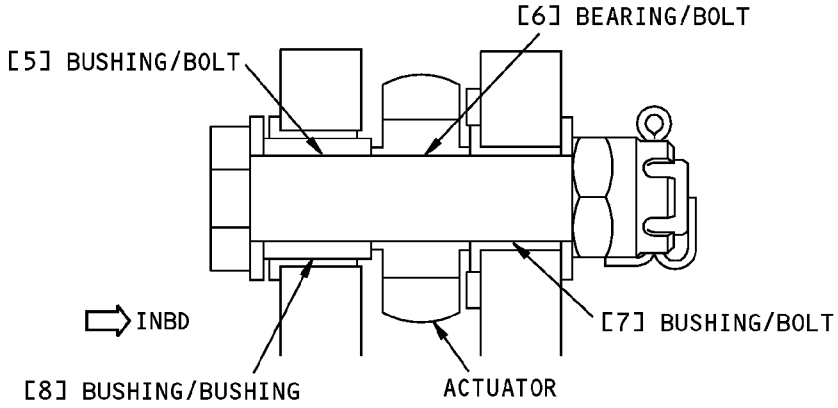
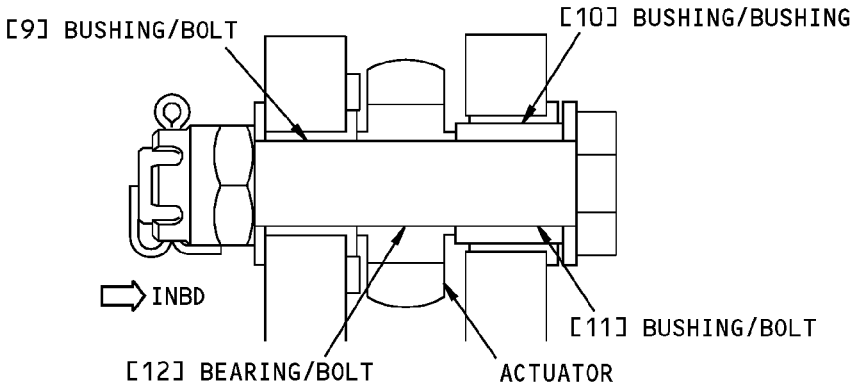


A–A



OUTBOARD FLAP ACTUATOR
B–B



INBOARD FLAP ACTUATOR
C–C

Leading Edge Flap Actuator Wear Limits
Figure 601 (Sheet 3 of 3)/27-81-31-990-802

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LEADING EDGE SLAT ACTUATOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the actuator of the leading edge slat.

(2) An installation of the actuator of the leading edge slat.

TASK 27-81-41-000-801

2. Leading Edge Slat Actuator Removal

(Figure 401)

A. References

Reference	Title
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Location Zones

Zone	Area
521	Left Wing - Leading Edge to Front Spar
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
621	Right Wing - Leading Edge to Front Spar
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

D. Access Panels

Number	Name/Location
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521EB	Lower Leading Edge Access Panel - Slat Station 98.95
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62

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(Continued)

Number	Name/Location
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621EB	Defuel Access Panel - Slat Station 95.15
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98

E. Prepare for the Removal

SUBTASK 27-81-41-010-002

(1) Open the applicable access doors adjacent to the actuator:

(a) For the right wing, open this access panel:

Number	Name/Location
621EB	Defuel Access Panel - Slat Station 95.15

SUBTASK 27-81-41-010-003

(2) Remove the applicable access panels adjacent to the actuator:

(a) For the left wing, open these access panels:

Number	Name/Location
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521EB	Lower Leading Edge Access Panel - Slat Station 98.95
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98

(b) For the right wing, open these access panels:

Number	Name/Location
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71

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(Continued)

Number	Name/Location
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98

SUBTASK 27-81-41-200-001

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(3) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-41-860-005

(4) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 27-81-41-860-006

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-81-41-860-007

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS WILL EXTEND. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(6)

HAP 001-013, 015-026, 028-036, 101-999

Move the flap control lever to the 10-unit position to move the leading edge slats to the full extend position.

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HAP 037-054

Move the flap control lever to the 30-unit position to move the leading edge slats to the full extend position.

HAP ALL

SUBTASK 27-81-41-480-002

WARNING: MAKE SURE TO INSTALL THE LEADING EDGE SLAT ACTUATOR LOCKOUT SET TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE SLATS. THE LEADING EDGE SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Install the lockout set, SPL-1734 on the adjacent leading edge slats. To install the lockout set, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

SUBTASK 27-81-41-860-012

(8) Move the flap control lever to the 1-unit position to move the leading edge slat to the extend position.

NOTE: If the slat is in the full extend position, the actuator [1] will be preloaded against the slat.

F. Leading Edge Slat Actuator Removal

SUBTASK 27-81-41-020-002

(1) Remove the slat actuator door [3] from the slat actuator assembly [2]:

(a) Remove the bolts [14], washers [15], washers [16] and nuts [17] that attach the slat actuator door [3] and clamp [52] to the slat actuator assembly [2].

(b) Remove the bolts [4], washers [5] and nuts [6] that attach the slat actuator door [3] and the bracket [32] to the slat actuator assembly [2].

(c) Remove the slat actuator door [3].

(d) Temporarily install the bolts [4], washers [5] and nuts [6] to attach the bracket [32] to the slat actuator assembly [2].

SUBTASK 27-81-41-860-008

(2) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-41-020-003

(3) Remove the dropout links [7]:

(a) Remove the pin [13], nuts [12], washers [11], washers [9], bolts [8] and bushings [10].

(b) Remove the dropout links [7].

SUBTASK 27-81-41-020-004

(4) Disconnect the slat actuator assembly [2] from the leading edge slat [1]:

(a) Remove the bolt retainer [23] from the leading edge slat [1]:

1) Remove the bolts [21] and washers [22] that attach the bolt retainer [23] to the leading edge slat [1].

2) Remove the bolt retainer [23] from the leading edge slat [1].

(b) Remove the nut [19], washer [20], washer [24], bolt [25] and bushing [18].

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SUBTASK 27-81-41-980-001

(5) Manually move the leading edge slat [1] to the full extend position while you hold the slat actuator assembly [2].

SUBTASK 27-81-41-980-002

(6) Let the slat actuator assembly [2] hang from the support fitting [46].

SUBTASK 27-81-41-020-005

(7) Remove the slat actuator assembly [2]:

(a) Disconnect the hydraulic lines [29], [30] or [53], [54] with [40] and [41]:

NOTE: The hydraulic lines [29], [30] or [53], [54] with [40] and [41], bracket [32] and clamps [26] and [36] are removed from the airplane with the slat actuator assembly [2].

1) Disconnect the hydraulic lines [29], [30] or [53], [54] with [40], [41] from the swivels [31].

2) Install caps on the swivels [31].

3) Install plugs in the open ends of the hydraulic lines [29], [30] or [53], [54] with [40] and [41].

(b) Remove the nut [47] and washer [48] from the bolt [44].

(c) Hold the slat actuator assembly [2] while you remove the bolt [44], washer [45] and bushing [43].

(d) Remove the slat actuator assembly [2] from the airplane.

SUBTASK 27-81-41-020-006

(8) If it is necessary, remove the hydraulic lines [29], [30] or [53], [54] with [40], [41] and bracket [32] from the slat actuator assembly [2]:

(a) Disconnect the hydraulic lines [29], [30] or [53], [54] with [40], [41] from the slat actuator assembly [2].

(b) Remove the nuts [6], washers [5] and bolts [4] that attach the bracket [32] to the slat actuator assembly [2].

(c) On slat 1, remove the nut [28] and bolt [27] and the clamps [26] that attach hydraulic lines [29] and [30] to the slat actuator assembly [2].

(d) On slat 2, 3 or 4, do these steps to remove hydraulic lines [53] and [54] from the slat actuator assembly [2];

1) Remove the nut [51], washer [50] and bolt [49] and the clamp [52].

2) Remove the nut [28] and bolt [27] and the clamps [26] and [52].

(e) Remove the nuts [39], washers [38], bolts [37] and clamps [36] that attach the hydraulic lines [29], [30] or [53], [54] with [40] and [41] to the bracket [32].

(f) Install caps on the hydraulic ports on the slat actuator assembly [2].

(g) Install plugs in the open ends of the hydraulic lines [29], [30] or [53], [54] with [40] and [41].

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SUBTASK 27-81-41-200-002

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(9) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

END OF TASK

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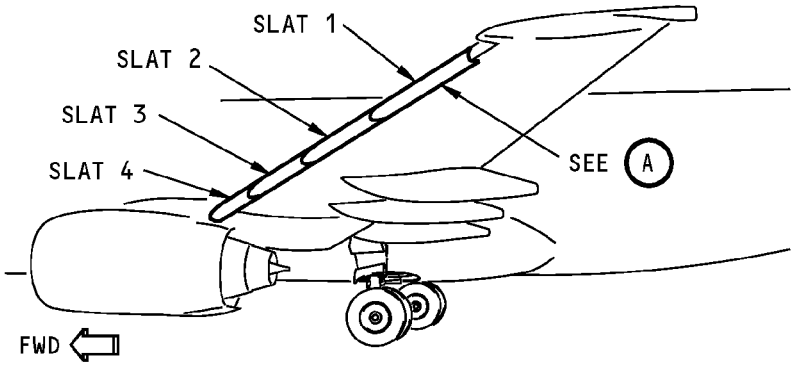
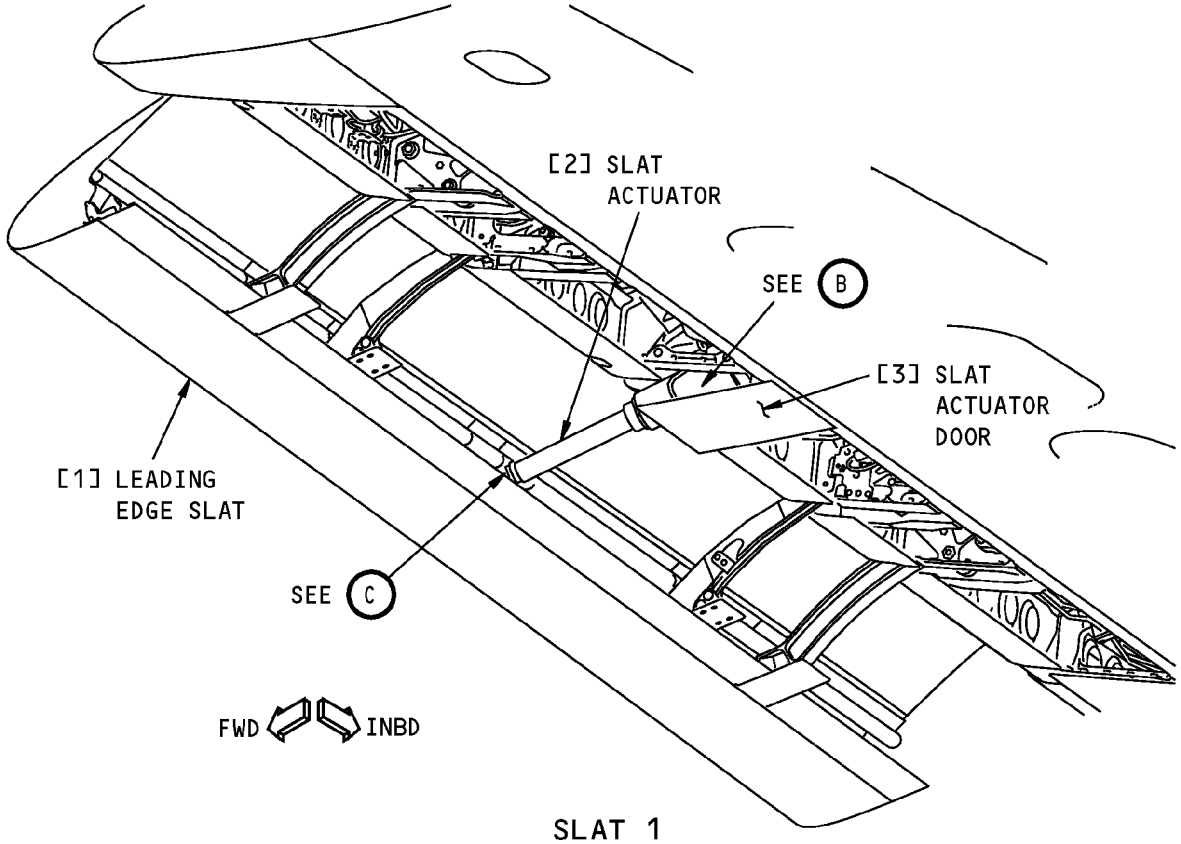


LEFT WING
(RIGHT WING IS EQUIVALENT)



SLAT 1
(SLATS 2, 3, AND 4 ARE EQUIVALENT)

A

Leading Edge Slat Actuator Installation
Figure 401 (Sheet 1 of 4)/27-81-41-990-802

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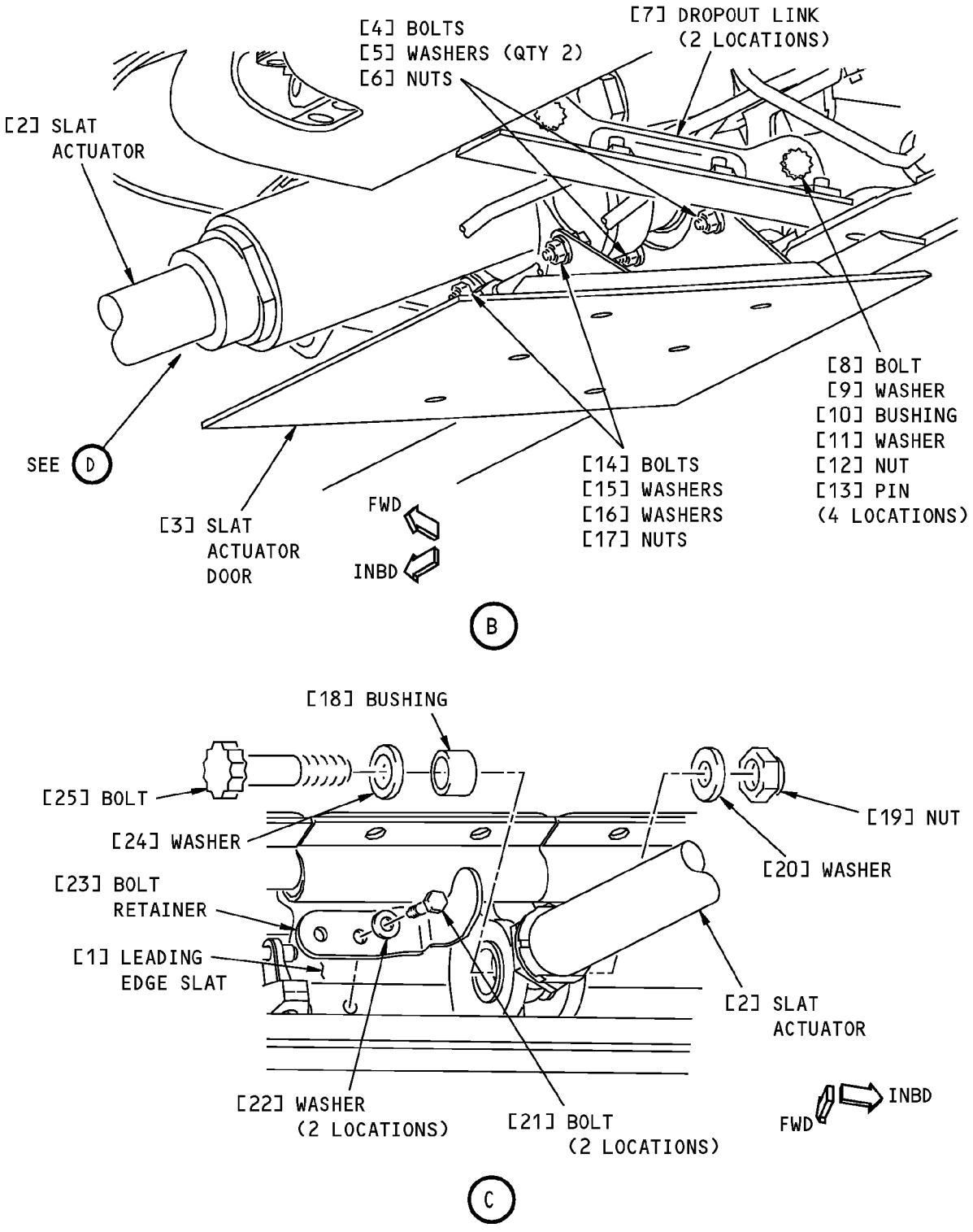

Leading Edge Slat Actuator Installation
Figure 401 (Sheet 2 of 4)/27-81-41-990-802

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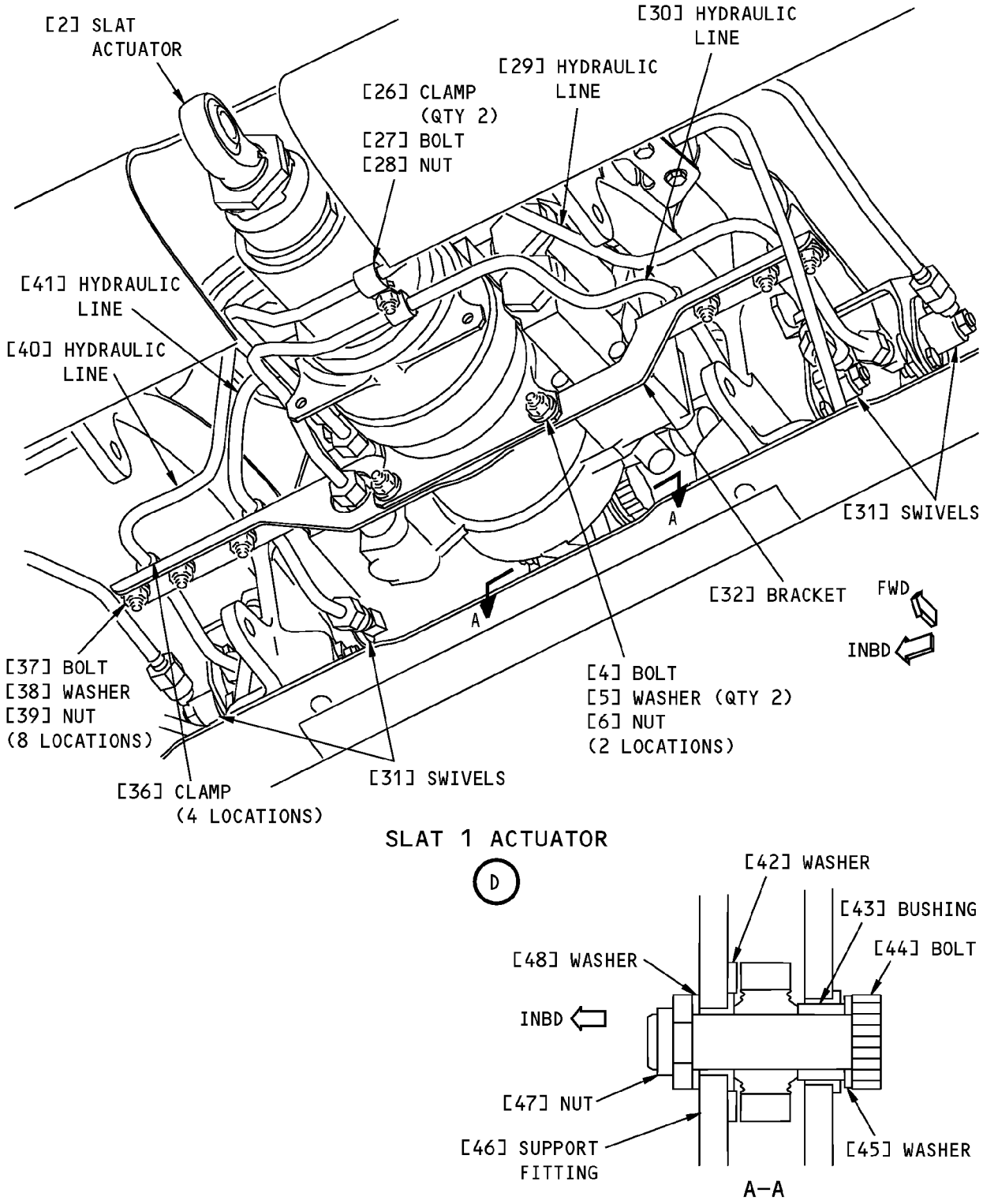

Leading Edge Slat Actuator Installation
Figure 401 (Sheet 3 of 4)/27-81-41-990-802

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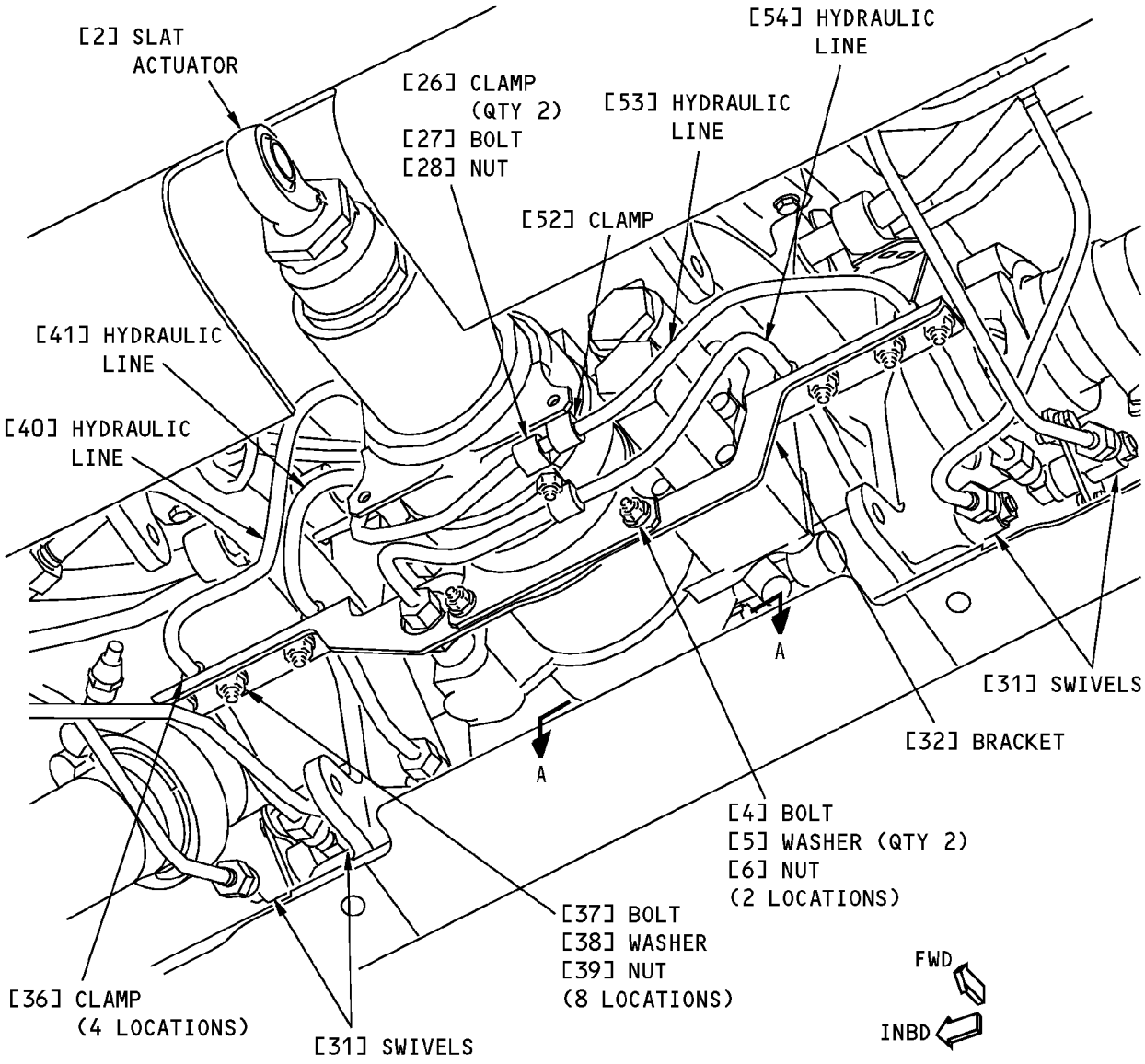

SLAT 2 ACTUATOR
(SLAT 3 AND 4 ACTUATORS ARE EQUIVALENT)

D

Leading Edge Slat Actuator Installation
Figure 401 (Sheet 4 of 4)/27-81-41-990-802

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TASK 27-81-41-400-801

3. Leading Edge Slat Actuator Installation

(Figure 401)

A. References

Reference	Title
27-81-00-080-801	Leading Edge Flap and Slat Locks Removal (P/B 201)
27-81-00-700-802	Leading Edge Flap and Slat Timing Test in Primary Mode (P/B 501)
27-81-00-710-801	Leading Edge Flap and Slat System Standby Actuation Operational Test (P/B 501)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1739	Kit - Slat Rigging Tools (Part #: C27045-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796, Class III

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Actuator assembly	27-81-41-10-100	HAP ALL
13	Pin	57-40-00-32-050	HAP ALL
		57-40-00-32A-050	HAP 001-007
		57-40-00-32B-110	HAP 001-007
		57-40-00-32C-080	HAP 001-007
		57-40-00-33-050	HAP 031-054, 101-999
		57-40-00-33A-050	HAP 031-054, 101-999
		57-40-00-33B-110	HAP 001-007
		57-40-00-33C-080	HAP ALL
		57-40-00-33D-045	HAP 001-013, 015-026, 028-030
		57-40-00-33D-050	HAP 001-013, 015-023
		57-40-00-33E-075	HAP 001-013, 015-026, 028-030

E. Location Zones

Zone	Area
521	Left Wing - Leading Edge to Front Spar
522	Left Wing - Slat No. 4

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(Continued)

Zone	Area
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
621	Right Wing - Leading Edge to Front Spar
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

F. Access Panels

Number	Name/Location
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521EB	Lower Leading Edge Access Panel - Slat Station 98.95
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621EB	Defuel Access Panel - Slat Station 95.15
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98

G. Leading Edge Slat Actuator Installation

SUBTASK 27-81-41-200-003

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(1) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-41-420-002

(2) If the hydraulic lines [29], [30] or [53], [54] with [40], [41] and bracket [32] are not installed on the slat actuator assembly [2] , do these steps:

(a) Remove the plugs from the end of the hydraulic lines [29], [30] or [53], [54] with [40], [41] that attach to the slat actuator assembly [2].

(b) Remove the caps from the hydraulic ports on the slat actuator assembly [2].

(c) Put the bracket [32] in its position on the slat actuator assembly [2] and install the bolts [33] washers [34 and nuts [35].

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(d) Put the hydraulic lines [29], [30] or [53], [54] with [40], [41] in their position on the bracket [32].

(e) Install the clamps [36], bolts [37], washers [38] and nuts [39] to attach the hydraulic lines [29], [30] or [53], [54] with [40], [41] to the bracket [32].

(f) Connect the hydraulic lines [29], [30] or [53], [54] with [40] and [41] to the ports in the slat actuator assembly [2].

(g) On slat 1, put the clamps [26] on the hydraulic lines [29] and [30] and install the bolt [27] and nut [28].

(h) On slat 2, 3 or 4, do these steps;

1) Put the clamp [52] on the hydraulic line [53].

2) Put the clamps [26] on the hydraulic lines [53] and [54].

3) Install the bolt [27] and nut [28].

SUBTASK 27-81-41-980-003

(3) Make sure the leading edge slat [1] is in the full extend position.

SUBTASK 27-81-41-420-003

(4) Connect the slat actuator assembly [2] to the support fitting [46]:

(a) If the washer [42] is not bonded to the support fitting [46], do these steps:

1) Make sure the mating surface of the support fitting [46] is clean.

2) Apply sealant, A00247 to the mating surface of the washer [42] and the support fitting [46].

3) Put the washer [42] in its position on the rib support fitting [46].

(b) Put the slat actuator assembly [2] in its position on the support fitting [46].

(c) Install the bushing [43], bolt [44], washer [45], washer [48] and nut [47] to attach the slat actuator assembly [2] to the support fitting [46].

NOTE: Make sure the bushing [43] and the head of the bolt [44] are on the outboard side of the slat actuator assembly [2].

