TO: ALL HOLDERS OF TAIL SKID COMPLETE SHOCK STRUT ASSEMBLY COMPONENT MAINTENANCE MANUAL 32-71-05

REVISION NO. 9 DATED NOV 01/04

HIGHLIGHTS

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

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
301 501 REPAIR-GEN 601 801-802,804	Updated clarifications and updated callouts.
REPAIR 10-1 601	Added refinish details for parts not given in the other repairs.
803	Added data for piston 163T2006-2.

TAIL SKID COMPLETE SHOCK STRUT ASSEMBLY

PART NUMBER 163T0000-020,-021

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

REVISION RECORD

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

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

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
32-0058		PRR B11377 PRR B11582	APR 10/86 JUL 10/87 JUL 01/88

PAGE	DATE	CODE
32-71-05		
TITLE PAGE		
1	JUL 10/87	01.1
2	BLANK	
REVISION RECORD		
1	APR 10/86	01
2	BLANK	
TR & SB RECORD		
1	JUL 01/93	01.1
2	BLANK	
LIST OF EFFECTIVE PAGES		
*1	NOV 01/04	01
THRU LAST PAGE		
CONTENTS		
1	APR 10/86	01
2	BLANK	
INTRODUCTION		
1	JUL 01/88	01.1
2	BLANK	
DESCRIPTION & OPERATION		
1	APR 10/86	01
2	APR 10/86	01
TESTING & TROUBLE SHOOTING		
101	JUL 01/93	01.1
102	JUL 10/87	01.1
103	JUL 10/87	01.101
104	APR 10/86	01
DISASSEMBLY		
*301	NOV 01/04	01.1
*302	NOV 01/04	01.101
CHECK		
*501	NOV 01/04	01.1
502	BLANK	
REPAIR-GENERAL		
*601	NOV 01/04	01.1
602	JUL 01/01	01.1
REPAIR 1-1		
601	JUL 01/01	01.1
602	APR 10/86	01
603	JUL 01/01	01.1
604	BLANK	
REPAIR 1-2		
601	APR 10/86	01
602	APR 10/86	01
603	APR 10/86	01
604	APR 10/86	01
REPAIR 1-3		
601	JUL 01/93	01.1
602	APR 10/86	01
603	JUL 01/01	01.1
604	JUL 01/01	01.1
REPAIR 2-1		
601	APR 10/86	01
602	APR 10/86	01
603	APR 10/86	01
604	JUL 01/01	01.1
REPAIR 3-1		
601	APR 10/86	01
602	APR 10/86	01
603	JUL 01/01	01.1
604	BLANK	
REPAIR 4-1		
601	APR 10/86	01
602	JUL 01/01	01.1
603	JUL 01/01	01.1
604	BLANK	

* = REVISED, ADDED OR DELETED

PAGE	DATE	CODE
REPAIR 5-1		
601	APR 10/86	01
602	JUL 01/93	01.1
REPAIR 6-1		
601	APR 10/86	01
602	JUL 01/01	01.1
REPAIR 7-1		
601	APR 10/86	01
602	JUL 01/01	01.1
REPAIR 8-1		
601	JAN 01/93	01.1
602	JUL 01/01	01.1
REPAIR 9-1		
601	JUL 01/01	01.1
602	APR 10/86	01
REPAIR 10-1		
*601	NOV 01/04	01.1
*602	BLANK	
ASSEMBLY		
701	JUL 01/01	01.1
702	DEC 01/96	01.1
703	DEC 01/96	01.1
704	DEC 01/96	01.1
705	APR 10/86	01
706	BLANK	
FITS AND CLEARANCES		
*801	NOV 01/04	01.1
*802	NOV 01/04	01.1
*803	NOV 01/04	01.1
*804	NOV 01/04	01.1
SPECIAL TOOLS		
901	JUL 01/93	01.1
902	BLANK	

PAGE	DATE	CODE
ILLUSTRATED PARTS LIST		
1001	APR 10/86	01
1002	JUL 01/01	01.1
1003	JUL 01/01	01.1
1004	JUL 01/01	01.1
1005	JUL 01/01	01.1
1006	JAN 01/93	01.1
1007	JAN 01/93	01.1
1008	JAN 01/93	01.1
1009	JUL 01/01	01.1
1010	JUL 01/01	01.1
1011	JUL 01/01	01.1
1012	JUL 01/01	01.1
1013	JUL 01/01	01.101
1014	BLANK	

* = REVISED, ADDED OR DELETED

TABLE OF CONTENTS

*[1] Special instructions not required. Use standard industry practices.

