COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

FLAP ACTUATION GEARBOX ASSEMBLY

PART NUMBER 256A3515–1, –2, –3, –4

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COMPONENT MAINTENANCE MANUAL

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To: All holders of FLAP ACTUATION GEARBOX ASSEMBLY 27-55-87.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

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Location of Change	Description of Change
27-55-87	
ASSEMBLY	Changed the data in the Tools/Equipment list.
FITS AND CLEARANCES	Changed dimensions.
SPECIAL TOOLS FIXTURES AND EQUIPMENT	Changed the data in the Tool Supplier Information table.
	Added the Commercial Tools table.
	Added the Special Tools table.
	Added the Tool Supplier Information table.
	Changed the data in the Special Tools table.

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Subject/Page	Date	Subject/Page	Date	Subject/Page	Date
27-55-87 ILLUSTRATED PARTS LIST (cont)					
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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR 38510	JUL 01/02

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INTRODUCTION

1. General

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

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

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

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

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

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

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

FLAP ACTUATION GEARBOX ASSEMBLY - DESCRIPTION AND OPERATION

1. **Description**

   A. The gearbox assembly has four different types of gears, two pinions, two half couplings, two coupling sleeves, an output shaft, ten bearings, and a cable drum in an aluminum housing. The gears, pinions, and bearings are steel components.

2. **Operation**

   A. The gearbox assembly transmits mechanical power from the hydraulic motor or the electric motor of the power drive unit to the flap drive system. The gearbox assembly receives input thru a pinion gear, which drives a large gear and the output shaft.

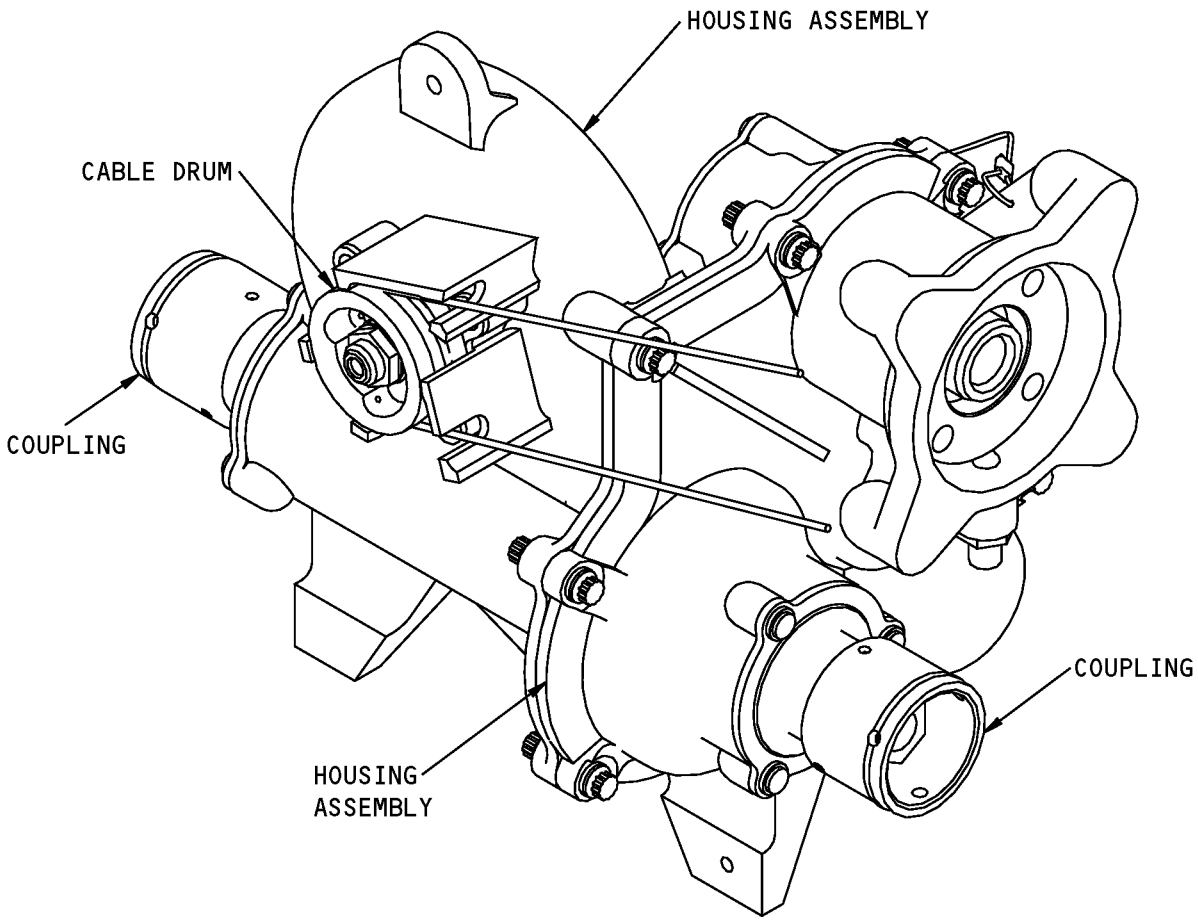
3. **Leading Particulars (Approximate)**

   A. Length – 15.0 inches

   B. Width – 10.0 inchis

   C. Height – 12.0 inches

   D. Weight – 22.6 pounds



Flap Actuation Gearbox Assembly
Figure 1

TESTING AND FAULT ISOLATION

1. General

A. This procedure has the data necessary to do a test of the mechanism after an overhaul or for fault isolation. There are three parts:

(1) Gearbox Assembly Test (TESTING AND FAULT ISOLATION, Paragraph 2.C.)

(a) Bearing test (TESTING AND FAULT ISOLATION, Paragraph 2.C.(3))

(b) Torque test (TESTING AND FAULT ISOLATION, Paragraph 2.C.(4))

(c) Backlash test (TESTING AND FAULT ISOLATION, Paragraph 2.C.(5))

(d) Pressure test (TESTING AND FAULT ISOLATION, Paragraph 2.C.(6))

(2) Fault Isolation (TESTING AND FAULT ISOLATION, Paragraph 3.)

(3) Fault Correction (TESTING AND FAULT ISOLATION, Paragraph 4.)

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

C. Refer to IPL Figure 1 for item numbers.

2. Testing and Fault Isolation

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-4720	Test Equipment - Leakage Test (Part #: J27054-1, Supplier: 81205)
SPL-5384	Wrench - Coupling Sleeve Flap Actuation (Part #: C27041-1, Supplier: 81205)
SPL-5703	Test Equipment - T.E. Flap Drive Gearboxes (Part #: C27068-65, Supplier: 81205)

B. References

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

C. Gearbox Assembly Test

(1) Use standard industry practices to examine the gearbox assembly.

(2) Install the gearbox assembly on the T.E. Flap Drive Gearbox Test Equipment, SPL-5703 (C27068-65 supersedes C27068-1)

(3) Do a bearing test.

(a) Examine the gearbox assembly in accordance with standard industry practices.

(b) Turn the gears (215, 230, 250, 425) a minimum of 720 degrees in each direction.

(c) See if the gears (215, 230, 250, 425) turn smoothly.

(4) Do a torque test.

(a) Turn the gears (215, 230, 250, 425) a minimum of eight turns in each direction at a rate of 10-20 rpm. Use a torque wrench and the coupling sleeve wrench, SPL-5384 on the bolt (30) on the end of the output shaft (270).

(b) Make sure that the breakaway and maximum running torque applied at the output shaft (270) is not more than 10 pound-inches.

(5) Do a backlash test.

(a) Remove the pin (15) and the cable assembly (20) from the cable drum (335) (DISASSEMBLY).

(b) Remove the nut (325), the washer (330) and the cable drum (335) (DISASSEMBLY).

(c) Remove the screws (5), the cover (10), the seals (340, 345), and the packing (350) from the shaft (420) (DISASSEMBLY).

(d) Clamp the shaft (420) to avoid axial movement.

(e) Apply a torque of 5-10 pound-inches to the worm gear (424) or worm gear assembly (425). Measure the backlash at a 2.80-inch radius from the center of the shaft (420).

(f) Make sure that the backlash is 0.002-0.008 inch.

(g) Remove the gearbox assembly from the T.E. Flap Drive Gearbox Test Equipment, SPL-5703 (C27068-65 supersedes C27068-1). Install the parts which were removed unless more disassembly is required (ASSEMBLY).

(6) Do a pressure test of the seals in the gearbox assembly.

(a) Remove the lockwire and the plug (315) and packing (320).

(b) Install the air valve adapter of the leakage test test equipment, SPL-4720 in the plug hole in the housing assembly (290).

(c) Connect the compressed air supply.

(d) Pressurize the transmission assembly to 14-16 psig, and remove the pressure source.

(e) Monitor the pressure in the transmission for a minimum of 30 minutes. Make sure the pressure does not decrease to less than 12 psig after the first 10 minutes.

(f) During the next 20 minutes, make sure that the pressure does not decrease by more than 1.0 psig from the value after the first 10 minutes.

(g) Make sure that you cannot hear or see any signs of leakage while the gearbox assembly is pressurized.

(h) Make sure that the oil level in the gearbox assembly is correct, then install the plug (315) and packing (320). Install lockwire on the plug. Use the double-twist method (SOPM 20-50-02).

3. Fault Isolation

A. General

(1) Refer to TESTING AND FAULT ISOLATION, Table 101 to do fault isolation with the test results.

Table 101: Trouble Shooting Table

TROUBLE	PROBABLE CAUSE	CORRECTIONS
Gears do not turn smoothly or move freely	Defective bearings (195,200,205,235,285, 335,400)	Disassemble and replace the defective bearings (195,200, 205,235,285,335,400).
Breakaway or maximum running torque is more than 10 lb-in.	Defective bearings (195,200,205,235,285, 335,400)	Disassemble and replace the defective bearings (195,200, 205,235,285,335,400).
Backlash is not correct	Shims (380 thru 395,405 thru 415) need adjust-ment or, Defective or worn gears (215,230, 250,424,425)	Disassemble and adjust the shims (380 thru 395,405 thru 415) or, Disassemble and replace the gears (215,230,250,424,425).
Air or grease leakage during pressure test	Defective seals (70, 100,115,340) or packings (35,95,160, 190,320,350,375)	Disassemble and replace the defective seals (70,100,115, 340) or packings (35,95,160, 190,320, 350,375).

4. Fault Correction

A. Procedure

(1) If the gears (215, 230, 250, 424, 425) do not move freely or do not turn smoothly, replace the bearing(s) (195, 200, 205, 235, 285, 335, 400) as follows:

(a) Fully disassemble the gearbox assembly (DISASSEMBLY).

(b) Replace the defective bearing(s) (195, 200, 205, 235, 285, 325, 400) if it is necessary.

(c) Assemble the gearbox assembly (ASSEMBLY).

(d) Do a backlash test on the gearbox assembly.

(e) If the breakaway or maximum running torque is more than 10 pound-inches, replace the bearing(s) (195, 200, 205, 235, 285, 335, 400) as follows:

1) Fully disassemble the gearbox assembly (DISASSEMBLY).

2) Replace the defective bearing(s) (195, 200, 205, 235, 285, 335, 400) if it is necessary.

3) Assemble the gearbox assembly (ASSEMBLY).

4) Do a backlash test on the gearbox assembly.

(f) If the backlash is not 0.002-0.008 inch, do the subsequent steps.

1) Disassemble the gearbox assembly (DISASSEMBLY).

2) Adjust the shims (380 thru 395, 405 thru 415) to correct the backlash.

NOTE: To decrease the backlash, increase the shim thickness. To increase the backlash, decrease the shim thickness.

3) Assemble the gearbox assembly (ASSEMBLY).

NOTE: It is not necessary to measure the bearings (195, 200, 205, 235, 285, 335, 400) again to calculate shim thickness.

4) Do a backlash test on the gearbox assembly (215, 220, 250, 420). If the backlash is not 0.002-0.008 inch, replace the gears.

(g) If air or grease leakage occurs at a seal or any two surfaces that contact, replace the coupling seal (45), the seal(s) (70, 100, 115, 340) or packing(s) (35, 80, 95, 160, 190, 320, 375).

DISASSEMBLY

1. General

A. This procedure has the data necessary to disassemble the gearbox assembly.

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

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

D. Refer to IPL Figure 1 for item numbers.

2. Disassembly

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5384	Wrench - Coupling Sleeve Flap Actuation (Part #: C27041-1, Supplier: 81205)

B. Part Replacement

NOTE: The parts which follow are recommended for replacement. Unless a procedure tells you to replace a part, replacement is optional.

(1) Packings (35, 80, 95, 160, 190, 320, 350, 375)

(2) Seals (70, 100, 115, 340)

(3) Coupling seal (45)

(4) Cotter pin (15)

C. Procedure

(1) Use standard industry procedures and the steps shown below to disassemble this component.

(2) Remove the plugs (315) and packings (320) and drain the hydraulic fluid from the gearbox assembly.

(3) Remove the attachment ferrules (150) and the cable (145A) from the housing assembly (165) and the cover (90).

(4) Remove the pins (15) and the cable assemblies (20) from the cable drum (355).

(5) Remove the nut (325), washer (330), and drum (335) from the housing assembly (290).

(6) Remove the screws (5) and the cover (10) from the housing assembly (290).

(7) Remove the coupling sleeves (25).

(a) Use the coupling sleeve wrench, SPL-5384 to hold the coupling sleeves (25) while you remove the retainer bolts (30) and packings (35).

(b) Remove the coupling seals (45), coupling halves (40), coupling sleeves (25), and seal shields (50).

(8) Remove the screws (55), washers (60), and retainers (65) from the housing assemblies (165, 290).

(9) Remove the bolts (85), washers (88), cover (90), and packing (95) from the housing assembly (290).

NOTE: Do not remove the marker (430) from the cover (90) unless replacement is necessary.

(10) Remove the screws (105) and the retainers (110, 112) from the housing assemblies (165, 290).

(11) Remove the union (155) and the packing (160) from the housing assembly (165).

(12) Remove the screws (120, 125), washers (130, 135), nuts (140), and remove the housing assembly (165) from the housing assembly (290).

NOTE: Do not remove the helicoil inserts (170 thru 180) from the housing (185) unless replacement is necessary.

(13) Turn and pull the output shaft assembly (270) counterclockwise to remove it from the housing assembly (290).

NOTE: Do not remove the inserts from the output shaft assembly unless replacement is necessary.

(14) Remove the output gear (215) from the output shaft assembly (270).

(15) Remove the seals (70), seal rings (75) and the packings (80) from the housing assemblies (165, 290).

(16) Remove the packing (190), seal (115), and the bearings (195 thru 205, 285) from the housing assembly (165).

(17) Remove the pinion gear assembly (220) from the housing assembly (290).

(18) Remove the snap ring (240) and the shearout (245) from the pinion gear assembly (220).

NOTE: Do not remove the shaft plug (225) from the gear (230) unless replacement is necessary.

(19) Remove the pinion (255) from the housing assembly (290).

(20) Remove the seals (100, 115) from the housing assembly (290).

(21) Remove the countershaft gear (250).

(a) Pull the countershaft gear (250) with the attached components from the housing assembly (290).

(b) Remove the nut (265), washer (260), bearing (200), and pinion (210) from the countershaft gear (250).

(22) Remove the bolts (360), washers (365), cover (370), and packing (375) from the housing assembly (290).

(23) Remove the shims (380 thru 395) from the housing assembly (290). Measure and record the shim thickness to facilitate assembly.

(24) Remove the shaft (420), worm gear (424) or worm gear assembly (425), shims (405 thru 415), and bearings (355, 400) from the housing assembly (290). Measure and record the shim thickness to facilitate assembly.

NOTE: Do not disassemble the worm gear assembly (425) unless it is necessary to refinish the parts. The gear teeth and splines are machined after the hub (428) and rim (429) are bolted together. Therefore, the machined hub and rim are not interchangeable with parts from other assemblies.

(25) Remove the seal (340), seal ring (345), and packing (350) from the housing assembly (290).

(26) Remove the bearings (195, 235, 285) from the housing assembly (290).

CLEANING

1. General

A. This procedure has the data necessary to clean the gearbox assembly.

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

C. Refer to IPL Figure 1 for item numbers.

2. Cleaning

A. References

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

B. Procedure

(1) Clean the bearings (195, 200, 205, 235, 285, 355, 400) as specified in SOPM 20-30-01.

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

CHECK

1. General

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

B. Refer to FITS AND CLEARANCES for the design dimension and wear limits.

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

D. Refer to IPL Figure 1 for item numbers.

2. Check

A. References

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

B. Procedure

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

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

(a) Coupling sleeve (25)

(b) Bolt (30)

(c) Coupling half (40)

(d) Seal ring (75)

(e) Pinion (210, 255)

(f) Gear (215, 230, 250)

(g) Shaft plug (225)

(h) Retainer (240)

(i) Shearout (245)

(j) Shaft (280)

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

(a) Cover (10, 90, 370)

(b) Retainer (65, 110)

(c) Housing (185, 310)

(d) Deleted

(e) Worm gear (424)

(f) Worm gear assembly (425)

REPAIR

1. General

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

Table 601:

PART NUMBER	NAME	REPAIR
—	REFINISH OF OTHER PARTS	1-1
256A3515	GEARBOX	2-1
256A3532	COVER	3-1
256A3533	COVER	3-2
256A3546	COVER	3-3
256A3745	COUPLING SLEEVE	4-1
256A3744	BOLT	5-1
256A3741	COUPLING HALF	6-1
256W3244	SEAL RETAINER	7-1
256W3547	INPUT SEAL RETAINER	7-2
256A3519	HOUSING	8-1, 8-2
256A3520	HOUSING	8-1, 8-2
256A3524	PINION	9-1
256A3525	OUTPUT GEAR	10-1
256A3528	PINION GEAR	11-1, 11-2
256A3526	COUNTERSHAFT GEAR	12-1
256A3527	PINION	13-1
256A3523	OUTPUT SHAFT	14-1, 14-2
256A3540	WORM GEAR	15-1

2. Dimensioning Symbols

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

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

EXAMPLES

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

True Position Dimensioning Symbols
Figure 601

REFINISH OF OTHER PARTS - REPAIR 1-1

1. General

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

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

C. Refer to IPL Figure 1 for item numbers.

2. Refinish of Other Parts

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

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

C. General

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

D. Procedure

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

(1) Refer to REPAIR 1-1, Table 601 for the refinish of other parts.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
Seal shield (50)	15-5PH CRES 180-200 ksi	Passivate (F-17.25).
Seal ring (75)	Cronidur 30 CRES per AMS 5898, HT or case hardened HRC 55	Passivate (F-17.25).
Seal ring (75B)	XD15NW CRES (BMS 7-357), HT or case hardened to HRC 55	Passivate (F-17.25).

Table 601: Refinish Details (Continued)

IPL FIG. & ITEM	MATERIAL	FINISH
Seal ring (75E, 345E)	9310 Steel HT or case hardened to Rockwell A80	Cadmium plate (F-15.23).
Shaft plug (225)	15-5PH CRES 125-145 ksi	Passivate (F-17.25).
Retainer (240)	17-7PH CRES wire HT cond CH900	Cadmium plate (F-16.06).
Shearout (245)	15-5PH CRES 180-200 ksi	Cadmium plate (F-16.06) external surfaces. Uncontrolled plate in bore.
Seal ring (345)	Cronidur 30 CRES per AMS 5898, HT or case hardened to HRC 55	Passivate (F-17.25). Apply primer, C00259 (F-18.12) to the smaller end face only.
Seal ring (345A)	XD15NW CRES (BMS 7-357), HT or case hardened to HRC 55	Passivate (F-17.25). Apply primer, C00259 (F-18.12) to the smaller end face only.
Shim (380 thru 395, 405 thru 415)	301 CRES Full hard	Passivate (F-17.25).
Hub (428)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.35).
Rim (429)	Aluminum-bronze alloy	Cadmium plate (F-15.05).

GEARBOX ASSEMBLY - REPAIR 2-1

256A3515THRU–1, –4

1. General

A. This procedure has the data necessary to replace external parts of the gearbox assembly.

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

C. Refer to IPL Figure 1 for item numbers.

2. Union and Plug Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00467	Fluid - Landing Gear Shock Strut	BMS3-32, Type II

B. References

Reference	Title
SOPM 20-50-06	INSTALLATION OF O-RINGS AND TEFLON SEALS
SOPM 20-60-03	LUBRICANTS

C. Procedure (REPAIR 2-1, Figure 601)

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

(1) Remove the union (155) and the packing (160) from the housing assembly (165).

(2) Install the new packing (160) on the union (155) with fluid, D00467 (SOPM 20-50-06).

(3) Install the new union (155) on the housing assembly (165) with fluid, D00467.

(4) Tighten the union (155) to 110-130 pound-inches more than the run-on torque.

(5) Remove the plug (315) and the packing (320) from the housing assembly (290).

(6) Install the new packing (320) on the new plug (315) with fluid, D00467(SOPM 20-50-06).

(7) Install the new plug (315) on the housing assembly (290) with fluid, D00467.

(8) Tighten the plug (315) to 110-130 pound-inches more than the run-on torque.

3. Cable Assembly Replacement

A. References

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

B. Procedure (REPAIR 2-1, Figure 601)

(1) Remove the cotter pins (15) from the cable assemblies (20).

NOTE: Do not reuse the cotter pins (15).

(2) Remove the old cable assemblies (20) from the cable drum (335).

(3) Install replacement cable assemblies (20).

(a) Align the black ring mark on the cable drum (335) with the white cable guard on the housing assembly (290).

(b) Wrap the lower cable assembly (20) on the cable drum (335) for 2-2.5 wraps as shown in REPAIR 2-1, Figure 601.

(c) Wrap the upper cable assembly (20) on the cable drum (335) for 0-0.5 wrap as shown in REPAIR 2-1, Figure 601.

(d) Install the new cotter pins (15) onto the cable assemblies (20). Make sure that the cotter pin eyes are seated firmly so that there is minimal axial movement of the pin after installation (SOPM 20-50-02).

4. Marker Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00028	Adhesive - Modified Epoxy For Rigid PVC, Foam Cored Sandwiches	BAC5010, Type 70 (BMS5-92, Type 1)
A50055	Adhesive - Two-Part, RT Cure, Urethane	BAC5010, Type 89 (BMS5-105)
B00083	Solvent - Aliphatic Naphtha (For Acrylic Plastics)	TT-N-95 Type II, ASTM D-3735 Type III

B. References

Reference	Title
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-50-12	APPLICATION OF ADHESIVES
SOPM 20-60-01	CLEANING MATERIALS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

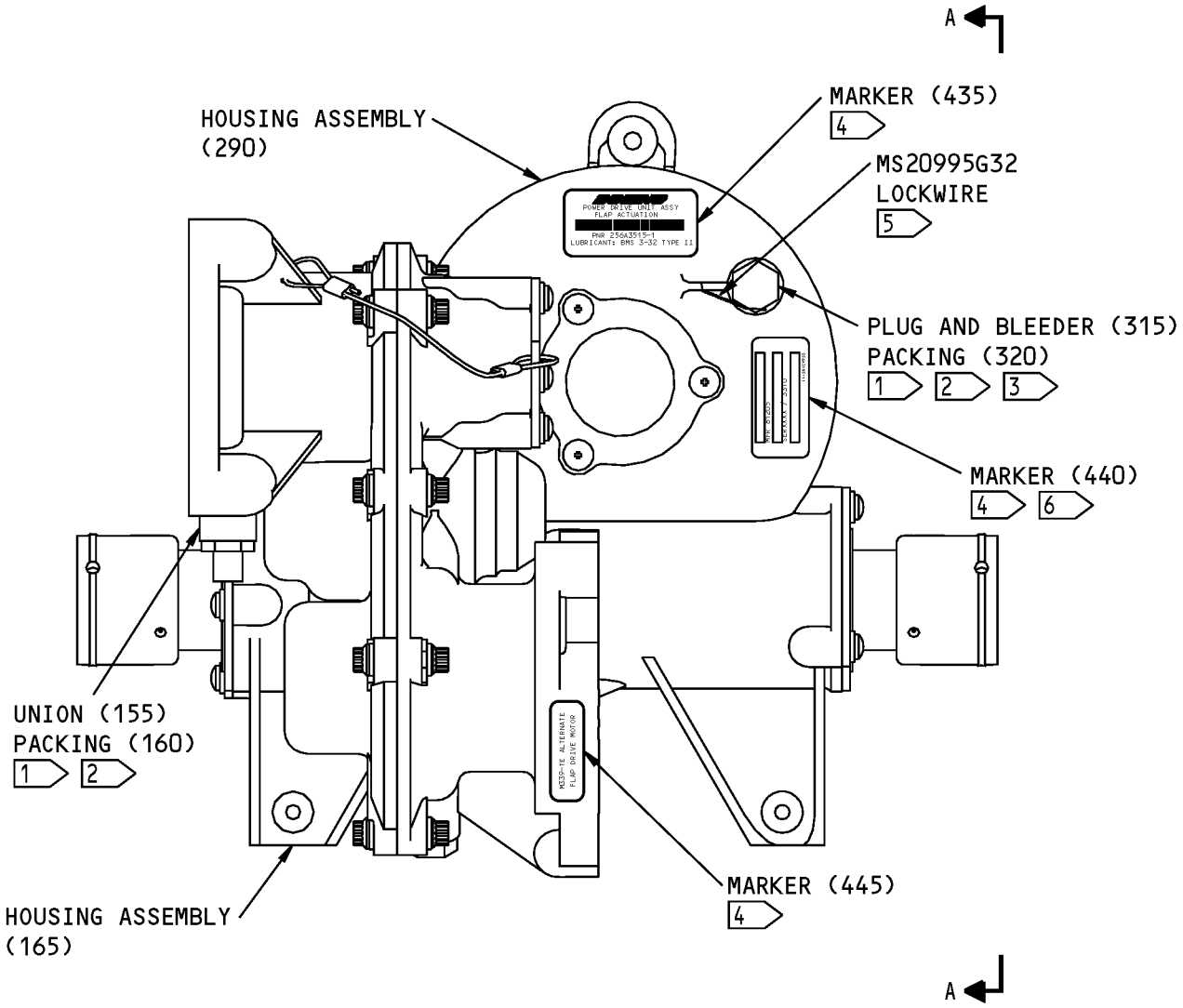
C. Procedure (REPAIR 2-1, Figure 601)

NOTE: For cleaning materials, refer to SOPM 20-60-01. For miscellaneous materials, refer to SOPM 20-60-04.

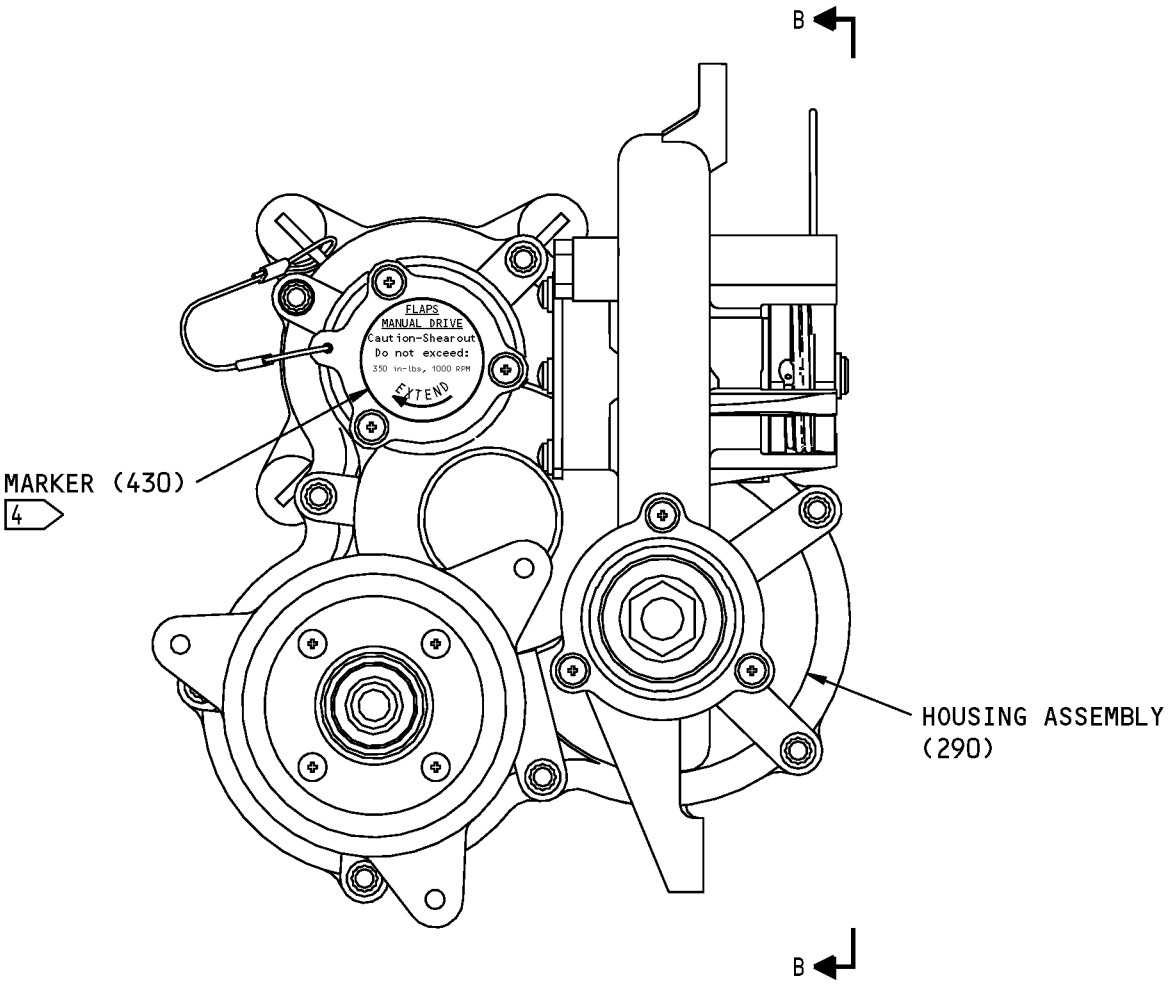
(1) Remove the damaged or defective marker (430, 435, 440 or 445) from the housing assembly (290).

(2) Solvent clean the surface with solvent, B00083 (SOPM 20-30-03).

(3) Install the marker (430, 435, 440 or 445) on the housing assembly (290) with Type 89 urethane adhesive, A50055 or Type 70 adhesive, A00028 (SOPM 20-50-12).

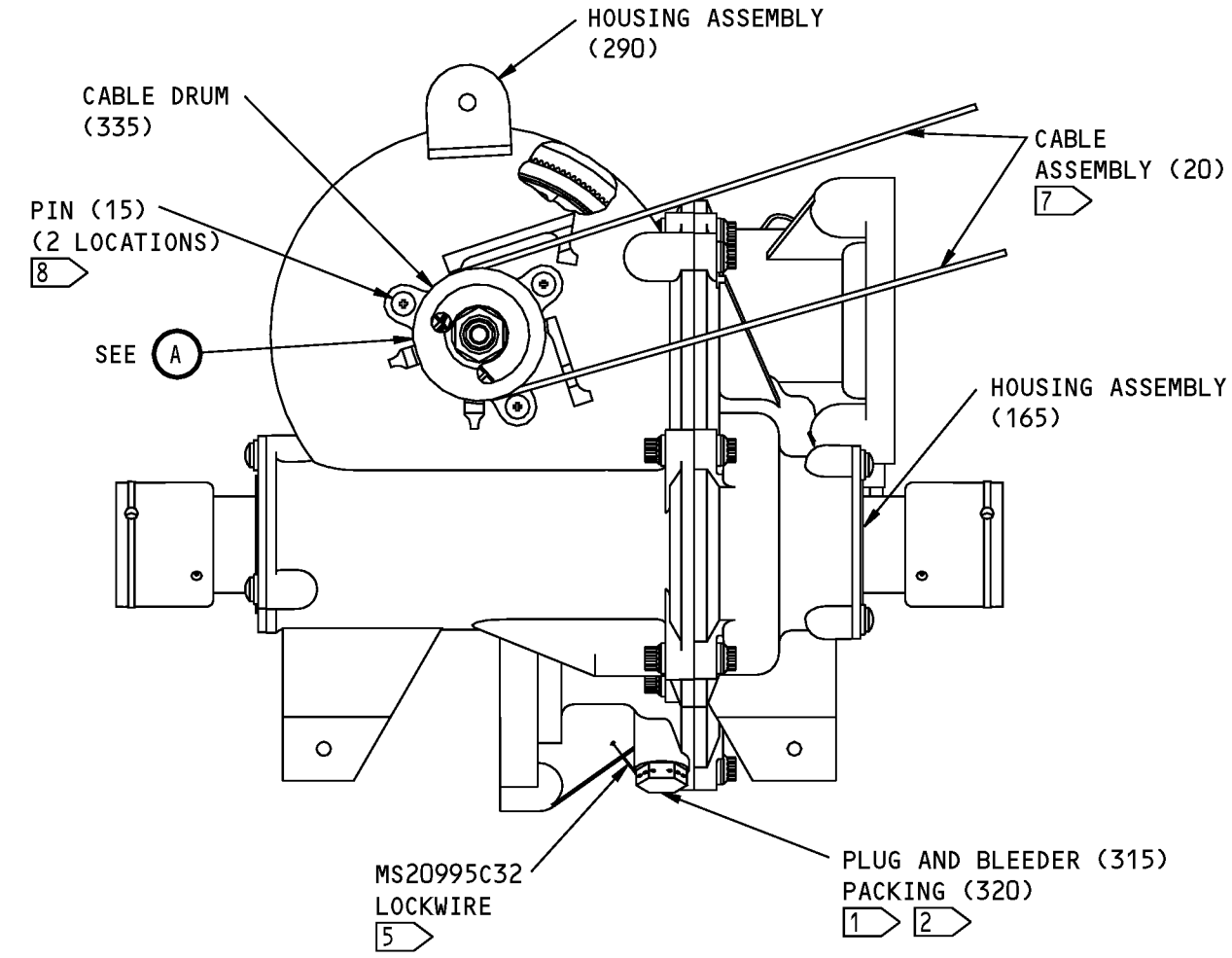


256A3515-1,-2,-3 Gearbox Assembly Repair
Figure 601 (Sheet 1 of 4)



A-A

256A3515-1,-2,-3 Gearbox Assembly Repair
Figure 601 (Sheet 2 of 4)



256A3515-1,-2,-3 Gearbox Assembly Repair
Figure 601 (Sheet 3 of 4)

ITEM NUMBERS REFER TO IPL FIG. 1

1 INSTALL PACKING WITH BMS 3-32 FLUID

2 INSTALL THE UNION/PLUG WITH BMS 3-32 FLUID AND TIGHTEN TO 110-130 LB-IN MORE THAN THE RUN-IN TORQUE

3 WITH THE GEARBOX IN THE POSITION SHOWN, THE BMS 3-32 FLUID LEVEL MUST BE AT THIS FILLER HOLE

4 LOCATE THE MARKER AS SHOWN. BOND THE MARKER WITH TYPE 89 OR TYPE 70 ADHESIVE AS SHOWN IN SOPM 20-50-12

5 INSTALL THE LOCKWIRE BY THE DOUBLE TWIST PROCEDURE (SOPM 20-50-02)

6 SERIAL NUMBER IS FOUND ON THIS MARKER

7 THE BLACK RIG MARK ON THE CABLE DRUM MUST BE ALIGNED WITH THE WHITE CABLE GUARD. INSTALL THE LOWER CABLE ASSEMBLY WITH 2-2.5 WRAPS AND THE UPPER CABLE ASSEMBLY WITH 0-0.5 WRAP ON THE CABLE DRUM

8 INSTALL THE COTTER PIN EYE DOWN TIGHT AGAINST THE SURFACE

256A3515-1,-2,-3 Gearbox Assembly Repair
Figure 601 (Sheet 4 of 4)

COVER - REPAIR 3-1

256A3532–1

1. General

A. This procedure has the data necessary to repair and refinish the cover (370).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: Al alloy

2. Cover Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

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

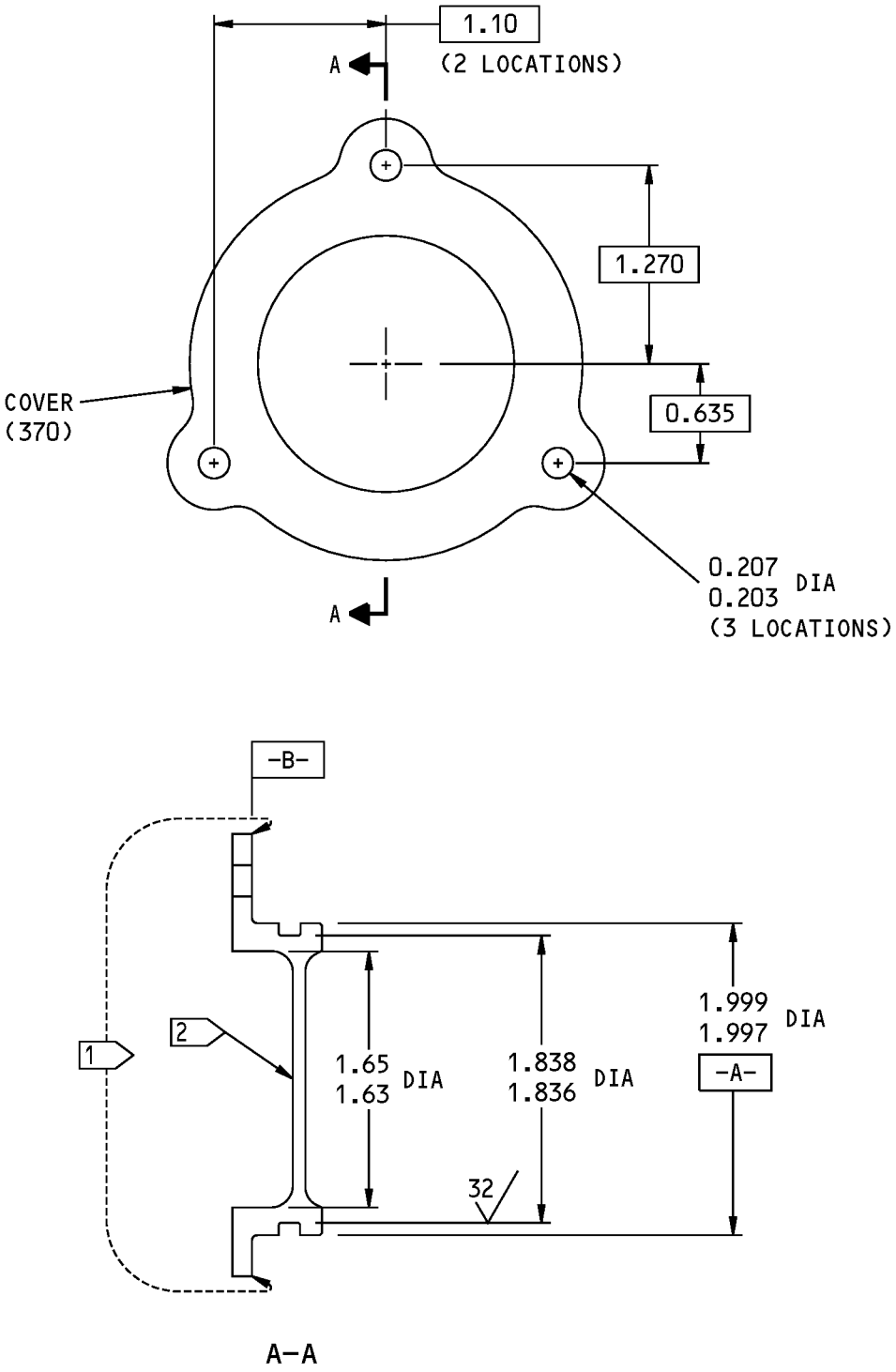
C. Procedure (REPAIR 3-1, Figure 601)

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

(1) Remove the protective finish from the part (SOPM 20-30-02).

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

(3) Apply primer, C00259 (F-20.02) as shown by flagnote 1.



256A3532-1 Cover Repair
Figure 601 (Sheet 1 of 2)

1 APPLY ONE LAYER OF BMS 10-11, TYPE I PRIMER (F-20.02) ON THIS SURFACE AS SHOWN IN SOPM 20-41-02

2 THE PART NUMBER IS FOUND HERE

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3532-1 Cover Repair
Figure 601 (Sheet 2 of 2)

COVER - REPAIR 3-2

256A3533–1

1. General

A. This procedure has the data necessary to repair and refinish the cover (10).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: Al alloy

2. Cover Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

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

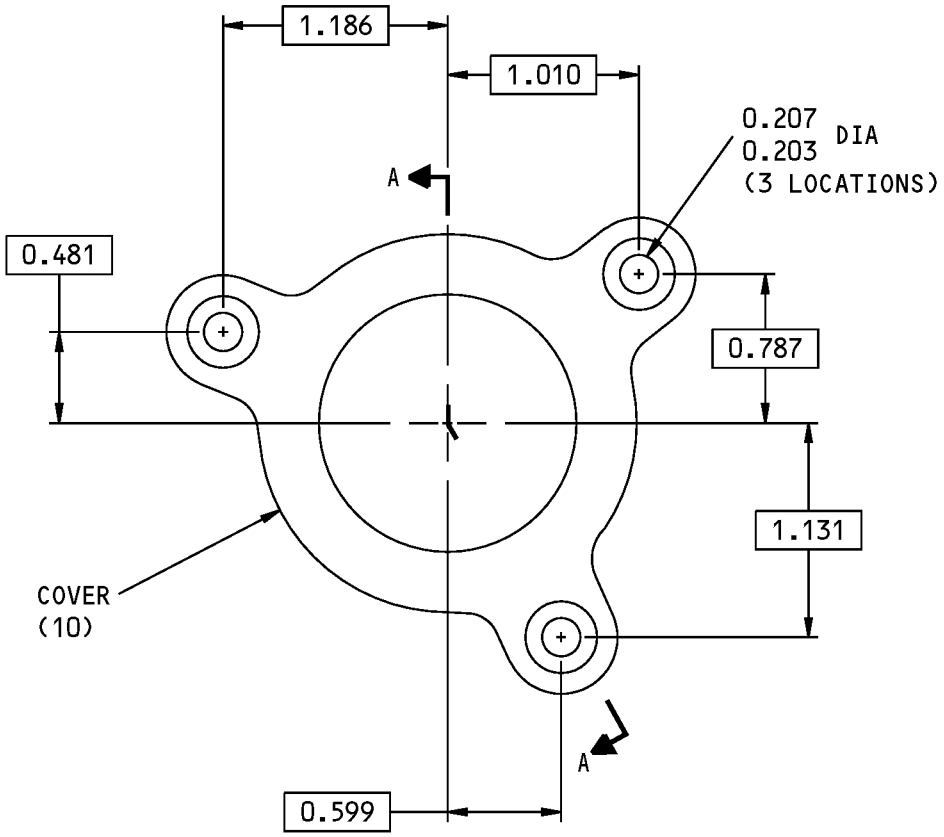
C. Procedure (REPAIR 3-2, Figure 601)

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

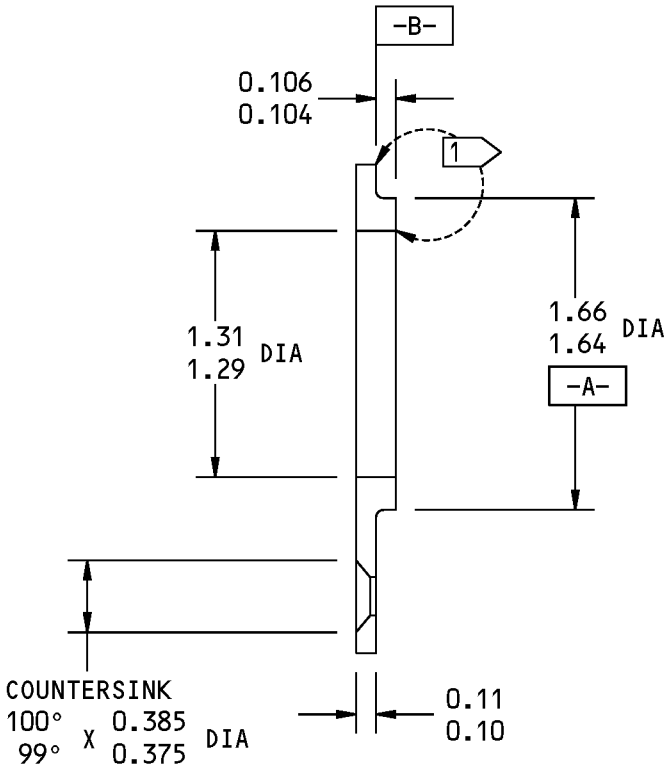
(1) Remove the protective finish from the part (SOPM 20-30-02).

