TO: ALL HOLDERS OF TRAILING EDGE FLAP DRIVE TRANSMISSION ASSEMBLIES NO. 4 AND 5 OVERHAUL MANUAL, 27-55-58

REVISION NO. 41, DATED NOV 1/07

HIGHLIGHTS

DESCRIPTION OF CHANGE	TOPICS AFFECTED												
	D&O	D/Assy	Cleaning	Insp/Chk	Repair	Assy	F/C	Test	T/Shooting	S/Tools	Storage	IPL	L/Overhaul
Revised item (117) part number from KD050CPO to KD050CP0												X	

TRAILING EDGE FLAP DRIVE TRANSMISSION ASSEMBLIES NOS. 4 AND 5

27-55-58

BOEING P/N 65-50304-2, -3
65-50305-2, -3
65-50324-1 thru -5
65-50325-1 thru -5

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
		PRR 31291-1	May 15/69
		PRR 31581	Nov 10/69
27-1015, Rev 2		PRR 31291	Mar 10/70
		PRR 31581-1	Mar 10/71
		PRR 32039	Mar 25/74
27-1069		PRR 32358	Dec 25/75
		PRR 33451	Dec 5/83
		PRR 34103-1	Sep 5/87

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
	27-55-58			501	Sep 1/96		1108	Dec 5/89
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	T-2	BLANK		503	Jul 5/77		1110	Nov 1/04
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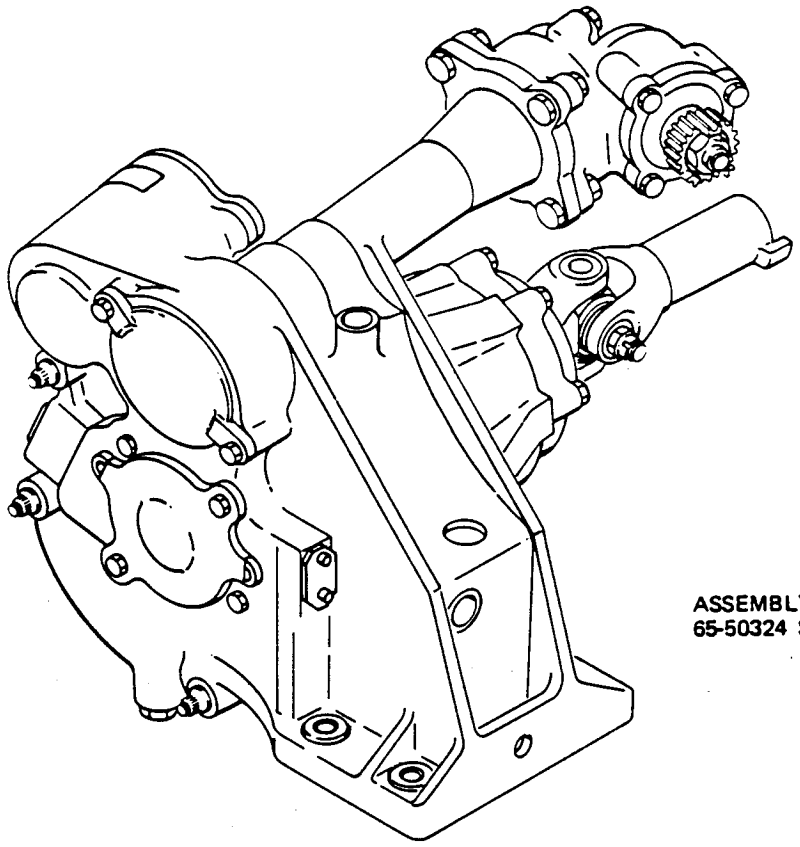
TRAILING EDGE FLAP DRIVE TRANSMISSION ASSEMBLIES NOS. 4 AND 5



ASSEMBLY 65-50304 OR
65-50324 SHOWN

Trailing Edge Flap Drive Transmission Assemblies Nos. 4 and 5
Figure 1

DESCRIPTION AND OPERATION

1. Description

   A. The trailing edge flap drive transmission assemblies Nos. 4 and 5 consist of a combination of bevel gears, spur gears, a no-back ratchet mechanism, and a torque brake assembly housed in a lubricant filled sealed housing. The gears are bearing mounted. The torque brake assembly is installed around the output shaft. A universal joint assembly is provided at the end of the output shaft. A splined

coupling is provided to drive the input shaft. A second splined coupling is provided to drive the flap drive torque tube to the flap transmission assembly No. 3 or 6. The assemblies are located inboard on the inboard flaps.

2. Operation

A. The trailing edge flap drive transmission assemblies Nos. 4 and 5 provide a change in direction and an off-set of the flap drive torque tube rotary motion. Each assembly functions to transmit flap drive torque tube rotary motion to a ball screw and nut assembly. The torque brake assembly limits the amount of torque applied to the ball screw and nut assembly. The no-back ratchet mechanism prevents flap retraction until reverse rotary motion is applied by the flap drive torque tubes.

3. Leading Particulars

Length -- 15 inches
Width -- 12.25 inches
Height -- 12 inches
Weight:
Assemblies P/N 65-50304-( ) and 65-50305-( ) -- 44.4 pounds (wet)
Assemblies P/N 65-50324-( ) and 65-50325-( ) -- 45.9 pounds (wet)

DISASSEMBLY

1. General (See figure 1101.)

   A. Remove all lockwire.

   B. Remove plugs (1 and 3) and O-rings (2 and 4), and drain fluid from assembly.

   C. Hold coupling (38) with Splined Coupling Wrench, F71228 or equivalent, and remove nut (39), washer (40) and coupling (38) from gear (48).

   D. Fix output shaft (120) by locking universal joint. Apply 20 pound-inches torque to coupling (5). Check backlash on pitch diameter of spline on gear (48). Refer to figure 601 for backlash limits. If service limit is exceeded, check gears (48 and 56) for evidence of wear.

   E. Restrain movement of gear (116) by wedging through drain plug (3) port. Measure backlash on pitch diameter of spline on gear (48). Refer to figure 601 for backlash limits. Value of backlash is total of 2 gear pairs (48 and 56) and (56 and 116). If service limit is exceeded, check each gear for evidence of wear.

   F. Hold coupling (5) with Splined Coupling Wrench, F71228 or equivalent, and remove nut (6), washer (7) and coupling (5) from gear (12).

   G. Restrain movement of gear (26), using lubrication port to gain access to gear. Measure backlash on pitch diameter of spline on gear (12). Refer to figure 601 for backlash limits. If service limit is exceeded, check gears (12 and 26) for evidence of wear.

2. Disassembly (See figure 1101.)

   A. Remove and disassemble gear (12).

      (1) Remove bolts (8), washers (9), support (10), and shim (11) from housing assembly (22). Measure and note thickness of shim (11) to facilitate reassembly.

      (2) Remove gear (12) with attached parts from housing assembly (22).

      (3) Remove bearings (13 and 14) from gear (12).

B. Remove and disassemble gear (26).

(1) Remove bolts (15), washers (16), plate (17), and gasket (18) from housing assembly (22).

(2) Remove bolts (19), washers (20), nuts (21), housing assembly (22), and shim (25) from housing assembly (31). Measure and note thickness of shim (25) to facilitate reassembly.

NOTE: Do not remove inserts (24) from housing (23) unless replacement is necessary.

(3) Remove gear (25) with attached parts and shaft (30) from housing assembly (31).

(4) Remove bearings (28) and spacer (29) from gear (26).

C. Remove and disassemble gear (48).

(1) Remove bolts (41), washers (42), nuts (43), and cover (44) with attached parts from housing assembly (31).

(2) Remove O-ring (45) and seal (47) from cover (44).

(3) Remove gear (48) with attached parts from housing assembly (31).

(4) Remove bearings (51) from gear (48).

D. Remove and disassemble no-back ratchet mechanism.

(1) Remove bolts (63), washers (63A), seals (64), and cover (65) from housing assembly (31).

(2) Remove O-rings (66 and 67) from cover (65).

(3) Remove screws (68), washers (69), retainers (70), and springs (72).

(4) Straighten tangs of washer (73) and remove nut (74), washer (73), and plate (75) from shaft (120). Discard washer (73).

(5) Remove bearing (76) from plate (75).

(6) Remove shim (77), plate (78) and ratchet (79) from shaft (120). Measure and note thickness of shim (77) to facilitate reassembly.

(7) Remove pins (80), pawl assemblies (82) and washers (86) from housing assembly (31).

NOTE: Do not remove guides (83) or bearings (85) from pawls (84), unless repair or replacement is required.

(8) Remove O-rings (81) from pins (80).

E. Remove and disassemble support assembly (98).

(1) Remove nuts (87), washers (88 and 89), bolts (90 and 91), bolts (92 and 95), washers (93 and 96), and nuts (94 and 97).

(2) Separate support assembly (98) with attached parts from housing assembly (31).

(3) Remove shim (102) and O-ring (103) from support assembly (98). Measure and note thickness of shim (102) to facilitate reassembly.

NOTE: Do not remove pins (100) or inserts (101) from support (99), unless repair or replacement is required.

(4) Remove bolts (62), washers (62A), seals (64), adapter (104), plate (105), washer (107), bearing (108), support (109), adapter (110), and shim (111) from housing assembly (31). Measure and note thickness of shim (111) to facilitate reassembly.

(5) Remove bearing (106) from plate (105), and bearing (114) from support (109).

(6) Remove lockwire, screws (115), gear (116), and coupling (118) from shaft (120).

(7) Remove bearing (117) from gear (116).

F. Remove and disassemble universal joint assembly (119).

(1) Remove bolts (134) and washers (135) from support assembly (98).

(2) Remove support assembly (140) and universal joint assembly (119), as a unit, from support assembly (98).

(3) Remove rings (149 and 159), retainer (148) and adapter (147) from shaft (120).

(4) Remove support assembly (140) from shaft (120).

(5) Remove screws (130), washers (131) and retainer (132) from support assembly (140).

NOTE: Do not remove inserts (142) from support (141), unless repair or replacement is required.

(6) Remove seal (133) from retainer (132).

(7) Remove O-ring (137) and bearing (138) from support assembly (140).

(8) Remove nut (122), bolt (124), spacer (125), and shaft (120) from cross (128).

(9) Remove pin (127) and cross (128) from yoke (126).

NOTE: Do not remove bushings (129) from shaft (120) or yoke (126), unless repair or replacement is required.

(10) If installed, remove placard (123) from yoke (126) and discard.

G. Remove and disassemble torque brake assembly (139).

(1) Remove torque brake assembly (139) and shim (136) from support assembly (98). Measure and note thickness of shim (136) to facilitate reassembly.

(2) Remove O-ring (157) from housing (143) and O-ring (158) from support (141).

(3) Remove rings (152) and coupling (151) from spring pack assembly (150).

(4) Remove spring pack assembly (150) from housing (143), using care not to distort or change relationship of spring ends.

(5) Remove support (144) from support (99) and retainers (160) from coupling (151).

NOTE: Do not remove pin (146) from support (145), unless repair or replacement is required.

(6) Remove bearing (161) from support (99).

(7) Place torque brake assy (139) on arbor press and support housing (143) to provide clearance for internal parts. Disassemble torque brake by pressing on sleeve (153) until sleeve and spring pack assy are free of housing. Remove rings (152). Remove shims (155) from spring pack assy (150).

NOTE: There may be up to two shims in each end, or no shims at all installed. Note number, location and thickness of shims to facilitate re-assembly.

(8) Install spring pack assy (150) into Spring Expansion Fixture, ST6107 (Fig. 502). If necessary tap spring pack assy with a soft drift until spring turns are aligned with fixture spring stops, ST6107-( ). Move stops inward to position them for spring engagement and lock them in this position. Rotate fixture drive shaft until stops contact spring set ends and continue to wind springs until adapter (147) is free. Remove adapter (147) and sleeves (153, 154).

(9) Rotate fixture drive shaft in reverse to unwind spring until spring stops are free of spring ends.

(10) Loosen all four spring stops and move outward clear of spring set (156). Remove spring set from fixture by tapping lightly with plastic mallet.

NOTE: Spring set (156) is a matched assy. Identify as matched parts.

H. Remove and disassemble gear (56).

(1) Remove bolts (52), washers (53) and cover (54) from housing assembly (31).

(2) Remove O-ring (55) from cover (54).

(3) Remove gear (56) from housing assembly (31).

(4) Remove seal (57) from housing assembly (31).

NOTE: Do not remove bushings (33, 33A, 34, 35), inserts (36 and 37) or nameplate (163) from housing (32), unless repair or replacement is required.

(5) Remove bearing (58), shim (59), bearing (60), and shim (61) from gear (56). Measure and note thickness of shims (59, 61) to facilitate reassembly.

CLEANING

1. General (See figure 1101.)

   A. Wash and rinse all metal parts, except bearings, in dry cleaning solvent, Specification P-D-680 or equivalent. Use stiff bristle brush to remove dirt and grease. Clean all passages and bores.

   B. Dry parts with clean lint-free cloth or with moisture-free compressed air.

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

2. Bearings (See figure 1101.)

   A. Clean bearings in accordance with "Cleaning and Relubricating Antifriction Bearings," Subject 20-30-01.

   B. Lubricate all bearings, except bearings (13, 14 and 28), with hydraulic fluid, Specification MIL-H-5606.

   C. Lubricate bearings (13, 14 and 28) with grease, Specification MIL-G-21164.

INSPECTION/CHECK

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

2. Penetrant check per 20-20-02 — Supports (10, 99, 141, 144, 145), housings (23, 32) and covers (44, 54, 65)

3. Magnetic particle check per 20-20-01 -- Couplings (5, 38, 118, 151), washers (7, 40), gears (12, 26, 48, 56, 116), shafts (30, 120), plates (75, 78, 105), ratchet (79), pins (80, 127), pawls (84), adapters (104, 110, 147), support (109), spacer (125), yoke (126), cross (128), housing (143), retainers (148, 160), ring (152), sleeve (153), spring set (156).

REPAIR

1. Repair

   A. Repair minor defects in accordance with standard industry practices. Refer to SOPM 20-10-01 for applicable instructions for rework and repair of high strength steel parts (180 ksi and above).

   B. Cross (128) (Fig. 401) ID's for bolt (124), spacer (125) and pin (127).

      (1) Machine as required to remove defects, observing 0.8631 max rework diameter. Machined Finish to be at least 63 microinch. No step or mismatch allowed.

      (2) Shot-peen using size and intensity specified.

      (3) Nickel plate per SOPM 20-42-09, 0.004-0.006 single plate thickness.

      (4) Chrome plate per SOPM 20-42-03.

      (5) Machine to design diameter of 0.8322-0.8331 per 20-10-04. Total plating thickness (nickel and chrome) after machining to be 0.015 max. Machined finish to be at least 63 microinch.

      (6) Magnetic particle examine per SOPM 20-20-01.

   C. Repair bolt (124), spacer (125), pin (127) and cross (128) exterior dimensions - (Fig. 401)

      (1) Machine, as required within rework limits shown, to remove corrosion or defects. Observe surface finish requirements. Remove burrs and sharp edges. Smoothly blend all mismatch areas.

      (2) Stress relieve per Fig. 404.

      (3) Shot-peen using shot size and intensity indicated.

      (4) Restore reworked surface, unless otherwise noted, by plating and machining to design dimensions and finish noted.

   D. Repair gear (48) seal surface - (Fig. 402B).

      (1) Machine surfaces as required to remove defects, within repair limit shown and post machine treat per SOPM 20-10-02.

      (2) Magnetic particle examine per SOPM 20-20-01.

      (3) Shot peen machined surfaces per SOPM 20-10-03. Shot number 70-170 intensity .008A2.

      (4) Build up repaired area with chrome plate per SOPM 20-42-03 and grind to finish and final design dimension as shown per SOPM 20-10-04. Chrome plate thickness not to exceed 0.015 inches.

      (5) Magnetic particle examine per SOPM 20-20-01.

E. Repair of gear (56).

(1) Method 1:

(a) Grind 0.751-0.753 inch OD per 20-10-01 as required to remove wear or defects to 8-microinch finish. Do not exceed minimum diameter of 0.747 inch. Maintain concentricity to 0.7875-0.7879 inch diameter within 0.002 inch TIR. Magnetic particle examine per SOPM 20-20-01.

(2) Method 2:

(a) Machine surface as required to remove defects per SOPM 20-10-01. Do not exceed minimum repair diameter.

(b) Magnetic particle examine per SOPM 20-20-01.

(c) Shot peen machined surfaces per SOPM 20-10-03. Shot number 70-170 intensity .008A.

(d) Build up repaired area with chrome plate per SOPM 20-42-03 and grind to finish and final design dimension as shown per SOPM 20-10-04. Chrome plate thickness not to exceed 0.015 inches.

(e) Magnetic particle examine per SOPM 20-20-01.

F. Repair ratchet (79).

(1) Grind OD and depth of teeth per 20-10-01 to a surface finish of 125 microinches. Grinding beyond service limits shown in Fig. 601 is not permitted.

G. Repair of pawl assembly (82).

(1) Remove worn bearing (85). Make new aluminum bronze bearing per AMS 4640 (Aeronautical Materials Specifications). Bearing ID should be 0.300 to 0.305 inch. Install bearing in pawl (84) with 0.0005 to 0.0015 inch interference. Grind ID in line to 0.3125-0.3130 inch (See Replacement, item F.).

(2) Grind tip radii of pawls (84) per 20-10-01 to a surface finish of 125 microinches. Grinding beyond service limit shown in Fig. 601 is not permitted.

H. Repair thrust races on adapter (104) and plate (105).

(1) Grind per 20-10-01 to a surface finish of 16 microinches. Grinding beyond service limits, shown in Fig. 601, not permitted.

I. Shaft (120)

(1) Bearing and seal O.D.

(a) Magnetic particle examine per 20-20-01.

(b) Machine as required to remove defects, observing 1.3465 min rework diameter. Maintain 63-microinch surface finish and 0.12-inch fillet radius.

(c) Surface etch inspect and stress relieve per SOPM 20-10-02.

(d) Shot-peen using size and intensity specified.

(e) Chrome plate per SOPM 20-42-03. Stop plating at least 0.03 inch from start of fillet radius.

(f) Machine to design diameter of 1.3769-1.3774 inches per SOPM 20-10-04. Surface finish must be 8 microinch or better.

(g) Magnetic particle examine per SOPM 20-20-01.

(2) Trunnion holes

(a) Magnetic particle examine per SOPM 20-20-01.

(b) Machine bores as required to remove defects, observing 1.0067 max rework diameter. Maintain perpendicularity as noted, and surface finish of at least 63 microinch.

(c) Shot-peen using size and intensity specified.

(d) Chrome plate per SOPM 20-42-03.

(e) Machine to design dia of 0.9991-0.9999 and surface finish of at least 32 microinch. Remaining chrome plate thickness to be 0.002 inch minimum.

(f) Magnetic particle examine per SOPM 20-20-01.

J. Repair flanges of sleeves (153, 154).

(1) Grind flanges per SOPM 20-10-01 to remove wear or defects to 16-microinch finish. Grinding beyond service limit shown in Fig. 601 is not permitted.

K. Torque Brake Rework (150) (Fig. 402)

CAUTION: REWORK PER FOLLOWING PROCEDURES MAY AFFECT INTERCHANGEABILITY IN ANY FUTURE OVERHAUL OR REPLACEMENT.

(1) To shift torque lockout level to a higher value, machine housing (143) surface as indicated on repair figure. Maintain finish and dimensions shown.

(2) To shift torque lockout lever to a lower value,

(a) Machine spring set (156) and stress relieve as indicated (note amount of material removed).

(b) Buildup OD of sleeve with chrome plate as required to obtain finish diameter (after machining) equal to original OD plus amount that ID of spring set (156) was increased (+0.0000/-0.0005). A shift of torque lockout level relatively affects maximum or minimum lockout levels a corresponding amount.

L. Yoke (126) Rework

(1) Attachment bolt hole rework

(a) Machine attachment bolt holes to 0.3432-0.3442 per SOPM 20-10-02. Break sharp edges of reworked holes 0.003-0.020.

(b) Attach tag to reworked yoke, stating "Bolt holes are oversize. Use oversize bolts, NAS3005E23 or equivalent, to attach ballscrew. Bolt holes in ballscrew must be 0.3432-0.3442 in. diameter to match."

(2) Yoke (126, 69-52420-4, -6, -8, -12 only) ID corrosion removal (Fig. 402A)

(a) Magnetic particle examine per SOPM 20-20-01.

(b) Machine yoke ID as required, within repair limit, to remove defects. Finish should be 63 microinches or better. No step or mismatch is allowed.

(c) Shot-peen machined area using size and intensity specified.

(d) Build up ID with chrome plate per SOPM 20-42-03.

(e) Grind ID to design diameter and finish noted.

(f) Magnetic particle examine per SOPM 20-20-01.

(3) Trunnion holes repair (Fig. 402A)

(a) Magnetic particle examine per SOPM 20-20-01.

(b) Machine bores as required to remove defects, observing 1.0067 max rework diameter. Maintain perpendicularity as noted, and surface finish of at least 63 microinch.

(c) Shot-peen using size and intensity specified.

(d) Chrome plate per SOPM 20-42-03.

(e) Machine to design dia of 0.9991-0.9999 and surface finish of at least 32 microinch. Remaining chrome plate thickness to be 0.002 inch minimum.

(f) Magnetic particle examine per SOPM 20-20-01.

2. Refinish (Fig. 1101)

NOTE: Refer to SOPM 20-30-02 for stripping of protective coatings, to SOPM 20-41-01 for explanation of F and SRF finish codes and to Aeronautical Material Specifications for AMS references.

A. Washers (7, 40, 86) and shaft (30) -- Cadmium-titanium plate (F-1.181) all over. Material: 4130 steel (120-150 ksi)

B. Support (10) -- Chromic acid anodize. Apply one layer of BMS 10-11, Type 1 primer (F-18.13) on large end OD, large end face and smaller ID. Material: Alum alloy.

C. Gears (12, 26, 48, 56), housing (32), coupling (38), covers (44, 54), retainer (70), pin (80), support (99), shaft (120), bolt (124), retainer (132), support (141) and housing (143) -- See Fig. 403.

D. Plate (17) -- Chromic acid or sulfuric acid anodize (F-17.05). Apply one layer of BMS 10-11, type 1 primer (F-20.02) all over. Material: Alum alloy.

E. Housing (23) -- Chromic acid or sulfuric acid anodize (F-17.05). Apply one layer of primer, BMS 10-11, type 1 (F-20.02) except no paint on machined surfaces. Material: Alum alloy.

F. Spacer (29), and support (145) -- Anodize (AMS 2470). Material: Alum alloy.

G. Cover (65) -- Fig. 403

H. Deleted.

I. Bolt (124), spacer (125), pin (127), cross trunnion (128) -- Fig. 401

J. Spring set (156) -- Fig. 402

K. Yoke (126) -- Fig. 402A

3. Replacement (Fig. 1101)

A. Replace all packings, seals, rings (149, 159), and washer (73).

B. Inserts (24, 36, 37, 101, or 142)

(1) Remove damaged insert.

(2) Clean and check threads in bore.

(3) Apply primer, BMS 10-11, type 1 to bore and to new insert. Install insert 3/4 to 1-1/2 turns below start of bore thread while primer is wet.

(4) Remove tang.

C. Bushings (33, 33A, 34, 35, or 129)

(1) Press bushing from bore.

(2) Clean and check condition of bore.

(3) Apply primer, BMS 10-11, type 1 to bore and to OD of bushing.

