TO: ALL HOLDERS OF TRAILING EDGE FLAP DRIVE ANGLE GEARBOX AND AILERON DROOP INPUT CONTROL MECHANISM ASSEMBLY COMPONENT MAINTENANCE MANUAL 27-51-37

REVISION NO. 16 DATED JUL 01/03

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 on the Record of Revision Sheet.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
101-102 701 901	Added test fixture A27046-191, -192.
REPAIR 12-1 601-602	Edited without technical change.

BOEING

COMPONENT
MAINTENANCE MANUAL

TRAILING EDGE FLAP DRIVE ANGLE GEARBOX AND AILERON DROOP INPUT CONTROL MECHANISM ASSEMBLY

PART NUMBER 256T3430-3,-4

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

30927

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.

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TABLE OF CONTENTS

INTRODUCTION

The instructions in this manual provide the information necessary to perform maintenance functions ranging from simple checks and replacement to complete shop-type repair.

This manual is divided into separate sections:

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

The beginning of the REPAIR section includes a list of the separate repairs, a list of applicable standard Boeing practices, and an explanation of the True Position Dimensioning symbols used.

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

TRAILING EDGE FLAP DRIVE

ANGLE GEARBOX AND AILERON DROOP INPUT CONTROL MECHANISM ASSEMBLY

DESCRIPTION AND OPERATION

1. The T.E. flap drive angle gearbox and aileron droop input control mechanism assembly consists of bevel gears, spur gears, a worm gear system, and a cam gear system in an aluminum alloy housing.

2. This assembly changes the drive line direction and provides an input to the inboard aileron. This input is a simple step function and sequenced with respect to the deployment of the aircraft's flap system.

3. Leading Particulars (Approximate)

   Width -- 12 inches
   Length -- 9 inches
   Height -- 12 inches
   Weight -- 22 pounds
   Gear Ratio -- 1 to 1 (Input bevel gear to output bevel gear)
   426 to 1 (Input bevel gear to cam attached worm gear assembly)

   Drive shaft angle -- 160 degrees (Input bevel gear to output bevel gear)

TESTING/TROUBLE SHOOTING

1. Equipment

NOTE: Equivalent substitutes may be used.

A. Test Fixture -- A27046-141 or -191 (for 256T3430-3); A27046-163 or -192 (for 256T3430-4).

B. Test Equipment -- A27046-8 (used with A27046-141, -163, -191, -192).

2. Preparation for Test

A. Fill cavity between bearings (175) and shield (155) or bearing (160) and shield (140) with grease conforming to MIL-G-23827.

B. Mount the angle gearbox and aileron droop mechanism assembly in Test Fixture A27046-141, -163, -191, or -192 using Test Equipment A27046-8.

C. Perform all tests at room temperature.

D. Test procedures are performed in the same manner for both (256T3430-3 and -4) assemblies.

3. Test

NOTE: In the procedures that follow, "input shaft" refers to the shaft of the input bevel gear (IPL Fig. 1; 190) (IPL Fig. 2; 180) and "output shaft" refers to the shaft of the output bevel gear (IPL Fig. 1; 205) (IPL Fig. 2; 175).

A. Binding and Roughness

(1) Apply an 8-12 pound axial tension load to the output shaft.

(2) Operate the input shaft manually through a minimum rotation of 720 degrees, in both the clockwise and counterclockwise directions, with no torque load on the output shaft.

(3) The shaft shall rotate freely in either direction without significant binding or roughness.

B. No Load

(1) Apply an 8-12 pound axial tension load to the output shaft.

(2) With no torque applied to the output shaft, measure the torque required at the input shaft to breakaway and rotate the input shaft a minimum of 720 degrees in either direction. Torque shall not exceed 2.25 pound-inches at room temperature.

C. Backlash

(1) Using backlash check fixture P/N A27046-141 or -163, -191, or -192 and test equipment A27046-8, apply 5-10 lb-in. torque to bevel gear shafts with 25-35 lb axial load outward.

(2) Check that backlash is 0.007-0.011 inch at scribe line on clamp assembly A27046-58, measured at 3 places approximately 120 degrees apart.

NOTE: The backlash required is the total clearance measured from the torqued position in one direction to torqued position in the opposite direction. Backlash specified is equivalent to 0.004-0.006 inch, measured at the pitch line of the bevel gears.

D. Aileron Droop Input

(1) Align the indexing marks and remove the crank assembly (75, IPL Fig. 1 or 60, IPL Fig. 2).

(2) Apply a 10 pound-inch reversing torque to the splined shaft (410, IPL Fig. 1 or 445, IPL Fig. 2). The angular motion of the shaft at a 1.8 inch radius shall measure between 0.010 and 0.025 inches.

(3) Repeat steps (1) and (2) at approximately each 120 degree rotation of the input shaft or wherever excessive backlash is manually sensed.

E. Output Crank Travel (Refer to Fig. 101, sheet 1 for 256T3430-3 and sheet 2 for 256T3430-4)

(1) Turn the output shaft until the index marks are aligned. Make sure that the last half turn of the output shaft is in the extend direction. Extend direction is clockwise for 256T3430-3 and counterclockwise for 256T3430-4.

(2) Measure the position of the outer most fastener hole of the crank (IPL Fig. 1; 100) (IPL Fig. 2; 85). Measure the angle of the crank using the outer most fastener hole and splined shaft (IPL Fig. 1; 410) (IPL Fig. 2; 445) centerline. Use this as a baseline for subsequent steps.

(3) Turn the output shaft 210.6-210.8 revolutions in the extend direction from the position established in step 1.

(4) Measure the movement of the outer most fastener hole of the crank from the position in step 2.

(5) Make sure that the crank did not move more than 0.005 inch.

(6) While observing the movement of the crank at the outer most fastener hole, turn the output shaft in the extend direction until the crank just starts to move. Make sure that the last half turn of the output shaft is in the extend direction.

(7) Make sure that the output shaft moved 210.8-214.8 revolutions from the start point in step 1.

(8) Turn the output shaft in the extend direction 259.5-259.7 revolutions for 265T3403-3 or 259.3-259.5 revolutions for 265T3430-4 from the starting point established in step 1.

(9) While observing the movement of the crank at the outer most fastener hole, turn the output shaft in the extend direction until the crank just ceases to move. Make sure that the last turn of the output shaft is in the extend direction.

(10) Make sure that the output shaft is at a point 259.7-263.7 revolutions for 265T3430-3 or 259.5-263.5 revolutions for 265T3430-4 from the start point established in step 1.

(11) Measure the angle of the crank, using the outer most fastener hole and shaft centerline, relative to the baseline angle established in step 2.

(12) Make sure that the crank angle measured is 10.32-11.32 degrees for 265T3430-3 or 11.77-12.77 degrees for 265T3430-4.

(13) Turn the output shaft in the extend direction to a point 365.6-365.8 revolutions for 265T3430-3 or 365.4-365.6 revolutions for 265T3430-4 from the starting point established in step 1.

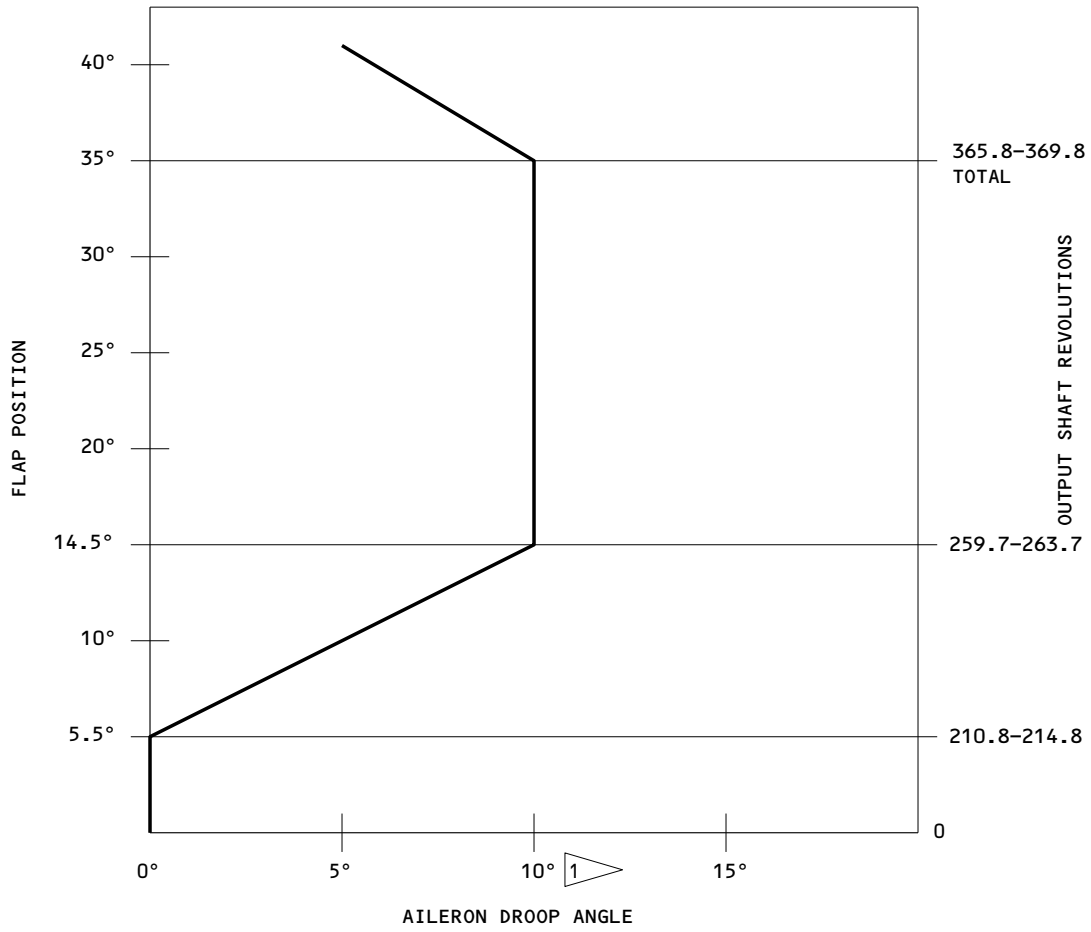
(14) Measure the displacement of the outer most fastener hole in the crank relative to the position at completion of step 9.

(15) Make sure that the crank did not move more than 0.005 inch.

(16) While observing the movement of the crank at the outer most fastener hole, turn the output shaft in the extend direction until the crank just begins to move. Make sure that the last half turn of the output shaft is in the extend direction.

(17) Make sure that the output shaft is at 365.8-369.8 revolutions for 256T3430-3 or 365.6-369.6 revolutions for 256T3430-4 from the start point established in step 1.

(18) Turn output shaft in the extend direction approximately 57 revolutions and align the index marks.

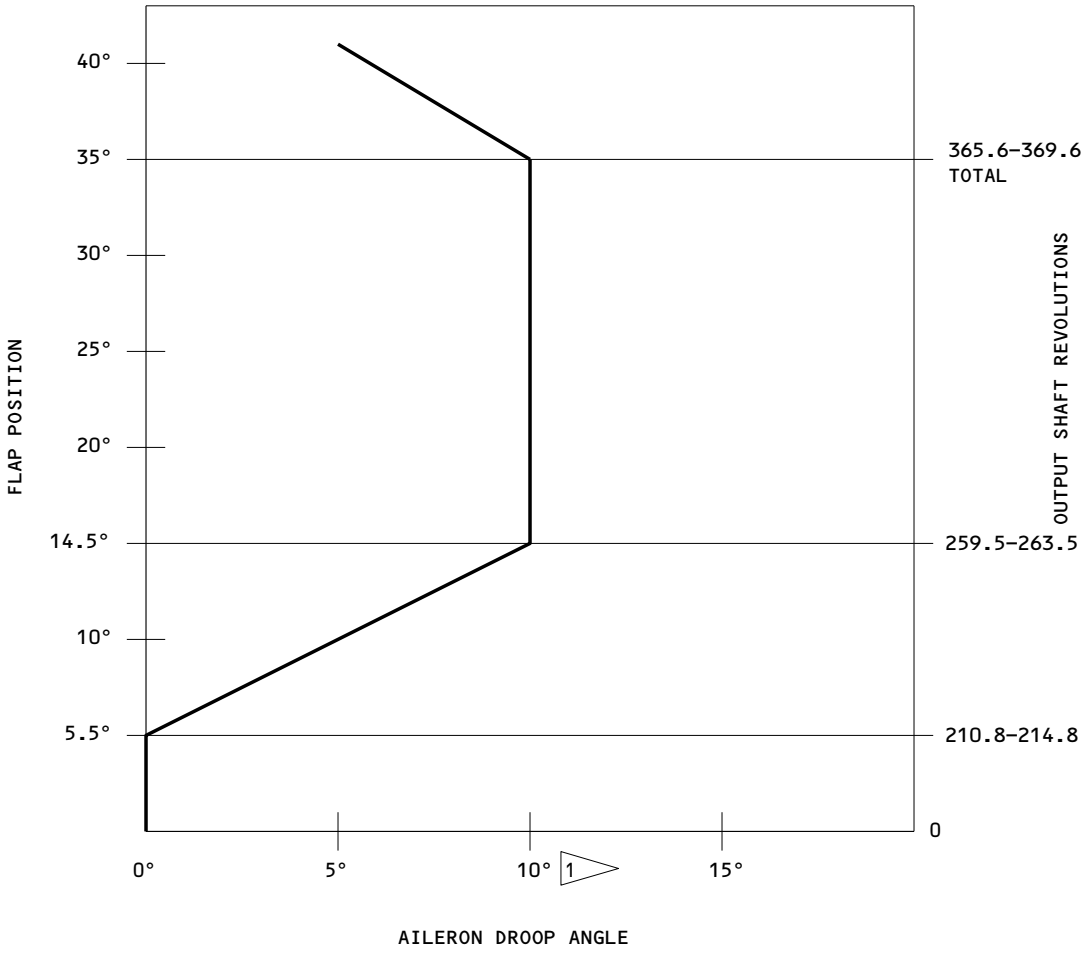


256T3430–3 ASSEMBLY

1 FULL AILERON DROOP––10.32°–11.32° CRANK TRAVEL

Output Crank Travel
Figure 101 (Sheet 1)

101600



256T3430–4 ASSEMBLY

1 FULL AILERON DROOP––11.77°–12.77° CRANK TRAVEL

Output Crank Travel
Figure 101 (Sheet 2)

H75133

TROUBLE	PROBABLE CAUSE	CORRECTION
Binding or roughness	Insufficient lubrication	Lubricate per 2.A.
	Defective gear teeth	Replace gears (195 or 200), (190 or 175), (205 or 180), (285 or 332), (325 or 360), (290 or 325) as applicable.
	Worn or defective ball bearings	Replace ball bearings (175 or 160), (185,210 or 170, or 170, 185), (280,300,435 or 315,335, 410,470), and (375).
Incorrect backlash	Improper shim thickness	Adjust shim thickness. Refer to ASSEMBLY par. 6.A.-6.E.
Noisy operation	Insufficient lubrication	Lubricate per 2.A.
	Defective gears or ball bearings	Check gears and ball bearings. Replace gears and/or bearings listed above.
Incorrect droop motion	Output arm and shaft misaligned	Rotate the input shaft as shown in Fig. 101, and refer to Testing, par. 3.E.
Output crank motion greater than 0.005 inch between 0-5.5 deg or 14.5-35 deg flap angle	Defective ball bearings	Replace bearings.
	Defective cam	Replace cam.

Trouble Shooting Procedures
Figure 102

DISASSEMBLY

1. 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. Lockwire

   B. Shim (105, 180, 215, 225, 275, 380, IPL Fig. 1, 90, 165, 190, 250, 310, 415, IPL Fig. 2).

   C. Cotter pin (385, IPL Fig. 1, 420, IPL Fig. 2)

2. Disassembly of 256T3430-3 (IPL Fig. 1)

   A. Cut and remove all lockwire.

   B. Remove bolts (5), washers (10), and cover (15).

   C. Remove bolts (115), washers (120) and drain cover (125).

   WARNING: USE EXTREME CARE WHEN REMOVING SPRINGS OR INJURY TO PERSONNEL MAY OCCUR. SPRINGS ARE HEAVILY LOADED.

   D. Remove springs (20) from bracket assembly (50) and crank assembly (75).

   E. Remove bolts (55), washers (60) and bracket assembly (50) from housing assembly (440).

   F. Remove bolt (80), washer (85), nut (90), shim (105), shield (110) and crank assembly (75) from splined shaft (410).

   G. Remove bolts (25), washers (30), nuts (35), retainers (40) and plain bushings (45) from bracket assembly (50) and crank assembly (75).

      NOTE: Do not remove bushings (65) from bracket assembly (50) or bushings (95) from crank assembly (75) unless necessary for repair or replacement.

   H. Remove bolts (160) and washers (165). Separate housing (170) with bevel gear (190) from housing assembly (440).

   I. Remove washers (140) and nuts (135) from bevel gears (190, 205).

J. Remove coupling sleeves (130), coupling halves (145), molded sleeves (150), and bearing shields (155) from bevel gears (190, 205).

K. Remove bevel gear (190) with bearings (175, 185) from housing (170). Remove shim (180). Note and record shim (180) thickness to facilitate ASSEMBLY.

NOTE: Do not remove bearings (175, 185) from bevel gear (190) unless necessary for repair or replacement.

L. Remove bevel gear (205), spur gear (195), bearings (175, 210), spacer (200) and shim (215) from housing assembly (440).

M. Remove bearing (175) and separate spur gear (195) spacer (200) and shim (215) from bevel gear (205). Note and record shim (215) thickness to facilitate ASSEMBLY.

NOTE: Do not remove bearing (210) from bevel gear (205) unless necessary for repair or replacement.

N. Remove bolts (255), washers (260), bearing housings (265, 270) and shims (275) from housing assembly (440). Note and record shim (275) thicknesses to facilitate ASSEMBLY

O. Remove bolts (235), washers (240) and cover assembly (230) from housing assembly (440).

P. Remove bolt (400) and washer (405) from arm assembly (415).

Q. Slide splined shaft (410) and bearing (280) out of arm assembly (415) and bearing (435) in housing assembly (440). Remove bearing (435) from housing assembly (440).

NOTE: Do not remove bearing (280) from splined shaft (410) unless necessary for repair or replacement.

R. Remove arm assembly (415) from housing assembly (440).

S. Remove cotter pin (385), washer (395), nut (390), and cam follower (430) from arm assembly (415).

T. Remove bolt (305), washer (310), indicator disc (315), seal (320) and then remove unit consisting of worm gear assembly (325), retainer (355), cam assembly (360), bearings (280, 375) and shim (380) from housing assembly (440). Note and record shim (380) thickness to facilitate ASSEMBLY.

U. Remove bearings (280, 375), cam assembly (360), and retainer (355) from worm gear assembly (325).

NOTE: Do not disassemble worm gear assembly (325) unless necessary for repair or replacement. Refer to REPAIR 26-1 for replacement details.

Do not remove bushing (365) from cam assembly (360) unless necessary for repair or replacement.

V. Remove worm gearshaft (295), spur gear (285), and bearings (280, 300) from housing assembly (440). Remove spur gear (285) and bearing (280) from worm gearshaft (295).

NOTE: Do not remove bearing (300) from worm gearshaft (295) unless necessary for repair or replacement.

W. Remove spur gear (290), bearings (280, 300), and shim (275) from housing assembly (440). Note and record shim (275) thickness to facilitate ASSEMBLY.

NOTE: Do not remove bearing (280, 300) from spur gear (290) unless necessary for repair or replacement.

3. Disassembly of 256T3430-4 (IPL Fig. 2)

A. Cut and remove all lockwire.

B. Remove bolts (100), washers (105), and drain covers (110) from housing assemblies (205, 475).

WARNING: USE EXTREME CARE WHEN REMOVING SPRINGS (5) OR INJURY TO PERSONNEL MAY OCCUR. SPRINGS ARE HEAVILY LOADED.

C. Remove springs (5) from bracket assembly (35) and crank assembly (60).

D. Remove bolts (40), washers (45), and bracket assembly (35) from housing assembly (475).

E. Remove bolt (65), washer (70), nut (75), shim (90), shield (95) and crank assembly (60) from splined shaft (445).

F. Remove bolts (10), washers (15), retainers (25), plain bushings (30) from bracket assembly (35) and crank assembly (60).

NOTE: Do not remove bushings (50) from bracket assembly or bushings (80) from crank assembly (60) unless necessary for repair or replacement.

G. Remove bolts (145), washers (150), and separate housing (155) and bevel gear (175) from housing assembly (205).

H. Remove washers (125) and nuts (120) from bevel gears (175, 180).

I. Remove coupling sleeves (115), coupling halves (130), molded sleeves (135) from bevel gears (175, 180).

J. Remove bevel gear (175) with bearings (160, 170) from housing (155). Remove shim (165). Note and record shim (165) thickness to facilitate ASSEMBLY.

NOTE: Do not remove bearings (160, 170) from bevel gear (175) unless necessary for repair or replacement.

K. Remove bevel gear (180), spur gear (200), bearings (160, 185), spacer (195), and shim (190) from housing assemblies (205, 475). Note and record shim (190) thickness to facilitate ASSEMBLY.

NOTE: Do not remove bearing (185) from bevel gear (180) unless necessary for repair or replacement.

L. Remove bolts (210, 215), washers (220), and housing assembly (205) from cover assembly (255).

M. Remove bolts (290), washers (295), bearing housings (300, 305) and shims (310) from housing assembly (475). Note and record shim (310) thicknesses to facilitate ASSEMBLY.

N. Remove bolts (260), washers (265) and cover assembly (255) from housing assembly (475).

O. Remove bolt (435) and washer (440) from arm assembly (450).

P. Slide splined shaft (445) and bearing (315) out of arm assembly (450) and bearing (470) in housing assembly (475). Remove bearing (470) from housing assembly (475).

NOTE: Do not remove bearing (315) from splined shaft (445) unless necessary for repair or replacement.

Q. Remove arm assembly (450) from housing assembly (475).

R. Remove cotter pin (420), washer (430), nut (425) and cam follower (465) from arm assembly (450).

S. Remove bolt (340), washer (345), indicator disc (350), seal (355) and then remove unit consisting of worm gear assembly (360), cam assembly (395), bearings (315, 410), and shim (415) from housing assembly (475). Note and record shim (415) thickness to facilitate ASSEMBLY.

T. Remove bearings (315, 410), cam assembly (395), retainer (390) from worm gear assembly (360).

NOTE: Do not disassemble worm gear assembly (360) unless necessary for repair or replacement. Refer to Repair 24-1 for replacement details.

Do not remove bushing (400) from cam assembly (405) unless necessary for repair or replacement.

U. Remove worm gearshaft (330), spur gear (320), and bearings (315, 335) from housing assembly (475). Remove bearing (315) and spur gear (320) from worm gearshaft (330).

NOTE: Do not remove bearing (335) from worm gearshaft (330) unless necessary for repair or replacement.

V. Remove spur gear (325), bearings (315, 335) and shim (310) from housing assembly (475). Note and record shim (310) thickness to facilitate ASSEMBLY.

CLEANING

1. Clean all parts except bearings using standard industry practices (Ref 20-30-03).

2. Clean all teflon - sealed bearings (175, 185, 210, 280, 300, 375, 430, 435, IPL Fig. 1; 160, 170, 185, 315, 335, 410, 465, 470, IPL Fig. 2) per manufacture's instructions.

CHECK

1. Check all parts for obvious defects in accordance with standard industry practices. Refer to FITS and CLEARANCES for design dimension and wear limits.

2. Check 256T3430-3 Detail Parts (IPL Fig. 1)

   A. Magnetic particle check per 20-20-01 -- Spring (20), coupling sleeve (130), coupling half (145), shield (155), gear (190, 195, 205, 285, 290), gearshaft (295), shear pin (330), shaft (345), bushing (365), cam (370), shaft (410).

   B. Penetrant check per 20-20-02 -- Retainer (40), bracket (70), crank (100), shield (110), drain cover (125), housing (170), cover (250), bearing housing (265, 270), indicator disc (315), worm gear (350), retainer (355), arm (425), housing (470).

   C. Extend spring (20) to 3.72 in. and check that load is 29.15 - 35.55 lb. Extend spring (20) to 4.15 in. and check that load is 40.75 - 49.75 lb.

3. Check 256T3430-4 Detail Parts (IPL Fig. 2)

   A. Magnetic particle check per 20-20-01 -- Spring (5) coupling sleeve (115), coupling half (130), shield (140), shear pin (365), gear (175, 180, 200), spacer (195), gear (320, 325), gearshaft (330), shaft (380), bushing (400), cam (405), shaft (445).

   B. Penetrant check per 20-20-02 -- Retainer (25), bracket (55), crank (85), shield (95), drain cover (110), housing (240), cover (285), bearing housing (300, 305), indicator disc (350), housing (155), gear (385), retainer (390), arm (460), housing (505).

   C. Extend spring (5) to 3.72 in. and check that load is 29.15 - 35.55 lb. Extend spring (5) to 4.15 in. and check that load is 40.75 - 49.75 lb.

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
256T3414	SHIELD, BEARING	1-1
256T3431	HOUSING	2-1
256T3433	HOUSING	3-1
256T3435	COVER	4-1
256T3437	COVER	5-1
256T3438	HOUSING	6-1
256T3440	HOUSING	7-1
256T3441	HOUSING, BEARING	8-1
256T3442	GEAR, BEVEL	9-1
256T3443	GEAR, BEVEL	10-1
256T3444	GEAR, BEVEL	11-1
256T3445	GEARSHAFT, WORM	12-1
256T3447	GEAR, SPUR	13-1

256T3450	DISC, INDICATOR	14-1
256T3451	SHAFT	15-1
256T3452	SHAFT, SPLINED	16-1
256T3454	SHIELD, BEARING	17-1
256T3456	CRANK	18-1
256T3458	SHEARPIN	19-1
256T3461	PLATE, IDENTIFICATION	20-1
256T3465	BRACKET	21-1
256T3466	CRANK	22-1
256T3468	CAM	23-1
256T3469	GEAR, WORM	24-1
256T3470	BRACKET	25-1
256T3472	GEAR, WORM	26-1
256T3473	SHAFT	27-1
256T3474	CAM	28-1
256T3475	DISC, INDICATOR	29-1
256T3749	COUPLING HALF	30-1
65B81978-3	COVER, DRAIN	31-1
- -	MISC PARTS REFINISH	32-1

2. Standard Practices

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

20-10-01 Repair and Refinish of High Strength Steel Parts
20-10-02 Machining of Alloy Steel
20-10-04 Grinding of Chrome Plated Parts
20-30-02 Stripping of Protective Finishes
20-41-01 Decoding Table for Boeing Finish Codes
20-42-03 Hard Chrome Plating
20-42-05 Bright Cadmium Plating
20-43-01 Chromic Acid Anodizing
20-50-03 Bearing and Bushing Replacement

3. Materials and Equipment

NOTE: Equivalent substitutes may be used.

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

B. Enamel -- BMS 10-60 Gloss BAC 101, Insignia Red (Ref 20-60-02)

C. Corrosion Preventive Compound -- MIL-C-11796 (Ref 20-60-02)

D. Adhesive -- BMS 5-92, Type III (Ref 20-60-04)

E. Bearing Width Checking Fixture -- A27040-1

F. Grease -- MIL-G-23027 (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
⌖	THEORETICAL EXACT POSITION OF A FEATURE (TRUE POSITION)
∅	DIAMETER
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)
Ⓢ	REGARDLESS OF FEATURE SIZE (RFS)
Ⓟ	PROJECTED TOLERANCE ZONE

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 IN RELATION 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 (FULL INDICATOR MOVEMENT)
⌯ | 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 IN RELATION 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

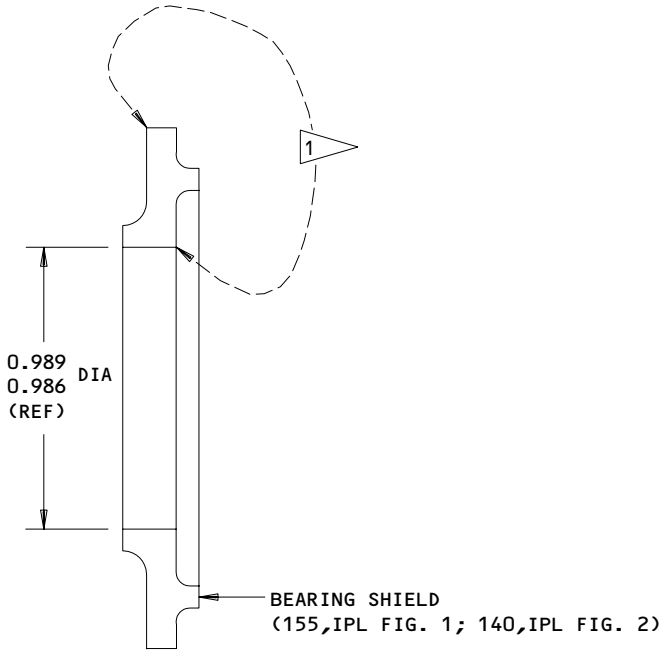
True Position Dimensioning Symbols
Figure 601

BEARING SHIELD - REPAIR 1-1

256T3414-1

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-15.02) ALL OVER.
APPLY ONE COAT OF BMS 10-11, TYPE I
PRIMER (F-20.02) ON SURFACES NOTED BY
1 ONLY

MATERIAL: 4340 STEEL, 125-145 KSI

ALL DIMENSIONS ARE IN INCHES

Bearing Shield - Plating Repair
Figure 601

30906

HOUSING ASSEMBLY - REPAIR 2-1

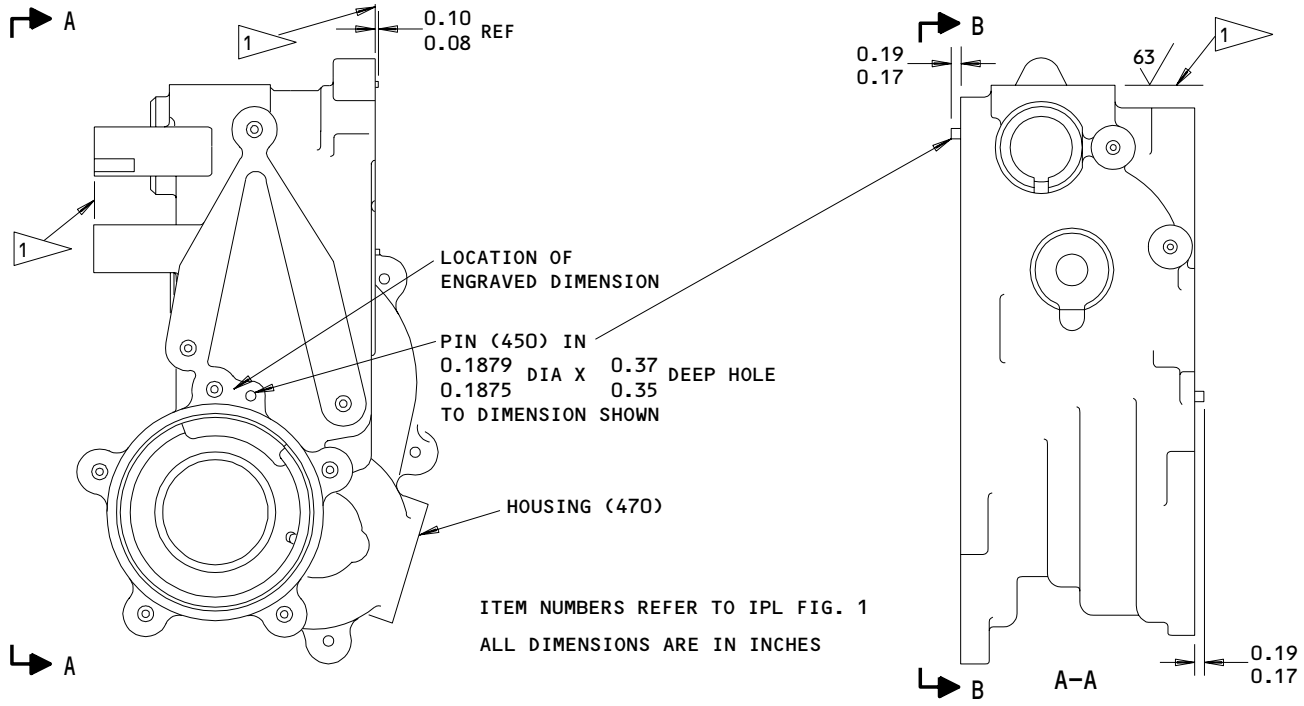
256T3431-1

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

1. Pin Replacement (IPL Fig. 1, Fig. 601)

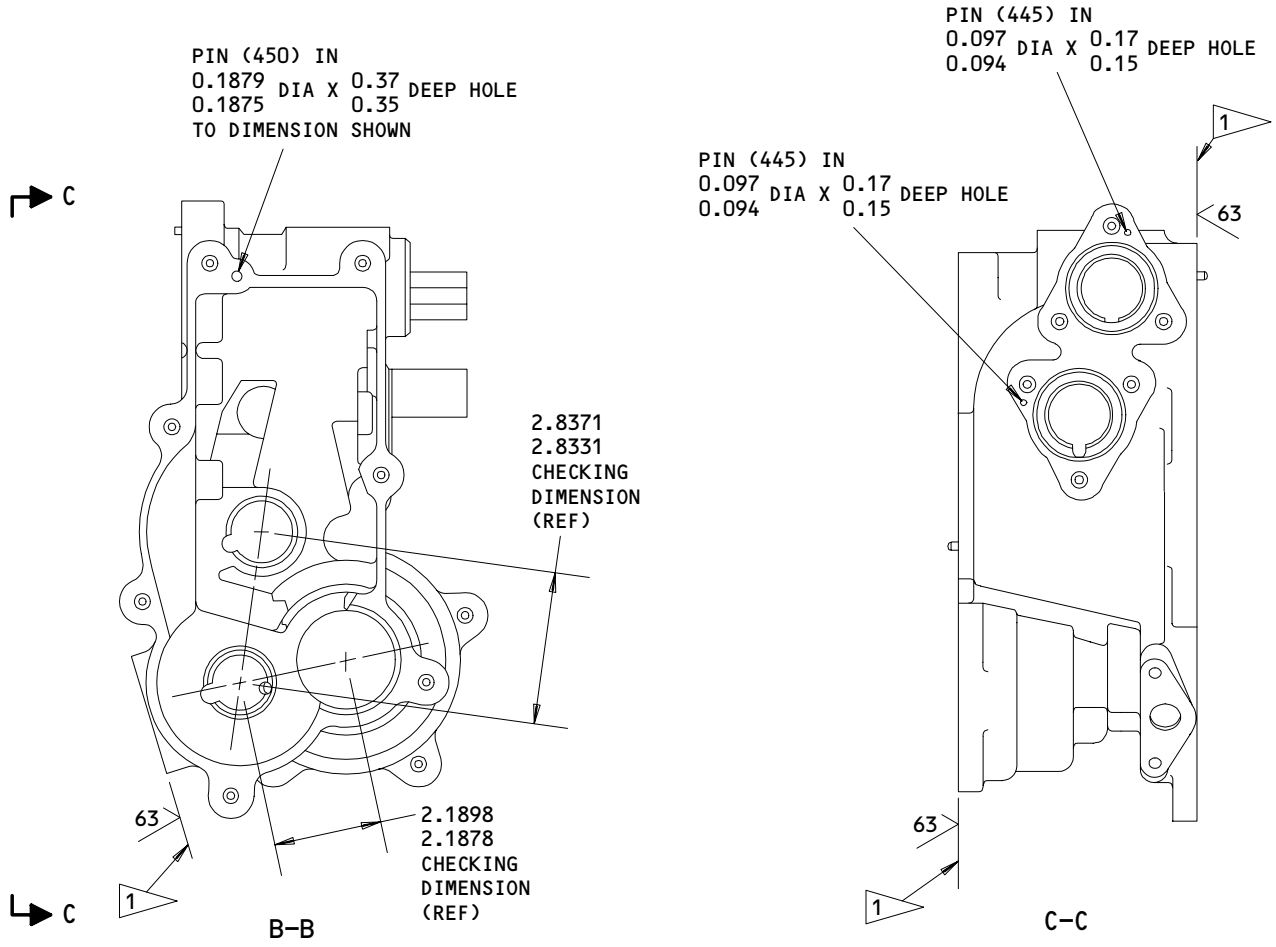
   A. Remove pins (445, 450).

   B. Press in new pins (450) to dimension shown and new pins (445) to seats per 20-50-03 with BMS 10-11, Type 1, primer on all surfaces of holes (F-20.20).



Housing Assembly - Pin Replacement and Refinish
Figure 601 (Sheet 1)

30908



REFINISH

HOUSING (470) -- ANODIZE (F-17.05) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER ON ALL EXTERNAL SURFACES EXCEPT AS NOTED.

