TO: ALL HOLDERS OF ELEVATOR AND RUDDER CENTERING UNIT OVERHAUL MANUAL, 27-24-31

REVISION NO. 5, DATED SEP 1/95

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 item (54) cover to list of parts to be penetrant checked				X									

ELEVATOR AND RUDDER CENTERING UNIT ASSEMBLY

27-24-31

BOEING P/N 65-45133-8 thru -14

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 30250	Aug 15/67
		PRR 30708	Dec 10/70
		PRR 31431	Dec 10/70
		PRR 31449	Dec 10/70
		PRR 31506	Dec 10/70
27-1052		PRR 32043	Dec 10/71
		MC 3010-27	Jun 25/74
		PRR 32070-9	Jun 25/74

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
	27-24-31		1111	Jan 5/80		
	T-1	Jun 25/74	1112	Dec 5/85		
	T-2	BLANK	1113	Jun 25/74		
*	LEP-1	Sep 1/95	1114	Jan 5/80		
	LEP-2	BLANK	1115	Dec 5/85		
	T/C-1	Jun 5/87	1116	Jun 25/74		
	T/C-2	BLANK	1117	Dec 5/85		
	1	Jun 25/74	1118	BLANK		
	2	Jun 25/74				
	101	Jun 25/74				
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	103	Dec 5/85				
	104	BLANK				
	201	Jun 25/74				
	202	BLANK				
*	301	Sep 1/95				
	302	BLANK				
	401	Dec 5/85				
	402	Jun 1/94				
	501	Dec 5/85				
	502	Dec 5/85				
	503	Jun 25/74				
	504	BLANK				
	601	Dec 10/70				
	602	BLANK				
	701	Jun 5/87				
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	706	Dec 10/70				
	801	Dec 10/70				
	802	BLANK				
	1001	Jun 5/87				
	1002	BLANK				
	1101	Jun 25/74				
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	1103	Dec 10/70				
	1104	Dec 10/70				
	1105	Dec 10/70				
	1106	Dec 5/85				
	1107	Jan 5/80				
	1108	Jan 5/80				
	1109	Dec 5/85				
	1110	Dec 5/85				

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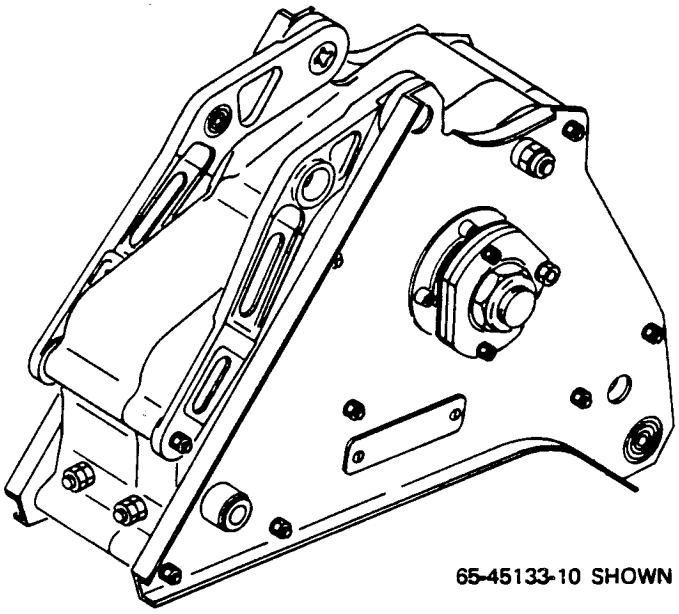
*[1] Use applicable procedures contained in 20-44-02 and standard industry practices.

ELEVATOR AND RUDDER CENTERING UNIT ASSEMBLY



Elevator and Rudder Centering Unit Assembly
Figure 1

DESCRIPTION AND OPERATION

1. The elevator and rudder centering unit consists of a box assembly which includes a housing, camshaft, arm and roller, lever assembly, connecting linkage and springs. An external crank assembly is included in same configurations.

2. The unit operates in each control system (elevator and rudder) and provides feel and centers the controls. Rotation of the camshaft by an input from the controls forces the roller out of the cam centering detent, exerts force against the spring, and increases system load. A change in trim rotates the entire assembly, centering the roller in the cam detent and removing the induced load. Resistance of the camshaft to rotation is varied through the rudder control system and linkage to the roller arm. Inputs to the rudder power control system are through the centering unit camshaft. The external crank puts nose down (stick nudger) inputs into the elevator power control system.

3. Leading Particulars

Length -- 19 inches
Width -- 15 inches
Height -- 10 inches
Weight -- 22-24 lb

DISASSEMBLY

1. Remove nuts (1, 4, 7), washers (2, 5, 8), and bolts (3, 6, 9, 9A).
2. Remove fasteners (24A, 24B, 24C) and remove crank assembly (24D) from camshaft (147A).

   NOTE: Do not remove grommet (24E) unless replacement is necessary.
3. Remove nut (25) and bearing housing assembly (26).

   A. Remove nuts (27, 30), washers (28, 31), and bolts (29, 32).

   B. Remove plate (33) and bearing (34) from plate assembly (35).

      NOTE: Do not separate bonded parts from plate assembly (36).
4. Remove spacers (39, 40).
5. Open box assembly (41) by removing cover assembly (42).

   NOTE: Box assembly (41) is comprised of cover assembly (42) and housing assembly (55) which are a matched set. Keep these parts together to facilitate assembly.
6. Remove nuts (10), spacer (11), bushing (12), and eyebolts (13).
7. Remove cotter pin (14), nut (15), spacer (16), and pivots (17, 18).
8. Remove bolt (19), nut (20), pin assembly (21), retainer (78), arm assembly (89) and washer (77).
9. Remove spring pin (22) and inner pin (24) from outer pin (23).
10. Disassemble cover assembly (42).

    A. Remove collars (43), bolts (44), and plate (45).

       NOTE: Do not remove bearing (46) and sleeve (47) unless replacemen is necessary.

    B. If installed, remove collar (48) and bolt (49) from cover (54).

C. On cover assembly (42, 65-52890-22, -23) remove nut (50), bolt (51), bushing (52), and support fitting (53).

NOTE: Cover (54) and housing (75) comprise a matched set. Keep parts together to facilitate assembly.

11. Remove lever assembly (114), tie assembly (131), link assembly (135), and camshaft assembly (141) as a unit from housing assembly (55). Remove shim (111) from inside housing.

12. Disassemble housing assembly (55).

A. Remove collars (56), bolts (57, 58) and plate (59).

B. If installed, remove collar (69) and bolt (70) from housing (75).

NOTE: Housing (75) and cover (54) comprise a matched set. Keep parts together to facilitate assembly. Do not remove items 60 thru 68 unless repair or replacement is necessary.

C. On housing assembly (55, 65-52890-20, -21) remove nut (71), bolt (72), bushing (73), and support fitting (74).

13. Remove bearing (76) from cover (54).

14. Remove bearings (79) and spacer (80) from arm assembly (89).

15. Remove bolt or rivet (81), collar (82), nut (83), washer (84), bolt (85), bushings (86, 87), and springs (88).

16. Disassemble arm assembly (89).

A. Remove collar (90), washer (91), nut (92), washer (93), bolt assembly (94), spacers (97), and bearing (98). Bolt assembly (94) must not be reused.

17. Remove collar (103) and lockbolt (107), or collar (103), washer (104), nut (105), washer (106), lockbolt assembly (107), and washer (110).

18. Remove spacer (112) and bearing (113) from lever assembly (114).

NOTE: Do not remove bearings (115, 116) and sleeve (117) unless repair or replacement is necessary. Do not separate bonded parts (118 thru 121).

19. Disassemble tie and link assemblies (131, 135).

    A. On 65-45133-8, -9 assemblies, bend clips (133), remove parts (122 thru 128), separate tie and link assemblies (131, 135), and remove parts (132, 133).

    B. On 65-45133-10 thru -14 assemblies, remove parts (122 thru 128) and tie and link assemblies (131, 135). Bolt assembly (128) must not be reused.

        NOTE: Do not remove bearing or sleeve (136, 137) or separate bonded plates (134, 140) unless repair or replacement is necessary.

20. Disassemble camshaft assembly (141).

    A. Remove collars (142), washers (143), lockbolts (144), bushings (145), pins (146, 146A), slide shaft (147) from cam (150).

        NOTE: Do not separate bonded parts of shaft assembly (147), cam assembly (153), or remove sleeves and bearings (151, 152) unless repair or replacement is necessary.

    B. If cam (150, 65-69517-1) is installed, remove collars (158) lockbolts (159), and separate adapter plates (160) from cam (161). Remove rivets (162) from stop (163).

        NOTE: Do not separate bonded cam (161).

CLEANING

1. Use applicable procedures contained in 20-30-03, and standard industry practices.

   CAUTION: CLEAN TEFLON BEARINGS ONLY BY SPECIAL METHOD.

   A. Clean bearings (46, 65, 116, 152, Fig. 1101) per 20-30-01 using special method for teflon-lined bearings.

INSPECTION/CHECK

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

2. Penetrant examine per 20-20-02 -- Crank (24D), plate (35), spacer (39), fittings (53, 74), cover (45), cover (54), housing (75), retainer (78), lever (118), link (138), plates (160), stop (163).

3. Magnetic particle examine per 20-20-01 -- Eyebolts (13), nut (15), pivots (17, 18), pins (23, 24), bolts (72, 85), springs (88), link (134, 69-55486-2), pins (146, 146A), cam (153), cam (161).

