COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

NOSE GEAR SHOCK STRUT ASSEMBLY

PART NUMBER 65-46200–60, –61, –62, –68, –69, –74, –76, –77, –78, –80, –81, –82, –83

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COMPONENT MAINTENANCE MANUAL

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To: All holders of NOSE GEAR SHOCK STRUT ASSEMBLY 32-21-58.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

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

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Location of Change	Description of Change
32-21-58	
FRONTMATTER	Changed the data in the TEMPORARY REVISION AND SERVICE BULLETIN RECORD list.
	Added inner cylinder bushing 65C37819-3, with a different type of thermal spray coating per PRR 35458-R.
REPAIR 1-2	Added missing flagnote 8 to flagnote 17 for repair of the outer cylinder.
REPAIR 2-1	Added inner cylinder bushing 65C37819-3, with a different type of thermal spray coating per PRR 35458-R.
REPAIR 2-2	Added inner cylinder bushing 65C37819-3, with a different type of thermal spray coating per PRR 35458-R.
	Changed reference from ''REPAIR 2-2, Figure 605'' to ''REPAIR 2-2, Figure 606''
REPAIR 10-1	Added clarifications and updated callouts.
ASSEMBLY	Changed the data in the Consumable Materials list.
	Changed consumable from ''RTV732 sealant, A50031'' to ''Dow Corning 732 multi-purpose sealant, A50031''
ILLUSTRATED PARTS LIST	Changed the data in the NUMERICAL INDEX list.
	Added clarifications and updated callouts.
	Added inner cylinder bushing 65C37819-3, with a different type of thermal spray coating per PRR 35458-R.

COMPONENT MAINTENANCE MANUAL

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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR 32797	JUN 5/84
		PRR 33107	JUN 5/84
		PRR 33180-3	JUN 5/84
		PRR 33194	JUN 5/84
		PRR 33215	JUN 5/84
		PRR 33411	JUN 5/84
		PRR 33586	SEP 5/84
		PRR 33626	DEC 5/84
		PRR 33905	MAR 5/86
	32-12		DEC 5/87
		PRR 34477	JUN 5/88
		PRR 34474	SEP 5/88
		PRR 34509	MAR 5/89
	32-18		JUN 5/91
		PRR 34939	MAR 5/93
		PRR 35005-153	DEC 01/97
		737-SL-32-083	MAR 01/01
I		PRR 35458-R	JUL 01/09

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Revision		Filed	
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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.

NOSE GEAR SHOCK STRUT ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. The strut is the main supporting member of the nose gear. Its main structural components are the inner cylinder, which includes the axle, and the outer cylinder, which attaches to the airplane structure. Internal components include a tapered metering pin, an orifice plate and support tube, and upper and lower centering cams. The inner and outer cylinders are made of high strength steel (270-300 ksi). All pinned joints are assembled with bushings or bearings.

2. Operation

A. The lower centering cam is keyed to the outer cylinder and the upper centering cam is keyed to the inner cylinder. Cam action centers the gear when the shock strut is extended. An air valve for inflating the strut is located at the top of the outer cylinder. A check valve for servicing the strut with hydraulic fluid is located on the bottom of the inner cylinder. A metering pin, connected to the inner cylinder, moves through an orifice plate supported by a tube assembly and varies the fluid flow as the strut is compressed or extended.

3. Leading Particulars (Approximate)

A. Length (extended) – 51 inches

B. Length (compressed) – 39 inches

C. Axle Length – 23 inches

D. Weight (wet) – 168 lbs

E. Weight (dry) – 164 lbs

F. Hydraulic Fluid – (Preferred) BMS 3-32 Type 1 (with corrosion inhibitor) fluid, D50022 or Type 2 (without corrosion inhibitor) fluid, D00467 (Optional) MIL-H-6083 or MIL-H-5606 and Lubrizol 1395 antifriction additive hydraulic fluid, D50090

G. Fluid Capacity – 6 pints

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.

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

C. Refer to IPL Figure 1 for item numbers.

2. Testing Equipment and Materials

NOTE: Equivalent substitutes can be used.

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00070	Fluid - Hydraulic, Petroleum Base	MIL-PRF-5606 (Replaces MIL-H-5606)
D00106	Fluid - Hydraulic, Petroleum Base, For Preservation And Operation	MIL-PRF-6083 (NATO C-635)
D00467	Fluid - Landing Gear Shock Strut	BMS3-32, Type II
D00510	Lubricant - Landing Gear Shock Strut Additive - Lubrizol 1395	
D50022	Fluid - Landing Gear Shock Strut (Specifically For Preservation)	BMS3-32, Type I
G50321	Air - Clean, Dry	BAC5402, Table I
G50322	Nitrogen - Gaseous (Auxiliary pressure source alternate)	MIL-P-27401, Type 1

B. References

Reference	Title
SOPM 20-60-03	LUBRICANTS

C. Procedure

(1) Hydraulic Fluid (SOPM 20-60-03)

(a) Preferred: fluid, D50022 (with corrosion inhibitor) or fluid, D00467 (without corrosion inhibitor). Use fluid, D50022 to fill a strut for the first time after overhaul. For refills, use fluid, D50022 or fluid, D00467 fluids.

(b) Optional: As a substitute for fluid, D50022, mix fluid, D00106 with 2.4% by volume Lubrizol 1395 lubricant, D00510 additive. As a substitute for fluid, D00467, mix fluid, D00070 with 2.4% by volume Lubrizol 1395 lubricant, D00510 additive.

(2) Compressed clean dry air, G50321 or nitrogen, G50322, controlled pressures 0-600 psi.

(3) Restraining and holding fixture for shock strut assembly.

3. Prepare for Test

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00510	Lubricant - Landing Gear Shock Strut Additive - Lubrizol 1395	
D50022	Fluid - Landing Gear Shock Strut (Specifically For Preservation)	BMS3-32, Type I

B. Procedure

(1) Put the strut shock in a vertical position (air valve on top) in a fixture which will let you extend and compress the strut.

WARNING: MAKE SURE THE PRESSURE IS RELEASED FROM THE SHOCK STRUT BEFORE YOU UNSCREW THE VALVE BODY, OR PARTS WILL SUDDENLY EJECT AND COULD CAUSE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(2) To release pressure from the shock strut, turn the swivel nut on air valve (25, IPL Figure 1) one or two turns counterclockwise. Then open the valve fully.

(3) Remove air valve (25, IPL Figure 1).

(4) Fully extend the strut and fill with minimum of 6 pints fluid, D50022. If you use the optional fluid, be sure to mix the Lubrizol 1395 lubricant, D00510 with the fluid, D50022 before you put the fluid in the strut. Do not add pure Lubrizol 1395 lubricant, D00510 additive to the strut because it is thick and if not mixed will go to the bottom of the strut and stay there. If you must add Lubrizol 1395 lubricant, D00510 to the strut, be sure to first mix it with 10 parts of fluid, D50022.

(5) Compress and extend the shock strut (unpressurized and vented) through 10 full cycles using 12-inch strokes. Finish with the strut fully compressed.

(6) Fill the strut with fluid, D50022 if necessary.

(7) Install air valve (25, IPL Figure 1).

(8) Slowly pull the outer cylinder to the fully extended position, then let it compress.

(9) Do TESTING AND FAULT ISOLATION, Paragraph 3.B.(8) five to ten more times. Look for signs of incorrect operation. If leakage occurs, operate the unit 50 more cycles.

4. Leakage Test

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
G50321	Air - Clean, Dry	BAC5402, Table I
G50322	Nitrogen - Gaseous (Auxiliary pressure source alternate)	MIL-P-27401, Type 1

B. Procedure

WARNING: MAKE SURE YOU FULLY EXTEND THE STRUT BEFORE YOU APPLY PRESSURE, OR INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT COULD OCCUR.

(1) Fully extend the strut.

(2) Slowly apply 215 psi clean dry air, G50321 or nitrogen, G50322 pressure through the valve.

WARNING: MAKE SURE YOU HAVE THE STRUT IN A VERTICAL POSITION, WITH AIR VALVE AT TOP, BEFORE YOU RELEASE PRESSURE, OR INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT COULD OCCUR.

(3) During the next 6-hour period, make sure there are no evidence of leaks or decrease of pressure. If leaks occur, refer to trouble shooting chart (TESTING AND FAULT ISOLATION, Table 101 for probable cause and correction.

NOTE: Pressure changes because of ambient temperature changes must be within plus or minus 10 psi.

(4) Gradually loosen the air valve swivel nut one or two turns counterclockwise to slowly release the air pressure.

(5) Tighten the air valve swivel nut.

5. Cam Backlash Test

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
G50321	Air - Clean, Dry	BAC5402, Table I
G50322	Nitrogen - Gaseous (Auxiliary pressure source alternate)	MIL-P-27401, Type 1

B. Procedure

WARNING: MAKE SURE YOU FULLY EXTEND THE STRUT BEFORE YOU APPLY PRESSURE, OR INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT COULD OCCUR.

(1) Fully extend the strut.

(2) Slowly apply 100-500 psi clean dry air, G50321 or nitrogen, G50322 through the valve.

WARNING: MAKE SURE YOU HAVE THE STRUT IN A VERTICAL POSITION, WITH AIR VALVE AT TOP, BEFORE YOU RELEASE PRESSURE, OR INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT COULD OCCUR.

(3) Make a check of the axle rotation as limited by the centering cams. Maximum permitted axle rotation is 2 degrees.

(4) Gradully loosen the air valve swivel nut one or two turns counterclockwise to slowly release pressure.

Table 101: Trouble Shooting Chart

TROUBLE	PROBABLE CAUSE	CORRECTION
Leakage at air valve (25)	Defective air valve	Disassemble and replace air valve (TESTING AND FAULT ISOLATION, Paragraph 6.A.(1)).
Leakage at gland nut (260)	Defective packing (210)	Disassemble and replace packing and retainers. (TESTING AND FAULT ISOLATION, Paragraph 6.A.(2)).
	Defective seal (240)	Disassemble and replace seal (TESTING AND FAULT ISOLATION, Paragraph 6.A.(3)).
Leakage at check valve (280)	Defective packing (285)	Disassemble and replace packing (TESTING AND FAULT ISOLATION, Paragraph 6.A.(4)).
Rotation of inner cylinder (305) in outer cylinder (45) in excess of 2 degrees	Worn upper cam (205) or lower cam (220)	Disassemble and replace cam (TESTING AND FAULT ISOLATION, Paragraph 6.A.(5)).

6. Corrective Procedures

A. Procedure

(1) Air valve (25) replacement.

(a) Disassemble parts per DISASSEMBLY, Paragraph 4.A., and DISASSEMBLY, Paragraph 4.B. of DISASSEMBLY. Check valve and replace if necessary.

(2) Packing (210) replacement.

(a) Disassemble parts per DISASSEMBLY, Paragraph 4.A. thru DISASSEMBLY, Paragraph 4.E. of DISASSEMBLY.

(b) Replace packing (210) and retainers (215).

(c) Reassemble parts per ASSEMBLY and retest for leakage.

(3) Seal (240) replacement.

(a) Disassemble parts per DISASSEMBLY, Paragraph 4.A. thru DISASSEMBLY, Paragraph 4.E. of DISASSEMBLY.

(b) Replace seal (240).

(c) Reassemble parts per ASSEMBLY and retest for leakage.

(4) Packing (285) replacement.

(a) Release pressure from shock strut per DISASSEMBLY, Paragraph 4.A. of DISASSEMBLY.

(b) Remove check valve (280) and replace packing (285).

(c) Reassemble parts per ASSEMBLY and retest for leakage.

(5) Cam (205) or (220) replacement.

(a) Disassemble parts per DISASSEMBLY, Paragraph 4.A. thru DISASSEMBLY, Paragraph 4.F.(3) or DISASSEMBLY, Paragraph 4.F.(5) of DISASSEMBLY.

(b) Replace cam (205) or (220).

(c) Reassemble parts per ASSEMBLY and retest for cam backlash and leakage.

DISASSEMBLY

1. **General**
   A. This procedure has the data necessary to disassemble the nose gear shock strut 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 IPL Figure 1 for item numbers.
2. **Equipment**

   NOTE: Equivalent substitutes may be used.

   A. Pin Spanner Adapter Assembly – F80012-1 Pin Spanner Adapter Assembly, SPL-5425
   B. Pin Spanner Adapter Assembly – F80013-1
   C. Orifice Tube Extension – F80160-1
3. **Part Replacement (IPL Figure 1)**

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

   A. Lockwire
   B. Packings (150, 210, 285, 355, 365)
   C. Retainers (155, 215, 360, 370)
   D. Seals (240)
   E. Nuts (5, 50)
4. **Disassembly (IPL Figure 1)**

   WARNING: FAILURE TO RELIEVE ALL AIR FROM THE SHOCK STRUT ASSEMBLY BEFORE STARTING DISASSEMBLY MAY RESULT IN INJURY TO PERSONNEL OR DAMAGE TO PARTS.

   A. Release air pressure from shock strut by turning swivel nut on air valve (25) one or two turns counterclockwise; then open valve fully.
   B. Remove air valve (25).
   C. Drain hydraulic fluid either by inverting strut or removing check valve (280).
   D. Mount unit in stand or fixture for disassembly.
   E. Remove inner cylinder from outer cylinder.
      (1) Remove sealant from gland nut lock (20), gland nut (260) and nut (290).
      (2) Remove nuts (5), washers (10), bolts (15) and lock (20).
      (3) Remove locknut (30), tanged washer (35) and lockwasher (40).

      CAUTION: GLAND NUT AND OUTER CYLINDER MAY HAVE REWORKED (UNDERSIZE) THREADS AND THUS BE MATCHED PARTS.

      (4) Install orifice tube extension F80160-1 in hole for air valve.

      CAUTION: FAILURE TO MAINTAIN RELATIVE ALIGNMENT WHEN REMOVING INNER CYLINDER FROM OUTER CYLINDER MAY RESULT IN DAMAGE TO PARTS.

      (5) Remove gland nut (260) from outer cylinder using adapter assembly F80013-1.

(6) Slowly withdraw inner cylinder (305) from outer cylinder (45), pushing on extension F80160-1 to force support tube (395) out of outer cylinder.

F. Remove external parts from inner cylinder.

(1) Remove retainer ring (170) and move bearing (165) against upper bearing retainer ring (160) to remove spacers (175).

(2) Remove retainer ring (160), upper bearing (165) and shims (180, 185, 190).

(3) Remove upper cam (205) and piston ring (195).

NOTE: Keys (200) may fall out during cam removal.

(4) Remove keys (200).

(5) Remove lower cam (220), retainers (215) and packing (210).

(6) Remove seal (240).

(7) Remove lower bearing (245) and seals (240).

(8) Remove adapter (255), ring (250) and gland nut (260).

G. Remove internal parts from inner cylinder (305).

(1) Remove check valve (280), packing (285), nut (290), and washers (295, 300).

(2) Remove support tube (395) with attached parts from inner cylinder (320).

(3) Remove retainers (155) and packing (150) from support tube (395).

(4) Remove lockwire, screws (380) and plate locks (385) for orifice plate (390).

(5) Remove orifice plate (390) from support tube (395) using adapter assembly Pin Spanner Adapter Assembly, SPL-5425.

(6) Remove piston ring (375).

(7) Remove metering pin assembly (330) from inner cylinder (320).

(8) Remove bolt (335) and unscrew support tube (340) from metering pin (345) to release drain tube (350).

(9) Remove retainers (360, 370) and packings (355, 365).

H. Remove nuts (50), washers (55), bolts (65), and steering plates (70, 75).

NOTE: Steering plates are a matched set with the outer cylinder.

I. Remove nuts (105), washers (110, 115, 120), spacers (125) and bolts (130).

J. Remove seals (135), straps (140) and nameplate (145).

K. Remove pin (85) from outer cylinder (80).

(NOT APPLICABLE)

CHECK

1. General

A. This procedure has the data necessary to do a complete check of the the nose gear shock strut assembly.

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

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

2. Check

A. References

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

B. Procedure

(1) Examine all parts for obvious defects by standard industry practices.

CAUTION: THE GLAND NUT AND OUTER CYLINDER THREADS COULD BE UNDERSIZE. THEN THE GLAND NUT AND OUTER CYLINDER MUST BE IDENTIFIED TO TELL YOU THIS AND KEPT TOGETHER AS A SET.

(2) Examine the threads for the gland nut at the lower end of outer cylinder (21) for corrosion. After removal of defects, threads are acceptable if a minimum of 50% of thread bearing surface remains and defects are not concentrated in any quarter segment across all threads. Refer to REPAIR for more details.

CAUTION: THE 65-46228-SERIES LOWER CAM (220) COULD HAVE MACHINED TABS TO GO WITH THE UNDERSIZE OUTER CYLINDER AND GLAND NUT THREADS.

(3) Examine the curved contours of the upper and lower cams (205, 220, IPL Figure 1), for scored or gouged metal on mating surfaces.

CAUTION: INNER CYLINDER COULD HAVE UNDERSIZE AXLE THREADS THAT MUST BE USED WITH SPECIAL UNDERSIZE WHEEL RETAINER NUT 69-77849-SERIES (REF 32-21-38).

(4) Examine the inner cylinder axle threads for nicks, burrs, defects and wear. Measure the thread pitch diameter and the major diameter and compare them with the axle thread diameters shown in FITS AND CLEARANCES, Figure 801 (Sheet 4). A PTG Threadsnap tool is recommended. Be sure to use the correct tool for the thread size.

NOTE: A Johnson CHF/PD thread measuring system (or equivalent) can be used as an option to measure the thread pitch diameter, but a separate set of pitch diameter rollers and a master thread plug gage is necessary for each size of thread. The plug gage is used to set the dial indicator of the measuring system before you measure the threads. The major diameter can be measured with a micrometer.

(5) Examine all pin and bolt shanks for excessive wear. Carefully examine the area around lubrication and pin retention holes for hairline cracks.

(6) Magnetic particle examine (SOPM 20-20-01) these parts (IPL Figure 1):

(a) Lock (20, 385)

(b) Nut (30)

(c) Washer (40)

(d) Bolt (65)

(e) Cylinder (80, 320)

(f) Cam (205, 220)

(g) Nut Assembly (260)

(h) Pin (345)

(i) Plate (390)

(j) Stem (400)

(7) Penetrant examine (SOPM 20-20-02) these parts (IPL Figure 1):

(a) Plate (70, 75)

(b) Pin (85)

(c) Ring (160, 195, 375)

(d) Bearings (165, 245, 245A)

(e) Spacer (175)

(f) Shims (180,185,190)

(g) Cam (220A)

(h) Adapter (255)

(i) Tube (340, 350, 410)

REPAIR

1. Content

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

Table 601:

P/N	NAME	REPAIR
65-46210	CYLINDER, OUTER	1-1, 1-2, 1-3, 1-4
65-46215	CYLINDER, INNER	2-1, 2-2, 2-3
65-46219	PIN, METERING	3-1
65-46221	NUT, GLAND	4-1
65-46227	CAM, UPPER	5-1
65-46228	CAM, LOWER	6-1
65-46229	TUBE, SUPPORT	7-1
69-73038	TUBE, ORIFICE SUPPORT	8-1
69-74637	BOLT, STEERING PLATE	9-1
- -	MISC PARTS REFINISH	10-1
BAC27DLG0110	MARKER	11-1
BAC27DLG0137	MARKER	11-1
65C31706	CAM, LOWER	12-1
69-65393	BEARING, UPPER	13-1
69-43201	BEARING, LOWER	14-1
69-76508	BEARING, LOWER	15-1

2. Standard Practices

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

- SOPM 20-00-00 Introduction
- 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 20-10-05 Application and Finishing of Thermal Spray Coatings
- SOPM 20-10-09 Machining of Copper Beryllium Alloy
- SOPM 20-30-02 Stripping of Protective Finishes
- SOPM 20-30-03 General Cleaning Procedures
- SOPM 20-41-01 Decoding Table for Boeing Finish Codes
- SOPM 20-41-02 Application of Chemical and Solvent Resistant Finishes
- SOPM 20-42-03 Hard Chrome Plating
- SOPM 20-42-05 Bright Cadmium Plating

- SOPM 20-43-01 Chromic Acid Anodizing
- SOPM 20-44-01 Application of Special Purpose Coatings and Finishes
- SOPM 20-50-02 Installation of Safetying Devices
- SOPM 20-50-03 Bearing and Bushing Replacement
- SOPM 20-50-04 Installation of Permanent Pins and Plugs in Drill Passages
- SOPM 20-50-05 Application of Aluminum Foil and other Markers
- SOPM 20-50-19 General Sealing
- SOPM 20-60-01 Cleaning Materials
- SOPM 20-60-02 Finishing Materials
- SOPM 20-60-03 Lubricants
- 32-00-02 Landing Gear Attachment Parts - Topcoat Application
- 32-00-03 Landing Gear Parts - Lubrication Fitting Replacement
- 32-00-05 Repair of High Strength Steel Landing Gear Parts

3. Materials

NOTE: Equivalent substitutes can be used.

A. Corrosion Preventive Compound – BMS 3-27 compound, C00913 (SOPM 20-60-02)

B. Corrosion Preventive Compound – BMS 3-38 compound, C50056 (SOPM 20-60-02)

C. Corrosion Preventive Compound – MIL-C-11796, Class 1 compound, C50001 or MIL-C-16173 compound, B50080 (SOPM 20-60-02)

D. Enamel – BMS 10-11, Type 2 enamel coating, C00260 (SOPM 20-60-02)

E. Enamel – BMS 10-60, Type 1, black enamel coating, C00032 (SOPM 20-60-02)

F. Enamel – BMS 10-60, Type 1, color 707 gray gloss enamel coating, C00700 (SOPM 20-60-02)

G. Enamel – BMS 10-60, Type 1, yellow enamel coating, C00032 (SOPM 20-60-02)

H. Grease – BMS 3-33 grease, D00633 or MIL-PRF-23827 (which replaces MIL-G-23827) grease, D00013 (SOPM 20-60-03)

I. Hydraulic Fluid – BMS 3-32, Type 1 fluid, D50022 (SOPM 20-60-03)

J. Hydraulic Fluid – BMS 3-32, Type 2 fluid, D00467 (SOPM 20-60-03)

K. Hydraulic Fluid – MIL-PRF-5606 (which replaces MIL-H-5606) fluid, D00070 (SOPM 20-60-03)

L. Hydraulic Fluid – MIL-PRF-6083 (which replaces MIL-H-6083) fluid, D00106 (SOPM 20-60-03)

M. Lubricant – Lubrizol 1395 lubricant, D00510 (SOPM 20-60-03)

N. Primer – BMS 10-11, Type 1 primer, C00259 (SOPM 20-60-02)

O. Protective Finish – Type 41 clear coating, B00571 (SOPM 20-60-02)

P. Sealant – BMS 5-95 sealant, A00247 (SOPM 20-60-04)

Q. Solvent – ASTM D740 (which replaces TT-M-261) technical grade methyl ethyl ketone, B50046 (SOPM 20-60-01)

R. Thermal Spray – BMS 10-67, Type 1 flame spray coating, G00167 (SOPM 20-10-05)

S. Thermal Spray – BMS 10-67, Type 17 coating, G50026 (SOPM 20-10-05)

4. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in applicable repair procedures are shown in SOPM 20-00-00.

CYLINDER ASSEMBLY, OUTER - REPAIR 1-1

65-46210–29, –30, –31, –32, –35, –36, –37

1. General

A. This repair gives the data that is necessary to replace the bushings in the cylinder assembly, outer.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer toREPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

E. Refer to IPL Figure 1 for item numbers.

2. Bushing Replacement (REPAIR 1-1, Figure 601)

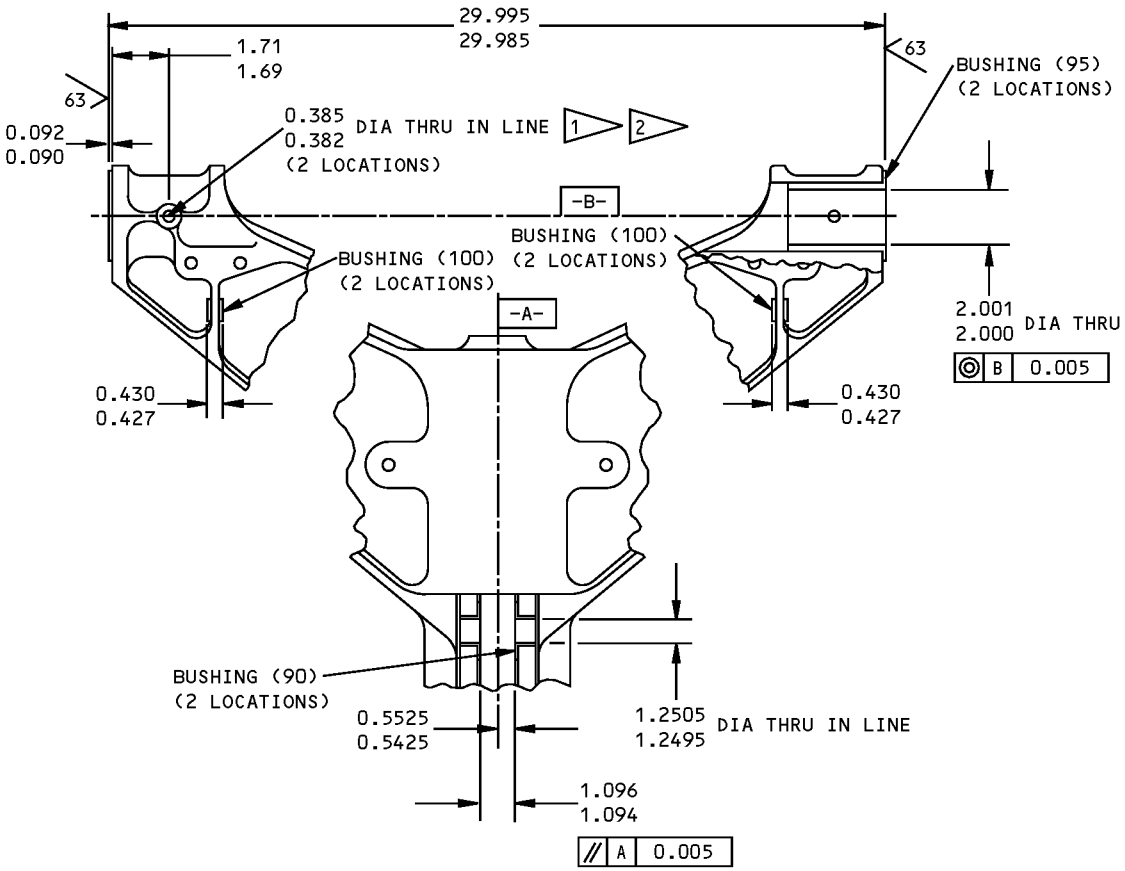
A. Remove bushings (90, 95, 100).

B. If corrosion or damage exists on lug faces or hole surfaces, refer to REPAIR 1-2 for repair instructions.

C. Install replacement bushings by the shrink-fit method per SOPM 20-50-03, but install them with wet sealant, A00247.

D. Check dimensions and machine as necessary.

E. Seal the bushing flanges and the gap beteen the bushings, if there is one, with sealant, A00247 per SOPM 20-50-19.



1 ON CENTER LINE OF 2.000 DIA HOLE WITHIN 0.004 AND PERPENDICULAR TO CENTER LINE OF 2.000 DIA HOLE WITHIN 0.005 IN 10 INCHES

2 AS AN OPTION, DRILL TWO 0.49-0.51 DIA HOLES 180 DEGREES APART IN BUSHING (95) BEFORE INSTALLATION

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

65-46210-29,-30,-31,-32,-35,-36,-37 Bushing Replacement
Figure 601

CYLINDER, OUTER - REPAIR 1-2

65C25676–1, –2

1. General

A. Use this procedure to repair the lug faces and holes in outer cylinder (80).

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in this procedure.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair figures.

E. Refer to IPL Figure 1 for item numbers.

2. Lug Faces and Holes (REPAIR 1-2, Figure 601)

NOTE: For repair of surfaces which is only replacement of the original finish, refer to the REFINISH instructions in REPAIR 1-4.

A. Method 1 - Chrome or Nickel Plate Buildup (Lug Faces Only)

NOTE: No chrome or nickel plate buildup is permitted in lug bores.

(1) Machine as necessary, within repair limits, to remove defects.

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

(3) As applicable, chrome plate (SOPM 20-42-03) or nickel plate (SOPM 20-42-09) and grind (chrome plate) (SOPM 20-10-04) or machine (nickel plate) (SOPM 20-10-02) the surfaces to design dimensions and finish. Chrome plate thickness must not be more than 0.015 inch after grinding.

B. Method 2 - Installation of Oversize Bushings or Repair Sleeves

(1) Machine as necessary, within repair limits, to remove defects.

(2) Shot peen (SOPM 20-10-03), cadmium-titanium plate (SOPM 20-42-02) and apply primer, C00259.

(3) Make bushings or sleeves (REPAIR 1-2, Figure 602 thru REPAIR 1-2, Figure 604) as necessary to adjust for the amount of material removed.

(4) Install the bushings as specified in REPAIR 1-1.

(5) Install the repair sleeves by the shrink-fit method as specified in SOPM 20-50-03 with wet sealant, A00247 applied thinly to the bores of the holes. Sleeves must be 0.000-0.005 inch below the surface of the outer cylinder structure. Fill all gaps between the sleeve and the edge of the hole with sealant, A00247.

(6) Drill a 0.217-0.224 inch diameter hole through the trunnion sleeves with the existing trunnion holes as guides.

(7) Machine to design dimensions and finish.

C. Repairs to Holes 3 and 9

(1) If the wall thickness between holes 3 and 9 is less than 0.030 inch and there is no breakthru hole, drill a 0.30-0.31 inch diameter breakthru hole.

(2) For all repairs to holes 3 and 9, break sharp edges to a radius of 0.02-0.03 inch and then shot peen (SOPM 20-10-03). After shot peening, examine the intersection of holes 3 and 9 for defects. Keep a surface finish of 63 microinches.

D. Lug Face 12 Repair

(1) Machine as necessary, within repair limits, to remove defects.

(2) Use shims made from 15-5PH or 17-4PH CRES. Cadmium-titanium plate (SOPM 20-42-02) or stylus cadmium (SOPM 20-42-10) the shims and the mating surfaces of outer cylinder (80). Apply primer, C00259 to outer cylinder (80) and to each side of the shims. Bond the shims to the outer cylinder with sealant, A00247. Restoration to designs dimensions is only necessary on the forward face that is adjacent to holes 9.

E. Hole 9 - Preferred Counterbore Repair

(1) Machine each end of hole 9 as necessary, within repair limits, to remove defects. The diameter of the counterbore must be at least 0.030 inch larger than the diameter of hole 9 for the repair sleeve to stay in its position.

(2) Shot peen (SOPM 20-10-03), cadmium-titanium plate (SOPM 20-42-02) and apply primer, C00259.

(3) Make forward and aft repair sleeves (REPAIR 1-2, Figure 602) as necessary to adjust for the amount of material removed.

(4) Install the repair sleeves by the shrink-fit method (SOPM 20-50-03) with compound, C50056 or compound, C00913.

(a) For inboard hole 9, use sealant, A00247 if there is a breakthru hole.

(b) Install the sleeves 0.00-0.02 inch below the surface of the outer cylinder structure.

(5) Machine the repair sleeves to the design dimensions and finish.

(6) If there is a breakthru hole on outboard hole 9, fill the hole with compound, C50056 or compound, C00913 before bushing installation in hole 3.

(7) If there is a breakthru hole on inboard hole 9, put a tag on this cylinder with a note to fill the hole with sealant, A00247 when the door operator bracket assembly (305 in CMM 32-21-38, IPL Fig. 1) is installed.

F. Hole 9 - Optional Single Sleeve Repair

(1) Machine as necessary, within repair limits, to remove defects.

(2) Shot peen (SOPM 20-10-03), cadmium-titanium plate (SOPM 20-42-02) and apply primer, C00259.

(3) Make repair sleeves (REPAIR 1-2, Figure 605) as necessary to adjust for the amount of material removed.

(4) Install the repair sleeve by the shrink-fit method (SOPM 20-50-03) with compound, C50056 or compound, C00913.

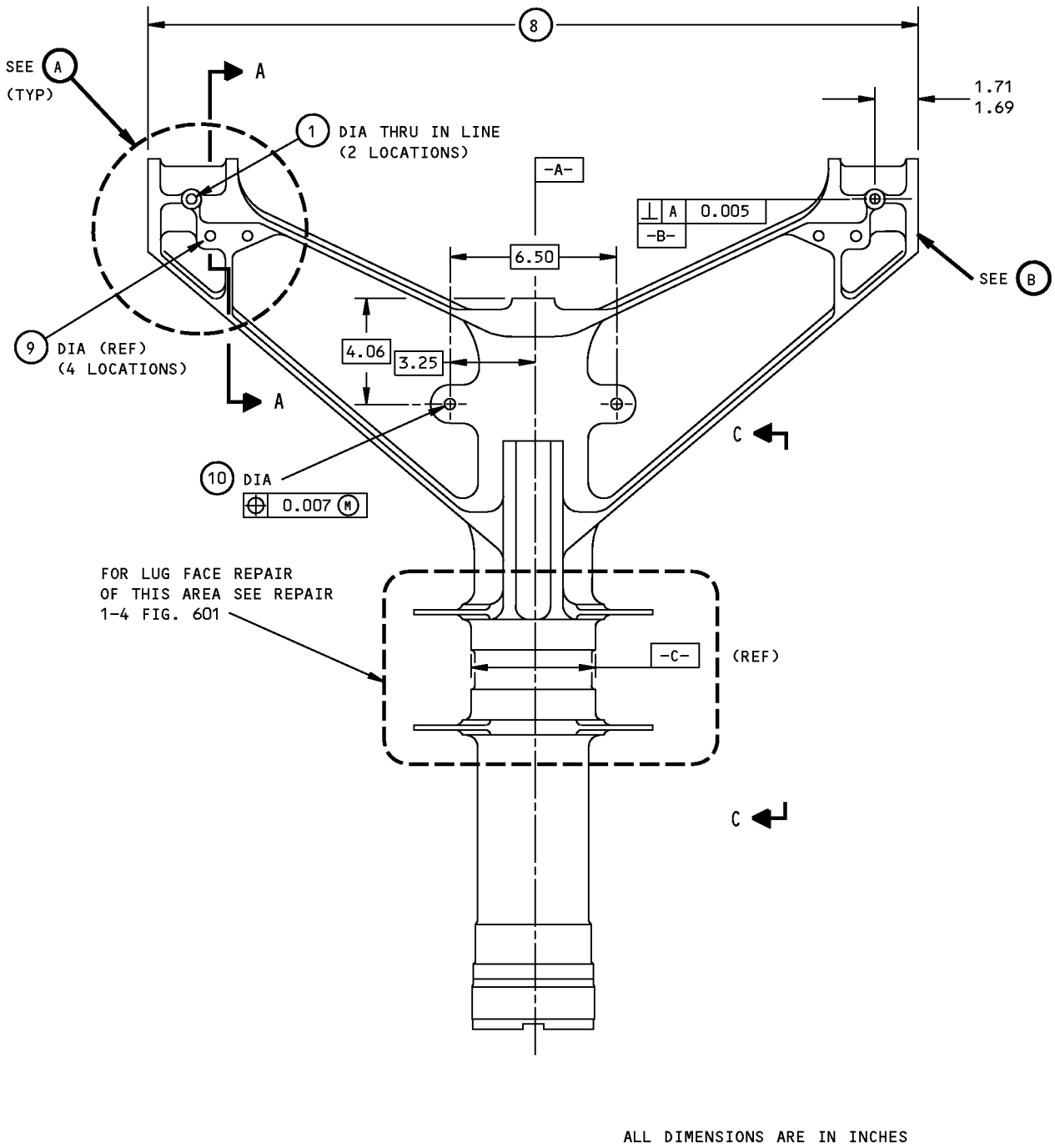
(a) For the inboard hole 9, use sealant, A00247 if there is a breakthru hole.

(b) Install the repair sleeve with the forward end of the sleeve towards the forward side of the outer cylinder. The sleeve must be 0.000-0.005 inch below the surface of the outer cylinder. If the sleeve interferes with hole 3, ream the sleeve through the trunnion bore.

(5) Machine the repair sleeve to design dimensions and finish.

(6) If there is a breakthru hole on outboard hole 9, fill the hole with compound, C50056 or compound, C00913 before bushing installation in hole 3.

(7) If there is a breakthru hole on inboard hole 9, put a tag on this cylinder with a note to fill the hole with sealant, A00247 when the door operator bracket assembly (305 in CMM 32-21-38, IPL Fig. 1) is installed.