(d) Tighten the nut [47] to 1100-1500 pound-inches (124.3-169.5 newton-meters).

CAUTION: DO NOT INSTALL THE SWIVEL ASSEMBLY IN THE OPPOSITE SEQUENCE. THE SWIVEL ASSEMBLY IS CONNECTED TO THE HYDRAULIC LINES THAT MOVE WITH THE ACTUATOR. THE INCORRECT INSTALLATION CAN CAUSE DAMAGE TO THE HYDRAULIC LINES.

(e) Do the steps that follow, if the installation of a repaired/ new swivel assembly is necessary:

1) Install the swivel fitting with the fasteners (which attach the fitting to the structure) not fully tighten.

NOTE: Leave enough looseness in the fasteners so that the swivel assembly can slightly align itself during moving of the slats. The final tightening of the swivel fitting attach fasteners will be completed with the slats in the fully retracted position after the slats are cycled later on this procedure.

CAUTION: MAKE SURE THAT YOU SAFELY CONNECT THE HYDRAULIC LINES TO THE CORRECT PORTS AND FITTINGS. IF YOU CONNECT THE HYDRAULIC LINES TO INCORRECT PORTS AND FITTINGS, OR IF YOU DO NOT CONNECT ALL HYDRAULIC LINES, DAMAGE TO THE ACTUATOR CAN OCCUR

(f) Connect the hydraulic lines [29], [30] or [53], [54] with [40] and [41] to the swivels [31]:

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1) Remove the caps from the swivels [31].

2) Remove the plugs from the hydraulic lines [29], [30] or [53], [54] with [40], [41].

3) Connect the hydraulic lines [29], [30] or [53], [54] with [40] and [41] to the swivels [31].

(g) Let the slat actuator assembly [2] hang from the support fitting [46].

SUBTASK 27-81-41-860-009

(5) Use hydraulic power to extend the slat actuator assembly [2] to the full extend position:

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS. THE FLAPS AND SLATS WILL EXTEND. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(b)

HAP 001-013, 015-026, 028-036, 101-999

Move the flap control lever to the 10-unit position to extend the slat actuator [1] to the full extend position.

HAP 037-054

Move the flap control lever to the 30-unit position to extend the slat actuator [1] to the full extend position.

HAP ALL

(c) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-41-820-001

(6) Make sure that the leading edge slat [1] is in the correct position (Figure 402):

NOTE: The slat actuator assembly [2] must be extended farther than the leading edge slat [1]. This allows the slat actuator assembly [2] to be preloaded against the slat [1] when it is fully extended.

(a) Use the gage assembly, which is part of the kit, SPL-1739, to make sure the actuator end fitting [73] is extended 0.0050-0.1000 inch (0.13-2.54 millimeters) farther than the lug [72] on the leading edge slat [1].

NOTE: It is not necessary to take any measurements when using the gage assembly.

(b) If the end fitting [73] is not extended 0.0050-0.1000 inch (0.13-2.54 millimeters) farther than the lug [72], adjust the downstop [79] on the main tracks [75]:

NOTE: The downstop [79] has three positions. The position with one mark facing the track has the least preload, the position with three marks has the most preload. The position with two marks is the nominal position.

1) Get access to the downstop [79] through the access holes in the ribs aft of the aft track rollers.

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2) Loosen the nut [77] on the bolt [76].

3) Turn the downstop [79] to adjust the position of the leading edge slat [1].

4) Tighten the nut [77] to 50-82 pound-inches (5.6-9.3 newton-meters) or the bolt [76] to 72-80 pound-inches (8.1-9.0 newton-meters).

SUBTASK 27-81-41-860-010

(7) Use hydraulic power to retract the slat actuator assembly [2] to the extend position (Figure 401):

NOTE: This will permit you to install the bolt [25].

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS. THE FLAPS AND SLATS WILL RETRACT. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(b) Move the flap control lever to the 1-unit position to retract the slat actuator assembly [2] to the extend position.

(c) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-41-420-004

(8) Connect the slat actuator assembly [2] to the leading edge slat [1]:

(a) Move the leading edge slat [1] until it aligns with the slat actuator assembly [2].

(b) Install the bushing [18], bolt [25], washer [24], washer [20] and nut [19] to attach the slat actuator assembly [2] to the leading edge slat [1].

NOTE: Make sure the head of the bolt [25] is on the outboard side of the slat actuator assembly [2].

(c) Tighten the nut [19] to 660-980 pound-inches (74.6-110.7 newton-meters) or the bolt [25] to 882-1078 pound-inches (99.7-121.8 newton-meters).

(d) Install the bolt retainer [23]:

1) Apply compound, C00528 to the shank and threads of the bolts [21].

2) Install the bolts [21] and washers [22] to attach the bolt retainer [23].

SUBTASK 27-81-41-420-005

(9) Install the dropout links [7]:

(a) Put the dropout links [7] in their positions.

(b) Install the bushings [10], bolts [8], washers [9], washers [11], and nuts [12].

(c) Tighten the nuts [12] to a minimum of 50 pound-inches (5.6 newton-meters).

(d) Turn the nuts [12] a maximum of one castellation to align the pin holes.

(e) Make sure the final torque of the nuts [12] is not more than 80 pound-inches (9.0 newton-meters).

(f) Install the pin [13].

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SUBTASK 27-81-41-420-006

(10) Install the slat actuator door [3] on the slat actuator assembly [2]:

(a) Remove the bolts [4], washers [5] and nuts [6] that attach the bracket [32] to the slat actuator assembly [2].

1) If there are three washers installed on the bolts [4], discard the thicker aluminum washer.

(b) Put the slat actuator door [3] in its position on the slat actuator assembly [2].

(c) Install the bolts [4], washers [5] and nuts [6] that attach the slat actuator door [3] and bracket [32] to the slat actuator assembly [2].

(d) Install the bolts [14], washers [15], washers [16] and nuts [17] that attach the slat actuator door [3] and clamp [52] to the slat actuator assembly [2].

SUBTASK 27-81-41-080-002

WARNING: CAREFULLY REMOVE THE LEADING EDGE SLAT ACTUATOR LOCKOUT SET FROM THE LEADING EDE SLATS. THE LEADING EDGE SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(11) Do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.

SUBTASK 27-81-41-720-001

(12) Do this task: Leading Edge Flap and Slat Timing Test in Primary Mode, TASK 27-81-00-700-802.

SUBTASK 27-81-41-710-002

(13) Do this task: Leading Edge Flap and Slat System Standby Actuation Operational Test, TASK 27-81-00-710-801.

SUBTASK 27-81-41-710-001

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(14) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(a) Operate the leading edge slats through a minimum of two cycles to bleed air from the system.

NOTE: Leave the slats in the extended position.

(b) Make sure there are no hydraulic leaks from the slat actuator assembly [2] or the hydraulic lines [29], [30] or [53], [54] with [40] and [41].

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS. THE FLAPS AND SLATS WILL RETRACT. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(c) Move the flap control lever to the UP position to retract the leading edge slats.

(d) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

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H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-41-860-011

(1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	15	C01081	HYDRAULIC SYSTEM PTU VALVE CONT 1
A	16	C01085	HYDRAULIC SYSTEM PTU VALVE CONT 2

SUBTASK 27-81-41-200-004

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(2) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-41-940-001

(3) Install the applicable access panels:

(a) For the left wing, close these access panels:

Number	Name/Location
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521EB	Lower Leading Edge Access Panel - Slat Station 98.95
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98

(b) For the right wing, close these access panels:

Number	Name/Location
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62

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(Continued)

Number	Name/Location
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98

SUBTASK 27-81-41-410-003

(4) Close the applicable access doors:

(a) For the right wing, close this access panel:

Number	Name/Location
621EB	Defuel Access Panel - Slat Station 95.15

———————— END OF TASK ————————

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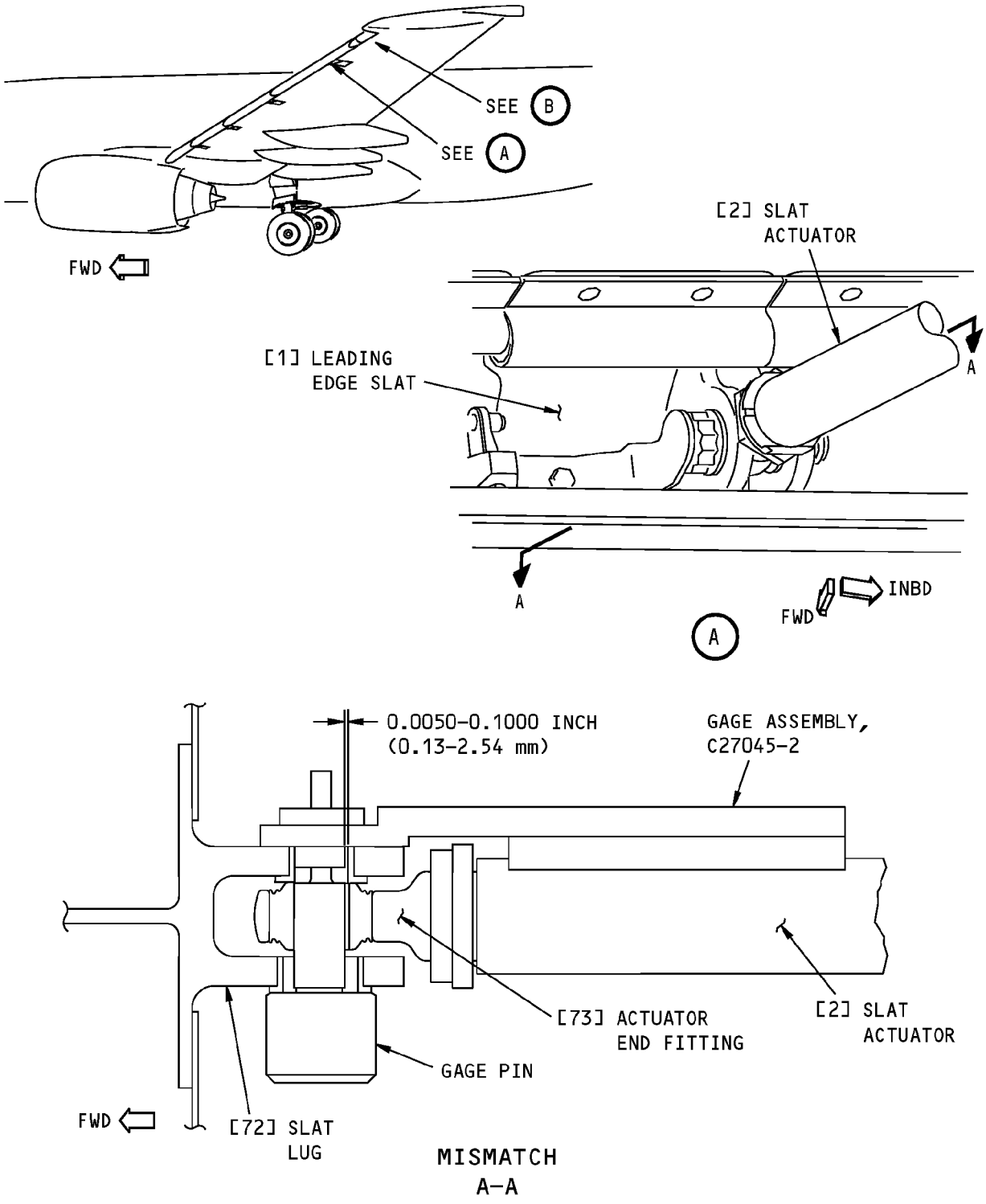

Leading Edge Slat Actuator Preload Adjustment
Figure 402 (Sheet 1 of 2)/27-81-41-990-803

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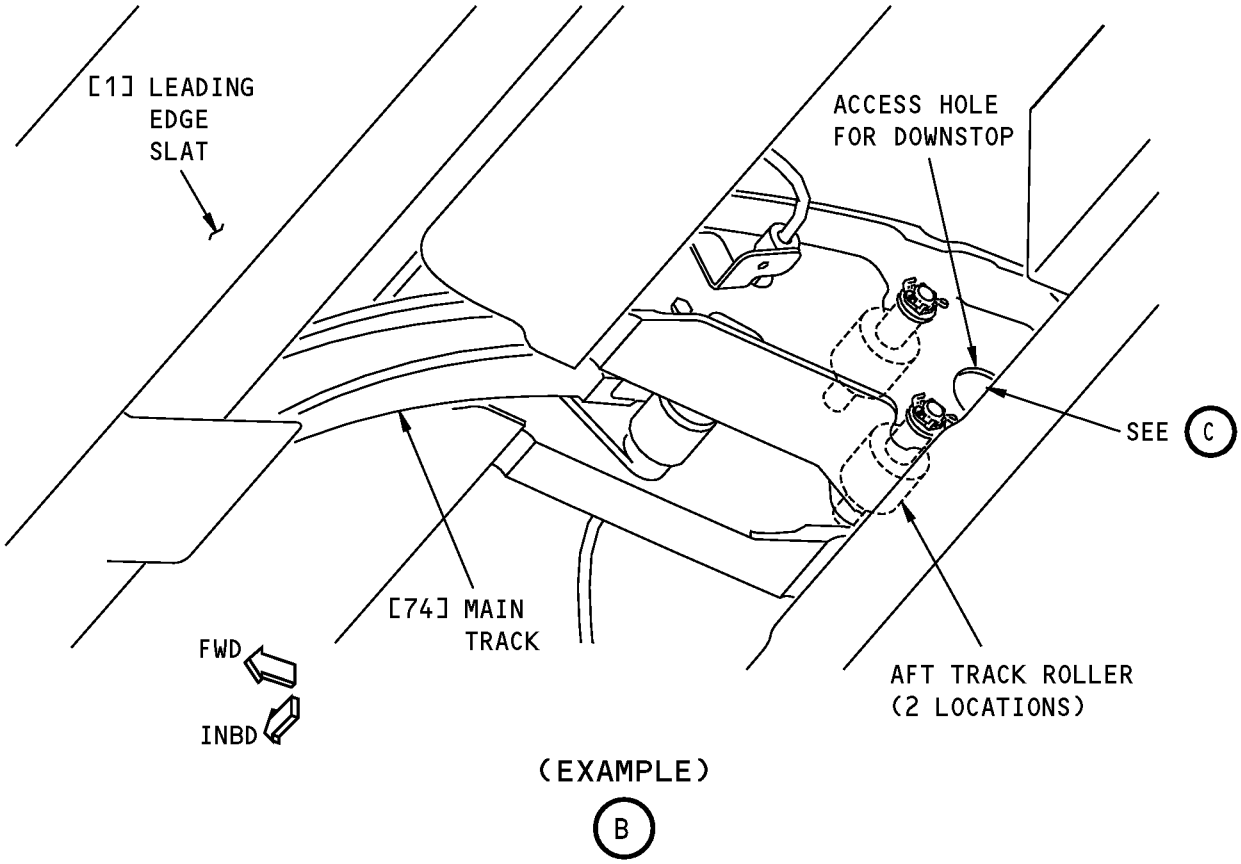

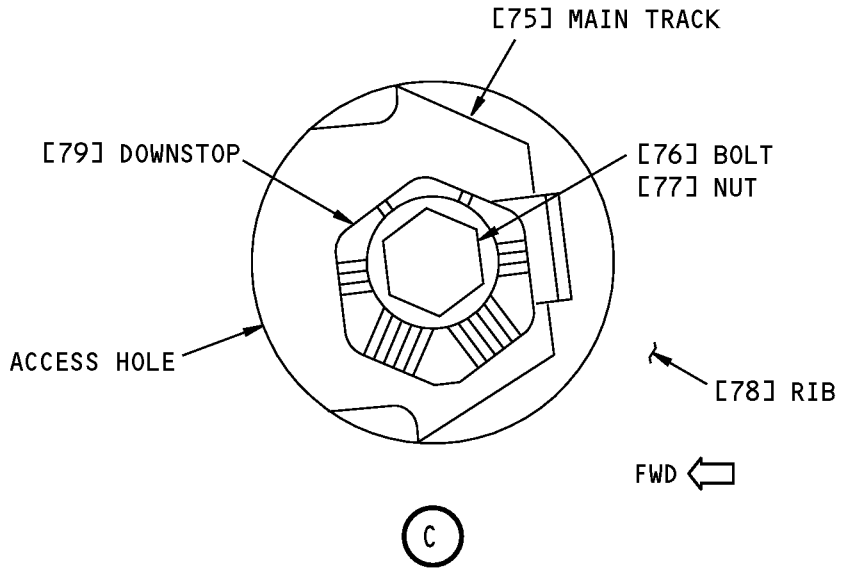

Leading Edge Slat Actuator Preload Adjustment
Figure 402 (Sheet 2 of 2)/27-81-41-990-803

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LEADING EDGE SLAT ACTUATOR - INSPECTION/CHECK

1. General

A. There is one task in this procedure. The procedure has this task:

(1) A visual check of the leading edge slat actuator lock indicator.

TASK 27-81-41-200-802

2. Leading Edge Slat Actuator Lock Indicator Visual Check

(Figure 601)

A. References

Reference	Title
27-81-00-080-801	Leading Edge Flap and Slat Locks Removal (P/B 201)
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Location Zones

Zone	Area
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

D. Prepare for the Visual Check

SUBTASK 27-81-41-860-001

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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SUBTASK 27-81-41-860-002

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS WILL EXTEND. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2)

HAP 001-013, 015-026, 028-036, 101-999

Move the flap control lever to the 10-unit position.

HAP 037-054

Move the flap control lever to the 30-unit position.

HAP ALL

(a) Make sure the leading edge slats move to the full extend position.

SUBTASK 27-81-41-480-001

(3) Install the lockout set, SPL-1734 on the adjacent leading edge slats. To install it, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

SUBTASK 27-81-41-200-005

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(4) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

E. Leading Edge Slat Actuator Lock Indicator Visual Check

SUBTASK 27-81-41-010-001

(1) Remove the slat actuator door [8] from the slat actuator [9]:

(a) Remove the bolts [4], washers [5], washers [6] and nuts [7] that attach the slat actuator door [8] to the slat actuator [9].

(b) Remove the bolts [1], washers [2] and nuts [3] that attach the slat actuator door [8] and the bracket to the slat actuator [9].

(c) Remove the slat actuator door [8].

(d) Temporarily install the bolts [1], washers [2] and nuts [3] to attach the bracket to the slat actuator [9].

SUBTASK 27-81-41-280-001

(2) Do a visual check of the leading edge slat actuator lock indicator:

(a) Move the flap control lever to the UP detent position to retract the slats.

(b) Make sure the lock indicator hole is open.

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(c) Put a 0.115-0.125 inch (2.92-3.18 millimeters) diameter steel rod in the lock indicator hole.

(d) Move the flap control lever to the 1-unit detent position.

(e) Make sure the actuator is not locked and extends to the extend position.

(f) Remove the steel rod from the lock indicator hole.

(g) Make sure the lock indicator hole is not open.

SUBTASK 27-81-41-410-001

(3) Install the slat actuator door [8] on the slat actuator [9].

(a) Remove the bolts [1], washers [2] and nuts [3] that attach the bracket to the slat actuator [9].

1) If there are three washers installed on the bolts [1], discard the thicker aluminum washer.

(b) Put the slat actuator door [8] in its position on the slat actuator [9].

(c) Install the bolts [1], washers [2] and nuts [3] that attach the slat actuator door [8] and the bracket to the slat actuator [9].

(d) Install the bolts [4], washers [5], washers [6] and nuts [7] that attach the slat actuator door [8] to the slat actuator [9].

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-41-080-001

(1) To remove the lockout set, SPL-1734 from the adjacent leading edge slats, do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.

SUBTASK 27-81-41-200-006

WARNING: DO NOT LET OBJECTS GET IN THE HOUSING ASSEMBLY OF THE SLAT TRACK. THIS WILL HELP PREVENT A PUNCTURE OF THE HOUSING ASSEMBLY THAT COULD CAUSE A FUEL LEAK. THE FUEL LEAK COULD CAUSE A FIRE AND POSSIBLE DEATH OR INJURY TO PERSONNEL.

(2) Keep clean and free of all unwanted objects (FOD), the housing (can) assemblies of the slat main tracks, at all time.

SUBTASK 27-81-41-860-003

(3) Move the flap control lever to the UP detent position to retract the slats.

SUBTASK 27-81-41-860-004

(4) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK

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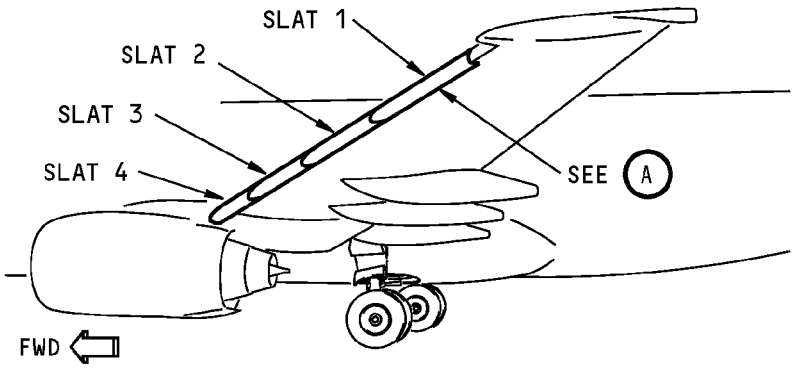
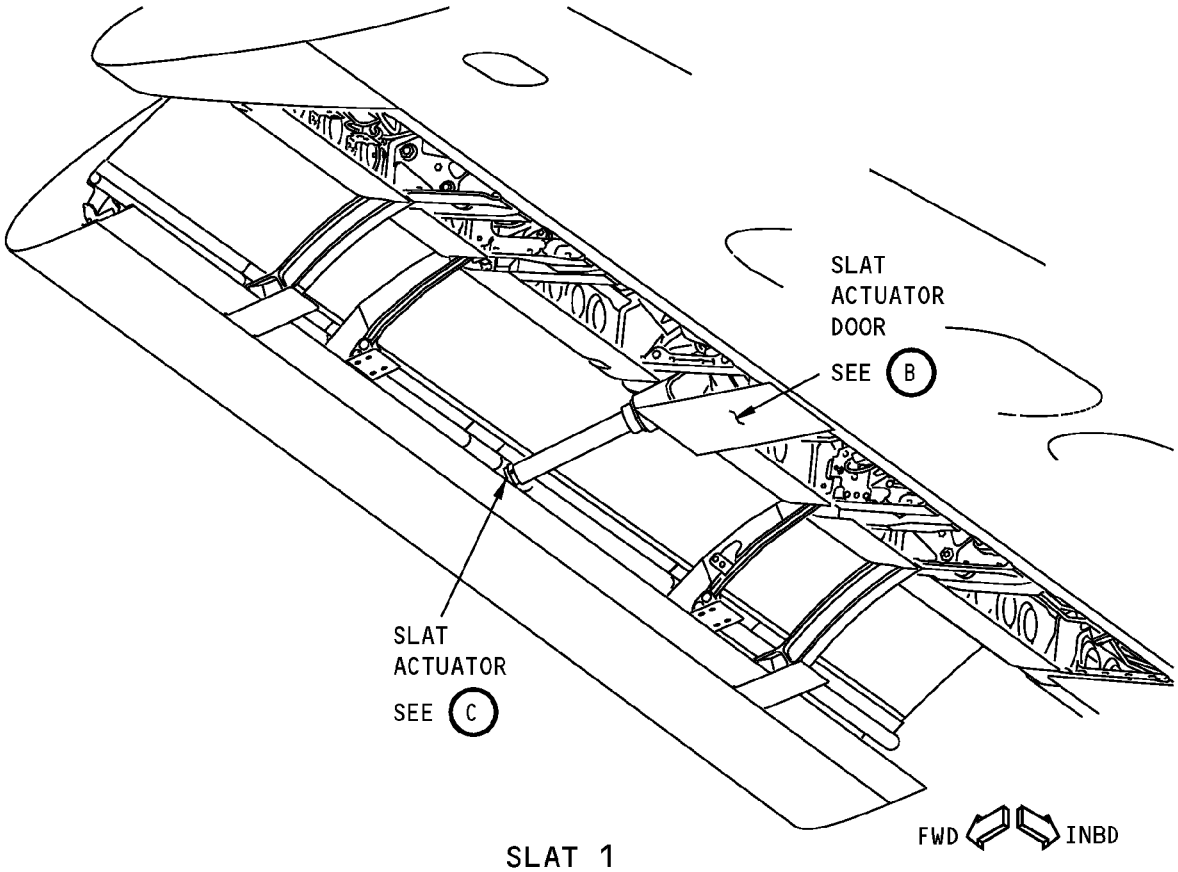


LEFT WING
(RIGHT WING IS OPPOSITE)



SLAT 1
(SLATS 2, 3, AND 4 ARE EQUIVALENT)

A

Leading Edge Slat Actuator Lock Indicator Visual Inspection
Figure 601 (Sheet 1 of 2)/27-81-41-990-801

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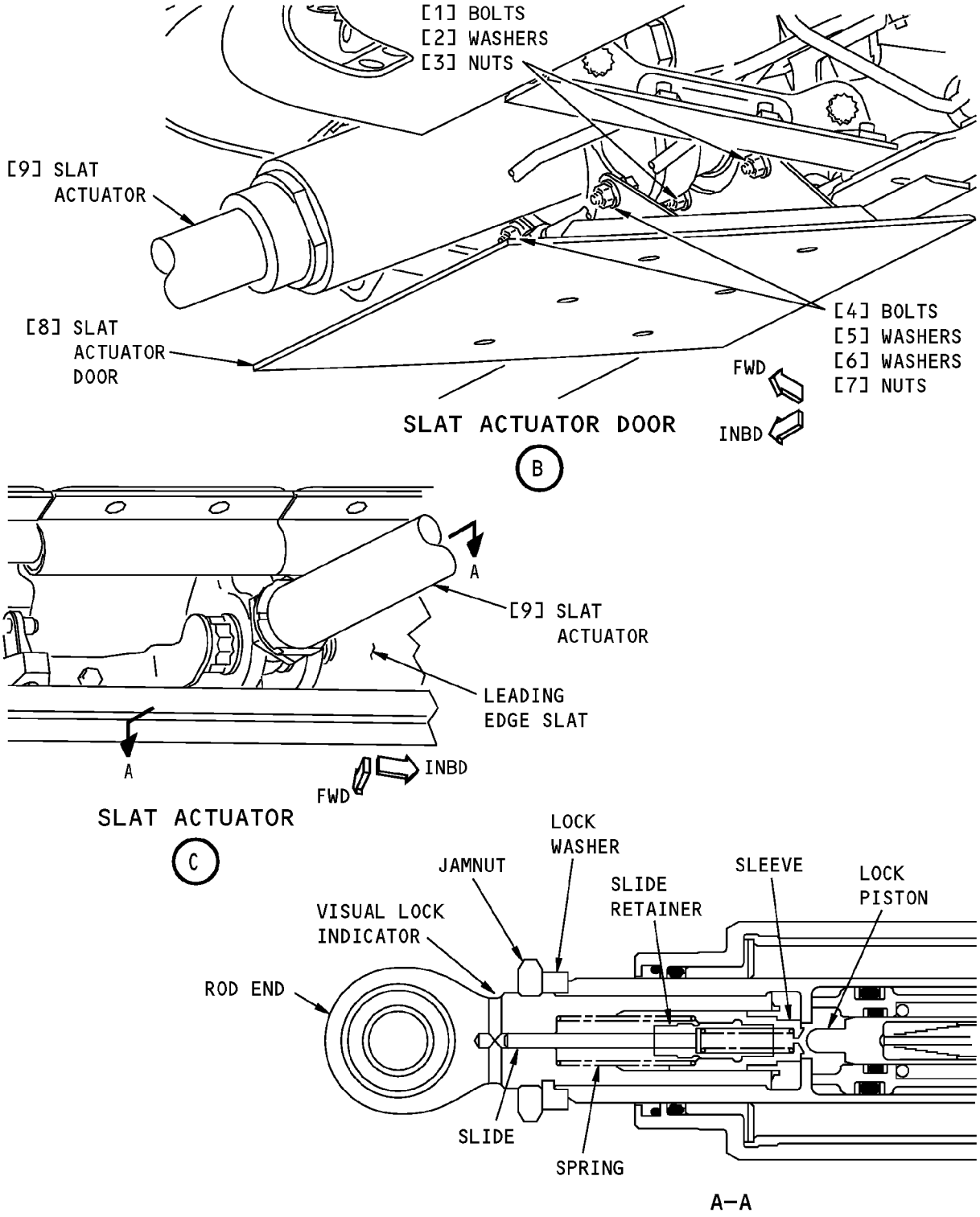

Leading Edge Slat Actuator Lock Indicator Visual Inspection
Figure 601 (Sheet 2 of 2)/27-81-41-990-801

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LEADING EDGE UNCOMMANDED MOTION (UCM) VALVE AND LEADING EDGE CRUISE DEPRESSURIZATION VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the leading edge flap and slat uncommanded motion (UCM) or cruise depressurization valve

(2) An installation of the leading edge flap and slat uncommanded motion (UCM) or cruise depressurization valve

B. There are two valves installed on the airplane. The LE cruise depressurization valve and the LE UCM shutoff valve. This procedure is applicable for the two valves.