4. Spring Check

   A. Check springs (88) for load limits per Fig. 301.

Item (88) Part Number	Approximate Free Length (Inches)	Test Length (Inches)	Allowable Load Limits (Pounds)
69-39442-1	8.10	8.41 11.58	6.37-7.7 74.5-82.5
69-50577-1	7.72	8.41 11.03	9.0-11.0 44.6-50.6

Spring Check Data
Figure 301

REPAIR

1. Repair minor defects using standard industry practices.

2. Refinish (Fig. 400)

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

FIG. 1101 ITEM NO.	MATERIAL						SURFACE FINISH													NOTES
	STEEL, 4340	CORR RES STEEL	AL ALLOY	SPRING STEEL	AL-NI-BR		ALODIZE F-2.940	ALODIZE/ANODIZE SRF-2.30	CADMIUM PLATE F-1.1923		PASSIVATE F-8.07		CADMIUM PLATE F-1.1913	CADMIUM PLATE SRF-1.611	CADMIUM PLATE F-1.1926	CADMIUM PLATE F-1.1929	CADMIUM PLATE SRF-1.92		AFTER SURFACE FINISH APPLY PRIMER ALL OVER BMS 10-11, TYPE 1		1 TWO COATS PRIMER 2 OMIT PRIMER 3 OMIT PLATING
13	X								X												160-180 KSI
15	X												X								125-145 KSI
16, 33, 97, 112, 160, 163			X					X											X		
17, 18	X													X					1		2 EXTERIOR (180-200 KSI)
23	X														X				X		3 INT 2 EXT (180-200 KSI)
24, 72	X														X						180-200 KSI
24F			X					X											X		2 SHAFT BORE
35			X				X												X		2 BRG SURFACE
39			X					X											X		2 EXCEPT FLANGED SURFACES
40, 45, 59, 53,74			X					X											X		2 BRG SURFACE
54,75			X				X												X		
61			X					X											X		2 ID
78			X					X											X		2 ID & 0.747-INCH DIA
87					X											X					3 ID
88				X													X		X		
99, 138			X				X														
118			X				X												X		2 BRG SURFACE & BOLT HOLE
133,		X									X										CRES, 302
146, 146A, 147A	X															X					180-200 KSI
134		X																			CRES, 17-7PH (180-200 KSI)

Refinish Table
Figure 400

3. Replacement (Fig. 1101)

A. Replace bolt assemblies (94, 107, 128).

B. If one part of a matched set is worn or damaged beyond repair, replaced complete set.

C. Bearings

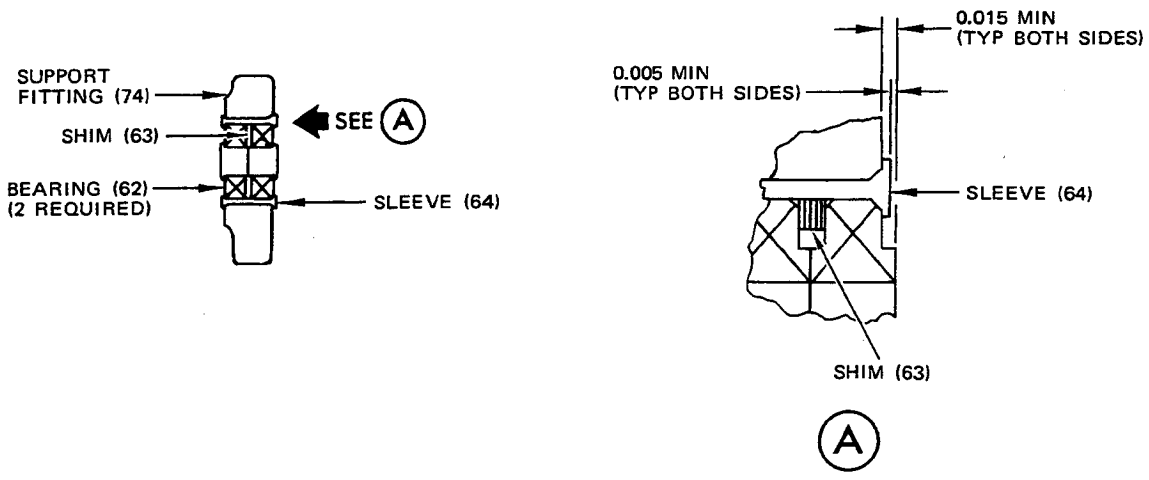
(1) Apply primer, BMS 10-11, Type 1, to faying surfaces of housing (75), bearing (62) and sleeve (64). Install bearing and sleeve in housing and roller swage per Fig. 401.

(2) Apply primer, BMS 10-11, Type 1, to faying surfaces of bearing housings (54, 75 [2 places], 114, 138, 153), bearings (46, 65, 67, 116, 136, 152) and sleeves (47, 66, 68, 117, 137, 151) respectively. Install bearings and sleeves in housings and roller swage per 20-50-03.

(3) Apply primer, BMS 10-11, Type 1, to faying surfaces of lever (114) and bearings (113, 115). Install bearing in lever and roller swage per 20-50-03.

D. Install inserts (60) with primer, BMS 10-11, Type 1, 3/4 to 1-1/2 turns below surface of tapped hole. Remove tang.

E. Install nameplate (165) per 20-50-05.



NOTE: SHIM BETWEEN BEARINGS (62) AS REQUIRED. ROLLER SWAGED SLEEVE TYPE RETENTION PER 20-50-03 AND DETAIL A. CLAMP INNER RACES WITH 5/16 DIA BOLT AND NUT AND TIGHTEN TO 100 LB-IN. WHEN CHECKING FUNCTION AFTER SWAGING

ALL DIMENSIONS ARE IN INCHES.

Bearing Replacement
Figure 401

ASSEMBLY

1. Materials

   A. Corrosion Preventive Compound -- MIL-C-11796, class 3 (Ref 20-60-03)

   B. Primer -- BMS 10-11, type 1 (Ref 20-60-02)

   C. Lockwire -- MS20995NC32 (Ref 20-60-02)

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

2. Assemble camshaft assembly (141).

   A. For cam assembly (150, 65-69517-1) install stop (163) with rivets (162) on cam (161). Align adapter plates (160) on cam (161) and install lockbolts (159) and collars (158).

   B. Slide cam (150) on shaft (147). Brush or swab pins (146, 146A) and bushings (145) with BMS 10-11, type 1, and install with lockbolts (144), washers (143), and collars (142).

3. Install link and tie assemblies (131, 135) on camshaft assembly (141).

   A. On 65-45133-10 thru -14 assemblies, position link (135) and tie (131) on camshaft assembly. Apply corrosion preventive compound and install bolts (128), bushings (127, 126), washers (125), nuts (124), washers (123), and collars (122). Tighten nuts (124) 60-80 lb-in.

   B. On 65-45133-8, -9 assemblies, install clips (133) with rivets (132) on tie assemblies (131). Position link (135) and tie (131) on camshaft assembly and install lockbolts (128), bushings (127, 126), washers (125), and collars (122).

4. Assemble lever and link assemblies (114, 135).

   A. Apply a thin coat of corrosion preventive compound on bolt (107).

B. On 65-45133-10 thru -14 assemblies, position lever (114) on link assembly. Install bushing (110A, 65-45133-12), washer (110), bolt (107), washer (106), nut (105), washer (104), and collar (103). Tighten nut (105) to 60-80 lb-in.

C. On 65-45133-8, -9 assemblies, position lever (114) on link assembly and install lockbolt (107) and collar (103).

5. Assemble arm assembly (89) and related parts.

A. Install bearing (98), spacers (97), bolt (94), washer (93), nut (92), washer (91), and collar (90) in arm (99). Tighten nut (92) to 60-80 lb-in.

B. Apply a thin coat of grease on interior surfaces and both ends of bushings (87, 86), and corrosion preventive compound on bolt (85) and bolt or rivet (81).

C. Install springs (88), bushings (87, 86), bolt (85), washer (84), nut (83), collar (82), and bolt or rivet (81) on arm (89). Tighten nut (83) to 40-60 lb-in.

D. Apply a thin coat of corrosion preventive compound to bearings (79). Install spacer (80) and bearings (79) on arm (89).

CAUTION: COVER AND HOUSING ASSEMBLIES (42, 45) ARE MATCHED SETS.

6. Assemble covers and housing assemblies (42, 55, 26).

A. Apply a thin coat of corrosion preventive compound to bearing (76) and press bearing into cover (54).

B. Assemble housing assembly (55):

(1) On housing assembly, 65-52890-20, -21, install support fitting (74), bushing (73), bolt (72) and nut (71).

(2) If applicable, install bolt (70) and collar (69) in housing (75).

(3) Install plate (59), bolts (58, 57) and collars (56).

C. Assemble cover assembly (42)

CAUTION: HOUSING (55) AND COVER (42)ARE MATCHED ASSEMBLIES.

(1) On cover assemblies, 65-52890-22, -23, install support fitting (53), bushing (52), bolt (51), and nut (50).

(2) If applicable, install bolt (49) and collar (48) in cover (54).

(3) Install plate (45), bolts (44) and collars (43).

D. Assemble bearing housing assembly (26):

(1) Apply a light coat of corrosion preventive compound to bearing (34). Install bearing (34) in plate (35).

(2) Install plate (33) using bolts (32, 29), washers (31, 28) and nuts (30, 27).

7. Insert inner pin (24) into outer pin (23) and install spring pin assembly (22) with wet primer, BMS 10-11, type 1.

8. Apply thin coat of corrosion preventive compound to parts and install bearing (113), spacer (112) in lever assembly (114).

9. Position shim (111) in place and install assembled camshaft (141), link (135), ties (131), and lever (114) as a unit in housing assembly (55). Adjust thickness of shim (111) as required to align centerline of link (135) with centerline of bearing (152) on cam assembly (150).

10. Insert pivots (18, 17) through lever (114) and housing (55) and install spacer (16) and nut (15). Tighten nut (15) to 2-10 lb-in. and install cotter pin (14).

11. Insert pin assembly (21) slightly through housing (55) and install washer (77). Position arm (89) in housing and install pin (21), retainer, and nut (20). Position pin to nominal position as shown in detail B and install bolt (19) finger-tight. Tighten nut (20) to 60-80 lb-in.

NOTE: Bolt (19) is secured with lockwire during testing.

12. Insert eyebolts (13) through holes in pivots (17, 18) and attach springs (88) to eyebolts. Install bushing (12), spacer (11) and nuts (10).

NOTE: Nut (10) is secured with lockwire during testing.

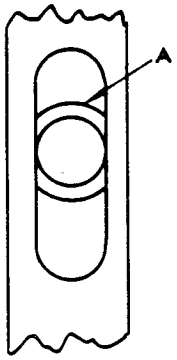
13. Attach cover (42) to housing (55) with bolts (9A, 9, 6, 3), washers (8, 5, 2) and nuts (7, 4, 1). Lockwire bolt (9A) using single-twist method, and bolt (9) using double-twist method.

14. Install spacers (40, 39), bearing housing (26) and nut (25) on camshaft (141). Tighten nut to 150-200 lb-in.

FITS AND CLEARANCES

1. The fits and clearances table lists design dimensions and service wear limits for close tolerance parts of the assembly that are subject to wear or corrosion. Unless otherwise specified, parts should be returned to the design dimensions whenever rework is accomplished.

2. Clearances are given to aid assembly of the components. The values given in the Maximum Allowable Clearance column are the maximum permitted to ensure proper functioning of the unit. If assembled parts fail to meet this requirement, one or more of the parts must be rejected. Parts that are rejected should be reworked if within the rework limits given in the Repair procedure; if not within rework limits, the parts should be scrapped. It is recommended that the design clearances be used as the guiding assembly criteria when newly reworked parts are assembled.



		Design Dimensions				Service Wear Limits		
Ref Letter Fig.601	Mating Item No. Fig.1101	Dimensions (inches)		Assembly Clearance (inch)		Dimension Limits (inches)		Maximum Allowable Clearance (inch)
		Min	Max	Min	Max	Min	Max	
A	ID 131	0.521	0.536	0.021	0.038		0.546	0.058
	OD 127	0.498	0.500			0.488		

Fits and Clearances
Figure 601

TESTING

NOTE: 65-45133-10 thru -14 assemblies are used for elevator control.
65-45133-8, -9 assemblies are used for rudder control.

1. Test Equipment (Fig. 701)

NOTE: Equivalent tools and equipment may be used.

A. Test equipment A27041-143 for mounting centering unit.

B. 200-pound weight for attaching through lever assembly (114, Fig. 1101).

C. 4.0 ±0.5-pound weight for attaching through lever assembly (114) to remove linkage slack during calibration with no load.

