TO: ALL HOLDERS OF OUTBOARD GROUND SPOILER LOCKING ACTUATOR ASSEMBLY OVERHAUL MANUAL, 27-60-33

REVISION NO. 16, DATED MAR 1/02

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 Fig. 603 to show the 65-44961-7, -14 configuration							X						
Added alternate view for sleeve, item 21, part number 1206-022												X	
Added Fig. 603 to the assembly section						X							

OUTBOARD GROUND SPOILER LOCKING ACTUATOR ASSEMBLY

27-60-33

BOEING P/N 65-44960-2, -4, –5, -6, -8, -9, -10, -11, -13, -15, -29, -30
65-44961-2 thru -7, –10, -12, -14, -16

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 31020	Nov 15/68
		PRR 31941	Mar 10/72
		PRR 32121-10	Mar 10/72
27-1080		PRR 32487	Jul 5/76
27-1093		PRR 32864	Jan 5/80
		PRR 33069	Jan 5/82
		PRR 33303	Jul 5/83
27-1187			Sep 1/96

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
27-60-33					
T-1	Sep 1/96				
T-2	BLANK				
* LEP-1	Mar 1/02				
LEP-2	BLANK				
T/C-1	Nov 15/68				
T/C-2	BLANK				
1	Jan 5/80				
2	BLANK				
101	Sep 1/96				
102	BLANK				
201	Jan 5/82				
202	BLANK				
301	Sep 1/96				
302	BLANK				
401	Sep 1/96				
402	Jan 5/82				
* 501	Mar 1/02				
502	Sep 1/96				
503	Sep 1/96				
504	BLANK				
* 601	Mar 1/02				
602	Sep 1/96				
* 603	Mar 1/02				
* 604	BLANK				
701	Mar 10/71				
702	Jul 5/82				
801	Jul 5/82				
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901	Nov 15/68				
902	BLANK				
1001	Mar 1/99				
1002	BLANK				
* 1101	Mar 1/02				
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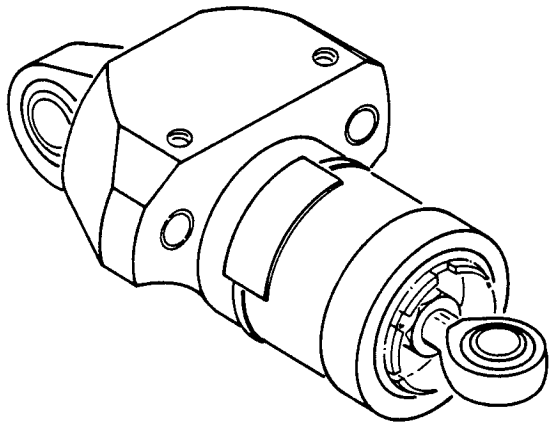
OUTBOARD GROUND SPOILER LOCKING ACTUATOR ASSEMBLY



Outboard Ground Spoiler Locking Actuator Assembly
Figure 1

DESCRIPTION AND OPERATION

1. The outboard ground spoiler locking actuator assembly consists of a housing containing a piston with attached rod end, a lock sleeve and a spring loaded locking device. The housing has two control ports and carries a spherical bearing in its lug.

2. The unit positions the outboard ground spoiler panel. Extension of the piston raises the panel. When the piston retracts, keys of the locking device extend into a recess slightly larger than the sleeve inside diameter and locks the piston which holds the panel in a faired position. The actuator unlocks when hydraulic pressure overcomes the spring action and the piston extends.

3. Leading Particulars (Approximate)

Length (overall) -- 8.6 inches (retracted); 11 inches (extended)
Height (overall) -- 2.5 inches
Width (overall) -- 3.9 inches
Weight -- 4.2 pounds (dry)
Operating Fluid -- Hydraulic fluid, BMS 3-11

DISASSEMBLY

1. If necessary, remove parts (1 thru 5) (Fig. 1102).

2. Remove lockwire and loosen nut (1) to remove key (2). Screw out rod end (3) from piston rod (Fig. 1101).

3. Using spanner wrench, F80106-2, remove nut (4) from housing (24). Pull out piston (9) and attached parts. Hold keys or pawls (6) and ram or lock piston (7) to prevent them from dropping out.

4. Remove end bearing (5), keys or pawls (6), ram or lock piston (7) and spring (8) from piston (9). Take care not to mar keys (6). On 65-44961-10 assembly, remove roller (7A) from lock piston (7).

5. Remove shim (20) and sleeve or cylinder (21) from piston (9).

   NOTE: Do not remove bearing (26) and inserts (27) from housing assembly (24) or nameplate (28) from housing (25) unless repair or replacement is necessary.

6. Remove 0-ring (10), backup rings (11), retainer (12), seal assembly (14A), or foot seal (13) and 0-ring (14), from end bearing (5).

7. Remove scraper (15) from nut (4). Remove 0-ring (16) and cap ring (17) from piston (9). Remove 0-ring (18) and backup rings (19) from ram or lock piston (7). Remove O-ring (22) and backup rings (23) from housing assembly (24).

CLEANING

1. Clean all parts except bearings using standard industry practices and information contained in 20-30-03.

2. Clean teflon-lined bearings per special instructions in 20-30-01.

INSPECTION/CHECK

1. Check all parts for obvious defects in accordance with standard industry practices.

2. Penetrant check per 20-20-02 -- nut (4), end bearing (5), seal retainer (12) and housing (25).

3. Magnetic particle check per 20-20-01 -- rod end (3) and piston (9).

4. On 65-44961-2 thru -7, -14 assembly, check that depth of defects on contact surfaces of keys (6) and ram (7) does not exceed 0.005 inch, and surfaces are smooth within 16 microinches with no protrusions.

5. Check spring (8, 1206-14).

   A. Check that free length is 1.567 inch.

   B. Compress spring to 1.467 inch and check that load is 14.5-17.7 lbs.

6. Check spring (8, 1211244-208).

   A. Check that free length is 1.632 inch.

   B. Compress spring to 1.28 inch and check that load is 16.09-19.91 lbs.

   C. Compress spring to 1.05 inch and check that load is 28.4-31.4 lbs.

REPAIR

1. Repair (Fig. 1101)

   A. Except on keys (6) and ram (7), remove scratches, nicks, and corrosion by polishing with 220-grit or finer aluminum oxide abrasive cloth. Refinish as necessary for protection against corrosion.

   B. For keys (6) and ram (7), remove only protruding material and buff to smooth finish. Do not remove defects by polishing or blending out completely.

