COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

STABILIZER TRIM ACTUATOR ASSEMBLY

PART NUMBER 251A4510-11, 251A4510-13, 251A4510–10, –4, –5, –6, –9

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COMPONENT MAINTENANCE MANUAL

Revision No. 18
Jul 01/2009

To: All holders of STABILIZER TRIM ACTUATOR ASSEMBLY 27-45-12.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

The COMPONENT MAINTENANCE MANUAL is furnished either as a printed manual, on microfilm, or digital products, or any combination of the three. This revision replaces all previous microfilm cartridges or digital products. All microfilm and digital products are reissued with all obsolete data deleted and all updated pages added.

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27A1277			Nov 01/06

All revisions to this manual will be accompanied by transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the revision date, the date filed and the initials of the person filing.

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COMPONENT MAINTENANCE MANUAL

All temporary revisions to this manual will be accompanied by a cover sheet bearing the temporary revision number. Enter the temporary revision number in numerical order, together with the temporary revision date, the date the temporary revision is inserted and the initials of the person filing.
When the temporary revision is incorporated or cancelled, and the pages are removed, enter the date the pages are removed and the initials of the person who removed the temporary revision.

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INTRODUCTION

1. General

A. The instructions in this manual supply the data necessary to do the maintenance functions together with the test, fault isolation, repair, and replacement of the defective parts.

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

C. Components that can be repaired have a different repair number for each specified repair. To find the repair number location of a component, look in the Repair-General procedure at the beginning of the REPAIR section. The Repair-General procedure also has an explanation of the True Position Dimension symbols used.

D. All dimensions, measures, quantities and weights included are in English units. When metric equivalents are given they will be in the parentheses that follow the English units.

E. The introduction to the Illustrated Parts List (IPL) shows how the IPL data is used.

F. Design changes, optional parts, configuration differences and Service Bulletin modifications may cause different part numbers. These part numbers are identified in the IPL with an alphabetical letter which is added to the end of the basic item number. This new item number is referred to as an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless shown differently.

G. The tool reference numbers found in the individual procedures and in the Special Tools, Fixtures, and Equipment section are used to identify if a tool is a standard tool (STD-XXXX), a commercial tool (COM-XXXX), or a Special Tool (SPL-XXXX). This reference number is also used to distinguish between tools with similar names in the same procedure. These reference numbers are for use in the documentation only. They are not to be used for ordering tools.

STABILIZER TRIM ACTUATOR ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. The stabilizer trim actuator assembly consists of a ballscrew assembly safety rod, upper and lower gimbal assembly, cable drum, and a gearbox containing the gearing, disconnect clutch, and primary and secondary brakes.

B. The actuator assembly is attached to airplane structure through a lower gimbal assembly incorporated in the primary brake housing. The actuator ballnut carries an upper gimbal assembly which attaches to the stabilizer front spar.

2. Operation

A. The unit is actuated electrically by the stabilizer trim motor, or manually by rotating the cable drum with cables from the cockpit. The stabilizer trim motor is controlled either by manually operated electric switches on the control column on the flight deck or by the autopilot digital flight control system.

B. The cable drum serves a dual purpose. It drives the actuator for manual control of trim. When the actuator is driven electrically, rotation of the cable drum positions the stabilizer indicator on the control stand.

C. If the stabilizer trim motor is nonfunctional, the actuator is driven manually, initial rotation of the cable drum disengages the trim motor and the autopilot servomotor from the gearing. The motors are re-engaged when manual operation ceases.

D. The secondary brake prevents rotation of the ballscrew if the primary brake should fail.

E. The safety rod installed in the ballscrew shaft supports the stabilizer in case of ballscrew failure.

F. Rotation of the ballscrew is translated to linear motion through the ballnut. Backdrive irreversibility is provided by the primary brake. Under normal operation, the primary brake assembly ratchets to hold the stabilizer mechanically in the desired position. When operating in the direction of an aiding aerodynamic load, the brake is energized by screw thrust to prevent backdriving.

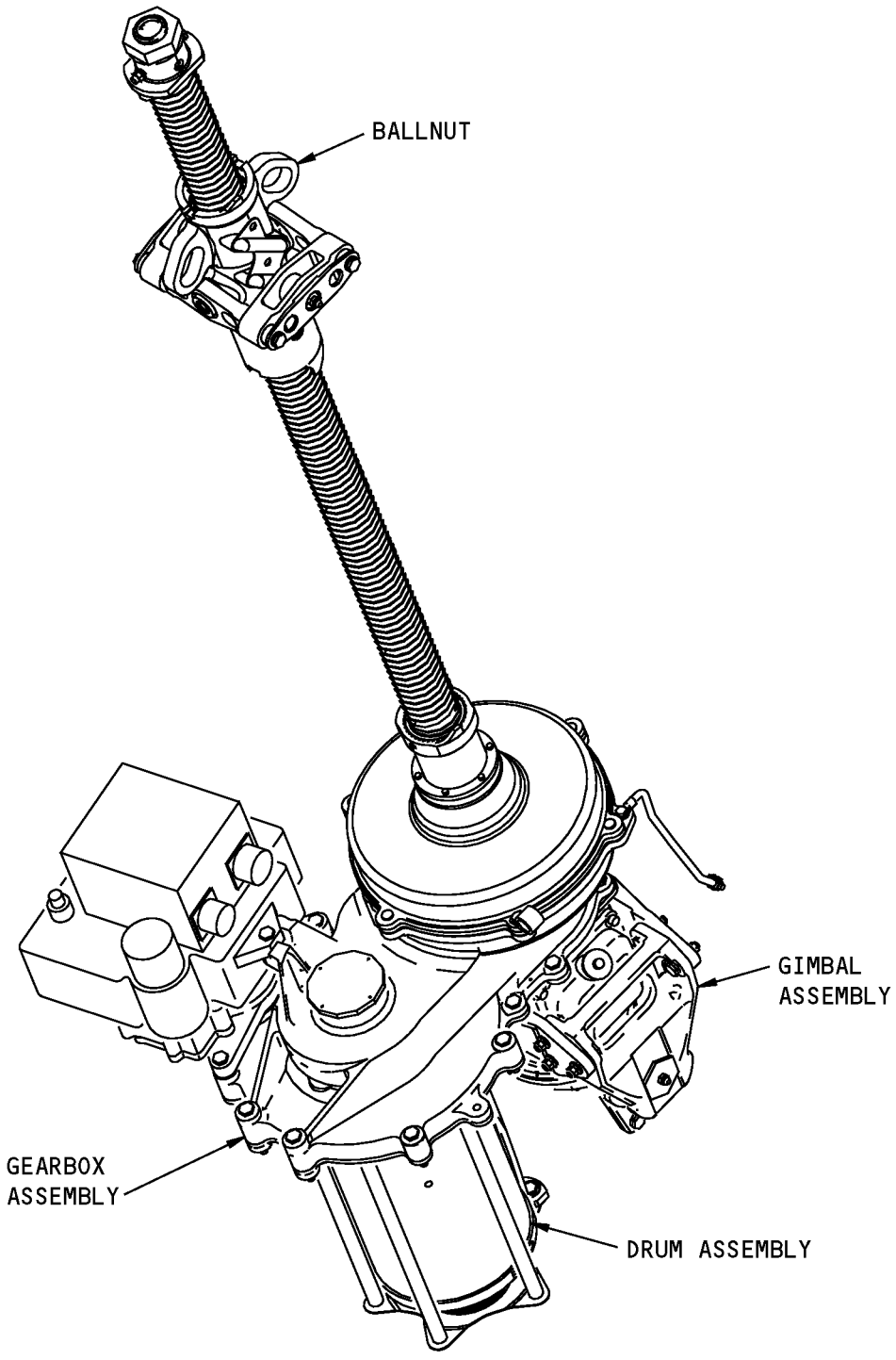
3. Leading Particulars (Approximate)

A. Length – 53 inches

B. Width – 16 inches

C. Height – 17.5 inches

D. Weight – 117.5 pounds



Stabilizer Trim Actuator Assembly
Figure 1

TESTING AND FAULT ISOLATION

1. General

A. This procedure has the data necessary to do a test of the Stabilizer Trim Actuator Assembly or for fault isolation. There are two parts.

(1) Stabilizer Trim Actuator Assembly Test

(a) For 251A4510-4, -5 – TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)

1) End Play Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(a)

2) Pressure Test – TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(b)

3) Sleeve Backlash Test – TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(c)

4) Friction Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(d)

5) Auxiliary Brake Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(e)

6) Load Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(f)

7) Disconnect Clutch Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(g)

8) Timing Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(h)

(b) For 251A4510-6, -9, -10, -11, -13 – TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)

1) End Play Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(a)

2) Pressure Test – TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(b)

3) Sleeve Backlash Test – TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(c)

4) Friction Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(d)

5) Auxiliary Brake Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(e)

6) Load Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(f)

7) Disconnect Clutch Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(g)

8) Timing Check – TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(h)

(2) Fault Isolation

(a) For 251A4510-4, -5 refer to TESTING AND FAULT ISOLATION, Table 101

(b) For 251A4510-6, -9, -10, -11, -13 refer to TESTING AND FAULT ISOLATION, Table 102

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

2. Stabilizer Trim Actuator Assembly Test

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-1684	Assembly - Wrench, Pinion Gear, Stabilizer Trim Actuator (Part #: F71267, Supplier: 81205) (Opt Part #: F71252, Supplier: 81205)
SPL-5413	Stabilizer Trim Actuator Wrench Assembly (Part #: C27080-1, Supplier: 81205) (Opt Part #: F70109, Supplier: 81205)

Reference	Description
SPL-5420	End Play Check, Stab Trim Actuator Hydraulic Fixture (Part #: F71421-501, Supplier: 81205)
SPL-5421	Cable Tension, Stabilizer Trim Actuator Test Apparatus (Opt Part #: F71422-839, Supplier: 81205)
SPL-5437	Ball Nut/Screw Assembly Stabilizer Trim Torque Socket (Part #: F80249-7, Supplier: 81205)

B. References

Reference	Title
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES

C. General

(1) To do these tests, it is necessary to set up the ballscrew assembly and primary brake housing in the end play check fixture Hydraulic Fixture, SPL-5420 or the Test Support Jig, SPL-5421.

(2) Hydraulic Pressure Supply – Up to 110 psi for end play test

(3) Compressed Air Supply – Up to 20 psi for pressure test

D. Procedure

NOTE: Clockwise (CW) and counterclockwise (CCW) direction referred to in these tests are as viewed from top (screw end) of the ballscrew assembly.

(1) Test actuator assemblies 251A4510-4, -5 (see IPL Figure 1 for item numbers).

(a) Do an end play check.

1) Install primary brake housing assembly (616) with attached parts in the F71421-501 end play check Hydraulic Fixture, SPL-5420.

2) Apply a 400-pound tension load to the ballscrew (16), then apply an equivalent compression load. Check that axial play, measured between the ballscrew assembly (16) and housing assembly (616), is 0.008-0.015 inch for the 251A4510-4 actuator assembly or 0.004-0.010 inch for the 251A4510-5 actuator assembly.

3) Adjust the nuts (392, 400) as required to obtain the specified axial play.

4) Lockwire the nut (400) to the key (396) using the double-twist method (SOPM 20-50-02).

(b) Do a pressure test of the primary brake housing (616).

NOTE: For this test, a source of clean, dry, filtered air or nitrogen is required.

NOTE: The actuator assembly is to be complete for this and subsequent tests, except pin assembly (56), gimbal fitting (52), and yoke (48) may be removed. Install the actuator assembly in the F71422-839 Test Support Jig, SPL-5421 or equivalent.

1) Remove the plug assembly (580, 589) and the O-ring (577) and pressure test to 15-17 psig air pressure for 3 minutes.

2) Rotate ballscrew (16) through full travel of the ballnut in both directions while under pressure. Check that there is no leakage.

3) Reinstall the plug assembly (580, 589) and the O-ring (577) and lockwire using the double-twist method (SOPM 20-50-02).

(c) Do a sleeve backlash test.

1) Apply approximately 20-pound axial load to the sleeve assembly (80) in both directions.

2) Measure the axial movement between the sleeve (88) and the ballscrew (16). Make sure the axial movement (backlash) does not exceed 0.030 inch.

(d) Do a friction check.

NOTE: Torque is applied and measured at the forward drum.

1) Apply 110-pound rigging load to the cables (optional step).

2) Turn the cable drum assembly (736) through full CW and CCW screw travel. The torque necessary to turn the drum shall not be more than 115 pound-inches.

3) Measure and record the torque necessary to turn the drum CW at approximately mid-travel.

4) Measure and record the torque necessary to turn the drum CCW at approximately mid travel.

(e) Do an auxiliary brake check.

1) Check auxiliary brake slippage.

a) Apply 110-pound rigging load to the cables (optional step).

b) Using the F80249-4 Torque Socket Tool, SPL-5437, apply 2500 pound-inches torque to the ballscrew (16) in both a CW and CCW direction. No slippage of the auxiliary brake (132A) shall occur.

c) Check that no slippage of auxiliary brake (132A) occurs.

2) Check the auxiliary brake release.

a) Apply 110-pound rigging load to the cables (optional step).

b) With 500 pound-inches CW torque applied to the ballscrew (16), apply a CW torque to the cable drum assembly (736). Make sure the torque necessary to release the auxiliary brake (132A) does not exceed 173 pound-inches.

c) With 500 pound-inches CCW torque applied to the ballscrew (16), apply a CCW torque to the cable drum assembly (736). Make sure the torque necessary to release the auxiliary brake (132A) does not exceed 173 pound-inches.

d) Turn the cable drum assembly (736) until the upstop on the ballscrew (16) is just contacted.

e) Apply a CCW torque of 660 pound-inches to the motor input shaft.

f) Apply a CW torque to the motor input shaft. Make sure the torque necessary to release the auxiliary brake does not exceed 187 pound-inches.

(f) Do a load check.

1) Do a load check with the ballscrew (16) in tension.

a) Apply 110-pound rigging load to the cables and a 500-pound tension load to the ballscrew through the ballnut of the ballscrew.

b) Turn the cable drum assembly (736) through full CCW screw travel. Make sure the torque necessary to turn the drum does not exceed 176 pound-inches.

c) At approximately mid-travel, measure the torque necessary to turn the drum CCW. Subtract the torque recorded in TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(d)4). The difference shall not be more than 77 pound-inches.

d) Turn the cable drum through full CW screw travel. Make sure the torque necessary to turn the drum does not exceed 192 pound-inches.

e) At approximately mid-travel, measure the torque necessary to turn the drum CW. Subtract the torque recorded in TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(d)3). The difference shall not be less than 18 pound-inches or more than 100 pound-inches.

2) Do a load check with the ballscrew (16) in compression.

a) Apply 100-pound rigging load to the cables and a 500-pound compression load to the ballscrew through the ballnut of the ballscrew.

b) Turn the cable drum through full CW screw travel. Make sure the torque necessary to turn the drum does not exceed 176 pound-inches.

c) At approximately mid-travel, measure the torque necessary to turn the drum CW. Subtract the torque recorded in TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(d)3). The difference shall not be more than 77 pound-inches.

d) Turn the cable drum through full CCW screw travel. Make sure the torque necessary to turn the drum does not exceed 192 pound-inches.

e) At approximately mid-travel, measure the torque necessary to turn the drum CCW. Subtract the torque recorded in TESTING AND FAULT ISOLATION, Paragraph 2.D.(1)(d)4). The difference shall not be less than 18 pound-inches or more than 100 pound-inches.

(g) Do a disconnect clutch check.

1) Do a dynamic test.

a) Apply 110-pound rigging load to the cables.

b) Secure the pinion gear (866) from turning with the F71267 pinion gear wrench, SPL-1684 as shown in TESTING AND FAULT ISOLATION, Figure 101.

c) Secure the ballscrew (16) so it does not rotate.

d) Apply a CCW torque to the cable drum (756) with the C27080 wrench assembly, SPL-5413. The torque necessary to disconnect the manual clutch shall not be more than 780 pound-inches (approximately 20-degree of drum rotation is necessary to disengage the clutch).

e) Hold the cable drum in the disconnect position. The motor input shaft shall rotate freely.

f) Apply CW torque to the cable drum. The torque necessary to disconnect the manual clutch shall not be more than 780 pound-inches (approximately 20-degree of drum rotation is necessary to disengage the clutch).

g) Hold the cable drum in the disconnect position. The motor input shaft shall rotate freely.

2) Do a static test.

NOTE: The following test procedure will verify breakout torque values are less than an acceptable maximum. Breakout torque is defined here as the maximum torque required to ratchet the clutch by one detent. The drum should be turned very slowly so that a torque wrench dial indicator can be observed to be increasing to a point where it just drops off before the clutch ratchets to the next detent. This maximum torque value shall be referred to as the breakout torque.

a) Secure the motor input shaft so it does not rotate.

b) Turn the cable drum (756) CW. Make sure the breakout torque is less than 750 pound-inches for each of the 20 clutch detent positions. Relax the torque after advancing each detent position. Record each value.

c) Repeat the previous step in the CCW direction.

(h) Do a timing check.

1) Position the cable drum (756) until the ballnut contacts the lower stop (64). The gap between the lower stop and the ballnut shall not be less than 0.15 inch or more than 0.17 inch as shown in ASSEMBLY, Figure 701, Bubble A.

2) With the ballnut against the lower stop, the ballnut shall be positioned as shown in ASSEMBLY, Figure 701, Bubble A, the index mark on the bottom of the cable drum (756) shall be within 10 degrees of position shown in ASSEMBLY, Figure 701, View H-H (the ballnut zerk fitting shall be on the opposite side of the actuator assembly from the motor mount).

(2) Test Actuator Assembly 251A4510-6, -9, -10, -11, -13 (see IPL Figure 2 for item numbers):

(a) Do an end play check.

1) Install primary brake housing assembly (720A) with attached parts in the F71421-501 end play check Hydraulic Fixture, SPL-5420.

2) Apply a 400-pound tension load to the ballscrew (16), then apply an equivalent compression load. Check that axial play, measured between the ballscrew assembly (16) and housing assembly (720A) 0.004-0.010 inch for the 251A4510-6, -9, -10, -11, -13 actuator assemblies.

3) Adjust the nuts (496, 504) as required to obtain the specified axial play.

4) Lockwire the nut (504) to the key (500) using the double-twist method (SOPM 20-50-02).

(b) Do a pressure test of the primary brake housing (720A).

NOTE: For this test, a source of clean, dry, filtered air or nitrogen is required.

NOTE: The actuator assembly is to be complete for this and subsequent tests, except pin assembly (60), gimbal fitting (56), and yoke (52) may be removed. Install the actuator assembly in the F71422-839 Test Support Jig, SPL-5421 or equivalent.

1) Remove the plug assembly (688) and the O-ring (692A) and pressure test to 15-17 psig air pressure for 3 minutes.

2) Rotate ballscrew (16) through full travel of the ballnut in both directions while under pressure. Check that there is no leakage.

3) Reinstall the plug assembly (688) and the O-ring (692A) and lockwire using the double-twist method (SOPM 20-50-02).

4) Remove the plug (128) and the O-ring (132) and pressure test to 15-17 psig air pressure for 3 minutes.

5) Rotate ballscrew (16) by turning the motorinput shaft or the cable drum through full travel of ballnut in both directions while under pressure. Check that there is no leakage.

6) Reinstall the plug (128) and the O-ring (132) and lockwire using the double-twist method (SOPM 20-50-02).

(c) Do a sleeve backlash test.

1) Apply approximately 20-pound axial load to the sleeve assembly (300) in both directions.

2) Measure the axial movement between the sleeve (308) and the ballscrew (16). Make sure the axial movement (backlash) does not exceed 0.030 inch.

(d) Do a friction check.

NOTE: Torque is applied and measured at the test fixture drum.

1) Apply 110-pound rigging load to the cables.

2) Turn the cable drum assembly (848) through full CW and CCW screw travel. The torque necessary to turn the drum shall not be more than 140 pound-inches.

3) Measure and record the torque necessary to turn the drum CW at approximately mid travel.

4) Measure and record the torque necessary to turn the drum CCW at approximately mid travel.

(e) Do an auxiliary brake check.

1) Apply 110-pound rigging load to the cables.

2) With 500 pound-inches CW torque applied to the ballscrew (16), apply a CW torque to the cable drum assembly (848). Make sure the torque necessary to release the auxiliary brake (132A) does not exceed 720 pound-inches.

3) With 500 pound-inches CCW torque applied to the ballscrew (16), apply a CCW torque to the cable drum assembly (848). Make sure the torque necessary to release the auxiliary brake (132A) does not exceed 720 pound-inches.

4) Turn the cable drum assembly (848) until the upstop on the ballscrew (16) is just contacted.

5) Apply a CCW torque of 660 pound-inches to the motor input shaft.

6) Apply a CW torque to the motor input shaft. Make sure the torque necessary to release the auxiliary brake does not exceed 187 pound-inches.

(f) Do a load check.

1) Do a load check with the ballscrew (16) in tension.

a) Apply 110-pound rigging load to the cables and a 500-pound tension load to the ballscrew through the ballnut of the ballscrew.

b) Turn the cable drum assembly (848) through full CCW screw travel. Make sure the torque necessary to turn the drum does not exceed 201 pound-inches.

c) At approximately mid-travel, measure the torque necessary to turn the drum CCW. Subtract the torque recorded in TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(d)4). The difference shall not be more than 77 pound-inches.

d) Turn the cable drum through full CW screw travel. Make sure the torque necessary to turn the drum does not exceed 217 pound-inches.

e) At approximately mid-travel, measure the torque necessary to turn the drum CW. Subtract the torque recorded in TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(d)3). The difference shall not be less than 18 pound-inches or more than 100 pound-inches.

2) Do a load check with the ballscrew (16) in compression.

a) Apply 100-pound rigging load to the cables and a 500-pound compression load to the ballscrew through the ballnut of the ballscrew.

b) Turn the cable drum through full CW screw travel. Make sure the torque necessary to turn the drum does not exceed 201 pound-inches.

c) At approximately mid-travel, measure the torque necessary to turn the drum CW. Subtract the torque recorded in TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(d)3). The difference shall not be more than 77 pound-inches.

d) Turn the cable drum through full CCW screw travel. Make sure the torque necessary to turn the drum does not exceed 217 pound-inches.

e) At approximately mid-travel, measure the torque necessary to turn the drum CCW. Subtract the torque recorded in TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(d)4). The difference shall not be less than 18 pound-inches or more than 100 pound-inches.

(g) Do a disconnect clutch check.

1) Do a dynamic test.

a) Apply 110-pound rigging load to the cables.

b) Secure the pinion gear (978) from turning with the F71267 pinion gear wrench, SPL-1684 as shown in TESTING AND FAULT ISOLATION, Figure 101.

c) Secure the ballscrew (16) so it does not rotate.

d) Apply a CCW torque to the cable drum (868) with the C27080 wrench assembly, SPL-5413. The torque necessary to disconnect the manual clutch shall not be more than 780 pound-inches (approximately 20-degree of drum rotation is necessary to disengage the clutch).

e) Hold the cable drum in the disconnect position. The motor input shaft shall rotate freely.

f) Apply CW torque to the cable drum. The torque necessary to disconnect the manual clutch shall not be more than 780 pound-inches (approximately 20-degree of drum rotation is necessary to disengage the clutch).

g) Hold the cable drum in the disconnect position. The motor input shaft shall rotate freely.

2) Do a static test.

NOTE: The following test procedure will verify breakout torque values are less than an acceptable maximum. Breakout torque is defined here as the maximum torque required to ratchet the clutch by one detent. The drum should be turned very slowly so that a torque wrench dial indicator can be observed to be increasing to a point where it just drops off before the clutch ratchets to the next detent. This maximum torque value shall be referred to as the breakout torque.

a) Secure the motor input shaft so it does not rotate.

b) Turn the cable drum (868) CW. Make sure the breakout torque is less than 750 pound-inches for each of the 20 clutch detent positions. Relax the torque after advancing each detent position. Record each value.

c) Repeat TESTING AND FAULT ISOLATION, Paragraph 2.D.(2)(g)2) in the CCW direction.

(h) Do a timing check.

1) Position the cable drum (868) until the ballnut contacts the lower stop (76). The gap between the lower stop and the ballnut shall not be less than 0.15 inch or more than 0.17 inch as shown in ASSEMBLY, Figure 705, Bubble A.

2) With the ballnut against the lower stop, the ballnut shall be positioned as shown in ASSEMBLY, Figure 705, Bubble A, the index mark on the bottom of the cable drum (868) shall be within 10 degrees of position shown in ASSEMBLY, Figure 705, View H-H (the ballnut zerk fitting shall be on the opposite side of the actuator assembly from the motor mount).

3. Fault Isolation

A. Refer to the TESTING AND FAULT ISOLATION, Table 101 for causes of the problems found and the procedures to correct them.

NOTE: For disassembly of 251A4510-4, -5, refer to DISASSEMBLY, Paragraph 3.C.(1). For assembly of 251A4510-4, -5, refer to ASSEMBLY, Paragraph 2.E.(1).

Table 101: Fault Isolation Chart (251A4510-4, -5)

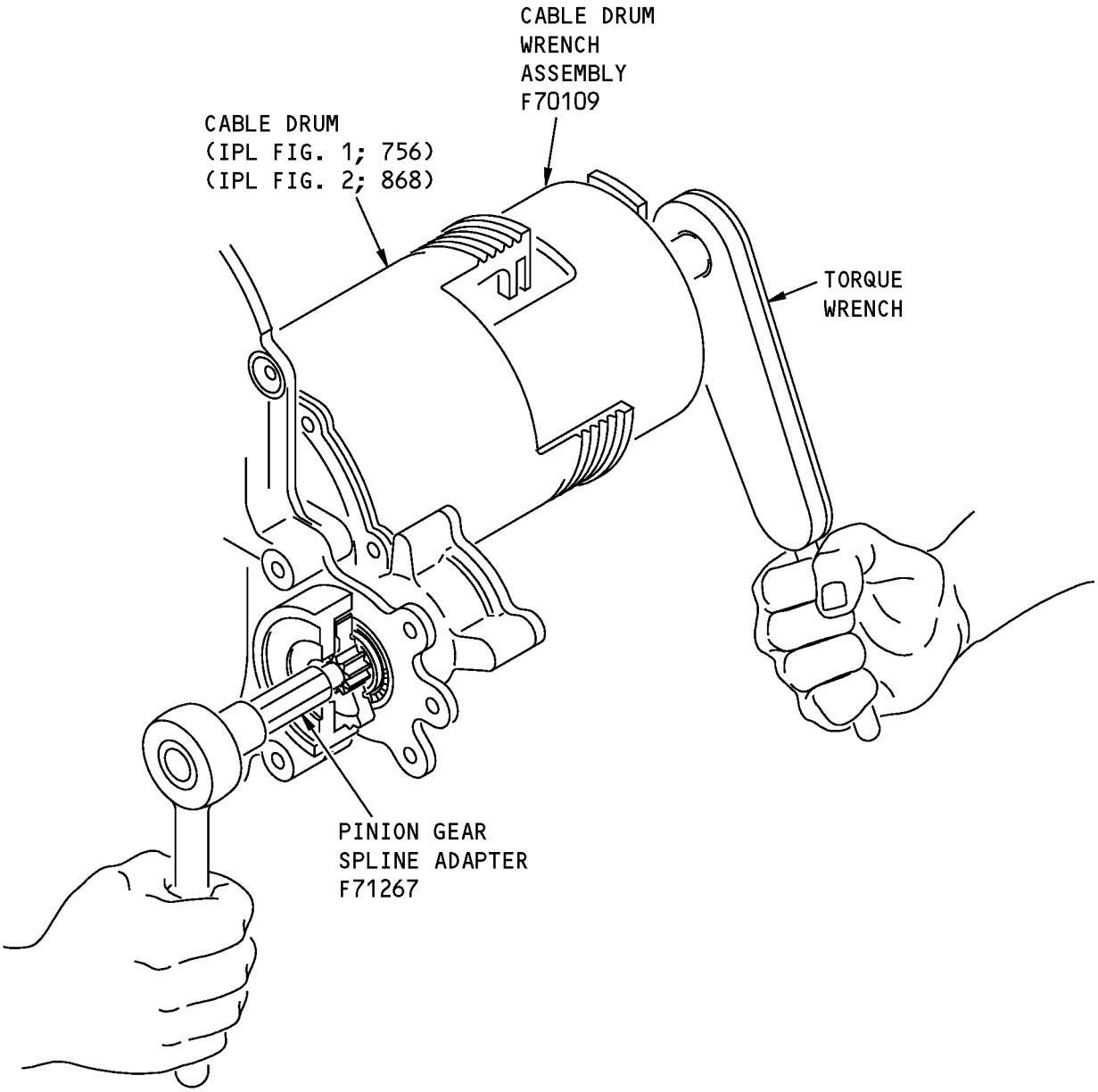
TROUBLE	PROBABLE CAUSE	CORRECTION
Cable drum (756) sticks or is hard to rotate.	Ball bearings binding. Debris in gear housing. Lockwire inside gear housing.	Check, repair, or replace defective parts.
Auxiliary brake (132A) slips when torque is applied.	Nut (196) not adjusted properly. Rotors (216) defective or worn.	Check and readjust nut. Repair or replace defective parts.
Air leakage on primary brake housing (616)	Packing (68,92,380,416, 456,456A,590A,604,612, 868B) defective or not properly installed. Seal ring (84) defective. Crack in primary brake.	Check and replace defective parts.

B. Refer to theTESTING AND FAULT ISOLATION, Table 102 for causes of the problems found and the procedures to correct them.

NOTE: For disassembly of 251A4510-6, -9, -10, -11, -13, refer to DISASSEMBLY, Paragraph 3.C.(2). For assembly of 251A4510-6, -9, -10, -11, -13, refer to ASSEMBLY, Paragraph 2.F.(1).

Table 102: Fault Isolation Chart (251A4510-6, -9, -10, -11, -13)

TROUBLE	PROBABLE CAUSE	CORRECTION
Cable drum (868) sticks or is hard to rotate.	Ball bearings binding. Debris in gear housing.	Check, repair, or replace defective parts.
	Lockwire inside gear housing.	
Air leakage on primary brake housing (720A)	Packing (296,312,464,484, 528,580,708,980) defective or not properly installed.	Check and replace defective parts.
	Crack in primary brake.	



Disconnect Clutch Check
Figure 101

DISASSEMBLY

1. General

A. This procedure has the data necessary to disassemble the stabilizer trim actuator assembly.

B. Disassemble this component sufficiently to isolate the defects, do the necessary repairs, and put the component back to a serviceable condition.

C. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

D. Refer to IPL Figure 1 for item numbers.

2. Parts Replacement

A. The following parts are recommended for replacement. Unless otherwise specified, actual repalcement of parts may be based on in-service experience.

(1) Parts listed below indicated by *[1] are one-time use items and should be replaced if removed during servicing.

(2) Parts listed below indicated by *[2] are to be replaced when evidence of damage or unusual or excessive wear is present.

(a) Cotter pins *[1] (4, 324, IPL Figure 1; 4, 412B, 544, 796, 823, 886, IPL Figure 2)

(b) Packings *[1] (24, 28, 30, 68, 92, 380, 416, 577, 604, 612,IPL Figure 1; 24, 28, 32, 80, 132, 248, 296, 312, 464, 484, 528, 528, 692A, 701L, 708, 983, IPL Figure 2)

(c) Seals *[1] (456A, IPL Figure 1; 580, 980, IPL Figure 2)

(d) Seal Rings *[1] (865, IPL Figure 1; 304, 977, IPL Figure 2)

(e) Lip Seals *[1] (108A,108C, 252A, 252D, 292A, 292C, IPL Figure 2)

(f) Retaining rings *[2] (136, IPL Figure 1)

(g) Nuts *[1] (19, 116, 284, 312, 468, 640, 712, IPL Figure 1; 72A, 124, 592, 348, 656, 752, 384, IPL Figure 2)

(h) Nuts *[2] (688, 717, 792, IPL Figure 1; 72, 900, IPL Figure 2)

(i) Springs *[2] (152, 448, 456, 496, IPL Figure 1; 150, 572, 576, 832, 836, IPL Figure 2)

(j) Bearings *[2] (140A, 144, 252, 356, 408, 414, 470, 436, 608, 668, 672, 760, 780, 856, IPL Figure 1; 280, 444, 516, 524, 560, 704, 872, 896, 968, IPL Figure 2)

(k) Collar *[1] (240, IPL Figure 2)

3. Disassembly

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5347	Gear retainer wrench (Part #: 7MIT5-88439, Supplier: 81205)
SPL-5381	Wrench - Retaining Nut, Stabilizer Trim Actuator (Part #: C27033-1, Supplier: 81205)
SPL-5414	Stabilizer Trim Actuator Jig Assembly (Part #: F70167-1, Supplier: 81205)

Reference	Description
SPL-5416	Wrench - Spanner, Bearing Retainer Nut (Part #: F71290-1, Supplier: 81205)
SPL-5417	Wrench - Spanner, Bearing Retainer Nut (Part #: F71290-7, Supplier: 81205)
SPL-5418	Stab Trim Actuator Spring Compressor (Part #: F71291-500, Supplier: 81205)
SPL-5430	Face Spanner Lug Wrench Assembly (Part #: F80053-1, Supplier: 81205)
SPL-5698	Holder - Stabilizer Trim Jackscrew Ballnut and Screw Assembly (Part #: F72924-1, Supplier: 81205)
SPL-8259	Wrench - Retaining Nut, Stabilizer Trim Actuator (Part #: C27033-5, Supplier: 81205)
SPL-8260	Wrench - Retaining Nut, Stabilizer Trim Actuator (Part #: C27033-6, Supplier: 81205)

B. General

(1) To disassemble the stabilizer trim actuator it may be necessary to install the unit in the F70167-1 Jig Assembly, SPL-5414.

C. Procedure

(1) Disassemble actuator assemblies P/N 251A4510-4, -5 (refer to IPL Figure 1 for item numbers).

(a) Drain oil from actuator assembly P/N 251A4510-5.

(b) Position the actuator assembly vertically and remove upper plug (589).

(c) Remove lower plug (589) and allow oil to drain from the actuator assembly.

(d) After oil is drained, the actuator assembly can be repositioned for disassembly.

(e) Remove the cotter pin (4), nut (8), washer (12), nut (19), bolt (17), washers (18) and the upper stop of the ballscrew.

CAUTION: THE BALLSCREW ASSEMBLY (16) THREADS HAVE A DOUBLE START. MAKE SURE THE BALLS ARE RETAINED WHEN REMOVING THE BALLNUT ASSEMBLY FROM THE BALLSCREW ASSEMBLY. IF THE BALLS COME OUT OR ARE LOST WHEN YOU REMOVE THE BALLNUT ASSEMBLY, RETURN THE BALLSCREW ASSEMBLY TO THE MANUFACTURER FOR REASSEMBLY AND TEST.

(f) Use the F72924-1 ballnut holder, SPL-5698 to keep the balls in the ballnut assembly as the ballnut assembly is removed from the ballscrew assembly (16). (See the vendor repair manual for ballscrew assembly (16) inspection/overhaul procedures.)

(g) Remove the bolts (40), washers (44), pins (56), gimbals (52), and yokes (48).

(h) Remove the screws (60), and the lower stop (64).

(i) Remove the screws (72), the cap (96), packing (92), and the umbrella seal assembly (100).

(j) Remove the bolts (104, 108), the washers (112), nuts (116), and the cover (120).

(k) Remove the nut (128A) and washer (124) using C27033-1 spanner wrench, SPL-5381.

(l) Remove the stator assembly (192A) from the actuator assembly.

1) Remove the nut (196), washers (200A, 204, 208), stators (212, 220), rotors (216), and spacer (224) from the housing (228).

2) Clean parts and check for defects. Obtain replacement parts as necessary for use in assembly of the stator assembly (192).

(m) Remove the brake assembly (132A).

(n) Disassemble the brake assembly (132A). Clean parts and check for defects. Check for excessive wear on the tips of pawls (164A). Obtain replacement parts as necessary for use in assembly of the brake assembly (132A).

(o) Remove the input gear (248) and bearing (252).

(p) Remove the gimbal assembly (532).

1) Remove the nuts (548), washers (540, 544), and bolts (536).

2) Separate the yoke assemblies (552) and forks assemblies (564)

NOTE: Gimbal assembly (532) parts must be kept together as a matched set.

(q) On actuator assembly P/N 251A4510-4, remove the plug assembly (580).

(r) Remove the caps (592, 596) from the housing (624).

1) Remove the screws (460A, 472A), and washers (464, 476).

2) Remove the caps (592, 596), and seals (456).

(s) Remove the screws (460A), plates (444), outer springs (452), inner springs (448), and nuts (468) from the housing (624).

(t) Remove the cotter pins (424A), pins (428), and pawl assemblies (432).

(u) Remove the key (396) and the nut (400).

(v) Using the F80053-1 spanner Wrench Assembly, SPL-5430, remove the nut (392).

(w) Remove the plug nut (384) using C27033-6 spanner wrench, SPL-8260, plug keys (388), plug assembly (368), and packing (380) from the housing assembly (616).

(x) Remove the plug assembly (404) and the packing (416).

(y) Remove the pin (76) using a screw with 6-32 UNC threads.

(z) Remove the sleeve assembly (80) and packings (68, 604) from the ballscrew assembly (16).

CAUTION: DURING REMOVAL OF THE BALLSCREW ASSEMBLY (16), THE BALLSCREW MUST BE HELD PARALLEL TO THE BORE CENTERLINE OF THE HOUSING ASSEMBLY (616) TO PREVENT DAMAGE OF ATTACHED PARTS.

(aa) On actuator assembly P/N 251A4510-4, remove the ballscrew assembly (16) from the housing assembly (616).

1) During removal of the ballscrew, visually check the components of the primary brake assembly for dust and any signs of wear on the moving parts. If large amounts of dust are found, then bearings (408, 436, 420, 608) should be replaced. If no dust is found, then check the bearings for smooth operation and make sure that no grease has leaked past the bearing seals.

2) If the actuator is undergoing disassembly as part of scheduled maintenance, then the brake plates (500) should be replaced.

3) Carefully slide the ballscrew (16) and the components of the primary brake from the housing assembly (616).

4) Remove the primary brake components from the lower part of the ballscrew as the components are visible at the end of the housing assembly (616). See DISASSEMBLY, Figure 301 for removal of bearings (420). Other components of the primary brake are the lower ring assembly (480), springs (496), ratchet plates (504) and brake plates (500).

5) Slide the ballscrew and the remaining attaching parts from the housing assembly.

6) Remove the remaining parts of the primary brake from the ballscrew.

(ab) On actuator assembly P/N 251A4510-5, remove the ballscrew assembly (16) from the housing assembly (616).

1) Carefully slide the ballscrew (16) and the components of the primary brake from the housing assembly (616).

2) Remove the primary brake components from the lower part of the ballscrew as the components are visible at the end of the housing assembly (616). Remove the lower thrust bearing (414), skewed roller assembly (894), guide (886), thrust plate (418), skewed roller assembly (497) and ratchet assembly (501).

3) Slide the ballscrew and the remaining attaching parts from the housing assembly.

4) Remove the remaining parts of the primary brake from the ballscrew. The remaining parts are the upper thrust bearing (423), guide (422), skewed roller assembly (505), thrust plate (418), skewed roller assembly (497) and ratchet assembly (501).

(ac) Remove the safety rod assembly (32), pin (36), seals (20), and packings (24, 28, 30).

(ad) Remove the spacer (600) on actuator assembly P/N 251A4510-4 or remove spacer (426) on actuator assembly P/N 251A4510-5 from the housing assembly (616).

(ae) Remove the bearing (608) from housing assembly (616).

(af) Remove the housing assembly (616) from the housing assembly (812).

1) Cut the lockwire from the screws (613A).

2) Remove the bolts (268), washers (276, 282A, 614), nuts (284), screws (613A).

3) Remove the housing assembly (616) from the housing assembly (812).

4) Remove the packing (612) from the housing assembly (616).

(ag) Cut the lockwire and unscrew the cap (256).

(ah) Remove the bolts (260A, 264A, 268, 272), washers (276, 280), nuts (284) and separate the gearbox assembly (288A) from the housing assembly (812).

NOTE: Keep the gearbox assembly (288A) and housing assembly (812) together as a matched set.

(ai) Remove the nut (312), bolt (304), washers (308, 316), adapter (320), and gear assembly (232).

(aj) Remove the cotter pin (324) and remove the nut (328) using the Gear retainer wrench, SPL-5347.

(ak) Remove the gear (332) from the gearbox assembly (288A).

(al) Cut the lockwire from the bolts (832) and remove the bolts (832), washers (836), and end cap (840).

(am) Cut the lockwire from the spring pin (844) and the locknut (848).

(an) Remove the spring pin (844), locknut (848), washer (852), bearings (856), spacer (860), gear (865), and seal (868B).

(ao) Remove the spacer (336) from the shaft actuator (732).

(ap) Remove the lockwire from the screws (362) and remove the screws from the housing assembly (812).

(aq) Remove the clutch gear (360) and attached parts.

(ar) Use the F71290-1 spanner wrench, SPL-5416 to remove the nut (340).

(as) Remove the bearings (356), outer spacer (352), and upper bearing spacer (348).

(at) Use the F71290-7spanner wrench, SPL-5417 to remove the nuts (344, 804).

(au) Remove the bearings (760), the gear (360), and bearing plate (364).

(av) Remove the bolts (626A, 628), washers (632, 636), and nut (640) and separate the cable drum guard (644) from the housing assembly (812).

(aw) Remove the bolts (648), washers (652), and spacers (656).

(ax) Remove the cotter pin (684), nut (688).

(ay) Remove the support assembly (660) and washer (692).

(az) Cut the lockwire from the bolts (696) and remove the bolts (696), washers (700), and retainer (704).

(ba) Hold the cable drum (756) with a strap wrench and remove the cap (708).

(bb) Screw the F71291-500 Spring Compressor Tool, SPL-5418 into the drum shaft (744) as shown in DISASSEMBLY, Figure 302, and compress the springs (720, 724).

(bc) Remove the nut (712), retainer (716), shaft (732), washer (796), and spacer (800).

(bd) Release the compression on the springs and remove the F71291-500 Spring Compressor Tool, SPL-5418.

(be) Remove the springs (720, 724) and the spring spacer (728).

(bf) Remove the spacer (808) from the housing assembly (812).

(bg) Cut the lockwire from the nut (804) and remove the nut using the F71290-7spanner wrench, SPL-5417.

(bh) Remove the drum assembly (736) from the housing assembly (812).

(bi) Remove the cotter pins (772), nuts (792), washers (784, 788), bearings (780), screws (776), jaw clutch (768), bearings (760), and spacer (764).

NOTE: Shaft (744) is installed in the cable drum (748) with press fit. Do not remove the shaft (744) from the cable drum (748) unless necessary.

(2) Disassemble actuator assembly P/N 251A4510-6, -9, -10, -11, -13 (refer to IPL Figure 2 for item numbers):

(a) Drain oil from actuator assembly P/N 251A4510-6, -9, -10, -11, -13.

1) Position the actuator assembly vertically and remove upper plug (688).

2) Remove lower plug (460) and plug (128) and allow oil to drain from the actuator assembly.

3) After oil is drained, the actuator assembly can be repositioned for disassembly.

(b) Remove the cotter pin (4), nut (8), washer (12), nut (19), bolt (17), washers (18) and the upper stop of the ballscrew.

CAUTION: THE BALLSCREW ASSEMBLY (16) THREADS HAVE A DOUBLE START. MAKE SURE THE SAME THREADS ARE ENGAGED WHEN INSTALLING THE BALLNUT ASSEMBLY ON THE BALLSCREW ASSEMBLY (16). IF THE BALLS FALL OUT OR ARE LOST DURING BALLNUT REMOVAL OR INSTALLATION, THEN RETURN THE BALLSCREW ASSEMBLY (16) TO THE MANUFACTURER FOR REASSEMBLY AND TEST.

(c) Use the F72924-1 ballnut holder, SPL-5698 to keep the balls in the ballnut assembly as the ballnut assembly is removed from the ballscrew assembly (16). (See the vendor repair manual for ballscrew assembly (16) inspection/overhaul procedures.)

(d) Remove the bolts (44), washers (48), pins (60), gimbals (56), and yokes (52).

(e) Remove nut (72A), washers (68), screw (64), packing (8), and the lower stop (76).

(f) Remove the bolts (96), washers (100), retainer (104) and seal (108).

(g) Remove the bolts (112, 116), the washers (120), nuts (124), and the cover assembly (136).

(h) Remove Nut (84) with the C27033-5 spanner wrench, SPL-8259, lock washer (88), Sheild (92) retainer (149), spline ring (151), output cam (152), spring (150), shims (160) and balls (156).

(i) Remove and disassemble spacer (176) with the roller assembly (180), thrust plate (192), wave spring (196A), input cam (200), bushing (204), guides (232, roller assemblies (208), stator (220) and roller coupling (228).

(j) Remove bolts (236), collars (240), lip seal (252), seal (256) and stator housing (244). Remove packing (248) from stator housing (244).

(k) Remove the thrust roller assembly (260), thrust plate (272), thrust support (276), bearing (280), seal retainer (284) and lip seal (292).

(l) Remove input gear (288) and bearing (704) from sleeve assembly (300).

(m) Remove the gimbal assembly (640).

1) Remove the nuts (656), washers (648, 652), and bolts (644).

2) Separate the yoke assemblies (660) and forks assemblies (672)

NOTE: Gimbal assembly (640) parts must be kept together as a matched set.

(n) Remove the caps (696, 700) from the housing (732).

1) Remove the screws (584, 596), and washers (588, 600).

2) Remove the caps (696, 700), and seals (580).

(o) Remove the screws (584), plates (568), outer springs (576), inner springs (572), and nuts (592) from the housing (732).

(p) Remove the cotter pins (544), pins (552), and pawl assemblies (556).

(q) Remove the key (500) and the nut (504).

(r) Using the F80053-1 spanner Wrench Assembly, SPL-5430, remove the nut (496).

(s) Remove the plug nut (488) using C27033-6 spanner wrench, SPL-8260, plug keys (492), plug assembly (468), and packing (484) from the housing assembly (720A).

(t) Remove the plug assembly (508) and the packing (528).

(u) Remove the sleeve assembly (300) and packings (96, 312) from the ballscrew assembly (16).

CAUTION: DURING REMOVAL OF THE BALLSCREW ASSEMBLY (16), THE BALLSCREW MUST BE HELD PARALLEL TO THE BORE CENTERLINE OF THE HOUSING ASSEMBLY (720A) TO PREVENT DAMAGE OF ATTACHED PARTS.

(v) Remove the ballscrew assembly (16) from the housing assembly (720A).

1) Carefully slide the ballscrew (16) and the components of the primary brake from the housing assembly (720A).

2) Remove the primary brake components from the lower part of the ballscrew as the components are visible at the end of the housing assembly (720A). Remove the lower thrust bearing (524), skewed roller assembly (628A), guide (536A), thrust plate (532), skewed roller assembly (604A) and ratchet assembly (616).

3) Slide the ballscrew and the remaining attaching parts from the housing assembly.

4) Remove the remaining parts of the primary brake from the ballscrew. The remaining parts are the upper thrust bearing (540), guide (536A), skewed roller assembly (628A), thrust plate (532), skewed roller assembly (604A) and ratchet assembly (616).

(w) Remove the safety rod assembly (36), pin (40), seals (20), and packings (24, 28, 32).

(x) Remove the spacer (548) from the housing assembly (720A).

(y) Remove the housing assembly (720A) from the housing assembly (924).

1) Cut the lockwire from the screws (712).

2) Remove the bolts (324), washers (340, 344, 716), nuts (348), screws (712).

3) Remove the housing assembly (720A) from the housing assembly (924).

4) Remove the packing (708) from the housing assembly (720A).

(z) Cut the lockwire and unscrew the cap (320).

(aa) Remove the bolts (332, 336, 324, 328), washers (340, 344), nuts (348) and separate the gearbox assembly (352) from the housing assembly (924).

NOTE: Keep the gearbox assembly (352) and housing assembly (924) together as a matched set.

(ab) Remove the nut (384), bolt (376), washers (380, 388), adapter (408), and gear assembly (392).

(ac) Remove the cotter pin (412) and remove the nut (416) using the Gear retainer wrench, SPL-5347.

(ad) Remove the gear (420) from the gearbox assembly (352).

(ae) Cut the lockwire from the bolts (944) and remove the bolts (944), washers (948), and end cap (952).

(af) Cut the lockwire from the spring pin (956) and the locknut (960).

(ag) Remove the spring pin (956), locknut (960), washer (964), bearings (968), spacer (972), gear (977), and seal (980).

(ah) Remove the spacer (424) from the shaft actuator (844).

(ai) Remove the lockwire from the screws (452) and remove the screws from the housing assembly (924).

(aj) Remove the clutch gear (448) and attached parts.

(ak) Use the F71290-1 spanner wrench, SPL-5416 to remove the nut (428).

NOTE: Left hand threads turn counter clockwise.

(al) Remove the bearings (444), outer spacer (440), and upper bearing spacer (436).

(am) Use the F71290-7 spanner wrench, SPL-5417 to remove the nuts (432, 916).

(an) Remove the bearings (872), the gear (448), and bearing plate (456).

(ao) Remove the bolts (736, 740), washers (744, 748), and nut (752) and separate the cable drum guard (756) from the housing assembly (924).

(ap) Remove the bolts (760), washers (764), and spacers (768).

(aq) Remove the cotter pin (796), nut (800).

(ar) Remove the support assembly (772) and washer (804).

(as) Cut the lockwire from the bolts (808) and remove the bolts (808), washers (812), and retainer (816).

(at) Hold the cable drum (868) with a strap wrench and remove the cap (820).

(au) Screw the F71291-500 Spring Compressor Tool, SPL-5418 into the drum shaft (856) as shown in DISASSEMBLY, Figure 302, and compress the springs (832, 836).

(av) Remove the cotter pin (823), nut (824A), retainer (828), shaft (844A), washer (908), and spacer (912).

(aw) Release the compression on the springs and remove the F71291-500 Spring Compressor Tool, SPL-5418.

(ax) Remove the springs (832, 836) and the spring spacer (840).

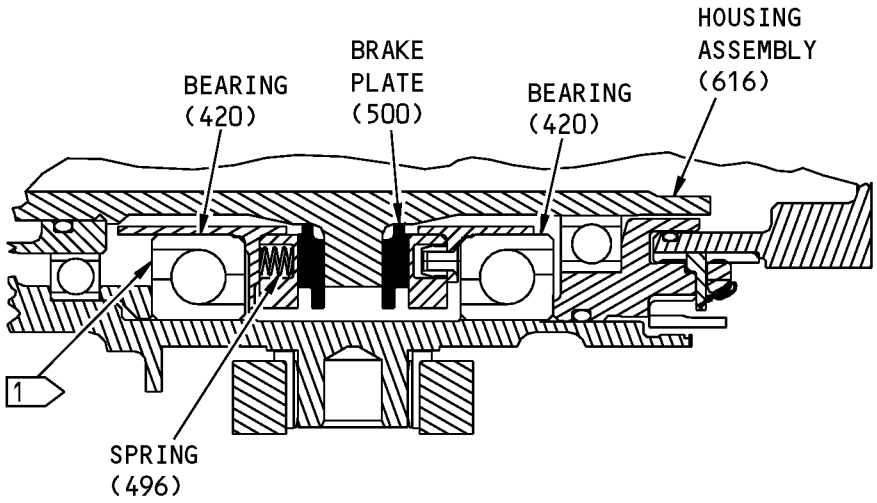
(ay) Remove the spacer (920) from the housing assembly (924).

(az) Cut the lockwire from the nut (916) and remove the nut using the F71290-7 spanner wrench, SPL-5417.

(ba) Remove the drum assembly (848) from the housing assembly (924).

(bb) Remove the cotter pins (886), nuts (900), washers (894, 904), bearings (896), screws (890), jaw clutch (882), bearings (872), and spacer (876).

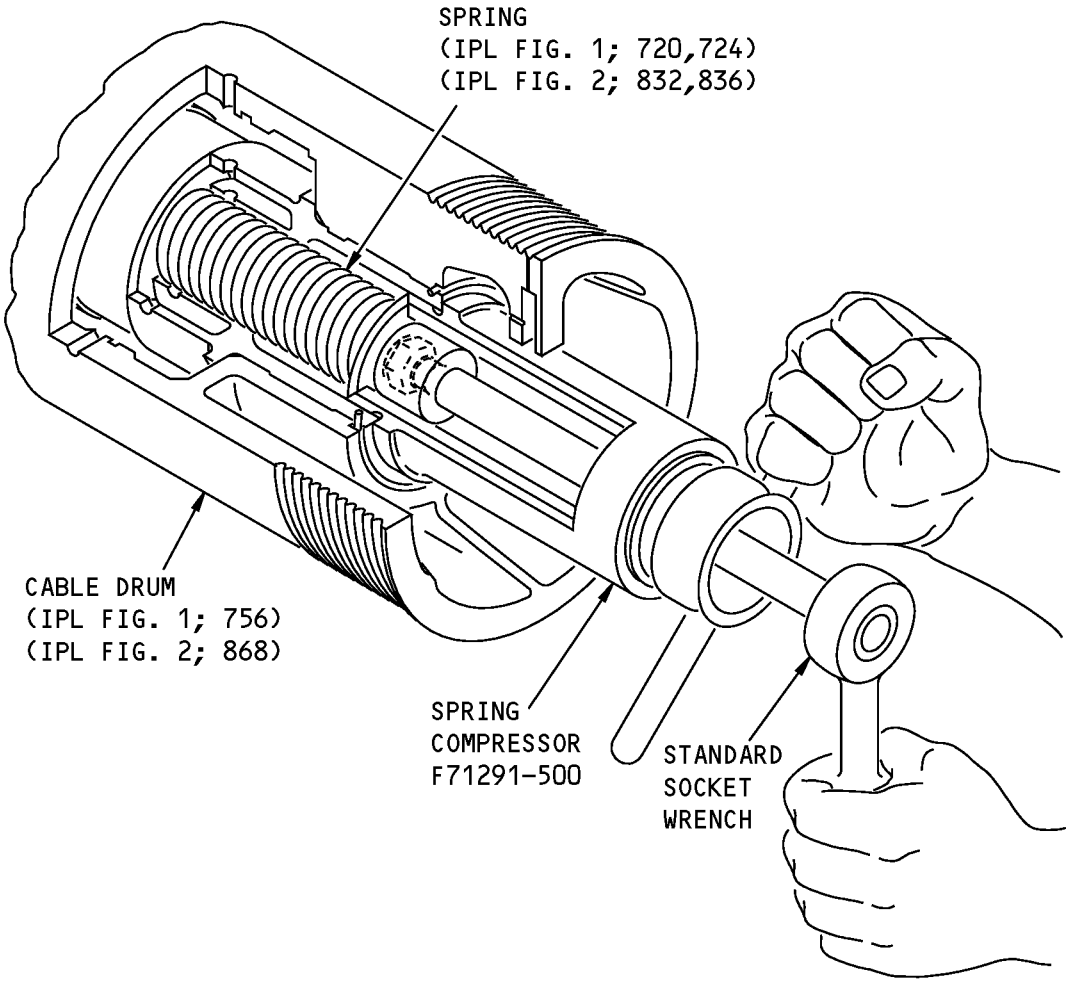
NOTE: Shaft (856) is installed in the cable drum (860) with press fit. Do not remove the shaft (856) from the cable drum (860) unless necessary.



1 APPLY LOAD HERE TO REMOVE BEARINGS (420).

ITEM NUMBERS REFER TO IPL FIG. 1

Bearing Removal
Figure 301



Spring Removal
Figure 302

CLEANING

1. General

A. This procedure has the data necessary to clean the stabilizer trim actuator assembly.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjectrs identified in this procedure.

2. Cleaning

A. References

Reference	Title
SOPM 20-30-01	CLEANING AND RELUBRICATING BEARINGS
SOPM 20-30-03	GENERAL CLEANING PROCEDURES

B. Procedure

(1) Clean sealed bearings as specified in manufacturer's instructions (SOPM 20-30-01).

(2) Use standard industry procedures and refer to SOPM 20-30-03 to clean all parts.

CHECK

1. General

A. This procedure has the data necessary to find defects in the material of the specified parts.

B. Refer TESTING AND FAULT ISOLATION for the design dimension and wear limits.

C. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

2. Check

A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-20-02	PENETRANT METHODS OF INSPECTION

B. Procedure

(1) Use standard industry procedures to do a visual check of all the parts for defects. Do the penetrant or magnetic particle check if the visual check shows possible damage or if you suspect possible damage on the parts listed below:

(2) Do a magnetic particle check (SOPM 20-20-01) of these parts:

(a) Safety rod assembly (32, IPL Figure 1; 36, IPL Figure 2)

(b) Yoke (48, IPL Figure 1; 52, IPL Figure 2)

(c) Gimbal (52, IPL Figure 1; 56, IPL Figure 2)

(d) Pins (57, 76, 148, 172, 428, IPL Figure 1; 62, 552, IPL Figure 2)

(e) Lower stop (64, IPL Figure 1; 76, IPL Figure 2)

(f) Sleeves (88, 620, IPL Figure 1; 300, 728, IPL Figure 2)

(g) Nuts (128A, 328, 340, 384, 392, 400, IPL Figure 1; 416A, 428, 488, 496, 504, IPL Figure 2)

(h) Retainer ring (136, IPL Figure 1)

(i) Springs (152, 448, 452, 720, 724, IPL Figure 1; 572, 576, 832, 836, IPL Figure 2)

(j) Pawl (164A, 440, IPL Figure 1; 564, IPL Figure 2)

(k) Rings (180, 188, 492, 520, IPL Figure 1)

(l) Pawl carrier (184, IPL Figure 1)

(m) Washers (200A, 204, 208, IPL Figure 1)

(n) Rotor (216, IPL Figure 1)

(o) Gears (244, 248, 332, 360, 866 , IPL Figure 1; 404, 420, 448, 978, IPL Figure 2)

(p) Plugs (376, 412, IPL Figure 1; 480, 520, IPL Figure 2)

(q) Key (388, IPL Figure 1; 492, IPL Figure 2)

(r) Plate (504, IPL Figure 1)

(s) Spacer (600, IPL Figure 1)

(t) Housing (624, IPL Figure 1; 732A, IPL Figure 2)

(u) Shaft (732, IPL Figure 1; 844A, IPL Figure 2)

(v) Jaw clutch (768, IPL Figure 1; 882, IPL Figure 2)

(w) Screw (776, IPL Figure 1; 890, IPL Figure 2)

(3) Do a penetrant check (SOPM 20-20-02) of these parts:

(a) Seal (20, IPL Figure 1 and 2)

(b) Cover (120, IPL Figure 1)

(c) Nut (196, IPL Figure 1)

(d) Stators (212, 220, IPL Figure 1)

(e) Spacers (224, 336, 800, IPL Figure 1; 424, 912, IPL Figure 2)

(f) Housings (228, 672, 828, IPL Figure 1; 148, 784, 940, IPL Figure 2)

(g) Gearbox (300, IPL Figure 1; 364, IPL Figure 2)

(h) Adapter (320, IPL Figure 1; 408, IPL Figure 2)

(i) Yoke (560, IPL Figure 1; 668, IPL Figure 2)

(j) Fork (576, IPL Figure 1; 684, IPL Figure 2)

(k) Guard (644, IPL Figure 1; 756, IPL Figure 2)

(l) Caps (708, 840, IPL Figure 1; 820, 952, IPL Figure 2)

(4) Do a penetrant inspection of the wear surface of drum (756, IPL Figure 1; 868, IPL Figure 2). If evidence of further damage is suspected the parts should be disassembled and examined using NDT procedures.

(5) Check that safety rod assembly (32, IPL Figure 1; 36, IPL Figure 2) is straight within 0.050 inch.

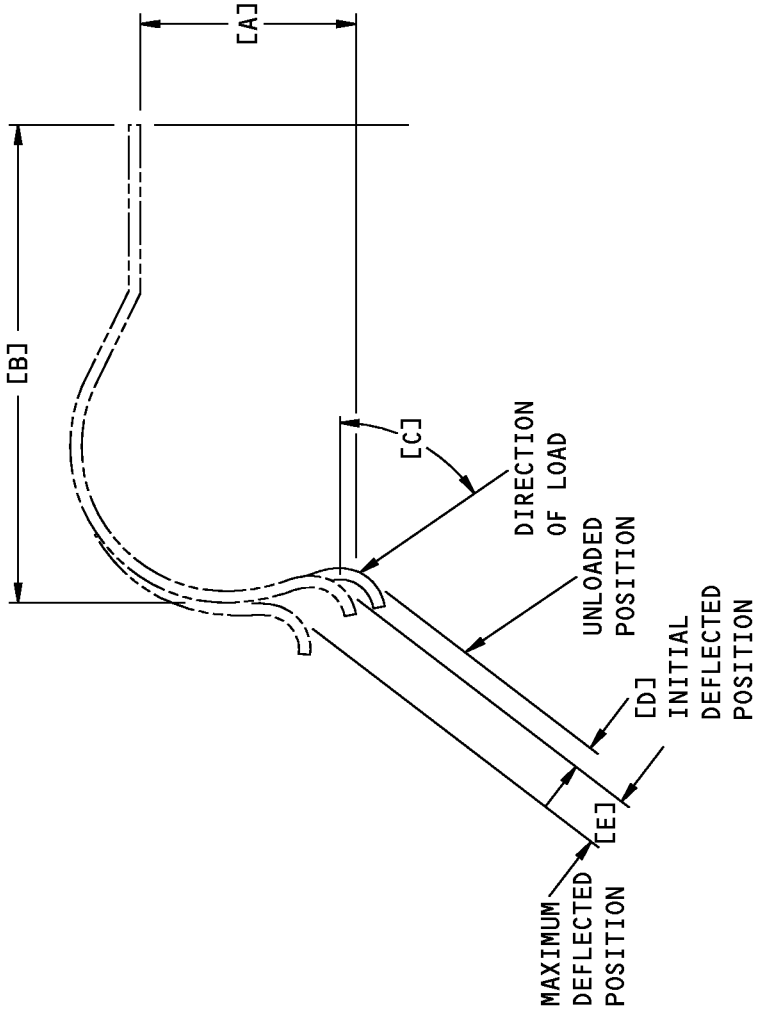
(6) Do a spring check. Make sure no permanent set results from test loads.

(a) Springs (152, 496, 720, 724, IPL Figure 1; 832, 836, IPL Figure 2) - CHECK, Table 501

(b) Springs (448, 452, IPL Figure 1; 572, 576,IPL Figure 2) – CHECK, Figure 501

Table 501: Spring Check Data

ITEM NO.	APPROXIMATE FREE LENGTH (INCHES)	TEST LENGTH (INCHES)	LOAD LIMITS (POUNDS)
152, IPL Fig. 1	0.983	2.7 - 3.3 11.0 - 13.0	0.91 - 0.93 0.72 - 0.74
496	0.500	0.262 - 0.264	4.20 - 5.10
720, IPL Fig. 1	6.15	4.54 - 4.56 4.14 - 4.16	121.5 - 134.5 144.0 - 176.0
724, IPL Fig. 1	7.46	4.99 - 5.01 4.59 - 4.61	290.0 - 320.0 330.0 - 380.0
832, IPL Fig. 2	6.15	4.54 - 4.56 4.14 - 4.16	121.5 - 134.5 144.0 - 176.0
836, IPL Fig. 2	7.46	4.99 - 5.01 4.59 - 4.61	290.0 - 320.0 330.0 - 380.0



ITEM NUMBER	[A] (INCHES)	[B] (INCHES)	[C] (DEGREES)	[D] INITIAL DEFLECTED POSITION (INCHES)	[E] MAX DEFLECTED POSITION (INCHES)	LOAD FOR INITIAL DEFLECTED POSITION (POUNDS)	LOAD FOR MAX DEFLECTED POSITION (POUNDS)
IPL FIG. 1; 448 IPL FIG. 2; 572	1.00–1.04	2.12–2.14	55.5	0.067–0.087	2.16–2.18	0.45–0.55	1.33–1.73
IPL FIG. 1; 452 IPL FIG. 2; 576	0.99–1.03	2.18–2.20	55.5	0.067–0.087	2.16–2.18	0.45–0.55	1.28–1.68

Brake Pawl Spring Check Data
Figure 501

REPAIR

1. General

A. Instructions for repair, refinish, and replacement of the specified subassembly parts are included in each repair when applicable:

Table 601:

PART NUMBER	NAME	REPAIR
—	REFINISH OF OTHER PARTS	1-1
251A4515	PAWL ASSEMBLY	2-1,2-2
251A4530	GIMBAL ASSEMBLY	3-1,3-2,3-3,3-4,3-5
251A4550	DRUM ASSEMBLY	4-1,4-2,4-3
251A4555	GEARBOX ASSEMBLY	5-1,5-2
251A4560	HOUSING ASSEMBLY	6-1,6-2,6-3
251A4580	SUPPORT ASSEMBLY	7-1,7-2,7-3,7-4
251A4670	PLUG ASSEMBLY	8-1,8-2
65-49966	PIN	9-1
65-56636	LOWER STOP	10-1
65C29264	SAFETY ROD ASSEMBLY	11-1
65C34609	BRAKE ASSEMBLY	12-1,12-2,12-3,12-4, 12-5
69-37969	YOKE	13-1
69-37970	GIMBAL FITTING	14-1
90-3590	GEAR ASSEMBLY	15-1,15-2
69-44011	GEAR ASSEMBLY	16-1,16-2
251A4823	SLEEVE ASSEMBLY	17-1,17-2

2. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in the applicable repair procedures are shown in REPAIR-GENERAL, Figure 601.

—	STRAIGHTNESS
▱	FLATNESS
⊥	PERPENDICULARITY (OR SQUARENESS)
//	PARALLELISM
○	ROUNDNESS
⌭	CYLINDRICITY
⌒	PROFILE OF A LINE
⌓	PROFILE OF A SURFACE
◎	CONCENTRICITY
⌯	SYMMETRY
∠	ANGULARITY
↗	RUNOUT
↗↗	TOTAL RUNOUT
⌴	COUNTERBORE OR SPOTFACE
⌵	COUNTERSINK
⌖	THEORETICAL EXACT POSITION OF A FEATURE (TRUE POSITION)
∅	DIAMETER
S ∅	SPHERICAL DIAMETER
R	RADIUS
SR	SPHERICAL RADIUS
()	REFERENCE
BASIC (BSC) OR [DIM]	A THEORETICALLY EXACT DIMENSION USED TO DESCRIBE SIZE, SHAPE OR LOCATION OF A FEATURE. FROM THIS FEATURE PERMISSIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.
[-A-]	DATUM
Ⓜ	MAXIMUM MATERIAL CONDITION (MMC)
Ⓛ	LEAST MATERIAL CONDITION (LMC)
Ⓢ	REGARDLESS OF FEATURE SIZE (RFS)
Ⓟ	PROJECTED TOLERANCE ZONE
FIM	FULL INDICATOR MOVEMENT

EXAMPLES

— | 0.002	STRAIGHT WITHIN 0.002
⊥ | 0.002 | B	PERPENDICULAR TO DATUM B WITHIN 0.002
// | 0.002 | A	PARALLEL TO DATUM A WITHIN 0.002
○ | 0.002	ROUND WITHIN 0.002
⌭ | 0.010	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER
⌒ | 0.006 | A	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES 0.006 INCH APART RELATIVE TO DATUM A
⌓ | 0.020 | A	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.020 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
◎ | ∅ 0.0005 | C	CONCENTRIC TO DATUM C WITHIN 0.0005 DIAMETER
⌯ | 0.010 | A	SYMMETRICAL WITH DATUM A WITHIN 0.010
∠ | 0.005 | A	ANGULAR TOLERANCE 0.005 WITH DATUM A
⌖ | ∅ 0.002 Ⓢ | B	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
⊥ | ∅ 0.010 Ⓜ | A 0.510 Ⓟ	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010 INCH DIAMETER, PERPENDICULAR TO DATUM A, AND EXTENDING 0.510 INCH ABOVE DATUM A, MAXIMUM MATERIAL CONDITION
[2.000] OR 2.000 BSC	THEORETICALLY EXACT DIMENSION IS 2.000

True Position Dimensioning Symbols
Figure 601

REFINISH OF OTHER PARTS - REPAIR 1-1

1. General

A. This procedure has the data necessary to refinish the parts which are not given in the specified repairs.

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Refinish of Other Parts

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
D00113	Lubricant - Liquid Dispersed Solid Film Lubricant	BMS3-8, BAC 5811, TYPE VIII

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-08	APPLICATION OF BONDED SOLID FILM LUBRICANTS
SOPM 20-60-02	FINISHING MATERIALS

C. General

(1) Instructions for the repair of the parts listed in REPAIR 1-1, Table 601 are for repair of the initial finish.

D. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Repair of parts listed in REPAIR 1-1, Table 601 consists of restoration of the original finish.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 1		
Seal (20)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.04) as shown in REPAIR 1-1, Figure 601.
Screw (60)	Steel alloy	Brush cadmium plate to 0.0003 inch thickness (F-1.282).
Stop (64)	4340 Steel 125-145 ksi	Cadmium plate (0.0002-0.0004 inch thick) Type 2, class 3 (F-15.02) and apply primer, C00259 (F-20.02).

Table 601: Refinish Details (Continued)

IPL FIG. & ITEM	MATERIAL	FINISH
Pin (76), nut 128A, 344, 804)	4340 Steel 125-145 ksi	Cadmium plate (0.0002-0.0004 inch thick) Type 2, class 3 (F-15.02).
Sleeve (88)	4340 Steel	Cadmium plate (0.0002-0.0003 inch thick) Type 2, class 3 (F-15.02) and apply primer, C00259 (F-20.02) except as noted in REPAIR 1-1, Figure 602.
Cover (120)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.13) except no primer on 2.490-2.491 outside diameter of boss.
Washer (124)	301 CRES Steel	Cadmium plate and apply primer, C00259 (F-16.01).
Retainer Ring (136)	4340 Steel 180-200 ksi	Cadmium plate and apply primer, C00259 (F-16.01) except as noted in REPAIR 1-1, Figure 610.
Pin (148)	4340 Steel 180-200 ksi	Chrome plate (F-15.03) 0.003-0.005 inch thick as shown in REPAIR 1-1, Figure 611. Cadmium plate (F-15.06) except as noted in REPAIR 1-1, Figure 611.
Spring (152)	17-7PH CRES	Passivate (F-17.09) all over.
Pawl (164A)	9310 Steel Hardened Rockwell A81 150-190 ksi	Cadmium plate (0.0003-0.0005 inch thick) Type 2, Class 2 (F-15.41) and bake for 5-8 hours at 250-300°F.
Ring (180)	4340 Steel RC33 maximum 180-200 ksi	Cadmium plate and apply primer, C00259 (F-16.01). No primer in the holes, on the spline teeth or on the 4.248 diameter surfaces, or on the threads.
Pawl Carrier (184)	CRES	Cadmium plate (F-15.06) all over.
Rachet Ring (188)	Alloy Steel	Cadmium plate and apply primer, C00259 (F-16.01) except on the the spline teeth and no primer on the inside diameter.
Nut (196)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.13) except no primer on outside diameter threads. Apply Type VIII coating lubricant, D00113 to outside diameter threads SOPM 20-50-08.
Spring washer (204)	17-7PH CRES	Cadmium plate (F-16.06) or cadmium plate and apply primer, C00259 (F-16.01).
Washer (208)	15-5PH CRES 180-200 ksi	Cadmium plate and apply primer, C00259(F-16.01).
Rotor (216), spring (720,724)	17-7PH CRES	Prepare surface and passivate (F-17.09).
Spacer (224)	Al alloy	Boric acid-sulfuric acid anodize (F-17.35) and apply primer, C00259 (F-20.02) except no primer on mating surfaces of spline teeth.
Housing (228)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.13) except as noted in REPAIR 1-1, Figure 603.

Table 601: Refinish Details (Continued)

IPL FIG. & ITEM	MATERIAL	FINISH
Gear (248)	9310 Steel 160-190 ksi	Cadmium plate (0.0002-0.0004 inches thick) (F-15.23) and apply primer, C00259 except as noted in REPAIR 1-1, Figure 604. Cadmium plate runout on adjacent surfaces must not exceed 0.030 inch. Apply temporary protective coating to areas indicated by flagnote 1.
Cap (256)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.05) except as noted in REPAIR 1-1, Figure 605.
Adaptor (320), spacer (336, 348, 728, 764, 808), plate (444)	Al alloy	Chemical treat or chromic acid anodize (F-17.01).
Nut (328)	4340 Steel 125-145 ksi	Cadmium plate (0.0003-0.0005 inches thick) (F-1.20) except 0.0002-0.0003 inch thick on threads.
Gear (332)	9310 Steel 150-210 ksi	Cadmium plate (F-1.20) except no finish on spline and gear. Bake after plating at 250-300°F for a minimum of 5 hours.
Nut (340)	4340 Steel 125-145 ksi	Cadmium plate (F-1.20) except 0.0002-0.0005 inch thick on threads.
Spacer (352)	4340 Steel	Cadmium plate (F-1.20) except as noted inREPAIR 1-1, Figure 606.
Gear (360)	9310 Steel 150-210 ksi	Cadmium plate (F-15.05) except 0.0002-0.0003 inch thick. No plating on clutch teeth or gear teeth. Bake after plating as 250-300°F for a minimum of 3 hours.
Plate (364)	Al alloy	Chemical treat or chromic acid anodize (F-17.01) and apply primer, C00259(F-20.02).
Plug (376)	15-5PH CRES	Prepare surface and passivate (F-17.09). Apply lubricant, D00113 (F-19.10) to keyways and threads.
Nut (384), key (388), ring (492, 520)	15-5PH CRES 180-200 ksi	Prepare surface and passivate (F-17.09).
Nut (392)	15-5PH CRES 150-170 ksi	Prepare surface and passivate (F-17.09). Apply lubricant, D00113 (F-19.10) to threads.
Nut (400)	15-5PH or 17-4PH 150-170 ksi	Prepare surface and passivate (F-17.09). Apply lubricant, D00113 (F-19.10) to threads.
Bearing (414)	52100 Steel HRC 60 minimum	No finish (F-25.01) is needed.
Plate (418)	9310 Steel Rockwell A81 minimum	No finish (F-25.01) is needed.
Guide (422)	15-5PH CRES 180-200 ksi	Prepare and passivate (F-17.25).
Spacer (426)	15-5PH CRES 150-170 ksi	Prepare surface and passivate (F-17.09).

Table 601: Refinish Details (Continued)

IPL FIG. & ITEM	MATERIAL	FINISH
Bearing (423)	52100 Steel HRC 60 minimum	Cadmium-Titanium plate and apply chromate post-plate treatment (F-15.01) except as noted in REPAIR 1-1, Figure 611.
Pin (428)	4340 Steel 150-170 ksi	Cadmium plate (F-1.20) except 0.0002-0.0003 inch thick.
Springs (448,452)	1095 Steel 180-220 ksi	Cadmium plate (F-1.32).
Plate (504)	4340M Steel 275-300 ksi	Cadmium-titanium plate and apply chromate post-plate treatment (F-15.01) except as noted in REPAIR 1-1, Figure 607.
Plug (588)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.13) except on plug threads.
Caps (592,596)	Al alloy	Anodize and apply primer, C00259 (F-18.04) except no primer in plug hole or seal grooves.
Spacer (600)	15-5PH CRES 150-170 ksi	Cadmium plate (F-15.06) all over.
Guard (644), end cap (840)	Al alloy	Colored film treat or chromic acid anodize and apply primer, C00259 (F-18.05) except no primer in bolt holes.
Spacer (656)	Al alloy	Colored film chemical treat interior and exterior surfaces and apply primer, C00259 (F-18.06) except no primer on interior surfaces.
Retainer (704)	Al alloy	Colored film treat or chromic acid anodize and apply primer, C00259 (F-18.05) all over.
Cap (708)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.13) except as noted in REPAIR 1-1, Figure 608.
Retainer (716), washer (796)	4130 Steel	Cadmium plate (F-1.20) all over.
Shaft (732)	4340 Steel 150-170 ksi	Cadmium plate exterior surface and apply primer, C00259 to interior surface (SRF-1.61) except as noted in REPAIR 1-1, Figure 609.
Jaw clutch (768)	4140 Steel 180-200 ksi	Cadmium plate (F-1.20) all over except no plating on clutch teeth and cutout faces.
Washer (784)	Al alloy	Chemical treat or chromic acid anodize and apply primer, C00259 (F-2.30).
Spacer (800)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.13) all over.
Housing (828)	Al alloy	Boric acid-sulfuric acid anodize (F-17.35) all over and apply primer, C00259 (F-20.02) on exterior surfaces. Make sure the primer surface is level on the flange mating surface.
Spacer (860)	Al alloy	Chemical treat or chromic acid anodize and apply primer, C00259 (F-2.30).