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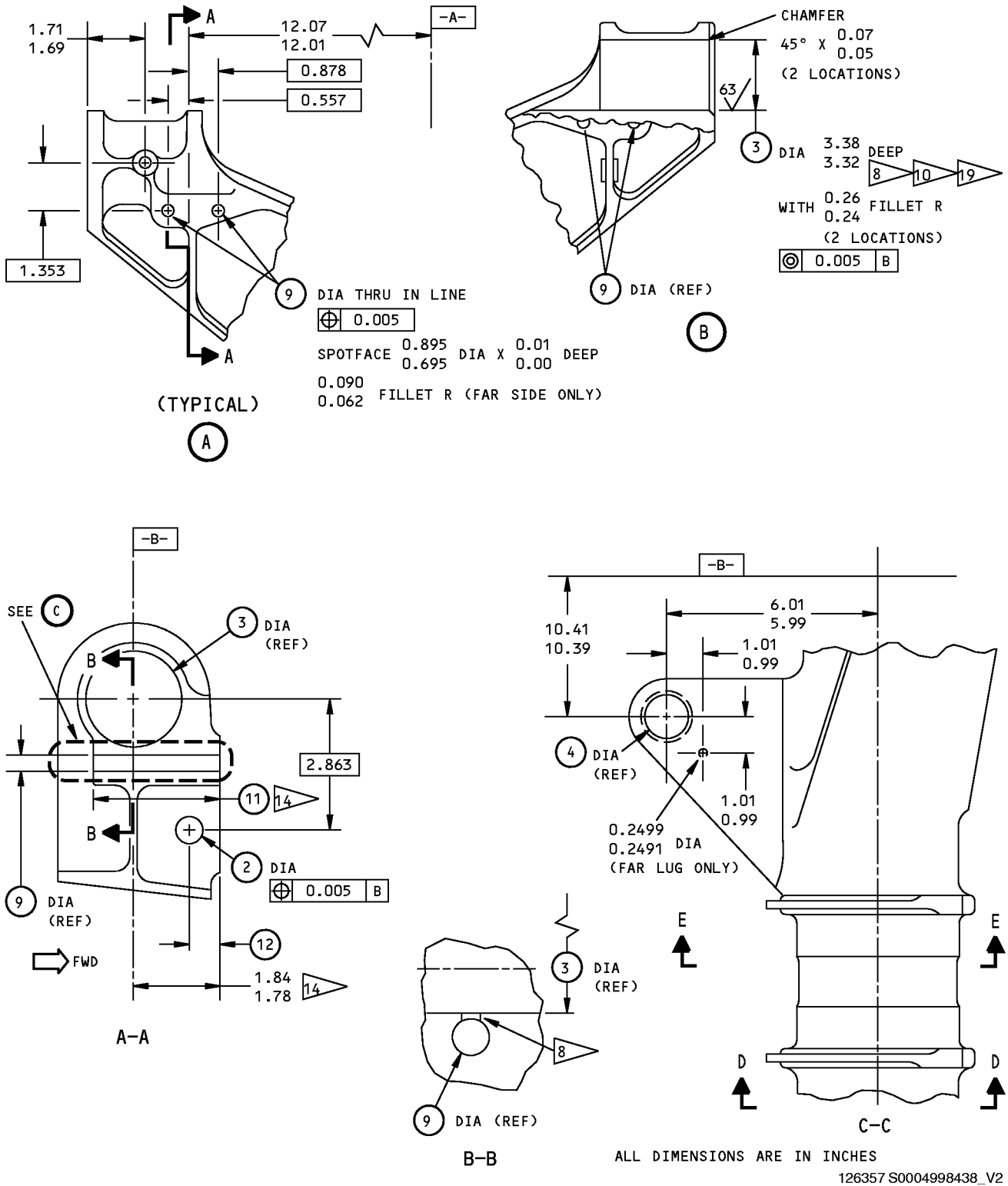
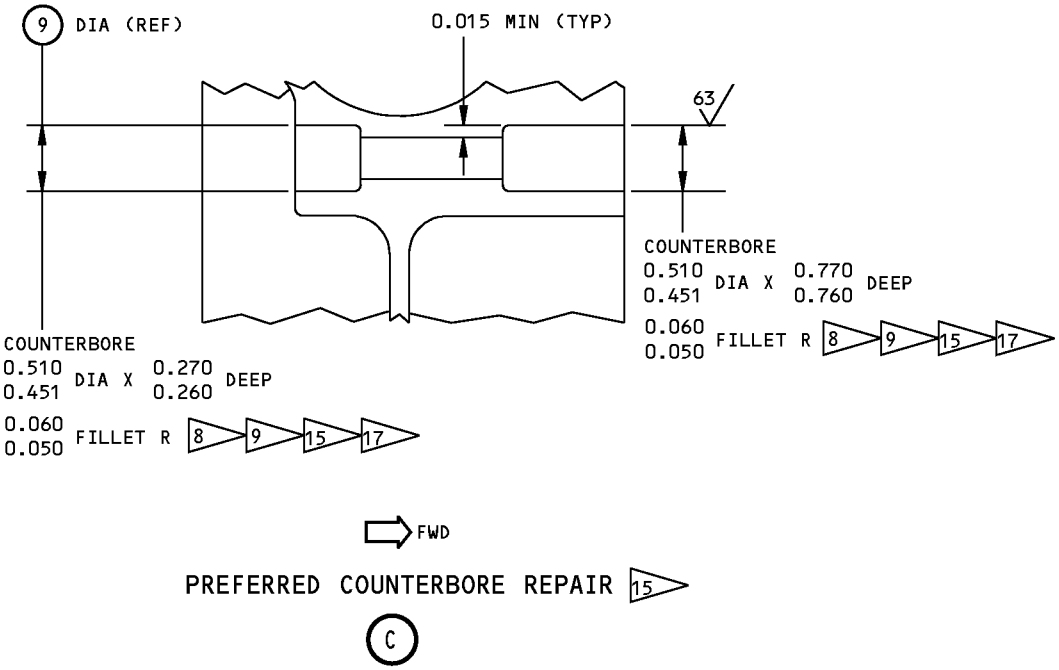
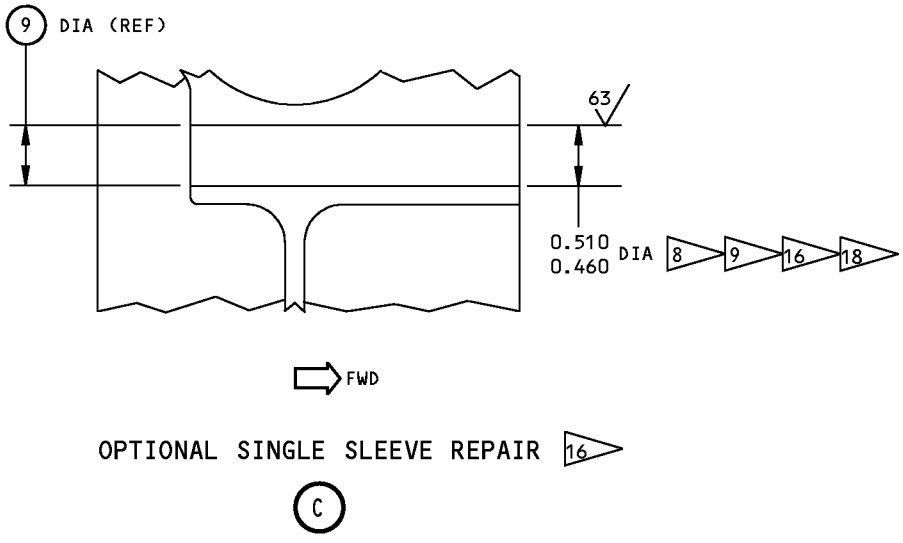
65C25676-1,-2 Outer Cylinder Lug Face and Hole Repair
Figure 601 (Sheet 1 of 6)



65C25676-1,-2 Outer Cylinder Lug Face and Hole Repair
Figure 601 (Sheet 2 of 6)





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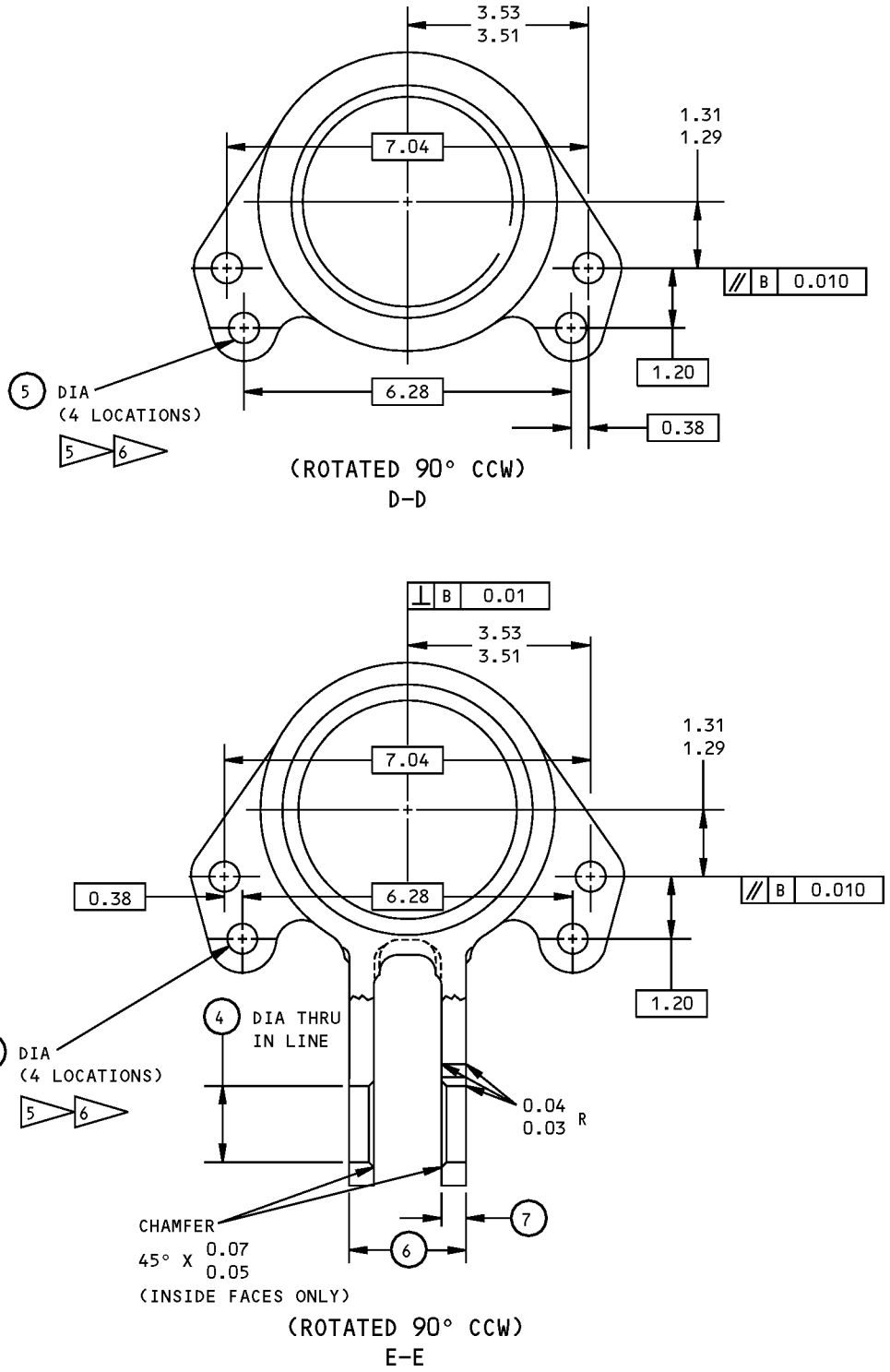
65C25676-1,-2 Outer Cylinder Lug Face and Hole Repair
Figure 601 (Sheet 3 of 6)



ALL DIMENSIONS ARE IN INCHES

65C25676-1,-2 Outer Cylinder Lug Face and Hole Repair
Figure 601 (Sheet 4 of 6)

REFERENCE NUMBER	(1)	(2)	(3) 8	(4)	(5)	(6)	(7)	(8)	(9) 8
DESIGN DIMENSION	0.385 0.382	0.5631 0.5625	2.1890 2.1882	1.438 1.437	0.5634 0.5625	2.290 2.280	0.515 0.505	29.815 29.805	0.391 0.387
REPAIR LIMIT	0.482 2, 9	0.665 1	2.275 1, 10	1.498 1	0.8500 2, 9	2.250 3, 4 2.250 4, 7	0.480 1, 4 0.480 3, 4 0.480 4, 7	29.710 1	0.480 12 0.510 9, 11 15, 16 17, 18

REFERENCE NUMBER	(10)	(11)	(12)
DESIGN DIMENSION	0.261 0.257	2.820 2.700	0.655
REPAIR LIMIT	0.560 2, 9	2.645 13, 14	0.600 13

REFINISH

FOR REFINISH INSTRUCTIONS, REF REPAIR 1-4

1. LIMIT FOR INSTALLATION OF OVERSIZE BUSHING
2. LIMIT FOR INSTALLATION OF REPAIR SLEEVE
3. LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH. MAXIMUM CHROME PLATE THICKNESS 0.015 AFTER GRINDING FACES
4. LUG FACE MACHINING REQUIREMENTS:
   1. MATERIAL REMOVED FROM ANY FACE MUST NOT BE MORE THAN HALF THE DIFFERENCE BETWEEN THE DESIGN DIMENSION AND REPAIR LIMIT
   2. FLAT SURFACE MUST BE MINIMUM OF 0.02 LARGER THAN FLANGE DIA OF BUSHING TO BE INSTALLED
   3. BLEND MISMATCH STEPS TO 0.18-0.26 RADIUS, OR IF WITHIN 0.10 OF LUG FILLET RADIUS, USE SAME RADIUS AS LUG FILLET. BREAK SHARP EDGES 0.03-0.07 R
5. BREAK EDGES 0.01-0.02 R
6. SHOT PEEN OPTIONAL
7. LIMIT FOR SULFAMATE NICKEL PLATE BUILDUP AND MACHINE TO DESIGN DIMENSIONS AND FINISH
8. IF THE WALL THICKNESS BETWEEN HOLES 3 AND 9 IS LESS THAN 0.030 AND THERE IS NO BREAKTHRU HOLE, DRILL A 0.30-0.31 DIAMETER BREAKTHRU HOLE. BREAK SHARP EDGES TO A RADIUS OF 0.02-0.03
9. CHAMFER INSTALLED SLEEVE ID 45° X $^{0.02}_{0.01}$ AFTER REAMING TO FINAL DIAMETER
10. DEPTH OF HOLE 3 MINUS AMOUNT REMOVED FROM LUG FACE

126360 S0004998440_V3

65C25676-1,-2 Outer Cylinder Lug Face and Hole Repair
Figure 601 (Sheet 5 of 6)

11 LIMIT FOR INSTALLATION OF REPAIR SLEEVES. SCRAP THE PART IF IT IS NOT WITHIN THE REPAIR LIMIT. SEE 15 FOR THE PREFERRED REPAIR. SEE 16 FOR THE OPTIONAL REPAIR

12 LIMIT FOR THROUGH HOLE. RESTORATION OF THROUGH HOLE IS NOT NECESSARY. IF THE HOLE DIAMETER IS LARGER THAN THE REPAIR LIMIT, RETURN IT TO DESIGN DIMENSIONS WITH THE SINGLE SLEEVE REPAIR IN 16

13 LIMIT FOR INSTALLATION OF 15-5PH OR 17-4PH CRES SHIMS. CADMIUM-TITANIUM PLATE (SOPM 20-42-02) OR STYLUS CADMIUM PLATE (SOPM 20-42-10) THE SHIMS AND MATING SURFACES OF THE OUTER CYLINDER. APPLY BMS 10-11, TYPE 1 PRIMER TO THE OUTER CYLINDER AND EACH SIDE OF THE SHIMS. BOND THE SHIMS WITH BMS 5-95 SEALANT. RESTORATION IS ONLY NECESSARY ON THE FORWARD FACE THAT IS ADJACENT TO THE DIAMETER 9 HOLES

14 USE THE SHIM REPAIR IN 13 TO KEEP THIS DIMENSION WITHIN THE REPAIR LIMITS SET FOR HOLES 11 AND 12

15 PREFERRED COUNTERBORE REPAIR: THE DIAMETER OF THE COUNTERBORE MUST BE A MINIMUM OF 0.030 LARGER THAN THE DIAMETER OF THE THROUGH HOLE FOR THE REPAIR SLEEVE TO STAY IN ITS POSITION. INSTALL THE REPAIR SLEEVES AS SPECIFIED IN 17

16 OPTIONAL SINGLE SLEEVE REPAIR: IF THE SLEEVE INTERFERES WITH HOLE 3, REAM THE SLEEVE THROUGH THE TRUNNION BORE. INSTALL THE REPAIR SLEEVE AS SPECIFIED IN 18

17 INSTALL THE FORWARD AND AFT REPAIR SLEEVES BY THE SHRINK FIT METHOD WITH BMS 3-38 OR BMS 3-27 COMPOUND. IF THERE IS A BREAKTHRU HOLE (SEE 8) ON THE INBOARD HOLE 9, INSTALL THE REPAIR SLEEVES WITH BMS 5-95 SEALANT OR EQUIVALENT. THE REPAIR SLEEVES MUST BE 0.00-0.02 BELOW THE SURFACE OF THE HOLE

18 INSTALL THE FORWARD END OF THE REPAIR SLEEVES IN THE FORWARD SIDE OF THE OUTER CYLINDER BY THE SHRINK FIT METHOD WITH BMS 3-38 OR BMS 3-27 COMPOUND. IF THERE IS A BREAKTHRU HOLE (SEE 8) ON THE INBOARD HOLE 9, INSTALL THE REPAIR SLEEVE WITH BMS 5-95 SEALANT OR EQUIVALENT. THE REPAIR SLEEVES MUST BE 0.000-0.005 BELOW THE SURFACE OF THE HOLE

19 BEFORE BUSHING INSTALLATION IN HOLE 3, BUT AFTER REPAIR SLEEVE INSTALLATION IN HOLE 9, FILL THE OUTBOARD BREAKTHRU HOLES WITH BMS 3-38 OR BMS 3-27 COMPOUND

REPAIR

REF 1 THRU 4 AND 7 THRU 19

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.05-0.07 R UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.017-0.046 SHOT SIZE
0.010-0.016 A2 INTENSITY

MATERIAL: 4340M STEEL (270-300 KSI)

ALL DIMENSIONS ARE IN INCHES

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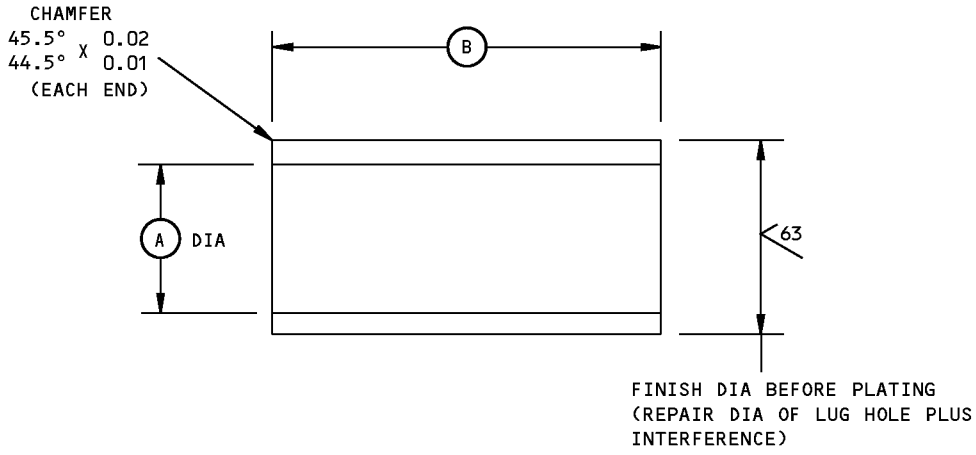
65C25676-1,-2 Outer Cylinder Lug Face and Hole Repair
Figure 601 (Sheet 6 of 6)



HOLE LOCATION (FIG. 601)	A	B	INTER-FERENCE
1	0.38 0.36	1	0.0013 0.0003
5	0.53 0.51	0.200 0.195	0.0018 0.0005
9 FWD	0.385 0.365	0.750 0.745	0.0013 0.0003
9 AFT	0.385 0.365	0.250 0.245	0.0013 0.0003
10	0.255 0.245	1	0.0018 0.0005

1 ADJUST LENGTH OF SLEEVE TO FIT FLUSH WITH OR 0.005 MAX BELOW SURFACE OF LUG.

REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06)(OPTIONAL ON INTERNAL SURFACES)

MATERIAL: AL-NI-BRZ, AMS 4640

ALL DIMENSIONS ARE IN INCHES

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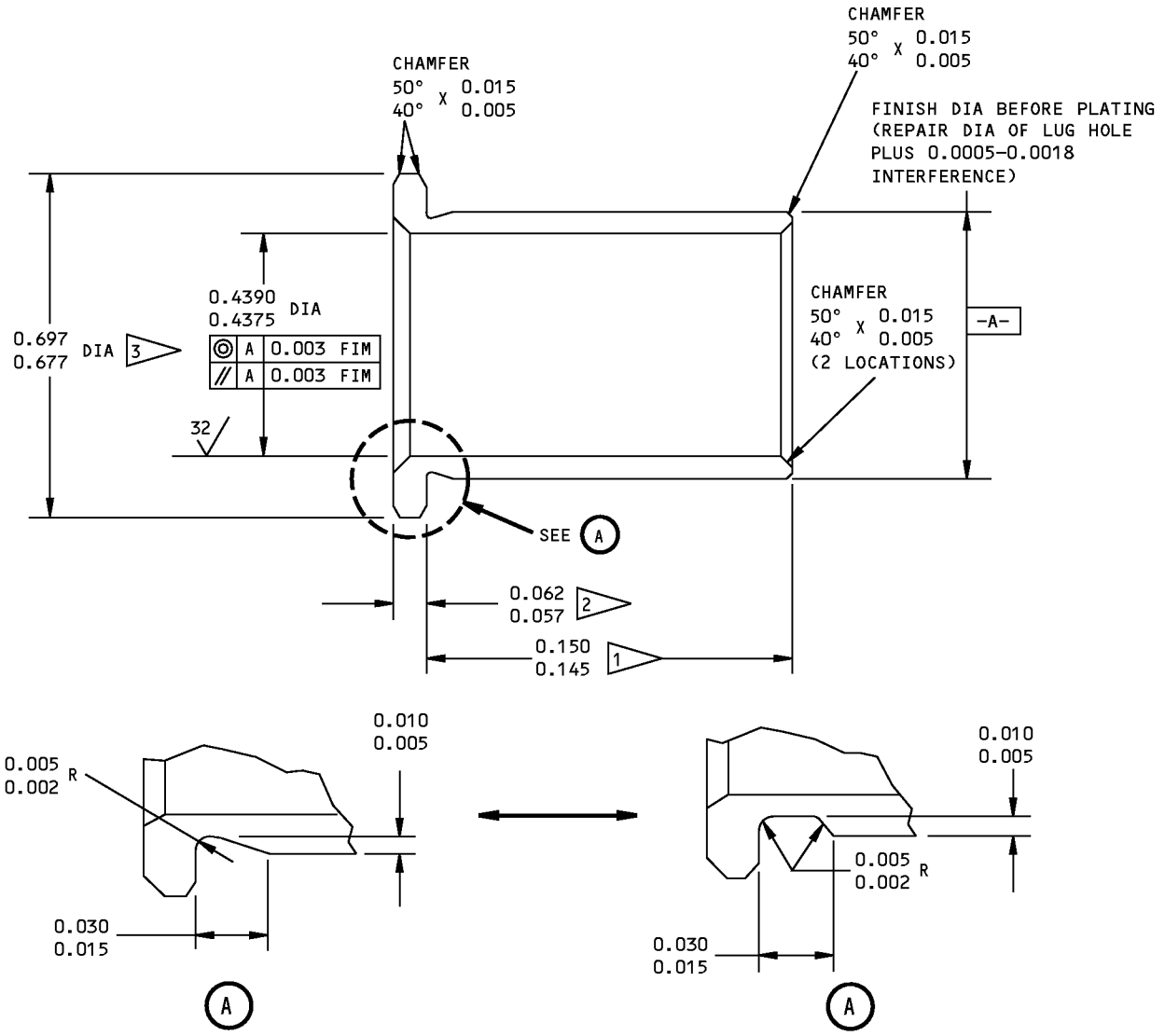
Repair Sleeve Details
Figure 602



REPAIR

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

CADMIUM PLATE (F-15.06) (0.0003-0.0005 THICK) (OPTIONAL ON INTERNAL SURFACES)

MATERIAL: AL-NI-BRZ, AMS 4640 OR QQ-C-465 ALLOY NO. 630

ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

3 PLUS AMOUNT OF BORE INCREASE

HOLE LOCATION (2) FIG. 601 - REPLACES BUSHING (100) BACB28X7M015

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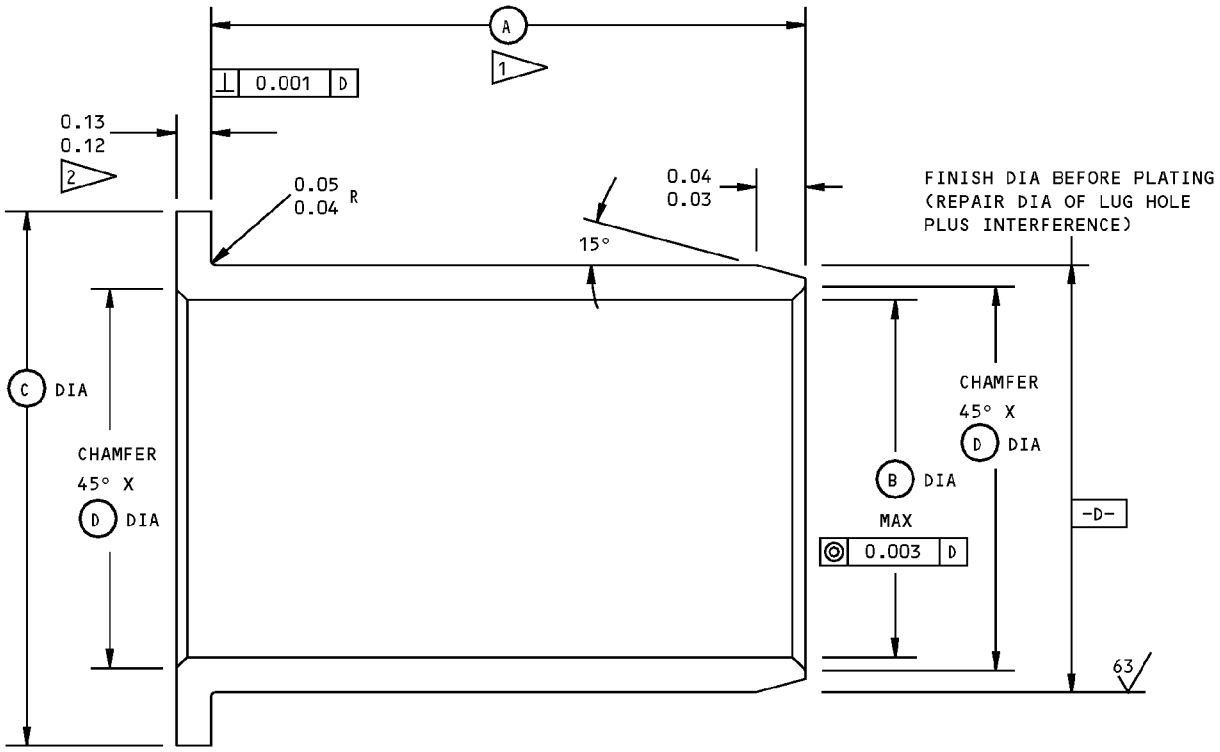
Oversize Bushing Details
Figure 603



HOLE LOCATION (FIG. 601)	REPLACES BUSHING (IPL FIG. 1)	A	B MAX	C	D	INTER-FERENCE
3	95 65-46150-3	3.26 3.24	1.969	2.76 2.74	2.06 2.04	0.0028 0.0010
4	90 65-46150-4	0.485 0.480	1.219	1.89 1.87	1.31 1.29	0.0022 0.0006

REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

CADMIUM PLATE (F-15.06)(0.0003-0.0005 THICK) (OPTIONAL ON INTERNAL SURFACES)

MATERIAL: AL-NI-BRZ, AMS 4640

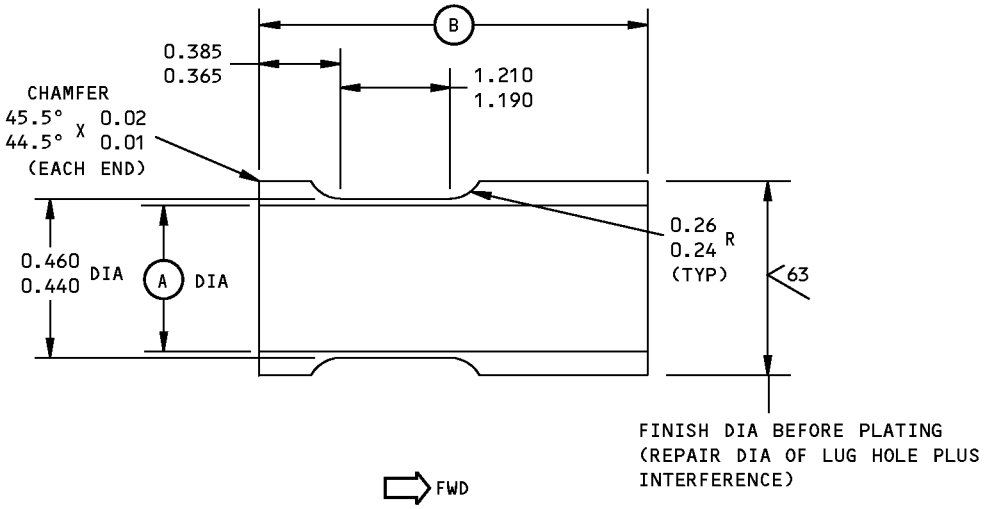
ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

Oversize Bushing Details
Figure 604



HOLE LOCATION (FIG. 601)	A	B	INTER-FERENCE
9	0.340 0.320	1	0.0013 0.0003

REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06)(OPTIONAL ON INTERNAL SURFACES)

MATERIAL: AL-NI-BRZ (AMS 4640)

ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

1 ADJUST LENGTH OF SLEEVE TO FIT FLUSH WITH OR 0.005 MAX BELOW SURFACE OF LUG.

1644953 S0000300912_V1

Repair Sleeve Details
Figure 605

STEERING PLATE - REPAIR 1-3

65-46210–23, –24, –28, –33, –34, –38

1. General

A. Use this procedure to repair the steering plate.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects shown in the repair.

C. Refer toREPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair figures.

E. Refer to IPL Figure 1 for item numbers.

2. Lug Holes (REPAIR 1-3, Figure 601)

A. Machine as necessary, within repair limits, to remove defects.

B. Chemical treat the machined surfaces.

C. Make repair sleeves (REPAIR 1-3, Figure 602) as necessary to adjust for the material removed.

D. Install the sleeves by the shrink-fit method (SOPM 20-50-03), flush with or 0.005 inch maximum below the surface of the plate.

E. Install the steering plate on the outer cylinder. Machine the sleeves to agree with the lug holes in the outer cylinder.

F. Chemical treat the machined surfaces.

3. Bearing Mounting Holes (REPAIR 1-3, Figure 601)

A. Method No. 1

(1) Machine as necessary, within repair limits, to remove defects.

(2) Chemical treat the machine surfaces.

(3) Make repair sleeves (REPAIR 1-3, Figure 603) as necessary to adjust for the material removed.

(4) Install the repair sleeves by the shrink-fit method (SOPM 20-50-03).

(5) Install the steering plates on the outer cylinder. Machine the sleeves to design dimensions and finish.

(6) Chemical treat the machined surfaces.

B. Method No. 2

(1) Machine the hole completely through, within repair limits, to remove defects.

(2) Machine a spotface in the outer face, within repair limits, to remove defects.

(3) Chamfer the bore at the outer face.

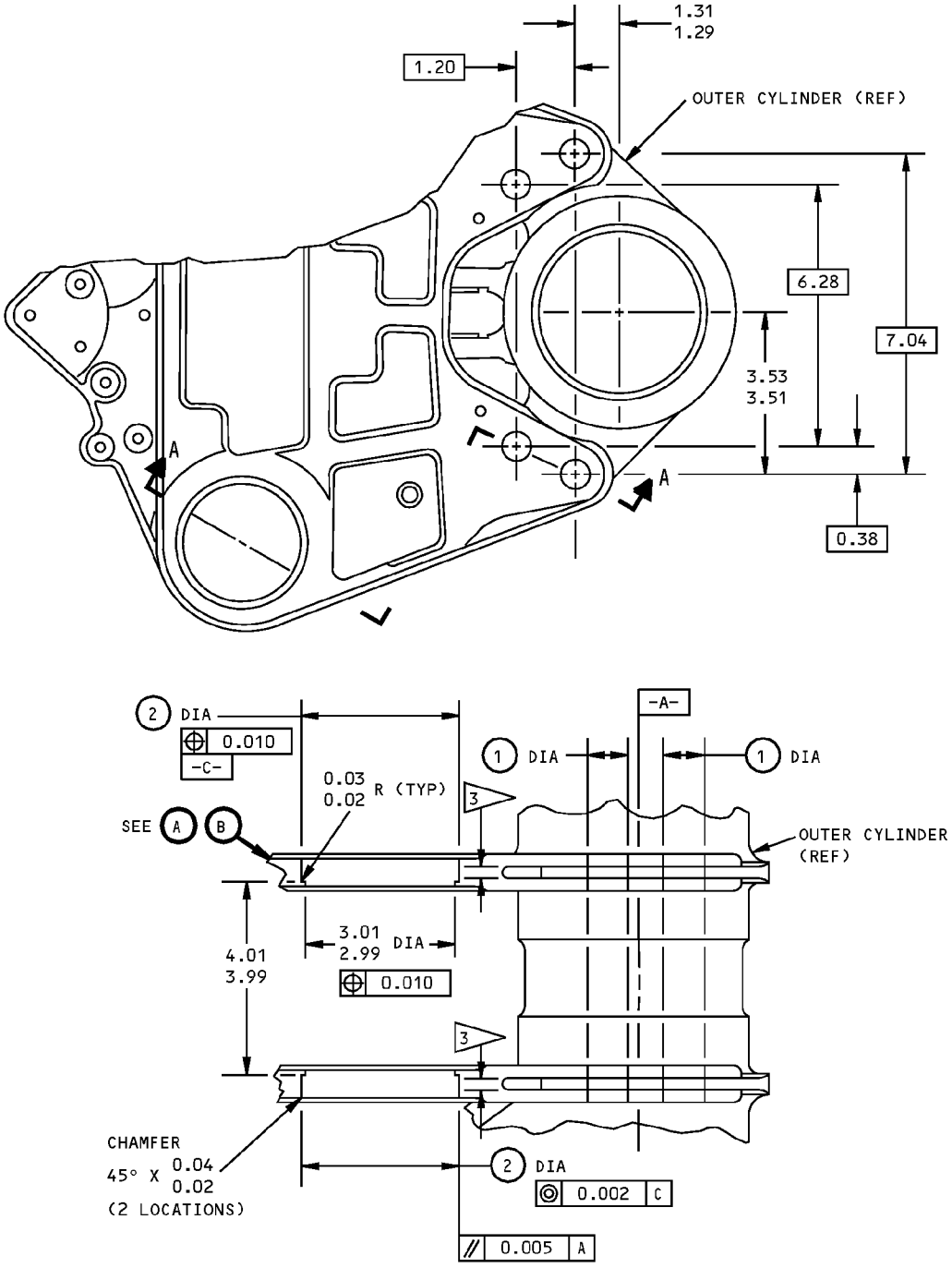
(4) Chemical treat the machined surfaces.

(5) Make repair sleeves (REPAIR 1-3, Figure 604) as necessary to adjust for the material removed.

(6) Install the sleeves by the shrink-fit method (SOPM 20-50-03).

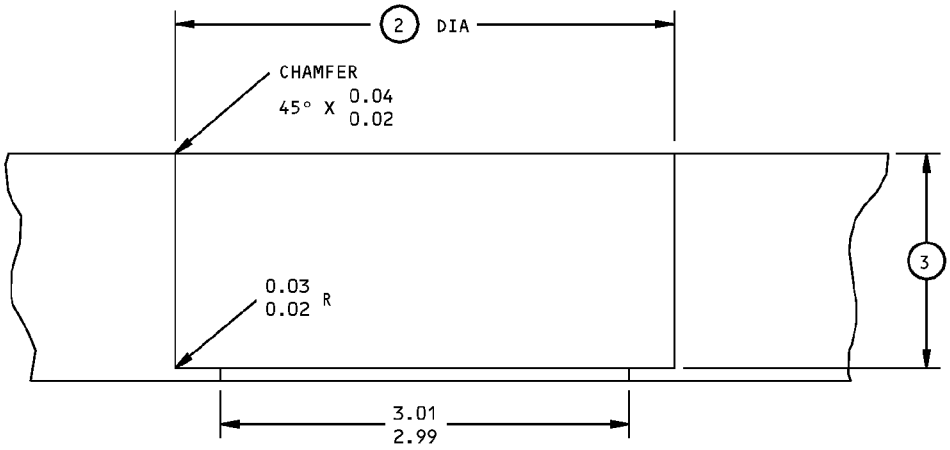
(7) Install the steering plates on the outer cylinder. Machine the sleeves to design dimensions and finish.