INTRODUCTION

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

This manual is divided into separate sections:

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

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

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

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

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

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

Verification:

Testing T/S	Jan 18/87
Disassembly	Jan 18/87
Assembly	Jan 18/87

TAIL SKID COMPLETE SHOCK STRUT ASSEMBLY

DESCRIPTION AND OPERATION

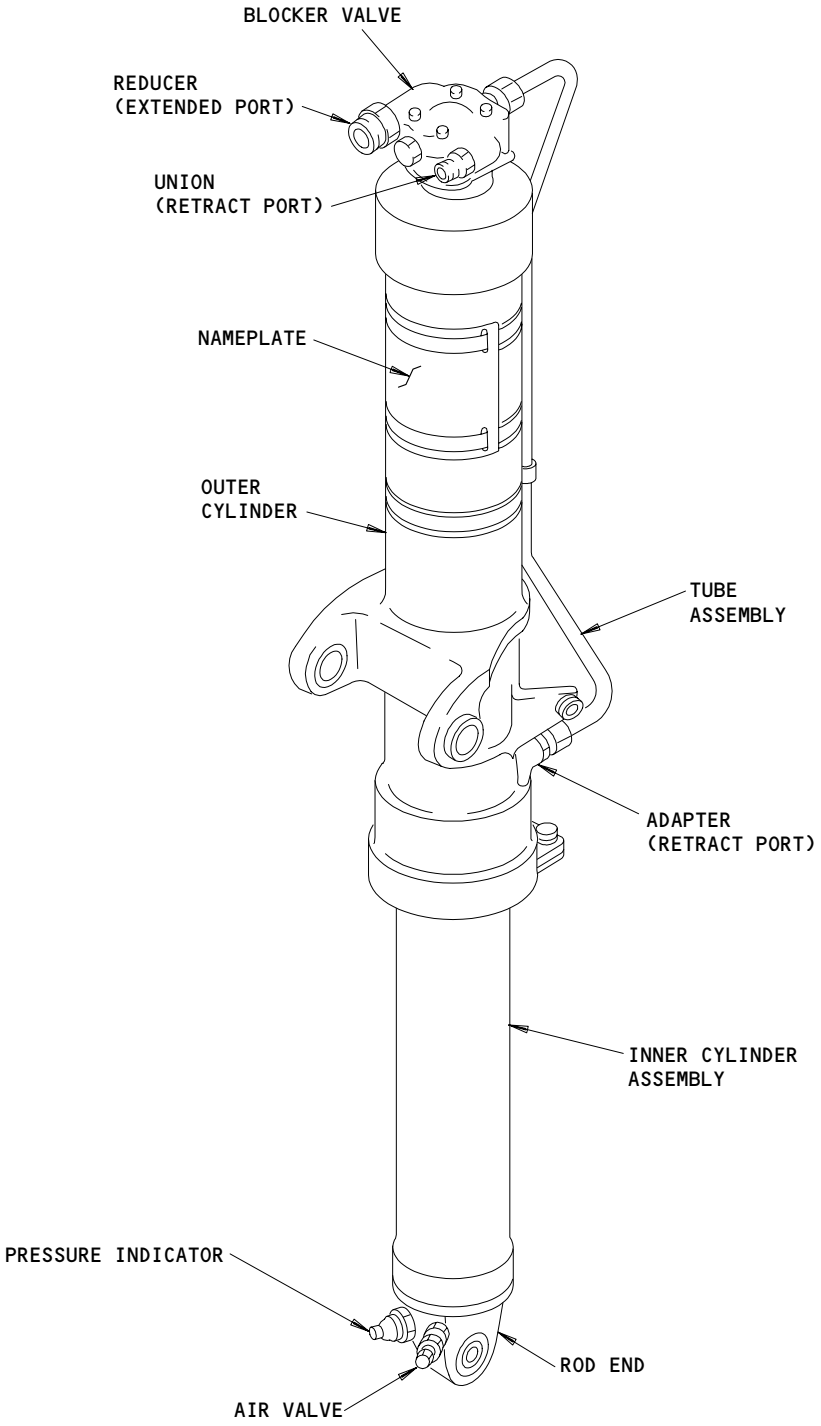
1. Description (Fig. 1)

   A. The tail skid complete shock strut assembly is the main supporting member of the airplane tail skid installation. It consists of a shock strut assembly, tube assembly and a hydraulic blocker valve.

   B. The shock strut assembly consists of an outer cylinder, inner cylinder, rod end, spherical bearing, pressure indicator and air valve. Internal components include upper and lower bearings, an orifice plate, rebound valve and separator piston. The air valve for inflating the strut is installed on the rod end assembly at the lower end of the inner cylinder. The pressure indicator is adjacent to the air valve and has an indicator button which, when depressed and latched, indicates that the shock strut is pressurized. If the indicator button is depressed and does not latch, it indicates that the shock strut requires servicing.