D. Readout equipment A27081-1.

E. X-Y Plotter

(1) Model HP7045B, Hewlett Packard Co., 1501 Page Mill Road, Palo Alto, California 94304

(2) Model XY530T, Esterline Corp., Esterline - Angus Division, P.O. Box 24000, 1201 Main St., Indianapolis, Indiana 46224

(3) Equivalent X-Y Plotter with provisions for recording:

(a) Angular displacement from 0-45 degrees in both directions.

(b) Torque of 0-1200 lb-in. in both directions.

2. Preparation

A. Adjust eccentric pin assembly (21) to nominal position as shown in Fig. 1101, Detail B. Install locking bolt (19) finger-tight only. Do not lockwire until after functional test.

B. Adjust spring tension nuts (10) so that 0.25-0.31 inch of each eyebolt (13) is protruding outside of nuts (10). Do not lockwire until after functional test.

C. Mount centering unit assembly in test equipment A27041-143 as shown in Fig. 701. Add 4-pound weight through lever assembly (114). Do not attach 200-pound weight.

D. Connect instruments per equipment instructions and check calibration as applicable.

3. Functional Test

A. Elevator unit (assemblies 65-45133-10 thru -14)

(1) Rotate input crank clockwise (CW) and then counterclockwise (CCW), note breakout torque. Breakout torque shall be 60-75 lb-in. for CW rotation and 50-65 lb-in. for CCW rotation.

(a) If measured torque values are not within limits, increase torque (spring tension) by turning nuts (10) on two eyebolts (13) an equal amount CW, or decrease torque (spring tension) by turning nuts (10) on two eyebolts (13) an equal amount CCW.

(b) Deleted.

(2) Repeat check and adjustment per step (1) until breakout torque is within limits specified.

(3) Replace 4-pound weight with 200-pound weight. Rotate input crank CW and then CCW; note breakout torque. Breakout torque shall be 60-75 lb-in. for CW rotation and 50-65 lb-in. for CCW rotation.

(a) If measured torque values at CW rotation are not within limits, increase torque by removing bolt (19) and turning eccentric pin (21) a limited amount in CW direction (or decrease torque by turning eccentric pin (21) in CCW direction). Reinstall locking bolt in optional hole finger-tight.

(b) If measured torque values at CCW rotation are not within limits, increase torque by removing bolt (19) and turning eccentric pin (21) a limited amount in CCW direction (or decrease torque by turning eccentric pin (21) in CW direction). Reinstall locking bolt in optional hole, finger-tight.

(4) Repeat check and adjustment per step (3) until breakout torque is within limits specified.

(5) Rotate input crank through a complete cycle, starting from zero in a CW direction. The rate of rotation shall be approximately 20 degrees per second. Plot input torque versus shaft rotation. The resultant curve shall be continuous, smooth and fall entirely within the limits specified in Fig. 702.

B. Rudder unit (assemblies 65-45133-8, -9)

(1) Rotate input crank CW and then CCW, and note breakout torque. Breakout torque shall be 74-89 lb-in. for both CW and CCW rotation.

(a) If measured torque values are not within limits, increase torque (spring tension) by turning nuts (10) on two eyebolts (13) an equal amount CW, or decrease torque (spring tension) by turning nuts (10) on two eyebolts (13) an equal amount CCW.

(b) Deleted.

(2) Repeat check and adjustment per step (1) until breakout torque is within limits.

(3) Replace 4-pound weight with 200-pound weight. Rotate input crank CW and then CCW, and note breakout torque. Breakout torque shall be 74-89 lb-in. for both CW and CCW rotation.

(a) If measured torque values are not within limits, increase or decrease torque using same procedures as specified in steps A.(3)(a) and A.(3)(b) for elevator unit.

(4) Repeat check and adjustment per step (3) until breakout torque is within limits.

(5) With 200-pound weight attached, perform the following tests:

(a) Rotate input crank through a complete cycle and check that there is no binding, roughness, or friction.

(b) Rotate input crank 25 degrees CW and check that torque is 510-690 lb-in.

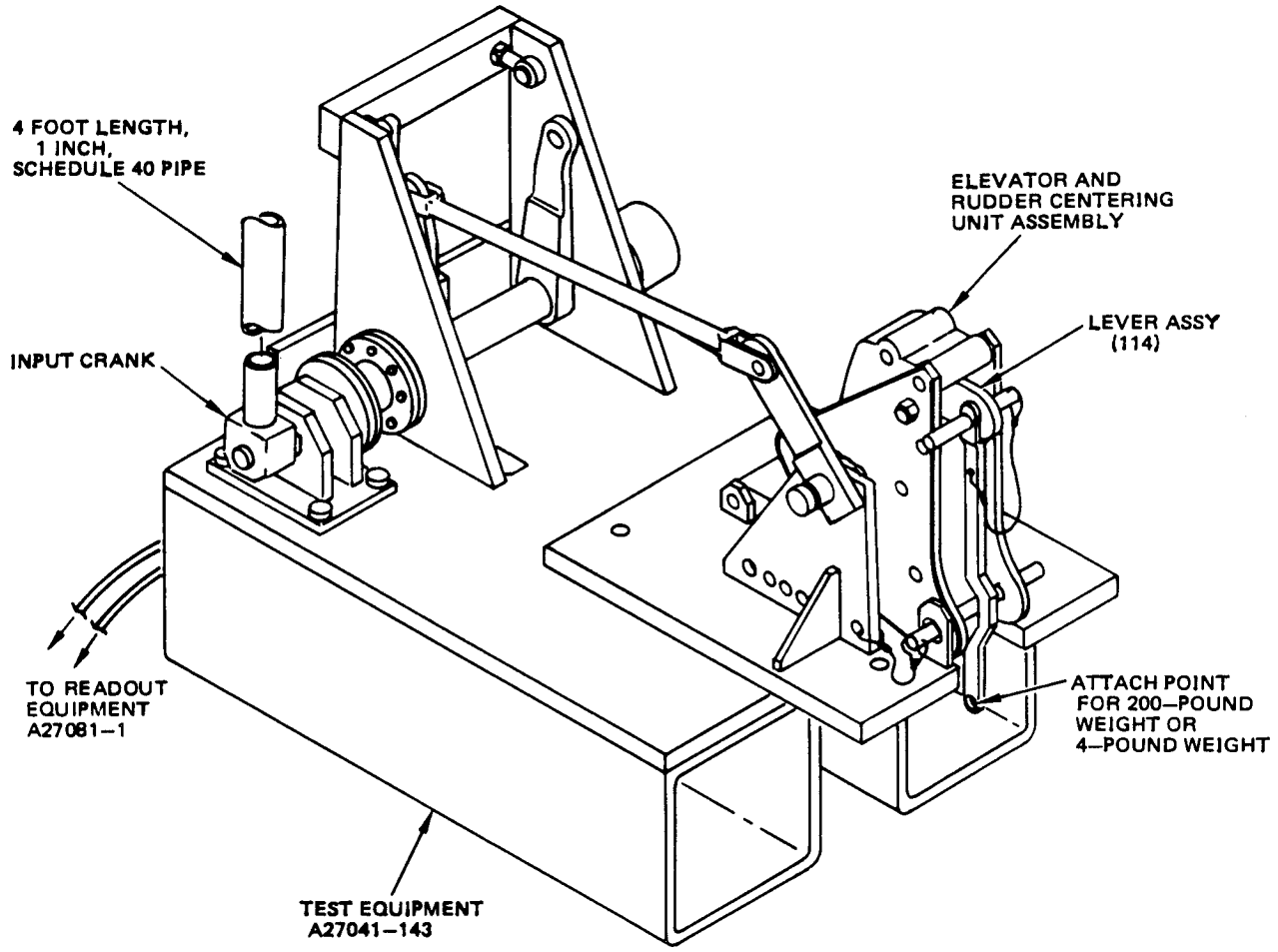
(c) Rotate input crank 25 degrees CCW and check that torque is 550-730 lb-in.

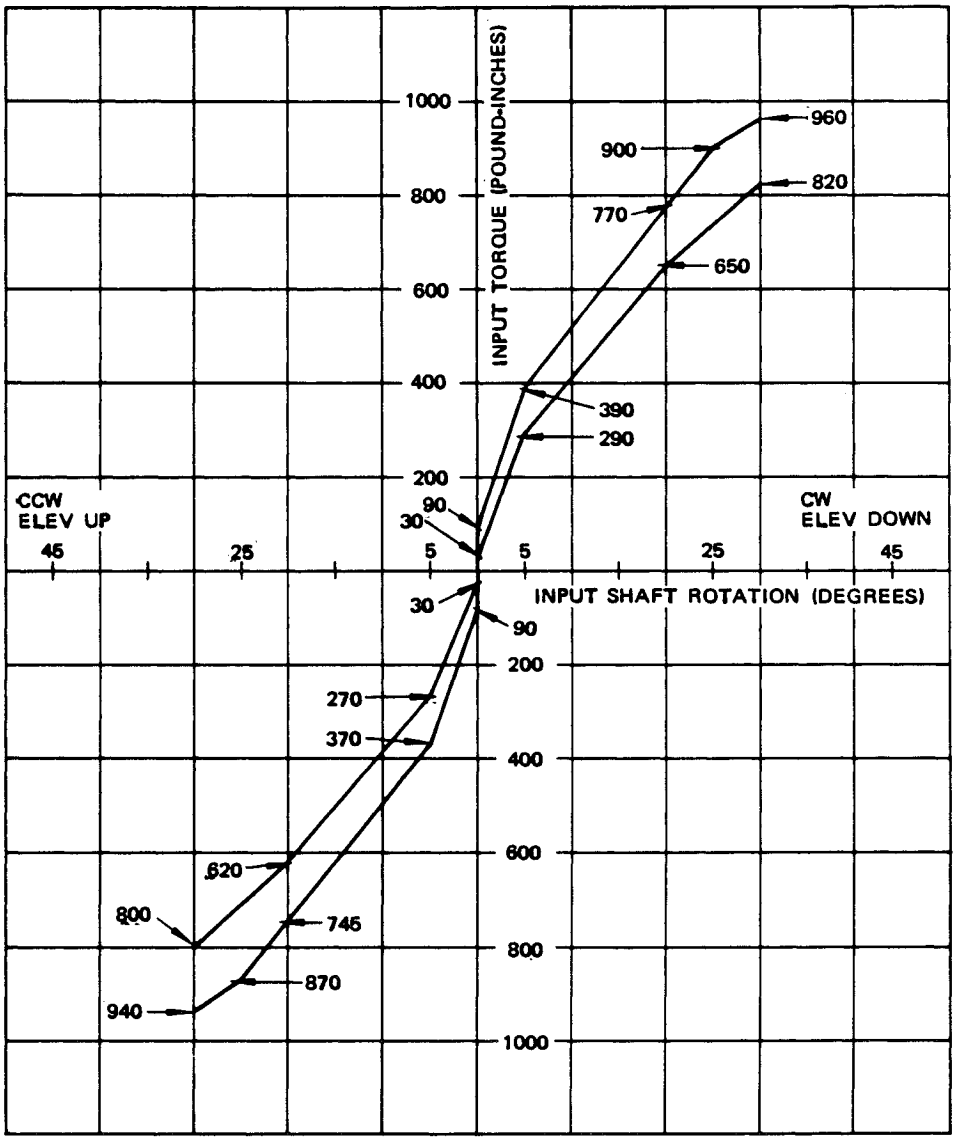
4. Post Test Procedure

A. Tighten locking bolt (19) within 3-10 lb-in. and lockwire, using double-twist method. Apply seal.

B. Tighten outer nuts (10) against inner nuts (10) and lockwire, using double-twist method. Apply seals.

C. Remove unit from test equipment.


4 FOOT LENGTH,
1 INCH,
SCHEDULE 40 PIPE
INPUT CRANK
TO READOUT
EQUIPMENT
A27081-1
TEST EQUIPMENT
A27041-143
ELEVATOR AND
RUDDER CENTERING
UNIT ASSEMBLY
LEVER ASSY
(114)
ATTACH POINT
FOR 200-POUND
WEIGHT OR
4-POUND WEIGHT



NOTE: VALUES SHOWN APPLY ONLY WITH 200 POUNDS FEEL ACTUATOR FORCE.

