TO: ALL HOLDERS OF HYDRAULIC SYSTEM ISOLATION VALVE MODULAR ASSEMBLY OVERHAUL MANUAL, 29-13-02

REVISION NO. 4, DATED SEP 1/97

HIGHLIGHTS

DESCRIPTION OF CHANGE	TOPICS AFFECTED												
	D&O	D/Assy	Cleaning	Insp/Chk	Repair	Assy	F/C	Test	T/Shooting	S/Tools	Storage	IPL	L/Overhaul
Added replacement for BACB30MT bolt												X	
Changed identification of installation parts												X	
Updated vendor information												X	

HYDRAULIC SYSTEM ISOLATION VALVE MODULAR ASSEMBLY

29-13-02

BOEING P/N 65-44990-5, -6
65-44991-1, -2, -3

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 30936	Aug 15/69
		PRR 32032	Jun 25/73

LIST OF EFFECTIVE PAGES

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

	PAGE	DATE	PAGE	DATE	PAGE	DATE
	29-13-02					
	T-1	Mar 25/75				
	T-2	BLANK				
*	LEP-1	Sep 1/97				
	LEP-2	BLANK				
	T/C-1	Dec 25/75				
	T/C-2	BLANK				
	1	Jun 25/73				
	2	Dec 25/75				
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	5	Jun 25/73				
*	6	Sep 1/97				
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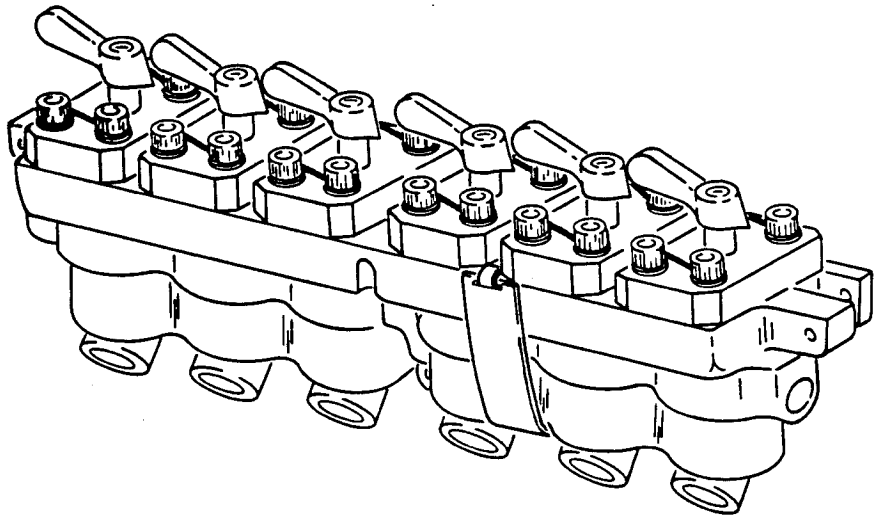
*[1] Special instructions not required. Use standard industry practices.

HYDRAULIC SYSTEM ISOLATION VALVE MODULAR ASSEMBLY



Hydraulic System Isolation Valve Modular Assembly
Figure 1

1. DESCRIPTION AND OPERATION

A. Description

(1) The hydraulic system isolation valve modular assembly consists of six manual shutoff valves mounted in a housing.

B. Operation (Fig. 3)

(1) Hydraulic fluid enters the hydraulic system isolation valve modular assembly through ports A and B.

(2) From port A the hydraulic fluid is distributed to, or shut off from any of ports 1, 2 or 3 by manual shutoff valves.

(3) From port B the hydraulic fluid is distributed to, or shut off from any of ports 4, 5 or 6 by manual shutoff valves.

C. Leading Particulars

Height -- 4.9 inches
Length -- 13.6 inches
Width -- 2.6 inches
Weight -- 6.7 pounds
Operating Medium -- Hydraulic fluid BMS 3-11
Operating Pressure -- 3000 psi
Proof Pressure -- 5400 psi
Port Sizes -- 9/16-18UNJF-3B

2. INSPECTION/CHECK

A. Perform penetrant examination per 20-20-02 on housing (11).

3. REPAIR

A. Refinish (Fig. 3)

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

(1) Deleted

(a) Housing (11) -- Chromic acid anodize (F-2.26) all over. Material: Al alloy.

(b) Plate (3A) -- Cadmium plate with post-plate chromate treatment (F-1.1923) all over. Material: Steel, AMS 4130, 125-145 ksi.