   C. Piston (9, 1206-11) may be reworked, if worn beyond wear limits given in Fig. 601, Fits and Clearances, as follows: (Refer to 20-10-01, Repair and Refinish of High Strength Steel Parts, and 20-10-04, Grinding of Hard Chrome Plate.)

      (1) Machine OD of piston lands to not less than 1.4765 inches and 32-microinch finish. Build up with hard chrome plate and machine to 1.4865-1.4875-inch diameter and 8-microinch finish. OD must be concentric within 0.001 inch TIR to piston rod OD.

      (2) Machine piston rod OD to not less than 0.7385 inch and 32-microinch finish. Build up with hard chrome plate and machine to 0.7465-0.7475-inch diameter and 8-microinch finish. Piston rod OD must be concentric within 0.001 TIR to OD of lands.

2. Refinish (Fig. 1101)

   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. Locking key (2) – Cadmium plate (F-1.1923) all over. Material: Steel, 4340, 125-145 ksi.

   B. Nut (4), seal retainer (12) – Chromic acid anodize (F-2.26) all over.

   C. End bearing (5) – Fig. 401.

   D. Housing (25; 65-69522-4, -6, -9, -10) – Chromic acid anodize (F-2.26) all over. Apply primer BMS 10-11, type 1. (SRF-12.205) and enamel (SRF-14.9813) all exterior surfaces, except on housing end surface (open end) and on bearing seat. Material: Al alloy.

   E. Housing (25; 65-69522-12, -14) – Chromic acid anodize (F-17.02) all over. Apply 1 coat of primer BM 10-11, type 1 (F-20-02) and enamel, BMS 10-60 (SRF-14.9813) on all exterior surfaces except omit primer and enamel on 2.47-2.53 inches O.D. and bore for bearing. Material: Al alloy.

3. Replacement (Fig. 101)

A. Replace O-rings (10, 14, 16 and 22), seal assembly (14A), backup rings (11, 19 and 23), footseal (13), scraper (15) and cap ring (17) at each overhaul.

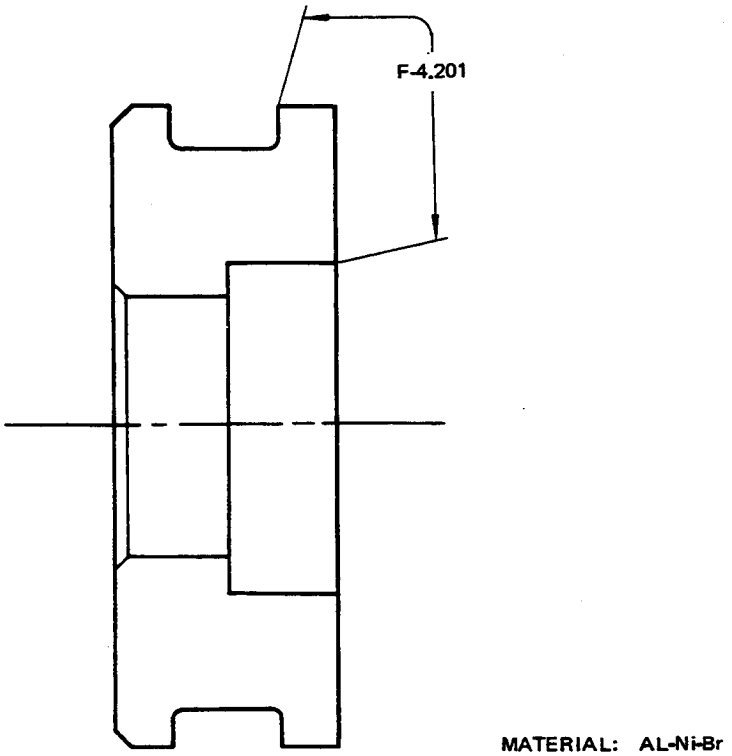
B. Bearing (26) replacement -- install new bearing and Type 3 roller stake per 20-50-03.

C. Inserts (27) replacement.

(1) Remove damaged insert.

(2) Clean and check threads in bore of housing (25).

(3) Apply primer, BMS 10-11, type 1, to bore of housing and to insert. Install insert 1/4 to 1/2 turn below surface of housing while primer is wet. Remove tang.



END BEARING (5)

Refinish Diagram
Figure 401

ASSEMBLY

1. Lightly lubricate all internally installed parts and all O-rings, backup rings and cap packing rings with hydraulic fluid or assembly lube as parts are installed and assembled.

2. Install O-ring (22) and backup rings (23) into housing (25).

3. Install O-ring (18) and backup rings (19) on ram/lock piston (7).

4. Install O-ring (16) and cap ring (17) on piston (9).

5. On 65-44961-2 thru -7, -14 assemblies, install spring (8), ram (7) and keys (6) into piston (9). Insert keys in slotted holes in piston with chamfered edges facing piston as shown in Fig. 601, 603. Secure parts so they will not fall off.

6. On 65-44961-10, -12, -16 assemblies, install rollers (7A) in slot in lock piston (7). Install spring (8), piston (7) and pawls (6) into piston (9). Install pawls with chamfered edge of pawls facing towards piston rod.

7. On 65-44061-2 thru -7, -14 assemblies, install piston (9) and assembled parts into sleeve (21). Ensure that keys (6) do not clear sleeve ID until assembled in housing (25).

8. On 65-44961-10, -12 assemblies, install piston (9) into housing (25). Select and install shim (20, 121244-209-1) for initial end play measurement of piston (9). Assemble cylinder (21), bearing end (5) and nut (4). Measure end play of piston (9) and select shim (1211244-209) dash no. from data table (Fig. 501). Reinstall new selected shim (121144-209-dash #) in place of shim (121244-209-1) unless shim (121144-209-1) is called for in data table. There must be 0.001-0.004 end play of piston (9) after assembly.

9. On 65-44961-16 assembly, install piston (9) into housing (25). Select and install shim (20, 1211244-227-1) for initial end play measurement of piston (9). Assemble cylinder (21), bearing end (5) and nut (4). Measure end play of piston (9) and select shim (1211244-227) dash no. from data table (Fig. 502). Reinstall new selected shim (1211244-227-dash #) in place of shim (1211244-227-1) unless shim (1211244-227-1) is called for in data table. There must be 0.001-0.004 end play of piston (9) after assembly.

10. On 65-44961-2 thru -7, -14 assemblies, slide shim (20) over sleeve (21) OD and assemble shim and sleeve with piston (9) and attached parts into housing (25). Apply approximately 40 lbs. force to piston (9) rod reacted by housing (25) and measure piston travel. Decrease thickness of shim (20) as required to obtain 0.002-0.010 inch piston travel (Fig. 601, 603).