C. The leading edge flap and slat uncommanded motion (UCM) or cruise depressurization valve is referred as the valve [3] in this procedure.

D. The LE cruise depressurization valve will be operated each flight to depressurize the leading edge extend at cruise. The LE UCM shutoff valve will be operated only when there is uncommanded motion of the leading edge.

TASK 27-81-52-000-801

2. LE Uncommanded Motion (UCM) or LE Cruise Depressurization Valve Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1054	Container - Fuel Resistant, 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
132	Center Section Wing Box, Body Station 540.00 to Body Station 663.75 - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Access Panels

Number	Name/Location
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

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E. Prepare for the Removal

SUBTASK 27-81-52-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-81-52-860-001

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-81-52-860-002

(3) If there is hydraulic power on hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-52-010-001

(4) To gain access to the UCM valve, do this step:

Remove this access panel:

Number	Name/Location
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

F. Leading Edge Flap and Slat Valve Removal

SUBTASK 27-81-52-020-001

(1) Remove the valve [3]:

CAUTION: DO NOT LET HYDRALUIC FLUID GET ON EQUIPMENT. IF HYDRAULIC FLUID GETS ON EQUIPMENT, IMMEDIATELY CLEAN IT FROM THE EQUIPMENT. HYDRAULIC FLUID CAN CAUSE DAMAGE TO EQUIPMENT.

(a) Put a 5 gallon (19 liters) fuel resistant container, STD-1054 below the valve [3] to catch hydraulic fluid.

(b) Disconnect the hydraulic lines from the valve [3].

1) Install caps on the hydraulic lines.

2) Install plugs in the hydraulic ports of the valve [3].

(c) Disconnect the electrical connectors from the valve [3].

(d) Remove the bolts [1], and washers [2].

(e) Remove the valve [3].

END OF TASK

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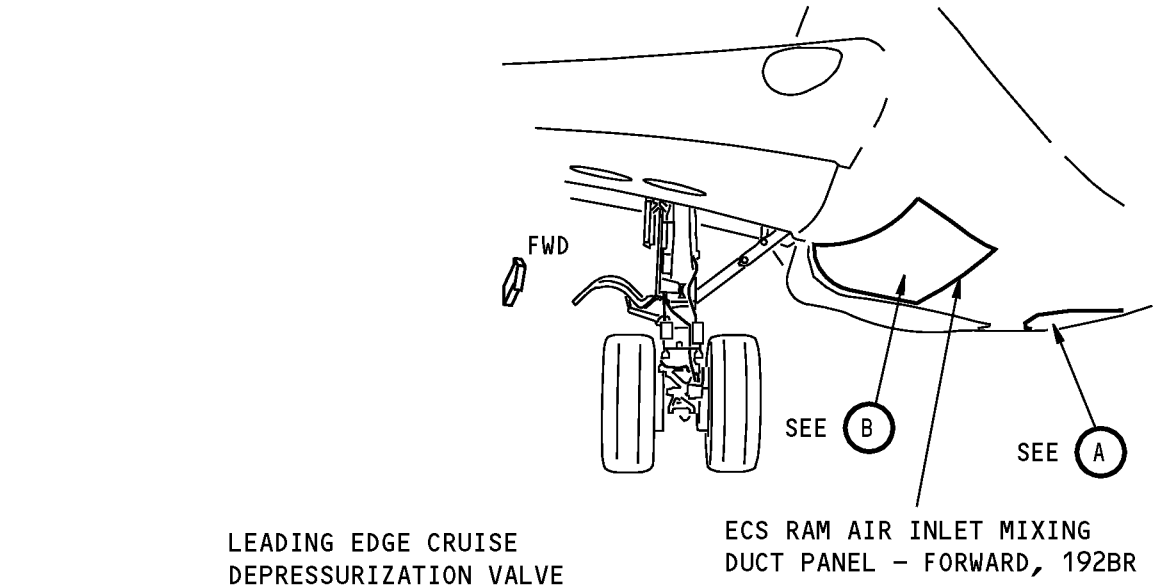

LEADING EDGE CRUISE DEPRESSURIZATION VALVE
(MAIN LANDING GEAR WHEEL WELL)

A

Leading Edge Uncommanded Motion (UCM) Valve Installation
Figure 401 (Sheet 1 of 2)/27-81-52-990-801

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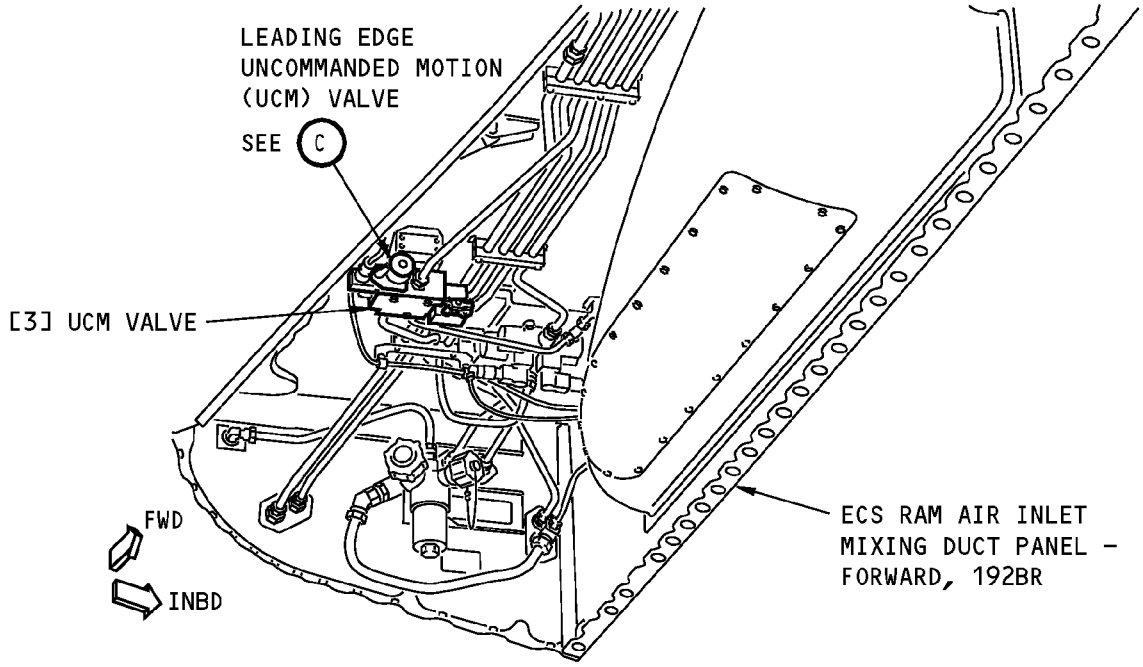
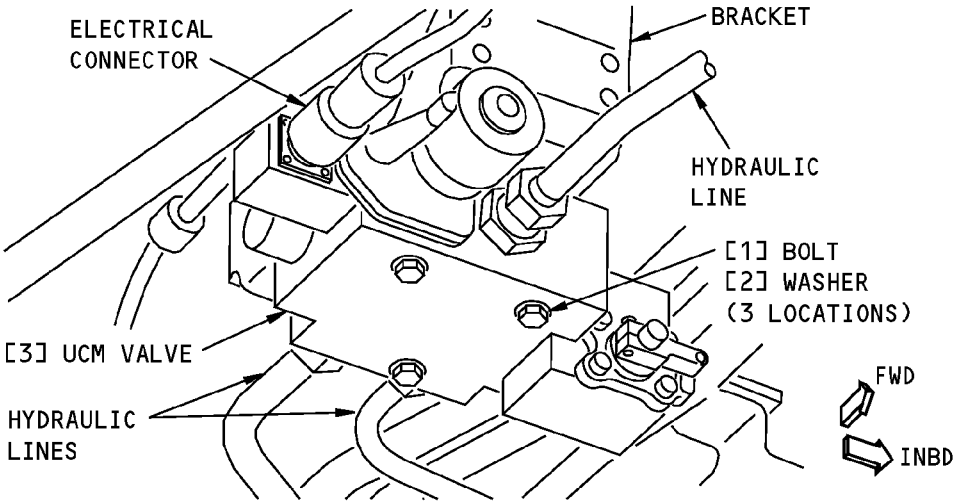


VIEW THROUGH THE ECS RAM AIR INLET
MIXING DUCT PANEL - FORWARD, 192BR

B



LEADING EDGE UNCOMMANDED MOTION (UCM) VALVE
(LEADING EDGE VALVE IS SHOWN, LEADING EDGE
CRUISE DEPRESSURIZATION VALVE IS EQUIVALENT)

C

Leading Edge Uncommanded Motion (UCM) Valve Installation
Figure 401 (Sheet 2 of 2)/27-81-52-990-801

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TASK 27-81-52-400-801

3. LE Uncommanded Motion (UCM) or LE Cruise Depressurization Valve Installation

(Figure 401)

A. References

Reference	Title
27-81-00-700-804	Leading Edge Uncommanded Motion Protection Test (P/B 501)
27-81-00-730-801	Leading Edge Cruise Depressurization Test (P/B 501)
SWPM 20-60-03	Special Protection of Electrical Connectors

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Meter - Bonding (Approved Explosion Proof & Intrinsically Safe) (Part #: C15292 (MODEL T477W), Supplier: 01014, A/P Effectivity: 737-ALL) (Part #: M1, Supplier: 3AD17, A/P Effectivity: 737-ALL) (Part #: M1B, Supplier: 3AD17, A/P Effectivity: 737-ALL)

C. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
132	Center Section Wing Box, Body Station 540.00 to Body Station 663.75 - Right
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

E. Access Panels

Number	Name/Location
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

F. Leading Edge Flap and Slat Valve Installation

SUBTASK 27-81-52-420-001

(1) Install the valve [3]:

(a) Make sure the mating surfaces of the valve [3] and the bracket are clean.

(b) Put the valve [3] in its position.

(c) Install the bolts [1] and washers [2].

(d) Apply thin layer of sealant, A00247 along the edges of the joint between the mating surfaces.

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(e) Connect the hydraulic lines to the valve [3].

1) Remove the caps from the hydraulic lines.

2) Remove the plugs from the hydraulic ports on the valve [3].

3) Connect the hydraulic lines to the valve [3].

(f) Before you connect the electrical connectors, examine the connectors for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(g) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(h) Apply the D5026NS or ZC-026 compound, G50171 to the connectors (SWPM 20-60-03).

(i) Connect the electrical connectors to the valve [3].

SUBTASK 27-81-52-860-003

(2) Use an bonding meter, COM-1550 to measure the resistance between the valve [3] and the bracket.

(a) Make sure the maximum resistance between the valve [3] and the bracket is 0.0025 ohms.

SUBTASK 27-81-52-860-004

(3) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-81-52-720-001

(4) If you replace the LE cruise depressurization valve, do this task: Leading Edge Cruise Depressurization Test, TASK 27-81-00-730-801.

SUBTASK 27-81-52-720-002

(5) If you replace the LE UCM shutoff valve, do this task: Leading Edge Uncommanded Motion Protection Test, TASK 27-81-00-700-804.

G. Put the plane back to its usual condition.

SUBTASK 27-81-52-940-001

(1) Install this access panel:

Number	Name/Location
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

——————— END OF TASK ———————

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LEADING EDGE FLAP AND SLAT HYDRAULIC FUSE - REMOVAL/INSTALLATION

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A removal of the hydraulic fuses of the leading edge flap and slat.

(2) An installation of the hydraulic fuses of the leading edge flap and slat.

C. There are two hydraulic fuses (extend and retract) in the system B and one hydraulic fuse in the standby system. The hydraulic fuses are all located in the airplane main landing gear wheel well.

D. This procedure is applicable for all three hydraulic fuses.

TASK 27-81-61-000-801

2. Leading Edge Flap and Slat Hydraulic Fuse Removal

(Figure 401)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

D. Leading Edge Flap and Slat Hydraulic Fuse Removal

SUBTASK 27-81-61-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-81-61-860-001

(2) To remove power from hydraulic systems B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-61-020-001

(3) Do this steps if you remove the fuse assembly [2] in system B:

(a) Loosen nuts [1] and [3] to disconnect the hydraulic tubes from the fuse assembly [2].

(b) Remove the fuse assembly [2].

SUBTASK 27-81-61-020-002

(4) Do these steps if you remove the fuse assembly [5] in the standby system:

(a) Loosen nuts [6] and [7] to disconnect the hydraulic tubes from the fuse assembly [5].

(b) Remove the fuse assembly [5] with the valve [4].

(c) Remove the fuse assembly [5] from the valve [4].

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1) Remove and discard the O-ringpacking [8] installed between the fuse assembly [5] and the valve [4].

END OF TASK

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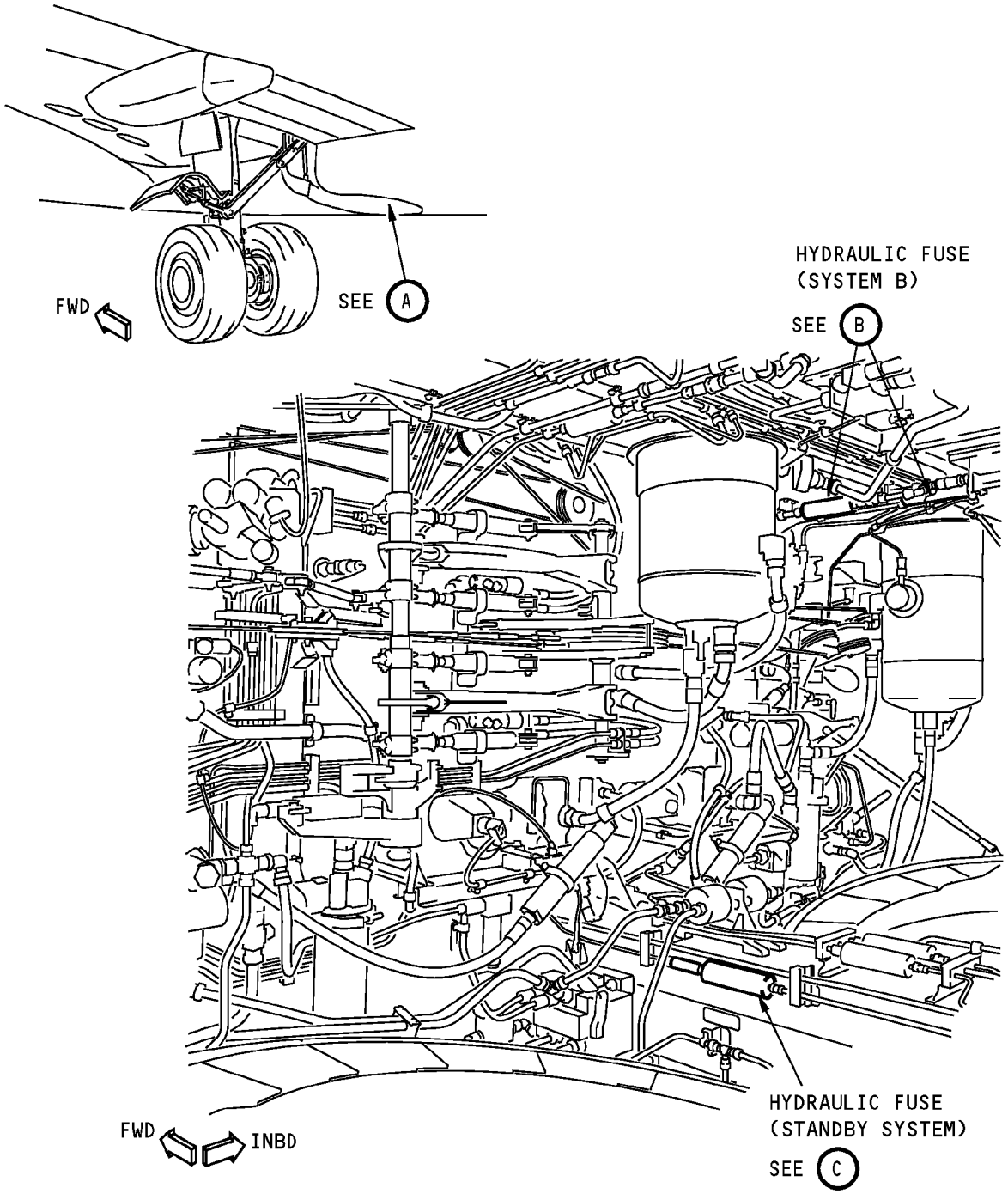

Leading Edge and Slat Hydraulic Fuse Installation
Figure 401 (Sheet 1 of 2)/27-81-61-990-801

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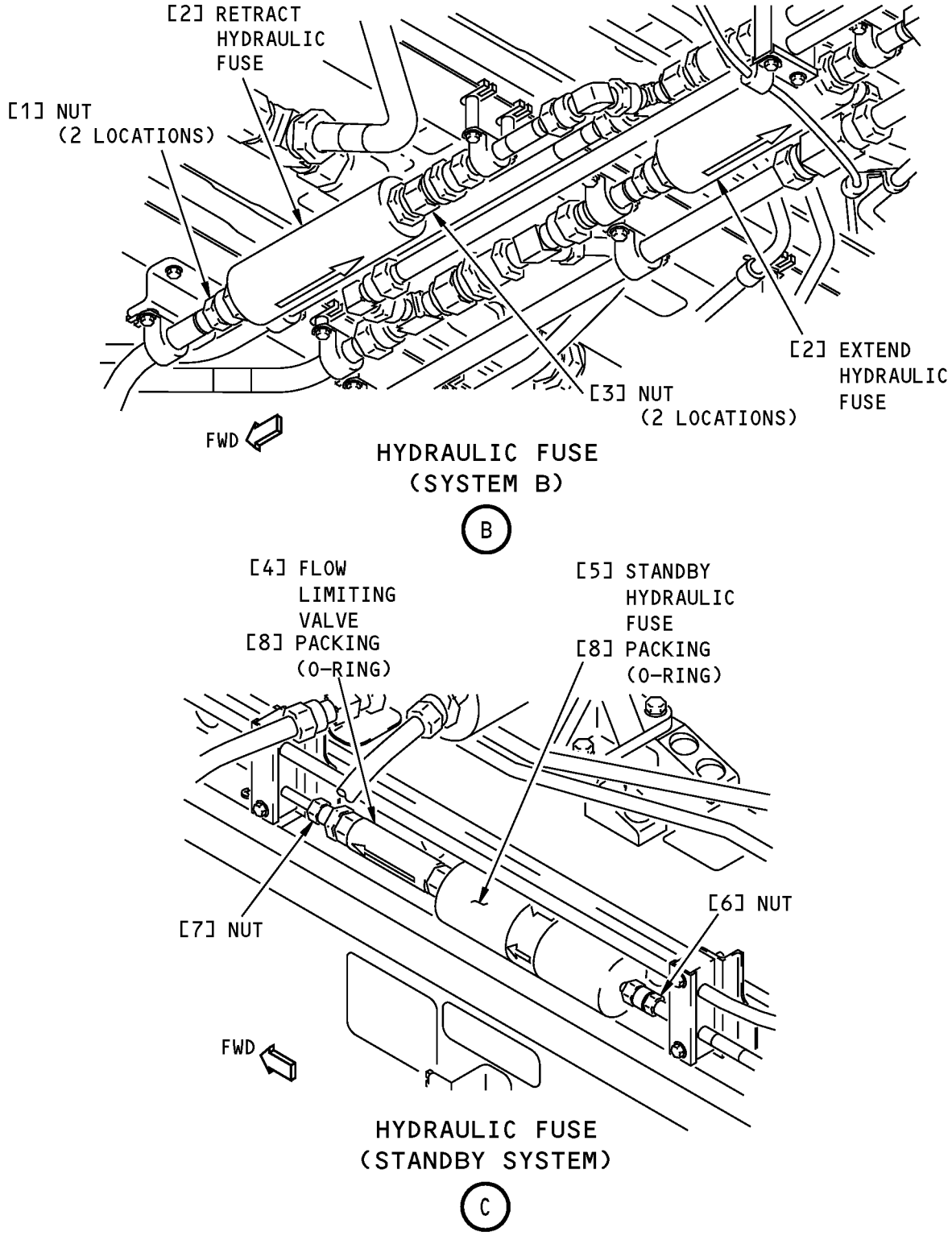

Leading Edge and Slat Hydraulic Fuse Installation
Figure 401 (Sheet 2 of 2)/27-81-61-990-801

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TASK 27-81-61-400-801

3. Leading Edge Flap and Slat Hydraulic Fuse Installation

(Figure 401)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Fuse assembly	29-11-52-12-755	HAP ALL
		29-11-52-12A-641	HAP 001-013, 015-026, 028-043, 101
		29-11-52-12A-644	HAP ALL
5	Fuse assembly	29-11-52-15A-005	HAP ALL
8	Packing	29-21-52-02-735	HAP ALL

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

E. Leading Edge Flap and Slat Hydraulic Fuse Installation

SUBTASK 27-81-61-420-001

(1) Do these steps if you install the two fuse assemblies [2] in system B:

(a) Hold thetwo fuse assemblies [2] in its position.

NOTE: The flow direction arrow on thetwo fuse assemblies [2] must agree with the arrow on the pressure bulkhead.

(b) Tighten the nuts [1] and [3] to connect the hydraulic tubes to the two fuse assemblies [2].

SUBTASK 27-81-61-420-002

(2) Do these steps if you install thefuse assembly [5] in the standby system:

(a) Install the fuse assembly [5] to the valve [4].

1) Install a new O-ring packing [8] between thefuse assembly [5] and the valve [4].

(b) Hold thefuse assembly [5] and the valve [4] in their position.

NOTE: The flow direction arrow on thefuse assembly [5] and the valve [4] must agree with the arrow on the pressure bulkhead.

(c) Tighten the nuts [6] and [7] to connect hydraulic tubes to thefuse assembly [5] and the valve [4].

SUBTASK 27-81-61-860-002

(3) To pressurize the hydraulic systems B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(a) If you replaced the fuse assembly [2], you will need to pressurize the hydraulic system B.

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(b) If you replaced the fuse assembly [5], you will need to pressurize the standby hydraulic system.

SUBTASK 27-81-61-210-001

(4) Do a visual check of the fuse assembly [2] or fuse assembly [5] for hydraulic leaks.

SUBTASK 27-81-61-860-003

(5) To remove power from hydraulic sytems B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-61-610-001

(6) If it is necessary to service the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

TASK 27-81-61-860-801

4. Flap and Slat Hydraulic Fuses (System B) Reset

A. References

Reference	Title
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1154	Container - 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 27-81-61-860-004

(1) Do these steps to reset the hydraulic fuses for system B:

(a) Make sure the flap control lever is in the UP position.

(b) Make sure there is no power on hydraulic system B. If it is necessary to remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(c) Between the hydraulic fuse and the check valve upstream, loosen the B-nut sufficiently to bleed off the hydraulic fluid into a 5 gallon (19 liter) container, STD-1154.

NOTE: The pressure difference across the hydraulic fuse must be 5 psi (34.5 kPa) for a minimum of 5 seconds to put the hydraulic fuse back to the open position.

(d) Tighten the B-nut after you put the hydraulic fuse back to the open position.

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WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(e) To pressurize the hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(f) Do a check of the hydraulic fuse [2] for hydraulic leaks.

(g) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

TASK 27-81-61-860-802

5. Flap and Slat Hydraulic Fuse (Standby System) Reset

A. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 27-81-61-860-005

(1) Do these steps to reset the hydraulic fuse for the standby system:

(a) Make sure the flap control lever is in the UP position.

(b) Remove power from hydraulic sytems B. To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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LEADING EDGE FLAP FLOW LIMITING VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the leading edge flap flow limiting valve

(2) An installation of the leading edge flap flow limiting valve.

B. The leading edge flap flow limiting valve is referred to as the "flow limiting valve" in this procedure.

TASK 27-81-71-000-801

2. Leading Edge Flap Flow Limiting Valve Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

C. Prepare for the Removal

SUBTASK 27-81-71-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-81-71-860-001

(2) Make sure there is no hydraulic power on system B. To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

D. Leading Edge Flap Flow Limiting Valve Removal

SUBTASK 27-81-71-020-001

(1) Remove the flow limiting valve [1]:

(a) Loosen the nuts [3] and [4] to disconnect the hydraulic tubes from the flow limiting valve [1] and the hydraulic fuse [2].

(b) Remove the flow limiting valve [1] from the hydraulic fuse [2].

END OF TASK

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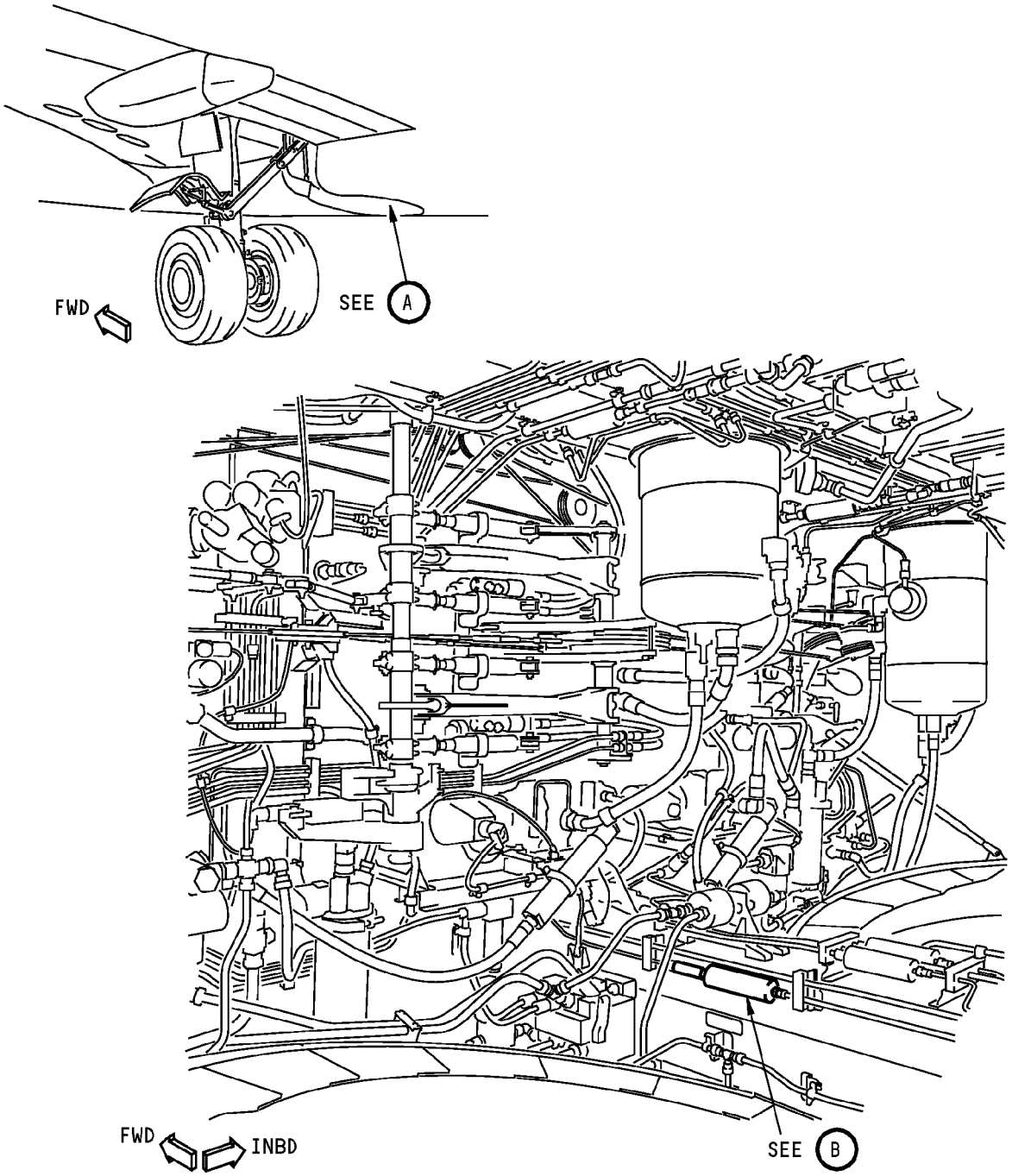

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

A

Leading Edge Flap Flow Limiting Valve Installation
Figure 401 (Sheet 1 of 2)/27-81-71-990-801

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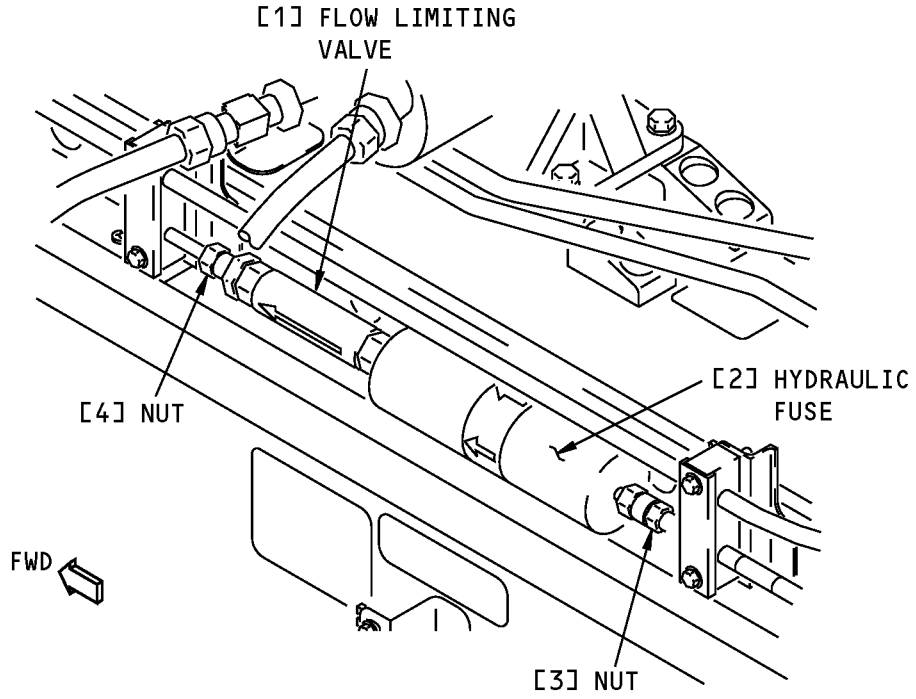

Leading Edge Flap Flow Limiting Valve Installation
Figure 401 (Sheet 2 of 2)/27-81-71-990-801

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TASK 27-81-71-400-801

3. Leading Edge Flap Flow Limiting Valve Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left

C. Leading Edge Flap Flow Limiting Valve Installation

SUBTASK 27-81-71-420-001

(1) Install the flow limiting valve [1]:

(a) Connect the flow limiting valve [1] to the hydraulic fuse [2].