(c) Bar (22) -- Alodize or chromic acid anodize and apply one coat primer BMS 10-11, type 1 (SRF-2.30) all over. Material: Al alloy.

4. ASSEMBLY

NOTE: Use standard shop procedures for assembly of this unit, observing the following requirements.

A. Lightly lubricate backup rings and packings with hydraulic fluid, BMS 3-11, or Skydrol Assembly Lube, MCS 352 (Monsanto Co., Inc., 800 North Lindbergh Blvd., St. Louis, Mo. 63166)

B. After testing is completed prepare unit for storage per par. 7 and lockwire bolts (1, Fig. 3) together in pairs using double twist method.

5. TESTING

A. Test Equipment

(1) Hydraulic test stand capable of providing hydraulic fluid flow at rate of 12 gpm at room temperature and capable of controlled pressure from 0 to 4500 psi.

(2) Calibrated pressure gages - 0 to 100 psi and 0 to 6000 psi ranges

(3) Hydraulic fluid - BMS 3-11. Skydrol 7000 is optional

B. Preparation for Test

WARNING: DO NOT APPLY COMPRESSED AIR TO PORTS OF UNIT AT ANY TIME, AS SEVERE FRAGMENTATION MIGHT OCCUR.

(1) Connect ports A and B to hydraulic test pressure source.

C. Functional Tests

NOTE: Flow from any open port 1, 2, 3, 4, 5 or 6 is not considered external leakage.

(1) Perform Proof Pressure Test (Fig. 3)

CAUTION: TO PREVENT DAMAGE TO VALVES (3) DO NOT OPERATE AT PROOF PRESSURE.

(a) Close ports 1, 2, 3, 4, 5 and 6. Open all valves (3).

(b) Gradually apply 4500-psi hydraulic pressure to ports A and B. Hold for 3 minutes. There should be no external leakage.

(c) Repeat steps (a) and (b) except apply 2-psi hydraulic fluid pressure. There should be no external leakage.

(2) Perform Internal Leakage Test (Fig. 3)

(a) Open ports 1, 2, 3, 4, 5 and 6. Apply 2- to 5-psi hydraulic pressure at ports A and B.

(b) Actuate all valves (3) several times between OPEN and CLOSED position, returning them to CLOSED position.

(c) Hold for 3 minutes. Leakage from ports 1, 2, 3, 4, 5 and 6 should not exceed one drop per minute from each port.

(d) Repeat steps (a), (b) and (c) except apply 3000 psi hydraulic pressure. Leakage from ports 1, 2, 3, 4, 5 and 6 should not exceed one drop per minute from each port.

(3) Perform Actuation Test (Fig. 3)

(a) Close ports 1, 2, 3, 4, 5 and 6 and apply 3000 psi hydraulic pressure to ports A and B.

(b) Actuate all valves (3) several times between OPEN and CLOSED position. There should be no evidence of sticking or binding.

(4) Perform Flow Test (Fig. 3)

(a) Open all valves (3) and apply 100 psi hydraulic pressure to ports A and B. There should be a flow of 2 gpm or more from each port 1, 2, 3, 4, 5 or 6.

Test Phase	Limits
Proof Pressure Test: CAUTION: DO NOT OPERATE VALVES AT PROOF PRESSURE.	
Close ports 1, 2, 3, 4, 5 and 6. Open all valves (3). Apply 4500 psi to ports A and B. Hold for 3 minutes. Repeat except apply 2 psi.	No external leakage.

Test Limits
Figure 2 (Sheet 1)

Test Phase	Limits
Internal Leakage Test:	
Open ports 1, 2, 3, 4, 5 and 6. Apply 2 to 5 psi to ports A and B. Actuate all valves (3) several times between OPEN and CLOSED position, return valves (3) to CLOSED position. Hold for 3 minutes and check leakage from ports 1, 2, 3, 4, 5, and 6. Repeat except apply 3000 psi.	Leakage from each port 1, 2, 3, 4, 5, or 6 not to exceed 1 drop per minute.
Actuation Test:	
Close ports 1, 2, 3, 4, 5 and 6 and apply 3000 psi to ports A and B. Actuate all valves (3) several times between OPEN and CLOSED position.	No evidence of sticking or binding.
Flow Test:	
Open all valves (3) and apply 100 psi to ports A and B. Measure flow from each port 1, 2, 3, 4, 5 and 6.	Flow from each port 1, 2, 3, 4, 5 or 6 to be 2 gpm or more.

