Scandinavian Airlines System

Scandinavian Airlines System

PAGE	DATE	CODE
24-20-00		CONT.
179	AUG 22/02	05
180	AUG 22/02	05
180A	AUG 22/02	06
180B	DEC 22/07	10
180C	AUG 22/02	06
180D	AUG 22/02	06
180E	APR 22/09	06
180F	APR 22/09	09
R 180G	AUG 22/09	07.1
R 180H	AUG 22/09	07.1
180I	APR 22/09	08
R 180J	AUG 22/09	08.1
180K	APR 22/09	07
180L	APR 22/09	07
180M	APR 22/09	07
180N	APR 22/09	08
180O	APR 22/07	15
180P	AUG 22/02	10
180Q	APR 22/09	09
180R	APR 22/07	08
180S	APR 22/07	08
180T	APR 22/07	07
180U	APR 22/07	07
180V	APR 22/07	07
180W	APR 22/07	07
180X	APR 22/07	07
180Y	AUG 22/02	07
180Z	AUG 22/02	07
181	AUG 22/02	07
182	AUG 22/02	07
182A	AUG 22/02	07
182B	AUG 22/02	06
182C	AUG 22/02	07
182D	AUG 22/08	09
182E	AUG 22/08	07
182F	AUG 22/02	07
182G	AUG 22/02	07
182H	AUG 22/02	07
182I	DEC 22/05	07
182J	DEC 22/05	07
182K	AUG 22/02	07
182L	AUG 22/02	06
182M	AUG 22/02	06
182N	AUG 22/02	06
182O	AUG 22/02	06
182P	AUG 22/02	06
182Q	AUG 22/02	06
182R	DEC 22/05	06
182S	DEC 22/07	06
182T	APR 22/09	06
182U	APR 22/09	06
182V	APR 22/09	07
182W	APR 22/09	07
182X	APR 22/09	07
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182Z	AUG 22/02	07
183	AUG 22/02	07
184	AUG 22/02	07
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184B	AUG 22/02	07
24-21-00		
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102	NOV 10/95	01
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102	NOV 10/90	01
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107	DEC 22/99	01
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111	DEC 22/03	01
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101	NOV 10/90	01
102	NOV 10/90	01
24-54-00		
101	NOV 10/95	01
102	NOV 10/95	01

CHAPTER 24 – ELECTRICAL POWER

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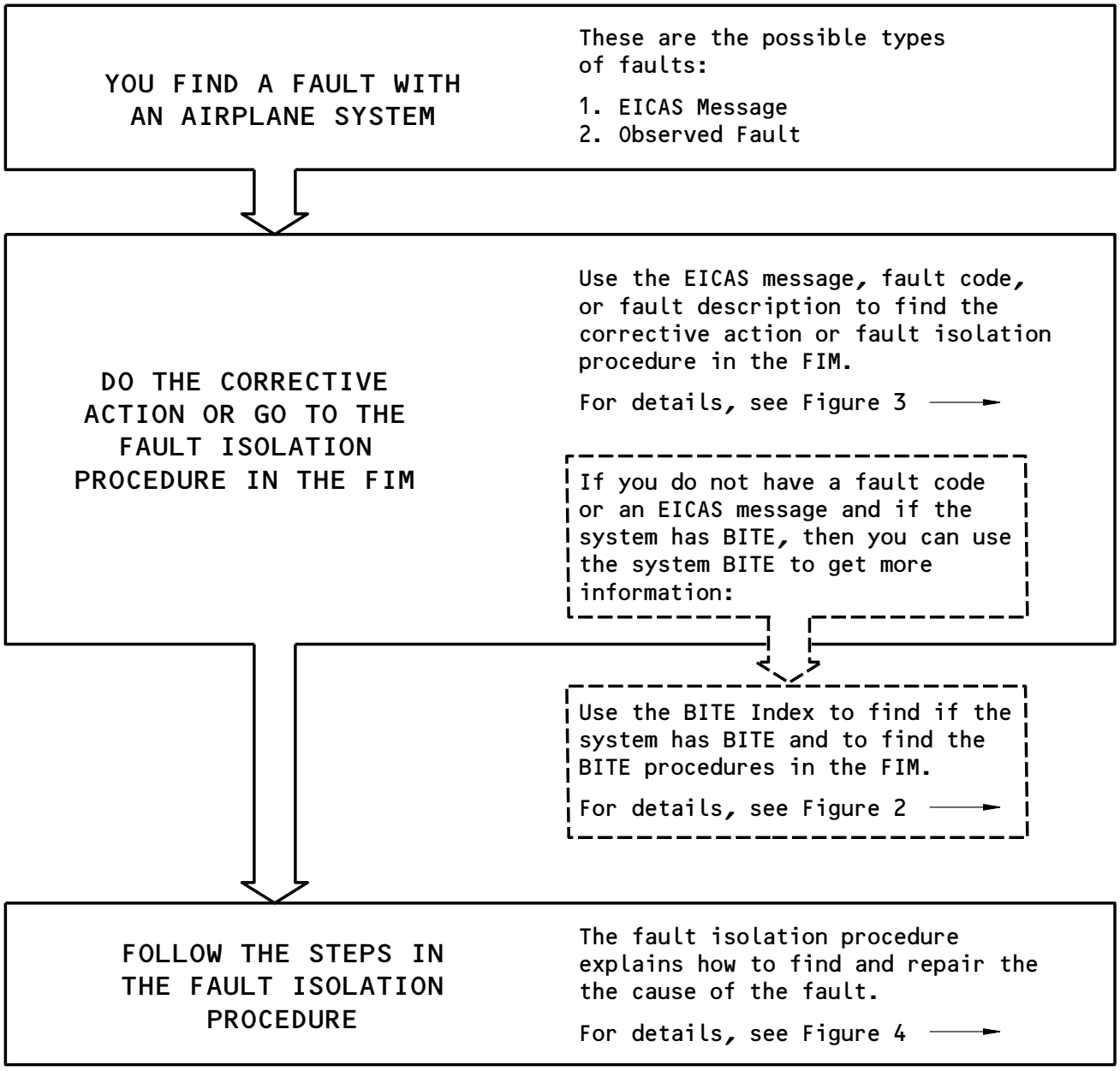
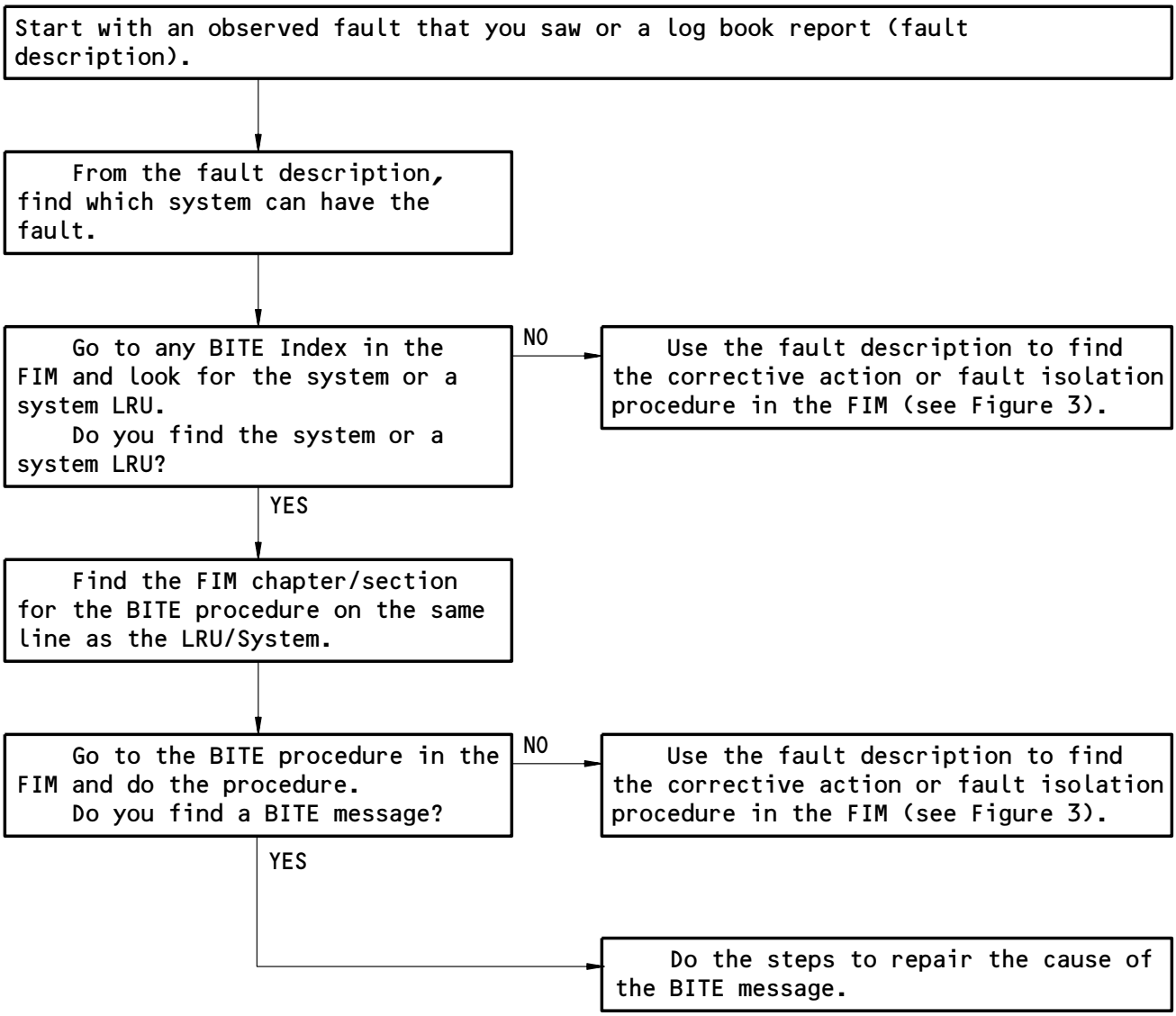


Basic Fault Isolation Process
Figure 1



How to Get Fault Information from BITE
Figure 2

IF YOU HAVE:	THEN DO THIS TO FIND THE CORRECTIVE ACTION OR FAULT ISOLATION PROCEDURE IN THE FIM:
FAULT CODE	1. The first two digits of the fault code are the FIM chapter that you need. Go to the Fault Code Index in that chapter and find the fault code. 2. Find the Fault Isolation Reference for the fault code and do the corrective action. If there is a FIM reference, then go to that fault isolation procedure in the FIM and do the steps in the procedure (see Figure 4).
EICAS MESSAGE TEXT (with no fault code)	1. If you know the chapter of the EICAS message, then go to the EICAS Messages section in that chapter and find the EICAS message. If you do not know the chapter of the EICAS message, then do these steps: A. Go to FIM EICAS MESSAGE LIST and find the EICAS message in the table. NOTE: The list follows the INTRODUCTION to the FIM. B. Find the chapter number on the same line as the EICAS message. Go to the EICAS Messages section in that chapter and find the EICAS message. 2. Do the corrective action in the "Procedure" column for the EICAS message. If there is a FIM reference, then go to that fault isolation procedure in the FIM and do the steps in the procedure (see Figure 4).
OBSERVED FAULT DESCRIPTION	1. Go to the Fault Code Diagram for the problem in the applicable chapter. 2. Do the fault analysis on the diagram and find the fault code. 3. The first two digits of the fault code are the FIM chapter that you need. Go to the Fault Code Index in that chapter and find the fault code. 4. Find the Fault Isolation Reference for the fault code and do the corrective action. If there is a FIM reference, then go to that fault isolation procedure in the FIM and do the steps in the procedure (see Figure 4).

How to Find the Corrective Action or Fault Isolation Procedure in the FIM
Figure 3

ASSUMED CONDITIONS AT START OF TASK

- External electrical power is OFF
- Hydraulic power and pneumatic power are OFF
- Engines are shut down
- Circuit breakers for the system are closed
- No equipment in the system is deactivated

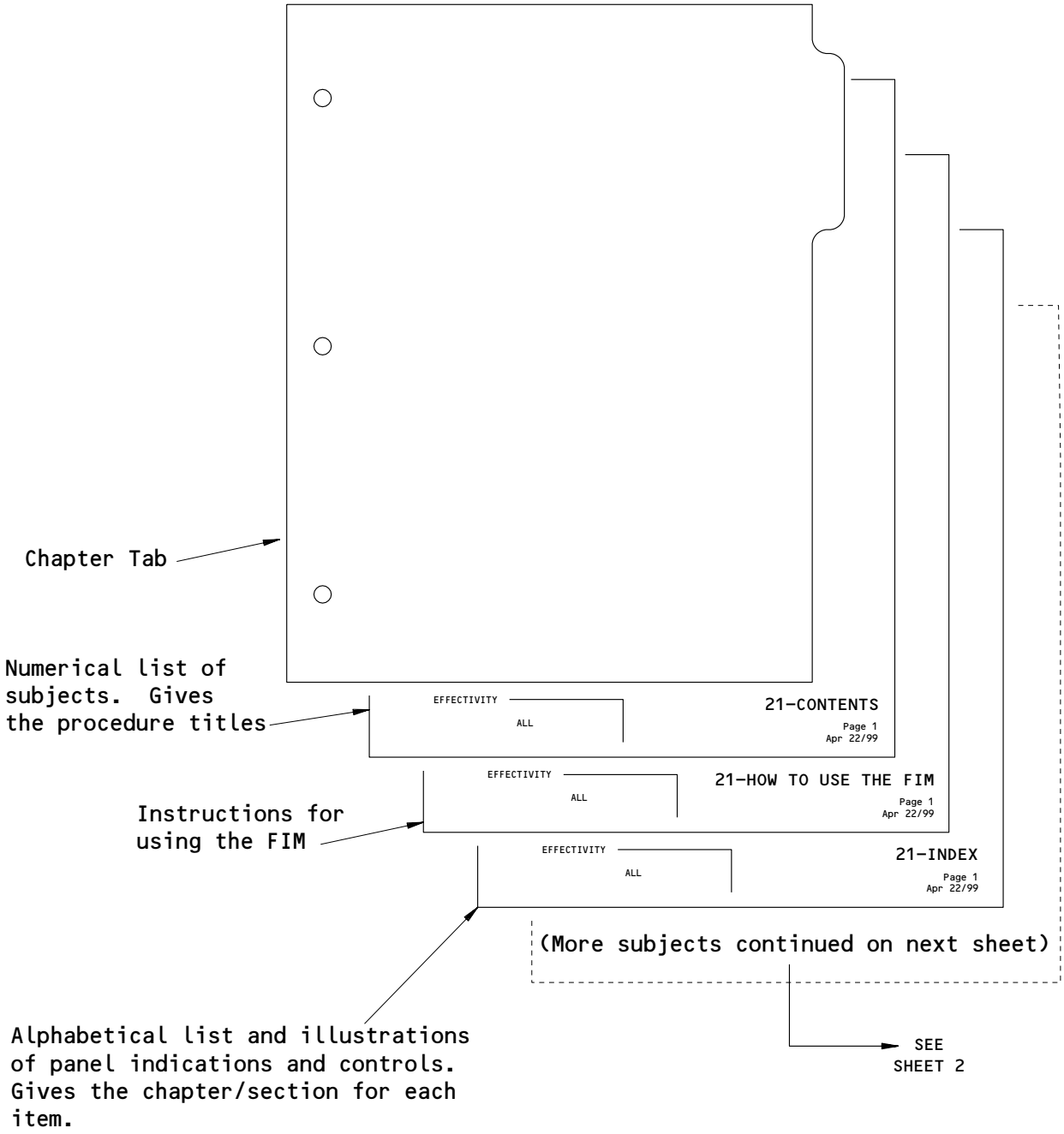
PREREQUISITES

- This box gives the steps to get the airplane from the normal shutdown condition to the configuration necessary to do the fault isolation procedure.
- The Prerequisites give procedure references, circuit breakers, and special tools and equipment requirements.

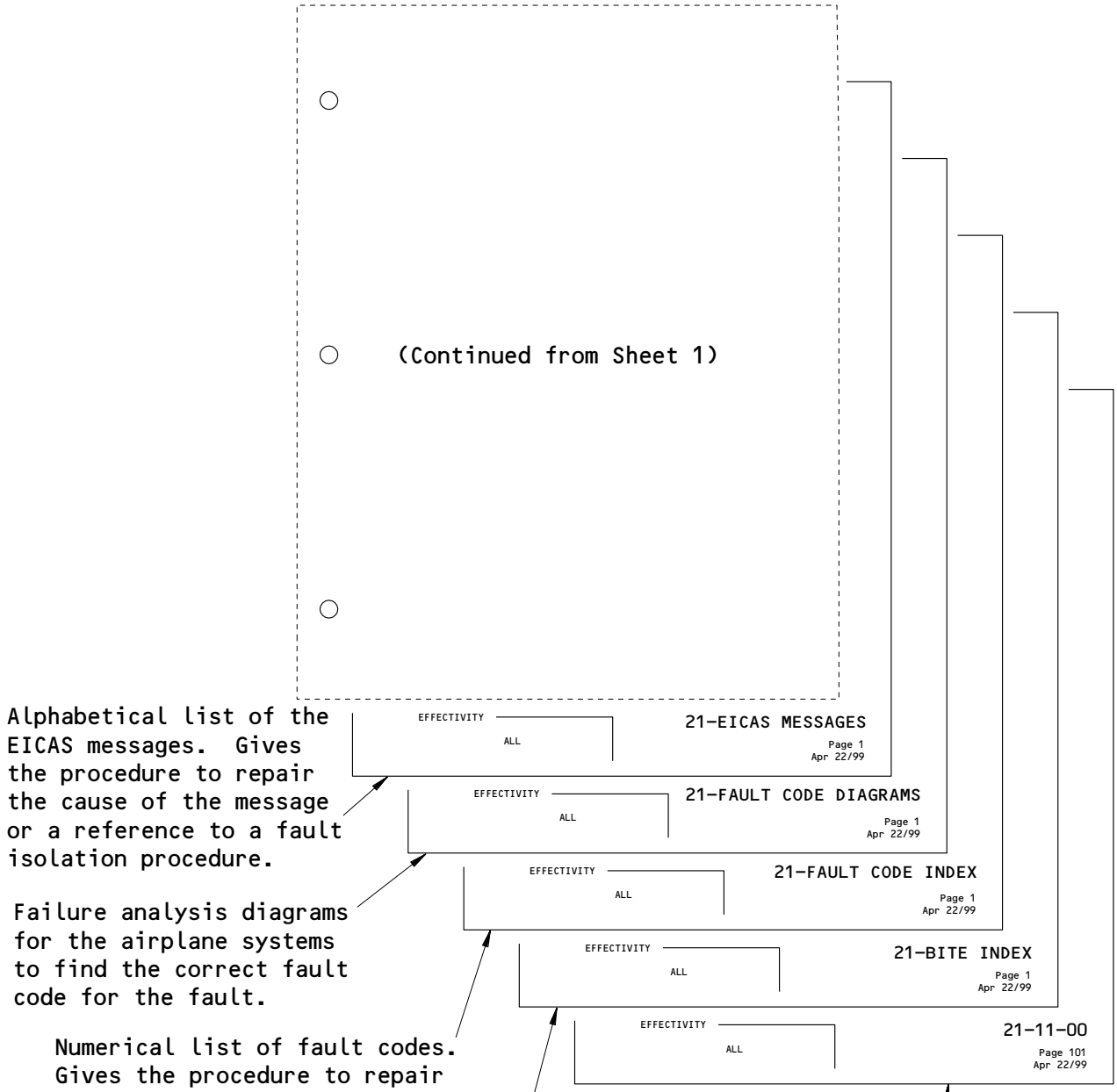
FAULT ISOLATION BLOCKS

- Start the fault isolation procedure at block 1 unless specified differently.
- Do the check to get an answer to the question in the box. Follow the arrow that applies to your answer. This will go to the next check.
- When you get to a box in the column at the right of the page, you have isolated that fault. Do the steps in that box to repair the cause of the fault.
- Make sure that fault is corrected to complete the procedure.

Do the Fault Isolation Procedure
Figure 4



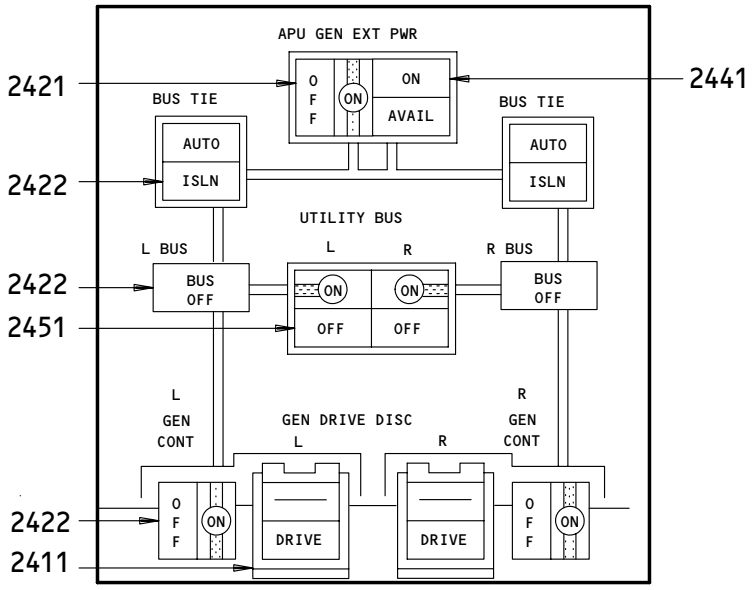
Subjects in Each FIM Chapter
Figure 5 (Sheet 1)



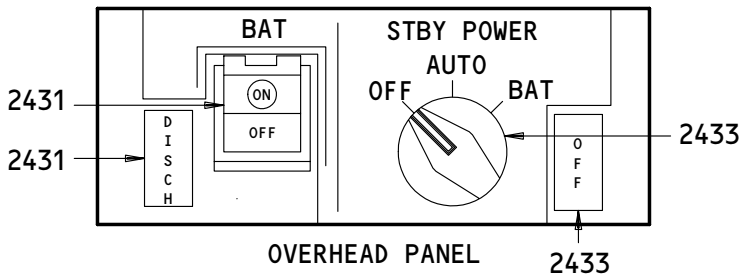
Subjects in Each FIM Chapter
Figure 5 (Sheet 2)

ELECTRICAL POWER

ELECTRICAL POWER - INDEX



OVERHEAD PANEL



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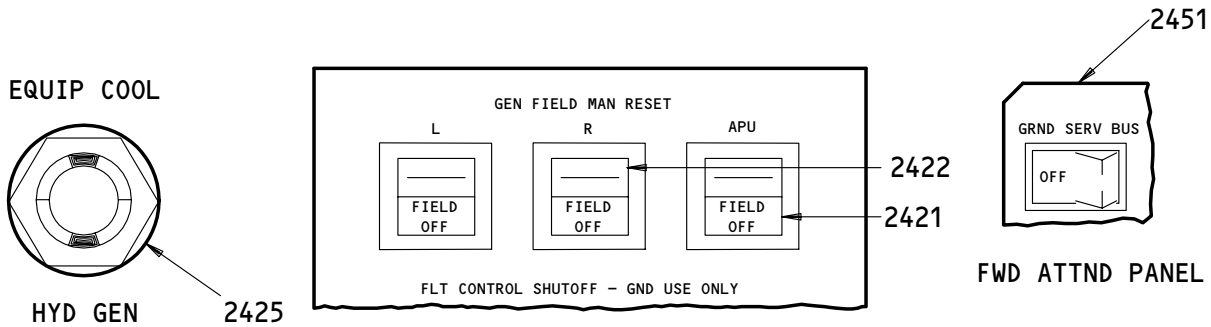
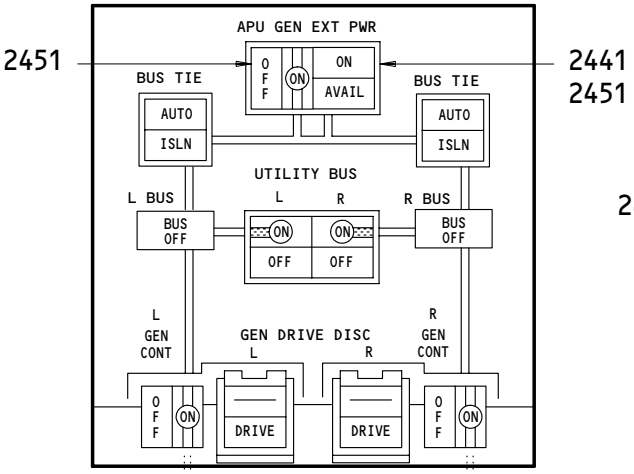


ACCESSORY PANEL

FWD ATTND PANEL

ELECTRICAL POWER – CONTENTS



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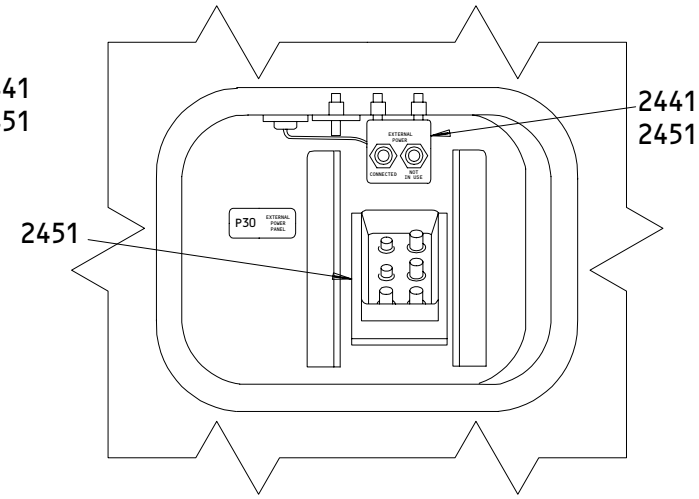
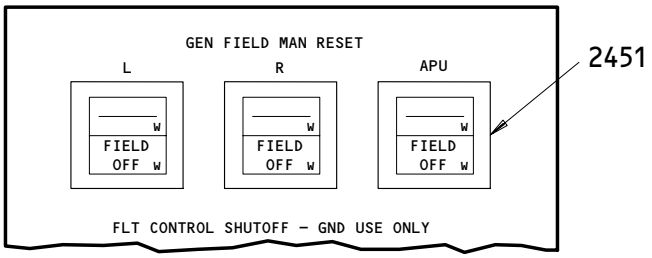
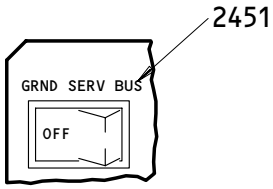


EXTERNAL POWER PANEL (P30)



RIGHT SIDE PANEL

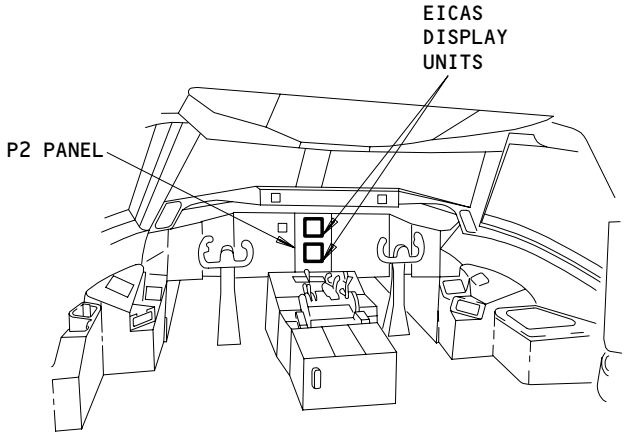


FWD ATTND PANEL

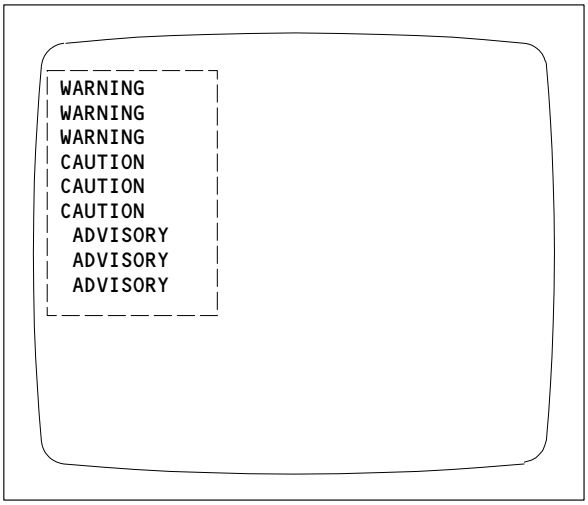
ELECTRIC POWER – CONTENTS (GROUND)

ELECTRICAL POWER - EICAS MESSAGE LIST

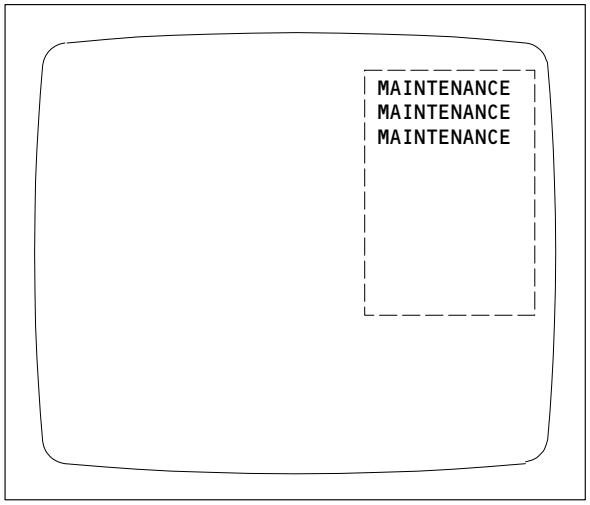
1. General
   A. This procedure shows the EICAS message locations and gives a list of procedures to find the solution for each message.
      (1) EICAS Message Locations (Fig. 1)
         (a) Figure 1 shows the location of the EICAS display units and the area where the messages show on the display units.
         (b) Each message level has a different location. The location and color of each message level is also shown.
      (2) The EICAS MESSAGE LIST gives the message, level, and procedure for each message.
         (a) The EICAS MESSAGE column lists the messages alphabetically. Messages which start with L, R, or C are put together and alphabetized at L.
         (b) The LEVEL column gives all levels for each message as follows:
            A - Warning messages
            B - Caution messages
            C - Advisory messages
            S - Status messages
            M - Maintenance messages
         (c) The PROCEDURE column gives the steps that are necessary to remove the message and includes one or more of the procedures that follow:
            1) A Fault Isolation Manual procedure reference
            2) A Maintenance Manual procedure and reference
            3) Wiring checks and a Wiring Diagram Manual reference
            4) A reference to an EICAS message list in a different chapter.
            5) A reference to a FAULT CODE INDEX and specified fault codes
            6) A step to change the airplane configuration



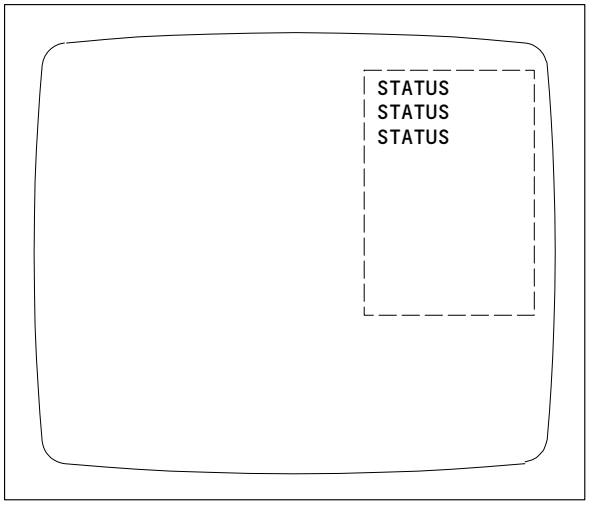
FLIGHT COMPARTMENT



ENGINE PRIMARY PAGE OR COMPACTED PAGE
(TOP DISPLAY UNIT)



ECS/MSG PAGE
(BOTTOM DISPLAY UNIT)



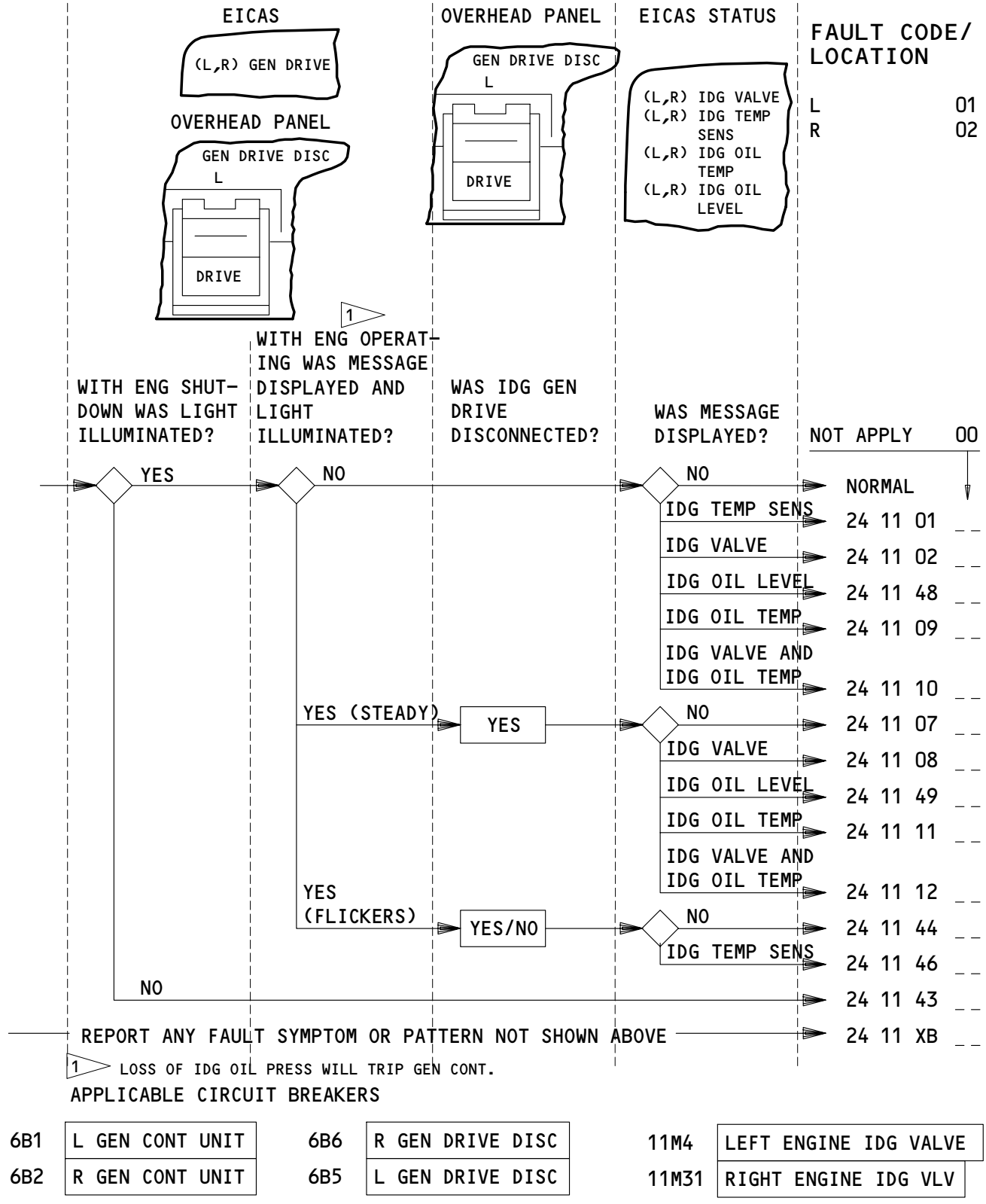
STATUS PAGE
(BOTTOM DISPLAY UNIT)

LEVEL	COLOR
A–WARNING	RED
B–CAUTION	YELLOW
C–ADVISORY	YELLOW
S–STATUS	WHITE
M–MAINTENANCE	WHITE

EICAS Message Locations
Figure 1

EICAS MESSAGE LIST		
EICAS MESSAGE	LEVEL	PROCEDURE
APU GEN OFF	C	FIM 24-20-00/101, Fig. 101, Block 1
BATTERY OFF	C	Push the BAT switch, on the pilots' overhead panel P5, to the ON position.
CAPT INSTR XFER	S,M	Replace the captain's instrument bus voltage sensing unit, M1079 (AMM 24-51-04/401).
F/O INSTR XFER	S,M	Replace the first officer's instrument bus voltage sensing unit, M1217 (AMM 24-51-04/401).
HYD GEN ON	S,M	FIM 24-25-00/101, Fig. 104, Block 1 If the problem continues, FIM 24-25-00/101, Fig 105, Block 1
HYD GEN VAL	S,M	FIM 24-25-00/101, Fig. 103, Block 1 If the problem continues, FIM 24-25-00/101, Fig 105, Block 1
IDG OUT TEMP	M	FIM 24-20-00/101, Fig. 103, Block 1
IDG RISE TEMP	M	FIM 24-20-00/101, Fig. 103, Block 1
(L,R) AC BUS OFF	C	Do the BPCU BITE Procedure (FIM 24-20-00/101, Fig. 101, Block 1).
(L,R) BUS ISOLATED	C	Do the BPCU BITE Procedure (FIM 24-20-00/101, Fig. 101, Block 1).
(L,R) GEN DRIVE	C	Do the BPCU BITE Procedure (FIM 24-20-00/101, Fig. 101, Block 1).
(L,R) GEN OFF	C	Do the BPCU BITE Procedure (FIM 24-20-00/101, Fig. 101, Block 1).

EICAS MESSAGE LIST		
EICAS MESSAGE	LEVEL	PROCEDURE
(L,R) IDG FILTER	S,M	Service the left (right) integrated drive generator (AMM 12-13-03/301). Do the Maintenance Message Erase Procedure (FIM 31-41-00/101, Fig. 109).
(L,R) IDG OIL LEVEL	M	Service the left (right) integrated drive generator (AMM 12-13-03/301). Do the Maintenance Message Erase Procedure (FIM 31-41-00/101, Fig. 109).
(L,R) IDG OIL TEMP	S,M	FIM 24-20-00/101, Fig. 105, Block 1
(L,R) IDG TEMP SENS	S,M	FIM 24-20-00/101, Fig. 104, Block 1
(L,R) IDG VALVE	S,M	FIM 24-20-00/101, Fig. 102, Block 1
(L,R) UTIL BUS OFF	C	Do the BPCU BITE Procedure (FIM 24-20-00/101, Fig. 101, Block 1).
MAIN BAT CHGR	S,M	FIM 24-31-00/101, Fig. 103, Block 1
MAIN BAT DISCH	C	Supply electrical power (AMM 24-22-00/201). Turn the STBY POWER switch, on the pilots overhead panel P5, to the AUTO position. If the problem continues, replace the main battery current monitor, M10212 (AMM 24-31-03/401).
STANDBY BUS OFF	C	FIM 24-33-00/101, Fig. 107, Block 1
STBY INVERTER	S,M	FIM 24-33-00/101, Fig. 106, Block 1
T-R UNIT	S,M	FIM 24-32-00/101, Fig. 103, Block 1

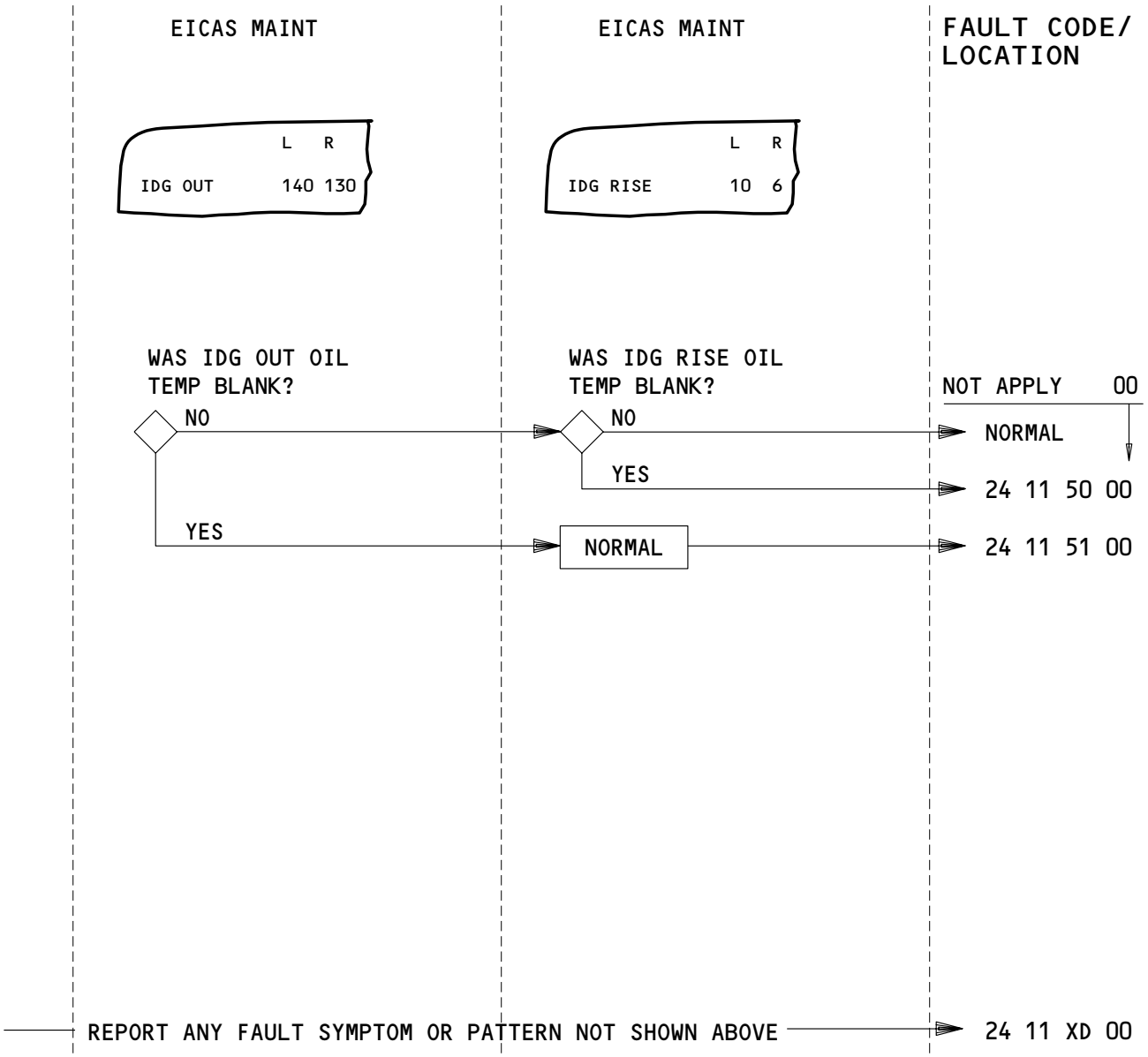


GENERATOR DRIVE – FAULT CODES

EFFECTIVITY
ALL

24-FAULT CODE DIAGRAM

F00812



APPLICABLE CIRCUIT BREAKERS

6B1	L GEN CONT UNIT
6B2	R GEN CONT UNIT

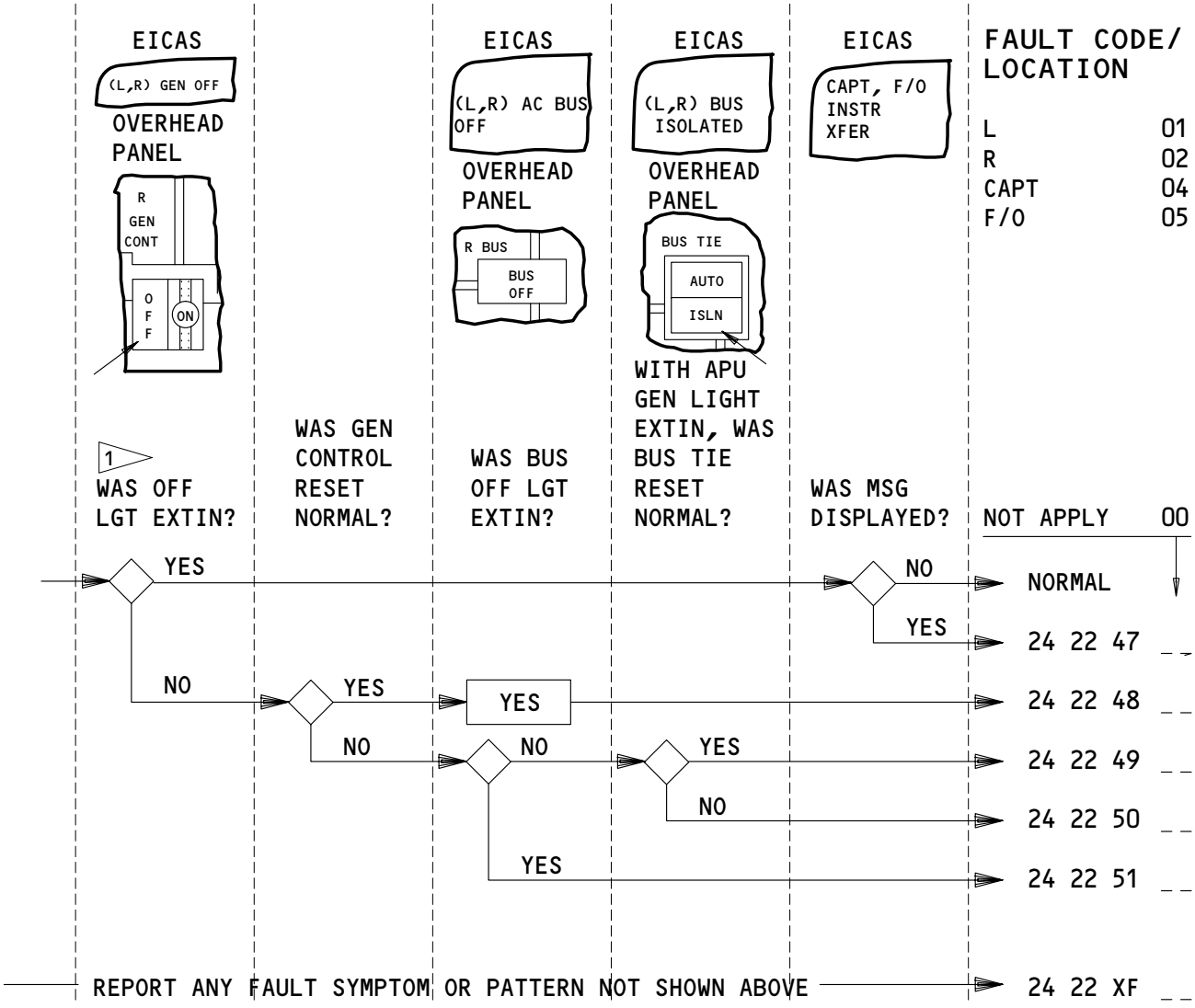
GENERATOR DRIVE TEMPERATURE DISPLAY – FAULT CODES (GROUND)

EFFECTIVITY

ALL

24-FAULT CODE DIAGRAM

F77358



1 LOSS OF IDG OIL PRESS WILL TRIP GEN CONT. SEE "GENERATOR DRIVE" FAULT CODES IF GEN DRIVE LGT IS ILLUM.

APPLICABLE CIRCUIT BREAKERS

6A15	115 VAC BUS L SEC 3	6B4	BUS PWR CONT UNIT	6J16	Ø C CAPT PRIM INSTR BUS
6A18	115 VAC BUS L SEC 2	6C15	115 VAC BUS L SEC 1	6J18	CENTER BUS AC
6A21	115 VAC BUS R SEC 3	6C21	115 VAC BUS R SEC 1	6L20	Ø A F/O PRIM INSTR BUS
6A24	115 VAC BUS R SEC 2	6G7	CENTER BUS CONT	6L21	Ø B F/O PRIM INSTR BUS
6B1	L GEN CONT UNIT	6J14	Ø A CAPT PRIM INSTR BUS	6L22	Ø C F/O PRIM INSTR BUS
6B2	R GEN CONT UNIT	6J15	Ø B CAPT PRIM INSTR BUS	11T32	BPCU SEC

GENERATOR AND BUS TIE CONTROL – FAULT CODES

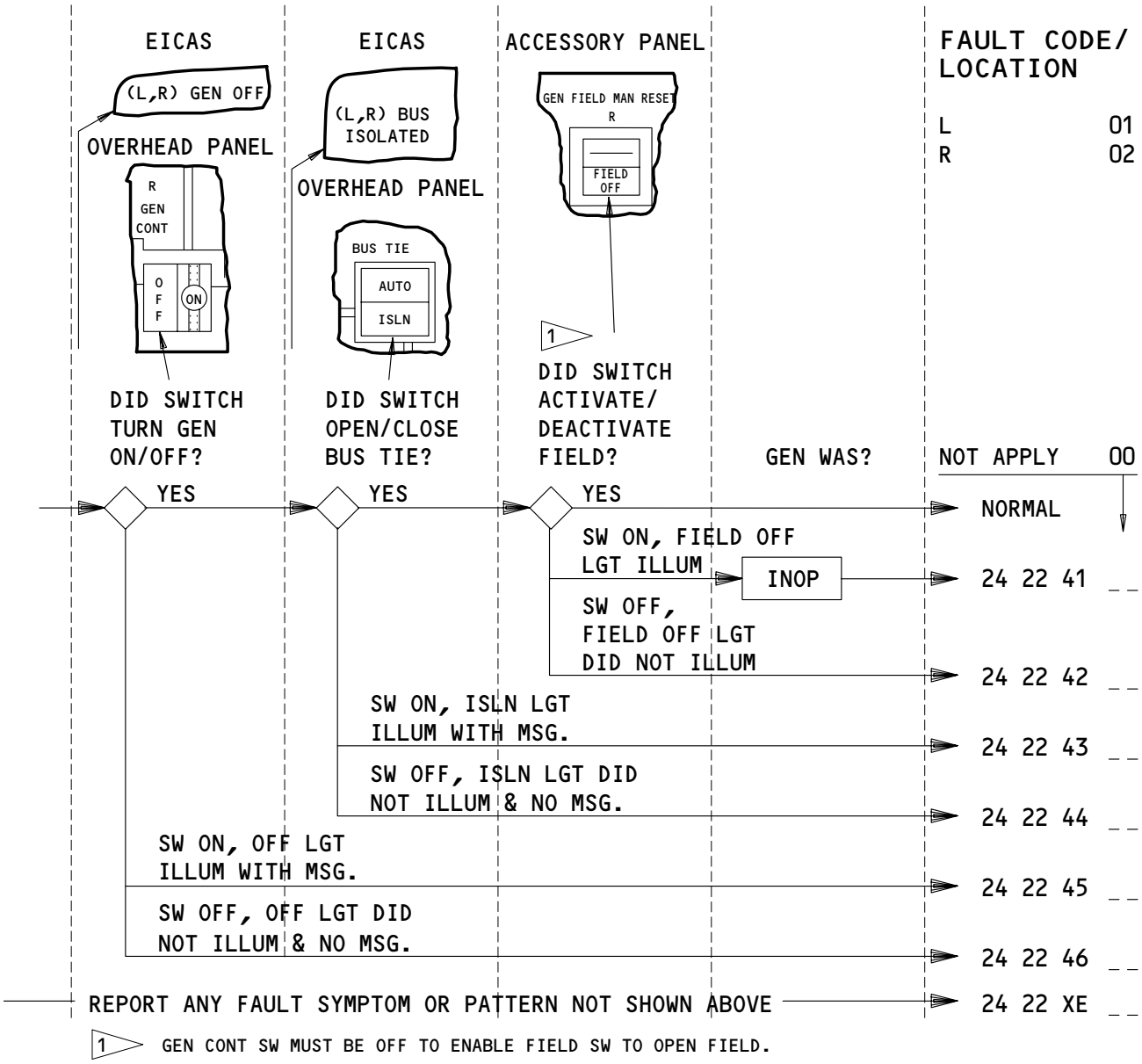
EFFECTIVITY

ALL

24-FAULT CODE DIAGRAM

01

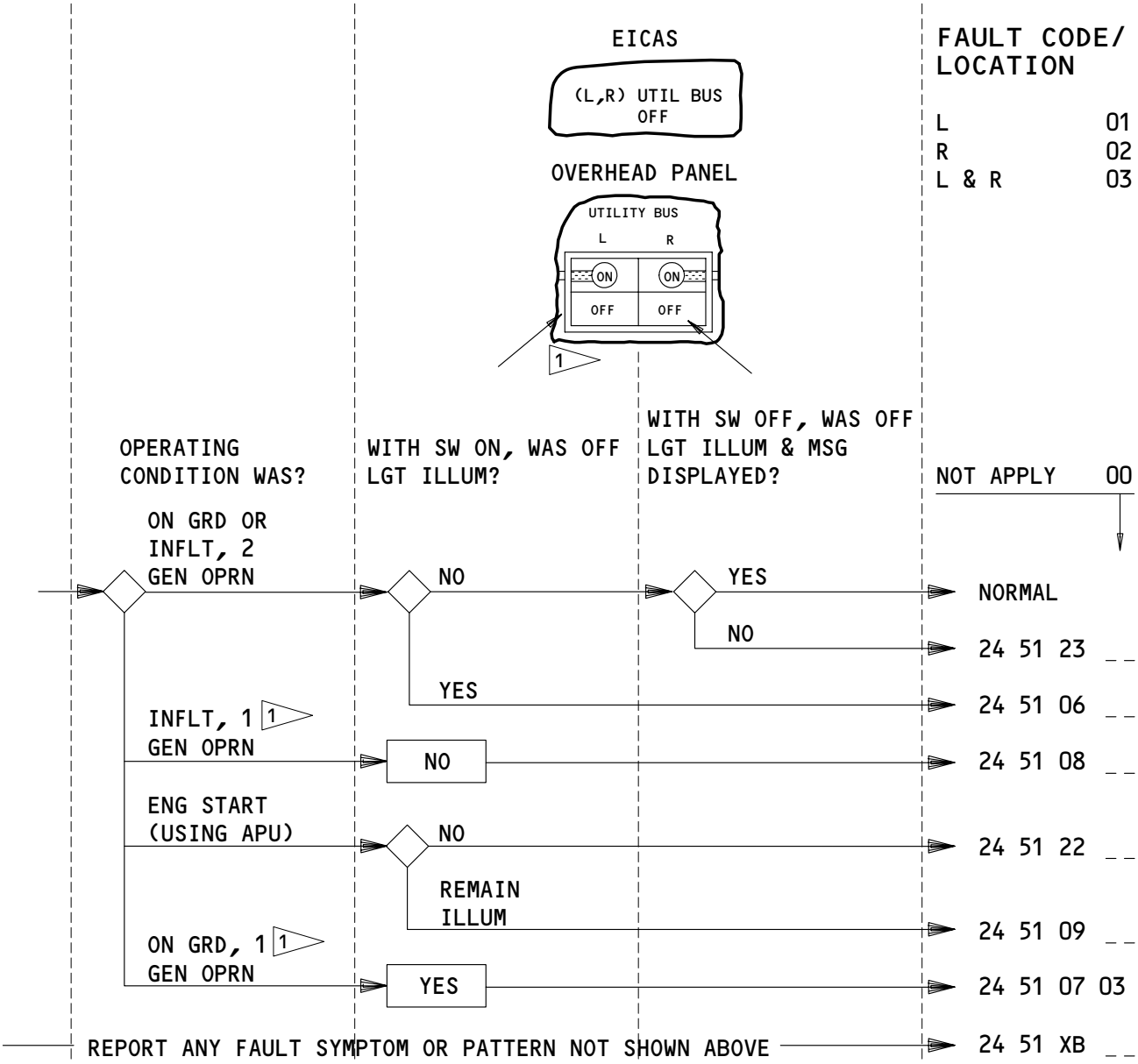
135754



APPLICABLE CIRCUIT BREAKERS

NONE

DEFECTIVE GEN CONT, AC BUS TIE & GEN FIELD SWITCHES – FAULT CODES



1 UTILITY BUSES WILL TRIP IF A SINGLE SOURCE IS SUPPLYING ELECTRICAL POWER WITH BOTH THRUST LEVERS ADVANCED.

APPLICABLE CIRCUIT BREAKERS

6B1	L GEN CONT UNIT
6B2	R GEN CONT UNIT
6B4	BUS PWR CONT UNIT
11T2	ENG START LD SHD RESET
11T4	UTIL BUS L
11T31	UTIL BUS R
11T32	BPCU SEC

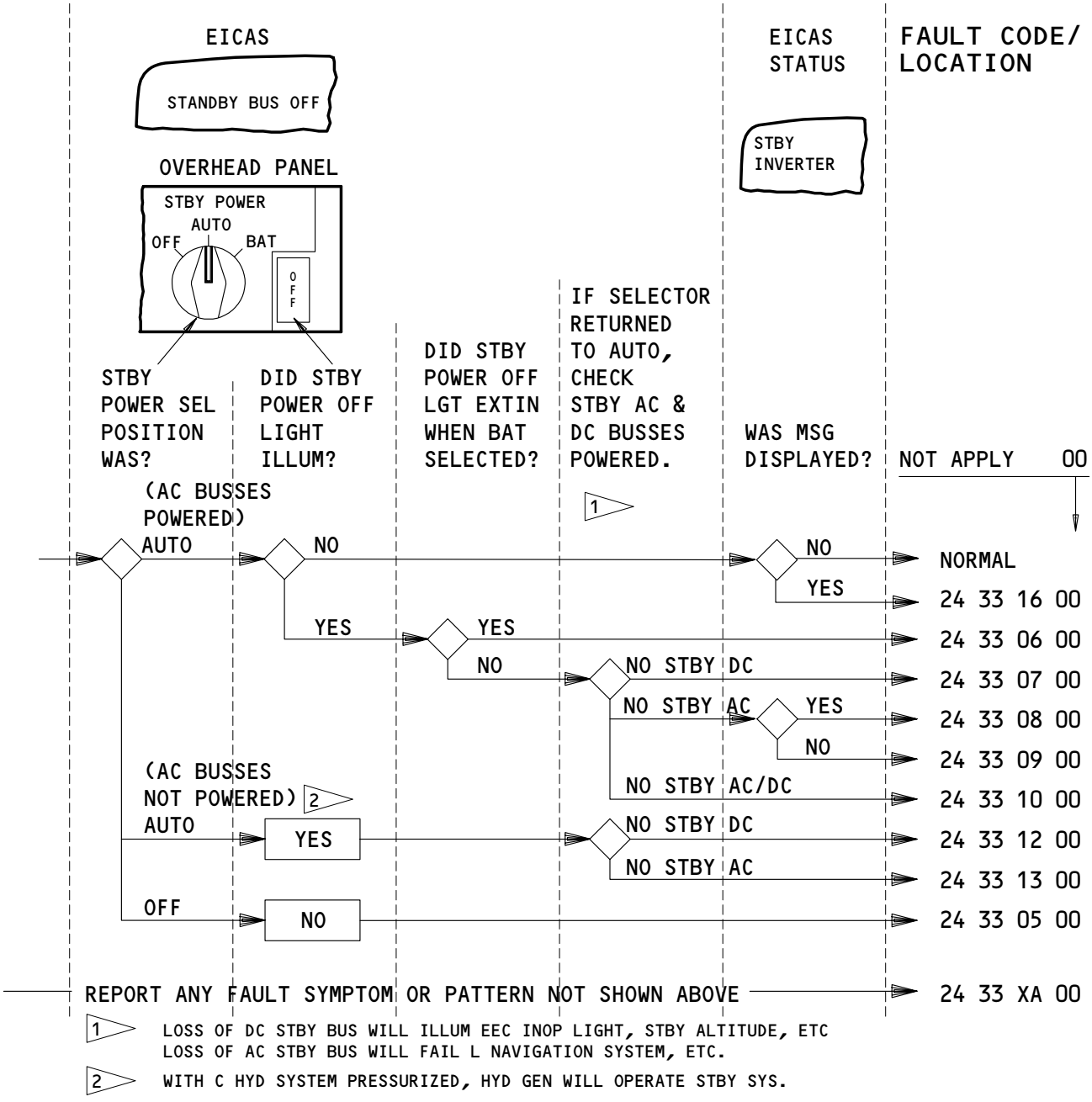
UTILITY BUS – FAULT CODES

EFFECTIVITY

ALL

24-FAULT CODE DIAGRAM

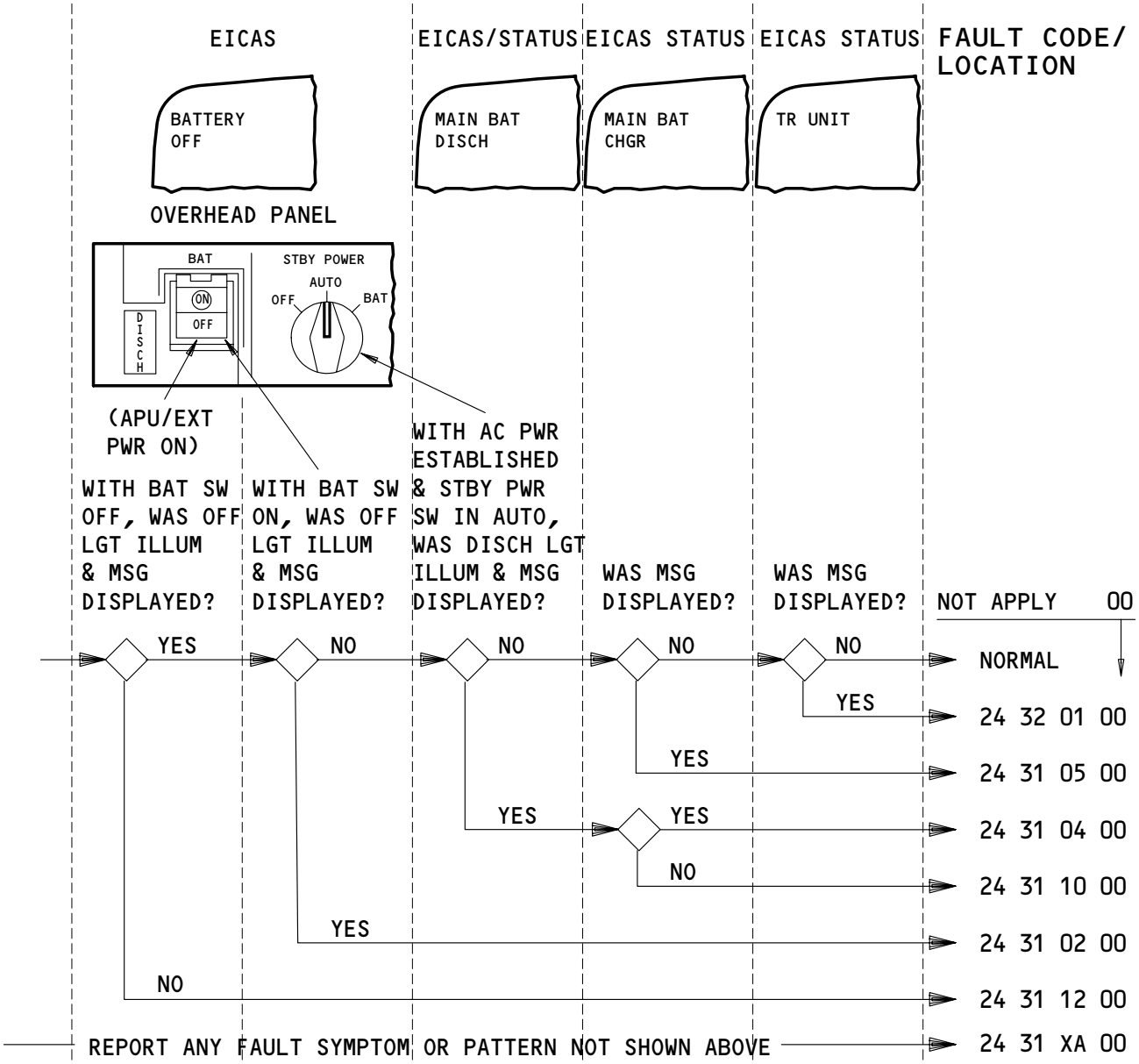
62148



APPLICABLE CIRCUIT BREAKERS

6A1	BAT BUS DISTR	6D2	BAT XFR CONT	6J17	AC STBY BUS PWR
6A2	DC STBY	6D11	INV PWR TRU	6L15	CENTER BUS AC INVERTER
6A5	STBY PWR CONT	6D12	BAT BUS PWR TRU	6L16	VOLT SENSE INVERTER
6A7	HYD GEN CONTR POWER	6J11	BAT BUS PWR	11D1	STANDBY BUS AC
6C11	BAT BUS CONT	6J12	INV PWR BAT	11D2	STANDBY BUS DC

