TO: ALL HOLDERS OF STABILIZER TRIM BALL SCREW ACTUATOR ASSEMBLY COMPONENT MAINTENANCE MANUAL 27-41-01

REVISION NO. 20 DATED MAR 01/05

HIGHLIGHTS

Pages which have been added or revised are outlined below together with the highlights of the revision. Remove and insert the affected pages as listed and enter Revision No. and date to the Record of Revision Sheet.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
1022	Added packings NAS1611-111A and NAS1611-114A as preferred options to MS29513-111, item (76) and MS29513-114, item (96) respectively per latest engineering.

STABILIZER TRIM BALLSCREW ACTUATOR ASSEMBLY

PART NUMBERS 251T4310-1,-2,-3,-4

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

71746

REVISION RECORD

- Retain this record in front of manual. On receipt of revision, insert revised pages in the manual, and enter revision number, date inserted and initial.

REVISION NUMBER	REVISION DATE	DATE FILED	BY	REVISION NUMBER	REVISION DATE	DATE FILED	BY

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR B10072	JAN 10/83

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TABLE OF CONTENTS

INTRODUCTION

The instructions in this manual provide the information necessary to perform maintenance functions including test, fault isolation, and replacement of defective components.

This manual is divided into separate sections:

1. Title Page
2. Record of Revisions
3. Temporary Revisions & Service Bulletin Record
4. List of Effective Pages
5. Table of Contents
6. Introduction
7. Procedures and IPL Sections

Refer to the Table of Contents for the page location of applicable sections. An asterisked flagnote *[ ] in place of the page number indicates that no special instructions are provided since the function can be performed using standard industry practices.

An explanation of the use of the Illustrated Parts List is provided in the introduction to that section.

All weights and measurements used in the manual are in English units unless otherwise stated. When metric equivalents are given they will be in parentheses following the English units.

Design changes, optional parts, configuration differences and Service Bulletin modifications create alternate part numbers. These are identified in the Illustrated Parts List (IPL) by adding an alphabetical character to the basic item number. The resulting item number is called an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless otherwise indicated.

Verification:

Testing/TS
Disassembly
Assembly

STABILIZER TRIM BALL SCREW ACTUATOR ASSEMBLY

DESCRIPTION AND OPERATION

1. Description

   A. A stabilizer trim ball screw actuator assembly consists of two hydraulic motors, each connects directly to a hydraulic brake and interconnect thru a differential assembly; a linear ball screw assembly driven by the motors thru a bullgear assembly; a mechanical brake energized by screw thrust and upper and lower gimbal assembly which attach the actuator assembly to the airframe and stabilizer front spar.

   B. The differential assembly consists of two brake shafts connected to the input pinions. The input pinions mesh with the differential gear assemblies which in turn provide output rotation to the output pinion.

2. Operation

   A. The stabilizer trim control modules activates the hydraulic motors and unlock the hydraulic brakes. Both hydraulic motors drive the differential assembly in either direction, moving the ball screw up or down to position the stabilizer in the desired position. In the case of one hydraulic motor failure, the hydraulic brake on that side will lock the input and full trim capability is still obtained at one half trimming rate with full torque transmission.

   B. The primary brake consists of a brake disk and a ratchet assembly on both sides of the ball screw flange. The ratchet assemblies and their associated pawls permit ratcheting when the jackscrew is driven in a direction to bring the airplane into trim. The ratchet assemblies and brake disks on both sides of the jackscrew flange permit ratcheting when trimming against load in both directions.

3. Leading Particulars (Approximate)

   Length -- 61 inches
   Width -- 15 inches
   Height -- 19 inches
   Weight -- 233 lbs

TESTING/TROUBLE SHOOTING

1. Equipment and Materials

NOTE: Equivalent substitutes may be used.

A. Test Fixture -- A27072-42 supersedes A27072-1

B. Adapters -- A27062-2 and A27062-3

C. Pressurized Air Source capable of supplying at least 10 psi of air pressure.

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

E. Drive Adapter Assembly - A27062-10.

F. Grease -- MIL-G-23827

2. Test

A. Apply grease to ball nut until grease exits from the seals in the ball nut to ensure adequate lubrication, if required.

B. Friction test

NOTE: Do not service unit with hydraulic fluid for friction test.

(1) Remove hydraulic motors (52) and brakes (92) (if installed) and mount unit in test fixture A27072-2 with clevis A27072-27.

(2) Lock one motor shaft to prevent shaft from rotating and apply 1000-2000 lbs tension load to the ball nut.

(3) Drive the other motor shaft counterclockwise (as view from the top), using drive adapter assembly A27062-10 at a smooth, continuous rate of 30 rpm until the ball screw has rotated approximately 1-1/4 turns.

(4) Check that maximum driving torque does not exceed 40 lb-inches and does not vary by more than 2 lb-inches.

(5) Repeat test step (2), (3) and (4) at the other gear shaft.

C. Leakage test

(1) Service unit with hydraulic fluid, MIL-H-5606.

(a) Remove plug (292, IPL Fig. 1) from pawl cover (316).

(b) With unit in vertical position to within 2 degrees, fill primary brake housing assembly with hydraulic fluid thru hole in pawl cover (316) (approximately 1500 cc.). View the level of the hydraulic fluid through the sight glass (300). The hydraulic fluid level must be above the sight glass window. Add additional hydraulic fluid so that the hydraulic fluid comes up to the bottom of the fill plug hole.

(2) Install adapters A27062-2 and -3 in place of plug (292) on pawl cover (316).

(3) Connect pressurized air source to air supply adapters A27062-2 and -3 and pressurize primary brake housing assembly to 9-11 psi. Hold pressure for 10 minutes.

(4) Check that there is no oil leakage or perceptible drop in applied air pressure.

(5) Depressurize unit and remove air supply adapters A27062-2 and -3. Install plug (292) on pawl cover (316).

D. Primary brake test

(1) With hydraulic motors (52) and brakes (92) removed, check that motor shafts are free to rotate.

(2) Apply a gradually increasing tension load until 1000-1500 pounds is reached and hold for 1 minute. Check that ball screw rotation does not exceed 1/2 turn.

(3) Repeat step (2) with compression load.

E. Check backlash of ball screw and primary brake. If backlash exceeds allowable limits, refer to vendor component maintenance manual for rework.

3. Assemble hydraulic motors (52) and brakes (92) per ASSEMBLY par. 4.V. and service unit per par. 4.W. as applicable.

4. Reapply grease to ball nut until grease exists from seals in the ball nut.

DISASSEMBLY

NOTE: Refer to TESTING/TROUBLE SHOOTING to establish the condition of the component or most probable cause of its malfunction. This is to determine the extent of disassembly required without completely tearing down and rebuilding component.

1. Equipment

   NOTE: Equivalent substitutes may be used.

   A. Socket -- A27062-13

   B. Ball Retainer Assembly -- A27062-5

   C. Spanner Adapter Assembly -- A27062-14

   D. Spanner Assembly -- A27062-4

   E. Wrench -- A27062-11

2. Parts Replacement

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

   A. Packings (32, 76, 96, 298, 304, 324, 484, 564, IPL Fig. 1; 40, 70, IPL Fig. 2).

   B. Seals (284, 412, 488, IPL Fig. 1).

   C. Nuts (44, 88, 112, 156, 204, 252, 336, 388, 504, 540, 676, 692, IPL Fig. 1; 15, 115, 195, IPL Fig. 2).

3. Disassembly of Actuator Assembly (IPL Fig. 1)

   A. Drain hydraulic oil from unit by removing plug (292) and packing (298) on primary brake housing assembly (400).

   B. Remove hydraulic motors (52), hydraulic brakes (92), shafts (68, 72).

      (1) Remove nuts (44), washers (48) and hydraulic motors (52).

(2) Remove nuts (40), elbows (36), and packings (32) from hydraulic motors (52).

NOTE: Refer to hydraulic motor manufacturer's CMM for overhaul procedures of the component.

(3) Remove nuts (88), washers (84), bolts (80) and hydraulic brakes (92). Remove packings (96).

NOTE: Refer to hydraulic brake manufacturer's CMM for overhaul procedures of the component.

(4) Remove bolts (56), washers (60) and retainers (64).

(5) Remove shafts (68, 72) and remove packings (76) from shafts.

C. Remove upper gimbal assembly (208), safety nut assembly (244A).

(1) Remove bolts (117, 141, 142) and bracket assemblies (116, 140) from upper gimbal assembly.

(2) Remove nuts (204), washers (200), bolts (196). Remove safety rod (192) and safety sleeve (240).

(3) Remove nuts (204) and remove retaining pin assemblies (164).

(4) Remove bolt (248), and nut (252).

(5) Using socket A27062-13, remove safety nut assembly (244A).

NOTE: Do not disassemble safety nut assembly (244A) unless necessary for repair or replacement.

(6) Remove nuts (156), washers (160) and pin assemblies (164) and remove upper gimbal assembly (208).

NOTE: Do not disassemble gimbal assembly (208) unless necessary for repair or replacement.

(7) Remove bolts (272), washers (276) and retainer (280).

D. Remove safety rod (712) and lower gimbal assembly (584).

(1) Refer to ballscrew assembly (716) manufacturer's CMM for disassembly procedures of ballscrew assembly.

(2) Remove retaining fasteners and remove safety rod (712).

(3) Remove lower stop and transfer ballnut from ballscrew to ball retainer assembly A27062-5 to prevent balls from falling out.

(4) Remove screws (668), washers (672), nuts (676) and retaining rings (680). Remove retaining bolts (684), spacers (688), nuts (692) and remove pin assemblies (696).

NOTE: Do not disassemble pin assembly unless necessary for repair or replacement.

CAUTION: LUG ASSEMBLIES (612) AND PLATE ASSEMBLIES (640) HAVE MATCHING BOLT HOLES. NOTE LOCATIONS OF LUG ASSEMBLIES DURING REMOVAL AND REASSEMBLE IN THE SAME LOCATIONS TO ENSURE PROPER GEOMETRY.

(5) Remove ball nut bushing retainers using spanner adapter assembly A27062-14 and remove bolts (596), washers (600, 604) and nuts (608). Remove lug assemblies (612) and plate assemblies (640) from ball nut. Reassemble lug assemblies and plate assemblies and secure with parts (596 thru 608). Tighten nuts (608) 10-50 lb-ins.

E. Remove bull gear assembly (544) and differential assembly (100).

(1) With ball nut still removed from ballscrew, remove bolts (496), washers (500), nuts (504), and brackets (508, 512). Remove cover assembly (580) from housing assembly (516).

(2) Remove seal (488), plug (568), drain fitting (572) and drain cup (576) from cover assembly (580).

(3) Remove bolts (104), washers (108) and nuts (112) and carefully remove differential assembly (100).

(4) Remove bolt (532), washer (536) and nut (540).

(5) Carefully disengage bull gear assembly (544) from ballscrew and remove bull gear assembly. Remove packing (564) from bull gear assembly. Do not disassemble bull gear assembly.

F. Remove pawl assemblies (344).

(1) Remove bolts (308), washers (312) and pawl covers (316, 320). Remove springs (364, 368). Remove packings (472).

(2) Remove bolts (360) and spring housings (356) from covers (316, 320).

(3) Remove plugs (292, 300) and packings (298, 304) from cover (316).

(4) Remove nuts (336), washers (332), bolts (328) and pawl assemblies (344) from housing assembly (400). Remove sleeves (340).

G. Remove bayonet assembly (472).

(1) Remove lockwire.

(2) Remove bolts (468), lockplate (492).

(3) Remove bayonet assembly (472) using spanner assembly A27062-4. Remove seal (488) from bayonet assembly.

NOTE: Do not disassemble bayonet assembly unless necessary for repair or replacement.

(4) Remove spacer (464) and retainer (460). Remove packing (564) from ball screw.

NOTE: Note thickness of spacer (464) to facilitate assembly.

H. Remove primary brake housing assembly (400) and bullgear housing assembly (516). Remove seal (284) from ballscrew.

I. Remove bolts (372, 376, 380), washers (384), nuts (388), brackets (392, 396) and separate primary brake housing assembly (400) from bullgear housing assembly (516).

NOTE: Do not disassemble bullgear housing assembly unless necessary for repair or replacement.

J. Remove bolts (272), washers (276), and retainer (280) from housing assembly (400). Remove bearing (288) and seal (412).

NOTE: Do not disassemble primary brake housing assembly (400) unless necessary for repair or replacement.

K. Remove spacer (416), bearings (420), ratchet assemblies (424) and brake disc assemblies (448). Do not disassemble disc assemblies (448).

NOTE: Note thickness of spacer (416) to facilitate assembly. Do not disassemble ratchet assembly (424) unless necessary for repair or replacement.

L. Install ball nut and lower stop back on ballscrew.

4. Disassembly of Differential Assembly (IPL Fig. 2)

A. Remove bolts (20), washers (25) and retainers (30). Remove shafts (60, 65) from housing assemblies (50, 55) and remove packings (70) from shafts.

B. Remove bolts (20), washers (25) and cover (35).

C. Remove cotter pin (110). Remove nut (115), washer (120) using wrench A27062-11 to hold output pinion (130) and inner shaft (125) stationary.

D. Remove bolts (5, 45), washers (10), nuts (15) and separate upper housing assembly (50) from lower housing assembly (55). Remove gear assembly (175), spacer (160, 165). Remove spacer (180) from differential shaft (215).

NOTE: Note thickness of spacer (180) to facilitate assembly.

E. Remove bearings (170) from gear assembly (175) and remove secondary bearing (150), spacer (145) and bearing (155) from upper housing assembly (50).

NOTE: Note thickness of spacer (145) to facilitate assembly. Do not disassemble gear assembly (175) unless necessary for repair or replacement.

F. Remove lockwire from screws (75). Remove screws (75), washers (80) and retainer (85) from upper housing assembly (50). Remove secondary bearings (90), bearings (95) and input pinion (100). Remove sleeve (105) from pinion (100).

NOTE: Do not disassemble housing assembly (50) unless necessary for repair or replacement.

G. Remove inner shaft (125) and output pinion (130) from differential shaft (215). Remove differential shaft (215) and remove spacer (180), gear assembly (175), and bearing spacer (165).

NOTE: Note thickness of spacer (180) to facilitate assembly.

H. Remove bearings (170) from gear assembly (175).

NOTE: Do not disassemble gear assembly (175) unless necessary for repair or replacement.

I. Remove lockwire from screws (75). Remove screws (75), washers (80) and retainer (85) from lower housing assembly (55). Remove secondary bearings (90), bearings (95) and input pinion (100). Remove sleeve (105) from pinion (100).

NOTE: Do not remove swage-in secondary bearing (140) and bearing (135) from housing assembly (50) or disassemble housing assembly (50) unless necessary for repair or replacement.
Do not remove identification plate (220) unless necessary for repair or replacement.

J. Remove cotter pins (190), nuts (195) and washers (200). Remove bevel pinions (185) and spacers (210) from differential shaft (215). Remove bearings (205) from bevel pinions (185).

NOTE: Note thickness of spacers (210) to facilitate assembly

CLEANING

1. Clean all parts except sealed bearings and bearings (420, IPL Fig. 1) using standard industry practices and information contained in 20-30-03.

2. Clean sealed bearings per manufacturer's instructions.

3. Clean and lubricate bearings (420) as follows:

   CAUTION: USE CARE WHEN HANDLING BEARINGS (420) TO AVOID CONTAMINATION TO PARTS.

   A. Flush out old lubricant in the vapor degreaser and allow to dry. Handle bearings with clean gloves or holders to avoid contamination.

   B. Immerse bearing in new MIL-H-5606 hydraulic fluid.

   C. Wrap bearing in clean, grease-proof paper until ready for use.

CHECK

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

2. Magnetic particle check per 20-20-01 the following listed parts:

   A. IPL Fig. 1

      (1) Shafts (68, 72, 192)

      (2) Pins (172, 188)

      (3) Socket (264)

      (4) Nut (268)

      (5) Retainers (280, 460)

      (6) Sleeve (340)

      (7) Pawl (352)

      (8) Brackets (392, 396)

      (9) Housing (408)

      (10) Spacers (416, 464)

      (11) Adapter (440)

      (12) Ratchet (444)

      (13) Bayonet (480)

      (14) Lockplate (492)

      (15) Bull gear assembly (544)

      (16) Gears (556, 560)

      (17) Pin assembly (696)

      (18) Rod (712)

(19) Umbrella (260)

(20) Spacer (688)

B. IPL Fig. 2

(1) Shafts (60, 65, 125, 215)

(2) Pinions (100, 130, 185)

(3) Sleeve (105)

(4) Gear assembly (175)

3. Penetrant check per 20-20-02 the following listed parts:

A. IPL Fig. 1

(1) Retainer (64; made from al alloy)

(2) Plates (524)

(3) Deleted

(4) Brackets (508, 512)

(5) Lug (148)

(6) Gimbal (236)

(7) Sleeve (240)

(8) Covers (316, 320, 580)

(9) Housing (356, 408A, 528, 580)

(10) Fitting (572)

(11) Cup (576)

(12) Ring (680)

B. IPL Fig. 2

(1) Retainer (30; made from al alloy)

(2) Cover (35)

(3) Plate (53)

(4) Housings (54, 57)

(5) Bearings (140, 150)

4. Check springs (364, 368)

A. Compress spring (364) to 1.03 inch. Check that load is 2.25-2.75 lbs.

B. Compress spring (368) to 1.25 inch. Check that load is 1.8-2.2 lbs.

REPAIR - GENERAL

1. Content

A. Repair, refinish and replacement procedures are included in separate repair sections as follows:

P/N	NAME	REPAIR
251T4312	BRACKET	1-1
251T4313	BRACKET	2-1
251T4321	GIMBAL, LOWER	3-1
251T4322	HOUSING, LOWER	4-1
251T4324	HOUSING, UPPER	5-1
251T4327	SHAFT, INNER	6-1
251T4343	GEAR, DIFFERENTIAL	7-1
251T4350	NUT, SAFETY	8-1
251T4354	SLEEVE, PAWL	9-1
251T4355	COVER, PAWL	10-1
251T4357	COVER, HOUSING	11-1
251T4359	HOUSING	12-1
251T4360	GIMBAL, UPPER	13-1
251T4362	SLEEVE, SAFETY	14-1
251T4364	PIN	15-1
- -	DELETED	16-1
251T4366	PIN	17-1
251T4378	BAYONET	18-1
251T4382	RATCHET	19-1

P/N	NAME	REPAIR
251T4383	RETAINER	20-1
251T4387	BULL GEAR	21-1
251T4390	ROD, SAFETY	22-1
251T4391	PAWL	23-1
251T4392	PIN	24-1
251T4395	HOUSING, PRIMARY BRAKE	25-1
- -	MISC PARTS REFINISH	26-1

2. Standard Practices

A. Refer to the following standard practices as applicable, for details of procedures in individual repairs.

20-10-03 Shot Peening
20-10-04 Grinding of Chrome Plated Parts
20-30-02 Stripping of Protective Finishes
20-30-03 General Cleaning Procedures
20-41-01 Decoding Table for Boeing Finish Codes
20-41-02 Application of Chemical and Solvent Resistant Finishes
20-42-03 Hard Chrome Plating
20-42-05 Bright Cadmium Plating
20-43-01 Chromic Acid Anodizing
20-50-03 Bearing Installation and Retention

3. Materials

NOTE: Equivalent substitutes may be used.

A. Sealant -- BMS 5-95 (Ref 20-60-04)

B. Adhesive -- Type 70 (Ref 20-50-04)

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

D. Dry Film Lubricant -- BMS 3-8, class A (Ref 20-60-03)

E. Corrosion Preventive Compound -- MIL-C-11796, class 1 (Ref 20-60-03)

4. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in applicable repair procedures are shown in Fig. 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 WHICH 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
⊥ B 0.002	PERPENDICULAR TO B WITHIN 0.002
// A 0.002	PARALLEL TO 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
⌒ A 0.006	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES 0.006 INCH APART RELATIVE TO DATUM PLANE A
⌓ A 0.020	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.02 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
◎ C ∅ 0.0005	CONCENTRIC TO C WITHIN 0.0005 DIAMETER
⌯ A 0.010	SYMMETRICAL WITH A WITHIN 0.010
∠ A 0.005	ANGULAR TOLERANCE 0.005 WITH A
⌖ B ∅ 0.002 Ⓢ	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
⊥ A ∅ 0.010 Ⓜ 0.510 Ⓟ	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010-INCH DIAMETER, PERPENDICULAR TO, AND EXTENDING 0.510-INCH ABOVE, DATUM A, MAXIMUM MATERIAL CONDITION
2.000 OR 2.000 BSC	EXACT DIMENSION IS 2.000

(NOTE THAT ⌓ A 0.020 **MA**Y ALSO APPEAR AS ⌓ 0.020 A)

True Position Dimensioning Symbols
Figure 601

BRACKET ASSEMBLY - REPAIR 1-1

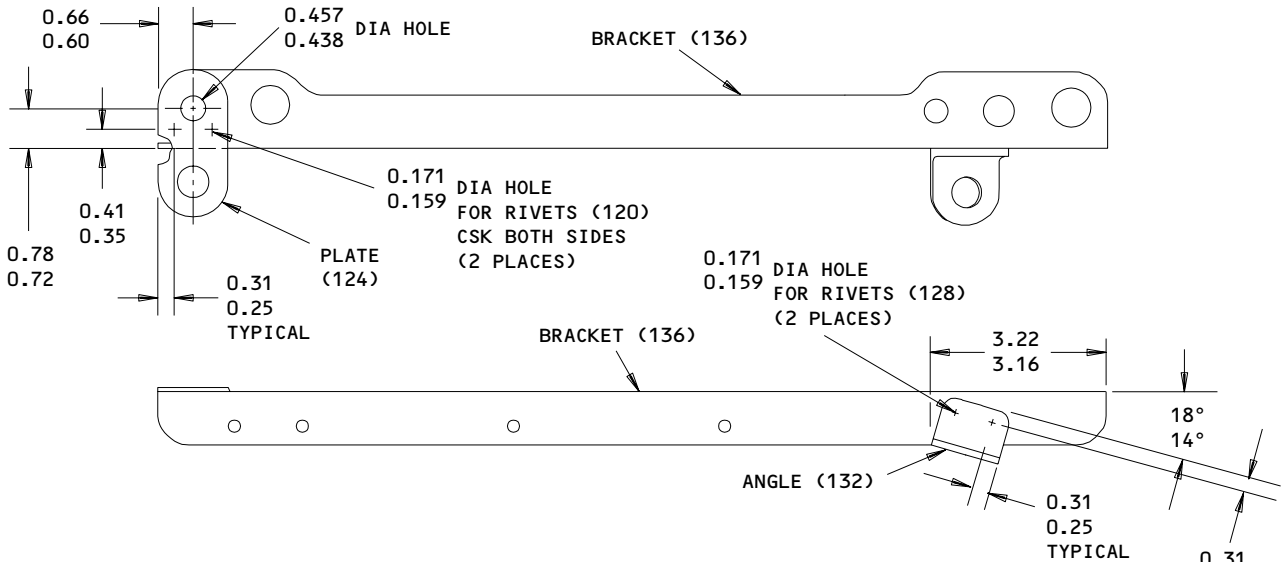
251T4312-1

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions, Fig. 601. Item numbers refer to IPL Fig. 1.

1. Parts Replacement (Fig. 601)

A. Remove rivets (120, 128) and damaged parts.

B. Install replacement parts as shown and secure with rivets (120, 128).



REFINISH

BRACKET ASSY (116) -- APPLY 1 COAT OF PRIMER (F-20.02) ALL OVER.
PLATE (124), ANGLE (132), BRACKET (136) -- CHROMIC ACID ANODIZE (F-17.04) ALL OVER.

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

Parts Replacement and Refinish
Figure 601

71753

BRACKET ASSEMBLY - REPAIR 2-1

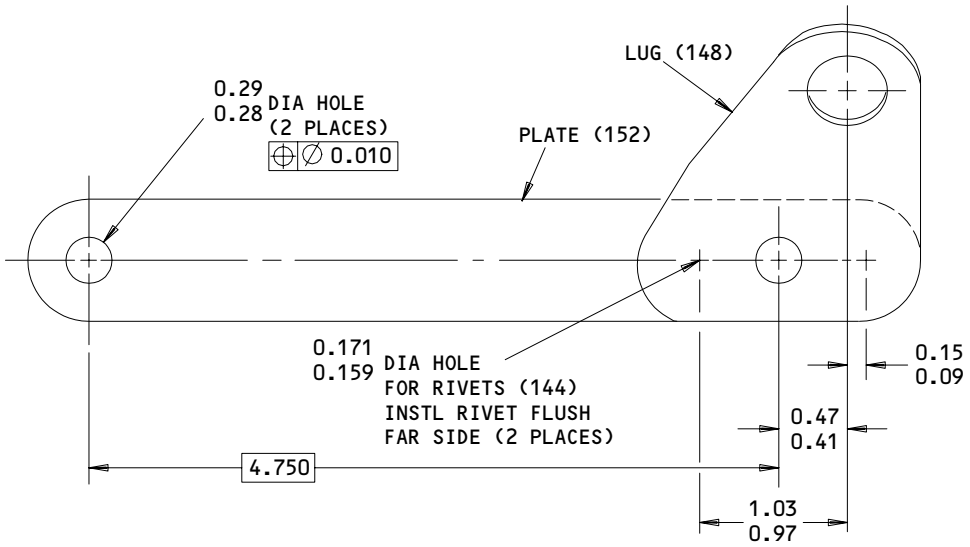
251T4313-1

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions, Fig. 601. Item numbers refer to IPL Fig. 1.

1. Parts Replacement (Fig. 601)

   A. Remove rivets (144) and damaged part.

   B. Install replacement part and secure with rivets (144).



REFINISH

BRACKET ASSY (140) -- APPLY 1 COAT OF PRIMER (F-20.02) ALL OVER.
LUG (48), PLATE (152) -- CHROMIC ACID ANODIZE (F-17.04) ALL OVER.

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

Parts Replacement and Refinish
Figure 601

71756

GIMBAL ASSEMBLY, LOWER - REPAIR 3-1

251T4321-1, -2

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. Item numbers refer to IPL Fig. 1.

CAUTION: LUG ASSEMBLIES (612 OR 612A) AND PLATE ASSEMBLIES (640) ARE MATCHED BY BOLT HOLE LOCATIONS. NOTE POSITIONS OF LUG ASSEMBLIES DURING REMOVAL AND REINSTALL IN THE SAME LOCATIONS TO ENSURE PROPER GEOMETRY OF THE LOWER GIMBAL ASSEMBLY.

1. Bushing Replacement (Fig. 601)

A. Remove bushings.

NOTE: We recommend the plate assembly (640) be heated to 275-300°F so that the bushings (588) can be removed without galling the bores.

B. Inspect the 2.4375-2.4385 inch diameter bore thru the plate assemblies (640) for scoring or other surface distress.

NOTE: Clean up and replace only those bores and bushings as necessary.

C. If the bores are damaged, rebore oversize as required but no more than 2.4985 inches to clean up the surface.

NOTE: Use a corresponding oversize bushing if the bore has been cleaned up.

D. Install replacement bushings using shrink fit method except use wet sealant.

E. Machine bushing ID to dimensions and finish shown.

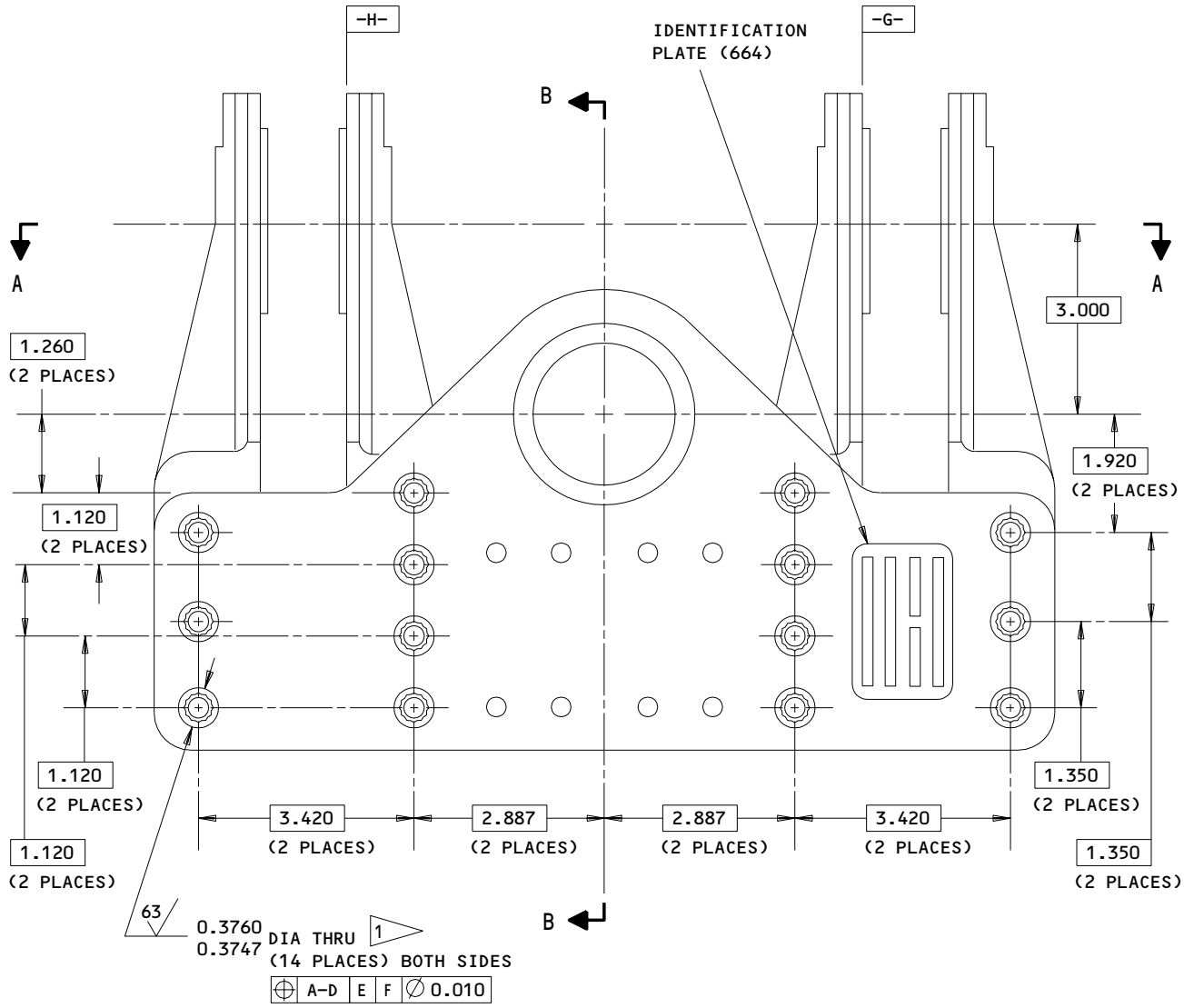
F. Fillet seal bushing flange and end with sealant.

