TO: ALL HOLDERS OF LEADING EDGE SLAT ACTUATOR ASSEMBLY OVERHAUL MANUAL, 27-80-11

REVISION NO. 51, DATED NOV 1/07

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 optional spring 69-66648				X								X	
Added optional/preferred parts												X	

LEADING EDGE SLAT ACTUATOR ASSEMBLY

27-80-11

BOEING P/N 65-44650-16 thru -19, -23 thru -30
65-44651-6 thru -9, -11, -13, -14, -15, -16, -17
65-44725-3 thru -6, -10 thru -13, -15 thru -23, -25, -33 thru -44

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 30387	Aug 15/67
		PRR 30540	Aug 15/67
		PRR 30657	May 15/68
		PRR 30749	May 15/68
		PRR 30571	May 15/69
		PRR 31009	May 15/69
		PRR 31559	May 15/69
		PRR 31960-15	Sep 10/71
		PRR 31960-4	Sep 10/71
		PRR 33031	Jan 5/81
		PRR 33094	Jul 5/81
		PRR 33428	Dec 5/83
27-1105			Mar 5/84
27-1120			Sep 5/85

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
	27-80-11			413	Mar 5/86		1102	Mar 1/98
	T-1	Sep 5/85		414	Mar 5/86		1103	Jul 5/79
	T-2	BLANK		415	Nov 1/99		1104	Mar 5/90
*	LEP-1	Nov 1/07		416	Jun 5/88	*	1105	Nov 1/07
	LEP-2	BLANK		501	Jun 5/88		1106	Jul 1/99
	T/C-1	Jan 5/81		502	Mar 5/89	*	1107	Nov 1/07
	T/C-2	BLANK		503	Sep 5/92	*	1108	Nov 1/07
	1	Jan 5/81		504	Sep 5/92		1108A	Jul 1/99
	2	Jul 5/81		505	Sep 5/92		1108B	Jul 1/99
	3	Dec 5/85		506	Sep 5/92	*	1109	Nov 1/07
	4	Jul 5/81		507	Sep 5/89		1110	Jun 5/88
	5	Jan 5/81		508	BLANK	*	1111	Nov 1/07
	6	BLANK		601	Dec 5/93		1112	Jun 5/88
	101	Sep 5/92		602	Dec 5/93		1113	Jul 5/79
	102	Sep 5/92		701	Nov 1/99		1114	Jul 5/79
	103	Nov 1/04		702	Jul 1/98		1114A	Dec 5/83
	104	Nov 1/04		703	Jul 1/98		1114B	Dec 5/83
	201	Jul 5/79		704	Jul 1/98		1115	Mar 5/84
	202	BLANK		704A	Mar 5/87	*	1116	Nov 1/07
	301	Nov 1/04		704B	Sep 5/93	*	1117	Nov 1/07
	302	Mar 5/89		704C	Dec 1/94		1118	Dec 5/83
	303	Mar 5/89		704D	BLANK	*	1118A	Nov 1/07
*	304	Nov 1/07		705	Dec 1/94		1118B	BLANK
	305	Nov 1/04		706	Sep 5/93	*	1119	Nov 1/07
	306	BLANK		707	Jul 5/81		1120	Mar 5/90
	401	Nov 1/04		708	Mar 1/96		1121	Mar 5/89
	402	Nov 1/04		708A	Sep 5/93		1122	Mar 5/89
	402A	Nov 1/04		708B	BLANK		1123	Sep 1/97
	402B	Nov 1/04		709	Jul 1/99		1124	BLANK
	402C	Nov 1/04		710	Jul 1/98			
	402D	Jul 1/99		711	Jul 1/98			
	402E	Jul 1/99		712	Jul 1/98			
	402F	BLANK		713	Jul 1/98			
	403	Dec 5/84		714	Jul 1/99			
	404	Sep 5/92		714A	Jul 1/98			
	405	Mar 1/98		714B	BLANK			
	406	Jul 1/03		715	Jan 5/81			
	406A	Nov 1/98		716	BLANK			
	406B	Nov 1/98		801	Jan 5/81			
	407	Sep 1/97		802	BLANK			
	408	Jun 5/88		901	Jul 5/81			
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	412	Nov 1/00		1101	Dec 1/95			

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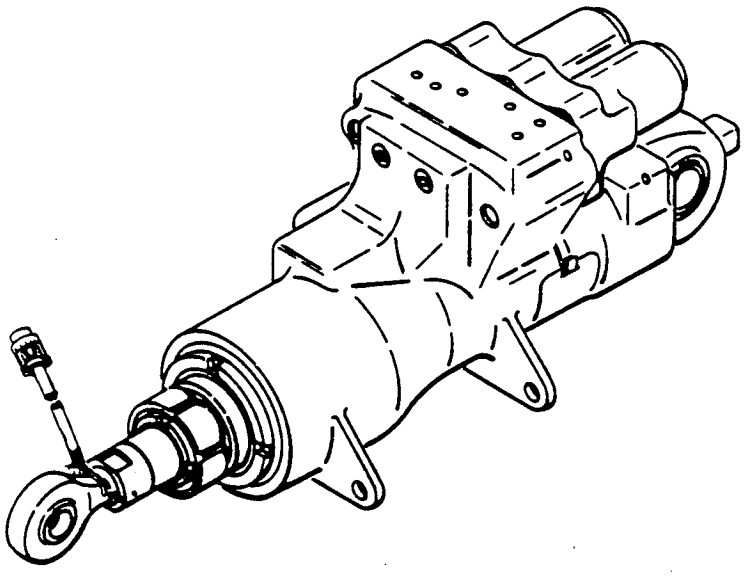
LEADING EDGE SLAT ACTUATOR ASSEMBLY



Leading Edge Slat Actuator Assembly
Figure 1

DESCRIPTION AND OPERATION

1. The leading edge slat actuator is a positioning type hydraulic unit. It consists of a barrel containing a sleeve or outer piston, an inner piston with rod end, magnetically-actuated switch, and locking mechanism, and a lock stud. On some units a stop sleeve may be installed over the outer piston. A blocking valve having spring-loaded slides is mounted on the barrel. Bearings on the actuator ends allow pivoting movement of the actuator at the mounting bolts.

2. Four external port connections are provided for the following hydraulic pressure lines:

   A. System A connection for retraction.

   B. System A connection from 3-position control valve for intermediate extension (actuator 65-44651-6, -9 and on) or full extension (actuator 65-44651-7, -8).

   C. System A connection from 3-position control valve for full extension (on actuator assembly 65-44651-6, -9 and on).

   D. Standby system connection for extension.

3. During system operation, system A pressure from the aircraft 3-position control valve is ported to the retract side of the actuator outer and inner pistons. At the control valve intermediate position, pressure is ported to the extend side of the inner piston. The locking piston extends, causing the actuating magnet to close the contacts of the indicator switch. The locking piston movement also releases the locking mechanism. As the inner piston extends, a segment stop holds the locking mechanism in the unlocked position. The inner piston assembly extends, to the intermediate position (65-44651-6, -9 and on) or to the full extend position (65-44651-7, -8). The outer piston stop sleeve prevents further extension. At the control valve full extend position, pressure is ported to the extend side of the outer piston (65-44651-6, -9 and on), causing the outer piston to fully extend. As the control valve returns to the intermediate position, pressure on the extend side of the outer piston (65-44651-6, -9 and on) ports to the system "A" return and causes the outer piston to retract. As the control valve moves to the closed position, the same process causes the inner piston assembly to retract. The lock stud moves the segment stop allowing the spring-loaded lock piston to force the segments into the locked position on the lock stud. As the lock piston retracts, the actuating magnet moves away from the indicator switch causing opening of the switch contacts.

4. Leading Particulars

A. Operating Medium -- Hydraulic fluid BMS 3-11

B. Weight (approximate) -- 12 pounds

C. Width -- 4.3 inches

D. Height -- 4.5 inches

E. Length between Bearing Centerlines

(1) Retracted Position -- 12.7 inches maximum

(2) Locked Position -- 13.5 inches

(3) Intermediate Position

(a) 65-44651-6, -9 and on -- 18.8 inches

(b) 65-44651-7, -8 -- Not applicable

(4) Fully Extended Position

(a) 65-44651-6, -9 -14, -16 -- 21.9 inches minimum

(b) 65-44651-7, -8 -- 18.8 inches

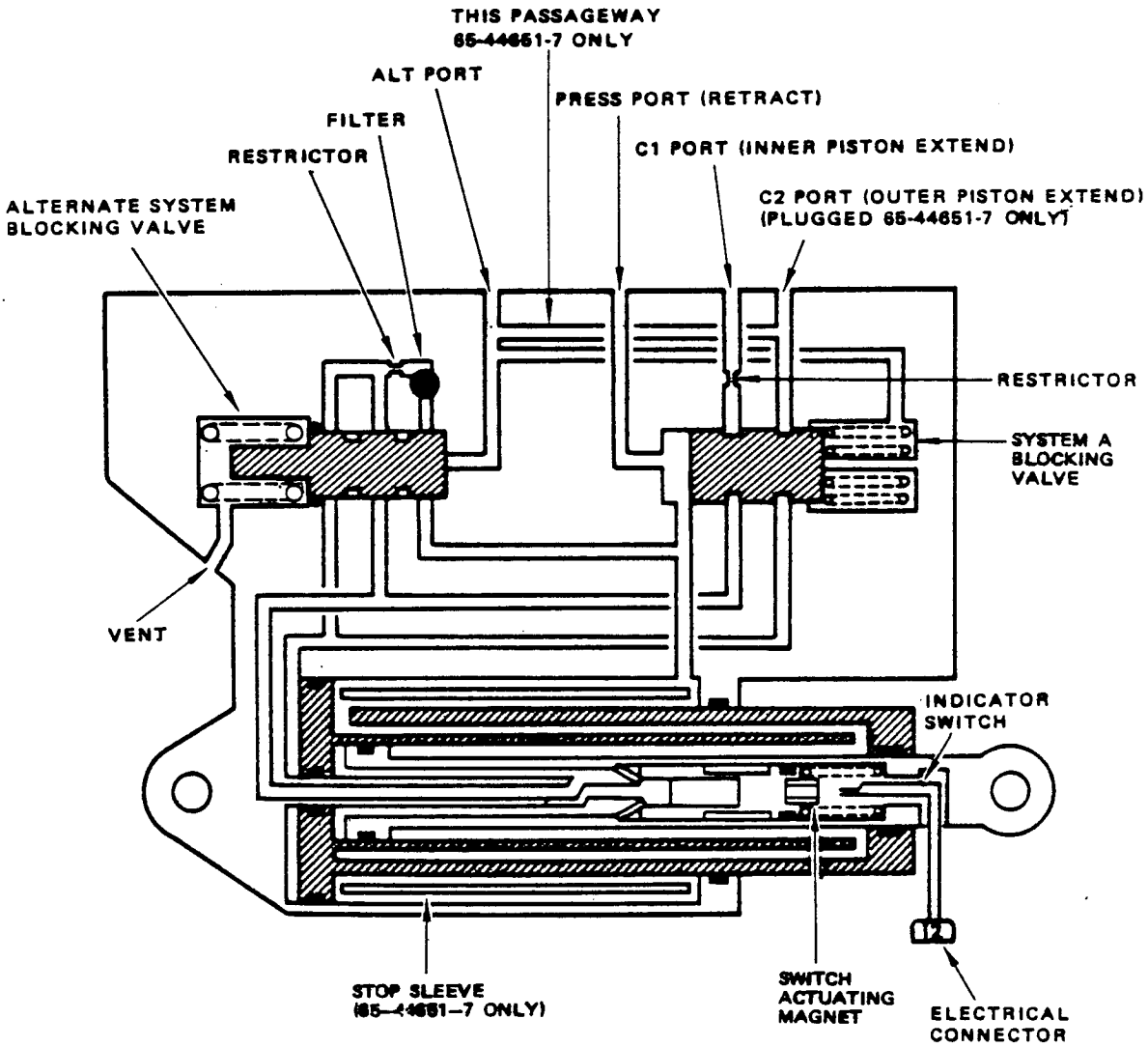
(c) 65-44651-11, -13, -15, -17 -- 20.9 inches minimum

F. Stroke

(1) 65-44651-6, -9, -14, -16 -- 9.2 inches

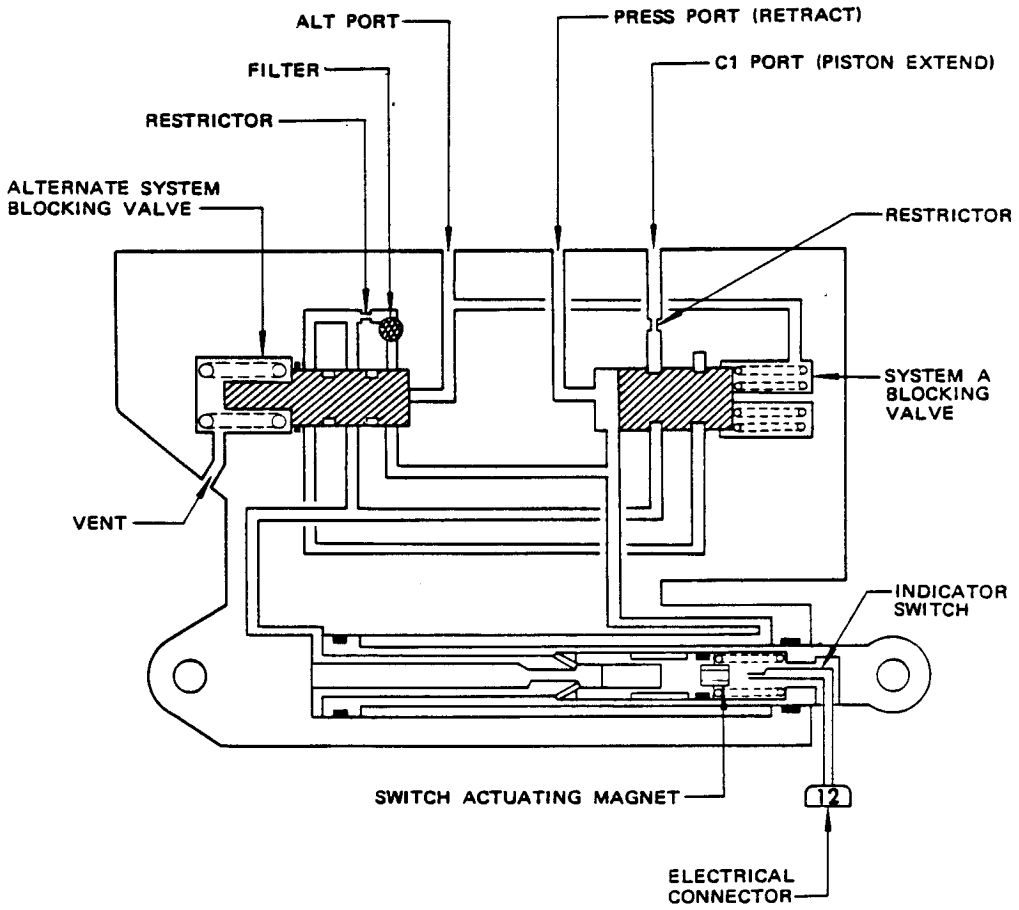
(2) 65-44651-7, -8 -- 6.1 inches

(3) 65-44651-11, -13, -15, -17 -- 8.2 inches



ASSYS 65-44651-6, -7, -9 AND ON

Schematic Diagram
Figure 2 (Sheet 1)



ASSY 65-44651-8

DISASSEMBLY

1. Equipment

   NOTE: Equivalent substitutes may be used.

   A. Torque Wrench Adapter -- F80-0-1552-7 or F80259-2

   B. Special Vise Jaws -- F42-0-227 or F80262-1

   C. Torque Wrench Adapter -- F80-0-1552-6 or F80259-1

   D. Torque Wrench Adapter -- F80-4-25 or C27020-1

   E. Tab Bending Tools -- F80-0-1874, F80-0-1875, or C27019-1

   F. Torque Wrench Adapter -- F80-0-1552-14 or F80259-3

2. General

   A. Remove storage plugs from hydraulic ports. Drain all fluid from actuator.

   B. If installed, remove fittings and parts per Fig. 1103.

      (1) Remove bolts (1), washers (2), clamps (3) and tubes (4 thru 9).

      (2) Remove bolts (10), washers (11), brackets (12, 13, 14).

          NOTE: Do not remove rivets (15), nutplates (16) or half clamps (17) from brackets (18, 19, and 20) unless repair or replacement is necessary.

      (3) Remove bolts (21), washers (22) and brackets (23).

          NOTE: Do not remove rivets (24), or nutplates (25) from bracket (26) unless repair or replacement is necessary.

      (4) Remove unions (27) and packings (28) from actuator (29).

   C. Cut and remove lockwire from unit. Strip sealant from rod end and housing.

3. Actuator (Fig. 1101)

   A. Do not remove strap (3), nameplate (4), bearings (29 or 85), magnet (48), washers (49), pin (79), inserts (82), pins (83) or plugs (84) unless repair or replacement is necessary.

B. Extend actuator inner piston beyond the locking position (see TESTING) and mount actuator in a suitable holding device.

CAUTION: DO NOT EXERT CLAMPING PRESSURE ON CYLINDER PORTION OF HOUSING OR DISTORTION OF PISTONS OR BARREL MAY OCCUR.

C. Remove plug (1) and packing (2).

D. Remove screws (5), blocking valve (6) and gasket plate (7). Check for evidence of leakage at gasket and dowel pins.

E. Remove restrictor plug (8), retainers (9) and packing (10).

F. Remove plug (11), retainers (13, 14) and packings (12, 15).

G. Loosen nut (17) and remove rod end (28) from piston (43). Do not remove nut (17), lock (16), connector plug (32), switch (33) or spring (31) unless replacement is necessary.

H. Loosen nut (27) using adapter F80-0-1552-7, or F80259-2 and vise jaws F42-0-227, or F80262-1.

I. Assemblies 65-44651-6, -7, -9 and on (Fig. 1101, Sheet 1).

(1) Using wrench, X1E65-44651-1 S/N C78741, or adapter F80-0-1552-6, or F80259-1 and vise jaws F42-0-227, or F80262-1 remove nut or retainer (19). Extract scraper (18) and pull parts (17 thru 73) from barrel (81).

(2) Remove seal retainer (20), foot seal (21), packing (22 and 24) and retainers (23) from bearing (25). Slide stop (69) (or sleeve (68A) for assembly 65-44651-11, -13) from piston (68).

(3) Remove nut (27) using adapter F80-0-1552-7, or F80259-2 and vise jaws F42-0-227, or F80262-1; extract scraper (26).

(4) Using needle-nose pliers, remove lockwire (70) from outer piston (68) and transfer tube (71). Using adapter F80-4-25, or C27020-1, unscrew and remove transfer tube from outer piston. Pull piston (43) from transfer tube (71).

(5) Remove seal (39), packings (40, 42, 65 and 73), cap rings (41, 64, 72), retainers (66) and packing (67).

J. Assembly 65-44651-8 (Fig. 1101, Sheet 2).

(1) Using wrench 2WR 65-44651-1, S/N C33692, or adapter F80-0-1552-6, or F80259-1 and vise jaws F42-0-227, or F80262-1, remove nut (19) and remove outer sleeve (25).

(2) Remove nut (27) using adapter F80-0-1552-7, or F80259-2 and vise jaws F42-0-227, or F80262-1, backup rings (23), O-ring packings (24, 40) and foot seal (39).

(3) Remove inner piston (43), cap ring (41), O-ring packing (42), inner sleeve (68), stop (71) and spring pins (70).

(4) Strip backup rings (64A) and O-ring packing (65) from inner sleeve (68). Remove backup rings (65B, and 72A) and O-ring packings (65A, 73) from stop (71).

K. Bend back tab on washer (75) using tab bending tool F80-0-1874 or F80-0-1875 or C27019-1. Remove nut (74) using adapter F80-0-1552-14 or F80259-3. Pull lock stud (78) from barrel (81). Remove washer (75), retainers (76) and packing (77).

NOTE: Do not disassemble barrel assembly (81) unless necessary for repair or replacement.

L. Inner piston (43).

(1) Straighten staked portion of retainer (44) and rotate retainer through 45 degrees. Remove retainer (44) by pulling it straight out.

(2) Depress retainer (46) into piston (63) until ring (45) drops into the groove provided in retainer (46).

NOTE: Grease may be applied to groove in retainer (46) to hold segments of ring (45) in place to facilitate disassembly.

(3) Release retainer (46) while ensuring that the segments of retainer (45) clear the bore of piston (63). Remove retainers (45) and pull assembled parts (46 thru 50) from piston (63). Remove washer (53) and spring (52).

(4) Remove segments (51) from piston (47) and retainer (46).

NOTE: Segments (51) are a matched set and must be kept together for proper fit.

(5) Depress stop (57) and remove keys (54) through slots in piston (47). Release stop (57) and remove stop (57), spring (56) and spring guide (55).

(6) Remove spring seat (58), retainers (60, 62) and packings (59, 61).

4. Blocking Valve (Fig. 1102).

CAUTION: DO NOT REMOVE THE SLEEVES (31, 32) FROM THE HOUSING (35) UNLESS REPLACEMENT IS NECESSARY. SLEEVES (31, 32) ARE INSTALLED BY SHRINK FIT METHOD AND CANNOT BE REMOVED WITHOUT DAMAGE TO SLEEVES (31, 32).

CAUTION: SLIDE (29) SLEEVE (32) AND HOUSING (33) ARE MATCHED SETS. MAINTAIN IDENTITY OF THESE PARTS WITH EACH OTHER.

A. Securely fasten blocking valve (6, Fig. 1101) in padded vise and loosen retainer cap (1). Remove cap (1), stop (2), shim (3), springs (4, 5), and slide (29). Measure thickness of shims (3) to facilitate reassembly. Do not remove sleeve (32) unless replacement is necessary.

B. Remove rings (6) and packing (7) from cap (1).

C. Remove retainer cap (8). Remove shims (11), spring (9), and slide (28). Measure thickness of stacked shims (11) to facilitate reassembly. Strip rings (12) and packing (13) from slide (28). Do not remove sleeve (31) unless replacement is necessary. Remove sleeve (31) using electro-arc disintegration method.

CAUTION: DO NOT REMOVE THE SLEEVES (31, 32) FROM THE HOUSING (35) UNLESS REPLACEMENT IS NECESSARY. SLEEVES (31, 32) ARE INSTALLED BY SHRINK FIT METHOD AND CANNOT BE REMOVED WITHOUT DAMAGE TO SLEEVES (31, 32).

CAUTION: SLIDE (28), SLEEVE (31) AND HOUSING (33) ARE MATCHED SETS. MAINTAIN IDENTITY OF THESE PARTS WITH EACH OTHER.

D. Remove plug (14) and strip off ring (I5) and packing (16).

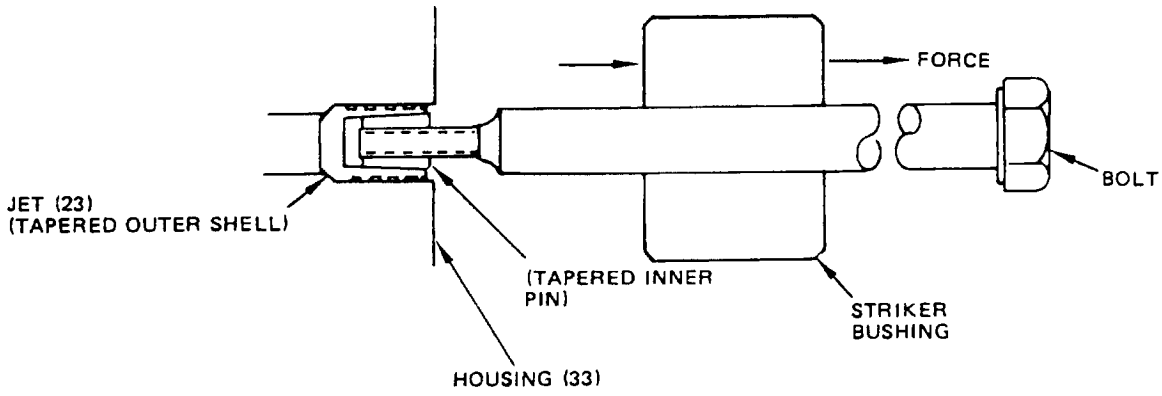
E. Do not remove retainer (21), filter screen (22), or jet (23) unless necessary.

NOTE: Reasons for removal would include leakage, to gain access to internal passages as recommended by troubleshooting or to clean these components.

(1) Remove retainer (21) from housing (20) using puller for 2-64 UNF-3B thread.

(2) Remove filter screen (22) (if used). Remove jet (23) inner sleeve and outer shell using bolt and striker bushing per Fig. 101.

F. Do not remove rivet (17), washer (18), nameplate (19), pins (24, 25, 34) or plugs (26) unless replacement is necessary.



Blocking Valve Jet Removal
Figure 101

G74920

CLEANING

1. Clean all parts except bearings (29, 85, Fig. 1101) in accordance with standard industry practices and the information contained in 20-30-03. Clean bearings (29, 85) by special method for teflon lined bearing per 20-30-01.

INSPECTION/CHECK

1. Check all parts for obvious defects in accordance with standard industry practices. Refer to Fig. 601 for design dimensions and wear limits.

2. Perform penetrant check per 20-20-02 on the following parts:

   A. Plug (11), gland nut or retainer (19), retainer (20), bearing or outer sleeve (25), gland nut (27), ring (45), piston (50), seat (58), stop (69), sleeves (68, 68A), barrel (86) (Fig. 1101).

   B. Springs (4,5,9), retainer (21) (Fig. 1102).

3. Perform magnetic particle check per 20-20-01 on the following parts:

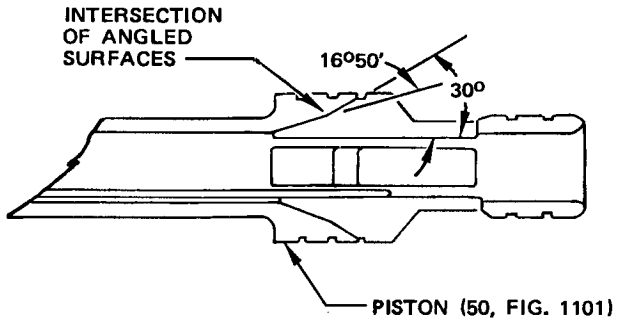
   A. Plug (8), nut (17), bearing (25), rod end (30), inner piston (63), outer piston (68), transfer tube or stop (71), nut (74), retainer (46), segments (51), key (54), stop (57), and locking stud (80) (Fig. 1101).

   B. Stop (2), cap (8), plug (14), slides (28, 29) sleeves (31, 32), (Fig. 1102).

4. Examine inner piston locking mechanism for points of contact (Fig. 1101).

   NOTE: All points of contact must show an even distribution about a centerline axis.

   A. Check that segments (51) contact piston (50) 30 degree angled surface at least 0.05 inch from intersection of 30-degree and 16-degree 50-minute angled surfaces (Fig. 301).



Lock Piston Angled Surface Location
Figure 301

B. Check segments (51) for OD contact area. Check that front face of each segment tip is not more than 0.25 inch from OD contact area.

C. Check segments (51) for point contact on each end face.

D. Check for evidence of contact between segment (51) end faces and faces of slots in retainer (46) seats.

5. Place a magnetometer along magnet (48, Fig. 1101) centerline and measure flux density. Pole strength must be 65-75 gauss at 0.268-0.272 inch from face of magnet (48).

6. Check switch (33) actuating limits (Fig. 303).

NOTE: Procurement for switch assembly (33) is limited to the following approved sources: (1) Parker-Bertea, Irvine, California
(2) The Boeing Company, Seattle, Washington

A. Place magnet tool with magnet (Fig. 302) on switch centerline. The centerlines of the tool magnet and the switch must be aligned to within 0.004 inch.

NOTE: Magnet, used with magnet tool, to be similar to magnet (48) except pole strength to be 64-66 gauss at 0.268-0.272 inch from face of magnet.

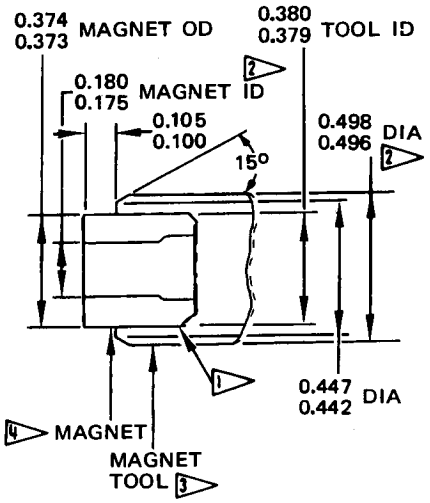
B. Move tool magnet toward switch (33) until flush with surface -C- of switch. Check that switch is closed.

NOTE: Switch closure may be confirmed using volt-ohmmeter on X1000 resistance scale, or equivalent indicator, that provides not more than 100 milliamps current through switch.

C. Move tool magnet gradually away from surface -C- of switch until switch opens. Check distance at this position per Fig. 303.

D. Move tool magnet gradually toward surface -C- of switch until switch closes. Check distance at this position per Fig. 303.

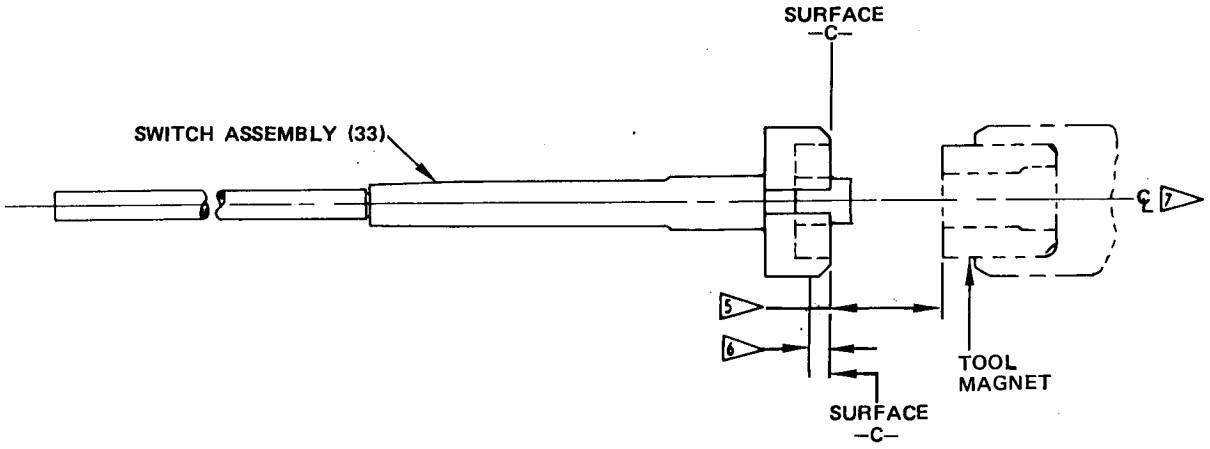
E. Continue to move tool magnet toward surface -C- and then past surface -C- for secondary actuation limit. Switch must remain closed to dimension per Fig. 303.