Table 601: Refinish Details (Continued)

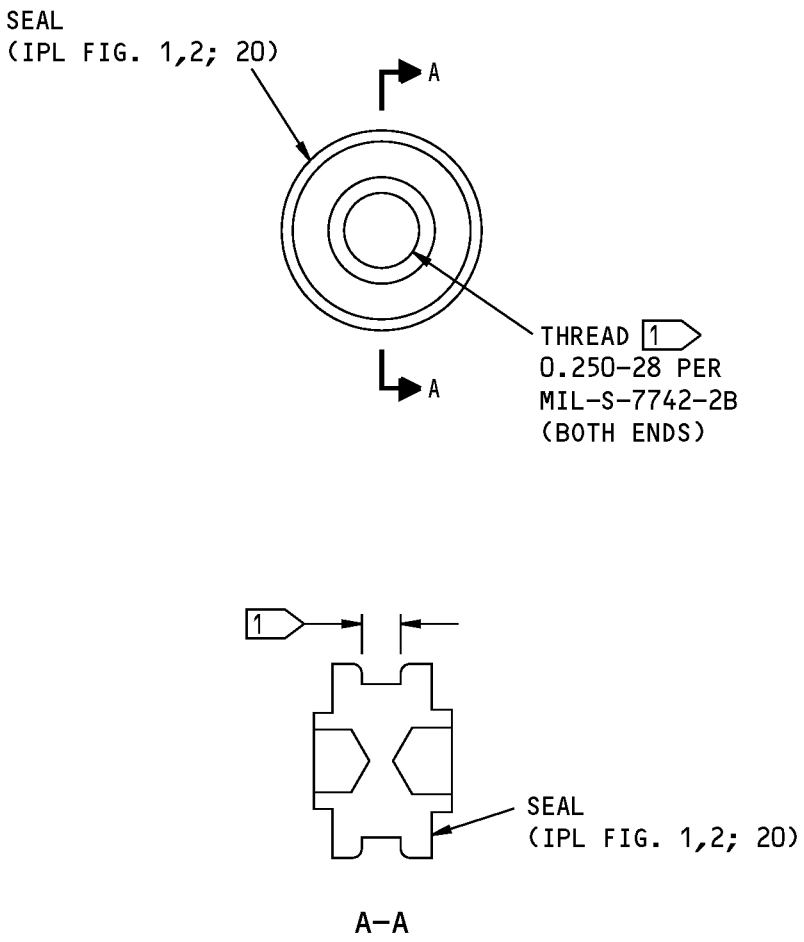
IPL FIG. & ITEM	MATERIAL	FINISH
Pinion gear (866)	9310 Steel 150-210 ksi	Cadmium plate (0.0002-0.0003 inch thick) and apply primer, C00259 (F-1.61) except no finish on internal splines or seal ring groove. Bake after plating at 250-300°F for 5 hours.
IPL Fig. 2		
Seal (20)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.04) as shown in REPAIR 1-1, Figure 601.
Stop (76)	4340 Steel 125-145 ksi	Cadmium plate (0.0002-0.0004 inch thick) Type 2, class 3 (F-15.02) and apply primer, C00259 (F-20.02).
Retainer Seal (104), Housing (148)	Al alloy	Boric acid-sulfuric acid anodize (F-17.35) and apply primer, C00259 (F-20.02).
Seal (149)	9310 Steel Hardened Rockwell A81 160-190 ksi	Cadmium plate (0.0003-0.0005 inch thick) Type 2, Class 2 (F-15.41) and applyprimer, C00259 (F-20.02).
Cam Output (152), Cam Input (202)	9310 Steel 160-190 ksi	No finish (F-25.01) is needed. Cadmium plate (0.0002-0.0004 inches thick) (F-15.23).
Housing Stator (244)	4330 Bar 180-200 ksi	Cadmium plate (0.0002-0.0004 inch thick) Type 2, class 3 (F-15.02).
Seal Support (256)	Al alloy	Boric acid - sulfuric acid anodize (F-17.31) and apply primer, C00259 (F-20.02) except in area.
Support thrust (276)	9310 Steel 160-190 ksi	Cadmium plate (0.0002-0.0004 inches thick) (F-15.23).
Gear input (288)	9310 Steel 160-190 ksi	Apply primer, C00259 (F-20.02). Cadmium plate (0.0002-0.0004 inches thick) (F-15.23).
Sleeve (308)	4340 Bar 150-170 ksi	Cadmium plate (0.0002-0.0004 inch thick) Type 2, class 3 (F-15.02).
Pin (432,916)	4340 Steel 125-145 ksi	Cadmium plate (0.0002-0.0004 inch thick) Type 2, class 3 (F-15.02).
Spring (832,836)	17-7PH CRES	Prepare surface and passivate (F-17.09).
Cap (320)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.05) except as noted in REPAIR 1-1, Figure 605.
Adapter (480), spacer (424,436, 840,876,920) plate (568)	Al alloy	Chemical treat or chromic acid anodize (F-17.01).
Nut (416A)	4340 Steel 125-145 ksi	Cadmium plate (0.0003-0.0005 inches thick) (F-1.20) except 0.0002-0.0003 inch thick on threads.
Gear (420)	9310 Steel 150-210 ksi	Cadmium plate (F-1.20) except no finish on spline and gear. Bake after plating at 250-300°F for a minimum of 5 hours.
Nut (428)	4340 Steel 125-145 ksi	Cadmium plate (F-1.20) except 0.0002-0.0005 inch thick on threads.

Table 601: Refinish Details (Continued)

IPL FIG. & ITEM	MATERIAL	FINISH
Spacer (440)	4340 Steel	Cadmium plate (F-1.20) except as noted inREPAIR 1-1, Figure 606.
Gear (448)	9310 Steel 150-210 ksi	Cadmium plate (F-15.05) except 0.0002-0.0003 inch thick. No plating on clutch teeth or gear teeth. Bake after plating as 250-300°F for a minimum of 3 hours.
Plate (456)	Al alloy	Chemical treat or chromic acid anodize (F-17.01) and apply primer, C00259 (F-20.02).
Plug (480)	15-5PH CRES	Prepare surface and passivate (F-17.09). Apply lubricant, D00113 (F-19.10) to keyways and threads.
Nut (488) key (492)	15-5PH CRES 180-200 ksi	Prepare surface and passivate (F-17.09).
Nut (496,496A)	15-5PH CRES 150-170 ksi	Prepare surface and passivate (F-17.09). Apply lubricant, D00113 (F-19.10) to threads.
Nut (504)	15-5PH or 17-4PH CRES 150-170 ksi	Prepare surface and passivate (F-17.09). Apply lubricant, D00113 (F-19.10) to threads.
Plug (520)	15-5PH CRES 180-200 ksi	Passivate (F-17.09) all over.
Bearing (524)	52100 Steel HRC 60 minimum	No finish (F-25.01) is needed.
Plate (532)	9310 Steel Rockwell A81 minimum	No finish (F-25.01) is needed.
Spacer (548)	15-5PH CRES 150-170 ksi	Prepare surface and passivate (F-17.09).
Pin (552)	4340 Steel 150-170 ksi	Cadmium plate (F-1.20) except 0.0002-0.0003 inch thick.
Springs (572,576)	1095 Steel 180-220 ksi	Cadmium plate (F-1.32).
Caps (696,701R)	Al alloy	Anodize and apply primer, C00259 (F-18.04) except no primer in plug hole or seal grooves.
Guard-Cable Drum (756)	Al alloy	Apply primer, C00259 (F-18.05) except no primer in bolt holes
Guard (776), end cap (952)	Al alloy	Colored film treat or chromic acid anodize and apply primer, C00259 (F-18.05) except no primer in bolt holes.
Spacer (768)	Al alloy	Colored film chemical treat interior and exterior surfaces and apply primer, C00259 (F-18.06) except no primer on interior surfaces.
Retainer (816)	Al alloy	Colored film treat or chromic acid anodize and apply primer, C00259 (F-18.05) all over.
Cap (820)	Al alloy	Chromic acid anodize and apply primer, C00259 F-18.13) except as noted in REPAIR 1-1, Figure 608.

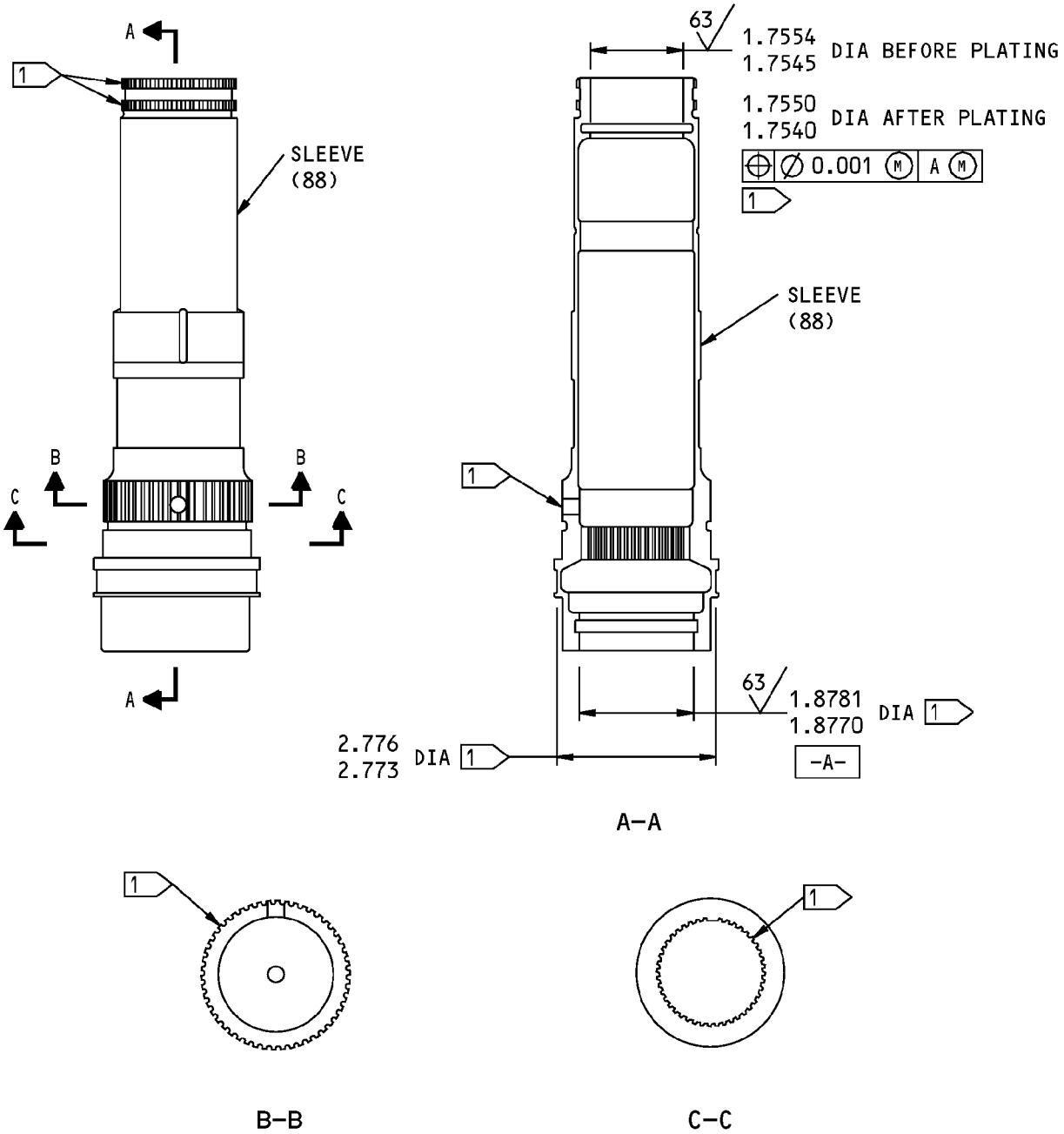
Table 601: Refinish Details (Continued)

IPL FIG. & ITEM	MATERIAL	FINISH
Retainer (828), washer (908)	4130 Steel	Cadmium plate (F-1.20) all over.
Shaft (844A)	4340 Steel 150-170 ksi	Cadmium plate exterior surface (F-16.07) and apply primer, C00259 (F-20.03) except as noted in REPAIR 1-1, Figure 609.
Jaw clutch (882)	4140 Steel 180-200 ksi	Cadmium plate (F-1.20) all over except no plating on clutch teeth and cutout faces.
Washer (904)	Al alloy	Chemical treat or chromic acid anodize and apply primer, C00259 (F-2.30).
Spacer (912)	Al alloy	Chromic acid anodize and apply primer, C00259 (F-18.13) all over.
Housing (940)	Al alloy	Boric acid-sulfuric acid anodize (F-17.35) all over and apply primer, C00259 (F-20.02) on exterior surfaces. Make sure the primer surface is level on the flange mating surface.
Spacer (972)	Al alloy	Chemical treat or chromic acid anodize and apply primer, C00259 (F-2.30).
Pinion gear (978)	9310 Steel 150-210 ksi	Cadmium plate (0.0002-0.0003 inch thick) and apply primer, C00259 (F-1.61) except no finish on internal splines or seal ring groove. Bake after plating at 250-300°F for 5 hours.

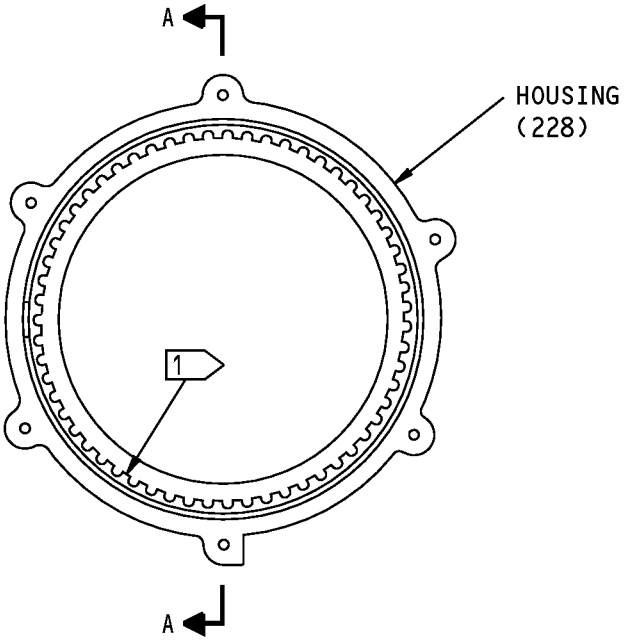


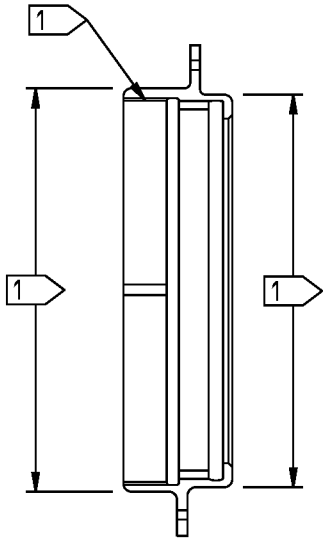
1 NO PRIMER ON THIS SURFACE

66-24938-1 Seal Refinish
Figure 601



65C34615-2 Sleeve Refinish
Figure 602



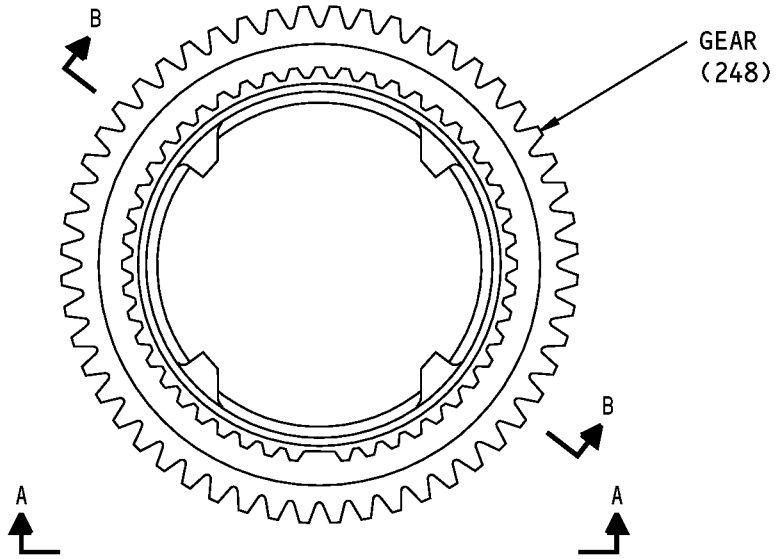


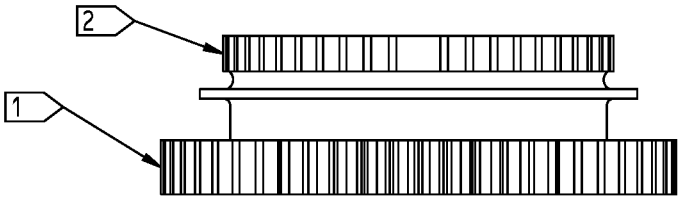
A–A

1 NO PRIMER ON THIS SURFACE

ITEM NUMBER REFER TO IPL FIG. 1

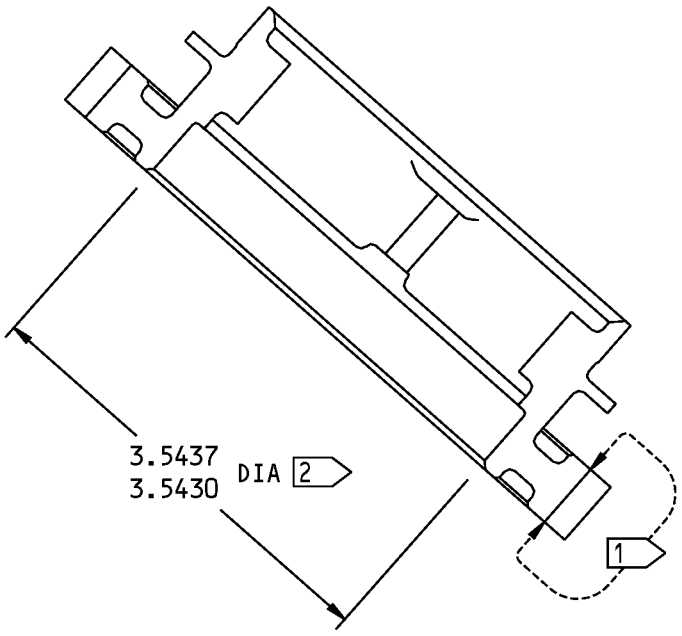
65C34618-1 Housing Refinish
Figure 603





A–A

251A4570-1 Gear Refinish
Figure 604 (Sheet 1 of 2)



B–B

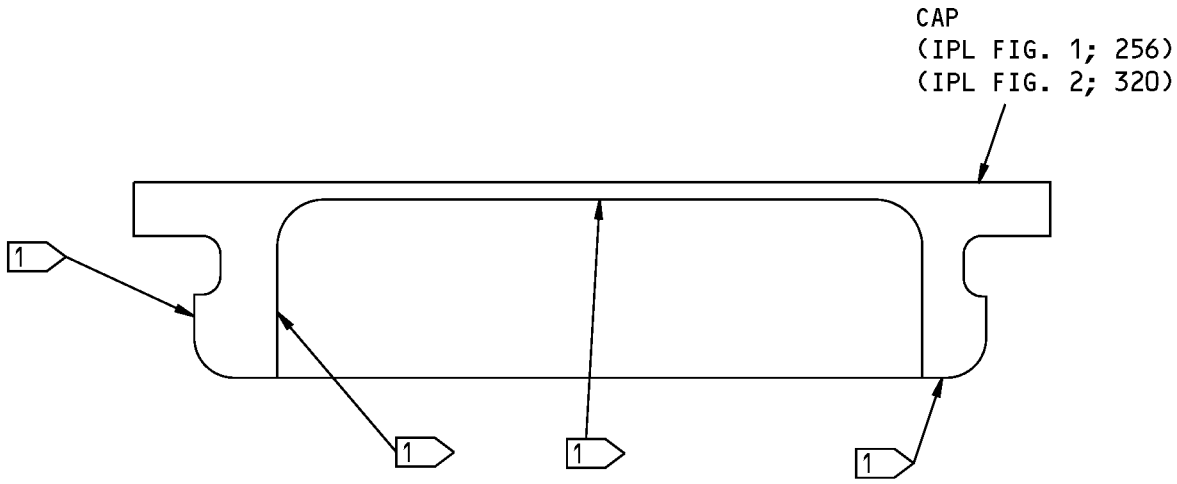
1 NO FINISH OR CADMIUM PLATE
RUNOUT ON INDICATED SURFACE

2 NO PRIMER ON THIS SURFACE

ITEM NUMBER REFER TO IPL FIG. 1

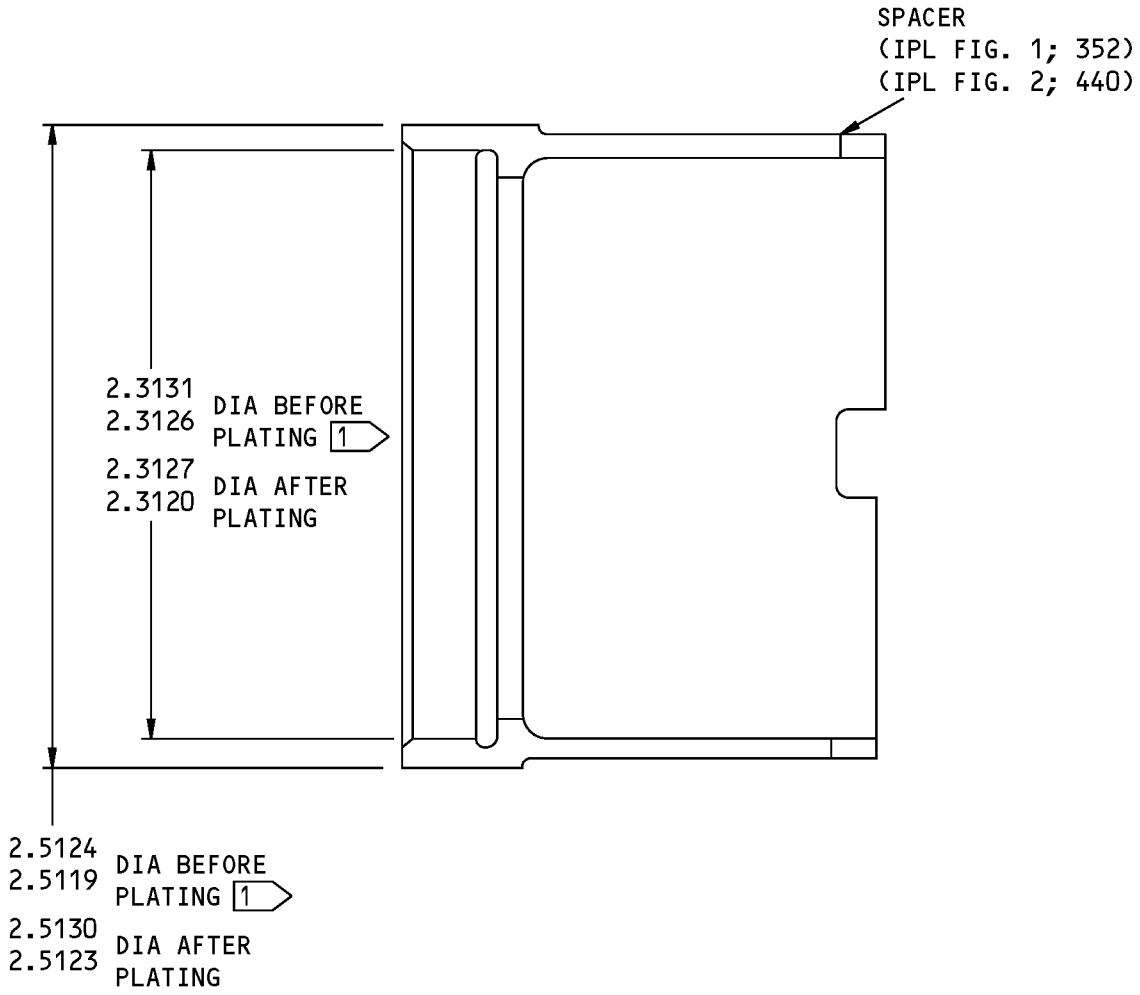
ALL DIMENSIONS ARE IN INCHES

251A4570-1 Gear Refinish
Figure 604 (Sheet 2 of 2)



1 NO PRIMER ON THIS SURFACE

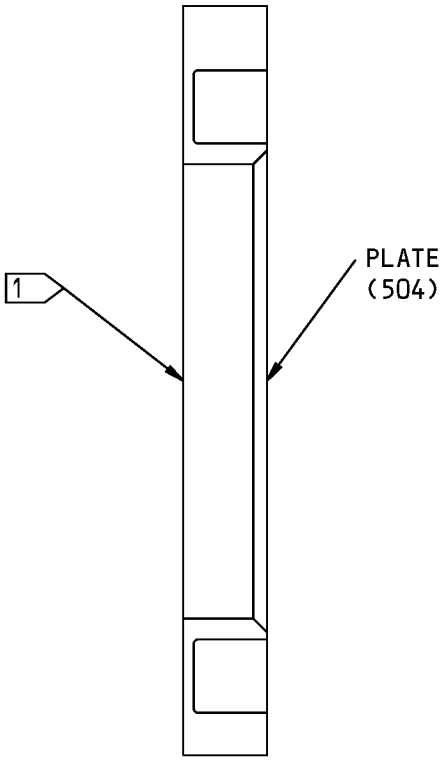
69-50913-1 Cap Refinish
Figure 605



1 0.0002–0.0003 INCH CADMIUM PLATE THICKNESS

ALL DIMENSIONS ARE IN INCHES

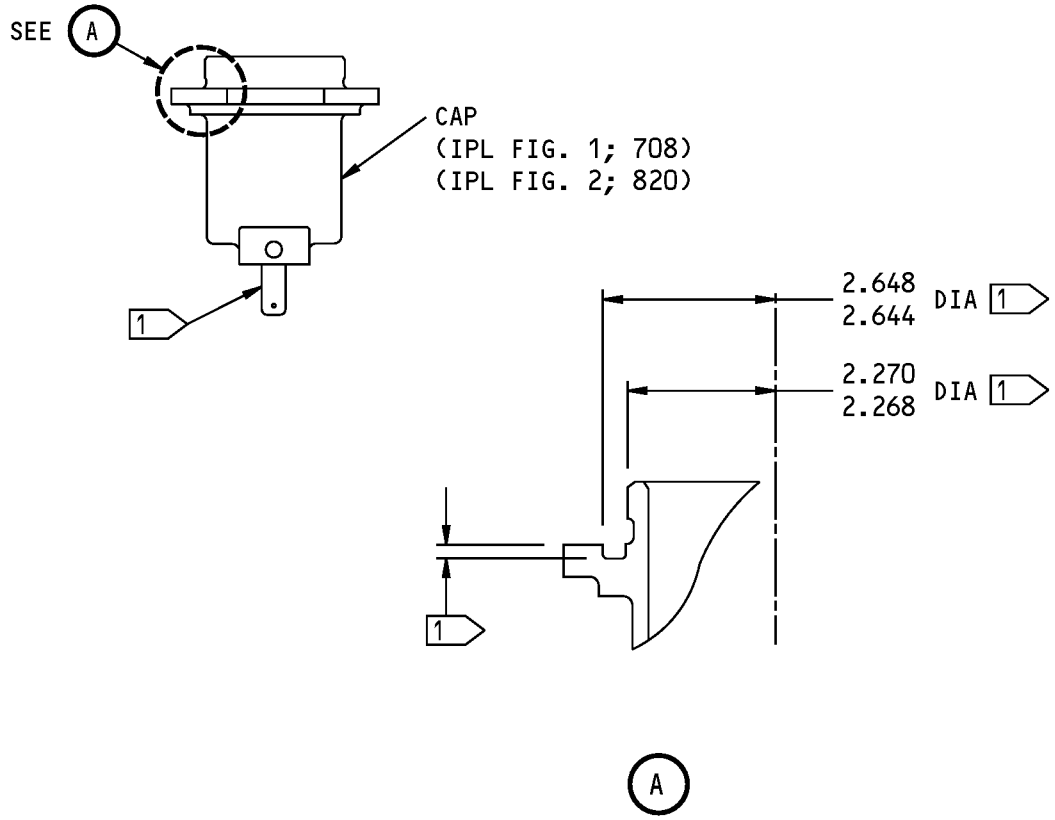
30-2538-1 Spacer Refinish
Figure 606



1 NO PLATING ON THIS SURFACE

ITEM NUMBER REFER TO IPL FIG. 1

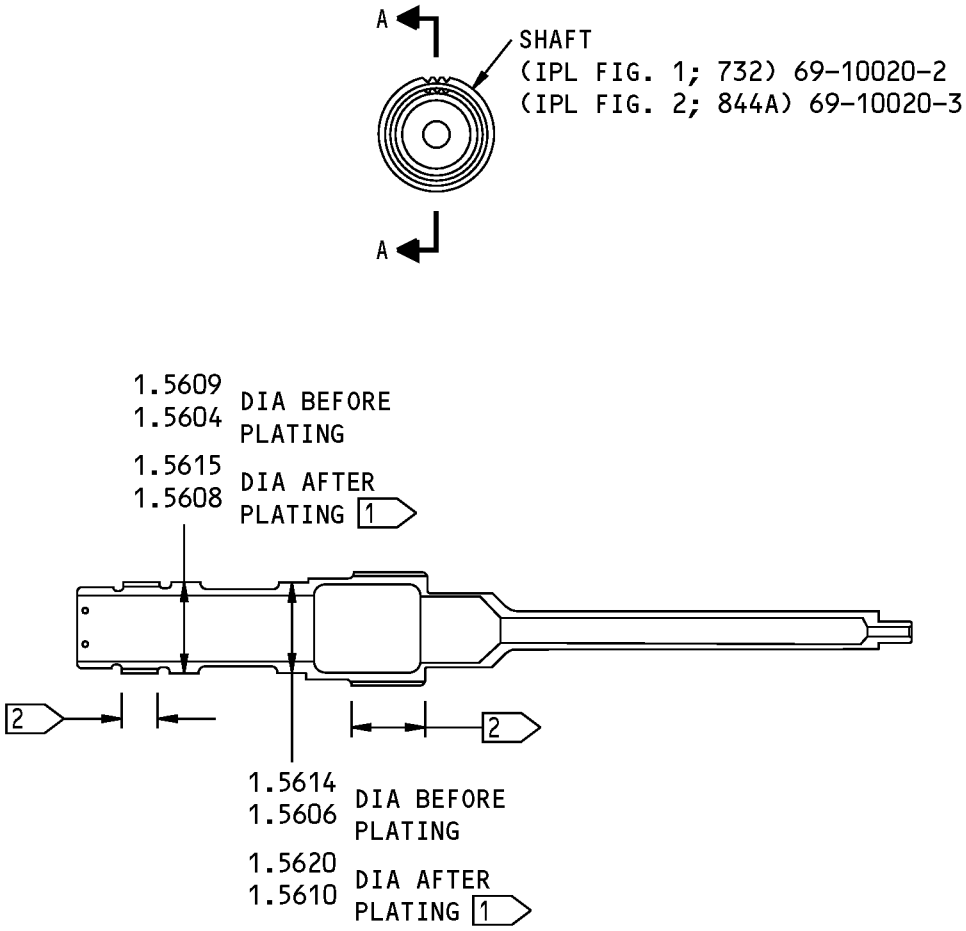
251A4650-1 Plate Refinish
Figure 607



1 NO PRIMER ON THIS SURFACE

ALL DIMENSIONS ARE IN INCHES

65-39591-3 Cap Refinish
Figure 608



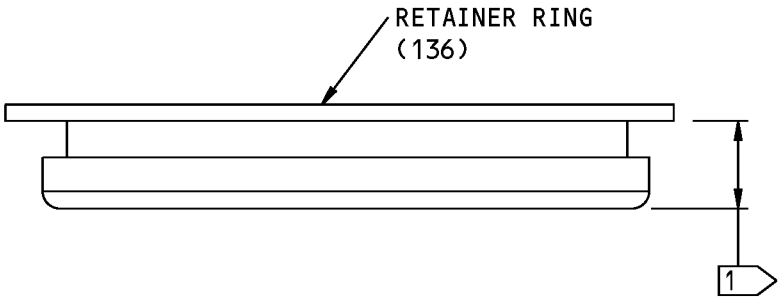
A–A

1 CADMIUM PLATE 0.0002–0.0003 THICK BUT NO PRIMER ON THIS SURFACE

2 NO FINISH ON THIS SURFACE

ALL DIMENSIONS ARE IN INCHES

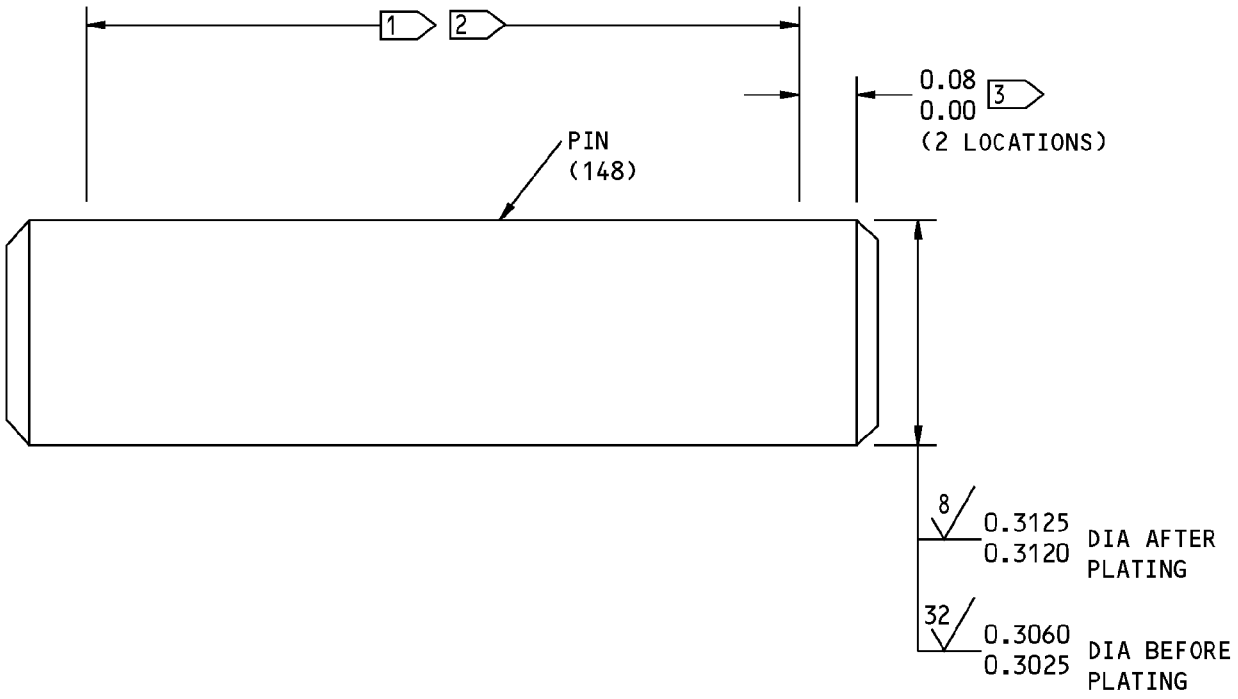
69-10020-2,-3 Shaft Refinish
Figure 609



1 NO PRIMER ON THIS SURFACE

ITEM NUMBER REFER TO IPL FIG. 1

65C34610-1 Retainer Ring Refinish
Figure 610



1 CHROME PLATE THIS SURFACE

2 NO CADMIUM PLATE THIS SURFACE

3 PLATING RUNOUT AREA

ITEM NUMBER REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

69-77853-1 Pin Refinish
Figure 611

PAWL ASSEMBLY - REPAIR 2-1

251A4515–1, –3

1. General

A. This procedure has the data necessary to repair the pawl assembly (432, IPL Figure 1; 556, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

2. Bearing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

B. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For miscellaneous materials, refer to SOPM 20-60-04.

(1) Remove the bearing (436, IPL Figure 1; 560, IPL Figure 2) from the pawl (440, IPL Figure 1; 564, IPL Figure 2).

(2) Install replacement bearings with sealant, A00247 (SOPM 20-50-03).

(3) Roller swage the pawl on both sides to a depth of 0.005-0.009 inch (SOPM 20-50-03).

PAWL - REPAIR 2-2

251A4520–1

1. General

A. This procedure has the data necessary to refinish the pawl (440, IPL Figure 1; 564, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: 9310 or 3310 Steel, 150-180 ksi

2. Pawl Refinish

A. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Apply cadmium plate (0.0003-0.0005 inch thick) (F-15.36) all over, except no plating on bearing areas.

GIMBAL ASSEMBLY - REPAIR 3-1

251A4530–2

1. General

A. This procedure has the data necessary to refinish the gimbal assembly (532, IPL Figure 1; 640, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

2. Gimbal Assembly Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

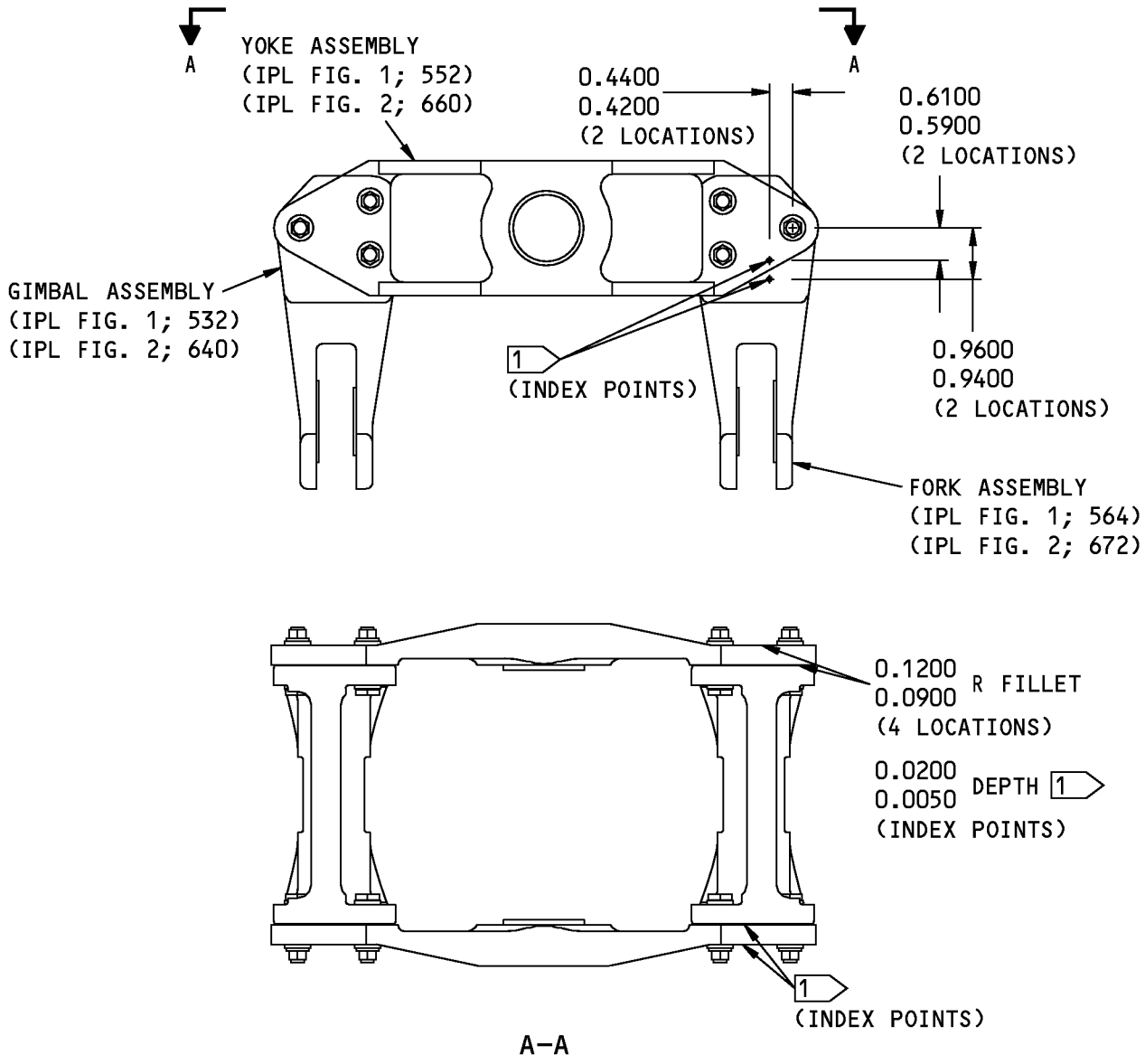
B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure (REPAIR 3-1, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Touch up scratched or damaged primer (SRF-14.996). Apply primer, C00259, Grade A or E on index points as noted in REPAIR 3-1, Figure 601.



1 APPLY PRIMER TO INDEX POINTS

ALL DIMENSIONS ARE IN INCHES

251A4530-2 Gimbal Assembly Refinish
Figure 601

YOKE ASSEMBLY - REPAIR 3-2

251A4535–1

1. General

A. This procedure has the data necessary to repair the yoke assembly (552IPL Figure 1; 660, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

2. Bushing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For miscellaneous materials, refer to SOPM 20-60-04.

(1) Remove the bushing (556, IPL Figure 1; 664, IPL Figure 2) from the yolk (560, IPL Figure 1; 668, IPL Figure 2).

(2) Cadmium plate (F-15.06) the outside diameter of the replacement bushing shank up to 1.3925 inches.

(3) Install replacement bushing with wet sealant, A00247 (SOPM 20-50-03).

YOKE - REPAIR 3-3

251A4535–2, –4

1. General

A. This procedure has the data necessary to refinish the yoke (560, IPL Figure 1; 660, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: Aluminum alloy

2. Yoke Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Boric acid-sulfuric acid anodize (F-17.31) all over.

(2) Apply primer, C00259 (F-20.02) but not in bushing bore.

FORK ASSEMBLY - REPAIR 3-4

251A4531–1

1. General

A. This procedure has the data necessary to repair the fork assembly (564, IPL Figure 1; 672, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

2. Bushing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For miscellaneous materials, refer to SOPM 20-60-04.

(1) Remove the bushings (568, 572, IPL Figure 1; 676, 680, IPL Figure 2) from the fork (576, IPL Figure 1; 684, IPL Figure 2).

(2) Cadimum plate (F-15.06) the outside diameter of the replacement bushing shanks up to 1.1275 inch for bushing (568, IPL Figure 1; 676, IPL Figure 2) and 0.8775 inch for bushing (572, IPL Figure 1; 680, IPL Figure 2). Make sure no plating is applied to the flange face of bushings.

(3) Install replacment bushings with wet sealant, A00247 (SOPM 20-50-03).

FORK - REPAIR 3-5

251A4531–2, –4

1. General

A. This procedure has the data necessary to refinish the fork (576IPL Figure 1; 684, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: Aluminum alloy

2. Fork Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Boric acid-sulfuric acid anodize (F-17.31) all over.

(2) Apply primer, C00259 (F-20.03) but not in bushing bores.

DRUM ASSEMBLY - REPAIR 4-1

251A4550–1

1. General

A. This procedure has the data necessary to repair the drum assembly (736, IPL Figure 1; 848, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

2. Drum Assembly Repair

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

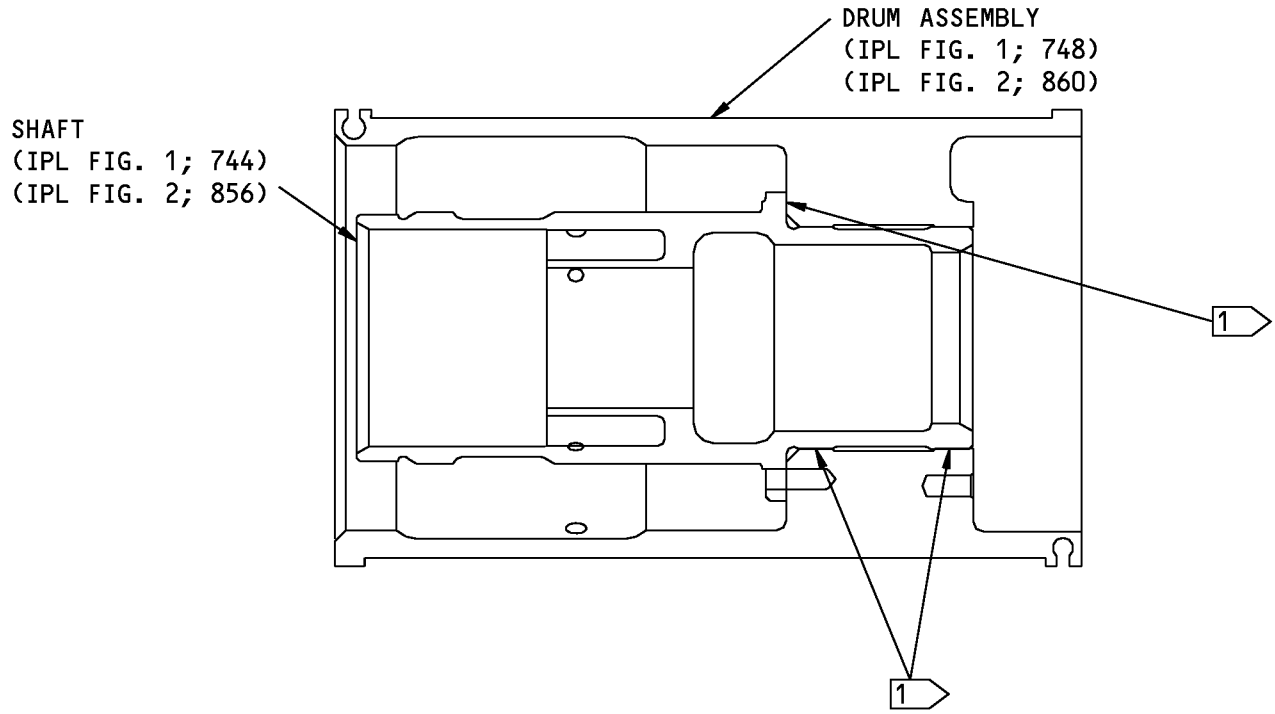
(1) Remove the pins (740, IPL Figure 1; 852, IPL Figure 2) from the shaft (744, IPL Figure 1; 856, IPL Figure 2).

(2) Remove the shaft (744, IPL Figure 1; 856, IPL Figure 2) from the drum assembly (748, IPL Figure 1; 860, IPL Figure 2).

(3) Refinish as necessary.

(4) Apply wet primer, C00259 (F-20.06) to shaft (744, IPL Figure 1; 856, IPL Figure 2) locations shown in REPAIR 4-1, Figure 601 and press fit the shaft into the drum assembly (748, IPL Figure 1; 860, IPL Figure 2).

(5) Apply wet primer, C00259 (F-20.02) in the pin holes of the shaft (744, IPL Figure 1; 856, IPL Figure 2) and drum assembly (748, IPL Figure 1; 860, IPL Figure 2) and press fit the pins (740, IPL Figure 1; 852, IPL Figure 2) in the shaft (744, IPL Figure 1; 856, IPL Figure 2). Make sure the pin does not extend above the shaft flange.



1 APPLY PRIMER ON THIS SURFACE

251A4550-1 Drum Assembly Repair
Figure 601

SHAFT - REPAIR 4-2

65-19471–5

1. General

A. This procedure has the data necessary to refinish the shaft (744, IPL Figure 1; 856, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: Aluminum alloy

2. Shaft Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

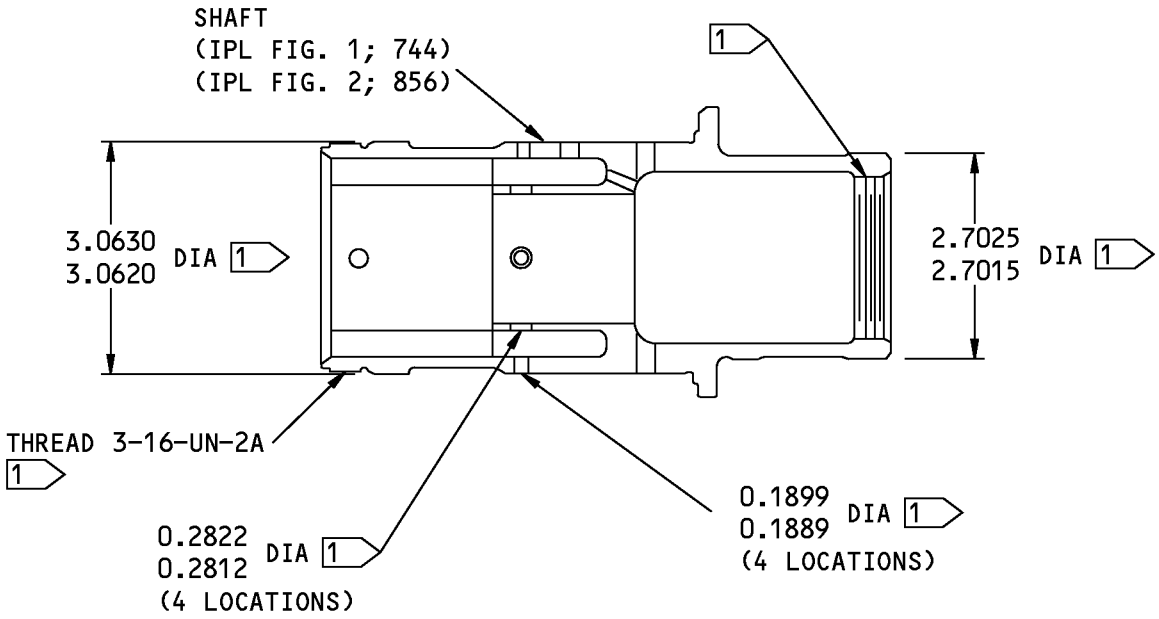
B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure (REPAIR 4-2, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Colored film treat or chromic acid anodize and apply primer, C00259 (F-18.05) except as noted in REPAIR 4-2, Figure 601 .



1 NO PRIMER ON THIS SURFACE

ALL DIMENSIONS ARE IN INCHES

65-19471-5 Shaft Refinish
Figure 601

DRUM - REPAIR 4-3

251A4554–2

1. General

A. This procedure has the data necessary to refinish the drum (756, IPL Figure 1; 868, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: Aluminum alloy

2. Drum Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

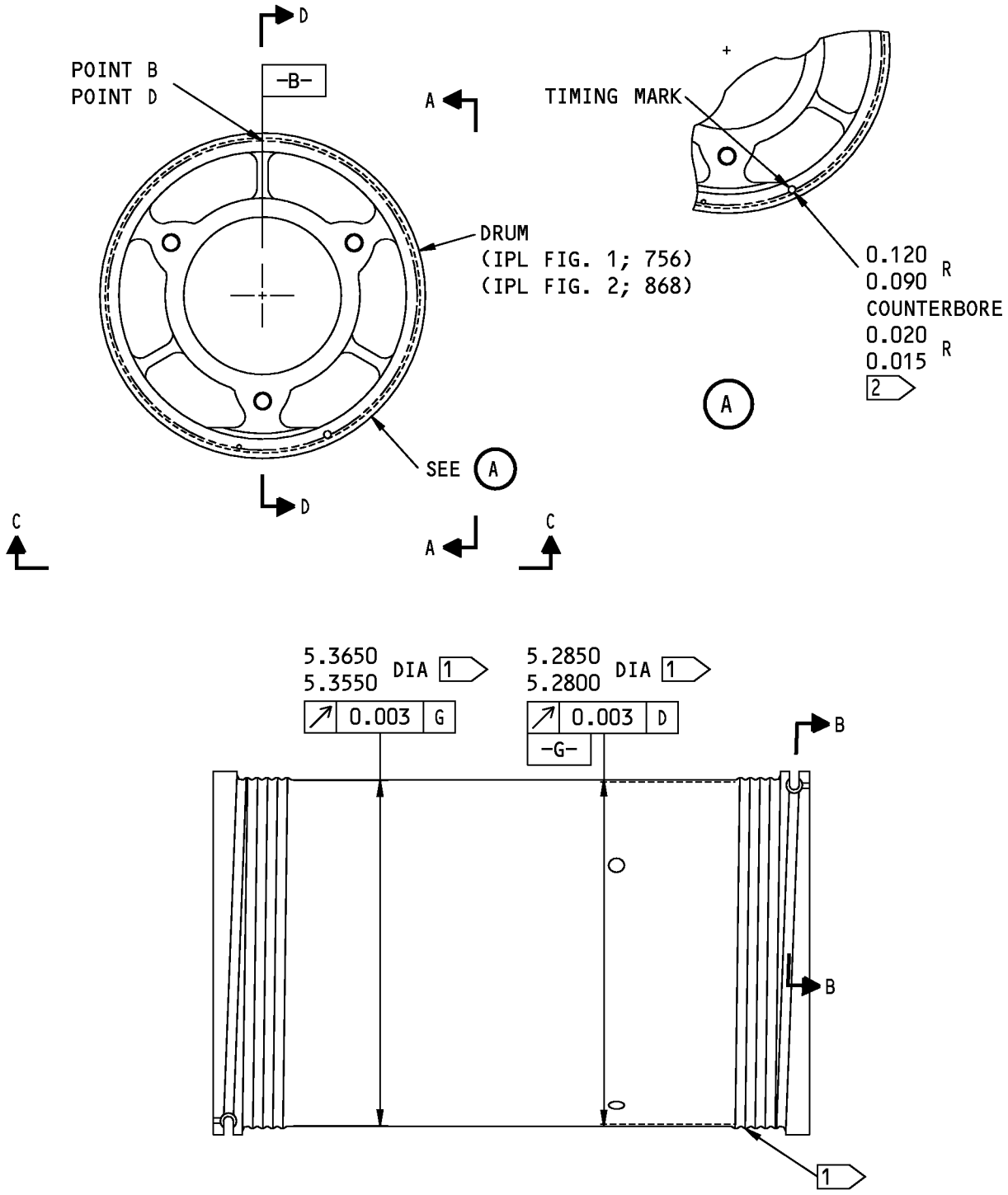
C. Procedure (REPAIR 4-3, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.35).

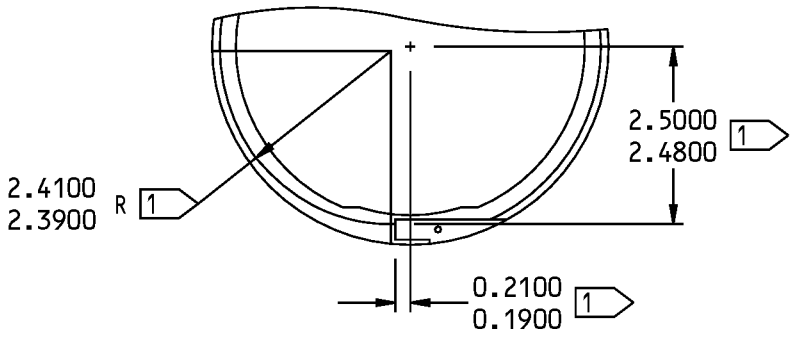
(2) Apply primer, C00259 (F-20.03) except as noted in REPAIR 4-3, Figure 601.

(3) Touch up scratched or damaged primer (SRF-14.996) on timing mark as noted in REPAIR 4-3, Figure 601.

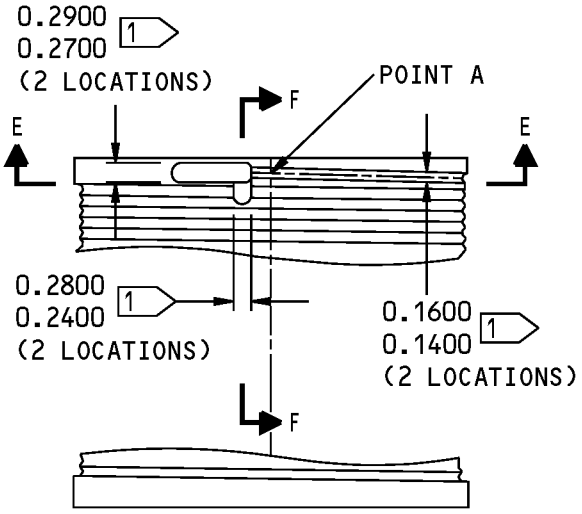


A-A

251A4554-2 Drum Refinish
Figure 601 (Sheet 1 of 3)

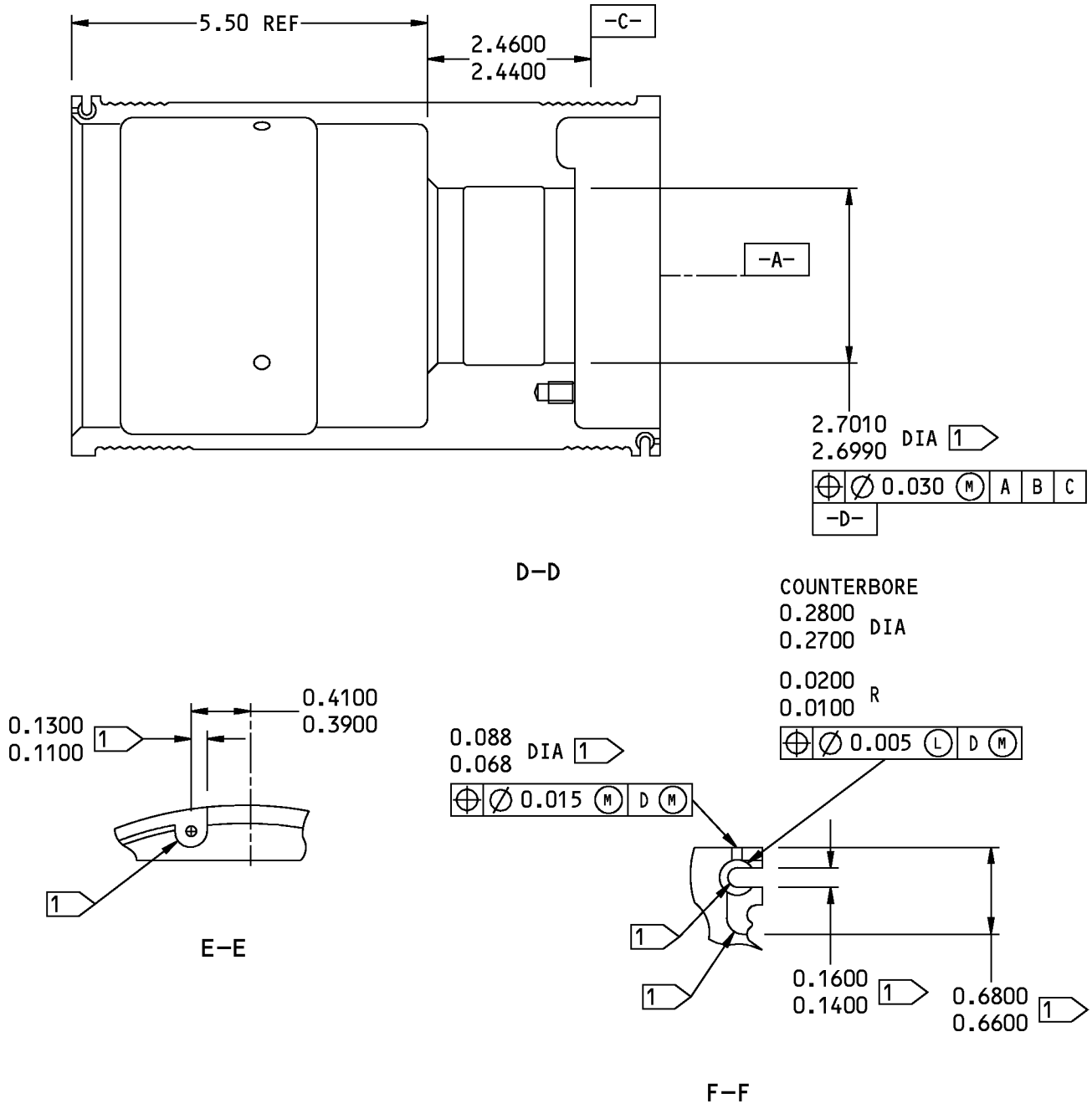


B–B



C–C

251A4554-2 Drum Refinish
Figure 601 (Sheet 2 of 3)



1 NO PRIMER ON THIS SURFACE

2 APPLY YELLOW PRIMER TO TIMING MARK

ALL DIMENSIONS ARE IN INCHES

251A4554-2 Drum Refinish
Figure 601 (Sheet 3 of 3)

GEARBOX ASSEMBLY - REPAIR 5-1

251A4555–4, –6, –11

1. General

A. This procedure has the data necessary to repair the gearbox assembly (288A, IPL Figure 1; 352, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

2. Pin Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Remove the pins (296, IPL Figure 1; 360, IPL Figure 2) from the gearbox (300A, IPL Figure 1; 364, IPL Figure 2).

(2) Install replacement pins with wet primer, C00259.

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COMPONENT MAINTENANCE MANUAL

GEARBOX - REPAIR 5-2

251A4555–5, –7, –10

1. General

A. This procedure has the data necessary to refinish the gearbox (300A, IPL Figure 1; 364, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: Aluminum alloy

2. Bearing Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

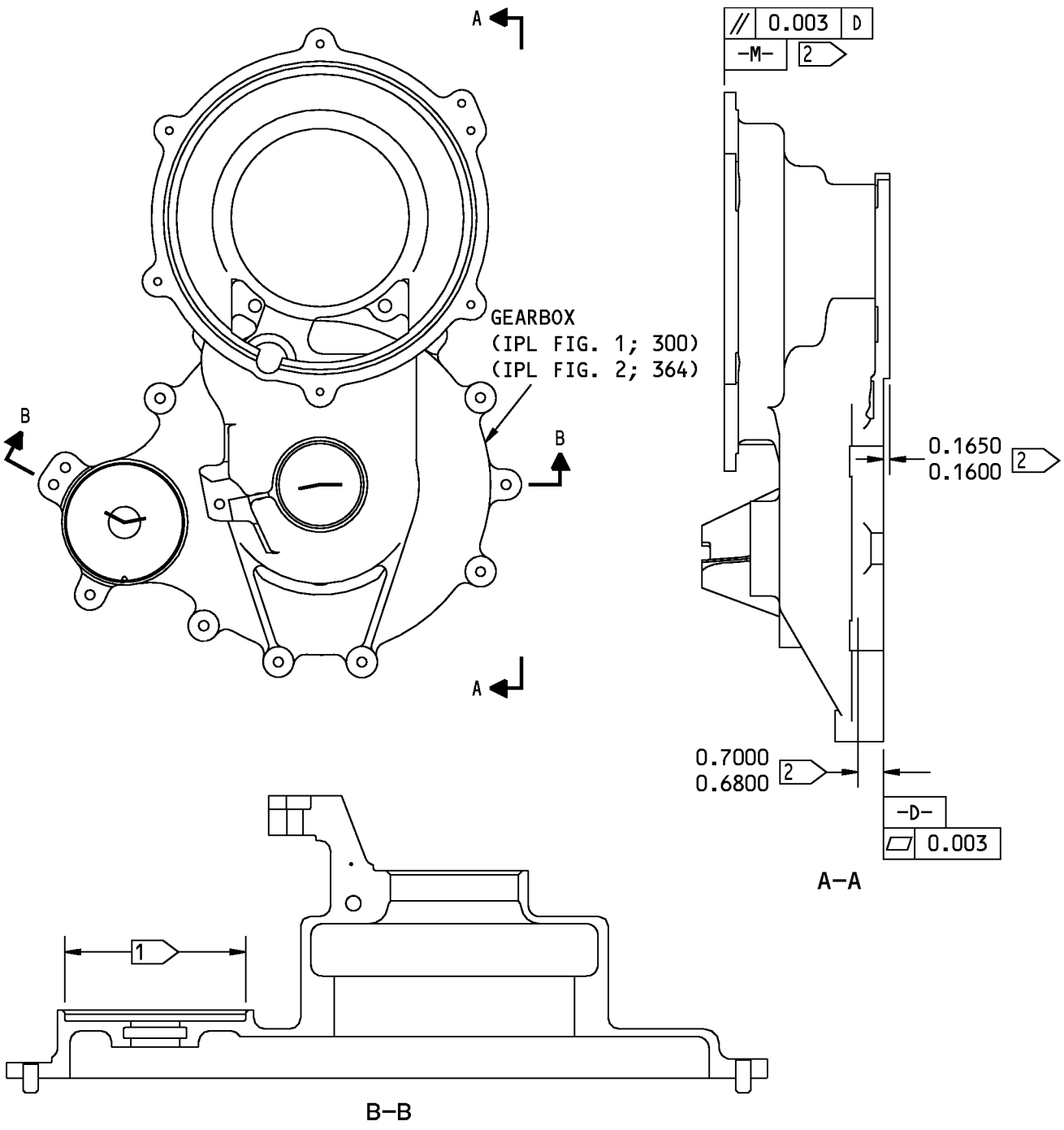
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure (REPAIR 5-2, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Boric acid-sulfuric acid anodize (F-17.35) all over.

(2) Apply primer, C00259 (F-20.02) on exterior surfaces except as noted in REPAIR 5-2, Figure 601.



1 NO PRIMER ON THIS SURFACE.

2 NO RUNS, BEADS, OR SAGS ARE PERMITTED ON THIS PRIMER SURFACE.

ALL DIMENSIONS ARE IN INCHES

251A4555-5 Gearbox Refinish
Figure 601

BOEING®

COMPONENT MAINTENANCE MANUAL

HOUSING ASSEMBLY - REPAIR 6-1

251A4560–3, –5, –7, –9

1. General

A. This procedure has the data necessary to repair the housing assembly (616, IPL Figure 1; 720A, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

2. Sleeve Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

B. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For miscellaneous materials, refer to SOPM 20-60-04.

(1) Remove the sleeve (620, IPL Figure 1; 728, IPL Figure 2) from the housing (624, IPL Figure 1; 732A, IPL Figure 2).

(2) Install replacement sleeve with wet sealant, A00247 (SOPM 20-50-03).

SLEEVE - REPAIR 6-2

251A4565–1

1. General

A. This procedure has the data necessary to refinish the sleeve (620, IPL Figure 1; 728, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: 4340 Steel, 150-170 ksi

2. Sleeve Refinish

A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Do a magnetic particle check (SOPM 20-20-01).

(2) Cadmium plate (F-15.06) inside diameter.

(3) Chromium plate (0.005 minimum thickness) and bake (F-15.04) outside diameter. 1.2330-1.2340 inch outside diameter applies before plating.

(4) Do a magnetic particle check (SOPM 20-20-01).

HOUSING - REPAIR 6-3

251A4560–4, –6, –8, –10

1. General

A. This procedure has the data necessary to refinish the housing (624, IPL Figure 1; 732A, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: 15-5PH Steel, 180-200 ksi

2. Housing Refinish

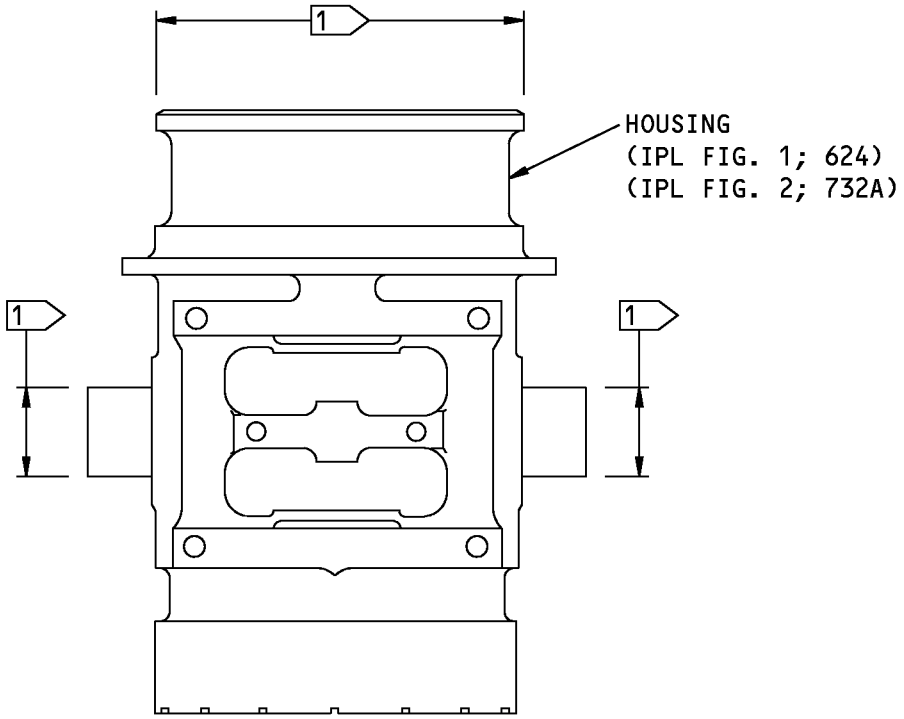
A. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Apply cadmium plate, Type 2, class 3 (F-15.25) all over, except as noted in REPAIR 6-3, Figure 601.



1 0.0002-0.0003 INCH PLATING THICKNESS ON THIS SURFACE

251A4560-4 Housing Refinish
Figure 601

SUPPORT ASSEMBLY - REPAIR 7-1

251A4580–1

1. General

A. This procedure has the data necessary to refinish the support assembly (660, IPL Figure 1; 772, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

2. Support Assembly Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Apply colored chemical coating and primer, C00259 (F-18.01).

BEARING HOUSING - REPAIR 7-2

66-12615–1

1. General

A. This procedure has the data necessary to repair the bearing housing (664, IPL Figure 1; 776, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

2. Bearing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

B. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-03	LUBRICANTS

C. Procedure

NOTE: For lubricants, refer to SOPM 20-60-03.

(1) Remove the bearing (668, IPL Figure 1; 780, IPL Figure 2) from the housing (672, IPL Figure 1; 784, IPL Figure 2).

(2) Install replacement bearings with grease, D00013 (SOPM 20-50-03).

HOUSING - REPAIR 7-3

66-12615–2

1. General

A. This procedure has the data necessary to refinish the housing (672, IPL Figure 1; 784, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: Aluminum alloy

2. Housing Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Chemical treat or chromic acid anodize and apply primer, C00259 (SRF-2.30) except no primer in housing bore.

SUPPORT - REPAIR 7-4

251A4581–1

1. General

A. This procedure has the data necessary to refinish the support (680, IPL Figure 1; 792, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: Aluminum alloy

2. Support Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Colored film chemical treat (F-17.07) and apply primer, C00259 (F-20.03).

PLUG ASSEMBLY - REPAIR 8-1

251A4670–3

1. General

A. This procedure has the data necessary to repair the plug assembly (404).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Bearing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

B. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For miscellaneous materials, refer to SOPM 20-60-04.

(1) Remove the bearing (408) from the upper plug (412).

(2) Install the replacement bearing with wet sealant, A00247 and roller swage the upper plug (SOPM 20-50-03).

UPPER PLUG - REPAIR 8-2

251A4670–4

1. General

A. This procedure has the data necessary to refinish the upper plug (412).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

E. General repair details:

(1) Material: 15-5PH CRES, 180-200 ksi

2. Upper Plug Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00113	Lubricant - Liquid Dispersed Solid Film Lubricant	BMS3-8, BAC 5811, TYPE VIII

B. References

Reference	Title
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For the decoding table for Boeing finish codes, refer SOPM 20-41-01. For miscellaneous materials, refer to SOPM 20-60-04.

(1) Prepare surface and passivate (F-17.09).

(2) Apply lubricant, D00113 (F-19.10) to upper plug (412) threads.

PIN - REPAIR 9-1

65-49966–1

1. General

A. This procedure has the data necessary to repair and refinish the pin (56, IPL Figure 1; 60, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: 4340 Steel, 180-200 ksi

(2) Shot peen:

(a) Shot size 170-330

(b) Intensity 0.014A

(c) Coverage 2.0

2. Pin Repair

A. References

Reference	Title
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-42-03	HARD CHROME PLATING

B. Procedure (REPAIR 9-1, Figure 601)

(1) Machine within repair limits shown to remove defects.

(2) Do a magnetic particle check (SOPM 20-20-01).

(3) Shot peen the pin (56, IPL Figure 1; 60, IPL Figure 2). (SOPM 20-10-03).

(4) Hard chrome plate the machined area (SOPM 20-42-03).

(5) Grind the chrome plated area (SOPM 20-10-04).

(6) Do a magnetic particle check (SOPM 20-20-01).

(7) Refinish per refinish instructions.

3. Pin Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

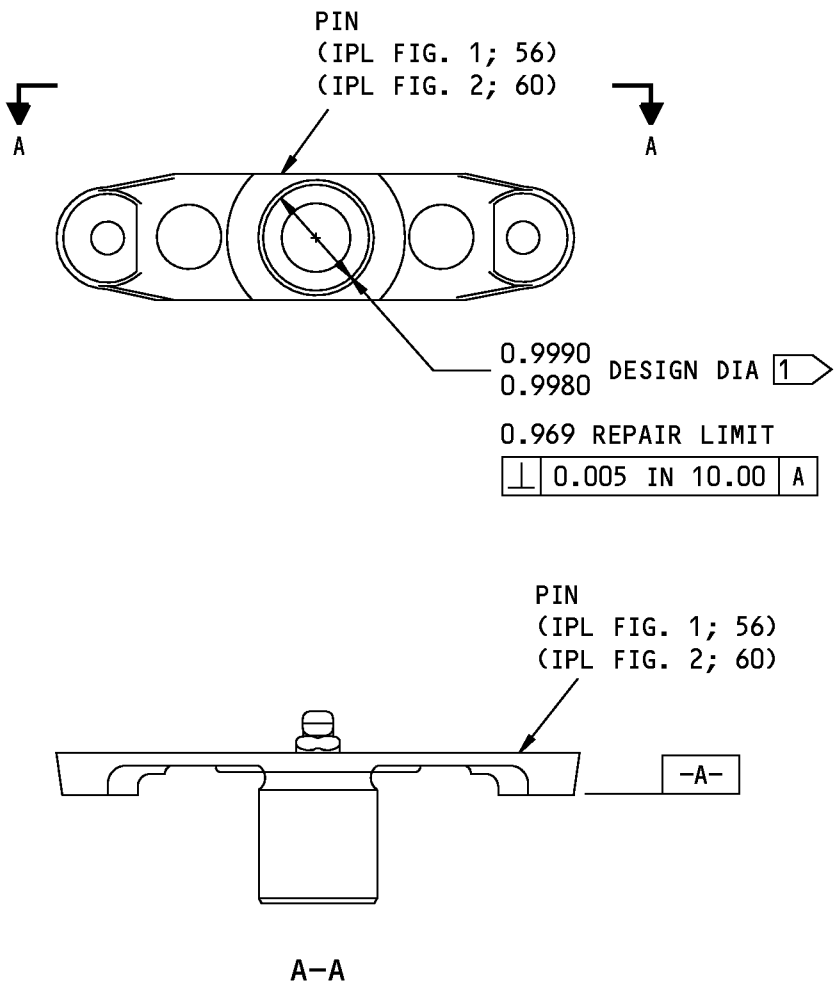
B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure (REPAIR 9-1, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Cadmium plate and apply primer, C00259 (SRF-1.285) except as noted in REPAIR 9-1, Figure 601.



