FLAP ASYMMETRY SHUTOFF MECHANISM ASSEMBLY

27-57-01

BOEING P/N 65-56600-2, -6

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 30142	Aug 15/67
		PRR 30221	Aug 15/67
		PRR 30653	Mar 10/71

LIST OF EFFECTIVE PAGES

* Indicates pages revised, added or deleted in latest revision

F Indicates foldout pages - print one side only

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	27-57-01					
	T-1	Mar 10/71				
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*	LEP-1	Dec 25/75				
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	T/C-1	Dec 25/74				
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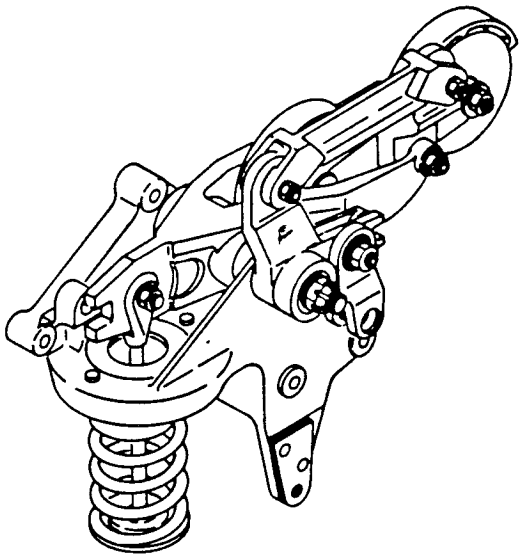
*[1] Special instructions not required. Use standard industry practices.

FLAP ASYMMETRY SHUTOFF MECHANISM ASSEMBLY



Flap Asymmetry Shutoff Mechanism Assembly
Figure 1

DESCRIPTION AND OPERATION

1. Description

   A. The flap asymmetry shutoff mechanism assembly consists of a pulley lever assembly, a bellcrank assembly, a spring, and associated linkage mounted in a support assembly.

2. Operation

   A. The flap asymmetry shutoff mechanism assembly functions to prevent asymmetrical operation of the flaps. Cables from the trailing edge flap power unit and from the flap position transmitters pass around pulleys on the pulley lever assembly. Any unequal forces on the cables will actuate the bellcrank assembly to move linkage that will cause the hydraulic control valve to shutoff pressure to the power unit. The spring functions to maintain cable tension when the flap asymmetry shutoff mechanism assembly is installed in the system.

3. Leading Particulars

Length -- 11.88 inches
Width -- 4.38 inches
Height -- 8.75 inches
Weight -- 4.42 pounds

DISASSEMBLY

1. Disassembly (See figure 1101.)

   A. Remove pins (1), nuts (2), bolts (3), and washers (4) from link (6).

   B. Remove link (6) from assembly.

   C. Remove bushings (5) from link (6).

   D. Remove pin (7), nut (8), bolt (9), and washers (10) from bellcrank assembly (46).

   E. Remove lever assembly (13) from bellcrank assembly (46).

   F. Remove bearings (11) and spacer (12) from lever (14).

      NOTE: Do not remove bearing (15) from lever (14), unless repair or replacement is required.

   G. Remove pins (16), nuts (17), bolts (18), washers (19), and pulleys (20) from lever (14).

   H. Remove pin (21), nut (22), bolt (23), washers (24), and lever assembly (26) from assembly.

   J. Remove bearing (30) and spacer (25) from lever (27).

      NOTE: Do not remove bearings (28 and 29) from lever (27), unless repair or replacement is required.

   K. Remove pin (31), nut (32), bolt (33), washer (34), and link assembly (35) from lever (27).

      NOTE: Do not remove bearing (37) from link (36) unless repair or replacement is required.

L. Using Tool No. F80065-1 to restrain spring (45), remove pin (38), nut (39), bolt (40), washer (41), retainer assembly (42), and spring (45) from assembly.

WARNING: SPRING (45) IS EXERTING A FORCE OF APPROXIMATELY 360 POUNDS. DO NOT REMOVE BOLT (40) WITHOUT RESTRAINING SPRING.