USE GRAPH WITH 1-INCH OR LARGER SQUARES WITH X-Y PLOTTER.

Test Limits
Figure 702

TROUBLE SHOOTING

1. Trouble during test after overhaul. (See figure 1101.)

	Trouble	Possible Cause	Correction
A.	Binding or rough movement	Improperly installed components. Bearings binding or seizing. Cam assembly (153) and/or bearing (98) defective	Disassemble, examine, correct condition and reassemble. Replace defective bearings
		Bearing retention sleeve (137 or 152) improperly roller swaged	Install new sleeves per Subject 20-50-03
B.	Smooth movement but break-out torque values consistently above or below limits	Incorrect spring (88) adjustment or spring rate out of design tolerance	Check spring adjustment per TESTING. If correct, check springs per INSPECTION/CHECK. Replace defective spring(s)
		Incorrect or improperly installed tie assemblies (131) and/or link assembly (135)	Disassemble, examine, correct condition and reassemble
		Bearing retention sleeve (137 or 151) improperly installed	Check break-out torque of bearings (136 or 152). If torque exceeds 5 pound-inches sleeve(s) may be improperly installed. Install new sleeves per Subject 20-50-03
		Bushings (126 or 127) improperly installed	Disassembly, examine, correct condition and reassemble

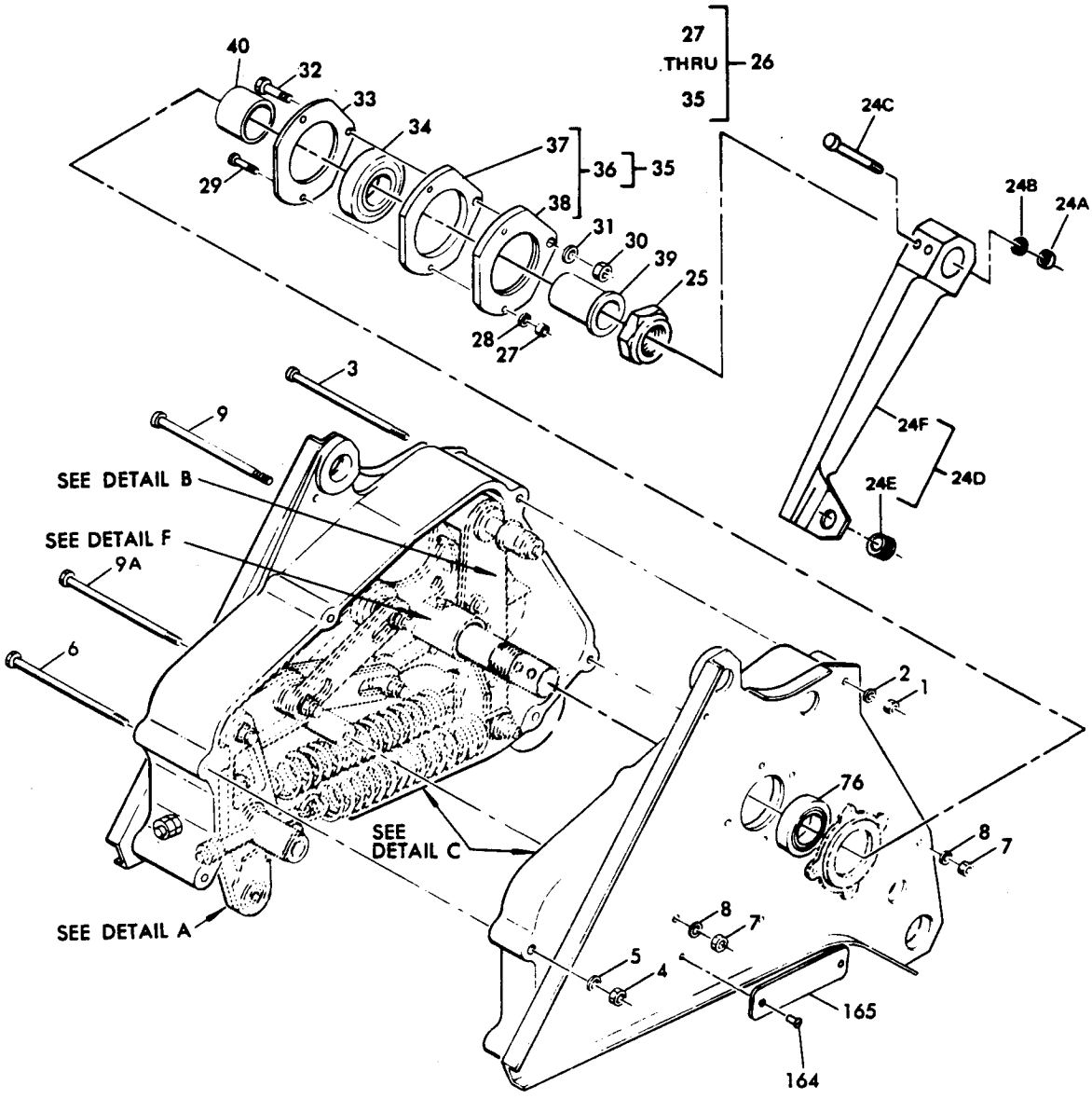
SPECIAL TOOLS, FIXTURES AND EQUIPMENT

NOTE: Equivalent substitutes may be used.