A–A

1 NO CADMIUM PLATE ON THIS SURFACE

ALL DIMENSIONS ARE IN INCHES

65-49966-1 Pin Refinish
Figure 601

LOWER STOP - REPAIR 10-1

65-56636–1

1. General

A. This procedure has the data necessary to refinish the lower stop (64).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

E. General repair details:

(1) Material: 4340 Steel, 170-190 ksi

2. U-Joint Spacer Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

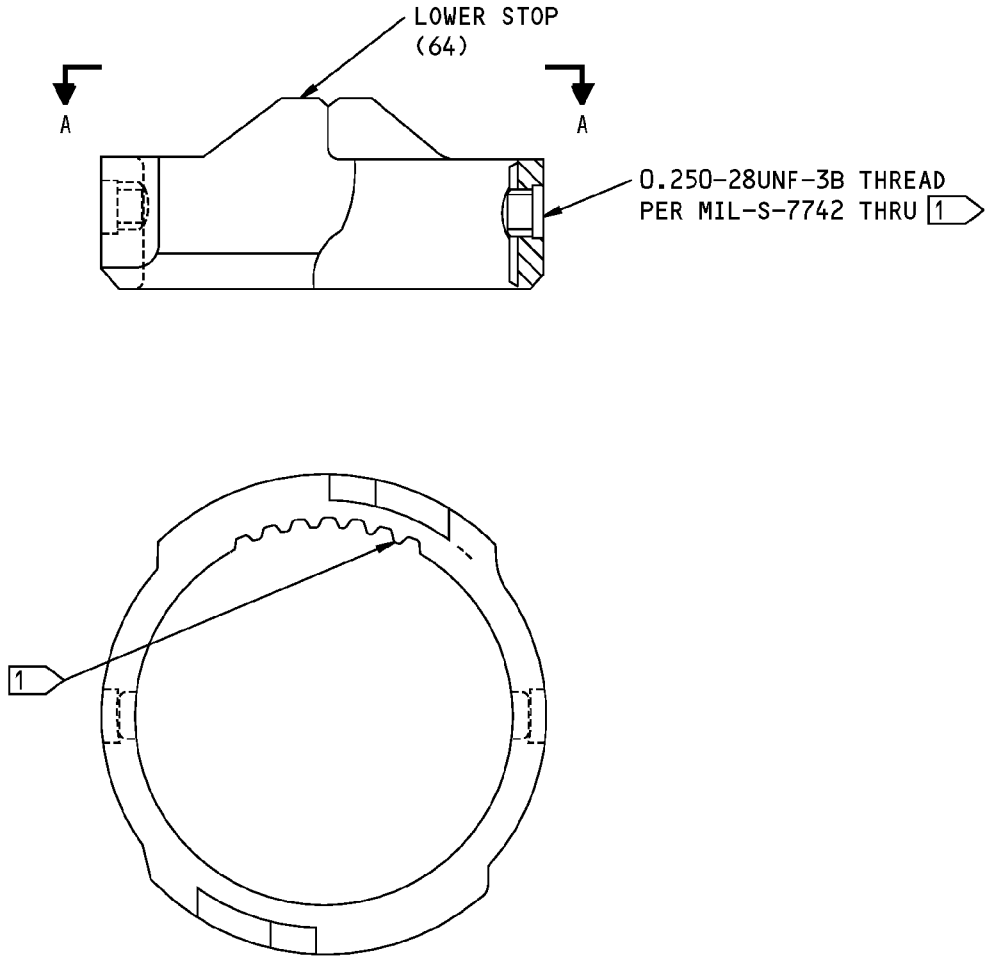
Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Do a magnetic particle check (SOPM 20-20-01).

(2) Apply cadmium plate 0.0002-0.0003 inch thick and apply primer, C00259 (F-16.01) except as noted in REPAIR 10-1, Figure 601.



1 NO PRIMER ON THIS SURFACE

ITEM NUMBER REFER TO IPL FIG. 1

65-56636-1 Lower Stop Refinish
Figure 601

SAFETY ROD ASSEMBLY - REPAIR 11-1

65C29264–1

1. General

A. This procedure has the data necessary to repair and refinish the safety rod assembly (32, IPL Figure 1; 36, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: 4330M Steel, 180-200 ksi

2. Safety Rod Assembly Repair

A. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES

B. Procedure (REPAIR 11-1, Figure 601)

(1) Strip all protective coating from inner bore of safety rod assembly (32, IPL Figure 1; 36, IPL Figure 2).) (SOPM 20-30-02).

(2) Chemically remove corrosion to repair limits shown in REPAIR 11-1, Figure 601.

(3) Clean inner bore (SOPM 20-30-03).

(4) Do a magnetic particle check (SOPM 20-20-01).

(5) Refinish per refinish instructions.

3. Safety Rod Assembly Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

Reference	Title
SOPM 20-60-02	FINISHING MATERIALS

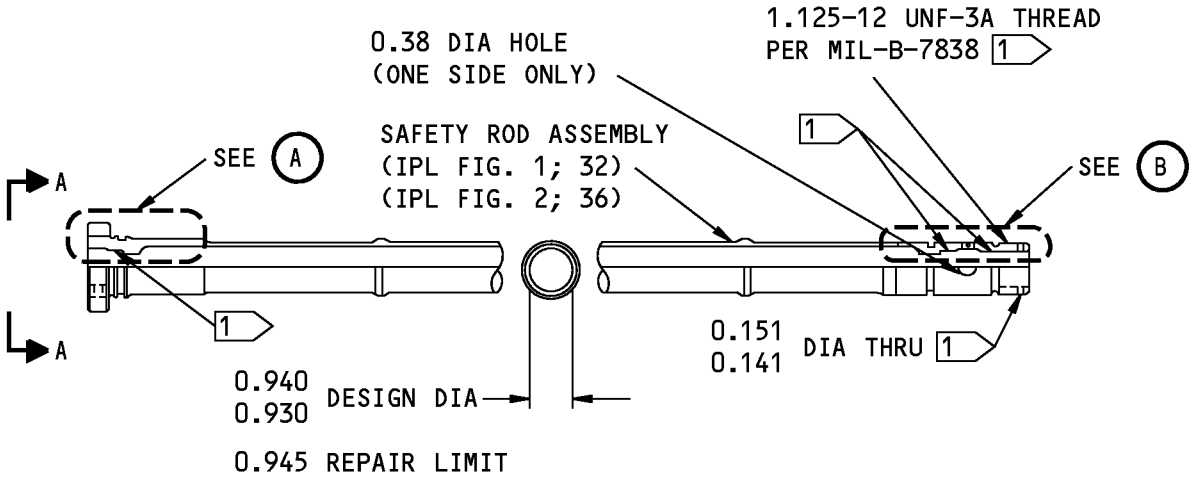
C. Procedure (REPAIR 11-1, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

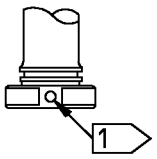
(1) Phosphate coat (F-14.14) and apply primer, C00259 (F-20.03) on internal surfaces except as noted in REPAIR 11-1, Figure 601.

(2) Do a magnetic particle check (SOPM 20-20-01).

(3) Cadmium plate and apply primer, C00259 (F-16.01) on external surfaces except as noted in REPAIR 11-1, Figure 601.

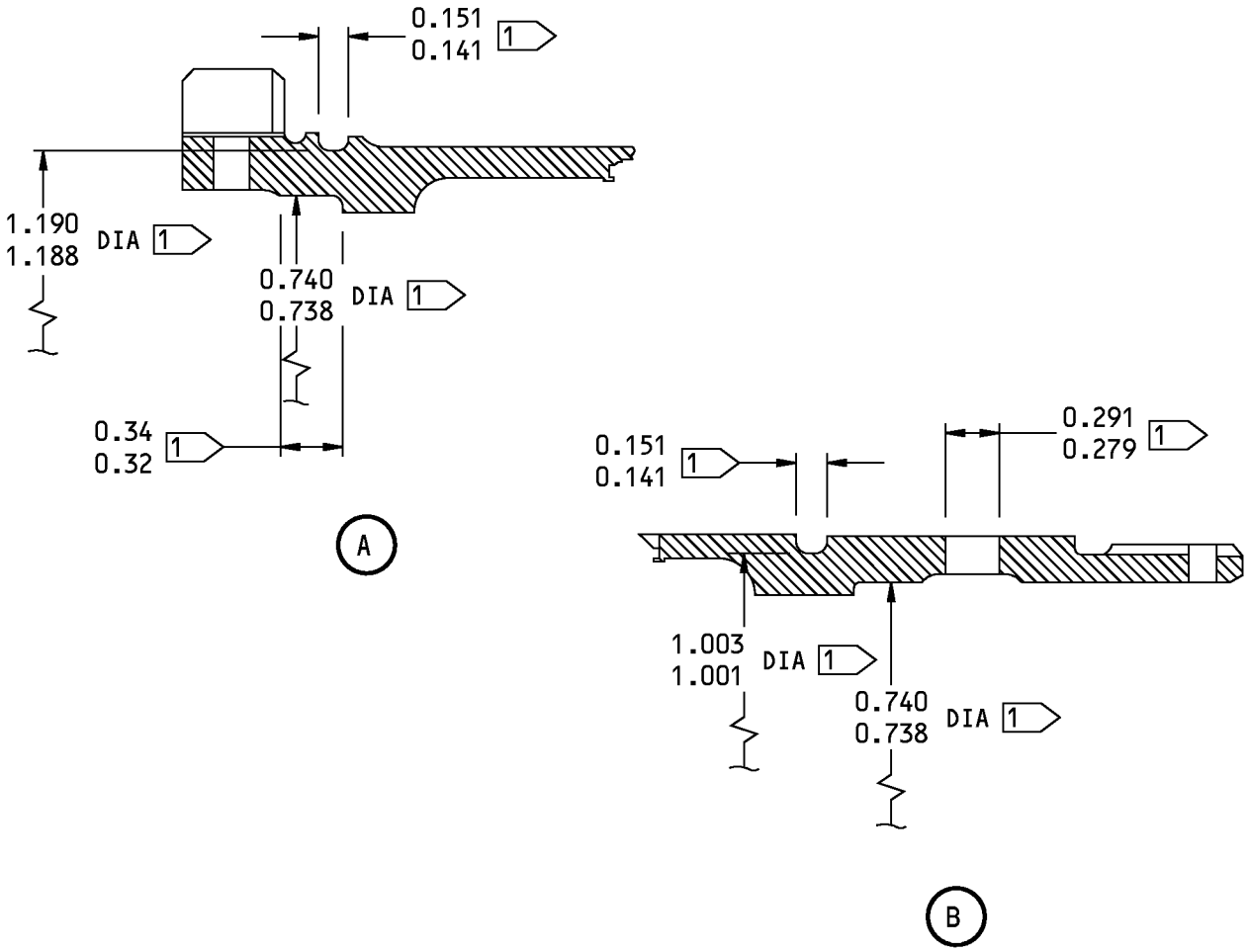


A–A



B–B

65C29264-1 Safety Rod Assembly Repair and Refinish
Figure 601 (Sheet 1 of 2)



1 NO PRIMER ON THIS SURFACE

ALL DIMENSIONS ARE IN INCHES

65C29264-1 Safety Rod Assembly Repair and Refinish
Figure 601 (Sheet 2 of 2)

BRAKE ASSEMBLY - REPAIR 12-1

65C34609–3

1. General

A. This procedure has the data necessary to repair the brake assembly (132A).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Spring (152) Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

B. References

Reference	Title
SOPM 20-60-03	LUBRICANTS

C. Procedure

NOTE: For lubricants, refer to SOPM 20-60-03.

(1) Remove the springs (152) from the pawls (164A) and pawl carrier (184).

(2) Install replacement springs (152) with grease, D00013.

3. Bearing (140A) Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)

B. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-03	LUBRICANTS

C. Procedure

NOTE: For lubricants, refer to SOPM 20-60-03.

(1) Remove the bearing (140A) from the pawl carrier (184).

(2) Install the replacement bearing with grease, D00015 applied to inner and outer bearing diameters (SOPM 20-50-03).

4. Bearing (144) Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For finishing materials, refer to SOPM 20-60-02.

(1) Remove the bearings (144) from the ratchet ring (188).

(2) Install the replacement bearings with primer, C00259 applied to inner and outer bearing diameters (SOPM 20-50-03).

5. Retainer Ring (136) Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

B. References

Reference	Title
SOPM 20-60-03	LUBRICANTS

C. Procedure

NOTE: For lubricants, refer to SOPM 20-60-03.

(1) Remove the retainer ring (136) from the pawl carrier (184).

(2) Install the replacement retainer ring (136) with grease, D00013 and tighten to 200-300 in-lbs.

PAWL ASSEMBLY - REPAIR 12-2

69-77852–5

1. General

A. This procedure has the data necessary to repair the pawl assembly (156S).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Bushing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95

B. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For miscellaneous materials, refer to SOPM 20-60-04.

(1) Remove the bushing (160) from the pawls (164A).

(2) Install replacement bushings with sealant, A00247 SOPM 20-50-03.

PAWL - REPAIR 12-3

69-77852–6

1. General

A. This procedure has the data necessary to refinish the pawl (164A).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

E. General repair details:

(1) Material: 9310 Steel, 150-190 ksi

2. Pawl Refinish

A. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Cadmium plate (F-15.06) all over.

PIN - REPAIR 12-4

69-77854–1

1. General

A. This procedure has the data necessary to refinish the pin (172).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

E. General repair details:

(1) Material: 4340 Steel, 180-200 ksi

(2) Shot Peen:

(a) Shot size 170-460

(b) Intensity .016A

(c) Coverage 2.0

2. Pin Refinish

A. Procedure (REPAIR 12-4, Figure 601)

(1) Cadmium plate (F-15.06) as noted in REPAIR 12-4, Figure 601.

3. Pin Repair

A. References

Reference	Title
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-42-05	BRIGHT CADMIUM PLATING

B. Procedure (REPAIR 12-4, Figure 601)

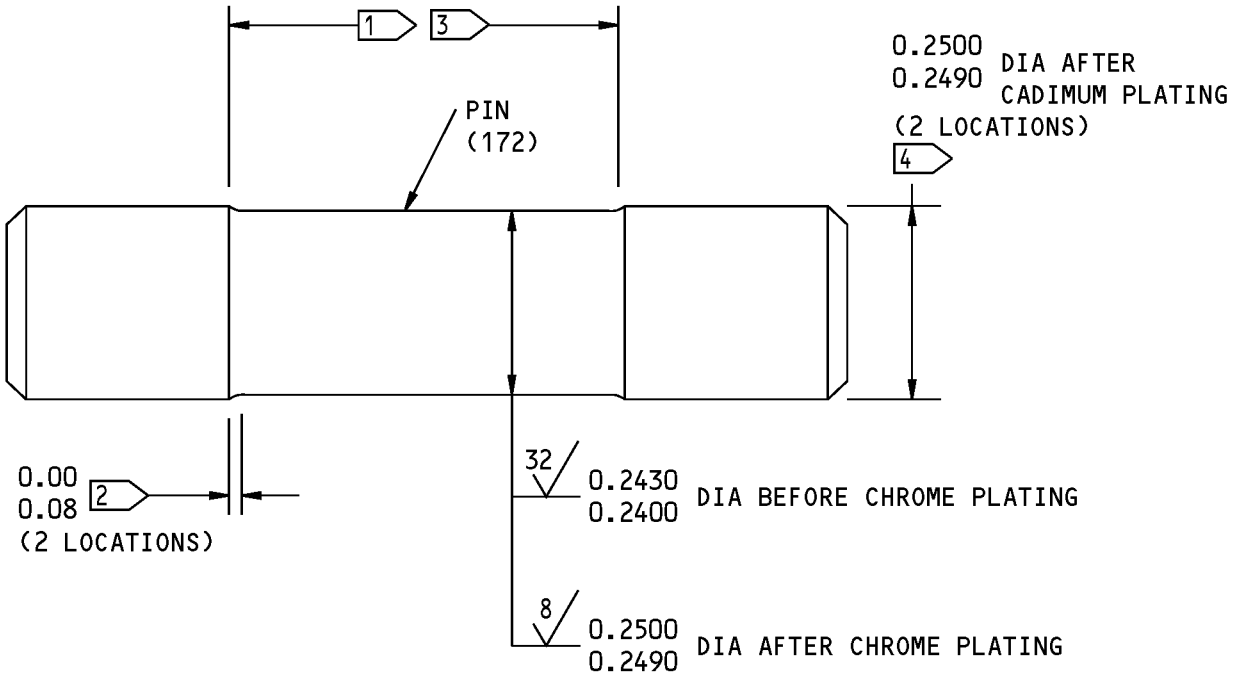
(1) Remove the chrome plate from the surface shown in REPAIR 12-4, Figure 601 (SOPM 20-10-01)(SOPM 20-30-02).

(2) Shot peen (SOPM 20-10-03) as indicated in REPAIR 12-4, Figure 601.

(3) Chrome plate 0.003-0.005 inch thick as shown in REPAIR 12-4, Figure 601 (SOPM 20-42-03).

(4) Grind the pin to the dimension shown in REPAIR 12-4, Figure 601 (SOPM 20-10-04).

(5) Cadmium plate as shown in REPAIR 12-4, Figure 601 (SOPM 20-42-05).



1 CHROME PLATE THIS SURFACE

2 CHROME PLATE RUNOUT AREA

3 SHOT PEEN THIS SURFACE

4 CADMIUM PLATE THIS SURFACE

ITEM NUMBER REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

69-77854-1 Pin Refinish
Figure 601

RING - REPAIR 12-5

65C34612–2

1. General

A. This procedure has the data necessary to refinish the ring (180).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

E. General repair details:

(1) Material: 4340 Steel, 180-200 ksi

2. Ring Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

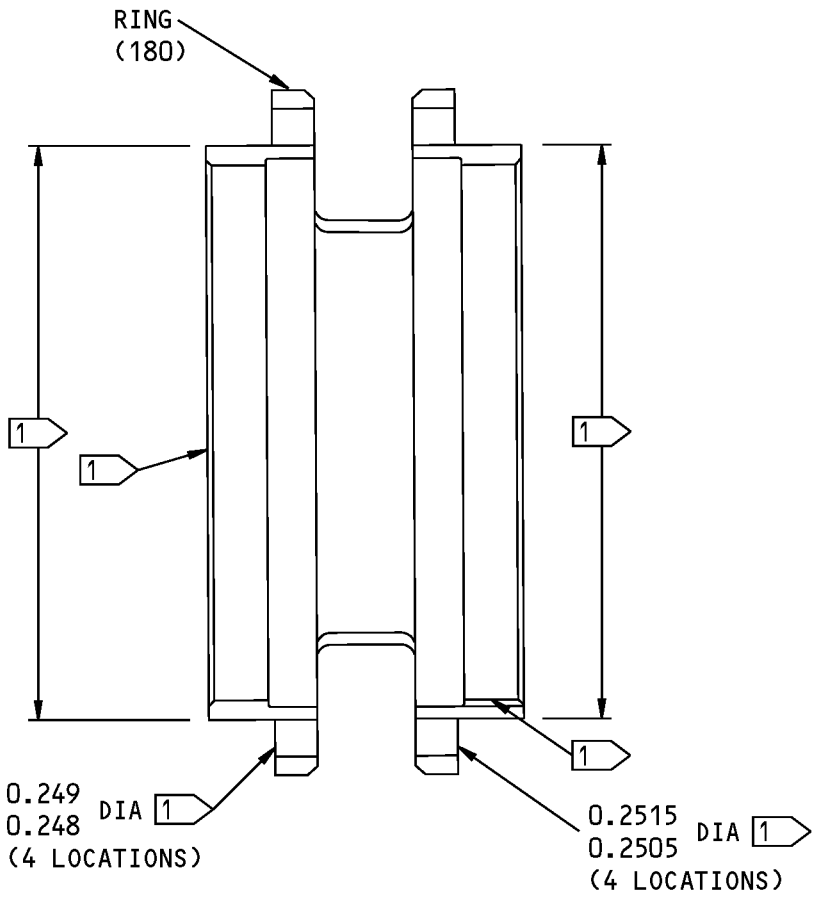
B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Cadmium plate and apply primer, C00259 (F-16.01) except as noted in REPAIR 12-5, Figure 601.



1 NO PRIMER ON THIS SURFACE

ITEM NUMBER REFER TO IPL FIG. 1

65C34612-2 Ring Refinish
Figure 601

YOKE - REPAIR 13-1

69-37969–1

1. General

A. This procedure has the data necessary to refinish the yoke (48, IPL Figure 1; 52, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: 4340 Steel, 180-200 ksi

2. Yoke Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-60-02	FINISHING MATERIALS

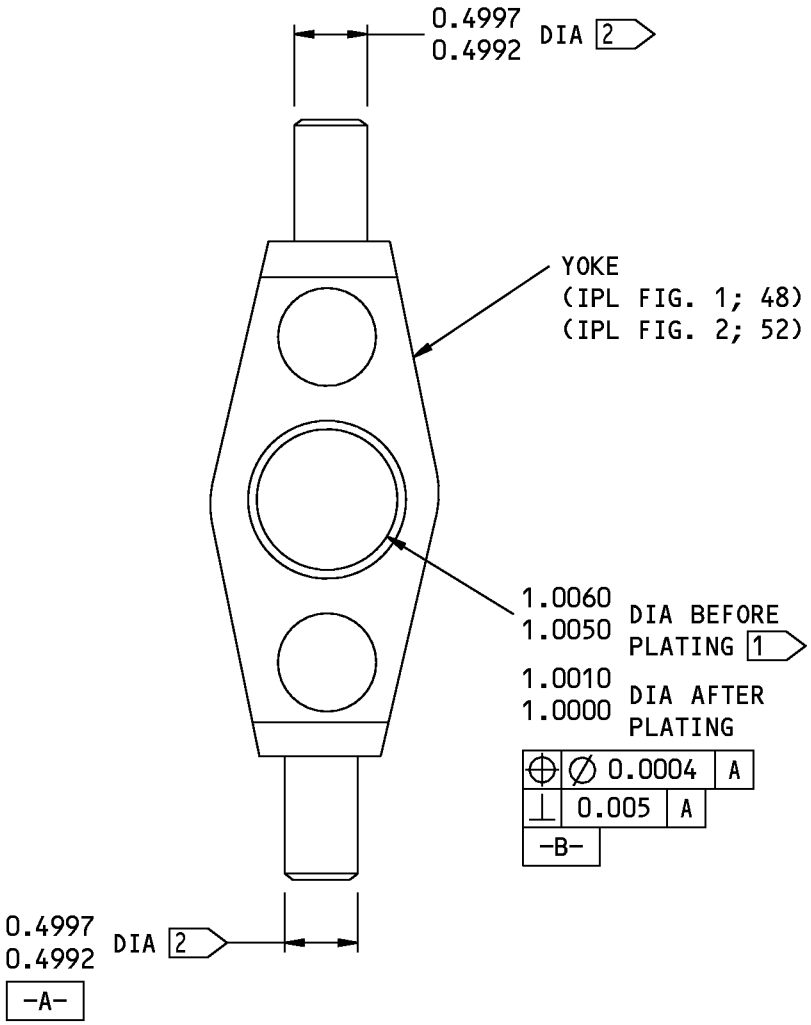
C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Do a magnetic particle check (SOPM 20-20-01).

(2) Chrome plate as noted in REPAIR 13-1, Figure 601 (SOPM 20-42-03).

(3) Cadmium plate type 2, class 2 and apply primer, C00259 (F-16.01) except as noted in REPAIR 13-1, Figure 601.



1> CHROME PLATE THIS SURFACE (F-15.03) 0.005 INCH MINIMUM. DO NOT APPLY PRIMER

2> NO FINISH ON THIS SURFACE

ALL DIMENSIONS ARE IN INCHES

69-37969-1 Yoke Refinish
Figure 601

GIMBAL FITTING - REPAIR 14-1

69-37970–1

1. General

A. This procedure has the data necessary to refinish the gimbal fitting (52, IPL Figure 1; 56, IPL Figure 2).).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2for item numbers.

E. General repair details:

(1) Material: 4340 Steel, 180-200 ksi

2. Gimbal Fitting Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

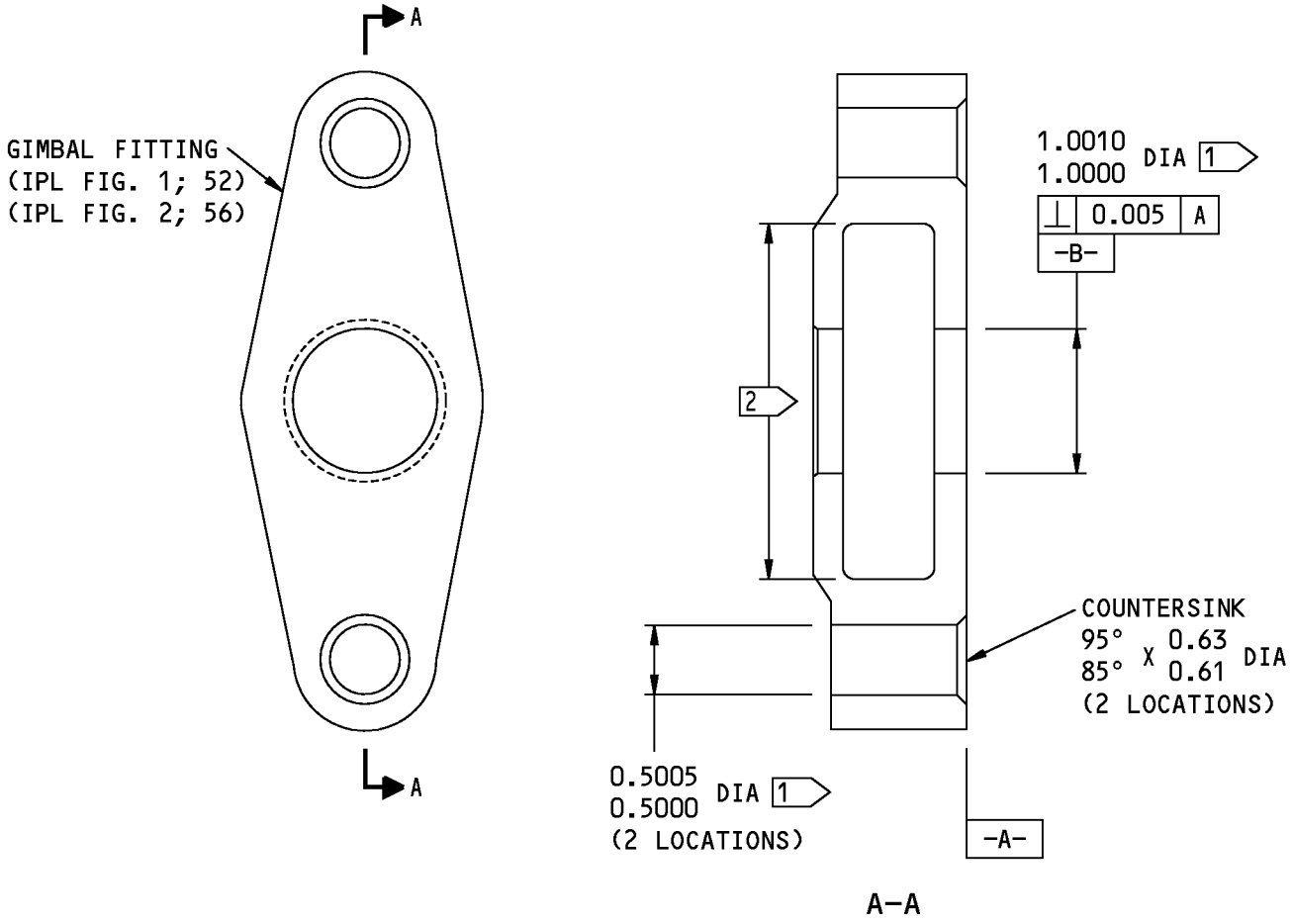
Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Do a magnetic particle check (SOPM 20-20-01).

(2) Cadmium plate, type 2, class 2 and apply primer, C00259 (F-16.01) except as noted in REPAIR 14-1, Figure 601.



1 NO FINISH ON THIS SURFACE

2 NO PRIMER IN 2.50 INCH SLOT

ALL DIMENSIONS ARE IN INCHES

69-37970-1 Gimbal Fitting Refinish
Figure 601

GEAR ASSEMBLY - REPAIR 15-1

90–3590

1. General

A. This procedure has the data necessary to repair the gear assembly (232, IPL Figure 1; 392, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

2. Bearing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)

B. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-03	LUBRICANTS

C. Procedure

NOTE: For lubricants, refer to SOPM 20-60-03.

(1) Remove the staking ring (236, IPL Figure 1; 396, IPL Figure 2)and the bearing (240, IPL Figure 1; 400, IPL Figure 2) from the gear (244, IPL Figure 1404, IPL Figure 2).

(2) Apply a thin layer of grease, D00013 to the surfaces of the bearing (240, IPL Figure 1; 400, IPL Figure 2) and the gear (244, IPL Figure 1; 404, IPL Figure 2) that touch and install the bearing in the gear (SOPM 20-50-03).

(3) Apply a thin layer of grease, D00013 to the face of the staking ring (236, IPL Figure 1; 396, IPL Figure 2). and install the staking ring in the gear (244, IPL Figure 1; 404, IPL Figure 2) using the ring swage method (SOPM 20-50-03) .

GEAR - REPAIR 15-2

90-3590–1

1. General

A. This procedure has the data necessary to refinish the gear (244, IPL Figure 1; 404, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1, IPL Figure 2 for item numbers.

E. General repair details:

(1) Material: 9310 Steel

2. Gear Refinish

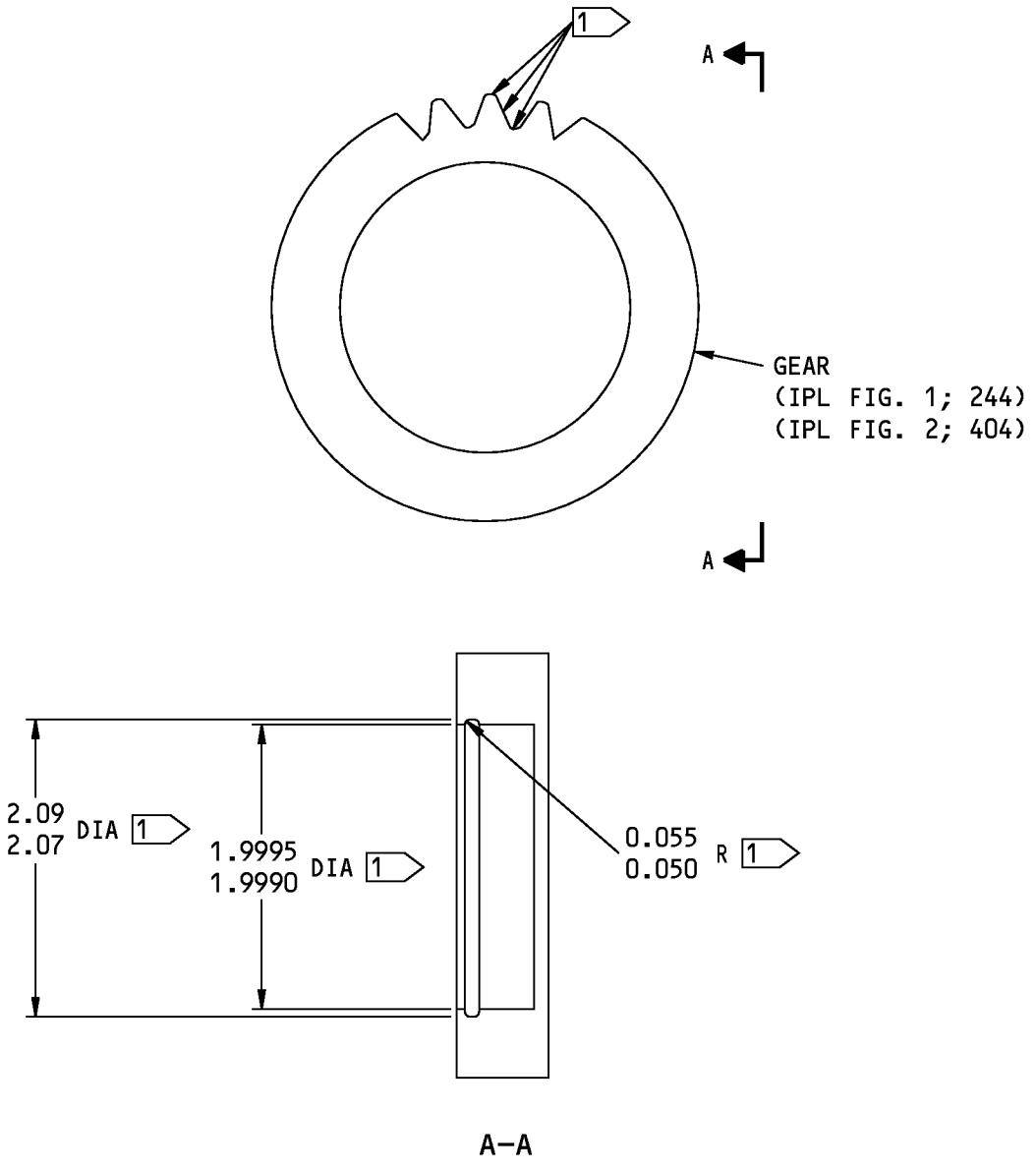
A. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-44-02	TEMPORARY PROTECTIVE COATINGS
SOPM 20-60-02	FINISHING MATERIALS

B. Procedure (REPAIR 15-2, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Apply cadmium plate (F-1.20) all over except apply temporary protective coating (SOPM 20-44-02) or no finish (F-1.10) as noted in REPAIR 15-2, Figure 601.



A–A

1 PROTECTIVE COATING OR NO FINISH ON THIS SURFACE

ITEM NUMBER REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

90-3590-1 Gear Refinish
Figure 601

GEAR ASSEMBLY - REPAIR 16-1

69-44011–8

1. General

A. This procedure has the data necessary to repair the gear assembly (864, IPL Figure 1; 976, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1,IPL Figure 2 for item numbers.

2. Seal Ring Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00028	Adhesive - Modified Epoxy For Rigid PVC, Foam Cored Sandwiches	BAC5010, Type 70 (BMS5-92, Type 1)
A01070	Adhesive - Polyamide	BAC5010, Type 38

B. References

Reference	Title
SOPM 20-50-12	APPLICATION OF ADHESIVES

C. Procedure

NOTE: For adhesives, refer to SOPM 20-50-12.

(1) Install seal ring (865, IPL Figure 1; 977, IPL Figure 2) on to pinion gear (866, IPL Figure 1; 978, IPL Figure 2) using adhesive, A01070 or adhesive, A00028.

(2) Machine outside diameter of seal ring to 0.791 - 0.800 inches, 63 microinch finish.

(3) Chamfer edge of seal ring 45 degrees by 0.012 - 0.030 inches.

GEAR - REPAIR 16-2

69–44011–7

1. General

A. This procedure has the data necessary to refinish the gear (866, IPL Figure 1; 978, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1,IPL Figure 2 for item numbers.

E. E. General repair details:

(1) Material 9310 or 3310 Steel, 150–210 ksi

2. Gear Refinish

A. References

Reference	Title
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Procedure

NOTE: For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Apply no finish (F-25.01) on either side of spline.

(2) Apply cadmium plate, F-15.42.

SLEEVE ASSEMBLY - REPAIR 17-1

251A4823–1

1. General

A. This procedure has the data necessary to repair the sleeve assembly 300, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer toREPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 2 for item numbers.

2. Seal Ring Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00028	Adhesive - Modified Epoxy For Rigid PVC, Foam Cored Sandwiches	BAC5010, Type 70 (BMS5-92, Type 1)

B. References

Reference	Title
SOPM 20-50-12	APPLICATION OF ADHESIVES

C. Procedure

NOTE: For adhesives, refer to SOPM 20-50-12.

(1) Install seal ring (304, IPL Figure 2) on to sleeve (308, IPL Figure 2) using adhesive, A00028.

(2) Machine outside diameter of seal ring to 2.8710 - 2.8730 inches, 125 microinch finish.

SLEEVE - REPAIR 17-2

251A4823–2

1. General

A. This procedure has the data necessary to refinish the sleeve (308, IPL Figure 2).

B. Refer to the Standard Overhaul Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 2 for item numbers.

E. E. General repair details:

(1) Material: 4340 Steel, 150–170 ksi

2. Sleeve Refinish

A. References

Reference	Title
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Procedure

NOTE: . For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Apply cadmium plate 0.0002 to 0.0004 thickness (F-15.02).

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the stabilizer trim actuator assembly.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Assembly

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5347	Gear retainer wrench (Part #: 7MIT5-88439, Supplier: 81205)
SPL-5379	Test Fixture, Brake Assembly, Stabilizer Trim Actuator Tool (Part #: C27026-24, Supplier: 81205)
SPL-5381	Wrench - Retaining Nut, Stabilizer Trim Actuator (Part #: C27033-1, Supplier: 81205)
SPL-5414	Stabilizer Trim Actuator Jig Assembly (Part #: F70167-1, Supplier: 81205)
SPL-5416	Wrench - Spanner, Bearing Retainer Nut (Part #: F71290-1, Supplier: 81205)
SPL-5417	Wrench - Spanner, Bearing Retainer Nut (Part #: F71290-7, Supplier: 81205)
SPL-5418	Stab Trim Actuator Spring Compressor (Part #: F71291-500, Supplier: 81205)
SPL-5420	End Play Check, Stab Trim Actuator Hydraulic Fixture (Part #: F71421-501, Supplier: 81205)
SPL-5430	Face Spanner Lug Wrench Assembly (Part #: F80053-1, Supplier: 81205)
SPL-8259	Wrench - Retaining Nut, Stabilizer Trim Actuator (Part #: C27033-5, Supplier: 81205)
SPL-8260	Wrench - Retaining Nut, Stabilizer Trim Actuator (Part #: C27033-6, Supplier: 81205)

B. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00467	Fluid - Landing Gear Shock Strut	BMS3-32, Type II
D00633	Grease - Aircraft General Purpose	BMS3-33
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)

C. References

Reference	Title
SOPM 20-50-01	BOLT AND NUT INSTALLATION
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-50-06	INSTALLATION OF O-RINGS AND TEFLON SEALS
SOPM 20-50-07	LUBRICATION
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

D. General

(1) Use the F70167-1 Jig Assembly, SPL-5414 to assemble the stabilizer trim actuator assembly.

(2) Install all cotter pins per SOPM 20-50-02.

(3) If a cotter pin was removed during disassembly, then a new cotter pin must be used during assembly.

(4) Install bearings per SOPM 20-50-03 unless noted differently.

E. Procedure

NOTE: For bolt and nut installation, refer to SOPM 20-50-01. For finishing materials, refer to SOPM 20-60-02. For lubricants, refer to SOPM 20-60-03. For miscellaneous materials, refer to SOPM 20-60-04.

(1) Assemble actuator assemblies P/N 251A4510-4, -5 (refer to IPL Figure 1 for item numbers).

(a) Install bearing (760) against the shoulder of the cable drum shaft (744).

(b) Position the washer (796) in the jaw clutch (768) and insert the jaw clutch on the cable drum shaft (744).

(c) Install the screws (776), bearings (780), washers (784, 788), nuts (792), and the cotter pins (772).

(d) Install the spacer (764) in the drum assembly (736) and install the drum assembly on the housing assembly (812).

(e) Install the other bearing (760) and the nut (804). Tighten the nut to 600-720 pound-inches using the F71290-7 spanner wrench, SPL-5417.

(f) Lockwire the nut (804) to the cable drum shaft (744) using lockwire, G01912 with the double-twist method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 701, View C-C. Make sure the lockwire does not extend past the cable drum assembly (736).

(g) Apply grease, D00633 (SOPM 20-50-07) to the shaft (732) as shown in ASSEMBLY, Figure 701, Bubble F.

(h) Insert the shaft (732) and the spacer (800) in the jaw clutch (768). Make sure the splines of the shaft and jaw clutch mate correctly.

(i) Install spring spacer (728) against washer (796) and install the springs (720, 724). Spring (720) is installed with the coils in the right-hand direction. Spring (724) is installed with the coils in the left-hand direction.

(j) Screw the F71291-500 Spring Compressor Tool, SPL-5418 into the cable drum shaft (744).

(k) Place the retainer (716) in the F71291-500 Spring Compressor Tool, SPL-5418 and compress the springs (720, 724).

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(l) Apply corrosion inhibiting compound, C00913 to nut (712) and install on the shaft (732).

(m) Remove the F71291-500 Spring Compressor Tool, SPL-5418 from the cable drum shaft (744).

(n) Hold the cable drum (756) with a strap wrench and install the cap (708).

(o) Install the retainer (704), washers (700), and bolts (696).

(p) Lockwire the bolts (696) together using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(q) Install the washer (692) and the support assembly (660) on the cap (708).

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(r) Apply corrosion inhibiting compound, C00913 to the bolts (626A, 628) and the nut (640).

(s) Fasten the cable drum guard (644) to the housing assembly (812) and the support assembly (660) with the bolts (626A, 628), washers (632, 636), and nut (640).

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(t) Apply corrosion inhibiting compound, C00913 to the bolts (648) and fasten the support assembly (660) to the housing assembly (812) with the bolts (648), washers (652), and spacers (656).

(u) Install the nut (688) and finger tighten as shown in ASSEMBLY, Figure 701, bubble C.

(v) Install the cotter pin (684).

(w) Install the bearings (760) and the plate (364) on the clutch gear (360).

(x) Install the nuts (344, 804) and tigthen the nuts to 600-720 pound-inches using the F71290-7 spanner wrench, SPL-5417.

(y) Lockwire the nut (804) to the clutch gear (360) using lockwire, G01912 with the double-twist method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 701, View C-C. Make sure the lockwire does not extend past inside diameter of the gear clutch (360). Make sure the lockwire will not touch the cable drum assembly (736) or other components when the clutch gear (360) is installed.

(z) Install the spacer (808) in the housing assembly (812).

(aa) Install the clutch gear (360) with attached parts on the shaft (732).

(ab) Fasten the plate (364) to the housing assembly (812) with the bolts (362).

(ac) Lockwire the bolts (362) together using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(ad) Install the bearings (356) and spacers (348, 352) in the clutch gear (360) as shown in ASSEMBLY, Figure 701, bubble F.

(ae) Install the nut (340) and tighten to 600-720 pound-inches using F71290-1 spanner wrench, SPL-5416.

NOTE: Nut (340) has left-hand thread.

(af) Lockwire the nut (340) to the nut (344) using lockwire, G01912 as shown in ASSEMBLY, Figure 701 , view D-D.

(ag) Apply grease, D00633 perferred (grease, D00013 optional) to accessible areas of bearings (856) and locknut (848), the inner surface of end cap (840) and gear assembly (864) surfaces (SOPM 20-50-07) as shown in ASSEMBLY, Figure 701, View J-J.

(ah) Install the spacer (860), bearings (856), gear assembly (864), and the washer (852) in the housing assembly (812).

(ai) Install the locknut (848) and tighten to 100-150 inch-pounds.

NOTE: Loosen the locknut (848), if necessary, to permit the installation of the spring pin (844).

(aj) Install the spring pin (844) and lockwire using lockwire, G01912 with the single-wire method (SOPM 20-50-02). Thread the lockwire through the spring pin and wrap halfway around the locknut (848). Make sure that the knotted ends of wire do not extend past the locknut.

(ak) Install the end cap (840) with the washers (836) and the bolts (832) as shown in ASSEMBLY, Figure 701, view H-H.

(al) Lockwire the bolts (832) together using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(am) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-06) to the seal (868B) and install in the gearbox (300A).

(an) Install the spacer (336) on the shaft (732).

(ao) Install the gear (332) in the gearbox assembly (288A).

(ap) Screw the nut (328) on the shaft (732) and tighten to 500-700 pound-inches with the 7MIT5-88439 Gear retainer wrench, SPL-5347. If necessary, tighten the nut up so that the next cotter pin holes align, do not exceed 1000 pound-inches.

(aq) Install the cotter pin (324) (SOPM 20-50-02) through the nut (328) and the shaft (732).

(ar) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to the gear assembly (232).

(as) Install the gear assembly (232), adapter (320), washers (308, 316), bolt (304), and nut (312).

NOTE: Gear assembly (232) is installed with the swaged side down.

(at) Install the gearbox assembly (288A) on the housing assembly (812).

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1) Apply a thin layer of corrosion inhibiting compound, C00913 to the mating surfaces of the gearbox assembly (288A) and the housing assembly (812).
2) Mate the housing assembly (812) and attached parts with the gearbox assembly (288A).

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3) Apply corrosion inhibiting compound, C00913 to the bolts (260A, 264A, 268, 272) and nuts (284) and install the bolts, nuts, and washers (276, 280) in the gearbox assembly (288A) and housing assembly (812).

(au) Screw the cap (256) in the gearbox assembly (288A) finger tight and lockwire the cap to the gearbox assemblyusing lockwire, G01912.

(av) On P/N 251A4510-4, install the packing (612) in the housing assembly (616). On P/N 251A4510-5, apply a light coat of fluid, D00467 to packing (612) and install in the housing assembly (616).

(aw) Check the dimensions of the primary brake assembly as shown in ASSEMBLY, Figure 701, bubble E.

CAUTION: ON P/N 251A4510-4, THE FACES OF RATCHET PLATES (504) AND BRAKE PLATES (500) MUST BE COMPLETELY FREE OF GREASE AND DIRT. EXTREME CARE MUST BE TAKEN TO AVOID EXCESS GREASE IN PRIMARY BRAKE HOUSING BEARINGS. DO NOT USE ANY GREASE IN THE PRIMARY BRAKE HOUSING.

1) For P/N 251A4510-4, stack the bearing (608), the spacer (600), the bearing (420), the upper ring assembly (508), the ratchet plates (504), the brake plates (500), the lower ring assembly (480), the bearing (420), the upper plug assembly (404), and the nut (392) on the ballscrew (16). Measure the dimension "A" as shown in ASSEMBLY, Figure 701. After you record dimension "A", remove the bearing (608), spacer (600), upper plug assembly (404) and nut (392) from the ballscrew assembly (16). Optional to keep the remaining parts stacked on the ballscrew for installation into the housing (616).

2) For P/N 251A4510-5, apply a thin layer of fluid, D00467 to each part of the primary brake assembly. Stack the bearing (608), the spacer (426), the bearing (423), guides (886), the roller assemblies (894), the plates (418), the ratchet assemblies (501), the roller assemblies (497), the bearing (414), the upper plug assembly (404) and the nut (392) on the ballscrew (16). Measure the dimension "A" as shown in ASSEMBLY, Figure 701. After you record dimension "A", remove the bearing (608), spacer (426), upper plug assembly (404) and nut (392) from the ballscrew assembly (16). Optional to keep the remaining parts stacked on the ballscrew for installation into the housing (616).

NOTE: Make sure the roller assemblies (497) face in opposite directions on each side of the ratchet assemblies (501).

(ax) Measure dimension B of housing (624) as shown in ASSEMBLY, Figure 701, Bubble E.

(ay) For P/N 251A4510-4, install the bearing (608) and spacer (600) in the housing assembly (616).

(az) For P/N 251A4510-5, install bearing (608), spacer (426) into housing assembly (616) with a thin layer of fluid, D00467 .

(ba) On P/N 251A4510-4, apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-06) to the packing (416) and install on the upper plug assembly (404). On P/N 251A4510-5, apply fluid, D00467 to the packing (416) and install on the upper plug assembly (404).

(bb) Install the parts of the primary brake assembly:

CAUTION: DURING INSTALLATION OF THE BALLSCREW ASSEMBLY (16), THE BALLSCREW MUST BE HELD PARALLEL TO THE BORE CENTERLINE OF THE HOUSING ASSEMBLY (616) TO PREVENT DAMAGE OF THE ATTACHED PARTS.

(CAUTION PRECEDES)

CAUTION: ON P/N 251A4510-4, THE FACES OF RATCHET PLATES (504) AND BRAKE PLATES (500) MUST BE COMPLETELY FREE OF GREASE AND DIRT. EXTREME CARE MUST BE TAKEN TO AVOID EXCESS GREASE IN PRIMARY BRAKE HOUSING BEARINGS. DO NOT USE ANY GREASE IN THE PRIMARY BRAKE HOUSING.

1) For P/N 251A4510-4, install the brake plates (500), ratchet plates (504), springs (496), lower ring assembly (480), upper ring assembly (508), bearings (420) and the ballscrew assembly (16) as shown in ASSEMBLY, Figure 701. Install the upper plug assembly (404).

2) For P/N 251A4510-5, apply a thin layer of fluid, D00467 to each part and install the bearing (423), the roller assemblies (505), the plates (418), the ratchet assemblies (501), the roller assemblies (447), the guides (422), the bearing (414) and the ballscrew assembly (16) as shown in ASSEMBLY, Figure 701. Install the upper plug assembly (404).

NOTE: Make sure the bearing (414) engages the pin (409) in

plug (412A). Make sure the bearing (423) engages the pin (618) in housing assembly (624A).

NOTE: Make sure the roller assemblies (497) face in opposite directions on each side of the ratchet assemblies (501).

(bc) Install the nut (392) using the F80053-1 spanner Wrench Assembly, SPL-5430.

(bd) Install the nut (400) on to nut (392). Tighten nuts (392, 400) until dimension C measures 0.3000-0.4100 inch, and the force required to turn the ballscrew assembly (16) inside the housing assembly (616) is a maximum of 40 inch-pounds.

1) For P/N 251A4510-4, Dimension C = A-B+ (0.005 to 0.012). If C is not within 0.3000-0.4100 inch, disassemble and check part numbers.

2) For P/N 251A4510-5, Dimension C = A-B+ (0.004 to 0.009). If C is not within 0.3000-0.4100 inch, disassemble and check part numbers.

(be) Position the key (396) in the nut (400) and tighten the nut to 500-700 inch-pounds.

(bf) Do a end play check and a primary brake check.

1) Install the primary brake housing assembly (616) with attached parts in F71421-501 Hydraulic Fixture, SPL-5420 as shown in ASSEMBLY, Figure 704.

2) Do an end play check.

a) Apply a 400-pound tension load to the ballscrew (16), then apply an equivalent compression load. Check that axial play, measured between the ballscrew assembly (16) and housing assembly (616), is 0.008-0.015 inch for the 251A4510-4 actuator assembly or 0.004-0.010 inch for the 251A4510-5 actuator assembly.

b) Adjust the nuts (392, 400) as required to obtain the specified axial play.

c) Lockwire the nut (400) to the key (396) using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

3) Do a Primary brake check.

NOTE: Clockwise (CW) and counterclockwise (CCW) direction referred to in these tests are as viewed from top (screw end) of the ballscrew assembly.

NOTE: For this test, torque is applied and measured at the ballscrew (16).

CAUTION: THE PRIMARY BRAKE COMPONENTS OF ACTUATOR ASSEMBLY P/N 251A4510-5 MUST HAVE A COATING OF BMS 3-32, TYPE 2 OIL PRIOR TO CONDUCTING THIS TEST.

a) Do a run-in test of the primary brake.

<1> With a 200-250-pound load applied to the ballscrew (16) in tension, turn the ballscrew for 30 to 60 seconds at 30 to 100 RPM.

<2> Repeat with 200-250-pound load applied in compression.

<3> With an 800-pound tension load applied to the ballscrew, measure the torque to turn the ballscrew in the CW direction. If less than 130 pound-inches, repeat steps 1) and 2).

<4> With an 800-pound compression load applied to the ballscrew, measure the torque to turn the ballscrew in the CCW direction. If less than 130 pound-inches, repeat steps 1) and 2).

b) Test the primary brake with the ballscrew in tension.

<1> Apply an 800-pound tension load to the ballscrew.

<2> Turn the ballscrew CW (brake not ratcheting) at a maximum speed of 30 RPM for 20-25 turns.

<3> Measure CW torque and record the value.

<4> Turn the ballscrew CCW (brake ratcheting) at a maximum speed of 30 RPM for 20-25 turns.

<5> Measure the CCW torque and record the value.

<6> The torque necessary to turn the ballscrew CCW shall not be more than the CW torque. The difference between CW and CCW torque values must be between 120-186 pound-inches.

c) Test the primary brake with the ballscrew in compression.

<1> Apply an 800-pound compression load to the ballscrew.

<2> Turn the ballscrew CCW (brake not ratcheting) at a maximum speed of 30 RPM for 20 to 25 turns.

<3> Measure CCW torque and record the value.

<4> Turn the ballscrew CW (brake ratcheting) at a maximum speed of 30 RPM for 20-25 turns.

<5> Measure the torque and record the value.

<6> The torque necessary to turn the ballscrew CW shall not be more than the CCW torque. The difference between CCW and CW values must be between 120-186 pound-inches.

(bg) Install the sleeve assembly (80) on the ballscrew assembly (16).

1) On P/N 251A4510-4, apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-06) to the packings (68, 604) and install in the sleeve assembly (80).
2) On P/N 251A4510-5, apply grease, D00633 perferred (grease, D00013 optional) to packing (68) and apply fluid, D00467 to packing (604). Install the packing (68, 604) in the sleeve assembly (80).
3) Install the sleeve assembly (80) in the housing assembly (616).

NOTE: Use care when you slide the packings (68, 604) over the threaded and splined areas of the ballscrew assembly.

(bh) Install safety rod (32).

1) On P/N 251A4510-4, apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-06) to packings (24) and install on the seals (20).
2) On P/N 251A4510-5, apply fluid, D00467 to packings (24) and install on the seals (20).
3) On P/N 251A4510-4, apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-06) to packings (28, 30) and install on the safety rod assembly (32).
4) On P/N 251A4510-5, apply fluid, D00467 to packings (28, 30) and install on the safety rod assembly (32).
5) Install the seals (20) and the pin (36) on the safety rod assembly (32).
6) Apply a thin layer of grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to the safety rod assembly (32) lands and install in the ballscrew assembly (16). Make sure to line-up the drain hole in the upper end of the safety rod assembly with the drain hole in the ballscrew assembly.

(bi) Install the pin (76) with a screw that has 6-32 UNC threads.

(bj) Install plug assembly (368).

1) Install the plug nut (384) uisng C27033-6 spanner wrench, SPL-8260on to plug assembly (368).
2) On P/N 251A4510-4, apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-06) to the packing (380) and install in the plug assembly (368).
3) On P/N 251A4510-5, apply fluid, D00467 to the packing (380) and install in the plug assembly (368A).
4) Install the plug assembly (368) in the housing assembly (616).
5) On P/N 251A4510-5, make sure that the drain plug hole will face the cable drum.
6) Apply a 400-pound compression load between the ballscrew assembly (16) and the housing assembly (616). Adjust the lower plug assembly (368) so that the distance between the lower plug assembly trunnion centers and the housing assembly trunnion centers is 4.89-4.95 inches as shown in ASSEMBLY, Figure 701.
7) Install the plug keys (388) and tighten the plug nut (384) to 500-700 pound-inches using C27033-6 spanner wrench, SPL-8260. Lockwire the key (388) to the plug nut (384) using lockwire, G01912 with double-twist method (SOPM 20-50-02).

CAUTION: MAKE SURE THAT THE BRAKE PAWL ASSEMBLIES (432) ARE INSTALLED IN THE CORRECT POSITION TO AVOID FAILURE OF BRAKING ACTION WITH RATCHET PLATES (504).

(bk) Install the pawl assemblies (432), pins (428), and cotter pins (424A) in the housing (624) as shown in ASSEMBLY, Figure 701, View F-F.

(bl) Install the nuts (468), inner springs (448), outer springs (452), plates (444), and screws (460A) in the housing (624). Use the adjusting slots in the outer spring (452) to locate the 0.21 inch radius so that it touches a point on the 0.26 inch radius of the inner spring (448) as shown in ASSEMBLY, Figure 701.

(bm) Lockwire two of the screws (460A) on each side of housing (624)using lockwire, G01912 with the double-twist method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 701.

(bn) Install the caps (592, 596) on the housing (624).

1) On P/N 251A4510-4, apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-06) to the seals (456A) and install in the caps (592, 596).
2) On P/N 251A4510-5, apply fluid, D00467 to the seals (456A) and install in the caps (592, 596).
3) Install the caps (592, 596) on the housing (624) with the bolts (460A, 472A) and the washers (464, 476).
4) Lockwire the screws (460A, 472A) together using lockwire, G01912 with the single-wire method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 701.
5) On P/N 251A4510-4, install the plug assembly (580) and packing (577) in the cap (596) and lockwireusing lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(bo) Install the housing assembly (616).

1) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to the housing assembly (616) trunnion that will face the drum assembly.
2) Install a yoke assembly (552) on to the lubricated trunnion.

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3) Apply a thin layer of corrosion inhibiting compound, C00913 to the surfaces that touch between the housing assembly (616), the gearbox assembly (288A), and the housing assembly (812).
4) Install the housing assembly (616) in the gearbox assembly (288A) and the housing assembly (812). Wipe off excess corrosion inhibiting compound, C00913 .

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(WARNING PRECEDES)

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5) Apply corrosion inhibiting compound, C00913 to the bolts (268), nuts (284) and screws (613A) and install with the washers (276, 282A, 614) in the gearbox assembly (288A) and housing assembly (812).

6) Lockwire the screws (613A) using lockwire, G01912 with the double-twist method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 701, view H-H.

(bp) Install the gimbal assembly (532) on the housing assembly (616).

1) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to the housing assembly (616) trunnions.

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2) Apply corrosion inhibiting compound, C00913 to the bolts (536) and nuts (548) and attach the forks (576) to the yoke assemblies (552) with the bolts, nuts, and washers (540, 544). Make sure index marks on the yoke assemblies and forks match.

(bq) Position the cable drum assembly (736) so the timing index mark is located as shown in ASSEMBLY, Figure 701, View H-H.

(br) Install the bearing (252) and input gear (248) so that the pin (76) is through the sleeve assembly (80) into ballscrew assembly (16), and input gear as shown in ASSEMBLY, Figure 701, View A-A.

(bs) Assemble the brake assembly (132A) as shown in ASSEMBLY, Figure 703. Use standard industry practices and as noted below:

1) Apply a light layer of grease, D00633 perferred (grease, D00013 optional) to the face of the ratchet ring (188) that touches the pawl assemblies (156S).

2) Install the springs (152) into the pawls (164A) and the pawl carrier (184) with grease, D00633 perferred (grease, D00013 optional) .

3) Install the pawl assemblies (156S) into the pawl carrier (184) with the pins (148).

4) Install the pawl carrier (184), the unlock ring assembly (168), the bearings (140A, 144) and the retainer ring (136) into the ratchet ring (188) as shown in ASSEMBLY, Figure 703.

5) Tighten the retainer ring to 200-300 pound-inches.

(bt) Install the brake assembly (132A) onto the sleeve assembly (80). Lineup the two missing teeth on the brake assembly (132A) with the pin (76).

(bu) Assemble the stator assembly (192A) as shown in ASSEMBLY, Figure 702 with standard industry practices and as noted below.

1) Apply a light layer of fluid, D00467 to the threads and bottom surfaces of the nut (196) and to both sides of the rotors (216) before assembly.
2) Tighten the nut (196) so that the stator assembly (192A) will sustain a torque of 1700-1900 pound-inches before slippage occurs in both directions. Make sure the torque is applied at the same time to all the rotors (216) (use the C27026-24 Brake Test Fixture, SPL-5379 to check the torque).
3) Rotate the stator assembly (192A) 3 to 4 full turns in each direction and then loosen the nut (196) until the stator assembly (192A) slips at less than 400 pound-inches.
4) Adjust the nut (196) so that the stator assembly (192A) will sustain a torque of 550-650 pound-inches before slippage occurs in both directions (note the starting position of the nut (196) relative to the housing (228) so that subsequent rotation of the nut (196) may be determined).
5) Adjust the nut (196) again so that the stator assembly (192A) will sustain a torque of 2500-2700 pound-inches before slippage occurs in both directions (rotation of the nut must be 1/2 to 1-1/2 turns). If the stator assembly (192A) torque at 1-1/2 turns is less than 2500 pound-inches, disassemble the stator assembly (192A) and wipe excess oil from the disks, reassemble the stator assembly (192A), and repeat steps (b) through (e). If the stator assembly (192A) torque at 1/2 turns is greater than 2700 pound-inches, disassemble the stator assembly (192A) and apply oil to the disks, reassemble the stator assembly (192A), and repeat steps (b) through (e).
6) Lockwire the nut (196) to the washer (200A) using lockwire, G01912 with the double-twist method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 702.

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(bv) Apply a thin layer of corrosion inhibiting compound, C00913 on mating surfaces of the stator assembly (192A) and install the stator assembly (192A) on the brake assembly (132A) as shown in ASSEMBLY, Figure 701, bubble D.

(bw) Install the washer (124) and the nut (128A) on the sleeve assembly (80). Tighten the nut (128A) to 200-300 pound-inches with the C27033-1 spanner wrench, SPL-5381.

(bx) Do an auxiliary brake test as described in the Testing Section 2.D.(5).

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

(by) Apply corrosion inhibiting compound, C00913 to bolts (104, 108) and nuts (116), and install the cover (120) with the bolts, nuts, and washers (112).

CAUTION: CARE MUST BE TAKEN THAT PACKING (92) IS NOT DAMAGED WHEN INSTALLED OVER THREADED AND SPLINED SURFACES. IF THE PACKING IS DAMAGED, MOISTURE WILL CAUSE EXTENSIVE DAMAGE TO THE BALLSCREW ASSEMBLY (16).

(bz) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to the packing (92) and install on the sleeve assembly (80).

(ca) Install the umbrella seal assembly (100), the cap (96), and the screws (72). Lockwire the screws together using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(cb) Position the cable drum assembly (736) so the timing index mark is located as shown in ASSEMBLY, Figure 701, View H-H.

CAUTION: THE BALLSCREW ASSEMBLY (16) THREADS HAVE A DOUBLE START. MAKE SURE THE SAME THREADS ARE ENGAGED WHEN INSTALLING THE BALLNUT ASSEMBLY ON THE BALLSCREW ASSEMBLY (16). IF THE BALLS FALL OUT OR ARE LOST DURING BALLNUT REMOVAL OR INSTALLATION, THEN RETURN THE BALLSCREW ASSEMBLY (16) TO THE MANUFACTURER FOR REASSEMBLY AND TEST.

(cc) Install the lower stop (64), ballnut assembly, bolt (17), washer (18), and nut (19), and upper stop on the ballscrew assembly (16).

(cd) Make sure the gap between the lower stop (64) and the ballnut assembly is 0.15-0.17 inch as shown in ASSEMBLY, Figure 701, Bubble A. If the gap is not 0.15-0.17 inch, reindex the lower stop on the sleeve assembly (80).

NOTE: Make sure the zerk fitting on the ballnut assembly is on the left side of the actuator assembly as shown in ASSEMBLY, Figure 701.

(ce) Install the screws (60) and the lockwire using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(cf) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to trunnions of the ballnut assembly, gimbal (52) holes, and bolt (40) shanks.

(cg) Position the yokes (48) on the ballnut assembly trunnions and install the gimbals (52) and pins (56) with the bolts (40) and the washers (44).

(ch) Tighten the nut (8) to 500-700 pound-inches and install the cotter pin (4).

(ci) On P/N 251A4510-5, fill the actuator with fluid, D00467 .

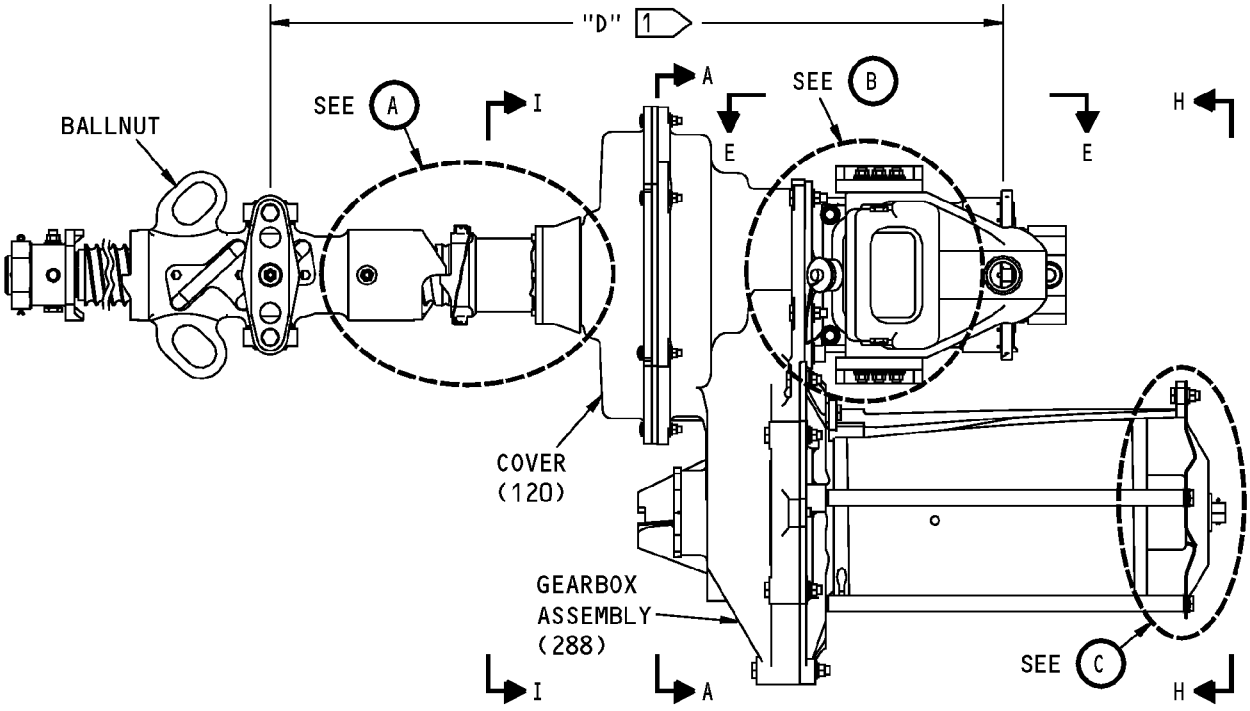
1) Position the actuator in a vertical direction, within 2 degrees.
2) Apply fluid, D00467 to packings (577, 590A) and install on the plugs (589).
3) Apply fluid, D00467 to the plugs (589).
4) Install plug (589) into lower plug assembly (368A) and torque to 60-80 pound-inches above run on torque.
5) Fill actuator with oil. Rotate ballscrew as required to remove trapped air. Fill actuator until oil begins to spill from filling hole.
6) Install upper plug (589) and torque to 60-80 pound-inches above run on torque.
7) Lockwire plugs using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

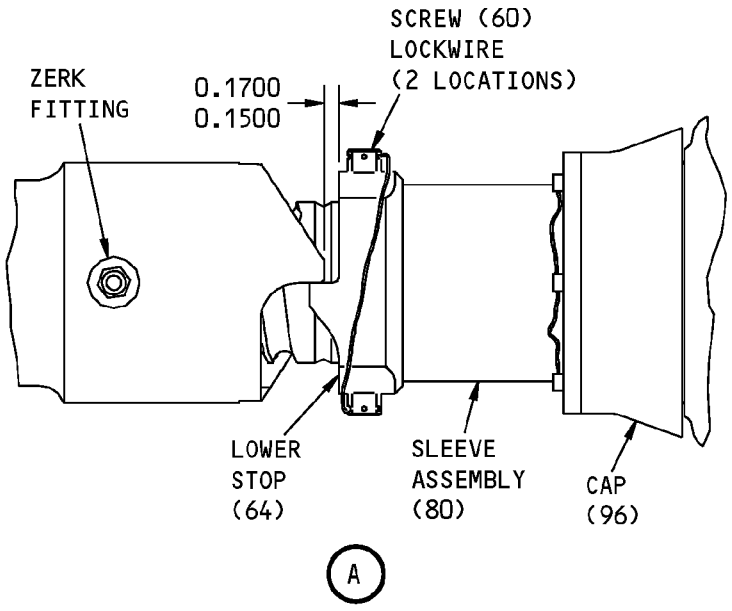
(cj) Verify dimension D in ASSEMBLY, Figure 701, (Sheet 1) as follows:

1) Move the ballnut assembly against the lower stop (64) and check that dimension D is 21.22-21.42 inches.

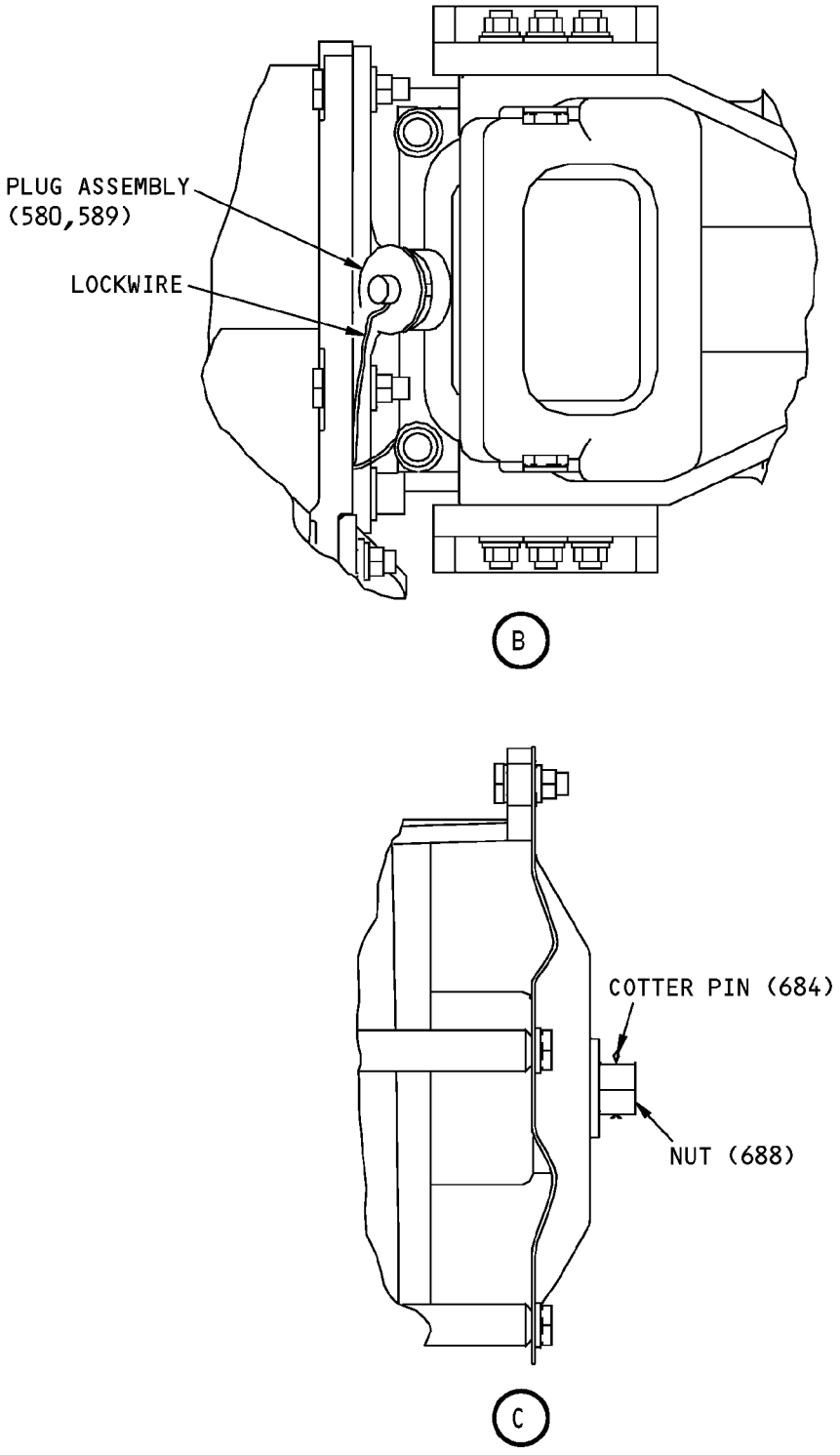
2) Move the ballnut assembly (15) against the upper stop and check that dimension D is 45.74-45.94 inches.

(ck) Do a test of the actuator described in the TESTING AND FAULT ISOLATION, Paragraph 2.D.(1). The auxiliary brake test can be omitted if already performed during assembly of the actuator.

