

TO: ALL HOLDERS OF FLIGHT CONTROL MODULAR PACKAGE ASSEMBLY OVERHAUL MANUAL,
29-09-11

REVISION NO. 12, DATED JUL 1/07

HIGHLIGHTS

DESCRIPTION OF CHANGE	TOPICS AFFECTED											
	D & O	D / A s s y	C l e a n i n g	I n s p / C h k	R e p a i r	A s s y	F / C	T e s t	T / S h o o t i n g	S / T o o l s	S t o r a g e	L / O v e r h a u l
Changed part number for washers 16, 18 from NAS1149D0436H to NAS1149D0463H												X

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HIGHLIGHTS
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FLIGHT CONTROL MODULAR PACKAGE ASSEMBLY

29-09-11

I BOEING P/N 65-44891-1, -3, -4, -5, -7, -8

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 31941 PRR 32453 PRR 32710 PRR 38275-53S	Dec 25/72 Jul 5/76 Jan 5/78 Mar 1/04

Mar 1/04

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LIST OF EFFECTIVE PAGES

* Indicates pages revised, added or deleted in latest revision
F Indicates foldout pages - print one side only

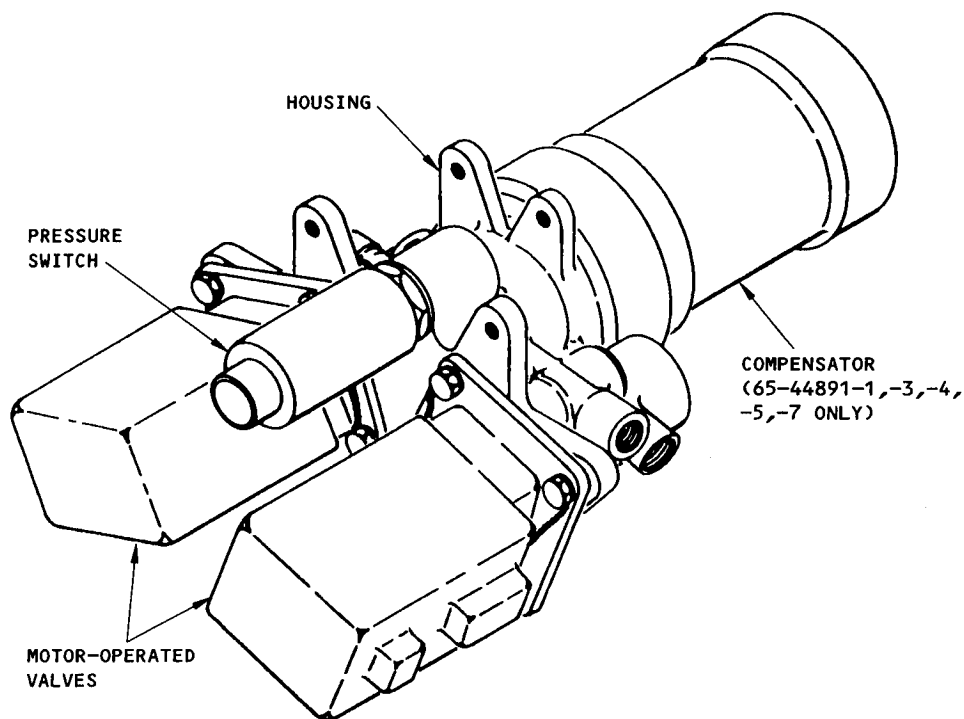
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FLIGHT CONTROL MODULAR PACKAGE ASSEMBLY

Flight Control Modular Package Assembly
Figure 1

1. DESCRIPTION AND OPERATION

A. Description

- (1) The flight control modular package assembly has an aluminum housing with a compensator or a plug, two motor-operated shutoff valves, and a low pressure warning switch.
- (2) External hydraulic fittings connect to the airplane hydraulic system A or system B and to several control units. Internal ports connect to the components installed in the housing.

B. Operation

- (1) One flight control modular package assembly is installed in each of the A and B hydraulic systems. One of the motor-driven shutoff valves in the modular package assembly controls the flow of hydraulic fluid to the spoiler control system. The other motor-driven shutoff valve controls the flow of hydraulic fluid to the aileron, rudder, and elevator control systems. The low pressure warning switch is a safety device which indicates pressure loss in the hydraulic system. The hydraulic compensator cartridge keeps aileron, rudder, and elevator return pressure after hydraulic system shutdown and adjusts for volume changes in the hydraulic fluid because of temperature changes and small fluid leakage.