(4) Press bushing into bore while primer is wet.

D. Bearing (85)

(1) Press bearing from pawl.

(2) Clean and check condition of bore.

(3) Apply hydraulic fluid, MIL-H-5606, to bore of pawl and to OD of bearing.

(4) Press new bearing into bore of pawl. (See Repair, item F.) Bearing must be flush with surface of pawl.

E. Pins (100 or 146)

(1) Remove pin from bore.

(2) Clean and check condition of bore.

(3) Apply primer , BMS 10-11, type 1 to bore and to OD of pin.

(4) Press pin into bore while primer is wet. Pin (100) must protrude 0.20-0.23 inch. Pin (146) must protrude 0.12 -0.16 inch.

F. Bushings (129)

(1) If installed bushings meet inspection/check requirements, and the service wear limits are less than those shown in Fig. 601, mark position of bushings (129) in yoke (126) and shaft (120), rotate bushings 180 degrees, and reinstall per 20-50-03, using wet BMS 10-11, type 1, primer.

(2) If bushings are damaged, or are worn beyond limits shown in Fig. 601, install new bushings (129) in yoke (126) and/or shaft (120) using wet BMS 10-11, type 1, primer per 20-50-03.

G. Nameplate (163)

(1) Using suitable knife or scraper, remove old nameplate (163).

(2) Remove old adhesive using Turco 4669, or equivalent. Wipe all traces of adhesive and paint remover from housing with a clean cloth soaked with water.

(3) Stamp new nameplate (163), as required and bend to contour of housing (32).

(4) Clean faying surfaces of housing (32) and nameplate (163) with a clean cloth moistened with methyl ethyl ketone. Wipe dry with a clean, dry cloth.

(5) Cement nameplate to housing per 20-50-12, type 54, Grade 1.

4. Materials

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

B. Paint Remover -- Turco 4669 (Ref 20-60-01)

C. Adhesive -- BMS 5-25, Grade 1 (Ref 20-50-12)

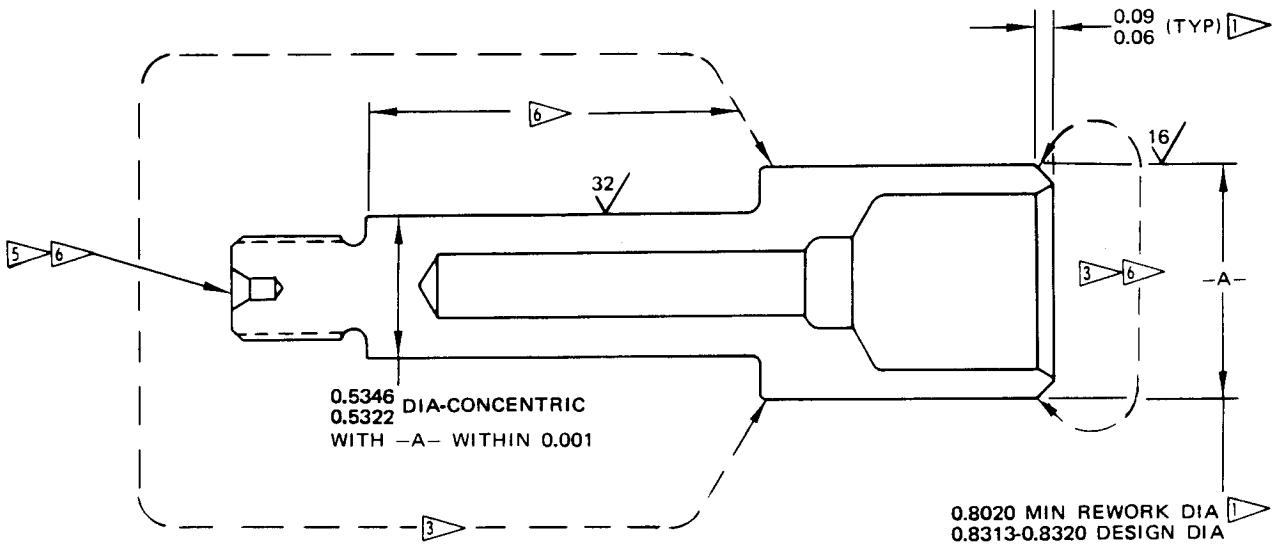
D. Solvent -- Methyl ethyl ketone, TT-M-261 (Ref 20-60-01)

E. Enamel -- BMS 10-11, type 2 (Ref 20-60-02)

F. Enamel -- BMS 10-60, BAC707 gray (Ref 20-60-02)

G. Enamel -- BMS 10-60, type 1, black (Ref 20-60-02)

H. Topcoating -- Clear Skydrol-resistant, Type 41 (Ref 20-60-02)



REFINISH

CHROME PLATE (F-15.04) DIA -A- CADMIUM-TITANIUM PLATE ALL OTHER SURFACES
PER 3 APPLY PRIMER AND PAINT
PER 6

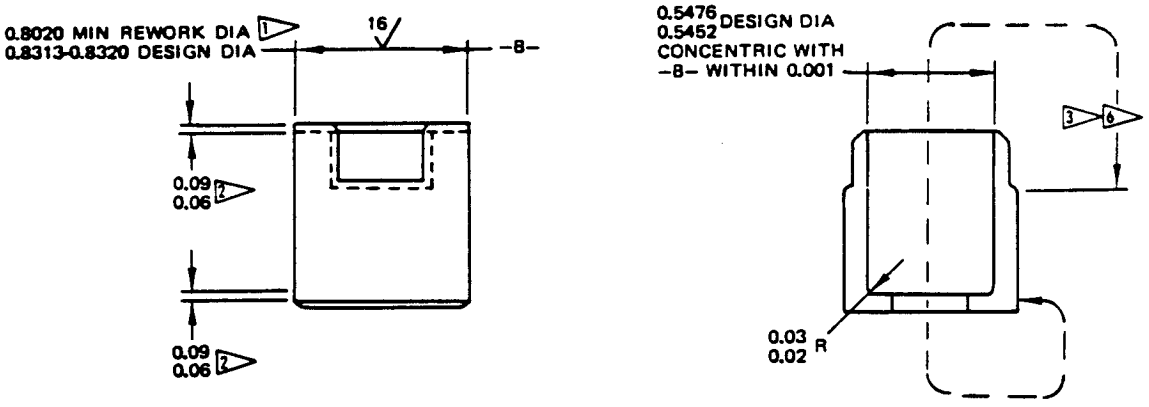
REPAIR

AS NOTED BY 1 2

SHOT PEEN: (REFER TO 20-10-03)
0.017-0.033 SHOT SIZE
0.015 A2 INTENSITY

MATERIAL: (69-52431-2) MOD H-11 STEEL (RC 54-56)
(65-76607-1) 4340M STEEL (275–300 KSI)

BOLT (124)



REFINISH

CHROME PLATE (F-15.04) DIA -8-. CADMIUM-TITANIUM PLATE ALL OTHER SURFACES PER 3 APPLY PRIMER AND PAINT PER 6

REPAIR

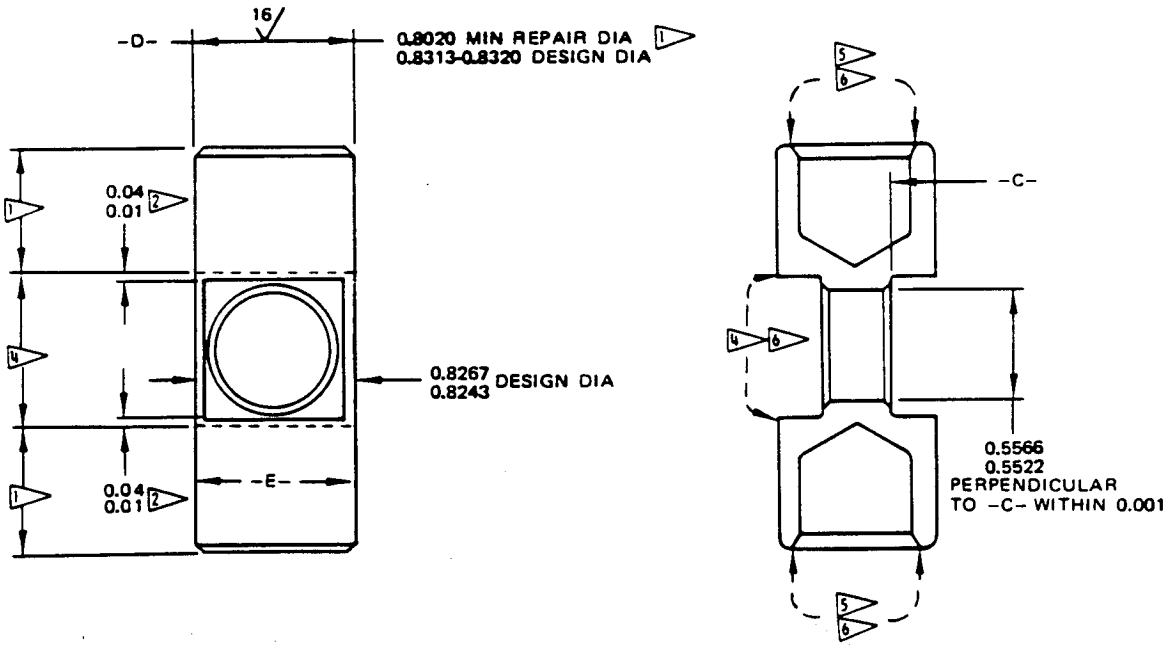
AS NOTED BY 1 2

SHOT PEEN: (20-10-03)
0.017–0.033 SHOT SIZE
0.015 A2 INTENSITY

BREAK SHARP EDGES 0.005–0.015R

MATERIAL: (69-60053-1, 69-52428-1) MODE H-11 STEEL (RC 54-56)
(69-60053-2) 4340M STEEL (270–300 KSI)

SPACER(125)



REFINISH

CHROME PLATE (F-15.04) DIAS -D- AND -E- CADMIUM-TITANIUM PLATE ALL OTHER SURFACES PER 3 APPLY PRIMER AND ENAMEL PER 6

REPAIR

REF 1 2

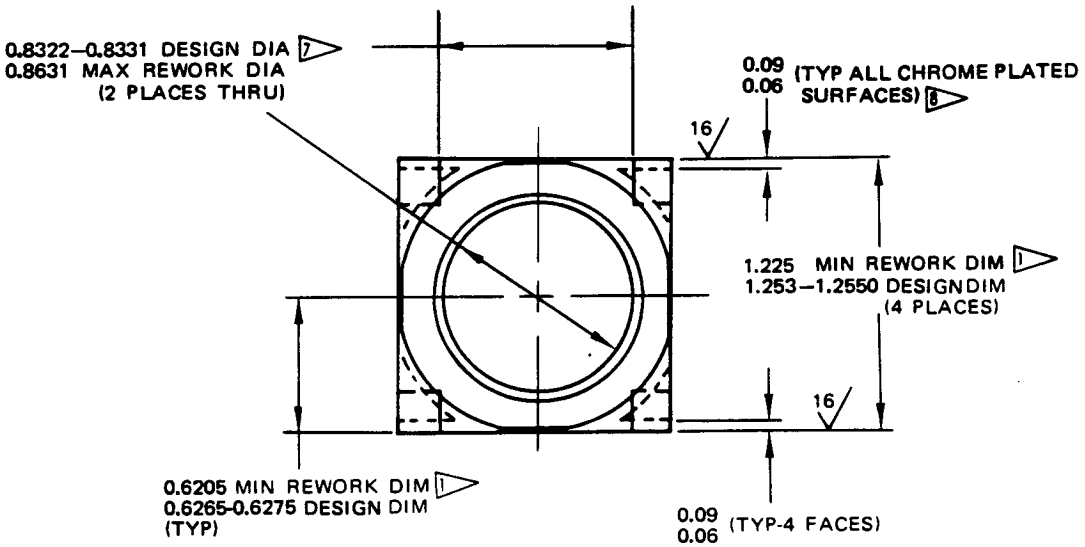
SHOT PEEN: (20-10-03)

0.017–0.033 SHOT SIZE
0.015 A2 INTENSITY

BREAK SHARP EDGES 0.005–0.015R

MATERIAL: (69-60057-1, 69-52424-1) MOD H-11 STEEL (RC 54-56)
(69-60057-2) 4340M STEEL (270–300 KSI)

PIN (127)



REFINISH

CHROME PLATE (F-15.04) OUTER SURFACES PER F-1.842 (0.003–0.005 PLATE THICKNESS)

REPAIR

AS NOTED BY 1

SHOT PEEN: (20-10-03)

0.017–0.033 SHOT SIZE
0.012 A2 INTENSITY

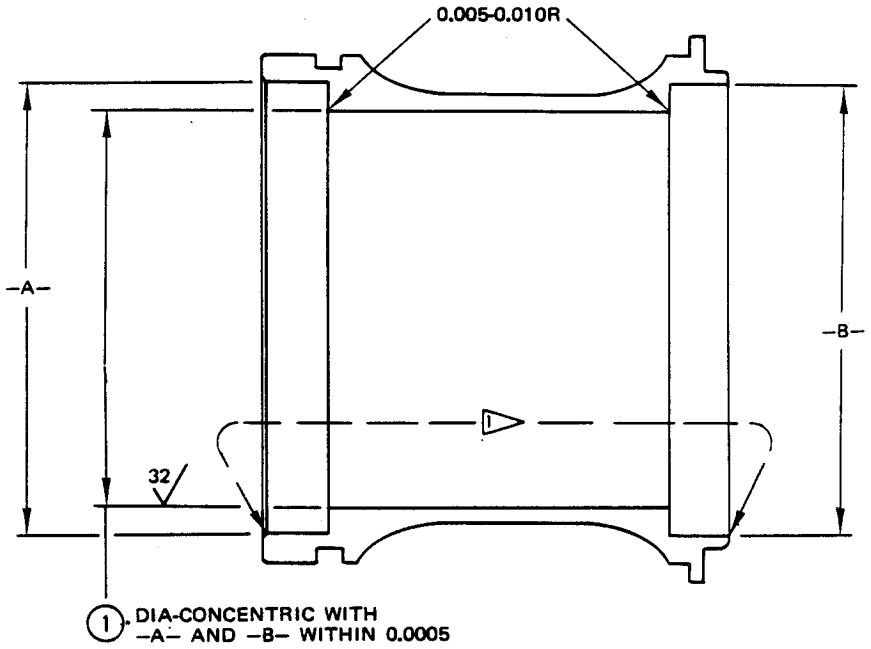
BREAK SHARP EDGES

MATERIAL: (69-52408-1) MOD H-11 STEEL (RC 54-56)
(69-60059-1) 15-5PH CRES (150–170 KSI)

CROSS (128)

1. BUILD UP WITH CHROME PLATE (20-42-03) AND GRIND TO FINISH AND DIMENSIONS SHOWN. OBSERVE PLATING RUNOUT AS NOTED.
2. CHROME PLATE RUNOUT
3. CADMIUM-TITANIUM PLATE (F-1.18) 0.0003—0.0005 THICKNESS (20-42-02)
4. CADMIUM-TITANIUM PLATE (F-1.181) 0.0005—0.0007 THICKNESS (20-42-02)
5. CADMIUM-TITANIUM PLATE THROW IN PREFERRED IN THESE AREAS.
6. AFTER PLATING APPLY PRIMER (SRF-12.205) BMS 10-11, TYPE 1 AND PAINT (SRF-12.63) BMS 10-11, TYPE 2.
7. BUILD UP WITH NICKEL PLATE (20-42-09) (0.004—0.006 THICK) AND CHROME PLATE (20-42-03) AND MACHINE TO DESIGN DIMENSIONS SHOWN. TOTAL PLATE THICKNESS AFTER MACHINING TO BE 0.015 MAX
8. CHROME PLATE STOP—OFF AREA

ALL DIMENSIONS ARE IN INCHES



1. DIA-CONCENTRIC WITH -A- AND -B- WITHIN 0.0005

		1
176637, 176642	DESIGN DIM.	3.1063 3.1058
	REWORK LIMIT	3.1143
178482, 178485	DESIGN DIM.	3.0955 3.0950
	REWORK LIMIT	3.1035

1 CARBURIZED, 0.025–0.035 DEEP

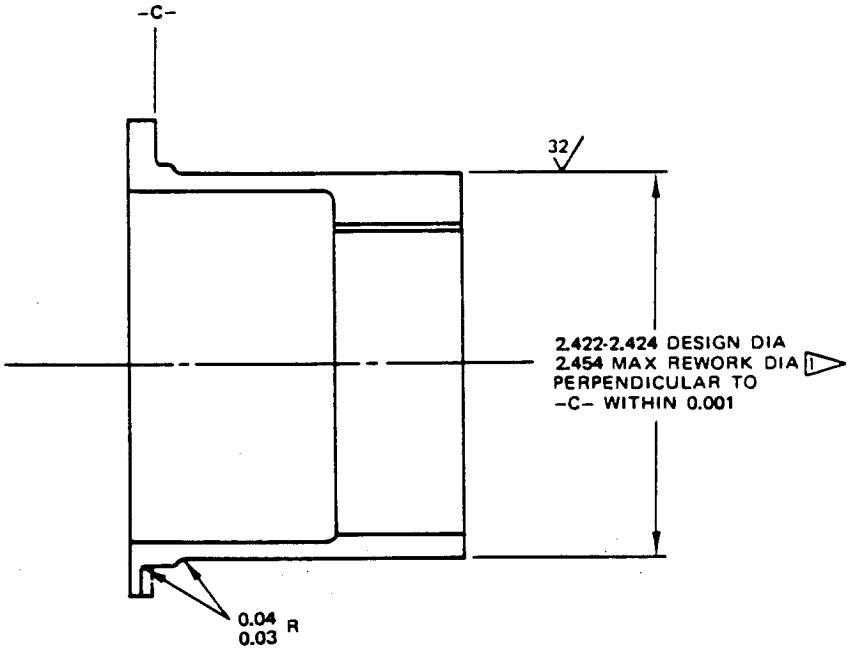
REWORK

MACHINE AS REQUIRED TO INCREASE TORQUE SETTING DESIRED AMOUNT (TORQUE SETTING INCREASES 5.0 INCH POUNDS FOR EACH 0.001 INCREASE OF ID)

MATERIAL: 9310 STEEL PER AMS 6265
RC 32–43 CORE HARDNESS
CARBURIZED, RC 60 MIN AS NOTED

BREAK SHARP EDGES 0.003-0.020R

TORQUE BRAKE HOUSING (143)



REPAIR

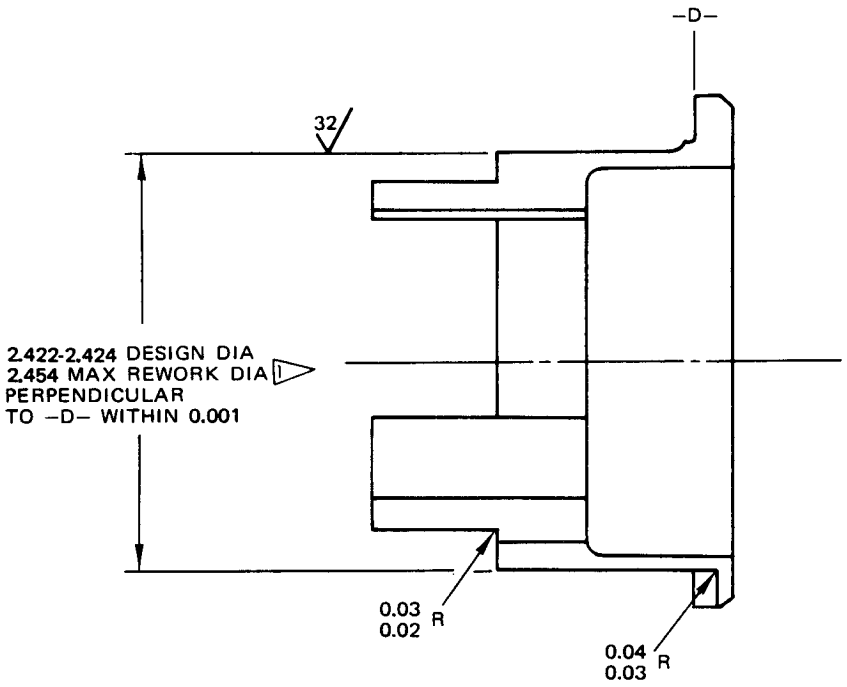
AS NOTED BY 1

MATERIAL: STEEL (HT 290-300 KSI)

BREAK SHARP EDGES 0.005-0.015R

SHOT PEEN: (REFER TO 20-10-03)
0.010-0.019 SHOT SIZE
0.012-0.015 A2 INTENSITY

SLEEVE (153)



REPAIR

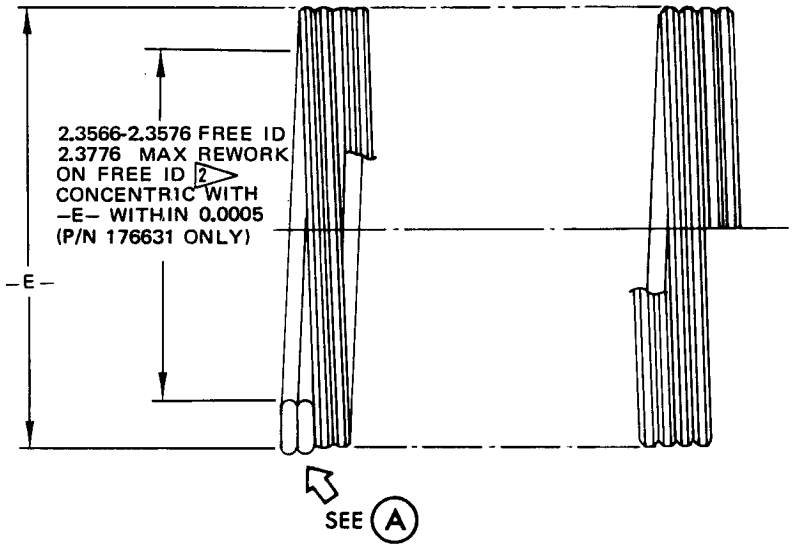
AS NOTED BY 1

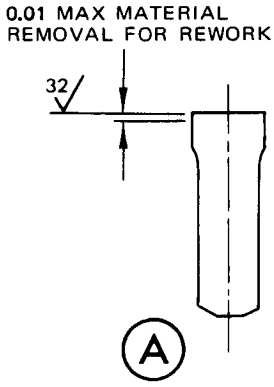
MATERIAL: STEEL (HT 290-300 KSI)

BREAK SHARP EDGES 0.005-0.015R

SHOT PEEN: (REFER TO 20-10-03)
0.010-0.019 SHOT SIZE
0.012-0.015 A2 INTENSITY

SLEEVE (154)





REFINISH

CADMIUM-TITANIUM PLATE ID AND SPRING FLANKS PER 20-42-02

REWORK

1. MACHINE ID AS REQUIRED TO DECREASE TORQUE LEVEL BY DESIRED INCREMENT (VALUE DECREASES 2.3 LB-IN (65-50304 AND 65-50305) OR 1.8 LB-IN (65-50324 AND 65-50325) FOR EACH 0.001 INCREASE OF ID).
2. STRESS RELIEVE IN FOLLOWING ORDER:
   A. 320°-330°F FOR 1 HOUR
   B. 625°-675°F FOR 1 HOUR
   C. 920°-930°F FOR 2 HOURS
   D. AIR COOL AT 65°-75°F

MATERIAL: STEEL (HT 290-300 KSI)