1. Test Equipment -- A27041-143

2. Readout Equipment -- A27081-1

3. X-Y Plotter -- Hewlett Packard Co., Model HP7045B
   Esterline Corp., Model XY530T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24C
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24E
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SEE DETAIL B
SEE DETAIL F
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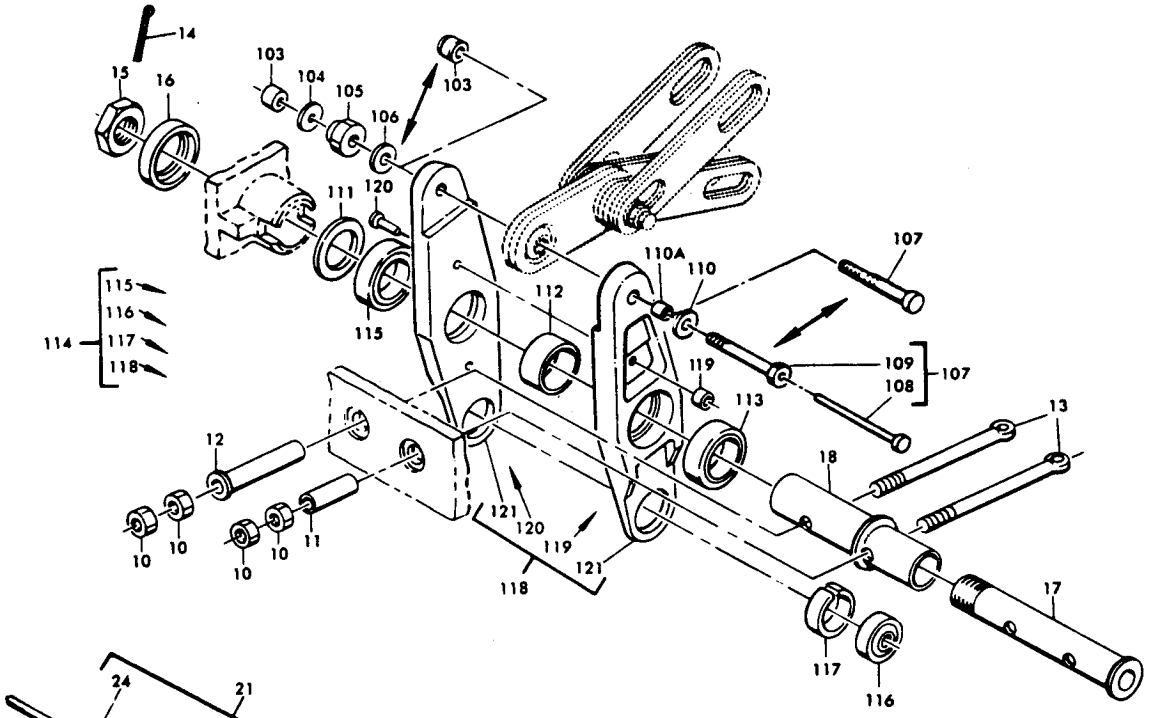
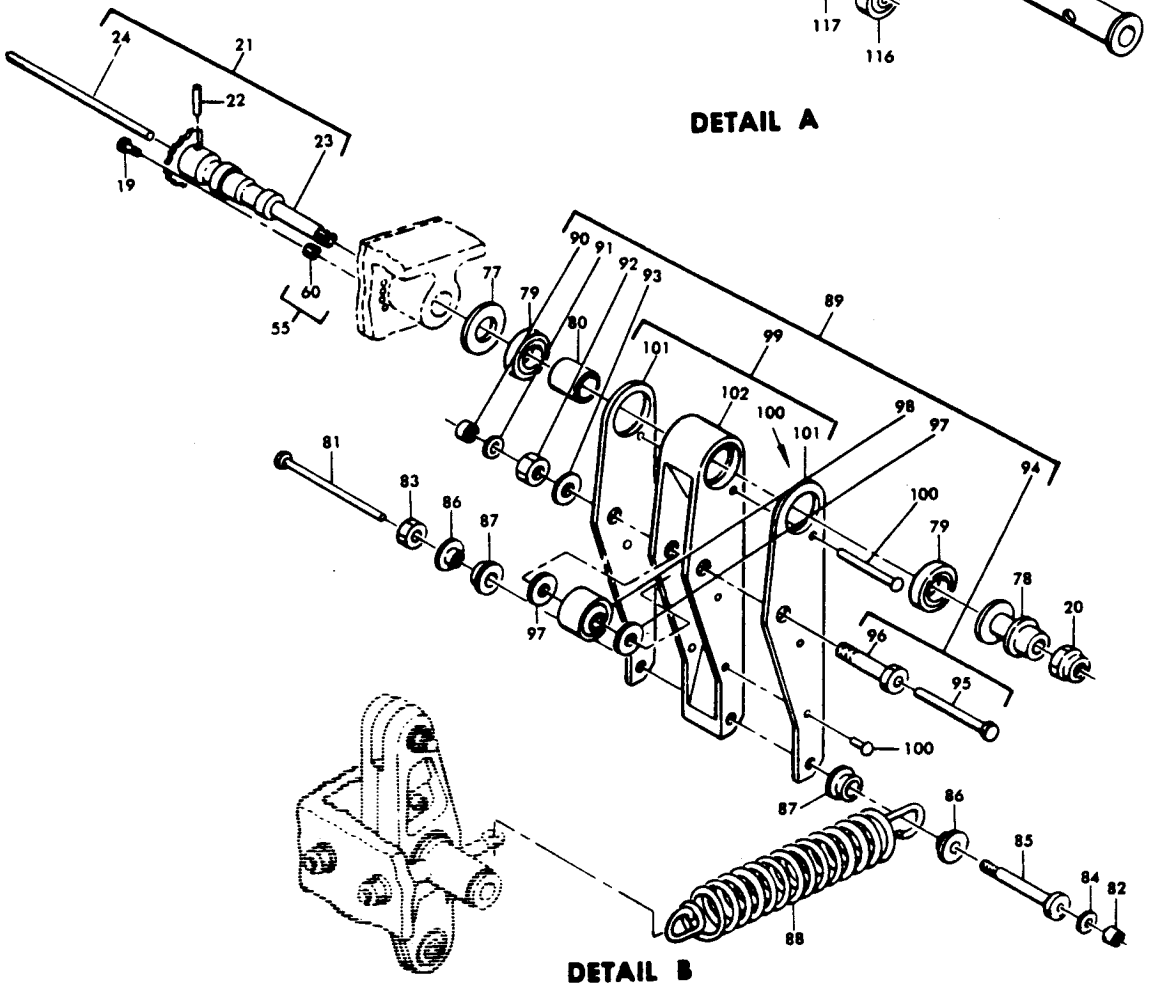
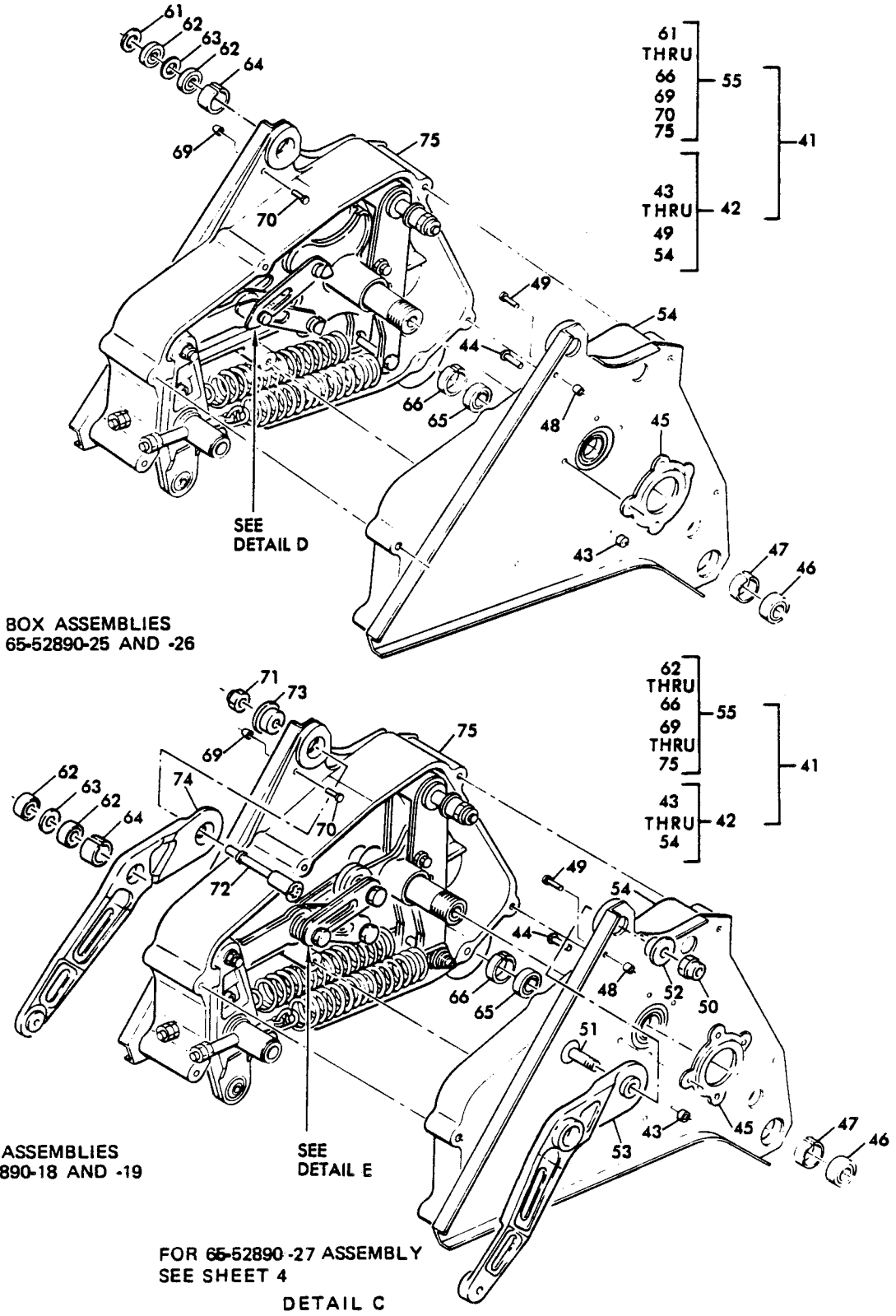


DETAIL A

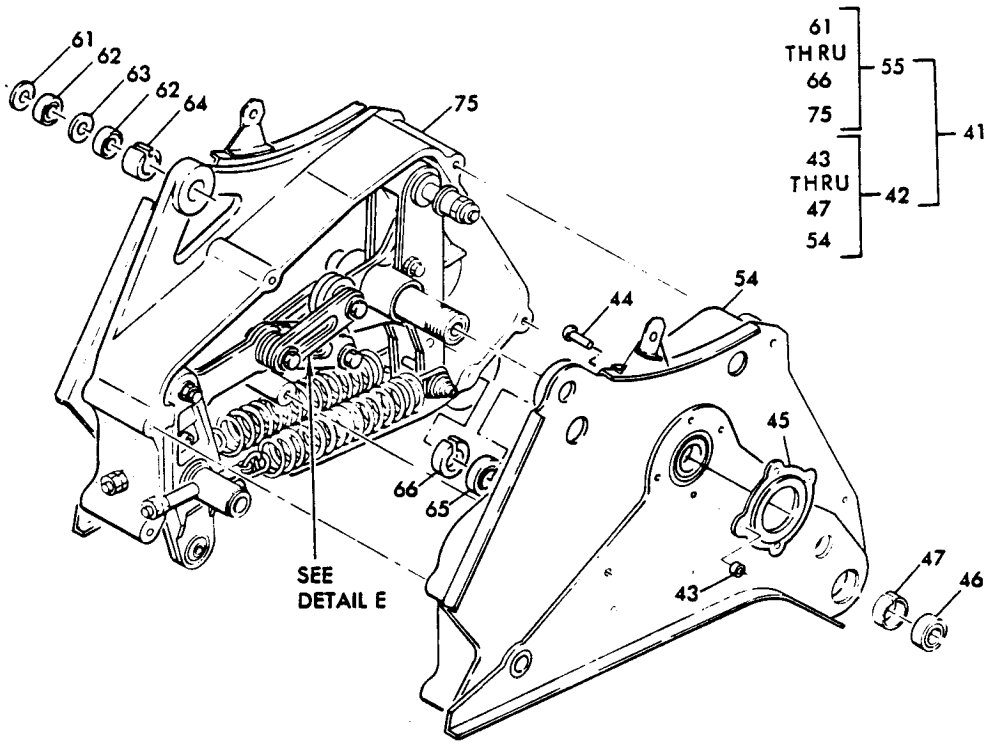


DETAIL B

Elevator and Rudder Centering Unit Assembly
Figure 1101 (Sheet 2)



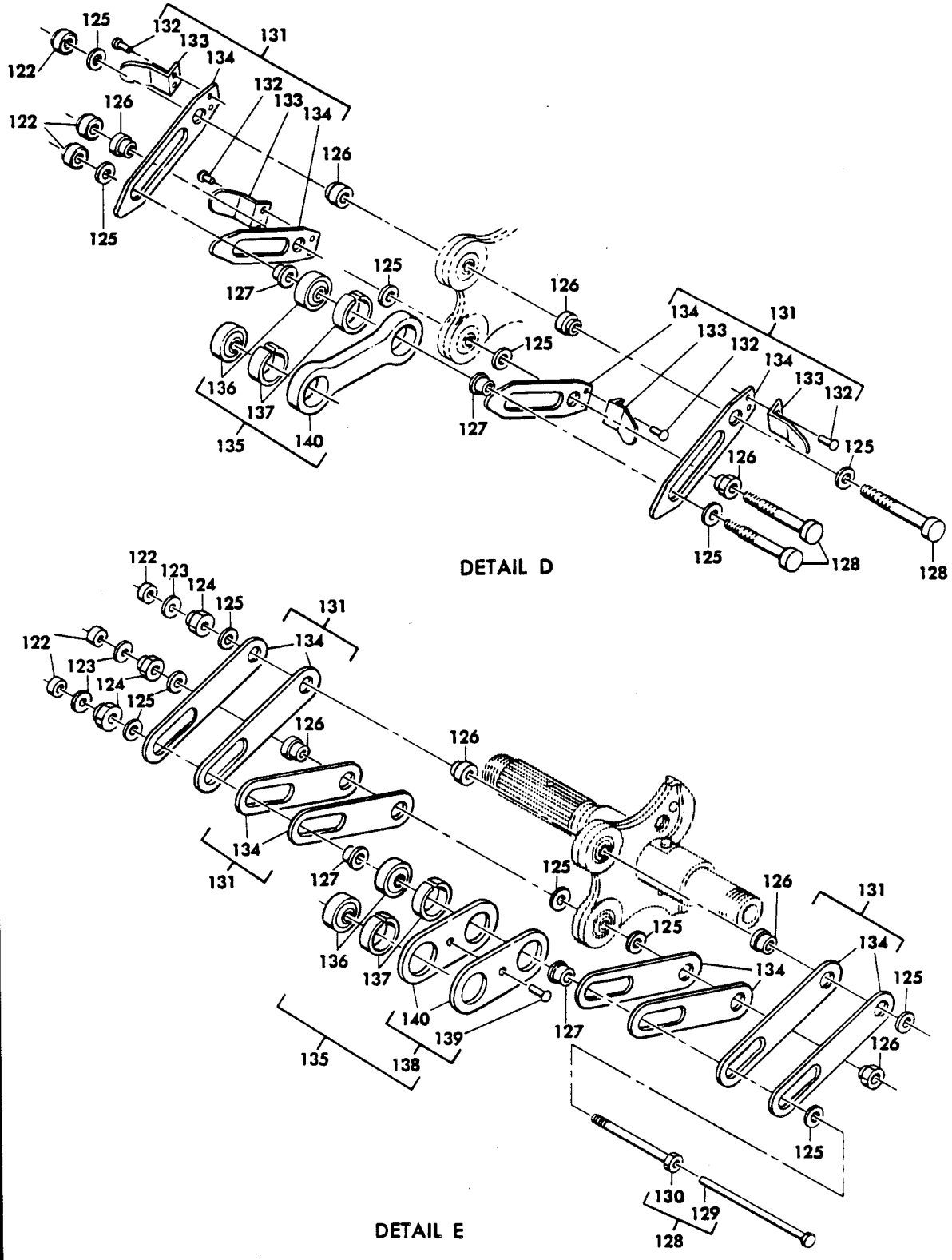
Elevator and Rudder Centering Unit Assembly
Figure 1101 (Sheet 3)