2. Identification Plate Replacement

A. Remove damaged identification plate (664).

B. Steel stamp part number and serial number on replacement identification plate.

C. Bond identification plate per 20-50-12, type 70.



REFINISH

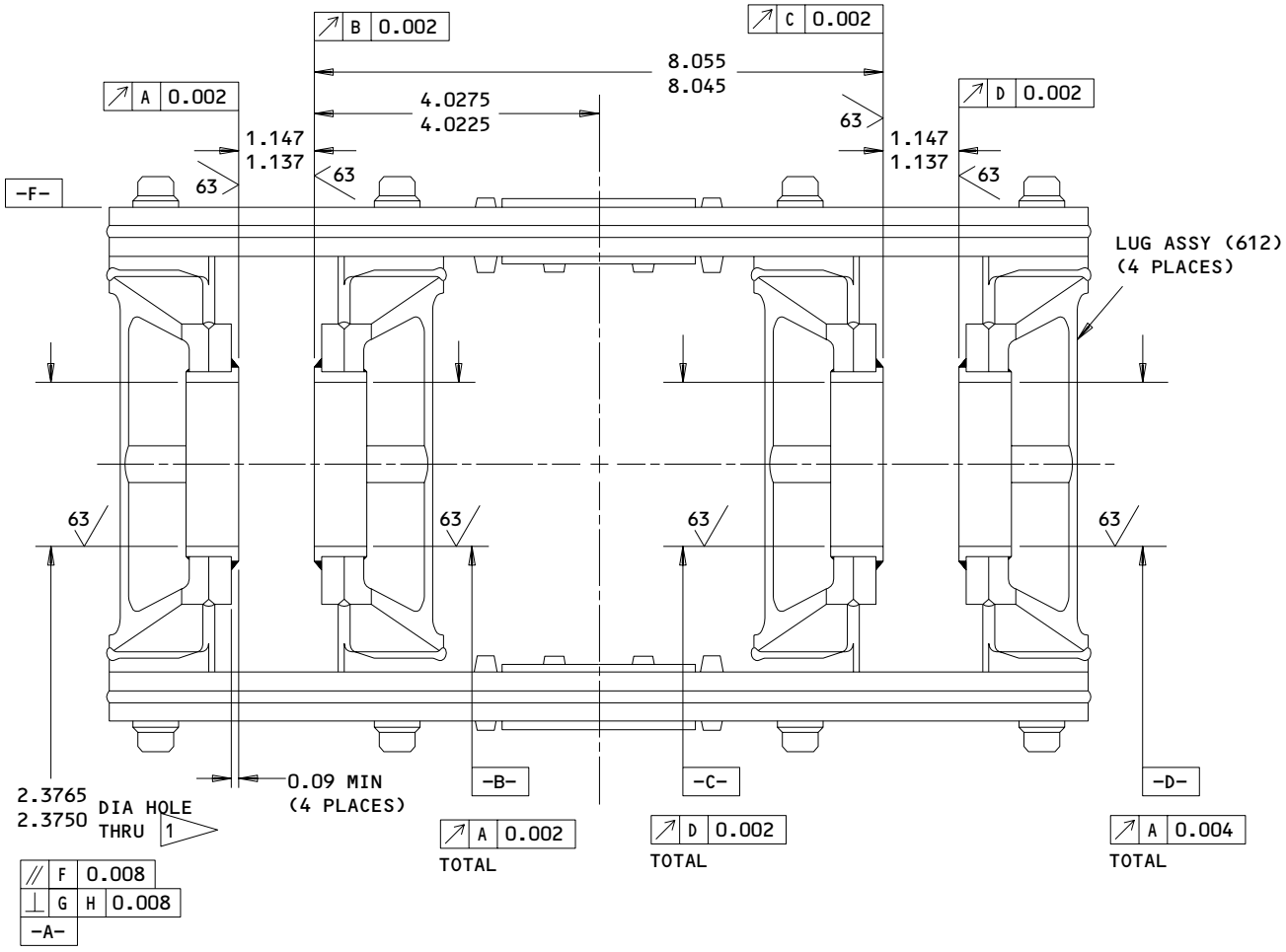
PLATES (640) -- CHROMIC ACID ANODIZE AND APPLY ONE COAT OF BMS 10-11, TYPE 1 PRIMER (F-18.13). OMIT PRIMER FROM 2.4375-2.4385 INCH DIAMETER BORE AND FAYING SURFACES.
MATERIAL: AL ALLOY

LUGS (612) -- APPLY ONE COAT OF BMS 10-11, TYPE 1 PRIMER (F-20.02) EXCEPT FOR FAYING SURFACES AND BOLT HOLES. CHEMICAL TREAT (F-17.10) ALL HOLES.
MATERIAL: AL ALLOY

251T4321-1,-2

Lower Gimbal Assembly - Bushing Replacement
Figure 601 (Sheet 1)

71776



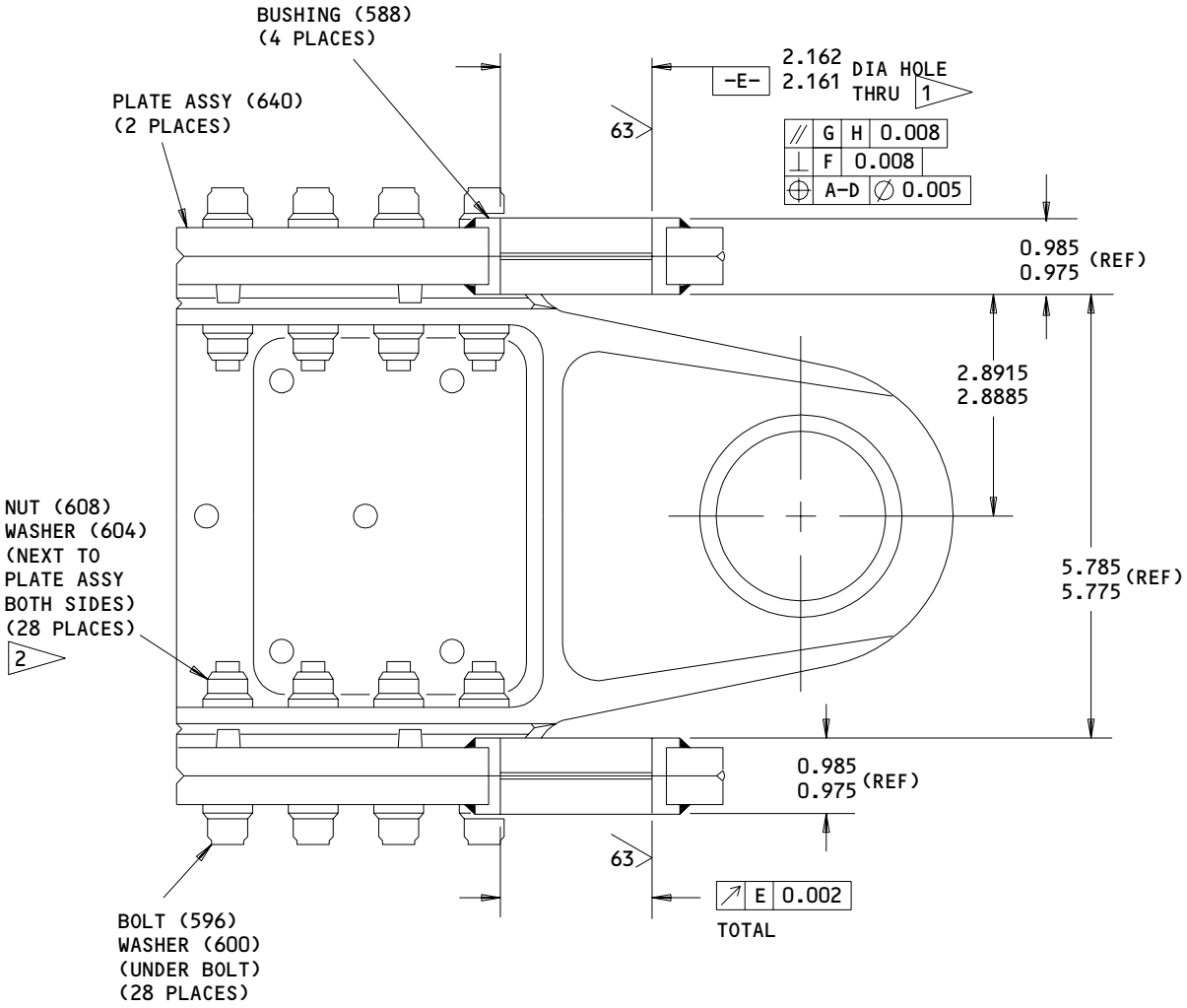
A-A

ALL DIMENSIONS ARE IN INCHES

251T4321-1,-2

Lower Gimbal Assembly - Bushing Replacement
Figure 601 (Sheet 2)

71784



B–B
(ROTATE 90° CW)

1 CHEMICAL TREAT (F-17.10)

2 TIGHTEN NUT 10-50 LB-IN.
FINAL TIGHTEN WILL BE DONE DURING
ASSEMBLY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

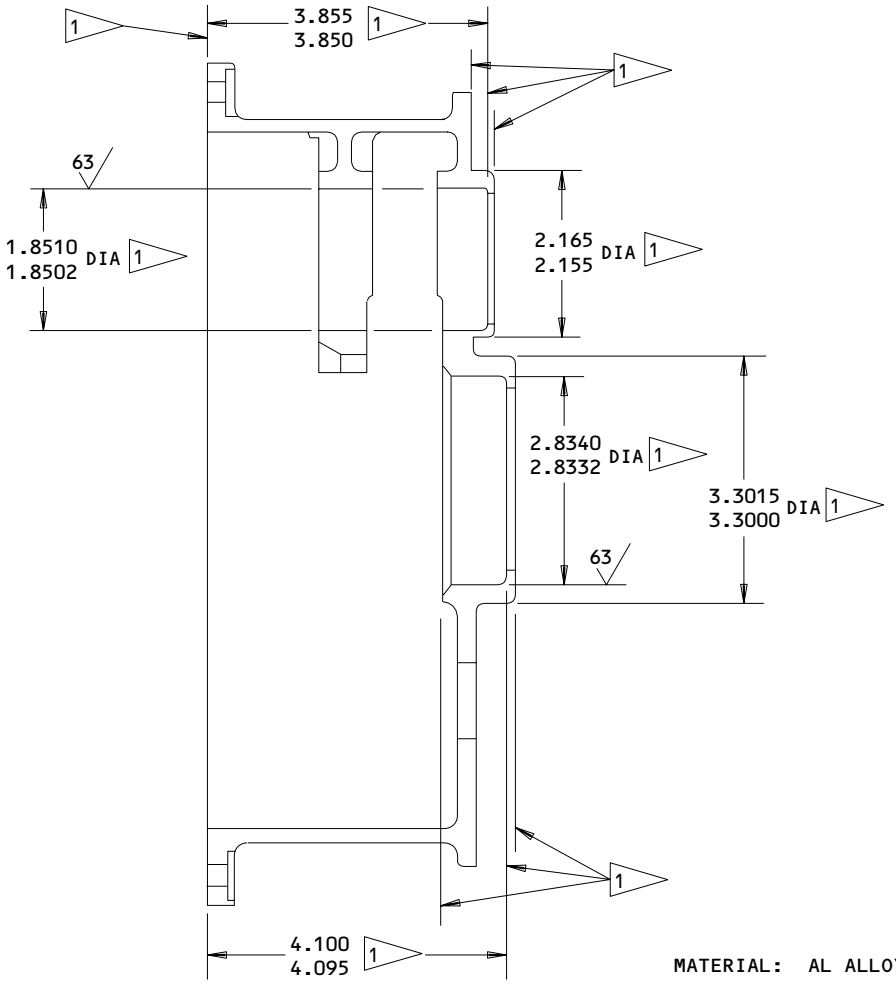
251T4321-1,-2
Lower Gimbal Assembly - Bushing Replacement
Figure 601 (Sheet 3)

HOUSING, LOWER - REPAIR 4-1

251T4322-2

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

HOUSING (57, IPL FIG. 2) -- CHROMIC ACID ANODIZE AND APPLY 1 COAT OF PRIMER (F-18.13) ALL OVER EXCEPT AS NOTED IN 1

1 OMIT PRIMER THIS SURFACE

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

Housing Refinish
Figure 601

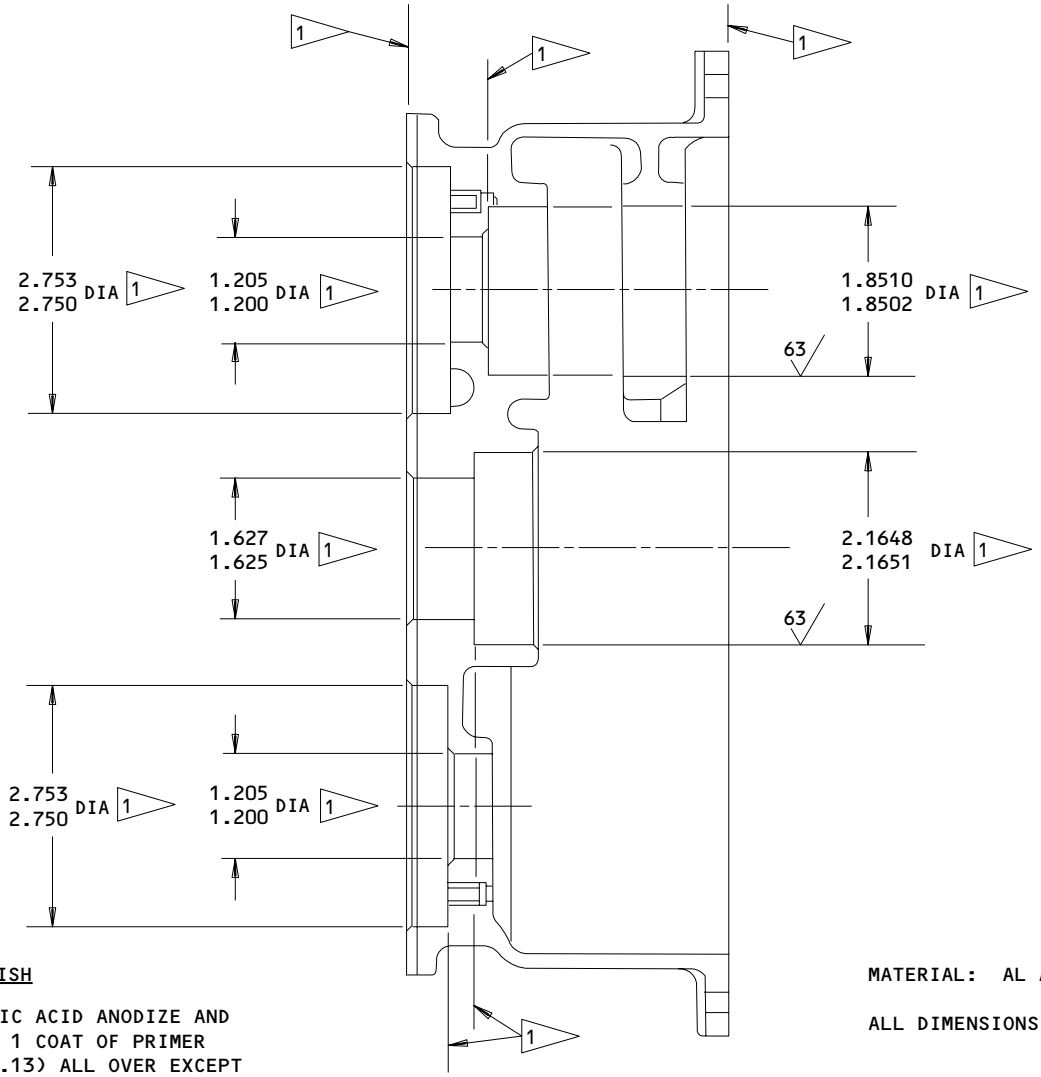
71787

HOUSING ASSEMBLY - REPAIR 5-1

251T4324-1

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

CHROMIC ACID ANODIZE AND APPLY 1 COAT OF PRIMER (F-18.13) ALL OVER EXCEPT ON INSERTS AND PINS AND OMIT PRIMER AREAS INDICATED BY 1

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

Upper Housing Assembly Refinish
Figure 601

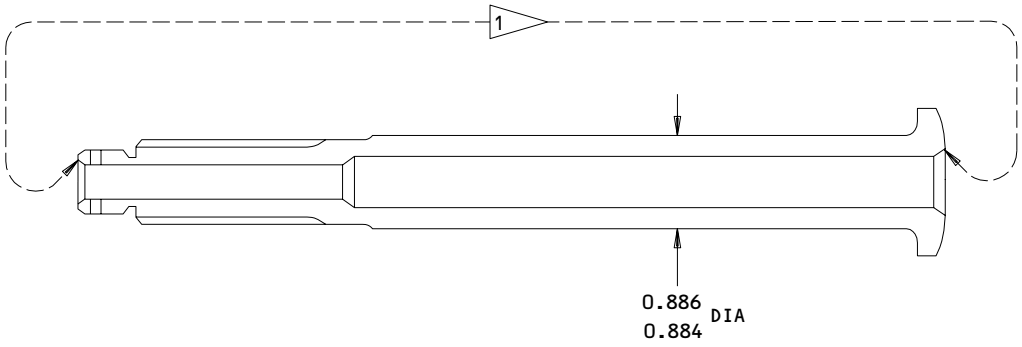
71880

SHAFT, INNER - REPAIR 6-1

251T4327-1

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

CADMIUM PLATE (F-15.06) AREA INDICATED BY 1 . PLATING THROW-IN ACCEPTABLE IN BORE.

APPLY 2 COATS OF PRIMER (F-20.03) THEN CLEAN AND COAT AREA WITH CORROSION PREVENTIVE COMPOUND MIL-C-11796, CLASS 3 (F-19.03) ALL OTHER SURFACES

MATERIAL: 4330M STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

Shaft Refinish
Figure 601

72113

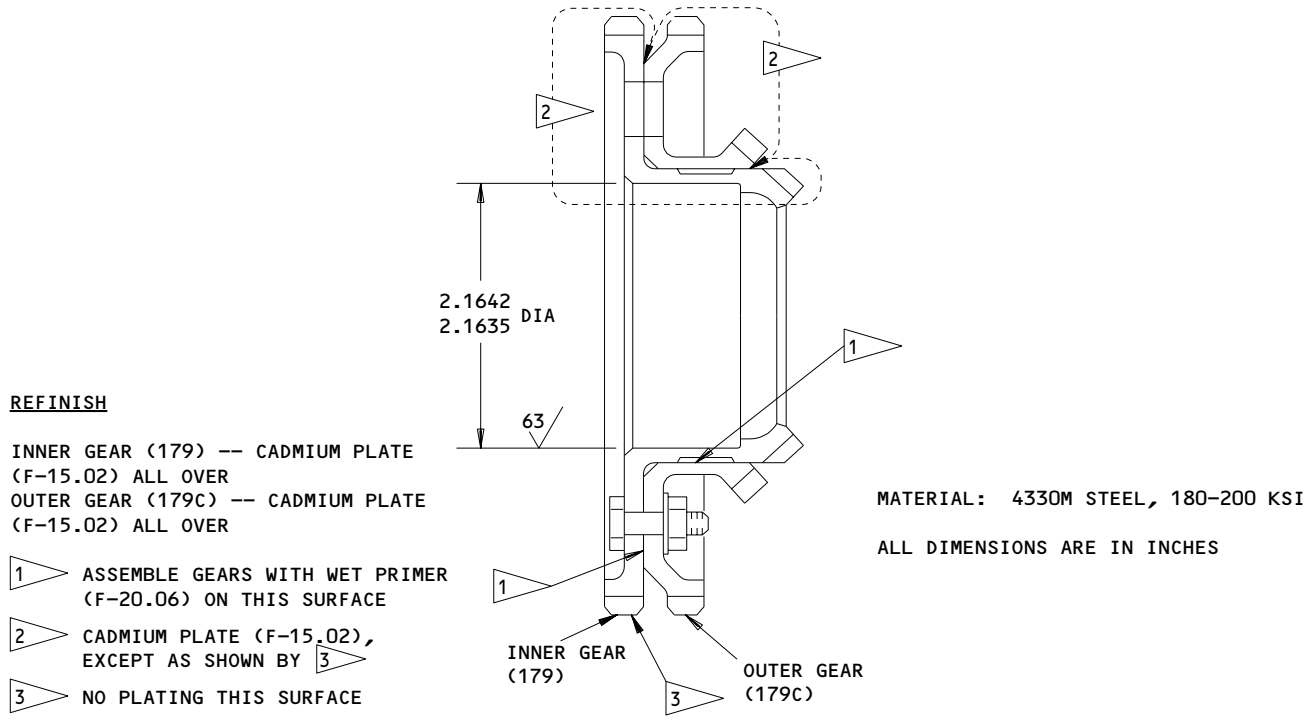
GEAR ASSEMBLY - REPAIR 7-1

251T4343-1, -4

CAUTION: THE INNER AND OUTER GEARS WERE CUT TOGETHER AS A MATCHED SET. DO NOT REPLACE INDIVIDUAL PARTS.

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



Gear Assembly Refinish
Figure 601

72120

NUT ASSEMBLY, SAFETY - REPAIR 8-1

251T4350-1, -2

NOTE: Refer to REPAIR-GEN for list of applicable standard practices.

1. Parts Replacement

   A. Remove rivets (256) and umbrella (260). Separate socket (264) from nut (268).

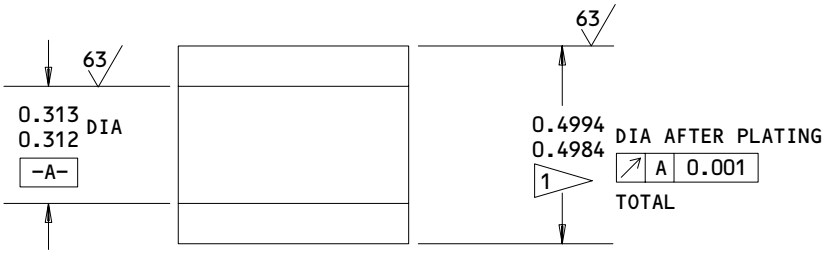
   B. Install replacement part and secure umbrella (260) to nut (268) with rivets (260). Install rivets with manufacture head on I.D. Assemble umbrella (260) and nut (268) with wet primer on faying surfaces.

SLEEVE, PAWL - REPAIR 9-1

251T4354-1

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

CHROME PLATE PER 1
AND CADMIUM PLATE (F-15.06)
ALL OTHER AREA

1 CHROME PLATE (F-15.03), 0.003 MIN THICKNESS THIS DIAMETER

OPTIONAL FINISH: CHROME PLATE (F-15.03) ALL OVER

MATERIAL: 4340 STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

Sleeve Refinish
Figure 601

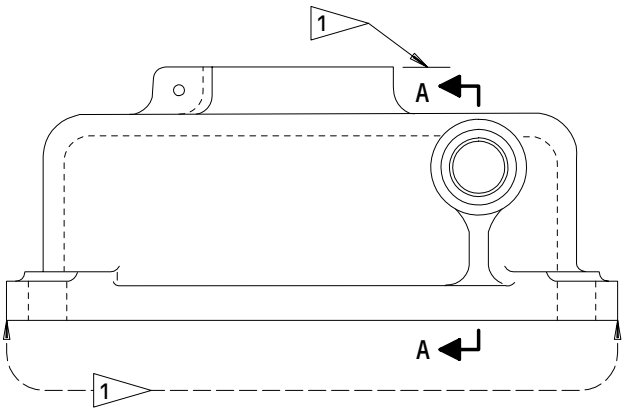
72125

COVER, PAWL - REPAIR 10-1

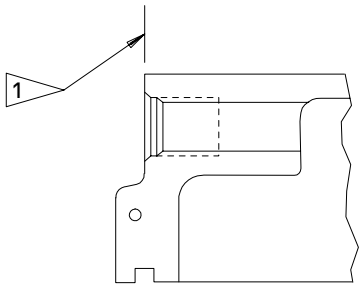
251T4355-1, -2

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



251T4355-1 SHOWN



A-A
(251T4355-1 ONLY)

REFINISH

CHROMIC ACID ANODIZE
AND APPLY 1 COAT OF
PRIMER (F-18.13) ALL
OVER EXCEPT OMIT PRIMER
IN AREA INDICATED BY 1

MATERIAL: AL ALLOY

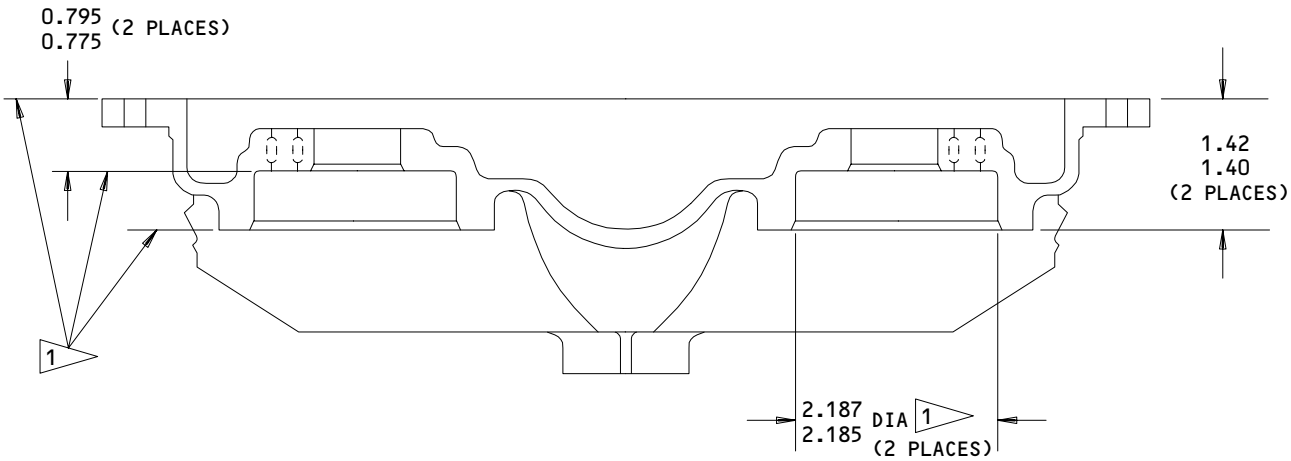
Cover Refinish
Figure 601

COVER, HOUSING - REPAIR 11-1

251T4357-2

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

CHROMIC ACID ANODIZE (F-17.04) ALL OVER EXCEPT IN HOLES FOR INSERTS AND STUDS. APPLY 1 COAT OF PRIMER (F-20.02) ALL OVER EXCEPT IN HOLES FOR INSERTS AND STUDS AND SURFACES INDICATED BY 1

1 OMIT PRIMER THIS SURFACE AND ON 4.9975-5.0005 ID

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

Housing Cover Refinish
Figure 601

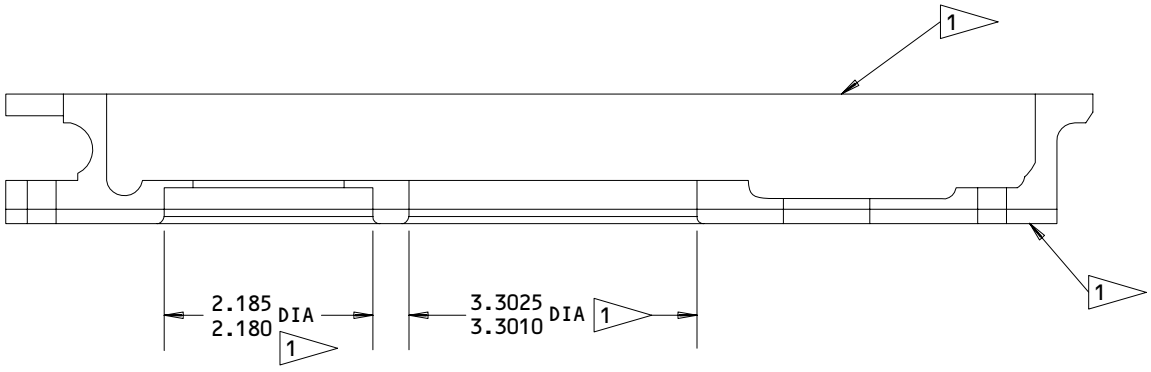
72174

HOUSING - REPAIR 12-1

251T4359-2

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

CHROMIC ACID ANODIZE AND APPLY 1 COAT PRIMER (F-18.13) EXCEPT OMIT PRIMER ON PINS AND AS NOTED BY 1

1 OMIT PRIMER THIS SURFACE

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

Housing Refinish
Figure 601

72190

GIMBAL ASSEMBLY, UPPER-REPAIR 13-1

251T4360-1

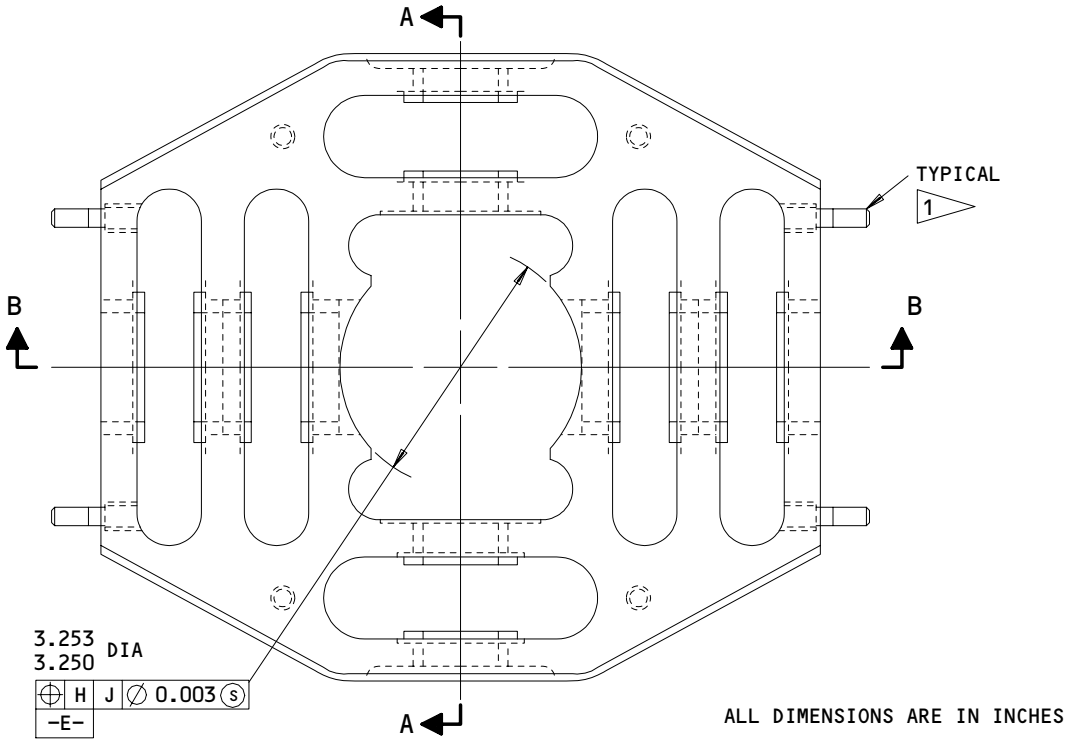
NOTE: Refer to REPAIR-GEN for list of applicable standard practices.
Item numbers refer to IPL Fig. 1.

1. Bushing Replacement (Fig. 601)

A. Remove bushings

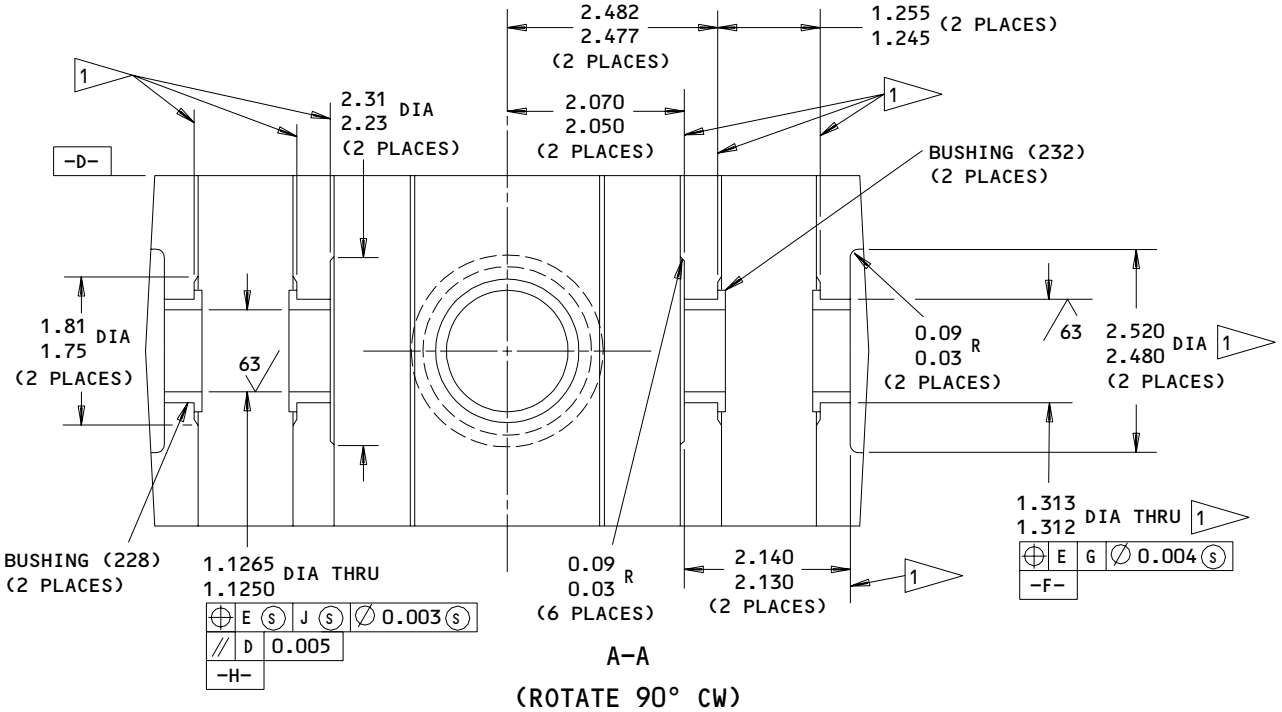
B. Install replacement bushing using shrink fit method.