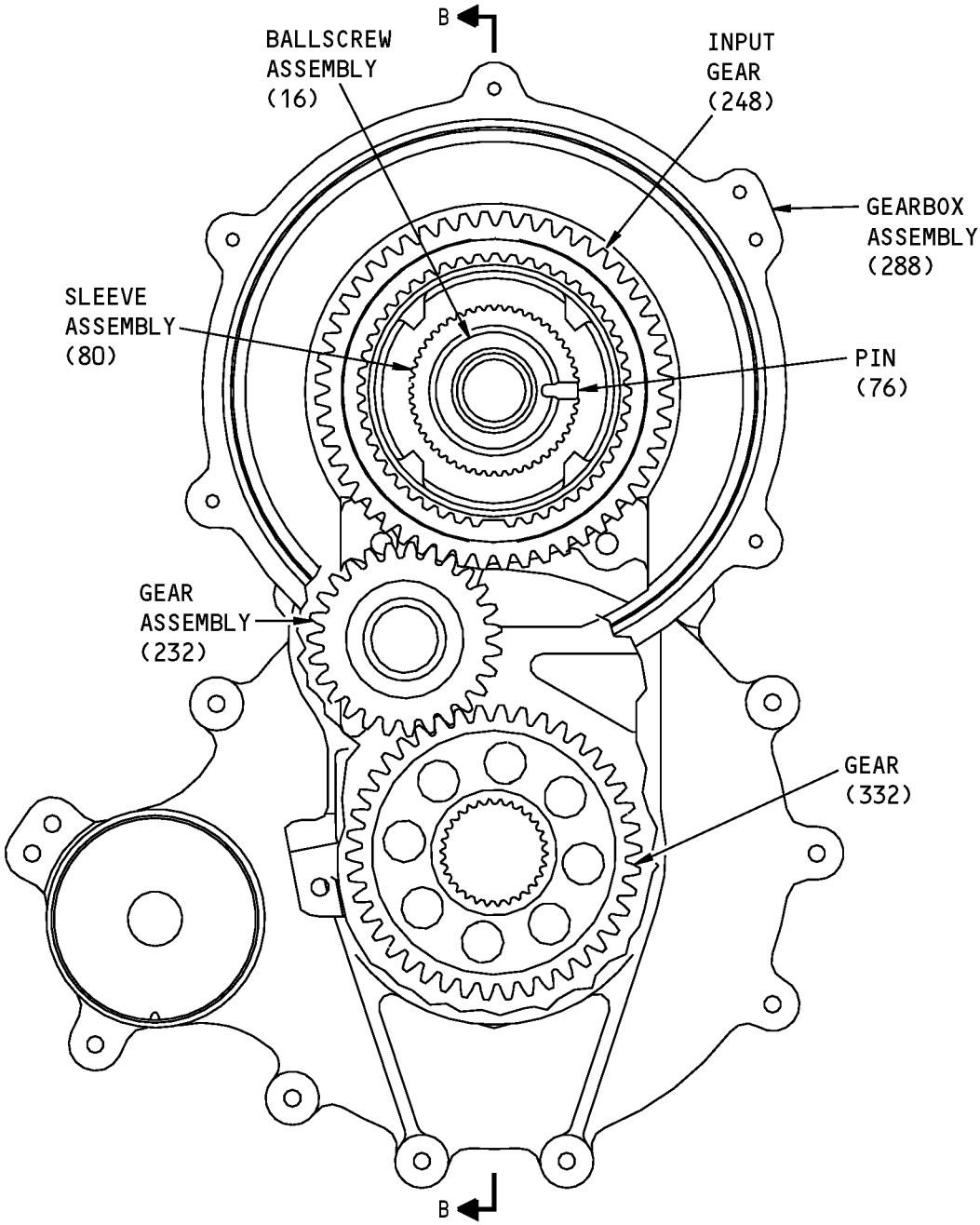




251A4510-4,-5 Assembly Details
Figure 701 (Sheet 1 of 11)

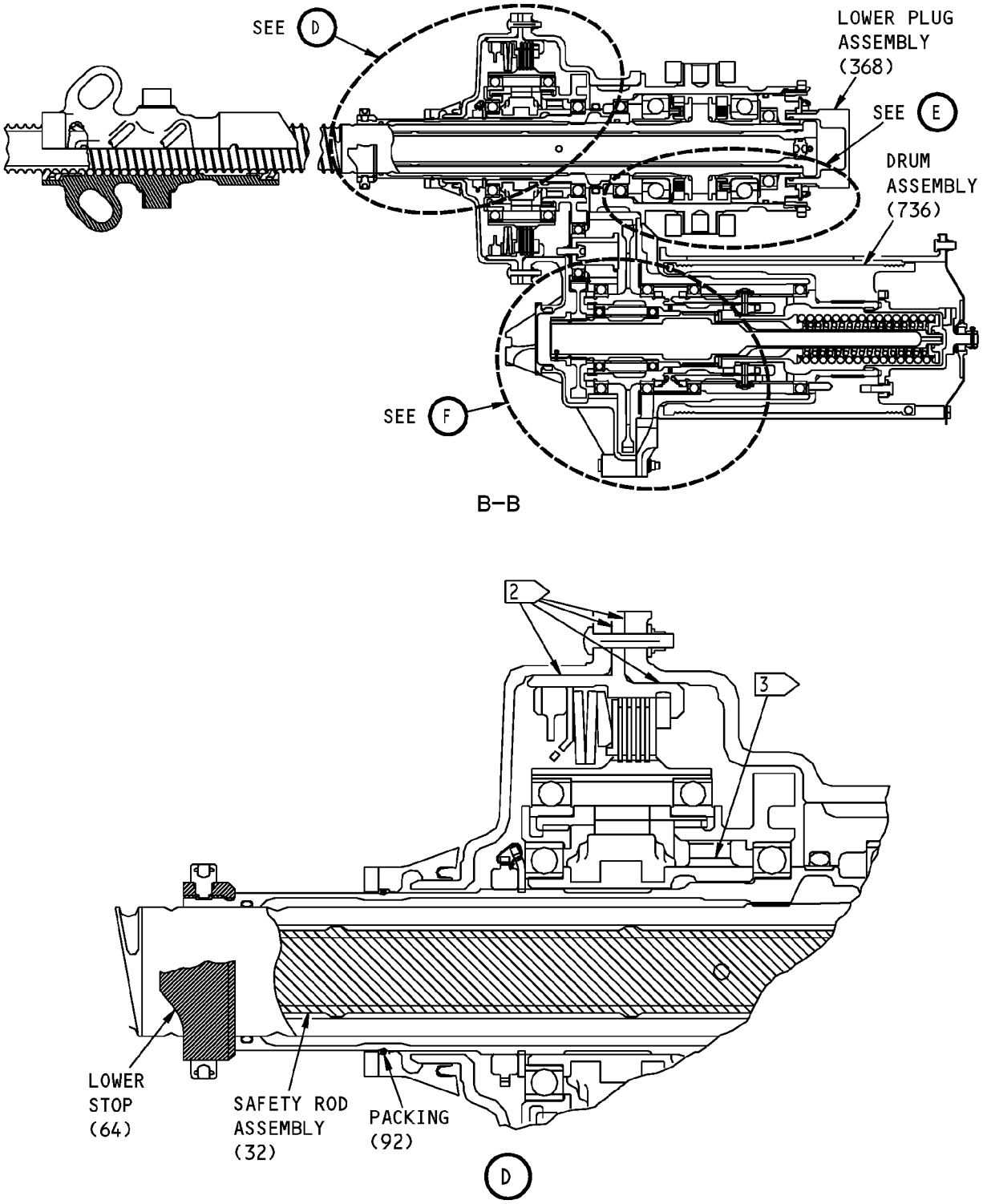


251A4510-4,-5 Assembly Details
Figure 701 (Sheet 2 of 11)

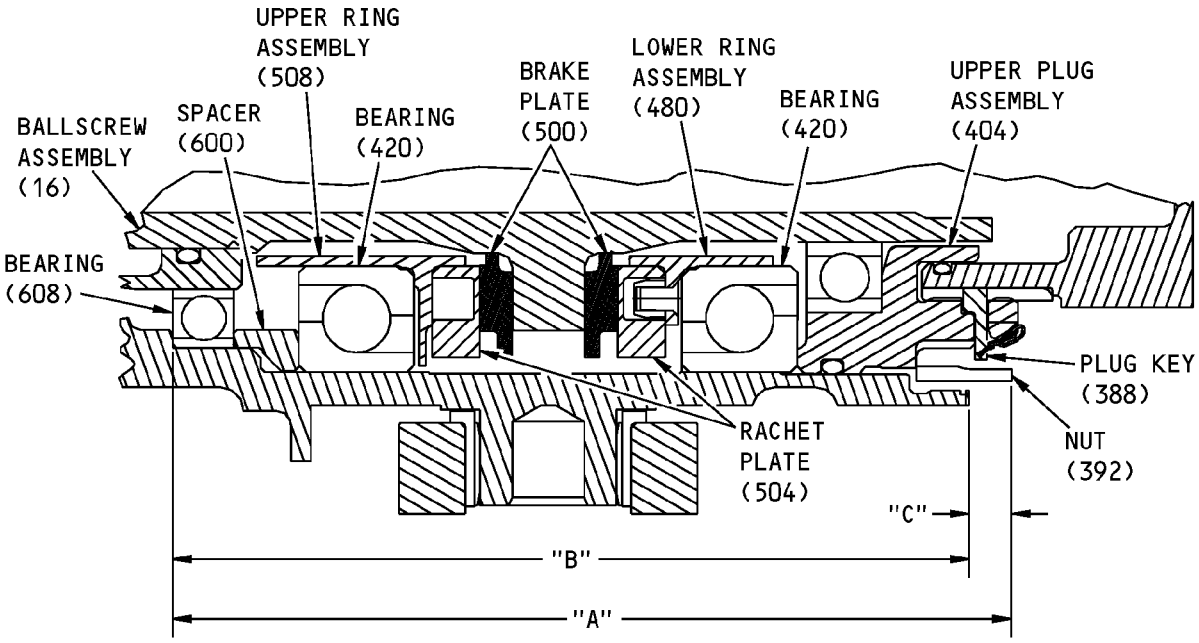


A–A

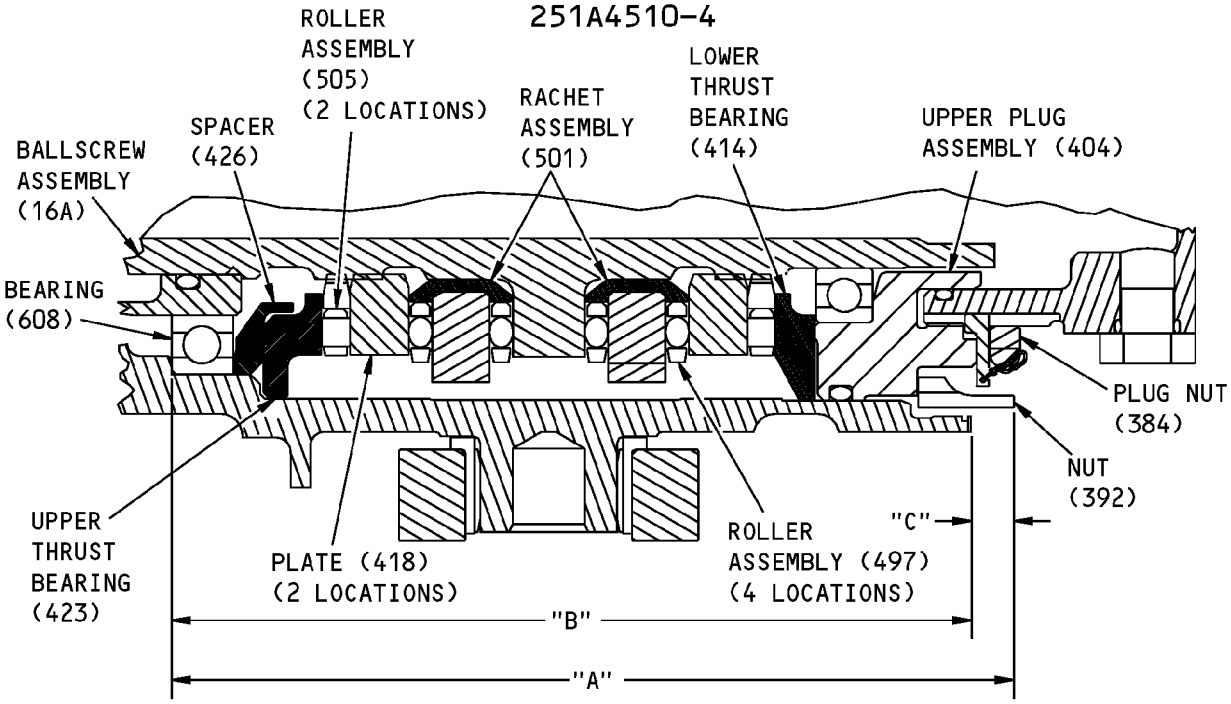
251A4510-4,-5 Assembly Details
Figure 701 (Sheet 3 of 11)



251A4510-4,-5 Assembly Details
Figure 701 (Sheet 4 of 11)



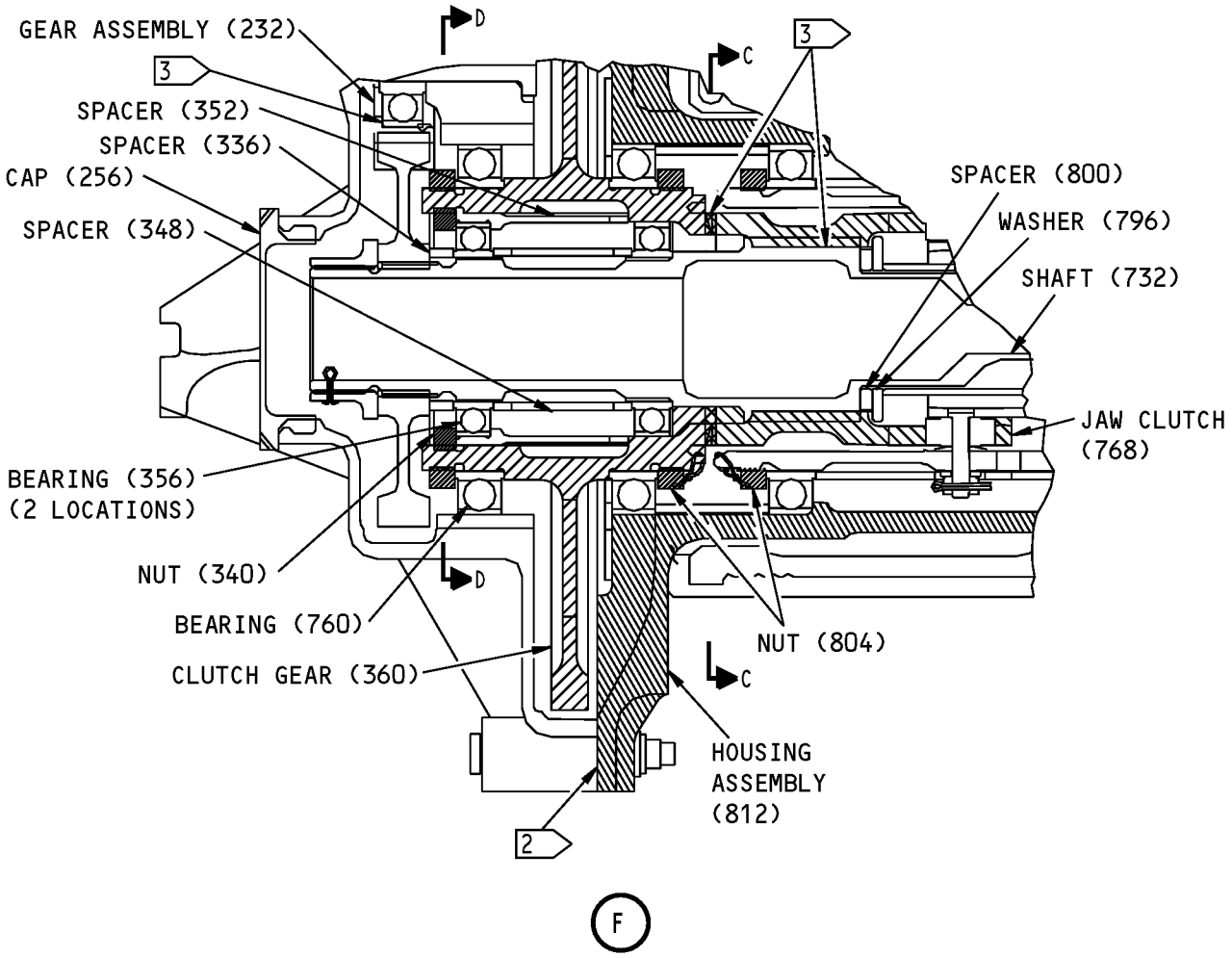
251A4510-4

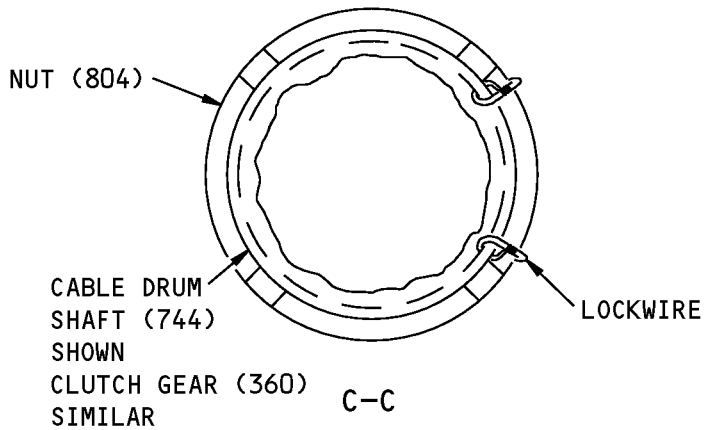


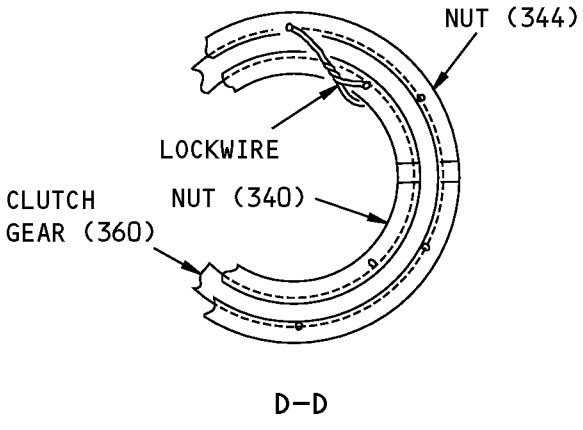
251A4510-5

E

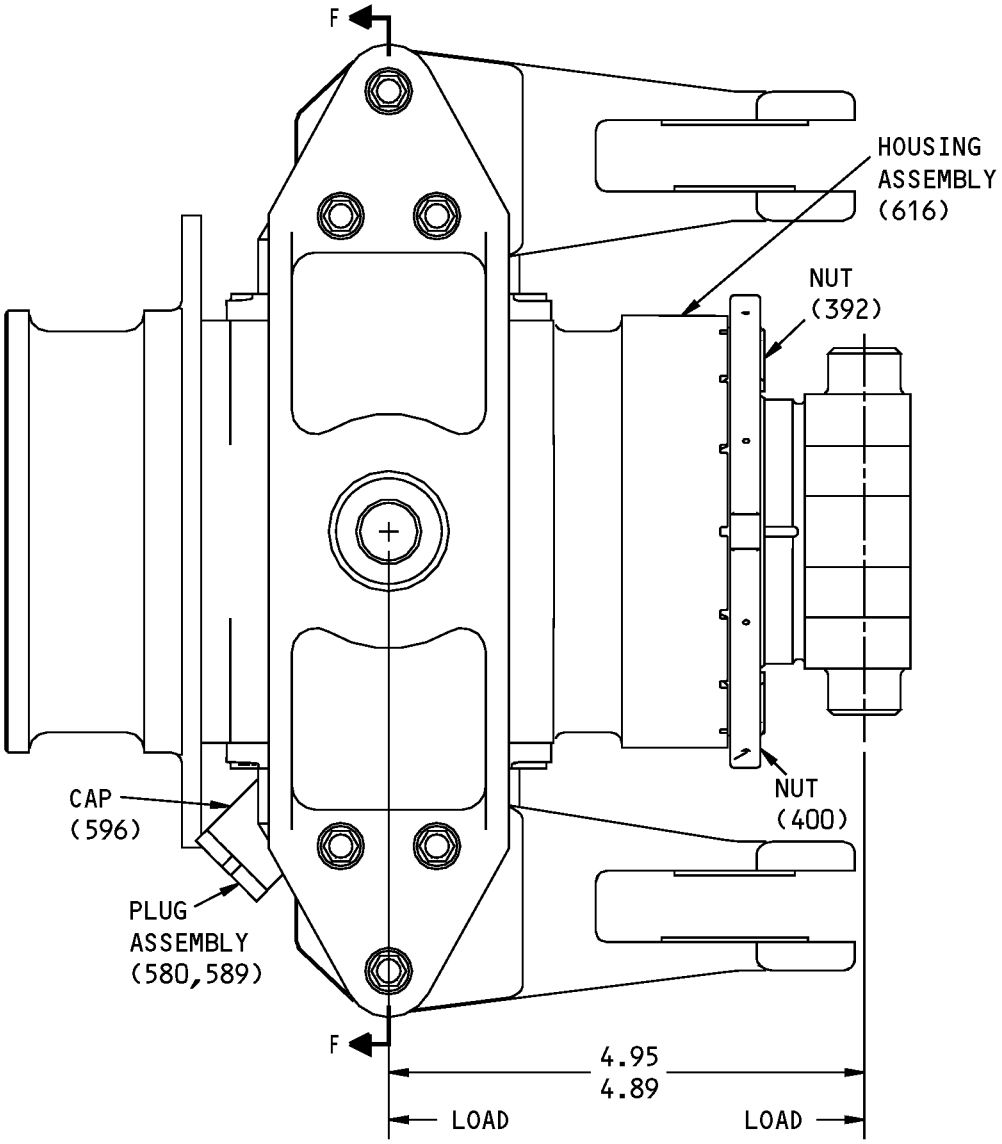
251A4510-4,-5 Assembly Details
Figure 701 (Sheet 5 of 11)





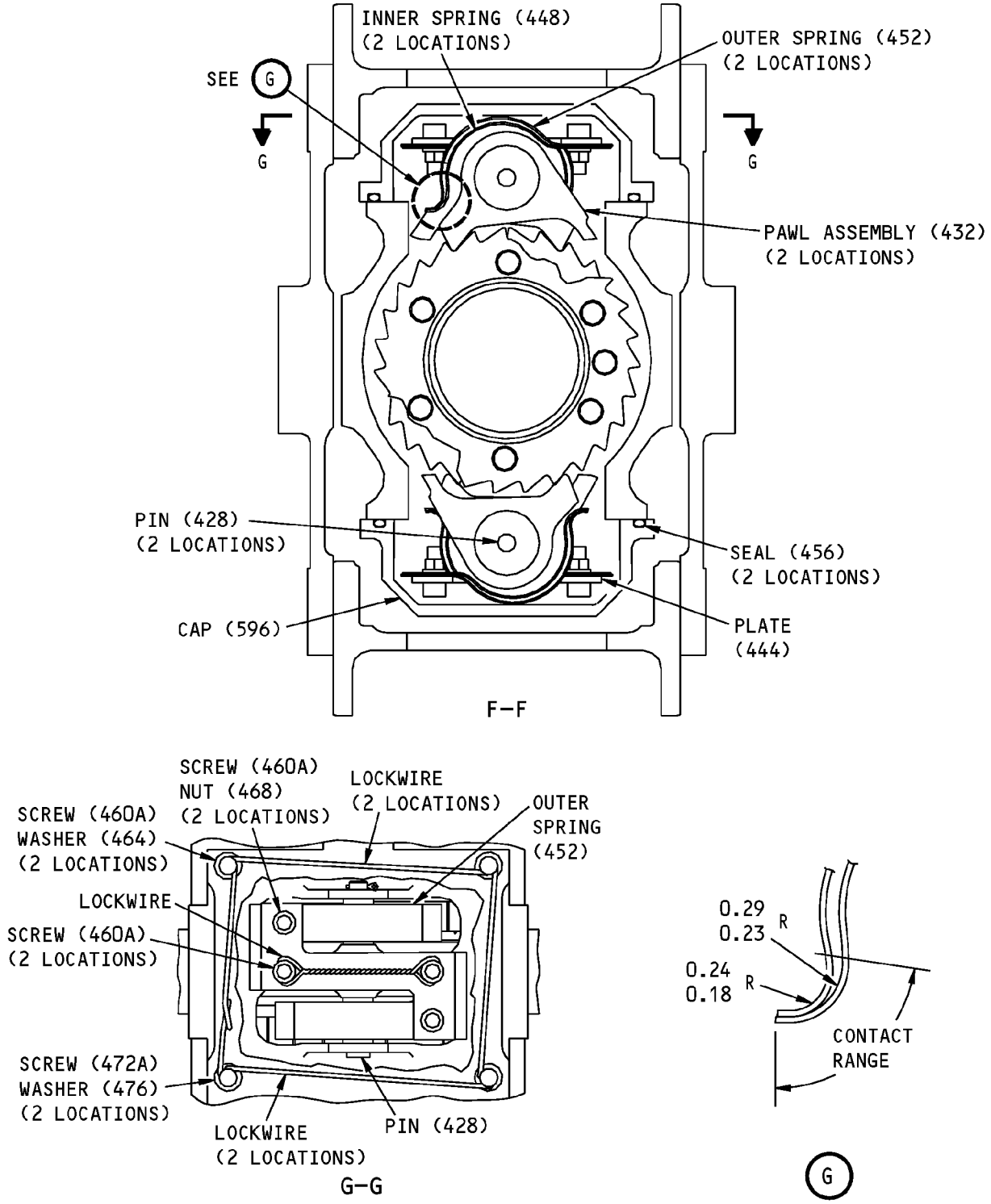


251A4510-4,-5 Assembly Details
Figure 701 (Sheet 6 of 11)

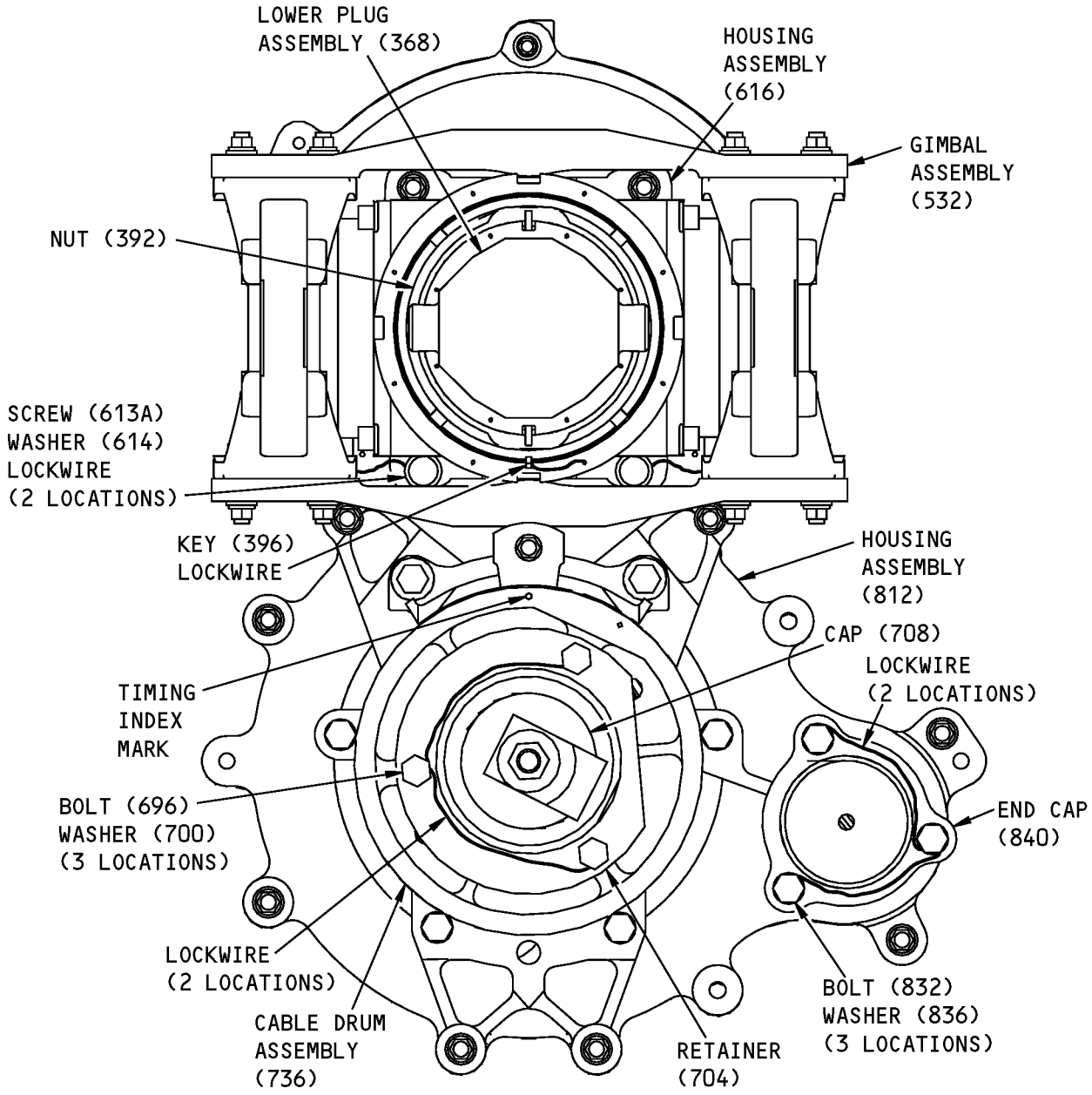


E–E

251A4510-4,-5 Assembly Details
Figure 701 (Sheet 7 of 11)

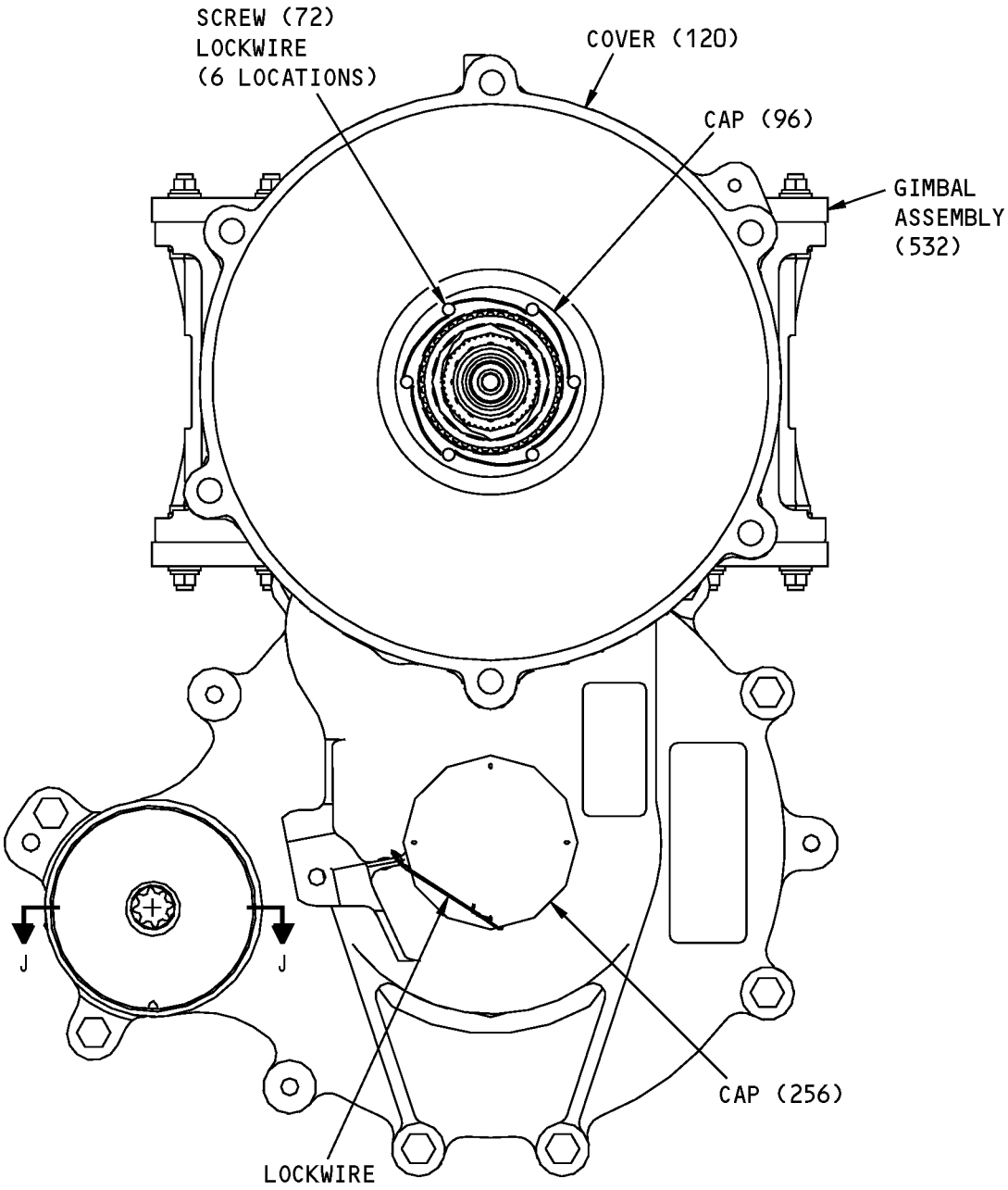


251A4510-4,-5 Assembly Details
Figure 701 (Sheet 8 of 11)

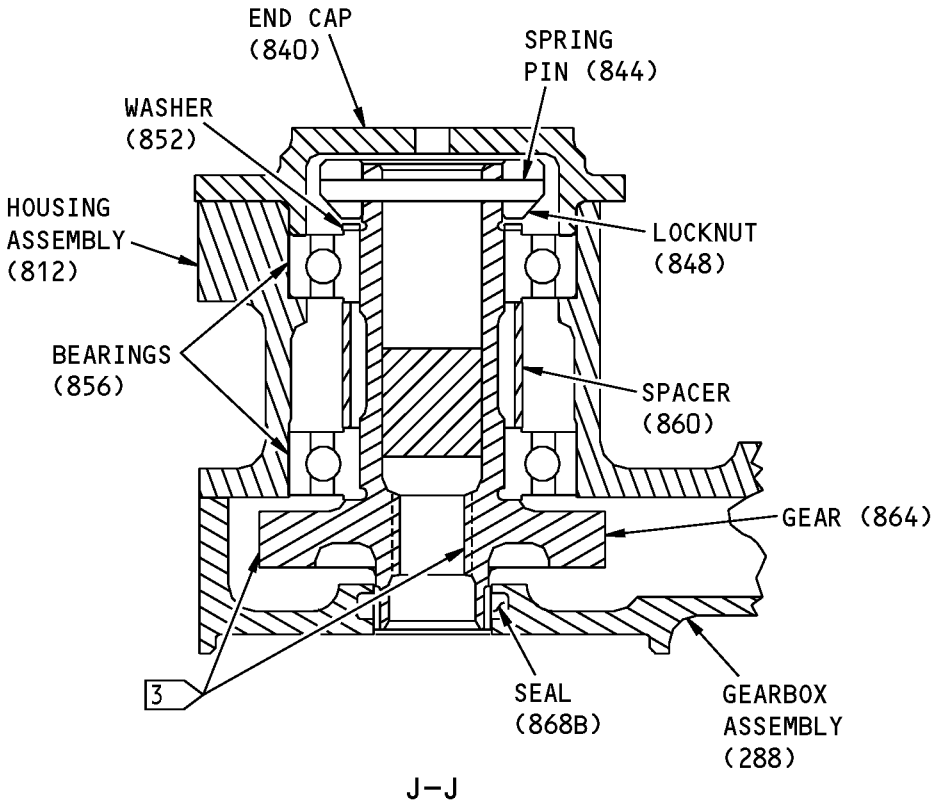


H–H

251A4510-4,-5 Assembly Details
Figure 701 (Sheet 9 of 11)



251A4510-4,-5 Assembly Details
Figure 701 (Sheet 10 of 11)



1 BEFORE THIS DIMENSION IS CHECKED, MAKE SURE THE LOWER STOP AND BALLNUT ARE INDEXED CORRECTLY.

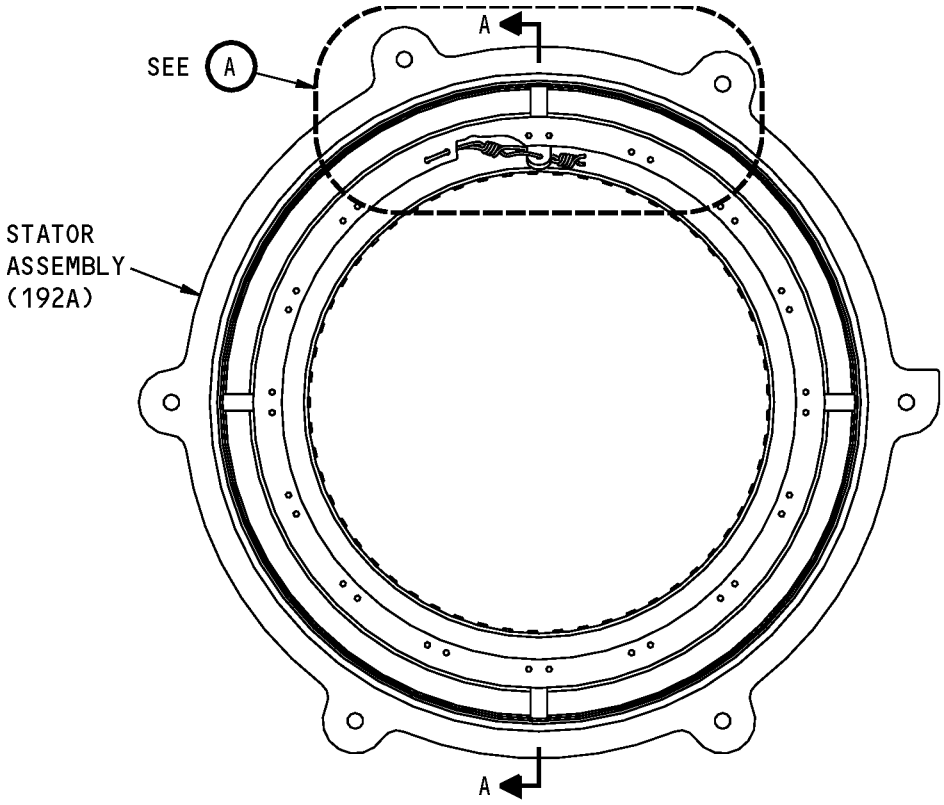
2 APPLY BMS 3-27 COMPOUND TO THIS SURFACE.

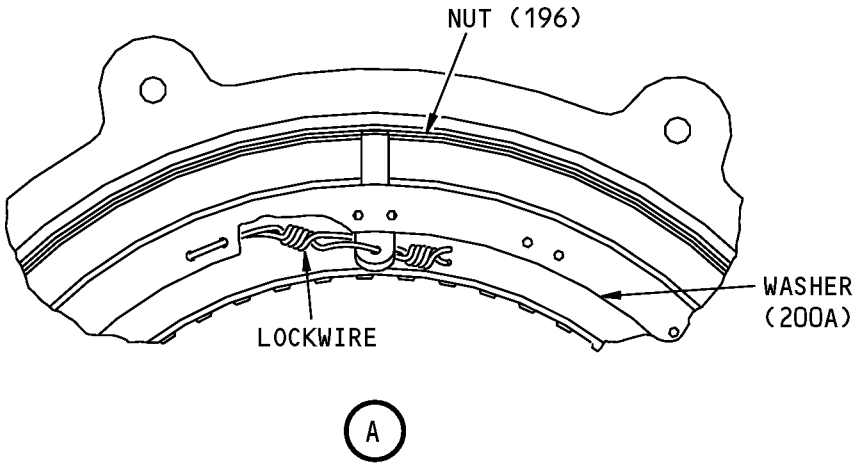
3 APPLY BMS 3-33 GREASE TO THIS SURFACE.

ITEM NUMBERS REFER TO IPL FIG. 1

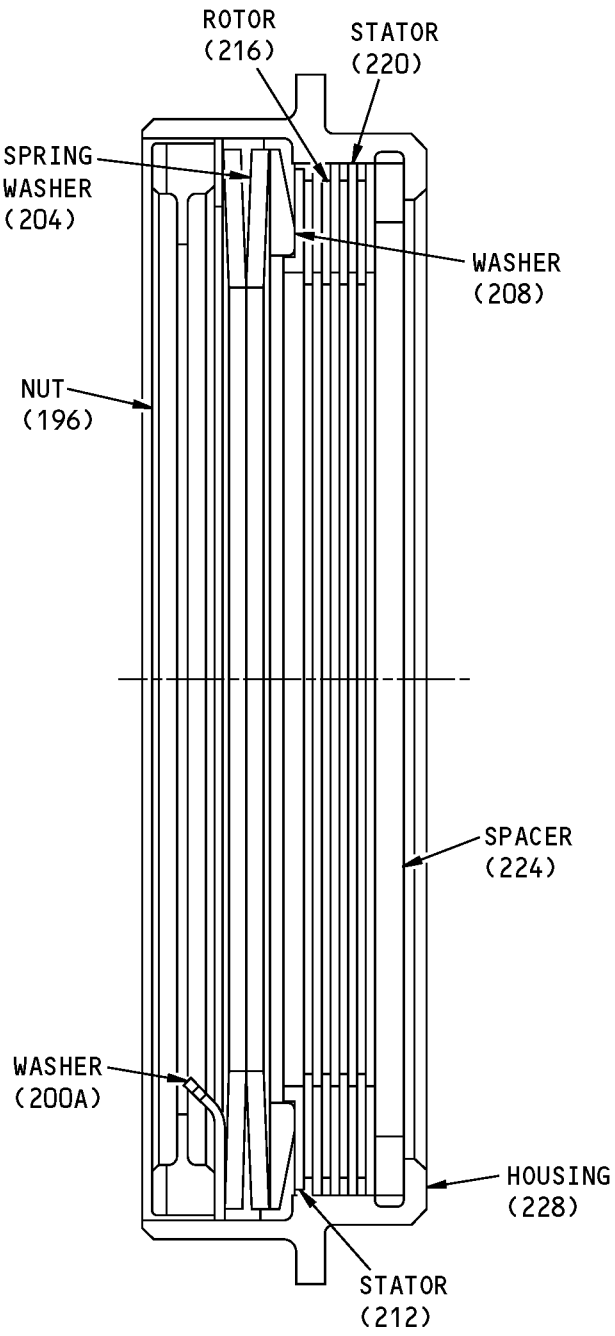
ALL DIMENSIONS ARE IN INCHES

251A4510-4,-5 Assembly Details
Figure 701 (Sheet 11 of 11)





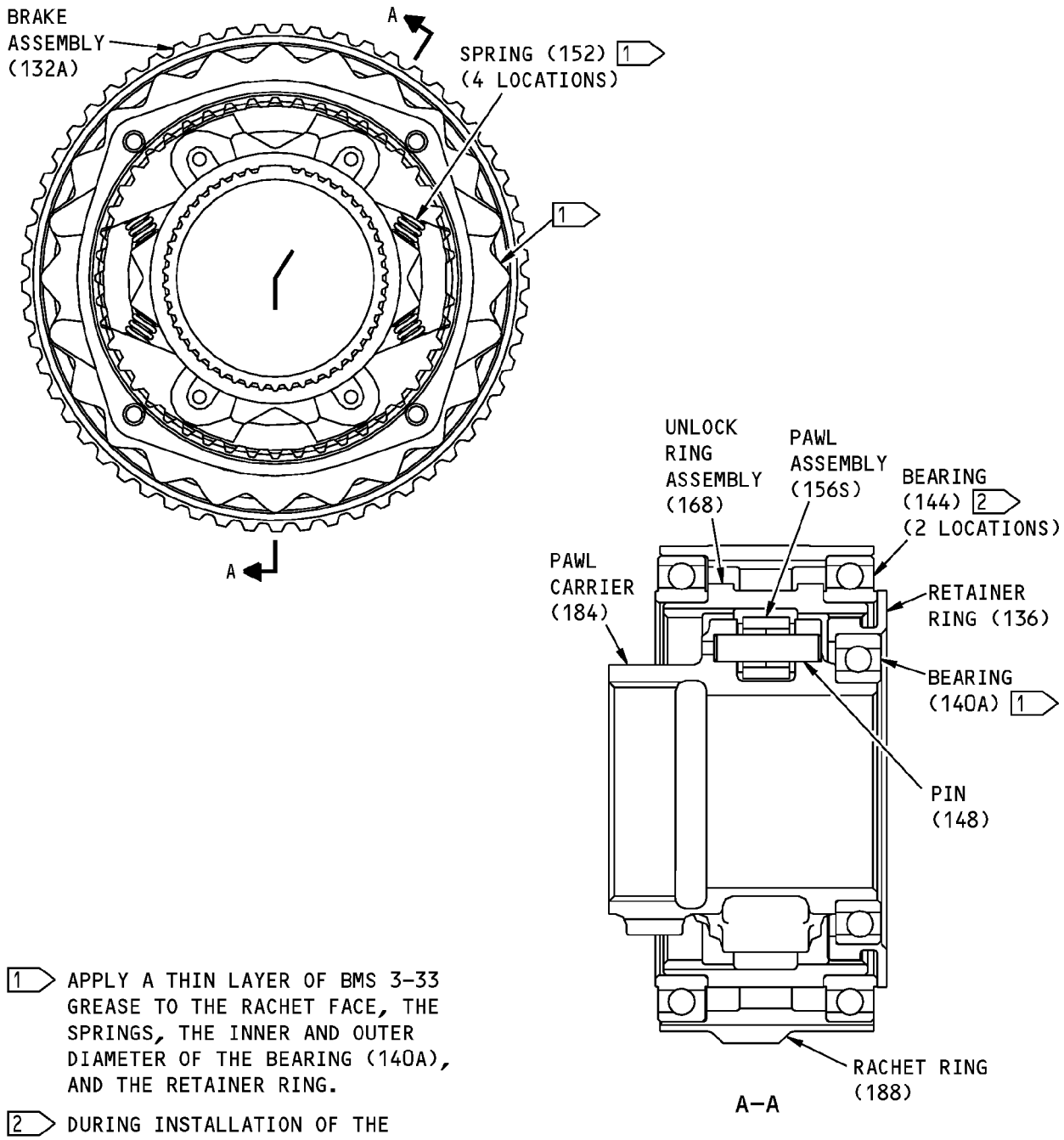
65C34616-4 Stator Assembly Details
Figure 702 (Sheet 1 of 2)



A–A

ITEM NUMBERS REFER TO IPL FIG. 1

65C34616-4 Stator Assembly Details
Figure 702 (Sheet 2 of 2)

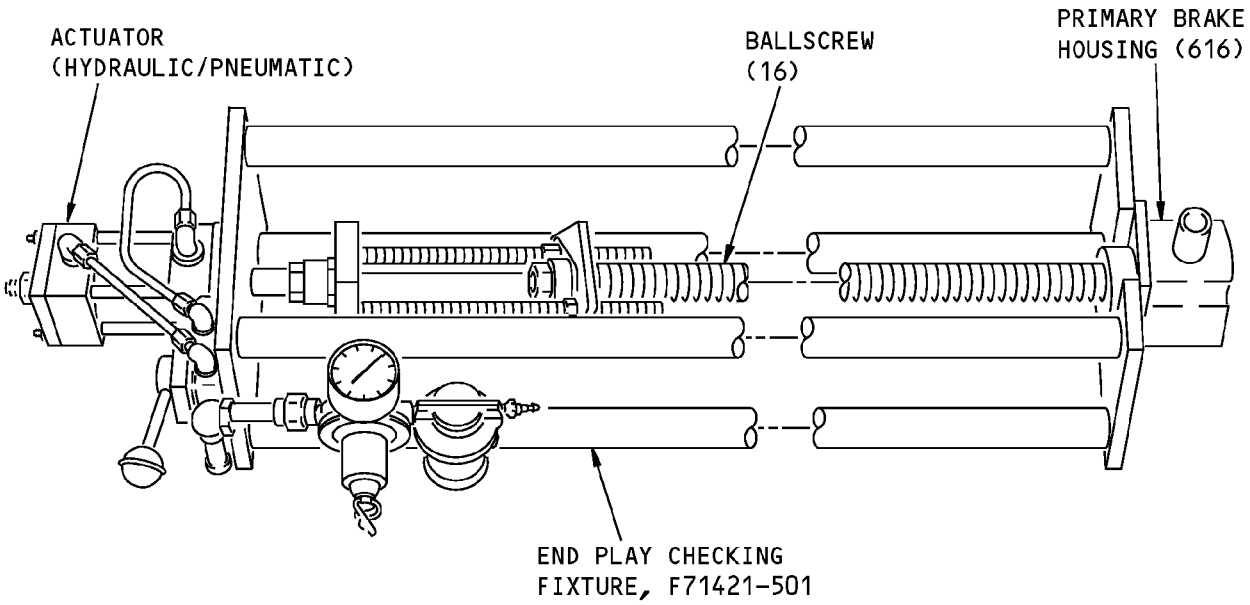


1 APPLY A THIN LAYER OF BMS 3-33 GREASE TO THE RACHET FACE, THE SPRINGS, THE INNER AND OUTER DIAMETER OF THE BEARING (140A), AND THE RETAINER RING.

2 DURING INSTALLATION OF THE BEARING (144):
- APPLY BMS 10-11, TYPE 1, GRADE B PRIMER TO THE OUTER DIAMETER.
- APPLY BMS 3-33 GREASE TO THE INNER DIAMETER.

ITEM NUMBERS REFER TO IPL FIG. 1

65C34609-3 Brake Assembly Details
Figure 703



ITEM NUMBERS REFER TO IPL FIG. 1

End Play Check
Figure 704

F. Procedure

(1) Assemble actuator assemblies P/N 251A4510-6, -9, -10, -11, -13 (see IPL Figure 2 for item numbers).

(a) Install bearing (872) against the shoulder of the cable drum shaft (856).

(b) Position the washer (908) in the jaw clutch (882).

(c) Install the screws (890), bearings (896), washers (894, 904), nuts (900), and the cotter pins (886).

(d) Install the spacer (876) in the drum assembly (848) and install the drum assembly on the housing assembly (924).

(e) Install the other bearing (872) and the nut (916). Tighten the nut to 600-720 pound-inches using the F71290-7 spanner wrench, SPL-5417.

(f) Lockwire the nut (916) to the cable drum shaft (856) using lockwire, G01912 with the double-twist method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 705, View C-C. Make sure the lockwire does not extend past the cable drum assembly (848).

(g) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to the shaft (844A) as shown in ASSEMBLY, Figure 705, Bubble F.

(h) Insert the shaft (844A) and the spacer (912) in the jaw clutch (882). Make sure the splines of the shaft and jaw clutch mate correctly.

(i) Install spring spacer (840) against washer (908) and install the springs (832, 836). Spring (832) is installed with the coils in the right-hand direction. Spring (836) is installed with the coils in the left-hand direction.

(j) Screw the F71291-500 Spring Compressor Tool, SPL-5418 into the cable drum shaft (856).

(k) Place the retainer (828) in the F71291-500 Spring Compressor Tool, SPL-5418 and compress the springs (832, 836).

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

(l) Apply corrosion inhibiting compound, C00913 to nut (824A) and install on the shaft (844A).

(m) Remove the F71291-500 Spring Compressor Tool, SPL-5418 from the cable drum shaft (856) and install cotter pin (823).

(n) Hold the cable drum (868) with a strap wrench and install the cap (820).

(o) Install the retainer (816), washers (812), and bolts (808).

(p) Lockwire the bolts (808) together using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(q) Install the bearings (872) and the plate (456) on the clutch gear (448).

(r) Install the nuts (432, 916) and tigthen the nuts to 600-720 pound-inches using the F71290-7 spanner wrench, SPL-5417.

(s) Lockwire the nut (916) to the clutch gear (448) using lockwire, G01912 with the double-twist method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 705, View C-C. Make sure the lockwire does not extend past inside diameter of the gear clutch (448). Make sure the lockwire will not touch the cable drum assembly (848) or other components when the clutch gear (448) is installed.

(t) Install the spacer (920) in the housing assembly (924).

(u) Install the clutch gear (448) with attached parts on the shaft (844A).

(v) Fasten the plate (456) to the housing assembly (924) with the bolts (452).

(w) Lockwire the bolts (452) together using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(x) Install the bearings (444) and spacers (436, 440) in the clutch gear (448) as shown in ASSEMBLY, Figure 705, bubble F.

(y) Install the nut (428) and tighten to 600-720 pound-inches using F71290-1 spanner wrench, SPL-5416.

NOTE: Nut (428) has left-hand thread.

(z) Lockwire the nut (428) to the nut (432) using lockwire, G01912 as shown in ASSEMBLY, Figure 705, view D-D.

(aa) Apply grease, D00633 perferred (grease, D00013 optional) to accessible areas of bearings (968) and locknut (960), the inner surface of end cap (952) and gear assembly (976) surfaces (SOPM 20-50-07) as shown in ASSEMBLY, Figure 705, View J-J.

(ab) Install the spacer (972), bearings (968), gear assembly (976), and the washer (964) in the housing assembly (924).

(ac) Install the locknut (960) and tighten to 100-150 inch-pounds.

NOTE: Loosen the locknut (960), if necessary, to permit the installation of the spring pin (956).

(ad) Install the spring pin (956) and lockwire using lockwire, G01912 with the single-wire method (SOPM 20-50-02). Thread the lockwire through the spring pin and wrap halfway around the locknut (960). Make sure that the knotted ends of wire do not extend past the locknut.

(ae) Install the end cap (840) with the washers (948) and the bolts (944) as shown in ASSEMBLY, Figure 705, view H-H.

(af) Lockwire the bolts (944) together using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(ag) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-06) to the seal (980) and install in the gearbox (300A).

(ah) Install the spacer (424) on the shaft (844A).

(ai) Install the gear (420) in the gearbox assembly (352).

(aj) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to the gear assembly (392).

(ak) Install the gear assembly (392), adapter (408), washers (380, 388), bolt (376), and nut (384).

NOTE: Gear assembly (392) is installed with the swaged side down.

(al) Install the gearbox assembly (352) on the housing assembly (924).

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

1) Apply a thin layer of corrosion inhibiting compound, C00913 to the mating surfaces of the gearbox assembly (352) and the housing assembly (924).
2) Mate the housing assembly (924) and attached parts with the gearbox assembly (352).

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

3) Apply corrosion inhibiting compound, C00913 to the bolts (332, 336, 324, 328) and nuts (348) and install the bolts, nuts, and washers (340, 344) in the gearbox assembly (352) and housing assembly (924).

(am) Screw the nut (416) on the shaft (844A) and tighten to 500-700 pound-inches with the 7MIT5-88439 Gear retainer wrench, SPL-5347. If necessary, tighten the nut up so that the next cotter pin holes align, do not exceed 1000 pound-inches.

(an) Install the cotter pin (413) (SOPM 20-50-02) through the nut (416) and the shaft (844). Install cotter pin (412B) through pin (413).

(ao) Screw the cap (320) in the gearbox assembly (352) finger tight and lockwire the cap to the gearbox assembly using lockwire, G01912 .

(ap) Apply a light coat of fluid, D00467 to packing (708) and install in the housing assembly (720A).

(aq) Check the dimensions of the primary brake assembly as shown in ASSEMBLY, Figure 705, bubble E. Apply a thin layer of fluid, D00467 to each part of the primary brake assembly. Stack the bearing (704), the spacer (548), the bearing (540), guides (536A), the roller assemblies (628A), the plates (532), the ratchet assemblies (616), the roller assemblies (604A), the bearing (524), the upper plug assembly (508) and the nut (496) on the ballscrew (16). Measure the dimension "A" as shown in ASSEMBLY, Figure 705. After you record dimension "A", remove the bearing (704), spacer (548), upper plug assembly (508) and nut (496) from the ballscrew assembly (16). Optional to keep the remaining parts stacked on the ballscrew for installation into the housing (720A).

NOTE: Make sure the roller assemblies (604A) face in opposite directions on each side of the ratchet assemblies (616).

(ar) Measure dimension B of housing (732A) as shown in ASSEMBLY, Figure 705, Bubble E.

(as) Install bearing (704), spacer (548) into housing assembly (720A) with a thin layer of fluid, D00467.

(at) Apply fluid, D00467 to the packing (528) and install on the upper plug assembly (508).

(au) Install the parts of the primary brake assembly. Apply a thin layer of fluid, D00467 to each part and install the bearing (540), the roller assemblies (628A), the plates (532), the ratchet assemblies (616), the roller assemblies (604A), the guides (536A), the bearing (524) and the ballscrew assembly (16) as shown in ASSEMBLY, Figure 705. Install the upper plug assembly (508).

NOTE: Make sure the bearing (524) engages the pin (512) in plug (520). Make sure the bearing (540) engages the pin (724) in housing assembly (732A).

NOTE: Make sure the roller assemblies (604A) face in opposite directions on each side of the ratchet assemblies (616).

CAUTION: DURING INSTALLATION OF THE BALLSCREW ASSEMBLY (16), THE BALLSCREW MUST BE HELD PARALLEL TO THE BORE CENTERLINE OF THE HOUSING ASSEMBLY (720A) TO PREVENT DAMAGE OF THE ATTACHED PARTS.

(av) Install the nut (496) using the F80053-1 spanner Wrench Assembly, SPL-5430.

(aw) Install the nut (504) on to nut (496). Tighten nuts (496, 504) until dimension C measures 0.3000-0.4100 inch, and the force required to turn the ballscrew assembly (16) inside the housing assembly (720A) is a maximum of 40 inch-pounds. Dimension C = A-B + (0.004 to 0.009). If C is not within 0.3000-0.4100 inch, disassemble and check part numbers.

(ax) Position the key (500) in the nut (504).

(ay) Do an end play check.

1) Install the primary brake housing assembly (720A) with attached parts in F71421-501 Hydraulic Fixture, SPL-5420 as shown in ASSEMBLY, Figure 706.
2) Apply a 400-pound tension load to the ballscrew (16), then apply an equivalent compression load. Check that axial play, measured between the ballscrew assembly (16) and housing assembly (720A), is 0.004-0.010 inch for the 251A4510-6, -9, -10, -11, -13 actuator assembly.
3) Adjust the nuts (496, 504) as required to obtain the specified axial play.
4) Lockwire the nut (496) to the key (500) using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(az) Tighten the nut (504) to 500-700 inch-pounds.

(ba) Install the pawl assemblies (556), pins (552), and cotter pins (544) in the housing (732) as shown in ASSEMBLY, Figure 705, View F-F.

(bb) Install the nuts (592), inner springs (572), outer springs (576), plates (568), and screws (584) in the housing (732). Use the adjusting slots in the outer spring (576) to locate the 0.21 inch radius so that it touches a point on the 0.26 inch radius of the inner spring (572) as shown in ASSEMBLY, Figure 705, view G-G and Bubble G.

(bc) Lockwire two of the screws (584) on each side of housing (732) using lockwire, G01912 with the double-twist method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 705, view G-G.

(bd) Do a Primary brake check.

NOTE: Clockwise (CW) and counterclockwise (CCW) direction referred to in these tests are as viewed from top (screw end) of the ballscrew assembly.

NOTE: For this test, torque is applied and measured at the ballscrew (16).

CAUTION: THE PRIMARY BRAKE COMPONENTS OF ACTUATOR ASSEMBLY P/N 251A4510-6 MUST HAVE A COATING OF BMS 3-32, TYPE 2 OIL PRIOR TO CONDUCTING THIS TEST.

1) Do a run-in test of the primary brake.
   a) With a 200-250-pound load applied to the ballscrew (16) in tension, turn the ballscrew for 30 to 60 seconds at 30 to 100 RPM.
   b) Repeat with 200-250-pound load applied in compression.
   c) With an 800-pound tension load applied to the ballscrew, measure the torque to turn the ballscrew in the CW direction. If less than 130 pound-inches, repeat ASSEMBLY, Paragraph 2.F.(1)(bd)1)a) and ASSEMBLY, Paragraph 2.F.(1)(bd)1)b).
   d) With an 800-pound compression load applied to the ballscrew, measure the torque to turn the ballscrew in the CCW direction. If less than 130 pound-inches, repeat ASSEMBLY, Paragraph 2.F.(1)(bd)1)a) and ASSEMBLY, Paragraph 2.F.(1)(bd)1)b).
2) Test the primary brake with the ballscrew in tension.
   a) Apply an 800-pound tension load to the ballscrew.
   b) Turn the ballscrew CW (brake not ratcheting) at a maximum speed of 30 RPM for 20-25 turns.
   c) Measure CW torque and record the value.
   d) Turn the ballscrew CCW (brake ratcheting) at a maximum speed of 30 RPM for 20-25 turns.
   e) Measure the CCW torque and record the value.
   f) The torque necessary to turn the ballscrew CCW shall not be more than the CW torque. The difference between CW and CCW torque values must be between 120-186 pound-inches.
3) Test the primary brake with the ballscrew in compression.
   a) Apply an 800-pound compression load to the ballscrew.
   b) Turn the ballscrew CCW (brake not ratcheting) at a maximum speed of 30 RPM for 20 to 25 turns.
   c) Measure CCW torque and record the value.
   d) Turn the ballscrew CW (brake ratcheting) at a maximum speed of 30 RPM for 20-25 turns.
   e) Measure the torque and record the value.
   f) The torque necessary to turn the ballscrew CW shall not be more than the CCW torque. The difference between CCW and CW values must be between 120-186 pound-inches.

(be) Install the sleeve assembly (300) on the ballscrew assembly (16).

1) Apply grease, D00633 perferred (grease, D00013 optional) to packing (80, 296, 312).
2) Install the packing (80, 296, 312) in the sleeve assembly (300).
3) Install the sleeve assembly (300) in the housing assembly (720A).

NOTE: Use care when you slide the packings (80, 296, 312) on the sleeve assembly (300).

(bf) Install safety rod (36).

1) Apply fluid, D00467 to packings (24) and install on the seals (20).
2) Apply fluid, D00467 to packings (28, 32) and install on the safety rod assembly (36).
3) Install the seals (20) and the pin (40) on the safety rod assembly (36).
4) Apply a thin layer of grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to the safety rod assembly (36) lands and install in the ballscrew assembly (16). Make sure to line-up the drain hole in the upper end of the safety rod assembly with the drain hole in the ballscrew assembly.

(bg) Install plug assembly (468).

1) Install the plug nut (488) on to plug assembly (468).
2) Apply fluid, D00467 to the packing (484) and install in the plug assembly (468).
3) Install the plug assembly (468) in the housing assembly (720A).
4) Make sure that the drain plug hole will face the cable drum.
5) Apply a 400-pound compression load between the ballscrew assembly (16) and the housing assembly (720A). Adjust the lower plug assembly (468) so that the distance between the lower plug assembly trunnion centers and the housing assembly trunnion centers is 4.89-4.95 inches as shown in ASSEMBLY, Figure 705, view E-E.
6) Install the plug keys (492) and tighten the plug nut (488) to 500-700 pound-inches using C27033-6 spanner wrench, SPL-8260. Lockwire the key (492) to the plug nut (488) using lockwire, G01912 with double-twist method (SOPM 20-50-02).

(bh) Install the caps (696, 700R) on the housing (732).

1) Apply fluid, D00467 to the seals (580) and install in the caps (696, 700R).
2) Install the caps (696, 700R) on the housing (624) with the bolts (584, 596) and the washers (588, 600).
3) Lockwire the screws (584, 596) together using lockwire, G01912 with the single-wire method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 705, view G-G.

(bi) Install the housing assembly (720A).

1) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to the housing assembly (720A) trunnion that will face the drum assembly.
2) Install a yoke assembly (660) on to the lubricated trunnion.

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

(WARNING PRECEDES)

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

3) Apply a thin layer of corrosion inhibiting compound, C00913 to the surfaces that touch between the housing assembly (720A), the gearbox assembly (352), and the housing assembly (924).

4) Install the housing assembly (720A) in the gearbox assembly (352) and the housing assembly (924). Wipe off excess corrosion inhibiting compound, C00913.

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5) Apply corrosion inhibiting compound, C00913 to the bolts (324), nuts (348) and screws (712) and install with the washers (340, 344, 716) in the gearbox assembly (288A) and housing assembly (924).

6) Lockwire the screws (712) using lockwire, G01912 with the double-twist method (SOPM 20-50-02) as shown in ASSEMBLY, Figure 705, view H-H.

(bj) Install the gimbal assembly (640) on the housing assembly (720A).

1) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to the housing assembly (720A) trunnions.

2) Install the yoke assemblies (660) on the trunnions.

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3) Apply corrosion inhibiting compound, C00913 to the bolts (644) and nuts (656) and attach the forks (684) to the yoke assemblies (660) with the bolts, nuts, and washers (648, 654). Make sure index marks on the yoke assemblies and forks match.

(bk) Position the cable drum assembly (848) so the timing index mark is located as shown in ASSEMBLY, Figure 705, View H-H.

(bl) Install bearing (704) on sleeve assembly (300). Then install input gear (288).

(bm) Apply fluid, D00467 liberally to the lip seal (292) lips and to the bore of the input gear (288). Install lip seal (292) protruding 0.010-0.025 inch above the seal cavity in input gear (288).

(bn) Install seal retainer (284), bearing (280), thrust support (276), thrust plate (272) and thrust roller assembly (260).

(bo) Install support seal (256). Apply fluid, D00467 liberally to the lip seal (252A) lips and to the bore of the stator housing (244). Install lip seal (252A) flush within 0.015 above the seal cavity in stator housing (244).

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(bp) Apply corrosion inhibiting compound, C00913 to threads and shank of bolt (236) and install stator housing (244) using bolt (236) and collar (240). Apply fluid, D00467 to packing (248) and install packing on stator housing (244).

(bq) Determine shim (160) thickness as follows:

1) Separately assemble parts on spacer (176) then install on shaft assembly (300).

a) Assemble spacer (176), roller assembly (180) and thrust plate (192). Do not install wave spring (196A) for determination of shim (160) thickness.

b) Assemble input cam assembly (200) and install on spacer (176).

NOTE: Reverse the orientation of each roller assembly (208) such that no two adjacent parts, separated by a stator (220) or a rotor (224) are oriented in the same direction.

c) Install guide (232), roller assembly (208), stator (220) and roller assembly (208).

d) Install rotor (224).

e) Install guide (232), roller assembly (208), stator (220) and roller assembly (208).

f) Install roller coupling (228).

g) Install spacer (176) on shaft assembly (300).

h) Install balls (156), spring (150) and output cam (152). DO NOT install shim (160).

i) Measure distance between output cam (152) and spacer (176).

j) The shim (160) thickness is the distance measured, plus 0.015 $\pm$0.002 using the minimum number of shims possible.

k) Disassemble output cam (152), spring (150) and spacer (176) and input cam (200).

(br) Install shims and perform lost motion/backlash test as follows:

1) Assemble parts as follows:

a) Assemble spacer (176), roller assembly (180), thrust plate (192) and wave spring (196A).

b) Assemble input cam (200) with bushing (204) then install on spacer (176).

NOTE: Reverse the orientation of each roller assembly (208) such that no two adjacent parts, separated by a stator (220) or a rotor (224) are oriented in the same direction.

c) Install guide (232), roller assembly (208), stator (220) and roller assembly (208).

d) Install rotor (224).

e) Install guide (232), roller assembly (208), stator (220) and roller assembly (208).

f) Install roller coupling (228).

g) Install spacer (176) on shaft assembly (300).

h) Install shim (160) using thickness determined above, spring (150), balls (156) and output cam (152).

i) Install retainer (149) and nut (84). Torque nut (84) to 50-100 pound-inches using C27033-5 spanner wrench, SPL-8259.

2) Perform testing as follows:

NOTE: At no time shall torque on the assembly exceed 800 pound-inches, when measured at the ballscrew.

a) Prior to test turn cable drum assembly by hand in both directions. Movement should be smooth and the amount of force needed to turn the drum should be consistent. If amount of force needed to turn the drum has a large amount of variation then binding is occuring. Binding can occur if the auxiliary brake rotors and stators are not properly seated.

b) Apply 100-200 pound-inches of torque clockwise (CW) to the ballscrew. Apply and hold 25-35 pound-inches of torque CW to the input gear (288) or 40-50 pound-inches of torque CCW at the input shaft (844A) to take up the backlash.

c) Measure the backlash at the input gear (288) or cable drum (868). Make sure that the backlash is more than 3 degrees at the input gear (288) or 2.4 degrees at the cable drum (868).

d) Mark the ballscrew position then release the torque on the ballscrew.

e) Apply 100-200 pound-inches of torque counterclockwise (CCW) to the ballscrew.

f) Measure the ballscrew rotation. Make sure the ballscrew has not rotated more than 36 degrees.

g) Apply and hold 25-35 pound-inches of torque CCW to the input gear (288) or 40-50 pound-inches of torque CW at the input shaft (844) to take up the backlash.

h) Measure the backlash at the input gear (288) or cable drum (868). Make sure that the backlash is more than 3 degrees at the input gear (288) or 2.4 degrees at the cable drum (868).

i) Release all applied torque.

3) Remove nut (84) using C27033-5 spanner wrench, SPL-8259 and retainer (149).

4) Install spline ring (151).

(bs) Install seal retainer (149).

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(WARNING PRECEDES)

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(bt) Apply corrosion inhibiting compound, C00913 to bolts (112, 116) and nuts (124), and install the cover assembly (136) with the bolts, nuts, and washers (120).

(bu) Install the lip seal assembly (108), the retainer seal (104), washers (100), and the screws (96).

CAUTION: PROTECT SEAL LIPS DURING ASSEMBLY AND MAKE SURE THE INSTALLATION TOOL APPLIES PRESSURE EVENLY OVER THE FULL CIRCUMFERENCE OF THE SEAL RIM. PRESSURE MUST BE APPLIED AS NEAR THE SEAL OD AS POSSIBLE.

1) Apply fluid, D00467 liberally to the lip seal (108) lips and to the bore of the cover assembly (136). Install lip seal (108) protruding 0.005-0.020-inch above the seal cavity in housing assemlby (136).

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2) Apply corrosion inhibiting compound, C00913 to bolts (96) and install the retainer seal (104) with bolts.

3) Pack the cavity between seal retainer (104), lip seal (108) and retainer (149) with grease, D00633 perferred (grease, D00013 optional).

4) Install shield (92) and lockwasher (88). Apply grease, D00633 perferred (grease, D00013 optional) to nut (84) and install nut. Torque nut to 420-500 pound-inches above run-on torque using C27033-5 spanner wrench, SPL-8259.

5) Make sure witness mark on flange of lockwasher (88) aligns with key slot in sleeve (300). If not aligned replace lockwasher. Locally deform flange of lockwasher engagement into two slots of nut (84) 180 degrees apart.

(bv) Position the cable drum assembly (848) so the timing index mark is located as shown in ASSEMBLY, Figure 705, View H-H.

CAUTION: THE BALLSCREW ASSEMBLY (16) THREADS HAVE A DOUBLE START. MAKE SURE THE SAME THREADS ARE ENGAGED WHEN INSTALLING THE BALLNUT ASSEMBLY ON THE BALLSCREW ASSEMBLY (16). IF THE BALLS FALL OUT OR ARE LOST DURING BALLNUT REMOVAL OR INSTALLATION, THEN RETURN THE BALLSCREW ASSEMBLY (16) TO THE MANUFACTURER FOR REASSEMBLY AND TEST.

(bw) Install the lower stop (76), ballnut assembly, bolt (17), washer (18), and nut (19), and upper stop on the ballscrew assembly (16).

(bx) Make sure the gap between the lower stop (76) and the ballnut assembly is 0.15-0.17 inch as shown in ASSEMBLY, Figure 705, Bubble A. If the gap is not 0.15-0.17 inch, reindex the lower stop on the sleeve assembly (300).

NOTE: Make sure the zerk fitting on the ballnut assembly is on the left side of the actuator assembly as shown in ASSEMBLY, Figure 705.

(by) Apply grease, D00633 perferred (grease, D00013 optional) to packing (80). Install packing (80) on lower stop (76). Install the screws (64), washers (68) and nut (72).

NOTE: Use care when you slide the packing (80) on the sleeve assembly (300).

(bz) Apply grease, D00633 perferred (grease, D00013 optional) (SOPM 20-50-07) to trunnions of the ballnut assembly, gimbal (56) holes, and bolt (44) shanks.

(ca) Position the yokes (52) on the ballnut assembly trunnions and install the gimbals (56) and pins (60) with the bolts (44) and the washers (48).

(cb) Install washer (12). Tighten the nut (8) to 500-700 pound-inches and install the cotter pin (4).

(cc) Fill the actuator with fluid, D00467.

1) Fill the primary brake assembly as follows:
   a) Position the 251A4510-6, -9, -10, -11, -13 actuator 19 to 28 degrees forward of vertical.
   b) Apply fluid, D00467 to packings (692A, 464) and install on the plugs (460, 688).
   c) Apply fluid, D00467 to the plugs (460, 688).
   d) Install plug (460) into the lower plug assembly (468) and torque to 60-80 pound-inches above run on torque.
   e) Fill the primary brake through the plug (688) port or the cap (987) port. Rotate ballscrew as required to remove trapped air. As a final step, fill the actuator through the cap (987) port until oil begins to spill from the (688) port.
   f) Install plug (688) and cap (987). Torque plug (688) to 60-80 pound-inches above run on torque.
   g) Lockwire plugs (460, 688) using lockwire, G01912 with the double-twist method (SOPM 20-50-02).
2) Fill the secondary brake as follows:
   a) Position the 251A4510-6, -9, -10, -11, -13 actuator within ± 2 degrees of vertical.
   b) Apply fluid, D00467 to packing (132) and install on plug (128).
   c) Apply fluid, D00467 to plug (128).
   d) Install plug (128) into the housing cover assembly (136) and torque to 60-80 pound-inches above run on torque.
   e) Lockwire plugs (128) using lockwire, G01912 with the double-twist method (SOPM 20-50-02).

(cd) Verify dimension D in ASSEMBLY, Figure 705, (Sheet 1) by measuring between lube fitting (61) on the ballnut trunnion and the pin hole bore of fork (684) as follows:

1) Move the ballnut assembly against the lower stop (76) and check that dimension D is 21.22-21.42 inches.

2) Move the ballnut assembly against the upper stop and check that dimension D is 45.74-45.94 inches.

(ce) Do a test of the actuator described in the TESTING AND FAULT ISOLATION, Paragraph 2.D.(2). The auxiliary brake test can be omitted if already performed during assembly of the actuator.

(cf) Install the washer (804) and the support assembly (772) on the cap (820).

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(cg) Apply corrosion inhibiting compound, C00913 to the bolts (736, 740) and the nut (752).

(ch) Fasten the cable drum guard (756) to the housing assembly (924) and the support assembly (772) with the bolts (736, 740), washers (744, 748), and nut (752).

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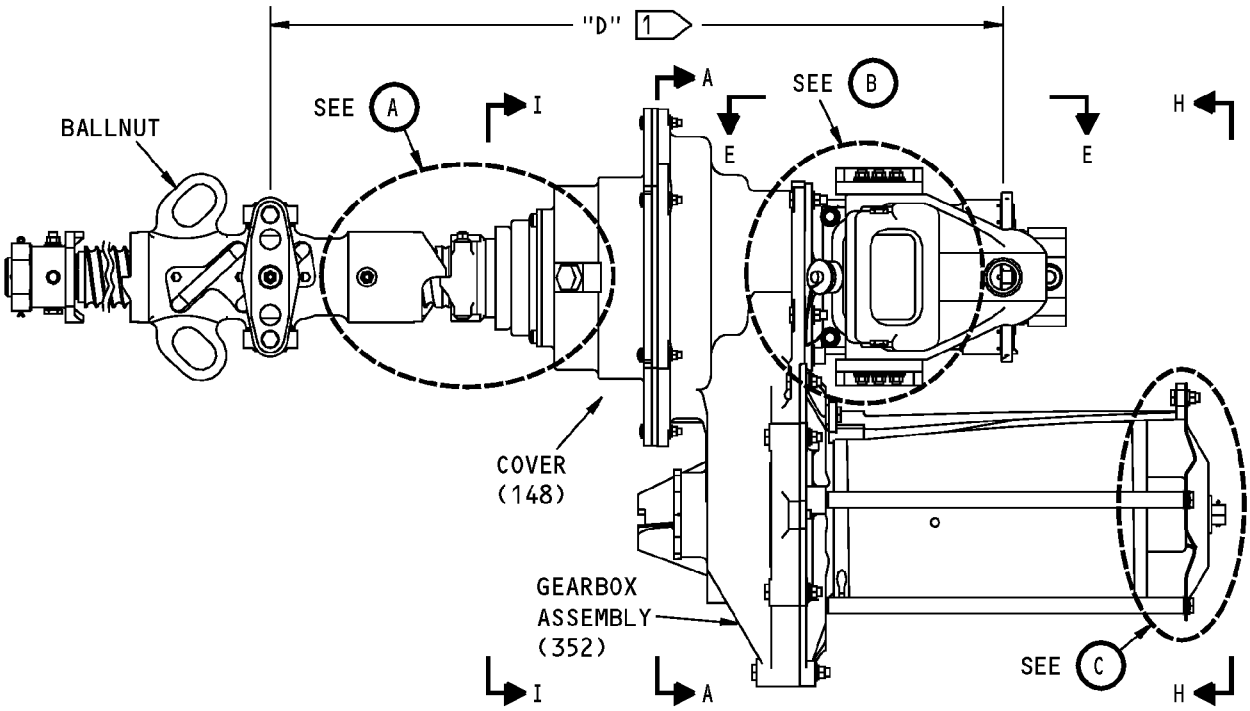
(ci) Apply corrosion inhibiting compound, C00913 to the bolts (760) and fasten the support assembly (772) to the housing assembly (924) with the bolts (760), washers (764), and spacers (768).

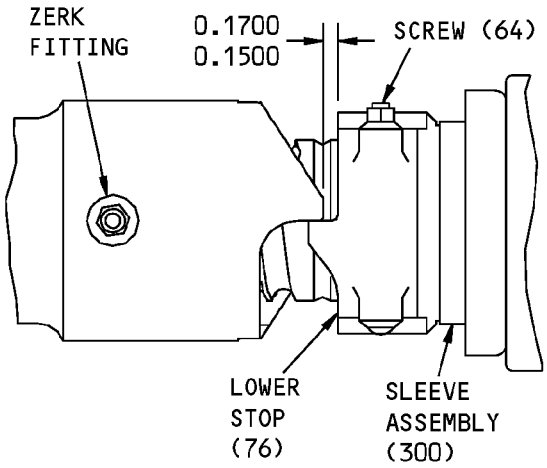
(cj) Install the washer (804), nut (800) and finger tighten as shown in ASSEMBLY, Figure 705, bubble C.

(ck) Install the cotter pin (796).

3. Storage

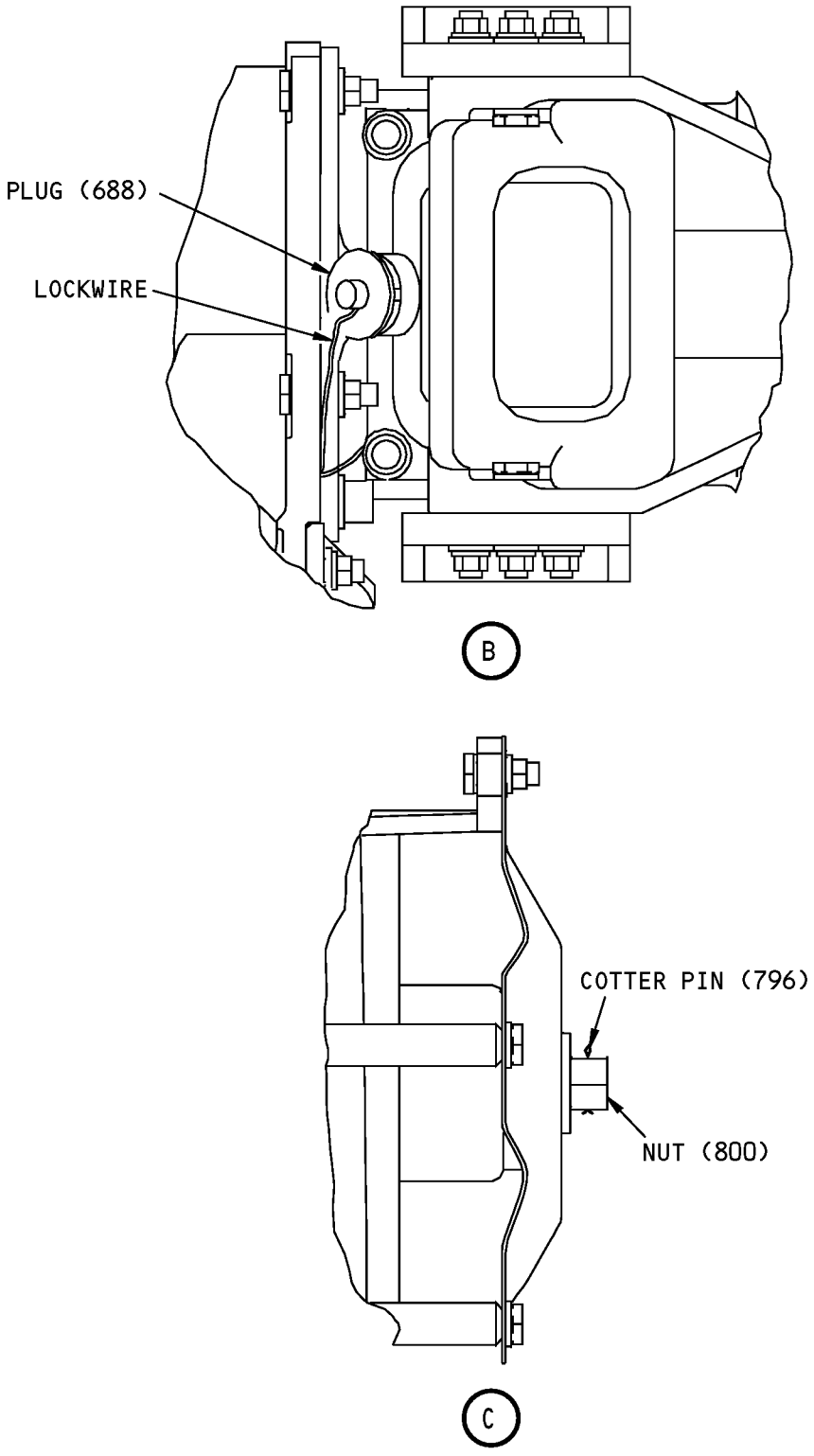
A. Store unit using Standard Industry Practices and information contained in SOPM 20-44-02.