MATERIAL:
MAGNET: ALNICO 5 BAR
TOOL: 17–4PH CRES

1. SHIM AS REQUIRED TO MAINTAIN 0.0006 INCH MIN CLEARANCE BETWEEN MAGNET AND TOOL. COLD BOND MAGNET AND TOOL TOGETHER PER 20-50-12
2. THESE DIAS CONCENTRIC WITHIN 0.005 TIR
3. MAGNET TOOL MACHINED PER END OF LOCK PISTON (50, FIG. 1101)
4. MAGNET SIMILAR TO MAGNET (48, FIG. 1101) EXCEPT POLE STRENGTH TO BE 64–66 GAUSS AT 0.268–0.272 INCH FROM FACE OF MAGNET

Checking Tool
Figure 302



SWITCH (33) PART NO.	5 LIMITS		6 LIMITS
	OPEN	CLOSED	CLOSED
65–44873–1, –6	0.410 MAX	0.350 MIN	0.000 MIN
65–44873–4, –5	0.410 0.380	0.300 MIN	0.000 MIN
65–44873–7, –8, –10	0.310 MAX	0.250 MIN	0.070 MIN

5. PRIMARY ACTUATION RANGE
6. SECONDARY ACTUATION RANGE
7. CENTERLINES OF SWITCH ASSEMBLY AND TOOL MAGNET SHALL BE ALIGNED WITHIN 0.004 INCHES

Switch Actuating Limits
Figure 303

7. Check springs in accordance with Fig. 303.

Fig. & Item No.	Approximate Free Length (inches)	Test Length (inches)	Load Limits (pounds)
1101-31	1.16	0.79-0.81 0.61-0.63 0.46 *[1]	2.70-3.30 4.05-4.95
1101-52	2.265	1.849-1.851 1.500 84 *[1]	52.0-64.0
1101-56	3.300	2.56-2.58 1.72-1.74 0.98 84 *[1]	3.42-4.18 7.29-8.91
1102-4 (69-35944)	1.966	1.634-1.644 1.254-1.264 0.936 *[1]	26.70-29.50 57.67-63.73
1102-4 (69-66648)	1.938	1.068-1.078 1.634-1.644 0.972 *[1]	74.19-82.01 25.60-28.40
1102-5	1.862	1.530-1.540 1.150-1.160 0.965 *[1]	13.27-14.67 28.69-31.71
1102-9	1.666	1.569-1.571 1.239-1.241 1.110 *[1]	27.6-30.4 122.1-134.9

*[1] No permanent set shall result when compressed to this length.

CAUTION: DO NOT REMOVE THE SLEEVES (31, 32) FROM THE HOUSING (35) UNLESS REPLACEMENT IS NECESSARY. SLEEVES (31, 32) ARE INSTALLED BY SHRINK FIT METHOD AND CANNOT BE REMOVED WITHOUT DAMAGE TO SLEEVES (31, 32).

8. Housing assembly (30, Fig. 1102):

   A. Check the sleeves (31, 32, Fig. 1102) are tight in housing (30, Fig. 1102).

   B. Do a magnetic check particle (SOPM 20-20-01) of the housing (35, Fig. 1102) with the sleeves (31, 32, Fig. 1102) installed. Make sure to remove all traces of the magnetic particle inspection solution from the passage ways of the housing (35, Fig. 1102).

9. Check valve slides and sleeves of blocking valve (6, Fig. 1101), without packings, as matched assemblies.

   (1) Lubricate slide and sleeve thoroughly with hydraulic fluid BMS 3-11 or equivalent, at room temperature, and assemble.

   (2) Turn assembly on end. Check that slide moves freely under its own weight through sleeve at each of three angular positions spaced approximately 120 degrees apart.

10. Perform proof pressure check on tubes. Apply 6000 psi fluid pressure to tube (4, 5, 6, 8 or 9, Fig. 1103). Check that there is no evidence of permanent deformation or leakage.

11. Inspect the rod ends (30, 95, Fig. 1101)

    A. Visually inspect rod ends (30, 95) for signs of vibro-engraving (vibro-engraving is any identification that is etched, scraped or cut into the material of the part).

    B. If no evidence of vibro-engraving is found, then no further inspection or rework is required.

    C. If evidence of vibro-engraving is found on the rod ends (30, 95) inspect the rod ends for cracks using 10x magnification minimum.

    D. If cracks are found, then discard the rod end and replace it.

    E. If no cracks are found, then refer to the repair section for repair instructions.

REPAIR

1. Repair

A. Repair minor defects using standard industry practices.

B. Barrel assembly (81, Fig. 1101) (Fig. 400) - steel sleeve repair.

NOTE: This method allows repair of barrels which have bare, hard anodized, chrome plated or oversized barrel bores, providing wear does not exceed 1.9920-1.9945 inch repair diameter.

(1) Plug all passages to prevent or minimize contaminant entry into actuator.

(2) Machine bore (diameter C) and counterbore (bubbles A and B) to dimensions shown to remove defects. Maintain a surface finish of 32-rhr or better.

NOTE: Diameter -D- is machined at counterbore location for bubble A only. Remainder of diameter -D- to be left at 2.245-2.246 inches.

(3) Shot peen the machined surface identified by flagnote 5 in Fig. 400. Hand peening is permitted.

(4) Fabricate sleeve 65C31196-4 as shown in Fig. 400A. Use 4330M steel, or 4130 seamless steel tubing or AMS 6411, 150-170 ksi.

(a) Magnetic particle check (SOPM 20-20-01) sleeve after machining.

(b) Clean sleeve (SOPM 20-30-03).

(c) Rubber stamp sleeve with part number "65C31196-4" (SOPM 20-50-10).

(d) Finish sleeve as shown on Fig. 400A.

(5) Hone the 1.9920-1.9945 inch diameter bore to achieve a 0.0025-0.0030 inch diametral interference fit to actual sleeve OD. Keep barrel and sleeve as a matched set.

(6) Thoroughly clean barrel per SOPM 20-30-03 to remove grease, oil, and solid contaminants. Flush all passages to remove chips.

(7) Penetrant check barrel per SOPM 20-20-02.

(8) Alodine reworked surfaces per SOPM 20-43-03 Type II.

(9) Heat barrel to 250°F; cool sleeve to -65°F, then install sleeve in barrel. Check that sleeve has completely and firmly bottomed on internal shoulder of barrel.

(10) Hone sleeve to dimension and finish shown. Clean bore per SOPM 20-30-03; dry thoroughly, then oil bore with BMS 3-11 hydraulic fluid.

(11) Vibro engrave new assembly number on barrel assembly; locate approximately as shown. Minimum edge margin 0.10 inches from insert/plug holes required.

C. Barrel assembly (81, Fig. 1101) (Fig. 400B) -

Option 1 - Repair for the removal of corrosion from the surface of the barrel assembly that mates with the blocking valve assembly (6).

NOTE: During assembly a washer may be used with screw (5) to account for material removed during this repair.

(1) Plug all passages to prevent or minimize contaminant entry into actuator.

(2) Machine the surface of the barrel assembly that mates with the blocking valve assembly as necessary to remove corrosion. Do not machine beyond the minimum repair dimension of 1.435 inch as shown in Fig. 400B. The surface finish must be 32 microinch or better. Maintain 0.05 inch fillet radius, and re-establish 90-120° X 0.29-0.33 inch countersink on holes.

(3) Do a penetrant check of the machined area as specified in SOPM 20-20-02.

(4) Chemical treat the machined area as specified in SOPM 20-43-03.

Option 2 - Repair for spot removal of corrosion from the surface of the barrel assembly that mates with the blocking valve assembly (6).

(1) Plug all passages to prevent or minimize contaminant entry into actuator.

(2) Locally remove corrosion to a depth of 0.03 with a minimum blend radius of 0.06. No repair within 0.25 inches of the centerline of the five 0.126/0.120 inch diameter fluid holes and the six 0.264/0.257 inch diameter mounting bolt holes.

(3) Penetrant inspect per SOPM 20-20-02.

(4) Apply Alodine 1200 corrosion preventative per SOPM 20-43-03.

(5) Fill the reworked areas with BMS 5-28, Type 1 or 15 compound (optional BMS 5-95 sealant) flush with the mounting surface to avoid water trap and ensure the gasket plate mounts flat on the mounting surface.

D. Inner piston (63, Fig. 1101, P/N 65-44545-2) head repair (Fig. 401)

(1) Machine head as required, within repair limit shown, to remove defects.

(2) Build up repair area with chrome plate and grind to design dimension and finish shown. Observe no plating area as indicated in Fig. 401.

E. Transfer tube (71, Fig. 1101, P/N 69-35877-2) repair (Fig. 401)

(1) Machine the I.D. of the tube to 1.184 inch diameter max. Maintain a 32 RHR or better surface finish.

(2) Magnetic particle check, class B, per SOPM 20-20-01.

(3) Shot peen the 1.184 inch diameter per SOPM 20-10-03 to the following values; shot size 170-460, intensity 0.006A, coverage 2.0.

(4) Chrome plate 1.184 diameter as shown. Runout is 0.01-0.03 inch.

(5) Grind chrome plating per SOPM 20-10-04 to dimensions, finish and cylindricity as shown.

(6) Magnetic particle check, class B, per SOPM 20-20-01.

F. Rod ends (30, 95, Fig. 1101) - Repair of vibro-engraved rod ends.

(1) Option 1 - Rework the rod end

(a) Remove the vibro-engraved part number by hand polishing. Use 180 grit emery paper, followed by a final polish with 320 grit or finer emery paper to obtain a smooth, polished surface finish. Remove the minimum amount of material required to remove the vibro-engraving. The polished surface shall be smooth and free of any abnormal surface shape changes.

(b) Part mark the rod end using rubber-stamp method, and apply a skydrol and abrasive resistant, clear coat finish as specified by SOPM 20-50-10.

(2) Option 2 - Send the rod assemblies to the vendor they were received from for repair or replacement.

2. Refinish

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

A. Piston and Barrel parts (Fig. 1101)

(1) Plug (11), nut (19) (69-54568-1, -2), stop (69) -- Chromic or sulfuric acid anodize (F-2.20 or F-2.201) all over. Material: Al alloy.

(2) Nut (17) -- Passivate (F-8.07) all over. Material: 17-4 PH, 170- 190 KSI.

(3) Seal retainer (19) (69-35707-1) and retainer (20) -- Cadmium plate (F-4.201), 0.0003-0.0005 inch thick on flat surface and OD. On retainer (20), OD and ID must be concentric within 0.001 inch TIR (do not plate ID or chamfered face). Material: Al-Ni-Bronze per AMS 4640.

(4) Bearing (25) (69-35706-1) -- Passivate (F-8.07) all over, except cadmium plate (F-1.1929) on OD from end around to edge of packing groove. Maintain 63-microinch finish. OD must be concentric with small ID within 0.0005 inch. Material: 15-5 PH, 180-200 KSI.

(5) Bearing (25) (69-54567-1) -- Cadmium plate (F-4.201), 0.0003-0.0005 inch thick per Fig. 401. Material: Al-Ni-Bronze per AMS 4640.

(6) Outer sleeve (25) -- Sulfuric acid anodize (F-2.201) all over. Material: Al alloy.

(7) Gland nut (27) -- Cadmium plate (F-4.201) all over, 0.0003-0.0005 inch thick, except on ID bearing surface. Material: Al-Ni-Bronze per 4640.

(8) Rod end (30) -- Passivate (F-8.07) all over. Material: 17-4 PH, 170-190 KSI.

(9) Spring (31) -- Passivate (F-8.07) all over. Material: 17-7 CRES.

(10) Container (38) -- Passivate (F-8.07) all over. Material: AISI 303 CRES, 180-200 KSI.

(11) Retainer (44), washer (75) -- Chromic acid anodize (F-2.20) all over. Material: Al alloy.

(12) Piston (50) -- Passivate (F-8.07) all over, except chrome plate (F-1.842) 0.004-0.006 inch thick as shown in Fig. 401. Grind per 20-10-04 to design dimensions and finish shown. Material: 17-4 PH, 180-200 KSI.

(13) Washer (53) -- Passivate (F-8.07) all over. Material: AISI 302 or 416 CRES, 150-200 KSI.

(14) Spring (56) -- Passivate (F-8.07) all over. Material: 15-7 PH CRES.

(15) Stop (57), lock stud (80) -- After stripping old finish, bake 8 hours at 350-400°F. Chrome plate (F-15.04) as shown in Fig. 401, and grind per 20-10-04 to design dimensions shown. Material: 4340 M steel, 270-300 KSI.

(16) Inner piston (63), -- Passivate (F-8.07) all over. On 65-44545-1, chrome plate (F-15.04), 0.003-0.005 inch thick on rod and OD of piston, on 65-44545-2, chrome plate (F-15.04), 0.003-0.005 inch thick on rod only (Fig. 401). Material: 15-5 PH, 180-200 KSI.

(17) Outer piston (68) -- Passivate (F-8.07) all over. On 65-44653-1,-3 chrome plate (F-15.04) 0.003-0.005 inch thick on OD of piston area, as shown in Fig. 401. Material 15-5 PH, 180-200 KSI.

(18) Inner sleeve (68) -- Anodize (F-2.204) on exterior, 0.0002-0.0005 inch thick. Material: Al alloy.

(19) Transfer tube (71) -- Passivate (F-8.07) all over (Fig. 401). Material: (69-35877-2) 15-5 PH, 180-200 KSI, or (69-54603-1) 4340 steel, 180-200 KSI.

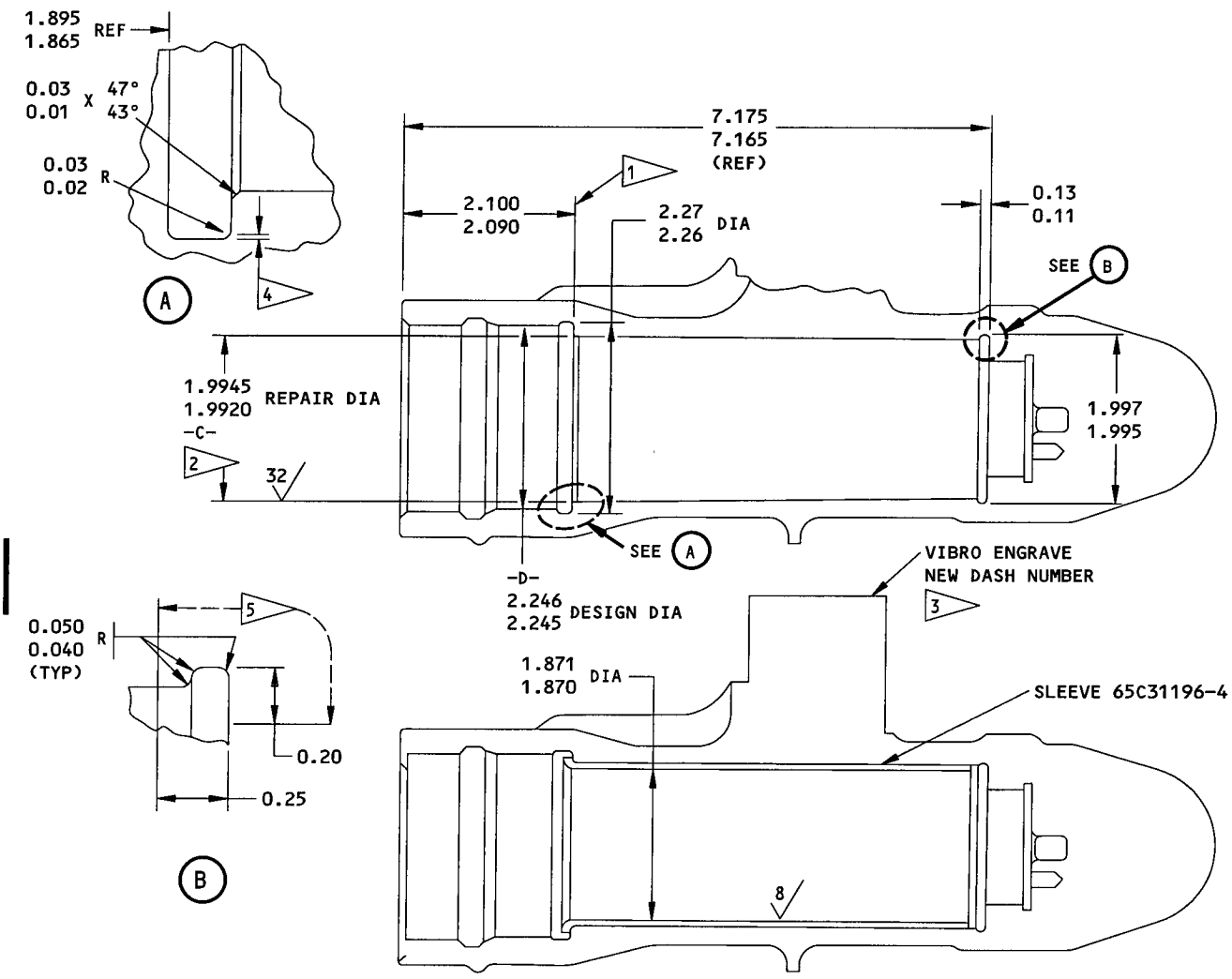
(20) Barrel (86) (65-44652-7, -10, 65-44703-9, -11) -- Chromic acid anodize (F-2.26) all over. Material: Al alloy.

(21) Barrel (86) (65-44652-2, 65-44703-7) -- Anodize (F-2.204), 0.0002- 0.0004 inch thick on exterior only. Material: Al alloy.

B. Blocking Valve parts (Fig. 1102)

(1) Retainer (1), stop (2) -- Passivate (F-8.07) all over. Material: 17-4 PH CRES, 170-190 KSI.

(2) Springs (4, 5) -- Nickel plate (F-1.801) except 0.0003-0.0005 inch thick. Material: Elgiloy.



REFINISH

SLEEVE: CADMIUM PLATE PER 20-42-05, TYPE II, CLASS III, 0.0002-0.0003 INCH THICK.
BARREL: CHROMIC ACID ANODIZE (F-2.26) EXTERIOR SURFACE ONLY

1> PERPENDICULAR TO -C- WITHIN 0.0010

2> TOTAL RUNOUT WITH RESPECT TO -D- TO BE WITHIN 0.001

3> VIBRO ENGRAVE NEW DASH NUMBER. MINIMUM EDGE MARGIN 0.10 INCHES FROM INSERT/PLUG HOLES IS REQUIRED

65C31196-5 FROM 65-44652-4 OR -12
65C31196-6 FROM 65-44652-6
65C31196-7 FROM 65-44652-8,-14,-18
65C31196-11 FROM 65-44703-6
65C31196-12 FROM 65-44703-8
65C31196-13 FROM 65-44703-10

REPAIR

REF 1> 2> 3> 4>

MATERIAL:

SLEEVE: 4330M STEEL, 4130 SEAMLESS STEEL TUBING OR AMS 6411, 150-170 KSI
BARREL: ALUM ALLOY

SHOT PEEN (REF 20-10-03): 0.019 A2 INTENSITY 2.0 COVERAGE

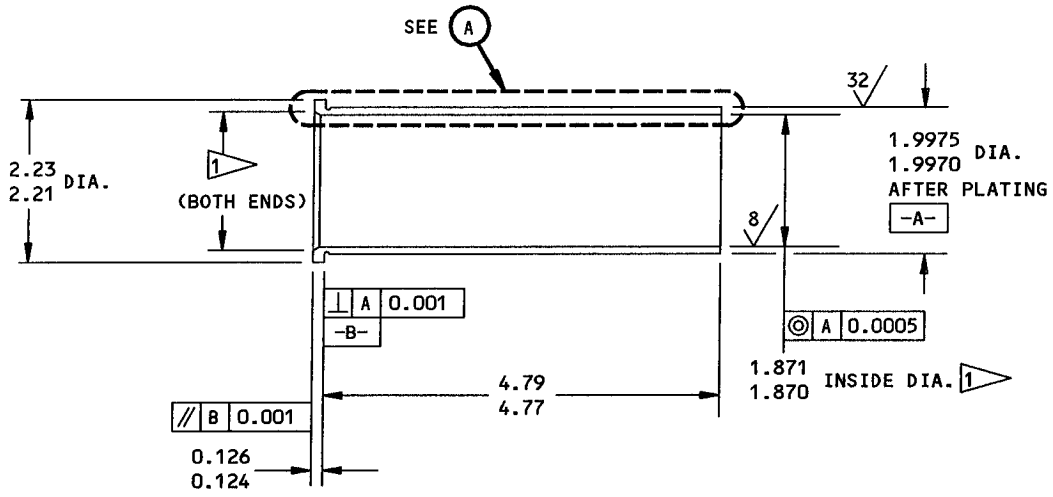
BREAK SHARP EDGES

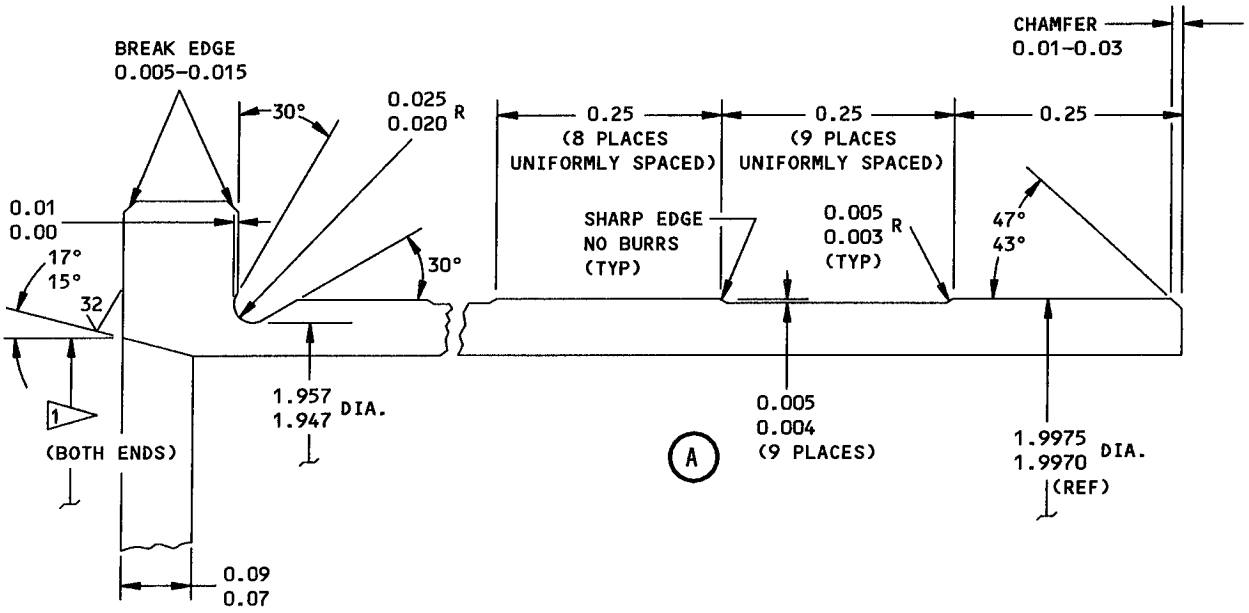
ALL DIMENSIONS ARE IN INCHES

4> A RUNOUT OF 0.005 INCH MAXIMUM IS PERMITTED AT THE COUNTERBORE DIAMETER WHEN YOU MACHINE FOR THE SLEEVE

5> SHOT PEEN THE INSIDE SURFACE SHOWN. HAND PEENING IS PERMITTED.

Barrel Assembly Repair
Figure 400





REFINISH

CLEAN SLEEVE BEFORE CAD PLATING (REF 20-30-03)

CADMIUM PLATE (F-15.25), EXCEPT 0.0002-0.0003 THICK, AND COAT WITH PRESERVATIVE OIL ALL OVER EXCEPT WHERE NOTED BY 1

1 NO CAD PLATE ON INSIDE DIA. OR INSIDE DIA. CHAMFERS (BOTH ENDS)

REPAIR

MATERIAL: 4330M STEEL, 4130 SEAMLESS STEEL TUBING OR AMS 6411, 150-170 KSI

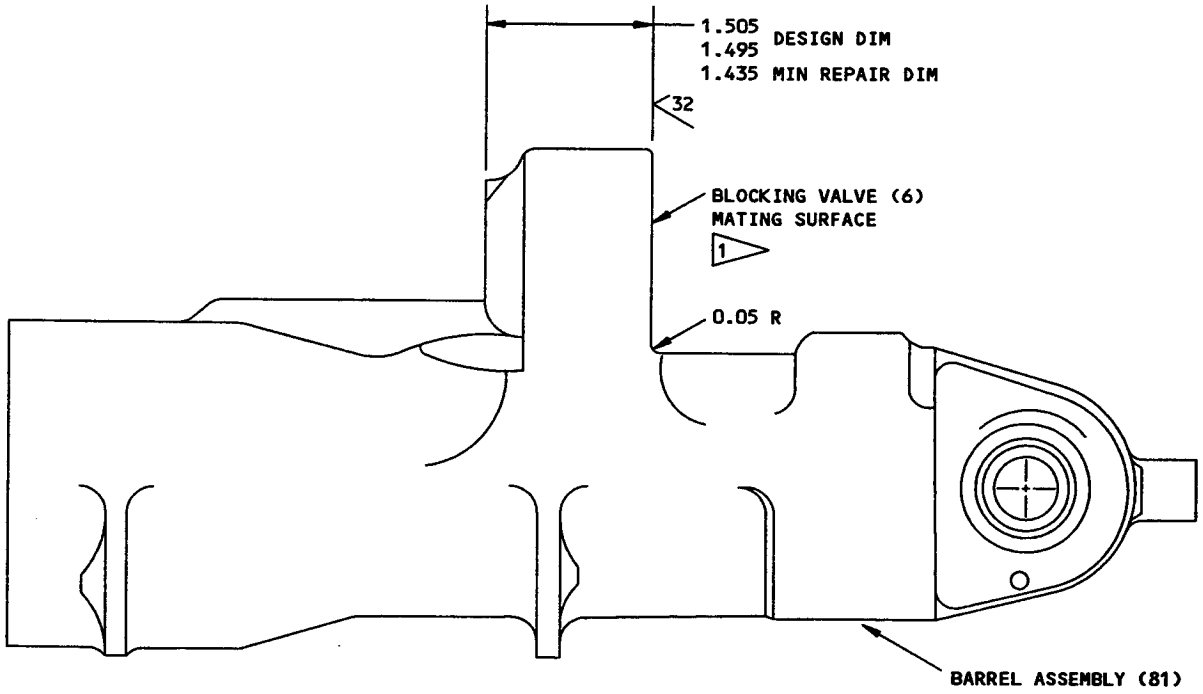
ALL DIMENSIONS ARE IN INCHES

TOLERANCES: DECIMALS ± 0.01

FINISH: 125 MICROINCHES UNLESS OTHERWISE NOTED

STEEL SLEEVE FABRICATION

Barrel Assembly Repair
Figure 400A



REFINISH

CHROMIC ACID ANODIZE (F-2.26)
EXTERIOR SURFACE ONLY

1 CHEMICAL TREAT MACHINED AREA
AS SPECIFIED IN 20-43-03

REPAIR

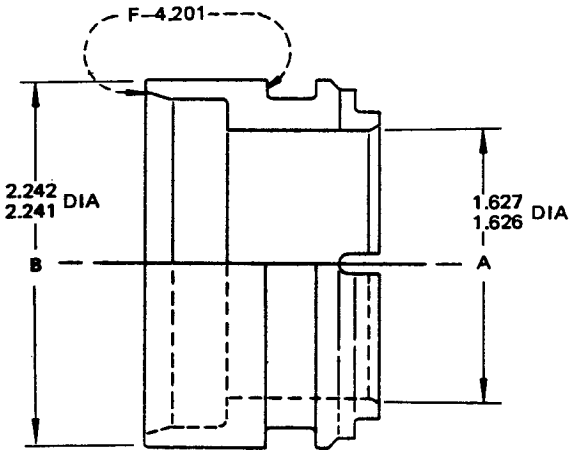
REF 1

MATERIAL: AL ALLOY

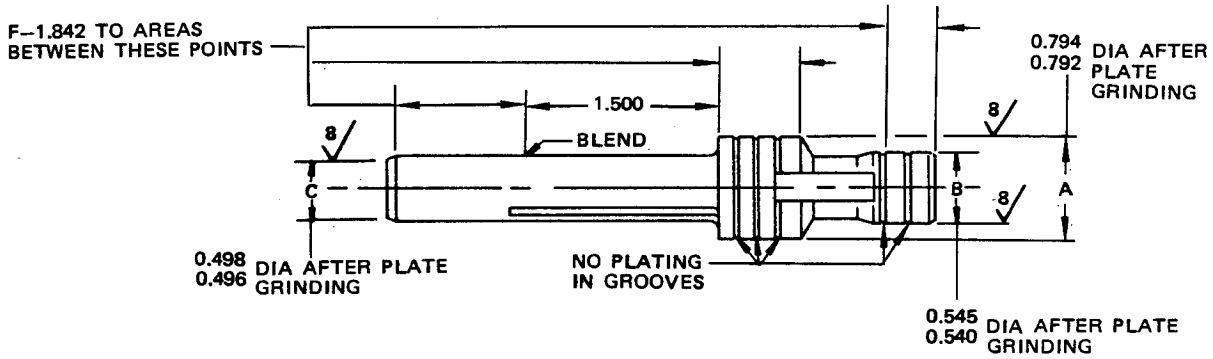
ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO FIG. 1101

Barrel Assembly Repair - Blocking Valve Mating Surface
Figure 400B



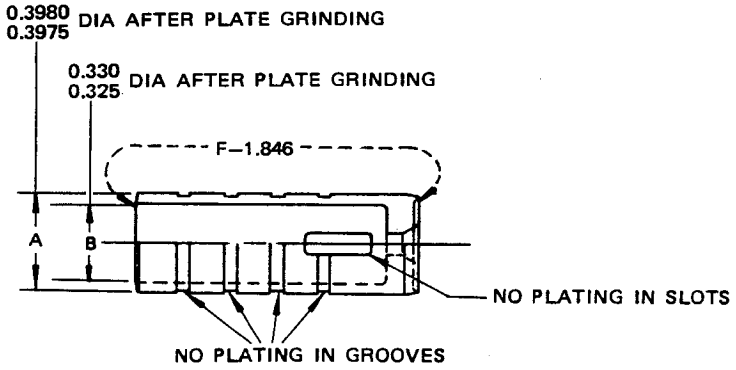
BEARING (25, FIGURE 1101, P/N 65-54567-1)