1 OMIT PRIMER ON THIS SURFACE

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

256T3431-1

Housing Assembly - Pin Replacement and Refinish
Figure 601 (Sheet 2)

HOUSING ASSEMBLY - REPAIR 3-1

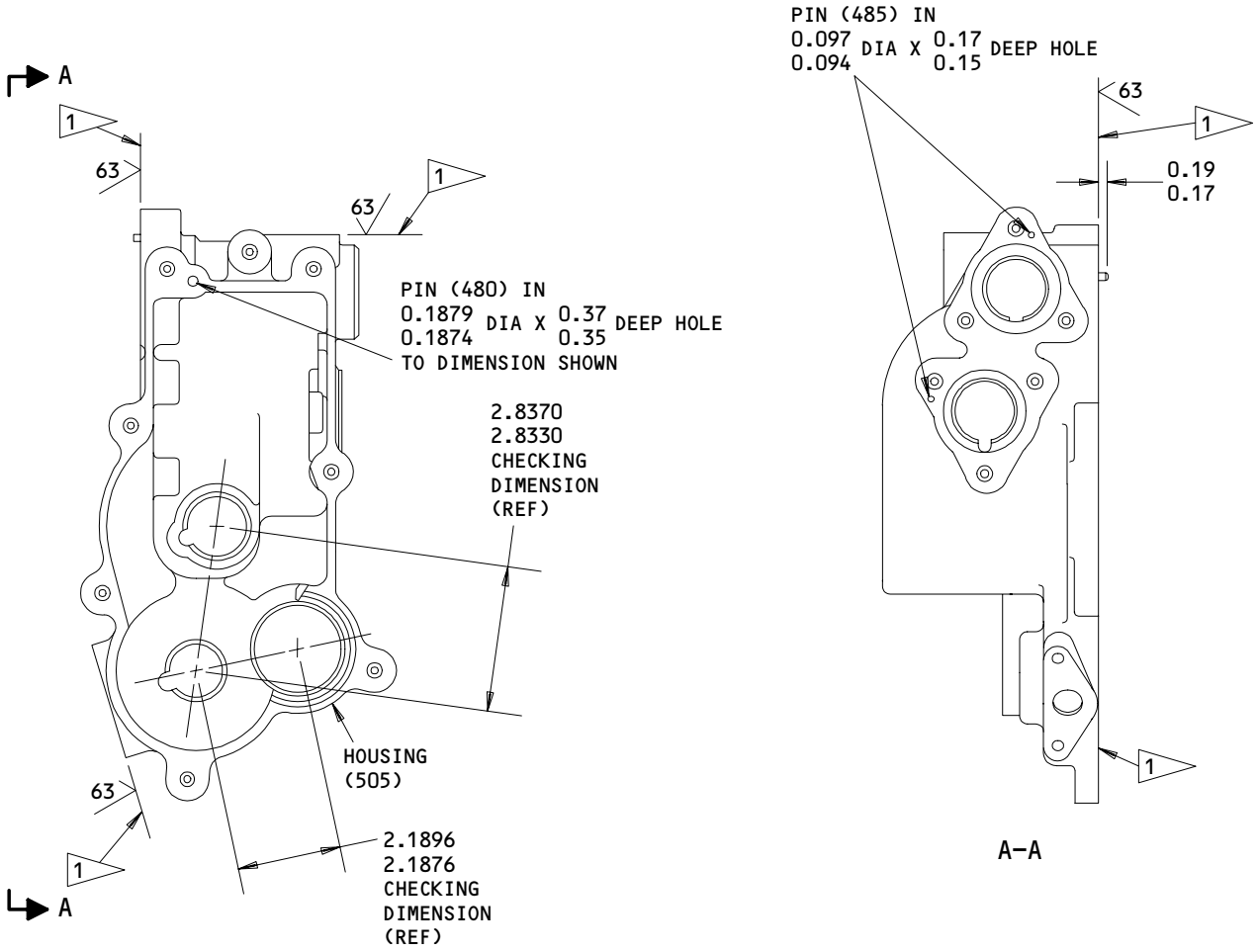
256T3433-1

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

1. Pin Replacement (IPL Fig. 2, Fig. 601)

   A. Remove pins (480, 485).

   B. Press in new pin (480) to dimension shown and new pins (485) to seat per 20-50-03 with BMS 10-11, Type 1 primer on all surfaces of holes (F-20.20).



REFINISH

HOUSING (505) -- ANODIZE (F-17.05) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER (F-20.02) ON ALL EXTERNAL SURFACES EXCEPT AS NOTED.

1 OMIT PRIMER ON THIS SURFACE

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES.

ITEM NUMBERS REFER TO IPL FIG. 2

256T3433-1

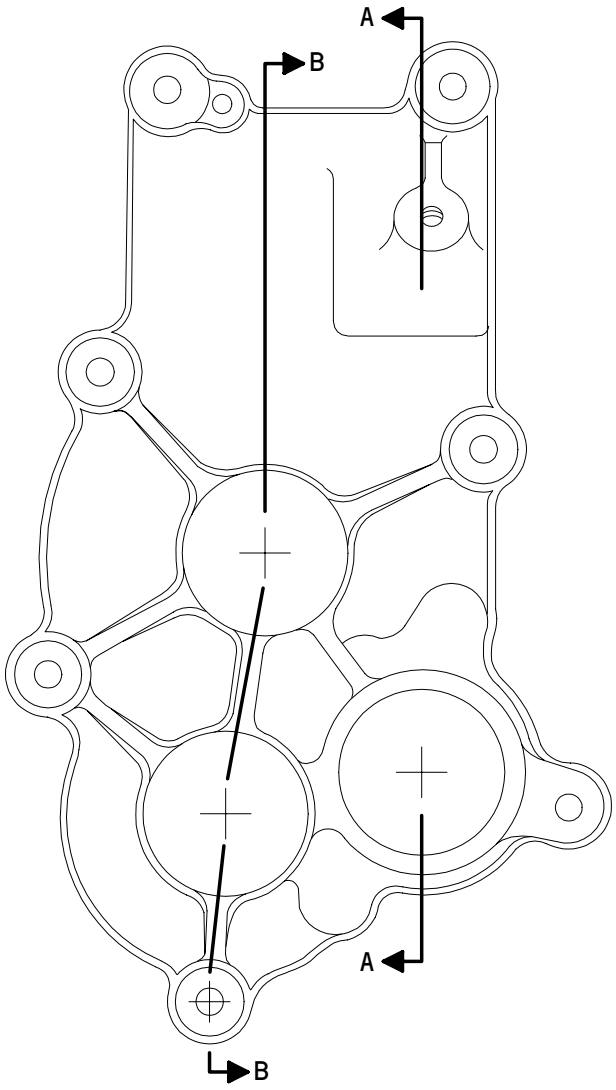
Housing Assembly - Pin Replacement and Refinish
Figure 601

COVER ASSEMBLY - REPAIR 4-1

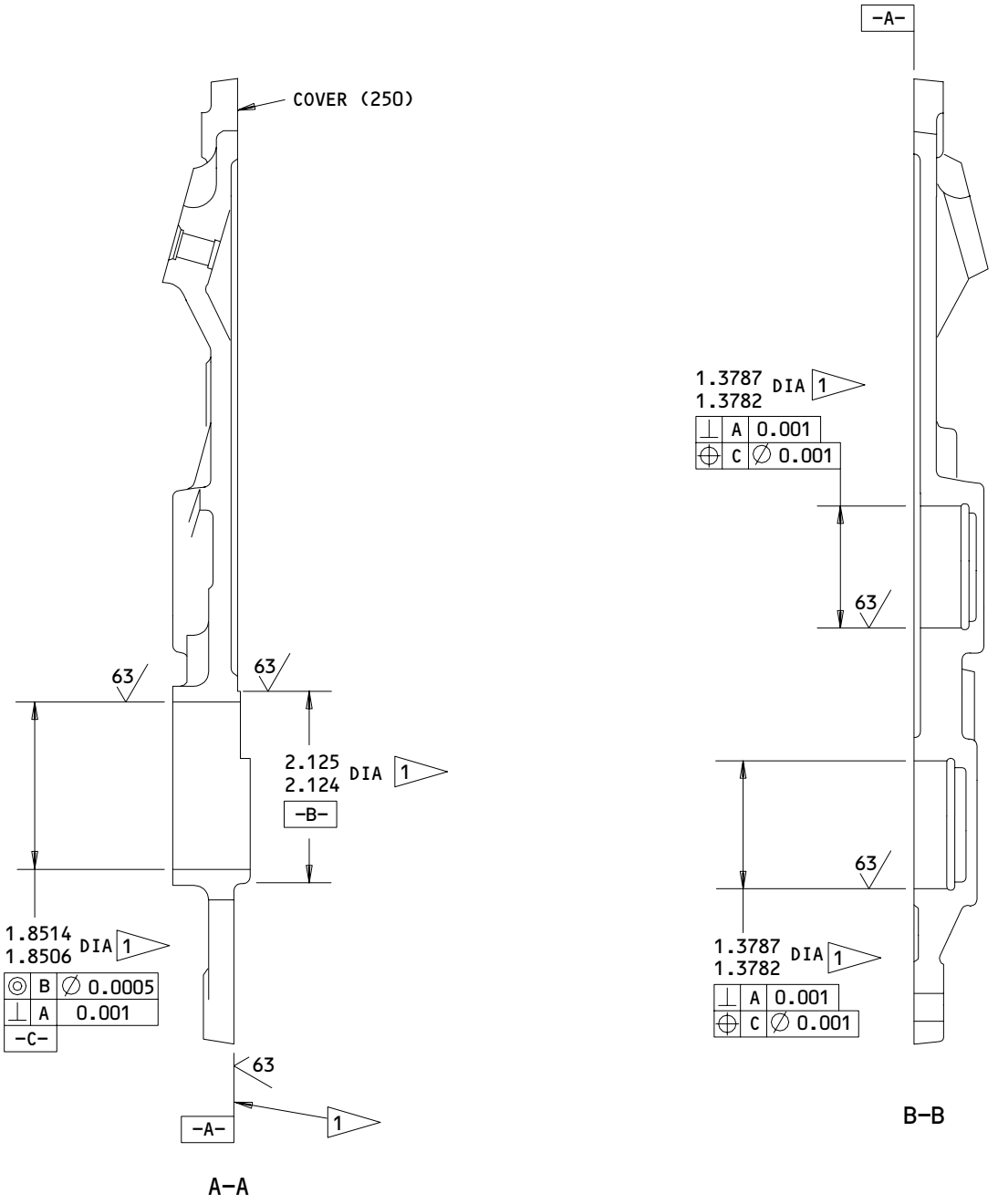
256T3435-1

1. Plating Repair (IPL Fig. 1, Fig. 601)

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



Cover Assembly - Plating Repair
Figure 601 (Sheet 1)



REFINISH

COVER (250) -- ANODIZE (F-17.05) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER (F-20.02) ON ALL EXTERNAL SURFACES EXCEPT FOR ALL HOLES AND SURFACES NOTED.

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

1 OMIT PRIMER ON THIS SURFACE

256T3435-1

Cover Assembly - Plating Repair
Figure 601 (Sheet 2)

30914

COVER ASSEMBLY - REPAIR 5-1

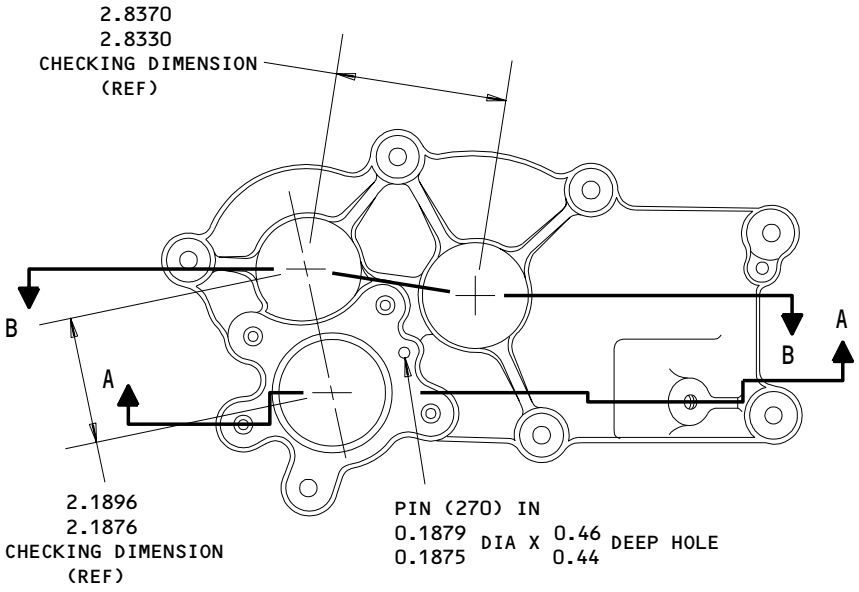
256T3437-1

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

1. Pin Replacement (IPL Fig. 2, Fig. 601)

   A. Remove pin (270).

   B. Press in new pin (270) to dimension per 20-50-03 with wet BMS 10-11, Type 1 primer on hole (F-20.20).

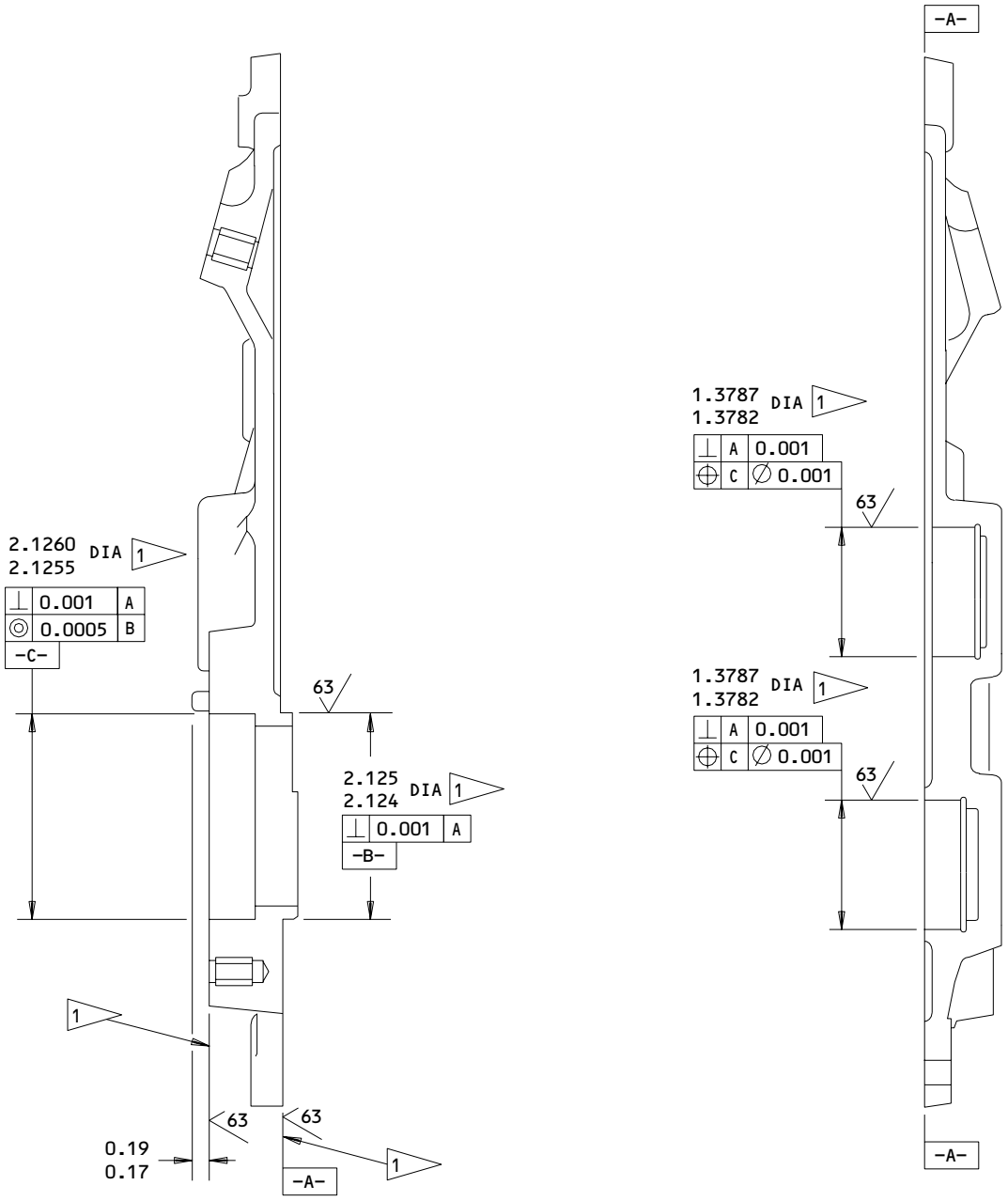


ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

Cover Assembly - Pin Replacement and Refinish
Figure 601 (Sheet 1)

31743



REFINISH

COVER (285) -- ANODIZE (F-17.05) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER (F-20.02) ON ALL EXTERNAL SURFACES EXCEPT FOR ALL HOLES AND SURFACES NOTED

1 OMIT PRIMER ON THIS SURFACE

MATERIAL: AL ALLOY

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

256T3437-1

Cover Assembly - Pin Replacement and Refinish
Figure 601 (Sheet 2)

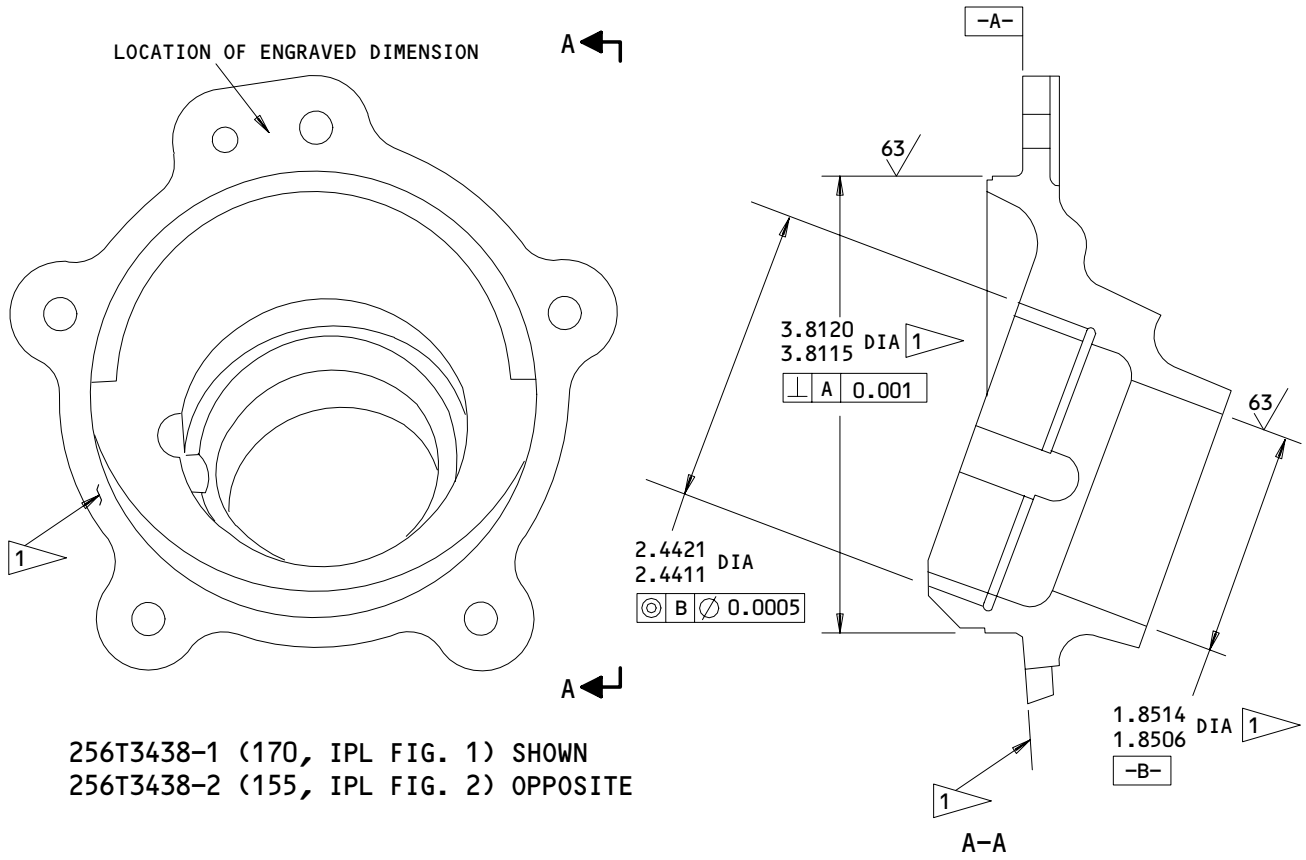
30916

HOUSING - REPAIR 6-1

256T3438-1, -2

1. Plating Repair

NOTE: Repair consists of restoration of original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN fo list of applicable standard practices.



256T3438-1 (170, IPL FIG. 1) SHOWN
256T3438-2 (155, IPL FIG. 2) OPPOSITE

REFINISH

ANODIZE (F-17.05) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER (F-20.02) ON ALL EXTERNAL SURFACES EXCEPT FOR HOLES AND SURFACES NOTED.

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

1 OMIT PRIMER ON THIS SURFACE

Housing - Plating Repair
Figure 601

30917

HOUSING ASSEMBLY - REPAIR 7-1

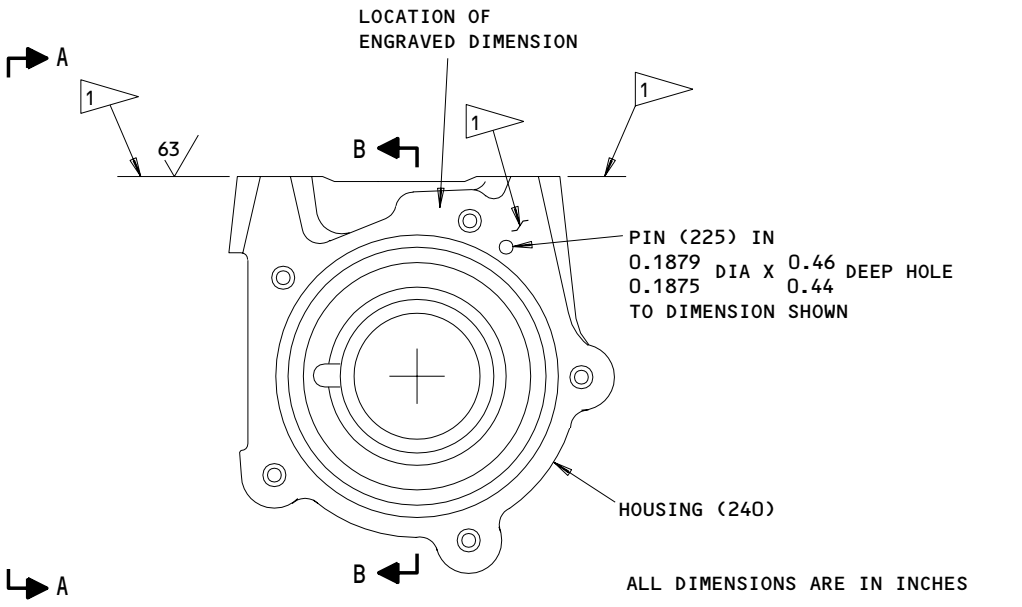
256T3440-1

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

1. Pin Replacement (IPL Fig. 2, Fig. 601)

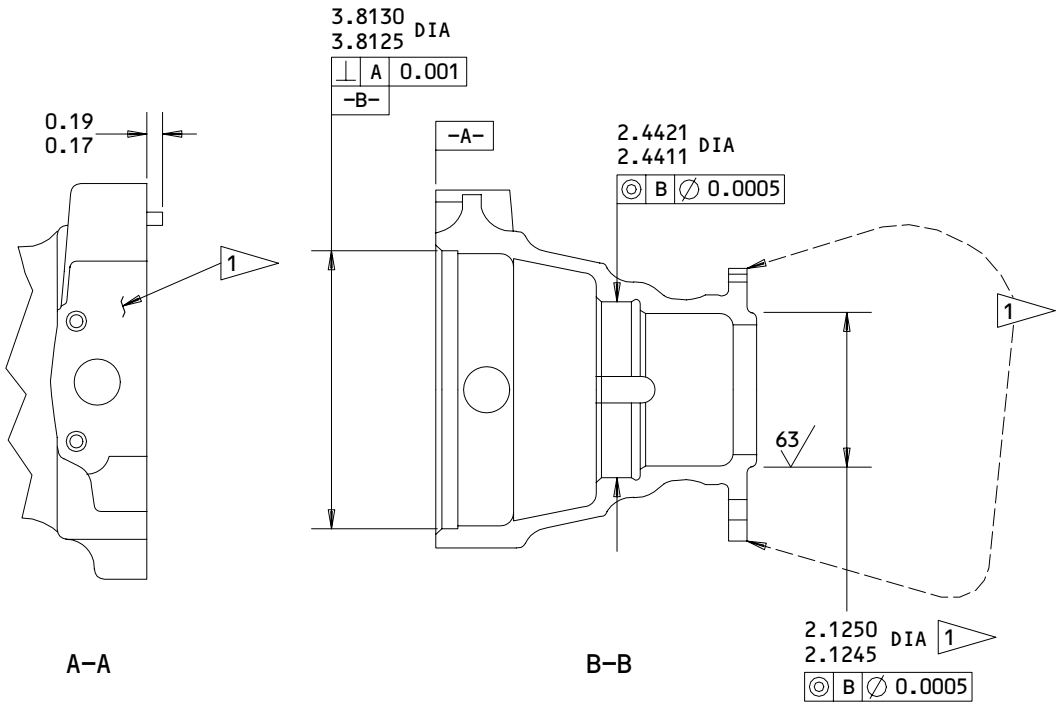
   A. Remove pin (225).

   B. Press in new pin (225) to dimension shown per 20-50-03 with wet BMS 10-11, Type 1 primer on hole (F-20.20).



Housing Assembly - Pin Replacement and Refinish
Figure 601 (Sheet 1)

30920



REFINISH

HOUSING (240) -- ANODIZE (F-17.05) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER ON ALL EXTERIOR SURFACES ONLY EXCEPT FOR ALL HOLES AND SURFACES NOTED.

1 OMIT PRIMER ON THIS SURFACE

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

256T3440-1

Housing Assembly - Pin Replacement and Refinish
Figure 601 (Sheet 2)

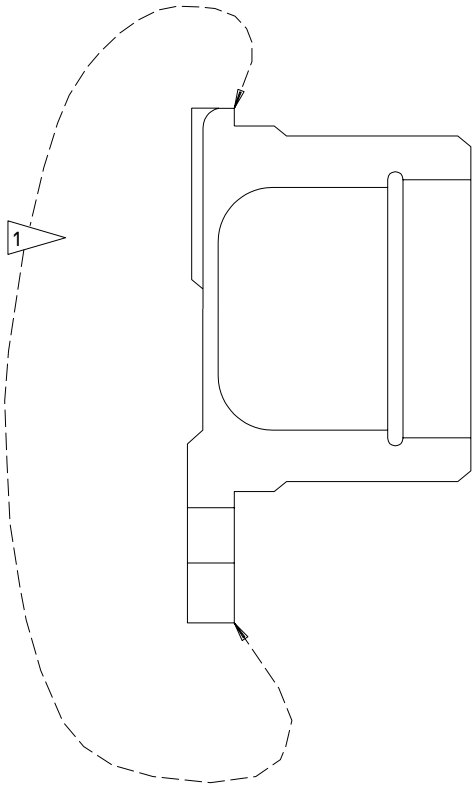
30921

BEARING HOUSING - REPAIR 8-1

256T3441-1, -2

1. Plating Repair

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



REFINISH

ANODIZE (F-17.05) ALL OVER.
APPLY ONE COAT OF BMS 10-11,
TYPE I PRIMER ON SURFACES
INDICATED BY 1 ONLY.

MATERIAL: AL ALLOY

Bearing Housing - Plating Repair
Figure 601

BEVEL GEAR - REPAIR 9-1

256T3442-1

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

1. Bearing Replacement (IPL Fig. 1, Fig. 2; Fig. 601)

   A. Remove bearings (175, 185, IPL Fig. 1; 160, 170, IPL Fig. 2).

   B. If bearing (185 IPL Fig. 1; 170, IPL Fig. 2) is being replaced, measure and record "A" or "C" dimension using bearing width check fixture A27040-1 to facilitate ASSEMBLY (Fig. 705).

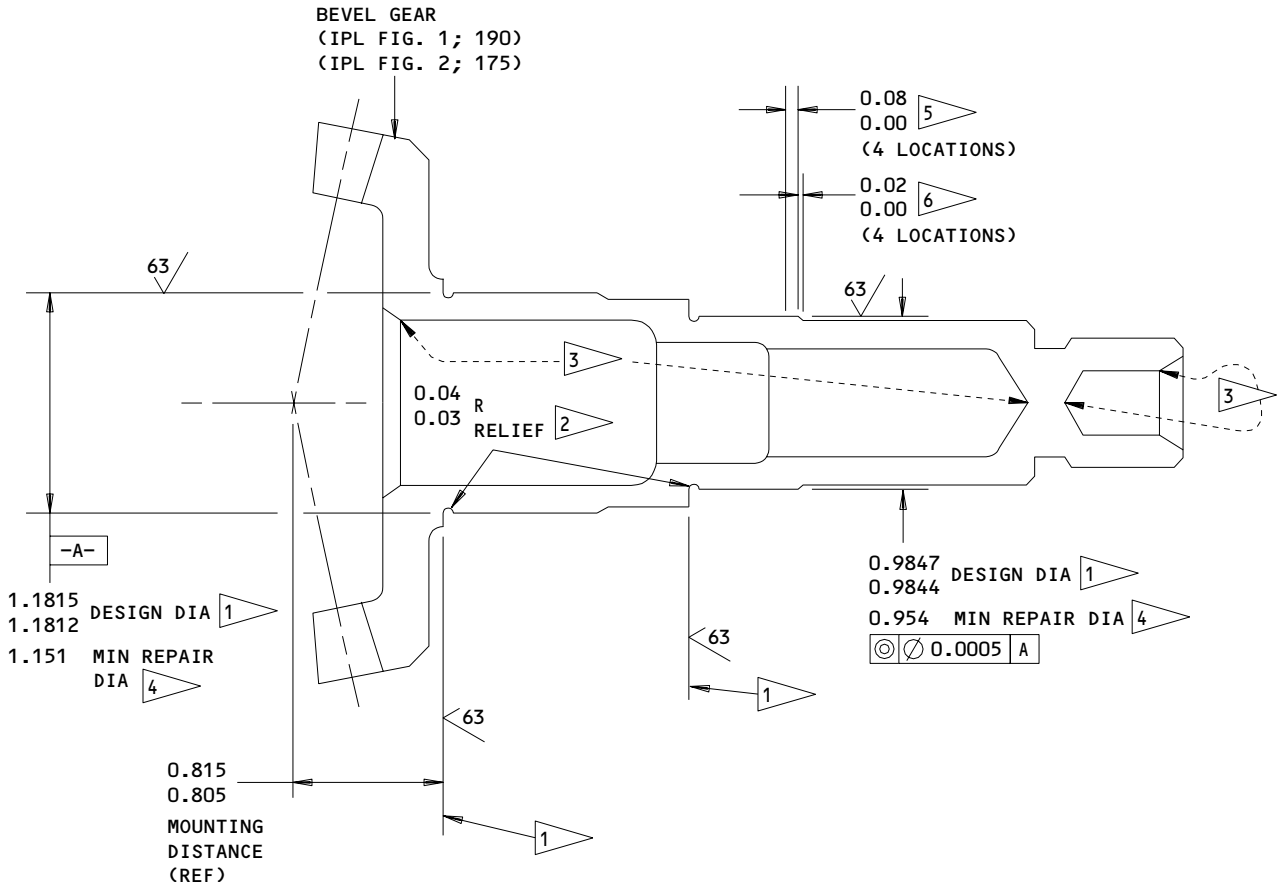
   C. Install new bearing (175, 185; IPL Fig. 1; 160, 170 IPL Fig. 2) per 20-50-03.

2. Bearing Seat Repair (Fig. 601)

   A. Machine bearing seat 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 dimensions and finish shown. Chrome plate not to exceed 0.015 inch after grinding.



REFINISH

BEVEL GEAR (IPL FIG. 1; 190, IPL FIG. 2; 175) -- CADMIUM PLATE (F-15.23) ALL OVER EXCEPT AS NOTED BY 1 AND 2 . ALLOW UNCONTROLLED CADMIUM PLATING IN BORES

1. OMIT CADMIUM PLATING THIS SURFACE
2. CADMIUM PLATING OPTIONAL THIS AREA
3. INTERNAL BORES -- APPLY LIGHT ZINC PHOSPHATE COAT (F-14.14). APPLY TWO COATS OF BMS 10-11, TYPE I PRIMER (F-20.03),AND COAT WITH MIL-C-11796, CLASS 1 CORROSION PREVENTIVE COMPOUND (F-19.03)
4. BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. OBSERVE RUNOUT AT EDGES AND RELIEF GROOVE AS INDICATED
5. PLATING RUNOUT
6. END OF PLATING

REPAIR

REF 4 5 6

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

SHOT PEEN: SHOT NO. 170-460
INTENSITY 0.016A
COVERAGE 2.0

MATERIAL: 9310 STEEL (CARBURIZED TEETH), 150-190 KSI

ALL DIMENSIONS ARE IN INCHES

256T3442-1
Bevel Gear - Bearing Replacement and Refinish
Figure 601

BEVEL GEAR - REPAIR 10-1

256T3443-1

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

1. Bearing Replacement (IPL Fig. 1, Fig. 601)

   A. Remove bearing (210).

   B. Measure and record "B" dimension using bearing width check fixture A27040-1 to facilitate ASSEMBLY (Fig. 705).

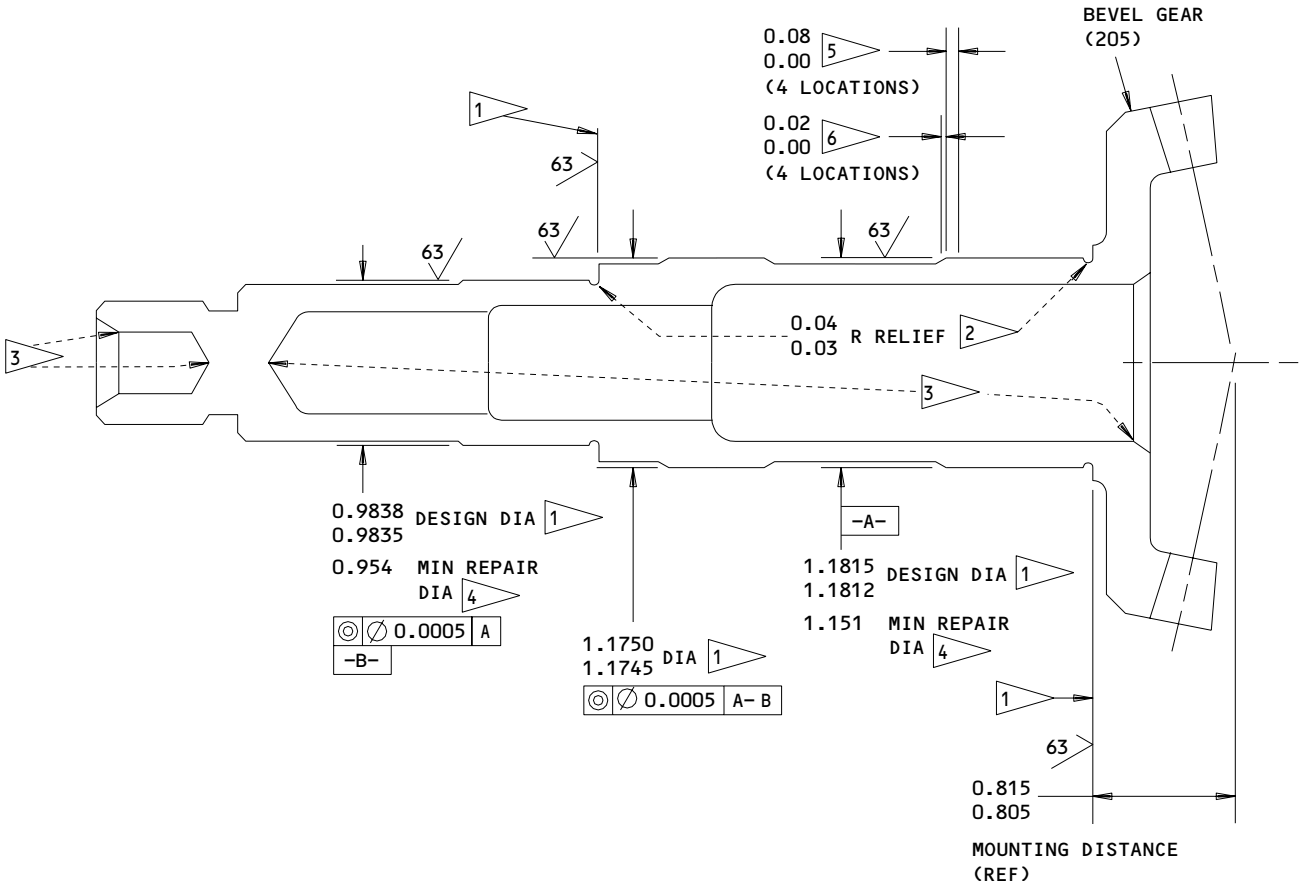
   C. Install new bearing (210) per 20-50-03.

2. Bearing Seat Repair (Fig. 601)

   A. Machine bearing seat 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 dimensions and finish shown. Chrome plate must not exceed 0.015 inch after grinding.