(b) Hold the flow limiting valve [1] and hydraulic fuse [2] in their position.

NOTE: The flow direction arrow on the flow limiting valve [1] and hydraulic fuse [2] must agree with the arrow on the pressure bulkhead.

(c) Connect the hydraulic tubes to the flow limiting valve [1] and hydraulic fuse [2].

(d) Tighten the nuts [3] and [4].

SUBTASK 27-81-71-610-001

(2) If it is necessary to service the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 27-81-71-710-001

(3) Do a test of the flap flow limiting valve [1]:

(a) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

(b) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

(c) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(d) If it is necessary, move the flap control lever to the FLAP UP detent position to retract the leading edge flaps and slats.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS WILL EXTEND. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE COWL AND THE THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(e) Put the alternate flap arm switch in the ARM position.

(f) Put the alternate flap control switch in the DOWN position.

1) Make sure the leading edge flaps and slats fully extend.

(g) Put the alternate flap control switch in the OFF position.

(h) Put the alternate flap arm switch in the OFF position.

1) Make sure the leading edge flaps and slats fully retract.

(i) Examine the hydraulic fittings of the flow limiting valve [1] for leakage.

D. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-71-860-002

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-81-71-860-003

(2) To remove pressure from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-71-610-002

(3) If it is necessary to service the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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LEADING EDGE FLAP AND SLAT CONTROL VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the leading edge flap and slat control valve.

(2) An installation of the leading edge flap and slat control valve.

B. The leading edge flap and slat control valve is attached to the flap control unit forward of the trailing edge flap control valve.

C. The leading edge flap and slat control valve is referred to as the "control valve" in this procedure.

TASK 27-81-81-000-801

2. Leading Edge Flap and Slat Control Valve Removal

(Figure 401)

A. References

Reference	Title
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Tools/Equipment

Reference	Description
STD-1154	Container - 5 Gallon (19 Liters)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Prepare for the Removal

SUBTASK 27-81-81-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-81-81-860-001

(2) If the leading edge flaps and slats are not in the retracted position, do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

SUBTASK 27-81-81-860-002

(3) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

E. Leading Edge Flap and Slat Control Valve Removal

SUBTASK 27-81-81-020-001

(1) Remove the lower pan [8] from the flap control unit [6].

(a) Remove the screws [7] that attach the lower pan [8] to the flap control unit [6].

(b) Remove the lower pan [8] from the flap control unit [6].

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SUBTASK 27-81-81-480-002

(2) Install the rig pin [16] through the cam follower arm [15] and valve cam [14].

SUBTASK 27-81-81-020-002

(3) Remove the control valve assembly [1]:

CAUTION: DO NOT LET HYDRAULIC FLUID GET ON EQUIPMENT. IF HYDRAULIC FLUID GETS ON EQUIPMENT, IMMEDIATELY CLEAN IT FROM THE EQUIPMENT. HYDRAULIC FLUID CAN CAUSE DAMAGE TO EQUIPMENT.

(a) Put a 5 gallon (19 liter) container, STD-1154 below the control valve assembly [1] to catch hydraulic fluid.

(b) Disconnect the hydraulic lines [3] from the control valve assembly [1].

1) Install caps on the hydraulic lines [3].

2) Install plugs in the hydraulic ports of the control valve assembly [1].

(c) Remove the nut [13], washer [12] and bolt [11] that attach the control valve assembly [1] to the leading edge cam link [17].

(d) Remove the bolts [9] and washers [10] that attach the control valve assembly [1] to the flap control unit [6].

(e) Carefully remove the control valve assembly [1] from the flap control unit [6].

———————— END OF TASK ————————

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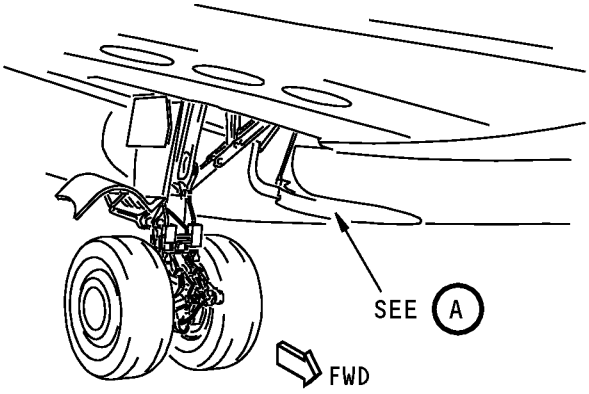

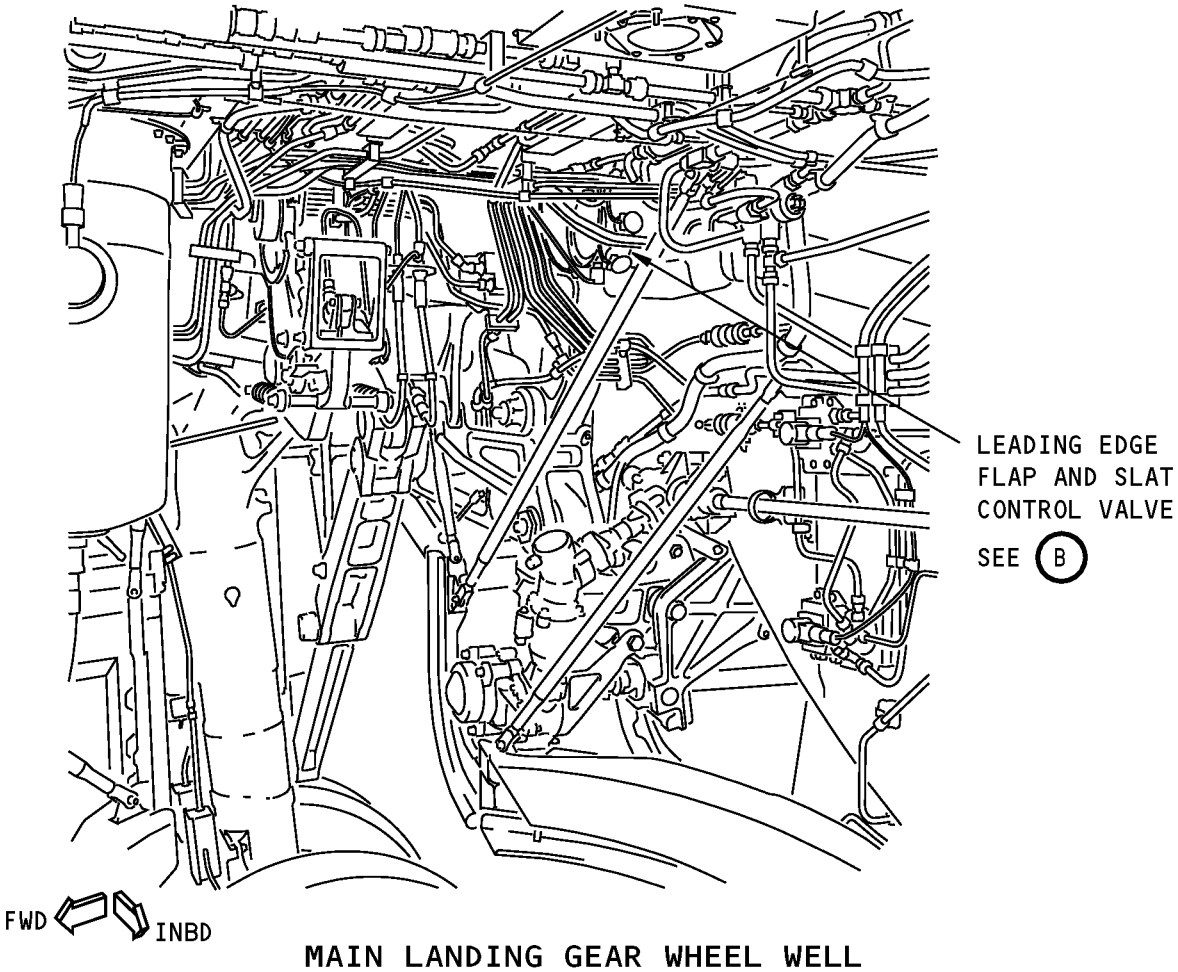

MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

A

Leading Edge Flap and Slat Control Valve Installation
Figure 401 (Sheet 1 of 3)/27-81-81-990-801

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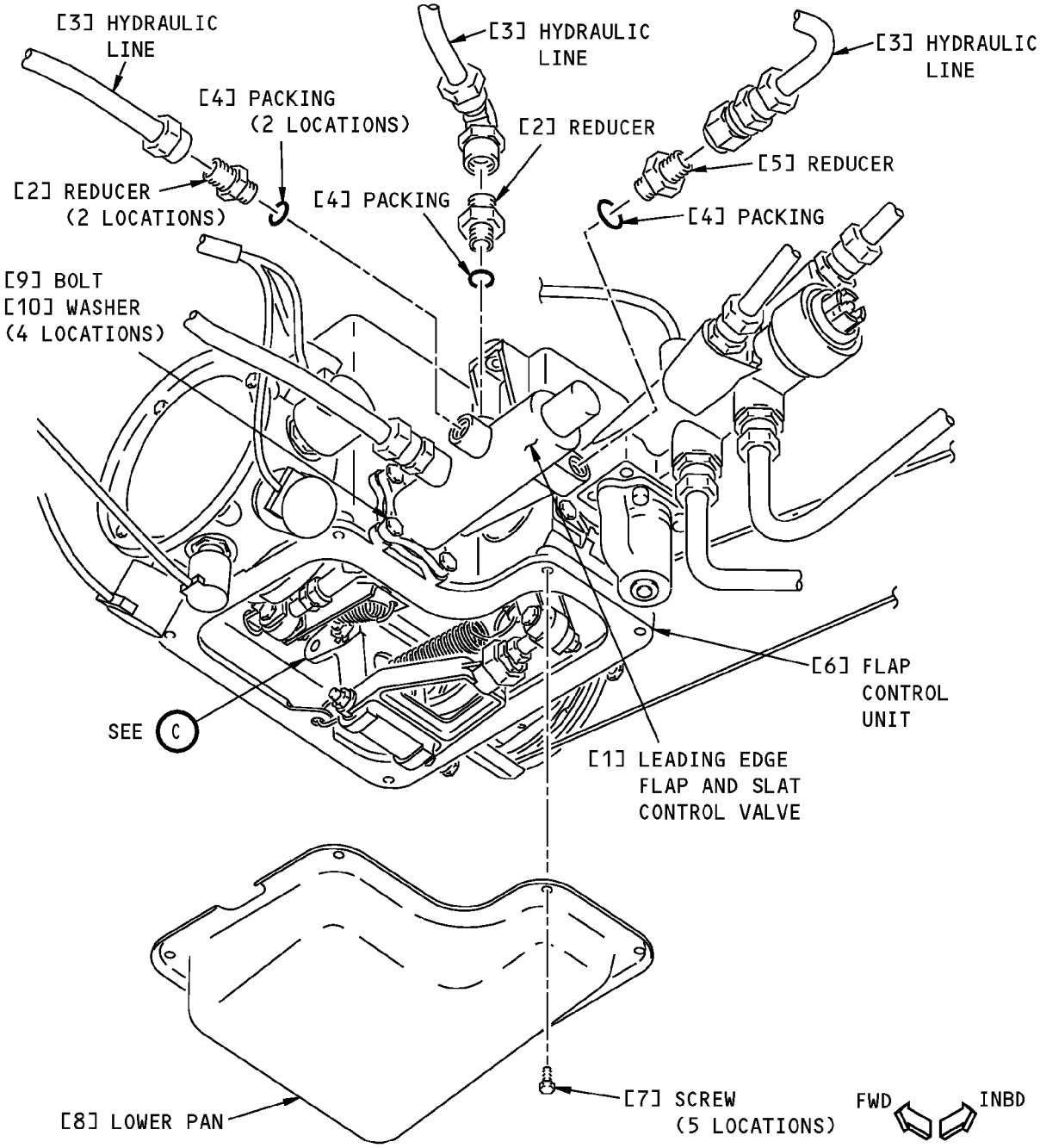

Leading Edge Flap and Slat Control Valve Installation
Figure 401 (Sheet 2 of 3)/27-81-81-990-801

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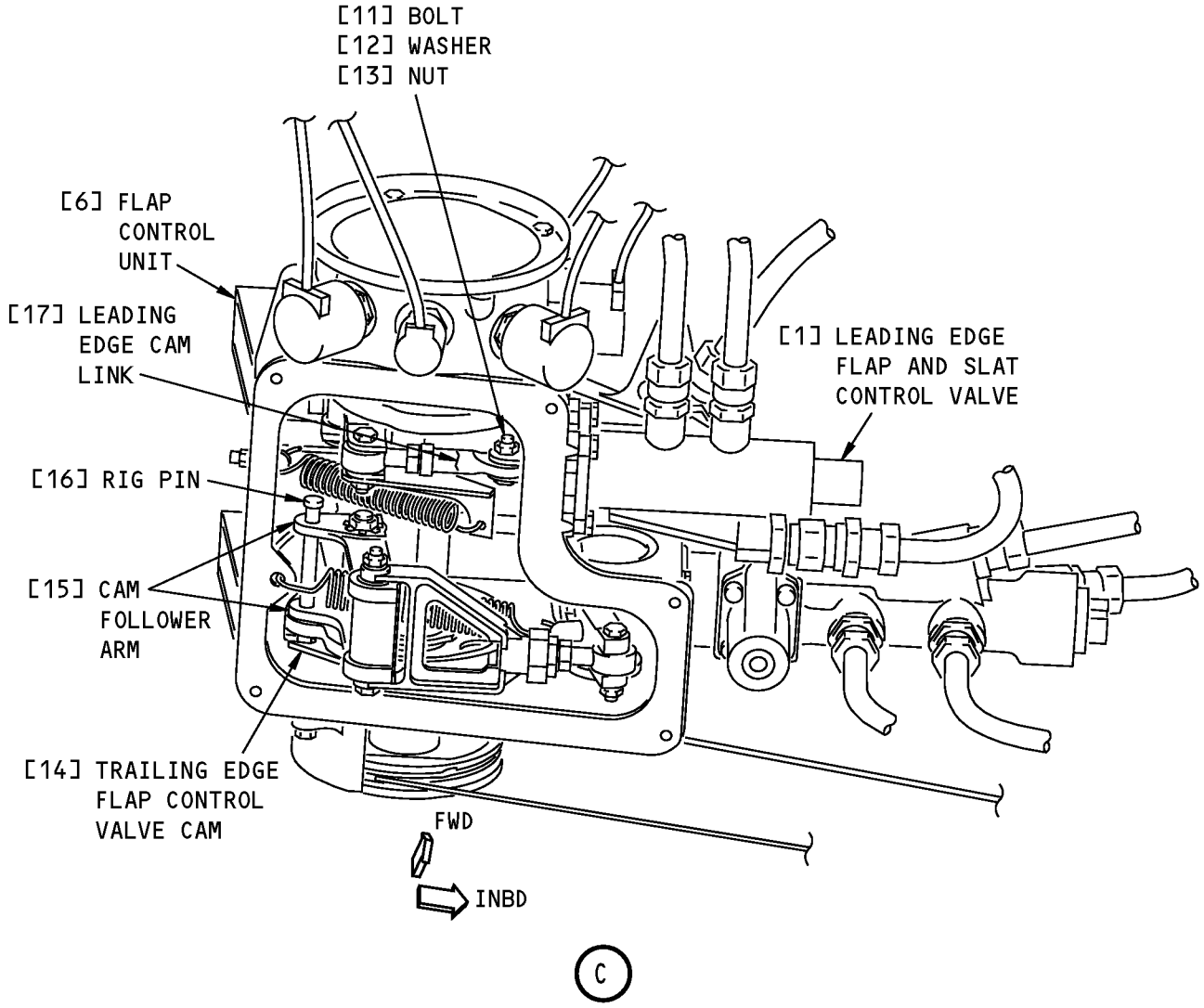

Leading Edge Flap and Slat Control Valve Installation
Figure 401 (Sheet 3 of 3)/27-81-81-990-801

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TASK 27-81-81-400-801

3. Leading Edge Flap and Slat Control Valve Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-81-00-860-801	Leading Edge Flap and Slat System Operation With Primary Control (P/B 201)
27-81-81-820-801	Leading Edge Flap and Slat Control Valve Adjustment (P/B 501)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

C. Location Zones

Zone	Area
134	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right

D. Leading Edge Flap and Slat Control Valve Installation

SUBTASK 27-81-81-420-001

(1) If they are not installed, install the packings [4], reducers [2] and reducer [5] in the ports of the control valve assembly [1].

(a) Apply fluid, D00153 or MCS 352B fluid, D00054 to the new packings [4].

(b) Put the packings [4], reducer [2] and reducer [5] in their location on the control valve assembly [1].

SUBTASK 27-81-81-420-002

(2) Install the control valve assembly [1] in the flap control unit [6]:

(a) Carefully put the control valve assembly [1] on the flap control unit [6].

(b) Apply compound, C00913 to the shank and threads of the bolts [9].

(c) Install the bolts [9] and washers [10] to attach the control valve assembly [1] to the flap control unit [6].

(d) Install lockwire on the bolts [9].

(e) Connect the control valve assembly [1] to the leading edge cam link [17] with the bolt [11], washer [12] and nut [13].

(f) Connect the hydraulic lines [3] to the control valve assembly [1].

1) Remove the caps from the hydraulic lines [3].

2) Remove the plugs from the hydraulic ports on the control valve assembly [1].

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3) Connect the hydraulic lines [3] to the control valve assembly [1].

SUBTASK 27-81-81-080-001

(3) Remove the rig pin [16] from the flap control unit [6].

SUBTASK 27-81-81-860-003

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Use the primary system to extend and retract the flaps and slats. To extend and retract the flaps and slats, do this task: Leading Edge Flap and Slat System Operation With Primary Control, TASK 27-81-00-860-801.

SUBTASK 27-81-81-210-001

(5) Examine the hydraulic lines at the control valve for leakage.

SUBTASK 27-81-81-820-001

(6) Do this task: Leading Edge Flap and Slat Control Valve Adjustment, TASK 27-81-81-820-801.

SUBTASK 27-81-81-420-003

(7) Install the lower pan [8] on the flap control unit [6].

(a) Put the lower pan [8] in its location on the flap control unit [6].

(b) Apply compound, C00913 to the shank and threads of the screws [7].

(c) Install the screws [7] to attach the lower pan [8] to the flap control unit [6].

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-81-610-001

(1) If it is necessary to fill the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

——————— END OF TASK ———————

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LEADING EDGE FLAP AND SLAT CONTROL VALVE - ADJUSTMENT/TEST

1. General

A. This procedure has a task to adjust the leading edge flap and slat control valve.

TASK 27-81-81-820-801

2. Leading Edge Flap and Slat Control Valve Adjustment

(Figure 501)

A. References

Reference	Title
27-81-00-700-802	Leading Edge Flap and Slat Timing Test in Primary Mode (P/B 501)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Consumable Materials

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995~ C32

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Prepare for the Adjustment

SUBTASK 27-81-81-480-003

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-81-81-860-004

(2) If the leading edge flaps and slats are not in the retract position, do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

SUBTASK 27-81-81-010-001

(3) Remove the lower pan [3] from the flap control unit [1]:

(a) Remove the screws [4] that attach the lower pan [3] to the flap control unit [1].

(b) Remove the lower pan [3].

SUBTASK 27-81-81-420-004

(4) Install the rig pin [7] through the cam follower arm [6] and the valve cam [5].

E. Leading Edge Flap and Slat Control Valve Adjustment

SUBTASK 27-81-81-820-002

(1) Do the adjustment of the leading edge flap and slat control valve [2]:

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(a) Remove the lockwire, G01048.

(b) Loosen the jam nut [14].

(c) Remove the nut [10], washer [9], and bolt [8].

(d) Turn the rod end [13] in 180 degree increments until you can get the valve slide [11] and the index surface [12] to align.

(e) Install the bolt [8].

(f) Make sure the valve slide [11] aligns with the index surface [12].

(g) Install the washer [8] and nut [10].

(h) Make sure the dimension from the center of the rod end [13] to the jamnut [14] is not more than 1.00 inch (25.4 millimeters).

(i) Tighten the jam nut [14].

(j) Install the lockwire, G01048.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-81-020-003

(1) Remove the rig pin [7] from the cam follower arm [6] and the valve cam [5].

SUBTASK 27-81-81-410-001

(2) Install the lower pan [3] on the flap control unit [1]:

(a) Put the lower pan [3] in its location on the flap control unit [1].

(b) Apply compound, C00913 to the shank and threads of the screws [4].

(c) Install the screws [4] that attach the lower pan [3] to the flap control unit [1].

SUBTASK 27-81-81-720-001

(3) Do this task: Leading Edge Flap and Slat Timing Test in Primary Mode, TASK 27-81-00-700-802.

——————— END OF TASK ———————

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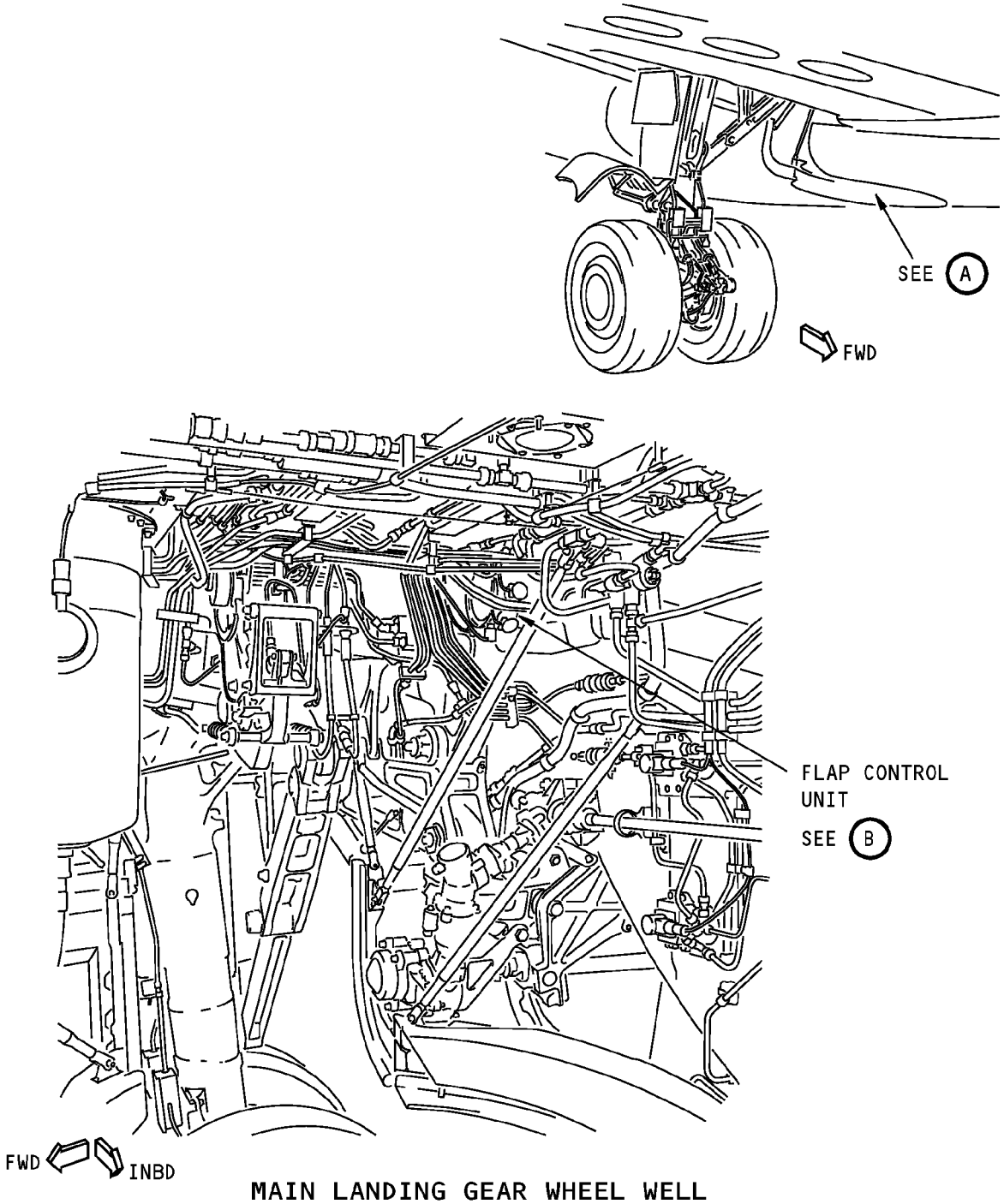

Leading Edge Flap and Slat Control Valve Adjustment
Figure 501 (Sheet 1 of 3)/27-81-81-990-802