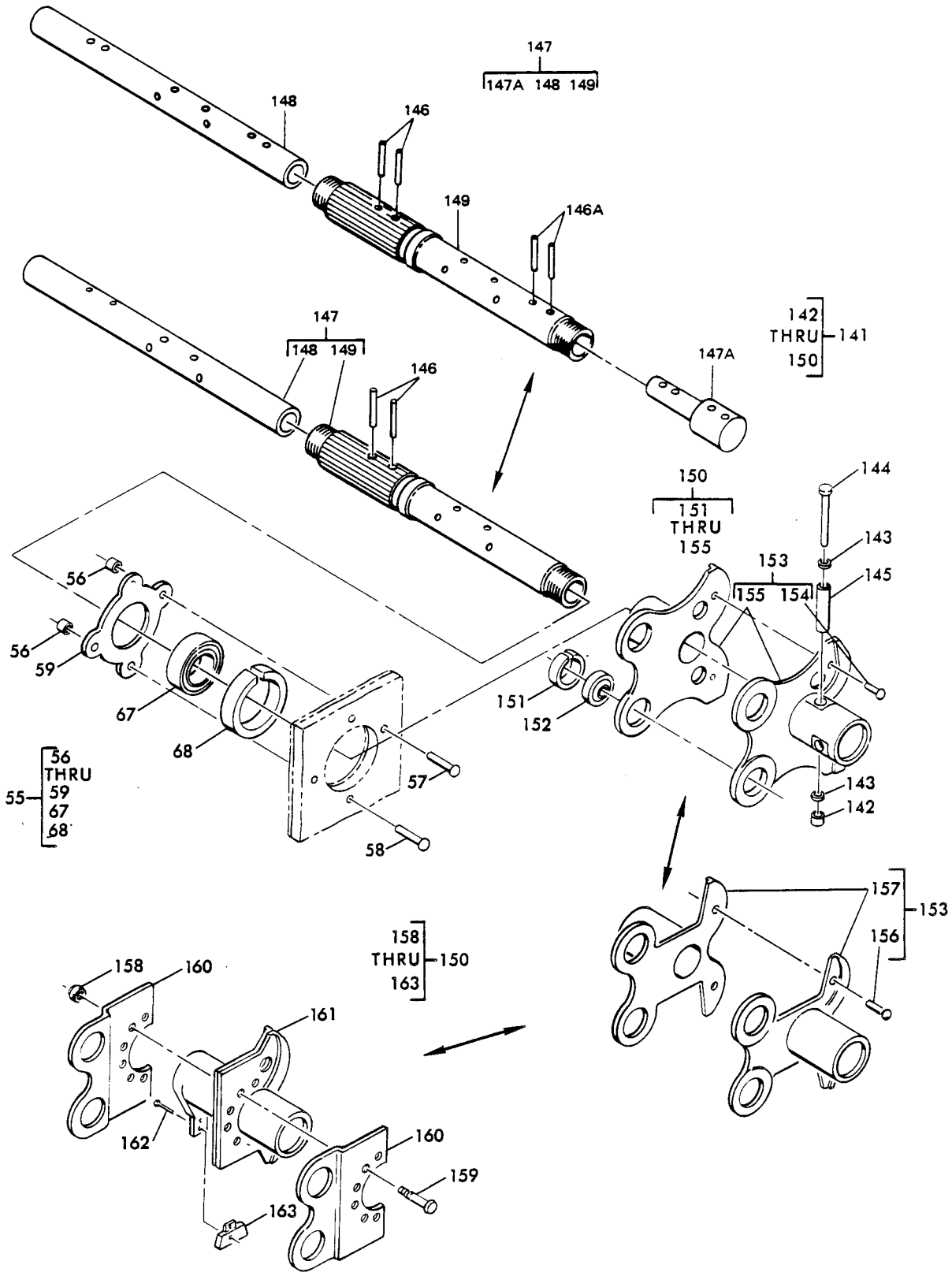
BOX ASSEMBLIES
65-52890-27

FOR 65-52890-18,-19,-25,-26,
ASSEMBLIES SEE SHEET 3

DETAIL C



Elevator and Rudder Centering Unit Assembly
Figure 1101 (Sheet 5)



DETAIL F

Elevator and Rudder Centering Unit Assembly
Figure 1101 (Sheet 6)