C. Machine bushing flange and I.D. to dimensions and finish shown.



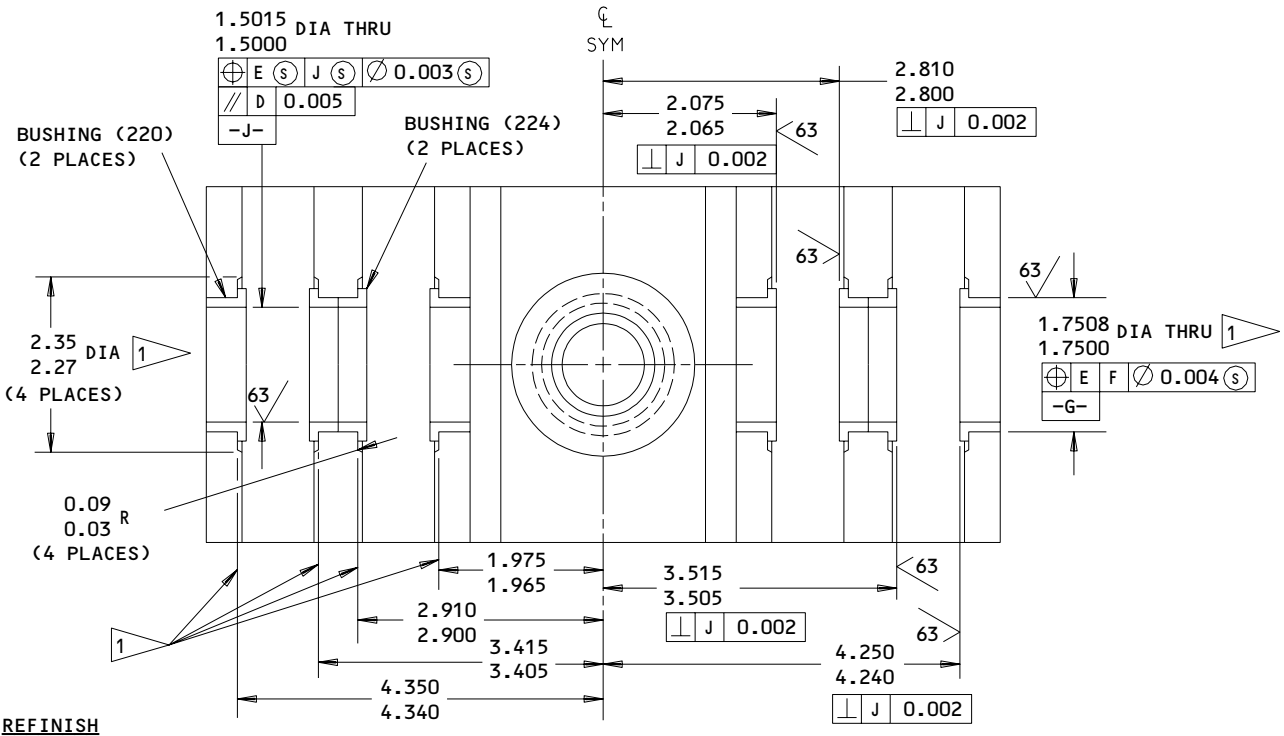
Bushing Replacement and Gimbal Refinish
Figure 601 (Sheet 1)

72245



A-A

(ROTATE 90° CW)



B-B

251T4360-1

REFINISH

GIMBAL (236) -- CHROMIC ACID ANODIZE (F-17.04) AND APPLY 1 COAT OF PRIMER (F-20.02) ALL OVER EXCEPT IN AREA INDICATED BY 1

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

Bushing Replacement and Gimbal Refinish
Figure 601 (Sheet 2)

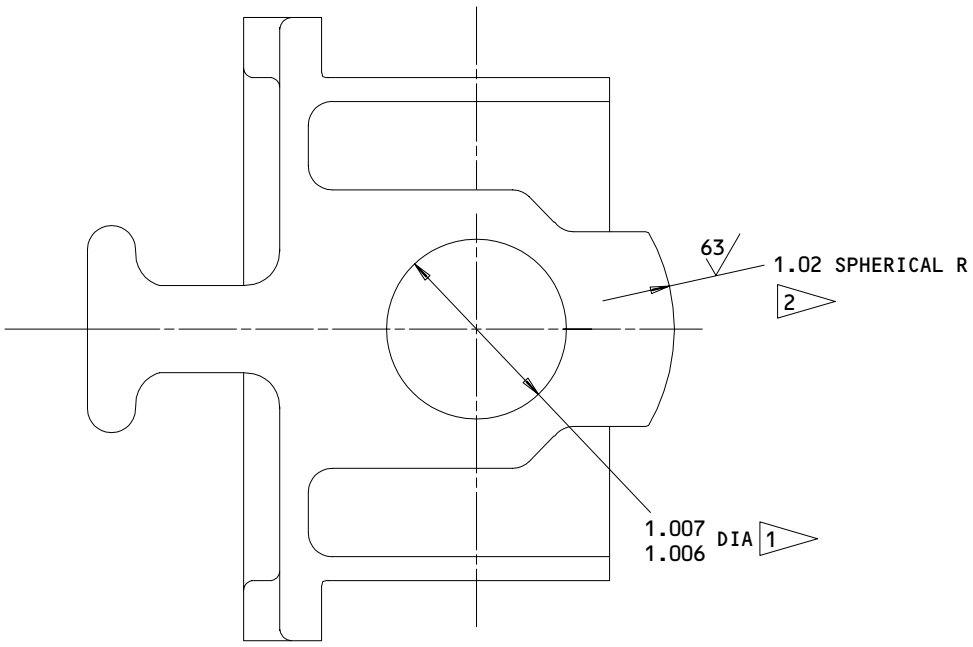
72410

SLEEVE, SAFETY - REPAIR 14-1

251T4362-1

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

SULFURIC ACID HARD ANODIZE (F-17.06) ALL OVER EXCEPT AS NOTED IN 1

1 CHEMICAL TREAT (F-17.07) THIS DIAMETER

2 APPLY DRY FILM LUBRICANT, BMS 3-8 CLASS A TO THIS SURFACE (REF 20-50-08)

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

Safety Sleeve Refinish
Figure 601

72256

PIN - REPAIR 15-1

251T4364-2

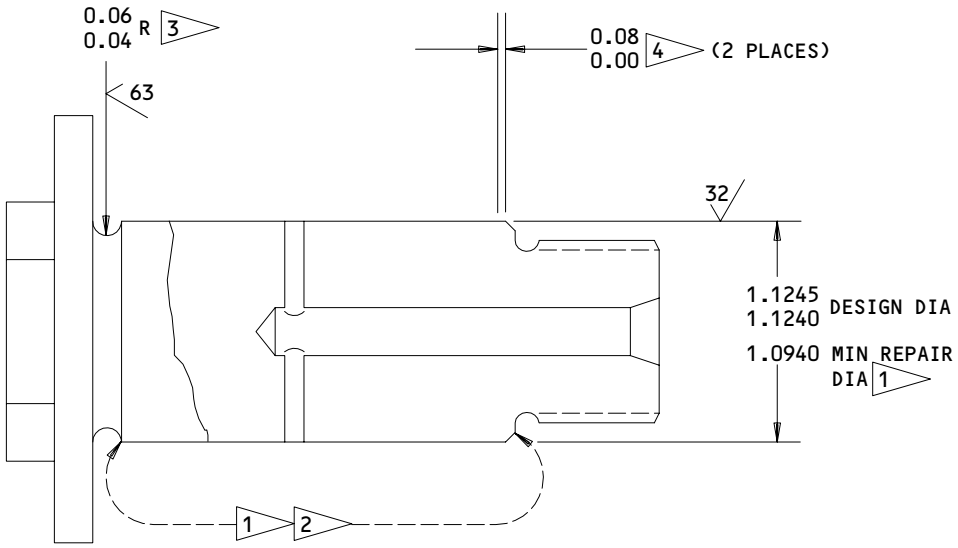
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require stripping and restoration of original finish, refer to Refinish instruction, Fig. 601.

1. Shaft Repair

A. Machine shaft as required, within repair limit shown, to remove defects.

B. Shot peen as indicated.

C. Build up repaired area with chrome plate and grind to design dimension and finish shown. Chrome plate must not exceed 0.015 inch after grinding.



REFINISH

CADMIUM PLATE (F-15.06)
ALL OVER EXCEPT AS NOTED BY 1 2

1 BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. MINIMUM PLATING THICKNESS 0.003 AFTER GRINDING

2 APPLY WIPE-ON PRIMER (F-19.45) THIS SURFACE AFTER PLATING AND GRINDING

3 NO CHROME PLATE THIS AREA

4 OBSERVE PLATING RUNOUT ON FILLET AND RELIEF EDGES

REPAIR

REF 1 2 3 4

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.008 R

SHOT PEEN: 170-460 SHOT SIZE
0.012A INTENSITY
2.0 COVERAGE

DIMENSIONS APPLY AFTER PLATING

MATERIAL: 4340 STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

Pin Refinish
Figure 601

72270

PIN - REPAIR 17-1

251T4366-2

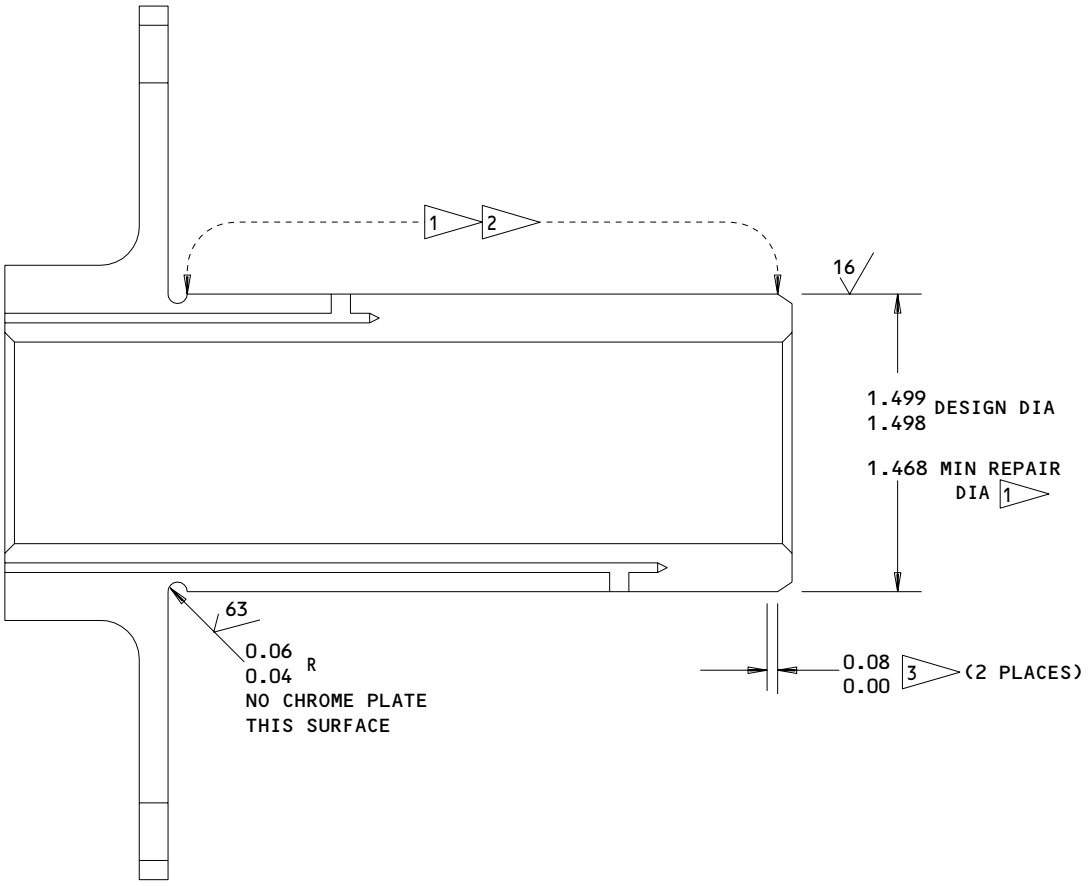
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require stripping and restoration of original finish, refer to Refinish instruction, Fig. 601.

1. Shaft Repair

A. Machine shaft as required, within repair limit shown, to remove defects.

B. Shot peen as indicated.

C. Build up repaired area with chrome plate and grind to design dimension and finish shown. Chrome plate must not exceed 0.015 inch after grinding.



REFINISH

CADMIUM-TITANIUM PLATE (F-15.32)
ALL OVER EXCEPT AS NOTED BY 1 2

1 BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. 0.003 MINIMUM PLATING THICKNESS AFTER GRINDING

1 APPLY WIPE ON PRIMER (F-19.45) TO CHROME PLATED AREA

2 OBSERVE PLATING RUNOUT ON FILLET AND PART EDGES

REPAIR

REF 1 2 3

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.008 R

SHOT PEEN: 170-460 SHOT SIZE
0.012A INTENSITY
2.0 COVERAGE

DIMENSIONS APPLY AFTER PLATING

MATERIAL: 4340 STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

Pin Refinish
Figure 601

BAYONET ASSEMBLY - REPAIR 18-1

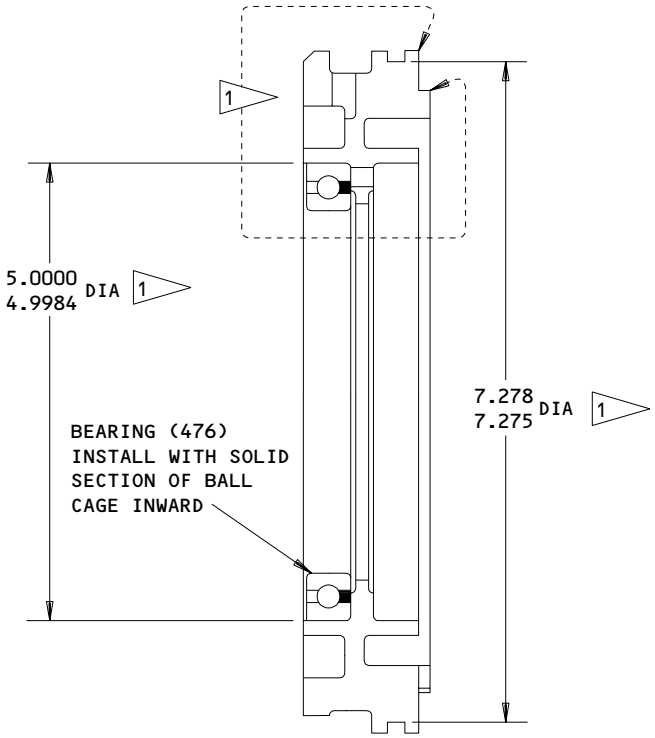
251T4378-1, -4

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Bearing Replacement (Fig. 601)

   A. Remove bearing.

   B. Install bearing with solid section of ball cage inward and roller swage type 2 per 20-50-03.



REFINISH

BAYONET (480) -- CADMIUM PLATE AND APPLY 1 COAT OF PRIMER (F-16.03) EXCEPT OMIT PRIMER IN AREAS INDICATED BY 1

BAYONET (480A) -- CADMIUM PLATE AS SHOWN IN SOPM QQ-P-416, TYPE 2, CLASS 2 (F-15.06) AND APPLY 1 COAT OF BMS 10-11, TYPE 1 PRIMER (F-20.02) EXCEPT OMIT PRIMER IN AREAS INDICATED BY 1

MATERIAL: 4340 STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

Bushing Replacement and Bayonet Refinish
Figure 601

72443

RATCHET ASSEMBLY - REPAIR 19-1

251T4382-1

NOTE: Refer to REPAIR-GEN for list of applicable standard practices.

1. Parts Replacement (Fig. 601)

   CAUTION: OUTSIDE FACE OF RATCHET (444) IS FINISHED TO 32 MICROINCHES. USE CARE TO AVOID SCRATCHING OR MARRING THE SURFACE.

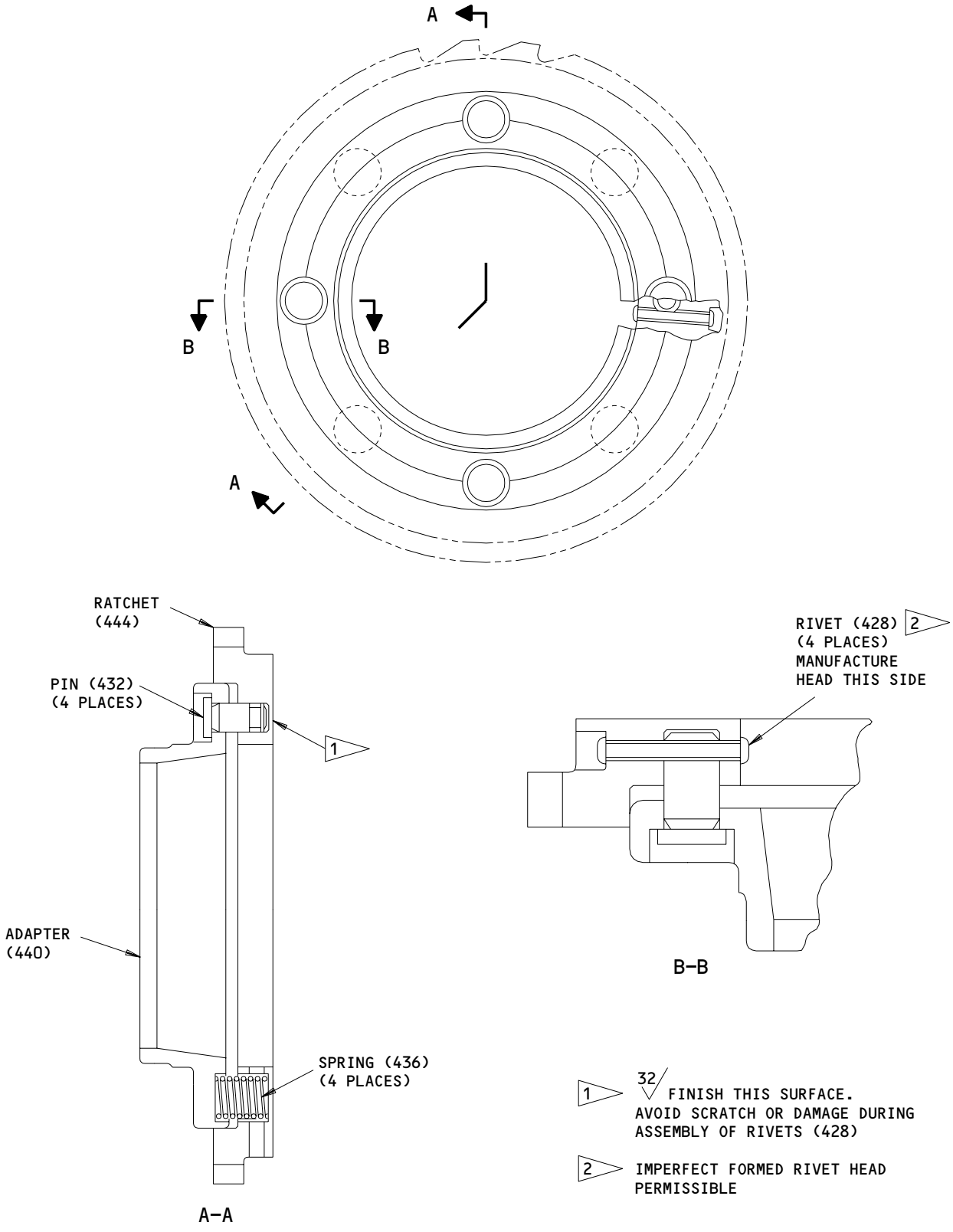
   A. Remove rivets (428).

   B. Separate adapter (440) from ratchet (444) and remove pins (432) and springs (436).

   C. Replace damaged parts.

   D. Position pins (432) and springs (436) in adapter (440) and assemble adapter (440) to ratchet (444).

   E. Install rivets (428) to secure pins (432) in place.



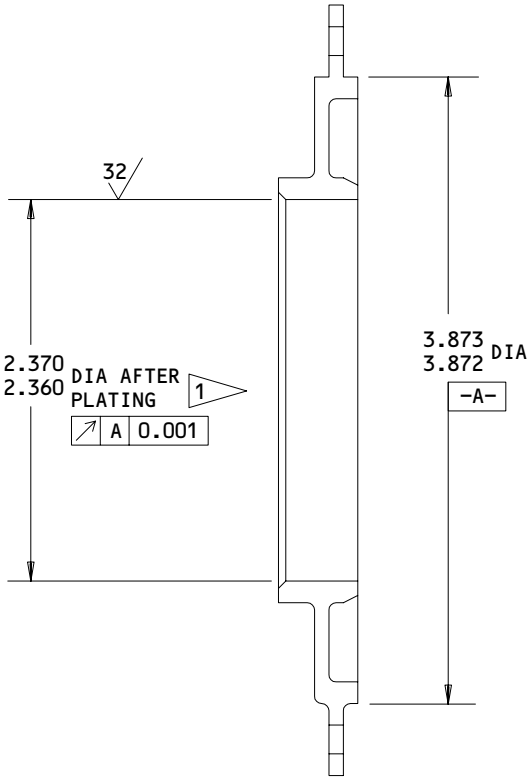
Parts Replacement
Figure 601

RETAINER - REPAIR 20-1

251T4383-1

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish insturction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

CADMIUM PLATE (F-15.06)
ALL OVER EXCEPT AREA INDICATED BY 1

MATERIAL: 4130 STEEL, 125-145 KSI

ALL DIMENSIONS ARE IN INCHES

1 CHROME PLATE (F-15.03) 0.003 MINIMUM PLATING THICKNESS THIS DIAMETER

Retainer Refinish
Figure 601

72541

BULL GEAR ASSEMBLY - REPAIR 21-1

251T4387-1

CAUTION: UPPER BULL GEAR (556) AND LOWER BULL GEAR (560) WERE CUT TOGETHER AS A MATCHED SET. DO NOT REPLACE INDIVIDUAL PART. ASSEMBLE BULL GEARS WITH "X" MARKS ALIGNED TO ENSURE PROPER ALIGNMENT AFTER ASSEMBLY.

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list of applicable standard practices. Item numbers refer to IPL Fig. 1.

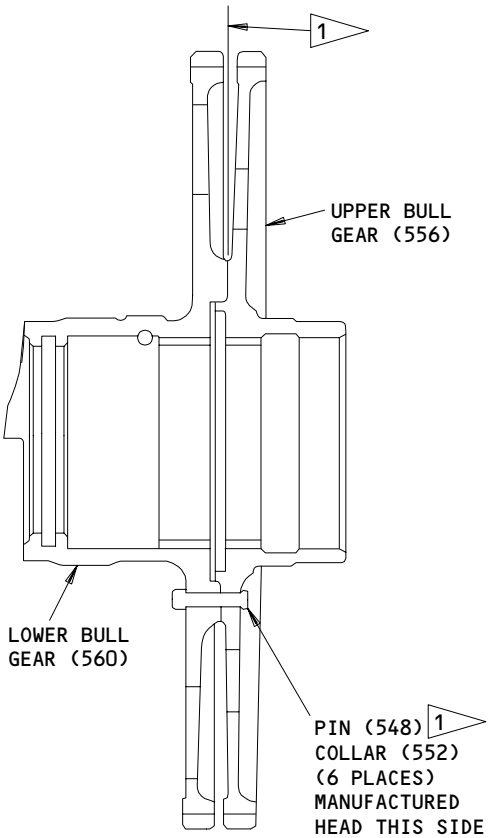
A. Remove pins (548 or 548A), collars (552) and separate upper and lower bull gears (556, 560).

B. Refinish gears (556, 560) per Fig. 601.

C. Assemble gears with "X" marks aligned using wet primer on faying surfaces indicated.

D. Measure combined thickness of gears at pin (548) location. For a combined thickness of 0.970 inch or less, assemble using pins (548). For a combined thickness of more than 0.970 inch, assemble using pins (548A).

E. Secure parts with pins (548 or 548A) and collars (552). Install fasteners with wet primer.



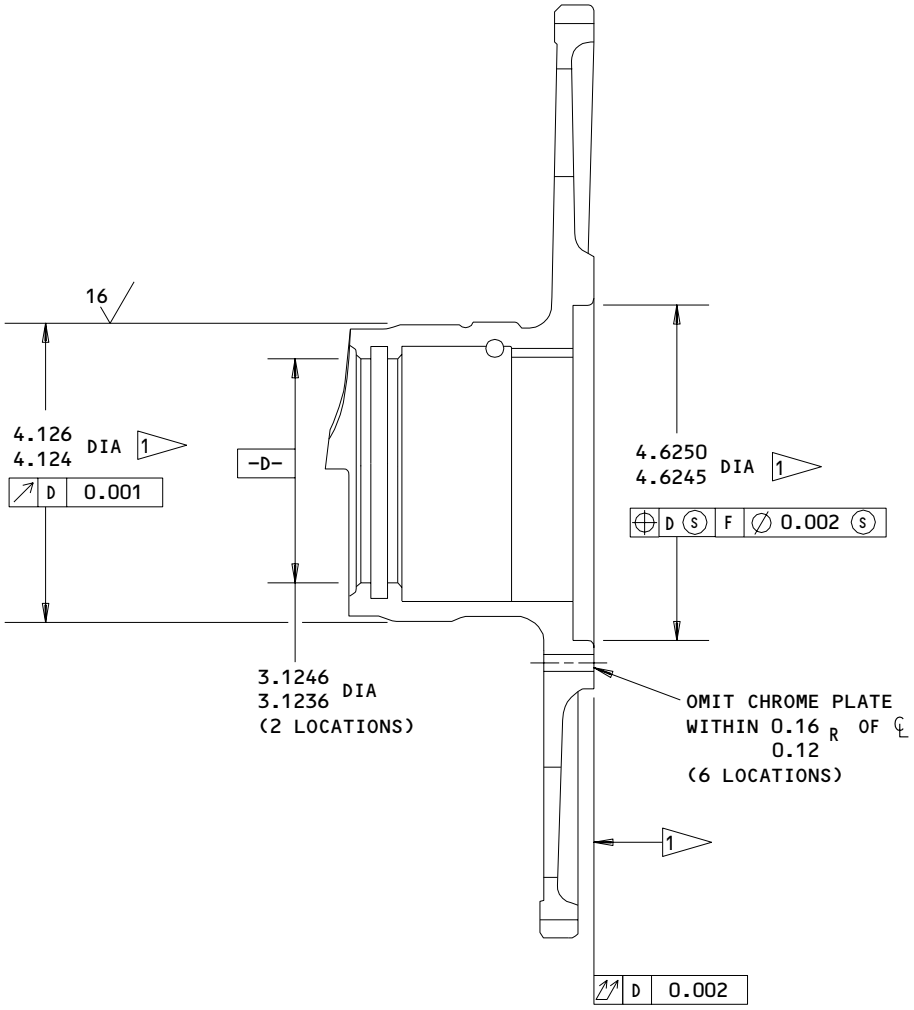
1 ASSEMBLE WITH WET PRIMER (F-20.06) ON INDICATED SURFACES

ITEM NUMBERS REFER TO IPL FIG. 1

251T4387-1

Bull Gear Assembly Refinish
Figure 601 (Sheet 1)

72667



251T4387-3
LOWER BULL GEAR

REFINISH

CADMIUM PLATE (F-15.06) ALL OVER EXCEPT IN CHROME PLATED AREA INDICATED BY 1

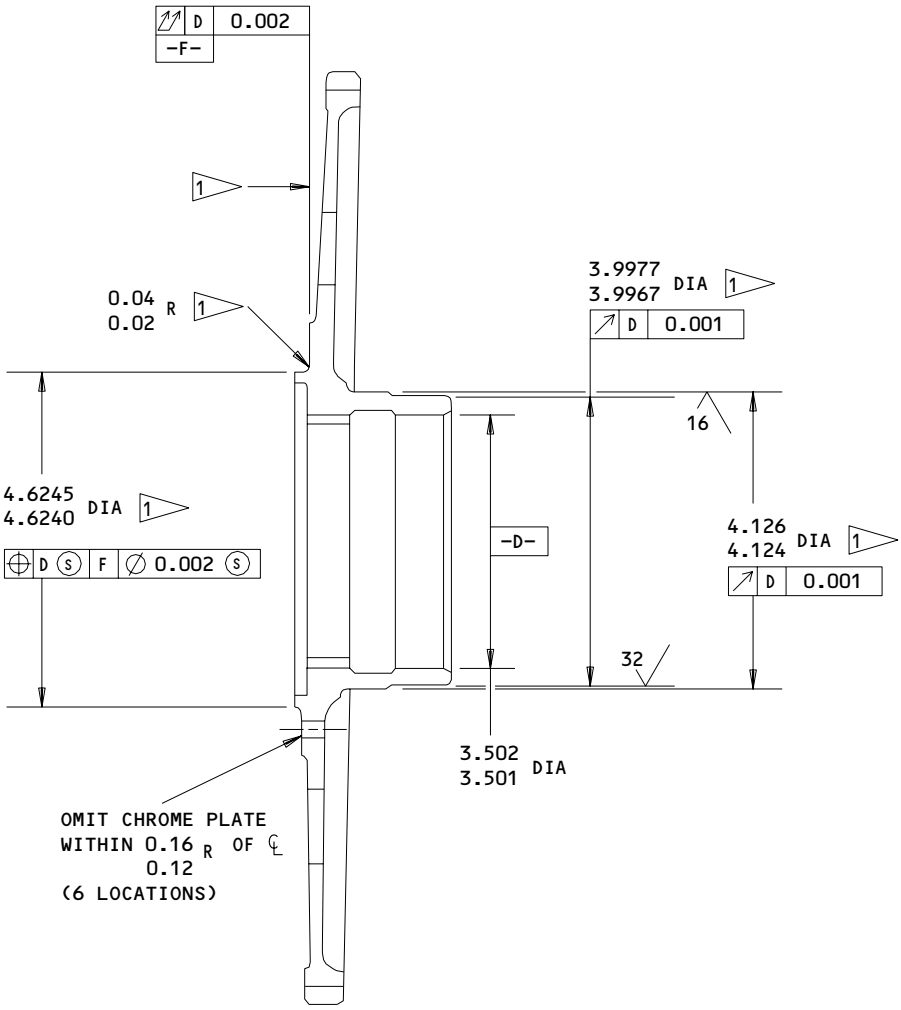
1 CHROME PLATE (F-15.03) 0.003 MINIMUM PLATING THICKNESS THIS SURFACE. DIMENSIONS APPLY AFTER PLATING

MATERIAL: 4330M STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

Bull Gear Assembly Refinish
Figure 601 (Sheet 2)

91147



251T4387-2
UPPER BULL GEAR

REFINISH

CADMIUM PLATE (F-15.06) ALL OVER EXCEPT IN CHROME PLATED AREA INDICATED BY 1

1 CHROME PLATE (F-15.03) 0.003 MINIMUM PLATING THICKNESS THIS SURFACE. DIMENSIONS APPLY AFTER PLATING

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL: 4330M STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

Bull Gear Assembly Refinish
Figure 601 (Sheet 3)

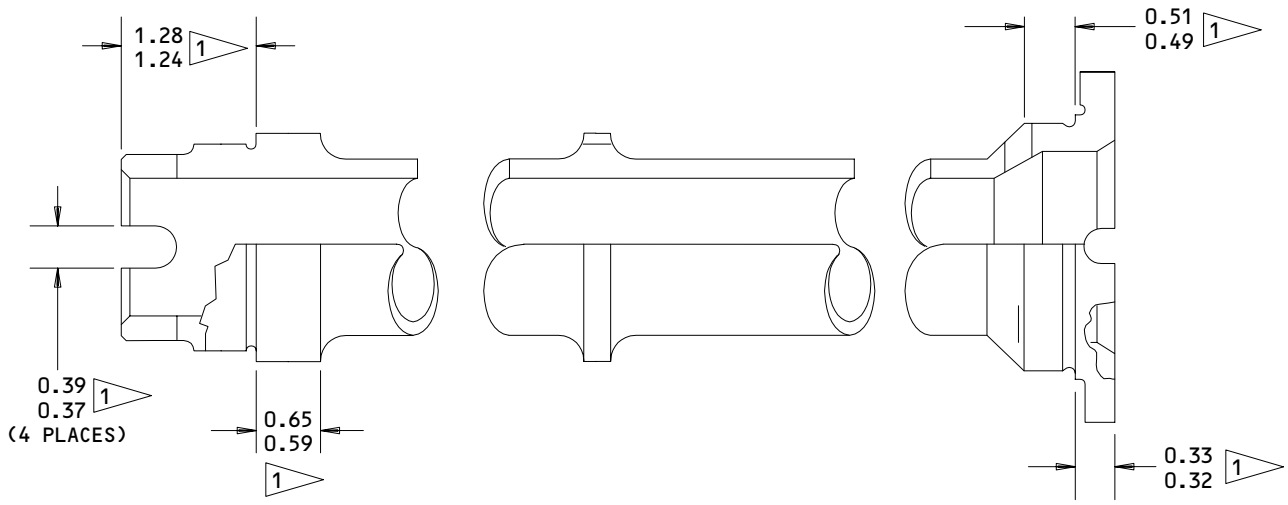
91149

ROD, SAFETY - REPAIR 22-1

251T4390-1

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for list applicable standard practices.



REFINISH

CADMIUM PLATE (F-15.06) AND APPLY 1 COAT OF PRIMER (F-20.02) ALL OVER EXCEPT AS NOTED IN 1 CLEAN AND COAT I.D. WITH CORROSION PREVENTIVE COMPOUND, MIL-C-11796, CLASS 3 (F-19.03)

1 OMIT PRIMER THIS SURFACE

MATERIAL: 4330M STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

Safety Rod Refinish
Figure 601

72669

PAWL ASSEMBLY - REPAIR 23-1

251T4391-1

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions.

1. Bushing Replacement

   A. Remove bushings

   B. Install replacement bushing using shrink fit method per 20-50-03.

2. Refinish

   A. Pawl (352) -- Cadmium plate (F-15.23) all over. Material: 9310 steel, 150-190 ksi core strength.

PIN ASSEMBLY - REPAIR 24-1

251T4392-1

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction and to REPAIR-GEN for list of applicable standard practices. Item numbers refer to IPL Fig. 1.