DIAMETERS "B" AND "C" MUST BE
CONCENTRIC WITH DIA "A" WITHIN 0.002 TIR

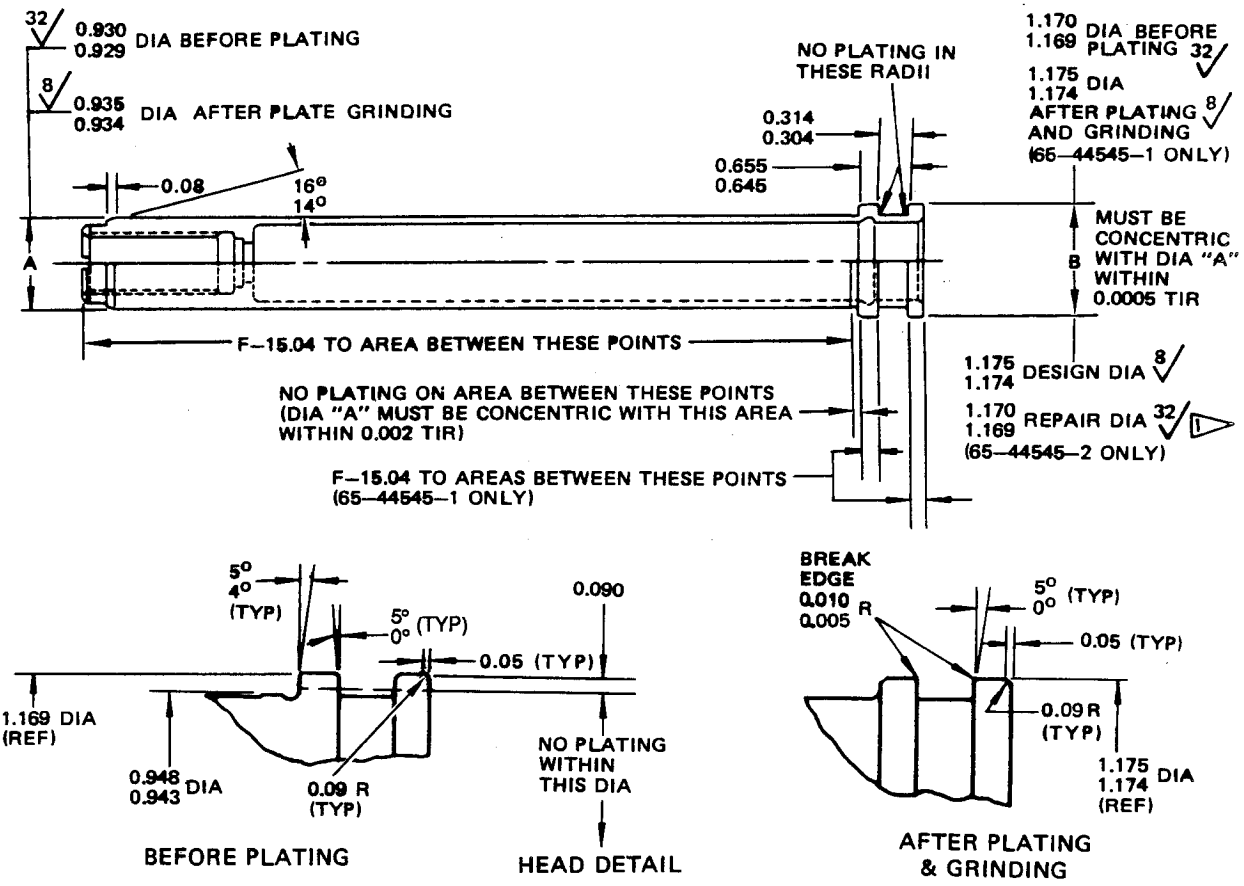
LOCK PISTON (50, FIGURE 1101)

ALL DIMENSIONS ARE IN INCHES



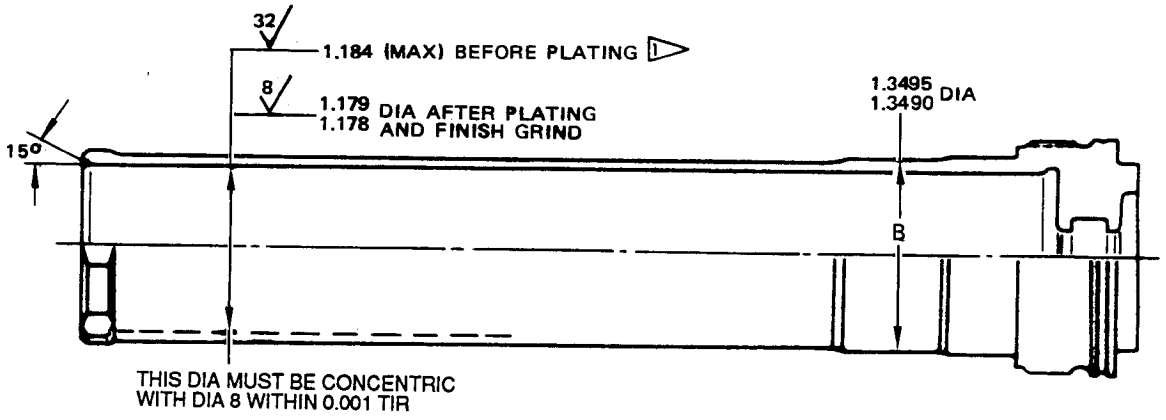
DIAMETERS "A" AND "B"
TO BE CONCENTRIC TO
EACH OTHER WITHIN 0.002

SEGMENT STOP (57, FIGURE 1101)



MATERIAL: 15–5 PH CRES, 180–200KSI

INNER PISTON (63, FIGURE 1101)

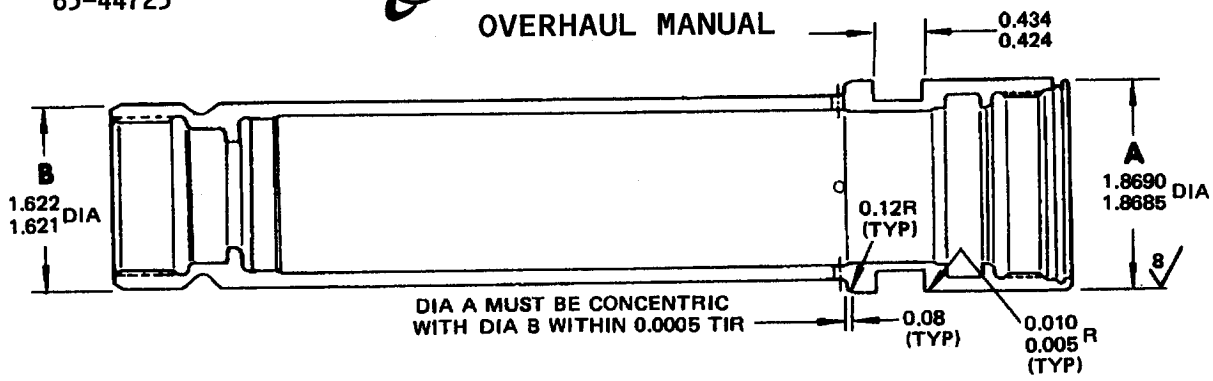


TRANSFER TUBE (71, FIGURE 1101)

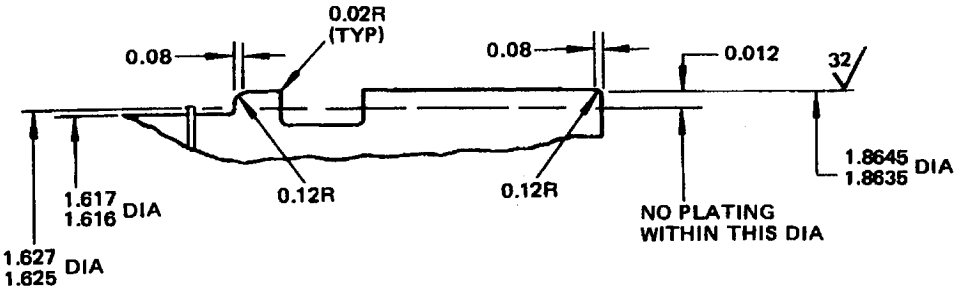
1 BUILDUP WITH CHROME PLATE AND GRIND TO DESIGN DIMENSION AND FINISH SHOWN

ALL DIMENSIONS ARE IN INCHES

Refinish Diagram
Figure 401 (Sheet 2)

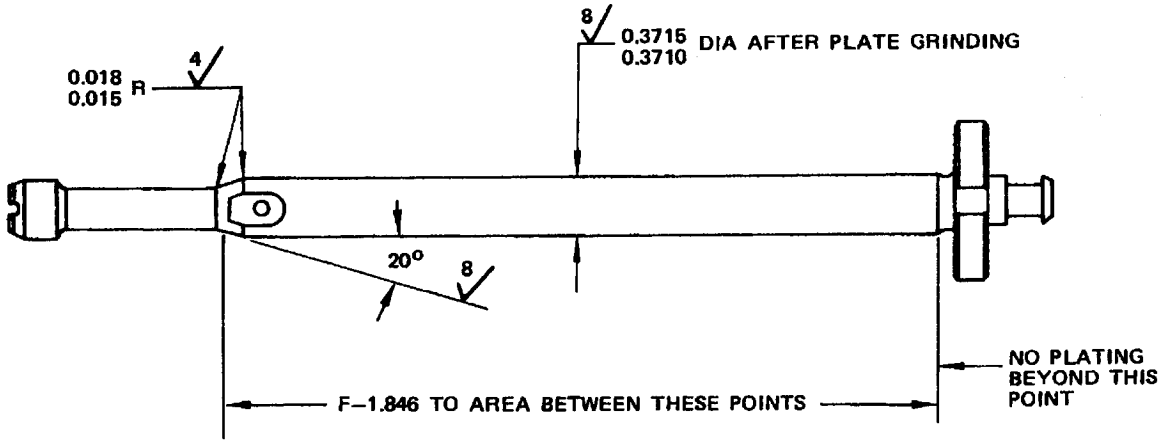


OUTER PISTON (68, FIGURE 1101) 65-44653-1,-3



ALL DIMENSIONS ARE IN INCHES

HEAD DETAIL
BEFORE PLATING



LOCK STUD (80, FIGURE 1101)

Refinish Diagram
Figure 401 (Sheet 3)

H15243

(3) Springs (9) -- Cadmium plate (F-1.1923). Material: 9254 Chrome-Silicon wire per QQ-W-412.

(4) Plug (14), retainer (21) -- Passivate (F-8.07) all over. Material: 17-4 PH CRES.

(5) Slide (28), Sleeve (31) -- Passivate (F-8.07) all over. Material: 440C CRES.

(6) Sleeve (32) -- Apply no finish (F-25.01). Material: Nitralloy 135 modified per BAC5640.

(7) Housing (35) -- Passivate (F-8.07 or F-17.09) all over. Material: 15-5PH or 17-4PH CRES.

C. Actuator assembly parts (Fig. 1103).

(1) Brackets (18, 19, 20, 26) -- Alodize or chromic acid anodize and apply BMS 10-11, Type 1 primer (SRF-2.30) all over. Material: Al alloy.

(2) Bracket Assys (12, 13, 14, 23) -- Apply BMS 10-11, Type 2, white enamel (SRF-12.64), all over.

(3) Tubes (4 thru 9) (65-44654-3001 thru -3007 only) -- Apply BMS 10-11 Type 1 primer (SRF-12.206). Material: BMS 7-185 cold-drawn steel.

3. Replacement

A. Replace all irreparable or unserviceable parts.

B. Replace O-rings and backup rings.

C. Replace bearings as follows:

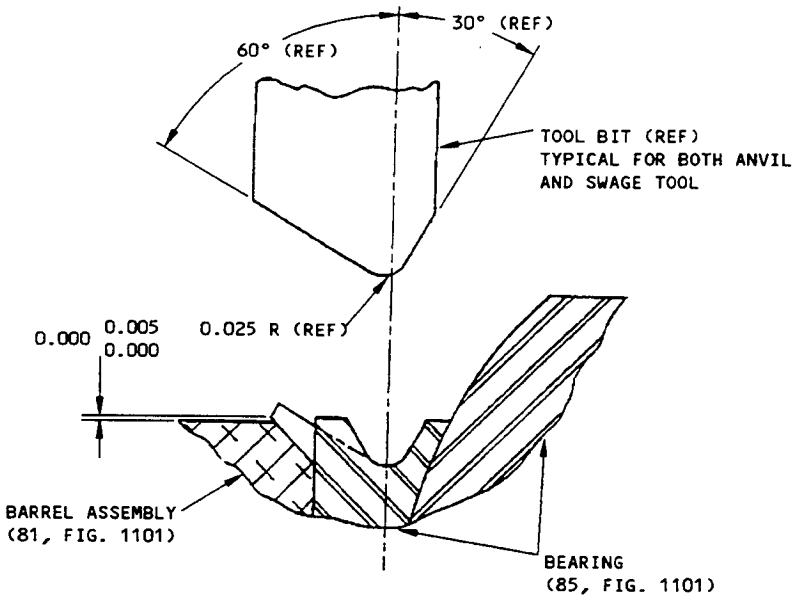
(1) Replace bearing (29, Fig. 1101) per SOPM 20-50-03.

(2) Replace bearing (85, Fig. 1101) per SOPM 20-50-03 as modified below (reference Fig. 401A):

(a) While supporting bearing on an anvil in an arbor press, use tool to swage outer lip over housing chamfer. Repeat for opposite side. There shall be no gap between swaged lip and the housing chamfer. Tool bit must not contact the ball side of the groove as binding may result.

(b) After swaging, breakaway torque of bearing shall not exceed 42 in lb. Check breakaway torque by first rotating the inner race through 360 degrees or more. Second, again rotate the inner race through 360 degrees, but note any position of higher than normal torque. Finally, measure breakaway torque at all positions where higher than normal rotational torque was encountered, or at 3 intervals of approximately 60 degrees if rotational torque was uniform.

D. Inserts (82, Fig. 1101) -- Install new inserts with wet BMS 10-11, Type II, Type 1 primer 3/4 to 1-1/2 turn below countersink. Remove tang.



Bearing (85, Fig. 1101) Installation
Figure 401A

E. Nameplate

(1) (4, Fig. 1101; 19, Fig. 1102) -- Steel stamp the serial and assembly numbers on the new nameplate before installation.

(2) (19A, Fig. 1102)

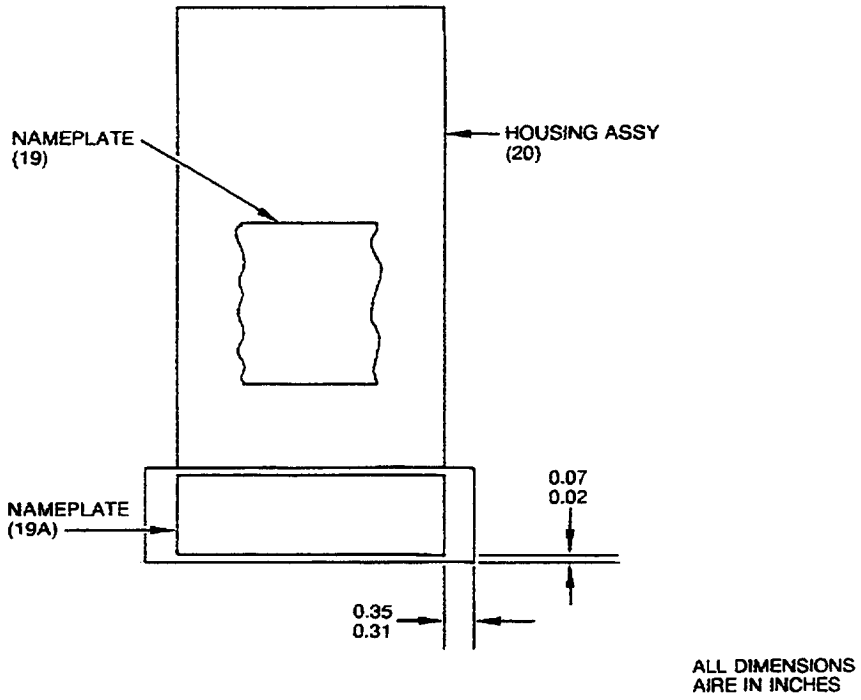
(a) Remove the damaged nameplate.

(b) Clean the surface (Ref 20-30-03).

(c) Install the new nameplate in the location shown (Fig. 402). Bend the nameplate as necessary to conform to the contour of the valve.

(d) Bond the nameplate to the valve using type 70 adhesive (Ref 20-50-12).

(e) Apply a fillet seal around the periphery of the nameplate. Use Type 70 adhesive.



Nameplate Replacement
Figure 402

F. Pins (83, 84, Fig. 1101; 25, 26, Fig. 1102) -- Replace per 20-50-04.

G. Pins (24, 34, Fig. 1102) -- Install new pins to protrude 0.210-0.215 inch (pin (24)) or 0.06 inch (pin (34)).

H. Blocking valve sleeve (31, 32, Fig. 1102)

(1) Remove sleeve (31 or 32)

(2) Clean cavity in housing (35) and check for defects.

(3) Hone OD of new sleeve for 0.0004-0.0008 inch interference fit with housing (35).

G74930

(4) Bake housing (35) in oven at 450-500°F for 1 hour.

(5) Install sleeves (31, 32) in housing (35). Allow to cool slowly to room temperature.

(6) Hone ID of sleeve (32) until slide (29) is a tight sliding fit in sleeve (32).

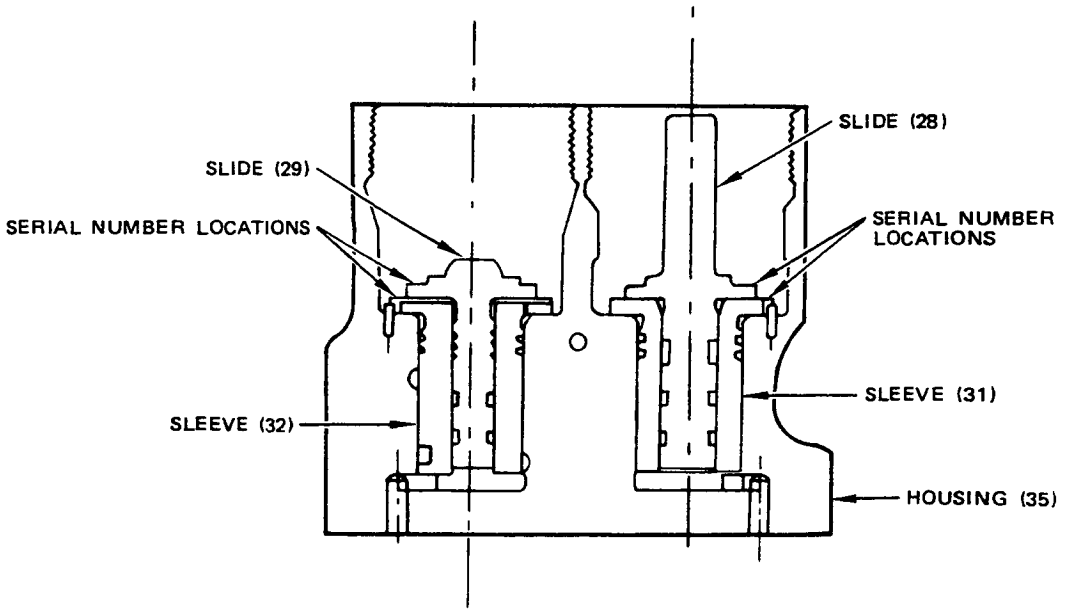
(7) Lap mating surfaces of slide (29) and sleeve (32) to a surface finish of 4 microinches or better with clearance which will keep leakage within limits per TESTING.

(8) Test slide and sleeve fit per INSPECTION/CHECK, par. 8.

(9) Fit slide (28) into sleeve (31) in accordance with steps (6), (7), and (8) preceding.

CAUTION: EACH OF THESE SETS IS PRECISION MATCHED. PARTS MUST BE KEPT TOGETHER TO MAINTAIN PROPER FIT.

(10) Electro etch or vibro-engrave serial numbers on each set per 20-50-10 and Fig. 403.



ITEM NUMBERS REFER TO FIGURE 1102

Blocking Valve Sleeve and Slide Serial Number Locations
Figure 403

I. Lock piston (Fig. 1101).

NOTE: Magnet (48) need not be replaced unless broken or loose; it may be recharged while bonded in piston (50).

(1) Immerse magnet end of lock piston assembly in paint remover until adhesive is softened.

(2) Using a suitable puller, remove magnet (48) from piston (50). Store new or serviceable magnet (48) carefully, to prevent loss of magnetic field. Store magnets individually in shock-absorbing, non-magnetc container and away from other magnetic material. Extract washers (49). Remove all traces of paint remover and adhesive using a clean gauze pad moistened with water. Wipe dry with clean gauze pad or blow dry with clean moisture-free compressed air.

(3) Prepare a test specimen magnet equivalent to magnet (48) and a test specimen piston equivalent to piston (50) to be assembled with washers (49) using the same bonding compound and procedure.

(4) Clean faying surfaces of magnet (48), washers (49) and piston (50) with solvent series 80 (Ref SOPM 20-30-80).

(5) Install washers (49). Center magnet (48) in the bore of piston (50) with four equally spaced shims 0.003 inch thick by 0.05 inch wide, and bond magnet in position per SOPM 20-50-12, Type 59, except curing temperature must not exceed 160°F. Trim projecting ends of spacer shims.

(6) Deleted

CAUTION: DO NOT ALLOW TEMPERATURE OF MAGNET (48) TO EXCEED 150°F, OR REDUCTION IN MAGNETIC STRENGTH MAY OCCUR.

(7) Machine the face of magnet (48) to dimensions in Fig. 404.

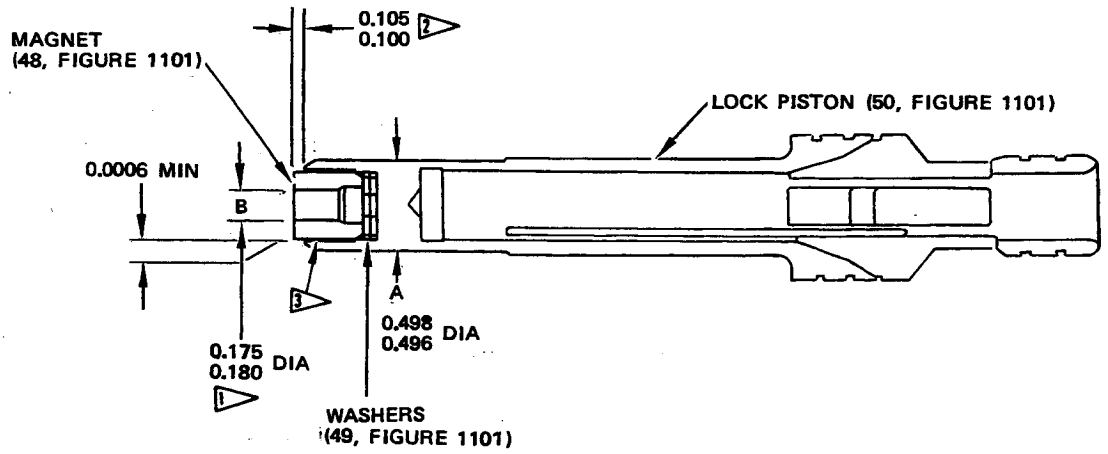
(8) Place a suitable magnetometer along magnet (48) centerline and measure flux density. At a distance of 0.268-0.272 inch from the face of the magnet, the flux density shall be 65-75 gausses.

(9) If the above limits are not met, magnet (48) shall be recharged while bonded into lock piston (50). After magnetizing and deguassing operations, the flux density at the end of lock piston (50) opposite magnet (48) shall be less than 20 gausses.

J. Lock Stud (Fig. 1101).

(1) Using a suitable punch remove pin (79) from lock stud (80).

(2) Install pin (79) flush with surface of lock stud (80) flange within 0.001 inch.



1 DIA B MUST BE CONCENTRIC WITH DIA A WITHIN 0.005 TIR

2 USE ADEQUATE COOLANT DURING MACHINING FACE OF MAGNET (48). MAGNET TEMPERATURE MUST NOT EXCEED 150 DEGREES F.

3 SHIM 0.003 THICK X 0.05 WIDE (OPTIONAL). TRIM FLUSH AFTER BONDING (4 PLACES APPROX 90° APART)

ALL DIMENSIONS ARE IN INCHES

Lock Piston Assembly Magnet Replacement
Figure 404

K. Switch (33, Fig. 1101) (On Actuator Assemblies 65-44651-6, -7, -8 with 69-54550-3 Rod End and all assemblies with 69-54550-1 Rod End).

(1) Remove connector (32), wire (32A), sleeves (32B and 32C), and tying material which secures lead wire at hole in rod end.

(2) Carefully withdraw switch (33) from rod end (30), pulling lead wires from holes in rod end (30). Remove spring (31), nut (17) and lock (16).

(3) Clean parts.

(4) Place lock (16) in nut (17) positioned with lockwire hole in lock (16) at outer end of nut (17). Run nut (17) and lock (16) onto rod end (30).

(5) Install spring (31). Thread wires of switch (33) through the side holes in rod end assembly (28) and slide the switch assembly into position in rod end (28).

NOTE: Ensure that flats on switch align with flats in rod end assembly.

(6) Place a yellow RNF-100, type 1, 0.0625 inch diameter Rayclad Thermofit heat shrinkable sleeve over each wire and tightly into the corresponding hole in the rod end, per 20-11-03.

(7) Install connector plug (32) as follows:

(a) Connect wire (32A) to shielding of switch lead wire.

1) Strip outer jacket from lead wire to within 4.5 inches of rod end assembly (28). Cut shielding at sufficient distance from end of jacket to allow folding the shielding over sleeve (32B).

2) Slide inner sleeve (32B) over shielding. Fold shielding back over the OD of sleeve.

3) Strip insulation from wire (32A) for a distance of approximately 0.5 inch. Double wire back on itself making a wire end 0.25 inch long.

4) Lay the prepared end of wire (32A) on the folded shielding with prepared end pointing toward connector (32).

5) Position outer sleeve (32C) over the end of wire (32A) and centered over sleeve (32B). Hexagonal swage outer sleeve to make a secure connection.

(b) Fold wire (32A) toward connector (32) and cover both wires and joint with clear RNF-100, Type 2, Rayclad Thermofit heat shrinkable sleeve, 0.250-inch diameter, per SOPM 20-11-03.

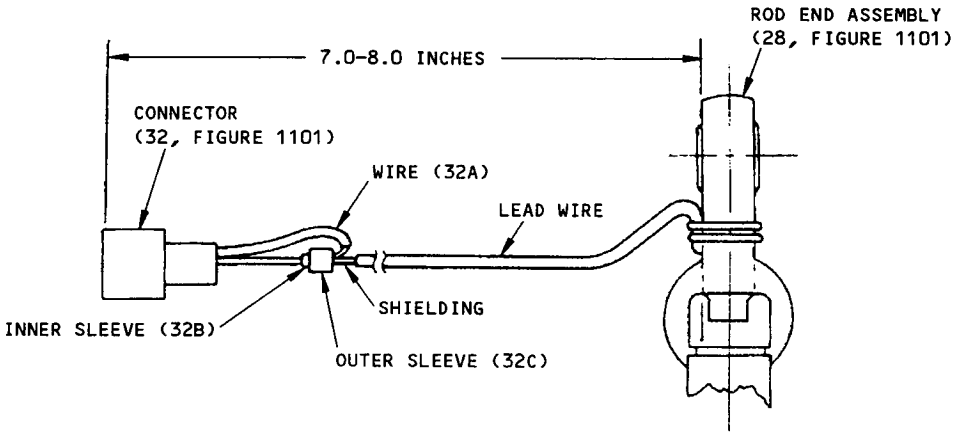
(c) Cut lead wires to length sufficient to give dimension indicated per Fig. 405 and install connector (32) per SOPM 20-11-02 with wire (32A) connected to pin 1 and lead wire from switch connected to pin 2.

(d) For 65-44651-6 (optional: 65-44651-7) with 65-44746-1 switch assembly only -- Using braid, Airtex 417X (Polyester) or Western Filament 50D0F17G (Dacron), secure switch lead wire. Apply a clove hitch firmly around rod end at lead wire hole. Tie a square knot firmly over the clove hitch and cut off free ends to a length of 0.25 to 0.50 inch .

CAUTION: DO NOT DEFORM INSULATION.

(e) With actuator in retract position, check that there is continuity between body of actuator and pin 1, and no continuity between body of actuator and pin 2.

(f) Apply sealant RTV 162 at point where switch lead wires enter rod end (28).



Switch Connection Details
Figure 405

L. Switch (33, Fig. 1101) (On Actuator Assemblies 65-44651-9 and on with 69-54550-3 Rod End) and Rod End and Switch Spares Assy (89, Fig. 1101).

(1) Thread wires of switch (33, 91) through side holes in rod end (30, 95). Slide switch into position in rod end, aligning flats on switch with flats in rod end.

(2) Install heat shrinkable tubing (32F, 104) over switch wires and a 10-inch length of wire rope (32D, 101). Do not shrink tubing at this time. Trim tubing (32F, 104) as required.

(3) Connect switch (33, 91) wires to connector (32, 98) as follows:

(a) Connect wire to shielding of switch lead wire.

1) Strip outer jacket from lead wire to within 4.5 inches of rod end (30, 95). Cut shielding at sufficient distance from jacket to allow folding shielding over sleeve (32B, 99).

2) Slide inner sleeve (32B, 99) over shielding. Fold shielding back over OD of sleeve.

3) Strip insulation from wire (32A, 90) for a distance of approximately 0.5 inch. Double wire back on itself making a wire end 0.25 inch long.

4) Lay the prepared end of wire (32A, 90) on the folded shielding with prepared end pointing towards connector (32, 98).

5) Position outer sleeve (32C, 100) over end of wire (32A, 90) and centered over sleeve (32B, 99). Hexagonal swage outer sleeve to make a secure connection.