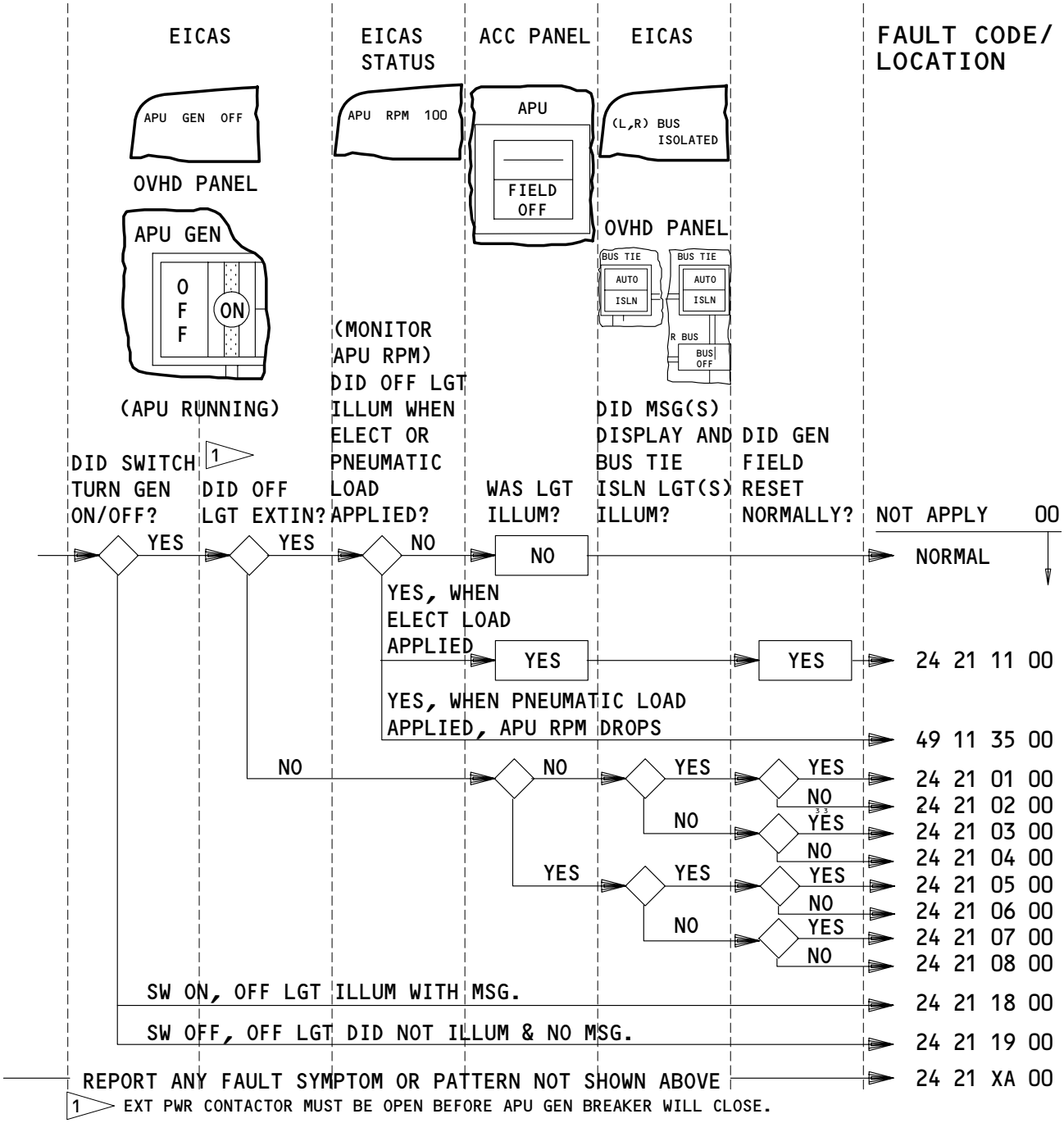
STANDBY POWER – FAULT CODES



APPLICABLE CIRCUIT BREAKERS

6A1	BAT BUS DISTR	6D1	BAT OVHT PROT
6A6	DC BUS TIE CONT	6D2	BAT XFR CONT
6C11	BAT BUS CONT	6D12	BAT BUS PWR TRU
6C12	L DC VOLT SENSE	6J9	MAIN BAT CHGR
6C18	L TRU	6J10	HOT BAT BUS
6C24	R TRU	6J11	BAT BUS PWR

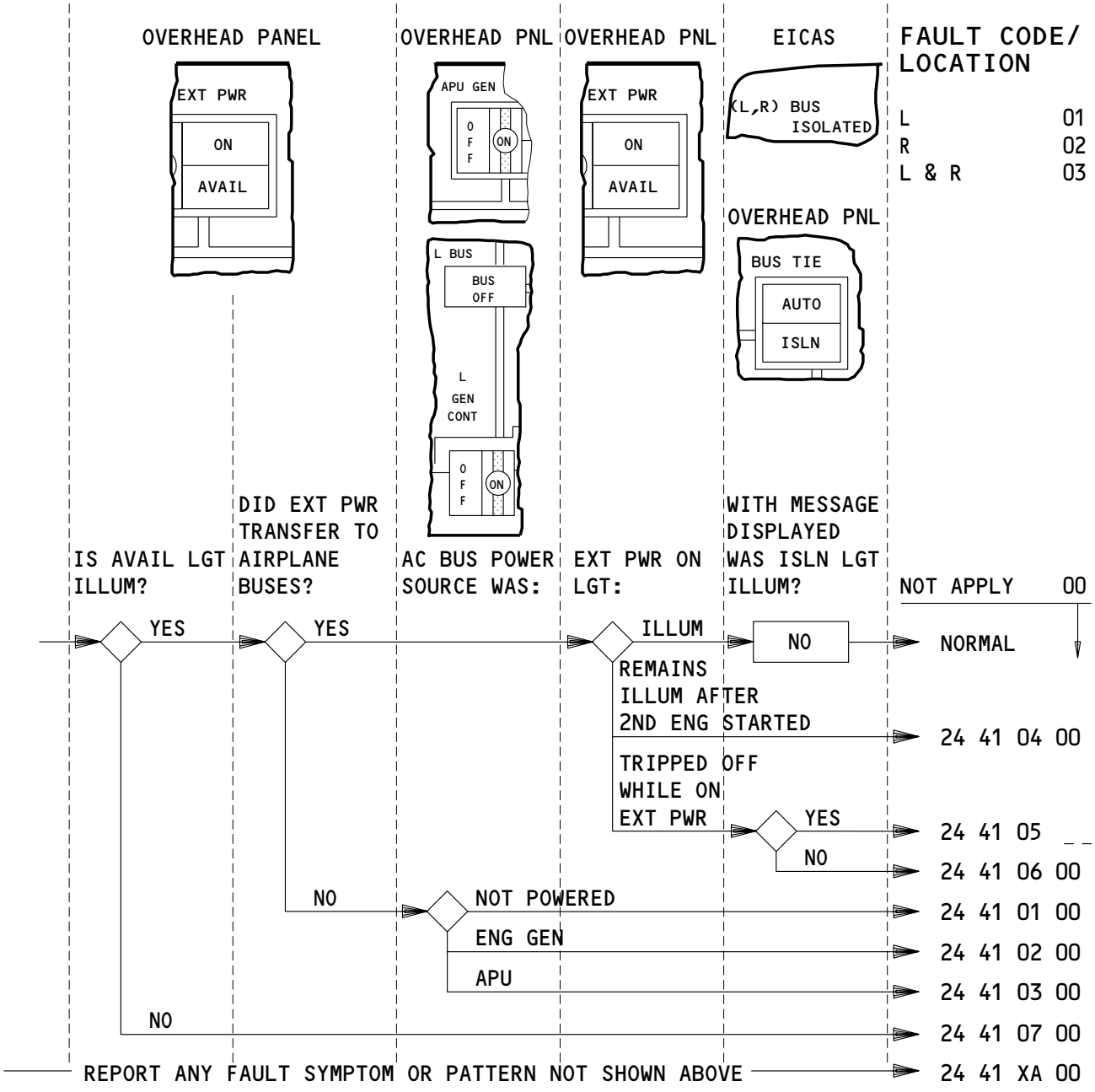
BATTERY AND TR UNITS – FAULT CODES



APPLICABLE CIRCUIT BREAKERS

6A15	115 VAC BUS L SEC 3	6B3	APU GEN CONT UNIT	11T4	UTIL BUS L
6A18	115 VAC BUS L SEC 2	6B4	BUS PWR CONT UNIT	11T31	UTIL BUS R
6A21	115 VAC BUS R SEC 3	6C15	115 VAC BUS L SEC 1	11T32	BPCU SEC
6A24	115 VAC BUS R SEC 2	6C21	115 VAC BUS R SEC 1		

APU GENERATOR – FAULT CODES



APPLICABLE CIRCUIT BREAKERS

6A15	115 VAC BUS L SEC 3	6B3	APU GEN CONT UNIT	11T4	UTIL BUS L
6A18	115 VAC BUS L SEC 2	6B4	BUS PWR CONT UNIT	11T31	UTIL BUS R
6A21	115 VAC BUS R SEC 3	6C15	115 VAC BUS L SEC 1	11T32	BPCU SEC
6A24	115 VAC BUS R SEC 2	6C21	115 VAC BUS R SEC 1		

EXTERNAL POWER – FAULT CODES

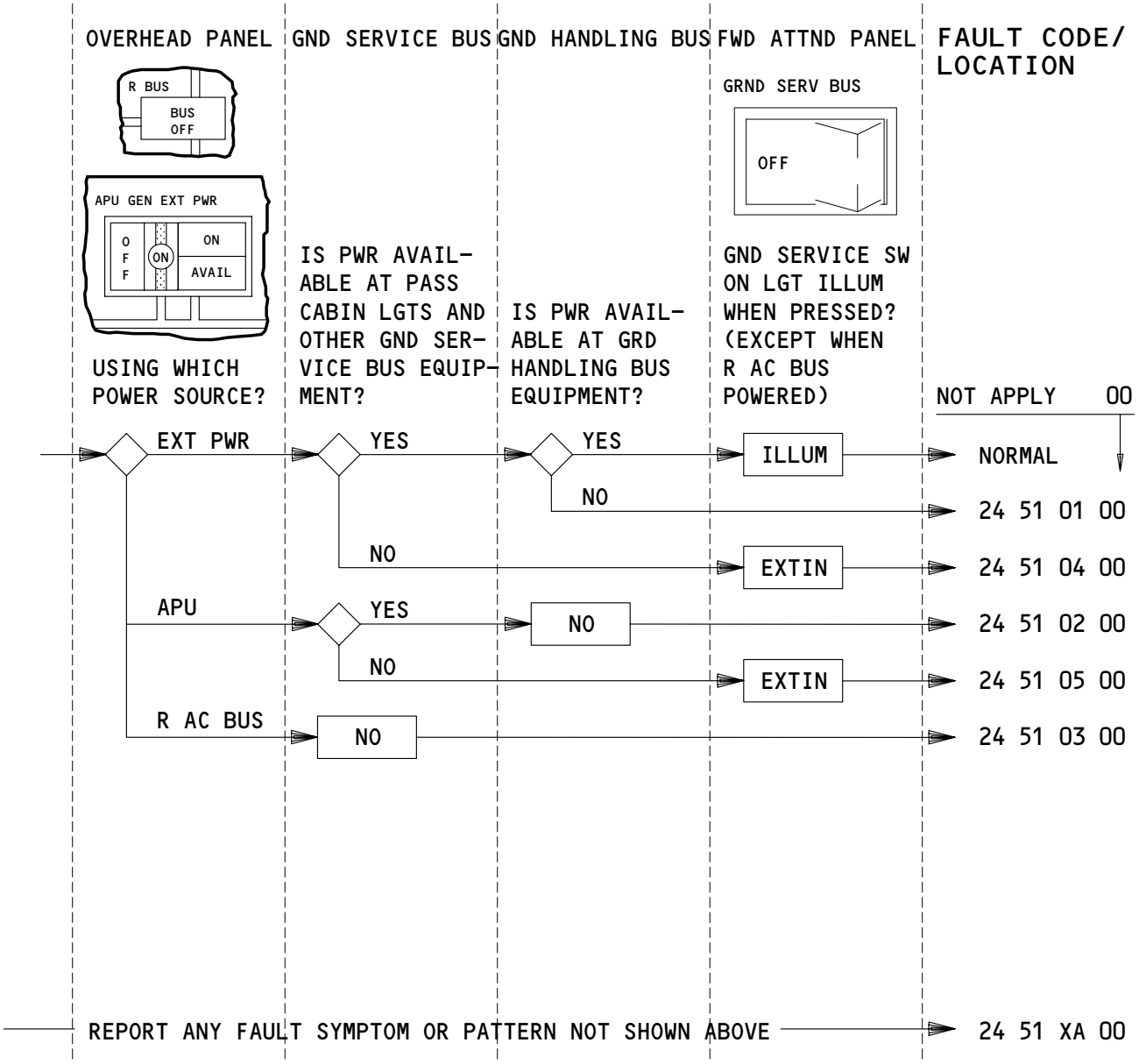
EFFECTIVITY

ALL

24-FAULT CODE DIAGRAM

01

62163



APPLICABLE CIRCUIT BREAKERS

6B1	L GEN CONT UNIT	6B4	BUS PWR CONT UNIT
6B2	R GEN CONT UNIT	11T29	GND SERV LOAD CONT
6B3	APU GEN CONT UNIT	11T32	BPCU SEC

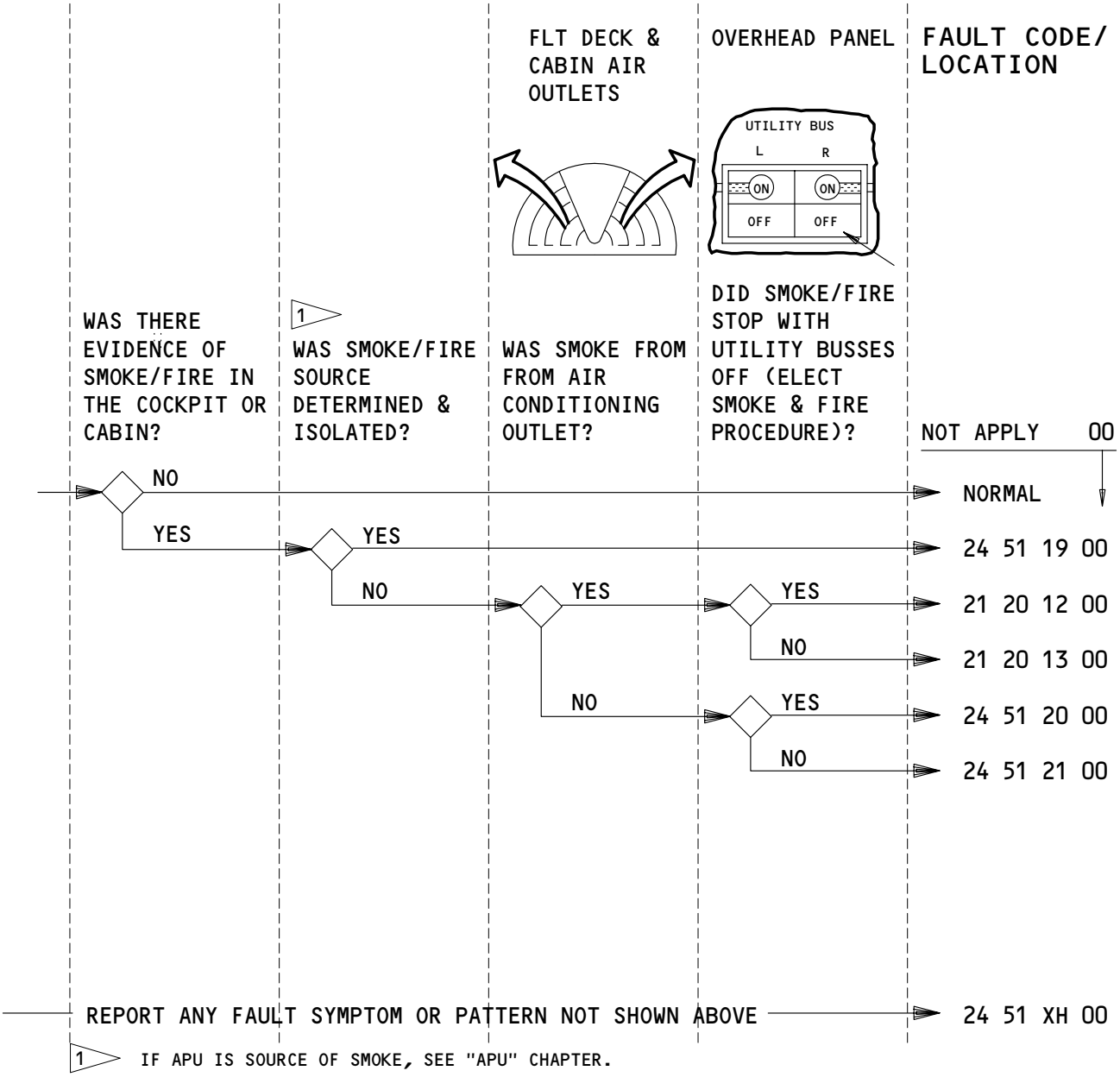
GROUND SERVICE AND GROUND HANDLING – FAULT CODES

EFFECTIVITY

ALL

24-FAULT CODE DIAGRAM

191668



1 IF APU IS SOURCE OF SMOKE, SEE "APU" CHAPTER.

APPLICABLE CIRCUIT BREAKERS

NONE

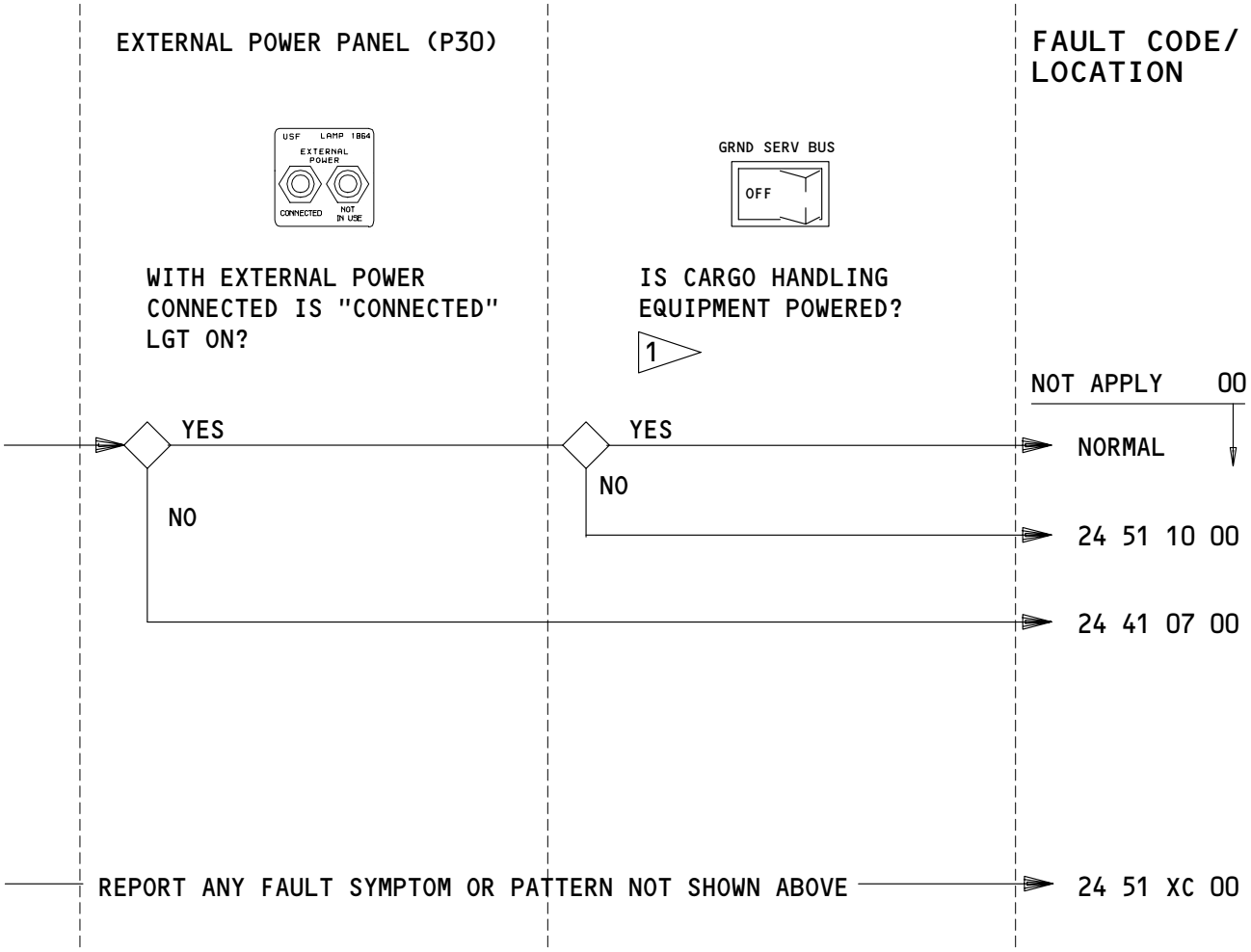
SMOKE/FIRE - FAULT CODES

EFFECTIVITY

ALL

24-FAULT CODE DIAGRAM

94868



1 MOMENTARY OUT-OF-TOLERANCE CONDITIONS MAY CAUSE GROUND HANDLING BUS TO TRIP. RESET GROUND HANDLING BUS BY CYCLING GND SVCE SWITCH ON FORWARD ATTENDANT'S PANEL P21.

APPLICABLE CIRCUIT BREAKERS

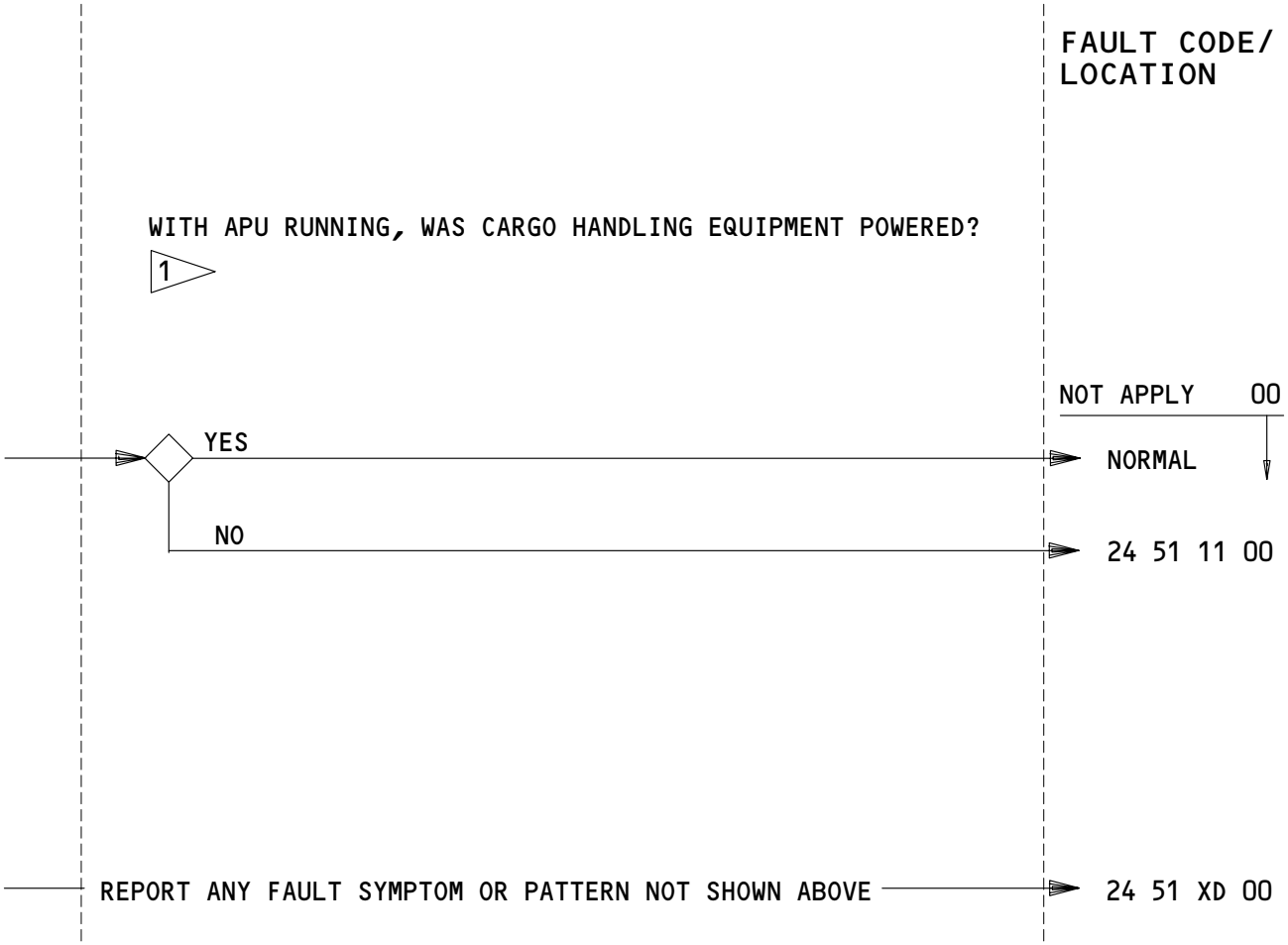
34A2	115 VAC GND HDLG BUS
34A5	CARGO HDLG FWD
34A8	CARGO HDLG AFT
34D9	GND HDLG BUS EXT PWR ϕA
34D10	GND HDLG BUS EXT PWR ϕB
34D11	GND HDLG BUS EXT PWR ϕC
34M6	EXT PWR BPCU

EXTERNAL POWER GROUND HANDLING - FAULT CODES (GROUND)

EFFECTIVITY

ALL

24-FAULT CODE DIAGRAM



1 MOMENTARY OUT-OF-TOLERANCE CONDITIONS MAY CAUSE GROUND HANDLING BUS TO TRIP. CHECK THAT APU GENERATOR FIELD OFF LGT (ON P61) IS NOT ON, AND PRESS GND SVCE SWITCH ON FWD ATTENDANT'S PANEL P21 TO RESET GROUND HANDLING BUS.

APPLICABLE CIRCUIT BREAKERS

6B3	APU GEN CONT UNIT	34A8	CARGO HDLG AFT
6B4	BUS PWR CONT UNIT	34B1	APU PWR GND HDLG BUS ϕA
34A2	115 VAC GND HDLG BUS	34B2	APU PWR GND HDLG BUS ϕB
34A5	CARGO HDLG FWD	34B3	APU PWR GND HDLG BUS ϕC

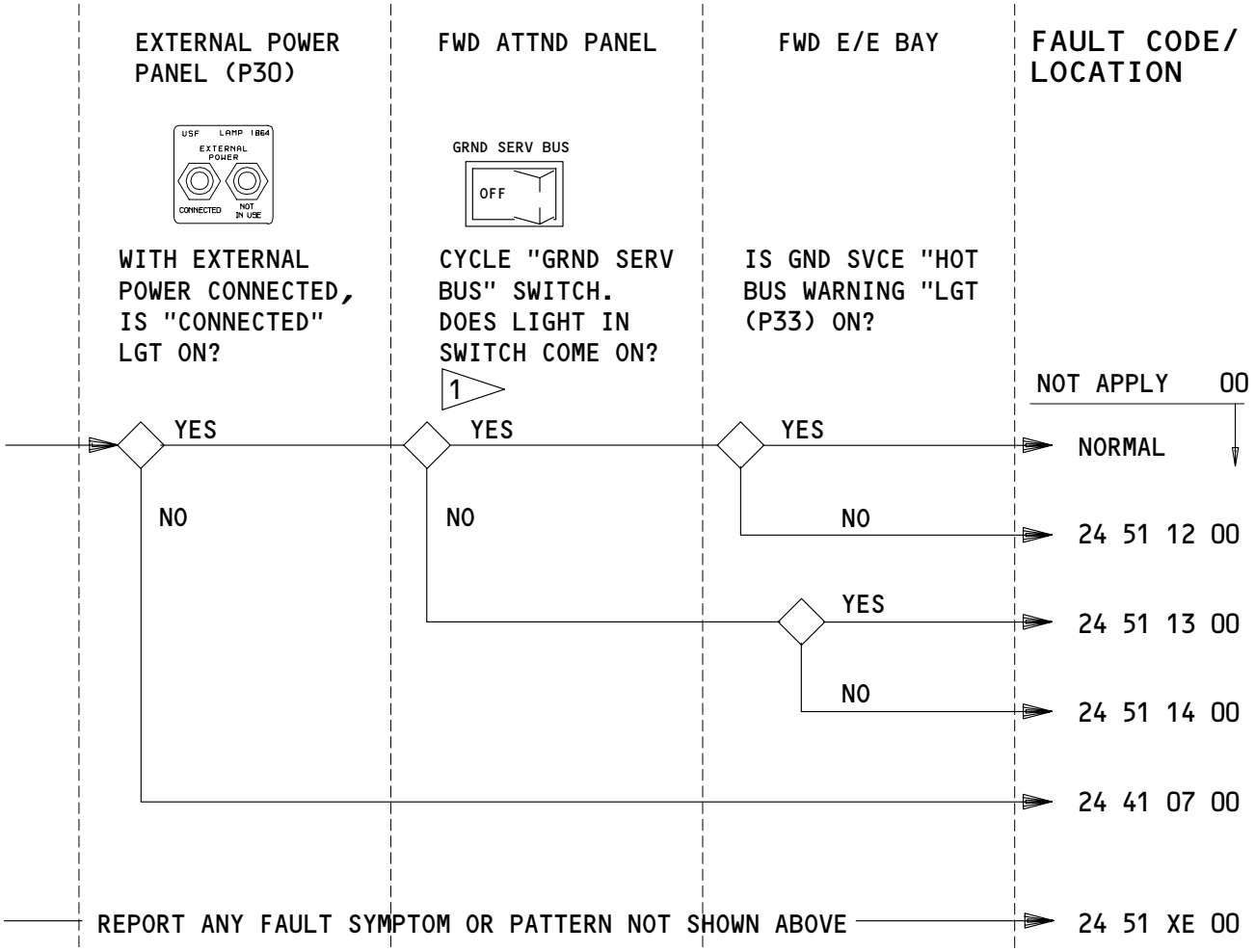
APU POWER GROUND HANDLING - FAULT CODES (GROUND)

EFFECTIVITY

ALL

24-FAULT CODE DIAGRAM

74969



1 MOMENTARY OUT-OF-TOLERANCE CONDITIONS CAN CAUSE GROUND SERVICE BUS TO TRIP. RESET GROUND SERVICE BUS BY CYCLING "GRND SERV BUS" SWITCH ON FORWARD ATTENDANT'S PANEL P21.

APPLICABLE CIRCUIT BREAKERS

34C10	GND SVCE BUS EXT PWR
34M6	EXT PWR BPCU

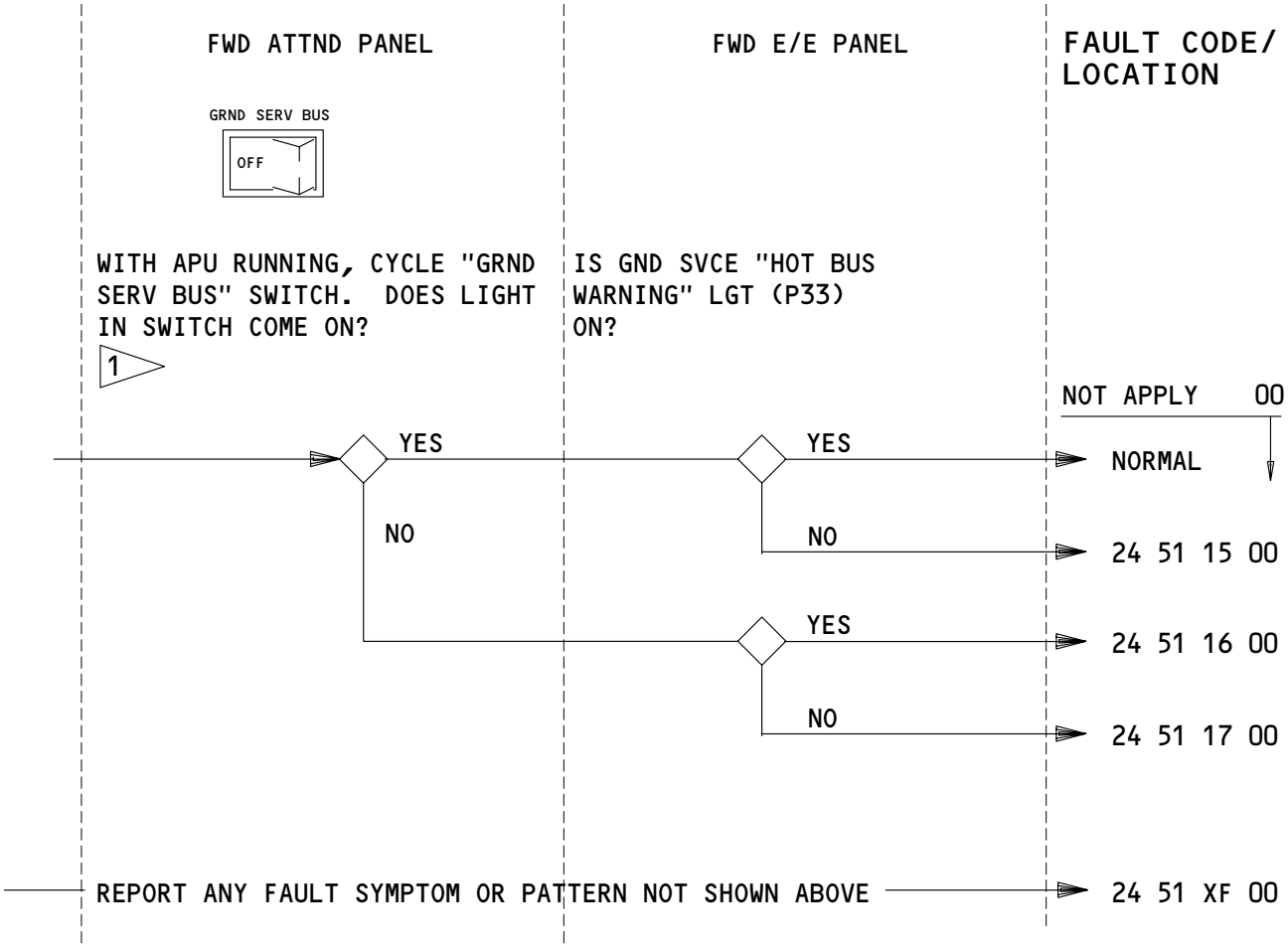
EXTERNAL POWER GROUND SERVICE - FAULT CODES (GROUND)

EFFECTIVITY

ALL

24-FAULT CODE DIAGRAM

74961



1 MOMENTARY OUT-OF-TOLERANCE CONDITIONS CAN CAUSE GROUND SERVICE BUS TO TRIP. CHECK THAT APU GENERATOR FIELD OFF LGT (P61) IS OFF. RESET GROUND SERVICE BUS BY CYCLING "GRND SERV BUS" SWITCH ON FORWARD ATTENDANT'S PANEL P21.

APPLICABLE CIRCUIT BREAKERS

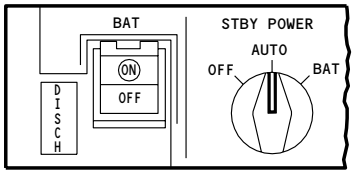
6B3	APU GEN CONT UNIT
6B4	BUS PWR CONT UNIT
34B5	APU PWR GND SVCE BUS

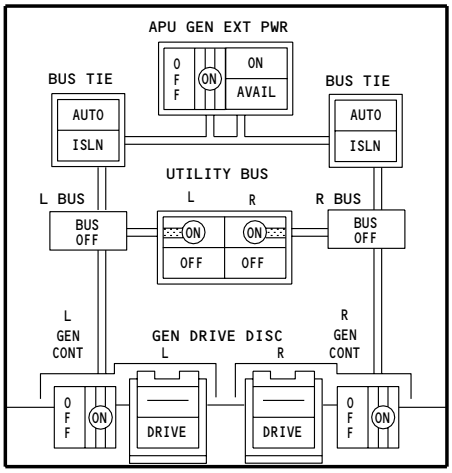
APU POWER GROUND SERVICE - FAULT CODES (GROUND)

74968

OVERHEAD PANEL

FAULT CODE/ LOCATION





WITH EXT PWR SWITCH ON, BAT SWITCH ON, BUS TIE SWITCHES IN AUTO, IS BUS OFF LIGHT ON?

NOT APPLY 00

NO → NORMAL

YES → 24 51 18 00

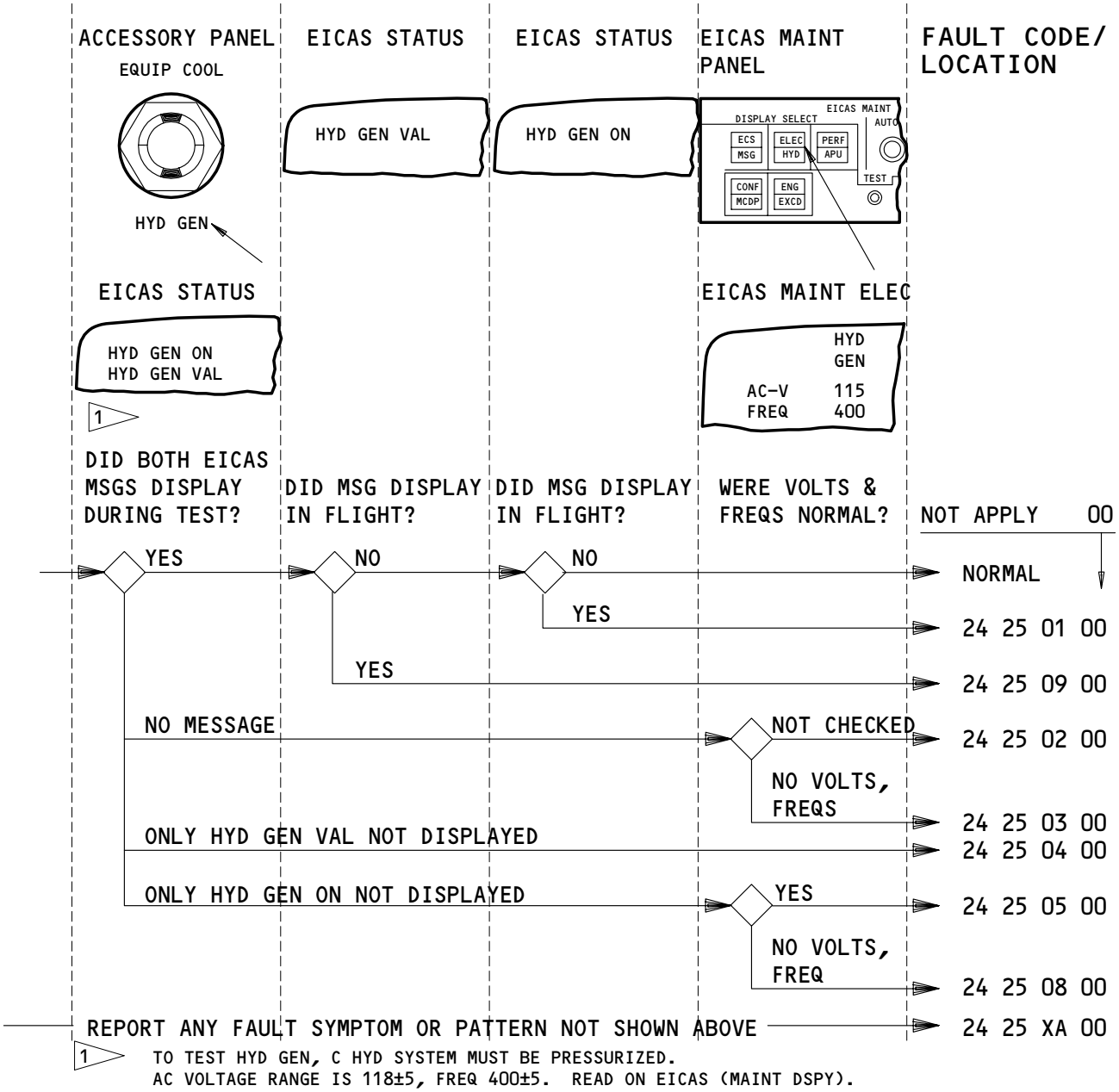
REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE → 24 51 XG 00

APPLICABLE CIRCUIT BREAKERS

6A1	BAT BUS DISTR	6D2	BAT XFR CONT
6B1	GEN CONT UNIT L	6J11	BAT BUS PWR
6B2	GEN CONT UNIT R	34M6	EXT PWR BPCU

6B4	BUS PWR CONT UNIT

EXTERNAL POWER MAIN AC BUSES – FAULT CODES (GROUND)



APPLICABLE CIRCUIT BREAKERS

6A7	HYD GEN CONTR POWER	6J24	28V AC R BUS XFR
6D15	115V AC LEFT XFR BUS	6K18	28V AC L BUS XFR
6F18	115V AC RIGHT XFR BUS	11R4	AC BUS SENSE L
6G12	HYD GEN 28V DC POWER	11R31	AC BUS SENSE R

HYD GEN ON, TEST – FAULT CODES

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 11 XA --	Not Used
24 11 XB --	1. A (O1=L, O2=R) generator drive problem was encountered by the flight crew which is not covered in the fault code diagrams. (Ref fault code diagram for flight crew actions). 2. FIM 24-20-00/101, Fig. 101, Block 1
24 11 XD 00	1. An IDG RISE/OUT temp problem was encountered by the ground crew which is not covered in the fault code diagrams. (Ref fault code diagram for ground crew actions). 2. WDM 24-11-11
24 21 XA 00	1. An APU generator problem was encountered by the flight crew which is not covered in the fault code diagrams. (Ref fault code diagram for fight crew actions). 2. FIM 24-20-00/101, Fig. 101, Block 1
24 22 XA --	Not Used
24 22 XB --	Not Used
24 22 XC --	1. (O1=L, O2=R) Generator and bus tie problems were encountered by the flight crew which were not covered in the fault code diagrams. (Ref fault code diagram for flight crew actions). 2. FIM 24-20-00/101, Fig. 101, Block 1
24 22 XE --	1. A (O1=L, O2=R) gen cont, AC bus tie or gen field switch problem was encountered by the flight crew which is not covered in the fault code diagrams. (Ref fault code diagram for flight crew actions). 2. Replace L (R) gen cont switch YDJS3 (YDJS4), L (R) AC bus tie switch YDJS9 (YDJS10) (AMM 33-13-00) or replace electrical system control panel M10063 (AMM 24-22-01). Replace L (R) gen field switch YDWS9 (YDWS7) (AMM 33-13-00) or replace hyd/gen field control panel M1078 (AMM 24-22-04).

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 22 XF --	1. A (01=L, 02=R) generator and bus tie control problem was encountered by the flight crew which is not covered in the fault code diagrams. (Ref fault code diagram for flight crew actions).
24 25 XA 00	1. A hydraulic generator problem was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagram for flight crew action). 2. FIM 24-25-00/101, Fig. 105, Block 1
24 31 XA 00	1. A battery and T-R unit problem was encountered by the flight crew which is not covered in the fault code diagrams. (Ref fault code diagram for flight crew actions.) 2. SSM 24-31-01, SSM 24-31-02, SSM 24-32-01
24 33 XA 00	1. A standby power problem was encountered by the flight crew which is not covered in the fault code diagrams. (Ref fault code diagram for flight crew actions). 2. SSM 24-33-01
24 41 XA 00	1. An external power problem was encountered by the flight crew which is not covered in the fault code diagrams. (Ref fault code diagram for flight crew actions). 2. FIM 24-20-00/101, Fig. 101, Block 1
24 51 XA 00	1. A ground service or ground handling problem was encountered by the flight crew which is not covered in the fault code diagrams. (Ref fault code diagram for flight crew actions). 2. FIM 24-20-00/101, Fig. 101, Block 1
24 51 XB --	1. (01=L, 02=R, 03=L&R) A utility bus problem was encountered by the flight crew which is not covered in the fault code diagrams. (Ref fault code diagram for flight crew actions.) 2. FIM 24-20-00/101, Fig. 101, Block 1
24 51 XC 00	1. An external power ground handling problem was encountered by the ground crew which is not covered in the fault code diagrams. (Ref fault code diagram for ground crew actions). 2. SSM 24-51-06.

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 51 XD 00	1. An APU ground handling problem was encountered by the ground crew which is not covered in the fault code diagrams. (Ref fault code diagram for ground crew actions). 2. SSM 24-51-06
24 51 XE 00	1. An external power ground service problem was encountered by the ground crew which is not covered in the fault code diagrams. (Ref fault code diagram for ground crew actions). 2. SSM 24-51-05
24 51 XF 00	1. An APU power ground service problem was encountered by the ground crew which is not covered in the fault code diagrams. (Ref fault code diagram for ground crew actions). 2. SSM 24-51-05
24 51 XG 00	1. An external power main ac bus problem was encountered by the ground crew which is not covered in the fault code diagrams. (Ref fault code diagram for ground crew actions.) 2. SSM 24-40-01.
24 51 XH 00	1. A smoke/fire was encountered by the flight crew which is not covered in the fault code diagrams (Ref fault code diagram for ground crew actions). 2. Identify source of smoke and repair. Check for damage to nearby components or wiring and repair as necessary.
24 11 01 __	1. EICAS msg (01=L, 02=R) IDG TEMP SENS (displayed, display intermittent) NOTE: Recurrent IDG temperature and cooling valve EICAS messages and intermittent or steady illumination of the DRIVE light, may be caused by IDG temperature bulb wiring problem resulting from pin/socket wear. To verify this as the cause, perform; Check IDG Receptacle Pin Corrosion/Wear, FIM 24-20-00/101, Fig. 106 2. FIM 24-20-00/101, Fig. 101, Block 1
24 11 02 __	1. EICAS msg (01=L, 02=R) IDG VALVE displayed. 2. FIM 24-20-00/101, Fig. 102, Block 1
24 11 03 -- thru 24 11 06 --	Not Used

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 11 07 --	1. EICAS msg (01=L, 02=R) GEN DRIVE displayed. Gen DRIVE light illum. Gen drive disconnected. NOTE: Recurrent IDG temperature and cooling valve EICAS messages and intermittent or steady illumination of the DRIVE light, may be caused by IDG temperature bulb wiring problem resulting from pin/socket wear. To verify this as the cause, perform; Check IDG Receptacle Pin Corrosion/Wear, FIM 24-20-00/101, Fig. 106 2. FIM 24-20-00/101, Fig. 101, Block 1
24 11 08 --	1. EICAS msg (01=L, 02=R) GEN DRIVE and IDG VALVE displayed. Gen DRIVE light illum. Gen drive disconnected. NOTE: Recurrent IDG temperature and cooling valve EICAS messages and intermittent or steady illumination of the DRIVE light, may be caused by IDG temperature bulb wiring problem resulting from pin/socket wear. To verify this as the cause, perform; Check IDG Receptacle Pin Corrosion/Wear, FIM 24-20-00/101, Fig. 106 2. Reconnect IDG input shaft (AMM 24-11-01). Replace L(R) IDG Air/Oil Heat Exchanger Air Shutoff Valve (AMM 24-11-07).
24 11 09 --	1. EICAS msg (01=L, 02=R) IDG OIL TEMP (displayed, display intermittent) NOTE: Recurrent IDG temperature and cooling valve EICAS messages and intermittent or steady illumination of the DRIVE light, may be caused by IDG temperature bulb wiring problem resulting from pin/socket wear. To verify this as the cause, perform; Check IDG Receptacle Pin Corrosion/Wear, FIM 24-20-00/101, Fig. 106 2. FIM 24-20-00/101, Fig. 101, Block 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 11 10 --	1. EICAS msg (O1=L, O2=R) IDG VALVE, and IDG OIL TEMP displayed. NOTE: Recurrent IDG temperature and cooling valve EICAS messages and intermittent or steady illumination of the DRIVE light, may be caused by IDG temperature bulb wiring problem resulting from pin/socket wear. To verify this as the cause, perform; Check IDG Receptacle Pin Corrosion/Wear, FIM 24-20-00/101, Fig. 106 2. FIM 24-20-00/101, Fig. 101, Block 1
24 11 11 --	1. EICAS msg (O1=L, O2=R) GEN DRIVE and IDG OIL TEMP displayed. Gen DRIVE light illum. Gen drive disconnected. NOTE: Recurrent IDG temperature and cooling valve EICAS messages and intermittent or steady illumination of the DRIVE light, may be caused by IDG temperature bulb wiring problem resulting from pin/socket wear. To verify this as the cause, perform; Check IDG Receptacle Pin Corrosion/Wear, FIM 24-20-00/101, Fig. 106 2. Replace the IDG.
24 11 12 --	1. EICAS msg (O1=L, O2=R) GEN DRIVE, IDG VALVE, and IDG OIL TEMP displayed. Gen DRIVE light illum. Gen DRIVE disconnected. NOTE: Recurrent IDG temperature and cooling valve EICAS messages and intermittent or steady illumination of the DRIVE light, may be caused by IDG temperature bulb wiring problem resulting from pin/socket wear. To verify this as the cause, perform; Check IDG Receptacle Pin Corrosion/Wear, FIM 24-20-00/101, Fig. 106 2. FIM 24-20-00/101, Fig. 101, Block 1
24 11 13 00	1. EICAS msg IDG RISE TEMP displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-20-00/101, Fig. 103A, Block 1
24 11 14 00	1. EICAS msg L IDG VALVE displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-20-00/101, Fig. 102, Block 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 11 15 00	1. EICAS msg R IDG VALVE displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-20-00/101, Fig. 102, Block 1
24 11 16 00	1. EICAS msg L IDG TEMP SENS displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-20-00/101, Fig. 104, Block 1
24 11 17 00	1. EICAS msg R IDG TEMP SENS displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-20-00/101, Fig. 104, Block 1
24 11 18 00	1. EICAS msg L IDG OIL TEMP displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-20-00/101, Fig. 105, Block 1
24 11 19 00	1. EICAS msg R IDG OIL TEMP displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-20-00/101, Fig. 105, Block 1
24 11 20 -- thru 24 11 42	Not Used
24 11 43 --	1. (01=L, 02=R) GEN DRIVE lgt, did not illum with eng shutdown. 2. Do BPCU BITE message FIELD/WIRING GEN/WIRING in TABLE 102 - LEFT AND RIGHT POWER CHANNELS. 3. FIM 24-20-00/101, Fig. 101, Block 1
24 11 44 --	1. EICAS msg (01=L, 02=R) GEN DRIVE and DRIVE warning lgt flickers. IDG (was, was not) disconnected. 2. Replace L (R) IDG G19 (AMM 24-11-01/401). (Faulty charge pressure switch) If fault persists, replace L (R) generator control unit M144 (M146) (AMM 24-22-02).

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 11 45 00	1. EICAS msg IDG OUT TEMP displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-20-00/101, Fig. 103, Block 1
24 11 46 --	1. EICAS msgs' (O1=L, O2=R) GEN DRIVE, IDG TEMP SENS and DRIVE warning lgt flickers. IDG (was, was not) disconnected. NOTE: Recurrent IDG temperature and cooling valve EICAS messages and intermittent or steady illumination of the DRIVE light, may be caused by IDG temperature bulb wiring problem resulting from pin/socket wear. To verify this as the cause, perform; Check IDG Receptacle Pin Corrosion/Wear, FIM 24-20-00/101, Fig. 106 2. FIM 24-20-00/101, Fig. 101, Block 1
24 11 48 --	1. EICAS msgs' (O1=L, O2=R) IDG OIL LEVEL displayed. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 11 49 --	1. EICAS msgs' (O1=L, O2=R) GEN DRIVE and IDG OIL LEVEL displayed. GEN DRIVE light illluminated. Gen drive disconnected. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 11 50 00	1. IDG RISE temperature blank and IDG OUT temperature is normal on the EICAS display. 2. Replace the HYD Gen Field Control Panel, M1087 (AMM 24-22-04/401). NOTE: Probable cause is the K1 Timer located in M1087 panel. 3. If the problem continues repair wiring (WDM 24-11-11).

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 11 51 00	1. IDG OUT temperature blank and IDG RISE temperature is normal on the EICAS display. 2. Replace the HYD Gen Field Control Panel, M1087 (AMM 24-22-04/401). NOTE: Probable cause is the K1 Timer located in M1087 panel. 3. If the problem continues repair wiring (WDM 24-11-11).
24 21 01 00	1. EICAS msg APU GEN OFF displayed and APU gen OFF lgt illum with APU running. EICAS msgs L AND R BUS ISOLATED displayed and bus tie ISLN lgts illum. Generator reset OK. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 21 02 00	1. EICAS msg APU GEN OFF displayed and APU gen OFF lgt illum with APU running. EICAS msgs L AND R BUS ISOLATED displayed and bus tie ISLN lgts illum. Generator would not reset. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 21 03 00	1. EICAS msg APU GEN OFF displayed and APU gen OFF lgt illum with APU running. Generator reset OK. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 21 04 00	1. EICAS msg APU GEN OFF displayed and APU gen OFF lgt illum with APU running. Generator would not reset. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 21 05 00	1. EICAS msg APU GEN OFF displayed and APU gen OFF lgt illum with APU running. APU FIELD OFF lgt illum. EICAS msg L AND R BUS ISOLATED displayed and bus tie ISLN lgts illum. Generator reset OK. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 21 06 00	1. EICAS msg APU GEN OFF displayed and APU gen OFF lgt illum with APU running. APU FIELD OFF lgt illum. EICAS msg L AND R BUS ISOLATED displayed and bus tie ISLN lgts illum. APU FIELD (would not reset, reset then retrip). 2. FIM 24-20-00/101, Fig. 101, Block 1
24 21 07 00	1. EICAS msg APU GEN OFF displayed and APU gen OFF lgt illum with APU running. APU FIELD OFF lgt illum. Generator reset OK. 2. FIM 24-20-00/101, Fig. 101, Block 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 21 08 00	1. EICAS msg APU GEN OFF displayed and APU gen OFF lgt illum with APU running. APU FIELD OFF lgt illum. Generator would (not reset, reset then retrip). 2. FIM 24-20-00/101, Fig. 101, Block 1
24 21 09 00 thru 24 21 10 00	Not Used
24 21 11 00	1. EICAS msg APU GEN OFF displayed. APU gen OFF and FIELD OFF lgts illum when electrical load applied. APU voltage and freq normal with no electrical load. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 21 12 00 thru 24 21 17 00	Not Used
24 21 18 00	1. APU gen failed to sw ON. APU gen OFF lgt illum and EICAS msg APU GEN OFF displayed. 2. Replace APU gen Control Switch YDJS11 (AMM 33-13-00) or replace electrical system control panel M10063 (AMM 24-22-01). If fault persists, replace APU GCU M143 (AMM 24-22-02).
24 21 19 00	1. APU gen failed to sw OFF. APU gen OFF did not illum and EICAS msg APU GEN OFF did not display. 2. Replace APU gen Control Switch YDJS11 (AMM 33-13-00) or replace electrical system control panel M10063 (AMM 24-22-01).
24 22 01 -- thru 24 22 06 --	Not Used
24 22 07 --	1. EICAS msg (L, R) GEN OFF displayed. (01=L, 02=R) GEN OFF and FIELD OFF lgts illum. Operated norm after reset. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 22 08 --	1. EICAS msg (L, R) GEN OFF displayed. (01=L, 02=R) GEN OFF and FIELD OFF lgts illum. (Failed to reset, gen reset then retripped). 2. FIM 24-20-00/101, Fig. 101, Block 1
24 22 09 -- thru 24 22 16 --	Not Used

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 22 17 --	1. EICAS msg (L, R) GEN OFF displayed. (O1=L, O2=R) GEN OFF lgt illum. Operated norm after reset. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 22 18 --	1. EICAS msg (L, R) GEN OFF displayed. (O1=L, O2=R) GEN OFF lgt illum and (failed to reset, gen reset then retripped). 2. FIM 24-20-00/101, Fig. 101, Block 1
24 22 19 --	1. EICAS msg (L, R) GEN OFF, BUS ISOLATED, and AC BUS OFF displayed. (O1=L, O2=R) GEN OFF, ISLN, and BUS OFF lgts illum. Operated norm after gen cont reset. Bus tie reset not attempted. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 22 20 --	1. EICAS msg (L, R) GEN OFF, BUS ISOLATED, and AC BUS OFF displayed. (O1=L, O2=R) GEN OFF, ISLN, and BUS OFF lgts illum. Gen cont would (not reset, reset then retrip). Bus tie reset was not attempted. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 22 21 --	1. EICAS msg (L, R) GEN OFF, BUS ISOLATED, and BUS OFF displayed. (O1=L, O2=R) GEN OFF, FIELD OFF, and ISLN lgts illum. Gen cont and field reset norm. Bus tie reset not attempted. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 22 22 --	1. EICAS msg (L, R) GEN OFF, BUS ISOLATED, and BUS OFF displayed. (O1=L, O2=R) GEN OFF, FIELD OFF, and ISLN lights illum. Gen cont or field would (not reset, reset then retrip). Bus tie reset not attempted. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 22 23 --	Not Used
24 22 24 --	Not Used
24 22 25 00	1. EICAS msg CAPT INSTR XFER displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-22-00/101, Fig. 103, Block 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 22 26 --	1. EICAS msg (O4=CAPT, O5=F/O) INSTR XFER displayed. (Capt's left F/O's right ac bus was powered). 2. (O4=CAPT) Replace captain's instrument bus voltage sensing unit M1079 (AMM 24-51-04). (O5=F/O) Replace first officer's instrument bus voltage sensing unit M1217 (AMM 24-51-04).
24 22 37 --	Not Used
24 22 38 00	1. EICAS msg F/O INSTR XFER displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-22-00/101, Fig. 104, Block 1
24 22 39 --	1. EICAS msg (L, R) BUS ISOLATED displayed. (O1=L, O2=R) ISLN lgt illum. Reset not attempted. 2. FIM 24-20-00/101, Fig. 101, Block 1 If no fault found, replace L(R) BUS Tie Switch JDJS9 (YDJS10) (AMM 33-13-00) or replace electrical system control panel M10063 (AMM 24-22-01).
24 22 40 --	1. EICAS msg (O1=L, O2=R) GEN OFF displayed intermittently. 2. Replace L(R) IDG G19 (AMM 24-11-01). If fault persists, check and repair circuit between following points: L(R) IDG connector D10966 pin 1 and L(R) GCU M144 (M146) connector D248A (D256A) pin A4 L(R) IDG connector D10966 pin 2 and L(R) GCU M144 (M146) connector D248A (D256A) pin B4 If fault persists, replace L(R) GCU M144 (M146) (AMM 24-22-02).
24 22 41 --	1. Gen FIELD OFF light illum with FIELD OFF sw pressed. Gen was inop. 2. Replace gen field Control Switch YDWS7 (YDWS8, YDWS9) (AMM 33-13-00) or replace gen field and hyd panel M1087 (AMM 24-22-04).
24 22 42 --	1. Gen FIELD OFF light did not illum with FIELD OFF sw pressed. Gen cont sw was off. 2. Replace gen field Control Switch YDWS7 (YDWS8, YDWS9) (AMM 33-13-00) or replace gen field and hyd panel M1087 (AMM 24-22-04).

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 22 43 --	1. (O1=L, O2=R) Bus tie sw failed to close (latched in) Bus tie breaker. (L, R) Bus tie ISLN lgt illum and EICAS msg (L, R) BUS ISOLATED displayed. 2. Replace L (R) Bus Tie Switch JDJS9 (YDJS10) (AMM 33-13-00) or replace electrical system control panel M10063 (AMM 24-22-01).
24 22 44 --	1. (O1=L, O2=R) Bus tie sw failed to open (not latched) Bus tie breaker. (L, R) Bus tie ISLN lgt did not illum and EICAS msg (L, R) BUS ISOLATED did not display. 2. Replace L (R) Bus Tie Switch JDJS9 (YDJS10) (AMM 33-13-00) or replace electrical system control panel M10063 (AMM 24-22-01).
24 22 45 --	1. (O1=L, O2=R) Gen sw failed to close (latched in) Gen Breaker. (L, R) gen OFF lgt illum and EICAS msg (L, R) GEN OFF displayed. 2. Replace L (R) gen control Switch YTHS3 (YTHS4) (AMM 33-13-00) or replace electrical system control panel M10063 (AMM 24-22-01).
24 22 46 --	1. (O1=L, O2=R) Gen sw failed to open (not latched) Gen Breaker. (L, R) gen OFF lgt did not illum and EICAS msg (L, R) GEN OFF did not display. 2. Replace L (R) gen control Switch YTHS3 (YTHS4) (AMM 33-13-00) or replace electrical system control panel M10063 (AMM 24-22-01).
24 22 47 --	1. EICAS msg (O4=CAPT, O5=F/O) INSTR XFER displayed. (Left for Capt, right for F/O) AC bus was powered. 2. (O4=CAPT) Replace Captain's Instrument Bus Voltage Sensing Unit M1079 (AMM 24-51-04). (O5=F/O) Replace First Officer's Instrument Bus Voltage Sensing Unit M1079 (AMM 24-51-04).
24 22 48 --	1. EICAS msg (O1=L, O2=R) GEN OFF displayed. (O1=L, O2=R) gen OFF light illuminated. Condition returned to normal after generator switch reset. 2. FIM 24-20-00/101, Fig.101, Block 1.
24 22 49 --	1. EICAS msg (O1=L, O2=R) GEN OFF displayed. (O1=L, O2=R) gen OFF light illuminated. Generator reset did not correct condition, EICAS msg (O1=L, O2=R) AC BUS OFF remained displayed, (O1=L, O2=R) BUS OFF light remained illuminated, with APU gen light extinguised, bus tie reset normal. 2. FIM 24-20-00/101, Fig.101, Block 1.

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 22 50 --	1. EICAS msg (O1=L, O2=R) GEN OFF displayed. (O1=L, O2=R) gen OFF light illuminated. Generator reset did not correct condition, EICAS msg (O1=L, O2=R) AC BUS OFF remained displayed, (O1=L, O2=R) BUS OFF light remained illuminated, with APU gen light extinguised, bus tie reset not normal. 2. FIM 24-20-00/101, Fig.101, Block 1.
24 22 51 --	1. EICAS msg (O1=L, O2=R) GEN OFF displayed. (O1=L, O2=R) gen OFF light illuminated. Generator reset did not correct condition. 2. FIM 24-20-00/101, Fig. 101, Block 1.
24 25 01 00	1. EICAS msg HYD GEN ON displayed during flight. 2. FIM 24-25-00/101, Fig. 104, Block 1
24 25 02 00	1. EICAS msgs HYD GEN VAL and HYD GEN ON did not display during hyd gen test. Volts and frequency not checked. 2. FIM 24-25-00/101, Fig. 105, Block 1
24 25 03 00	1. EICAS msgs HYD GEN VAL and HYD GEN ON did not display during hyd gen test. No volts & freq output. 2. FIM 24-25-00/101, Fig. 105, Block 1
24 25 04 00	1. Only EICAS msg HYD GEN VAL not displayed during hyd gen test. 2. FIM 24-25-00/101, Fig. 105, Block 1
24 25 05 00	1. Only EICAS msg HYD GEN ON not displayed during hyd gen test. Hyd gen volts & freqs were normal. 2. FIM 24-25-00/101, Fig. 105, Block 1
24 25 06 00	1. EICAS msg HYD GEN ON displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-25-00/101, Fig. 104, Block 1
24 25 07 00	1. EICAS msg HYD GEN VAL displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-25-00/101, Fig. 103, Block 1
24 25 08 00	1. Only EICAS msg HYD GEN ON not displayed during hyd gen test. No volts or freq output. 2. FIM 24-25-00/101, Fig. 105, Block 1
24 25 09 00	1. EICAS msg HYD GEN VAL displayed during flight. 2. FIM 24-25-00/101, Fig. 103, Block 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 31 01 --	Not Used
24 31 02 00	1. EICAS msg BATTERY OFF displayed. BAT OFF lgt illum with BAT SW ON. 2. Replace standby power control panel (AMM 24-33-04).
24 31 03 00	1. EICAS msg MAIN BAT CHGR displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-31-00/101, Fig. 103, Block 1
24 31 04 00	1. EICAS msg MAIN BAT DISCH and MAIN BAT CHGR displayed. Bat DISCH lgt illum. 2. Replace main battery charger (AMM 24-31-02). Perform EICAS erase procedure (FIM 31-41-00/101, Fig. 109) and verify MAIN BAT CHGR message disappears.
24 31 05 00	1. EICAS msg MAIN BAT CHGR displayed. Bat DISCH lgt did not illum. 2. FIM 24-31-00/101, Fig. 103, Block 1
24 31 06 00 thru 24 31 09 00	Not Used
24 31 10 00	1. EICAS msg MAIN BAT DISCH displayed and bat DISCH lgt illum. STBY power sw. in AUTO. 2. Replace main battery current monitor (AMM 24-31-03).
24 31 11 00	Not Used
24 31 12 00	1. Bat sw failed to turn OFF (not latched in) BAt. EICAS msg BATTERY OFF did not display or Bat OFF lgt illum. (APU/EXT) power was ON. 2. Replace battery switch YDIS2 (AMM 33-13-00) or replace standby power control panel M10062 (AMM 24-33-04).
24 32 01 00	1. EICAS msg TR UNIT displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-32-00/101, Fig. 103, Block 1
24 33 01 00	1. EICAS msg STBY INVERTER displayed (Ref Chapter 31 for fault code diagram). 2. FIM 24-33-00/101, Fig. 106, Block 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 33 02 00	1. Stby power sw in AUTO. Stby power OFF lgt illum. 2. FIM 24-33-00/101, Fig. 103, Block 1
24 33 03 00	1. Stby power sw on BAT, stby power OFF lgt illum. 2. FIM 24-33-00/101, Fig. 104, Block 1
24 33 04 00	1. Stby power sw on BAT, stby power OFF lgt illum, EICAS msg STBY INVERTER. 2. FIM 24-33-00/101, Fig. 105, Block 1
24 33 05 00	1. Stby power sw OFF. Stby power OFF lgt extin. 2. Replace standby power relay K109 (AMM 24-33-01). If fault persists, replace standby power control panel M10062 (AMM 24-33-04).
24 33 06 00	1. EICAS msg STANDBY BUS OFF displayed 2. FIM 24-33-00/101, Fig. 107, Block 1.
24 33 07 00	1. No standby dc power. EICAS msg STANDBY BUS OFF displayed. Stby power bus OFF lgt illum. Both indications same when STBY POWER momentarily selected to BAT. 2. Replace standby power relay K109 (AMM 24-33-01).
24 33 08 00	1. No standby ac power. EICAS msg STANDBY BUS OFF and STBY INVERTER displayed. Stby power bus OFF lgt illum. Both indications same when STBY POWER momentarily selected to BAT. 2. Replace static inverter M217 (AMM 24-33-03). Perform EICAS erase procedure (FIM 31-41-00/101, Fig. 109) and verify STBY INVERTER message disappears.
24 33 09 00	1. No Standby AC Power 2. FIM 24-33-00/101, Fig. 103, Block 1.
24 33 10 00	1. Both ac and dc standby power lost. EICAS msg STANDBY BUS OFF displayed. Stby power bus OFF lgt illum. Both indications same when STBY POWER momentarily selected to BAT. 2. Replace standby power relay K109 (AMM 24-33-01). If fault persists replace standby power control panel M10062 (AMM 24-33-04).