(8) Chemical treat the machined surfaces.

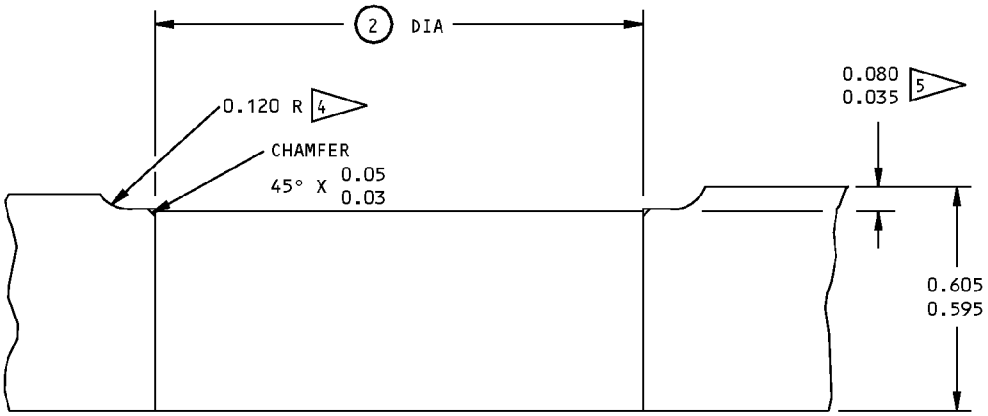


ALL DIMENSIONS ARE IN INCHES

65-46210-23,-24,-28,-33,-34,-38 Lug Face and Hole Repair
Figure 601 (Sheet 1 of 3)



A



B

ALL DIMENSIONS ARE IN INCHES

65-46210-23,-24,-28,-33,-34,-38 Lug Face and Hole Repair
Figure 601 (Sheet 2 of 3)

LOCATION	(1)	(2)	(3)
DESIGN DIM	0.5634 0.5625	3.201 3.200	0.510 0.490
REPAIR LIMIT ▷1	0.850	3.320	0.530

REFINISH

CHROMIC ACID ANODIZE AND APPLY ONE COAT BMS 10-11, TYPE 1, PRIMER (F-18.13). APPLY BMS 10-60, COLOR 707 GRAY GLOSS ENAMEL (F-14.9813, WICH REPLACES SRF-14.9813). OMIT PAINT (PRIMER AND ENAMEL) IN ALL HOLES.

REPAIR

REF ▷1 ▷4 ▷5

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL EDGES 0.03 R MAX

SHOT PEEN: 0.023-0.053 SHOT SIZE
0.010 A2 INTENSITY

MATERIAL: 7075 AL ALLOY

ALL DIMENSIONS ARE IN INCHES

▷1 REPAIR LIMIT FOR INSTALLATION OF REPAIR SLEEVES

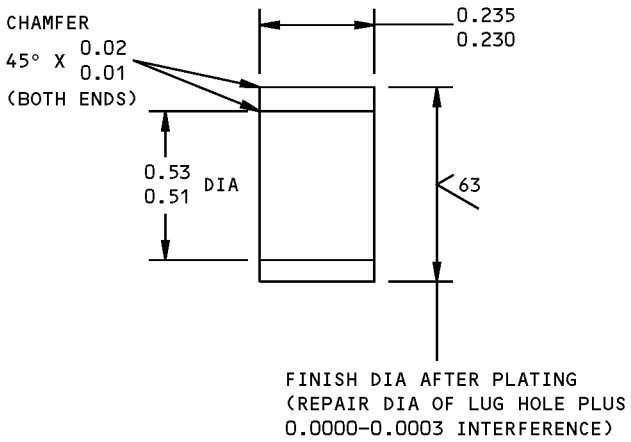
▷2 NO PRIMER OR ENAMEL THESE SURFACES

▷3 NO PRIMER OR ENAMEL ON SLOT IN STEERING PLATE

▷4 BLEND WITH ORIGINAL SPOT FACE RADIUS (AT 4.50 DIA) AS APPLICABLE. THE RADIUS DOES NOT GO AROUND ALL OF THE BORE

▷5 REPAIR DEPTH

65-46210-23,-24,-28,-33,-34,-38 Lug Face and Hole Repair
Figure 601 (Sheet 3 of 3)



REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

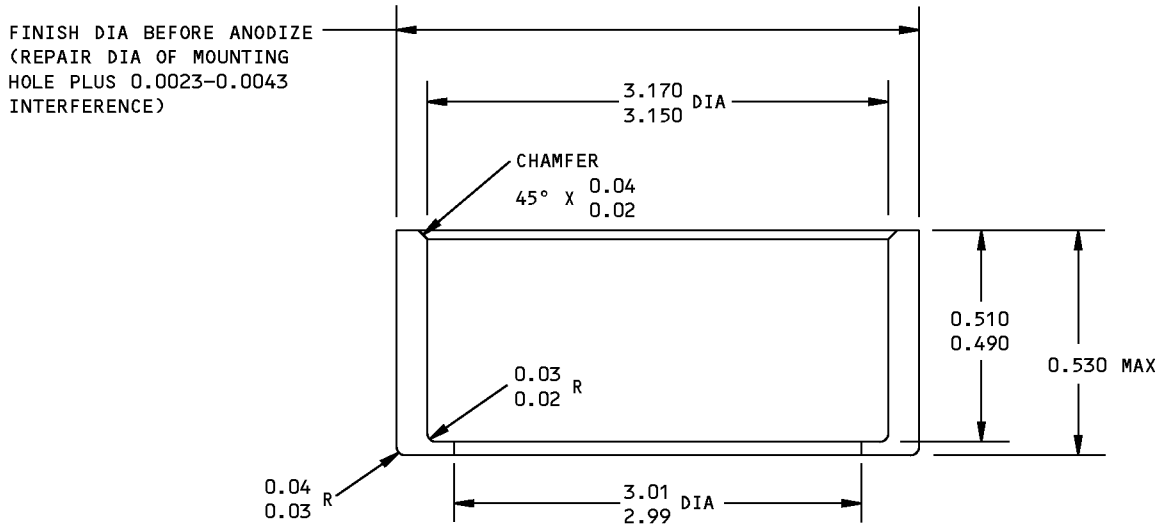
CADMIUM PLATE (F-15.06) EXTERIOR SURFACES

MATERIAL: AL-NI-BRZ (AMS 4640)

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (1)

Repair Sleeve Details
Figure 602



REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

MATERIAL: 7075-T6 OR 7075-T651 OR 7075-T6511 AL ALLOY

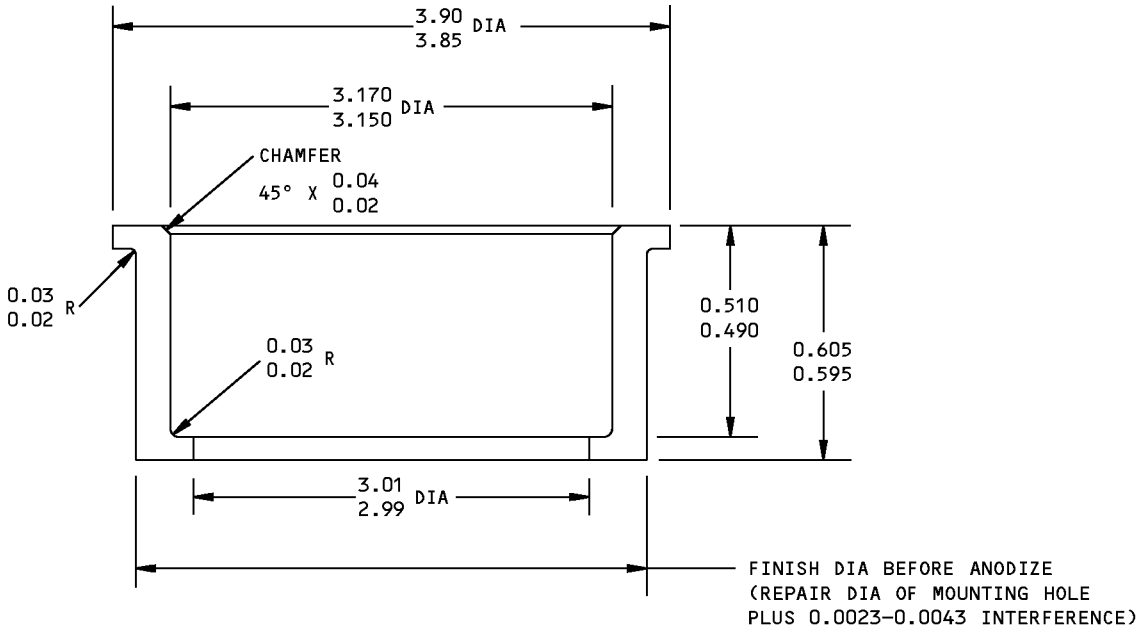
FINISH: CHROMIC ACID ANODIZE (F-17.20 OR F-17.04)

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (2) REPAIR METHOD NO. 1

126371 S0004998449_V2

Repair Sleeve Details
Figure 603



REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

MATERIAL: 7075-T6 OR 7075-T651 OR 7075-T6511 AL ALLOY

FINISH: CHROMIC ACID ANODIZE (F-17.20 OR F-17.04)

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (2) REPAIR METHOD NO. 2

126372 S0004998450_V2

Repair Sleeve Details
Figure 604

OUTER CYLINDER - REPAIR 1-4

65C25676–1, –2

1. General

A. This repair gives the data that is necessary to repair the outer cylinder.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

E. Refer to IPL Figure 1 for item numbers.

2. Barrel (REPAIR 1-4, Figure 601)

A. Machine as required, within repair limits, to remove defects.

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

C. Build up with chrome (SOPM 20-42-03) or nickel (SOPM 20-42-09) plate or thermal spray (SOPM 20-10-05) as indicated. Grind the chrome plate or thermal spray coating (SOPM 20-10-04) , and machine the nickel plate (SOPM 20-10-01), to design dimensions and finish.

D. Chrome plate thickness must not be more than 0.015 inch after grinding. Thermal spray thickness must not be more than 0.010 inch after grinding.

3. Threads for Gland Nut (REPAIR 1-4, Figure 601)

CAUTION: IF YOU CUT THESE THREADS UNDERSIZE, MAKE SURE TO IDENTIFY THIS ON THE CYLINDER. MAKE SURE YOU USE THE CORRECT GLAND NUT.

A. Blend out defects in the threads if the damage is not more than 50% of the thread bearing surface and if the blends will be on not more than 50% of the threads in any 3-inch segment circumferentially. You can do this blend repair on original or undersize threads.

B. For repair of damage more than these limits, if the threads are not the smallest undersize, cut the threads to a smaller size (UNJS-3A) as shown. Use special gland nut (260C thru 260F) with threads to agree. Identify the cylinder and the nut as matched parts as shown.

C. If the threads are at the smallest undersize and damage or necessary repair is more than the limits of REPAIR 1-4, Paragraph 3.A., remove the cylinder from service.

4. Cam Locking Slot (REPAIR 1-4, Figure 601)

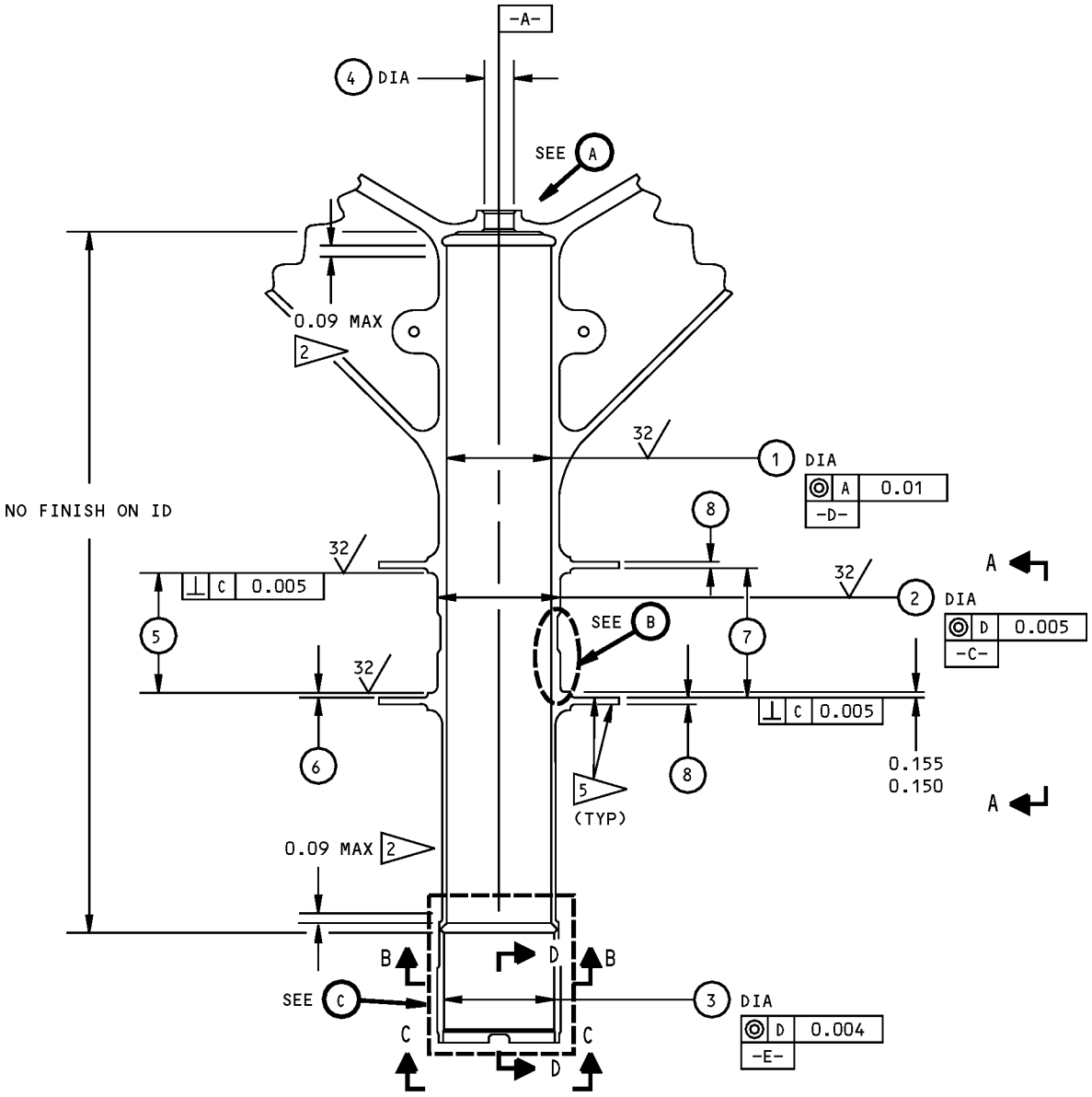
A. Machine as required, within repair limits, to remove defects.

B. Shot peen as indicated.

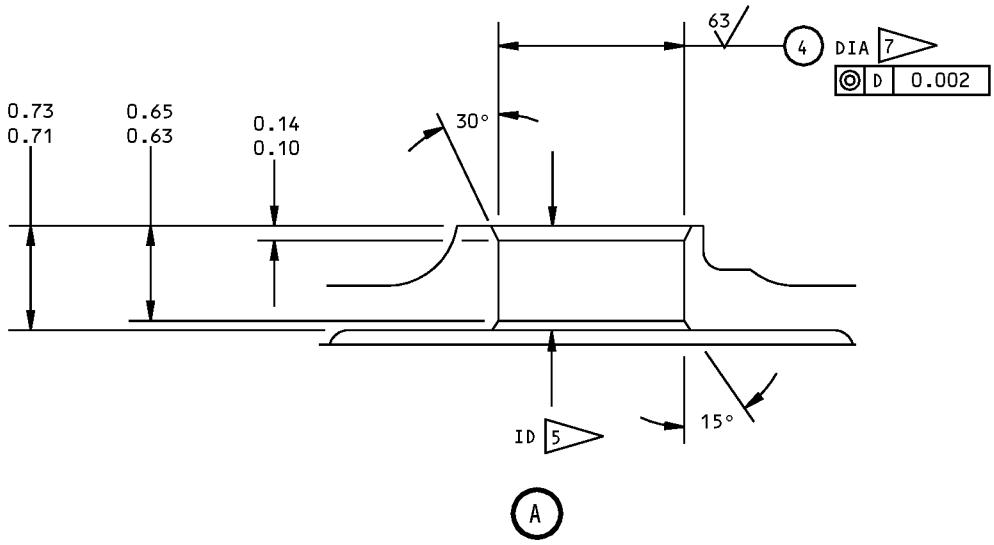
C. Cadmium-titanium plate (SOPM 20-42-02). Apply primer, C00259 and enamel coating, C00260.

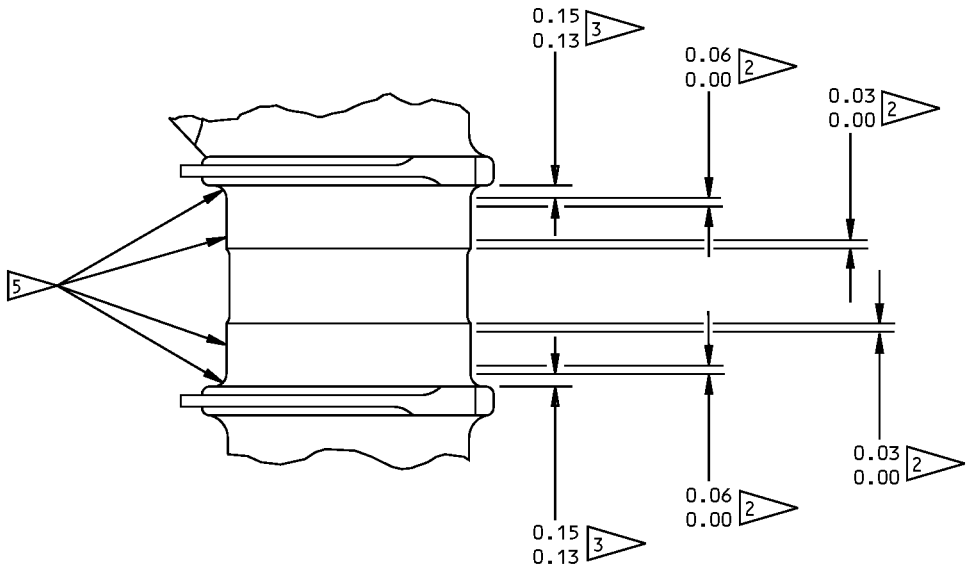
D. Get a special lower bearing (245B), which comes with oversized locking tabs, and machine as shown in REPAIR 1-4, Figure 602.

E. Identify the outer cylinder and this bearing as a matched set and that they are nonstandard parts.

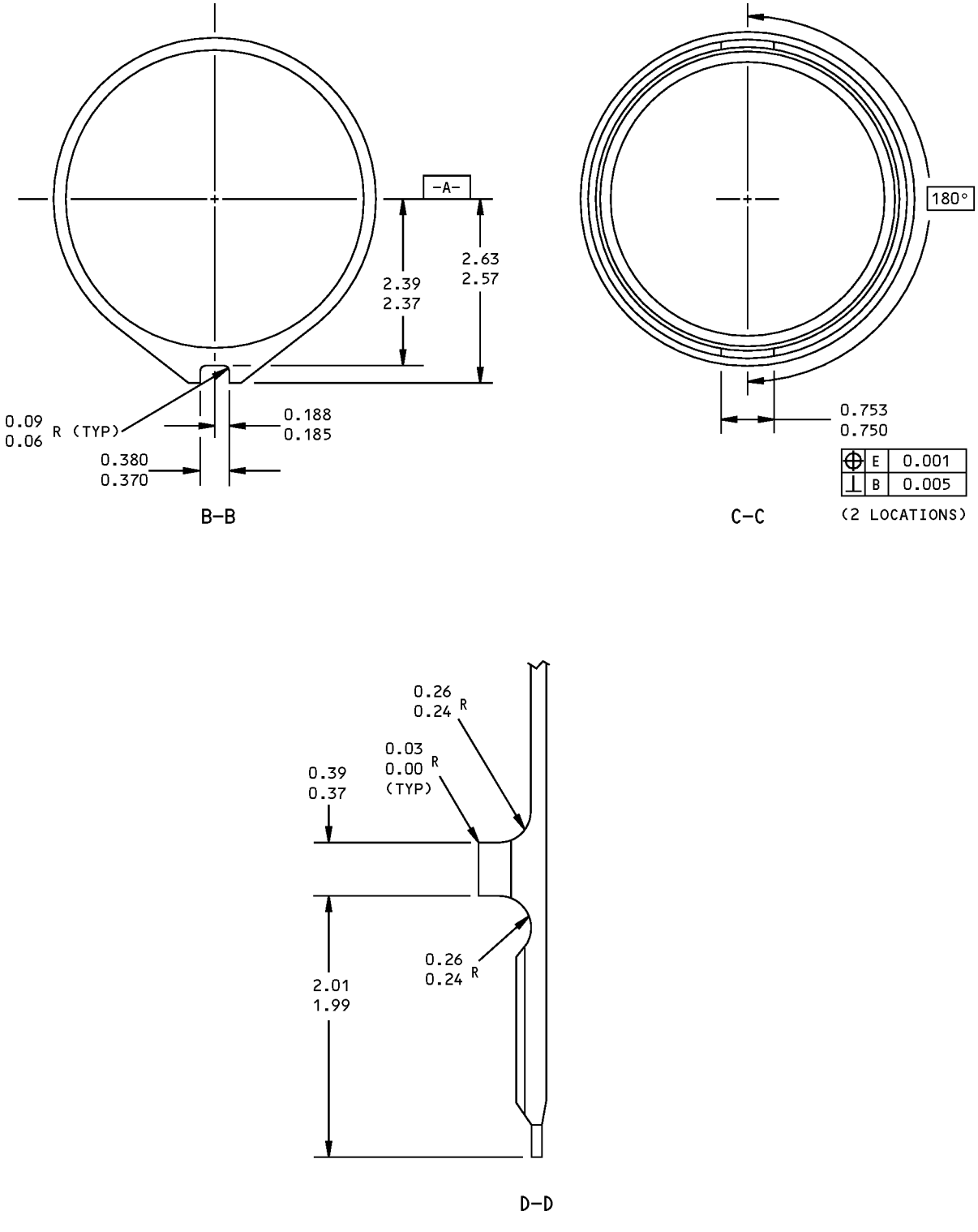


65C25676-1,-2 Barrel Repair
Figure 601 (Sheet 1 of 7)

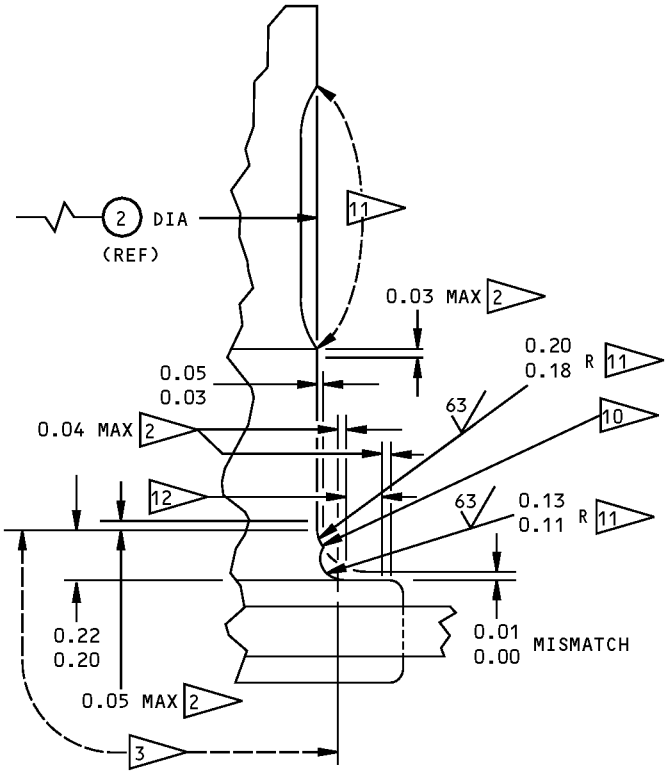


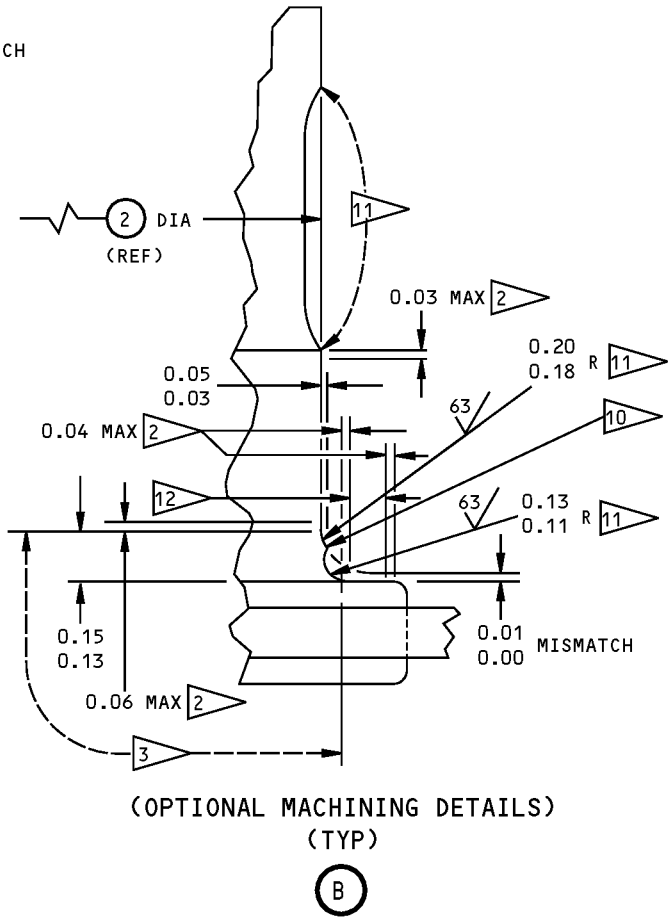


65C25676-1,-2 Barrel Repair
Figure 601 (Sheet 2 of 7)

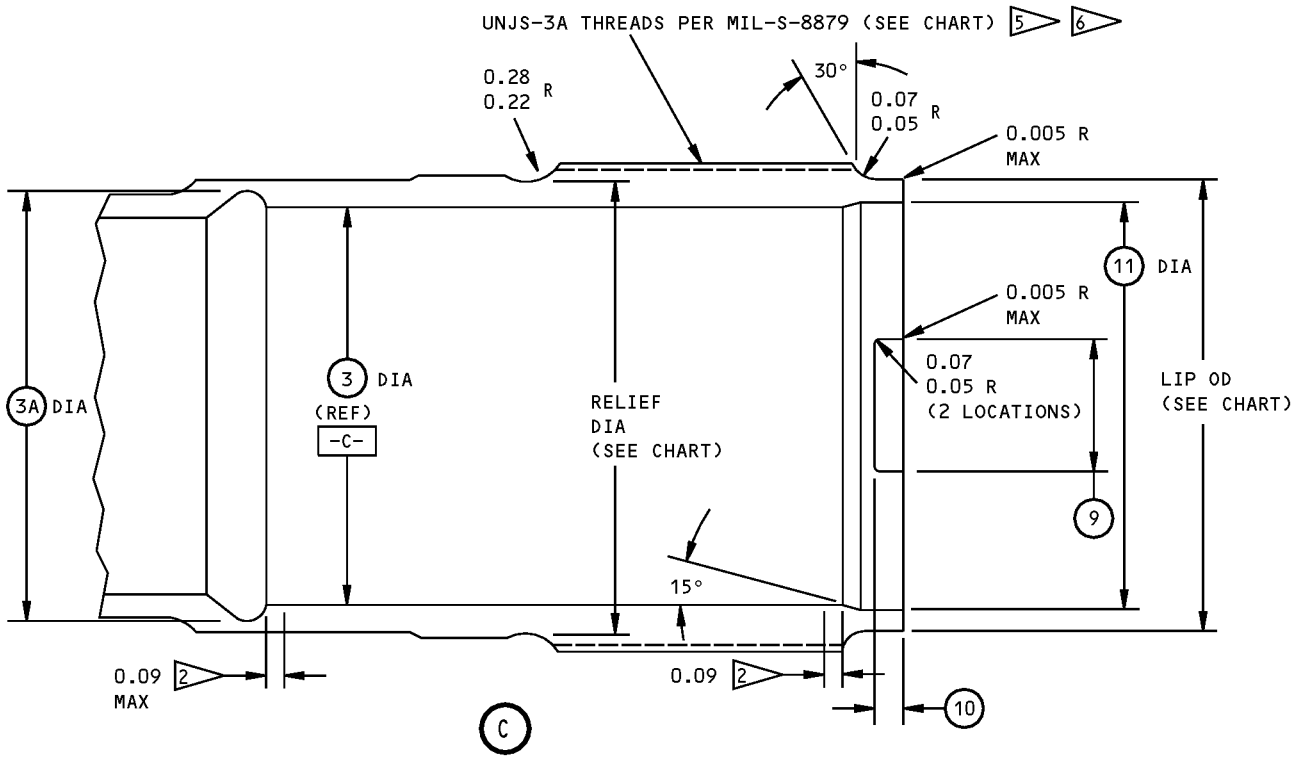


65C25676-1,-2 Barrel Repair
Figure 601 (Sheet 3 of 7)





65C25676-1,-2 Barrel Repair
Figure 601 (Sheet 4 of 7)



UNJS-3A THREAD SIZE	4.625-12 (DESIGN)	4.5938-12 (1/32 UNDERSIZE)	4.5625-12 (1/16 UNDERSIZE)
BASIC MAJOR DIA	4.6250 4.6136	4.5938 4.5824	4.5625 4.5511
THREADS ROOT RADIUS	0.0150 0.0125	0.0150 0.0125	0.0150 0.0125
PITCH DIA	4.5709 4.5659	4.5397 4.5347	4.5084 4.5034
MINOR DIA	4.5288 4.5188	4.4976 4.4875	4.4663 4.4562
RELIEF DIA	4.506 4.486	4.475 4.470	4.443 4.438
LIP 19 OD	4.506 4.486	4.475 4.470	4.443 4.438
MATING REPAIR GLAND NUT PART NO.		65-46221-5 65-46221-6 4	65-46221-7 65-46221-8 4

65C25676-1,-2 Barrel Repair
Figure 601 (Sheet 5 of 7)

REFERENCE NUMBER	(1)	(2)	(3)	(3A)	(4)	(5)	(6)	(7)	(8)
DESIGN DIMENSION	4.003 4.000	4.7950 4.7940	4.246 4.244	4.256 4.254	1.243 1.241	3.902 3.900	0.155 0.150	4.209 4.199	0.200 0.195
REPAIR LIMIT	4.023 1	4.7650 1 OR 8 4.700 8	4.300 18	4.310 15	1.303 14	3.930 1 OR 8 4.200 8	0.135 1 OR 8 0.010 8	4.239 1 OR 14	0.165 1 OR 14 0.175 13

REFERENCE NUMBER	(9)	(10)	(11)
DESIGN DIMENSION	0.753 0.750	0.27 0.25	4.30 4.28
REPAIR LIMIT	0.900 16	0.30 17	4.33 17 19

65C25676-1,-2 Barrel Repair
Figure 601 (Sheet 6 of 7)

REFINISH

CHROME PLATE (F-15.34) DIA -C-, 0.003 MIN THICK AFTER GRINDING, AND WIPE WITH PRIMER (F-19.45). CADMIUM-TITANIUM PLATE (F-15.01) ALL OTHER SURFACES UNLESS SHOWN DIFFERENTLY.
APPLY BMS 10-11, TYPE 1 PRIMER (F-20.02) AND BMS 10-11, TYPE 2 ENAMEL (F-21.02) BUT NOT ON BUSHINGS, THREADS, CYLINDER ID OR AS NOTED.
FOR REFINISH OF STEERING PLATES, REFER TO REPAIR 1-3

NOTE: IDENTIFY CYLINDERS WITH UNDERSIZE GLAND NUT THREADS AS FOLLOWS:

1. VIBRO ENGRAVE "SPECIAL GLAND NUT REQUIRED" NEAR THE OUTER CYLINDER PART NUMBER.
2. APPLY A BLACK STENCIL "SPECIAL GLAND NUT _____ REQUIRED" ON A YELLOW BACKGROUND IN A PROMINENT POSITION.
3. APPLY A BLACK STENCIL "CAUTION: SPECIAL GLAND NUT _____ REQUIRED" NEAR THE REWORKED THREAD.

1> LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH. OBSERVE PLATING RUNOUT. MAX PLATING THICKNESS 0.015 AFTER GRINDING. WIPE WITH PRIMER (F-19.45)

2> CHROME PLATE RUNOUT

3> NO CHROME PLATE OR PLASMA FLAME SPRAY IN THIS AREA

4> USED ON GRAVEL DEFLECTOR INSTALLATIONS

5> NO PRIMER OR ENAMEL THESE SURFACES

6> DO NOT SHOT PEEN OR GRIND

7> SHOT PEEN OPTIONAL

8> LIMIT FOR BUILDUP WITH CHROME PLATE AND INSTALLATION OF A SPECIAL REPAIR BEARING AS FOLLOWS:

1. MACHINE AS REQUIRED, WITHIN REPAIR LIMIT, TO REMOVE DEFECTS. DO NOT REMOVE MORE THAN 0.149 MATERIAL FROM EACH SURFACE
2. APPLY 0.005-0.010 THICK CHROME PLATE. WIPE CHROME PLATE WITH PRIMER (F-19.45)
3. MAKE SPECIAL REPAIR BEARING (CMM 32-21-48, REPAIR 6-1, FIG. 601) WITH DECREASED ID AND THICKER FLANGES AS NECESSARY TO GET 0.001-0.007 AXIAL CLEARANCE AND MINUS 0.001 TO PLUS 0.001 DIAMETRICAL CLEARANCE WITH OUTER CYLINDER
4. IDENTIFY PARTS AS A MATCHED SET

REPAIR

REF 1> 4> 5> 9> 10> 13> THRU 19>

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.05-0.07 R

SHOT PEEN: 0.017-0.046 SHOT SIZE
0.010-0.016 A2 INTENSITY 19>

MATERIAL: 4340M STEEL (270-300 KSI)

ALL DIMENSIONS ARE IN INCHES

9> LUG FACE MACHINING REQUIREMENTS:

1. MATERIAL REMOVED FROM ANY FACE MUST NOT BE MORE THAN HALF THE DIFFERENCE BETWEEN THE DESIGN DIM AND REPAIR LIMIT
2. BLEND MISMATCH STEPS TO 0.18-0.26 RADIUS, OR IF WITHIN 0.10 OF LUG FILLET RADIUS, USE SAME RADIUS AS LUG FILLET. BREAK SHARP EDGES 0.03-0.07 R

10> BLEND SMOOTHLY TO REMOVE RIDGE

11> APPLY BMS 10-11, TYPE 1 PRIMER (F-20.03)

12> CHROME PLATE THICKNESS 0.003 MIN AFTER GRINDING (F-15.34) FOLLOWED BY WIPE-ON PRIMER (F-19.45) ON 65C25676-2 ONLY

13> (OPTIONAL TO CHROME PLATE BUILDUP) LIMIT FOR BUILDUP WITH BMS 10-67, TYPE 1 OR 17 TUNGSTEN CARBIDE THERMAL SPRAY (SOPM 20-10-05) AND GRIND TO DESIGN DIMENSIONS AND 4 MICROINCH FINISH OR SMOOTHER

14> LIMIT FOR SULFAMATE NICKEL PLATE BUILDUP (SOPM 20-42-09) AND MACHINE TO DESIGN DIMENSIONS AND FINISH. PUT A 0.06 PLATING RUNOUT AT EDGES AND RADII. MAX PLATING THICKNESS 0.040 AFTER MACHINING

15> RELIEF DIA IS TO BE 0.010 LARGER THAN BORE DIA, BUT MUST NOT BE MORE THAN THE REPAIR LIMIT

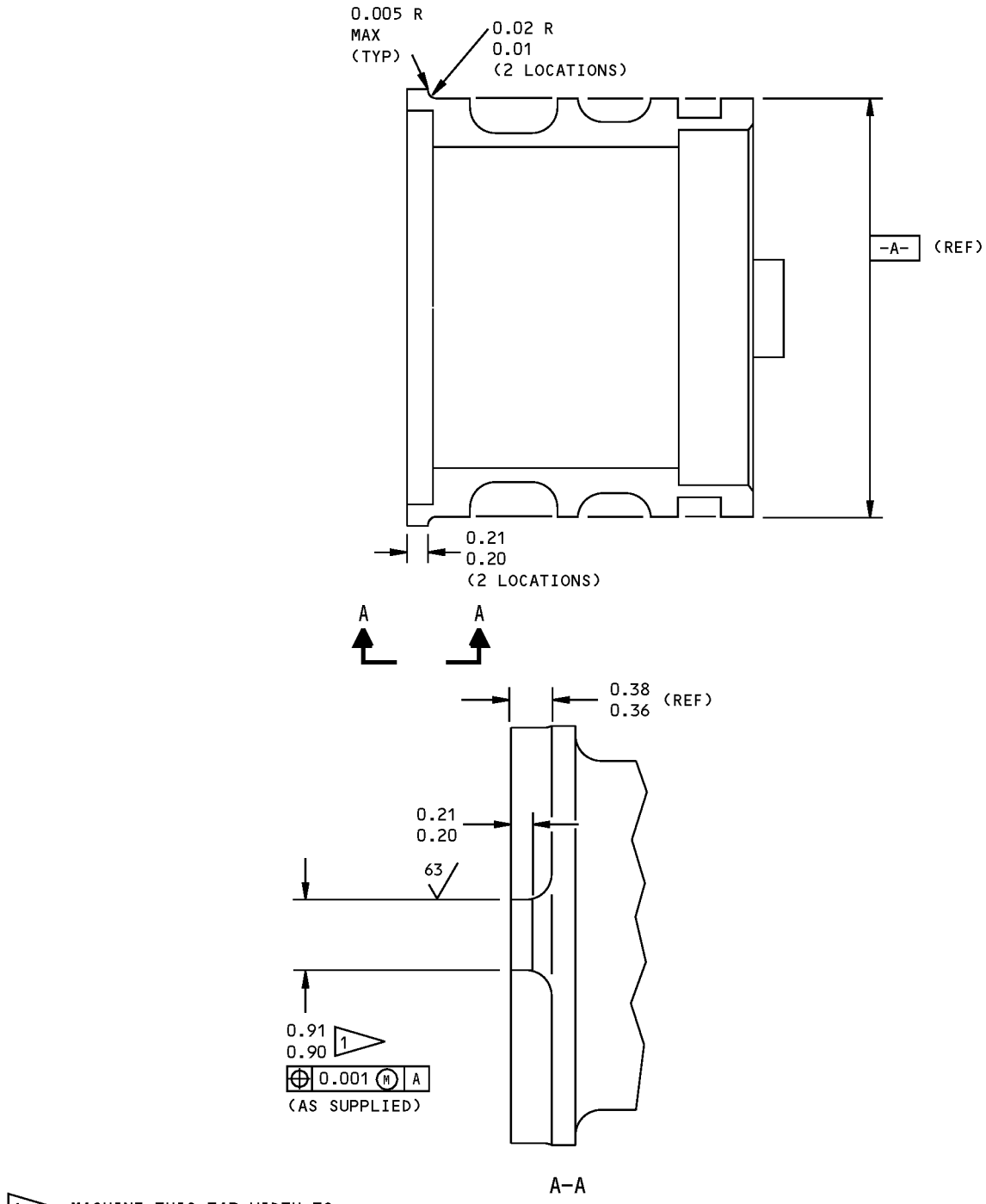
16> LIMIT FOR INSTALLATION OF SPECIAL REPAIR LOWER BEARING (245B)(SEE FIG. 602). IDENTIFY PARTS AS A MATCHED SET

17> RESTORATION TO DESIGN DIMENSION NOT REQUIRED

18> FOR PLATING REPAIR UP TO 0.015, CHROME PLATE (F-15.34) OR SULFAMATE NICKEL PLATE (SOPM 20-42-09). FOR PLATING REPAIR OVER 0.015, NICKEL PLATE ONLY. GRIND CHROME PLATE OR MACHINE NICKEL PLATE TO DESIGN DIMENSION AND FINISH, WITH PLATING RUNOUT AS SHOWN BY 2> AT EDGES AND RADII. WIPE CHROME PLATE WITH PRIMER (F-19.45)

19> IF THE LIP WALL THICKNESS IS 0.08 OR THINNER, USE A SHOT PEEN INTENSITY OF 0.010 A2

65C25676-1,-2 Barrel Repair
Figure 601 (Sheet 7 of 7)



69-76508-2 MODIFICATION Repair Bearing Details
Figure 602

CYLINDER ASSEMBLY, INNER - REPAIR 2-1

65-46215–16, –20, –21, –22

1. General

A. Use this procedure to repair the inner cylinder assembly.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) subjects identified in the procedure.