    NOTE: Piston travel of 0.002-0.010 inch is acceptable. However, 0.002-0.003 is recommended to minimize additional adjustment required during testing.

11. Install O-rings (10), backup rings (11), seal assembly (14A) or O-ring (14), and foot seal (13) used together on end bearing (5).

12. Install end bearing (5) and retainer (12) over piston rod and into housing (25).

13. Install scraper (15) into nut (4). Thread nut into housing (25) to engage approximately 2 threads and apply a light coating of grease to exposed threads of nut. Install nut (4) in housing (25). Using lug spanner wrench F80106-2, tighten nut to 1000-1200 lb-in.

    NOTE: Optional procedure to prevent corrosion to piston rod (9) and rod end (3), consists of completely filling piston rod (9) cavity with grease before inserting rod end (3) into piston rod (9).

14. Install nut (1) on rod end (3). Thread rod end into piston (9) rod to engage approximately 2 threads. Install key (2) and apply a light coating of grease to exposed threads of rod end (3). Install rod end in piston rod and tighten nut to 300 lb-in.

15. After completion of testing and lockwiring (per 20-50-02), wipe off excess grease and clean contact area between nut (4) and housing (25) and between rod end (3) and piston rod (9) with solvent. Apply a bead of sealant to contact areas and allow to cure. Check that sealant has bonded to the surfaces.

16. Materials

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

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

    C. Grease -- Batco 8401 No. 1 (No 2 optional) (Ref 20-60-03)

    D. Sealant -- BMS 5-95, Type I, Class B-1/2 (Preferred) or BMS 5-95, Type II, Class B-2 (Preferred) BMS 5-26, Type II, Class B-2 (Optional) (Ref 20-60-04)

    E. Solvent MEK (TT-M-261)(Ref 20-60-01)

SHIM (20) PART NO.	SHIM WIDTH ± 0.0010 REF	END PLAY FROM-TO
1211244-209-1	0.2125	0.001-0.004
1211244-209-2	0.2095	0.004-0.007
1211244-209-3	0.2065	0.007-0.010
1211244-209-4	0.2035	0.010-0.013
1211244-209-5	0.2005	0.013-0.016
1211244-209-6	0.1975	0.016-0.019
1211244-209-7	0.1945	0.019-0.022

65-44961-10,-12 Assemblies Only

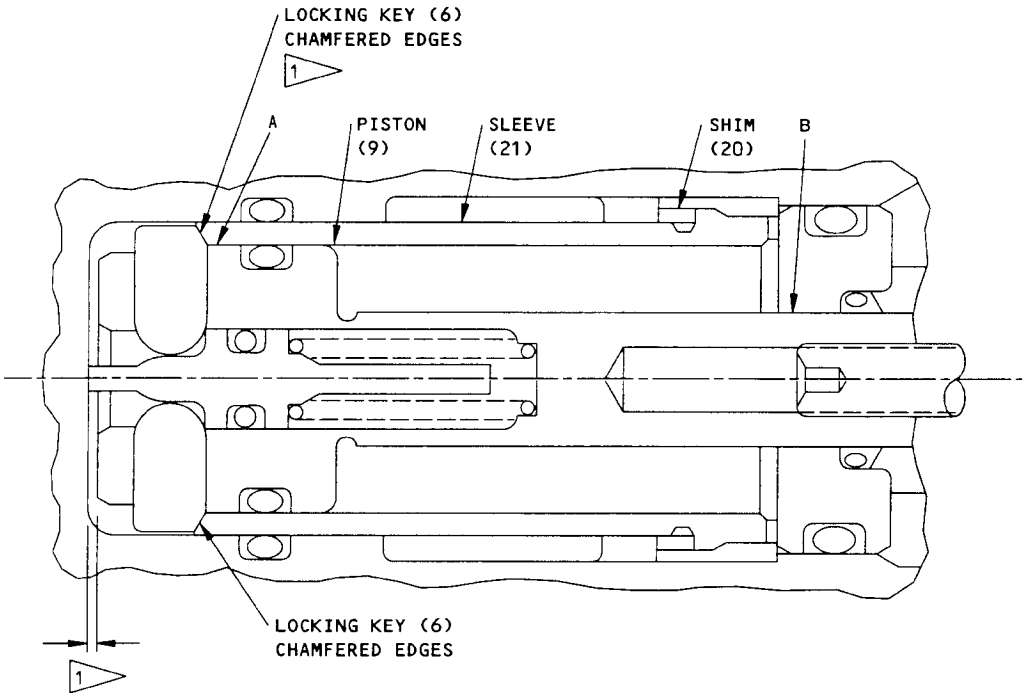
Shim Thickness
Figure 501

SHIM (20) PART NO.	SHIM WIDTH ± 0.0010 REF	END PLAY FROM-TO
1211244-227-1	0.2125	0.001-0.004
1211244-227-2	0.2095	0.004-0.007
1211244-227-3	0.2065	0.007-0.010
1211244-227-4	0.2035	0.010-0.013
1211244-227-5	0.2005	0.013-0.016
1211244-227-6	0.1975	0.016-0.019
1211244-227-7	0.1945	0.019-0.022