(2) Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.35) all over.

(3) Apply primer, C00259 (F-20.02) but not the surface shown by flagnote 1.



256A3533-1 Cover Repair
Figure 601 (Sheet 1 of 2)



A–A

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

1 NO PRIMER IN THIS SURFACE

ALL DIMENSIONS ARE IN INCHES

256A3533-1 Cover Repair
Figure 601 (Sheet 2 of 2)

COVER - REPAIR 3-3

256A3546–1

1. General

A. This procedure has the data necessary to repair and refinish the cover (90).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: Al alloy

2. Cover Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

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

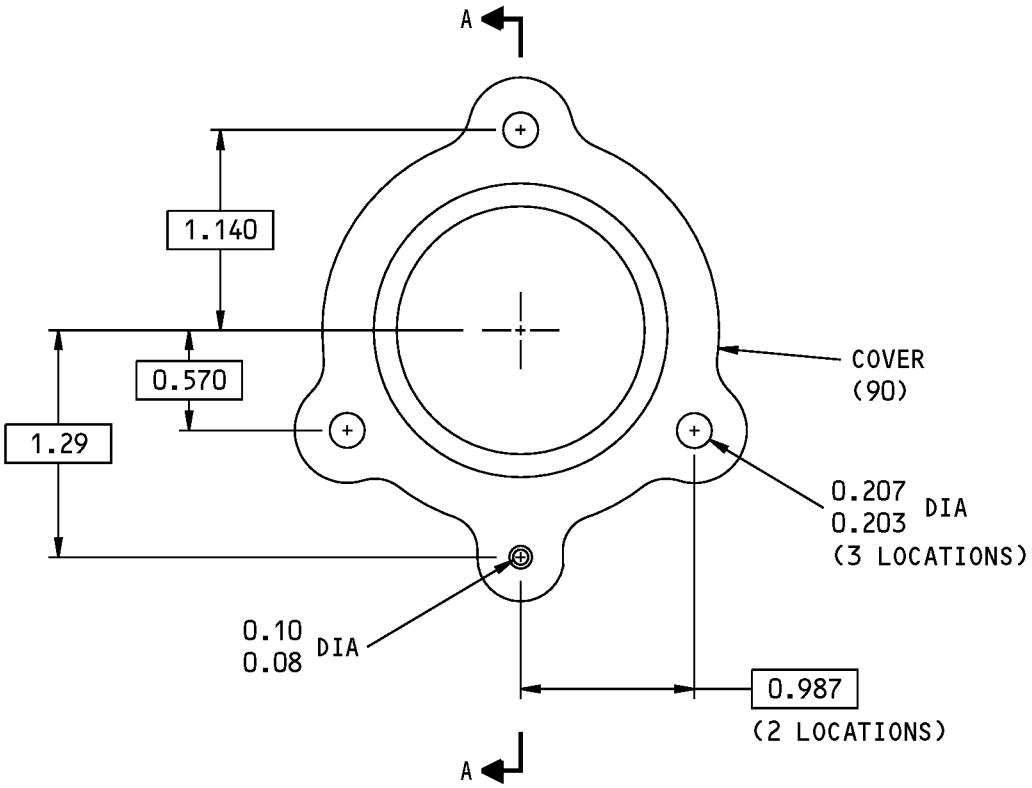
C. Procedure (REPAIR 3-3, Figure 601)

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

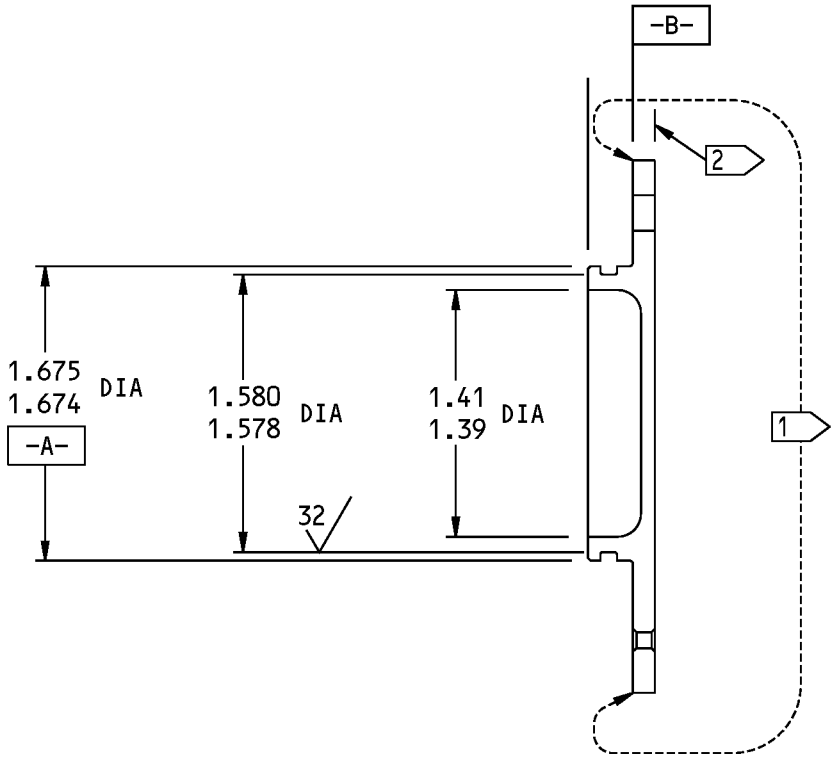
(1) Remove the protective finish from the part (SOPM 20-30-02).

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

(3) Apply primer, C00259 (F-20.02) as shown.



256A3546-1 Cover Repair
Figure 601 (Sheet 1 of 2)



1 APPLY A LAYER OF BMS 10-11, TYPE 1 PRIMER (F-20.02) ON THIS SURFACE AS SHOWN IN SOPM 20-41-02. OVER SPRAY IN THE HOLES IS PERMITTED

2 THE PART NUMBER IS FOUND HERE

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3546-1 Cover Repair
Figure 601 (Sheet 2 of 2)

COUPLING SLEEVE - REPAIR 4-1

256A3745–1

1. General

A. This procedure has the data necessary to repair and refinish the coupling sleeve (25).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Materials: 4140 steel, Heat Treat: 150-170 ksi

2. Coupling Sleeve Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

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

C. Procedure (REPAIR 4-1, Figure 601)

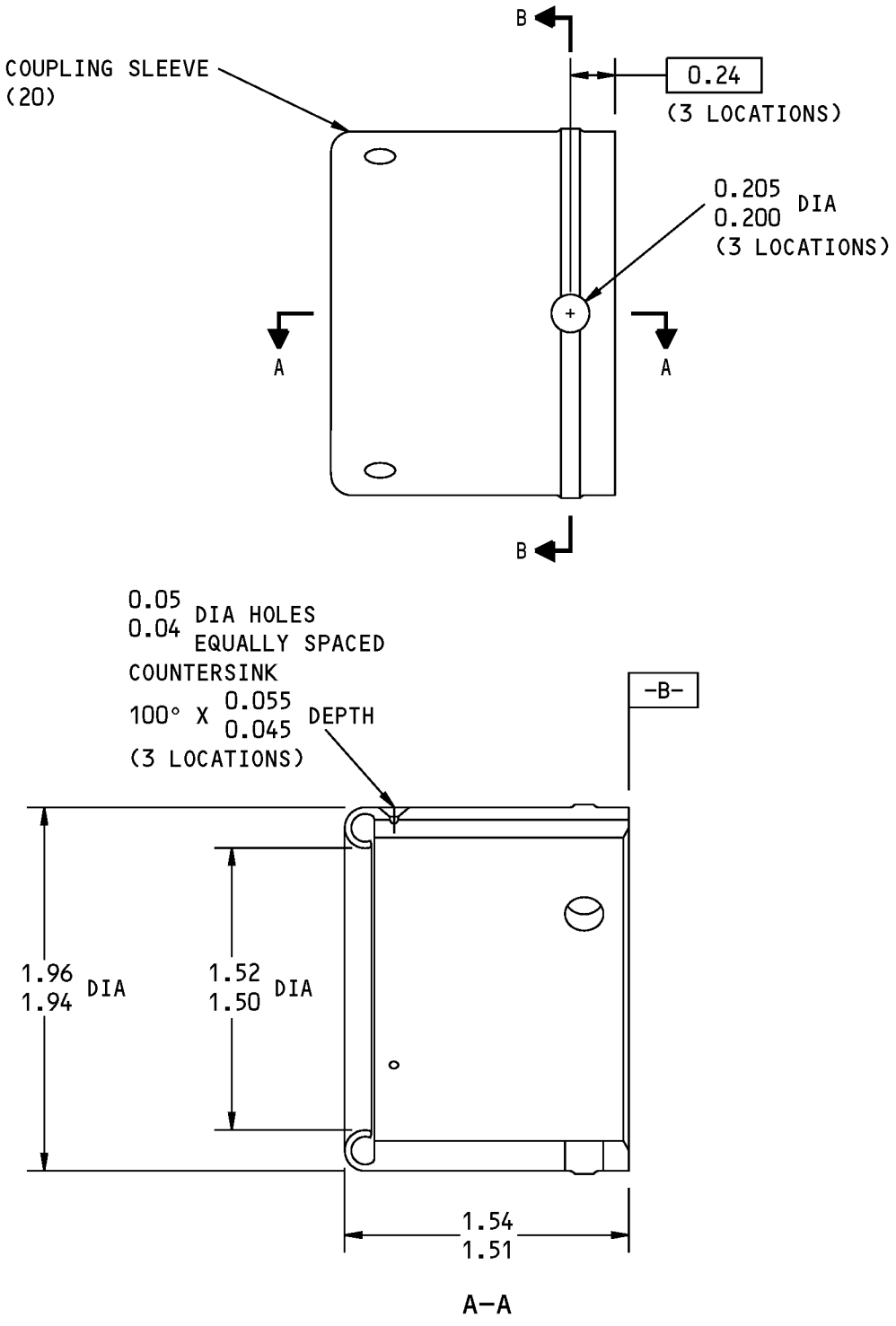
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Remove the protective finish from the part (SOPM 20-30-02).

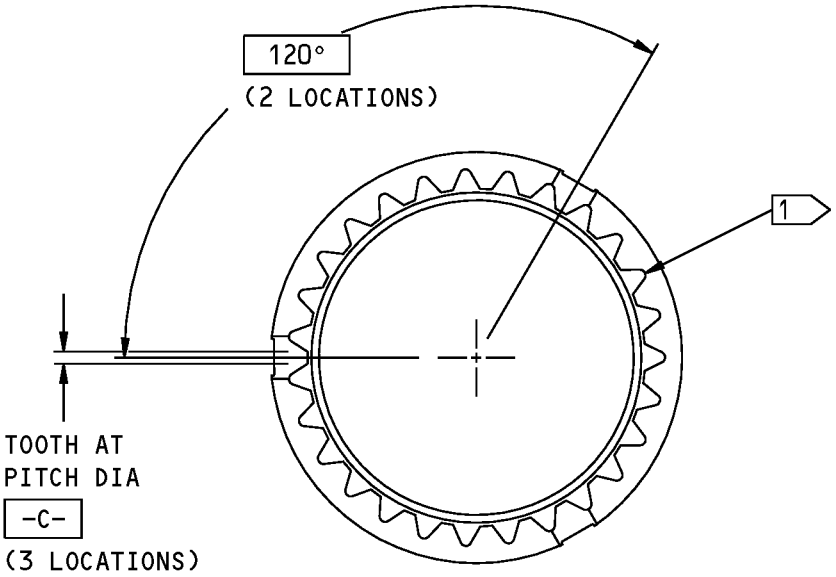
(2) Cadmium plate (F-15.36).

(3) Bake the part at 350-400°F for a minimum of 3 hours.

(4) Apply primer, C00259 (F-20.02) all over but not on the spline teeth. Do not plug the 0.04-0.05 inch diameter holes with primer.



256A3745-1 Coupling Sleeve Repair
Figure 601 (Sheet 1 of 2)



B–B

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

1 NO PRIMER ON THIS SURFACE

ALL DIMENSIONS ARE IN INCHES

256A3745-1 Coupling Sleeve Repair
Figure 601 (Sheet 2 of 2)

BOLT - REPAIR 5-1

256A3744–1

1. General

A. This procedure has the data necessary to repair and refinish the bolt (30).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

2. Bolt Refinish

A. References

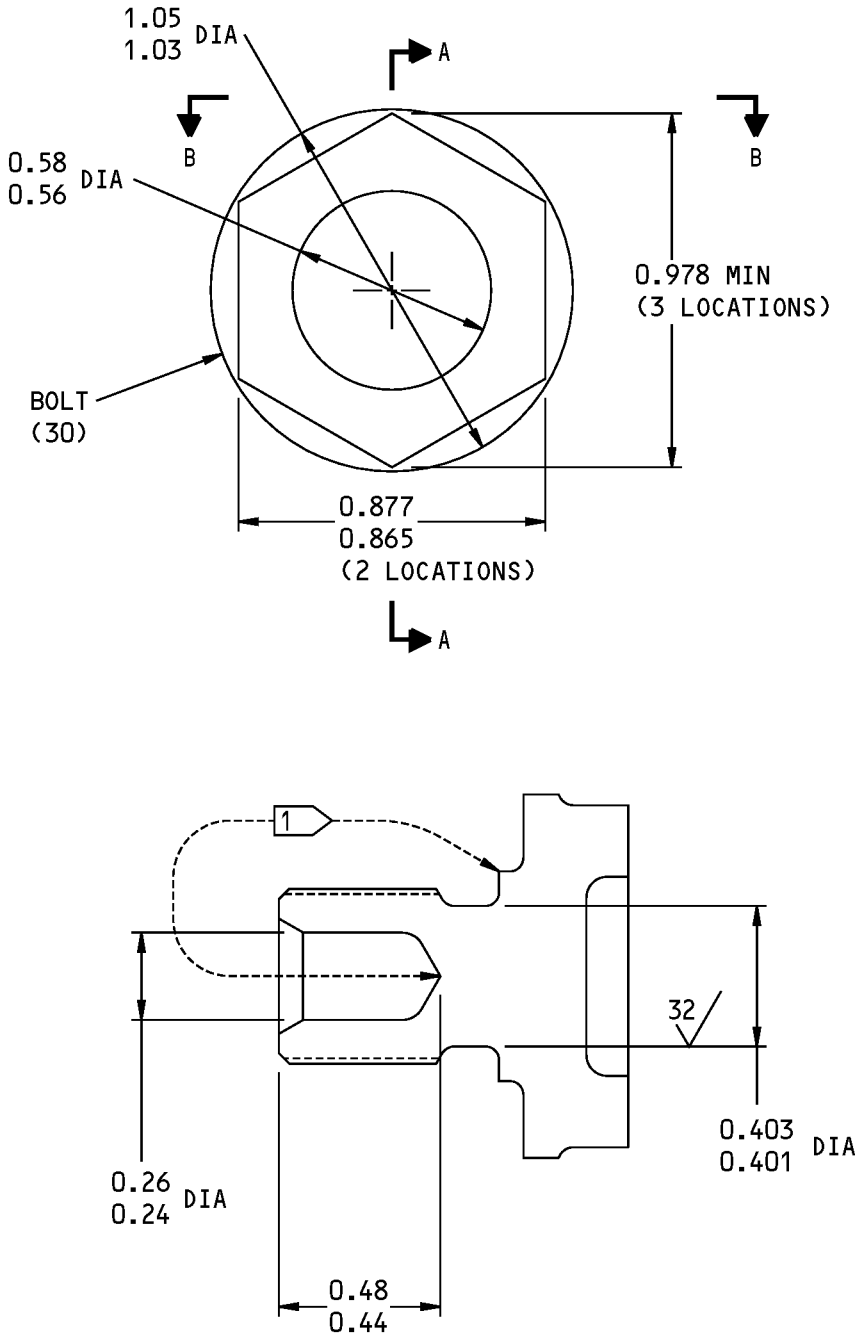
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Procedure (REPAIR 5-1, Figure 601)

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

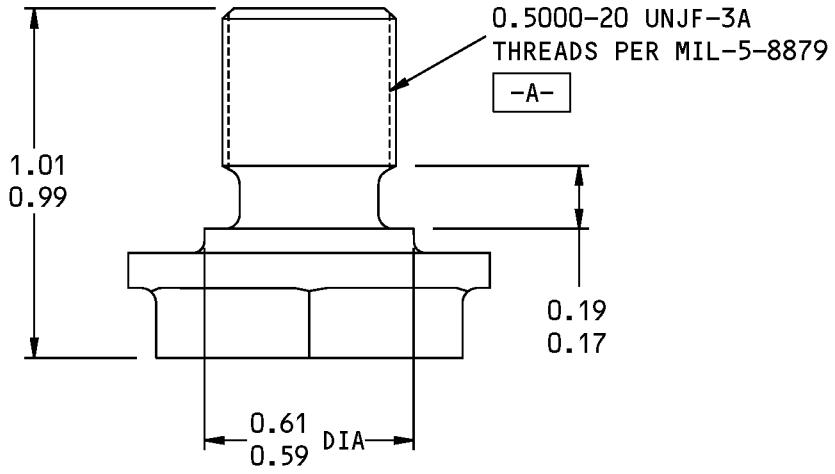
(1) Remove the protective finish from the part (SOPM 20-30-02).

(2) Cadmium plate (F-16.06) but not the surface shown by flagnote 1.



A–A

256A3744-1 Bolt Repair
Figure 601 (Sheet 1 of 2)



B–B

1 NO CADMIUM PLATE (F-16.06) FINISH ON THIS SURFACE

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3744-1 Bolt Repair
Figure 601 (Sheet 2 of 2)

HALF COUPLING - REPAIR 6-1

256A3741–1

1. General

A. This procedure has the data necessary to repair and refinish the half coupling (40).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: 4330M Steel, Heat treat: 180-200 ksi, RC 33 max

2. Half Coupling Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

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

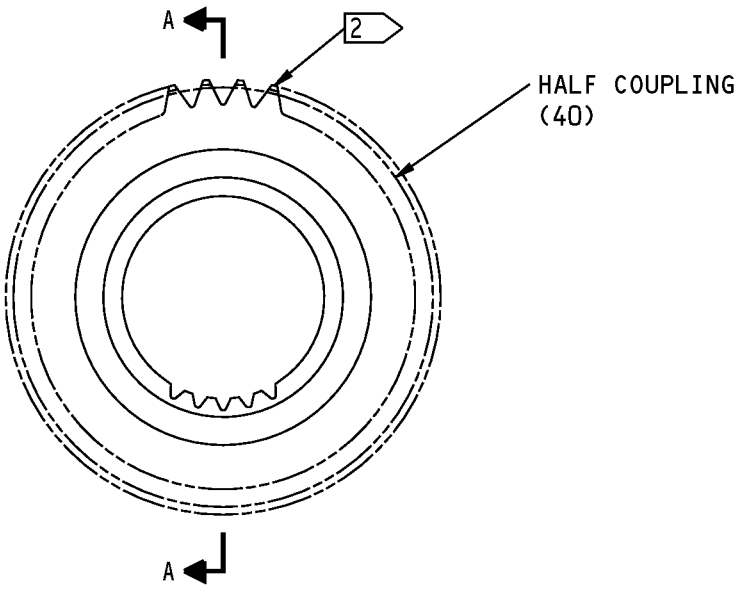
C. Procedure (REPAIR 6-1, Figure 601)

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

(1) Remove the protective finish from the part (SOPM 20-30-02).

(2) Cadmium plate (F-15.36).

(3) Apply primer, C00259 (F-20.02) to the surface identified by flagnote 1.



1 APPLY A LAYER OF BMS 10-11, TYPE 1 PRIMER (F-20.02) ON THIS SURFACE

2 SPLINE TOOTH PROFILE MUST HAVE MAXIMUM OF 63 MICROINCHES

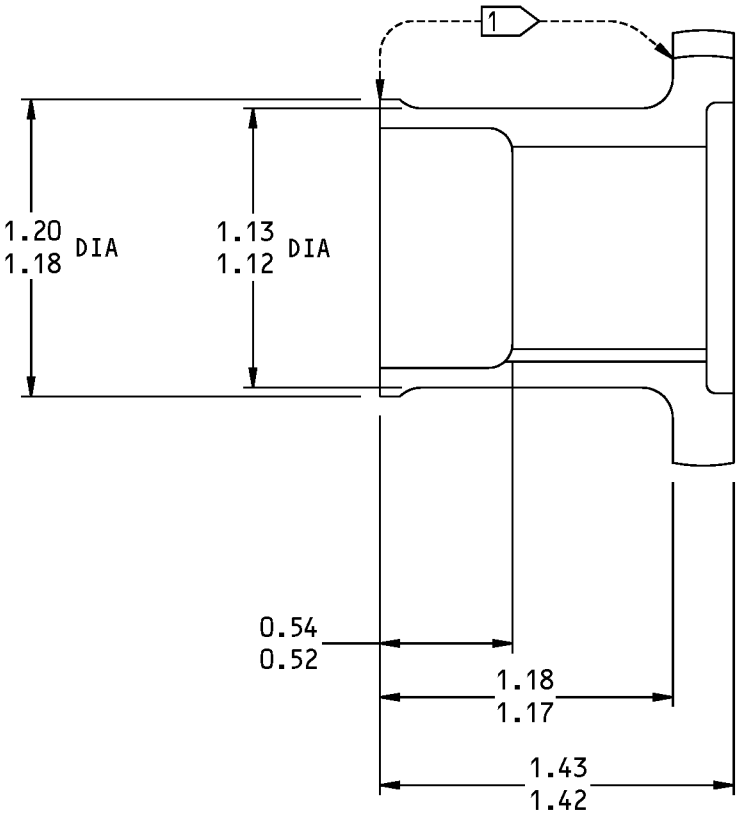
125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3741-1 Half Coupling Repair
Figure 601 (Sheet 1 of 2)



A–A

256A3741-1 Half Coupling Repair
Figure 601 (Sheet 2 of 2)

SEAL RETAINER - REPAIR 7-1

256W3244–1

1. General

A. This procedure has the data necessary to repair and refinish the seal retainer (65).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: Al alloy

2. Seal Retainer Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

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

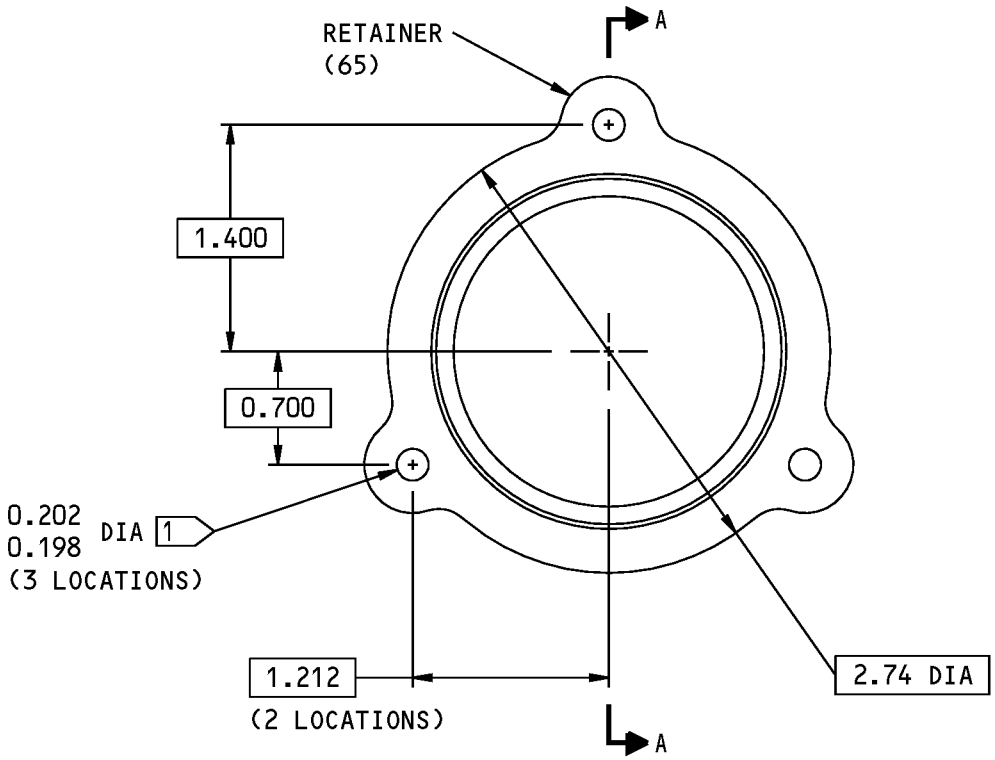
C. Procedure (REPAIR 7-1, Figure 601)

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

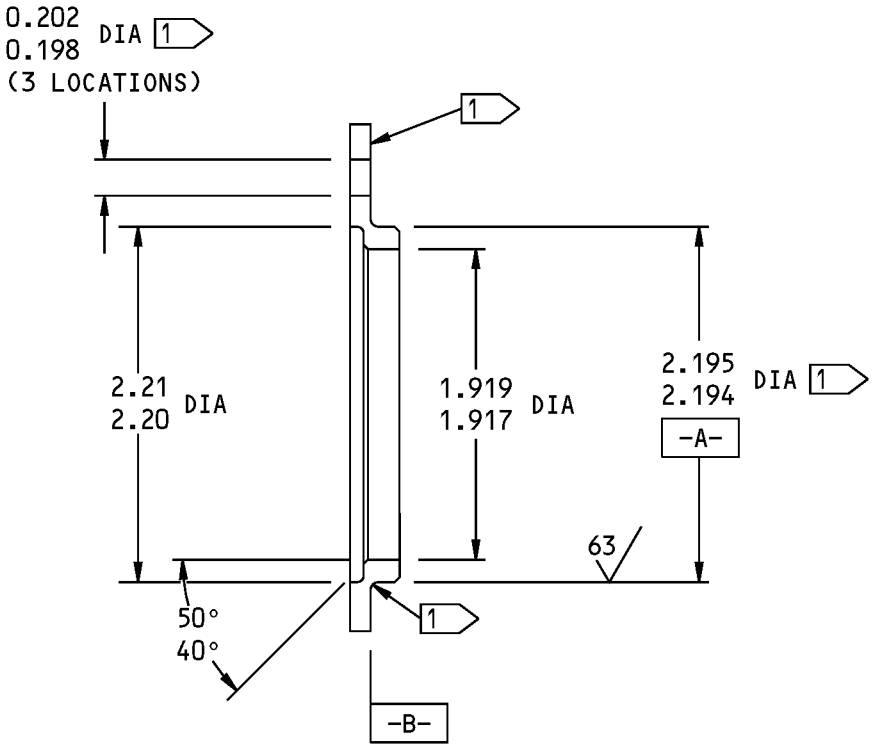
(1) Remove the protective finish from the part (SOPM 20-30-02).

(2) Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31).

(3) Apply primer, C00259 (F-20.02) but not on the surface identified by flagnote 1.



256W3244-1 Retainer Repair
Figure 601 (Sheet 1 of 2)



A-A

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

1 NO BMS 10-11, TYPE 1 PRIMER (F-20.02) ON THIS SURFACE

256W3244-1 Retainer Repair
Figure 601 (Sheet 2 of 2)

INPUT SEAL RETAINER - REPAIR 7-2

256W3547–1

1. General

A. This procedure has the data necessary to repair and refinish the input seal retainer (110, 112).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: Al alloy

2. Input Seal Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

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

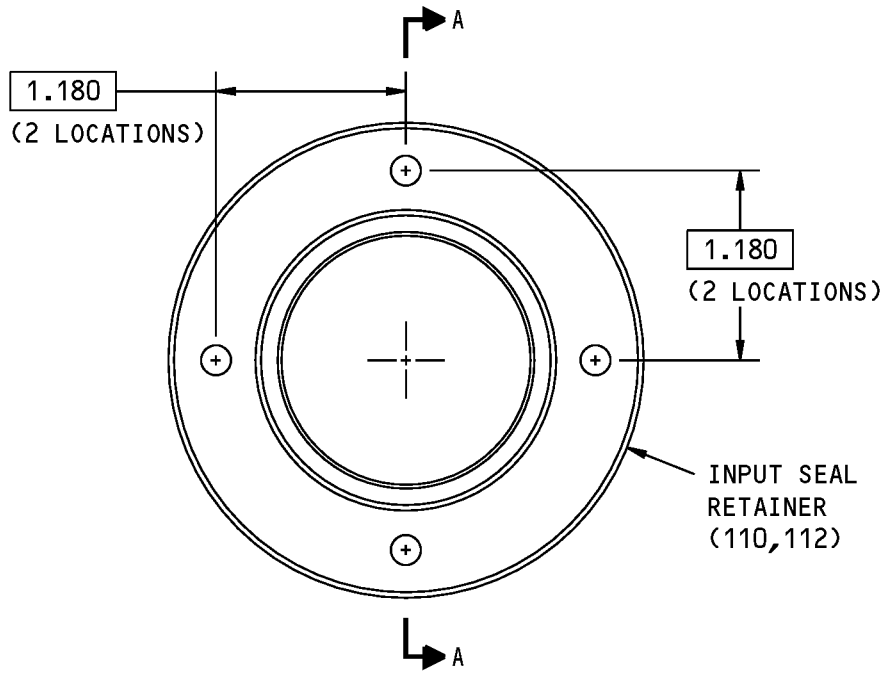
C. Procedure (REPAIR 7-2, Figure 601)

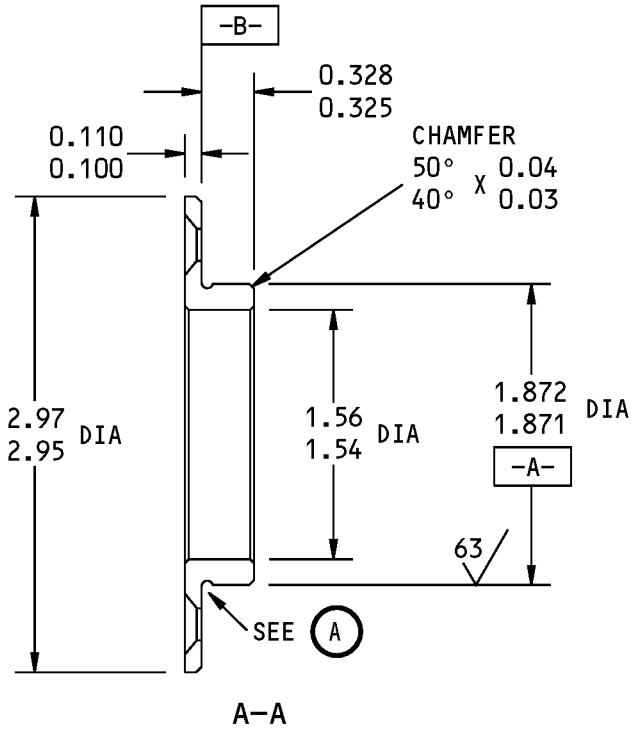
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Remove the protective finish from the part (SOPM 20-30-02).

(2) Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31).

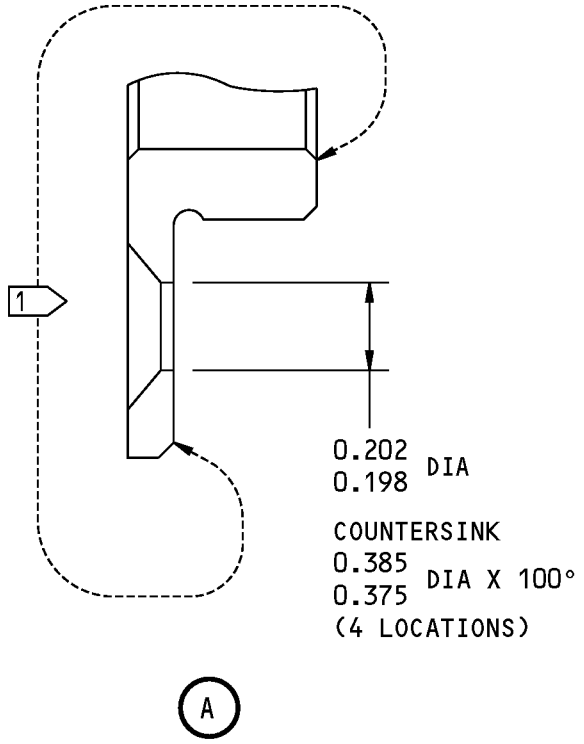
(3) Apply primer, C00259 (F-20.02) as shown. Do not apply primer in holes.





A–A

256W3547-1 Input Seal Retainer Repair
Figure 601 (Sheet 1 of 2)



125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

1 APPLY BMS 10-11, TYPE 1 PRIMER (F-20.02) ON THIS SURFACES. DO NOT APPLY PRIMER IN HOLES

256W3547-1 Input Seal Retainer Repair
Figure 601 (Sheet 2 of 2)

HOUSING ASSEMBLY - REPAIR 8-1

256A3519–1, –3, 256A3520–1, –5

1. General

A. This procedure has the data necessary to repair and refinish the housing assembly (165, 290).

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

C. Refer to IPL Figure 1 for item numbers.

2. Insert Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

Reference	Title
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-22	HOW TO INSTALL THREADED INSERTS
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure (REPAIR 8-1, Figure 601 and REPAIR 8-1, Figure 602)

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

(1) Remove the old inserts from the housing (185, 310).

(2) Install replacement inserts (170 thru 180) as shown in REPAIR 8-1, Figure 601 (SOPM 20-50-22).

(a) Apply wet primer, C00259 (F-20.20) to all areas of the hole.

(b) Install the inserts (170 and 175) in the housing (185) as identified by flagnote 1.

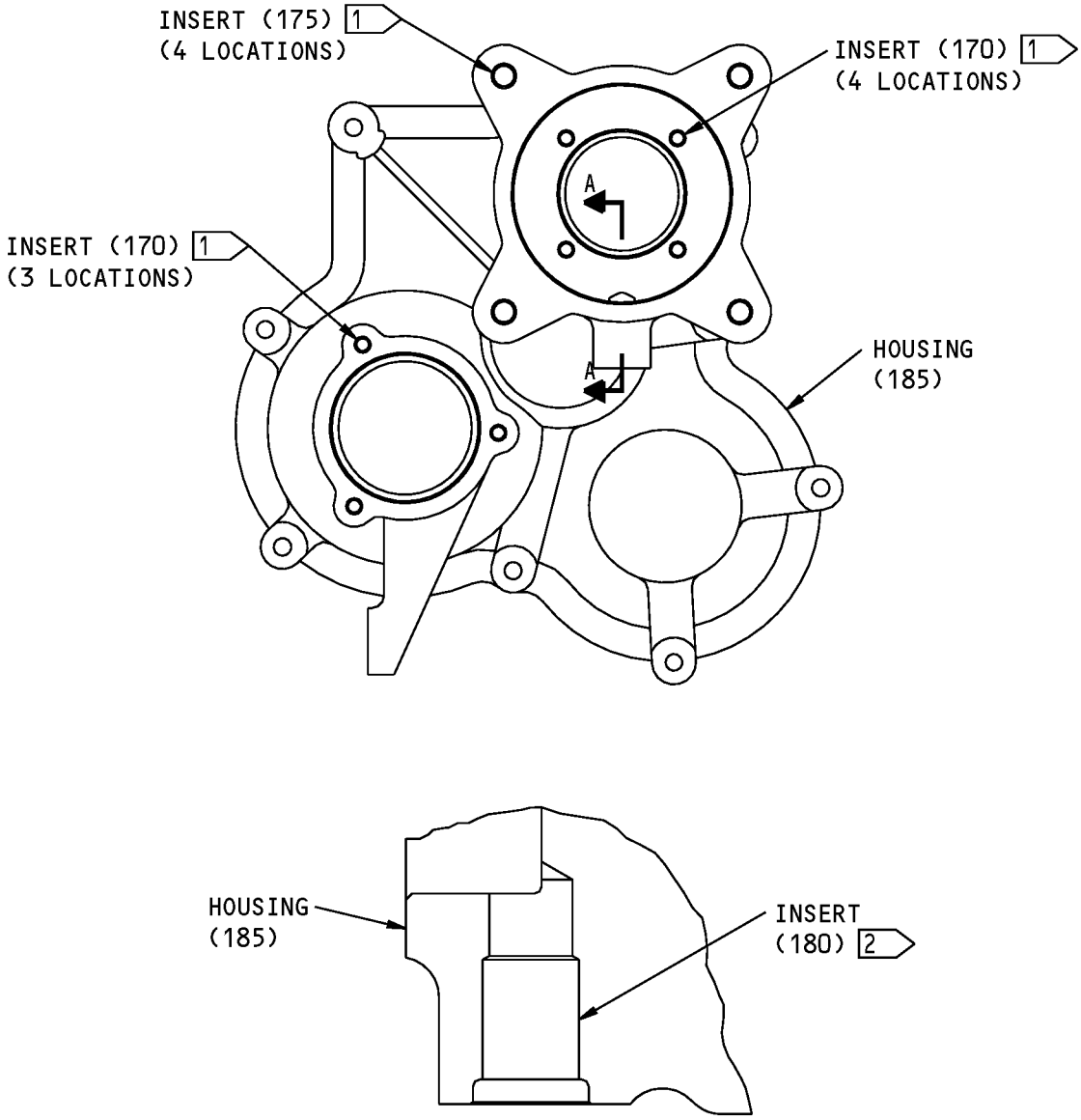
(c) Install the insert (180) into the housing (185) as identified by flagnote 2.

(3) Install replacement inserts (295 thru 305) as shown in REPAIR 8-1, Figure 602 (SOPM 20-50-22).

(a) Apply wet primer, C00259 (F-20.20) to all areas of the hole.

(b) Install the inserts (295 and 300) in the housing (310).

(c) Install the insert (305) into the housing (310) as identified by flagnote 2.