   C. Leading Particulars (Approximate)

      Length (extended) -- 52 inches
      Length (compressed) -- 37 inches
      Weight (wet) -- 79 pounds
      Weight (dry) -- 67 pounds
      Operating medium -- BMS 3-11, hydraulic fluid and pressurized dry air or nitrogen



Tail Skid Complete Shock Strut Assembly
Figure 1

TESTING AND TROUBLE SHOOTING

1. Test Equipment and Materials

   NOTE: Equivalent substitutes may be used.

   A. Hydraulic pressure source, BMS 3-11, capable of pressures 0-5000 psi, temperature 80-120°F

   B. Compressed dry nitrogen, or clean, dry air source capable of pressures 0-500 psi.

2. Inner Cylinder Subassembly Test

   A. Depress the pressure indicator button and check that the button returns to the extended position, when released.

   B. Slowly apply nitrogen or clean, dry air through the air valve to a pressure of 450-500 psi.

   C. Depress the pressure indicator button and check that the button remains in the depressed position when released.

   D. Reduce pressure to 300-350 psi.

   E. Allow at least 1 hour for components to stabilize.

   F. Hold pressure for an additional 3 hours. There shall be no detectable leakage or pressure drop during the 3 hours.

3. Shock Strut Assembly Test

   A. Pressurize the inner cylinder with nitrogen or clean, dry air to 450-500 psi.

   B. Depress the pressure indicator button. The button should remain in the depressed position when released.

   C. Reduce pressure to 300-350 psi.

   D. With the shock strut in the extended position and using suitable adapters in the extend and retract ports, fill the strut with hydraulic fluid.

   E. Bleed all air from the outer cylinder.

F. Slowly apply 2950-3050 psi hydraulic pressure to the retract port until the strut is fully retracted.

G. Apply 290-310 psi hydraulic pressure to the extend port until the strut is fully extended.

H. Repeat steps F. and G. 25 times. Leakage shall not exceed one drop of fluid per hydraulic seal.

I. Open air valve to release pressure and place strut in extended position.

J. Apply 445-455 psi hydraulic pressure to the extend port and hold for at least 3 minutes. There shall be no evidence of leakage.

K. Repeat step J. at 40-60 psi. There shall be no evidence of leakage.

L. With the strut in the retracted position and the air valve open, apply 4450-4550 psi hydraulic pressure to the retract port and hold for at least 3 minutes. There shall be no evidence of leakage.

M. Repeat step L. at 40-60 psi. There shall be no evidence of leakage.

4. Post Test Procedures

A. Disconnect all hydraulic lines.

B. Open air charging valve and place strut in retracted position.

C. Fill the hydraulic ports with BMS 3-11 fluid leaving sufficient air space for thermal expansion.

D. Plug all hydraulic ports using suitable plugs.

TROUBLE	PROBABLE CAUSE	CORRECTION
Air leakage at separator piston (405)	Defective seal (385)	Disassemble and replace seal and backup ring (par.4.A.)
Air leakage at rod end assembly (390)	Defective seal (385)	Disassemble and replace seal and backup ring (par.4.B.)
Air leakage at air valve (345)	Defective packing (350)	Replace packing (par.4.C.)
Air leakage at pressure indicator (340)	Defective packing (350)	Replace packing (par.4.D.)
Hydraulic leakage at gland nut (330)	Defective lower bearing seal (305, 315)	Disassemble and replace seal and backup ring (par.4.E.)
Hydraulic pressure drop between extend and retract ports	Defective upper bearing seal (275, 285)	Disassemble and replace seal (par.4.F.)

Trouble Shooting Chart
Figure 101

5. Corrective Procedures

A. Seal (385) and backup ring (380) replacement.

(1) Disassemble parts per par. 3.D. thru 3.M. of DISASSEMBLY.

(2) Replace seal (385) and backup ring (380).

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

B. Seal (385) and backup ring (375) replacement.

(1) Disassemble parts per par. 3.J., 3.K., 3.L. of DISASSEMBLY.

(2) Replace seal (385) and backup ring (375).

C. Air valve packing replacement

(1) Remove air valve (345) and packing (350).

(2) Install new packing on valve; install valve per ASSEMBLY and retest for leakage.

D. Pressure indicator packing replacement

(1) Remove pressure indicator (340) and packing (350).

(2) Install new packing on indicator, install indicator per ASSEMBLY and retest for leakage.

E. Lower bearing seal replacement

(1) Disassemble parts per par. 3.D. thru 3.I. of DISASSEMBLY.

(2) Replace lower bearing seals (305, 315) and backup rings (300, 310).

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

F. Upper bearing seal replacement

(1) Disassemble parts per par. 3.D. thru 3.H. of DISASSEMBLY.

(2) Replace seal (275, 285) and backup ring (270, 280).

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

DISASSEMBLY

NOTE: Disassemble this component only as necessary to complete fault isolation, determine the serviceability of parts, perform required repairs and restore the unit to serviceable condition.