NOTE: Do not remove end cap (44) from spindle (43), unless repair or replacement is required.

M. Remove bellcrank assembly (46) from support assembly (52).

NOTE: Do not remove rivets (55), shim (54), or stiffener (53), from support assembly (52), unless repair or replacement is required.

N. Remove bearing (51) and spacer (50) from bellcrank (47).

NOTE: Do not remove bearings (48 and 49) from bellcrank (47), unless repair or replacement is required.

INSPECTION/CHECK

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

2. Perform magnetic particle examination per 20-20-01 on spindle (43), end cap (44), spring (45), and adapter (56).

3. Perform penetrant examination per 20-20-02 on links (6, 36), levers (14, 27), retainer (42), bellcrank (47), support (52), and stiffener (53).

4. Check spring (45) as follows:

   A. Compress spring to 5.05 inches and check that load is 334-386 lbs.

   B. Compress spring to 5.55 inches and check that load is 260-300 lbs.

REPAIR

1. Repair

   A. Repair minor defects and remove corrosion by polishing with abrasive cloth, 600 grit or finer. Refinish as necessary to protect against corrosion.

   B. Repair damaged threads with a small triangular file or thread chaser.

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 symbols.

   A. Deleted

      (1) Link (6), levers (14, 27) and support (52) -- Chromic acid anodize (F-2.26) and apply two coats BMS 10-11, type 1 primer (SRF-12.205) except in holes and bores. Material: Al alloy.

      (2) Link (36) -- Alodize or chromic acid anodize and apply one coat BMS 10-11, type 1 primer (SRF-2.30) except no primer in holes. Material: Al alloy.

      (3) Retainer assembly (42) -- Cadmium plate and apply one coat MIL-P-8585, color Y primer (F-1.285) except apply two coats BMS 10-11, type 1 primer (SRF-12.206) followed by MIL-C-16173, grade 1 corrosion preventive compound (F-14.13) to 0.250 inch ID. Material: 4130 steel (normalized).

      (4) Spring (45, 66-16426-1) -- Cadmium plate and apply one coat BMS 10-11, type 1 primer (SRF-1.92) all over. Material: 1065 spring steel.

      (5) Spring (45, 69-54485-1, -2) -- Passivate (F-18.07), on 69-54485-2, apply 1 coat BMS 10-11, type 1 primer followed by BMS 10-60 color 702, white gloss enamel. Material: PH15-7 stainless steel.

      (6) Bellcrank (47) -- Chromic acid anodize (F-2.26) all over, then apply two coats BMS 10-11, type 1 primer (SRF-12.205) except in holes, bores and letter grooves. Apply one coat BMS 10-11, type 2 enamel, color BAC702 white (SRF-12.64) in letter grooves. Material: Al alloy.

      (7) Stiffener (53) -- Alodize or chromic acid anodize, then apply one coat BMS 10-11, type 1 primer (SRF-2.30).

3. Replacement (See figure 1101.)

A. Replace all unserviceable parts.

B. Replace pins (1, 7, 16, 21, 31, and 38) at each overhaul.

C. If bearing (15, 28, 48, or 49) requires replacement, proceed as follows:

(1) Press bearing from bore.

(2) Examine bore for condition and finish.

(3) Apply primer, Specification BMS 10-11, Type I, to bore and to faying surface of bearing. Do not allow primer to enter bearing.

(4) Press bearing into bore until fully seated or flush with surface.

(5) Roller swage surface to retain bearing per "Bearing Installation and Retention", Subject 20-50-03.

D. If bearing (29) requires replacement, proceed as follows:

(1) Press bearing from bore.

(2) Examine condition of bore and finish.

(3) Apply primer, Specification BMS 10-11, Type I, to bore and to faying surface of bearing. Do not allow primer to enter bearing.

(4) Press bearing into bore until flush with surface on both sides.

(5) For further information, refer to "Bearing Installation and Retention", Subject 20-50-03.

E. If bearing (37) requires replacement, proceed as follows:

(1) Press bearing from bore.

(2) Examine condition of bore and finish.