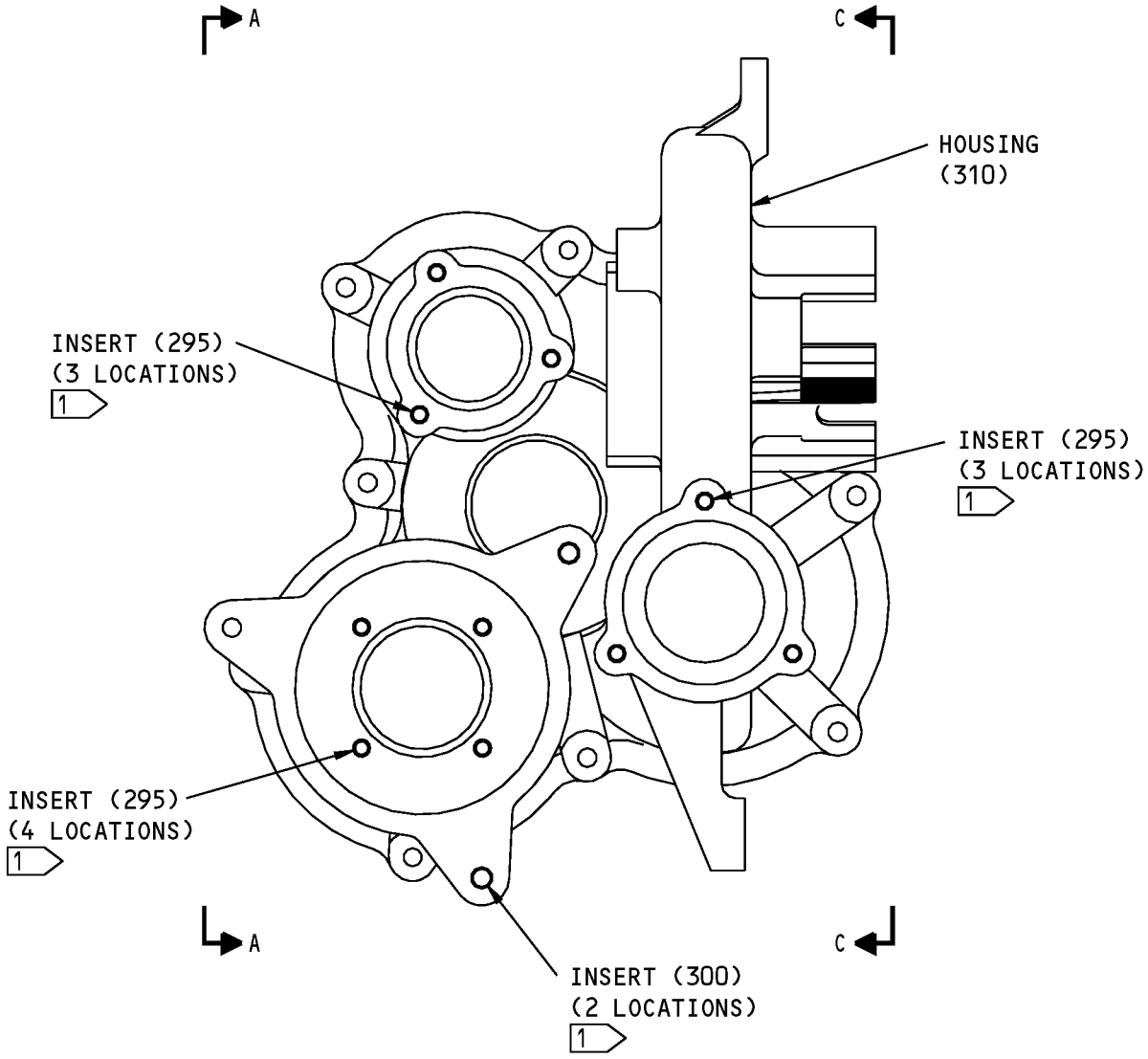


1 INSTALL INSERT WITH WET BMS 10-11, TYPE 1 PRIMER (F-20.20) AS SHOWN IN SOPM 20-41-02

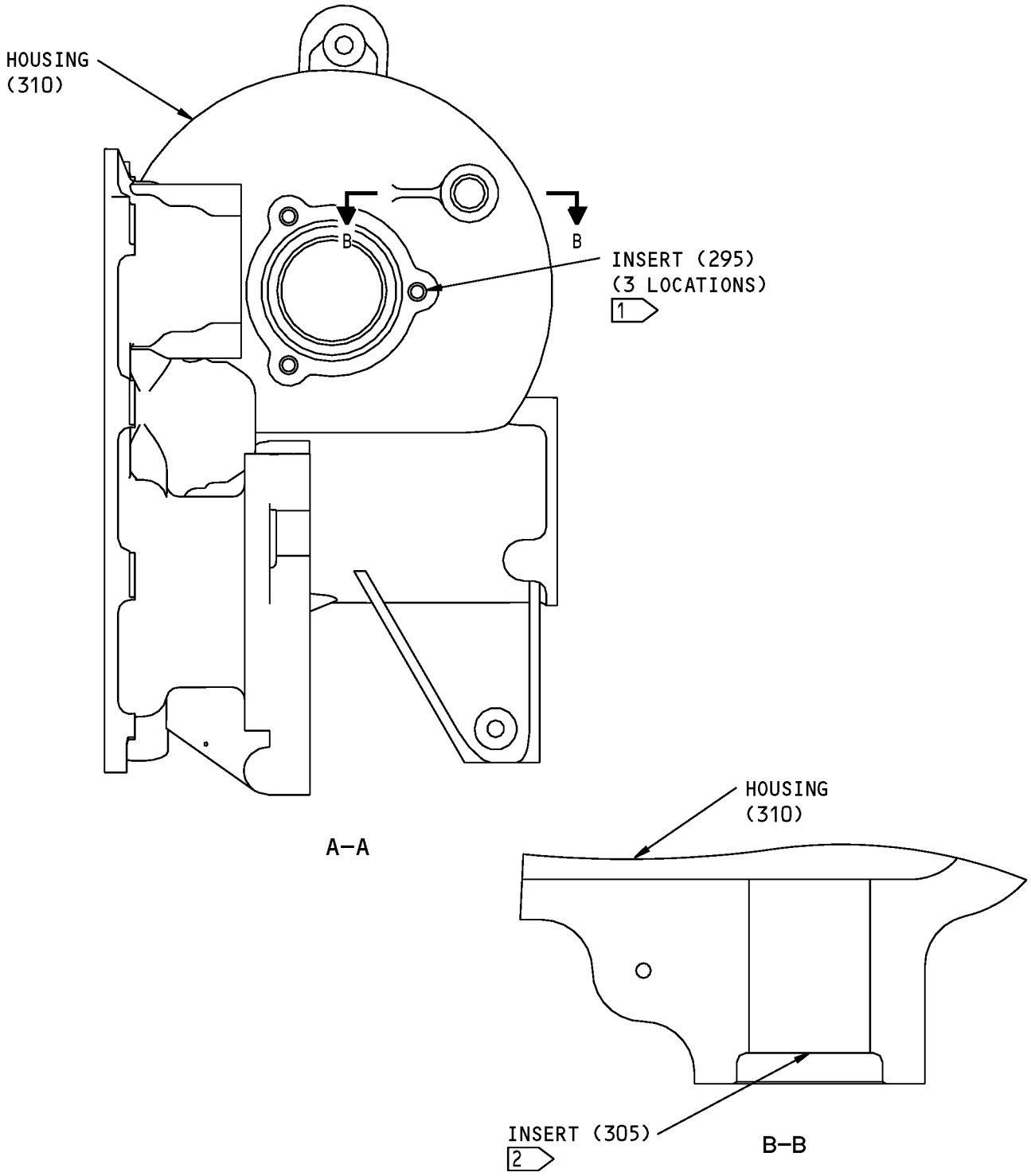
2 INSTALL INSERT 0.25-0.50 BELOW THIS SURFACE WITH WET BMS 10-11, TYPE 1 PRIMER (F-20.20) AS SHOWN IN SOPM 20-42-02. REMOVE THE TANG

ITEM NUMBERS REFER TO IPL FIG. 1

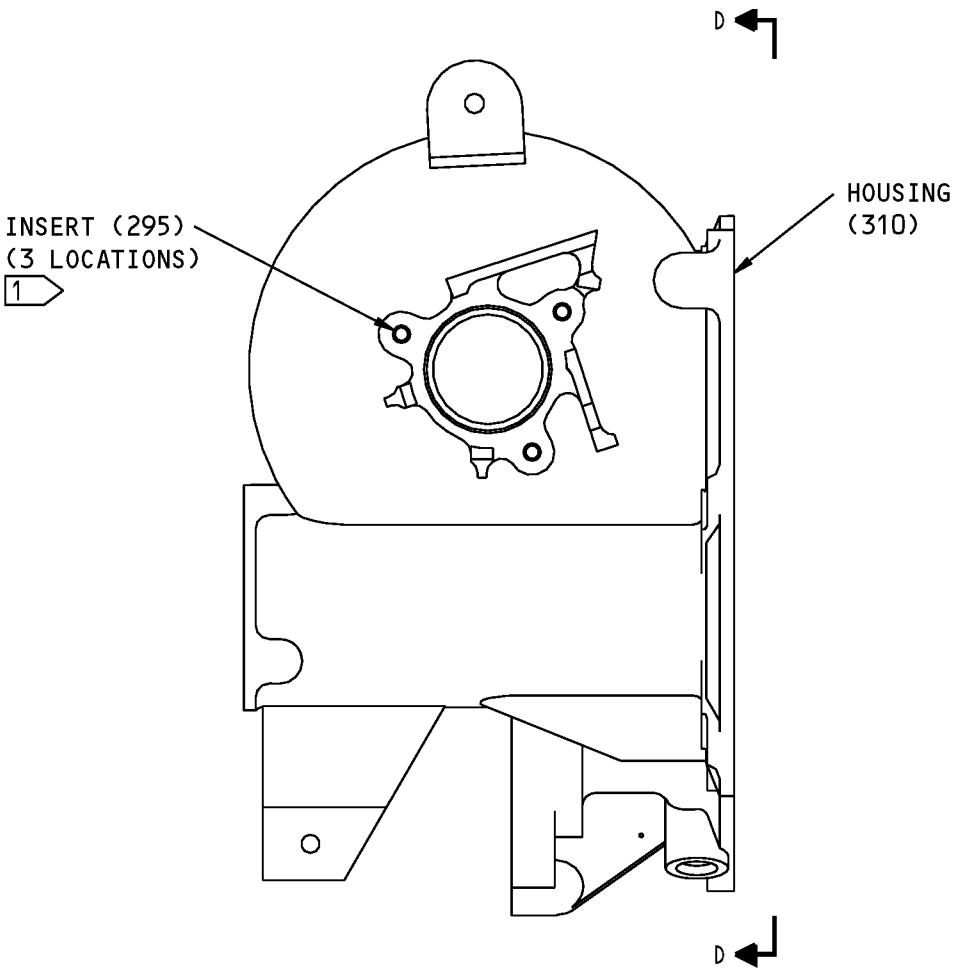
256A3520-1,-5 Housing Assembly Repair
Figure 601



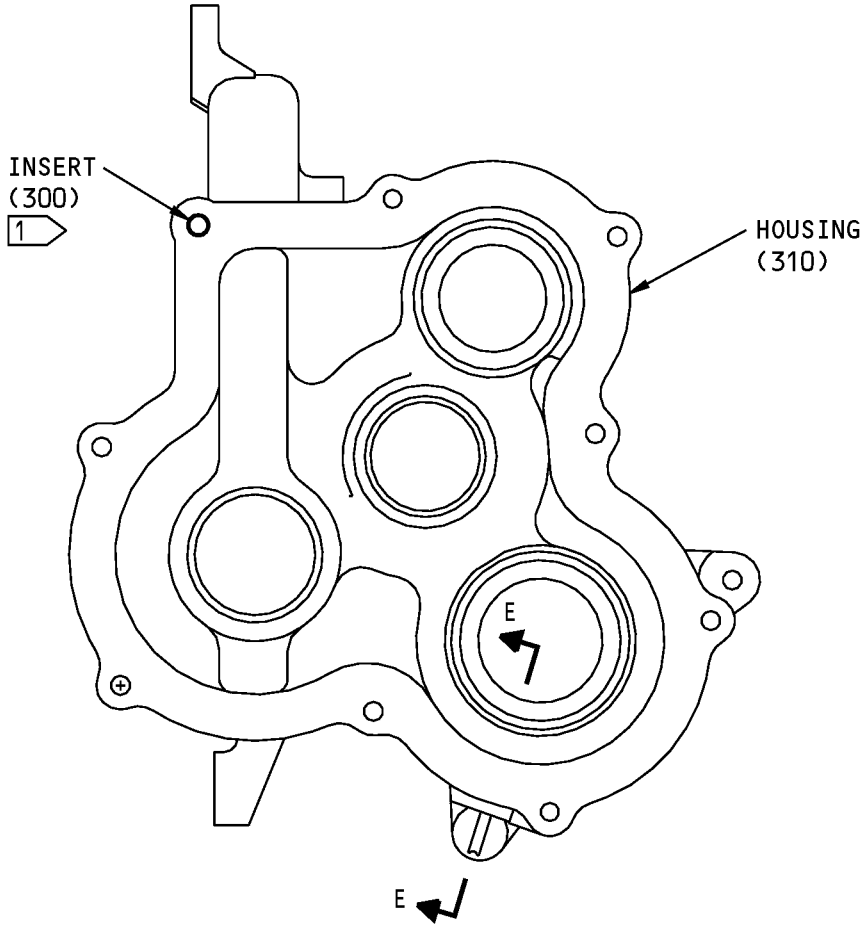
256A3519-1,-3 Housing Assembly Repair
Figure 602 (Sheet 1 of 5)



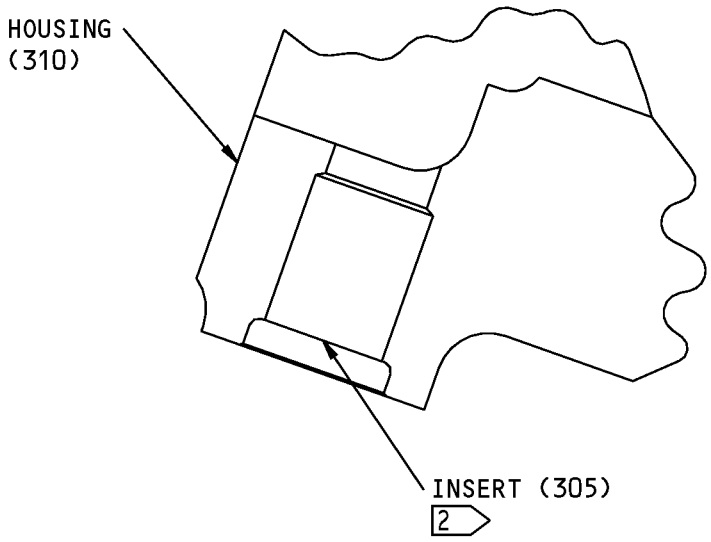
256A3519-1,-3 Housing Assembly Repair
Figure 602 (Sheet 2 of 5)



256A3519-1,-3 Housing Assembly Repair
Figure 602 (Sheet 3 of 5)



256A3519-1,-3 Housing Assembly Repair
Figure 602 (Sheet 4 of 5)



E–E

1 INSTALL INSERT WITH WET BMS 10–11, TYPE 1 PRIMER (F–20.20) AS SHOWN IN SOPM 20–41–02

2 INSTALL INSERT 0.25–0.50 BELOW THIS SURFACE WITH WET BMS 10–11, TYPE 1 PRIMER (F–20.20) AS SHOWN IN SOPM 20–41–02. REMOVE THE TANG

ITEM NUMBER REFER TO IPL FIG. 1

256A3519-1,-3 Housing Assembly Repair
Figure 602 (Sheet 5 of 5)

HOUSING - REPAIR 8-2

256A3519–2, –4, 256A3520–2, –6

1. General

A. This procedure has the data necessary to repair and refinish the housing (185, 310).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: Aluminum alloy

2. Housing Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
C00260	Coating - Chemical And Solvent Resistant Finish, Epoxy Resin Enamel	BMS10-11, Type II

B. References

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

C. Procedure (REPAIR 8-2, Figure 601 and REPAIR 8-2, Figure 602)

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

(1) Remove the protective finish from the housing (185, 310) (SOPM 20-30-02).

(2) Housing (185) (REPAIR 8-2, Figure 601).

(a) Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.35) all over.

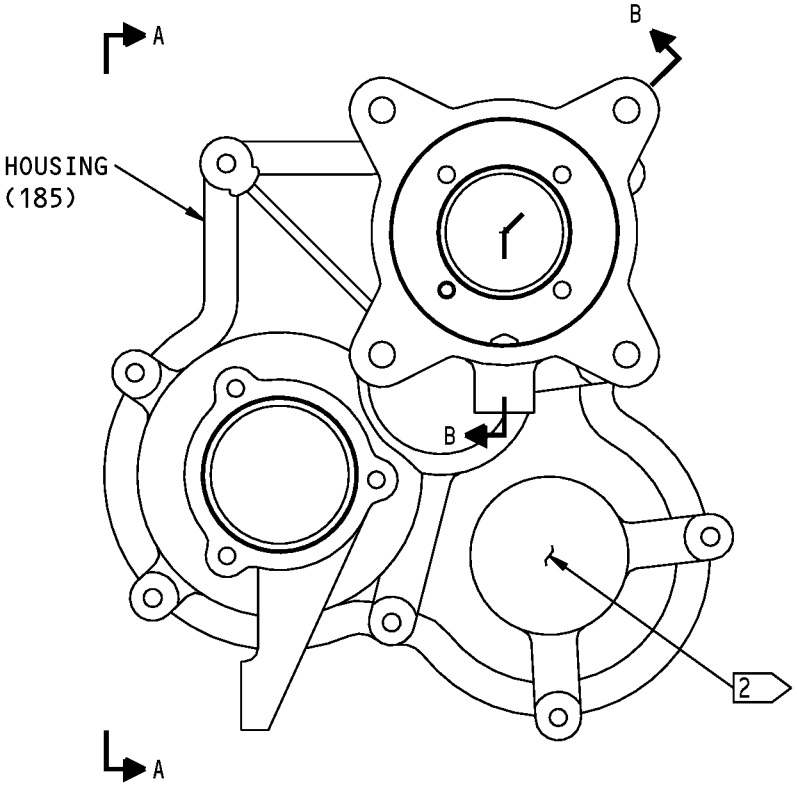
(b) Apply primer, C00259 (F-20.02) to all outside surfaces. Do not apply primer to O-ring grooves, hole diameters, or surfaces identified by flagnote 1. Overspray is permitted on holes identified by flagnote 4.

(3) Housing (310) (REPAIR 8-2, Figure 602).

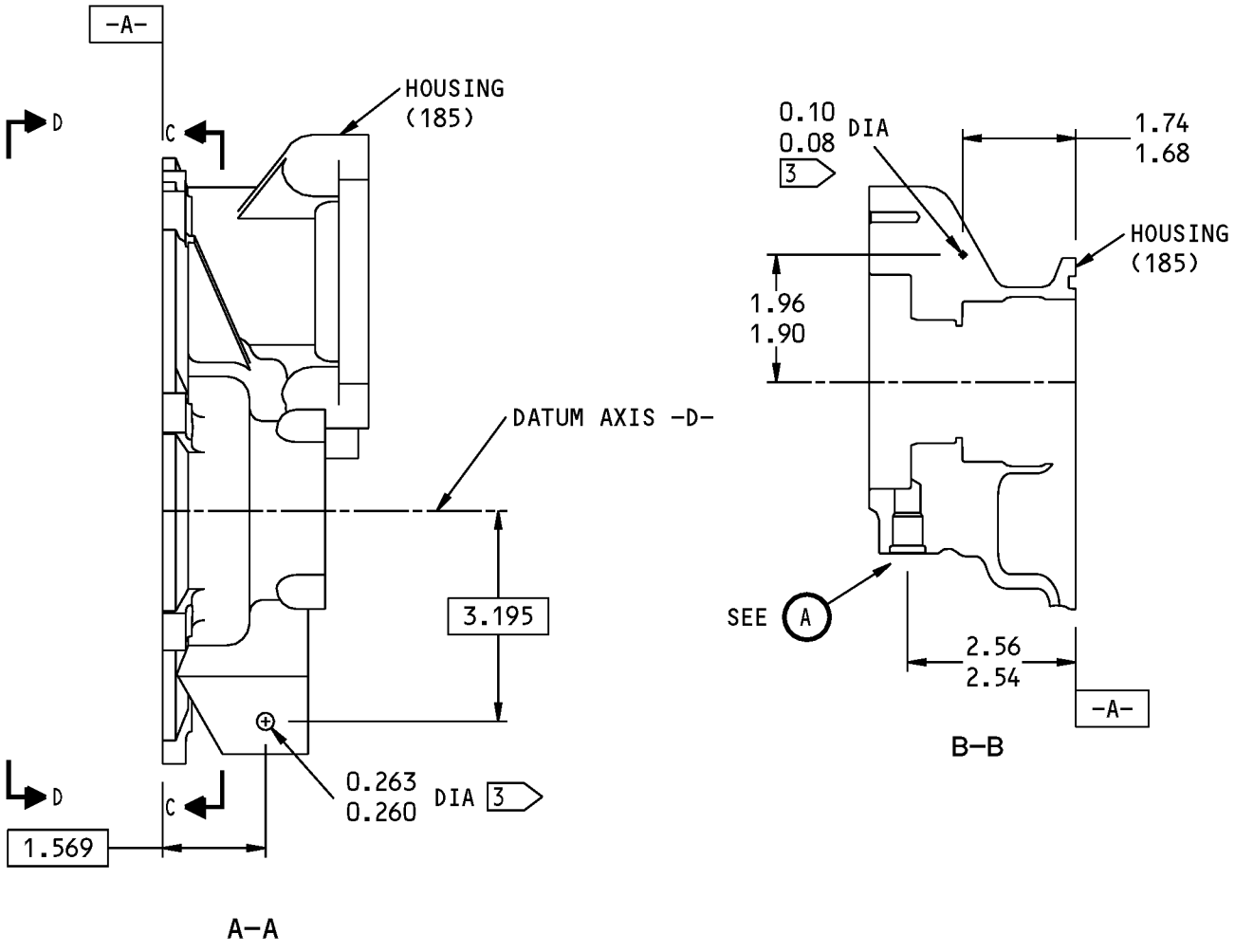
(a) Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.35) all over.

(b) Apply primer, C00259(F-20.02) to all outside surfaces. Do not apply primer to O-ring grooves, hole diameters, or surfaces identified by flagnote 1. Overspray is permitted on holes identified by flagnote 3.

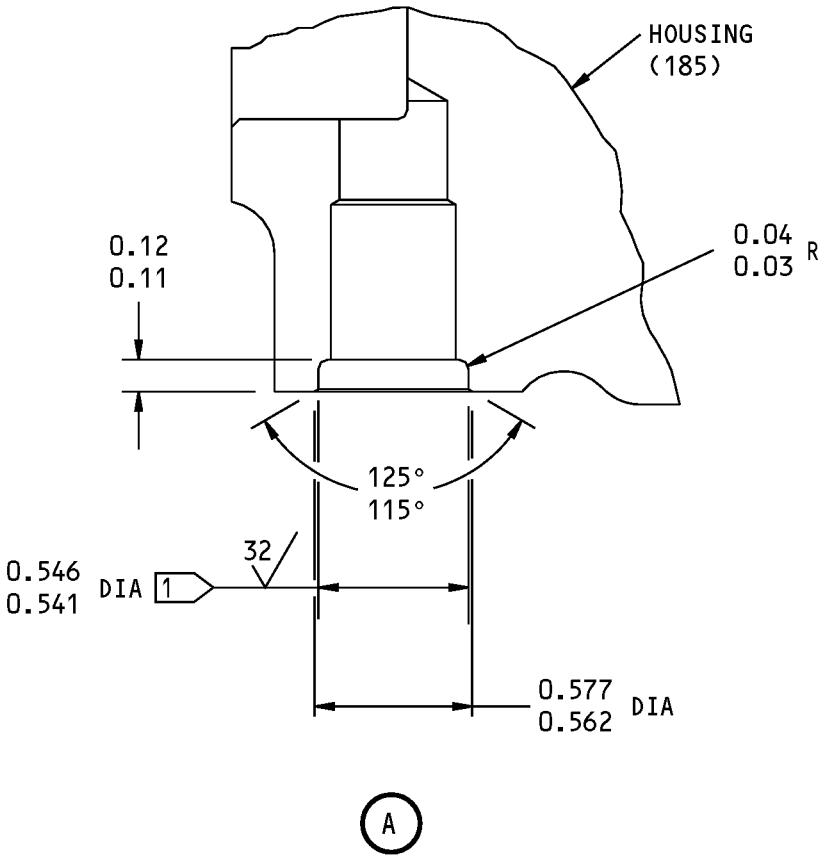
(c) Apply enamel coating, C00260, color 701 white (F-21.03) as shown by flagnote 5.



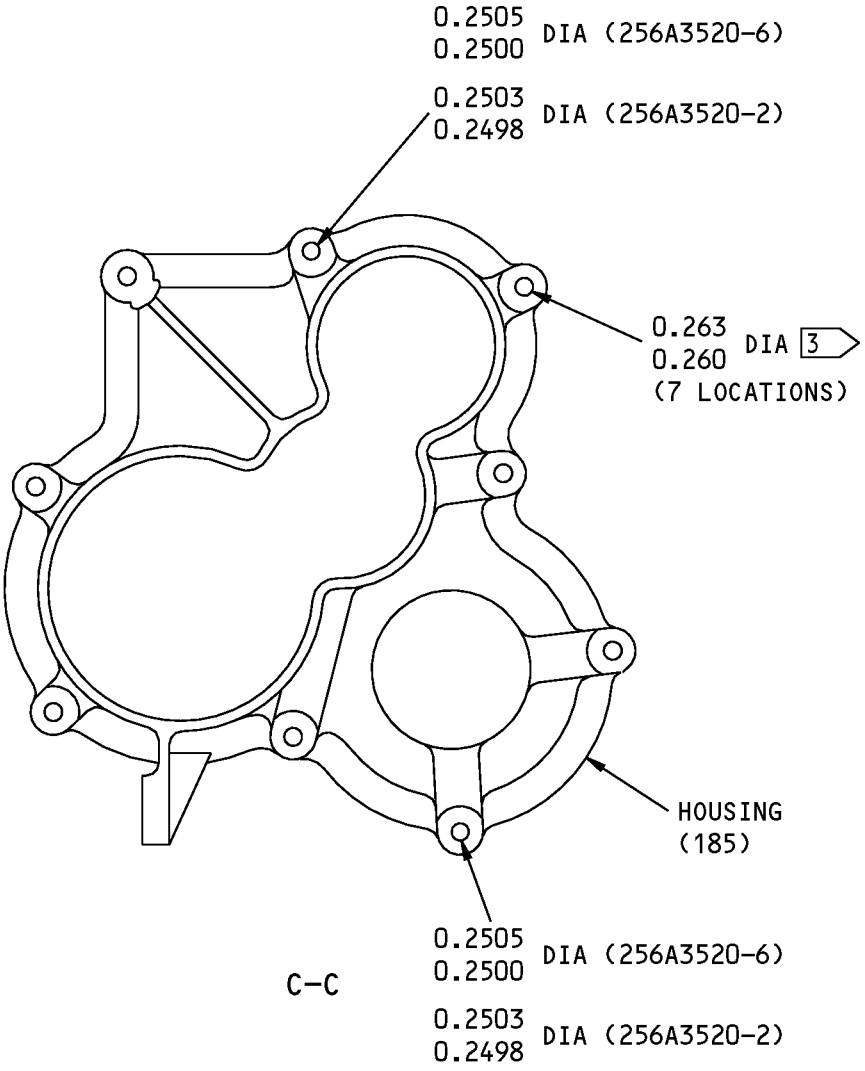
256A3520-2,-6 Housing Repair
Figure 601 (Sheet 1 of 7)



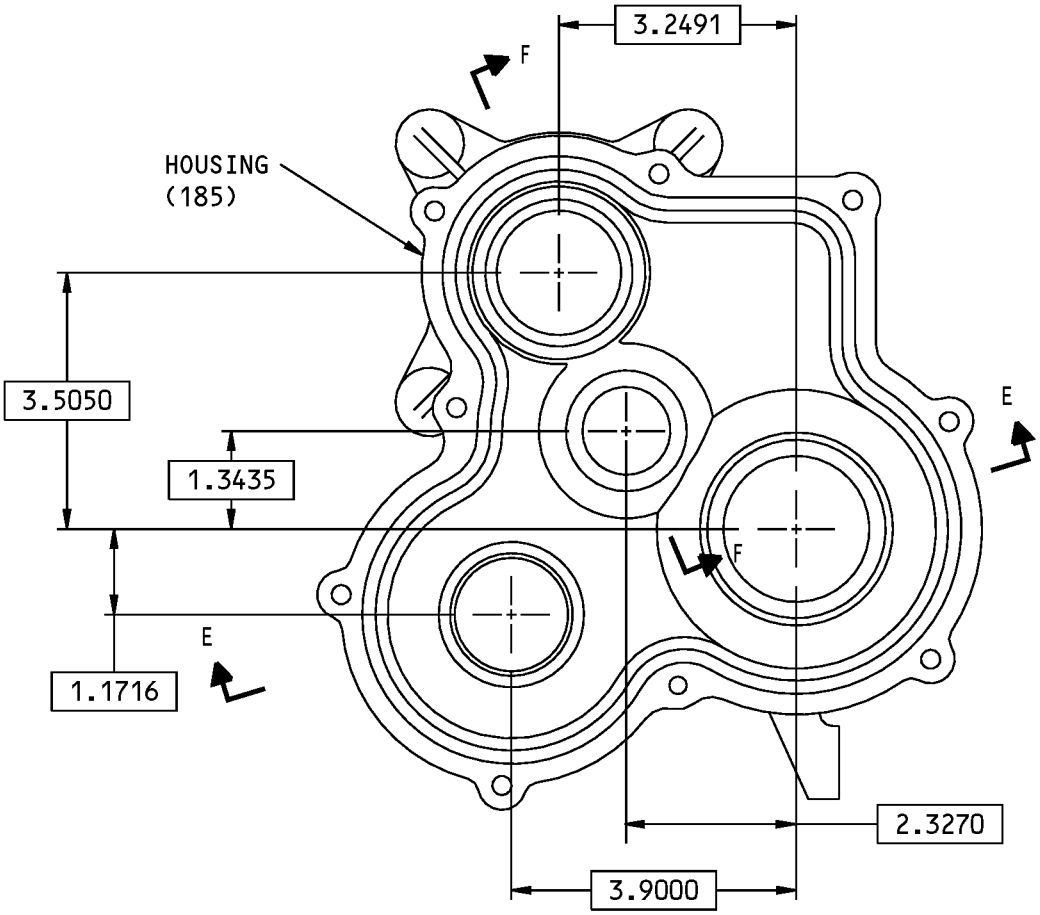
256A3520-2,-6 Housing Repair
Figure 601 (Sheet 2 of 7)



256A3520-2,-6 Housing Repair
Figure 601 (Sheet 3 of 7)

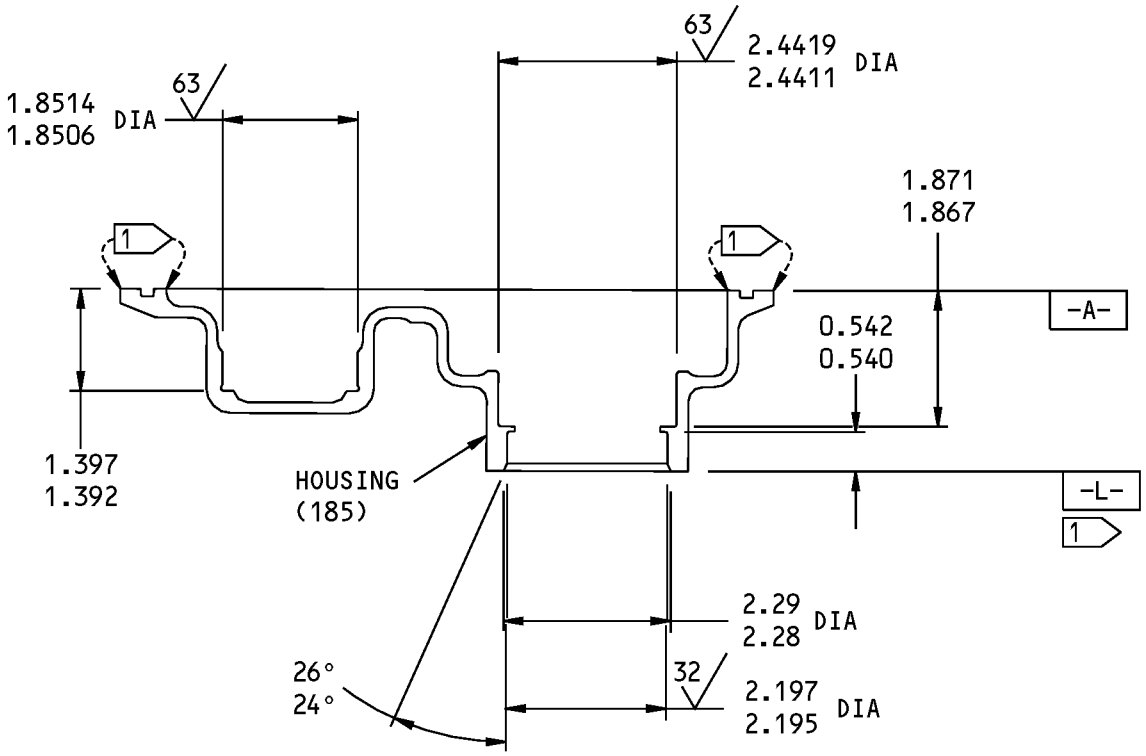


256A3520-2,-6 Housing Repair
Figure 601 (Sheet 4 of 7)



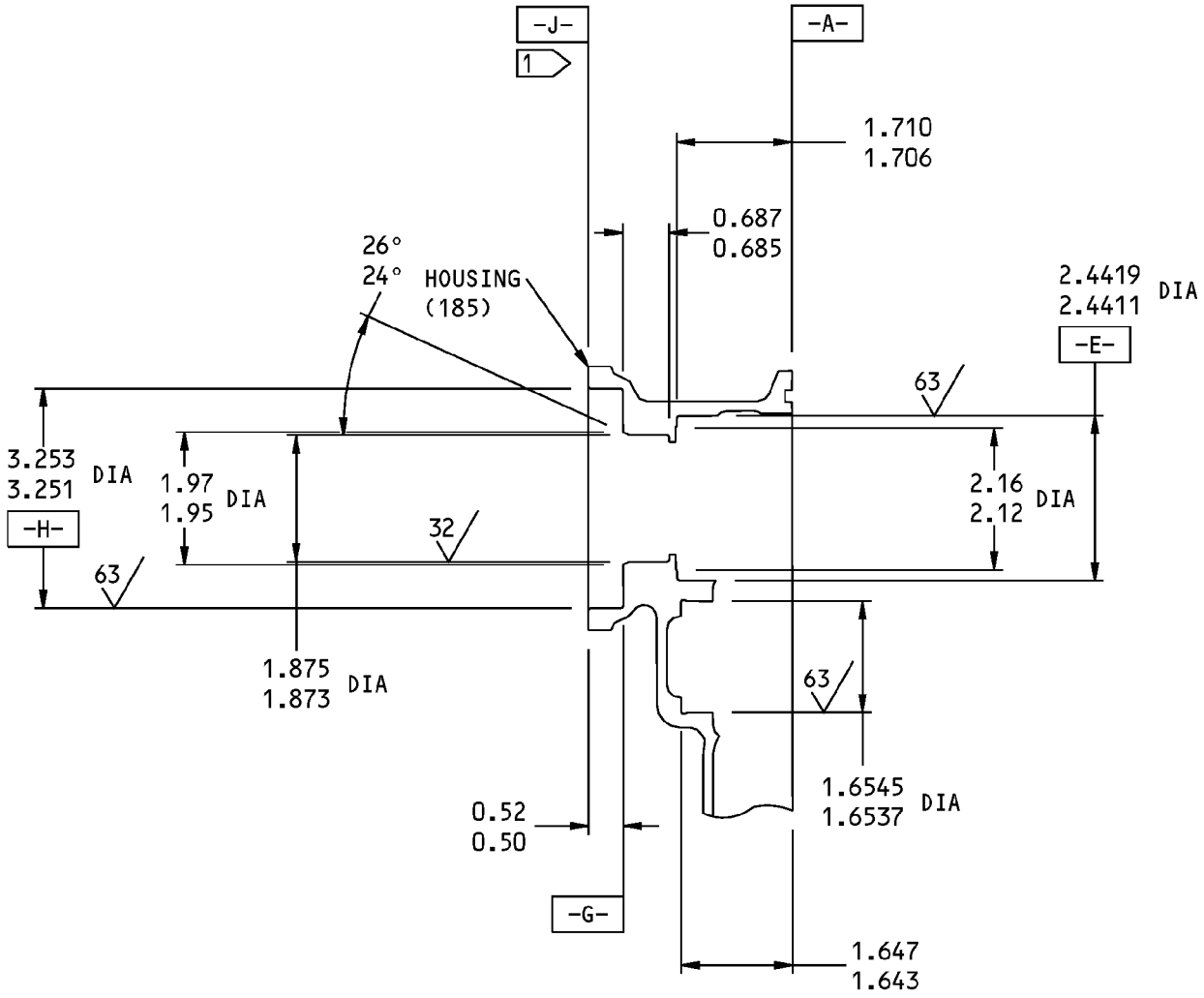
D–D

256A3520-2,-6 Housing Repair
Figure 601 (Sheet 5 of 7)



E–E
(ROTATED)

256A3520-2,-6 Housing Repair
Figure 601 (Sheet 6 of 7)



F–F
(ROTATED)

1 NO BMS 10-11, TYPE 1 PRIMER (F-20.02) ON THIS SURFACE

2 THE PART NUMBER IS FOUND HERE

3 OVERSPRAY IS PERMITTED ON THIS HOLE

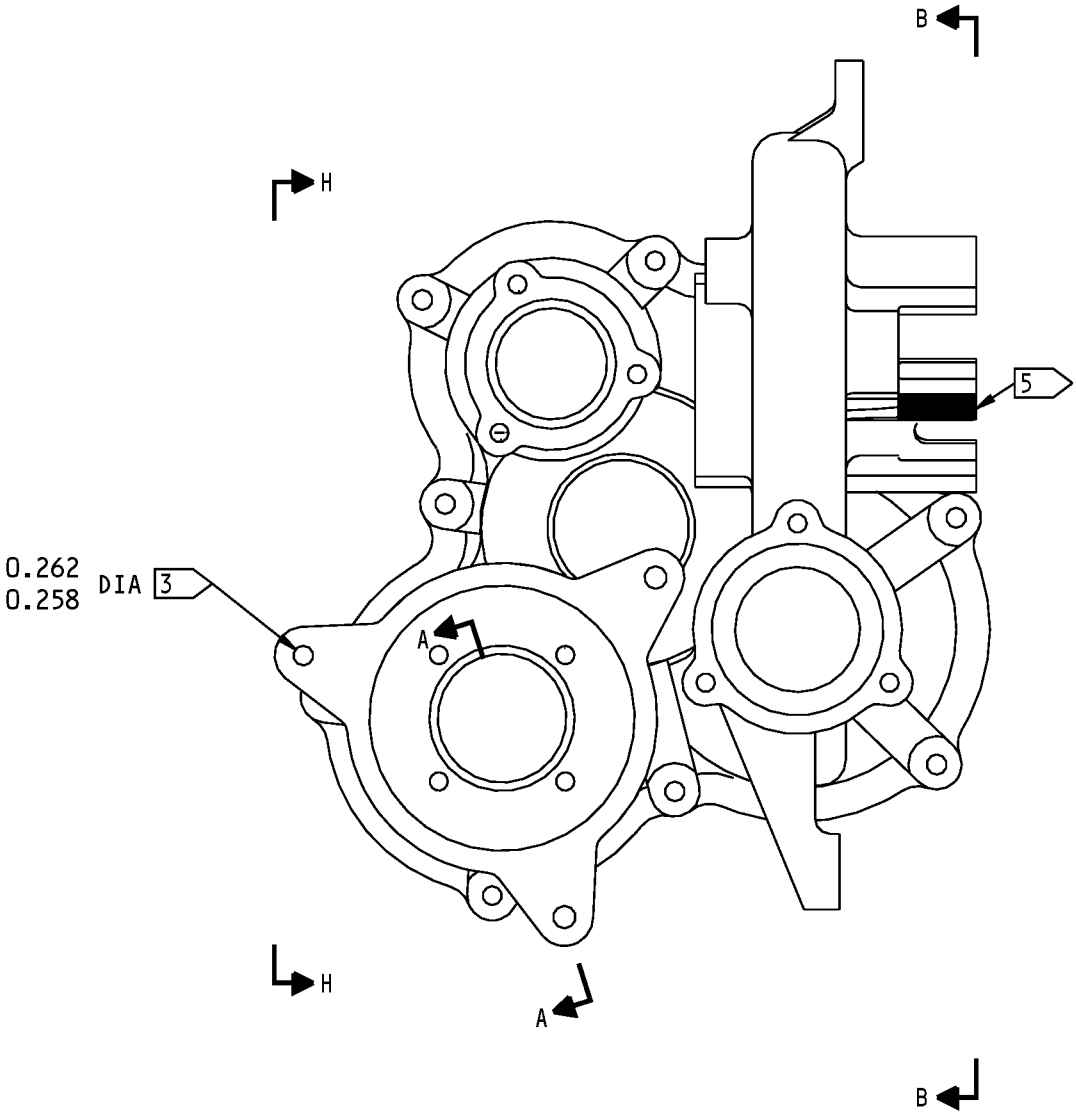
125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

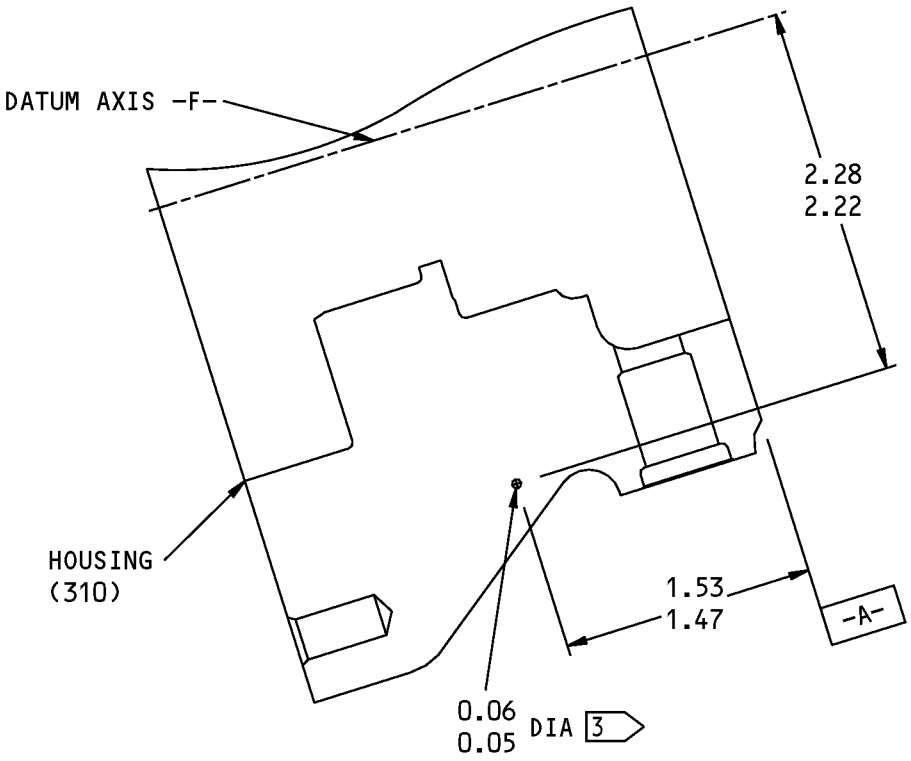
ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3520-2,-6 Housing Repair
Figure 601 (Sheet 7 of 7)

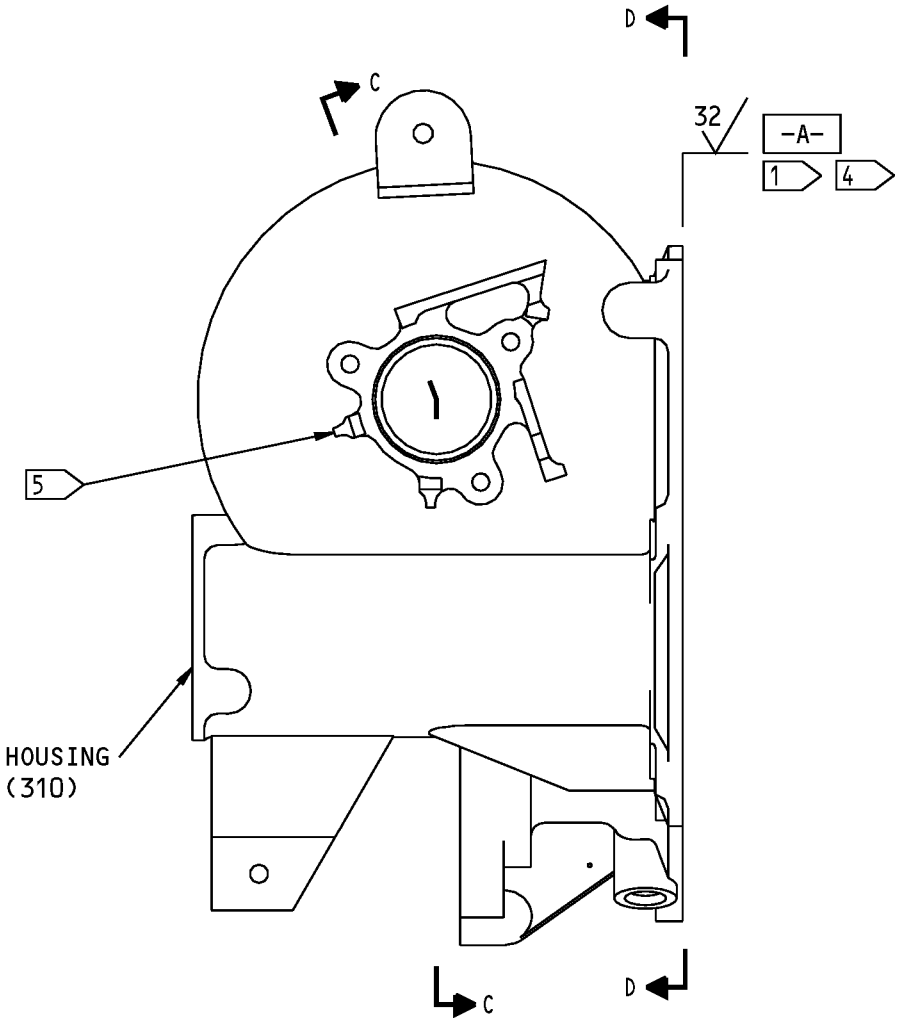


256A3519-2,-4 Housing Repair
Figure 602 (Sheet 1 of 10)