REFINISH

BEVEL GEAR (205) -- CADMIUM PLATE (F-15.23) ALL OVER EXCEPT AS NOTED BY 1 AND 2. ALLOW UNCONTROLLED CADMIUM PLATING IN BORES

1. OMIT CADMIUM PLATING THIS SURFACE
2. CADMIUM PLATING OPTIONAL THIS AREA
3. INTERNAL BORES -- APPLY LIGHT ZINC PHOSPHATE COAT (F-14.14). APPLY TWO COATS OF BMS 10-11, TYPE I PRIMER (F-20.03), AND COAT WITH MIL-C-11796, CLASS 1, CORROSION PREVENTIVE COMPOUND (F-19.03)
4. BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. OBSERVE RUNOUT AT EDGES AND RELIEF GROOVE AS INDICATED
5. PLATING RUNOUT
6. END OF PLATING

REPAIR

REF 4 5 6

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

SHOT PEEN: SHOT NO. 170-460
INTENSITY 0.016A
COVERAGE 2.0

MATERIAL: 9310 STEEL (CARBURIZED TEETH), 150-190 KSI

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256T3443-1
Bevel Gear - Bearing Replacement and Refinish
Figure 601

30924

BEVEL GEAR - REPAIR 11-1

256T3444-1

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

1. Bearing Replacement (IPL Fig. 2, Fig. 601)

   A. Remove bearing (185)

   B. Measure and record "D" dimension using bearing check fixture A27040-1 to facilitate ASSEMBLY.

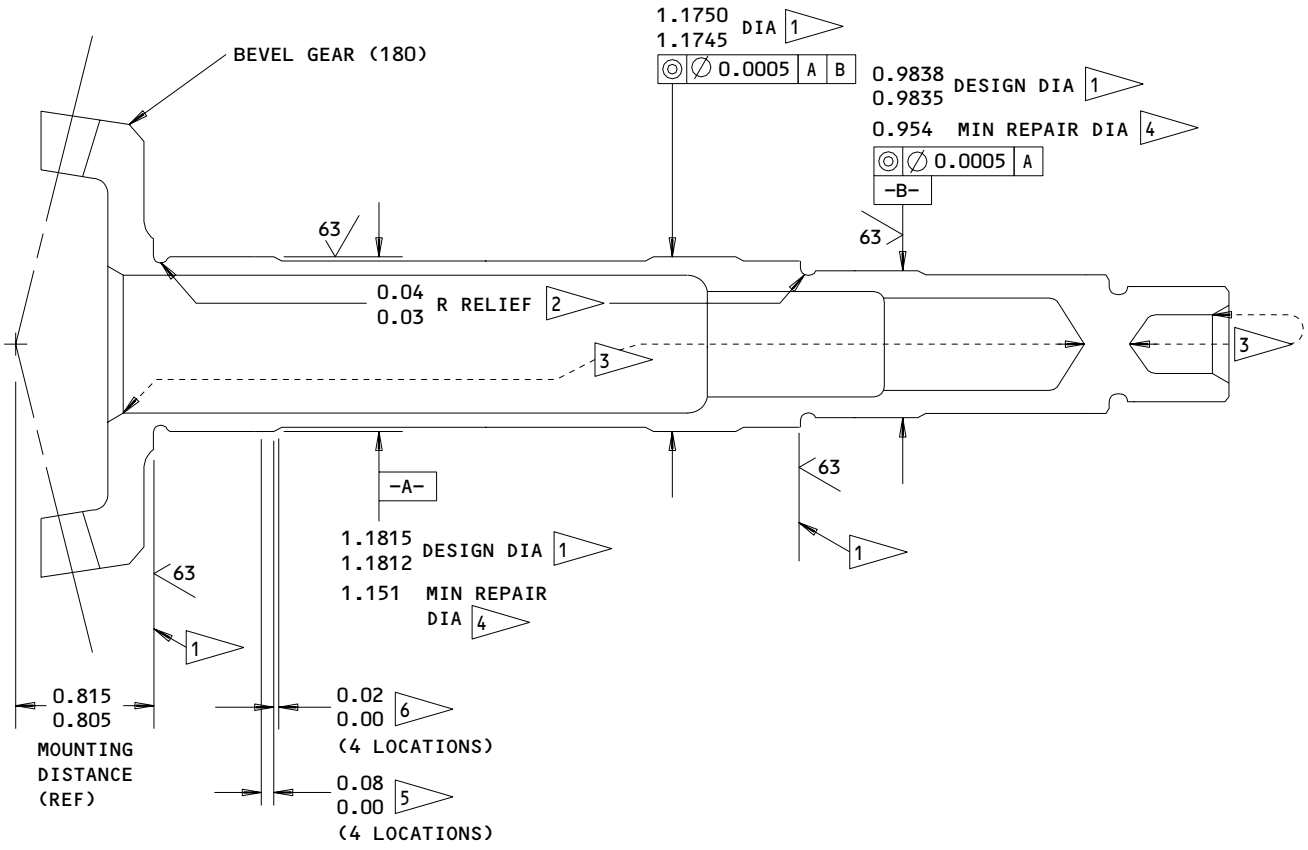
   C. Install new bearing (185) per 20-50-03.

2. Bearing Seat Repair (Fig. 601)

   A. Machine bearing seat 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 dimensions and finish shown. Chrome plate must not exceed 0.015 inch after grinding.



REFINISH

BEVEL GEAR (180) -- CADMIUM PLATE (F-15.23) ALL OVER EXCEPT AS NOTED BY 1 AND 2 . ALLOW UNCONTROLLED CADMIUM PLATING IN BORES.

1. OMIT CADMIUM PLATING THIS SURFACE
2. CADMIUM PLATING OPTIONAL THIS AREA
3. INTERNAL BORES -- APPLY LIGHT ZINC PHOSPHATE COAT (F-14.14). APPLY TWO COATS OF BMS 10-11, TYPE I PRIMER (F-20.03), AND COAT WITH MIL-C-11796, CLASS 1, CORROSION PREVENTIVE COMPOUND (F-19.03)
4. BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. OBSERVE RUNOUT AT EDGES AND RELIEF GROOVE AS INDICATED
5. PLATING RUNOUT
6. END OF PLATING

REPAIR

REF 4 5 6

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

SHOT PEEN: SHOT NO. 170-460
INTENSITY 0.016A
COVERAGE 2.0

MATERIAL: 9310 STEEL (CARBURIZED TEETH), 150-190 KSI

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

256T3444-1
Bevel Gear - Bearing Replacement and Refinish
Figure 601

31341

WORM GEARSHAFT - REPAIR 12-1

256T3445-1

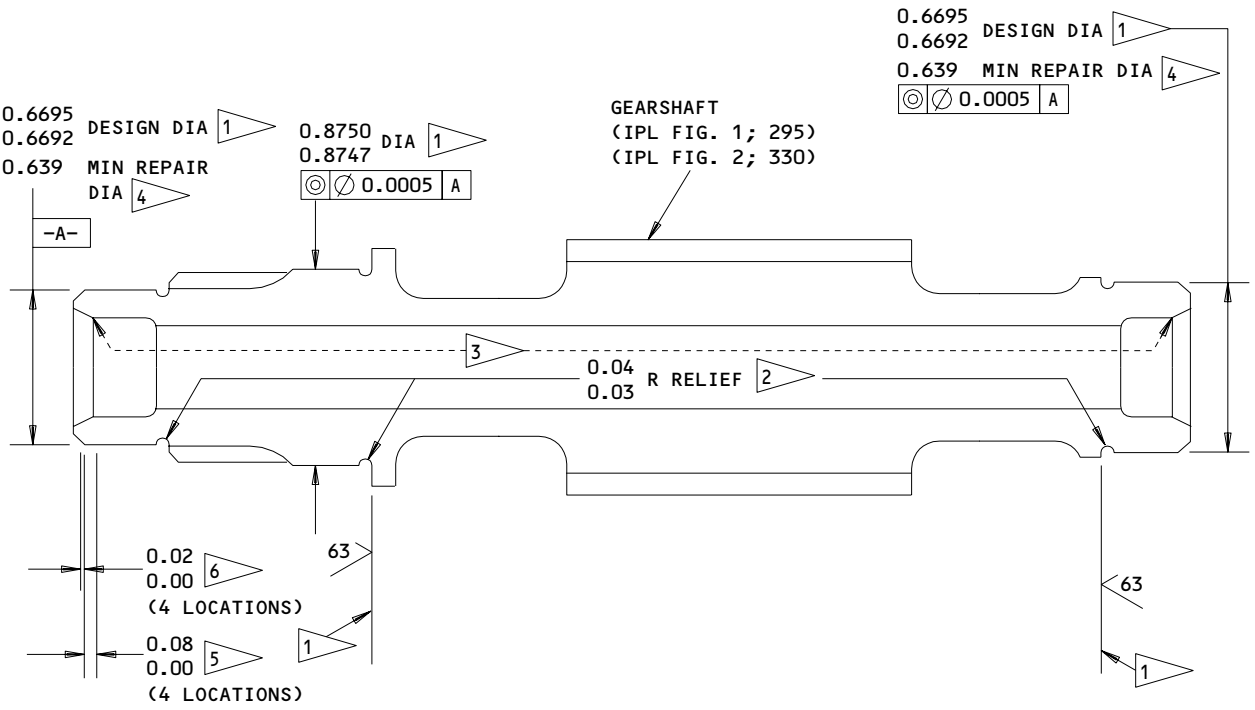
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surface which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Bearing Seat Repair (Fig. 601)

   A. Machine bearing seat 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 dimensions and finish shown. Chrome plate must not exceed 0.015 inch after grinding.



REFINISH

GEARSHAFT (IPL FIG. 1; 295; IPL FIG. 2; 330) -- CADMIUM PLATE (F-15.02) ALL OVER EXCEPT AS NOTED BY 1 AND 2 . ALLOW UNCONTROLLED CADMIUM PLATING IN BORES.

1 OMIT CADMIUM PLATING THIS SURFACE

2 CADMIUM PLATING OPTIONAL THIS AREA

3 INTERNAL BORES -- APPLY LIGHT ZINC PHOSPHATE COAT (F-14.14). APPLY TWO COATS OF BMS 10-11, TYPE I PRIMER (F-20.03), AND COAT WITH MIL-C-11796, CLASS 1, CORROSION PREVENTIVE COMPOUND (F-19.03)

4 BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. OBSERVE RUNOUT AT EDGES AND RELIEF GROOVE AS INDICATED

5 PLATING RUNOUT

6 END OF PLATING

REPAIR

REF 4 5 6

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

SHOT PEEN: SHOT NO. 170-460
INTENSITY 0.016A
COVERAGE 2.0

MATERIAL: 4340 STEEL, 150-170 KSI

ALL DIMENSIONS ARE IN INCHES

256T3445-1
Worm Gearshaft - Repair
Figure 601

31343

SPUR GEAR - REPAIR 13-1

256T3447-1

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

1. Bearing Replacement (IPL Fig. 1, IPL Fig. 2, Fig. 601)

   A. Remove bearings (280, 300, IPL Fig. 1; 315, 335 IPL Fig. 2).

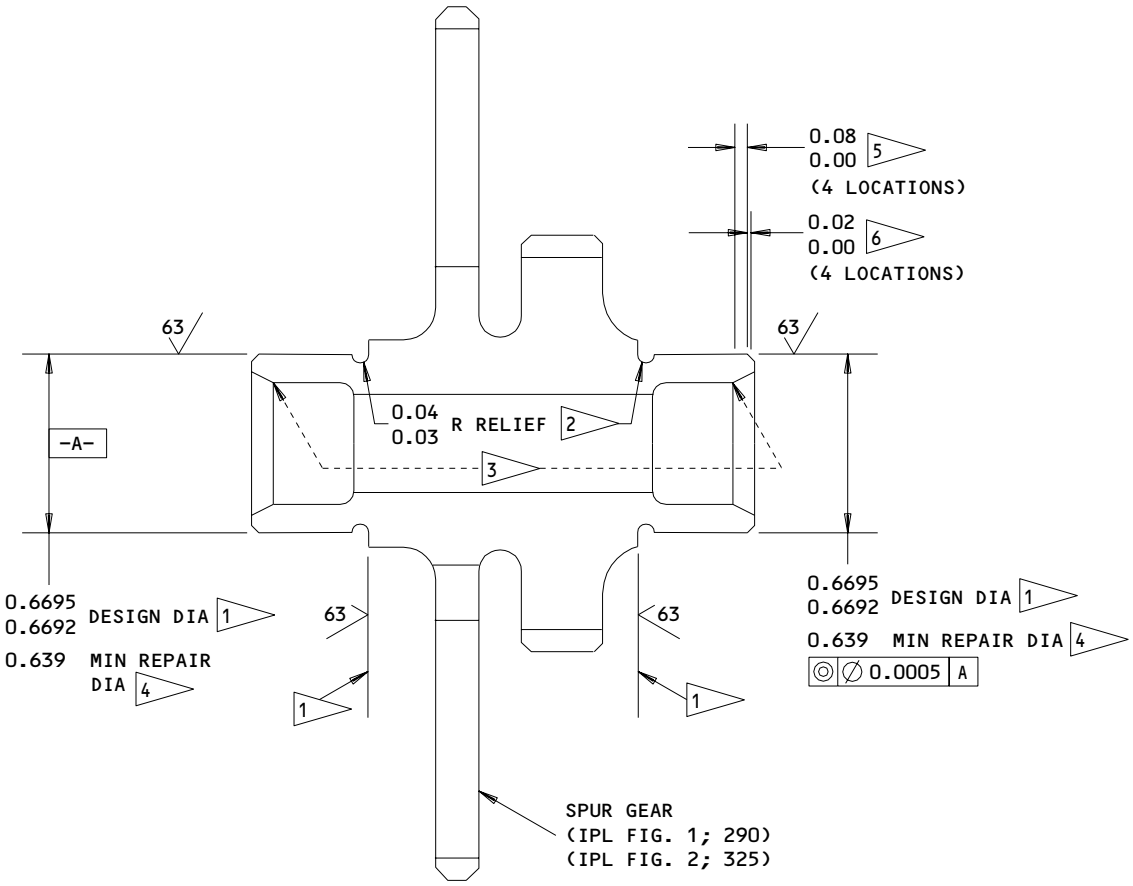
   B. Install new bearing (280, 300, IPL Fig. 1; 315, 335 IPL Fig. 2) per 20-50-03.

2. Bearing Seat Repair (Fig. 601)

   A. Machine bearing seat 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 dimensions and finish shown. Chrome plate must not exceed 0.015 inch after grinding.



REFINISH

SPUR GEAR -- CADMIUM PLATE (F-15.02) ALL OVER EXCEPT AS NOTED BY 1 AND 2. ALLOW UNCONTROLLED CADMIUM PLATING IN BORES.

1. OMIT CADMIUM PLATING THIS SURFACE
2. CADMIUM PLATING OPTIONAL THIS AREA
3. INTERNAL BORES -- APPLY LIGHT ZINC PHOSPHATE COAT (F-14.14). APPLY TWO COATS OF BMS 10-11, TYPE I PRIMER (F-20.03), AND COAT WITH MIL-C-11796, CLASS 1, CORROSION PREVENTIVE COMPOUND (F-19.03)
4. BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. OBSERVE RUNOUT AT EDGES AND RELIEF GROOVE AS INDICATED
5. PLATING RUNOUT
6. END OF PLATING

REPAIR

REF 4 5 6

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

SHOT PEEN: SHOT NO. 170-460
INTENSITY 0.016A
COVERAGE 2.0

MATERIAL: 4340 STEEL, 150-170 KSI

ALL DIMENSIONS ARE IN INCHES

256T3447-1
Spur Gear - Bearing Replacement and Refinish
Figure 601

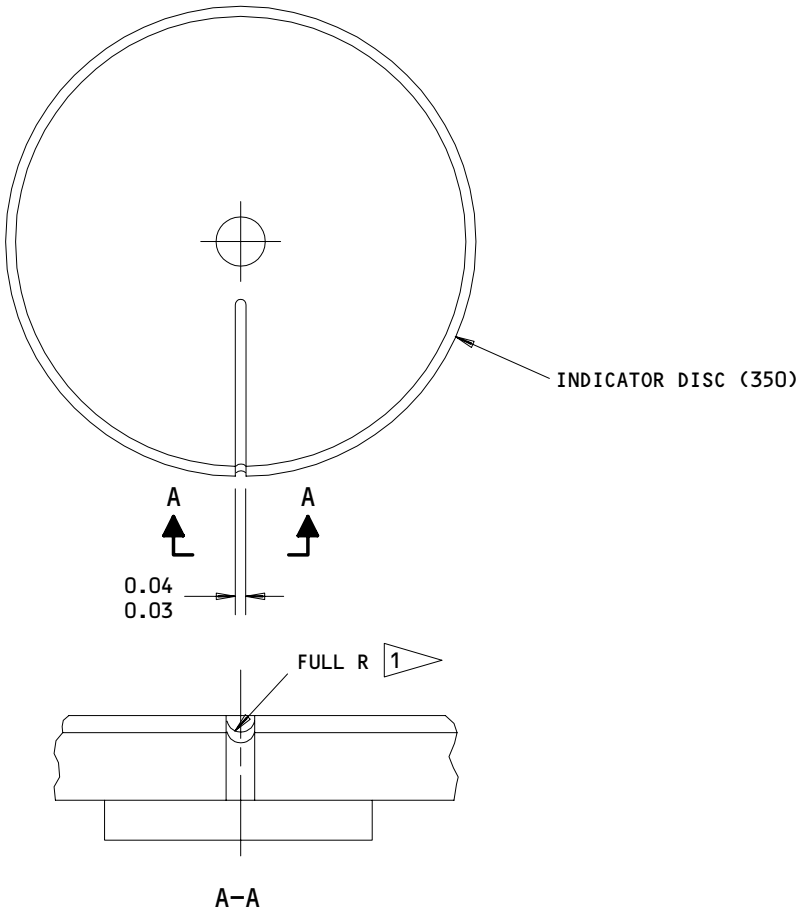
31344

INDICATOR DISC - REPAIR 14-1

256T3450-1

1. Plating Repair

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



REFINISH

ANODIZE (F-17.05) AND APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER (F-20.02) ALL OVER.

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

1 SLOT FINISH -- APPLY BMS 10-60, BAC101 INSIGNIA RED GLOSS ENAMEL (SRF-14.9815-101) OR EQUIVALENT

Indicator Disc - Plating Repair
Figure 601

30931

SHAFT ASSEMBLY - REPAIR 15-1

256T3451-1

1. Plating Repair

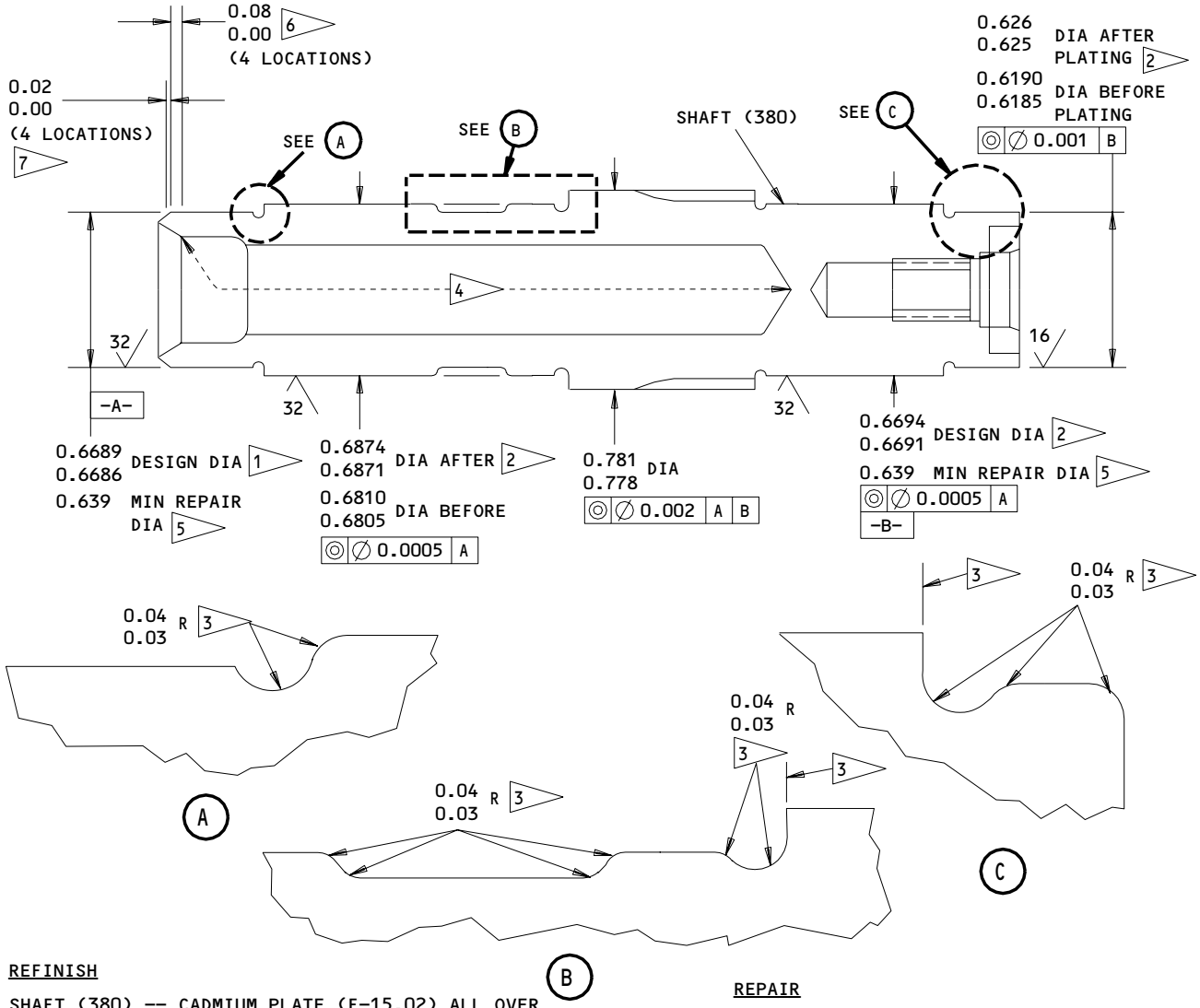
   NOTE: Repair consists of restoration of original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN for list of applicable standard practices.

2. Bearing Seat Repair (IPL Fig. 2, Fig. 601)

   A. Machine bearing seat 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 dimensions and finish shown. Chrome plate must not exceed 0.015 inch after grinding.



REFINISH

SHAFT (380) -- CADMIUM PLATE (F-15.02) ALL OVER EXCEPT AS NOTED BY 1, 2, AND 3. ALLOW UNCONTROLLED CADMIUM PLATING IN BORES.

1. NO FINISH (F-25.01) THIS SURFACE.
2. CHROMIUM PLATE (F-15.03) SINGLE PLATE THICKNESS (0.003 MINIMUM) AFTER GRINDING.
3. CHROMIUM PLATING RUNOUT AREA.
4. INTERNAL BORES -- APPLY LIGHT ZINC PHOSPHATE COAT (F-14.14). APPLY TWO COATS OF BMS 10-11, TYPE I PRIMER (F-20.03), AND COAT WITH MIL-C-11796, CLASS 1, CORROSION PREVENTIVE COMPOUND (F-19.03)
5. BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. OBSERVE RUNOUT AT EDGES AND RELIEF GROOVE AS INDICATED

REPAIR

REF 5 6 7

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

SHOT PEEN: SHOT NO. 170-460
INTENSITY 0.016A
COVERAGE 2.0

MATERIAL: 4340 STEEL, 150-170 KSI

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

6. PLATING RUNOUT
7. END OF PLATING

256T3451-1
Shaft Assembly - Plating Repair
Figure 601

SPLINED SHAFT - REPAIR 16-1

256T3452-1, -2

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

1. Bearing Replacement (Fig. 601)

   A. Remove bearing (280 IPL Fig. 1; 315 IPL Fig. 2).

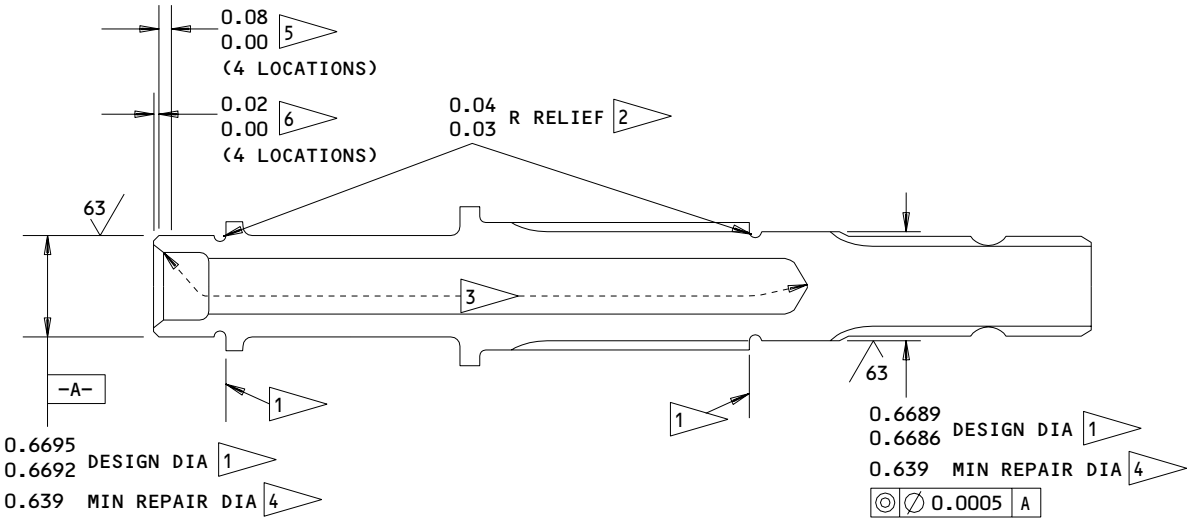
   B. Install new bearing (280 IPL Fig. 1; 315 IPL Fig. 2) per 20-50-03.

2. Bearing Seat Repair (Fig. 601)

   A. Machine bearing seat 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 dimensions and finish shown. Chrome plate must not exceed 0.015 inch after grinding.



REFINISH

SPLINED SHAFT (410 IPL FIG. 1, 445 IPL FIG. 2) CADMIUM PLATE (F-15.02) ALL OVER EXCEPT AS NOTED BY 1 AND 2 . ALLOW UNCONTROLLED CADMIUM PLATING IN BORES

1 OMIT CADMIUM PLATING THIS SURFACE

2 CADMIUM PLATING IS OPTIONAL THIS SURFACE

3 INTERNAL BORES -- APPLY LIGHT ZINC PHOSPHATE COAT (F-14.14). APPLY TWO COATS OF BMS 10-11, TYPE I PRIMER (F-20.03), AND COAT WITH MIL-C-11796, CLASS 1, CORROSION PREVENTIVE COMPOUND (F-19.03)

4 BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. OBSERVE RUNOUT AT EDGES AND RELIEF GROOVE AS INDICATED

5 PLATING RUNOUT

6 END OF PLATING

REPAIR

REF 4 5 6

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

SHOT PEEN: SHOT NO. 170-460
INTENSITY 0.016A
COVERAGE 2.0

MATERIAL: 4340 STEEL, 150-170 KSI

ALL DIMENSIONS ARE IN INCHES

256T3452-1,-2
Splined Shaft - Bearing Replacement and Refinish
Figure 601

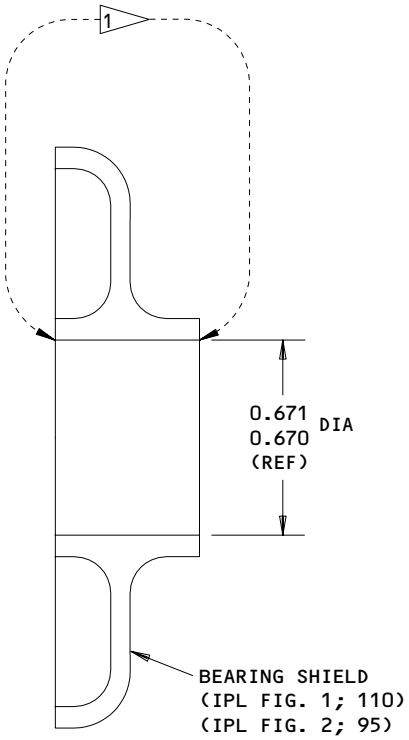
30933

BEARING SHIELD - REPAIR 17-1

256T3454-1

1. Plating Repair

NOTE: Repair consists of resotration of original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

ANODIZE (F-17.05) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE 1 PRIMER (F-20.02) IN SURFACES NOTED BY 1

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

Bearing Shield - Plating Repair
Figure 601

CRANK ASSEMBLY - REPAIR 18-1

256T3456-1

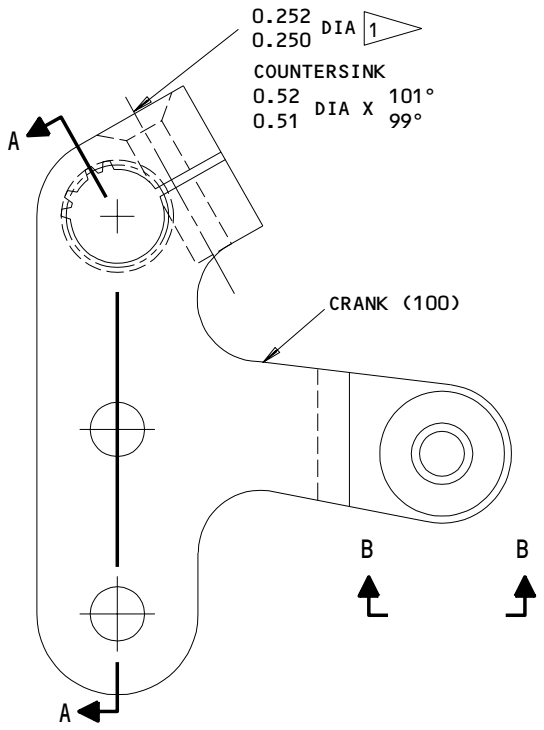
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surface which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Bushing Replacement (IPL Fig. 1, Fig. 601)

   A. Remove bushings (95).

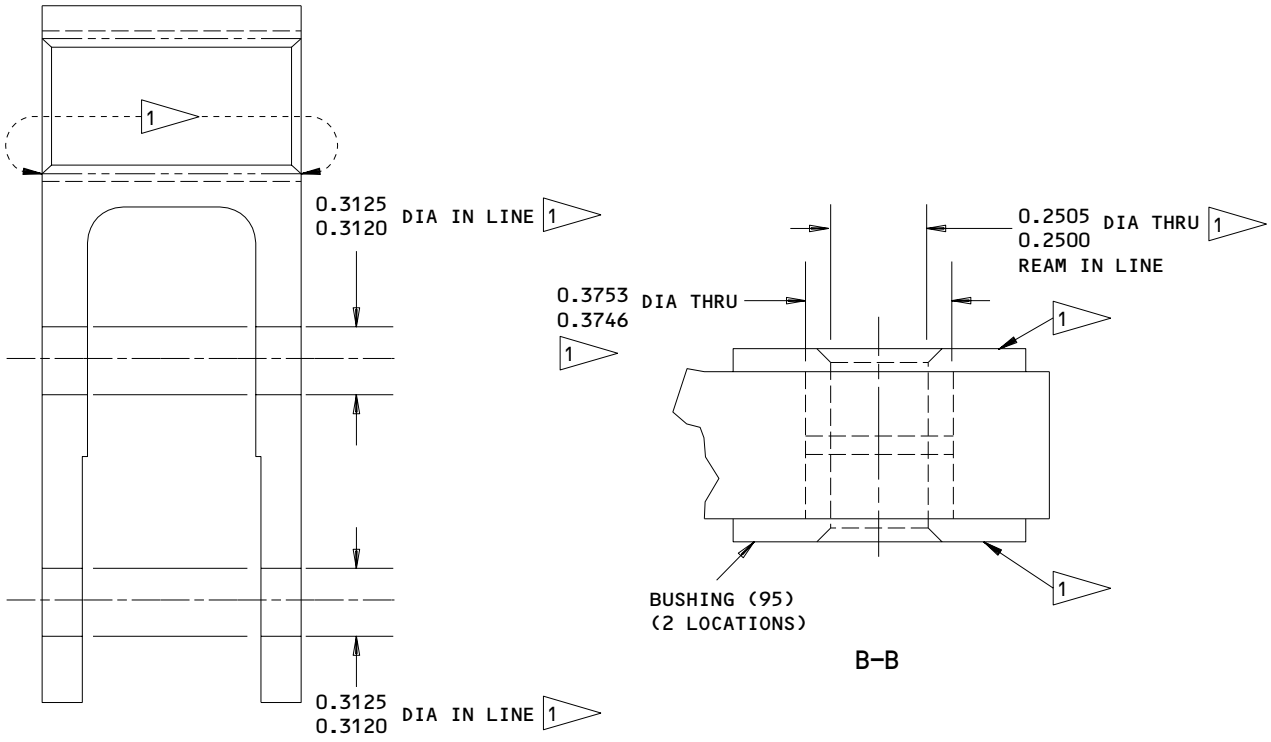
   B. Press in new bushings (95) per 20-50-03.

   C. Machine bushings to dimension shown.



Crank Assembly - Bushing Replacement and Refinish
Figure 601 (Sheet 1)

31230



REFINISH

CRANK (100) -- ANODIZE (F-17.05) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE I, PRIMER (F-20.02) EXCEPT AS NOTED.