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 33 12 00	1. No STBY DC Power with standby power on Bat 2. FIM 24-33-00/101, Fig. 104, Block 1.
24 33 13 00	1. No STBY AC Power with standby power on BAT 2. FIM 24-33-00/101, Fig. 104, Block 1.
24 33 14 00	1. EICAS msg. STBY INVERTER displayed. STBY POWER OFF lgt extin and STBY PWR sw. in AUTO. 2. FIM 24-33-00/101, Fig. 106, Block 1
24 33 15 00	Not Used
24 33 16 00	1. EICAS msg STBY INVERTER displayed with stby sel sw in AUTO and OFF lgt extin. 2. FIM 24-33-00/101, Fig. 106, Block 1
24 41 01 00	1. Ext pwr ON lgt extin when pressed, with AVAIL lgt illum and no AC power on airplane. 2. FIM 24-41-00/101, Fig. 103, Block 1
24 41 02 00	1. Ext pwr ON lgt extin when pressed, with AVAIL lgt illum and engine gens powering AC buses. 2. FIM 24-20-00/101, Figure 101, Block 1. If the problem continues, do a check for the air/ground inputs to pin A1 ot the GCU (WDM 24-22-11,WDM 24-21).
24 41 03 00	1. Ext pwr ON lgt extin when pressed, with AVAIL lgt illum and APU gen power AC buses. 2. FIM 24-20-00/101, Figure 101, Block 1. If the problem continues, do a check for the air/ground inputs at pin A1 of the GCU (WDM 24-22-11,WDM 24-12).
24 41 04 00	1. Ext pwr ON lgt failed to extin when eng gens come on AC buses. 2. FIM 24-20-00/101, Figure 101, Block 1
24 41 05 __	1. Ext pwr tripped off, ext pwr ON lgt extin. Ext pwr AVAIL lgt illum. EICAS msg (R, L) BUS ISOLATED, (01=L bus tie, 02=R bus tie, 03=Both bus tie) ISLN lgt(s) illum. 2. FIM 24-20-00/101, Figure 101, Block 1
24 41 06 00	1. Ext pwr tripped off, ext pwr ON lgt extin, ext pwr AVAIL lgt illum. Bus tie ISLN lgts extin. 2. FIM 24-20-00/101, Figure 101, Block 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 41 07 00	1. External power AVAIL or CONNECTED lgt extin with external power connected to receptacle. 2. FIM 24-41-00/101, Fig. 104, Block 1
24 51 01 00	1. Ground handling bus equipment (cargo doors, loading equipment) inoperative with external power AVAIL lgt illum. 2. FIM 24-20-00/101, Figure 101, Block 1
24 51 02 00	1. Ground handling bus equipment (cargo doors, loading equipment) inoperative with APU power avail. 2. FIM 24-20-00/101, Figure 101, Block 1
24 51 03 00	1. Ground service bus inoperative with R AC bus powered. 2. FIM 24-20-00/101, Figure 101, Block 1
24 51 04 00	1. Ground service bus inoperative with external power AVAIL lgt illum and GRND SERV BUS switch extinguished when pressed on at fwd attnd panel. 2. FIM 24-20-00/101, Figure 101, Block 1
24 51 05 00	1. Ground service bus inoperative with APU power avail and GND SERV BUS switch extin when pressed on at fwd attnd panel. 2. FIM 24-20-00/101, Figure 101, Block 1
24 51 06 --	1. EICAS msg (L, R) UTIL BUS OFF displayed. (01=L, 02=R, 03=L and R) UTILITY BUS OFF lgt illum. This occured during (grd oprn, or inflt 2 gen oprn). 2. (01=L, 02=R) FIM 24-51-00/101, Figure 104, Block 1. (03=L and R) Check GCB/APB aux contact into BPCU.
24 51 07 03	1. Both L and R utility bus off lgts illum during 1 gen oprn on grd. 2. Replace the time delay module M1161. (SSM 32-09-02, Sheet 2)
24 51 08 --	1. (01=L, 02=R, 03=L and R) UTILITY BUS OFF lgt failed to illum during 1 gen oprn in flt. 2. Check GCB/APB aux contact input into BPCU. Replace bus power control unit M116 (AMM 24-41-03).
24 51 09 --	1. (01=L, 02=R, 03=L and R) UTILITY BUS OFF lgt remained illum after engine start using APU. 2. FIM 24-51-00/101, Figure 105, Block 1.

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 51 10 00	1. Ground handling equipment not powered with external power CONNECTED lgt on. 2. Reset ground handling bus by cycling GRND SER BUS switch on forward attendants' panel P21. If fault persists, FIM 24-20-00/101, Fig. 101, Block 1.
24 51 11 00	1. Ground handling equipment unpowered with APU running. 2. Check that APU FIELD OFF light on P61 is off, then reset ground handling bus by cycling GRND SER BUS switch on forward attendant's panel P21. If fault persists, FIM 24-51-00/101, Fig. 106, Block 1.
24 51 12 00	1. Ground service bus is unpowered. HOT BUS WARNING light is off and light in GRND SER BUS is on. External power CONNECTED light is on. 2. FIM 24-20-00/101, Fig. 101, Block 1. If HOT BUS WARNING light is off after power is restored to ground service bus, relamp HOT BUS WARNING light.
24 51 13 00	1. Light in GRND SERV BUS switch does not come on after switch is cycled and HOT BUS WARNING light is on. External power CONNECTED light is on. 2. Replace GRND SERV BUS switch S27 (WDM 24-51-51).
24 51 14 00	1. Ground service bus is unpowered. HOT BUS WARNING light is off and light in GRND SERV BUS switch does not come on after switch is cycled. External power CONNECTED light is on. 2. FIM 24-20-00/101, Fig. 101, Block 1
24 51 15 00	1. Ground service bus is unpowered. HOT BUS WARNING light is off and light in GRND SERV BUS is on. APU is running. 2. FIM 24-20-00/101, Fig. 101, Block 1. If HOT BUS WARNING light it off after power is restored to ground service bus, relamp HOT BUS WARNING light.
24 51 16 00	1. Light in GRND SERV BUS switch does not come on after switch is cycled and HOT BUS WARNING light is on. APU is running. 2. Replace GRND SERV BUS switch S27 (WDM 24-51-51).
24 51 17 00	1. Ground service bus unpowered. HOT BUS WANRING light is off and light in GRND SERV BUS switch does not come on after switch is cycled. APU is running. 2. FIM 24-20-00/101, Fig. 101, Block 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
24 51 18 00	1. With EXT PWR switch ON, BAT switch ON, BUS TIE switches in AUTO, BUS OFF light is on. 2. FIM 24-41-00/101, Fig. 105, Block 1.
24 51 19 00	1. (Fire, Smoke) from (identify item or sys). 2. Identify source of (fire, smoke) and repair. Check for damage to nearby components or wiring and repair as necessary.
24 51 20 00	1. Smoke in cabin. Stopped with both utility busses OFF. Smoke did not appear to be from air conditioning outlets. 2. Identify and repair any utility bus load causing smoke (WDM 24-51-13, WDM 24-51-23). Check for damage to nearby components or wiring and repair as necessary.
24 51 21 00	1. Smoke in cabin. Continued with both utility busses OFF. Smoke did not appear to be from air conditioning outlets. 2. Identify source of smoke and repair. Check for damage to nearby components or wiring and repair as necessary.
24 51 22 --	1. (01=L, 02=R) utility bus OFF lgt extin after eng start using APU. 2. FIM 24-51-00/101, Fig. 103, Block 1.
24 51 23 --	1. (01=L, 02=R) utility bus sw failed to turn (not latched in) OFF utility bus. (L,R) UTIL BUS OFF did not display or OFF lgt illum. 2. Replace L(R) utility bus switch/light YDJS7 (YDJS8) (AMM 33-13-00), or replace electrical control panel M10063 (AMM 24-22-01) if fault persists, replace L(R) util bus relay K119 (K120) (AMM 24-51-05). If fault persists, check and repair circuit between following points: L(R) UTILITY BUS RELAY K119 (K120) TERMINAL 13 AND GROUND. L(R) UTILITY BUS RELAY K119 (K120) TERMINAL 14 AND L(R) EICAS COMPUTER M10181 (M10182) CONNECTOR D881D (D883D) PIN C8 (WDM 24-51-13, WDM 24-51-23).

BITE Index

1. General
   A. Use this index to find the BITE procedure for the applicable LRU/System.
   B. The BITE procedure will provide the fault isolation instructions for the fault indications/LRU maintenance messages.

LRU/System Name	Acronym	FIM Reference
ACARS Management Unit		23-22
Air Data Computer	ADC	34-12
Air Data Inertial Reference Unit	ADIRU	34-26
Air Supply Control and Test Unit	ASCTU	36-20
Air Traffic Control Transponder	ATC	34-53
Airborne Vibration Monitor Signal Conditioner	AVM	77-31
Antiskid/Autobrake Control Unit	AACU	32-42
APU Fire Detection System		26-15
Automatic Direction Finder Receiver	ADF	34-57
APU Control Unit (or Electronic Control Unit)	ECU	49-11
Autopilot/Flight Director	AFDS	22-00
Auxiliary Zone Temperature Controller	AZTC	2160/21-61
Brake Temperature Monitor Unit	BTMU	32-46
Bus Power Control Unit	BPCU	24-20
Cabin Pressure Controller	CPC	21-30/21-31
Cabin Temperature Controller	CTC	21-61
Digital Flight Data Acquisition Unit	DFDAU	31-31
Distance Measuring Equipment Interrogator	DME	34-55
Duct Leak (Wing and Body)		26-18
E/E Cooling Control Card (If cards installed)		21-58
ECS Bleed Configuration Card		36-10
Electronic Control Unit	ECU	49-11
Electronic Engine Control Monitor Unit (Non-FADEC Engines)	EECM	71-EECM Message Index
Electronic Flight Instrument System	EFIS	34-22

Bite Index
Figure 1 (Sheet 1)

LRU/System Name	Acronym	FIM Reference
Engine Fire/Overheat Detection System		26-11
Engine Indication and Crew Alerting System Computer	EICAS	31-41
Enhanced Ground Proximity Warning Computer	EGPWC	34-46
Equipment Cooling Systen Controller		21-58
Equipment Cooling Temperature Controller		21-58
Flap/Slat Electronic Unit	FSEU	27-51
Flap/Stabilizer Position Module	FSPM	27-58
Flight Management Computer	FMC	34-61
Fuel Quantity Indicating System Processor	FQIS	28-41
Ground Proximity Warning Computer	GPWC	34-46
HF (High Frequency) Communication		23-11
In-Flight Entertainment Equipment Cooling Card		21-58
Inertial Reference Unit	IRU	34-21
Instrument Comparator Unit	ICU	34-25
Instrument Landing System Receiver	ILS	34-31
Large Format Display System	LFDS	31-63
Lower Cargo Compartment Smoke Detection System		26-16
Maintenance Control Display Panel	MCDP	22-00
Multi-Mode Receiver	MMR	34-31
PA (Passenger Address) Amplifier		23-31
Pack Standby Temperature Controller	PSTC	21-51
Pack Temperature Controller	PTC	21-51
Passenger Entertainment System	PES	23-34
Power Supply Module (Control System Electronics Units)	PSM	27-09
Propulsion Interface and Monitor Unit (FADEC Engines)	PIMU	71-PIMU Message Index
Proximity Switch Electronics Unit	PSEU	32-09

Bite Index
Figure 1 (Sheet 2)

LRU/System Name	Acronym	FIM Reference
Radio Altimeter Transmitter/Receiver	RA	34-33
Rudder Ratio Changer Module	RRCM	27-09
Satellite Data Unit	SDU	23-25
Spoiler Control Module	SCM	27-09
Stabilizer Trim/Elevator Asymmetry Limit Module	SAM	27-09
Stall Warning Computer/Module (in Warning Electronic Unit)	SWC	27-32
Strut Overheat Detection System (RR Engines)		26-12
Thrust Management Computer/Autothrottle	TMC	22-00
Traffic Alert and Collision Avoidance Computer	TCAS	34-45
VHF (Very High Frequency) Communication		23-12
VOR/Marker Beacon Receiver	VOR/MKR	34-51
Warning Electronic Unit BITE Module (Stall Warning)	WEU	27-32
Weather Radar Transceiver	WXR	34-43
Wheel Well Fire Detection		26-17
Window Heat Control Unit	WHCU	30-41
Yaw Damper Module	YDM	22-21
Yaw Damper/Stabilizer Trim Module	YSM	27-09
Zone Temperature Controller	ZTC	21-60/21-61

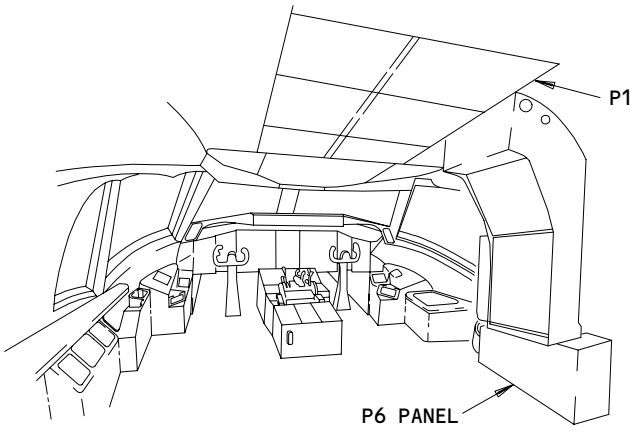
Bite Index
Figure 1 (Sheet 3)

GENERATOR DRIVE SYSTEM

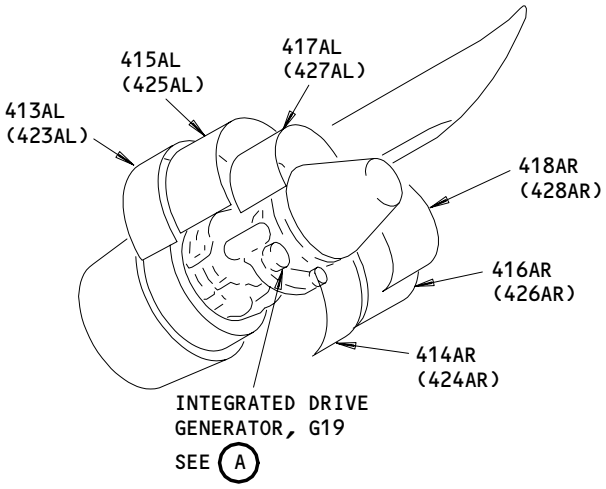
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKERS			FLT COMPT, P6	
L GEN CONT UNIT, C804		1	6B1	*
R GEN CONT UNIT, C805		1	6B2	*
L GEN DRIVE DISC, C807		1	6B5	*
R GEN DRIVE DISC, C808		1	6B6	*
CIRCUIT BREAKERS			FLT COMPT, P11	
LEFT ENG IDG VALVE, C837		1	11M4	*
RIGHT ENG IDG VALVE, C838		1	11M31	*
COUPLING - QUICK ATTACH/DETACH	1	2	415AL,425AL	24-11-03
EXCHANGER - IDG AIR/OIL HEAT	2	2	413AL,423AL	24-11-12
EXCHANGER - IDG FUEL/OIL HEAT	2	2		79-21-01
GENERATOR - INTEGRATED DRIVE, G19	1	2	415AL,425AL	24-11-01
RELAY - (REF 31-01-06, FIG. 101)				
L IDG AIR COOLER VALVE, K1031	1	1	415AL,425AL	
R IDG AIR COOLER VALVE, K971				
LEFT TD IDG VALVE FAILURE, K1033				
RIGHT TD IDG VALVE FAILURE, K1032				
SWITCH - OVERRIDE FUEL PRESS, S1611	2	2	413AL,423AL	24-11-13
VALVE - IDG AIR/OIL HEAT EXCHANGER AIR SHUTOFF, V350	2	2	415AL,425AL	24-11-12

* SEE THE WDM EQUIPMENT LIST

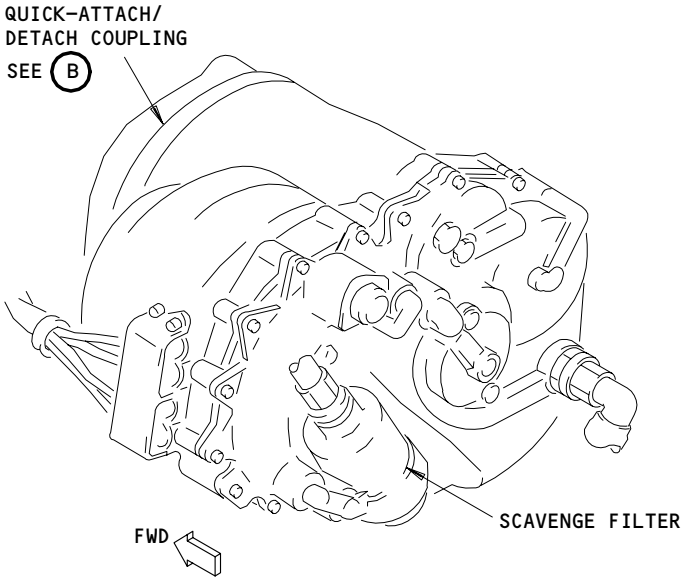
Generator Drive System - Component Index
Figure 101



FLIGHT COMPARTMENT

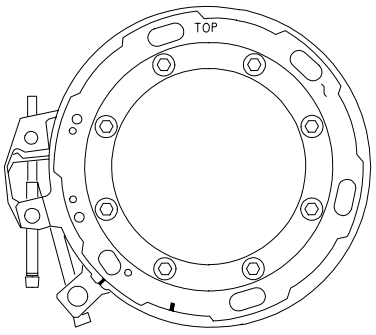


NO. 1 ENGINE (NO. 2 ENGINE)



INTEGRATED DRIVE GENERATOR, G19

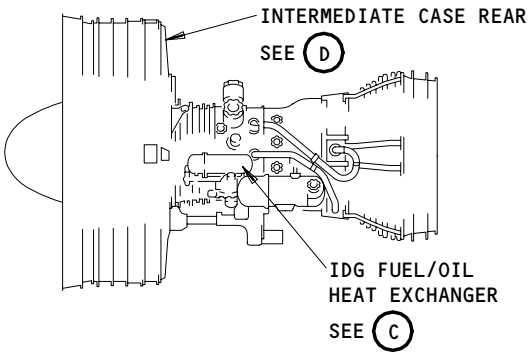
A

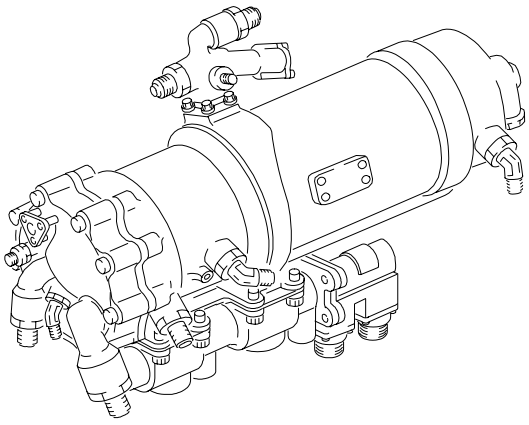


QUICK-ATTACH/DETACH COUPLING

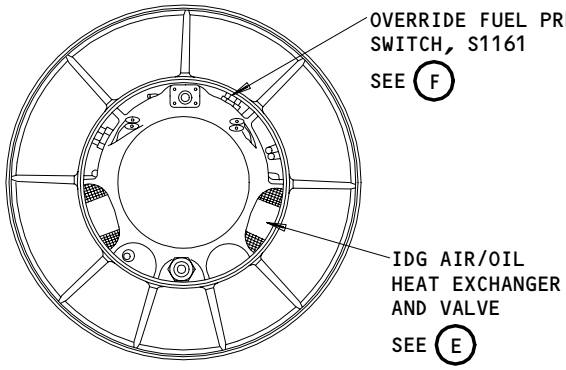
B

Generator Drive System - Component Location
Figure 102 (Sheet 1)

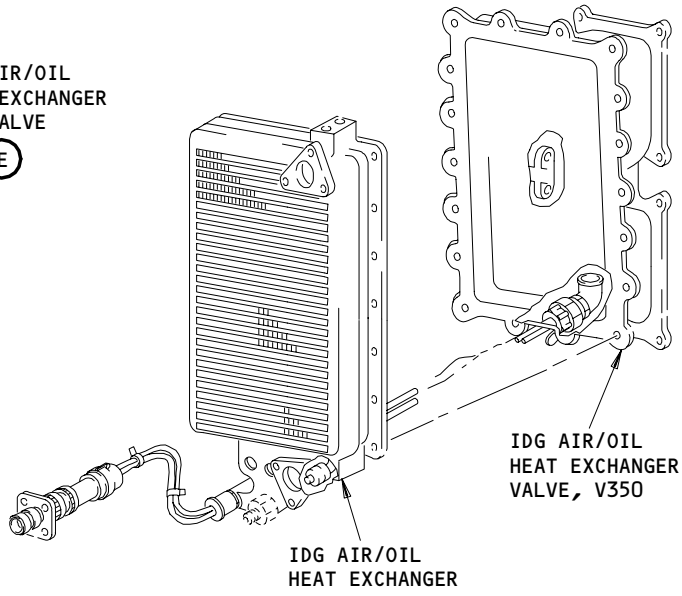




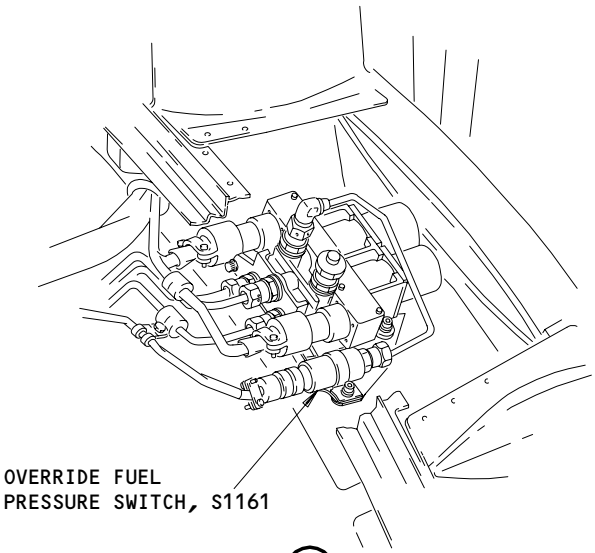
IDG FUEL/OIL
HEAT EXCHANGER
C



INTERMEDIATE CASE REAR
D



IDG AIR/OIL HEAT EXCHANGER AND VALVE
E



F

L-A2109

Generator Drive System - Component Location
Figure 102 (Sheet 2)

AC GENERATION

1. General
   A. The built-in-test (BIT) function of the bus power control unit (BPCU) displays fault messages detected by the L GCU, R GCU, A GCU or BPCU. All fault messages are displayed on the front panel of the BPCU.

2. How to do the Bus Power Control Unit (BPCU) BITE
   A. General
      (1) You do the BITE procedure at the front panel of the BPCU.
      (2) The BPCU, M116, is installed on the E2-4 rack in the main equipment center.
   B. Prepare For Test
      (1) Make sure the left and right engines are shutdown (AMM 71-00-00/501).
      (2) Make sure the APU is shutdown (AMM 49-11-00/501).
      (3) Make sure the L and R GEN CONT switches (P5) are in the OFF position.
      (4) Make sure the APU GEN switch (P5) is in the OFF position.
      (5) Set the BAT switch (P5) to the ON position.

          NOTE: The BPCU BITE procedure can be run with external power. If you are unable to apply external power, the procedure can be run with battery power.

   C. Procedure
      (1) Do the BPCU BITE procedure as follows:
          (a) Get access to the BPCU front panel in the main equipment center.
          (b) Push the BIT switch on the BPCU.
          (c) The below sequence will be displayed on the BPCU if no fault is found. If a fault is found, the fault message will be displayed in place of the OK message. The OK messages are shown for 2 seconds. Fault messages are shown for 15 seconds. If fault messages are displayed, record the power channel and all fault messages for troubleshooting:

              EXTERNAL POWER SYSTEM
              OK
              LEFT GEN POWER SYSTEM
              OK
              RIGHT GEN POWER SYSTEM
              OK
              APU GEN POWER SYSTEM
              OK
              LAST FLT O# END OF DATA
              FOR PREVIOUS FLT PUSH NOW

(d) If you want to do the BPCU BITE procedure again, stop until the "FOR PREVIOUS FLT PUSH NOW" message goes off, then push the "BIT" switch.

(e) If you want to see the BITE information for previous flights, push the BIT switch when you see the "FOR PREVIOUS FLT PUSH NOW" message on the BPCU. Information for up to seven flights is available for display.

(f) If you know a fault message and power channel, you can find the troubleshooting procedure in table 101, 102 or 103.

(g) Table 101 has messages and corrections for the External Power Channel. Table 102 has messages and corrections for the Left and Right Power channels. Table 103 has messages and corrections for the APU Power Channel. The messages are listed alphabetically in each table.

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A1, 6B1, 6B2, 6B3, 6B4, 6C11, 6C18, 6C24, 6D1, 6D2, 6D12, 6G1, 6J9, 6J10, 11T32, 33E2, 34B5, 34C10, 34M6; R GEN GND SVCE BUS (P32), ALL CIRCUIT BREAKERS ON BPCU

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)
ELECTRICAL POWER TO LEFT 115V AC BUS
ELECTRICAL POWER TO RIGHT 115V AC BUS OR AC GROUND SERVICE BUS (AMM 24-22-00/201)

NOTE: THE BPCU BITE PROCEDURE CAN BE DONE WITH BATTERY POWER.

BPCU BITE PROCEDURE

1 PUSH THE "BIT" SWITCH ON THE BPCU, M116 (E2-4).
IS THE "EXTERNAL POWER SYSTEM" DISPLAYED ON THE BPCU?

NO → 10 REPLACE THE BPCU, M116 (AMM 24-41-03/401).
GO TO BLOCK 1.

YES

2 THE BELOW SEQUENCE WILL BE DISPLAYED ON THE BPCU IF NO FAULT IS FOUND.
IF A FAULT IS FOUND, THE FAULT MESSAGE WILL BE DISPLAYED IN PLACE OF THE OK MESSAGE.
IF A FAULT MESSAGE IS DISPLAYED, RECORD THE POWER CHANNEL AND THE FAULT MESSAGE FOR TROUBLESHOOTING:

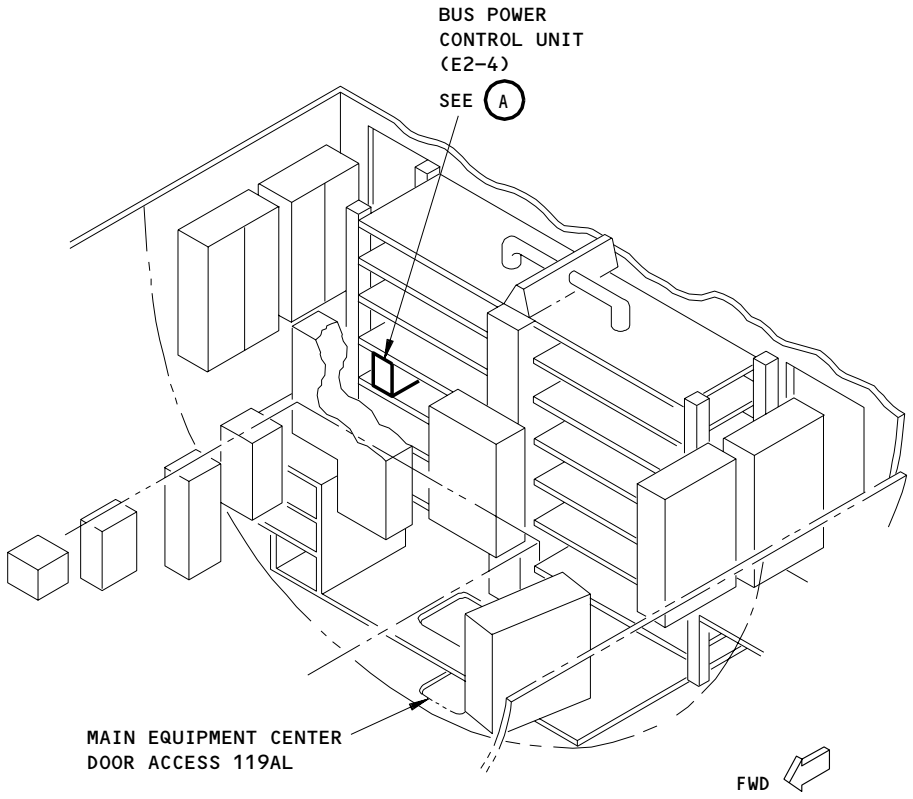
EXTERNAL POWER SYSTEM
OK
LEFT GEN POWER SYSTEM
OK
RIGHT GEN POWER SYSTEM
OK
APU GEN POWER SYSTEM
OK
LAST FLT O# END OF DATA
FOR PREVIOUS FLT PUSH NOW.

IS THERE ANY FAULT IN THE EXTERNAL POWER SYSTEM, LEFT GEN POWER SYSTEM, RIGHT GEN POWER SYSTEM OR APU GEN POWER SYSTEM?

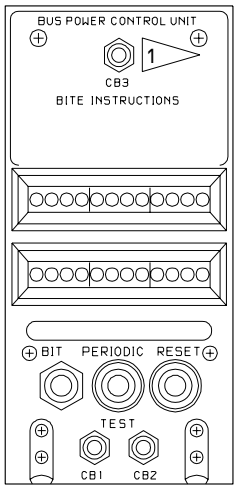
YES → 11 IF "EXTERNAL POWER SYSTEM" SHOWS ANY FAULT, CORRECT THE FAULT PER TABLE 101.
IF "LEFT GEN POWER SYSTEM" SHOWS ANY FAULT, CORRECT THE FAULT PER TABLE 102.
IF "RIGHT GEN POWER SYSTEM" SHOWS ANY FAULT, CORRECT THE FAULT PER TABLE 102.
IF "APU GEN POWER SYSTEM" SHOWS ANY FAULT, CORRECT THE FAULT PER TABLE 103.

NO → 12 AC SYSTEM IS NORMAL.

BPCU BITE Procedure
Figure 101 (Sheet 1)



MAIN EQUIPMENT CENTER



BUS POWER CONTROL UNIT

A

1 AIRPLANES WITH S281T001-40 TO S281T001-99 BPCU

BPCU BITE Procedure
Figure 101 (Sheet 2)

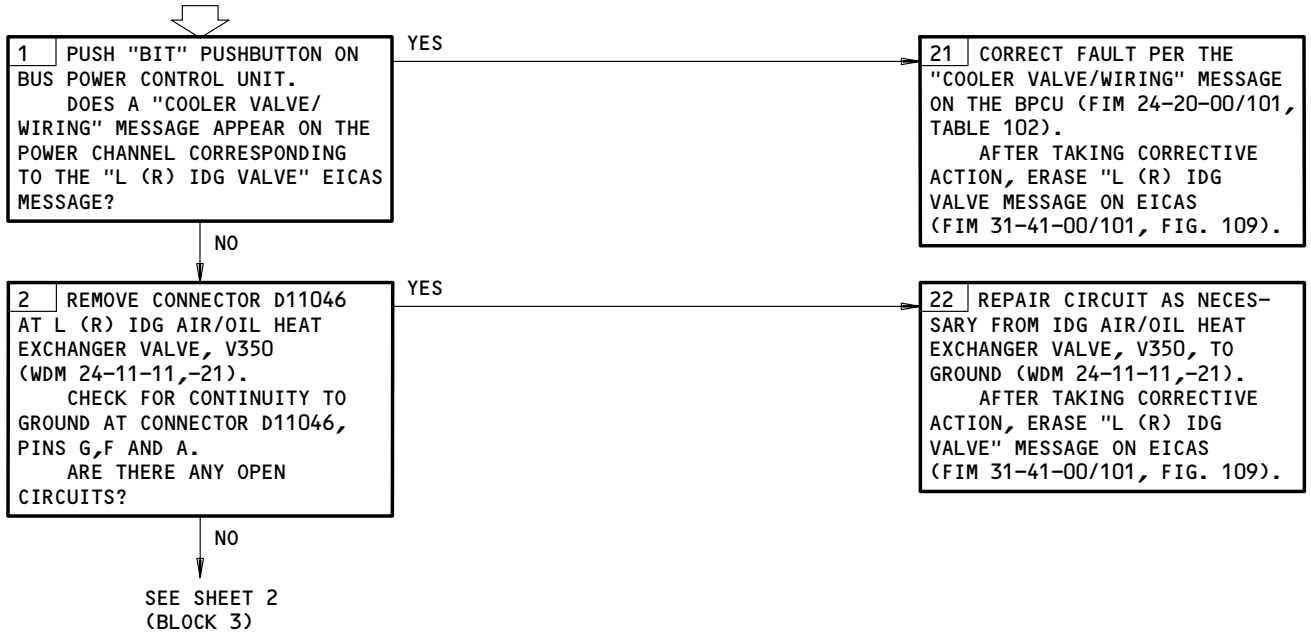
PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A1,6B1,6B2,6B3,6B4,6C11,6C18,6C24,6D1,6D2,6D12,
6G1,6J9,6J10,6J11,11M4,11M31,11T32,33E2,34B5,
34C10,34M6, R GEN GND SVCE BUS (P32)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER TO LEFT MAIN AC BUS
(AMM 24-22-00/201)
ELECTRICAL POWER TO RIGHT MAIN AC BUS OR AC GROUND
SERVICE BUS (AMM 24-22-00/201)

NOTE: IDG RECEPTACLE PIN/SOCKET WEAR CAN CAUSE IDG TEMPERATURE AND COOLING VALVE EICAS MESSAGES. THIS MAY ALSO CAUSE THE IDG DRIVE LIGHT ON THE P5 PANEL TO COME ON. TO CORRECT THIS PROBLEM, DO THIS PROCEDURE: IDG RECEPTACLE PIN CORROSION/WEAR (FIM 24-20-00/101, FIG. 106).

EICAS MESSAGE
"L (R) IDG VALVE"
DISPLAYED



EICAS Message L (R) IDG VALVE Displayed
Figure 102 (Sheet 1)

314151

FROM SHEET 1
(BLOCK 2)

NO

3 REMOVE THE L (R) IDG VLV FAILURE RELAY, K1033 (K1032) (WDM 24-11-11; WDM 24-11-21).

CHECK FOR CONTINUITY BETWEEN:

V350 (L) CONNECTOR	PIN	K1033 CONNECTOR	PIN
D11046	H	D11792	7
D11046	B	D11792	8
D11046	E	D11792	1
GROUND		D11792	3

V350 (R)		K1032	
D11046	H	D11796	6
D11046	B	D11796	13
D11046	E	D11796	2
GROUND		D11796	12

ARE THERE ANY OPEN CIRCUITS?

YES

23 REPAIR THE CIRCUIT AS NECESSARY, FROM THE IDG VALVE FAILURE RELAY, K1033 (K1032), TO THE IDG AIR/OIL HEAT EXCHANGER VALVE, V350 (WDM 24-11-11; WDM 24-11-21).

AFTER TAKING CORRECTIVE ACTION:

1. CONNECT D11046 TO V350
2. INSTALL VALVE FAILURE RELAY
3. ERASE "L (R) IDG VALVE" MESSAGE ON EICAS (FIM 31-41-00/101, FIG. 109).

NO

4 CONNECT CONNECTOR D11046, TO V350 (WDM 24-11-11; WDM 24-11-21).

CHECK FOR CONTINUITY BETWEEN:

RELAY K1033		EICAS L (R)	
D11792	PIN 6	D881F	PIN D7
D11792	PIN 6	D883F	PIN D7

RELAY K1032			
D11796	PIN 1	D881E	PIN D8
D11796	PIN 1	D883E	PIN D8

ARE THERE ANY OPEN CIRCUITS?

YES

24 REPAIR THE CIRCUIT AS NECESSARY, FROM THE IDG VALVE FAILURE RELAY, K1033 (K1032), TO EICAS (WDM 24-11-11; WDM 24-11-21).

AFTER TAKING CORRECTIVE ACTION, ERASE "L (R) IDG VALVE MESSAGE ON EICAS (FIM 31-41-00/101, FIG. 109).

INSTALL L (R) IDG VALVE FAILURE RELAY.

NO

5 REPLACE THE L (R) IDG VLV FAILURE RELAY, K1033 (K1032) (WDM 24-11-11; WDM 24-11-21).

IF THE PROBLEM CONTINUES, CHECK THE SERVO FUEL SUPPLY AND RETURN TUBES, FOR CORRECT INSTALLATION.

HAVE THE TUBES BEEN CROSSED?

YES

25 CORRECT THE TUBES INSTALLATION AS NECESSARY (AMM 24-11-12/401).

NO

SEE SHEET 3
(BLOCK 6)

EICAS Message L (R) IDG VALVE Displayed
Figure 102 (Sheet 2)

314153

FROM SHEET 2
(BLOCK 5)

NO

6 THE IDG AIR/OIL HEAT EXCHANGER VALVE, V350, MAY BE REPLACED (AMM 24-11-12/401), OR ERASE THE L (R) IDG VALVE MESSAGE ON EICAS (FIM 31-41-00/101, FIG. 109) AND START THE ENGINE.
ALLOW THE ENGINE TO STABILIZE AT IDLE POWER FOR 15 MINUTES (AMM 71-00-00/201).

PUSH THE EPCS SWITCH ON THE EICAS MAINTENANCE PANEL TWICE, TO DISPLAY THE SECOND EPCS EICAS MAINTENANCE PAGE.

ACCELERATE THE ENGINE TO 75% N2 AND ALLOW THE ENGINE TO STABILIZE.

MAKE SURE THAT THE EEC STATUS BIT 271.17 IS SET TO ONE, FOR THE CHANNEL IN CONTROL. IF THE FOURTH DIGIT OF THE HEXADECIMAL DISPLAY FOR EEC LABEL 271, IS 8, 9, A, B, C, D, E OR F, THEN BIT 17 IS EQUAL TO ONE.

DISPLAY THE ELEC/HYD EICAS MAINTENANCE PAGE ON THE LOWER EICAS DISPLAY. MAKE SURE THE IDG "OUT" TEMP IS STABLE AND BELOW 175°F (79°C).

OPEN THE APPLICABLE CIRCUIT BREAKERS ON THE P11 PANEL AND MAKE SURE THE IDG "OUT" TEMP DECREASES 5°C WITHIN TWO MINUTES:

- LEFT ENGINE - 11L3 PERF SOL CHANNEL A L ENG
  11L4 PERF SOL CHANNEL B L ENG
- RIGHT ENGINE - 11L30 PERF SOL CHANNEL A L ENG
  11L31 PERF SOL CHANNEL B R ENG

DID THE IDG "OUT" TEMP DECREASE BY 5°C IN LESS THAN 2 MINUTES?

NO

26 REPLACE THE IDG AIR/OIL HEAT EXCHANGER VALVE, V350 (AMM 24-11-12/401).

CLOSE THE APPLICABLE CIRCUIT BREAKERS ON THE P11 PANEL:

- LEFT ENGINE - 11L3 PERF SOL CHANNEL A L ENG
- LEFT ENGINE - 11L4 PERF SOL CHANNEL B L ENG
- RIGHT ENGINE - 11L30 PERF SOL CHANNEL A L ENG
- RIGHT ENGINE - 11L31 PERF SOL CHANNEL B R ENG

YES

7 SHUT DOWN THE ENGINE.

IF THE L (R) IDG VALVE MESSAGE WAS DISPLAYED BEFORE THE CIRCUIT BREAKERS WERE OPENED, CHECK FOR CONTINUITY BETWEEN THESE POINTS:

FROM	TO
D11046 PIN F	GROUND
D11046 PIN E	D11792 PIN 1 (D11796 PIN 2)
D11792 PIN 6 (D11796 PIN 1)	D881F PIN D7 (D881E PIN D8)
D11792 PIN 6 (D11796 PIN 1)	D883F PIN D7 (D883E PIN D8).

NOTE: SHAKE THE WIRES TO IDENTIFY INTERMITTENT FAULTS.

IF THE L (R) IDG VALVE MESSAGE WAS DISPLAYED AFTER THE CIRCUIT BREAKERS WERE OPENED, CHECK FOR CONTINUITY BETWEEN THESE POINTS:

FROM	TO
D11046 PIN A	GROUND
D11046 PIN B	D11792 PIN 8 (D11796 PIN 13)
D11046 PIN H	D11792 PIN 7 (D11796 PIN 6)
D11792 PIN 3 (D11796 PIN 12)	GROUND.

NOTE: SHAKE THE WIRES TO IDENTIFY INTERMITTENT FAULTS.

REPLACE THE IDG AIR/OIL HEAT EXCHANGER VALVE, V350, IF NO WIRING FAULTS ARE FOUND (AMM 24-11-12/401).

AFTER TAKING CORRECTIVE ACTION, ERASE THE "L (R) IDG VALVE" MESSAGE ON EICAS (FIM 31-41-00/101, FIG. 109).

CLOSE THE APPLICABLE CIRCUIT BREAKERS ON THE P11 PANEL:

- LEFT ENGINE - 11L3 PERF SOL CHANNEL A L ENG
  11L4 PERF SOL CHANNEL B L ENG
- RIGHT ENGINE - 11L30 PERF SOL CHANNEL A L ENG
  11L31 PERF SOL CHANNEL B R ENG

EICAS Message L (R) IDG VALVE Displayed
Figure 102 (Sheet 3)

M16886

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)
ELECTRICAL POWER TO LEFT 115V AC BUS
ELECTRICAL POWER TO RIGHT 115V AC BUS

NOTE: IDG RECEPTACLE PIN/SOCKET WEAR CAN CAUSE IDG TEMPERATURE AND COOLING VALVE EICAS MESSAGES. THIS MAY ALSO CAUSE THE IDG DRIVE LIGHT ON THE P5 PANEL TO COME ON. TO CORRECT THIS PROBLEM, DO THIS PROCEDURE: IDG RECEPTACLE PIN CORROSION/WEAR (FIM 24-20-00/101, FIG. 106).

EICAS MESSAGE "IDG RISE TEMP" OR "IDG OUT TEMP" DISPLAYED 1

1 PUSH THE "ELEC/HYD" DISPLAY SELECT SWITCH ON THE EICAS PANEL AT P61.
PUSH THE "AUTO EVENT READ" SWITCH ON THE EICAS PANEL.
MAKE A NOTE (FROM THE EICAS DISPLAY) WHICH IDG HAS THE HIGHEST "IDG RISE" OR THE "IDG OUT" TEMPERATURE.
PUSH AND HOLD THE "ERASE" SWITCH ON EICAS MAINTENANCE PANEL FOR 3 SECONDS AND MAKE SURE THE AUTO EVENT ERASES.
PUSH THE "BIT" SWITCH ON THE BUS POWER CONTROL UNIT, M116, ON THE E2-4 SHELF.
ARE THERE ANY OTHER POWER SYSTEM RELATED EICAS MESSAGES OR BPCU BITE MESSAGES?

NO → 21 REGARD THE MESSAGE AS NUISANCE MESSAGES NO ACTION REQUIRED.

YES

2 DOES ONE OF THESE MESSAGES SHOW ON THE LEFT OR THE RIGHT

GEN POWER CHANNEL?
IDG BULB TOLERANCE
OIL IN BULB/WIRING
IDG/OIL IN BULB TEMP
OIL OUT BULB/WIRING
IDG/OIL OUT BULB TEMP
LOW OIL PRESSURE
IDG HIGH RISE TEMP
IDG HIGH DELTA TEMP
IDG OVERTEMP

YES → 22 CORRECT ANY MESSAGE SHOWN WITH THE AC GENERATION BITE PROCEDURE (FIM 24-20-00/101, TABLE 102).
IF THE MESSAGE CONTINUES, DO THIS PROCEDURE: IDG RECEPTACLE PIN CORROSION/WEAR (FIM 24-20-00/101, FIG. 106).
IF THE PROBLEM CONTINUES, CLEAN THE CONTAMINATION FROM THE PINS OF CONNECTOR D4216 LOCATED ON THE ENGINE FIREWALL.
REFER TO WDM 20-60-01 FOR THE CONNECTOR CLEAN PROCEDURE.

NO

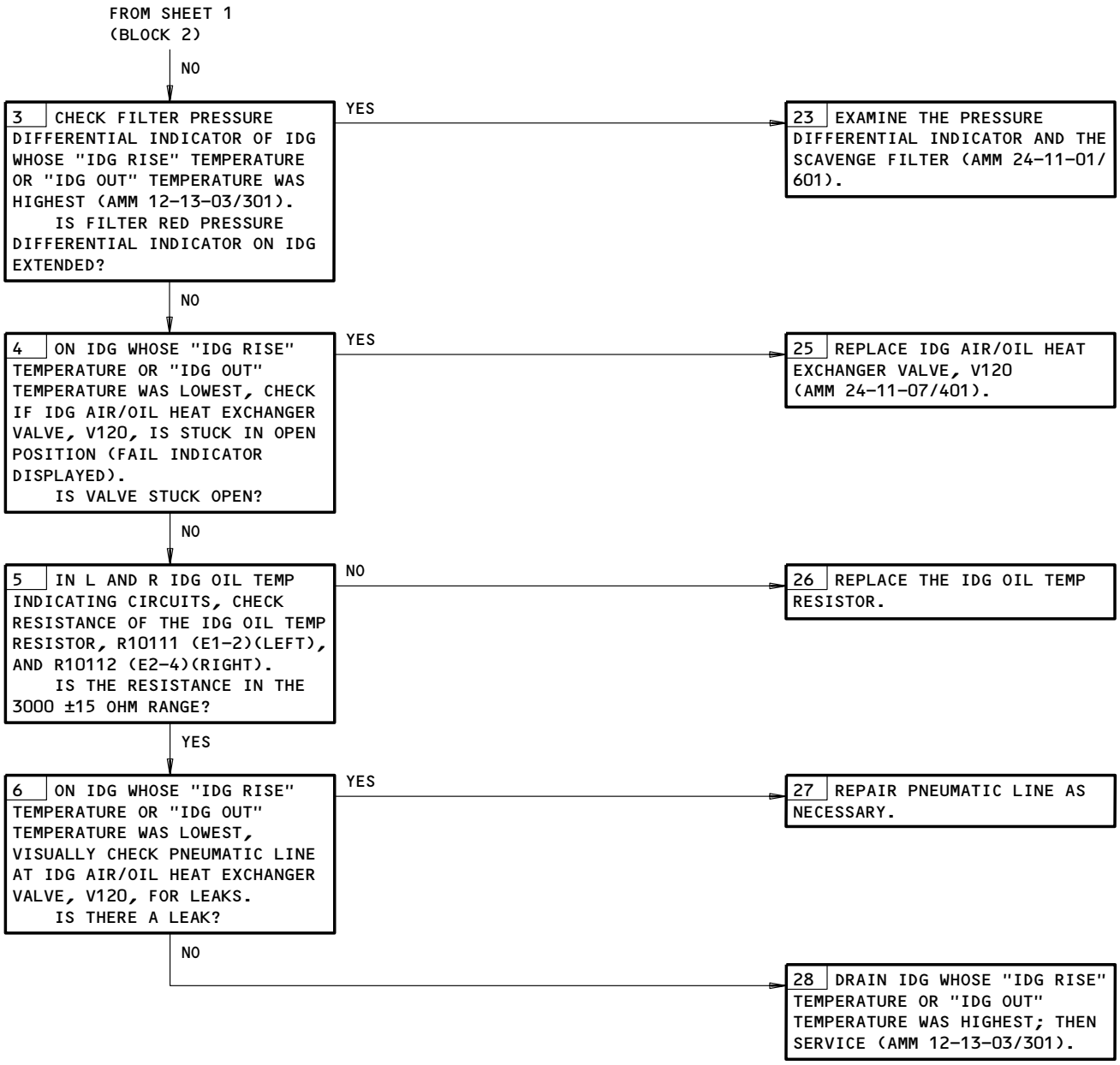
SEE SHEET 2 (BLOCK 3)

1 AIRPLANES WITH JT9D OR CF6-80A SERIES ENGINES.

EICAS Message IDG RISE TEMP or IDG OUT TEMP Displayed
Figure 103 (Sheet 1)

EFFECTIVITY
AIRPLANES WITH JT9D OR CF6-80A SERIES ENGINES

62496



EICAS Message IDG RISE TEMP or IDG OUT TEMP Displayed
Figure 103 (Sheet 2)

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)
ELECTRICAL POWER TO LEFT 115V AC BUS
ELECTRICAL POWER TO RIGHT 115V AC BUS

NOTE: IDG RECEPTACLE PIN/SOCKET WEAR CAN CAUSE IDG TEMPERATURE AND COOLING VALVE EICAS MESSAGES. THIS MAY ALSO CAUSE THE IDG DRIVE LIGHT ON THE P5 PANEL TO COME ON. TO CORRECT THIS PROBLEM, DO THIS PROCEDURE: IDG RECEPTACLE PIN CORROSION/WEAR (FIM 24-20-00/101, FIG. 106).

EICAS MESSAGE "IDG RISE TEMP" OR "IDG OUT TEMP" DISPLAYED 1

1 PUSH THE "ELEC/HYD" DISPLAY SELECT SWITCH ON THE EICAS PANEL AT P61.
PUSH THE "AUTO EVENT READ" SWITCH ON THE EICAS PANEL.
MAKE A NOTE (FROM THE EICAS DISPLAY) WHICH IDG HAS THE HIGHEST "IDG RISE" OR THE "IDG OUT" TEMPERATURE.
PUSH AND HOLD THE "ERASE" SWITCH ON EICAS MAINTENANCE PANEL FOR 3 SECONDS AND MAKE SURE THE AUTO EVENT ERASES.
PUSH THE "BIT" SWITCH ON THE BUS POWER CONTROL UNIT, M116, ON THE E2-4 SHELF.
ARE THERE ANY OTHER POWER SYSTEM RELATED EICAS MESSAGES OR BPCU BITE MESSAGES?

NO → 21 REGARD THE MESSAGE AS NUISANCE MESSAGES NO ACTION REQUIRED.

YES ↓

2 DOES ONE OF THESE MESSAGES SHOW ON THE LEFT OR THE RIGHT GEN POWER CHANNEL?

IDG BULB TOLERANCE
OIL IN BULB/WIRING
IDG/OIL IN BULB TEMP
OIL OUT BULB/WIRING
IDG/OIL OUT BULB TEMP
LOW OIL PRESSURE
IDG HIGH RISE TEMP
IDG HIGH DELTA TEMP
IDG OVERTEMP

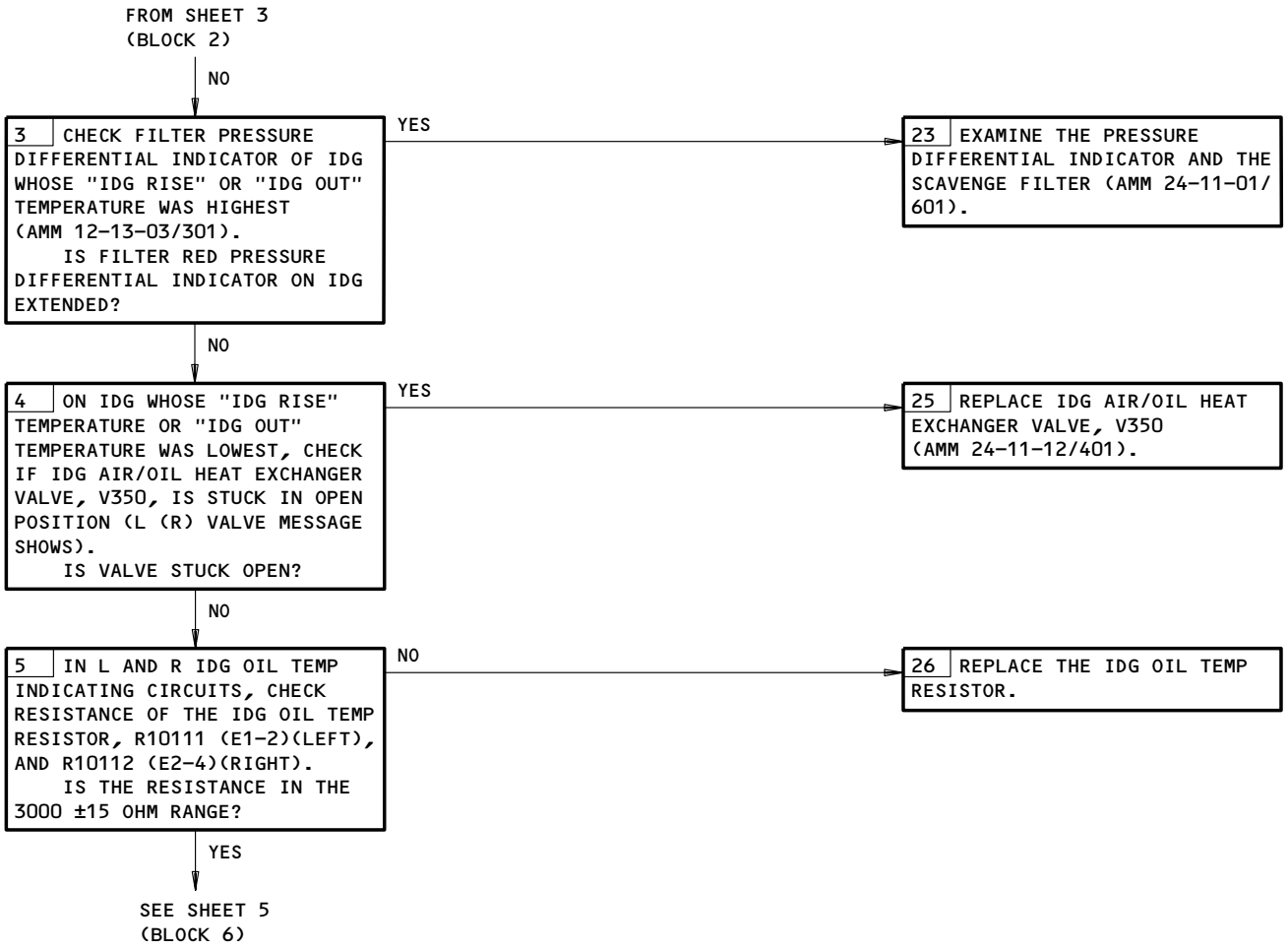
YES → 22 CORRECT ANY MESSAGE SHOWN WITH THE AC GENERATION BITE PROCEDURE (FIM 24-20-00/101, TABLE 102).
IF THE PROBLEM CONTINUES, CLEAN THE CONTAMINATION FROM THE PINS OF CONNECTOR D4216 LOCATED ON THE ENGINE FIREWALL.
REFER TO WDM 20-60-01 FOR THE CONNECTOR CLEAN PROCEDURE.

NO ↓

SEE SHEET 4 (BLOCK 3)

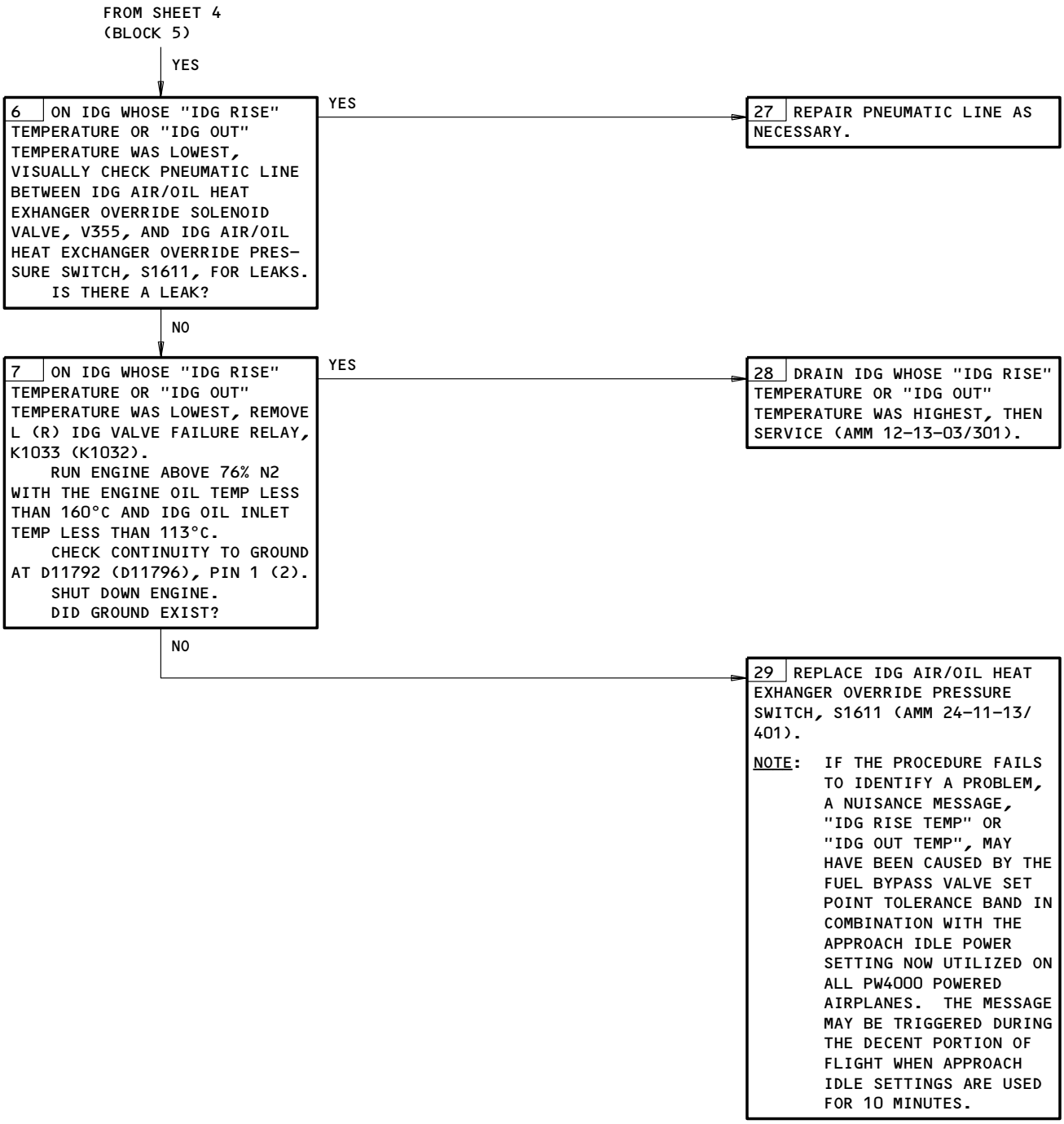
1 AIRPLANES WITH PW4000 SERIES ENGINES.

EICAS Message IDG OUT TEMP Displayed
Figure 103 (Sheet 3)



EICAS Message IDG OUT TEMP Displayed
Figure 103 (Sheet 4)

588724



EICAS Message IDG OUT TEMP Displayed
Figure 103 (Sheet 5)

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)
ELECTRICAL POWER TO LEFT 115V AC BUS AND 28V DC BUS
ELECTRICAL POWER TO RIGHT 115V AC BUS AND 28V DC BUS

NOTE: IDG RECEPTACLE PIN/SOCKET WEAR CAN CAUSE IDG TEMPERATURE AND COOLING VALVE EICAS MESSAGES. THIS MAY ALSO CAUSE THE IDG DRIVE LIGHT ON THE P5 PANEL TO COME ON. TO CORRECT THIS PROBLEM, DO THIS PROCEDURE: IDG RECEPTACLE PIN CORROSION/WEAR (FIM 24-20-00/101, FIG. 106).

EICAS MESSAGE "IDG RISE TEMP" OR "IDG OUT TEMP" DISPLAYED 1

1 PUSH THE "ELEC/HYD" DISPLAY SELECT SWITCH ON THE EICAS PANEL AT P61.
PUSH THE "AUTO EVENT READ" SWITCH ON THE EICAS PANEL.
MAKE A NOTE (FROM THE EICAS DISPLAY) WHICH IDG HAS THE HIGHEST "IDG RISE" OR THE "IDG OUT" TEMPERATURE.
PUSH AND HOLD THE "ERASE" SWITCH ON EICAS MAINTENANCE PANEL FOR 3 SECONDS AND MAKE SURE THE AUTO EVENT ERASES.
PUSH THE "BIT" SWITCH ON THE BUS POWER CONTROL UNIT, M116, ON THE E2-4 SHELF.
DOES ONE OF THESE MESSAGES SHOW ON THE LEFT OR THE RIGHT GEN POWER CHANNEL?