(b) Fold wire (32A, 90) toward connector (32, 98) and cover both wires and joint with heat shrinkable tubing (32G, 105). Do not shrink tubing at this time.

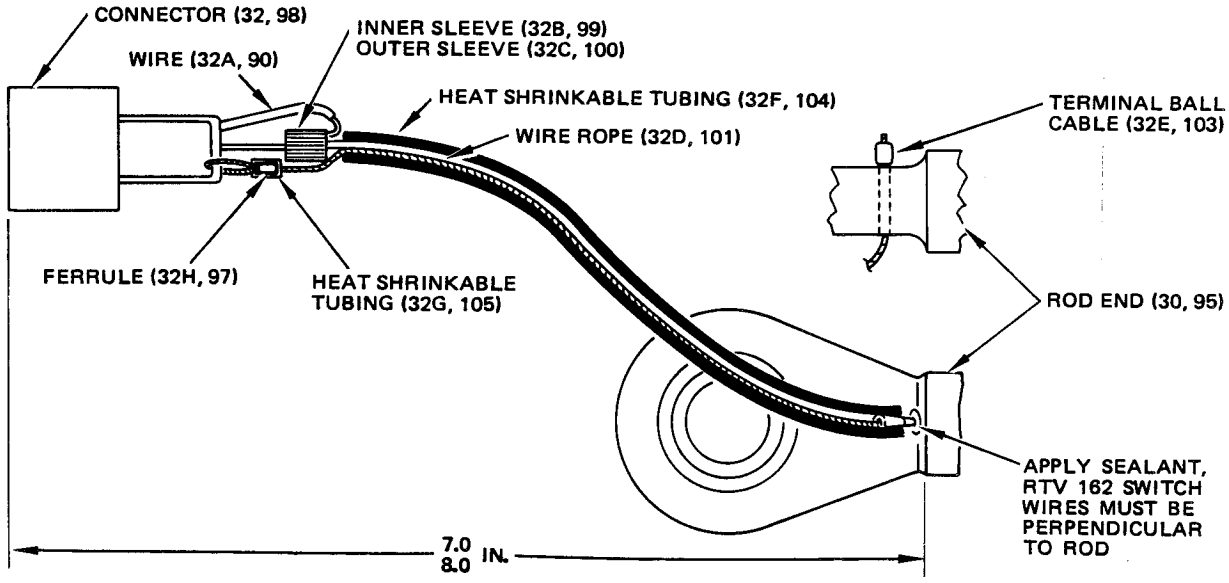
(c) Cut lead wire to length indicated per Fig. 405. Install connector (32, 98) per 20-11-02 with wire (32A, 90) connected to pin 1 and lead wire from switch connected to pin 2.

(d) With actuator in retract position, check that there is continuity between actuator body and pin 1, and no continuity between actuator body and pin 2.

(4) Insert end of wire rope (32D, 101) through hole in rod end (30, 95). Swage terminal (32E, 103) on end of wire rope that projects through rod end. Adjust length of wire rope so any strain between rod end and connector will be borne by wire rope, and not by switch wires. (Wire rope to be shorter than switch wires by 0.30 inch). Loop end of wire rope through hole in connector (32, 98) and ferrule (32H, 97). Swage ferrule (32H, 97).

(5) Shrink tubing (32F, 32G, 104, 105). Trim excess from wire rope ends as required.

(6) Apply sealant RTV 162 at point where switch lead wires and wire rope enter rod end (30, 95). Ensure that switch wire is held perpendicular to rod end during application and curing of sealant.



CONFIGURATION FOR ROD END 69–54550–3
WHEN USED ON ASSYS 65–44651–9 AND ON

Switch Connection Details
Figure 406

M. Bracket (Fig. 1103).

(1) If necessary, remove rivets (15 or 24) and nutplates (16 or 25).

(2) Install new nutplates (16 or 25) with rivets (15 or 24). Refinish as necessary for corrosion prevention.

NOTE: Rivet to be installed with head on opposite surface of bracket to that of nutplate.

(3) If necessary, use a sharp knife or equivalent to peel clamp half (17) from the surface to which it is bonded.

NOTE: Methyl ethyl ketone may be brushed along the parting edge to facilitate removal.

(4) Using the etched side as the faying surface, bond the new clamp half (17) in position per SOPM 20-50-12, Type 38.

4. Materials

A. Solvent -- BMS 3-2, Type 1 (Ref SOPM 20-60-01)

B. Solvent -- P-D-680 (Ref SOPM 20-60-01)

C. Solvent -- Series 80 (Ref SOPM 20-30-80)

D. Paint Remover -- Turco 5292B (Ref SOPM 20-60-01)

E. Naphtha -- TT-N-95 (Ref SOPM 20-60-01)

F. Primer -- BMS 10-11, Type 1 (Ref SOPM 20-60-02)

G. Assembly lube -- MCS 352 (Ref SOPM 20-60-03)

H. Hydraulic Fluid -- BMS 3-11 (Ref SOPM 20-60-03)

I. Grease -- MIL-G-23827 (Ref SOPM 20-60-03)

J. Sealant -- RTV 3145 or Dow Corning 93-006 (replaces RTV 174 and Dow Corning Q30121) (Ref SOPM 20-60-04)

K. Sealant -- RTV 601 (Ref SOPM 20-60-04)

L. Tubing, Heat Shrinkable -- Thermofit RNF-100, Type 1 or 2 (Raychem Corp., 300 Constitution Drive, Menlo Park, California 94025-1111)

M. Tying Braid -- 0.084-0.103 wide, 0.009-0.015 thick.

(1) Airtex 417X (Polyester) (Eon Corp., 2425 San Fernando Rd., Los Angeles, California 90065)

(2) 50D0F17G (Dacron) (Western Filament, Inc., 4680 San Fernando Rd., Glendale, California 91204)

N. Adhesive -- Type 38 (Ref 20-50-12)

O. Adhesive -- Type 59 (Ref 20-50-12)

P. Sealant -- RTV 602 (Ref 20-60-04)

Q. Sealant -- RTV 162 (Ref 20-60-04)

R. Adhesive -- Type 70 (Ref 20-50-12)

ASSEMBLY

NOTE: Refer to the Equipment list for tools equivalent to those named.

1. General

   A. Prior to assembly, lubricate all O-rings, packings, and backup rings with hydraulic fluid BMS 3-11 and install wet, or lightly lubricate with assembly lube.

   B. Ultrasonic clean all parts prior to installation.

   CAUTION: ENSURE THAT MAGNETIC STRENGTH OF MAGNET (48, FIG. 1101) IS NOT AFFECTED.

   C. Demagnetize the following listed parts prior to installation: Nut (17), bearing (25), rod end (30), inner piston (63), outer piston (68), transfer tube or stop (71), plug (8), nut (74), retainer (46), segments (51), key (54), stop (57) and locking stud (80) Fig. 1101; and stop (2), cap (8), plug (14), slides (28 and 29), sleeves (31 and 32) and housing (35) Fig. 1102.

2. Blocking Valve (Fig. 1102)

   A. Install jet (23), filter (22) (if used), and retainer (21) into housing (33). Insert retainer (21) until screen (22) is firmly seated.

   B. Install packing (16) and backup ring (15) on plug (14). Insert plug into housing (33) and tighten plug.

   C. Install backup ring (12) and packing (13) onto slide (28). Use care to prevent scoring of packing as it passes over edge of slides.

   CAUTION: SLIDE (28), SLEEVE (31), AND HOUSING (33) ARE MATCHED SETS AND MUST BE KEPT TOGETHER.

   D. Carefully fit mated slide (28) into sleeve (31).

   E. Install spring (9) and shim (11) with shim thickness as measured in disassembly.

      NOTE: Shim thickness is adjusted during functional test (Ref TESTING).

   F. Install retainer cap (8). Tighten cap to 150-180 lb-in.

   CAUTION: SLIDE (29), SLEEVE (32), AND HOUSING (33) ARE MATCHED SETS AND MUST BE KEPT TOGETHER.

   G. Carefully fit mated slide (29) into sleeve (32).

H. Install springs (5, 4).

I. Install shim (3) with thickness as measured at disassembly.

NOTE: Shim thickness is adjusted during functional test (Ref TESTING).

J. Insert stop (2) over shim (3).

K. Place backup rings (6) and packing (7) onto retainer cap (1). Install cap (1) and tighten to 150-180 lb-in.

3. Actuator (Fig. 1101).

CAUTION: DO NOT EXERT CLAMPING PRESSURE ON CYLINDER PORTION OF HOUSING OR DISTORTION OF PISTON BARREL MAY OCCUR.

A. Inner piston (43).

(1) Install packings (59 and 61) and retainers (60 and 62) in spring seat (58) and insert it, chamfered end first, into piston (63).

(2) Fit keys (54) in their seats in lock piston (47). Ensure that the tabs project into the bore of piston (47) a distance of 0.015-0.032 inch. Remove keys (54).

(3) Install spring guide (55) into small end of spring (56) and insert the large end of spring (56) into stop (57).

(4) Install stop (57) with preassembled parts into piston (47). Depress spring (56) until key slots in stop (57) appear in the slots of piston assembly (47). Place keys (54) in position with tabs seated in slots of stop (57). Release spring (56) and ensure that keys slide into the grooves provided at the end of the slots in piston assembly (47).

(5) Install washer (53) and spring (52) on piston (47) and place in bore of piston (63).

CAUTION: SEGMENTS (51) ARE MATCHED PARTS AND MUST BE KEPT TOGETHER TO MAINTAIN PROPER FIT.

(6) Place segments (51) in position on piston (47) and on retainer (46). Slide the assembled parts into piston (63).

(7) Using a suitable assembly fixture, press retainer (46) flush with the end of piston (63).

(8) Insert a suitable dummy locking stud through assembly fixture and into piston mechanism until the lock functions and segments (51) lock on dummy stud holding it fast.

(9) Slide a suitable brass tube over the dummy stud releasing the locking segments. Withdraw the dummy locking stud and the brass tube.

(10) Release assembly fixture and withdraw parts from piston (63).

(11) Examine parts for contacting areas in accordance with INSPECTION/CHECK.

(12) Reassemble in accordance with steps (5) and (6).

(13) Install three retainers (45) in groove on retainer (46). Using a suitable fixture press retainer (46) into piston (63) until retainers (45) are located in the groove of piston (63).

(14) Release assembly fixture and install retainer ring (44). Rotate retainer (44) through an angle of 45 degrees and stake in one place to prevent rotation.

B. Install retainers (76) and packing (77) on end of stud (78) and insert stud into barrel (81).

C. Install washer (75) with locking lug engaging slot in flange of stud (78). Install nut (74) using adapter F80-0-1552-14 or F80259-3 and tighten to 650-750 lb-in.

D. Bend tab of washer (75) into locking groove of nut (74) using tab bending tool F80-0-1874 or F80-0-1875 or C27019-1.

E. On actuators 65-44651-6, -7, -9, -11 and on (Fig 1101, sheet 1).

CAUTION: CHECK FOR CORRECT LOCATION OF KEYS (54) ON PISTON (43) BEFORE INSTALLING PISTON INTO ACTUATOR.

(1) Install cap ring (72) and packing (73) in transfer tube (71) and cap ring (41) and packing (40) on inner piston (43). Slide piston (43) into transfer tube (71).

NOTE: Install cap ring (72) per 20-50-06. Surface deformation, such as waviness of the ring cap after installation, is acceptable. Cuts or split of the ring surface are not acceptable and require replacement of the ring cap.

(2) Install retainers (66) and packing (67) in outer piston (68) and thread transfer tube (71) with inner piston assembly (43) in outer piston (68). Tighten transfer tube (71) to 700-800 lb-in. using adapter F80-4-25 or C27020-1.

(3) Insert and fasten wire (70) to lock tube (71) and piston (68) together. Install full length of wire into groove. Check that end of wire does not extend above periphery of piston head.

(4) Install packing (40) and foot seal (39). Thread gland nut (27) into outer piston (68) to obtain an engagement of approximately two threads. Apply a light coating of grease, BATCO 8401, to exposed male threads of gland nut (27). Turn gland nut (27) into outer piston (68) until items (39, 40) fit snugly. Wipe excess grease from nut (27) using clean cloth. Do not tighten nut (27) until rod end (28) is installed.

(5) Work cap ring (64) and packing (65) onto outer piston (68) and slide piston with attached parts into barrel (81).

(6) On 65-44651-7 actuator, slide stop (69) over piston (68). For 65-44651-11, -13 actuator, slide sleeve (68A) over piston (68). Place retainers (23) and packing (24) on bearing (25) and insert bearing into barrel (81).

(7) Install packing (22), foot seal (21) and seal retainer (20) into bearing (25). Slide bearing into position. Place scraper (18) in retainer or nut (19). Thread retainer or nut (19) into barrel (81) to obtain an engagement of approximately two threads. Apply a light coating of grease, BATCO 8401, to exposed male threads of retainer or nut (19). Tighten retainer or nut (19) into barrel (81) to 1050-1100 lb-in. using wrench XIE65-44651-1, Part 1, or adapter F80-0-1552-6 or F80259-1 and vise jaws F42-0-227 or F80262-1. Wipe excess grease from retainer or nut (19) using clean cloth.

F. On actuator 65-44651-8 (Fig 1101, Sheet 2).

(1) Place stop (71) on inner sleeve (68) and install spring pins (70).

(2) Install backup rings (64A, 65B, 72A) and O-ring packings (65, 65A, 73). Slide inner sleeve and assembled parts into barrel (81).

CAUTION: CHECK FOR CORRECT LOCATION OF KEYS (54) ON PISTON (43) BEFORE INSTALLING PISTON INTO ACTUATOR.

(3) Place O-ring packing (42) and cap ring (41) on inner piston (43) and install in inner sleeve (68).

(4) Place O-ring packing (24) and backup rings (23) on outer sleeve (25) and install in barrel (81).

(5) Thread nut (19) into barrel (81) to obtain an engagement of approximately two threads. Apply a light coating of grease, BATCO 8401, to exposed male threads of nut (19). Tighten nut (19) into barrel (81) to 1050-1100 lb-in using wrench XIE65-44651-1, Part 1, or adapter F80-0-1552-6 or F80259-1 and vise jaws F42-0-227 or F80262-1. Wipe excess grease from nut (19) using clean cloth.

(6) Install packing (40), foot seal (39) and scraper (26) into gland nut (27). Thread gland nut (27) into outer sleeve (25) to obtain an engagement of approximately two threads. Apply a light coating of grease, BATCO 8401, to exposed male threads of gland nut (27). Turn gland nut (27) into outer sleeve (25) until items (39, 40) fit snugly. Do not tighten nut (27) fully until rod end (28) is installed. Wipe excess grease from nut (27) using clean cloth.

G. Thread nut (17) onto rod end assembly (28) to obtain an engagement of approximately two threads. Apply a light coating of grease, BATCO 8401, to exposed male threads of rod end assembly (28). Install nut (17) onto rod end assembly (28). Thread rod end assembly (28) into inner piston assembly (43) to obtain an engagement of approximately two threads. Reapply a light coating of grease to exposed male threads of rod end assembly (28).

H. Screw rod end assembly (28) into inner piston assembly (43) until the approximate retracted length of 12.70 inches between bearing centerlines is obtained. Tighten nut (17) securely. Wipe excess grease from rod end assembly (28), inner piston assembly (43), and nut (17) using clean cloth.

NOTE: Rod end is adjusted during actuation testing to obtain specified distance. Refer to TESTING. Nut (17) is tightened to torque value after final setting.

I. Using adapter F80-0-1552-7 or F80259-2, and vise jaws F42-0-227 or F80262-1, tighten gland nut (27) to 350-400 lb-in.

J. Slip retainers (13 and 14) and packings (12 and 15) on plug (11) and install in barrel (81). Tighten to 190-225 lb-in.

K. Place retainers (9) and packing (10) on restrictor plug (8). Lubricate threads of plug with grease and install into barrel assembly (81). Tighten plug to 110-130 lb-in.

L. Apply sealant to gasket plate (7). Refer to Fig. 502 and 20-50-12. Allow sealant to cure. Check that sealant is cured and that it has bonded to the surfaces. Install gasket plate (7) and blocking valve assembly (6). Lubricate screws (5) with a light application of grease. Secure blocking valve assembly with screws (5) and tighten to 60-80 lb-in.

M. Place packing (2) on plug (1) and install in C2 port (Fig. 702).

N. Perform functional test (Ref TESTING).

O. Install lockwire, apply sealant, BMS 5-26, and install sleeving and connector plug on switch wires.

(1) Install lockwire per 20-50-02 to secure nut (19) to barrel (81), nut (27) to piston (68), plugs (1 and 11) to barrel (81), screws (5) and nut (17) to lock (16).

(2) Clean areas where sealant will be applied, using a clean cloth wetted with solvent.

(3) Apply sealant per 20-50-12 and Fig. 501. Allow sealant to cure. Check that sealant is cured and that it has bonded to the surfaces.

NOTE: Sealant must seal off all moisture access to gland nuts (19 and 27) and rod end threads (28) all around the circumference.

(4) Install wire (32A), sleeves (32B and 32C) and connector (32) for 65-44873-1, -6 switch (33) per REPAIR.

4. Materials

NOTE: Equivalent substitutes may be used.

A. Hydraulic Fluid - BMS 3-11 (Ref 20-60-03)

B. Assembly Lube -- MCS 352 (Ref 20-60-03)

C. Sealant -- RTV 3145 or Dow Corning 93-006 (replaces RTV 174 and Dow Corning 30-121) (Ref 20-60-04)

D. Sealant -- BMS 5-26 Type II Class B-1/2 (Class B-2 Optional) (Ref 20-60-01)

E. Grease -- BATCO 8401 No. 1 (No. 2 Optional)

F. Solvent -- Methyl Ethyl Ketone (TT-M-261) (Ref 20-60-01)

5. Equipment

NOTE: Equivalent substitutes may be used.

A. Torque Wrench Adapter -- F80-0-1552-14 *[1] or F80259-3 *[2]

B. Tab Bending Tools -- F80-0-1874, F80-0-1875 *[1] or C27019-1 *[2]

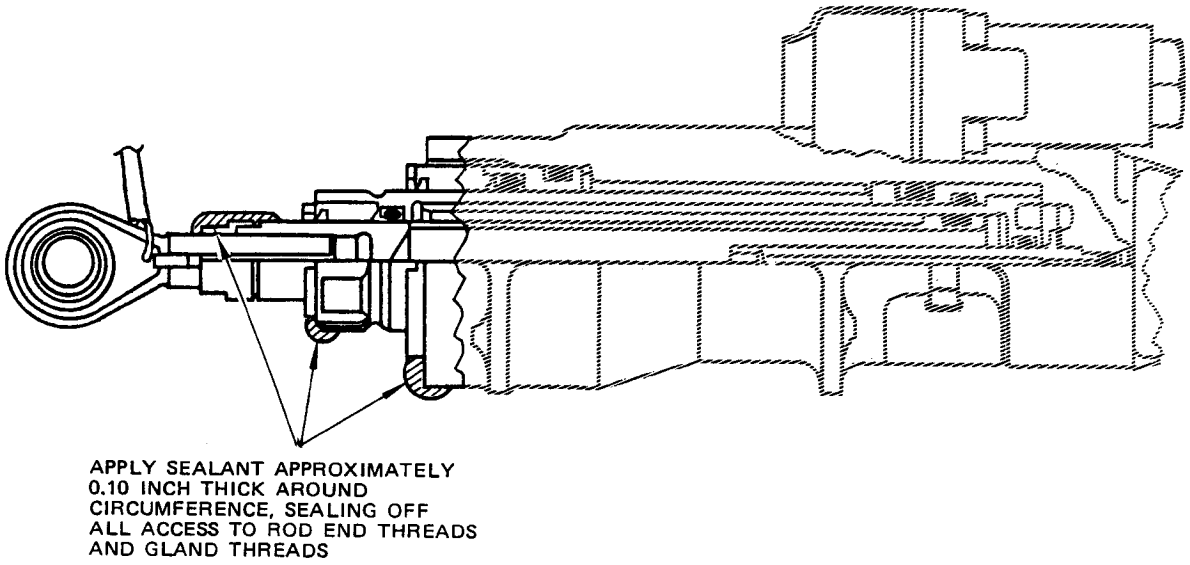
C. Torque Wrench Adapter -- F80-4-25 *[1] or C27020-1 *[2]

D. Torque Wrench Adapter -- F80-0-1552-6 *[1] or F80259-1 *[2]

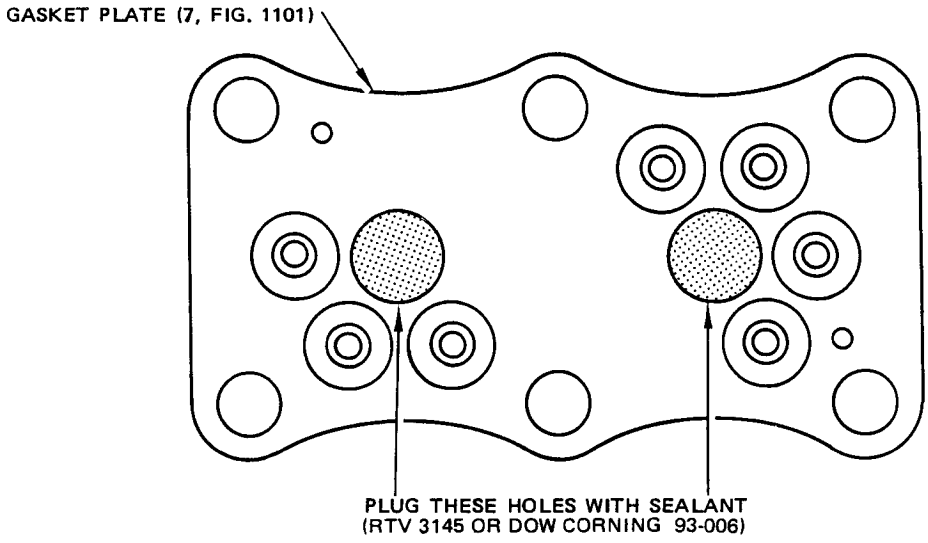
E. Special Vise Jaws -- F42-0-227 *[1] or F80262-1 *[2]

F. Torque Wrench Adapter -- F80-0-1552-7 *[1] or F80259-2 *[2]

*[1] Parker-Hannifin Corp.
*[2] The Boeing Company

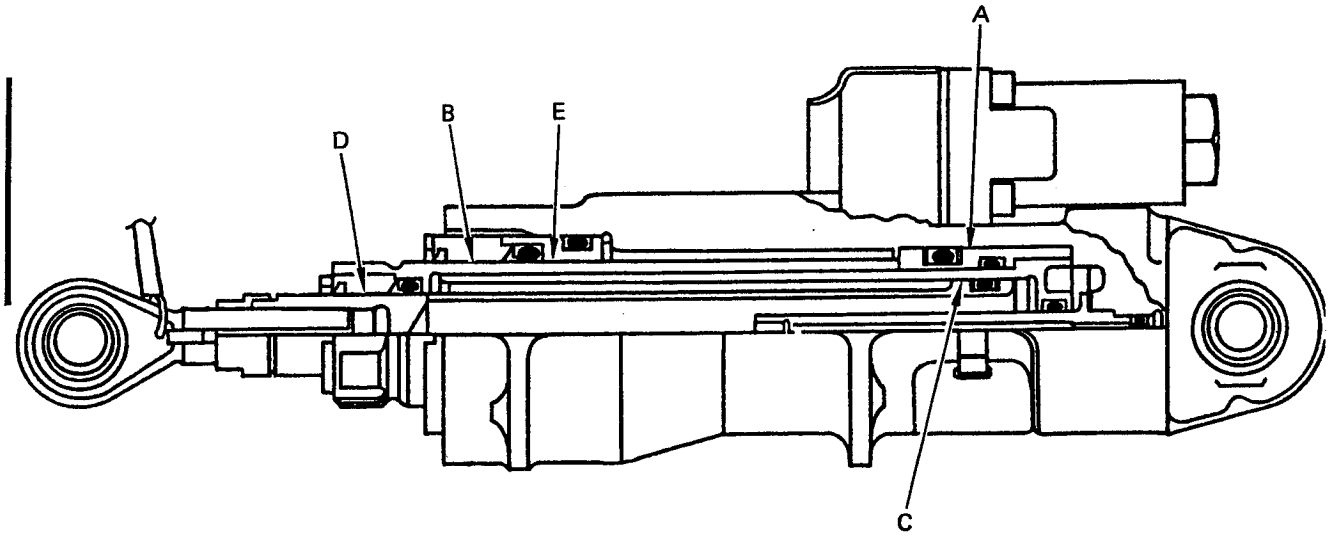


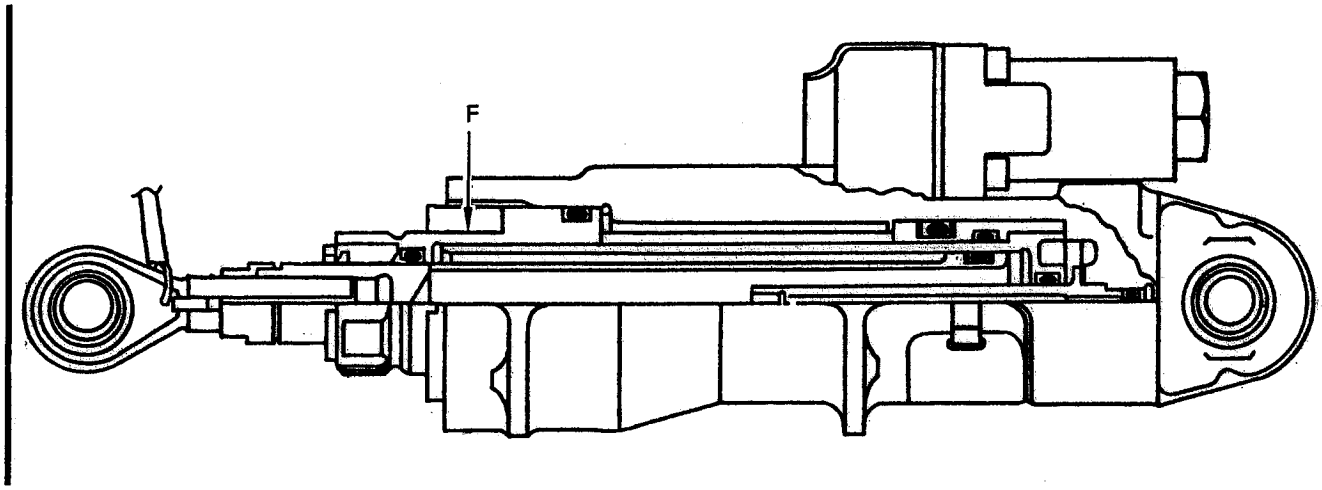
Sealant Application
Figure 501



Gasket Sealing
Figure 502

FITS AND CLEARANCES





FITS AND CLEARANCES

Ref Letter Fig.601	Mating Item No. Fig.1101	Design Dimensions: Dimensions (inches) Min	Design Dimensions: Dimensions (inches) Max	Design Dimensions: Assembly Clearance (inch) Min	Design Dimensions: Assembly Clearance (inch) Max	Service Wear Limits: Dimension Limits (inches) Min	Service Wear Limits: Dimension Limits (inches) Max	Service Wear Limits: Maximum Allowable Clearance (inches)
A	ID 86	1.870	1.871	0.0010	0.0025		1.872	0.0055
	OD 68*[1]	1.8685	1.8690			1.8665		
B	ID 19*[3]	1.626	1.627	0.004	0.006		1.630	0.007
	OD 68*[1]	1.621	1.622			1.619		
B	ID 19*[4]	1.630	1.632	0.008	0.011		1.635	0.013
	OD 68*[1]	1.621	1.622			1.619		
C	ID 71*[2]	1.178	1.179	0.003	0.005		1.182	0.007
	OD 63	1.174	1.175			1.171		
D	ID 27	0.939	0.940	0.004	0.006		0.943	0.008
	OD 63	0.934	0.935			0.931		
E	ID 25*[7]	1.626	1.627	0.004	0.006		1.630	0.007
	OD 68*[1]	1.621	1.622			1.619		
E	ID 25*[9]	1.627	1.628	0.005	0.007		1.631	0.008
	OD 68*[1]	1.621	1.622			1.619		
E	ID 25*[8]	1.450	1.451	0.001	0.003		1.453	0.004
	OD 68*[6]	1.448	1.449			1.447		
F	ID 19*[5]	1.83	1.84	0.010	0.030			
	OD 25*[8]	1.810	1.820					

*[1] 65-44653-1, -3
*[2] 69-35877-2
*[3] 69-35707-1
*[4] 69-54568-1
*[5] 69-54568-2
*[6] 65-44737-1
*[7] 69-54567-1
*[8] 65-44747-1
*[9] 65-35706-1

Fits and Clearances
Figure 601 (Sheet 2)

TESTING

1. Test Equipment

NOTE: Equivalent substitutes may be used.

A. Hydraulic test stand providing fluid flow of 1 gpm minimum at 70-120°F, and capable of controlled pressure from zero to 5450 psi. Test fluid shall be BMS 3-11 (Skydrol 7000 optional).

NOTE: If Skydrol 7000 is used, leakage limits are 80% of stated values.

B. Three calibrated hydraulic pressure gages with 0-5400 psi range.

C. Test lamp, 28 volts dc, with suitable wiring and battery. Current draw 0.100 amp.

D. Test fixture, L401-07835, (Ling-Temco-Vought) (Fig. 701) (superseded by F65-0-2161).

E. Suitable valves, fittings, and hoses.

F. Test fixture, Parker Hannifin F65-0-2161 (supersedes L401-07835)

G. Test manifold, Parker Hannifin F65-0-2190

H. Test fixture -- F80267-1 (replaces F65-0-2161)

I. Test manifold -- F80265-1 (replaces F65-0-2190)

2. Blocking Valve Assembly Pretest (Fig. 705 and 1101)

NOTE: The blocking valve assembly test maybe omitted providing the blocking valve is tested as a part of the actuator assembly in 4.L below.

Units "in service" referred to in the following tests are units removed due to known or suspected malfunctioning characteristics and for which testing is desired to determine further disposition. Units which meet the "in service" limits may be returned to service without overhaul.

Test limits for units in service are the same as for overhauled units unless otherwise noted.

A. Preparation for Test

(1) Install blocking valve assembly (6) with gasket plate (7) on a suitable test fixture with connections to the blocking valve assembly ports as shown in Fig. 705.

B. Perform system A proof pressure test.

(1) Close C1 pressure-out, C2 pressure-out, system A pressure-out and ALT system pressure-in ports.