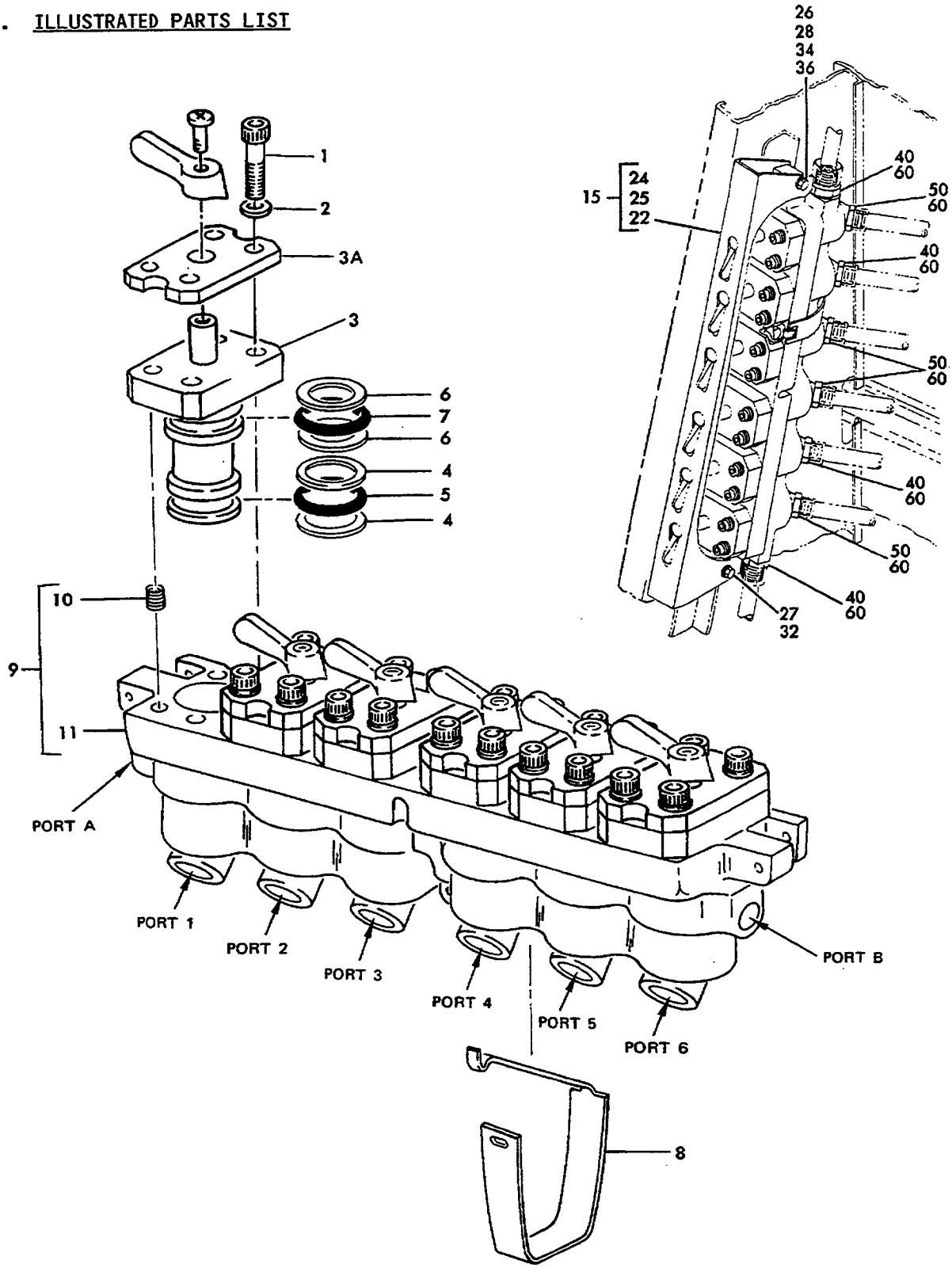
Test Limits
Figure 2 (Sheet 2)

6. STORAGE INSTRUCTIONS

NOTE: Use standard procedures for storage of this assembly, observing the following requirements:

A. Partially fill unit with hydraulic fluid, BMS 3-11, and install BMS 3-11 resistant plugs and packings in ports. If Skydrol 7000 test fluid was used, drain and flush and partially fill unit with BMS 3-11.

