TO: ALL HOLDERS OF AILERON CONTROL TRANSFER MECHANISM ASSEMBLY OVERHAUL MANUAL, 27-16-05

REVISION NO. 13, DATED MAR 1/03

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 Service Bulletin 27A1238												X	

AILERON CONTROL TRANSFER MECHANISM ASSEMBLY

27-16-05

BOEING P/N 65-54200-4 thru -8, -12, -14, -15, -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 30475-20	May 15/69
		PRR 31705	Mar 10/70
27-1033		PRR 31808	Jun 10/70
27-1061			Jun 25/73
		PRR 32039	Jun 25/74
		PRR 32625	Jan 5/80
		PRR 33799	Dec 5/85
		PRR 34103-1	Sep 5/58
27-1209			Mar 1/01
27A1238			Mar 1/03

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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27-16-05		802	BLANK		
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T-2	BLANK	902	BLANK		
* LEP-1	Mar 1/03	1001	Nov 1/98		
LEP-2	BLANK	1002	BLANK		
T/C-1	Aug 15/67	1101	Jun 5/91		
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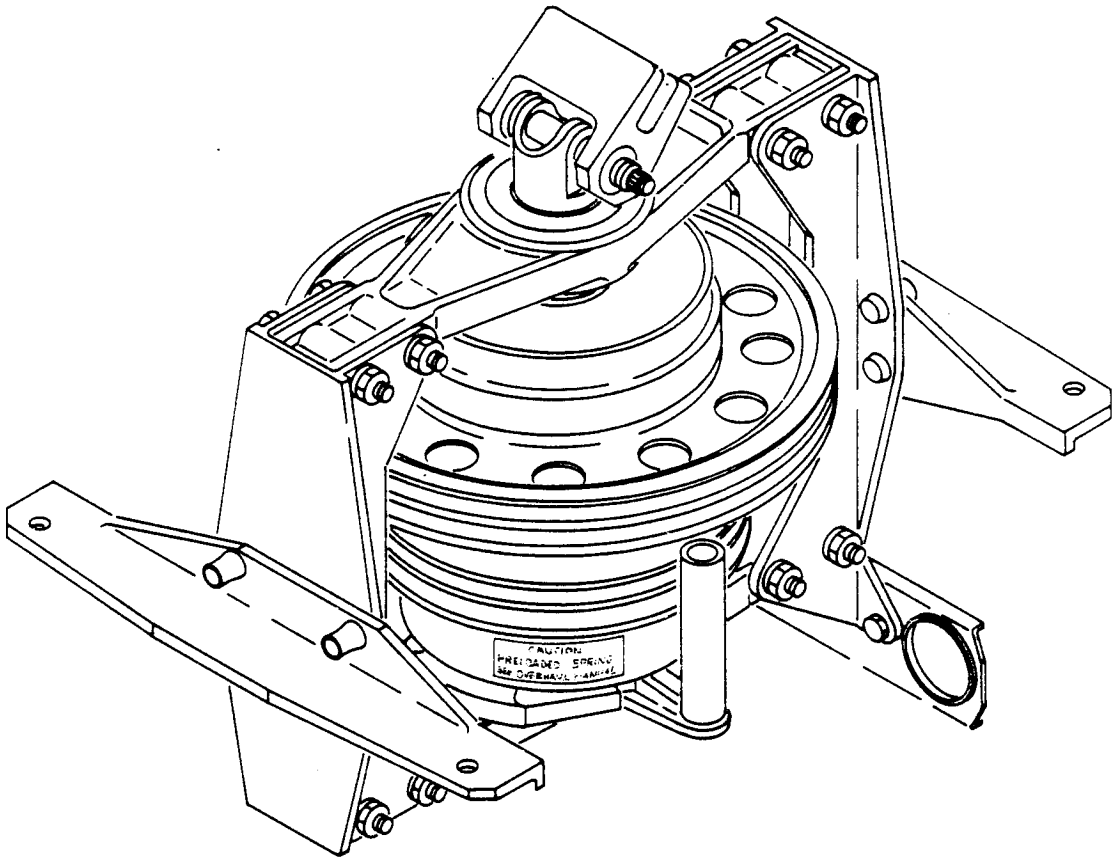


Aileron Control Transfer Mechanism Assembly
Figure 1

DESCRIPTION AND OPERATION

1. Description

   A. The aileron control transfer mechanism located at the base of the first officer's control column incorporates a transfer mechanism and a lost motion device. The transfer portion consists basically of a preloaded torsion spring whose ends are held against two similar halves of a spring container. The lost motion device consists of an arm on the bottom portion of the transfer mechanism assembly.

2. Operation

A. Rotation of either the captain's or first officer's control wheel results in rotational movement of the aileron control bus drum. The spoiler control drum is floating and normally rotates only by feedback through the attached cables or, in case of a jammed aileron system, through action of the lost motion device. Control wheel rotational motion is transmitted between the lost motion device and the aileron control bus drum through the preloaded torsion spring.

B. If the aileron cable system becomes jammed, the first officer must exert sufficient rotational force on his control wheel to overcome the spring preload and maintain lateral control through operation of the spoiler control system. The first officer's control wheel will turn through the range of lost motion before movement is picked up by the spoiler control drum through the lost motion device.

C. If the spoiler cable system becomes jammed, the captain must likewise exert sufficient rotational force on his control wheel to overcome the spring preload and maintain lateral control through operation of the aileron control system.

3. Leading Particulars

Height -- 12.0 inches (approximately)
Length -- 13.0 inches (approximately)
Width -- 10.0 inches (approximately)
Weight -- 14.2 pounds

DISASSEMBLY

1. Procedures (See figure 1101.)

   A. Remove pins (1) and cable assemblies (2 and 3).

   B. Remove nut (4), washer (5) and bolt (6).

   C. Remove fork assembly (7) and spacers (11).

   D. Remove bearing (10) from fork (8).

      NOTE: Do not remove staked bearing (9) unless replacement is necessary.

   E. Remove eight nuts (12), washers (13) and bolts (14) and disconnect forward and aft ribs (15 and 16) from bearing housings (26 and 32).

      NOTE: Do not remove lockbolts (61) attaching forward and aft beams (17 and 18) to ribs (15 and 16) unless replacement of ribs, beams, or lockbolts is necessary.

   F. Remove nut, washer and bolt (19, 20 and 21) and cable guide (22) from forward rib (15).

      NOTE: Do not remove grommets (59) unless replacement is necessary.

   G. Remove bearing housing (32) from upper end of shaft.

   H. Remove bearing (33).

   I. Use a "C" clamp across spring cartridge assembly (52) bosses to align holes and insert a 0.3125-inch diameter rig pin or bolt 0.50-inch long through rig pin holes A and C, and the same through rig pin holes B and D. (See figure 501.)

   J. Remove "C" clamp.

      WARNING: CARTRIDGE ASSEMBLY CONTAINS PRELOADED SPRING. STEPS I. AND J. MUST BE ACCOMPLISHED BEFORE CONTINUING WITH DISASSEMBLY PROCEDURE TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

K. Remove nut (23) and washer (24) from lower portion of shaft (51).

L. Remove bearing housing assembly (25) and remaining washer (24) from lower portion of shaft (51).

M. Remove nut (28), washer (29), screw (30) and three cable guards (31) from housing (26).

NOTE: Do not remove bearing (27) from housing (26) unless replacement is necessary.

N. Remove arm (42) from shaft (51).

O. Remove pin (34), nut (35), washer (36), bus drum (37) or bus drum assembly (37A), and bearings (38) from shaft (51).

NOTE: Do not remove spacer (37B) or guide (37C) from drum (37D) unless repair or replacement is necessary. Do not remove bus (37F) or rivets (37G) from drum (37E) unless repair or replacement is necessary.

P. Remove bearings (38) and spacer (39) from drum (37) or drum assembly (37A).

Q. Remove guide (40) from drum (37), if applicable.

NOTE: Do not remove spacer (41) from drum (37) unless replacement is necessary.

R. Separate cartridge assembly (52) from shaft (51).

S. Remove spoiler drum (43) and bearings (44) from shaft (51).

NOTE: Do not remove Metal-Cals (60) from spoiler drum (43) unless replacement is necessary.

T. Remove bearings (44) and spacer (45) from spoiler drum (43).

U. Remove washer (46) from shaft (51).

V. Remove retainer (47) or retainer assembly (47A) from spline on shaft (51), if applicable.

NOTE: Do not remove bushing (50) from shaft (51) unless replacement is necessary. Do not remove guide (48) from retainer (47) unless replacement is necessary. Do not remove sleeve (47B) or guide (47C) from retainer (47D) unless replacement is necessary. Do not remove sleeve (68), guide (69), retainer (70) or bushing (65) from shaft (66) unless replacement is necessary.

WARNING: THERE IS 325 LB-IN. OF PRELOADED TORQUE IN TORSION SPRING WHEN RIG PIN HOLES IN CARTRIDGES ARE ALIGNED. DO NOT REMOVE RIG PINS WITHOUT RESTRAINING CARTRIDGES OR INJURY TO PERSONNEL MAY OCCUR.

W. Using spanner wrench applied to holes in ends of cartridges (53, 54), restrain cartridges from turning in relation to each other and remove rig pins (installed in step I). Gradually allow cartridges to rotate in relation to each other until spring unwinds.

NOTE: Cartridges will turn approximately 177-185 degrees in relation to each other to unwind spring.

X. Perform check of cartridge assembly (52) for proper spring torsion per Inspection/Check, par. 2.B.

Y. Disassemble cartridge assembly (52) as follows:

(1) Remove rivets (55) holding spring (56) to cartridges (53, 54).

(2) Remove cartridge (54) and shim (58).

NOTE: Measure and note shim thickness to facilitate replacement.

(3) Remove retainer (57), spring (56) and shim (58) from cartridge (53).

NOTE: Measure and note shim thickness to facilitate replacement. Do not remove ring (57A) unless replacement is necessary.

CLEANING

1. General

   A. Wash all metal parts except bearings with clean solvent, Specification P-D-680, or equivalent.

      CAUTION: DO NOT IMMERSE METAL PARTS CONTAINING PLASTIC MATERIAL IN SOLVENT.

   B. Use a stiff-bristle brush to remove stubborn accumulations of foreign matter.

   C. Wash non-metal parts in a mild solution of soap and water.

   D. Dry with clean, lint-free cloth or clean, moisture-free air.

   E. For further information refer to "General Cleaning Procedures," Subject 20-30-03.

2. Bearings

   A. Clean all bearings per "Cleaning and Relubricating Antifriction Bearings," Subject 20-30-01.

INSPECTION/CHECK

1. Visual Checks (See figure 1101.)

   A. Examine all metal parts for pits, scratches, cracks, burrs, corrosion and damage. Examine plastic parts for cracks and evidence of deformation. Use a strong light and minimum of 10-power magnification.

   B. Check splines on arm (42), retainer (47), and shaft (51) for nicks, gouges, cracks or uneven wear. Wear pattern must be smooth and centered on teeth.

   C. Examine all threads for cross-threading or stripping.

   D. Examine all bushings, bolts, and bolt holes for excessive or eccentric wear.

   E. Check bearings for roughness, binding and excessive radial or axial play. Maximum allowable radial play of all bearings is 0.0020 inch.

   F. Examine grooves in drums (37 and 43) for wear and condition of cable slots.

   G. Check cable assemblies (2 and 3) for frayed condition and corroded or damaged terminals.

   H. Check all plated and painted surfaces for blistering or flaking.

   I. Examine entire basic assembly for loose fasteners, corrosion, and general condition of paint and finish.

   J. For parts subjected to wear, check for wear beyond allowable limits shown in figure 601, Fits and Clearances.

2. Special Checks

   A. Check fork (8) for wear beyond allowable limits indicated in figure 601 (Fits and Clearances).

   B. Check cartridge assembly (52) for proper spring torsion as follows:

      (1) Apply clockwise moment on cartridges until they have rotated 185 degrees in relation to each other and check that torque is 270 - 330 lb-in. (See figure 501.)

(2) Apply clockwise moment on cartridges until they have rotated 265 degrees in relation to each other and check that torque is 387 to 473 pound-inches.

CAUTION: DO NOT ROTATE CARTRIDGES MORE THAN 265 DEGREES NECESSARY FOR CHECK. MAXIMUM ROTATION WITHOUT PERMANENT SET OF SPRING IS 300 DEGREES.

C. If visual examination discloses evidence of defects in any of listed parts, perform following checks:

(1) Magnetic particle examination -- fork (8), nut (35), and spring (56).

CAUTION: DELETED.

NOTE: Deleted.