A. Press inner pin (704) out of outer pin (708).

B. Refinish parts per Refinish instructions.

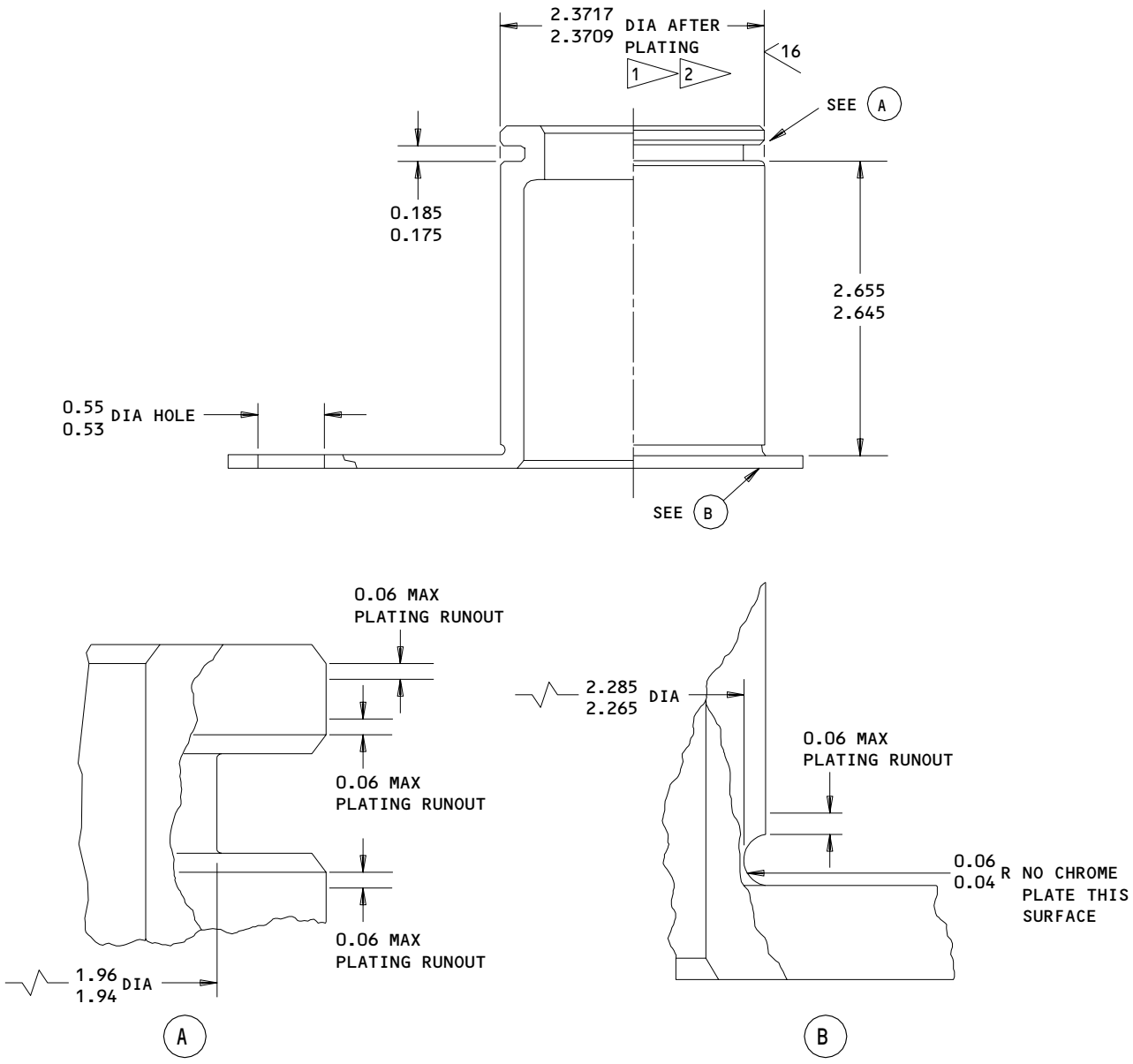
C. Press fit inner pin (704) into outer pin (708). Align 0.15 dia hole thru in outer pin and 0.13 dia hole thru in inner pin so that 0.062 min. dia. rod may be insert thru.

D. Apply 1 coat of primer (F-20.02) to 0.53-0.55 dia hole in both inner pin and outer pin.

2. Refinish

A. Inner pin -- Cadmium - titanium plate (F-15.01) all over. Material: 4330M steel, 180-200 ksi.

B. Outer pin -- Fig. 601.



REFINISH

CADMIUM TITANIUM PLATED (F-15.01) ALL OVER EXCEPT AS NOTED IN 1

1 CHROME PLATE (F-15.03), 0.003 MINIMUM PLATING THICKNESS AFTER GRINDING THROW-IN PLATING ALLOWED IN HOLES

2 APPLY WIPE-ON PRIMER (F-19.45) TO THIS SURFACE

MATERIAL: 433OM STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

Outer Pin Refinish
Figure 601

72674

HOUSING ASSEMBLY, PRIMARY BRAKE - REPAIR 25-1

251T4395-1, -3

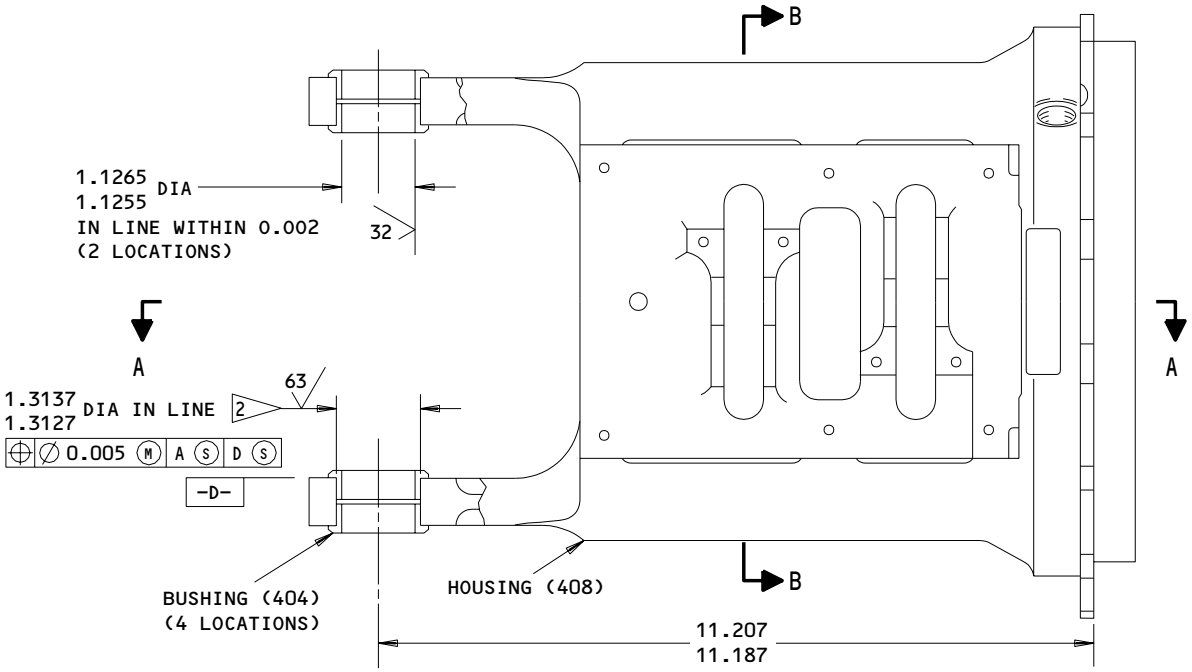
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions, Fig. 601 and 602.

1. Bushing Replacement (Fig. 601 and 602)

   A. Remove bushings

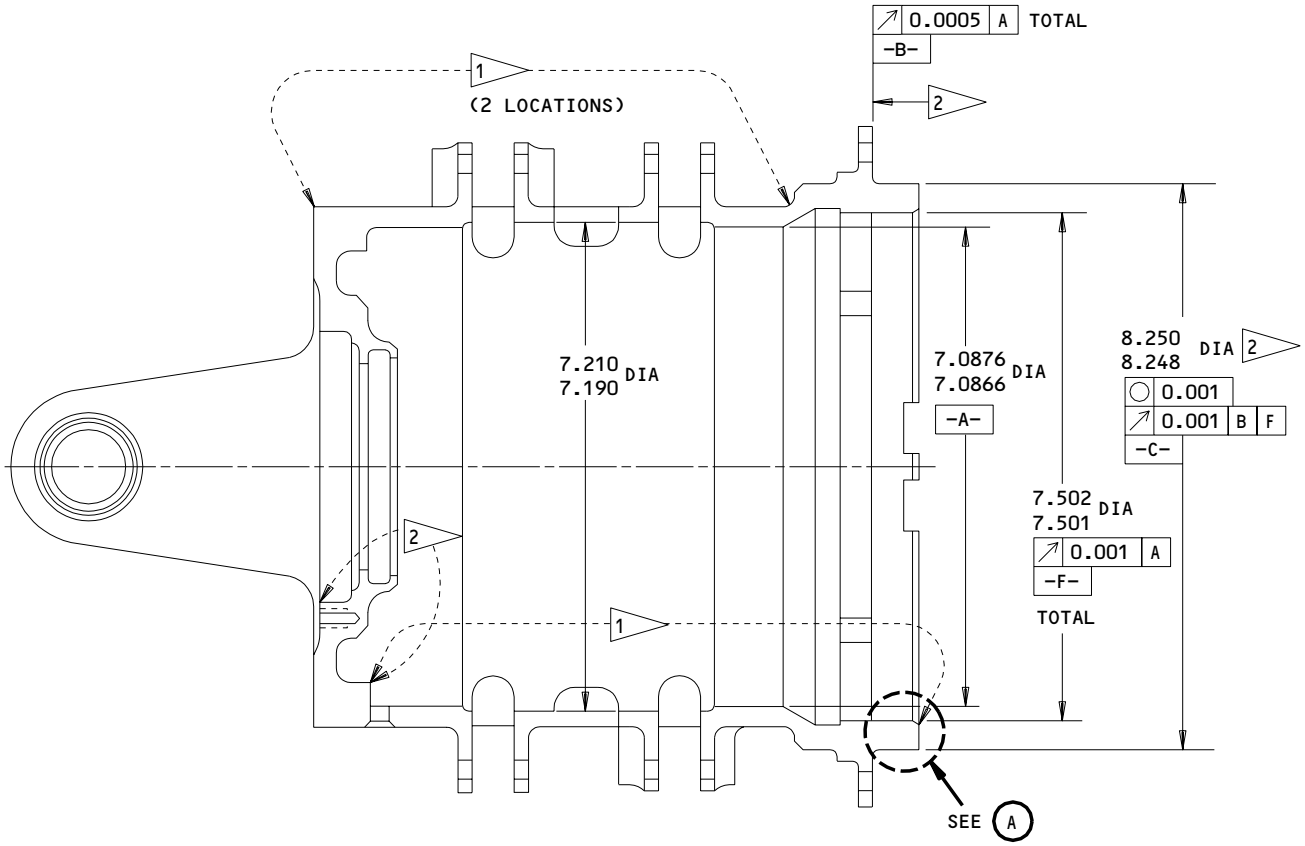
   B. Install bushings with BMS 5-95 sealant using shrink fit method. Fillet seal the bushing flanges with BMS 5-95 sealant.

   C. Machine busing I.D. to dimension and finish shown.

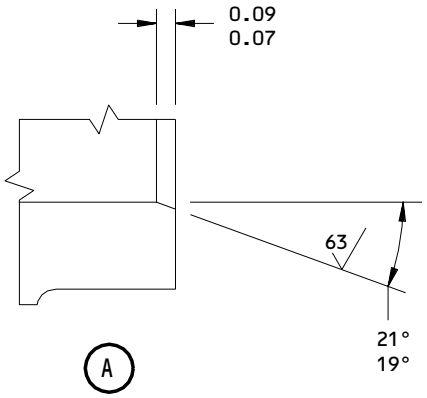


251T4395-1
Bushing Replacement and Housing Refinish
Figure 601 (Sheet 1)

72681

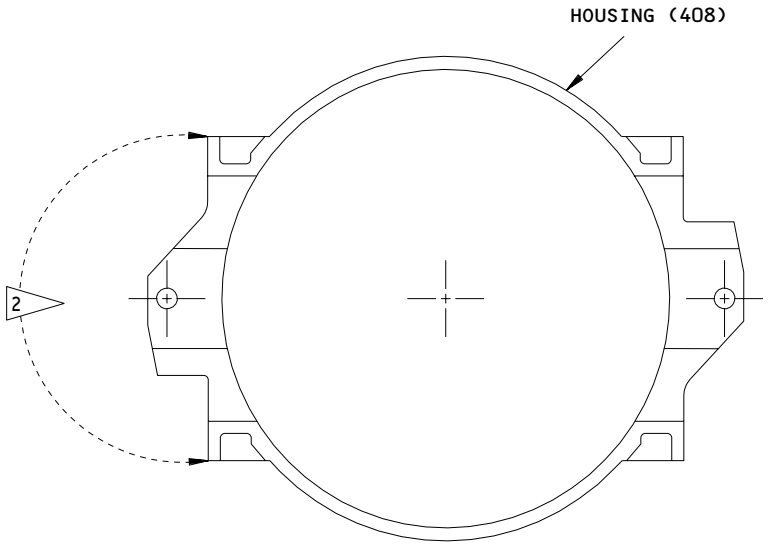


A-A



251T4395-1
Bushing Replacement and Housing Refinish
Figure 601 (Sheet 2)

72693



B-B

REFINISH

HOUSING (408) -- CADMIUM PLATE, 0.0003-0.0005 PLATING THICKNESS AND APPLY 1 COAT OF PRIMER (F-16.01) ALL OVER EXCEPT AS NOTED IN 1 2

1 NO FINISH (F-25.01) EXCEPT COAT WITH MIL-H-6083 FOR STORAGE THIS SURFACE

2 OMIT PRIMER THIS SURFACE

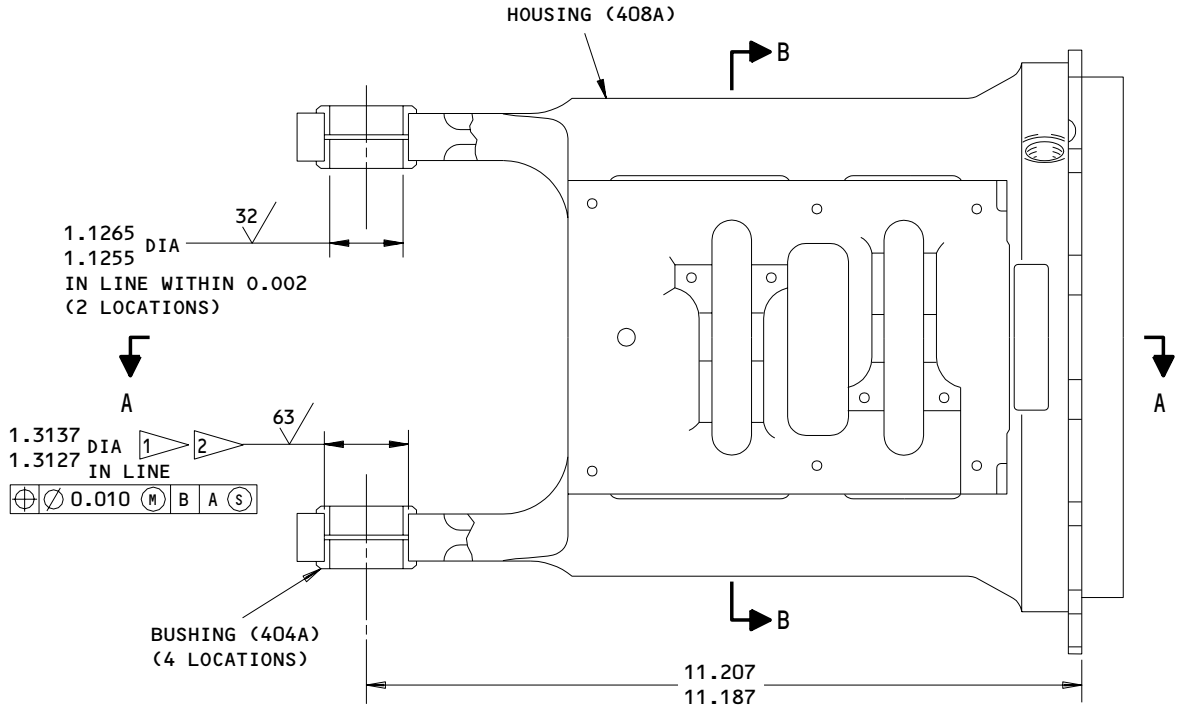
MATERIAL: 4340 STEEL, 180-200 KSI

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

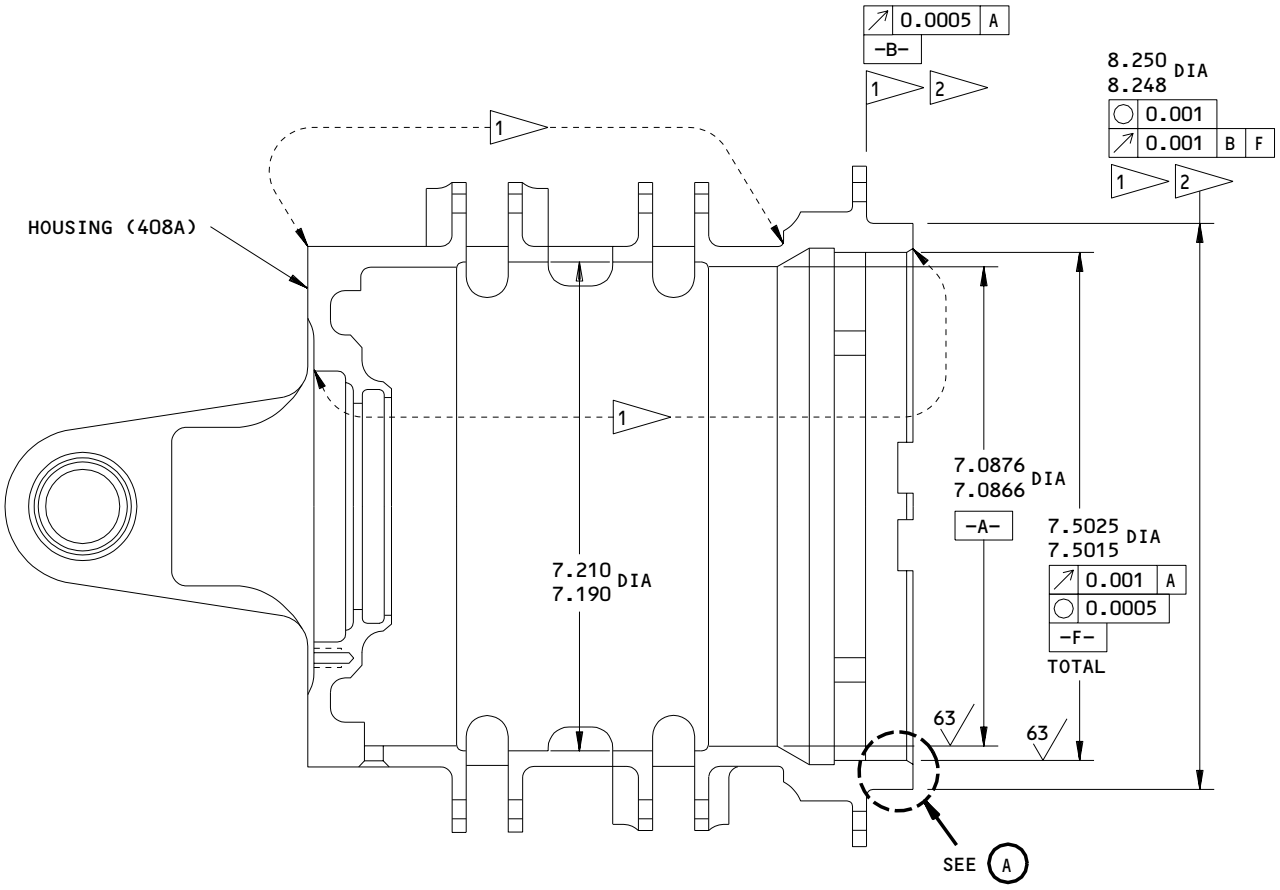
251T4395-1
Bushing Replacement and Housing Refinish
Figure 601 (Sheet 3)

K92487

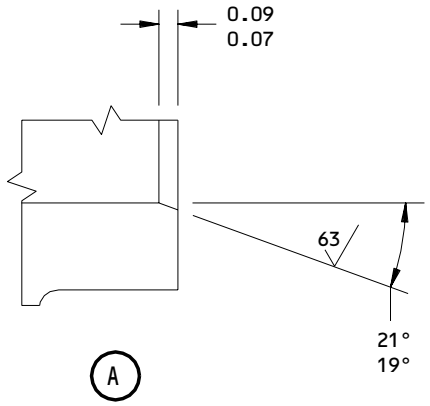


251T4395-3
Bushing Replacement and Housing Refinish
Figure 602 (Sheet 1)

K93298

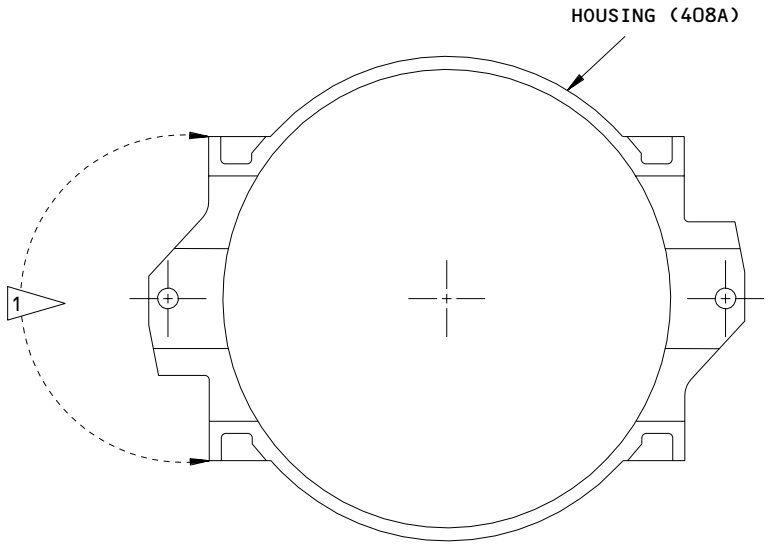


A-A



251T4395-3
Bushing Replacement and Housing Refinish
Figure 602 (Sheet 2)

K93244



B-B

REFINISH

HOUSING (408A) -- HARD ANODIZE OR SULFURIC ACID (F-17.30) AND APPLY TWO COATS BMS 10-11, TYPE 1 PRIMER (F-20.03) ALL OVER EXCEPT AS NOTED IN 1 2

1 HARD ANODIZE OR SULFURIC ACID ANODIZE (F-17.30)

2 OMIT PRIMER THIS SURFACE

MATERIAL: ALUMINUM ALLOY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

251T4395-3
Bushing Replacement and Housing Refinish
Figure 602 (Sheet 3)

K93431

MISCELLANEOUS PARTS REFINISH - REPAIR 26-1

1. Repair of parts listed in Fig. 601 consists of restoration of the original finish.

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1 Retainer (64)	Al alloy	Chromic acid anodize and apply 1 coat of primer, BMS 10-11, type 1 (F-18.13) all over. Apply 1 coat of primer, BMS 10-11, type 1 (F-20.02) all over. (Alternate material: Nylafil - no finish).
Shafts (68, 72)	4340 M Steel, 275-300 ksi	Cadnium-titanium plate (F-15.32) all over.
Shaft (192)	4340 steel, 150-170 ksi	Cadmium plate (F-15.06) all over. Apply 1 coat of primer (F-20.02) and corrosion preventive compound, MIL-C-11796, Class 3 (F-19.03) on internal surface only.
Umbrella (260)	4130 steel, 125-145ksi	Cadmium plate and apply 1 coat of primer (F-16.01) all over.
Socket (264)	4340 Steel, 180-200 ksi	Cadmium plate (F-16.04) all over and apply dry film lubricant, BMS 3-8, class A to 1.82 inch spherical radius surface.
Nut (268)	4340 Steel, 180-200 ksi	Cadmium plate (F-16.04) all over and apply dry film lubricant, BMS 3-8, class A to 2.323-2.325 dia O.D., 2.188-2.190 dia groove, 1.02 and 1.82 spherical radius surfaces.
Spring housing (356), ring (680)	Al alloy	Chromic acid anodize (F-17.04) all over.
Springs (364,368)	17-7 PH CRES	Passivate (F-17.09).
Brackets (392, 396)	17-4 PH CRES, 130 ksi minimum	Passivate (F-17.09).
Brackets (392A, 396A)	17-4 PH CRES, 130 ksi minimum	Cadmium plate (F-15.06) and apply BMS 10-11, type 1 primer (F-20.02).

Refinish Details
Figure 601 (Sheet 1)

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Pin (432)	4340 Steel, 150-170 ksi	Cadmium plate (F-15.06) all over.
Adapter (44)	4340 Steel, 180-200 ksi	Cadmium plate (F-15.06) all over.
Retainer (460), lockplate (492), spacer (688)	4130 Steel, 125-145 ksi	Cadmium plate (F-15.06) all over.
Brackets (508,512)	Al alloy	Chromic acid anodize and apply 1 coat of primer (F-18.13) all over.
Fitting (572), cup (576)	Al alloy	Chromic acid anodize (F-17.04) and apply 1 coat of primer, BMS 10-11, type 1 (F-20.02) all over except omit primer on threads of fitting (572).
Fig. 2		
Retainer (30)	Al alloy	Chromic acid anodize and apply 1 coat of primer, BMS 10-11, type 1 (F-18.13) all over. (Alternate material: Nylafil - no finish).
Cover (35), retainer (85)	Al alloy	Chromic acid anodize and apply 1 coat of primer, BMS 10-11, type 1 (F-18.13) all over. Omit primer on faying surfaces of cover (35).
Shafts (60, 65)	4340M Steel, 275-300 ksi	Cadmium-titanium plate (F-15.32) all over.
Bearing (90,140, 150)	Al-Ni-Br per AMS 4640	Cadmium plate (F-15.06) all over.
Pinion (100,130)	4340M Steel, 275-300 ksi	Cadmium-titanium plate (F-15.01) 0.0003-0.0005 single plate thickness, all over.

Refinish Details
Figure 601 (Sheet 2)

IPL FIG. & ITEM	MATERIAL	FINISH
Sleeve (105), spacer (145,160, 165,180,210)	4130 Steel, 125-145 ksi	Cadmium plate (F-15.06) all over.
Pinion (185)	9310 Steel, core hardness 150-190 ksi	Cadmium plate (F-15.23) all over.
Shaft (215)	4330M Steel, 180-200 ksi	Cadmium plate (F-15.06) exterior surfaces, plating throw in bore acceptable. Apply 2 coats of primer (F-20.03) to bore and clean and coat bore with MIL-C-11796, class 1 corrosion preventive compound (F-19.03).

Refinish Details
Figure 601 (Sheet 3)

ASSEMBLY

1. Materials

NOTE: Equivalent substitutes may be used.

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

B. Sealant -- MIL-S-8802 (Ref 20-60-04)

C. Locking Compound -- Locktite

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

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

F. Corrosion Preventive Compound -- MIL-C-16173, Class 2 or 3 (Ref 20-60-03)

G. Lockwire -- MS20995NC32 (Optional MS20995N32)

2. Equipment

NOTE: Equivalent substitutes may be used.

A. Rod Assembly -- A27062-6

B. Guide -- A27062-9

C. Socket -- A27062-13

D. Gage Assembly -- A27062-12

E. Ball Retainer Assembly -- A27062-5

F. Test Fixture -- A27072-42

G. Spanner Adapter Assembly -- A27062-14

H. Spanner Assembly -- A27062-4

I. Wrench -- A27062-11

J. Tube assembly -- A27062-7

K. Rest -- A27062-8

L. Knob -- CL4PPK4

3. Assemble Differential Assembly (IPL Fig. 2)

A. Apply grease to O.D. of bearing (135) and install bearing in lower housing assembly (50) (Ref 20-50-03).

B. Install secondary bearing (140) and roller swage housing per 20-50-03.

C. Determine spacers (180, 210) thickness (Fig. 701).

(1) Mark journals of differential shaft (215) as indicated and measure dimensions "A" thru "D".

(2) Determine spacers (180, 210) thickness as follows:

(a) For journal No. 1
22 Spacer (210) thickness = 0.802-(B+0.590)

(b) For journal No. 2
22 Spacer (180) thickness = 1.445-(A+0.375)

(c) For journal No. 3
22 Spacer (210) thickness = 0.802-(D+0.590)

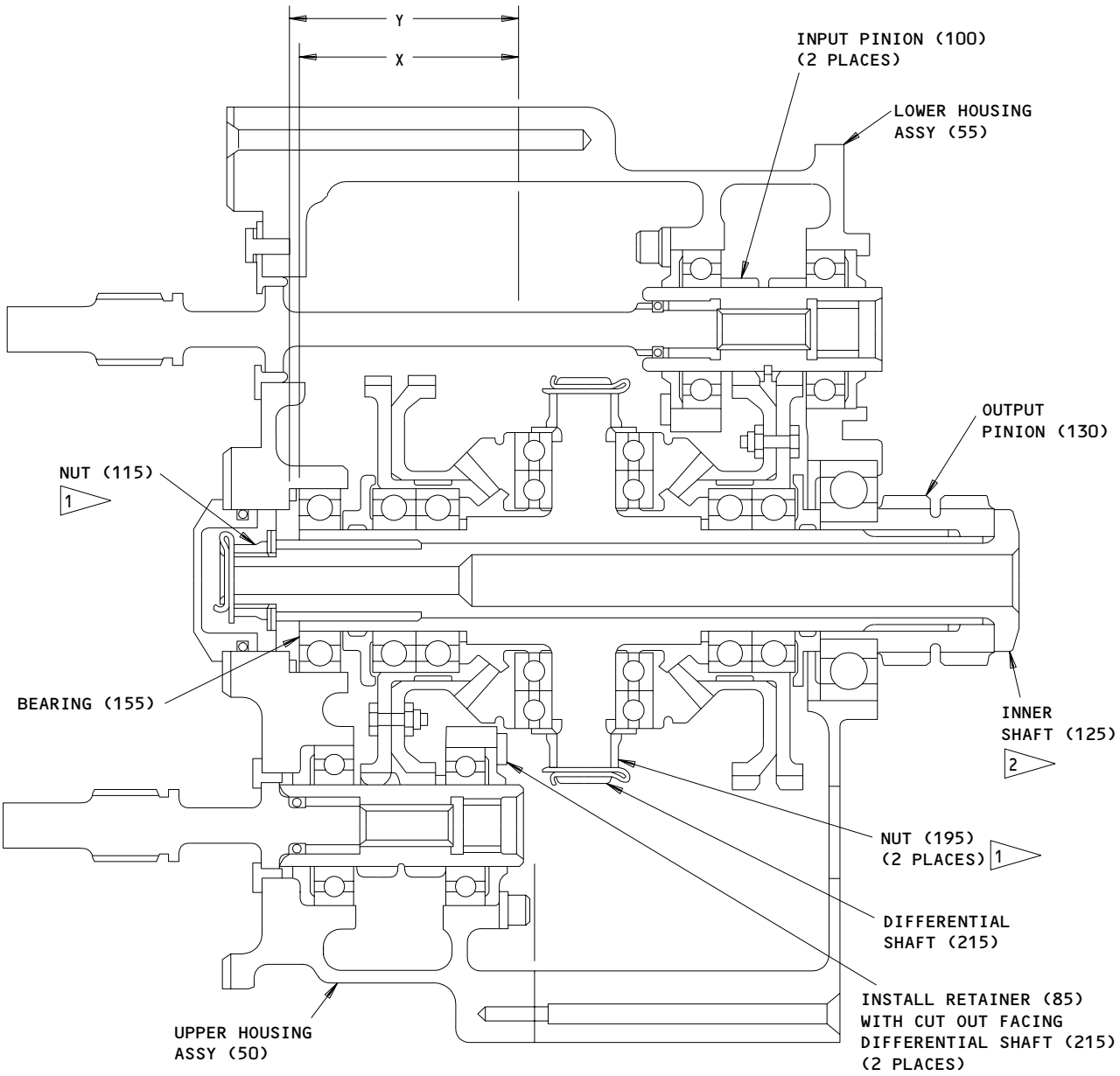
(d) For journal No. 4
22 Spacer (180) thickness = 1.445-(C+0.375)

(3) Grind spacers (180, 210) to thickness obtained per step (2). Use care not to mix up spacers.

D. Apply grease to O.D. of bearings (205) and I.D. of bevel pinion (185) and install bearings in pinions (Ref 20-50-03).

E. Install bevel pinions (185) and matching spacers (210) on differential shaft (215) and secure with washers (200) and nuts (195). Tighten nuts to 350-450 lb-inches. Check that pinions rotate freely.

F. Apply grease to O.D. of bearings (170) and I.D. of gear assemblies (175) and install bearings in gear assemblies (Ref 20-50-03).