C. Refer toREPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair figures.

E. Refer to IPL Figure 1 for item numbers.

2. Bushing Replacement (REPAIR 2-1, Figure 601)

A. Remove the old bushings.

B. If you find defects on lug faces or hole surfaces, refer to REPAIR 2-2 for repair instructions.

C. Standard bushings (310, 315)

NOTE: For bushings (315A or 315D), which have thermal spray coating on the flange face, refer to REPAIR 2-1, Paragraph 2.D. below.

(1) Install replacement bushings by the shrink-fit method (SOPM 20-50-03). BMS 3-27 compound, C00913 is the preferred installation finish on bushings (310).

(2) Make a check of the dimensions and machine them as necessary to design dimensions and finish.

(3) Apply BMS 10-11, Type 1 primer, C00259 (SRF-12.206) and then MIL-PRF-16173, Grade 2 corrosion preventive compound, B50080 (F-14.13) to the internal surface of bushing (310). Do not do this to bushing (315).

D. Bushings (315A or 315D) with thermal spray coating on the flange face

(1) Because these bushings have a hard layer of thermal spray coating on the outer flange face, you must adjust the bushing flange thickness before bushing installation to get the correct installed dimension across the flanges.

(2) Measure the lug width of the inner cylinder after repair and refinish to calculate the necessary thickness of the bushing flanges. Be sure to include and adjust for the thickness of the cadmium plating to be applied to the inside faces of the bushing flanges.

(3) Machine the inside surface of the bushing flanges to get the necessary thickness, with a fillet radius of 0.02-0.03 inch and a maximum undercut of 0.010 inch. Remove material from each bushing to make the flange thicknesses be equal within 0.005 inch. Do not machine the tungsten carbide layer on the outside flange faces.

(4) Brush cadmium plate (SOPM 20-42-10) the inside surfaces of the flanges.

(5) Install the bushings by the shrink-fit method (SOPM 20-50-03), with BMS 3-27 compound, C00913.

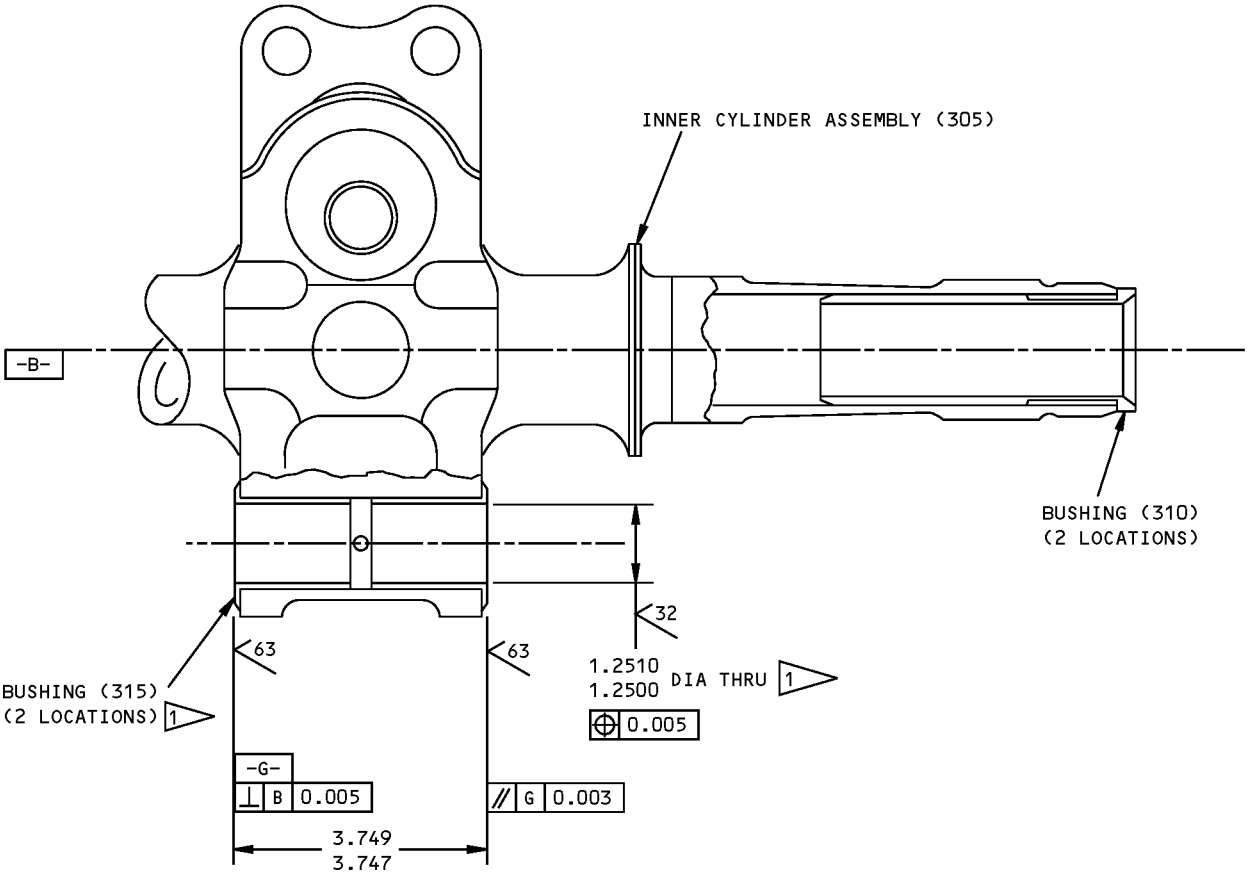
(6) Make a check of the dimension between the flange faces of the installed bushings to be sure it is within the design dimensions shown.

(7) Machine the bores of the bushings to design dimensions and finish.

(8) Seal the flanges of the bushings with BMS 5-95 sealant, A00247.

3. Lube Fitting Replacement

A. Replace lube fitting (325) as specified in 32-00-03.



1 NO PRIMER OR ENAMEL

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

65-46215-16,-20,-21,-22 Bushing Replacement
Figure 601

CYLINDER, INNER - REPAIR 2-2

65-46215–17

1. General

A. Use this procedure to repair the inner cylinder.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair figures.

E. Refer to IPL Figure 1 for item numbers.

2. Lug Faces and Holes (REPAIR 2-2, Figure 601)

NOTE: Method 2 plating buildup is optional to Method 1 if material removal is not more than 0.015 inch for lug faces only. No buildup is permitted in lug bores.

A. Method 1 – Installation of oversize bushings or repair sleeves

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

(2) Shot peen (SOPM 20-10-03), cadmium titanium plate (SOPM 20-42-02) and apply BMS 10-11, Type 1 primer, C00259.

(3) Refinish as indicated (REPAIR 2-3).

(4) Make oversize bushings or repair sleeves (REPAIR 2-2, Figure 603 thru REPAIR 2-2, Figure 606, as necessary to adjust for the material removed in REPAIR 2-2, Paragraph 2.A.(1).

(5) Install the bushings or sleeves per REPAIR 2-1. Install the sleeves flush with or 0.005 max below the face of the lug.

B. Method 2 – Chrome Plate or Nickel Plate or Thermal Spray Buildup (Lug Faces Only)

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

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

(3) Build up with chrome plate (SOPM 20-42-03) (0.015 inch maximum thickness), nickel plate (SOPM 20-42-09), or plasma flame spray (SOPM 20-10-05), as indicated.

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

(5) Refinish other surfaces as indicated (REPAIR 2-3).

(6) Install standard bushings (per parts list) (SOPM 20-50-03 and REPAIR 2-1).

C. Method 3 – Shims (Lug Faces Only)

(1) Machine as necessary, within repair limits, to remove defects.

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

(3) Cadmium-titanium plate (SOPM 20-42-03) and apply primer, C00259

(4) Make shims of 15-5PH or 17-4PH CRES as necessary to adjust for the material removed. Cadmium plate the shims (SOPM 20-42-05) and apply primer, C00259 to each side of them.

(5) Bond the shims to the lug faces with sealant, A00247.

(6) Install standard bushings (per parts list) (SOPM 20-50-03 and REPAIR 2-1).

D. Method 4– Lugs for Tow Fitting

NOTE: This procedure lets you install a special repair tow fitting when the lug holes cannot be repaired with bushings.

(1) Cut off the damaged lug as shown. Do not cut off more material than is shown, because when you drill holes in the remaining lug area, they must have a minimum edge margin.

(2) Get a 65C36787-2 tow fitting. Put it on the lug.

(3) With the three holes in the tow fitting as a pilot, drill mating holes through the lug in the inner cylinder. Be sure there is a minimum of 0.40 inch edge margin from the center of the holes to the edge of the lug.

(4) Remove the tow fitting from the lug. Keep this tow fitting with this inner cylinder, because they are now matched parts.

(5) If this is the only repair to the inner cylinder, stylus cadmium plate (SOPM 20-42-10) the new holes and the cut surfaces of the lug. Apply BMS 10-11, Type 1 primer, C00259. If you will do other repairs to the inner cylinder, refinish it as usual (REPAIR 2-3) after all repairs are complete.

(6) After the inner cylinder repairs are complete, keep this tow fitting with the inner cylinder. This fitting will be installed on the cylinder at the nose gear buildup level (CMM 32-21-38).

3. Axle Diameters 1, 2 (REPAIR 2-2, Figure 602)

A. Machine as necessary, within repair limits, to remove defects (SOPM 20-10-02).

B. Shot peen per SOPM 20-10-03.

C. Build up with chrome plate (SOPM 20-42-03) or nickel plate (SOPM 20-42-09) or thermal spray (SOPM 20-10-05) as indicated. Grind the chrome plate or thermal spray coating (SOPM 20-10-04), and machine the nickel plate (SOPM 20-10-01), to design dimensions and finish.

D. Chrome plate thickness must not be more than 0.015 inch after grinding. Thermal spray coating thickness must not be more than 0.010 inch after grinding.

E. Refinish as indicated (REPAIR 2-3).

4. Axle Diameter 3 (REPAIR 2-2, Figure 602)

A. Machine as necessary, within repair limits, to remove defects (SOPM 20-10-02).

B. Shot peen (SOPM 20-10-03), cadmium-titanium plate (SOPM 20-42-02) and apply primer, C00259 and compound, B50080 or compound, C50001.

C. Refinish as indicated (REPAIR 2-3).

5. Axle Diameter 4 (REPAIR 2-2, Figure 602)

A. Machine as necessary, within repair limits, to remove defects (SOPM 20-10-02).

B. If applicable, shot peen (SOPM 20-10-03), chrome (SOPM 20-42-03) or nickel plate (SOPM 20-42-09) and grind to design dimensions and finish (SOPM 20-10-04).

C. Or make bushings (REPAIR 2-2, Figure 606) as necessary to adjust for the amount of material removed in REPAIR 2-2, Paragraph 5.A.

D. Refinish as indicated (REPAIR 2-3).

E. Install the bushings per REPAIR 2-1.

6. **Axle OD (REPAIR 2-2, Figure 602)**

   A. Machine as necessary (SOPM 20-10-01), within repair limits, to remove defects.

   B. Shot peen per SOPM 20-10-03.

   C. As applicable, build up surfaces with chrome plate (SOPM 20-10-04) or nickel plate (SOPM 20-42-09), and grind the chrome plate (SOPM 20-10-04) or machine the nickel plate (SOPM 20-10-01) to design dimensions and finish.

   D. Refinish other surfaces as indicated (REPAIR 2-3).

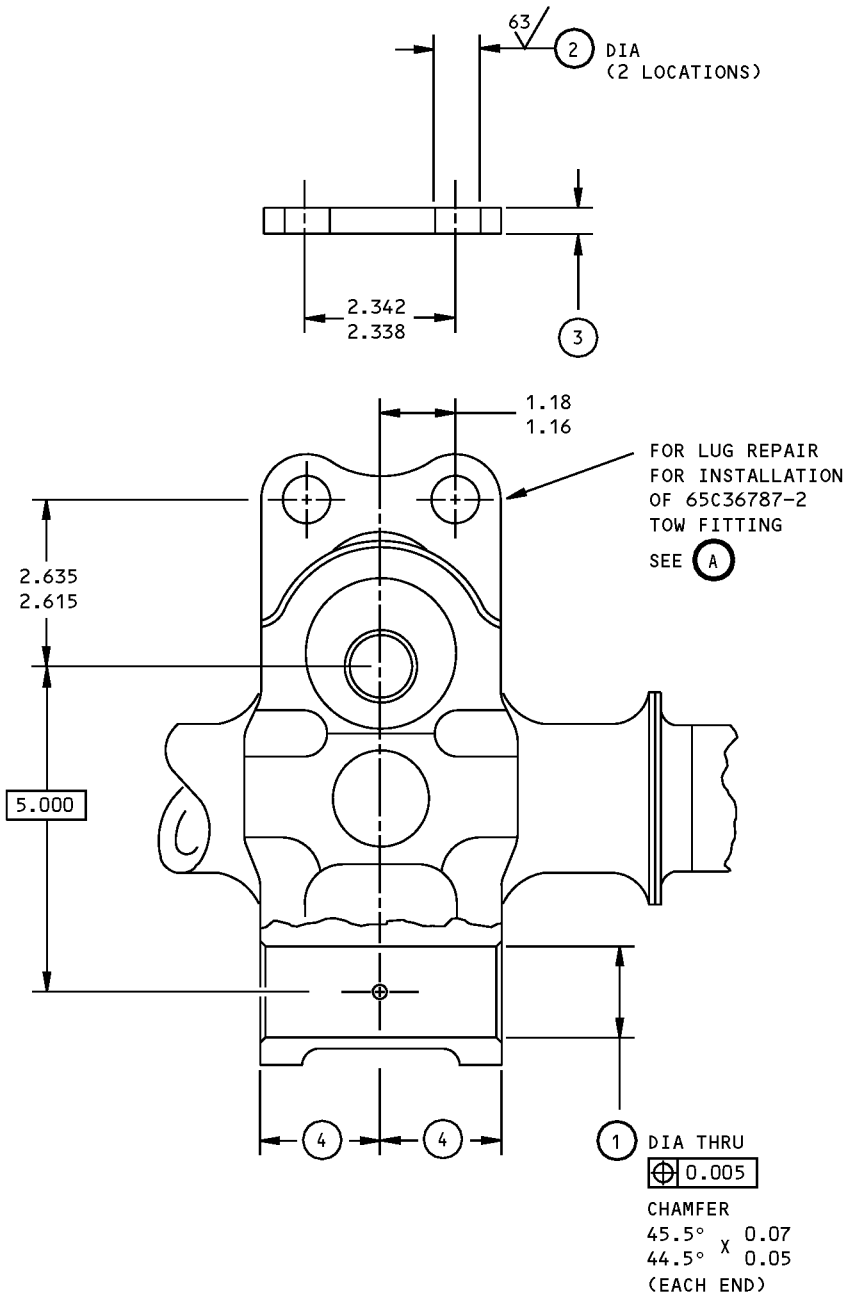
7. **Inner Cylinder (320) Axle Threads (REPAIR 2-2, Figure 602)**

   A. Measure the axle thread pitch diameter and major diameter. A PTG Threadsnap tool is recommended. Be sure to use the correct tool for the thread size.

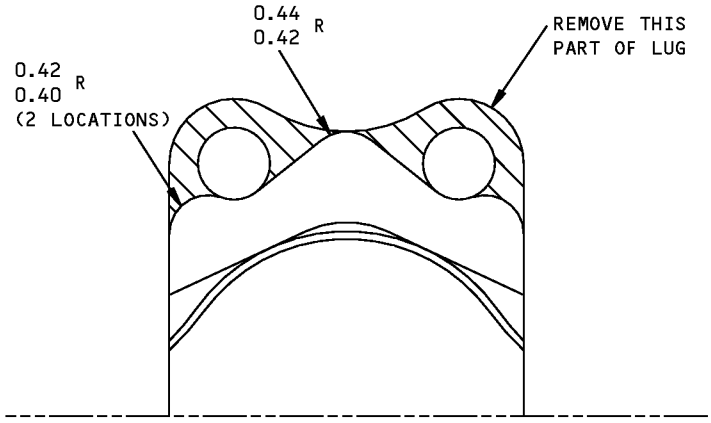
      NOTE: A Johnson CHF/PD thread measuring system (or equivalent) can be used as an option to measure the thread pitch diameter, but a separate set of pitch diameter rollers and a master thread plug gage is necessary for each size of thread. The plug gage is used to set the dial indicator of the measuring system before you measure the threads. The major diameter can be measured with a micrometer.

   B. If the threads are worn beyond wear limits, cut the threads to a smaller size as indicated for special matching undersize wheel retainer nut 69-77849-series (Ref CMM 32-21-38 and SB 32-1191).

   C. Identify the inner cylinder to tell you this. A recommended procedure is shown in REPAIR 2-2, Figure 602.



65-46215-17 Lug Face and Hole Repair
Figure 601 (Sheet 1 of 3)



LUG REPAIR FOR INSTALLATION OF
TOW FITTING 65C36787-2

(A)

REFERENCE NUMBER	(1)	(2)	(3) 3	(4)
DESIGN DIMENSION	1.438 1.437	0.7515 0.7500	0.543 0.533	1.8125 1.8075
REPAIR LIMIT	1.560 1	0.9000 2	0.510 4 0.513 5 0.455 6 0.500 7	1.7975 1

126712 S0004998464_V3

65-46215-17 Lug Face and Hole Repair
Figure 601 (Sheet 2 of 3)

REFINISH

FOR REFINISH INSTRUCTIONS, REF REPAIR 2-3

1 LIMIT FOR INSTALLATION OF OVERSIZE BUSHING

2 LIMIT FOR INSTALLATION OF REPAIR SLEEVE

3 LUG FACE MACHINING REQUIREMENTS:
1. MATERIAL REMOVED FROM ANY FACE MUST NOT BE MORE THAN HALF THE DIFFERENCE BETWEEN THE DESIGN DIMENSION AND REPAIR LIMIT
2. FLAT SURFACE MUST BE MINIMUM OF 0.02 LARGER THAN FLANGE DIAMETER OF BUSHING TO BE INSTALLED
3. BLEND MISMATCH STEPS TO 0.18-0.26 R, OR IF WITHIN 0.10 OF LUG FILLET RADIUS, USE SAME RADIUS AS LUG FILLET. BREAK SHARP EDGES 0.03-0.07 R.

4 0.015 INCH MAXIMUM MATERIAL CAN BE REMOVED FROM EITHER FACE. BUILDUP TO DESIGN DIMENSION WITH CHROME PLATE (SOPM 20-42-03) AND GRIND TO DESIGN DIMENSIONS AND FINISH (SOPM 20-10-04)

5 LIMIT FOR BUILDUP WITH BMS 10-67, TYPE 1 OR 17 TUNGSTEN CARBIDE THERMAL SPRAY (SOPM 20-10-05). GRIND TO DESIGN DIMENSIONS AND FINISH

6 LIMIT FOR INSTALLATION OF REPAIR SHIMS, 15-5PH OR 17-4PH CRES, 150-170 KSI

7 LIMIT FOR NICKEL PLATE BUILDUP (SOPM 20-42-09) AND MACHINE TO DESIGN DIMENSION AND FINISH

REPAIR

REF 1 THRU 7

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES EQUIVALENT TO 0.06 R UNLESS SHOWN DIFFERENTLY

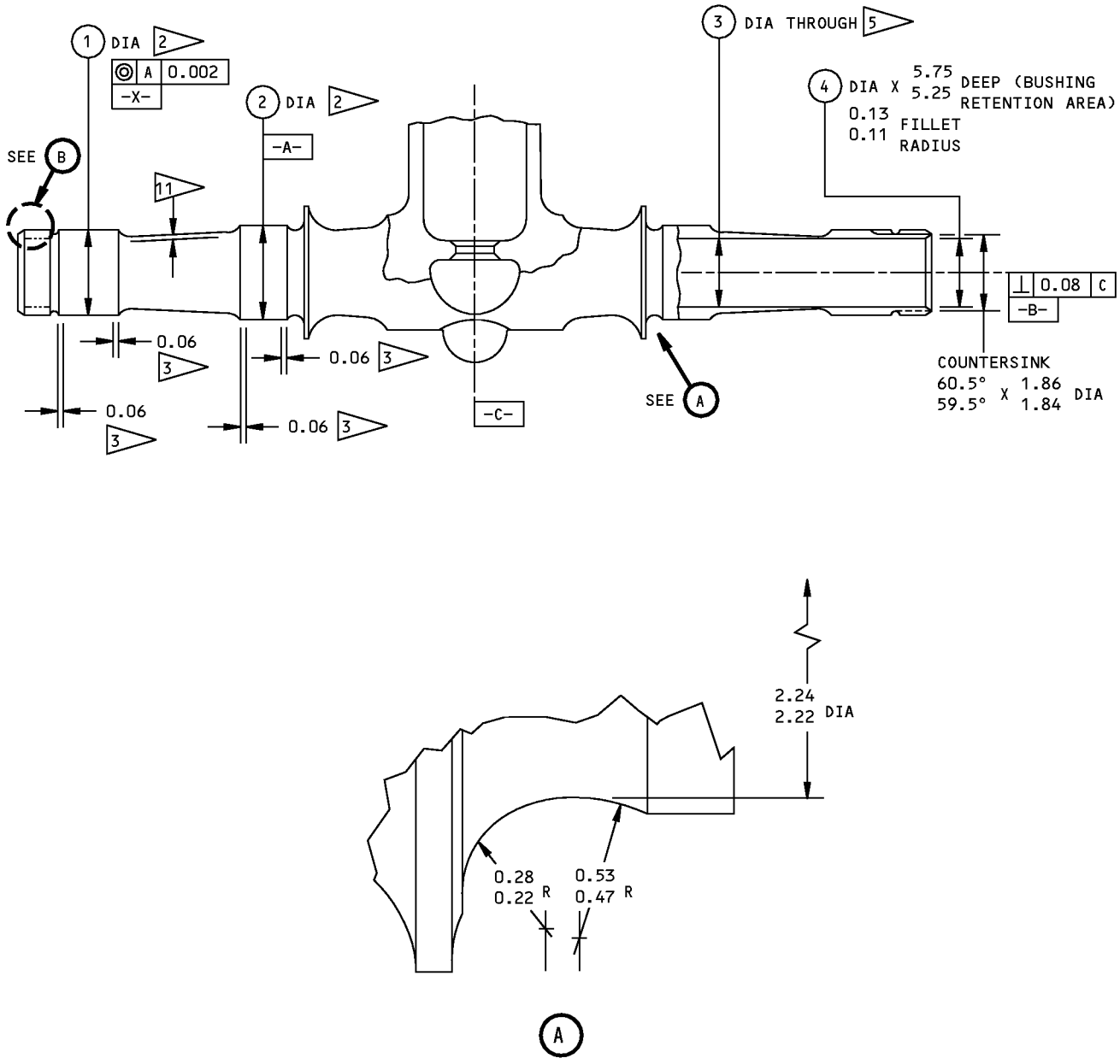
MATERIAL: 4340M STEEL (270-300 KSI)

SHOT PEEN: 0.017-0.046 SHOT SIZE
0.010-0.016A2 INTENSITY

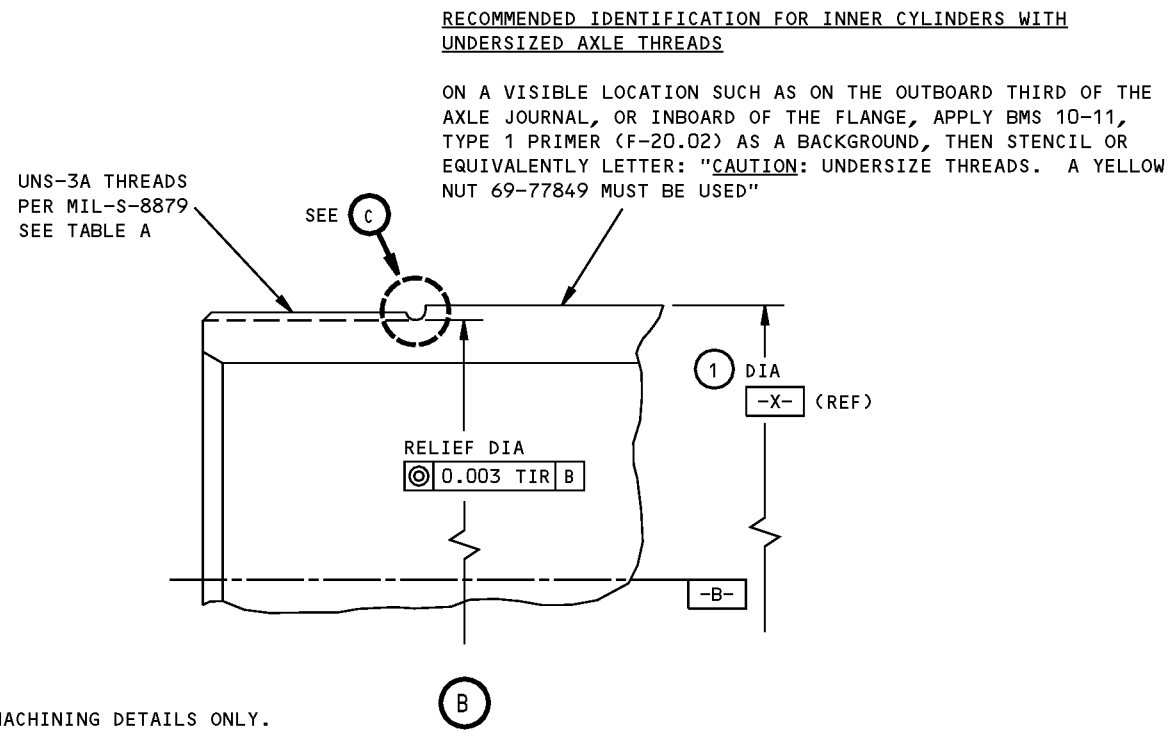
ALL DIMENSIONS ARE IN INCHES

W55271 S0004998465_V2

65-46215-17 Lug Face and Hole Repair
Figure 601 (Sheet 3 of 3)



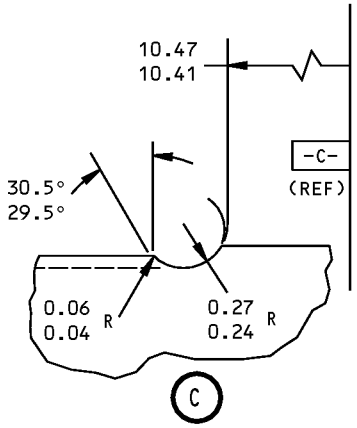
65-46215-17 Axle Repair
Figure 602 (Sheet 1 of 3)



NOTE: MACHINING DETAILS ONLY.
REFINISH NOT SHOWN.

UNJS-3A THREAD SIZE	2-1/16-16 (DESIGN)	2-16 (1/16 UNDERSIZE)
MAJOR DIA	2.0625 2.0595 9	1.9940 1.9910 (MODIFIED)
PITCH DIA	2.0219 2.0189 10	1.9594 1.9564
MINOR DIA	1.9903 1.9825	1.9313 1.9233
RELIEF DIA	1.97 1.96	1.913 1.903
MATING REPAIR WHEEL RETAINER NUT (REF CMM 32-21-38)		69-77849-1,-2

TABLE A



65-46215-17 Axle Repair
Figure 602 (Sheet 2 of 3)

LOCATION	(1)	(2)	(3)	(3) OPTIONAL	(4)
DESIGN DIM	2.1245 2.1235	2.2495 2.2485	1.75 1.73	1.7514 1.7500	1.7514 1.7500
REPAIR LIMIT	2.1035 [1] [15] 2.067 [12]	2.2185 [1] [14] 2.2285 [15]	1.777 [4] [6]	1.7770 [4] [6]	1.7770 [7] OR [8] [13]

REFINISH

FOR REFINISH INSTRUCTIONS, REF REPAIR 2-3

[1] LIMIT FOR BUILDUP WITH CHROME PLATE AND GRIND TO DESIGN DIMENSIONS AND FINISH WITH PLATING RUNOUT AS SHOWN BY [3]

[2] 32 MICROINCHES BEFORE PLATING, 16 MICROINCHES AFTER PLATING

[3] MAXIMUM CHROME PLATE RUNOUT

[4] RESTORATION TO DESIGN DIMENSIONS NOT REQUIRED. CADMIUM-TITANIUM PLATE (F-15.01)

[5] BETWEEN THE (4) DIA BUSHING RETENTION AREAS

[6] AFTER PLATING, APPLY BMS 10-11, TYPE 1, PRIMER (F-20.03) PLUS CORROSION PREVENTIVE COMPOUND (F-14.13 OR F-19.03) TO ALL ID BORE SURFACES

[7] CHROME PLATE BUILDUP PER [1] OPTIONAL

[8] LIMIT FOR BUILD UP WITH ELECTRODEPOSITED NICKEL PLATE (SOPM 20-42-09)

[9] 2.0531 INCHES MINIMUM MAJOR DIAMETER FOR SOME AIRPLANES

[10] 2.0179 INCHES MINIMUM PITCH DIAMETER FOR SOME AIRPLANES

[11] THIS AREA CAN HAVE LOCAL BLENDS:
- 0.005 MAXIMUM DEPTH, AND
- 0.40 INCH AROUND THE CIRCUMFERENCE

[12] LIMIT FOR BUILDUP WITH NICKEL PLATE (SOPM 20-42-09) AND THEN CHROME PLATE (SOPM 20-42-03). 0.015 MAXIMUM CHROME PLATE THICKNESS

[13] LIMIT FOR INSTALLATION OF OVERSIZE BUSHING (310) (FIG. 605)

REPAIR

REF [1] [2] [4] [7] [8] [11] THRU [15]

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.017-0.046 SHOT SIZE
0.010-0.016 A2 INTENSITY
DO NOT SHOT PEEN THREADS

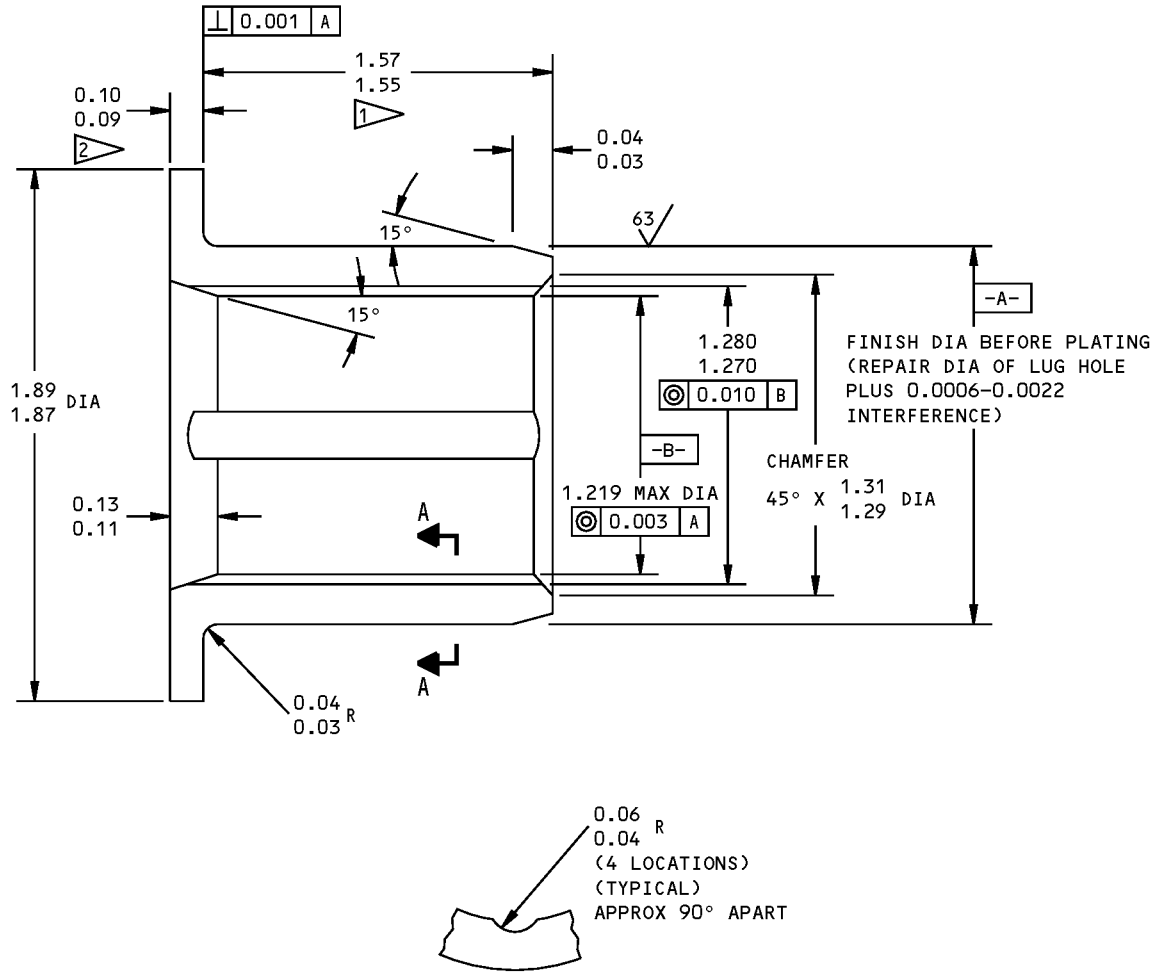
MATERIAL: 4340M STEEL (270-300 KSI)