7. ILLUSTRATED PARTS LIST



Hydraulic System Isolation Valve Modular Assembly
Figure 3

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FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
3-					
	65-44991-1		HYDRAULIC SYSTEM ISOLATION VALVE MODULAR ASSY	A	RF
	65-44991-2		HYDRAULIC SYSTEM ISOLATION VALVE MODULAR ASSY	B	RF
	65-44991-3		HYDRAULIC SYSTEM ISOLATION VALVE MODULAR ASSY	C	RF
1	MS24678-23		. BOLT	A	24
1	BACB30US4P10H		. BOLT (REPLS BACB30MT4HT10)	B	24
1	BACB30MT4HT10		. BOLT (REPLS BACB30MT4HT11, MS9218-17, REPLD BY BACB30US4P10H)	B	24
1	BACB30MT4HT11		. BOLT (REPLD BY BACB30MT4HT10)	B	24
1	MS9218-17		. BOLT (REPLD BY BACB30MT4HT10)	B	24
1	BACB30US4K7H		. BOLT (REPLS BACB30MT4HT7)	C	24
1	BACB30MT4HT7		. BOLT (REPLD BY BACB30US4K7H)	C	24
1	BACB30LE4H7		. BOLT (OPT)	C	24
2	NAS620-416L		. WASHER	A	24
2	BACW10BP4ACU		. WASHER	C	24
3	146435-1		. VALVE ASSY, V79318 (BOEING 10-60557-2)(PREFD)	AB	6
3	146435		. VALVE ASSY, V79318 (BOEING 10-60557-1)(OPT)	A	6
3	1U1234		. VALVE ASSY, V60029 (BOEING 10-60557-3)(PREFD)	C	6
3	149455		. VALVE ASSY, V79318 (BOEING 10-60557-3)(OPT)	C	6
3A	69-54732-1		. PLATE	B	6
4	MS28782-19		. RING, BACKUP		12
5	NAS1611-214		. PACKING, O-RING		6
6	MS28782-23		. RING, BACKUP		12
7	NAS1611-218		. PACKING, O-RING		6
8	BAC27DHY99		. NAMEPLATE		1
9	65-44782-1		. HOUSING ASSY		1
10	MS21209F4-15		. . INSERT, THREAD		24
11	65-44782-2		. . HOUSING		1

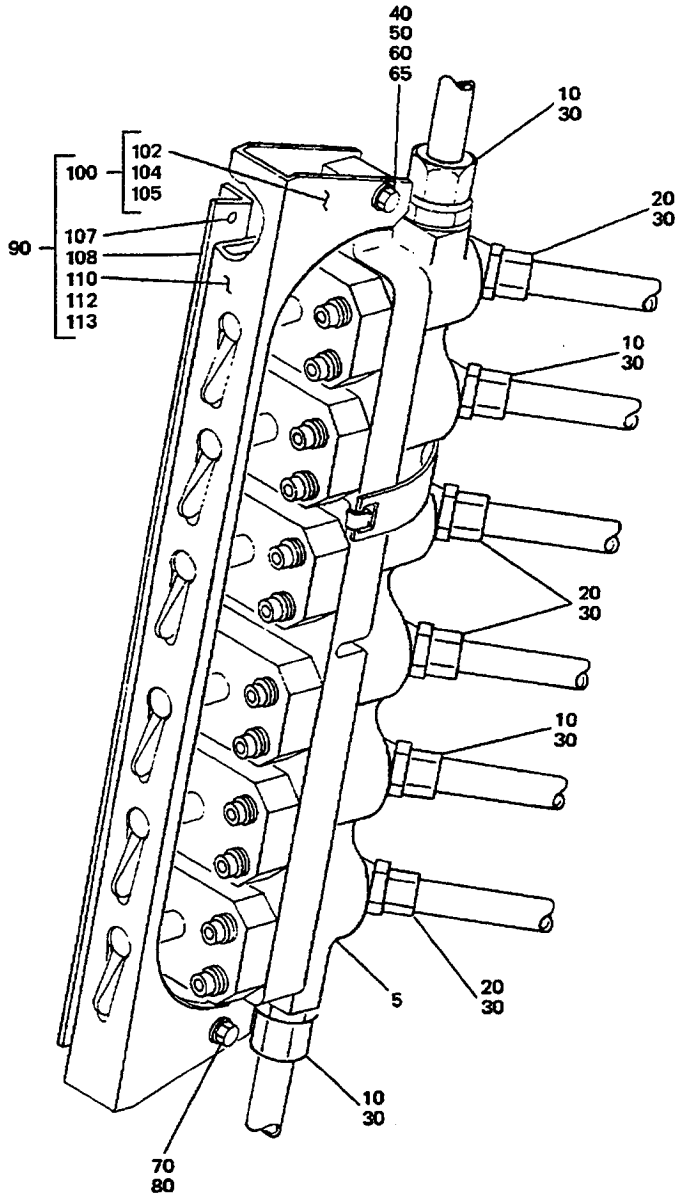
FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
3-			INSTALLATION PARTS		
15	69-54575-1		BAR ASSY REF - LOCKING	A	1
22	69-54575-2		. BAR - LOCKING		1
24	BACR3D( )		. RIVET		2
25	BACN10KB4F		. NUTPLATE (REPLS NAS687A4)		1
26	NAS1103-17D		BOLT	A	1
27	NAS1104-17		BOLT	A	1
28	NAS1149D0363H		WASHER (REPLS AN960D10)	A	3
32	NAS1149D0463H		WASHER (REPLS AN960D416)	A	3
34	BACN10JD103		NUT (REPLS AN320-3)	A	1
36	MS24665-134		PIN, COTTER	A	1
40	MS21902-6		UNION	A	4
50	MS21916-6-4		REDUCER	A	4
60	NAS1612-6		O-RING	A	8