(2) Penetrant check -- housings (26 and 32), drums (37 and 43), arm (42), retainer (47), shaft (51) and cartridges (53 and 54).

NOTE: Deleted.

CAUTION: DELETED.

NOTE: Deleted.

D. Position spacer (57) between cartridges (53 and 54). Hold cartridges firmly together. Measure gap between cartridges. If gap is less than 0.01 inch, replace spacer (57).

NOTE: On cartridge assembly, P/N 69-61352-1, replace ring (57A) per REPAIR, paragraph 3.E., if gap is less than 0.01 inch.

REPAIR

1. Repair (Fig. 1101)

   A. Repair minor defects in accordance with standard industry practices.

   B. Refer to 20-10-01 for information applicable to repair of high strength steel parts.

   C. Fork (8) (Fig. 402)

      (1) Machine inside surfaces per 20-10-01 as required to remove defects. Maintain limits and dimensions shown.

      (2) Stress relieve at 300-350°F for 2 hours; air cool at 65-75°F.

      (3) Restore machined surfaces to design dimensions by nickel plating.

      (4) Magnetic particle check per 20-20-01.

      (5) Apply solid film lubricant to inside flats.

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. Fork (8) -- (Fig. 402)

   B. Spacer (11) -- Chromic acid anodize (F-2.26) and apply primer, BMS 10-11, Type 1 (SRF-12.205) all over. Material: Al alloy.

   C. Ribs (15, 16) and beams (17, 18), cable guard (31), washer (36), guide (22) -- Alodize and apply primer, BMS 10-11, Type 1 (SRF-2.30) all over. Material: Al alloy.

   D. Bearing housing (26) -- Anodize followed by primer, BMS 10-11, Type 1 (SRF-2.19) all over, except no primer on 1.9278-inch diameter bearing surface. Material: Al alloy.

   E. Bearing housing (32) -- Chromic acid anodize and apply primer, BMS 10-11, Type 1 (SRF-2.19) all over. Material: Al alloy.

   F. Nut (35) -- Cadmium plate (F-1.1923) all over. Material: Steel, 4130, 80-120 ksi.

   G. Drum (37, 37D, 37E), bus (37F) -- (Fig. 401).

H. Spacer (39), spacer (45), retainer (47 or 47D), cartridges (53 and 54) -- Chromic acid anodize (F-2.26) all over. Material: Al alloy.

I. Arm (42) -- Chromic acid anodize and apply primer, BMS 10-11, type 1 (SRF-2.19) except in spline. Material: Al alloy.

J. Drum (43) -- Chromic acid anodize and apply primer, BMS 10-11, type 1 (SRF-2.19) on all surfaces except to the two 1.750-inch diameter bearing surfaces. Material: Al alloy.

K. Washer (46) -- Cadmium plate (F-1.1926) all over. Material: 4130 steel, 95-120 ksi.

L. Shaft (51) -- Chromic acid anodize (F-2.26) all over and apply primer BMS 10-11, type 1 (F-12.205) on interior surface. Material: Al alloy.

M. Spring (56) -- (P/N 69-38266-2) Cadmium plate and primer BMS 10-11 (F-16.03). Material: 1065 steel wire. -- (P/N 69-38266-3) Cadmium plate per 20-42-05. Material: 1065 steel wire. -- (P/N 69-38266-4) Cadmium plate and primer BMS 10-11 (F-16.06 + F-20.02). Material: Square 17-7PH CRES wire.

3. Replacement (Fig. 1101)

A. Replace all cotter pins at each overhaul.

B. Bearing (27) -- Press out bearing and roller swage new bearing in place per 20-50-03 with wet BMS 10-11, type 1 primer applied to faying surface of bearing and housing.

C. Bearing (9) – Press bearing from fork (8) and install replacement with wet primer BMS 10-11, Type 1, per 20-50-03. Stake at five points equally spaced between old stake marks. Use staking tool with 0.040-0.050-inch spherical radius, and stake 0.015-0.020-inch deep. Optional to staking, bearing (9) may be secured by swaging per 20-50-03.

D. Spacer (37B), guide (37C), spacer (41), sleeve (47B), guides (47C, 48) ring (57A).

(1) Remove parts by softening adhesive with methyl ethyl ketone.

(2) Clean adhesive from faying surfaces with methyl ethyl ketone and dry thoroughly.

(3) Prior to bonding, surface treat teflon parts as follows:

(a) Immerse part in Fluorobond solution or Tetra-Etch solution 30-60 seconds. The part should attain a dark brown color within 60 seconds. If dark brown color does not appear, etchant has lost its effectiveness and part should be re-etched with new solution.

(b) Immediately after removing part from solution, rinse thoroughly in 3-5 percent solution by volume of n-butyl alcohol in water to neutralize excess etchant.

(c) Wash parts in clean water, followed with acetone wash, and dry with a clean cloth or moisture-free compressed air.

(4) Bond parts to faying surfaces per 20-50-12, Type 38, Method 1.

(5) After adhesive has cured, machine bonded parts as required to obtain dimensions shown in Fig. 401.

E. Grommet (59) – Install replacement per 20-50-09.

F. Label (60) – Install new label per 20-50-05.

G. Drum (37E) or bus (37F)

(1) Remove spacer (37B) and guide (37C) by softening adhesive with methyl ethyl ketone.

(2) Remove rivets (37G) and bus (37F) from drum (37E).

(3) Install bus (37F) in drum (37E).

NOTE: Prior to installing rivets, ensure that drum (37E) is concentric to datum -A- per Fig. 401.

(4) Install rivets (37G) per F-19.48.

(5) Install spacer (37B) and guide (37C) as follows:

(a) Clean faying surfaces with methyl ethyl ketone and dry thoroughly.

(b) Prior to bonding, surface treat teflon parts as follows:

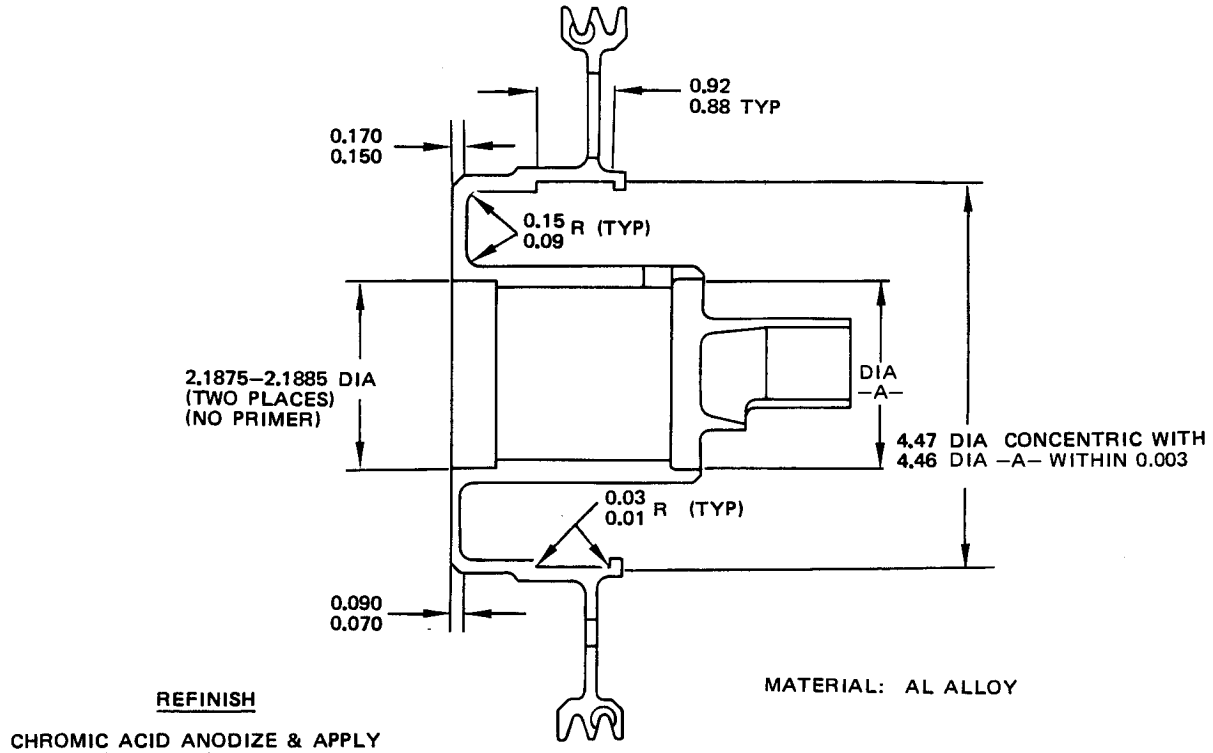
1) Immerse part in Fluorobond solution or Tetra-Etch solution 30-60 seconds. The part should attain a dark brown color within 60 seconds. If dark brown color does not appear, etchant has lost its effectiveness and part should be re-etched with new solution.

2) Immediately after removing part from solution, rinse thoroughly in 3-5 percent solution by volume of n-butyl alcohol in water to neutralize excess etchant.

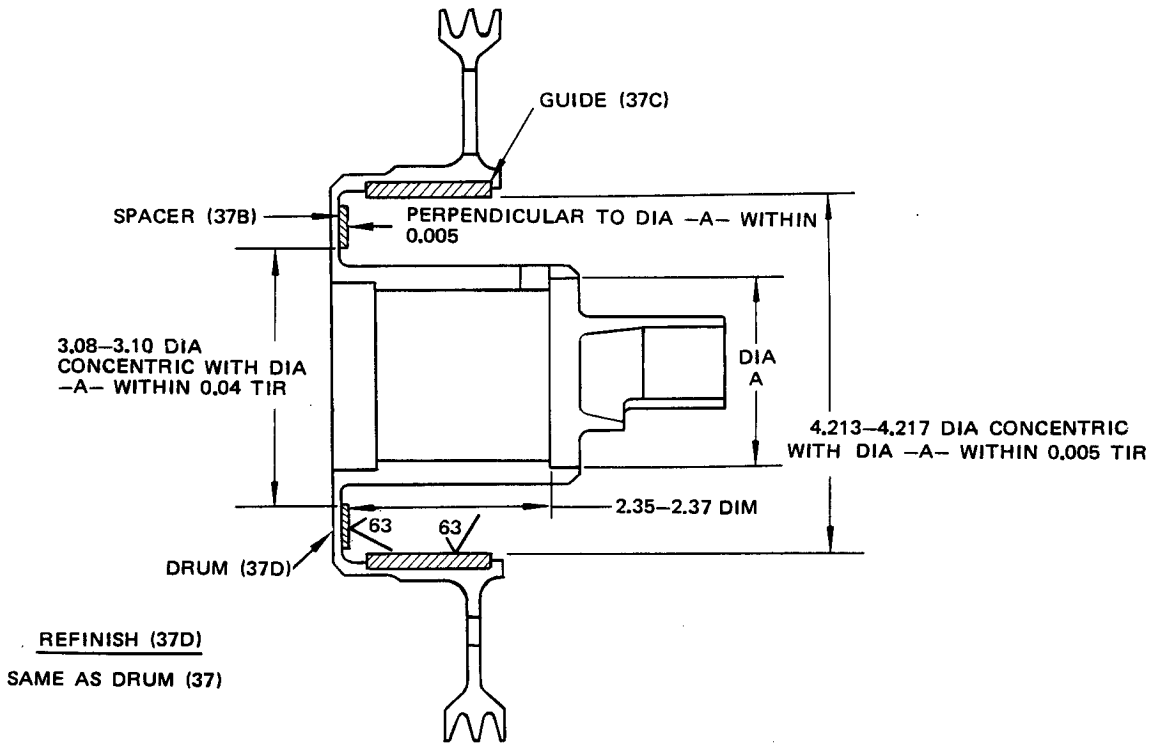
3) Wash parts in clean water, followed with acetone wash, and dry with a clean cloth or moisture-free compressed air.

(c) Bond parts to faying surfaces per 20-50-12, Type 38, Method 1.