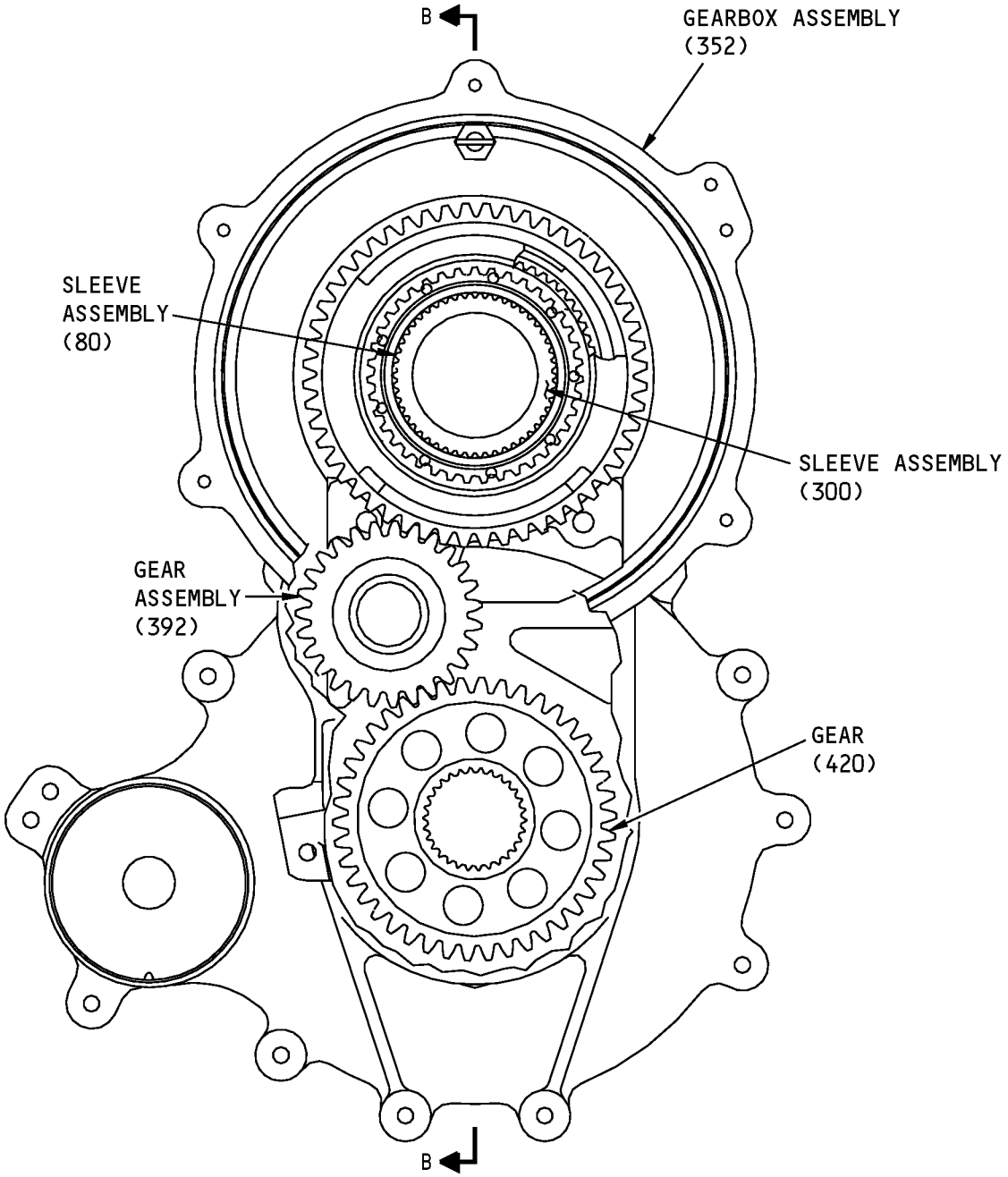


A

251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 1 of 11)

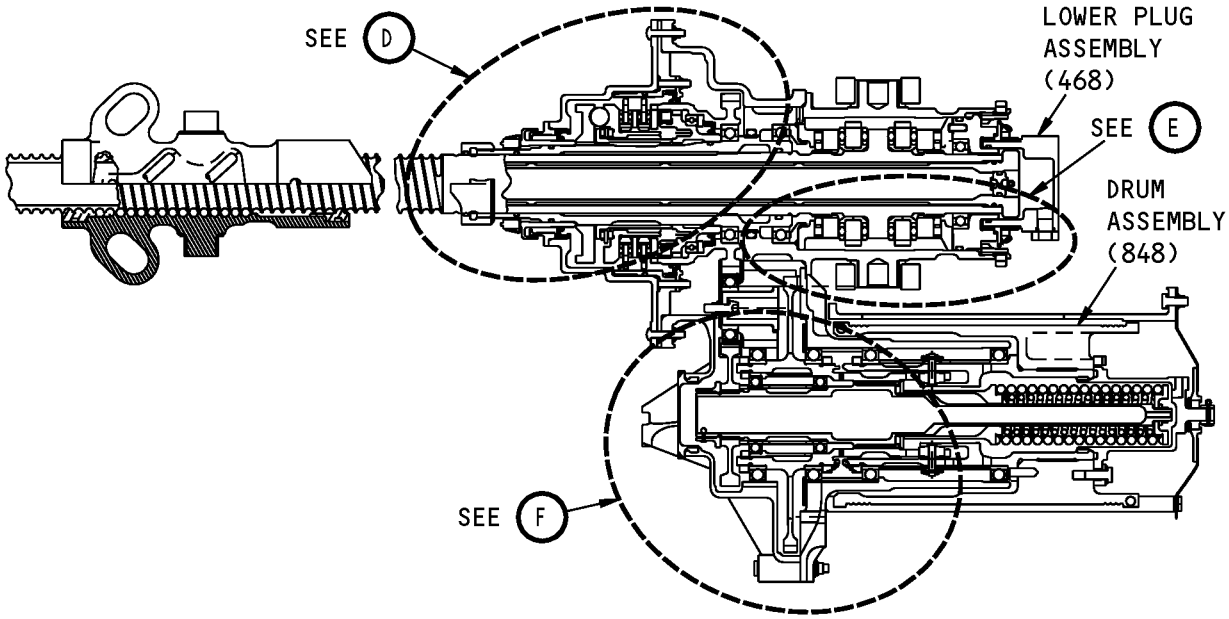


251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 2 of 11)

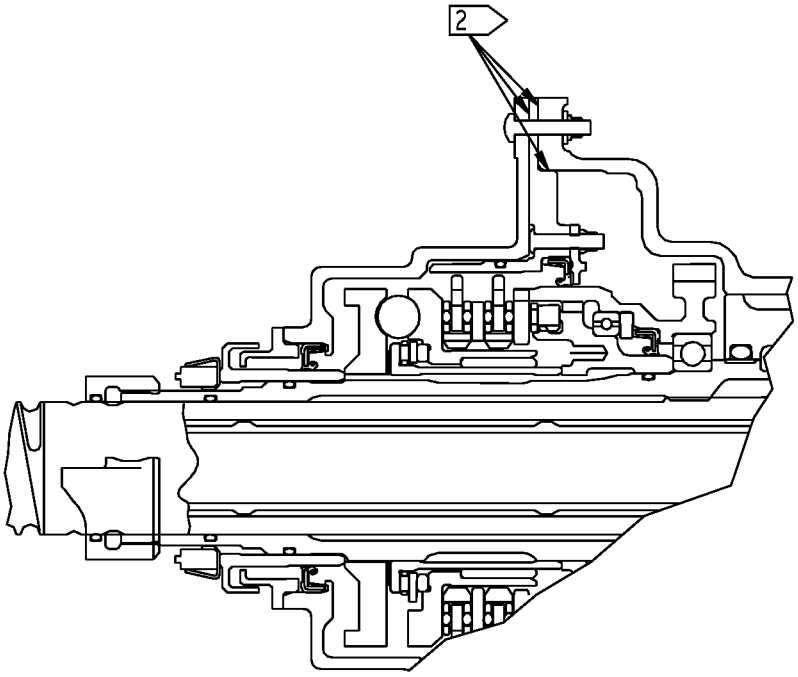


A–A

251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 3 of 11)

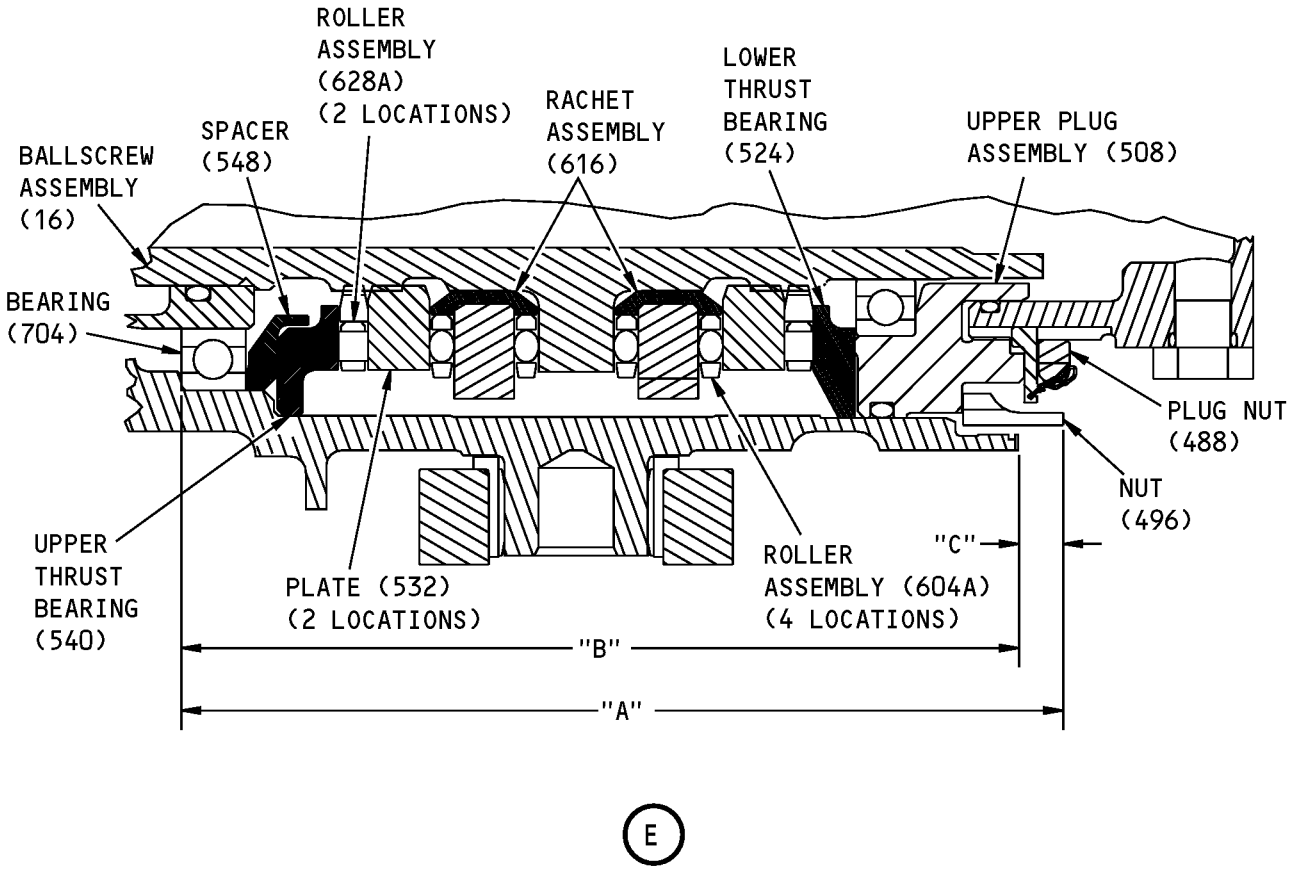


B–B

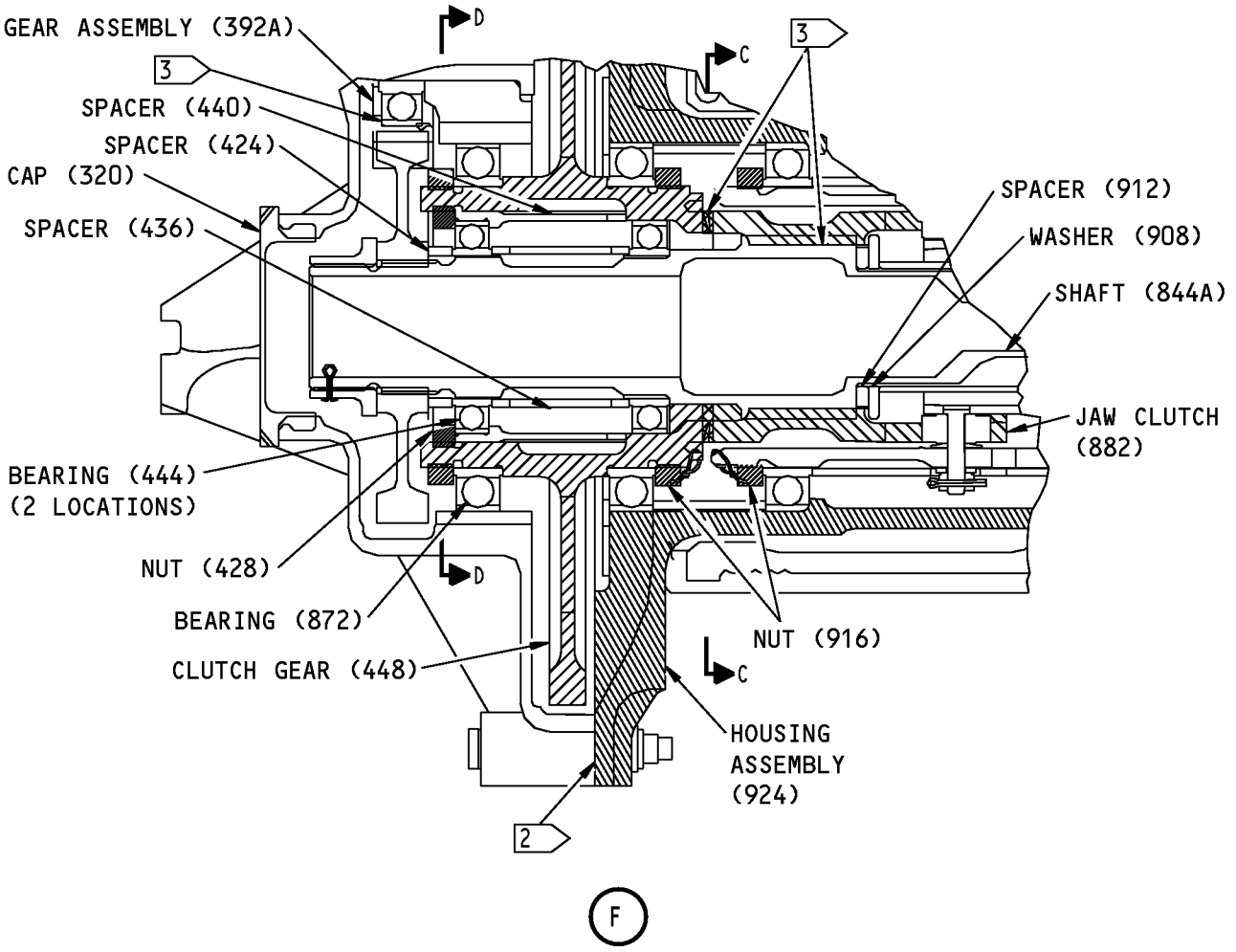


D

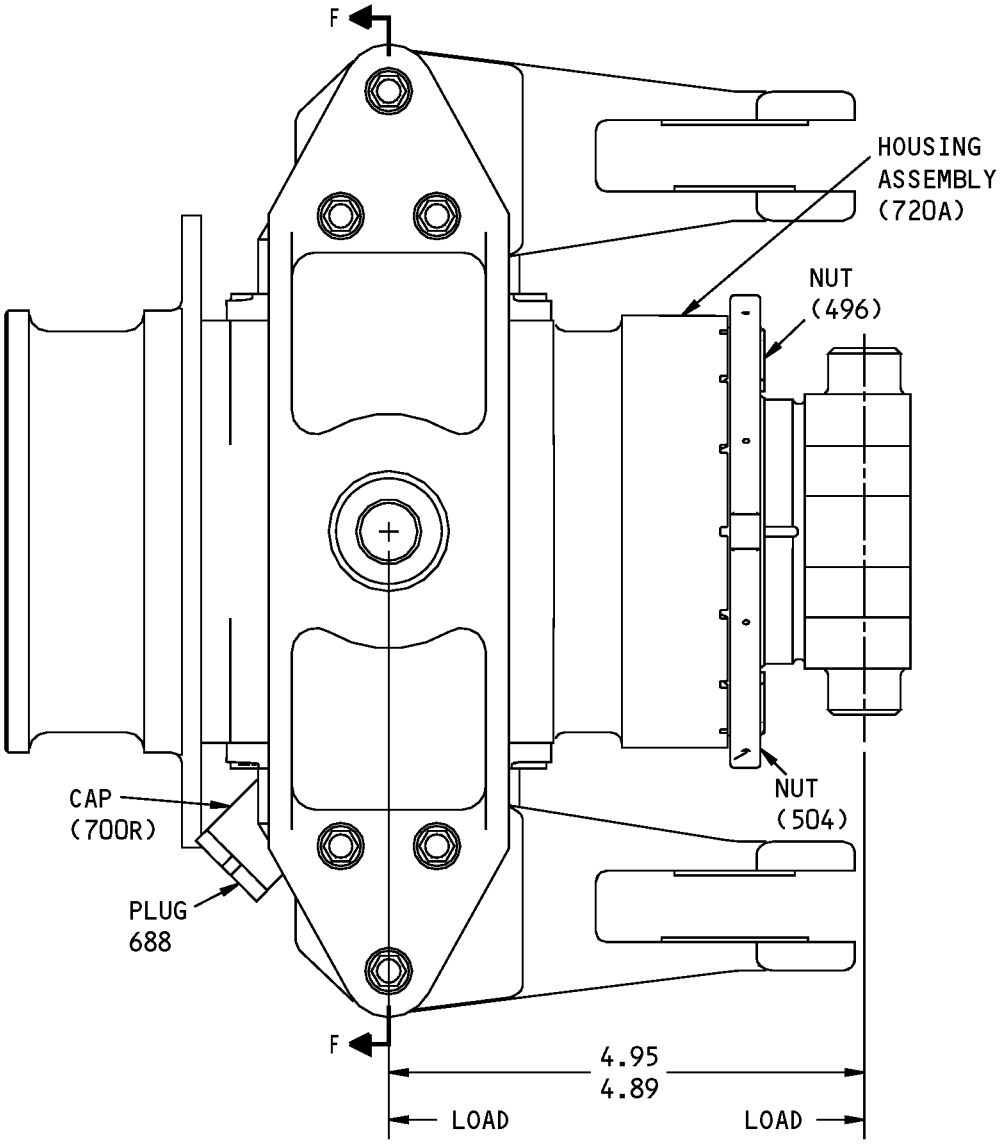
251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 4 of 11)



251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 5 of 11)

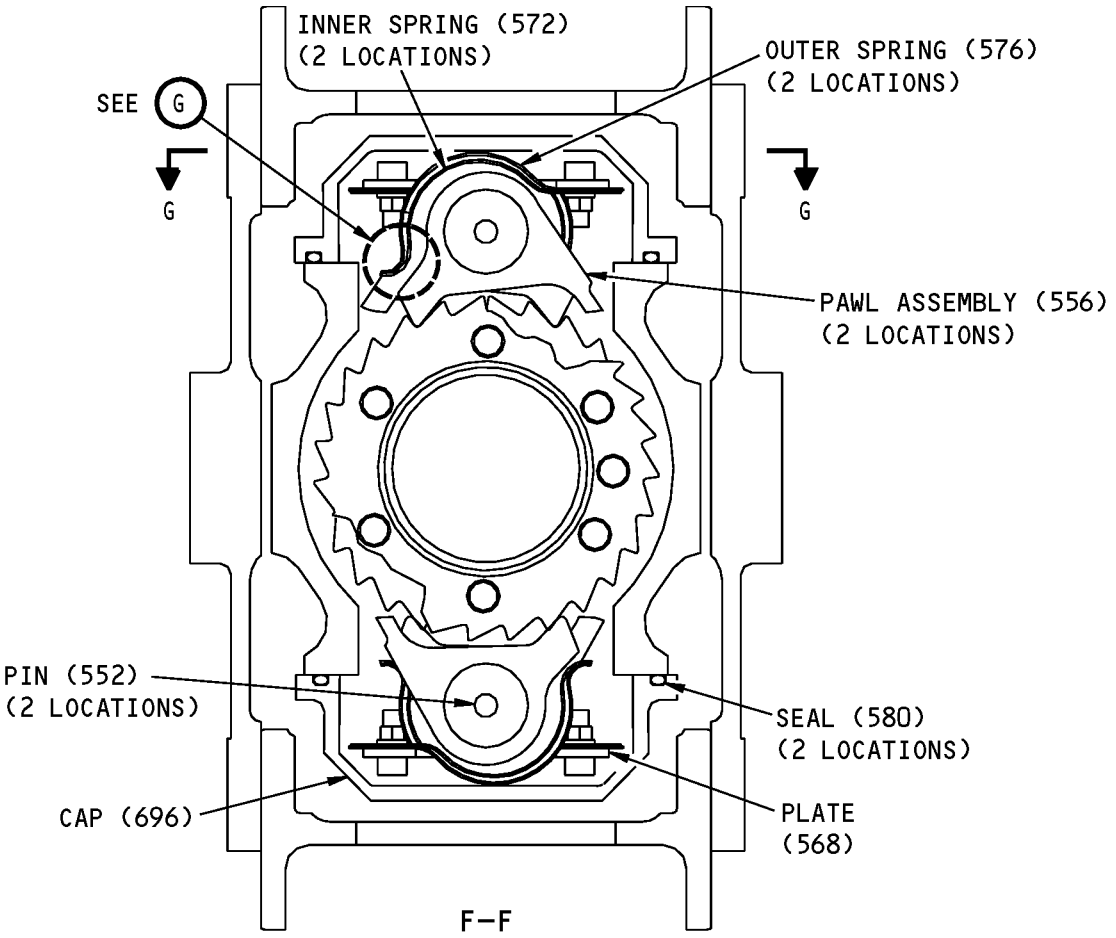


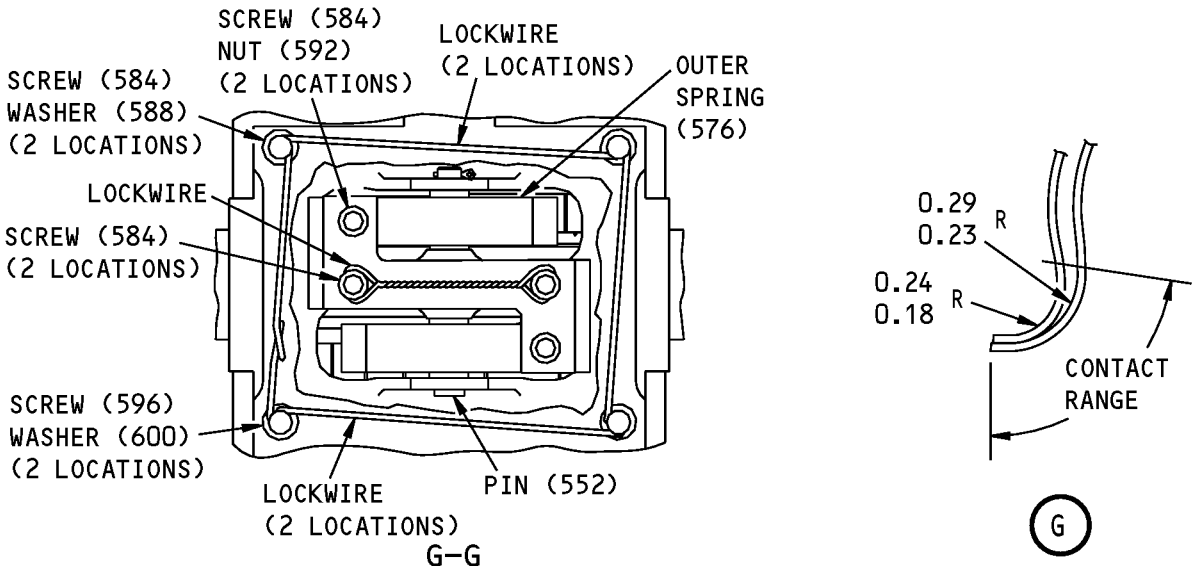
251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 6 of 11)



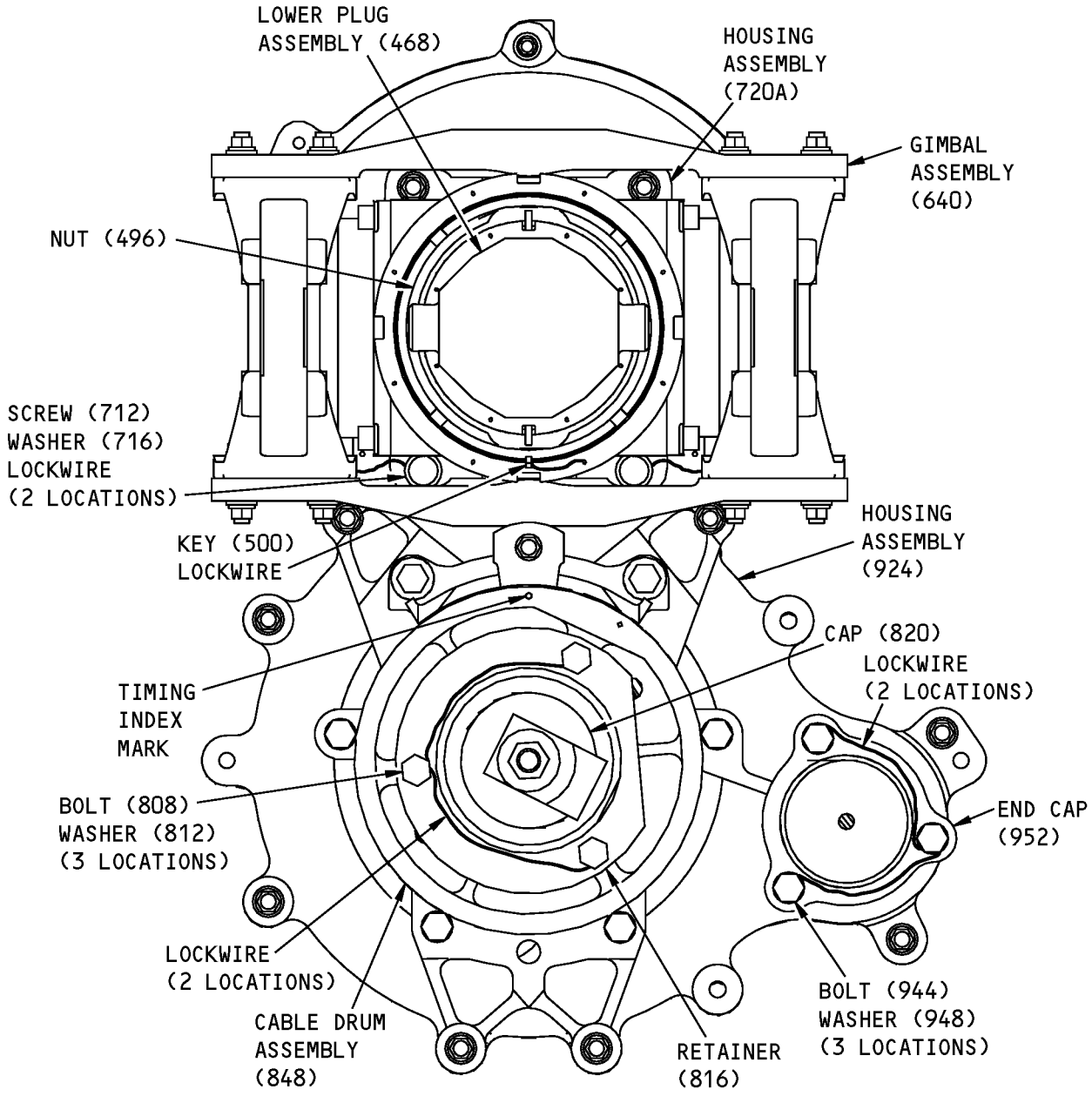
E–E

251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 7 of 11)



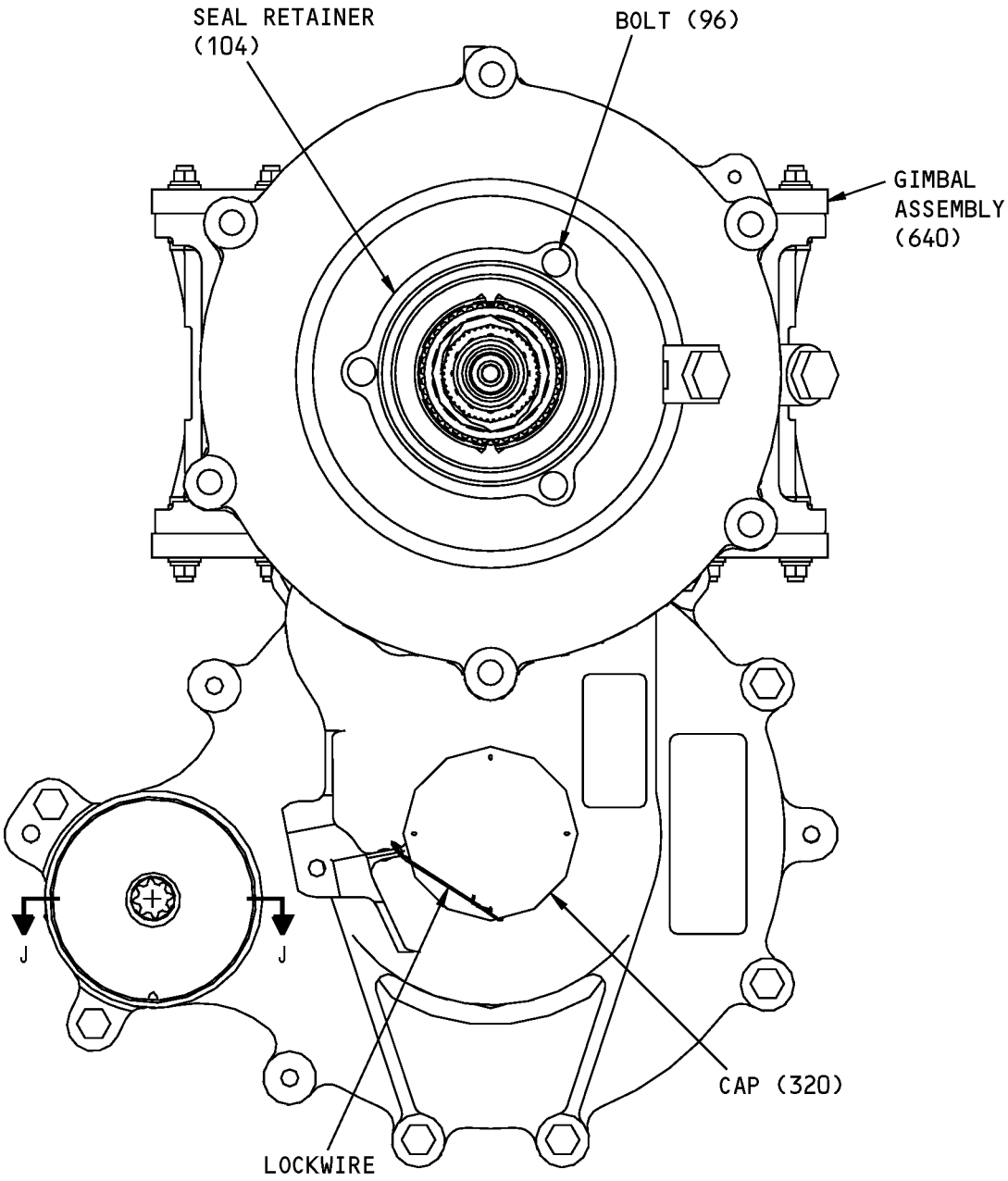


251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 8 of 11)



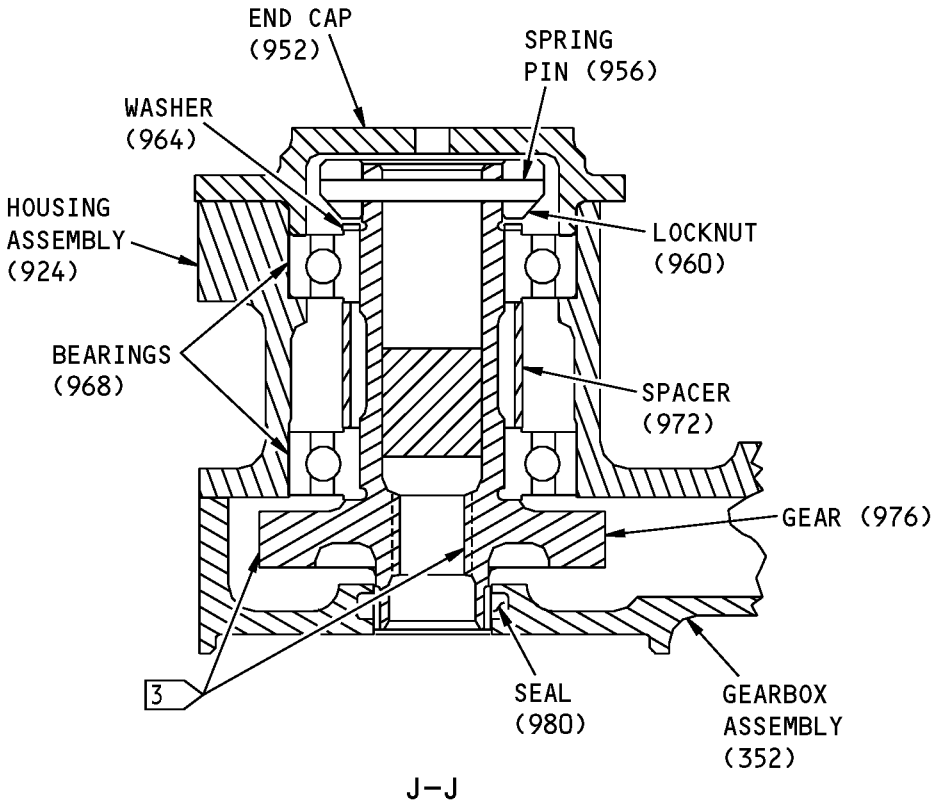
H–H

251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 9 of 11)



I-I

251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 10 of 11)



1 BEFORE THIS DIMENSION IS CHECKED, MAKE SURE THE LOWER STOP AND BALLNUT ARE INDEXED CORRECTLY.

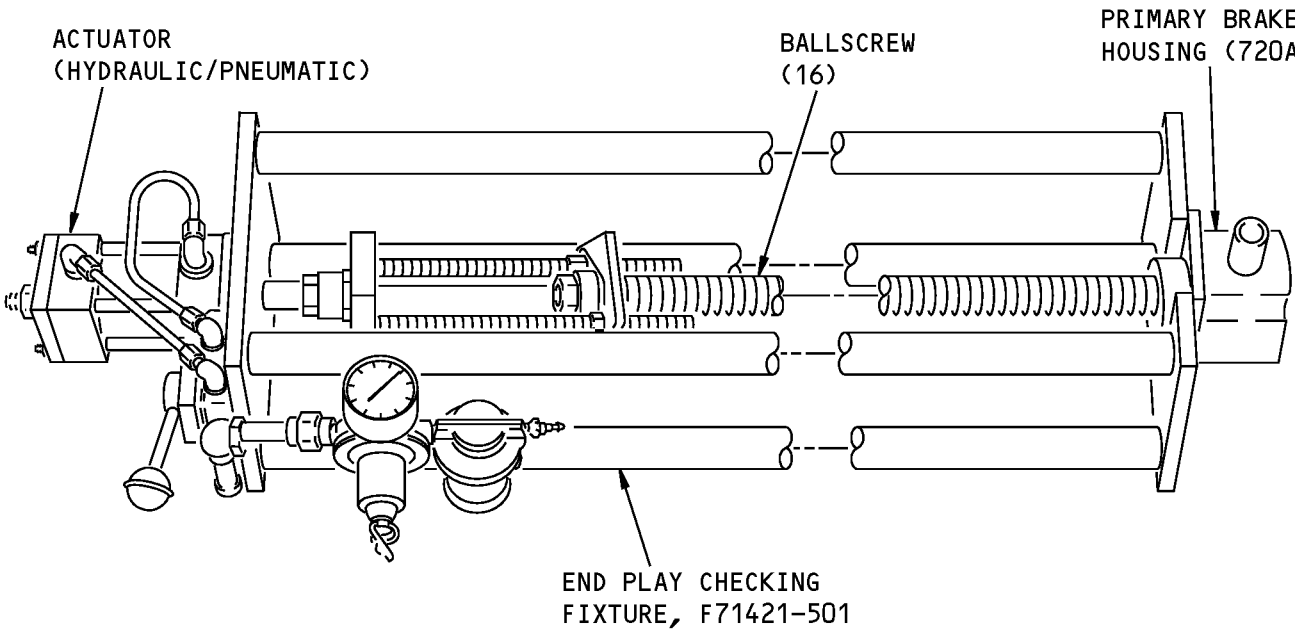
2 APPLY BMS 3-27 COMPOUND TO THIS SURFACE.

3 APPLY BMS 3-33 GREASE TO THIS SURFACE.

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

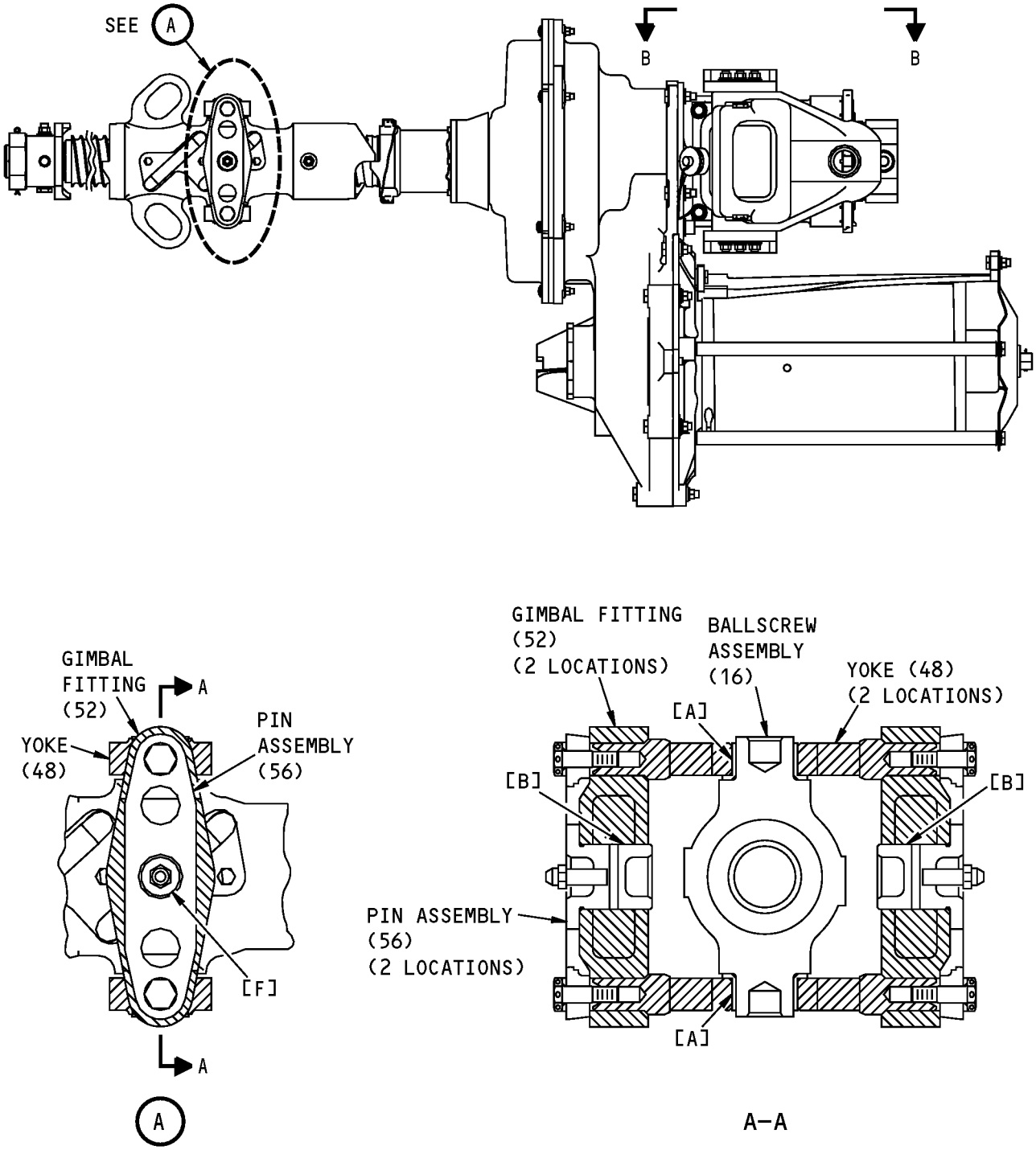
251A4510-6, -9, -10, -11, -13 Assembly Details
Figure 705 (Sheet 11 of 11)



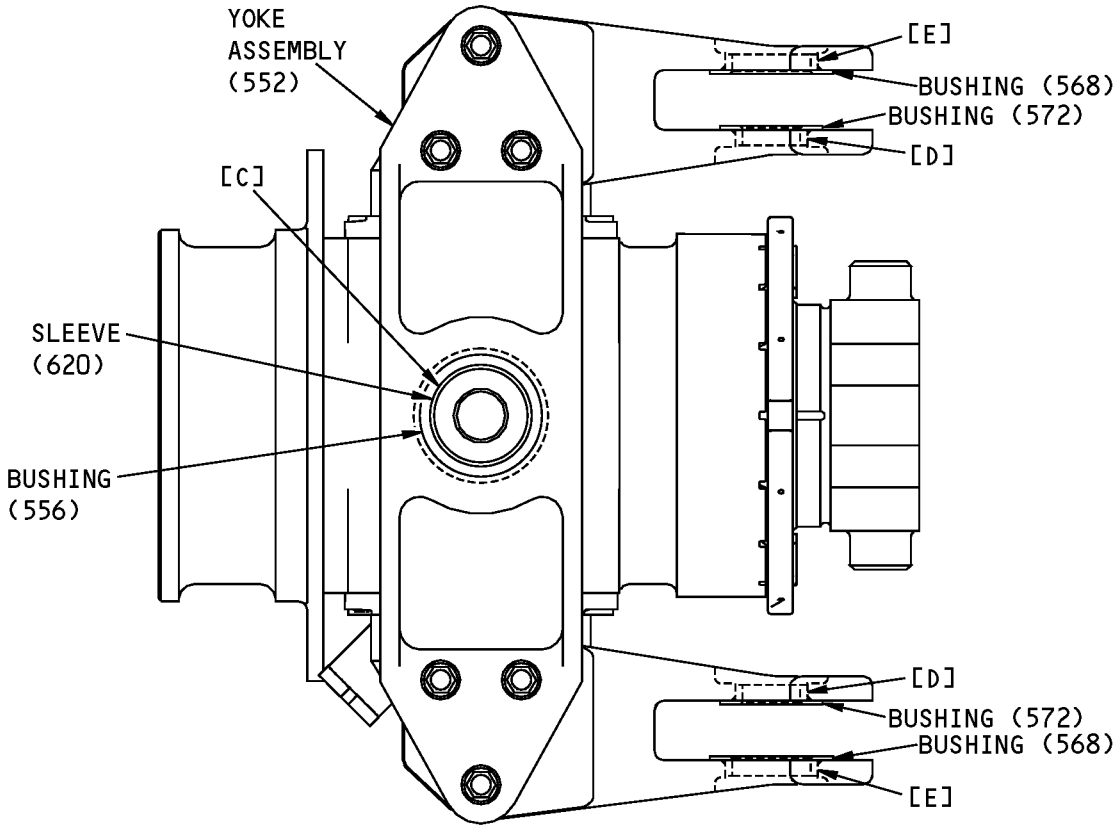
ITEM NUMBERS REFER TO IPL FIG. 2

End Play Check
Figure 706

FITS AND CLEARANCES



251A4510-4,-5 Fits and Clearances
Figure 801 (Sheet 1 of 3)



B–B

251A4510-4,-5 Fits and Clearances
Figure 801 (Sheet 2 of 3)

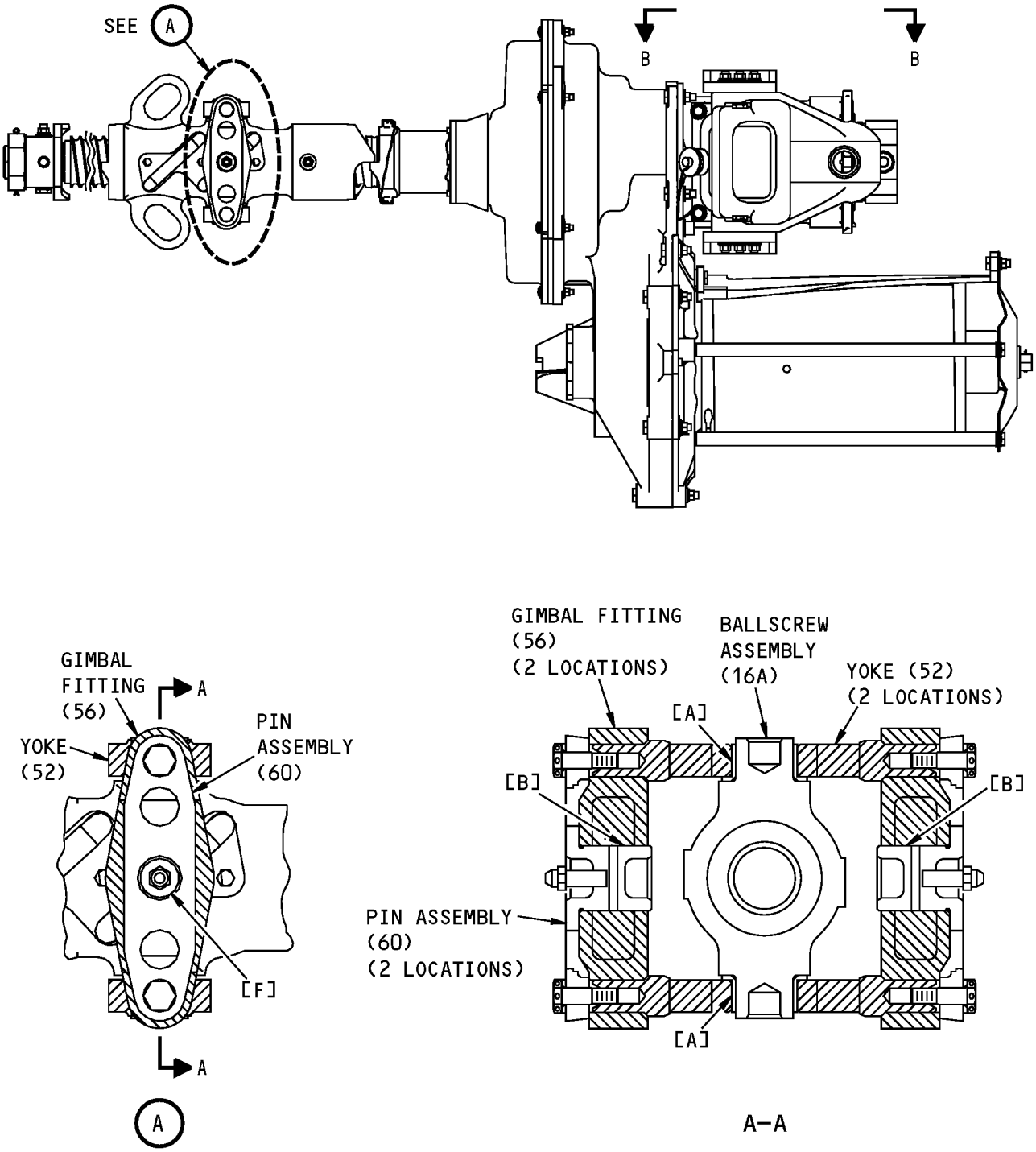
REF LETTER	REF IPL FIG. 1 MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[A]	ID 48	1.000	1.001	0.001	0.003		1.002	0.005
	OD 16	0.998	0.999			0.996		
[B]	ID 52	1.000	1.001	0.001	0.003		1.002	0.005
	OD 56	0.998	0.999			0.997		
[C]	ID 556	1.240	1.241	0.001	0.003		1.244	0.005
	OD 620	1.238	1.239			1.237		
[D]	ID 572	0.750	0.751	0.001	0.003		0.755	0.006
	OD 1	0.748	0.749			0.744		
[E]	ID 568	1.000	1.001	0.001	0.003		1.005	0.006
	OD 1	0.998	0.999			0.994		
[F]	ID 1	1.000	1.001	0.001	0.003		1.003	0.005
	OD 56	0.998	0.999			0.997		
---	-- 500	0.270 THICKNESS	0.275	---	---	0.260	---	---

* ALL DIMENSIONS ARE IN INCHES

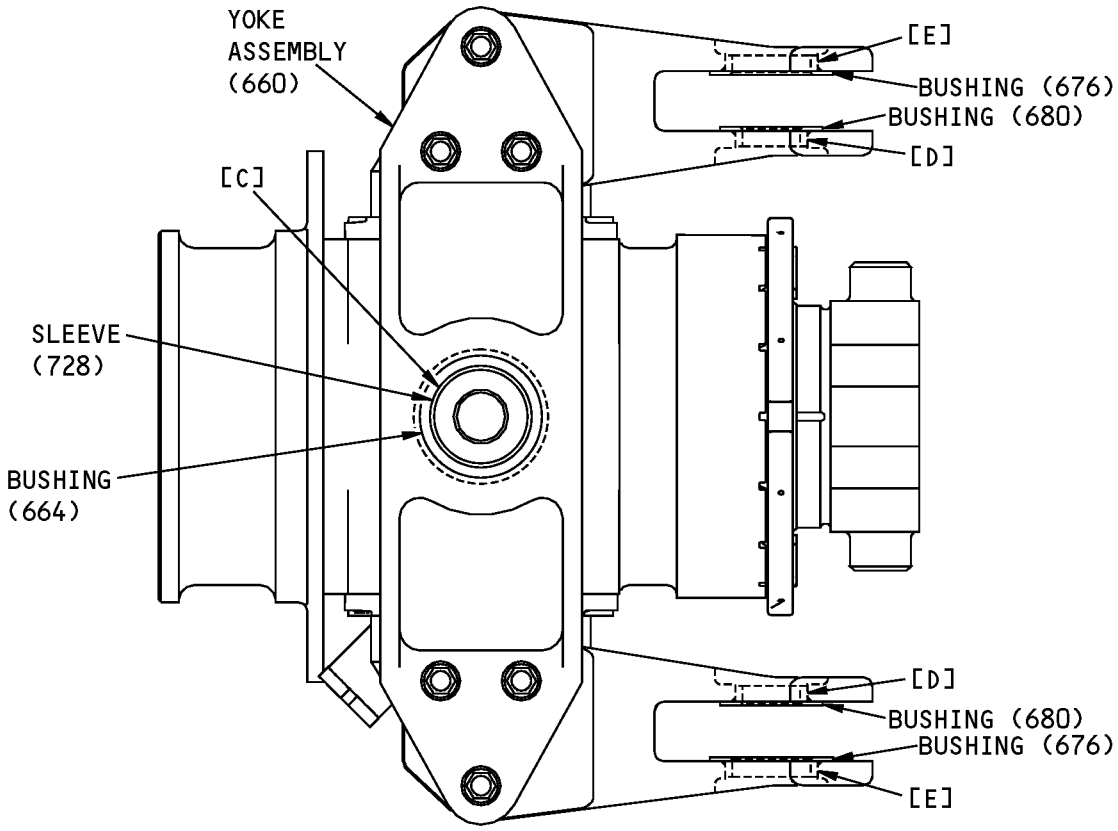
1 INSTALLATION PART

ITEM NUMBERS REFER TO IPL FIG. 1

251A4510-4,-5 Fits and Clearances
Figure 801 (Sheet 3 of 3)



251A4510-6, -9, -10, -11, -13 Fits and Clearances
Figure 802 (Sheet 1 of 3)



B–B

251A4510-6, -9, -10, -11, -13 Fits and Clearances
Figure 802 (Sheet 2 of 3)

REF LETTER	REF IPL FIG. 2 MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[A]	ID 52	1.000	1.001	0.001	0.003		1.002	0.005
	OD 16A	0.998	0.999			0.996		
[B]	ID 56	1.000	1.001	0.001	0.003		1.002	0.005
	OD 60	0.998	0.999			0.997		
[C]	ID 664	1.240	1.241	0.001	0.003		1.244	0.005
	OD 728	1.238	1.239			1.237		
[D]	ID 680	0.750	0.751	0.001	0.003		0.755	0.006
	OD 1	0.748	0.749			0.744		
[E]	ID 676	1.000	1.001	0.001	0.003		1.005	0.006
	OD 1	0.998	0.999			0.994		
[F]	ID 1	1.000	1.001	0.001	0.003		1.003	0.005
	OD 60	0.998	0.999			0.997		

* ALL DIMENSIONS ARE IN INCHES

1 INSTALLATION PART

ITEM NUMBERS REFER TO IPL FIG. 2

251A4510-6, -9, -10, -11, -13 Fits and Clearances
Figure 802 (Sheet 3 of 3)

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

1. General

A. This section lists the special tools, fixtures, and equipment necessary for maintenance.

NOTE: Equivalent substitutes may be used.

Special Tools

Reference	Description	Part Number	Supplier
SPL-1684	Assembly - Wrench, Pinion Gear, Stabilizer Trim Actuator	F71267 Opt: F71252	81205 81205
SPL-5347	Gear retainer wrench	7MIT5-88439	81205
SPL-5379	Test Fixture, Brake Assembly, Stabilizer Trim Actuator Tool	C27026-24	81205
SPL-5381	Wrench - Retaining Nut, Stabilizer Trim Actuator	C27033-1	81205
SPL-5413	Stabilizer Trim Actuator Wrench Assembly	C27080-1 Opt: F70109	81205 81205
SPL-5414	Stabilizer Trim Actuator Jig Assembly	F70167-1	81205
SPL-5416	Wrench - Spanner, Bearing Retainer Nut	F71290-1	81205
SPL-5417	Wrench - Spanner, Bearing Retainer Nut	F71290-7	81205
SPL-5418	Stab Trim Actuator Spring Compressor	F71291-500	81205
SPL-5420	End Play Check, Stab Trim Actuator Hydraulic Fixture	F71421-501	81205
SPL-5421	Cable Tension, Stabilizer Trim Actuator Test Apparatus	Opt: F71422-839	81205
SPL-5430	Face Spanner Lug Wrench Assembly	F80053-1	81205
SPL-5437	Ball Nut/Screw Assembly Stabilizer Trim Torque Socket	F80249-7	81205
SPL-5698	Holder - Stabilizer Trim Jackscrew Ballnut and Screw Assembly	F72924-1	81205
SPL-8259	Wrench - Retaining Nut, Stabilizer Trim Actuator	C27033-5	81205
SPL-8260	Wrench - Retaining Nut, Stabilizer Trim Actuator	C27033-6	81205

Tool Supplier Information

CAGE Code	Supplier Name	Supplier Address
81205	THE BOEING COMPANY	17930 INTERNATIONAL BLVD. SOUTH SEATAC, WA 98188-4321 Telephone: 206-662-6650 Facsimile: 206-662-7145

ILLUSTRATED PARTS LIST

1. Introduction

A. The Illustrated Parts List (IPL) contains an illustration and a list of component parts you can repair or replace. The Illustrated Parts Catalog (IPC) shows how to use the Boeing part number system.

B. This shows how parts are related: The relation of each item to its next higher assembly (NHA) is shown in the NOMENCLATURE column. Use the indenture system that follows:

1 2 3 4 5 6 7

. Assembly

. Attaching parts for assembly

. . Detail parts for assembly

. . Subassembly

. . Attaching parts for subassembly

. . . Detail parts for subassembly

. . . Sub-subassembly

. . . Attaching parts for subassembly

. . . . . Details parts for sub-subassembly

Detail Installation Parts (Included only if installation parts may be sent to the shop as part of assembly)

C. Each top assembly is given one use code letter (A, B, C, etc.) in the USAGE CODE column. All subsequent component parts in the list can have one or more of the use code letters to show effectivity to top assemblies. A component part without a use code applies to all top assemblies.

D. An alphabetical letter is added after the item number for optional parts, parts changed by a Service Bulletin, configuration differences (except left-handed and right-handed parts), last engineering releases, and parts added between item numbers in a sequence. The alphabetical letter will not be shown on the illustration for equivalent parts of the same part number.

E. Color-coded parts are identified with a single digit alpha following the dash number or with ''SP'' suffix. If the ''SP'' suffix is used, it represents consolidation of all color codes applicable for a given usage which are not separately listed. Orders for color-coded parts should include the registry number of the airplane for which the parts are ordered.

F. If a part number is 15 characters long but will not fit in the part number column, the part number will be displayed with a ''~'' at the end of the line and will be continued on the next line. The ''~'' denotes that the part number continues on the next line.

G. Parts changed by a Service Bulletin are shown by PRE SB XXXX and POST SB XXXX added to the NOMENCLATURE column.

(1) When a new top assembly is added by a Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the top assembly level only. The configuration differences at the detail part level are shown by use code letters.

(2) When the top assembly part number is not changed by the Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the detail level.

H. Interchangeable Parts

Optional (OPT)	The part is optional to and interchangeable with other parts that have the same item number.
Replaces, Replaced by and not interchangeable with (REPLACES, REPLACED BY AND NOT INTCHG/W)	The part replaces and is not interchangeable with the initial part.
Replaces, Replaced by (REPLACES, REPLACED BY)	The part replaces and is interchangeable with, or is an alternative to, the initial part.

VENDOR CODES

Code	Name
01673	AIRDROME PRECISION COMPONENTS 3251 E AIRPORT WAY LONG BEACH, CALIFORNIA 90806-2407 FORMERLY AIRDROME PARTS CO
03766	
05939	FURON CO MECHANICAL SEAL DIV 7301 ORANGEWOOD AVE GARDEN GROVE, CALIFORNIA 92841-1411 FORMERLY FLUOROCARBON CO; FORMERLY IN LOST ALAMITOS, CA
06144	INDUSTRIAL TECTONICS BEARING CORP 18301 SOUTH SANTA FE AVENUE RANCHO DOMINGUEZ, CALIFORNIA 90221 FORMERLY IN COMPTON, CALIFORNIA
06725	AIR INDUSTRIES CORPORATION 12570 KNOTT STREET GARDEN GROVE, CALIFORNIA 92641-3932 FORMERLY AIR INDUSTRIES OF CALIF IN GARDENA, CALIF.
07484	ACCURATE BUSHING CO INC 443 NORTH AVENUE GARWOOD, NEW JERSEY 07027-1014 FORMERLY V83132 SMITH BRG DIV OF ACCURATE BUSHING CO
0PTK6	SPS TECHNOLOGIES INC AEROSPACE PRODUCTS DIV 5195 W 4700 SALT LAKE CITY, UTAH 94118 SEE V56878 SPS TECHNOLOGIES INC

Code	Name
11815	CHERRY AEROSPACE FASTENERS DIV OF TEXTRON 1224 EAST WARNER AVENUE PO BOX 2157 SANTA ANA, CALIFORNIA 92707-0157 FORMERLY IN LOS ANGELES, CALIF , FORMERLY CHERRY FASTENERS TOWNSEND DIV OF TEXTRON INC V71087
15653	ALCOA GLOBAL FASTENERS INC DIV KAYNAR PRODUCTS 800 S STATE COLLEGE BLVD FULLERTON, CALIFORNIA 92831-3001 FORMERLY VK6405 MICRODOT AEROSP LTD; FORMERLY KAYNAR TECH FORMERLY FAIRCHILD FASTENERS KAYNAR DIV
17446	HUCK INTL INC AEROSPACE FASTENER DIV 900 WATSON CENTER ROAD CARSON, CALIFORNIA 90745-4201 FORMERLY V32134 REXNORD INC; FORMERLY V97928 HUCK INTL
19232	
21335	TIMKEN US CORPORATION DIV FAFNIR 336 MECHANIC STREET LEBANON, NH 03766-0267 FORMERLY FAFNIR BRG AND TEXTRON INC FAFNIR DIV IN NEW BRITAIN, CONNECTICUT ; FORMERLY TORRINGTON CO THE SPECIAL PRODUCTS DIV SUB OF THE INGERSOLL-RAND CO V8D210 FORMERLY TORRINGTON CO FAFNIR BEARING DIV IN TORRINGTON, CT
21760	SCHATZ BEARING CORP 10 FAIRVIEW AVENUE PO BOX 1191 POUGHKEEPSIE, NEW YORK 12601-1312 FORMERLY FEDERAL BRG CO AND SCHATZ MFG CO V53268 FORMERLY SCHATZ MFG CO
30163	VALENTEC DAYRON INC 333 MAGUIRE BLVD PO BOX 140394 ORLANDO, FLORIDA 32814-0394
38443	MRC BEARINGS 402 CHANDLER STREET JAMESTOWN, NEW YORK 14701-3802 FORMERLY MARLIN-ROCKWELL CORP DIV TRW AND TRW INC

Code	Name
40920	MPB MINIATURE PRECISION BEARING DIV PRECISION PARK PO BOX 547 KEENE, NEW HAMPSHIRE 03431 FORMERLY MPB CORP AND MINIATURE BRG DIV MPB CORP
43991	FAG BEARING INCORPORATED 118 HAMILTON AVENUE STAMFORD, CONNECTICUT 06904 FORMERLY NORMA-HOFFMAN BEARING CORPORATION FORMERLY NORMA FAG BEARINGS CORPORATION
50632	KAMATICS CORP SUB OF KAMAN CORP 1335 BLUE HILLS ROAD BLOOMFIELD, CONNECTICUT 06002-1304
50808	UNITED SUPPLY CO INC 3676 S BROADWAY PLACE LOS ANGELES, CALIFORNIA 90007-4432
51814	SMALLEY STEEL RING CO 385 GILMAN AVE WHEELING, ILLINOIS 60090-5807
56878	SPS TECHNOLOGIES INC AEROSPACE AND INDUSTRIAL PRODUCTS DIV 301 HIGHLAND AVE JENKINTOWN, PENNSYLVANIA 19046 FORMERLY STANDARD PRESSED STEEL FORMERLY IN SALT LAKE, UTAH
5M902	ALCOA GLOBAL FASTENERS INC, DIV OF VOI-SHAN PRODUCTS 3000 W LOMITA BLVD TORRANCE, CALIFORNIA 90505-5103 FORMERLY FAIRCHILD INC INC FAIRCHILD AEROSPACE FASTENERS DIV
60380	TORRINGTON CO BEARINGS DIV SUBSIDIARY OF INGERSOLL-RAND CORP 59 FIELD STREET PO BOX 1008 TORRINGTON, CONNECTICUT 06790-1008 FORMERLY TORRINGTON BEARING COMPANY

Code	Name
62554	SIMMONDS MECAERO FASTENERS INC 1734 SEQUOIA AVENUE ORANGE, CALIFORNIA 92668
73197	HI-SHEAR TECHNOLOGY CORP 2600 SKYPARK DRIVE TORRANCE, CALIFORNIA 90509
78118	SPLIT BALL BEARING DIV OF MPB CORP HIGHWAY 4 LEBANON, NEW HAMPSHIRE 03766-7301
78189	ILLINOIS TOOL WORKS INC SHAKEPROOF DIVN ST CHARLES ROAD ELGIN, ILLINOIS 60120 FORMERLY SHAKEPROOF DIVN OF ILLINOIS TOOL WORKS B0025 FORMERLY SHAKEPROOF LOCK WASHER CO V77900
81205	BOEING CO THE 7755 EAST MARGINAL WAY PO BOX 3707 SEATTLE, WASHINGTON 98124
83086	NEW HAMPSHIRE BALL BEARING, INC HITECH DIVISION 172 JAFFREY ROAD PETERBOROUGH, NEW HAMPSHIRE 03458
91251	FREUDENBERG-NOK GENERAL PARTNERSHIP PLEASANT STREET PO BOX B BRISTOL, NEW HAMPSHIRE 03222-0501
92215	FAIRCHILD IND INC FAIRCHILD AEROSPACE FASTENER DIV 3010 W LOMITA BLVD TORRANCE, CALIFORNIA 90505-5102 FORMERLY VOI-SHAN IN CULVER CITY, CALIF
92563	MCGILL MFG CO INC BEARINGS DIV 909 LAFAYETTE STREET VALPARAISO, INDIANA 46383-4210

Code	Name
97393	SHUR-LOK CORPORATION 2541 WHITE ROAD PO BOX 19584 IRVINE, CALIFORNIA 92623-9584 FORMERLY SHUR LOK CORP VB0060 FORMERLY IN SANTA ANA, CALIFORNIA 92714
9V013	TEXTRON INC FAFNIR BEARING DIV US RT 41 S CALHOUN, GEORGIA 30701-9145
A4147	UMBRA CUSCINETTI SPA VIA PIAVE 12 06034 FOLIGNO, ITALY
D2456	
F0224	SIMMONDS SA FAIRCHILD FASTENERS ST COSME ST COSME EN VAIRAIS F-72580, FRANCE
K8455	RHP BEARINGS PLC RHP AEROSPACE OLDENDS LANE STONEHOUSE GL10 3RM UK
U1068	DOWTY SEALS LTD ASHCHURCH, TEWKESBURY GLOS GL20 8JS ENGLAND

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
07322P000-01		1	16	1
07322P000-02		1	16B	1
		2	16A	1
07322P000-03		2	16B	1
07322P000-04		1	16C	1
		2	16D	1
07322P000-05		2	16C	1
		2	16E	1
		2	16F	1
07322P000-06		1	16D	1
10-62210-2		1	16	1
10-62210-3		1	16B	1
		2	16A	1
10-62210-4		2	16B	1
10-62210-5		1	16D	1
10-62210-6		2	16C	1
		2	16E	1
		2	16F	1
10-62210-7		1	16C	1
		2	16D	1
1002423607800		2	108A	1
		2	108C	1
1002423607900		2	292A	1
		2	292C	1
1002423903000		2	252A	1
		2	252D	1
1909-1B1-01		1	408A	1
		2	516	1
1909S		1	408A	1
		2	516	1
1913RRT1C1-01		1	140A	1
		1	252	1
		1	252B	1
		1	608	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1	608B	1
		2	704	2
251A4510-10		1	1G	RF
		2	1B	RF
251A4510-11		1	1H	RF
		2	1C	RF
251A4510-13		1	1J	RF
		2	1D	RF
251A4510-4		1	1C	RF
251A4510-5		1	1D	RF
251A4510-6		1	1E	RF
		2	1	RF
251A4510-7		1	882	1
251A4510-8		1	884	1
251A4510-9		1	1F	RF
		2	1A	RF
251A4515-1		1	432	4
251A4515-3		1	432A	4
		2	556	4
251A4520-1		1	440	1
		2	564	1
251A4530-2		1	532	1
		2	640	1
251A4531-1		1	564	2
		2	672	2
251A4531-2		1	576	1
		2	684	1
251A4531-4		1	576A	1
		2	684A	1
251A4535-1		1	552	2
		2	660	2
251A4535-2		1	560	1
		2	668	1
251A4535-4		1	560A	1
		2	668A	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
251A4540-1		1	556	1
		2	664	1
251A4550-1		1	736	1
		2	848	1
251A4554-1		1	748	1
		2	860	1
251A4554-2		1	756	1
		2	868	1
251A4555-10		2	364B	1
251A4555-11		2	352B	1
251A4555-4		1	288A	1
		2	352	1
251A4555-5		1	300A	1
		2	364	1
251A4555-6		1	288B	1
		2	352A	1
251A4555-7		1	300B	1
		2	364A	1
251A4555-8		1	302	1
		2	372	1
251A4556-1		1	812	1
		2	924	1
251A4556-2		1	828	1
		2	940	1
251A4560-10		2	732B	1
251A4560-3		1	616	1
251A4560-4		1	624	1
251A4560-5		1	616A	1
251A4560-6		1	624A	1
251A4560-7		2	720A	1
		2	720B	1
251A4560-8		2	732A	1
251A4560-9		2	720C	1
251A4565-1		1	620	2
		2	728	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
251A4570-1		1	248	1
251A4580-1		1	660	1
		2	772	1
251A4581-1		1	680	1
		2	792	1
251A4590-10		2	997B	1
251A4590-2		1	900	1
		2	994	1
		2	994A	1
251A4590-4		1	902	1
251A4590-5		1	902A	1
251A4590-6		2	996	1
251A4590-7		2	997	1
251A4590-8		2	994B	1
251A4590-9		2	997A	1
251A4630-1		1	508	1
251A4630-2		1	520	1
251A4640-1		1	480	1
251A4640-2		1	492	1
251A4650-1		1	504	2
251A4660-2		1	600	1
251A4670-3		1	404	1
251A4670-4		1	412	1
251A4675-1		1	384	1
		2	488	1
251A4680-3		1	368	1
251A4680-4		1	376	1
251A4680-5		1	368A	1
		2	468	1
251A4680-6		1	376A	1
		2	480	1
251A4685-2		1	388	2
		2	492	2
251A4801-1		1	426	1
		2	548	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
251A4802-1		1	423	1
		2	540	1
251A4803-1		1	414	1
		2	524	1
251A4804-1		1	418	2
		2	532	2
251A4805-1		1	497	4
251A4805-2		1	499	1
		2	612	1
251A4805-3		1	497A	4
		2	604A	4
251A4806-1		1	501	2
		2	616	2
251A4806-2		1	503	1
		2	624	1
251A4807-1		1	502	2
		2	620	2
251A4808-1		1	886	2
251A4808-2		1	888	2
		2	536A	2
251A4809-1		1	894	2
251A4809-2		1	898	1
251A4809-3		1	894A	2
		2	628A	2
251A4809-4		1	898A	1
		2	636A	1
251A4810-1		1	404A	1
		2	508	1
251A4810-2		1	412A	1
		2	520	1
251A4811-1		2	208	4
		2	208B	4
251A4811-2		2	216	1
251A4811-3		2	208A	4
251A4811-4		2	216A	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
251A4812-1		2	180	1
251A4812-2		2	188	1
251A4813-1		2	201	1
251A4814-1		2	152	1
		2	152A	1
251A4814-2		2	152B	1
251A4815-1		2	200	1
251A4815-2		2	202A	1
251A4815-3		2	202	1
251A4816-1		2	220	2
251A4817-1		2	224	1
251A4818-1		2	228	1
251A4819-1		2	272	1
251A4820-1		2	176	1
251A4821-1		2	232	2
251A4822-1		2	244	1
251A4823-1		2	300	1
251A4823-2		2	308	1
251A4824-1		2	284	1
251A4825-1		2	276	1
251A4826-1		2	288	1
251A4827-1		2	192	1
251A4828-1		2	160	AR
251A4828-2		2	164	AR
251A4828-3		2	168	AR
251A4828-4		2	172	AR
251A4829-1		2	136	1
251A4829-2		2	148	1
251A4830-1		2	256	1
251A4831-1		2	260	1
251A4831-2		2	268	1
251A4832-1		2	92	1
251A4833-1		2	88	1
251A4834-1		2	76	1
251A4835-1		2	104	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
251A4836-1		2	149	1
251A4837-1		2	150	1
251A4838-1		2	151	1
251A4839-1		2	700A	1
251A4839-3		2	701	1
251A4839-4		2	702	1
251A4839-5		2	702R	1
251A4839-6		2	700R	1
251A4840-1		1	498A	20
		2	608A	20
251A4840-2		1	896A	22
		2	632B	22
251A4841-1		2	184A	28
		2	212A	36
		2	264A	36
256W3054-1		1	409	1
		1	618	1
		2	512	1
		2	724	1
2738MSDE		2	608C	20
2739MDSE		2	632D	22
30-2414-1		1	860	1
		2	972	1
30-2489		1	796	1
		2	908	1
30-2493-1		1	348	1
		2	436	1
30-2531		1	808	1
		2	920	1
30-2538-1		1	352	1
		2	440	1
30-2661		1	328	1
30-2661-1		2	416A	1
30-2668-1		1	428	2
		2	552	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
30-3564		1	784	4
		2	904	4
30-3565		1	776	4
		2	890	4
3515-36-02-0541		1	852	1
		2	964	1
3AFC512		1	780	4
		2	896	4
		2	896B	4
480147550-1		1	100	1
50-3132-3		1	360	1
		2	448	1
5RM5X8-3		2	608B	20
5RM6X7		2	632C	22
60-3114		1	340	1
		2	428	1
60-3286-1		1	364	1
		2	456	1
60-4005		1	444	2
		2	568	2
6009FTT		1	408	1
65-19383-3		1	644	1
		2	756	1
65-19471-5		1	744	1
		2	856	1
65-39591-3		1	708	1
		2	820	1
65-49966-1		1	56	2
		2	60	2
65-49966-2		1	57	1
		2	62	1
65-49974-1		1	596	1
		2	701R	1
65-49974-2		1	592	1
		2	696	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
65-56636-1		1	64	1
65C29264-1		1	32	1
		2	36	1
65C34609-3		1	132A	1
65C34610-1		1	136	1
65C34611-2		1	188	1
65C34612-1		1	168	1
65C34612-2		1	180	1
65C34613-5		1	184	1
65C34613-6		1	184A	1
65C34613-7		1	184B	1
65C34615-1		1	80	1
65C34615-2		1	88	1
65C34616-4		1	192A	1
65C34617-1		1	120	1
65C34618-1		1	228	1
66-12615-1		1	664	1
		2	776	1
66-12615-2		1	672	1
		2	784	1
66-12856-2		1	764	1
		2	876	1
66-13760-2		1	656	4
		2	768	4
66-13875-1		1	704	1
		2	816	1
66-19334-1		1	848	1
		2	960	1
66-23586-1		1	568	1
		2	676	1
66-23586-2		1	572	1
		2	680	1
66-24938-1		1	20	2
		2	20	2
66-9676		1	716	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		2	828	1
66-9677-1		1	728	1
		2	840	1
69-10020-2		1	732	1
69-10020-3		2	844A	1
69-13364-1		1	448	4
		2	572	4
69-13364-2		1	452	4
		2	576	4
69-36083		1	865	1
		2	977	1
69-36083-14		1	84	1
		2	304	1
69-37969-1		1	48	2
		2	52	2
69-37970-1		1	52	2
		2	56	2
69-39413-1		1	500	2
69-39652-2		1	392	1
		1	392A	1
		2	496	1
69-39652-3		1	392B	1
		2	496A	1
69-40222-3		1	400	1
		2	504	1
69-43426-1		1	60	2
69-44011-7		1	866	1
		2	978	1
69-44011-8		1	864	1
		2	976	1
69-45130-1		1	76	1
69-50831-1		1	320	1
		2	408	1
69-50832-1		1	336	1
		2	424	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
69-50913-1		1	256	1
		2	320	1
69-67128-1		1	344	1
		1	804	2
		2	432	1
		2	916	2
69-67299-1		1	128A	1
69-76287-1		1	724	1
		2	836	1
69-76288-1		1	720	1
		2	832	1
69-77238-1		1	800	1
		2	912	1
69-77732-1		1	580	1
69-77732-2		1	588	1
69-77851-1		1	124	1
69-77852-5		1	156S	4
69-77852-6		1	164A	1
69-77853-1		1	148	4
69-77854-1		1	172	4
69-77855-2		1	152	4
69-77856-2		1	224	1
69-77857-1		1	216	4
69-77858-1		1	200A	1
69-77859-1		1	196	1
69-77860-1		1	204	2
69-77861-2		1	208	1
69-77862-1		1	220	4
69-77862-3		1	212	1
69-77932-1		1	96	1
700-861-8862-99		2	292A	1
		2	292C	1
700-863-8862-99		2	252A	1
		2	252D	1
700-867-2272-99		2	108A	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		2	108C	1
90-3272-2		1	840	1
		2	952	1
90-3583-1		1	332	1
		2	420	1
90-3590		1	232	1
90-3590-0		1	232A	1
		2	392A	1
90-3590-1		1	244	1
		2	404	1
90-4037-3001		1	768	1
		2	882	1
9109PPFS428		1	408	1
9109RRT1C1-01		1	408	1
9309KPRB		1	408A	1
		2	516	1
9313PPPRBFS428		1	140A	1
		1	252	1
		1	252B	1
		1	608	1
		1	608B	1
		2	704	2
ACMKP16JAP510LY		1	240A	1
		2	400A	1
		2	968A	2
AMKP25BNJC		2	444A	2
AMKP49BNJC		2	872A	4
AN201KP6A		1	668	1
		2	780	1
AN814-4JL		1	589	2
		2	128	1
		2	460	1
		2	688	1
AN970-4		1	316	1
		2	388	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
AP1008-04DL		2	987	1
AS5169J04L		2	128B	1
		2	460B	1
		2	688A	1
ATF3		1	780	4
		2	896	4
		2	896B	4
ATF3T8		2	896A	4
		2	896C	4
BACB10BA45PP		1	408	1
BACB10BB45		1	408A	1
		2	516	1
BACB10BB65PP		1	140A	1
		1	252	1
		1	252B	1
		1	608	1
		1	608B	1
		2	704	2
BACB10BW25		1	356	2
		2	444	2
BACB10BW49		1	760	4
		2	872	4
BACB10BW68		1	144	2
BACB10BX16		1	856	2
		2	968	2
BACB10CB4		1	436B	1
		2	560A	1
BACB10ET03		1	780	4
		2	896	4
		2	896B	4
BACB10FR25J		2	444A	2
BACB10FR49J		2	872A	4
BACB10FS16J		1	240A	1
		2	400A	1
		2	968A	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACB10GT65NPPJ		1	252A	1
		1	608A	1
		2	704A	2
		2	704D	2
BACB10GT65NPPJC		2	704B	2
		2	704E	2
BACB10GT65PP		2	704C	2
BACB10HH03		2	896A	4
		2	896C	4
BACB10T1-36A		2	156	3
BACB30GY6-2		1	484	4
		1	512	4
BACB30LJ4-170		2	760A	4
BACB30LK3-35		2	64B	2
BACB30LM4H1		2	452A	4
BACB30NF4-170		1	648	4
		2	760	4
BACB30NM4HK3		1	832	3
		2	944	3
BACB30NM4HK4		1	696	3
		2	808	3
BACB30NM4HK7		2	44A	4
BACB30NR4HK7		1	40	4
BACB30NR4K12		1	536	12
		2	644	12
BACB30NR4K18		1	260A	2
		2	332	2
BACB30NR4K28		1	264A	2
		2	336	2
BACB30NR4K29		1	17A	1
BACB30NR4K4		1	626A	2
		2	736	2
BACB30NR4K5		1	628	1
		2	740	1
BACB30NR4K8		1	272	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		2	328	2
BACB30NR4K9		1	268	6
		2	324	6
BACB30NT3K10		2	112	5
		2	112B	5
BACB30NT3K11		2	116	1
		2	116B	1
BACB30NT3K12		1	104	5
BACB30NT3K13		1	108	1
BACB30NT3K2		2	96	3
		2	96B	3
BACB30VT6K10		2	236	4
BACB30ZG3-10		2	112C	5
BACB30ZG3-11		2	116C	1
BACB30ZG3-2		2	96C	3
BACB30ZG3-34		2	64A	2
BACC14AD04DL		2	987	1
BACC30BL6		2	240	4
BACE21AW0404W		2	985	1
BACI12AEF1-15P		2	140A	3
BACI12AEF5-20P		2	356C	2
		2	356D	2
BACI12AEF7-10P		2	144A	1
BACN10JD118		1	8	1
		2	8	1
BACN10JD3		1	792	4
		2	900	4
BACN10JD6		1	688	1
		2	800	1
BACN10RF36C		2	84	1
BACN10YR3CD		1	116	6
		1	468	4
		2	72A	2
		2	124	6
		2	592	4