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
	65-45133-8		CENTERING UNIT ASSY, ELEV AND RUDDER	A	RF
	65-45133-9		CENTERING UNIT ASSY, ELEV AND RUDDER	B	RF
	65-45133-10		CENTERING UNIT ASSY, ELEV AND RUDDER	C	RF
	65-45133-11		CENTERING UNIT ASSY, ELEV AND RUDDER	D	RF
	65-45133-12		CENTERING UNIT ASSY, ELEV AND RUDDER (SB 27-1052)	E	RF
	65-45133-13		CENTERING UNIT ASSY, ELEV AND RUDDER	F	RF
	65-45133-14		CENTERING UNIT ASSY, ELEV AND RUDDER	G	RF
1	BACN10JC4		. NUT (REPLS NAS679A4W)		5
2	AN960PD416		. WASHER		5
3	NAS1104-68		. BOLT (OPT)	ABC	5
3	BACB30NF4-68		. BOLT	D-G	5
4	BACN10JC4		. NUT (REPLS NAS679A4W)		1
5	AN960PD416		. WASHER		1
6	NAS1104-66		. BOLT	AB	1
6	BACB30NE4DH73		. BOLT (REPLS NAS1304-73DH)	C	1
6	BACB30NF4-68		. BOLT	D-G	1
7	BACN10JC4		. NUT (REPLS NAS679A4W)		2
8	AN960PD416		. WASHER		2
9	BACB30NE4H68		. BOLT (REPLS NAS1304-68H)	ABC	1
9	BACB30NF4-68		. BOLT	D-G	1
9A	BACB30NE4H68		. BOLT (REPLS NAS1304-68)		1
10	NAS509-5		. NUT		4
11	NAS43HT5-77		. SPACER		1
12	NAS77-5-240		. BUSHING		1
13	66-24424-1		. BOLT, EYE		2
14	MS24665-71		. PIN, COTTER		1
15	66-22132-1		. NUT		1
16	66-24909-1		. SPACER		1
17	66-24454-1		. PIVOT, INNER		1
18	66-24450-1		. PIVOT, OUTER		1
19	BACB30NE3H1		. BOLT (REPLS NAS1303-1H)		1
20	BACN10JC6		. NUT (REPLS NAS679A6)		1
21	69-38950-1		. PIN ASSY		1
22	MS16562-27		. . PIN, SPRING		1
23	69-38938-1		. . PIN, OUTER		1
24	66-24418-1		. . PIN, INNER		1
24A	BACN10JC4		. NUT	G	1
24B	AN960PD416		. WASHER	G	1
24C	BACB30NF4-27		. BOLT	G	1
24D	65-85306-1		. CRANK ASSY	G	1
24E	NAS1368N8D		. . GROMMET		1
24F	65-85306-2		. . CRANK		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101					
25	BACN10RF201		. NUT (REPLS BACN10GR1P)		1
26	69-37283-2		. HOUSING ASSY, BEARING		1
27	BACN10JC08		. . NUT (REPLS NAS679A08W)		2
28	AN960PD8L		. . WASHER		2
29	BACB30LU2-8		. . BOLT (REPLS BACB30FL2-8)		2
30	BACN10JC4		. . NUT (REPLS NAS679A4W)		1
31	AN960PD416		. . WASHER		1
32	NAS1104-10		. . BOLT		1
33	69-38294-1		. . PLATE		1
34	BACB10A828		. . BEARING		1
35	69-37284-2		. . PLATE ASSY		1
36	69-37284-4		. . . PLATE ASSY, BONDED		1
37	69-37284-6		. . . . PLATE		1
38	69-37284-7		. . . . PLATE		1
39	66-24426-1		. SPACER		1
40	66-24903-1		. SPACER		1
41	65-52890-25		. BOX ASSY	A	1
41	65-52890-26		. BOX ASSY	B	1
41	65-52890-19		. BOX ASSY (PREF)	C	1
41	65-52890-18		. BOX ASSY (OPT TO 65-52890-19)	C	1
41	65-52890-27		. BOX ASSY	D	1
41	65-52890-32		. BOX ASSY (SB 27-1052)	E-G	1
42	65-52890-3		. . COVER ASSY *[1]	A	1
42	65-52890-17		. . COVER ASSY *[2]	B	1
42	65-52890-23		. . COVER ASSY *[3]	C	1
42	65-52890-22		. . COVER ASSY *[4]	C	1
42	65-52890-29		. . COVER ASSY *[5]*[10]	D-G	1
43	NAS1080D5		. . . COLLAR		4
44	BACB30GP5-6		. . . BOLT, LOCK	ABC	4
44	BACB30GP5-5		. . . BOLT, LOCK	D-G	4
45	69-40723-2		. . . PLATE		1
45	69-40723-1		. . . PLATE (OPT TO 69-40723-2)		1
46	03-713-0437		. . . BEARING, V09455 (BOEING 10-60545-103)		1
46	BS14ATC29		. . . BEARING, V21335 (BOEING 10-60545-103)		1
46	TFA7		. . . BEARING, V77896 (BOEING 10-60545-103)		1
46	BLFN7-016		. . . BEARING, V81376 (BOEING 10-60545-103)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101					
47	69-38919-4		. . . SLEEVE		1
48	NAS1080D5		. . . COLLAR	ABC	1
49	BACB30GP5-7		. . . BOLT, LOCK	AB	1
49	BACB30GQ5-7		. . . BOLT, LOCK	C	1
50	BACN10JC7		. . . NUT (REPLS NAS679A7)	C	1
51	BACB30LU7-12		. . . BOLT (REPLS NAS337CPA12-5)	C	1
52	69-49716-4		. . . BUSHING	C	1
53	65-61754-2		. . . FITTING, SUPPORT (PRFD)	C	1
53	65-61796-3		. . . FITTING, SUPPORT (OPT)	C	1
54	65-52890-5		. . . COVER (USED ON 65-52890-3, -22)*[6]		1
54	65-52890-16		. . . COVER *[7]	B	1
54	65-52890-12		. . . COVER (USED ON 65-52890-23)*[8]		1
54	65-52890-31		. . . COVER *[9]	D-G	1
55	65-52890-2		. . HOUSING ASSY *[1]	A	1
55	65-52890-14		. . HOUSING ASSY *[2]	B	1
55	65-52890-21		. . HOUSING ASSY *[3]	C	1
55	65-52890-20		. . HOUSING ASSY *[4]	C	1
55	65-52890-28		. . HOUSING ASSY *[5]	D	1
55	65-52890-33		. . HOUSING ASSY (SB 27-1052)*[10]	E-G	1
56	NAS1080D5		. . . COLLAR		4
57	BACB30GP5-6		. . . BOLT, LOCK		3
58	BACB30GQ5-5		. . . BOLT, LOCK		1
59	69-40724-2		. . . PLATE		1
59	69-40724-1		. . . PLATE (OPT TO 69-40724-2)	ABC	1
60	MS21209F1-15		. . . INSERT		4
61	66-24777-1		. . . SPACER	ABD	1
62	BACB10BX5		. . . BEARING (REPLS BACB10A683)	A-D	2
62	BACB10BY5		. . . BEARING (SB 27-1052)	E-G	1
63	66-24790-2		. . . SHIM	A-D	1
64	69-38919-15		. . . SLEEVE	A-D	1
64	69-38919-32		. . . SLEEVE (SB 27-1052)	E-G	1
65	03-713-0500		. . . BEARING, V09455 (BOEING 10-60545-104)		1
65	BS16ATC32		. . . BEARING, V21335 (BOEING 10-60545-104)		1
65	TFA8		. . . BEARING, V77896 (BOEING 10-60545-104)		1
65	BLFN8-017		. . . BEARING, V81376 (BOEING 10-60545-104)		1
65	KSBN8		. . . BEARING, V97613 (BOEING 10-60545-104)		1
66	69-38919-7		. . . SLEEVE		1
67	BACB10A30DDH		. . . BEARING		1
68	69-38919-5		. . . SLEEVE		1
69	NAS1080D5		. . . COLLAR	ABC	1
70	BACB30GP5-7		. . . BOLT, LOCK	AB	1
70	BACB30GQ5-7		. . . BOLT, LOCK	C	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101					
71	BACN10JC7		. . . NUT (REPLS NAS679A7)	C	1
72	69-49751-3		. . . BOLT	C	1
73	69-49716-3		. . . BUSHING	C	1
74	65-61754-1		. . . FITTING, SUPPORT (PRFD)	C	1
74	65-61797-5		. . . FITTING, SUPPORT (OPT)	C	1
75	65-52890-24		. . . HOUSING (USED ON 65-52890-2, -20) *[6]		1
75	65-52890-15		. . . HOUSING *[7]		1
75	65-52890-11		. . . HOUSING *[8]	B	1
75	65-52890-30		. . . HOUSING *[9]	D	1
76	BACB10A30DDH		. BEARING	A-D	1
76	BACB10A30DDH		. BEARING (OPT)	EFG	1
76	BACB10CF21PP		. BEARING (OPT)	EFG	1
77	AN960-1016		. WASHER		1
78	66-24195-1		. RETAINER		1
79	BACB10A27DDH		. BEARING	A-D	2
79	BACB10A27DDH		. BEARING (OPT)	EFG	2
79	BACB10CF10PP		. BEARING (OPT)	EFG	2
80	NAS43DD10-50		. SPACER		1
81	BACB30FM6A40		. BOLT (REPLS HS128-6-40, BACR15CG6-40)		1
81	HS128-6-40		. RIVET, V73197 (REPLD BY BACB30FM6A40)		1
81	BACR15CG6-40		. RIVET (REPLD BY BACB30FM6A40)		1
82	BACC30AB6S		. COLLAR (REPLS BACC30C36)		1
82	BACC30C36		. COLLAR (REPLD BY BACC30AB6S)		1
83	BACN10JC5		. NUT (REPLS NAS679A5)		1
84	AN960-10		. WASHER		1
85	69-27228-5		. BOLT		1
86	69-40757-1		. BUSHING		2
87	66-24177-1		. BUSHING		2
88	69-50577-1		. SPRING	AB	2
88	69-39442-1		. SPRING	C-G	2
89	65-51251-1		. ARM ASSY		1
90	BACC30K8		. . COLLAR		1
91	AN960-416		. . WASHER		1
92	BACN10JC6		. . NUT (REPLS NAS679A6)		1
93	AN960PD616		. . WASHER		1
94	69-27158-3		. . BOLT ASSY, BONDED		1
95	BACB30GW8-31		. . . BOLT		1
96	69-27163-4		. . . BOLT		1
97	69-43930-1		. . SPACER		2
98	BACB10BN06P		. . BEARING (REPLS BACB10B257R)		1
99	65-51251-2		. . ARM ASSY, BONDED		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101					
100	BACR15BB5D		. . . RIVET (REPLS MS20470D5)		5
101	65-51251-4		. . . PLATE		2
102	65-51251-3		. . . CHANNEL		1
103	BACC30K12		. COLLAR	AB	1
103	BACC30K8		. COLLAR	C-G	1
104	AN960-416		. WASHER	C-G	1
105	BACN10JC6		. NUT (REPLS NAS679A6)	C-G	1
106	AN960PD616		. WASHER	C-G	1
107	BACB30GW12-19		. BOLT, LOCK	AB	1
107	69-27158-3		. BOLT ASSY, BONDED	C-G	1
108	BACB30GW8-31		. . BOLT		1
109	69-27163-4		. . BOLT		1
110	AN960PD616		. WASHER	C-G	1
110A	BACB28Y6D044		. BUSHING (SB 27-1052)	E-G	1
111	66-24790-1		. SHIM		2
112	66-24179-1		. SPACER		1
113	BACB10A29DDH		. BEARING	A-D	1
113	BACB10A29DDH		. BEARING (OPT)	EFG	1
113	BACB10CF17PP		. BEARING (OPT)	EFG	1
114	65-45191-1		. LEVER ASSY (OPT)	A-D	1
114	65-45191-3		. LEVER ASSY (SB 27-1052)	E	1
114	65-45191-5		. LEVER ASSY	A-DFG	1
115	BACB10A29DDH		. . BEARING		1
116	03-713-0375		. . BEARING, V09455 (BOEING 10-60545-102)		1
116	BS12ATC26		. . BEARING, V21335 (BOEING 10-60545-102)		1
116	TFA6		. . BEARING, V77896 (BOEING 10-60545-102)		1
116	BLFN6-042		. . BEARING, V81376 (BOEING 10-60545-102)		1
116	KSBN6		. . BEARING, V97613 (BOEING 10-60545-102)		1
117	69-38919-2		. . SLEEVE		1
118	65-45191-2		. . LEVER ASSY, BONDED	A-D	1
118	65-45191-4		. . LEVER ASSY, BONDED	E	1
118	65-45191-6		. . LEVER ASSY, BONDED	FG	1
119	NAS1080D6		. . . COLLAR		2
120	BACB30GP6-4		. . . BOLT		2
121	65-45185-1		. . . LEVER		2
121	65-45185-3		. . . LEVER, HALF	FG	2
122	BACC30K12		. COLLAR	AB	3
122	BACC30K8		. COLLAR	C-G	3
123	AN960-416		. WASHER	C-G	3

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101					
124	BACN10JC6		. NUT (REPLS NAS679A6)	C-G	3
125	66-24178-1		. WASHER		6
126	66-24176-3		. BUSHING	AB	4
126	66-24176-1		. BUSHING	C-G	4
127	66-24176-4		. BUSHING	AB	2
127	66-24176-2		. BUSHING	C-G	2
128	BACB30GW12-17		. BOLT, LOCK	AB	3
128	69-27158-3		. BOLT ASSY, BONDED	C-G	3
129	BACB30GW8-31		. . BOLT	C-G	1
130	69-27163-4		. . BOLT	C-G	1
131	69-50575-3		. TIE ASSY	AB	4
131	69-55486-1		. TIE ASSY, BONDED	C-G	4
132	MS20427-3		. . RIVET	AB	2
133	69-50578-1		. . CLIP	AB	1
134	69-55486-2		. . PLATE	C-F	2
134	69-50575-4		. . PLATE	AB	1
135	69-50576-1		. LINK ASSY	AB	1
135	69-53867-1		. LINK ASSY	CD	1
135	69-53867-4		. LINK ASSY (SB 27-1052)	E-G	1
136	BACB10BX6		. . BEARING (REPLS BACB10A543)		2
137	69-38919-16		. . SLEEVE	A-D	2
137	69-38919-33		. . SLEEVE (SB 27-1052)	E-G	2
138	69-53867-2		. . LINK ASSY, BONDED	C-G	1
139	BACR15BA4D		. . . RIVET (REPLS MS20426D4)		1
140	69-53867-3		. . . PLATE		2
140	69-50576-2		. . PLATE	AB	1
141	65-50860-3		. SHAFT ASSY, CAM	AB	1
141	65-50860-4		. SHAFT ASSY, CAM	C-F	1
141	65-50860-5		. SHAFT ASSY, CAM	G	1
142	NAS1080C6		. . COLLAR		4
143	AN960-10L		. . WASHER		8
144	BACB30GW6-25		. . BOLT, LOCK		4
145	NAS75-3-114		. . BUSHING		4
146	66-24420-1		. . PIN		2
146A	66-25632-1		. . PIN	G	2
147	65-50860-2		. . SHAFT ASSY, BONDED	A-F	1
147	65-50860-6		. . SHAFT ASSY, BONDED	G	1
147A	66-25631-1		. . . SHAFT	G	1
148	69-38916-2		. . . SHAFT, INNER		1
149	69-38916-1		. . . SHAFT, OUTER		1
150	65-62513-1		. . CAM ASSY	AB	1
150	65-62510-1		. . CAM ASSY (OPT)	AB	1
150	65-68517-1		. . CAM ASSY	C-G	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101					
150	65-68516-1		. . CAM ASSY (OPT)	C-G	1
150	65-69517-1		. . CAM ASSY (OPT)	C-G	1
151	69-38919-2		. . . SLEEVE		2
152	03-713-0375		. . . BEARING, V09455 (BOEING 10-60545-102)		2
152	BS12ATC26		. . . BEARING, V21335 (BOEING 10-60545-102)		2
152	TFA6		. . . BEARING, V77896 (BOEING 10-60545-102)		2
152	BLFN6-042		. . . BEARING, V81376 (BOEING 10-60545-102)		2
152	KSBN6		. . . BEARING, V97613 (BOEING 10-60545-102)		2
153	65-62513-2		. . . CAM ASSY (USED ON 65-62513-1)		1
153	65-62510-2		. . . CAM ASSY (USED ON 65-62510-1)		1
153	65-68517-2		. . . CAM ASSY (USED ON 65-68517-1)		1
153	65-68516-2		. . . CAM ASSY (USED ON 65-68516-1)		1
154	MS20615M5		. . . . RIVET (USED ON 65-62513-2 AND 65-62510-2)		2
155	65-62513-3		. . . . CAM, HALF (USED ON 65-62513-2)		2
155	65-62510-3		. . . . CAM, HALF (USED ON 65-62510-2)		1
155	65-52510-4		. . . . CAM, HALF (USED ON 65-62510-2)		1
156	MS20615M5		. . . . RIVET (USED ON 65-68517-2)		3
156	MS20615M5		. . . . RIVET (USED ON 65-68516-2)		1
156	MS20427M5		. . . . RIVET (USED ON 65-68516-2)		2
157	65-68517-3		. . . . CAM, HALF (USED ON 65-68517-2)		2
157	65-68516-3		. . . . CAM, HALF (USED ON 65-68516-2)		1
157	65-68516-4		. . . . CAM, HALF (USED ON 65-68516-2)		1
158	NAS1080-6		. . . COLLAR (USED ON 65-69517-1)		6
159	BACB30DX6-8		. . . LOCKBOLT (USED ON 65-69517-1)		6
160	65-69517-3		. . . PLATE, ADAPTER (USED ON 65-69517-1)		2
161	65-69517-2		. . . CAM (USED ON 65-69517-1)		1
162	MS20427M5		. . . RIVET (USED ON 65-69517-1)		2
163	69-54888-1		. . . STOP (USED ON 65-69517-1)		1
164	MS24629-9		. SCREW		2
165	BAC27DCT46		. NAMEPLATE	AB	1
165	BAC27DCT47		. NAMEPLATE	C-G	1