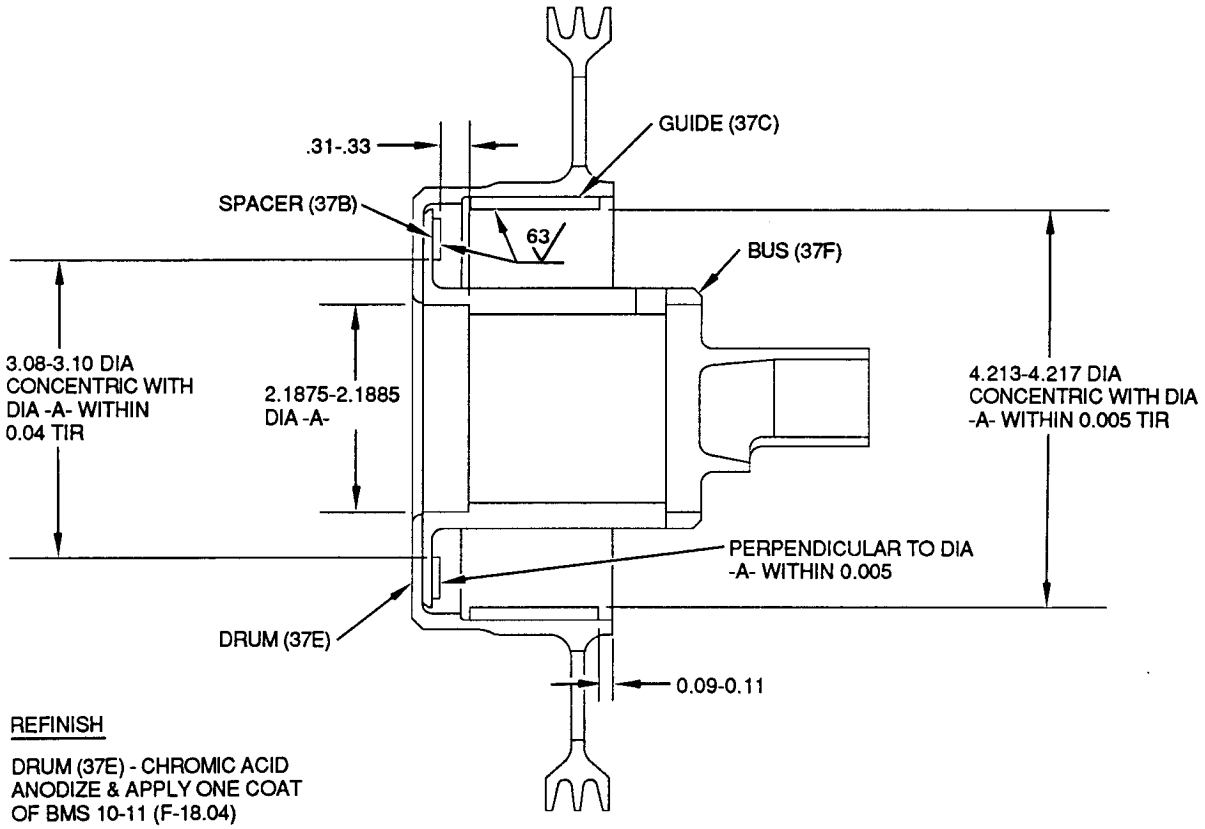
(d) After adhesive has cured, machine bonded parts as required to obtain dimensions shown in Fig. 401.



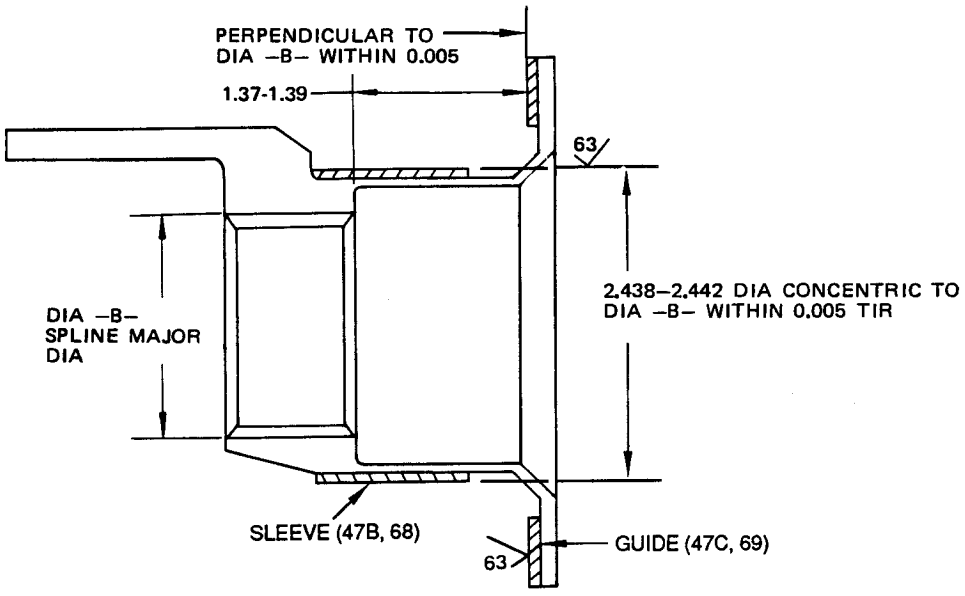
BUS DRUM (37)



BUS DRUM ASSEMBLY (37A, P/N 69-61339-1)



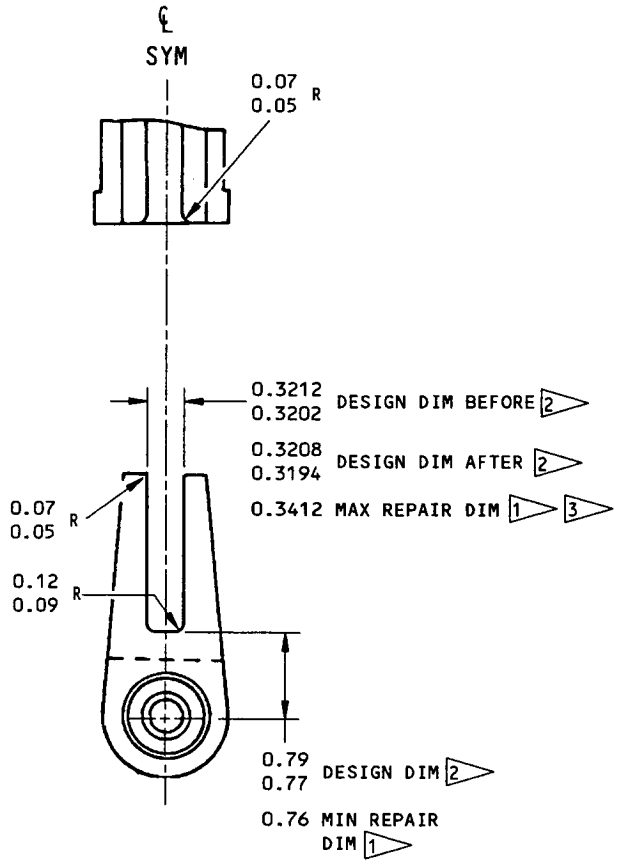
BUS DRUM ASSEMBLY (37A, 65C34862-1)



NOTE: ALL DIMENSIONS IN INCHES

RETAINER ASSEMBLY (47A, 67)

Drum and Retainer Refinish/Replacement
Figure 401 (Sheet 2)



REFINISH

CADMIUM PLATE 4 ALL SURFACES, EXCEPT INSIDE FLATS OF FORK AND BEARING SURFACES. APPLY SOLID FILM LUBRICANT PER 2 TO INSIDE OF FLATS. APPLY NO FINISH ON BEARING SURFACES.

REPAIR

DIMENSIONS NOTED BY 1 3

MATERIAL: 4620 OR 9310 CASE HARDENED STEEL (CORE STRENGTH 150-210 KSI)

1 BUILD UP WITH NICKEL PLATE (REFER TO SOPM 20-42-09) TO DESIGN DIMENSIONS SHOWN. OBSERVE 0.06 PLATING RUNOUT.

2 APPLY BMS 3-8, CLASS A, SOLID FILM LUBRICANT 0.0004 THICK (REFER TO SOPM 20-50-08).

3 0.010 MAXIMUM MATERIAL REMOVAL FROM EITHER SURFACE.

4 FOR 6-60428-1: F-1.1924
FOR 6-60428-3,-7: F-15.23

FORK (8)

Fork Repair and Refinish
Figure 402

L79079

ASSEMBLY

1. Assembly Procedure for 65-54200-4 and -5 (Fig. 501 and 1101).

   A. Assemble cartridge assembly (52) as follows:

      (1) Insert spring (56) in cartridge (54) and install shim (58) between end of spring and inner surface of cartridge.

      NOTE: Remove laminations from shim as required to center spring in cartridge. Apply BMS 10-11 , type 1 primer to shims after delamination.

      (2) Install rivets (55). Rivets must be flush with surfaces of spring and cartridge within 0.002 inch.

      (3) Lubricate bearing surface of retainer (57) with grease, MIL-L-4343, or Dow-Corning 55M lubricant.

      (4) Insert spring into cartridge (53) and install shim (58) between end of spring and inner surface of cartridge.

      NOTE: Remove laminations from shim as required to center spring in cartridge. Apply BMS 10-11, type 1 primer to shim after delamination.

      (5) Install rivets (55). Rivets must be flush with surfaces of spring and cartridge within 0.002 inch.

   WARNING: WHEN CARTRIDGE IS FULLY WOUND, SPRING EXERTS APPROXIMATELY 325 POUND-INCHES TORQUE. TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO PARTS, DO NOT ALLOW SPRING TO UNWIND WITHOUT RESTRAINT.

   B. Prewind spring cartridge assembly (52) by rotating cartridge (54) from position "A" to position "C," in direction shown in figure 501, to align hole "A" in cartridge (54) with hole "C" in cartridge (53).

      NOTE: Use holes in ends of cartridges to aid in winding spring. A spanner wrench may be utilized.

   C. Insert a 0.3125-inch diameter, 0.50-inch long bolt through rig pin holes "A" and "C" and through rig pin holes "B" and "D" and secure with nuts.

   D. Lubricate exposed surface of guide (48) with grease MIL-L-4343 or Dow-Corning 55M lubricant.

E. Install retainer (47) on upper spline of shaft (51).

NOTE: Retainer (47) and shaft (51) splines will mate in one position only.

F. Install bearings (44) and spacer (45) in spoiler drum (43).

G. Install washer (46) and spoiler drum (43) on shaft (51).

H. Install arm (42) on lower spline of shaft (51) between lugs on spoiler drum (43).

NOTE: Arm (42) and shaft (51) splines will mate in one position only.

I. Mount three cable guards (31) on housing assembly (25) with screw (30), washer (29) and nut (28).

J. Install washer (24) and housing assembly (25) on lower portion of shaft (51).

NOTE: Check that rig pin holes in housing assembly are aft, as indicated in figure 1101.

K. Install remaining washer (24) and nut (23). Tighten nut to a torque range of 300 to 400 pound-inches.

L. Insert spring cartridge assembly (52) into spoiler drum (43) with cartridge (53) inside drum and tongue of retainer (47) mating with lug on cartridge (54). Tongue of retainer should be on counterclockwise side of cartridge lug when viewed from above.

CAUTION: ASSURE THAT CARTRIDGE ASSEMBLY (52) IS PROPERLY ORIENTED AND THAT BOTTOM SURFACE OF CARTRIDGE (53) IS PROPERLY SEATED ON GUIDE (48).

M. Install guide (40) in bus drum (37) and lubricate exposed surface of guide (40) with grease, MIL-L-4343, or Dow-Corning 55M lubricant.

N. Lubricate exposed surface of spacer (41) with grease, MIL-L-4343, or Dow-Corning 55M lubricant.

O. Install spacer (39) and bearings (38) in bus drum (37) and fit bus drum into position over shaft (51) and cartridge assembly (52). (See figure 501.)

CAUTION: ASSURE THAT TONGUE ON DRUM (37) IS IN PLACE SO CONTACT WILL BE MADE WITH PROPER MATING SURFACE OF LUG ON LOWER CARTRIDGE (53) WHEN SPRING IS RELEASED LATER IN ASSEMBLY PROCEDURE. TONGUE ON DRUM (37) SHOULD BE ON THE CLOCKWISE SIDE OF LUG ON LOWER CARTRIDGE (53) WHEN VIEWED FROM ABOVE.

P. Install washer (36) and nut (35) on shaft (51). Tighten nut to torque of 10 to 20 pound-inches then tighten one quarter turn more if necessary for hole alignment. Install cotter pin (34).

Q. Install bearing (33) in bearing housing (32) and place housing over shaft assembly (49). Check that rig pin hole in bearing housing is aft, as shown in Fig. 1101.

CAUTION: INSTALL BOLT (6) WITH HEAD INBOARD TO AVOID POSSIBLE BINDING OF CONTROLS WHEN UNIT IS INSTALLED IN AIRPLANE. USE ONLY BACN10JC4 NUT (4) IN COMBINATION WITH 69-40961-1 BOLT (6). IF BACB30CW4-38 BOLT IS USED, EITHER BACN10JC4 OR BACN10HR4 NUT MAY BE USED. WASHER (5) MAY BE OMITTED TO OBTAIN NECESSARY FULL THREAD ENGAGEMENT OF NUT (4) ON BOLT (6). COMPLETE BOLT END CHAMFER MUST PROTRUDE BEYOND NUT.