C. Leading Particulars

Length -- 12 inches
Width -- 9 inches
Height -- 5 inches
Weight -- 10.7 pounds
Operating Fluid -- Hydraulic fluid, BMS 3-11
Port Sizes -- 9/16-18 UNF-3B threads

2. INSPECTION/CHECK (Fig. 5)

- A. Examine all parts for defects by standard industry practices. Refer to applicable vendors instructions for overhaul of compensator, valves and pressure switch.
- B. Penetrant examine housing assembly (12) (SOPM 20-20-02).

3. REPAIR

- A. Repair small defects by standard industry practices.
- B. Refinish (Fig. 5)

NOTE: Refer to SOPM 20-30-02 for stripping of protective finishes. Refer to SOPM 20-41-01 for explanation of F and SRF finish codes.

- (1) Housing (14) -- Chromic acid anodize (F-2.26 or F-17.02). Material: Al alloy.

4. ASSEMBLY (Fig. 5)

- A. Use standard industry practices and these steps.
- B. Lightly lubricate all threads, backup rings, and packings with BMS 3-11 hydraulic fluid or Assembly Lube MCS 352, but use only Assembly Lube MCS352 on backup rings (10) and packings (11).
- C. Tighten bolts (15, 17) to 30-40 pound-inches.
- D. Thread compensator (1) or plug (1A) and pressure switch (4) to engage approximately 2 threads and apply a thin layer of Batco 8401, Type 1 grease to the exposed threads. After you tighten and lockwire the compensator or plug and pressure switch, wipe off unwanted grease and clean contact lines between these parts and housing (14). Then apply a bead of BMS 5-26, Type 2 sealant to the contact lines. Let the sealant cure and make sure the sealant bonded to the surfaces.
- E. Lockwire components as follows:
 - (1) Compensator (1) or plug (1A) to housing (14).
 - (2) Two bolts (15) together on each outside edge of assembly.
 - (3) Bolts (15) to bolts (17).
 - (4) Pressure switch (4) to nearest bolt (17).

5. TESTING**A. Equipment**

- (1) Hydraulic test stand to supply hydraulic pressure from 0-4500 psi
- (2) Continuity tester such as an ohmmeter, self-powered test light, or equivalent

B. Preparation

- (1) Install hydraulic fittings in the unit.
- (2) Do tests at room temperature with BMS 3-11 hydraulic fluid.
- (3) Flow through any open port is not external leakage.
- (4) Do tests in the sequence shown below.
- (5) After each electrical operation of the motor valves, make sure the indicators are in the correct position before you continue with the test.

C. Proof Test (Fig. 4)

CAUTION: BE SURE THAT ALL AIR IS REMOVED FROM THE UNIT BEFORE YOU DO THE PROOF TEST. DO NOT APPLY COMPRESSED AIR TO THE PORTS AT ANY TIME. DO NOT CYCLE THE UNIT AT PROOF PRESSURE.

- (1) With the motor-operated valves in position 1, ports 3, 4, and 7 open and ports 2, 5, and 6 plugged, gradually apply 4500 psi pressure to port 1. Hold this pressure for 2 minutes. There must be no external leakage.
- (2) Do step (1) again with 2 psi pressure. There must be no external leakage.
- (3) With port 1 open, the motor-operated valves in position 2, and ports 2, 3, 5, 6, and 7 plugged, apply 900 psi pressure to port 4. Hold this pressure for 2 minutes. There must be no external leakage. Decrease the pressure to zero through port 4.
- (4) Do step (3) again with 2 psi of pressure. There must be no external leakage.

D. Functional Tests (Fig. 4)

(1) Pressure Switch Test

- (a) Connect a continuity tester to contacts 2 and 3 on the pressure switch connector.
- (b) With the motor-operated valves in position 1, ports 3, 4, and 7 open and ports 2, 5, and 6 plugged, gradually apply pressure to port 1. The pressure switch must open in the pressure range shown.