1 OMIT PRIMER THIS SURFACE

MATERIAL: AL ALLOY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256T3456-1

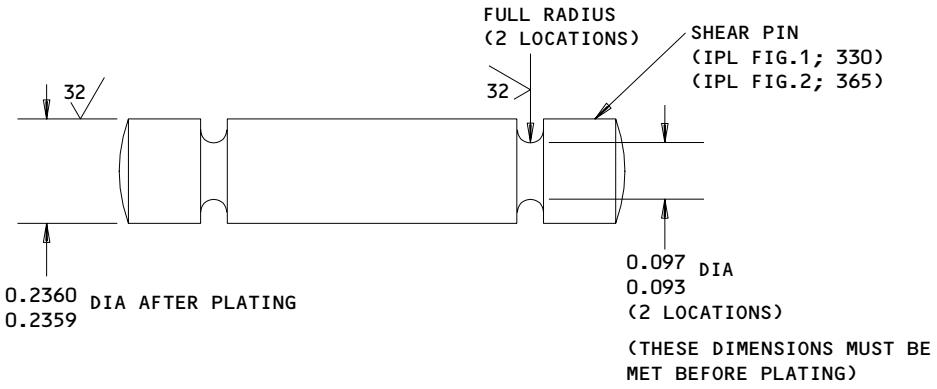
Crank Assembly - Bushing Replacement and Refinish
Figure 601 (Sheet 2)

SHEARPIN - REPAIR 19-1

256T3458-1

1. Plating Repair

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



REFINISH

CADMIUM PLATE (F-15.23) ALL OVER

MATERIAL: 4340 STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

256T3458-1
Shearpin - Plating Repair
Figure 601

31234

IDENTIFICATION PLATE - REPAIR 20-1

256T3461-1

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

1. Plate Replacement

   A. Remove plate (475, IPL fig. 1; 510 IPL Fig. 2).

   B. Steel stamp date of manufacture, serial number, and assembly number on new plate per 20-50-10.

   C. Bend to conform to housing contour where applicable.

   D. Bond in location with BMS 5-92, Type III per 20-50-12.

BRACKET ASSEMBLY - REPAIR 21-1

256T3465-1

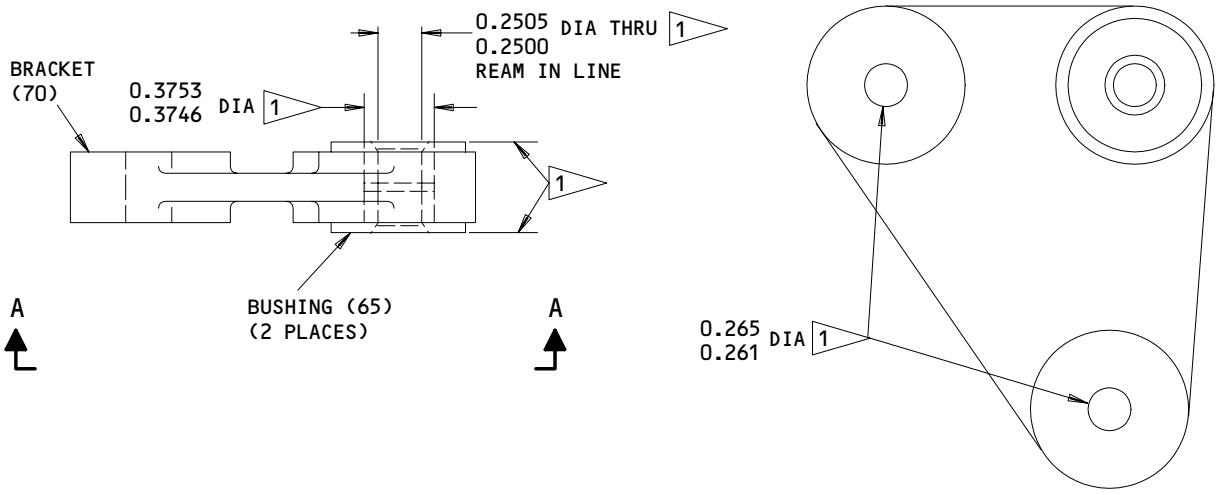
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surface which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Bushing Replacement (IPL Fig. 1, Fig. 601)

   A. Remove bushings (65).

   B. Press in new bushings (65) per 20-50-03.

   C. Ream bushings (65) in line to dimension.



REFINISH

BRACKET (70) -- ANODIZE (F-17.05) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER (F-20.02) EXCEPT AS NOTED

1 OMIT PRIMER THIS SURFACE

A-A

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

Bracket Assembly - Bushing Replacement and Refinish
Figure 601

31236

CRANK ASSEMBLY - REPAIR 22-1

256T3466-1

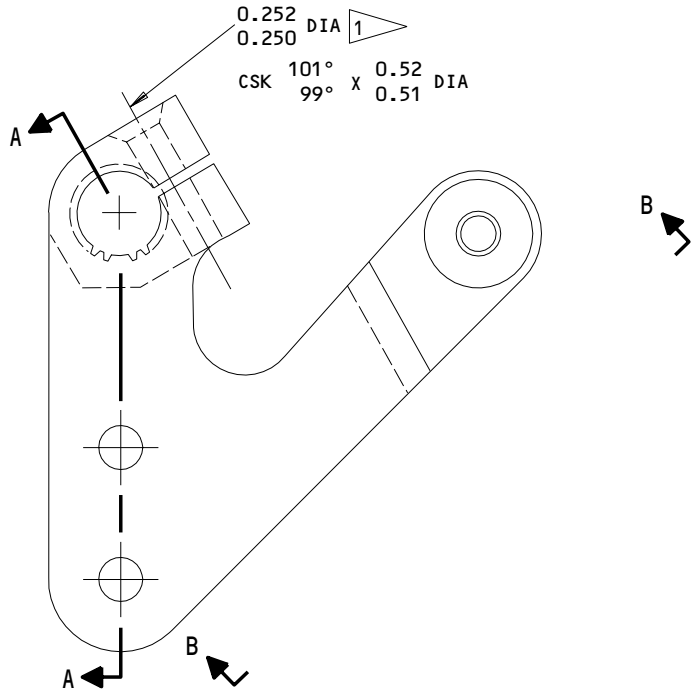
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surface which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Bushing Replacement (IPL fig. 2, Fig. 601)

   A. Remove bushings (80).

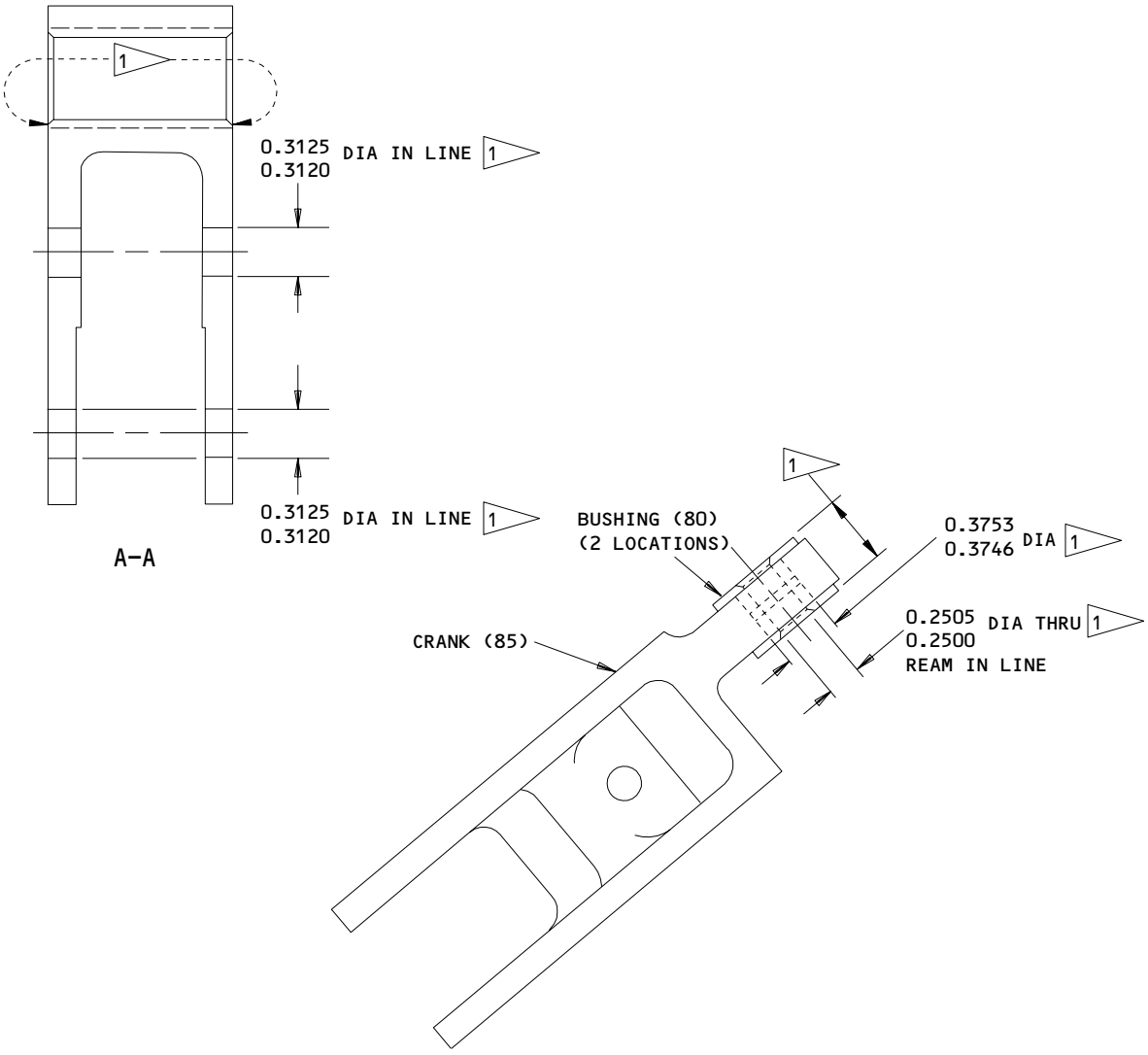
   B. Press in new bushings (80) per 20-50-03.

   C. Ream bushings (80) in line to dimension.



Crank Assembly - Bushing Replacement and Refinish
Figure 601 (Sheet 1)

31237



REFINISH

CRANK (85) -- ANODIZE (F-17.05) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER (F-20.02) EXCEPT AS NOTED

1 OMIT PRIMER THIS SURFACE

MATERIAL: AL ALLOY

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

256T3466-1
Crank Assembly - Bushing Replacement and Refinish
Figure 601 (Sheet 2)

31241

CAM ASSEMBLY - REPAIR 23-1

256T3468-1

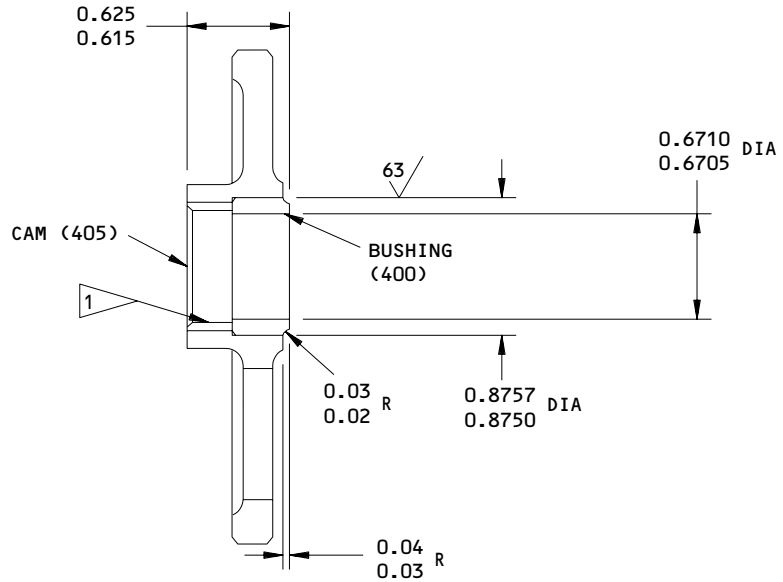
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surface which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Bushing Replacement (IPL fig. 2, Fig. 601)

   A. Remove bushing (400).

   B. Press in new bushing (400) per 20-50-03 to shoulder inside cam (405).

   C. Machine bushing to dimension.



REFINISH

CAM (405) -- PASSIVATE (F-17.09) ALL OVER EXCEPT AS NOTED

1 CADMIUM PLATE (F-15.06) ON SPLINE SURFACES

MATERIAL: 15-5 PH CRES, 180-200 KSI

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

256T3468-1
Cam Assembly - Bushing Replacement and Refinish
Figure 601

31243

WORM GEAR ASSEMBLY - REPAIR 24-1

256T3469-1

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

1. Shearpin Replacement (IPL Fig. 2, Fig. 601)

   A. Remove shearpin (365).

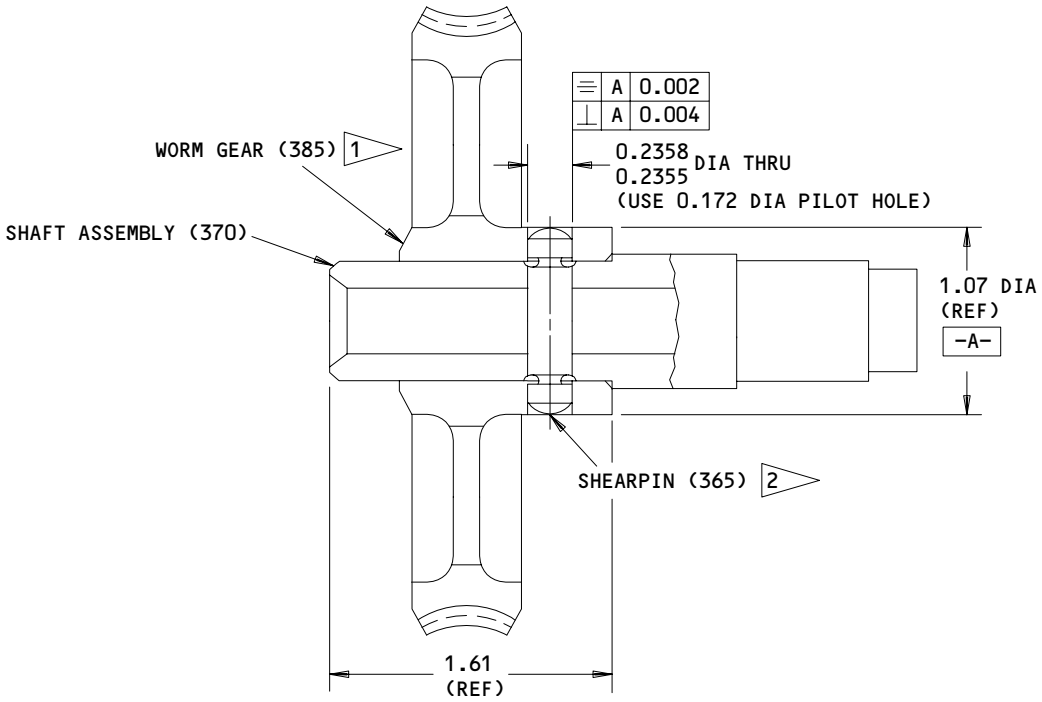
   B. Separate shaft assembly (370) from worm gear (385).

   C. Coat bore of worm gear (385) and OD of shaft assembly (370) and fill groove around shaft assembly (370) with MIL-G-23827 grease before assembly.

   D. Install worm gear (385) flush against shoulder of shaft assembly (370) and align shearpin (365) holes. If the shaft assembly (370) or worm gear (385) is being replaced, drill and ream 0.2355-0.2358 inch diameter hole thru shaft assembly and worm gear using 0.172 inch pilot hole or existing hole of worm gear (385).

   E. Heat assembled worm gear (385) and shaft assembly (370) to 290-310°F for one hour, coat OD and grooves of shearpin (365) with MIL-G-23827 grease, and press in shearpin (365) flush with 1.07 inch diameter as shown while assembly is hot.

      NOTE: The heating is to reduce interference fit.



1 FLUSH AGAINST SHOULDER OF SHAFT ASSEMBLY (370)

2 FLUSH WITH 1.07 DIA

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

256T3469-1

Worm Gearbox Assembly - Replacement Details
Figure 601

31245

BRACKET ASSEMBLY - REPAIR 25-1

256T3470-1

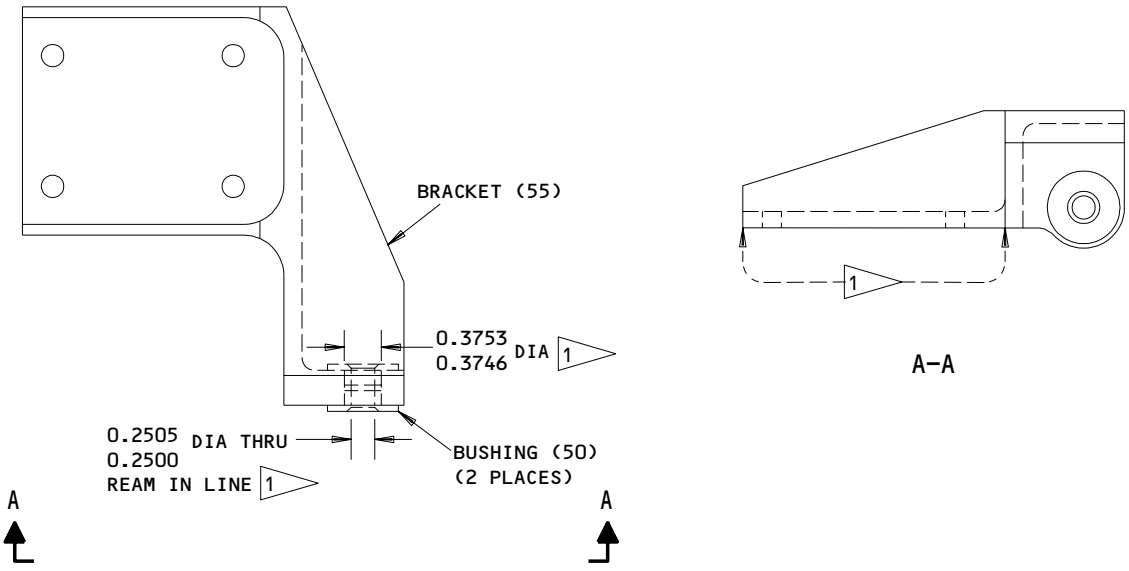
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surface which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Bushing Replacement (IPL Fig. 2, Fig. 601)

   A. Remove bushings (50).

   B. Press in new bushings (50) per 20-50-03.

   C. Drill and ream ID of bushings (50) in line to dimension shown.



REFINISH

BRACKET (55) -- ANODIZE (F-17.05) ALL OVER
APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER
(F-20.02) EXCEPT AS NOTED

1 OMIT PRIMER THIS SURFACE

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

Bracket Assembly - Bushing Replacement and Refinish
Figure 601

31242

WORM GEAR ASSEMBLY - REPAIR 26-1

256T3472-1

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

1. Shearpin Replacement (IPL Fig. 1, Fig. 601)

   A. Remove shearpin (330).

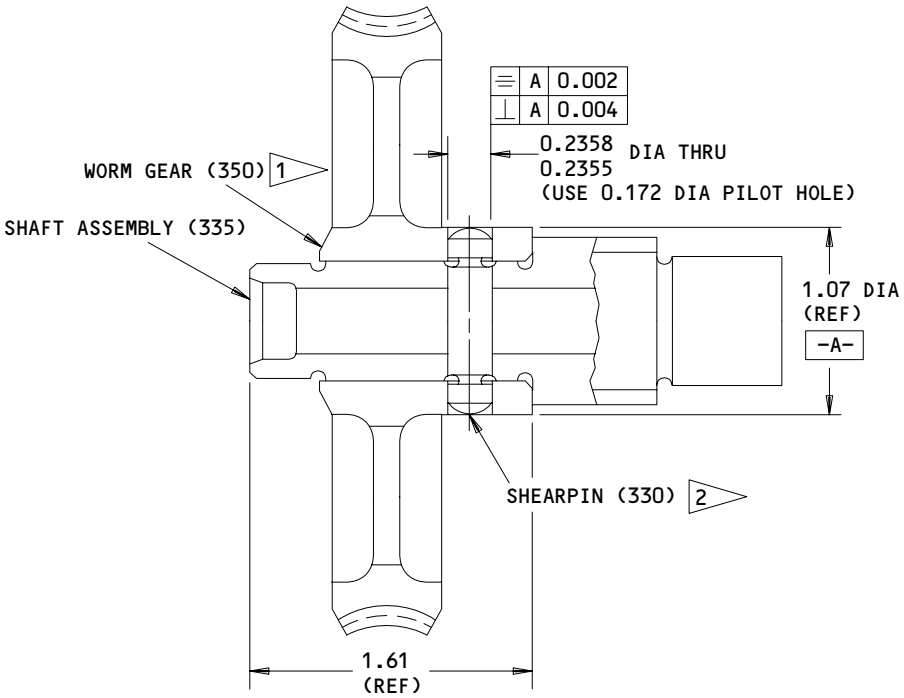
   B. Separate shaft assembly (335) from worm gear (350).

   C. Coat bore of worm gear (350) and OD of shaft assembly (335) and fill groove around shaft assembly (335) with MIL-G-23827 grease before assembly.

   D. Install worm gear (350) flush against shoulder of shaft assembly (335) and align shearpin (330) holes. If the shaft assembly (335) or worm gear (350) is being replaced, drill and ream 0.2355-0.2358 inch diameter hole thru shaft assembly and worm gear using 0.172 inch pilot hole or existing hole of worm gear (350).

   E. Heat assembled worm gear (350) and shaft assembly (335) to 290-310°F for one hour, coat OD and grooves of shearpin (330) with MIL-G-23827 grease, and press in shearpin (330) flush with 1.07 inch diameter as shown while assembly is hot.

      NOTE: The heating is to reduce interference fit.



1 FLUSH AGAINST SHOULDER OF SHAFT ASSEMBLY (335)

2 FLUSH WITH 1.07 DIA

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

256T3472-1

Worm Gear Assembly - Replacement Details
Figure 601

SHAFT ASSEMBLY - REPAIR 27-1

256T3473-1

1. Plating Repair (IPL Fig. 1, Fig. 601)

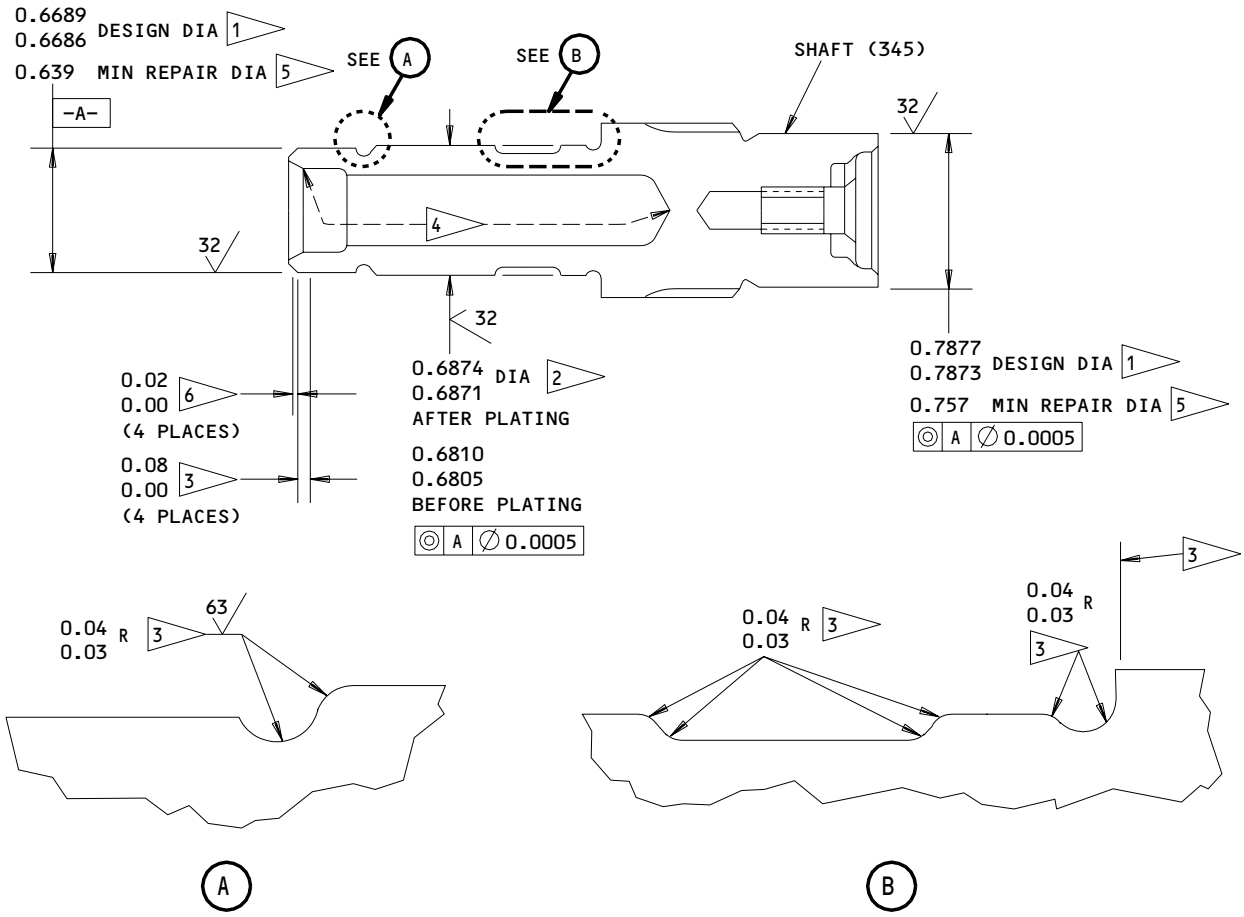
   NOTE: Repair consists of restoration of original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN for list of applicable standard practices.

2. Bearing Seat Repair (Fig. 601)

   A. Machine bearing seat 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 dimensions and finish shown. Chrome plate must not exceed 0.015 inch after grinding.



REFINISH

SHAFT (345) -- CADMIUM PLATE (F-15.02) ALL OVER EXCEPT AS NOTED.

1 OMIT CADMIUM PLATING THIS SURFACE

2 CHROMIUM PLATE (F-15.03) SINGLE PLATE THICKNESS (0.003 MINIMUM AFTER GRINDING)

3 CHROME PLATE RUNOUT AREA

4 INTERNAL BORES -- APPLY LIGHT ZINC PHOSPHATE COAT (F-14.14). APPLY TWO COATS OF BMS 10-11, TYPE I PRIMER (F-20.03), AND COAT WITH MIL-C-11796, CLASS 1, CORROSION PREVENTIVE COMPOUND (F-19.03)

5 BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN. OBSERVE RUNOUT AT EDGES AND RELIEF GROOVE AS INDICATED

6 END OF PLATING

REPAIR

REF 3 5 6

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01-0.02 R

SHOT PEEN: SHOT NO. 170-460
INTENSITY 0.016A
COVERAGE 2.0

MATERIAL: 4340 STEEL, 150-170 KSI

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

256T3473-1
Shaft Assembly - Plating Repair
Figure 601

31247

CAM ASSEMBLY - REPAIR 28-1

256T3474-1, -3

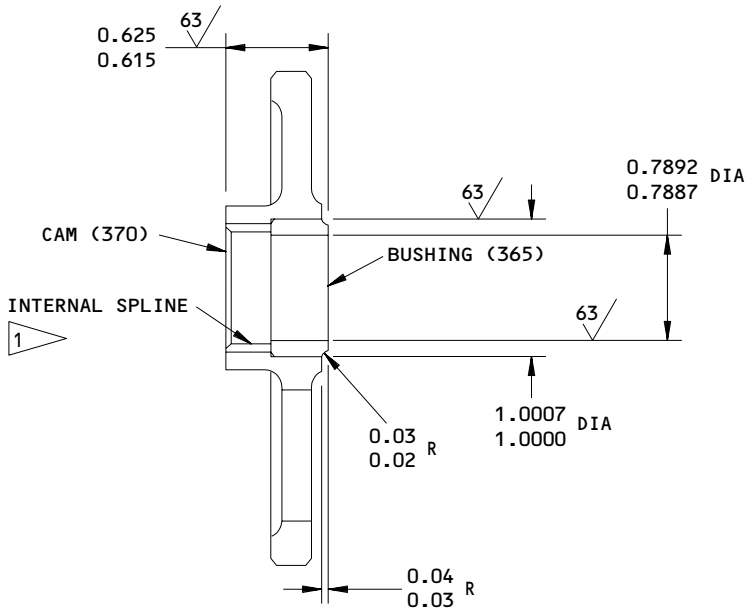
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surface which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Bushing Replacement (IPL Fig. 1, Fig. 601)

   A. Remove bushing (365).

   B. Press in new bushing (365) per 20-50-03 to shoulder inside cam (370).

   C. Machine bushing to dimension.



REFINISH

CAM (370) -- PASSIVATE (F-17.09) EXCEPT AS NOTED

1 CADMIUM PLATE (F-15.06) ON SPLINED SURFACES

MATERIAL: 15-5PH CRES, 180-200 KSI

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256T3474-1
Cam Assembly - Bushing Replacement and Refinish
Figure 601

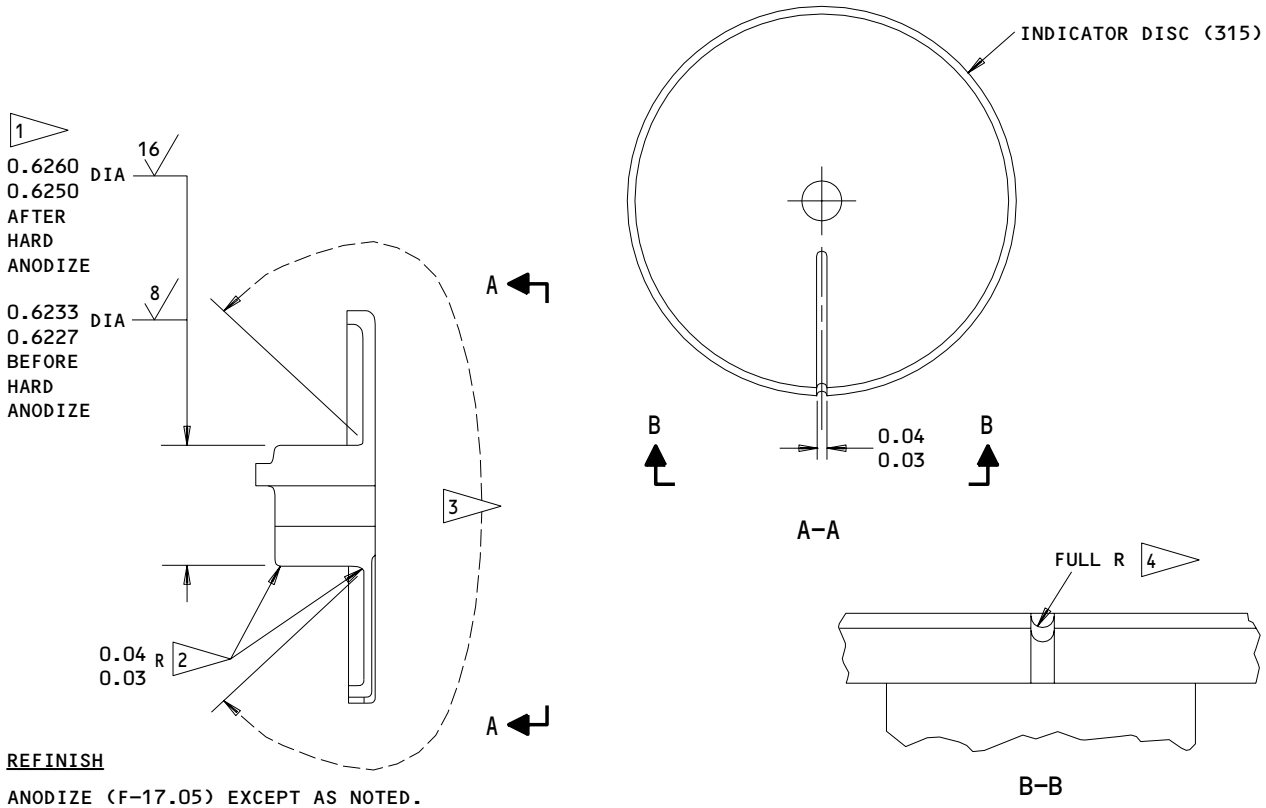
31255

INDICATOR DISC - REPAIR 29-1

256T3475-1

1. Plating Repair

NOTE: Repair consists of restoration or original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

ANODIZE (F-17.05) EXCEPT AS NOTED.

1 DIAMETER -A- -- HARD ANODIZE (F-17.17) 0.0027-0.0023 THICK TO DIMENSION SHOWN

2 HARD ANODIZE RUNOUT AREA

3 APPLY ONE COAT OF BMS 10-11, TYPE I PRIMER (F-20.02) AREA INDICATED ONLY

4 SLOT FINISH -- APPLY BMS 10-60, BAC101, INSIGNIA RED GLOSS ENAMEL (SRF-9815.101) OR EQUIVALENT

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG 1

Indicator Disc - Plating Repair
Figure 601

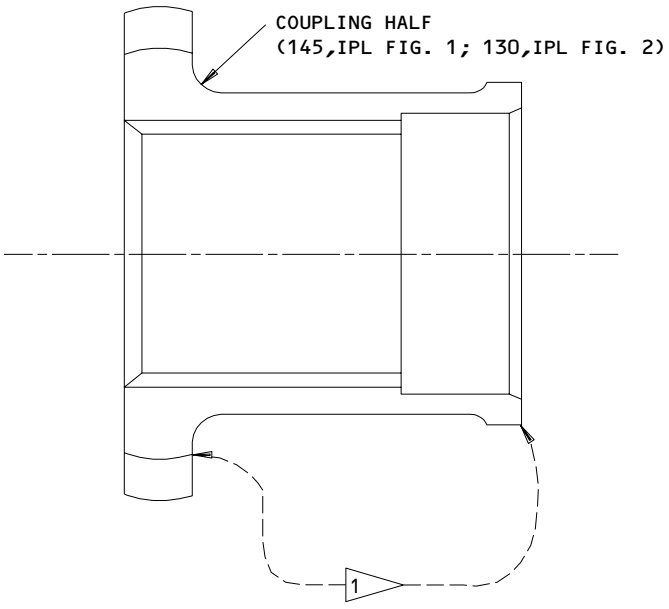
31258

COUPLING HALF - REPAIR 30-1

256T3749-1

1. Plating Repair

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



REFINISH

CADMIUM PLATE (F-15.02) ALL OVER. APPLY ONE COAT OF BMS 10-11, TYPE I, PRIMER (F-20.02) ON SURFACE NOTED BY 1 ONLY

MATERIAL: 4340 STEEL, 150-170 KSI

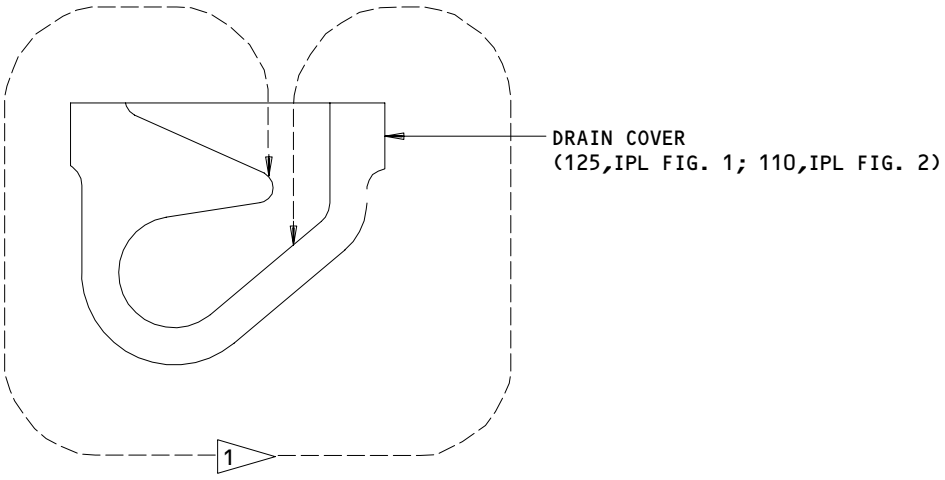
Coupling Half - Plating Repair
Figure 601

DRAIN COVER - REPAIR 31-1

65B81978-3

1. Plating Repair

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



REFINISH

CHROMIC ACID ANODIZE (F-17.02) ALL OVER
AND APPLY ONE COAT OF BMS 10-11, TYPE 1 PRIMER
(F-20.02) TO SURFACES INDICATED BY 1

MATERIAL: AL ALLOY

Drain Cover - Plating Repair
Figure 601

31261

MISC PARTS REFINISH - REPAIR 32-1

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

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Spring (20, IPL Fig. 1; 5, IPL Fig. 2)	17-7 PH CRES	Passivate (F-17.09)
Sleeve-Coupling (130, IPL Fig. 1, 115, IPL Fig. 2)	4140 Steel, 150-170 ksi	Cadmium plate (F-15.02)
Spacer (200, IPL Fig. 1, 195, IPL Fig. 2)	4340 Steel, 150-170 KSI	Cadmium plate (F-15.06)
Retainer (355, IPL Fig. 1, 390, IPL Fig. 2)	Al alloy	Anodize (F-17.05)

Refinish Details
Figure 601

ASSEMBLY

1. Materials

NOTE: Equivalent substitutes may be used.

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

B. Grease -- BMS 3-24 (optional MIL-G-23827) (Ref 20-60-03)

C. Sealant -- BMS 5-26 or MIL-S-8802 (Ref 20-60-04)

D. Lockwire -- MS20995C32

2. Equipment

NOTE: Equivalent substitutes may be used.

A. Holding and Backlash Check Fixture - A27046-141 or -191 (for 256T3430-3); -163 or -192 (for 256T3430-4)

B. Test Equipment -- A27046-8

C. Shimming Fixture -- A27055-1

3. Lubrication

CAUTION: DO NOT FILL HOUSING WITH GREASE OR OPERATION OF GEARBOX MAY BE ADVERSELY AFFECTED.

A. Fill gear teeth with grease.

B. Coat faying surface and splines with grease.

4. Assembly of 256T3430-3 (IPL Fig. 1, Fig. 701, 702, 705)

NOTE: During final assembly, liberally coat all surfaces of steel parts with sufficient grease to fill all voids and cavities.

A. Install Splined Shaft (410) and Arm Assembly (415).

(1) Install bearing (435) on housing assembly (440) per 20-50-03.

(2) Install cam follower (430) on arm assembly (415) with washer (395) and nut (390). Tighten nut (390) to 50-70 lb-in and install cotter pin (385).

(3) Position arm assembly (415) inside housing assembly (440) and install splined shaft (410) with bearing (280) thru arm assembly (415) and bearing (435) in housing assembly (440).

(4) Secure arm assembly (415) against shoulder of splined shaft (410) with bolt (400) and washer (405). Tighten bolt (400) to 50-70 lb-in. Lockwire bolt (400) to arm assembly (415) using double twist method per 20-50-02 per Fig. 701.

(5) Install shim (275) in bearing housing (265). As initial adjustment, use same thickness shim (275) as recorded in DISASSEMBLY. Install bearing housing (265) on housing assembly (440) with bolts (255) and washers (260). Install bolts (255) with primer on all areas of holes. Tighten bolts (255) to 50-70 lb-in.

(6) Check that end play of splined shaft (410) is within 0.002-0.005 in. If the end play limit is not met, adjust shim (275) thickness and repeat par. 4.A.(5) and (6).

(7) Lockwire bolts (255) using double twist method per 20-50-02 per Fig. 702.

B. Install Worm Gear Assembly (325) and Cam Assembly (360).

(1) Install retainer (355) and cam assembly (360) on worm gear assembly (325).

(2) Install bearings (280, 375) on worm gear assembly (325) per 20-50-03.

(3) Install seal (320) in housing assembly (440) with open side facing outside.

(4) Install worm gear assembly (325), cam assembly (360) and bearings (280, 375) on housing assembly (440).

(5) Using shimming fixture A27055-1 on housing assembly (440), determine shim (380) thickness to align worm gear (350) with worm gearshaft (295) within 0.001 in.

(6) Remove worm gear assembly (325). Install selected shim (380) in housing assembly (440). Re-install worm gear assembly (325).

(7) Install shim (275) in bearing housing (270). As initial adjustment, use same thickness shim (275) as recorded in DISASSEMBLY.

(8) Install bearing housing (270) on housing assembly (440) with bolts (255) and washers (260). Install bolts (255) with primer. Tighten bolts (255) to 50-70 lb-in.

(9) Check that worm gear assembly (325) has no end play. If there is any end play, remove bearing housing (270), adjust shim (275) as required to fill void, and repeat par. 4.B.(7), (8), and (9).

(10) Lockwire bolts (255) using double twist method per 20-50-02 per Fig. 702.

(11) Install indicator disc (315) on shaft assembly (335) with bolt (305) and washer (310). Tighten bolt (305) to 20-25 lb-in.

C. Install spur gear (290) and bearings (280, 300) in housing assembly (440).

D. Install Worm Gearshaft (295) and Spur Gear (285).

(1) Install spur gear (285) on worm gearshaft (295).

(2) Install bearing (280) against shoulder of spur gear (285) per 20-50-03.

(3) Install worm gearshaft (295), spur gear (285), and bearings (280, 300) in housing assembly (440).

(4) Install cover assembly (230).

(a) Install shims (275) in cover assembly (230). As initial adjustment, use same thickness shims (275) as recorded in DISASSEMBLY.

(b) Install cover assembly (230) on housing assembly (440) with bolts (235) and washers (240). Install bolts (235) with primer. Fillet seal pin (450) hole with sealant. Tighten bolts (235) to 50-70 lb-in.

(c) Check that worm gearshaft (295) has no end play and that spur gear has 0.002-0.005 in. end play. If above requirement are not met, remove cover assembly (230), adjust shim (275) thicknesses as required, and repeat par. 4.D.(4)(a), (b), and (c).