ALL DIMENSIONS ARE IN INCHES

[14] IF MORE MATERIAL THAN THIS MUST BE REMOVED, THE PART MUST BE SCRAPPED

[15] LIMIT FOR BUILDUP WITH BMS 10-67 TYPE 1 OR 17 CLASS 2,3, OR 4 THERMAL SPRAY (SOPM 20-10-05), 0.010 MAXIMUM THICKNESS. PUT A 0.080 MAXIMUM RUNOUT AT EDGES. GRIND TO DESIGN DIMENSIONS AND 4 MICROINCH FINISH. THEN CADMIUM-TITANIUM PLATE (SOPM 20-42-02) THE RUNOUT AREA

65-46215-17 Axle Repair
Figure 602 (Sheet 3 of 3)



A-A

1 MINUS AMOUNT REMOVED FROM LUG FACE
2 PLUS AMOUNT REMOVED FROM LUG FACE

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02R

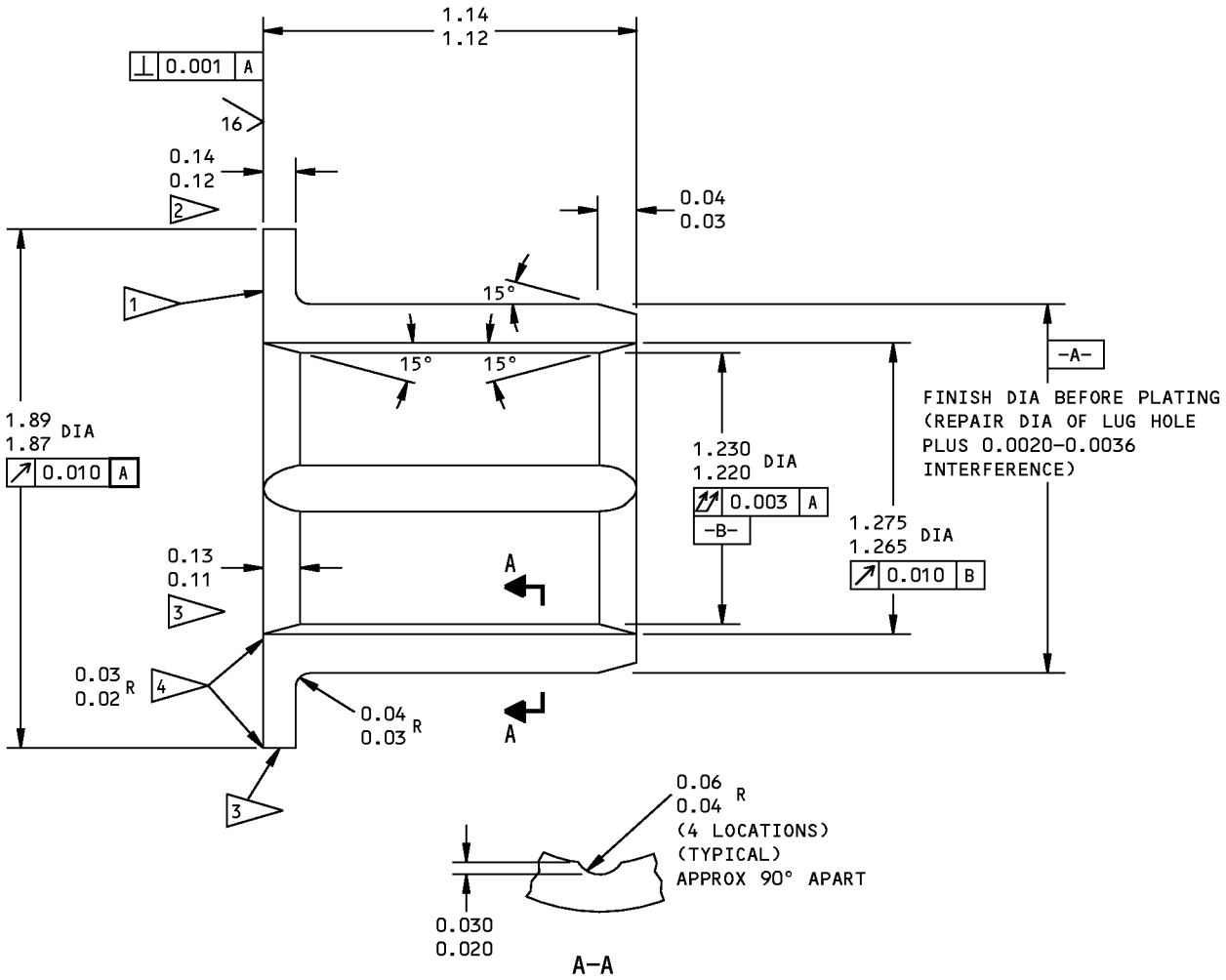
FINISH: CADMIUM PLATE (F-15.06)(OPTIONAL ON INTERNAL SURFACES)

MATERIAL: 17-4PH CRES (180-200 KSI)

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (1) FIG. 601 - REPLACES BUSHING (315, IPL FIG. 1) 65-46150-95

Oversize Bushing Details
Figure 603



1. ON BUSHING 65C37819-1, APPLY BMS 10-67 TYPE 1 OR 17 CLASS 2, 3, OR 4 THERMAL SPRAY COATING (SOPM 20-10-05), 0.010 MAXIMUM THICKNESS.
2. ON BUSHING 65C37819-3, APPLY BMS 10-67, TYPE 17 THERMAL SPRAY COATING (F-15.384).
3. PUT A 0.080 MAXIMUM RUNOUT AT EDGES.
4. GRIND TO DESIGN DIMENSIONS AND 4 MICROINCH FINISH

2 PLUS AMOUNT REMOVED FROM LUG FACE

3 COATING OVERSPRAY PERMITTED ON THIS SURFACE

4 COATING RUNOUT AREA. THE COATING MUST GRADUALLY GO TO ZERO THICKNESS OVER A LENGTH OF 0.005 MINIMUM

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

MATERIAL: CU-BE (AMS 4535 OR 4533)

FINISH: CADMIUM PLATE (F-15.06) DIA-A-. (OPTIONAL ON OTHER SURFACES UNLESS SHOWN DIFFERENTLY)

DIMENSIONS APPLY BEFORE COATING UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (1) FIG. 601 - REPLACES BUSHING (IPL FIG. 1; 315A,315D) 65C37819-1,-3

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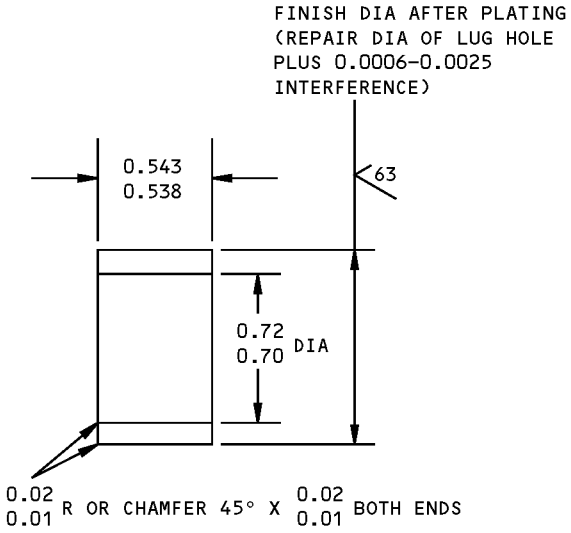
Oversize Bushing Details
Figure 604



125 ALL MACHINED SURFACES EXCEPT AS NOTED

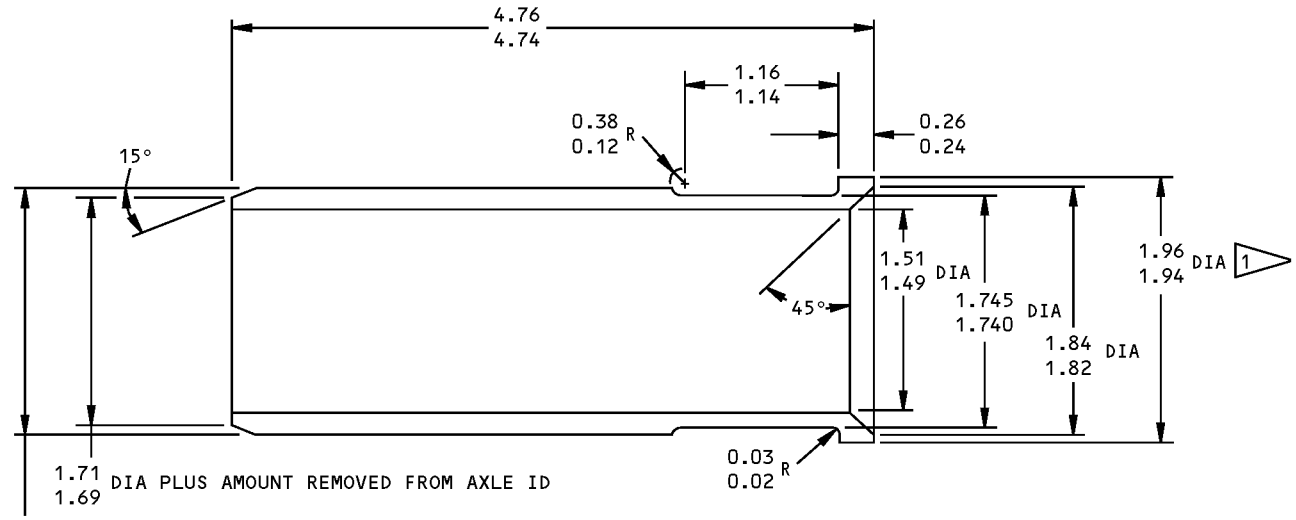
CADMIUM PLATE (OPTIONAL ON ID)

MATERIAL: AL-NI BRONZE PER AMS 4640 OR 17-4PH CRES (180-200 KSI)

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (2) FIG. 601

Repair Sleeve Details
Figure 605



1 FOR 1/16 INCH UNDERSIZE AXLE THREAD USE 1.91-1.92 DIA

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.02-0.03 R

MATERIAL: 17-4PH CRES (180-200 KSI)

CADMIUM PLATE (F-1.1929) ALL OVER (OPTIONAL ON ID)

ALL DIMENSIONS ARE AFTER PLATING

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (4) FIG. 602 - REPLACES BUSHING (310, IPL FIG. 1)

Oversize Bushing Details
Figure 606

INNER CYLINDER - REPAIR 2-3

65-46215–17

1. General

A. This procedure tells how to repair the inner cylinder.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair figures.

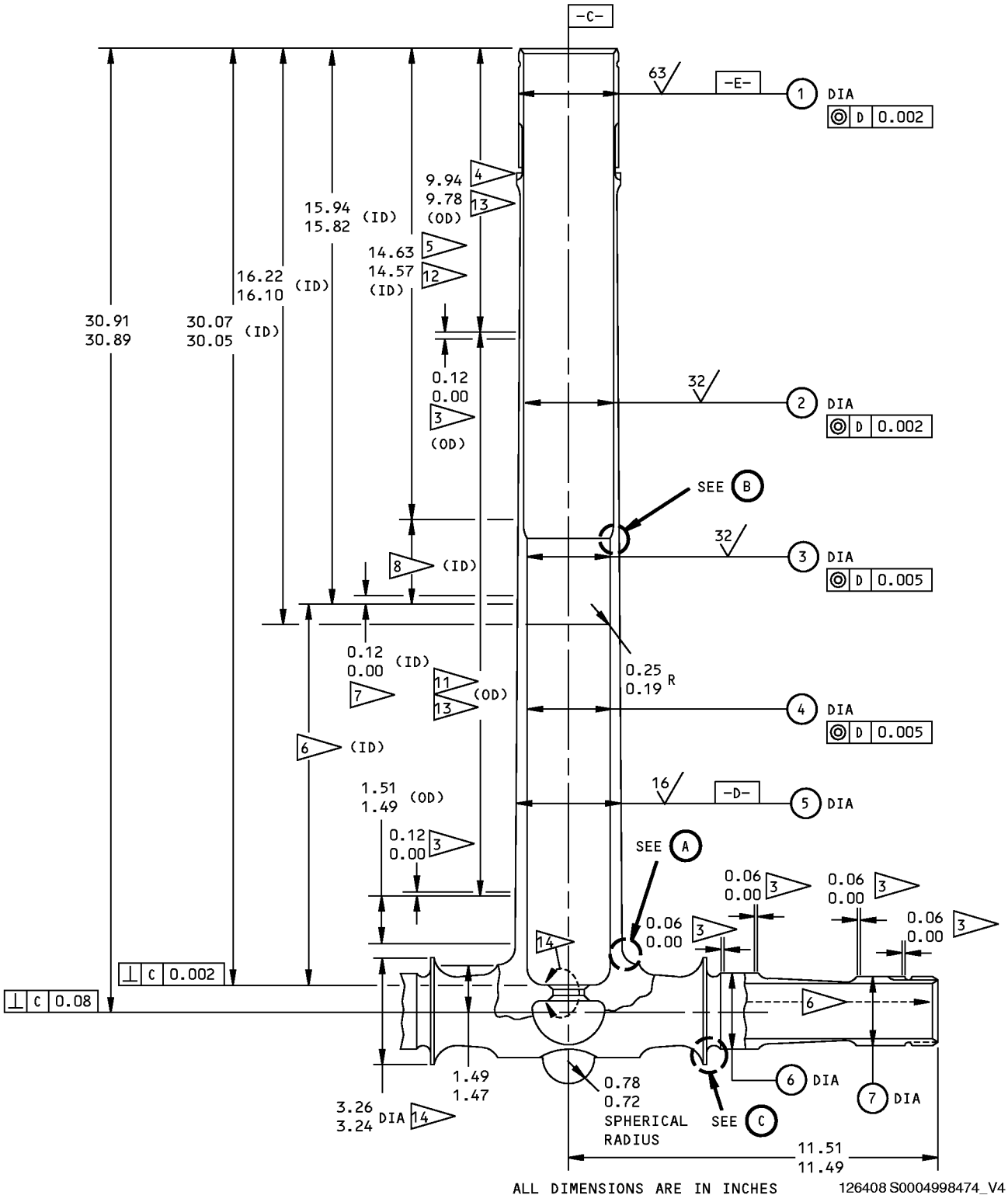
E. Refer to IPL Figure 1 for item numbers.

2. Barrel Repair (REPAIR 2-3, Figure 601)

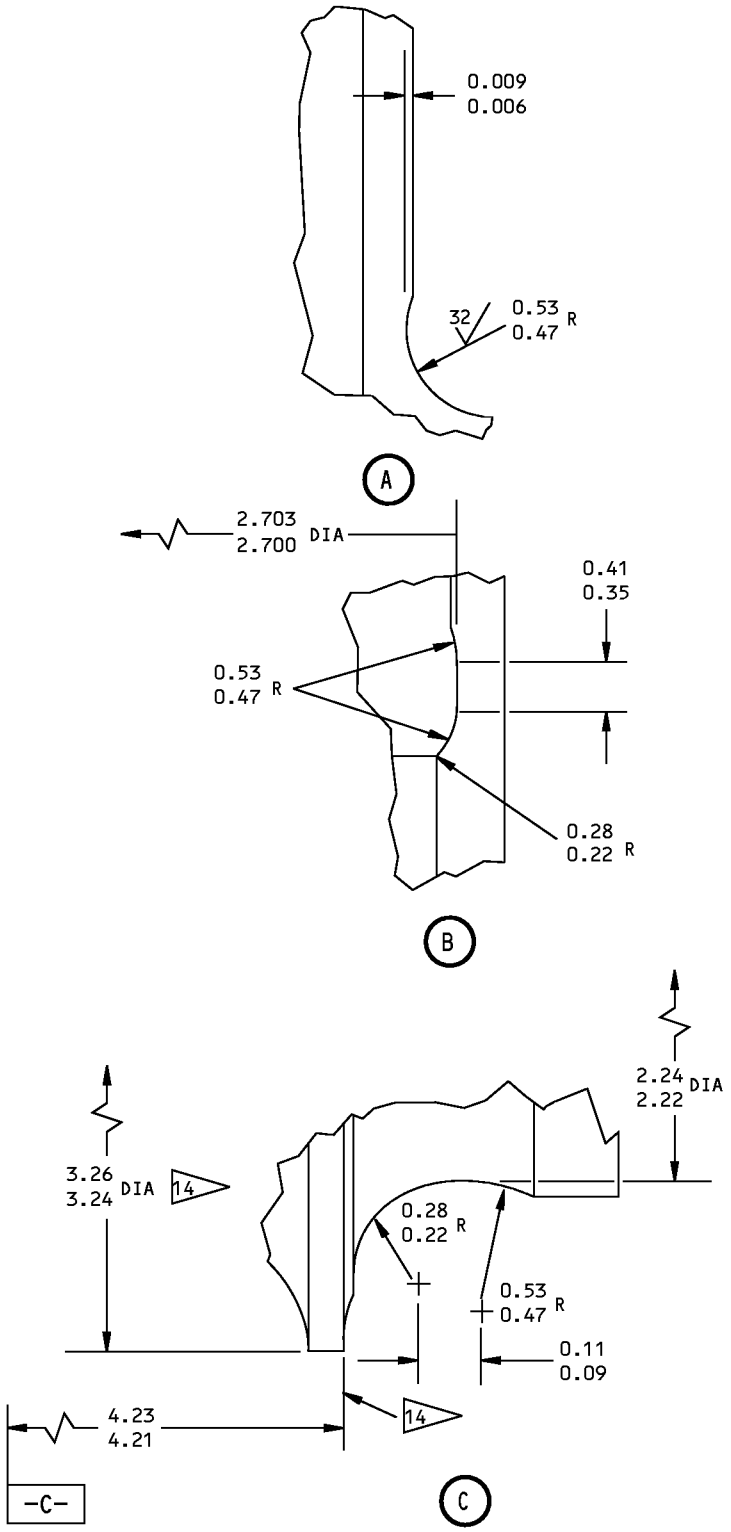
NOTE: For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, REPAIR 2-3, Figure 601.

A. Machine as necessary, within repair limits, to remove defects SOPM 20-10-02.

B. Shot peen (SOPM 20-10-03). Unless shown differently, build up with chrome plate (SOPM 20-42-03) and grind to design dimensions and finish (SOPM 20-10-04). Chrome plate thickness must not be more than 0.015 inch after grinding.



65-46215-17 Barrel Repair
Figure 601 (Sheet 1 of 3)



65-46215-17 Barrel Repair
Figure 601 (Sheet 2 of 3)

LOCATION	(1)	(2)	(3)	(4)	(5)	(6)	(7)
DESIGN DIM	3.130 3.128	2.700 2.695	2.622 2.620	2.622 2.590	3.247 3.245	2.2495 2.2485	2.1245 2.1235
REPAIR LIMIT	3.108 <1>	2.720 <1>	2.640 <1> <2>	2.640 <9> <10>	3.225 <1> <16>	<15>	<15>

REFINISH

CHROME PLATE (F-15.04, THICKNESS 0.002 MIN AFTER GRINDING) DIA (5), (6) AND (7) WIPE THE CHROME PLATE WITH BMS 10-11, TYPE 1 PRIMER (F-19.45). CADMIUM-TITANIUM PLATE (F-15.01) ALL OTHER SURFACES UNLESS SHOWN DIFFERENTLY. APPLY PRIMER AND CORROSION PREVENTIVE COMPOUND TO ID BORE SURFACES AS SHOWN BY <6>. AFTER BUSHING INSTALLATION, APPLY BMS 10-11, TYPE 1 PRIMER (F-20.02) FOLLOWED BY BMS 10-11, TYPE 2 ENAMEL (F-21.02) ON EXTERIOR SURFACES UNLESS SHOWN DIFFERENTLY.

<1> LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH. WIPE THE CHROME PLATE WITH BMS 10-11, TYPE 1 PRIMER (F-19.45).

<2> LIMIT FOR NICKEL PLATE BUILDUP AND MACHINE TO DESIGN DIMENSIONS AND FINISH

<3> CHROME PLATE RUNOUT

<4> NO FINISH ON OD UNLESS AFTER REPAIR OF DIAMETER (1)

<5> NO FINISH ON ID THIS LENGTH UNLESS AFTER REPAIR OF DIAMETER (2)

<6> AFTER PLATING, APPLY BMS 10-11, TYPE 1 PRIMER (F-20.03) AND CORROSION PREVENTIVE COMPOUND (F-14.13 OR F-19.03) TO ID BORE SURFACE.

<7> PRIMER OVERSPRAY PERMITTED THIS AREA

<8> FOR REFINISH ONLY, CADMIUM-TITANIUM PLATE (F-15.01) ID AND HAND POLISH TO 32 MICRO-INCH FINISH. THICKNESS OF PLATING TO BE 0.0003-0.0005 AFTER POLISH, BUT 0.0001 MIN IN AREAS WHICH WILL BE COVERED BY HYDRAULIC FLUID.

<9> CADMIUM-TITANIUM PLATE (F-15.01)

<10> RESTORATION TO DESIGN DIMENSION NOT REQUIRED.

<11> CHROME PLATE (F-15.04) OD (0.002 MINIMUM AFTER GRINDING)

<12> NO F-20.02 PRIMER OR ENAMEL ON THE ID THIS LENGTH

REPAIR

REF <1> <2> <4> <5> <9> <10> <15> <16>

125 √ ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES EQUIV TO 0.06 R UNLESS SHOWN DIFFERENTLY

MATERIAL: 4340M STEEL (270-300 KSI)

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.012-0.015 A2 INTENSITY

ALL DIMENSIONS ARE IN INCHES

<13> NO F-20.02 PRIMER OR ENAMEL ON THE OD THIS LENGTH

<14> NO F-20.02 PRIMER OR ENAMEL

<15> REF REPAIR 2-2

<16> (OPTIONAL TO CHROME PLATE BUILDUP) LIMIT FOR BUILDUP WITH BMS 10-67 TYPE 1 OR 17 CLASS 2, 3, OR 4 TUNGSTEN CARBIDE THERMAL SPRAY (SOPM 20-10-05), 0.010 MAX THICK. PUT A 0.080 MAX RUNOUT AT EDGES. GRIND TO DESIGN DIMENSIONS AND 4 MICROINCH FINISH OR SMOOTHER. THEN CADMIUM-TITANIUM PLATE (SOPM 20-42-02) THE RUNOUT AREA.

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65-46215-17 Barrel Repair
Figure 601 (Sheet 3 of 3)

PIN, METERING - REPAIR 3-1

65-46219–1, –2

1. General

A. This repair gives the data that is necessary to repair the metering pin.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

E. Refer to IPL Figure 1 for item numbers.

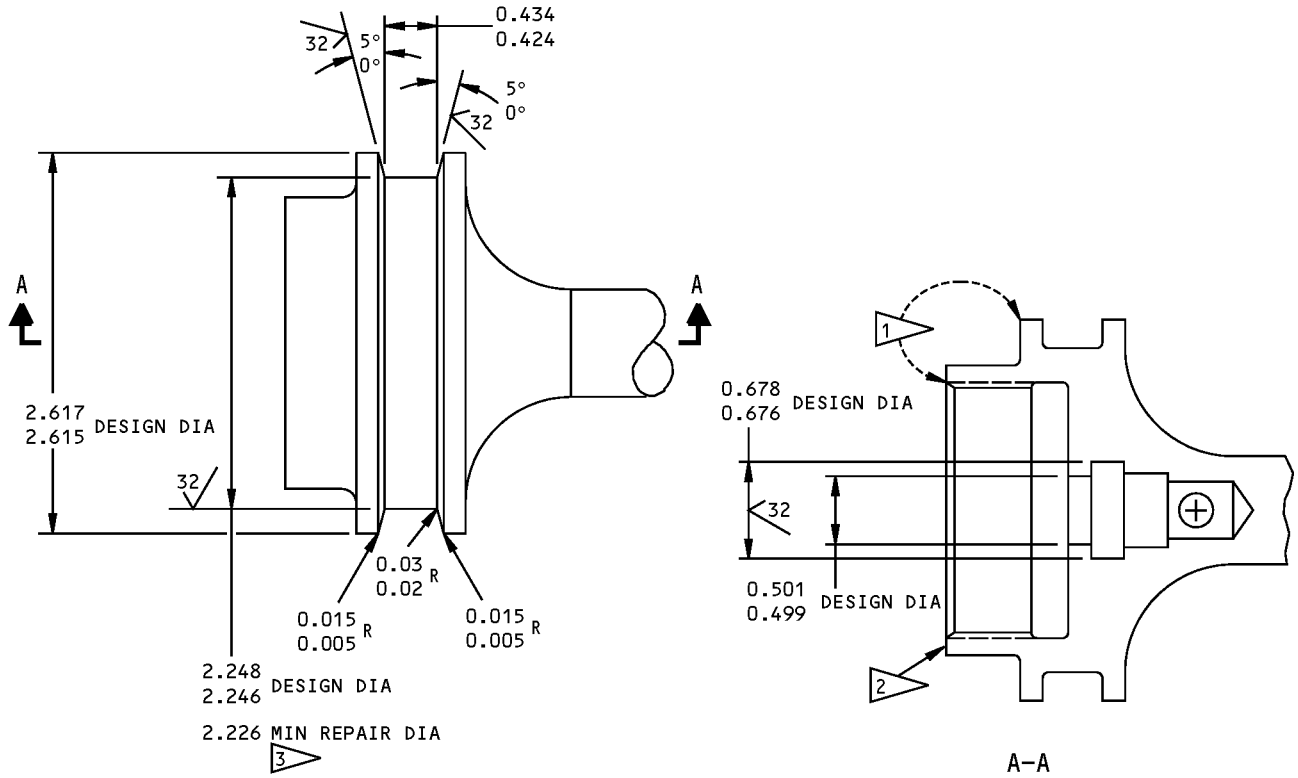
2. Seal Groove (REPAIR 3-1, Figure 601)

NOTE: For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, REPAIR 3-1, Figure 601.

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

B. Shot peen the machined surface (SOPM 20-10-03).

C. Build up the surface with nickel plate (SOPM 20-42-09) and machine to design dimensions and finish. Or build up the surface with chrome plate (SOPM 20-42-03) or thermal spray (SOPM 20-10-05) and grind to design dimensions and finish (SOPM 20-10-04).



REFINISH

CADMIUM PLATE AREA SHOWN BY 1

APPLY NO FINISH ON OTHER AREAS

1 CADMIUM PLATE (F-15.02) THIS AREA

2 DEEP ELECTROCHEMICAL ETCH OR VIBRO ENGRAVE THE PART NUMBER, SERIAL NUMBER AND MANUFACTURER IDENTIFICATION IN THIS AREA. THE MARKS MUST BE SEEN AFTER ALL FINISHES ARE APPLIED. (65-49219-2 AND ON)

3 REPAIR OPTIONS:

1. LIMIT FOR SULFAMATE NICKEL PLATE BUILDUP (SOPM 20-42-09). PUT A 0.040-0.080 RUNOUT AT EDGES. MACHINE TO DESIGN DIMENSIONS AND FINISH.
2. LIMIT FOR CHROME PLATE BUILDUP (SOPM 20-42-03). PUT A 0.040-0.080 RUNOUT AT EDGES. GRIND TO DESIGN DIMENSIONS AND FINISH.
3. LIMIT FOR BUILDUP WITH BMS 10-67 TYPE 1 OR 17 CLASS 2,3, OR 4 THERMAL SPRAY (SOPM 20-10-05), 0.010 MAXIMUM THICKNESS. PUT A 0.040-0.080 RUNOUT AT EDGES. GRIND TO DESIGN DIMENSIONS AND 32 MICROINCH FINISH.

REPAIR

REF 3

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.03 R UNLESS SHOWN DIFFERENTLY

MATERIAL: 4340 STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

65-46219-1,-2 Metering Pin Repair and Refinish
Figure 601

NUT, GLAND - REPAIR 4-1

65-46221thru–3, –8, –11

1. General

A. This repair gives the data that is necessary to repair the gland nut.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

E. Refer to IPL Figure 1 for item numbers.

2. Refinish (REPAIR 4-1, Figure 601)

A. Remove lube fittings (265) and washers (270).

B. Blend corrosion areas and dry grit blast nut (275).

C. Shot peen per SOPM 20-10-03.

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

E. Apply primer, C00259 and enamel coating, C00700 as noted.

F. Install washers (270) and lube fittings (265) per REPAIR 4-1, Paragraph 3..

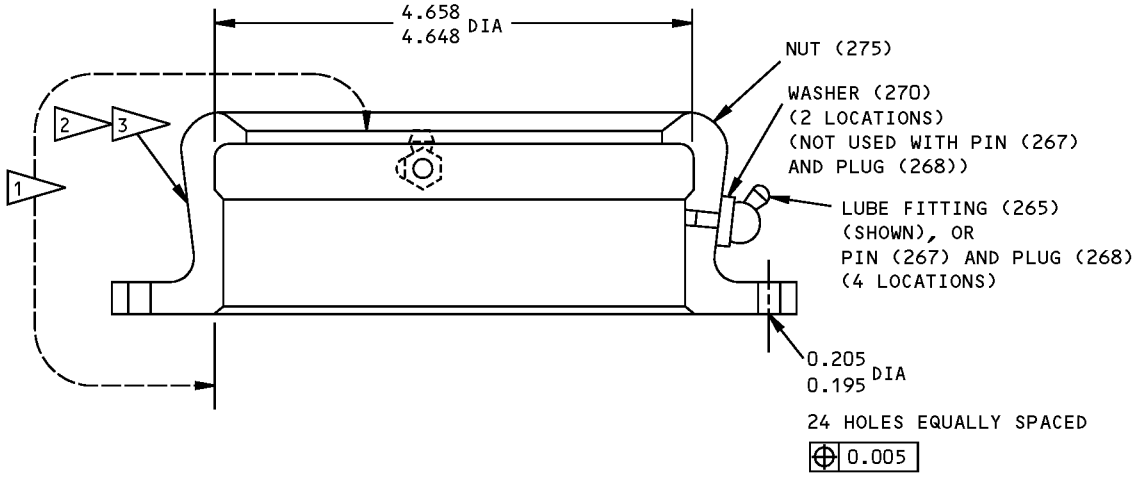
NOTE: If you can turn the lube fitting by hand, remove the fitting and install a new lube fitting with wet primer, C00259 (F-20.02) applied to its serrations. Do not apply primer, C00259 to the lube passage surfaces.

3. Lube Fitting Replacement

A. Replace lube fittings (265) per 32-00-03, or, to use the gland nut with compound, C00913, fill the lube passages with sealant, A00247 or compound, C50056 or corrosion inhibiting non-drying paste, G50136, or install plugs (267) per REPAIR 4-1, Paragraph 4..

4. Pin and Plug Replacement

A. Replace pins (267) and plugs (268) per SOPM 20-50-04 with sealant, A00247 on the mating surfaces. We recommend you cadmium plate (F-15.06) the replacement plugs.



REFINISH

CADMIUM PLATE (F-15.06) ALL OVER.
APPLY PRIMER AND ENAMEL AS SHOWN BY 1

1 APPLY BMS 10-11, TYPE 1, PRIMER (F-20.02) AND BMS 10-60, COLOR 707 GRAY ENAMEL (SRF-14.9813).

2 VIBROENGRAVE THE PART NUMBER AND SERIAL NUMBER IN THIS AREA.

3 VIBROENGRAVE THE MANUFACTER'S IDENTIFICATION IN THIS AREA, IF AVAILABLE.

REPAIR

125 ALL MACHINED SURFACES EXCEPT AS NOTED

MATERIAL: GLAND NUT (275)
4340 STEEL (180-200 KSI)

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

65-46221-3,-4,-5,-6,-7,-8,-11 Gland Nut Details
Figure 601

CAM, UPPER - REPAIR 5-1

65-46227–1

1. General

A. This procedure tells how to repair the upper cam.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair figures.

E. Refer to IPL Figure 1 for item numbers.

2. Cam Repair (REPAIR 5-1, Figure 601)

A. For better wear resistance, apply a thin layer of flame spray coating, G00167 or coating, G50026 (SOPM 20-10-05) to the cam profile surface.

NOTE: This coating is not necessary, but is recommended on one cam (upper or lower) to prevent galling.

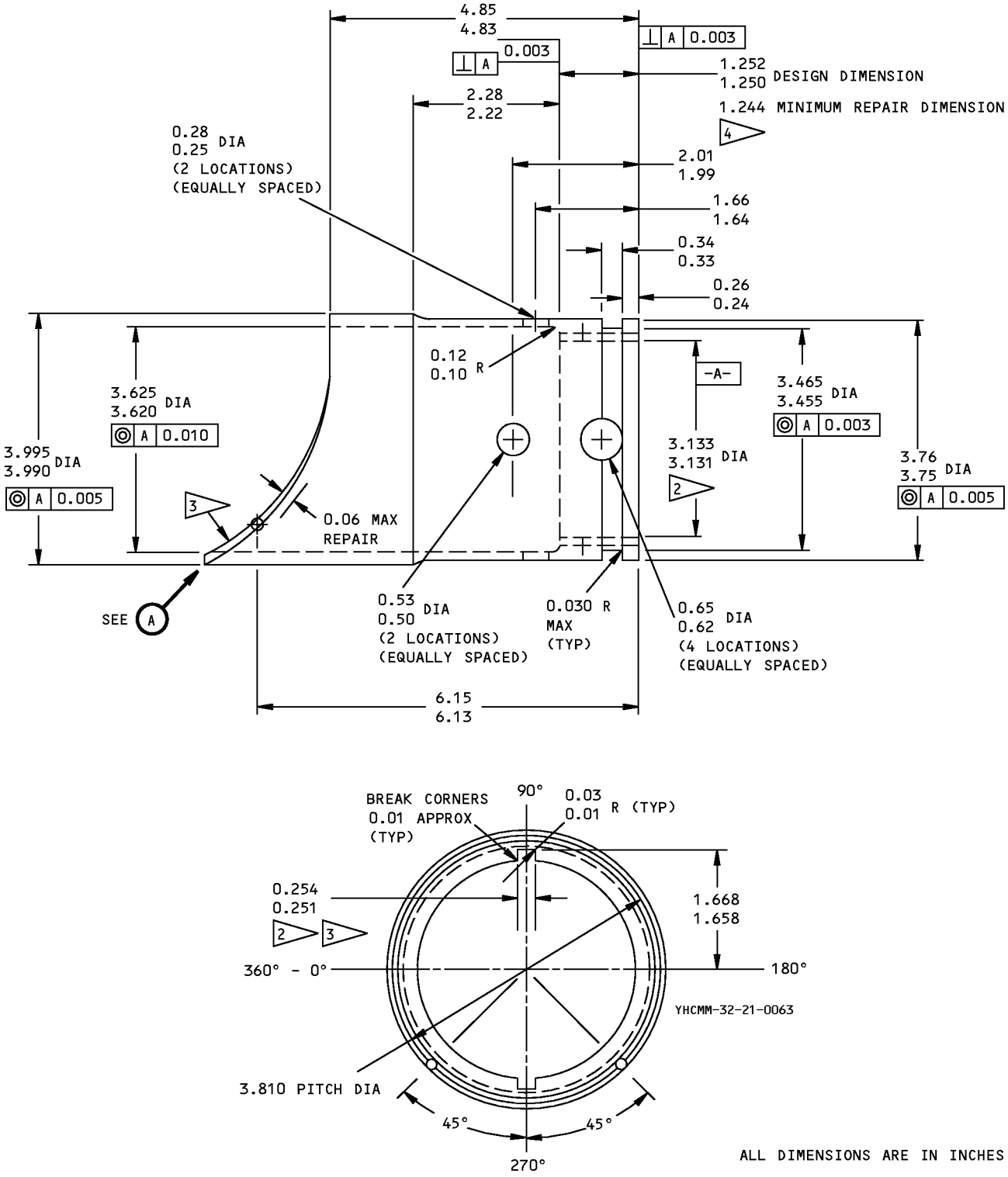
B. Face repair

(1) Machine as necessary, within repair limits, to remove defects.

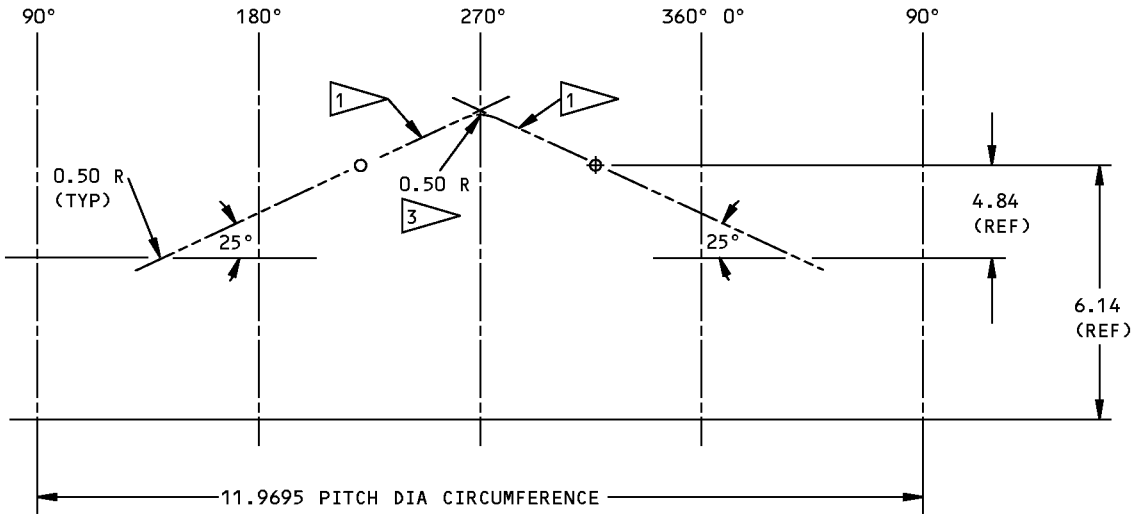
(2) Restore the adjacent radius, as shown.