X = DISTANCE BETWEEN MOUNTING FACE OF LOWER HOUSING (55) TO OUTER RACE OF BEARING (155)
Y = DISTANCE BETWEEN MOUNTING FACE AND BEARING SEAT OF UPPER HOUSING ASSY (50)

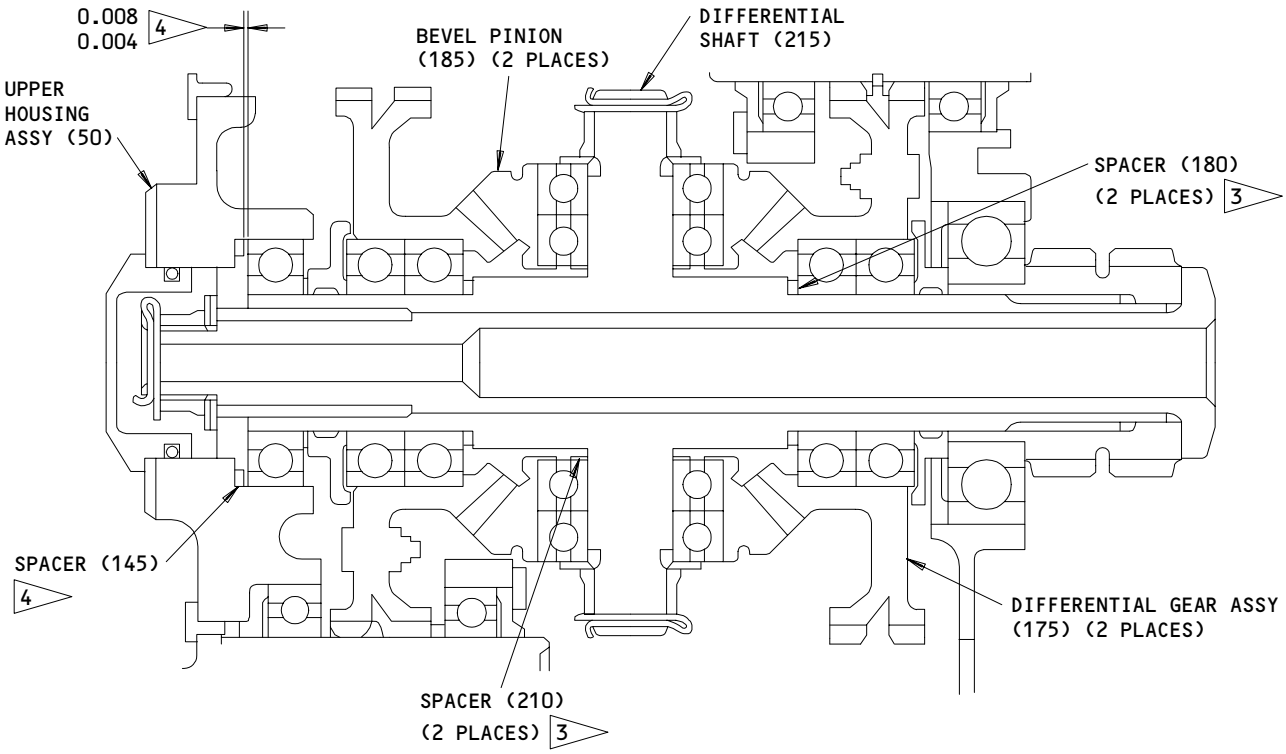
ITEM NUMBERS REFER TO IPL FIG. 2

1 TIGHTEN TO 350-450 LB-INS

2 APPLY GREASE, MIL-G-23827 TO FULL LENGTH OF SHAFT

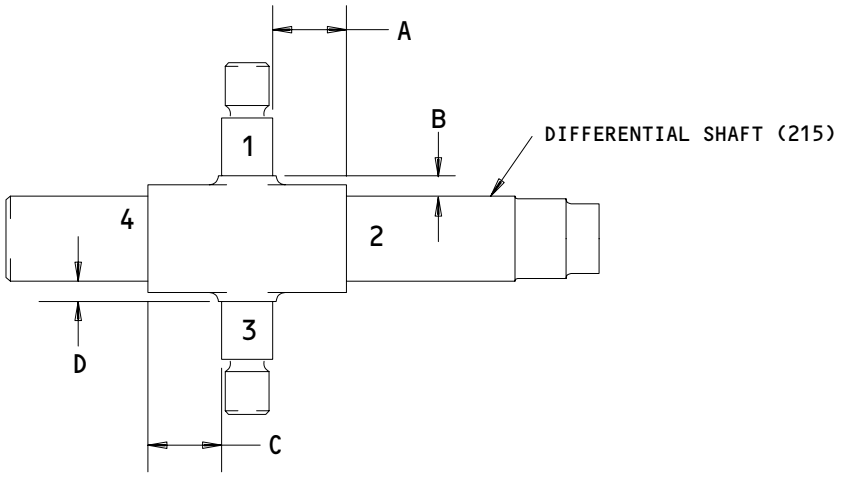
Differential Assembly Details
Figure 701 (Sheet 1)

72754



3 ADJUST THICKNESS OF SPACERS (180,210) TO OBTAIN 0.002-0.006 BACKLASH BETWEEN EACH BEVEL GEAR

4 GRIND SPACER (145) TO OBTAIN (0.004-0.008) CLEARANCE BETWEEN BEARING (150) AND UPPER HOUSING ASSY (50)



MARK JOURNALS AND MEASURE DISTANCE "A" THRU "D" TO DETERMINE SPACERS (180,210) THICKNESS

ITEM NUMBERS REFER TO IPL FIG.2

ALL DIMENSIONS ARE IN INCHES

Differential Assembly Details
Figure 701 (Sheet 2)

G. Backlash check

(1) Install spacer (180) selected for journal No. 2 and a gear assembly (175) on the externally splined end of differential shaft (215).

(2) Install rod assembly A27062-6, tube assembly A27062-7 on differential shaft (215) and clamp the differential gear assembly (175) with knob CL4PPK4. Secure the unit on rest A27062-8.

(3) Check that backlash at pitch line of each bevel pinion (185) is 0.002-0.006 inch. Adjust thickness of spacers (210) or spacers (180) as required to obtain indicated amount of backlash.

(4) Remove rod assembly A27062-6, tube assembly A27062-7, rest A27062-8 and knob CL4PPK4 from differential shaft (215) Remove gear assembly (175).

(5) Install spacer (180) selected for journal No. 4 and the other gear assembly (175) on the internally splined end of differential shaft (215).

(6) Install rod assembly A27062-6, tube assembly A27062-7 on differential shaft (215) and clamp the differential gear assembly (175) with knob CL4PPK4. Secure unit on rest A27062-8.

NOTE: Install rod assembly A27062-6 and tube assembly A27062-7 in opposite direction from step (2).

(7) Check that backlash at pitch line of each bevel pinion (185) is 0.002-0.006 inch. Adjust thickness of spacer (180) as required to obtain indicated amount of backlash.

(8) Remove rod assembly A27062-6, tube assembly A27062-7, rest A27062-8 and knob CL4PPK4 from differential shaft (215).

(9) Remove gear assembly (175) and spacer (180) from differential shaft (215). Note the side which each gear assembly (175) was installed and the corresponding spacer (180).

(10) Install cotter pin (190) per 20-50-02 as in clevis pin.

H. Install safety sleeves (105) in input pinion (100) with locking compound.

I. Apply grease to O.D. of input pinions (100) and to I.D. of bearings (95) and install bearings on input pinions.

J. Coat gears and splined areas of pinions (100) with grease. Fill internal cavity of pinion (100) one third full of grease. Fill cavity of secondary bearings (90) with grease. Install pinions (100) and secondary bearings (90) in upper and lower housing assemblies (50, 55).

K. Install retainers (85) with cutaway edge toward differential shaft (215) bore and secure with washers (80) and screws (75). Lockwire screw heads using double twist method.

L. Apply a liberal amount of grease to gear teeth of gear assembly (175) to be installed on the externally splined end of differential shaft (215), gear teeth of pinions (185) and to all area of differential shaft (215).

M. Position bearing spacer (165) and gear assembly (175) lubricated in step L. in lower housing assembly (55). Install matching spacer (180) on differential shaft (215) and install shaft in lower housing assembly.

N. Note timing in the splines of output pinion (130). Apply grease to splines of output pinion and install output pinion on differential shaft (215).

O. Note timing on shaft (125). Apply grease to all area of shaft and install shaft (125) in differential shaft (215).

P. Determine spacer (145) thickness.

(1) Install selected spacer (180), gear assembly (175), bearing spacer (165), spacer (160), bearing (155), secondary bearing (150) on differential shaft (215). Install washer (120) and nut (115). Tighten nut to 350-450 lb-inches.

(2) Measure and note distance between mounting face of lower housing assembly (55) and outer race of bearing (155) (Distance "X", Fig. 701).

(3) Measure and note distance between mounting face and bearing (155) seat of upper housing assembly (50) (Distance "Y", Fig. 701).

(4) Required thickness of spacer (145) = Y-(X+0.006).

(5) Grind spacer (145) to the determined thickness and cadmium plate per 20-42-05 all over.

(6) Remove parts installed per step (1).

Q. Apply grease to O.D. of bearing (155) and I.D. of upper housing assembly (50). Install spacer (145) determined per step P. and bearing (155) in upper housing assembly.

R. Position spacer (160), bearing spacer (165), and gear assembly (175) in upper housing assembly (50). Install guide A27062-9 to secure gear assembly (175) in place.

S. Apply sealant to faying surfaces of upper and lower housing assembly (50, 55) and mate upper housing assembly (50) to lower housing assembly (55). At the same time remove guide A27062-9. Secure part with bolts (45).

T. Apply grease to O.D. and I.D. of secondary bearing (150) and install in upper housing assembly (50). Install washer (120) and nut (115). Tighten nut to 350-450 lb-inches. Use wrench A27062-11 to hold output pinion (130) stationary. Install cotter pin (110) per 20-50-02.

U. Check that gear train operates smoothly without binding.

V. Install bolts (5), washers (10) and nuts (15).

W. Install packing (40) on cover (35) and install cover on upper housing assembly (50). Install bolts (20) and washers (25).

X. Install packings (70) on shafts (60, 65). Apply grease to splines of shafts (60, 65) and install shafts. Install retainers (30) and secure with bolts (20) and washers (25).

4. Assemble Ball Screw Actuator Assembly (IPL Fig. 1)

A. General

(1) Lubricate packings with hydraulic fluid, MIL-H-5606 before installation.

(2) Cover all unpainted faying surfaces and all other unpainted internal surfaces with a light coat of grease except surfaces wetted by hydraulic fluid.

(3) Unless otherwise specified, tighten fasteners per 20-50-01.

B. Determine upper spacer (416) thickness (Fig. 702).

(1) Install retaining pin assemblies (176) on upper gimbal assembly (208) and secure with nuts (204).

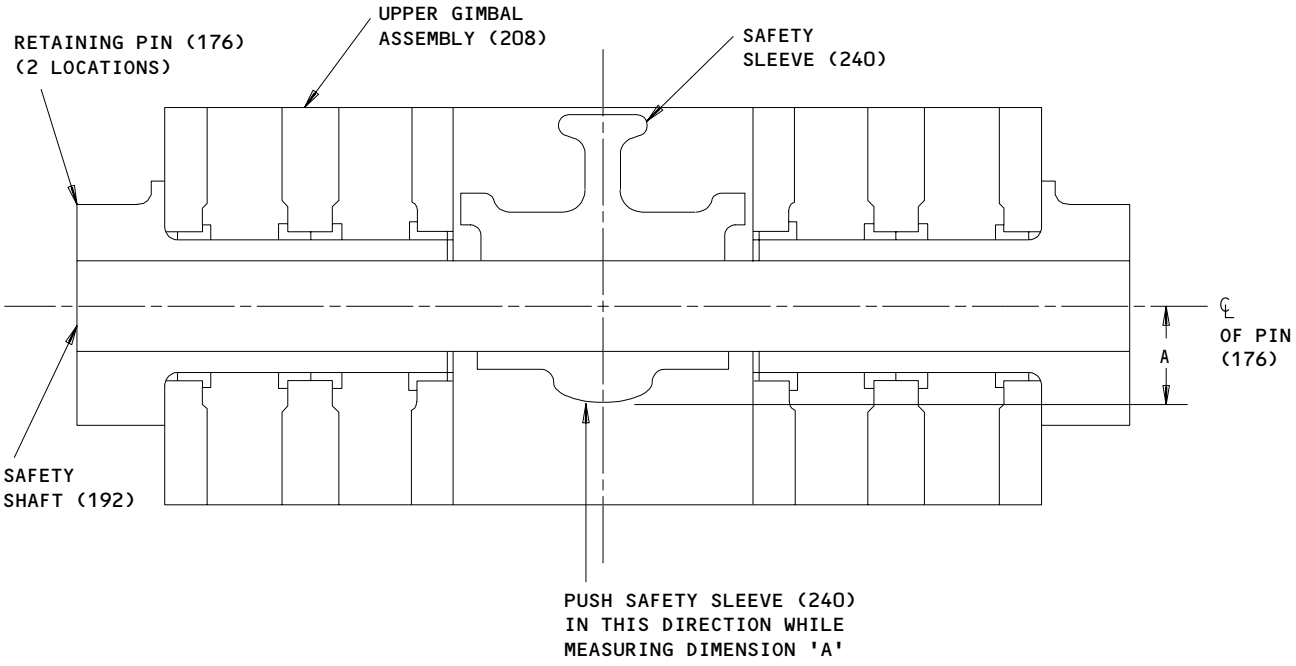
(2) Install safety shaft (192) and safety sleeve (240) on upper gimbal assembly (208).

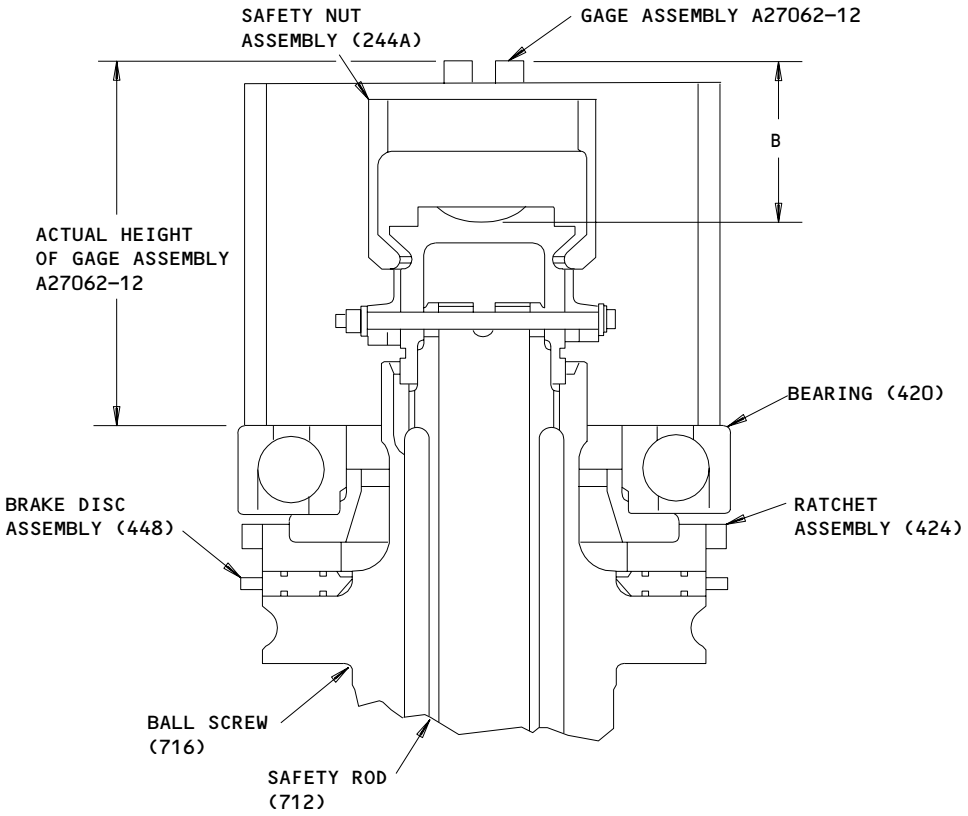
(3) Measure and note dim "A".

(4) Remove safety shaft (192) and safety sleeve (240).

(5) Coat safety rod (712) with grease and install safety rod on ball screw assembly (716).

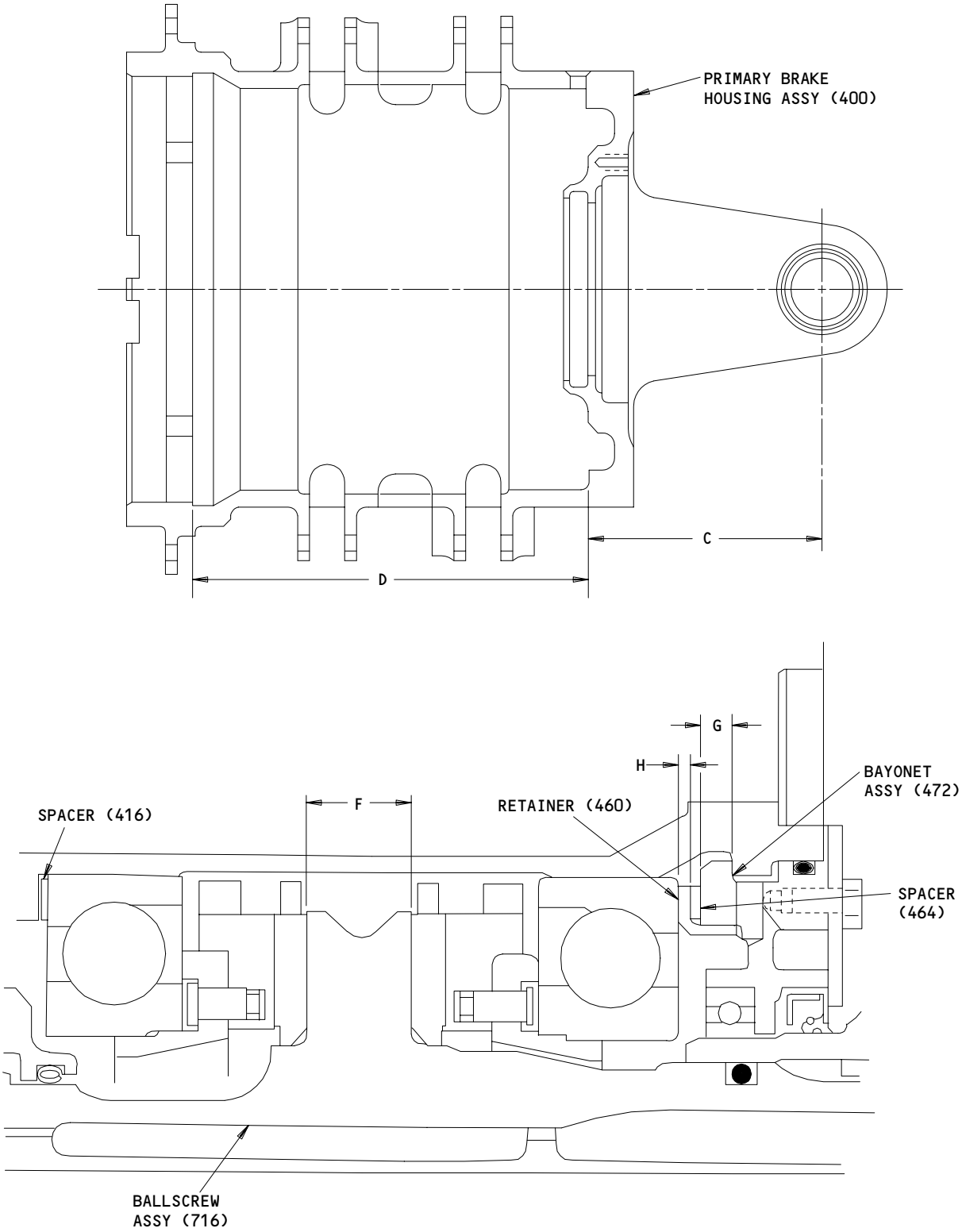
(6) Install safety nut assembly (244A) on safety rod (712). Using socket A27062-13, tighten safety nut to 100-130 lb-inches. Align bolt holes in safety nut assembly and safety rod and install bolt (248) and nut (252).





Measurements for Determining Spacers (416, 464) Thickness
Figure 702 (Sheet 1)

72698



Measurements for Determining Spacers (416, 464) Thickness
Figure 702 (Sheet 2)

(7) Stand ball screw assembly (716) on end with safety nut assembly (244A) upward. Install brake disc (448), ratchet assembly (424) and bearing (420) on flange of ball screw assembly (716).

(8) Install gage assembly A27062-12 on outer race of bearing (420). Measure note dim "B".

NOTE: Use micrometer with ball tip or pointed tip to ensure accurate measurement.

(9) Measure and note dim "C" on primary brake housing assembly (400) (Fig. 702).

(10) Calculate spacer (416) thickness:
Spacer (416) thickness = A-B-C + Actual height of gage assembly A27062-12 + (0.020 to 0.024 (desired clearances))

(11) Grind spacer (416) to thickness calculated per step (10).

(12) Remove bearing (420), ratchet assembly (424), brake disc (448), bolt (248), nut (252), safety nut assembly (244A) and safety rod (712).

C. Determine spacer (464) thickness (Fig. 702).

(1) Measure and note dim "D" on primary brake housing assembly (400).

(2) Stack bearings (420), ratchet assemblies (424) and brake disc assemblies (448) and measure and note dim "E" over outer races of bearings.

(3) Measure and note actual thickness of ball screw assembly (716) flange, dim "F".

(4) Measure and note dim "G" on bayonet assembly (472).

(5) Measure and note actual thickness of spacer retainer (460) flange dim "H".

(6) Calculate spacer (464) thickness:
Spacer (464) thickness = D-(E + F + G + H + thickness of spacer (416) obtained per step B.(10) + 0.008 to 0.015 (desired axial free play))

(7) Grind spacer (464) to thickness obtained in step (6).

D. Check ballscrew assembly (716) axial free play.

(1) Transfer ballnut assembly on to ball retainer assembly, A27062-5.

(2) Apply corrosion preventive compound, MIL-C-16173 to areas indicated in primary brake housing assembly (400). Install ball screw assembly (716), bearings (288, 420), spacers (416, 464), ratchet assemblies (424), brake disc assemblies (448), retainer (460), bayonet assembly (472), lockplate (492), bolts (468) and bull gear assembly (544) in primary brake housing assembly. Install bearings (420) and brake disc assemblies (448) as shown in Fig. 703. Transfer ballnut from ball retainer assembly A27062-5 back on ball screw.

(3) Mount unit in test fixture A27072-2 with clevis A27072-5.

(4) Apply 1000 lbs axial load to ballscrew assembly (716) reacted at the mounting lugs of primary brake housing assembly (400) and note the position of ballscrew assembly.

(5) Apply 1000 lb axial load in the direction opposite to load in par. (4) and measure the axial free play.

(6) Check that axial free play is 0.008 to 0.015 inch. If the actual free play does not meet the requirement, disassemble unit and change thickness of spacer (464) as required. Repeat until the specified amount is obtained.

E. Adjust gap between ball nut assembly and bull gear assembly (544) stops.

(1) Tap bull gear assembly (544) lightly to ensure that bull gear assembly seats firmly in the highest position of ballscrew. Rotate bull gear assembly so that vertical face of stop in bull gear assembly aligns with upper gimbal mounting lugs in primary brake housing assembly (400). Secure bull gear assembly with bolt (532), washer (536) and nut (540). Tighten nut finger-tight.

(2) Run ball nut assembly up ball screw until the stop in ball nut assembly contact stop on bull gear assembly (544). Back off approximately 180 degrees and check gap per Fig. 703.

(3) If the gap measured is not 0.02-0.04 inch, remove bolt (532), washer (536) and nut (540) and disengage bull gear assembly (544) from ball screw. Rotate bull gear assembly relative to ball screw to increase or decrease gap. Rotate bull gear assembly counterclockwise as viewed from the ballnut to increase the gap and clockwise rotation decreases the gap. Rotating bull gear assembly one spline tooth will change the gap by approximately 0.023 inch.

(4) Recheck and adjust as required until 0.02-0.04 inch gap is obtained. Match-mark bull gear assembly (544) and ballscrew.

(5) Transfer ballnut on to ball retainer assembly A27062-5.

(6) Remove bull gear assembly (544) from ballscrew.

(7) Remove bolts (468), lock plate (492), bayonet assembly (472), retainer (460), spacer (464), bearings (420), brake disc assemblies (448), ratchet assemblies (424), spacer (416) and separate primary brake housing assembly (400) from ball screw. Remove bearing (288) from primary brake housing assembly.

F. Assemble primary brake components (Fig. 703)

(1) Apply corrosion preventive compound, MIL-C-16173 to areas indicated in primary brake housing assembly (400).

(2) Lubricate seals (284, 412) with hydraulic fluid. Install seal (284) on ball screw and seal (412) on primary brake housing assembly (400). Install seals by hand to avoid damage to seal. Install packing (564) on ball screw. Install bearing (288) in primary brake housing assembly.

CAUTION: THE ICE SCRAPERS MAY NOT OPERATE CORRECTLY IF THEY ARE NOT IN THE CORRECT LOCATIONS.

(3) Do a check to make sure that the ice scrapers are installed in the correct locations in the ball screw assembly (716), as shown in Fig. 704.

CAUTION: USE CARE WHILE ASSEMBLING BEARINGS (420), RATCHET ASSEMBLIES (424), BRAKE DISC ASSEMBLIES (448) AND BALL SCREW (716) OR OPERATION OF UNIT WILL BE ADVERSELY AFFECTED.

(4) Check that mating surfaces of ratchet assemblies (424), brake disc assemblies (448) and flanges of ball screw (716) are completely dry and clean. Assemble spacer (416), bearings (420), ratchet assemblies (424), brake disc assemblies (448) and ball screw assembly (716) in primary brake housing assembly (400). Install bearings (420) and brake disc assemblies (448) as shown in Fig. 703.

(5) Fill cavity in lip seal (488) with grease and install lip seal in bayonet assembly (472). Orient lip seal as indicated in Fig. 703. Install packing (484) on bayonet assembly.

(6) Position retainer (460) and spacer (464) on bayonet assembly (472) and install bayonet assembly on primary brake housing assembly (400). Use spanner assembly A27062-4 to seat bayonet assembly in primary brake housing assembly.

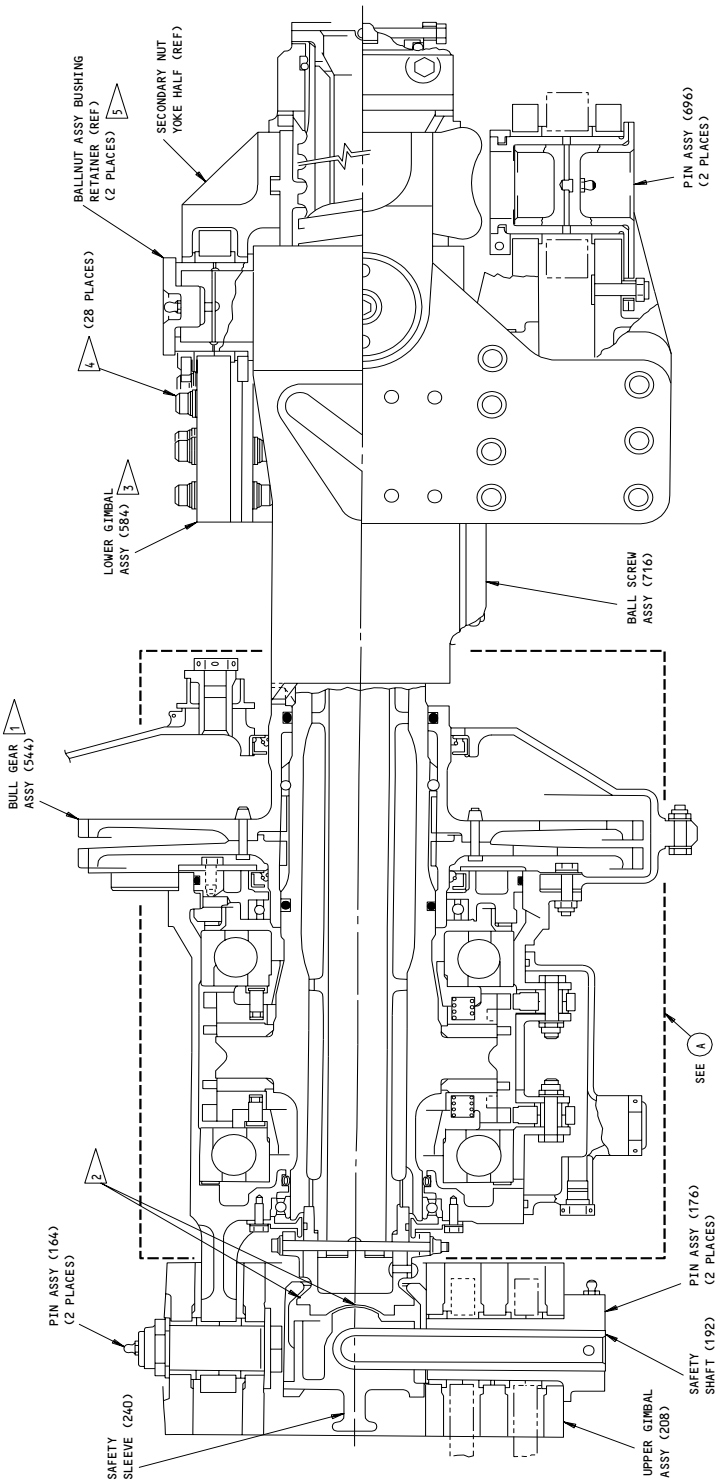
(7) Apply grease to faying surfaces of lock plate (492), bayonet assembly (472) and primary brake housing assembly (400). Install lock plate and secure with bolts (468). Apply additional grease to fill cavity around lockplate and around bolt heads.

(8) Lockwire bolts (468) head with MS20995C32 lockwire using double twist method per 20-50-02.

G. Install bull gear housing assembly (516).

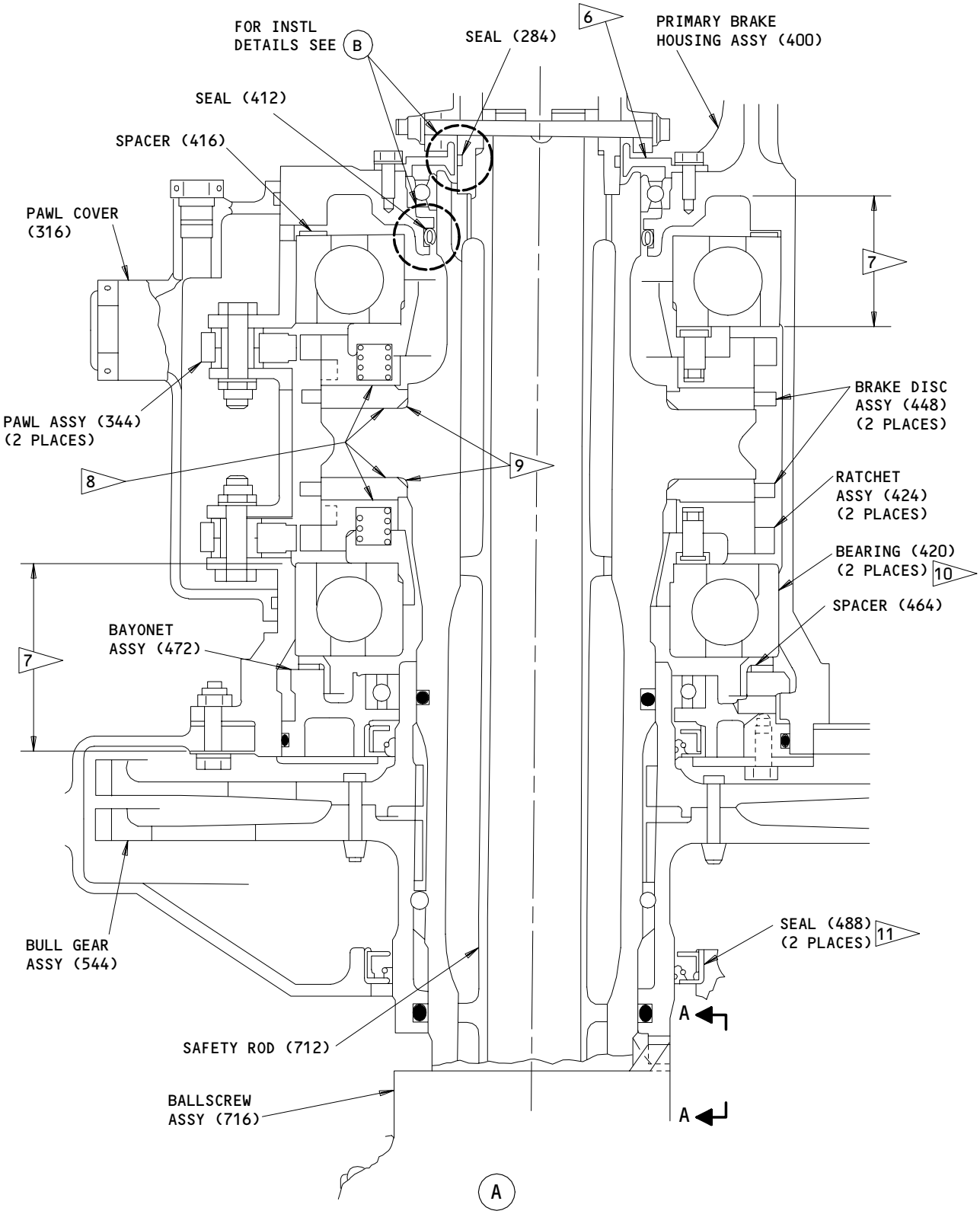
(1) Apply sealant to faying surfaces of primary brake housing assembly (400) and bull gear housing assembly (516) and install bull gear housing assembly on primary brake housing assembly. Secure parts with bolts (380), washers (384) and nuts (388).