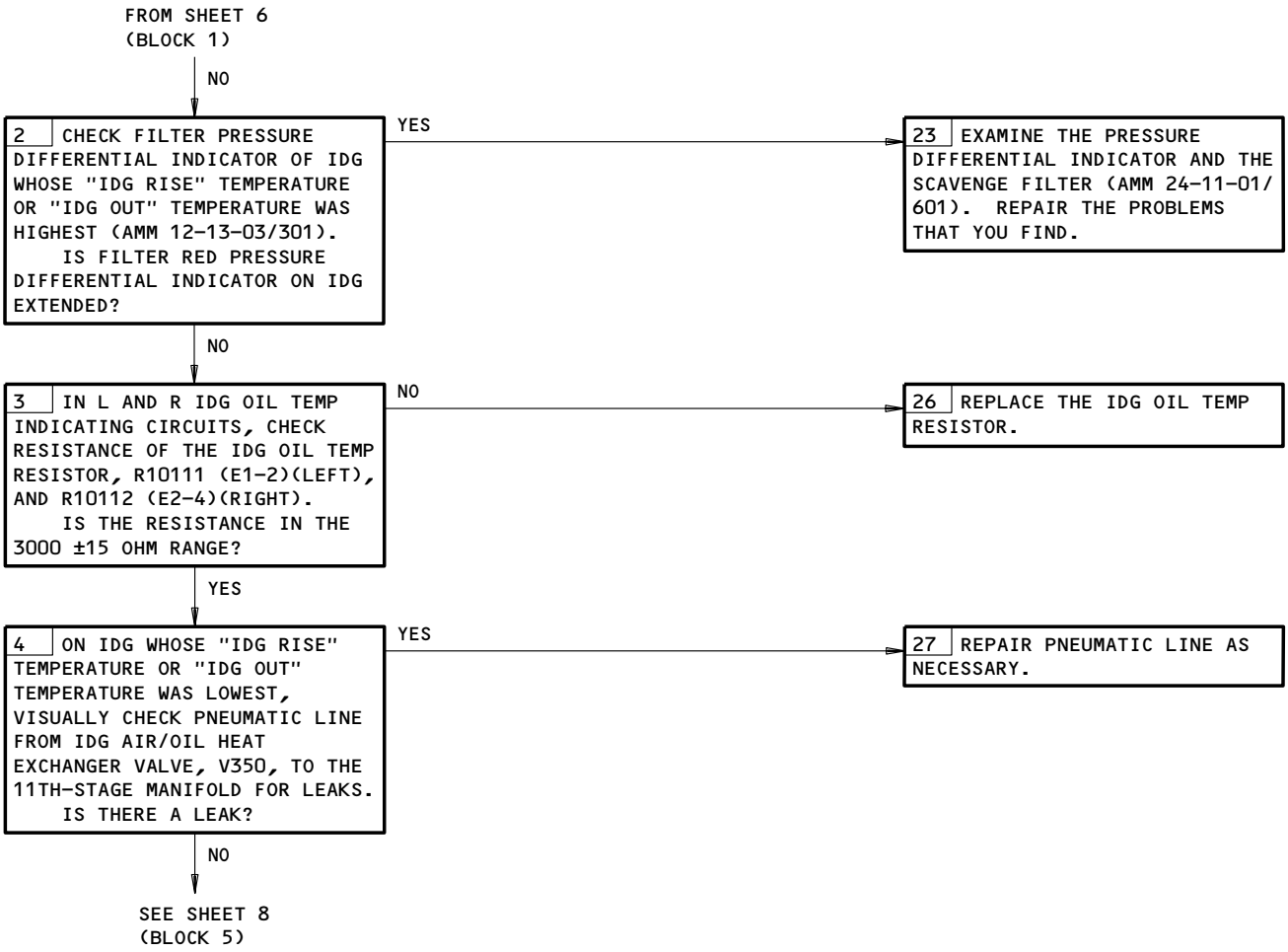
IDG BULB TOLERANCE
OIL IN BULB/WIRING
IDG/OIL IN BULB TEMP
OIL OUT BULB/WIRING
IDG/OIL OUT BULB TEMP
LOW OIL PRESSURE
IDG HIGH DELTA TEMP
IDG HIGH RISE TEMP
IDG OVERTEMP

YES → 22 CORRECT ANY MESSAGE SHOWN WITH THE AC GENERATION BITE PROCEDURE (FIM 24-20-00/101, TABLE 102).
IF THE MESSAGE CONTINUES, DO THIS PROCEDURE: IDG RECEPTACLE PIN CORROSION/WEAR (FIM 24-20-00/101, FIG. 106).
IF THE PROBLEM CONTINUES, CLEAN THE CONTAMINATION FROM THE PINS OF CONNECTOR D4216 LOCATED ON THE ENGINE FIREWALL.
REFER TO WDM 20-60-01 FOR THE CONNECTOR CLEAN PROCEDURE.

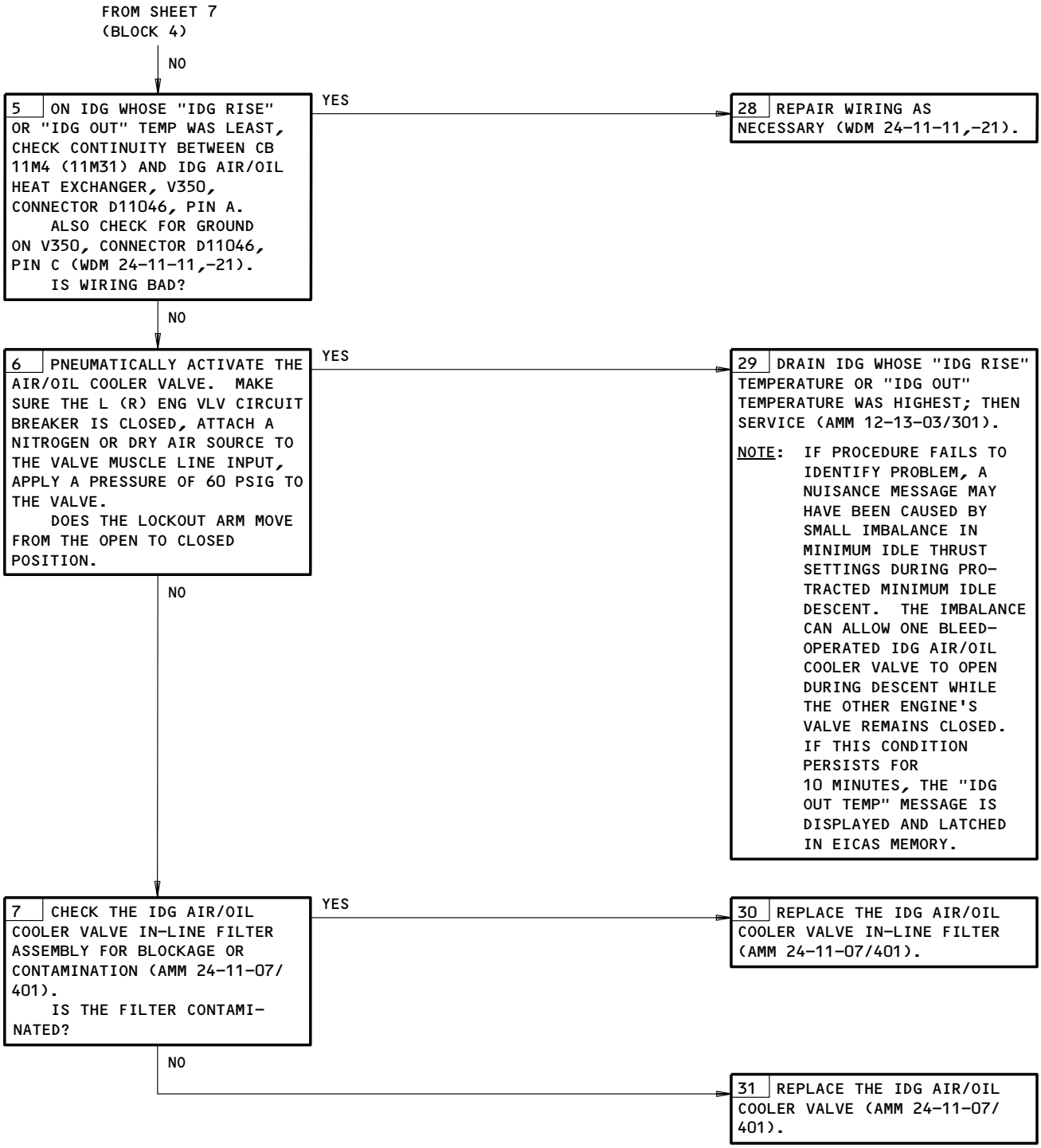
NO → SEE SHEET 7 (BLOCK 2)

1 AIRPLANES WITH CF6-80C2 SERIES ENGINES.

EICAS Message IDG RISE TEMP or IDG OUT TEMP Displayed
Figure 103 (Sheet 6)



EICAS Message IDG RISE TEMP or IDG OUT TEMP Displayed
Figure 103 (Sheet 7)



EICAS Message IDG RISE TEMP or IDG OUT TEMP Displayed
Figure 103 (Sheet 8)

957208

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6 EICAS CIRCUIT BREAKERS ON OVERHEAD CIRCUIT BREAKER PANEL P11

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

NOTE: IDG RECEPTACLE PIN/SOCKET WEAR CAN CAUSE IDG TEMPERATURE AND COOLING VALVE EICAS MESSAGES. THIS MAY ALSO CAUSE THE IDG DRIVE LIGHT ON THE P5 PANEL TO COME ON. TO CORRECT THIS PROBLEM, DO THIS PROCEDURE: IDG RECEPTACLE PIN CORROSION/WEAR (FIM 24-20-00/101, FIG. 106).

EICAS MSG "L (R) IDG TEMP SENS" DISPLAYED

1 DOES "L (R) IDG TEMP SENS" MESSAGE REMAIN AFTER PREREQUISITES ARE SATISFIED?

YES

10 GO TO FIG. 101, BLOCK 1.
IF THE PROBLEM CONTINUES, CLEAN THE CONTAMINATION FROM THE PINS OF CONNECTOR D4216 LOCATED ON THE ENGINE FIREWALL.
REFER TO WDM 20-60-01 FOR THE ELECTRICAL CONNECTOR CLEAN PROCEDURE.

NO

2 THE SYSTEM IS OK.

EICAS Message L (R) IDG TEMP SENS Displayed
Figure 104

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6 EICAS CIRCUIT BREAKERS ON OVERHEAD CIRCUIT BREAKER PANEL P11

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

NOTE: IDG RECEPTACLE PIN/SOCKET WEAR CAN CAUSE IDG TEMPERATURE AND COOLING VALVE EICAS MESSAGES. THIS MAY ALSO CAUSE THE IDG DRIVE LIGHT ON THE P5 PANEL TO COME ON. TO CORRECT THIS PROBLEM, DO THIS PROCEDURE: IDG RECEPTACLE PIN CORROSION/WEAR (FIM 24-20-00/101, FIG. 106).

EICAS MESSAGE "L (R) IDG OIL TEMP" DISPLAYED

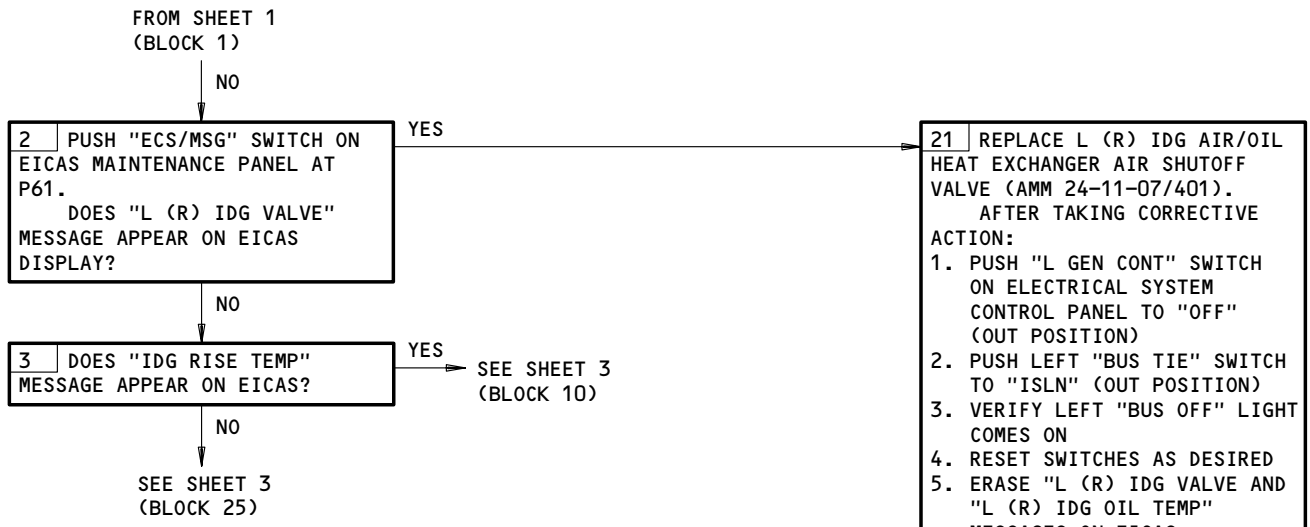
1 PUSH "BIT" PUSHBUTTON ON BUS POWER CONTROL UNIT, M116, ON E2-4.
DO ONE OF THE FOLLOWING MESSAGES APPEAR ON POWER CHANNEL CORRESPONDING TO "IDG OIL TEMP" MESSAGE ON EICAS?

COOLER/VALVE WIRING
COOLER +28V WIRING/GCU
IDG HIGH DELTA TEMP
IDG HIGH RISE TEMP
OIL-IN BULB/WIRING
IDG/OIL IN BULB TEMP
OIL-OUT BULB/WIRING
IDG/OIL OUT BULB TEMP

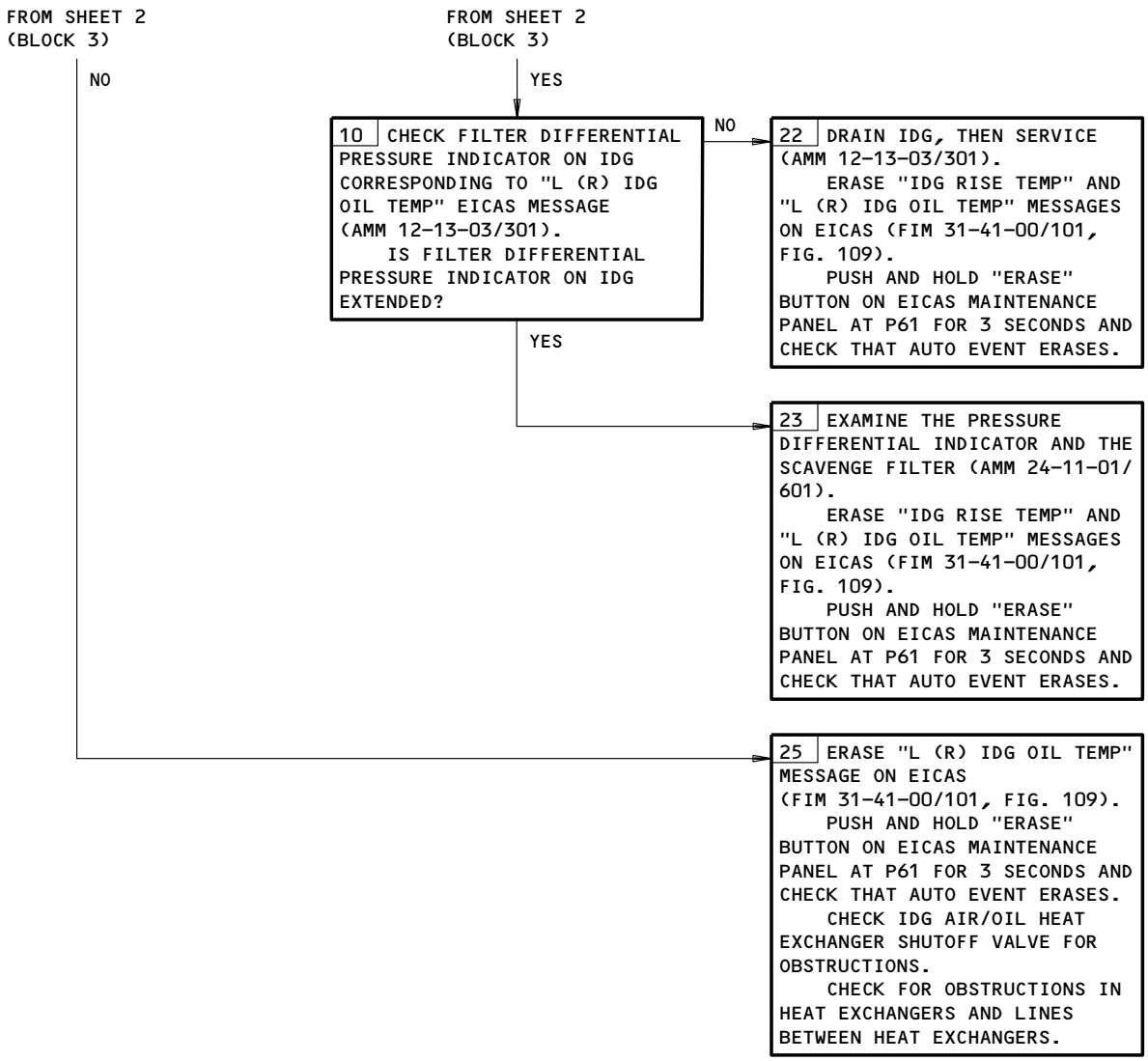
YES → 20 CORRECT PER AC GENERATION BITE TABLE 102.
IF THE PROBLEM CONTINUES, CLEAN THE CONTAMINATION FROM THE PINS OF CONNECTOR D4216 LOCATED ON THE ENGINE FIREWALL.
REFER TO WDM 20-60-01 FOR THE CONNECTOR CLEAN PROCEDURE.
PUSH AND HOLD "ERASE" BUTTON ON EICAS MAINTENANCE PANEL AT P61 FOR 3 SECONDS AND CHECK THAT AUTO EVENT ERASES.
DO THIS PROCEDURE: MAINTENANCE MESSAGE ERASE PROCEDURE (FIM 31-41-00/101, FIG. 109).

NO → SEE SHEET 2 (BLOCK 2)

EICAS Message L (R) IDG OIL TEMP Displayed
Figure 105 (Sheet 1)



EICAS Message L (R) IDG OIL TEMP Displayed
Figure 105 (Sheet 2)



EICAS Message L (R) IDG OIL TEMP Displayed
Figure 105 (Sheet 3)

IDG RECEPTACLE PIN CORROSION/WEAR

PREREQUISITE

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
REMOVE ELECTRICAL POWER (AMM 24-22-00/201)

1. REMOVE CONNECTOR D10964 FROM THE IDG. INSPECT THE IDG RECEPTACLE PINS FOR WEAR AND SIGNS OF CORROSION. THE PINS WILL LOOK DARKENED OR HAVE DUST-LIKE CONTAMINATION ON PIN SURFACE.
2. IF IDG RECEPTACLE PIN WEAR OR CORROSION IS FOUND, DO THE FOLLOWING:
   A. TEMPORARY FIX
      (1) REPLACE THE SHIPSIDE CONNECTOR SOCKETS OPPOSITE THE AFFECTED PINS ON THE IDG RECEPTACLE. USE SOCKETS, BOEING P/N BACC47CP2T OR EQUIVALENT (SWPM 20-24-21).
      (2) EXAMINE THE SHIPSIDE CONNECTOR COUPLING RING AND REPLACE THE CONNECTOR IF DAMAGED THREADS ARE FOUND.
      (3) CLEAN THE IDG RECEPTACLE AND SHIPSIDE CONNECTOR WITH ALCOHOL OR ACETONE PER SWPM 20-60-01.
      (4) RECONNECT CONNECTOR D10964 TO THE IDG.
   B. PERMANENT FIX
      (1) REPLACE THE IDG RECEPTACLE CONNECTOR PER SUNSTRAND SB 9OIDGS01-24-55 OR 9OIDG11/13/19-24-27.
      (2) REPLACE ALL SHIPSIDE CONNECTOR SOCKETS. USE BOEING P/N BACC47CP2T OR EQUIVALENT PER SWPM 20-24-21.
      (3) EXAMINE THE SHIPSIDE CONNECTOR COUPLING RING AND REPLACE THE CONNECTOR IF DAMAGED THREADS ARE FOUND.
      (4) CLEAN THE IDG RECEPTACLE AND SHIPSIDE CONNECTOR WITH ALCOHOL OR ACETONE PER SWPM 20-60-01.
      (5) RECONNECT CONNECTOR D10964 TO THE IDG.
3. MAKE SURE THAT THE TEMPERATURE RELATED EICAS MESSAGE CLEARS THE EICAS DISPLAY (AMM 31-41-00/201), OR THAT THE DRIVE LIGHT GOES OFF. IF THE PROBLEM CONTINUES, REFER TO THE APPLICABLE FIM PROCEDURE FOR THE EICAS MESSAGE OR DRIVE LIGHT COMING ON.

IDG Receptacle Pin Corrosion/Wear
Figure 106

3. Table 101 - External Power Channel

A. Table 101 has messages and corrections for the external power channel.

NOTE: The isolation messages for the TIE BUS DP TRIP are located after the TIE BUS DP TRIP message.

Messages in table 101 External Power Channel
APB AUX
APU AIR/GND
APU DEAD TIE BUS
APU GHR/EP GHR
APU SERIAL LINK
BPCU AIR/GND SWITCH
BPCU CIRCUIT BREAKER OPEN
BPCU FAILED
BPCU FAILED TRIP
CT LOOP GND
EP PHASE SEQUENCE
EPC COIL/AUX CIRCUIT
EPC COIL CIRCUIT
EXT POWER UNDER VOLT
EXT PWR PIN E-F FAILURE

Messages in table 101 External Power Channel
GHR COIL
GSSR COIL
GSTR COIL
LEFT AIR/GND
LEFT BTB AUX
LEFT DEAD TIE BUS
LEFT GCB AUX
LEFT SERIAL LINK
NO RESPONSE FROM CONTROL
NO EXT POWER
OPEN PHASE TRIP
OVER CURRENT TRIP
OVER FREQ TRIP
OVER VOLT TRIP
POWER ON INTERLOCK
REPLACE BPCU
RIGHT AIR/GND
RIGHT BTB AUX
RIGHT DEAD TIE BUS
RIGHT GCB AUX
RIGHT SERIAL LINK

Messages in table 101 External Power Channel
TIE BUS DP TRIP
LEFT CHANNEL DP TRIP – MAIN BUS/OVERLAP ZONE, RIGHT CHANNEL DP TRIP – TIE BUS, APU CHANNEL DP TRIP – TIE BUS
LEFT CHANNEL DP TRIP – TIE BUS, RIGHT CHANNEL DP TRIP – MAIN BUS/OVERLAP ZONE, APU CHANNEL DP TRIP – TIE BUS
LEFT CHANNEL DP TRIP – TIE BUS, RIGHT CHANNEL DP TRIP – TIE BUS, APU CHANNEL DP TRIP – OVERLAP ZONE
LEFT CHANNEL DP TRIP – TIE BUS, RIGHT CHANNEL DP TRIP – TIE BUS, APU CHANNEL DP TRIP – TIE BUS
UNDER FREQ TRIP
UNDER VOLT TRIP

EXTERNAL POWER CHANNEL - TABLE 101

B. APB AUX
(1) Replace the auxiliary power breaker C905 (MM 24-22-03).
(2) If the problem continues, do a check for continuity between these points:

Component	Pin	Component	Pin
APB C905	D268 pin 4	GROUND	
APB C905	D268 pin 8	GROUND	
APB C905	D268 pin 7	BPCU M116	D278A pin 4A
APB C905	D268 pin 3	APU GCU M143	D264A pin C1

(3) Repair as necessary.

C. APU AIR/GND
(1) Push the PERIODIC TEST switch on the front of the BPCU M116 on the E2-4 rack.
(2) If the GCU FAILED CODE 16 message shows on the APU GEN POWER SYSTEM, replace the APU GCU M143 on the E2-4 rack. (MM 24-22-02).
(3) If the GCU FAILED CODE 16 does not show, remove the APU GCU M143 (MM 24-22-02).
(a) Set the thrust levers at the idle stop position.
(b) Make sure there is continuity between these points:

Component	Pin	Component	Pin
APU GCU M143	D246A pin A1	TO GROUND	

(c) Repair as necessary.
(d) Advance the thrust levers approximately 25%.

EXTERNAL POWER CHANNEL - TABLE 101

(e) Make sure there is an open circuit between these points:

Component	Pin	Component	Pin
APU GCU M143	D246A pin A1	TO GROUND	

(f) Repair as necessary.
(g) Install the APU GCU M143 (MM 24-22-02).

(4) If the problem continues, replace the APU GCU M143 (MM 24-22-02).
(5) If the problem continues, replace the AIR/GRD relays K145 and K148 (WDM 32-09-11).
(6) If the problem continues, replace the AIR/GRD time delay modules M1161 and M1162 (WDM 32-09-11).

D. APU DEAD TIE BUS
(1) Replace the APU generator control unit (M143) (MM 24-22-02).
(2) If the problem continues, replace the bus power control unit M116 (MM 24-41-03).
(3) If the problem continues, correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-41):

Component	Pin	Component	Pin
APB C905	L2	APU GCU M143	D264A pin C15

(4) If the problem continues, correct any open circuit, short circuit to ground, short circuit to adjacent wiring, or high high resistance connection on the tie bus between these circuit breakers: The Bus Tie Breakers (BTB's), Auxiliary Power Breaker (APB), and External Power Contactor (EPC) (WDM 24-21-51).

E. APU GHR/EP GHR
(1) Replace the ground handling relay K101 (MM 24-51-01).

EXTERNAL POWER CHANNEL - TABLE 101

(2) If the problem continues, do a check for continuity between these points:

Component	Pin	Component	Pin
GHR K101	X1	BPCU M116	D278B pin A11
GHR K101	Y1	BPCU M116	D278B pin B11
GHR K101	X2	GROUND	

(3) Repair as necessary.
(4) If the problem continues, do the flight mode simulation procedure for the number 1 air/ground system (MM 32-09-02).
(5) Put the air/ground system 1 in the ground mode, and do a check for continuity between these points:

Component	Pin	Component	Pin
GHR K101	Y2	TO GROUND	

(6) Repair as necessary.

F. APU SERIAL LINK
(1) Replace the APU generator control unit M143 (MM 24-22-02).
(2) If the problem continues, replace the bus power control unit M116 (MM 24-41-03).
(3) If the problem continues, examine and repair any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-41-11):

Component	Pin	Component	Pin
APU GCU M143	D264A pin A12	BPCU M116	D278A pin A13
APU GCU M143	D264A pin B12	BPCU M116	D278A pin B13

(4) If the problem continues, do a check of the shield around the APU GCU-BPCU serial data link (WDM 24-22-22, WDM 24-41-11).
(a) APU GCU shield-D264A, pin B11.

(b) BPCU shield-D278A, pin A14.

G. BPCU AIR/GND SWITCH
(1) Push the PERIODIC TEST switch on the front of the BPCU M116 on the E2-4 rack.
(2) If the BPCU FAILED CODE 16 message shows, replace the BPCU M116 on the E2-4 rack (MM 24-41-03).
(3) If the GCU FAILED CODE 16 does not show, set the thrust levers at the idle stop position.
(a) Put the No. 1 air/ground system in the ground mode (MM 32-09-02).
(b) Make sure there is continuity between these points:

Component	Pin	Component	Pin
BPCU M116	D278A pin C3	TO GROUND	

(c) Repair as necessary.
(4) If the problem continues, replace the BPCU M116 (MM 24-41-03).

H. BPCU CIRCUIT BREAKER OPEN
(1) Remove the BPCU M116 (MM 24-41-03).
(2) If the circuit breaker CB1 on the BPCU M116 is open, do a check for a short circuit between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin A1	TO GROUND	
BPCU M116	D278A pin B10	TO GROUND	
BPCU M116	D278A pin C10	TO GROUND	

(3) Repair as necessary.
(4) If the problem continues, replace the BPCU M116 (MM 24-41-03).
(5) If the circuit breaker CB2 on the BPCU M116 is open, close CB2 and push the EXT PWR switch on the electrical system control panel.
(6) AIRPLANES WITH -15 OR -23 BPCU;
Do these steps:
(a) If the problem continues, remove the BPCU M116 (MM 24-41-03).

EXTERNAL POWER CHANNEL - TABLE 101

(b) Do a check for a short circuit between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin 12	EPC K114	D274 pin 40

(c) Repair as necessary.
(d) If the problem continues, replace the external power contactor K114 (MM 24-41-01).
(e) Install the BPCU (MM 24-41-03).

(7) If the problem occurred in the last step, do these steps:
(a) Remove the BPCU M116 (MM 24-41-03).
(b) Do a check for a short circuit between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin A11	GHR K101	X1
BPCU M116	D278B pin B11	GHR K101	Y1

(c) Repair the wiring as necessary (WDM 24-51-61) or replace the GHR K101 (Ref MM 24-51-01).
(d) Install the BPCU M116 (MM 24-41-03).

(8) If no fault occurred in the last step, do these steps:
(a) Do a check for a short circuit to ground between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin C11	GSTR K102	X1

(b) Repair the wiring as necessary (WDM 24-51-51) or replace the GSTR K102 (MM 24-51-03).
(c) Install the BPCU M116 (MM 24-41-03).

(9) If no fault occurred in the last step, do these steps:
(a) Do a check for a short circuit to ground between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin D11	GSSR K103	X1

EXTERNAL POWER CHANNEL - TABLE 101

(b) Repair the wiring (WDM 24-51-51) or replace the GSSR K103 (MM 24-51-02).
(c) Install the BBCU M116 (MM 24-41-03).

(10) AIRPLANES WITH -15 OR -23 BPCU;
Do these steps:
(a) If no fault occurred in the last step, do a check for a short circuit to ground between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin A2	EXT PWR RECEPT	E
BPCU M116	D278B pin B2	EXT PWR RECEPT	F

(b) Repair the wiring as necessary (WDM 24-41-11) or replace the external power receptacle (MM 24-41-02).
(c) Install the BPCU M116 (MM 24-41-03).

(11) If no fault occurred in the last step, do these steps:
(a) Do a check for a short circuit to ground or a short circuit to adjacent wiring between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin A3	NOT IN USE light L83	
BPCU M116	D278B pin A3	AC CONNECTED light L82	

(b) Repair the wiring, or replace the lights L82, L83 as necessary (WDM 24-41-12).
(c) Install the BPCU M116 (MM 24-41-03).

(12) If no fault occurred in the last step, do these steps:
(a) Do a check for a short circuit to ground between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin D3	EX PWR AVAIL light	
BPCU M116	D278B pin D3	EX PWR ON light	

(b) Repair the wiring, or replace the lights as necessary (WDM 24-41-12).
(c) Install the BPCU M116 (MM 24-41-03).
(13) If no fault occurred in the last step, replace the BPCU M116 (MM 24-41-03).
(14) If you found no fault, do these steps:
(a) Check for a short circuit to ground between the BPCU connector D278B pin A2, B2 and the external power receptacle pins E and F (WDM 24-41-11).
(b) Repair the wiring or the external power receptacle as necessary.

I. BPCU FAILED
all codes but 31, 41, 44
(1) Replace the bus power control unit (BPCU) M116 (MM 24-41-03).
(2) Note code displayed with BPCU FAILED message.

J. BPCU FAILED
code 31
(1) Ignore this message. No action needs to be taken. (Do not replace the BPCU).

K. BPCU FAILED
code 41
(1) If accompanied by EPC COIL/AUX CIRCUIT message, then troubleshoot EPC, EPC coil wiring, or pin E-F interlock circuit wiring failures.
(2) If not accompanied by EPC COIL/AUX CIRCUIT message, replace BPCU.

L. BPCU FAILED
code 44
(1) Do a check of the EP Interlock Fuses B129 and B130 (WDM 24-41-11).
(2) If fuses are good, replace the Bus Power Control Unit (BPCU) M116 (AMM 24-41-03/401).
(3) If the fuses are bad, replace the EP Interlock Fuses B129 and B130.
(a) Repair wiring as required per (WDM 24-41-11).
(4) If problem continues, replace the BPCU M116 (AMM 24-41-03/401).

M. BPCU FAILED TRIP
(1) Replace the bus power control unit M116 (MM 24-41-03).

N. CT LOOP GND
(1) Remove the BPCU (MM 24-41-03).

EXTERNAL POWER CHANNEL - TABLE 101

(2) Do a check for a short circuit to ground at the BPCU connector D278A pin D1 (WDM 24-41-11).
  (a) If there is a short circuit, replace the ground power current transformer (CT) T122 (MM 24-23-01).
  (b) If the problem continues after the CT replacement, correct any short circuit to ground from the BPCU connector D278A pins A1, B1, C1, D1 to CT T122 D376 pins 1, 2, 3, 4 (WDM 24-41-11).
(3) If you found no fault in the last step, do a check for a short circuit to ground at the BPCU connector D278A pin D2 (WDM 24-23-12).
  (a) If there is a short circuit, replace EXT Pwr Bus Tie CT T116 (MM 24-23-01).
  (b) If the problem continues after CT replacement, correct any short circuit to ground from the BPCU connector D278A pins A2, B2, C2, D2 to CT T116 D290 pins 1, 2, 3, 4 (WDM 24-23-12).
(4) If you found no fault in the last step, do a check for a short circuit to ground at the BPCU connector D278A pin D6 (WDM 24-23-12).
  (a) If there is a short circuit, replace the APU Bus Tie CT T115 (MM 24-23-01).
  (b) If the problem continues after CT replacement, correct any short circuit to ground from the BPCU connector D278A pins A6, B6, C6, D6 to CT T115 D288 pins 1, 2, 3, 4 (WDM 24-23-12).
(5) If you found no fault in the last step, do a check for a short circuit to ground at the BPCU connector D278A pin D7 (WDM 24-23-12).
  (a) If there is a short circuit, replace the R Bus Tie CT T113 (MM 24-23-01).
  (b) If the problem continues after CT replacement, correct any short circuit to ground from the BPCU connector D278A pins A, B7, C7, D7 to CT T113 D286 pins 1, 2, 3, 4 (WDM 24-23-12).
(6) If you found no fault in the last step, do a check for a short circuit to ground at the BPCU connector D278A pin D5 (WDM 24-23-12).
  (a) If there is a short circuit, replace the L Bus Tie CT T112 (MM 24-23-01).
  (b) If the problem continues after CT replacement, correct any short circuit to ground from the BPCU connector D278A pins A5, B5, C5, D5 to CT T112 D282 pins 1, 2, 3, 4 (WDM 24-23-12).
(7) If you found a fault, install the BPCU (MM 24-41-03).
(8) If you found no fault, replace the BPCU M116 (MM 24-41-03).

O. EP PHASE SEQUENCE
(1) Do a check of the cable between the ground power source and external power receptacle for incorrect wiring. Phase A of source should be connected to pin A of the receptacle. Phase B to pin B. Phase C to pin C.
(2) Correct the cable wiring if necessary.
(3) If the problem continues, change the ground power source.

EXTERNAL POWER CHANNEL - TABLE 101

P. EPC COIL/AUX CIRCUIT
(1) Replace the external power contactor K114 (MM 24-41-01).
(2) If the problem continues, remove the BPCU M116 (MM 24-41-03).
(3) Do a check for continuity between these points:

Component	Pin	Component	Pin
BPCU M116	D278A pin D3	EPC K114	D274 pin 7
GROUND		EPC K114	D274 pin 8

(4) Repair as necessary.
(5) Install the BPCU M116 (MM 24-41-03).

Q. EPC COIL CIRCUIT
(1) Replace the external power contactor K114 (MM 24-41-01).
(2) If the problem continues, remove the BPCU M116 (MM 24-41-03).
(3) Do a check for continuity between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin A12	EPC K114	D274 pin 40
GROUND		EPC K114	D274 pin 41

(4) Repair as necessary.
(5) Replace the BPCU M116 (MM 24-41-03).

R. EXT POWER UNDER VOLT
(1) An UNDER VOLT TRIP message is also shown with the EXT POWER UNDER VOLT message on the external power channel. These steps should isolate the fault which causes both messages:
(a) Make sure the ground power source supplies 115Vac RMS on each phase.
(b) Adjust the voltage if necessary or replace the ground power source.
(c) Do a check of the cable between the ground power source and the external power receptacle for open or short circuits.
(d) Repair or replace the cable as necessary.
(2) If the problem continues, remove the BPCU M116 (MM 24-41-03).

EXTERNAL POWER CHANNEL - TABLE 101

(3) Do a check for continuity between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin A7	EXTERNAL POWER RECEPTACLE	A
BPCU M116	D278B pin B7	EXTERNAL POWER RECEPTACLE	B
BPCU M116	D278B pin C7	EXTERNAL POWER RECEPTACLE	C

(4) Repair as necessary.
(5) Install the BPCU M116 (MM 24-41-03).

S. EXT PWR PIN E-F FAILURE
(1) Do a check of the EP Interlock Fuses B129 and B130 (WDM 24-41-11).
(2) If the fuses are good, replace the BPCU M116 (AMM 24-41-03/401).
(3) If the fuses are bad, replace the EP Interlock Fuses B129 and B130.
(a) Make sure the correct voltage is supplied to the external power receptacle.
(b) Repair wiring as required (WDM 24-41-11).

T. GHR COIL
(1) Replace the ground handling relay (K101) (MM 24-51-01).
(2) If the problem continues, do a check for continuity between these points:

Component	Pin	Component	Pin
GHR K101	X1	BPCU M116	D278B pin A11
GHR K101	Y1	BPCU M116	D278B pin B11
GHR K101	X2	GROUND	

(3) Repair as necessary.
(4) If the problem continues, do these steps:
(a) Do the flight mode simulation procedure for the number 1 air/ground system (MM 32-09-02).
(b) Put the air/ground system 1 in the ground mode.

EXTERNAL POWER CHANNEL - TABLE 101

(c) Do a check for continuity between these points:

Component	Pin	Component	Pin
GHR K101	Y2	TO GROUND	

(d) Repair as necessary.

U. GSSR COIL
(1) Replace the ground service select relay (K103) (MM 24-51-02).
(2) If the problem continues, remove the BPCU M116 (MM 24-41-03).
(a) Do a check for continuity between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin D11	GSSR K103	X1
GROUND		GSSR K103	X2

(b) Repair as necessary.
(c) Install the BPCU M116 (MM 24-41-03).

V. GSTR COIL
(1) Replace the ground service transfer relay (K102) (MM 24-51-03).
(2) If the problem continues, do these steps:
(a) Remove the BPCU M116.
(b) Do a check for continuity between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin C11	GSTR K102	X1
GROUND		GSTR K102	X2

(c) Repair as necessary.
(d) Install the BPCU M116 (MM 24-41-03).

W. LEFT AIR/GND
(1) Push the PERIODIC TEST switch on the front of the BPCU M116 on the E2-4 rack.

EXTERNAL POWER CHANNEL - TABLE 101

(2) If the GCU FAILED CODE 16 message shows on the LEFT GEN POWER SYSTEM, replace the left GCU M144 on the E1-2 (MM 24-22-02).
(3) If the GCU FAILED CODE 16 does not show, remove the L GCU M144 (MM 24-22-02).
(a) Set the thrust levers at the idle stop position.
(b) Make sure there is continuity between these points:

Component	Pin	Component	Pin
L GCU M144	D248A pin A1	GROUND	

(c) Repair as necessary.
(d) Advance the thrust levers approximately 25%.
(e) Make sure there is an open circuit between these points:

Component	Pin	Component	Pin
L GCU M144	D248A pin A	GROUND	

(f) Repair as necessary.
(4) Install the L GCU M144 (MM 24-22-02).

X. LEFT BTB AUX
(1) Replace the left bus tie breaker C902 (MM 24-22-03).
(2) If the problem continues, correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-12):

Component	Pin	Component	Pin
L BTB C902	D254-3	L GCU M144	D248-D5
L BTB C902	D254-7	BPCU M116	D278A-B4
L BTB C902	D254-4	GROUND	
L BTB C902	D247-8	GROUND	

Y. LEFT DEAD TIE BUS
(1) Replace the left generator control unit M144 (MM 24-22-02).

EXTERNAL POWER CHANNEL - TABLE 101

(2) If the problem continues, remove the L BTB (MM 24-22-03) and the L GCU (MM 24-22-02).
(3) Correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-12):

Component	Pin	Component	Pin
L BTB C902	L2	L GCU M144	D248A pin D15

(4) Install the L BTB (MM 24-22-03) and the L GCU (MM 24-22-02).
(5) If the problem continues, correct any open circuit, short circuit to ground, short circuit to adjacent wiring, or high resistance connection on the tie bus between the bus tie breakers (BTBs), auxiliary power breaker (APB), and external power contactor (EPC) (WDM 24-21-51).

Z. LEFT GCB AUX
(1) Replace the left generator circuit breaker C901 (MM 24-22-03).
(2) If the problem continues, correct any open circuit or short circuit to ground between these points:

Component	Pin	Component	Pin
L GCB C901	D252-3	L GCU M144	D248A-D6
L GCB C901	D252-7	BPCU M116	D278A-A3
L GCB C901	D252-4	GROUND	
L GCB C901	D252-8	GROUND	

AA. LEFT SERIAL LINK
(1) Replace the left generator control unit M144 (MM 24-22-02).
(2) If the problem continues, remove the L GCU (MM 24-22-02).

EXTERNAL POWER CHANNEL - TABLE 101

(3) Correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-12):

Component	Pin	Component	Pin
L GCU M144	D248A pin A12	BPCU M116	D278A pin A12
L GCU M144	D248A pin B12	BPCU M116	D278A pin B12

(4) Do a check of the shield around the L GCU-BPCU serial data link (WDM 24-22-12, WDM 24-22-22).
(a) L GCU shield D248A pin B11.
(b) BPCU shield D278A pin A14..
(5) Install the L GCU (MM 24-22-02).
(6) Install the BPCU (MM 24-41-03).

AB. NO RESPONSE FROM CONTROL
(1) Replace the BPCU M116.

AC. NO EXT POWER
(1) An UNDER VOLT TRIP message is also shown with the EXT POWER UNDER VOLT message on the external power channel. These steps should isolate the fault which causes both messages:
(a) Make sure the ground power source supplies 115Vac RMS on each phase.
(b) Adjust the voltage if necessary or replace the ground power source.
(c) Do a check of the cable between the ground power source and the external power receptacle for open or short circuits.
(2) Repair or replace the cable as necessary.
(3) If the problem continues, do a check of the EXT PWR BPCU circuit breaker C320.
(4) If the circuit breaker has opened do a check for open circuit, or short circuit to ground between these points (WDM 24-41-11):

Component	Pin	Component	Pin
BPCU M116	D278B-A7	C320	A2
BPCU M116	D278B-B7	C320	B2
BPCU M116	D278B-C7	C320	C2

(5) Repair as necessary.

AD. OPEN PHASE TRIP
(1) Make sure the ground power source supplies 115Vac RMS on each phase.
(2) Adjust the voltage if necessary or replace the ground power source.
(3) Make sure there are no open circuits or short circuits in the cable between the ground power source and the external power receptacle on P30.
(4) Do these checks:
(a) EXTERNAL POWER FEEDER--ONE OPEN PHASE (WDM 24-41-11)
K114 PINS A1, B1, C1 TO D372 PINS A, B, C
(b) Remove the BPCU (MM 24-41-03).
CT WIRING--ONE OPEN PHASE OR SHORT TO GROUND (WDM 24-41-11)
(T122) D376-1, 2, 3, 4 TO (M116) D278A-A1, B1, C1, D1
(c) OVERLOAD CT--ONE OPEN PHASE (WDM 24-41-11)
(T122) D376-1, 2, 3 TO (T122) D376-4
(d) GROUND HANDLING BUS FEEDER--ONE OPEN PHASE (WDM 24-51-61)
K114 PINS A1, B1, C1 TO K101 PINS A1, B1, C1
(e) GROUND HANDLING BUS LOADS--ONE OPEN PHASE (WDM 24-51-61)
K101 PINS A2, B2, C2 TO EACH LOAD
(f) GROUND SERVICE BUS FEEDER--ONE OPEN PHASE (WDM 24-51-52)
(g) GROUND SERVICE BUS LOADS--ONE OPEN PHASE (WDM 24-51-52)
K102 PINS A2, B2, C2 TO EACH LOAD
(h) TIE BUS FEEDER--ONE OPEN PHASE (WDM 24-21-51)
K114 PINS A2, B2, C2 TO C905 PINS L1, L2, L3
K114 PINS A2, B2, C2 TO C904 PINS L1, L2, L3
K114 PINS A2, B2, C2 TO C902 PINS L1, L2, L3
(i) RIGHT BUS LOADS--ONE OPEN PHASE (WDM 24-21-21)
C904 PINS T1, T2, T3 TO EACH LOAD
(j) LEFT BUS LOADS--ONE OPEN PHASE (WDM 24-21-11)
C092 PINS T1, T2, T3 TO EACH LOAD
(k) REPLACE THE BPCU M116 (MM 24-41-03)

AE. OVER CURRENT TRIP
(1) Do these checks:
(a) EXTERNAL POWER FEEDER--SHORT TO GROUND (WDM 24-41-11)
T122 TO T116
(b) RIGHT BUS LOADS--SHORT TO GROUND (WDM 24-21-21)
T113 TO EACH LOAD

EXTERNAL POWER CHANNEL - TABLE 101

(c) LEFT BUS LOADS--SHORT TO GROUND (WDM 24-21-11)
T112 TO EACH LOAD
(d) REPLACE THE BPCU M116 (MM 24-41-03)

AF. OVER FREQ TRIP
(1) Check the ground power source for 400-Hz power.
(2) Adjust the frequency if necessary, or use a different ground power source.

AG. OVER VOLT TRIP
(1) Check the ground power source for 115-volt ac RMS power on each phase.
(2) Adjust the source voltage if necessary, or use a different ground power source.

AH. POWER ON INTERLOCK
(1) Do a check of the fuses B129 and B130 located in the P34 panel.
(2) If the fuses are blown, make sure the correct voltage is supplied to the external power receptacle pins E and F.
(3) Supply the correct external power and replace the fuses as necessary (WDM 24-41-11).

AI. REPLACE BPCU
(1) If the circuit breaker CB3 on the BPCU M116 is open, do these steps:
(a) Replace the external power contactor K114 (AMM 24-41-01)
(b) If the problem continues, remove the BPCU M116.
1) Do a check for a short circuit to ground between the BPCU connector D278B pin A12 and the external power contactor connector D274 pin 40 (WDM 24-41-11).
2) Repair the wiring as necessary.
3) If no fault occurred in the last step, do a check for a short circuit to ground between these points:

Component	Pin	Component	Pin
BPCU M116	D278B pin C11	GND SERV BUS switch light	

4) Repair the wiring or change the GND SERV BUS switch light (WDM 24-51-51).
5) Install the BPCU M116 (MM 24-41-03).

EXTERNAL POWER CHANNEL - TABLE 101

(c) If you found no fault, replace the BPCU M116 (MM 24-41-03).

AJ. REPLACE BPCU
all codes but 31, 41
(1) Replace the bus power control unit (BPCU) M116 (MM 24-41-03).
(2) Note code displayed with BPCU FAILED message.

AK. REPLACE BPCU
code 41
(1) If accompanied by EPC COIL/AUX CIRCUIT message, then troubleshoot EPC, EPC coil wiring, or pin E-F interlock circuit wiring failures.
(2) If not accompanied by EPC COIL/AUX CIRCUIT message, replace BPCU.

AL. REPLACE BPCU (D9)
(1) Do the steps for BPCU FAILED TRIP.

AM. REPLACE BPCU (XX)
(1) Do the steps for BPCU FAILED CODE XX.

NOTE: XX are numeric codes.

AN. RIGHT AIR/GND
(1) Push the PERIODIC TEST switch on the front of the BPCU M116 on the E2-4.
(2) If GCU FAILED CODE 16 message shows on the RIGHT GEN POWER SYSTEM, replace the right GCU M146 on E2-4 (MM 24-22-02).
(3) If GCU FAILED CODE 16 does not show, remove the R GCU M146 (MM 24-22-02).
(a) Set the thrust levers at the idle stop position.
(b) Make sure there is continuity between these points:

Component	Pin	Component	Pin
R GCU M146	D256A pin A1	GROUND	

(c) Repair as necessary.

EXTERNAL POWER CHANNEL - TABLE 101

(d) Advance the thrust levers approximately 25%.
(e) Make sure there is an open circuit between these points:

Component	Pin	Component	Pin
R GCU M146	D256A pin A1	GROUND	

(f) Repair as necessary.
(4) Install the R GCU M146 (MM 24-22-02).

AO. RIGHT BTB AUX
(1) Replace the right bus tie breaker C904 (MM 24-22-02).
(2) If the problem continues, correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-22):

Component	Pin	Component	Pin
R BTB C904	D262-3	BPCU M116	
R BTB C904	D262-7	BPCU M116	
R BTB C904	D262-8	GROUND	
R BTB C904	D262-4	GROUND	

AP. RIGHT DEAD TIE BUS
(1) Replace the right generator control unit M146 (MM 24-22-02).
(2) If the problem continues, remove the R BTB (MM 24-22-03) and the R GCU (MM 24-22-02).

EXTERNAL POWER CHANNEL - TABLE 101

(3) Correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-22):

Component	Pin	Component	Pin
R BTB C904	L2	R GCU M146	

(4) Install the R BTB (MM 24-22-03) and the R GCU (MM 24-22-02).
(5) If the problem continues, correct any open circuit, short circuit to ground, short circuit to adjacent wiring, or high resistance connection on the tie bus between the bus tie breakers (BTBs), auxiliary power and the external power contactor (EPC) (WDM 24-21-51).

AQ. RIGHT GCB AUX
(1) Replace the right generator circuit breaker C903 (MM 24-22-03).
(2) If the problem continues, correct any open circuit or short circuit to ground between these points:

Component	Pin	Component	Pin
L GCB C903	D260-3	R GCU M146	D256A-D6
L GCB C903	D260-7	BPCU M116	D278A-B3
L GCB C903	D260-4	GROUND	
L GCB C903	D260-8	GROUND	

AR. RIGHT SERIAL LINK
(1) Replace the right generator control unit M146 (MM 24-22-02).
(2) If the problem continues, remove the R GCU (MM 24-22-02) and BPCU (MM 24-41-03):

EXTERNAL POWER CHANNEL - TABLE 101

(3) Correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-22):

Component	Pin	Component	Pin
R GCU M146	D256A pin A12	BPCU M116	D278A pin C12
R GCU M146	D256A pin B12	BPCU M116	D278A pin D12

(4) Do a check of the shield around the R GCU-BPCU serial data link (WDM 24-22-22).
(a) R GCU shield - D256A pin B11.
(b) BPCU shield - D278A pin A14.
(5) Install the R GCU (MM 24-22-02) and the BPCU (MM 24-41-03).

AS. TIE BUS DP TRIP
(1) If the BPCU FAILED CODE 60 message shows on the external power channel, replace the bus power control unit M116 (MM 24-41-03).
(2) If the BPCU FAILED CODE 60 message does not show, do a check of the messages on the other power channels of BPCU display:

NOTE: The following are other channel messages and checks.

AT. LEFT CHANNEL DP TRIP - MAIN BUS/OVERLAP ZONE,
RIGHT CHANNEL DP TRIP - TIE BUS,
APU CHANNEL DP TRIP - TIE BUS
(1) Do the checks that follow:
(a) LEFT TIE BUS FEEDER--SHORT TO GROUND (WDM 24-21-51).
T105 TO C902 PINS L1, L2, L3
(b) PHASE B TIE BUS VOLT SENSING WIRE--SHORT TO GROUND
(WDM 24-22-22)
C902 PIN L2 TO (M144) D248A-D15

EXTERNAL POWER CHANNEL - TABLE 101

(c) REPLACE THE LEFT GCU M144 (MM 24-22-02)

AU. LEFT CHANNEL DP TRIP - TIE BUS,
RIGHT CHANNEL DP TRIP - MAIN BUS/OVERLAP ZONE,
APU CHANNEL DP TRIP - TIE BUS
(1) Do the checks that follow:
(a) RIGHT TIE BUS FEEDER--SHORT TO GROUND (WDM 24-21-51).
T107 TO C904 PINS L1, L2, L3
(b) PHASE B TIE BUS VOLT SENSING WIRE--SHORT TO GROUND
(WDM 24-22-22)
C904 PIN L2 TO M146 (MM 24-22-02)
(c) REPLACE RIGHT GCU M146 (MM 24-22-02)

AV. LEFT CHANNEL DP TRIP - TIE BUS,
RIGHT CHANNEL DP TRIP - TIE BUS,
APU CHANNEL DP TRIP - OVERLAP ZONE
(1) Do the checks that follow:
(a) APU TIE BUS FEEDER--SHORT TO GROUND (WDM 24-21-41,
WDM 24-21-51) T111 TO T115
(b) PHASE B LOAD BUS VOLT SENSING WIRE--SHORT TO GROUND
(WDM 24-22-41)
C905 PIN L2 TO (M143) D264A-C15
(c) REPLACE THE APU GCU (M143) (MM 24-22-02)

AW. LEFT CHANNEL DP TRIP - TIE BUS,
RIGHT CHANNEL DP TRIP - TIE BUS,
APU CHANNEL DP TRIP - TIE BUS
(1) Do the checks that follow:
(a) TIE BUS FEEDER--SHORT TO GROUND (WDM 24-21-41, WDM 24-21-51,
WDM 24-41-11)
T116 TO C902, C904, C905
(b) CT WIRING--OPEN (WDM 24-23-12). Remove the BPCU (MM 24-41-03).
(T116) D290-1,2,3,4 TO (M116) D278A-A2, B2, C2, D2
(T112) D282-1,2,3,4 TO (M116) D278A-A5, B5, C5, D5
(T113) D286-1,2,3,4 TO (M116) D278A-A7, B7, C7, D7
(T115) D288-1,2,3,4 TO (M116) D278A-A6, B6, C6, D6
Install the BPCU (MM 24-41-03).

EXTERNAL POWER CHANNEL - TABLE 101

(c) EP VOLTAGE SENSE WIRING--SHORT TO GROUND (WDM 24-41-11). K114 PINS A1, B1, C1 TO (M116) D278B-A7, B7, C7
Install the BPCU (MM24-41-03).
(d) REPLACE the BPCU (M116) (MM 24-41-03)
(e) DPCTs--OPEN (WDM 24-23-12)
(T116) D290-1,2,3 TO (T116) D290-4
(T112) D282-1,2,3 TO (T112) D282-4
(T113) D286-1,2,3 TO (T113) D286-4
(T115) D288-1,2,3 TO (T115) D288-4

AX. IF AT LEAST ONE OF THE ABOVE ISOLATION MESSAGES FOR THE TIE BUS DP TRIP IS NOT DISPLAYED:
(1) Do the checks that follow:
(a) TIE BUS FEEDER--SHORT TO GROUND (WDM 24-21-51, WDM 24-41-11)
(T116) TO (C902) (C904) (C905)
(b) CT WIRING--OPEN (WDM 24-23-12).
Remove the BPCU (MM 24-41-03).
T116 D290-1,2,3,4 TO M116 D278A-A2,B2,C2,D2
T112 D282-1,2,3,4 TO M116 D278A-A5,B5,C5,D5
T113 D286-1,2,3,4 TO M116 D278A-A7,B7,C7,D7
T115 D288-1,2,3,4 TO M116 D278A-A6,B6,C6,D6
Install the BPCU (MM 24-41-03).
(c) EP VOLTAGE SENSE WIRING--SHORT TO GROUND (WDM 24-41-11).
Remove the BPCU (MM 24-41-03).
K114 PINS A1,B1,C1 TO (M116) D278B-A7,B7,C7
Install the BPCU (MM 24-41-03).
(d) REPLACE the BPCU (MM 24-41-03).
(e) DPCTs--OPEN (WDM 24-23-12)
T116 D290-1,2,3 TO T116 D290-4
T112 D282-1,2,3 TO T112 D282-4
T113 D286-1,2,3 TO T113 D286-4
T115 D288-1,2,3 TO T115 D288-4

EXTERNAL POWER CHANNEL - TABLE 101

AY. UNDER FREQ TRIP

(1) Do the following steps:

(a) Make sure the ground power source supplies 400-Hz power.

(b) Adjust frequency if necessary or use a different ground power source.

AZ. UNDER VOLT TRIP

(1) Do the following steps:

(a) Make sure the ground power source supplies 115-volt ac RMS in each phase.

(b) Adjust the source voltage if necessary.

(c) If the problem continues, use a different ground power source.

4. Table 102 - Left and Right Power Channels

A. Table 102 has messages and corrections for the left and right power channels.

Messages in table 102 Left and Right Power Channels
+28V TO CONTROL SW
AIR/GND FAILURE
AUX CONTACTS/BPCU/GCU
BTB AUX/WIRING
BTB COIL/BTB SW/GCU
BTB SW/WIRING/GCU
BTB WIRING/GCU
BUS VOLT WIRING/GCU
COOLER
COOLER +28V WIRING/GCU
COOLER VALVE/WIRING
CT LOOP GND
DISCONNECT TRIP
DP TRIP
EXCITATION TRIP
FAILED IDG DISCONNECT
FIELD/WIRING GEN/WIRING
FIRE TRIP

Messages in table 102 Left and Right Power Channels
GCB AUX/WIRING
GCB/BTB WIRING/GCU
GCB/WIRNG GCU
GCU CIRCUIT BREAKER OPEN
GCU FAILED
GCU FAILED TRIP
GCU/FIELD/WIRING
GEN CONT SW/GCB COIL/GCU
GEN CONT SW/WIRE/GCU
GEN DIODE
GEN
GEN DIODE TRIP
GEN TRIP
GEN/FDR
GEN/FIELD WIRING/GCU
GEN/WIRING/GCU

Messages in table 102 Left and Right Power Channels
IDG BULB TOLERANCE
IDG/GEN CT WIRING
IDG HIGH DELTA TEMP
IDG HIGH RISE TEMP
IDG LOW OIL PRESSURE
IDG/MPU WIRING
IDG NOT DISCONNECTED
IDG/OIL IN BULB WIRING
IDG/OIL OUT BULB WIRING
IDG OIL SERVICE
IDG OVERTEMP
IDG/PMG/WIRING
IDG/PRESSURE SW WIRING
INTRMT LINK
LOW OIL PRESSURE
MAIN BUS
MAIN BUS/OVERLAP ZONE
MPU/WIRING

Messages in table 102 Left and Right Power Channels
NO RESPONSE FROM CONTROL
NO VALID MESSAGE AF
OIL IN BULB/WIRING
OIL OUT BULB/WIRING
OIL PRESSURE SW/WIRING
OPEN PHASE TRIP
OPEN POR/FDR/GEN
OPPOSITE BUS OVERLOAD
OVER FREQ TRIP
OVER VOLT TRIP
OVERLAP CT WIRING/GCU
OVERLAP ZONE
OVERLOAD
PMG/FIELD/WIRING/GCU
REPLACE GEN (DIODE)
REPLACE GCU
REPLACE IDG OVERTEMP
SERIAL DATA LINK FAILED
SERVICE IDG
SHORTED PMG TRIP
SPEED LOSS IN FLIGHT

Messages in table 102 Left and Right Power Channels
TIE BUS
UNDER FREQ TRIP
UNDER VOLT TRIP

LEFT AND RIGHT POWER CHANNELS - TABLE 102

B. +28V TO CONTROL SW
   (1) Replace the electrical system control panel M10063 (MM 24-22-01).
   (2) If the problem continues, replace the generator field and hydraulic control panel M1087 (MM 24-22-04).
   (3) If the problem continues, replace L or R engine fire switch (MM 26-21-01).

C. AIR/GND FAILURE
   (1) Replace the L (R) GCU M144 (M146) (AMM 24-22-02/401).
   (2) If the problem continues, do a check of the wiring between the L GCU, M144 and the SYS 1 AIR/GROUND BAT RELAY, K148 (WDM 24-22-11):

Component	Pin	Component	Pin
L GCU M144	D248A PIN A1	K148	D3514 PIN 1

   (3) If the problem continues, do a check of the wiring between the R GCU, M146 and the SYS 1 AIR/GROUND BAT RELAY, K145 (WDM 24-22-11):

Component	Pin	Component	Pin
R GCU M146	D256A PIN A1	K145	D1612 PIN C2

   (4) If the problem continues, do a check of the wiring between the BPCU, M116 and the SYS 1 AIR/GROUND BAT RELAY, K148 (24-22-11):

Component	Pin	Component	Pin
BPCU M116	D278A PIN C3	K148	D3514 PIN 1

LEFT AND RIGHT POWER CHANNELS - TABLE 102

D. AUX CONTACTS/BPCU/GCU
(1) If the message shows on one L or R power channel, replace the appropriate L or R generator circuit breaker L=C901, R=C903 (MM 24-22-03).
(2) If the problem continues, replace the L or R generator control unit L = M144, R = M146 (MM 24-22-02).
(3) If the message shows on both L or R power channels, do these steps:
(a) Do a check for continuity between the pins 22 and 21 of the Auxiliary Power Breaker C905.
1) If there is no continuity, replace the auxiliary power breaker (MM 24-22-03).
(b) Do a check for continuity between the pins 22 and 21 of the external power contactor K114.
1) If there is no continuity, replace the external power contactor K114 (MM 24-41-01).
(c) If the problem continues, replace the Standby Power Control Panel (MM 23-33-04).
(d) If the problem continues, do a check for continuity through the BTB INHIBIT PULLUP RESISTOR ASSEMBLY R531 P34 (WDM 24-41-11).
1) If there is no continuity, replace the resistor assembly.
(4) If the problem continues, replace the APU generator control unit M143 (MM 24-22-02).
(5) If you found no fault or if the problem continues after correction, replace the bus power control unit M116 (MM 24-41-03).

E. BTB AUX/WIRING
(1) Replace the bus tie breaker L BTB C902 or the R BTB C904 (MM 24-22-03).
(2) If the problem continues correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points: (WDM 24-22-12, WDM 24-22-22)

Component	Pin	Component	Pin
L BTB C902	D254-3	L GCU M144	D248A-D5
L BTB C902	D254-4	GROUND	
R BTB C904	D262-3	R GCU M146	D256A-D5
R BTB C904	D262-4	GROUND	

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(3) If the problem continues, Replace the L GCU M144 or the R GCU M146 (MM 24-22-02).

F. BTB COIL/BTB SW/GCU
(1) Replace the electrical system control panel M10063 (MM 24-22-01).
(2) If the problem continues, replace the L BTB C902 or the R BTB C904 (MM 24-22-03).
(3) If the problem continues, replace the L GCU M144 or the R GCU M146 (MM 24-22-02).

G. BTB SW/WIRING/GCU
(1) Replace the electrical system control panel M10063 (MM 24-22-01).
(2) If the problem continues, replace the L (R) generator control unit (GCU) M144 (M146) (MM 24-22-02).

H. BTB WIRING/GCU
(1) Replace the L (R) bus tie breaker (BTB) C902 (C904) (MM 24-22-03).
(2) If the problem continues, replace the L (R) generator control unit (GCU) M144 (M146) (MM 24-22-02).

I. BUS VOLT WIRING/GCU
(1) Replace the L (R) generator control unit (GCU) M144 (M146) (MM 24-22-02).
(2) If the problem continues, correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points:
(a) FOR THE LEFT POWER CHANNEL (WDM 24-22-11, WDM 24-22-12); Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248A pin C15	L GCB	L2
L GCU M144	D248A pin D15	L BTB	L2

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(b) FOR RIGHT POWER CHANNEL (WDM 24-22-21, WDM 24-22-22);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256A pin C15	R GCB	L2
R GCU M146	D256A pin D15	R BTB	L2

J. COOLER
(1) Check IDG air/oil heat exchanger air shutoff valve for obstructions.
(a) Replace if you find obstruction (AMM 24-11-07).
(2) If fault persists, check for obstructions in the heat exchangers listed below:
- IDG Air/Oil Heat Exchanger (AMM 24-11-04)
- IDG Fuel/Oil Heat Exchanger (AMM 24-11-10)
(a) Replace if necessary.
(3) If fault persists, check for obstructions in IDG oil lines between IDG and oil heat exchangers, and between heat exchangers.
(4) If fault persists, replace L (R) GCU M144 (M146) (AMM 24-22-02).

K. COOLER +28V WIRING/GCU
(1) Check C/B L (R) IDG Valve (P11).
(2) If tripped, check for short between these points:
(a) LEFT CHANNEL (WDM 24-11-11);
Use the table that follows:

Component	Pin	Component	Pin
C837 L IDG VALVE C/B (P11-2)	1	GROUND	
L GCU (M144)	D248A-C3	GROUND	
L GCU (M144)	D248A-B3	GROUND	

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(b) RIGHT CHANNEL (WDM 24-11-21);
Use the table that follows:

Component	Pin	Component	Pin
C838 R IDG VALVE C/B (P11-5)	1	GROUND	
R GCU (M146)	D256A-C3	GROUND	
R GCU (M146)	D256A-B3	GROUND	

(3) Check for open circuit between these points:
(a) LEFT CHANELL (WDM 24-11-11);
Use the table that follows:

Component	Pin	Component	Pin
C837 L IDG VALVE C/B (P11-2)	1	L GCU (M144)	D248A-A3

(b) RIGHT CHANNEL (WDM 24-11-21);
Use the table that follows:

Component	Pin	Component	Pin
C838 R IDG VALVE C/B (P11-5)	1	R GCU (M146)	D256A-A3

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(4) Replace L (R) GCU M144 (M146) (AMM 24-22-02).

L. COOLER VALVE/WIRING
(1) AIRPLANES WITH CF6-80C OR PW4000 ENGINES;
Correct any open circuit between the following points:
(a) FOR LEFT POWER CHANNEL (WDM 24-11-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248A-B3	K1031	7
K1031	3	GROUND	

(b) FOR RIGHT POWER CHANNEL (WDM 24-11-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256A-B3	K971	7
K971	3	GROUND	

(c) Replace L (R) GCU M144 (M146) (AMM 24-22-02).
(d) If fault persists, replace K1031 (K971).

(2) AIRPLANES WITH CF6-80A OR JT9D ENGINES;
Correct any open circuit between the following points:
(a) FOR LEFT POWER CHANNEL (WDM 24-11-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248A-B3	D172	1
D172	2	GROUND	

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(b) FOR RIGHT POWER CHANNEL (WDM 24-11-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256A-B3	D172	1
D172	2	GROUND	

(c) Replace L (R) GCU M144 (M146) (AMM 24-22-02/401).
(d) If fault persists, replace IDG Air/Oil H eat Exchanger Air Shutoff Valve V120 (AMM 24-11-07/201).

M. CT LOOP GND
(1) FOR THE LEFT POWER CHANNEL;
Do these steps:
(a) Remove the L GCU (MM 24-22-02).
(b) Correct any short circuit to ground between these points (WDM 24-23-11, WDM 24-21-11):

Point	Component	Pin
A	L GCU M144	D248B pin D13
B	L GCU M144	D248B pin D12
C	L GCU M144	D248B pin D11
D	L GCU M144	D248B pin D10

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(c) If you found no short circuit to ground at the four points, A-D, replace the left generator control unit M144 (MM 24-22-02).