(3) Apply primer, Specification BMS 10-11, Type I, to bore and to faying surface of bearing. Do not allow primer to enter bearing.

(4) Press bearing into bore until flush with surface on both sides.

(5) Roller swage surfaces on both sides to retain bearing per "Bearing Installation and Retention", Subject 20-50-03.

F. If spindle (43) or end cap (44) requires replacement, replacement of retainer assembly (42) is recommended. If replacement of spindle (43) or end cap (44) is elected, proceed as follows:

(1) Apply sufficient heat to the brazed area and tap end cap from spindle.

(2) Position new end cap on spindle or new spindle in end cap.

(3) Furnace braze per BTS1226 and BTS1227 in dry hydrogen atmosphere at 2150 to 2175°F for 30 minutes. Use braze alloy No. 5 per BTS1025, class A braze.

(4) Heat treat after brazing to 150,000 to 170,000 psi per Process Specification BAC5617.

(5) Perform a magnetic particle examination, per Subject 20-20-01, after heat treat.

(6) Refinish the assembly.

G. If stiffener (53) or shim (54) requires replacement, proceed as follows:

(1) Remove rivets (55). Use care to avoid enlarging rivet holes.

(2) Examine condition and finish of faying surfaces.

(3) Position shim and stiffener on support assembly and drill to match support assembly.

(4) Adjust thickness of shim, as required, until stiffener outer surface is within 0.005 inch of the machined plane of the adjacent boss.

(5) Apply primer, Specification BMS 10-11, Type I, to faying surfaces of stiffener, shim, and support assembly.

(6) Install rivets (55).

ASSEMBLY

1. General (See figure 1101.)

   A. Apply a coat of corrosion preventive compound, Specification MIL-C-11796, Class 3, to all bolts and screws.

2. Reassembly (See figure 1101.)

   A. Apply a coat of grease, Specification MIL-G-23827, to all surfaces of spacer (50) and bearing (51) and install spacer (50) and bearing (51) in bellcrank (47).

   B. Position bellcrank assembly (46) in support (52), position washer (24), and insert bolt (23) through support (52).

   C. Apply a coat of grease, Specification MIL-G-23827, to all surfaces of spacer (25) and bearing (30) and install spacer (25) and bearing (30) in lever (27).

   D. Position link (36) on lever (27) and install bolt (33), washer (34), nut (32), and pin (31).

   E. Position link assembly (35) on bolt (23) and install washer (24), nut (22), and pin (21).

   F. Position pulleys (20) in lever (14) and install bolts (18), washers (19), nuts (17), and pins (16).

   G. Apply a coat of grease, Specification MIL-G-23827, to all surfaces of spacer (12) and bearings (11) and install spacer (12) and bearings (11) in lever (14).

   H. Position lever assembly (13) in bellcrank assembly (46) and install bolt (9), washers (10), nut (8), and pin (7).

   J. Position link (6) on lever assemblies (13 and 26) and install bushings (5), bolts (3), washers (4), nuts (2), and pins (1).

   K. Position spring (45) on retainer (42).

   L. Using Tool No. F80065-1 to compress spring (45), position retainer assembly (42) on bellcrank assembly (46), and install bolt (40), washer (41), nut (39), and pin (38).

      NOTE: Install spring so that clevis of spindle (43) does not contact bellcrank (47) by rotating spring about its axis if required.

3. Material

A. Primer -- Specification BMS 10-11, Type I

B. Grease -- Specification MIL-G-23827

C. Corrosion Preventive Compound -- Specification MIL-C-11796, Class 3

STORAGE INSTRUCTIONS

1. Position bellcrank so that slot is aligned with rigging pin hole in support assembly and install a bolt (MS16998-59), with the head in the slot, through rigging pin hole. Install a washer (AN960D516) and a nut (NAS679A5) on the bolt.