(2) Position brackets (392, 396) on primary brake housing assembly (400) and install bolts (372, 376), washers (384) and nuts (388).



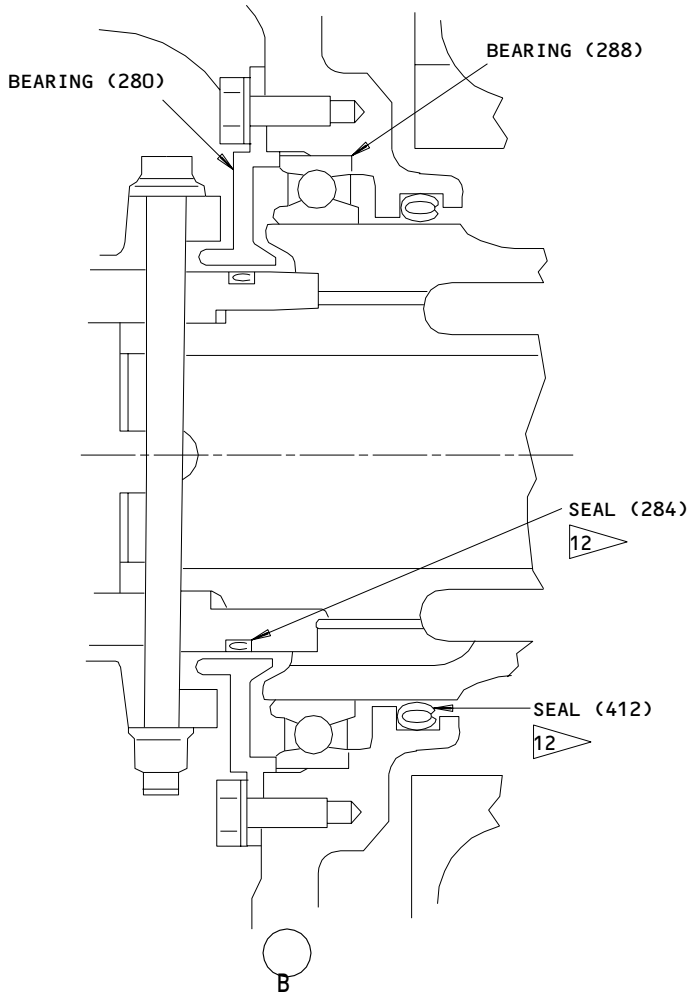
Ballscrew Actuator Assembly Details
Figure 703 (Sheet 1)

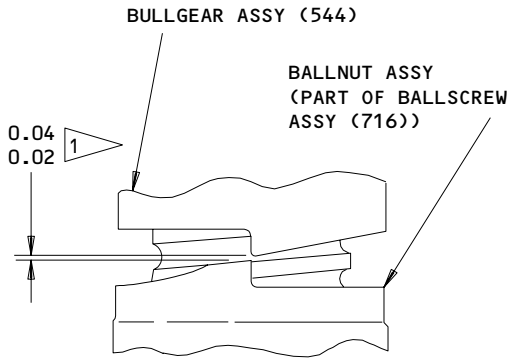
72703



Ballscrew Actuator Assembly Details
Figure 703 (Sheet 2)

72779





STOP OF BALLNUT ASSY ROTATED
APPROX. 180° FROM CONTACT

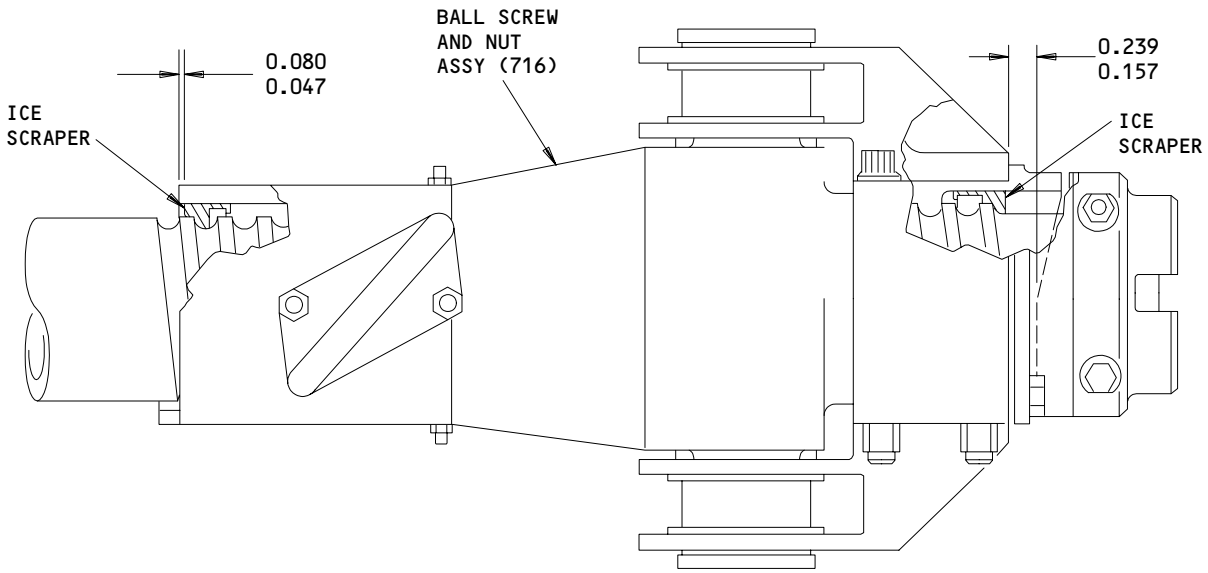
A-A

1. ADJUST BULL GEAR ASSEMBLY (544) TO OBTAIN INDICATED GAP BETWEEN STOPS IN BULL GEAR ASSEMBLY AND BALLNUT ASSEMBLY AT APPROXIMATELY 180° FROM CONTACT
2. COAT THESE SURFACES WITH GREASE, MIL-G-23827
3. ASSEMBLE LOWER GIMBAL ASSEMBLY WITH CORROSION PREVENTIVE COMPOUND, MIL-C-11796, CLASS 3 ON FAYING SURFACES OF LUG ASSEMBLIES (612) AND PLATE ASSEMBLIES (640)
4. INSTALL FASTENERS WITH CORROSION PREVENTIVE COMPOUND, MIL-C-11796, CLASS 3 AND TIGHTEN NUT TO 200-250 LB-INS
5. TIGHTEN BUSHING RETAINER TO 50-80 LB-INS
6. FILL CAVITY BETWEEN RETAINER (280) AND BEARING (288) WITH GREASE, MIL-G-23827
7. COAT INDICATED INTERNAL SURFACES OF PRIMARY BRAKE HOUSING ASSEMBLY WITH CORROSION PREVENTIVE COMPOUND, MIL-C-11763, CLASS 2 OR 3
8. THESE SURFACES MUST BE CLEAN, DRY AND FREE OF CONTAMINATION DURING ASSEMBLY
9. INSTALL BRAKE DISC ASSEMBLIES (448) WITH CHAMFERED EDGE TOWARD FLANGE OF BALLSCREW
10. ORIENT BEARINGS (420) AS INDICATED
11. ORIENT LIPSEALS (488) AS SHOWN. FILL CAVITY IN LIPSEAL WITH GREASE, MIL-G-23827
12. ORIENT SEALS (284, 412) AS SHOWN. INSTALL SEALS BY HAND TO AVOID DAMAGING SEALS WITH TOOLS

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Ballscrew Actuator Assembly Details
Figure 703 (Sheet 3)



ITEM NUMBERS REFER TO IPL FIG. 1
ALL DIMENSIONS ARE IN INCHES

Check of Ice Scraper Installation
Figure 704

190415

H. Install bull gear assembly (544).

(1) Apply liberal amount of grease to gear teeth and splines of bull gear assembly (544). Install packing (564) in bull gear assembly.

(2) Install bull gear assembly (544) on ball screw (716) with match mark line up. Tap bull gear assembly lightly to ensure that part is firmly seated and secure with bolt (532), washer (536) and nut (540).

I. Install differential assembly (100).

(1) Apply a liberal amount of grease to output pinion of the differential assembly (100).

(2) Apply sealant to faying surfaces of differential assembly (100) and bull gear housing assembly (516) and install differential assembly with output pinion mates with bull gear assembly (544). Secure parts with bolts (104), washers (108) and nuts (112).

J. Install bullgear housing cover (580).

(1) Install drain fitting (572) and drain cup (576) on bull gear housing cover (580). Install plug (568) and lockwire with MS20995C32 using double twist method per 20-50-02.

(2) Fill cavity in lip seal (488) with grease and install lip seal in cover (580).

(3) Apply sealant to faying surfaces of bull gear housing assembly (516) and cover (580) and install cover. Position brackets (508, 512) on housing assembly (516) and secure brackets and cover to housing assembly with bolts (496), washers (500), and nuts (504).

K. Install lower gimbal assembly (584).

NOTE: Refer to ball screw assembly (716) manufacturer's Component Maintenance Manual for disassembly and assembly of ball nut assembly.

(1) Transfer ball nut assembly from ball retainer assembly A27062-5 to the ball screw.

(2) Remove bushing retainers in ball nut assembly using spanner adapter assembly A27062-14. Remove fasteners and secondary nut yoke halves.

(3) Note location of lug assemblies (612). Remove bolts (596), washers (600, 604), nuts (608) and separate plate assemblies (640) from lug assemblies (612).

(4) Coat faying surfaces of plate assemblies (640) and lug assemblies (612) with corrosion preventive compound, MIL-C-11796, class 3 and position plate assemblies on secondary nut yoke halves.

(5) Install secondary nut yoke halves on primary nut and secure with fasteners.

(6) Install bushing retainers and using spanner adapter assembly A27062-14, tighten retainers to 50-80 lb-in.

CAUTION: LUG ASSEMBLIES (612) AND PLATE ASSEMBLIES (640) ARE MATCHED BY BOLT HOLE LOCATIONS. INSTALL LUG ASSEMBLIES IN LOCATIONS NOTED DURING DISASSEMBLY OF LOWER GIMBAL ASSEMBLY TO ENSURE PROPER ALIGNMENT AFTER ASSEMBLY.

(7) Position lug assemblies (612) between plate assemblies (640) at locations noted in step (3). Apply corrosion preventive compound, MIL-C-11796, class 3 to shank and threads of bolts (596) and install bolts, washers (600, 604) and nuts (608). Tighten nuts to 200-250 lb-in.

(8) Install pin assemblies (696) in lug assemblies (612) and install bolts (684), spacers (688) and nuts (692). Install retaining rings (680) and secure with screws (668), washers (672) and nuts (676).

(9) Position lower stop on ball screw and rotate ballnut assembly until stop in ballnut assembly contact stop in lower stop. Back off ball nut assembly approximately 180° and measure gap between stops similar to measuring gap between stops of bull gear assembly (544) and ballnut.

(10) Rotate lower stop as required until 0.010-0.040 gap between stops is achieved. Install locking fasteners on ball nut.

L. Install bearing retainer (280) and secure with bolts (272) and washers (276). Fill cavity between bearings (288) and retainer (280) with grease. Lockwire bolts (272) with MS20995C32 using double twist method per 20-50-02.

M. Position upper gimbal assembly (208) on lugs of primary brake housing assembly (400) and secure with pin assemblies (164), washers (160) and nuts (156).

N. Install safety rod (712), safety nut assembly (244) and safety sleeve (240).

(1) Thoroughly coat safety rod (712) with a thin film of grease.

(2) Install safety rod (712) in ball screw assembly (716) and secure to lower stop with fasteners.

(3) Coat spherical surface of safety socket (264), safety nut (268) and safety sleeve (240) with grease.

(4) Install safety nut assembly (244A) on safety rod (712). Using socket A27062-13, tighten safety nut assembly to 100-130 lb-in. Back off safety nut assembly as required to align bolt hole in safety nut assembly and slot in safety rod. Install bolt (248), nut (252).

(5) Install safety sleeve (240) in safety nut assembly (244A).

(6) Install safety shaft (192) thru pin assemblies (176) and safety sleeve (240) and secure with bolts (196), washers (200) and nuts (204).

O. Install pawl assemblies (344) and covers (316, 320).

(1) Install sleeves (340) in pawl assemblies (344).

(2) Position pawl assemblies (344) in primary brake housing assembly (400) and install bolts (328), washers (332) and nuts (336).

(3) Position spring housings (356) in covers (316, 320) and secure with bolts (360). Lockwire bolts with MS20995C32 using double twist method per 20-50-02.

(4) Install packings (324) in covers (316, 320). Install springs (364, 368) in spring housings (356) and install covers on primary brake housing assembly (400). Secure parts with bolts (308) and washers (312).

(5) Install packing (304) on sight plug (300) and install sight plug on cover (316).

P. Install packings (298) on plugs (292) and install plug on primary brake housing assembly (400) and cover (316).

Q. Coat splines and fill cavity of shaft (68) with grease. Install packings (76) on shaft and install shaft in differential assembly (100). Install retainer (64) and secure with bolts (56) and washers (60).

R. Coat splines and fill cavity of shaft (72) with grease. Install packings (76) on shaft and install shaft in differential assembly (100). Install retainer (64) and secure with bolts (56) and washers (60).

S. Install bracket assemblies (116, 140) on upper gimbal assembly (208) and secure with bolts (117, 141, 142).

T. Apply grease to ball nut until grease exits from the seals in ball nut to insure adequate lubrication.

U. Test unit per TESTING/TROUBLE SHOOTING.

V. Install hydraulic motors (52) and hydraulic brakes (92).

(1) Deleted

(2) Install nuts (40) and packings (32) on elbows (36). Install elbows on hydraulic motors (52) and tighten nuts (40) to secure.

(3) Apply grease to splines of hydraulic motors (52). Install hydraulic motors and secure with nuts (44), washers (48).

(4) Install packings (96) and apply grease to splines of hydraulic brakes (92). Install hydraulic brakes and secure with bolts (80), washers (84) and nuts (88).

(5) Apply 1 coat of primer, BMS 10-11, type 1 to exposed, bare surface of hydraulic motors (52) and brakes (92) mounting pads.

W. Servicing the actuator.

(1) Remove plug (292) from cover (316).

(2) Stand unit vertically to within 2 degrees and fill primary brake housing assembly (400) with hydraulic fluid, MIL-H-5606 (approximately 1500 cc). View the level of the hydraulic fluid through the sight glass (300). The hydraulic fluid level must be above the sight glass window. Add additional hydraulic fluid so that the hydraulic fluid comes up to the bottom of the fill plug hole.

(3) Reinstall plug (292).

X. Lockwire the following parts with MS20995C32 using double twist method per 20-50-02.

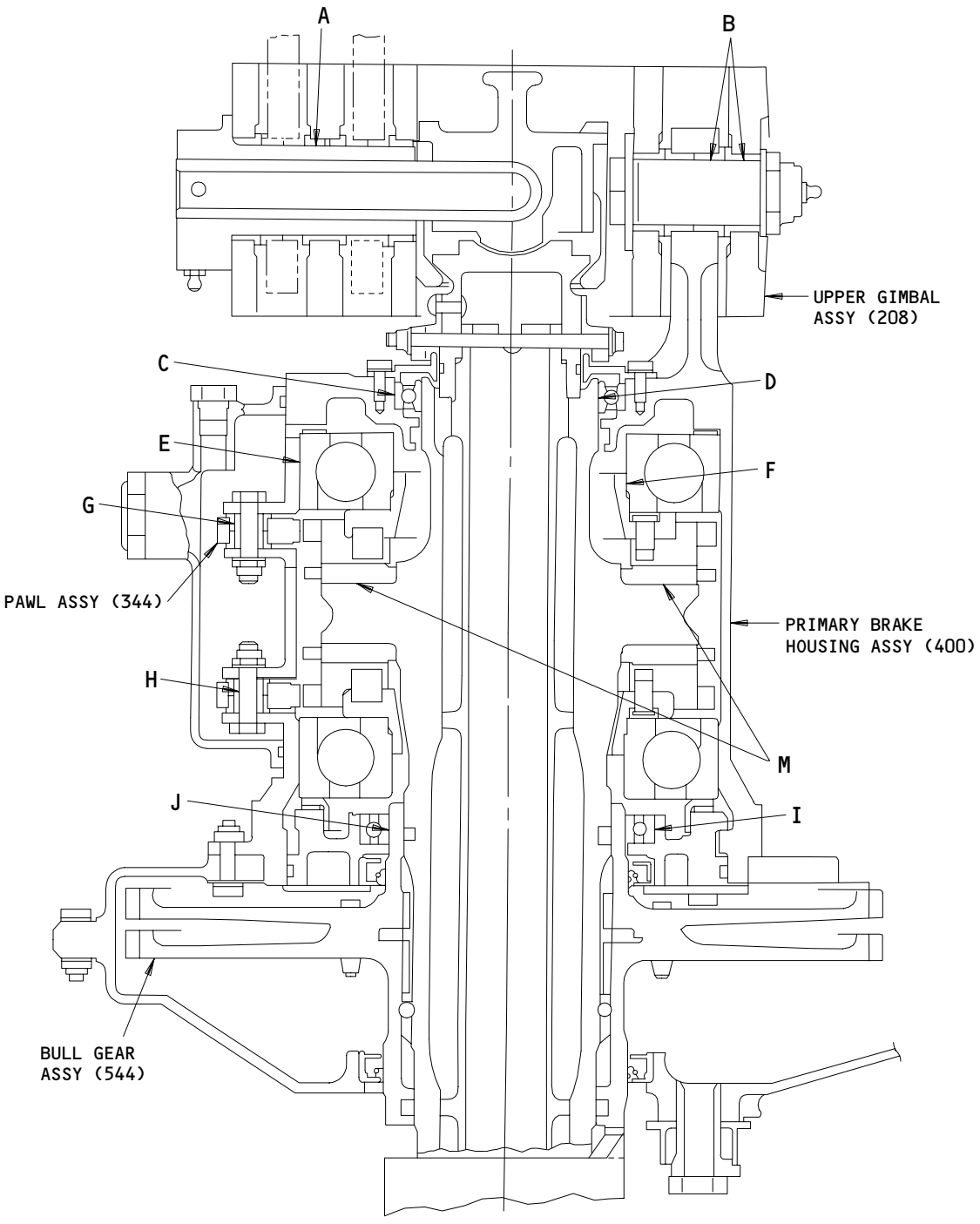
(1) Plugs (292)

(2) Sight plug (300)

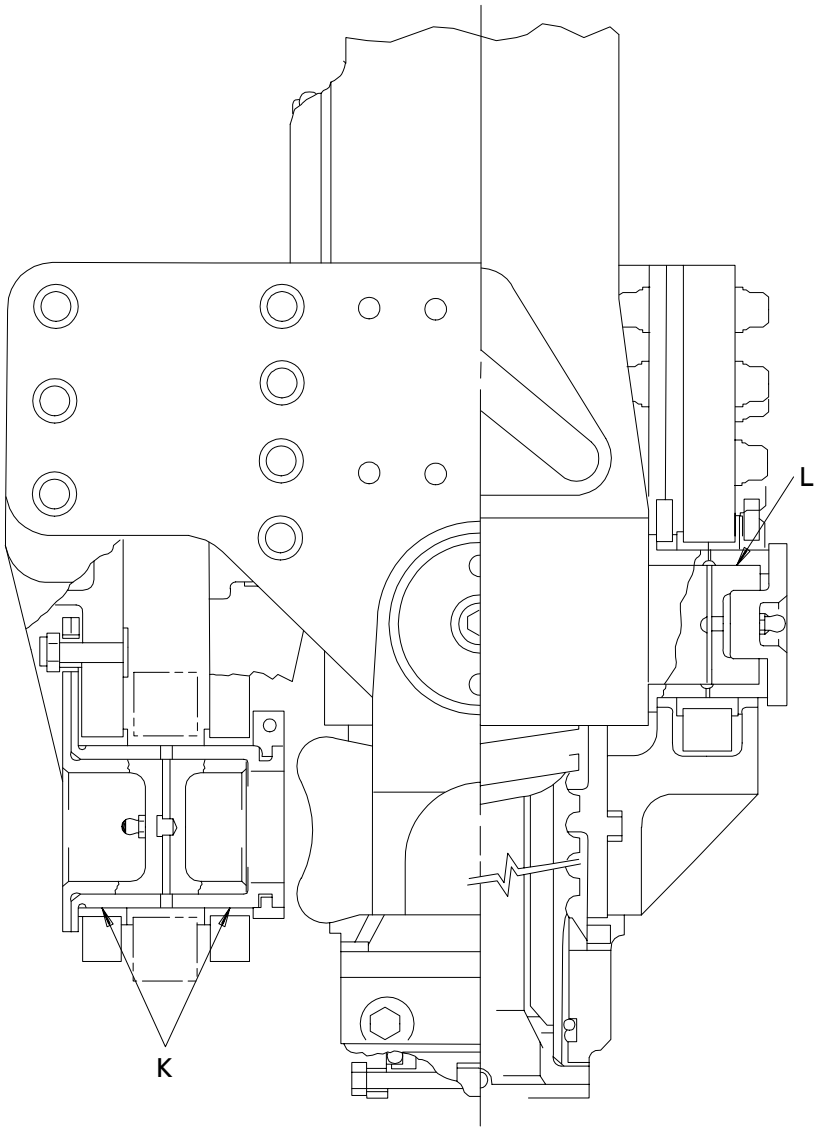
5. Storage

A. Store unit in a vertical position in a suitable fixture.

B. For further information, refer to 20-44-02.



Fits and Clearances
Figure 801 (Sheet 1)



Fits and Clearances
Figure 801 (Sheet 2)

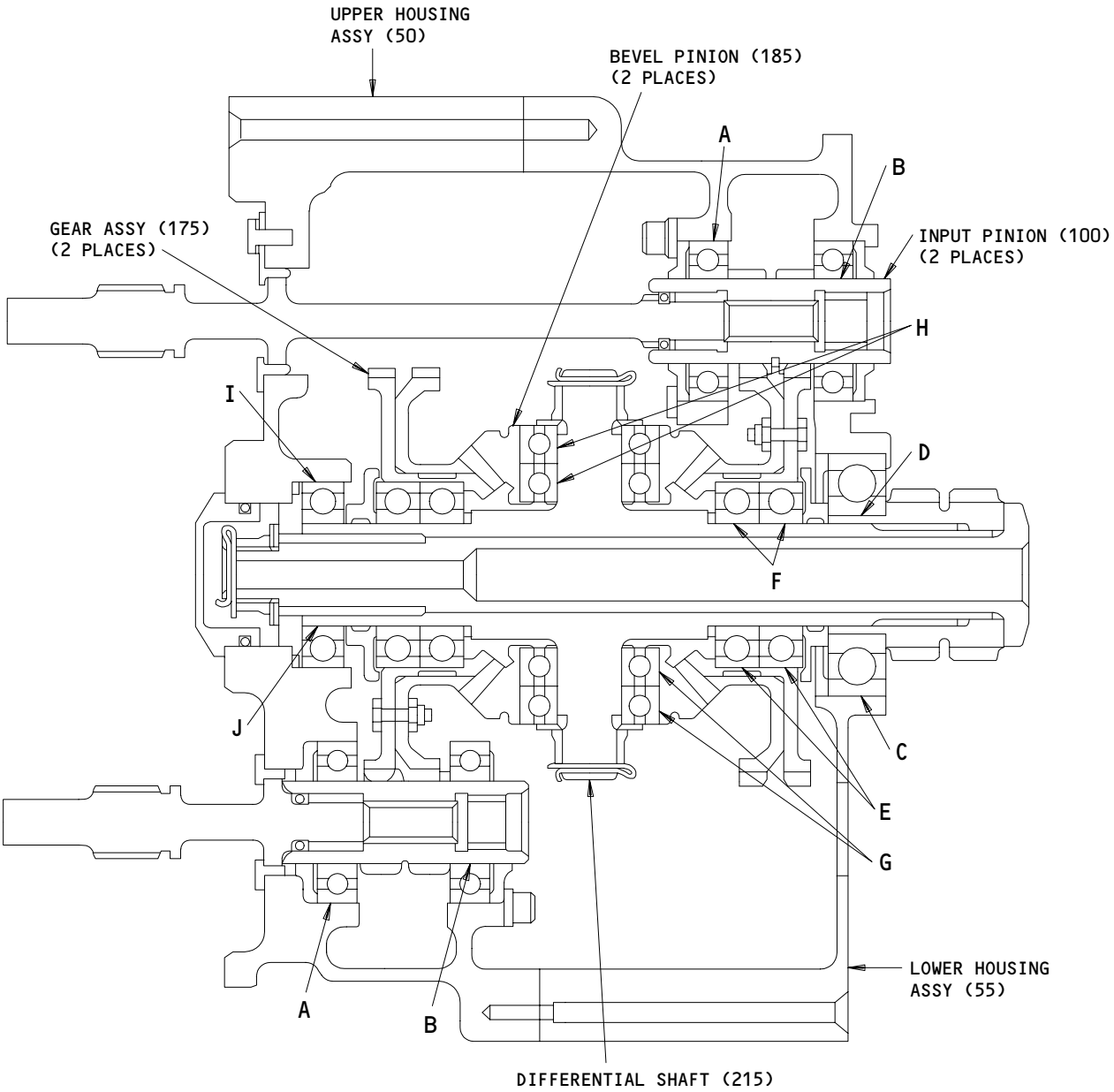
Ref Letter Fig.801	Mating Item No. IPL Fig. 1	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance [1]		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
A	ID 220,224 OD 176	1.5000 1.498	1.5015 1.499	0.0010	0.0035	1.491	1.5085	0.010
B	ID 228,232, 404 OD 164	1.1250 1.1240	1.1265 1.1245	0.0005	0.0025	1.117	1.1335	0.010
C	ID 408 OD 288	3.8734 3.8740	3.8743 3.8750	-0.0016	0.0003			
D	ID 288 OD 716	2.9370 2.9345	2.9380 2.9355	0.0015	0.0035			
E	ID 408 OD 420	7.0866 7.0856	7.0876 7.0866	0.0000	0.0020			
F	ID 420 OD 440	3.9362 3.9360	3.9370 3.9367	-0.0005	0.0010			
G	ID 349 OD 340	0.5000 0.4984	0.5015 0.4994	0.0006	0.0031			
H	ID 340 OD 328	0.312 0.3110	0.313 0.3120	0.0000	0.0020			
I	ID 480 OD 476	4.9984 4.9994	5.0000 5.0000	-0.0016	0.0006			
J	ID 476 OD 556	3.9992 3.9967	4.0000 3.9977	0.0015	0.0033			
K	ID 592 OD 708	2.3750 2.3709	2.3765 2.3717	0.0033	0.0056	2.3609	2.3865	0.010
L	ID 588 OD 716	2.161 2.159	2.162 2.160	0.001	0.003	2.153	2.168	0.006
M	[2] 716			0.008	0.015			0.025

[1] NEGATIVE VALUES DENOTE INTERFERENCE FIT

[2] AXIAL FREE PLAY

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 3)



Fits and Clearances
Figure 802 (Sheet 1)

91160

Ref Letter Fig.802	Mating Item No. IPL Fig. 2	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance 1		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
A	ID 54,57 OD 95	1.8502 1.8499	1.8510 1.8504	-0.0002	0.0011			
B	ID 95 OD 100	0.9839 0.9843	0.9843 0.9849	0.0000	0.0010			
C	ID 57 OD 135	2.8332 2.8341	2.8340 2.8346	-0.0014	-0.0001			
D	ID 135 OD 130	1.3775 1.3769	1.3780 1.3776	-0.0001	0.0011			
E	ID 179, 179C OD 170	2.1627 2.1649	2.1638 2.1654	-0.0027	-0.0011			
F	ID 170 OD 215	1.1807 1.1803	1.1811 1.1808	-0.0001	0.0008			
G	ID 185 OD 205	1.6239 1.6245	1.6245 1.6250	-0.0011	0.0000			
H	ID 205 OD 215	0.7496 0.7492	0.7500 0.7497	-0.0001	0.0008			
I	ID 54 OD 155	2.1641 2.1649	2.1648 2.1654	-0.0007	-0.0001			
J	ID 155 OD 215	1.1807 1.1803	1.1811 1.1808	-0.0001	0.0008			

1 NEGATIVE VALUES DENOTE INTERFERENCE FIT

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 802 (Sheet 2)

91141

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG.	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
FIG. 1			
244A	SAFETY NUT	100-130	
1	BUSHING RETAINER	50-80	
608	NUT	200-250	
FIG. 2			
115	NUT	350-450	
195	NUT	350-450	

1 PART OF BALLSCREW ASSEMBLY (716)

Torque Table
Figure 803

91143

SPECIAL TOOLS, EQUIPMENTS AND FIXTURES

NOTE: Equivalent substitutes may be used.

1. Test Fixture -- A27072-42 (supersedes A27072-1)
2. Adapters -- A27062-2, -3 *[1]
3. Pressurized air source capable of delivering at least 10 psi of air pressure.
4. Rod Assembly -- A27062-6 *[1]
5. Guide -- A27062-9 *[1]
6. Socket -- A27062-13 *[1]
7. Gage Assembly -- A27062-12 *[1]
8. Ball Retainer Assembly -- A27062-5 *[1]
9. Spanner Adapter Assembly -- A27062-14 *[1]
10. Spanner Assembly -- A27062-4 *[1]
11. Wrench -- A27062-11 *[1]
12. Tube Assembly -- A27062-7 *[1]
13. Rest -- A27062-8 *[1]
14. Drive Adapter Assembly -- A27062-10 *[1]
15. Knob -- CL4PPK4 *[1]*[2]

*[1] Parts of Stabilizer Trim Drive Tool Set A27062-1
*[2] Carr - Lane Mfg., Co.,
4200 Carr Lane Ct.,
St. Louis, Mo 63119

ILLUSTRATED PARTS LIST

1. This section lists and illustrates replaceable or repairable component parts. The Illustrated Parts Catalog contains a complete explanation of the Boeing part numbering system.

2. Indentures show parts relationships as follows:

    Assembly
      Detail Parts for Assembly
      Subassembly
      Attaching Parts for Subassembly
        Detail Parts for Subassembly

    Detail Installation Parts (Included only if installation parts may be returned to shop as part of assembly)

3. One use code letter (A, B, C, etc.) is assigned in the EFF CODE column for each variation of top assembly. All listed parts are used on all top assemblies except when limitations are shown by use code letter opposite individual part entries.

4. Letter suffixes (alpha-variants) are added to item numbers for optional parts, Service Bulletin modification parts, configuration differences (except left- and right-hand parts), product improvement parts, and parts added between two sequential item numbers. The alpha-variant is not shown on illustrations when appearance and location of all variants of the part are the same.

5. Service Bulletin modifications are shown by the notations PRE SB XXXX and POST SB XXXX.

    A. When a new top assembly part number is assigned by Service Bulletin, the notations appear at the top assembly level only. The configuration differences at detail part level are then shown by use code letter.

    B. When the top assembly part number is not changed by the Service Bulletin, the notations appear at the detail part level.

6. Parts Interchangeability

Optional (OPT)	The parts are optional to and interchangeable with other parts having the same item number.
Supersedes, Superseded By (SUPSDS, SUPSD BY)	The part supersedes and is not interchangeable with the original part.
Replaces, Replaced By (REPLS, REPLD BY)	The part replaces and is interchangeable with, or is an alternate to, the original part.