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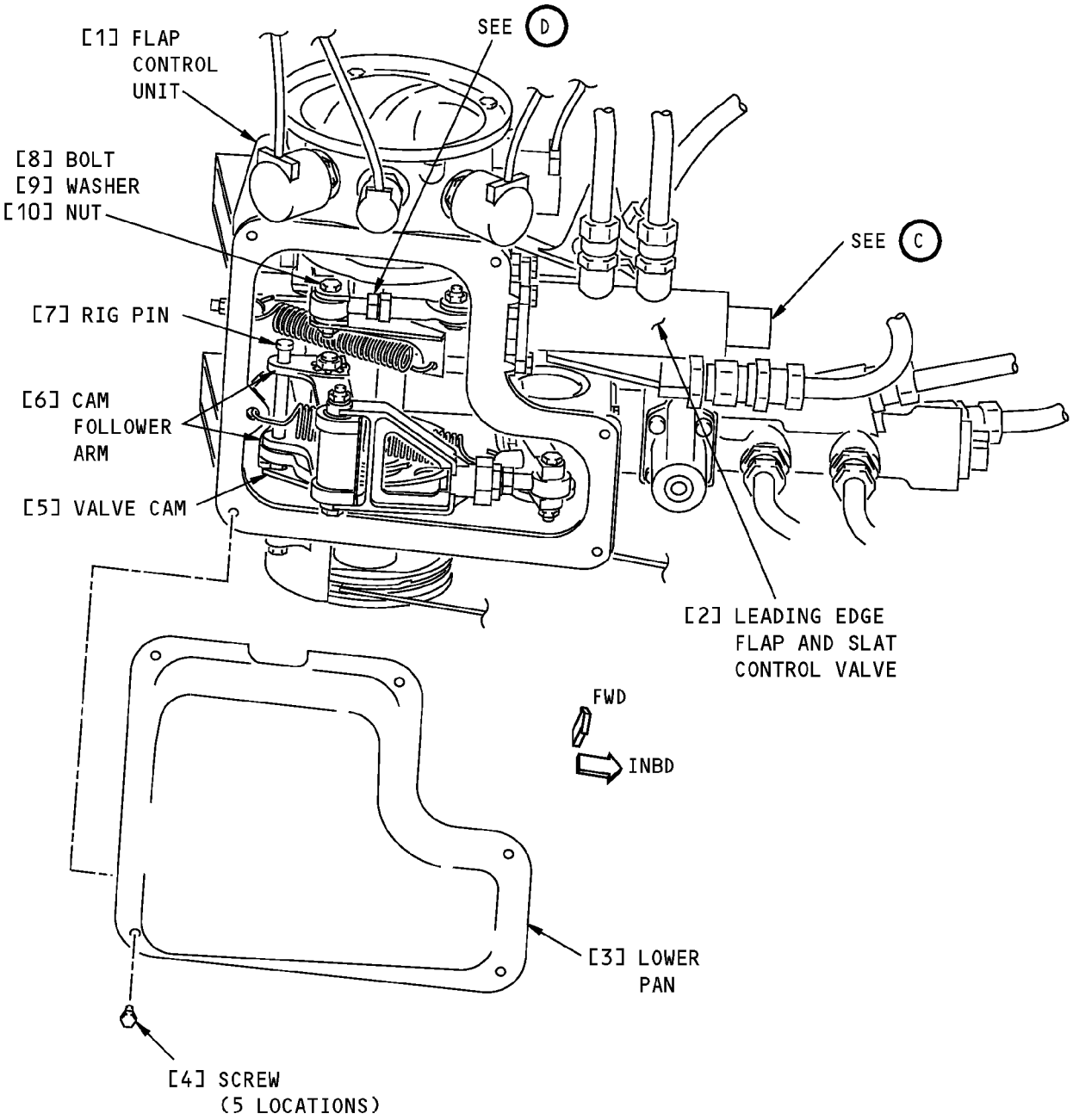

Leading Edge Flap and Slat Control Valve Adjustment
Figure 501 (Sheet 2 of 3)/27-81-81-990-802

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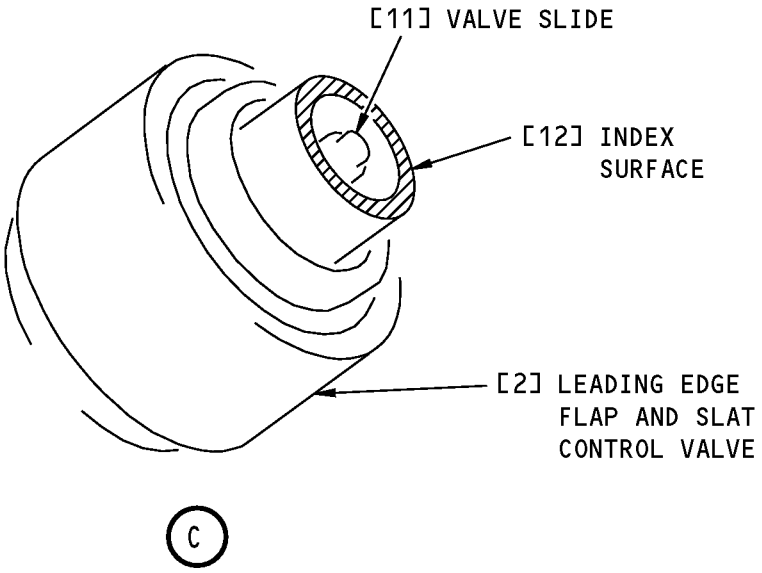

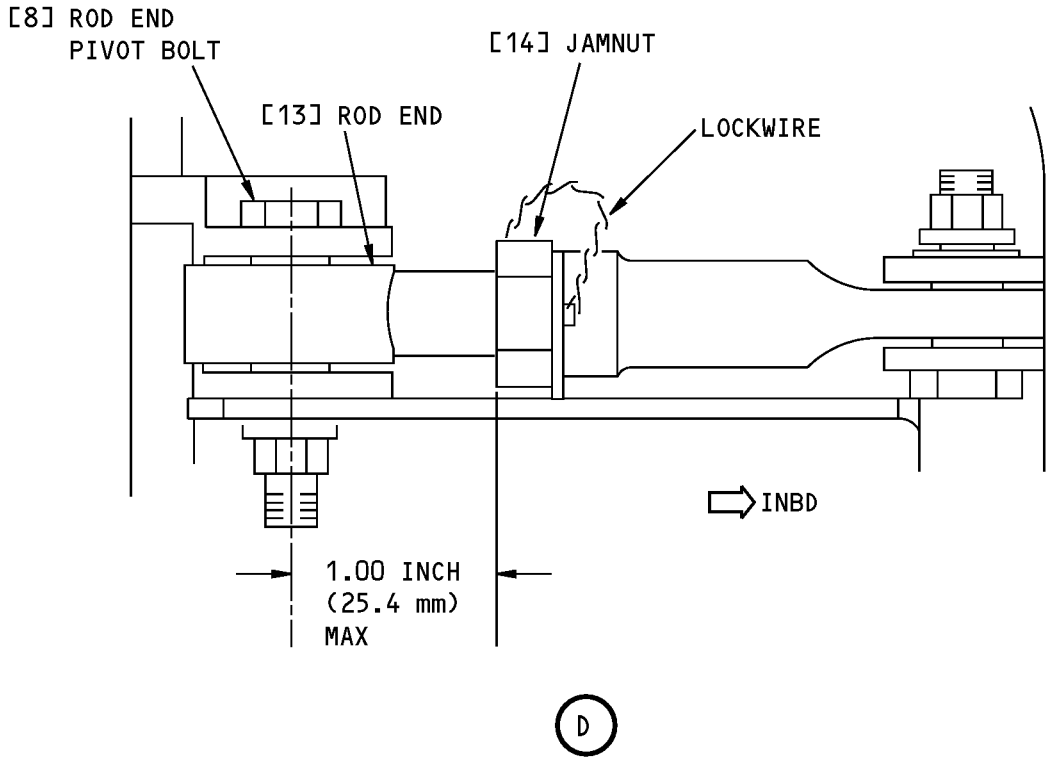

Leading Edge Flap and Slat Control Valve Adjustment
Figure 501 (Sheet 3 of 3)/27-81-81-990-802

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LEADING EDGE STANDBY SHUTOFF VALVE - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) A removal of the leading edge standby shutoff valve (valve and motor)

(2) An installation of the leading edge standby shutoff valve (valve and motor)

(3) A removal of the standby shutoff valve motor

(4) An installation of the edge standby shutoff valve motor

(5) A test of the leading edge standby shutoff valve.

B. The leading edge standby shutoff valve is referred to as the "valve", and the standby shutoff valve motor is referred to as the "valve motor" in this procedure.

C. You can replace the valve motor with the valve installed in the standby flight controls hydraulic module.

TASK 27-81-91-000-801

2. Leading Edge Standby Shutoff Valve Removal

(Figure 201)

A. General

(1) This task is the removal of the leading edge standby shutoff valve assembly, which contains the motor and the valve.

B. References

Reference	Title
29-09-00-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
29-11-01-860-802	Hydraulic Reservoirs Depressurization (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Tools/Equipment

Reference	Description
STD-1154	Container - 5 Gallon (19 Liters)

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the Removal

SUBTASK 27-81-91-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

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SUBTASK 27-81-91-860-001

(2) Make sure there is no power on hydraulic system B. To remove it, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-91-860-002

(3) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-11-01-860-802 or Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 27-81-91-860-003

(4) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

F. Leading Edge Standby Shutoff Valve Removal

SUBTASK 27-81-91-020-001

(1) Remove the valve [13]:

(a) Disconnect the electrical connector [1] from the valve motor [2].

(b) Remove the four screws [5] and washers [6] that attach the valve to the hydraulic module housing [].

(c) Put a 5 gallon (19 liter) container, STD-1154 below the valve [13] to catch hydraulic fluid that drains from the valve [13].

(d) Carefully lift the valve [13] straight up to remove it from the standby flight controls hydraulic module.

(e) Put a cover on the hydraulic module housing to keep contamination out of the open valve hole.

———————— END OF TASK ————————

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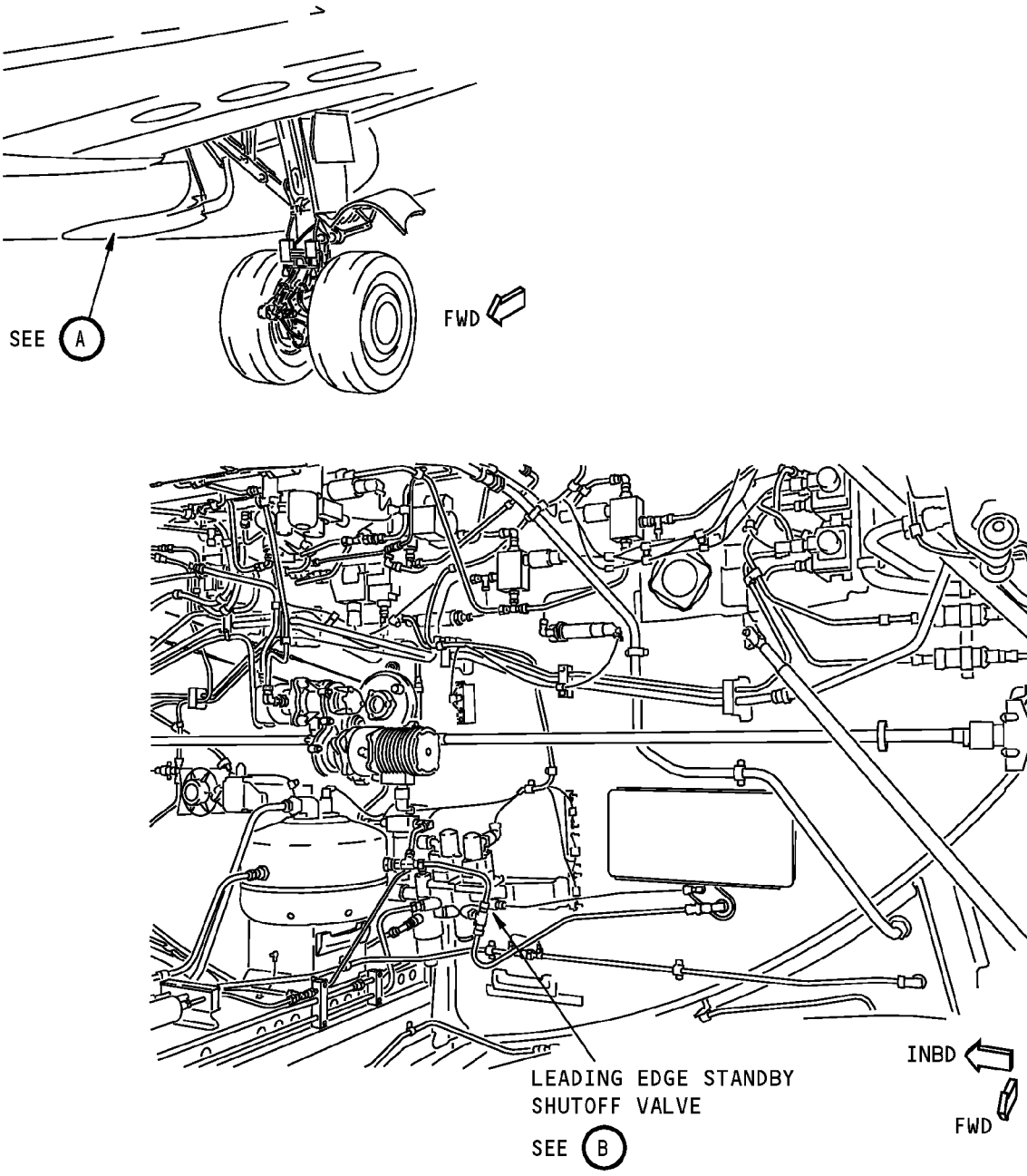

Leading Edge Standby Shutoff Valve Installation
Figure 201 (Sheet 1 of 2)/27-81-91-990-801

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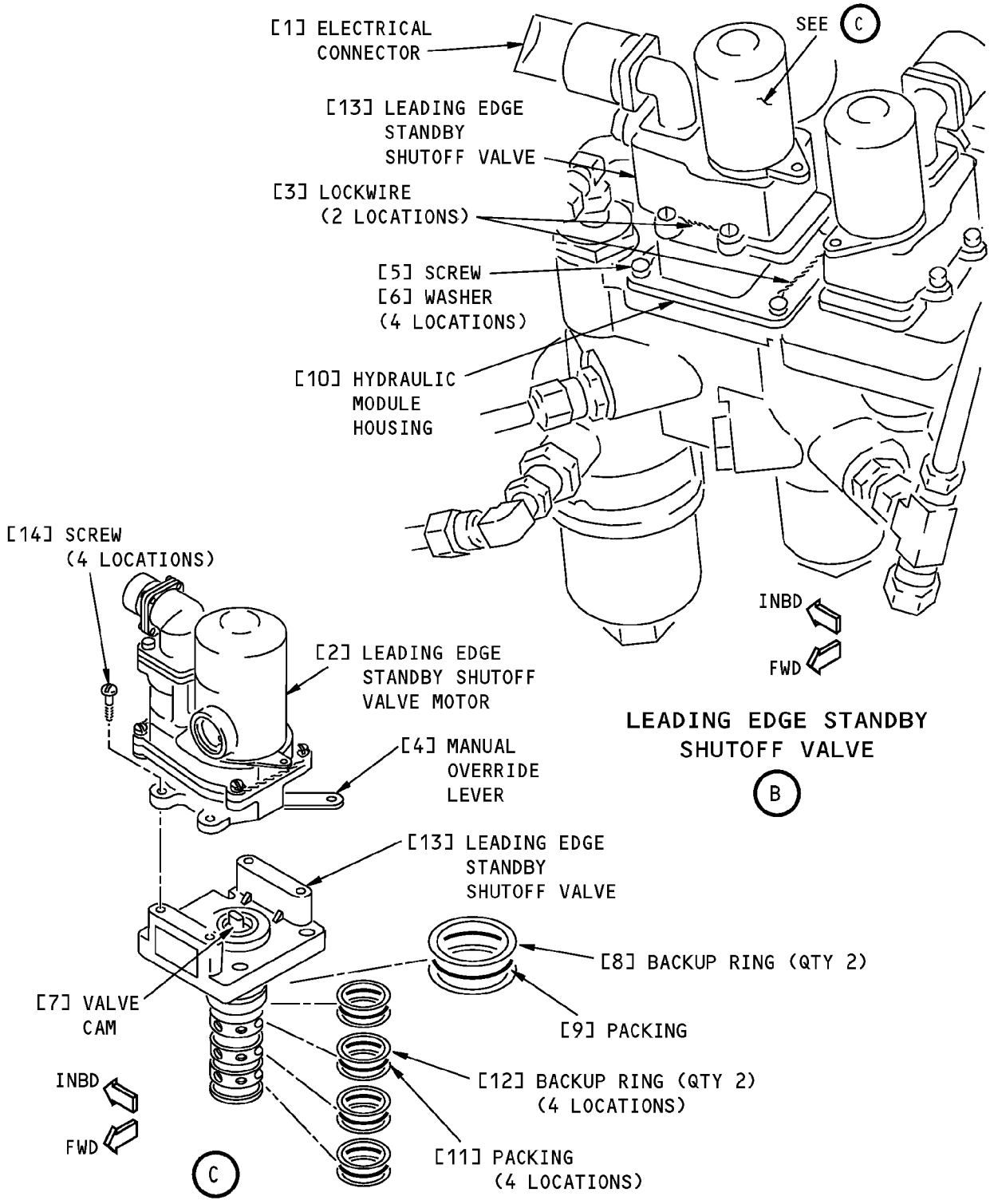

Leading Edge Standby Shutoff Valve Installation
Figure 201 (Sheet 2 of 2)/27-81-91-990-801

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TASK 27-81-91-400-801

3. Leading Edge Standby Shutoff Valve Installation

(Figure 201)

A. General

(1) This task is the installation of the leading edge standby shutoff valve assembly, which contains the motor and the valve.

B. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange~able & intermixable with Type V)
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Leading Edge Standby Shutoff Valve Installation

SUBTASK 27-81-91-420-001

(1) If they are not installed, install the packing [9], backup rings [8], packings [11] and backup rings [12]:

(a) Apply fluid, D00153 or MCS 352B fluid, D00054 to the packing [9], backup rings [8], packings [11] and backup rings [12].

(b) Install the packing [9], backup rings [8], packings [11] and backup rings [12] on the valve [13].

SUBTASK 27-81-91-420-002

(2) Install the valve [13]:

(a) Carefully install the valve [13] in the hydraulic module housing [10].

(b) Install the screws [5] and washers [5] to attach the valve [13] to the hydraulic module housing [10].

(c) Install the lockwire on the screws [5].

(d) Before you connect the electrical connector [1], examine the connector for corrosion.

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WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(e) If there is corrosion, refer to (SWPM 20-60-03) to correct the problem.

(f) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(g) Connect the electrical connector [1] to the valve motor [2].

NOTE: Corrosion inhibiting compound is applied to the exterior of the mated electrical connectors after the operational test is completed.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-91-860-004

(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-81-91-610-001

(2) If it is necessary to service the hydraulic reservoirs, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 27-81-91-720-001

(3) Do this task: Leading Edge Standby Shutoff Valve Test, TASK 27-81-91-720-801.

——————— END OF TASK ———————

TASK 27-81-91-000-802

4. Standby Shutoff Valve Motor Removal

(Figure 201)

A. General

(1) You can remove the valve motor with the valve installed in the standby flight controls hydraulic module.

B. References

Reference	Title
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

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D. Prepare for the Removal

SUBTASK 27-81-91-480-002

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEARS. WITHOUT THE DOWNLOCK PINS, THE LANDING GEARS COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gears, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-81-91-860-005

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

E. Standby Shutoff Valve Motor Removal

SUBTASK 27-81-91-020-002

(1) Remove the valve motor [2]:

(a) Disconnect the electrical connector [1] from the valve motor [2].

(b) Set the manual override lever [4] on the valve motor [2] to POSITION 2.

(c) Remove the screws [14] that attach the valve motor [2] to the valve [13].

(d) Remove the valve motor [2] from the valve [13].

END OF TASK

TASK 27-81-91-400-802

5. Standby Shutoff Valve Motor Installation

(Figure 201)

A. General

(1) You can install the valve motor with the valve installed in the standby flight controls hydraulic module.

B. References

Reference	Title
SWPM 20-60-03	Special Protection of Electrical Connectors

C. Consumable Materials

Reference	Description	Specification
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

D. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

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E. Standby Shutoff Valve Motor Installation

SUBTASK 27-81-91-420-003

(1) Install the valve motor [2]:

(a) Make sure the manual override lever [4] on the valve motor [2] is set to POSITION 2.

(b) Set the valve motor [2] on the valve [13]

(c) Engage the valve motor [2] with the valve cam [7].

(d) Install the four screws [14].

(e) Install the lockwire on the screws [14].

(f) Before you connect the electrical connector [1], examine the connector for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(g) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(h) Apply the D5026NS or ZC-026 compound, G50171 to the connector (SWPM 20-60-03).

(i) Connect the electrical connector [1] to the valve motor [2].

NOTE: Corrosion inhibiting compound is applied to the exterior of the mated electrical connectors after the operational test is completed.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-81-91-860-006

(1) Set the manual override lever [4] on the valve motor [2] to position 1.

SUBTASK 27-81-91-860-007

(2) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
A	7	C00210	FLIGHT CONTROL FLAP SHUTOFF VALVES

SUBTASK 27-81-91-720-002

(3) Do this task: Leading Edge Standby Shutoff Valve Test, TASK 27-81-91-720-801.

———————— END OF TASK ————————

TASK 27-81-91-720-801

6. Leading Edge Standby Shutoff Valve Test

(Figure 202)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

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B. Consumable Materials

Reference	Description	Specification
G50170	Compound - Corrosion Inhibiting Compound, Soft Film, Exterior Use - AV25	

C. Location Zones

Zone	Area
133	Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Leading Edge Standby Shutoff Valve Motor Test

SUBTASK 27-81-91-860-008

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-81-91-860-009

(2) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-81-91-710-001

(3) Do the test for the valve [13]:

(a) Make sure the manual override lever [4] is at position 1.

(b) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(c) Make sure the flap control lever is in the UP detent.

(d) Set the alternate flaps arm switch, on the P5 Flight Controls panel, to the ARM position.

1) Make sure the STANDBY HYD LOW PRESSURE light comes on.

2) Make sure the standby hydraulic pump starts.

3) Make sure the STANDBY HYD LOW PRESSURE light is off.

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(e) Set the alternate flaps control switch, on the P5 Flight Controls panel, to the DOWN position.

1) Make sure the manual override lever [4] is at position 2.

2) Make sure the leading edge flaps and slats fully extend.

(f) Set the alternate flaps control switch to the OFF position.

1) Make sure the leading edge flaps and slats do not move.

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WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(g) Set the alternate flaps arm switch to the OFF position.

1) Make sure the manual override lever [4] moves to position 1.

2) Make sure the leading edge flaps and slats fully retract.

NOTE: The leading edge flaps and slats retract because of the pressurization of hydraulic system B.

SUBTASK 27-81-91-210-001

(4) Make sure there is no hydraulic fluid leakage from the valve hydraulic fittings.

SUBTASK 27-81-91-860-010

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
D	13	C00841	FLIGHT CONTROL ALTN T.E. FLAP DRIVE

SUBTASK 27-81-91-860-011

(6) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-81-91-212-001

(7) Apply the AV25 compound, G50170 to the mated electrical connector assembly completely, until the compound drips from the connector.

NOTE: Do not remove the excess corrosion inhibiting compound.

——————— END OF TASK ———————

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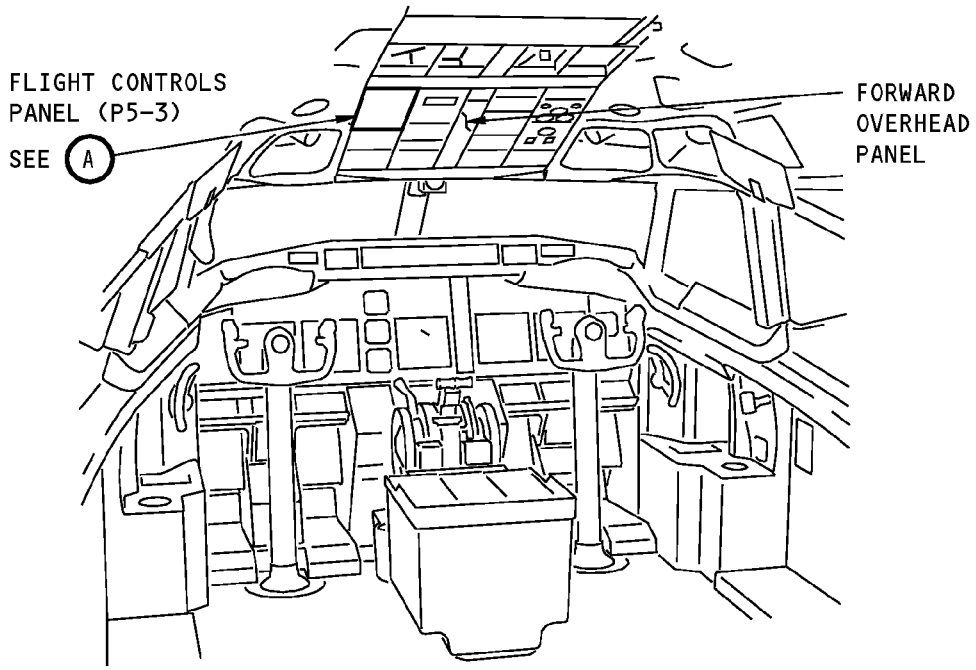
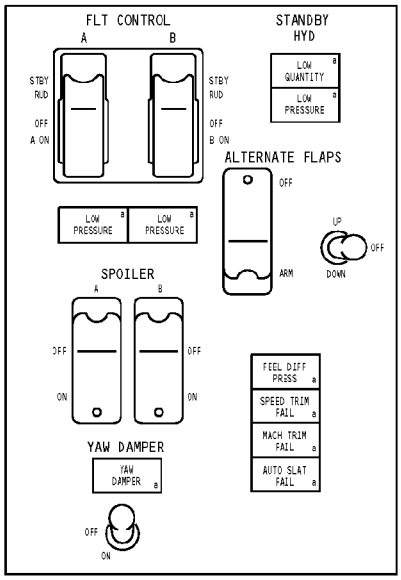


FLIGHT COMPARTMENT



FLIGHT CONTROLS PANEL (P5-3)

A

Alternate Flaps Control Switches
Figure 202/27-81-91-990-802

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LEADING EDGE AUTOSLAT SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) Test of the autoslat system indicator light.

(2) Operational test of the leading edge autoslat system.

TASK 27-83-00-720-801

2. Autoslat System Indicator Light - Functional Test

(Figure 501)

A. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the Procedure

SUBTASK 27-83-00-480-001

(1) Do this task: Supply External Power, TASK 24-22-00-860-813.

D. Do a test of the autoslat system indicator light

SUBTASK 27-83-00-860-001

(1) Make sure that these circuit breakers are closed:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	5	C01204	SMYD-1 CMPTR DC

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	5	C01206	SMYD-2 CMPTR DC

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-83-00-820-001

(2) Make sure the AUTOSLAT FAIL light on the overhead panel P5-3 is off.

SUBTASK 27-83-00-720-001

(3) Push and release the AUTOSLAT FAIL light switch.

(a) Make sure the AUTOSLAT FAIL light comes on when the light switch is pushed then goes off when released.

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SUBTASK 27-83-00-720-002

(4) Put the LIGHTS switch in the TEST position. Make sure these lights come on:

NOTE: See (Figure 501) for the location of the lights and switch.

(a) The MASTER CAUTION lights.

(b) The FLT CONT light.

(c) The AUTOSLAT FAIL light.

SUBTASK 27-83-00-860-002

(5) Put the LIGHTS switch in the BRT position.

SUBTASK 27-83-00-720-003

(6) Push the MASTER CAUTION light switch. Make sure these lights go off:

(a) The MASTER CAUTION lights.

(b) The FLT CONT light.

(c) The AUTOSLAT FAIL light.

SUBTASK 27-83-00-720-004

(7) Push the master caution annunciator panel.

(a) Make sure the AUTOSLAT FAIL light stays off.

SUBTASK 27-83-00-720-005

(8) Make sure the autoslat fault display works properly when autoslat 1 is disabled:

(a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

(b) Push the master caution annunciator panel. Make sure these lights come on:

1) The MASTER CAUTION lights.

2) The FLT CONT light.

3) The AUTOSLAT FAIL light.

(c) Push the MASTER CAUTION switch light. Make sure these lights go off:

1) The MASTER CAUTION lights.

2) The FLT CONT light.

3) The AUTOSLAT FAIL light.