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACN10YR4CD		1	19A	1
		1	284	12
		1	312	1
		1	548	12
		1	640	1
		2	348	12
		2	384	1
		2	656	12
		2	752	1
BACN10YR6CD		1	712	1
BACN11N6CD		2	824A	1
		2	824C	1
BACP18BC00C04P		1	424A	2
		2	544	2
BACP18BC02C04P		1	324	1
BACP18BC02C06P		1	772	4
		2	412B	1
		2	886	4
BACP18BC03C04P		1	324A	1
		1	324C	1
BACP18BC03C10P		1	714	1
		2	796	1
		2	823	1
BACP18BC04C16P		1	4	1
		2	4	1
BACP18BD1C9		2	413A	1
BACP18BE10C1375W		2	956A	1
BACP18BE12P1250U		2	40A	1
BACR12Y23		1	236	1
		2	396	1
BACR15BA4AD		1	301	2
		2	368	2
BACR15BA5D5C		1	676A	6
		2	788	6
BACS12HL3AH8		2	584A	12

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACS12HL4AH8		2	596A	4
BACS12HL5AH14		2	712A	2
BACW10BN4AC		1	276	12
		1	308	1
		1	540	12
		1	632	3
		2	340	12
		2	380	1
		2	648	12
		2	744	3
BACW10BN4AP		1	544	12
		2	652	12
BACW10BP3BP		2	71	2
BACW10BP3CD		2	70	2
BACW10BP4CD		1	44	4
		1	700	3
		1	836	3
		2	48	4
		2	812	3
		2	948	3
BACW10BP4DP		1	18A	2
BACW10BP5CD		1	614	2
		2	716	2
BACW10P69S		1	579	1
BACW10P73S		1	692	1
		2	804	1
BCREF157098		2	956A	1
BCREF157169		2	40A	1
C009RR1P29LY331		1	408A	1
		2	516	1
C009RRP0		1	408A	1
		2	516	1
C013RRP0ZZ		1	140A	1
		1	252	1
		1	252B	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1	608	1
		1	608B	1
		2	704	2
C013RRPP1P311LY		1	252B	1
		1	608B	1
		2	704	2
C013RRPP1P311LY19		1	140A	1
		1	252	1
		1	608	1
C109RRP0ZZ		1	408	1
C109RRPP1P29LY196		1	408	1
CS216E		1	856	2
		2	968	2
DPP4		1	436B	1
		2	560A	1
DPP4A4135		1	436	1
		1	436A	1
		2	560	1
DPP4FS428		1	436B	1
		2	560A	1
DPP4SD610		1	436B	1
		2	560A	1
FAG594037		2	896A	4
		2	896C	4
H52732-3CD		1	116	6
		1	468	4
		2	72A	2
		2	124	6
		2	592	4
H52732-4CD		1	19A	1
		1	284	12
		1	312	1
		1	548	12
		1	640	1
		2	348	12

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		2	384	1
		2	656	12
		2	752	1
H52732-6CD		1	712	1
HST10AG6-10		2	236	4
		2	236	4
		2	236	4
		2	236	4
HST79-6		2	240	4
HST79CY6		2	240	4
		2	240	4
		2	240	4
KB035CP0		2	280	1
KJB313905V		1	160	2
KJB314704V		1	176	4
KP16A		1	856	2
		1	856	2
		2	968	2
		2	968	2
KP16A2TS		1	856	2
		2	968	2
KP16AE		1	856	2
		2	968	2
KP16AFS428		1	856	2
		2	968	2
KP16AG27		1	856	2
		2	968	2
KP16ALY196		1	856	2
		2	968	2
KP16ANCJ		1	856	2
		2	968	2
KP16AP		1	856	2
		2	968	2
KP16ASD610		1	856	2
		2	968	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
KP25B		1	356	2
		2	444	2
KP25B2TS		1	356	2
		2	444	2
KP25BFS428		1	356	2
		2	444	2
KP25BG27		1	356	2
		2	444	2
KP25BLY196		1	356	2
		2	444	2
KP25BSD610		1	356	2
		2	444	2
KP49B		1	760	4
		2	872	4
KP49B2TS		1	760	4
		2	872	4
KP49BFS428		1	760	4
		2	872	4
KP49BLY196		1	760	4
		2	872	4
KP49BSD610		1	760	4
		2	872	4
KP68B2TS		1	144	2
KP68BFS428		1	144	2
KP68BLY196		1	144	2
KP68BSD610		1	144	2
LLDPP4		1	436B	1
		2	560A	1
LLKP16A		1	856	2
		2	968	2
LLKP25B		1	356	2
		2	444	2
LLKP49B		1	760	4
		2	872	4
M25988-1-110		1	590A	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		2	132	1
		2	464	1
		2	692A	1
M25988-1-160		2	248	1
M83461-1-211		1	868B	1
		2	980	1
M83461-1-238		1	456A	2
		2	580	2
MS14144-6		2	824B	1
MS15001-2		1	58	1
		2	61	1
MS16562-51		1	36	1
		2	40	1
MS20004-4		1	304	1
		2	376	1
MS20392-1C9		2	413	1
MS20426D5-5		1	676B	6
		2	788A	6
MS21042L4		1	19	1
MS21209F1-10		1	584	1
MS21209F1-15P		2	140	3
MS21209F4-10L		1	372	2
		2	472	2
MS21209F4-10P		1	820	4
		2	932	4
MS21209F4-15		1	752	3
		2	864	3
MS21209F4-15P		1	824	6
		2	936	6
MS21209F4-20P		1	816	3
		2	356B	2
		2	928	3
MS21209F5-20P		1	292A	2
		2	356A	2
MS21209F7-10L		1	374	1

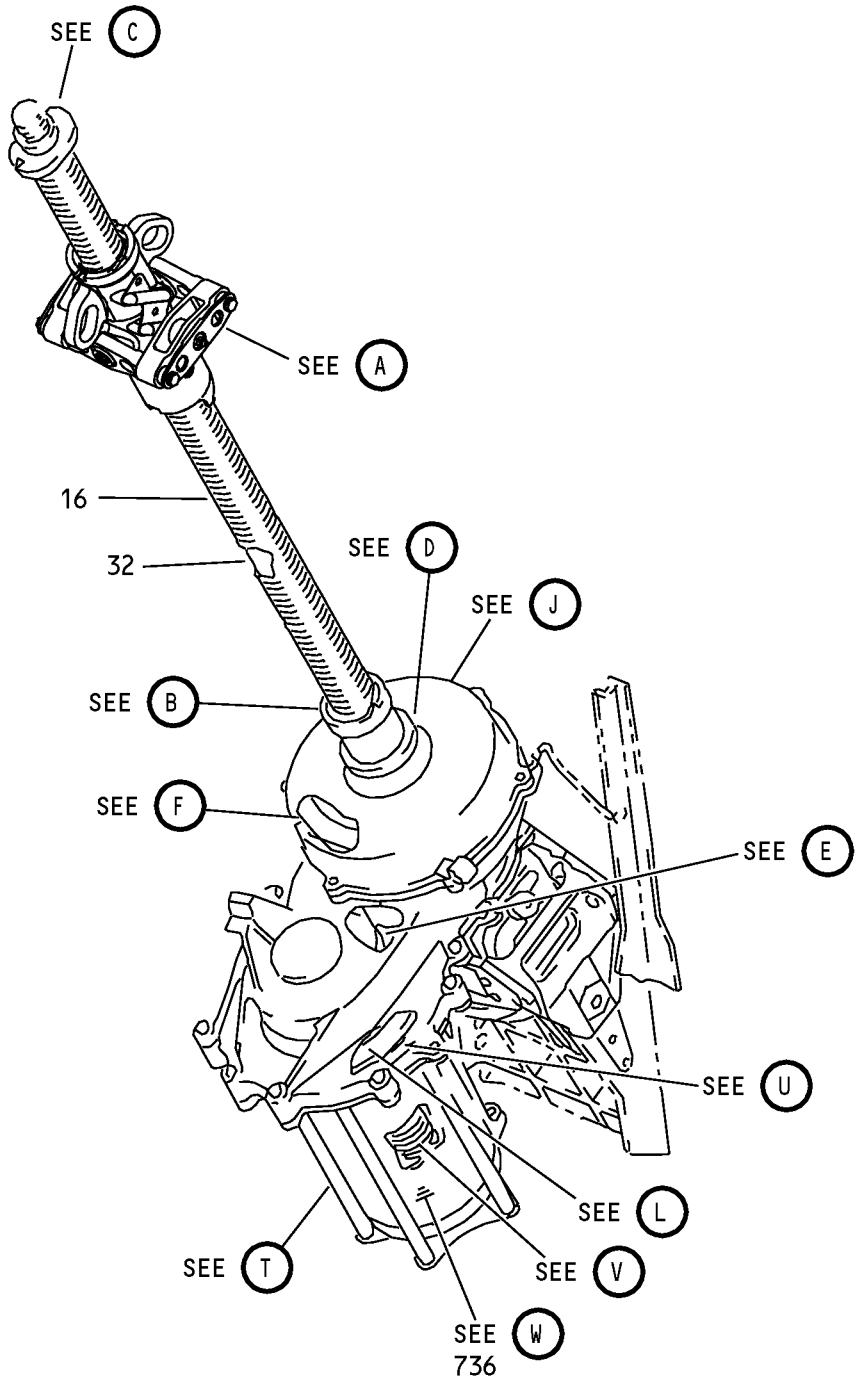
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		2	476	1
MS21209F7-10P		2	144	1
		2	700N	1
		2	702L	1
MS21916D4-2		2	981	1
MS21916W4-2		2	981A	1
MS24585C158		1	496	6
MS24665-281		1	324B	1
		1	324D	1
MS28778-2		2	983	1
MS28778-4		1	577	1
		2	701L	1
MS29513-113		1	24	2
		2	24	2
MS29513-120		1	28	1
		2	28	1
MS29513-123		1	30	1
		2	32	1
MS29513-132		1	68	1
		2	80	2
MS29513-137		1	92	1
MS29513-138		1	380	1
		2	312	1
		2	484	1
MS29513-141		2	296	1
MS29513-225		1	604	1
MS29513-240		1	416	1
		2	528	1
MS29513-336		1	612	1
		2	708	1
NAS1080UK06		1	488	4
		1	516	4
NAS1149D0316J		1	788	4
		2	100	3
		2	894	4

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
NAS1149D0363J		1	112	6
		1	464	4
		2	120	6
		2	588	4
NAS1149D0416J		1	636	1
		2	748	1
NAS1149D0463J		1	280	8
		1	476	4
		1	652	4
		2	344	8
		2	600	4
		2	764	4
NAS1149F0332P		2	68	4
NAS1149F0463P		1	18	2
		1	282A	4
		2	346	4
NAS1149F0616P		2	823J	1
NAS1149F0632P		2	823M	1
NAS1149F1832P		1	12	1
		2	12	1
NAS1351-3H6P		1	578	1
NAS1351N3H8P		1	460A	12
		2	584	12
NAS1351N4H8P		1	472A	4
		2	596	4
NAS1351N5H14P		1	613A	2
		2	712	2
NAS1352N04H6P		1	72	6
NAS559-3		1	396	1
		2	500	1
NAS561CF5-22		1	844	1
		2	956	1
NAS607-4-5P		1	296A	2
		2	360	2
NAS607-4-6P		1	740	3

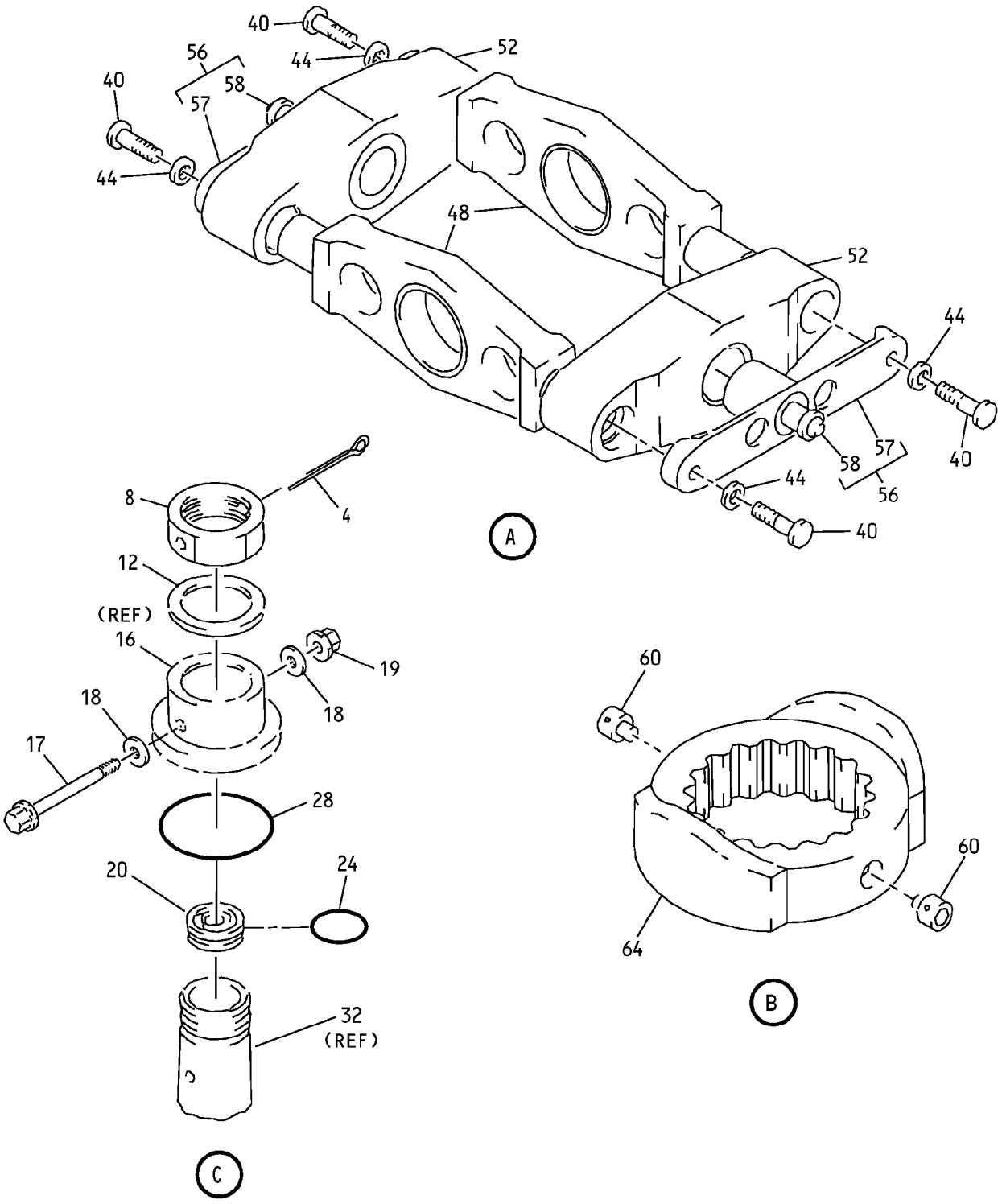
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		2	852	3
NAS623-3-10		2	112A	5
NAS623-3-11		2	116A	1
NAS623-3-13		1	108A	1
NAS623-3-2		2	96A	3
NAS623-3-34		2	64	2
NAS6604-29		1	17	1
NAS6604H1		1	362	4
		2	452	4
PACMKP16AFS428		1	240A	1
		2	400A	1
		2	968A	2
PACMKP16JAA3908		1	240A	1
		2	400A	1
		2	968A	2
PACMKP16JAFS428		1	240A	1
		2	400A	1
		2	968A	2
PACMKP25BFS428		2	444A	2
		2	444A	2
PACMKP49BFS428		2	872A	4
		2	872A	4
PHCR56CDBACN		2	824A	1
		2	824C	1
PKT009P1		1	408A	1
		2	516	1
PKTLL013P1		1	140A	1
		1	252	1
		1	252B	1
		1	608	1
		1	608B	1
		2	704	2
PKTLL109P1		1	408	1
PLH53CD		1	116	6
		1	468	4

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		2	72A	2
		2	124	6
		2	592	4
PLH54CD		1	19A	1
		1	284	12
		1	312	1
		1	548	12
		1	640	1
		2	348	12
		2	384	1
		2	656	12
		2	752	1
PLH56CD		1	712	1
R9109PPA4298		1	408	1
		1	408	1
R9309KA4298		1	408A	1
		2	516	1
R9309KPRBA4298		1	408A	1
		2	516	1
R9313PPPRBA4298		1	140A	1
		1	140A	1
		1	252	1
		1	252	1
		1	252B	1
		1	252B	1
		1	608	1
		1	608	1
		1	608B	1
		1	608B	1
		2	704	2
		2	704	2
RI6656B7A1		2	280A	1
RM5X8C1		1	498	20
RM6X6C1		1	896	22
S251A451-1		1	420	2

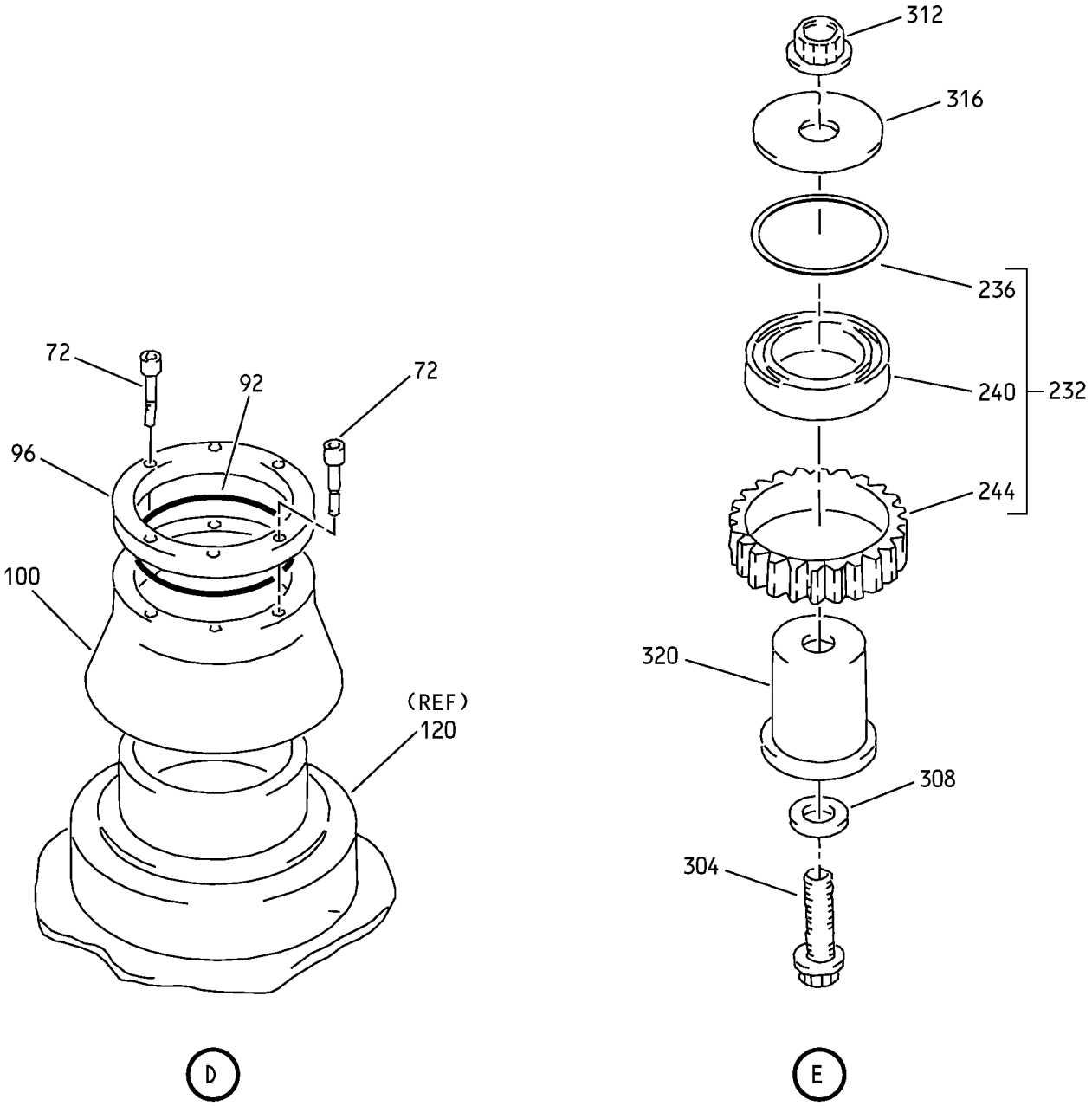
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
S256W410-102		2	252A	1
		2	252D	1
S256W410-18		2	108A	1
		2	108C	1
S256W410-19		2	292A	1
		2	292C	1
SAL100YT6-2		1	484	4
		1	484	4
		1	512	4
		1	512	4
SL2822-36C		2	84	1
SSMKP16JAP		1	240A	1
		2	400A	1
		2	968A	2
SSMKP16JASD705		1	240A	1
		2	400A	1
		2	968A	2
SSR0325S17		2	196A	1
STB035CB0BAC		2	280B	1
US2103-04DL		2	987	1
YAF03B		1	780	4
		2	896	4
		2	896B	4
YAF03XD		2	896A	4
		2	896C	4



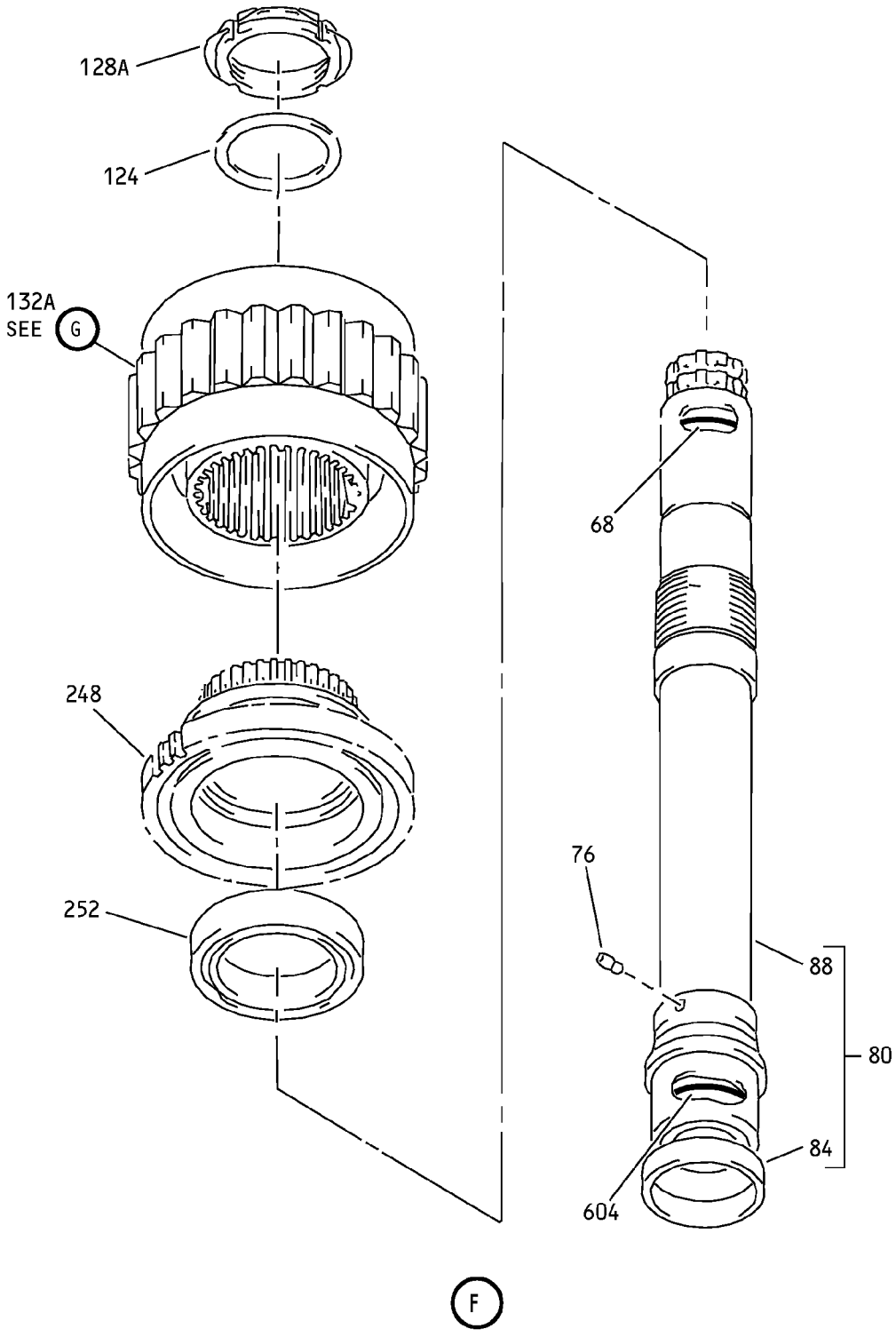
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 1 of 21)



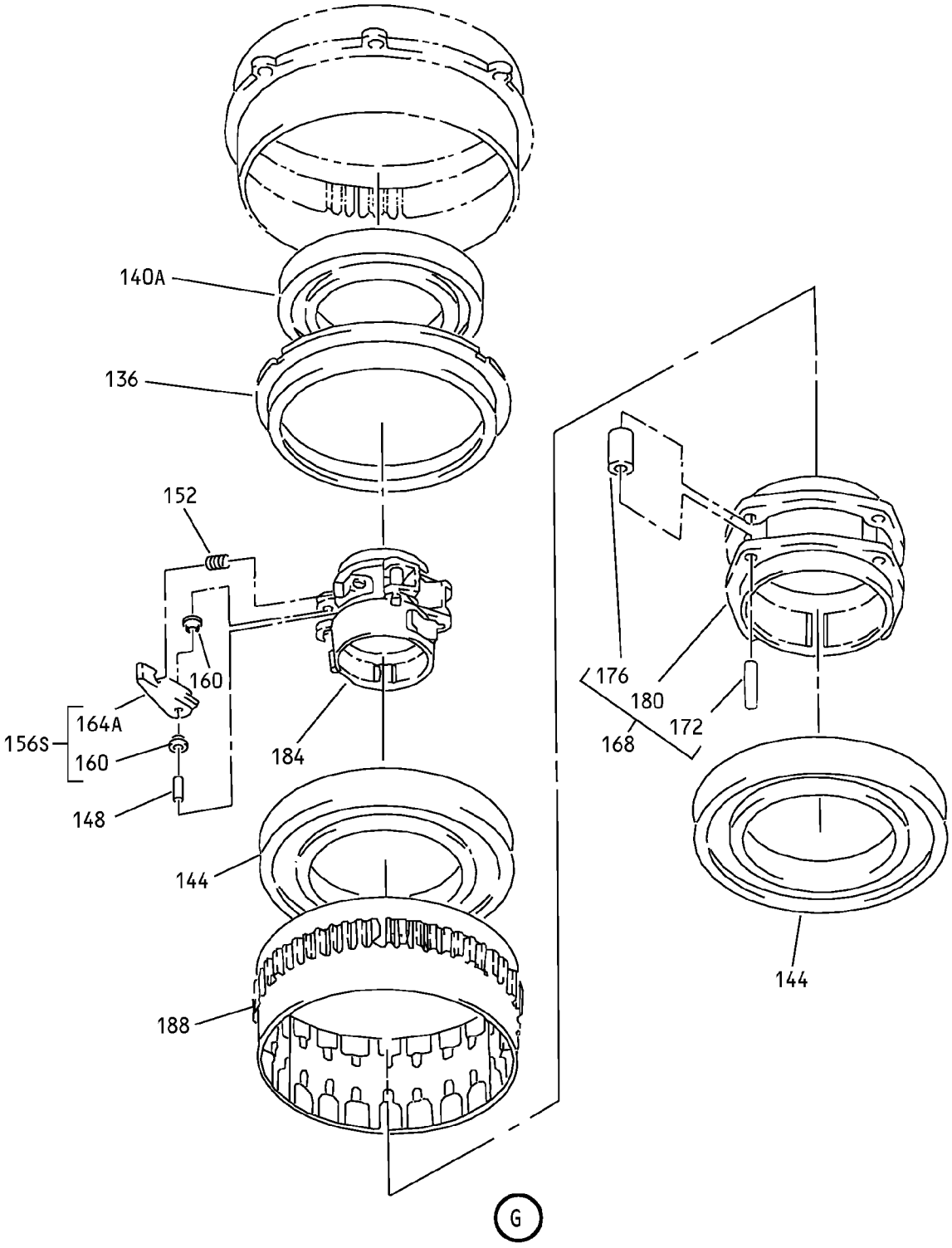
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 2 of 21)



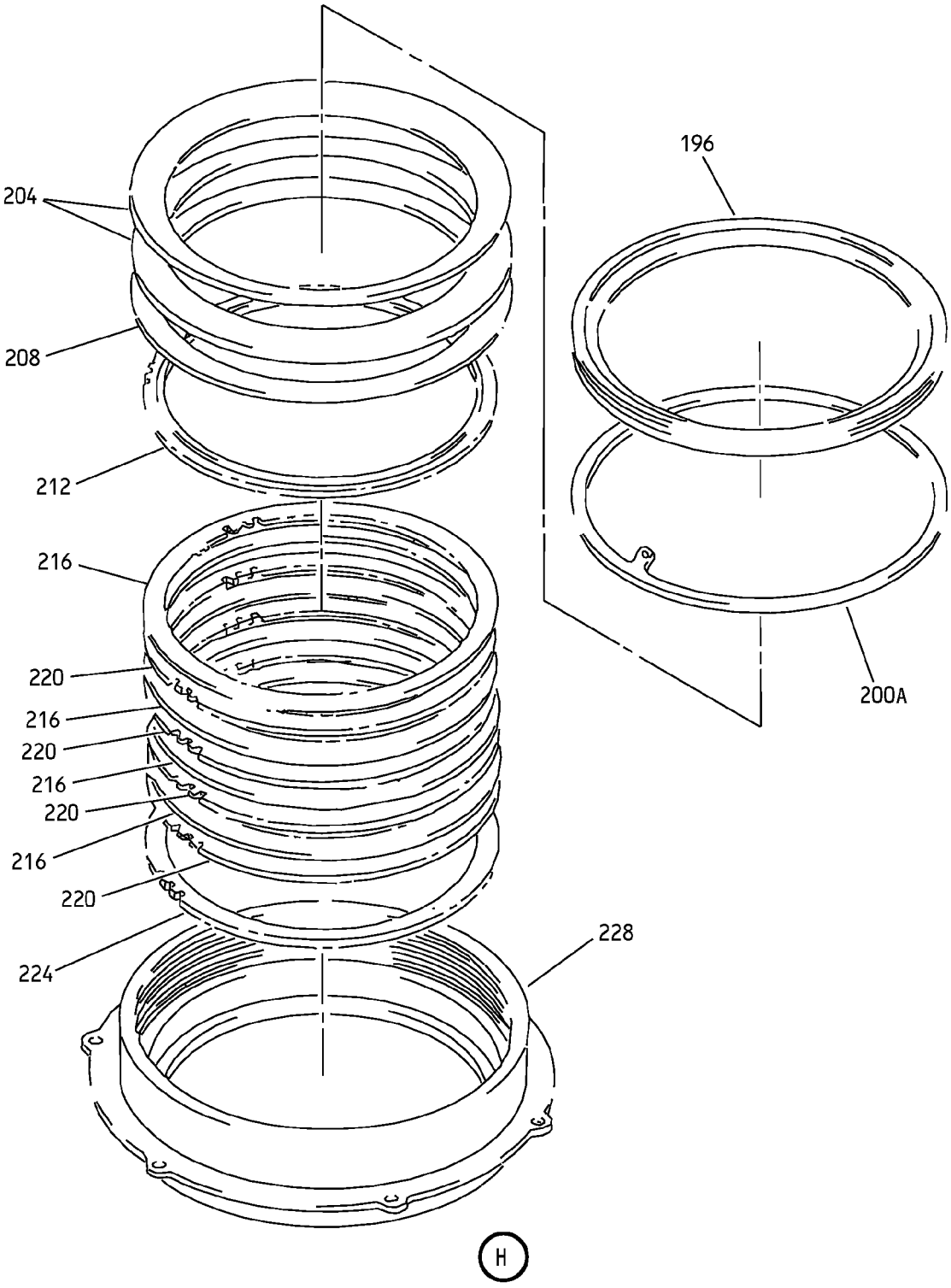
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 3 of 21)



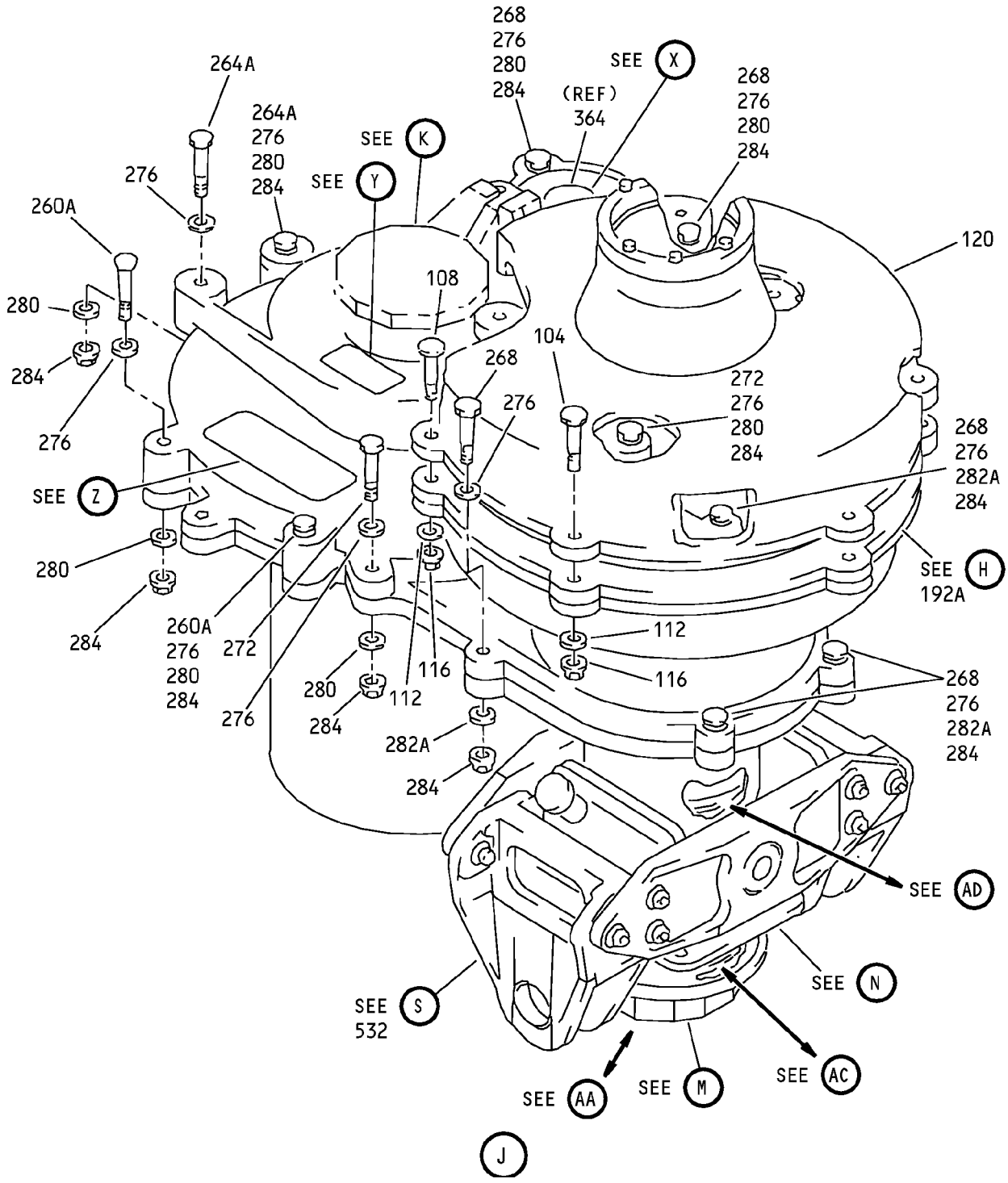
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 4 of 21)



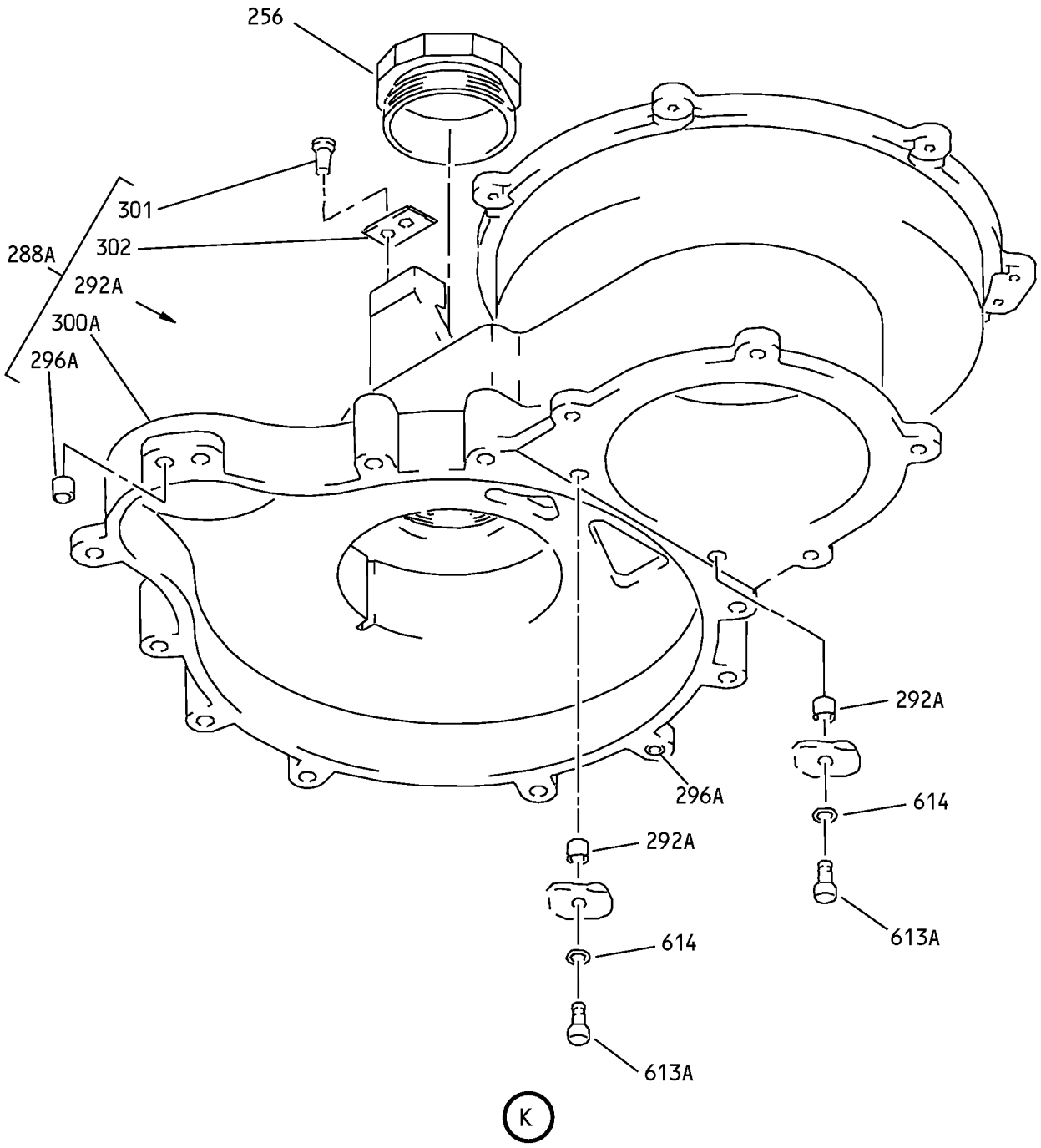
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 5 of 21)



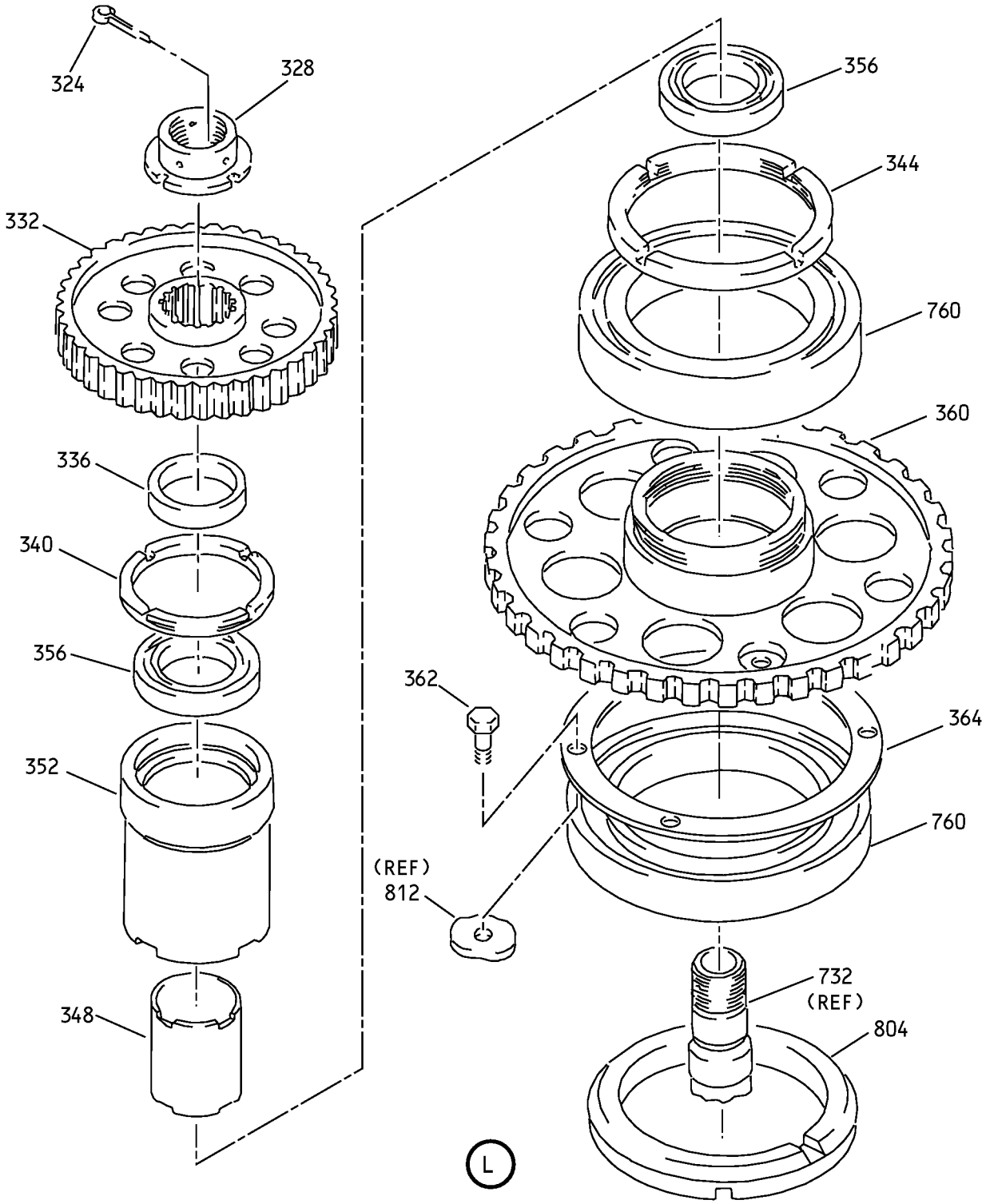
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 6 of 21)



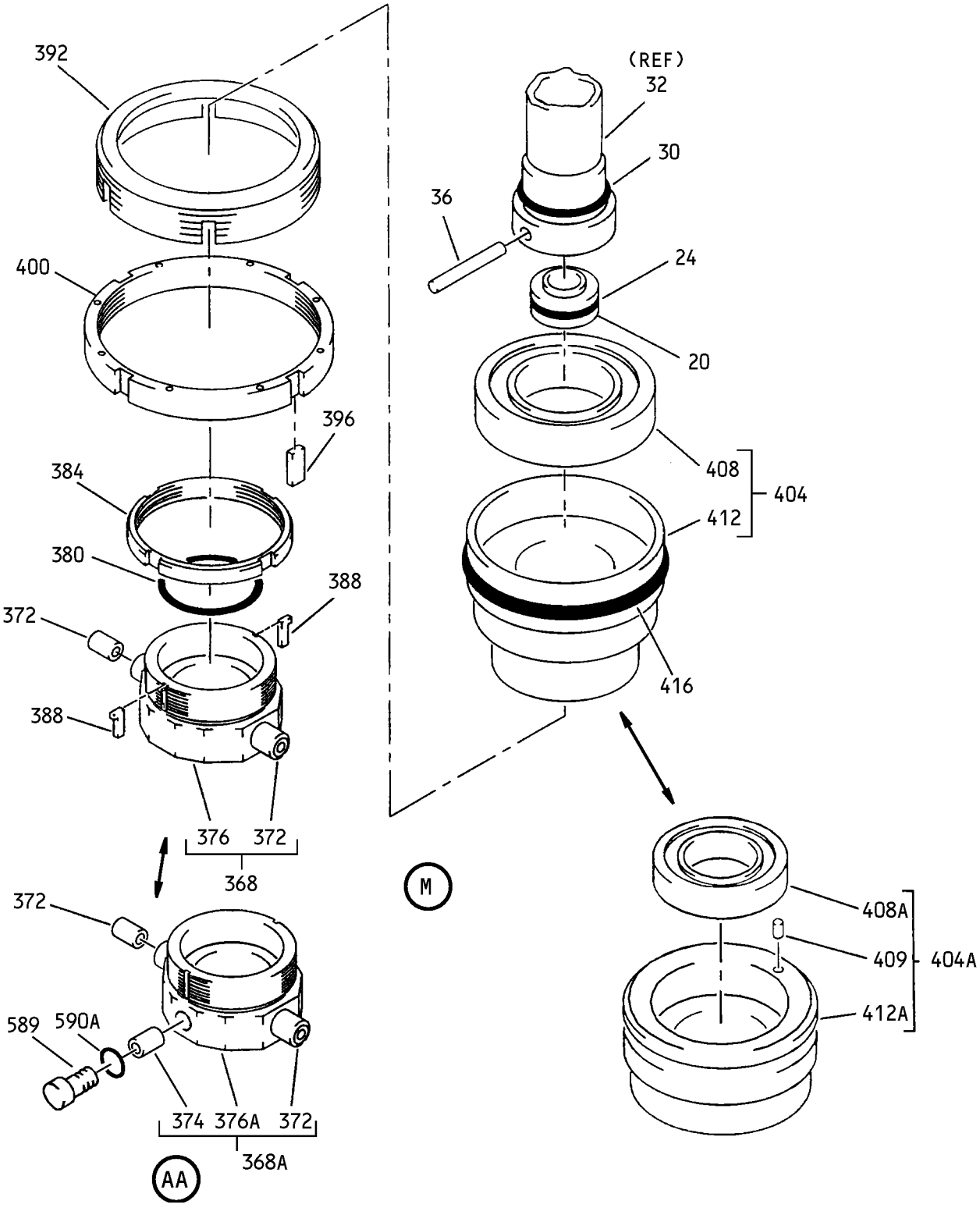
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 7 of 21)



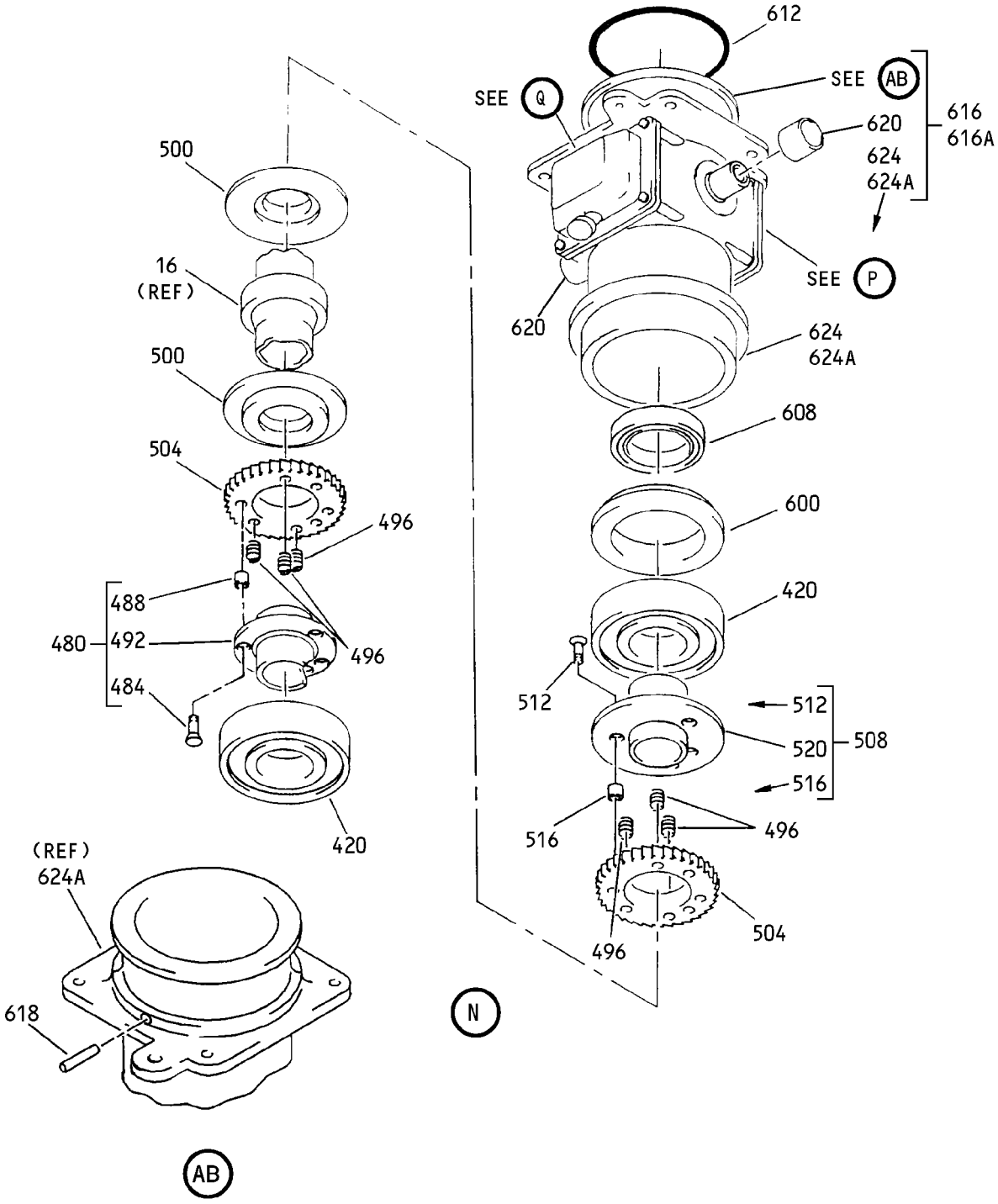
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 8 of 21)



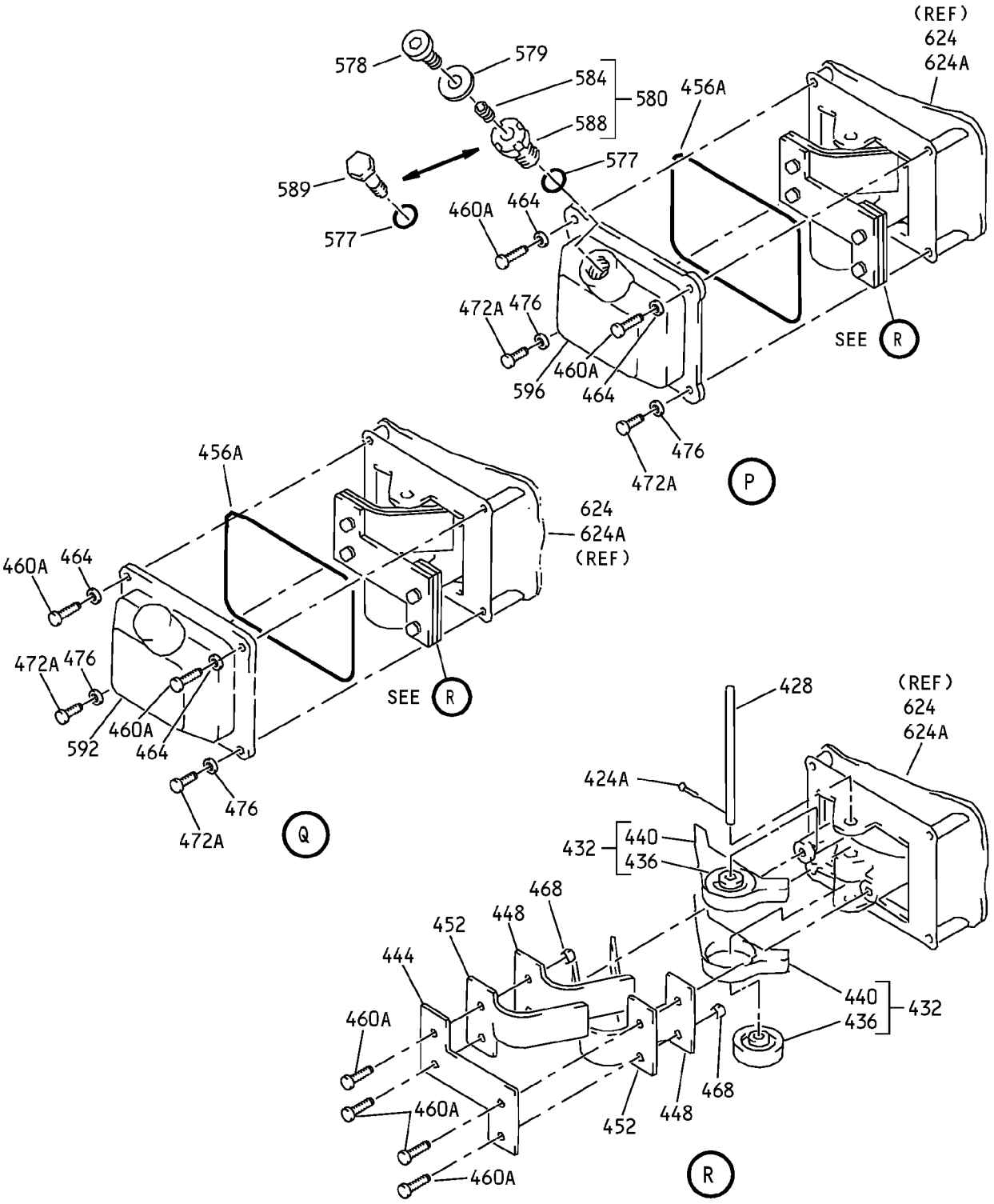
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 9 of 21)



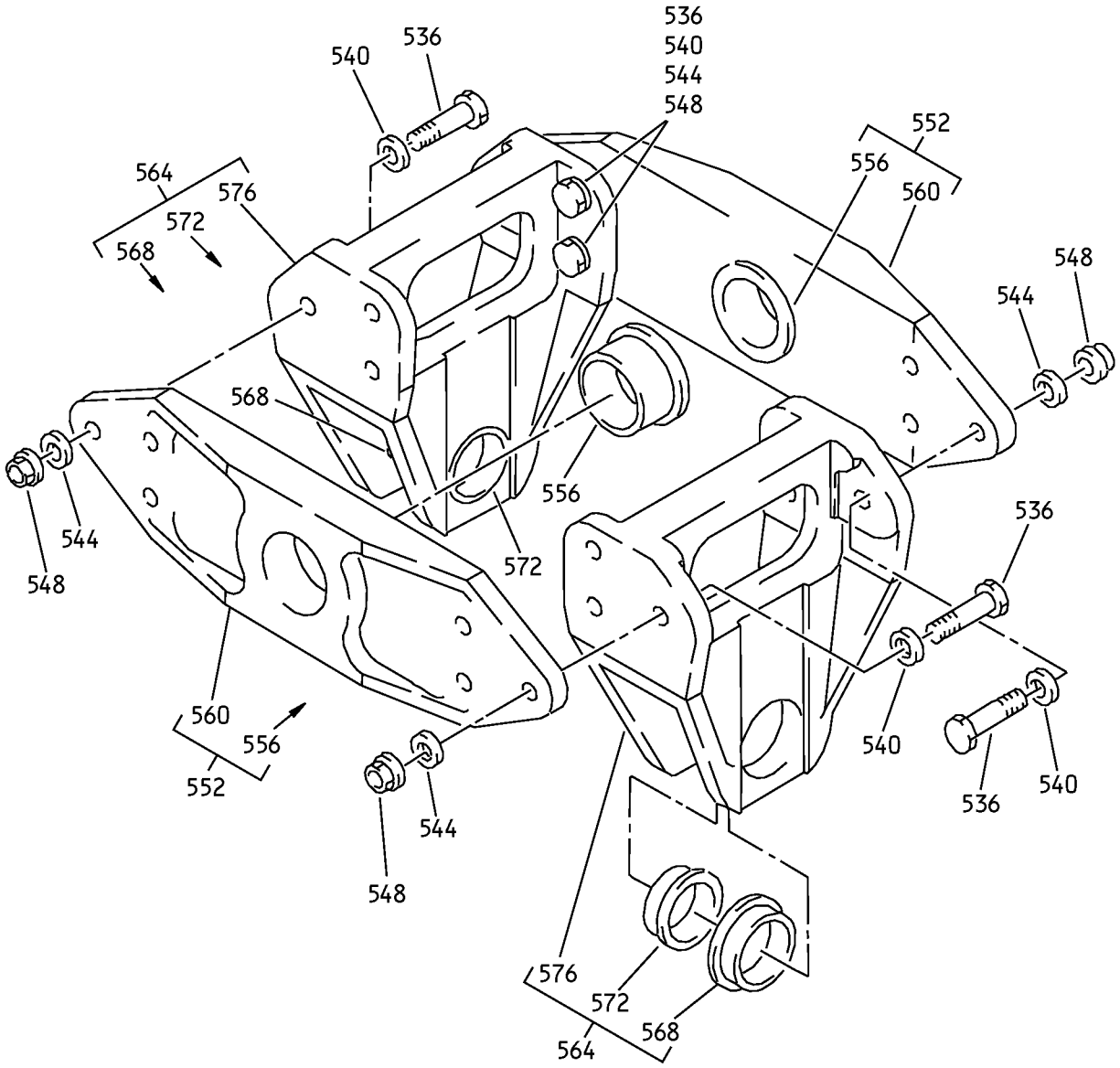
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 10 of 21)



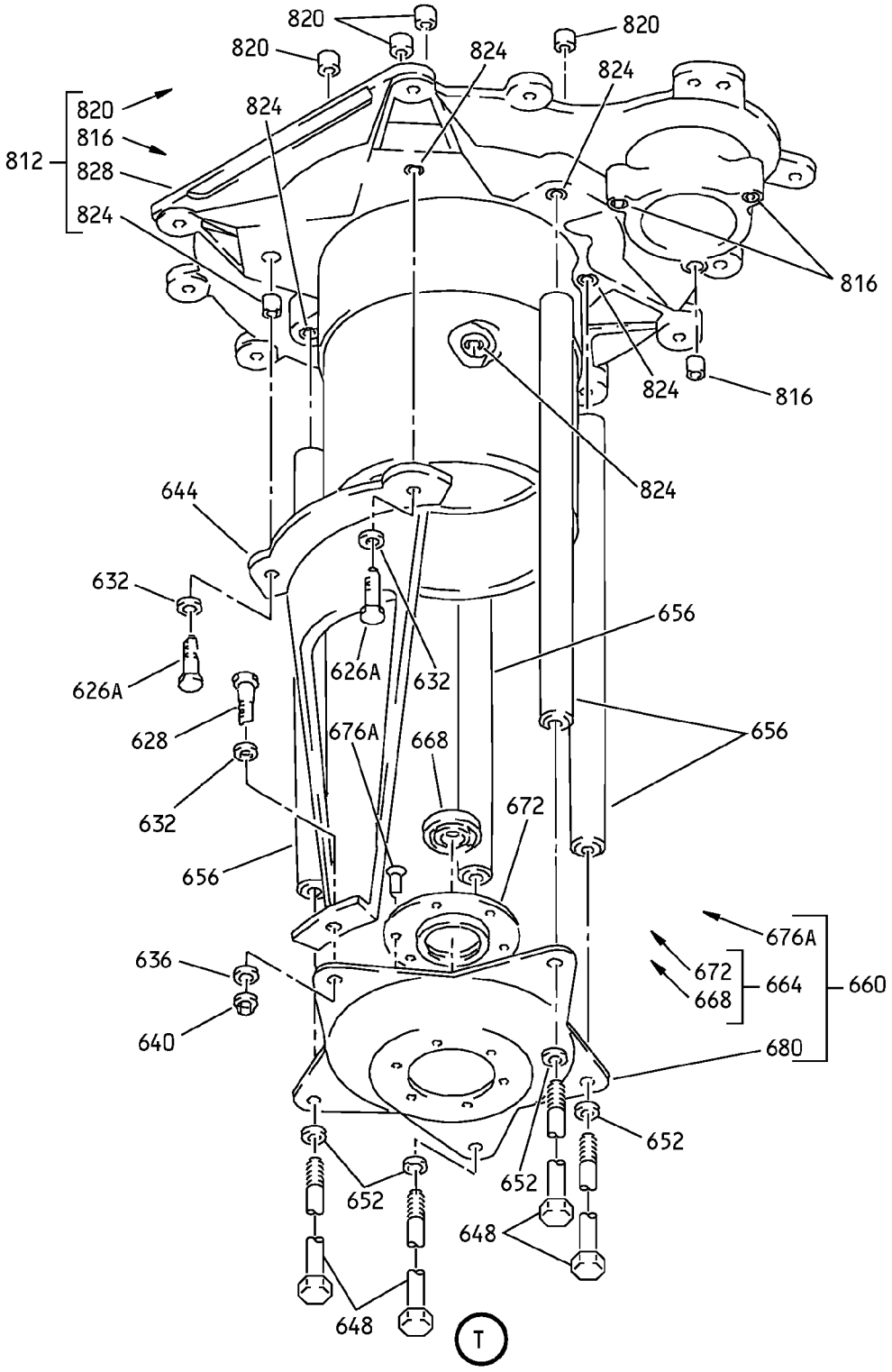
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 11 of 21)



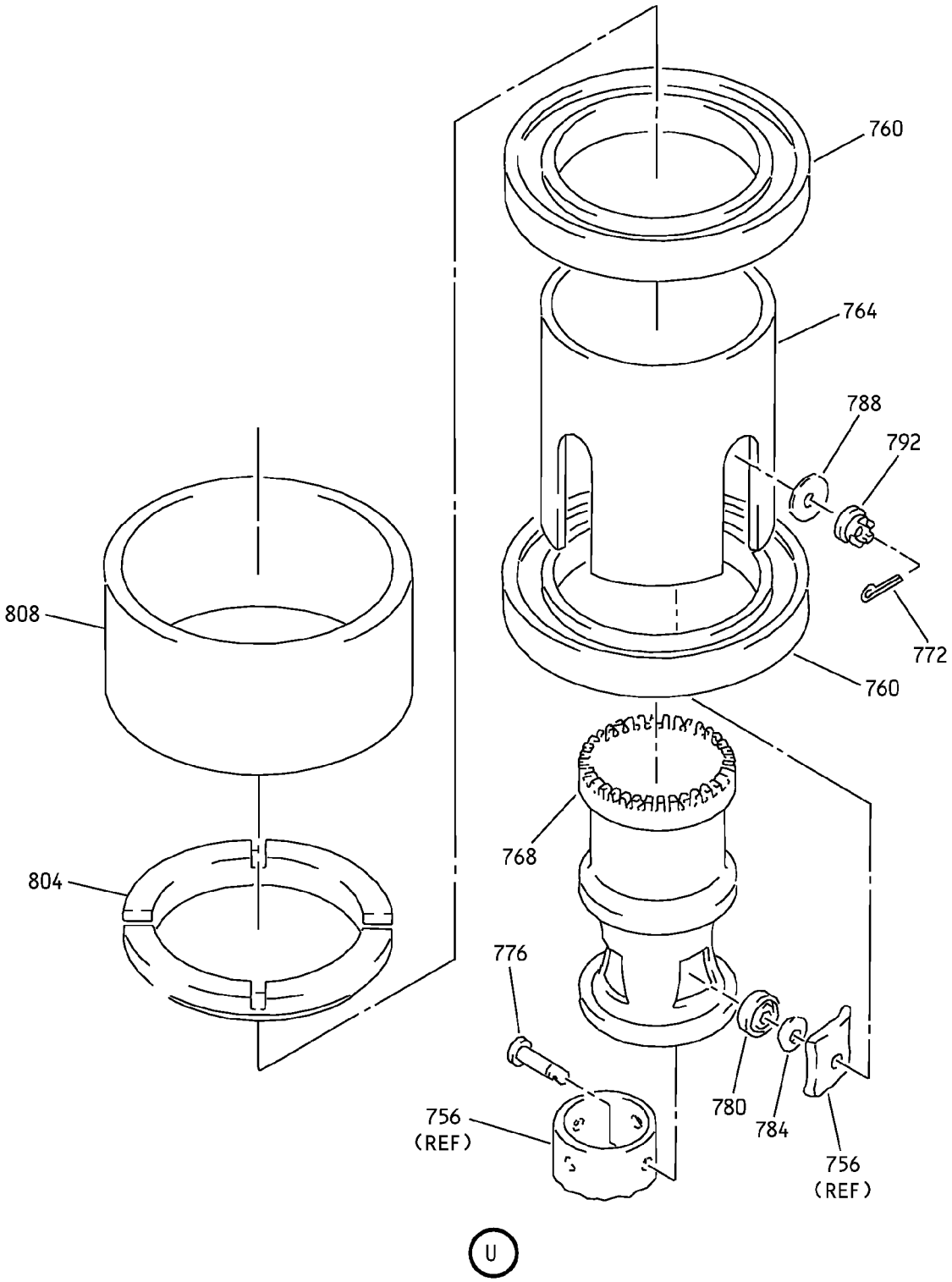
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 12 of 21)



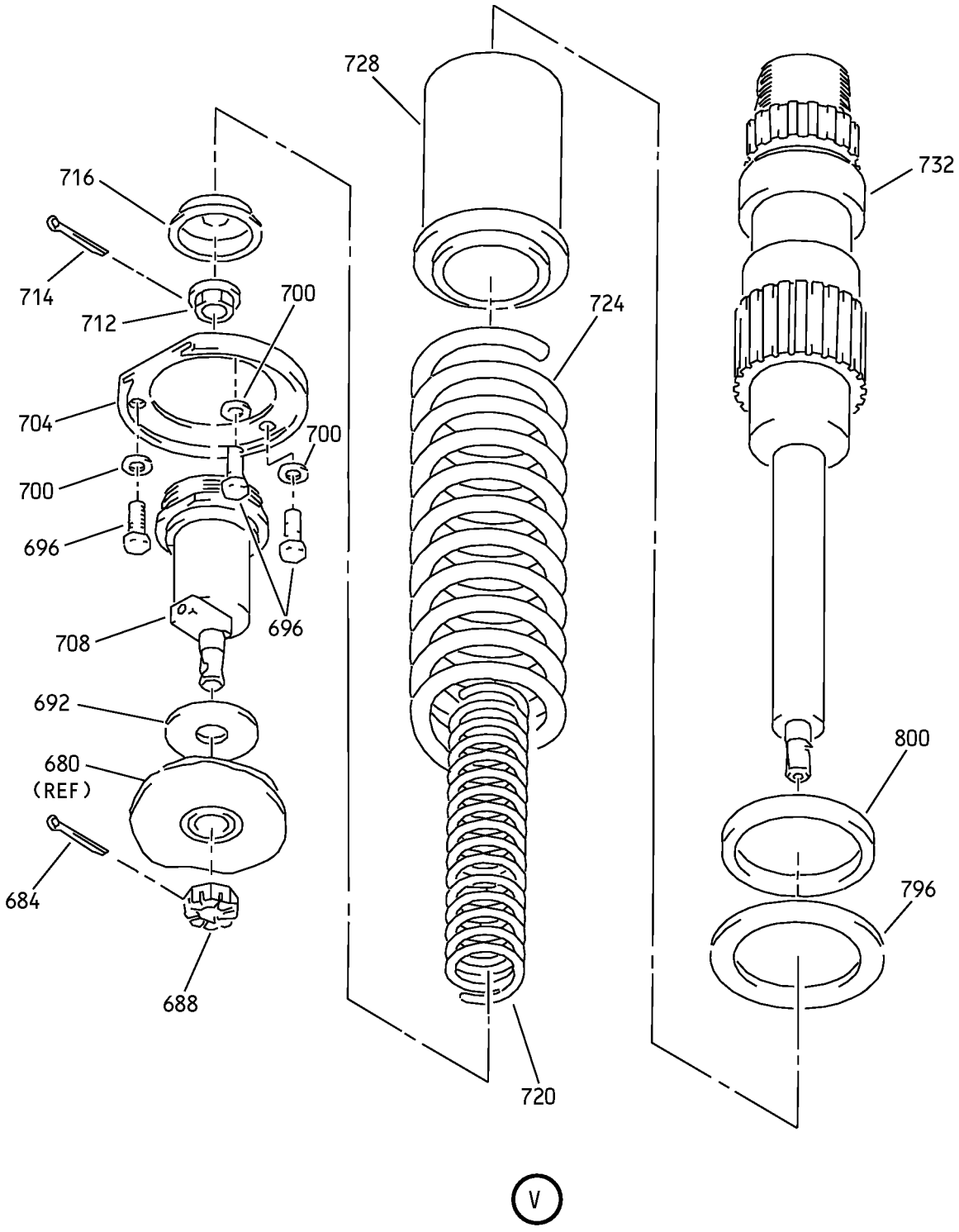
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 13 of 21)