VENDORS

00293 BEAVER PRECISION PROD INC
1970 BIG RIVER ROAD PO BOX 1199
TROY, MICHIGAN 48084

00624 AEROQUIP CORP AEROSPACE DIV
300 SOUTH EAST AVENUE
JACKSON, MICHIGAN 49203

01556 MITE CORP HELI-COIL PRODUCTS DIVISION
SHELTER ROCK LANE
DANBURY, CONNECTICUT 06810

01673 AIRDROME PARTS CO
3251 AIRPORT WAY
LONG BEACH, CALIFORNIA 90806

06710 VALLEY-TODECO INCORPORATED
12975 BRADLEY AVENUE
SYLMAR,CALIFORNIA 91342

06725 AIR INDUSTRIES CORPORATION
12570 KNOTT STREET
GARDEN GROVE, CALIFORNIA 92641

06848 HONEYWELL INTERNATIONAL INC
717 NORTH BENDIX DRIVE
SOUTHBEND, INDIANA 46620

06950 VSI CORP SCREWCORP DIV
13001 EAST TEMPLE AVENUE
CITY OF INDUSTRY, CALIFORNIA 91746

08524 DEUTSCH FASTENER CORPORATION
PO BOX 92925 7001 WEST IMPERIAL HIGHWAY
LOS ANGELES, CALIFORNIA 90045

11328 TELEDYNE LINAIR ENGINEERING
651 WEST KNOX STREET
GARDENA, CALIFORNIA 90248

11815 TOWNSEND DIV OF TEXTRON INC CHERRY FASTENER UNIT
BOX 2157 1224 EAST WARNER AVENUE
SANTA ANA, CALIFORNIA 92707

14397 FABER ENTERPRISES, INCORPORATED
6606 VARIEL AVE
CANOGA PARK, CALIFORNIA 91303

VENDORS

14798 DEUTSCH CO METAL COMPONENTS DIV
14800 SOUTH FIGUEROA STREET
GARDENA, CALIFORNIA 90061

15653 KAYNAR MFG COMPANY INC KAYLOCK DIV
PO BOX 3001 800 SOUTH STATE COLLEGE BLVD
FULLERTON, CALIFORNIA 92634

17943 FEDERAL MANUFACTURING CORPORATION
6910 FARMDALE AVENUE
NORTH HOLLYWOOD, CALIFORNIA 91605

19156 E-SYSTEMS INC MONTEK DIV
2268 SOUTH 3270 WEST
SALT LAKE CITY, UTAH 84111

21335 TEXTRON INC FAFNIR BEARING DIVISION
37 BOOTH STREET
NEW BRITAIN, CONNECTICUT 06050

21760 SCHATZ FEDERAL BEARINGS CO INC
FAIRVIEW AVENUE PO BOX 1191
POUGHKEEPSIE, NEW YORK 12602

27624 PAUL R BRILES INC P.B. FASTENER DIV
1700 WEST 132ND STREET PO BOX 1157
GARDENA, CALIFORNIA 90249

29337 HOOVER UNIVERSAL INC BALL AND ROLLER DIV
ERWIN, INDIANA 37650

30974 AEROFIT PRODUCTS INC
8531 WHITAKER STREET
BUENA PARK, CALIFORNIA 90621

32828 KEENE CORP. KAYDON BEARING DIV.
2860 MC CRACKEN STREET
MUSKEGON, MICHIGAN 49443

VENDORS

38443 TRW INC BEARING DIV
402 CHANDLER STREET
JAMESTOWN, NEW YORK 14701

43991 FAG BEARING INCORPORATED
HAMILTON AVENUE
STAMFORD, CONNECTICUT 06904

50948 PARKER-HANNIFIN CORP HUNTSVILLE AIRCRAFT FACILITY
9400 SOUTH MEMORIAL PARKWAY
HUNTSVILLE, ALABAMA 35802

52828 REPUBLIC FASTENER MFG CORP
1300 RANCHO CONEJO BLVD
NEWBURY PARK, CALIFORNIA 91320

56878 SPS TECHNOLOGIES INC
HIGHLAND AVENUE
JENKINTOWN, PENNSYLVANIA 19046

71087 BOOTS ACFT NUT DIV TOWNSEND CO SEE TEXTRON INC CHERRY
FASTENER TOWNSEND DIV V11815

72962 AMERACE CORP ESNA DIV
2330 VAUXHALL ROAD
UNION, NEW JERSEY 07083

73197 HI-SHEAR CORPORATION
2600 SKYPARK DRIVE
TORRANCE, CALIFORNIA 90509

80539 SPS TECHNOLOGIES INC AEROSPACE PRODUCTS DIV
2701 SOUTH HARBOR BOULEVARD PO BOX 1259
SANTA ANA, CALIFORNIA 92702

83259 PARKER-HANNIFIN CORP O-SEAL DIV
10567 JEFFERSON BLVD
CULVER CITY, CALIFORNIA 90231

85495 BRILES MFG CO SEE OMARK INDUSTRIES
PRECISION FASTENING SUB OF OMARK IND INC SEE DEUTSCH
FASTENER CORP V08524

VENDORS

88334 WEATHERHEAD GLENDALE,CALIF SEE WEATHERHEAD CLEVELAND V79470

92215 VOI-SHAN DIV OF VSI CORP
8463 HIGUERA STREET
CULVER CITY, CALIFORNIA 90230

93907 TESTRON INC CAMCAR DIV
600 18TH AVENUE
ROCKFORD, ILLINOIS 61101

97484 TECHNICAL DEVELOPMENT COMPANY
24 GLENOLDEN AVENUE
GLENOLDEN, PENNSYLVANIA 19036

97928 LITTON FASTENING SYSTEMS DIV OF LITTON SYSTEMS INC
3969 PARAMONT BOULEVARD
LAKEWOOD, CALIFORNIA 90712

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AFP241-06		1	28	
AFP241-08		1	12	
AN814-4L		1	292	2
AN814-6L		1	568	1
AN838-4D		1	36	2
AN924-4D		1	40	2
AN960-10L		2	177	6
AN960-1016		2	200	2
AN960-1016L		2	120	AR
AN960-1416		1	160	2
AN960-416		1	48	8
		1	536	2
AN960-416L		1	200	4
AN960-516L		1	332	4
AN960PD10L		1	60	6
		1	312	12
		1	672	8
		2	25	8
AN960PD416L		1	84	16
		1	108	16
		1	384	14
		1	500	32
		2	10	12
		2	80	8
AN960PD616L		1	604	56
AR101O4-139P1H		1	284	1
AR101O4-337P1H		1	412	1
BACB10AZ35PP		2	135	1
BACB10BA25PP		2	95	4
BACB10BW47		1	288	1
BACB10GU25PPJC		2	95A	4
BACB28AM18BO38A		1	232	2
		1	404	4
BACB28AM18BO45A		1	228	2
BACB28AM24BO24A		1	224	4
BACB28AM24BO34A		1	220	4
BACB28AT18BO38C		1	404A	4
BACB28X8FO22		1	349	2
BACB28X8F22		1	348	
BACB30LE4K52		1	248	1
BACB30LE6-21		1	596	28
BACB30LU4-58		2	45	8
BACB30NF4-24		1	196	2
BACB30NF4-53		1	532	1
BACB30NF4H1		1	468	4
BACB30NF5-16		1	328	4

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
BACN10HR6CS		1	608	28
BACN10JC10		2	115	1
		2	195	2
BACN10JC14		1	156	2
BACN10JC3		1	676	4
		2	178	6
BACN10JC3CD		2	178A	6
BACN10JC4		1	44	8
		1	88	8
		1	112	8
		1	204	6
		1	388	14
		1	504	16
		1	540	1
		2	15	6
BACN10JC5		1	336	4
		1	692	2
BACN10YR4CD		1	252A	1
BC902T6		1	16	
BC902T8		1	4	
BMN4122AD3-10		2	115	1
BMN4122AD3-14		1	156	2
BMN4122A10		2	115	1
BMN4122A14		1	156	2
BMN5024CPD6		1	608	28
BRH10-10		2	115	1
		2	195	2
BRH10-14		1	156	2
BRH10-3		1	676	4
BRH10-4		1	44	8
		1	88	8
		1	112	8
		1	204	6
		1	388	14
		1	504	16
		1	540	1
		2	15	6
BRH10-5		1	336	4
		1	692	2
B18834		1	716	1
B18834B		1	716A	1
H10-10BAC		2	115	1
H10-14BAC		1	156	2
H10-3BAC		1	676	4
H10-4BAC		1	44	8
		2	15	6
H10-5BAC		1	336	4

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
H39953-6		1	608	28
KD040C0		1	476	1
KP47BFS428		1	288	1
KP47B2TS		1	288	1
LLR12DU		2	205	4
LL105KS		2	95	4
MS15001-1		1	700	1
MS15001-2		1	168	1
		1	180	2
MS16555-46		1	520	3
MS18063-2		1	184	2
MS20002C6		1	600	28
MS20426DD5-6		1	120	2
MS20426DD5-7		1	144	2
MS20470DD5-7		1	128	2
MS20613-4P20		1	428	4
MS20613-6P12		1	256	6
MS21042-4		1	252	1
MS21209F1-15		1	582	6
		2	51	8
MS21209F1-15P		1	404E	26
MS21209F4-15		1	212	4
		2	56	8
		2	51A	8
MS21209F7-10P		1	404N	1
MS21902D6		1	20	
MS24585-420		1	436	4
MS24665-231		2	110	1
		2	190	2
MS24678-20		2	75	8
MS28775-011		1	296	
		1	298	1
MS28775-118		1	304	1
MS28775-163		1	324	2
MS28775-263		1	484	1
MS28775-338		1	564	2
MS29513-111		1	76	4
		2	70	2
MS29513-114		1	96	2
MS29513-127		2	40	1
MS51833-202-13		1	581	

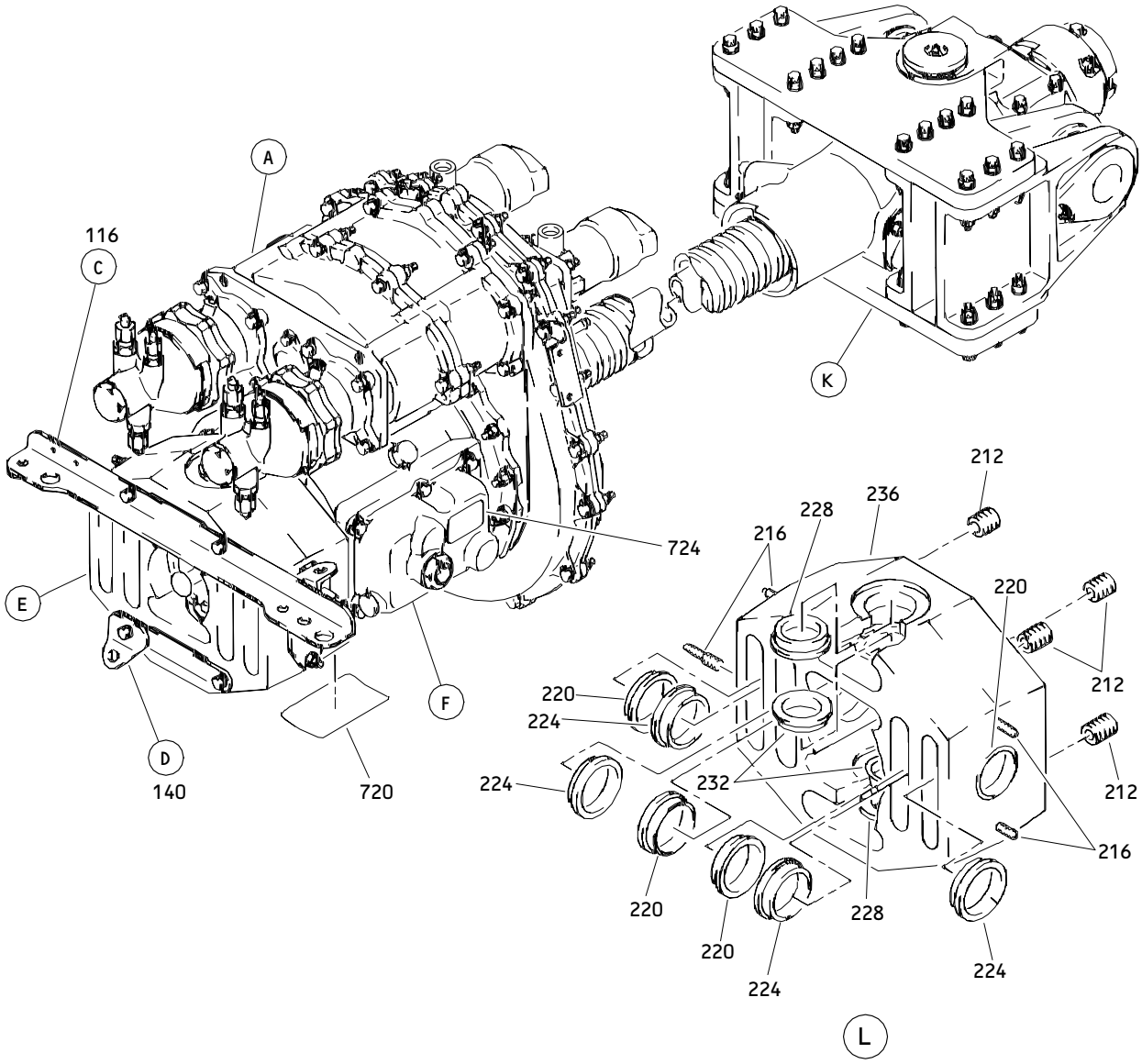
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
M25988-1-110		1	298A	1
NAS1080R06		1	552	6
NAS1149F0332P		2	177A	6
NAS1303-1		1	56	6
		2	20	8
NAS1303-1H		1	272	6
NAS1304-1		1	117	2
		1	141	1
NAS1304-3		1	142	1
NAS1466H15		1	548	6
NAS1466H16		1	548A	6
NAS1612-4		1	32	2
NAS1612-6		1	24	
NAS1612-8		1	8	
NAS607-4-6P		2	52	2
NAS623-3-24		1	668	4
NAS6603-3		2	176	6
NAS6603H1		1	360	8
NAS6603H4		1	308	12
NAS6604-11		1	104	8
		1	380	10
NAS6604-13		1	372	2
NAS6604-16		1	376	2
NAS6604-9		1	80	8
		1	496	16
		2	5	6
NS202101-02		1	676	4
NS202101-048		1	44	8
		2	15	6
RMLH9074-10		2	115	1
RMLH9074-14		1	156	2
RMLH9075-3W		1	676	4
RMLH9075-4W		1	44	8
		2	15	6
RMLH9075-5W		1	336	4
SL7059C624		1	608	28
S251N276-1		1	92	2
S251N276-2		1	92A	2
S251T412-1		1	716B	1
S251T433-1		1	716	1
		1	716A	1
S256T003-2		1	52	2
S50P		1	300	1
S8NPPA1021		2	205	4
T6S1032J		1	676	4

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
T6S428J		1	44	8
		1	112	8
		2	15	6
T6S524J		1	336	4
VN303A02		1	676	4
VN303A048		1	44	8
		2	15	6
07388P000-1		1	716C	1
109LH9031-6		1	608	28
1207LLT1C1-01		2	135	1
160500-100		1	92	2
207NPPFS428		2	135	1
207TT		2	135	1
251T4127-1		1	420A	2
251T4310-1		1	1	RF
251T4310-2		1	1A	RF
251T4310-3		1	1B	RF
251T4310-4		1	1C	RF
251T4312-1		1	116	1
251T4312-2		1	136	1
251T4312-3		1	124	1
251T4312-4		1	132	1
251T4313-1		1	140	1
251T4313-2		1	148	1
251T4313-3		1	152	1
251T4314-1		1	508	1
251T4314-2		1	512	1
251T4316-1		1	728	4
251T4317-1		1	724	1
251T4318-1		1	664	1
251T4319-1		2	220	1
251T4320-1		1	100	1
		2	1	RF
251T4320-2		2	1A	RF
251T4321-1		1	584	1
251T4321-2		1	584A	1
251T4322-1		2	55	1
251T4322-2		2	57	1
251T4324-1		2	50	1
251T4324-2		2	54	1
251T4325-1		2	60	1
251T4326-1		2	65	1
251T4327-1		2	125	1
251T4328-1		2	215	1
251T4329-1		2	130	1
251T4331-1		2	140	1
251T4332-1		2	210	2

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
251T4332-2		2	180	2
251T4332-3		2	145	1
251T4332-4		2	160	1
251T4333-1		1	392	1
251T4333-2		1	396	1
251T4333-3		1	392A	1
251T4333-4		1	396A	1
251T4334-1		2	165	2
251T4335-1		2	150	1
251T4336-1		1	364	4
251T4336-2		1	368	4
251T4337-1		2	85	2
251T4337-2		1	583	1
251T4338-1		2	105	2
251T4339-1		2	100	2
251T4340-1		2	185	2
251T4340-2		2	185B	2
251T4343-1		2	175	2
251T4343-2		2	179	1
		2	179A	1
251T4343-3		2	179C	1
		2	179D	1
251T4343-4		2	175A	2
251T4343-5		2	179E	1
251T4343-6		2	179B	1
251T4344-1		2	30	2
251T4345-1		2	90	4
251T4346-1		2	35	1
251T4348-1		1	688	2
251T4349-1		1	488	2
251T4350-1		1	244B	1
251T4350-2		1	244A	1
		1	244C	1
251T4351-1		1	420	2
251T4352-1		1	720	1
251T4353-1		1	356	4
251T4354-1		1	340	4
251T4355-1		1	316	1
251T4355-2		1	320	1
251T4357-1		1	580	1
251T4359-1		1	516	1
251T4359-2		1	528	1
251T4360-1		1	208	1
251T4360-2		1	236	1
251T4361-1		1	640	2
251T4362-1		1	240	1
251T4363-2		1	264	1

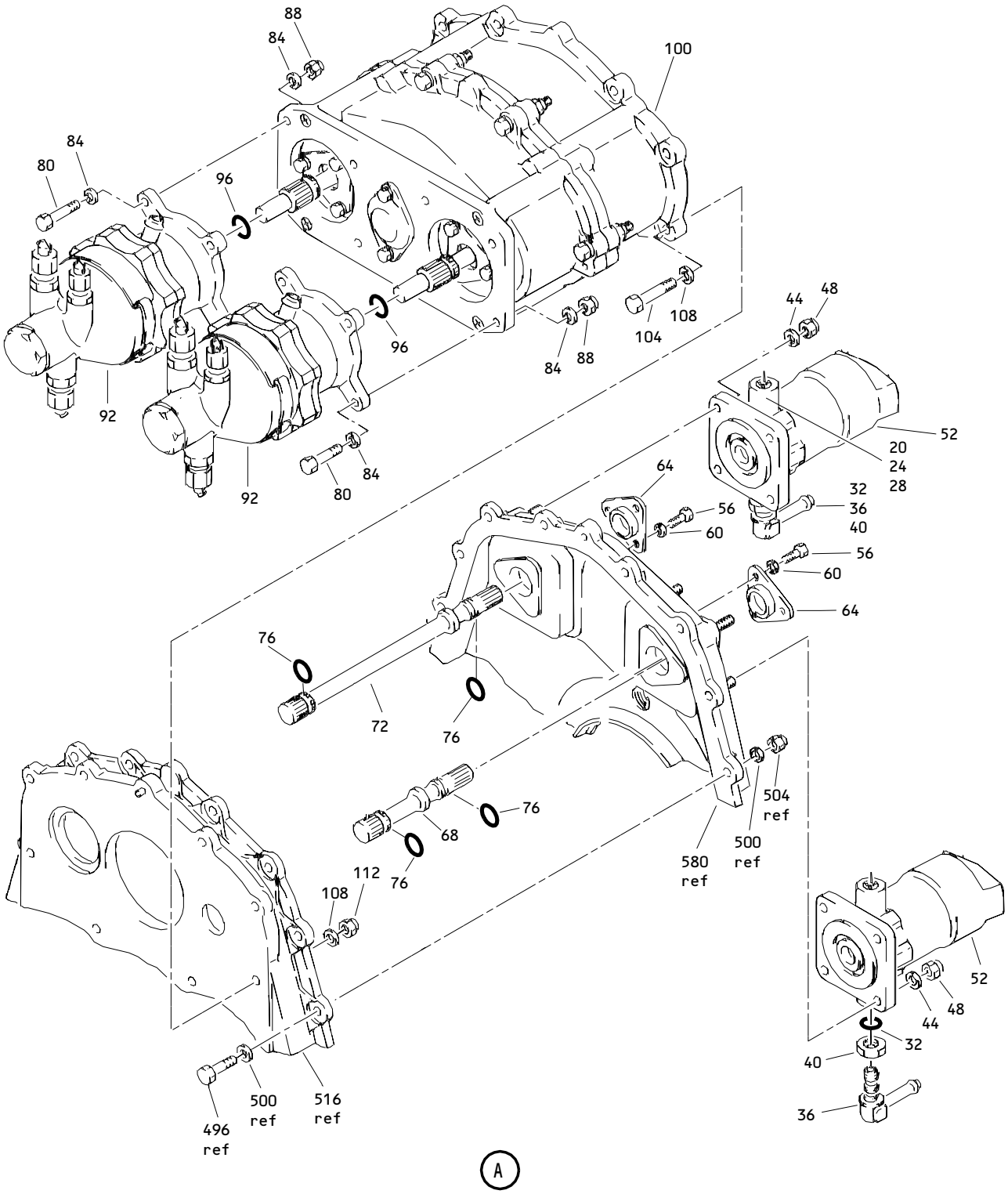
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
251T4364-1		1	164	2
251T4364-2		1	172	1
251T4365-2		1	192	1
251T4366-1		1	176	2
251T4366-2		1	188	1
251T4367-1		1	588	4
251T4367-2		1	592	4
251T4368-1		1	72	1
251T4369-1		1	68	1
251T4370-1		1	64	2
251T4372-1		1	448	2
251T4372-2		1	452	1
251T4372-3		1	456	1
251T4373-1		1	680	4
251T4375-1		1	492	1
251T4376-1		1	416	1
		1	464	1
251T4377-1		1	460	1
251T4378-1		1	472	1
251T4378-2		1	480	1
251T4378-4		1	472A	1
251T4378-5		1	480A	1
251T4379-1		1	444	1
251T4380-1		1	440	1
251T4381-1		1	432	4
251T4382-1		1	424	2
251T4383-1		1	280	1
251T4384-1		1	260	1
251T4387-1		1	544	1
251T4387-2		1	556	1
251T4387-3		1	560	1
251T4388-1		2	53	1
251T4389-1		1	268	1
251T4389-2		1	268A	1
251T4390-1		1	712	1
251T4391-1		1	344	4
251T4391-2		1	352	1
251T4392-1		1	696	2
251T4392-2		1	704	1
251T4392-3		1	708	1
251T4393-1		1	524	1
251T4395-1		1	400	1
251T4395-2		1	408	1
251T4395-3		1	400A	1
251T4395-4		1	408A	1
251T4396-1		1	684	2
251T4397-1		1	612	4

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
251T4397-2		1	612A	4
251T4398-1		1	572	1
251T4399-1		1	576	1
251T4530-2		1	244	
251W4127-1		1	420B	2
4100406-1		1	52	2
4100406-2		1	52A	2
48FT1018		2	115	1
48FT1414		1	156	2
60B00179-505		2	205	4
60B00179-7		2	155	1
		2	170	4
600-001-10		1	276	6
6005TT		2	95	4
67832AS624		1	608	28
882BW4MB0625		1	216	4
9105LLT1C1-01		2	95	4
9105NPPFS428		2	95	4
9106PPA1021		2	155	1
		2	170	4
96-02		1	676	4
96-048		1	44	8
		2	15	6
96-054		1	336	4
99207		2	135	1
993L05		2	95	4
96-054		1	336	4
		1	692	2
99207		2	135	1
993L05		2	95	4



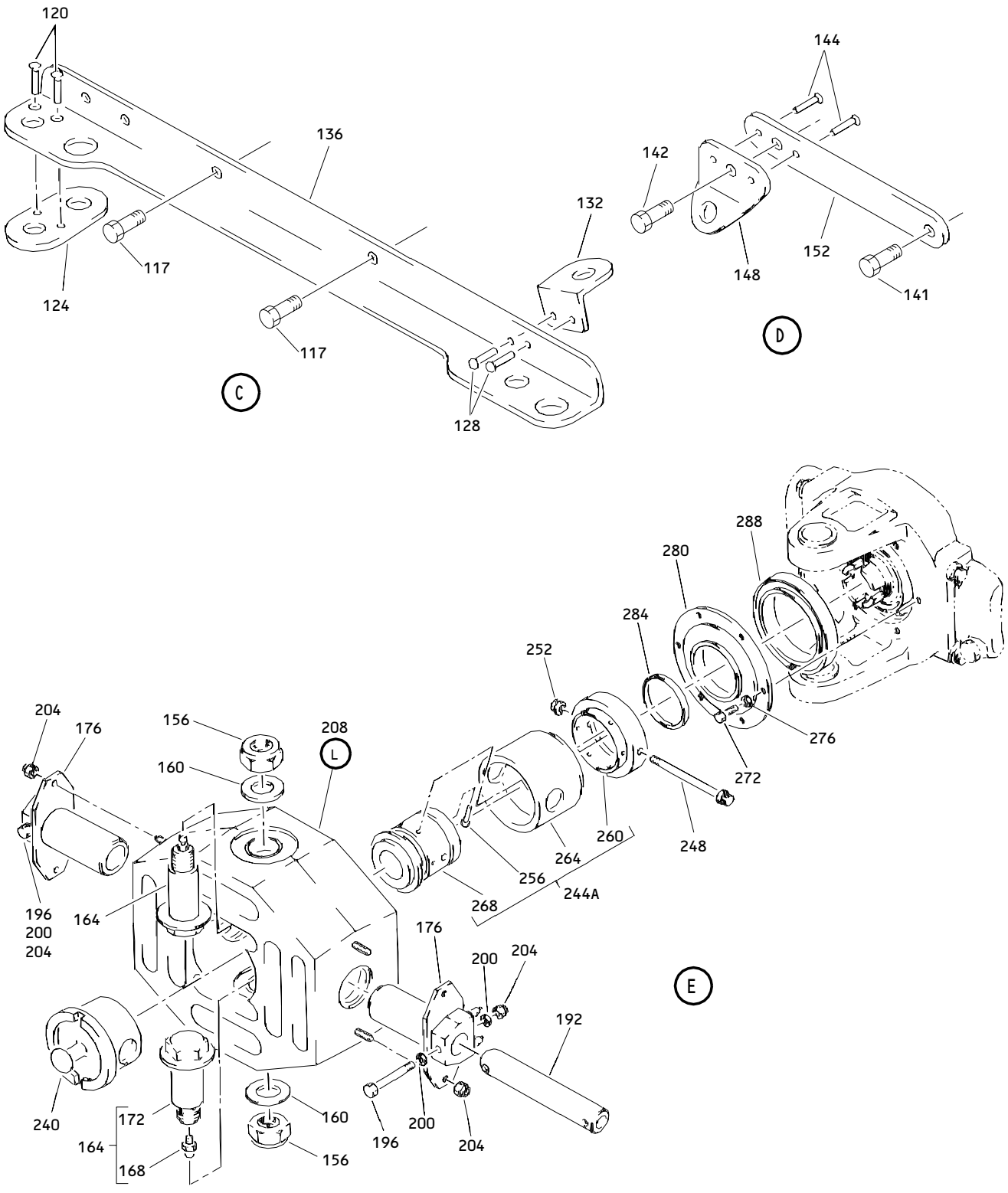
Stabilizer Trim Ballscrew Actuator Assembly
Figure 1 (Sheet 1)

T68134



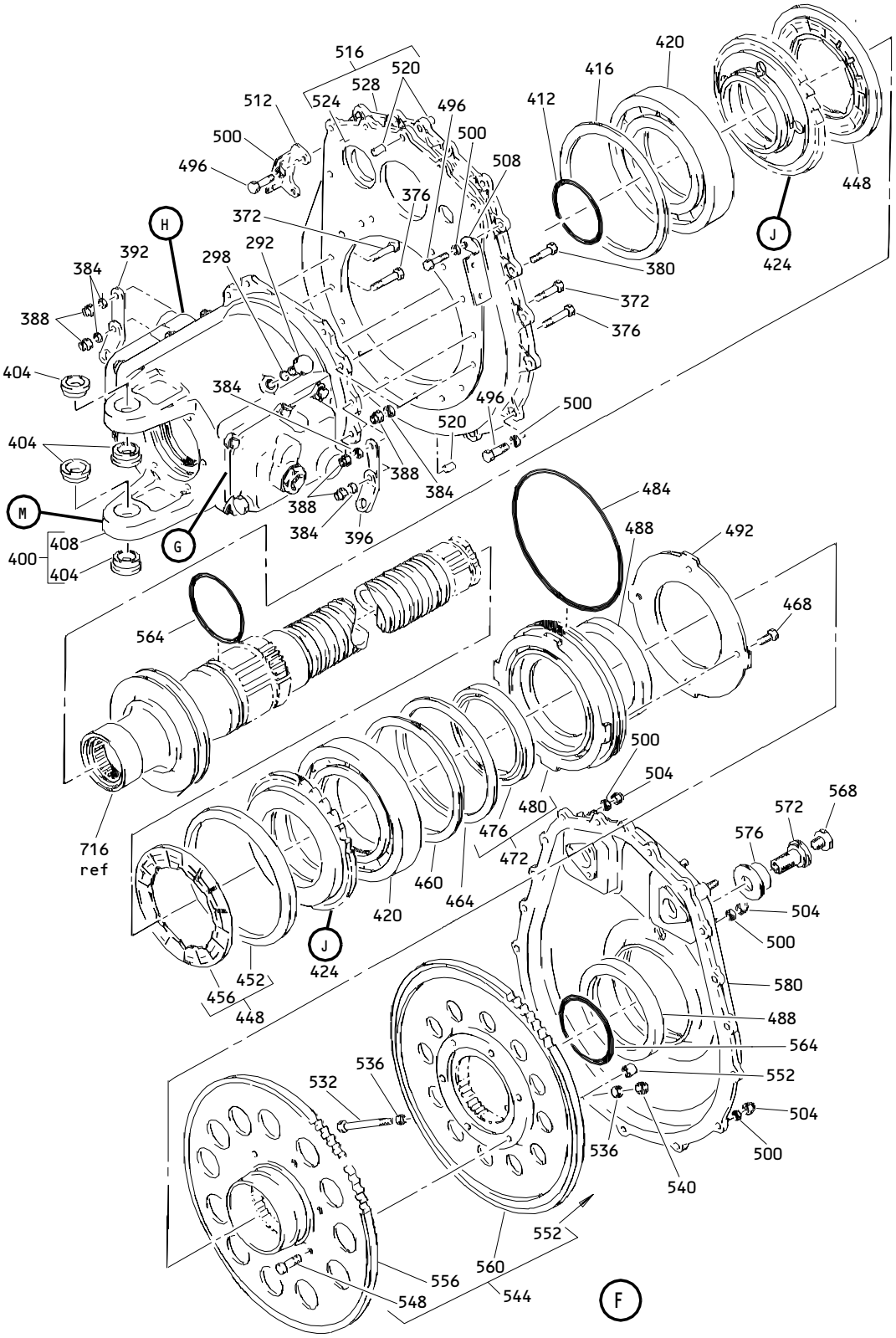
Stabilizer Trim Ballscrew Actuator Assembly
Figure 1 (Sheet 2)

T68135



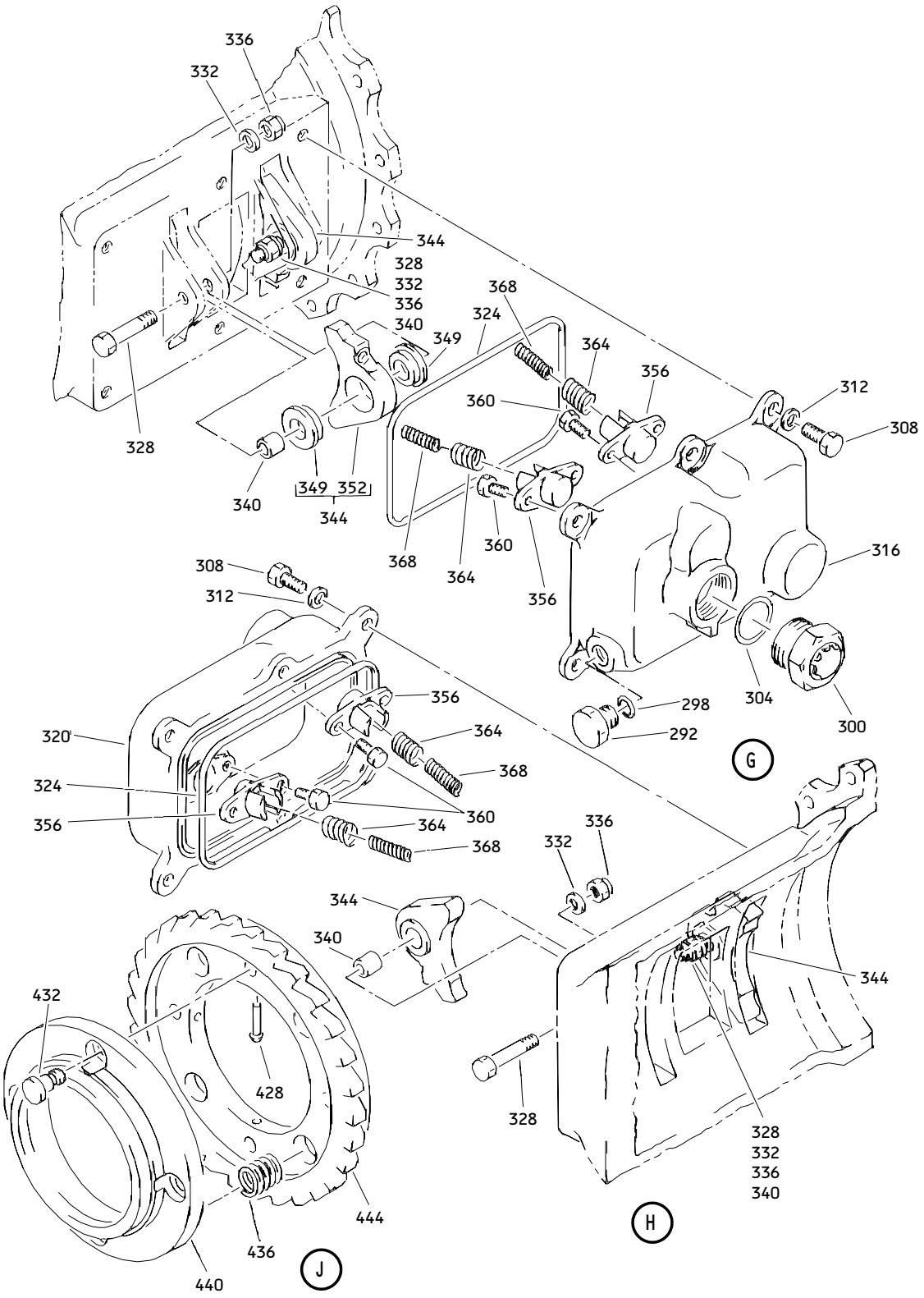
Stabilizer Trim Ballscrew Actuator Assembly
Figure 1 (Sheet 3)