R. Install bearing (10) in fork (8) and install fork assembly (7) on shaft assembly (49) using spacers (11), bolt (6), washer (5) and nut (4). Tighten nut (4) to torque of 50 to 70 pound-inches if BACN10HR4 nut is used, and to torque of 30 to 40 pound-inches if BACN10JC4 nut is used.

S. Install ribs (15, 16) and beams (17, 18) as a unit by attaching ribs (15, 16) to housings (26, 32) with eight bolts (14), washers (13) and nuts (12).

NOTE: Attach ribs (15, 16) to the forward and aft side respectively of assembly (flat mounting surfaces on beams (17, 18) facing up). Install nuts (12) on outboard side of assembly.

T. Mount cable guide (22) on rib (15) with fasteners (21, 20, 19).

U. Install cable assemblies (2, 3) in grooves in drum (37). Wipe cables with dry, lint-free cloth and apply light even coat of grease, MIL-G-25760, to entire length of cable, except clad areas. Install cotter pins (1) from groove side of drum and roll ends back in opposite directions horizontally facing drum hub.

V. Using a C clamp on bosses of cartridge assembly (52) to relieve shear load on rig pins, remove rig pins from cartridge assembly. Slowly allow spring to unwind until stops are engaged.

2. Assembly Procedures for 65-54200-6 thru -15 (Fig. 501, 1101).

A. Assemble cartridge assembly (52) and retainer assembly (47A) as follows:

(1) Install retainer assembly (47A) in lower cartridge (53) to engage diametrical fit. Retainer tongue must be in slot in cartridge. Lubricate exposed surface of guide (47C) with grease, MIL-L-4343 or Dow Corning 55 M lubricant.

(2) Insert spring (56) in cartridge (54) and install shim (58) between end of spring and inner surface of cartridge.

NOTE: Remove laminations from shims as required to center spring in cartridge. Apply BMS 10-11, type 1 primer to shim after delamination.

(3) Install rivets (55). Rivets must be flush with surfaces of spring and cartridge within 0.002 inch.

(4) Lubricate bearing surface of ring (57A) with grease, MIL-L-4343, or Dow Corning 55M lubricant.

(5) Insert spring into cartridge (53) and install shim (58) between end of spring and inner surface of cartridge.

NOTE: Remove laminations from shim as required to center spring in cartridge. Apply BMS 10-11, Type 1 primer to shim after delamination.

(6) Install rivets (55). Rivets must be flush with surfaces of spring and cartridge within 0.002 inch.

B. Prewind spring cartridge assembly (52) by rotating cartridge (54) approximately 177 degrees so that the rig pin holes in cartridge (53) are in line with opposing rig pin holes in cartridge (54). It will be necessary to separate upper and lower cartridges approximately 0.4 inch to allow tongue on retainer (47D) to pass over stop surface on upper cartridge to obtain 177-degree position when winding spring.

NOTE: Use holes in end of cartridges to aid in winding spring. A spanner wrench may be utilized.

C. Install 0.3125 diameter bolts through opposing rig pin holes and secure with nuts.

WARNING: WHEN CARTRIDGE IS FULLY WOUND, SPRING EXERTS A TORQUE OF APPROXIMATELY 325 POUND-INCHES. TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO PARTS, DO NOT ALLOW SPRING TO UNWIND WITHOUT RESTRAINT.

D. Install shaft assembly (49), bearings (38) and spacer (39) in bus drum assembly (37A). Install washer (36), nut (35), and tighten nut to torque of 10 to 20 pound-inches. If necessary for alignment of holes, tighten to 1/4 turn more. Install cotter pin (34).

E. Install preassembled cartridge assembly (52) and retainer assembly (47A) in bus drum assembly (37A). Engage shaft (51) spline with retainer spline, and upper cartridge stop with bus drum stop. Ensure that tongue on drum (37D) will contact mating surface on lower cartridge (53) when spring is released in subsequent assembly procedure. Viewed from above, tongue on drum (37D) must be on clockwise side of lug on lower cartridge (53).

F. Install cable guards (31) on housing (26) using fasteners (28, 29, 30). Install bearing (27) in housing (26).

G. Install bearings (44) and spacer (45) in spoiler drum (43) and install parts (43 thru 45) on shaft (51). Ensure that bottom surface of cartridge (53) is properly seated on guide (47C). Tongue of retainer (47D) must mate with lug on cartridge (54) and be on counterclockwise side of cartridge lug when viewed from above.

H. Engage splines and install arm (42) on shaft (51).

I. Attach preassembled parts (25 thru 31) on shaft (51) using parts (23, 24). One washer (24) must be installed on each side of bearing (27).

J. Tighten nut (23) to torque of 300 to 400 pound-inches.

K. Install bearing (33) in housing (32) and place housing over shaft assembly (49) with rig pin hole in housing (32) aft.

WARNING: INSTALL BOLT (6) WITH HEAD INBOARD TO AVOID POSSIBLE BINDING OF CONTROLS WHEN UNIT IS INSTALLED IN AIRPLANE. USE ONLY BACN10JC4 NUT (4) IN COMBINATION WITH 69-40961-1 BOLT (6). IF BACB30CW4-38 BOLT IS USED, EITHER BACN10JC4 OR BACN10HR4 NUT MAY BE USED. WASHER (5) MAY BE OMITTED TO OBTAIN NECESSARY FULL THREAD ENGAGEMENT OF NUT (4) ON BOLT (6). COMPLETE BOLT END CHAMFER MUST PROTRUDE BEYOND NUT.

L. Install bearing (10) in fork (8) and install fork assembly (7) on shaft assembly (49) using spacers (11), bolt (6), washer (5) and nut (4). Tighten nut (4) to torque of 50 to 70 pound-inches if BACN10HR4 nut is used, and to torque of 30 to 40 pound-inches if BACN10JC4 nut is used.

M. Install ribs (15, 16) and beams (17, 18) as a unit by attaching ribs (15, 16) to housings (26, 32) with bolts (14), washers (13) and nuts (12). Attach ribs (15, 16) to the forward and aft side respectively on assembly with flat mounting surfaces on beams (17, 18) facing up. Install nuts (12) on outboard side of assembly.

N. Mount cable guide (22) on rib (15) with attaching parts (19 thru 21).

O. Install cable assemblies (2, 3) in lower and upper grooves of drum (37 or 37A). Install cotter pins (1) from groove side of drum and roll ends back in opposite directions horizontally facing drum hub.

P. Wipe cables with dry, lint-free cloth and apply light coat of grease, MIL-G-25760, to entire length of cable, except clad areas.

Q. Secure assembly to bench by beams (17, 18), and rotate bus drum assembly (47A) clockwise against external stop. Apply sufficient torque to bus drum in clockwise direction to unload and remove bolts from rig pin holes in cartridge assembly (52). Release torque.

3. Assembly Procedures for 65-54200-16 (Fig. 501, 1101).

A. Assemble cartridge assembly (52) and shaft-retainer assembly (63) as follows:

(1) Install shaft-retainer assembly (63) in lower cartridge (53) to engage diametrical fit. Retainer tongue must be in slot in cartridge. Lubricate exposed surface of guide (69) with grease, MIL-L-4343 or Dow Corning 55 M lubricant.

(2) Insert spring (56) in cartridge (54) and install shim (58) between end of spring and inner surface of cartridge.

NOTE: Remove laminations from shims as required to center spring in cartridge. Apply BMS 10-11, type 1 primer to shim after delamination.

(3) Install rivets (55). Rivets must be flush with surfaces of spring and cartridge within 0.002 inch.

(4) Lubricate bearing surface of ring (57A) with grease, MIL-L-4343, or Dow Corning 55M lubricant.

(5) Insert spring into cartridge (53) and install shim (58) between end of spring and inner surface of cartridge.

NOTE: Remove laminations from shim as required to center spring in cartridge. Apply BMS 10-11, Type 1 primer to shim after delamination.

(6) Install rivets (55). Rivets must be flush with surfaces of spring and cartridge within 0.002 inch.

B. Prewind spring cartridge assembly (52) by rotating cartridge (54) approximately 177 degrees so that the rig pin holes in cartridge (53) are in line with opposing rig pin holes in cartridge (54). It will be necessary to separate upper and lower cartridges approximately 0.4 inch to allow tongue on retainer (70) to pass over stop surface on upper cartridge to obtain 177-degree position when winding spring.

NOTE: Use holes in end of cartridges to aid in winding spring. A spanner wrench may be utilized.

C. Install 0.3125 diameter bolts through opposing rig pin holes and secure with nuts.

WARNING: WHEN CARTRIDGE IS FULLY WOUND, SPRING EXERTS A TORQUE OF APPROXIMATELY 325 POUND-INCHES. TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO PARTS, DO NOT ALLOW SPRING TO UNWIND WITHOUT RESTRAINT.

D. Install bearings (38) and spacer (39) in bus drum assembly (37A).

E. Install preassembled cartridge assembly (52) and shaft-retainer assembly (63) in bus drum assembly (37A). Engage upper cartridge stop with bus drum stop. Ensure that tongue on drum (37D) or bus (37F) will contact mating surface on lower cartridge (53) when spring is released in subsequent assembly procedure. Viewed from above, tongue on drum (37D) or bus (37F) must be on clockwise side of lug on lower cartridge (53). Install washer (36), nut (35), and tighten nut to torque of 10 to 20 pound-inches. If necessary for alignment holes, tighten to 1/4 turn more. Install cotter pin (34).

F. Install cable guards (31) on housing (26) using fasteners (28, 29, 30). Install bearing (27) in housing (26).

G. Install bearings (44) and spacer (45) in spoiler drum (43) and install parts (43 thru 45) on shaft (66). Ensure that bottom surface of cartridge (53) is properly seated on guide (69). Tongue of retainer (70) must mate with lug on cartridge (54) and be on counterclockwise side of cartridge lug when viewed from above.

H. Engage splines and install arm (42) on shaft (66).

I. Attach preassembled parts (25 thru 31) on shaft (66) using parts (23, 24). One washer (24) must be installed on each side of bearing (27).

J. Tighten nut (23) to torque of 300 to 400 pound-inches.

K. Install bearing (33) in housing (32) and place housing over shaft assembly (49) with rig pin hole in housing (32) aft.

WARNING: INSTALL BOLT (6) WITH HEAD INBOARD TO AVOID POSSIBLE BINDING OF CONTROLS WHEN UNIT IS INSTALLED IN AIRPLANE. USE ONLY BACN10JC4 NUT (4) IN COMBINATION WITH 69-40961-1 BOLT (6). IF BACB30CW4-38 BOLT IS USED, EITHER BACN10JC4 OR BACN10HR4 NUT MAY BE USED. WASHER (5) MAY BE OMITTED TO OBTAIN NECESSARY FULL THREAD ENGAGEMENT OF NUT (4) ON BOLT (6). COMPLETE BOLT END CHAMFER MUST PROTRUDE BEYOND NUT.

L. Install bearing (10) in fork (8) and install fork assembly (7) on shaft (66) using spacers (11), bolt (6), washer (5) and nut (4). Tighten nut (4) to torque of 50 to 70 pound-inches if BACN10HR4 nut is used, and to torque of 30 to 40 pound-inches if BACN10JC4 nut is used.

M. Install ribs (15, 16) and beams (17, 18) as a unit by attaching ribs (15, 16) to housings (26, 32) with bolts (14), washers (13) and nuts (12). Attach ribs (15, 16) to the forward and aft side respectively on assembly with flat mounting surfaces on beams (17, 18) facing up. Install nuts (12) on outboard side of assembly.

N. Mount cable guide (22) on rib (15) with attaching parts (19 thru 21).

O. Install cable assemblies (2, 3) in lower and upper grooves of drum (37A). Install cotter pins (1) from groove side of drum and roll ends back in opposite directions horizontally facing drum hub.

P. Wipe cables with dry, lint-free cloth and apply light coat of grease, MIL-G-25760, to entire length of cable, except clad areas.

Q. Secure assembly to bench by beams (17, 18), and rotate bus drum assembly (47A) clockwise against external stop. Apply sufficient torque to bus drum in clockwise direction to unload and remove bolts from rig pin holes in cartridge assembly (52). Release torque.