65-44961-16 Assembly Only

Shim Thickness
Figure 502

FITS AND CLEARANCES



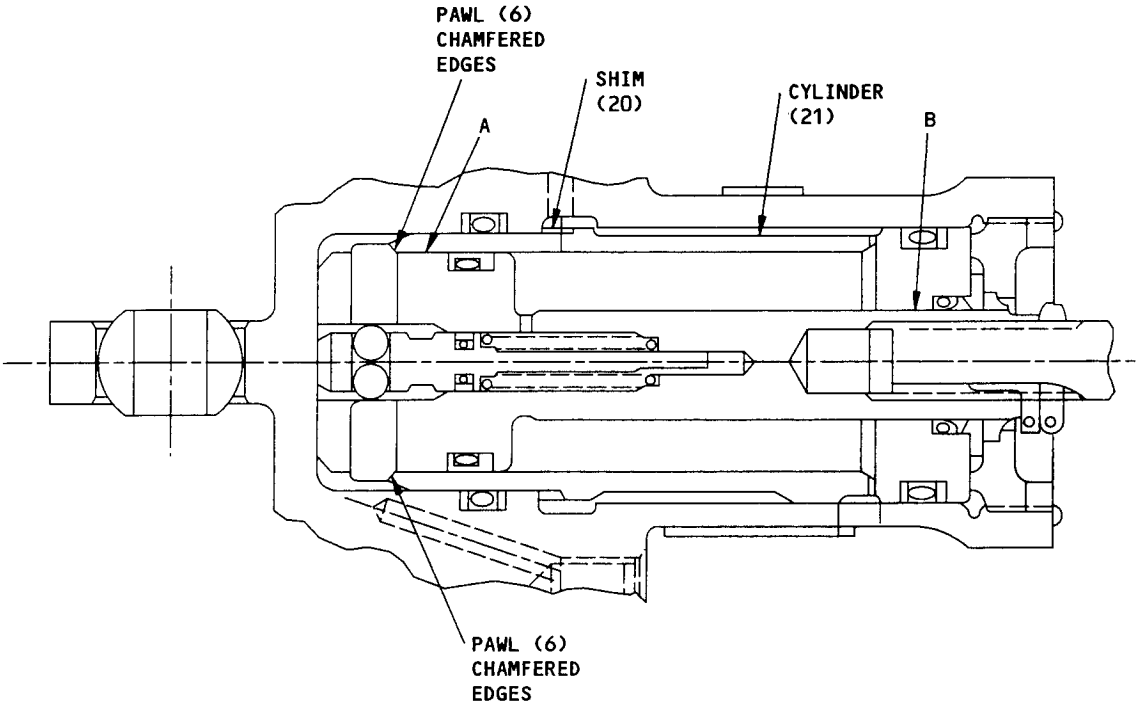
		ORIGINAL DESIGN LIMITS				SERVICE WEAR LIMITS		
REF LETTER FIG. 601	MATING ITEM NO. FIG. 1101	DIMENSIONS		ASSEMBLY CLEARANCE		DIMENSION LIMITS		MAXIMUM ALLOWABLE CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
A	ID 21	1.4910	1.4930	0.0035	0.0065		1.4945	0.0070
	OD 9	1.4865	1.4875			1.4850		
B	ID 5	0.7490	0.7510	0.0015	0.0045		0.7530	0.0050
	OD 9	0.7465	0.7475			0.7435		

ALL DIMENSIONS ARE IN INCHES

1 0.002-0.010 PISTON TRAVEL. DECREASE THICKNESS OF SHIM (20) TO OBTAIN SPECIFIED LIMITS

65-44961-2 THRU -6 ASSEMBLIES

Fits and Clearances
Figure 601



REF LETTER FIG. 601	MATING ITEM NO. FIG. 1101	DESIGN DIMENSIONS				SERVICE WEAR LIMITS		
		DIMENSIONS		ASSEMBLY CLEARANCE		DIMENSION LIMITS		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
A	ID 21	1.4910	1.4930	0.0020	0.0050			
	OD 9	1.4880	1.4890					
B	ID 5	0.7490	0.7510	0.0020	0.0050			
	OD 9	0.7450	0.7470					

ALL DIMENSIONS ARE IN INCHES

65-44961-10,-12,-16 ASSEMBLIES

Fits and Clearances
Figure 602

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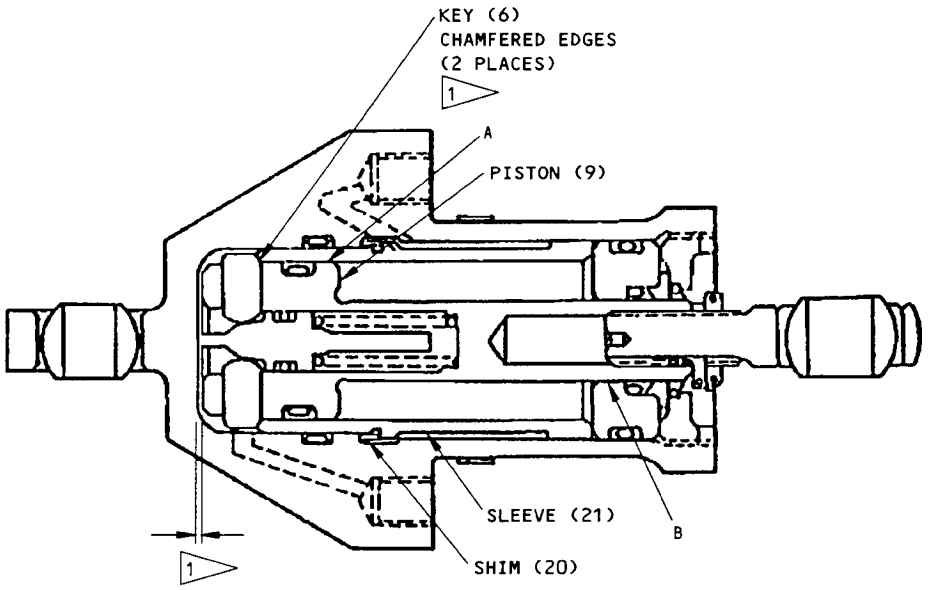
FITS AND CLEARANCES



REF LETTER FIG. 601	MATING ITEM NO. FIG. 1101	ORIGINAL DESIGN LIMITS				SERVICE WEAR LIMITS		
		DIMENSIONS		ASSEMBLY CLEARANCE		DIMENSION LIMITS		MAXIMUM ALLOWABLE CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
A	ID 21	1.4910	1.4930	0.0035	0.0065		1.4945	0.0070
	OD 9	1.4865	1.4875			1.4850		
B	ID 5	0.7490	0.7510	0.0015	0.0045		0.7530	0.0050
	OD 9	0.7465	0.7475			0.7435		

ALL DIMENSIONS ARE IN INCHES

1 > 0.002-0.010 PISTON TRAVEL. DECREASE THICKNESS OF SHIM (20) TO OBTAIN SPECIFIED LIMITS

65-44961-7,-14 ASSEMBLIES

Fits and Clearances
Figure 603

M47982

TESTING

1. Test Equipment

   A. Test bench capable of delivering graduated hydraulic pressure up to 5400 psi.

   B. Suitable tool to apply up to 3500-pound tension load to piston rod.

2. Preparation for Test (See figure 1102.)

   A. Apply hydraulic fluid, BMS 3-11, to unions (4) and packings (5) and install on unit. Attach bracket (3) and secure with washers (2) and bolts (1). Lockwire bolts together. Connect unit to hydraulic supply.

   B. Fill actuator with hydraulic fluid Specification BMS 3-11. Use of Skydrol 7000 is optional. Bleed off all air from unit by cycling piston.

   C. Tests shall be conducted at room temperature.

   D. Tests shall be conducted in the sequence shown below.

      CAUTION: DO NOT APPLY COMPRESSED AIR TO PORTS AT ANY TIME. DO NOT CYCLE UNIT AT PROOF PRESSURE.