(2) Apply 5350-5450 psi hydraulic fluid pressure to C1, C2, and system A pressure-in ports. Hold for 3 minutes.

(3) Reduce pressure to 1-5 psi and hold for 2 minutes.

(4) Apply 5350-5450 psi again and hold for 5 minutes. There must be no external leakage, permanent deformation or damage as a result of these tests.

C. Perform alternate system proof pressure test.

(1) Close all system A, C1, and C2 pressure-in and pressure-out ports. Orient system with spring vent hole downward, so as to detect any valve leakage.

(2) Apply 5350-5450 psi fluid pressure to ALT system pressure-in port. Hold for 5 minutes.

(3) Reduce pressure to 1-5 psi and hold for 2 minutes.

(4) Apply 5350-5450 psi again and hold for 5 minutes. There must be no external leakage, permanent deformation or damage as a result of these tests.

D. Perform system A cracking pressure test.

(1) Vent system A pressure-out port into a suitable container and apply 40-50 psi fluid pressure to the ALT system pressure-in port.

(2) Apply gradually increasing fluid pressure to system A pressure-in port until flow begins at system A pressure-out port. Check that pressure at which flow begins is 1900-2200 psi. Note the actual applied pressure at which flow begins.

(3) Check reset pressure by increasing applied pressure to 2950-3050 psi. Gradually decrease applied pressure until flow from system A pressure-out port ceases. Check that applied pressure at which flow ceases is 1650 psi minimum.

E. Perform system A leakage test.

(1) Vent all ports, except system A pressure-out to a suitable container. Apply 950-1050 psi fluid pressure to system A pressure-out port.

(2) Total flow from all of the open ports must not exceed:

(a) 5 cc per minute on overhauled unit.

(b) 10 cc per minute on unit in service.

F. Perform system A flow rate test.

(1) Vent system A pressure-out port into suitable container and close C1 pressure-out and C2 pressure-out ports.

(2) Apply 2950-3050 psi fluid pressure simultaneously to system A, C1 and C2 pressure-in ports.

(3) Measure rate of flow from system A pressure-out port.

(4) Repeat steps (1), (2) and (3), venting C1 pressure-out port and C2 pressure-out port in turn. Check that rate of flow from each vented port is minimum of 1.70 cubic inch per second.

G. Perform alternate system cracking pressure test.

(1) Close C1 and C2 pressure-out ports and vent system A pressure-out port into a suitable container.

(2) Apply gradually increasing fluid pressure to ALT system pressure-in port until flow begins at system A pressure-out port. Check that pressure at which flow begins is 1400-1700 psi. Note the actual applied pressure at which flow begins.

(3) Check reset pressure by raising applied pressure to 2950- 3050 psi. Gradually reduce pressure until flow from system A pressure-out port ceases. Check that applied pressure at which flow ceases is 1100 psi minimum.

H. Perform alternate system leakage test.

(1) Close C1 pressure-out port. Vent all other ports, except C2 pressure-out, into a suitable container.

(2) Apply 1700-1800 psi fluid pressure to C2 pressure-out port. Total flow from all of the vented ports must not exceed:

(a) 5 cc per minute on overhauled unit.

(b) 10 cc per minute on unit in service.

(3) Close C2 pressure-out port. Vent all other ports, except C1 pressure-out, into a suitable container.

(4) Apply 650-700 psi fluid pressure to C1 pressure-out port. Total flow from all of the vented ports must not exceed:

(a) 5 cc per minute on overhauled unit.

(b) 10 cc per minute on unit in service.

I. Perform alternate system flow rate test.

(1) Vent system A pressure-out port into a suitable container and close C1 and C2 pressure-out ports.

(2) Apply 2950-3050 psi fluid pressure to ALT system pressure-in port.

(3) Measure rate of flow from the system A pressure-out port.

(4) Repeat steps (1), (2) and (3), venting C1 pressure-out port and C2 pressure-out port in turn. Check that rate of flow from each vented port is minimum of 0.3 cubic inch per second (300 cc per minute).

(5) Remove and replace jet (23, Fig. 1102) per 20-50-04 and Fig. 101 if test limits are not met.

3. Preparation for Test of Actuator Assembly

A. Check that slat actuator assembly is filled with hydraulic fluid. Allow small quantity of oil to overflow and check for cleanliness and absence of foaming.

B. Hydraulic Fittings (Fig. 1103).

(1) Lubricate packings (28) and the threads of unions (27) with assemblies lube MCS 352. Place packings (28) on unions (27) and install in actuator (29).

(2) After testing is completed, place washers (22) on bolts (21) and secure bracket assembly (23) to actuator (29).

(3) Place washers (11) on bolts (10) and secure brackets (12, 13, and 14) to bracket (23).

(4) Install tubes (4 thru 9) as required, and secure with half clamps (3), washers (2) and bolts (1).

NOTE: See Fig. 706 for identification markings on tubes.

4. Functional Tests (Fig. 701-704, 1101)

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

CAUTION: TO AVOID DAMAGE TO LOCK STUD (80), EXTREME CARE SHOULD BE EXERCISED IN PROPER PORT SEQUENCING WHEN APPLYING OR RELEASING HYDRAULIC FLUID PRESSURE. DO NOT APPLY PRESSURE TO C2 PORT BEFORE APPLYING PRESSURE TO C1 PORT. DO NOT RELEASE PRESSURE FROM C1 PORT BEFORE RELEASING PRESSURE FROM C2 PORT.

A. Install actuator assembly in suitable cycling fixture.

B. Perform break-in cycling test.

NOTE: Tests need not be performed in exact sequence listed.

(1) Connect test lamp circuit to the indicator switch leads and apply pressure at PRESS, C1 and C2 ports as shown in Fig. 702 and 703 or 704. Cycle actuator for 25 full-stroke cycles.

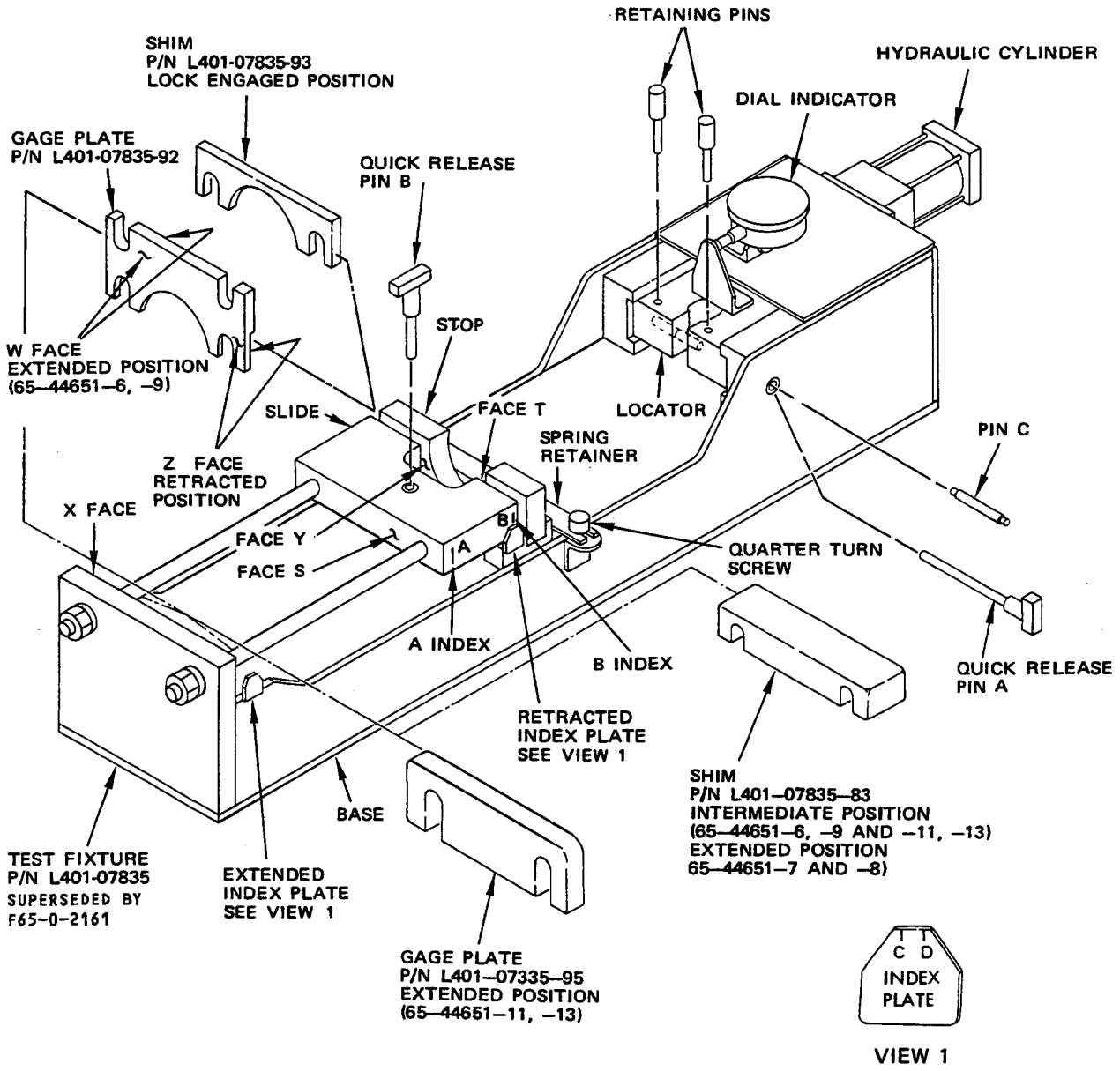
NOTE: For actuators 65-44651-6, -9 and on, a full-stroke cycle is defined as travel from completely retracted (sequence 1) to intermediate (sequence 2a) to completely extended (sequence 2b), back to intermediate (sequence 2a) and then to completely retracted (sequence 1) position.

For actuators 65-44651-7, -8, a full-stroke cycle is defined as from completely retracted (sequence 1) to fully extended (sequence 2) to fully retracted (sequence 1) position.

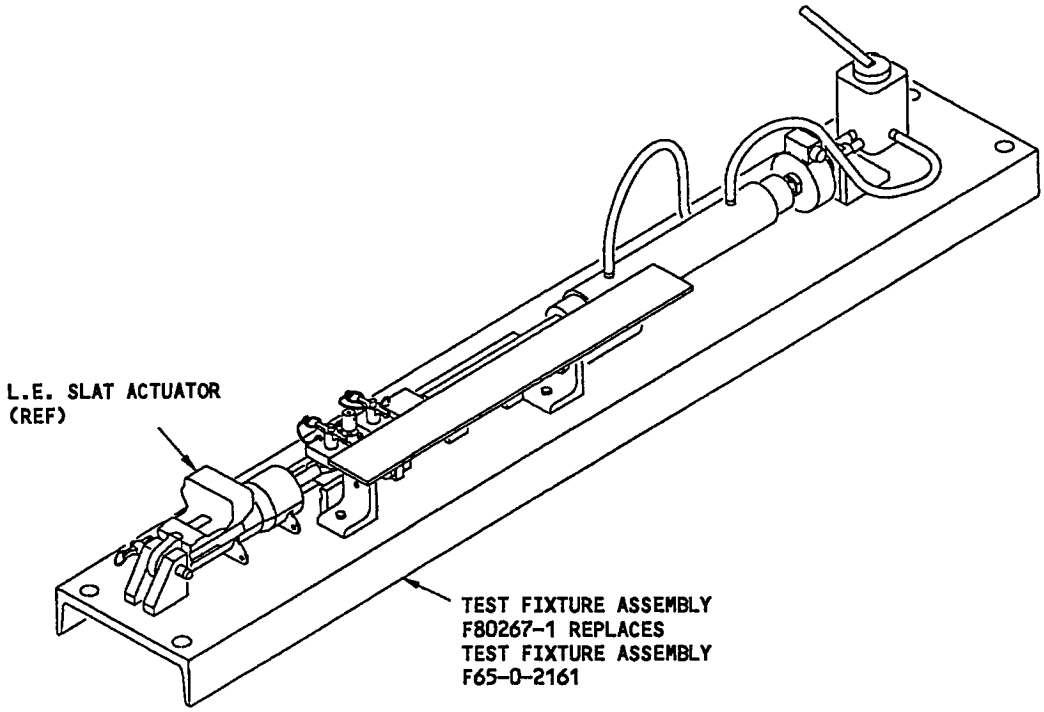
(2) Apply 2950-3050 psi hydraulic fluid pressure alternately at the PRESS and ALT ports as shown on Fig. 702, 703 or 704, and cycle actuator for 25 alternate-stroke cycles.

NOTE: An alternate-stroke cycle is travel from fully retracted to fully extended to fully retracted (sequence 1 to sequence 3 to sequence 1).

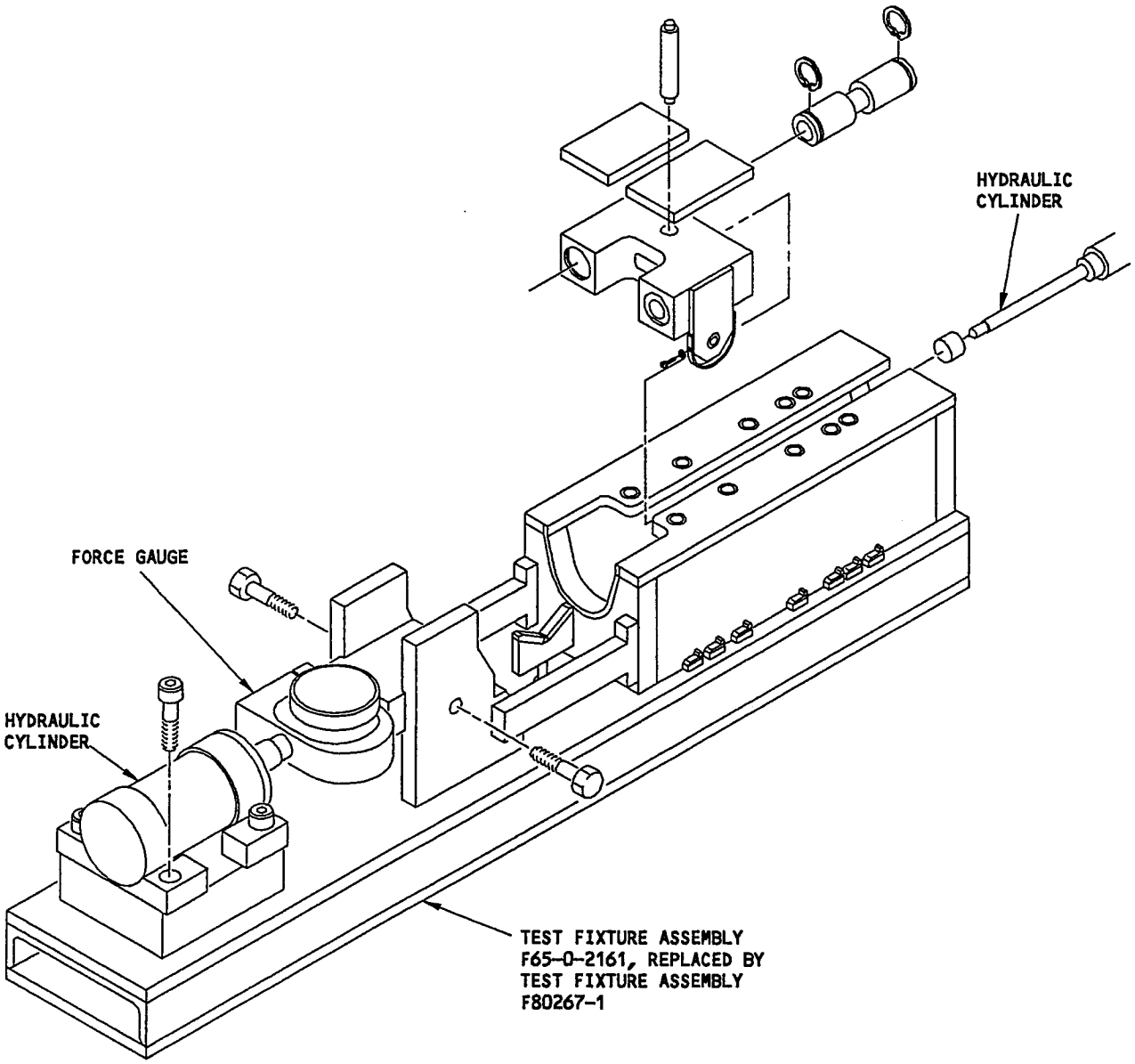
(3) Check that external leakage rate during break-in cycling does not exceed one drop per 25 cycles for each dynamic seal. There must be no leakage at any static seal. Check lamp condition per Fig. 703 or 704.



Actuator Test Fixture
Figure 701



Actuator Test Fixture
Figure 701A



Actuator Test Fixture
Figure 701B

C. Perform proof pressure checks (Fig. 702).

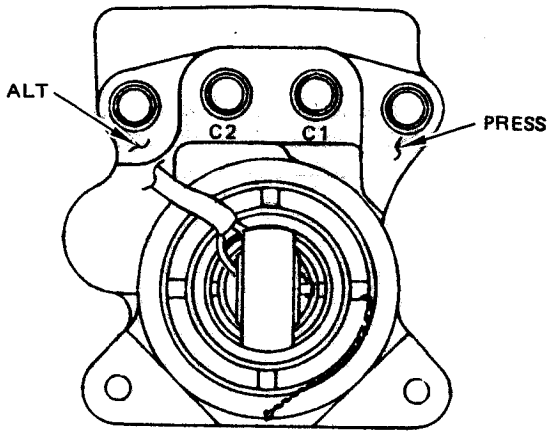
NOTE: While making test connections, use care to ensure that air is not added to unit.

(1) Install actuator in fixture F80267-1 (or F65-0-2161 per manufacturer's instructions). Secure lug end by inserting lock pin through bearing (85). Insert lock pin through bearing in rod end assembly (28).

(2) Connect ports to hydraulic pressure source controllable from zero to 5400 psi.

CAUTION: ENSURE THAT NO ENTRAPPED AIR IS IN ACTUATOR. APPLY HYDRAULIC PRESSURE SLOWLY DURING ALL PROCEDURES. DO NOT EXTEND OR RETRACT ACTUATOR WHILE PROOF PRESSURE IS BEING APPLIED.

(3) Refer to cycling data in Fig. 703 and Fig. 704 to place the actuator in the indicated position. Place actuator in the fully retracted position. Apply pressure of 5350 to 5450 psi to the PRESS port and zero pressure at all other ports. Hold for 3 minutes. Check that there is no external leakage or any evidence of permanent distortion.



PORT CONNECTIONS

Break-In Cycling
Figure 702

Pressure (psi) Applied at Ports:					Actuator Will Travel to Position	Test Lamp Condition
Sequence	PRESS	C1	C2	ALT		
1	2950 to 3050	zero	zero	zero	Fully Retracted	Extinguished
2a	2950 to 3050	2950 to 3050	zero	zero	Intermediate	Illuminated
2b	2950 to 3050	2950 to 3050	2950 to 3050	zero	Fully Extended	Illuminated
3	zero	zero	zero	2950 to 3050	Fully Extended	Illuminated

Cycling Data for Actuators 65-44651-6, -9 and on
Figure 703

Pressure (psi) Applied at Ports:				Actuator Will Travel to Position	Test Lamp Condition
Sequence	PRESS	C1	ALT		
1	2950 to 3050	zero	zero	Fully Retracted	Extinguished
2	2950 to 3050	2950 to 3050	zero	Fully Extended	Illuminated
3	zero	zero	2950 to 3050	Fully Extended	Illuminated

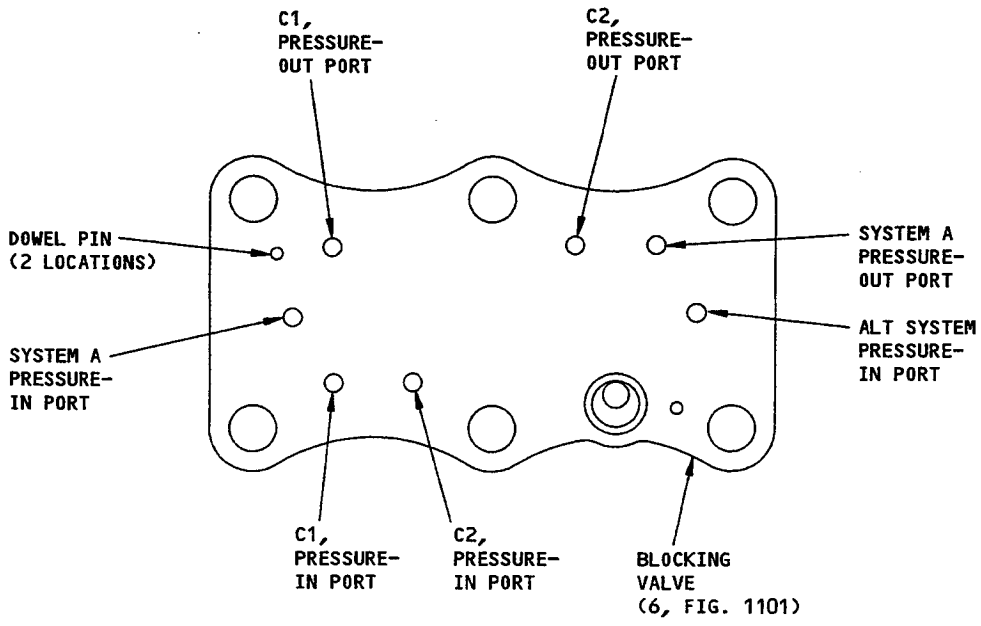
Cycling Data for Actuators 65-44651-7, -8
Figure 704

(4) Place actuator 65-44651-6, -9 and on in the intermediate position. Apply pressure of 5350-5450 psi at PRESS port and C1 port and zero pressure at all other ports. Hold for 3 minutes. Check that there is no external leakage or any evidence of permanent distortion.

CAUTION: DO NOT PRESSURIZE PORT C2 BEFORE PORT C1 AS THIS WILL CAUSE EXCESSIVE EXTEND PRESSURE.

(5) Place actuator 65-44651-6, -9 and on in the fully extended position. Apply pressure of 5350-5450 psi to PRESS port and C1 and C2 ports and zero psi at ALT port. Hold for 3 minutes. Check that there is no external leakage or any evidence of permanent distortion.

(6) Place actuator 65-44651-7, -8 in the fully extended position. Apply fluid pressure of 5350-5450 psi simultaneously to PRESS and C1 ports and zero pressure to the ALT port. Hold for 3 minutes. Check that there is no external leakage or any evidence of permanent distortion.



Blocking Valve Assembly Pressure Port Locations
Figure 705

F54863

(7) Place actuator (all units) in the fully extended position. Apply pressure of 5350-5450 psi to ALT port and zero psi to all other ports. Hold for 3 minutes. Check that there is no external leakage or any evidence of permanent distortion.

D. Length Tests.

NOTE: In the following procedures, rod end assembly (28) may be adjusted by loosening nut (17) and threading rod end in or out as required. Use shims or gage plates as indicated in Fig. 701 or 701A. Do not apply external restraint to actuator unless specified.

NOTE: If using the slat actuator test fixture F80267-1 for length test use the following procedure. Depress clevis assembly F80267-6 and verify that it enters the predrilled holes in the base F80267-11. Clevis assembly F80267-6 and base F80267-11 are part of test fixture F80267-1.

(1) Actuators 65-44651-7, -8

(a) Apply pressure of 2950-3050 psi at PRESS port and 40-50 psi at all other ports. Check that retracted length between centerlines of bearings (29, 85) does not exceed 12.70 inches.

(b) Release pressure at all ports to 0 psi. Slowly apply tension load to extend actuator until internal lock is engaged. Unscrew plug (11) to release trapped hydraulic fluid. Check that lock engaged length between centerlines of bearings (29, 85) is 13.25-13.50 inches. Tighten plug (11) to 190-225 lb-in.

(c) Apply pressure of 2950-3050 psi simultaneously at PRESS and C1 ports and 40-50 psi at all other ports. Check that extended length between centerlines of bearings (29, 85) is 18.79-18.81 inches.

(d) After length checks are complete, tighten nut (17, Fig. 1101) to 220-300 lb-in. Align slot for lock (16, Fig. 1101) in correct position.

(2) Actuators 65-44651-6, -9 and on

(a) Apply pressure of 2950-3050 psi at PRESS port and 40-50 psi at all other ports. Check that retracted length between centerlines of bearings (29, 85) does not exceed 12.70 inches.

(b) With actuator fully retracted, reduce pressure at a11 ports to zero.

1) On actuators without plug (11), apply 2200-2300 psi to pressure port to open system A blocking valve. Slowly apply increasing axial tension load until piston rod extends and stops by engagement of internal lock. Increase tension load to 2850-2950 lbs. and check that no further rod movement occurs. Check that lock-engaged length between bearing (29, 85) centerlines is 13.25-13.50 inches. Reduce load to zero. Reduce pressure to zero.

2) On actuators with plug (11), slowly apply tension load to extend actuator, until internal lock is engaged. Unscrew plug (11) to release trapped hydraulic fluid. Check that lock-engaged length between bearing (29, 85) centerlines is 13.25-13.50 inches. Tighten plug (11) to 190-255 lb-in.

(c) Apply pressure of 2950-3050 psi simultaneously at PRESS and C1 ports, then 40-50 psi at all other ports. Check that distance between centerlines of bearings (29, 85) is 18.79-18.81 inches.

CAUTION: DO NOT PRESSURIZE PORT C2 BEFORE PORT C1 AS THIS WILL CAUSE EXCESSIVE EXTEND PRESSURE.

(d) Apply pressure of 2950-3050 psi to PRESS, C1 and C2 ports and 40-50 psi at ALT port. For 65-44651-6, -9, -14, -16 actuators, check that extended length between bearing (29, 85) centerlines is at least 21.90 inches. For 65-44651-11, -13, -15, -17 check that extended length is at least 20.85 inches.

(e) After length checks are complete, tighten nut (17) to 220-300 lb-in. Align shot for lock (16) in correct position.

E. Check rod friction.

(1) Remove blocking valve (6) from slat actuator.

NOTE: This prevents blocking valve from restricting fluid flow. If desired, test manifold F65-0-2190 or F80265-1, may be installed which provides flow equivalent to blocking valve system A pressurized position. In this case, step (2) following may be omitted, as actuator will be full of fluid at zero pressure.

(2) Submerge valve mounting face fluid ports of slat actuator under test fluid.

(3) Using suitable spring scale apply axial force on rod end. Cycle piston from fully extended to 13.75-inch length (use caution to prevent uplock from engaging) and back to fully extended position. Check that breakaway or running force at any time or any rod position does not exceed 60 pounds for the inner piston, or 110 pounds for the outer piston.

(4) After check is completed, remove test manifold. Install blocking valve assembly (6), gasket plate (7) and screws (5), and tighten within torque range of 60-80 lb-in.

F. Check actuation time.

(1) Actuators 65-44651-7, -8

(a) Perform timing tests with no external forces on actuator, and with return pressure of 40-50 psi applied to all ports except as specified.

(b) Check retracted to fully extend position. Set actuator in fully retracted position and apply fluid pressure of 2950-3050 psi at PRESS port then apply same pressure at C1 port. Check that elapsed time of actuation between pressure application at C1 port and fully extended position stop is 4.2-5.7 seconds.

(c) Check extended to retracted position. Set actuator in fully extended position. Apply fluid pressure of 2950-3050 psi at PRESS and CI ports. Release pressure at C1 port. Check that elapsed time of actuation between pressure release at C1 port and stop at fully retracted position is 5.8-7.8 seconds.

(d) Set actuator assembly in fully retracted position. Apply 2950-3050 psi to ALT port. Check that elapsed time between pressure application and stop at fully extended position is 3.0-7.0 seconds.

(2) Actuators 65-44651-6, -9 and on

(a) Perform timing tests with no external forces on actuator, and with return pressure of 40-50 psi applied to all ports, except as specified.

(b) Check retracted to intermediate positions. Set actuator in fully retracted position and apply fluid pressure of 2950-3050 psi at PRESS port, then apply same pressure at C1 port. Check that elapsed time of actuation between pressure application at C1 port and intermediate position stop is 4.2-5.7 seconds.

(c) Check intermediate to extended positions. Set actuator in intermediate position and apply fluid pressure of 2950-3050 psi at PRESS and C1 ports, then apply same pressure at C2 port. Check that elapsed time of actuation between pressure application at C2 port and stop at respective fully extended positions is 0.8-1.3 seconds (65-44651-6, -9, -14, -16) or 0.5 to 0.9 seconds (65-44651-11, -13, -15, -17).

(d) Check extended to intermediate positions. Set actuator in fully extended position and apply fluid pressure of 2950-3050 psi at PRESS, C1 and C2 ports. Release pressure at C2 port. Check that elapsed time of actuation between pressure release at C2 port and stop at respective intermediate positions is 2.5 seconds maximum (65-44651-6, -9, -14, -16) or l.7 seconds maximum (65-44651-11, -13, -15, -17).

(e) Check intermediate to retracted position. Set actuator in intermediate position. Apply fluid pressure of 2950-3050 psi at PRESS and Cl ports, then release pressure at C1 port. Check that elapsed time of actuation between pressure release at C1 port and stop at fully retracted position is 5.8-7.8 seconds.

(f) Set actuator in fully retracted position. Apply 2950 to 3050 psi to ALT port. Check that elapsed time between pressure application and stop at respective fully extended positions is:

1) 8.0-15.0 seconds (65-44651-6, -9)

2) 7.0-13.0 seconds (65-44651-11, -13)

3) 14.0-17.0 seconds (65-44651-14, -16)

4) 11.0-14.0 seconds (65-44651-15, -17)

G. Perform leakage tests.

NOTE: Use Slat Actuator Test Fixture, F65-0-2161 or F80267-1. Apply 40-50 psi hydraulic pressure at all ports except as specified.

(1) Install actuator into test fixture with no applied pressures.

(2) Deleted.

NOTE: Instructions apply to F80267-1 only; refer to Parker Hannifin for F65-0-2161 instructions.

(3) Check internal leakage in fully extended position.

(a) Deleted.

(b) Apply pressure of 2950-3050 psi to PRESS, C1 and C2 ports for actuators 65-44651-6, -9 and on, or to PRESS and C1 ports for actuators 65-44651-7, -8, to fully extend actuator.

(c) Reduce pressure at all ports to zero.

(d) Use hydraulic cylinder on end of test fixture to apply 650 to 750-pound axial compressive force to barrel end of actuator. Set dial on test fixture to zero reading, to indicate length under axial compression.