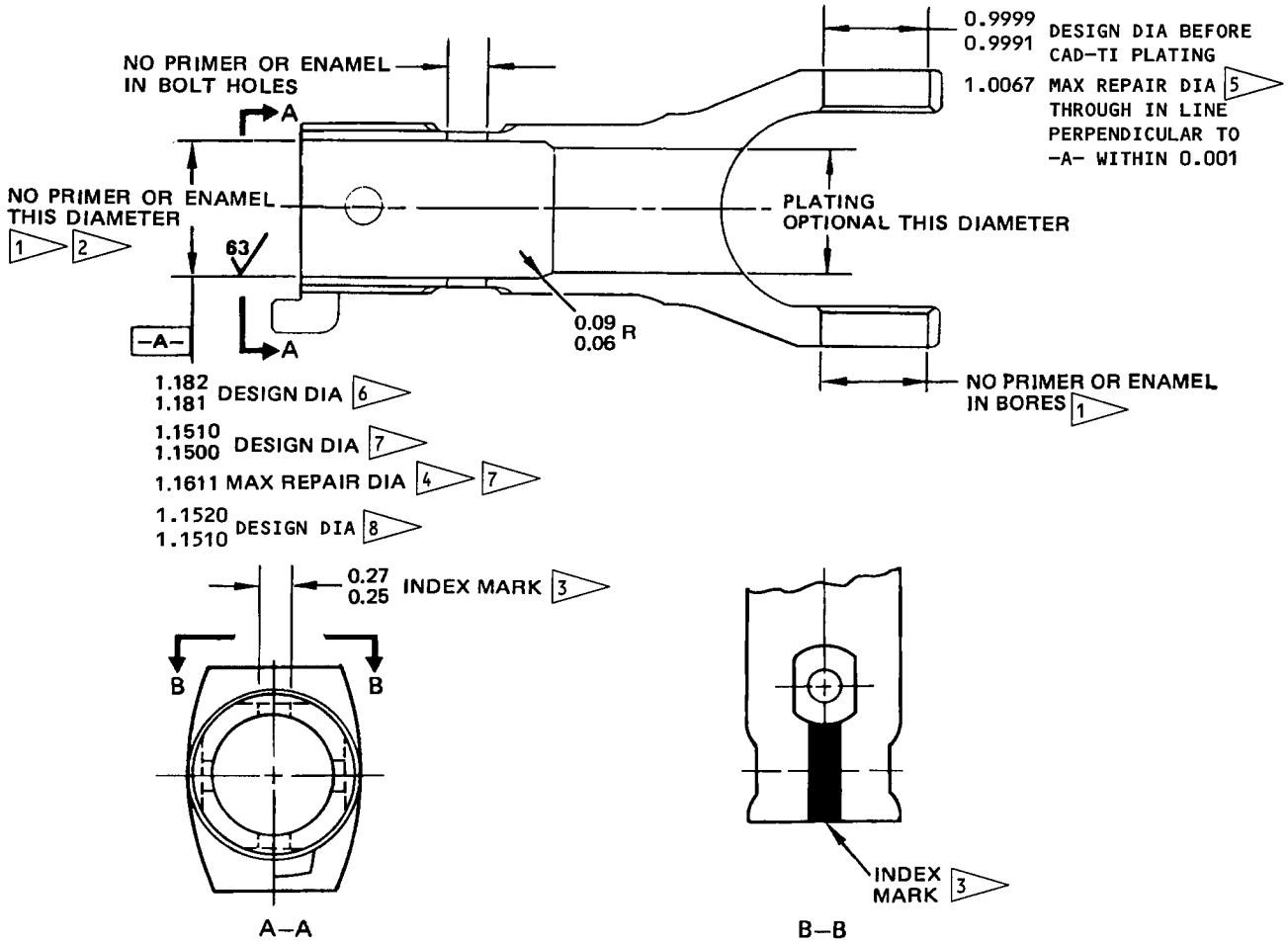
BREAK SHARP EDGES 0.005-0.015R

SPRING SET (156)

ALL DIMENSIONS ARE IN INCHES

1 BUILD UP WITH HARD CHROME PLATE (REFER TO 20-42-03) AS REQUIRED TO OBTAIN FINISH DIA (AFTER MACHINING) EQUAL TO MEASURED OD PLUS AMOUNT THAT ID OF SPRING SET (156) WAS INCREASED (+ 0.0000,-0.0005)

2 NOTE AMOUNT ID IS INCREASED TO DETERMINE REWORK OF SLEEVES (153, 154)



REFINISH

CADMIUM-TITANIUM ALLOY PLATE (F-15.01) ALL OVER EXCEPT AS NOTED. APPLY TWO COATS PRIMER, BMS 10-11, TYPE 1 (F-20.03) ALL OVER EXCEPT AS INDICATED. ON 69-52420-2 ONLY, APPLY ONE LAYER OF BMS 10-60, BAC707 GRAY GLOSS ENAMEL (SRF-14.9813) ALL OVER EXCEPT AS INDICATED.

1 CADMIUM-TITANIUM PLATE 0.0003-0.0005 THICK

2 NO CADMIUM-TITANIUM PLATING THIS DIAMETER (69-52420-2)

3 APPLY BLACK ENAMEL, BMS 10-60, TYPE 1, IN LOCATION SHOWN. TOPCOAT PER 20-44-01, TYPE 41

4 BUILD UP WITH HARD CHROME PLATE AND GRIND TO FINISH AND DIMENSIONS SHOWN. MAINTAIN 0.06-0.09 RADIUS IN TRANSITION. NO STEP OR MISMATCH ALLOWED. STOP CHROME PLATE 0.03 MINIMUM BEFORE 0.06-0.09 RADIUS.

REPAIR

REF 4 5 (69-52420-4, -6, -8 ONLY)

SHOT PEEN (SOPM 20-10-03)
0.007-0.017 SIZE
0.008 A2 INTENSITY
2.0 COVERAGE

MATERIAL: (69-52420-2, -4) MOD H-11 STEEL (RC 54-56)
(69-52420-6, -8) 4340M STEEL (270-300 KSI)

ALL DIMENSIONS ARE IN INCHES

5 BUILD UP WITH HARD CHROME PLATE (20-42-03). GRIND TO FINISH AND DIMENSION SHOWN

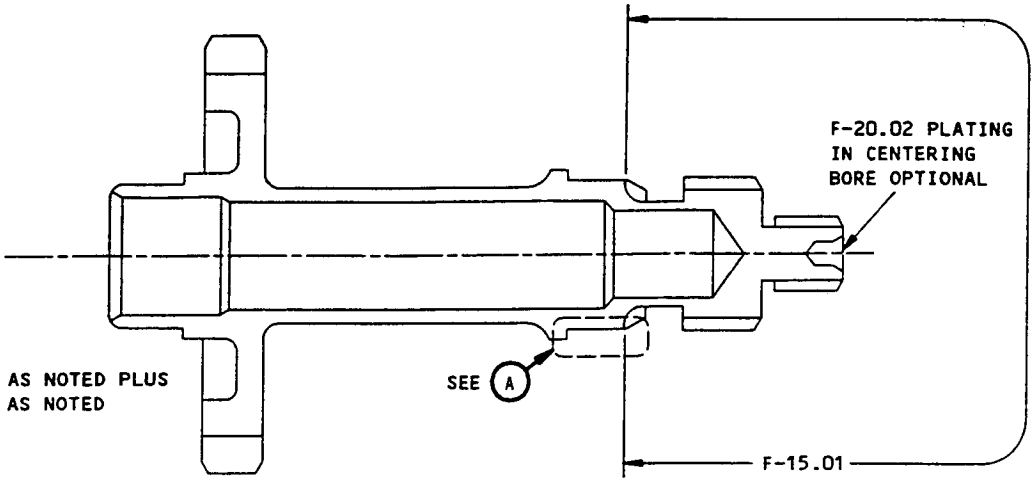
6 69-52420-2

7 69-52420-4, -6, -8

8 69-52420-12

YOKE (126)

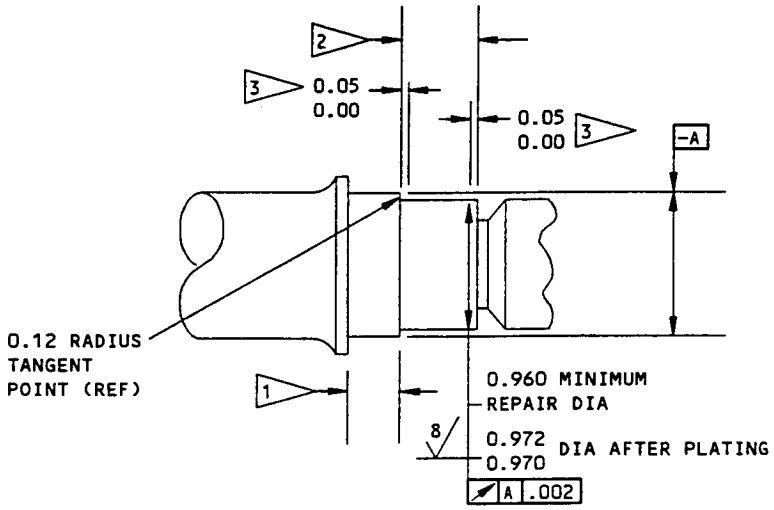
Yoke Repair and Refinish
Figure 402A



MATERIAL:

69-52416-1: MOD H-11 STEEL (RC 54-56)
69-52416-2,-3,-4: 4340M STEEL (270-300 KSI)

REFINISH



REPAIR

(A)

1 DO NOT SHOT PEEN THESE SURFACES

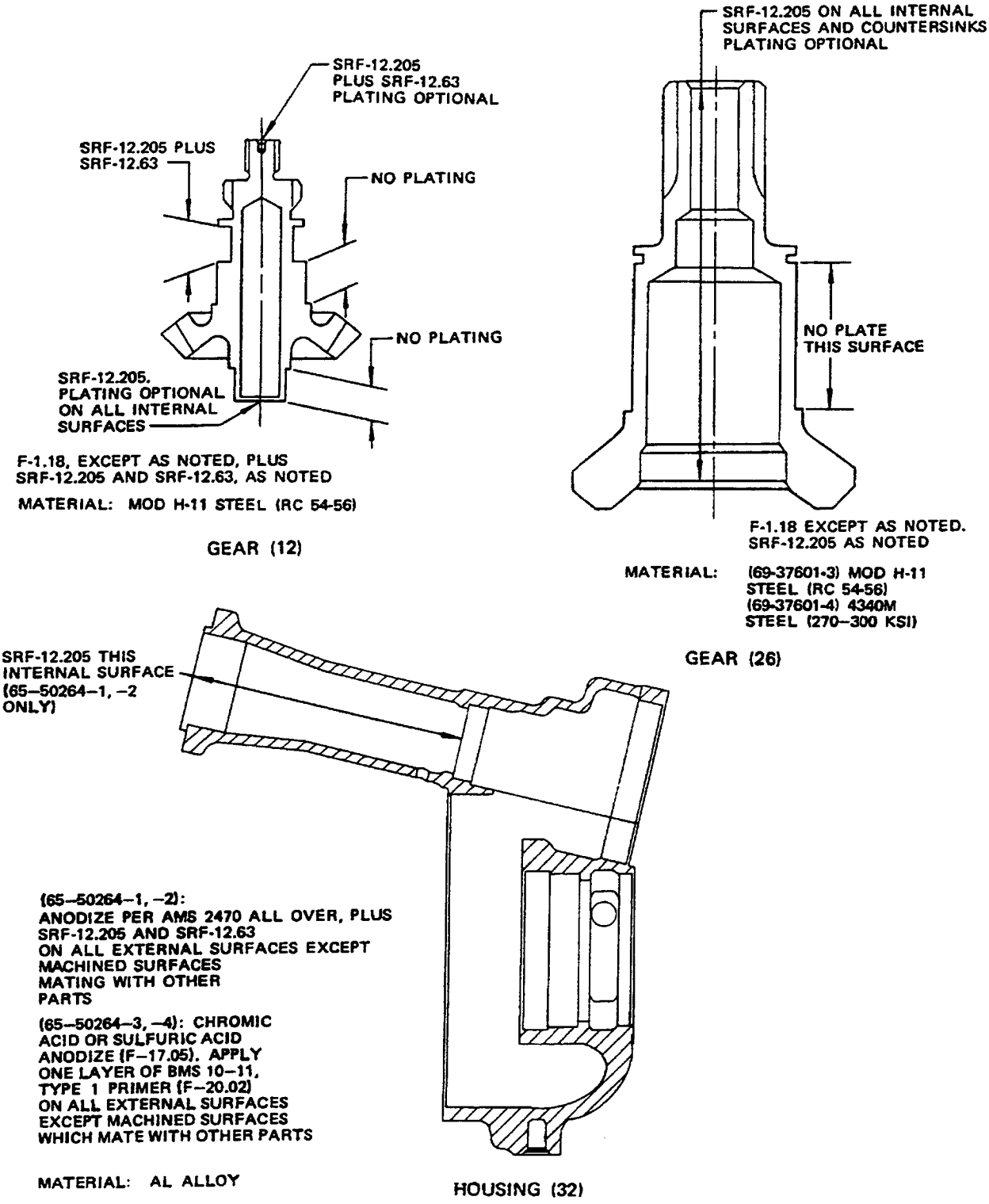
2 CHROME PLATE (F-15.01) - CAUTION
NO PLATING PERMITTED IN FILLET RADIUS

3 CHROME PLATE RUNOUT AREA FROM RADIUS
TRANSITION POINT

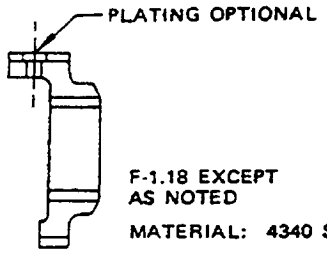
GEAR (48)

Gear Repair and Refinish
Figure 402B

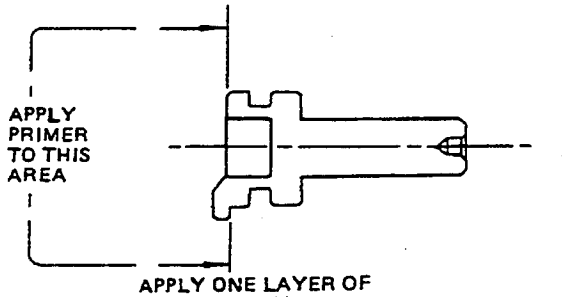
H53767



Refinish Diagram
Figure 403 (Sheet 1)

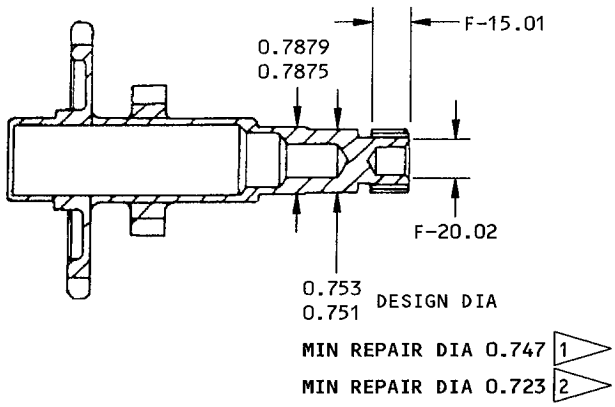


COUPLING (5 AND 38)



PIN (80)

Refinish Diagram
Figure 403 (Sheet 2)



GEAR (56)

REFINISH

F-15.01 AND F-20.02 AS NOTED

REPAIR

OR 1 AND 3
2 AND 3

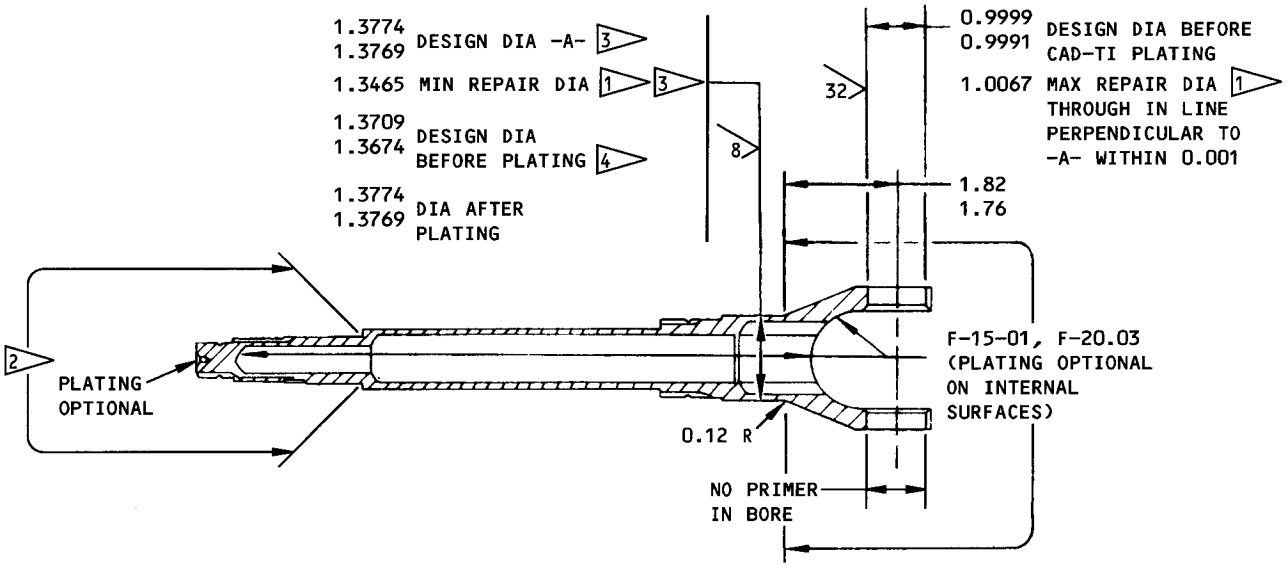
MATERIAL: (65-50283,-5) MOD H-11 STEEL
(BR 248 MAX)
(65-50283-6,-8) 4340 STEEL
(270-300 KSI)

1 METHOD 1: GRIND TO REMOVE WEAR OR DEFECTS TO FINISH SHOWN. DO NOT EXCEED MINIMUM REPAIR DIAMETER. MAINTAIN CONCENTRICITY PER FL 3. MAGNETIC PARTICLE EXAMINE PER SOPM 20-20-01

2 METHOD 2: MACHINE SURFACE AS REQUIRED TO REMOVE DEFECTS (SOPM 20-10-01). DO NOT EXCEED MINIMUM REPAIR DIAMETER. MAGNETIC PARTICLE EXAMINE PER SOPM 20-20-01. SHOT PEEN MACHINED SURFACES PER SOPM 20-10-03. SHOT NUMBER 70-170 INTENSITY 0.008A. BUILD UP REPAIRED AREA WITH CHROME PLATE PER SOPM 20-42-03 AND GRIND TO FINISH AND FINAL DESIGN DIMENSION AS SHOWN PER SOPM 20-10-04. CHROME PLATE THICKNESS NOT TO EXCEED 0.015 INCHES. MAINTAIN CONCENTRICITY PER FL 3. MAGNETIC PARTICLE EXAMINE PER SOPM 20-20-01

3 MAINTAIN CONCENTRICITY TO 0.7875-0.7879 DIAMETER WITHIN 0.002 TIR

Refinish Diagram
Figure 403 (Sheet 3)



REFINISH

CADMIUM-TITANIUM PLATE (F-15.01). APPLY TWO COATS OF BMS 10-11, TYPE 1 PRIMER (F-20.03) TO AREAS SHOWN.

REPAIR

AS NOTED BY 1

SHOT PEEN: (SOPM 20-10-03)
0.017-0.039 SHOT SIZE
0.016 A2 INTENSITY

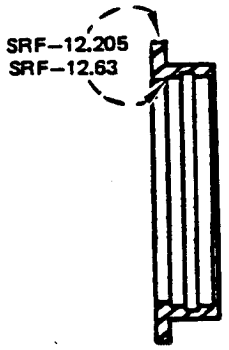
MATERIAL: 65-50269-2,-3,-4
4340M STEEL (270-300 KSI)
(65-50269-1) MOD H-11 STEEL
(RC 54-56)

1. BUILD UP TO DESIGH DIMENSION WITH CHROME PLATE (SOPM 20-42-03) MACHINE TO FINISH AND DIMENSION SHOWN.
2. DO NOT SHOT PEEN THESE SURFACES 65-50269-2,-3,-4.
3. P/N 65-50269-2,-3
4. P/N 65-50269-4

SHAFT (120)

Refinish Diagram
Figure 403 (Sheet 3)

W26160

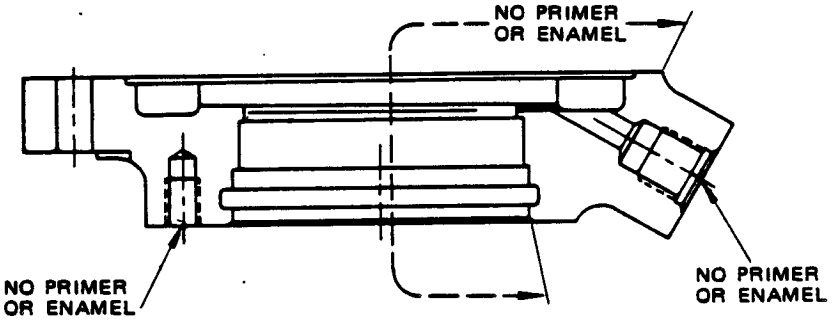


REFINISH

ANODIZE PER AMS 2470 ALL OVER, PLUS PRIMER, BMS 10–11 TYPE 1, (SRF–12.205) AND ENAMEL, BMS 10–11, TYPE 2 (SRF–12.63) AS NOTED

MATERIAL: AL ALLOY

RETAINER (132).