- ITEM NOT ILLUSTRATED.

VENDORS

V60029 HYDRAULIC UNITS, INC. (SUB OF DOWTY AEROSPACE), 1700 BUSINESS CENTER DR. DUARTE, CALIFORNIA 91010-2859

V79318 WHITTAKER CORPORATION, CONTROLS DIVISION, 12838 SATICOY STREET, NORTH HOLLYWOOD, CALIFORNIA 91605-3505



Modular Package Assembly
Figure 4

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FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
4-					
1	65-44990-5		MODULAR PACKAGE ASSY	A	RF
1	65-44990-6		MODULAR PACKAGE ASSY	B	RF
5	65-44991-2		. HYDRAULIC SYSTEM ISOLATION VALVE MODULAR ASSY (FIG. 3)	A	1
5	65-44991-3		. HYDRAULIC SYSTEM ISOLATION VALVE MODULAR ASSY (FIG. 3)	B	1
10	MS21902-6		. UNION		4
20	MS21916-6-4		. REDUCER		4
30	NAS1612-6		. O-RING		8
40	NAS1104-6		DELETED		
40	NAS1103-17D		BOLT *[1]	AB	1
40	BACB30NM3DK17		BOLT *[2]	B	1
50	NAS1104-19		DELETED		
50	NAS1149D0363H		WASHER (REPLS AS960D10) *[1]	AB	3
50	NAS1149D0363J		WASHER *[2]	B	3
60	NAS42DD8-32		DELETED		
60	BACN10JD103		NUT (REPLS AN320-3) *[1]	AB	1
60	BACN10JD103CD		NUT *[2]	B	1
65	MS24665-134		PIN, COTTER *[1]	AB	1
65	BACP18BC02C06P		PIN, COTTER *[2]	B	1
70	AN960D416		DELETED		
70	NAS1104-17		BOLT *[1]	AB	1
70	BACB30NR4K17		BOLT *[2]	B	1
80	NAS679A4W		DELETED		
80	NAS1149D0463H		WASHER (REPLS AN960D416) *[1]	AB	3
80	NAS1149D0463J		WASHER *[2]	B	3
90	69-54575-1		BAR ASSY - LOCKING (LIMITED) *[1]	AB	1
90	69-54575-3		BAR ASSY - LOCKING (OPT) (LIMITED) *[1]	AB	1
90	69-54575-5		BAR ASSY - LOCKING (PREFD) (LIMITED) *[1]	AB	1
90	69-54575-5		BAR ASSY - LOCKING *[2]	AB	1
100	69-54575-1		. BAR ASSY - LOCKING (USED ON 69-54575-3)		1
102	69-54575-2		. . BAR - LOCKING		1
104	BACR3D( )		. . RIVET		2
105	BACN10KB4F		. . NUTPLATE (REPLS NAS687A4)		1
107	BACR4D( )		. RIVET (USED ON 69-54575-3)		4
108	69-54575-4		. ANGLE (USED ON 69-54575-3)		1
110	69-54575-2		. BAR - LOCKING (USED ON 69-54575-1)		1
110	69-54575-6		. BAR - LOCKING (USED ON 69-54575-5)		1
112	BACR3D( )		. RIVET (USED ON 69-54575-1, -5)		2
113	BACN10KB4F		. NUTPLATE (REPLS NAS687A4) (USED ON 69-54575-1, -5)		1

*[1] USED ON 737-100 THRU -500 INSTALLATIONS
*[2] USED ON 737-600/-700/-800 INSTALLATIONS