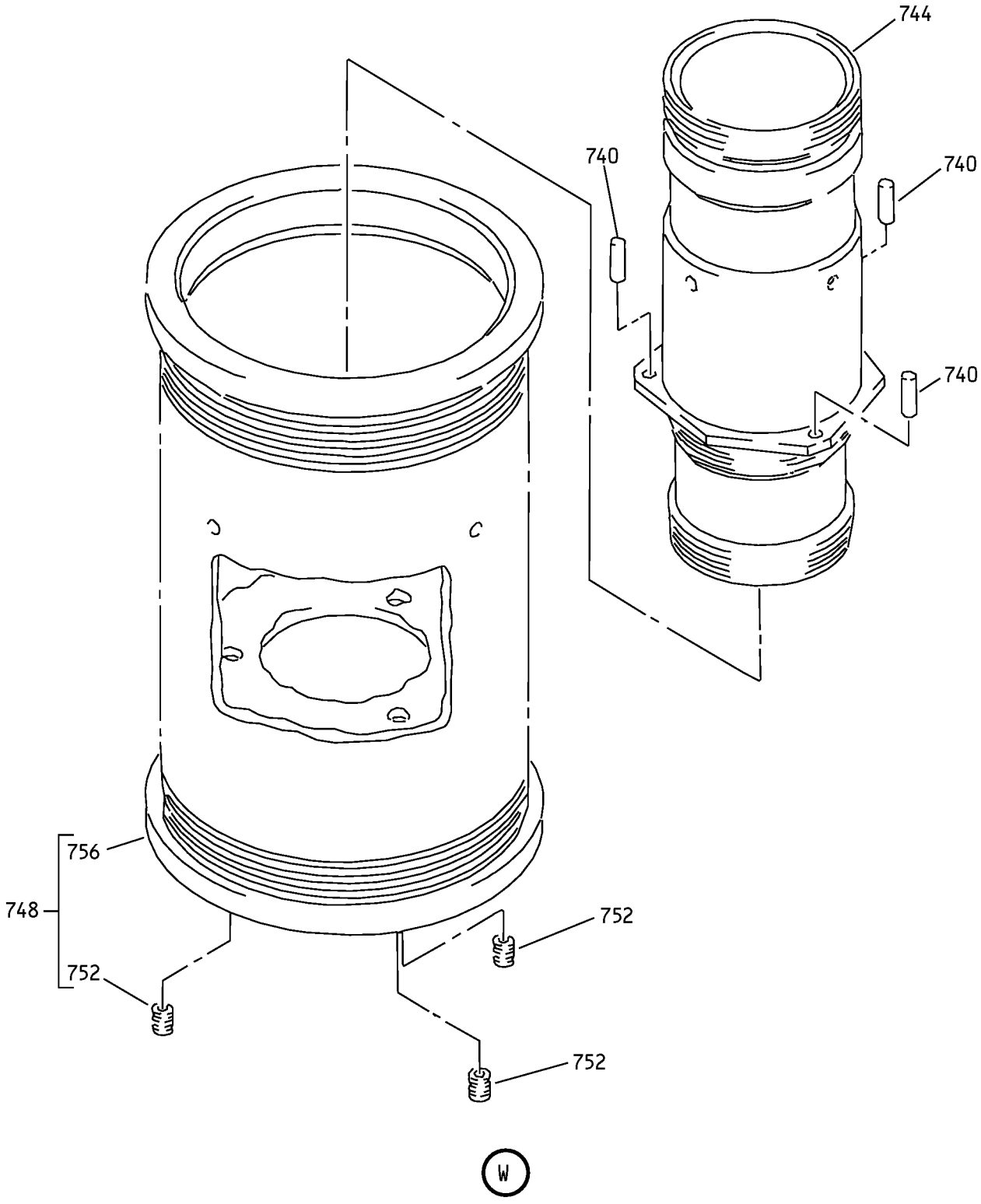
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 14 of 21)



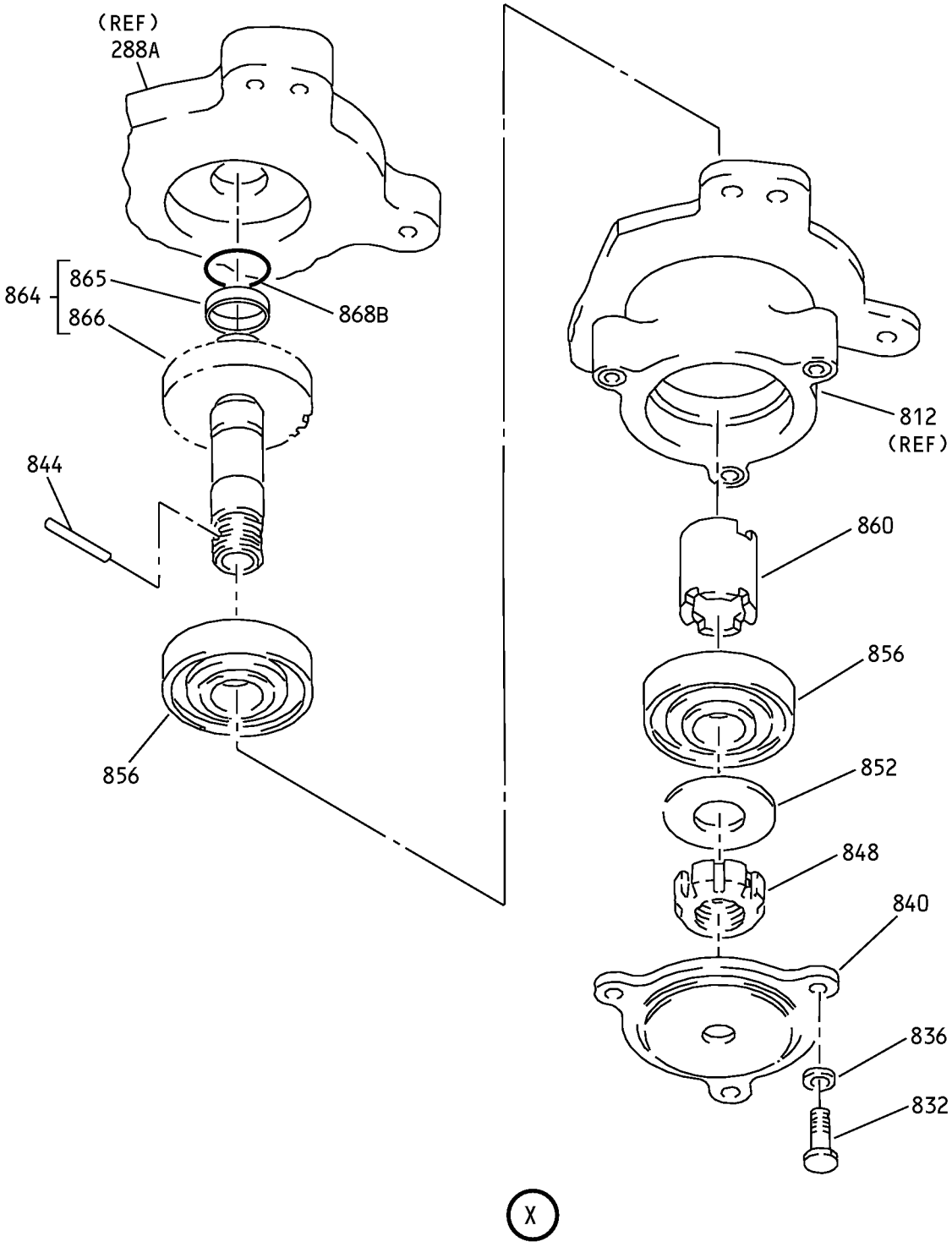
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 15 of 21)



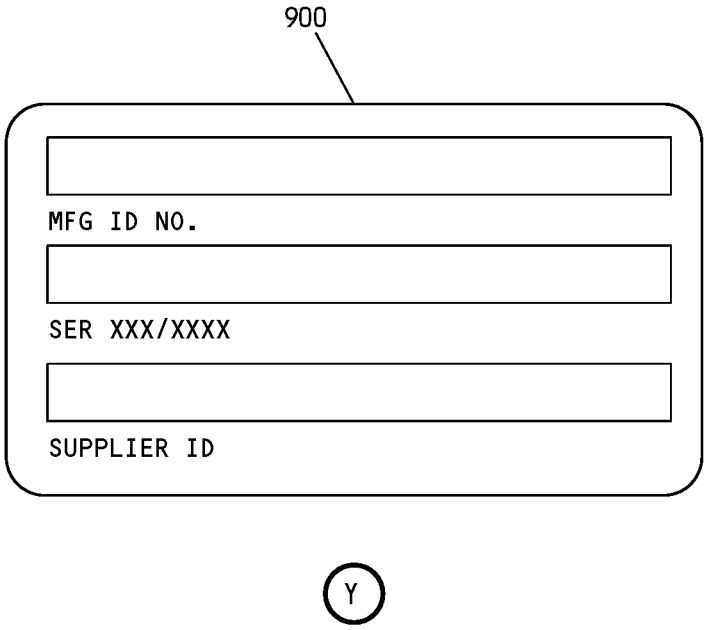
Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 16 of 21)

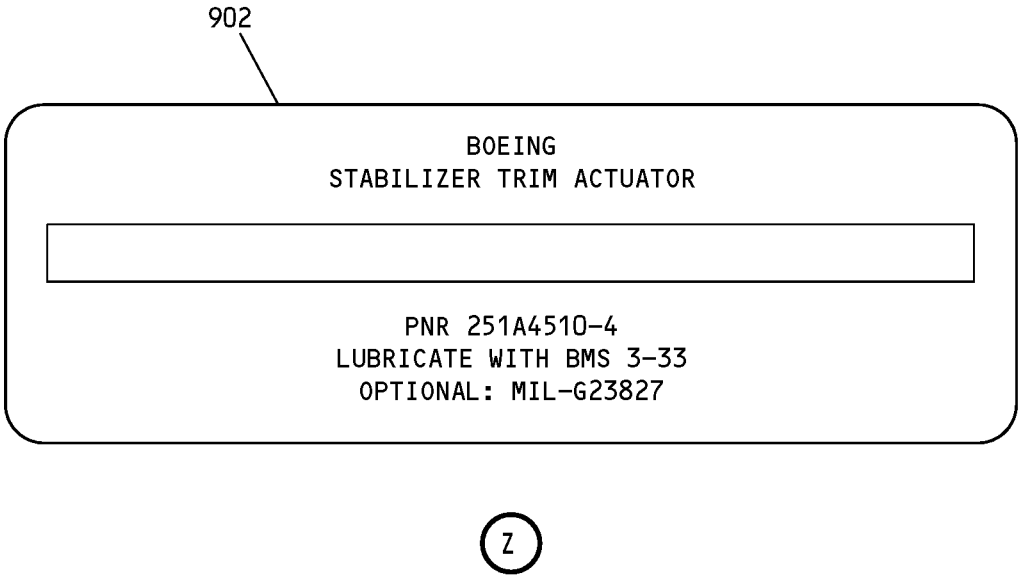


Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 17 of 21)

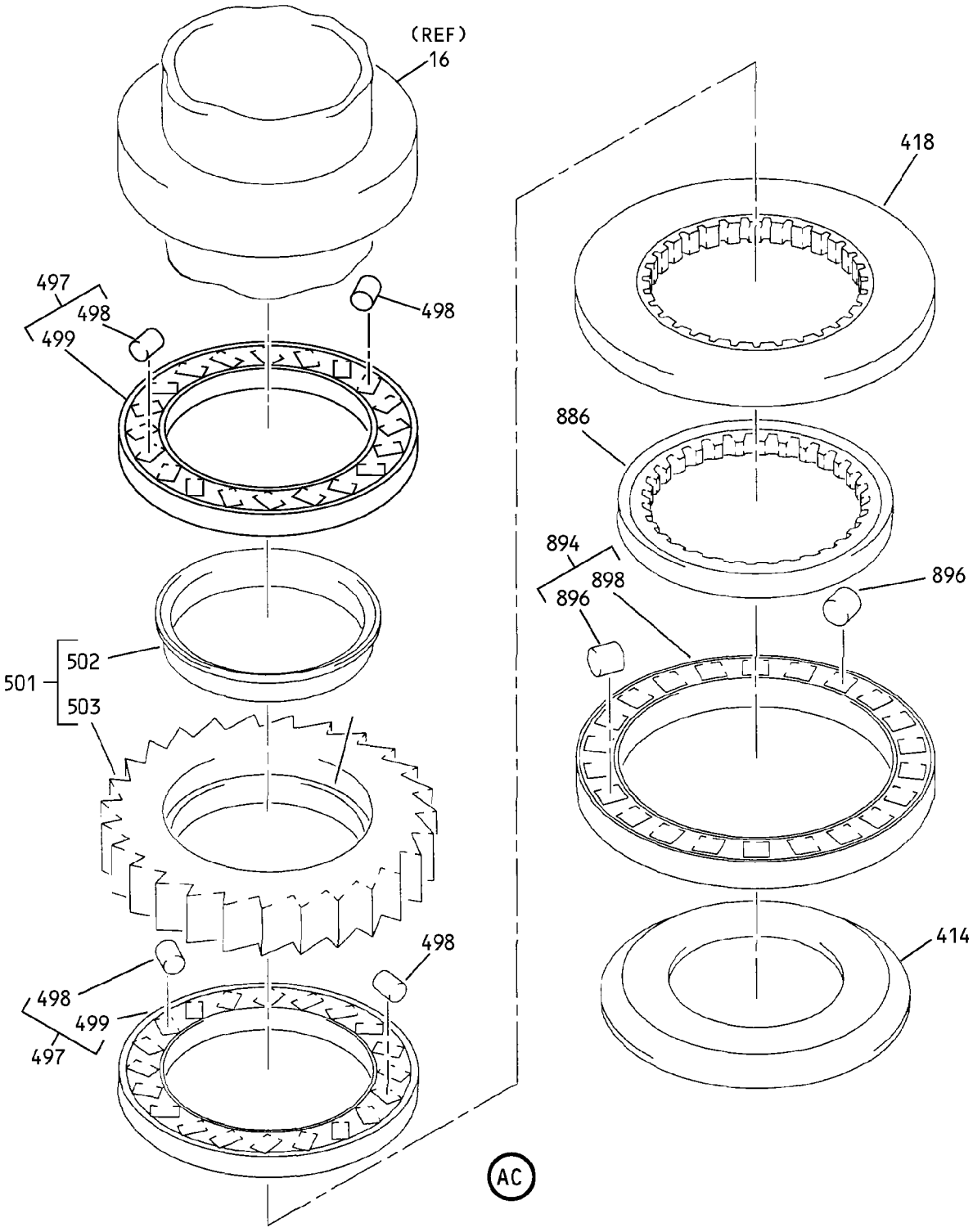


Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 18 of 21)

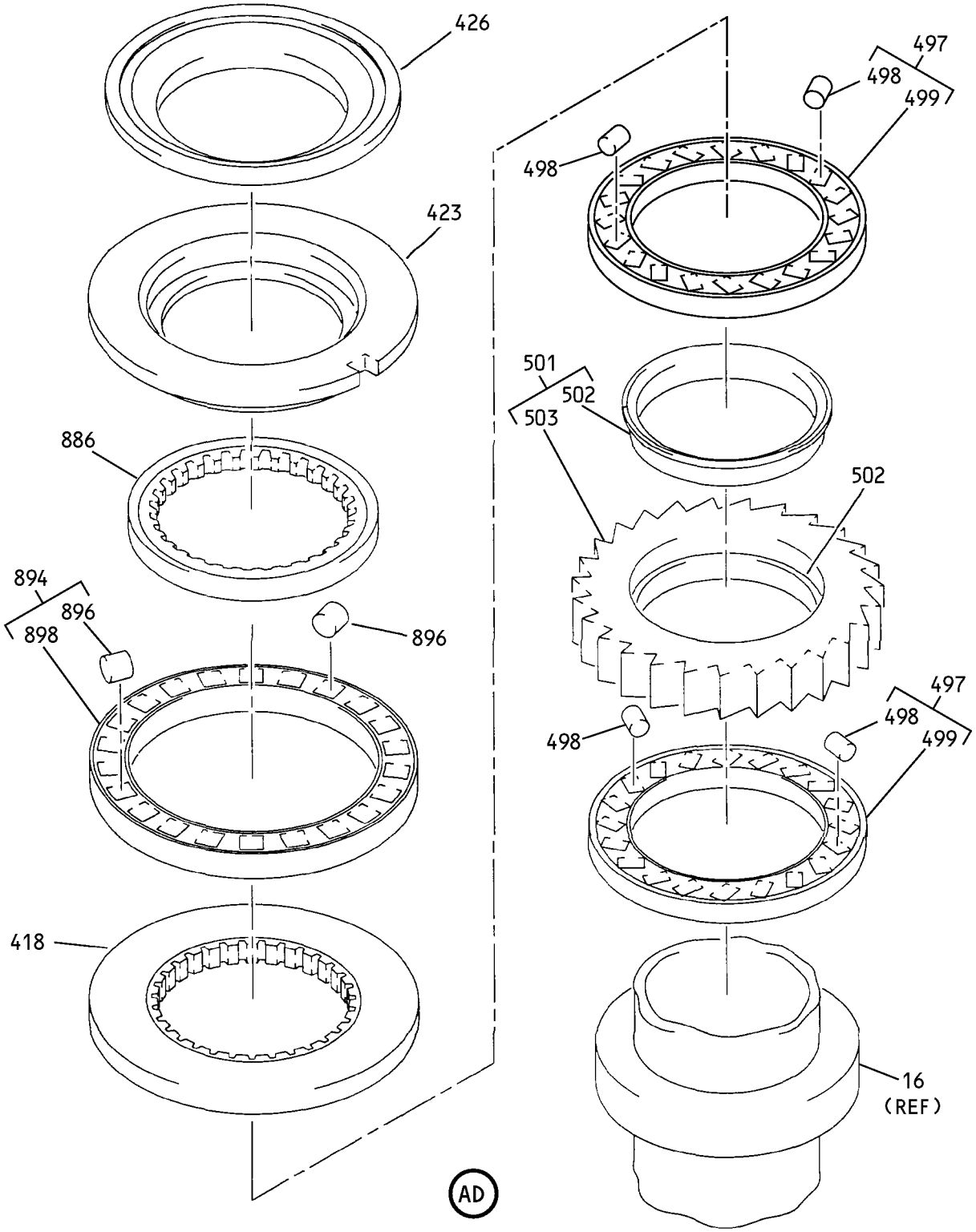




Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 19 of 21)



Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 20 of 21)



Stabilizer Trim Actuator Assembly
IPL Figure 1 (Sheet 21 of 21)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1A	251A4510-2		DELETED		
–1B	251A4510-3		DELETED		
–1C	251A4510-4		ACTUATOR ASSY-STAB. TRIM	A	RF
–1D	251A4510-5		ACTUATOR ASSY-STAB. TRIM	B	RF
–1E	251A4510-6		ACTUATOR ASSY-STAB. TRIM (FOR DETAILS SEE FIG. 2)	C	RF
–1F	251A4510-9		ACTUATOR ASSY-STAB. TRIM (FOR DETAILS SEE FIG. 2)	D	RF
–1G	251A4510-10		ACTUATOR ASSY-STAB. TRIM (FOR DETAILS SEE FIG. 2)	E	RF
–1H	251A4510-11		ACTUATOR ASSY-STAB. TRIM (FOR DETAILS SEE FIG. 2)	F	RF
–1J	251A4510-13		ACTUATOR ASSY-STAB. TRIM (FOR DETAILS SEE FIG. 2)	G	RF
4	BACP18BC04C16P		. PIN-COTTER	A, B	1
8	BACN10JD118		. NUT	A, B	1
12	NAS1149F1832P		. WASHER	A, B	1
16	07322P000-01		. BALLSCREW ASSY (VA4147) (SPEC 10-62210-2) (PRE ALERT SB 737-27A1277)	A	1
–16A	10-62210-3		DELETED		
–16B	07322P000-02		. BALLSCREW ASSY (VA4147) (SPEC 10-62210-3) (PRE ALERT SB 737-27A1277)	B	1
–16C	07322P000-04		. BALLSCREW ASSY (VA4147) (SPEC 10-62210-7) (POST ALERT SB 737-27A1277)	B	1
–16D	07322P000-06		. BALLSCREW ASSY (VA4147) (SPEC 10-62210-5) (POST ALERT SB 737-27A1277)	A	1
17	NAS6604-29		. BOLT (VENDOR PARTS)	A, C, D	1
–17A	BACB30NR4K29		. BOLT	B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
18	NAS1149F0463P		. WASHER (VENDOR PARTS)	A, C, D	2
–18A	BACW10BP4DP		. WASHER	B	2
19	MS21042L4		. NUT (VENDOR PARTS)	A, C, D	1
–19A	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))	B	1
20	66-24938-1		. SEAL	A, B	2
24	MS29513-113		. PACKING	A, B	2
28	MS29513-120		. PACKING	A, B	1
30	MS29513-123		. PACKING	A, B	1
32	65C29264-1		. ROD ASSY-SAFETY	A, B	1
36	MS16562-51		. PIN	A, B	1
40	BACB30NR4HK7		. BOLT	A, B	4
44	BACW10BP4CD		. WASHER	A, B	4
48	69-37969-1		. YOKE	A, B	2
52	69-37970-1		. GIMBAL-FTG	A, B	2
56	65-49966-1		. PIN ASSY	A, B	2
57	65-49966-2		. . PIN		1
58	MS15001-2		. . FITTING-LUBE		1
60	69-43426-1		. SCREW	A, B	2
64	65-56636-1		. STOP-LWR	A, B	1
68	MS29513-132		. PACKING	A, B	1
72	NAS1352N04H6P		. SCREW	A, B	6
76	69-45130-1		. PIN	A, B	1
80	65C34615-1		. SLEEVE ASSY	A, B	1
84	69-36083-14		. . RING (MAKE FROM TUBING TEFLON DUPONT .05FT 2.770 IN ID .080 IN WALL .398 IN)	A, B	1
88	65C34615-2		. . SLEEVE	A, B	1
92	MS29513-137		. PACKING	A, B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
96	69-77932-1		. CAP	A, B	1
100	480147550-1		. SEAL ASSY-UMBRELLA (V05939)	A, B	1
104	BACB30NT3K12		. BOLT	A, B	5
108	BACB30NT3K13		. BOLT (OPT ITEM 108A)	A, B	1
–108A	NAS623-3-13		. SCREW (OPT ITEM 108)	A, B	1
112	NAS1149D0363J		. WASHER	A, B	6
116	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	A, B	6
120	65C34617-1		. COVER	A, B	1
124	69-77851-1		. WASHER	A, B	1
–128	69-37299-1		DELETED		
128A	69-67299-1		. NUT	A, B	1
–132	65C34609-2		DELETED		
132A	65C34609-3		. BRAKE ASSY	A, B	1
136	65C34610-1		. . RETAINER-RING	A, B	1
–140	BACB1065PP		DELETED		
140A	R9313PPPRBA4298		. . BEARING (V21335) (SPEC BACB10BB65PP) (OPT 1913RRT1C1-01 (V21760)) (OPT 9313PPPRBFS428 (V21335)) (OPT PKTLL013P1 (V78118)) (OPT C013RRPP1P311LY19 (V40920)) (OPT R9313PPPRBA4298 (V9V013)) (OPT C013RRP0ZZ (V40920))	A, B	1
144	KP68BSD610		. . BEARING (V83086) (SPEC BACB10BW68) (OPT KP68B2TS (V43991)) (OPT KP68BFS428 (V21335)) (OPT KP68BLY196 (V40920))	A, B	2
148	69-77853-1		. . PIN	A, B	4

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
152	69-77855-2		. . SPRING	A, B	4
–156	69-77852-3		DELETED		
156S	69-77852-5		. . PAWL ASSY	A, B	4
160	KJB313905V		. . . BUSHING (V50632)	A, B	2
–164	69-77852-4		DELETED		
164A	69-77852-6		. . . PAWL	A, B	1
168	65C34612-1		. . RING ASSY-UNLOCK	A, B	1
172	69-77854-1		. . . PIN	A, B	4
176	KJB314704V		. . . ROLLER (V50632)	A, B	4
180	65C34612-2		. . . RING	A, B	1
184	65C34613-5		. . PAWL-CARRIER (OPT ITEM 184A, 184B)	A, B	1
–184A	65C34613-6		. . PAWL-CARRIER (OPT ITEM 184, 184B)	A, B	1
–184B	65C34613-7		. . PAWL-CARRIER (OPT ITEM 184, 184A)	A, B	1
188	65C34611-2		. . RING-RATCHET	A, B	1
–192	65C34616-3		DELETED		
192A	65C34616-4		. STATOR ASSY	A, B	1
196	69-77859-1		. . NUT	A, B	1
–200	69-77859-1		DELETED		
200A	69-77858-1		. . WASHER-BRAKE	A, B	1
204	69-77860-1		. . WASHER-SPRING	A, B	2
208	69-77861-2		. . WASHER	A, B	1
212	69-77862-3		. . STATOR	A, B	1
216	69-77857-1		. . ROTOR	A, B	4
220	69-77862-1		. . STATOR	A, B	4
224	69-77856-2		. . SPACER	A, B	1
228	65C34618-1		. . HOUSING	A, B	1
232	90-3590		. GEAR ASSY	A	1
–232A	90-3590-0		. GEAR ASSY	B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
236	BACR12Y23		. . RING-STAKING	A, B	1
–240	AN201KP16A		DELETED		
240A	SSMKP16JASD705		. . BEARING (V83086) (SPEC BACB10FS16J) (OPT PACMKP16JAA3908 (V21335)) (OPT PACMKP16AFS428 (V21335)) (OPT ACMKP16JAP510LY (V40920)) (OPT PACMKP16JAFS428 (V21335)) (OPT SSMKP16JAP (V21760))	A, B	1
244	90-3590-1		. . GEAR	A, B	1
248	251A4570-1		. GEAR-INPUT	A, B	1
252	R9313PPPRBA4298		. BEARING (V21335) (SPEC BACB10BB65PP) (OPT 1913RRT1C1-01 (V21760)) (OPT 9313PPPRBFS428 (V21335)) (OPT PKTLL013P1 (V78118)) (OPT C013RRPP1P311LY19 (V40920)) (OPT R9313PPPRBA4298 (V9V013)) (OPT C013RRP0ZZ (V40920)) (OPT ITEM 252A)	A	1
–252A	BACB10GT65NPPJ		. BEARING (OPT ITEM 252)	A	1
–252B	R9313PPPRBA4298		. BEARING (V21335) (SPEC BACB10BB65PP) (OPT 1913RRT1C1-01 (V21760)) (OPT 9313PPPRBFS428 (V21335)) (OPT PKTLL013P1 (V78118)) (OPT C013RRPP1P311LY (V40920)) (OPT R9313PPPRBA4298 (V9V013)) (OPT C013RRP0ZZ (V40920))	B	1
256	69-50913-1		. CAP	A, B	1
–260	BACB30NR4K19		DELETED		
260A	BACB30NR4K18		. BOLT	A, B	2
–264	BACB30NR4K29		DELETED		
264A	BACB30NR4K28		. BOLT	A, B	2
268	BACB30NR4K9		. BOLT	A, B	6
272	BACB30NR4K8		. BOLT	A, B	2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
276	BACW10BN4AC		. WASHER	A, B	12
280	NAS1149D0463J		. WASHER	A, B	8
–282	NAS1149D0463P		DELETED		
282A	NAS1149F0463P		. WASHER	A, B	4
284	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))	A, B	12
–288	251A4555-1		DELETED		
288A	251A4555-4		. GEARBOX ASSY (OPT ITEM 288B)	A, B	1
–288B	251A4555-6		. GEARBOX ASSY (OPT ITEM 288A)	A, B	1
–292	MS21209F5-20		DELETED		
292A	MS21209F5-20P		. . INSERT	A, B	2
–296	NAS607-4-4P		DELETED		
296A	NAS607-4-5P		. . PIN	A, B	2
–300	251A4555-2		DELETED		
300A	251A4555-5		. . GEARBOX (USED ON ITEM 288A)	A, B	1
–300B	251A4555-7		. . GEARBOX (USED ON ITEM 288B)	A, B	1
301	BACR15BA4AD		. . RIVET (SIZE DETERMINED ON INST) (USED ON ITEM 288B)	A, B	2
302	251A4555-8		. . PLATE (USED ON ITEM 288B)	A, B	1
304	MS20004-4		. BOLT	A, B	1
308	BACW10BN4AC		. WASHER	A, B	1
312	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))	A, B	1
316	AN970-4		. WASHER	A, B	1
320	69-50831-1		. ADAPTOR	A, B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
324	BACP18BC02C04P		. PIN-COTTER (OPT ITEM 324A, 324B)	A	1
–324A	BACP18BC03C04P		. PIN-COTTER (OPT ITEM 324, 324B)	A	1
–324B	MS24665-281		. PIN-COTTER (OPT ITEM 324, 324A)	A	1
–324C	BACP18BC03C04P		. PIN-COTTER (OPT ITEM 324D)	B	1
–324D	MS24665-281		. PIN-COTTER (OPT ITEM 324C)	B	1
328	30-2661		. NUT	A, B	1
332	90-3583-1		. GEAR	A, B	1
336	69-50832-1		. SPACER	A, B	1
340	60-3114		. NUT	A, B	1
344	69-67128-1		. NUT	A, B	1
348	30-2493-1		. SPACER-UPR BRG	A, B	1
352	30-2538-1		. SPACER-OUTER	A, B	1
356	KP25BSD610		. BEARING (V83086) (SPEC BACB10BW25) (OPT KP25B2TS (V43991)) (OPT KP25B (V38443)) (OPT LLKP25B (V38443)) (OPT KP25BG27 (V30163)) (OPT KP25BFS428 (V21335)) (OPT KP25BLY196 (V40920))	A, B	2
360	50-3132-3		. GEAR-CLUTCH	A, B	1
362	NAS6604H1		. BOLT	A, B	4
364	60-3286-1		. PLATE-BRG	A, B	1
368	251A4680-3		. PLUG ASSY-LWR	A	1
368A	251A4680-5		. PLUG ASSY-LWR	B	1
372	MS21209F4-10L		. . INSERT	A, B	2
374	MS21209F7-10L		. . INSERT	B	1
376	251A4680-4		. . PLUG	A	1
–376A	251A4680-6		. . PLUG	B	1
380	MS29513-138		. PACKING	A, B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
384	251A4675-1		. NUT-PLUG	A, B	1
388	251A4685-2		. KEY-PLUG	A, B	2
392	69-39652-2		. NUT	A	1
–392A	69-39652-2		. NUT (OPT ITEM 392B)	B	1
–392B	69-39652-3		. NUT (OPT ITEM 392A)	B	1
396	NAS559-3		. KEY	A, B	1
400	69-40222-3		. NUT	A, B	1
404	251A4670-3		. PLUG ASSY-UPPER	A	1
404A	251A4810-1		. PLUG ASSY-UPPER	B	1
408	R9109PPA4298		. . BEARING (V21335) (SPEC BACB10BA45PP) (OPT 6009FTT (V43991)) (OPT 9109RRT1C1-01 (V21760)) (OPT PKTLL109P1 (V78118)) (OPT C109RRP0ZZ (V40920)) (OPT C109RRPP1P29LY196 (V40920)) (OPT R9109PPA4298 (V9V013)) (OPT 9109PPFS428 (V21335))	A	1
408A	R9309KPRBA4298		. . BEARING (V21335) (SPEC BACB10BB45) (OPT 1909-1B1-01 (V21760)) (OPT 1909S (V38443)) (OPT 9309KPRB (V21335)) (OPT PKT009P1 (V78118)) (OPT C009RR1P29LY331 (V40920)) (OPT R9309KA4298 (V9V013)) (OPT C009RRP0 (V40920))	B	1
409	256W3054-1		. . PIN-DOWEL	B	1
412	251A4670-4		. . PLUG	A	1
412A	251A4810-2		. . PLUG	B	1
414	251A4803-1		. SUPPORT-BRG	B	1
416	MS29513-240		. PACKING	A, B	1
418	251A4804-1		. PLATE-THRUST	B	2
420	S251A451-1		. BEARING	A	2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–422	251A4808-1		DELETED		
–422A	251A4808-3		DELETED		
423	251A4802-1		. SUPPORT-BRG	B	1
–424	BACP18BC00C02P		DELETED		
–424A	BACP18BC00C04P		. PIN-COTTER	A, B	2
426	251A4801-1		. SPACER	B	1
428	30-2668-1		. PIN	A, B	2
432	251A4515-1		. PAWL ASSY	A	4
–432A	251A4515-3		. PAWL ASSY	B	4
436	DPP4A4135		. . BEARING (V60380)	A	1
–436A	DPP4A4135		. . BEARING (V60380) (OPT ITEM 436B)	B	1
–436B	DPP4SD610		. . BEARING (V83086) (SPEC BACB10CB4) (OPT DPP4 (V38443)) (OPT DPP4FS428 (V21335)) (OPT LLDPP4 (V38443)) (OPT ITEM 436A)	B	1
440	251A4520-1		. . PAWL	A, B	1
444	60-4005		. PLATE	A, B	2
448	69-13364-1		. SPRING-INNER	A, B	4
452	69-13364-2		. SPRING-OUTER	A, B	4
–456	MILP83461-1-238		DELETED		
456A	M83461-1-238		. SEAL	A, B	2
–460	NAS1351-3H8P		DELETED		
460A	NAS1351N3H8P		. SCREW	A, B	12
464	NAS1149D0363J		. WASHER	A, B	4
468	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	A, B	4
–472	NAS1351-4H8P		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
472A	NAS1351N4H8P		. SCREW	A, B	4
476	NAS1149D0463J		. WASHER	A, B	4
480	251A4640-1		. RING ASSY-LWR	A	1
484	SAL100YT6-2		. . BOLT (V11815) (SPEC BACB30GY6-2) (OPT SAL100YT6-2 (V17446))	A	4
488	NAS1080UK06		. . COLLAR	A	4
492	251A4640-2		. . RING	A	1
496	MS24585C158		. SPRING	A	6
497	251A4805-1		. ROLLER ASSY-SKEWED (OPT ITEM 497A)	B	4
–497A	251A4805-3		. ROLLER ASSY-SKEWED (OPT ITEM 497)	B	4
498	RM5X8C1		. . ROLLER (V78118) (USED ON ITEM 497)	B	20
–498A	251A4840-1		. . ROLLER (USED ON ITEM 497A)	B	20
499	251A4805-2		. . RETAINER	B	1
500	69-39413-1		. PLATE-BRAKE	A	2
501	251A4806-1		. RATCHET ASSY	B	2
502	251A4807-1		. . BUSHING	B	2
503	251A4806-2		. . PLATE	B	1
504	251A4650-1		. PLATE-RATCHET	A	2
–505	251A4809-1		DELETED		
–505A	251A4809-3		DELETED		
–506	RM6X6C1		DELETED		
–506A	251A4840-2		DELETED		
–507	251A4809-2		DELETED		
–507A	251A4809-4		DELETED		
508	251A4630-1		. RING ASSY-UPPER	A	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
512	SAL100YT6-2		. . BOLT (V11815) (SPEC BACB30GY6-2) (OPT SAL100YT6-2 (V17446))	A	4
516	NAS1080UK06		. . COLLAR	A	4
520	251A4630-2		. . RING	A	1
–524	MS21209F1-10		DELETED		
–528	69-77732-2		DELETED		
532	251A4530-2		. GIMBAL ASSY	A, B	1
536	BACB30NR4K12		. . BOLT	A, B	12
540	BACW10BN4AC		. . WASHER	A, B	12
544	BACW10BN4AP		. . WASHER	A, B	12
548	H52732-4CD		. . NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))	A, B	12
552	251A4535-1		. . YOKE ASSY	A, B	2
556	251A4540-1		. . . BUSHING	A, B	1
560	251A4535-2		. . . YOKE (OPT ITEM 560A)	A, B	1
–560A	251A4535-4		. . . YOKE (OPT ITEM 560)	A, B	1
564	251A4531-1		. . FORK ASSY	A, B	2
568	66-23586-1		. . . BUSHING	A, B	1
572	66-23586-2		. . . BUSHING	A, B	1
576	251A4531-2		. . . FORK (OPT ITEM 576A)	A, B	1
–576A	251A4531-4		. . . FORK (OPT ITEM 576)	A, B	1
577	MS28778-4		. PACKING	A, B	1
578	NAS1351-3H6P		. SCREW	A	1
579	BACW10P69S		. WASHER	A	1
580	69-77732-1		. PLUG ASSY	A	1
584	MS21209F1-10		. . INSERT	A	1
588	69-77732-2		. . PLUG	A	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
589	AN814-4JL		. PLUG	B	2
–590	MS28778-4		DELETED		
590A	M25988-1-110		. PACKING	B	1
592	65-49974-2		. CAP	A, B	1
596	65-49974-1		. CAP	A, B	1
600	251A4660-2		. SPACER	A	1
604	MS29513-225		. PACKING	A, B	1
608	R9313PPPRBA4298		. BEARING (V21335) (SPEC BACB10BB65PP) (OPT 1913RRT1C1-01 (V21760)) (OPT 9313PPPRBFS428 (V21335)) (OPT PKTLL013P1 (V78118)) (OPT C013RRPP1P311LY19 (V40920)) (OPT R9313PPPRBA4298 (V9V013)) (OPT C013RRP0ZZ (V40920)) (OPT ITEM 608A)	A	1
–608A	BACB10GT65NPPJ		. BEARING (OPT ITEM 608)	A	1
–608B	R9313PPPRBA4298		. BEARING (V21335) (SPEC BACB10BB65PP) (OPT 1913RRT1C1-01 (V21760)) (OPT 9313PPPRBFS428 (V21335)) (OPT PKTLL013P1 (V78118)) (OPT C013RRPP1P311LY (V40920)) (OPT R9313PPPRBA4298 (V9V013)) (OPT C013RRP0ZZ (V40920))	B	1
612	MS29513-336		. PACKING	A, B	1
–613	NAS1351-5H14		DELETED		
613A	NAS1351N5H14P		. SCREW	A, B	2
614	BACW10BP5CD		. WASHER	A, B	2
616	251A4560-3		. HOUSING ASSY-PRIMARY BRAKE	A	1
616A	251A4560-5		. HOUSING ASSY-PRIMARY BRAKE	B	1
618	256W3054-1		. . PIN-DOWEL	B	1
620	251A4565-1		. . SLEEVE	A, B	2
624	251A4560-4		. . HOUSING	A	1
624A	251A4560-6		. . HOUSING	B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–626	BACB30NP4K5		DELETED		
626A	BACB30NR4K4		. BOLT		2
628	BACB30NR4K5		. BOLT	A, B	1
632	BACW10BN4AC		. WASHER	A, B	3
636	NAS1149D0416J		. WASHER	A, B	1
640	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))	A, B	1
644	65-19383-3		. GUARD-CABLE DRUM	A, B	1
648	BACB30NF4-170		. BOLT	A, B	4
652	NAS1149D0463J		. WASHER	A, B	4
656	66-13760-2		. SPACER	A, B	4
660	251A4580-1		. SUPPORT ASSY	A, B	1
664	66-12615-1		. . BEARING ASSY	A, B	1
668	AN201KP6A		. . . BEARING	A, B	1
672	66-12615-2		. . . BEARING ASSY	A, B	1
–676	BACR15BA5D4C		DELETED		
676A	BACR15BA5D5C		. . RIVET (OPT ITEM 676B)	A, B	6
–676B	MS20426D5-5		. . RIVET (OPT ITEM 676A)	A, B	6
680	251A4581-1		. . SUPPORT	A, B	1
–684	BACP18BC03C10P		DELETED		
688	BACN10JD6		. NUT	A, B	1
692	BACW10P73S		. WASHER	A, B	1
696	BACB30NM4HK4		. BOLT	A, B	3
700	BACW10BP4CD		. WASHER	A, B	3
704	66-13875-1		. RETAINER	A, B	1
708	65-39591-3		. CAP	A, B	1
712	H52732-6CD		. NUT (V15653) (SPEC BACN10YR6CD) (OPT PLH56CD (V62554))	A, B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
714	BACP18BC03C10P		. PIN	A, B	1
716	66-9676		. RETAINER	A, B	1
720	69-76288-1		. SPRING	A, B	1
724	69-76287-1		. SPRING	A, B	1
728	66-9677-1		. SPACER-SPRING	A, B	1
732	69-10020-2		. SHAFT-ACTUATOR	A, B	1
736	251A4550-1		. DRUM ASSY	A, B	1
740	NAS607-4-6P		. . PIN	A, B	3
744	65-19471-5		. . SHAFT-CABLE DRUM	A, B	1
748	251A4554-1		. . DRUM ASSY-CABLE	A, B	1
752	MS21209F4-15		. . . INSERT	A, B	3
756	251A4554-2		. . . DRUM	A, B	1
760	KP49BSD610		. BEARING (V83086) (SPEC BACB10BW49) (OPT KP49B2TS (V43991)) (OPT KP49B (V38443)) (OPT LLKP49B (V38443)) (OPT KP49BFS428 (V21335)) (OPT KP49BLY196 (V40920))	A, B	4
764	66-12856-2		. SPACER-LWR BRG	A, B	1
768	90-4037-3001		. CLUTCH-JAW	A, B	1
772	BACP18BC02C06P		. PIN	A, B	4
776	30-3565		. SCREW	A, B	4
780	ATF3		. BEARING (V60380) (SPEC BACB10ET03) (OPT 3AFC512 (V92563)) (OPT YAF03B (V07484))	A, B	4
784	30-3564		. WASHER	A, B	4
788	NAS1149D0316J		. WASHER	A, B	4
792	BACN10JD3		. NUT	A, B	4
796	30-2489		. WASHER	A, B	1
800	69-77238-1		. SPACER	A, B	1
804	69-67128-1		. NUT	A, B	2

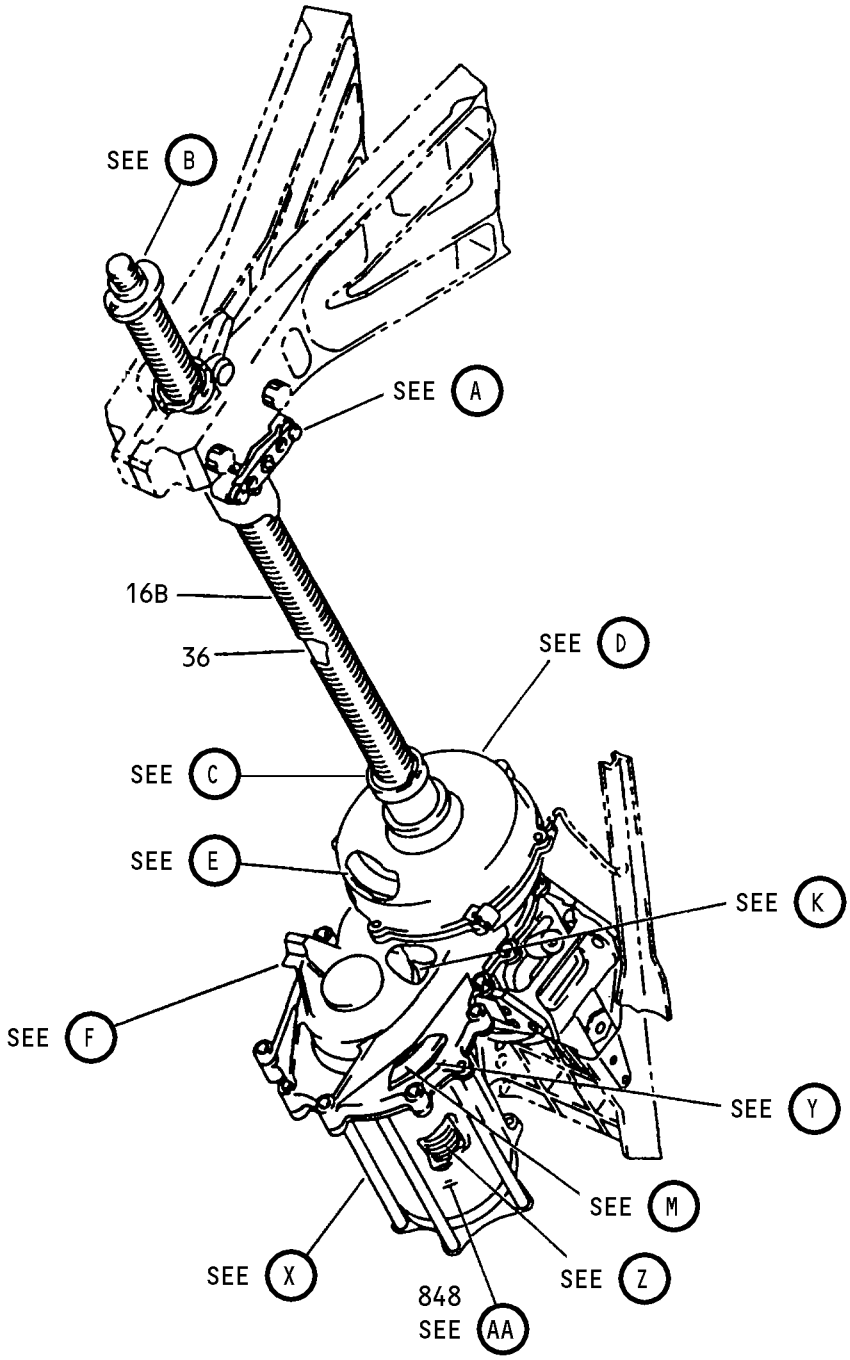
–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
808	30-2531		. SPACER	A, B	1
812	251A4556-1		. HOUSING ASSY-LWR	A, B	1
816	MS21209F4-20P		. . INSERT	A, B	3
820	MS21209F4-10P		. . INSERT	A, B	4
824	MS21209F4-15P		. . INSERT	A, B	6
828	251A4556-2		. . HOUSING	A, B	1
832	BACB30NM4HK3		. BOLT	A, B	3
836	BACW10BP4CD		. WASHER	A, B	3
840	90-3272-2		. CAP-END	A, B	1
844	NAS561CF5-22		. PIN-SPR	A, B	1
848	66-19334-1		. LOCKNUT	A, B	1
852	3515-36-02-0541		. WASHER (V78189)	A, B	1
856	KP16AFS428		. BEARING (V21335) (SPEC BACB10BX16) (OPT KP16A2TS (V43991)) (OPT LLKP16A (V38443)) (OPT KP16AG27 (V30163)) (OPT KP16A (V38443)) (OPT KP16ALY196 (V40920)) (OPT KP16ASD610 (V83086)) (OPT CS216E (VK8455)) (OPT KP16AP (V21760)) (OPT KP16AE (V21760)) (OPT KP16A (V21760)) (OPT KP16ANCJ (V06144))	A, B	2
860	30-2414-1		. SPACER-BRG	A, B	1
864	69-44011-8		. GEAR ASSY	A, B	1
865	69-36083		. . SEAL-RING		1
866	69-44011-7		. . GEAR-PINION		1
–868	MILP83461-1-211		DELETED		
–868A	M834611-211		DELETED		
868B	M83461-1-211		. SEAL	A, B	1
–872	251A4590-2		DELETED		
–876	251A4590-1		DELETED		

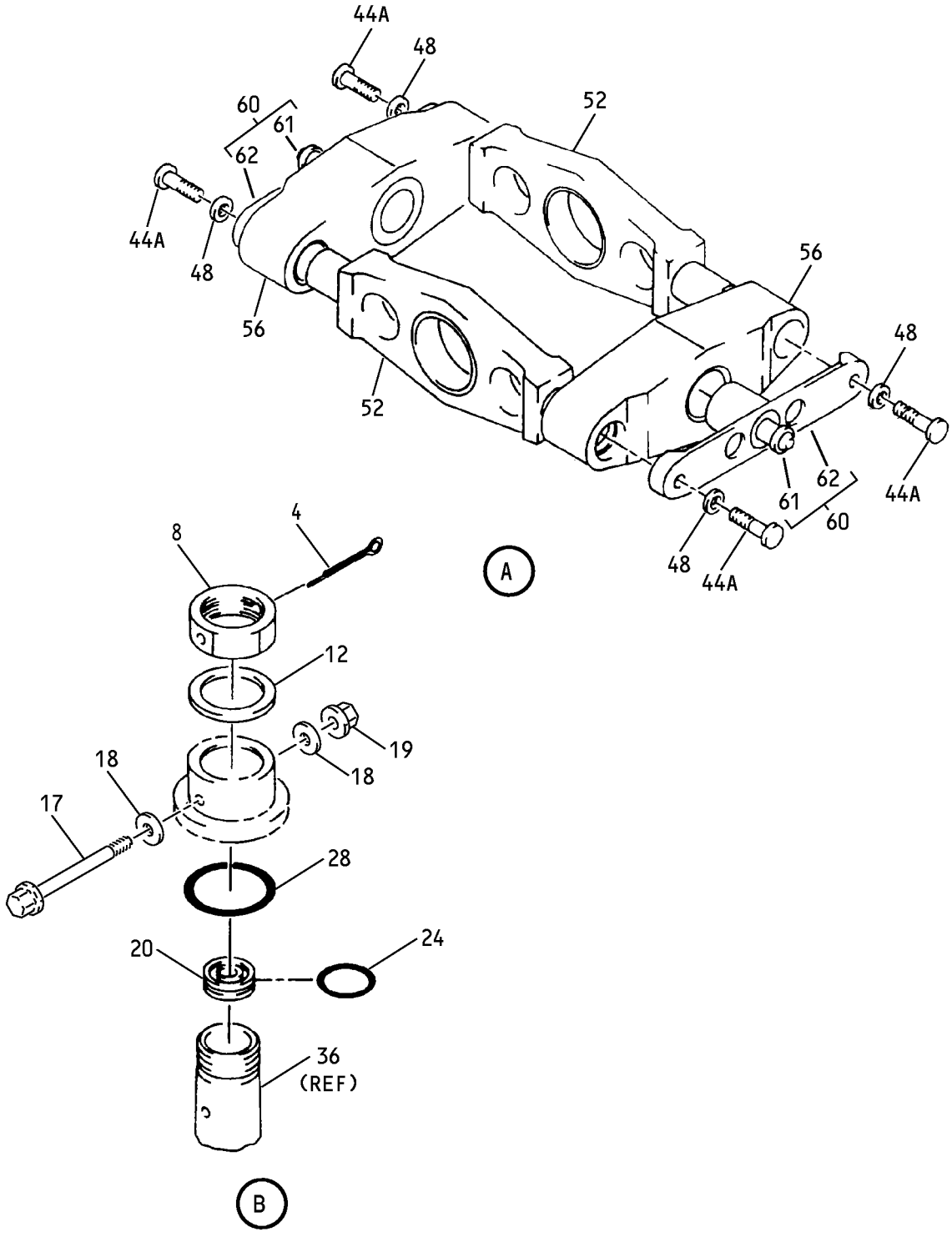
–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–876A	251A4590-3		DELETED		
–880	251A4590-4		DELETED		
–880A	251A4590-5		DELETED		
–882	251A4510-7		. KIT ASSY-SUBSTITUTION (OPT ITEM 884)	B	1
–884	251A4510-8		. KIT ASSY-SUBSTITUTION (OPT ITEM 882)	B	1
886	251A4808-1		. . GUIDE (USED ON ITEM 882)	B	2
–888	251A4808-2		. . PLATE-THRUST (USED ON ITEM 884)	B	2
894	251A4809-1		. . ROLLER ASSY-SKEWED (251A4809-1 T/W 251A4808-1 MAY REPLACE OR BE REPLACED BY 251A4809-3 T/W 251A4808-2)	B	2
–894A	251A4809-3		. . ROLLER ASSY-SKEWED (251A4809-1 T/W 251A4808-1 MAY REPLACE OR BE REPLACED BY 251A4809-3 T/W 251A4808-2)	B	2
896	RM6X6C1		. . . ROLLER (V78118) (USED ON ITEM 890)	B	22
–896A	251A4840-2		. . . ROLLER (USED ON ITEM 892)	B	22
898	251A4809-2		. . . RETAINER (USED ON ITEM 890)	B	1
–898A	251A4809-4		. . . RETAINER (USED ON ITEM 892)	B	1
900	251A4590-2		. NAMEPLATE	A, B	1
902	251A4590-4		. NAMEPLATE	A	1
–902A	251A4590-5		. NAMEPLATE	B	1
			DELETED		
			DELETED		

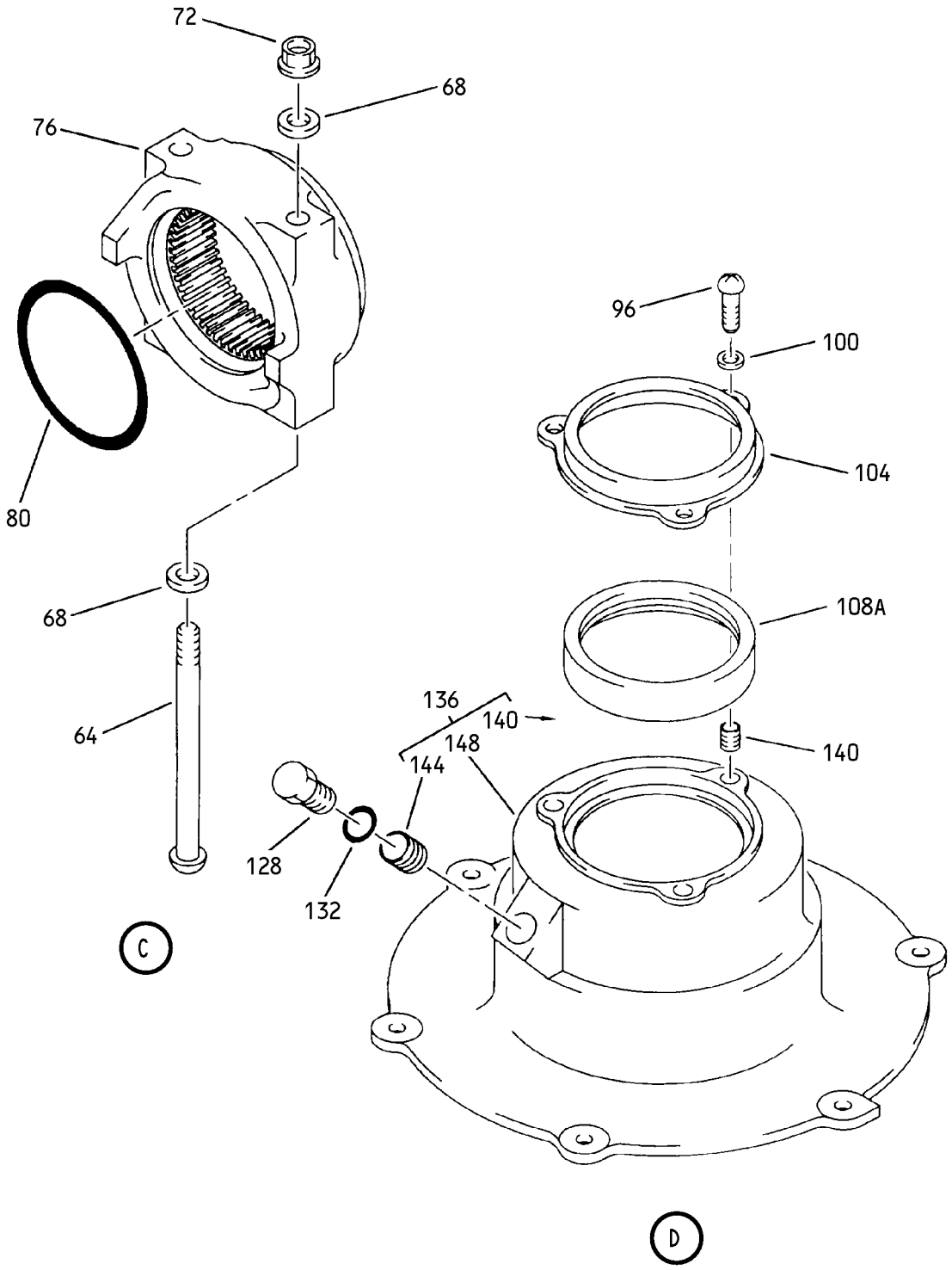
–Item not Illustrated



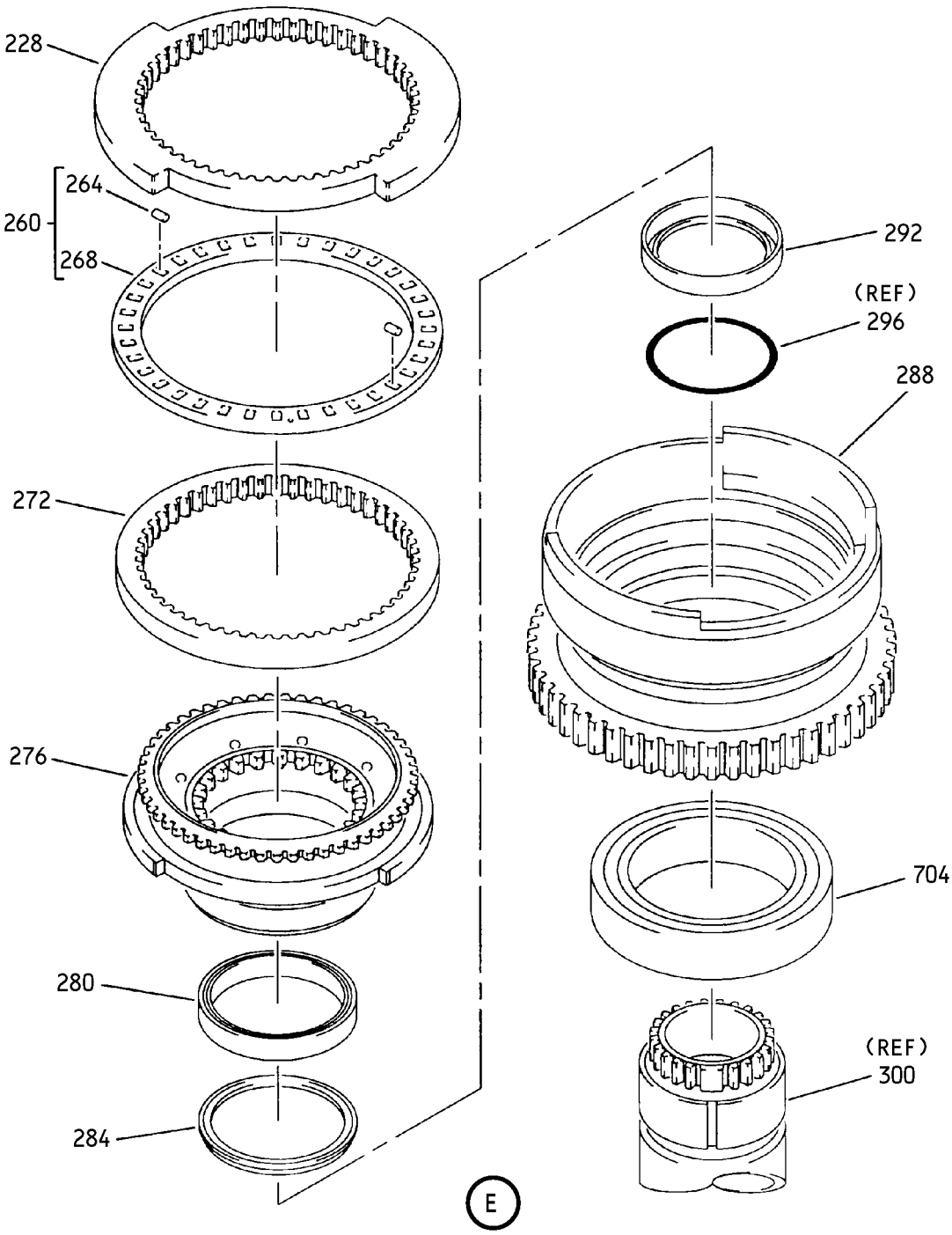
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 1 of 21)



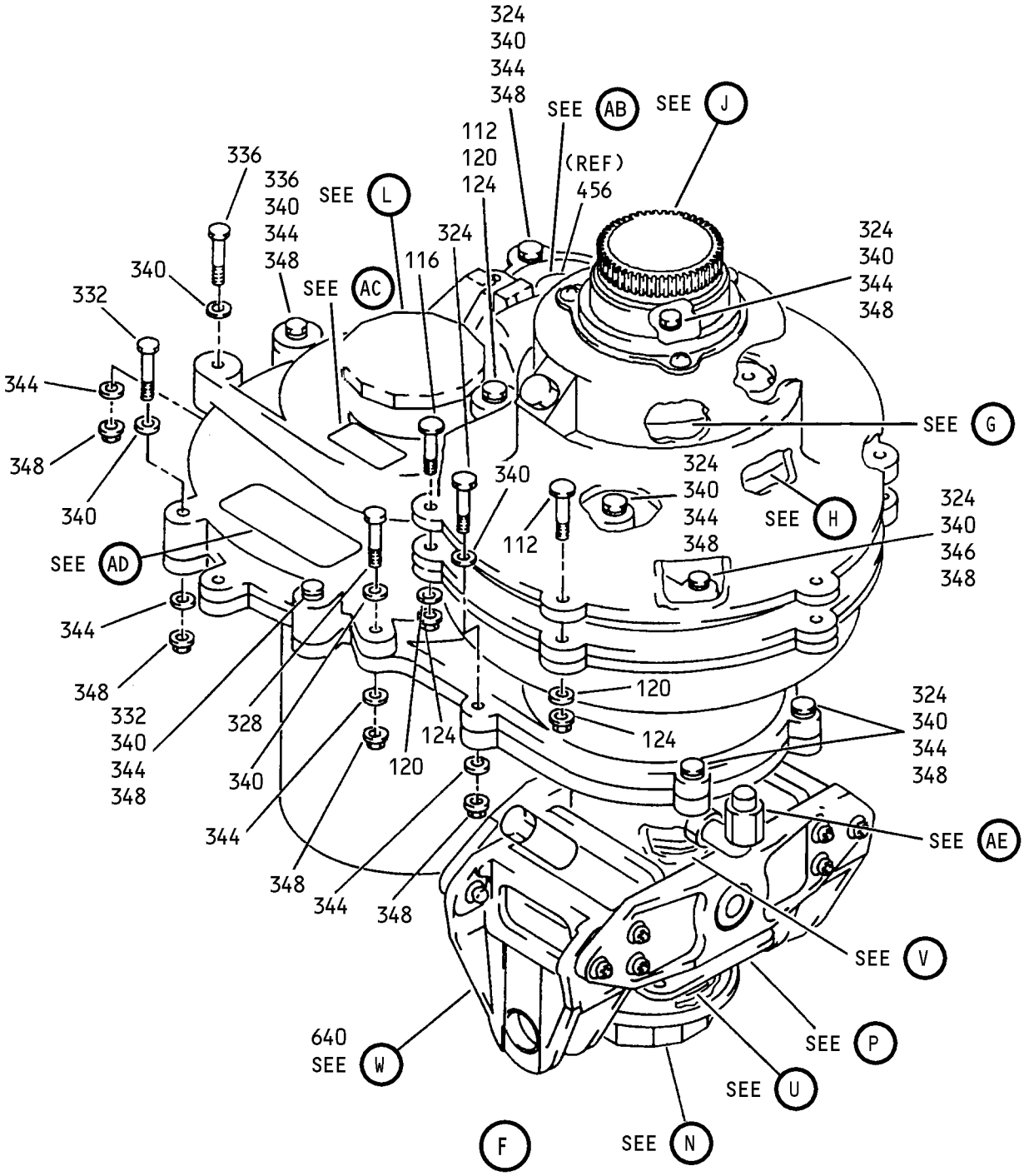
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 2 of 21)



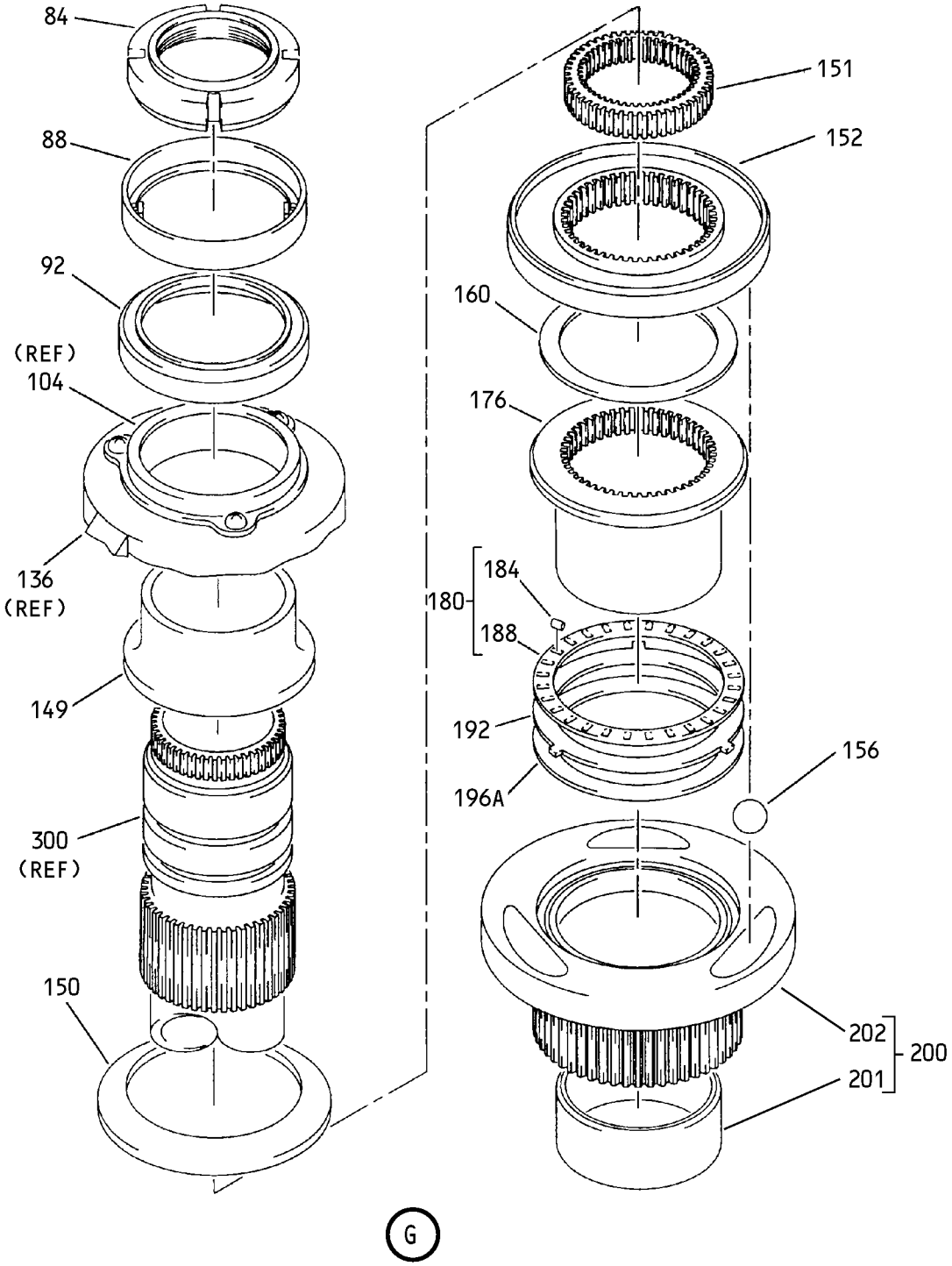
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 3 of 21)



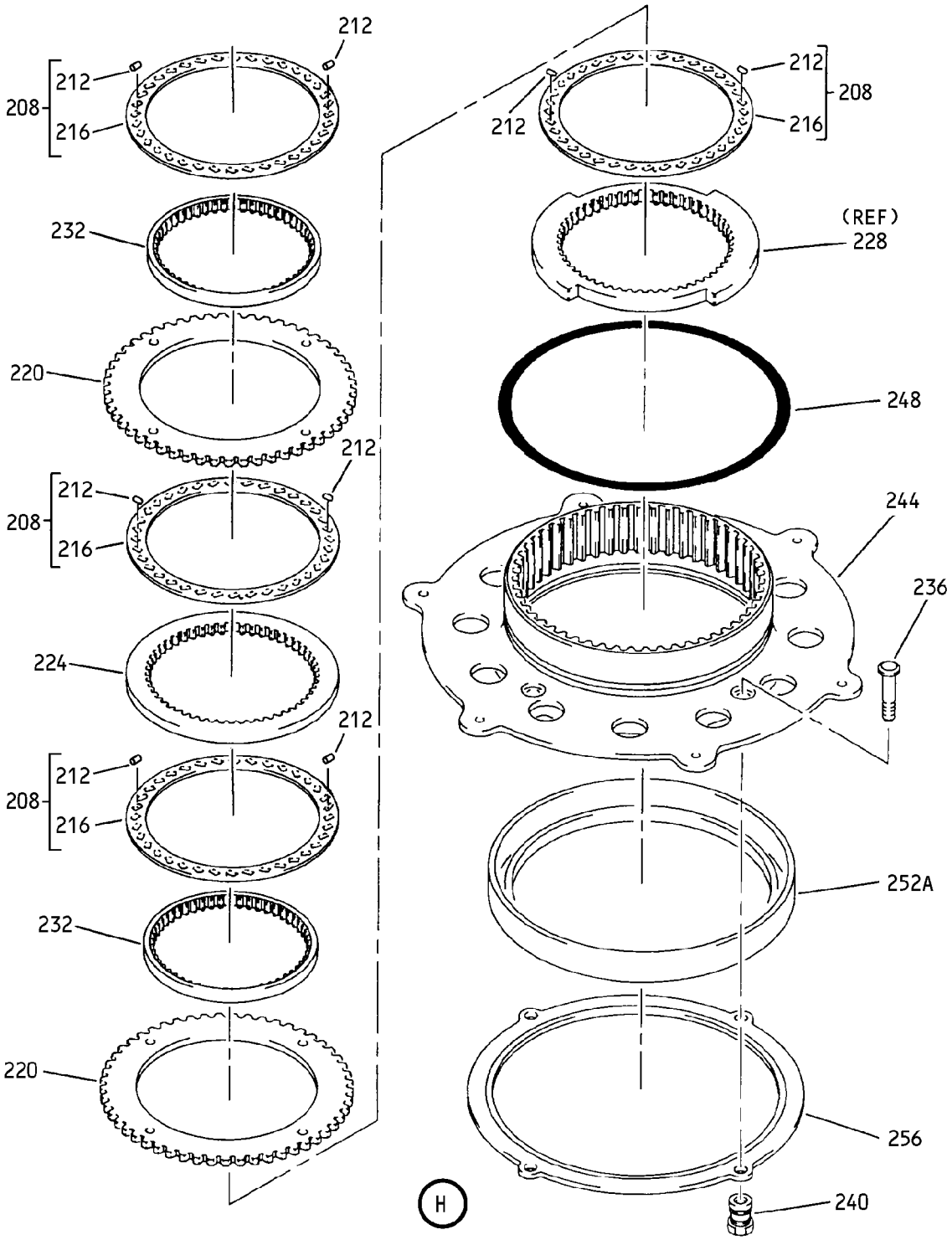
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 4 of 21)



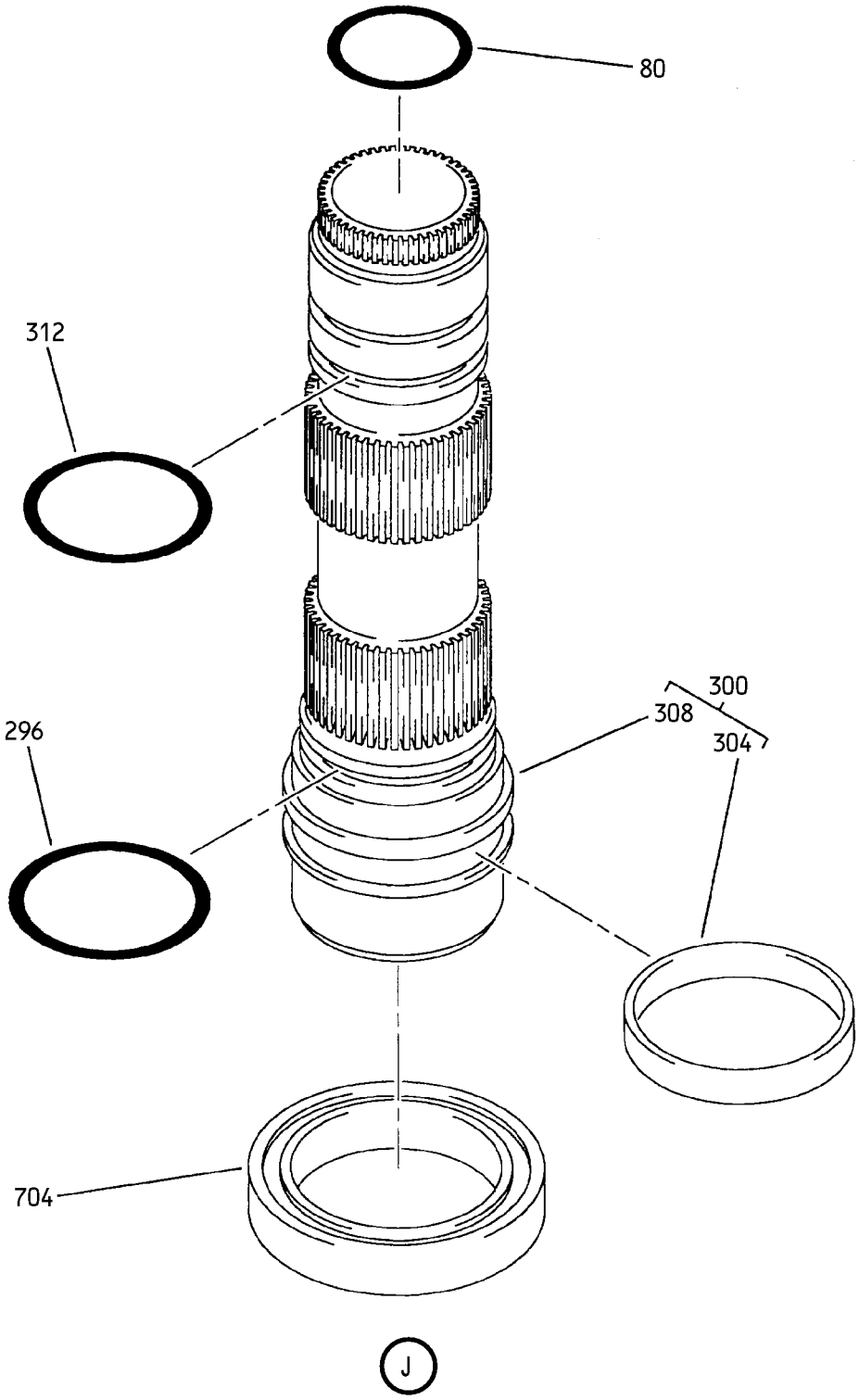
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 5 of 21)



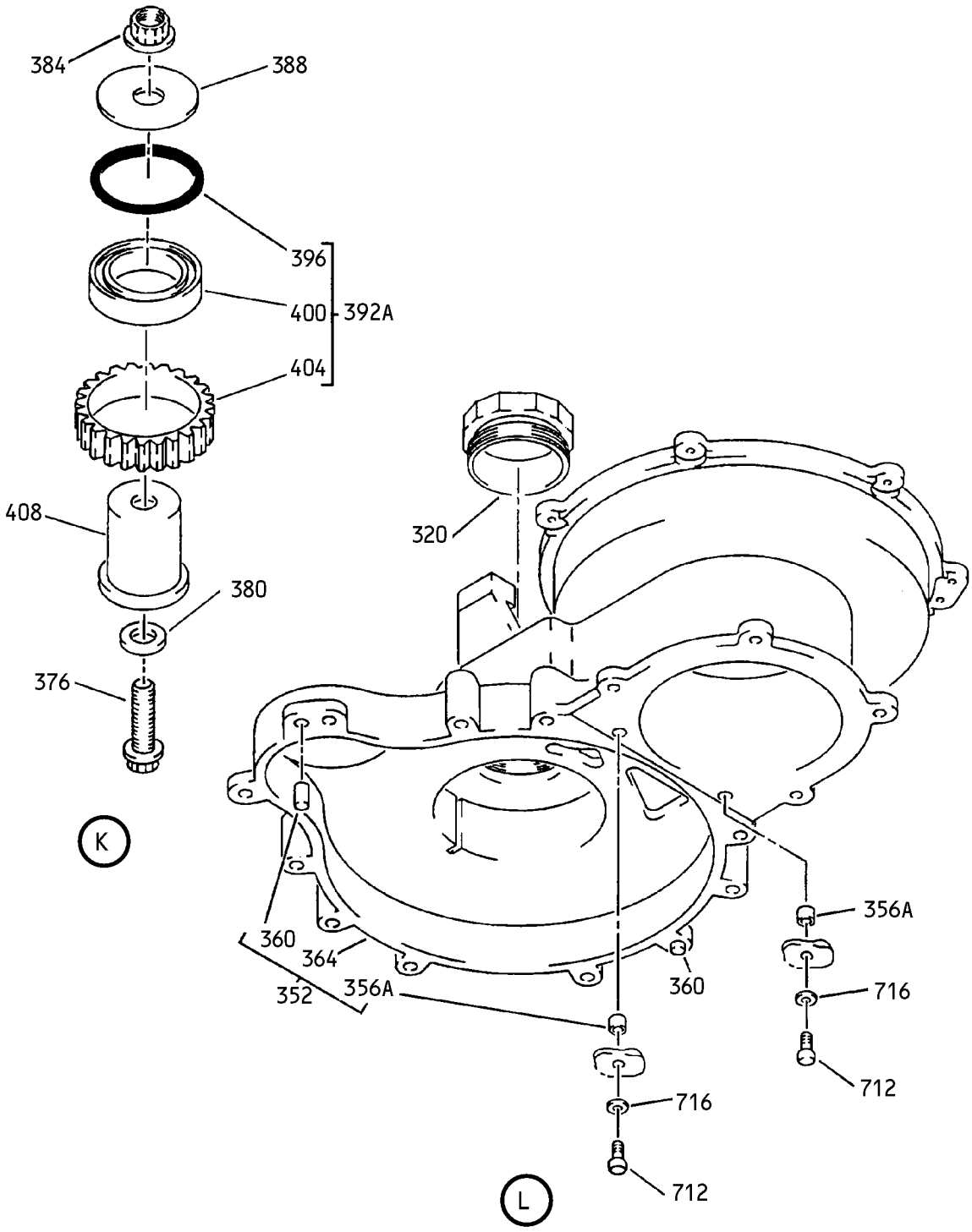
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 6 of 21)