(d) If you found a short circuit to ground at pin D13 at point A, do a check for a short circuit to ground on the left IDG connector D10966 or D414 pin 3 (WDM 24-21-11).

1) If you found a short circuit to ground, replace the left IDG (MM 24-11-01).

2) If you found no short circuit to ground at the left IDG pin, correct any open circuit or short circuit between these points (WDM 24-21-11):

Component	Pin	Component	Pin
L GCU M144	D248B pin A13	L IDG	D10966 or D414 pin 12
L GCU M144	D248B pin B13	L IDG	D10966 D414 pin 13
L GCU M144	D248B pin C13	L IDG	D10966 D414 pin 14
L GCU M144	D248B pin D13	L IDG	D10966 D414 pin 3

3) Install the L GCU (MM 24-22-02).

(e) If you found a short circuit to ground at the pin at point B, do a check for a short circuit ground on the L GEN DPCT No. 1 T105 pin D312 pin 4 (WDM 24-23-11).

1) If you found a short circuit to ground, replace the L GEN DPCT No. 2 T105 (MM 24-23-01).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

2) If you found no short circuit to ground, on the L GEN DPCT No. 1 pin, correct any open circuit or short circuit between these points (WDM 24-23-11):

Component	Pin	Component	Pin
DPCT T105	D312 pin 1	L GCU M144	D248B pin A12
DPCT T105	D312 pin 2	L GCU M144	D248B pin B12
DPCT T105	D312 pin 3	L GCU M144	D248B pin C12
DPCT T105	D312 pin 4	L GCU M144	D248B pin D12

3) Install the L GCU (MM 24-22-02).

(f) If you found a short circuit to ground at the pin at point C, do a check for a short circuit to ground on the L GEN DPCT No. 2 T106 pin D310 pin 4.

1) If you found a short circuit to ground, replace L GEN DPCT No. 2 (MM 24-23-01).

2) If you found no short circuit to ground, on the L GEN DPCT No. 2 pin, correct any open circuit or short circuit between these points (WDM 24-23-11):

Component	Pin	Component	Pin
DPCT T106	D310 pin 1	L GCU M144	D248B pin A11
DPCT T106	D310 pin 2	L GCU M144	D248B pin B11
DPCT T106	D310 pin 3	L GCU M144	D248B pin C11
DPCT T106	D310 pin 4	L GCU M144	D248B pin D11

3) Install the L GCU (MM 24-22-02).

(g) If you found a short circuit to ground at the pin at point D, do a check for a short circuit to ground on the L overlap current transformer T127 pin D288 pin 4 (WDM 24-23-11).

1) If you found a short circuit to ground, replace the L overlap current transformer T127 (MM 24-23-01).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

2) If you found no short circuit to ground, on the L overlap current transformer T127 pin D288 pin 4, correct any open circuit or short circuit between these points (WDM 24-23-11).

Component	Pin	Component	Pin
XFMER T127	D280 pin 1	L GCU M144	D248B pin A10
XFMER T127	D280 pin 2	L GCU M144	D248B pin B10
XFMER T127	D280 pin 3	L GCU M144	D248B pin C10
XFMER T127	D280 pin 4	L GCU M144	D248B pin D10

3) Install the L GCU (MM 24-22-02).

(2) FOR RIGHT POWER CHANNEL;
Do these steps:

(a) Do a check for a short circuit to ground at these points (WDM 24-23-11, WDM 24-21-21):

Point	Component	Pin
A	R GCU M146	D256B pin D13
B	R GCU M146	D256B pin D10
C	R GCU M146	D256B pin D11
D	R GCU M146	D256B pin D12

(b) If you found no short circuit to ground at the four points, A-D, replace the right generator control unit M146 (MM 24-22-02).

(c) If you found a short circuit to ground at pin D13 at point A, do a check for a short circuit to ground on the right IDG connector D10966 or D414 pin 3 (WDM 24-21-21).

1) If you found a short circuit to ground, replace the right IDG (MM 24-11-01).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

2) If you found no short circuit to ground at the right IDG connector D10966 or D414 pin 3, correct any open circuit or short circuit between these points (WDM 24-21-21):

Component	Pin	Component	Pin
R GCU M146	D256B pin A13	R IDG	D414 or D10966 pin 12
R GCU M146	D256B pin B13	R IDG	D414 or D10966 pin 13
R GCU M146	D256B pin C13	R IDG	D414 or D10966 pin 14
R GCU M146	D256B pin D13	R IDG	D414 or D10966 pin 3

3) Install the R GCU (MM 24-22-02).

(d) If you found a short circuit to ground at the pin at point B, do a check for a short circuit to ground on the right overlap current transformer T128 pin D284 pin 4 (WDM 24-23-11).

1) If you found a short circuit to ground, replace the right overlap current transformer T128 (MM 24-23-01).

2) If you found no short circuit to ground, on the right overlap current transformer T128 pin D284 pin 4, correct any open circuit or short circuit between these points (WDM 24-23-11):

Component	Pin	Component	Pin
XFMER T128	D284 pin 1	R GCU M146	D256B pin A10
XFMER T128	D284 pin 2	R GCU M146	D256B pin B10
XFMER T128	D284 pin 3	R GCU M146	D256B pin C10
XFMER T128	D284 pin 4	R GCU M146	D256B pin D10

3) Install the R GCU (MM 24-22-02).

(e) If you found a ground at the pin at point C, do a check for continuity to ground on the R GEN DPCT No. 2 T108 pin D304 pin 4 (WDM 24-23-11).

1) If you found a ground, replace the R GEN DPCT No. 2 T108 (MM 24-23-01).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

2) If you found no ground on the R GEN DPCT No. 2 T108 pin D304 pin 4, correct the open circuit or short circuit between these points (WDM 24-23-11):

Component	Pin	Component	Pin
DPCT T108	D304 pin 1	R GCU M146	D256B pin A11
DPCT T108	D304 pin 2	R GCU M146	D256B pin B11
DPCT T108	D304 pin 3	R GCU M146	D256B pin C11
DPCT T108	D304 pin 4	R GCU M146	D256B pin D11

3) Install the R GCU (MM 24-22-02).

(f) If you found a ground at the pin at point D, do a check for continuity to ground on the R GEN DPCT No. 1 T107 pin D306 pin 4 (WDM 24-23-11).

1) If you found a ground, replace the R GEN DPCT No. 1 T107 (MM 24-23-01).

2) If you found no ground on R GEN DPCT No. 1 T107 pin D306 pin 4, correct any open circuit or short circuit between these points (WDM 24-23-21):

Component	Pin	Component	Pin
R GCU M146	D256B pin A12	DPCT T107	D306 pin 1
R GCU M146	D256B pin B12	DPCT T107	D306 pin 2
R GCU M146	D256B pin C12	DPCT T107	D306 pin 3
R GCU M146	D256B pin D12	DPCT T107	D306 pin 4

3) Install the R GCU (MM 24-22-02).

N. DISCONNECT TRIP

(1) Do not allow a disconnected IDG to remain on the airplane for more than 50 flight hours.

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(2) If none of these messages show on the same channel as the DISCONNECT TRIP message, do the following steps:
GCU FAILED CODE 61
REPLACE GCU CODE 61
IDG HIGH DEL TEMP
IDG OVERTEMP
LOW OIL PRESSURE
(a) Examine the flight log and other BITE messages to see why the IDG was disconnected.
(b) Connect the IDG input shaft (AMM 24-11-01).
(c) Push the ELEC/HYD and the AUTO READ switches.
(d) Push and hold the erase switch for 3 seconds and make sure that the AUTO EVENT erases.

(3) If the IDG OVERTEMP message shows on the same channel as the DISCONNECT TRIP message, replace the L (R) IDG (MM 24-11-01).
(a) Push the ELEC/HYD and the AUTO READ switches.
(b) Push and hold the ERASE switch for 3 seconds and make sure that the AUTO EVENT erases.

(4) If the GCU FAILED CODE 61 or REPLACE GCU CODE 61 message appears on the same channel as the DISCONNECT TRIP message, replace L (R) GCU M144 (M146) (AMM 24-22-02).
(a) Reconnect IDG input shaft (AMM 24-11-01).
(b) Push ELEC/HYD, AUTO READ switches in.
(c) Turn on EICAS MAINT PANEL (P61).
(d) Push and hold ERASE for 3 seconds and check that AUTO EVENT erases.

(5) If the IDG HIGH DELTA TEMP or the LOW OIL PRESSURE message shows on the same channel as the DISCONNECT TRIP message, correct that message.
(a) Connect the IDG input shaft (MM 24-11-01).
(b) Push the ELEC/HYD and AUTO READ switches.
(c) Push and hold the ERASE switch for 3 seconds and make sure that the AUTO EVENT erases.

LEFT AND RIGHT POWER CHANNELS - TABLE 102

O. DP TRIP
(1) The DP TRIP message is accompanied by additional messages. Review the list below to find these messages and the appropriate troubleshooting steps.
(a) If the left or right channel shows messages DP TRIP and GEN/FDR, do these steps:
1) GENERATOR FEEDER-- SHORT TO GROUND (WDM 24-21-11, WDM 24-21-21).

Component	Pin	Component	Pin
L C901	T1,T2,T3	TO IDG	T1,T2,T3
R C903	T1,T2,T3	TO IDG	T1,T2,T3

2) CT WIRING--OPEN (WDM 24-21-11, WDM 24-21-21).

Component	Pin	Component	Pin
L IDG	D10966 or D414-12,13, 14,3	TO M144	D248B-A13,B13, C13,D13
R IDG	D10966 or D414-12,13, 14,3	TO M146	D256B-A13,B13, C13,D13

3) POR SENSE WIRING--SHORT TO GROUND (WDM 24-21-11, WDM 24-21-21).

Component	Pin	Component	Pin
L C901	T1,T2,T3	TO M144	D248B-A15,B15, C15
R C903	T1,T2,T3	TO M146	D256B-A15,B15, C15

LEFT AND RIGHT POWER CHANNELS - TABLE 102

4) IDG MAIN STATOR WINDING--INTERNAL SHORT TO GROUND (WDM 24-21-11, WDM 24-21-21).

Component	Pin	Component	Pin
L IDG	T1,T2,T3	TO IDG	N
R IDG	T1,T2,T3	TO IDG	N

5) IDG CT--OPEN OR SHORT (WDM 24-21-11, WDM 24-21-21).

Component	Pin	Component	Pin
L IDG	D10966 or D414-12,13,14	TO IDG	D10966 or D414-3
R IDG	D10966 or D414-12,13,14	TO IDG	D10966 or D414-3

6) REPLACE THE LEFT GCU M144 OR THE RIGHT GCU M146 (MM 24-22-02).

(b) If the left or right channel shows messages DP TRIP and TIE BUS, do these steps:

NOTE: Ignore this message if MAIN BUS/OVERLAP ZONE, OVERLAP ZONE, or TIE BUS DP TRIP is displayed on at least one of the other channels.

1) TIE BUS FEEDER--SHORT TO GROUND (WDM 24-21-51).

Component	Pin	Component	Pin
K114	A1,B1,C1	TO GROUND	
K114	A2,B2,C2	TO GROUND	
C905	L1,L2,L3	TO GROUND	
C904	L1,L2,L3	TO GROUND	
C902	L1,L2,L3	TO GROUND	

LEFT AND RIGHT POWER CHANNELS - TABLE 102

2) CT WIRING--OPEN (WDM 24-23-12).

Component	Pin	Component	Pin
T112	D282-1,2,3,4	TO M116	D278A-A5,B5, C5,D5
T113	D286-1,2,3,4	TO M116	D278A-A7,B7, C7,D7
T115	D288-1,2,3,4	TO M116	D278A-A6,B6, C6,D6

3) EP SENSE WIRING--SHORT TO GROUND (WDM 24-41-11).

Component	Pin	Component	Pin
K114	A1,B1,C1	TO M116	D278B-A7,B7, C7

4) REPLACE THE BPCU M116 (MM 24-41-03).
5) TIE BUS CT--IF OPEN, REPLACE (WDM 24-23-12).

Component	Pin	Component	Pin
T112	D282-1,2,3	TO T112	D282-4
T113	D286-1,2,3	TO T112	D282-4
T115	D288-1,2,3	TO T112	D282-4

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(c) If the left or right channel shows messages DP TRIP and OVERLAP ZONE, do these steps:
1) TIE BUS--SHORT (WDM 24-21-51).

Component	Pin	Component	Pin
L T105		TO C902	PINS L1,L2, L3
R T107		TO C904	PINS L1,L2, L3

2) PHASE B TIE BUS VOLT SENSE WIRING--SHORT TO GROUND (WDM 24-22-12, WDM 24-22-22).

Component	Pin	Component	Pin
L C902	L2	TO L GCU M144	D248A-D15
R C904	L2	TO R GCU M146	D256A-D15

3) GEN CT WIRING--SHORT TO GROUND (WDM 24-23-11).

Component	Pin	Component	Pin
L T105	D312-1,2,3,4	TO L GCU M144	D248B-A12,B12 C12,D12
R T107	D306-1,2,3,4	TO R GCU M146	D256B-A12,B12 C12,D12

LEFT AND RIGHT POWER CHANNELS - TABLE 102

4) GEN CT WIRING--IF SHORTED, REPLACE (WDM 24-23-11).

Component	Pin	Component	Pin
L T105	D312-1,2,3	TO T105	D312-4
R T107	D306-1,2,3	TO T107	D306-4

5) SERIAL DATA LINK--OPEN, FAULTY SHIELD, SHORT TO ADJACENT WIRING OR SHORT TO GROUND (WDM 24-22-12, WDM 24-22-22).

Component	Pin	Component	Pin
M116	D278A-A12,B12, A14	TO M144	D248A-A12, B12,B11
M116	D278A-C12,D12, A14	TO M146	D256A-A12, B12,B11

6) REPAIR THE WIRING AS NECESSARY.
7) REPLACE THE L GCU M144 OR R GCU M146 (AMM 24-22-02/401).

(d) If the left or right channels show messages DP TRIP and MAIN BUS/OVERLAP ZONE, do these steps:
1) MAIN CHANNEL FEEDER--SHORT TO GROUND (WDM 24-21-11, WDM 24-21-21)

Component	Pin	Component	Pin
L C901	L1,L2,L3	TO C902	T1,T2,T3
R C903	L1,L2,L3	TO C904	T1,T2,T3

LEFT AND RIGHT POWER CHANNELS - TABLE 102

2) IDG CT WIRING RESISTANCE FOR AN OPEN (WDM 24-21-11, WDM 24-21-21).

NOTE: Typical resistance values are 28.5 +/- 2 ohms, balance of resistance values not to exceed 4 ohms phase to phase).

Component	Pin	Component	Pin
L M144	D248B-A13,B13 C13	TO M144	D248B-D13
R M146	D256B-A13,B13, C13	TO M146	D248B-D13

3) CT WIRING--OPEN (WDM 24-23-11).

Component	Pin	Component	Pin
L T106	D310-1,2,3,4	TO M144	D248B-A11, B11,C11,D11
R T108	D304-1,2,3,4	TO M146	D256B-A11, B11,C11,D11

4) CT WIRING--SHORT TO GROUND (WDM 24-23-11).

Component	Pin	Component	Pin
L T105	D312-1,2,3,4	TO M144	D248B-A12, B12,C12,D12
R T107	D306-1,2,3,4	TO M146	D256B-A12, B12,C12,D12

LEFT AND RIGHT POWER CHANNELS - TABLE 102

5) PHASE B LOAD BUS VOLT SENSE WIRING--SHORT TO GROUND (WDM 24-22-11, WDM 24-22-21)

Component	Pin	Component	Pin
L C901	L2	TO M144	D248A-C15
R C903	L2	TO M146	D256A-C15

6) PHASE B TIE BUS VOLT SENSE WIRING--SHORT TO GROUND (WDM 24-22-12, WDM 24-22-22)

Component	Pin	Component	Pin
L C902	L2	TO M144	D248A-D15
R C904	L2	TO M146	D256A-D15

7) CT WIRING--IF OPEN, REPLACE (WDM 24-23-11).

Component	Pin	Component	Pin
L T106	D310-1,2,3	TO T106	D310-4
R T108	D304-1,2,3	TO T108	D304-4

8) GEN CT WIRING--IF SHORTED, REPLACE (WDM 24-23-11).

Component	Pin	Component	Pin
L T105	D312-1,2,3	TO T105	D312-4
R T107	D306-1,2,3	TO T107	D306-4

9) Replace the L GCU M144 or R GCU M146 (AMM 24-22-02/401).

(e) If the left or right channel shows the message DP TRIP and GCU FAILED CODE 40, 42, 51, 53, 54, 57 or 60, do these steps:

1) Replace the left GCU M144 or the right GCU M146 (AMM 24-22-02/401).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

P. EXCITATION TRIP
(1) Remove the GCUs (MM 24-22-02).
(2) Do a check for continuity between these points of the generator control unit rack connector (lead goes through IDG field winding):

resistance = 7.5 ±0.75 ohms at 77°F):

(a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248B pin A1	L GCU M144	D248B pin B1

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256B pin A1	R GCU M146	D256B pin B1

(c) If you find continuity, skip the next step "Do a check for continuity between these points on the IDG . . ." and go to the step "Do a check for an open circuit between these points:"
(3) Do a check for continuity between these points on the IDG (lead goes through IDG field winding):

resistance = 7.5 ±0.75 ohms at 77°F):

(a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L IDG	D10966 or D414 pin 9	L IDG	D10966 or D414 pin 10

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R IDG	D10966 or D414 pin 9	R IDG	D10966 or D414 pin 10

(c) If you find no continuity, replace the IDG (MM 24-11-01).
(d) If you find continuity, correct any open circuit or short circuit between these points:
1) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248B pin A1	L IDG	D10966 or D414 pin 9
L GCU M144	D248B pin B1	L IDG	D10966 or D414 pin 10

2) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256B pin A1	R IDG	D414 or D10966 pin 9
R GCU M146	D256B pin B1	R IDG	D414 or D10966 pin 10

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(4) Do a check for an open circuit between these points:
(a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248B pin A15	GROUND	---
L GCU M144	D248B pin B15	GROUND	---
L GCU M144	D248B pin C15	GROUND	---

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256B pin A15	GROUND	---
R GCU M146	D256B pin B15	GROUND	---
R GCU M146	D256B pin C15	GROUND	---

(c) If you found no open circuit, replace the L (R) generator control unit M144, (M146)(MM 24-22-02).

(5) If you found an open circuit in the last step, do a check for open circuit between these IDG points and ground:
(a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L IDG	T1	GROUND	---
L IDG	T2	GROUND	---
L IDG	T3	GROUND	---

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R IDG	T1	GROUND	---
R IDG	T2	GROUND	---
R IDG	T3	GROUND	---

(c) If you found an open circuit, replace the L (R) IDG (MM 24-11-01)

(d) If you found no open circuit, remove the GCU (MM 24-22-01), do a check for an open circuit between these points:

1) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCB	T1	L IDG	T1
L GCB	T2	L IDG	T2
L GCB	T3	L IDG	T3
L GCB	T1	L GCU	D248B pin A15
L GCB	T2	L GCU	D248B pin B15
L GCB	T3	L GCU	D248B pin C15

LEFT AND RIGHT POWER CHANNELS - TABLE 102

2) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCB	T1	R IDG	T1
R GCB	T2	R IDG	T2
R GCB	T3	R IDG	T3
R GCB	T1	R GCU	D256B pin A15
R GCB	T2	R GCU	D256B pin B15
R GCB	T3	R GCU	D256B pin C15

3) If you found no open circuit, replace the L (R) generator control unit M144 (146) (MM 24-22-02).

Q. FAILED IDG DISCONNECT
(1) Correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points:
(a) FOR THE LEFT POWER CHANNEL (WDM 24-11-11);
Do these steps:
1) Remove the L GCU (MM 24-22-02):

Component	Pin	Component	Pin
L GCU M144	D248A pin D2	L IDG	D414 or D10966 pin 4

2) Install the L GCU (MM 23-22-02).
(b) FOR THE RIGHT POWER CHANNEL (WDM 24-11-21);
Do these steps:
1) Remove the R GCU (MM 24-22-02):

Component	Pin	Component	Pin
R GCU M146	D256A pin D2	R IDG	D414 or D10966 pin 4

LEFT AND RIGHT POWER CHANNELS - TABLE 102

2) Install the R GCU (MM 24-22-02).

(2) If the problem continues, do a check of the resistance between these points on the IDG. The measurement indicates the resistance of the IDG disconnect solenoid and should be 5 ±2 ohms.
(a) FOR THE LEFT POWER CHANNEL (WDM 24-11-11);
Use the table that follows:

Component	Pin	Component	Pin
L IDG	D414 or D10966 pin 4	L IDG	D414 or D10966 pin 6

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-11-21);
Use the table that follows:

Component	Pin	Component	Pin
R IDG	D414 or D10966 pin 4	R IDG	D414 or D10966 pin 6

(c) If the resistance is outside the 5 ±2 ohm range, replace the IDG (MM 24-11-01).
(3) If the problem continues or you found no fault, do a check for continuity to ground at these points of the IDG connector.
(a) FOR THE LEFT POWER CHANNEL (WDM 24-11-11);
Use the table that follows:

Component	Pin	Component	Pin
L IDG	D414 or D10966 pin 6	GROUND	---

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-11-21);
Use the table that follows:

Component	Pin	Component	Pin
R IDG	D414 or D10966 pin 6	GROUND	---

LEFT AND RIGHT POWER CHANNELS - TABLE 102

R. FIELD/WIRING GEN/WIRING
(1) Do a check of the resistance between these points on the IDG (lead goes through the IDG field winding:

resistance = 7.5 ±0.75 ohms at 77°F):
(a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L IDG	D414 or D10966 pin 9	L IDG	D414 or D10966 pin 10

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R IDG	D414 or D10966 pin 9	R IDG	D414 or D10966 pin 10

(c) If resistance is not satisfactory, replace the L (R) IDG (MM 24-11-01).
(d) If resistance is satisfactory, correct any short circuit to ground or open circuit between these points:
1) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248B pin A1	L IDG	D414 or D10966 pin 9
L GCU M144	D248B pin B1	L IDG	D414 or D10966 pin 10

LEFT AND RIGHT POWER CHANNELS - TABLE 102

2) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21); Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256B pin A1	R IDG	D414 or D10966 pin 9
R GCU M146	D256B pin B1	R IDG	D414 or D10966 pin 10

3) If the problem continues, replace the L (R) generator control unit M144 (M146) (MM 24-22-02).

S. FIRE TRIP
(1) This indication shows when the L (R) fire switch on P8 is armed, and not always indicates an electrical problem. Examine the log book to find why the fire switch was armed.
(2) If a fire occurred, do a check for damage to electrical components in that area.
(3) If the fire switch was not armed, replace the L (R) engine fire switch (MM 26-21-01).

T. GCB AUX/WIRING
(1) Replace the L (R) generator circuit breaker L GCB C901, R GCB C903 (WDM 24-22-03).
(2) If the problem continues, replace the L (R) generator control control unit L GCU M144, R GCU M146 (MM 24-22-02).

U. GCB/BTB WIRING/GCU
(1) Supply external power to the ground handling bus (MM 24-22-00).
(2) If there is a left power channel fault, do these steps:
(a) Push the BAT switch (P5) to the ON position.
(b) Push the left BUS TIE switch (P5) to the AUTO position.
(c) Push the EXT PWR switch (P5).
1) Make sure the white ON light in the switch is on.
(d) Make sure the left BUS OFF light (P5) is off.
1) If the yellow left BUS OFF light is on, replace the left bus tie breaker C902 (MM 24-22-03).
2) If the problem continues, replace the left generator control unit M144 (MM 24-22-02).
(e) If there is no fault in the last step "Make sure the left BUS OFF light (P5) is off.", push the left BUS TIE switch (P5) to the ISLN position.

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(f) Make sure the yellow left BUS OFF light (P5) is on.
1) If the yellow left BUS OFF light is off, replace the left bus tie breaker C902 (MM 24-22-03).
2) If the problem continues, replace the left generator control unit M144 (MM 24-22-02).
(g) If no fault is found in the last step "Make sure the yellow left BUS OFF light (P5) is on.", replace the left generator circuit breaker C901 (MM 24-22-03).
(h) If the problem continues, replace the left generator control unit M144 (MM 24-22-02).

(3) If there is a right power channel fualt, do these steps:
(a) Push the BAT switch (P5) to th ON position.
(b) Push the right BUS TIE switch (P5) to the AUTO position.
(c) Push the EXT PWR switch (P5).
1) Make sure the white ON light in the switch is on.
(d) Make sure the right BUS OFF light (P5) is off.
1) If the yellow right BUS OFF light is on, replace the right bus tie breaker C904 (MM 24-22-03).
2) If the problem continues, replace the right generator control unit M146 (MM 24-22-02).
(e) If you find no fault in the last step "Make sure the right BUS OFF light (P5) is off.", push the right BUS TIE switch (P5) to the ISLN position.
(f) Make sure the yellow right BUS OFF light (P5) is on.
1) If the yellow right BUS OFF light is off, replace the right BUS TIE breaker C904 (MM 24-22-03).
2) If the problem continues, replace the right generator control unit M146 (MM 24-22-02).
(g) If you find no fault in the last step "Make sure the yellow right BUS OFF light (P5) is on.", replace the right generator circuit breaker C903 (MM 24-22-03).
(h) If the problem continues, replace the right generator control unit M146 (MM 24-22-02).

V. GCB/WIRING GCU
(1) Replace the L (R) generator circuit breaker L GCB C901, R GCB C903 (MM 24-22-03).
(2) If the problem continues, replace the L (R) generator control unit L GCU M144, R GCU M146 (MM 24-22-02).

W. GCU CIRCUIT BREAKER OPEN
(1) Make sure a circuit breaker on the GCU is open.
(2) If neither circuit breaker is open, replace the L (R) generator control unit L GCU M144, R GCU M146 (MM 24-22-02).
(3) If the circuit breaker CB1 on the GCU is open, do these steps:
(a) Replace the electrical systems control panel (MM 24-22-02).

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(b) If the problem continues, replace the generator field and hydraulic control panel (MM 24-22-04).

(c) If the problem continues, do a check of the resistance between pins 39 and 40 of the L (R) generator circuit breaker L GCB C901, R GCB C903 (WDM 24-22-11, WDM 24-22-21). The resistance must be 3.8 ±0.8 ohms.
1) If the coil has a short circuit, replace L (R) GCB (MM 24-22-03).

(d) If the problem continues or if you found no fault, do a check of the resistance between pins 39 and 40 of the L (R) bus tie breaker L BTB C902, R BTB C904 (WDM 24-22-12, WDM 24-22-22). The resistance must be 3.8 ±0.8 ohms.
1) If the coil has a short circuit, replace L (R) BTB (MM 24-22-03).

(e) If the problem continues or you found no fault, replace the L (R) AUTOLAND RELAY L K526, R K527 (WDM 24-22-12, WDM 24-22-22).

(f) If the problem continues, replace the L (R) engine fire switch (MM 26-21-01).

(4) If the circuit breaker CB2 on GCU is open, do these steps:
(a) Do a check of the resistance between pins 41 and 40 of the L (R) generator circuit breaker C901 (C903) (WDM 24-22-11, WDM 24-22-21). The resistance must be 2.8 ±0.5 ohms.
1) If the coil has a short circuit, replace the GCB (MM 24-22-03).

(b) If the problem continues or you found no fault, do a check of the resistance between pins 41 and 40 of the L (R) bus tie breaker C902 (C904) (WDM 24-22-12, WDM 24-22-22) (WDM 24-22-11, WDM 24-22-21). Nominal resistance = 2.8 ±0.5 ohms.
1) If coil shorted, replace BTB (MM 24-22-03).

(c) If the problem continues or you found no fault, replace the L (R) generator control unit M144 (M146) (MM 24-22-02).

X. GCU FAILED
CODE 3E
(1) Ignore this message if the OVER FREQ TRIP message is also present.

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Y. GCU FAILED
CODE 6A
(1) Ignore this message. No action is necessary. (Do not replace the GCU.)

Z. GCU FAILED
CODE 6E
(1) Ignore this message. No action is necessary. (Do not replace the GCU.)

AA. GCU FAILED
CODE 58
(1) Operate the L (R) BUS TIE switch, then push the PERIODIC TEST switch on the BPCU (MM 24-20-00).
(2) If the GCU FAILED CODE 1E shows, replace the L (R) generator control unit M144 (M146) (MM 24-22-02).
(3) If the GCU FAILED CODE 1E does not show, ignore the GCU FAILED CODE 58 message.

AB. GCU FAILED
all codes except 6A, 6E, and 58
(1) Replace the L (R) generator control unit M144 (M146) (MM 24-22-02).

AC. GCU FAILED TRIP
(1) Replace the L (R) generator control unit M144 (M146) (MM 24-22-02).

AD. GCU/FIELD/WIRING
(1) Remove the GCUs (MM 24-22-02).
(2) Do a check for a short circuit to ground or short circuit to adjacent wiring at these points of generator control unit rack connector.
(a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11); Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248B pin A1	L GCU M144	D248B pin B1

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(b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256B pin A1	R GCU M146	D256B pin B1

(c) If there is no short circuit, replace the L (R) generator control unit M144 (M146)(MM 24-22-02).

(3) If you find a short circuit to ground in the last step, do a check for continuity between these points on the IDG. The lead goes through IDG field winding. The resistance must be 7.5 ±0.75 ohms (at 77°F):

(a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L IDG	D414 or D10966 pin 9	L IDG	D414 or D10966 pin 10

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R IDG	D414 or D10966 pin 9	R IDG	D414 or D10966 pin 10

(c) If you find no continuity, replace the L (R) IDG (MM 24-11-01).

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(d) If you find continuity, correct any short circuit or open circuit between these points:
1) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU	D248B pin A1	L IDG	D414 or D10966 pin 9
L GCU	D248B pin B1	L IDG	D414 or D10966 pin 10

2) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU	D256B pin A1	R IDG	D414 or D10966 pin 9
R GCU	D256B pin B1	R IDG	D414 or D10966 pin 10

(e) Install the GCUs (MM 24-22-02).

AE. GEN CONT SW/GCB COIL/GCU
(1) Replace the electrical system control panel (MM 24-22-01).
(2) If the problem continues, replace the L (R) generator circuit breaker L GCB C901, R GCB C903 (MM 24-22-03).
(3) If the problem continues, replace the L (R) generator control unit L GCU M144, R GCU = M146)(MM 24-22-02).

AF. GEN CONT SW/WIRE/GCU
(1) Replace the electrical system control panel (MM 24-22-01).
(2) If the problem continues, replace the L (R) generator control unit (L GCU = M144, R GCU = M146) (MM 24-22-02).

AG. GEN DIODE
(1) Replace the L (R) integrated drive generator (MM 24-11-01).

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NOTE: You must replace the IDG although you can set it with the appropriate GEN CONT switch.

(2) If the problem continues, do the steps in EXCITATION TRIP.
(3) If the problem continues, do the steps in FIELD/WIRING/GEN/WIRING.
(4) If the problem continues, do a check on the applicable R4 L GCB Trip Isol diode (P31) or R5 R GCB Trip Isol diode (P32). Replace the applicable diode if necessary.

AH. GEN
(1) Do the steps for GEN DIODE.

AI. GEN DIODE TRIP
(1) Look for a related message (on the same power channel) to isolate the cause of the GEN DIODE TRIP. Related messages include:
GCU FAILED
GCU/FIELD/WIRING
GEN/WIRING/GCU
GEN DIODE
GEN
REPLACE GEN (DIODE)
(2) Action due to these related messages (above) should then be taken.
(3) If one of the above messages is not displayed, replace the L (R) generator control unit L GCU M144, R GCU M146 (MM 24-22-02).

AJ. GEN TRIP
(1) Do the steps for GEN DIODE TRIP.

AK. GEN/FDR
(related message of DP TRIP)
(1) Isolate the fault with the DP TRIP message.
(A DP TRIP message will be generated on the same channel as the GEN/FDR message.)

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AL. GEN/FDR
(related message of OPEN PHASE TRIP)
(1) (An OPEN PHASE TRIP message will be generated on the same channel as the GEN/FDR message.) Do these steps:
(a) GENERATOR FEEDER--ONE OPEN PHASE (WDM 24-21-11, WDM 24-21-21).

Component	Pin	Component	Pin
L IDG	T1,T2,T3	TO C901	T1,T2,T3
R IDG	T1,T2,T3	TO C903	T1,T2,T3

(b) POR SENSE WIRING--ONE OPEN PHASE OR SHORT TO GROUND (WDM 24-21-11, WDM 24-21-21)

Component	Pin	Component	Pin
L C901	T1,T2,T3	TO L GCU M144	D248B-A15, B15,C15
R C903	T1,T2,T3	TO R GCU M146	D256B-A15, B15,C15

1) Repair the wiring as necessary and install the GCU (MM 24-22-02).

(c) GENERATOR MAIN STATOR--ONE OPEN PHASE (WDM 24-21-11, WDM 24-21-21).

Component	Pin	Component	Pin
L IDG	T1,T2,T3	TO IDG	N
R IDG	T1,T2,T3	TO IDG	N

(d) Replace the left GCU M144 or the right GCU M146 (MM 24-22-02).

AM. GEN/FIELD WIRING/GCU
(1) Do the steps for PMG/FIELD/WIRING/GCU.

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AN. GEN/WIRING/GCU
(1) Do the steps for GCU/FIELD/WIRING.

AO. IDG BULB TOLERANCE
(1) Examine the flight log to determine if the IDG RISE TEMP message showed on the maintenance page of EICAS.
(2) If no IDG RISE TEMP message showed, ignore the IDG BULB TOLERANCE message on the BPCU. No action needs to be taken.
(3) If the IDG RISE TEMP showed on EICAS, do these steps:
(a) FOR THE LEFT POWER CHANNEL;
Do these steps:
1) Do a check of the resistance between these points on the IDG. Each lead goes through one IDG oil bulb. Bulb resistance must be 70-140 ohms (WDM 24-11-11):

Component	Pin	Component	Pin
L IDG	D412 or D10964 pin 4	L IDG	D412 or D10964 pin 5
L IDG	D412 or D10964 pin 6	L IDG	D412 or D10964 pin 7

2) If the resistance is not in the 70-140 ohm range, replace the IDG (MM 24-11-01).
3) If the resistance between pins 4 and 5 is greater than that between pins 6 and 7, replace the IDG (MM 24-11-01).

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4) If the problem continues, remove the L GCU (MM 24-22-02), and correct open circuit or short circuit between these points (WDM 24-11-11):

Component	Pin	Component	Pin
L GCU M144	D248A pin A9	L IDG	D412 or D10964 pin 4
L GCU M144	D248A pin B9	L IDG	D412 or D10964 pin 5
L GCU M144	D248A pin D3	L IDG	D412 or D10964 pin 6
L GCU M144	D248A pin D1	L IDG	D412 or D10964 pin 7

5) If the problem continues, replace the left generator control unit M144 (MM 24-22-02).

(b) FOR THE RIGHT POWER CHANNEL;
Do these steps:

1) Do a check of the resistance between these points on the IDG. Each lead goes through one IDG oil bulb. Bulb resistance must be 70-140 ohms (WDM 24-11-21):

Component	Pin	Component	Pin
R IDG	D412 or D10964 pin 4	R IDG	D412 or D10964 pin 5
R IDG	D412 or D10964 pin 6	R IDG	D412 or D10964 pin 7

2) If the resistance is not in the 70-140 ohm range, replace the IDG (MM 24-11-01).

3) If the resistance between pins 4 and 5 is greater than that between pins 6 and 7, replace the IDG (MM 24-11-01).

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4) If the problem continues, remove the R GCU (MM 24-22-02) and correct any open circuit or short circuit between these points (WDM 24-11-21):

Component	Pin	Component	Pin
R GCU M146	D256A pin A9	R IDG	D412 or D10964 pin 4
R GCU M146	D256A pin B9	R IDG	D412 or D10964 pin 5
R GCU M146	D256A pin D3	R IDG	D412 or D10964 pin 6
R GCU M146	D256A pin D1	R IDG	D412 or D10964 pin 7

5) Install the R GCU (MM 24-22-02).
6) If the problem continues, replace the RIGHT generator control unit M146 (MM 24-22-02).

AP. IDG/GEN CT WIRING
(1) Do a check of the wiring between the L GCU M144 and the left IDG (WDM 24-21-11):

Component	Pin	Component	Pin
L GCU M144	D248B pin A13	L IDG	D10966 or D414 pin 12
L GCU M144	D248B pin B13	L IDG	D10966 or D414 pin 13
L GCU M144	D248B pin C13	L IDG	D10966 or D414 pin 14
L GCU M144	D248B pin D13	L IDG	D10966 or D414 pin 3

(2) Do a check of the wiring between the R GCU M146 and the right IDG (WDM 24-21-21):

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Component	Pin	Component	Pin
R GCU M146	D256B pin A13	R IDG	D10966 or D414 pin 12
R GCU M146	D256B pin B13	R IDG	D10966 or D414 pin 13
R GCU M146	D256B pin C13	R IDG	D10966 or D414 pin 14
R GCU M146	D256B pin D13	R IDG	D10966 or D414 pin 3

(3) If the problem continues, replace the L GCU M144 or the R GCU M146 (AMM 24-22-02/401).

AQ. IDG HIGH DELTA TEMP

(1) Do a check of the differential pressure indicator (DPI) on the IDG.

(a) If the DPI is extended, do the "Examine the Pressure Differential Indicator and the Scavenge Filter" (AMM 24-11-01/601).

(b) If the DPI is not extended, remove the GCU.

(c) Check the resistance between these pins :

LEFT GCU - pin D248A-A9 to pin D248A-B9
RIGHT GCU - pin D256A-A9 to pin D256A-B9

1) If the resistance is between 75 ohms and 145 ohms, service the IDG (AMM 12-13-03).

2) If the resistance is not between 75 ohms and 145 ohms, check the resistance between pin D10964 or D412 -4 and pin D10964 or D412 -5 (WDM 24-11-11 (left IDG) or WDM 24-11-21 (right IDG)).

a) If the resistance is between 70 ohms and 140 ohms, clean the connector (L) D248A or (R) D256A and check airplane wiring (WDM 24-11-11 (left IDG) or WDM 24-11-21 (right IDG)).

b) If the resistance is not between 70 ohms and 140 ohms, replace the IDG (AMM 24-11-01).

(d) Check the scavenge filter and oil (AMM 24-11-01/601).

NOTE: When the fuel/oil cooler is leak, fuel may get in the IDG oil and cause the EICAS message.

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(2) If the problem continues, replace the IDG (AMM 24-11-01/401).

AR. IDG HIGH RISE TEMP
(1) Do the steps for IDG HIGH DELTA TEMP.

AS. IDG LOW OIL PRESSURE
(1) Do the steps for LOW OIL PRESSURE.

AT. IDG/MPU WIRING
(1) Do the steps for MPU/WIRING.

AU. IDG NOT DISCONNECTED
(1) Do the steps for FAILED IDG DISCONNECT.

AV. IDG/OIL IN BULB WIRING
(1) Do the steps for OIL IN BULB/WIRING.

AW. IDG/OIL OUT BULB WIRING
(1) Do the steps for OIL OUT BULB/WIRING.

AX. IDG OIL SERVICE
(1) If the message "LOW OIL PRESSURE" is also displayed, do the troubleshooting procedure for the "LOW OIL PRESSURE" message.
(2) If the message "LOW OIL PRESSURE" is not displayed, do the IDG Oil Servicing (AMM 12-13-03/301).

AY. IDG OVERTEMP
(1) Replace the L (R) integrated drive generator (MM 24-11-01).
(2) Push the ELEC/HYD and the AUTO READ switches in. (Switches on the EICAS MAINT PANEL at P61.)
(3) Push and hold the ERASE switch for 3 seconds and make sure that the AUTO EVENT erases.

AZ. IDG/PMG/WIRING
(1) If the IDG OVERTEMP or OVER FREQ TRIP or UNDER FREQ TRIP message shows on the same channel as IDG/PMG/WIRING message, replace the L (R) integrated drive generator (MM 24-11-01).

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(2) If the problem continues, or if no IDG OVERTEMP or OVER FREQ TRIP or UNDER FREQ TRIP message shows, do these steps:
  (a) Do a check of the IDG oil level (MM 12-13-03).
    1) If the oil level is low, do a check of the IDG and external oil cooling circuit for leaks.
    2) If there is a leak, repair or replace components as required but do not service the IDG until the checks that follow are completed.
  (b) Do a check of the differential pressure indicator (DPI) on the IDG scavenge filter.
    1) If the DPI is extended, do the Examine the Pressure Differential Indicator and the Scavenge Filter (AMM 24-11-01/601).
    2) If the DPI is not extended, remove the scavenge filter and do a check for contamination (MM 24-11-02).
      a) If the scavenge filter is contaminated, replace the IDG (MM 24-11-01).
      b) If the scavenge filter is not contaminated, install the filter (MM 24-11-01).
      c) Drain and service the IDG (MM 12-13-03).
(3) If the problem continues, remove the GCU (MM 24-22-02).
(4) Do a check of the wiring:
  (a) PMG WIRING--OPEN OR SHORT TO GROUND (WDM 24-21-11, WDM 24-21-21).

Component	Pin	Component	Pin
L IDG	D412 or D10964 -1,2,3	TO M144	D248C-2,3,4
R IDG	D412 or D10964 -1,2,3	TO M146	D256C-2,3,4

    1) REPAIR THE WIRING AS NECESSARY AND INSTALL THE GCU (MM 24-22-02).

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(b) IDG PMG--RESISTANCE OUT OF TOLERANCE (1.33 TO 1.84 OHMS L-L AT 77°F) (WDM 24-21-11, WDM 24-21-21).

Component	Pin	Component	Pin
L IDG	D412 or D10964 -1	TO IDG	D412 or D10964 -2,3
R IDG	D412 or D10964 -1	TO IDG	D412 or D10964 -2,3

(5) If the problem continues, replace the L (R) GCU M144 (M146) (MM 24-22-02).

BA. IDG/PRESSURE SW WIRING
(1) Do the steps for OIL PRESSURE SW WIRING.

BB. INTRMT LINK
(1) Replace the L (R) generator control unit M144 (M146) (MM 24-22-02).
(2) If the problem continues, remove the GCU (MM 24-22-02) and correct any open circuit, or short to ground, or short to adjacent wiring between these points:
(a) FOR THE LEFT POWER CHANNEL (WDM 24-22-12);
Use the table that follows:

Component	Pin	Component	Pin
L GCU	D248A pin A12	BPCU	D278A pin A12
L GCU	D248A pin B12	BPCU	D278A pin B12

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-22-22);
Use the table that follows:

Component	Pin	Component	Pin
R GCU	D256A pin A12	BPCU	D278A pin C12
R GCU	D256A pin B12	BPCU	D278A pin D12

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(3) Make sure the shield is properly grounded at these points:

Component	Pin	Component	Pin
L GCU	D248A pin B11	BPCU	D278A pin A14
R GCU	D248A pin B11	BPCU	D278A pin A14

(4) Do a check of the +28V backup wiring for an intermittent circuit between these points:

Component	Pin	Component	Pin
L GCU	D248A pin A3	C804	
R GCU	D256A pin A3	C805	

BC. LOW OIL PRESSURE

(1) Check IDG oil level (AMM 12-13-03).
  (a) If oil level is low, check IDG and external oil cooling circuit for leaks.
  (b) If leaks are found, repair or replace components as required but do not service IDG until the checks that follow are completed.
(2) Do this check of the IDG charge pressure switch (WDM 24-11-11), (WDM 24-11-21):
  (a) Disconnect connector D412 from the IDG.
  (b) Do a resistence check between pins 9 and 10 on the IDG connector.
  (c) If the resistance is greater than 5 ohms, replace the IDG (AMM 24-11-01).
  (d) If the resistance is less than 5 ohms, then continue.
(3) Do a check of the differential pressure indicator (DPI) on IDG scavenge filter.
  (a) If the DPI is extended, replace the IDG (AMM 24-11-01)
  (b) If the DPI is not extended, remove the scavenge filter and do a check for contamination (AMM 24-11-02).
    1) If the scavenge filter is contaminated replace the IDG (MM 24-11-01).
    2) If the scavenge filter is not contaminated, install the filter (MM 24-11-02).
    3) Drain and service the IDG (MM 12-13-03).

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(4) If you find no problem, do these wiring checks:
(a) LOP SW WIRING--SHORT TO GROUND (WDM 24-11-11, WDM 24-11-21).
Remove the GCU (MM 24-22-02).

Component	Pin	Component	Pin
L IDG	D412 or D10964-9	TO L GCU M144	D248A-C6
R IDG	D412 or D10964-9	TO R GCU M146	D256A-C6

(b) GEN DRIVE LIGHT WIRING--SHORT TO GROUND (WDM 24-11-11, WDM 24-11-21).

Component	Pin	Component	Pin
ELEC PNL M10063	D1382-13	TO L GCU M144	D248A-C4
ELEC PNL M10063	D1310-28	TO R GCU M146	D256A-C4

1) Repair the wiring as necessary.
2) Install the GCU (MM 24-22-02).
(c) MASTER DIM TEST MODULE--SHORTED DIODE
(d) If you find no fault, do these steps:
1) Replace the L (R) GCU M144 (M146) (AMM 24-22-02/401).
2) If the problem continues, replace the IDG (AMM 24-11-01/401).

BD. MAIN BUS
(1) Do these checks:
(a) FEEDER--ONE OPEN PHASE (WDM 24-21-11, WDM 24-21-21)

Component	Pin	Component	Pin
L C901	L1,L2,L3	TO C902	T1,T2,T3
R C903	L1,L2,L3	TO C904	T1,T2,T3

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(b) FEEDER TO LOADS--ONE OPEN PHASE (WDM 24-21-11, WDM 24-21-21)

Component	Pin	Component	Pin
L C901	L1,L2,L3	TO LOADS	
L C902	T1,T2,T3	TO LOADS	
R C903	L1,L2,L3	TO LOADS	
R C904	T1,T2,T3	TO LOADS	

(c) Replace the LEFT GCB C901 or the RIGHT GCB C902 in the P31 panel (AMM 24-22-03/401).
(d) Replace the left GCU M144 or the right GCU M146 (MM 24-22-02). (An OPEN PHASE TRIP message will be generated on the same channel as the MAIN BUS message.)

BE. MAIN BUS/OVERLAP ZONE
(1) Isolate the fault with the DP TRIP message. (A DP TRIP message will show on the same channel as the MAIN BUS/OVERLAP ZONE message.)

BF. MPU/WIRING
(1) Do a check for open circuit or short circuit to ground between these points and repair as necessary:
(a) For the left power channel (WDM 24-11-11):

Component	Pin	Component	Pin
L GCU M144	D248A pin A4	L IDG	D10966 or D414 pin 1
L GCU M144	D248A pin B4	L IDG	D10966 or D414 pin 2

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(b) For the right power channel (WDM 24-11-21):

Component	Pin	Component	Pin
R GCU M146	D256A pin A4	R IDG	D10966 or D414 pin 1
R GCU M146	D256A pin B4	R IDG	D10966 or D414 pin 2

(2) If you found no problem in the last step, check for continuity between these points on the IDG (the resistance must be 35 ±7 ohms):
(a) For the left power channel (WDM 24-11-11):

Component	Pin	Component	Pin
L IDG	D10966 pin 1	L IDG	D10966 or D414 pin 2

(b) For the right power channel (WDM 24-11-21):

Component	Pin	Component	Pin
R IDG	D10966 pin 1	R IDG	D10966 or D414 pin 2

(3) If you found no IDG problem in the last step, replace the L (R) generator control unit M144 (M146)(AMM 24-22-02/401).

BG. NO RESPONSE FROM CONTROL
(1) If the message shows on more than one channel, make sure the L and the R GCU's are supplied with power.
(2) Put the L & R Bus Tie Switches (P5) to ISLN and back to AUTO and observe the associated ISLN light comes on momentarily.
(3) If neither light comes on, do a check for 28V DC at C829, Bat Bus Distribution breaker 6A1.
(4) If there is no voltage, correct the open circuit or the short circuit to ground (WDM 24-33-11, WDM 24-54-71).
(5) If the problem continues, remove the BPCU M116 (MM 24-41-03).
(6) Remove the GCU's M144, M146 and M143 (MM 24-22-02).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(7) If the problem continues, correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-12, WDM 24-22-22, WDM 24-41-11):

Component	Pin	Component	Pin
BPCU M116	D278A-A12	GCU M144	D248A-A12
BPCU M116	D278A-B12	GCU M144	D248A-B12
BPCU M116	D278A-A14	GCU M144	D248A-B11
BPCU M116	D278A-C12	GCU M146	D256A-A12
BPCU M116	D278A-D12	GCU M146	D256A-B12
BPCU M116	D278A-A14	GCU M146	D256A-B11
BPCU M116	D278A-A13	GCU M143	D264A-A12
BPCU M116	D278A-B13	GCU M143	D264A-B12
BPCU M116	D278A-A14	GCU M143	D264A-B11

(8) Install the BPCU M116 (MM 24-41-03).
(9) Install the GCU's M144, M146 and M143 (MM 24-22-02).
(10) If the message shows on the left channel only, do these steps:
  (a) Operate the L Bus Tie switch.
  (b) If the L bus does not isolate, remove the GCU M144 (MM 24-22-02).
  (c) Correct the open circuit or short circuit to ground between these points, M146 D256B-A3 to C804.
  (d) Correct the open circuit between M146 D256B-D15 to ground.
  (e) If the L bus does isolate, remove the GCU M144 (MM 24-22-02) and the BPCU M116 (MM 24-41-03).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(f) Correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-12).

Component	Pin	Component	Pin
BPCU M116	D278A-A12	GCU M146	D248A-A12
BPCU M116	D278A-B12	GCU M146	D248A-B12
BPCU M116	D278A-A14	GCU M146	D248A-B11

(g) Install the BPCU M116 (MM 24-41-03).
(h) Install the GCU M146 (MM 24-22-02).

(11) If the message shows on the right channel only, do these steps:
(a) Operate the R Bus Tie switch.
(b) If the right bus does not isolate, remove the GCU M146 (MM 24-22-02).
(c) Correct open circuit or short circuit to ground between these points, M146 D256B-A3 to C805.
(d) Correct the open circuit between M146 D256B-D15 to ground.
(e) If the right bus does isolate, remove the GCU M144 (MM 24-22-02) and the BPCU M116 (MM 24-41-03).
(f) Correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-22):

Component	Pin	Component	Pin
BPCU M116	D278A-C12	GCU M146	D256A-A12
BPCU M116	D278A-D12	GCU M146	D256A-B12
BPCU M116	D278A-A14	GCU M146	D256A-B11

(g) Install the BPCU M116 (MM 24-41-03).
(h) Install the GCU M116 (MM 24-22-02).

BH. NO VALID MESSAGE AF

(1) This message is displayed on the BPCU when an airplane has an old BPCU dash number and a new GCU dash number. Do the troubleshooting procedure in the "IDG OIL SERVICE" message.

LEFT AND RIGHT POWER CHANNELS - TABLE 102

BI. OIL IN BULB/WIRING

(1) Remove the L (R) generator control unit (GCU) M144 (M146) (MM 24-22-02).
  (a) Make sure the resistance between sockets A9 and B9 of L (R) GCU equipment rack connector D248A (D256A) is between 75 and 145 ohms (WDM 24-11-11, WDM 24-11-21).
(2) If the resistance is between sockets A9 and B9 is within tolerance, replace the L (R) GCU M144 (M146)(MM 24-22-02).
(3) If the resistance between sockets A9 and B9 is out of tolerance, disconnect the connector D412 or D10964 from the L (R) IDG (WDM 24-11-11, WDM 24-11-21).
  (a) Make sure the oil temperature bulb resistance measured between pins 4 and 5 of the IDG receptacle is between 70 and 140 ohms (WDM 24-11-11, WDM 24-11-21).
  (b) If the oil temperature bulb resistance is out of tolerance, replace the L (R) IDG (MM 24-11-01).
(4) If the oil temperature bulb resistance is not out of tolerance, connect pins 4 and 5 on the L (R) IDG connector D10964 or D412 together (WDM 24-11-11, WDM 24-11-21).
  (a) Make sure the resistance between sockets A9 and B9 of the L (R) GCU rack connector D248A (D256A) is less than six ohms.
  (b) If the resistance between sockets A9 and B9 is within tolerance, do a check of the IDG connector pins and sockets for contamination.
  (c) Clean pins and sockets as required.
    1) Remove the short circuit installed between sockets 4 and 5 of the L (R) IDG connector.
    2) Connect the L (R) IDG connector to L (R) IDG.
    3) Make sure the resistance between sockets A9 and B9 of the L (R) GCU equipment rack connector D248A (D256A) is now between 70 and 140 ohms.
    4) Install the L (R) GCU M144 (M146)(MM 24-22-02).
  (d) If the problem continues, and the resistance between sockets A9 and B9 is out of tolerance but does not indicate an open circuit, disconnect the L (R) engine firewall connector D4216P located on AW0317.
  (e) Clean the contamination from the connector pins and sockets as required.
  (f) If the problem continues, and the resistance between sockets A9 and B9 is out of tolerance and indicates an open circuit, repair the circuit as required. (WDM 24-11-11, WDM 24-11-21).
  (g) Connect the L (R) engine firewall connector D4216P.
(5) Connect the L (R) IDG plug D412 or D10964 to the L (R) IDG.
(6) Make sure the resistance between sockets A9 and B9 of L (R) GCU equipment rack connector D248A (D256A) is now between 75 and 145 ohms.
(7) Install the L (R) GCU M144 (M146) (MM 24-22-02).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

BJ. OIL OUT BULB/WIRING

(1) Remove the L (R) generator control unit (GCU) M144 (M146) (MM 24-22-02).
  (a) Make sure the resistance between sockets D1 and D3 of the L (R) GCU equipment rack connector D248A (D256A) is between 75 and 145 ohms (WDM 24-11-11, WDM 24-11-21).

(2) If the resistance between sockets D1 and D3 is in tolerance, replace the L (R) GCU M144 (M146)(MM 24-22-02).

(3) If the resistance between sockets D1 and D3 is out of tolerance, disconnect the connector D10964 from the L (R) IDG (WDM 24-11-11, WDM 24-11-21).
  (a) Make sure the oil temperature bulb resistance measured between pins 6 and 7 on the IDG receptacle is between 70 and 140 ohms (WDM 24-11-11, WDM 24-11-21).

(4) If the oil temperature bulb resistance is out of tolerance, replace the L (R) IDG (MM 24-11-01).

(5) If the oil temperature bulb resistance is in tolerance, connect pins 6 and 7 on L (R) IDG connector D412 or D10964 together (WDM 24-11-11, WDM 24-11-21).
  (a) Make sure the resistance between sockets D1 and D3 of the L (R) GCU rack connector D248A (D256A) is less than six ohms.
  (b) If the resistance between pins D1 and D3 is in tolerance, do a check of the IDG connector D10964 or D412 pins and sockets for contamination.
  (c) Clean pins and sockets as required.
    1) Remove the short circuit installed between sockets 6 and 7 of the L (R) IDG plug.
    2) Connect the L (R) IDG plug to the L (R) IDG.
    3) Make sure the resistance between the sockets D1 and D3 of the L (R) GCU equipment rack connector D248A (D256A) is now between 70 and 140 ohms.
    4) Install the L (R) GCU M144 (M146)(MM 24-22-02).
  (d) If the problem continues, and the resistance between sockets D1 and D3 is out of tolerance but does not indicate an open circuit, disconnect the L (R) engine firewall connector D14313 located on AW0305.
  (e) Clean the contamination from connector pins and sockets as required.
  (f) If the problem continues, and the resistance between sockets D1 and D3 is out of tolerance and indicates an open circuit, repair the circuit as required (WDM 24-11-11, WDM 24-11-21).
  (g) Connect the L (R) engine firewall connector D14313.

(6) Remove the short circuit installed between sockets 6 and 7 of the L (R) IDG plug.

(7) Connect the L (R) IDG plug to the L (R) IDG.

(8) Make sure the resistance between sockets D1 and D3 of the L (R) GCU equipment rack connector D248A (D256A) is now between 75 and 145 ohms.

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(9) Install the L (R) GCU M144 (146)(MM 24-22-02).

BK. OIL PRESSURE SW/WIRING

(1) Do a check for continuity to ground from this point of the generator control unit rack connector:

(a) FOR THE LEFT POWER CHANNEL (WDM 24-11-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU	D248A pin C6	GROUND	

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-11-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU	D256A pin C6	GROUND	

(2) If you find continuity in the last step, replace the electrical system control panel (MM 24-22-01).

(a) If the problem continues, replace the L (R) generator control unit M144 (M146) (MM 24-22-02).

(3) If you find no continuity in the last step, do a check for continuity between these points on the IDG (WDM 24-11-11, WDM 24-11-21):

Component	Pin	Component	Pin
L (R) IDG	D412 or D10964 pin 9	L (R) IDG	D412 or D10964 pin 10

(4) If you find no continuity in the last step, replace the L (R) IDG (MM 24-11-01).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(5) If you find continuity in the last step, correct any problems between these points:
(a) FOR THE LEFT POWER CHANNEL (WDM 24-11-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248A pin C6	L IDG	D412 or D10964 pin 9
L IDG	D412 or D10964 pin 10	GROUND	---

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-11-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M144	D256A pin C6	R IDG	D412 or D10964 pin 9
R IDG	D412 or D10964 pin 10	GROUND	---

BL. OPEN PHASE TRIP
(1) Look for a related message on the same power channel to isolate the cause of the OPEN PHASE TRIP. Related messages include:

GCU FAILED
GEN/FDR
MAIN BUS

(2) Correct the problem for these related messages.
(3) If one of the related messages does not show, replace the L (R) generator control unit L GCU M144, R GCU M146 (MM 24-22-02).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

BM. OPEN POR/FDR/GEN

(1) Do a check for continuity to ground from these points of generator control unit rack connector:

(a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248B pin A15	GROUND	---
L GCU M144	D248B pin B15	GROUND	---
L GCU M144	D248B pin C15	GROUND	---

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256B pin A15	GROUND	---
R GCU M146	D256B pin B15	GROUND	---
R GCU M146	D256B pin C15	GROUND	---

(c) If you find continuity in the last step, replace the L (or R) generator control unit L M144, R M146 (MM 24-22-02).

(d) If you find no continuity in the last step, do a check for continuity between these points on the IDG (WDM 24-21-11, WDM 24-21-21).

Component	Pin	Component	Pin
L (R) IDG	T1	L (R) IDG	N
L (R) IDG	T2	L (R) IDG	N
L (R) IDG	T3	L (R) IDG	N

1) If you find no continuity in the last step, replace the L (R) IDG (MM 24-11-01).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

2) If you find continuity in the last step, correct any open circuit or short circuit between points:
   a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
      Use the table that follows:

Component	Pin	Component	Pin
L GCB C901	T1	L IDG	T1
L GCB C901	T2	L IDG	T2
L GCB C901	T3	L IDG	T3
L IDG	N	GROUND	---
L GCB C901	T1	L GCU M144	D248B pin A15
L GCB C901	T2	L GCU M144	D248B pin B15
L GCB C901	T3	L GCU M144	D248B pin C15

   b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
      Use the table that follows:

Component	Pin	Component	Pin
R GCB C903	T1	R IDG	T1
R GCB C903	T2	R IDG	T2
R GCB C903	T3	R IDG	T3
R IDG	N	GROUND	---
R GCB C903	T1	R GCU M146	D256B pin A15
R GCB C903	T2	R GCU M146	D256B pin B15
R GCB C903	T3	R GCU M146	D256B pin C15

LEFT AND RIGHT POWER CHANNELS - TABLE 102

BN. OPPOSITE BUS OVERLOAD
(1) An UNDER VOLT TRIP message will be generated on the same channel as the OPPOSITE BUS OVERLOAD message. Do these checks:
(a) The Opposite Main Channel's GALLEY BUS, UTILITY BUS, MAIN BUS, or GROUND SERVICE BUS LOAD--SHORT TO GROUND (WDM 24-21-11, WDM 24-21-21, WDM 24-51-52).

BO. OVER FREQ TRIP
(1) If the IDG/PMG/WIRING message shows on the same channel as the OVER FREQ TRIP, replace L (R) IDG (MM 24-11-01).
(2) If GCU FAILED CODE 6D message shows on the same channel as the OVER FREQ TRIP, replace the L (R) GCU M144 (M146) (MM 24-22-02).

BP. OVER VOLT TRIP
(1) Look for the related messages on the same power channel to isolate the cause of the OVER VOLT TRIP. Related messages include:

FIELD/WIRING
GEN WIRING
GCU FAILED
GCU/FIELD/WIRING
GEN/WIRING/GCU

(2) Correct the problem for these related messages.
(3) If the OVER VOLT TRIP and the GCU FAILED shows, do a check for open circuit between IDG terminal N and ground (WDM 24-21-11, WDM 24-21-21).
(a) Repair as necessary.
(4) If one of the related messages is not shown, replace (R) generator control unit L GCU M144, R GCU M146 (MM 24-22-02).

BQ. OVERLAP CT WIRING/GCU
(1) Do these steps:

NOTE: This message will show on the left or right power channel if the channel left or right bus tie breaker is closed, while the left or right 115v ac bus total load is less than 10 amps. There is no failure.

(a) Remove the GCU (MM 24-22-02).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(b) Do a check for continuity between these points of the generator control unit rack connector. Each lead goes through a current transformer winding and has a resistance of approximately 9 ohms.
1) FOR THE LEFT POWER CHANNEL (WDM 24-23-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248B pin A10	L GCU M144	D248B pin D10
L GCU M144	D248B pin B10	L GCU M144	D248B pin D10
L GCU M144	D248B pin C10	L GCU M144	D248B pin D10

2) FOR THE RIGHT POWER CHANNEL (WDM 24-23-11);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256B pin A10	R GCU M146	D256B pin D10
R GCU M146	D256B pin B10	R GCU M146	D256B pin D10
R GCU M146	D256B pin C10	R GCU M146	D256B pin D10

(c) If you find continuity in the last step, replace the L (R) generator control unit L M144, R M146 (MM 24-22-02).
(d) If you find no continuity in the last step step, replace the L (R) overlap current transformer L T127, R T128 (MM 24-23-01).

BR. OVERLAP ZONE
(1) A DP TRIP message will be generated on the same channel as the OVERLAP ZONE message.
(2) Isolate the failure with the DP TRIP message.

BS. OVERLOAD
(1) An UNDER VOLT TRIP message will be generated on the same channel as the OVERLOAD message.
(2) Isolate the failure with the UNDER VOLT TRIP message.

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(3) If the problem continues, do a check for a short circuit to ground at the MAIN CHANNEL's GALLEY BUS, UTILITY BUS, MAIN BUS, or GROUND SERVICE BUS LOAD (WDM 24-21-11, WDM 24-21-21, WDM 24-51-52).

BT. PMG/FIELD/WIRING/GCU

(1) A SHORTED PMG TRIP message will show on the same channel as the as the PMG/FIELD/WIRING/GCU message. You can isolate the failure that caused the two messages with this procedure.

(2) Remove the GCU (MM 24-22-02).

(3) Do a check for short circuit to ground, or short circuit to adjacent wiring between these points of the generator control unit rack connector. (Each lead runs through a generator winding. The generator winding resistance is 1.4 ohms line to line at 77°F.)

(a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248C pin 2	L GCU M144	D248C pin 3
L GCU M144	D248C pin 2	L GCU M144	D248C pin 4
L GCU M144	D248C pin 3	L GCU M144	D248C pin 4

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256C pin 2	R GCU M146	D256C pin 3
R GCU M146	D256C pin 2	R GCU M146	D256C pin 4
R GCU M146	D256C pin 3	R GCU M146	D256C pin 4

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(4) If you found a failure in the last step, repair as necessary.
  (a) Install the GCU (MM 24-22-02).
(5) If you found no failure in the last step, do a check for a ground fault between these points:
  (a) FOR THE LEFT POWER CHANNEL (WDM 24-21-11);
  Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248B pin A1	L IDG	D414 or D10966 pin 9

  (b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
  Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256B pin A1	R IDG G12	D414 or D10966 pin 9

  (c) If you found no failure, replace the L (R) generator control unit L M144, R M146 (MM 24-22-02).
  (d) If you find no continuity, correct the short circuit or open circuit between the points in the last step.
    1) Install the GCU (MM 24-22-02).
(6) If you found a failure in the first check "Do a check for short circuit ot ground, or short circuit ot adjacent wiring between these points of the generator control unit rack connector", do a check for continuity between these points on the IDG.

Component	Pin	Component	Pin
L (R) IDG	D412 or D10964 pin 1	L (R) IDG	D412 or D10964 pin 2
L (R) IDG	D412 or D10964 pin 1	L (R) IDG	D412 or D10964 pin 3

  (a) The resistance between these points on IDG must be 1.4 ohms at 77°F.
(7) If you find no continuity in the last step, replace the L (R) IDG (MM 24-11-01).