SUBTASK 27-83-00-720-006

(9) Make sure the autoslat fault display works properly when autoslat 1 and 2 are disabled:

(a) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2

(b) Push the master caution annunciator panel. Make sure these lights come on:

1) The MASTER CAUTION lights.

2) The FLT CONT light.

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3) The AUTOSLAT FAIL light.

(c) Push the MASTER CAUTION light switch. Make sure these actions occur:

1) The MASTER CAUTION lights go off.

2) The FLT CONT light goes off.

3) The AUTOSLAT FAIL light stays on.

SUBTASK 27-83-00-720-007

(10) Make sure the autoslat fault display works properly when autoslat 2 is disabled:

(a) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

(b) Make sure the AUTOSLAT FAIL light goes off.

(c) Push the master caution annunciator panel. Make sure these lights come on:

1) The MASTER CAUTION lights.

2) The FLT CONT light.

3) The AUTOSLAT FAIL light.

(d) Push the MASTER CAUTION light switch. Make sure these lights go off:

1) The MASTER CAUTION lights.

2) The FLT CONT light.

3) The AUTOSLAT FAIL light.

SUBTASK 27-83-00-860-003

(11) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2

E. Return the airplane to its normal condition.

SUBTASK 27-83-00-840-001

(1) If it is no longer necessary, do this task: Remove External Power, TASK 24-22-00-860-814.

——————— END OF TASK ———————

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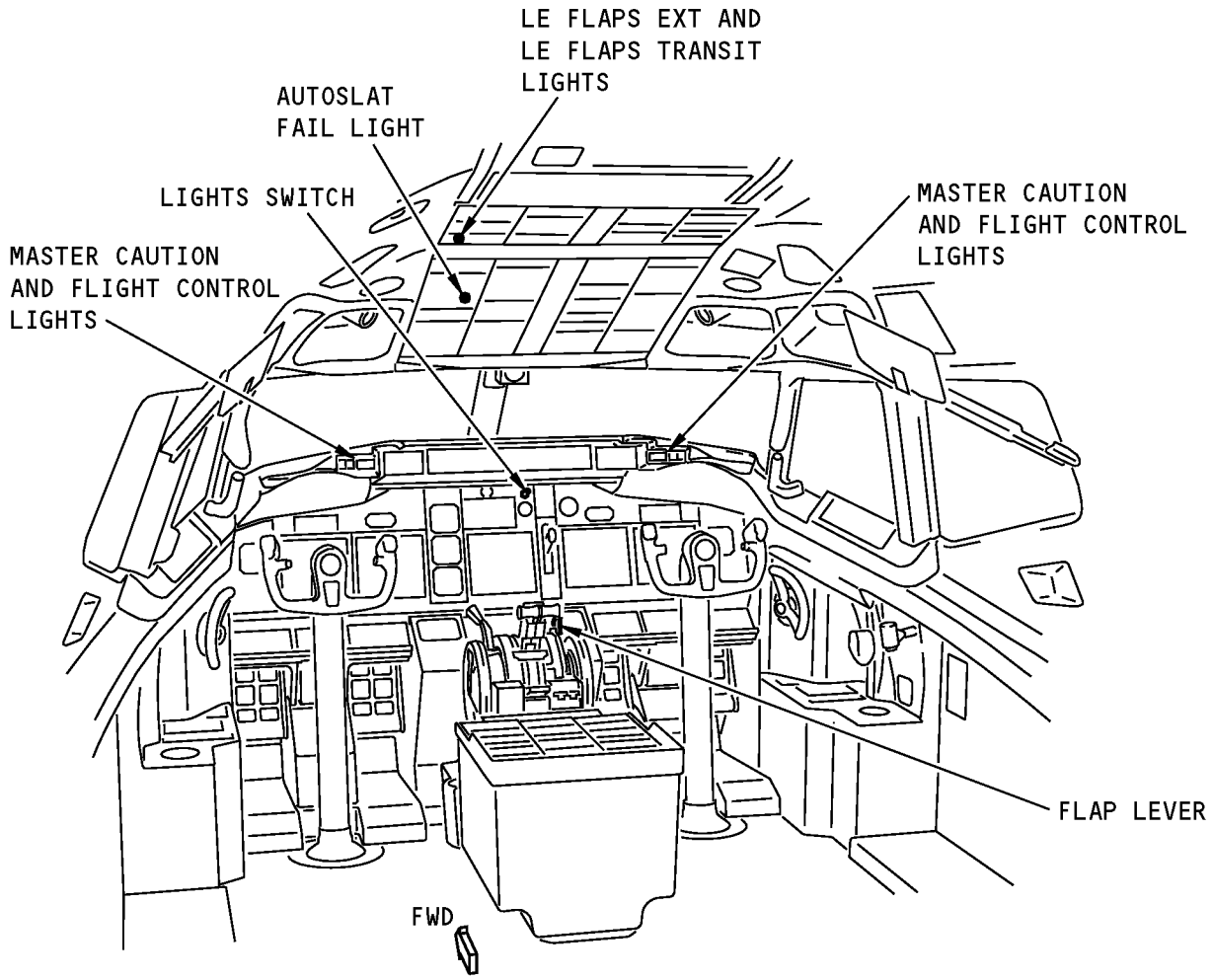

FLIGHT COMPARTMENT

Leading Edge Autoslat System Test
Figure 501/27-83-00-990-801

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TASK 27-83-00-710-801

3. Leading Edge Autoslat System - Functional Test

(Figure 502)

A. General

(1) This procedure is a scheduled maintenance task.

B. References

Reference	Title
24-22-00-860-813	Supply External Power (P/B 201)
24-22-00-860-814	Remove External Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-09-00-840-802	Return the Airplane Systems Back to Their Normal On Ground Condition (P/B 201)
32-09-00-860-801	Put the Airplane in the Air Mode (P/B 201)

C. Location Zones

Zone	Area
117	Electrical and Electronics Compartment - Left
118	Electrical and Electronics Compartment - Right
211	Flight Compartment - Left
212	Flight Compartment - Right
500	Left Wing
600	Right Wing

D. Access Panels

Number	Name/Location
117A	Electronic Equipment Access Door

E. Prepare for the Procedure

NOTE: FOR THE DURATION OF THIS TEST, AIRSPEED MUST NOT BE SIMULATED.

SUBTASK 27-83-00-480-002

(1) Do this task: Supply External Power, TASK 24-22-00-860-813.

SUBTASK 27-83-00-860-004

(2) For the hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 27-83-00-010-001

(3) To gain access to the electronic equipment center.

Open this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

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F. Do a test of the autoslat operation

SUBTASK 27-83-00-860-005

(1) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	4	C01392	STICK SHAKER LEFT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	6	C01393	STICK SHAKER RIGHT

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-83-00-840-002

WARNING: KEEP PERSONS AND EQUIPMENT AWAY FROM THE LEADING EDGE SLATS WHEN RUNNING THIS TEST. THE LEADING EDGE SLATS WILL MOVE. INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Make sure there are no personnel or equipment near the leading edge slats.

SUBTASK 27-83-00-820-002

(3) Turn the Left AOA sensor counterclockwise and the right AOA sensor clockwise to 30 degrees (Figure 502). Do these steps on both SMYDs to determine when the AOA sensor angles show 30 degrees airplane nose up:

(a) Push the ON/OFF switch on the stall management yaw damper (SMYD).

(b) Push the down arrow switch on the SMYD until the display shows GROUND TESTS?.

(c) Push the YES switch.

(d) Push the down arrow switch on the SMYD until the display shows ANALOG INPUTS?.

(e) Push the YES switch.

1) Make sure the display shows AOA SENSOR.

(f) Push the YES switch.

(g) The display will show AOA and the angle of the AOA sensor.

SUBTASK 27-83-00-860-006

(4) Move the flaps to the 1 position.

(a) Make sure that the leading edge slats move to the flaps 1 (mid-extend) position.

SUBTASK 27-83-00-860-007

(5) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

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SUBTASK 27-83-00-840-003

WARNING: MAKE SURE YOU DO THE STEPS TO PREPARE THE SYSTEMS FOR AIR MODE CORRECTLY. IF YOU DO NOT FOLLOW THESE INSTRUCTIONS, INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(6) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

(a) Make sure the slats move to the full extend position.

(b) Make sure the LE FLAPS EXT light is on and the LE FLAPS TRANSIT light is off.

SUBTASK 27-83-00-860-009

(7) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

(a) Make sure the slats move to the flaps 1 (mid-extend) position.

SUBTASK 27-83-00-860-010

(8) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2

(a) Make sure the slats move to the full extend position.

(b) Make sure the LE FLAPS EXT light is on and the LE FLAPS TRANSIT light is off.

SUBTASK 27-83-00-860-011

(9) Open this circuit breaker and install safety tag:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2

(a) Make sure the slats move to the flaps 1 (mid-extend) position.

SUBTASK 27-83-00-820-003

(10) Turn the Left and right AOA vanes to 0 degrees (Figure 502).

SUBTASK 27-83-00-820-004

(11) Put the flap lever in the UP position.

G. Return the airplane to its normal condition.

SUBTASK 27-83-00-840-005

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-2

Row	Col	Number	Name
E	4	C01392	STICK SHAKER LEFT

F/O Electrical System Panel, P6-1

Row	Col	Number	Name
B	6	C01393	STICK SHAKER RIGHT

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F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-83-00-840-010

(2) Do this task: Return the Airplane Systems Back to Their Normal On Ground Condition, TASK 32-09-00-840-802.

SUBTASK 27-83-00-840-007

(3) Push the ON/OFF switch on the SMYD to turn off the SMYD display.

(a) Push the YES switch to verify that you want to turn off the display.

SUBTASK 27-83-00-840-008

(4) If hydraulic power is no longer necessary, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-83-00-840-009

(5) If electrical power is no longer necessary, do this task: Remove External Power, TASK 24-22-00-860-814.

SUBTASK 27-83-00-940-001

(6) Close this access panel:

Number	Name/Location
117A	Electronic Equipment Access Door

——————— END OF TASK ———————

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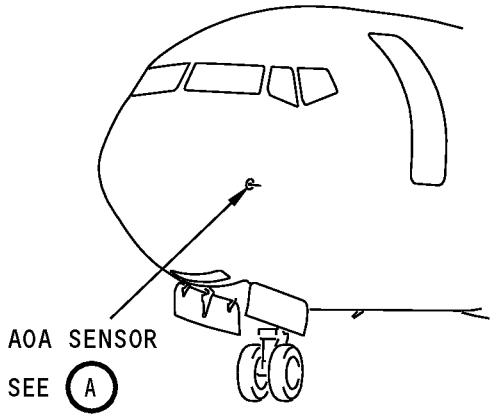

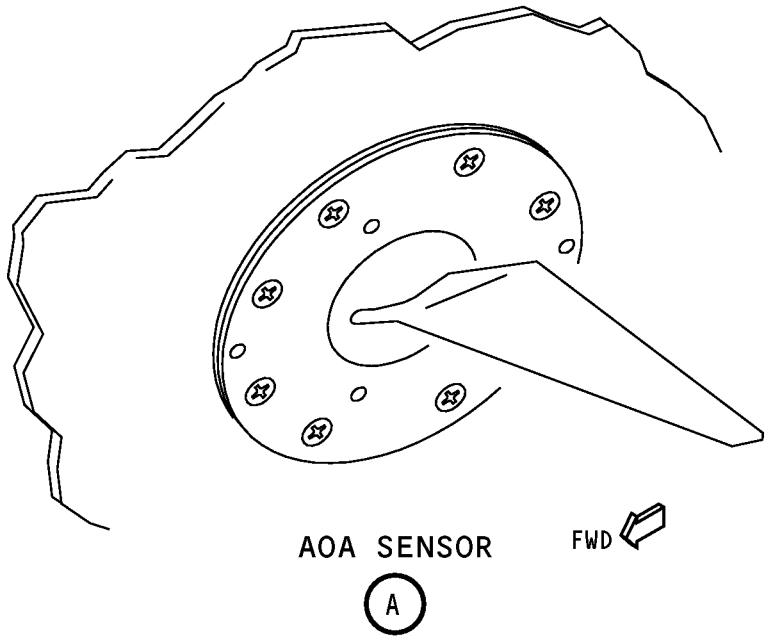

NOTE: LEFT AOA SENSOR IS SHOWN, RIGHT AOA SENSOR IS OPPOSITE.

Angle of Attack (AOA) Sensor
Figure 502/27-83-00-990-802

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AUTOSLAT CONTROL VALVE - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Removal of the autoslat control valve.

(2) Installation of the autoslat control valve.

B. There are solenoids installed on the autoslat control valve. It is not necessary to remove the solenoids to remove the control valve.

TASK 27-83-21-000-801

2. Autoslat Control Valve Removal

(Figure 401)

A. References

Reference	Title
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)

B. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

C. Access Panels

Number	Name/Location
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

D. Prepare for the Removal

SUBTASK 27-83-21-480-001

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-83-21-860-001

(2) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 27-83-21-010-001

(3) To gain access to the autoslat control valve,

Remove this access panel:

Number	Name/Location
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

E. Autoslat Control Valve Removal

SUBTASK 27-83-21-860-002

(1) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2

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Row	Col	Number	Name
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-83-21-020-001

(2) Disconnect the electrical connectors [6] and [7] from the autoslat control valve [1].

SUBTASK 27-83-21-480-002

(3) Put a bucket or other suitable container to collect hydraulic fluid under the autoslat control valve [1].

SUBTASK 27-83-21-020-002

(4) Disconnect the hydraulic lines [4], [5], [8] and [9] from the autoslat control valve [1].

SUBTASK 27-83-21-020-003

(5) Remove the bolts [2] and washers [3] and remove the autoslat control valve [1].

SUBTASK 27-83-21-480-003

(6) Install caps on the hydraulic lines [4], [5], [8] and [9].

SUBTASK 27-83-21-480-004

(7) Install plugs in the hydraulic ports on the autoslat control valve [1].

——————— END OF TASK ———————

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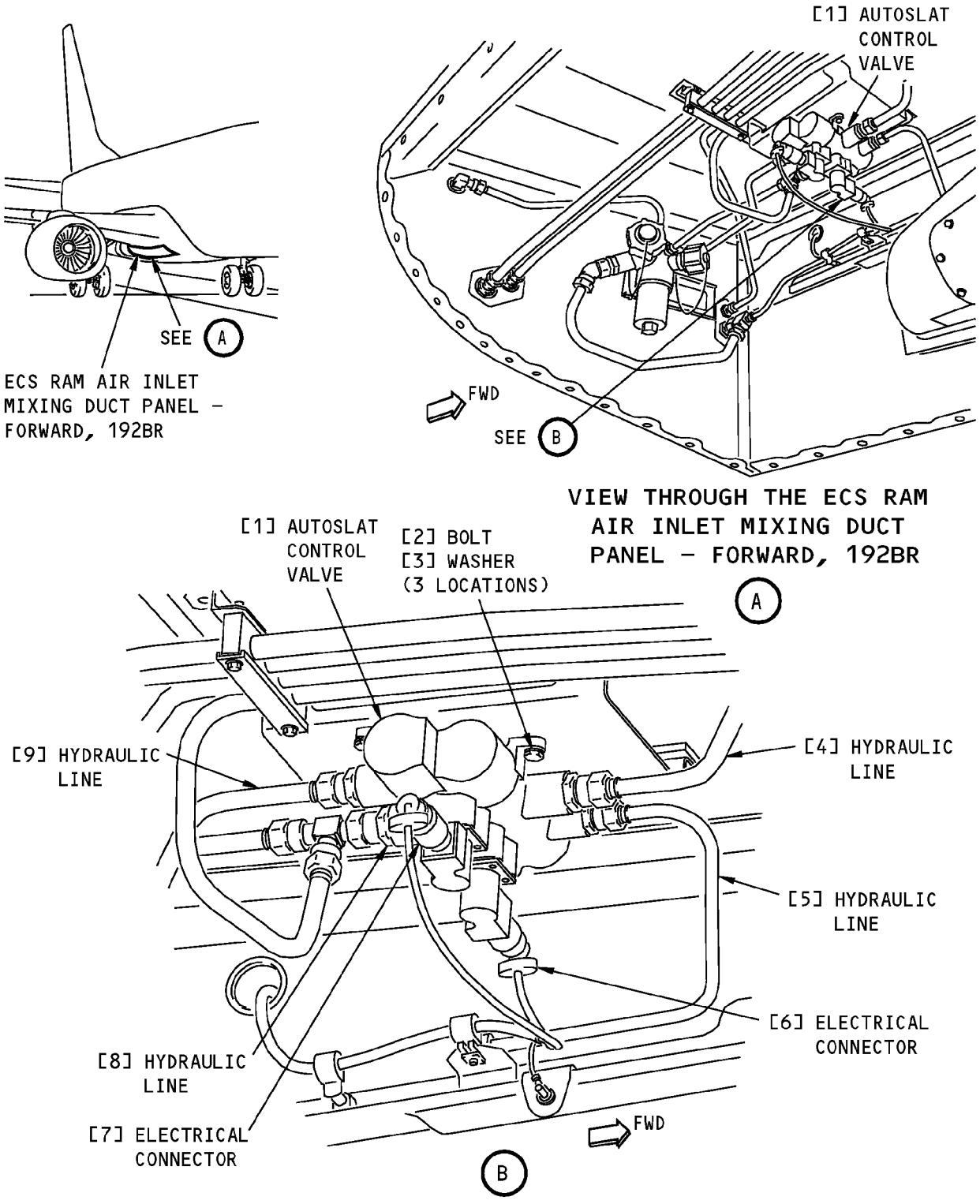

Autoslat Control Valve Installation
Figure 401/27-83-21-990-801

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TASK 27-83-21-400-801

3. Autoslat Control Valve Installation

(Figure 401)

A. References

Reference	Title
12-12-00-610-801	Hydraulic Reservoir Servicing (P/B 301)
27-83-00-710-801	Leading Edge Autoslat System - Functional Test (P/B 501)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)
32-00-01-480-801	Landing Gear Downlock Pins Installation (P/B 201)
SWPM 20-60-03	Special Protection of Electrical Connectors
WDM D6-54446	Wiring Diagram Manual

B. Consumable Materials

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
G50171	Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026	

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Autoslat control valve	27-83-21-01-005	HAP ALL

D. Location Zones

Zone	Area
192	Lower Wing-To-Body Fairing - Under Wing Box

E. Access Panels

Number	Name/Location
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

F. Prepare for the Installation

SUBTASK 27-83-21-480-005

WARNING: MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the main and nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 27-83-21-860-003

(2) Make sure there is no hydraulic power. If there is, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

G. Autoslat Control Valve Installation

SUBTASK 27-83-21-420-001

(1) Install the autoslat control valve [1]:

(a) Make sure the mating surface of the autoslat control valve [1] and mounting bracket are clean.

(b) Apply sealant, A00247 on the bolt [2] threads.

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(c) Put the autoslat control valve [1] in its position on the bracket [2].

(d) Install the bolts [2] and washers [3] that attach the autoslat control valve [1].

(e) Make sure the bonding resistance between the autoslat control valve [1] and the structure is less than 0.0025 ohms (WDM D6-54446).

(f) Remove the caps from the hydraulic lines [4], [5], [8] and [9] and the plugs from the ports on the autoslat control valve [1].

SUBTASK 27-83-21-420-002

(2) Connect the hydraulic lines [4], [5], [8], and [9] to the autoslat control valve [1].

SUBTASK 27-83-21-210-002

(3) Before you connect the electrical connectors [6] and [7], examine the connectors for corrosion.

WARNING: DO THE STEPS BELOW IF THE AIRPLANE OPERATES AT AIRPORTS WHERE DEICING FLUID THAT CONTAIN POTASSIUM FORMATE IS USED. ALSO DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTOR IS PART OF A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171 to the connectors (SWPM 20-60-03).

SUBTASK 27-83-21-420-003

(4) Connect the electrical connectors [6] and [7] to the autoslat control valve [1].

SUBTASK 27-83-21-860-004

(5) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-2

Row	Col	Number	Name
B	14	C01070	FLIGHT CONTROL AUTOSLAT DC 2
C	14	C01068	FLIGHT CONTROL AUTOSLAT DC 1

SUBTASK 27-83-21-610-001

(6) If it is necessary for the hydraulic system, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

SUBTASK 27-83-21-740-001

(7) Do this task: Leading Edge Autoslat System - Functional Test, TASK 27-83-00-710-801.

SUBTASK 27-83-21-210-001

(8) Make sure there are no hydraulic fluid leaks at the autoslat control valve [1].

H. Put the Airplane Back to Its Usual Condition

SUBTASK 27-83-21-940-001

(1) Install this access panel:

Number	Name/Location
192BR	ECS Ram Air Inlet Mixing Duct Panel - Forward

END OF TASK

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LEADING EDGE FLAP AND SLAT POSITION INDICATING SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure contains an operational test of the leading edge flap and slat position indicating system.

TASK 27-88-00-710-801

2. Operational Test - Leading Edge Flap and Slat Position Indicating System

(Figure 501)

A. General

(1) The trailing edge flap position indicating system must be correctly adjusted before you do the operational test. The trailing edge indicators are used to find the flap position.

B. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

D. Prepare for the Operational Test

SUBTASK 27-88-00-860-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-88-00-860-002

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) To pressurize hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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E. Operational Test of the Leading Edge Flap and Slat Position Indicating System

SUBTASK 27-88-00-710-001

(1) Do the operational test of the leading edge flap and slat position indicating system:

(a) Move the flap control lever to the FLAP UP position.

1) Make sure each flap and slat is in the retract position and align with the wing structure.

2) Make sure all the leading edge flap lights on the center instrument panel, P2, and the aft overhead panel, P5, are off.

3) Set the master dim and test lights switch, on the P1 panel, to the DIM position.

4) Push the test switch below the leading edge devices annunciator on the aft overhead panel, P5.

5) Make sure all the lights are on.

6) Release the test switch.

7) Make sure all the lights go off.

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(b) Move the flap control lever to the 1-unit detent position.

1) While the trailing edge flaps start to extend, make sure the amber LE FLAPS TRANSIT light on the center instrument panel, P2, comes on.

2) When each flap and slat starts to extend, make sure the TRANSIT amber lights on the aft overhead panel, P5, come on.

3) Do these checks when the leading edge flaps are in the full extend position;

a) Make sure the annunciator TRANSIT lights go off.

b) Make sure the FULL EXT green lights come on.

4) Do these checks when the leading edge slats are at the extend position;

a) Make sure the annunciator TRANSIT lights go off.

b) Make sure the EXT green lights come on.

(c) Move the flap control lever to the 5-unit detent position.

1) Make sure there is no change to the position of the leading edge devices or the indicator lights.

(d)

HAP 001-013, 015-026, 028-036, 101-999

Move the flap control lever to the 10-unit detent position.

HAP 037-054

Move the flap control lever to the 30-unit detent position.

HAP ALL

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1)

HAP 001-013, 015-026, 028-036, 101-999

Do these checks while the trailing edge flaps extend to the 10 units position;

HAP 037-054

Do these checks while the trailing edge flaps extend to the 30 units position;

HAP ALL

a) Make sure the LE FLAPS EXT light goes off.

b) Make sure the LE FLAPS TRANSIT light comes on.

2) Do these checks while the leading edge slats 1 thru 8 start to extend;

a) Make sure the slat EXT green lights go off.

b) Make sure the slat TRANSIT lights come on.

3) Do these checks when the leading edge slats are in the full extend position;

a) Make sure the slat TRANSIT lights go off.

b) Make sure the slat FULL EXT green lights come on.

4) Do these checks when all the annunciator green lights are on;

a) Make sure the LE FLAPS TRANSIT light goes on.

b) Make sure the LE FLAPS EXT light comes on.

(e) Move the flap control lever to the 40-unit detent position.

(f)

HAP 001-013, 015-026, 028-036, 101-999

Move the flap control lever to the 10-unit detent position.

HAP 037-054

Move the flap control lever to the 30-unit detent position.

HAP ALL

1) Make sure there is no change in the position of the leading edge devices or the indicator lights.

(g)

HAP 001-013, 015-026, 028-036, 101-999

Move the flap control lever to the 5-unit detent position.

HAP 037-054

Move the flap control lever to the 25-unit detent position.

HAP ALL

1) While the leading edge slats retract to the extend position, make sure the amber TRANSIT lights come on.

2) Do these checks when the leading edge slats are in the extend position;

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a) Make sure the slat TRANSIT lights go off.

b) Make sure the slat EXT lights come on.

(h) Move the flap control lever to the 1-unit detent position.

1) Make sure there is no change in the position of the leading edge devices or the indicator lights.

(i) Move the flap control lever to the FLAP UP detent position.

1) Make sure the leading edge flaps and slats move to the retract position.

2) Do these checks when each leading edge devices is at the retract position;

a) Make sure the amber TRANSIT lights go off.

b) Make sure no green lights come on.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-88-00-860-003

(1) To remove power from hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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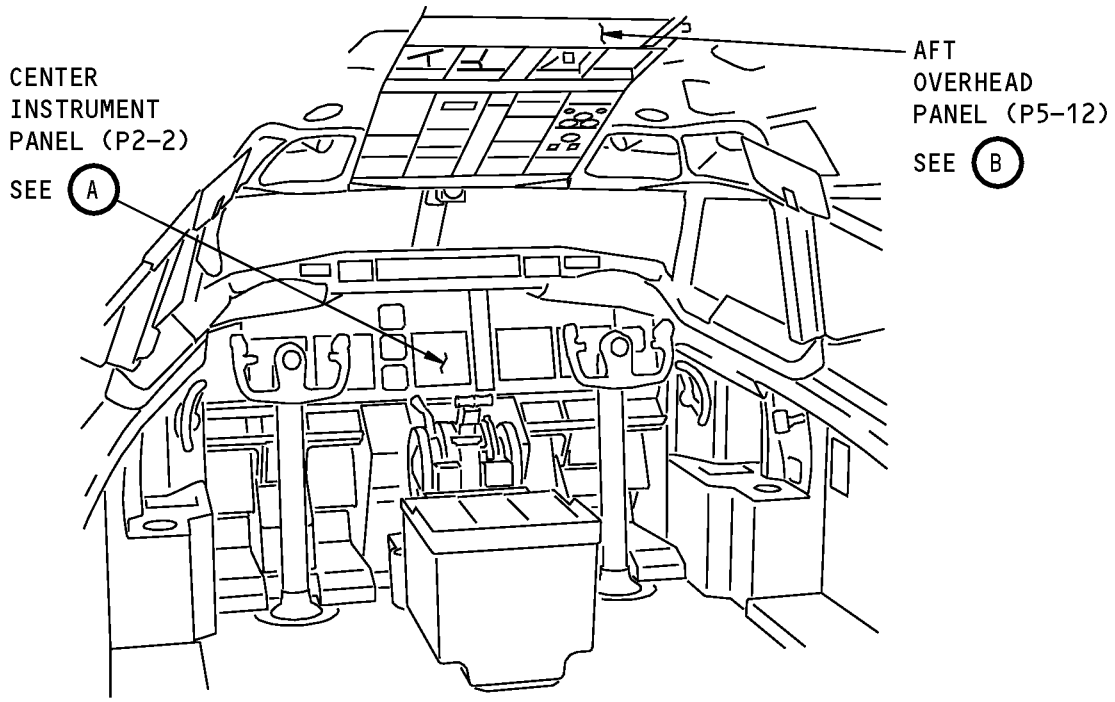
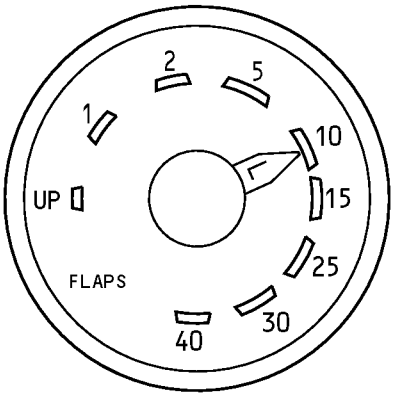


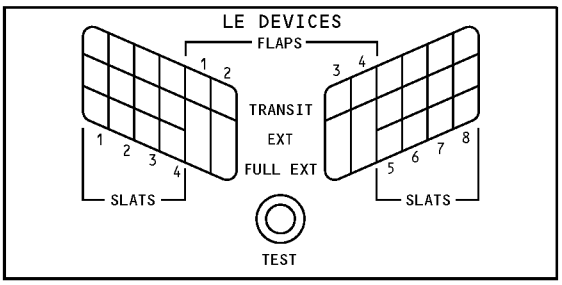
FLIGHT COMPARTMENT



LE FLAPS TRANSIT A	LE FLAPS EXT G

CENTER INSTRUMENT PANEL (P2-2)

A



AFT OVERHEAD PANEL (P5-12)

B

Leading Edge Flap and Slat Position Indicating Test
Figure 501/27-88-00-990-801

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LEADING EDGE FLAP AND SLAT PROXIMITY SENSOR - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) A removal of the leading edge slat proximity sensor

(2) An installation of the leading edge slat proximity sensor

(3) A removal of the leading edge flap proximity sensor

(4) An installation of the leading edge flap proximity sensor.