(3) Blend the repaired area smooth with the radius.

(4) Make a note to adjust the increased gap between the cam and the spacer halves (175) by the procedure that uses shims (180, 185, 190) in ASSEMBLY, Paragraph 4.E.



65-46227-1 Upper Cam Repair
Figure 601 (Sheet 1 of 2)



CAM PROFILE DATA

(A)

REFINISH

NO FINISH (F-25.01)

REPAIR

REF 4

1 CAM RAMPS MUST BE TRUE HELICAL SURFACES WITH 63 SURFACE ROUGHNESS

2 ℄ OF KEYWAY MUST BE ON ℄ OF 3.131-3.133 DIA WITHIN 0.001 (TYP)

3 ℄ OF CAM LOBE MUST BE ON ℄ OF KEYWAY WITHIN 0°5'

4 RESTORATION TO DESIGN DIMENSIONS IS NOT NECESSARY

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.02R

MATERIAL: 4340 STEEL (180-200 KSI)

ALL DIMENSIONS ARE IN INCHES

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65-46227-1 Upper Cam Repair
Figure 601 (Sheet 2 of 2)

CAM, LOWER - REPAIR 6-1

65-46228–3

1. General

A. This repair gives the data that is necessary to repair the lower cam.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

E. Refer to IPL Figure 1 for item numbers.

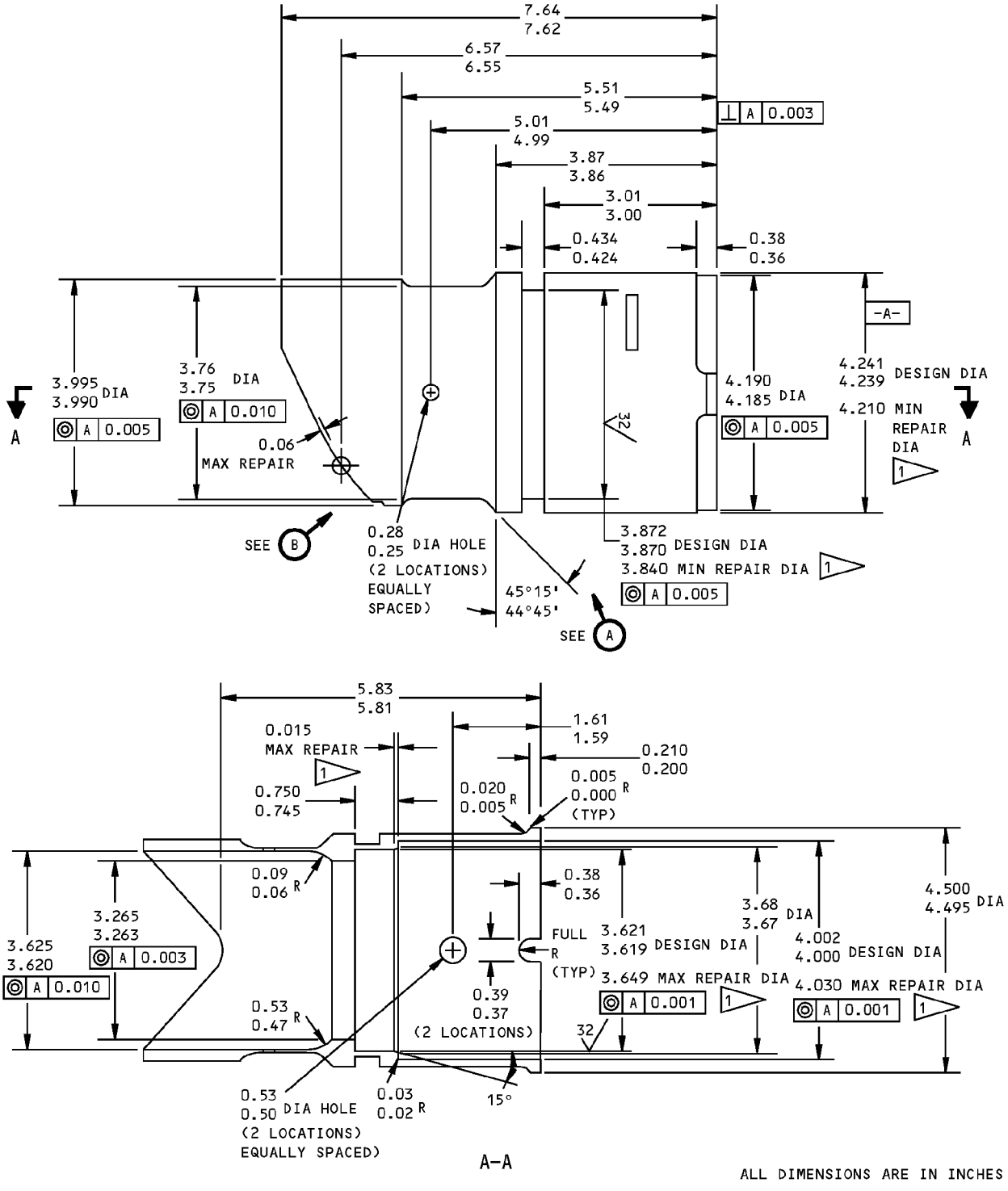
2. Cam Repair (REPAIR 6-1, Figure 601

A. Machine as required, within repair limits, to remove defects. If repair of cam profile is necessary, we recommend that you machine the entire cam profile.

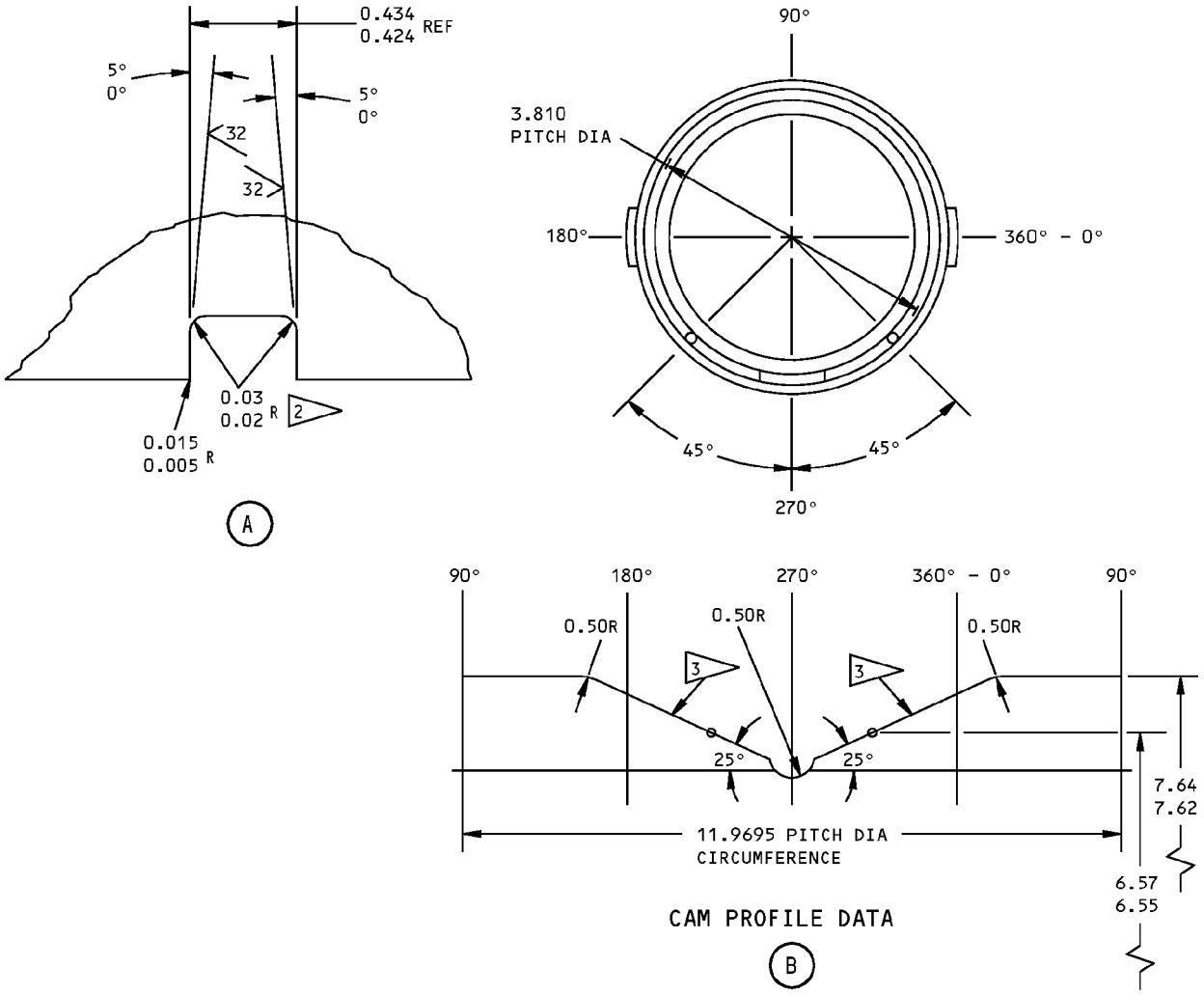
B. For better wear resistance, apply a thin layer of flame spray coating, G00167 or flame spray coating, G00167 coating, G50026 (SOPM 20-10-05) to the cam profile surface.

NOTE: This coating is not necessary after machining but is recommended on one cam (upper or lower) to prevent galling.

C. Shot peen (SOPM 20-10-03), chrome plate (SOPM 20-42-03) and grind surfaces noted to design dimensions and finish (SOPM 20-10-04).



65-46228-3 Lower Cam Repair
Figure 601 (Sheet 1 of 2)



REFINISH

APPLY NO FINISH (F-1.10)

1 LIMIT FOR WITH CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH. PUT A 0.08 PLATING RUNOUT AT EDGES, HOLES AND RELIEFS UNLESS SHOWN DIFFERENTLY

2 NO PLATING IN CORNER OR EDGE RADIUS

3 CAM RAMPS MUST BE TRUE HELICAL SURFACES WITH 63 SURFACE FINISH

REPAIR

REF 1 2 3

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES EQUIV TO 0.03R

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.015A2 INTENSITY

MATERIAL: 15-5PH CRES (180-200 KSI)

ALL DIMENSIONS ARE IN INCHES

65-46228-3 Lower Cam Repair
Figure 601 (Sheet 2 of 2)

TUBE, SUPPORT - REPAIR 7-1

65-46229–6, –7

1. General

A. This repair gives the data that is necessary to repair the support tube.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

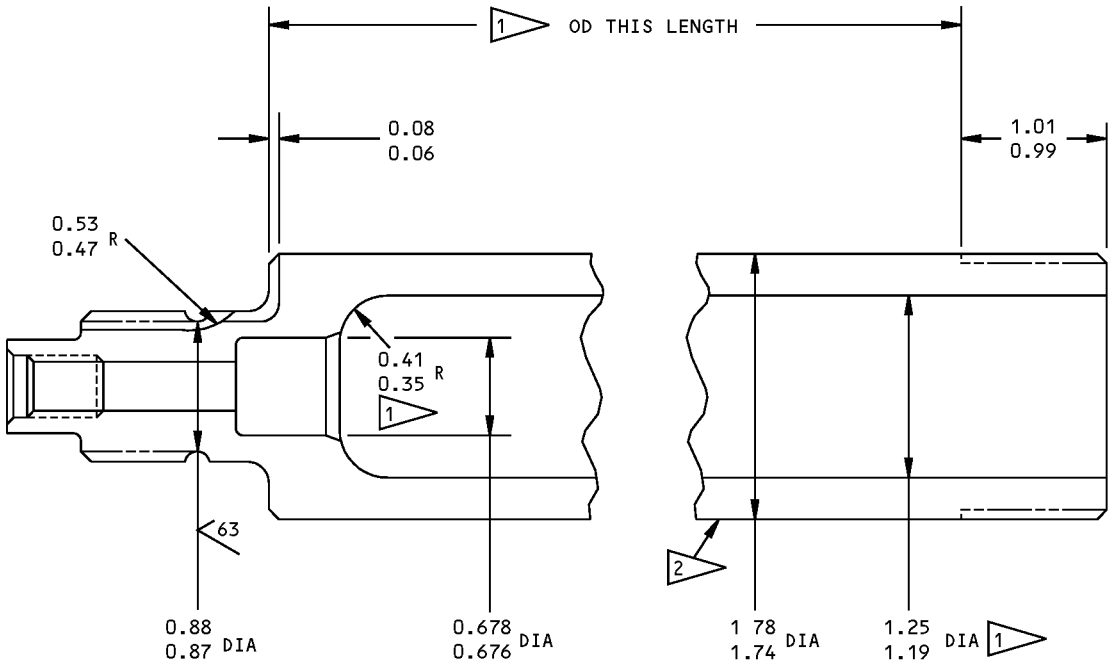
C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

E. Refer to IPL Figure 1 for item numbers.

2. Coating Repair (REPAIR 7-1, Figure 601)

A. Repair is only replacement of the original finish. Refer to Refinish instructions, REPAIR 7-1, Figure 601.



REFINISH

CHROMIC ACID ANODIZE (F-17.04) ALL OVER. APPLY PRIMER TO AREAS SHOWN BY 1

REPAIR

(SAME AS REFINISH)

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

1 APPLY BMS 10-11, TYPE 1 PRIMER (F-20.02) TO THIS AREA

2 DEEP ELECTROCHEMICAL ETCH OR VIBRO ENGRAVE THE PART NUMBER, SERIAL NUMBER AND MANUFACTURER'S IDENTIFICATION IN THIS AREA. THE MARK MUST BE SEEN AFTER ALL FINISHES ARE APPLIED.

65-46229-6,-7 Support Tube Repair and Refinish
Figure 601

TUBE, ORIFICE SUPPORT - REPAIR 8-1

69-73038–1, –3

1. General

A. This repair gives the data that is necessary to repair the orifice support tube

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to IPL Figure 1 for item numbers.

2. Stem Replacement (REPAIR 8-1, Figure 601)

NOTE: For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, REPAIR 8-1, Figure 601.

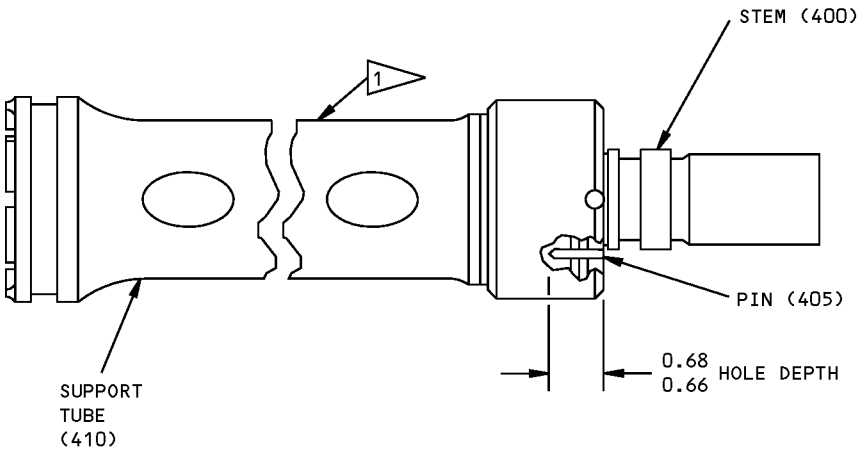
A. Remove pin (405) and unscrew stem (400) from tube (410).

B. Lubricate external threads on tube (410) and adjacent end face with fluid, D00070 or fluid, D00106.

C. Install stem (400) on tube (410) and tighten to 1000-1200 lb-in.

D. Align the 0.077-0.081 inch-diameter hole in stem (400) with the 0.077-0.081-inch-diameter hole in tube (410).

E. Install pin (405).



REFINISH

STEM (400) - CADMIUM PLATE (F-15.06)

TUBE (410) - CHROMIC ACID ANODIZE (F-17.04)

1 VIBRO ENGRAVE PART NUMBER, SERIAL NUMBER AND VENDOR NUMBER THIS AREA

MATERIAL: STEM (400) - 4330M STEEL (180-200 KSI)

TUBE (410) - 7075-T6 AL ALLOY

ALL DIMENSIONS ARE IN INCHES

69-73038-1,-3 Stem Replacement
Figure 601

BOLT, STEERING PLATE - REPAIR 9-1

69-74637–1

1. General

A. This repair gives the data that is necessary to repair the steering plate bolt.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

E. Refer to IPL Figure 1 for item numbers.

2. Shank Repair - OD (REPAIR 9-1, Figure 601)

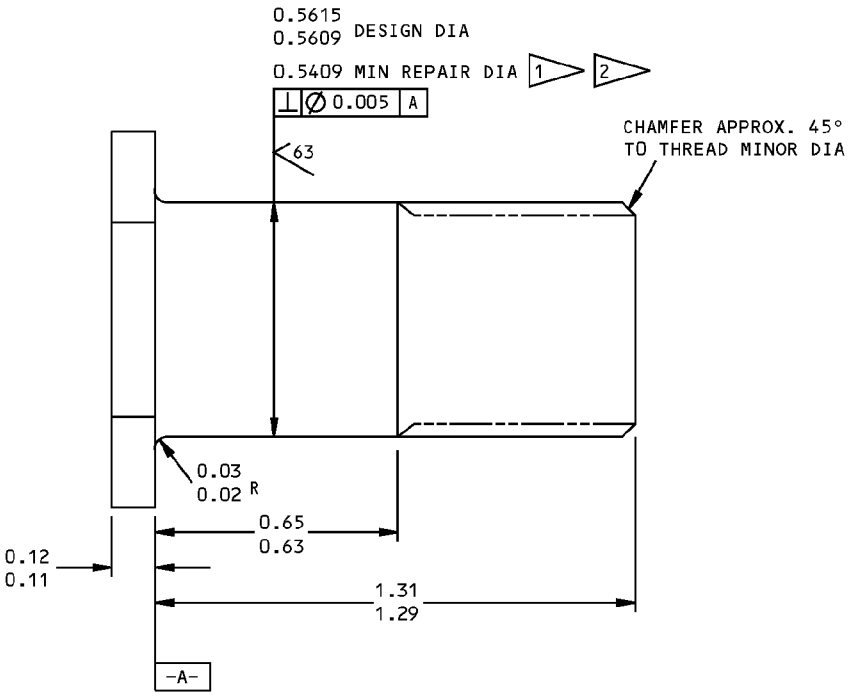
NOTE: For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions in REPAIR 9-1, Figure 601.

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

B. Shot peen (SOPM 20-10-03).

C. Build up with chrome plate (SOPM 20-42-03) or thermal spray (SOPM 20-10-05) and grind to design dimensions and finish (SOPM 20-10-04).

D. Chrome plate thickness must not be more than 0.015 inch after grinding. Thermal spray coating thickness must not be more than 0.010 inch after grinding.



REFINISH

CADMIUM PLATE (F-15.02) AND WIPE WITH PRIMER (F-19.45)

1 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH. PUT A 0.06 MAX PLATING RUNOUT AT EDGES

2 LIMIT FOR BUILDUP WITH BMS 10-67 TYPE 1 OR 17 CLASS 2,3, OR 4 THERMAL SPRAY (SOPM 20-10-05), 0.010 MAXIMUM THICKNESS. PUT A 0.080 MAXIMUM RUNOUT AT EDGES. GRIND TO DESIGN DIMENSIONS AND 4 MICROINCH FINISH. THEN CADMIUM-TITANIUM PLATE (SOPM 20-42-02) THE RUNOUT AREA

REPAIR

REF 1 2

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.04 R MAX UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.015A2 INTENSITY

MATERIAL: 4340 STEEL (180-200 KSI)

ALL DIMENSIONS ARE IN INCHES

69-74637-1 Steering Plate Bolt and Refinish
Figure 601

MISCELLANEOUS PARTS REFINISH - REPAIR 10-1

1. General

A. Use this procedure to refinish the parts which are not in the other repairs.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

D. Refer to IPL Figure 1 for item numbers.

2. Refinish

A. Repair of the parts in REPAIR 10-1, Table 601 is only replacement of the original finish.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Lock (20)	4340 steel, 180-200 ksi	Cadmium plate (F-1.32).
Nut (30)	4340 steel, 180-200 ksi	Cadmium plate (F-15.06).
Washer (35)	4130 steel, 125-145 ksi	Cadmium plate and apply primer, C00259 (F-16.01).
Washer (40)	4340 steel, Rc 33	Cadmium plate (F-1.32).
Pin (85)	303 CRES	Passivate (F-17.25, which replaces F-17.09).
Ring (160)	Be-Cu	No finish (F-25.01).
Bearing (165)	Al-Ni-Bronze	No finish (F-25.01).
Spacer (175)	15-5PH CRES, 180-200 ksi	No finish (F-25.01).
Shims (180,185,190)	302 CRES	No finish (F-25.01).
Ring (195)	A1-Bronze	No finish (F-25.01).
Key (200)	4340 or 4130 steel, 125-150 ksi	No finish (F-25.01).
Adapter (255)	Al alloy	Chromic acid anodize (F-2.20).
Washer (295)	Carbon steel	Cadmium plate (F-1.1926).
Washer (300)	Al alloy	Chromic acid anodize (F-2.20).
Tube (350)	304 CRES	Passivate (F-17.25, which replaces F-17.09).
Ring (375)	Al-Bronze	No finish (F-25.01).
Lock (385)	4340 steel, 150-170 ksi	No finish (F-25.01).
Plate (390)	4340 steel, 180-200 ksi	No finish (F-25.01).
Stem (400)	4330M steel, 180-200 ksi	Cadmium plate (F-15.06).

MARKER - REPAIR 11-1

BAC27DLG0110, BAC27DLG0137

1. General

A. This repair gives the data that is necessary to repair the marker.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to REPAIR-GENERAL, Paragraph 3. for the description of the consumable codes identified in this procedure.

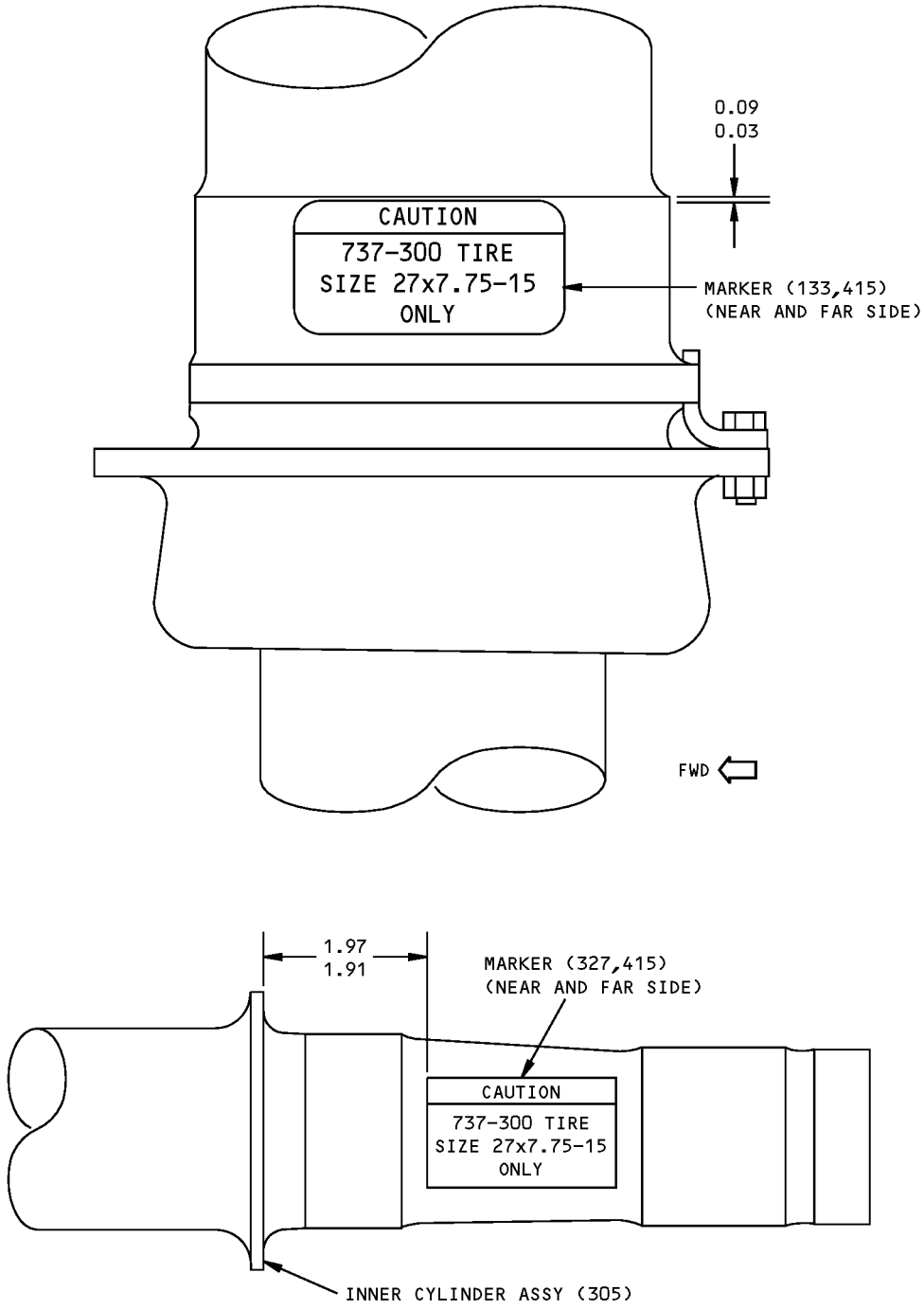
D. Refer to IPL Figure 1 for item numbers.

2. Marker Replacement (REPAIR 11-1, Figure 601)

NOTE: Refer to IPL Figure 1 for item numbers.

A. Remove the defective markers (133, 327).

B. Apply replacement markers per SOPM 20-50-05. Seal around edges of marker with sealant, A00247. Apply protective coating, B00571 per SOPM 20-44-01 to all of the marker surface and the sealant, A00247 fillets.



BAC27DLG0110 Marker Replacement
Figure 601

LOWER CAM - REPAIR 12-1

65C31706–1

1. General

A. This repair gives the data that is necessary to repair the lower cam.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

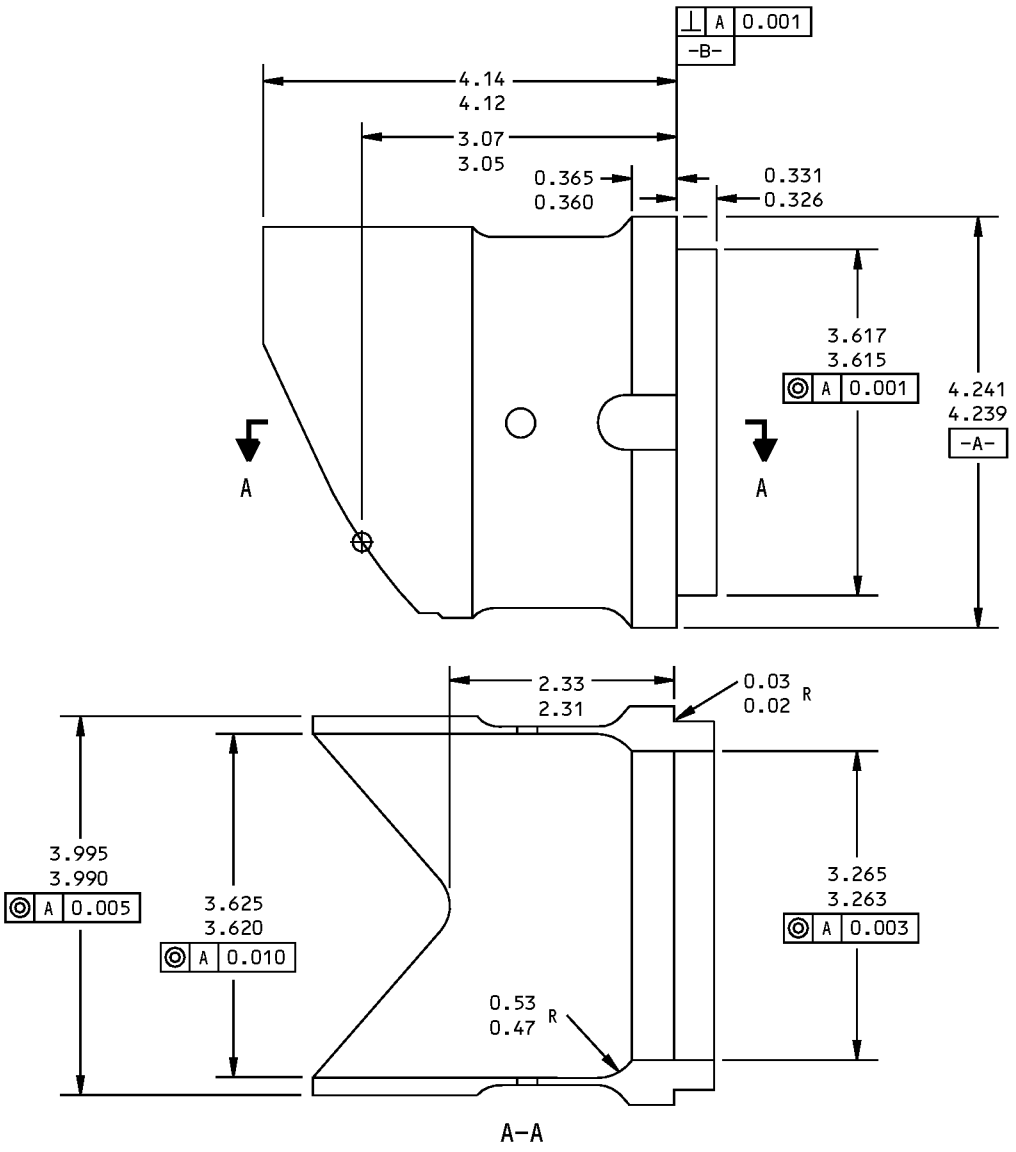
C. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

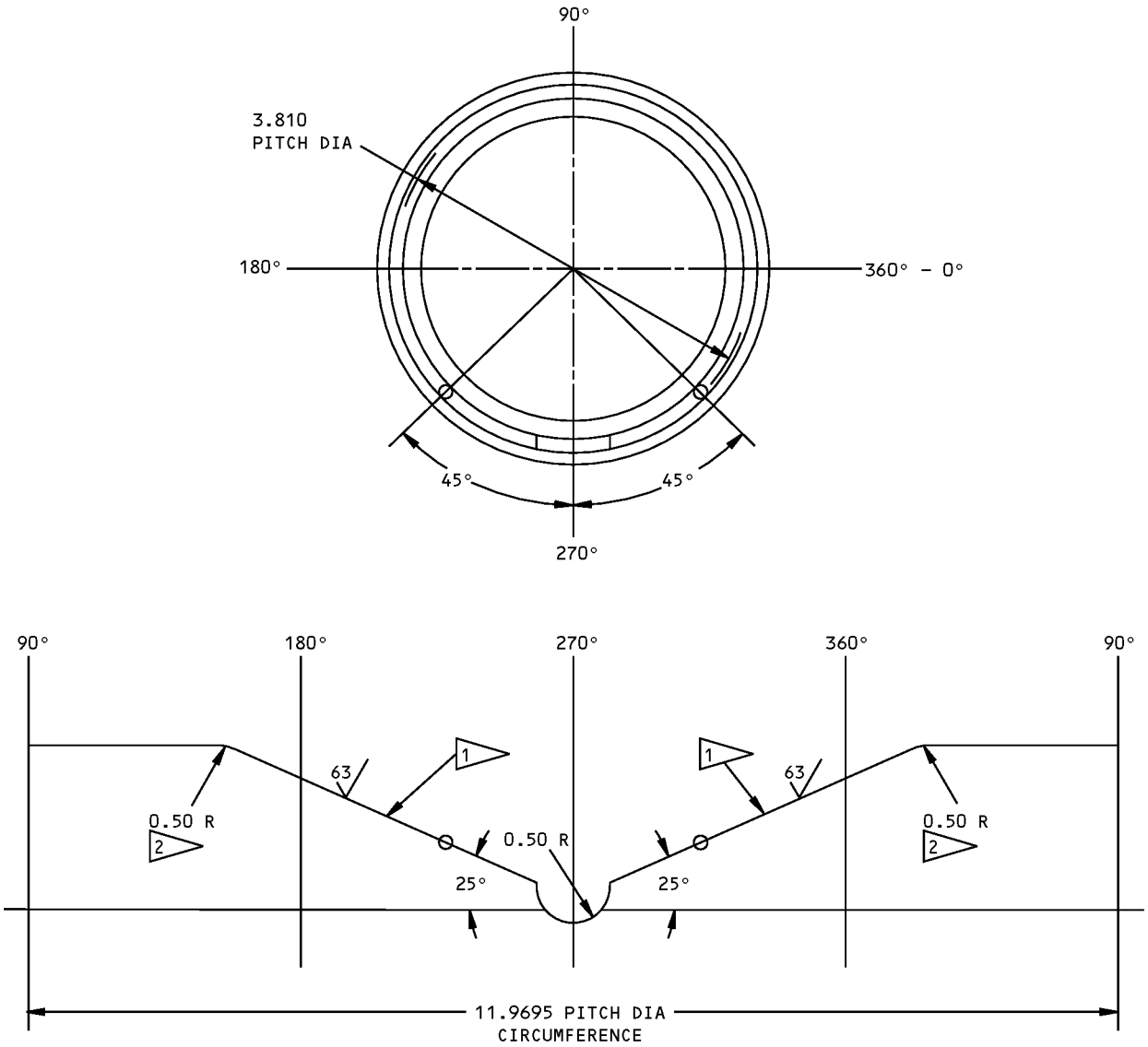
2. Repair

A. Procedure

(1) Repair consists of replacement of a worn or defective cam.



LOWER CAM
Figure 601 (Sheet 1 of 2)



REFINISH

APPLY NO FINISH (F-25.01)

125 ALL MACHINED SURFACES

MATERIAL: AL-NI-BR PER AMS 4640

ALL DIMENSIONS ARE IN INCHES

1 CAM RAMPS MUST BE TRUE HELICAL SURFACE

2 SURFACE OF THIS RADIUS SHALL BE CONTINUOUSLY RADIAL AND PERPENDICULAR TO THE ℄ OF -A-

65C31706-1

LOWER CAM
Figure 601 (Sheet 2 of 2)

UPPER BEARING - REPAIR 13-1

69-65393–1

1. General

A. This repair gives the data that is necessary to repair the upper bearing.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

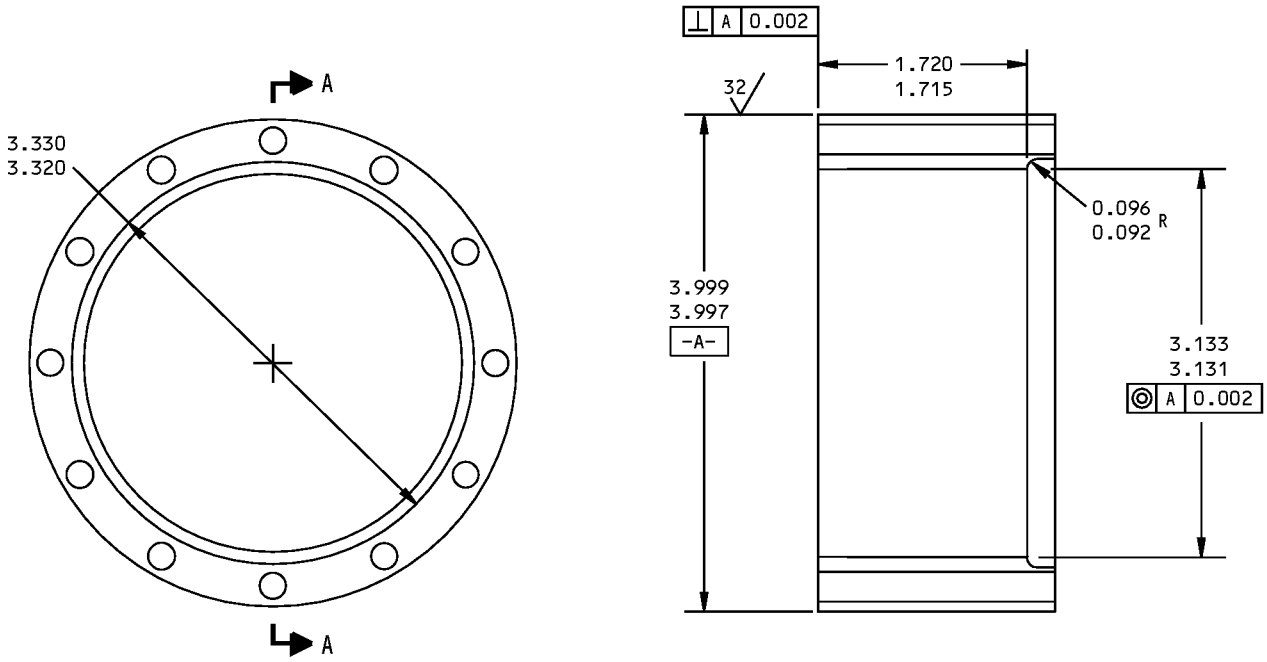
C. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Repair

A. Procedure

NOTE: Repair consists of replacement of a worn or defective bearing.