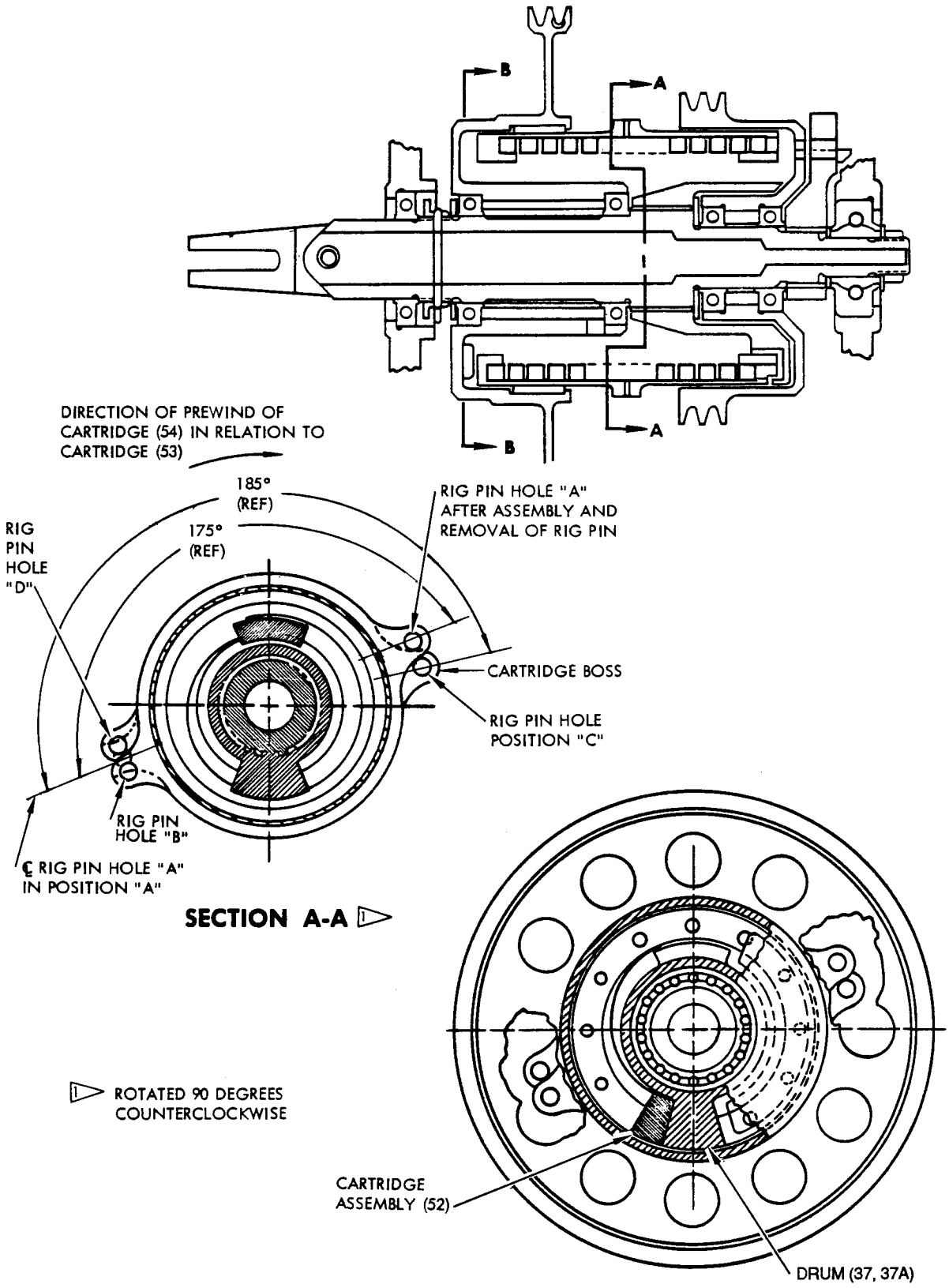
4. Materials

A. Primer -- BMS 10-11, Type 1

B. Lubricant -- MIL-L-4343

C. Lubricant -- Dow Corning 55M, Dow Corning Corporation, South Saginaw Road, Midland, Michigan 48641

D. Grease -- MIL-G-25760

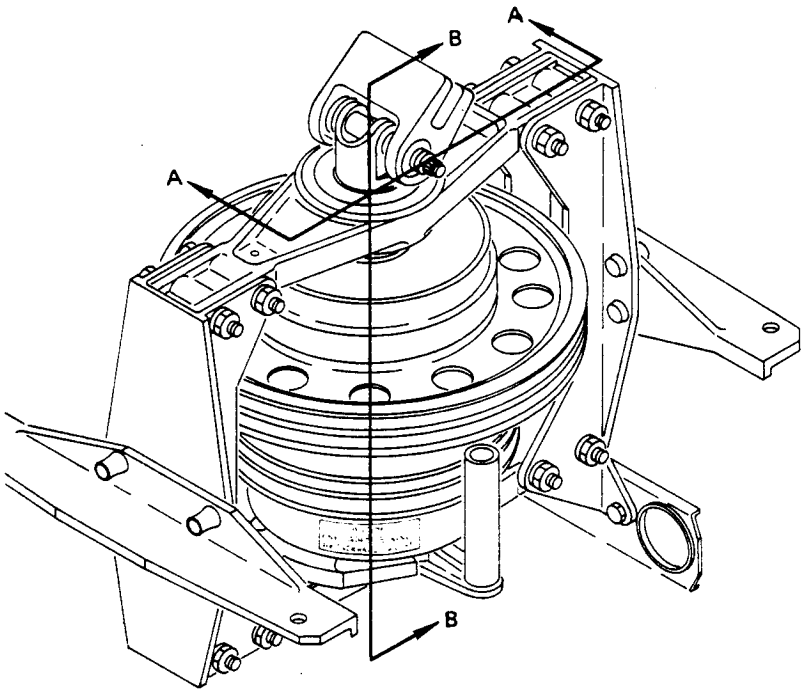


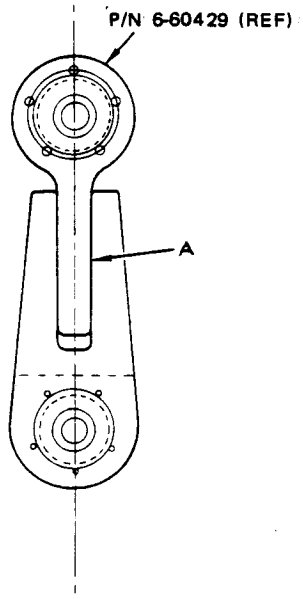
Assembly Details
Figure 501

FITS AND CLEARANCES

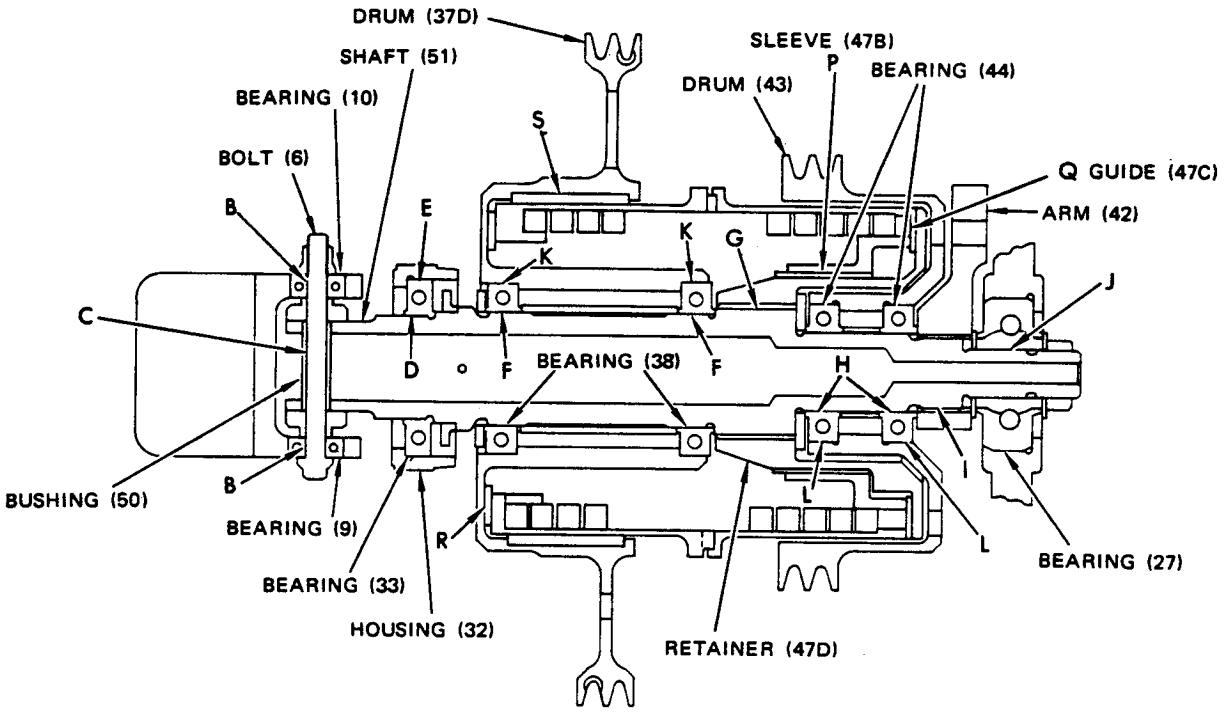
1. The "Fits and Clearances" table, figure 601, lists original design dimensions and service wear limits for certain close tolerance parts of the assembly. The original design dimensions are to be used as a guide for rework of parts which fail to meet the wear tolerance requirements. Unless otherwise specified in the rework procedure, a part should be returned to the design dimensions whenever rework is accomplished.

2. Clearances are given to aid assembly of the component. The value given in the "Maximum Allowable Clearance" column is the maximum permitted to ensure proper functioning until the next overhaul cycle of the component. If assembled parts fail to meet these requirements, 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 whenever newly reworked parts are assembled, the design clearances be used as the guiding assembly criteria.

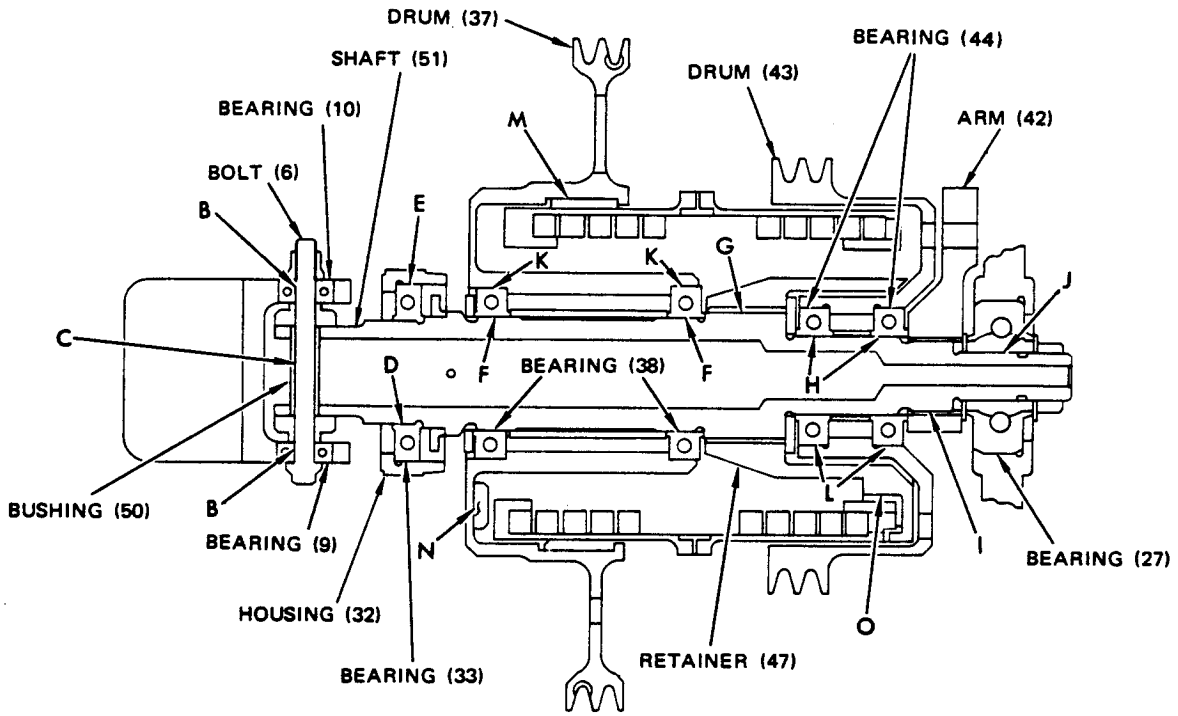




SECTION A–A



65–54200–6 AND ON
SECTION B–B



65–54200–4, –5
SECTION B–B

Fits and Clearances
Figure 601 (Sheet 2)