B. There are two proximity sensors for leading edge slats 1 and 8, and three for slats 2 thru 7. Leading edge slats 1 and 8 each have an inboard and an outboard proximity sensors. Leading edge slats 2 thru 7 each have and inboard, retract and outboard proximity sensors.

C. There are two proximity sensors for each leading edge flap.

D. This procedure is applicable for all proximity sensors on the leading edge flaps and slats.

TASK 27-88-11-000-801

2. Leading Edge Slat Proximity Sensor Removal

(Figure 401)

A. References

Reference	Title
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
27-81-00-860-803	Leading Edge Flaps and Slats Extension (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
521	Left Wing - Leading Edge to Front Spar
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
621	Right Wing - Leading Edge to Front Spar
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

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D. Access Panels

Number	Name/Location
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521JB	Lower Leading Edge Access Panel - Slat Station 170.20
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621PB	Lower Leading Edge Access Panel - Slat Station 289.18
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621VB	Lower Leading Edge Access Panel - Slat Station 415.79
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04

E. Prepare for the Removal

SUBTASK 27-88-11-860-006

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1)

HAP 001-013, 015-026, 028-036, 101-999

Extend the leading edge slats to the 10-unit position with primary control. To extend the leading edge slats, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

HAP ALL

Extend the leading edge slats to the 30-unit position with primary control. To extend the leading edge slats, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803

SUBTASK 27-88-11-480-001

WARNING: CAREFULLY INSTALL THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Install the lockout set, SPL-1734 on the actuators of the adjacent leading edge flaps and slats. To do this, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

SUBTASK 27-88-11-010-001

(3) Remove the applicable access panels to get access to the slat proximity sensor [4]:

(a) For the left wing, open these access panels:

Number	Name/Location
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521JB	Lower Leading Edge Access Panel - Slat Station 170.20
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62

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(Continued)

Number	Name/Location
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05

(b) For the right wing, open these access panels:

Number	Name/Location
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621PB	Lower Leading Edge Access Panel - Slat Station 289.18
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621VB	Lower Leading Edge Access Panel - Slat Station 415.79
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04

F. Leading Edge Slat Proximity Sensor Removal

SUBTASK 27-88-11-020-001

(1) Do these steps to remove the inboard proximity sensor [4]:

NOTE: The inboard proximity sensors [24] are installed on slats 1 thru 8.

(a) Disconnect the wires at the splice.

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(b) For slat No. 1 or 8, remove the nuts [8], washers [7], spacer [1], shim [3], and bolts [5].

(c) For slats No. 2, 3, 6 or 7, remove the nuts [8], washers [7], spacer [2], shim [3] and bolts [5].

(d) For slat No. 4 or 5, remove the nuts [8], washers [7], shim [3] and bolts [15].

(e) Remove the proximity sensor [4].

SUBTASK 27-88-11-020-002

(2) Do these steps to remove the outboard proximity sensor [4]:

NOTE: The outboard proximity sensors [24] are installed on slats 1 thru 8.

(a) Disconnect the wires at the splice.

(b) Remove the spacer [1], shim [3], washers [7] and bolts [16].

(c) Remove the proximity sensor [4].

SUBTASK 27-88-11-020-003

(3) Do these steps to remove the retract proximity sensor [24]:

NOTE: The retract proximity sensors [24] are installed on slats 2, 3, 4, 5, 6 and 7.

(a) Remove the slat actuator door [23] from the slat actuator to get access to the mid proximity sensor [24];

1) Remove the nuts [19], washers [18] and bolts [17].

2) Remove the nuts [22], washers [21], and bolts [20] that attach the slat actuator door [23] and the bracket to the slat actuator.

3) Remove the slat actuator door [23].

4) Temporarily install the bolts [20], washers [21] and nuts [22] to attach the bracket to the slat actuator.

(b) Disconnect the electrical connector from the retract proximity sensor [24].

(c) Remove the fasteners [25] to remove the retract proximity sensor [24].

——————— END OF TASK ———————

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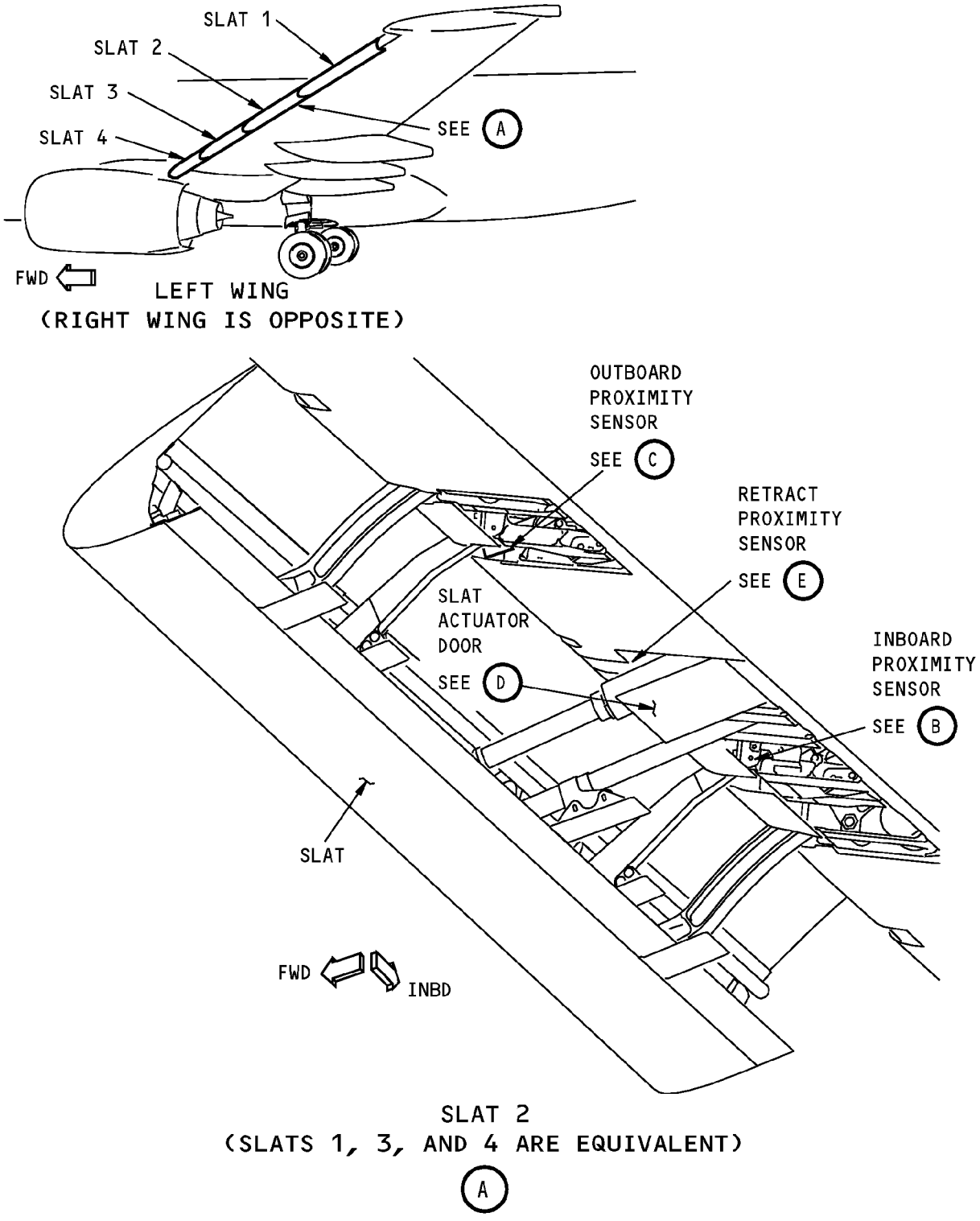

Leading Edge Slat Proximity Sensor Installation
Figure 401 (Sheet 1 of 5)/27-88-11-990-801

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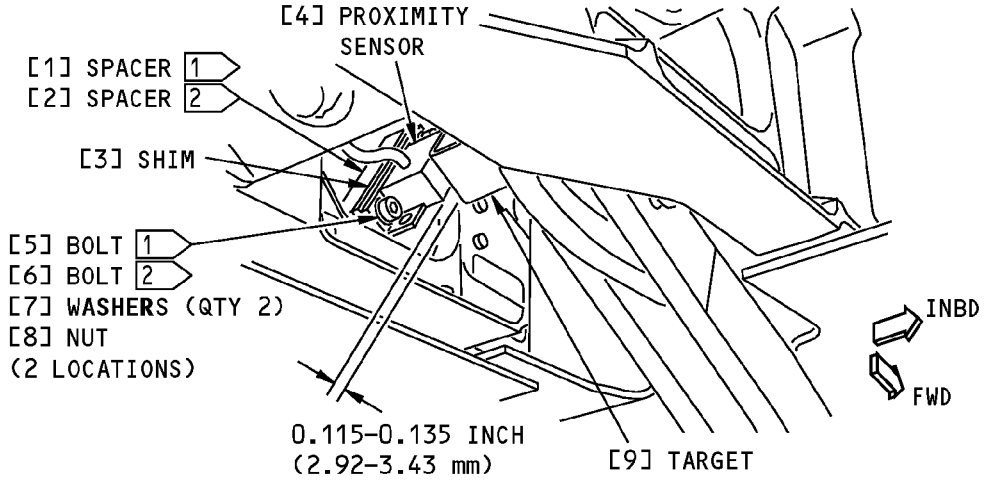
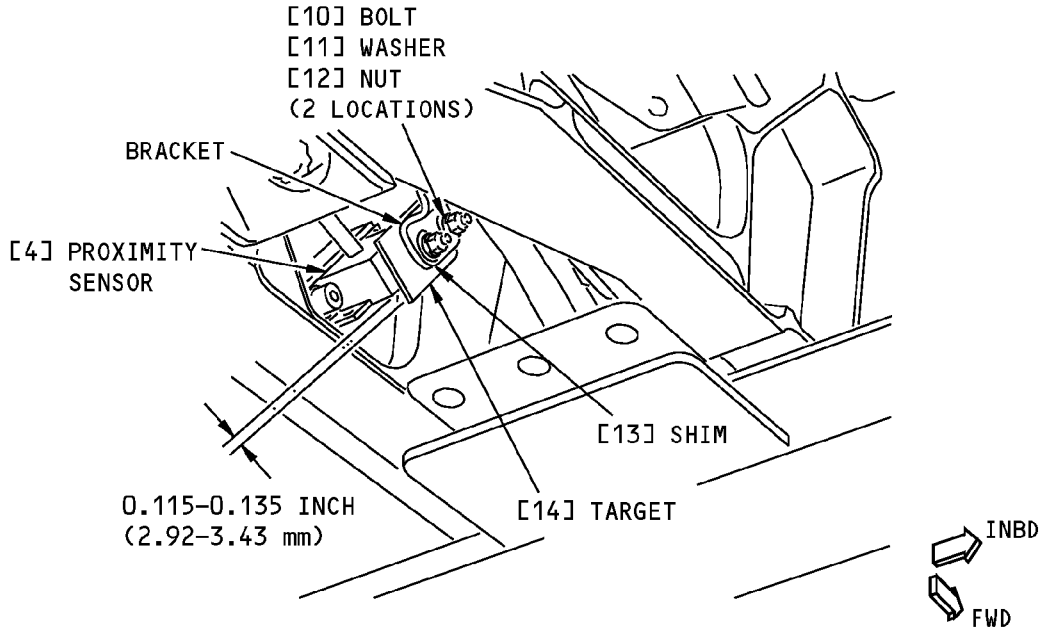


SLAT 1 INBOARD PROXIMITY SENSOR
(SLATS 2 AND 3 INBOARD PROXIMITY SENSORS ARE EQUIVALENT)
(SLAT IN THE EXTEND POSITION)

B



SLAT 1 INBOARD PROXIMITY SENSOR
(SLAT IN THE RETRACT POSITION)

B

1 SLAT 1
2 SLATS 2 AND 3

Leading Edge Slat Proximity Sensor Installation
Figure 401 (Sheet 2 of 5)/27-88-11-990-801

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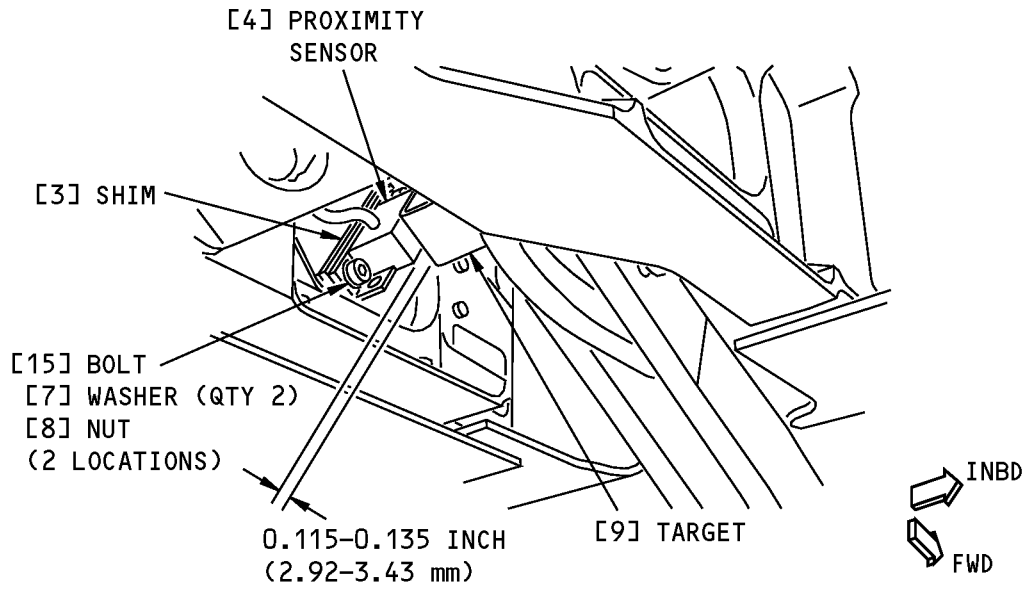

SLAT 4 INBOARD PROXIMITY SENSOR
(SLAT IN THE EXTEND POSITION)

B

Leading Edge Slat Proximity Sensor Installation
Figure 401 (Sheet 3 of 5)/27-88-11-990-801

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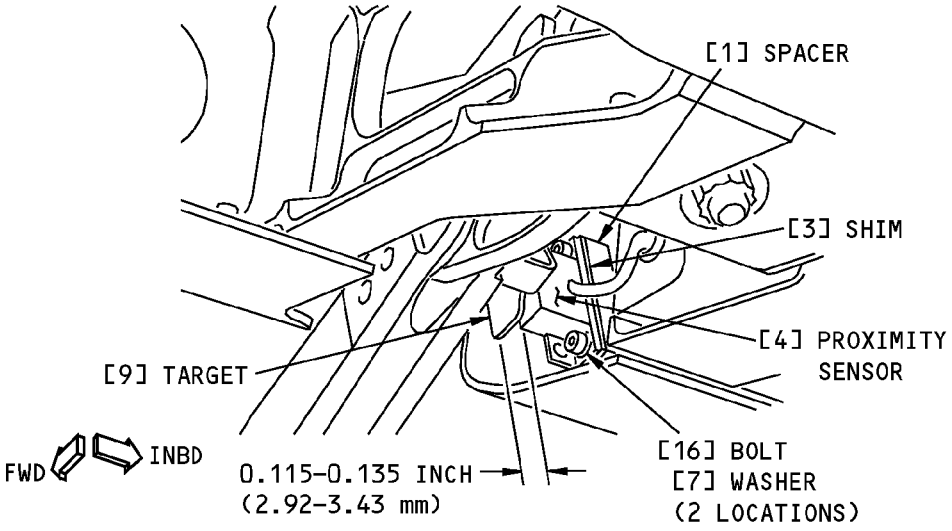
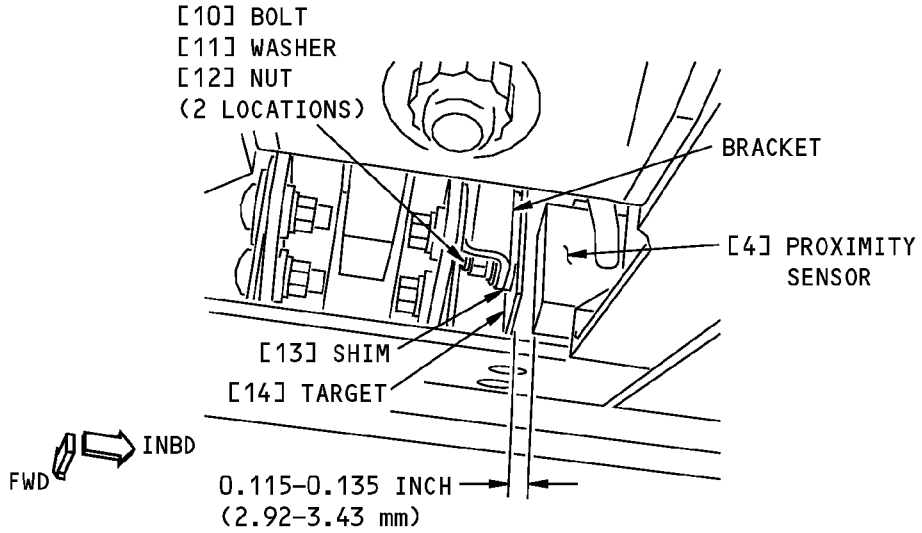


SLAT 2 OUTBOARD PROXIMITY SENSOR
(SLATS 1, 3 AND 4 OUTBOARD PROXIMITY SENSORS ARE EQUIVALENT)
(SLAT IN THE FULL EXTEND POSITION)

C



SLAT 1 OUTBOARD PROXIMITY SENSOR
(SLAT IN THE RETRACT POSITION)

C

Leading Edge Slat Proximity Sensor Installation
Figure 401 (Sheet 4 of 5)/27-88-11-990-801

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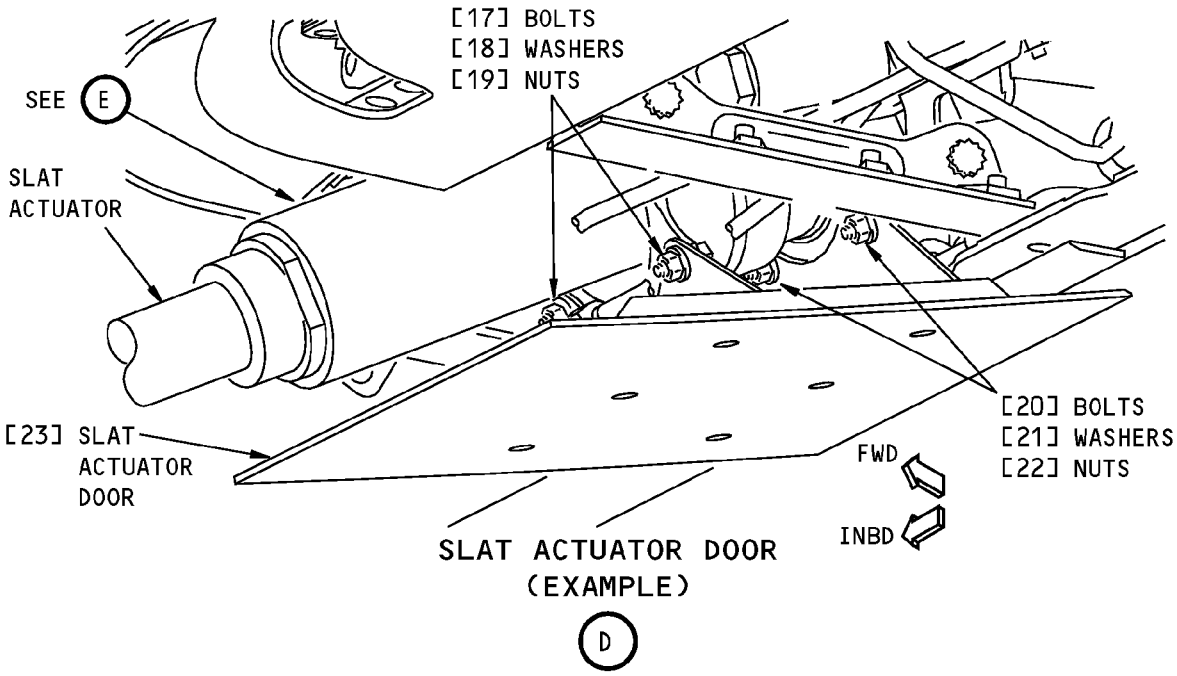
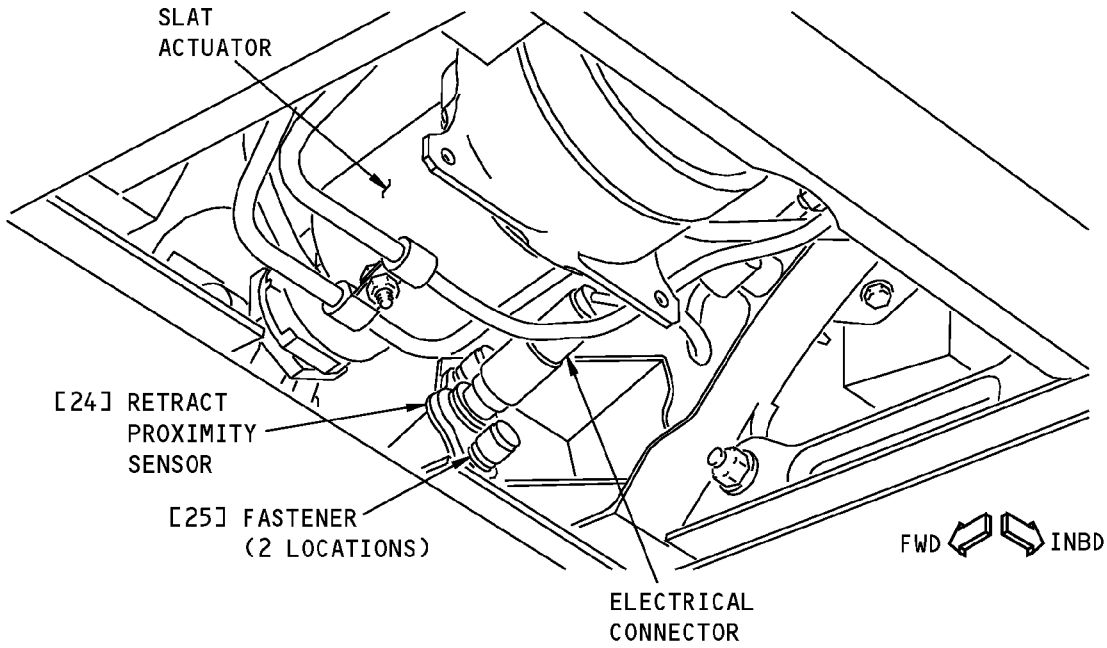


SLAT ACTUATOR DOOR
(EXAMPLE)

D



SLAT 2 RETRACT PROXIMITY SENSOR
(SLATS 3 AND 4 RETRACT PROXIMITY SENSORS ARE EQUIVALENT)

E

Leading Edge Slat Proximity Sensor Installation
Figure 401 (Sheet 5 of 5)/27-88-11-990-801

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TASK 27-88-11-400-801

3. Leading Edge Slat Proximity Sensor Installation

(Figure 401)

A. References

Reference	Title
27-81-00-080-801	Leading Edge Flap and Slat Locks Removal (P/B 201)
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
27-88-11-700-801	Leading Edge Flap and Slat Proximity Sensor Test (P/B 501)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00165	Adhesive - Neoprene	BMS5-7 Type I
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
521	Left Wing - Leading Edge to Front Spar
522	Left Wing - Slat No. 4
523	Left Wing - Slat No. 3
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
621	Right Wing - Leading Edge to Front Spar
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

E. Access Panels

Number	Name/Location
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521JB	Lower Leading Edge Access Panel - Slat Station 170.20

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(Continued)

Number	Name/Location
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621PB	Lower Leading Edge Access Panel - Slat Station 289.18
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621VB	Lower Leading Edge Access Panel - Slat Station 415.79
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04

F. Leading Edge Slat Proximity Sensor Installation

SUBTASK 27-88-11-420-001

(1) Do these steps to install the inboard proximity sensor [4]:

(a) Apply a thin coat of compound, C00913 to the threads of the bolts [5] or [6].

(b) For slat No. 1 or 8, install the bolts [5], washers [7], shim [3], spacer [1] and nuts [8].

(c) For slats No. 2, 3, 6 or 7, install the bolts [6], washers [7], shim [3], spacer [2] and nuts [8].

(d) For slat No. 4 or 5, install the bolts [15], washers [7] shim [3] and nuts [8].

1) Find the same color wires and make a splice.

(e) Attach the wires together to make a bundle.

SUBTASK 27-88-11-420-002

(2) Install the outboard proximity sensor [4].

(a) Apply a thin coat of compound, C00913 to the threads of the bolts [16].

(b) Install the bolts [16], washers [7], shim [3] and spacer [1].

(c) Find the same color wires and make a splice.

(d) Attach the wires together to make a bundle.

SUBTASK 27-88-11-420-003

(3) Do these steps to install the retract proximity sensor [24]:

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(a) Apply a thin coat of compound, C00913 to the pilot diameter and fay surface of the retract proximity sensor [24].

(b) Install the retract proximity sensor [24] with fasteners [25].

(c) Connect the electrical connector to the retract proximity sensor [24].

(d) Install the slat actuator door [23] to the slat actuator;

1) Remove the nuts [22], washers [21] and bolts [20] that attach the bracket to the slat actuator.

a) If there are three washers installed on the bolts [20], discard the thicker aluminum washer.

2) Put the slat actuator door [23] in its position on the slat actuator.

3) Install bolts [20], washers [21] and nuts [22] that attach the slat actuator door [23] and the bracket to the slat actuator.

4) Install the bolts [17], washers [18] and nuts [19] that attach the slat actuator door [23] to the slat actuator.

SUBTASK 27-88-11-220-001

(4) With the leading edge slat in the full extend position, make sure the gap between the outboard proximity sensor [4] and the target [9] is 0.115-0.135 inch (2.92-3.43 millimeters).

(a) If the gap is out of tolerance, adjust the gap between the proximity sensor [4] and the target [9].

1) Remove the bolts [16], washers [7], shim [3] and spacer [1].

2) Add or remove shim [3] as it is necessary to get the correct gap between the proximity sensor [4] and the target [9].

3) Install the bolts [16], washers [7], and spacer [1].

(b) Bond shims [3] and spacer [1] to the bracket with adhesive, A00165.

SUBTASK 27-88-11-080-003

WARNING: REMOVE THE LOCK FROM LEADING EDGE FLAP ACTUATOR CAREFULLY TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(5) Remove the lockout set, SPL-1734 from the actuators of the leading edge flap and slats. To do this, do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.

SUBTASK 27-88-11-860-007

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Retract the leading edge slat to the 1-unit detent position with primary control. To do this, do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

SUBTASK 27-88-11-480-004

WARNING: MAKE SURE TO INSTALL THE LEADING EDGE FLAP AND SLAT ACTUATORS LOCKOUT SET TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

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(WARNING PRECEDES)

(7) Install the lockout set, SPL-1734 on the actuators of the adjacent leading edge flaps and slats. To do this, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

SUBTASK 27-88-11-220-002

(8) With the slat in the 1-unit detend position, make sure the gap between the inboard proximity sensor [4] and the target [9] is 0.115-0.135 inch (2.92-3.43 millimeters).

(a) If the gap is out of tolerance, adjust the gap between the proximity sensor [4] and the target [9].

1) Remove the bolts [5] or [6], washers [7], shim [3], spacer [1] or [2] and nuts [8].