*[1] 65-52890-2, -3 (ITEM 42) COMPOSE A MATCHED SET

*[2] 65-52890-14, -17 COMPOSE A MATCHED SET

*[3] 65-52890-21, -23 COMPOSE A MATCHED SET

*[4] 65-52890-20, -22 COMPOSE A MATCHED SET

*[5] 65-52890-28, -29 COMPOSE A MATCHED SET

*[6] 65-52890-5, -24 COMPOSE A MATCHED SET

*[7] 65-52890-15, -16 COMPOSE A MATCHED SET

*[8] 65-52890-11, -12 COMPOSE A MATCHED SET

*[9] 65-52890-30, -31 COMPOSE A MATCHED SET

*[10] 65-52890-29, -33 COMPOSE A MATCHED SET

VENDORS

V09455	LEAR SIEGLER INC., TRANSPORT DYNAMICS DIVISION, P.O. BOX 1953, 3131 WEST SEGERSTROM ST., SANTA ANA, CALIFORNIA 92702
V21335	FAFNIR BEARING COMPANY, DIVISION OF TEXTRON INC., 37 BOOTH STREET, NEW BRITAIN, CONNECTICUT 06050
V73197	HI SHEAR CORP., 2600 SKYPARK DRIVE, TORRENCE, CALIFORNIA 90509
V77896	REXNORD INC., BEARING DIVISION, 2400 CURTIS STREET, DOWNERS GROVE, ILLINOIS 60515
V81376	SOUTHWEST PRODUCTS COMPANY, 1705 SOUTH MOUNTAIN AVE., MONROVIA, CALIFORNIA 91016
V97613	SARGENT INDUSTRIES, KAHR BEARING DIVISION, 3010 NORTH SAN FERNANDO RD., BURBANK, CALIFORNIA 91503

Part No.	Fig. and Index No.	Qty per. Assy
AN960-10	1101-	AR
AN960-10L		AR
AN960-1016		AR
AN960-416		AR
AN960PD416		AR
AN960PD616		AR
AN960PD8L		AR
BACB10A27DDH	79	2
BACB10A29DDH	113	1
BACB10A29DDH	115	1
BACB10A30DDH	67	1
BACB10A30DDH	76	1
BACB10A828	34	1
BACB10BN06P	98	1
BACB10BX5	62	2
BACB10BY5	62	1
BACB10BX6	136	2
BACB28Y6D044	110A	1
BACB30DX6-8	159	6
BACB30FM6A40	81	1
BACB30GP5-6	44	4
BACB30GP5-6	57	3
BACB30GP5-7	49	1
BACB30GP5-7	70	1
BACB30GP6-4	120	2
BACB30GQ5-5	58	1
BACB30GQ5-7	49	1
BACB30GQ5-7	70	1
BACB30GW12-17	128	3
BACB30GW12-19	107	1
BACB30GW6-25	144	4
BACB30GW8-31	95	1
BACB30GW8-31	108	1
BACB30GW8-31	129	1
BACB30LU2-8	29	2
BACB30LU7-12	51	1
BACB30NE3H1	19	1
BACB30NE4DH73	6	1
BACB30NE4H68	9	1
BACB30NE4H68	9A	1
BACB30NF4-27	24C	1
BACB30NF4-68	3	5
BACB30NF4-68	6	1
BACB30NF4-68	9	1

Part No.	Fig. and Index No.	Qty per. Assy
BACC30AB6S	82	1
BACC30C36	82	1
BACC30K12	103	1
BACC30K12	122	3
BACC30K8	90	1
BACC30K8	103	1
BACC30K8	122	3
BACN10JC08	27	2
BACN10JC4	1	5
BACN10JC4	4	1
BACN10JC4	7	2
BACN10JC4	24A	1
BACN10JC4	30	1
BACN10JC5	83	1
BACN10JC6	20	1
BACN10JC6	92	1
BACN10JC6	105	1
BACN10JC6	124	3
BACN10JC7	50	1
BACN10JC7	71	1
BACN10RF201	25	1
BACR15BB5D	100	5
BACR15CG6-40	81	1
BAC27DCT46	165	1
BAC27DCT47	165	1
BLFN6-042	116	1
BLFN6-042	152	2
BLFN7-016	46	1
BLFN8-017	65	1
BS12ATC26	116	1
BS12ATC26	152	2
BS14ATC29	46	1
BS16ATC32	65	1
HS128-6-40	81	1
KSBN6	116	1
KSBN6	152	2
KSBN7-10	46	1
KSBN8	65	1
MS16562-27		AR
MS20427-3		AR
MS20427M5		AR
MS20615M5		AR

Part No.	Fig. and Index No.	Qty. per Assy.
MS21209F1-15	1101-	AR
MS24629-9		AR
MS24665-71		AR
NAS1080-6		AR
NAS1080C6		AR
NAS1080D5		AR
NAS1080D6		AR
NAS1104-10		AR
NAS1104-66		AR
NAS1104-68		AR
NAS1368N8D		AR
NAS43DD10-50		AR
NAS43HT5-77		AR
NAS509-5		AR
NAS679A08W		AR
NAS75-3-114		AR
NAS77-5-240		AR
TFA6	116	1
TFA6	152	2
TFA7	46	1
TFA8	65	1
03-713-0375	116	1
03-713-0375	152	2
03-713-0437	46	1
03-713-0500	65	1
10-60545-102	116	1
10-60545-102	152	2
10-60545-103	46	1
10-60545-104	65	1
65-45133-10		
65-45133-11		
65-45133-12		
65-45133-13		
65-45133-14		
65-45133-8		
65-45133-9		
65-45185-1	121	2
65-45185-3	121	2

Part No.	Fig. and Index No.	Qty. per Assy.
65-45191-1	114	1
65-45191-2	118	1
65-45191-3	114	1
65-45191-5	114	1
65-45191-6	118	1
65-50860-2	147	1
65-50860-3	141	1
65-50860-4	141	1
65-50860-5	141	1
65-50860-6	147	1
65-51251-1	89	1
65-51251-2	99	1
65-51251-3	102	1
65-51251-4	101	2
65-52890-11	75	1
65-52890-12	54	1
65-52890-14	55	1
65-52890-15	75	1
65-52890-16	54	1
65-52890-17	42	1
65-52890-18	41	1
65-52890-19	41	1
65-52890-2	55	1
65-52890-20	55	1
65-52890-21	55	1
65-52890-22	42	1
65-52890-23	42	1
65-52890-24	75	1
65-52890-25	41	1
65-52890-26	41	1
65-52890-27	41	1
65-52890-28	55	1
65-52890-29	42	1
65-52890-3	42	1
65-52890-30	75	1
65-52890-31	54	1
65-52890-32	41	1
65-52890-33	55	1
65-52890-5	54	1
65-61754-1	74	1
65-61754-2	53	1
65-61796-3	53	1
65-61797-5	74	1

Part No.	Fig. and Index No.	Qty per. Assy
65-62510-1	1101-150	1
65-62510-2	153	1
65-62510-3	155	1
65-62510-4	155	1
65-62513-1	150	1
65-62513-2	153	1
65-62513-3	155	2
65-68516-1	150	1
65-68516-2	153	1
65-68516-3	157	1
65-68516-4	157	1
65-68517-1	150	1
65-68517-2	153	1
65-68517-3	157	2
65-69517-1	150	1
65-69517-2	161	1
65-69517-3	160	2
65-85306-1	24D	1
65-85306-2	24E	1
66-22132-1	15	1
66-24176-1	126	4
66-24176-2	127	2
66-24176-3	126	4
66-24176-4	127	2
66-24177-1	87	2
66-24178-1	125	6
66-24179-1	112	1
66-24195-1	78	1
66-24418-1	24	1
66-24420-1	146	2
66-24424-1	13	2
66-24426-1	39	1
66-24450-1	18	1
66-24454-1	17	1
66-24777-1	63	1
66-24790-1	111	2
66-24790-2	64	1
66-24903-1	40	1
66-24909-1	16	1
66-25631-1	147A	1
66-25632-1	146A	2
69-27158-3	94	1
69-27158-3	107	1
69-27158-3	128	3
69-27163-4	96	1
69-27163-4	109	1
69-27163-4	130	1
69-27228-5	85	1

Part No.	Fig. and Index No.	Qty per. Assy
69-37283-2	26	1
69-37284-2	35	1
69-37284-4	36	1
69-37284-6	37	1
69-37284-7	38	1
69-38294-1	33	1
69-38916-1	149	1
69-38916-2	148	1
69-38919-15	62	1
69-38919-16	137	2
69-38919-2	117	1
69-38919-2	151	2
69-38919-4	47	1
69-38919-5	68	1
69-38919-7	66	1
69-38919-32	64	1
69-38919-33	137	2
69-38938-1	23	1
69-38950-1	21	1
69-39442-1	88	2
69-40723-1	45	1
69-40723-2	45	1
69-40724-1	59	1
69-40724-2	59	1
69-40757-1	86	2
69-43930-1	97	2
69-49716-3	73	1
69-49716-4	52	1
69-49751-3	72	1
69-50575-3	131	4
69-50575-4	134	1
69-50576-1	135	1
69-50576-2	140	1
69-50577-1	88	2
69-50578-1	133	1
69-53867-1	135	1
69-53867-2	138	1
69-53867-3	140	1
69-53867-4	135	1
69-54888-1	163	1
69-55486-1	131	4
69-55486-2	134	2