2. Wrap assembly in vapor barrier paper and tape securely.

3. Tag assembly with test date.

4. For further information, refer to "Temporary Protective Coatings", Subject 20-44-02.

SPECIAL TOOLS, FIXTURES, AND TEST EQUIPMENT

1. F80065-1 -- Spring compressor

ILLUSTRATED PARTS LIST

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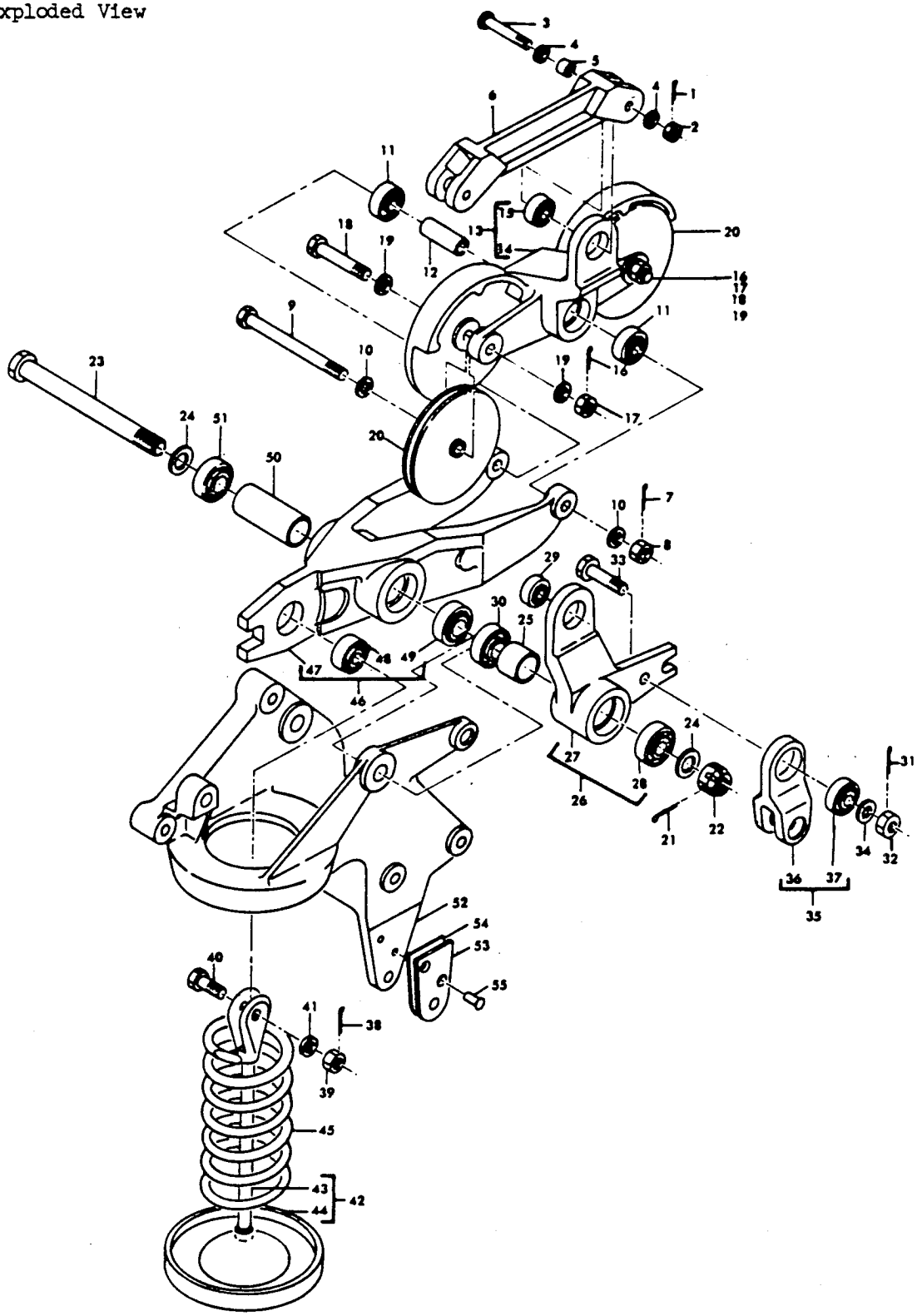
1. Exploded View