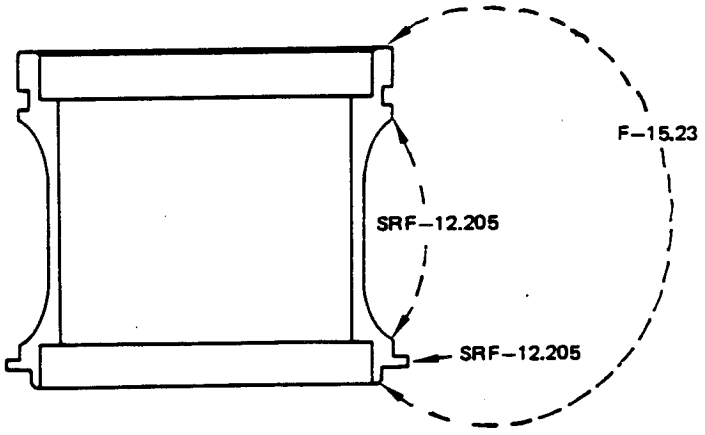


REFINISH

ANODIZE PER AMS 2470 AND APPLY PRIMER (SRF–12.205) AND ENAMEL, BMS 10–11 TYPE 2 (SRF–12.63) EXCEPT AS NOTED

MATERIAL: AL ALLOY

SUPPORT (141)

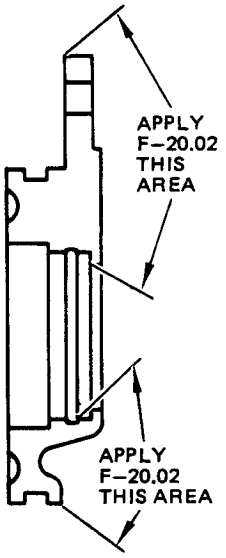


REFINISH

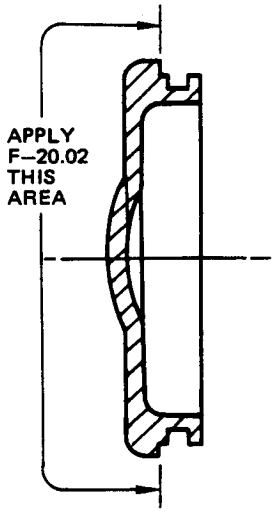
CADMIUM PLATE (F–15.23) AS NOTED; APPLY PRIMER, BMS 10–11 TYPE 1 (SRF–12.205) AS NOTED

ALL DIMENSIONS ARE IN INCHES

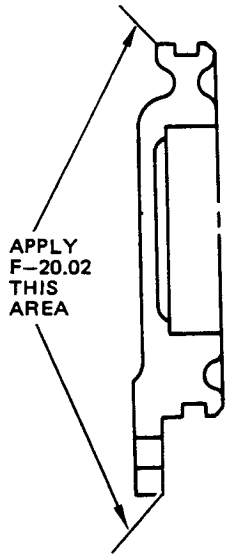
HOUSING (143)



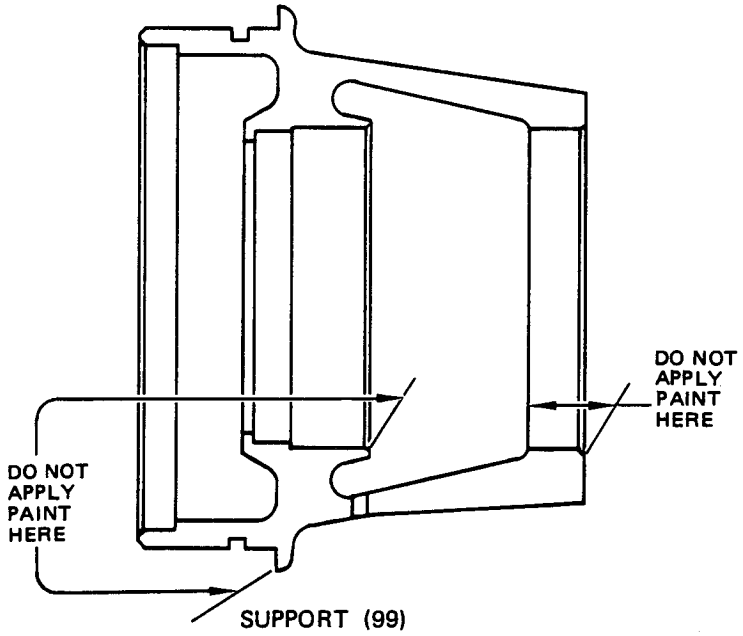
COVER (44)



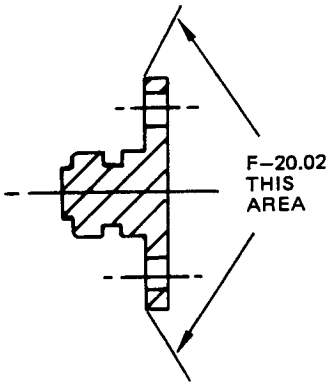
COVER (65)



COVER (54)



SUPPORT (99)



RETAINER (70)

REFINISH

CHROMIC ACID OR SULFURIC ACID ANODIZE (F–17.05). APPLY ONE LAYER OF BMS 10–11, TYPE 1 PRIMER (F–20.02) TO ALL AREAS EXCEPT THOSE SHOWN. (65–50268–1, –2 ONLY): APPLY ONE LAYER OF BMS 10–11, TYPE 2 ENAMEL, BAC 707 GRAY, TO ALL AREAS EXCEPT THOSE SHOWN

MATERIAL: AL ALLOY

Refinish Diagram
Figure 403 (Sheet 5)

Index No. Fig. 1101	Part Number	Part Name	Material	Tensile Strength	Stress Relief After Base Material Rework*	
					Temperature (°F)	Time (Hours)
48	69-52416-1	Gear	S.A.E. H-11**	275 to 300	900 to 950	2
56	65-50283-5	Gear				
79	69-37632-2	Ratchet				
84	66-23901-2	Pawl				
104	69-52456-1	Adapter				
120	65-50269-1	Shaft				
124	69-52431-2 65-76607	Bolt	S.A.E. 4340 modified	275 to 300	500 to 550	4
125	69-52426-1 69-60053-1	Spacer				
127	69-52424-1 69-60057-1	Pin	S.A.E. H-11**	275 to 300	900 to 950	2
153	175851 176630	Sleeve				
154	175850 176629	Sleeve				

* After stress relieving, air cool part at 65°F-75°F and magnetic particle examine per 20-20-01.

** AMS 6487 is the closest equivalent aeronautical material specification.

ASSEMBLY

1. General

   A. Lubricate packings and seals with MIL-H-5606 hydraulic fluid or light coat of MIL-G-7711 grease on assembly.

   B. Apply primer, Specification BMS 10-11, type 1 to faying surfaces from packing groove to outer edge, where required by reassembly procedures. Do not allow primer on packing, in packing groove, or on sealing surfaces. Mate while primer is wet.

   C. Apply primer, Specification BMS 10-11, type 1 to shank and threads of bolts and screws, where required by reassembly procedures. Install while primer is wet.

   D. Lockwire plugs, bolts and screws, where required by reassembly procedures, using double wire twist method.

2. Assembly (See figure 1101.)

   A. Install gear (56).

      (1) Refer to figure 501, diagrams No. 1 and No. 2, and determine thickness of shims (59 and 61).

      NOTE: Deleted.

      (2) Assemble shims (59 and 61) and bearings (58 and 60) on gear (56).

      (3) Position gear (56) in housing (32). Mate cover (54) to housing (32) and install bolts (52) and washers (53). Tighten bolts (52) to a torque range of 81 to 99 pound-inches.

      (4) Measure axial free play of gear (56). Free play must be 0.002 to 0.004 inch. If necessary, adjust thickness of shim (61) accordingly.

      (5) Remove bolts (52), washers (53) and cover (54). Remove gear (56) from housing.

      (6) Fill groove in sealing surface of housing (32) with sealant BMS 5-95 and install seal (57).

(7) Position gear (56) in housing (32). Install packings (55) on cover (54). Apply primer to faying surfaces and mate cover (54) to housing (32). Install bolts (52) and washers (53). Tighten bolts to 81-99 lb-in.

B. Install gear (48).

(1) Preassemble bearings (51) on gear (48).

(2) Position gear (48) in housing (32).

(3) Fill groove in sealing surface of cover (44) with sealant BMS 5-95 and install seal (47) and packing (45) on cover (44).

(4) Apply primer to faying surfaces and mate cover (44) to housing (32).

(5) Apply primer to bolts and install bolts (41), washer (42) and nuts (43). Tighten nuts (43) to 50-70 lb-in.

C. Install and adjust gears (12 , 26).

(1) Refer to Fig. 501, diagrams No. 3 and 4 to determine thickness of shims (11, 25).

(2) Preassemble bearings (13, 14) on gear (12).

(3) Butter lube gear (12) with grease, MIL-G-23827, and install gear (12) in housing (23).

(4) Position shim (11) on support (10), apply primer to faying surfaces and mate support (10) to housing (23).

(5) Apply primer to bolts and install bolts (8) and washers (9). Tighten bolts (8) to 81-99 lb-in. Lockwire bolts.

(6) Preassemble bearings (28) and spacer (29) on gear (26).

(7) Butter lube gear (26) with grease, MIL-G-23827, and install gear (26) in housing (23).

(8) Position shim (25) on housing (32), mate housing (23) to housing (32), and install bolts (19), washers (20) and nuts (21). Tighten nuts (21) to 50-75 lb-in. and measure gear backlash betweeb gear (12) and gear (26). See Fig. 601 for backlash limits and procedure.

(9) Remove nuts (21), washers (20), bolts (19), and housing (23).

(10) Apply a film of grease, MIL-G-23827, to internal splines of shaft (30).

(11) Position shaft (30) in housing (32) to engage gear (56).

(12) Apply primer to faying surfaces and mate housing (23) to housing (32).

(13) Apply primer to bolts and install bolts (19), washers (20) and nuts (21). Tighten nuts (21) to 50-75 lb-in.

(14) Apply primer to faying surfaces and position gasket (18) and plate (17) on housing (23).

(15) Apply primer to bolts and install bolts (15) and washers (16). Tighten bolts (15) to 81-99 lb-in. Lockwire bolts.

(16) Position coupling (5) on gear (12) and install washer (7) and nut (6). Hold coupling (5) with Splined Coupling Wrench, F71228 or equivalent, and tighten nut (6) to 160-190 lb-in.

D. Adjust gear (116).

(1) Preassemble bearing (161) on support (99).

(2) Preassemble bearing (117) on gear (116).

(3) Position gear (116) in support (99).

(4) Refer to Fig. 501, diagram No. 5, and determine thickness of shim (102).

(5) Position shim (102) on support (99), mate support (99) to housing (32), and install bolts (90, 91, 92, 95), washers (88, 89, 93, 96) and nuts (87, 94, 97). Tighten nuts (87) to 180-250 lb-in., bolt (92) to 450-550 lb-in., and bolt (95) to 225-275 lb-in.

(6) Measure backlash between gears (48, 56) and (56, 116). Refer to Fig. 601 for backlash limits and procedures. Adjust thickness of shim (102) as required.

(7) Remove nuts (87), washers (88) and bolts (90 and 91).

(8) Remove bolts (92 and 95), washers (93 and 96) and nuts (94 and 97).

(9) Separate support (99) and gear (116) from housing (32).

E. Preassemble and adjust no-back ratchet mechanism.

(1) Preassemble bearing (114) on support (109), bearings (106 and 108) on plate (105), and bearing (76) on plate (75).

(2) See Fig. 501, diagram No. 6, and determine thickness of shim (111).

(3) Position plate (105) on shaft (120).

(4) Position adapter (104), adapter (110), shim (111), washer (107), and support (109) on plate (105).

(5) Position shim (77), plate (78), ratchet (79), plate (75), washer (73), and nut (74) on shaft (120).

(6) Tighten nut (74) to a torque range of 50 to 70 pound-inches.

(7) See Fig. 501, diagram No. 7, and determine thickness of shim (77). Adjust thickness of shim (77) as required.

(8) Remove nut (74), washer (73), plate (75), plate (78), and ratchet (79) from shaft (120).

(9) Remove plate (105) and attached parts from shaft (120).

(10) Position plate (105) and attached parts in housing (32). Install coupling (118) in adapter (104) and gear (116).

NOTE: Bolt holes in adapter (110) and shim (111) must be aligned with bolt holes in housing (32).

F. Assemble and install torque brake assy (139) as follows:

(1) Position ends of springs in spring set (156) approx 180 degrees apart.

NOTE: Spring set consists of two matched springs coiled together.

(2) Coat spring set (156) with hydraulic oil, MIL-H-5606, and place into Spring Expansion Fixture, ST6107 (Fig. 502).

(3) Move fixture spring stops inward so that stops contact spring ends when springs are wound. Snug all your stops sufficiently to hold yet permit movement by tapping with aluminum drift.

(4) Wind up spring by rotating fixture drive shaft with socket wrench until OD of spring set (156) snugs against fixture sleeve, ST6107-11. Lock drive shaft is this position with lock screw.

(5) Using an aluminum drift tap all four spring ends axially to snug spring coils together.

(6) Using an aluminum drift tap spring stops on left-hand side of fixture outward just far enough to clear flange of sleeve (153) and insert sleeve into spring set until flange is properly seated.

(7) Using an aluminum drift tap spring stops on right-hand side of fixture outward just far enough to clear flange of sleeve (154) and insert sleeve into spring set until flange is properly seated.

(8) Insert adapter (147) into sleeve (154) partially engaging lugs, leaving adapter splined end protruding outward on right side approx 1.0 inch from sleeve flange. Support adapter and unlock fixture drive shaft with allen wrench and unwind spring set until adapter (147) is held firmly in both sleeves (153, 154).

(9) Loosen spring stops on both sides of fixture and move stops outward to clear spring pack assy.

(10) Remove spring pack assy from fixture, tapping with aluminum drift. Do not drop spring pack as reassembly may be necessary.

(11) Deleted

(12) Deleted

(13) Deleted

(14) Place assembled parts in arbor press. Protect flanged faces of sleeves (153, 154) and apply end loads below to stack springs tight.

For assemblies 175868 -- 75-100 pounds
For assemblies 176664 -- 300-500 pounds

(15) Install rings (152) over spring set and press down to remove clearance and end play.

(16) Measure stacked height of assembled parts. Select shims (155) to provide dimension of 3.130-3.142 inches for 176664 and 3.539-3.551 inches for 175868 between outer faces of rings (152) after installation. Remove end rings (152) and install shims as shown in Fig. 504. Shims used on same end of assembly are to be identical at two places 180 degrees opposite. Use the least quantity of shims required by selecting the larger sizes of shims. The dimension may be met without requiring shims, or with shims at one end only. When more than one shim is required, use same thickness at each end within 0.01 inch. Two shims may be stacked together to increase range. Maximum permissible shimming is 0.09 inch at each end (one 0.04-inch shim and one 0.05-inch shim). Trim ends of stacked shims as required so they do not protrude beyond spring O.D.

(17) Install one end ring (152) over spring on sleeve (153) end. Slide other end of pack into housing (143), and press the remaining end ring (152) over spring set (156) and into housing ID.

(18) Assemble retainer (160) and coupling (151) and install on gear (116) with screws (115). Tighten screws (115) to 20-25 lb-in. Lockwire screws together.

G. Install Support Assembly (98) and Gear (116).

(1) Install O-ring (103) on support (99). Apply primer to faying surfaces and install support (99), gear (116) and preassembled parts in housing (32).

(2) Apply primer to bolts and install bolts (90, 91, 92 and 95), washers (88, 89, 93 and 96) and nuts (87, 94 and 97). Tighten nuts (87) to a torque range of 180 to 250 pound-inches, bolts (92) to a torque range of 450 to 550 pound-inches, and bolt (95) to a torque range of 225 to 275 pound-inches.

(3) Install support (144) in support (99).

H. Assemble Universal Joint Assembly (119).

(1) Coat shank of bolt (124) and threads of nut (122) with MIL-C-11796, corrosion preventive compound. Position yoke (126) on cross (128) and install pin (127). Position shaft (120) on cross (128) and install bolt (124), spacer (125) and nut (122). Tighten nut (122) as follows:

(a) The self-locking mechanism of the nut must develop a torque between 25 and 100 pound-inches, at room temperature with no axial load on the nut and the thread fully engaged. The full chamfer of the bolt thread must protrude beyond the locking mechanism of the nut.

(b) Tighten nut to 170-200 pound-inches.

(c) Deleted.

I. Install Torque Brake Assembly (139).

(1) Refer to Fig. 501, diagram No. 8, and determine thickness of shim (136). Install shim (136) on housing (143).

(2) Install O-ring (157) on housing (143). Apply primer to faying surfaces and mate housing (143) to support (99).

J. Assemble and Install Support Assembly (140) and Shaft (120).

(1) Preassemble bearing (138) and O-ring (137) on support (141).

(2) Fill groove in sealing surface of retainer (132) with adhesive, Permatex 2. Allow adhesive to cure for 5 to 10 minutes and install seal (133) on retainer (132).

(3) Apply primer to faying surfaces and mate retainer (132) to support (141).

(4) Apply primer to screws and install screws (130) and washers (131). Tighten screws to 20-25 lb-in. Lockwire screws.

(5) Position support assembly (140) and preassembled parts on shaft (120). Protect seal (133) from damage on splines of shaft.

(6) Remove adapter (147) from torque brake assembly (139). Position retainer (148) on shaft (120). Install ring (159) on groove of shaft (120).

(7) Position adapter (147) on shaft (120) and install ring (149) in retainer (148).

(8) Apply primer to faying surfaces on support (141) and housing (143). Insert shaft (120), adapter (147) and preassembled parts into torque brake assembly (139). Mate support (141) to housing (143). Ensure that ears of adapter (147) engage lands of sleeve (153).

(9) Apply primer to bolts and install bolts (134) and washers (135). Tighten bolts (134) to 81-99 lb-in. Lockwire bolts.

K. Assemble No-Back Ratchet Mechanism.

(1) Position pawl assemblies (82) and washers (86) in housing (32), install O-rings (81) on pins (80) and install pins (80).

CAUTION: DO NOT RE-USE OLD WASHER (73), OR FAILURE OF TANGS & LOSS OF NUT RETENTION MAY OCCUR.

(2) Hold pawls (84) in retracted position and install ratchet (79), shim (77), plates (78 and 75), new washer (73), and nut (74) on shaft (120). Tighten nut (74) to 200-240 lb-in. and bend tangs of washer (73) into slots of nut (74).

(3) Install O-rings (71) on retainers (70) and insert springs (72) in housing (32).

(4) Apply primer to faying surfaces and mate retainers (70) to housing (32).

(5) Apply primer to screws and install screws (68) and washers (69). Tighten screws to 20-25 lb-in. Lockwire screws together.

(6) Install packings (66 and 67) on cover (65).

(7) Apply primer to faying surfaces and mate cover (65) to housing (32). Install seals (64), washers (63A) and bolts (63). Tighten bolts (62, 63) to 81-99 lb-in. Lockwire bolts (62, 63).

NOTE: Flaps of cover (65) must mate cut-off on pin (80) heads.

L. Service Transmission Assembly

(1) Install packings (4) and plugs (3). Lockwire plugs.

(2) Position assembly with yoke end of shaft (120) 6-1/2 degrees below horizontal plane.

(3) Fill assembly with hydraulic fluid, until fluid is at filler port level. Nominal capacity is 44 ounces.

(4) Install plug (l) and packing (2). Do not lockwire until after test.

(5) Repair or touch up any damaged or omitted finished surface.

(6) Apply Glyptal across exposed bolt threads and nuts, and to lockwire ends, fassteners and plugs, as applicable.

3. Materials

A. Hydraulic Fluid -- MIL-H-5606 (Ref 20-60-03)

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

C. Grease -- MIL-G-7711 (Ref 20-60-03)

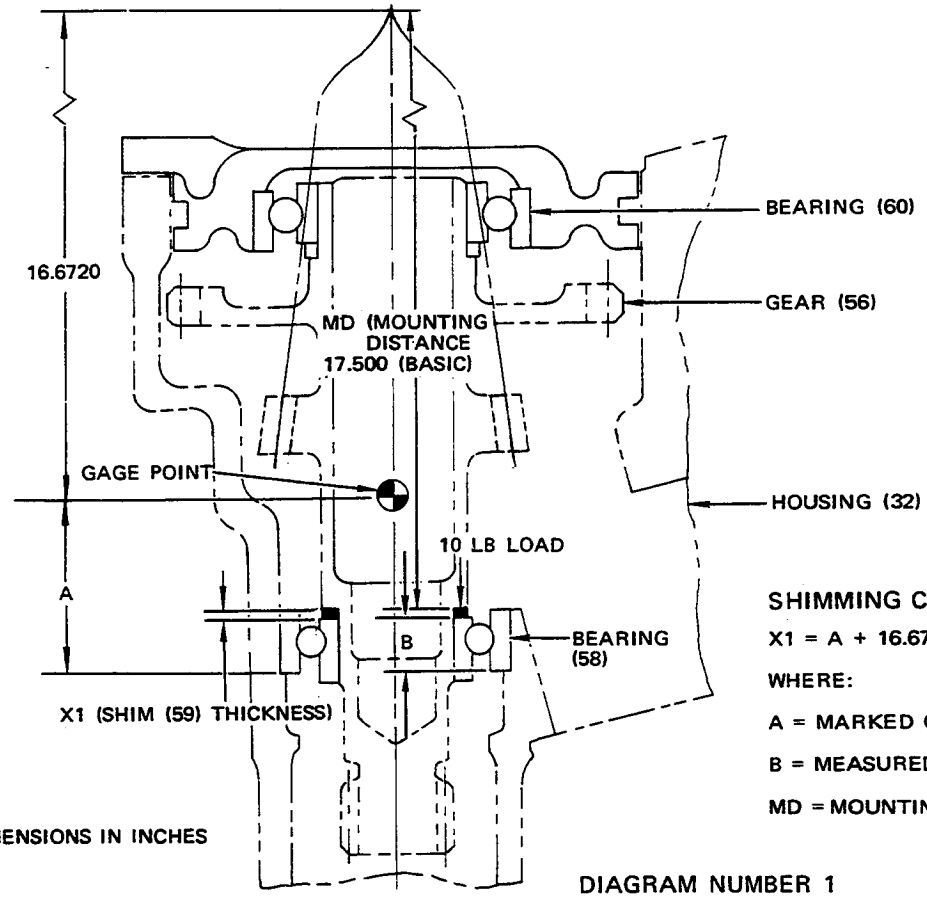
D. Grease -- MIL-G-23827 (Ref 20-60-03)

E. Sealant -- BMS 5-95 (Ref 20-60-04), replaces Permatex No. 2

F. Paint -- Glyptal (General Electric Co., Insulating Materials Department, 1 Campbell Road, Schenectady, N.Y. 12306)

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

65-50304
65-50305
65-50324
65-50325



NOTE:
ALL DIMENSIONS IN INCHES

SHIMMING CALCULATION:

X1 = A + 16.6720 - MD- B (+0.000 -0.003)

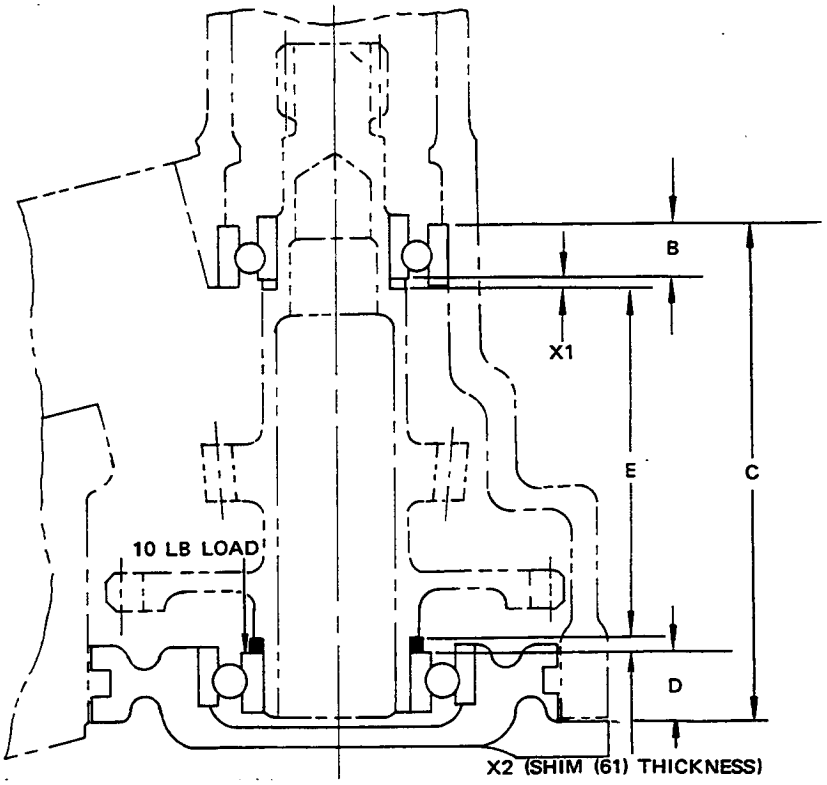
WHERE:

A = MARKED ON HOUSING (32)

B = MEASURED AS SHOWN

MD = MOUNTING DISTANCE

DIAGRAM NUMBER 1



SHIMMING CALCULATION:

X2 = C - (D + E + X1 + B + 0.002) (+0.000 -0.002)

WHERE:

B = VALUE FROM DIAGRAM NO. 1

C = MARKED ON HOUSING (32)

D = MEASURED AS SHOWN

E = MARKED ON GEAR (56)

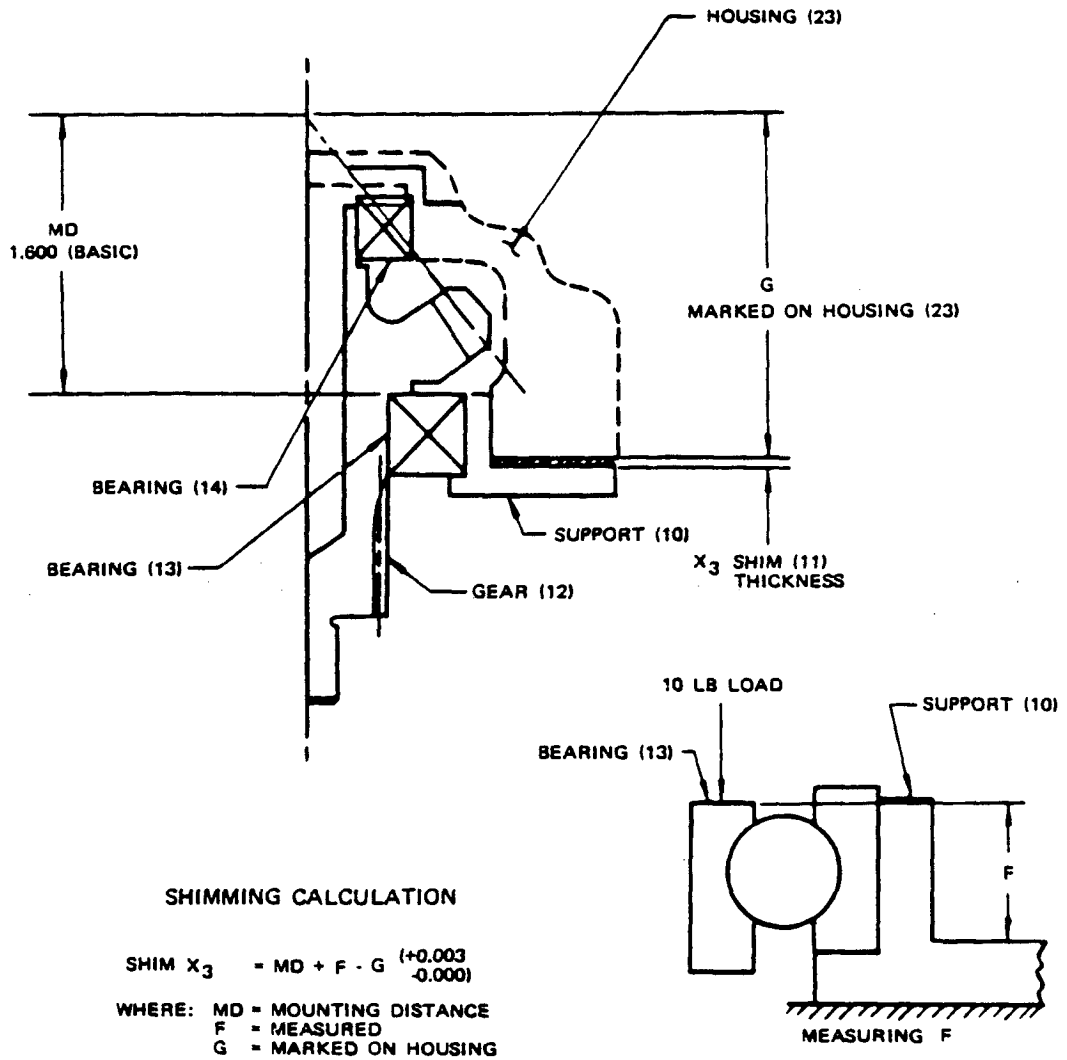
X1 = VALUE FROM DIAGRAM NO. 1

0.002 = AXIAL PLAY ALLOWANCE

NOTE: ALL DIMENSIONS ARE IN INCHES

DIAGRAM NUMBER 2

Shimming Diagrams
Figure 501 (Sheet 1)



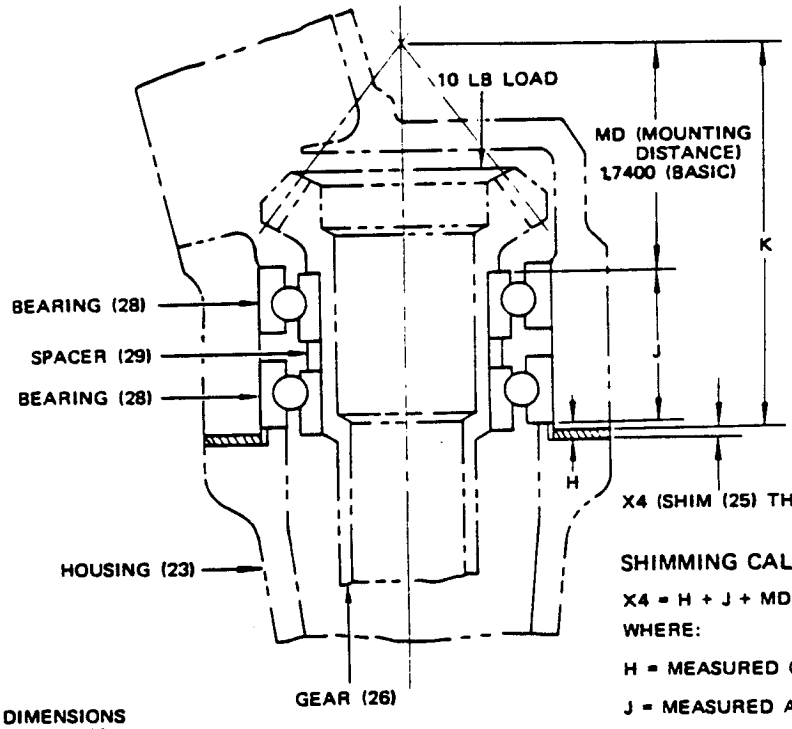
SHIMMING CALCULATION

SHIM X_3 = MD + F - G $^{(+0.003}_{-0.000)}$

WHERE: MD = MOUNTING DISTANCE
F = MEASURED
G = MARKED ON HOUSING

NOTE: ALL DIMENSIONS ARE IN INCHES

DIAGRAM NUMBER 3



NOTE: ALL DIMENSIONS ARE IN INCHES

DIAGRAM NUMBER 4

SHIMMING CALCULATION:

$X4 = H + J + MD - K \begin{matrix}(+0.003)\\(-0.000)\end{matrix}$

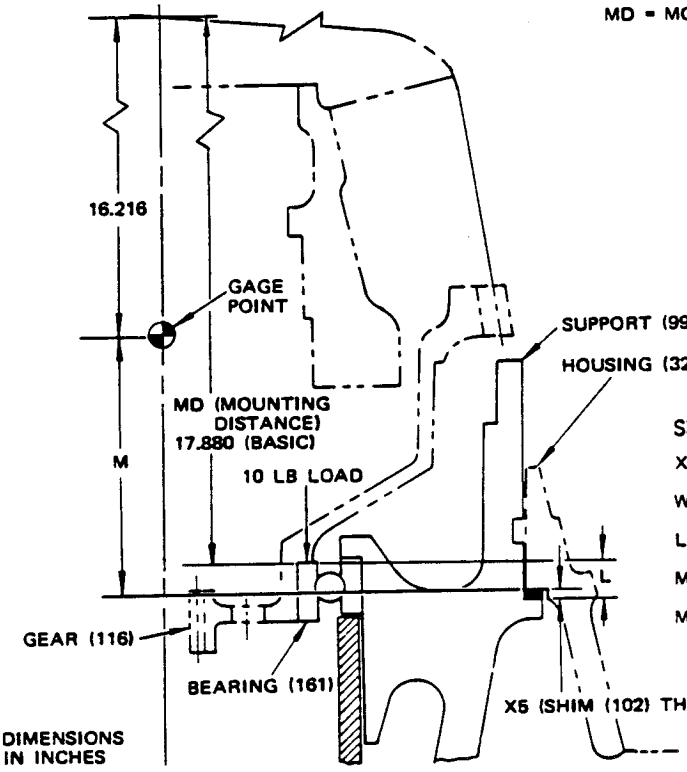
WHERE:

H = MEASURED ON HOUSING (23)

J = MEASURED AS SHOWN

K = MARKED ON HOUSING (23)

MD = MOUNTING DISTANCE



NOTE: ALL DIMENSIONS ARE IN INCHES

DIAGRAM NUMBER 5

SHIMMING CALCULATION:

$X5 = L + MD - 16.216 - M \begin{matrix}(+0.003)\\(-0.000)\end{matrix}$

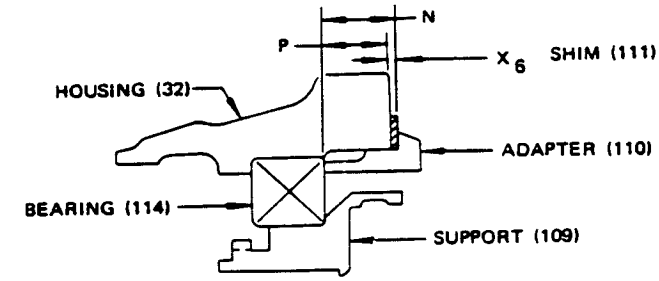
WHERE:

L = MEASURED AS SHOWN

M = MARKED ON HOUSING (32)

MD = MOUNTING DISTANCE

Shimming Diagrams
Figure 501 (Sheet 3)



ALL DIMENSIONS ARE IN INCHES

SHIMMING CALCULATION

$$\text{SHIM } X_6 = N - P - 0.001 \begin{pmatrix} +0.000 \\ -0.003 \end{pmatrix}$$

WHERE: N = MEASURED ON ADAPTER (110)
P = MEASURED WITH BEARING (114) CLAMPED TO HOUSING (32)

DIAGRAM NUMBER 6

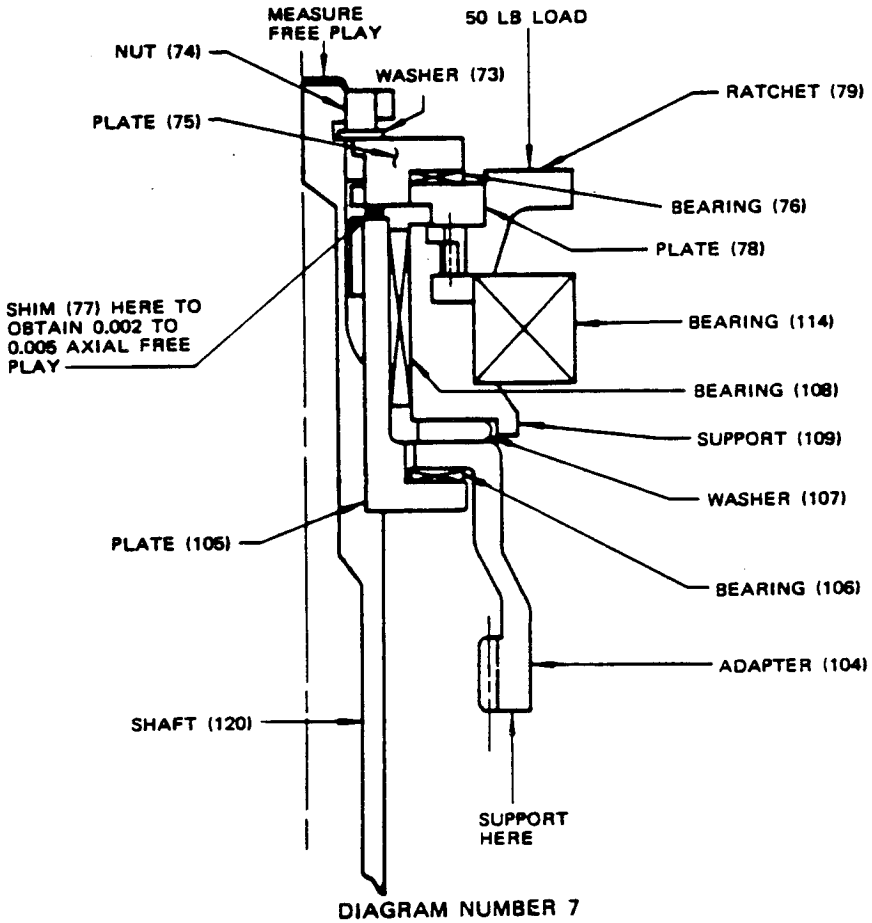
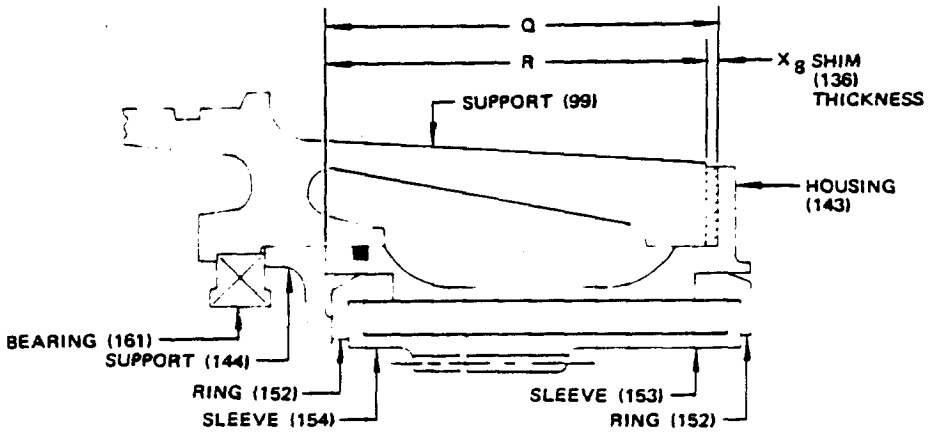


DIAGRAM NUMBER 7



SHIMMING CALCULATION

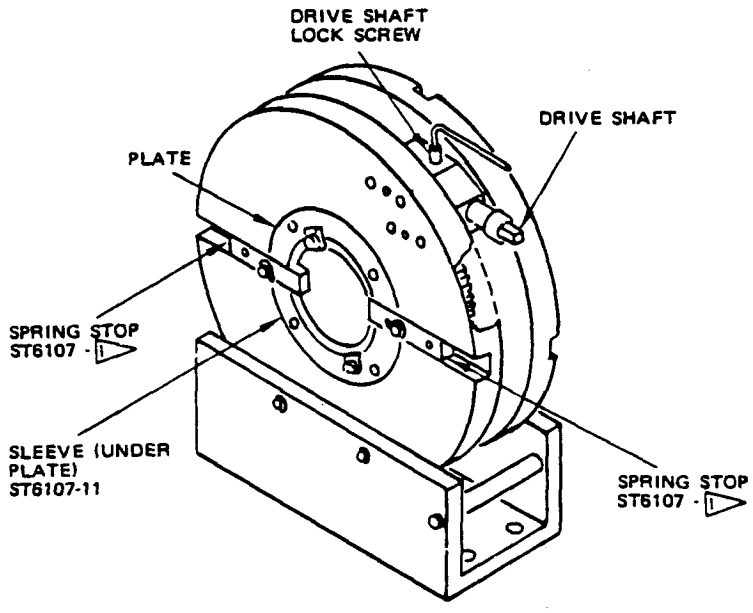
SHIM X_8 = Q - R - 0.001 $^{(+0.000}_{-0.003)}$

NOTE: ALL DIMENSIONS ARE IN INCHES

WHERE: Q = MEASURED ON HOUSING (143)
R = MEASURED BY STACKING BEARING (161) AND SUPPORT (144) ON SUPPORT (99)

DIAGRAM NUMBER 8

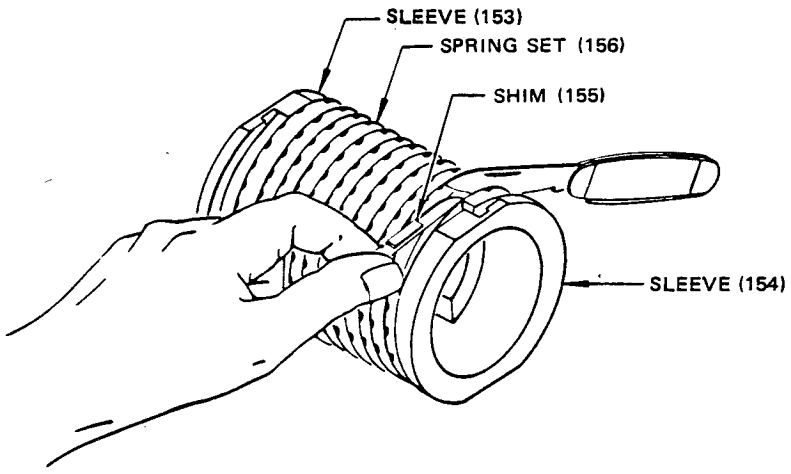
Shimming Diagrams
Figure 501 (Sheet 5)



1 ST6107-17 FOR TORQUE BRAKE ASSY, 176668 AND 176669-3
ST6107-14 FOR TORQUE BRAKE ASSY, 178488-1,-2 AND 178489-1,-2

Spring Expansion Fixture ST6107
Figure 502

Figure 503 Deleted

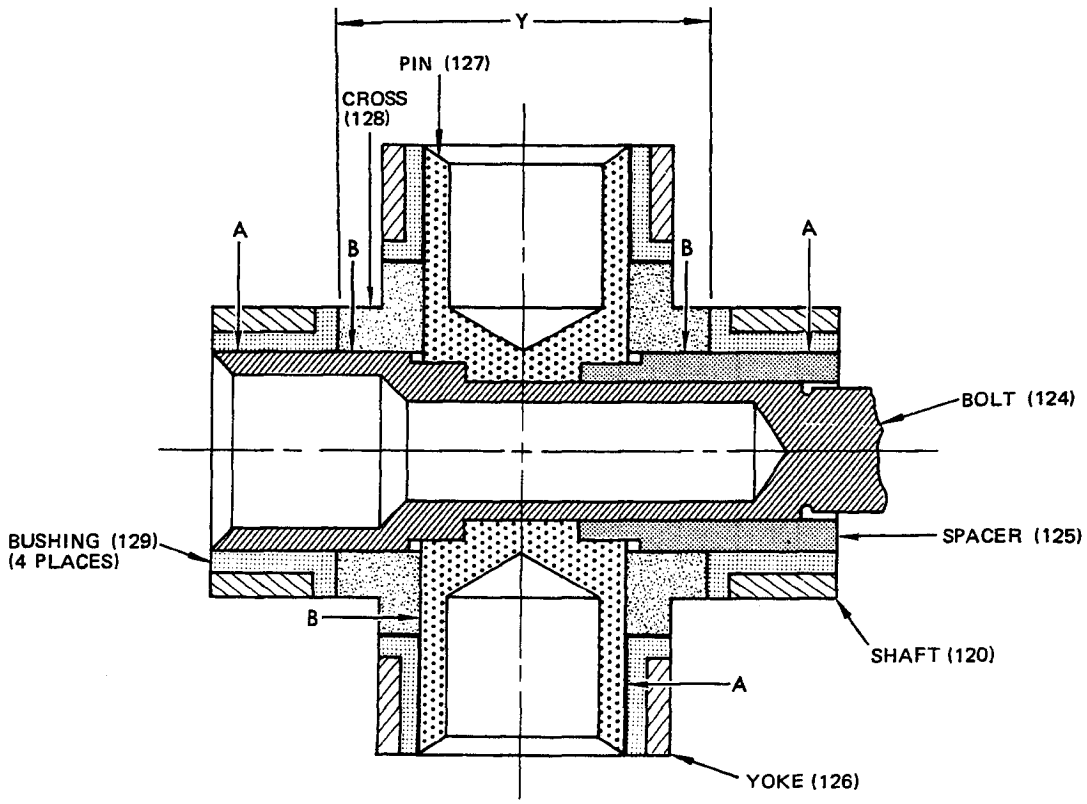


Spring Pack Shim Installation
Figure 504

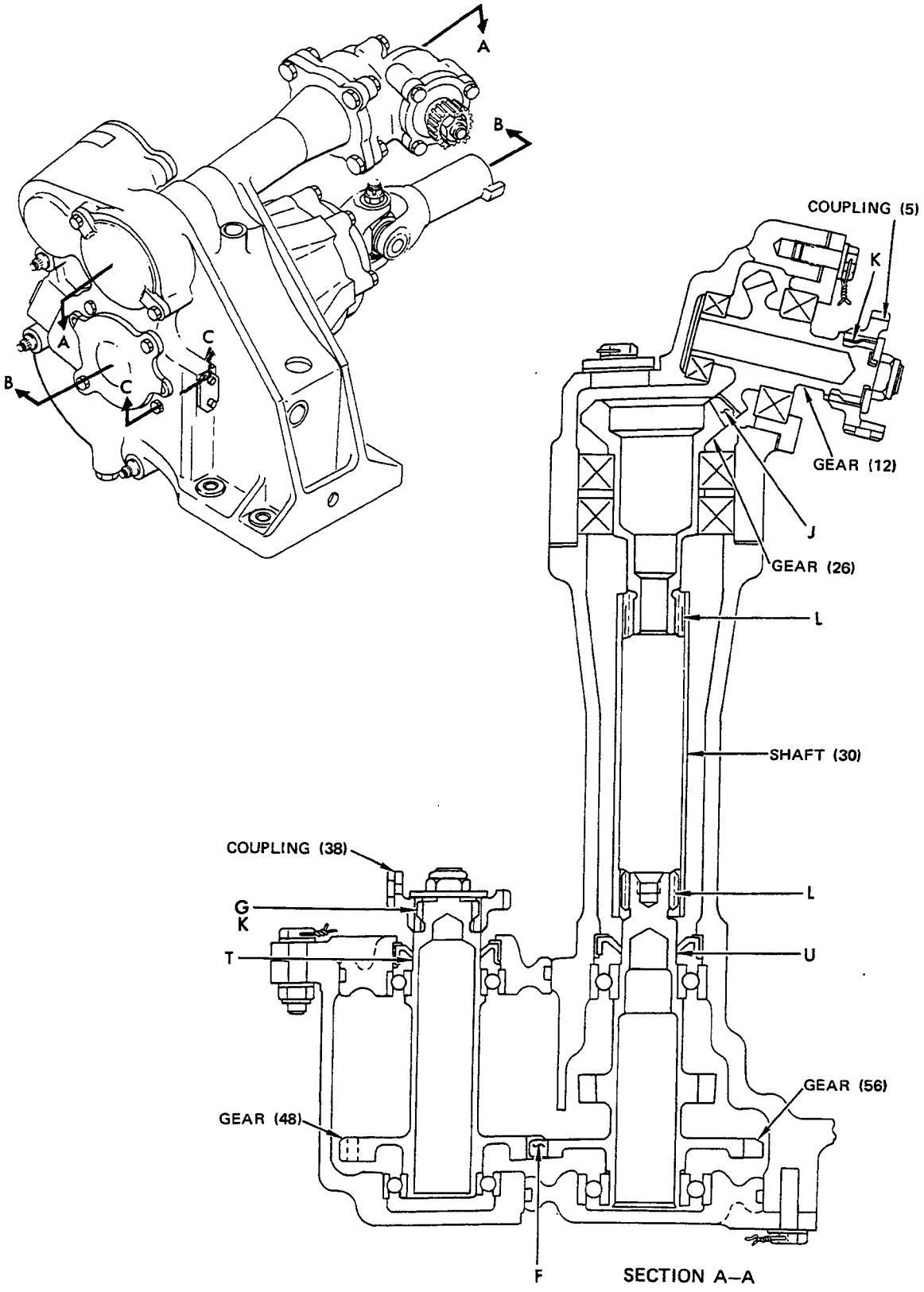
FITS AND CLEARANCES

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.