(d) After tightening bolts (235) and end play checks, lockwire bolts (235) using double twist method per 20-50-02 per Fig. 702 (in conjunction with par. 4.F.(1)).

E. Install Bevel Gears (190, 205)

(1) Install shim (215) in housing assembly (440). As initial adjustment, use same thickness shim (215) as recorded in DISASSEMBLY.

(2) Install bevel gear (205) and bearing (210) in housing assembly (440).

(3) Install spacer (200), spur gear (195) over bevel gear (205).

(4) Install bearing (175) on bevel gear (205).

(5) Install shim (180) in housing (170). As initial adjustment, use same thickness shim (180) as recorded in DISASSEMBLY.

(6) Install bevel gear (190) with bearings (175, 185) in housing (170).

(7) Install shields (155) against bearings (175) on bevel gears (190, 205). Fill cavities between shields (155) and bearings (175) with grease.

(8) Install sleeves (150) on coupling halves (145).

(9) Install coupling sleeves (130) over coupling halves (145).

(10) Install coupling halves (145) with coupling sleeves (130) on bevel gears (190, 205).

(11) Install washers (140) and nuts (135) on bevel gears (190, 205). Tighten nuts (135) to 600-800 lb-in.

(12) Install housing (170) and bevel gear (190) on housing assembly (440) with bolts (160) and washers (165). Install bolts (160) with primer. Tighten bolts (160) to 50-70 lb-in.

(13) Backlash Check

(a) Using backlash check fixture part number A27046-141 and -8, apply 5-10 lb-in. torque to bevel gear (190, 205) shafts with 25-35 lb axial load outward.

(b) Check that backlash is 0.007-0.011 inch at scribe line on clamp assembly A27046-58, measured at 3 places approximately 120 degrees apart.

NOTE: The backlash required is the total clearance measured from the torqued position in one direction to torqued position in the opposite direction. Backlash specified is equivalent to 0.004-0.006 inch, measured at the pitch line of the bevel gears.

(c) If backlash is outside 0.007-0.011 inch limit, remove parts per DISASSEMBLY 2.H. thru 2.M., select proper thickness shim or shim set per Shim Selection, par. 6, and install parts per 4.E. including Backlash Check, par. 4.E.(13).

(14) Lockwire bolts (160) using double twist method per 20-50-02 per Fig. 702.

F. Finish-Up Assembly

(1) Install bolt (220) and shim (225) on cover assembly (230). Install bolt (220) with primer. Tighten bolt (220) to 20-25 lb-in. Adjust shim (225) thickness so that there is 0.010-0.025 in. clearance between bolt (220) and cam follower (430) while cam follower is in contact with surface area of cam (370). Lockwire bolt (220) to bolts (160) using double twist method per 20-50-02 per Fig. 702.

(2) Install plain bushings (45) in retainers (40). Install retainers (40) on bracket assembly (50) and crank assembly (75) with bolts (25), washers (30), and nuts (35). Tighten nuts (35) to 20-25 lb-in.

(3) Clear all grease from drain cover (125) hole. Install drain cover (125) with bolts (115) and washers (120). Install bolts (115) with primer on all surfaces of holes. Tighten bolts (115) to 20-25 lb-in.

(4) Install bracket assembly (50) on housing assembly (440) with bolts (55) and washers (60). Install bolts (55) with primer on all areas of holes. Tighten bolts (55) to 50-70 lb-in. Lockwire bolts (55) using double twist method per 20-50-02 per Fig. 701.

(5) Install shim (105), shield (110), and crank assembly (75) on splined shaft (410) with bolt (80), washer (85), and nut (90). Tighten nut (90) to 50-70 lb-in. Shim (105) as required to fill void. Fill cavity between shield (110) and bearing (435) with grease.

WARNING: USE EXTREME CARE WHEN INSTALLING SPRINGS (20) OR INJURY TO PERSONNEL MAY OCCUR. SPRINGS ARE HEAVILY LOADED.

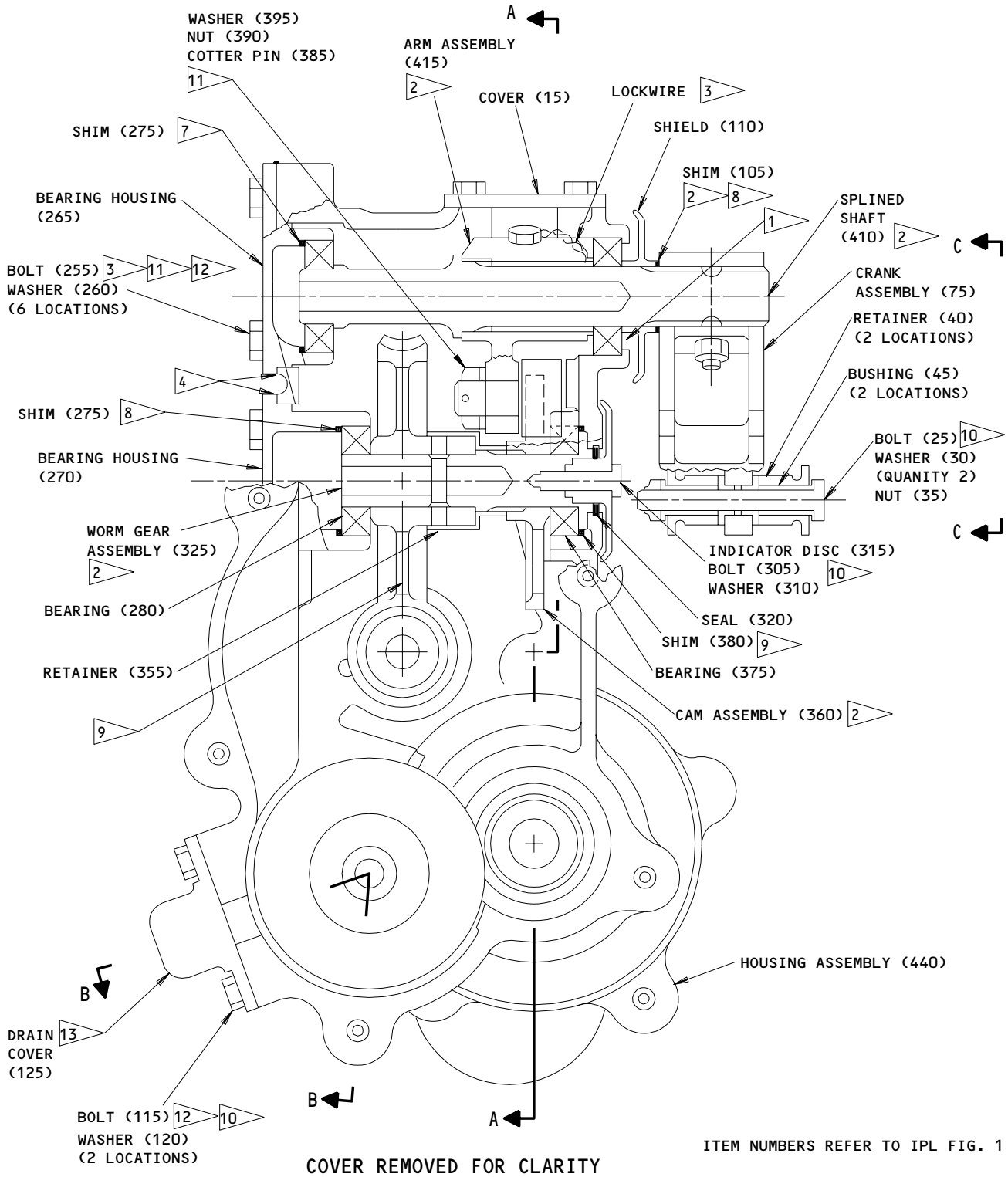
(6) Attach springs (20) to retainers (40) on bracket assembly (50) and crank assembly (75).

(7) Refer to TESTING/TROUBLE SHOOTING after ASSEMBLY.

(8) Ensure that all noted bolts are lockwired.

(9) Fillet seal noted seams with sealant.

G. Prepare and store component in accordance with standard industry practices.

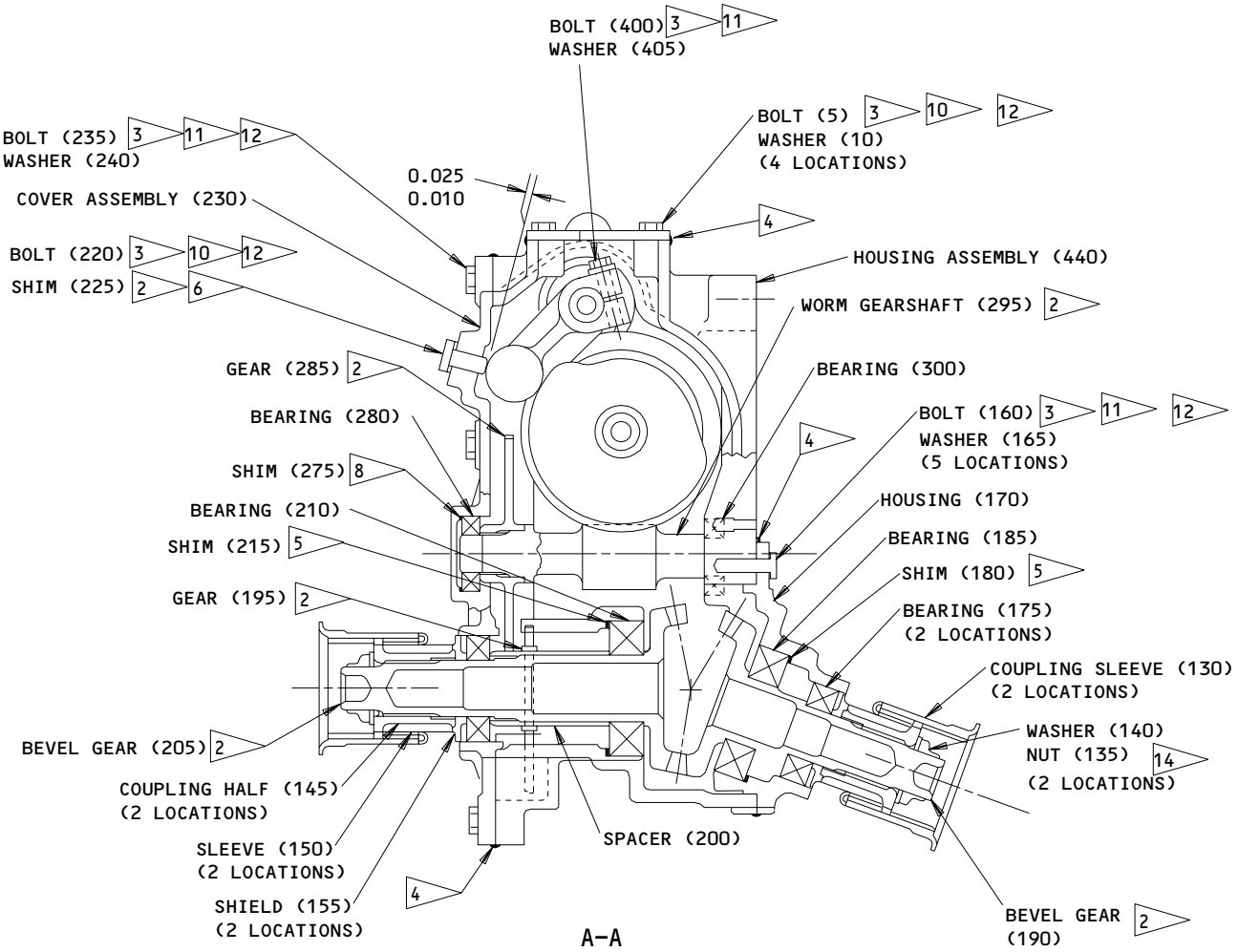


ITEM NUMBERS REFER TO IPL FIG. 1

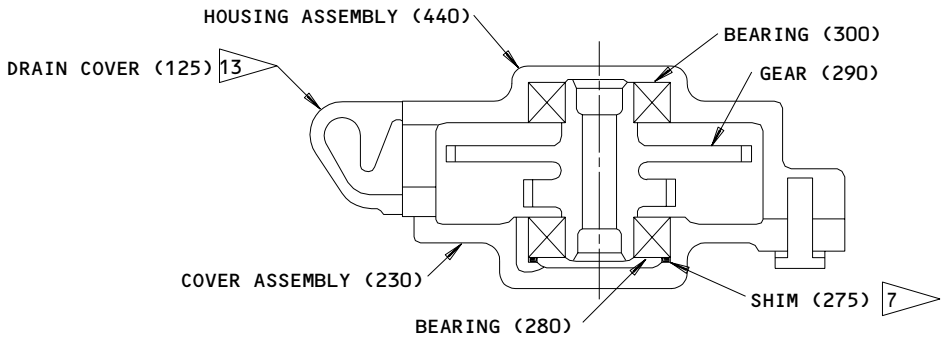
COVER REMOVED FOR CLARITY

256T3430-3
Left Angle Gearbox and Aileron Droop Input Control Mech Assembly
Figure 701 (Sheet 1)

31263



A–A

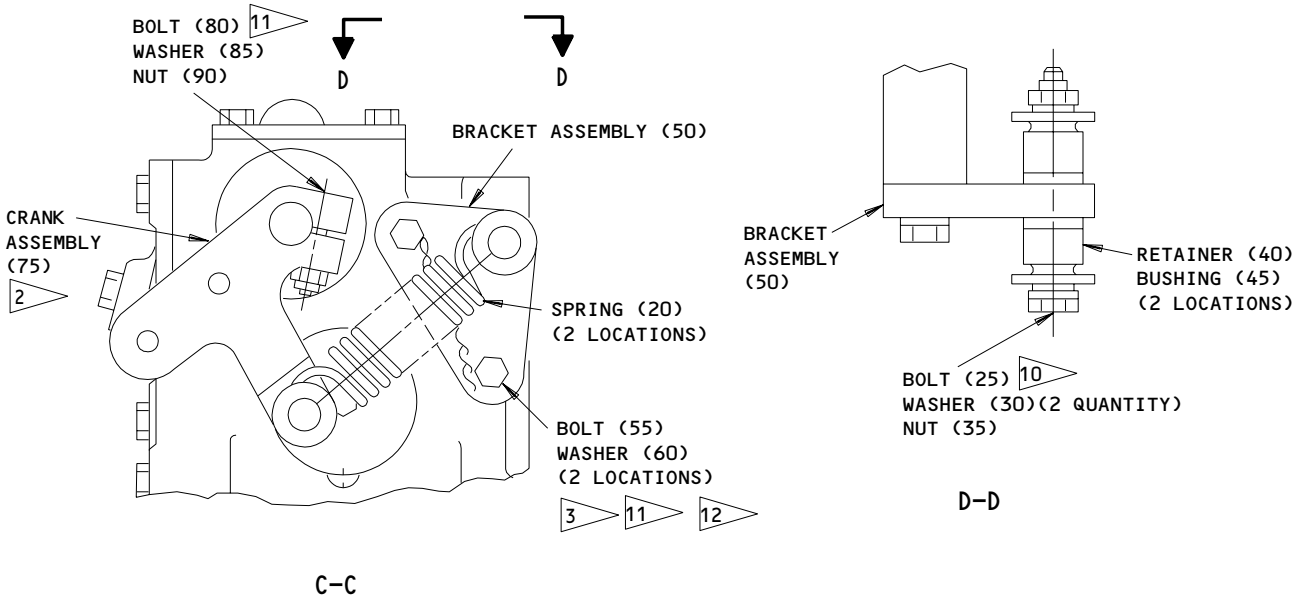


ITEM NUMBERS REFER TO IPL FIG. 1

B–B

Left Angle Gearbox and Aileron Droop Input Control Mech Assembly
Figure 701 (Sheet 2)

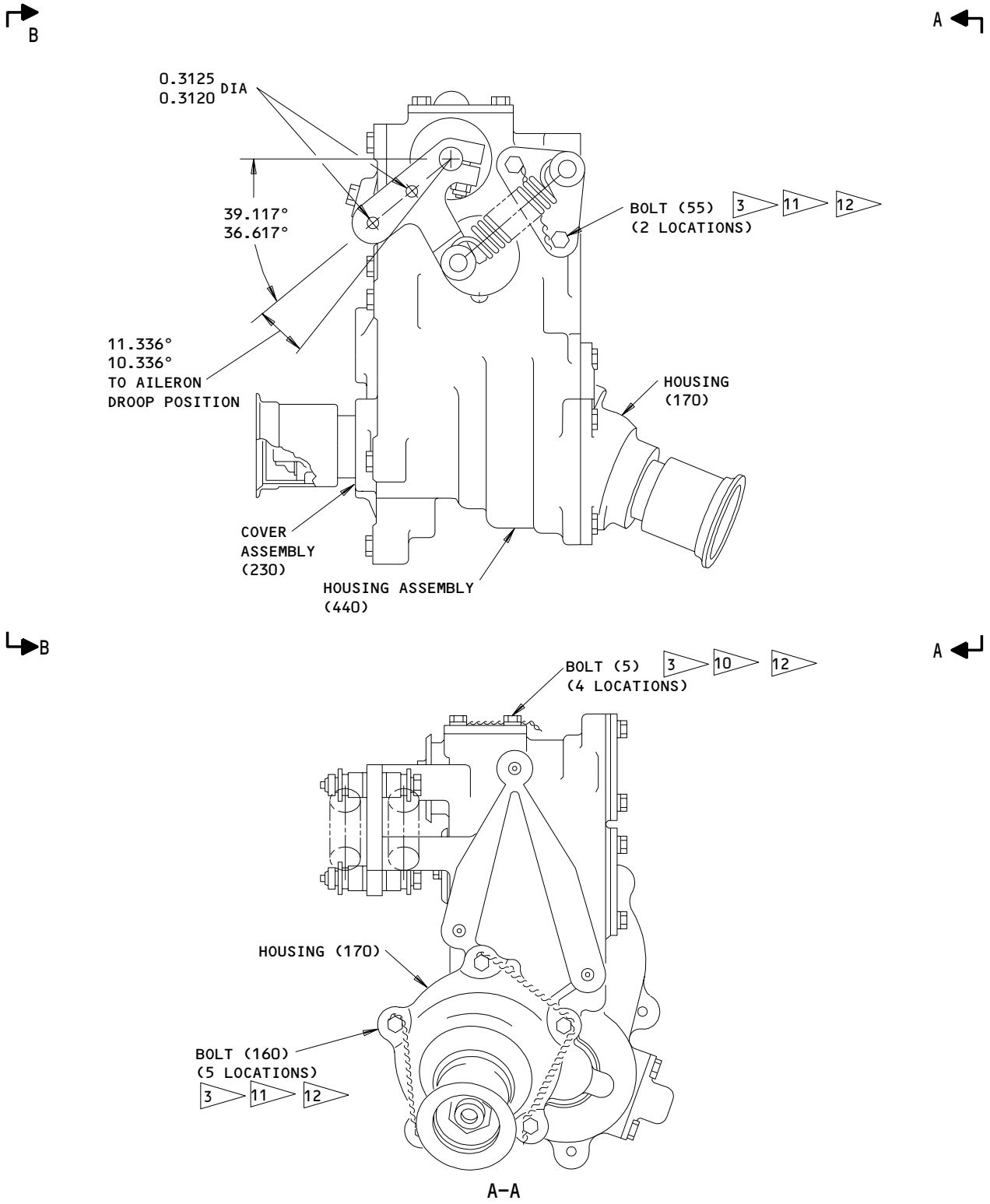
31315



1. FILL CAVITY BETWEEN SHIELD AND BEARING WITH MIL-G-23827 GREASE
2. COAT FAYING SURFACES AND SPLINES AND FILL GEAR TEETH AS APPLICABLE WITH MIL-G-23827 GREASE
3. INSTALL LOCKWIRE USING DOUBLE-TWIST METHOD AS SHOWN IN SOPM 20-50-02
4. FILLET SEAL SEAM AND DOWEL PIN HOLES WITH BMS 5-26 OR MIL-S-8802 SEALANT
5. FOR SHIM (180,215) THICKNESSES, REFER TO FIG. 705
6. SHIM AS REQUIRED TO OBTAIN CLEARANCE SHOWN
7. SHIM AS REQUIRED TO OBTAIN 0.002-0.005 INCH END PLAY
8. SHIM AS REQUIRED TO FILL VOID
9. SHIM AS REQUIRED TO ALIGN WORM GEAR (350) AND WORM GEARSHAFT (295) WITHIN 0.001 INCH
10. TIGHTEN BOLT TO 20-25 INCH-POUND
11. TIGHTEN BOLT OR NUT, AS APPLICABLE, TO TO 50-70 INCH-POUND
12. INSTALL WITH BMS 10-11, TYPE I PRIMER ON ALL AREAS OF HOLE
13. DRAIN HOLES MUST BE CLEAR OF GREASE
14. TIGHTEN NUT TO 600-800 INCH-POUND

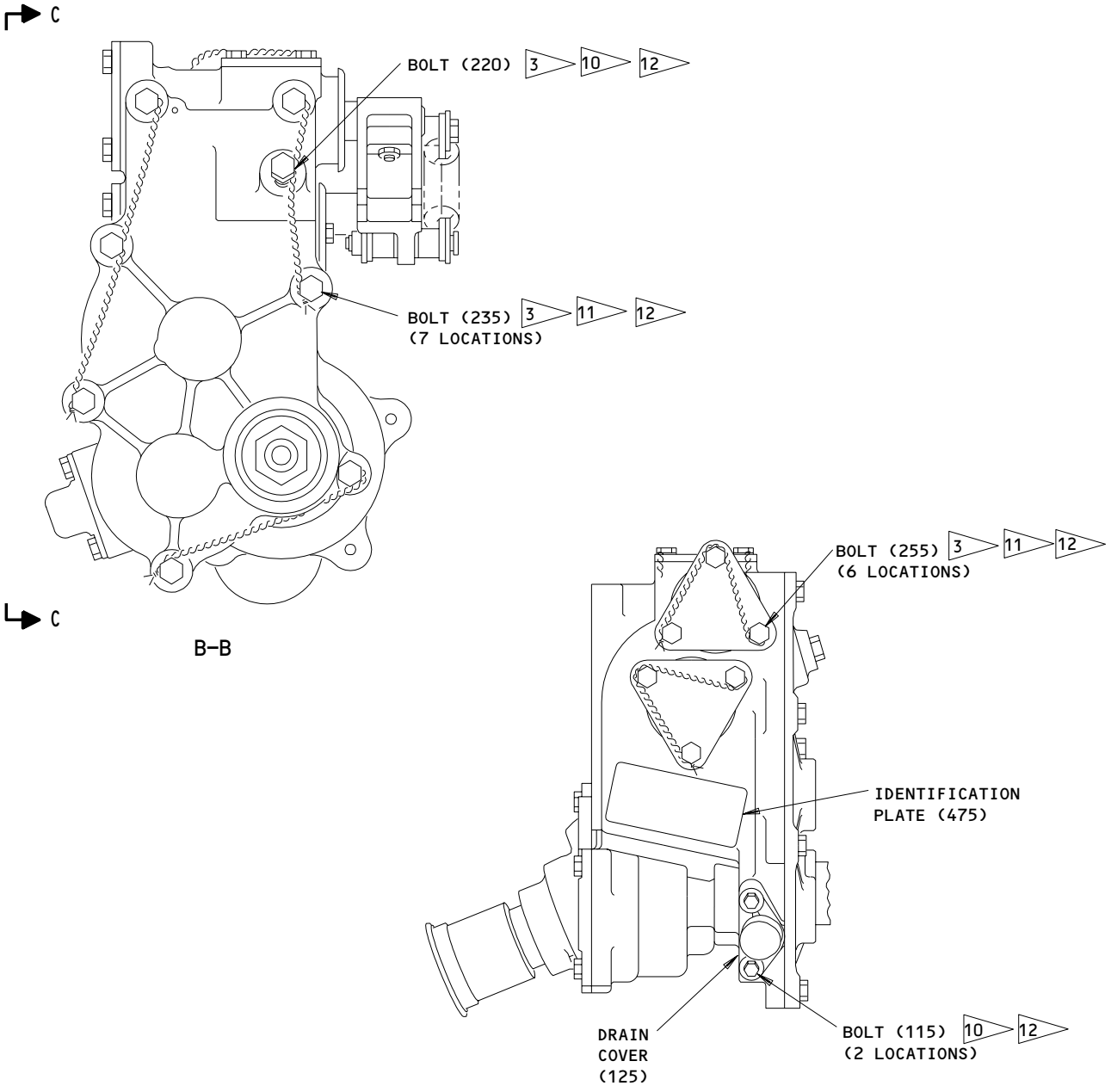
ITEM NUMBERS REFER TO IPL FIG. 1

Left Angle Gearbox and Aileron Droop Input Control Mech Assembly
Figure 701 (Sheet 3)



256T3430-3
Exterior Bolt and Lockwire Configuration
Figure 702 (Sheet 1)

31321



3 LOCKWIRE USING DOUBLE-TWIST METHOD PER 20-50-02

10 TIGHTEN BOLT TO 20-25 LB-IN

11 TIGHTEN BOLT OR NUT, AS APPLICABLE, TO 50-70 LB-IN

12 INSTALL WITH BMS 10-11, TYPE I PRIMER ON ALL AREAS OF HOLE

ITEM NUMBERS REFER TO IPL FIG. 1

256T3430-3
Exterior Bolt and Lockwire Configuration
Figure 702 (Sheet 2)

5. Assembly of 256T3430-4 (IPL Fig. 2, Fig. 703, 704, 705)

NOTE: During final assembly, liberally coat all surfaces of steel parts with sufficient grease to fill all voids and cavities.

A. Install Splined Shaft (445) and Arm Assembly (450)

(1) Install bearing (470) on housing assembly (475) per 20-50-03.

(2) Install cam follower (465) on arm assembly (450) with washer (430) and nut (425). Tighten nut (425) to 50-70 lb-in. and install cotter pin (420).

(3) Position arm assembly (450) inside housing assembly (475) and install splined shaft (445) with bearing (315) thru arm assembly (450) and bearing (470) in housing assembly (475).

(4) Secure arm assembly (450) against shoulder of splined shaft (445) with bolt (435) and washer (440). Tighten bolt (435) to 50-70 lb-in. Lockwire bolt (435) to arm assembly (450) using double twist method per 20-50-02 per Fig. 703.

(5) Install shim (310) in bearing housing (300). As initial adjustment, use same thickness shim (310) as recorded in DISASSEMBLY. Install bearing housing (300) on housing assembly (475) with bolts (290) and washers (295). Install bolts (290) with primer on all surfaces of holes. Tighten bolts (290) to 50-70 lb-in.

(6) Check that end play of splined shaft (445) is within 0.002-0.005 in. If the end play limit is not met, adjust shim thickness and repeat par. 5.A.(5) and (6).

(7) Lockwire bolts (290) using double twist method per 20-50-02 per Fig. 704.

B. Install Worm Gear Assembly (360) and Cam Assembly (395).

(1) Install retainer (390) and cam assembly (395) on worm gear assembly (360).

(2) Install bearings (315, 410) on worm gear assembly (360) per 20-50-03.

(3) Install seal (355) in housing assembly (475) with open side facing outside.

(4) Install worm gear assembly (360), cam assembly (395), and bearings (315, 410) on housing assembly (475).

(5) Using shimming fixture A27055-1 on housing assembly (475), determine shim (415) thickness to align worm gear (385) with worm gearshaft (330) within 0.001 in.

(6) Remove worm gear assembly (360). Install selected shim (415) in housing assembly (475). Re-install worm gear assembly (360).

(7) Install shim (310) in bearing housing (305). As initial adjustment, use same thickness shim (310) as recorded in DISASSEMBLY.

(8) Install bearing housing (305) on housing assembly (475) with bolts (290) and washers (295). Install bolts (290) with primer. Tighten bolts (290) to 50-70 lb-in.

(9) Check that worm gear assembly (360) has no end play. If there is any end play, remove bearing housing (305), adjust shim (310) as required to fill void, and repeat par. 5.B.(7), (8), and (9).

(10) Lockwire bolts (290) using double twist method per 20-50-02 per Fig. 704.

(11) Install indicator disc (350) on shaft assembly (370) with bolt (340) and washer (345). Tighten bolt (340) to 20-25 lb-in.

C. Install spur gear (325) and bearings (315, 335) in housing assembly (475).

D. Install Worm Gearshaft (330) and Spur Gear (320).

(1) Install spur gear (320) on worm gearshaft (330).

(2) Install bearing (315) against shoulder of spur gear (320) per 20-50-03.

(3) Install worm gearshaft (330), spur gear (320), and bearings (315, 335) in housing assembly (475).

(4) Install cover assembly (255).

(a) Install shims (310) in cover assembly (255). As initial adjustment, use same thickness shims (310) as recorded in DISASSEMBLY.

(b) Install cover assembly (255) on housing assembly (475) with bolts (260) and washers (265). Fillet seal pin (480) hole with sealant. Tighten bolts (260) to 50-70 lb-in.

(c) Check that worm gearshaft (330) has no end play and that spur gear (325) has 0.002-0.005 in. end play. If above limits are not met, remove cover assembly (255), adjust shim (310) thicknesses as required, and repeat par. 5.D.(4)(a), (b), and (c).

(d) After tightening bolts (265) and end play checks, lockwire bolts (265) using double twist method per 20-50-02 per Fig. 704. (In conjunction with par. 5.F.(1)).

E. Install Bevel Gears (175, 180).

(1) Install housing assembly (205) on cover assembly (255) with bolts (210, 215) and washers (220). Fillet seal pin (270) hole with sealant. Tighten bolts (210, 215) to 50-70 lb-in. Lockwire bolts (210, 215) using double twist method per 20-50-03 per Fig. 704.

(2) Install shim (190) in housing assembly (205). As initial adjustment, use same thickness shim (190) as recorded in DISASSEMBLY.

(3) Install bevel gear (180) with bearing (185) in housing assembly (205).

(4) Install spacer (195), spur gear (200) over bevel gear (180).

(5) Install bearing (160) against shoulder of spur gear (200) in housing assembly (475) per 20-50-03.

(6) Install shim (165) in housing (155). As initial adjustment, use same thickness shim (165) as recorded in DISASSEMBLY.

(7) Install bevel gear (175) with bearings (160, 170) in housing (155).

(8) Install shields (140) against bearings (160) on bevel gears (175, 180). Fill cavities between shields (140) and bearings (160) with grease.

(9) Install sleeves (135) on coupling halves (130).

(10) Install coupling sleeves (115) over coupling halves (130).

(11) Install coupling halves (130) with coupling sleeves (115) on bevel gears (175, 180).

(12) Install washers (125) and nuts (120) on bevel gears (175, 180). Tighten nuts (120) to 600-800 lb-in.

(13) Install housing (155) and bevel gear (175) on housing assembly (205) with bolts (145) and washers (150). Fillet seal pin (225) hole in housing (155) with sealant. Tighten bolts (145) to 50-70 lb-in.

(14) Backlash Check

(a) Using backlash check fixture P/N A27046-163 and -8, apply 5-10 lb-in. torque to bevel gear (175, 180) shafts with 25-35 lb axial load outward.

(b) Check that backlash is 0.007-0.011 inch at scribe line on clamp assembly A27046-58, measured at 3 places approximately 120 degrees apart.

NOTE: The backlash required is the total clearance measured from the torqued position in one direction to torqued position in the opposite direction. Backlash specified is equivalent to 0.004-0.006 inch, measured at the pitch line of the bevel gears.

(c) If backlash is outside 0.007-0.011 inch limit, remove parts per DISASSEMBLY 3.G thru 3.K, select proper thickness shim or shim set per shim selection, par. 6, and install parts per 4.E. including Backlash Check, par. 5.E.(14).

(15) Lockwire bolts (145) using double twist method per 20-50-02 per Fig. 704.

F. Finish-Up Assembly.

(1) Install bolt (245) and shim (250) on cover assembly (255). Install bolt (245) with primer, tighten bolt (245) to 20-25 lb-in. Adjust shim (250) thickness so that there is 0.010-0.025 in. clearance between bolt (245) and cam follower (465) while cam follower (465) is in contact with surface area of cam (405). Lockwire bolt (245) to bolts (260) using double twist method per 20-50-02 per Fig. 704.

(2) Clear all grease from drain cover (110) holes. Install drain covers (110) on housing assemblies (205, 475) with bolts (100) and washers (105). Install bolts (100) with primer. Tighten bolts (100) to 20-25 lb-in.

(3) Install plain bushings (30) in retainers (25). Install retainers (25) on bracket assembly (35) and crank assembly (60) with bolts (10), washers (15), and nuts (20). Tighten nuts (20) to 20-25 lb-in.

(4) Install bracket assembly (35) on housing assembly (475) with bolts (40) and washers (45). Install bolts (40) with primer on all surfaces of holes. Tighten bolts (40) to 50-70 lb-in. Lockwire bolts (40) using double twist method per 20-50-02 per Fig. 703.

(5) Install shim (90), shield (95) and crank assembly (60) on splined shaft (445) with bolt (65), washer (70) and nut (75). Tighten nut (75) to 50-70 lb-in. Shim (90) as required to fill void. Fill cavity between shield (95) and bearing (470) with grease.

WARNING: USE EXTREME CARE WHEN INSTALLING SPRINGS (5) OR INJURY TO PERSONNEL MAY OCCUR. SPRINGS ARE HEAVILY LOADED.

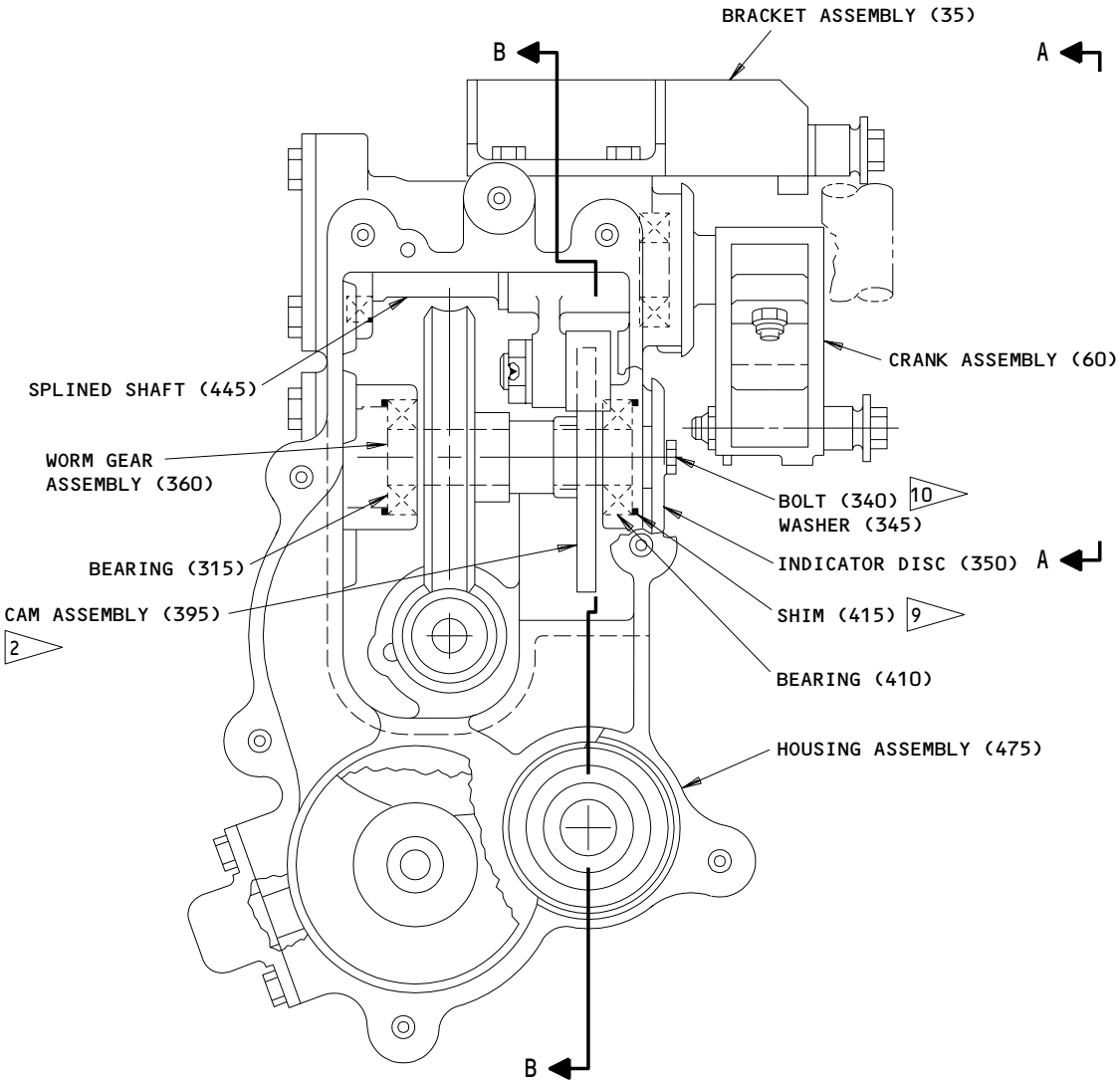
(6) Attach springs (5) to retainers (25) on bracket assembly (35) and crank assembly (60).

(7) Refer to TESTING/TROUBLE SHOOTING after ASSEMBLY.

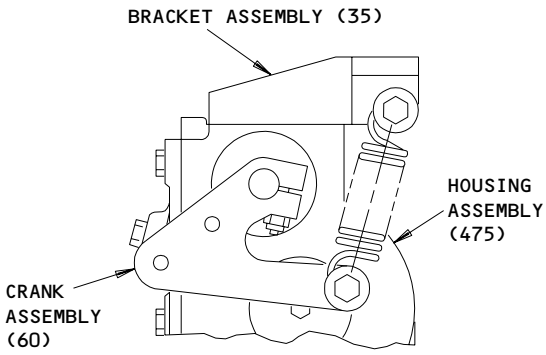
(8) Ensure that all noted bolts are lockwired.