PRESSURE SWITCHOPENING PRESSURE RANGE

10-60552-1	950-1450 psi
10-60552-11, -22	1100-1500 psi
10-60552-35	1300-1600 psi

- (c) Gradually decrease the pressure. The switch must close at 100 psi or more below the pressure at which it opened in step (b) above, but not less than the following:

PRESSURE SWITCHMINIMUM CLOSING PRESSURE

10-60552-1	700 psi
10-60552-11, -22	1000 psi
10-60552-35	1200 psi

(2) Motor-Operated Valves Test

NOTE: Hold a pressure of 3000 psi on port 1 during this test.

- (a) With the motor-operated valves in position 1 and ports 2, 5, 6, and 7 plugged, apply pressure of 3000 psi to port 1. After a 2-minute period, leakage from ports 3 or 4 must not be more than 15 cc per minute. Keep this pressure on port 1 and do these next two steps.
- (b) Electrically operate the valves to position 2 and do step (2)(a) again.
- (c) Electrically operate the valves to position 1 and do step (2)(a) again.
- (d) Release the pressure from port 1.

(3) Compensator Test (if applicable)

- (a) With ports 1, 2, 5, 6, and 7 plugged, gradually apply pressure to port 4. Flow through port 3 must start when pressure at port 4 is between 40 and 70 psi.
- (b) Do the pressure test again, but shut off the supply after flow starts from port 3. Leakage from port 3 must not be more than 5cc in the first 5 minutes.

(4) Flow Test (Fig. 2 and 4)

- (a) Do this test with the conditions shown in Fig. 2.

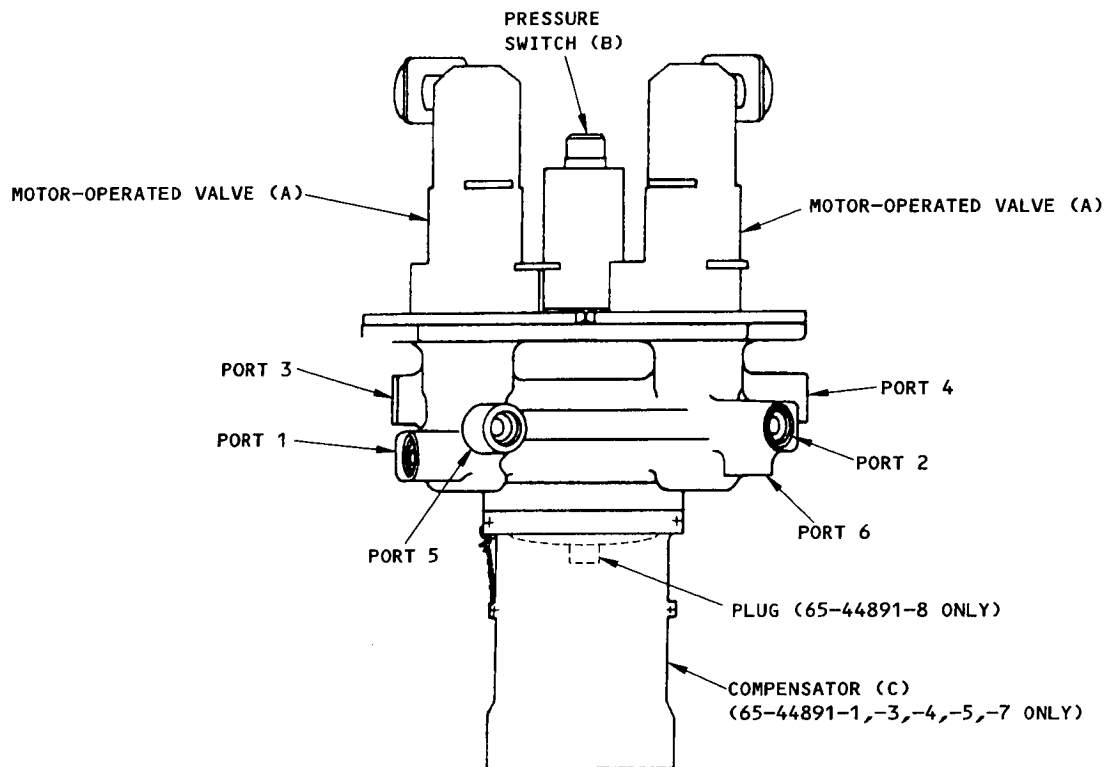
E. Post Test Procedure

- (1) Fill the unit partially with BMS 3-11 hydraulic fluid and cap or plug ports with parts resistant to this fluid.
- (2) Mark or tag the unit with the test date.