(e) Check that the difference between measured lengths on dial indicator does not exceed 0.28 inch per minute for new or overhauled unit, or 0.62 inch per minute for unit in service.

(4) Check internal leakage with distance between centerlines of bearings (29 and 85) set at 14.00 inches or more.

(a) Insert a suitable stop shim, with thickness to hold actuator at 14.00 inches or more length.

(b) Apply pressure of 2950-3050 psi to PRESS port, with 40-50 psi at other ports to retract piston until slide is seated firmly on the stop shim.

(c) Reduce pressure at all ports to zero.

(d) Use hydraulic cylinder on end of test fixture to apply 350- to 450-pound axial tension force to barrel end of actuator. Set dial on test fixture to zero reading, to indicate length under axial tension.

(e) Check that the difference between measured lengths on dial indicator does not exceed 0.76 inch per minute for new or overhauled unit, or 1.65 inch per minute for a serviceable unit.

H. Rod seal external leakage.

(1) Place actuator in fully retracted position.

(2) Cycle actuator in accordance with par. 4.B.(1) except use 50 full-stroke cycles and do not connect electrical test lamp.

(3) Observe leakage at piston rod seals. Leakage must not exceed one drop in 25 cycles. Check that there is no external leakage from any static seal.

I. Blocking valve seal external leakage.

(1) Place actuator in fully extended position.

(2) Apply pressure of 2950 to 3050 psi at ALT port for 1 second, and then reduce pressure to zero psi at ALT port for 1 second.

(3) Repeat this cycling process for 50 cycles.

(4) Check that leakage at retainer cap (8, Fig. 1102) does not exceed one drop in 25 cycles, and that there is no external leakage from any static seal.

J. Mechanical lock.

(1) Connect test lamp and battery to leads of switch assembly (33, Fig. 1101).

(2) Hold actuator pistons in the retract position by applying 2950-3050 psi pressure to the PRESS port. Apply slowly increasing pressure to CI port slowly until test lamp is illuminated. Reduce pressure at CI port slowly until test lamp extinguishes. Check that test lamp illuminates at 600 psi or less and test lamp extinguishes at not less than 150 psi.

(3) Reduce pressure at all ports to zero.

(a) On actuators without plug (11), apply 2200-2300 psi to pressure port to open system A blocking valve. Slowly apply increasing axial tension load until piston rod extends and stops by engagement of internal lock. Increase tension load to 2850-2950 lbs. Check that no further rod movement occurs and that test lamp remains extinguished. Reduce load to zero. Reduce pressure to zero.

(b) On actuators with plug (11), slowly apply tension load to extend actuator, until internal lock is engaged. Unscrew plug (11) to release trapped hydraulic fluid. Increase axial force to 1950-2050 lb. Check that internal lock holds against the 1950-2050 lb force and that test lamp remains extinguished. Remove axial tension force. Tighten plug (11) to 190-225 lb-in.

(4) Retract actuator by applying 2950 to 3050 psi fluid pressure to the PRESS port. Check that test lamp is extinguished. Hold 2950 to 3050 psi pressure at PRESS port and apply 2950 to 3050 psi to the CI port. Check that test lamp is illuminated and actuator piston extends smoothly.

K. Test electrical insulation resistance (actuators using 65-44746-1 switch (33) only)

(1) Fully retract actuator by applying 2950-3050 psi to the PRESS port. Check that test lamp is extinguished. Reduce pressure on all ports to zero.

(2) Disconnect test lamp from wire terminals of switch (33). Use megger test set to apply 500 volts dc between each wire terminal and the actuator body. Check that resistance is at least 200 megohms.

L. Blocking Valve Function Test

NOTE: If the blocking valve was previously tested in 2. above, the following test may be omitted.

(1) Cracking Pressure, B System

(a) Apply 2950-3050 psi at port P and 40-50 psi to the Alt port, then extend the actuator fully by pressurizing C1, then C2. Decrease the pressure at port P to zero, then stop pressure to C1 and C2.

(b) Open ports C1 and C2 to return and maintain 40-50 psi to the Alt port, then gradually apply pressure to port P until the actuator starts to retract, note the pressure when movement starts.

(c) Check that the actuator starts to retract between 1900-2200 psi.

(2) Reset Pressure, B System

(a) Apply 2950-3050 psi at port P and 40-50 psi to the Alt port, then extend the actuator fully by pressurizing C1, then C2.

(b) Decrease the pressure at ports C1 then C2 to zero, and while the actuator retracts, decrease the pressure at port P until piston movement stops. Piston movement must stop before the piston reaches the fully retracted position, note the pressure when movement stops.

(c) Check that the piston movement stops when the pressure at port P is more than 1650 psi.

(3) Cracking Pressure, Standby System

(a) Open ports C1 and C2 to return and apply 2950-3050 psi to port P.

(b) Gradually increase pressure to port ALT until the actuator starts to extend, note the pressure when movement starts.

(c) Check that the pressure at port ALT necessary to start and maintain extension is between 1400-1700 psi.

(4) Reset Pressure, Standby System

(a) With 2950-3050 psi applied at port P, increase the pressure at port ALT to 1950-2050 psi and allow the actuator to fully extend.

(b) Gradually decrease the pressure at port ALT until the actuator starts to retract, note the pressure when movement starts.

(c) Check that the pressure at port ALT necessary to start and maintain retraction is less than 1100 psi.

5. After final testing, complete installation of fittings per par. 3.B.(2), (3), (4). Lockwire and apply sealant per ASSEMBLY.

Symbol	TAPE	Legend
AP ——→	BACT11YS14R	SYSTEM "A" PRESSURE
←—— SFD	BACT11YS11R	STANDBY SYSTEM FLAP DOWN
SDF ——→	BACT11YS25R	SLAT DOWN - FULL
←—— SDI	BACT11YS28R	SLAT DOWN - INTERMEDIATE
SFD ——→	BACT11YS12R	STANDBY SYSTEM FLAP DOWN
←—— AP	BACT11YS13R	SYSTEM "A" PRESSURE

TROUBLE SHOOTING

Trouble	Possible Cause	Correction
Leakage at plug (11)	Defective packings (12 or 15) or retainers (13 or 14)	Replace parts
Leakage at gland nut (19)	Defective retainer (21), seal (22), packing (24 or 22)	Replace parts
Leakage at caps (1 or 8, figure 1102) or at split-line mounting of valve assembly (6)	Defective rings and packing (6, 7, or 13, figure 1102) or gasket plate (7)	Replace parts
Leakage at plug (8)	Defective packing or retainer (9 or 10)	Replace parts
Piston fails to extend or retract properly	Foreign material, or improperly assembled piston and rod (43 or 68) defective blocking valve (6)	Examine and clean or replace parts
System A flowrate out of limit	Worn jet (23, Fig. 1102)	Replace jet per Fig. 101

STORAGE INSTRUCTIONS

1. At completion of functional test return unit to retracted position. Do not use compressed air at ports at any time.

2. Fill unit with hydraulic fluid BMS 3-11. Cap or plug ports with suitable caps or plugs having hydraulic fluid resistant gaskets.

3. Wrap and protect unit in accordance with standard industry practices and the information contained in 20-44-02 and 20-70-01.

SPECIAL TOOLS, FIXTURES AND EQUIPMENT

NOTE: Equivalent substitutes may be used. All items listed are Boeing tools or equipment unless otherwise stated.

1. Hydraulic Test Stand -- Supplies controlled pressure from 0 to 5400 psi.

2. L401-07835 -- Leading Edge Slat Actuator Test Fixture *[1] *[2].

3. XIE 65-44551-1 S/N C78741 -- Spanner Wrench *[1].

4. 2WR 65-44651 S/N C33692 -- Spanner Wrench *[1].

5. Model 412A -- Megger Test Set (Hewlett Packard Co., 1501 Page Mill Road, Palo Alto, California 94304).

6. F65-0-2161 -- Leading Edge Slat Actuator Test Fixture *[3] *[4]

7. F65-0-2190 -- Test Manifold *[4]

8. F80-0-1552-14 -- Torque Wrench Adapter *[4]

9. C27019-1 -- Tab Bending Tool (Replaces F80-0-1874 and F80-0-1875 *[4])

10. F80-0-1552-7 -- Torque Wrench Adapter *[4]

11. F80-0-1552-6 -- Torque Wrench Adapter *[4]

12. C27020-1 -- Torque Wrench Adapter (Replaces F80-4-25 *[4])

13. F42-0-227 -- Special Vise Jaws *[4]

14. F80259-1 -- Torque Wrench Adapter (Replaces F80-0-1552-6)

15. F80259-2 -- Torque Wrench Adapter (Replaces F80-0-1552-7)

16. F80259-3 -- Torque Wrench Adapter (Replaces F80-0-1552-14)

17. F80262-1 -- Vise Jaw Equipment (Replaces F42-0-227)

18. F80265-1 -- Test Manifold (Replaces F65-0-2190)

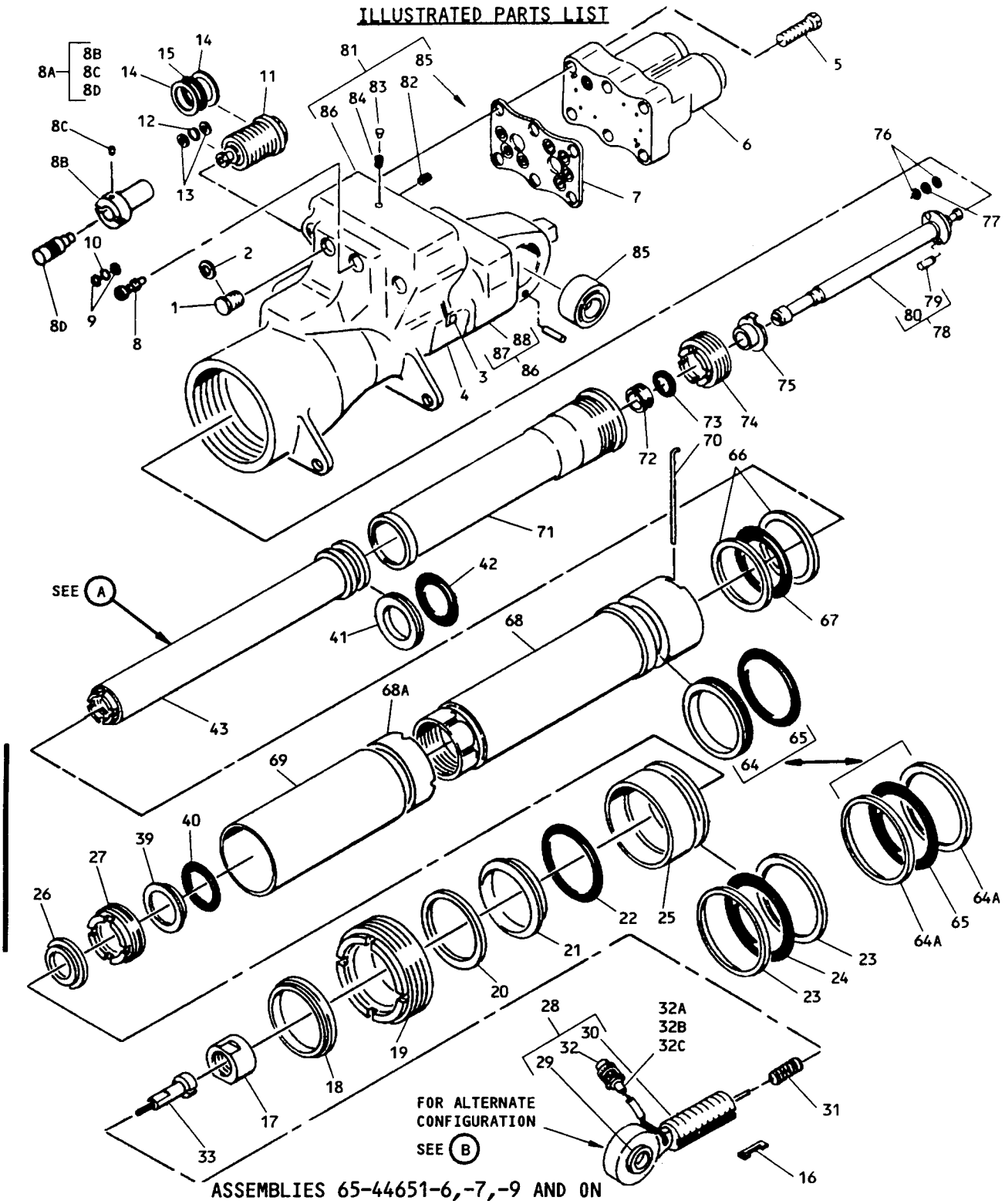
19. F80267-1 -- Test Fixture (Replaces F65-0-2161)

*[1] Quality Engineering Co. Inc., 1048 King Industrial Drive, Marietta, Georgia 30062

*[2] Superseded by test fixture F65-0-2161

*[3] Supersedes test fixture L401-07835

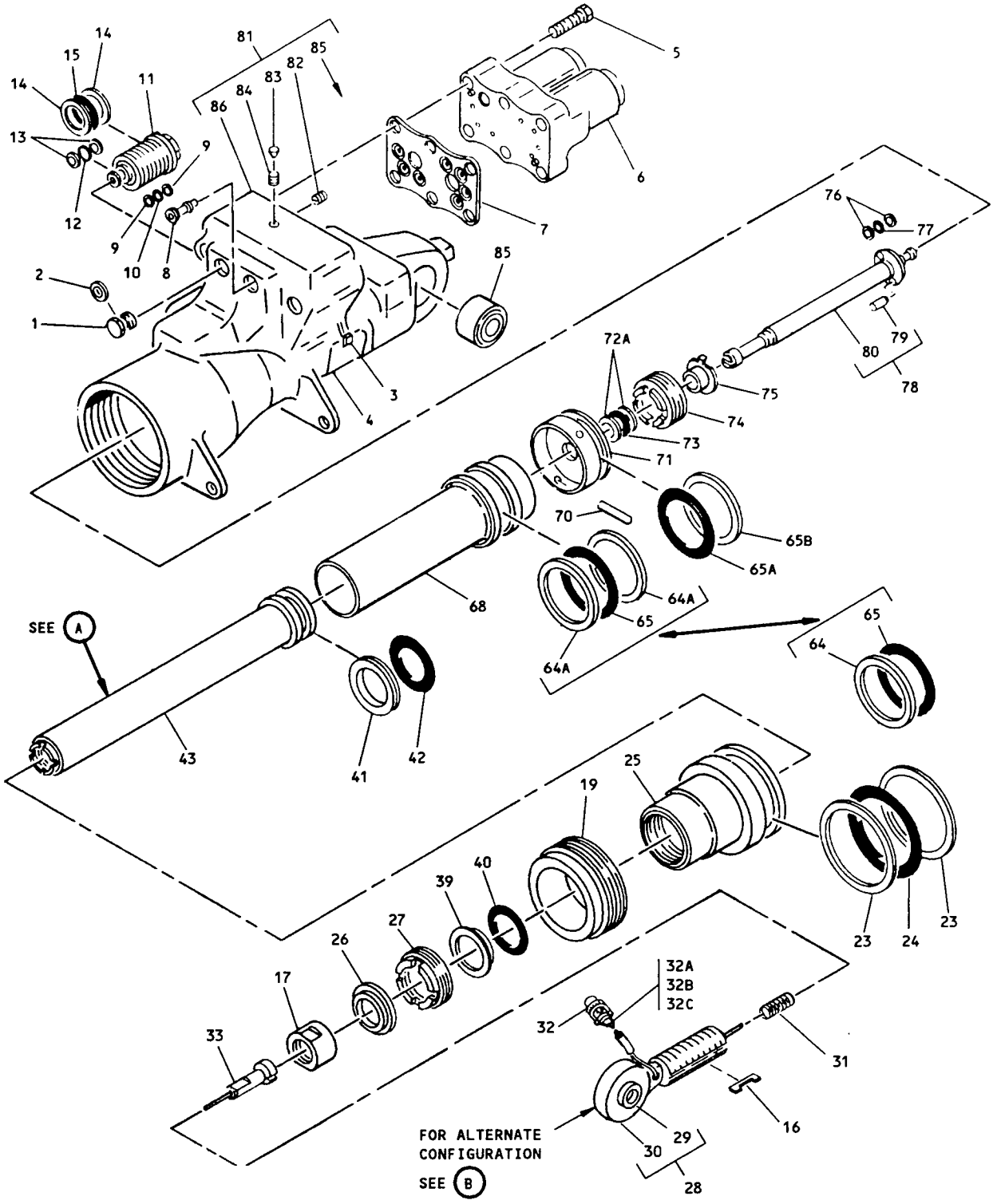
*[4] Parker Hannifin Corp., Contracts Dept., Hydraulics Div., 18321 Jamboree Blvd., Irvine, California 92713



ASSEMBLIES 65-44651-6,-7,-9 AND ON

Leading Edge Slat Actuator Assembly

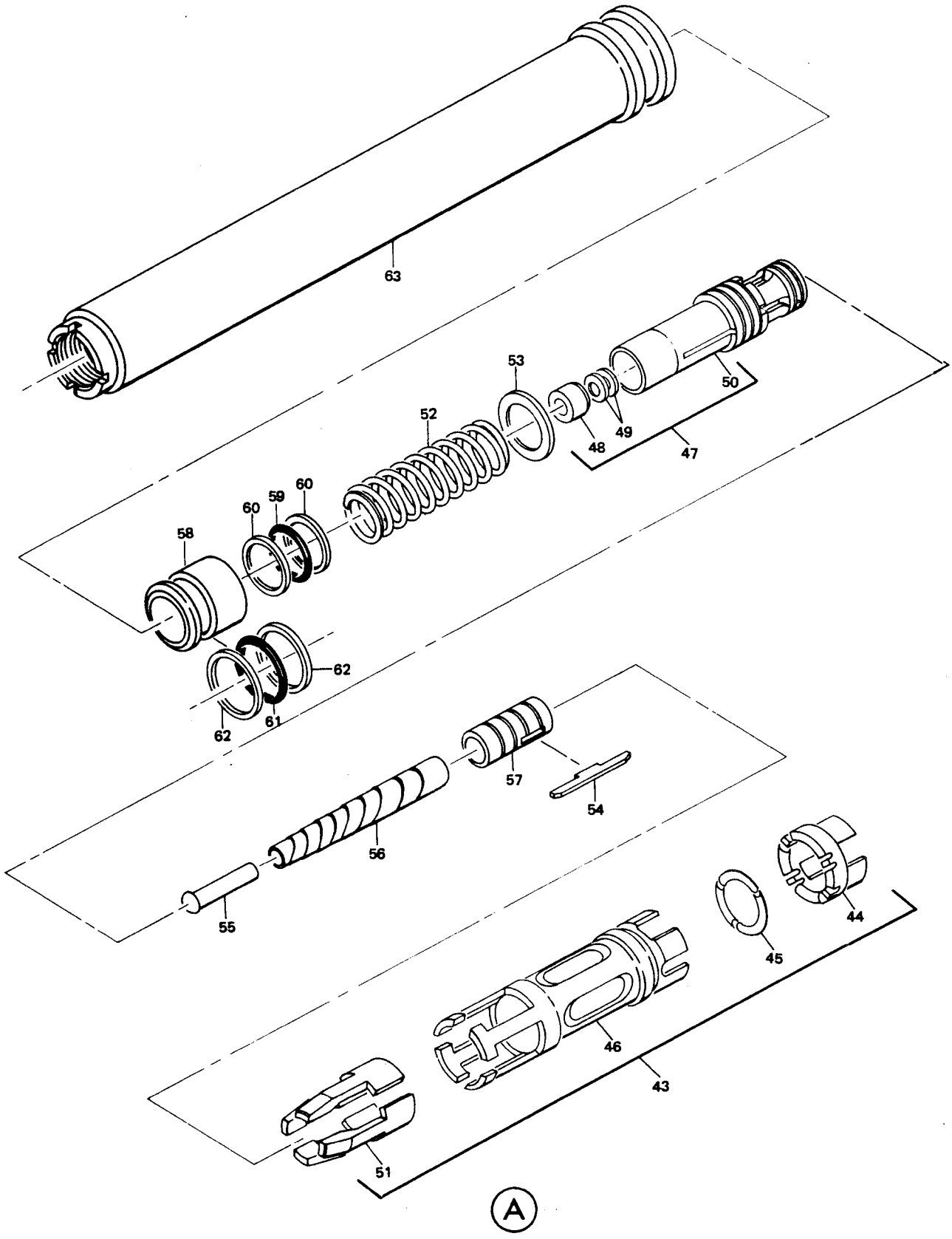
Figure 1101 (Sheet 1)



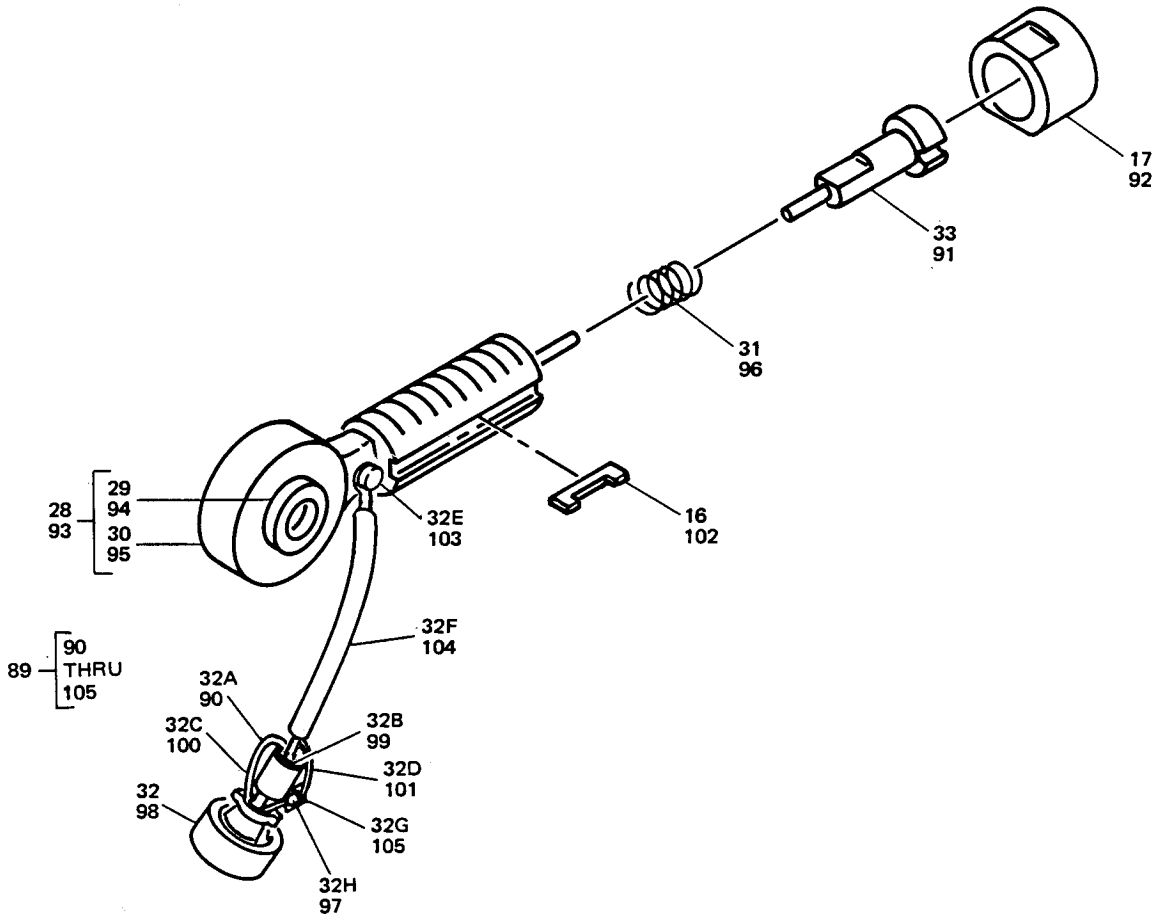
ASSEMBLY 65-44651-8

Leading Edge Slat Actuator Assembly
Figure 1101 (Sheet 2)

F37243



Leading Edge Slat Actuator Assembly
Figure 1101 (Sheet 3)



65–44651–9 AND ON ASSYS
WITH ROD END 69–54550–3

(B)

Leading Edge Slat Actuator Assembly
Figure 1101 (Sheet 4)

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
	65-44651-6		ACTUATOR ASSY, LEADING EDGE SLAT	A	RF
	65-44651-7		ACTUATOR ASSY, LEADING EDGE SLAT	B	RF
	65-44651-8		ACTUATOR ASSY, LEADING EDGE SLAT	C	RF
	65-44651-9		ACTUATOR ASSY, LEADING EDGE SLAT	D	RF
	65-44651-11		ACTUATOR ASSY, LEADING EDGE SLAT (PRE SERVICE BULLETIN 27-1105)	E	RF
	65-44651-13		ACTUATOR ASSY, LEADING EDGE SLAT (POST SERVICE BULLETIN 27-1105)	F	RF
	65-44651-14		ACTUATOR ASSY, LEADING EDGE FLAP (PRE SB 27-1120)	G	RF
	65-44651-15		ACTUATOR ASSY, LEADING EDGE FLAP (PRE SB 27-1120)	H	RF
	65-44651-16		ACTUATOR ASSY, LEADING EDGE FLAP (POST SB 27-1120)	I	RF
	65-44651-17		ACTUATOR ASSY, LEADING EDGE FLAP (POST SB 27-1120)	J	RF
1	AN814-4DL		. PLUG	BC	1
2	NAS1612-4		. PACKING, O-RING	BC	1
3	69-35587-6		. STRAP		1
4	BACN12A3LZ		. NAMEPLATE		1
5	MS24673-12		. SCREW		6
6	65-44741-5		. VALVE ASSY, BLOCKING (FIG. 1102)	A-F	1
6	65-44741-7		. VALVE ASSY, BLOCKING (FIG. 1102) (OPT TO 65-44741-5)	A-F	1
6	65-44741-7		. VALVE ASSY, BLOCKING (FIG. 1102)	G-J	1
7	69-35704-1		. PLATE, GASKET (OPT)		1
7	69-35704-2		. PLATE, GASKET (PREF)		1
8	69-35886-1		. PLUG, RESTRICTOR	A-F	1
8	69-35886-1		. PLUG, RESTRICTOR *[8]	G-J	1
8A	69-72071-2		. RESTRICTOR ASSY *[8]	G-J	1
8B	69-72071-3		. . PLUG		1
8C	69-72071-4		. . PELLET, NYLON		1
8D	JETA1875220D		. . RESTRICTOR, V92555		1
9	S12766-007		. RETAINER, V97820 (PREF)	A-F	2
9	S12766-007		. RETAINER, V97820 (OPT) *[8]	G-J	2
9	MS28782-2		. RING, BACKUP (OPT)	A-F	2
9	MS28782-2		. RING, BACKUP *[8]	G-J	2
10	NAS1611-007		. PACKING, O-RING	A-F	1
10	NAS1611-007		. PACKING, O-RING *[8]	G-J	1
11	69-54576-1		. PLUG	A-EGI	1
12	NAS1611-010		. PACKING, O-RING	DEGI	1
13	S12766-010		. RETAINER, V97820 (PREF)		2
13	MS28782-5		. RETAINER (OPT)	DEGI	2
14	S12766-114		. RETAINER, V97820 (PREF)		2
14	MS28782-12		. RETAINER (OPT)	A-EGI	2
15	NAS1611-114		. PACKING, O-RING	A-EGI	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
16	NAS559-4		. LOCK		1
17	69-35713-1		. NUT		1
18	BACS34A18A		. SCRAPER	ABD-J	1
19	69-35707-1		. RETAINER	B	1
19	69-54568-1		. NUT	AD-J	1
19	69-54568-2		. NUT	C	1
20	69-54570-1		. RETAINER, SEAL	AD-J	1
21	BACS11AA326A		. SEAL, FOOT *[1]	ABD-J	1
22	NAS1611-326		. PACKING, O-RING *[1]	ABD-J	1
22	GTC5394C326		. SEAL ASSY (V72902) *[1]	ABD-J	1
22	GTC5394C213		. SEAL ASSY (V72902)		1
23	S12766-226		. RETAINER, V97820 (PREF)		2
23	MS28783-4		. RETAINER (OPT)		2
24	NAS1611-226		. PACKING, O-RING		1
25	69-35706-1		. BEARING	B	1
25	69-54567-1		. BEARING	AD-J	1
25	65-44747-1		. SLEEVE, OUTER	C	1
26	BACS34A8A		. SCRAPER		1
27	69-35715-1		. NUT, GLAND		1
28	69-54550-3		. ROD END ASSY		1
28	69-54550-1		. ROD END ASSY (OPT)	A-EGI	1
29	MS14103-6		. . BEARING (REPLS MS21230-6)		1
29	10-60545-147S		. . BEARING (OPT TO MS14103-6)		1
29	MS21230-6		. . BEARING (REPLD BY MS14103-6)		1
30	69-54550-4		. . ROD END (USED ON 69-54550-3)		1
30	69-54550-2		. . ROD END (USED ON 69-54550-1)		1
31	69-54555-1		. SPRING		1
32	BACC45FT8C2P		. PLUG, CONNECTOR		1
32A	65-44651-10		. WIRE		1
32B	BACS13S080B		. SLEEVE, INNER		1
32C	BACS13S149C		. SLEEVE, OUTER		1
32D	MILW83420		. WIRE ROPE *[9]	D-J	1
32E	RA2487-047		. TERMINAL, BALL CABLE, V80523 *[9]	D-J	1
32F	RT876-1-8		. TUBING, HEAT SHRINK, V06090 *[9]	D-J	1
32G	RT876-3-16		. TUBING, HEAT SHRINK, V06090 *[9]	D-J	1
32H	AMP34138		. FERRULE, V00779 *[9]	D-J	1
33	65-44746-1		. SWITCH ASSY (OPT TO 65-44873-1)	AB	1
33	65-44873-1		. SWITCH ASSY (OPT TO 65-44873-8)	B-EG	1
33	65-44873-6		. SWITCH ASSY (OPT TO 65-44873-8)	CDEG	1
33	65-44873-5		DELETED		
33	65-44873-4		DELETED		
33	65-44873-7		. SWITCH ASSY (OPT TO 65-44873-8)	CDEG	1
33	65-44873-8		. SWITCH ASSY	C-H	1
33	65-44873-10		. SWITCH ASSY (REPLS 65-44746-1, 65-44873-1, 65-44873-8 PER SB 27-1120)		1