3. Functional Tests

   A. Proof Pressure Test

      (1) With retract port (figure 701) open, apply 5400-psi hydraulic pressure to extend port for 2 minutes. Reduce pressure to 3-7 psi and hold for 2 minutes. There shall be no leakage, failure or permanent set.

      (2) Repeat, with extend port open, and hydraulic pressure applied to retract port.

   B. Leakage Test

      (1) Cycle unit 25 times.

      (2) External leakage shall not exceed one drop.

   C. Stroke Test

      (1) Cycle unit with 3000-psi hydraulic pressure.

      (2) Stroke shall be 2.42 to 2.46 inches.

D. Unlock Pressure Test

(1) Retract piston and reduce hydraulic pressure to zero. Apply a 3500-pound tension load to piston rod. The unit shall remain locked.

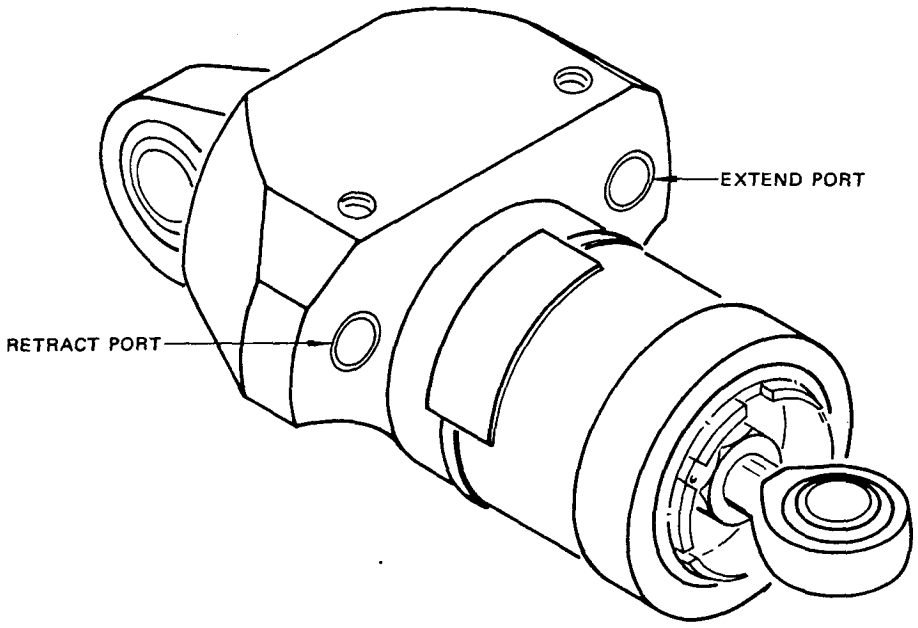
(2) Reduce tension load to 2000 pounds. Apply increasing hydraulic pressure to extend port. The unit shall unlock at 1000 psi maximum.

(3) With no tension load applied to piston rod and unit retracted apply increasing hydraulic pressure to extend port. The unit shall unlock at 100 psi minimum.

E. Preparation for Storage

(1) After test completion, partially fill unit with hydraulic fluid BMS 3-11. If Skydrol 7000 was used for testing, drain unit thoroughly before filling with hydraulic fluid BMS 3-11.

(2) Cap or plug ports with hydraulic fluid resistant caps and packings.



Location of Pressure Supply Ports
Figure 701

TROUBLE SHOOTING

1. Trouble during test after overhaul (Fig. 1101).

	Trouble	Possible Cause	Correction
A.	Leakage on sealed housing thread or around piston rod	Faulty or defective O-ring (10 or 14), or foot seal (13)	Disassemble, inspect and replace defective components
B.	Piston does not lock	Defective spring (8), excessive friction between ram (7) and piston bore	Disassemble, inspect, repair or replace
C.	Unlock pressure incorrect	Excessive friction in seals (13, 14, 14A, 16, 17, 18, or 19), rough keys (6), defective ram or lock piston (7), or defective spring (8)	Disassemble, inspect, repair or replace

STORAGE INSTRUCTIONS

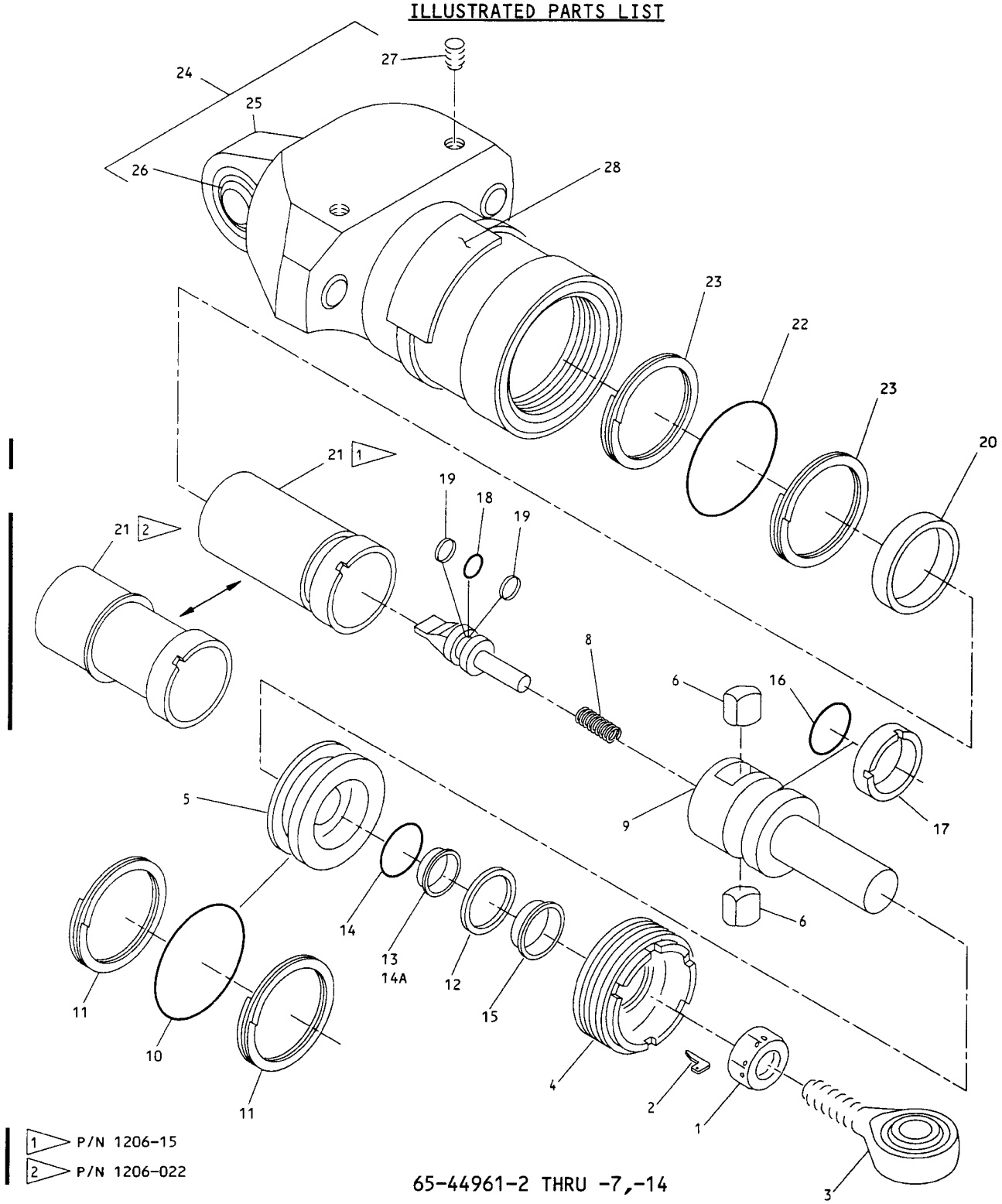
1. Wrap unit in vapor barrier paper. Attach tag showing test date and cure date for packings. Tag should carry the following information: "This unit contains hydraulic fluid, Specification BMS 3-11."