1. Equipment

   A. A32045-76 -- Orifice Plate Wrench

   B. A32045-77 -- Rod End Wrench

   C. A32045-78 -- Spanner Wrench

2. Part Replacement (IPL Fig. 1)

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

   A. Cotter pin (225)

   B. Nuts (165, 220, 235)

   C. Backup rings (60, 120, 270, 280, 300, 310, 375, 380)

   D. Seals (275, 285, 305, 315, 385)

   E. Packings (55, 65, 90, 125, 350)

   F. Cup lockwasher (370)

   WARNING: DO NOT START DISASSEMBLY OF TAIL SKID SHOCK STRUT UNTIL ALL AIR IS REMOVED FROM THE UNIT TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO PARTS.

3. Disassembly (IPL Fig. 1)

   NOTE: Do not remove flanged bushings or lube fittings from parts unless repair or replacement makes it necessary.

   A. Open air valve (345) to release pressure from inner cylinder.

   B. Drain all hydraulic fluid.

   C. Unscrew tube assembly (70) hydraulic connectors.

   D. Remove nuts (25), washers (10) from bolts (5), and remove tube assembly (70).

      NOTE: Do not remove band clamp (40) unless necessary for repair or replacement.

E. Remove union (45), packing (55) from blocker valve (115).

F. Remove adapter (50), packing (55) from retract port. Remove ring (60) and packing (65) from adapter (50).

G. Remove nuts (110), bolts (95), washers (100,105), and remove blocker valve (115). Remove rings (120), packing (125) from blocker valve (115).

H. Remove nuts (165), washers (160), bolts (155), and stop plate (170).

I. Restrain outer cylinder (175), and using the spanner wrench A32045-78, remove gland nut (330).

J. Remove inner cylinder (335) from outer cylinder (175).

K. Restrain inner cylinder (335), and using the orifice plate wrench A32045-76, remove orifice plate (250).

L. Remove nut (220), bolt (210), washers (215) from the upper portion of inner cylinder (335).

M. Remove cotter pin (225) and discard. Remove nut (235), washer (230), orifice pin (240), and rebound valve (245) from orifice plate (250).

N. Pry out retainer ring (255) from inner cylinder (335).

O. Slide out upper bearing (260), half ring (265), stop tube (290), and lower bearing (295) from inner cylinder (335).

P. For shock strut assembly with 163T2021-5 half ring:

(1) Remove retainer clip (267) from half ring (268).

Q. Remove T-ring (275) and backup ring (270) from upper bearing (260).

R. Remove T-ring (305) and backup ring (300) from lower bearing (295).

S. Remove pressure indicator (340), and air valve (345) from rod end assembly (390). Remove packings (350) from pressure indicator (340), and air valve (345).

T. Restrain inner cylinder (335), and using rod end wrench A32045-77, remove rod end assembly (390).

U. Remove T-ring seal (385) and backup ring (375) from rod end assembly (390). Remove bearing assembly (390).

V. Slide out separator piston (405). Remove T-ring seals (385) and backup ring (38) from separator piston (390).

CHECK

1. Examine all parts for defects by standard industry practices. Refer to FITS AND CLEARANCES for design dimensions and wear limits. Refer to IPL Fig. 1 for item numbers.

2. Examine all pin and bolt shanks for wear. Carefully examine areas around lubrication and pin retention holes for hairline cracks.

3. Magnetic particle check (SOPM 20-20-01):

   A. Gland nut (330)

   B. Inner cylinder (410)

   C. Orifice pin (240)

   D. Outer cylinder (175)

   E. Plate (170, 250)

   F. Rebound valve (245)

   G. Retainer ring (255)

   H. Rod end (400)

4. Penetrant check (SOPM 20-20-02):

   A. Bearing (260, 295, 355)

   B. Bushing (180, 185, 190)

   C. Ring (265)

   D. Separator piston (405)

   E. Stop tube (290)

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
163T2011	CYLINDER, OUTER	1-1, 1-2, 1-3
163T2003	CYLINDER, INNER	2-1
163T2001	ROD END	3-1
163T2004	NUT, GLAND	4-1
163T2008	TUBE, STOP	5-1
163T2018	PLATE, ORIFICE	6-1
163T2019	VALVE, REBOUND	7-1
163T2020	PIN, ORIFICE	8-1
163T2023	NAMEPLATE	9-1
--	MISCELLANEOUS PARTS REFINISH	10-1

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 20-30-02 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 20-42-05 Bright Cadmium Plating
SOPM 20-43-01 Chromic Acid Anodizing
SOPM 20-50-02 Installation of Safetying Devices
SOPM 20-50-03 Bearing and Bushing Replacement
SOPM 20-50-05 Application of Aluminum Foil and Other Markers
SOPM 20-50-08 Application of Bonded Solid Film Lubricants
SOPM 20-60-01 Cleaning Materials
SOPM 20-60-02 Finishing Materials
SOPM 20-60-03 Lubricants
SOPM 20-60-04 Miscellaneous Materials
CMM 32-00-02 Landing Gear Attachment Parts - Topcoat Application

3. Materials

NOTE: Equivalent substitutes can be used.