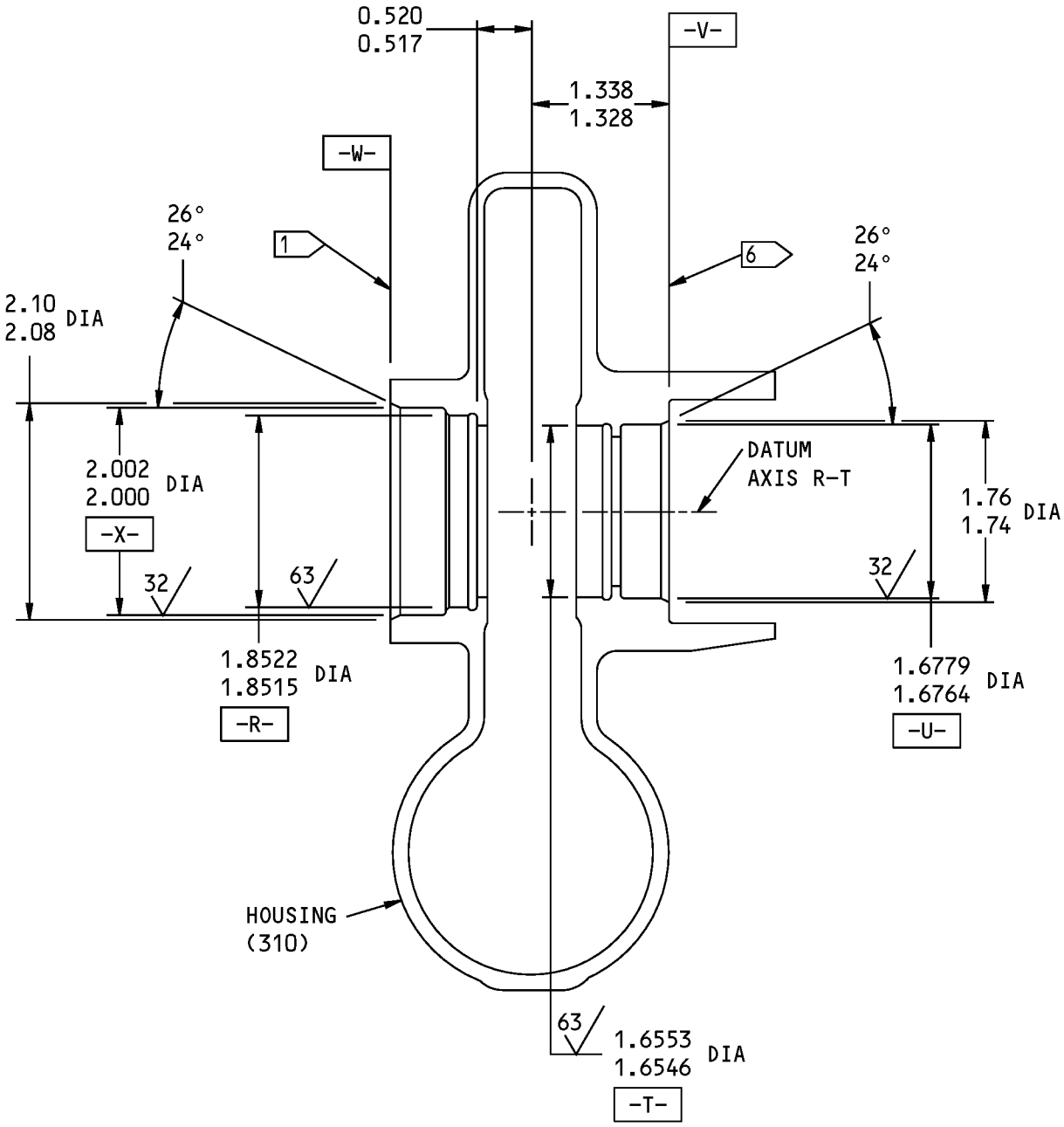
A-A

256A3519-2,-4 Housing Repair
Figure 602 (Sheet 2 of 10)

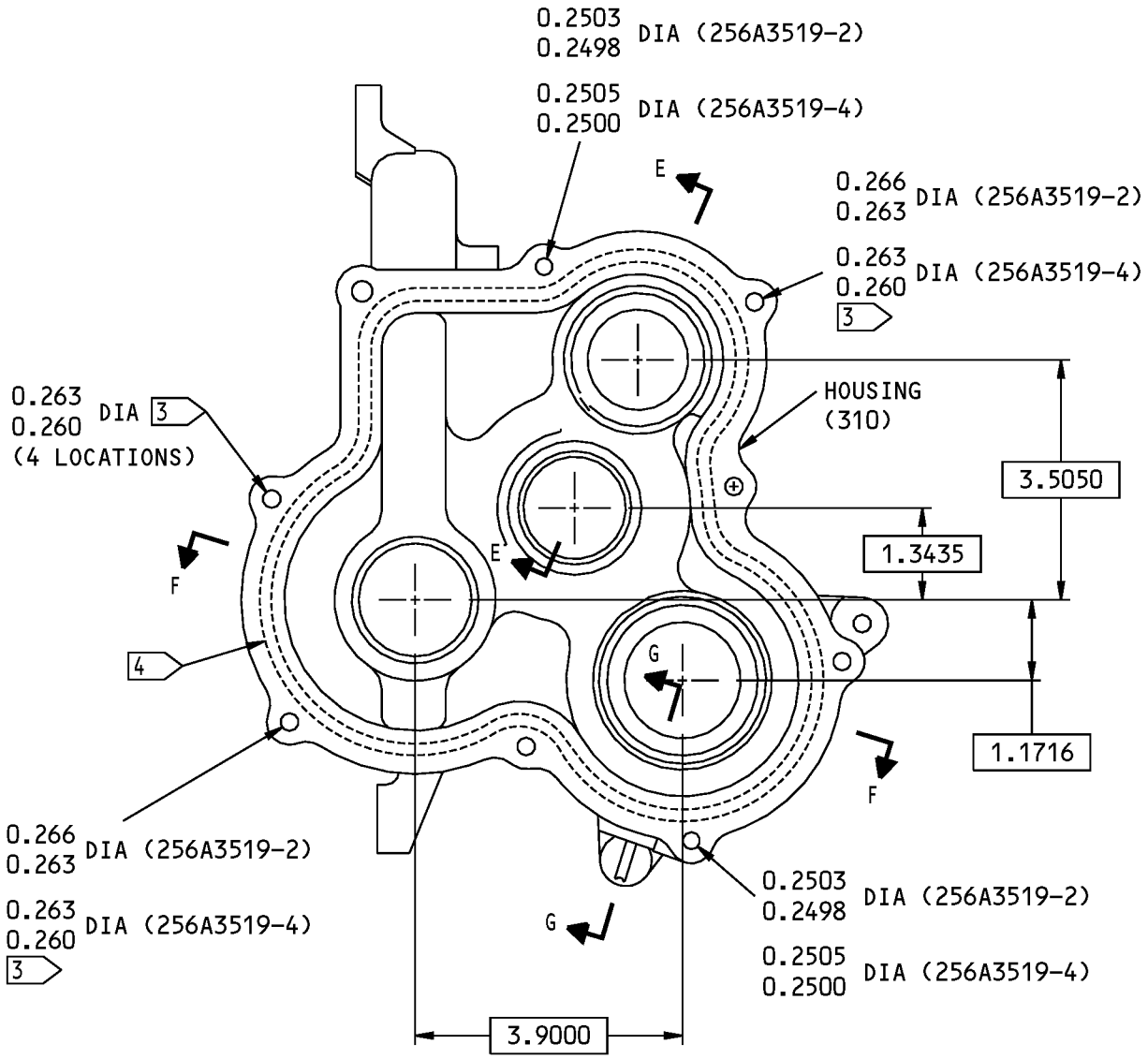


B–B

256A3519-2,-4 Housing Repair
Figure 602 (Sheet 3 of 10)

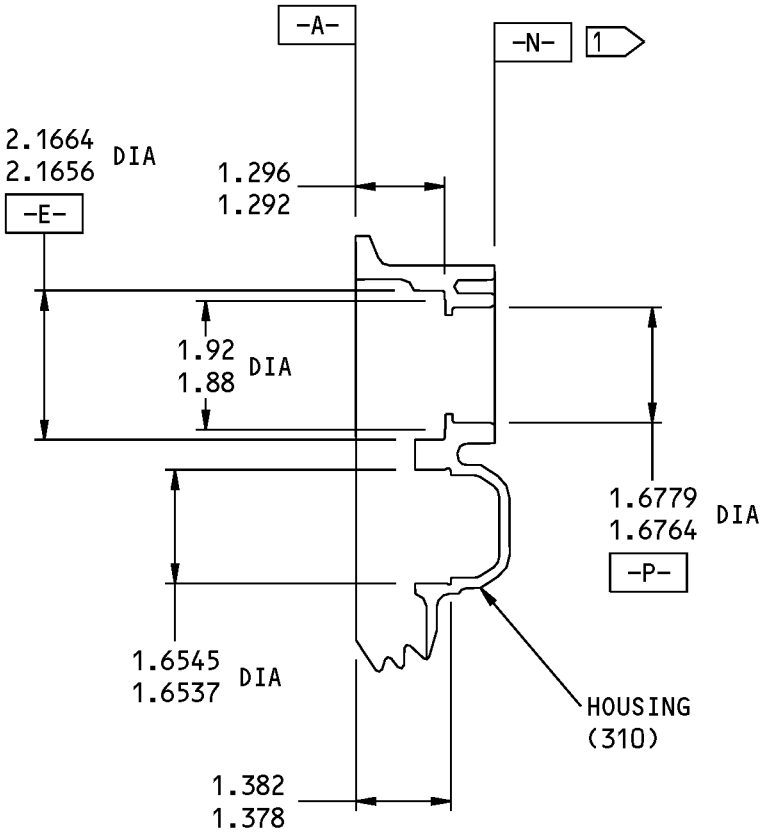


256A3519-2,-4 Housing Repair
Figure 602 (Sheet 4 of 10)



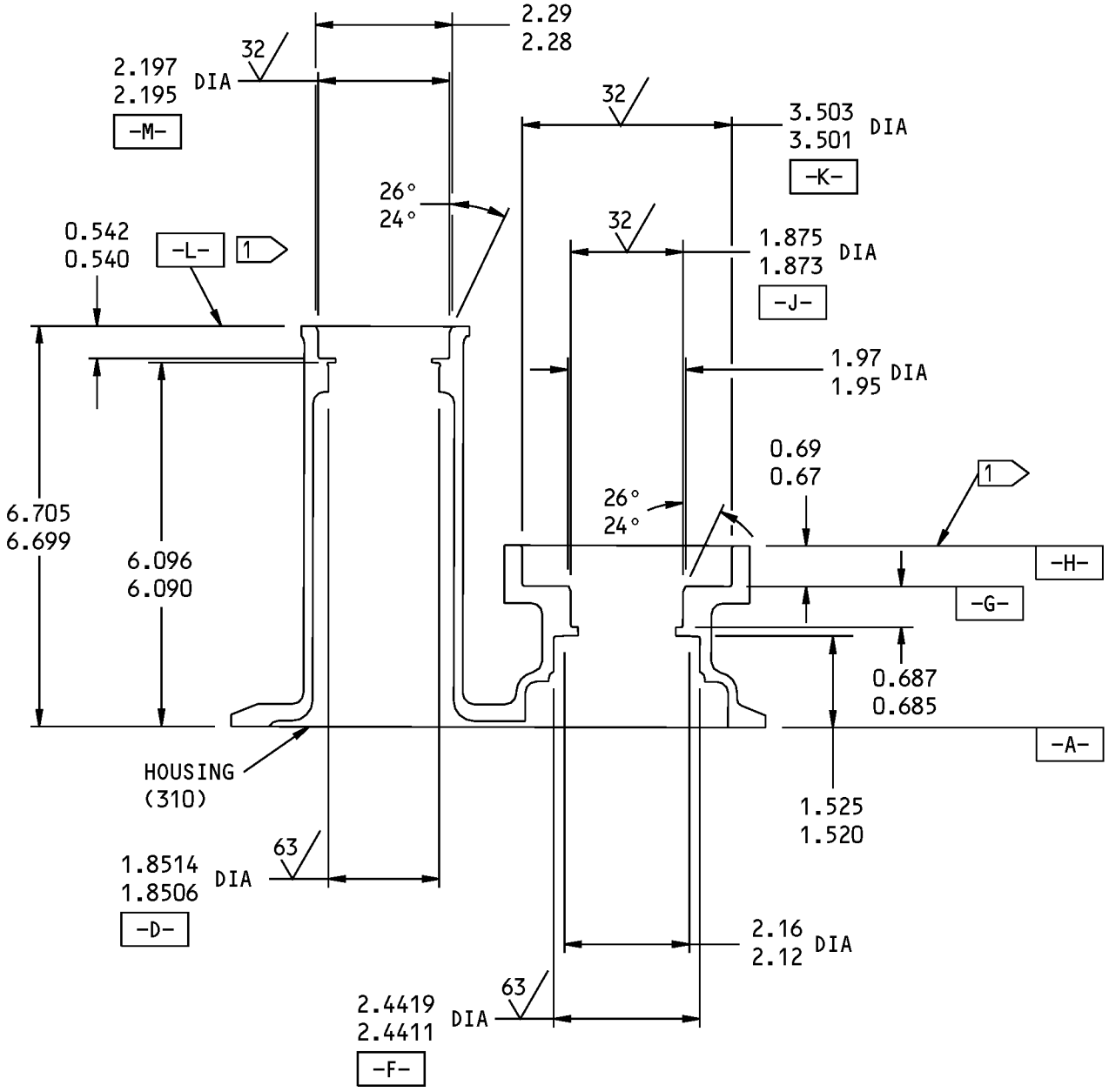
D–D

256A3519-2,-4 Housing Repair
Figure 602 (Sheet 5 of 10)



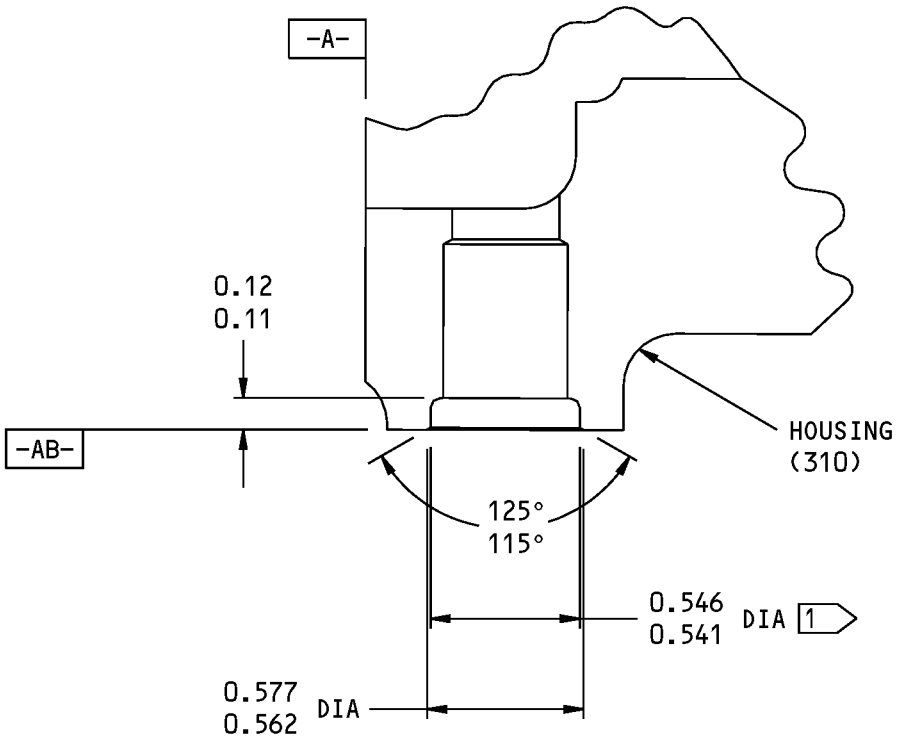
E-E
(ROTATED)

256A3519-2,-4 Housing Repair
Figure 602 (Sheet 6 of 10)



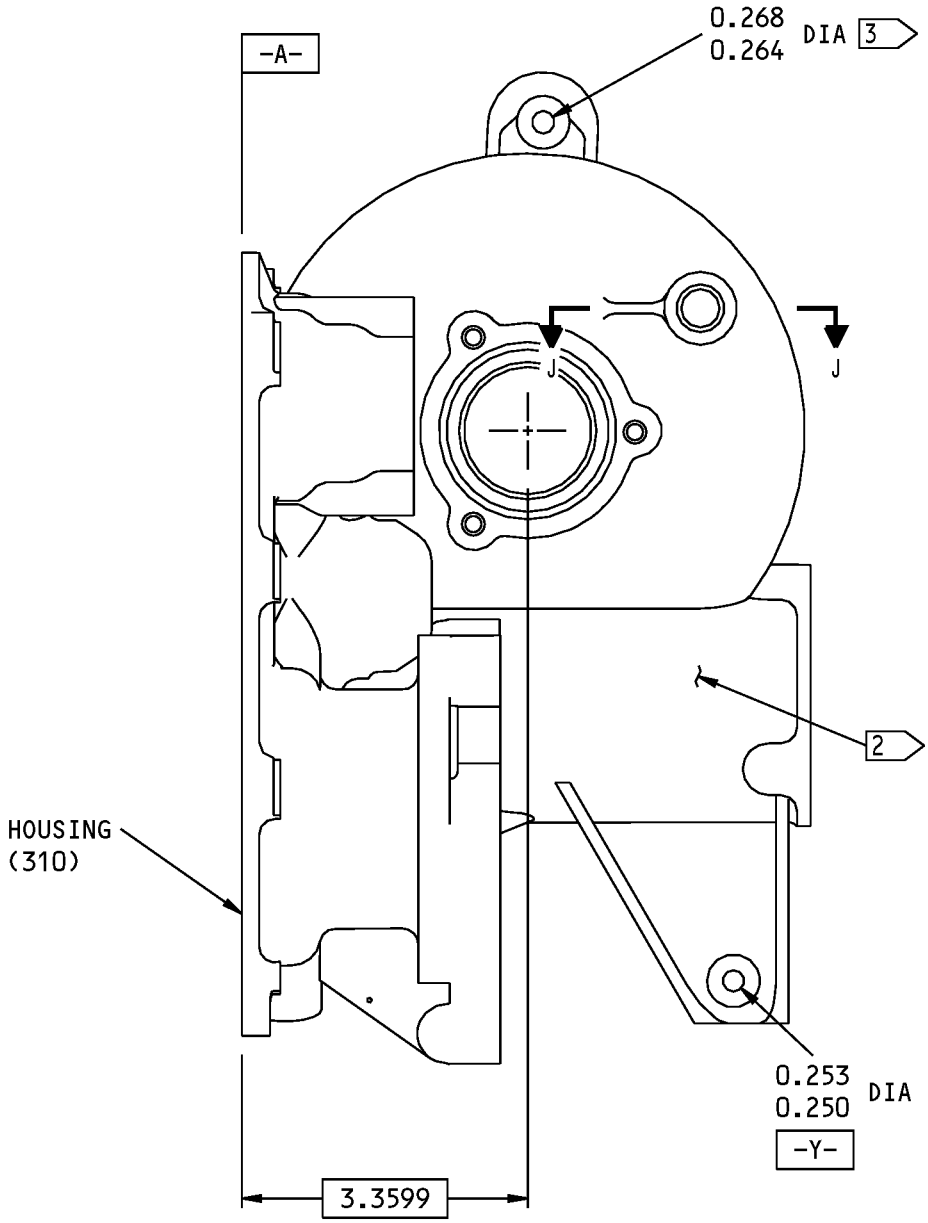
F–F
(ROTATED)

256A3519-2,-4 Housing Repair
Figure 602 (Sheet 7 of 10)



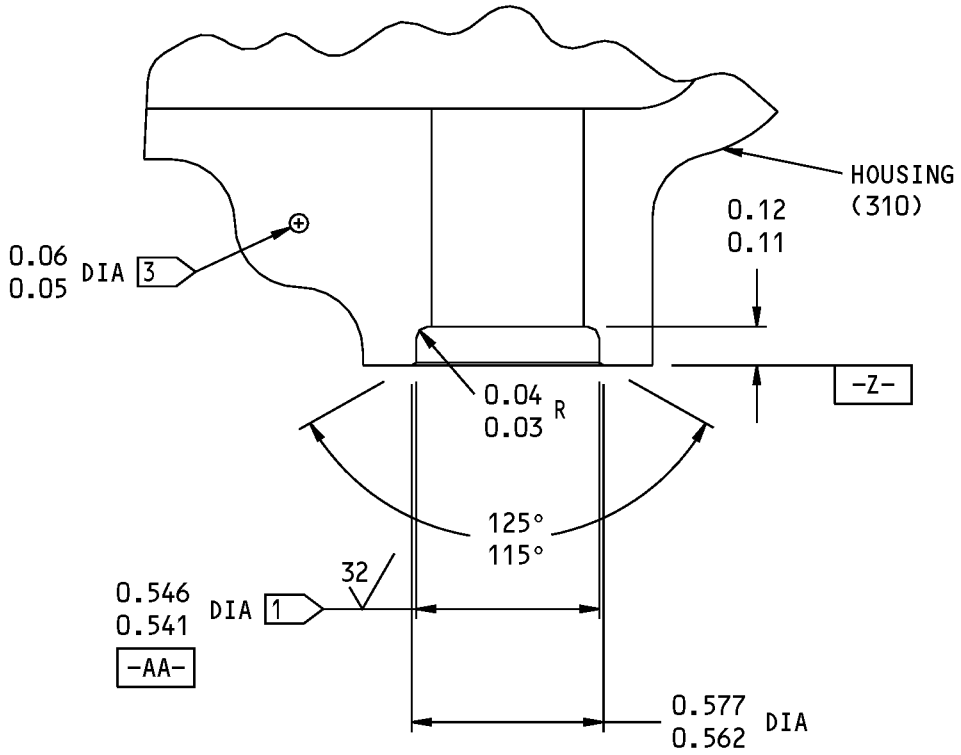
G-G
(ROTATED)

256A3519-2,-4 Housing Repair
Figure 602 (Sheet 8 of 10)



H–H

256A3519-2,-4 Housing Repair
Figure 602 (Sheet 9 of 10)



J–J

1. NO BMS 10-11, TYPE 1 PRIMER (F-20.02) ON THIS SURFACE
2. THE PART NUMBER IS FOUND HERE
3. OVERSPRAY IS PERMITTED ON THIS HOLE
4. SEAL CONTACT AREA. 32 MICROINCHES RA SURFACE FINISH APPLIES ON THIS SURFACE ONLY
5. APPLY BMS 10-11, TYPE 2 ENAMEL (F-21.03) AS SHOWN IN SOPM 20-41-02 ON THIS SURFACE
6. APPLY BMS 10-11, TYPE 1 PRIMER, NO RUNS, BEADS, OR SAGS PERMITTED

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBER REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3519-2,-4 Housing Repair
Figure 602 (Sheet 10 of 10)

PINION - REPAIR 9-1

256A3524–1, –2

1. General

A. This procedure has the data necessary to repair and refinish the pinion (210).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material

(a) 256A3524-1: 9310 steel, 160-190 ksi

(b) 256A3524-2: 4340 steel, 160-180 ksi

2. Pinion Refinish

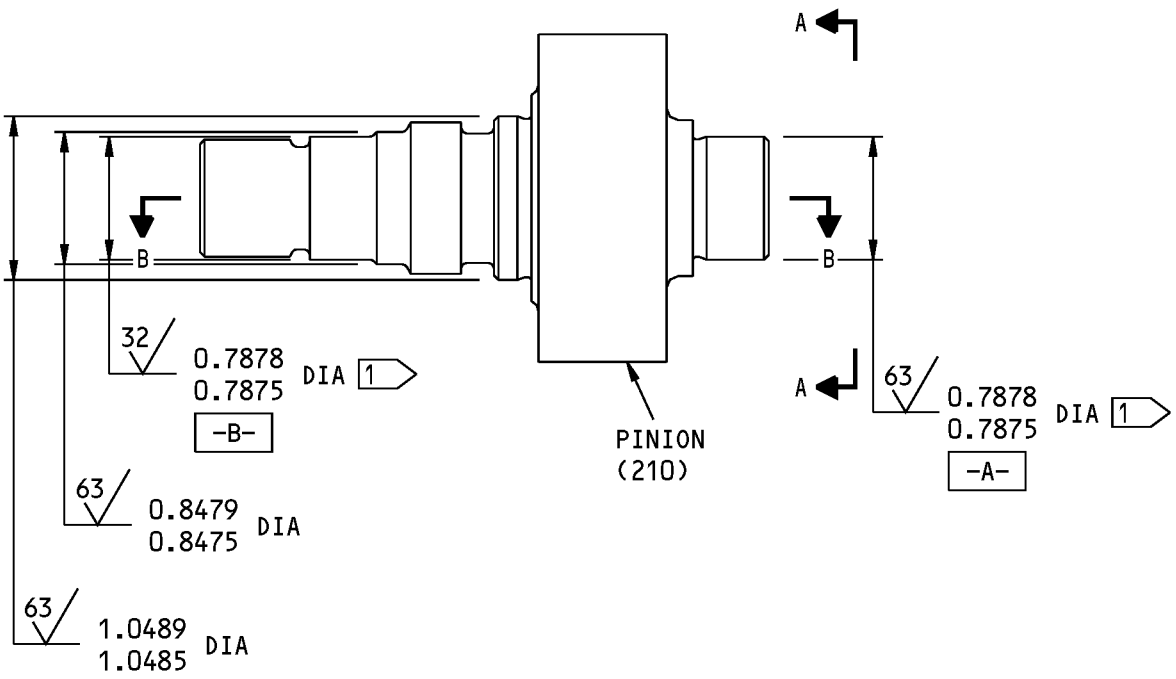
A. References

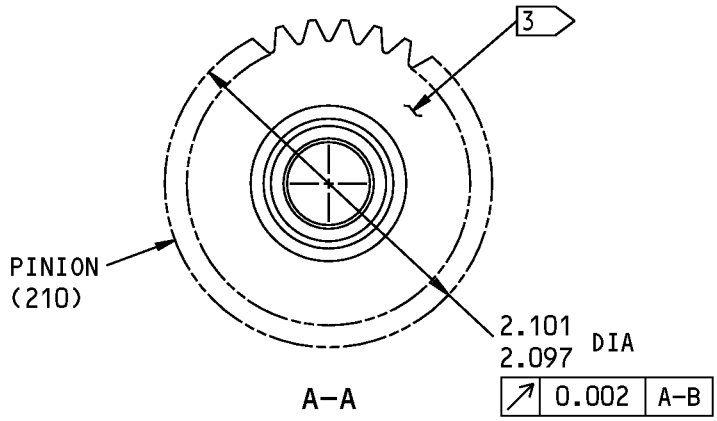
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

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

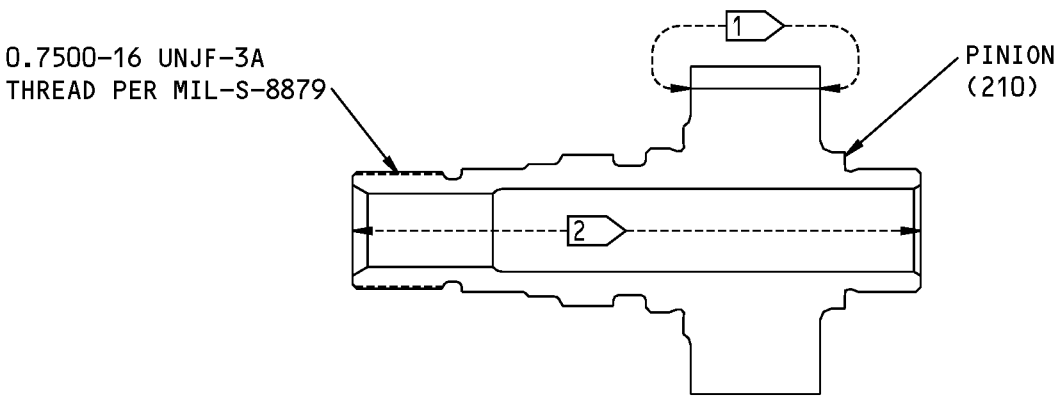
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Cadmium plate (F-15.23) as shown.





256A3524-1,-2 Pinion Repair
Figure 601 (Sheet 1 of 2)



B–B

1 NO FINISH OR PLATING RUNOUT IN THIS SURFACE. PLATING RUNOUT ON ADJACENT SURFACE MUST NOT BE MORE THAN 0.030 WIDE

2 THROWN-IN PLATING IS PERMITTED

3 PART NUMBER LOCATION

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3524-1,-2 Pinion Repair
Figure 601 (Sheet 2 of 2)

OUTPUT GEAR - REPAIR 10-1

256A3525–1, –2

1. General

A. This procedure has the data necessary to repair and refinish the output gear (215).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material

(a) 256A3525-1: 9310 steel, 160-190 ksi

(b) 256A3525-2: 4340 steel, 160-180 ksi

2. Output Gear Refinish

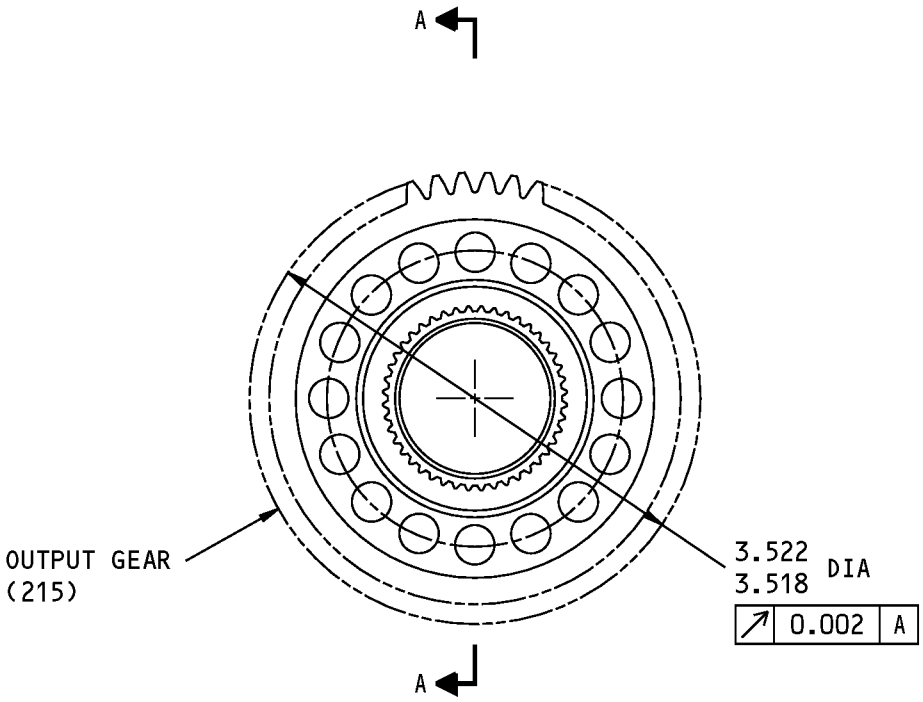
A. References

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

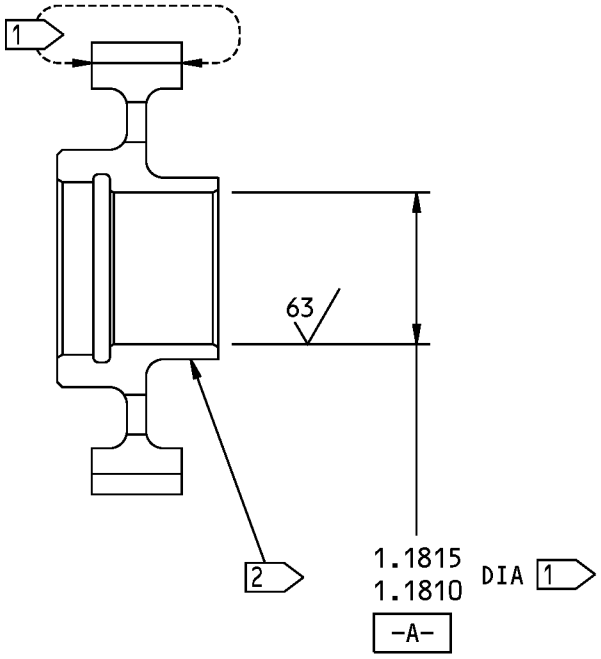
B. Procedure (REPAIR 10-1, Figure 601)

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

(1) Cadmium plate (F-15.23) as shown.



256A3525-1,-2 Output Gear Repair
Figure 601 (Sheet 1 of 2)



A–A

1 NO FINISH OR PLATING RUNOUT ON THIS SURFACE. PLATING RUNOUT ON ADJACENT SURFACE MUST NOT BE MORE THAN 0.030 WIDE

2 PART NUMBER LOCATION

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3525-1,-2 Output Gear Repair
Figure 601 (Sheet 2 of 2)

PINION GEAR ASSEMBLY - REPAIR 11-1

256A3528–1, –2

1. General

A. This procedure has the data necessary to replace the plug in the pinion gear assembly (220).

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

C. Refer to IPL Figure 1 for item numbers.

2. Shaft Plug Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

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

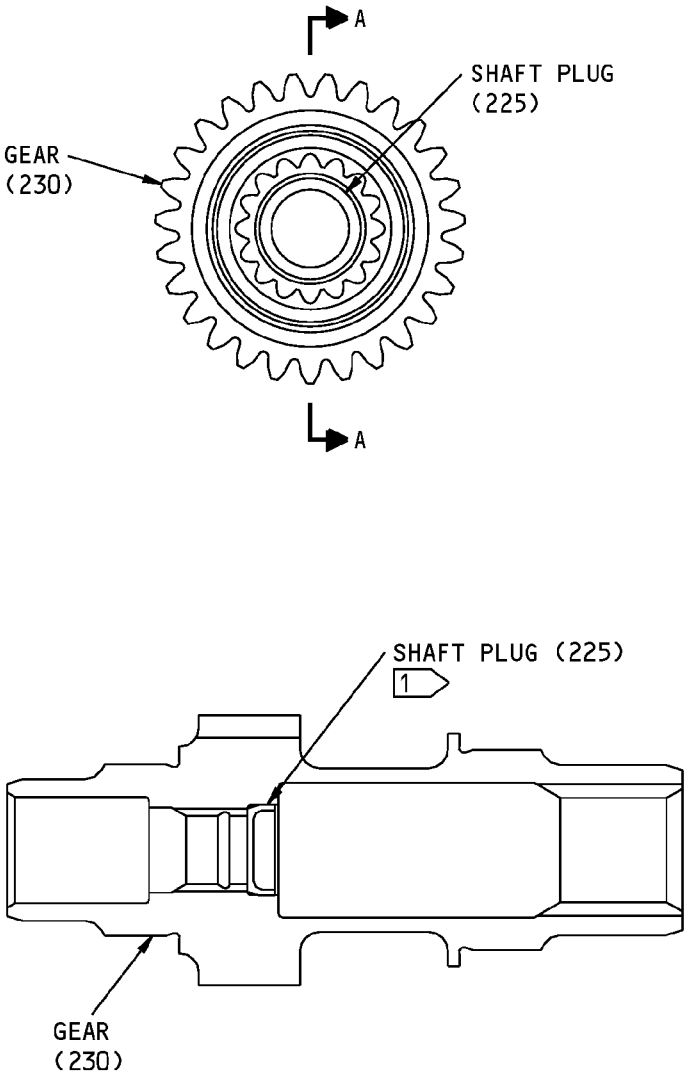
C. Procedure (REPAIR 11-1, Figure 601)

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

(1) Remove the bad plug (225) from the gear (230).

(2) If you find defects on the gear, refer to REPAIR 11-2 for repair instructions.

(3) Install a replacement plug (225) into the gear (230) with primer, C00259 as shown.



1 INSTALL THIS PLUG WITH WET BMS 10-11 PRIMER (F-20.06). REMOVE UNWANTED PRIMER

ITEM NUMBERS REFER TO IPL FIG. 1

256A3528-1,-3 Pinion Gear Assembly Repair
Figure 601

PINION GEAR - REPAIR 11-2

256A3528–2, –4

1. General

A. This procedure has the data necessary to repair and refinish the pinion gear (230).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material

(a) 256A3528-2: 9310 steel, 160-190 ksi

(b) 256A3528-4: 4340 steel, 160-180 ksi

(2) Shot peen: Machined areas for chrome plate repair

(a) Shot Size 0.014-0.016

(b) Intensity 0.014A2

(c) Coverage 2.0

2. Pinion Gear Repair

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

Reference	Title
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure (REPAIR 11-2, Figure 601)

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

(1) Machine as required, within repair limits, to remove defects (SOPM 20-10-01) (SOPM 20-10-02).

(2) Shot peen as indicated (SOPM 20-10-03).

(3) Build up with chrome plate (SOPM 20-42-03).

(4) Grind the chrome plate to design dimensions and finish SOPM 20-10-04.

(5) Wipe the chrome plate with primer, C00259 (F-19.45).

3. Pinion Gear Refinish

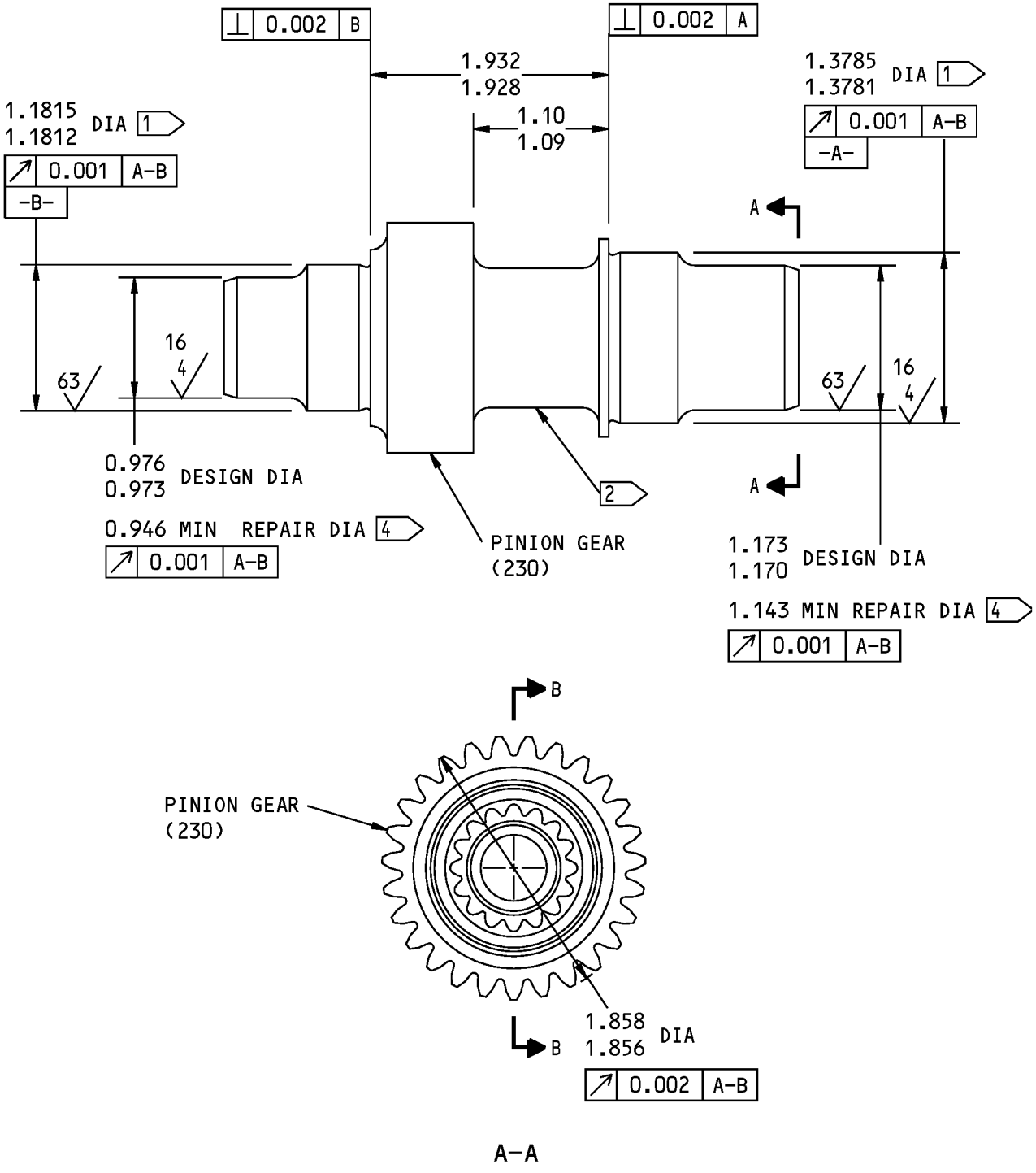
A. References

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

B. Procedure (REPAIR 11-2, Figure 601)

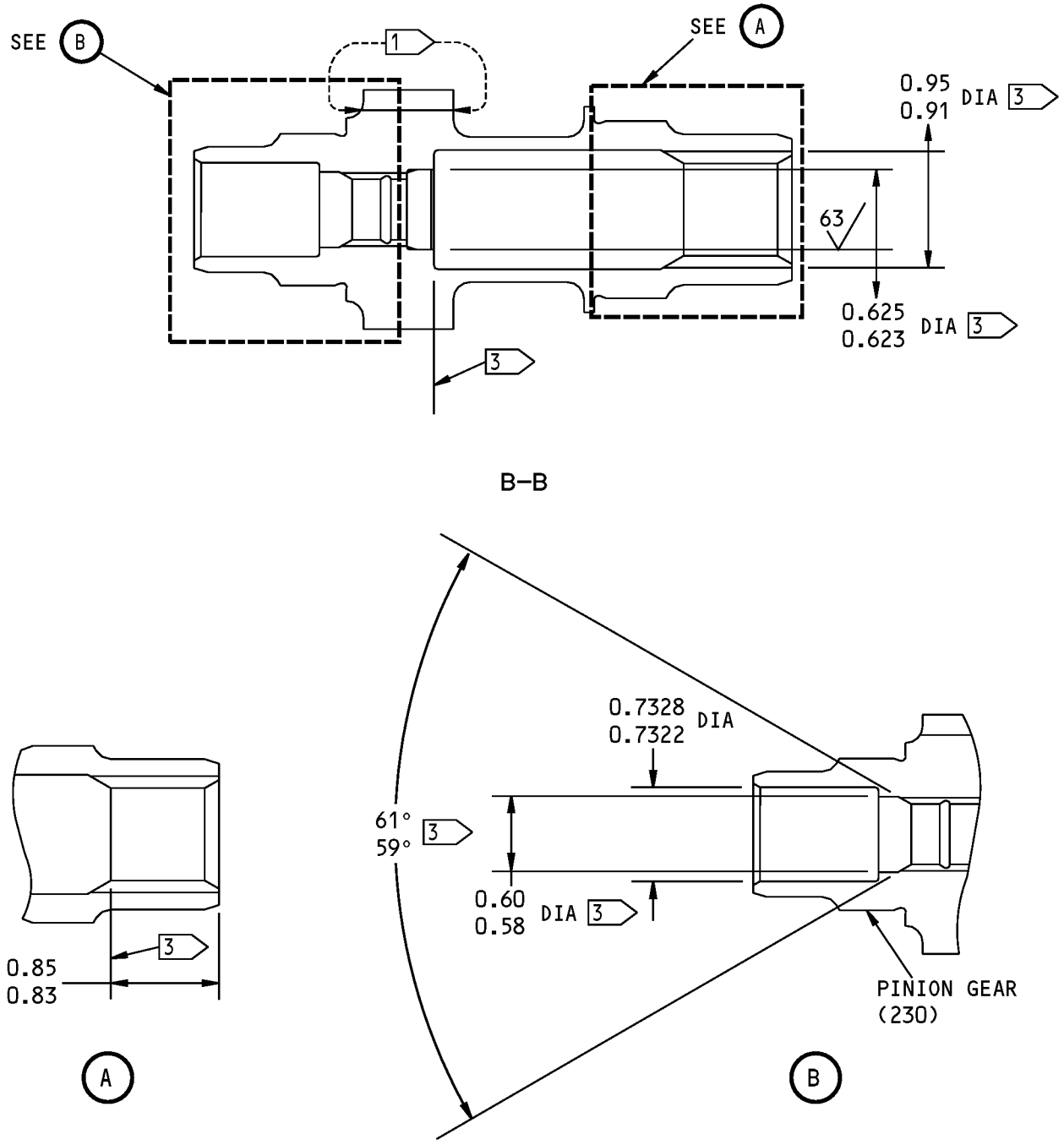
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Cadmium plate (F-15.23) as shown.