(9) Fillet seal noted seams with sealant.

G. Prepare and store component in accordance with standard industry practice.

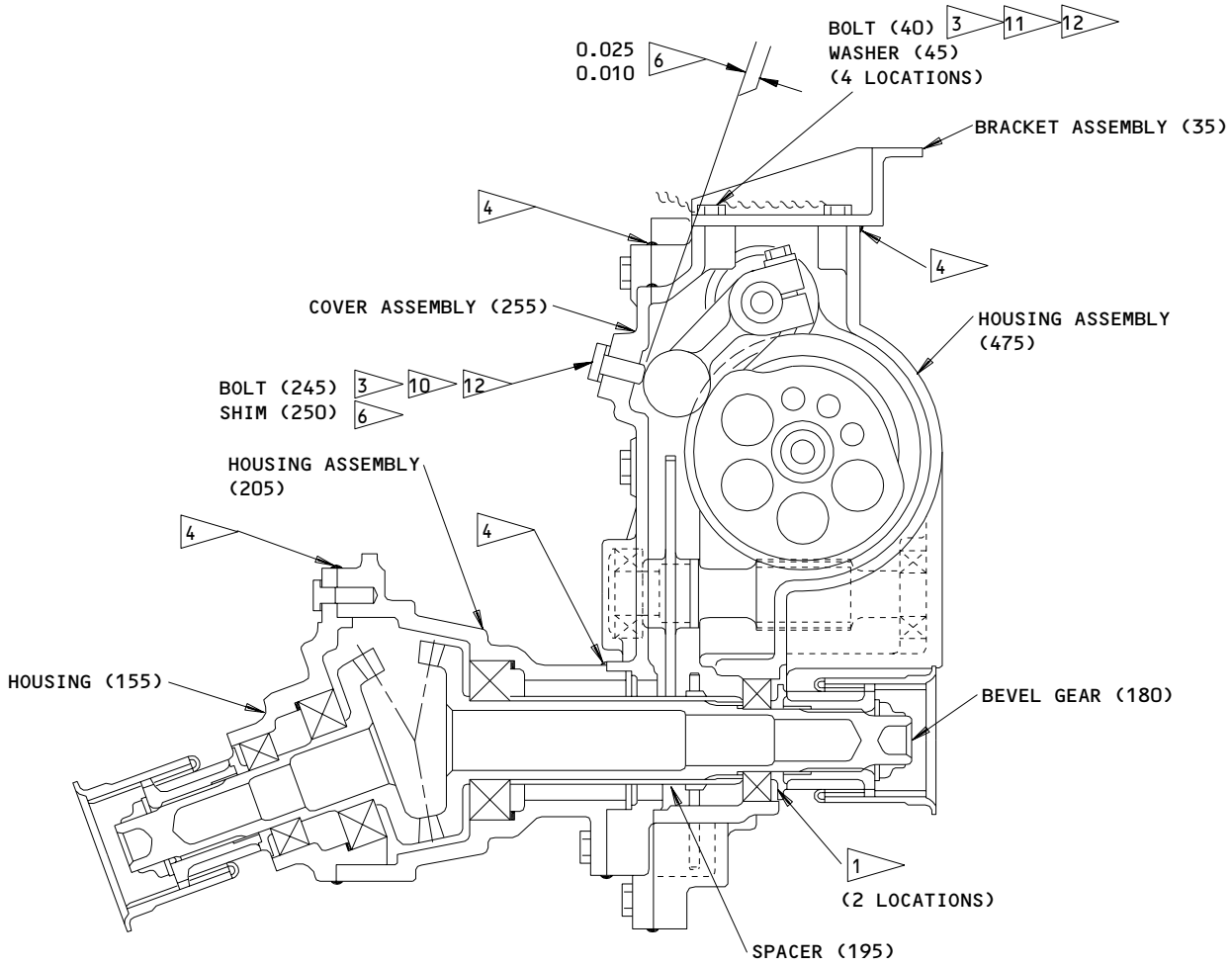


256T3430-4 WITH
COVER REMOVED FOR CLARITY
(SAME AS 256T3430-3, FIG. 701, EXCEPT
AS SHOWN AND EXCEPT ITEM NUMBERS)



A-A

Right Angle Gearbox and Aileron Droop Input Control Mechanism Assembly
Figure 703 (Sheet 1)

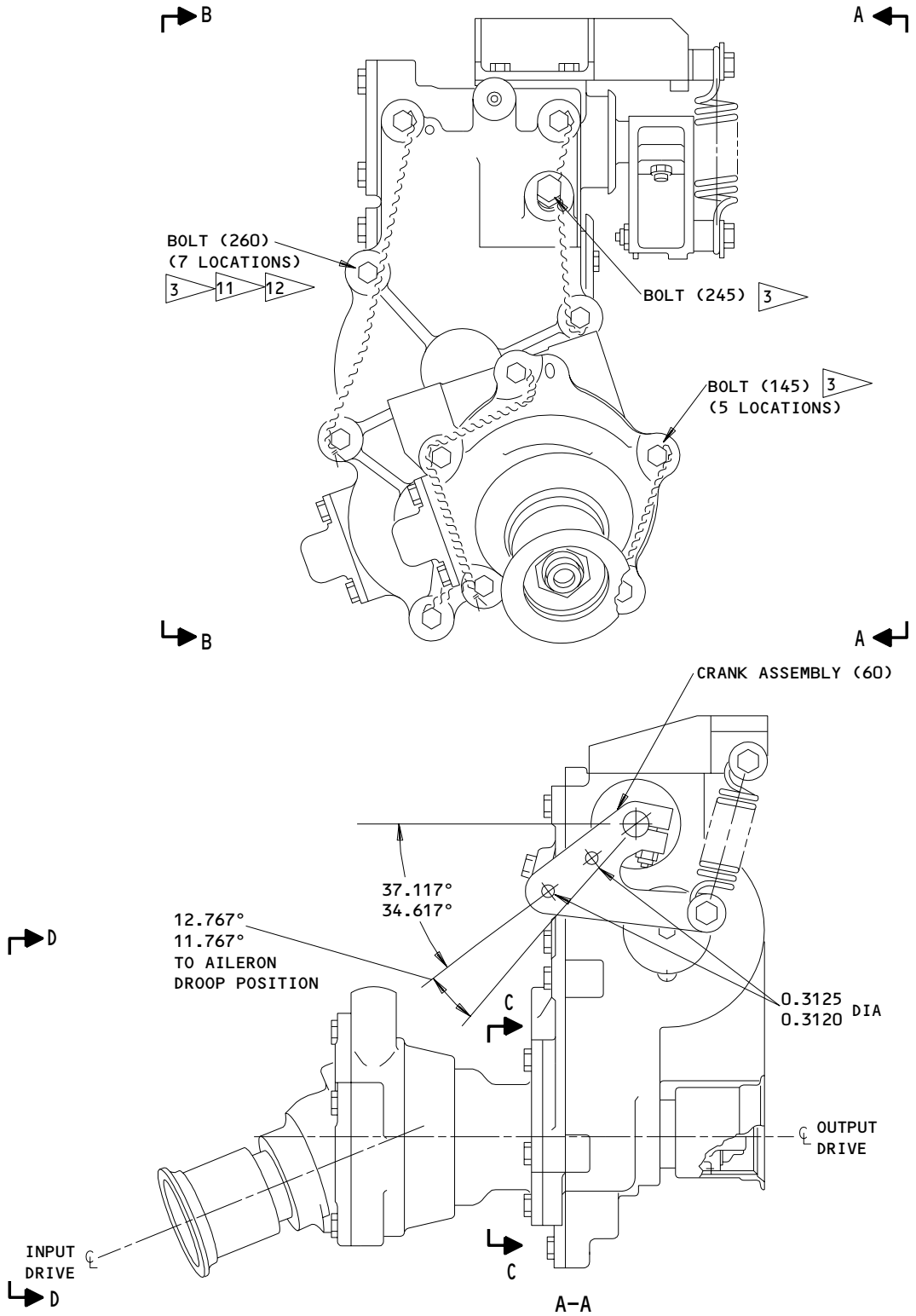


B-B

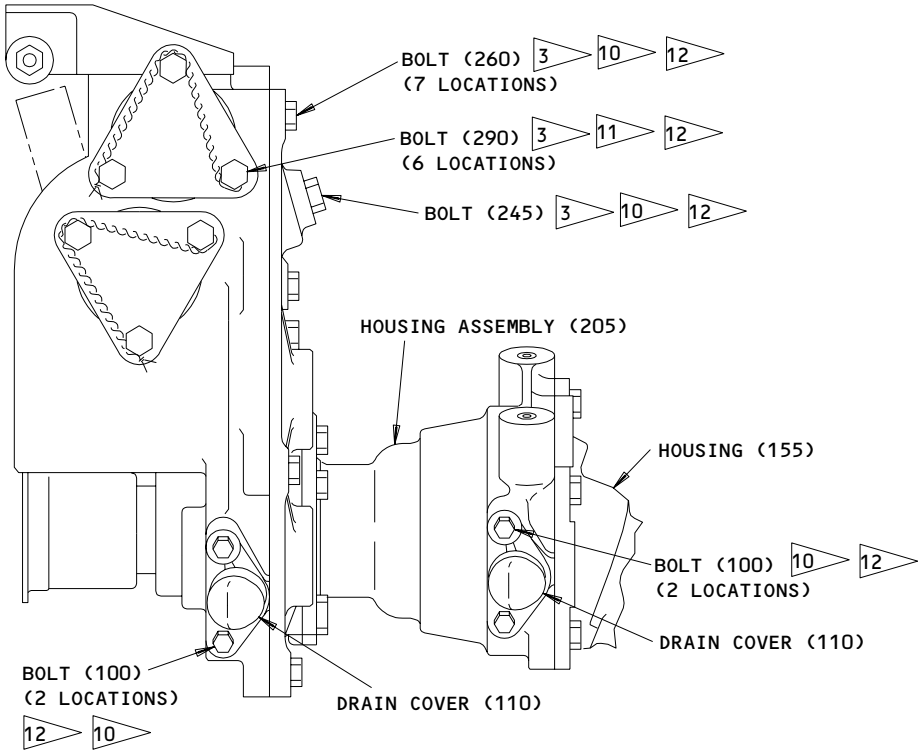
1. FILL CAVITY BETWEEN SHIELD AND BEARING WITH MIL-G-23827 GREASE
2. COAT FAYING SURFACES & SPLINES & FILL GEAR TEETH AS APPLICABLE WITH MIL-G-23827 GREASE
3. INSTALL LOCKWIRE USING DOUBLE-TWIST METHOD AS SHOWN IN SOPM 20-50-02
4. FILLET SEAL SEAM AND DOWEL PIN HOLES WITH BMS 5-26 OR MIL-S-8802 SEALANT
5. FOR SHIM (165,190) THICKNESSES, REFER TO FIG. 705
6. SHIM AS REQUIRED TO OBTAIN CLEARANCE SHOWN
7. SHIM AS REQUIRED TO OBTAIN 0.002-0.005 INCH END PLAY
8. SHIM AS REQUIRED TO FILL VOID
9. SHIM AS REQUIRED TO ALIGN WORM GEAR (385) AND WORM GEARSHAFT (330) WITHIN 0.001 INCH
10. TIGHTEN BOLT TO 20-25 INCH-POUND
11. TIGHTEN BOLT OR NUT, AS APPLICABLE, TO TO 50-70 INCH-POUND
12. INSTALL WITH BMS 10-11, TYPE I PRIMER ON ALL AREAS OF HOLE
13. DRAIN HOLES MUST BE CLEAR OF GREASE
14. TIGHTEN NUT TO 600-800 INCH-POUND

ITEM NUMBERS REFER TO IPL FIG. 2

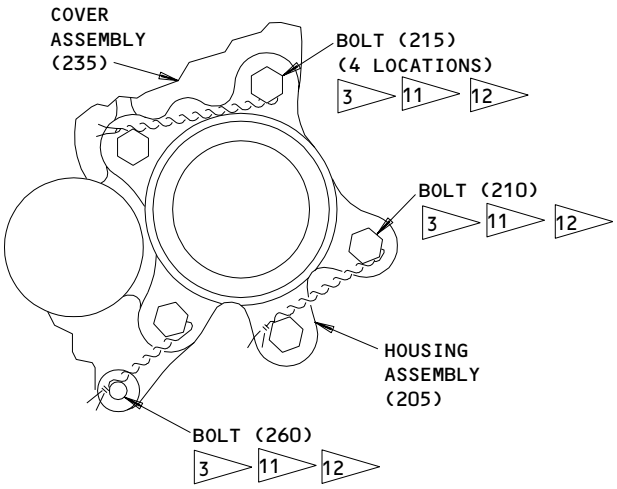
Right Angle Gearbox and Aileron Droop Input Control Mech Assembly
Figure 703 (Sheet 2)



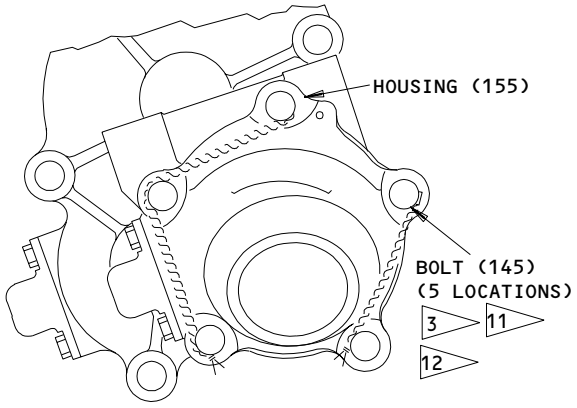
256T3430-4
Exterior Bolt and Lockwire Configuration
Figure 704 (Sheet 1)



B-B



C-C



D-D

3 LOCKWIRE USING DOUBLE-TWIST METHOD AS SHOWN IN SOPM 20-50-02

10 TIGHTEN BOLT TO 20-25 INCH-POUND

11 TIGHTEN BOLT OR NUT, AS APPLICABLE, TO 50-70 INCH-POUND

12 INSTALL WITH BMS 10-11, TYPE I PRIMER ON ALL AREAS OF HOLE

ITEM NUMBERS REFER TO IPL FIG. 2

256T3430-4
Exterior Bolt and Lockwire Configuration
Figure 704 (Sheet 2)

31331

6. Shim (180, 215, IPL Fig. 1, 165, 190, IPL Fig. 2) Selection (Fig. 705)

A. Select proper shim or shim sets from Table I in accordance with appropriate calculation in par. 6.E.

B. If backlash is below minimum, use next thinner shim or shim set.

C. If backlash is excessive, use next thicker shim or shim set.

D. If the thinnest shim or the thickest shim set does not bring the backlash within the limit, check bearings.

E. Calculate theoretical shim thicknesses as follows:

(1) Shim (180, IPL Fig. 1) thickness = "W" - "E" - "A".

(2) Shim (215, IPL Fig. 1) thickness = "X" - 1.213 in. - "F"-"B"

(3) Shim (165, IPL Fig. 2) thickness = "Y" - "G" - "C"

(4) Shim (190, IPL Fig. 2) thickness = "Z" - 1.213 in. - "H" - "D"

Where "A", "B", "C", "D" are bearing (185, 210 IPL Fig. 1, 170, 185, IPL Fig. 2, respectively) widths that are measured across inner race to outer race as shown with an axial load of 25-35 lb in direction of arrow or using bearing width check fixture A27040.

"E", "F", "G", "H" are engraved mounting distances on bevel gears (190, 205 IPL Fig. 1, 175, 180 IPL Fig. 2, respectively)

"W" is engraved dimension on housing (170, IPL Fig. 1)

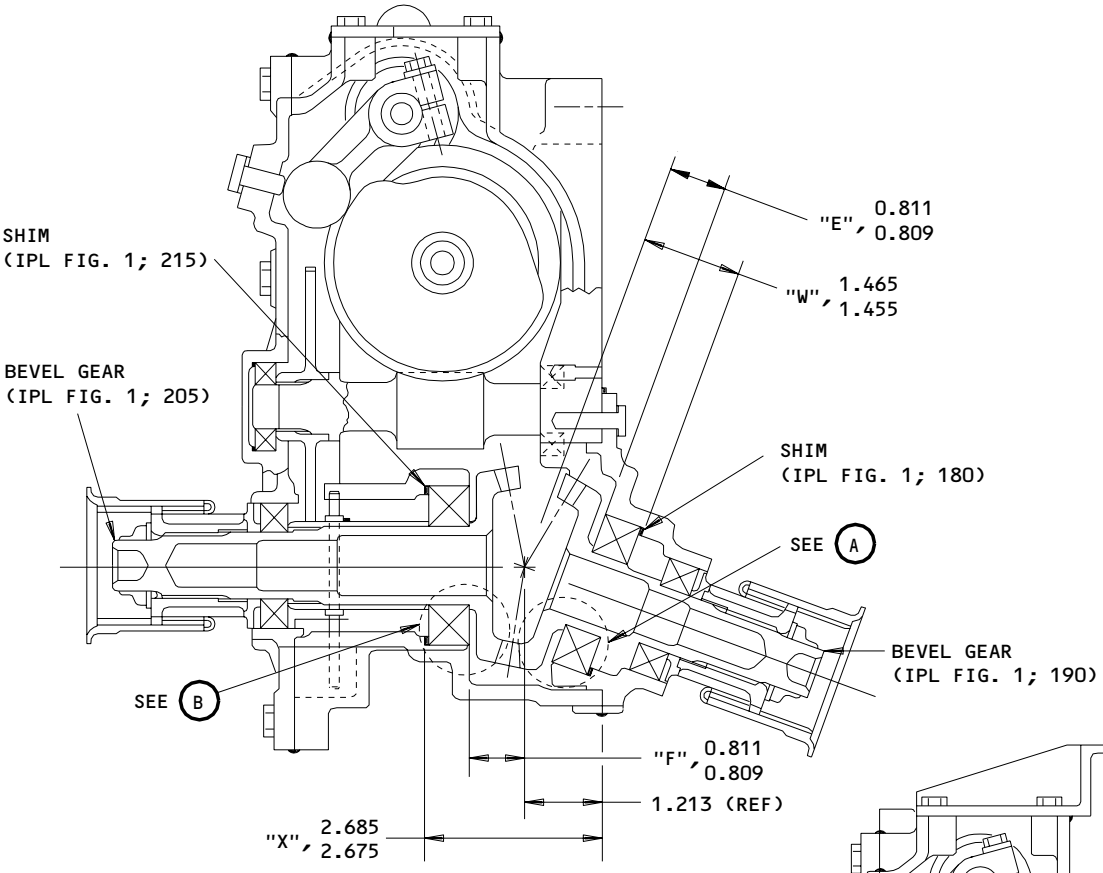
"X" is engraved dimension on housing assembly (440, IPL Fig. 1)
"Y" is engraved dimension on housing (155, IPL Fig. 2)

"Z" is engraved dimension on housing assembly (205, IPL Fig. 2)

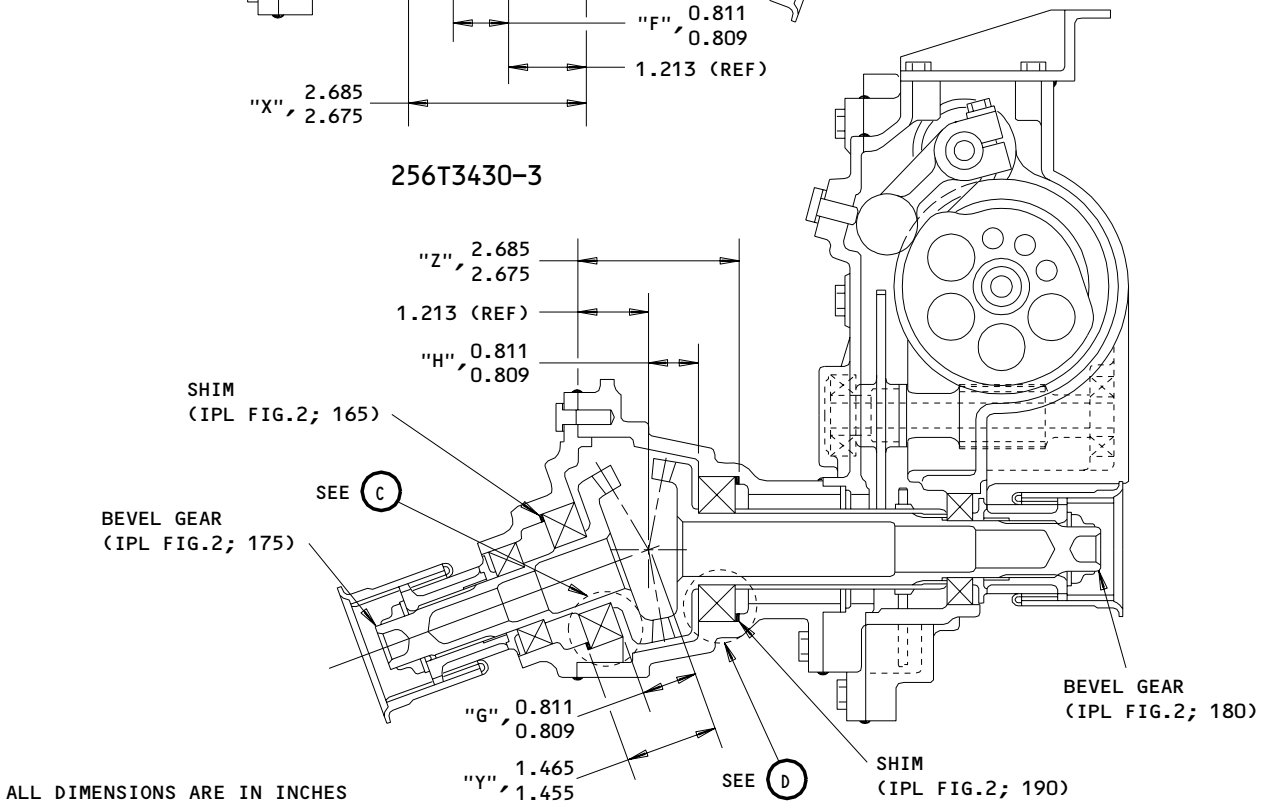
SHIM OR SHIM SET *	NOMINAL THICKNESS
256T3415-1	.010
256T3415-2	.012
256T3415-3	.015
256T3415-4	.020
256T3415-5	.025
256T3415-1 & -2	.022
256T3415-2 & -2	.024
256T3415-2 & -3	.027
256T3415-3 & -3	.030
256T3415-2 & -4	.032
256T3415-1 & -5	.035
256T3415-2 & -5	.037

* (180, 215, IPL Fig. 1, 165, 190 IPL Fig. 2)

Table I. Shim Thickness

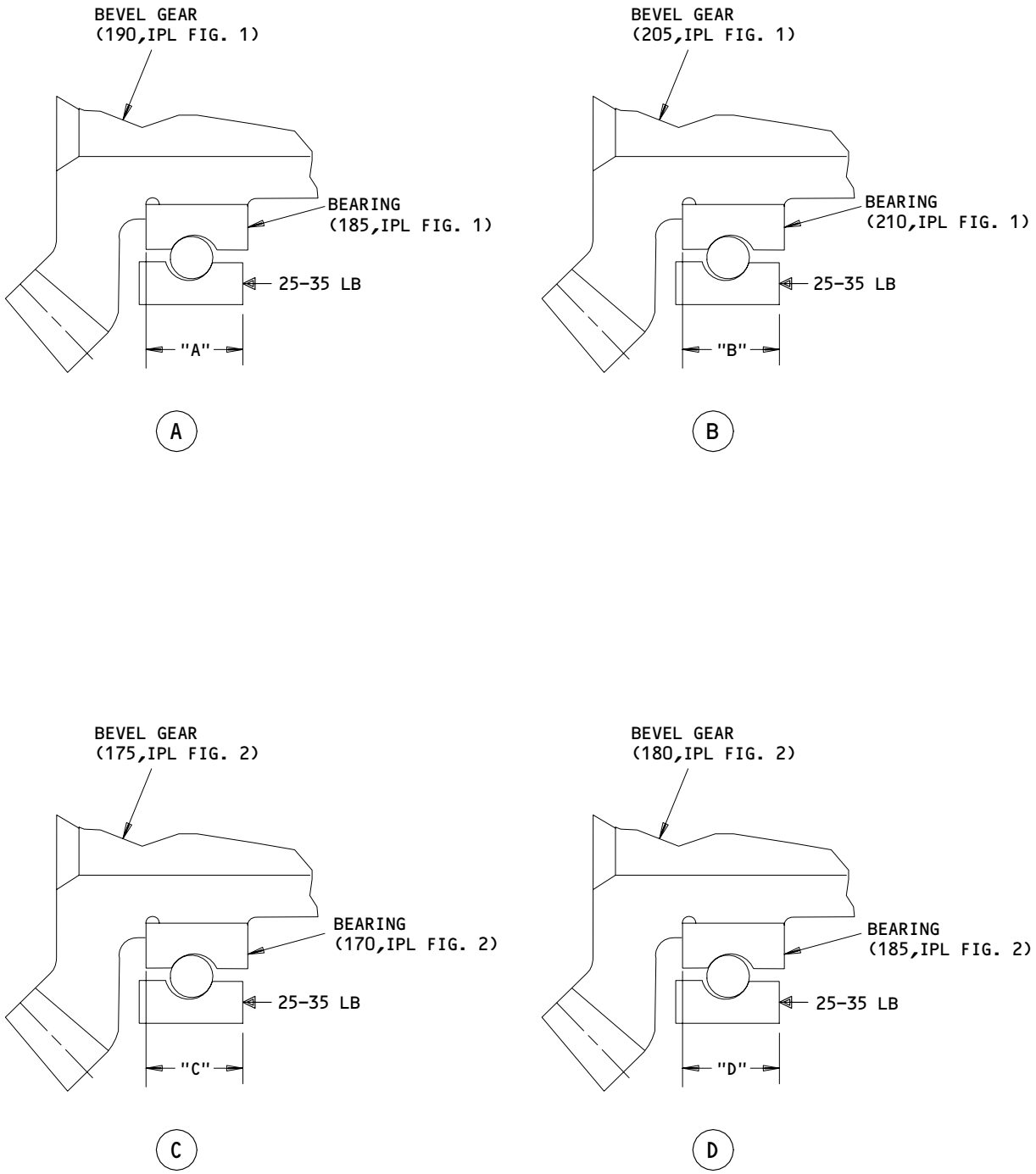


256T3430-3



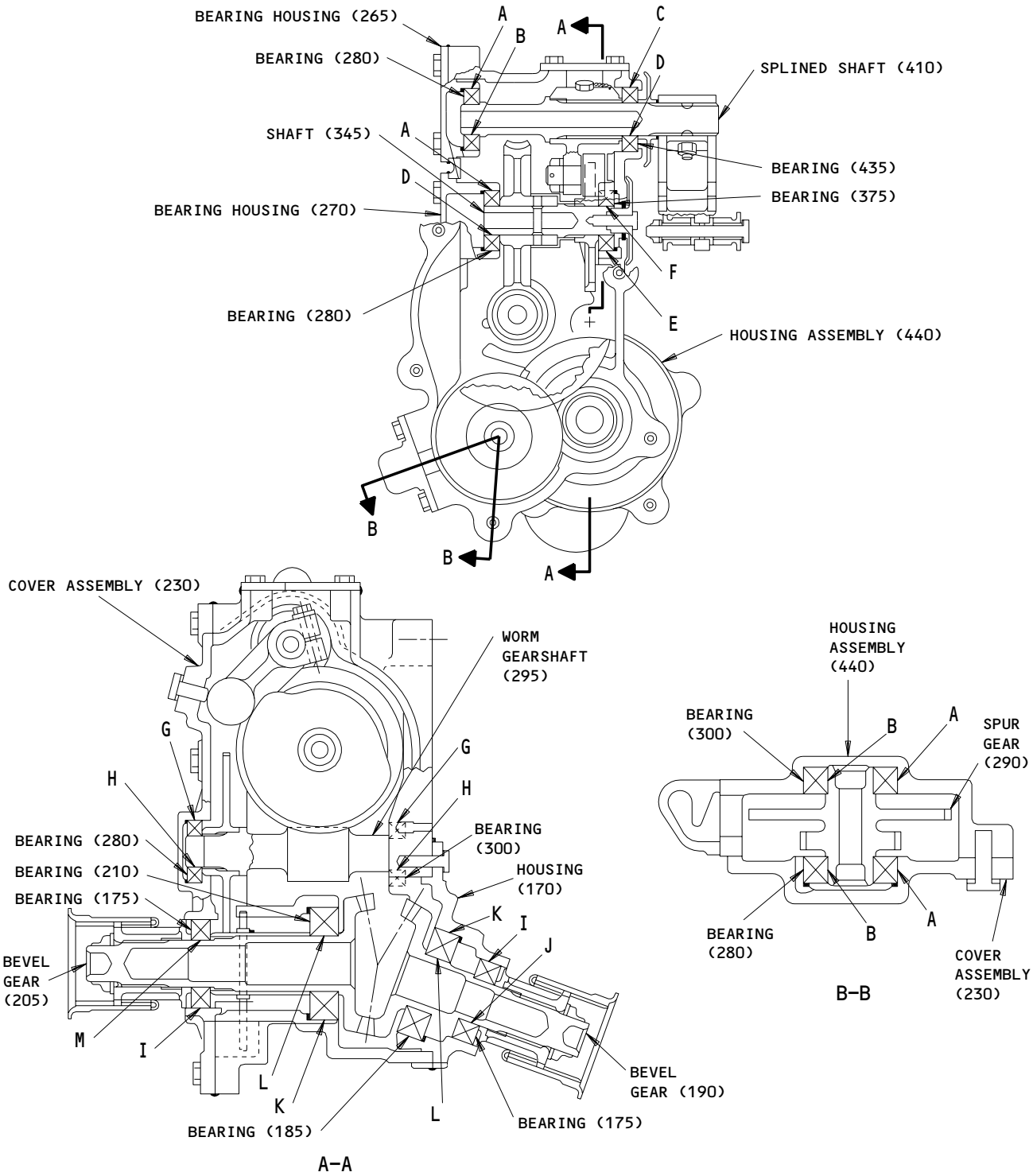
256T3430-4

Shim (180,215, IPL Fig. 1; 165, 190, IPL Fig. 2) Selection
Figure 705 (Sheet 1)



Shim (180,215,IPL Fig. 1; 165,190,IPL Fig. 2) Selection
Figure 705 (Sheet 2)

FITS AND CLEARANCES



Fits and Clearances
Figure 801 (Sheet 1)

31338

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 230,265, 270,440	1.3782	1.3787	0.0002	0.0012		1.3810	0.0030
	OD 280,300	1.3775	1.3780			1.3752		
B	ID 280,300	0.6690	0.6693	-0.0005	0.0001		0.6696	0.0001
	OD 290,410	0.6692	0.6695			0.6680		
C	ID 440	1.3770	1.3775	-0.0010	0.0000		1.3775	0.0000
	OD 435	1.3775	1.3780			1.3775		
D	ID 280,435	0.6690	0.6693	0.0001	0.0007		0.6703	0.0014
	OD 345,410	0.6686	0.6689			0.6676		
E	ID 440	1.4569	1.4574	0.0002	0.0012		1.4597	0.003
	OD 375	1.4562	1.4567			1.4540		
F	ID 375	0.7870	0.7874	-0.0007	0.0001		0.7877	0.0001
	OD 345	0.7873	0.7877			0.7860		
G	ID 230,440	1.3782	1.3787	0.0002	0.0012		1.3810	0.0030
	OD 280,300	1.3775	1.3780			1.3752		
H	ID 280,300	0.6690	0.6693	-0.0005	0.0001		0.6696	0.0001
	OD 295	0.6692	0.6695			0.6680		
I	ID 230,170	1.8506	1.8514	0.0002	0.0015		1.8534	0.0030
	OD 175	1.8499	1.8504			1.8476		

1 NEGATIVE VALUES DENOTE INTERFERENCE FIT

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 2)

31349

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	
J	ID 175 OD 190	0.9839 0.9844	0.9843 0.9847	-0.0008	-0.0001	0.9838	0.9848	0.0000
K	ID 170,440 OD 185,210	2.4411 2.4404	2.4421 2.4409	0.0002	0.0017	2.4381	2.4439	0.0030
L	ID 185,210 OD 190,205	1.1807 1.1812	1.1811 1.1815	-0.0008	-0.0001	1.1811	1.1812	0.0000
M	ID 175 OD 205	0.9839 0.9835	0.9843 0.9838	0.0001	0.0008	0.9825	0.9853	0.0014

*[1] NEGATIVE VALUES DENOTE INTERFERENCE FIT

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

Fits and Clearances
Figure 801 (Sheet 3)

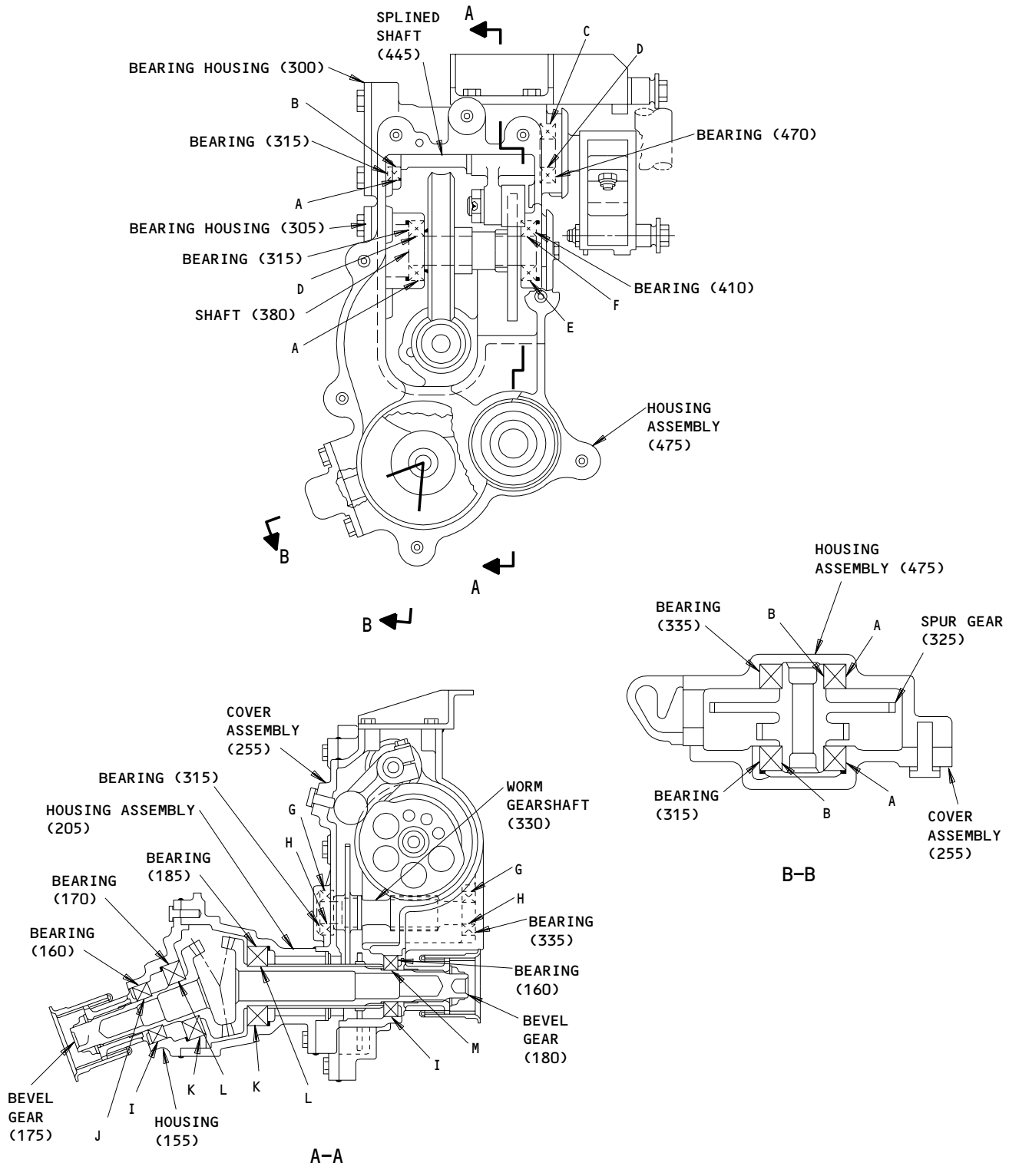
31396

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
5,115,220,305	BOLT	20-25	
35	NUT	20-25	
55,160,235,255,400	BOLT	50-70	
90,390	NUT	50-70	
135	NUT	600-800	

ITEM NUMBERS REFER TO IPL FIG. 1

Torque Table
Figure 802

L49538



Fits and Clearances
Figure 803 (Sheet 1)

Ref Letter Fig.803	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 255,300, 305,475 OD 315,335	1.3782 1.3775	1.3787 1.3780	0.0002	0.0012	1.3752	1.3810	0.0030
B	ID 315,335 OD 325,445	0.6690 0.6692	0.6693 0.6695	-0.0005	0.0001	0.6686	0.6696	0.0001
C	ID 475 OD 470	1.3770 1.3775	1.3775 1.3780	-0.0010	0.0000	1.3775	1.3775	0.0000
D	ID 315,470 OD 380,445	0.6690 0.6686	0.6693 0.6689	0.0001	0.0007	0.6676	0.6703	0.0014
E	ID 475 OD 410	1.3782 1.3775	1.3787 1.3780	0.0002	0.0012	1.3752	1.3810	0.0030
F	ID 410 OD 380	0.6690 0.6691	0.6693 0.6694	-0.0004	0.0002	0.6686	0.6698	0.0004
G	ID 255,475 OD 315,335	1.3782 1.3775	1.3787 1.3780	0.0002	0.0012	1.3752	1.3810	0.0030
H	ID 315,335 OD 330	0.6690 0.6692	0.6693 0.6695	-0.0005	0.0001	0.6689	0.6696	0.0001
I	ID 155,475 OD 160	1.8506 1.8499	1.8514 1.8504	0.0002	0.0015	1.8476	1.8534	0.0030

[1] NEGATIVE VALUES DENOTE INTERFERENCE FIT

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

Fits and Clearances
Figure 803 (Sheet 2)

Ref Letter Fig.803	Mating Item No. IPL Fig.2	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance *[1]		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
J	ID 160 OD 175	0.9839 0.9844	0.9843 0.9847	-0.0008	-0.0001	0.9838	0.9848	0.0000
K	ID 155,205 OD 170,185	2.4411 2.4404	2.4421 2.4409	0.0002	0.0017	2.4381	2.4439	0.0030
L	ID 170,185 OD 175,180	1.1807 1.1812	1.1811 1.1815	-0.0008	-0.0001	1.1811	1.1812	0.0000
M	ID 160 OD 180	0.9839 0.9835	0.9843 0.9838	0.0001	0.0008	0.9825	0.9853	0.0014

*[1] NEGATIVE VALUES DENOTE INTERFERENCE FIT

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

Fits and Clearances
Figure 803 (Sheet 3)

L43269

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 2	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
100,245,340	BOLT	20-25	
20	NUT	20-25	
40,145,210,215,260, 290,435	BOLT	50-70	
75,425	NUT	50-70	
120	NUT	600-800	

ITEM NUMBERS REFER TO IPL FIG. 2

Torque Table
Figure 804

31405

SPECIAL TOOLS

NOTE: Equivalent substitutes may be used.