A. Enamel - BMS 10-60, color 707 gray gloss (SOPM 20-60-02)

B. Grease - BMS 3-33 or MIL-G-23827 (SOPM 20-60-03)

C. Lubricant - MIL-L-46010 (SOPM 20-50-08)

D. Primer - BMS 10-11, type 1 (SOPM 20-60-02)

E. Sealant - BMS 5-95 (SOPM 20-60-04)

4. Dimensioning Symbols

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

OUTER CYLINDER ASSEMBLY-REPAIR 1-1

163T2011-1

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

1. Bushing Replacement (Fig. 601)

   A. Remove bushings (180, 185, 190).

   B. If you find defects on lug faces or hole surfaces, refer to REPAIR 1-2 for repair instructions.

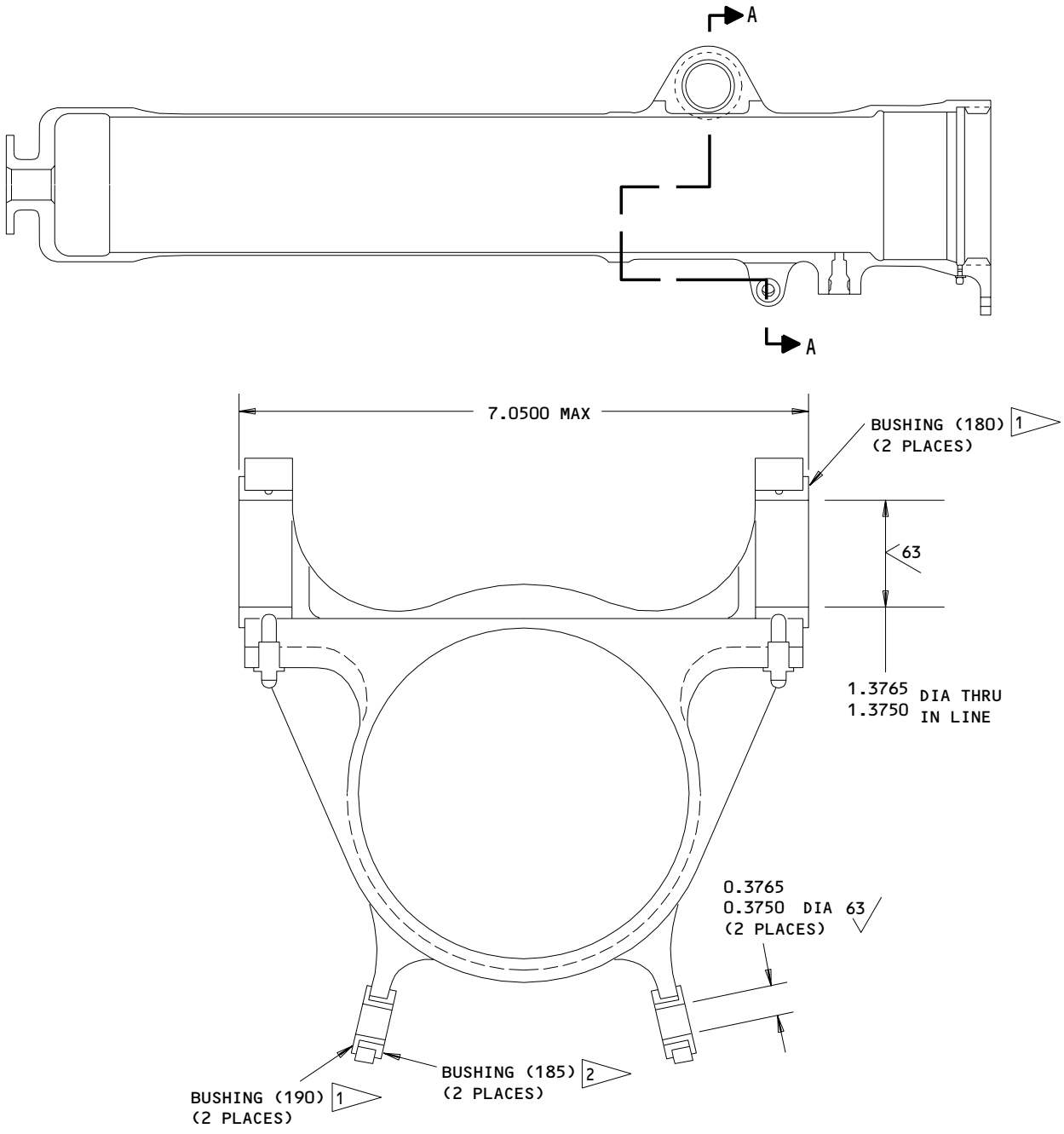
   C. Install replacement bushings by the shrink-fit method (SOPM 20-50-03).