A–A

256A3528-2,-4 Pinion Gear Repair
Figure 601 (Sheet 1 of 3)



256A3528-2,-4 Pinion Gear Repair
Figure 601 (Sheet 2 of 3)

1> NO FINISH OR PLATING RUNOUT ON THIS SURFACE. PLATING RUNOUT ON ADJACENT SURFACE MUST NOT BE MORE THAN 0.030 INCHES WIDE

2> PART NUMBER LOCATION

3> CADMIUM PLATE THICKNESS 0.0002 MINIMUM ON THIS SURFACE

4> LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3528-2,-4 Pinion Gear Repair
Figure 601 (Sheet 3 of 3)

COUNTERSHAFT GEAR - REPAIR 12-1

256A3526–1, –2

1. General

A. This procedure has the data necessary to repair and refinish the countershaft gear (250).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material

(a) 256A3526-1: 9310 steel, 160-190 ksi

(b) 256A3526-2: 4340 steel, 160-180 ksi

2. Countershaft Gear Refinish

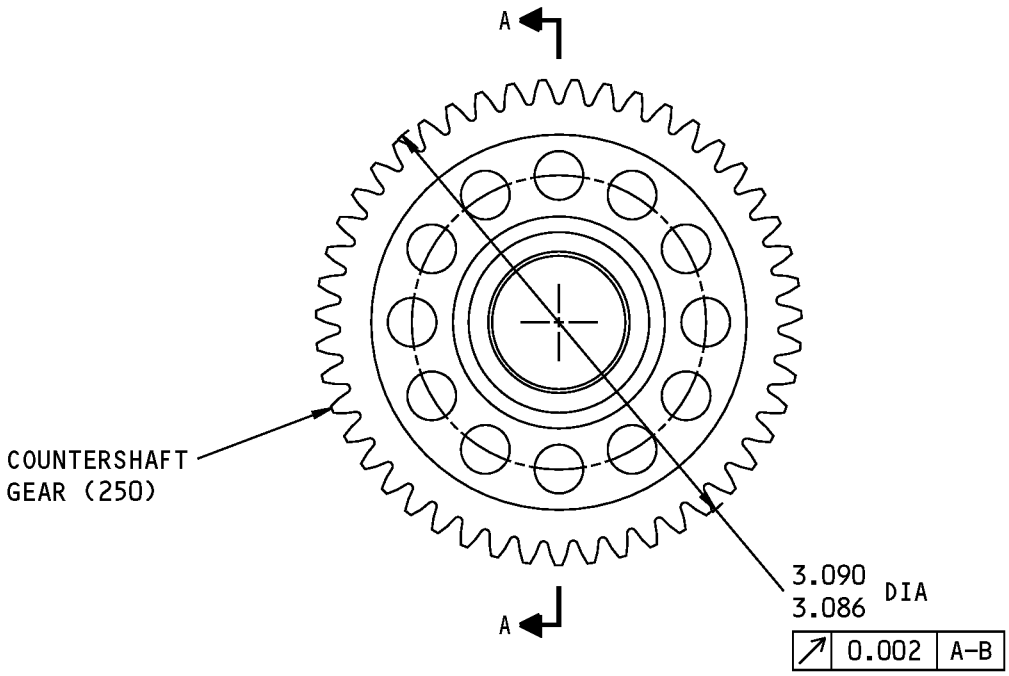
A. References

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

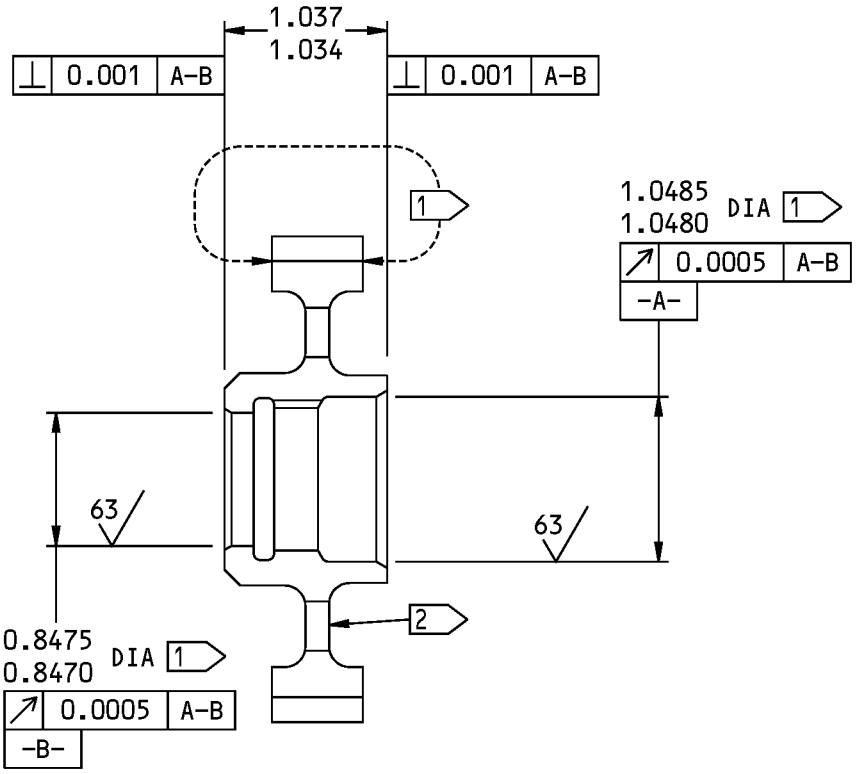
B. Procedure (REPAIR 12-1, Figure 601)

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

(1) Cadmium plate (F-15.23) as shown.



256A3526-1,-2 Countershaft Gear Repair
Figure 601 (Sheet 1 of 2)



A-A

1 NO FINISH OR PLATING RUNOUT ON THIS SURFACE. PLATING RUNOUT ON ADJACENT SURFACE MUST NOT BE MORE THAN 0.030 WIDE

2 PART NUMBER LOCATION

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3526-1,-2 Countershaft Gear Repair
Figure 601 (Sheet 2 of 2)

PINION - REPAIR 13-1

256A3527–1, –2

1. General

A. This procedure has the data necessary to repair and refinish the pinion (255).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material

(a) 256A3527-1: 9310 steel, 160-190 ksi

(b) 256A3527-2: 4340 steel, 160-180 ksi

(2) Shot peen: Machined areas for chrome plate repair

(a) Shot Size 0.014-0.016

(b) Intensity 0.014A2

(c) Coverage 2.0

2. Pinion Gear Repair

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

Reference	Title
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-42-03	HARD CHROME PLATING
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure (REPAIR 13-1, Figure 601)

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

(1) Machine as required, within repair limits, to remove defects (SOPM 20-10-01) (SOPM 20-10-02).

(2) Shot peen as indicated (SOPM 20-10-03).

(3) Build up with chrome plate (SOPM 20-42-03).

(4) Grind the chrome plate to design dimensions and finish (SOPM 20-10-04).

(5) Wipe the chrome plate with primer, C00259 (F-19.45).

3. Pinion Gear Refinish

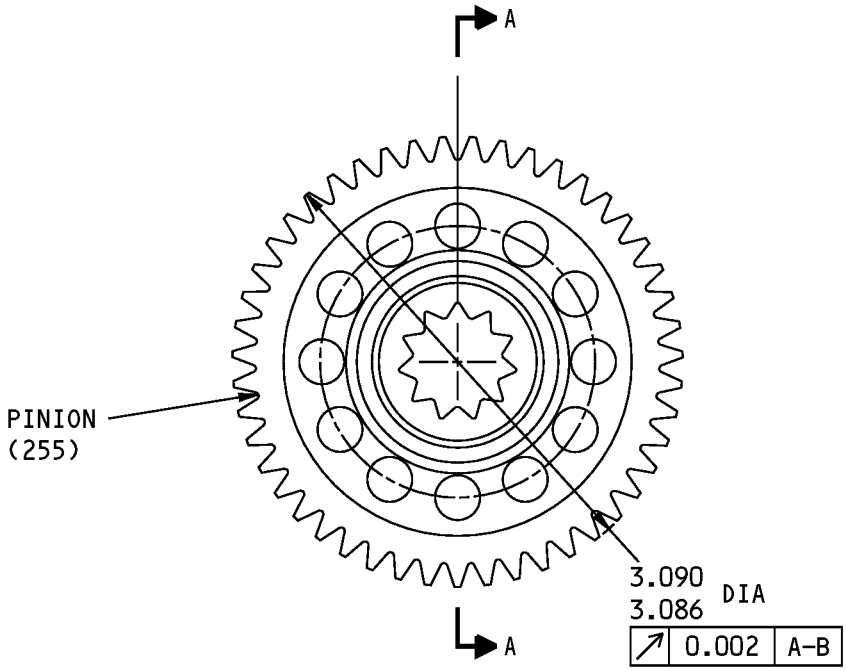
A. References

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

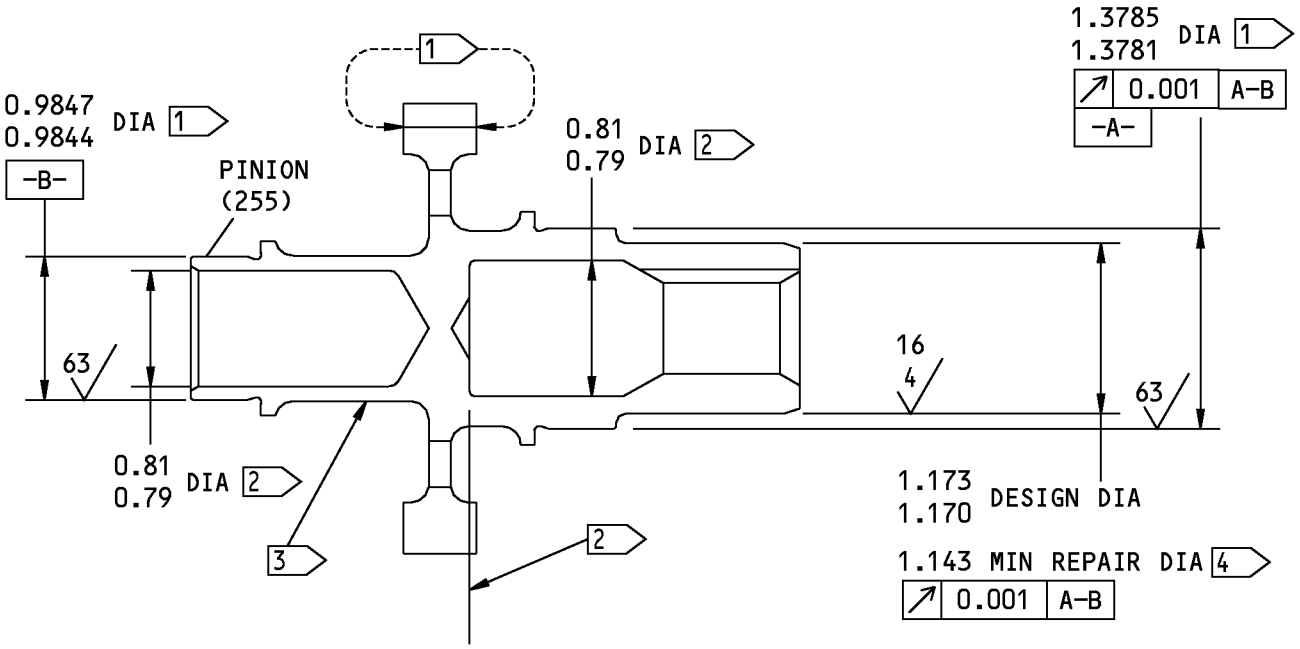
B. Procedure (REPAIR 13-1, Figure 601)

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

(1) Cadmium plate (F-15.23) as shown.



256A3527-1,-2 Pinion Repair
Figure 601 (Sheet 1 of 2)



1 NO FINISH OR PLATING RUNOUT ON THIS SURFACE. PLATING RUNOUT ON THE ADJACENT SURFACE MUST NOT BE MORE THAN 0.030 WIDE

2 PLATING THICKNESS 0.0002 MINIMUM ON THIS SURFACE

3 PART NUMBER LOCATION

4 LIMIT FOR CHROME PLATE BUILDUP AND GRINDING TO DESIGN DIMENSIONS

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

G59012 S0004994940_V2

256A3527-1,-2 Pinion Repair
Figure 601 (Sheet 2 of 2)

OUTPUT SHAFT ASSEMBLY - REPAIR 14-1

256A3523–1, –3

1. General

A. This procedure has the data necessary to replace the inserts of the output shaft assembly (270).

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

C. Refer to IPL Figure 1 for item numbers.

2. Insert Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

Reference	Title
SOPM 20-50-22	HOW TO INSTALL THREADED INSERTS
SOPM 20-60-02	FINISHING MATERIALS

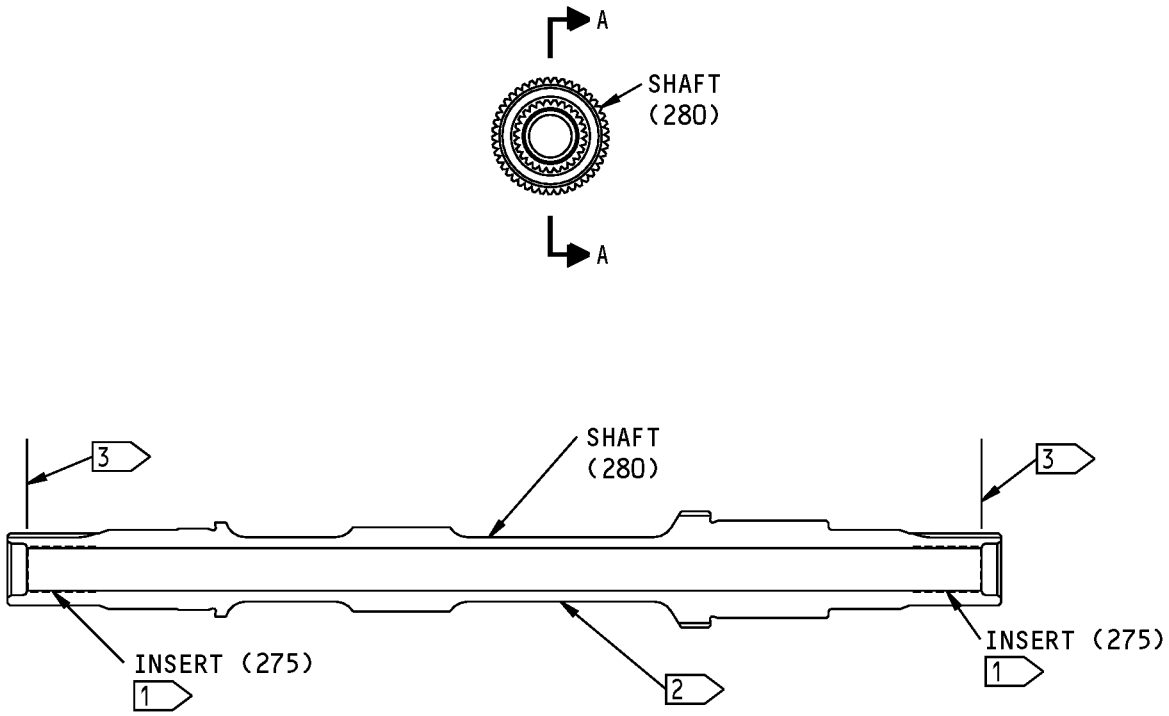
C. Procedure (REPAIR 14-1, Figure 601)

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

(1) Remove the bad inserts (275) from the output shaft (280).

(2) If you find defects on the shaft, refer to REPAIR 14-2 for repair instructions.

(3) Install the replacement inserts (275) into the output shaft (280) with wet primer, C00259 (SOPM 20-50-22).



A–A

1 INSTALL THE INSERT WITH WET BMS 10–11, TYPE 1 PRIMER

2 PART NUMBER LOCATION

3 INSTALL THE INSERT 0.25–0.50 TURNS BELOW THIS SURFACE

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBER REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3523-1,-3 Output Shaft Assembly Repair
Figure 601

SHAFT - REPAIR 14-2

256A3523–2, –4

1. General

A. This procedure has the data necessary to repair and refinish the shaft (280).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material

(a) 256A3523-2: 9310 steel, 160-190 ksi

(b) 256A3523-4: 4340 steel, 160-180 ksi

2. Shaft Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

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

B. References

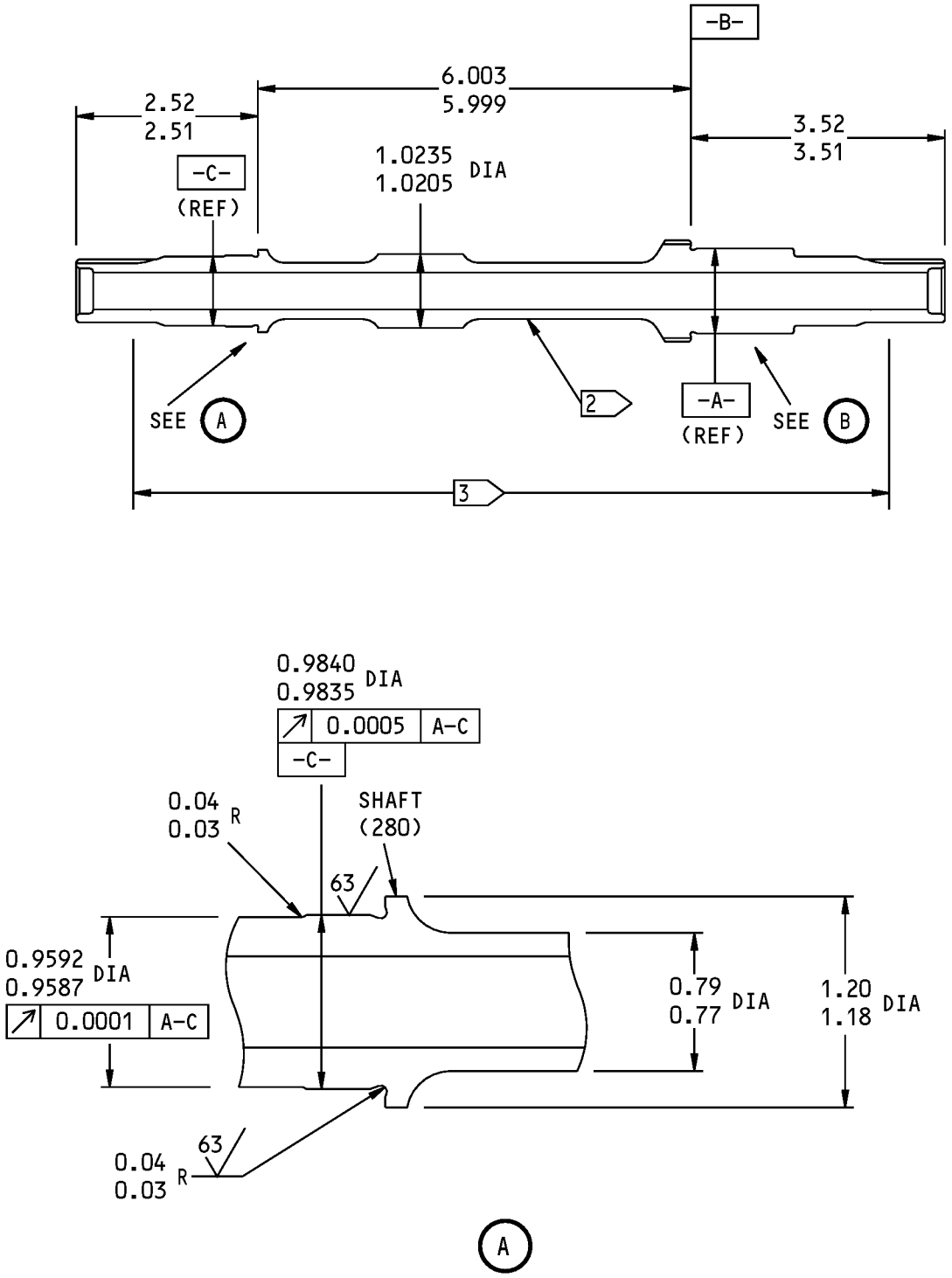
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-41-02	APPLICATION OF CHEMICAL AND SOLVENT RESISTANT FINISHES
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure (REPAIR 14-2, Figure 601)

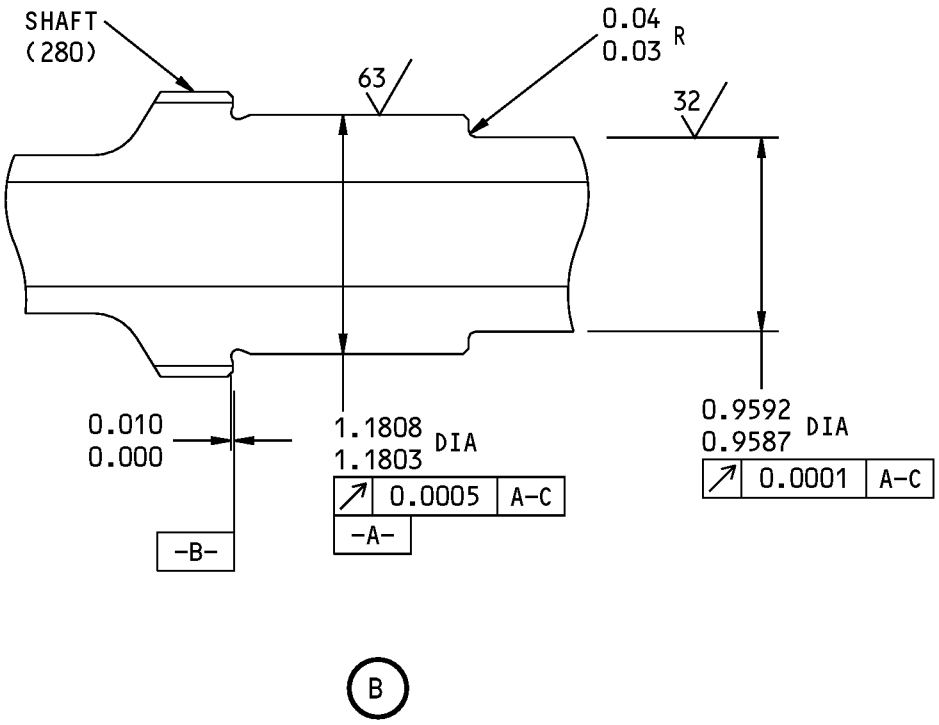
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

(1) Cadmium plate (F-15.23) as shown.

(2) Apply primer, C00259 (F-20.02) to the bore. Use the fill and drain procedure (SOPM 20-41-02).



256A3523-2,-4 Output Shaft Repair
Figure 601 (Sheet 1 of 2)



1. NO FINISH OR PLATING RUNOUT ON THIS SURFACE. PLATING RUNOUT ON ADJACENT SURFACE MUST NOT BE MORE THAN 0.030 WIDE
2. PART NUMBER LOCATION
3. APPLY A LAYER OF BMS 10-11, TYPE 1 PRIMER (F-20.02) (SOPM 20-41-02) USE THE FILL AND DRAIN METHOD

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBER REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3523-2,-4 Output Shaft Repair
Figure 601 (Sheet 2 of 2)

WORM GEAR ASSEMBLY - REPAIR 15-1

256A3540–1

1. General

A. This procedure has the data necessary to repair and refinish the worm gear assembly (425).

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

C. Refer to IPL Figure 1 for item numbers.

2. Parts Replacement

A. Do not disassemble the worm gear assembly (425) to replace its parts. The worm gear teeth, splines, and bolt holes are machined after the hub (428) and the rim (429) are assembled. Replace the worm gear assembly only as a unit.

3. Worm Gear Assembly Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
G00009	Compound - Organic Corrosion Inhibiting	BMS3-23

B. References

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

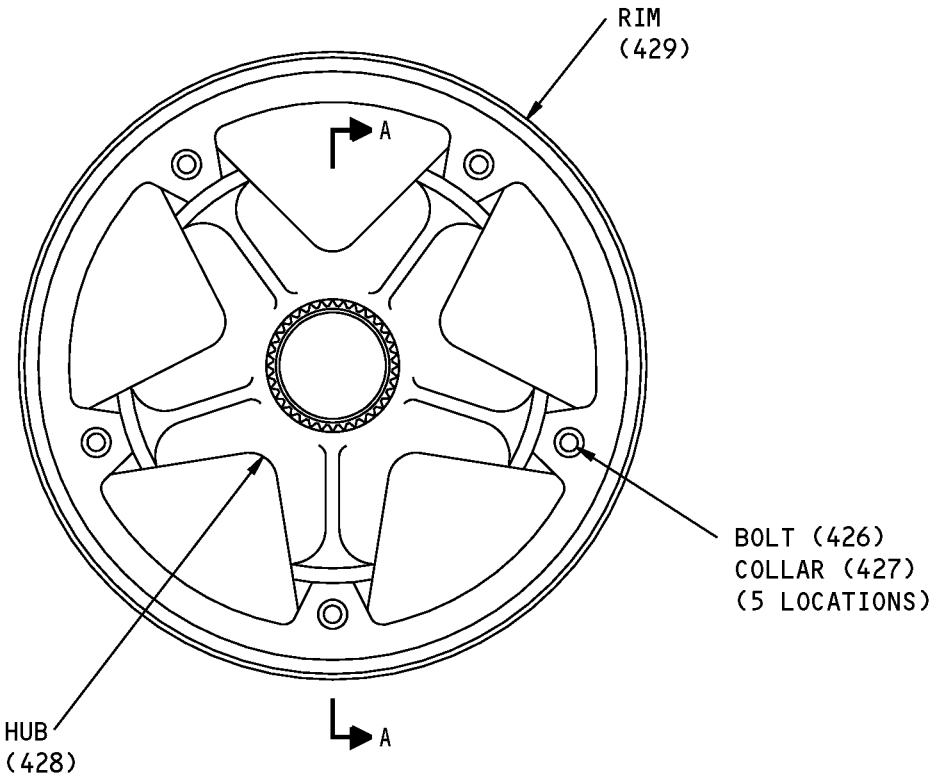
C. Procedure (REPAIR 15-1, Figure 601)

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

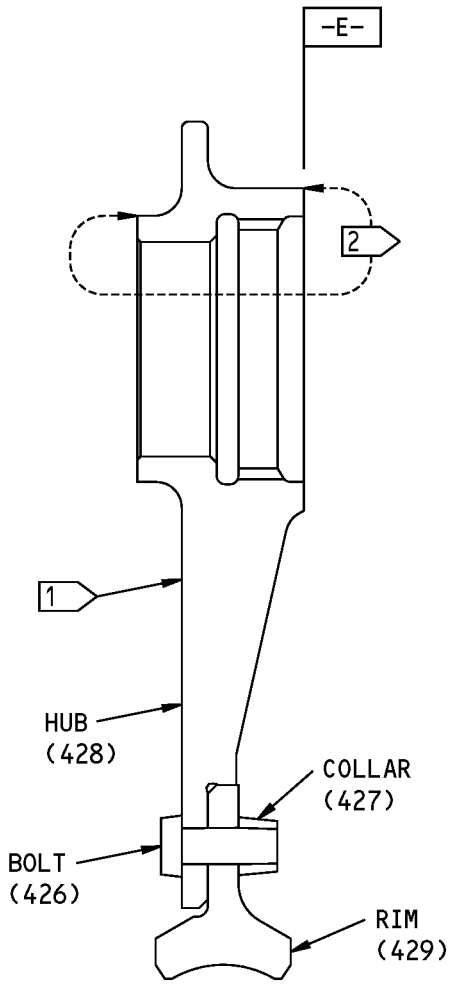
(1) Remove the protective finish from the worm gear assembly (425) surfaces identified by flagnote 2.

(2) Apply no finish (F-25.01) to all surfaces except surfaces identified by flagnote 2. corrosion inhibiting compound, G00009 may be applied as temporary protection for handling, transportation and storage (SOPM 20-44-02).

(3) Chemical treat (F-17.07) all surfaces of the worm gear assembly (425) identified by flagnote 2.



256A3540-1 Worm Gear Assembly Repair
Figure 601 (Sheet 1 of 2)



A-A

1 PART NUMBER LOCATION

2 CHEMICAL TREAT (F-17.07)
THIS SURFACE

ITEM NUMBERS REFER TO IPL FIG. 1

256A3540-1 Worm Gear Assembly Repair
Figure 601 (Sheet 2 of 2)

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the gearbox assembly.

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

C. Refer to IPL Figure 1 for item numbers.

2. Assembly

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-4811	Test Equip - Run-In, Variable Drive (115 VAC) (Opt Part #: J27056-43, Supplier: 81205) (Opt Part #: J27056-45, Supplier: 81205)
SPL-4812	Test Equip - Run-In, Variable Drive (230 VAC) (Opt Part #: J27056-44, Supplier: 81205) (Opt Part #: J27056-46, Supplier: 81205)
SPL-5384	Wrench - Coupling Sleeve Flap Actuation (Part #: C27041-1, Supplier: 81205)
SPL-5385	Seal Installation Equipment, TE Flap Drive (Part #: C27043-16, Supplier: 81205)
SPL-5703	Test Equipment - T.E. Flap Drive Gearboxes (Part #: C27068-65, Supplier: 81205)

B. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00028	Adhesive - Modified Epoxy For Rigid PVC, Foam Cored Sandwiches	BAC5010, Type 70 (BMS5-92, Type 1)
A50055	Adhesive - Two-Part, RT Cure, Urethane	BAC5010, Type 89 (BMS5-105)
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00467	Fluid - Landing Gear Shock Strut	BMS3-32, Type II
D00633	Grease - Aircraft General Purpose	BMS3-33
D50011	Grease - Perfluoropolyether - Christo-lube MCG111	
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)
G50136	Paste - Corrosion Inhibiting, Non-drying	BMS 3-38

C. References

Reference	Title
SOPM 20-41-05	APPLICATION OF CORROSION INHIBITING COMPOUNDS
SOPM 20-50-01	BOLT AND NUT INSTALLATION
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-50-06	INSTALLATION OF O-RINGS AND TEFLON SEALS
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

D. Procedure (ASSEMBLY, Figure 701)

NOTE: For finishing materials, refer to SOPM 20-60-02. For lubricants, refer to SOPM 20-60-03. For miscellaneous materials, refer to SOPM 20-60-04.

(1) General

(a) Use standard industry procedures and the steps given in this procedure to assemble this component.

(b) Install seals (70, 100, 115, 340) as shown in SOPM 20-50-06, and also use these precautions:

1) Lubricate the seal bore in the housing with the applicable grease, D00633.

2) Be careful to prevent damage to the lips of the seal during installation. Use a C27043 Seal Installation Tool, SPL-5385 that applies pressure equally to the full circumference of the seal, as near as possible to the O.D.

3) Apply a large quantity of grease, D00633 to the lips of the seal.

4) Install the seal to the depth given in the instructions.

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

(c) Seal the covers (10, 90, 370) and retainers (65, 110, 112) to the housing assemblies (165, 290), and the housing assemblies to each other, with corrosion inhibiting compound, C00913 (assemblies 256A3515-1, 2) or corrosion inhibiting non-drying paste, G50136 (assemblies 251A3515-3, -4) (SOPM 20-41-05). Apply the material as follows:

1) Apply the compound or paste as a thin film to the faying surface of the flange of the cover or retainer. Apply the material from the outer profile to approximately 0.05 inch from the fillet radius.

2) Apply the compound or paste as a thin film to the faying surface between the housing assemblies. Apply the material from the outer profile to approximately 0.05 inch from the O-ring groove. Remove the unwanted material after assembly.

(2) Install the bearings (285, 355, and 400) in the housing assembly (290) (SOPM 20-50-03).

(3) Install the shim, worm gear (424) or worm gear assembly (425), and the shaft (420) in the housing assembly (290).

NOTE: Select the shim thickness from shims (405, 410, 415). Use only one shim. Shim measured during disassembly can be used provided that gears and bearings were not changed.

(4) Install the packing (350) in the seal ring (345) with fluid, D00467.

(5) Install the seal ring (345) with the packing (350) on the shaft (420).

(6) Apply fluid, D00467 to the outer diameter of the seal ring (345) and to the seal (340) inside diameter and lips.

(7) Install the seal (340) on the seal ring (345) to a depth of 0.10- 0.11 inch as shown in flagnote 5.

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

(8) Apply corrosion inhibiting compound, C00913 or corrosion inhibiting non-drying paste, G50136, as applicable, to the faying surfaces of the cover (10) and the housing assembly (290) as identified by flagnote 4.

(9) Apply corrosion inhibiting compound, C00913 to all of the shank and threads of the screws (5) as shown by flagnote 14. Remove unwanted corrosion inhibiting compound, C00913 from the ends of the screws before installation.

(10) Install the cover (10) on the housing assembly (290) with the screws (5).

(11) Apply grease, D00633 on the drum (335) splines.

(12) Fill the space between the seal (340) and the drum (335) with grease, D00633 as shown by flagnote 3.

(13) Install the drum (335) on the shaft (420) with the washer (330) and nut (325). Tighten the nut (325) to 100-120 pound-inches more than the run-on torque as shown in flagnote 7 (SOPM 20-50-01).

(14) Install the packing (375) on the cover (370) with fluid, D00467.

(15) Calculate the shim thickness as shown in flagnote 11.

NOTE: Select the shim thickness from shims (405, 410, 415). Use only one shim. Shims measured during disassembly can be used if the gears and bearings were not changed.

(16) Install the shims (380 thru 395) into the housing assembly (290).

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

(WARNING PRECEDES)

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

(17) Apply corrosion inhibiting compound, C00913 or corrosion inhibiting non-drying paste, G50136, as applicable, to the faying surfaces of the cover (370) and the housing assembly (290) as identified by flagnote 4.

(18) Apply corrosion inhibiting compound, C00913 to all of the shank and threads of the bolts (360) as shown by flagnote 14. Remove unwanted corrosion inhibiting compound, C00913 from the ends of the bolts before installation.

(19) Install the cover (370) on the housing assembly (290) with the washers (365) and bolts (360).

(20) Install the output shaft assembly (270) in the housing assembly (290) and the bearing (285).

(21) Install the bearings (195, 235) in the housing assembly (290).

(22) Assemble the countershaft gear (250), bearing (200), and the pinion (210).

(a) Apply grease, D00633 on the countershaft gear (250) spline as shown in flagnote 6.

(b) Install the countershaft gear (250) and the bearing (200) on the pinion (210).

(c) Install the washer (260) and the nut (265) on the pinion (210). Tighten the nut (265) to 500-600 pound-inches more than the run-on torque, as identified by flagnote 13 (SOPM 20-50-01).

(23) Install the pinion (210) with associated parts in the housing assembly (290).

(24) Install the pinion (255) in the bearing (195) as shown in ASSEMBLY, Figure 701, Section D-D.

(25) Apply grease, D00633 to the output gear (215) spline as shown in flagnote 6.

(26) Install the output gear (215) on the output shaft assembly (270) as shown in ASSEMBLY, Figure 701, Section B-B.

(27) Apply grease, D00633 on the shearout (245) spline as shown in flagnote 6.

(28) Install the shearout (245) in the pinion gear assembly (220) with the retainer (240).

(29) Install the pinion gear assembly (220) with the associated parts in the bearing (235).

(30) Install the bearings (195, 200, 205, 285) in the housing assembly (165).

(31) Install the packing (190) in the housing assembly (165) with fluid, D00467 as shown by flagnote 2.

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

(32) Apply corrosion inhibiting compound, C00913 or corrosion inhibiting non-drying paste, G50136, as applicable, to the faying surfaces of the housing assemblies (165, 290) as shown by flagnote 4.

(33) Apply corrosion inhibiting compound, C00913 to all of the shank and threads of the bolts (120, 125) as shown in flagnote 14. Remove unwanted corrosion inhibiting compound, C00913 from the ends of the bolts before installation.

(34) Install the housing assembly (165) and the associated parts on the housing assembly (290) with the bolts (120, 125), washers (130, 135), and nuts (140).

(35) Install the seal (100) on the pinion gear assembly (220) to a depth of 0.25-0.26 inch as shown in flagnote 5.

(36) Install the packing (95) on the cover (90) with fluid, D00467as shown in flagnote 2.

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

(37) Apply corrosion inhibiting compound, C00913 or corrosion inhibiting non-drying paste, G50136, as applicable, to the faying surfaces of the housing assembly (290) and the cover (90) as shown by flagnote 4.

(38) Apply corrosion inhibiting compound, C00913 to all of the shank and threads of the bolts (85) as shown by flagnote 14. Remove unwanted corrosion inhibiting compound, C00913 from the ends of the bolts before installation.

(39) Install the cover (90) on the housing assembly (290) with the washers (88) and the bolts (85).

(40) Attach the cable (145A) and the ferrules (150) to the housing assembly (165) and the cover (90). Make a loop at each end of the cable and crimp the ferrules as shown in Boeing Standard BACC13Y.

(41) Install the seals (115) on the pinion gear assembly (220) and the pinion (255) to a depth of 0.32-0.33 inch as shown by flagnote 5.

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

(42) Apply corrosion inhibiting compound, C00913 or corrosion inhibiting non-drying paste, G50136, as applicable, to the faying surfaces of the housing assemblies (165, 290) and the retainers (110, 112) as shown by flagnote 4.

(43) Apply corrosion inhibiting compound, C00913 to all of the shank and threads of the bolts (105) as shown in flagnote 14. Remove unwanted corrosion inhibiting compound, C00913 from the ends of the bolts before installation.

(44) If retainer (110B or 110D) is used, install the applicable NAS1611-131 packing on the O.D. with fluid, D00467. Apply a large quantity of Christo-lube MCG111 grease, D50011 to the excluder seal on the I.D. of the retainer (110B or 110D). Install the retainers (110, 112) on the housing assemblies (165, 290) with the bolts (105).

(45) Install the packings (80) in the seal rings (75) with fluid, D00467 as shown in flagnote 2.

(46) Install the seal rings (75) with the packings (80) on the output shaft assembly (270) as shown in ASSEMBLY, Figure 701, Section B-B.

(47) Install the seals (70) on the seal rings (75) to a depth of 0.17-0.18 inch as shown in flagnote 5.

WARNING: BMS 3-27 CORROSION INHIBITING COMPOUND CONTAINS SOLVENTS, CHROMATES, AND A SMALL AMOUNT OF BOUND ASBESTOS. CONSULT THE APPLICABLE SAFETY STANDARDS FOR APPROVED HANDLING PROCEDURES.

CAUTION: BMS 3-27 COMPOUND IS USED ONLY IN STATIC JOINTS WHERE GREASE CANNOT BE APPLIED. BMS 3-27 COMPOUND IN DYNAMIC JOINTS WILL NOT LET THEM MOVE FREELY.

(48) Apply corrosion inhibiting compound, C00913 or corrosion inhibiting non-drying paste, G50136, as applicable, to the faying surfaces of the retainers (65) and the housing assemblies (165, 290) as shown in flagnote 4.

(49) Apply corrosion inhibiting compound, C00913 to all of the shank and threads of the bolts (55). Remove unwanted corrosion inhibiting compound, C00913 from the ends of the bolts before installation.

(50) Install the retainers (65) on the housing assemblies (165, 290) with the washers (60) and the bolts (55).

(51) Fill the space between the retainers (65) and the seal rings (75) with grease, D00633 as shown in flagnote 3.

(52) Install the seal shields (50) on the output shaft assembly (270) as shown in ASSEMBLY, Figure 701, Section B-B.

(53) Install the coupling seals (45) on the coupling halves (40).

(54) Apply grease, D00633 to the coupling sleeve (25) splines as shown by flagnote 6.

(55) Install the coupling sleeves (25) on the coupling halves (40).

(56) Apply grease, D00633 on the splines of the coupling halves (40) as shown in flagnote 6.

(57) Install the coupling halves (40) on the output shaft assembly (270).

(58) Install the packings (35) on the bolts (30) with grease, D00633 (SOPM 20-50-06).

(59) Install the bolts (30) and the packings (35) in the output shaft assembly (270) as shown in flagnotes 15 and 16. Use the C27041 coupling sleeve wrench, SPL-5384 to hold the coupling sleeve and tighten the bolt (30) to 600-720 pound-inches more than the run-on torque as shown in flagnote 16 (SOPM 20-50-01).

(60) Install the packing (160) on the union (155) with fluid, D00467 as shown by flagnote 2 and in View F-F of ASSEMBLY, Figure 701.

(61) Install the union (155) on the housing assembly (165) with fluid, D00467 as shown in flagnote 17.

(62) Install the packings (320) on the plugs (315) with fluid, D00467 as shown by flagnote 2.

(63) Install the plug (315) and the packing (320) on the bottom of the housing assembly (290) as shown in ASSEMBLY, Figure 701, sheet 1, and flagnote 17.