1. Test Fixture -- A27046-141 or -191 (for 256T3430-3) *[1]

2. Test Fixture -- A27046-163 or -192 (for 256T3430-4) *[1]

3. Test Equipment -- A27046-8

4. Bearing Width Checking Fixture -- A27040-1.

5. Shimming Fixture -- A27055-1

*[1] A27046-191, -192 can also be used on Gearbox/Mechanism Assembly 256T6640-1, -2 (see CMM 27-51-39).

ILLUSTRATED PARTS LIST

1. This section lists and illustrates replaceable 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 is 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

05939 FLUOROCARBON CO MECHANICAL SEAL DIV
10871 KYLE ST PO BOX 520
LOS ALAMITOS, CALIFORNIA 90720

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

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AN960-1216		1	140	2
		2	125	2
AN960PD10		1	10	4
		1	120	2
		1	310	1
		2	45	4
		2	105	4
		2	345	1
AN960PD416		1	30	4
		1	60	2
		1	85	1
		1	165	5
		1	240	7
		1	260	6
		1	405	1
		2	15	4
		2	70	1
		2	150	5
		2	220	5
		2	265	7
		2	295	6
		2	440	1
AN960PD716		1	395	1
		2	430	1
AR10400-016GC		1	320	1
		2	355	1
BACB10AF7F8HS		1	430	1
		2	465	1
BACB10AZ30PP		1	185	1
		1	210	1
		2	170	1
		2	185	1
BACB10BA17PP		1	280	4
		1	300	2
		1	435	1
		2	315	4
		2	335	2
		2	410	1
		2	470	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
BACB10BA25PP		1	175	2
		2	160	2
BACB10BB20PP		1	375A	1
BACB28AA4C016		1	65	2
		1	95	2
		2	50	2
		2	80	2
BACB28AK04-068		1	45	4
		2	30	4
BACB30NF4-30		1	25	2
		2	10	2
BACN10JC12		1	135	2
		2	120	2
BACN10JC4		1	35	2
		1	90	1
		2	20	2
		2	75	1
MS16562-21		1	445	2
		2	485	2
MS17826-7		1	390	1
		2	425	1
MS21209F1-10P		1	465	2
		2	235	2
		2	500	2
MS21209F1-15P		1	340	1
		1	455	4
		2	375	1
		2	490	4
MS21209F4-15P		1	420	1
		1	460	23
		2	230	7
		2	280	4
		2	455	1
		2	495	14
MS21209F5-10P		1	245	1
		2	275	1
MS24665-302		1	385	1
		2	420	1
NAS334CPA13		1	80	1
		2	65	1

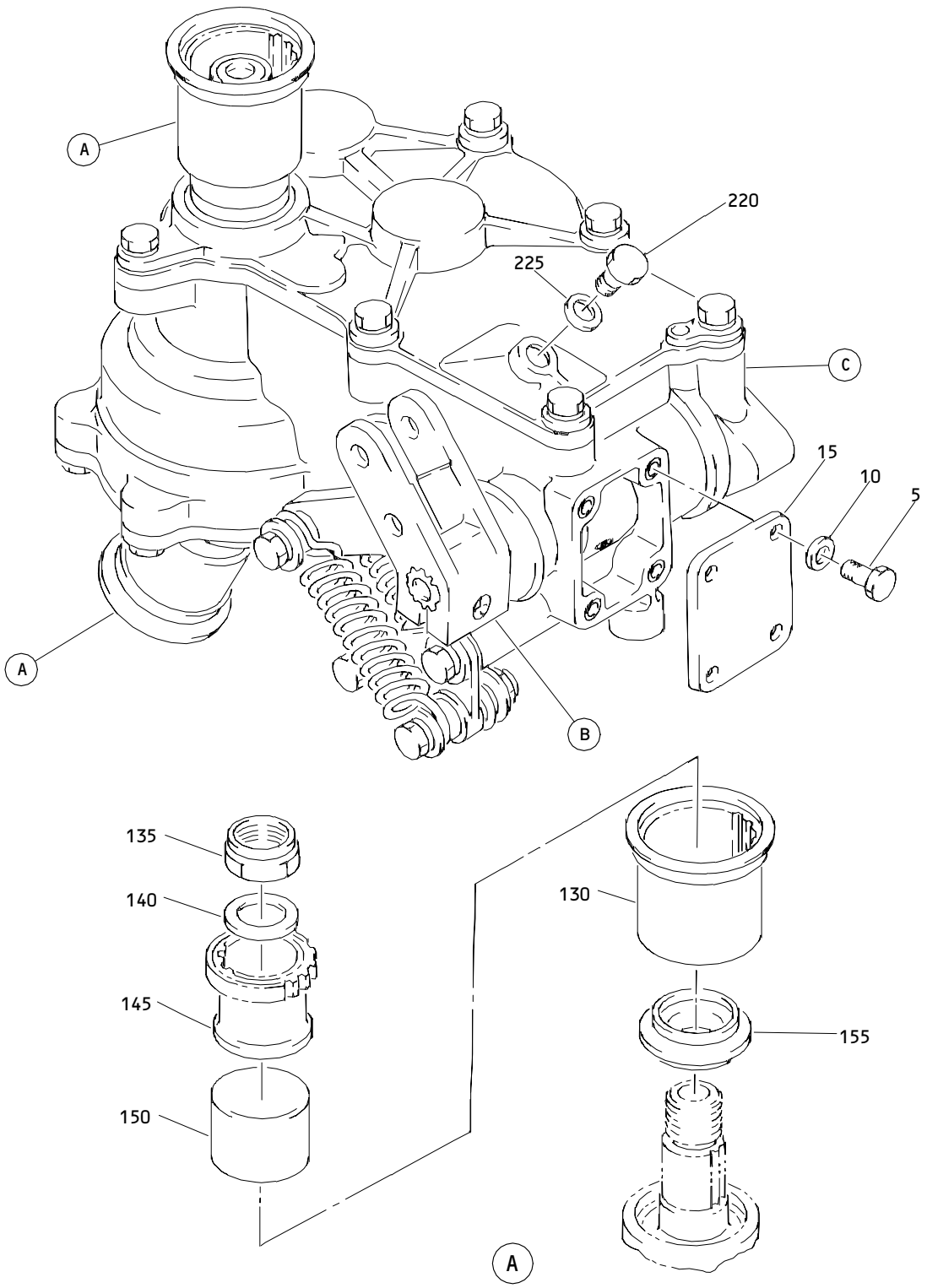
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
NAS565-21		1	220	1
		2	245	1
NAS607-3-4P		1	450	2
		2	480	1
NAS607-3-5P		2	225	1
		2	270	1
NAS6603-10		1	305	1
NAS6603-2		1	115	2
		2	100	4
NAS6603-4		2	340	1
NAS6603H2		1	5	4
NAS6603H3		2	40	4
NAS6604H10		1	400	1
		2	435	1
NAS6604H16		2	210	1
NAS6604H4		1	160	5
		1	255	6
		2	145	5
		2	215	4
		2	290	6
NAS6604H5		1	235	7
		2	260	7
NAS6604H6		1	55	2
1904SZZ002		1	375	1
256T3414-1		1	155	2
		2	140	2
256T3415-1		1	180	1
		1	215	1
		2	165	1
		2	190	1
256T3415-2		1	180A	1
		1	215A	1
		2	165A	1
		2	190A	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
256T3415-3		1	180B	1
		1	215B	1
		2	165B	1
		2	190B	1
256T3415-4		1	180C	1
		1	215C	1
		2	165C	1
		2	190C	1
256T3415-5		1	180D	1
		1	215D	1
		2	165D	1
		2	190D	1
256T3430-3		1	1	RF
256T3430-4		1	1A	RF
		2	1	RF
256T3431-1		1	440	1
256T3431-2		1	470	1
256T3433-1		2	475	1
256T3433-2		2	505	1
256T3435-1		1	230	1
256T3435-2		1	250	1
256T3437-1		2	255	1
256T3437-2		2	285	1
256T3438-1		1	170	1
256T3438-2		2	155	1
256T3440-1		2	205	1
256T3440-2		2	240	1
256T3441-1		1	270	1
		2	305	1
256T3441-2		1	265	1
		2	300	1
256T3442-1		1	190	1
		2	175	1
256T3443-1		1	205	1
256T3444-1		2	180	1
256T3445-1		1	295	1
		2	330	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
256T3446-1		1	195	1
		2	200	1
256T3447-1		1	290	1
		2	325	1
256T3448-1		1	285	1
		2	320	1
256T3449-1		1	350	1
		2	385	1
256T3450-1		2	350	1
256T3451-1		2	370	1
256T3451-2		2	380	1
256T3452-1		1	410	1
256T3452-2		2	445	1
256T3453-1		1	200	1
256T3453-2		2	195	1
256T3454-1		1	110	1
		2	95	1
256T3455-1		2	390	1
256T3456-1		1	75	1
256T3456-2		1	100	1
256T3457-1		1	415	1
		2	450	1
256T3457-2		1	425	1
		2	460	1
256T3458-1		1	330	1
		2	365	1
256T3459-1		1	275	4
		2	310	4
		2	415	1
256T3459-2		1	275A	4
		2	310A	4
		2	415A	1
256T3459-3		1	275B	4
		2	310B	4
		2	415B	1

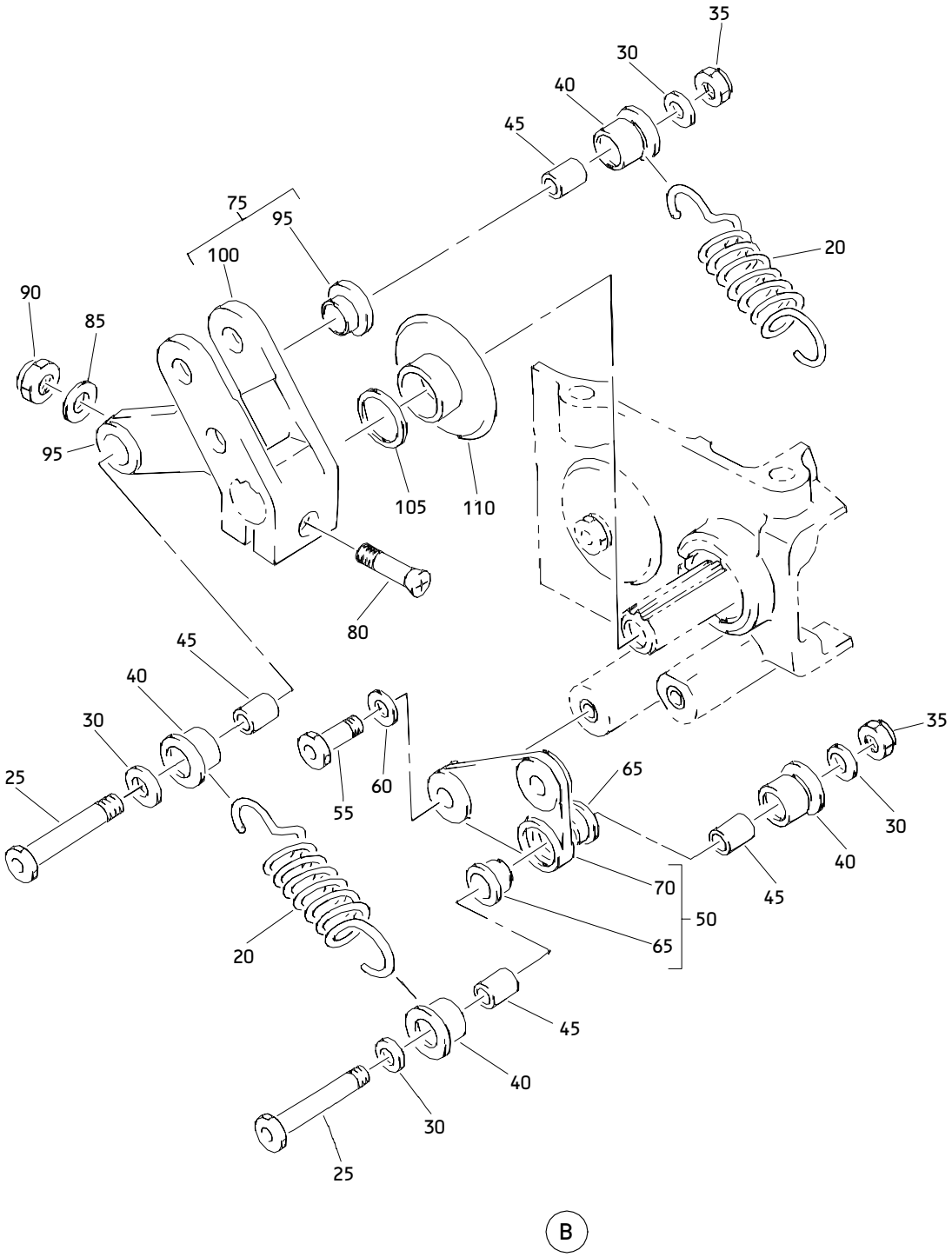
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
256T3459-4		1	275C	4
		2	310C	4
		2	415C	1
256T3459-5		1	275D	4
		2	310D	4
		2	415D	1
256T3460-1		1	105	1
		2	90	1
256T3460-2		1	105A	1
		2	90A	1
256T3460-3		1	105B	1
		2	90B	1
256T3460-4		1	105C	1
		2	90C	1
256T3460-5		1	105D	1
		2	90D	1
256T3461-1		1	475	1
		2	510	1
256T3462-1		1	225	1
		2	250	1
256T3462-2		1	225A	1
		2	250A	1
256T3462-3		1	225B	1
		2	250B	1
256T3462-4		1	225C	1
		2	250C	1
256T3462-5		1	225D	1
		2	250D	1
256T3463-1		1	20	2
		2	5	2
256T3464-1		1	40	4
		2	25	4
256T3465-1		1	50	1
256T3465-2		1	70	1
256T3466-1		2	60	1
256T3466-2		2	85	1
256T3467-1		1	15	1
256T3468-1		2	395	1
256T3468-2		2	405	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
256T3469-1		2	360	1
256T3470-1		2	35	1
256T3470-2		2	55	1
256T3471-1		2	400	1
256T3471-2		1	365	1
256T3472-1		1	325	1
256T3473-1		1	335	1
256T3473-2		1	345	1
256T3474-1		1	360	1
256T3474-2		1	370	1
256T3474-3		1	360A	1
256T3474-4		1	370A	1
256T3475-1		1	315	1
256T3476-1		1	355	1
256T3477-1		1	380	1
256T3477-2		1	380A	1
256T3477-3		1	380B	1
256T3477-4		1	380C	1
256T3477-5		1	380D	1
256T3749-1		1	145	2
		2	130	2
65B81978-3		1	125	1
		2	110	2
65B84033-18		1	150	2
		2	135	2
65B84034-3		1	130	2
		2	115	2



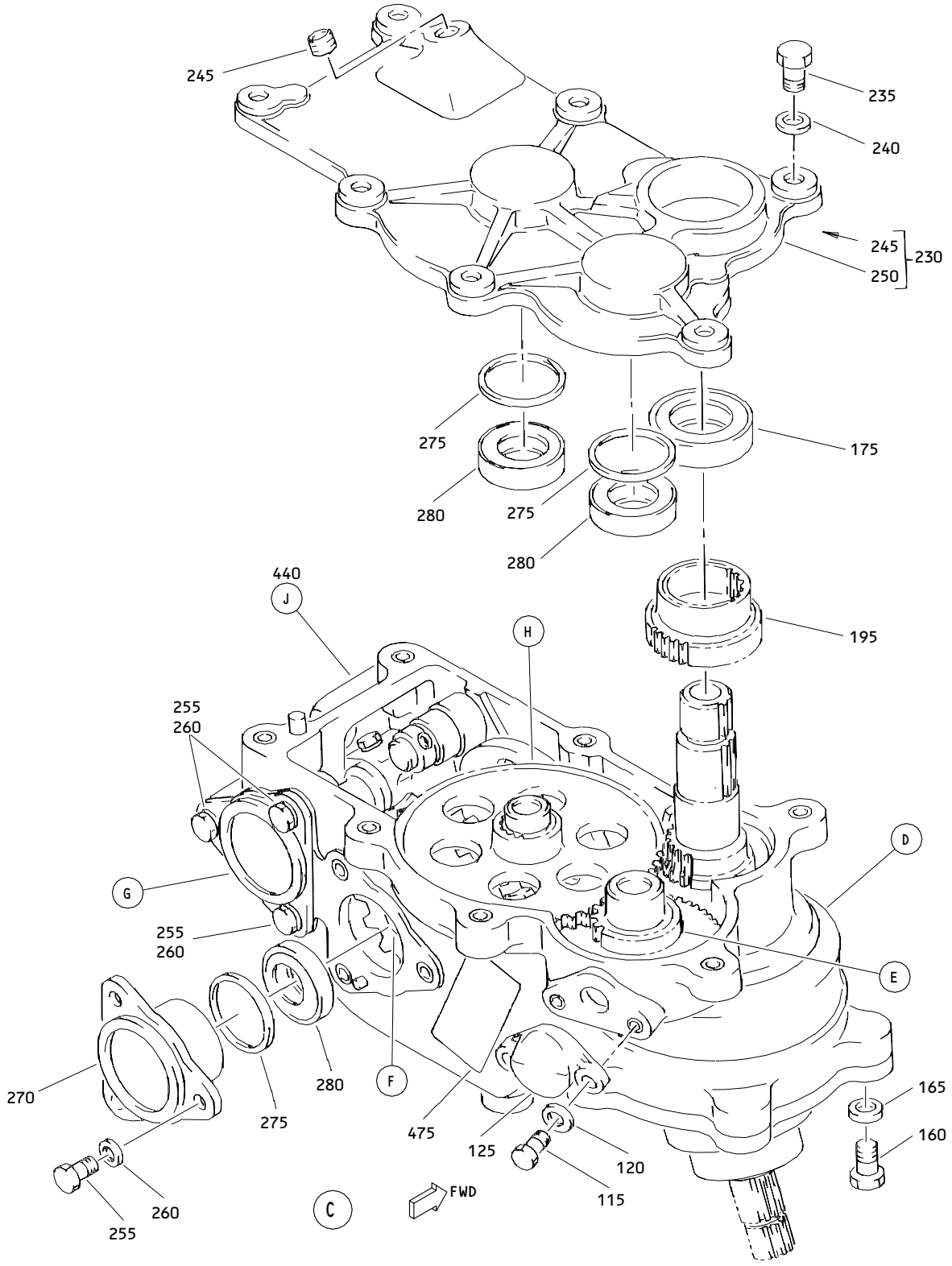
Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 1 (Sheet 1)

T59273



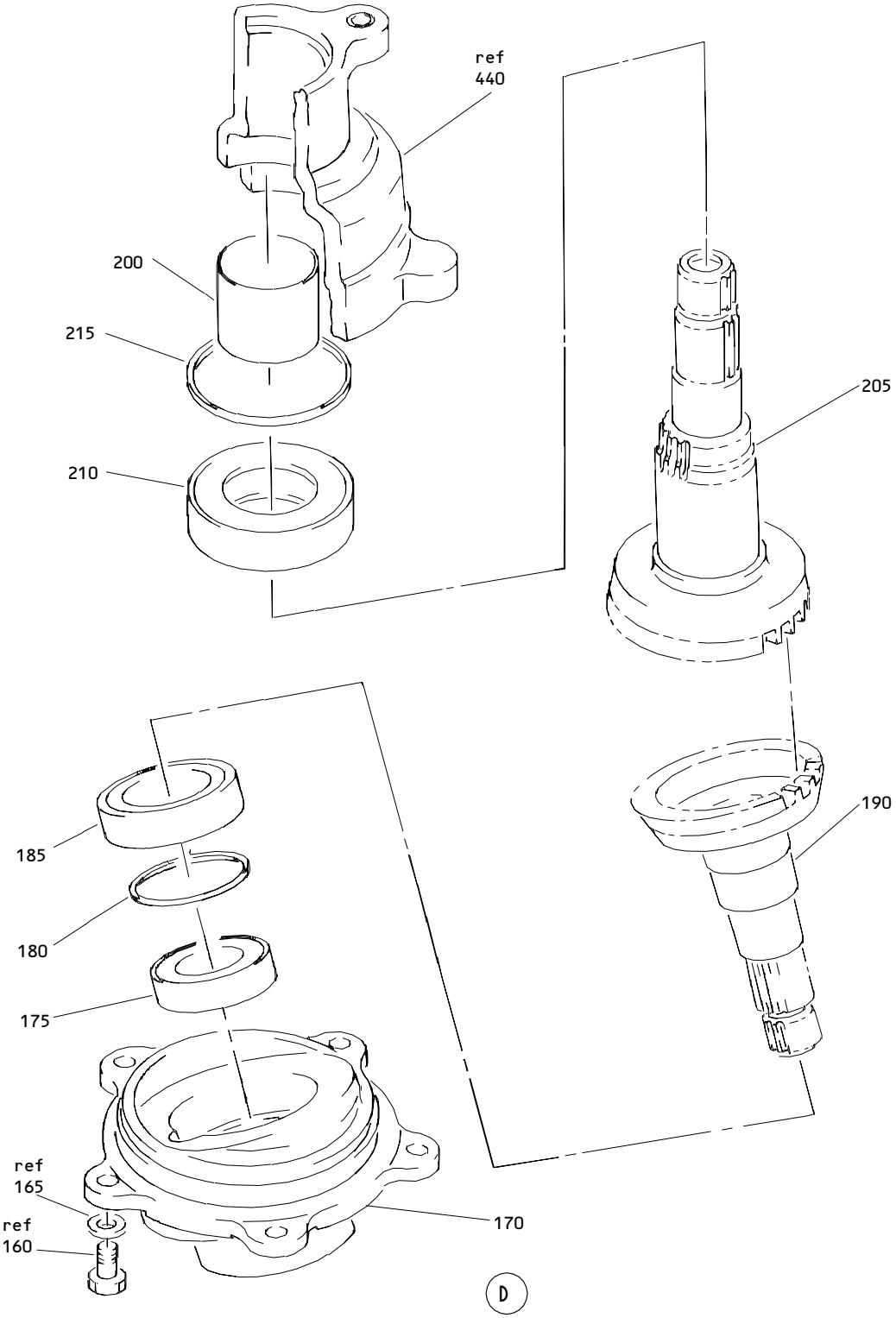
Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 1 (Sheet 2)

T59274



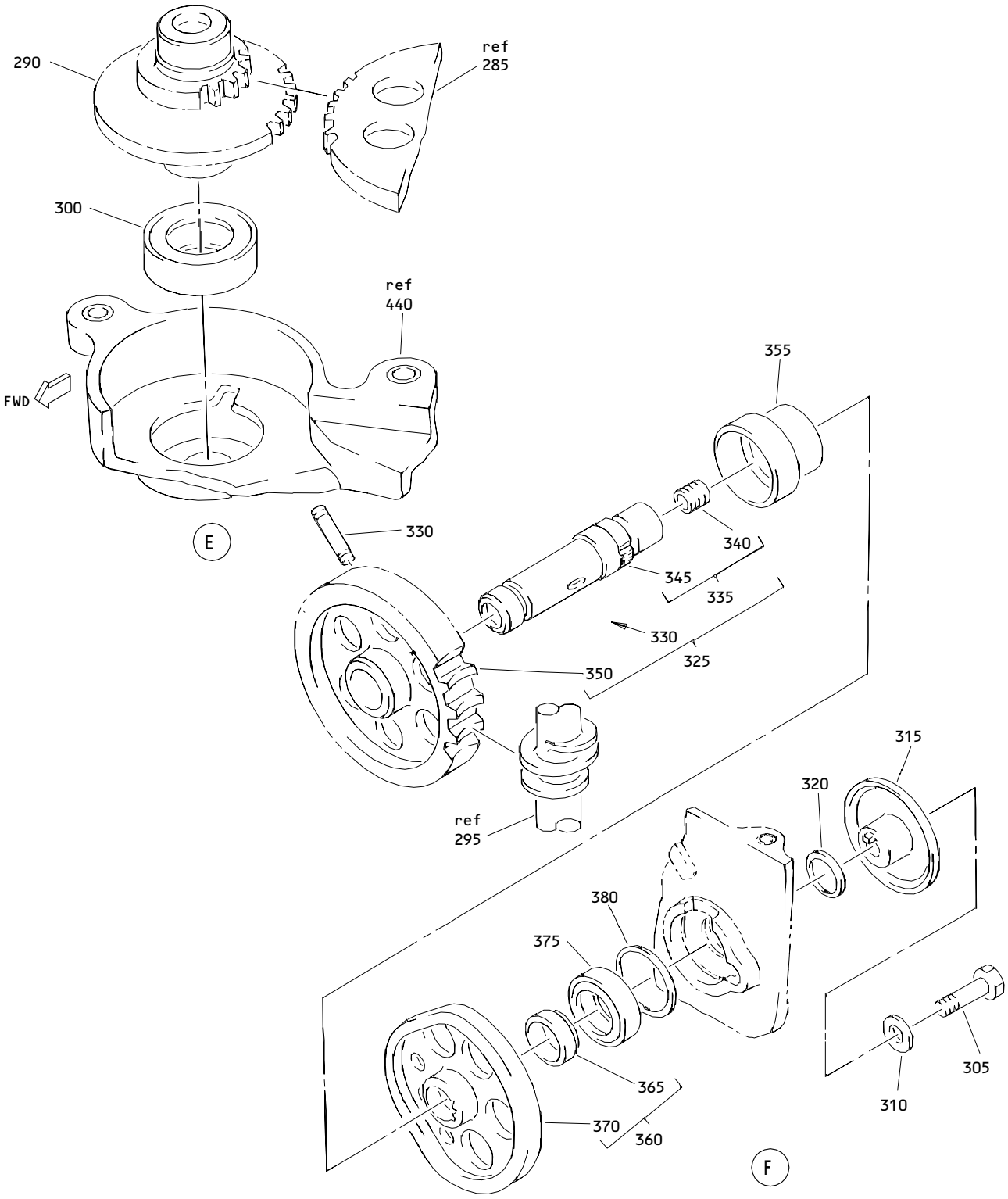
Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 1 (Sheet 3)

T59275



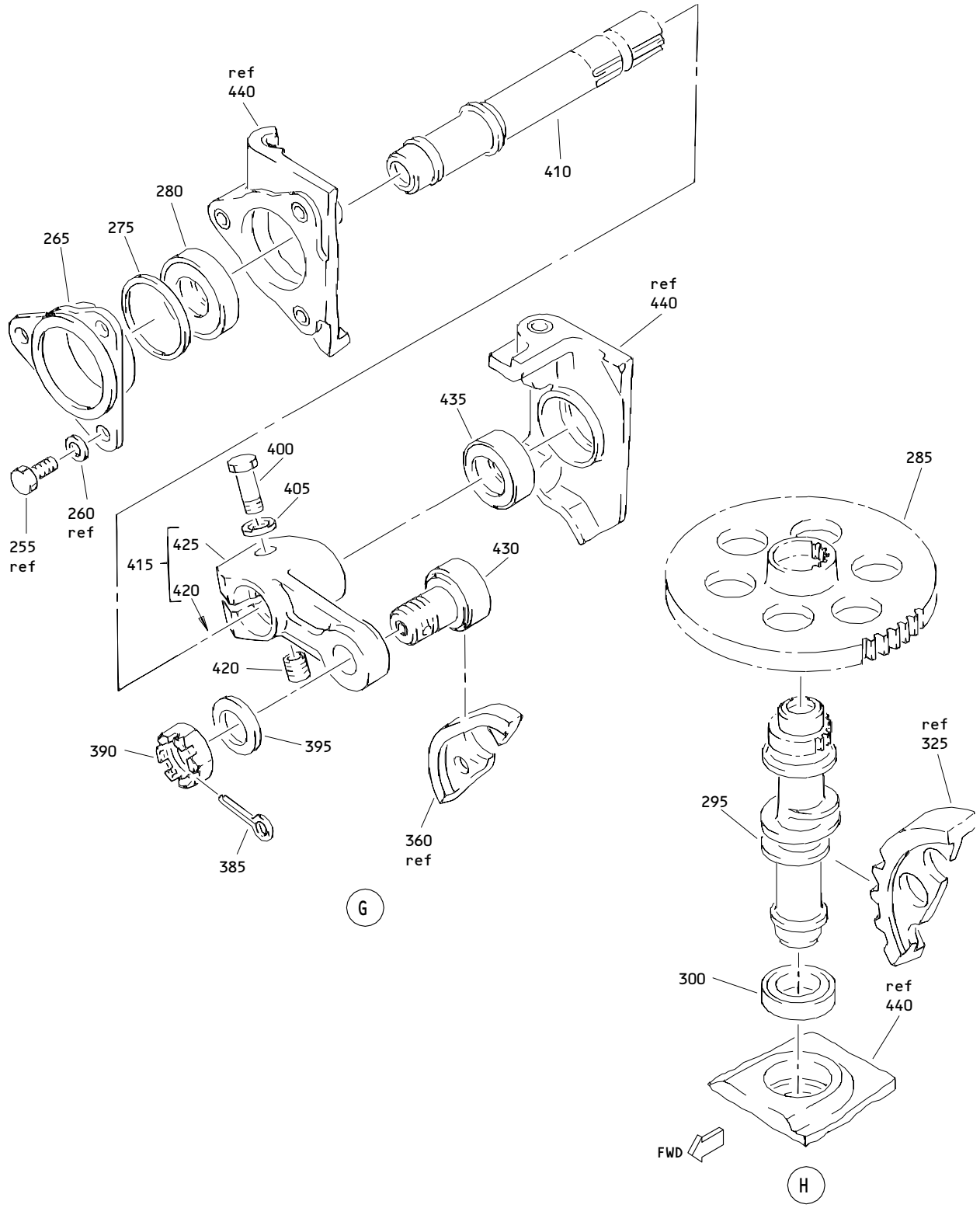
Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 1 (Sheet 4)

T59276



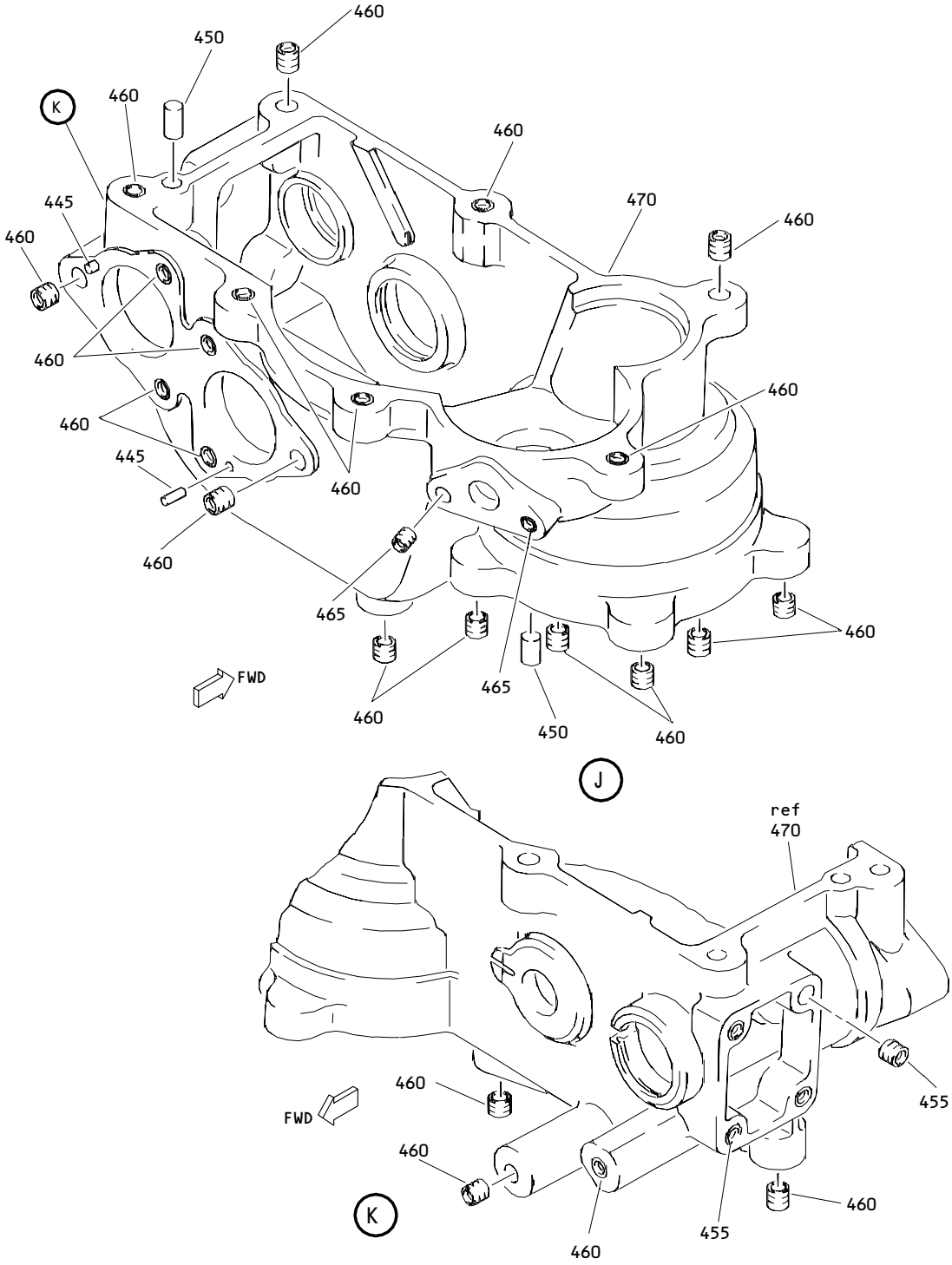
Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 1 (Sheet 5)

T59277



Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 1 (Sheet 6)

T59278



Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 1 (Sheet 7)