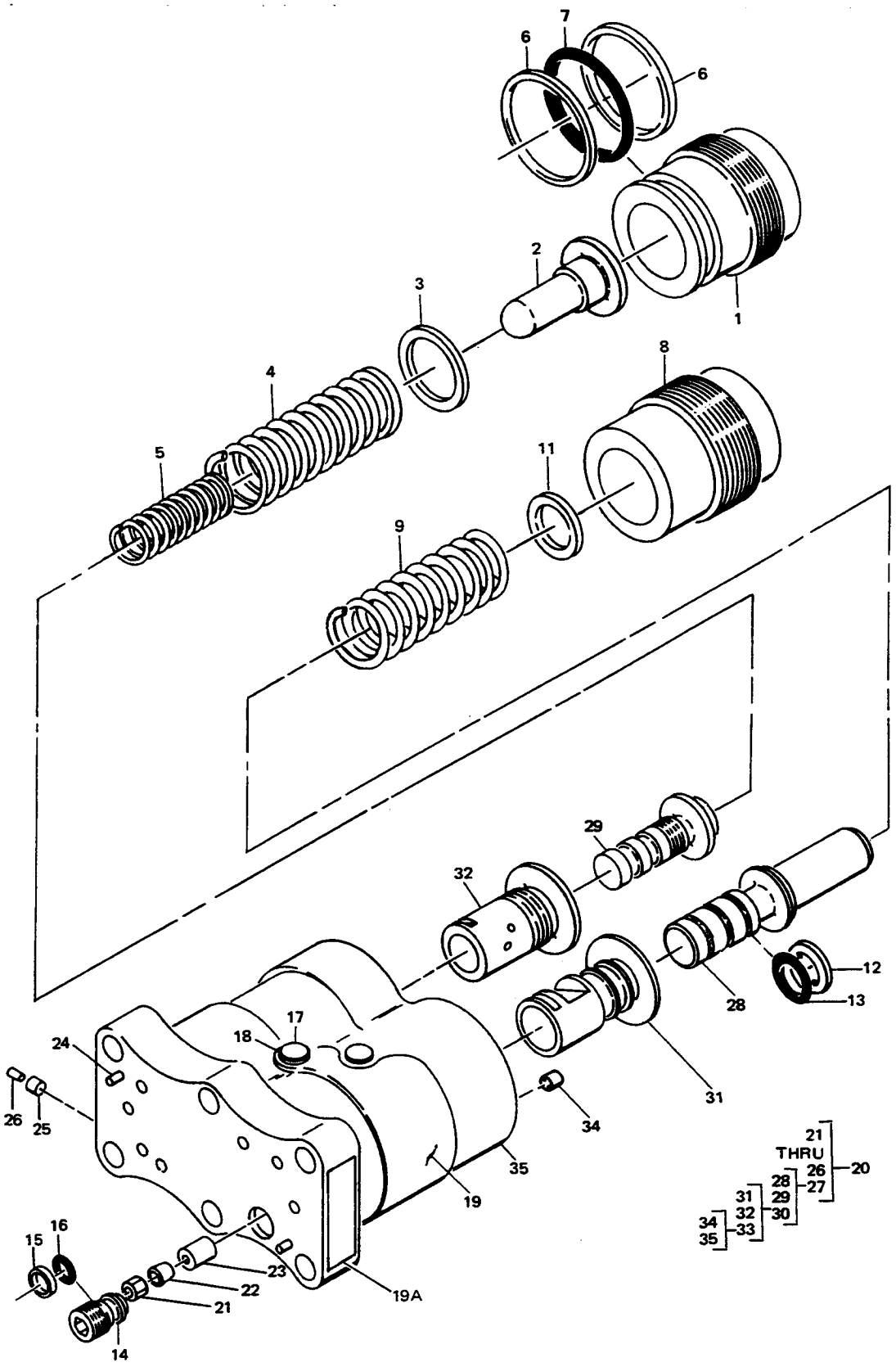
FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
34	MR456-20-30NI		DELETED		
35	65-44746-3		DELETED		
36	65-44746-4		DELETED		
37	65-44746-5		DELETED		
38	65-44746-2		DELETED		
39	BACS11AA213A		. SEAL, FOOT *[2]		1
40	NAS1611-213		. PACKING, O-RING *[2]		1
40	GTC5394C213		. SEAL ASSY (V72902) *[2]		1
40	5394-21319B952		. SEAL ASSY *[2]		1
41	69-54540-213		. RING, CAP *[3]		1
42	NAS1611-213		. O-RING *[3]		1
42	7213MT952T		. SEAL ASSY (V72902) (OPT)		1
42	S34582-213H99N		. SEAL ASSY (V97820) (PREF)		1
43	65-44824-1		. PISTON ASSY, INNER		1
44	69-35726-1		. . RETAINER		1
45	69-54520-1		. . RING, RETAINER (3 SEGMENTS)		1
46	65-44744-1		. . RETAINER		1
47	69-35557-1		. . PISTON ASSY, LOCK		1
48	69-54551-1		. . . MAGNET		1
49	AN960D4		. . . WASHER		2
49	AN960PD4		. . . WASHER (OPT)		2
50	65-44529-1		. . . PISTON, LOCK		1
51	65-44844-1		. . SEGMENT (MATCHED SET)		1
52	69-54517-1		. . SPRING		1
53	69-54529-1		. . WASHER		1
54	69-54557-1		. . KEY		2
55	69-54565-1		. . GUIDE, SPRING		1
56	69-54554-1		. . SPRING		1
57	69-54553-1		. . STOP, SEGMENT		1
58	69-54549-1		. . SEAT, SPRING		1
59	NAS1611-112		. . PACKING, O-RING		1
60	S12766-112		. . RETAINER,V97820		2
60	MS28782-10		. . RETAINER (OPT)		2
61	NAS1611-114		. . PACKING, O-RING		1
62	S12766-114		. . RETAINER, V97820		2
62	MS28782-12		. . RETAINER (OPT)		2
63	65-44545-2		. . PISTON, INNER		1
63	65-44545-1		. . PISTON, INNER (OPT)		1
64	69-54540-325		. RING, CAP *[4]		1
64A	MS28782-28		. RETAINER (OPT) *[4]	BC	2
65	NAS1611-325		. PACKING, O-RING *[4]		1
65	7325MT952T		. SEAL ASSY (V72902) (OPT)	ABD-J	1
65	S34582-325H99N		. SEAL ASSY (V97820) (PREF)		1
65A	NAS1611-223		. O-RING	C	1
65B	MS28783-1		. RING, BACKUP	C	1
66	S12766-220		. RETAINER, V97820	ABD-J	2
66	MS28782-25		. RING, BACKUP (OPT)	ABD-J	2

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
67	NAS1611-220		. PACKING, O-RING	ABD-J	1
68	65-44653-1		. PISTON, OUTER	ABDEGI	1
68	65-44653-3		. PISTON, OUTER (OPT)	ABD-J	1
68	65-44737-1		. SLEEVE, INNER	C	1
68A	69-54735-1		. SLEEVE	EFHJ	1
69	69-35756-1		. STOP	B	1
70	66-22833-1		. WIRE, LOCK	ABD-J	1
70	66-22833-2		. WIRE, LOCK (OPT)	ABD-J	1
70	MS16562-224		. PIN, SPRING	C	2
71	69-35877-2		. TUBE, TRANSFER	ABD-J	1
71	69-54603-1		. STOP	C	1
72	BACR12BJ110A		. RING, CAP	ABD-J	1
72A	MS28782-8		. RING, BACKUP	C	2
73	NAS1611-110		. PACKING, O-RING		1
74	69-54513-1		. NUT, INTERNAL		1
75	69-54514-1		. WASHER, LOCKING		1
76	S12766-008		. RETAINER, V97820		2
76	MS28782-3		. RING, BACKUP (OPT)		2
77	NAS1611-008		. PACKING, O-RING		1
78	65-44745-1		. STUD ASSY, LOCK		1
79	69-54521-1		. . PIN		1
79	MS16555-634		. . PIN (OPT)		1
80	65-44745-2		. . STUD, LOCK		1
81	65-44652-4		. BARREL ASSY *[7]	ADGI	1
81	65-44652-6		. BARREL ASSY (65-44703-8 OPT)	BC	1
81	65-44652-8		. BARREL ASSY *[7]	E	1
81	65-44652-12		. BARREL ASSY *[7]	DGI	1
81	65-44652-14		. BARREL ASSY (PRE SERVICE BULLETIN 27-1105) *[7]	E	1
81	65-44652-18		. BARREL ASSY (POST SERVICE BULLETIN 27-1105)	FHJ	1
81	65-44703-6		. BARREL ASSY *[7]	ADGI	1
81	65-44703-8		. BARREL ASSY (OPT TO 65-44652-6)	BC	1
81	65-44703-10		. BARREL ASSY *[7]	E	1
81	65C31196-5		. BARREL ASSY *[10]	ADGI	1
81	65C31196-5		. BARREL ASSY *[11]	DGI	1
81	65C31196-6		. BARREL ASSY *[12]	BC	1
81	65C31196-7		. BARREL ASSY *[13]	E	1
81	65C31196-7		. BARREL ASSY *[14]	FHJ	1
81	65C31196-11		. BARREL ASSY *[15]	ADGI	1
81	65C31196-12		. BARREL ASSY *[16]	BC	1
81	65C31196-13		. BARREL ASSY *[17]	E	1
82	MS21209F4-15		. . INSERT		6
83	BACP20AX12DP		. . PIN (USED ON 65-44652-12,-14,-18)		12
83	BACP20AX12DP		. . PIN (USED ON 65-44652-4, -8; 65-44703, -6, -8, -10)		14

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
83	BACP20AX12DP		. . PIN (USED ON 65-44652-6)		15
84	BACP20AX12D		. . PLUG (USED ON 65-44652-12,-14, -18)		12
84	BACP20AX12D		. . PLUG (USED ON 65-44652-4, -8; 65-44703, -6, -8, -10)		14
84	BACP20AX12D		. . PLUG (USED ON 65-44652-6)		15
85	ABWT9V101		. . BEARING, S0352 (BOEING 10-60545-141S) *[5]		1
85	BLFR9-003		. . BEARING, V81376 (BOEING 10-60545-141S) *[5]		1
85	KSBN9-4		. . BEARING, V97613 (BOEING 10-60545-141S) *[5]		1
85	NHSB9V201		. . BEARING, V15860 (BOEING 10-60545-141S) *[5]		1
85	SBS18ATC36		. . BEARING, V21335 (BOEING 10-60545-141S) *[5]		1
85	WRG9BACH		. . BEARING, V73134 (BOEING 10-60545-141S) *[5]		1
85	YTA150		. . BEARING, V77896 (BOEING 10-60545-141S) *[5]		1
85	03-729-0562		. . BEARING, V09455 (BOEING 10-60545-141S) *[5]		1
85	ADSB9V201		. . BEARING, V15860 (BOEING 10-60545-141SA) *[6]		1
85	KSC130009P		. . BEARING, V50632 (BOEING 10-60545-141SA) *[6]		1
85	WHT9V101		. . BEARING, S0352 (BOEING 10-60545-141SA) *[6]		1
85	WRRG9BACH		. . BEARING, V73134 (BOEING 10-60545-141SA) *[6]		1
85	03-826-09E002		. . BEARING, V09455 (BOEING 10-60545-141SA) *[6]		1
86	65-44652-5		. . BARREL (USED ON 65-44652-4)		1
86	65-44652-7		. . BARREL (USED ON 65-44652-6)		1
86	65-44652-9		. . BARREL (USED ON 65-44652-8) (OPT TO 65-44652-10)		1
86	65-44652-10		. . BARREL (USED ON 65-44652-8) (65-44652-9 OPT)		1
86	65-44652-13		. . BARREL (USED ON 65-44652-12)		1
86	65-44652-15		. . BARREL (USED ON 65-44652-14)		1
86	65-44652-17		. . BARREL (USED ON 65-44652-18)		1
86	65-44703-7		. . BARREL (USED ON 65-44703-6)		1
86	65-44703-9		. . BARREL (USED ON 65-44703-8)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
86	65-44703-11		. . BARREL (USED ON 65-44703-10)		1
87	65-44652-11		. . . BARREL (USED ON 65-44652-10)		1
88	NAS607-2-3P		. . . PIN (USED ON 65-44652-10)		1
89	65-44651-12		. SPARES ASSY, ROD END AND SWITCH	B-J	
90	65-44651-10		. . WIRE		1
91	65-44873-10		. . SWITCH ASSY (REPLS 65-44873-1, -6, -7, -8 PER SB 27-1120)		1
91	65-44873-8		. . SWITCH ASSY (OPT 65-44873-7, -6, -1)		1
91	65-44873-7		. . SWITCH ASSY (OPT TO 65-44873-8)		1
91	65-44873-6		. . SWITCH ASSY (OPT TO 65-44873-8)		1
91	65-44873-1		. . SWITCH ASSY (OPT TO 65-44873-8)		1
92	69-35713-1		. . NUT		1
93	69-54550-3		. . ROD END ASSY		1
94	MS14103-6		. . . BEARING		1
94	BLFR6-169		. . . BEARING, V81376 (BOEING 10-60545-147S)		1
94	KWB6N8		. . . BEARING, V97613 (BOEING 10-60545-147S)		1
94	SBSH12ATC26		. . . BEARING, V21335 (BOEING 10-60545-147S)		1
94	TGA106		. . . BEARING, V77896 (BOEING 10-60545-147S)		1
94	76423		. . . BEARING, V09455 (BOEING 10-60545-147S)		1
95	69-54550-4		. . . ROD END		1
96	69-54555-1		. . SPRING		1
97	AMP34138		. . FERRULE, V00779		1
98	BACC45FT8C2P		. . CONNECTOR		1
99	BACS13S080B		. . SLEEVE		1
100	BACS13S149C		. . SLEEVE		1
101	MILW83420		. . WIRE ROPE		1
102	NAS559-4		. . LOCK		1
103	RA2487-047		. . TERMINAL, BALL CABLE, V80523		1
104	RT876-1-8		. . TUBING, HEAT SHRINK, V06090		1
105	RT876-3-16		. . TUBING, HEAT SHRINK, V06090		1

*[1] BACS11AA326A (ITEM 21) USED WITH NAS1611-326 (ITEM 22) OPT TO GTC5394C326 (ITEM 22).
*[2] BACS11AA213A (ITEM 39) USED WITH NAS1611-213 (ITEM 40) OPT TO GTC5394C213 (ITEM 40) OR 5394-21319B952 (ITEM 40).
*[3] 69-54540-213 (ITEM 41) USED WITH NAS1611-213 (ITEM 42). OPT TO 7213MT952T (42) OR S34582-213H99N (42). NOTE THAT 69-54540-213 IS NOT USED WITH 7213MT952T OR S34582-213H99N.
*[4] 69-54540-325 (ITEM 64) OPTIONAL TO TWO MS28782-28 (ITEM 64A). 69-54540-325 (ITEM 64) OR MS28782-28 (ITEM 64A) ARE USED WITH NAS1611-325 (ITEM 65). NOTE THAT 69-54540-325 (ITEM 64) OR MS28782-28 (ITEM 64A) ARE NOT USED WITH 7325MT952T OR S34582-325H99N.
*[5] OPT TO 10-60545-141SA.
*[6] 10-60545-141S OPT.
*[7] 65-44703-6 OR 65-44652-4 USED WITH ITEMS 11 THRU 15 OPT TO 65-44652-12. 65-44703-10 OR 65-44652-8 USED WITH ITEMS 11 THRU 15 OPT TO 65-44652-14.
*[8] 69-35886-1 (ITEM 8), NAS1611-007 (ITEM 10) AND MS28782-2 (ITEM 9) OPT TO 69-72071-2 (ITEM 8A).
*[9] USED ONLY WITH 69-54550-3 (ITEM 28) ROD END ASSY.
*[10] REPAIR ASSY MADE FROM BARREL ASSY 65-44652-4 AND SLEEVE 65C31196-4
*[11] REPAIR ASSY MADE FROM BARREL ASSY 65-44652-12 AND SLEEVE 65C31196-4
*[12] REPAIR ASSY MADE FROM BARREL ASSY 65-44652-6 AND SLEEVE 65C31196-4
*[13] REPAIR ASSY MADE FROM BARREL ASSY 65-44652-8, -14 AND SLEEVE 65C31196-4
*[14] REPAIR ASSY MADE FROM BARREL ASSY 65-44652-18 AND SLEEVE 65C31196-4
*[15] REPAIR ASSY MADE FROM BARREL ASSY 65-44703-6 AND SLEEVE 65C31196-4
*[16] REPAIR ASSY MADE FROM BARREL ASSY 65-44703-8 AND SLEEVE 65C3196-4
*[17] REPAIR ASSY MADE FROM BARREL ASSY 65-44703-10 AND SLEEVE 65C31196-4

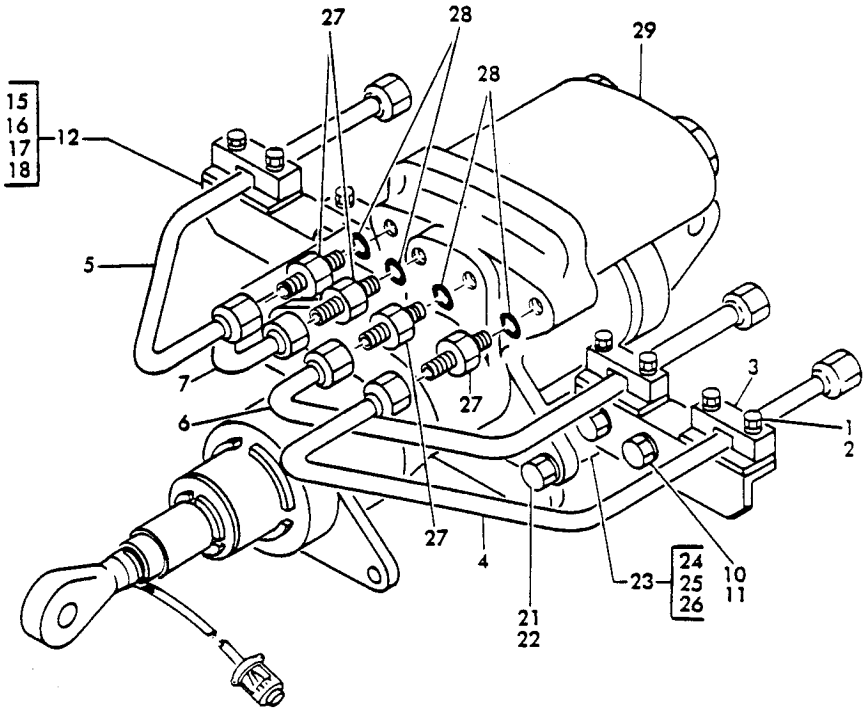


Blocking Valve Assembly
Figure 1102

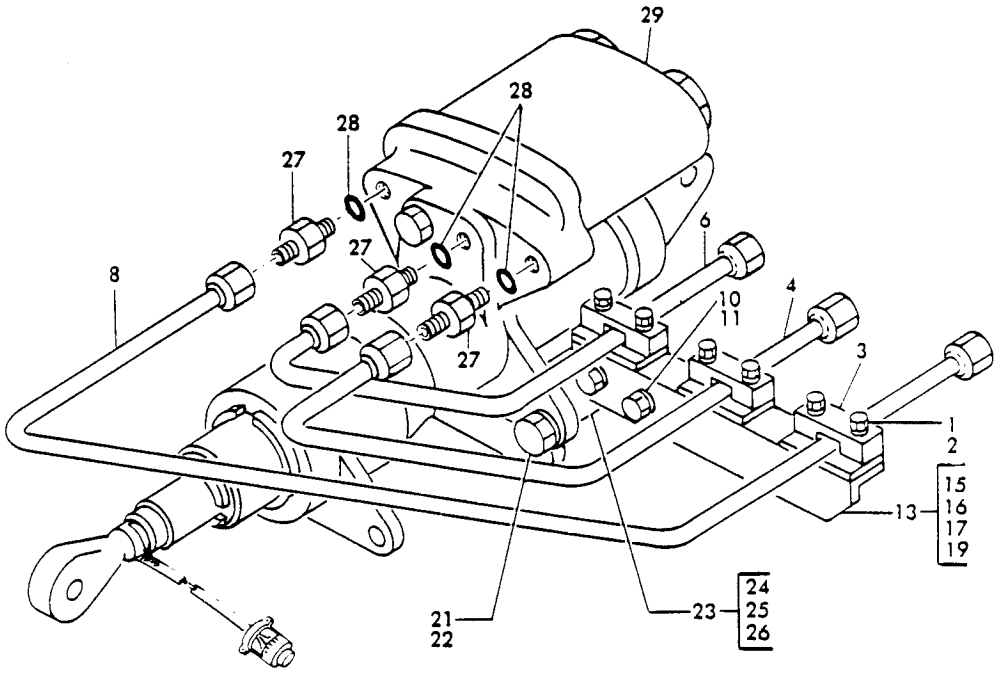
FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1102-					
	65-44741-1		DELETED		
	65-44741-5		BLOCKING VALVE ASSY	A	RF
	65-44741-7		BLOCKING VALVE ASSY	B	RF
1	69-35884-1		. CAP, RETAINER		1
2	69-35883-1		. STOP		1
3	59-35885-2		. SHIM		1
4	69-35944-1		. SPRING, OUTER		1
4	69-66648-1		. SPRING, OUTER (OPT)		1
5	69-35945-1		. SPRING, INNER		1
6	S11109-119		. RING, BACKUP, V97820		2
7	NAS1611-119		. PACKING		1
8	69-35860-2		. CAP, RETAINER		1
9	69-35861-1		. SPRING		1
11	69-35900-1		. SHIM (PREF)		1
11	69-35784-1		. SHIM (OPT) (3 MAX)		AR
12	MS28782-4		. RING, BACKUP		1
13	NAS1611-009		. PACKING		1
14	69-35836-1		. PLUG		1
15	MS28782-1		. RING, BACKUP (PREF)		1
15	S12766-006		. RING, BACKUP, V97820 (OPT)		1
16	NAS1611-006		. PACKING		1
17	MS20470DD3-18		. RIVET (USED WITH BACN12A3MW)		1
18	AN960C3L		. WASHER (USED WITH BACN12A3MW)		2
19	BACN12A3MW		. NAMEPLATE (OPT TO BAC27DHY214)		1
19A	BAC27DHY214		. NAMEPLATE (OPT TO BACN12A3MW)		1
20	65-56687-6		. HOUSING ASSY	A	1
20	65-56687-12		. HOUSING ASSY	B	1
21	69-35808-1		. . RETAINER (USED ON 65-56687-6)		1
22	EX34235		. . SCREEN, FILTER, V92555 (USED ON 65-56687-6)		1
23	EX31505		. . JET, V92555 (USED ON 65-56687-6)		1
23	JETX0510110AB		. . JET, V92555 (USED ON 65-56687-12)		1
24	MS16562-192		. . PIN, DOWEL		2
24	MS16555-604		. . PIN, DOWEL (OPT)		2
25	BACP20AX12P		. . PIN		4
26	BACP20AX12		. . PLUG		4

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1102-					
27	65-56687-7		. . HOUSING ASSY (USED ON 65-56687-6)		1
27	65-56687-17		. . HOUSING ASSY (USED ON 65-56687-12)		1
28	69-35854-1		. . . SLIDE *[1]		1
29	69-35880-1		. . . SLIDE *[1]		1
30	65-56687-8		. . . HOUSING ASSY (USED ON 65-56687-7)		1
30	65-56687-18		. . . HOUSING ASSY (USED ON 65-56687-17)		1
31	69-35852-1		. . . . SLEEVE *[1]		1
32	69-35879-1		. . . . SLEEVE *[1]		1
33	65-44742-4		. . . . HOUSING ASSY (USED ON 65-56687-8) *[1]		1
33	65-44742-7		. . . . HOUSING (USED ON 65-56687-18) *[1]		1
34	MS16555-601		. . . . . DOWEL, PIN		4
35	65-44742-5		. . . . . HOUSING (USED ON 65-44742-4)		1
35	65-44742-8		. . . . . HOUSING (USED ON 65-44742-7)		1
35	65-44742-9		. . . . . HOUSING (USED ON 65-44742-7) (OPT TO 65-44742-8)		1

*[1] SLIDES (28,29) MATCHED WITH SLEEVES (31,32) RESPECTIVELY. SLEEVES (31,32) MATCHED WITH HOUSING (33).

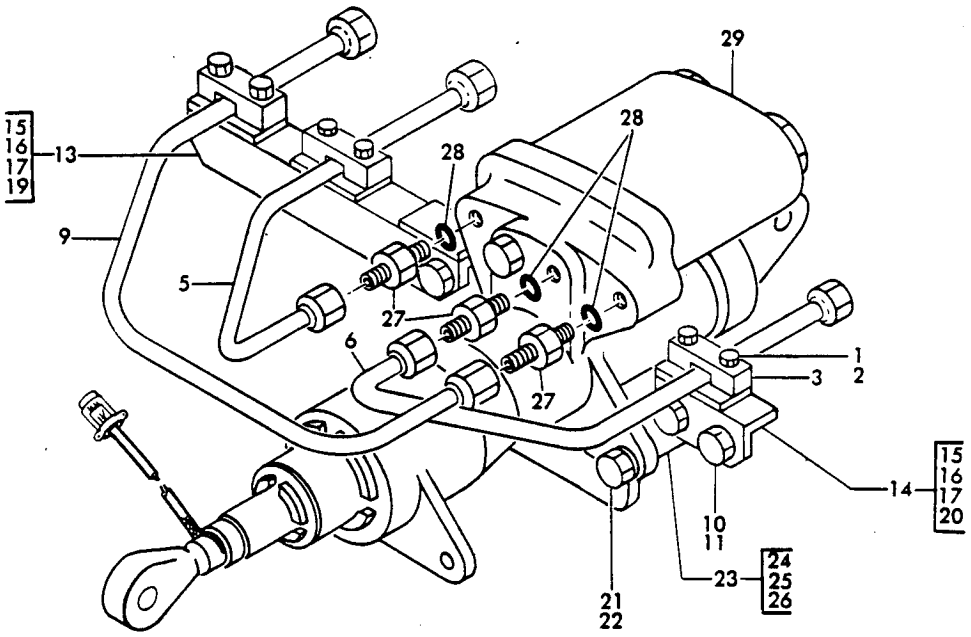


ASSYS 65-44650-16, -23, -27

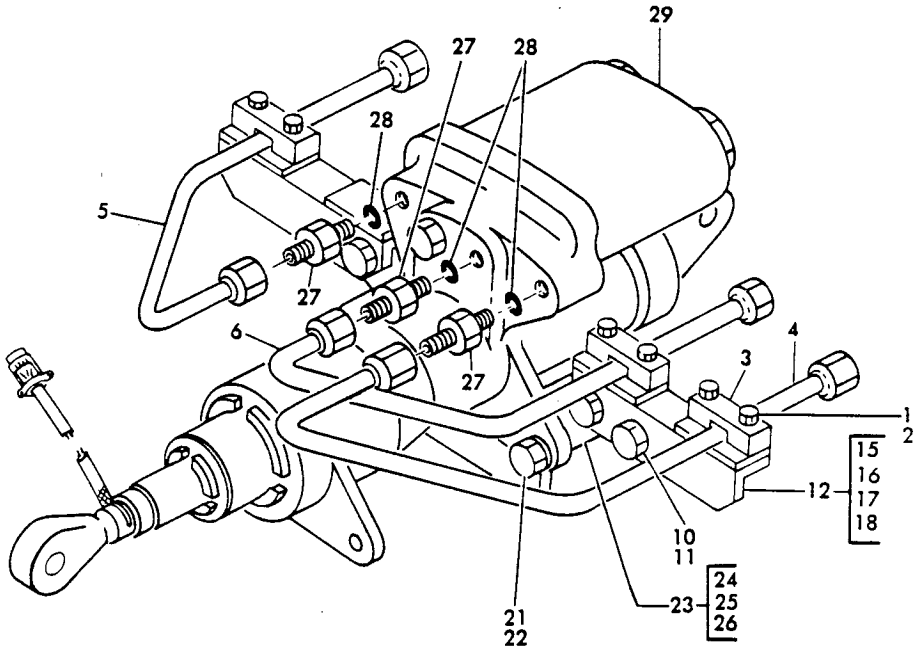


ASSYS 65-44650-17, -24, -28

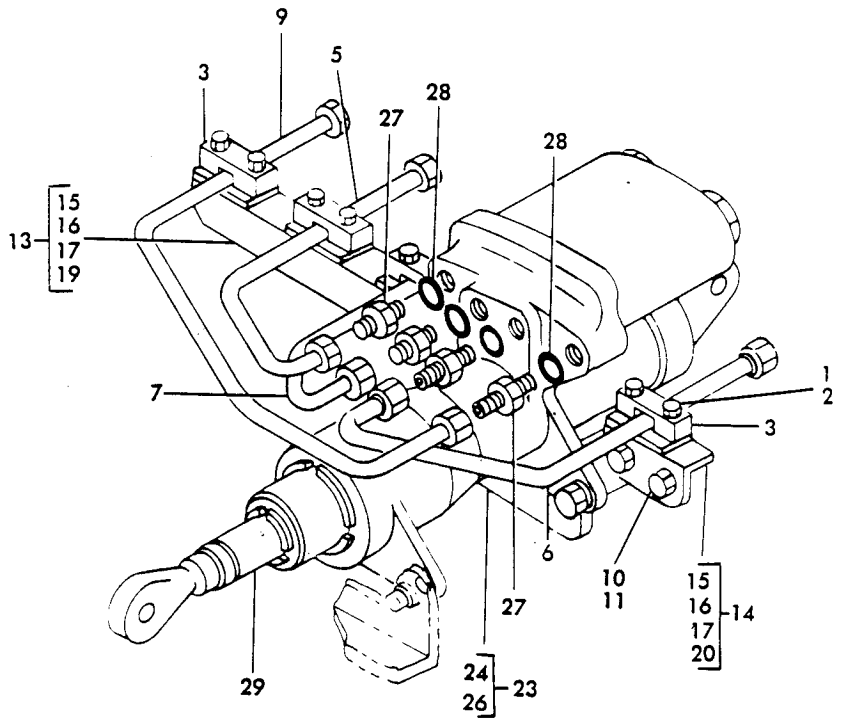
Leading Edge Slat Actuator Assembly
Figure 1103 (Sheet 1)