Ref Letter Fig.601	Mating Item No. Fig.1101		Design Dimensions				Service Wear Limits		
			Dimensions (inches)		Assembly Clearance (inch)		Dimension Limits (inches)		Maximum Allowable Clearance (inch)
			Min	Max	Min	Max	Min	Max	
A	ID	8	0.3194	0.3208	0.001	0.0024		0.3249	0.0060
	OD	*[1]	0.3184	0.3193			0.3160		
B	ID	9,10	0.2495	0.2500	0.0000	0.0015		0.2500 *[2]	0.0021
	OD	6	0.2485	0.2495			0.2479		
C	ID	50	0.2500	0.2515	0.0005	0.0030		0.2515	0.0036
	OD	6	0.2485	0.2495			0.2479		
D	ID	33	1.3120	1.3130	0.0000	0.0020		1.3130 *[2]	0.0020
	OD	51	1.3110	1.3120			1.3110		
E	ID	32	2.2500	2.2510	0.0000	0.0011		2.2510	0.0011
	OD	33	2.2499	2.2500			2.2499 *[2]		
F	ID	38	1.4370	1.4380	0.0000	0.0020		1.4380 *[2]	0.0020
	OD	51	1.4360	1.4370			1.4360		
G	ID	47,47D							0.5° *[5]
	OD	51							
H	ID	44	0.9990	1.0000	-0.0007	0.0008		1.0000 *[2]	0.0008
	OD	51	0.9992	0.9997			0.9992		
I	ID	42							0.5° *[5]
	OD	51							

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 (inch)
J	ID	27	0.6245	0.6250	-0.0003	0.0007		0.6250 *[2]	0.0007
	OD	51	0.6243	0.6248			0.6243		
K	ID	37,37D	2.1875	2.1885	0.0000	0.0020		2.1885	0.0020
	OD	38	2.1865	2.1875			2.1865 *[2]		
L	ID	43	1.7500	1.7510	0.0000	0.0020		1.7510	0.0020
	OD	44	1.7490	1.7500			1.7490 *[2]		
M		40							0.150 *[3]
N		41							0.150 *[3]
O		48							*[4]
P	OD	47B	2.438	2.442			2.400		
Q		47C							0.05 *[3]
R		37B							0.03 *[3]
S	ID	37C	4.213	4.217				4.270	

*[1] Part Number 6-60429-1 (Reference)
*[2] Maximum allowable radial play of bearing 0.002 inch
*[3] Minimum allowable thickness
*[4] 3.15 minimum OD; 0.06 inch minimum flange thickness
*[5] Spline backlash

TESTING

1. Procedures

A. Test Equipment

(1) Test bench assembly F80220-1 for holding transfer mechanism assembly rigid with shaft (51) vertical. Mounting holes in forward and aft beams (17, 18) to hold assembly to test rig (Fig. 702).

(2) A 5/16-inch rig pin or bolt 1.250 inches long

(3) A 5/16-inch rig pin or bolt 3.375 inches long

(4) Two MS21251B5S turnbuckles

(5) Spring scale capable of accurate measurement of 0-250 lb of tension, or torque wrench with range of 0-1000 lb-in.

B. Preparation for Test

(1) Securely mount transfer mechanism assembly vertically in test bench assembly.

C. Functional Test Procedure (Fig. 1101)

CAUTION: PERFORM ALL STEPS SLOWLY AND CAREFULLY. RAPID RELEASE OF SPRING LOAD MAY DAMAGE COMPONENTS OF THE ASSEMBLY.

NOTE: If a spring scale is used to apply rotational forces during bus drum torque tests, attach spring scale to one cable (2 or 3) and perform all tests requiring rotation in one direction; then attach scale to other cable (2 or 3) and repeat tests in opposite direction.

(1) Shaft torque test (65-54200-4, -5 assemblies)

CAUTION: RESTRAIN PIN OR BOLT TO PREVENT DRUM MOVEMENT. DO NOT USE PIN OR BOLT LONGER THAN 3.375 INCHES OR PROTRUSION WILL CONTACT CARTRIDGE AND DAMAGE PARTS.

(a) Insert 5/16-inch diameter by 3.375-inch long pin or bolt through rig pin holes in housing (32) and drum (37).

(b) Check that pins or bolts locking spring cartridges (53, 54) together are removed.

(c) Apply torque to shaft (51) and rotate shaft gradually to 87 degrees from starting point in both clockwise and counterclockwise directions.

(d) Check that torque values at spring breakout are 256-410 lb-in. and do not exceed 660 lb-in at the 87-degree position.

(e) Repeat steps (1)(c), (1)(d) six times. During cycling, check that there is no interference or binding.

(f) Rotate shaft 90 degrees clockwise and return to null position. Note radial position of shaft for index reference.

(g) Rotate shaft 90 degrees counterclockwise and return to null position. Check that the null shift does not exceed 1 degree, and that orientation of slot centerline is as shown in Fig. 701.

(2) Shaft torque test (assemblies 65-54200-6, and on)

(a) Perform previous steps (1)(a), (1)(b).

(b) Apply torque to shaft (51) and rotate shaft gradually to 75 degrees from starting point in both clockwise and counterclockwise directions.

(c) Check that torque values at spring breakout are 256-410 lb-in. and do not exceed 618 lb-in. at the 75-degree position.

(d) Repeat steps (2)(b), (2)(c) six times. During cycling, check that there is no interference or binding.

(e) Following test, check that orientation of slot centerline in fork (8) is as shown in Fig. 701.

(3) Bus drum torque test (assemblies 65-54200-4, -5)

(a) Unlock drum (37) by removing locking device.

CAUTION: DO NOT USE PIN OR BOLT LONGER THAN 1.250 INCHES OR DAMAGE TO PARTS WILL OCCUR.

(b) Insert 5/16-inch diameter by 1.250-inch long pin or bolt through rig pin holes in housing (26), arm (42), and hole in bottom of drum (43). Restrain pin or bolt in position with tape.

(c) Thread turnbuckles (MS21251B5S) on cables (2, 3).

(d) Attach spring scale to turnbuckle on cable assembly (2).

NOTE: Omit spring scale if test fixture provides for use of torque wrench as shown in Fig. 702.

(e) Apply tension to spring scale or torque to auxiliary shaft on fixture if used (Fig. 702). Check that breakout torque is 256-410 lb-in. (64.5-103.0-lb cable tension). Increase forcegradually until bus drum (37) rotates 87 degrees from starting position. Check that torque does not exceed 660 lb-in. (166-lb cable tension). During test, check that there is no interference of end of rig pin or bolt with parts.

(f) Repeat step (3)(e) six times.

(g) If spring scale is used, remove scale from cable (2) and install scale on cable (3).

(h) Perform test in step (3)(e).

(i) Repeat step (3)(e) six times.

(j) If spring scale is used, remove scale from cable (3).

(k) Deleted.

(4) Bus drum torque, null shift, travel tests (assemblies 65-54200-6 and on)

(a) Perform previous steps (3)(a), (3)(b), (3)(c), (3)(d).

(b) Apply tension to spring scale, or torque to auxiliary shaft on fixture if used. Check that breakout torque is 256-410 lb-in. (64.5-103.5-lb cable tension). Increase force gradually until bus drum (37A) rotates 75 degrees from starting position. Check that torque does not exceed 618 lb-in. (156-lb cable tension).

(c) Increase force until drum rotates through 130 degrees from starting position and check that torque does not exceed 770 lb-in. (194-lb cable tension). During test, check that there is no interference between end of rig pin or bolt with parts.

(d) Repeat steps (4)(b), (4)(c) minimum of five times.

(e) Rotate bus drum (37A) clockwise through total travel to internal stop. Check that total travel from starting position is minimum of 138 degrees.

(f) Return bus drum (37A) to neutral position. Note radial location of free drum relative to rib (15).

(g) Repeat step (4)(e) except in counterclockwise direction.

(h) Return bus drum to neutral position. Check that null shift from position noted in step (4)(f) does not exceed 1 degree, and that free play of bus drum (at neutral position) does not exceed 1 degree.

(i) If spring scale is used, remove scale from cable (2) and install scale on cable (3).

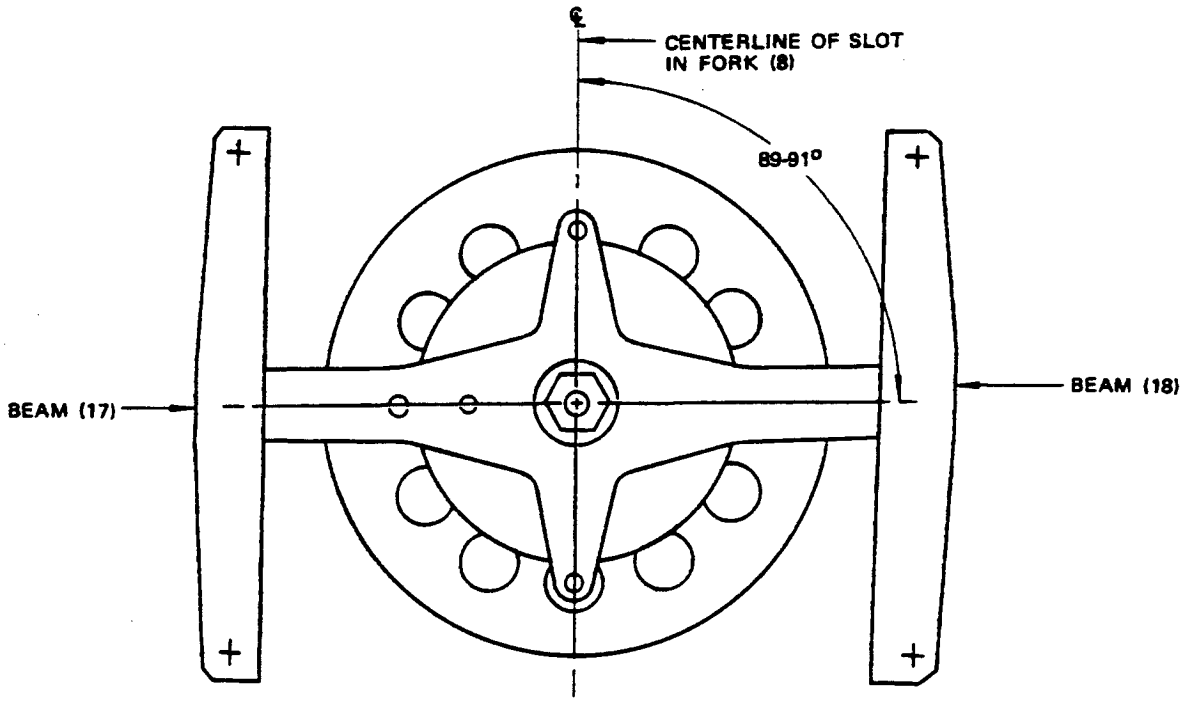
(j) Perform steps (4)(b), (4)(c).

(k) Repeat steps (4)(b), (4)(c) minimum of five times.