   D. Make a check of the dimensions and machine them as necessary.

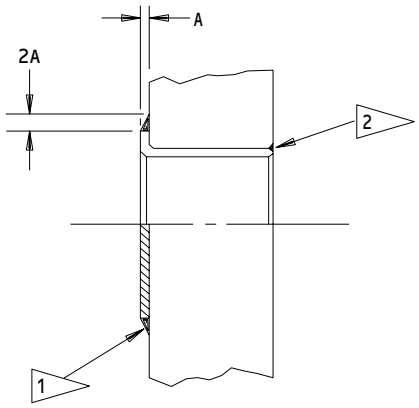
      NOTE: Machining of bushings after installation is not normally required since bushings and lug faces are premachined to provide dimensions shown.

   E. Seal the bushings per Fig. 602.

   F. Apply grease to lube fittings until the grease appears at ID of bushings to make sure the lube passages are not blocked.



163T2011-1
Bushing Replacement
Figure 601



1 CONTINUOUS FILLET SEAL MUST EXTEND TO TOP OF BUSHING FLANGE EDGE AND BE PROPORTIONED AS SHOWN. OPTIONAL: FILLET SEAL PER SOPM 20-50-19. DO NOT APPLY SEALANT TO BUSHING FACE

2 FILL ALL OF THE CAVITY AROUND THE BUSHING. MAKE SURE THE SEALANT IS FLUSH WITH THE SURFACE

Bushing Sealing Details
Figure 602

OUTER CYLINDER - REPAIR 1-2

163T2011-2

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

1. Lug Faces and Holes (Fig. 601)

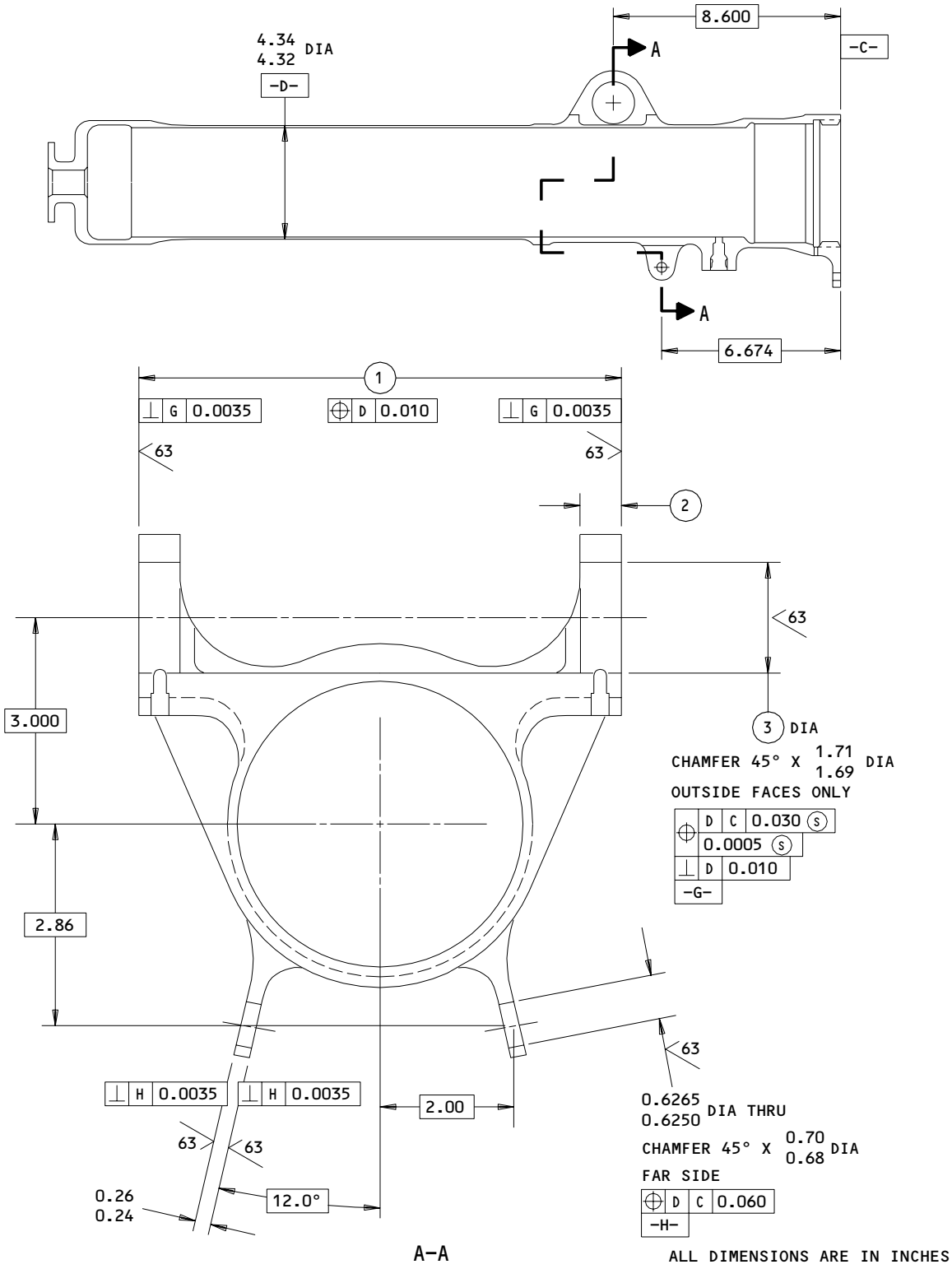
   A. Installation of Oversize Bushings