2. For further information, refer to "TemporaryProtective Coatings," Subject 20-44-02.

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

NOTE: Equivalent substitutes may be used.

1. Suitable tool to apply up to 3500-pound tension load to piston rod.
2. Wrench, Lug Spanner -- F80106-2



Outboard Ground Spoiler Locking Actuator Assembly
Figure 1101 (Sheet 1)

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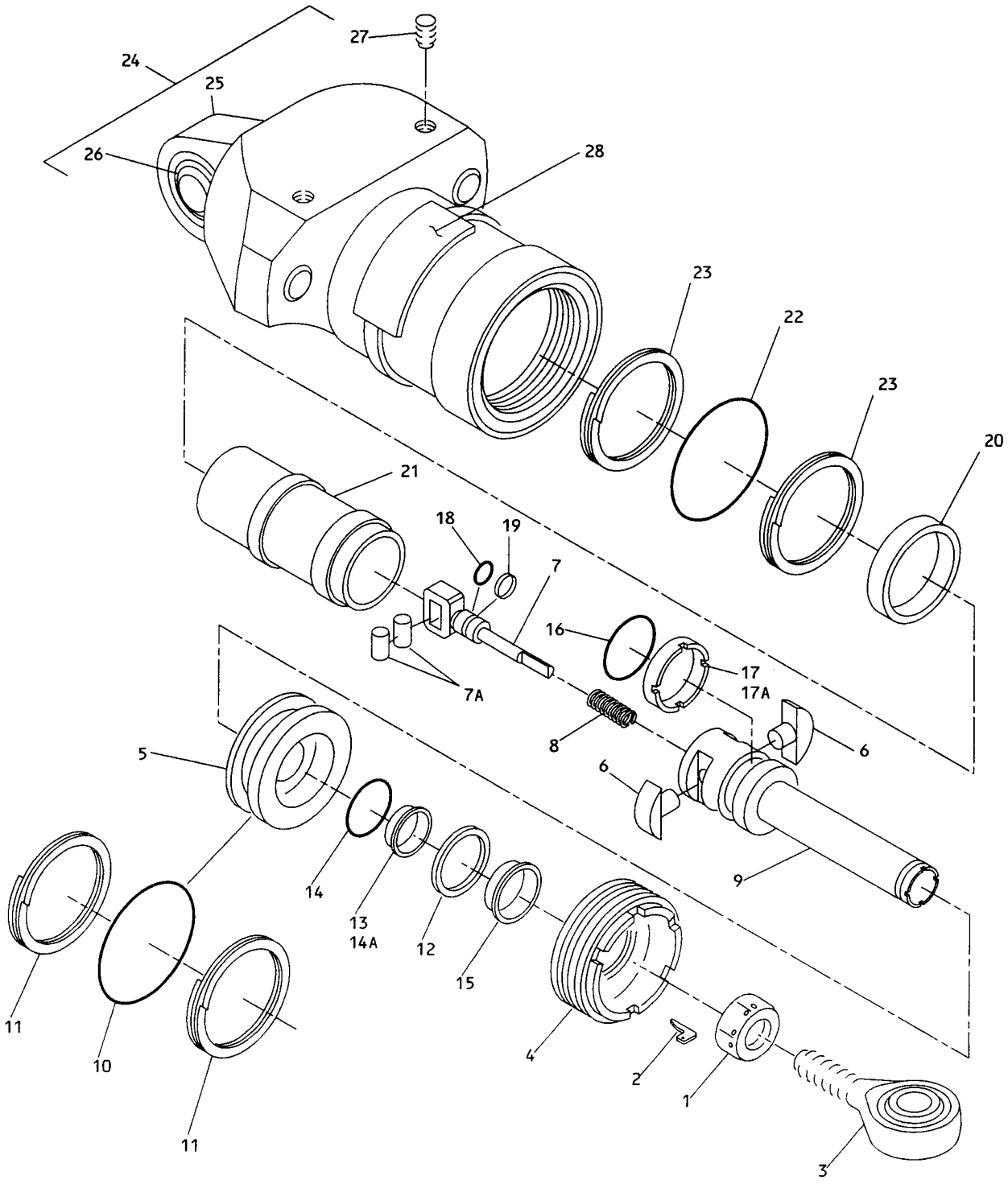


65-44961-10,-12,-16

Outboard Ground Spoiler Locking Actuator Assembly
Figure 1101 (Sheet 2)