(5) Spoiler drum free travel test (all assemblies)

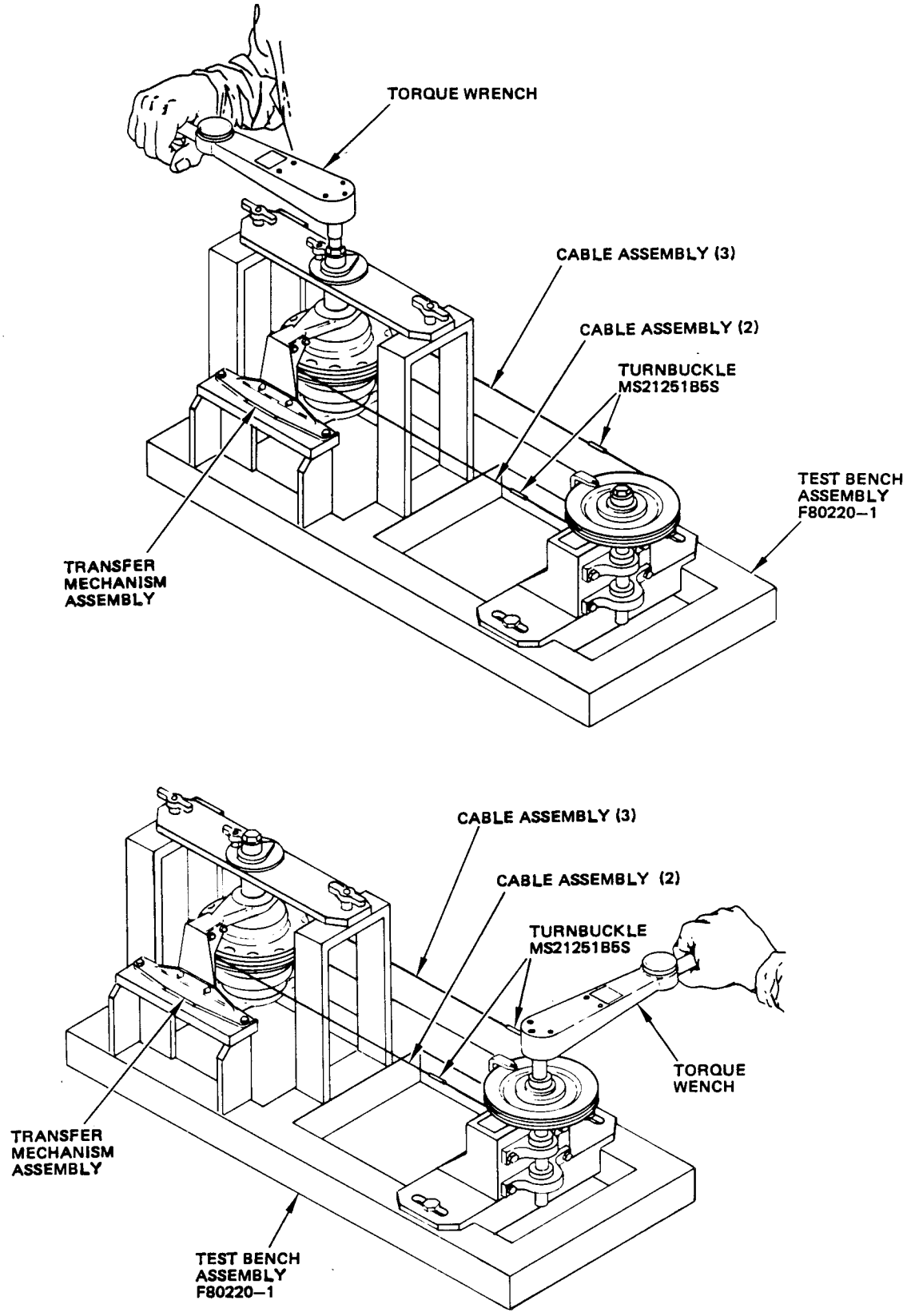
(a) Hold fork (8), rotate spoiler drum (43) in clockwise and counterclockwise directions through 11-13 degree travel range from neutral position to each stop. Check that drum rotates freely with no binding or rubbing.

(b) Remove turnbuckles, rig pins, and remove assembly from fixture.



BOTTOM VIEW

Test Diagram
Figure 701



Transfer Mechanism Functional Test
Figure 702

TROUBLE SHOOTING

1. Trouble shooting is keyed to individual steps of the test procedure. Referenced paragraphs show test procedure step in which the noted trouble would appear. See figure 1101 for referenced index numbers.

	Trouble	Possible Cause	Correction
A.	Shaft (51) will not rotate, has erratic movement or requires excessive torque, paragraph C.(1)(d) and (e), C.(2)(c) and (d)	Incorrect assembly Defective bearings Defective spring Nut (23 or 35) over-tightened	Disassemble and assemble correctly Replace bearings Replace spring Retighten nut
B.	Interference as bus drum is rotated counterclockwise paragraph C.(3)(e) or C.(4)(b)	Rig pin inserted too far into spoiler drum (43)	Remove rig pin and reinstall
C.	Breakout out torque or maximum torque not within specified range, paragraph C.(3)(e) and (i), C.(4)(d) and (k)	Defective spring	Replace spring
D.	Bus drum (37) movement indicates interference or binding, paragraph C.(3)(f) and (j), C.(4)(d) and (k)	Incorrect assembly Defective bearings Nut (23 or 35) over-tightened	Disassemble and assemble correctly Replace bearings Retighten nut

STORAGE INSTRUCTIONS

1. Wrap assembly in vapor barrier paper and seal securely. Tag or mark assembly with test date and store.

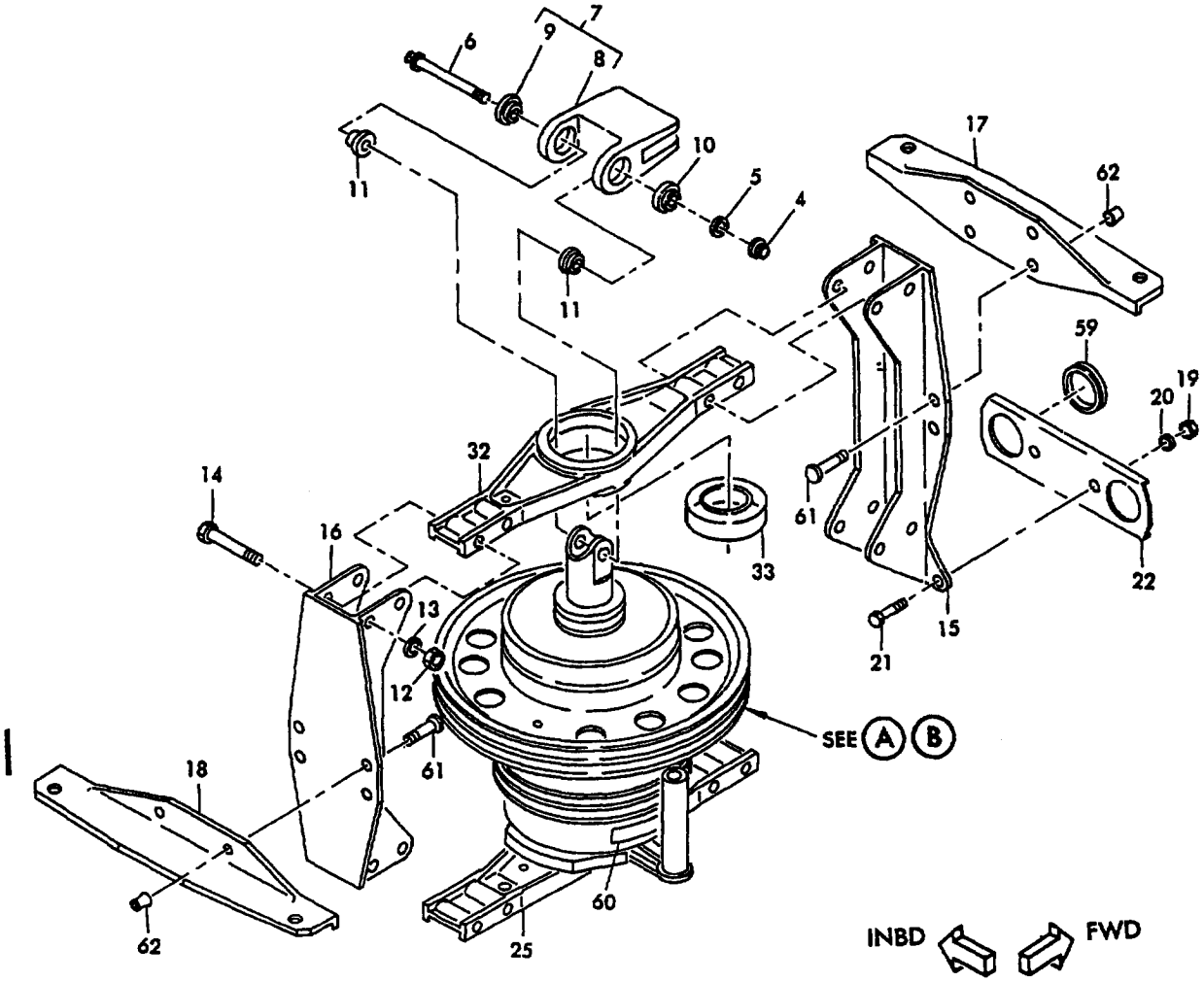
2. For further information, refer to Subject 20-44-02, "Temporary Protective Coatings."

SPECIAL TOOLS, FIXTURES AND EQUIPMENT

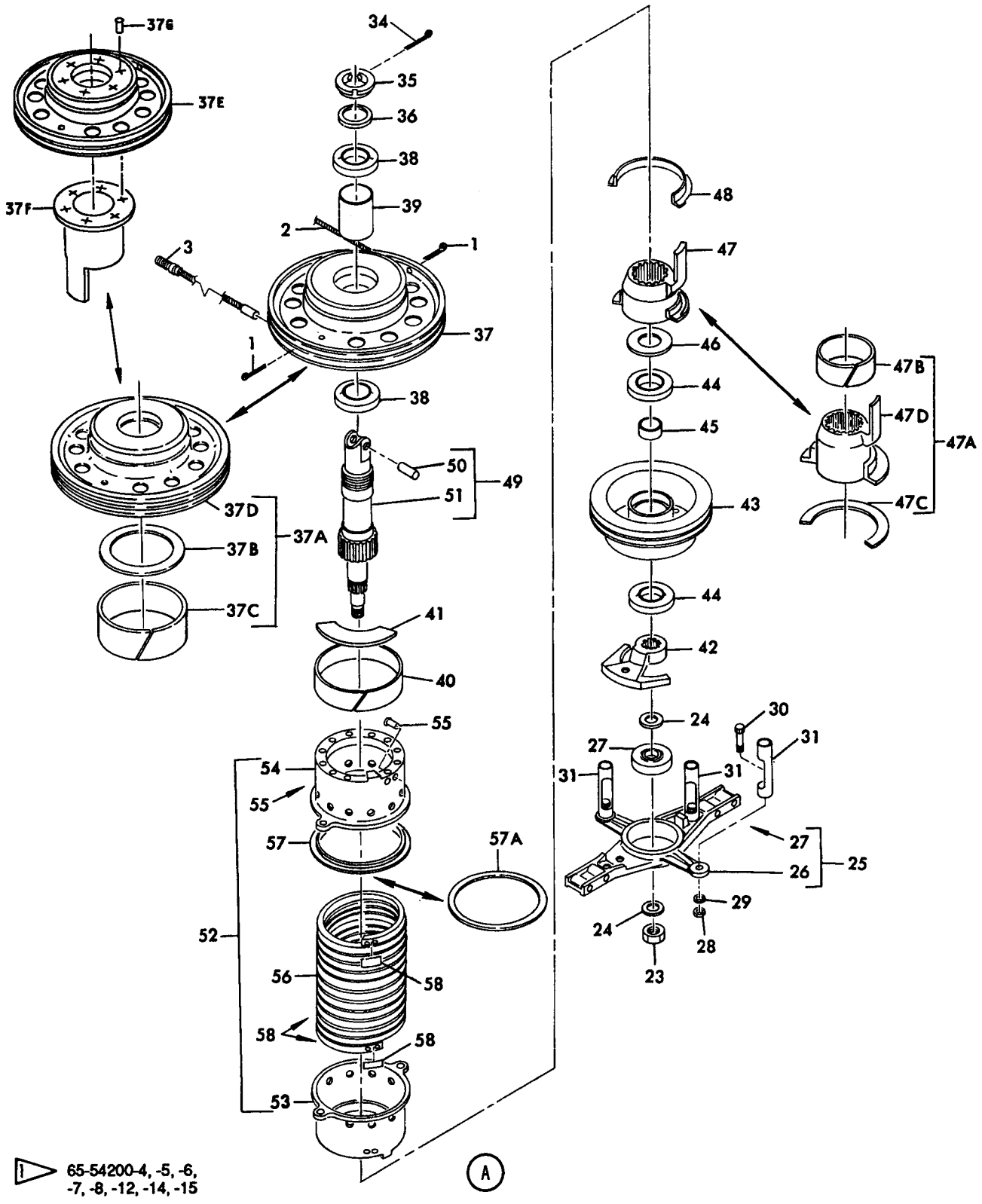
1. "C" clamp capable of aligning holes in cartridges (53 and 54) for purpose of inserting rig pin or bolt.

NOTE: For special tools required for test, refer to "Testing."