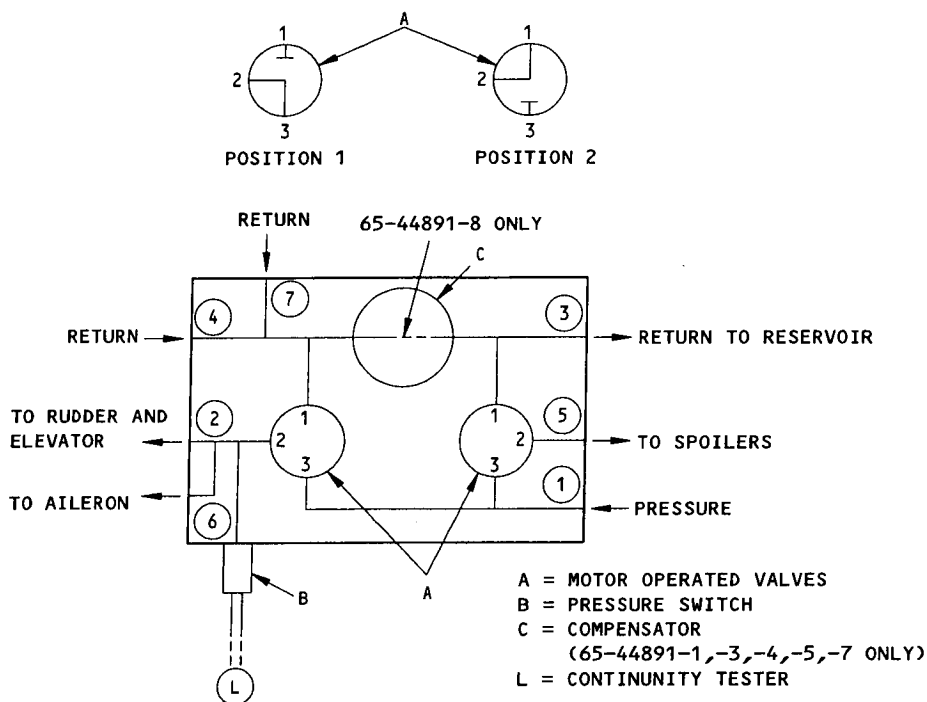
Plugged Ports	Open Ports	Motor Valve Position (Fig. 4)		Hydraulic Pressure (900 psi Max) Applied to Port	Free Flow From Port
		Spoiler	Rudder		
3,6	1,4,5,7	1	2	2	4,7
4,7	1,2,5,6	2	1	3	5
	All	1	2	1	5
	All	2	1	1	2,6