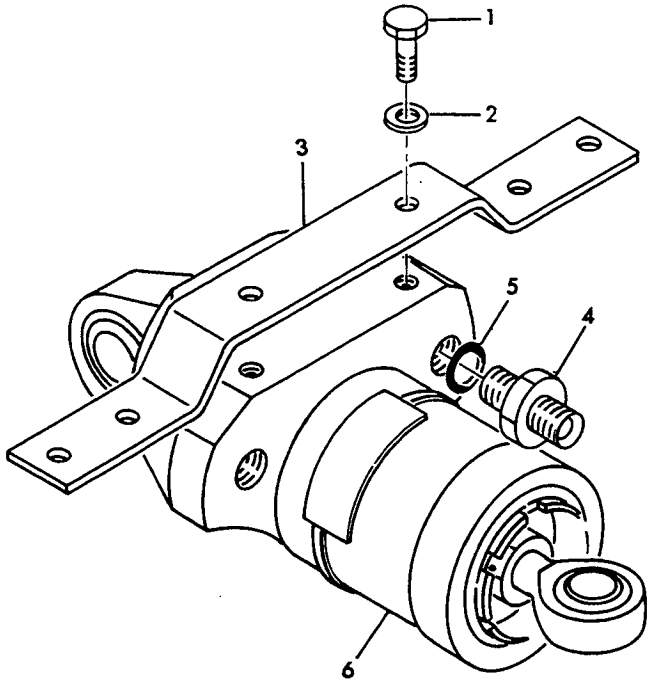
F89050

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
	65-44961-2		ACTUATOR ASSY, OUTBOARD GROUND SPOILER LOCKING	A	RF
	65-44961-3		ACTUATOR ASSY, OUTBOARD GROUND SPOILER LOCKING	B	RF
	65-44961-4		ACTUATOR ASSY, OUTBOARD GROUND SPOILER LOCKING	C	RF
	65-44961-5		ACTUATOR ASSY, OUTBOARD GROUND SPOILER LOCKING	D	RF
	65-44961-6		ACTUATOR ASSY, OUTBOARD GROUND SPOILER LOCKING (SB 27-1080)	E	RF
	65-44961-7		ACTUATOR ASSY, OUTBOARD GROUND SPOILER LOCKING (SB 27-1093) (PRE SB 27-1187)	F	RF
	65-44961-10		ACTUATOR ASSY, OUTBOARD GROUND SPOILER LOCKING (PRE SB 27-1187)	G	RF
	65-44961-12		ACTUATOR ASSY, OUTBOARD GROUND SPOILER LOCKING (PRE SB 27-1187)	H	RF
	65-44961-14		ACTUATOR ASSY, OUTBOARD GROUND SPOILER LOCKING (POST SB 27-1187)	I	RF
	65-44961-16		ACTUATOR ASSY, OUTBOARD GROUND SPOILER LOCKING (POST SB 27-1187)	J	RF
1	NAS1423-8		. NUT		1
2	69-35959-1		. KEY, LOCKING	A-GI	1
2	69-35959-2		. KEY, LOCKING	HJ	1
3	ADNE10-207		. ROD END, V15860 *[1]		1
3	ANM10-101		. ROD END, V50294 *[1]		1
3	KSR114010B		. ROD END, V50632 *[1]		1
3	MSSKRR108-24BAC		. ROD END, V73134 *[1]		1
3	01-820-10E003		. ROD END, V09455 *[1]		1
3	ART10E103		. ROD END, V50294 (OPT) *[2]	A-EGHJ	1
3	DREM10-198		. ROD END, V81376 (OPT) *[2]	A-EGHJ	1
3	KBDE10-14		. ROD END, V97613 (OPT) *[2]	A-EGHJ	1
3	MSSKR108-24BAC		. ROD END, V73134 (OPT) *[2]	A-EGHJ	1
3	NHNE10-207		. ROD END, V15860 (OPT) *[2]	A-EGHJ	1
3	REMS20ATC16H		. ROD END, V21335 (OPT) *[2]	A-EGHJ	1
3	177292		. ROD END, V09455 (OPT) *[2]	A-EGHJ	1
3	4TM217		. ROD END, V77896 (OPT) *[2]	A-EGHJ	1
3	YTM217		. ROD END, V77896 (OPT) *[2]	A-EGH	1
3	1206-17		. ROD END, V94641 (OPT)	A-FI	1
3	1211244-226		DELETED		
4	69-55410-1		. NUT	A-H	1
4	69-55410-2		. NUT	IJ	1
5	69-55409-1		. BEARING, END		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
6	1165-13		. KEY, V94641	A-FI	2
6	1211243-207		. PAWL, V98391 (MATCHED SET)	GHJ	2
7	1206-12		. RAM, V94641	A-D	1
7	1206-020		. RAM, V94641	EFI	1
7	1211244-205		. PISTON, LOCK, V98391	GHJ	1
7A	1211243-208		. ROLLER, V98391	GHJ	2
8	1206-14		. SPRING, V94641	A-FI	1
8	1211244-208		. SPRING, V98391	GHJ	1
9	1206-11		. PISTON, V94641	A-FI	1
9	1206-021		. PISTON, V94641 (OPT)	EFI	1
9	1211244-202		. PISTON, V98391	GHJ	1
10	NAS1611-223		. PACKING, O-RING		1
11	MS28783-1		. RING, BACKUP		2
12	69-35961-1		. RETAINER, SEAL		1
13	BACS11AA116A		. SEAL, FOOT *[3]		1
14	NAS1611-116		. PACKING, O-RING *[3]		1
14A	GTC5394C116		. SEAL ASSY, V72902 *[3]		1
15	BACS34A5A		. SCRAPER		1
16	NAS1611-218		. PACKING, O-RING *[4]		1
17	69-54540-218		. RING, CAP *[4]		1
17A	7218MT952T		. SEAL ASSY, V72902 *[4]		1
18	NAS1611-110		. PACKING	A-FI	1
18	NAS1611-009		. PACKING	GHJ	1
19	MS28782-8		. RING, BACKUP	A-FI	2
19	S12068-010		. RING, V97820	GHJ	1
20	1206-16		. SHIM, V94641	A-F	1
20	1211244-209		. SHIM, V98391	GH	1
20	1206-24		. SHIM	I	1
20	1211244-227		. SHIM	J	1
21	1206-15		. SLEEVE, LOCK, V94641	A-E	1
21	1206-022		. SLEEVE, LOCK, V94641	FI	1
21	1211244-203		. CYLINDER, V98391	GHJ	1
22	NAS1611-224		. PACKING, O-RING		1
23	MS28783-2		. RING, BACKUP		2
24	65-69522-3		. HOUSING ASSY	A	1
24	65-69522-5		. HOUSING ASSY	B	1
24	65-69522-7		. HOUSING ASSY	C	1
24	65-69522-8		. HOUSING ASSY	DE	1
24	65-69522-11		. HOUSING ASSY	FGH	1
24	65-69522-13		. HOUSING ASSY	IJ	1
25	65-69522-4		. . HOUSING	A	1
25	65-69522-6		. . HOUSING	B	1
25	65-69522-9		. . HOUSING	C	1
25	65-69522-10		. . HOUSING	DE	1
25	65-69522-12		. . HOUSING	FGH	1
25	65-69522-14		. . HOUSING	IJ	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
26	ADSB8V202		. . BEARING, V15860 (PREF)*[5]		1
26	KSC129908P		. . BEARING, V50632 (PREF)*[5]		1
26	WHT8V101		. . BEARING, V50294 (PREF)*[5]		1
26	WRRG8BACH		. . BEARING, V73134 (PREF)*[5]		1
26	03-826-08E003		. . BEARING, V09455 (PREF)*[5]		1
26	ABWT8V103		. . BEARING, V50294 (OPT)*[6]		1
26	BLFR8-026		. . BEARING, V81376 (OPT)*[6]		1
26	KSBN8-21		. . BEARING, V97613 (OPT)*[6]		1
26	NHSB8V202		. . BEARING, V15860 (OPT)*[6]		1
26	SBS16ATC32-2		. . BEARING, V21335 (OPT)*[6]		1
26	WRG8BACH		. . BEARING, V73134 (OPT)*[6]		1
26	YTA145		. . BEARING, V77896 (OPT)*[6]		1
26	03-730-0500		. . BEARING, V09455 (OPT)*[6]		1
27	MS21209F1-15		. . INSERT		2
28	BAC27DHY98		. NAMEPLATE	A-E	1
28	BAC27DHY247		. NAMEPLATE	FIJ	1
28	1211244-210		. NAMEPLATE	GH	1