ILLUSTRATED PARTS LIST

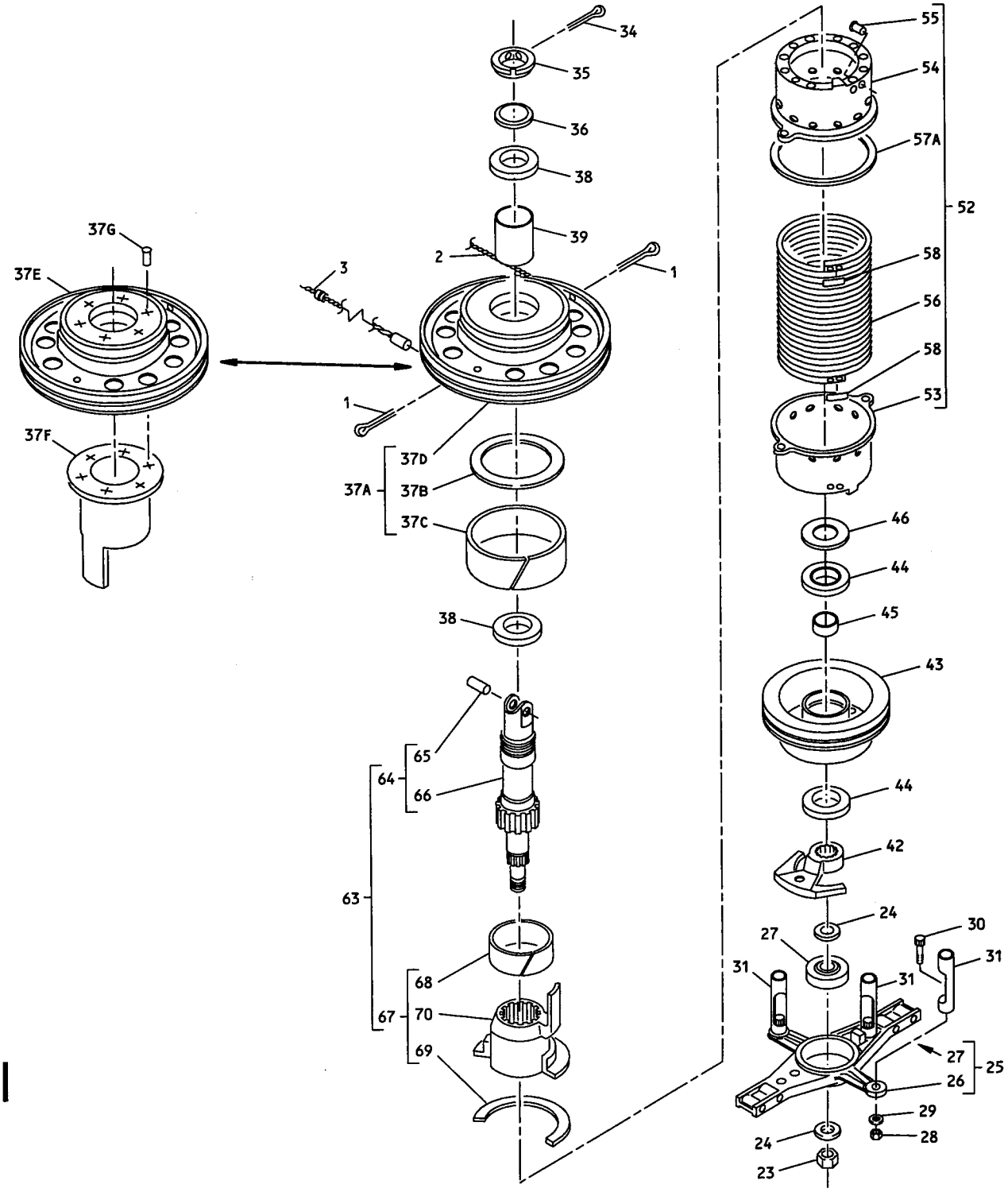


Aileron Control Transfer Mechanism Assembly
Figure 1101 (Sheet 1)



1 65-54200-4, -5, -6, -7, -8, -12, -14, -15

Aileron Control Transfer Mechanism Assembly
Figure 1101 (Sheet 2)



65-54200-16 ONLY

(B)

Aileron Control Transfer Mechanism Assembly
Figure 1101 (Sheet 3)

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
	65-54200-4		TRANSFER MECH ASSY, AIL CONTROL (PRE SB 27-1033)	A	RF
	65-54200-5		TRANSFER MECH ASSY, AIL CONTROL (PRE SB 27-1033)	B	RF
	65-54200-6		TRANSFER MECH ASSY, AIL CONTROL (POST SB 27-1033)	C	RF
	65-54200-7		TRANSFER MECH ASSY, AIL CONTROL	D	RF
	65-54200-8		TRANSFER MECH ASSY, AIL CONTROL	E	RF
	65-54200-12		TRANSFER MECH ASSY, AIL CONTROL	F	RF
	65-54200-14		TRANSFER MECH ASSY, AIL CONTROL	G	RF
	65-54200-15		TRANSFER MECH ASSY, AIL CONTROL	H	RF
	65-54200-16		TRANSFER MECH ASSY, AIL CONTROL	J	RF
1	MS24665-132		. PIN, COTTER		2
2	BACC13AP4C321		. CABLE ASSY	A-D	1
2	BACC2A4B00321 DG		. CABLE ASSY	E-J	1
3	BACC13AP4B321		. CABLE ASSY	A-D	1
3	BACC2A4B00321 CG		. CABLE ASSY	E-J	1
4	BACN10HR4		. NUT (REPLS BACN10CT4)	A	1
4	BACN10JC4		. NUT (POST SB 27-1061)	B-J	1
5	AN960PD416		. WASHER		1
6	BACB30CW4-38		. BOLT	A	1
6	69-40961-1		. BOLT	B-G	1
6	69-40961-2		. BOLT	HJ	1
7	6-60428		. FORK ASSY	A-D	1
7	6-60428		. FORK ASSY (PRE SB 27-1209)	E-F	1
7	6-60428-2		. FORK ASSY (PRE SB 27-1209)	G-J	1
7	6-60428-6		. FORK (POST SB 27-1209)	E-J	1
8	6-60428-1		. . FORK (USED ON 6-60428)		1
8	6-60428-3		. . FORK (USED ON 6-60428-2)		1
8	6-60428-7		. . FORK (USED ON 6-60428-6)		1
9	BACB10BX4		. BEARING (REPLS BACB10A661)		1
10	BACB10BX4		. BEARING (REPLS BACB10A661)		1
11	66-24952-1		. SPACER		2
12	BACN10JC4		. NUT (REPLS NAS679A4W)		8
13	AN960PD416		. WASHER		8
14	NAS1104-23		. BOLT		8
15	69-41858-1		. RIB, FORWARD		1
16	69-41859-1		. RIB, AFT		1
17	69-41771-1		. BEAM, FORWARD		1
18	69-41772-1		. BEAM, AFT		1
19	BACN10JC3		. NUT (REPLS NAS679A3W)		2
20	AN960PD10L		. WASHER		2
21	NAS1103-4		. BOLT		2

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
22	69-41789-1		. GUIDE, CABLE		1
23	F52NTE-098		. NUT, V72962	C-J	1
23	BACN10JC9		. NUT (OPT)	C-J	1
23	BACN10JC9		. NUT (REPLS BACN10BY59)	AB	1
24	AN960-1016		. WASHER		2
25	65-55476-1		. HOUSING ASSY (PRE SB 27A1238) *[1]	A-C	1
25	65-55476-9		. HOUSING ASSY (PRE SB 27A1238) *[1]	DE	1
25	65-55476-11		. HOUSING ASSY (POST SB 27A1238)	A-E	1
25	65-55476-16		. HOUSING ASSY (OPT) (POST SB 27A1238)	A-E	1
25	65-55476-11		. HOUSING ASSY	F-J	1
26	65-55476-3		. . HOUSING (USED ON 65-55476-1)		1
26	65-55476-10		. . HOUSING (USED ON 65-55476-9)		1
26	65-55476-3		. HOUSING *[2] (USED ON 65-55476-16)		
26	65-55476-10		. HOUSING *[2] (OPT) (USED ON 65-55476-16)		
26	65-55476-12		. . HOUSING (USED ON 65-55476-11)		1
27	BACB10AC10		. . BEARING (USED ON 65-55476-1,-9,-16)		1
27	MS27645-10G		. . BEARING (USED ON 65-55476-11)		1
28	BACN10JC3		. NUT (REPLS NAS679A3W)		3
29	AN960PD10L		. WASHER		3
30	MS16998-28		. SCREW		3
31	69-41762-1		. GUARD		3
32	65-55476-4		. HOUSING	A-C	1
32	65-55476-7		. HOUSING	D-J	1
33	BACB10A235		. BEARING		1
34	MS24665-291		. PIN, COTTER		1
35	66-24942-1		. NUT		1
36	69-40832-1		. WASHER		1
37	65-54205-3		. DRUM, BUS	A	1
37	65-54205-4		. DRUM, BUS	B	1
37	65-54205-3		. DRUM, BUS (OPT)	B	1
37A	65-61339-1		. DRUM ASSY, BUS	C-J	1
37A	66C34862-1		. DRUM ASSY, BUS (OPT)	HJ	1
37B	69-40897-3		. . SPACER, SWIVEL		1
37C	66-24944-2		. . GUIDE		1
37D	65-54205-5		. . DRUM, BUS (USED ON 69-61339-1)		1
37E	65C34864-1		. . DRUM (USED ON 65C34862-1)		1
37F	65C34863-1		. . BUS (USED ON 65C34862-1)		1
37G	BACR15CE6D		. . RIVET (USED ON 65C34862-1)		6
38	BACB10BW23		. BEARING (REPLS BACB10A823)		2
39	66-24781-1		. SPACER		1
40	66-24944-1		. GUIDE, CARTRIDGE	AB	1
41	69-40897-1		. SPACER	AB	1
42	69-38265-4		. ARM		1
43	65-54207-2		. DRUM, SPOILER		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
44	BACB10BW16		. BEARING (REPLS BACB10A821)		2
45	66-24782-1		. SPACER		1
46	69-40832-5		. WASHER	AB	1
46	69-40832-6		. WASHER	C-J	1
47	65-54211-2		. RETAINER	AB	1
47A	69-61336-4		. RETAINER ASSY	C-H	1
47A	69-61336-1		. RETAINER ASSY (OPT)	C-H	1
47B	69-61336-2		. . SLEEVE	C-H	1
47C	69-61336-3		. . GUIDE (USED ON 69-61336-1)		1
47C	69-61336-5		. . GUIDE (USED ON 69-61336-4)		1
47D	65-54211-3		. . RETAINER (USED ON 69-61336-1)		1
47D	65-54211-4		. . RETAINER (USED ON 69-61336-4)		1
48	66-24966-1		. GUIDE, CARTRIDGE SPRING	AB	1
49	65-54206-5		. SHAFT ASSY	A-H	1
50	NAS75-4-105		. . BUSHING		1
51	65-54206-6		. . SHAFT		1
52	69-40831-5		. CARTRIDGE ASSY (PRE SB 27-1033)	AB	1
52	69-61352-1		. CARTRIDGE ASSY (POST SB 27-1033)	C-J	1
53	65-54202-9		. . CARTRIDGE	AB	1
53	65-78916-1		. . CARTRIDGE	C-J	1
54	65-54202-8		. . CARTRIDGE	AB	1
54	65-54202-10		. . CARTRIDGE	C-J	1
55	BACR15BA4D		. . RIVET (REPLS MS20426D4)		4
56	69-38266-2		. . SPRING	AB	1
56	69-38266-3		. . SPRING	C-J	1
56	69-38266-4		. . SPRING (OPT)	C-J	1
57	69-40940-1		. . RETAINER	AB	1
57A	69-61353-1		. . RING	C-J	1
58	BACS40C5-16		. . SHIM (OPT)		2
58	BACS40B5-16		. . SHIM (OPT)		2
59	NAS1368N16A		. GROMMET		2
60	BACM10S28M		. LABEL		2
61	BACB30DX6-4		. LOCKBOLT		8
62	BACC30M6		DELETED		
62	NAS1080-6		. COLLAR		8
63	69-78361-1		. SHAFT - RETAINER ASSY	J	1
64	65-54206-5		. . SHAFT ASSY		1
65	NAS75-4-105		. . . BUSHING		1
66	65-54206-6		. . . SHAFT		1
67	69-61336-4		. . RETAINER ASSY		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
68	69-61336-2		. . . SLEEVE		1
69	69-61336-5		. . . GUIDE		1
70	65-54211-4		. . . RETAINER		1

*[1] Removed from service by SB 27A1238, use post SB 27A1238 housing assemblies 65-55473-11 or -16.
*[2] Housing 65-55476-3, -10 reworked by SB 27A1238.

VENDORS

V72962 ELASTIC STOP NUT, DIV. OF AMERACE ESNA CORP., 2330 VAUXHALL RD., UNION, NEW JERSEY 07083