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(8) If you find continuity in the last step, correct any open circuit or short circuit between points:
(a) FOR LEFT POWER CHANNEL (WDM 24-21-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248C pin 2	L IDG	D412 or D10964 pin 1
L GCU M144	D248C pin 3	L IDG	D412 or D10964 pin 2
L GCU M144	D248C pin 4	L IDG	D412 or D10964 pin 3

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-21-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256C pin 2	R IDG	D412 or D10964 pin 1
R GCU M146	D256C pin 3	R IDG	D412 or D10964 pin 2
R GCU M146	D256C pin 4	R IDG	D412 or D10964 pin 3

1) Install the GCU (MM 24-22-02).

BU. REPLACE GEN (DIODE)
(1) Do the steps for GEN DIODE.

BV. REPLACE GCU (D9)
(1) Do the steps for GCU FAILED TRIP.

LEFT AND RIGHT POWER CHANNELS - TABLE 102

BW. REPLACE GCU (XX)
(1) Do the steps for GCU FAILED CODE XX.

NOTE: XX are numeric codes.

BX. REPLACE IDG OVERTEMP
(1) Do the steps for IDG OVERTEMP.

BY. SERIAL DATA LINK FAILED
(1) Do the steps for INTRMT LINK.

BZ. SERVICE IDG
(1) Service the left (right) IDG (AMM 12-13-03/301).

CA. SHORTED PMG TRIP
(1) Look for a related message on the same power channel to isolate the cause of the SHORTED PMG TRIP. Related messages include:
GCU FAILED (except ignore GCU FAILED code 6c if GCU/WIRING/GCU is displayed).
PMG/FIELD/WIRING/GCU
GEN/FIELD WIRING/GCU
GCB/WIRING/GCU
(2) Correct any of these related messages.
(3) If one of the above messages does not show, replace the L (R) generator control unit L GCU M144, R GCU M146 (MM 24-22-02).

CB. SPEED LOSS IN FLIGHT
(1) Remove the L (R) GCU (MM 24-22-02) and correct any open circuit between these points:
(a) FOR LEFT POWER CHANNEL (WDM 24-22-11);
Use the table that follows:

Component	Pin	Component	Pin
L GCU M144	D248A pin A11	GROUND	---

LEFT AND RIGHT POWER CHANNELS - TABLE 102

(b) FOR THE RIGHT POWER CHANNEL (WDM 24-22-21);
Use the table that follows:

Component	Pin	Component	Pin
R GCU M146	D256A pin A11	GROUND	---

(c) Install the L (R) GCU (MM 24-22-02).

(2) If the problem continues, replace the IDG (MM 24-11-01).

CC. TIE BUS

(1) A DP TRIP message will show on the same channel as the TIE BUS message.

(2) Isolate the problem with the DP TRIP message.

CD. UNDER FREQ TRIP

(1) If the IDG OVERTEMP message shows on the same channel as the UNDER FREQ TRIP, replace the L (R) IDG (MM 24-11-01).

(2) If the GCU FAILED CODE 6D, 6F, 63 or 74 message shows on the same channel as the UNDER FREQ TRIP, replace L (R) GCU M144 (M146) (MM 24-22-02).

(3) If any of these messages:
IDG/PMG/WIRING
LOW OIL PRESSURE
SPEED LOSS IN FLIGHT
shows on the same channel as the UNDER FREQ TRIP message, correct that message.

(4) If none of the above messages are shown, replace the L (R) GCU (MM 24-22-02).

LEFT AND RIGHT POWER CHANNELS - TABLE 102

CE. UNDER VOLT TRIP

(1) Look for a related message on the same power channel to isolate the cause of the UNDER VOLT TRIP message. Related messges include:
FIELD/WIRING
GEN/WIRING
GCU FAILED
GCU/FIELD/WIRING
GEN/WIRING/GCU
OPEN/POR/FDR/GEN
OPPOSITE BUS OVERLOAD
OVERLOAD

(2) Correct any of these related messages.

(3) If the UNDER VOLT TRIP and GCU FAILED show, do a check for open circuit between the IDG terminal N and ground (WDM 24-21-11, WDM 24-21-21).
(a) Repair as necessary.

(4) If one the above messages does not show, replace the L (R) generator control unit L GCU M144, R GCU M146 (MM 24-22-02).

5. Table 103 - The APU Power Channel

A. Table 103 has messages and corrections for the APU Power Channel.

Messages in table 103 APU Power Channel
+28V TO CONTROL SW
APU GEN/PMG WIRING
APU READY/WIRING
CT LOOP GND
DP TRIP
EXCITATION TRIP
FIELD/WIRING GEN/WIRING
FIRE TRIP
GCB AUX/WIRING
GCB/BTB/WIRING/GCU
GCB/WIRING/GCU
GCU CIRCUIT BREAKER OPEN
GCU FAILED
GCU FAILED TRIP
GCU/FIELD/WIRING GEN/WIRING/GCU
GEN
GEN CONT SW/GCB COIL/GCU

Messages in table 103 APU Power Channel
GEN CONT SW/WIRE/GCU
GEN DIODE
GEN DIODE TRIP
GEN TRIP
GEN/FDR
IDG/PMG/WIRING
INTERMITTENT LINK
MAIN BUS
NO RESPONSE FROM CONTROL
OPEN PHASE TRIP
OPEN POR/FDR/GEN
OVER FREQ TRIP
OVER VOLT TRIP
OVERLAP ZONE
OVERLOAD
PMG/FIELD/WIRING/GCU/GEN/FIELD
REPLACE GCU

Messages in table 103 APU Power Channel
SHORT PMG TRIP
SPEED LOSS IN FLIGHT
TIE BUS
UNDER FREQ TRIP
UNDER VOLT

APU POWER CHANNEL - TABLE 103

B. +28V TO CONTROL SW
(1) Replace the electrical system control panel M10063 (MM 24-22-01).
(2) If the problem continues, replace the generator field and hydraulic control panel M1087 (MM 24-22-04).

C. APU GEN/PMG WIRING
(1) Do the steps for IDG/PMG/WIRING.

D. APU READY/WIRING
(1) Replace the auxiliary power control unit (MM 49-61-05).
(2) If the problem continues, replace the APU generator control unit (M143) (MM 24-22-02).

(3) If the problem continues, examine and repair any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-41-11):

Component	Pin	Component	Pin
APU GCU M143	D264A pin A12	BPCU M116	D278A pin A13
APU GCU M143	D264A pin B12	BPCU M116	D278A pin B13

E. CT LOOP GND
(1) Replace the APU generator control unit (APU GCU M143) (MM 24-22-02).
(2) If the problem continues, remove the APU GCU (MM 24-22-02).
(3) Do a check to see if there is a short circuit to ground at these points (WDM 24-23-11, WDM 24-21-41):

Point	Component	Pin
A	APU GCU	D264B-pin D13
B	APU GCU	D264B-pin D12

(4) If you found no ground at the two points in the last step, replace the APU GCU M143 (MM 24-22-02).
(5) If you found a ground at point A in the step "Do a check to see if there is a short circuit to ground . . .", check to see if there is a short circuit to ground on the APU generator pin D316 pin 3 (WDM 24-21-41).
(a) If you found a ground, replace the APU generator (MM 24-21-01).

APU POWER CHANNEL - TABLE 103

(b) If you found no ground at the APU generator, correct any short circuit to ground or short circuit to adjacent wiring between these points (WDM 24-21-41):

Component	Pin	Component	Pin
APU GCU	D264B pin A13	APU Gen	D316 pin 12
APU GCU	D264B pin B13	APU Gen	D316 pin 13
APU GCU	D264B pin C13	APU Gen	D316 pin 14
APU GCU	D264B pin D13	APU Gen	D316 pin 3

(c) Install the APU GCU (MM 24-22-02).

(6) If you found a ground at point B in the step "Do a check to see if there is a short circuit to ground . . .", check to see if there is a short circuit to ground at D314 pin 4 of the APU Gen DPCT assembly T111 (WDM 24-23-11).

(a) If you find a short circuit to ground at the DPCT assembly, replace the APU Gen DPCT T111 (MM 24-23-01).

(b) If you find no ground, correct any short circuit to ground or short circuit to adjacent wiring between these points (WDM 24-23-11).

Component	Pin	Component	Pin
APU GCU	D264B pin A12	DPCT T111	D314 pin 1
APU GCU	D264B pin B12	DPCT T111	D314 pin 2
APU GCU	D264B pin C12	DPCT T111	D314 pin 3
APU GCU	D264B pin D12	DPCT T111	D314 pin 4

(c) Install the APU GCU (MM 24-22-02).

APU POWER CHANNEL - TABLE 103

F. DP TRIP

(1) The DP TRIP message is accompanied by additional messages. Review the list below to find these messages and the appropriate troubleshooting steps.

(a) If the APU channel shows messages DP TRIP and GEN/FDR, do these steps:

1) GENERATOR FEEDER--SHORT TO GROUND (WDM 24-21-41).

Component	Pin	Component	Pin
M281	T1,T2,T3	TO C905	T1,T2,T3

2) CT WIRING--OPEN OR SHORT (WDM 24-21-41).

The resistance of the generator current transformer should be 26 ± 2 ohms at 77°F between pin 12, 13, or 14 to pin 3. If the resistance of the generator current transformer is out of range, replace the APU generator.

Component	Pin	Component	Pin
M281	D316-12,-13, -14,-3	TO M143	D264B-A13, B13,C13,D13

3) APU GEN CT--OPEN OR SHORT (WDM 24-21-41).

The resistance of T111 should be 6.6 ± 0.6 ohms at 77°F between pin 1, 2, or 3 to pin 4. If the resistance of the T111 current transformer is out of range, replace the T111 current transformer.

Component	Pin	Component	Pin
M281	D316-12,-13, -14,-3	TO T111	D314-1,-2,-3, -4

APU POWER CHANNEL - TABLE 103

4) POR SENSE WIRING--SHORT TO GROUND (WDM 24-21-41).

Component	Pin	Component	Pin
C905	T1,T2,T3	TO M143	D264B-A15, B15,C15

5) APU GEN MAIN STATOR WINDING--OPEN OR SHORT (WDM 24-21-41).

The resistance of the generator stator is 10.5 ± 1.0 milliohms at 77°F between T1, T2 or T3 to N. If the resistance of the stator is out of range, replace the APU generator.

Component	Pin	Component	Pin
M281	T1,T2,T3	TO M281	N

6) Replace the APU GCU M143 (AMM 24-22-02/401).

(b) If the APU channel shows messages DP TRIP and OVERLAP ZONE, do these steps:

1) AC TIE BUS--SHORT TO GROUND OR OPEN (WDM 24-21-51).

Component	Pin	Component	Pin
C905	L1,L2,L3	TO C904	L1,L2,L3
C905	L1,L2,L3	TO C902	L1,L2,L3
C905	L1,L2,L3	K114	A2,B2,C2

2) APU GEN FEEDER--SHORT TO GROUND OR OPEN (WDM 24-21-51, WDM 24-28-11, WDM 24-51-52, WDM 24-51-61).

Component	Pin	Component	Pin
C905	T1, T2, T3	TO M281	T1, T2, T3
C905	T1, T2, T3	TO M143	D264B-A15, -B15, -C15
C905	T2	TO C815	1
C905	T1, T2, T3	TO K103	A1, B1, C1
C905	T1, T2, T3	TO K101	A3, B3, C3

APU POWER CHANNEL - TABLE 103

3) APU GEN CT WIRING--SHORT TO GROUND OR OPEN (WDM 24-23-11)

The resistance of the generator current transformer should be 26 ± 2 ohms at 77°F between pin 12, 13, or 14 to pin 3. If the resistance of the generator current transformer is out of range, replace the APU generator.

Component	Pin	Component	Pin
M281	D316-12,-13, -14,-15	TO M143	D264B-A13,-B13,-C13,-D13

4) APU GEN CT WIRING--SHORT TO GROUND OR OPEN (WDM 24-23-11).

The resistance of T111 should be 6.6 ± 0.6 ohms at 77°F between pin 1, 2, or 3 to pin 4. If the resistance of the T111 current transformer is out of range, replace the T111 current transformer.

Component	Pin	Component	Pin
T111	D314-1,2,3,4	TO M143	D264B-A12,B12 C12,D12

5) APU TIE BUS CT WIRING--SHORT TO GROUND OR OPEN (WDM 24-23-12)

The resistance of T115 should be 6.6 ± 0.6 ohms at 77°F between pin 1, 2, or 3 to pin 4. If the resistance of the T115 current transformer is out of range, replace the T115 current transformer.

Component	Pin	Component	Pin
T115	D288-1,2,3,4	TO M116	D278A-A6,-B6,-C6,-D6

6) Replace the APU GCU M143 (AMM 24-22-02/401).

APU POWER CHANNEL - TABLE 103

(c) If the APU channel shows messages DP TRIP and TIEBUS, do these steps:
1) AC TIE BUS--SHORT TO GROUND OR OPEN (WDM 24-21-51).

Component	Pin	Component	Pin
C905	L1,L2,L3	TO C904	L1,L2,L3
C905	L1,L2,L3	TO C902	L1,L2,L3
C905	L1,L2,L3	K114	A2,B2,C2

2) APU TIE BUS CT WIRING--SHORT TO GROUND OR OPEN (WDM 24-23-12)

The resistance of T115, T113 or T112 should be 6.6 ± 0.6 ohms at 77°F between pin 1, 2, or 3 to pin 4. If the resistance of the T115, T113 or T112 current transformer is out of range, replace the current transformer.

Component	Pin	Component	Pin
T115	D288-1,2,3,4	TO M116	D278A-A6,-B6,-C6,-D6
T113	D286-1,2,3,4	TO M116	D278A-A7,-B7,-C7,-D7
T112	D282-1,2,3,4	TO M116	D278A-A5,-B5,-C5,-D5

3) Replace the APU GCU M143 (AMM 24-22-02/401).
(d) If the APU channel shows the messages DP TRIP and GCU FAILED CODE 40, 42, 51, 53, 54, 57 or 60, do this step:
1) Replace the APU GCU M143 (AMM 24-22-02/401).

G. EXCITATION TRIP
(1) Remove the APU GCU (MM 24-22-02).
(2) Do a check for continuity between these pins of the APU generator control unit rack connector. The resistance must be 7.5 ±0.75 ohms at 77°F (WDM 24-21-41):

Component	Pin	Component	Pin
APU GCU	D264B pin A1	APU GCU	D264B pin B1

APU POWER CHANNEL - TABLE 103

(3) If you find no continuity, do a check for continuity between these points on the APU generator. The resistance must be 7.5 ±0.75 ohms at 77°F (WDM 24-21-41):

Component	Pin	Component	Pin
APU Gen	D416 pin 9	APU Gen	D316 pin 10

(a) If you find no continuity, replace the APU generator (MM 24-21-01).
(b) If you find continuity, correct the open circuit or short between these points (WDM 24-21-41):

Component	Pin	Component	Pin
APU GCU	D264B pin A1	APU Gen	D316 pin 9
APU GCU	D264B pin B1	APU Gen	D316 pin 10

(c) Install the APU GCU (MM 24-22-02).

(4) If you find continuity in the step "Do a check for continuity between these pins of the APU generator control unit rack connector", do a check for continuity to ground from these points of the APU generator control unit rack connector. The resistance must be less than 1 ohm (WDM 24-21-41):

Component	Pin	Component	Pin
APU GCU	D264B pin A15	GROUND	---
APU GCU	D264B pin B15	GROUND	---
APU GCU	D264B pin C15	GROUND	---

(a) Install the APU GCU (MM 24-22-02).

APU POWER CHANNEL - TABLE 103

(5) If you find no continuity in the last step, do a check for continuity between these points on the APU generator. The resistance must be less than 1 ohm (WDM 24-21-41):

Component	Pin	Component	Pin
APU Gen	T1	APU Gen	N
APU Gen	T2	APU Gen	N
APU Gen	T3	APU Gen	N

(a) If you find no continuity, replace the APU generator (MM 24-21-01).
(b) If you find continuity, correct any open circuit or short circuit between these points (WDM 24-21-41):

Component	Pin	Component	Pin
APU Gen	N	GROUND	---
APU Gen	T1	APB C905	T1
APU Gen	T2	APB C905	T2
APU Gen	T3	APB C905	T3
APB C905	T1	APB Gen	D264B pin A15
APB C905	T2	APB Gen	D264B pin B15
APB C905	T3	APB Gen	D264B pin C15

(6) If you found no failure, replace the APU generator control unit M143 (MM 24-22-02).

APU POWER CHANNEL - TABLE 103

H. FIELD/WIRING GEN/WIRING
(1) Do a check for resistance between these points on the APU generator. The resistance must be 7.5 ±0.75 ohms at 77°F (WDM 24-21-41):

Component	Pin	Component	Pin
APU Gen	D316-pin 9	APU Gen	D316-pin 10

(2) If the resistance is not satisfactory, replace the APU generator (MM 24-21-01):
(3) If the resistance is satisfactory, correct any short circuit to ground or open circuit between these points (WDM 24-21-41):

Component	Pin	Component	Pin
APU GCU	D264B pin A1	APU Gen	D316 pin 9
APU GCU	D264B pin B1	APU Gen	D316 pin 10

(4) If the problem continues, replace the GCU M143 (MM 24-22-02).

I. FIRE TRIP
(1) This indication shows when the APU fire switch on P8 is armed. Refer to the log book to determine why the fire switch was activated. This message by itself does not mean there is an electrical system problem.
(2) If a fire occurred, do a check for damage to the electrical components in that area.
(3) If the fire switch was not armed, replace the APU fire switch (MM 26-22-01).

J. GCB AUX/WIRING
(1) Replace the auxiliary power breaker C905 (MM 24-22-03).
(2) If the problem continues, replace the APU generator control unit M143 (MM 24-22-02).

K. GCB/BTB/WIRING/GCU
(1) Replace the auxiliary power breaker C905 (MM 24-22-03).
(2) If the problem continues, replace the APU generator control unit M143 (MM 24-22-02).

APU POWER CHANNEL - TABLE 103

(3) If the problem continues, correct any short circuit to ground which exists at these pins of the APU GCU rack connector (WDM 24-22-41).
(a) D264A pin B1
(b) D264A pin C1
(c) D264A pin C5
(4) Install the APU GCU (MM 24-22-02).

L. GCB/WIRING/GCU
(1) Replace the auxiliary power breaker C905 (MM 24-22-03).
(2) If the problem continues, replace the APU generator control unit M143 (MM 24-22-02).

(3) If the problem continues, examine and repair any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-41-11):

Component	Pin	Component	Pin
APU GCU M143	D264A pin A12	BPCU M116	D278A pin A13
APU GCU M143	D264A pin B12	BPCU M116	D278A pin B13

M. GCU CIRCUIT BREAKER OPEN
(1) Do a check to see if a circuit breaker on APU generator control unit M143 is open.
(2) If neither circuit breaker on the APU GCU is open, replace the APU GCU M143 (MM 24-22-02).
(3) If CB1 on the APU GCU is open, do these steps:
(a) Replace the electrical system control panel (MM 24-22-01).

(b) If the problem continues, replace the generator field and hydraulic control panel (MM 24-22-04).

(c) If the problem continues, measure the resistance between pins 39 and 40 of the auxiliary power breaker C905. The resistance must be 3.8 ±0.8 ohms.
1) If necessary, replace the APB C905 (MM 24-22-03).

(d) If the problem continues or you find no failure, replace the APU fire switch (MM 26-22-01).

(e) If the problem continues or you find no failure, replace the APU GCU (MM 24-22-02).
(4) If the CB2 on the APU GCU is open, do these steps:
(a) Replace the auxiliary power breaker C905 (MM 24-22-03).

(b) If the problem continues, replace the APU GCU (MM 24-22-02).

N. GCU FAILED
CODE 6A
(1) Ignore this message. No action is necessary.

O. GCU FAILED
CODE 6E
(1) Ignore this message. No action is necessary.

P. GCU FAILED
(ALL CODES EXCEPT 6A AND 6E)
(1) Replace the APU GCU M143 (MM 24-22-02).

Q. GCU FAILED TRIP
(1) Replace the APU GCU M143 (MM 24-22-02).

R. GCU/FIELD/WIRING GEN/WIRING/GCU
(1) Remove the APU GCU (MM 24-22-02).
(2) Do a check for short circuit to ground between these pins of the APU generator control unit rack connector.
(a) Do a continuity check between these pins. The resistance must be 7.5 ±0.75 ohms at 77°F (WDM 24-21-41):

Component	Pin	Component	Pin
APU GCU	D264B pin A1	APU GCU	D264B pin B1

(3) If you find a short circuit, do a check for short circuit to ground between these points on the APU generator. The resistance must be 7.5 ±0.75 ohms at 77°F (WDM 24-21-41):

Component	Pin	Component	Pin
APU Gen	D316 pin 9	APU Gen	D316 pin 10

(a) If you find a short circuit to ground, replace the APU generator (MM 24-21-01).

APU POWER CHANNEL - TABLE 103

(b) If you find no short circuit in the last step, correct any short circuit between these points (WDM 24-21-41):

Component	Pin	Component	Pin
APU GCU	D264B pin A1	APU Gen	D316 pin 9
APU GCU	D264B pin B1	APU Gen	D316 pin 10

(c) Install the APU GCU (MM 24-22-02).

(4) If you find no short circuit in the step "Do a check for short circuit to ground between these pins of the APU generator control unit rack connector", replace the APU generator control unit M143 (MM 24-22-02).

S. GEN

(1) Do the steps for GEN DIODE.

T. GEN CONT SW/GCB COIL/GCU

(1) Replace the electrical system control panel M10063 (MM 24-22-01).
(2) If the problem continues, replace the auxiliary power breaker C905 (MM 24-22-03).
(3) If the problem continues, replace the APU generator control unit M143 (MM 24-22-02).

U. GEN CONT SW/WIRE/GCU

(1) Replace the electrical system control panel M10063 (MM 24-22-01).
(2) If the problem continues, replace the APU generator control unit M143 (MM 24-22-02).

V. GEN DIODE

(1) Replace the APU generator (MM 24-21-01).

NOTE: You must replace the APU generator although you can set it with the APU GEN switch.

APU POWER CHANNEL - TABLE 103

(2) If the problem continues, do the steps in EXCITATION TRIP.
(3) If the problem continues, do the steps in FIELD/WIRING/GEN/WIRING.
(4) If the problem continues, do a check on the R6 APB Trip Isol diode (P34). Replace the diode if necessary.

W. GEN DIODE TRIP
(1) Look for a related message on the same power channel to isolate the cause of the GEN DIODE TRIP. Related messages include:
GCU FAILED
GCU/FIELD/WIRING
GEN/WIRING GCU
GEN DIODE
GEN
(2) Correct for any message shown.
(3) If one of the above messages do not show, replace the APU generator control unit M143 (MM 24-22-02).

X. GEN TRIP
(1) Do the steps for GEN DIODE TRIP.

Y. GEN/FDR
(RELATED MESSAGE OF DP TRIP)
(1) If a DP TRIP message shows on the same channel as the GEN/FDR message, isolate the failure with the DP TRIP message Group 2.

Z. GEN/FDR
(RELATED MESSAGE OF OPEN PHASE TRIP)
(1) If an OPEN PHASE TRIP message shows on the same channel as the GEN/FDR message, do these checks:
(a) GENERATOR FEEDER--ONE OPEN PHASE (WDM 24-21-41).
M281 PINS T1,T2,T3 TO C905 PINS T1,T2,T3
(b) POR SENSE WIRING--ONE OPEN PHASE OR SHORT TO GROUND (WDM 24-21-41).
C905 PINS T1,T2,T3 TO M143 D264B-A15,B15,C15
1) Repair the wiring as necessary and install the APU GCU (MM 24-22-02).
(c) GENERATOR MAIN STATOR--ONE OPEN PHASE (WDM 24-21-41) (MM 24-21-01).
(d) REPLACE THE APU GCU (MM 24-21-01).

AA. IDG/PMG/WIRING
(1) If the OVER FREQ TRIP message also shows on APU power channel, replace the APU generator (MM 24-21-01).

APU POWER CHANNEL - TABLE 103

(2) If the problem continues, do these steps:
(a) Remove the APU GCU (MM 24-22-02).
(b) Do a check for continuity between these pins of APU generator control unit rack connector. The resistance must be 1.4 ohms line to line at 77°F (WDM 24-21-41):

Component	Pin	Component	Pin
APU GCU	D264C pin 2	APU GCU	D264C pin 3
APU GCU	D264C pin 2	APU GCU	D264C pin 4
APU GCU	D264C pin 3	APU GCU	D264C pin 4

(c) If you find continuity in the last step, replace the APU generator control unit APU GCU M143 (MM 24-22-02).
(d) If you find no continuity in the last step, do a check for continuity between these points on the APU generator. The resistance must be 1.4 ohms line to line at 77°F (WDM 24-21-41):

Component	Pin	Component	Pin
APU Gen	D316 pin 1	APU Gen	D316 pin 6
APU Gen	D316 pin 1	APU Gen	D316 pin 7
APU Gen	D316 pin 6	APU Gen	D316 pin 7

(e) If you find no continuity in the last step, replace the APU generator (MM 24-21-01).

APU POWER CHANNEL - TABLE 103

(f) If you find continuity in the last step, correct the open circuit or short circuit between these points (WDM 24-21-41):

Component	Pin	Component	Pin
APU Gen	D316 pin 1	APU GCU	D246C pin 2
APU Gen	D316 pin 6	APU GCU	D246C pin 3
APU Gen	D316 pin 7	APU GCU	D246C pin 4

AB. INTERMITTENT LINK

(1) Make sure 28V DC backup power is available at the APU GCU M143 D264B pin A3 (WDM 24-22-41).
   (a) If you find no 28V DC, repair the circuit.
(2) Make sure 28V DC backup power is available at the BPCU M116 D278B pin B1 (WDM 24-41-11).
   (a) If you find no 28V DC, repair the circuit.
(3) If the problem continues, replace the APU generator control unit M143 (MM 24-22-02).
(4) If the problem continues, replace the bus power control unit M116 (MM 24-41-03).
(5) If the problem continues, repair any open circuit or short circuit to ground between these points (WDM 24-41-11):

Component	Pin	Component	Pin
APU GCU	D264A pin A12	BPCU	D278A pin A13
APU GCU	D264A pin B12	BPCU	D278A pin B13

AC. MAIN BUS

(1) If an OPEN PHASE TRIP message shows on the same channel as the MAIN BUS message, do these checks:
   (a) FEEDER TO LOADS--ONE OPEN PHASE (WDM 24-21-41, WDM 24-21-51).
      C905 PINS T1,T2,T3 TO LOADS
   (b) FEEDER TO LOADS--OPEN PHASE (WDM 24-21-51).
      C905 PINS T1,T2,T3 TO C904 PINS L1,L2,L3
      C905 PINS T1,T2,T3 TO C902 PINS L1,L2,L3
   (c) REPLACE THE APB C905 (AMM 24-22-03/401).

APU POWER CHANNEL - TABLE 103

(d) REPLACE THE APU GCU M143 (AMM 24-22-02/401).
C905 PINS T1,T2,T3 TO LOADS

AD. NO RESPONSE FROM CONTROL
(1) If the message shows on more than one channel, continue with the wiring check.
(2) Remove the BPCU M116 (MM 24-41-03).
(3) Remove the GCU's M144, M146 and M143 (MM 24-22-02).
(4) Correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-22-12, WDM 24-22-22, WDM 24-41-11):

Component	Pin	Component	Pin
BPCU M116	D278A A12	GCU M144	D248A pin A12
BPCU M116	D278A A12	GCU M144	D248A pin A12
BPCU M116	D278A B12	GCU M144	D248A pin B12
BPCU M116	D278A A14	GCU M144	D248A pin B11
BPCU M116	D278A C12	GCU M146	D256A pin A12
BPCU M116	D278A D12	GCU M146	D256A pin B12
BPCU M116	D278A A14	GCU M146	D256A pin B11
BPCU M116	D278A A13	GCU M143	D264A pin A12
BPCU M116	D278A B13	GCU M143	D264A pin B12
BPCU M116	D278A A14	GCU M143	D264A pin B11

(5) Install the BPCU M116 (MM 24-41-03).
(6) Install the GCU's M144, M146 and M143 (MM 24-22-02).
(7) If the problem continues, and the message shows on APU channel only, replace APU generator control unit M143 (MM 24-22-02).
(8) If the problem continues, remove the GCU M143 (MM 24-22-02).
(9) Correct the open circuit or short circuit to ground between M143 D204B-A3 to C806.
(10) Correct the open circuit between M143 D264A-D15 to ground.
(11) Remove the BPCU M116 (MM 24-41-03).

APU POWER CHANNEL - TABLE 103

(12) Correct any open circuit, short circuit to ground, or short circuit to adjacent wiring between these points (WDM 24-41-11):

Component	Pin	Component	Pin
BPCU M116	D278A A13	GCU M143	D264A pin A12
BPCU M116	D278A B13	GCU M143	D264A pin B12
BPCU M116	D278A A14	GCU M143	D264A pin B11

(13) Install the BPCU M116 (MM 24-41-03).
(14) Install the GCU M144 (MM 24-22-02).

AE. OPEN PHASE TRIP
(1) Look for related messages on the APU power channel to isolate the cause of the OPEN PHASE TRIP. Related messages include:
GCU FAILED
GEN/FDR
MAIN BUS
(2) Correct these related messages shown.
(3) If one of the above messages does not show, replace the APU generator control unit M143 (MM 24-22-02).

AF. OPEN POR/FDR/GEN
(1) An UNDER VOLT TRIP message will be show on the same channel as the OPEN POR/FDR/GEN message.
(2) Remove the APU GCU M143 (MM 24-22-02).
(3) Do a check for continuity to ground from these points of the APU generator control unit M143 rack connector. The resistance must be approximately 0.01 ohms/winding (WDM 24-21-41).

Component	Pin	Component	Pin
APU GCU	D264B pin A15	GROUND	---
APU GCU	D264B pin B15	GROUND	---
APU GCU	D264B pin C15	GROUND	---

(4) If you find continuity in the last step, replace the APU GCU M143 (MM 24-22-02).

APU POWER CHANNEL - TABLE 103

(5) If you find no continuity in the last step, do a check for continuity between these points on the APU generator. The resistance must be approximately 0.01 ohms/winding. (WDM 24-21-41).

Component	Pin	Component	Pin
APU Gen	T1	APU Gen	N
APU Gen	T2	APU Gen	N
APU Gen	T3	APU Gen	N

(6) If you find no continuity in the last step, replace the APU generator (MM 24-21-01).
(7) If you find continuity in the last step, correct any open circuit or short circuit to ground between these points (WDM 24-21-41):

Component	Pin	Component	Pin
APB C905	T1	APU Gen	T3
APB C905	T2	APU Gen	T2
APB C905	T3	APU Gen	T1
APB C905	T1	APU GCU	D264B pin C15
APB C905	T2	APU GCU	D264B pin B15
APB C905	T3	APU GCU	D264B pin A15

(8) Install the APU GCU (MM 24-22-02).

AG. OVER FREQ TRIP
(1) Look for related messages on the APU power channel to isolate the cause of the OVER FREQ TRIP. Related messages include:
GCU FAILED
IDG/PMG/WIRING
APU/PMG/WIRING
(2) Correct these related messages.
(3) If none of the above messages show, replace the APU generator control unit M143 (MM 24-22-02).

APU POWER CHANNEL - TABLE 103

AH. OVER VOLT TRIP
(1) Look for related messages on the APU power channel to isolate the cause of the OVER VOLT TRIP. Related messages include:
FIELD/WIRING
GEN WIRING
GCU FAILED
GCU/FIELD/WIRING
GEN/WIRING/GCU
(2) Correct these related messages.
(3) If none of the messages show, replace the APU generator control unit M143 (MM 24-22-02).

AI. OVERLAP ZONE
(1) A DP TRIP message will show on the same channel as the OVERLAP ZONE message.
(2) Isolate the failure with the DP TRIP message, Table 102.

AJ. OVERLOAD
(1) An UNDERVOLT TRIP message will show on the APU channel. The left or right channel will have two messages:
UNDER VOLT TRIP
OPPOSITE BUS OVERLOAD
(2) If the left power channel shows OPPOSITE BUS OVERLOAD message, correct any short circuit to ground on:
(a) Right 115v ac bus (WDM 24-21-21)
(b) Right utility bus (WDM 24-51-23)
(c) Right galley bus (WDM 24-21-21)
(d) AC ground service bus (WDM 24-51-52)
(3) If the right power channel shows OPPOSITE BUS OVERLOAD message, correct any short circuit to ground on:
(a) Left 115v ac bus (WDM 24-21-11)
(b) Left utility bus (WDM 24-51-13)
(c) Left galley bus (WDM 24-21-11)

AK. PMG/FIELD/WIRING/GCU/GEN/FIELD
(1) A SHORTED PMG TRIP message will also show for the APU channel.
(2) Remove the APU GCU (MM 24-22-02).

APU POWER CHANNEL - TABLE 103

(3) Do a check for short circuit to ground, or short circuit to adjacent wiring between pins of the APU generator control unit rack connector. The resistance of windings must be 1.4 ohms line to line at 77°F (WDM 24-21-41):

Component	Pin	Component	Pin
APU GCU	D264C pin 2	APU GCU	D264C pin 3
APU GCU	D264C pin 2	APU GCU	D264C pin 4
APU GCU	D264C pin 3	APU GCU	D264C pin 4

(4) If you find a short circuit in the last step, do a check for continuity between these points on APU generator. The resistance of the windings must be 1.4 ohms line to line at 77°F (WDM 24-21-41):

Component	Pin	Component	Pin
APU Gen	D316 pin 1	APU Gen	D316 pin 6
APU Gen	D316 pin 1	APU Gen	D316 pin 7

(a) If you find no continuity in the last step, replace the APU generator (MM 24-21-01). Do not go to the next step ("If you found no short circuit in the step . . ., remove the APU GCU").

(b) If you find no continuity in the last step, correct the open circuit or short circuit between these points (WDM 24-21-41):

Component	Pin	Component	Pin
APU Gen	D316 pin 1	APU GCU	D264C pin 2
APU Gen	D316 pin 6	APU GCU	D264C pin 3
APU Gen	D316 pin 7	APU GCU	D264C pin 4

1) Install the APU GCU (MM 24-22-02).
2) Do not go to the next step "If you found no short circuit in the step . . ., remove the APU GCU (MM 24-22-02)".

APU POWER CHANNEL - TABLE 103

(5) If you find no short circuit in the step "Do a check for short circuit to ground . . .", remove the APU GCU (MM 24-22-02).
(a) Do a check for continuity between these pins of the APU generator control unit rack connector. The resistance must be 7.5 ±0.75 ohms at 77°F (WDM 24-21-41):

Component	Pin	Component	Pin
APU GCU	D264B pin A1	APU Gen	D316 pin 9

(b) If you found no failure, replace the APU GCU (MM 24-22-02).
(c) If you find no continuity, correct the short circuit or open circuit between the points in the last step "Do a check for continuity between these pins of the APU generator control unit rack connector".
(d) Install the APU GCU (MM 24-22-02).

AL. REPLACE GCU (D9)
(1) Do the steps for GCU FAILED TRIP.

AM. REPLACE GCU (XX)
(1) Do the steps for GCU FAILED CODE XX.

NOTE: XX are numeric codes.

AN. SHORT PMG TRIP
(1) Look for a related message on the APU power channel to isolate the cause of the SHORTED PMG TRIP. Related message include:
GCU FAILED
PMG/FIELD/WIRING/GCU
(2) Correct these related messages.
(3) If none of the above messages show, replace the APU generator control unit M143 (MM 24-22-02).

AO. SPEED LOSS IN FLIGHT
(1) Remove the APU GCU (MM 24-22-02).

APU POWER CHANNEL - TABLE 103

(2) Correct any open circuit between these points (WDM 24-22-41):

Component	Pin	Component	Pin
APU GCU M143	D264A pin A11	GROUND	---

(3) Install the APU GCU (MM 24-22-02).
(4) If the problem continues, replace the APU generator control unit M143 (MM 24-22-02).

AP. TIE BUS
(1) A DP TRIP message will also show on the APU power channel.
(2) Isolate the DP TRIP message, Table 102.

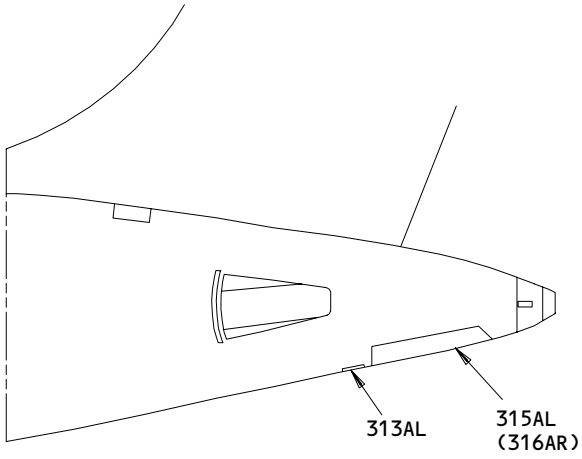
AQ. UNDER FREQ TRIP
(1) Look for related messages on the APU power channel to isolate the cause of the UNDER FREQ TRIP. Related messages include:
GCU FAILED
IDG/PMG/WIRING
APU/PMG/WIRING
(2) Correct these related messages.
(3) If none of the above messages show, replace the APU generator control unit M143 (MM 24-22-02).

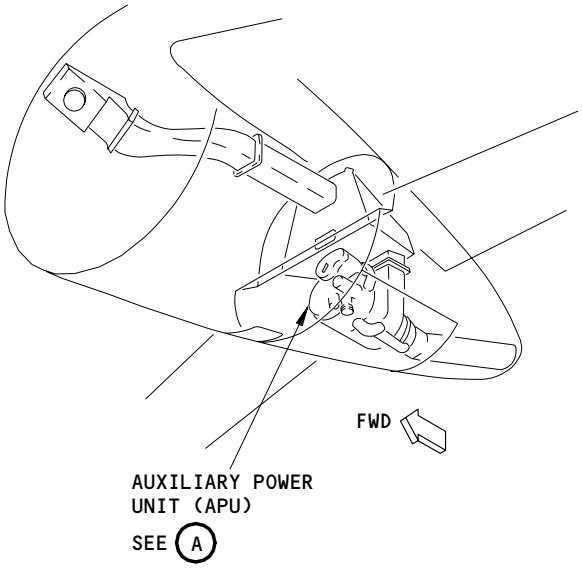
AR. UNDER VOLT
(1) Look for a related message on the APU power channel to isolate the cause of the UNDER VOLT TRIP. Related messages include:
FIELD/WIRING
GEN/WIRING
GCU FAILED
GCU/FIELD/WIRING
GEN/WIRING/GCU
OPEN POR/FDR/GEN
OVERLOAD
(2) Correct these related messages.
(3) If none of the above messages show, replace the APU generator control unit M143 (MM 24-22-02).

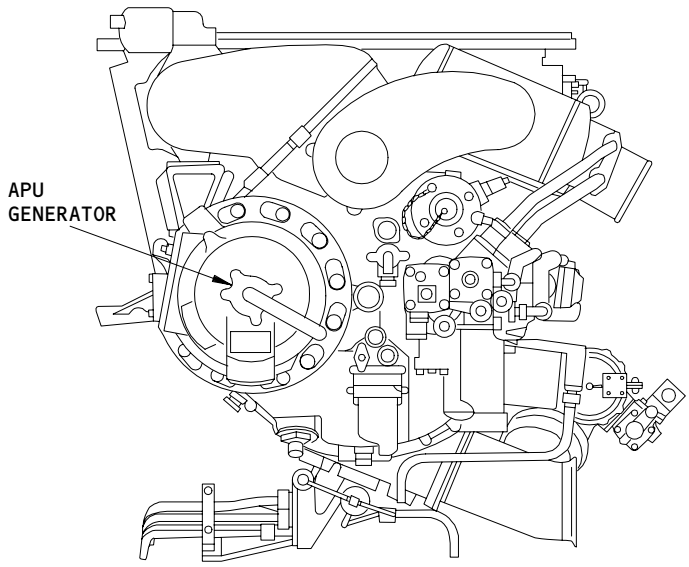
POWER AND REGULATION

COMPONENT	FIG. 102 SHT		ACCESS/AREA	AMM REFERENCE
GENERATOR – APU	--	1	APU	24-21-01

Power and Regulation – Component Index
Figure 101







AUXILIARY POWER UNIT (APU)
(FRONT VIEW)
(A)

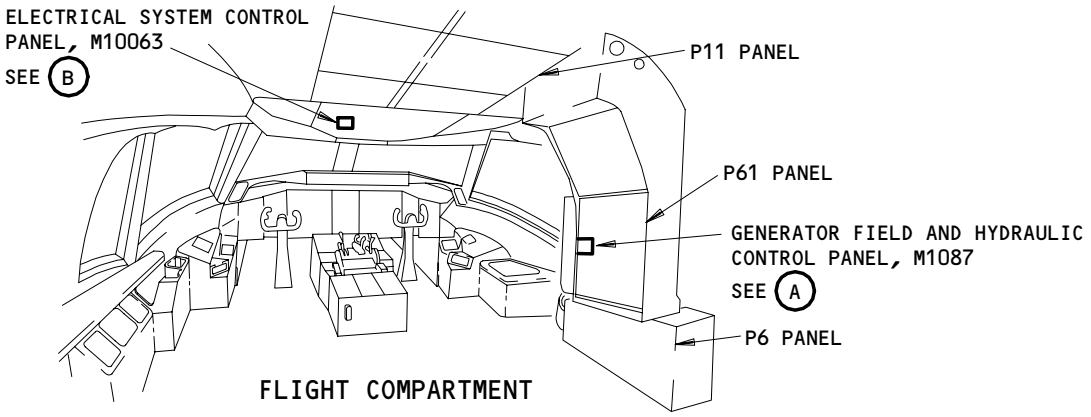
Power and Regulation - Component Location
Figure 102

CONTROL

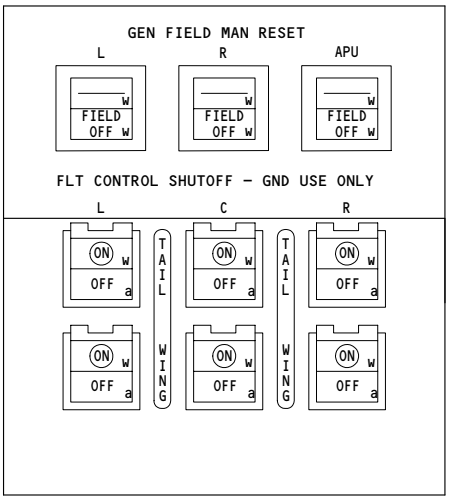
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKER - (REF 31-01-31, FIG. 101)				
LEFT BUS TIE, C902			119AL, MAIN EQUIP CTR, P31	24-22-03
LEFT GENERATOR, C901				24-22-03
CIRCUIT BREAKER - (REF 31-01-32, FIG. 101)				
RIGHT BUS TIE, C904				24-22-03
RIGHT GENERATOR, C903				24-22-03
CIRCUIT BREAKER (REF 31-01-34, FIG. 101)				
AUXILIARY POWER C905				24-22-03
PANEL - GENERATOR FIELD AND HYDRAULIC CONTROL, M1087	--	1	FLT COMPT, P61	24-22-04
PANEL - ELECT SYS CONTROL, M10063	--	1	FLT COMPT, P5	24-22-01
UNIT - APU GENERATOR CONTROL, M143	--	1	119AL, MAIN EQUIP CTR, E2-4	24-22-02
UNIT - LEFT GENERATOR CONTROL, M144	--	1	119AL, MAIN EQUIP CTR, E1-2	24-22-02
UNIT - RIGHT GENERATOR CONTROL, M146	--	1	119AL, MAIN EQUIP CTR, E2-4	24-22-02

Control - Component Index
Figure 101

171350

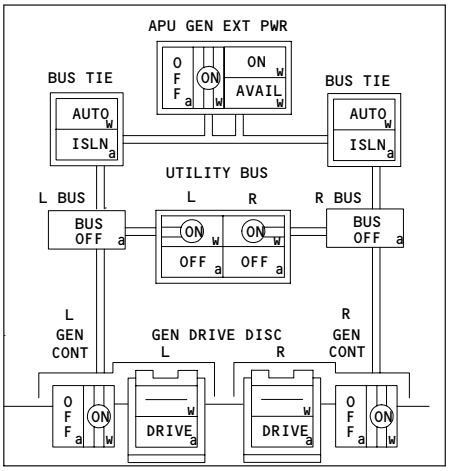


FLIGHT COMPARTMENT



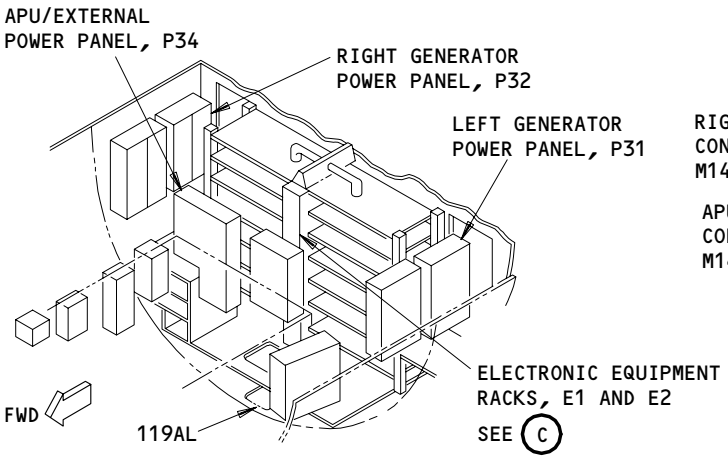
GENERATOR FIELD AND HYDRAULIC CONTROL PANEL, M1087

A

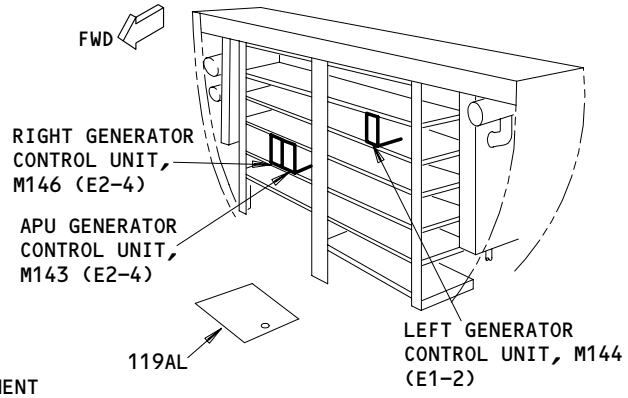


ELECTRICAL SYSTEM CONTROL PANEL, M10063

B



MAIN EQUIPMENT CENTER



ELECTRONIC EQUIPMENT RACKS, E1 AND E2

C

Control – Component Location
Figure 102

EICAS MSG "CAPT INSTR XFER" DISPLAYED

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (MM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A15,6A21,6C15,6G11,6G24,6J14,6J15,6J16,11S34,
11S35,11S36

MAKE SURE THE AIRPLANE IS IN THE CONFIGURATION THAT FOLLOWS:
ELECTRICAL POWER IS ON (MM 24-22-00/201)

1 PUT THE "BUS TIE" SWITCHES ON THE P5 PANEL TO THE "AUTO" POSITION.
PUSH THE "ECS/MSG" SWITCH ON THE EICAS PANEL (P5).
DOES THE EICAS MESSAGE, "CAPT INSTR XFER", SHOW ON THE BOTTOM DISPLAY?

YES → 5 REPLACE THE CAPTAIN'S INSTRUMENT BUS VOLTAGE SENSING UNIT, M1079 (MM 24-51-04/401).

NO → 2 THE SYSTEM IS OK.

EICAS Msg "CAPT INSTR XFER" Displayed
Figure 103

148477

EICAS MSG "F/O INSTR XFER" DISPLAYED

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (MM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A15,6A21,6C12,6C18,6L20,6L21,6L22,11S7,11S8,11S9

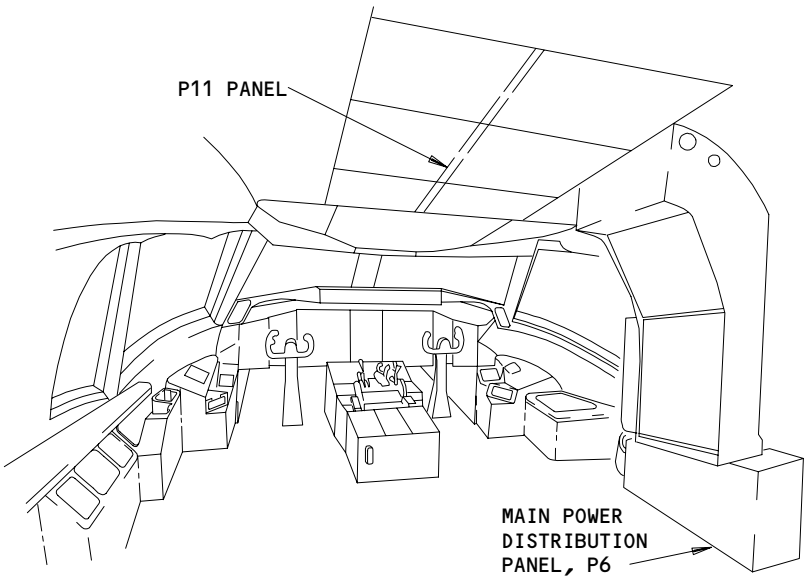
MAKE SURE THE AIRPLANE IS IN THE CONFIGURATION THAT FOLLOWS:
ELECTRICAL POWER IS ON (MM 24-22-00/201)

EICAS Msg "F/O INSTR XFER" Displayed
Figure 104

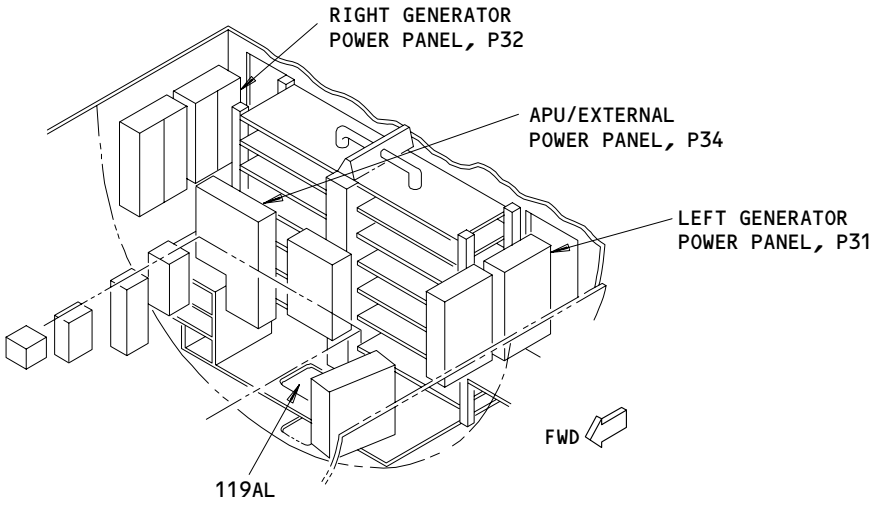
FAULT SENSING

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
TRANSFORMER - CURRENT, DIFFERENTIAL PROTECTION				
LEFT GENERATOR NO. 1, T105	--	1	119AL, MAIN EQUIP CTR, P31	24-23-01
LEFT GENERATOR NO. 2, T106	--	1	FLT COMPT, P6	24-23-01
RIGHT GENERATOR NO. 1, T107	--	1	119AL, MAIN EQUIP CTR, P32	24-23-01
RIGHT GENERATOR NO. 2, T108	--	1	FLT COMPT, P6	24-23-01
APU GENERATOR, T111	--	1	119AL, MAIN EQUIP CTR, P34	24-23-01
LEFT TIE BUS, T112	--	1	119AL, MAIN EQUIP CTR, P31	24-23-01
RIGHT TIE BUS, T113	--	1	119AL, MAIN EQUIP CTR, P32	24-23-01
APU TIE BUS, T115	--	1	119AL, MAIN EQUIP CTR, P34	24-23-01
EXTERNAL POWER TIE BUS, T116	--	1	119AL, MAIN EQUIP CTR, P34	24-23-01
GROUND POWER, T122	--	1	119AL, MAIN EQUIP CTR, P34	24-23-01
LEFT OVERLAP, T127	--	1	119AL, MAIN EQUIP CTR, P31	24-23-01
RIGHT OVERLAP, T128	--	1	119AL, MAIN EQUIP CTR, P32	24-23-01

Fault Sensing - Component Index
Figure 101



FLIGHT COMPARTMENT



MAIN EQUIPMENT CENTER

Fault Sensing - Component Location
Figure 102

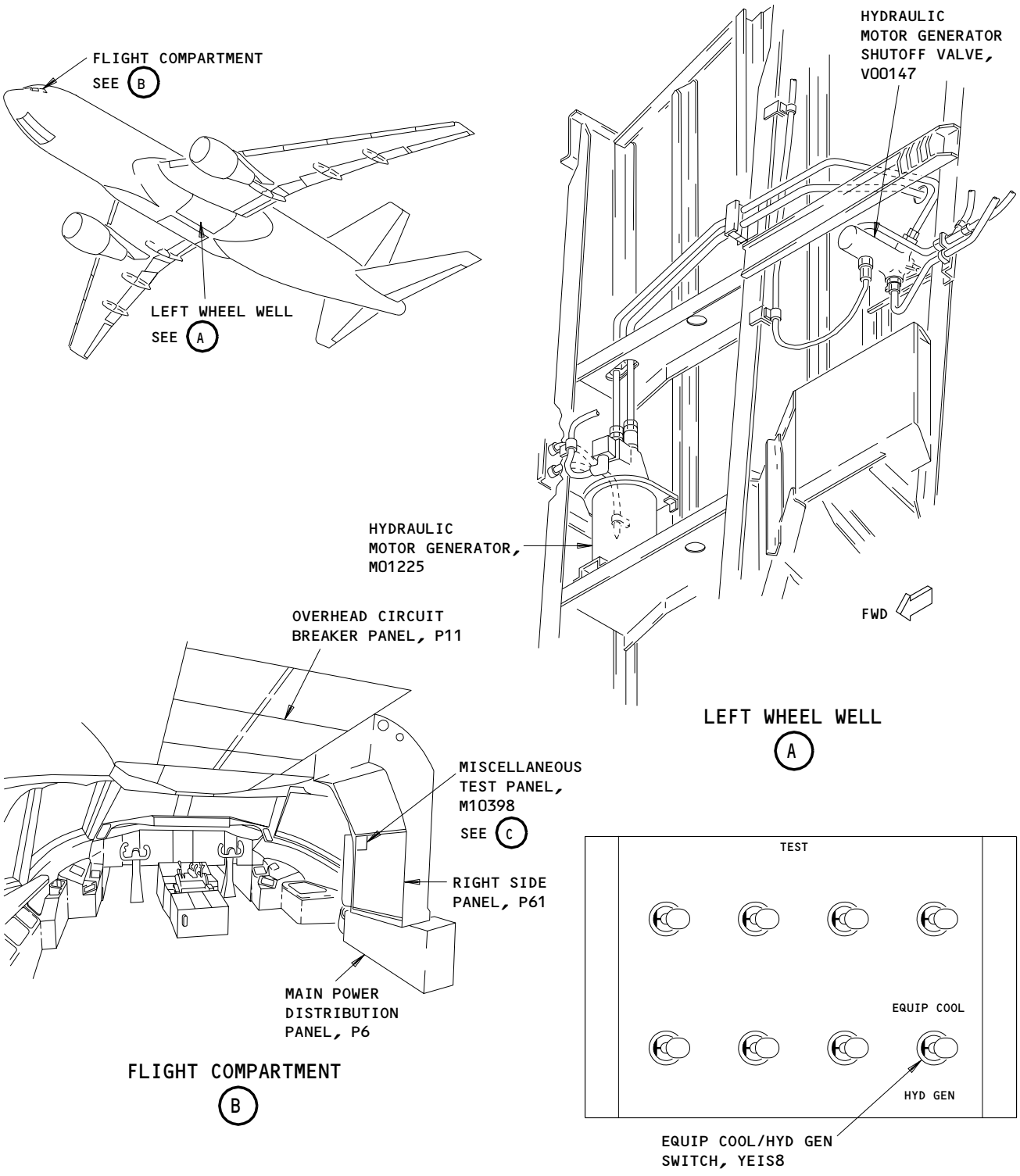
HYDRAULIC MOTOR GENERATOR SYSTEM

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKERS	1		FLT COMPT, P6,P11	
HYD GEN CONTR POWER, C906		1	6A7	*
HYD GEN 28V DC PWR, C830		1	6G12	*
L AC BUS SENSE, C847		1	11R4	*
R AC BUS SENSE, C848		1	11R31	*
CIRCUIT BREAKERS	2		119AL, MAIN EQUIP CTR, P65	
HYD GEN AC VOLT SENSE, C846		1		*
HYD GEN DC VOLT SENSE, C845		1		*
CONTROL UNIT - GEN HYD, M01226	2	1	119AL, MAIN EQUIP CTR, P65	24-25-02
GENERATOR - HYD MOTOR, M01225	1	1	LEFT WHEEL WELL	24-25-01
MODULE - TIME DELAY, M01228	2	1	119AL, MAIN EQUIP CTR, P65	*
MODULE - TIME DELAY, M01230	2	1	119AL, MAIN EQUIP CTR, P65	*
PANEL - (FIM 28-43-00/101) MISC TEST, M10398				
RELAY - CAPT 115V AC FLT INST TRANS, K00862	2	1	119AL, MAIN EQUIP CTR, P65	*
RELAY - GEN RESET ENABLE, K00873	2	1	119AL, MAIN EQUIP CTR, P65	*
RELAY - HYD GEN ADP COMMAND, K00865	2	1	119AL, MAIN EQUIP CTR, P65	*
RELAY - HYD GEN CONTROL, K00860	2	1	119AL, MAIN EQUIP CTR, P65	*
RELAY - HYD GEN 28V DC POWER, K00861	2	1	119AL, MAIN EQUIP CTR, P65	*
RELAY - LEFT AC BUS OFF SENSE, K00858	2	1	119AL, MAIN EQUIP CTR, P65	*
RELAY - RIGHT AC BUS OFF SENSE, K00859	2	1	119AL, MAIN EQUIP CTR, P65	*
RELAY - VAC L TRANSFER, K00863	2	1	119AL, MAIN EQUIP CTR, P65	*
RELAY - VAC R TRANSFER, K00864	2	1	119AL, MAIN EQUIP CTR, P65	*
SWITCH - EQUIP COOL/HYD GEN, YEIS8	1	1	FLT COMPT, P61, MISC TEST PANEL, M10398	*
VALVE - HYD MTR GEN S/O, V00147	1	1	LEFT WHEEL WELL	24-25-03

* SEE THE WDM EQUIPMENT LIST

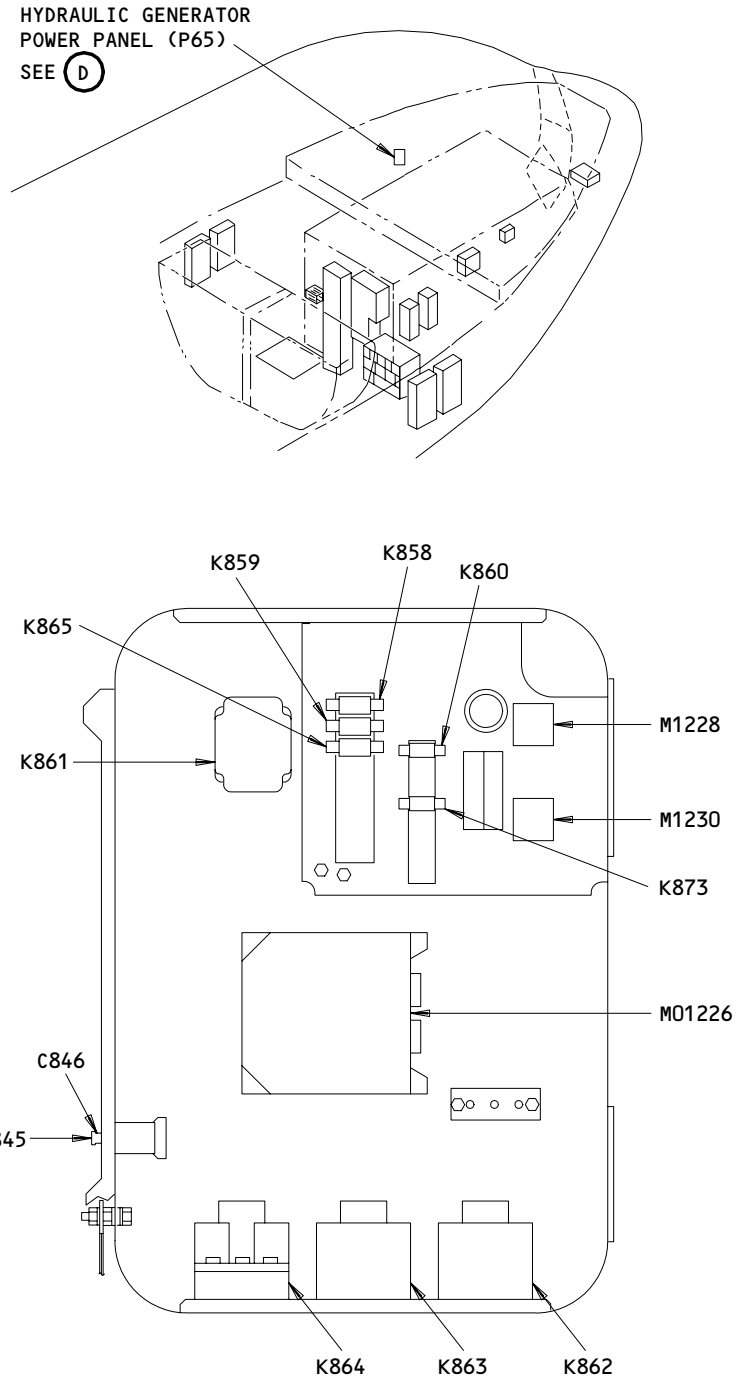
Hydraulic Motor Generator System - Component Index
Figure 101

147213



Hydraulic Motor Generator System – Component Location
Figure 102 (Sheet 1)

147582



HYDRAULIC GENERATOR POWER PANEL (P65)
D

Hydraulic Motor Generator System – Component Location
Figure 102 (Sheet 2)

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A7, 11R4, 11R31

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

EICAS MSG "HYD GEN VAL" DISPLAYED

1 CHECK THE POSITION OF THE INDICATOR ON THE HYD SHUTOFF VALVE, V147.
IS THE INDICATOR AT "POS 1" (VALVE FULLY CLOSED)?

NO → 10 REMOVE THE CONNECTOR, D10834 FROM THE VALVE, V147. DO A TEST FOR 28V DC BETWEEN PIN 3 AND GROUND OF CONNECTOR, D10834 (WDM 24-25-11).
IS THERE 28V DC?

YES → 20 REPLACE THE HYD SHUTOFF VALVE, V147 (AMM 24-25-03/401).

NO → 11 CONNECT THE CONNECTOR, D10834 TO VALVE, V147. DO A TEST FOR 28V DC BETWEEN TERMINAL B AND GROUND OF TIME DELAY, M1228 ON P65.
IS THERE 28V DC?

YES → 21 REPLACE THE HYD GEN CONTROL RELAY, K860 ON P65 (WDM 24-25-11).
IF THE PROBLEM CONTINUES, REMOVE THE RELAY, K860. EXAMINE AND REPAIR THE CIRCUIT BETWEEN RELAY K860, PIN B3 AND THE CONNECTOR D10834, PIN 3 (WDM 24-25-11). INSTALL THE RELAY K860.

NO → 12 DO A TEST FOR 28V DC BETWEEN TERMINAL A AND GROUND OF TIME DELAY, M1228 (P65) (WDM 24-25-11).
IS THERE 28V DC?

YES → 22 REPLACE THE TIME DELAY MODULE, M1228 (WDM 24-25-11).

NO → 13 REMOVE THE L AC BUS OFF SENSE RELAY, K858 ON P65 (WDM 24-25-11). DO A TEST FOR 28V DC BETWEEN PIN B2 AND GROUND OF K858 RELAY CONNECTOR.
IS THERE 28V DC?