*[1] BOEING 10-60779-184A
*[2] BOEING 10-60779-184
*[3] SEAL ASSY GTC5394C116 OPT TO NAS1611-116, BACS11AA116A USED TOGETHER
*[4] SEAL ASSY 7218MT952T OPT TO NAS1611-218, 69-54540-218 USED TOGETHER
*[5] BOEING 10-60545-140SA
*[6] BOEING 10-60545-140S



Outboard Ground Spoiler Actuator 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-					
	65-44960-2		ACTUATOR ASSY, OUTBOARD GROUND SPOILER	A	RF
	65-44960-4		ACTUATOR ASSY, OUTBOARD GROUND SPOILER	B	RF
	65-44960-5		ACTUATOR ASSY, OUTBOARD GROUND SPOILER	C	RF
	65-44960-6		ACTUATOR ASSY, OUTBOARD GROUND SPOILER	D	RF
	65-44960-8		ACTUATOR ASSY, OUTBOARD GROUND SPOILER (SB 27-1080)	E	RF
	65-44960-9		ACTUATOR ASSY, OUTBOARD GROUND SPOILER (PRE SB 27-1187)	F	RF
	65-44960-10		ACTUATOR ASSY, OUTBOARD GROUND SPOILER (PRE SB 27-1187)	G	RF
	65-44960-11		ACTUATOR ASSY, OUTBOARD GROUND SPOILER	H	RF
	65-44960-13		ACTUATOR ASSY, OUTBOARD GROUND SPOILER (PRE SB 27-1187)	I	RF
	65-44960-15		ACTUATOR ASSY, OUTBOARD GROUND SPOILER	J	RF
	65-44960-29		ACTUATOR ASSY, OUTBOARD GROUND SPOILER (POST SB 27-1187)	K	RF
	65-44960-30		ACTUATOR ASSY, OUTBOARD GROUND SPOILER (POST SB 27-1187)	L	RF
1	BACB30NE3H2		. BOLT (REPLS NAS1303-2H)	A-E G-J	2
1	NAS6703H2		. BOLT	FKL	2
2	AN960PD10L		. WASHER	A-E G-J	2
2	NAS1149D0332K		. WASHER	KL	2
2	AN960KD10L		. WASHER	F	2
3	69-54572-1		. BRACKET		1
4	MS21902-4		. UNION		2
5	NAS1612-4		. PACKING, O-RING		2
6	65-44961-2		. ACTUATOR ASSY (FIG. 1101)	A	1
6	65-44961-3		. ACTUATOR ASSY (FIG. 1101)	B	1
6	65-44961-4		. ACTUATOR ASSY (FIG. 1101)	C	1
6	65-44961-5		. ACTUATOR ASSY (FIG. 1101)	D	1
6	65-44961-6		. ACTUATOR ASSY (FIG. 1101)	E	1
6	65-44961-7		. ACTUATOR ASSY (FIG. 1101) (PRE SB 27-1187)	FHJ	1
6	65-44961-10		. ACTUATOR ASSY (FIG. 1101) (PRE SB 27-1187)	G	1
6	65-44961-12		. ACTUATOR ASSY (FIG. 1101) (PRE SB 27-1187)	I	1
6	65-44961-14		. ACTUATOR ASSY (FIG. 1101) (POST SB 27-1187)	K	1
6	65-44961-16		. ACTUATOR ASSY (FIG. 1101) (POST SB 27-1187)	L	1

VENDORS

V09455	LEAR SIEGLER INC., TRANSPORT DYNAMICS DIV., P.O. BOX 1953, 3131 WEST SEGERSTROM STREET, SANTA ANA, CALIFORNIA 92702
V15860	NEW HAMPSHIRE BALL BEARINGS INC., ASTRO DIV., 155 LEXINGTON AVE., LACONIA, NEW HAMPSHIRE 03246
V21335	TEXTRON INC., FAFNIR BEARING DIV., 37 BOOTH STREET, NEW BRITAIN, CONNECTICUT 06050
V50294	NMB INC., 9730 INDEPENDENCE AVE., CHATSWORTH, CALIFORNIA 91311
V50632	KAMATICS CORP., 1335 BLUE HILLS ROAD, BLOOMFIELD, CONNECTICUT 06002
V72902	GREEN TWEED AND CO. INC., 320 ELM AVE., NORTH WALES, PENNSYLVANIA 19454
V73134	HEIM DIV., INCOM INTERNATIONAL INC., 60 ROUND HILL ROAD, FAIRFIELD, CONNECTICUT 06430
V77896	REXNORD INC., BEARING DIV., 2400 CURTIS STREET, DOWNERS GROVE, ILLINOIS 60515
V81376	SOUTHWEST PRODUCTS CO., 2240 BUENA VISTA, IRVINDALE, CALIFORNIA 91706
V94641	RONSON HYDRAULIC UNITS CORP., 1500 RONSON ROAD, DUARTE, CALIFORNIA 91010
V97613	SARGENT INDUSTRIES, KAHR BEARING DIV., 3010 NORTH SAN FERNANDO ROAD, BURBANK, CALIFORNIA 91503
V97820	SHAMBAN, W.S. AND CO., 711 MITCHELL RD., NEWBURY PARK, CALIFORNIA 91320
V98391	ARKWIN INDUSTRIES INC., 686 MAIN STREET, WESTBURY, NEW YORK 11590