Flow Test Conditions
Figure 2

Figure 3 deleted



GENERAL ARRANGEMENT

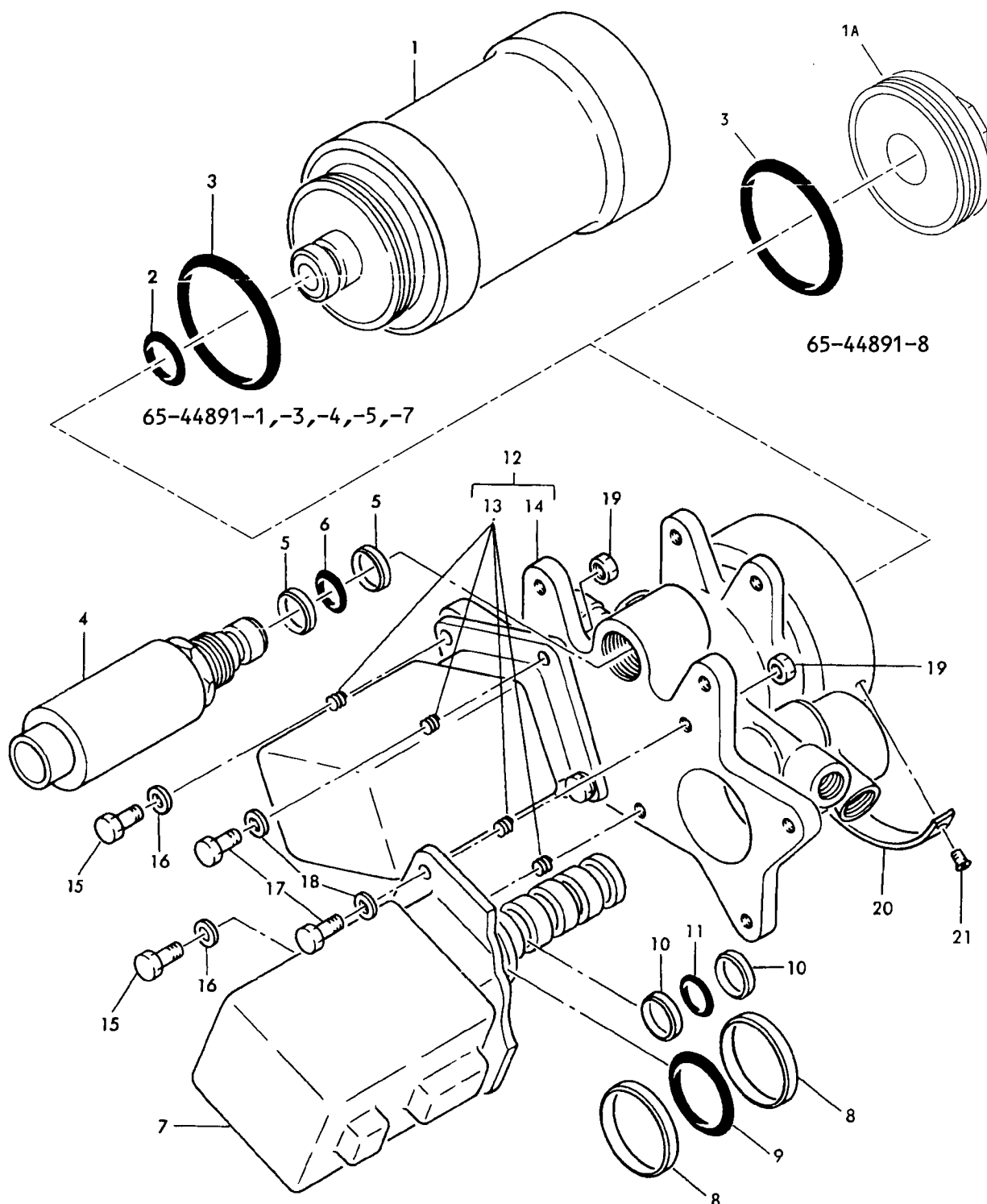


SCHEMATIC DIAGRAM

Flight Control Modular Package Details
Figure 4

6. STORAGE INSTRUCTIONS

- A. After the test, partially fill the unit with BMS 3-11 hydraulic fluid.
- B. Give protection to the unit and put it away by standard industry practices and the instructions in SOPM 20-44-02 and 20-70-01.



Flight Control Modular Package Assembly
Figure 5

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
5-	65-44891-1		PACKAGE ASSY, FLIGHT CONTROL MODULAR	A	RF
	65-44891-3		PACKAGE ASSY, FLIGHT CONTROL MODULAR	B	RF
	65-44891-4		PACKAGE ASSY, FLIGHT CONTROL MODULAR	C	RF
	65-44891-5		PACKAGE ASSY, FLIGHT CONTROL MODULAR	D	RF
	65-44891-7		PACKAGE ASSY, FLIGHT CONTROL MODULAR	E	RF
	65-44891-8		PACKAGE ASSY, FLIGHT CONTROL MODULAR	F	RF
1	1U1065		. COMPENSATOR ASSY, V60029 (BOEING 10-60560-1)	A-D	1
1	1U1065-2		. COMPENSATOR ASSY, V60029 (REPLS 1U1065)	A-D	1
1	1U1065-2		. COMPENSATOR ASSY, V60029	E	1
1A	1065-035		. PLUG, V60029	F	1
2	NAS1611-115		. PACKING, O-RING	A-D	1
2	NAS1611-115A		. PACKING, O-RING (REPLS NAS1611-115)	E	1
3	NAS1611-226		. PACKING, O-RING	A-D	1
3	NAS1611-226A		. PACKING, O-RING (REPLS NAS1611-226)	E	1
3	NAS1611-226A		. PACKING, O-RING	F	1
4	90G37		. SWITCH, PRESSURE, V09049 (BOEING 10-60552-1) (OPT)		1
4	1225P6-1		. SWITCH, PRESSURE, V98087 (BOEING 10-60552-22) (OPT)		1
4	90G183		. SWITCH, PRESSURE, V09049 (BOEING 10-60552-11)	ABC	1
4	90G183		. SWITCH, PRESSURE, V98087 (BOEING 10-60552-11) (OPT)	DEF	1
4	1225P6-2		. SWITCH, PRESSURE, V98087 (BOEING 10-60552-35)	DEF	1
5	MS28782-11		. RING, BACKUP		2
6	NAS1611-113		. PACKING, O-RING	A-D	1
6	NAS1611-113A		. PACKING, O-RING (REPLS NAS1611-113)	E	1
6	NAS1611-113A		. PACKING, O-RING	F	1
7	AV13J5147		. VALVE ASSY, MOTOR-OPERATED, V73760 (BOEING 10-60581-3) (PREF)	ABC	2
7	AV13J5105		. VALVE ASSY, MOTOR-OPERATED, V73760 (BOEING 10-60581-2)	ABC	2
7	AV13J5147		. VALVE ASSY, MOTOR-OPERATED, V73760 (BOEING 10-60581-3)	DEF	2
8	MS28774-025		. RING, BACKUP		4