REFINISH

APPLY NO FINISH (F-25.01)

63 ALL MACHINED SURFACES EXCEPT AS NOTED

MATERIAL: AL-NI-BR

ALL DIMENSIONS ARE IN INCHES

UPPER BEARING
Figure 601

LOWER BEARING - REPAIR 14-1

69-43201–1

1. General

A. This repair gives the data that is necessary to repair the lower bearing.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

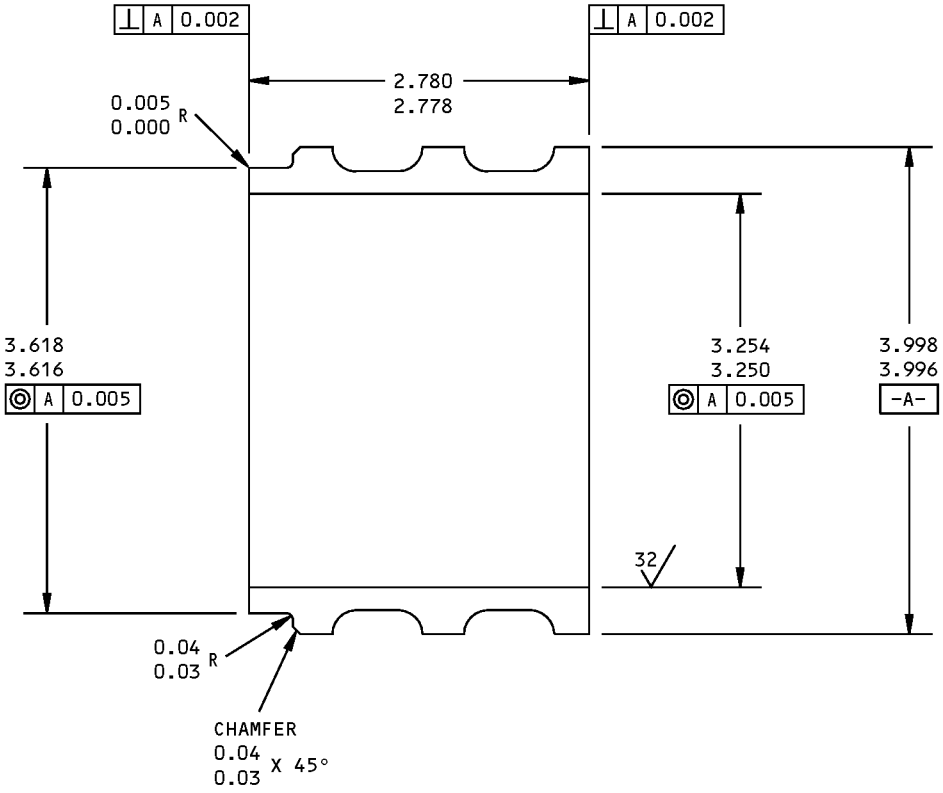
C. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Repair

A. Procedure

(1) Repair consists of replacement of a worn or defective bearing.



REFINISH

APPLY NO FINISH (F-25.01)

63 ALL MACHINED SURFACES EXCEPT AS NOTED

MATERIAL: AL-BR

ALL DIMENSIONS ARE IN INCHES

LOWER BEARING
Figure 601

LOWER BEARING - REPAIR 15-1

69-76508–1, –2

1. General

A. This repair gives the data that is necessary to repair the lower bearing.

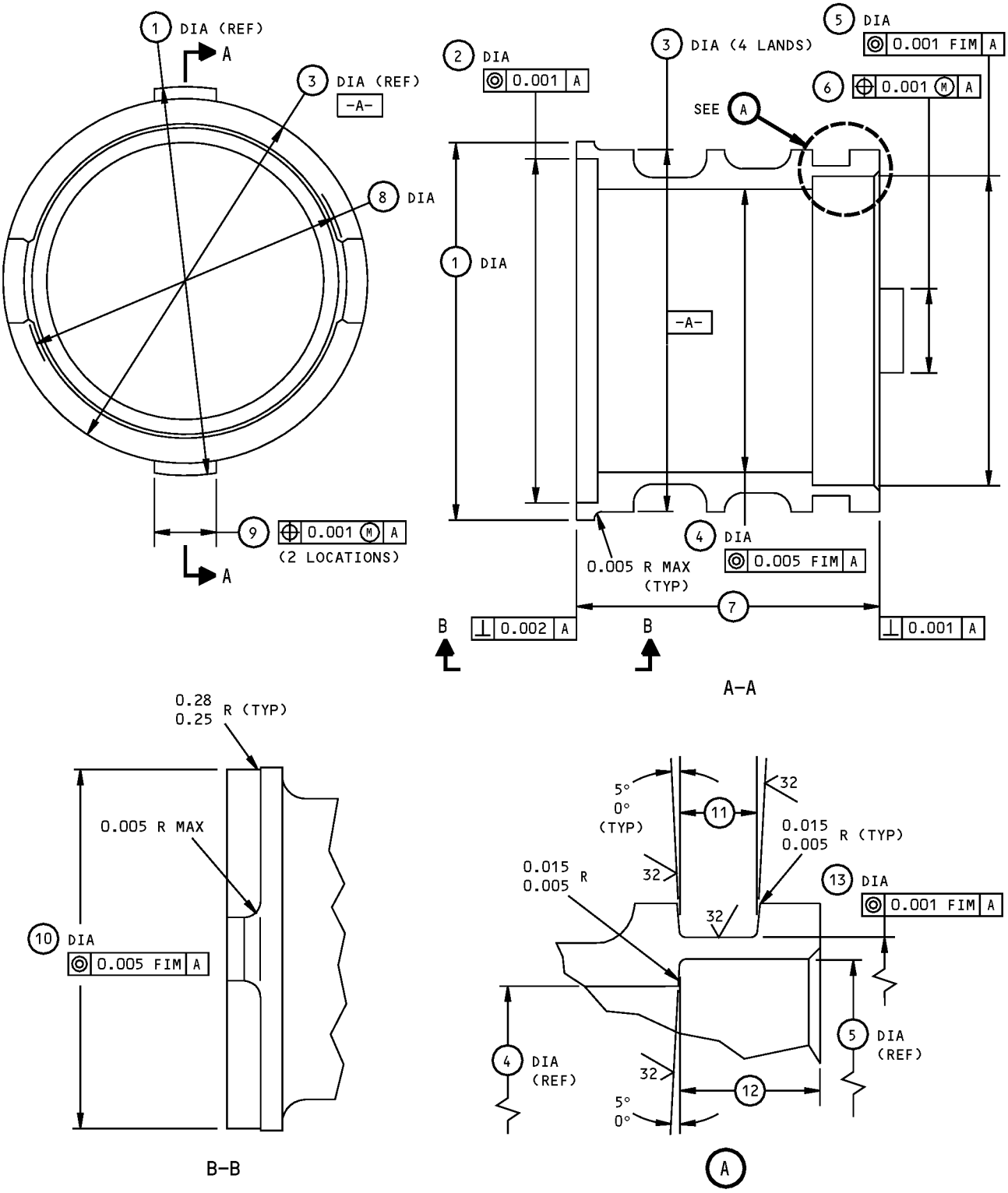
B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

C. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Seal Groove Repair - OD (REPAIR 15-1, Figure 601)

A. Machine as required, within repair limits, to remove defects SOPM 20-10-09.



69-76508-1,-2 Lower Bearing Repair and Refinish
Figure 601 (Sheet 1 of 2)

REFERENCE NUMBER	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
DESIGN DIMENSION	4.442 4.440	4.002 4.000	4.241 4.239	3.254 3.250	3.620 3.619	0.995 0.993	3.505 3.500	3.765 3.755	0.749 0.747	
REPAIR LIMIT	--	--	--	--	--	--	--	--	--	

REFERENCE NUMBER	(10)	(11)	(12)	(13)
DESIGN DIMENSION	4.190 4.185	0.434 0.424	0.760 0.755	3.872 3.870
REPAIR LIMIT	--	--	0.770 1	--

REFINISH

NO FINISH

1 RESTORATION TO DESIGN DIMENSIONS NOT REQUIRED

REPAIR

REF 1

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL: AL-NI-BR PER AMS 4640

ALL DIMENSIONS ARE IN INCHES

69-76508-1,-2 Lower Bearing Repair and Refinish
Figure 601 (Sheet 2 of 2)

UPPER ORIFICE PLATE - REPAIR 16-1

69-36622–2, –3

1. General

A. This repair gives the data that is necessary to repair the upper orifice plate.

B. Refer to REPAIR-GENERAL, Paragraph 2. for the Standard Overhaul Practices Manual (SOPM) shown in the repair.

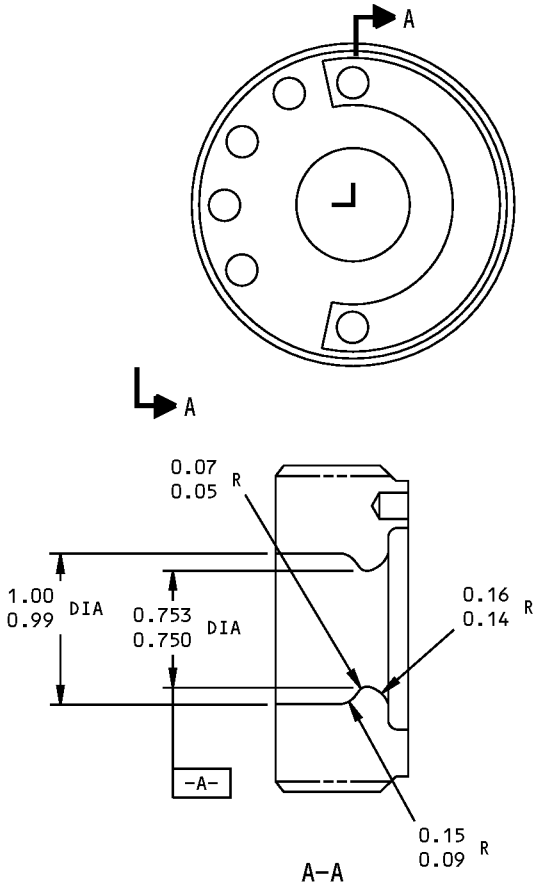
C. Refer to the REPAIR-GENERAL, Paragraph 4. for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Repair

A. Procedure

NOTE: Repair consists of replacement of a worn or defective orifice plate.



REFINISH

NO FINISH

REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

MATERIAL: 4340 STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

UPPER ORIFICE PLATE
Figure 601

ASSEMBLY

1. **General**

   A. This procedure has the data necessary to assemble the nose gear shock strut 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. **Equipment**

   NOTE: Equivalent substitutes can be used.

   A. Orifice Tube Extension – F80160-1

   B. Pin Spanner Adapter Assembly – F80013-1

   C. Ring Compressor – C32002-1

3. **Lubrication**

   A. Before installation, put packings (O-rings) and retainers (backup rings) in fluid, D50022 and install wet per SOPM 20-50-06.

4. **Assembly (IPL Figure 1)**

   A. Consumable Materials

   NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00226	Compound - Tamper-Proof Putty	BMS8-45
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
A50031	Sealant - Dow Corning 732 Multi-Purpose Sealant	MIL-A-46106
B00316	Solvent - Aliphatic Naphtha (For Organic Coatings)	TT-N-95 Type I, ASTM D-3735 Type I
C00048	Primer - Adhesive - 1200 RTV	BAC5010, Type 62
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS 3-27
D00504	Grease - Petrolatum	VV-P-236
D50022	Fluid - Landing Gear Shock Strut (Specifically For Preservation)	BMS3-32, Type I
G01314	Tape - Polyethylene - 3M No. 8412	
G50347	Lockwire - Nickel-copper, 0.032 inch diameter	NASM20995N˜ C32

B. References

Reference	Title
CMM 32-21-48	NOSE GEAR ASSEMBLY
SOPM 20-50-06	INSTALLATION OF O-RINGS AND TEFLON SEALS

C. Lubrication

(1) Before installation, put packings (O-rings) and retainers (backup rings) in fluid, D50022 and install wet per SOPM 20-50-06.

(2) Packings and retainers can be lubricated with grease, D00504 but do not use too much.

D. Install internal parts in inner cylinder (305).

(1) Install packings (355), retainers (360), packing (365) and retainers (370).

(2) Install drain tube (350) in support tube (340). Install support tube (340) into metering pin (345) as follows:

(a) If the old support tube (340) and metering pin (345) are used, turn the support tube into the metering pin until it stops at the bottom. If the bores in the tube and the metering pin for bolt (335) are not aligned, drill a new 0.164-0.168-inch hole through the support tube with the hole in the metering pin as a guide. If this will make a third hole, or a second hole less than 45 degrees from the first hole, discard this tube and get another tube with no more than one hole in it.

(b) If a replacement support tube (340) is used with the old metering pin (345), turn support tube into the metering pin until it stops at the bottom. Then drill a new 0.164-0.168-inch hole through the support tube with the hole in the metering pin as a guide. If this will make a third hole, or a second hole less than 45 degrees from the first hole, discard this tube and get another tube with no more than one hole in it.

(c) If a replacement metering pin (340) is used with a replacement support tube (345), turn the support tube into the metering pin until it stops at the bottom. Drill a new 0.164-0.168-inch hole through the metering pin and the support tube, as shown in ASSEMBLY, Figure 701. If this will make a third hole, or a second hole less than 45 degrees from the first hole, discard this tube and get another tube with no more than one hole in it.

(3) Install bolt (335).

(4) Carefully install metering pin assembly (330) into inner cylinder assembly (305). The check valve end of the metering pin assembly must extend through the bottom of the inner cylinder.

(5) Lubricate piston ring (375) with fluid, D50022 and install the ring on orifice support tube (395).

(6) Lubricate threads of upper orifice plate (390) with fluid, D50022 and install plate in support tube (395). Tighten to 1000-1200 lb-in. and align orifice plate to let you install orifice lock (385).

(7) Install packing (150) and retainers (155).

Install orifice plate lock (385) with screws (380) and lockwire, G50347.

(8) Compress piston ring (375) and install orifice support tube (395) in inner cylinder.

(9) Install lower support tube washer (300), keywashers (295) and nut (290). Tighten nut (290) to 1000-1500 lb-in.

(10) Install check valve (280) with packing (285). Make sure the arrow on the check valve points into the shock strut. Tighten the check valve to 8-10 pound-feet. Install lockwire, G50347.

E. Install external parts on inner cylinder.

(1) Carefully slide gland nut (260), scraper ring (250) and scraper adapter (255) over inner cylinder.

(2) Install spare seals on lower bearing (245) and carefully slide lower bearing over inner cylinder.

(3) Install active dynamic seal against lower bearing.

(4) Install packing (210) and retainers (215) on lower cam (220). Install cam on inner cylinder over lower bearing (245).

(5) Insert keys (200) in keyways of inner cylinder.

NOTE: You can punch-mark the keys on their sides for a tighter fit.

(6) Put piston ring (195) on upper cam (205) and align cam keyways with keys (200). Slide ring and cam on inner cylinder. Upper cam (205) and lower cam (220) must be installed on inner cylinder with notched valley of lower cam aligned with lobe of upper cam.

(7) Install upper bearing (165) on inner cylinder. Put in retainer ring (160) and put the bearing against the ring.

(8) Install spacer halves (175). With a feeler gage, measure the gap between spacer and upper cam (205). Use shims (180, 185, 190) as necessary to get a gap of 0.005 inch maximum.

(9) Remove retainer ring (160), upper bearing (165) and spacer halves (175).

(10) Install shim(s), upper bearing (165) and retainer ring (160).

CAUTION: WHEN YOU INSTALL RING (170), BE CAREFUL NOT TO PUT SCRATCHES IN UPPER BEARING (165).

(11) With bearing (165) against retainer ring (160), install spacer halves (175) between shim(s) and bearing per ASSEMBLY, Figure 702. Then install retainer ring (170).

F. Assemble inner and outer cylinders.

CAUTION: SOME GLAND NUTS AND OUTER CYLINDERS COULD HAVE UNDERSIZE THREADS. MAKE SURE THAT SUCH PARTS ARE MATCHED AND IDENTIFIED, AND THAT SUCH PARTS ARE NOT MIXED WITH STANDARD PARTS (SEE REPAIR 1-4). SOME INNER CYLINDERS COULD HAVE UNDERSIZE AXLE THREADS, TO BE USED WITH SPECIAL UNDERSIZE WHEEL RETAINER NUT. MAKE SURE THAT SUCH PARTS ARE MATCHED AND IDENTIFIED, AND THAT SUCH PARTS ARE NOT MIXED WITH STANDARD PARTS.

(1) Install orifice tube extension F80160-1 in orifice support tube (395).

CAUTION: MAKE SURE THE TABS ON LOWER CAM (220) GO INTO THE SLOTS ON OUTER CYLINDER DURING INSTALLATION OF INNER CYLINDER INTO OUTER CYLINDER OR DAMAGE TO PARTS COULD OCCUR. MAKE SURE THE END OF THE LOWER CAM IS 0.03-0.06 INCH BELOW LOWER END OF OUTER CYLINDER.

(2) Carefully install inner cylinder in outer cylinder assembly. Use ring compressor C32002-1 to compress ring (195). Guide orifice tube extension through hole in upper end of outer cylinder. Lubricate parts with fluid, D50022.

CAUTION: MAKE SURE TABS ON 65-46228-SERIES LOWER CAM (37) ARE IN THE MATING SLOTS OF THE OUTER CYLINDER. IF OUTER CYLINDER HAS UNDERSIZE THREADS, MAKE SURE LOWER CAM TABS WERE MACHINED TO PERMIT INSTALLATION OF UNDERSIZE GLAND NUT. WHEN CORRECTLY INSTALLED, THE END OF THE LOWER CAM WILL BE BELOW THE END OF THE OUTER CYLINDER 0.03-0.06 INCH.

(3) If gland nut (260) has plugs or nothing in it, apply compound, C00913 to the threads of the gland nut and or the outer cylinder. If the gland nut has lube fittings in it, apply grease to the threads, but we recommend the compound, C00913, because grease does not give sufficient corrosion resistance. Then install gland nut (260) on the outer cylinder. With adapter F80013-1, tighten the nut to 175-200 lb-ft. Then back off the nut to align the nearest slot for lock (20).

CAUTION: BE SURE THAT LOCKWASHER (40) IS DOWN AGAINST ORIFICE SUPPORT TUBE (395) OR DAMAGE TO PARTS COULD OCCUR.

(4) Install lockwasher (40), tanged washer (35) and locknut (30) on orifice support tube (395). Tighten nut (30) to 500-1500 lb-in. to align center of washer (35) tangs with center of flats on nut (30). If tangs do not align, remove the nut, turn the washer over and try again. After alignment, bend washer (35) tangs up against nut (30) flats.

(5) Install air valve (25) finger-tight. Do not tighten it to final torque because it will be removed again during the test.

(6) Install gland nut lock (20), bolts (15), washers (18) and nuts (5). Tighten nuts (5) to 20-25 lb-in.

(7) After assembly and the test (Ref TESTING AND FAULT ISOLATION), apply 1200 RTV primer, C00048 to the seal area and Dow Corning 732 multi-purpose sealant, A50031 to gland nut per ASSEMBLY, Figure 703.

(8) Seal gland nut lock (20) and nut (290) with compound, A00226 per ASSEMBLY, Figure 703.

(9) Install nameplate (145) with straps (140) and seals (135). Or, as an optional installation, clean the painted surface of shock strut with solvent, B00316 and install one wrap of 3M No. 8412 tape, G01314 under each strap. Bond the straps and nameplate to the cylinder with sealant, A00247. Apply this sealant, A00247 around edges of nameplate after straps are installed.

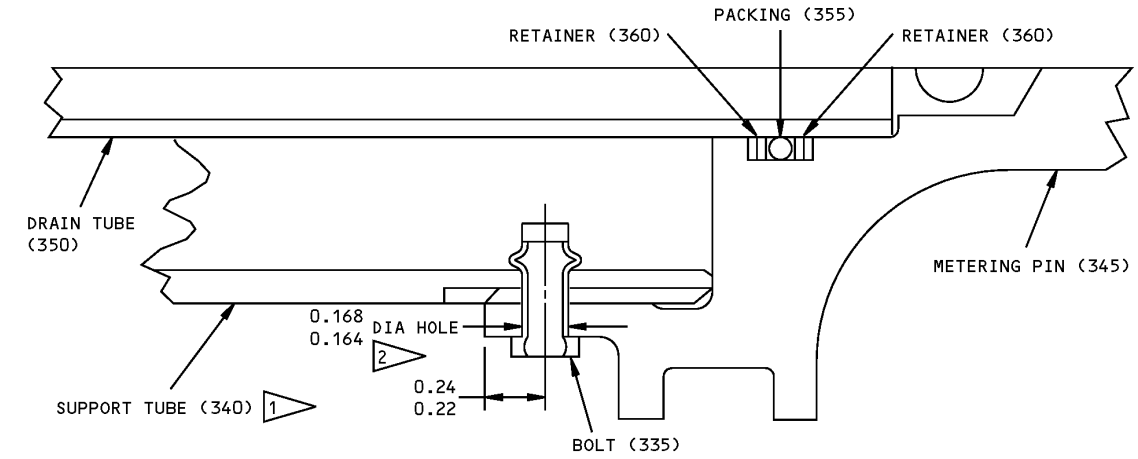
G. Assemble upper (70) and lower (75) steering plates.

(1) Install spacers (125), washers (110, 115, 120), bolts (130), and nuts (105) between the upper and lower steering plates to get a maximum gap of 0.015 inch before you tighten the nut. You can use a maximum of three washers.

NOTE: The upper (70) and lower (75) steering plates will be permanently installed in CMM 32-21-48. Only temporarily install these parts in the outer cylinder if you will put the shock strut away as a unit.

H. Do a test of the assembled shock strut (TESTING AND FAULT ISOLATION)

(1) Refer to TESTING AND FAULT ISOLATION.



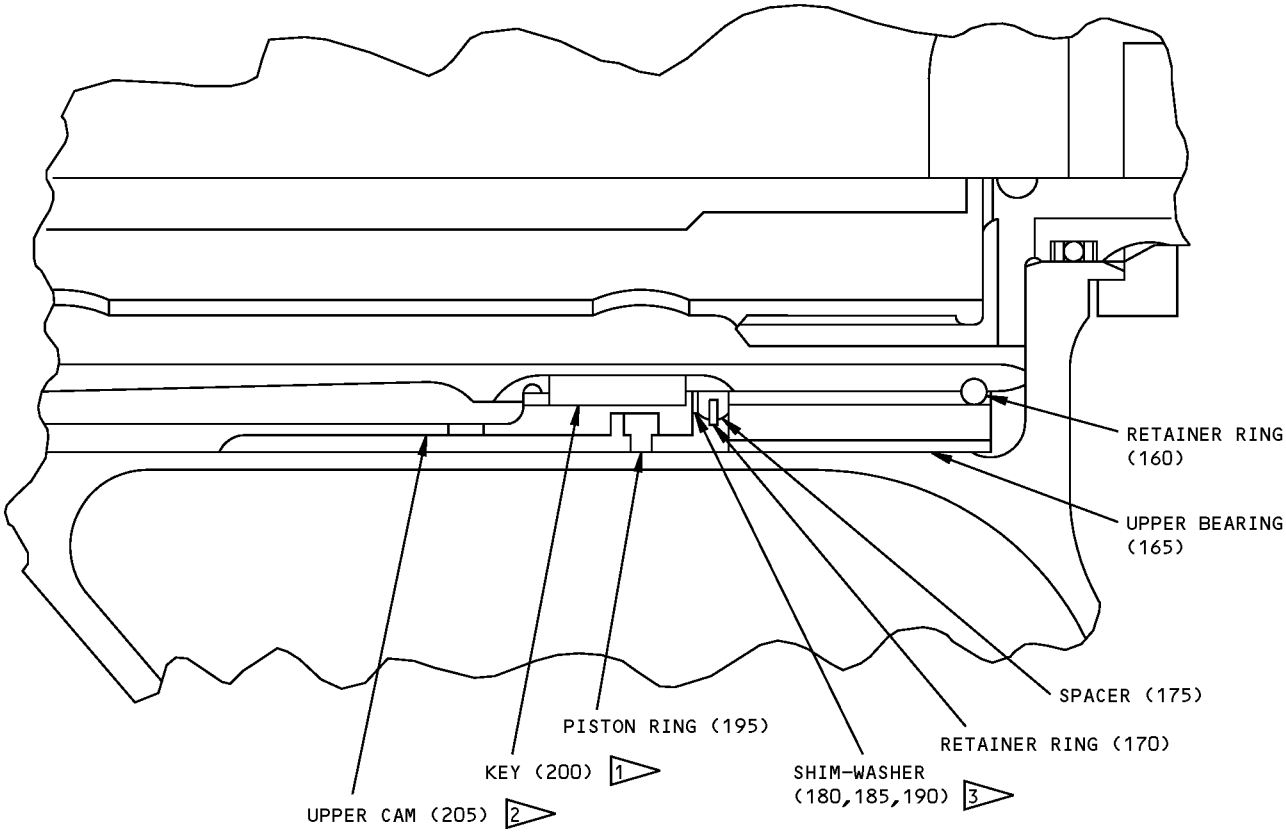
1 BOTTOM AGAINST METERING PIN BEFORE YOU DRILL THE HOLE

2 DIAMETRAL LOCATION OPTIONAL. IF YOU MUST MAKE A NEW HOLE, IT MUST NOT BE LESS THAN 45° FROM THE OLD HOLE

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Support Tube/Metering Pin Assembly
Figure 701



1 KEYS MAY BE PUNCH MARKED TO ASSIST ASSEMBLY

2 INSTALL CAMS SO THAT NOTCHED VALLEY OF LOWER CAM IS IN LINE WITH LOBE OF UPPER CAM WITH INNER CYLINDER CORRECTLY ALIGNED

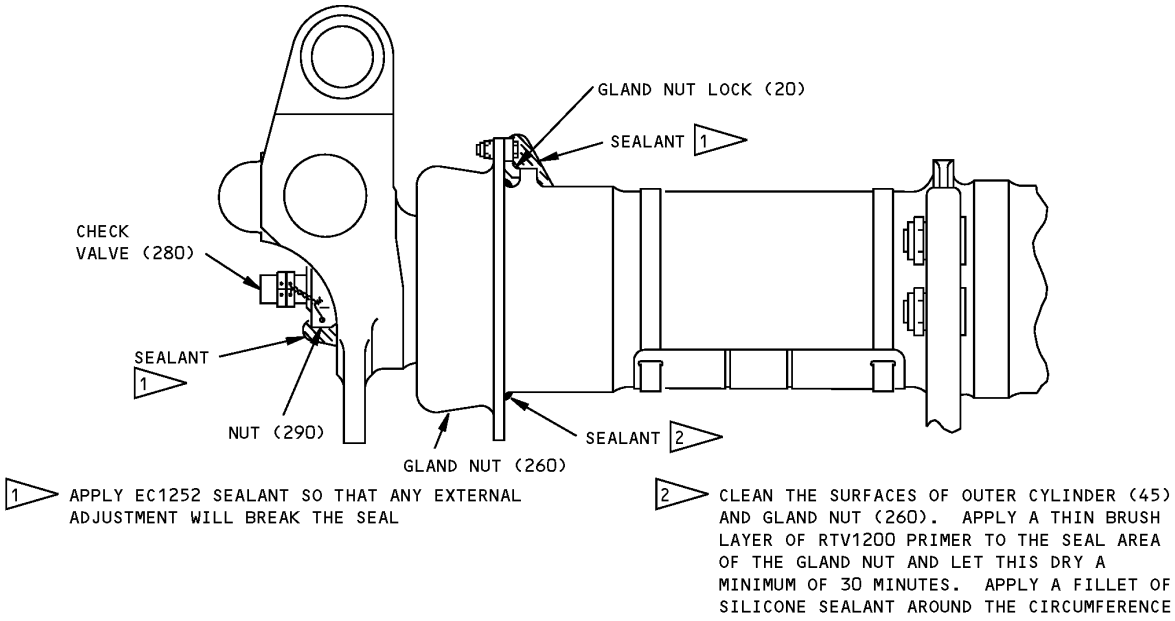
3 USE SHIM-WASHERS AS REQUIRED. MAXIMUM ALLOWABLE GAP AFTER SHIMMING IS 0.005

ALL DIMENSIONS ARE IN INCHES

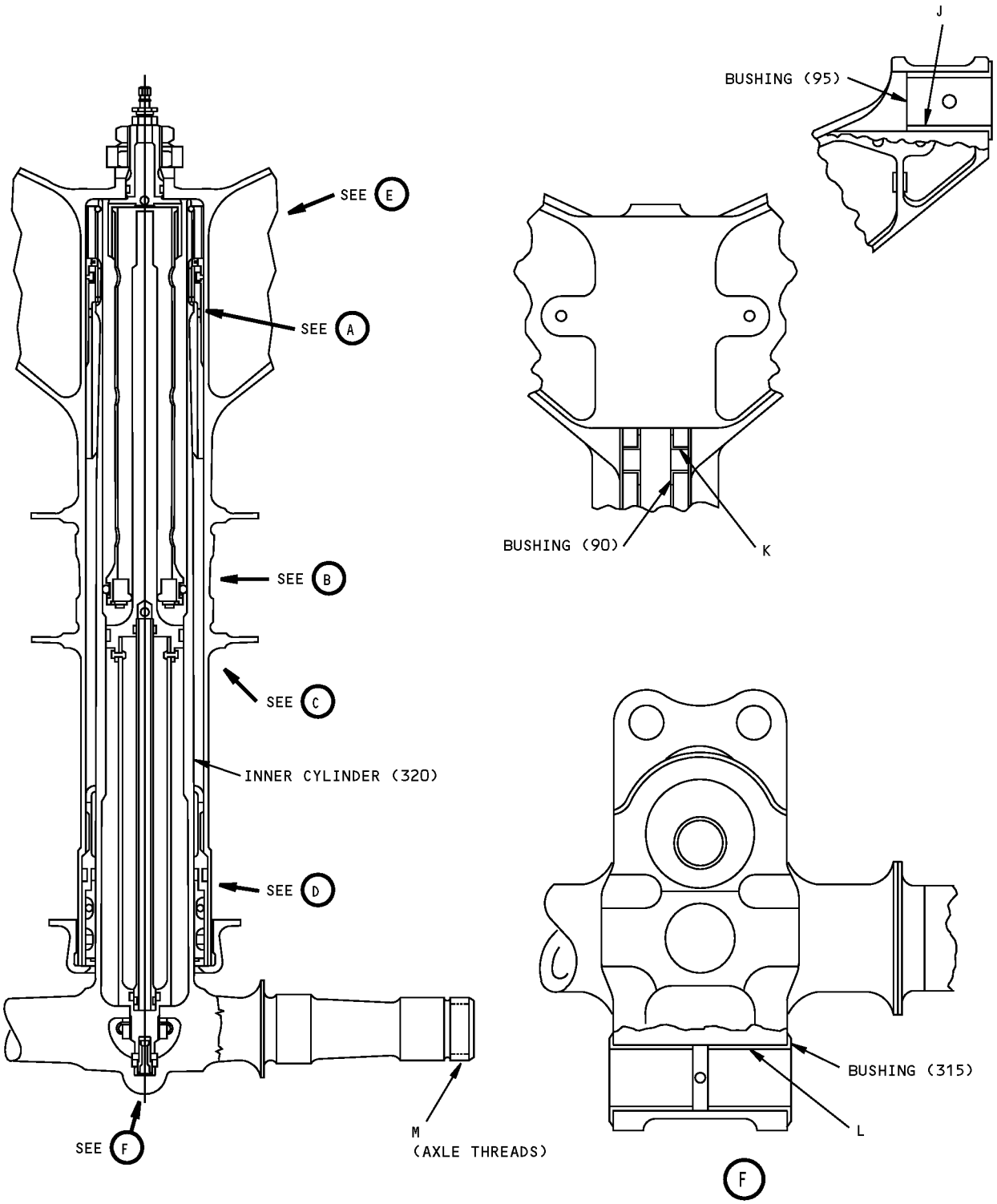
Upper Bearing Installation
Figure 702

5. Storage

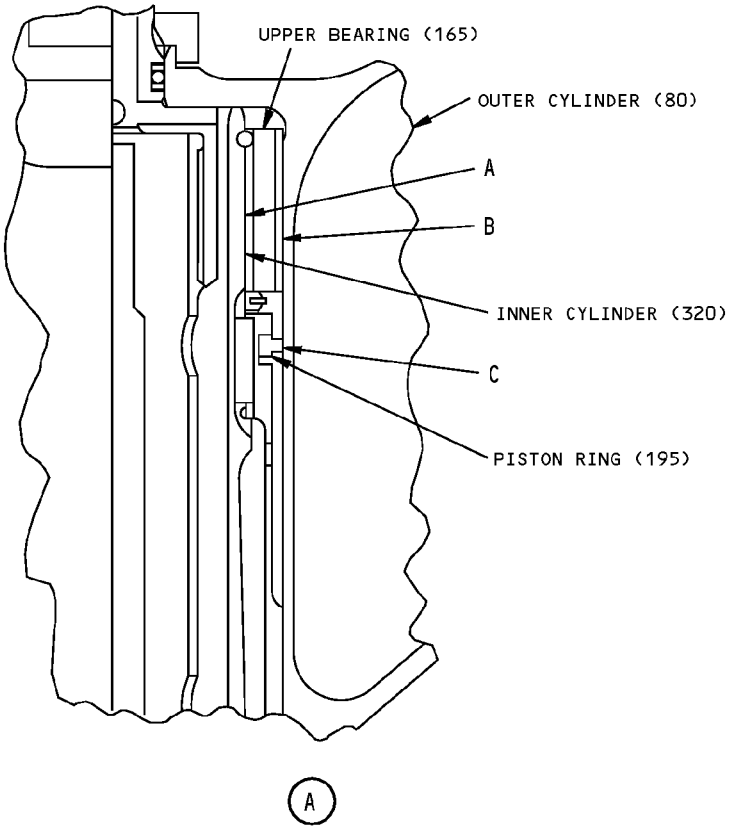
A. Give protection to the shock strut and put it away with standard industry practices.