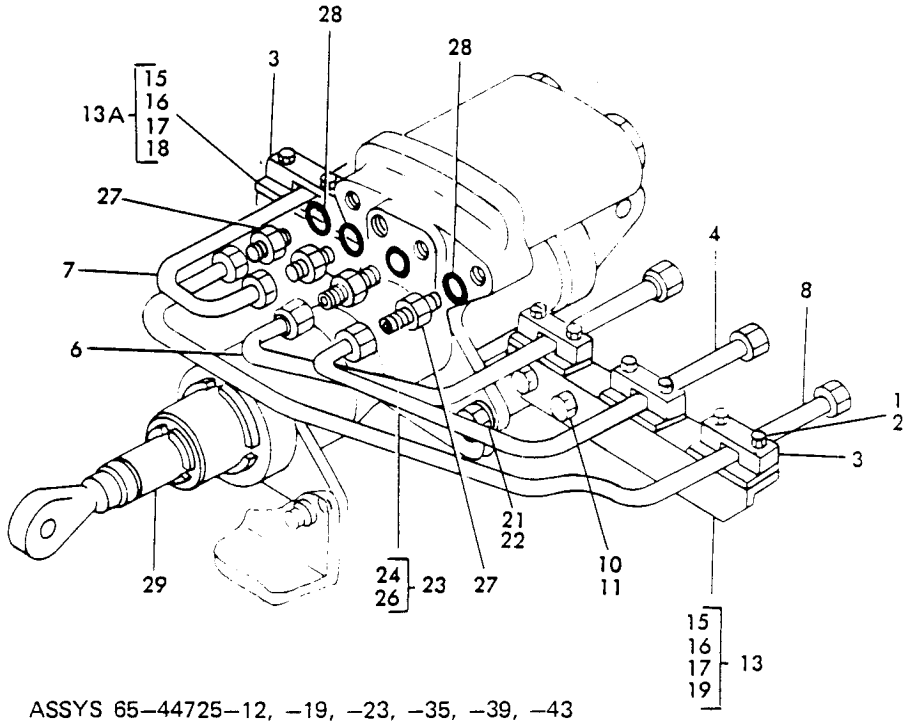
PART NUMBER, 65-44650-18, -25 AND -29



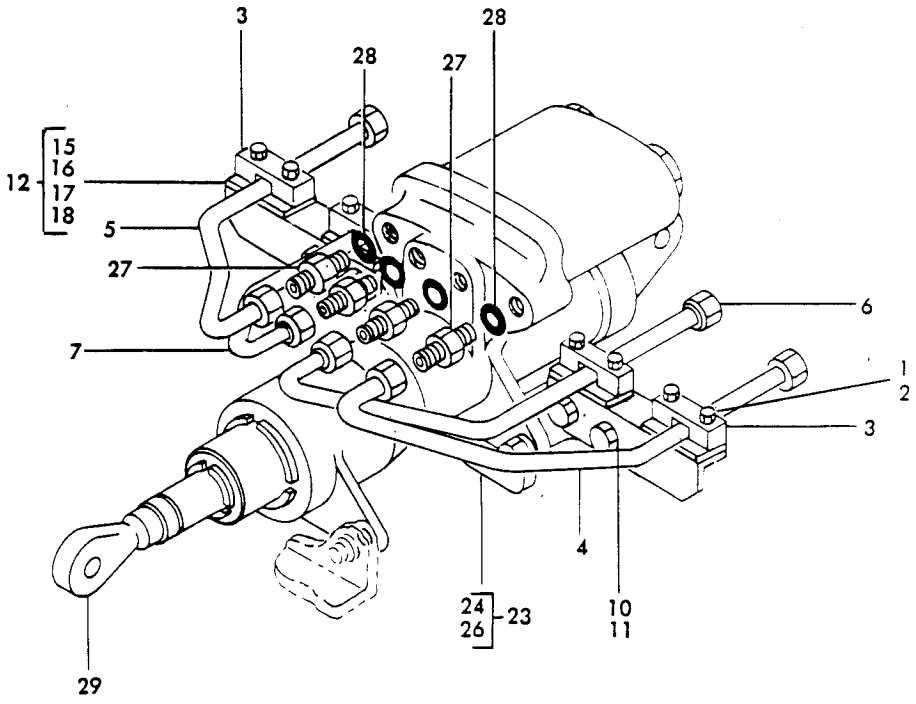
PART NUMBER 65-44650-19, -26 AND -30



ASSYS 65–44725–3, –10, –17, –21, –33, –37, –41



ASSYS 65–44725–12, –19, –23, –35, –39, –43



ASSYS 65–44725–4, –6, –11, –13, –15, –16, –18, –20, –22, –25, –34, –36, –38, –40, –42, –44

Leading Edge Slat Actuator Assembly
Figure 1103 (Sheet 4)

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1103-					
	65-44650-16		ACTUATOR ASSY, LEADING EDGE SLAT	A	RF
	65-44650-17		ACTUATOR ASSY, LEADING EDGE SLAT	B	RF
	65-44650-18		ACTUATOR ASSY, LEADING EDGE SLAT	C	RF
	65-44650-19		ACTUATOR ASSY, LEADING EDGE SLAT	D	RF
	65-44650-23		ACTUATOR ASSY, LEADING EDGE SLAT	E	RF
	65-44650-24		ACTUATOR ASSY, LEADING EDGE SLAT	F	RF
	65-44650-25		ACTUATOR ASSY, LEADING EDGE SLAT	G	RF
	65-44650-26		ACTUATOR ASSY, LEADING EDGE SLAT	H	RF
	65-44650-27		ACTUATOR ASSY, LEADING EDGE SLAT	I	RF
	65-44650-28		ACTUATOR ASSY, LEADING EDGE SLAT	J	RF
	65-44650-29		ACTUATOR ASSY, LEADING EDGE SLAT	K	RF
	65-44650-30		ACTUATOR ASSY, LEADING EDGE SLAT	L	RF
	65-44725-3		ACTUATOR ASSY, LEADING EDGE SLAT	M	RF
	65-44725-4		ACTUATOR ASSY, LEADING EDGE SLAT	N	RF
	65-44725-5		ACTUATOR ASSY, LEADING EDGE SLAT	O	RF
	65-44725-6		ACTUATOR ASSY, LEADING EDGE SLAT (PRE SERVICE BULLETIN 27-1105)	P	RF
	65-44725-10		ACTUATOR ASSY, LEADING EDGE SLAT	Q	RF
	65-44725-11		ACTUATOR ASSY, LEADING EDGE SLAT	R	RF
	65-44725-12		ACTUATOR ASSY, LEADING EDGE SLAT	S	RF
	65-44725-13		ACTUATOR ASSY, LEADING EDGE SLAT (PRE SERVICE BULLETIN 27-1105)	T	RF
	65-44725-15		ACTUATOR ASSY, LEADING EDGE SLAT (POST SERVICE BULLETIN 27-1105)	U	RF
	65-44725-16		ACTUATOR ASSY, LEADING EDGE SLAT (POST SERVICE BULLETIN 27-1105)	V	RF
	65-44725-17		ACTUATOR ASSY, LEADING EDGE SLAT	W	RF
	65-44725-18		ACTUATOR ASSY, LEADING EDGE SLAT	X	RF
	65-44725-19		ACTUATOR ASSY, LEADING EDGE SLAT	Y	RF
	65-44725-20		ACTUATOR ASSY, LEADING EDGE SLAT	Z	RF
	65-44725-21		ACTUATOR ASSY, LEADING EDGE SLAT	BA	RF
	65-44725-22		ACTUATOR ASSY, LEADING EDGE SLAT	CA	RF
	65-44725-23		ACTUATOR ASSY, LEADING EDGE SLAT	DA	RF
	65-44725-25		ACTUATOR ASSY, LEADING EDGE SLAT	EA	RF
	65-44725-33		ACTUATOR ASSY, LEADING EDGE SLAT	FA	RF
	65-44725-34		ACTUATOR ASSY, LEADING EDGE SLAT	GA	RF
	65-44725-35		ACTUATOR ASSY, LEADING EDGE SLAT	HA	RF
	65-44725-36		ACTUATOR ASSY, LEADING EDGE SLAT	IA	RF
	65-44725-37		ACTUATOR ASSY, LEADING EDGE SLAT	JA	RF
	65-44725-38		ACTUATOR ASSY, LEADING EDGE SLAT	KA	RF
	65-44725-39		ACTUATOR ASSY, LEADING EDGE SLAT	LA	RF
	65-44725-40		ACTUATOR ASSY, LEADING EDGE SLAT	MA	RF
	65-44725-41		ACTUATOR ASSY, LEADING EDGE SLAT	NA	RF
	65-44725-42		ACTUATOR ASSY, LEADING EDGE SLAT	OA	RF
	65-44725-43		ACTUATOR ASSY, LEADING EDGE SLAT	PA	RF
	65-44725-44		ACTUATOR ASSY, LEADING EDGE SLAT	QA	RF

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1103-					
1	BACS12CB3-14		. BOLT	AEIM-QA	8
1	BACS12CB3-14		. BOLT	BCDFG HJKL	6
2	AN960PD10L		. WASHER	AEIM-QA	8
2	AN960PD10L		. WASHER	BCDFG HJKL	6
3	69-35863-1		. CLAMP, HALF	AEIM-QA	4
3	69-35863-1		. CLAMP, HALF	BCDFG HJKL	3
4	65-44654-1		. TUBE ASSY (OPT)	ABDEF HIJL	1
4	65-44654-1001		. TUBE ASSY (OPT)	ABDEF HIJL	1
4	65-44654-1001		. TUBE ASSY	NOPUX YZ GA-IA KA-MA	1
4	65-44654-3001		. TUBE ASSY	RSTV CA-EA OA-QA	1
5	65-44654-2		. TUBE ASSY (OPT)	ACDEG HIKL	1
5	65-44654-1002		. TUBE ASSY (OPT)	ACDEG HIKL	1
5	65-44654-1002		. TUBE ASSY	L-N PUWXZ FA GA IA JA KA MA	1
5	65-44654-3002		. TUBE ASSY	QRTV BA CA EA NA OA QA	1
6	65-44654-3		. TUBE ASSY (OPT)	A-L	1
6	65-44654-1003		. TUBE ASSY (OPT)	A-L	1
6	65-44654-1003		. TUBE ASSY	M-PU W-Z FA-MA	1
6	65-44654-3003		. TUBE ASSY	Q-TV BA-EA NA-QA	1
7	65-44654-4		. TUBE ASSY (OPT)	AEI	1
7	65-44654-1004		. TUBE ASSY (OPT)	AEI	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1103-7	65-44654-1004		. TUBE ASSY	MNPUW XZ FA GA IA JA KA MA	1
7	65-44654-1007		. TUBE ASSY	OY HA LA	1
7	65-44654-3004		. TUBE ASSY	QRTV BA CA EA NA OA QA	1
7	65-44654-3007		. TUBE ASSY	S DA PA	1
8	65-44654-5		. TUBE ASSY (OPT)	BFJ	1
8	65-44654-1005		. TUBE ASSY (OPT)	BFJ	1
8	65-44654-1005		. TUBE ASSY	OY HA LA	1
8	65-44654-3005		. TUBE ASSY	S DA PA	1
9	65-44654-6		. TUBE ASSY (OPT)	CGK	1
9	65-44654-1006		. TUBE ASSY (OPT)	CGK	1
9	65-44654-1006		. TUBE ASSY	MW FA JA	1
9	65-44654-3006		. TUBE ASSY	Q BA NA	1
10	NAS1104-4		. BOLT	ACDEG HIKL	4
10	BACB30NE4-4		. BOLT	M-QA	4
10	NAS1104-4		. BOLT	BFJ	2
11	AN960PD416		. WASHER	ACDEGH IKLM-QA	4
11	AN960PD416		. WASHER	BFJ	2
12	69-35864-1		. BRACKET ASSY	ADEHI LNPRT UVXZ CA EA GA IA KA MA OA QA	2
13	69-35864-2		. BRACKET ASSY	BCFGJ KMOQS WY BA DA FA HA JA LA NA QA	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1103-					
13A	69-35864-3		. BRACKET ASSY	OSY DA HA LA PA	1
14	69-35864-4		. BRACKET ASSY	CGKMQ W BA FA JA NA	1
15	MS20426D3		. . RIVET (USED ON 69-35864-1)		8
15	MS20426D3		. . RIVET (USED ON 69-35864-2, -3)		12
15	MS20426D3		. . RIVET (USED ON 69-35864-4)		4
16	BACN10JP3B		. . NUTPLATE (REPLS NAS696A3) (USED ON 69-35864-1)		4
16	BACN10JP3B		. . NUTPLATE (REPLS NAS696A3) (USED ON 69-35864-2)		6
16	BACN10JP3B		. . NUTPLATE (REPLS NAS696A3) (USED ON 69-35864-3, -4)		2
17	69-35863-2		. . CLAMP, HALF (USED ON 69-35864-1)		2
17	69-35863-2		. . CLAMP, HALF (USED ON 69-35864-2, -3)		3
17	69-35863-2		. . CLAMP, HALF (USED ON 69-35864-4)		1
18	69-35864-5		. . BRACKET (USED ON 69-35864-1)		1
18	69-35864-7		. . BRACKET (USED ON 69-35864-3)		1
19	69-35864-6		. . BRACKET (USED ON 69-35864-2)		1
20	69-35864-8		. . BRACKET (USED ON 69-35864-4)		1
21	NAS1104-6		. BOLT	A-L	2
21	BACB30NE4-6		. BOLT	M-QA	2
22	AN960PD416L		. WASHER		2
23	69-35867-1		. BRACKET ASSY	ADEHI LNPRT UVXZ CA EA GA IA KA MA OA QA	1
23	69-35867-3		. BRACKET ASSY	BCFGJ KMOQS WY BA DA FA HA JA NA LA PA	1
24	MS20426D3		. . RIVET		12
25	BACN10JP4A		. . NUTPLATE (REPLS NAS697A4)		6
26	69-35867-2		. . BRACKET (USED ON 69-35867-1)		1
26	69-35867-4		. . BRACKET (USED ON 69-35867-3)		1
27	MS21902-4		. UNION	AEI M-QA	4

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1103-27	MS21902-4		. UNION	BCDFG HJKL	3
28	NAS1612-4		. PACKING, O-RING	AEIM-QA	4
28	NAS1612-4		. PACKING, O-RING	BCDFG HJKL	3
29	65-44651-16		. ACTUATOR ASSY (PREF) (FIG. 1101)	AEIM-O Q-SW-Y BA-DA JA-LA NA-PA	1
29	65-44651-14		. ACTUATOR ASSY (OPT) (FIG. 1101)	AEIM-O Q-SW-Y BA-DA JA-LA NA-PA	1
29	65-44651-6		. ACTUATOR ASSY (OPT) (FIG. 1101)	AEIM-O Q-SW-Y BA-DA JA-LA NA-PA	1
29	65-44651-9		. ACTUATOR ASSY (OPT) (FIG. 1101)	AEIM-O Q-SW-Y BA-DA JA-LA NA-PA	1
29	65-44651-7		. ACTUATOR ASSY (PREF) (FIG. 1101)	BCDFGH JKL	1
29	65-44651-8		. ACTUATOR ASSY (OPT) (FIG. 1101)	BCDFGH JKL	1
29	65-44651-8		DELETED		
29	65-44651-9		DELETED		
29	65-44651-11		. ACTUATOR ASSY (OPT) (FIG. 1101)	PT-VZ EA MA QA	1
29	65-44651-13		. ACTUATOR ASSY (OPT) (FIG. 1101)	PT-VZ EA MA QA	1
29	65-44651-14		DELETED		
29	65-44651-15		. ACTUATOR ASSY (OPT) (FIG. 1101)	PT-VZ EA MA QA	1
29	65-44651-16		. ACTUATOR ASSY (FIG. 1101)	FA-HA	1
29	65-44651-17		. ACTUATOR ASSY (PREF) (FIG. 1101)	PT-VZ EA MA QA	1
29	65-44651-17		. ACTUATOR ASSY (FIG. 1101)	IA	1

VENDORS

VS0352	NMB MINEBEA CO. LTDARING COMPANY LTD, KARUIZAWA MFG UNIT ROD END DIVISION, 4106-73 MIYOTA-MACHI KITASAKU-GUNION, NAGANO-KEN, JAPAN
V00779	TYCO ELECTRONICS CORPORATION, 2800 FULLING MILL RD., BLDG-38, MIDDLETOWN, PENNSYLVANIA 17057-3142
V06090	TYCO THERMAL CONTROLS LLC, DBA RAYCHEM DIV. ELECTRONICS/GIC, 300 CONSTITUTION DR., MENLO PARK, CALIFORNIA 94025-1140
V09257	TRELLEBORG SEALING SOLUTIONS US, INC., DBA BUSAKSHAMBAN, 2531 BREMER RD., FORT WAYNE, INDIANA 46803-3014
V09455	RBC TRANSPORT DYNAMICS CORP., 3131 W SEGERSTROM AVE, SANTA ANA, CALIFORNIA 92704-5811
V15860	NEW HAMPSHIRE BALL BEARINGS, INC., ASTRO DIV., 155 LEXINGTON AVE., LACONIA, NEW HAMPSHIRE 03246-2937
V21335	TIMKEN US CORPORATION, 336 MECHANIC ST, LEBANON, NEW HAMPSHIRE 03766-2614
V5F573	GREENE TWEED & CO., INC., 2075 DETWILER ROAD, KULPSVILLE, PENNSYLVANIA 19443
V50632	KAMATICS CORP., 1335 BLUE HILLS AVE., BLOOMFIELD, CONNECTICUT 06002-5303
V72902	REPLACED. SEE V5F573
V73134	ROLLER BEARING COMPANY OF AMERICA, INC., DBA RBC HEIM BEARINGS DIVISION, 60 ROUND HILL RD., FAIRFIELD, CONNECTICUT 06824-5172
V77896	REXNORD, INC., BEARING OPERATION, 2400 CURTIS ST., DOWNERS GROVE, ILLINOIS 60515-4037
V80523	REPLACED. SEE V92867
V81376	RBC SOUTHWEST PRODUCTS INC., 2240 BUENA VISTA ST., DUARTE, CALIFORNIA 91010-3318
V92555	LEE COMPANY, 2 PETTIPAUG RD., WESTBROOK, CONNECTICUT 06498-1591
V92867	ORSCHELN PRODUCTS LLC, DBA ORSCHELN, 1177 N. MORLEY ST., MOBERLY, MISSOURI 65270-2736
V97613	DOVER DIVERSIFIED INC., DBA KAHR BEARING, 5675 W. BURLINGAME RD., TUCSON, ARIZONA 85743-9453
V97820	REPLACED. SEE V09257

Part No.	Fig. and Index No.	Qty per Assy
ABWT9V101	1101-85	1
ADSB9V201	1101-32H	1
AMP34138	1101-97	1
	1101-32H	1
AN814-4DL		AR
AN96003L		AR
AN960D4		AR
AN960PD10L		AR
AN960PD4		AR
AN960PD416		AR
AN960PD416L		AR
BACB30NE4	1103-10	4
BACB30NE4-4	1103-10	4
BACB30NE4-6	1103-21	2
BACC45FT8C2P	1101-32	1
BACC45FT8C2P	1101-98	1
BACN10JP3B	1103-16	2
BACN10JP3B	1103-16	4
BACN10JP3B	1103-16	6
BACN10JP4A	1103-25	6
BACN12A3LZ	1101-4	1
BACN12A3MW	1102-19	1
BACP20AX12	1102-26	4
BACP20AX12D	1101-84	12
BACP20AX12D	1101-84	14
BACP20AX12D	1101-84	15
BACP20AX12DP	1101-83	12
BACP20AX12DP	1101-83	14
BACP20AX12DP	1101-83	15
BACP20AX12P	1102-25	4
BACR12BJ110A	1101-72	1
BACS11A4213A	1101-39	1
BACS11AA326A	1101-21	1
BACS12CB3-14	1103-1	6
BACS12CB3-14	1103-1	8
BACS13S080B	1101-32B	1
BACS13S080B	1101-99	1
BACS13S149C	1101-32C	1
BACS13S149C	1101-100	1
BACS34A18A	1101-18	1
BACS34A8A	1101-26	1
BAC27DHY214	1102-19A	1
BLFR6-169	1101-94	1
BLFR9-003	1101-85	1
EX31505	1102-23	1
EX34235	1102-22	1

Part No.	Fig. and Index No.	Qty per Assy
GTC5394C213	1101-40	1
GTC5394C326	1101-22	1
JETA1875220D	1101-8D	1
JETX0510110AB	1102-23	1
KSBN9-4	1101-85	1
KSC130009P	1101-85	1
KWB6N8	1101-94	1
MILW83420	1101-101	1
	1101-320D	1
MS14103-6	1101-29	1
MS16555-601		AR
MS16955-604		AR
MS16555-634		AR
MS16562-192		AR
MS16562-224		AR
MS20426D3		AR
MS20470DD3-18		AR
MS21209F4-15		AR
MS21230-6	1101-29	1
MS21902-4		AR
MS24673-12		AR
MS28782-1		AR
MS28782-10		AR
MS28782-12		AR
MS28782-112		AR
MS28782-114		AR
MS28782-12		AR
MS28782-2		AR
MS28782-25		AR
MS28782-28		AR
MS28782-3		AR
MS28782-4		AR
MS28782-5		AR
MS28782-8		AR
MS28783-1		AR
MS28783-4		AR
NAS607-2-3P		AR
NAS1104-4		AR
NAS1104-6		AR
NAS1611-006		AR
NAS1611-007		AR
NAS1611-008		AR
NAS1611-009		AR
NAS1611-010		AR

Part No.	Fig. and Index No.	Qty. per Assy
NAS1611-110		AR
NAS1611-112		AR
NAS1611-114		AR
NAS1611-119		AR
NAS1611-213		AR
NAS1611-220		AR
NAS1611-223		AR
NAS1611-226		AR
NAS1611-325		AR
NAS1611-326		AR
NAS1612-4		AR
NAS559-4		AR
NHSB9V201	1101-85	1
RA2487-047	1101-103	1
	1101-32E	1
RT876-1-8	1101-104	1
	1101-32F	1
RT876-3-16	1101-105	1
	1101-32G	1
S11109-119	1102-6	2
S12766-006	1102-15	1
S12766-007	1101-9	2
S12766-008	1101-76	2
S12766-010	1101-13	2
S12766-112	1101-60	2
S12766-114	1101-14	2
S12766-114	1101-62	2
S12766-220	1101-66	2
S12766-226	1101-23	2
SBSH12ATC26	1101-94	1
SBS18ATC36	1101-85	1
TGA106	1101-94	1
WHT9V101	1101-85	1
WRG9BACH	1101-85	1
WRRG9BACH	1101-85	1
YTA150	1101-85	1
03-729-0562	1101-85	1
03-826-09E002	1101-85	1
10-60545-141S	1101-85	1
10-60545-141SA	1101-85	
10-60545-147S	1101-29	1

Part No.	Fig. and Index No.	Qty. per Assy
65-44529-1	1101-50	1
65-44545-1	1101-63	1
65-44545-2	1101-63	1
65-44650-16	1103	RF
65-44650-17	1103	RF
65-44650-18	1103	RF
65-44650-19	1103	RF
65-44650-23	1103	RF
65-44650-24	1103	RF
65-44650-25	1103	RF
65-44650-26	1103	RF
65-44650-27	1103	RF
65-44650-28	1103	RF
65-44650-29	1103	RF
65-44650-30	1103	RF
65-44651-10	1101-32A	1
65-44651-10	1101-90	1
65-44651-11	1101	RF
65-44651-11	1103-29	1
65-44651-12	1101-89	1
65-44651-13	1101	RF
65-44651-13	1103-29	1
65-44651-14	1101	RF
65-44651-14	1103-29	1
65-44651-15	1101	RF
65-44651-15	1103-29	1
65-46651-16	1101	RF
65-44651-16	1103-29	1
65-44651-17	1101	RF
65-44651-17	1103-29	1
65-44651-6	1101	RF
65-44651-6	1103-29	1
65-44651-7	1101	RF
65-44651-7	1103-29	1
65-44651-8	1101	RF
65-44651-8	1103-29	1
65-44651-9	1101	RF
65-44651-9	1103-29	1
65-44652-10	1101-86	1
65-44652-11	1101-87	1
65-44652-12	1101-81	1
65-44652-13	1101-85	1
65-44652-14	1101-81	1
65-44652-15	1101-85	1

Part No.	Fig. and Index No.	Qty. per Assy
65-44652-17	1101-86	1
65-44652-18	1101-81	1
65-44652-4	1101-81	1
65-44652-5	1101-86	1
65-44652-6	1101-81	1
65-44652-7	1101-86	1
65-44652-8	1101-81	1
65-44652-9	1101-86	1
65-44653-1	1101-68	1
65-44653-3	1101-68	1
65-44654-1	1103-4	1
65-44654-1001	1103-4	1
65-44654-1002	1103-5	1
65-44654-1003	1103-6	1
65-44654-1004	1103-7	1
65-44654-1005	1103-8	1
65-44654-1006	1103-9	1
65-44654-1007	1103-7	1
65-44654-2	1103-5	1
65-44654-3	1103-6	1
65-44654-3001	1103-4	1
65-44654-3002	1103-5	1
65-44654-3003	1103-6	1
65-44654-3004	1103-7	1
65-44654-3005	1103-8	1
65-44654-3006	1103-9	1
65-44654-3007	1103-7	1
65-44654-4	1103-7	1
65-44654-5	1103-8	1
65-44654-6	1103-9	1
65-44703-10	1101-81	1
65-44703-11	1101-86	1
65-44703-6	1101-81	1
65-44703-7	1101-86	1
65-44703-8	1101-81	1
65-44703-9	1101-86	1
65-44725-10	1103	RF
65-44725-11	1103	RF
65-44725-12	1103	RF
65-44725-13	1103	RF
65-44725-15	1103	RF
65-44725-16	1103	RF
65-44725-17	1103	RF
65-44725-18	1103	RF
65-44725-19	1103	RF
65-44725-20	1103	RF
65-44725-21	1103	RF
65-44725-22	1103	RF

Part No.	Fig. and Index No.	Qty. per Assy
65-44725-23	1103	RF
65-44725-25	1103	RF
65-44725-3	1103	RF
65-44725-33	1103	RF
65-44725-34	1103	RF
65-44725-35	1103	RF
65-44725-36	1103	RF
65-44725-37	1103	RF
65-44725-38	1103	RF
65-44725-39	1103	RF
65-44725-4	1103	RF
65-44725-40	1103	RF
65-44725-41	1103	RF
65-44725-42	1103	RF
65-44725-43	1103	RF
65-44725-44	1103	RF
65-44725-5	1103	RF
65-44725-6	1103	RF
65-44737-1	1101-68	1
65-44741-5	1101-6	1
65-44741-5	1102	RF
65-44741-7	1101-6	1
65-44741-7	1102	RF
65-44742-4	1102-33	1
65-44742-5	1102-35	1
65-44742-7	1102-33	1
65-44742-8	1102-35	1
65-44742-9	1102-35	1
65-44744-1	1101-46	1
65-44745-1	1101-78	1
65-44745-2	1101-80	1
65-44746-1	1101-33	1
65-44747-1	1101-25	1
65-44824-1	1101-43	1
65-44844-1	1101-51	1
65-44873-1	1101-33	1
65-44873-1	1101-91	1
65-44873-6	1101-91	1
65-44873-7	1101-91	1
65-44873-8	1101-91	1
65-44873-10	1101-33	1
65-44873-10	1101-91	1
65-56687-12	1102-20	1
65-56687-17	1102-27	1
65-56687-18	1102-30	1
65-56687-6	1102-20	1
65-56687-7	1102-27	1
65-56687-8	1102-30	1

Part No.	Fig. and Index No.	Qty. per Assy.
65C31196-5	1101-81	1
65C31196-6	1101-81	1
65C31196-7	1101-81	1
65C31196-11	1101-81	1
65C31196-12	1101-81	1
65C31196-13	1101-81	1
66-22833-1	1101-70	1
66-22833-2	1101-70	1
69-35557-1	1101-47	1
69-35587-6	1101-3	1
69-35704-1	1101-7	1
69-35706-1	1101-25	1
69-35707-1	1101-19	1
69-35713-1	1101-17	1
69-35713-1	1101-92	1
69-35715-1	1101-27	1
69-35726-1	1101-44	1
69-35756-1	1101-69	1
69-35784-1	1102-11	AR
69-35808-1	1102-21	1
69-35836-1	1102-14	1
69-35852-1	1102-31	1
69-35854-1	1102-28	1
69-35860-2	1102-8	1
69-35861-1	1102-9	1
69-35863-1	1103-3	4
69-35863-1	1103-3	3
69-35863-2	1103-17	1
69-35863-2	1103-17	2
69-35863-2	1103-17	3
69-35864-1	1103-12	2
69-35864-2	1103-13	1
69-35864-3	1103-13A	1
69-35864-4	1103-14	1
69-35864-5	1103-18	1
69-35864-6	1103-19	1
69-35864-7	1103-18	1
69-35864-8	1103-20	1
69-35867-1	1103-23	1
69-35867-2	1103-26	1
69-35867-3	1103-23	1
69-35867-4	1103-26	1
69-35877-2	1101-71	1
69-35879-1	1102-32	1
69-35880-1	1102-29	1
69-35883-1	1102-2	1
69-35884-1	1102-1	1

Part No.	Fig. and Index No.	Qty. per Assy.
69-35885-2	1102-3	1
69-35886-1	1101-8	1
69-35900-1	1102-11	1
69-35944-1	1102-4	1
69-35945-1	1102-5	
69-54513-1	1101-74	1
69-54514-1	1101-75	1
69-54517-1	1101-52	1
69-54520-1	1101-45	1
69-54521-1	1101-79	1
69-54529-1	1101-53	1
69-54540-213	1101-41	1
69-54540-325	1101-64	1
69-54549-1	1101-58	1
69-54550-1	1101-28	1
69-54550-2	1101-30	1
69-54550-3	1101-28	1
69-54550-3	1101-93	1
69-54550-4	1101-30	1
69-54550-4	1101-95	1
69-54551-1	1101-48	1
69-54553-1	1101-57	1
69-54554-1	1101-56	1
69-54555-1	1101-31	1
69-54555-1	1101-96	1
69-54557-1	1101-54	2
69-54565-1	1101-55	1
69-54567-1	1101-25	1
69-54568-1	1101-19	1
69-54568-2	1101-19	1
69-54570-1	1101-20	1
69-54576-1	1101-11	1
69-54603-1	1101-71	1
69-54735-1	1101-68A	1
69-72071-2	1101-8A	1
69-72071-3	1101-8B	1
69-72071-4	1101-8C	1
7213MT952T	1101-42	1
7325MT952T	1101-65	1
76423	1101-94	1