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	N O M E N C L A T U R E							USE CODE	QTY PER ASSY
			1	2	3	4	5	6	7		
5-9	NAS1611-025		.	.	.	.	.	.	.	A-D	2
9	NAS1611-025A		.	.	.	.	.	.	.	E	2
9	NAS1611-025A		.	.	.	.	.	.	.	F	2
10	MS28774-016		.	.	.	.	.	.	.		16
11	NAS1611-016		.	.	.	.	.	.	.	A-D	8
11	NAS1611-016A		.	.	.	.	.	.	.	E	8
11	NAS1611-016A		.	.	.	.	.	.	.	F	8
12	65-44893-3		.	.	.	.	.	.	.	A	1
12	65-44893-1		.	.	.	.	.	.	.	A	1
12	65-44893-5		.	.	.	.	.	.	.	B	1
12	65-44893-7		.	.	.	.	.	.	.	C-F	1
12	65-44893-9		.	.	.	.	.	.	.	EF	1
13	MS21208F4-10		.	.	.	.	.	.	.		6
13	MS21208F4-10		.	.	.	.	.	.	.		8
14	65-44893-2		.	.	.	.	.	.	.		1
14	65-44893-4		.	.	.	.	.	.	.		1
14	65-44893-6		.	.	.	.	.	.	.		1
14	65-44893-8		.	.	.	.	.	.	.		1
14	65-44893-10		.	.	.	.	.	.	.		1
15	BACB30NE4H4		.	.	.	.	.	.	.	A-E	6
15	BACB30NE4H4		.	.	.	.	.	.	.	F	6
16	AN960D416		.	.	.	.	.	.	.	A-D	6
16	NAS1149D0463H		.	.	.	.	.	.	.	E	6
16	NAS1149D0463H		.	.	.	.	.	.	.	F	6
17	BACB30NE4H7		.	.	.	.	.	.	.	A	2
17	BACB30NE4H4		.	.	.	.	.	.	.	A	2
17	BACB30NE4H4		.	.	.	.	.	.	.	B-E	2
17	BACB30NE4H4		.	.	.	.	.	.	.	F	2
18	AN960D416		.	.	.	.	.	.	.		2
18	NAS1149D0463H		.	.	.	.	.	.	.	E	2
18	NAS1149D0463H		.	.	.	.	.	.	.	F	2
19	BACN10JC4		.	.	.	.	.	.	.	A	2
20	BAC27DHY0265		.	.	.	.	.	.	.		1
20	BACN12A3MH		.	.	.	.	.	.	.	A-E	1
21	MS21318-7		.	.	.	.	.	.	.		2

*[1] USED WITH HOUSING ASSEMBLY 65-44893-1

*[2] USED WITH HOUSING ASSEMBLY 65-44893-3

VENDORS

V09049	CUSTOM CONTROL SENSORS, INC., 21111 PLUMMER ST., CHATSWORTH, CALIFORNIA 91311-4905
V60029	SMITHS AEROSPACE, INC., 1700 BUSINESS CENTER DR., DUARTE, CALIFORNIA 91010-2859
V73760	ITT AEROSPACE CONTROLS, 28150 INDUSTRY DR., VALENCIA, CALIFORNIA 91355
V98087	ITT AEROSPACE CONTROLS, INC., 28150 INDUSTRY DR., VALENCIA, CALIFORNIA 91355