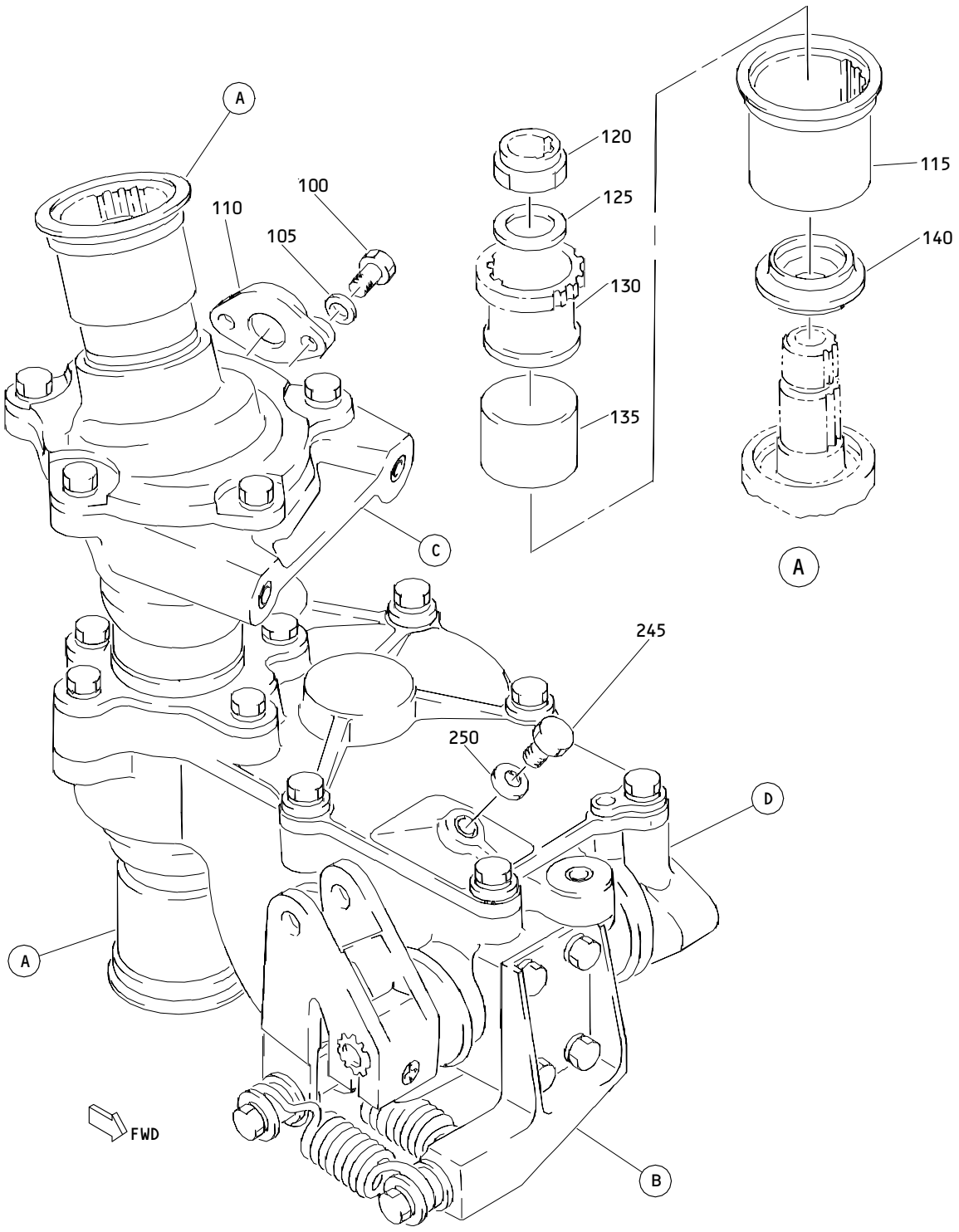
T59279

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	256T3430-3		MECHANISM ASSY-TE FLAP DRIVE ANGLE GEARBOX AND AIL. DROOP INPUT CONT		RF
-1A	256T3430-4		MECHANISM ASSY-TE FLAP DRIVE ANGLE GEARBOX AND AIL. DROOP INPUT CONT (FOR DETAILS SEE FIG. 2)		RF
5	NAS6603H2		.BOLT		4
10	AN960PD10		.WASHER		4
15	256T3467-1		.COVER		1
20	256T3463-1		.SPRING-EXTENSION		2
25	BACB30NF4-30		.BOLT		2
30	AN960PD416		.WASHER		4
35	BACN10JC4		.NUT		2
40	256T3464-1		.RETAINER		4
45	BACB28AK04-068		.BUSHING		4
50	256T3465-1		.BRACKET ASSY		1
			ATTACHING PARTS		
55	NAS6604H6		.BOLT		2
60	AN960PD416		.WASHER		2
			-------*-------		
65	BACB28AA4C016		..BUSHING		2
70	256T3465-2		..BRACKET		1
75	256T3456-1		.CRANK ASSY		1
			ATTACHING PARTS		
80	NAS334CPA13		.BOLT		1
85	AN960PD416		.WASHER		1
90	BACN10JC4		.NUT		1
			-------*-------		
95	BACB28AA4C016		..BUSHING		2
100	256T3456-2		..CRANK		1
105	256T3460-1		.SHIM		AR
-105A	256T3460-2		.SHIM		AR
-105B	256T3460-3		.SHIM		AR
-105C	256T3460-4		.SHIM		AR
-105D	256T3460-5		.SHIM		AR
110	256T3454-1		.SHIELD-BRG		1
115	NAS6603-2		.BOLT		2
120	AN960PD10		.WASHER		2
125	65B81978-3		.COVER-DRAIN		1
130	65B84034-3		.SLEEVE-CPLG		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
135	BACN10JC12		.NUT		2
140	AN960-1216		.WASHER		2
145	256T3749-1		.COUPLING HALF		2
150	65B84033-18		.SLEEVE-MOLDED		2
155	256T3414-1		.SHIELD-BRG		2
160	NAS6604H4		.BOLT		5
165	AN960PD416		.WASHER		5
170	256T3438-1		.HOUSING		1
175	BACB10BA25PP		.BEARING		2
180	256T3415-1		.SHIM		AR
-180A	256T3415-2		.SHIM		AR
-180B	256T3415-3		.SHIM		AR
-180C	256T3415-4		.SHIM		AR
-180D	256T3415-5		.SHIM		AR
185	BACB10AZ30PP		.BEARING		1
190	256T3442-1		.GEAR-BEVEL		1
195	256T3446-1		.GEAR-SPUR		1
200	256T3453-1		.SPACER-SLEEVE		1
205	256T3443-1		.GEAR-BEVEL		1
210	BACB10AZ30PP		.BEARING		1
215	256T3415-1		.SHIM		AR
-215A	256T3415-2		.SHIM		AR
-215B	256T3415-3		.SHIM		AR
-215C	256T3415-4		.SHIM		AR
-215D	256T3415-5		.SHIM		AR
220	NAS565-21		.BOLT		1
225	256T3462-1		.SHIM		AR
-225A	256T3462-2		.SHIM		AR
-225B	256T3462-3		.SHIM		AR
-225C	256T3462-4		.SHIM		AR
-225D	256T3462-5		.SHIM		AR
230	256T3435-1		.COVER ASSY		1
			ATTACHING PARTS		
235	NAS6604H5		.BOLT		7
240	AN960PD416		.WASHER		7
			-------*-------		

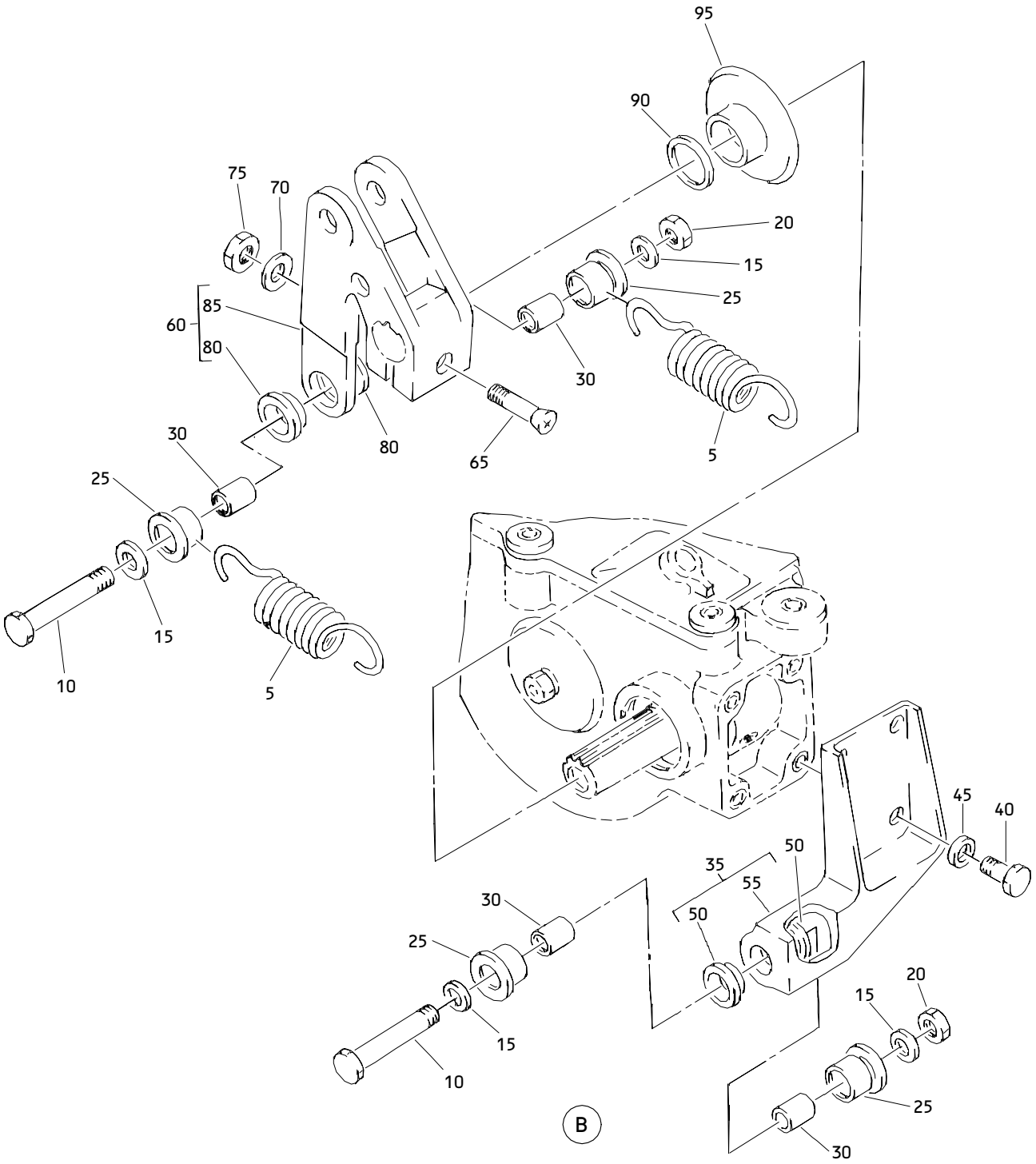
FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
245	MS21209F5-10P		..INSERT		1
250	256T3435-2		..COVER		1
255	NAS6604H4		.BOLT		6
260	AN960PD416		.WASHER		6
265	256T3441-2		.HOUSING-BRG		1
270	256T3441-1		.HOUSING-BRG		1
275	256T3459-1		.SHIM		4
-275A	256T3459-2		.SHIM		4
-275B	256T3459-3		.SHIM		4
-275C	256T3459-4		.SHIM		4
-275D	256T3459-5		.SHIM		4
280	BACB10BA17PP		.BEARING		4
285	256T3448-1		.GEAR-SPUR		1
290	256T3447-1		.GEAR-SPUR		1
295	256T3445-1		.GEARSHAFT-WORM		1
300	BACB10BA17PP		.BEARING		2
305	NAS6603-10		.BOLT		1
310	AN960PD10		.WASHER		1
315	256T3475-1		.DISC-IND		1
320	AR10400-016GC		.SEAL- (V05939)		1
325	256T3472-1		.GEAR ASSY-WORM		1
330	256T3458-1		..PIN-SHEAR		1
335	256T3473-1		..SHAFT ASSY		1
340	MS21209F1-15P		...INSERT		1
345	256T3473-2		...SHAFT		1
350	256T3449-1		..GEAR-WORM		1
355	256T3476-1		.RETAINER-SPACER		1
360	256T3474-1		.CAM ASSY- (REPLS ITEM 360A)		1
-360A	256T3474-3		.CAM ASSY- (REPLD BY ITEM 360)		1
365	256T3471-2		..BUSHING		1
370	256T3474-2		..CAM- (USED ON ITEM 360)		1
-370A	256T3474-4		..CAM- (USED ON ITEM 360A)		1
375	1904SZZ002		.BEARING- (V38443) (OPT ITEM 375A)		1
-375A	BACB10BB20PP		.BEARING (OPT ITEM 375)		1 1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
380	256T3477-1		.SHIM		AR
-380A	256T3477-2		.SHIM		AR
-380B	256T3477-3		.SHIM		AR
-380C	256T3477-4		.SHIM		AR
-380D	256T3477-5		.SHIM		AR
385	MS24665-302		.PIN-COTTER		1
390	MS17826-7		.NUT-SELF LOCKING		1
395	AN960PD716		.WASHER		1
400	NAS6604H10		.BOLT		1
405	AN960PD416		.WASHER		1
410	256T3452-1		.SHAFT-SPLINED		1
415	256T3457-1		.ARM ASSY		1
420	MS21209F4-15P		..INSERT		1
425	256T3457-2		..ARM		1
430	BACB10AF7F8HS		.FOLLOWER-CAM		1
435	BACB10BA17PP		.BEARING		1
440	256T3431-1		.HOUSING ASSY		1
445	MS16562-21		..PIN		2
450	NAS607-3-4P		..PIN		2
455	MS21209F1-15P		..INSERT		4
460	MS21209F4-15P		..INSERT		23
465	MS21209F1-10P		..INSERT		2
470	256T3431-2		..HOUSING		1
475	256T3461-1		.PLATE-IDENT		1



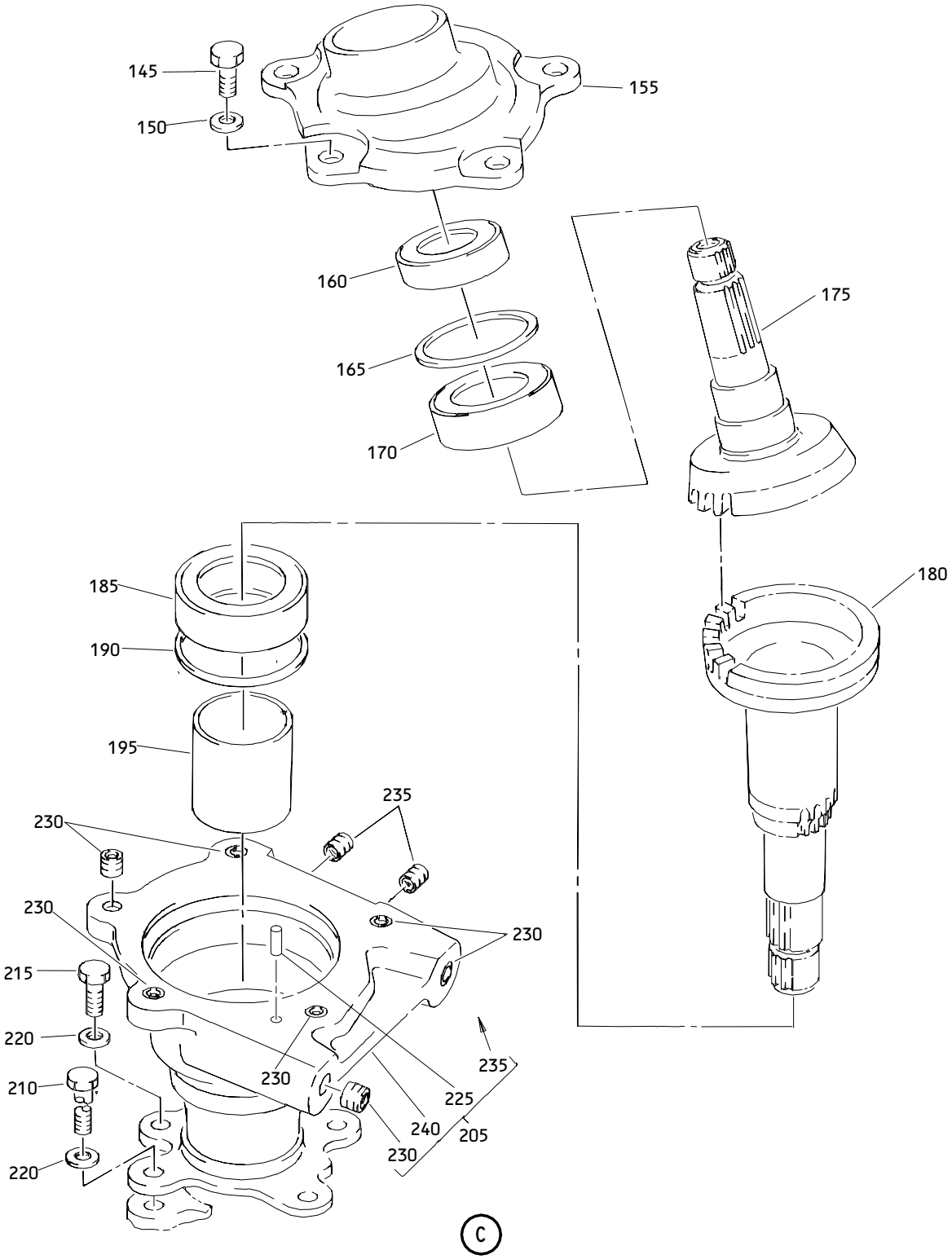
Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 2 (Sheet 1)

T59280



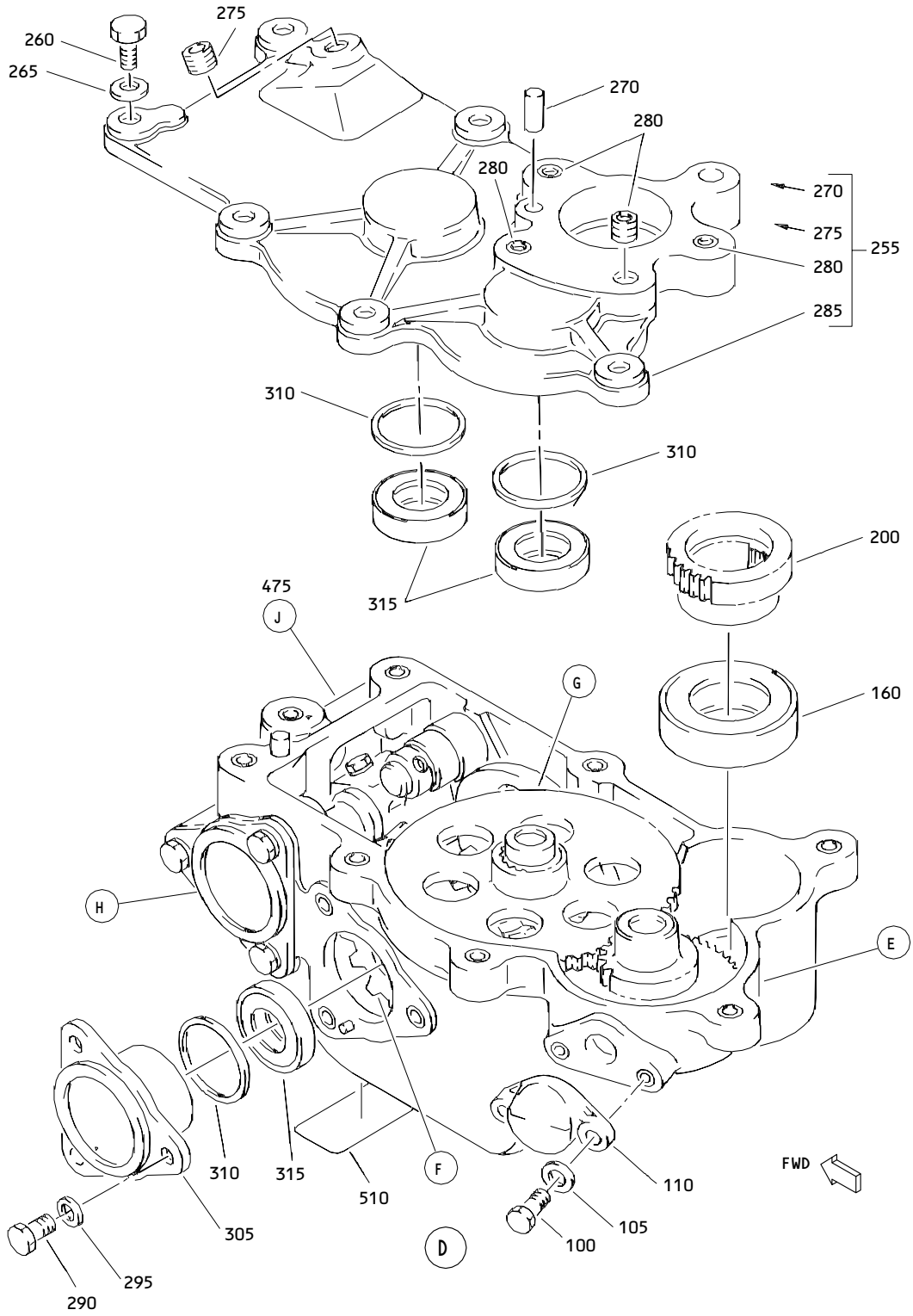
Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 2 (Sheet 2)

T59281



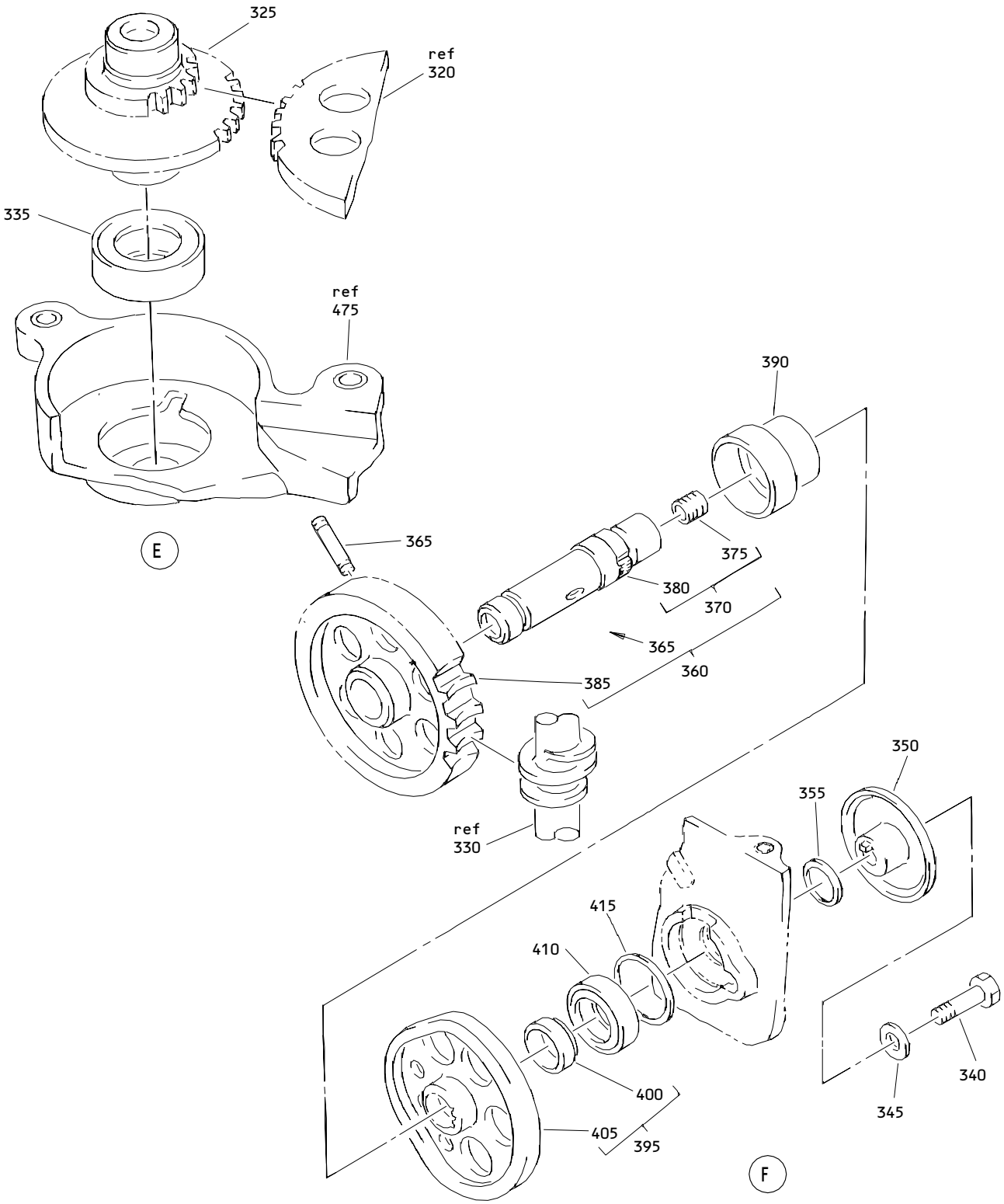
Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 2 (Sheet 3)

T59282



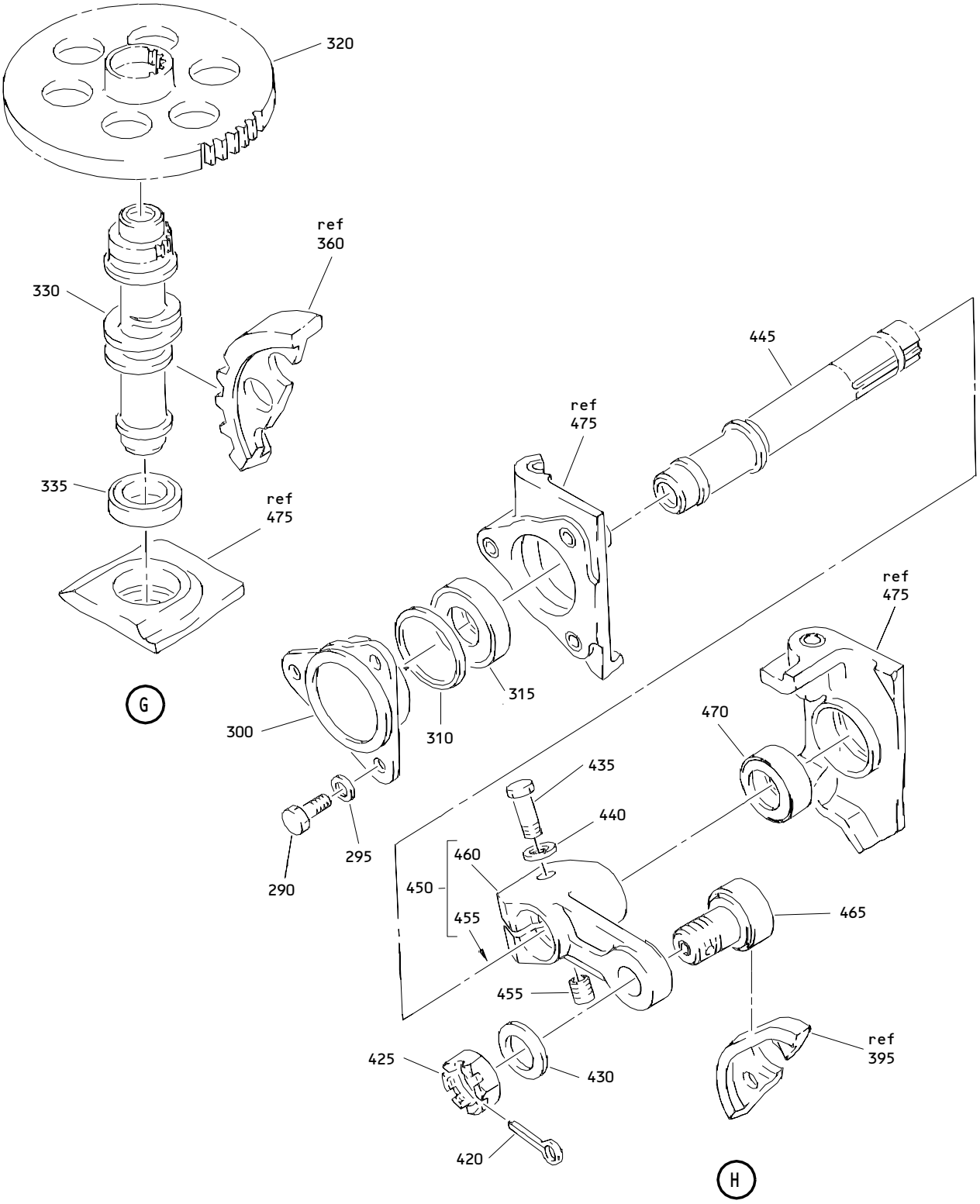
Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 2 (Sheet 4)

T59283

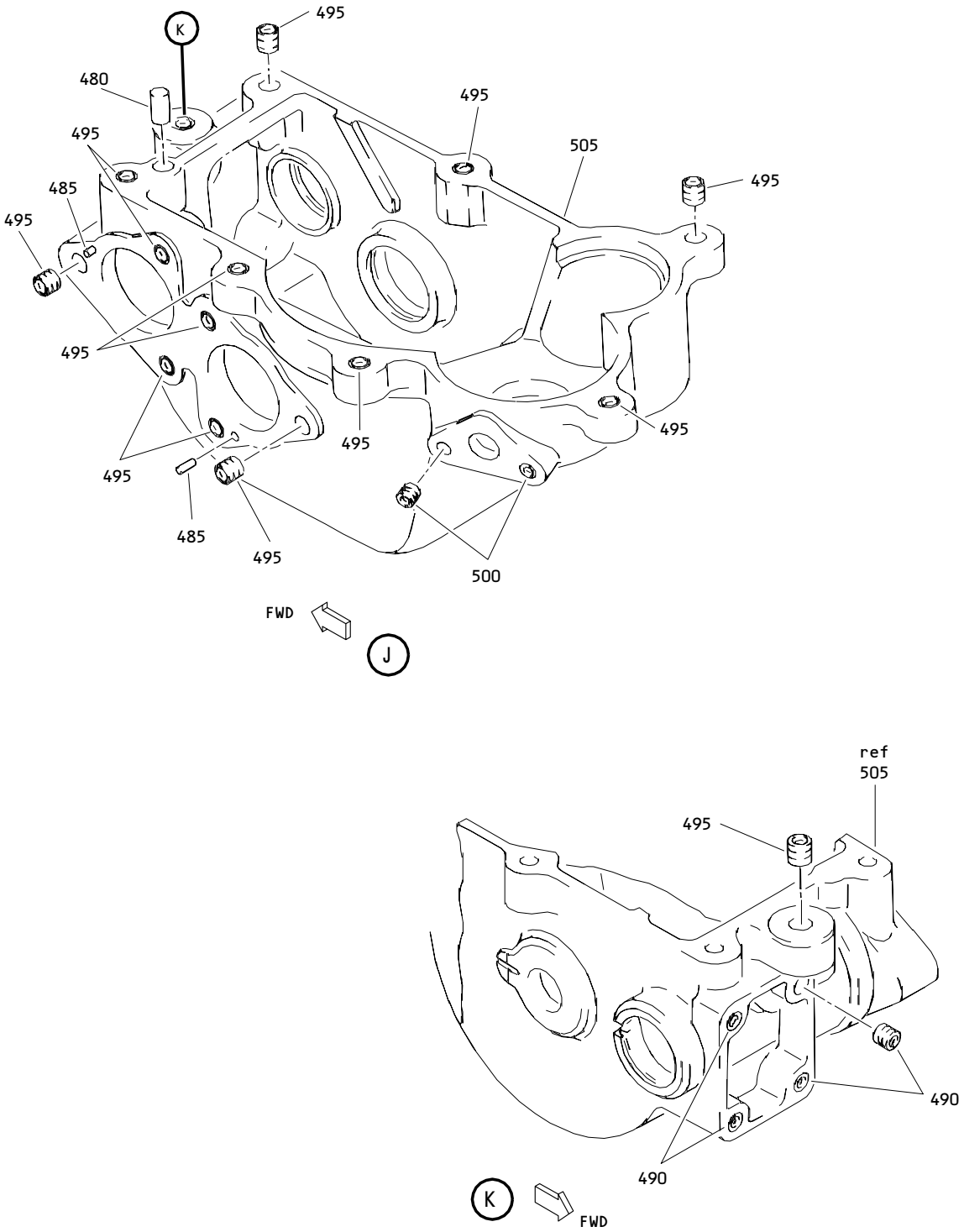


Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 2 (Sheet 5)

T59284



Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 2 (Sheet 6)



Trailing Edge Flap Drive Angle Gearbox
and Aileron Droop Input Control Mechanism Assembly
Figure 2 (Sheet 7)

T59286

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
-1	256T3430-4		MECHANISM ASSY-TE FLAP DRIVE ANGLE GEARBOX AND AIL. DROOP INPUT CONT		RF
5	256T3463-1		.SPRING-EXTENSION		2
10	BACB30NF4-30		.BOLT		2
15	AN960PD416		.WASHER		4
20	BACN10JC4		.NUT		2
25	256T3464-1		.RETAINER		4
30	BACB28AK04-068		.BUSHING		4
35	256T3470-1		.BRACKET ASSY ATTACHING PARTS		1
40	NAS6603H3		.BOLT		4
45	AN960PD10		.WASHER -------*-------		4
50	BACB28AA4C016		..BUSHING		2
55	256T3470-2		..BRACKET		1
60	256T3466-1		.CRANK ASSY ATTACHING PARTS		1
65	NAS334CPA13		.BOLT		1
70	AN960PD416		.WASHER		1
75	BACN10JC4		.NUT -------*-------		1
80	BACB28AA4C016		..BUSHING		2
85	256T3466-2		..CRANK		1
90	256T3460-1		.SHIM		AR
-90A	256T3460-2		.SHIM		AR
-90B	256T3460-3		.SHIM		AR
-90C	256T3460-4		.SHIM		AR
-90D	256T3460-5		.SHIM		AR
95	256T3454-1		.SHIELD-BRG		1
100	NAS6603-2		.BOLT		4
105	AN960PD10		.WASHER		4
110	65B81978-3		.COVER-DRAIN		2
115	65B84034-3		.SLEEVE-CPLG		2
120	BACN10JC12		.NUT		2
125	AN960-1216		.WASHER		2
130	256T3749-1		.COUPLING HALF		2
135	65B84033-18		.SLEEVE-MOLDED		2
140	256T3414-1		.SHIELD-BRG		2
145	NAS6604H4		.BOLT		5

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
150	AN960PD416		.WASHER		5
155	256T3438-2		.HOUSING		1
160	BACB10BA25PP		.BEARING		2
165	256T3415-1		.SHIM		AR
-165A	256T3415-2		.SHIM		AR
-165B	256T3415-3		.SHIM		AR
-165C	256T3415-4		.SHIM		AR
-165D	256T3415-5		.SHIM		AR
170	BACB10AZ30PP		.BEARING		1
175	256T3442-1		.GEAR-BEVEL		1
180	256T3444-1		.GEAR-BEVEL		1
185	BACB10AZ30PP		.BEARING		1
190	256T3415-1		.SHIM		AR
-190A	256T3415-2		.SHIM		AR
-190B	256T3415-3		.SHIM		AR
-190C	256T3415-4		.SHIM		AR
-190D	256T3415-5		.SHIM		AR
195	256T3453-2		.SPACER-SLEEVE		1
200	256T3446-1		.GEAR-SPUR		1
205	256T3440-1		.HOUSING ASSY		1
			ATTACHING PARTS		
210	NAS6604H16		.BOLT		1
215	NAS6604H4		.BOLT		4
220	AN960PD416		.WASHER		5
			-------*-------		
225	NAS607-3-5P		..PIN		1
230	MS21209F4-15P		..INSERT		7
235	MS21209F1-10P		..INSERT		2
240	256T3440-2		..HOUSING		1
245	NAS565-21		.BOLT		1
250	256T3462-1		.SHIM		AR
-250A	256T3462-2		.SHIM		AR
-250B	256T3462-3		.SHIM		AR
-250C	256T3462-4		.SHIM		AR
-250D	256T3462-5		.SHIM		AR
255	256T3437-1		.COVER ASSY		1
			ATTACHING PARTS		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
260	NAS6604H5		.BOLT		7
265	AN960PD416		.WASHER		7
			-------*-------		
270	NAS607-3-5P		..PIN		1
275	MS21209F5-10P		..INSERT		1
280	MS21209F4-15P		..INSERT		4
285	256T3437-2		..COVER		1
290	NAS6604H4		.BOLT		6
295	AN960PD416		.WASHER		6
300	256T3441-2		.HOUSING-BRG		1
305	256T3441-1		.HOUSING-BRG		1
310	256T3459-1		.SHIM		4
-310A	256T3459-2		.SHIM		4
-310B	256T3459-3		.SHIM		4
-310C	256T3459-4		.SHIM		4
-310D	256T3459-5		.SHIM		4
315	BACB10BA17PP		.BEARING		4
320	256T3448-1		.GEAR-SPUR		1
325	256T3447-1		.GEAR-SPUR		1
330	256T3445-1		.GEARSHAFT-WORM		1
335	BACB10BA17PP		.BEARING		2
340	NAS6603-4		.BOLT		1
345	AN960PD10		.WASHER		1
350	256T3450-1		.DISC-IND		1
355	AR10400-016GC		.SEAL- (V05939)		1
360	256T3469-1		.GEAR ASSY-WORM		1
365	256T3458-1		..PIN-SHEAR		1
370	256T3451-1		..SHAFT ASSY		1
375	MS21209F1-15P		...INSERT		1
380	256T3451-2		...SHAFT		1
385	256T3449-1		..GEAR-WORM		1
390	256T3455-1		.RETAINER-SPACER		1
395	256T3468-1		.CAM ASSY		1
400	256T3471-1		..BUSHING		1
405	256T3468-2		..CAM		1
410	BACB10BA17PP		.BEARING		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
415	256T3459-1		.SHIM		AR
-415A	256T3459-2		.SHIM		AR
-415B	256T3459-3		.SHIM		AR
-415C	256T3459-4		.SHIM		AR
-415D	256T3459-5		.SHIM		AR
420	MS24665-302		.PIN-COTTER		1
425	MS17826-7		.NUT-SELF LOCKING		1
430	AN960PD716		.WASHER		1
435	NAS6604H10		.BOLT		1
440	AN960PD416		.WASHER		1
445	256T3452-2		.SHAFT-SPLINED		1
450	256T3457-1		.ARM ASSY		1
455	MS21209F4-15P		..INSERT		1
460	256T3457-2		..ARM		1
465	BACB10AF7F8HS		.FOLLOWER-CAM		1
470	BACB10BA17PP		.BEARING		1
475	256T3433-1		.HOUSING ASSY		1
480	NAS607-3-4P		..PIN		1
485	MS16562-21		..PIN		2
490	MS21209F1-15P		..INSERT		4
495	MS21209F4-15P		..INSERT		14
500	MS21209F1-10P		..INSERT		2
505	256T3433-2		..HOUSING		1
510	256T3461-1		.PLATE-IDENT		1