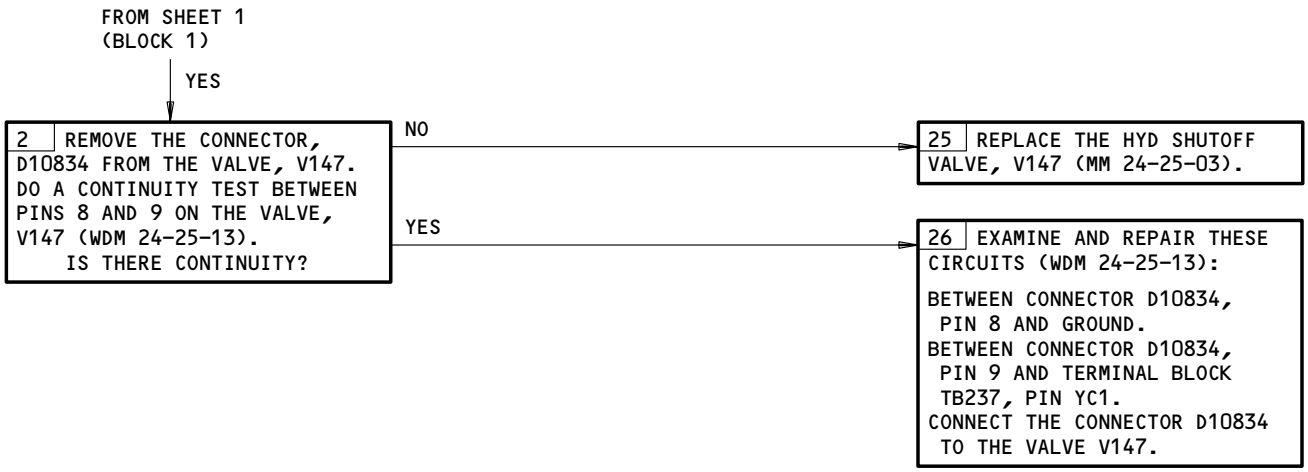
YES → 23 REPLACE THE L AC BUS OFF SENSE RELAY, K858 ON P65 (WDM 24-25-11).

NO → 24 INSTALL RELAY, K858. REPLACE THE R AC BUS OFF RELAY K859 ON P65 (WDM 24-25-11).

YES → SEE SHEET 2 (BLOCK 2)

EICAS Msg HYD GEN VAL Displayed
Figure 103 (Sheet 1)

147214



EICAS Msg HYD GEN VAL Displayed
Figure 103 (Sheet 2)

802196

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A7,11R4,11R31

MAKE SURE THE AIRPLANE IS IN THE CONFIGURATION THAT FOLLOWS:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

EICAS MESSAGE "HYD GEN ON" DISPLAYED

EICAS Msg HYD GEN ON Displayed
Figure 104

147215

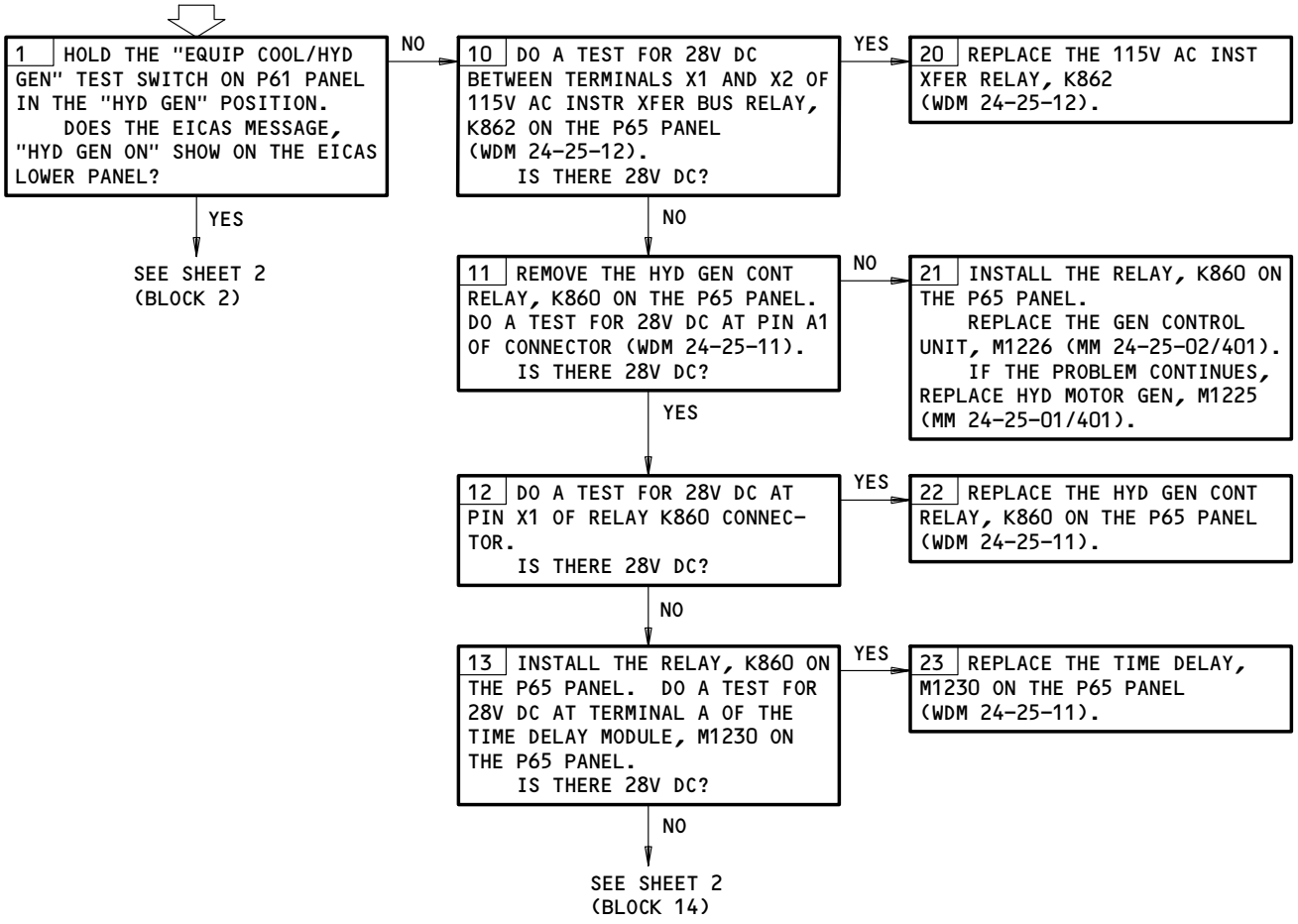
HYD GEN SYSTEM FAULT ISOLATION PROCEDURE

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (MM 31-41-00/201)

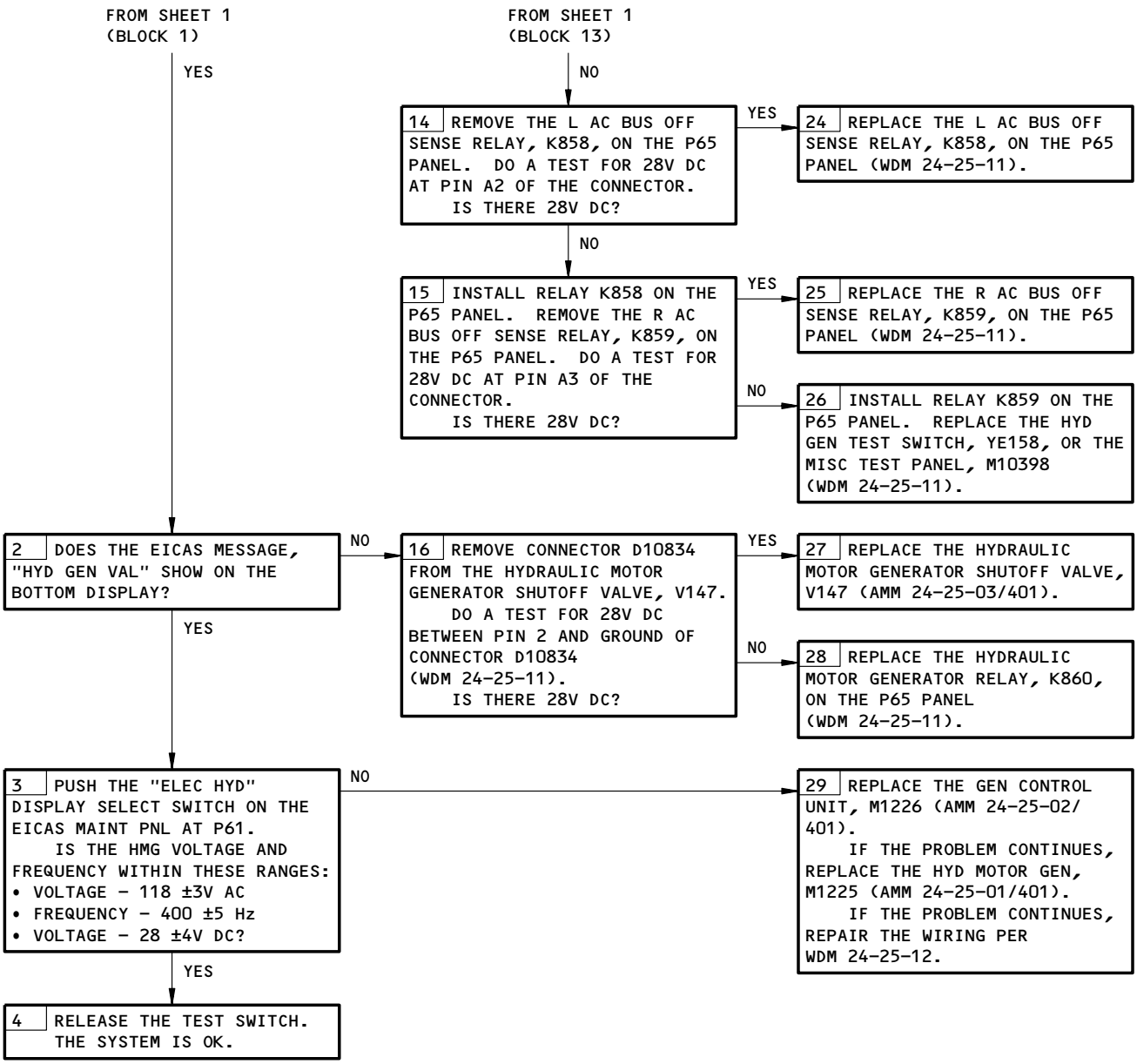
MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A7,11R4,11R31,61G12

MAKE SURE THE AIRPLANE IS IN THE CONFIGURATION THAT FOLLOWS:
CENTER SYSTEM HYDRAULIC POWER (MM 29-11-00/201)



Hyd Gen System Fault Isolation Procedure
Figure 105 (Sheet 1)

147216



Hydraulic Generator System Fault Isolation Procedure
Figure 105 (Sheet 2)

176699

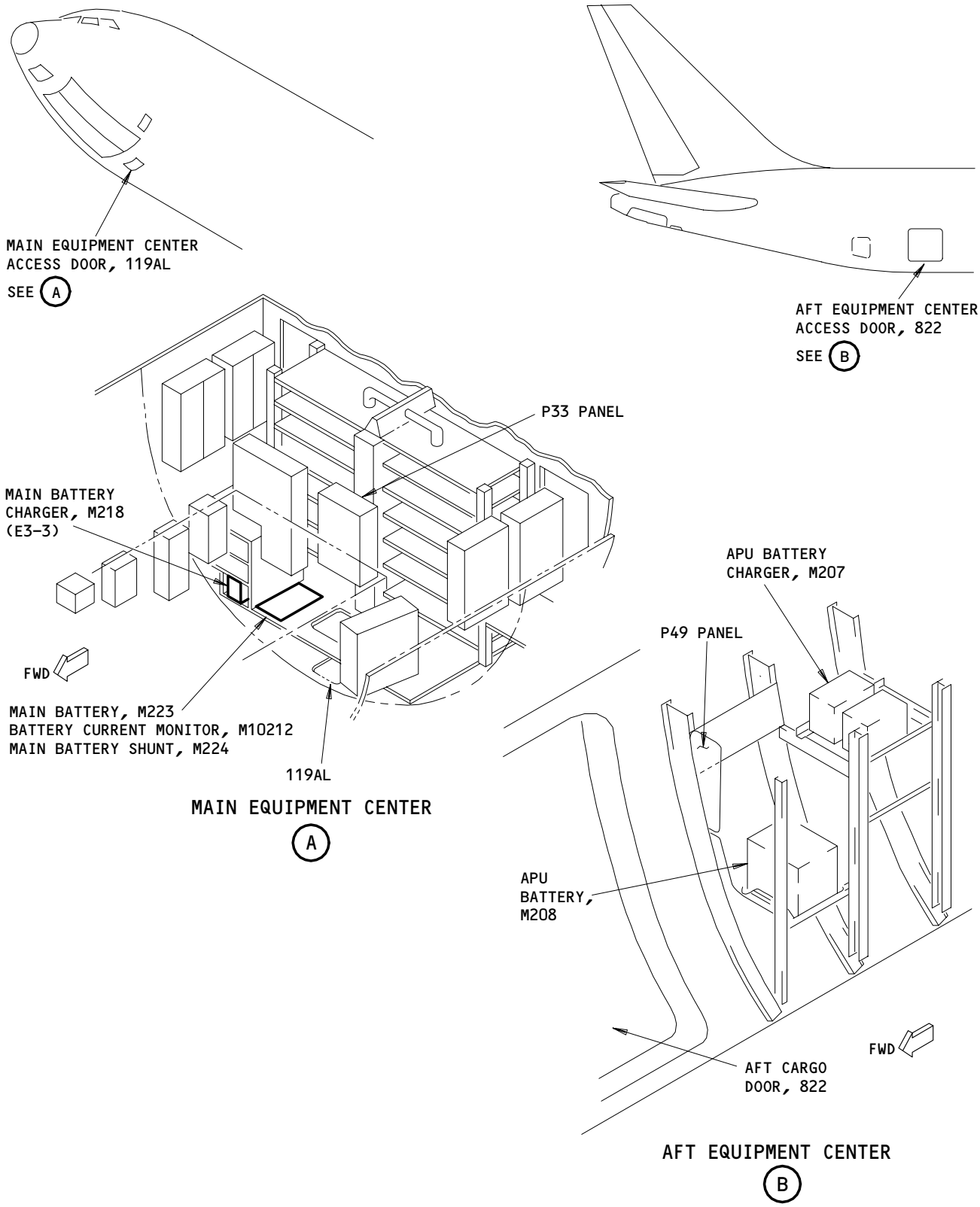
BATTERIES

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
BATTERY - APU, M208	--	1	822, AFT CARGO COMPT, E6-1	24-31-04
BATTERY - MAIN, M223	--	1	119AL, MAIN EQUIP CTR, E3-2	24-31-01
CHARGER - APU BATTERY, M207	--	1	822, AFT CARGO COMPT, E6-1	24-31-05
CHARGER - MAIN BATTERY, M218	--	1	119AL, MAIN EQUIP CTR, E3-2	24-31-02
CIRCUIT BREAKERS	--		FLT COMPT, P6	
BAT BUS PWR, C898	--	1	6J11	*
BAT CUR MON PWR, C4097	--	1	6A4	
BAT OVHT PROT, C827		1	6D1	*
CENTER BUS DC, C899 1	--	1	6J13	*
HOT BAT BUS, C897	--	1	6J10	*
HYD GEN 28V DC PWR, C830	--	1	6G12	
INV PWR BAT, C813	--	1	6J12	*
MAIN BAT CHGR, C896		1	6J9	*
RAM AIR TURBINE PWR, C1088	--	1	6J8	*
CIRCUIT BREAKERS	--		822, AFT CARGO COMPT, P49	
APU BAT BUS, C869		1	822, AFT CARGO COMPT, P49	*
APU BAT CHGR, C868		1	822, AFT CARGO COMPT, P49	*
APU BAT DC VOLTS, C821	--	1	822, AFT CARGO COMPT, P49	*
APU BAT OVHT PROT, C820		1	822, AFT CARGO COMPT, P49	*
APU INLET DOOR ACT, C1385	--	1	822, AFT CARGO COMPT, P49	
APU PRIME CONT, C1383	--	1	822, AFT CARGO COMPT, P49	
CIRCUIT BREAKERS	--		119AL, MAIN EQUIP CTR, P33	
BATTERY CHARGER APU, C302		1	33E5	*
BATTERY CHARGER MAIN, C301		1	33E2	*
COMPUTER - (REF 31-41-00, FIG. 101)				
LEFT, RIGHT EICAS, M10181,M10182				
CONTACTOR - (REF 49-41-00, FIG. 101)				
APU CRANK, K117				
MONITOR - BATTERY CURRENT, M10212	--	1	119AL, MAIN EQUIP CTR, E3-2	24-31-03
PANEL - (REF 24-33-00, FIG. 101)				
STANDBY POWER CONTROL, M10062				
RELAY - (REF 31-01-06, FIG. 101)				
BAT CHGING DET, K694				
CHGR SIG CONTROL, K695				
CHGR SIG CONT ENABLE, K696				
MAIN BAT, K104				
RELAY - (REF 31-01-33, FIG. 101)				
MAIN BATTERY CHARGER, K115				
RELAY - (REF 31-01-49, FIG. 101)				
APU BATTERY CHARGER, K116				
APU START, K197				
SHUNT - (REF 31-01-49, FIG. 101)				
APU BATTERY CHARGER, M228				
SHUNT - MAIN BATTERY, M224	--	1	119AL, MAIN EQUIP CTR, E3-2	*

* SEE THE WDM EQUIPMENT LIST

1 SAS 150-155
MTH 275,276

Batteries - Component Index
Figure 101



Batteries - Component Location
Figure 102

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/201)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A1,6A2,6A4,6D1,6D2,6G6,6J9,6J11,33E2

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER (AMM 24-22-00/201)

EICAS MSG "MAIN BAT CHGR" DISPLAYED

1 PUSH THE "BAT" SWITCH, ON THE P5 PANEL, TO THE "ON" POSITION.
TURN THE "STBY POWER" SWITCH, ON THE P5 PANEL, TO THE "AUTO" POSITION.
DO THIS PROCEDURE: "EICAS MAINTENANCE MESSAGE ERASE PROCEDURE" (FIM 31-41-00/101, FIG. 109).
DOES THE EICAS MESSAGE "MAIN BAT CHGR" SHOW ON THE BOTTOM DISPLAY?

NO → 20 THE SYSTEM IS OK.

YES ↓

2 PUSH THE "ELEC/HYD" SWITCH ON THE EICAS MAINT PANEL ON THE RIGHT SIDE PANEL, P61.
IS THE "DC-V" VALUE BELOW "STBY/BAT" 4 VOLTS OR LESS ON THE BOTTOM EICAS DIPLAY?

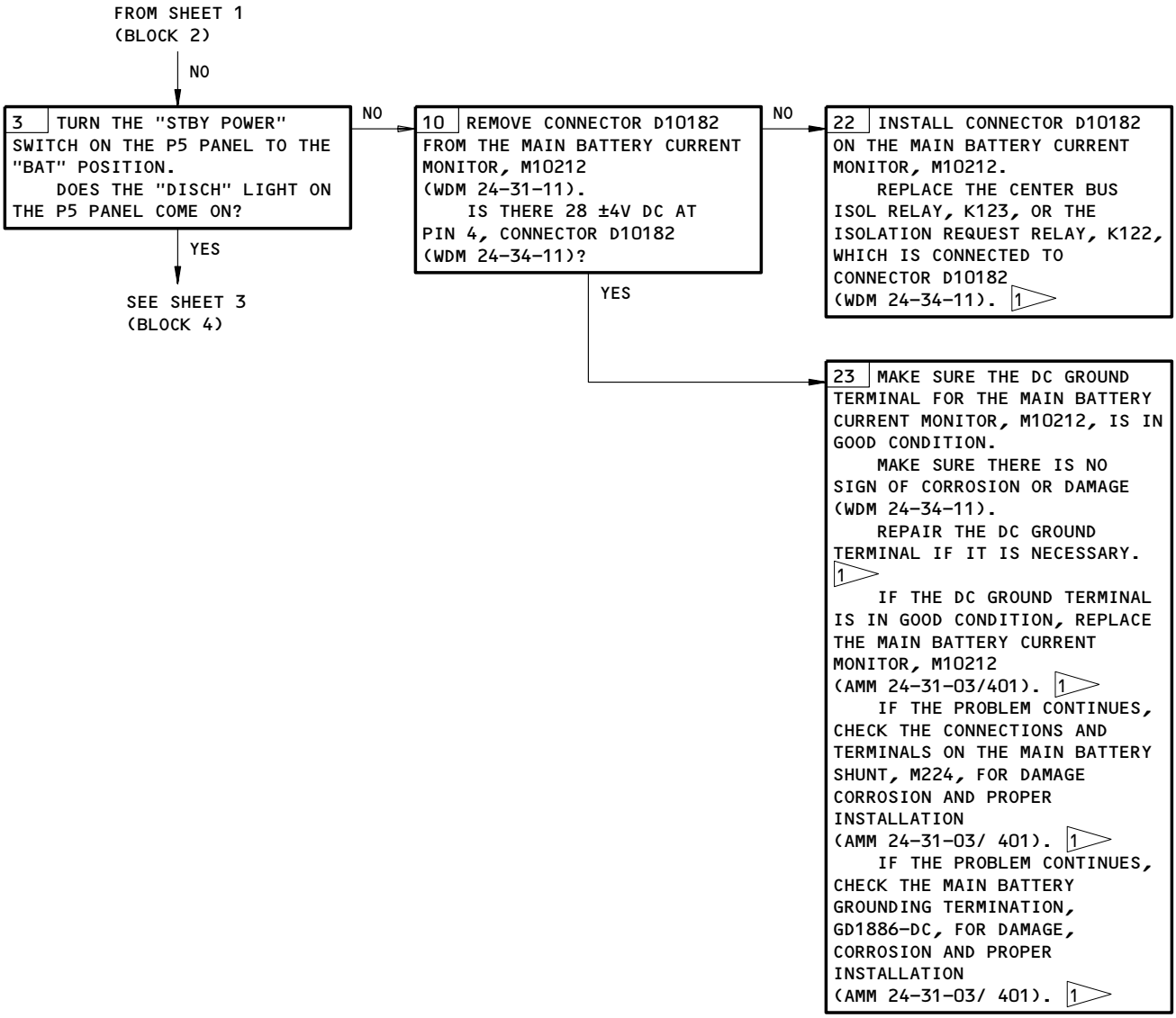
YES → 21 REPLACE THE MAIN BATTERY, M223 (AMM 24-31-01/401). 1
IF THE PROBLEM CONTINUES, GO TO BLOCK 3.

NO ↓

SEE SHEET 2
(BLOCK 3)

1 DO THIS PROCEDURE: "EICAS MAINTENANCE MESSAGE ERASE PROCEDURE" (FIM 31-41-00/101, FIG. 109).

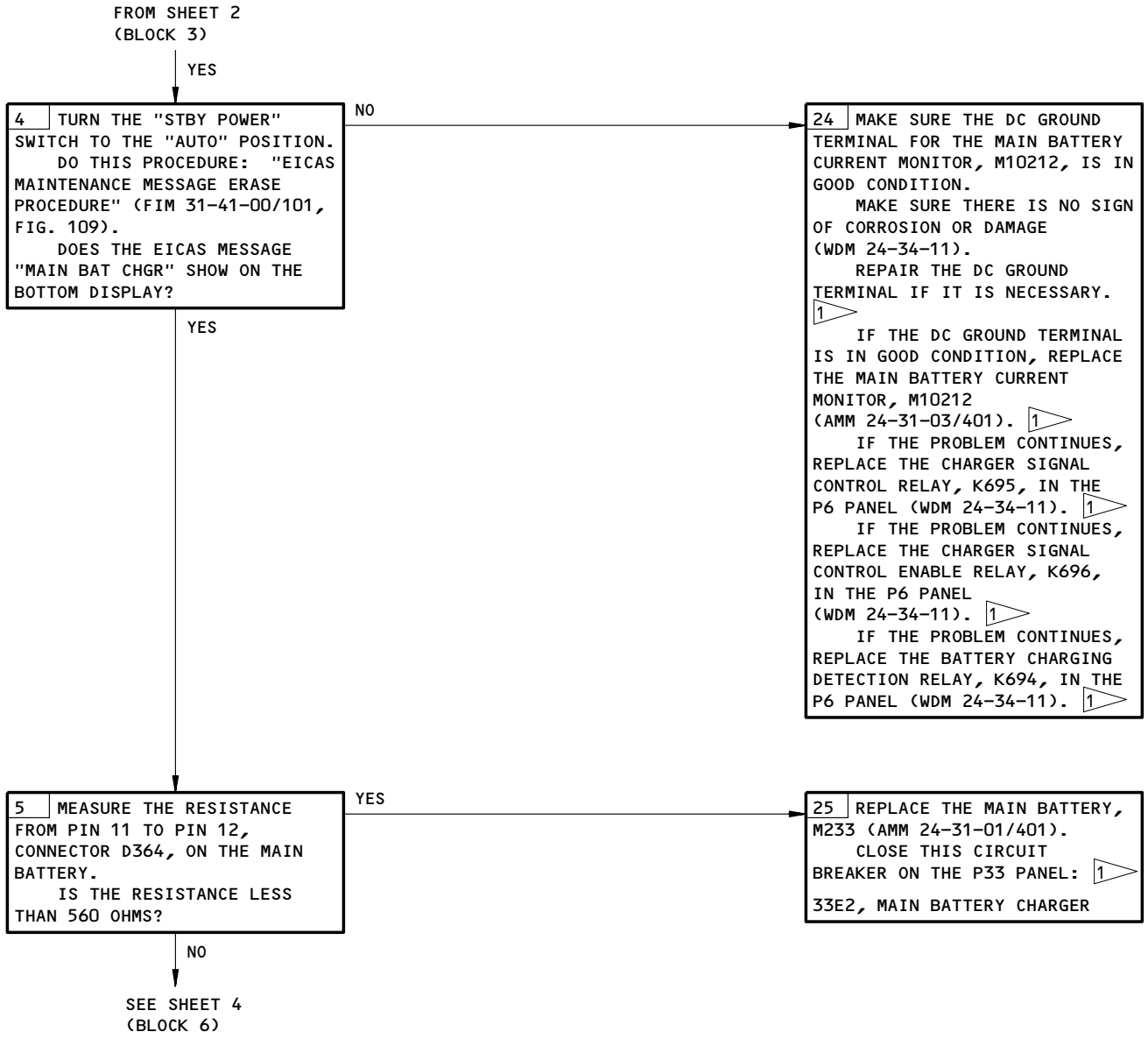
EICAS Msg MAIN BAT CHGR Displayed
Figure 103 (Sheet 1)



1 DO THIS PROCEDURE: EICAS MAINTENANCE MESSAGE ERASE PROCEDURE (FIM 31-41-00/101, FIG. 109).

EICAS Msg MAIN BAT CHGR Displayed
Figure 103 (Sheet 2)

G17893

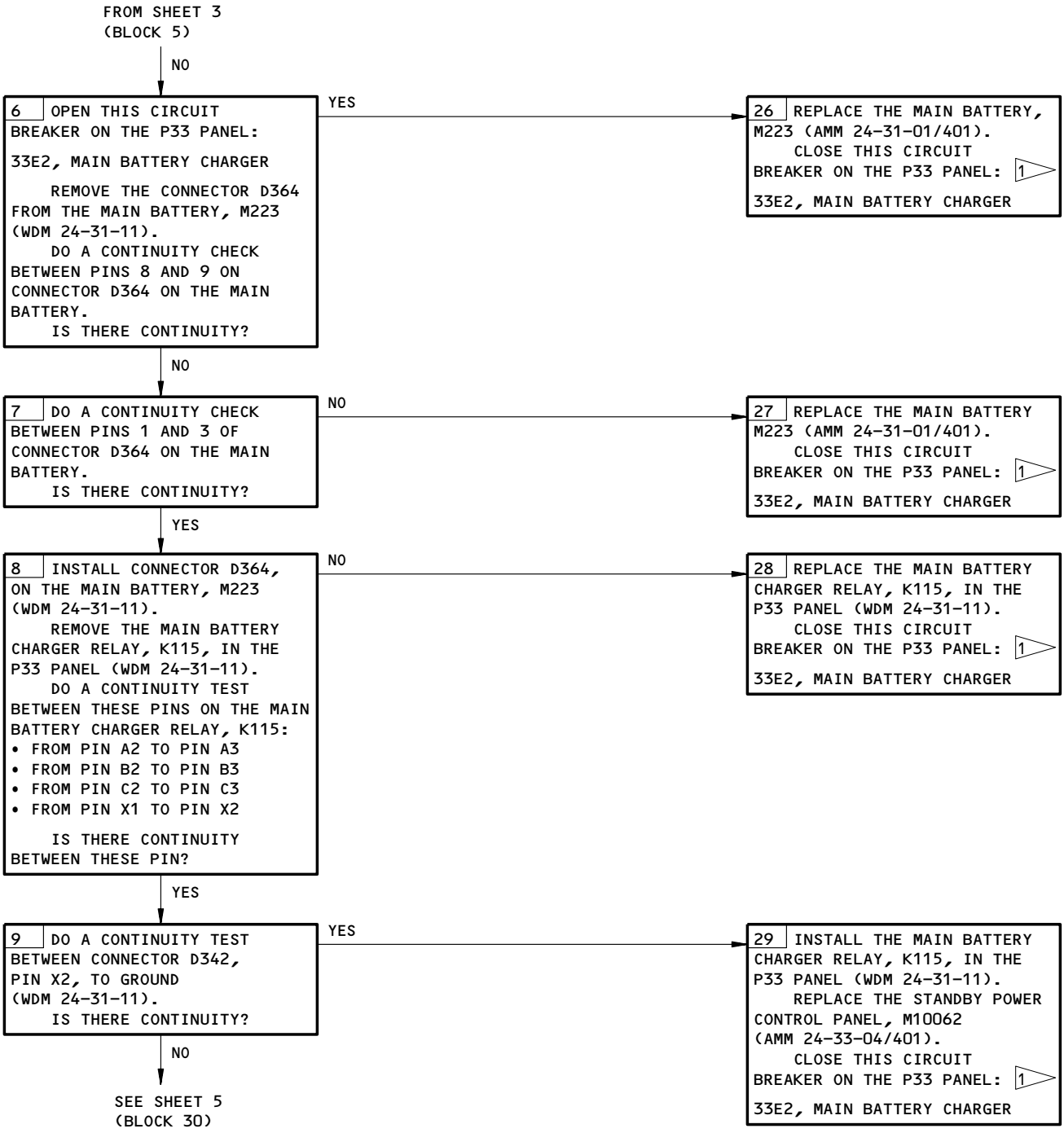


1 DO THIS PROCEDURE: "EICAS MAINTENANCE MESSAGE ERASE PROCEDURE" (FIM 31-41-00/101, FIG. 109).

EICAS Msg MAIN BAT CHGR Displayed
Figure 103 (Sheet 3)

EFFECTIVITY
AIRPLANES WITH BATTERY CHARGER THAT DOES NOT HAVE THE CHARGER AND BATTERY LEDS

90352



1 DO THIS PROCEDURE: "EICAS MAINTENANCE MESSAGE ERASE PROCEDURE" (FIM 31-41-00/101, FIG. 109).

EICAS Msg MAIN BAT CHGR Displayed
Figure 103 (Sheet 4)

FROM SHEET 4
(BLOCK 9)

NO

30 INSTALL THE MAIN BATTERY CHARGER RELAY, K115, IN THE P33 PANEL (WDM 24-31-11).

MAKE SURE THE DC GROUND TERMINAL FOR THE MAIN BATTERY CURRENT MONITOR, M10212, IS IN GOOD CONDITION.

MAKE SURE THERE IS NO SIGN OF CORROSION OR DAMAGE (WDM 24-34-11).

REPAIR THE DC GROUND TERMINAL IF IT IS NECESSARY.

1

IF THE DC GROUND TERMINAL IS IN GOOD CONDITION, REPLACE THE MAIN BATTERY CHARGER, M218 (AMM 24-31-02/401).

CLOSE THIS CIRCUIT BREAKER ON THE P33 PANEL: 1

33E2, MAIN BATTERY CHARGER

IF THE PROBLEM CONTINUES, REPLACE THE CHARGER SIGNAL CONTROL RELAY, K695, IN THE P6 PANEL (WDM 24-34-11). 1

1 DO THIS PROCEDURE: "EICAS MAINTENANCE MESSAGE ERASE PROCEDURE" (FIM 31-41-00/101, FIG. 109).

EICAS Msg MAIN BAT CHGR Displayed
Figure 103 (Sheet 5)

PREREQUISITES

MAKE SURE THIS SYSTEM WILL OPERATE:
EICAS (AMM 31-41-00/501)

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A1, 6A2, 6A4, 6D1, 6D2, 6G6, 6J9, 6J11, 33E2

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER (AMM 24-22-00/201)

EICAS MSG "MAIN BAT CHGR" DISPLAYED

1 PUSH THE "BAT" SWITCH, ON THE P5 PANEL, TO THE "ON" POSITION.
TURN THE "STBY POWER" SWITCH, ON THE P5 PANEL, TO THE "AUTO" POSITION.
DO THIS PROCEDURE: "EICAS MAINTENANCE MESSAGE ERASE PROCEDURE" (FIM 31-41-00/101, FIG. 109).
DOES THE EICAS MESSAGE "MAIN BAT CHGR" SHOW ON THE BOTTOM DISPLAY?

NO → 21 THE SYSTEM IS OK.

YES ↓

2 DO A CHECK OF THE CHARGER AND BATTERY LEDS ON THE BATTERY CHARGER, M218, ON E3-2 SHELF.
IS THE CHARGER LIGHT OFF AND BATTERY LIGHT ON?

YES → 22 REPLACE THE MAIN BATTERY CHARGER, M218 (AMM 24-31-02/401). 1

NO ↓

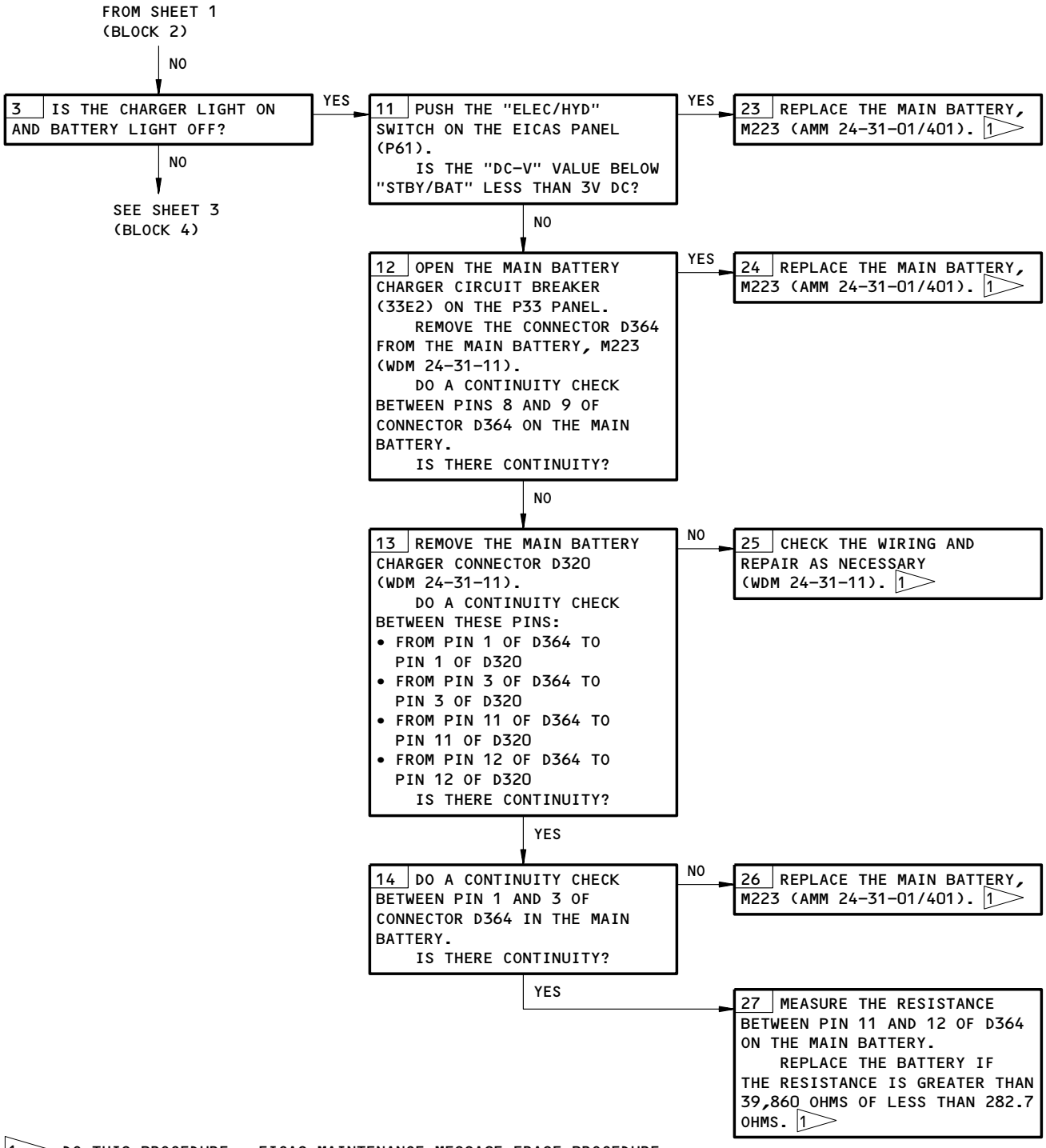
SEE SHEET 2
(BLOCK 3)

1 DO THIS PROCEDURE: "EICAS MAINTENANCE MESSAGE ERASE PROCEDURE" (FIM 31-41-00/101, FIG. 109).

EICAS Msg MAIN BAT CHGR Displayed
Figure 103A (Sheet 1)

EFFECTIVITY
AIRPLANES WITH BATTERY CHARGER THAT HAS THE CHARGER AND BATTERY LEDS

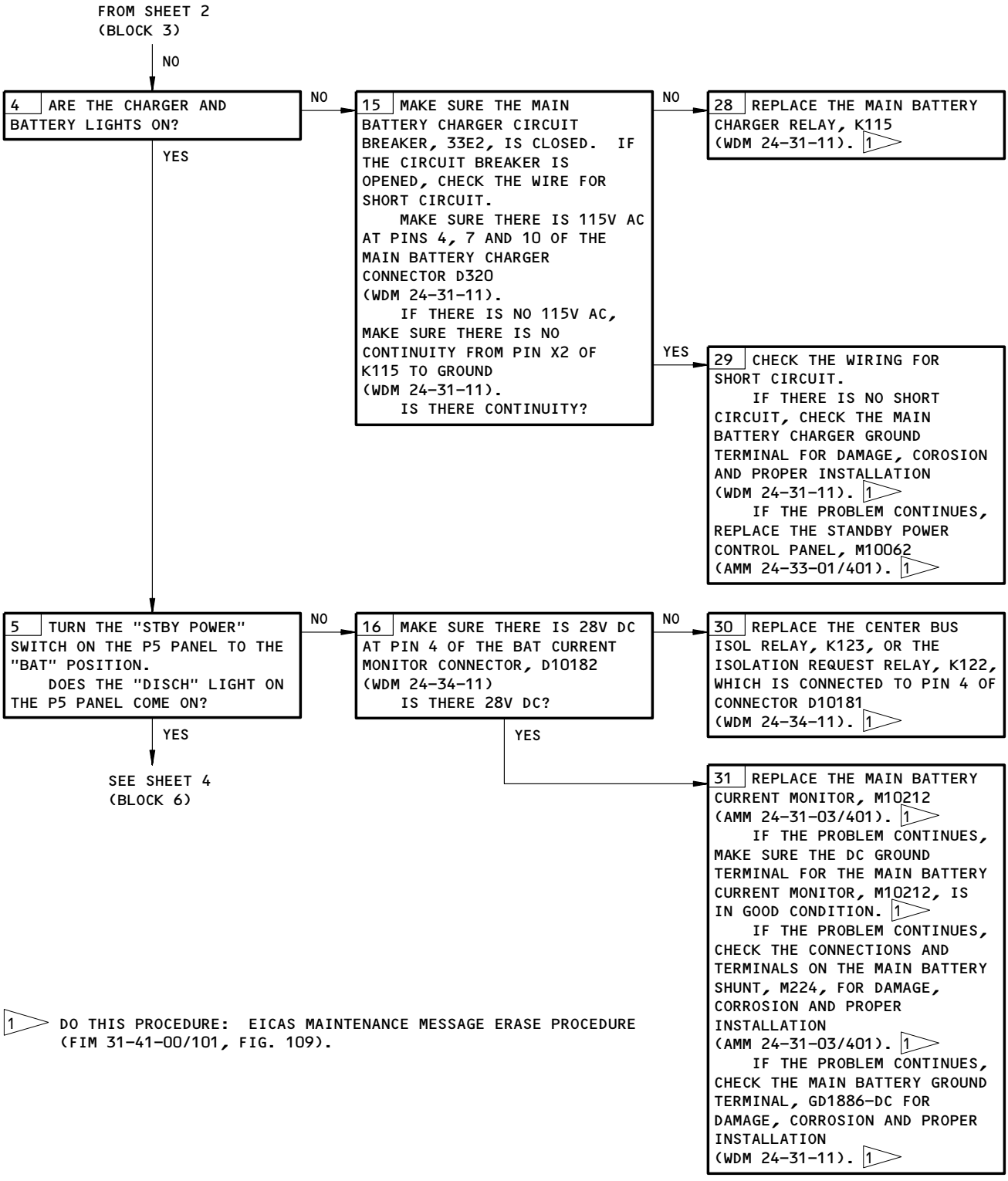
N64722



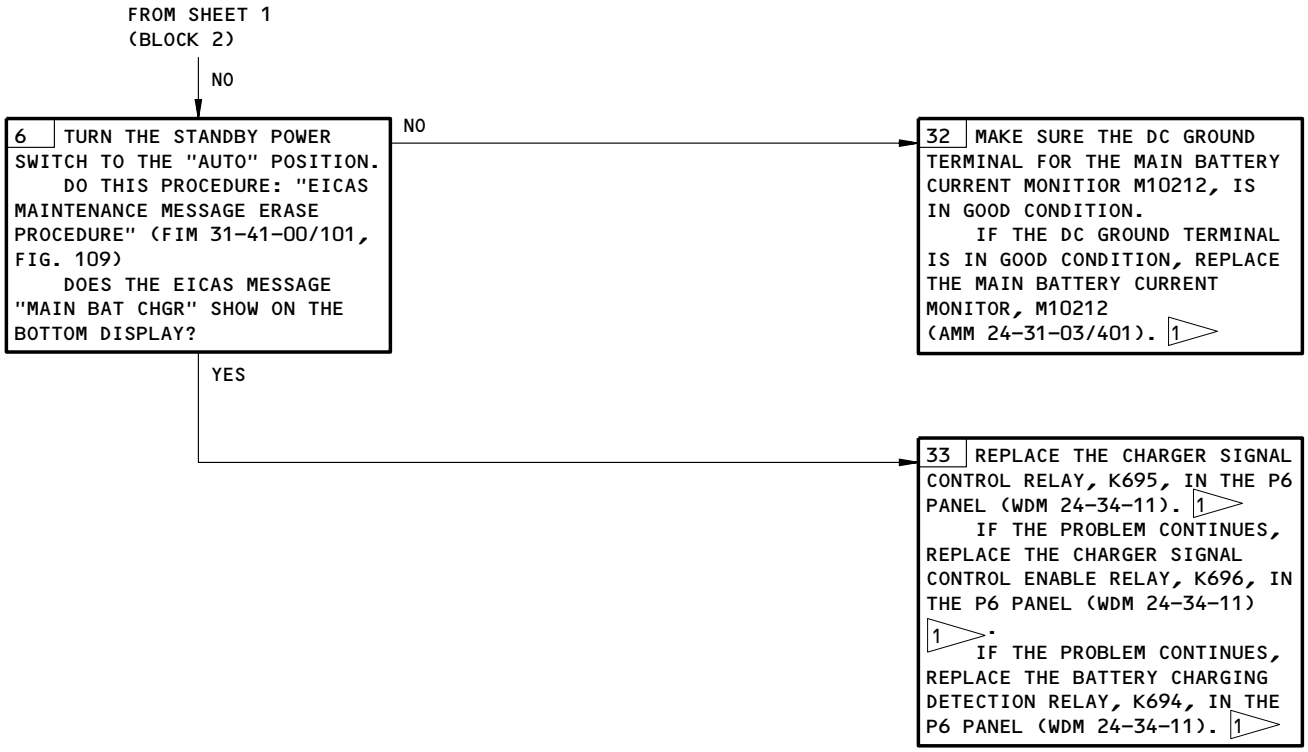
1 DO THIS PROCEDURE: EICAS MAINTENANCE MESSAGE ERASE PROCEDURE (FIM 31-41-00/101, FIG. 109).

EICAS Msg MAIN BAT CHGR Displayed
Figure 103A (Sheet 2)

N65159



EICAS Msg MAIN BAT CHGR Displayed
Figure 103A (Sheet 3)



1 DO THIS PROCEDURE: EICAS MAINTENANCE MESSAGE ERASE PROCEDURE (FIM 31-41-00/101, FIG. 109).

EICAS Msg MAIN BAT CHGR Displayed
Figure 103A (Sheet 4)

N65719

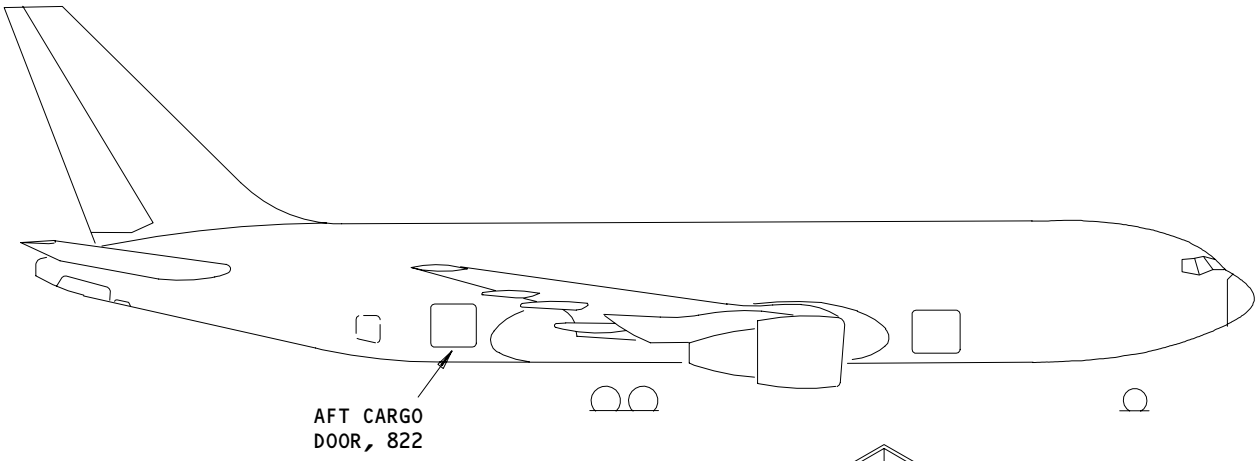
TRANSFORMER-RECTIFIER

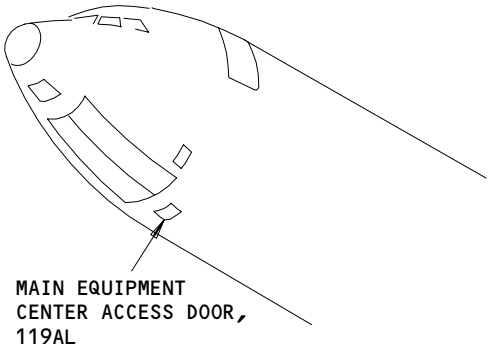
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKERS	--		FLT COMPT, P6	
BAT BUS PWR TRU, C886		1	6D12	*
C BUS PWR, C884		1	6C10	*
DC BUS TIE CONT, C879		1	6A6	*
INV PWR TRU, C885		1	6D11	*
L DC VOLT SENSE, C801		1	6C12	*
L TRU, C312		1	6C18	*
R DC VOLT SENSE, C802		1	6G11	*
R TRU, C318		1	6C24	*
SEC 1, C882		1	6D9	*
SEC 1, C891		1	6G9	*
SEC 2, C883		1	6D8	*
SEC 2, C890		1	6G8	*
TIE L, C881		1	6D10	*
TIE R, C889		1	6G10	*
CIRCUIT BREAKER	--		FLT COMPT, P11	
TRU APU START, C865 1		1	11T35	*
CIRCUIT BREAKER	--		822, AFT EQUIP CTR RACK E6	
APU START, C20 1		1		*
TRU FAN, C89 1		1		*
CIRCUIT BREAKER	--		119AL, MAIN EQUIP CTR, P32	
APU START TRU, C303 1		1		*
PANEL - (REF 24-22-00, FIG. 101)				
ELECTRICAL SYSTEM CONTROL, M10063				
RELAY - (REF 31-01-06, FIG. 101)				
CENTER BUS ISOL, K123				
DC TIE, K108				24-32-02
RELAY - (REF 31-01-49, FIG. 101) 1				
APU BAT/TRU SELECT, K617				
APU START, K197				
APU TRU ENABLE, K615				
TRU APU START, K618				24-32-05
TRU FAN CONT, K619				24-32-06
TRU OVHT, K616				
TRANSFORMER - (REF 24-23-00, FIG. 101)				
LEFT GENERATOR DIFFERENTIAL CURRENT PROTECTION, T106				
RIGHT GENERATOR DIFFERENTIAL CURRENT PROTECTION, T108,T107 1				
UNIT - TRANSFORMER RECTIFIER, T101,T102	--	2	119AL, MAIN EQUIP CTR, E3-2	24-32-01
UNIT - TRANSFORMER RECTIFIER APU START, T189 1	2	1	822, AFT EQUIP CTR RACK E6	24-32-04
UNIT - (REF 31-01-06, FIG. 101)				
DC TIE CONTROL, M10213				24-32-03

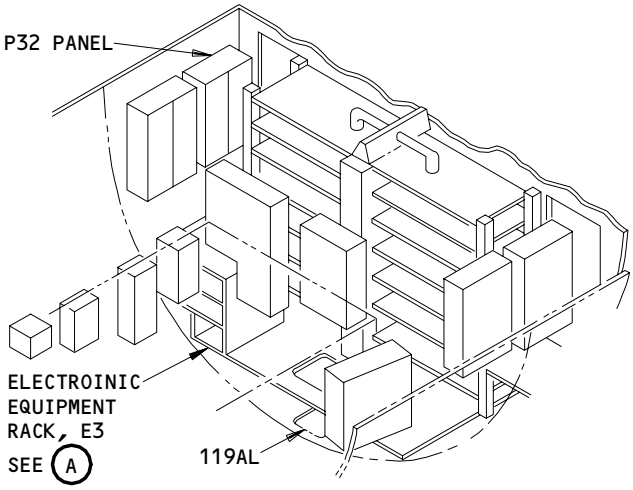
* SEE THE WDM EQUIPMENT LIST

1 ALL MTH AIRPLANES

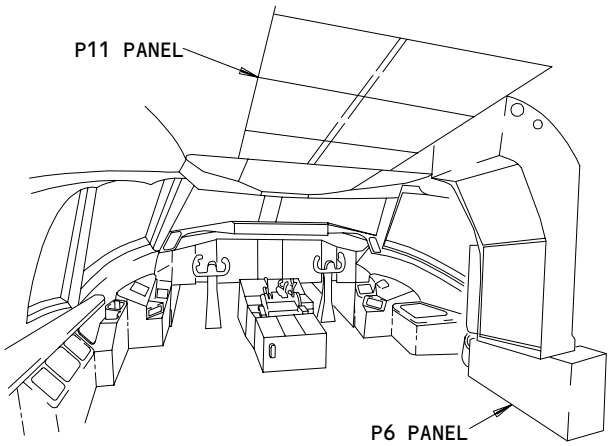
Transformer-Rectifier - Component Index
Figure 101



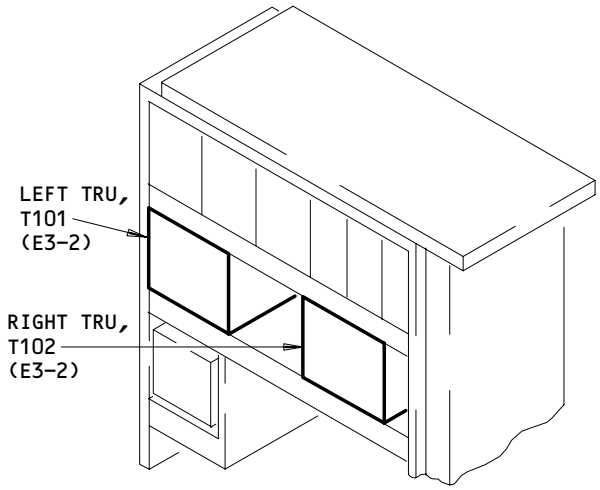




MAIN EQUIPMENT CENTER



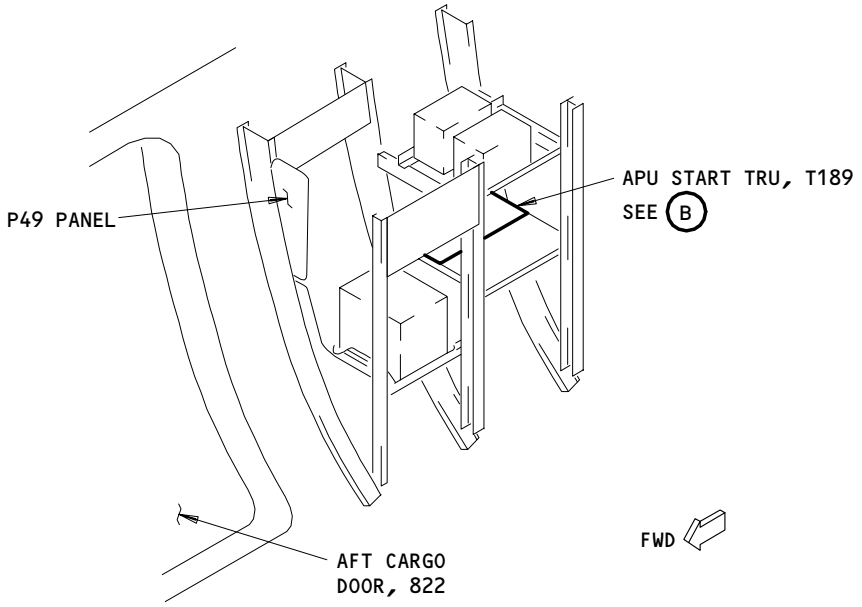
FLIGHT COMPARTMENT



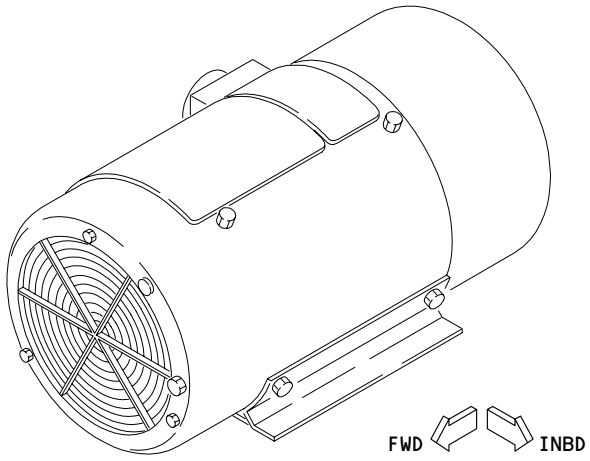
ELECTRONIC EQUIPMENT RACK, E3

(A)

Transformer-Rectifier - Component Location
Figure 102 (Sheet 1)



AFT EQUIPMENT CENTER RACK, E6



APU START TRU, T189

(B)

Transformer-Rectifier - Component Location
Figure 102 (Sheet 2)

EICAS MSG "T-R UNIT" DISPLAYED

PREREQUISITES

ELECTRICAL POWER (MM-24-22-00/201)
EICAS (MM 31-41-00/201)

CB'S: 6A6,6C12,6C18,6C24,6D10,6G10,6G11

1 PUSH THE TWO "BUS TIE" SWITCHES ON THE P5 PANEL TO THE "AUTO" POSITION.
OPEN THE "DC BUS TIE CONTROL" CIRCUIT BREAKER, 6A6, ON THE P6 PANEL FOR A MINIMUM OF 5 SECONDS.
CLOSE THE "DC BUS TIE CONTROL" CIRCUIT BREAKER, 6A6, ON THE P6 PANEL.
PUSH THE "ECS MSG" SWITCH ON THE EICAS MAINT PANEL ON THE RIGHT SIDE PANEL, P61.
DOES THE EICAS MESSAGE "T-R UNIT" SHOW ON THE BOTTOM DISPLAY?

YES → 10 OPEN THE "R TRU" CIRCUIT BREAKER, 6C24, ON THE P6 PANEL.
PUSH THE "ELEC HYD" SWITCH ON THE EICAS MAINT PANEL ON THE RIGHT SIDE PANEL, P61.
IS THE "DC-V" VALUE BELOW "L" ON THE BOTTOM EICAS DISPLAY LESS THAN 19 VOLTS?

YES → 20 CLOSE THE "R TRU" CIRCUIT BREAKER, 6C24, ON THE P6 PANEL.
REPLACE THE LEFT TRANSFORMER RECTIFIER UNIT, T101 (MM 24-32-01/401).
OPEN THE "DC BUS TIE CONT" CIRCUIT BREAKER, 6A6, ON THE P6 PANEL FOR A MINIMUM OF 5 SECONDS.
CLOSE THE "DC BUS TIE CONT" CIRCUIT BREAKER, 6A6, ON THE P6 PANEL.
PUSH THE "ECS MSG" SWITCH ON THE RIGHT SIDE PANEL, P61.
MAKE SURE THE EICAS MESSAGE "T-R UNIT" DOES NOT SHOW ON THE BOTTOM DISPLAY.

NO → 11 CLOSE THE "R TRU" CIRCUIT BREAKER, 6C24, ON THE P6 PANEL.
OPEN THE "L TRU" CIRCUIT BREAKER, 6C18, ON THE P6 PANEL.
IS THE "DC-V" VALUE BELOW "R" ON THE BOTTOM EICAS DISPLAY LESS THAN 19 VOLTS?

YES → 21 CLOSE THE "L TRU" CIRCUIT BREAKER, 6C18, ON THE P6 PANEL.
REPLACE THE RIGHT TRANSFORMER RECTIFIER UNIT, T102 (MM 24-32-01/401).
OPEN THE "DC BUS TIE CONT" CIRCUIT BREAKER, 6A6, ON THE P6 PANEL FOR A MINIMUM OF 5 SECONDS.
CLOSE THE "DC BUS TIE CONT" CIRCUIT BREAKER, 6A6, ON THE P6 PANEL.
PUSH THE "ECS MSG" SWITCH ON THE RIGHT SIDE PANEL, P61.
MAKE SURE THE EICAS MESSAGE "T-R UNIT" DOES NOT SHOW ON THE BOTTOM DISPLAY.

NO → SEE SHEET 2 (BLOCK 12)

NO → 2 THE SYSTEM IS OK.

EICAS Message T-R UNIT Displayed
Figure 103 (Sheet 1)

FROM SHEET 1
(BLOCK 11)

NO

12 CLOSE THE "L TRU" CIRCUIT BREAKER, 6C18, ON THE P6 PANEL.

OPEN THE "DC BUS TIE CONT" CIRCUIT BREAKER, 6A6, ON THE P6 PANEL.

PUSH THE "ECS MSG" SWITCH ON THE EICAS MAINT PANEL ON THE RIGHT SIDE PANEL, P61.

DOES THE EICAS MESSAGE "T-R UNIT" SHOW ON THE BOTTOM DISPLAY?

YES

22 CLOSE THE "DC BUS TIE CONT" CIRCUIT BREAKER, 6A6, ON THE P6 PANEL.

REPLACE THE DC TIE RELAY K108 (MM 24-32-02/401).

PUSH THE "ECS MSG" SWITCH ON THE EICAS MAINT PANEL ON THE RIGHT SIDE PANEL, P61.

MAKE SURE THE EICAS MESSAGE "T-R UNIT" DOES NOT SHOW ON THE BOTTOM DISPLAY.

NO

23 CLOSE THE "DC BUS TIE CONT" CIRCUIT BREAKER, 6A6, ON THE P6 PANEL.

PUSH THE "ECS MSG" SWITCH ON THE EICAS MAINT PANEL ON THE RIGHT SIDE PANEL, P61.

MAKE SURE THE EICAS MESSAGE "T-R UNIT" DOES NOT SHOW ON THE BOTTOM DISPLAY.

IF THE PROBLEM CONTINUES, EXAMINE AND REPAIR THE CIRCUIT AS FOLLOWS (WDM 24-32-11,24-34-11):

1) FROM THE "L DC VOLT SENSE" CIRCUIT BREAKER, 6C12, TO THE DC TIE CONTROL UNIT, M10213; CONNECTOR D10180, PIN 4 IN THE P6 PANEL.

2) FROM THE "R DC VOLT SENSE" CIRCUIT BREAKER, 6G11, TO THE DC TIE CONTROL UNIT, M10213; CONNECTOR D10180, PIN 6, IN THE P6 PANEL.

3) FROM PIN X2 ON THE DC TIE RELAY, L108, TO DC TIE CONTROL UNIT, M10213; CONNECTOR D10180, PIN 8 IN THE P6 PANEL.

4) FROM PIN 12 ON THE DC TIE RELAY, K108, TO LEFT EICAS COMPUTER, M10181; CONNECTOR D881E, PIN J14 AND THE RIGHT EICAS COMPUTER, M10182; CONNECTOR D883E, PIN J14.