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

      (2) Shot peen, cadmium-titanium plate and apply primer, BMS 10-11 type 1.

      (3) Manufacture bushings (Fig. 602), as required, to compensate for amount of material removed in step (1).

      (4) Install bushing per REPAIR 1-1.



163T2011-2
Lug Face and Hole Repair
Figure 601 (Sheet 1)

	(1)	(2)	(3)
DESIGN DIM	6.9234 6.9184	0.61 0.59	1.5765 1.5750
REPAIR LIMIT	6.8884	0.56	1.6365 1

REFINISH

FOR REFINISH INSTRUCTIONS, REFER TO REPAIR 1-3

1 REPAIR LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS

2 LUG FACE MACHINING REQUIREMENTS:

1. MATERIAL REMOVED FROM ANY FACE MUST NOT EXCEED HALF THE DIFFERENCE BETWEEN THE DESIGN DIM 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.

REPAIR

REF 1 2

125 ALL MACHINED SURFACES EXCEPT AS NOTED

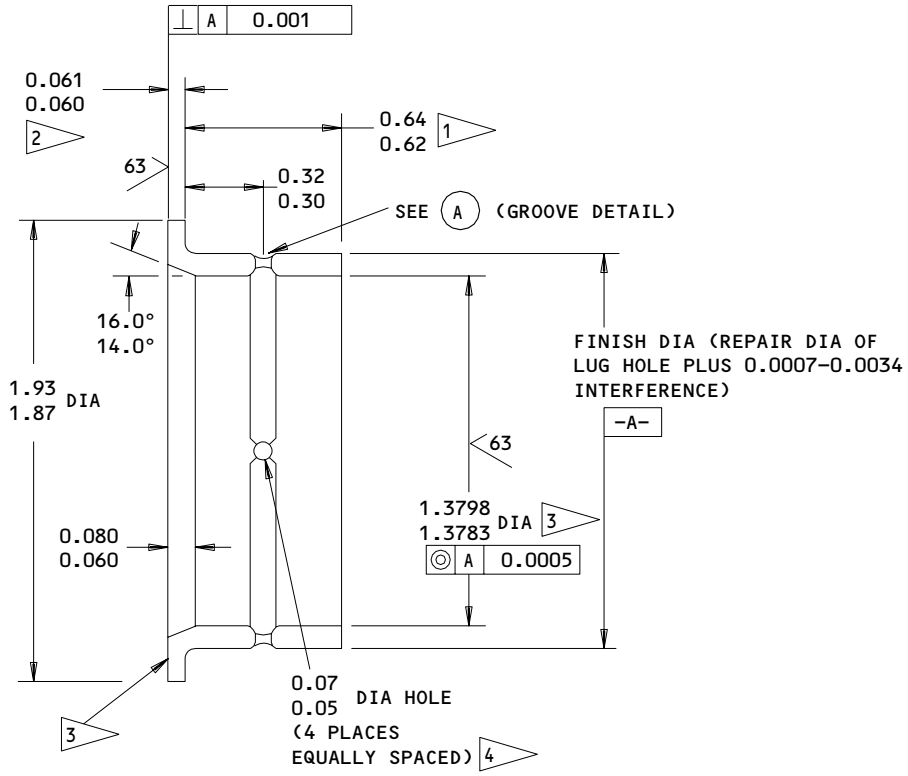
BREAK SHARP EDGES EQUIV TO 0.06 R EXCEPT AS NOTED

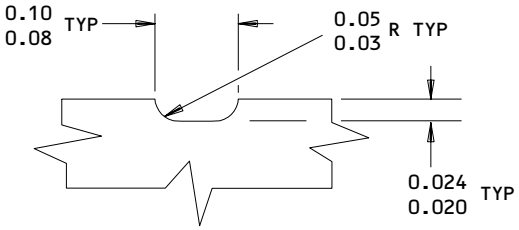
SHOT PEEN: 0.016-0.033 SHOT SIZE
0.006-0.010 A2 INTENSITY

MATERIAL: 4340M STEEL (275-300 KSI)