(64) Fill the gearbox assembly with fluid, D00467 as shown in ASSEMBLY, Figure 701, View E-E and flagnote 23.

(65) Install the plug (315) and the packing (320) at the upper location on the housing assembly (290) as shown in flagnote 17.

(66) Do a run-in test.

(a) Install the gearbox assembly on the C27068 T.E. Flap Drive Gearbox Test Equipment, SPL-5703 (C27068-65 supersedes C27068-1). Connect the run-in J27056 test equip 115 VAC, SPL-4811 or test equip 230 VAC, SPL-4812.

(b) Manually turn the shaft assembly (270) one or more revolutions in each direction.

(c) Make sure that the gears (215, 220, 250, 420) and the bearings (195, 200, 205, 235, 285, 335, 400) turn smoothly.

(d) Operate the gearbox at an output shaft speed of 500-600 rpm for 15 minutes in both the clockwise and counterclockwise directions.

(67) Install lockwire, G01912 between the housing assembly (290) and the plug (315) (SOPM 20-50-02 and flagnote 24).

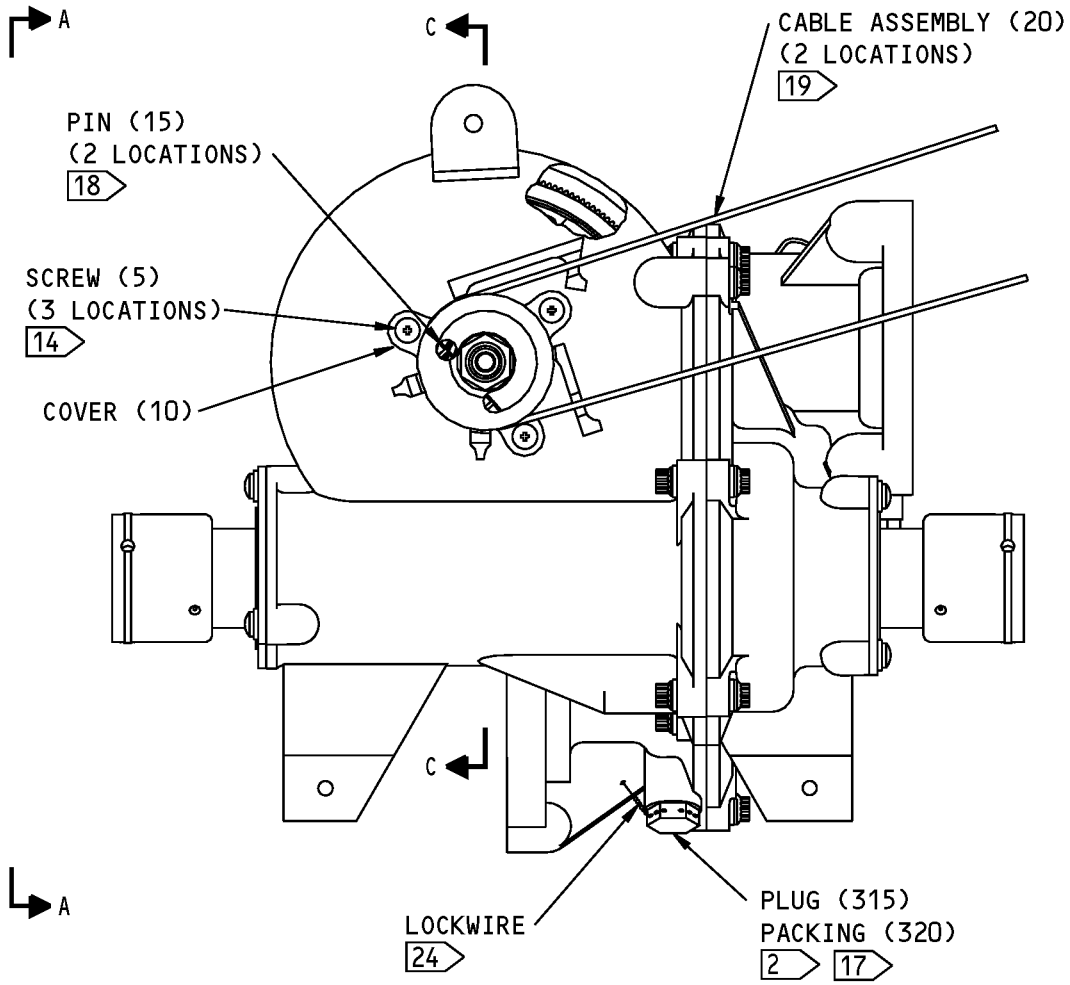
(68) Install the cable assemblies (20) on the drum (335) with the cotter pins (15) as shown by flagnotes 18 and 19.

(69) Manually turn the shaft assembly (270) one or more revolutions in each direction.

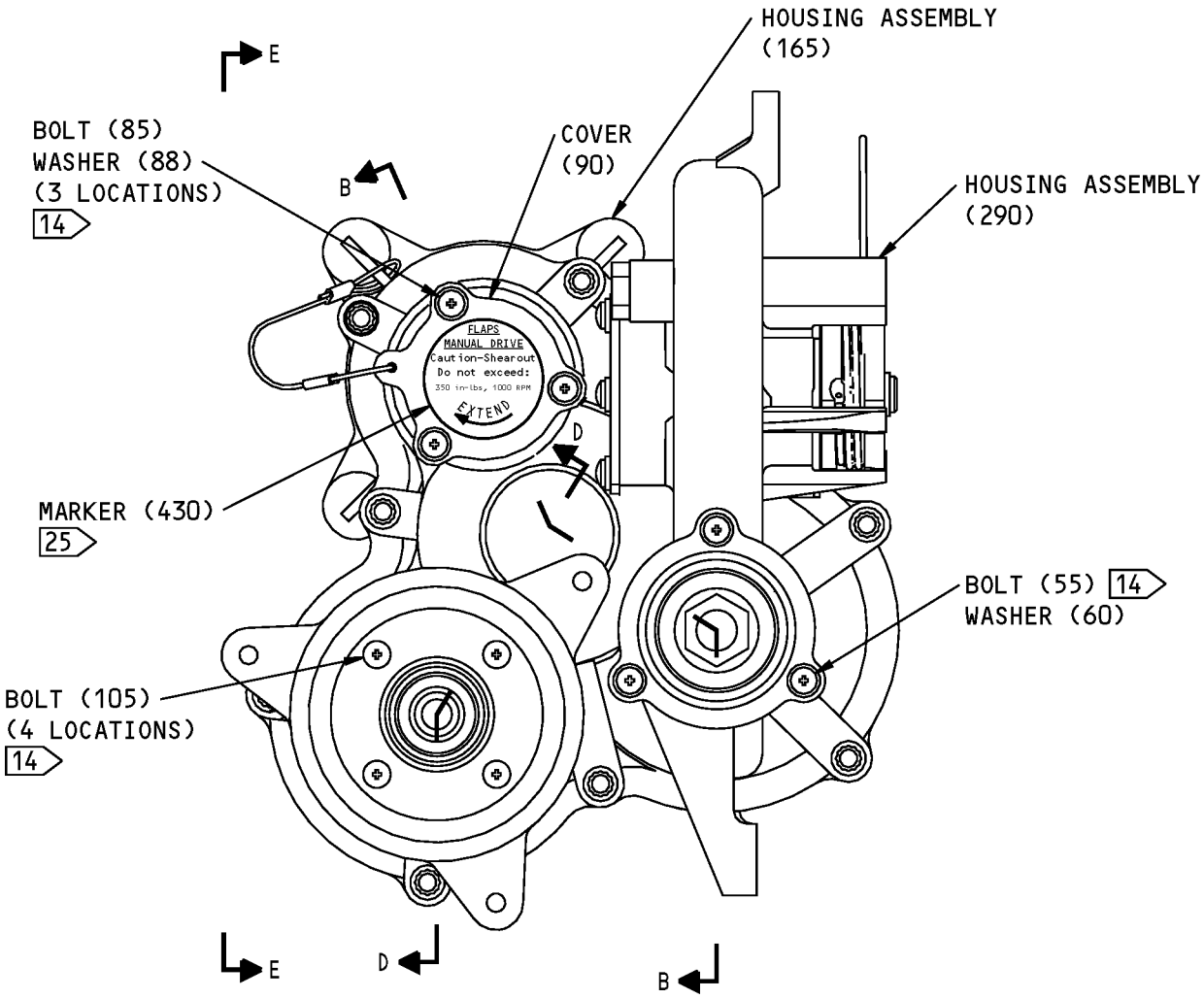
(70) Make sure that the gears and the bearings turn smoothly with no indication of binding.

(71) If necessary, install the markers (430 thru 445) on the housing assemblies (165, 290) as shown in ASSEMBLY, Figure 701 and apply urethane adhesive, A50055 or adhesive, A00028 per flagnote 25. Refer to REPAIR 2-1, Paragraph 4..

(72) Do a pressure test of the assembly. Refer to TESTING AND FAULT ISOLATION.

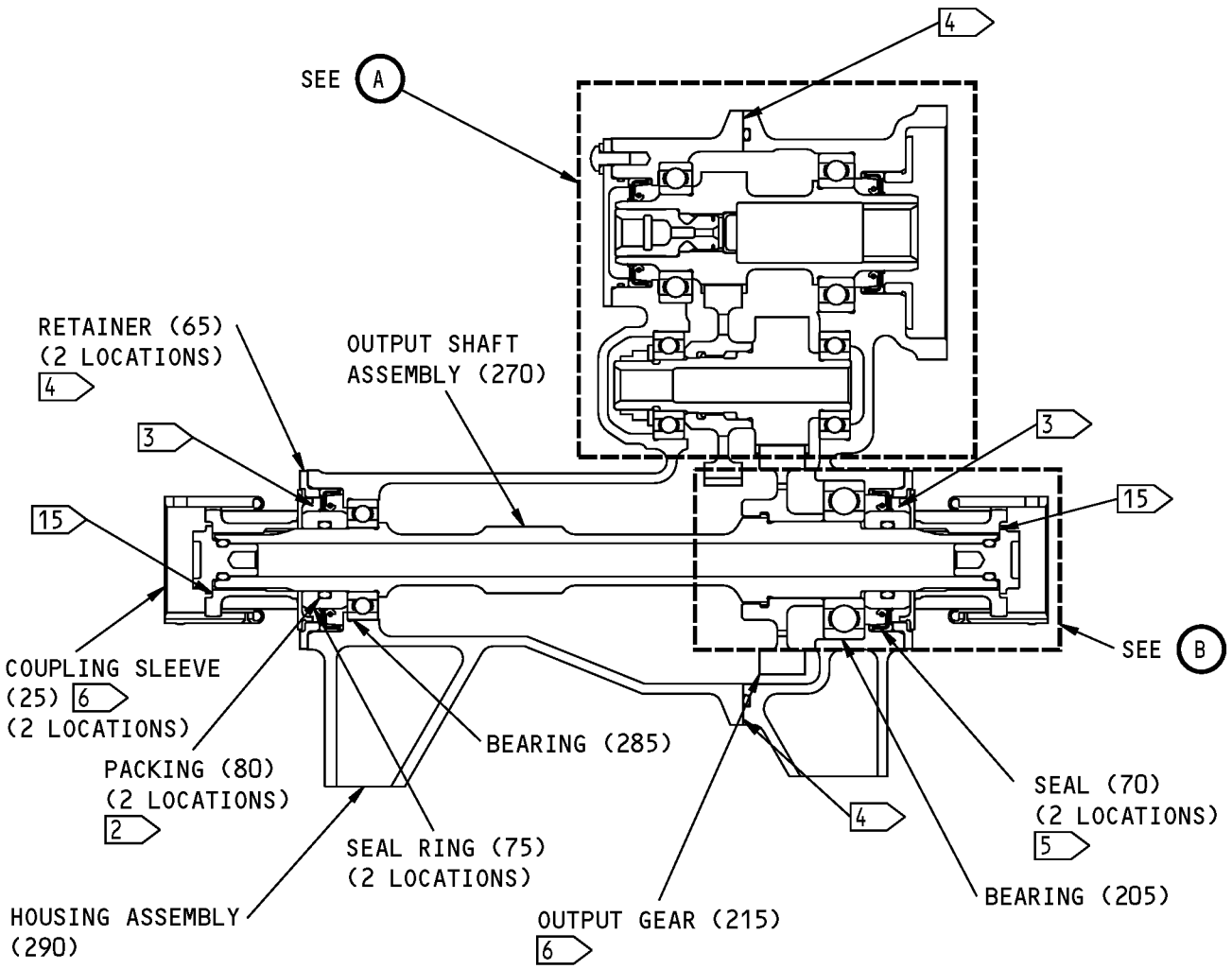


Gearbox Assembly
Figure 701 (Sheet 1 of 10)



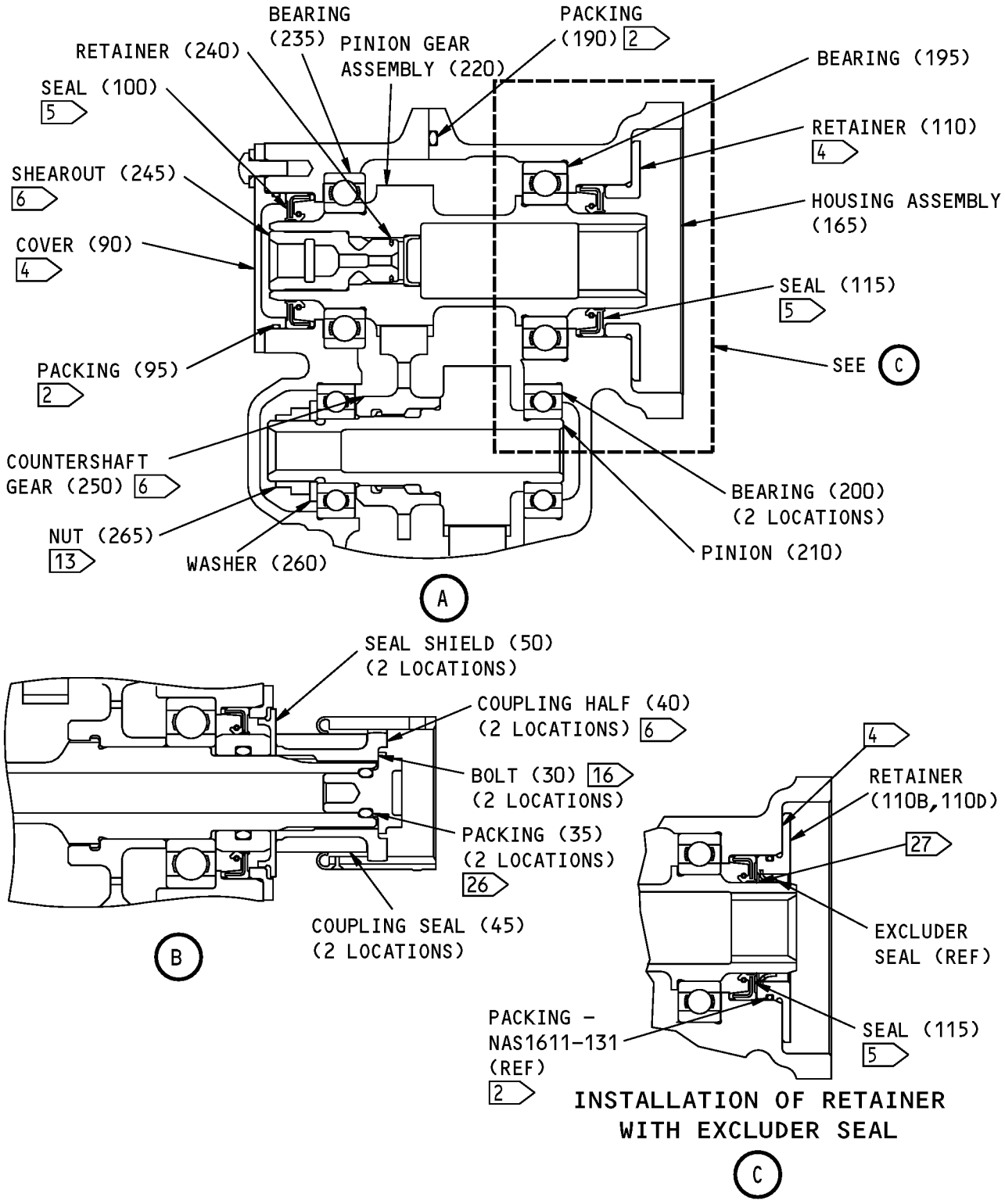
A–A

Gearbox Assembly
Figure 701 (Sheet 2 of 10)

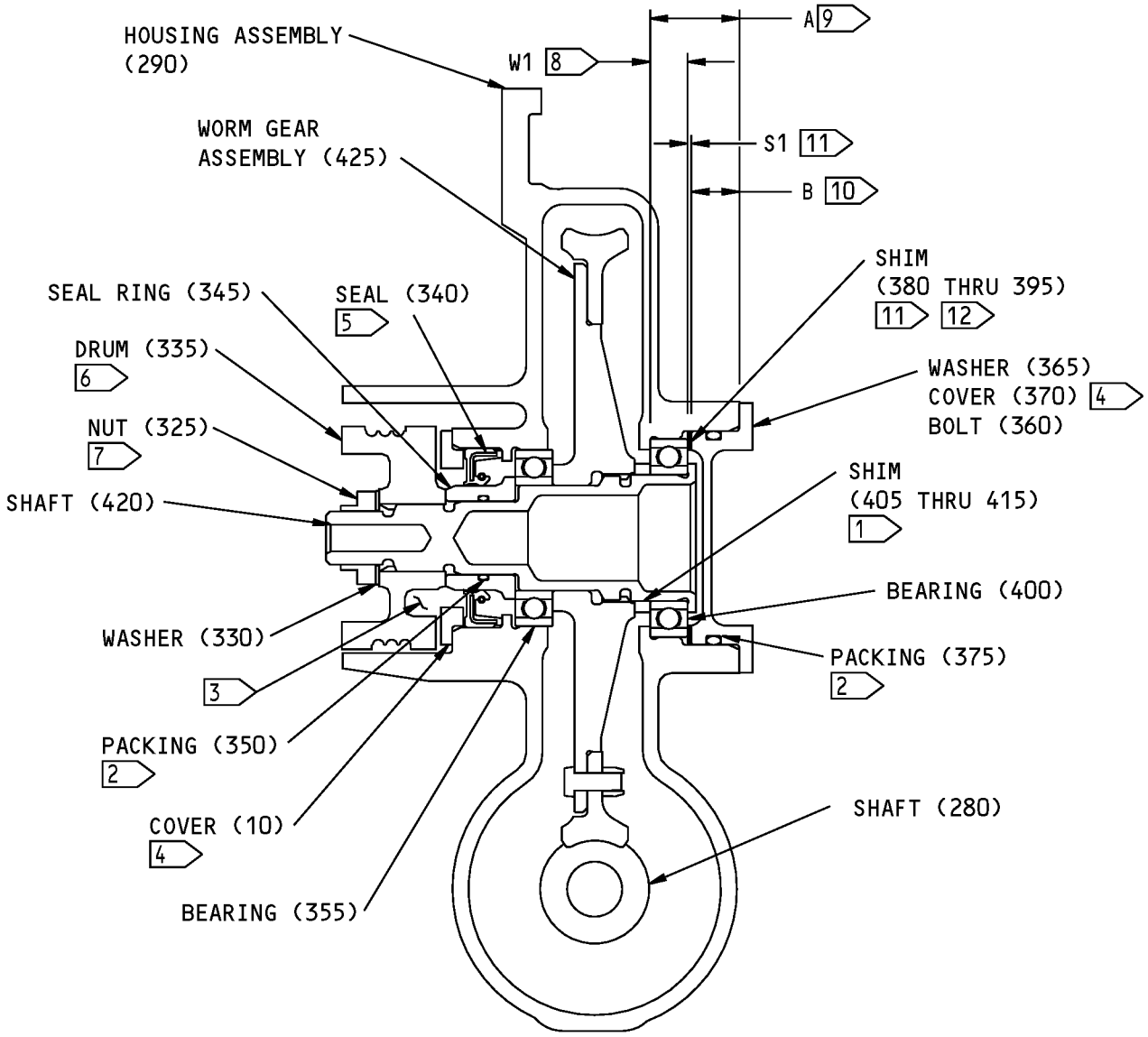


B–B

Gearbox Assembly
Figure 701 (Sheet 3 of 10)

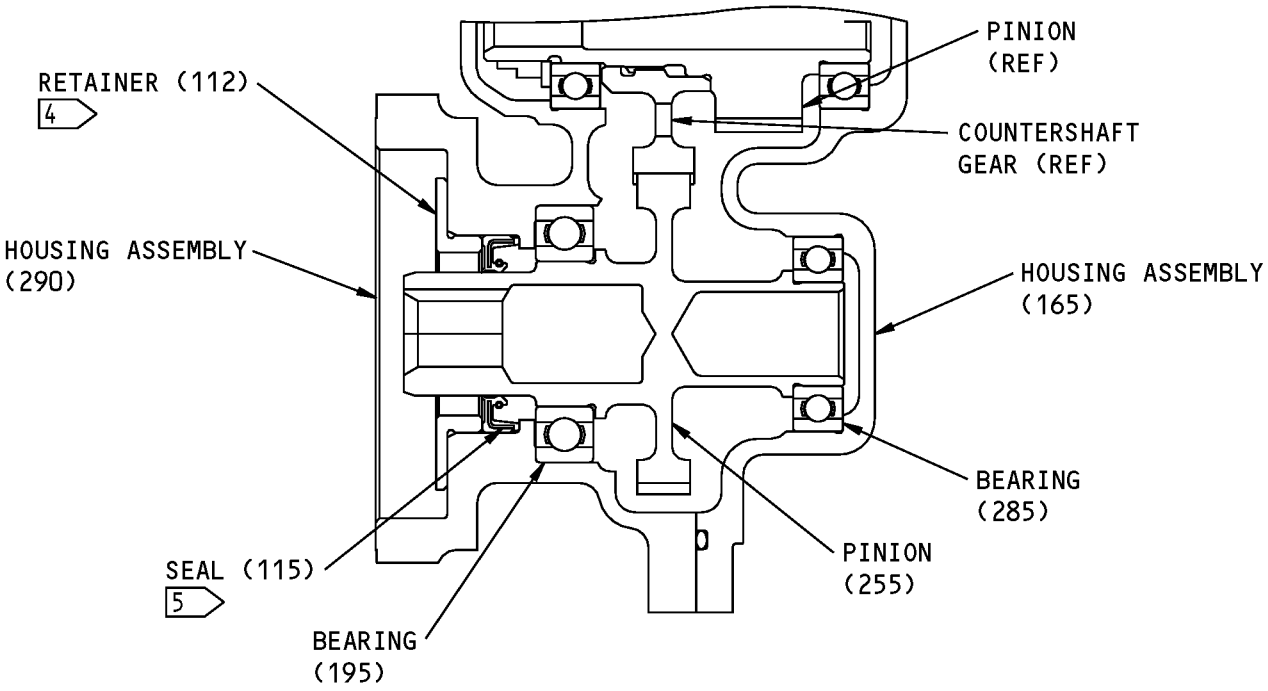


Gearbox Assembly
Figure 701 (Sheet 4 of 10)



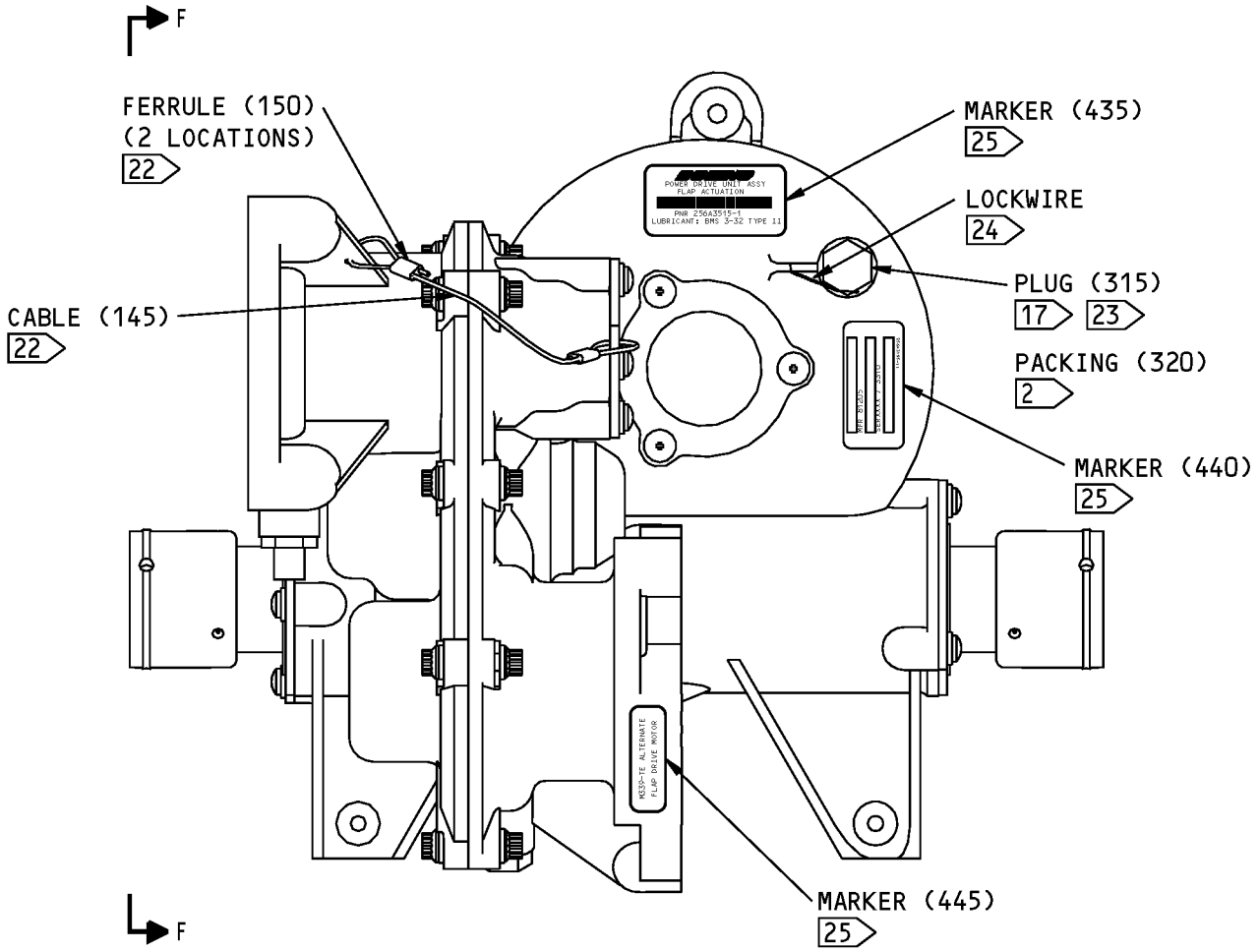
C–C

Gearbox Assembly
Figure 701 (Sheet 5 of 10)



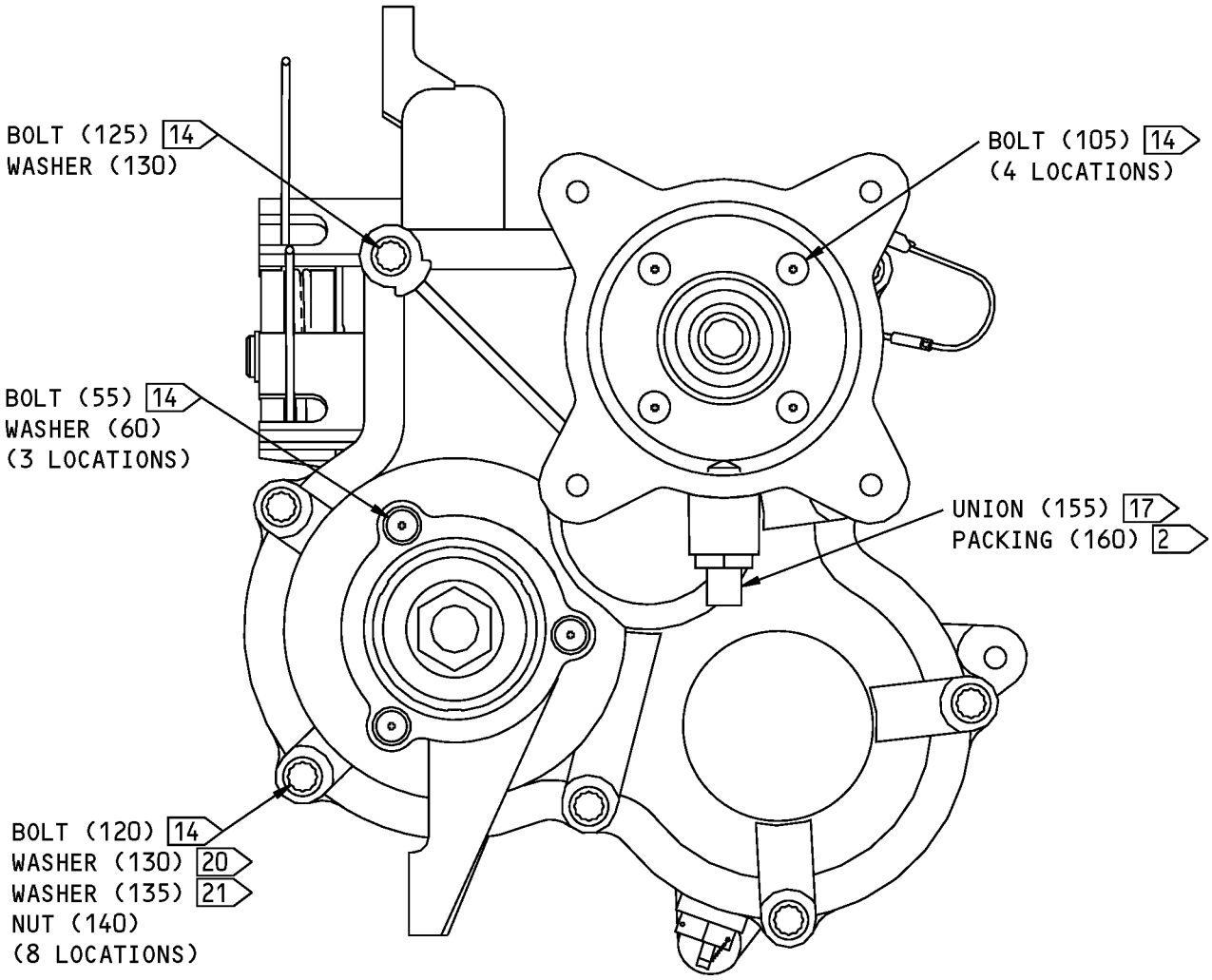
D–D

Gearbox Assembly
Figure 701 (Sheet 6 of 10)



E–E

Gearbox Assembly
Figure 701 (Sheet 7 of 10)



F–F

Gearbox Assembly
Figure 701 (Sheet 8 of 10)

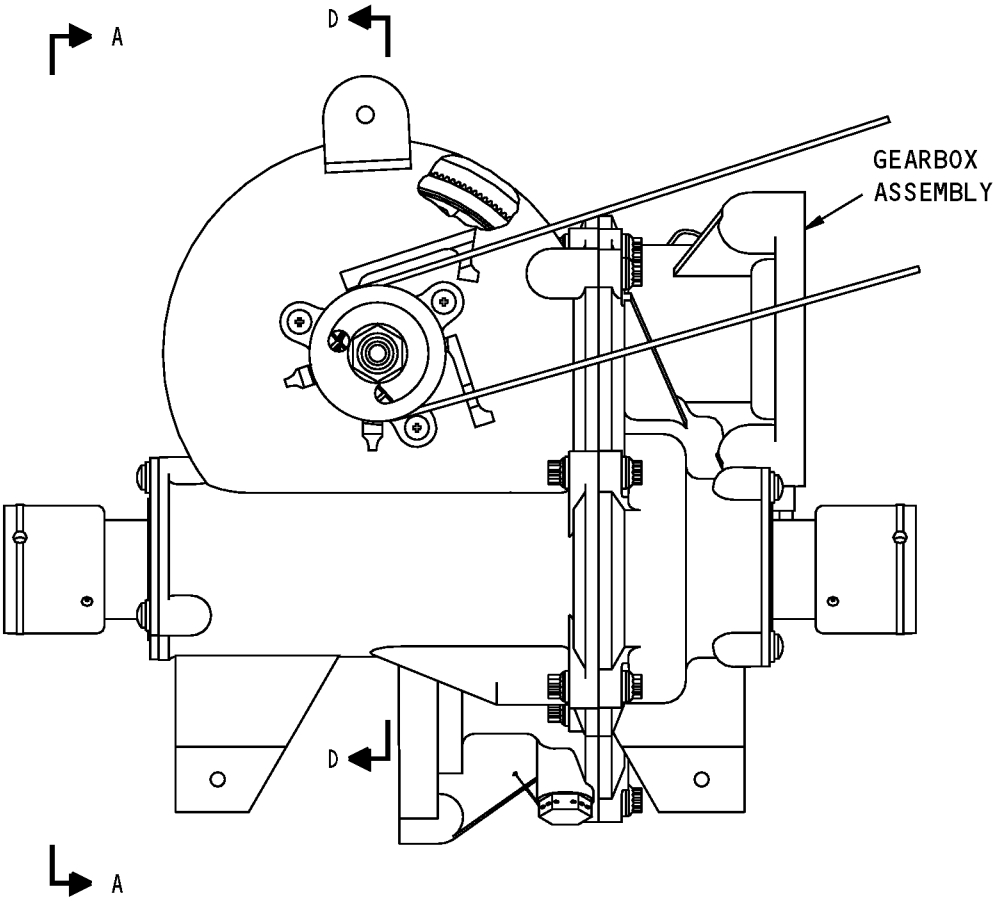
1. USE ONLY ONE SHIM. SELECT SHIM THICKNESS FROM SHIMS (405 THRU 415)
2. INSTALL PACKING WITH BMS 3-32, TYPE II FLUID
3. FILL SPACE WITH BMS 3-33 GREASE
4. APPLY A THIN LAYER OF BMS 3-27 COMPOUND OR BMS 3-38 PASTE TO THE FAYING SURFACE
5. APPLY THE APPLICABLE LUBRICANT TO SEAL BORE. APPLY EQUAL PRESSURE TO THE FULL CIRCUMFERENCE NEAR THE EDGE OF THE SEAL. APPLY A LARGE QUANTITY OF LUBRICANT TO THE SEAL LIP
6. APPLY BMS 3-33 GREASE TO THE SPLINE
7. INSTALL THE NUT WITH BMS 3-33 GREASE. TIGHTEN TO 100-120 POUND-INCHES MORE THAN THE RUN-ON TORQUE
8. DIMENSION "W1" IS THE ACTUAL WIDTH OF THE BEARING OUTER RACE TO THE NEAREST 0.001 INCH
9. DIMENSION "A" IS THE ACTUAL SHOULDER DEPTH IN THE HOUSING TO THE NEAREST 0.001 INCH
10. DIMENSION "B" IS THE ACTUAL LENGTH OF THE COVER
11. CALCULATE SHIM THICKNESS AS S1=A-W1-B+0.001 INCH. ACTUAL SHIM THICKNESS MUST BE ±0.0015 OF CALCULATED THICKNESS
12. SHIM STACK MUST USE THE MINIMUM NUMBER OF SHIMS. IT IS NOT REQUIRED TO USE ALL SHIM THICKNESSES
13. INSTALL THE NUT WITH BMS 3-33 GREASE. TIGHTEN TO 500-600 POUND-INCHES MORE THAN THE RUN-ON TORQUE
14. APPLY BMS 3-27 COMPOUND TO ALL OF THE SHANK AND THREADS OF THE BOLT. REMOVE THE UNWANTED COMPOUND FROM THE END OF THE BOLT
15. APPLY BMS 3-33 GREASE TO THIS FAYING SURFACE
16. INSTALL THE BOLT WITH BMS 3-33 GREASE. TIGHTEN TO 600-720 POUND-INCHES MORE THAN THE RUN-ON ON TORQUE
17. APPLY BMS 3-32, TYPE II FLUID TO THE PLUG/UNION. TIGHTEN TO 110-130 POUND-INCHES MORE THAN THE RUN-ON TORQUE
18. COTTER PIN EYE MUST BE SEATED FIRMLY SO THAT THERE IS MINIMUM AXIAL MOVEMENT OF THE PIN AFTER INSTALLATION
19. ALIGN THE BLACK RIG MARK ON THE CABLE DRUM WITH THE WHITE CABLE GUARD ON THE HOUSING. INSTALL UPPER CABLE WITH 0.0-0.5 WRAPS AND THE LOWER CABLE WITH 2.0-2.5 WRAPS ON THE CABLE DRUM
20. INSTALL THIS WASHER UNDER THE BOLT HEAD
21. INSTALL THIS WASHER UNDER THE NUT
22. INSTALL THIS CABLE AND FERRULES AT ASSEMBLY
23. FILL THE GEARBOX ASSEMBLY WITH BMS 3-32, TYPE II FLUID UP TO THE LEVEL OF THIS PLUG
24. USE THE DOUBLE TWIST METHOD TO INSTALL THE MS20995C32 LOCKWIRE
25. APPLY ADHESIVE TO ALL OF THE FAYING SURFACE OF THE MARKER
26. INSTALL PACKING WITH BMS 3-33 GREASE

Gearbox Assembly
Figure 701 (Sheet 9 of 10)

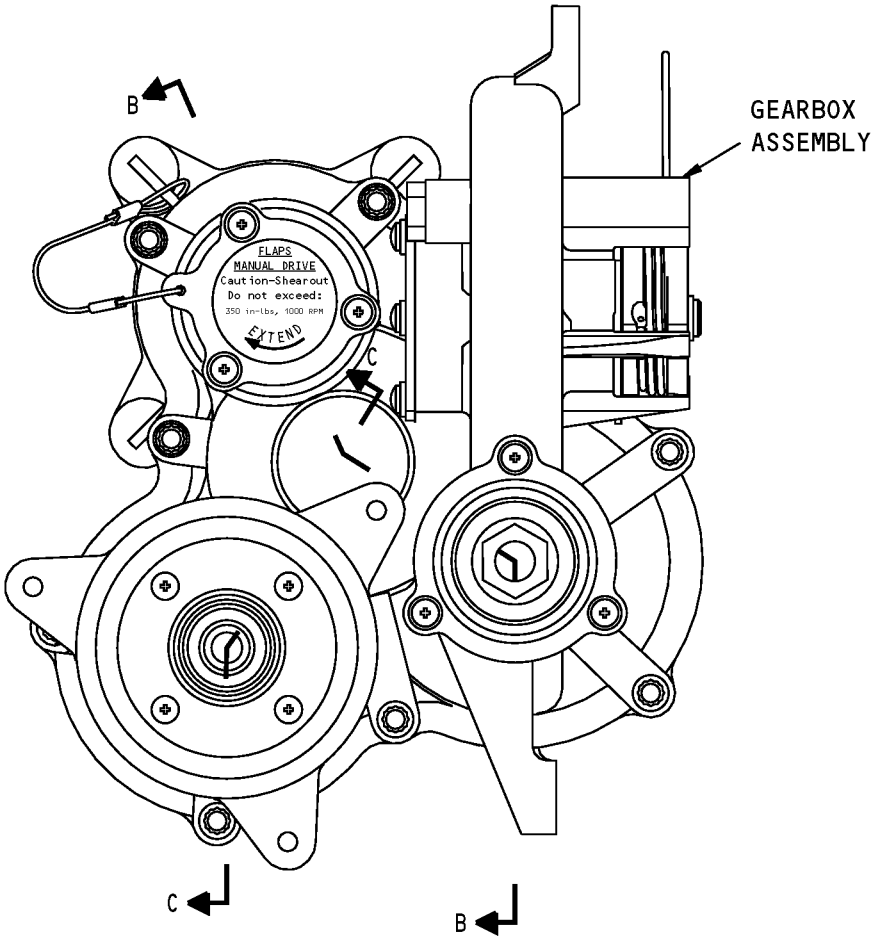
26 FILL THE SPACE BEHIND THE EXCLUDER SEAL WITH CHRISTO-LUBE MCG111

ITEM NUMBERS REFER TO IPL FIG. 1

Gearbox Assembly
Figure 701 (Sheet 10 of 10)

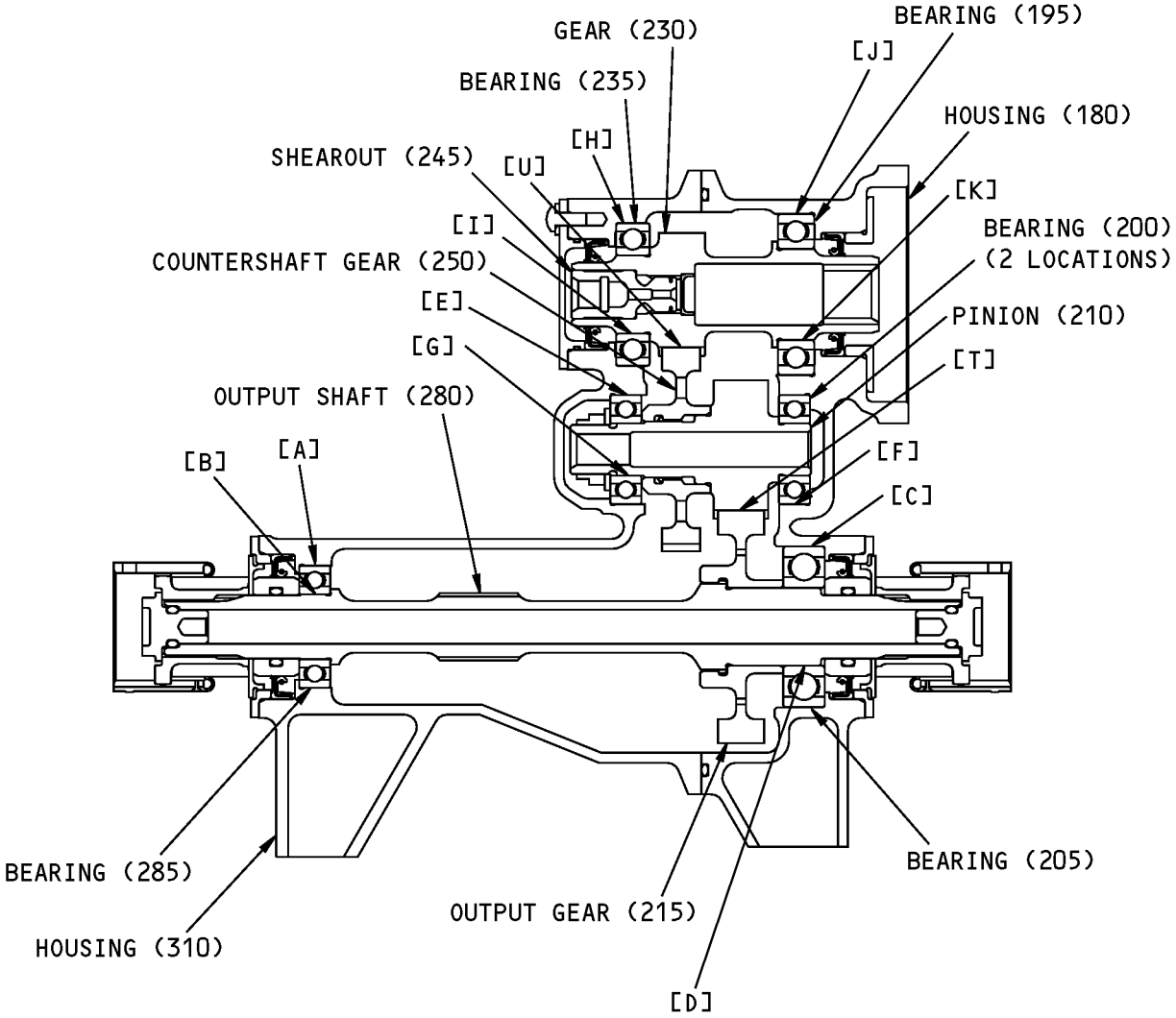


Fits and Clearances
Figure 801 (Sheet 1 of 8)