2) Add or remove shim [3] as it is necessary to get the correct gap between the proximity sensor [4] and the target [9].

3) Install the bolts [5] or [6], washers [7], spacer [1] or [2], and nuts [8].

(b) Bond shims [3] and spacer [1] or [2] to the bracket with adhesive, A00165.

SUBTASK 27-88-11-080-004

WARNING: REMOVE THE LOCK FROM LEADING EDGE FLAP ACTUATOR CAREFULLY TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(9) Remove the lockout set, SPL-1734 from the actuators of the leading edge flap and slats. To do this, do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.

SUBTASK 27-88-11-860-008

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(10) Retract the leading edge slats to the UP position with primary control. To do this, do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

SUBTASK 27-88-11-480-003

WARNING: MAKE SURE TO INSTALL THE LEADING EDGE FLAP AND SLAT ACTUATORS LOCKOUT SET TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS AND SLATS. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(11) Install the lockout set, SPL-1734 on the actuators of the adjacent leading edge flaps and slats. To do this, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

SUBTASK 27-88-11-220-003

(12) On leading edge slat 1 or 8, make sure the gap between the (inboard or outboard) proximity sensor [4] and the target [14] is 0.115-0.135 inch (2.92-3.43 millimeters).

(a) If the gap is out of tolerance, adjust the gap between the proximity sensor [4] and the target [14].

1) Remove the nuts [12], washers [11], shim [13], and bolts [10] to remove the target [14].

2) Add or remove shim [13] as it is necessary to get the correct gap between the proximity sensor [4] and the target [14].

3) Install the bolts [10], target [14], washers [11] and nuts [12].

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SUBTASK 27-88-11-080-001

WARNING: CAREFULLY REMOVE THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADINGE EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(13) Remove the lockout set, SPL-1734 from the actuators of the leading edge flap and slats. To do this, do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.

SUBTASK 27-88-11-710-001

(14) Do this task: Leading Edge Flap and Slat Proximity Sensor Test, TASK 27-88-11-700-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 27-88-11-940-001

(1) Install the applicable access panels:

(a) For the left wing, close these access panels:

Number	Name/Location
521CB	Lower Leading Edge Access Panel - Slat Station 53.95
521DB	Lower Leading Edge Access Panel - Slat Station 71.38
521FB	Lower Leading Edge Access Panel - Slat Station 116.32
521JB	Lower Leading Edge Access Panel - Slat Station 170.20
521KB	Lower Leading Edge Access Panel - Slat Station 188.12
521LB	Lower Leading Edge Access Panel - Slat Station 216.76
521MB	Lower Leading Edge Access Panel - Slat Station 234.65
521QB	Lower Leading Edge Access Panel - Slat Station 289.17
521RB	Lower Leading Edge Access Panel - Slat Station 307.75
521SB	Lower Leading Edge Access Panel - Slat Station 337.62
521TB	Lower Leading Edge Access Panel - Slat Station 356.14
521WB	Lower Leading Edge Access Panel - Slat Station 415.79
521XB	Lower Leading Edge Access Panel - Slat Station 435.91
521YB	Lower Leading Edge Access Panel - Slat Station 467.98
521ZB	Lower Leading Edge Access Panel - Slat Station 488.05

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(b) For the right wing, close these access panels:

Number	Name/Location
621CB	Lower Leading Edge Access Panel - Slat Station 53.95
621DB	Lower Leading Edge Access Panel - Slat Station 71.38
621FB	Lower Leading Edge Access Panel - Slat Station 112.52
621HB	Lower Leading Edge Access Panel - Slat Station 170.21
621JB	Lower Leading Edge Access Panel - Slat Station 188.14
621KB	Lower Leading Edge Access Panel - Slat Station 216.71
621LB	Lower Leading Edge Access Panel - Slat Station 234.59
621PB	Lower Leading Edge Access Panel - Slat Station 289.18
621QB	Lower Leading Edge Access Panel - Slat Station 307.75
621RB	Lower Leading Edge Access Panel - Slat Station 337.62
621SB	Lower Leading Edge Access Panel - Slat Station 356.15
621VB	Lower Leading Edge Access Panel - Slat Station 415.79
621WB	Lower Leading Edge Access Panel - Slat Station 435.91
621XB	Lower Leading Edge Access Panel - Slat Station 467.98
621YB	Lower Leading Edge Access Panel - Slat Station 488.04

———————— END OF TASK ————————

TASK 27-88-11-000-802

4. Leading Edge Flap Proximity Sensor Removal

(Figure 402)

A. References

Reference	Title
27-81-00-480-801	Leading Edge Flap and Slat Locks Installation (P/B 201)
27-81-00-860-803	Leading Edge Flaps and Slats Extension (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

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Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4

D. Prepare for the Removal

SUBTASK 27-88-11-860-009

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) To extend the leading edge flaps, do this task: Leading Edge Flaps and Slats Extension, TASK 27-81-00-860-803.

SUBTASK 27-88-11-480-002

WARNING: CAREFULLY INSTALL THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADING EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Install the lockout set, SPL-1734 on the actuator of the adjacent leading edge flap. To do this, do this task: Leading Edge Flap and Slat Locks Installation, TASK 27-81-00-480-801.

E. Leading Edge Flap Proximity Sensor Removal

SUBTASK 27-88-11-020-004

(1) Remove the proximity sensor [44]:

(a) Disconnect the wires at the splice.

(b) To remove the proximity sensor [44] from the leading edge flap, remove the nuts [43], washers [42], and bolts [41].

(c) To remove the proximity sensor [44] from the structure, remove the washers [42], shim [46] and bolts [47].

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(d) Remove the proximity sensor [44].

END OF TASK

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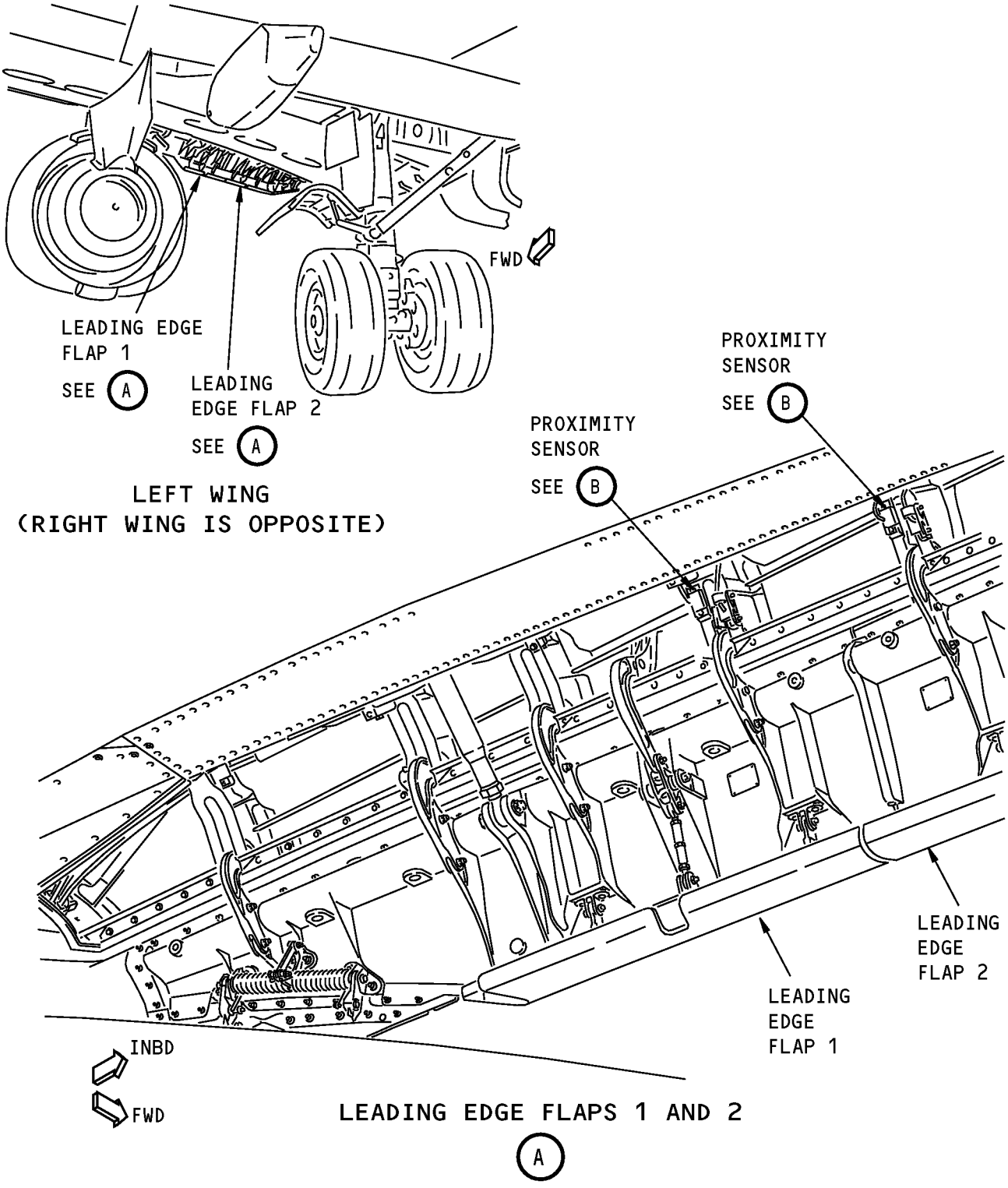

Leading Edge Flap Proximity Sensor Installation
Figure 402 (Sheet 1 of 2)/27-88-11-990-802

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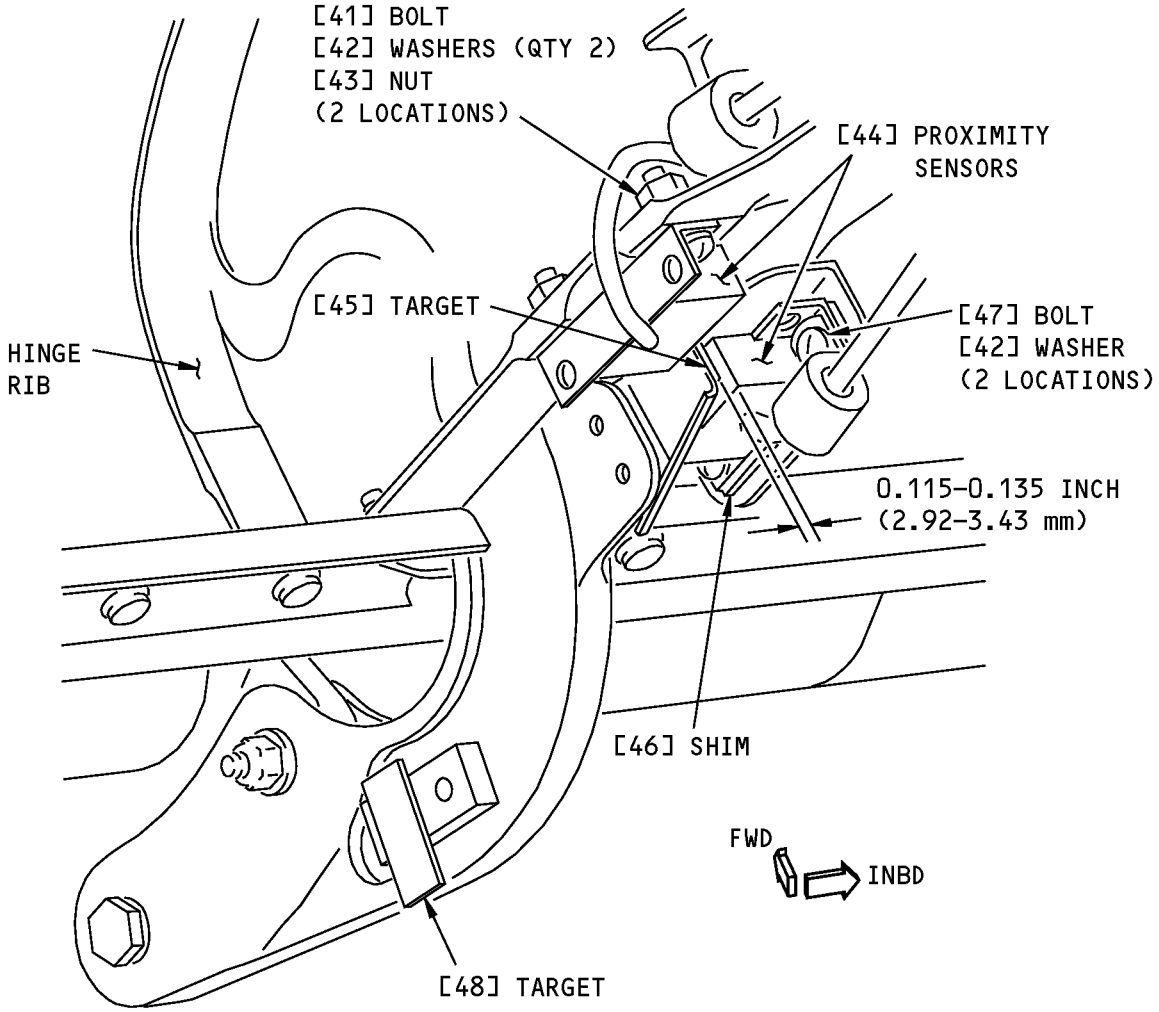

PROXIMITY SENSOR
(EXAMPLE)
B

Leading Edge Flap Proximity Sensor Installation
Figure 402 (Sheet 2 of 2)/27-88-11-990-802

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TASK 27-88-11-400-802

5. Leading Edge Flap Proximity Sensor Installation

(Figure 402)

A. References

Reference	Title
27-81-00-080-801	Leading Edge Flap and Slat Locks Removal (P/B 201)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-1734	Lockout Set - Leading Edge Slats and Krueger Flaps Actuators (Part #: C27051-29, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -900ER, -BBJ) (Opt Part #: C27051-1, Supplier: 81205, A/P Effectivity: 737-600, -700, -700C, -700ER, -700QC, -800, -900, -BBJ)

C. Consumable Materials

Reference	Description	Specification
A00165	Adhesive - Neoprene	BMS5-7 Type I
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4

E. Leading Edge Flap Proximity Sensor Installation

SUBTASK 27-88-11-420-004

(1) Install the flap proximity sensor [44]:

(a) Apply a thin coat of compound, C00913 to the threads of the bolts [41] or [47].

(b) To install the proximity sensor [44] on the leading edge flap, install the bolts [41], washers [42] and nuts [43].

(c) To install the proximity sensor [44] on the structure, install the bolts [47], shim [46] and washers [42].

(d) Find the same color wires and make a splice.

(e) Attach the wires together to make a bundle.

SUBTASK 27-88-11-820-001

(2) With the flap in the extend position, make sure the gap between the proximity sensor [44] and the target [45] is 0.115-0.135 inch (2.92-3.43 millimeters).

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(a) If the gap is out of tolerance, adjust the gap between the proximity sensor [44] and the target [45].

1) Remove the bolts [47], washers [42] and shim [46].

2) Add or remove shim [46] as it is necessary to get the correct gap between the proximity sensor [44] and the target [45].

3) Install the bolts [47] and washers [42].

4) Bond shims [46] to the support bracket with adhesive, A00165.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 27-88-11-080-002

WARNING: CAREFULLY REMOVE THE LEADING EDGE FLAP ACTUATOR LOCK TO PREVENT ACCIDENTAL OPERATION OF THE LEADINGE EDGE FLAPS. THE LEADING EDGE FLAPS CAN MOVE QUICKLY. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Remove the lockout set, SPL-1734 from the actuator of the leading edge flap. To do this, do this task: Leading Edge Flap and Slat Locks Removal, TASK 27-81-00-080-801.

SUBTASK 27-88-11-860-012

WARNING: MAKE SURE THAT PERSONNEL AND EQUIPMENT STAY AWAY FROM THE LEADING EDGE FLAPS AND SLATS, TRAILING EDGE FLAPS, AND DRIVE MECHANISMS. THE FLAPS, SLATS, AND DRIVE MECHANISMS MOVE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Retract the leading edge flap to the UP position with primary control. To do this, do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804

——————— END OF TASK ———————

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LEADING EDGE FLAP AND SLAT PROXIMITY SENSOR - ADJUSTMENT/TEST

1. General

A. This procedure has the task to do a test of the leading edge (LE) flap and slat proximity sensor.

TASK 27-88-11-700-801

2. Leading Edge Flap and Slat Proximity Sensor Test

(Figure 501)

A. References

Reference	Title
24-22-00-860-811	Supply Electrical Power (P/B 201)
27-51-00-740-801	FSEU Display and Existing Faults Test (P/B 501)
27-81-00-860-804	Leading Edge Flaps and Slats Retraction (P/B 201)
29-11-00-860-801	Hydraulic System A or B Pressurization (P/B 201)
29-11-00-860-805	Hydraulic System A or B Power Removal (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right
512	Left Wing - Krueger Flap No. 2
513	Left Wing - Krueger Flap No. 1
522	Left Wing - Slat No. 4
524	Left Wing - Slat No. 2
525	Left Wing - Slat No. 1
612	Right Wing - Krueger Flap No. 3
613	Right Wing - Krueger Flap No. 4
622	Right Wing - Slat No. 5
623	Right Wing - Slat No. 6
624	Right Wing - Slat No. 7
625	Right Wing - Slat No. 8

C. Prepare for the Test

SUBTASK 27-88-11-860-001

(1) Make sure the flap control lever is in the FLAP UP detent position with the leading edge (LE) flaps and slats in the retract position.

(a) If it is necessary, do this task: Leading Edge Flaps and Slats Retraction, TASK 27-81-00-860-804.

SUBTASK 27-88-11-860-002

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-811.

SUBTASK 27-88-11-860-003

WARNING: MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

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D. Leading Edge Flap and Slat Proximity Sensor Test

SUBTASK 27-88-11-740-001

(1) Do this task: FSEU Display and Existing Faults Test, TASK 27-51-00-740-801.

SUBTASK 27-88-11-730-001

WARNING: MAKE SURE PERSONS AND EQUIPMENT ARE CLEAR OF THE LEADING EDGE FLAPS AND SLATS AND THE TRAILING EDGE FLAPS. THE FLAPS AND SLATS WILL MOVE DURING THIS TEST. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: MAKE SURE THE INBOARD FAN DUCT COWL AND THE INBOARD AND OUTBOARD THRUST REVERSERS ARE CLOSED OR REMOVED BEFORE YOU EXTEND THE LEADING EDGE FLAPS AND SLATS IN THIS TEST. THERE IS NOT SUFFICIENT CLEARANCE FOR THE FLAPS AND SLATS TO EXTEND IF THE INBOARD FAN DUCT COWL AND THE THRUST REVERSERS ARE IN THE OPEN POSITION. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(2) Do a test of the leading edge flap and slat proximity sensor:

(a) Push the ON/OFF button on the front panel of the FSEU to turn on the display.

NOTE: The display will show EXISTING FAULTS?.

(b) Push the down arrow until OTHER FUNCTNS? shows on the display.

(c) Push the YES button to select OTHER FUNCTNS? on the FSEU.

(d) Push the down arrow until I/O MONITOR? shows on the display.

(e) Push the YES button to select I/O MONITOR? from the menu.

(f) Push the YES button to select PROX SENSORS? from the I/O MONITOR? menu.

(g) Push the down arrow to step through the proximity sensor states at the LE flaps and slats UP position.

(h) Make sure these displays and the proximity sensor states show on the FSEU (Table 501):

Table 501/27-88-11-993-804

Display	State
S1 OUTBD	GAP NEAR
S1 INBD	GAP NEAR
S2 OUTBD	GAP FAR
S2 INBD	GAP FAR
S2 RETR	GAP NEAR
S3 OUTBD	GAP FAR
S3 INBD	GAP FAR
S3 RETR	GAP NEAR
S4 OUTBD	GAP FAR
S4 INBD	GAP FAR
S4 RETR	GAP NEAR
S5 OUTBD	GAP FAR

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(Continued)

Display	State
S5 INBD	GAP FAR
S5 RETR	GAP NEAR
S6 OUTBD	GAP FAR
S6 INBD	GAP FAR
S6 RETR	GAP NEAR
S7 OUTBD	GAP FAR
S7 INBD	GAP FAR
S7 RETR	GAP NEAR
S8 OUTBD	GAP NEAR
S8 INBD	GAP NEAR
F1 RETR	GAP NEAR
F1 EXT	GAP FAR
F2 RETR	GAP NEAR
F2 EXT	GAP FAR
F3 RETR	GAP NEAR
F3 EXT	GAP FAR
F4 RETR	GAP NEAR
F4 EXT	GAP FAR

(i) Move the flap control lever to the 1-unit detent position.

1) Make sure these lights come on during the flaps and slats extension and go off after extension;

a) The LE FLAPS TRANSIT light on the center instrument panel, P2-2.

b) All the LE flaps and slats TRANSIT lights on the aft overhead panel, P5-12.

2) Push the down arrow on the FSEU to step through the proximity sensor states.

3) Make sure these displays and the proximity sensor states show on the FSEU (Table 502):

Table 502/27-88-11-993-805

Display	State
S1 OUTBD	GAP FAR
S1 INBD	GAP NEAR
S2 OUTBD	GAP FAR
S2 INBD	GAP NEAR
S2 RETR	GAP FAR

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(Continued)

Display	State
S3 OUTBD	GAP FAR
S3 INBD	GAP NEAR
S3 RETR	GAP FAR
S4 OUTBD	GAP FAR
S4 INBD	GAP NEAR
S4 RETR	GAP FAR
S5 OUTBD	GAP FAR
S5 INBD	GAP NEAR
S5 RETR	GAP FAR
S6 OUTBD	GAP FAR
S6 INBD	GAP NEAR
S6 RETR	GAP FAR
S7 OUTBD	GAP FAR
S7 INBD	GAP NEAR
S7 RETR	GAP FAR
S8 OUTBD	GAP FAR
S8 INBD	GAP NEAR
F1 RETR	GAP FAR
F1 EXT	GAP NEAR
F2 RETR	GAP FAR
F2 EXT	GAP NEAR
F3 RETR	GAP FAR
F3 EXT	GAP NEAR
F4 RETR	GAP FAR
F4 EXT	GAP NEAR

4) Make sure the LE FLAPS EXT light on the center instrument panel, P2-2, is on.

5) Make sure the LE flaps and slats EXT lights on the aft overhead panel, P5-12, are on.

(j)

HAP 001-013, 015-026, 028-036, 101-999

Move the flap control lever to the 10-unit detent position.

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HAP 037-054

Move the flap control lever to the 30-unit detent position.

HAP ALL

1) Make sure these lights come on during the flaps and slats extension and go off after extension.
   a) The LE FLAPS TRANSIT light on the center instrument panel, P2
   b) All the LE slats TRANSIT lights on the aft overhead panel.
2) Push the down arrow on the FSEU to step through the proximity sensor states.
3) Make sure these displays and the proximity sensor states show on the FSEU (Table 503):

Table 503/27-88-11-993-806

Display	State
S1 OUTBD	GAP NEAR
S1 INBD	GAP FAR
S2 OUTBD	GAP NEAR
S2 INBD	GAP FAR
S2 RETR	GAP FAR
S3 OUTBD	GAP NEAR
S3 INBD	GAP FAR
S3 RETR	GAP FAR
S4 OUTBD	GAP NEAR
S4 INBD	GAP FAR
S4 RETR	GAP FAR
S5 OUTBD	GAP NEAR
S5 INBD	GAP FAR
S5 RETR	GAP FAR
S6 OUTBD	GAP NEAR
S6 INBD	GAP FAR
S6 RETR	GAP FAR
S7 OUTBD	GAP NEAR
S7 INBD	GAP FAR
S7 RETR	GAP FAR
S8 OUTBD	GAP NEAR

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(Continued)

Display	State
S8 INBD	GAP FAR
F1 RETR	GAP FAR
F1 EXT	GAP NEAR
F2 RETR	GAP FAR
F2 EXT	GAP NEAR
F3 RETR	GAP FAR
F3 EXT	GAP NEAR
F4 RETR	GAP FAR
F4 EXT	GAP NEAR

4) Make sure the LE FLAPS EXT light on the center instrument pane, P2-2, is on.

5) Make sure the LE flaps EXTEND and slats FULL EXTEND lights on the aft overhead panel, P5-12, are on.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 27-88-11-860-004

(1) Move the flap control lever to the FLAP UP detent to retract the leading edge flaps and slats.

SUBTASK 27-88-11-860-005

(2) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——————— END OF TASK ———————

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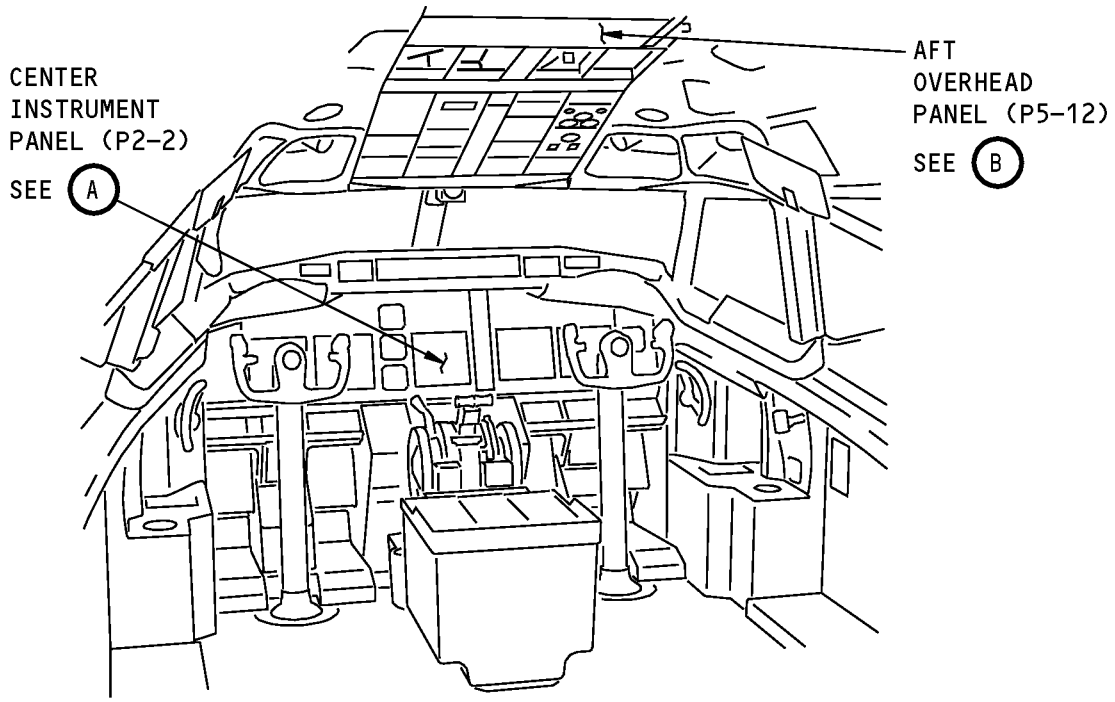
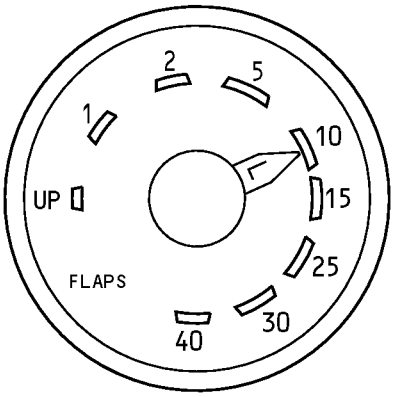


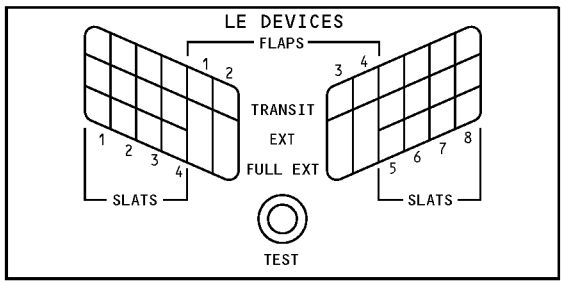
FLIGHT COMPARTMENT



LE FLAPS TRANSIT A	LE FLAPS EXT G

CENTER INSTRUMENT PANEL (P2-2)

A



AFT OVERHEAD PANEL (P5-12)

B

Leading Edge Flap and Slat Proximity Sensor Test
Figure 501/27-88-11-990-803

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