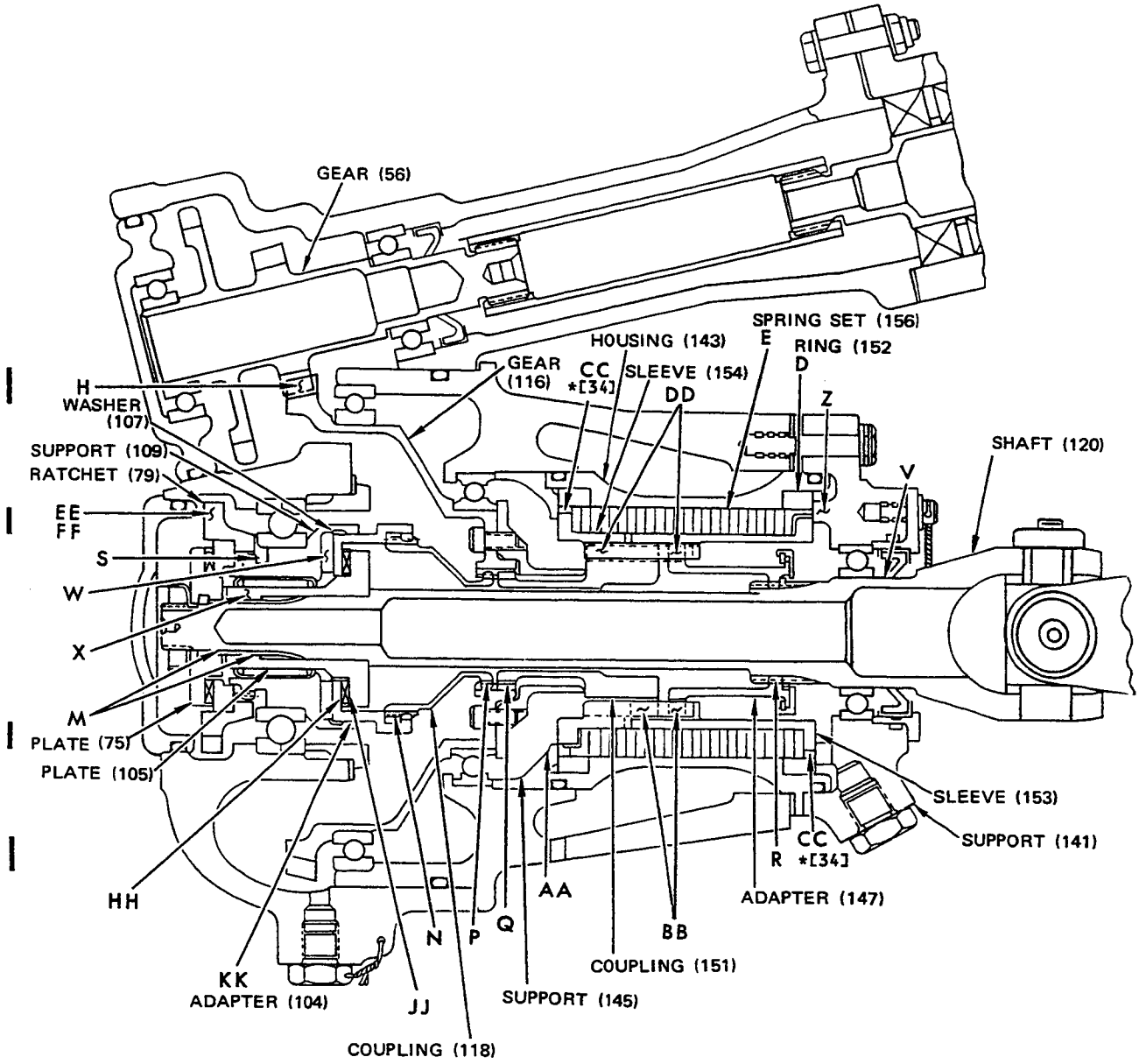
2. Clearances are given to aid assembly of the components. The values given in the Maximum Allowable Clearance column are the maximum permitted to ensure proper functioning of the unit. If assembled parts fail to meet this requirement, one or more of the parts must be rejected. Parts that are rejected 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.



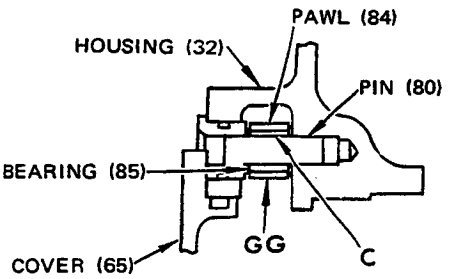
UNIVERSAL JOINT ASSEMBLY (119)



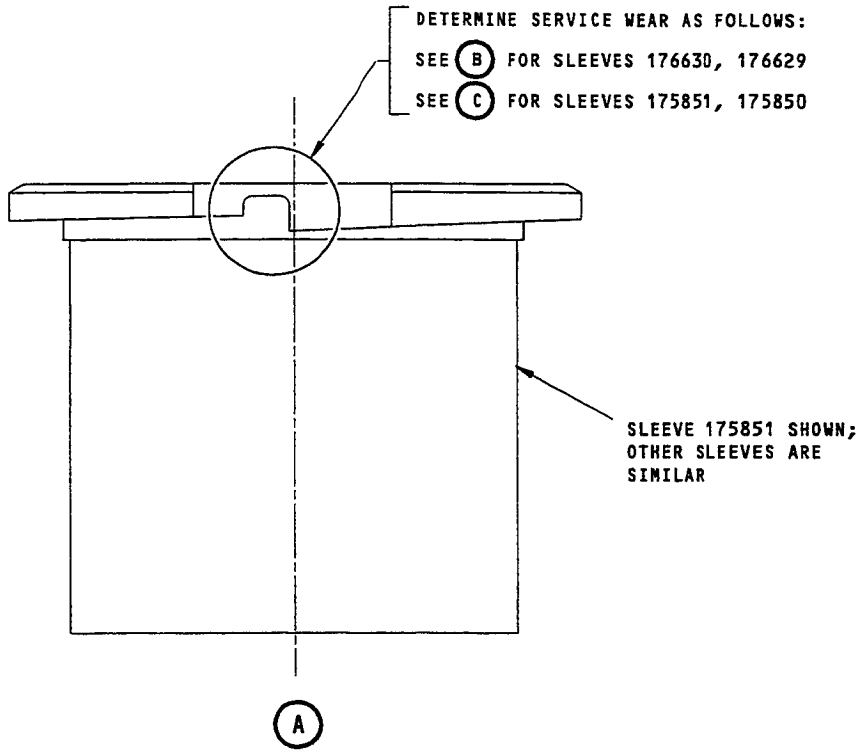
Fits and Clearances
Figure 601 (Sheet 2)

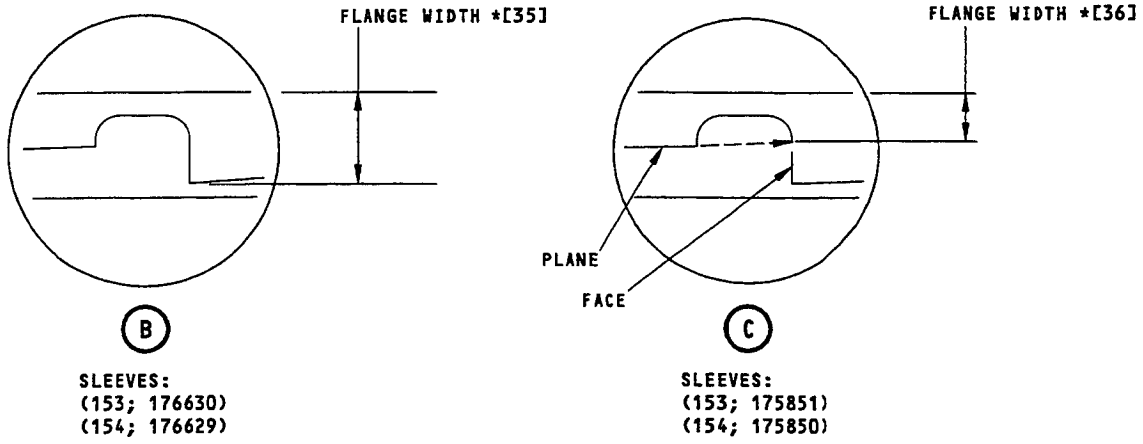


SECTION B–B



SECTION C–C





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Fits and Clearances
Figure 601 (Sheet 3A)

		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 129 *[33] OD 124,125, 127	0.8340 0.8313	0.8350 0.8320	0.0001	0.0033	0.8303	0.8423	0.0120
B *[1]	ID 128 OD 124,125 127	0.8322 0.8313	0.8335 0.8320	0.0002	0.0022	0.8303	0.8350	0.0047
C	ID 84 OD 80	0.3125 0.3110	0.3130 0.3120	0.0005	0.0020	0.3100	0.3130	0.0030
D	ID 143 *[21] OD 152	3.524 3.519	3.525 3.520	0.004	0.006	3.518	3.526	0.008
D	ID 143 *[22] OD 152	3.524 3.517	3.525 3.518	0.006	0.006	3.516	3.526	0.010
E	ID 143 *[25] OD 156 *[23]	3.1058 3.0166	3.1063 3.0176	0.0882	0.0897	3.0161	3.1068	0.0907
E	ID 143 *[26] OD 156 *[23]	3.0950 3.0230	3.0955 3.0240	0.0710	0.0725	3.0225	3.0960	0.0735
F	48 *[2] 56			0.0006	0.0025			0.0049
G	48,56 *[3] 116			0.0018	0.0071			0.0118

		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	
H	*[4] 56 116			0.0011	0.0046			0.0069
J	*[5] 12 26			0.0008	0.0031			0.0047
K	*[6] 5, 38 12, 48			0.0000	0.0052			0.0090
L	*[6] 30 26, 56			0.0000	0.0052			0.0090
M	*[7] 75, 105 120			0.0000	0.0052			0.0090
N	*[8] 104 118			0.0015	0.0077			0.0090
P	*[8] 116 118			0.0015	0.0071			0.0090
Q	*[9] 116 151			0.0023	0.0110			0.0139
R	*[10] 147 120			0.0027	0.0110			0.0139
S	*[11] 79 109			0.0000	0.0058			0.0090

		Design Dimensions				Service Wear Limits		
Ref Letter Fig. 601	Mating Item No Fig. 1101	Dimensions (inches) Min	Dimensions (inches) Max	Assembly Clearance (inch) Min	Assembly Clearance (inch) Max	Dimension Limits (inch) Min	Dimension Limits (inch) Max	Maximum Allowable Clearance (inch)
T	OD 48	0.970	0.972			0.966		
U	OD 56	0.751	0.753			0.747		
V	OD 120	1.3769	1.3774			1.3720		
W	*[12} 107	0.154	0.158			0.135		
X	OD 105	0.9995	1.0000			0.9992		
Y	*[13] 128	1.253	1.255			1.250		
Z	*[13] 141 140 *[27]	0.146	0.147				0.152	
Z	*[13} 140 *[28]	0.233	0.235				0.240	
AA	*[13] 144 *[31]	0.181	0.183			0.176		
AA	*[13] 144 *[32]	0.041	0.043			0.036		
BB	*[14] 147, 151	0.645	0.649			0.637		
CC	*[15] 153, 154 *[29]	0.216	0.221			0.214		
CC	*[15] 153, 154 *[30]	0.113	0.115			0.111		
DD	*[16] 153, 154	0.883	0.887			0.875		
EE	*[17] 79	3.085	3.105			3.075		
FF	*[18] 79	0.190	0.210				0.225	

Fits and Clearances
Fig 601 (Sheet 6)

Ref Letter Fig. 601	Mating Item No. Fig. 1101	Design Dimensions				Service Wear Limits		
		Dimensions (inches)		Assembly Clearance (inch)		Dimension Limits (inch)		Maximum Allowable Clearance (inch)
		Min	Max	Min	Max	Min	Max	
GG	*[19] 84	0.050	0.070				0.075	
HH	*[20] 104	0.120	0.125			0.116		
JJ	*[20] 105	1.510	1.520				1.522	
KK	ID 109	2.330	2.332	0.003	0.007		2.334	0.011
	OD 104	2.325	2.327			2.323		
	*[24] 56	3.2812	3.2833			3.2722		
	*[24] 48	2.9525	2.9546			2.9437		
	*[12] 152	0.095	0.097			0.093		
	*[12] 75	0.185	0.190			0.183		
	*[12] 78	0.265	0.270			0.263		
	*[12] 109	0.185	0.190			0.183		
	*[12] 152	0.374	0.375			0.372		

*[1] Used for universal joint assembly 69-52409-5 only.

*[2] Gear backlash. Prior to disassembly, fix output shaft (120) and apply 20 pound-inches torque to coupling (5) on gear (12). Check backlash on 0.8125-inch pitch diameter of spline on gear (48). If service limit is exceeded, check gears (48,56) for evidence of wear.

*[3] Gear backlash. Prior to disassembly, restrain movement of gear (116), using drain plug port to introduce wedge. Measure backlash on 0.8125 inch pitch diameter on spline on gear (48).

*[4] Gear backlash. Subtract actual backlash between gears (48,56) from backlash between gear (48,116). If service limit is exceeded, check gears (56, 116) for evidence of wear.

*[5] Gear backlash. Prior to disassembly, restrain movement of gear (26), using lubrication port to gain access to gear. Measure backlash on 0.8125-inch pitch diameter of spline on gear (12). If service limit is exceeded, check gears (12,26) for evidence of wear.

Fits and Clearances
Figure 601 (Sheet 7)

*[6] Spline backlash, measured at 0.8125-inch pitch diameter of spline while either part is held fixed.

*[7] Spline backlash, measured at 0.6563-inch pitch diameter of spline while either part is held fixed.

*[8] Spline backlash, measured at pitch diameter of spline while either part is held fixed. Pitch diameter of splines on adapter (104) and coupling (118) is 2.1875 inches. Pitch diameter of splines on gear (116) and coupling (118) is 1.3750 inches.

*[9] Spline backlash, measured on OD of single tooth spline on coupling (151) while gear (116) is held fixed.

*[10] Spline backlash, measured on OD of single tooth spline on adapter (147) while shaft (120) is held fixed.

*[11] Spline backlash, measured at 1.7500-inch pitch diameter of mating splines.

*[12] Thickness

*[13] Width

*[14] Chordal tooth thickness measured at 1.9375-inch pitch diameter.

*[15] Flange width; see (A) for flange width measurement.

*[16] Circular tooth thickness measured at 1.9375-inch pitch diameter.

*[17] OD of ratchet (79) teeth

*[18] Height of ratchet (79) teeth

*[19] Tip radii of pawl (84)

*[20] Width of thrust race

*[21] Housing 178482-1 or 178485-1 and ring 175852

*[22] Housing 176637 or 176642 and ring 176643-4

*[23] Spring measured in free condition

*[24] Measurement over 0.2000-inch diameter wires

*[25] Housing 176637 or 176642 and spring set 176631

*[26] Housing 178482-1 or 178485-1 and spring set 175867

Fits and Clearances
Figure 601 (Sheet 8)

*[27] Supports 176647 and 176644

*[28] Support 175895

*[29] Sleeves 176630 and 176629

*[30] Sleeves 175851 and 175850

*[31] Support 176651

*[32] Support 175847

*[33] Bushing DBAF-13-022, 90718

*[34] See view (A) to determine the sleeve service wear.

*[35] Flange width measurement for sleeves 176629 and 176630

*[36] The flange widths for sleeves 175850 and 175851 are measured from the end of the sleeve to the point on the face of the notch where the plane of the flange (shown by the dashed line) intersects the face.

Fits and Clearances
Figure 601 (Sheet 9)

TESTING

1. Test Equipment

NOTE: Equivalent substitutes may be used.

A. Compressed air source, controlled at 0 to 15 psi

B. Air valve adapter

C. ST6396 Transmission Tester (Curtiss-Wright Corp. Caldwell Facility, 3000 Fairfield Rd., Caldwell, New Jersey 07006)

D. Deleted

E. X-Y Recorder:

(1) Model HP7090A (X-Y Recorder, Hewlett Packard Co., 3000 Hanover St., Palo Alto, California 94304) (Replaces HP7004B)

(2) Model 6423 DIN A3 (X-Y Recorder, Soltec Corp., Sol Vista Park, 12977 Arroyo St., San Fernando, California 91340-1597). Replaces XY530T, Esterline Corporation, Esterline - Angus Division, Box 24000, 1201 Main St., Indianapolis, Indiana 46224)

F. Model 870 Signal Conditioner (Daytronic Corp., 2589 Corporate Drive Place, Miamisburg, Ohio 45342) (2 required). No longer available, see H. below.

G. Model 801 Adapter (Daytronic Corp. 2589 Corporate Drive Place, Miamisburg, Ohio 45342). No longer available, see H. below.

H. Model 3170 or 3270 Strain Gage Conditioner (Daytronic Corp., 2589 Corporate Drive Place, Miamisburg, Ohio 45342). Replaces conditioner and adapter listed in F. and G.

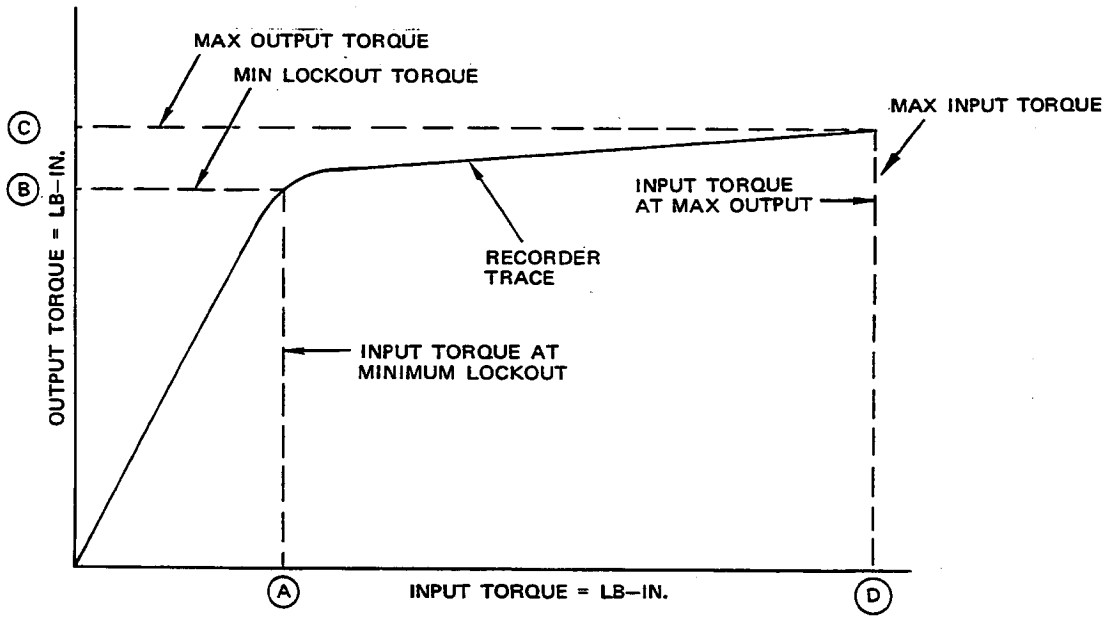
2. Preparation for Test

A. Ensure that unit has been serviced with MIL-H-5606 hydraulic fluid.

B. Install air valve adapter in upper filler port.

C. Turn over coupling by hand in both directions. Gears and bearings must be free running without evidence of binding in any position.

D. With the output and universal shafts free, torque required to rotate input shaft in both directions shall not exceed 12 lb-in.



	65-50324 65-50325	65-50304 65-50305
INPUT (A)	105	140
LOCKOUT (B)	330	384
OUTPUT (C)	390	528
MAX INPUT (D)	1890	2400

Torque Brake Test
Figure 701

3. Functional Test (Fig. 1101)

   A. Connect air hose to air valve adapter in upper filler port, and pressurize with filtered air to 14.5-15.5 psi for minimum of 3 minutes. There shall be no leakage. Remove adapter and install plug (1) and O-ring (2) in upper filler port. Lockwire plug (1). Apply Glyptal to lockwire ends.

   B. Rotate input shaft 10 revolutions in each direction. Allow unit to stand for 8 hours. There shall be no leakage at the end of this period.

C. With universal (output) shaft locked, apply 45-55 lb-in. of torque to input shaft in clockwise direction. Mark position of input shaft. Apply same torque in counterclockwise direction. Input rotational backlash shall not exceed 20 degrees.

D. Alternately apply a 45-55-lb tension and compression load to universal shaft and check that shaft axial play is 0.011-0.016 inch.

E. Apply 50-lb. compressive load to universal shaft and rotate shaft clockwise. A ratcheting sound shall be audible.

F. Mount transmission in ST6396 test fixture (Fig. 702).

G. Connect torque transducers to X-Y recorder.

H. Connect test fixture calibrated input and output torque transducers to transmission shaft.

I. Check that X-Y recorder is zeroed before any torque is applied to transmission.

J. Draw vertical lines on X-Y recorder paper at minimum lockout input torque (105 lb-in. 65-50324, 65-50325)(140 lb-in. 65-50304, 65-50305).

K. Install manual input torque arm.

CAUTION: DO NOT EXCEED MAXIMUM INPUT TORQUE (FIG. 701) OR DAMAGE TO UNIT MAY OCCUR.