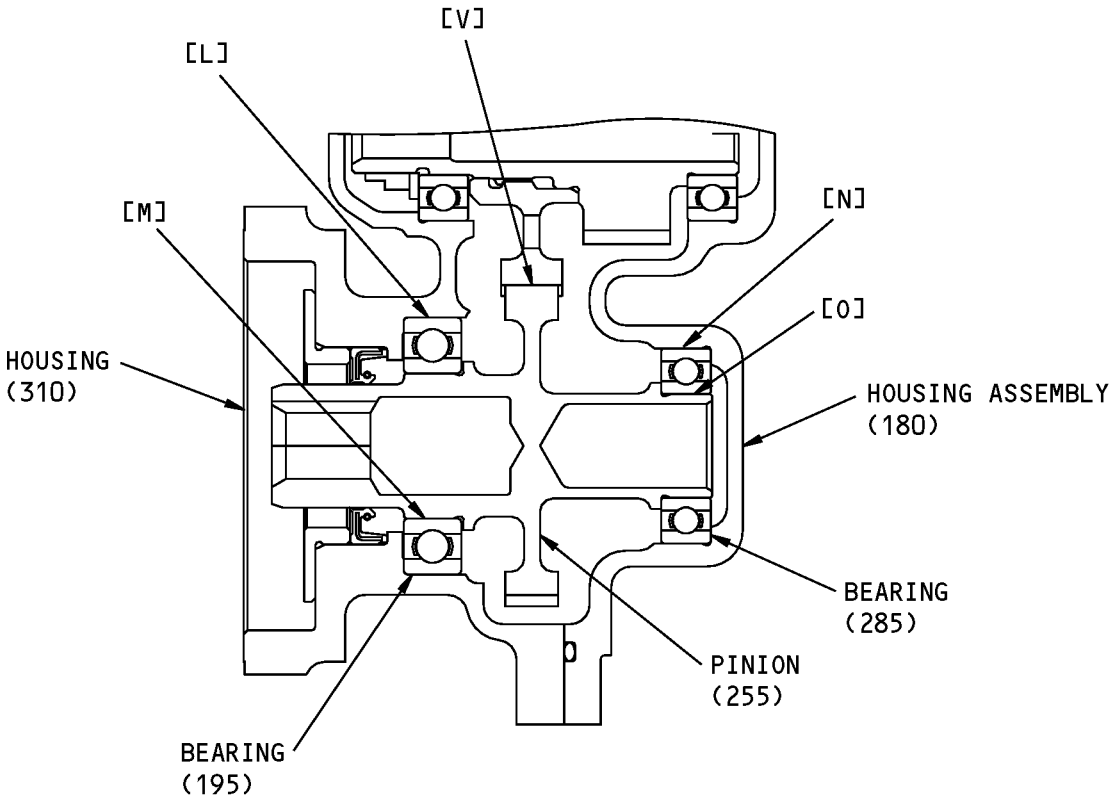
A-A

Fits and Clearances
Figure 801 (Sheet 2 of 8)



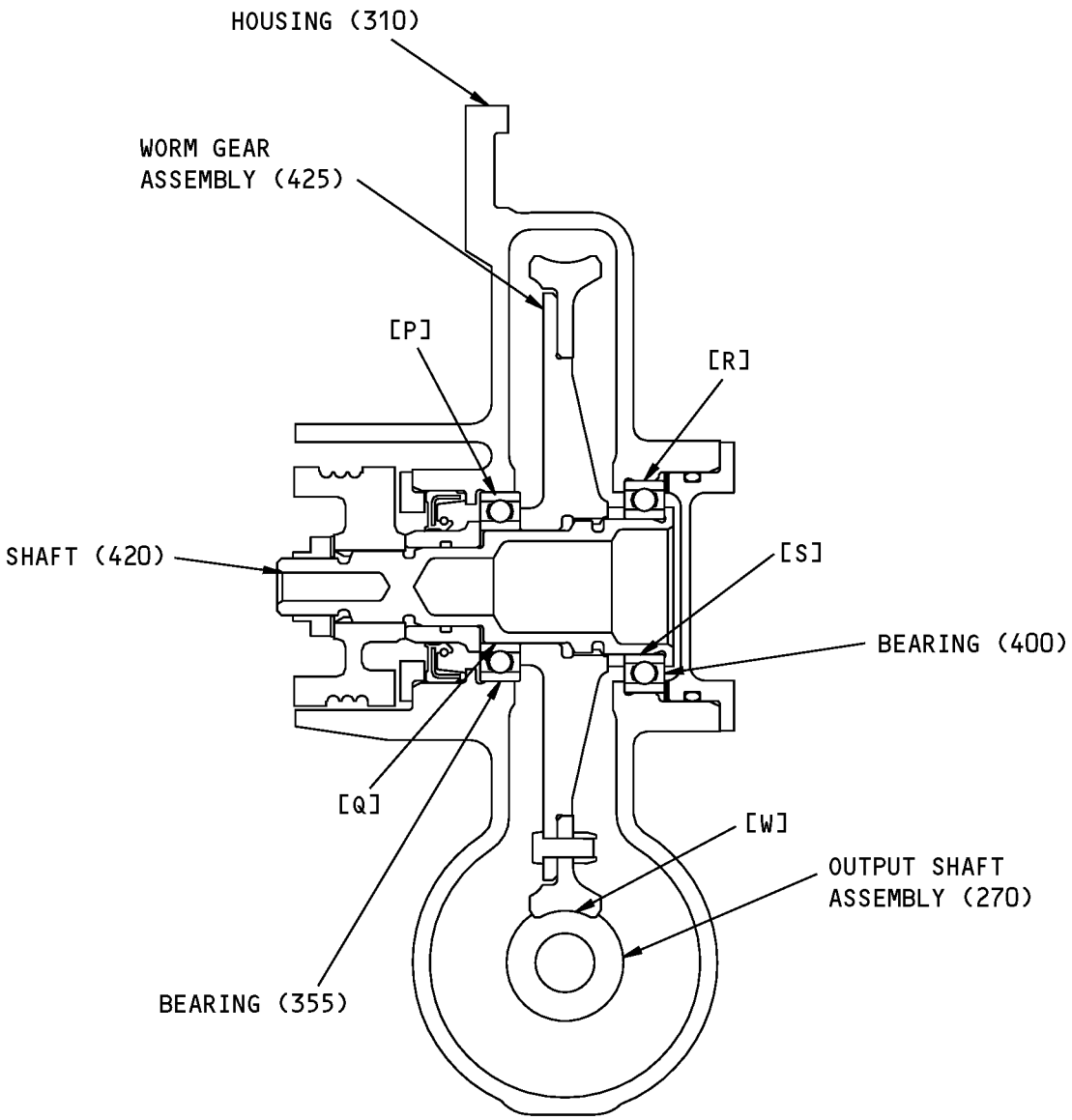
B–B

Fits and Clearances
Figure 801 (Sheet 3 of 8)



C–C

Fits and Clearances
Figure 801 (Sheet 4 of 8)



D–D

Fits and Clearances
Figure 801 (Sheet 5 of 8)

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE 1		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[A]	ID 310	1.8506	1.8514	0.0002	0.0015		1.8518	0.0021
	OD 285	1.8499	1.8504			1.8497		
[B]	ID 285	0.9839	0.9843	-0.0001	0.0008		0.9845	0.0012
	OD 280	0.9835	0.9840			0.9833		
[C]	ID 180	2.4411	2.4419	0.0002	0.0015		2.4423	0.0022
	OD 205	2.4404	2.4409			2.4404		
[D]	ID 205	1.1807	1.1811	-0.0001	0.0008		1.1813	0.0012
	OD 280	1.1803	1.1808			1.1801		
[E]	ID 310	1.6537	1.6545	0.0002	0.0015		1.6549	0.0021
	OD 200	1.6530	1.6535			1.6528		
[F]	ID 180	1.6537	1.6545	0.0002	0.0015		1.6549	0.0021
	OD 200	1.6530	1.6535			1.6528		
[G]	ID 200	0.7870	0.7874	-0.0008	-0.0001		0.7876	0.0003
	OD 210	0.7875	0.7878			0.7873		
[H]	ID 310	2.1656	2.1664	0.0002	0.0015		2.1668	0.0022
	OD 235	2.1649	2.1654			2.1646		
[I]	ID 235	1.1807	1.1811	-0.0008	-0.0001		1.1813	0.0003
	OD 230	1.1812	1.1815			1.1810		

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Fits and Clearances
Figure 801 (Sheet 6 of 8)

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION* DIMENSION MIN	DESIGN DIMENSION* DIMENSION MAX	DESIGN DIMENSION* ASSEMBLY CLEARANCE [1] MIN	DESIGN DIMENSION* ASSEMBLY CLEARANCE [1] MAX	SERVICE WEAR LIMIT* DIMENSION MIN	SERVICE WEAR LIMIT* DIMENSION MAX	SERVICE WEAR LIMIT* MAXIMUM CLEARANCE
[J]	ID 180 OD 195	2.4411 2.4404	2.4419 2.4409	0.0002	0.0015	2.4401	2.4423	0.0022
[K]	ID 195 OD 230	1.3775 1.3781	1.3781 1.3785	-0.0010	-0.0001	1.3779	1.3782	0.0022
[L]	ID 310 OD 195	2.4411 2.4404	2.4419 2.4409	0.0002	0.0015	2.4401	2.4423	0.0022
[M]	ID 195 OD 255	1.3775 1.3781	1.3780 1.3785	-0.0010	-0.0001	1.3779	1.3782	0.0003
[N]	ID 180 OD 285	1.8506 1.8499	1.8514 1.8504	0.0002	0.0015	1.8596	1.8518	0.0022
[O]	ID 285 OD 255	0.9839 0.9844	0.9843 0.9847	-0.0008	-0.0001	0.9842	0.9845	0.0003
[P]	ID 310 OD 355	1.6546 1.6530	1.6553 1.6535	0.0011	0.0023	1.6528	1.6555	0.0027
[Q]	ID 355 OD 420	0.9839 0.9835	0.9843 0.9840	-0.0001	0.0007	0.9833	0.9845	0.0012
[R]	ID 310 OD 400	1.8515 1.8499	1.8522 1.8504	0.0011	0.0023	1.8497	1.8524	0.0027
[S]	ID 400 OD 420	1.1807 1.1809	1.1811 1.1815	-0.0008	-0.0002	1.1807	1.1813	0.0006
[T]	OD 215 [3] OD 210	3.5835 2.1521	3.5859 2.1542	0.0040	0.0060	3.5810 2.1501	3.5835 2.1521	0.0080

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Fits and Clearances
Figure 801 (Sheet 7 of 8)

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE 1		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[U]	OD 250 3 OD 230	3.1484 1.9067	3.1507 1.9087	0.0040	0.0060	3.1460 1.9047	3.1484 1.9067	0.0080
[V]	OD 250 3 OD 255	3.1484 3.1484	3.1507 3.1507	0.0040	0.0060	3.1460 3.1460	3.1484 3.1484	0.0080
[W]	OD 425 2 4 OD 270	1.0372	1.0427	0.0020	0.0060	1.0357	1.0372	0.0080

* ALL DIMENSIONS ARE IN INCHES

1 NEGATIVE VALUE INDICATES INTERFERENCE.

2 BEFORE DISASSEMBLY, HOLD WORM GEAR ASSEMBLY WITH HOUSING TO PREVENT ANGULAR AND AXIAL MOVEMENT OF THE GEAR. MEASURE THE ANGULAR BACKLASH OF THE WORM GEAR AT PITCH DIAMETER OF THE OUTPUT SHAFT ASSEMBLY AFTER DISASSEMBLY, CHECK THE WORM GEAR ASSEMBLY AND OUTPUT SHAFT ASSEMBLY FOR EVIDENCE OF TOOTH WEAR. REPLACE BOTH PARTS IF THE MEASUREMENT ON THE WORM GEAR IS EQUAL TO OR LESS THAN THE MINIMUM SERVICE WEAR LIMIT AND THE TOTAL ASSEMBLY BACKLASH IS MORE THAN THE SERVICE WEAR LIMIT. REPLACE ONLY WORM GEAR IF ASSEMBLY BACKLASH IS MORE THAN THE SERVICE WEAR LIMIT.

3 WHEN MEASURING SPLINE TEETH DIAMETER OVER TWO PINS, USE 0.1200 INCH DIAMETER PINS

4 WHEN MEASURING SPLINE TEETH DIAMETER OVER TWO WIRES, USE 0.480 INCH DIAMETER WIRES

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Fits and Clearances
Figure 801 (Sheet 8 of 8)

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

1. General

A. This section lists the special tools, fixtures, and equipment necessary for maintenance.

NOTE: Equivalent substitutes may be used.

Special Tools

Reference	Description	Part Number	Supplier
SPL-4720	Test Equipment - Leakage Test	J27054-1	81205
SPL-4811	Test Equip - Run-In, Variable Drive (115 VAC)	Opt: J27056-43	81205
		Opt: J27056-45	81205
SPL-4812	Test Equip - Run-In, Variable Drive (230 VAC)	Opt: J27056-44	81205
		Opt: J27056-46	81205
SPL-5384	Wrench - Coupling Sleeve Flap Actuation	C27041-1	81205
SPL-5385	Seal Installation Equipment, TE Flap Drive	C27043-16	81205
SPL-5703	Test Equipment - T.E. Flap Drive Gearboxes	C27068-65	81205

Tool Supplier Information

CAGE Code	Supplier Name	Supplier Address
81205	THE BOEING COMPANY	17930 INTERNATIONAL BLVD. SOUTH SEATAC, WA 98188-4321 Telephone: 206-662-6650 Facsimile: 206-662-7145

ILLUSTRATED PARTS LIST

1. Introduction

A. The Illustrated Parts List (IPL) contains an illustration and a list of component parts you can repair or replace. The Illustrated Parts Catalog (IPC) shows how to use the Boeing part number system.

B. This shows how parts are related: The relation of each item to its next higher assembly (NHA) is shown in the NOMENCLATURE column. Use the indenture system that follows:

1 2 3 4 5 6 7

. Assembly

. Attaching parts for assembly

. . Detail parts for assembly

. . Subassembly

. . Attaching parts for subassembly

. . . Detail parts for subassembly

. . . Sub-subassembly

. . . Attaching parts for subassembly

. . . . . Details parts for sub-subassembly

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

C. Each top assembly is given one use code letter (A, B, C, etc.) in the USAGE CODE column. All subsequent component parts in the list can have one or more of the use code letters to show effectivity to top assemblies. A component part without a use code applies to all top assemblies.

D. An alphabetical letter is added after the item number for optional parts, parts changed by a Service Bulletin, configuration differences (except left-handed and right-handed parts), last engineering releases, and parts added between item numbers in a sequence. The alphabetical letter will not be shown on the illustration for equivalent parts of the same part number.

E. Color-coded parts are identified with a single digit alpha following the dash number or with ''SP'' suffix. If the ''SP'' suffix is used, it represents consolidation of all color codes applicable for a given usage which are not separately listed. Orders for color-coded parts should include the registry number of the airplane for which the parts are ordered.

F. If a part number is 15 characters long but will not fit in the part number column, the part number will be displayed with a ''~'' at the end of the line and will be continued on the next line. The ''~'' denotes that the part number continues on the next line.

G. Parts changed by a Service Bulletin are shown by PRE SB XXXX and POST SB XXXX added to the NOMENCLATURE column.

(1) When a new top assembly is added by a Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the top assembly level only. The configuration differences at the detail part level are shown by use code letters.

(2) When the top assembly part number is not changed by the Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the detail level.

H. Interchangeable Parts

Optional (OPT)	The part is optional to and interchangeable with other parts that have the same item number.
Replaces, Replaced by and not interchangeable with (REPLACES, REPLACED BY AND NOT INTCHG/W)	The part replaces and is not interchangeable with the initial part.
Replaces, Replaced by (REPLACES, REPLACED BY)	The part replaces and is interchangeable with, or is an alternative to, the initial part.

VENDOR CODES

Code	Name
00779	TYCO ELECTRONICS CORP 2800 FULLING MILL ROAD PO BOX 3608 MIDDLETOWN, PENNSYLVANIA 17057 FORMERLY AMP INC; FORMERLY V04618 FORMERLY GENICOM COMP V01526
15653	ALCOA GLOBAL FASTENERS INC DIV KAYNAR PRODUCTS 800 S STATE COLLEGE BLVD FULLERTON, CALIFORNIA 92831-3001 FORMERLY VK6405 MICRODOT AEROSP LTD; FORMERLY KAYNAR TECH FORMERLY FAIRCHILD FASTENERS KAYNAR DIV
17446	HUCK INTL INC AEROSPACE FASTENER DIV 900 WATSON CENTER ROAD CARSON, CALIFORNIA 90745-4201 FORMERLY V32134 REXNORD INC; FORMERLY V97928 HUCK INTL
56878	SPS TECHNOLOGIES INC AEROSPACE AND INDUSTRIAL PRODUCTS DIV 301 HIGHLAND AVE JENKINTOWN, PENNSYLVANIA 19046 FORMERLY STANDARD PRESSED STEEL FORMERLY IN SALT LAKE, UTAH
72962	HARVARD INDUSTRIES INC 3 WERNER WAY SUITE 210 LEBANON, NEW JERSEY 08833 FORMERLY ESNA V7A079 FORMERLY ELASTIC STOP NUT IN UNION, NJ

Code	Name
91251	FREUDENBERG-NOK GENERAL PARTNERSHIP PLEASANT STREET PO BOX B BRISTOL, NEW HAMPSHIRE 03222-0501
92215	FAIRCHILD IND INC FAIRCHILD AEROSPACE FASTENER DIV 3010 W LOMITA BLVD TORRANCE, CALIFORNIA 90505-5102 FORMERLY VOI-SHAN IN CULVER CITY, CALIF
97928	Replaced: [V97928] SEE V17446 HUCK INTL by Code: Name and Address below 17446: HUCK INTL INC AEROSPACE FASTENER DIV 900 WATSON CENTER ROAD CARSON, CALIFORNIA 90745-4201 FORMERLY V32134 REXNORD INC; FORMERLY V97928 HUCK INTL
99862	CARR LANE MANUFACTURING COMPANY 4200 CARR LANE CT ST. LOUIS, MISSOURI 63119-2129
U1068	DOWTY SEALS LTD ASHCHURCH, TEWKESBURY GLOS GL20 8JS ENGLAND

NUMERICAL INDEX

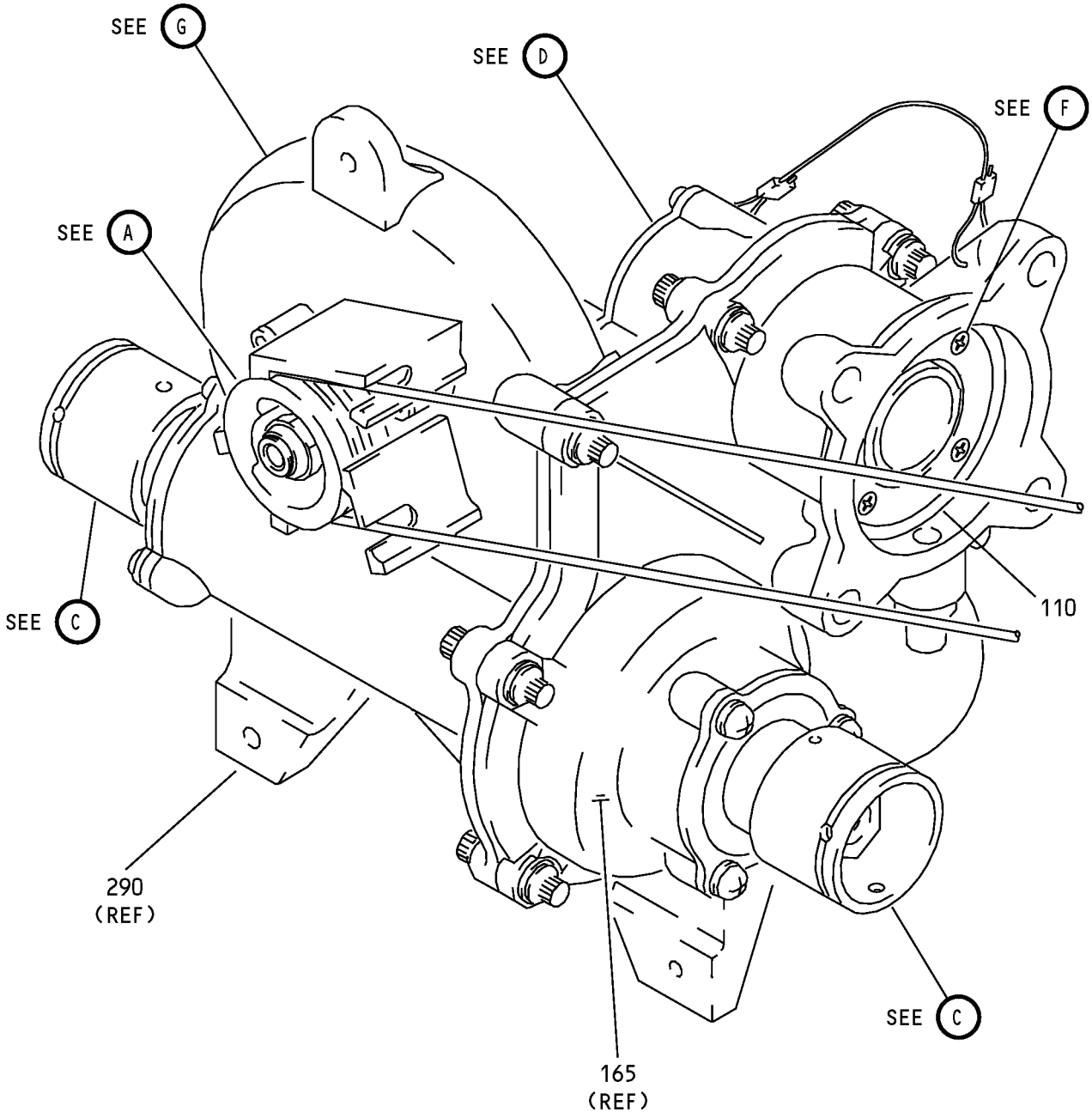
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
1002423606500		1	100	1
		1	100A	1
		1	340	1
		1	340A	1
1002423606700		1	115	2
		1	115A	2
1002423607000		1	70	2
		1	70A	2
102LH9074-12		1	265	1
102LH9074-8		1	325	1
256A3148-37		1	405	AR
256A3148-38		1	410	AR
256A3148-39		1	415	AR
256A3148-5		1	380	AR
256A3148-6		1	385	AR
256A3148-7		1	390	AR
256A3148-8		1	395	AR
256A3182-1		1	50	2
256A3183-10		1	75B	2
		1	75D	2
256A3183-11		1	345E	1
256A3183-12		1	75E	2
256A3183-4		1	345	1
		1	345A	1
		1	345C	1
256A3183-5		1	75	2
		1	75A	2
		1	75C	2
256A3183-9		1	345B	1
		1	345D	1
256A3195-18		1	440	1
256A3195-48		1	435A	1
256A3195-57		1	435B	1
256A3195-59		1	435C	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
256A3515-1		1	1A	RF
256A3515-2		1	1B	RF
256A3515-3		1	1C	RF
256A3515-4		1	1D	RF
256A3519-1		1	290	1
256A3519-2		1	310	1
256A3519-3		1	290A	1
256A3519-4		1	310A	1
256A3520-1		1	165	1
256A3520-2		1	185	1
256A3520-5		1	165B	1
256A3520-6		1	185B	1
256A3523-1		1	270	1
256A3523-2		1	280	1
256A3523-3		1	270A	1
256A3523-4		1	280A	1
256A3524-1		1	210	1
256A3524-2		1	210A	1
256A3525-1		1	215	1
256A3525-2		1	215A	1
256A3526-1		1	250	1
256A3526-2		1	250A	1
256A3527-1		1	255	1
256A3527-2		1	255A	1
256A3528-1		1	220	1
256A3528-2		1	230	1
256A3528-3		1	220A	1
256A3528-4		1	230A	1
256A3532-1		1	370	1
256A3533-1		1	10	1
256A3540-1		1	425	1
		1	425A	1
256A3540-2		1	425P	1
256A3541-1		1	428	1
256A3541-3		1	428A	1

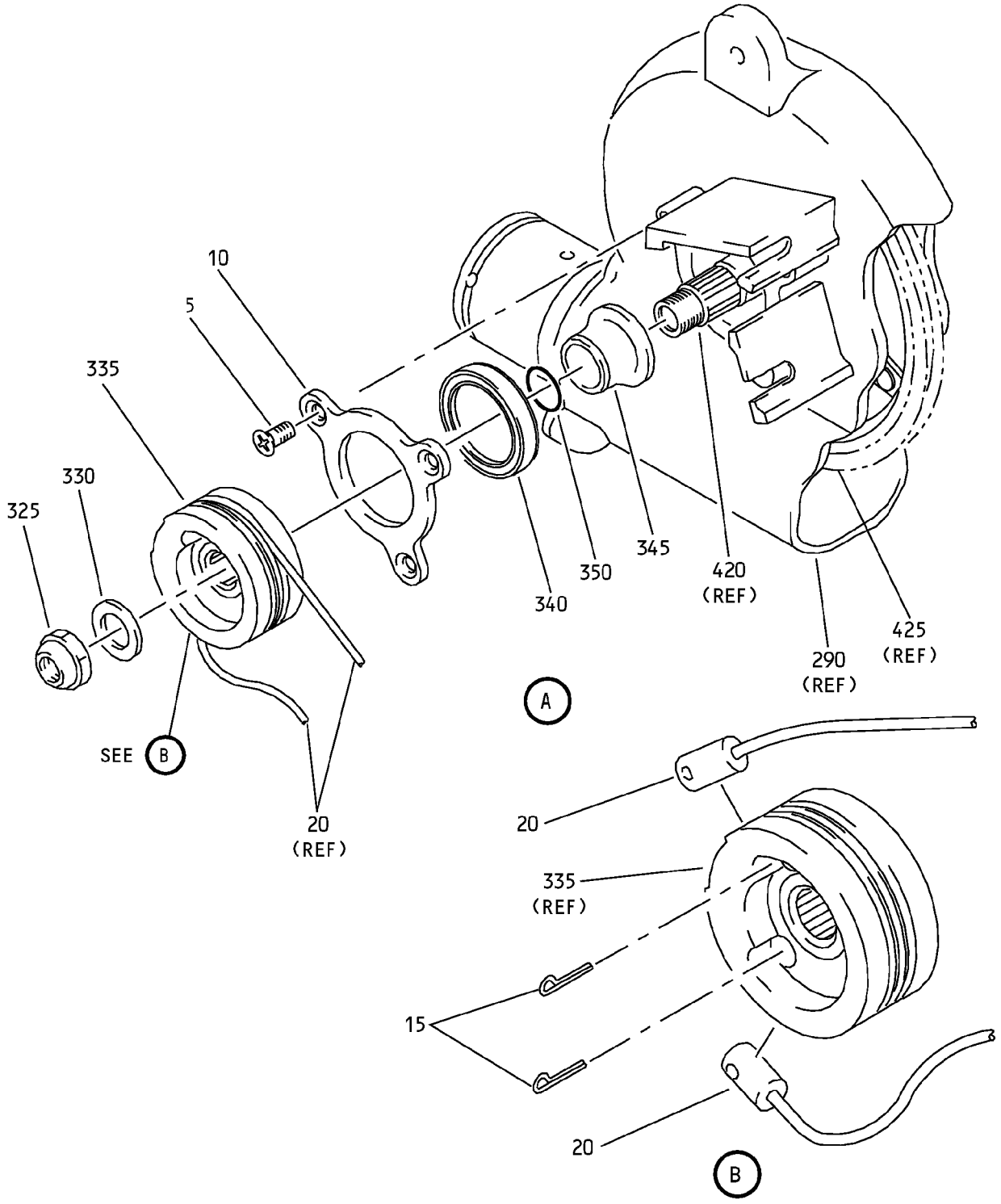
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
256A3542-1		1	335	1
256A3543-1		1	424	1
256A3544-1		1	420	1
256A3545-1		1	240	1
256A3546-1		1	90	1
256A3547-1		1	245	1
256A3741-1		1	40	2
256A3743-1		1	45	2
256A3744-1		1	30	2
256A3745-1		1	25	2
256W3080-14		1	225	1
256W3244-1		1	65	2
256W3547-1		1	110	1
		1	112	1
325167		1	150	2
3SLCC5		1	427	5
		1	427	5
65-63860-3		1	429	2
69235-1216CD		1	265	1
69235-820CD		1	325	1
700-850-8862-99		1	100	1
		1	100A	1
		1	340	1
		1	340A	1
700-852-8862-99		1	115	2
		1	115A	2
700-864-8862-99		1	70	2
		1	70A	2
737-135-7279-19		1	110B	1
		1	110D	1
81669V5K5		1	426	5
AN814-4DL		1	315	2
BAC27DCT540		1	445	1
BAC27DCT542		1	435	1
BAC27DCT544		1	430	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACB10AZ30C		1	205	1
BACB10BA20C		1	200	2
BACB10BA25C		1	285	2
BACB10BA30C		1	235	1
BACB10BA35C		1	195	2
BACB10BB25C		1	355	1
BACB10BB30C		1	400	1
BACB30MR4K12		1	120	8
BACB30MR4K6		1	125	1
BACB30NT3K2		1	55	6
		1	85	3
		1	360	3
BACB30VN5K5		1	426	5
BACC13Y3A95		1	145A	1
BACC2C3D00468CG		1	20	2
BACC30BK5		1	427	5
BACF22U2		1	150	2
BACN10JC12CD		1	265	1
BACN10JC8CD		1	325	1
BACP18BC02C03P		1	15	2
BACS12ER3K7		1	5	3
		1	105	8
BACW10BN3AC		1	60	6
		1	88	3
		1	365	3
BACW10BN4AC		1	130	9
BACW10BN4AP		1	135	8
BACW10BP12DP		1	260	1
BMN4122CPD8-12		1	265	1
BMN4122CPD8-8		1	325	1
CL4F		1	150	2
H51650-12BAC		1	265	1
H51650-8BAC		1	325	1
LGPL2SPV5-5AC		1	426	5
		1	426	5

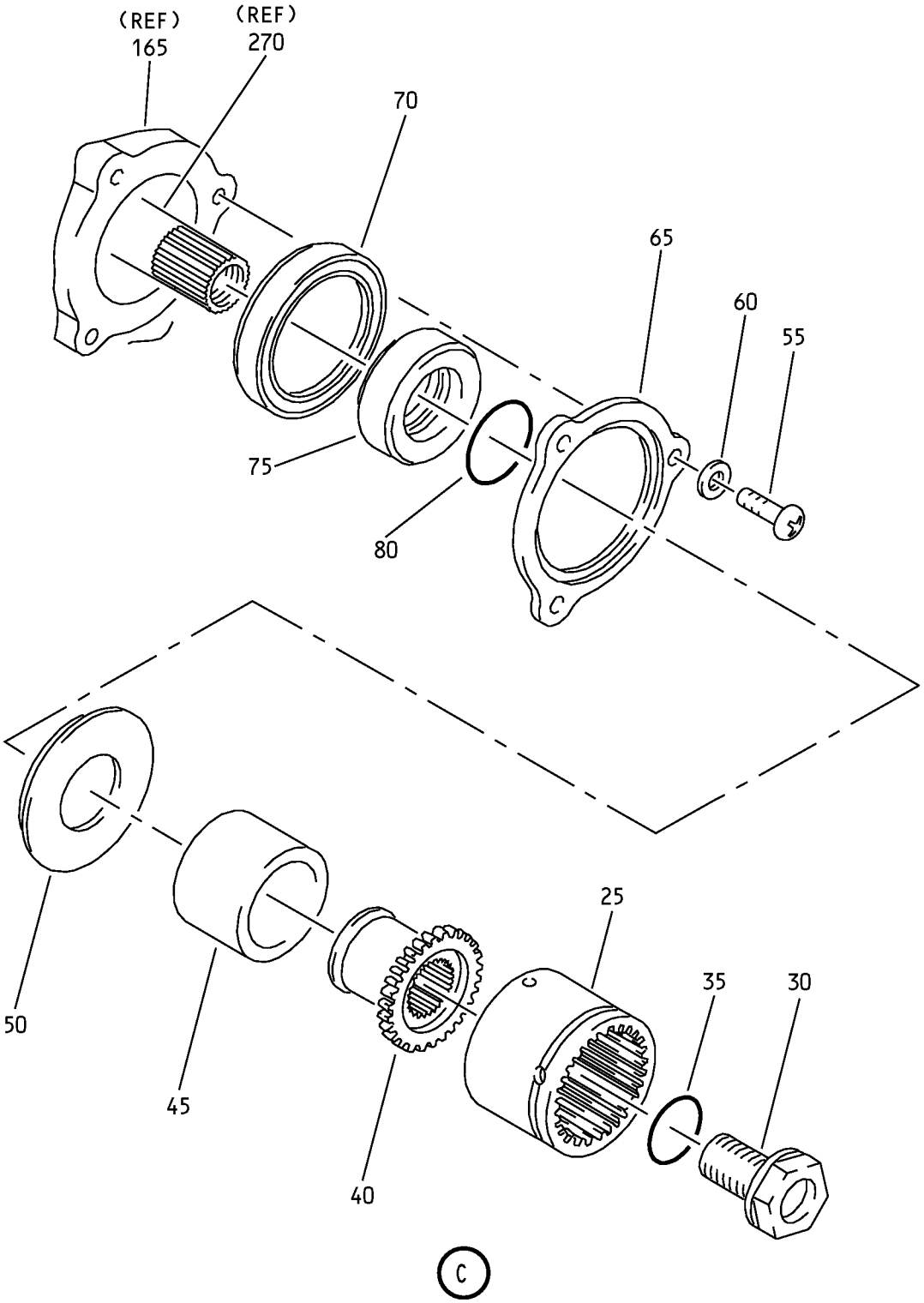
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1	426	5
M25988-1-017		1	350	1
M25988-1-029		1	95	1
M25988-1-110		1	160	1
		1	320	2
M25988-1-133		1	375	1
M25988-1-204		1	35	2
M25988-1-213		1	80	2
M25988-1-268		1	190	1
MS21209F1-15P		1	170	7
		1	295	16
MS21209F4-15P		1	300	3
MS21209F5-15P		1	175	4
MS21209F7-10P		1	180	1
		1	305	2
MS21209F8-10P		1	275	2
MS21902D4		1	155	1
NAS1149C0832D		1	330A	1
NAS1149E0832P		1	330B	1
NAS1805-4L		1	140	8
S256W410-10		1	70	2
		1	70A	2
S256W410-201		1	110B	1
		1	110D	1
S256W410-5		1	100	1
		1	100A	1
		1	340	1
		1	340A	1
S256W410-7		1	115	2
		1	115A	2



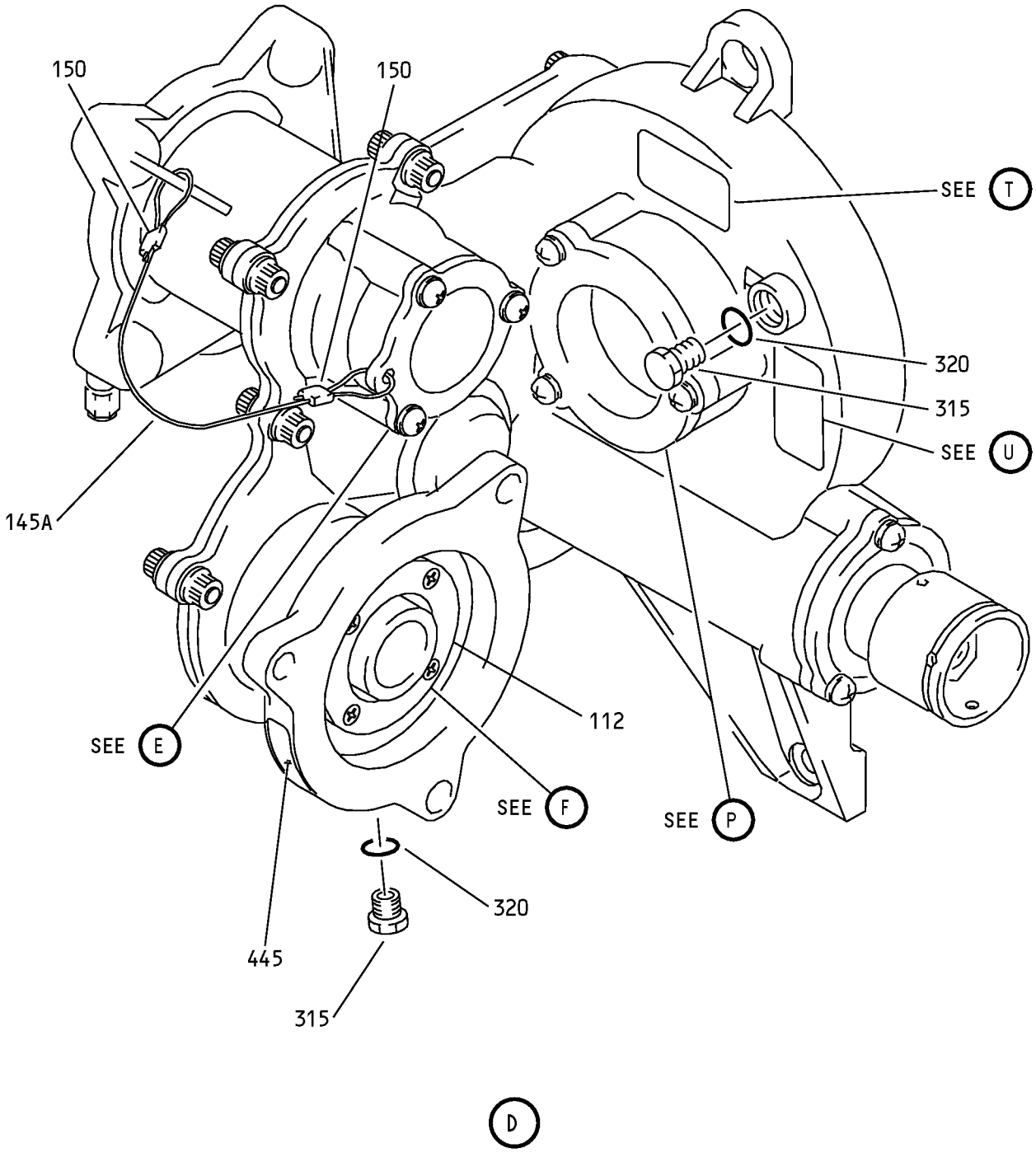
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 1 of 14)



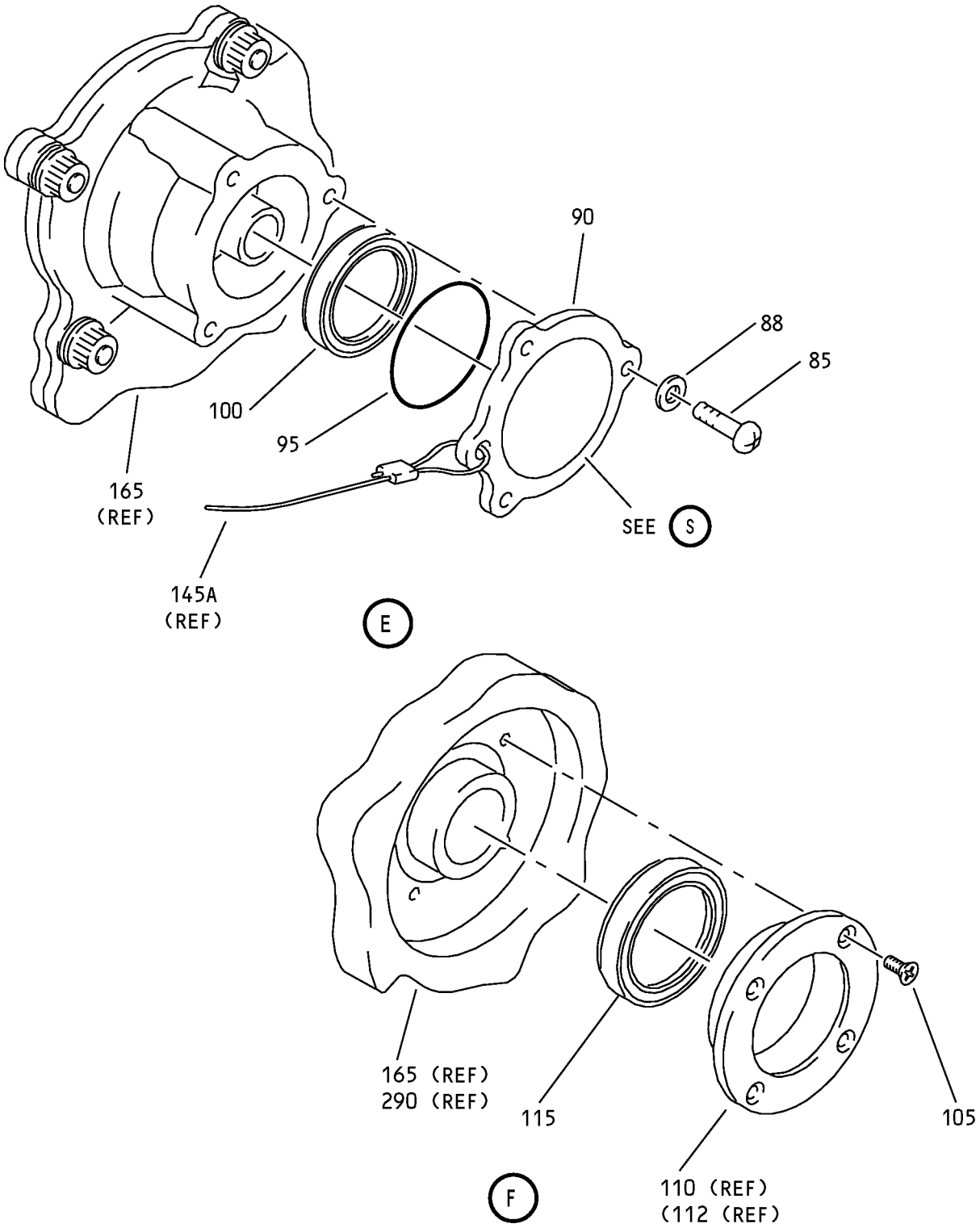
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 2 of 14)