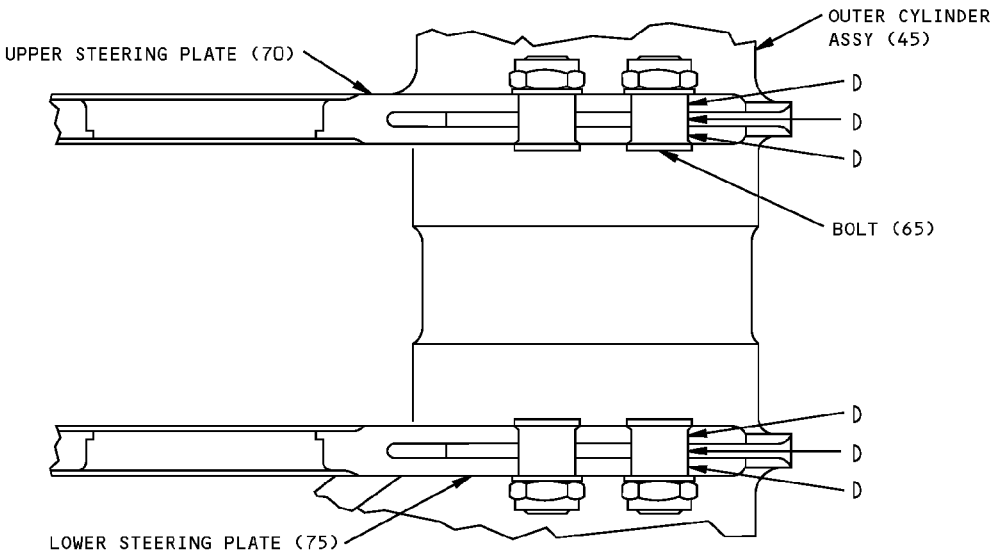
Sealing Details
Figure 703



Fits and Clearances
Figure 801 (Sheet 1 of 5)

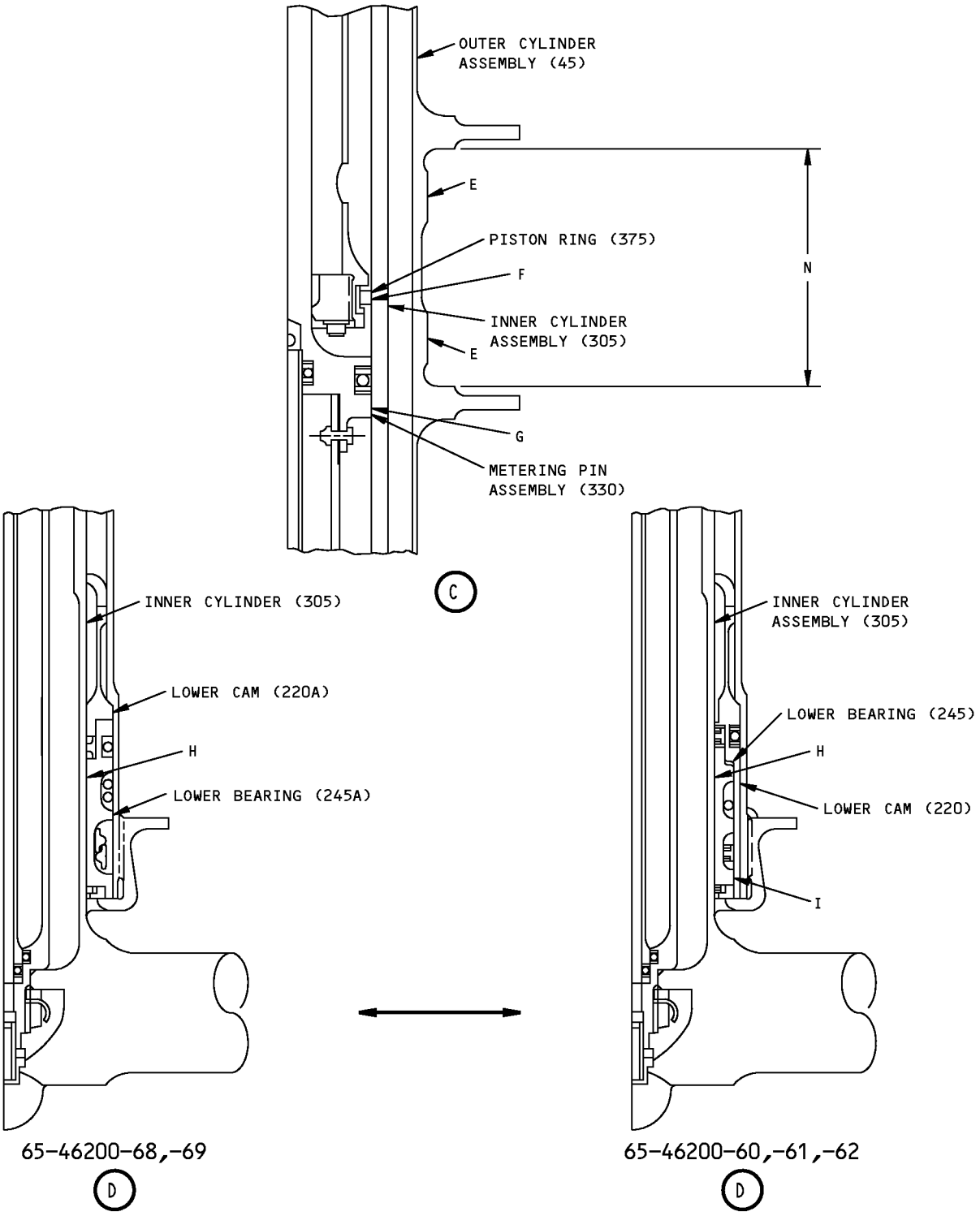


A



B

Fits and Clearances
Figure 801 (Sheet 2 of 5)



Fits and Clearances
Figure 801 (Sheet 3 of 5)

Ref Letter Fig.801	Mating Item No. IPL Fig.1	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
A	ID 165 OD 320	3.131 3.128	3.133 3.130	0.001	0.005	3.124	3.136	0.006
B	ID 80 OD 165	4.000 3.997	4.003 3.999	0.001	0.006	3.990	4.007	0.010
C	ID 80 OD 195	4.000 4.000	4.003 4.003	1	1	2	4.007	1
C	OD 195 9	4.180	4.200			4.092		
D	ID 45,70, 75 OD 65	0.5625 0.5609	0.5634 0.5615	0.0010	0.0025	0.5594	0.5655	0.0040
E	OD 45	4.7940	4.7950			4.7940		
F	ID 305 OD 375	2.695 2.695	2.700 2.700	1	1	3	2.705	1
F	OD 375 9	2.810	2.830			2.760		
F	OD 375A 9	2.710	2.730			2.705		
G	ID 305 OD 330	2.620 2.615	2.622 2.617	0.003	0.007	2.612	2.627	0.010
H	ID 245, 245A OD 305	3.250 3.245	3.254 3.247	0.003	0.009	3.241	3.260	0.013
I	ID 220 OD 245	4.000 3.996	4.002 3.998	0.002	0.006	3.994	4.004	0.010

Fits and Clearances
Figure 801 (Sheet 4 of 5)

Ref Letter Fig.801	Mating Item No. IPL Fig.1	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
J	ID 95	2.0000	2.0010				2.0048	
K	ID 90 OD 8	1.2495 1.2485	1.2505 1.2490	0.0005	0.0020	1.2445	1.2550	0.0060
L	ID 315	1.2500	1.2510				1.2630	
M (ORIG)	OD 320 (MAJOR DIA)	2.0595 4	2.0625			2.0481 6		
	OD 320 (PITCH DIA)	2.0189 5	2.0219			2.0089 6		
M (UNDER SIZE)	OD 320 (MAJOR DIA)	1.9910	1.9940			1.9860 7		
	OD 320 (PITCH DIA)	1.9564	1.9594			1.9464 7		
N	10 45	3.900	3.902				3.906	

1. PISTON RING EXPANSION - NO CLEARANCE
2. REPLACE PISTON RING (195) IF RADIAL THICKNESS IS LESS THAN 0.225
3. REPLACE PISTON RING (375) IF RADIAL THICKNESS IS LESS THAN 0.110
4. 2.0531 INCHES MAJOR DIAMETER FOR SOME AIRPLANES
5. 2.0179 INCHES MINOR DIAMETER FOR SOME AIRPLANES
6. REWORK THE AXLE PER THE REPAIR PROCEDURES, INNER CYLINDER, IF THE DIMENSION FALLS BELOW THIS VALUE
7. NO REPAIR PERMITTED. REPLACE THE AXLE WHEN THE ACTUAL PITCH DIAMETER OR MAJOR DIAMETER IS BELOW THE VALUE
8. BOLT 69-35396 (INSTALLATION PART)
9. PISTON RING FREE STATE DIMENSION
10. INSIDE DIMENSION BETWEEN FACES

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 5 of 5)

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
5	GLAND NUT LOCK NUT	20-25	
30	SUPPORT TUBE NUT	500-1500	
260	GLAND NUT		175-200
280	CHECK VALVE		8-10
290	NUT	1000-1500	
390	UPPER ORIFICE PLATE	1000-1200	

Torque Table
Figure 802

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-5425	Pin Spanner Adapter Assembly	F80012-1	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
50632	KAMATICS CORP SUB OF KAMAN CORP 1335 BLUE HILLS ROAD BLOOMFIELD, CONNECTICUT 06002-1304
72902	Replaced: [V72902] PALMETTO INC SEE GREEN TWEED & CO V5F573 by Code: Name and Address below 5F573: GREENE TWEED AND CO INC 2075 DETWILER RD P.O. BOX 305 KULPSVILLE, PENNSYLVANIA 19443-0305
80756	SPIROLOX DIV OF KAYDON CORP 29 CASSENS COURT FENTON, MISSOURI 63026-2543 FORMERLY RAMSEY CORP, TRW INC RAMSEY CORP IN MANCHESTER MO.
95879	ALEMITE DIVISION OF STEWART WARNER CORP 1826 DIVERSEY PARKWAY CHICAGO, ILLINOIS 60614-1540
97820	BUSAK AND SHAMBAN INC BEARING DIV 711 MITCHELL ROAD PO BOX 665 NEWBURY PARK, CALIFORNIA 91320-2214 FORMERLY IN CULVER CITY, CALIF; FORMERLY SHAMBAN W S & CO
99240	CRISSAIR, INCORPORATED 38905 10TH STREET EAST PALMDALE, CALIFORNIA 93550-4000 FORMERLY IN EL SEGUNDO, CALIFORNIA

NUMERICAL INDEX

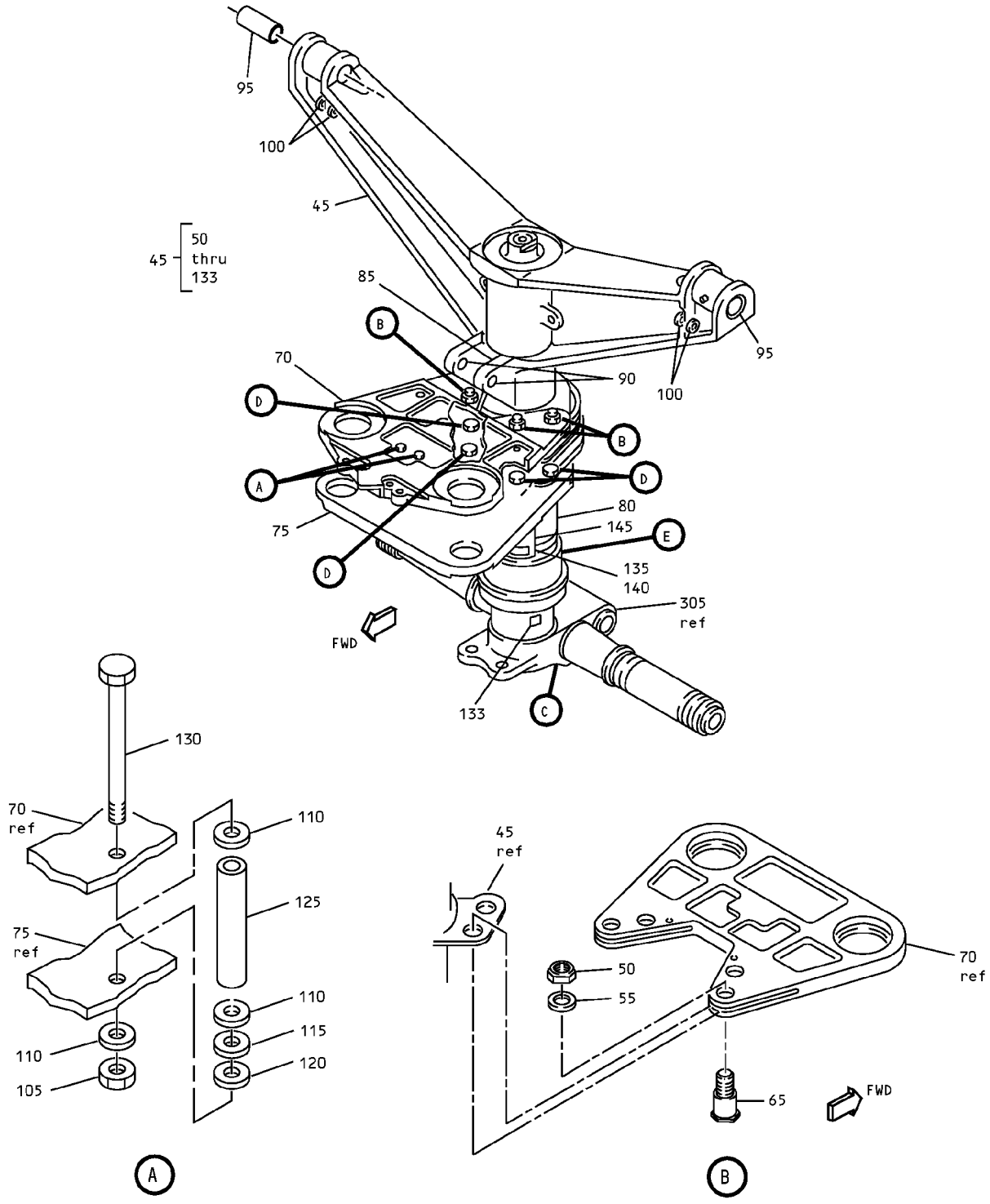
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
1646B		1	265	4
1728B		1	325	1
2C9516		1	280	1
4186A31G0411		1	250A	1
65-46150-3		1	95	2
65-46150-4		1	90	2
65-46150-95		1	315	2
		1	315B	2
65-46200-59		1	330	1
65-46200-6		1	140	2
65-46200-60		1	1	RF
65-46200-61		1	1A	RF
65-46200-62		1	1B	RF
65-46200-68		1	1C	RF
65-46200-69		1	1D	RF
65-46200-7		1	135	2
65-46200-74		1	1E	RF
65-46200-76		1	1F	RF
65-46200-77		1	1G	RF
65-46200-78		1	1H	RF
65-46200-79		1	330A	1
65-46200-80		1	1J	RF
65-46200-81		1	1K	RF
65-46200-82		1	1L	RF
65-46200-83		1	1M	RF
65-46210-23		1	70	1
65-46210-24		1	75	1
65-46210-28		1	70A	1
65-46210-29		1	45	1
65-46210-30		1	45A	1
65-46210-31		1	45B	1
65-46210-32		1	45C	1
65-46210-33		1	70B	1
65-46210-34		1	75A	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
65-46210-35		1	45D	1
65-46210-36		1	45E	1
65-46210-37		1	45F	1
65-46210-38		1	75B	1
		1	75C	1
65-46215-16		1	305	1
65-46215-17		1	320	1
65-46215-20		1	305A	1
65-46215-21		1	305B	1
65-46215-22		1	305C	1
65-46219-1		1	345	1
65-46219-2		1	345A	1
65-46221-10		1	275B	1
65-46221-11		1	260H	1
		1	260J	1
65-46221-12		1	275C	1
65-46221-2		1	275	1
65-46221-3		1	260	1
65-46221-4		1	260A	1
		1	260B	1
		1	260G	1
65-46221-5		1	260C	1
65-46221-6		1	260D	1
65-46221-7		1	260E	1
65-46221-8		1	260F	1
65-46221-9		1	275A	1
65-46226-11		1	410A	1
		1	410B	1
65-46226-9		1	410	1
65-46227-1		1	205	1
65-46228-3		1	220	1
65-46229-6		1	340	1
65-46229-7		1	340A	1
65C25676-1		1	80	1
65C25676-2		1	80A	1

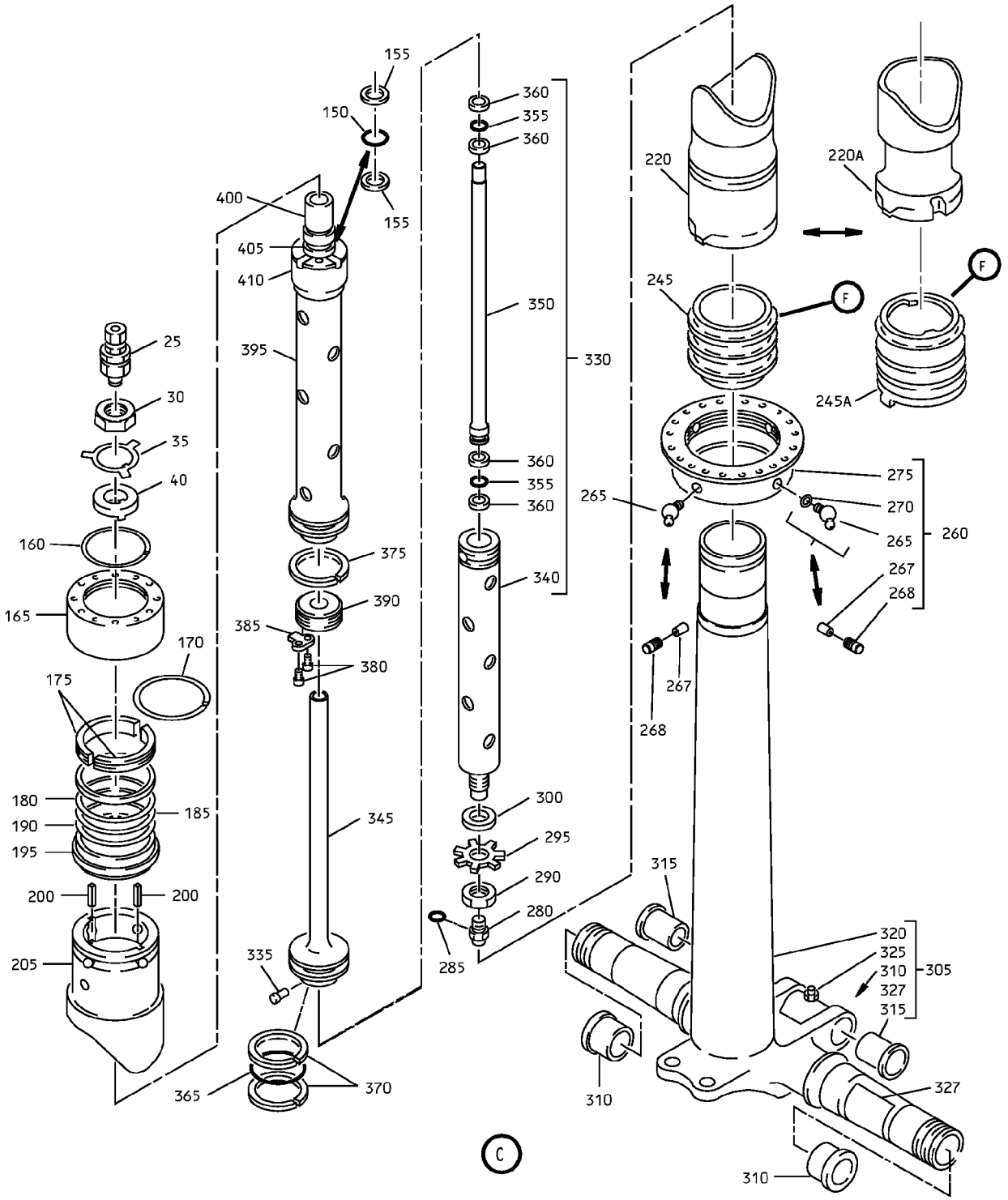
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
65C25707-1		1	400	1
65C25707-2		1	400A	1
		1	400B	1
65C31706-1		1	220A	1
65C37819-1		1	315A	2
65C37819-3		1	315D	2
66-23288-1		1	85	1
66-23289-1		1	300	1
66-24104-1		1	385	1
66-24105-3		1	375	1
66-24107-3		1	175	2
66-24109-3		1	195	1
66-24146-1		1	160	1
66-25608-1		1	180	AR
66-25608-2		1	185	AR
66-25608-3		1	190	AR
69-35397-1		1	20	1
69-36621-1		1	40	1
69-36622-2		1	390	1
		1	390A	1
69-36622-3		1	390B	1
		1	390C	1
69-36629-2		1	255	1
69-39152-1		1	145	1
69-43201-1		1	245	1
69-52228-1		1	295	1
69-56489-1		1	200	2
69-57991-3		1	350	1
69-57991-4		1	350A	1
		1	350B	1
69-60774-1		1	310	2
69-65393-1		1	165	1
69-67288-2		1	375A	1
69-73038-1		1	395	1
69-73038-3		1	395A	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
69-73039-1		1	35	1
69-73042-1		1	30	1
69-74637-1		1	65	8
69-76508-1		1	245A	1
69-76508-2		1	245B	1
733B9FT972		1	243	2
733B9FT972P3		1	240	1
		1	240C	1
AN960-10		1	115	2
AN960-10L		1	10	2
		1	110	6
AN960-416L		1	270	2
AN960C916		1	55	8
AN960PD10L		1	120	2
BAC27DLG0110		1	133	2
		1	327	4
BAC27DLG0137		1	133A	2
		1	327A	4
BACB28X7M015		1	100	4
BACB30LB5-6		1	335	1
BACB30NE3-74		1	130	2
BACB30NE3-80		1	130A	2
BACN10GW3		1	105	2
BACN10JC3		1	5	2
BACN10JC9		1	50	8
BACP20AX15A		1	268	4
BACP20AX15AP		1	267	4
BACS11AK2		1	135A	2
BACS38E8-15		1	140A	2
KJB674520V		1	315C	2
MS24678-9		1	380	2
MS28774-112		1	360	4
MS28774-214		1	155	2
MS28774-331		1	370	2
MS28774-344		1	215	2

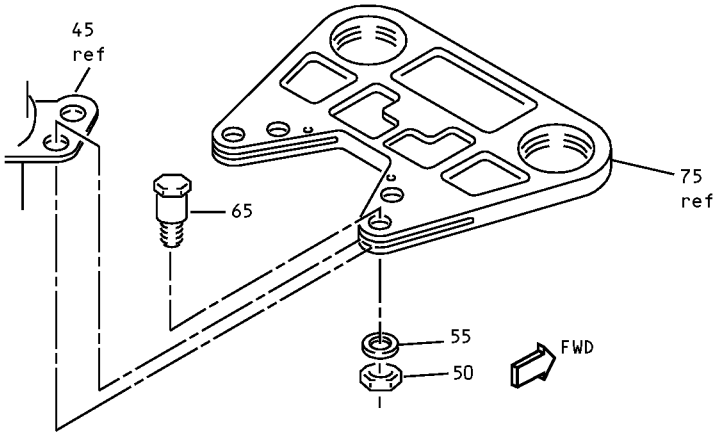
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
MS28775-112		1	355	2
MS28775-214		1	150	1
MS28775-331		1	365	1
MS28775-344		1	210	2
		1	210A	3
MS28778-4		1	285	1
MS28889-1		1	25	1
MS39086-119		1	405	1
MS90354U0506		1	335A	1
NAS1103-7		1	15	2
NAS43HT3-236		1	125A	2
NAS43HT3-268		1	125	2
NAS509-17		1	290	1
RS337		1	170	1
S11065-3010		1	250	1
S34692-339GLF17		1	240D	1
S34697-339GLF		1	243A	2



Nose Gear Shock Strut Assembly
IPL Figure 1 (Sheet 1 of 3)



Nose Gear Shock Strut Assembly
IPL Figure 1 (Sheet 2 of 3)



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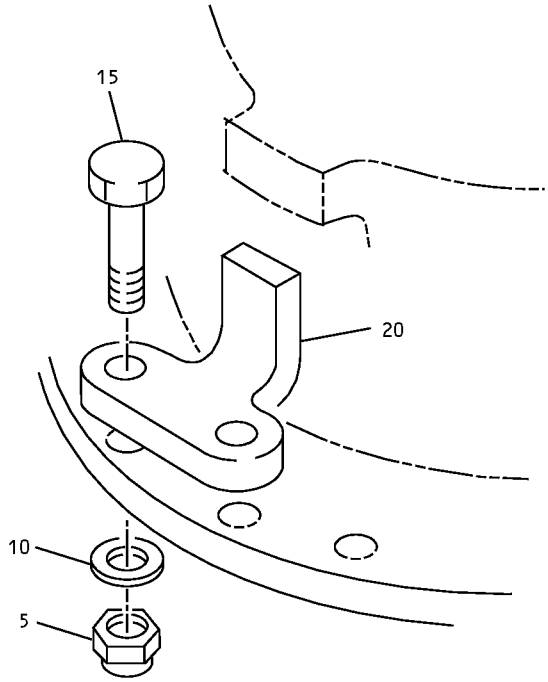

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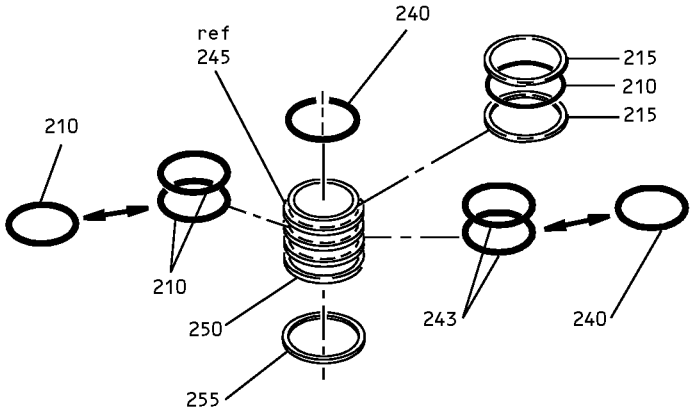

F

Nose Gear Shock Strut Assembly
IPL Figure 1 (Sheet 3 of 3)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1	65-46200-60		STRUT ASSY-NOSE GEAR SHOCK	A	RF
–1A	65-46200-61		STRUT ASSY-NOSE GEAR SHOCK	B	RF
–1B	65-46200-62		STRUT ASSY-NOSE GEAR SHOCK	C	RF
–1C	65-46200-68		STRUT ASSY-NOSE GEAR SHOCK	D	RF
–1D	65-46200-69		STRUT ASSY-NOSE GEAR SHOCK	E	RF
–1E	65-46200-74		STRUT ASSY-NOSE GEAR SHOCK	F	RF
–1F	65-46200-76		STRUT ASSY-NOSE GEAR SHOCK	G	RF
–1G	65-46200-77		STRUT ASSY-NOSE GEAR SHOCK	H	RF
–1H	65-46200-78		STRUT ASSY-NOSE GEAR SHOCK	I	RF
–1J	65-46200-80		STRUT ASSY-NOSE GEAR SHOCK	J	RF
–1K	65-46200-81		STRUT ASSY-NOSE GEAR SHOCK	K	RF
–1L	65-46200-82		STRUT ASSY-NOSE GEAR SHOCK	L	RF
–1M	65-46200-83		STRUT ASSY-NOSE GEAR SHOCK	M	RF
5	BACN10JC3		. NUT		2
10	AN960-10L		. WASHER		2
15	NAS1103-7		. BOLT		2
20	69-35397-1		. LOCK-GLAND NUT		1
25	MS28889-1		. VALVE-AIR		1
30	69-73042-1		. NUT-LOCK		1
35	69-73039-1		. WASHER		1
40	69-36621-1		. WASHER-LOCK		1
45	65-46210-29		. CYLINDER ASSY-OUTER (LIMITED USAGE)	A	1
–45A	65-46210-30		. CYLINDER ASSY-OUTER (LIMITED USAGE)	A	1
–45B	65-46210-31		. CYLINDER ASSY-OUTER	B-E	1
–45C	65-46210-32		. CYLINDER ASSY-OUTER	G	1
–45D	65-46210-35		. CYLINDER ASSY-OUTER	F, I	1
–45E	65-46210-36		. CYLINDER ASSY-OUTER	H, J, L	1
–45F	65-46210-37		. CYLINDER ASSY-OUTER	K, M	1
50	BACN10JC9		. . NUT		8

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
55	AN960C916		. . WASHER		8
60	AN960C616		DELETED		
65	69-74637-1		. . BOLT		8
70	65-46210-23		. . PLATE-UPPER STEERING (USED ON ITEM 45)		1
–70A	65-46210-28		. . PLATE-UPPER STEERING (USED ON ITEM 45A, 45B, 45C)		1
–70B	65-46210-33		. . PLATE-UPPER STEERING (USED ON ITEMS 45D, 45E, 45F)		1
75	65-46210-24		. . PLATE-LOWER STEERING (USED ON ITEM 45, 45A, 45B, 45C)		1
–75A	65-46210-34		. . PLATE-LOWER STEERING (USED ON ITEMS 45D, 45E)		1
–75B	65-46210-38		. . PLATE-LOWER STEERING (OPT ITEM 75A) (USED ON ITEM 45E)		1
–75C	65-46210-38		. . PLATE-LOWER STEERING (USED ON ITEM 45F)		1
80	65C25676-1		. . CYLINDER-OUTER (USED ON ITEM 45, 45A, 45B, 45C, 45D)		1
–80A	65C25676-2		. . CYLINDER-OUTER (USED ON ITEMS 45E, 45F)		1
85	66-23288-1		. . PIN-LOCKPLATE		1
90	65-46150-4		. . BUSHING		2
95	65-46150-3		. . BUSHING		2
100	BACB28X7M015		. . BUSHING		4
105	BACN10GW3		. . NUT		2
110	AN960-10L		. . WASHER		6
115	AN960-10		. . WASHER		2
120	AN960PD10L		. . WASHER		2
125	NAS43HT3-268		. . SPACER (USED ON ITEM 45, 45A, 45B, 45C, 45D, 45E)		2
–125A	NAS43HT3-236		. . SPACER (USED ON ITEM 45F)		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–					
130	BACB30NE3-74		. . BOLT (USED ON ITEM 45, 45A, 45B, 45C, 45D, 45E)		2
–130A	BACB30NE3-80		. . BOLT (USED ON ITEM 45F)		2
133	BAC27DLG0110		. . MARKER (USED ON ITEM 45B)		2
–133A	BAC27DLG0137		. . MARKER (USED ON ITEM 45C, 45D, 45E, 45F)		2
135	65-46200-7		. SEAL (OPT ITEM 135A)		2
–135A	BACS11AK2		. SEAL (OPT ITEM 135)		2
140	65-46200-6		. STRAP (OPT ITEM 140A)		2
–140A	BACS38E8-15		. STRAP (OPT ITEM 140)		2
145	69-39152-1		. NAMEPLATE		1
150	MS28775-214		. PACKING		1
155	MS28774-214		. RETAINER		2
160	66-24146-1		. RING-RETAINER, UPR BEARING		1
165	69-65393-1		. BEARING-UPPER		1
170	RS337		. RING-RETAINER (V80756)		1
175	66-24107-3		. SPACER-UPR BEARING		2
180	66-25608-1		. SHIM-WASHER		AR
185	66-25608-2		. SHIM-WASHER		AR
190	66-25608-3		. SHIM-WASHER		AR
195	66-24109-3		. RING-PISTON		1
200	69-56489-1		. KEY		2
205	65-46227-1		. CAM-UPPER		1
210	MS28775-344		. PACKING	A-C, G	2
–210A	MS28775-344		. PACKING	D-F, H-M	3
215	MS28774-344		. RETAINER		2
220	65-46228-3		. CAM-LOWER	A-C	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–					
–220A	65C31706-1		. CAM-LOWER	D-M	1
225	MS28775-339		DELETED		
230	S12561-339		DELETED		
235	MS28775-339		DELETED		
240	733B9FT972P3		. RING-G-T (V72902)		1
–240A	S33327		DELETED		
–240B	367-34200A312C		DELETED		
240C	733B9FT972P3		. RING-G-T (V72902) (OPT ITEM 240D)	A-C	1
–240D	S34692-339GLF17		. T-RING (V97820) (OPT ITEM 240C)	A-C	1
243	733B9FT972		. RING-G-T (V72902) (OPT ITEM 243A)	D-M	2
–243A	S34697-339GLF		. T-RING (V97820) (OPT ITEM 243)	D-M	2
245	69-43201-1		. BEARING-LOWER	A -C	1
–245A	69-76508-1		. BEARING-LOWER	D-M	1
–245B	69-76508-2		. BEARING-LOWER (OVERSIZE TAB)(REPAIR PART)		1
250	S11065-3010		. RING-SCRAPER (V97820)	A-G	1
–250A	4186A31G0411		. RING-SCRAPER	H-M	1
255	69-36629-2		. ADAPTER-SCRAPER		1
260	65-46221-3		. NUT ASSY-GLAND (OPT ITEM 260A)	A	1
–260A	65-46221-4		. NUT ASSY-GLAND (OPT ITEM 260)	A	1
–260B	65-46221-4		. NUT ASSY-GLAND	B-G, I	1
–260C	65-46221-5		. NUT ASSY, GLAND (1/32 UNDERSIZE) (REPAIR PART)		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–					
–260D	65-46221-6		. NUT ASSY, GLAND (1/32 UNDERSIZE) (REPAIR PART)		1
–260E	65-46221-7		. NUT ASSY, GLAND (1/16 UNDERSIZE) (REPAIR PART)		1
–260F	65-46221-8		. NUT ASSY, GLAND (1/16 UNDERSIZE) (REPAIR PART)		1
–260G	65-46221-4		. NUT ASSY, GLAND (OPT ITEM 260J)	H	1
–260H	65-46221-11		. NUT ASSY, GLAND (SERIALIZED)	J-M	1
–260J	65-46221-11		. NUT ASSY, GLAND (OPT ITEM 260G) (SERIALIZED)	H	1
–265	1646B		. . FITTING-LUBE		4
267	BACP20AX15AP		. . PIN (REPAIR PART)		4
268	BACP20AX15A		. . PLUG (REPAIR PART)		4
–270	AN960-416L		. . WASHER		2
–275	65-46221-2		. . NUT (USED ON ITEMS 260, 260A, 260G)		1
–275A	65-46221-9		. . NUT (1/32 UNDERSIZE) (USED ON ITEMS 260C, 260D)		1
–275B	65-46221-10		. . NUT (1/16 UNDERSIZE) (USED ON ITEMS 260E, 260F)		1
–275C	65-46221-12		. . NUT (SERIALIZED) (USED ON ITEMS 260H, 260J)		1
280	2C9516		. VALVE-CHECK (V99240)		1
285	MS28778-4		. PACKING		1
290	NAS509-17		. NUT		1
295	69-52228-1		. WASHER-KEY		1
300	66-23289-1		. WASHER-LWR SUPT TUBE		1
305	65-46215-16		. CYLINDER ASSY-INNER	A	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–305A	65-46215-20		. CYLINDER ASSY-INNER	B-E	1
–305B	65-46215-21		. CYLINDER ASSY-INNER	F-K	1
–305C	65-46215-22		. CYLINDER ASSY-INNER	L, M	1
310	69-60774-1		. . BUSHING		2
315	65-46150-95		. . BUSHING (USED ON ITEMS 305, 305A, 305B)		2
–315A	65C37819-1		. . BUSHING (USED ON ITEM 305C) (REPLACED BY ITEM 315D)		2
–315B	65-46150-95		. . BUSHING (USED ON ITEM 305C) (POST SL 737-SL-32-083)		2
–315C	KJB674520V		. . BUSHING (V50632) (USED ON ITEM 305C) (REPLACES ITEM 315A)		2
–315D	65C37819-3		. . BUSHING (USED ON ITEM 305C) (REPLACES ITEM 315A)		2
320	65-46215-17		. . CYLINDER		1
325	1728B		. . FITTING-LUBE (V95879)		1
327	BAC27DLG0110		. . MARKER (USED ON ITEM 305A)		4
–327A	BAC27DLG0137		. . MARKER (USED ON ITEMS 305B, 305C)		4
330	65-46200-59		. PIN ASSY-METERING	A-I	1
–330A	65-46200-79		. PIN ASSY-METERING	J-M	1
335	BACB30LB5-6		. . BOLT-BLIND (REPLACED BY AND NOT INTCHG/W ITEM 335A)		1
–335A	MS90354U0506		. . FASTENER-BLIND (REPLACES ITEM 335)		1
340	65-46229-6		. . TUBE-SUPPORT (USED ON ITEM 330)		1
–340A	65-46229-7		. . TUBE-SUPPORT (SERIALIZED) (USED ON ITEM 330A)		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–					
345	65-46219-1		. . PIN-METERING (USED ON ITEM 330)		1
345A	65-46219-2		. . PIN-METERING (SERIALIZED) (USED ON ITEM 330A)		1
350	69-57991-3		. . TUBE-DRAIN (OPT ITEM 350A) (USED ON ITEM 330)		1
–350A	69-57991-4		. . TUBE-DRAIN (SERIALIZED) (OPT ITEM 350) (USED ON ITEM 330)		1
–350B	69-57991-4		. . TUBE-DRAIN (SERIALIZED) (USED ON ITEM 330A)		1
355	MS28775-112		. . PACKING		2
360	MS28774-112		. . RETAINER		4
365	MS28775-331		. PACKING		1
370	MS28774-331		. RETAINER		2
375	66-24105-3		. RING-PISTON	A, B, D, F-M	1
–375A	69-67288-2		. RING-PISTON	C, E	1
380	MS24678-9		. SCREW		2
385	66-24104-1		. LOCK-ORIFICE PLATE		1
390	69-36622-2		. PLATE-UPR ORIFICE	A-G, I	1
–390A	69-36622-2		. PLATE-UPR ORIFICE (OPT ITEM 390B)	H	1
–390B	69-36622-3		. PLATE-UPR ORIFICE (OPT ITEM 390A) (SERIALIZED)	H	1
–390C	69-36622-3		. PLATE-UPR ORIFICE (SERIALIZED)	J-M	1
395	69-73038-1		. TUBE ASSY-ORIFICE SUPT	A-I	1
–395A	69-73038-3		. TUBE ASSY-ORIFICE SUPT (SERIALIZED)	J-M	1
I 400	65C25707-1		. . STEM (OPT ITEM 400A) (USED ON ITEM 395)		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–					
–400A	65C25707-2		. . STEM (OPT ITEM 400) (SERIALIZED) (USED ON ITEM 395)		1
–400B	65C25707-2		. . STEM (SERIALIZED) (USED ON ITEM 395A)		1
405	MS39086-119		. . PIN		1
410	65-46226-9		. . TUBE (OPT ITEM 410A) (USED ON ITEM 395)		1
–410A	65-46226-11		. . TUBE (OPT ITEM 410) (SERIALIZED) (USED ON ITEM 395)		1
–410B	65-46226-11		. . TUBE (SERIALIZED) (USED ON ITEM 395A)		1
415	BAC27DLG0110		DELETED		
420	69-73753-3		DELETED		
425	10-61226-15		DELETED		
430	MS21042-3		DELETED		
435	AN960C10L		DELETED		
440	BACB30FM5A6U		DELETED		
445	284N1641-7		DELETED		

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