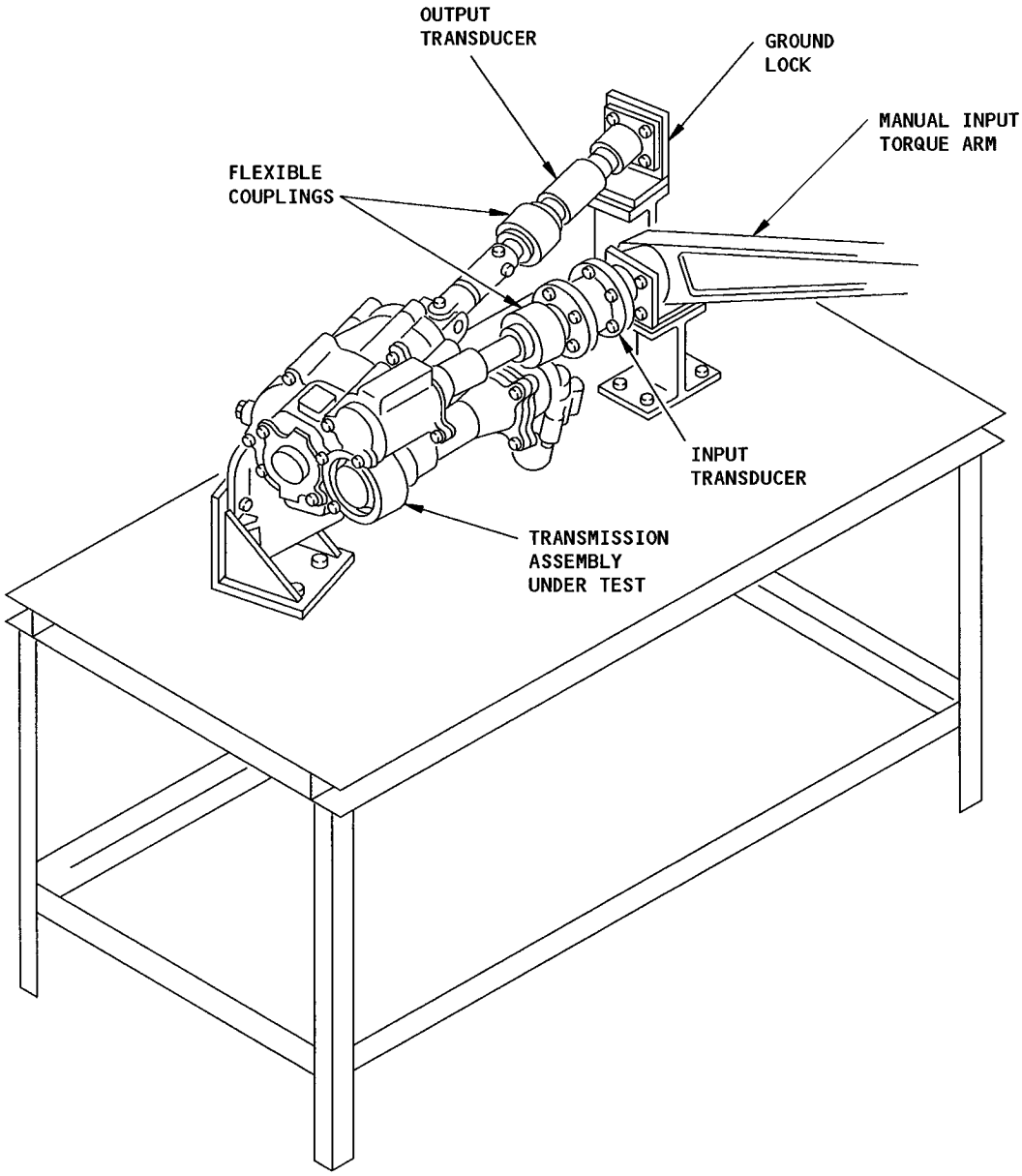
L. Slowly turn the manual input torque arm in the clockwise direction until the input torque is at the maximum limit (Fig. 701).

M. Make sure that the output torque at minimum lockout is not less than 330 lb-in. (65-50324, 65-50325) or 384 lb-in. (65-50304, 65-50305) with a minimum input torque of 105 or 140 lb-in., respectively.

N. Make sure that the output torque is not more than 390 lb-in. (65-50324, 65-50325) or 528 lb-in. (65-50304, 65-50305) with a maximum input torque of 1890 or 2400 lb-in., respectively.

O. Repeat steps L thru N with counterclockwise input torque.

P. Remove unit from test fixture and ink stamp "FT" followed by date of test completion on gear housing (31) adjacent to identification nameplate (163).



Test Fixture
Figure 702

G33766

TROUBLE SHOOTING

1. Trouble shooting is keyed to individual steps of the test procedure. Referenced paragraphs show test procedure in which noted trouble would appear.

	Trouble	Possible Cause	Correction
A.	External leakage, paragraph 3.A., B.	Defective O-rings or seals	Replace O-rings or seals
B.	Binding or rough movement, paragraph 2.C.	Improperly installed or defective components	Correct condition
C.	Excessive backlash, paragraph 3.B. Excessive axial play, paragraph 3.D.	Inadequate shims or excessively worn components	Replace shims or other component
D.	Lockout occurs outside o f minimum or maximum limits, paragraph 3.M., N.	Defective torque brake assembly	Replace or repair torque brake assembly

STORAGE INSTRUCTIONS

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

2. Tag assembly with test date, and cure date of rubber parts.

3. For further information, refer to Temporary Protective Coatings, Subject 20-44-02, and Protection Storage and Handling of Airplane Components, Subject 20-70-01.

SPECIAL TOOLS, FIXTURES AND EQUIPMENT

NOTE: Equivalent substitutes may be used for listed items. Refer to Testing for special tools and equipment required for testing.

1. F71228 -- Splined Coupling Wrench (Boeing)
2. ST6107 -- Spring Expansion Fixture *[1]
3. ST6107-11 -- Fixture Sleeve *[1]
4. ST6107-14, -17 -- Spring Stops *[1]

*[1] Curtiss-Wright Corp. Caldwell Facility, 300 Fairfield Rd., Caldwell, New Jersey 07006

ILLUSTRATED PARTS LIST

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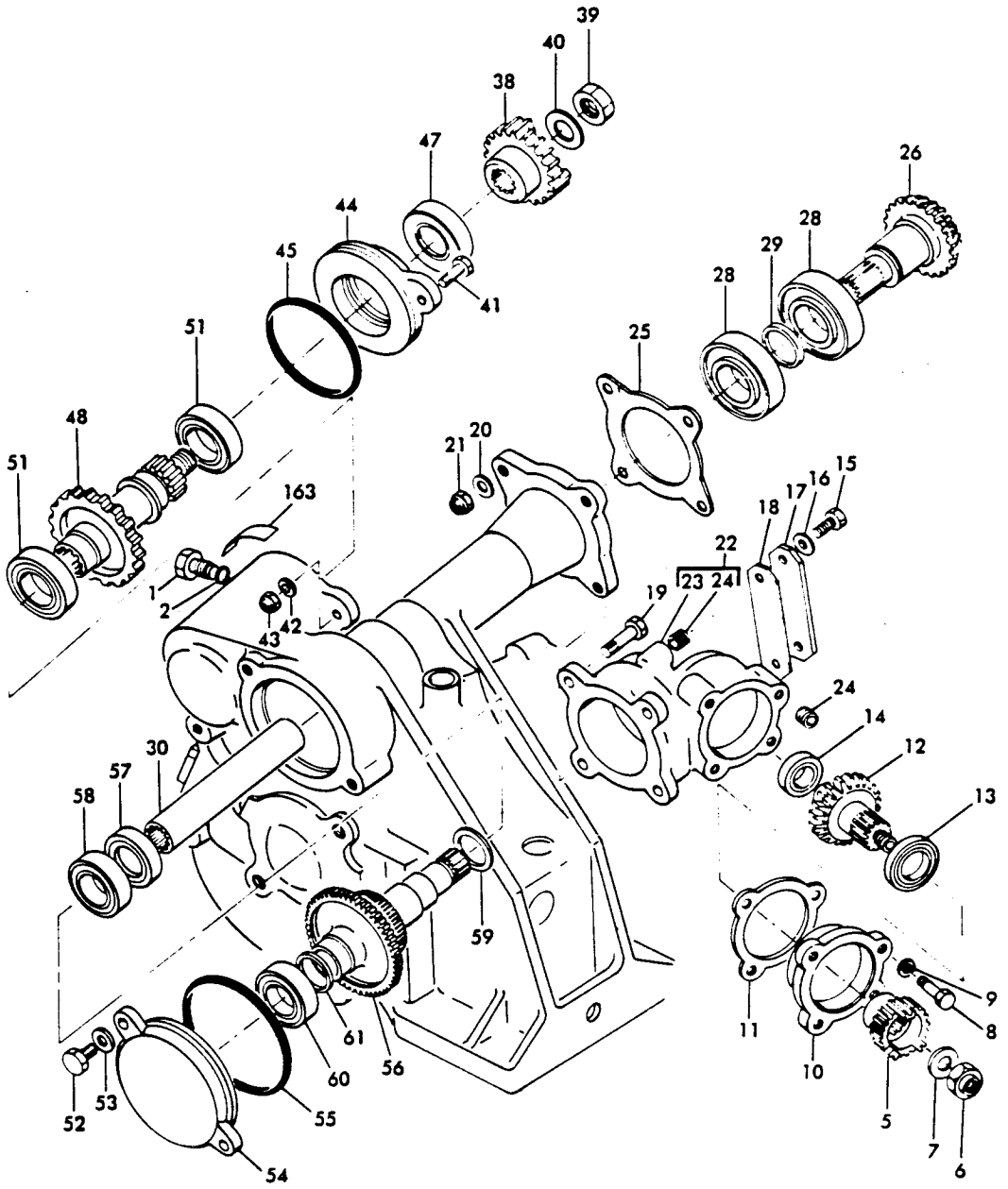
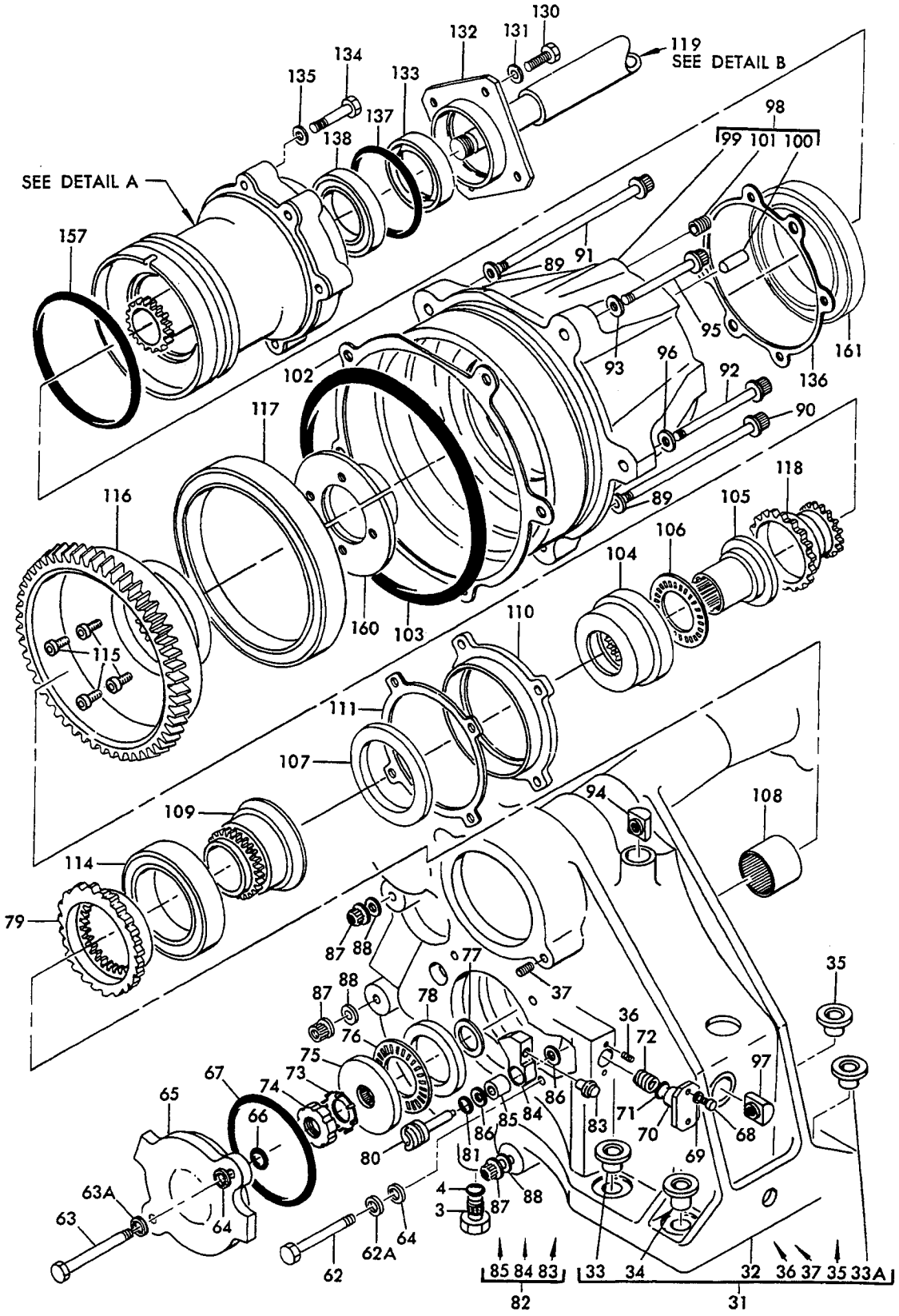
1. Exploded View

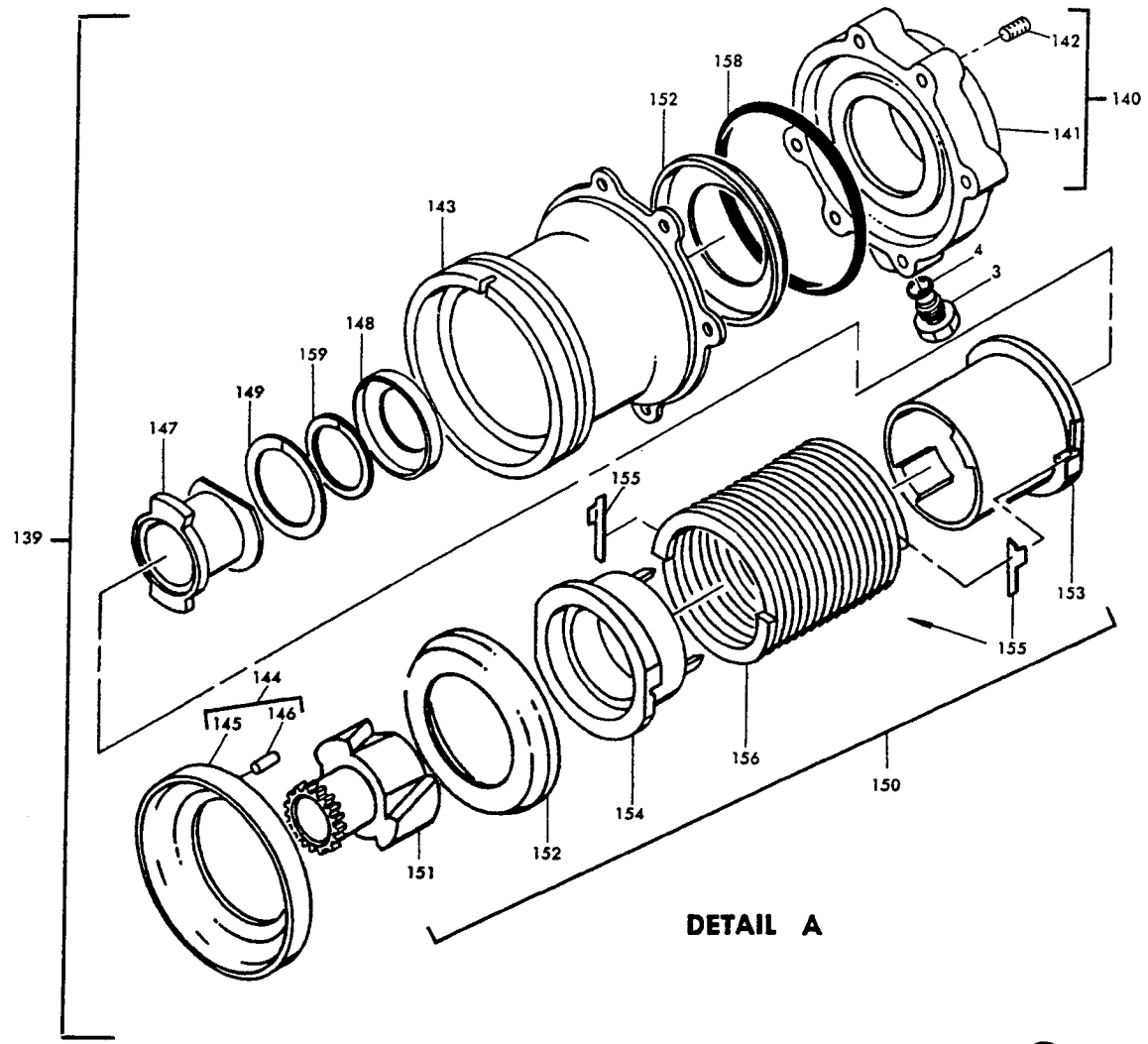


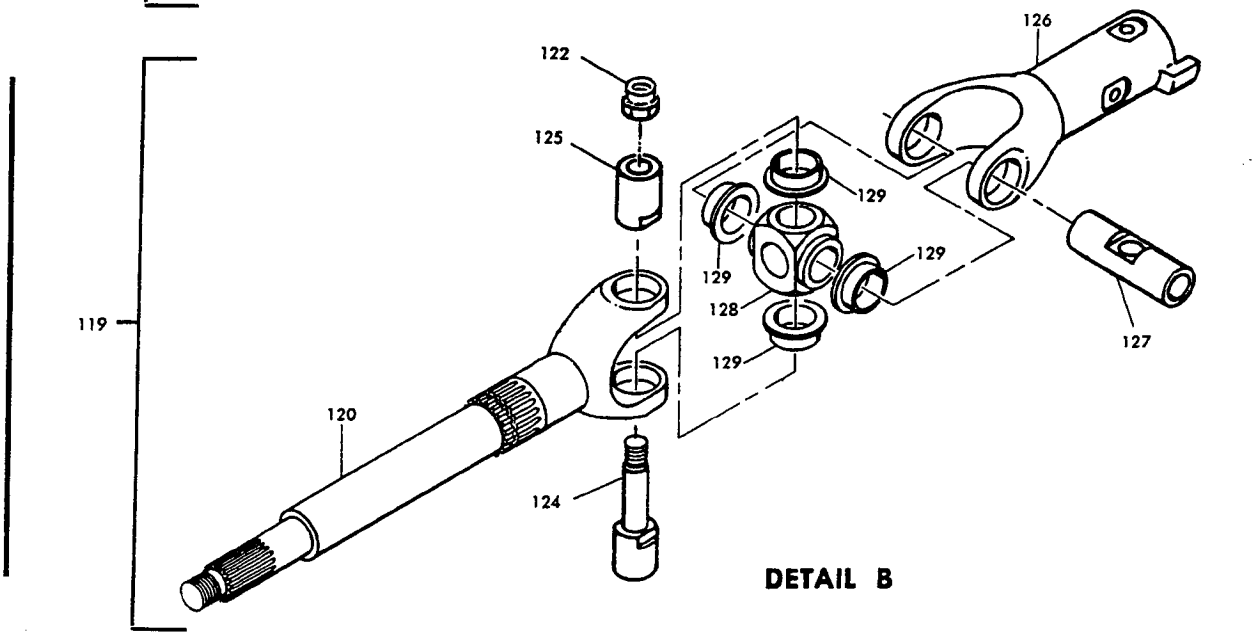
Trailing Edge Flap Drive Transmission Assemblies Nos. 4 and 5
Figure 1101 (Sheet 1)



Trailing Edge Flap Drive Transmission Assemblies Nos. 4 and 5
Figure 1101 (Sheet 2)

65-50304
65-50305
65-50324
65-50325





Trailing Edge Flap Drive Transmission Assemblies Nos. 4 and 5
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-					
	65-50304-2		TRANSMISSION ASSY NO. 4, TE FLAP DRIVE (SB 27-1015)	A	RF
	65-50305-2		TRANSMISSION ASSY NO. 5, TE FLAP DRIVE (SB 27-1015)	B	RF
	65-50304-3		TRANSMISSION ASSY NO. 4, TE FLAP DRIVE	C	RF
	65-50305-3		TRANSMISSION ASSY NO. 5, TE FLAP DRIVE	D	RF
	65-50324-1		TRANSMISSION ASSY NO. 4, TE FLAP DRIVE	E	RF
	65-50325-1		TRANSMISSION ASSY NO. 5, TE FLAP DRIVE	F	RF
	65-50324-2		TRANSMISSION ASSY NO. 4, TE FLAP DRIVE	G	RF
	65-50325-2		TRANSMISSION ASSY NO. 5, TE FLAP DRIVE	H	RF
	65-50324-3		TRANSMISSION ASSY NO. 4, TE FLAP DRIVE (SB 27-1069)	I	RF
	65-50325-3		TRANSMISSION ASSY NO. 5, TE FLAP DRIVE (SB 27-1069)	J	RF
	65-50324-4		TRANSMISSION ASSY NO. 4, TE FLAP DRIVE	K	RF
	65-50325-4		TRANSMISSION ASSY NO. 5, TE FLAP DRIVE	L	RF
	65-50324-5		TRANSMISSION ASSY NO. 4, TE FLAP DRIVE	M	RF
	65-50325-5		TRANSMISSION ASSY NO. 5, TE FLAP DRIVE	N	RF
1	AN814-4DL		. PLUG		1
2	MS28778-4		. PACKING, O-RING		1
3	AN814-4DL		. PLUG		2
4	MS28778-4		. PACKING, O-RING		2
5	69-52427-1		. COUPLING		1
6	BACN10JC6		. NUT (REPLS NAS679A6)		1
7	66-24715-1		. WASHER		1
8	BACB30NE4H4		. BOLT (REPLS NAS1304-4H)		4
9	AN960-416		. WASHER		4
10	69-37628-3		. SUPPORT	A-F	1
10	69-37628-3		. SUPPORT (OPT)	G-N	1
10	69-37628-4		. SUPPORT	G-N	1
11	66-23942-1		. SHIM		1
12	69-52413-1		. GEAR (OPT)		1
12	69-52413-2		. GEAR		1
13	BACB10A117H		. BEARING		1
14	BACB10A523		. BEARING		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
15	BACB30NE4H1		. BOLT (REPLS NAS1304-1H)		2
16	AN960-416		. WASHER		2
17	66-24714-1		. PLATE		1
18	66-24713-2		. GASKET		1
19	BACB30NE4H13		. BOLT (REPLS NAS1304-13H)		4
20	AN960-416		. WASHER		4
21	BACN10JC4		. NUT (REPLS NAS679A4W)		4
22	66-24731-1		. HOUSING ASSY		1
23	69-37626-1		. . HOUSING		1
24	MS21208F4-15		. . INSERT (REPLS MS124696)		6
25	66-25123-1		. SHIM		1
26	69-37601-3		. GEAR	A-F	1
26	69-37601-3		. GEAR (OPT)	G-N	1
26	69-37601-4		. GEAR	G-N	1
27			. NOT USED		
28	BACB10A95		. BEARING		2
29	66-24711-1		. SPACER		1
30	69-37624-3		. SHAFT		1
31	69-52449-1		. HOUSING ASSY	AC	1
31	69-52449-2		. HOUSING ASSY	BD	1
31	69-52449-3		. HOUSING ASSY	EGIKM	1
31	69-52449-4		. HOUSING ASSY	FHJLN	1
32	65-50264-1		. . HOUSING	AC	1
32	65-50264-2		. . HOUSING	BD	1
32	65-50264-3		. . HOUSING (OPT TO 65-50264-5)	EGIKM	1
32	65-50264-5		. . HOUSING	EGIKM	1
32	65-50264-4		. . HOUSING (OPT TO 65-50264-6)	FHJLN	1
32	65-50264-6		. . HOUSING	FHJLN	1
33	66-24745-4		. . BUSHING	A-D	1
33	66-24745-1		. . BUSHING	E-N	1
33A	66-24745-5		. . BUSHING	A-D	1
33A	66-24745-1		. . BUSHING	E-N	1
34	66-24745-4		. . BUSHING	A-D	1
34	66-24745-2		. . BUSHING	E-N	1
35	66-24745-5		. . BUSHING	A-D	1
35	66-24745-3		. . BUSHING	E-N	1
36	MS21208F1-15		. . INSERT (REPLS MS124695)		4
37	MS21208F4-15		. . INSERT (REPLS MS124696)		2
38	69-52427-1		. COUPLING		1
39	BACN10JC6		. NUT (REPLS NAS679A6)		1
40	66-24715-1		. WASHER		1
41	BACB30NE4-10		. BOLT (REPLS NAS1304-10)		2
42	AN960-416		. WASHER		2