T68562



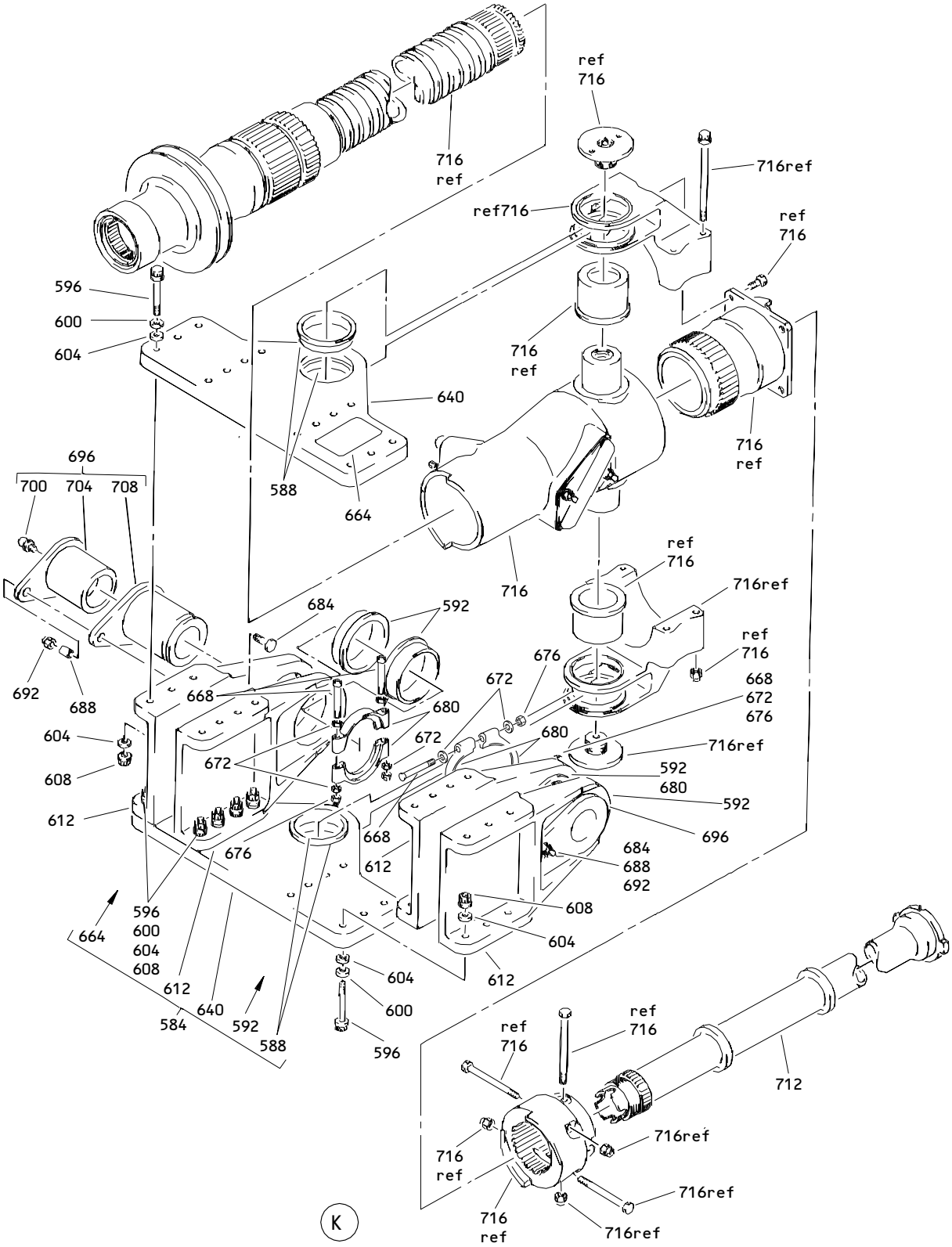
Stabilizer Trim Ballscrew Actuator Assembly
Figure 1 (Sheet 4)

T68137



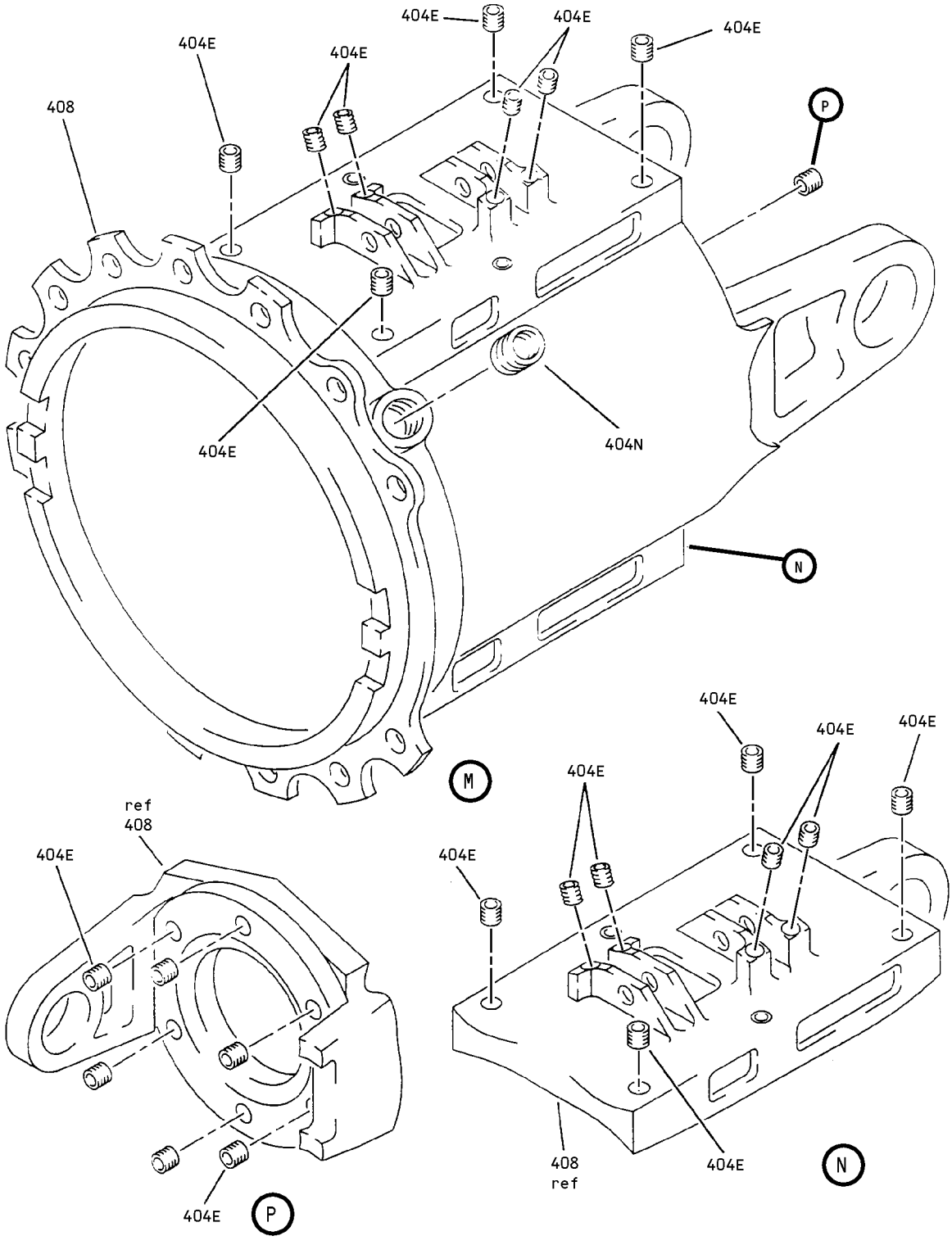
Stabilizer Trim Ballscrew Actuator Assembly
Figure 1 (Sheet 5)

T68563



Stablizer Trim Ballscrew Actuator Assembly
Figure 1 (Sheet 6)

T68139



Stabilizer Trim Ballscrew Actuator Assembly
Figure 1 (Sheet 7)

K93598

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	251T4310-1		ACTUATOR ASSY-STAB. TRIM BALLSCREW	A	RF
-1A	251T4310-2		ACTUATOR ASSY-STAB. TRIM BALLSCREW	B	RF
-1B	251T4310-3		ACTUATOR ASSY-STAB. TRIM BALLSCREW	C	RF
-1C	251T4310-4		ACTUATOR ASSY-STAB. TRIM BALLSCREW	D	RF
4	BC902T8		DELETED		
8	NAS1612-8		DELETED		
12	AFP241-08		DELETED		
16	BC902T6		DELETED		
20	MS21902D6		DELETED		
24	NAS1612-6		DELETED		
28	AFP241-06		DELETED		
32	NAS1612-4		.SEAL		2
36	AN838-4D		.ELBOW		2
40	AN924-4D		.NUT		2
44	BRH10-4		.NUT- (V52828) (SPEC BACN10JC4) (OPT H10-4BAC (V15653)) (OPT NS202101-048 (V80539)) (OPT RMLH9075-4W (V72962)) (OPT T6S428J (V71087)) (OPT VN303A048 (V92215)) (OPT 96-048 (V80539))		8
48	AN960-416		.WASHER		8
52	4100406-1		.MOTOR-HYDR (V06848) (SPEC S256T003-2) (OPT 4100406-2 (V06848))		2
52A	4100406-2		.MOTOR-HYDR (V06848) (SPEC S256T003-2) (OPT 4100406-1 (V06848))		2
56	NAS1303-1		.BOLT		6

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
60	AN960PD10L		.WASHER		6
64	251T4370-1		.RETAINER-MOTOR SHAFT		2
68	251T4369-1		.SHAFT-SHORT MOTOR		1
72	251T4368-1		.SHAFT-LONG MOTOR		1
76	MS29513-111		.PACKING		4
			(OPT)		
76A	NAS1611-111A		.PACKING		4
			(OPT)		
80	NAS6604-9		.BOLT		8
84	AN960PD416L		.WASHER		16
88	BRH10-4		.NUT-		8
			(V52828)		
			(SPEC BACN10JC4)		
			(REFER TO ITEM 44		
			FOR OPT PARTS)		
92	160500-100		.BRAKE-HYDR		2
			(V19156)		
			(SPEC S251N276-1)		
			(OPT ITEM 92A)		
-92A	S251N276-2		.BRAKE-HYDR		2
			(OPT ITEM 92)		
96	MS29513-114		.PACKING		2
			(OPT)		
96A	NAS1611-114A		.PACKING		2
			(OPT)		
100	251T4320-1		.DIFFERENTIAL ASSY-		1
			(FOR DETAILS SEE FIG. 2)		
			ATTACHING PARTS		
104	NAS6604-11		.BOLT		8
108	AN960PD416L		.WASHER		16
112	BRH10-4		.NUT-		8
			(V52828)		
			(SPEC BACN10JC4)		
			(REFER TO ITEM 44		
			FOR OPT PARTS)		
			(OPT T6S428J		
			(V71087))		
			-------*-------		
116	251T4312-1		.BRACKET ASSY-HYDR TUBE		1
			ATTACHING PARTS		
117	NAS1304-1		.BOLT		2
			-------*-------		
120	MS20426DD5-6		..RIVET		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
124	251T4312-3		..PLATE-END		1
128	MS20470DD5-7		..RIVET		2
132	251T4312-4		..ANGLE		1
136	251T4312-2		..BRACKET-MAIN		1
140	251T4313-1		.BRACKET ASSY-HYDR TUBE ATTACHING PARTS		1
141	NAS1304-1		.BOLT		1
142	NAS1304-3		.BOLT		1
			-------*-------		
144	MS20426DD5-7		..RIVET		2
148	251T4313-2		..LUG		1
152	251T4313-3		..PLATE		1
156	BRH10-14		.NUT- (V52828) (SPEC BACN10JC14) (OPT BMN4122AD3-14 (V08524)) (OPT BMN4122A14 (V85495)) (OPT H10-14BAC (V15653)) (OPT RMLH9074-14 (V72962)) (OPT 48FT1414 (V56878))		2
160	AN960-1416		.WASHER		2
164	251T4364-1		.PIN ASSY-UPR GIMBAL		2
168	MS15001-2		..FITTING		1
172	251T4364-2		..PIN		1
176	251T4366-1		.PIN ASSY-RETAINING		2
180	MS15001-2		..FITTING		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
184	MS18063-2		..SETSCREW		2
188	251T4366-2		..PIN		1
192	251T4365-2		DELETED		
192A	251T4365-1		.SHAFT-SAFETY		1
196	BACB30NF4-24		.BOLT-		2
			(V06710)		
			(SPEC BACB30NF4-24)		
			(V06725)		
			(V06950)		
			(V08524)		
			(V17943)		
			(V27624)		
			(V56878)		
			(V80539)		
			(V92215)		
			(V97928)		
200	AN960-416L		.WASHER		4
204	BRH10-4		.NUT-		6
			(V52828)		
			(SPEC BACN10JC4)		
			(REFER TO ITEM 44 FOR OPT PARTS)		
208	251T4360-1		.GIMBAL ASSY-UPR		1
212	MS21209F4-15		..INSERT		4
216	882BW4MB0625		..STUD-		4
			(V01556)		
220	BACB28AM24B034A		..BUSHING		4
224	BACB28AM24B024A		..BUSHING		4
228	BACB28AM18B045A		..BUSHING		2
232	BACB28AM18B038A		..BUSHING		2
236	251T4360-2		..GIMBAL		1
240	251T4362-1		.SLEEVE-SAFETY		1
244	251T4530-2		DELETED		
244A	251T4350-2		.NUT ASSY-SAFETY	C	1
-244B	251T4350-1		.NUT ASSY-SAFETY	A,B,D	1
			(OPT ITEM 244C)		
244C	251T4350-2		.NUT ASSY-SAFETY	A,B,D	1
			(OPT ITEM 244B)		
			ATTACHING PARTS		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
248	BACB30LE4K52		.BOLT-		1
			(V06710)		
			(SPEC BACB30LE4K52)		
			(V06725)		
			(V08524)		
			(V17943)		
			(V27624)		
			(V80539)		
			(V92215)		
			(V93907)		
			(V97928)		
252	MS21042-4		.NUT		1
			(OPT ITEM 252A)		
252A	BACN10YR4CD		.NUT		1
			(OPT ITEM 252)		
			-------*-------		
256	MS20613-6P12		..RIVET		6
260	251T4384-1		..UMBRELLA		1
264	251T4363-2		..SOCKET-SAFETY		1
268	251T4389-1		..NUT-SAFETY	A,B,D	1
268A	251T4389-2		..NUT-SAFETY	C	1
272	NAS1303-1H		.BOLT		6
276	600-001-10		.WASHER		6
			(V83259)		
280	251T4383-1		.RETAINER-BRG		1
284	AR10104-139P1H		.SEAL-OMNI		1
			(V00624)		
288	KP47BFS428		.BEARING-		1
			(V21335)		
			(SPEC BACB10BW47)		
			(OPT KP47B2TS		
			(V43991))		
292	AN814-4L		.PLUG		2
296	MS28775-011		DELETED		
298	MS28775-011		.PACKING	A,B,D	1
-298A	M25988-1-110		.PACKING	C	1
300	S50P		.PLUG-SIGHT		1
			(V97484)		
304	MS28775-118		.PACKING		1
308	NAS6603H4		.BOLT		12
312	AN960PD10L		.WASHER		12
316	251T4355-1		.COVER-PAWL		1
320	251T4355-2		.COVER-PAWL		1
324	MS28775-163		.PACKING		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
328	BACB30NF5-16		.BOLT-		4
			(V06710)		
			(SPEC BACB30NF5-16)		
			(V06725)		
			(V06950)		
			(V08524)		
			(V17943)		
			(V27624)		
			(V56878)		
			(V80539)		
			(V92215)		
			(V97928)		
332	AN960-516L		.WASHER		4
336	BRH10-5		.NUT-		4
			(V52828)		
			(SPEC BACN10JC5)		
			(OPT H10-5BAC		
			(V15653))		
			(OPT RMLH9075-5W		
			(V72962))		
			(OPT T6S524J		
			(V71087))		
			(OPT 96-054		
			(V80539))		
340	251T4354-1		.SLEEVE-PAWL		4
344	251T4391-1		.PAWL ASSY-BRAKE		4
348	BACB28X8F22		DELETED		
349	BACB28X8F022		..BUSHING		2
352	251T4391-2		..PAWL		1
356	251T4353-1		.HOUSING-SPR		4
360	NAS6603H1		.BOLT		8
364	251T4336-1		.SPRING-CPRSN		4
368	251T4336-2		.SPRING-CPRSN		4
372	NAS6604-13		.BOLT		2
376	NAS6604-16		.BOLT		2
380	NAS6604-11		.BOLT		10
384	AN960PD416L		.WASHER		14
388	BRH10-4		.NUT-		14
			(V52828)		
			(SPEC BACN10JC4)		
			(REFER TO ITEM 44		
			FOR OPT PARTS)		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
392	251T4333-1		.BRACKET-SAFETY CABLE	A,B,D	1
-392A	251T4333-3		.BRACKET-SAFETY CABLE	C	1
396	251T4333-2		.BRACKET-SAFETY CABLE	A,B,D	1
-396A	251T4333-4		.BRACKET-SAFETY CABLE	C	1
400	251T4395-1		.HOUSING ASSY-PRIMARY BRAKE	A,B,D	1
-400A	251T4395-3		.HOUSING ASSY-PRIMARY BRAKE	C	1
404	BACB28AM18B038A		..BUSHING	A,B,D	4
-404A	BACB28AT18B038C		..BUSHING	C	4
404E	MS21209F1-15P		..INSERT	C	26
404N	MS21209F7-10P		..INSERT	C	1
408	251T4395-2		..HOUSING	A,B,D	1
-408A	251T4395-4		..HOUSING	C	1
412	AR10104-337P1H		.SEAL-OMNI (V00624)		1
416	251T4376-1		.SPACER-THRUST BRG		1
420	251T4351-1		.BEARING-THRUST (OPT ITEM 420B)		2
-420A	251T4127-1		DELETED		
-420B	251W4127-1		.BEARING-THRUST (OPT ITEM 420)		2
424	251T4382-1		.RATCHET ASSY		2
428	MS20613-4P20		..RIVET		4
432	251T4381-1		..PIN-RATCHET		4
436	MS24585-420		..SPRING		4
440	251T4380-1		..ADAPTER-BRG		1
444	251T4379-1		..RATCHET-BRAKE		1
448	251T4372-1		.DISC ASSY-BRAKE		2
452	251T4372-2		..RING		1
456	251T4372-3		..DISC		1
460	251T4377-1		.RETAINER-SPACER		1
464	251T4376-1		.SPACER-THRUST BRG		1
468	BACB30NF4H1		.BOLT- (V06710) (SPEC BACB30NF4H1) (V06725) (V06950) (V08524) (V17943) (V27624) (V56878) (V80539) (V92215) (V97928)		4

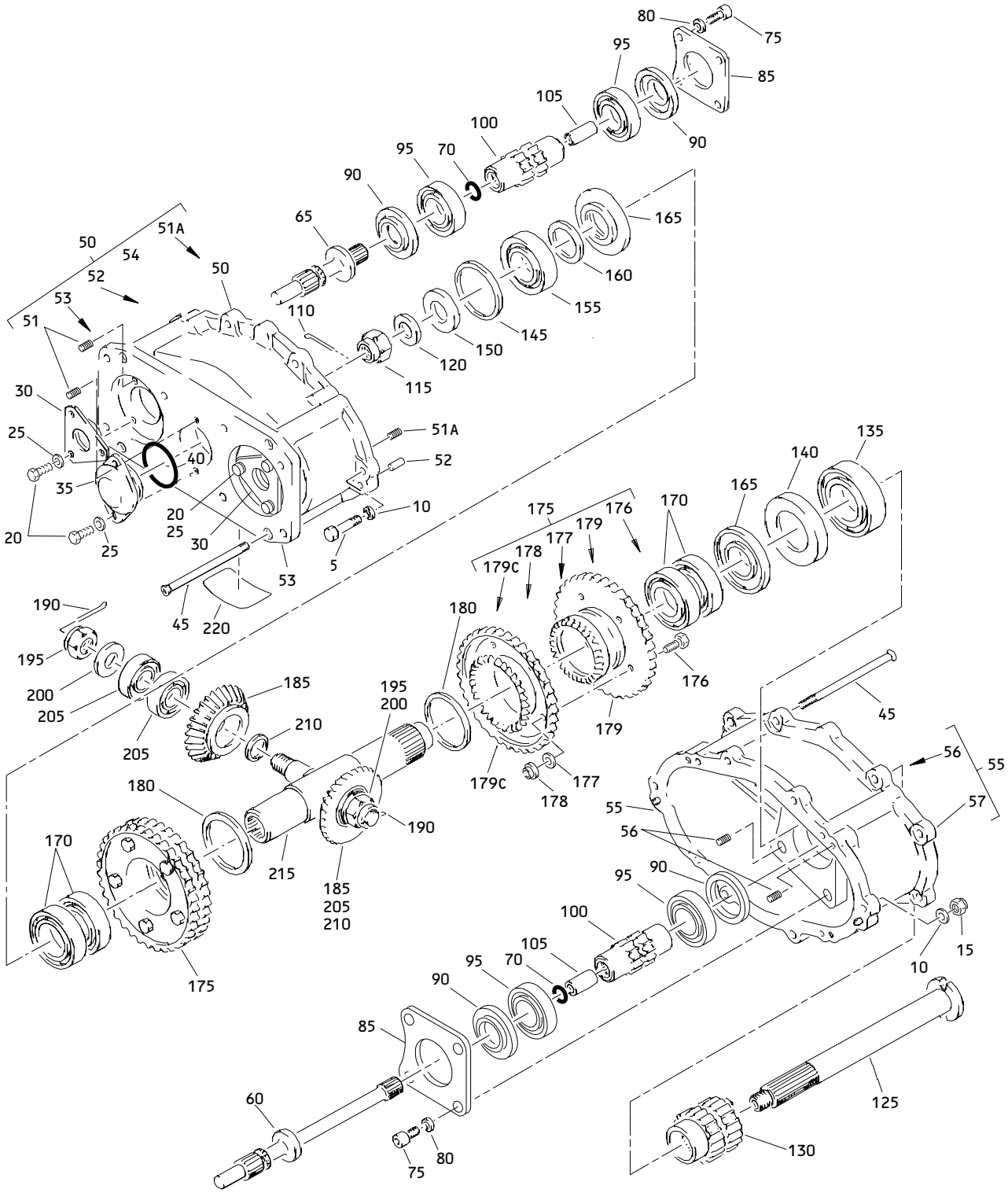
FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
472	251T4378-1		.BAYONET ASSY	A,B,D	1
-472A	251T4378-4		.BAYONET ASSY	C	1
476	KD040C0		..BEARING (V32828)		1
480	251T4378-2		..BAYONET	A,B,D	1
-480A	251T4378-5		...BAYONET	C	1
484	MS28775-263		.PACKING		1
488	251T4349-1		.SEAL-LIP		2
492	251T4375-1		.LOCKPLATE-BAYONET		1
496	NAS6604-9		.BOLT		16
500	AN960PD416L		.WASHER		32
504	BRH10-4		.NUT- (V52828) (SPEC BACN10JC4) (REFER TO ITEM 44 FOR OPT PARTS)		16
508	251T4314-1		.BRACKET-HYDR TUBE		1
512	251T4314-2		.BRACKET-HYDR TUBE		1
516	251T4359-1		.HOUSING ASSY-BULL GEAR		1
520	MS16555-46		..PIN		3
524	251T4393-1		..PLATE		1
528	251T4359-2		..HOUSING		1
532	BACB30NF4-53		.BOLT- (V06710) (SPEC BACB30NF4-53) (V06725) (V06950) (V08524) (V17943) (V27624) (V56878) (V80539) (V92215) (V97928)		1
536	AN960-416		.WASHER		2
540	BRH10-4		.NUT- (V52828) (SPEC BACN10JC4) (REFER TO ITEM 44 FOR OPT PARTS)		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
544	251T4387-1		.GEAR ASSY-BULL		1
548	NAS1466H15		..PIN *[1]		6
-548A	NAS1466H16		..PIN *[1]		6
552	NAS1080R06		..COLLAR		6
556	251T4387-2		..GEAR-UPR BULL		1
560	251T4387-3		..GEAR-LWR BULL		1
564	MS28775-338		.PACKING		2
568	AN814-6L		.PLUG		1
572	251T4398-1		.FITTING-DRAIN		1
576	251T4399-1		.CUP-DRAIN		1
580	251T4357-1		.COVER-HSG		1
581	MS51833-202-13		..STUD		8
582	MS21209F1-15		..INSERT		6
583	251T4337-2		..COVER		1
584	251T4321-1		.GIMBAL ASSY-LWR (OPT ITEM 584A)		1
-584A	251T4321-2		.GIMBAL ASSY-LWR (OPT ITEM 584)		1
588	251T4367-1		..BUSHING		4
592	251T4367-2		..BUSHING		4
596	BACB30LE6-21		..BOLT- (V06710) (SPEC BACB30LE6-21) (V06725) (V08524) (V17943) (V27624) (V80539) (V92215) (V93907) (V97928)		28
600	MS20002C6		..WASHER		28
604	AN960PD616L		..WASHER		56
608	BMN5024CPD6		..NUT- (V08524) (SPEC BACN10HR6CS) (OPT H39953-6 (V15653)) (OPT SL7059C624 (V11815)) (OPT 109LH9031-6 (V72962)) (OPT 67832AS624 (V56878))		28

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
612	251T4397-1		..LUG ASSY- (USED ON ITEM 584)		4
-612A	251T4397-2		..LUG ASSY- (USED ON ITEM 584A)		4
640	251T4361-1		..PLATE ASSY		2
664	251T4318-1		..PLATE-IDENT		1
668	NAS623-3-24		.SCREW		4
672	AN960PD10L		.WASHER		8
676	BRH10-3		.NUT- (V52828) (SPEC BACN10JC3) (OPT H10-3BAC (V15653)) (OPT NS202101-02 (V80539)) (OPT RMLH9075-3W (V72962)) (OPT T6S1032J (V71087)) (OPT VN303A02 (V92215)) (OPT 96-02 (V80539))		4
680	251T4373-1		.RING-RETAINING		4
684	251T4396-1		.BOLT-RETAINING		2
688	251T4348-1		.SPACER-PIN		2
692	BRH10-5		.NUT- (V52828) (SPEC BACN10JC5) (REFER TO ITEM 336 FOR OPT PARTS)		2
696	251T4392-1		.PIN ASSY		2
700	MS15001-1		..FITTING		1
704	251T4392-2		..PIN-INNER		1
708	251T4392-3		..PIN-OUTER		1
712	251T4390-1		.ROD-SAFETY		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
716	B18834		.BALLSCREW AND NUT ASSY (OPT ITEM 716A) (V00293) (SPEC S251T433-1)	A,C,D	1
-716A	B18834B		.BALLSCREW AND NUT ASSY (OPT ITEM 716) (V00293) (SPEC S251T433-1)	A,C,D	1
-716B	S251T412-1		.BALLSCREW AND NUT ASSY (OPT ITEM 716C)	B	1
-716C	07388P000-1		.BALLSCREW AND NUT ASSY (OPT ITEM 716B) (V00293)	B	1
720	251T4352-1		.PLATE-IDENT		1
724	251T4317-1		.PLATE-LUBE (OIL)		1
-728	251T4316-1		.PLATE-LUBE (GREASE)		4

[1] USE NAS1466H15 IF COMBINED THICKNESS OF BULL GEARS AT PIN LOCATION IS 0.970 INCH OR LESS. USE NAS1466H16 IF COMBINED THICKNESS OF BULL GEARS IS GREATER THAN 0.970 INCH.



Differential Assembly
Figure 2

T68140

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
-1	251T4320-1		DIFFERENTIAL ASSY (OPT ITEM 1A)		RF
-1A	251T4320-2		DIFFERENTIAL ASSY (OPT ITEM 1)		RF
5	NAS6604-9		.BOLT		6
10	AN960PD416L		.WASHER		12
15	BRH10-4		.NUT- (V52828) (SPEC BACN10JC4) (OPT H10-4BAC (V15653)) (OPT NS202101-048 (V80539)) (OPT RMLH9075-4W (V72962)) (OPT T6S428J (V71087)) (OPT VN303A048 (V92215)) (OPT 96-048 (V80539))		6
20	NAS1303-1		.BOLT		8
25	AN960PD10L		.WASHER		8
30	251T4344-1		.RETAINER-BRAKE SHAFT		2
35	251T4346-1		.COVER-DIFF SHAFT		1
40	MS29513-127		.PACKING		1
45	BACB30LU4-58		.BOLT- (V06710) (SPEC BACB30LU4-58) (V06725) (V06950) (V17943) (V27624) (V56878) (V80539) (V85495) (V92215) (V97928)		8
50	251T4324-1		.HOUSING ASSY-UPR		1
51	MS21209F1-15		..INSERT		8
51A	MS21209F4-15		..INSERT		8
52	NAS607-4-6P		..PIN		2
53	251T4388-1		..PLATE		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
54	251T4324-2		..HOUSING		1
55	251T4322-1		.HOUSING ASSY-LWR		1
56	MS21209F4-15		..INSERT		8
57	251T4322-2		..HOUSING		1
60	251T4325-1		.SHAFT-LONG BRAKE		1
65	251T4326-1		.SHAFT-SHORT BRAKE		1
70	MS29513-111		.PACKING		2
75	MS24678-20		.SCREW		8
80	AN960PD416L		.WASHER		8
85	251T4337-1		.RETAINER-BRG		2
90	251T4345-1		.BEARING-SECONDARY		4
95	LL105KS		.BEARING- (V38443) (SPEC BACB10BA25PP) (REPLD BY ITEM 95A) (OPT 6005TT (V43991)) (OPT 9105LLT1C1-01 (V21760)) (OPT 9105NPPFS428 (V21335)) (OPT 993L05 (V29337))		4
95A	BACB10GU25PPJC		.BEARING- (REPLS ITEM 95)		4
100	251T4339-1		.PINION-INPUT		2
105	251T4338-1		.SLEEVE-SAFETY		2
110	MS24665-231		.PIN		1
115	BRH10-10		.NUT- (V52828) (SPEC BACN10JC10) (OPT BMN4122AD3-10 (V08524)) (OPT BMN4122A10 (V85495)) (OPT H10-10BAC (V15653)) (OPT RMLH9074-10 (V72962)) (OPT 48FT1018 (V56878))		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
120	AN960-1016L		.WASHER		AR
125	251T4327-1		.SHAFT-INNER		1
130	251T4329-1		.PINION-OUTER		1
135	1207LLT1C1-01		.BEARING- (V21760) (SPEC BACB10AZ35PP) (OPT 207NPPFS428 (V21335)) (OPT 207TT (V43991)) (OPT 99207 (V29337))		1
140	251T4331-1		.BEARING-SECONDARY		1
145	251T4332-3		.SPACER		1
150	251T4335-1		.BEARING-SECONDARY		1
155	9106PPA1021		.BEARING-BALL (V21335) (SPEC 60B00179-7)		1
160	251T4332-4		.SPACER		1
165	251T4334-1		.SPACER-BRG		2
170	9106PPA1021		.BEARING-BALL (V21335) (SPEC 60B00179-7)		4
175	251T4343-1		.GEAR ASSY-DIFF (USED ON ITEM 1)	A	2
-175A	251T4343-4		.GEAR ASSY-DIFF (USED ON ITEM 1A)	B	2
176	NAS6603-3		..BOLT		6
177	AN960-10L		..WASHER (USED ON ITEM 1)	A	6
-177A	NAS1149F0332P		..WASHER (USED ON ITEM 1A)	B	6

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
178	BACN10JC3		..NUT (USED ON ITEM 1)	A	6
-178A	BACN10JC3CD		..NUT (USED ON ITEM 1A)	B	6
179	251T4343-2		..GEAR-INNER (USED ON ITEM 1) (MATCHED SET)	A	1
-179A	251T4343-2		..GEAR-INNER (OPT ITEM 179B) (USED ON ITEM 1A)	B	1
-179B	251T4343-6		..GEAR-INNER (OPT ITEM 179A) (USED ON ITEM 1A)	B	1
179C	251T4343-3		..GEAR-OUTER (USED ON ITEM 1) (MATCHED SET)	A	1
-179D	251T4343-3		..GEAR-OUTER (OPT ITEM 179E)	B	1
-179E	251T4343-5		..GEAR-OUTER (OPT ITEM 179D)	B	1
180	251T4332-2		.SPACER		2
185	251T4340-1		.PINION-BEVEL (USED ON ITEM 1)	A	2
-185B	251T4340-2		.PINION-BEVEL (USED ON ITEM 1A)	B	2
190	MS24665-231		.PIN		2
195	BRH10-10		.NUT- (V52828) (SPEC BACN10JC10) (REFER TO ITEM 115 FOR OPT PARTS)		2
200	AN960-1016		.WASHER		2
205	S8NPPA1021		.BEARING-BALL (V21335) (SPEC 60B00179-505) (OPT LLR12DU (V38443))		4
210	251T4332-1		.SPACER		2
215	251T4328-1		.SHAFT-DIFF		1
220	251T4319-1		.PLATE-IDENT		1