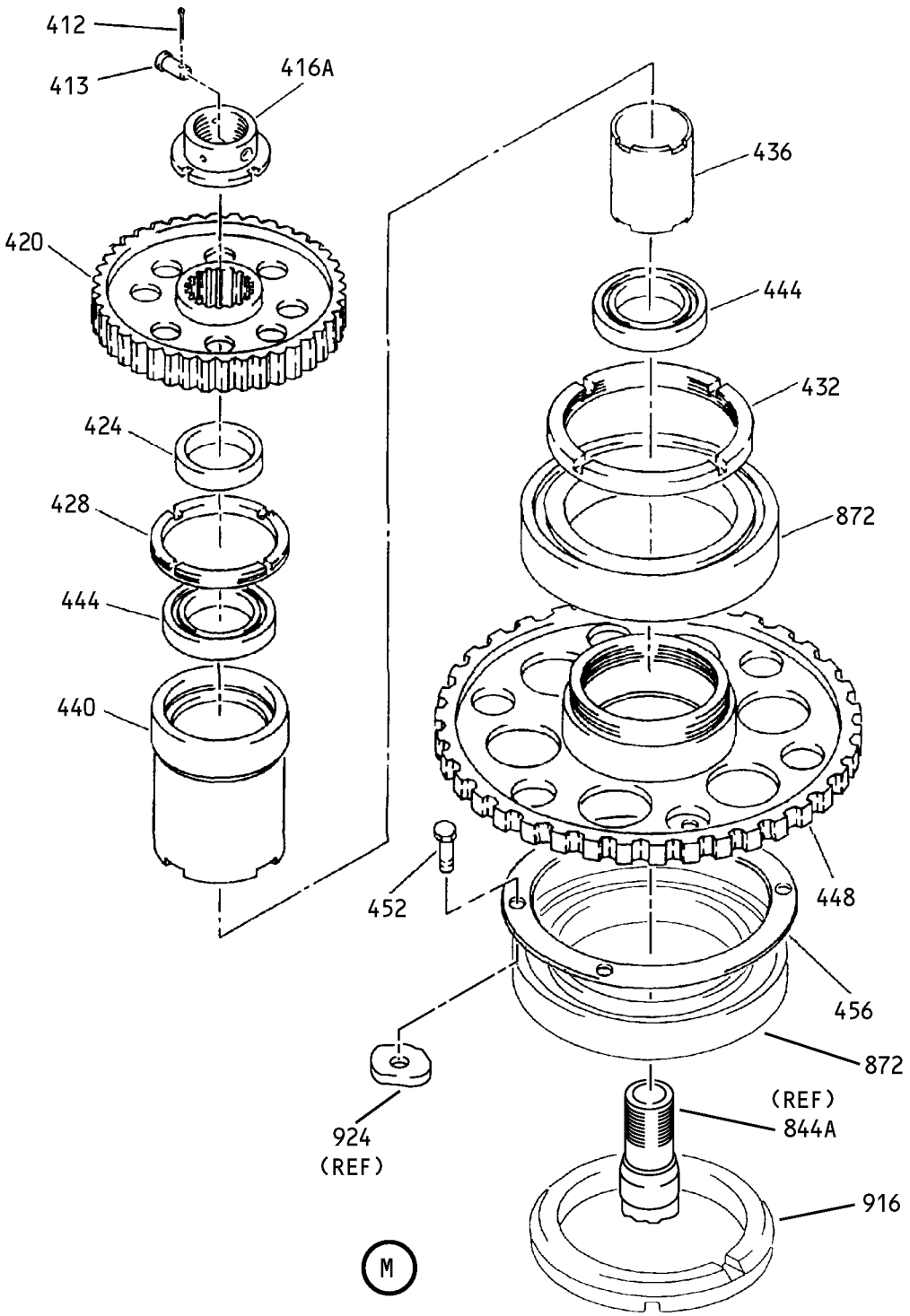
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 7 of 21)



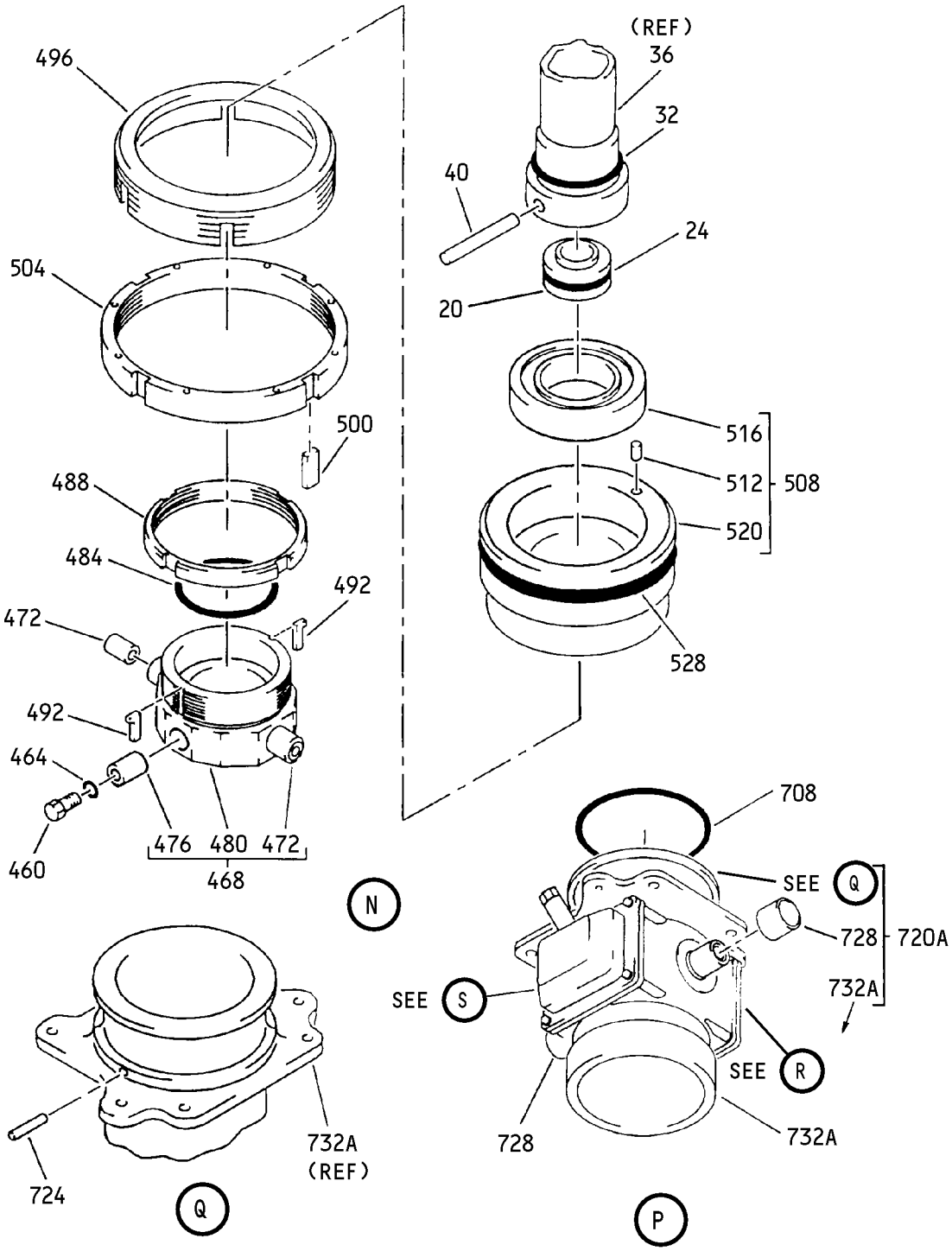
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 8 of 21)



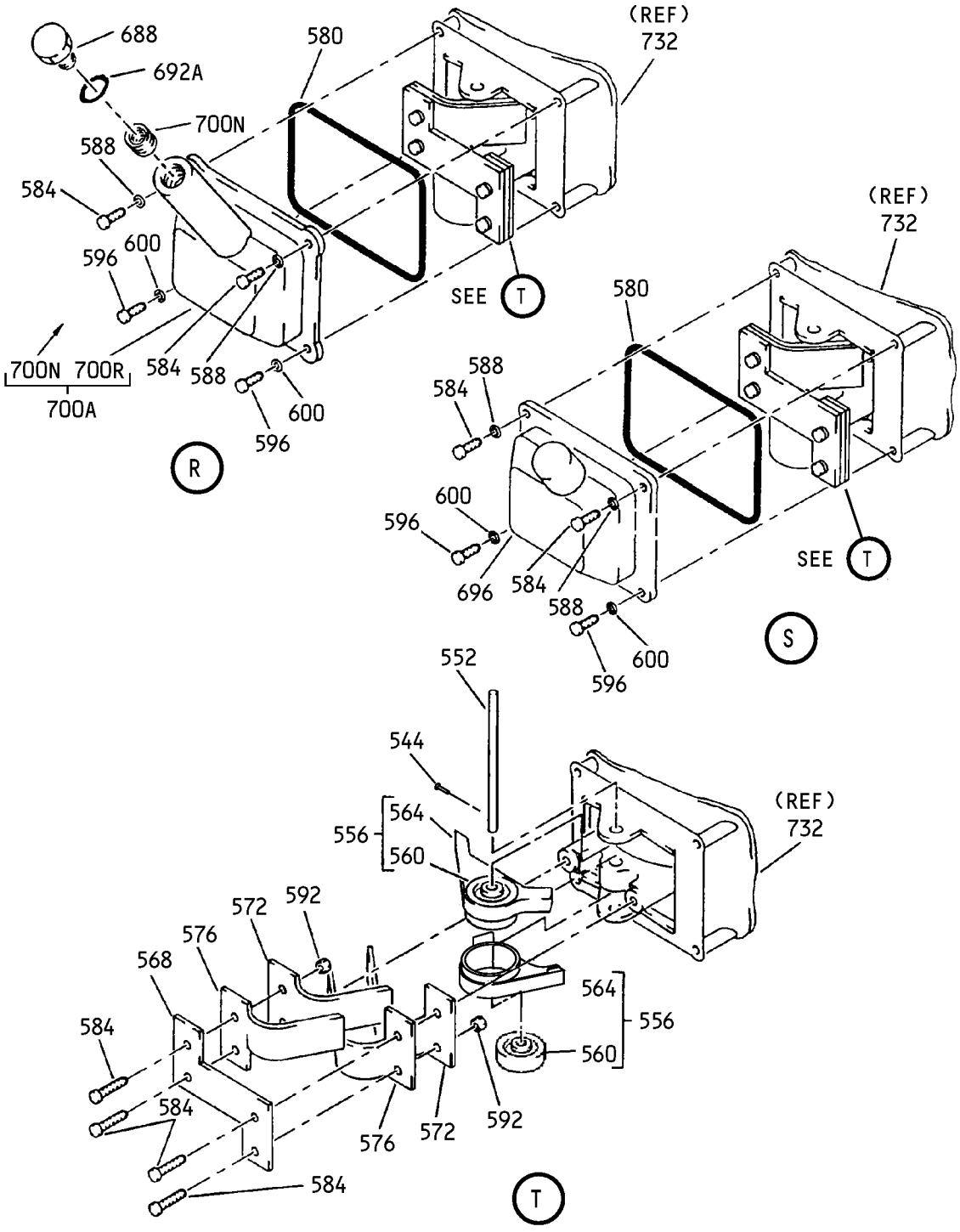
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 9 of 21)



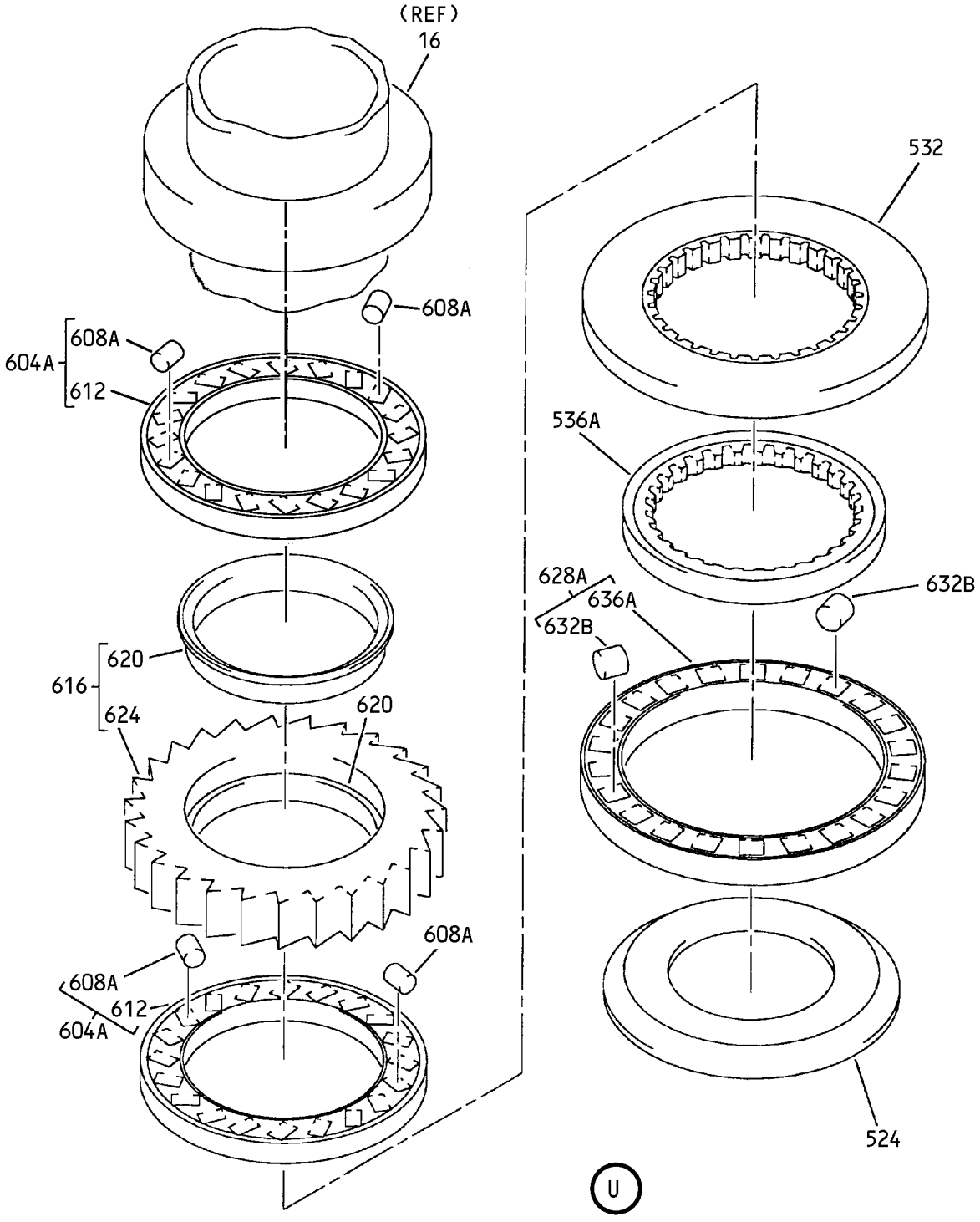
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 10 of 21)



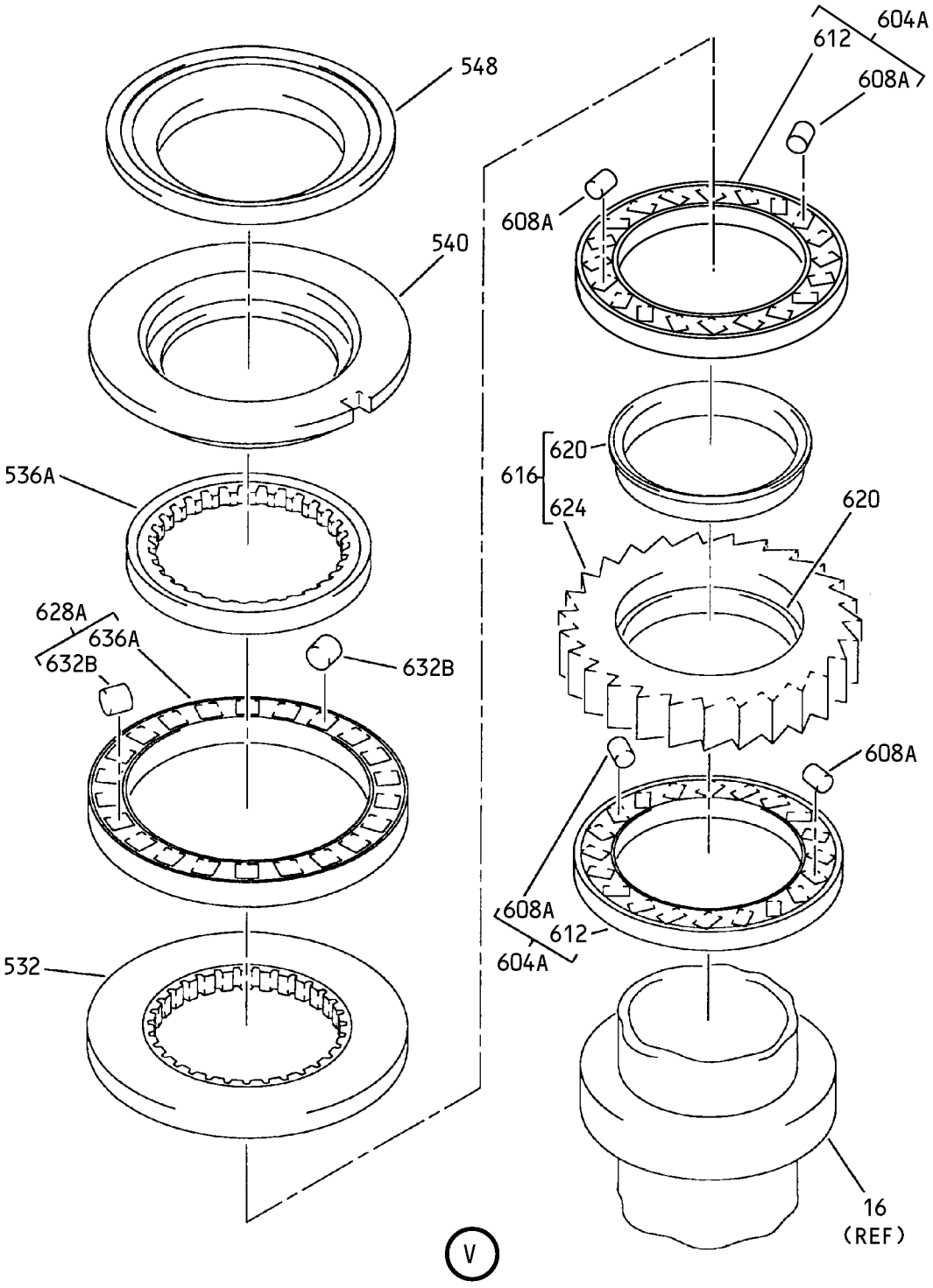
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 11 of 21)



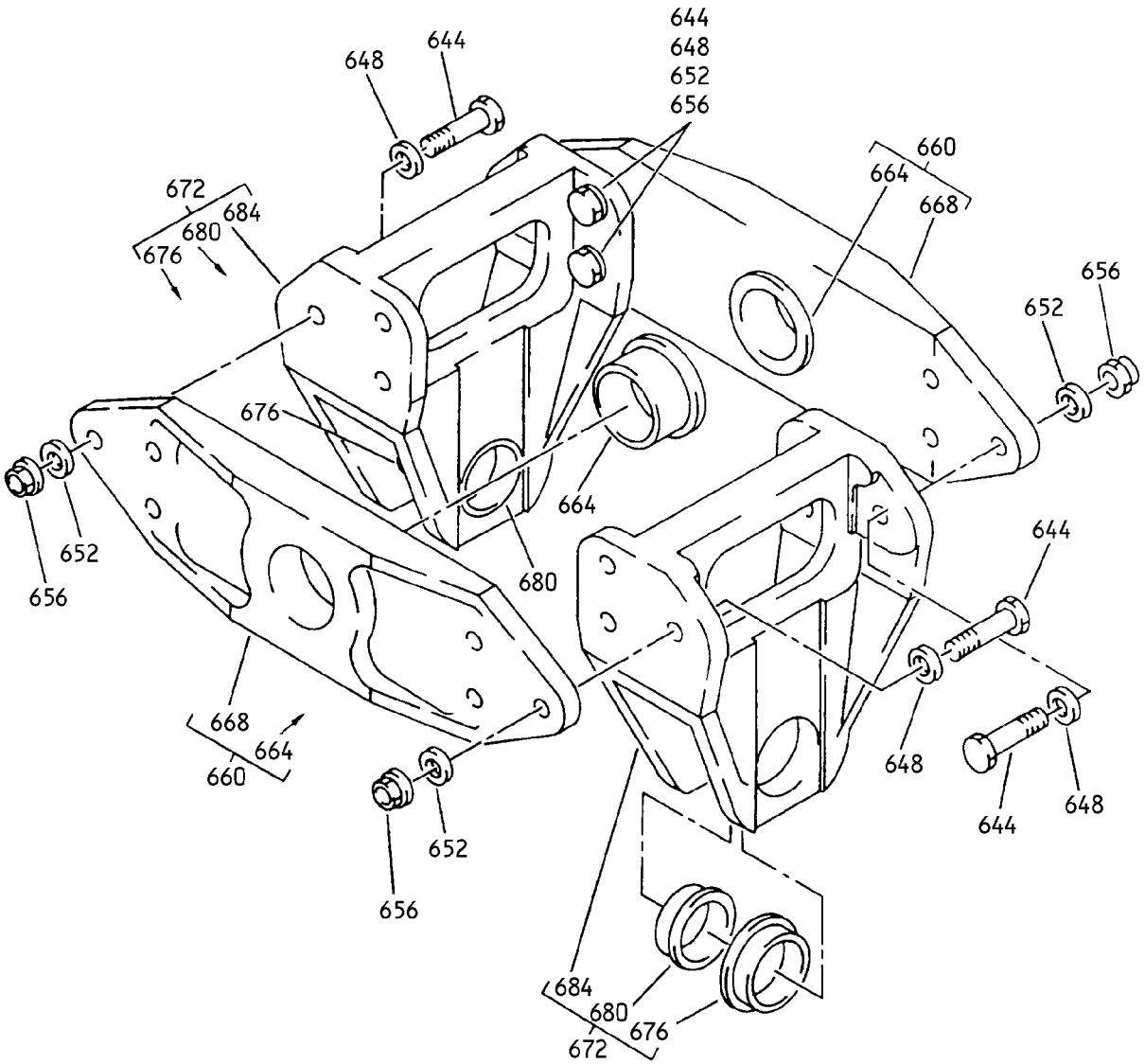
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 12 of 21)



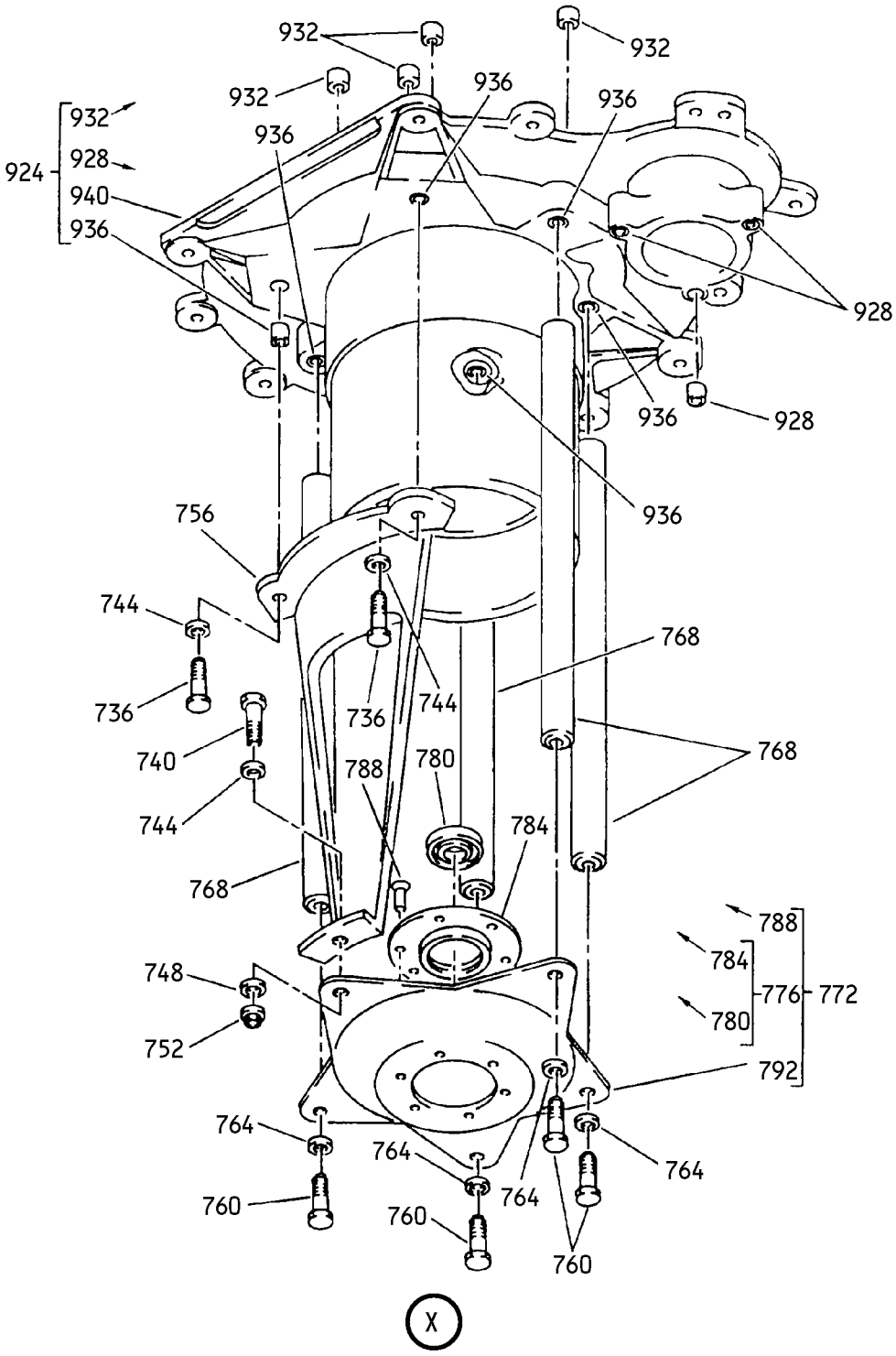
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 13 of 21)



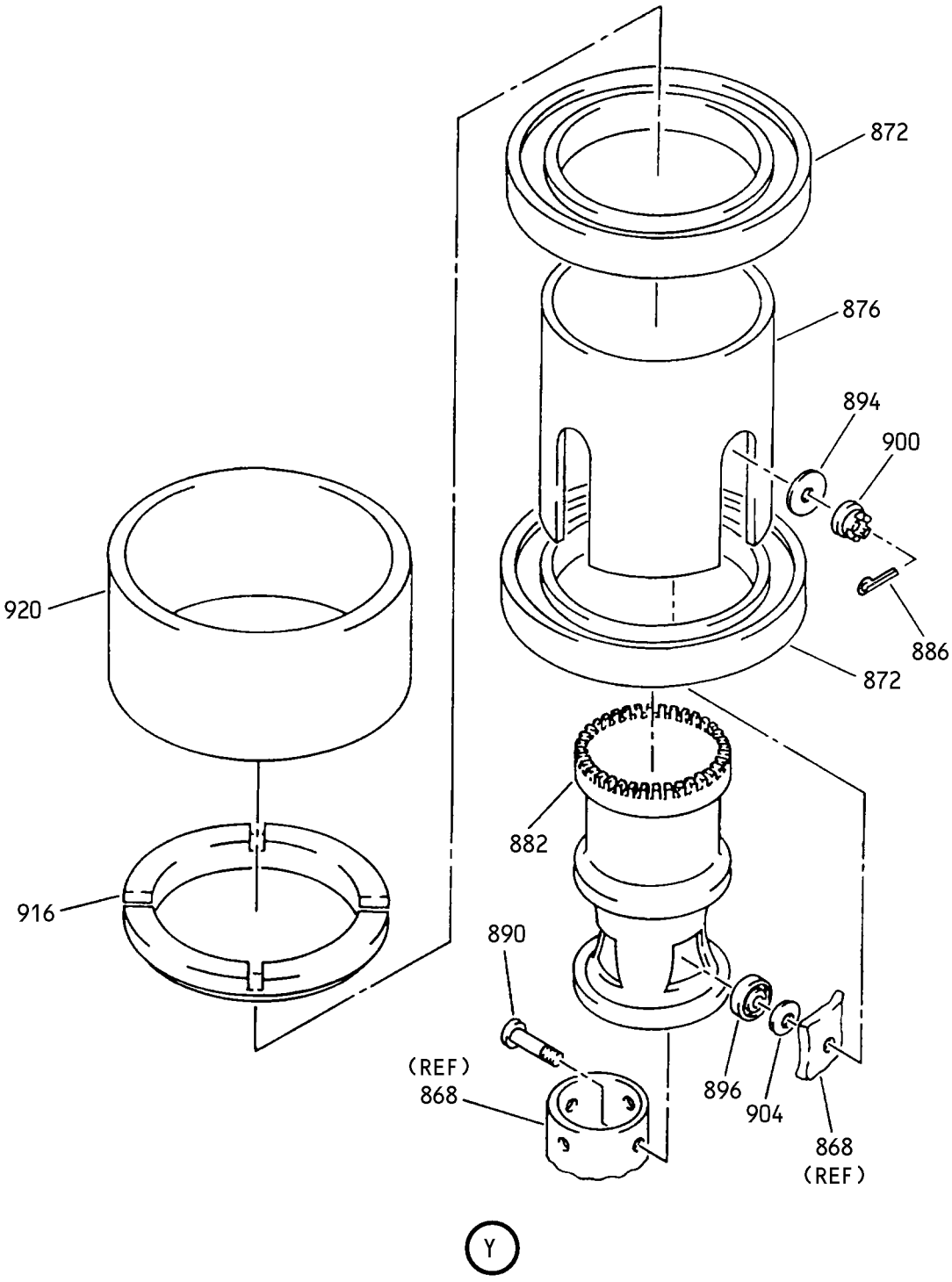
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 14 of 21)



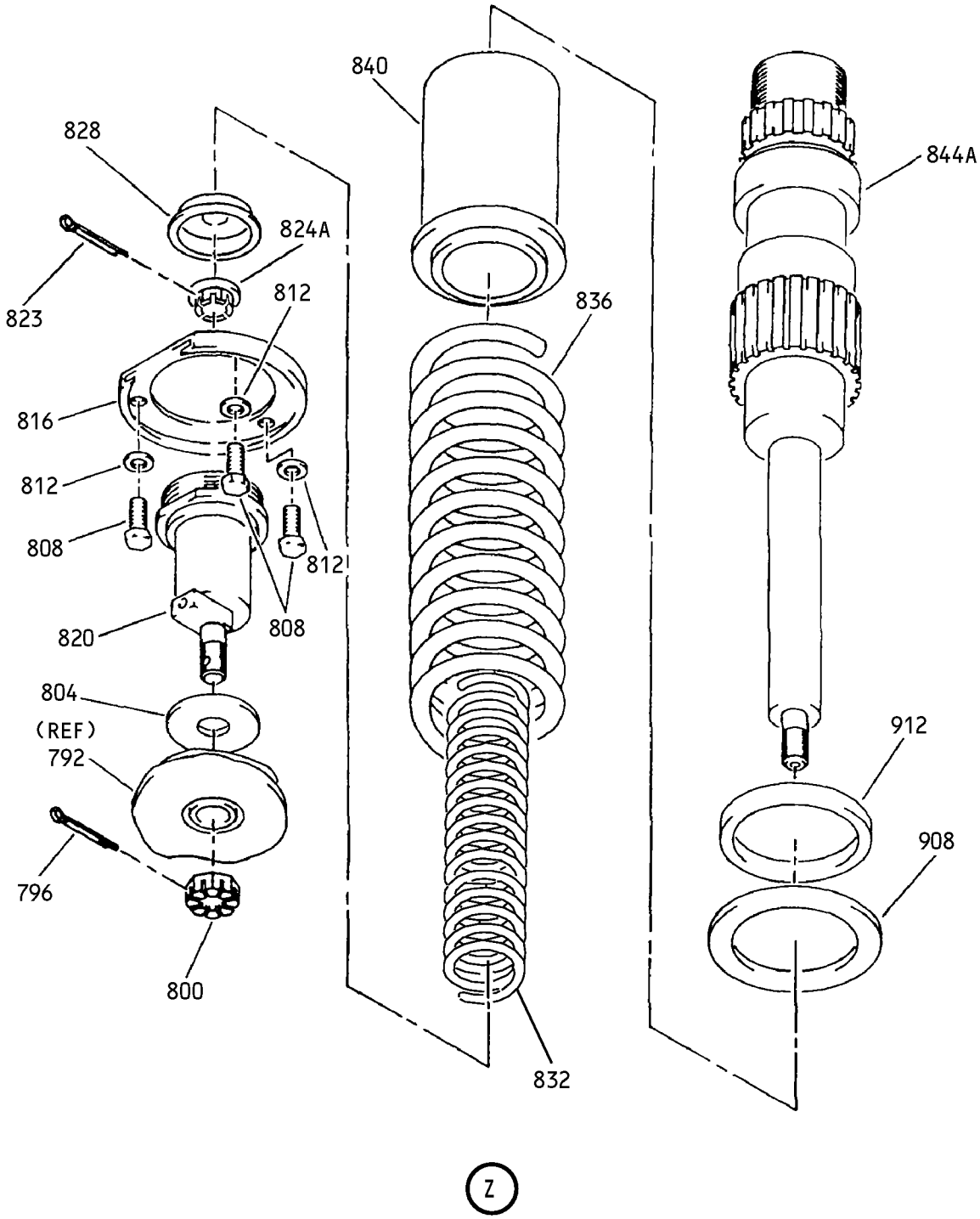
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 15 of 21)



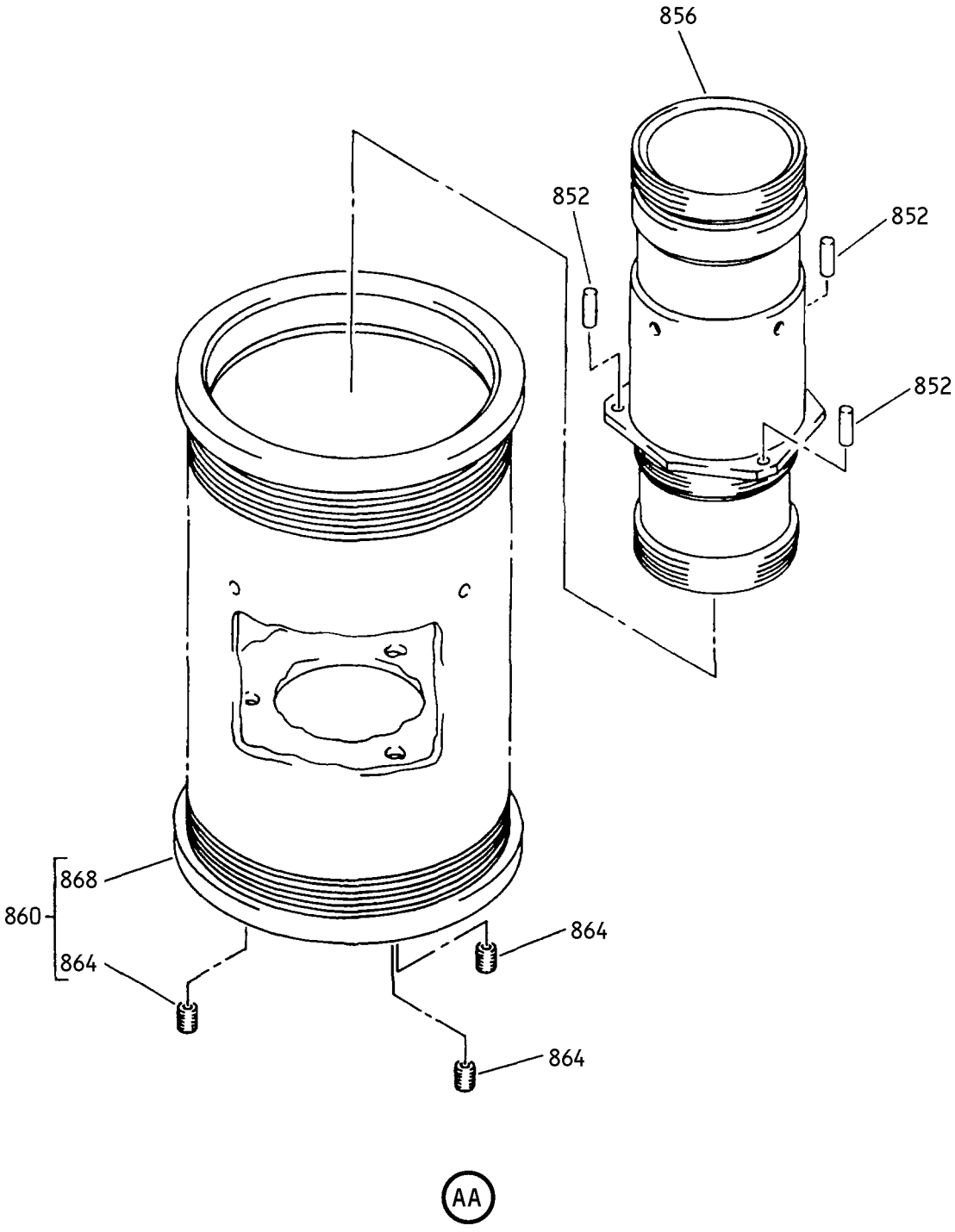
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 16 of 21)



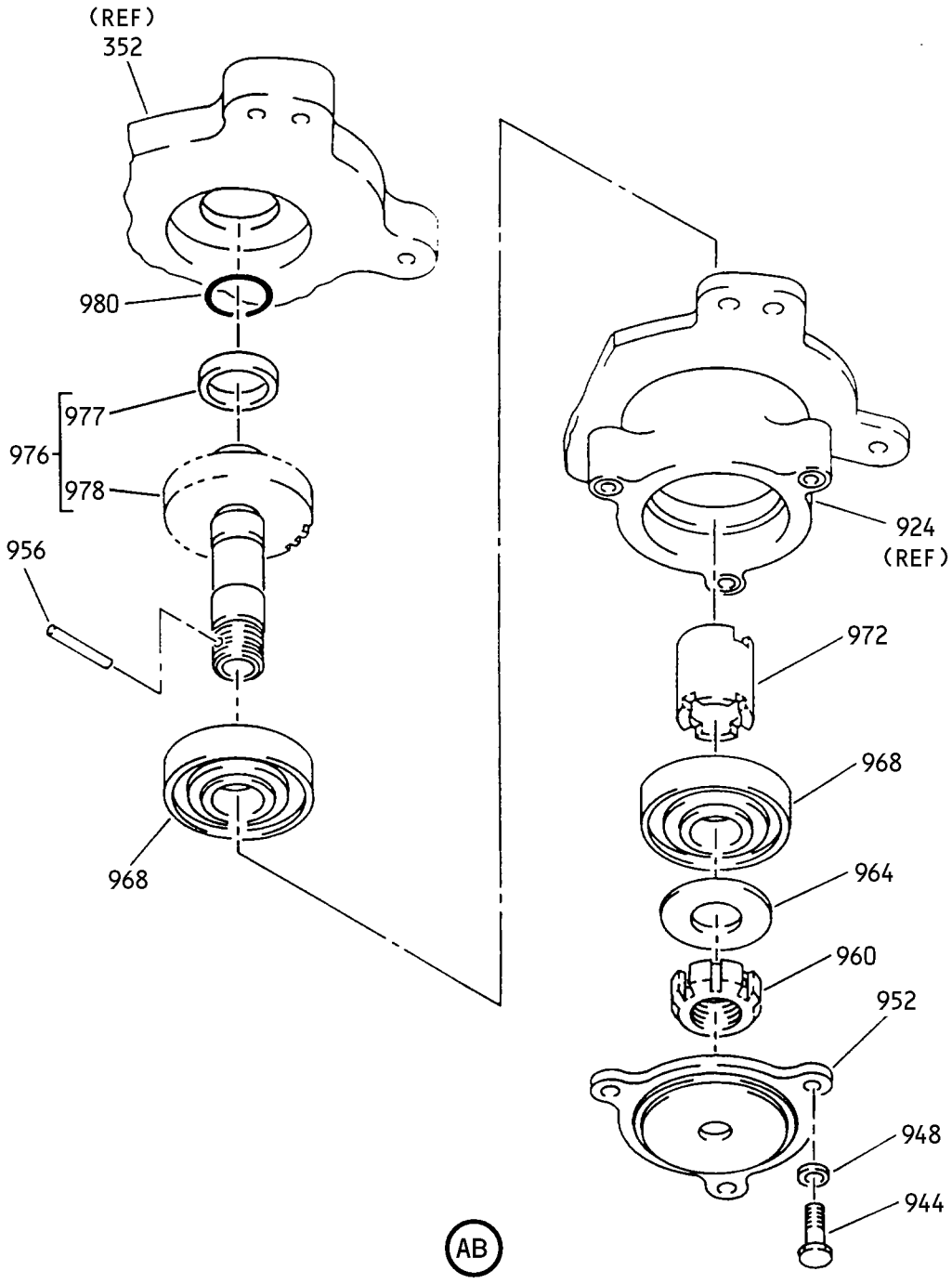
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 17 of 21)



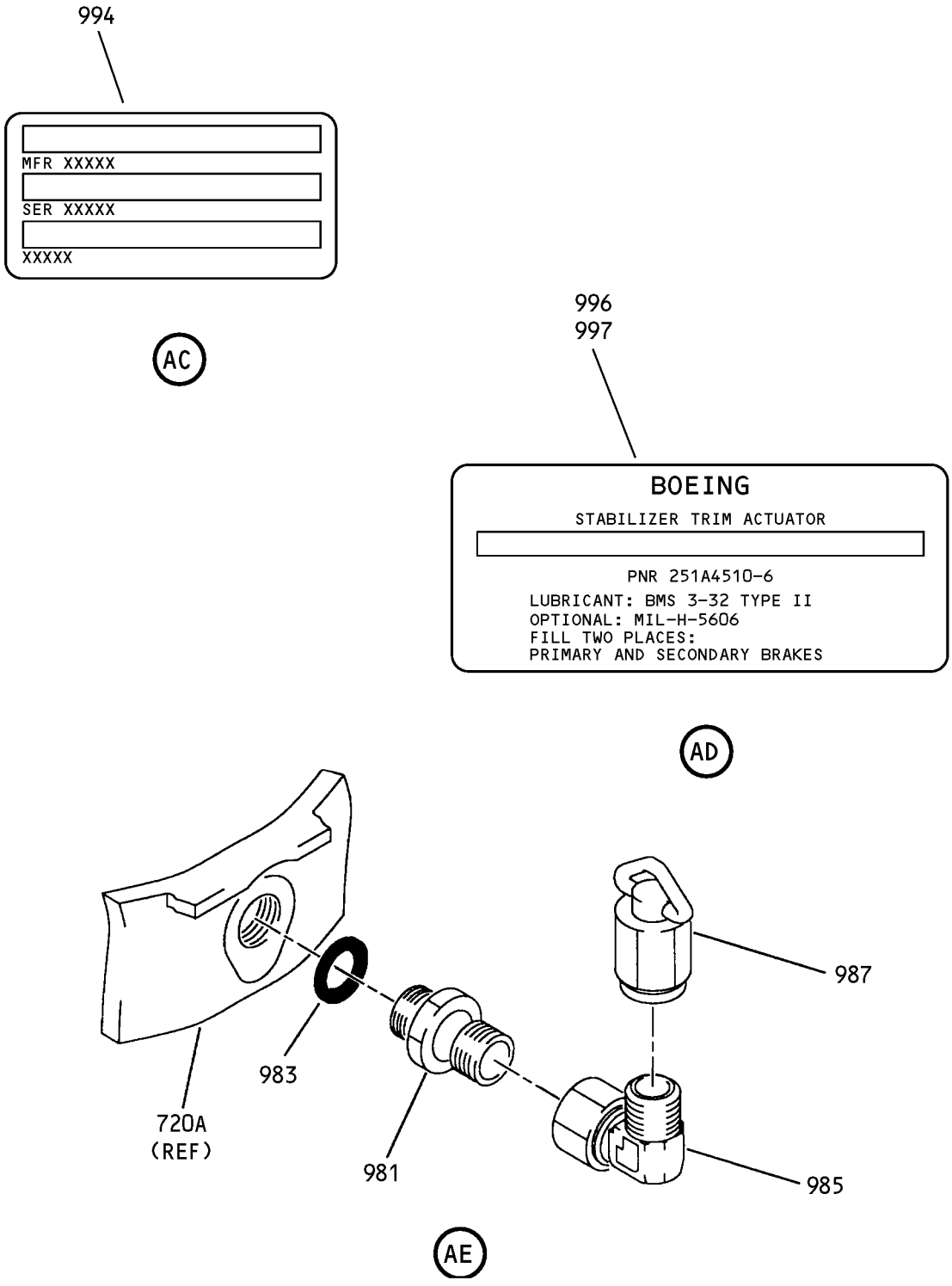
Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 18 of 21)



Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 19 of 21)



Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 20 of 21)



Stabilizer Trim Actuator Assembly
IPL Figure 2 (Sheet 21 of 21)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–1	251A4510-6		ACTUATOR ASSY-STAB. TRIM	C	RF
–1A	251A4510-9		ACTUATOR ASSY-STAB. TRIM	D	RF
–1B	251A4510-10		ACTUATOR ASSY-STAB. TRIM	E	RF
–1C	251A4510-11		ACTUATOR ASSY-STAB. TRIM	F	RF
–1D	251A4510-13		ACTUATOR ASSY-STAB. TRIM	G	RF
4	BACP18BC04C16P		. PIN-COTTER	C-G	1
8	BACN10JD118		. NUT	C-G	1
12	NAS1149F1832P		. WASHER	C-G	1
–16	10-62210-3		DELETED		
16A	07322P000-02		. BALLSCREW ASSY (VA4147) (SPEC 10-62210-3) (PRE ALERT SB 737-27A1277) (REPLACED BY 16F)	C	1
–16B	07322P000-03		. BALLSCREW ASSY (VA4147) (SPEC 10-62210-4) (PRE ALERT SB 737-27A1277)	D	1
–16C	07322P000-05		. BALLSCREW ASSY (VA4147) (SPEC 10-62210-6)	E, F, G	1
–16D	07322P000-04		. BALLSCREW ASSY (VA4147) (SPEC 10-62210-7) (POST ALERT SB 737-27A1277)	C	1
–16E	07322P000-05		. BALLSCREW ASSY (VA4147) (SPEC 10-62210-6) (POST ALERT SB 737-27A1277)	D	1
–16F	07322P000-05		. BALLSCREW ASSY (VA4147) (SPEC 10-62210-6) (REPLACES 16A)	C	1
20	66-24938-1		. SEAL	C-G	2
24	MS29513-113		. PACKING	C-G	2
28	MS29513-120		. PACKING	C-G	1
32	MS29513-123		. PACKING	C-G	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
36	65C29264-1		. ROD ASSY-SAFETY	C-G	1
40	MS16562-51		. PIN-SPR	C-E	1
–40A	BCREF157169		. PIN-SPR (V81205) (BACP18BE12P1250U)	F, G	1
–44	BACB30NR4HK7		DELETED		
44A	BACB30NM4HK7		. BOLT	C-G	4
48	BACW10BP4CD		. WASHER	C-G	4
52	69-37969-1		. YOKE	C-G	2
–52D	700-863-8862-99		DELETED		
56	69-37970-1		. GIMBAL-FTG	C-G	2
60	65-49966-1		. PIN ASSY	C-G	2
61	MS15001-2		. . FITTING	C-G	1
62	65-49966-2		. . PIN	C-G	1
64	NAS623-3-34		. SCREW	C, D	2
–64A	BACB30ZG3-34		. SCREW	E	2
–64B	BACB30LK3-35		. SCREW	F, G	2
68	NAS1149F0332P		. WASHER	C-E	4
70	BACW10BP3CD		. WASHER	F, G	2
71	BACW10BP3BP		. WASHER	F, G	2
–72	BACN10TY3CD		DELETED		
72A	PLH53CD		. NUT (V62554) (SPEC BACN10YR3CD) (OPT H52732-3CD (V15653))	C-G	2
76	251A4834-1		. STOP	C-G	1
80	MS29513-132		. PACKING	C-G	2
84	SL2822-36C		. NUT (V97393) (SPEC BACN10RF36C)	C-G	1
88	251A4833-1		. LOCKWASHER	C-G	1
92	251A4832-1		. SHIELD	C-G	1
96	BACB30NT3K2		. BOLT (OPT ITEM 96A)	C, D	3

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–96A	NAS623-3-2		. SCREW (OPT ITEM 96)	C, D	3
–96B	BACB30NT3K2		. BOLT (OPT ITEM 96C)	E-G	3
–96C	BACB30ZG3-2		. BOLT (OPT ITEM 96B)	E-G	3
100	NAS1149D0316J		. WASHER	C-G	3
104	251A4835-1		. RETAINER-SEAL	C-G	1
–108	S256W410-18		DELETED		
108A	1002423607800		. SEAL-LIP (V91251) (SPEC S256W410-18) (OPT 700-867-2272-99 (VU1068))	C-G	1
–108B	1002423607800		DELETED		
–108C	700-867-2272-99		. SEAL-LIP (VU1068) (SPEC S256W410-18) (OPT 1002423607800 (V91251))	C-G	1
112	BACB30NT3K10		. BOLT (OPT ITEM 112A)	C, D	5
–112A	NAS623-3-10		. SCREW (OPT ITEM 112)	C, D	5
–112B	BACB30NT3K10		. BOLT (OPT ITEM 112C)	E-G	5
–112C	BACB30ZG3-10		. BOLT (OPT ITEM 112B)	E-G	5
116	BACB30NT3K11		. BOLT (OPT ITEM 116A)	C, D	1
–116A	NAS623-3-11		. SCREW (OPT ITEM 116)	C, D	1
–116B	BACB30NT3K11		. BOLT (OPT ITEM 116C)	E-G	1
–116C	BACB30ZG3-11		. BOLT (OPT ITEM 116B)	E-G	1
120	NAS1149D0363J		. WASHER	C-G	6

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
124	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	C-G	6
128	AN814-4JL		. PLUG	C, D	1
–128A	AN5169J04L		DELETED		
–128B	AS5169J04L		. PLUG	E-G	1
132	M25988-1-110		. PACKING	C-G	1
136	251A4829-1		. COVER ASSY-HSG	C-G	1
140	MS21209F1-15P		. . INSERT (OPT ITEM 140A)	C-G	3
–140A	BACI12AEF1-15P		. . INSERT (OPT ITEM 140)	C-G	3
144	MS21209F7-10P		. . INSERT (OPT ITEM 144A)	C-G	1
–144A	BACI12AEF7-10P		. . INSERT (OPT ITEM 144)	C-G	1
148	251A4829-2		. . HOUSING	C-G	1
149	251A4836-1		. RETAINER-SEAL	C-G	1
150	251A4837-1		. SEAL RING	C-G	1
151	251A4838-1		. SPRING-BELLEVILLE	C-G	1
152	251A4814-1		. CAM-OUTPUT	C	1
–152A	251A4814-1		. CAM-OUTPUT (OPT ITEM 152B)	D-G	1
–152B	251A4814-2		. CAM-OUTPUT (OPT ITEM 152A)	D-G	1
156	BACB10T1-36A		. BALL	C-G	3
160	251A4828-1		. SHIM	C-G	AR
–164	251A4828-2		. SHIM	C-G	AR
–168	251A4828-3		. SHIM	C-G	AR
–172	251A4828-4		. SHIM	C-G	AR
176	251A4820-1		. SPACER	C-G	1
180	251A4812-1		. ROLLER ASSY-THRUST	C-G	1
184	514-2589		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
184A	251A4841-1		. . ROLLER	C-G	28
188	251A4812-2		. . RETAINER-ROLLER	C-G	1
192	251A4827-1		. PLATE-THRUST	C-G	1
–196	SSR0325-517		DELETED		
196A	SSR0325S17		. SPRING-WAVE (V51814)	C-G	1
200	251A4815-1		. CAM ASSY-INPUT	C-G	1
201	251A4813-1		. . BUSHING	C-G	1
202	251A4815-3		. . CAM (OPT ITEM 202A)	C-G	1
–202A	251A4815-2		. . CAM (OPT ITEM 202)	C-G	1
–204	251A4813-1		DELETED		
208	251A4811-1		. ROLLER ASSY-SKEWED	C, D	4
–208A	251A4811-3		. ROLLER ASSY-SKEWED (OPT ITEM 208B)	E-G	4
–208B	251A4811-1		. ROLLER ASSY-SKEWED (OPT ITEM 208A)	E-G	4
–212	514-2589		DELETED		
212A	251A4841-1		. . ROLLER	C-G	36
216	251A4811-2		. . RETAINER-ROLLER	C-G	1
–216A	251A4811-4		. . RETAINER-ROLLER	E-G	1
220	251A4816-1		. STATOR	C-G	2
224	251A4817-1		. ROTOR	C-G	1
228	251A4818-1		. COUPLING-ROTOR	C-G	1
232	251A4821-1		. GUIDE	C-G	2
236	HST10AG6-10		. BOLT (V0PTK6) (SPEC BACB30VT6K10) (OPT HST10AG6-10 (V06725)) (OPT HST10AG6-10 (V56878)) (OPT HST10AG6-10 (V73197))	C-G	4

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
240	HST79CY6		. COLLAR (V73197) (SPEC BACC30BL6) (OPT HST79-6 (V92215)) (OPT HST79CY6 (V56878)) (OPT HST79CY6 (V5M902))	C-G	4
244	251A4822-1		. HOUSING-STATOR	C-G	1
248	M25988-1-160		. PACKING	C-G	1
–252	S256W410-102		DELETED		
252A	1002423903000		. SEAL-TIP (V91251) (SPEC S256W410-102) (OPT 700-863-8862-99 (VU1068))	C-G	1
–252B	1002423903000		DELETED		
–252C	700-762-8862-99		DELETED		
–252D	700-863-8862-99		. SEAL-TIP (VU1068) (SPEC S256W410-102) (OPT 1002423903000 (V91251))	C-G	1
256	251A4830-1		. SEAL-SPRT	C-G	1
260	251A4831-1		. ROLLER ASSY-THRUST	C-G	1
264	514-2589		DELETED		
264A	251A4841-1		. . ROLLER	C-G	36
268	251A4831-2		. . RETAINER-ROLLER	C-G	1
272	251A4819-1		. PLATE-THRUST	C-G	1
276	251A4825-1		. SUPPORT-THRUST	C-G	1
280	KB035CP0		. BEARING (V40920) (OPT ITEM 280A, 280B)	C-G	1
–280A	RI6656B7A1		. BEARING (V83086) (OPT ITEM 280, 280B)	C-G	1
–280B	STB035CB0BAC		. BEARING (OPT ITEM 280, 280A)	C-G	1
284	251A4824-1		. RETAINER-SEAL	C-G	1
288	251A4826-1		. GEAR-INPUT	C-G	1
–292	S256W410-19		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
292A	1002423607900		. SEAL-LIP (V91251) (SPEC S256W410-19) (OPT 700-861-8862-99 (VU1068))	C-G	1
–292B	1002423607900		DELETED		
–292C	700-861-8862-99		. SEAL-LIP (VU1068) (SPEC S256W410-19) (OPT 1002423607900 (V91251))	C-G	1
296	MS29513-141		. PACKING	C-G	1
300	251A4823-1		. SLEEVE ASSY	C-G	1
304	69-36083-14		. . RING-SEAL (MAKE FROM TUBING TEFLON DUPONT .05FT 2.770 IN ID .080 IN WALL .398 IN)	C-G	1
308	251A4823-2		. . SLEEVE	C-G	1
312	MS29513-138		. PACKING	C-G	1
–316	MS29513-225		DELETED		
320	69-50913-1		. CAP	C-G	1
324	BACB30NR4K9		. BOLT	C-G	6
328	BACB30NR4K8		. BOLT	C-G	2
332	BACB30NR4K18		. BOLT	C-G	2
336	BACB30NR4K28		. BOLT	C-G	2
340	BACW10BN4AC		. WASHER	C-G	12
344	NAS1149D0463J		. WASHER	C-G	8
346	NAS1149F0463P		. WASHER	C-G	4
348	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))	C-G	12
352	251A4555-4		. GEARBOX ASSY (OPT ITEM 352A)	C-E	1
–352A	251A4555-6		. GEARBOX ASSY (OPT ITEM 352)	C-E	1
–352B	251A4555-11		. GEARBOX ASSY	F, G	1
–356	MS21209F5-20		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
356A	MS21209F5-20P		. . INSERT (OPT ITEM 356C) (USED ON ITEM 352A)	C-E	2
–356B	MS21209F4-20P		. . INSERT (USED ON ITEM 352)	C-E	2
–356C	BACI12AEF5-20P		. . INSERT (OPT ITEM 356A) (USED ON ITEM 352A)	C-E	2
–356D	BACI12AEF5-20P		. . INSERT	F, G	2
360	NAS607-4-5P		. . PIN-DOWEL	C-G	2
364	251A4555-5		. . GEARBOX (USED ON ITEM 356)	C-E	1
–364A	251A4555-7		. . GEARBOX (USED ON ITEM 356A)	C-E	1
–364B	251A4555-10		. . GEARBOX	F, G	1
–368	BACR15BA4AD		. . RIVET (SIZE DETERMINED ON INST) (USED ON ITEM 356A)	C-E	2
–372	251A4555-8		. . PLATE (USED ON ITEM 356A)	C-E	1
376	MS20004-4		. BOLT	C-G	1
380	BACW10BN4AC		. WASHER	C-G	1
384	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))	C-G	1
388	AN970-4		. WASHER	C-G	1
–392	90-3590		DELETED		
392A	90-3590-0		. GEAR ASSY-IDLER	C-G	1
396	BACR12Y23		. . RING	C-G	1
–400	AN201KP16A		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
400A	SSMKP16JASD705		. . BEARING (V83086) (SPEC BACB10FS16J) (OPT PACMKP16JAA3908 (V21335)) (OPT PACMKP16AFS428 (V21335)) (OPT ACMKP16JAP510LY (V40920)) (OPT PACMKP16JAFS428 (V21335)) (OPT SSMKP16JAP (V21760))	C-G	1
404	90-3590-1		. . GEAR	C-G	1
408	69-50831-1		. ADAPTOR	C-G	1
–412	BACP18BC03C04P		DELETED		
–412A	MS24665-281		DELETED		
412B	BACP18BC02C06P		. PIN-COTTER	C-G	1
413	MS20392-1C9		. PIN-DRILLED SHANK	C	1
–413A	BACP18BD1C9		. PIN-DRILLED SHANK	D-G	1
–416	30-2661		DELETED		
416A	30-2661-1		. NUT	C-G	1
420	90-3583-1		. GEAR	C-G	1
424	69-50832-1		. SPACER	C-G	1
428	60-3114		. NUT	C-G	1
432	69-67128-1		. NUT	C-G	1
436	30-2493-1		. SPACER-UPR BRG	C-G	1
440	30-2538-1		. SPACER-OUTER	C-G	1
444	KP25BSD610		. BEARING (V83086) (SPEC BACB10BW25) (OPT KP25B2TS (V43991)) (OPT KP25B (V38443)) (OPT LLKP25B (V38443)) (OPT KP25BG27 (V30163)) (OPT KP25BFS428 (V21335)) (OPT KP25BLY196 (V40920))	C, D	2
–444A	PACMKP25BFS428		. BEARING (V06144) (SPEC BACB10FR25J) (OPT AMKP25BNJC (V06144)) (OPT PACMKP25BFS428 (V21335))	E-G	2
448	50-3132-3		. GEAR-CLUTCH	C-G	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
452	NAS6604H1		. BOLT	C, D	4
–452A	BACB30LM4H1		. BOLT	E-G	4
456	60-3286-1		. PLATE-BRG	C-G	1
460	AN814-4JL		. PLUG	C, D	1
–460A	AN5169J04L		DELETED		
–460B	AS5169J04L		. PLUG	E-G	1
464	M25988-1-110		. PACKING	C-G	1
468	251A4680-5		. PLUG ASSY-LWR	C-G	1
472	MS21209F4-10L		. . INSERT	C-G	2
476	MS21209F7-10L		. . INSERT	C-G	1
480	251A4680-6		. . PLUG	C-G	1
484	MS29513-138		. PACKING	C-G	1
488	251A4675-1		. NUT-PLUG	C-G	1
492	251A4685-2		. KEY-PLUG	C-G	2
496	69-39652-2		. NUT (OPT ITEM 496A)	C-G	1
–496A	69-39652-3		. NUT (OPT ITEM 496)	C-G	1
500	NAS559-3		. KEY	C-G	1
504	69-40222-3		. NUT	C-G	1
508	251A4810-1		. PLUG ASSY-UPR	C-G	1
512	256W3054-1		. . PIN-DOWEL	C-G	1
516	R9309KPRBA4298		. . BEARING (V21335) (SPEC BACB10BB45) (OPT 1909-1B1-01 (V21760)) (OPT 1909S (V38443)) (OPT 9309KPRB (V21335)) (OPT PKT009P1 (V78118)) (OPT C009RR1P29LY331 (V40920)) (OPT R9309KA4298 (V9V013)) (OPT C009RRP0 (V40920))	C-G	1
520	251A4810-2		. . PLUG	C-G	1
524	251A4803-1		. SUPPORT-BRG	C-G	1
528	MS29513-240		. PACKING	C-G	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
532	251A4804-1		. PLATE-THRUST	C-G	2
–536	251A4808-1		DELETED		
536A	251A4808-2		. PLATE-THRUST	C-G	2
540	251A4802-1		. SUPPORT-BRG	C-G	1
544	BACP18BC00C04P		. PIN-COTTER	C-G	2
548	251A4801-1		. SPACER	C-G	1
552	30-2668-1		. PIN-PIVOT	C-G	2
556	251A4515-3		. PAWL ASSY	C-G	4
560	DPP4A4135		. . BEARING (V60380) (OPT ITEM 560A)	C-G	1
–560A	DPP4SD610		. . BEARING (V83086) (SPEC BACB10CB4) (OPT DPP4 (V38443)) (OPT DPP4FS428 (V21335)) (OPT LLDPP4 (V38443)) (OPT ITEM 560)	C-G	1
564	251A4520-1		. . PAWL	C-G	1
568	60-4005		. PLATE	C-G	2
572	69-13364-1		. SPRING-INNER	C-G	4
576	69-13364-2		. SPRING-OUTER	C-G	4
580	M83461-1-238		. SEAL	C-G	2
584	NAS1351N3H8P		. SCREW	C, D	12
–584A	BACS12HL3AH8		. SCREW	E-G	12
588	NAS1149D0363J		. WASHER	C-G	4
592	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))	C-G	4
596	NAS1351N4H8P		. SCREW	C, D	4
–596A	BACS12HL4AH8		. SCREW	E-G	4
600	NAS1149D0463J		. WASHER	C-G	4
–604	251A4805-1		DELETED		
604A	251A4805-3		. ROLLER ASSY-SKEWED	C-G	4

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–608	RM5X8C1		DELETED		
608A	251A4840-1		. . ROLLER (OPT ITEM 608B, 60BC)	C-G	20
–608B	5RM5X8-3		. . ROLLER (V03766) (OPT ITEM 608A, 608C)	C-G	20
–608C	2738MSDE		. . ROLLER (V19232) (OPT ITEM 608A, 608B)	C-G	20
612	251A4805-2		. . RETAINER	C-G	1
616	251A4806-1		. RATCHET ASSY	C-G	2
620	251A4807-1		. . BUSHING	C-G	2
624	251A4806-2		. . PLATE	C-G	1
–628	251A4809-1		DELETED		
628A	251A4809-3		. ROLLER ASSY-SKEWED	C-G	2
–632	RM6X6C1		DELETED		
–632A	5RM6X75-7		DELETED		
632B	251A4840-2		. . ROLLER (OPT ITEM 632C, 632D)	C-G	22
–632C	5RM6X7		. . ROLLER (V03766) (OPT ITEM 632B, 632D)	C-G	22
–632D	2739MDSE		. . ROLLER (V19232) (OPT ITEM 632B, 632C)	C-G	22
–636	251A4809-2		DELETED		
636A	251A4809-4		. . RETAINER	C-G	1
640	251A4530-2		. GIMBAL ASSY	C-G	1
644	BACB30NR4K12		. . BOLT	C-G	12
648	BACW10BN4AC		. . WASHER	C-G	12
652	BACW10BN4AP		. . WASHER	C-G	12
656	H52732-4CD		. . NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))	C-G	12
660	251A4535-1		. . YOKE ASSY	C-G	2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
664	251A4540-1		. . . BUSHING	C-G	1
668	251A4535-2		. . . YOKE (OPT ITEM 668A)	C-G	1
–668A	251A4535-4		. . . YOKE (OPT ITEM 668)	C-G	1
672	251A4531-1		. . FORK ASSY	C-G	2
676	66-23586-1		. . . BUSHING	C-G	1
680	66-23586-2		. . . BUSHING	C-G	1
684	251A4531-2		. . . FORK (OPT ITEM 684A)	C-G	1
–684A	251A4531-4		. . . FORK (OPT ITEM 684)	C-G	1
688	AN814-4JL		. PLUG	C, D	1
–688A	AS5169J04L		. PLUG	E-G	1
–692	MS28778-4		DELETED		
692A	M25988-1-110		. PACKING	C-G	1
696	65-49974-2		. CAP	C-G	1
–700	65-49974-1		DELETED		
700A	251A4839-1		. CAP ASSY (OPT ITEM 701)	C-G	1
700N	MS21209F7-10P		. . INSERT	C-G	1
700R	251A4839-6		. . CAP	C-G	1
–701	251A4839-3		. CAP ASSY (OPT ITEM 700A)	C-G	1
–701L	MS28778-4		. . PACKING	C-G	1
–701R	65-49974-1		. . CAP	C-G	1
–702	251A4839-4		. . EXTENSION ASSY	C-G	1
–702L	MS21209F7-10P		. . . INSERT	C-G	1
–702R	251A4839-5		. . . EXTENSION	C-G	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
704	R9313PPPRBA4298		. BEARING (V21335) (SPEC BACB10BB65PP) (OPT 1913RRT1C1-01 (V21760)) (OPT 9313PPPRBFS428 (V21335)) (OPT PKTLL013P1 (V78118)) (OPT C013RRPP1P311LY (V40920)) (OPT R9313PPPRBA4298 (V9V013)) (OPT C013RRP0ZZ (V40920))	C, D	2
–704A	BACB10GT65NPPJ		. BEARING (OPT ITEM 704B, 704C)	E	2
–704B	BACB10GT65NPPJ~C		. BEARING (OPT ITEM 704A, 704C)	E	2
–704C	BACB10GT65PP		. BEARING (OPT ITEM 704A, 704B)	E	2
–704D	BACB10GT65NPPJ		. BEARING (OPT ITEM 704E)	E-G	2
–704E	BACB10GT65NPPJ~C		. BEARING (OPT ITEM 704D)	E-G	2
708	MS29513-336		. PACKING	C-G	1
712	NAS1351N5H14P		. SCREW	C, D	2
–712A	BACS12HL5AH14		. SCREW	E-G	2
716	BACW10BP5CD		. WASHER	C-G	2
–720	251A4560-5		DELETED		
720A	251A4560-7		. HOUSING ASSY-PRIMARY BRAKE	C	1
–720B	251A4560-7		. HOUSING ASSY-PRIMARY BRAKE (OPT ITEM 720C)	D-G	1
–720C	251A4560-9		. HOUSING ASSY-PRIMARY BRAKE (OPT ITEM 720B)	D-G	1
724	256W3054-1		. . PIN-DOWEL	C-G	1
728	251A4565-1		. . SLEEVE (USED ON ITEMS 720A, 720B)	C-G	2
–732	251A4560-6		DELETED		
732A	251A4560-8		. . HOUSING (USED ON ITEMS 720A, 720B)	C-G	1
–732B	251A4560-10		. . HOUSING (USED ON ITEM 720C)	D-G	1
736	BACB30NR4K4		. BOLT	C-G	2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
740	BACB30NR4K5		. BOLT	C-G	1
744	BACW10BN4AC		. WASHER	C-G	3
748	NAS1149D0416J		. WASHER	C-G	1
752	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))	C-G	1
756	65-19383-3		. GUARD-CABLE DRUM	C-G	1
760	BACB30NF4-170		. BOLT	C-E	4
–760A	BACB30LJ4-170		. BOLT	F, G	4
764	NAS1149D0463J		. WASHER	C-G	4
768	66-13760-2		. SPACER	C-G	4
772	251A4580-1		. SUPPORT ASSY	C-G	1
776	66-12615-1		. . BEARING ASSY	C-G	1
780	AN201KP6A		. . . BEARING	C-G	1
784	66-12615-2		. . . BEARING ASSY	C-G	1
788	BACR15BA5D5C		. . RIVET (OPT ITEM 788A)	C-G	6
–788A	MS20426D5-5		. . RIVET (OPT ITEM 788)	C-G	6
792	251A4581-1		. . SUPPORT	C-G	1
796	BACP18BC03C10P		. PIN-COTTER	C-G	1
800	BACN10JD6		. NUT	C-G	1
804	BACW10P73S		. WASHER	C-G	1
808	BACB30NM4HK4		. BOLT	C-G	3
812	BACW10BP4CD		. WASHER	C-G	3
816	66-13875-1		. RETAINER	C-G	1
820	65-39591-3		. CAP	C-G	1
823	BACP18BC03C10P		. PIN-COTTER	C-G	1
823J	NAS1149F0616P		. WASHER	C-G	1
823M	NAS1149F0632P		. WASHER	C-G	1
–824	H52732-6CD		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
824A	PHCR56CDBACN		. NUT (VF0224) (SPEC BACN11N6CD) (OPT ITEM 824B)	C, D	1
–824B	MS14144-6		. NUT (OPT ITEM 824A)	C, D	1
–824C	PHCR56CDBACN		. NUT (VF0224) (SPEC BACN11N6CD)	E-G	1
828	66-9676		. RETAINER	C-G	1
832	69-76288-1		. SPRING	C-G	1
836	69-76287-1		. SPRING	C-G	1
840	66-9677-1		. SPACER-SPR	C-G	1
–844	69-10020-2		DELETED		
844A	69-10020-3		. SHAFT-ACTR	C-G	1
848	251A4550-1		. DRUM ASSY	C-G	1
852	NAS607-4-6P		. . PIN-DOWEL	C-G	3
856	65-19471-5		. . SHAFT-CABLE DRUM	C-G	1
860	251A4554-1		. . DRUM ASSY-CABLE	C-G	1
864	MS21209F4-15		. . . INSERT	C-G	3
868	251A4554-2		. . . DRUM	C-G	1
872	KP49BSD610		. BEARING (V83086) (SPEC BACB10BW49) (OPT KP49B2TS (V43991)) (OPT KP49B (V38443)) (OPT LLKP49B (V38443)) (OPT KP49BFS428 (V21335)) (OPT KP49BLY196 (V40920))	C, D	4
–872A	PACMKP49BFS428		. BEARING (V06144) (SPEC BACB10FR49J) (OPT AMKP49BNJC (V06144)) (OPT PACMKP49BFS428 (V21335))	E-G	4
876	66-12856-2		. SPACER-LWR BRG	C-G	1
882	90-4037-3001		. CLUTCH-JAW	C-G	1
886	BACP18BC02C06P		. PIN-COTTER	C-G	4

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
890	30-3565		. SCREW	C-G	4
894	NAS1149D0316J		. WASHER	C-G	4
896	ATF3		. BEARING (V60380) (SPEC BACB10ET03) (OPT 3AFC512 (V92563)) (OPT YAF03B (V07484))	C, D	4
–896A	ATF3T8		. BEARING (V60380) (SPEC BACB10HH03) (OPT YAF03XD (V07484)) (OPT FAG594037 (VD2456)) (OPT ITEM 896B)	E	4
–896B	ATF3		. BEARING (V60380) (SPEC BACB10ET03) (OPT 3AFC512 (V92563)) (OPT YAF03B (V07484)) (OPT ITEM 896A)	E	4
–896C	ATF3T8		. BEARING (V60380) (SPEC BACB10HH03) (OPT YAF03XD (V07484)) (OPT FAG594037 (VD2456))	F, G	4
900	BACN10JD3		. NUT	C-G	4
904	30-3564		. WASHER	C-G	4
908	30-2489		. WASHER	C-G	1
912	69-77238-1		. SPACER	C-G	1
916	69-67128-1		. NUT	C-G	2
920	30-2531		. SPACER	C-G	1
924	251A4556-1		. HOUSING ASSY-LWR	C-G	1
928	MS21209F4-20P		. . INSERT	C-G	3
932	MS21209F4-10P		. . INSERT	C-G	4
936	MS21209F4-15P		. . INSERT	C-G	6
940	251A4556-2		. . HOUSING	C-G	1
944	BACB30NM4HK3		. BOLT	C-G	3
948	BACW10BP4CD		. WASHER	C-G	3
952	90-3272-2		. CAP-END	C-G	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
956	NAS561CF5-22		. PIN-SPR	C-E	1
–956A	BCREF157098		. PIN-SPR (V81205) (BACP18BE10C1375W)	F, G	1
960	66-19334-1		. LOCKNUT	C-G	1
964	3515-36-02-0541		. WASHER (V78189)	C-G	1
968	KP16AFS428		. BEARING (V21335) (SPEC BACB10BX16) (OPT KP16A2TS (V43991)) (OPT LLKP16A (V38443)) (OPT KP16AG27 (V30163)) (OPT KP16A (V38443)) (OPT KP16ALY196 (V40920)) (OPT KP16ASD610 (V83086)) (OPT CS216E (VK8455)) (OPT KP16AP (V21760)) (OPT KP16AE (V21760)) (OPT KP16A (V21760)) (OPT KP16ANCJ (V06144))	C-E	2
–968A	SSMKP16JASD705		. BEARING (V83086) (SPEC BACB10FS16J) (OPT PACMKP16JAA3908 (V21335)) (OPT PACMKP16AFS428 (V21335)) (OPT ACMKP16JAP510LY (V40920)) (OPT PACMKP16JAFS428 (V21335)) (OPT SSMKP16JAP (V21760))	F, G	2
972	30-2414-1		. SPACER-BRG	C-G	1
976	69-44011-8		. GEAR ASSY	C-G	1
977	69-36083		. . SEAL-RING	C-G	1
978	69-44011-7		. . GEAR-PINION	C-G	1
980	M83461-1-211		. SEAL	C-G	1
981	MS21916D4-2		. REDUCER	C, D	1
–981A	MS21916W4-2		. REDUCER	E-G	1
983	MS28778-2		. PACKING	C-G	1
–984	251A4590-2		DELETED		
985	BACE21AW0404W		. ELBOW	C-G	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
987	AP1008-04DL		. CAP (V01673) (SPEC BACC14AD04DL) (OPT US2103-04DL (V50808))	C-G	1
–988	251A4590-6		DELETED		
994	251A4590-2		. NAMEPLATE	C	1
–994A	251A4590-2		. NAMEPLATE (OPT ITEM 994B)	D-G	1
–994B	251A4590-8		. NAMEPLATE (OPT ITEM 994A)	D-G	1
996	251A4590-6		. NAMEPLATE	C	1
997	251A4590-7		. NAMEPLATE	D	1
–997A	251A4590-9		. NAMEPLATE	E	1
–997B	251A4590-10		. NAMEPLATE	F, G	1

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