Flap Asymmetry Shutoff Mechanism Assembly
Figure 1101

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101					
	65-56600-2		MECHANISM ASSY, FLAP ASYMMETRY SHUTOFF	A	RF
	65-56600-6		MECHANISM ASSY, FLAP ASYMMETRY SHUTOFF	B	RF
1	MS24665-132		. PIN		2
2	BACN10JD103		. NUT (REPLS AN320-3)		2
3	BACS12CA3-12		. SCREW		2
4	AN960D10L		. WASHER		4
5	NAS75-3-008		. BUSHING		2
6	65-56604-1		. LINK		1
7	MS24665-134		. PIN		1
8	BACN10JD104		. NUT (REPLS AN320-4)		1
9	NAS1104-36D		. BOLT		1
10	AN960D416L		. WASHER		2
11	BACB10BX4		. BEARING (REPLS BACB10A661)		2
12	NAS43DD4-64		. SPACER		1
13	65-56603-1		. LEVER ASSY		1
14	65-56603-2		. . LEVER		1
15	BACB10AC3L		. . BEARING (REPLS MS27261KSP3L)		1
16	MS24665-134		. PIN		2
17	BACN10JD104		. NUT (REPLS AN320-4)		2
18	NAS1104-15D		. BOLT		2
19	AN960D416L		. WASHER		4
20	MS20219-4		. PULLEY		2
21	MS24665-285		. PIN		1
22	BACN10JD6		. NUT (REPLS AN310-6)		1
23	BACB30NE6D60		. BOLT (REPLS NAS1306-60D)		1
24	AN960D616L		. WASHER		2
25	NAS43DD6-29		. SPACER		1
26	65-56605-1		. LEVER ASSY		1
27	65-56605-2		. . LEVER		1
28	BACB10BX6		. . BEARING (REPLS BACB10A543)		1
29	BACB10AC3L		. . BEARING (REPLS MS27261KSP3L)		1
30	BACB10BX6		. BEARING (REPLS BACB10A543)		1
31	MS24665-134		. PIN		1
32	BACN10JD104		. NUT (REPLS AN320-4)		1
33	NAS1104-10D		. BOLT		1
34	AN960D416L		. WASHER		1
35	66-16539-1		. LINK ASSY		1
36	66-16539-2		. . LINK		1
37	BACB10A669		. . BEARING		1
38	MS24665-134		. PIN		1
39	BACN10JD105		. NUT (REPLS AN320-5)		1
40	NAS1105-7D		. BOLT		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101					
41	AN960D516L		. WASHER		1
42	69-43903-4		. RETAINER ASSY	B	1
42	69-43903-4		. RETAINER ASSY (PREFD)	A	1
42	69-43903-1		. RETAINER ASSY (OPT)	A	1
43	69-43903-3		. . SPINDLE		1
44	69-43903-2		. . END CAP (USED ON 69-43903-1)	A	1
44	69-43903-5		. . END CAP (USED ON 69-43903-4)		1
45	66-16426-1		. SPRING	A	1
45	69-54485-2		. SPRING (REPLS 69-54485-1)	B	1
45	69-54485-1		. SPRING (REPLD BY 69-54485-2)	B	1
46	65-56601-1		. BELLCRANK ASSY		1
47	65-56601-2		. . BELLCRANK		1
48	BACB10BX5		. . BEARING (REPLS BACB10A683)		1
49	BACB10BX6		. . BEARING (REPLS BACB10A543)		1
50	NAS43DD6-94		. SPACER		1
51	BACB10BX6		. BEARING (REPLS BACB10A543)		1
52	65-56602-5		. SUPPORT	B	1
52	65-56602-5		. SUPPORT (PREFD)	A	1
52	65-56602-3		. SUPPORT ASSY (OPT)	A	1
52	65-56602-4		. SUPPORT ASSY (OPT)	A	1
53	69-49717-1		. . STIFFENER (USED ON 65-56602-3 AND 65-56602-4)		1
54	69-49717-2		. . SHIM (USED ON 65-56602-3 AND 65-56602-4)		1
55	MS20426D5		. . RIVET (USED ON 65-56602-3 AND 65-56602-4)		2