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
43	BACN10JC4		. NUT (REPLS NAS679A4W)		2
44	69-37698-1		. COVER		1
45	MS28775-232		. PACKING, O-RING		1
47	69-73393-2		. SEAL		1
47	21959-0269		. SEAL, V73680 (OPT)	A-J	1
48	69-52416-1		. GEAR (OPT)		1
48	69-52416-2		. GEAR (OPT)		1
48	69-52416-3		. GEAR	EGI-L	1
48	69-52416-4		. GEAR	MN	1
48	69-52416-3		. GEAR (OPT)	MN	1
51	BACB10A345		. BEARING		2
51	BACB10A407		. BEARING (OPT)		2
52	BACB30NE4H4		. BOLT (REPLS NAS1304-4H)		2
53	AN960-416		. WASHER		2
54	69-37699-1		. COVER (OPT)		1
54	69-37699-2		. COVER	MN	1
55	MS28775-234		. PACKING, O-RING		1
56	65-50283-5		. GEAR (OPT)		1
56	65-50283-6		. GEAR (OPT)		1
56	65-50283-8		. GEAR	EGI-N	1
57	69-73393-1		. SEAL		1
57	21959-0143		. SEAL, V73680 (OPT)	A-J	1
58	BACB10A334		. BEARING		1
59	66-23940-1		. SHIM		1
60	BACB10A90		. BEARING		1
61	66-23939-2		. SHIM		1
62	BACB30NE4H36		. BOLT (REPLS NAS1304-36H)		2
62A	AN960-416		. WASHER		2
63	BACB30NE4H42		. BOLT (REPLS NAS1304-42H)		2
63A	AN960-416		. WASHER		2
64	600-001-1/40S		. SEAL, V83259		4
64	7100-1/4		. SEAL, V83259 (OPT)		4
64	BACS11W4		. SEAL (OPT)		4
64	NAS1523-4Y		. SEAL (OPT)		4
65	69-37629-5		. COVER		1
66	MS28775-011		. PACKING, O-RING		2
67	MS28775-233		. PACKING, O-RING		1
68	NAS1351-3H8P		. SCREW		4
69	AN960-10		. WASHER		4
70	66-25107-1		. RETAINER		2
71	MS28775-012		. PACKING, O-RING		2
72	66-23937-1		. SPRING		2
73	MS172272		. WASHER		1
74	69-52435-1		. NUT		1
74	MS172322		. NUT (OPT)	E-N	1
75	69-37649-1		. PLATE		1
76	NTA2031		. BEARING, V60380		1
77	66-24737-1		. SHIM		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
78	66-24732-1		. PLATE		1
79	69-37632-2		. RATCHET	A-F	1
79	69-37632-2		. RATCHET (OPT)	G-N	1
79	69-37632-3		. RATCHET	G-N	1
80	66-23906-2		. PIN	A-F	2
80	66-23906-2		. PIN (OPT)	G-N	2
80	66-23906-3		. PIN	G-N	2
81	MS28775-014		. PACKING, O-RING		2
82	66-24736-2		. PAWL ASSY		2
83	66-23908-1		. . GUIDE		1
84	66-23901-2		. . PAWL		1
85	66-25126-1		. . BEARING		1
86	66-23929-2		. WASHER		4
87	BACN10HR5		. NUT		3
88	BACW10BN5P		. WASHER		3
89	BACW10BN5C		. WASHER		3
90	BACB30MT5T64		. BOLT	A-L	2
90	BACB30LE5-64		. BOLT	MN	2
91	BACB30MT5T64		. BOLT	ACE-L	1
91	BACB30LE5-64		. BOLT	MN	1
91	BACB30MT5T68		. BOLT	BD	1
92	BACB30MT6T26		. BOLT	A-L	1
92	BACB30LE6-26		. BOLT	MN	1
93	BACW10BN5C		. WASHER		1
94	NAS577-5A		. NUT (REPLS NAS577-5)		1
95	BACB30MT5T42		. BOLT	A-L	1
95	BACB30LE5-42		. BOLT	MN	1
96	BACW10BN6C		. WASHER		1
97	NAS577-6A		. NUT (REPLS NAS577-6)		1
98	69-52458-1		. SUPPORT ASSY (OPT TO 69-52458-3)	ACE	1
98	69-52458-2		. SUPPORT ASSY	BDF	1
98	69-52458-3		. SUPPORT ASSY	EGIKM	1
98	69-52458-4		. SUPPORT ASSY	HJLN	1
99	65-50268-1		. . SUPPORT (USED ON 69-52458-1)	ACE	1
99	65-50268-2		. . SUPPORT	BDF	1
99	65-50268-3		. . SUPPORT (USED ON 69-52458-3)	EGIKM	1
99	65-50268-4		. . SUPPORT	HJLN	1
100	NAS607-5-6P		. . PIN		2
101	MS21208F4-15		. . INSERT (REPLS MS124696)		4
102	66-25122-2		. SHIM		1
103	2-258N304-75		. PACKING, O-RING, V83259		1
103	2-258N304-7		. O-RING, V83259 (OPT)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
104	69-52456-1		. ADAPTER		1
105	69-52455-1		. PLATE		1
105	69-37667-1		. PLATE (OPT)	E-N	1
106	NTA2031		. BEARING, V60380		1
107	66-23936-1		. WASHER		1
108	J1616		. BEARING, V60380		1
108	SCE1616		. BEARING, V21335 (OPT)	A-D	1
109	69-52459-1		. SUPPORT		1
110	69-52454-1		. ADAPTER		1
111	66-25120-1		. SHIM		1
112			. NOT USED		
113			. NOT USED		
114	9110HK1		. BEARING, V76062		1
114	BACB10A474		. BEARING (OPT)	E-N	1
115	NAS1351-3H8P		. SCREW		4
116	65-50270-1		. GEAR (OPT)		1
116	65-50270-2		. GEAR (OPT)		1
116	65-50270-3		. GEAR	EGI-N	1
117	KD50CP		. BEARING, V32828		1
117	KD050CP0		. BEARING, V32828	E-N	1
118	69-37687-2		. COUPLING	A-F	1
118	69-37687-2		. COUPLING (OPT)	G-N	1
118	69-37687-3		. COUPLING	G-N	1
119	65-76603-2		. UNIVERSAL JOINT ASSY	AB	1
119	69-52409-5		. UNIVERSAL JOINT ASSY (OPT)	AB	1
119	65-76603-2		. UNIVERSAL JOINT ASSY	CD	1
119	65-76603-4		. UNIVERSAL JOINT ASSY	E-H	1
119	65-76603-6		. UNIVERSAL JOINT ASSY	I-N	1
120	65-50269-2		. . SHAFT (PREF)	A-H	1
120	65-50269-4		. . SHAFT (PREF)	I-N	1
120	65-50269-3		. . SHAFT (OPT)	I-N	1
120	65-50269-2		. . SHAFT (OPT)	I-N	1
120	65-50269-1		. . SHAFT (OPT)		1
122	BACN10JC7		. . NUT		1
123	BAC27DCT48		DELETED		
124	69-52431-2		. . BOLT (OPT)	AB	1
124	65-76607-1		. . BOLT	AB	1
124	65-76607-1		. . BOLT	C-N	1
125	69-52426-1		. . SPACER (OPT)	AB	1
125	69-60053-1		. . SPACER	AB	1
125	69-60053-1		. . SPACER	C-H	1
125	69-60053-2		. . SPACER	I-N	1
126	69-52420-2		. . YOKE (USED ON 69-52409-5 AND 65-76603-2)		1
126	69-52420-4		. . YOKE (OPT TO 69-52420-6)	E-N	1
126	69-52420-6		. . YOKE	E-H	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
126	69-52420-4		. . YOKE (OPT)	I-N	1
126	69-52420-12		. . YOKE (PREF)	I-N	1
126	69-52420-6		. . YOKE (OPT)	I-N	1
126	69-52420-8		. . YOKE (OPT)	I-N	1
127	69-52424-1		. . PIN, CROSS (OPT)	AB	1
127	69-60057-1		. . PIN, CROSS	AB	1
127	69-60057-1		. . PIN, CROSS (OPT)	C-N	1
127	69-60057-2		. . PIN, CROSS	C-N	1
128	69-52408-1		. . CROSS, TRUNNION	AB	1
128	69-60059-1		. . CROSS, TRUNNION	C-N	1
129	AFDU13-9-15		. BUSHING, V15860 (BOEING 10-61899-15)	A-N	4
129	AJF13A102		. BUSHING, VS0352 (BOEING 10-60516-264 (OPT)	A-H	4
129	AJF13A104DU		. BUSHING, VS0352 (BOEING 10-61899-15)	A-N	4
129	DBAF13-022		. BUSHING, V81376 (BOEING 10-60516-264) (OPT)	A-H	4
129	FBR13A11BA		. BUSHING, V73134 (BOEING 10-60516-264) (OPT)	A-H	4
129	FB2DU13A034BA		. BUSHING, V73134 (BOEING 10-61899-15)	A-N	4
129	HJF13DU102		. BUSHING, V02758 (BOEING 10-61899-15)	A-N	4
129	KJB543612B		. BUSHING, V50632 (BOEING 10-60516-264) (OPT)	A-H	4
129	NHLF13-202A		. BUSHING, V15860 (BOEING 10-60516-264) (OPT)	A-H	4
129	90718		. BUSHING, V09455 (BOEING 10-60516-264) (OPT)	A-H	4
130	NAS1351-3H8P		. SCREW		4
131	AN960-10		. WASHER		4
132	66-25113-2		. RETAINER		1
133	69-73393-4		. SEAL		1
133	21959-0535		. SEAL, V73680 (OPT)	A-J	1
134	BACB30NE4H13		. BOLT (REPLS NAS1304-13H)		4
135	AN960-416		. WASHER		4
136	66-25121-3		. SHIM		1
137	MS28775-140		. PACKING, O-RING		1
138	BACB10A347		. BEARING	A-D	1
138	HDF007-9		. BEARING, V40920	E-N	1
138	HDF007P3LY167		. BEARING, V40920 (OPT TO HDF007-9)	E-N	1
138	BACB10A347		. BEARING (OPT TO HDF007P3LY167)	E-N	1
139	176668		. BRAKE ASSY, TORQUE, V71791	AC	1
139	176669-3		. BRAKE ASSY, TORQUE, V71791	BD	1
139	178488-1		. BRAKE ASSY, TORQUE, V71791 (OPT TO 178488-2)	E	1
139	178488-2		. BRAKE ASSY, TORQUE, V71791	EGIKM	1
139	178489-1		. BRAKE ASSY, TORQUE, V71791	F	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
139	178489-2		. BRAKE ASSY, TORQUE, V71791	HJLN	1
140	176647		. . SUPPORT ASSY, V71791	AC	1
140	176648		. . SUPPORT ASSY, V71791	BD	1
140	175895		. . SUPPORT ASSY, V71791	EGIKM	1
140	175849		. . SUPPORT ASSY, V71791	FHJLN	1
141	176644		. . . SUPPORT, V71791	AC	1
141	176646		. . . SUPPORT, V71791	BD	1
141	175853		. . . SUPPORT, V71791	EGIKM	1
141	175848		. . . SUPPORT, V71791	FHJLN	1
142	MS21208F1-15		. . . INSERT, V71791 (REPLS MS124695)		4
143	176637		. . HOUSING, V71791	AC	1
143	176642		. . HOUSING, V71791	BD	1
143	178482-1		. . HOUSING, V71791	EGIKM	1
143	178485-1		. . HOUSING, V71791	FHJLN	1
144	176651		. . SUPPORT, V71791	A-D	1
144	175847		. . SUPPORT ASSY, V71791	EF	1
144	175847-1		. . SUPPORT ASSY, V71791	EG-N	1
145	175855		. . . SUPPORT, V71791	EF	1
145	175855-1		. . . SUPPORT, V71791	EG-N	1
146	NAS607-2-3P		. . . PIN	E-N	1
147	175857		. . ADAPTER, V71791		1
148	175842		. . RETAINER, V71791		1
149	145498-187		. . RING, V71791		1
149	RR187		. . RING (OPT), V71791		1
150	176664		. . SPRING PACK ASSY, V71791	A-D	1
150	175868		. . SPRING PACK ASSY, V71791	E-N	1
151	175845		. . . COUPLING, V71791		1
152	176643-4		. . . RING, V71791	A-D	2
152	175852		. . . RING, V71791	E-N	2
153	176630		. . . SLEEVE, V71791	A-D	1
153	175851		. . . SLEEVE, V71791	E-N	1
154	175850		. . . SLEEVE, V71791	E-N	1
154	176629		. . . SLEEVE, V71791	A-D	1
155	176278X		. . . SHIM, V71791		AR
156	176631		. . . SPRING SET, V71791	A-D	1
156	175867		. . . SPRING SET, V71791	E-N	1
157	MS28775-239		. PACKING, O-RING	A-D	1
157	2-154N304-75		. PACKING, O-RING, V83259	E-N	1
157	2-154N304-7		. PACKING, O-RING, V83259 (OPT)	E-N	1
158	MS28775-239		. PACKING O-RING	A-D	1
158	2-043N304-75		. PACKING, O-RING, V83259	E-N	1
158	2-043N304-7		. PACKING, O-RING, V83259 (OPT)	E-N	1
159	RSN125		. RING		1
160	66-25110-2		. RETAINER		2
161	K47BKE4239		. DELETED		
161	K47BK		. BEARING, V21335		1
161	BCREFA3261		. BEARING, V83086 (OPT) (R1-6247EESD601KCA1PA045L02)		1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
161	KP47BSD707		. BEARING, V83086 (OPT)		1
161	K47BKCRA4108		. BEARING, V21335 (OPT)		1
163	69-52461-1		. NAMEPLATE		1

VENDORS

V02758 NETWORKS ELECTRONIC CORP., U.S. BEARING DIV., 9750 DESOTO AVE., CHATSWORTH, CALIFORNIA 91311

V09455 BFM TRANSPORT DYNAMICS CORP., 3131 W. SEGERSTROM AVE., P.O. BOX 1953, SANTA ANA, CALIFORNIA 92702-1953

V15860 NEW HAMPSHIRE BALL BEARINGS, INC., ASTRO DIV., 155 LEXINGTON AVE., LACONIA, NEW HAMPSHIRE 03246

V21335 THE FAFNIR BEARING CO., DIVISION OF TEXTRON, INC., 37 BOOTH STREET, NEW BRITAIN, CONNECTICUT 06050

V32828 KEENE CORP., KAYDON BEARING DIV., 2860 McCRACKEN ST., MUSKEGON, MICHIGAN 49443

V40920 MINIATURE BEARING DIVISION, MPB CORP., OPTICAL AVE., PRECISION PARK, KEENE, NEW HAMPSHIRE 03431

V50294 NMB INC., 9730 INDEPENDENCE AVE., CHATSWORTH, CALIFORNIA 91311

V50632 KAMATICS CORP. SUB OF KAMAN CORP., 1335 BLUE HILLS RD., BLOOMFIELD, CONNECTICUT 06002-1304

V60380 THE TORRINGTON CO., SUBSIDIARY OF INGERSOLL-RAND CORP., 59 FIELD ST., TORRINGTON, CONNECTICUT 06790

V71791 CURTISS-WRIGHT CORP., CALDWELL FACILITY, 300 FAIRFIELD RD., CURTISS DIVISION, CALDWELL, NEW JERSEY 07006

V73134 IMO INDUSTRIES INC., HEIM BEARING DIV., 60 ROUND HILL RD., P.O. BOX 430, FAIRFIELD, CONNECTICUT 06430

V73680 GARLOCK, INC., 402 MAIN ST., PALMYRA, NEW YORK 14522

V76062 MARLIN ROCKWELL CO., DIV. OF TRW, INC., 402 CHANDLER ST., JAMESTOWN, NEW YORK 14701

V81376 SOUTHWEST PRODUCTS COMPANY, 2240 BUENA VISTA ST., IRVINDALE, CALIFORNIA 91706

V83259 PARKER-HANNIFIN CORP., SEAL GROUP O-RING DIV., 2360 PALUMBO DR., LEXINGTON, KENTUCKY 40509

VS0352 NIPPON MINIATURE BEARING CO. LTD., TOKYO, JAPAN

Part No.	Fig. and Index No.	Qty. per Assy.
AFDU13-9-15	1101-129	4
AJF13A104DU	129	4
AN814-4DL		AR
AN960-10		AR
AN960-416		AR
BACB10A117H	13	1
BACB10A334	58	1
BACB10A345	51	2
BACB10A347	138	1
BACB10A407	51	2
BACB10A474	114	1
BACB10A523	14	1
BACB10A90	60	1
BACB10A95	28	2
BACB30LE5-42	95	1
BACB30LE5-64	90	2
BACB30LE5-64	91	1
BACB30LE5-26	92	1
BACB30MT5T42	95	1
BACB30MT5T64	90	2
BACB30MT5T64	91	1
BACB30MT5T68	91	1
BACB30MT6T26	92	1
BACB30NE4-10	41	2
BACB30NE4H1	15	2
BACB30NE4H13	19	4
BACB30NE4H13	134	4
BACB30NE4H36	62	2
BACB30NE4H4	8	4
BACB30NE4H4	52	2
BACB30NE4H42	63	2
ACN10HR5	87	3
BACN10JC4	21	4
BACN10JC4	43	2
BACN10JC6	6	1
BACN10JC6	39	1
BACN10JC7	122	1
BACS11W4	64	4
BACW10BN5C	89	3
BACW10BN5C	93	1
BACW10BN6C	96	1
BACW10BN5P	88	3
BCREFA3261	161	1

Part No.	Fig. and Index No.	Qty. per Assy.
DBAF-13-022	129	4
HDF007-9	138	1
HDF007P3LY167	138	1
HJF13DU102	129	4
J1616	108	1
KD050CP0	117	1
KD50CP	117	1
KP47BSD707	161	1
K47BK	161	1
K47BKCRA4108	161	1
MS172272		AR
MS172322	74	1
MS21208F1-15		AR
MS21208F4-15		AR
MS28775-011		AR
MS28775-012		AR
MS28775-014		AR
MS28775-140		AR
MS28775-232		AR
MS28775-233		AR
MS28775-234		AR
MS28775-239		AR
MS28778-4		AR
NAS1351-3H8P		AR
NAS577-5A		AR
NAS577-6A		AR
NAS607-2-3P		AR
NAS607-5-6P		AR
NAS1523-4Y	64	4
NTA2031	76	1
NTA2031	106	1
RR187	149	1
RSN125	159	1
SCE1616	108	1
10-60516-264	129	4
145498-187	149	1
175842	148	1
175845	151	1
175847	144	1
175848	141	1
175849	140	1
175850	154	1

Part No.	Fig. and Index No.	Qty. per Assy.
175851	1101-153	1
175852	152	2
175853	141	1
175855	145	1
175857	147	1
175867	156	1
175868	150	1
175895	140	1
176278X	155	AR
176629	154	1
176630	153	1
176631	156	1
176637	143	1
176642	143	1
176643-4	152	2
176644	141	1
176646	141	1
176647	140	1
176648	140	1
176651	144	1
176664	150	1
176668	139	1
176669-3	139	1
178482-1	143	1
178485-1	143	1
178488-1	139	1
178488-2	139	1
178489-1	139	1
178489-2	139	1
2-043N304-7	158	1
2-043N304-75	158	1
2-154N304-7	157	1
2-154N304-75	157	1
2-258N304-7	103	1
2-258N304-75	103	1
21959-0143	57	1
21959-0269	47	1
21959-0535	133	1
600-001-1/4OS	64	4
65-50264-1	32	1
65-50264-2	32	1
65-50264-3	32	1
65-50264-4	32	1
65-50264-5	32	1
65-50264-6	32	1
65-50268-1	99	1
65-50268-2	99	1
65-50268-3	99	1

Part No.	Fig. and Index No.	Qty. per Assy.
65-50268-4	99	1
65-50269-1	120	1
65-50269-2	120	1
69-50269-3	120	1
69-50269-4	120	1
65-50270-1	116	1
65-50270-2	116	1
65-50270-3	116	1
65-50283-5	56	1
65-50283-6	56	1
65-50283-8	56	1
65-50304-2	1101	
65-50304-3	1101	
65-50305-2	1101	
65-50305-3	1101	
65-50324-1	1101	
65-50324-2	1101	
65-50324-3	1101	
65-50324-4	1101	
65-50324-5	1101	
65-50325-1	1101	
65-50325-2	1101	
65-50325-3	1101	
65-50325-4	1101	
65-50325-5	1101	
65-76603-2	119	1
65-76603-4	119	1
65-76603-6	119	1
65-76607-1	124	1
66-23901-2	84	1
66-23906-2	80	2
66-23906-3	80	2
66-23908-1	83	1
66-23929-2	86	4
66-23936-1	107	1
66-23937-1	72	2
66-23939-2	61	1
66-23940-1	59	1
66-23942-1	11	1
66-24711-1	29	1
66-24713-2	18	1
66-24714-1	17	1
66-24715-1	7	1
66-24715-1	40	1
66-24731-1	22	1
66-24732-1	78	1
66-24736-2	82	2

Part No.	Fig. and Index No.	Qty. per Assy.
66-24737-1	1101-77	1
66-24745-1	33	1
66-24745-1	33A	1
66-24745-2	34	1
66-24745-3	35	1
66-24745-4	33	1
66-24745-4	34	1
66-24745-5	33A	1
66-24745-5	35	1
66-25107-1	70	2
66-25110-2	160	2
66-25113-2	132	1
66-25120-1	111	1
66-25121-3	136	1
66-25122-2	102	1
66-25123-1	25	1
66-25123-1	25	1
66-25126-1	85	1
69-37601-3	26	1
69-37601-4	26	1
69-37624-3	30	1
69-37626-1	23	1
69-37628-3	10	1
69-37628-4	10	1
69-37629-5	65	1
69-37632-2	79	1
69-37632-3	79	1
69-37649-1	75	1
69-37667-1	105	1
69-37687-2	118	1
69-37687-3	118	1
69-37698-1	44	1
69-37699-1	54	1
69-37699-2	54	1
69-52407-2	120	1
69-52408-1	128	1
69-52409-5	119	1
69-52413-1	12	1
69-52413-2	12	1
69-52416-1	48	1
69-52416-2	48	1
69-52416-3	48	1
69-52416-4	48	1
69-52420-2	126	1
69-52420-4	126	1
69-52420-6	126	1
69-52420-8	126	1

Part No.	Fig. and Index No.	Qty. per Assy.
69-52420-12	126	1
69-52424-1	127	1
69-52426-1	125	1
69-52427-1	5	1
69-52427-1	38	1
69-52431-2	124	1
69-52435-1	74	1
69-52449-1	31	1
69-52449-2	31	1
69-52449-3	31	1
69-52449-4	31	1
69-52454-1	110	1
69-52455-1	105	1
69-52456-1	104	1
69-52458-1	98	1
69-52458-2	98	1
69-52458-3	98	1
69-52458-4	98	1
69-52459-1	109	1
69-52461-1	163	1
69-60053-1	125	1
69-60053-2	125	1
69-60057-1	127	1
69-60057-2	127	1
69-60059-1	128	1
69-73393-1	56	1
69-73393-2	47	1
69-73393-4	133	1
7100-1/4	64	4
90718	129	4
9110HK1	114	1