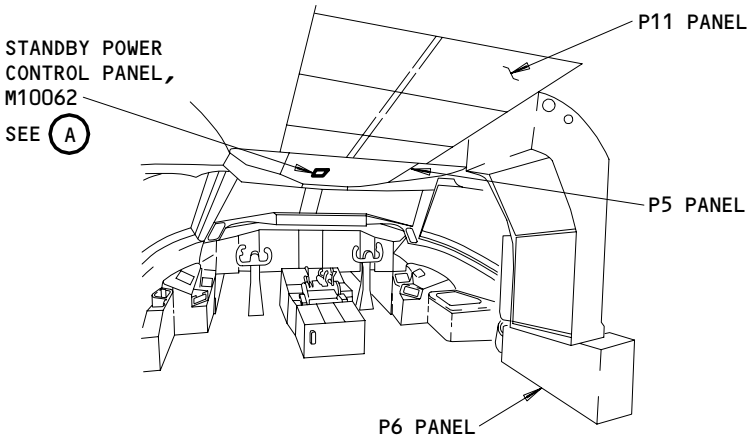
EICAS Message TR UNIT Displayed
Figure 103 (Sheet 2)

STANDBY POWER

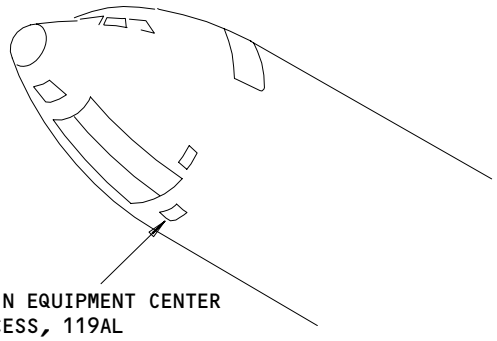
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKERS			FLIGHT COMPARTMENT, P6	
AC STBY BUS PWR, C874		1	6J17	*
BAT BUS CONT, C887		1	6C11	*
BAT BUS DISTR, C829		1	6A1	*
BAT BUS PWR, C898		1	6J11	*
BAT BUS PWR TRU, C886		1	6D12	*
BAT XFR CONT, C814		1	6D2	*
DC STBY, C872		1	6A2	*
INV PWR BAT, C813		1	6J12	*
INV PWR TRU, C885		1	6D11	*
INVERTER CENTER BUS AC, C875		1	6L15	*
INVERTER VOLT SENSE, C817		1	6L16	*
STBY PWR CONT, C828		1	6A5	*
STBY BUS OFF LT/BAT VM, C4217		1	6G6	*
CIRCUIT BREAKERS			FLIGHT COMPARTMENT, P11	
STANDBY BUS AC, C892		1	11D1	*
STANDBY BUS DC, C811		1	11D2	*
INVERTER - STATIC, M217		1	119AL, MAIN EQUIP CTR, E3-2	24-33-03
PANEL - STANDBY POWER CONTROL, M10062		1	FLIGHT COMPARTMENT, P5	24-33-04
RELAY - (FIM 31-01-06/101)				
AC STANDBY BUS OFF, K138				
AC STANDBY POWER, K105				24-33-01
CENTER BUS ISOL, K123				
DC STANDBY BUS OFF, K110				
MAIN BATTERY, K104				24-33-02
MAIN BATTERY TRANSFER, K106				24-33-02
STANDBY POWER, K109				24-33-01
UNDER VOLTAGE SENSE, K113				

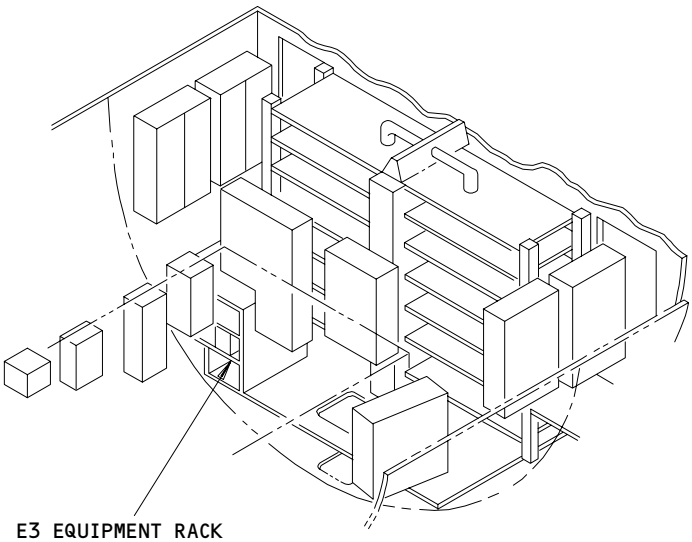
* SEE THE WDM EQUIPMENT LIST

Standby Power - Component Index
Figure 101

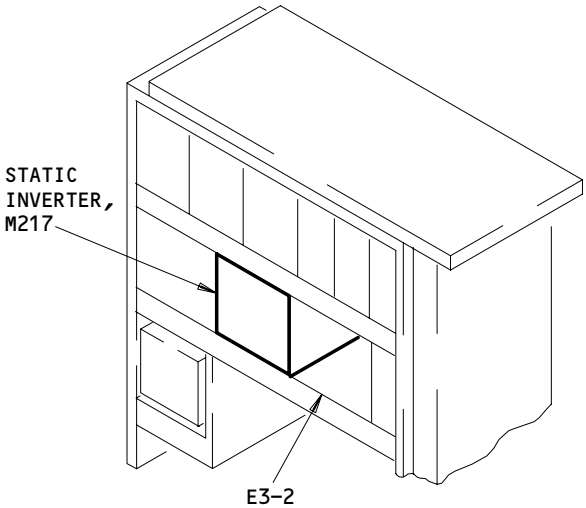


FLIGHT COMPARTMENT



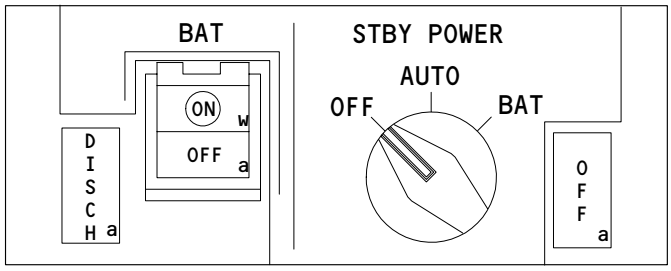


MAIN EQUIPMENT CENTER



E3 EQUIPMENT RACK

B



STANDBY POWER CONTROL PANEL, M10062

A

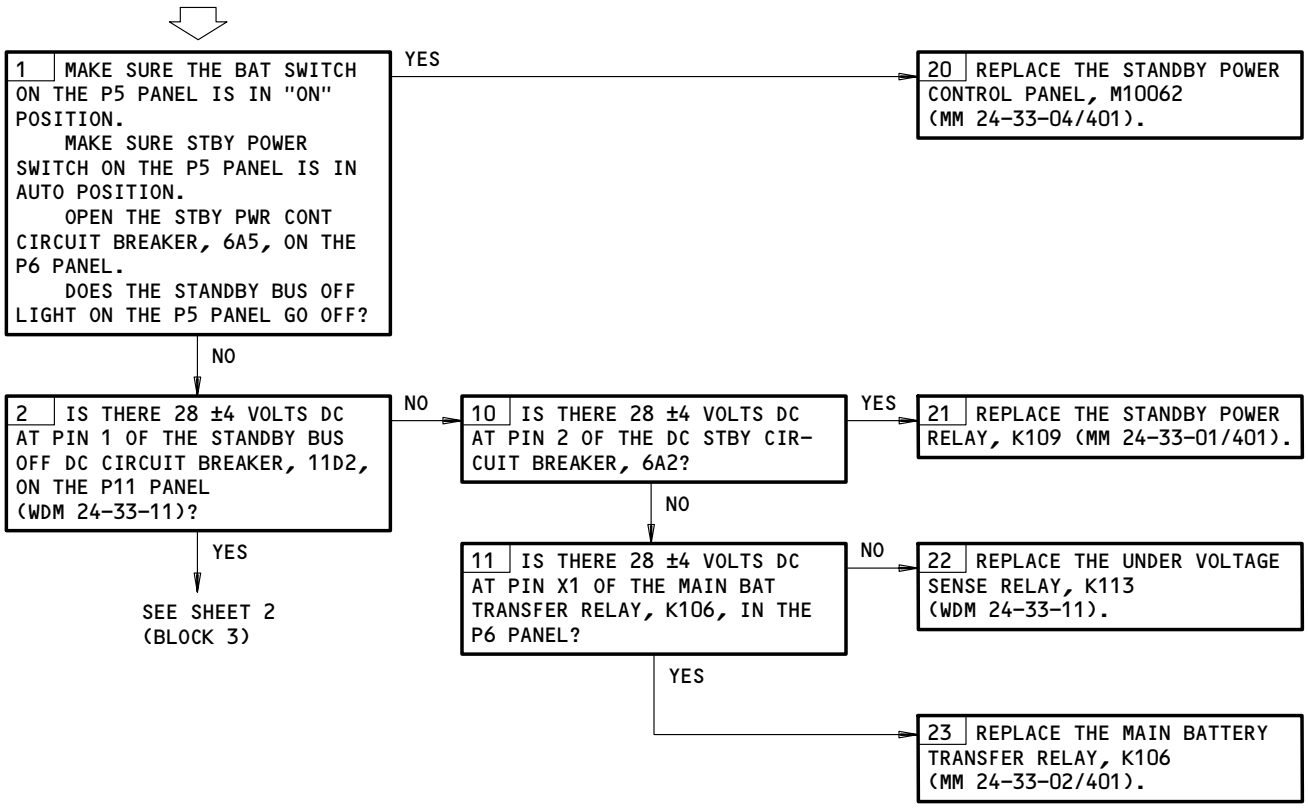
Standby Power - Component Location
Figure 102

STANDBY BUS "OFF" LIGHT ON, STBY POWER SWITCH IN "AUTO" POSITION

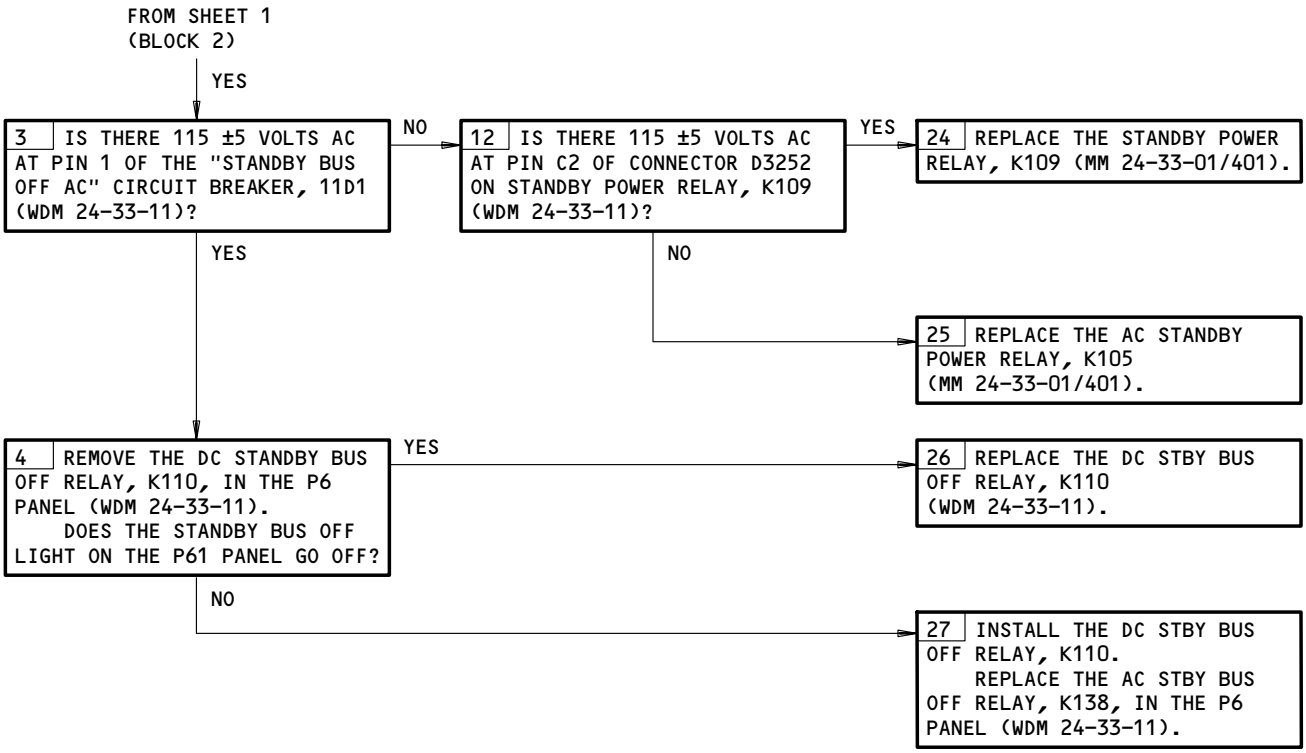
PREREQUISITES

ELECTRICAL POWER (MM 24-22-00/201)

CB'S: 6A1,6A2,6A5,6C11,6D2,6D12,6G6,6J9,6J10,6J11, 6J17,11D1,11D2,33E2



Standby Bus OFF Light On, Stby Power Switch in AUTO Position
Figure 103 (Sheet 1)



Standby Bus OFF Light On, Stby Power Switch in AUTO Position
Figure 103 (Sheet 2)

STANDBY BUS "OFF" LIGHT ON, STBY POWER SWITCH IN "BAT" POSITION

PREREQUISITES

ELECTRICAL POWER (MM 24-22-00/201)

CB'S: 6A1,6A2,6A5,6C11,6D2,6D11,6D12,6G6,6J9,6J10, 6J11,6J12,6J17,6L16,11D1,11D2,33E2

1 MAKE SURE THE BAT SWITCH ON THE P5 PANEL IS IN THE ON POSITION.
MAKE SURE THE STBY POWER SWITCH ON THE P5 PANEL IS IN THE BAT POSITION.
OPEN THE STBY PWR CONT CIRCUIT BREAKER, 6A5, ON THE P6 PANEL.
DOES THE STANDBY BUS OFF LIGHT ON THE P5 PANEL GO OFF?

YES → 20 REPLACE THE STANDBY POWER CONTROL PANEL, M10062 (MM 24-33-04/401).

NO

2 IS THERE 28 ±4 VOLTS DC AT PIN 1 OF THE STANDBY BUS OFF DC CIRCUIT BREAKER, 11D2, ON THE P5 PANEL (WDM 24-33-11)?

NO → 10 IS THERE 28 ±4 VOLTS DC AT PIN 2 OF THE DC STBY CIRCUIT BREAKER, 6A2, ON THE P6 PANEL (WDM 24-33-11).

YES → 21 REPLACE THE STANDBY POWER RELAY, K109 (MM 24-33-01/401).

NO

11 DO A CONTINUITY TEST BETWEEN PIN 14 ON THE MAIN BATTERY TRANSFER RELAY, K106, IN THE P6 PANEL AND GROUND (WDM 24-33-11).
IS THERE CONTINUITY TO GROUND?

NO → 22 REPLACE THE STANDBY POWER CONTROL PANEL, M10062 (MM 24-33-04/401).

YES

12 DO A CONTINUITY TEST BETWEEN PIN X2 ON THE MAIN RELAY, K104, IN THE P6 PANEL AND GROUND (WDM 24-33-11).
IS THE CONTINUITY TO GROUND?

NO → 23 REPLACE THE MAIN BATTERY TRANSFER RELAY, K106 (MM 24-33-02/401).

YES → 24 REPLACE THE MAIN BATTERY RELAY, K104 (MM 24-33-02/401).

YES

3 IS THERE 115 ±5 VOLTS AC AT PIN 1 OF THE "STANDBY BUS OFF AC" CIRCUIT BREAKER, 11D1, ON THE P11 PANEL (WDM 24-33-11)?

NO → 13 IS THERE 115 ±5 VOLTS AC AT PIN C2 OF CONNECTOR D3252 ON THE STANDBY POWER RELAY, K109 (WDM 24-33-11).

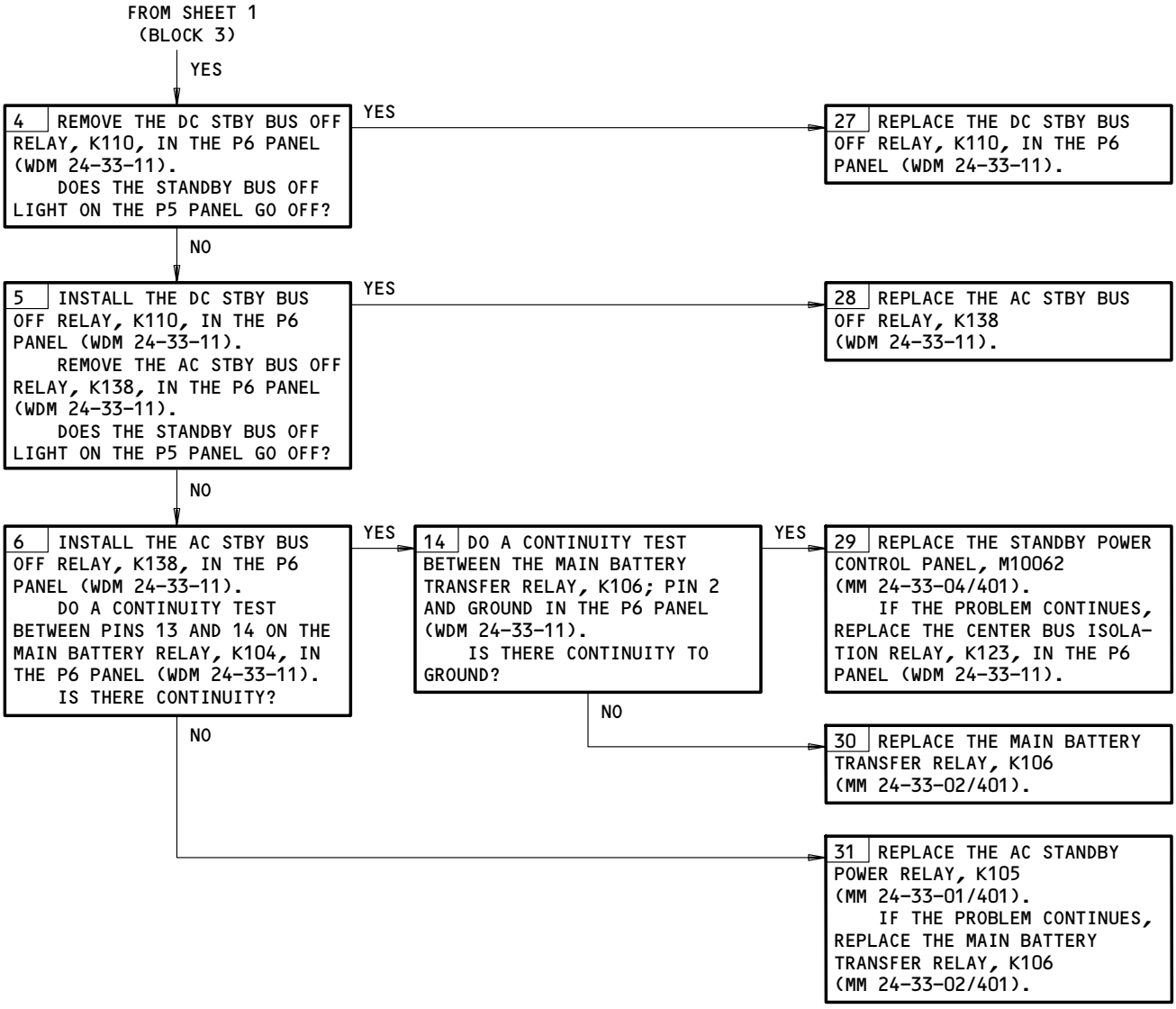
YES → 25 REPLACE THE STANDBY POWER RELAY, K109 (MM 24-33-01/401).

NO → 26 REPLACE THE AC STANDBY POWER RELAY, K105 (MM 24-33-01/401).

YES

SEE SHEET 2 (BLOCK 4)

Standby Bus OFF Light On, Stby Power Switch in BAT Position
Figure 104 (Sheet 1)



Standby Bus OFF Light On, Stby Power Switch in BAT Position
Figure 104 (Sheet 2)

STBY PWR SWITCH IN BAT POS, EICAS MSG "STBY INVERTER" DISPLAYED

PREREQUISITES
CB'S: 6D2,6J11,6J12

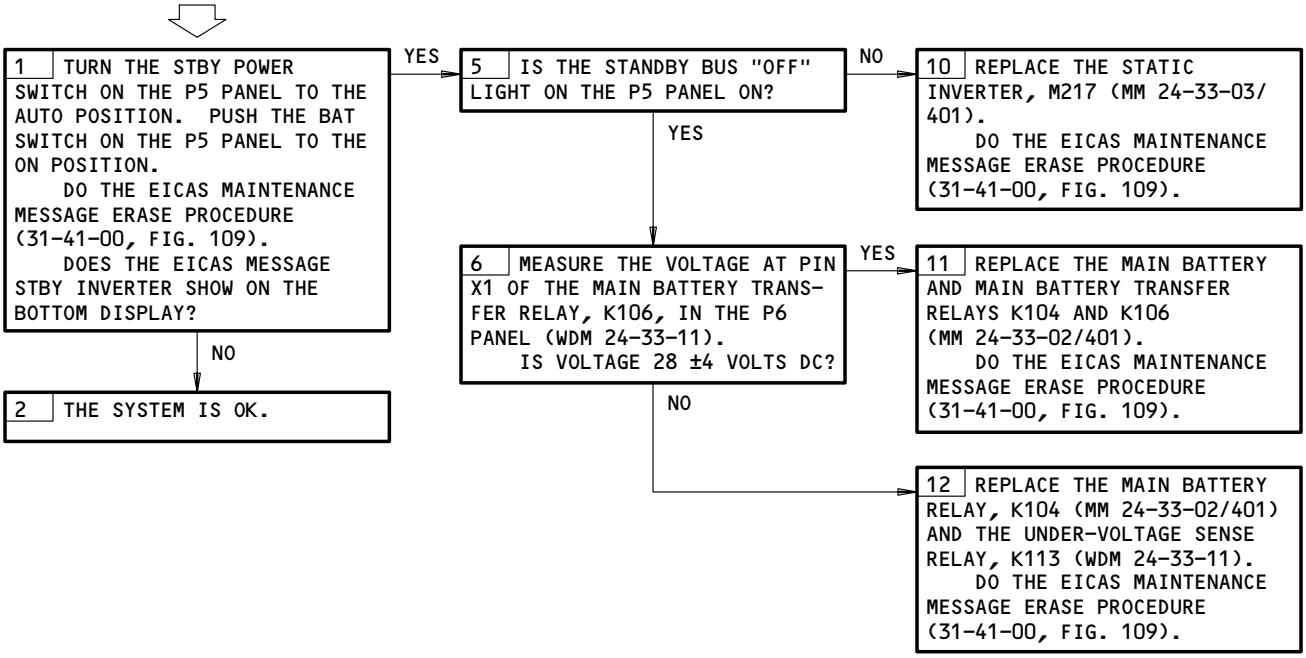
Stby Pwr Sw in BAT, STBY INVERTER Msg on EICAS
Figure 105

PREREQUISITES

ELECTRICAL POWER (MM 24-22-00/201)
EICAS (MM 31-41-00/201)

CB'S: 6A6,6C11,6C12,6C18,6C24,6D2,6D10,6D11,6D12, 6G10,6G11,6L16

EICAS MSG "STBY INVERTER" DISPLAYED



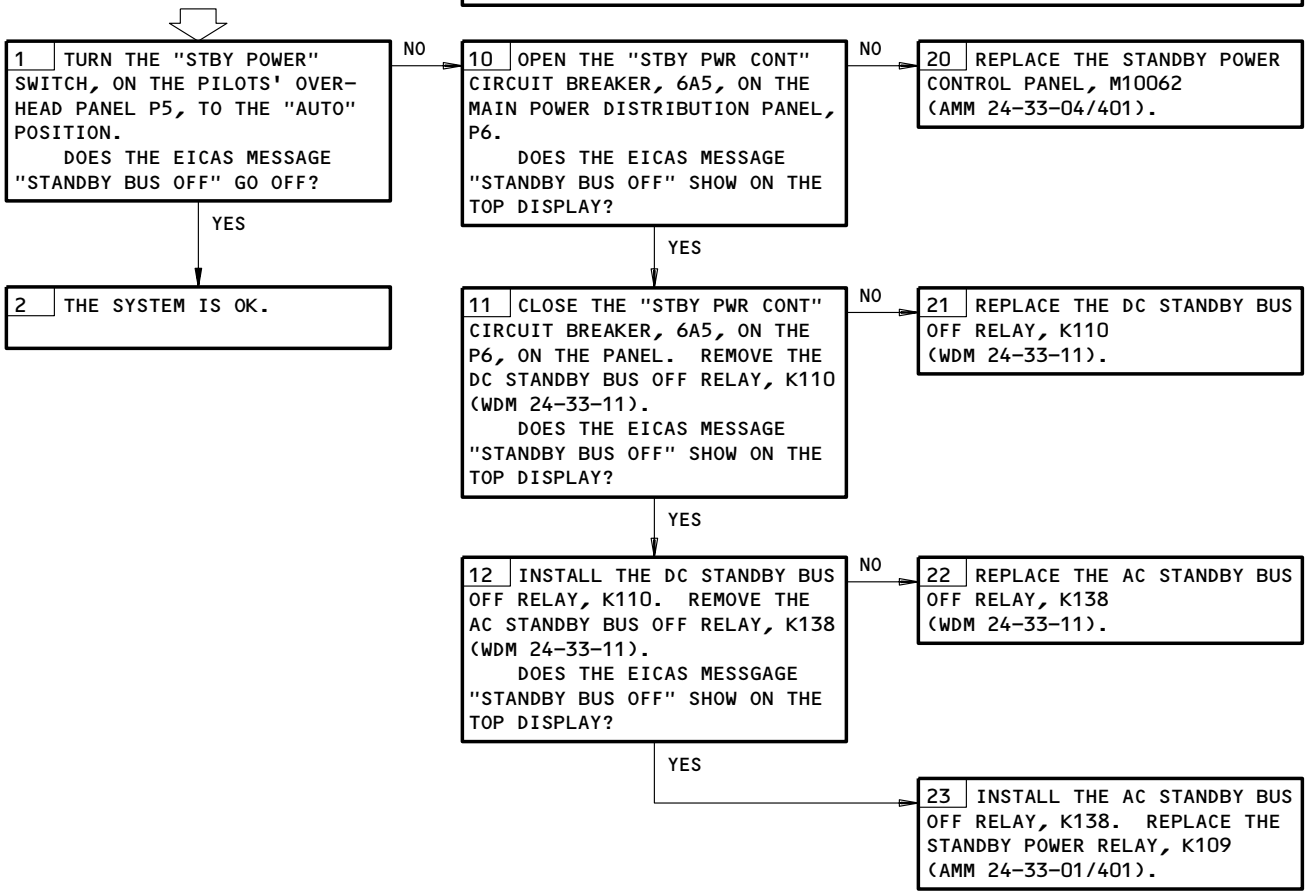
EICAS Msg STBY INVERTER Displayed
Figure 106

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A1,6A2,6A5,6C11,6D2,6D12,6G6,6J9,6J10,6J11,6J17,
11D1,11D2,33E2

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

EICAS MESSAGE "STANDBY BUS OFF" SHOWS



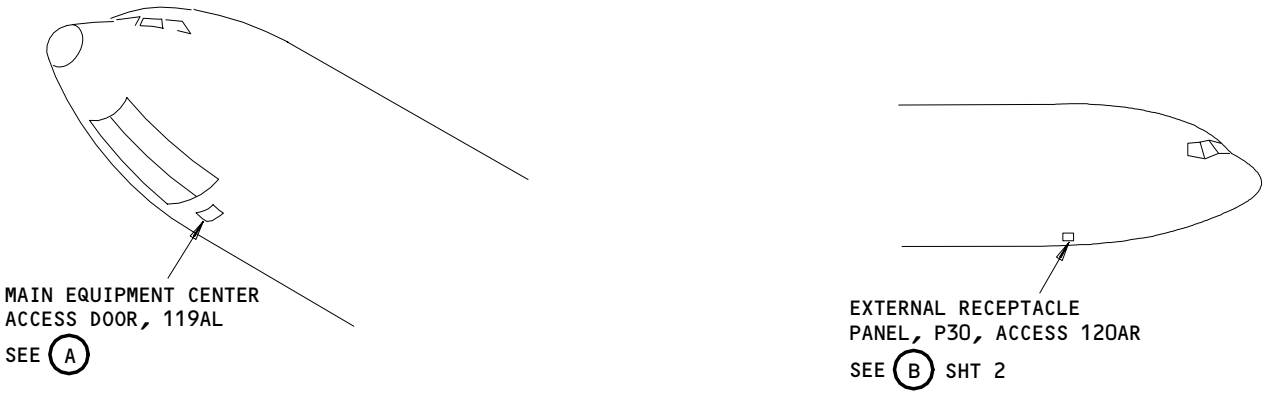
Eicas Message "STANDBY BUS OFF" Shows
Figure 107

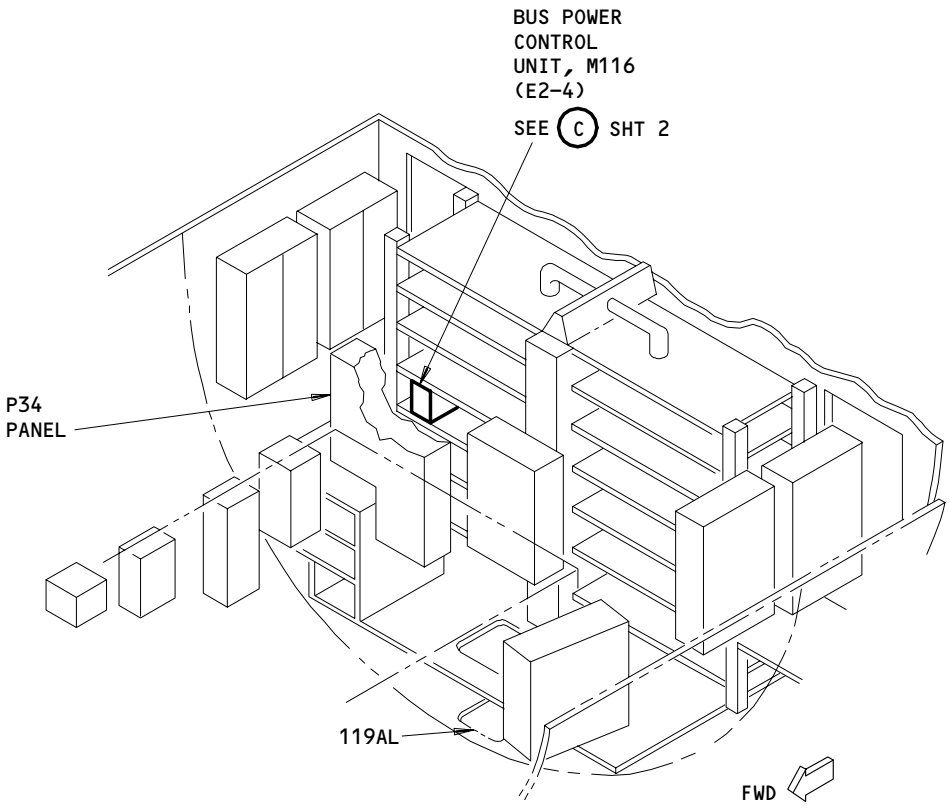
EXTERNAL POWER

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
BREAKER - (REF 31-01-34, FIG. 101)				
AUXILIARY POWER, C905				
CIRCUIT BREAKERS			FLT COMPT, P6	
BUS PWR CONT UNIT, C809		1	6B4	*
BUS TIE ENABLE, C800		1	6C4	*
CIRCUIT BREAKER			FLT COMPT, P11	
MISC BPCU SEC, C803		1	11T32	*
CIRCUIT BREAKER			119AL, MAIN EQUIP CTR, P34	
EXT PWR BPCU, C320		1	34M6	*
CONTACTOR - (REF 31-01-34, FIG. 101)				24-41-01
EXTERNAL POWER, K114				
LIGHT - CONNECTED, L82	2	1	120AR, P30	*
LIGHT - EXTERNAL POWER HOT BUS, L81		1	119AL, P34	*
LIGHT - NOT IN USE, L83	2	1	120AR, P30	*
PANEL - (REF 24-22-00, FIG. 101)				
ELECTRICAL SYSTEM CONTROL, M10063				
RECEPTACLE - EXTERNAL POWER, D372	2	1	120AR, P30	24-41-02
RELAY - (REF 31-01-32, FIG. 101)				
GROUND SERVICE TRANSFER, K102				
TRANSFORMER - (REF 24-23-00, FIG. 101)				
DIFFERENTIAL PROTECTION CURRENT EXT PWR				
TIE BUS, T116				
TRANSFORMER - (REF 31-01-34, FIG. 101)				
GROUND POWER CURRENT, T122				
UNIT, BUS POWER CONTROL, M116	2	1	119AL, MAIN EQUIP CTR, E2-4	24-41-03
UNIT - (REF 24-22-00, FIG. 101)				
APU GENERATOR CONTROL, M143				

* SEE THE WDM EQUIPMENT LIST

External Power - Component Index
Figure 101

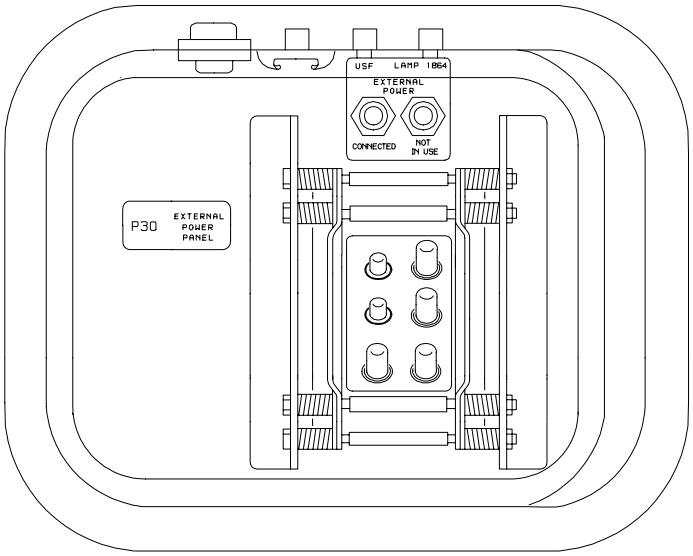




MAIN EQUIPMENT CENTER

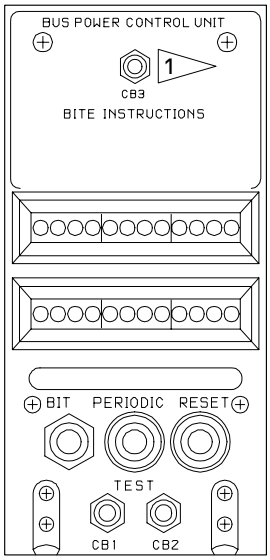
(A)

External Power - Component Location
Figure 102 (Sheet 1)



EXTERNAL RECEPTACLE PANEL, P30

B



BUS POWER CONTROL UNIT, M116

C

1 AIRPLANES WITH S281T001-40 TO S281T001-99 BPCU

External Power - Component Location (Details from Sht 1)
Figure 102 (Sheet 2)

EXT PWR "ON" LGT REMAINS EXTIN WHEN PRESSED WITH "AVAIL" LGT ILLUM AND NO AC POWER ON AIRPLANE

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6B4,6C4,11T32,34M6, ALL CIRCUIT BREAKERS ON BPCU

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)

1 PUSH THE "BAT" SWITCH ON THE PILOTS' OVERHEAD PANEL P5, TO THE "ON" POSITION.
PUSH THE "EXT PWR" SWITCH ON THE P5 PANEL TO THE "ON" POSITION.
DOES THE "ON" LIGHT COME ON?

NO → 21 DO THIS PROCEDURE: BPCU BITE PROCEDURE (FIM 24-20-00/101, FIG. 101).

YES → 11 REMOVE THE WIRE AT THE X2 TERMINAL OF THE GROUND HANDLING RELAY, K101 (WDM 24-51-61).
IS THERE CONTINUITY TO GROUND THROUGH THIS WIRE?

NO → 22 EXAMINE THE CIRCUIT FROM THE X2 TERMINAL TO GROUND (WDM 24-51-61).
REPAIR THE PROBLEMS THAT YOU FIND.
CONNECT THE WIRE TO THE X2 TERMINAL.

YES → 12 CONNECT THE WIRE TO THE X2 TERMINAL ON THE GROUND HANDLING RELAY, K101 (WDM 24-51-61).
REMOVE THE WIRE FROM THE X1 TERMINAL OF THE RELAY.
IS THERE 28V DC AT THIS WIRE?

NO → 23 CONNECT THE WIRE TO THE X1 TERMINAL ON THE GROUND HANDLING RELAY, K101 (WDM 24-51-61).
REPLACE THE BUS POWER CONTROL UNIT, M116 (AMM 24-41-03/401).

YES → 24 REPLACE THE GROUND HANDLING RELAY, K101 (AMM 24-51-01/401).

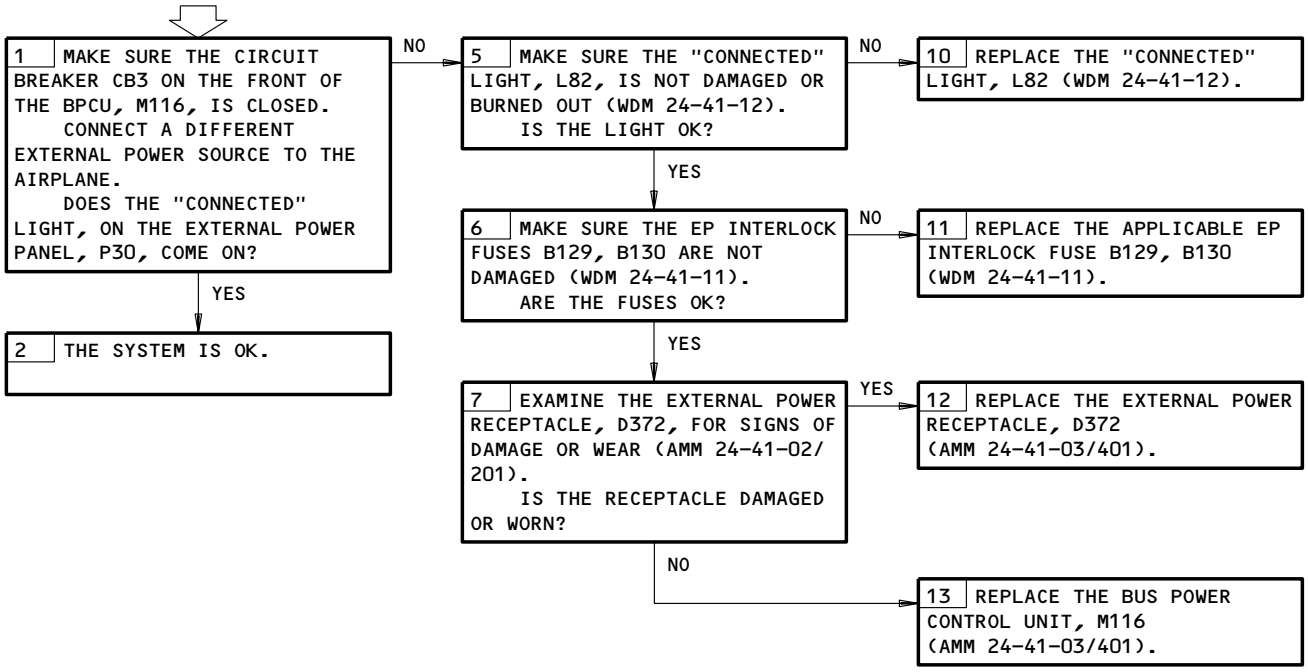
Ext Pwr ON Lgt Remains Extin When Pressed with AVAIL Lgt Illum and No AC Power on Airplane
Figure 103

EXTERNAL POWER "AVAIL" OR "CONNECTED" LGT EXTIN WITH EXTERNAL POWER CONNECTED TO RECEPTACLE

PREREQUISITES

MAKE SURE THIS CIRCUIT BREAKER IS CLOSED:
34M6

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
POWER TO THE GROUND HANDLING BUS (AMM 24-22-00/201)



External Power AVAIL or CONNECTED Lgt Extin with
External Power Connected to Receptacle
Figure 104

"BUS OFF" LGT ON WITH "EXT PWR" SWITCH ON, "BAT" SWITCH ON, "BUS TIE" SWITCHES IN "AUTO"

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6A1,6B1,6B2,6B4,6D2,6J11,34M6

MAKE SURE THE AIRPLANE IS IN THE CONFIGURATION THAT FOLLOWS:
ELECTRICAL POWER IS ON (MM 24-22-00/201)

1 DO THESE STEPS ON THE PILOTS' OVERHEAD PANEL, P5:

PUSH THE "BAT" SWITCH TO THE "ON" POSITION.
PUSH THE TWO "BUS TIE" SWITCHES TO THE "AUTO" POSITION.
PUSH THE "EXT PWR" SWITCH TO THE "ON" POSITION.

ARE THE TWO "BUS OFF" LIGHTS, ON THE P5 PANEL, ON?

NO → 10 DO THE "BPCU BITE PROCEDURE" (24-20-00, FIG. 101, BLOCK 1).

YES ↓

2 REMOVE BATTERY CONNECTOR, D366, FROM THE MAIN BATTERY (WDM 24-31-11).
IS THERE 4V DC POWER OR LESS FROM THE "+" TO THE "-" TERMINALS ON THE MAIN BATTERY?

YES → 11 REPLACE THE MAIN BATTERY, M223 (MM 24-31-01/401).

NO → 12 INSTALL THE BATTERY CONNECTOR, D366, ON THE MAIN BATTERY (WDM 24-31-11).
DO THE "BPCU BITE PROCEDURE" (24-20-00, FIG. 101, BLOCK 1).

BUS OFF Lgt on with EXT PWR Switch on, BAT Switch on, BUS TIE Switches in AUTO
Figure 105

115 VOLT AC POWER DISTRIBUTION

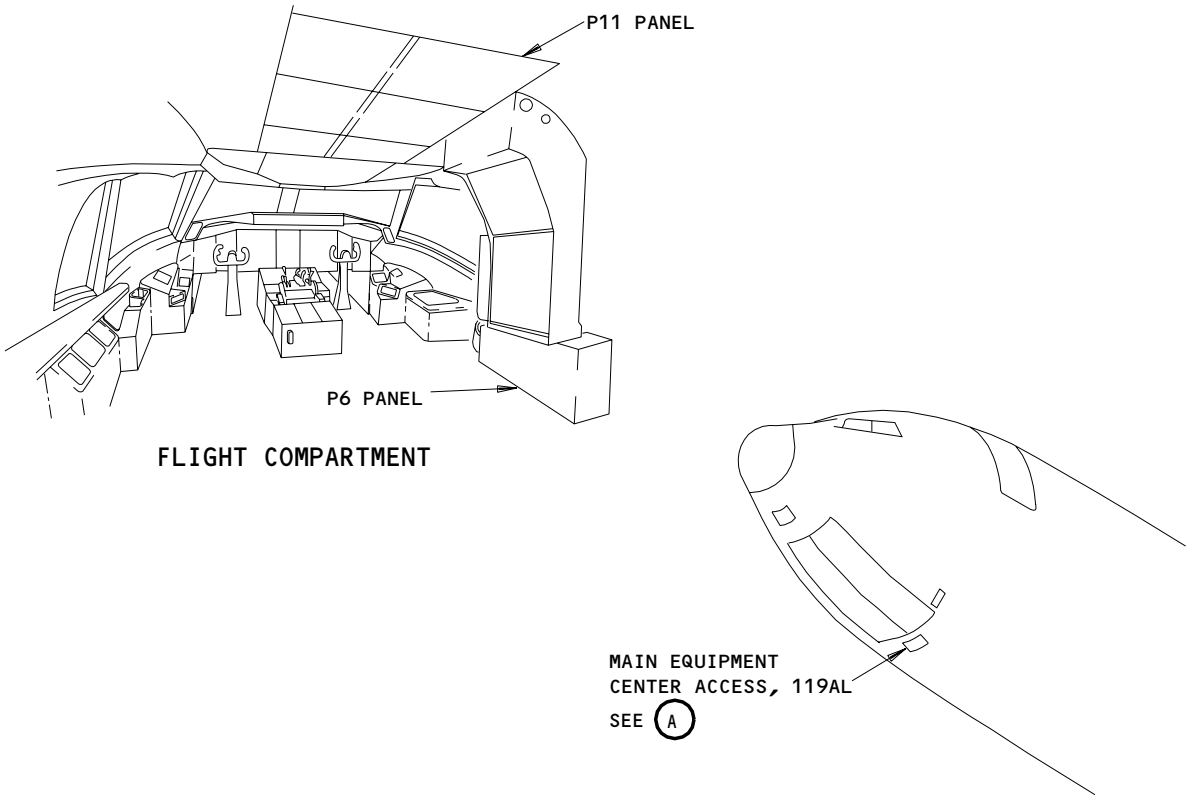
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
CIRCUIT BREAKERS	--		FLT COMPT, P6	
CAPT PRIM INSTR BUS - ϕA, C4264		1	6J14	*
CAPT PRIM INSTR BUS - ϕB, C4265		1	6J15	*
CAPT PRIM INSTR BUS - ϕC, C4266		1	6J16	*
CENTER BUS DC, C899		1	6J13	*
CENTER BUS AC INVERTER, C875		1	6L15	*
CENTER BUS AC, C876		1	6J18	*
F/O PRIM INSTR BUS - ϕA, C4267		1	6L20	*
F/O PRIM INSTR BUS - ϕB, C4268		1	6L21	*
F/O PRIM INSTR BUS - ϕC, C4269		1	6L22	*
115V AC BUS L SEC 1, C313		1	6C15	*
115V AC BUS L SEC 2, C308		1	6A18	*
115V AC BUS L SEC 3, C328		1	6A15	*
115V AC BUS R SEC 1, C319		1	6C21	*
115V AC BUS R SEC 2, C307		1	6A24	*
115V AC BUS R SEC 3, C329		1	6A21	*
CIRCUIT BREAKERS	--		FLT COMPT, P11	
CAT III BUS ISOL BAT, C826		1	11D6	*
CAT III BUS ISOL L, C824		1	11T3	*
CAT III BUS ISOL R, C825		1	11T30	*
UTILITY BUS L, C822		1	11T4	*
UTILITY BUS R, C823		1	11T31	*
CIRCUIT BREAKERS	--		119AL, MAIN EQUIP CTR, P31	
UTIL BUS-L, C311		1	119AL, MAIN EQUIP CTR, P31	*
115V AC BUS L SECT 4, C310		1	119AL, MAIN EQUIP CTR, P31	*
CIRCUIT BREAKERS	--		119AL, MAIN EQUIP CTR, P32	
R GEN GND SVCE BUS, C316		1	119AL, MAIN EQUIP CTR, P32	*
UTIL BUS RIGHT, C315		1	119AL, MAIN EQUIP CTR, P32	*
115V AC BUS R SECT 4, C317		1	119AL, MAIN EQUIP CTR, P32	*
CIRCUIT BREAKERS	--		119AL, MAIN EQUIP CTR, P33	
GND SVCE BUS DISTR P-6, C321		1	33B7	*
GND SERVICE XFMR, C871		1	33D2	*
CIRCUIT BREAKERS	--		119AL, MAIN EQUIP CTR, P34	
APU PWR GND HDLG BUS ϕC, C836		1	34B14	*
APU PWR GND SVCE BUS, C322		1	34B16	*
GND HDLG BUS-EXT PWR ϕC, C833		1	34D11	*
GND SVCE BUS-EXT PWR, C306		1	34C10	*
115V AC GND HDLG BUS, C309		1	34B19	*

* SEE THE WDM EQUIPMENT LIST

115 Volt AC Power Distribution - Component Index
Figure 101 (Sheet 1)

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
RELAY - (REF 31-01-06, FIG. 101)				
CENTER BUS ISOLATION, K123				
CENTER BUS TRANSFER, K107				
ISOLATION REQUEST, K122				
RELAY - (REF 31-01-31, FIG. 101)				
LEFT UTILITY BUS, K119				24-51-05
RELAY - (REF 31-01-32, FIG. 101)				
GROUND SERVICE TRANSFER, K102				24-51-03
RIGHT UTILITY BUS, K120				24-51-05
RELAY - (REF 31-01-33, FIG. 101)				
LOAD SHED, K622				
RELAY - (REF 31-01-34, FIG. 101)				
GROUND HANDLING, K101				24-51-01
GROUND SERVICE SELECT, K103				24-51-01
RELAY - (REF 31-01-36, FIG. 101)				
GALLEY GROUND LOAD SHED, K10136				
GALLEY GROUND LOAD SHED CONT, K10391				
UTILITY/GALLEY PWR FLT RESET, K10109				
MODULE - (REF 31-01-06, FIG. 101)				
CENTER BUS TIME DELAY, M540				
MODULE - (REF 31-01-33, FIG. 101)				
LOAD SHED TIME DELAY, M1084				
UNIT - (REF 31-01-06, FIG. 101)				
INSTRUMENT BUS VOLTAGE SENSING, M1079				
F/O INSTRUMENT BUS VOLTAGE SENSING, M1217				

115 Volt AC Power Distribution - Component Index
Figure 101 (Sheet 2)



115 Volt AC Power Distribution – Component Location
Figure 102

UTILITY BUS FAILS TO AUTOMATICALLY RESET AFTER ENG START WITH APU

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6B4,11T2,11T3,11T4,11T31

MAKE SURE THE AIRPLANE IS IN THE CONFIGURATION THAT FOLLOWS:
ELECTRICAL POWER IS ON (MM 24-22-00/201)

1 DO THESE STEPS AT THE PILOTS' OVERHEAD PANEL P5:

TURN THE LEFT (RIGHT) ENGINE IGNITION AND START CONTROL SWITCH TO THE "GND" POSITION.
PUSH THE "L (R) GEN CONT" SWITCH TO THE "ON" POSITION.
PUSH THE "APU GEN" SWITCH TO THE "ON" POSITION.
PUSH THE APU BLEED AIR SWITCH TO THE OPEN POSITION.

START THE APU (MM 49-11-00/201).
IS THERE 28V DC AT TERMINAL BLOCK TB176, PIN G1 ON THE E2-4 SHELF IN THE MAIN EQUIPMENT CENTER (WDM 24-51-71)?

YES → 21 REPLACE THE ELECTRICAL SYSTEM CONTROL PANEL, M10063 (MM 24-22-01/401).
IF THE PROBLEM CONTINUES, REPLACE THE LEFT (RIGHT) GENERATOR POWER BREAKER C901 (C903) (MM 24-22-03/401).

NO

2 IS THERE 28V DC AT TERMINAL BLOCK TB22, PIN YC8 IN THE MAIN POWER DISTRIBUTION PANEL, P6 (WDM 24-51-71)?

YES → 22 REPLACE THE APU AIR SUPPLY VALVE CONTROL RELAY, K23 IN THE AUXILIARY POWER PANEL, P49 (WDM 24-51-71).
IF THE PROBLEM CONTINUES, REPLACE THE AUXILIARY POWER BREAKER, C905 (MM 24-22-03/401).

NO → 23 REPLACE THE LEFT (RIGHT) ENGINE START RELAY K10247 (K10250) IN THE MAIN POWER DISTRIBUTION PANEL, P6 (WDM 24-51-71).

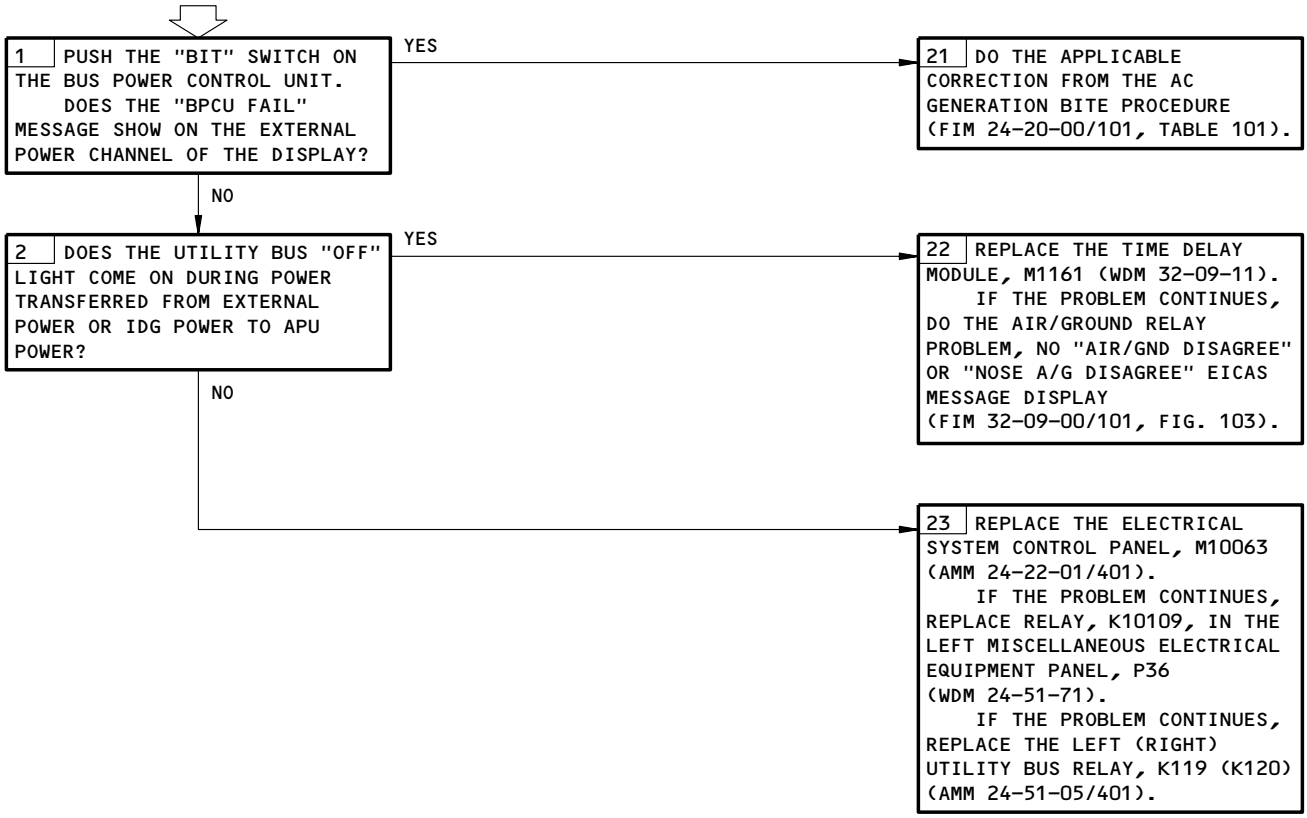
Utility Bus Fails to Automatically Reset After Eng Start with APU
Figure 103

UTILITY BUS "OFF" LT ON (ON GND OR INFLT WITH 2 GEN. OPERATION)

PREREQUISITES

MAKE SURE THIS CIRCUIT BREAKER IS CLOSED:
6B4

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL POWER IS ON (AMM 24-22-00/201)



Utility Bus OFF Lt On (on Gnd or Inflt with 2 Gen. Operation)
Figure 104

UTILITY BUS "OFF" LT REMAINED ILLUM AFTER ENGINE START USING APU

PREREQUISITES

MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION:
ELECTRICAL GENERATORS ON THE ENGINES ARE OFF

1 REMOVE THE LEFT (RIGHT) UTILITY BUS RELAY, K119 (K120) (AMM 24-52-05/401). SUPPLY 28V DC BETWEEN PINS X1 AND X2 ON THE RELAY.
IS THERE CONTINUITY BETWEEN PINS 13 AND 14 ON THE RELAY?

YES → 20 REPLACE THE LEFT (RIGHT) UTILITY BUS RELAY, K119 (K120) (AMM 24-51-05/401).

NO → 21 INSTALL THE LEFT (RIGHT) UTILITY BUS RELAY, K119 (K120) (AMM 24-51-05/401).
REPLACE THE ELECTRICAL SYSTEM CONTROL PANEL, M10063 (AMM 24-22-01/401).
IF THE PROBLEM CONTINUES, DO THIS PROCEDURE: "UTILITY BUS FAILS TO AUTOMATICALLY RESET AFTER ENG START WITH APU" (FIM 24-51-00/101, FIG. 103).

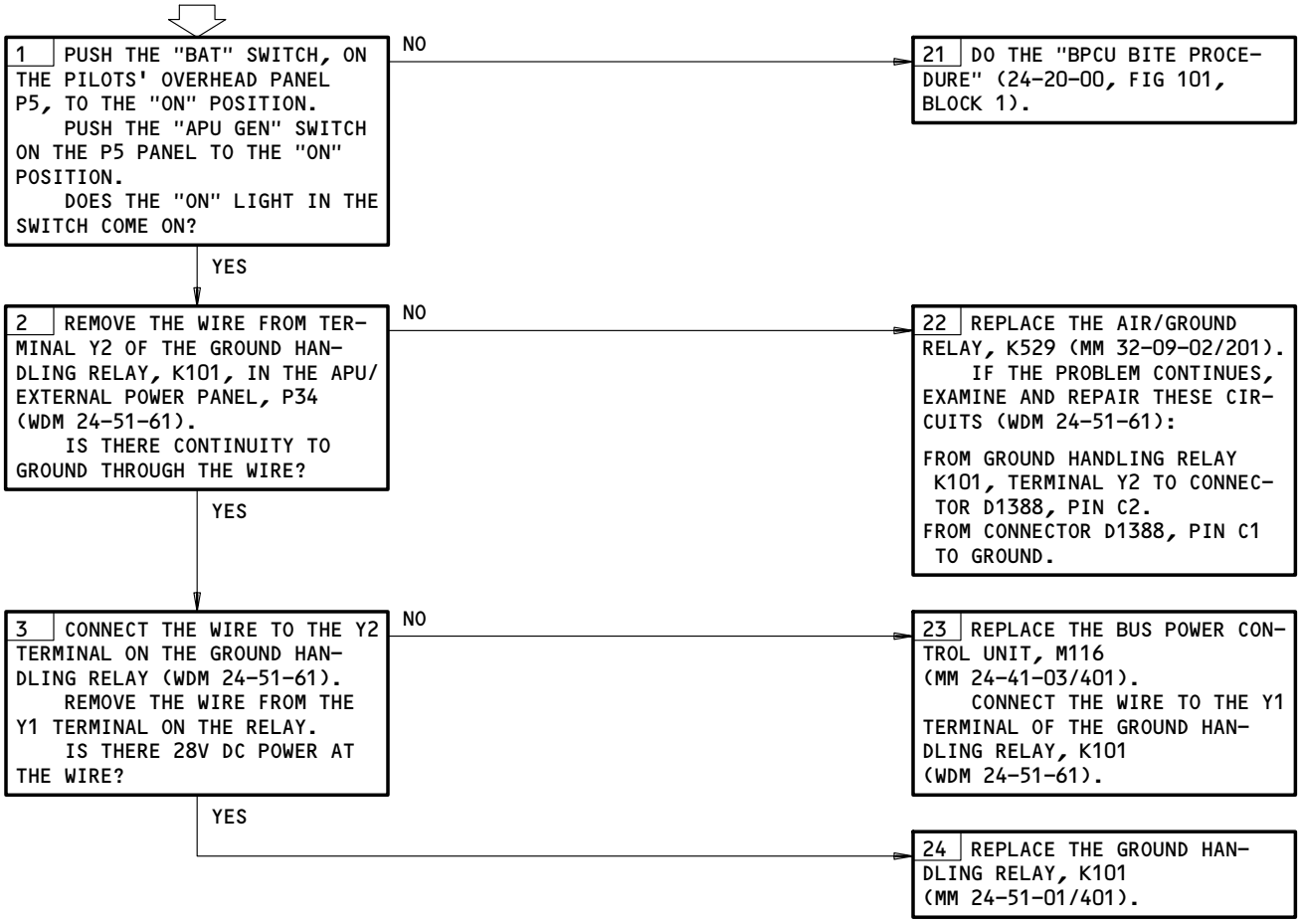
Utility Bus OFF Lt Remained Illum After Engine Start Using APU
Figure 105

PREREQUISITES

MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED:
6B3,6B4,34A2,34A5,34A8,34B1,34B2,34B3

MAKE SURE THE AIRPLANE IS IN THE CONFIGURATION THAT FOLLOWS:
ELECTRICAL POWER IS ON (MM 24-22-00/201)
APU IS ON (MM 49-11-00/201)

APU WON'T POWER GROUND HANDLING BUS



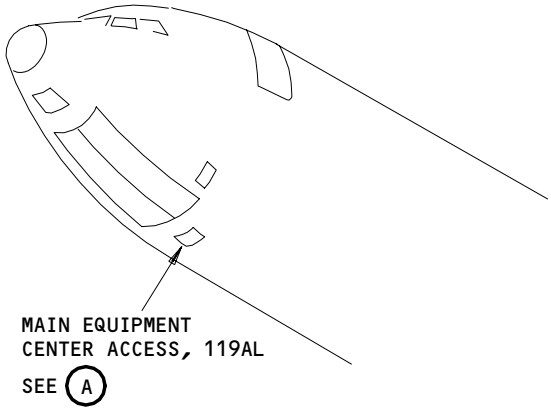
APU Won't Power Ground Handling Bus
Figure 106

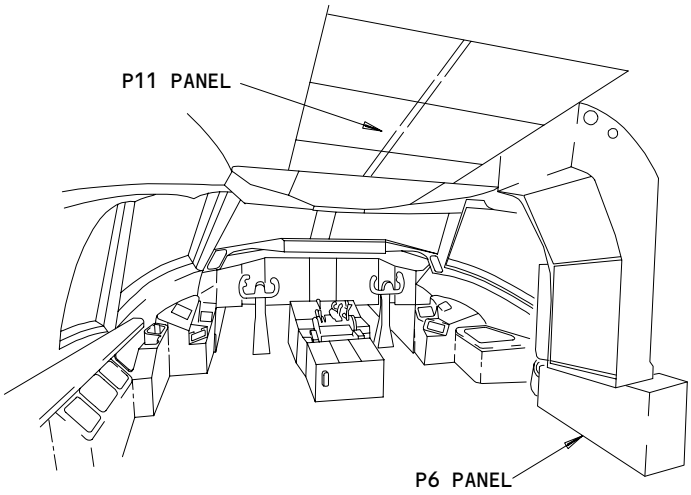
28 VOLT AC POWER DISTRIBUTION

COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	REFERENCE
AUTOTRANSFORMER - (REF 31-01-06, FIG. 101)				
LEFT 28 VOLT AC BUS, T123				
RIGHT 28 VOLT AC BUS, T124				
AUTOTRANSFORMER - (REF 31-01-33, FIG. 101)				
GROUND SERVICE BUS, T126				
CIRCUIT BREAKERS	--		FLT COMPT, P6	
LEFT AC BUS 28V AC BUS L, C877		1	6J19	*
RIGHT AC BUS 28V AC BUS R, C878		1	6J25	*
CIRCUIT BREAKER	--		119AL, MAIN EQUIP CTR, P33	
ELECTRICAL POWER GROUND SERVICE TRANSFORMER, C871		1	33D2	*

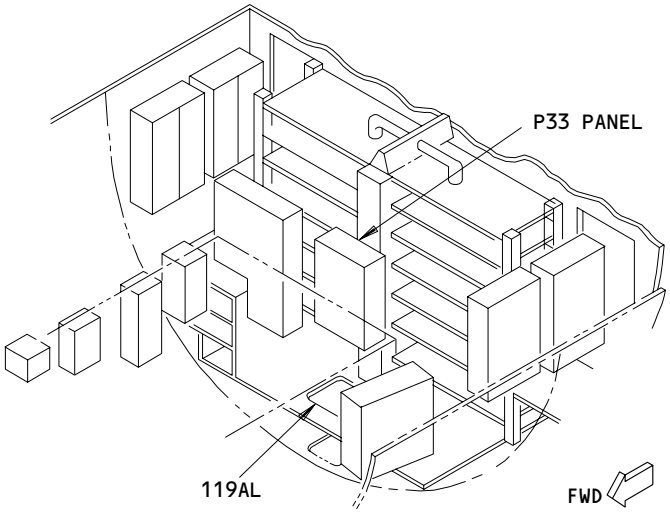
* SEE THE WDM EQUIPMENT LIST

28 Volt AC Power Distribution - Component Index
Figure 101





FLIGHT COMPARTMENT



MAIN EQUIPMENT CENTER

A

28 Volt AC Power Distribution - Component Location
Figure 102

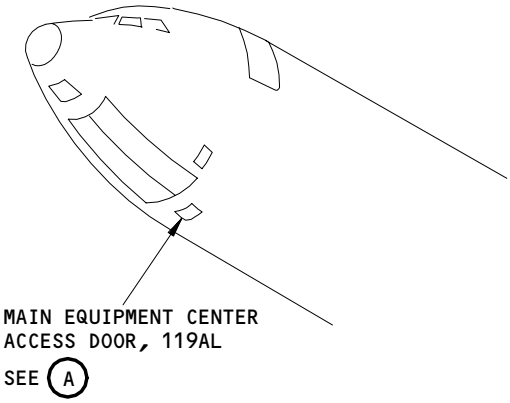
28 VOLT DC POWER DISTRIBUTION

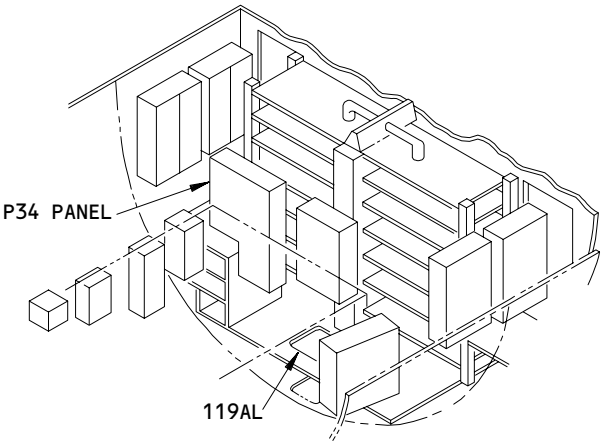
COMPONENT	FIG. 102 SHT	QTY	ACCESS/AREA	AMM REFERENCE
CIRCUIT BREAKER –			FLT COMPT, P6	
BAT BUS DISTR, C829		1	6A1	*
CENTER BUS DC, C899		1	6J13	*
HOT BAT BUS, C897		1	6J10	*
LEFT DC BUS SEC 1, C882		1	6D9	*
LEFT DC BUS SEC 2, C883		1	6D8	*
RIGHT DC BUS SEC 1, C891		1	6G9	*
RIGHT DC BUS SEC 2, C890		1	6G8	*
CIRCUIT BREAKER –		1	119AL, MAIN EQUIP CTR, P34	
GND HDLG TRU, C304			34M3	*
TRANSFORMER RECTIFIER UNIT – (FIM 31-01-34/101)				24-54-01
GROUND POWER, T103				

* SEE THE WDM EQUIPMENT LIST

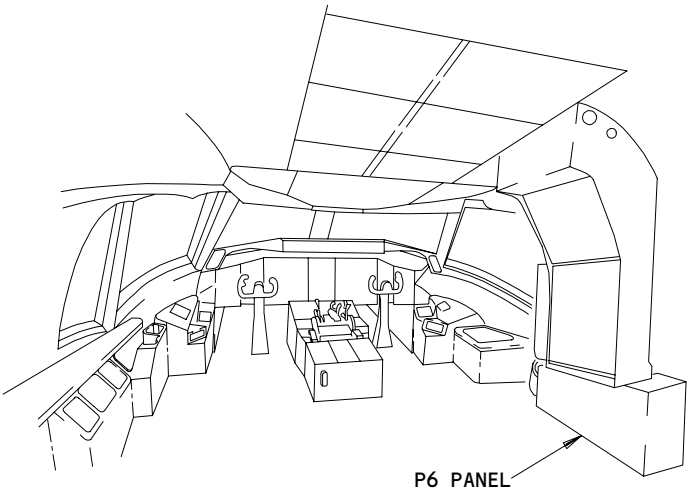
28 Volt DC Power Distribution – Component Index
Figure 101

E69421





MAIN EQUIPMENT CENTER
(A)



FLIGHT COMPARTMENT

28 Volt DC Power Distribution - Component Location
Figure 102