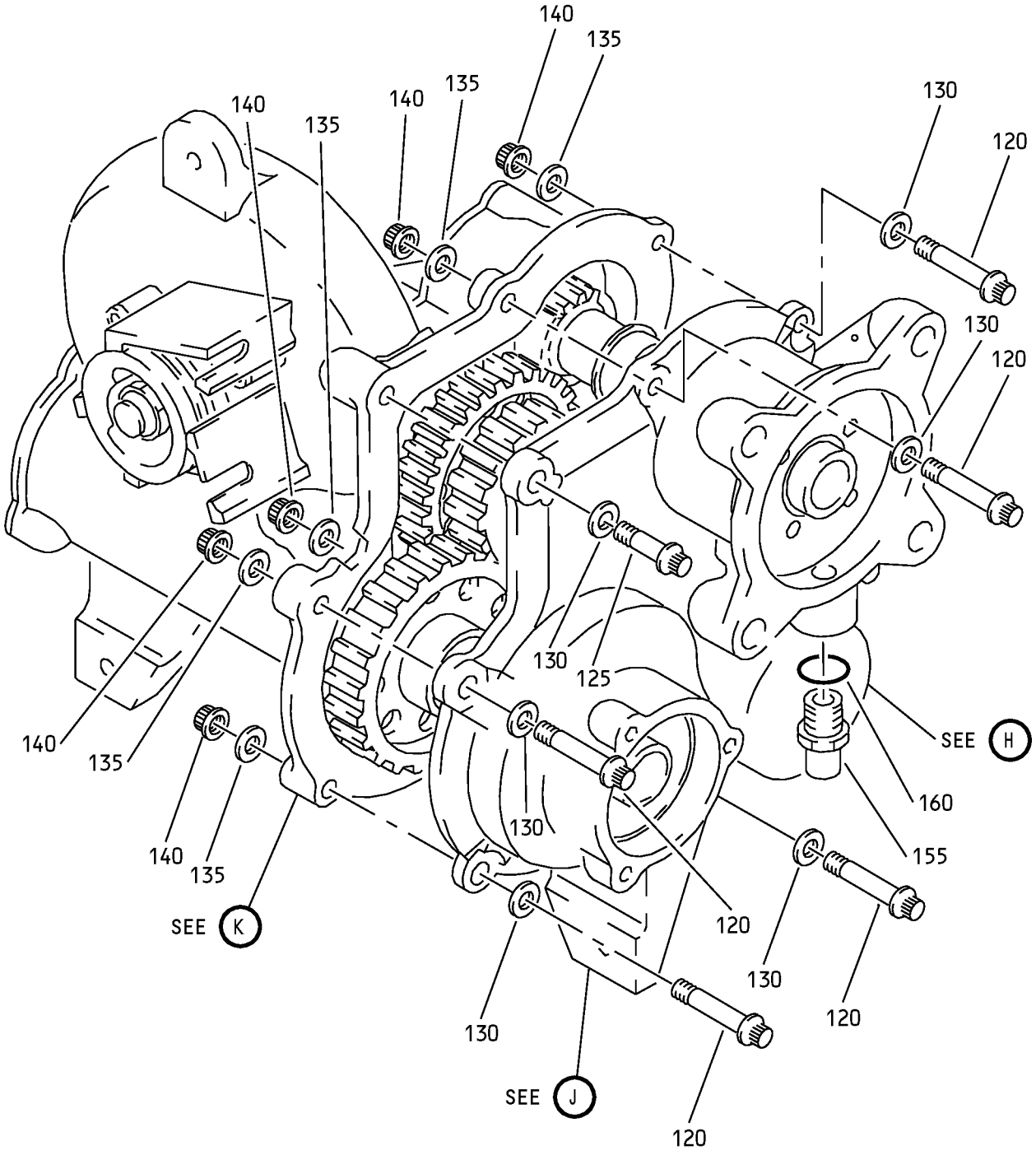
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 3 of 14)



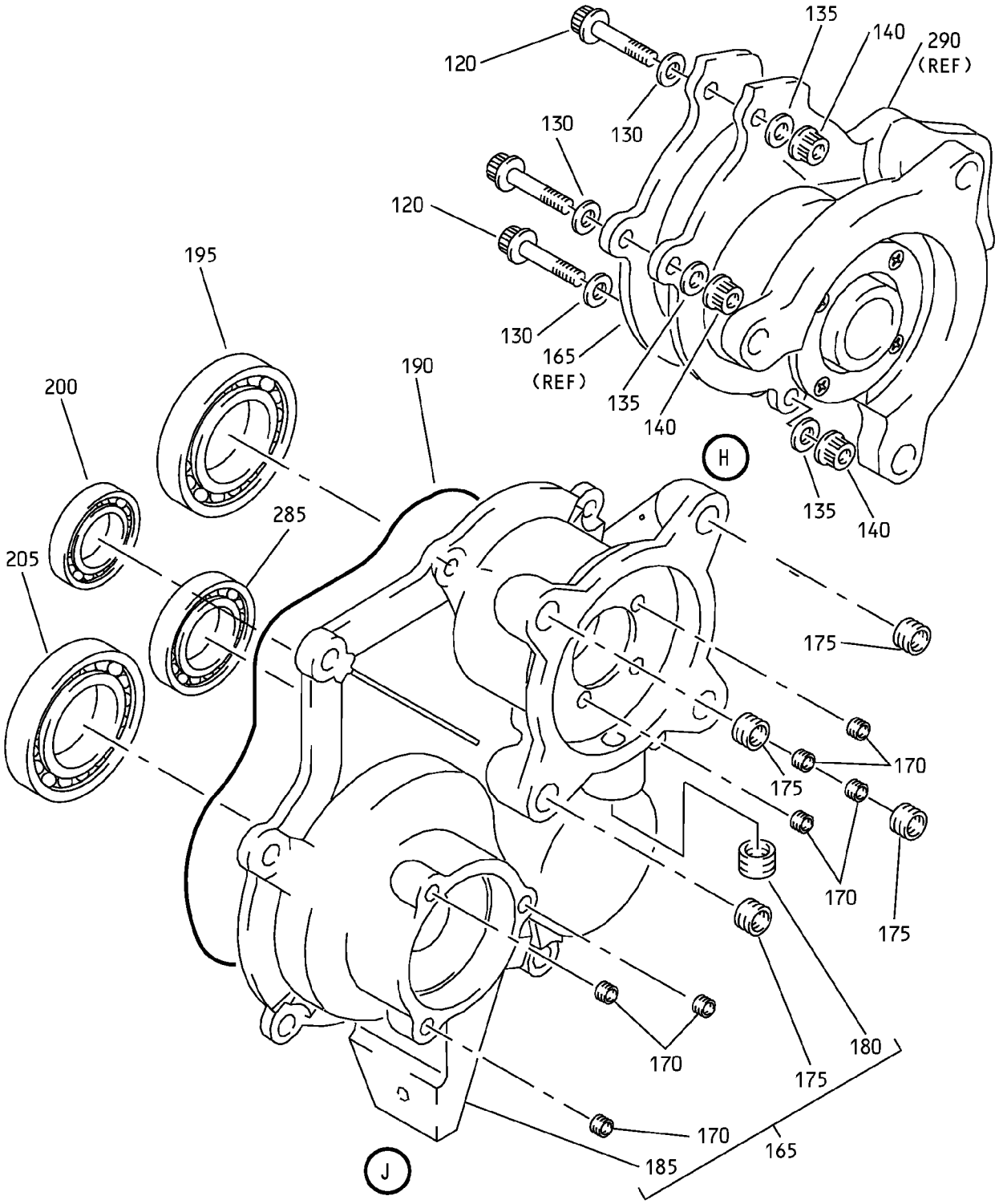
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 4 of 14)



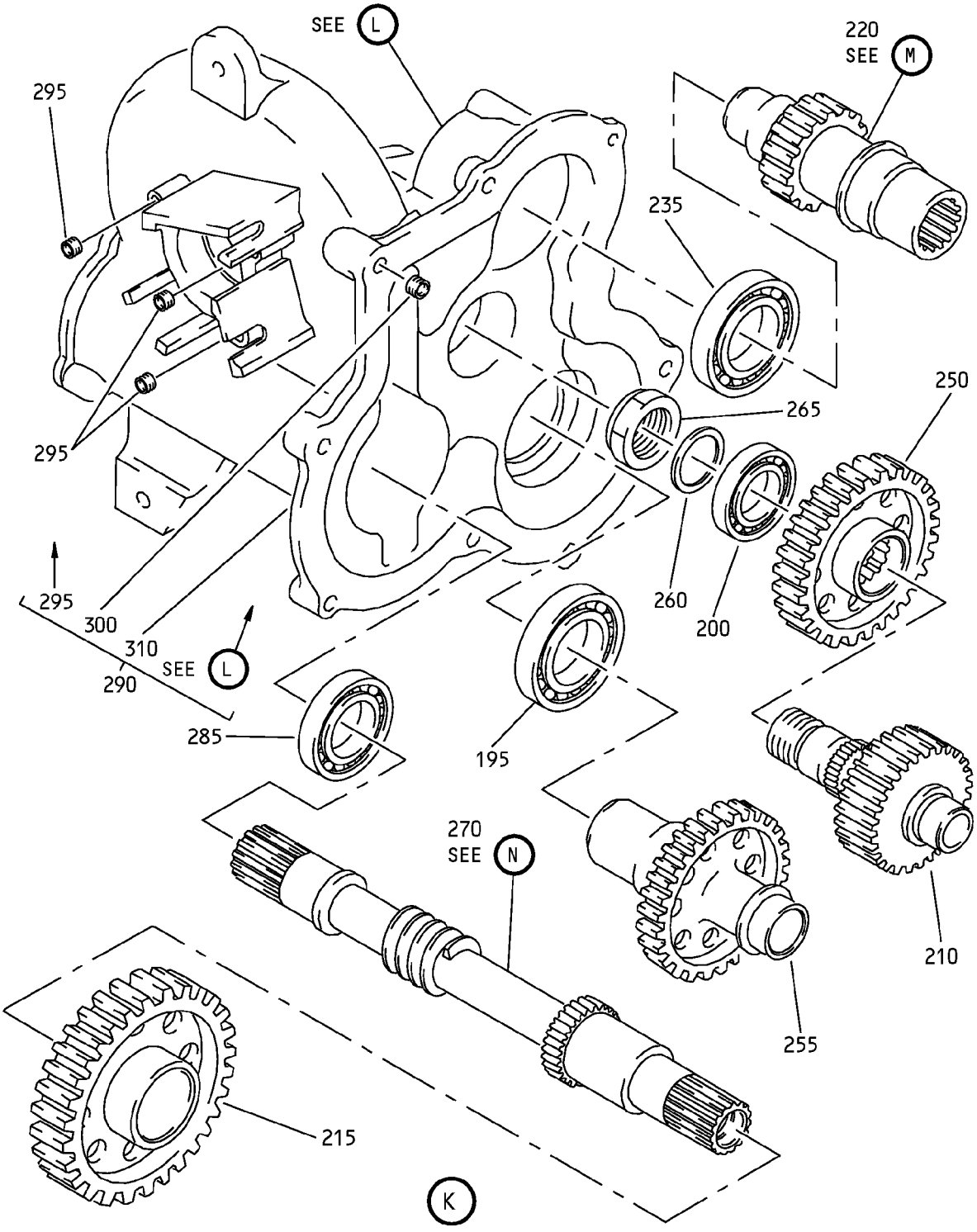
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 5 of 14)



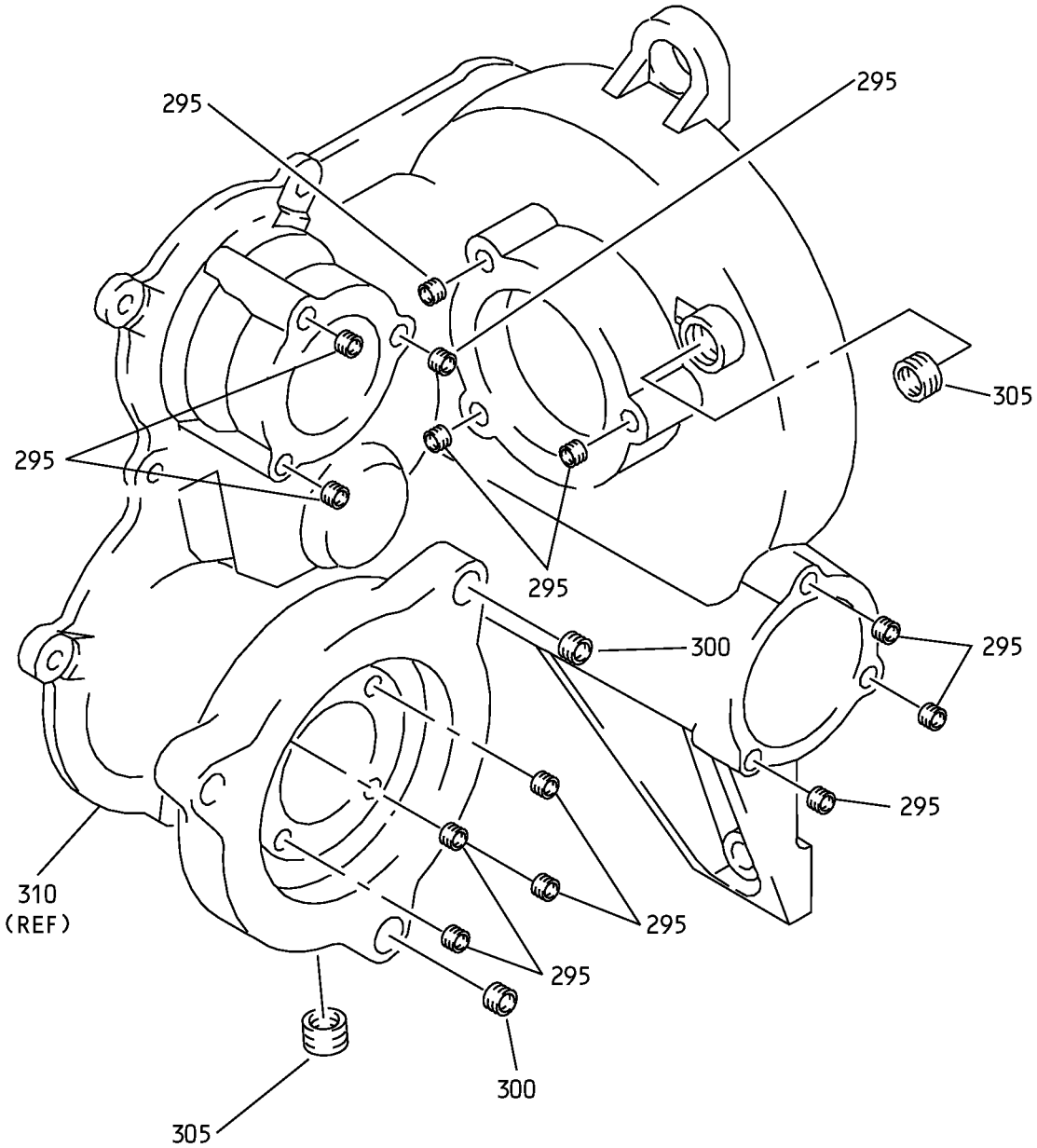
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 6 of 14)



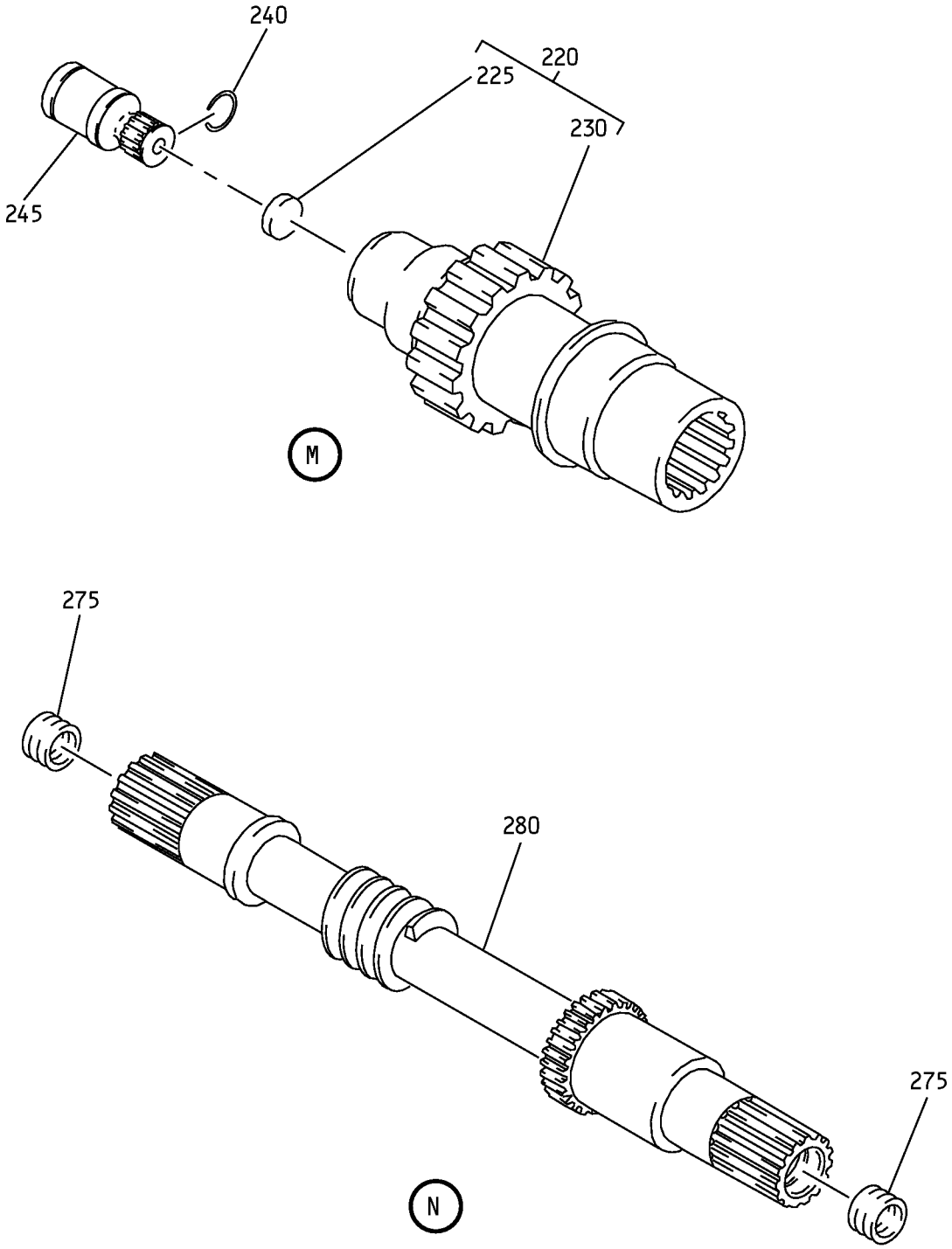
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 7 of 14)



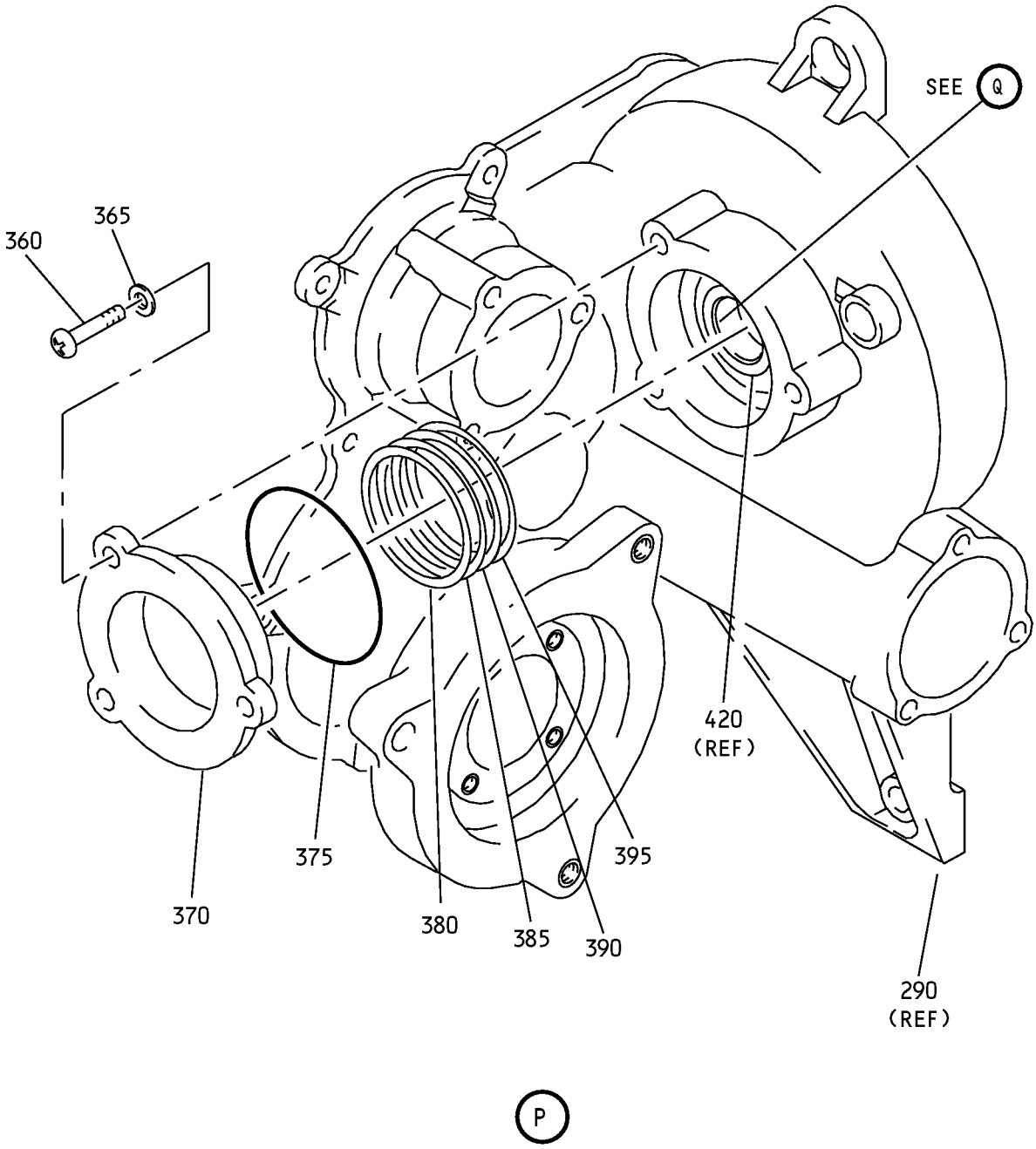
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 8 of 14)



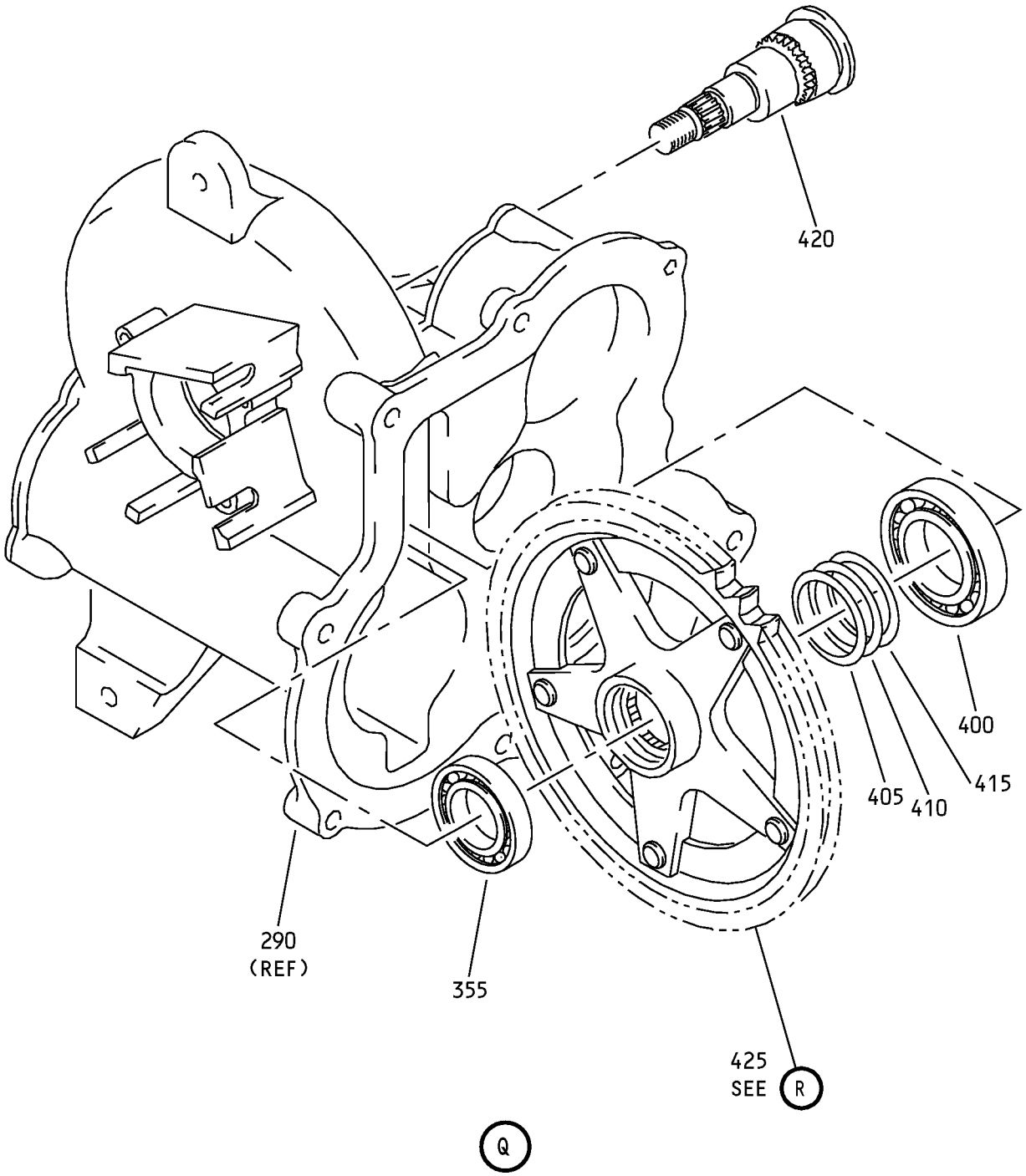
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 9 of 14)



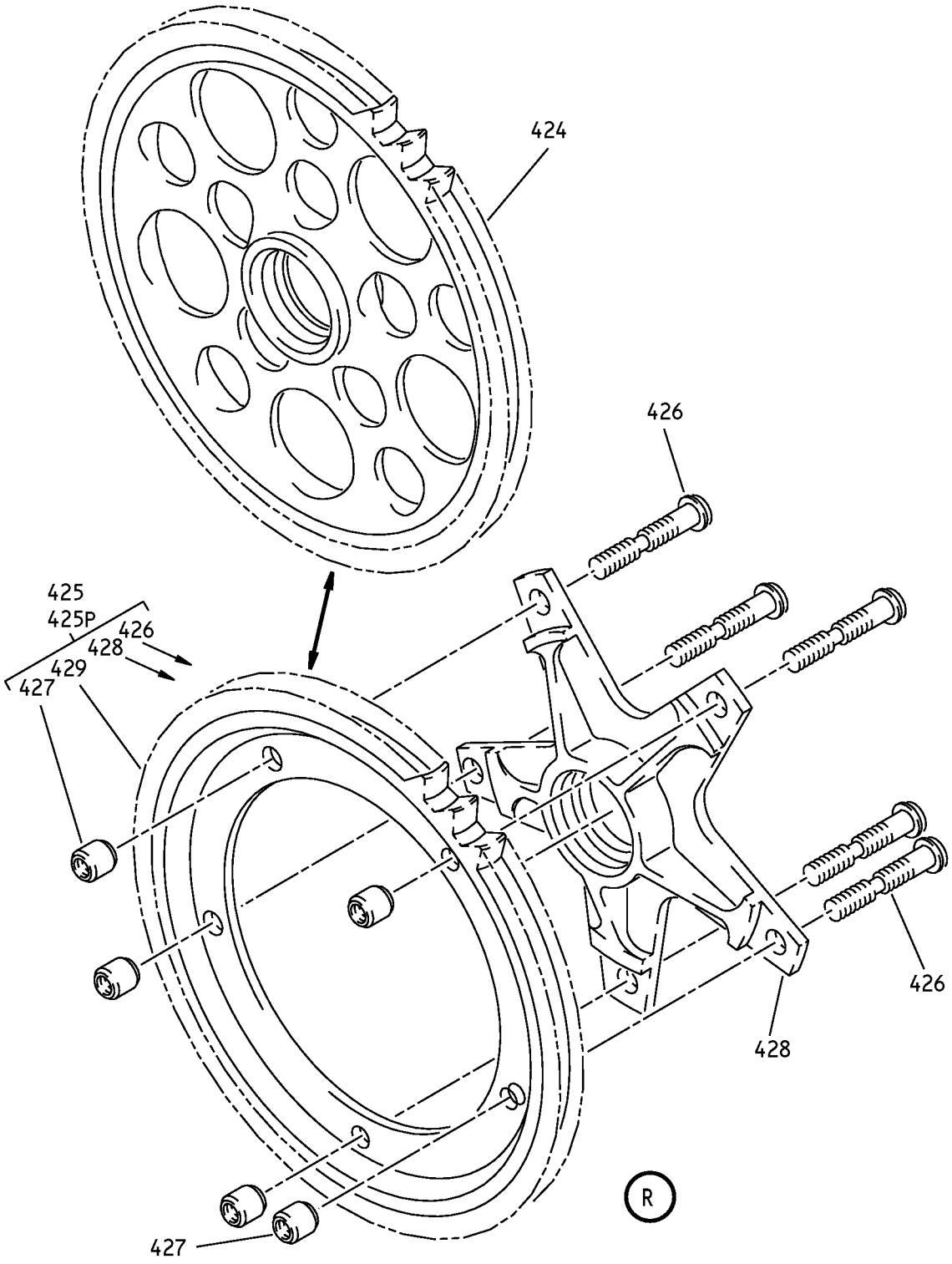
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 10 of 14)



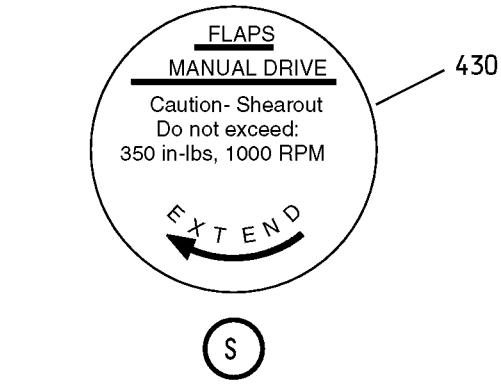
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 11 of 14)

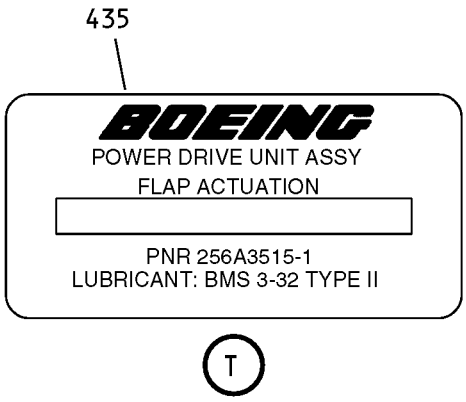


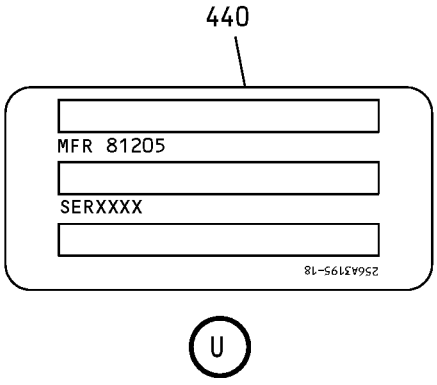
Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 12 of 14)



Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 13 of 14)







Flap Actuation Gearbox Assembly
IPL Figure 1 (Sheet 14 of 14)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1A	256A3515-1		GEARBOX ASSY-PDU FLAP ACTUATION	A	RF
–1B	256A3515-2		GEARBOX ASSY-PDU FLAP ACTUATION	B	RF
–1C	256A3515-3		GEARBOX ASSY-PDU FLAP ACTUATION	C	RF
–1D	256A3515-4		GEARBOX ASSY-PDU FLAP ACTUATION	D	RF
5	BACS12ER3K7		. SCREW		3
10	256A3533-1		. COVER		1
15	BACP18BC02C03P		. PIN		2
20	BACC2C3D00468C~G		. CABLE ASSY		2
25	256A3745-1		. SLEEVE-COUPLING		2
30	256A3744-1		. BOLT		2
35	M25988-1-204		. PACKING		2
–35A	M259881-204		DELETED		
40	256A3741-1		. COUPLING HALF		2
45	256A3743-1		. SEAL-COUPLING		2
50	256A3182-1		. SHIELD-SEAL		2
55	BACB30NT3K2		. BOLT		6
60	BACW10BN3AC		. WASHER		6
65	256W3244-1		. RETAINER		2
70	1002423607000		. SEAL (V91251) (SPEC S256W410-10) (OPT 700-864-8862-99 (VU1068))		2
–70A	700-864-8862-99		. SEAL (VU1068) (SPEC S256W410-10) (OPT 1002423607000 (V91251))		2
75	256A3183-5		. RING-SEAL	A	2
–75A	256A3183-5		. RING-SEAL (OPT ITEM 75B)	B	2
–75B	256A3183-10		. RING-SEAL (OPT ITEM 75A)	B	2
–75C	256A3183-5		. RING-SEAL (OPT ITEM 75D, 75E)	C, D	2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–75D	256A3183-10		. RING-SEAL (OPT ITEM 75C, 75E)	C, D	2
–75E	256A3183-12		. RING-SEAL (OPT ITEM 75C, 75D)	C, D	2
80	M25988-1-213		. PACKING		2
–80A	M259881-213		DELETED		
85	BACB30NT3K2		. BOLT		3
88	BACW10BN3AC		. WASHER		3
90	256A3546-1		. COVER		1
95	M25988-1-029		. PACKING		1
–95A	M259881-029		DELETED		
100	1002423606500		. SEAL (V91251) (SPEC S256W410-5) (OPT 700-850-8862-99 (VU1068))		1
–100A	700-850-8862-99		. SEAL (VU1068) (SPEC S256W410-5) (OPT 1002423606500 (V91251))		1
105	BACS12ER3K7		. SCREW		8
110	256W3547-1		. RETAINER-SEAL INPUT (OPT ITEM 110B)	A-C	1
–110A	737-135-7279-19		DELETED		
–110B	737-135-7279-19		. RETAINER-RTNR WITH EXCLUDER SEAL (VU1068) (SPEC S256W410-201) (OPT ITEM 110)	A-C	1
–110C	256W3547-1		DELETED		
–110D	737-135-7279-19		. RETAINER-RTNR WITH EXCLUDER SEAL (VU1068) (SPEC S256W410-201)	D	1
112	256W3547-1		. RETAINER-SEAL INPUT		1
115	1002423606700		. SEAL (V91251) (SPEC S256W410-7) (OPT 700-852-8862-99 (VU1068))		2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–115A	700-852-8862-99		. SEAL (VU1068) (SPEC S256W410-7) (OPT 1002423606700 (V91251))		2
120	BACB30MR4K12		. BOLT		8
125	BACB30MR4K6		. BOLT		1
130	BACW10BN4AC		. WASHER		9
135	BACW10BN4AP		. WASHER		8
140	NAS1805-4L		. NUT		8
145	BACC13Y3A095		DELETED		
145A	BACC13Y3A95		. CABLE		1
150	CL4F		. FERRULE-ATTACHMENT (V99862) (SPEC BACF22U2) (OPT 325167 (V00779))		2
155	MS21902D4		. UNION		1
160	M25988-1-110		. PACKING		1
–160A	M259881-110		DELETED		
165	256A3520-1		. HOUSING ASSY (OPT ITEM 165B)		1
–165A	256A3520-3		DELETED		
–165B	256A3520-5		. HOUSING ASSY (OPT ITEM 165)		1
170	MS21209F1-15P		. . INSERT-HELICOIL		7
175	MS21209F5-15P		. . INSERT-HELICOIL		4
180	MS21209F7-10P		. . INSERT-HELICOIL		1
185	256A3520-2		. . HOUSING (USED ON ITEM 165)		1
–185A	256A3520-4		DELETED		
–185B	256A3520-6		. . HOUSING (USED ON ITEM 165B)		1
190	M25988-1-268		. PACKING		1
–190A	M259881-268		DELETED		
195	BACB10BA35C		. BEARING		2
200	BACB10BA20C		. BEARING		2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
205	BACB10AZ30C		. BEARING		1
210	256A3524-1		. PINION	A, B	1
–210A	256A3524-2		. PINION	C, D	1
215	256A3525-1		. GEAR-OUTPUT	A, B	1
–215A	256A3525-2		. GEAR-OUTPUT	C, D	1
220	256A3528-1		. GEAR ASSY-PINION	A, B	1
–220A	256A3528-3		. GEAR ASSY-PINION	C, D	1
225	256W3080-14		. . PLUG-SHAFT		1
230	256A3528-2		. . GEAR	A, B	1
–230A	256A3528-4		. . GEAR	C, D	1
235	BACB10BA30C		. BEARING		1
240	256A3545-1		. RING-SNAP		1
245	256A3547-1		. SHEAROUT		1
250	256A3526-1		. GEAR-COUNTERSHAFT	A, B	1
–250A	256A3526-2		. GEAR-COUNTERSHAFT	C, D	1
255	256A3527-1		. PINION	A, B	1
–255A	256A3527-2		. PINION	C, D	1
260	BACW10BP12DP		. WASHER		1
265	H51650-12BAC		. NUT (V15653) (SPEC BACN10JC12CD) (OPT 102LH9074-12 (V72962)) (OPT 69235-1216CD (V92215)) (OPT BMN4122CPD8-12 (V97928))		1
270	256A3523-1		. SHAFT ASSY-OUTPUT	A, B	1
–270A	256A3523-3		. SHAFT ASSY-OUTPUT	C, D	1
275	MS21209F8-10P		. . INSERT		2
280	256A3523-2		. . SHAFT	A, B	1
–280A	256A3523-4		. . SHAFT	C, D	1
285	BACB10BA25C		. BEARING		2
290	256A3519-1		. HOUSING ASSY (OPT ITEM 290A)		1
–290A	256A3519-3		. HOUSING ASSY (OPT ITEM 290)		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
295	MS21209F1-15P		. . INSERT-HELICOIL		16
300	MS21209F4-15P		. . INSERT-HELICOIL		3
305	MS21209F7-10P		. . INSERT-HELICOIL		2
310	256A3519-2		. . HOUSING (USED ON ITEM 290)		1
–310A	256A3519-4		. . HOUSING (USED ON ITEM 290A)		1
315	AN814-4DL		. PLUG AND BLEEDER		2
320	M25988-1-110		. PACKING		2
–320A	M259881-110		DELETED		
325	H51650-8BAC		. NUT (V15653) (SPEC BACN10JC8CD) (OPT 102LH9074-8 (V72962)) (OPT 69235-820CD (V92215)) (OPT BMN4122CPD8-8 (V97928))		1
330	NAS1149C0832P		DELETED		
330A	NAS1149C0832D		. WASHER	C, D	1
–330B	NAS1149E0832P		. WASHER	A, B	1
335	256A3542-1		. DRUM-CABLE		1
340	1002423606500		. SEAL (V91251) (SPEC S256W410-5) (OPT 700-850-8862-99 (VU1068))		1
–340A	700-850-8862-99		. SEAL (VU1068) (SPEC S256W410-5) (OPT 1002423606500 (V91251))		1
345	256A3183-4		. RING-SEAL	A	1
–345A	256A3183-4		. RING-SEAL (OPT ITEM 345B)	B	1
–345B	256A3183-9		. RING-SEAL (OPT ITEM 345A)	B	1
–345C	256A3183-4		. RING-SEAL (OPT ITEM 345D, 345E)	C, D	1
–345D	256A3183-9		. RING-SEAL (OPT ITEM 345C, 345E)	C, D	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–345E	256A3183-11		. RING-SEAL (OPT ITEM 345C, 345D)	C, D	1
350	M25988-1-017		. PACKING		1
–350A	M259881-017		DELETED		
355	BACB10BB25C		. BEARING		1
360	BACB30NT3K2		. BOLT		3
365	BACW10BN3AC		. WASHER		3
370	256A3532-1		. COVER		1
375	M25988-1-133		. PACKING		1
375A	M259881-133		DELETED		
380	256A3148-5		. SHIM		AR
385	256A3148-6		. SHIM		AR
390	256A3148-7		. SHIM		AR
395	256A3148-8		. SHIM		AR
400	BACB10BB30C		. BEARING		1
405	256A3148-37		. SHIM		AR
410	256A3148-38		. SHIM		AR
415	256A3148-39		. SHIM		AR
420	256A3544-1		. SHAFT		1
424	256A3543-1		. GEAR-WORM (OPT ITEM 425A)	C, D	1
425	256A3540-1		. GEAR ASSY-WORM	A, B	1
–425A	256A3540-1		. GEAR ASSY-WORM (OPT ITEM 424)	C, D	1
–425B	256A3543-1		DELETED		
425P	256A3540-2		. . GEAR ASSY-WORM		1
426	LGPL2SPV5-5AC		. . . BOLT (V17446) (SPEC BACB30VN5K5) (OPT LGPL2SPV5-5AC (V92215)) (OPT 81669V5K5 (V56878)) (OPT LGPL2SPV5-5AC (V56878))		5

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
427	3SLCC5		. . . COLLAR (V17446) (SPEC BACC30BK5) (OPT 3SLCC5 (V92215))		5
428	256A3541-1		. . . HUB (OPT ITEM 428A)		1
–428A	256A3541-3		. . . HUB-HOGOUT (OPT ITEM 428)		1
429	65-63860-3		. . . RIM		2
430	BAC27DCT544		. MARKER-ALUMINUM FOIL		1
435	BAC27DCT542		. MARKER-ALUMINUM FOIL	A	1
–435A	256A3195-48		. MARKER-NAMEPLATE	B	1
–435B	256A3195-57		. MARKER-NAMEPLATE	C	1
–435C	256A3195-59		. MARKER-NAMEPLATE	D	1
440	256A3195-18		. MARKER-SERIALIZED		1
445	BAC27DCT540		. MARKER-ALUMINUM FOIL, M339-TE ALTERNATE FLAP DRIVE MOTOR		1

–Item not Illustrated