ALL DIMENSIONS ARE IN INCHES

163T2011-2
Lug Face and Hole Repair
Figure 601 (Sheet 2)





A

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

3 NO FINISH BUSHING ID AND FACE

4 HOLES TO INTERSECT GROOVES

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01–0.02 R

CADMIUM PLATE (F-15.06, 0.0003 MIN) ALL OVER EXCEPT AS NOTED

MATERIAL: AL-NI-BRZ PER AMS 4640

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (3) FIG. 601

REPLACES BUSHING 163T3001-2 (180, IPL FIG. 1)

Oversize Bushing Details
Figure 602

CYLINDER, OUTER - REPAIR 1-3

163T2011-2

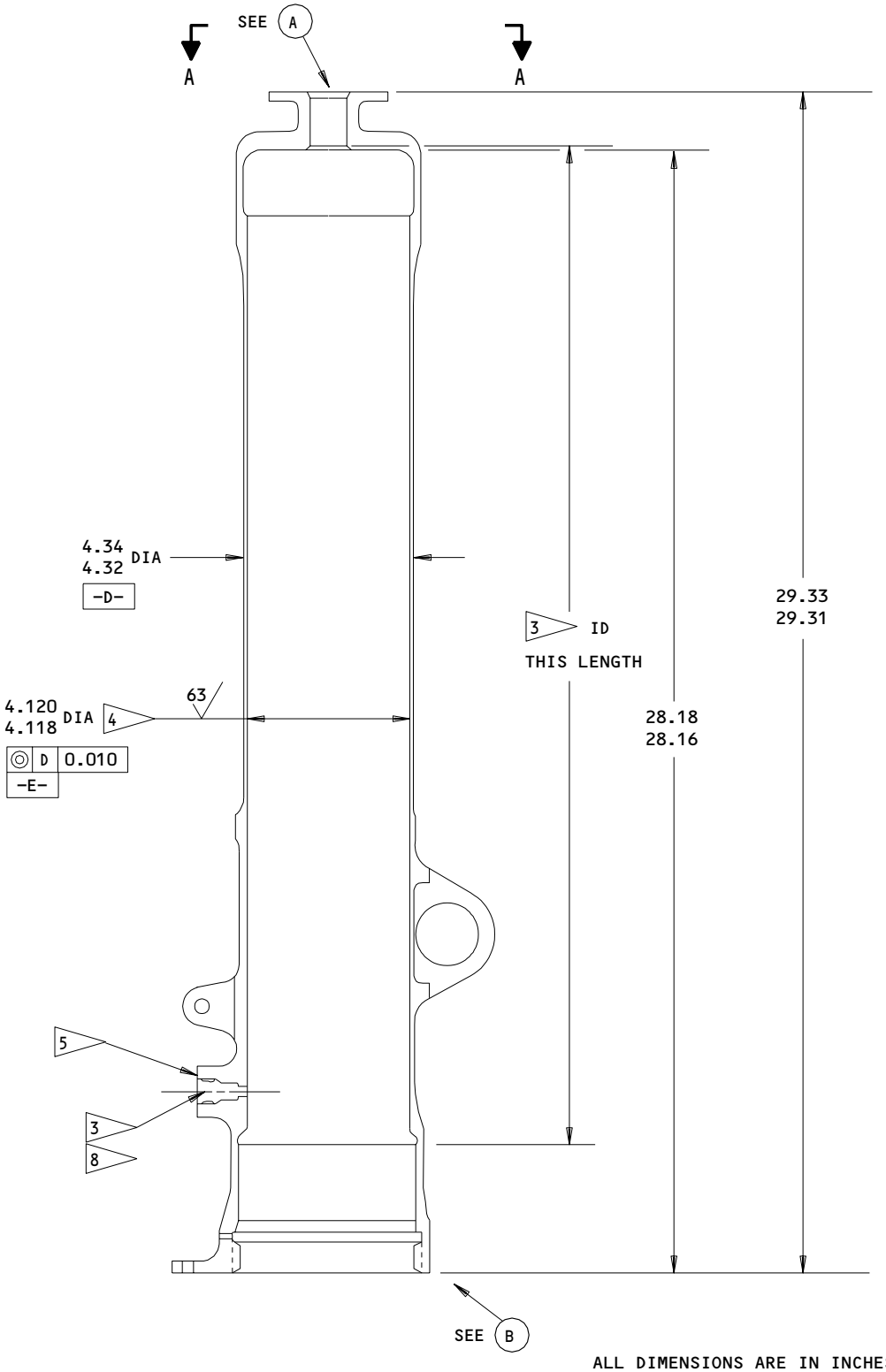
NOTE: Refer to REPAIR-GEN for list of applicable standard practices. Forrepair of surfaces which may only require restoration of original finish, refer to Refinish instructions, Fig. 601.

1. Barrel Repair (Fig. 601)

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

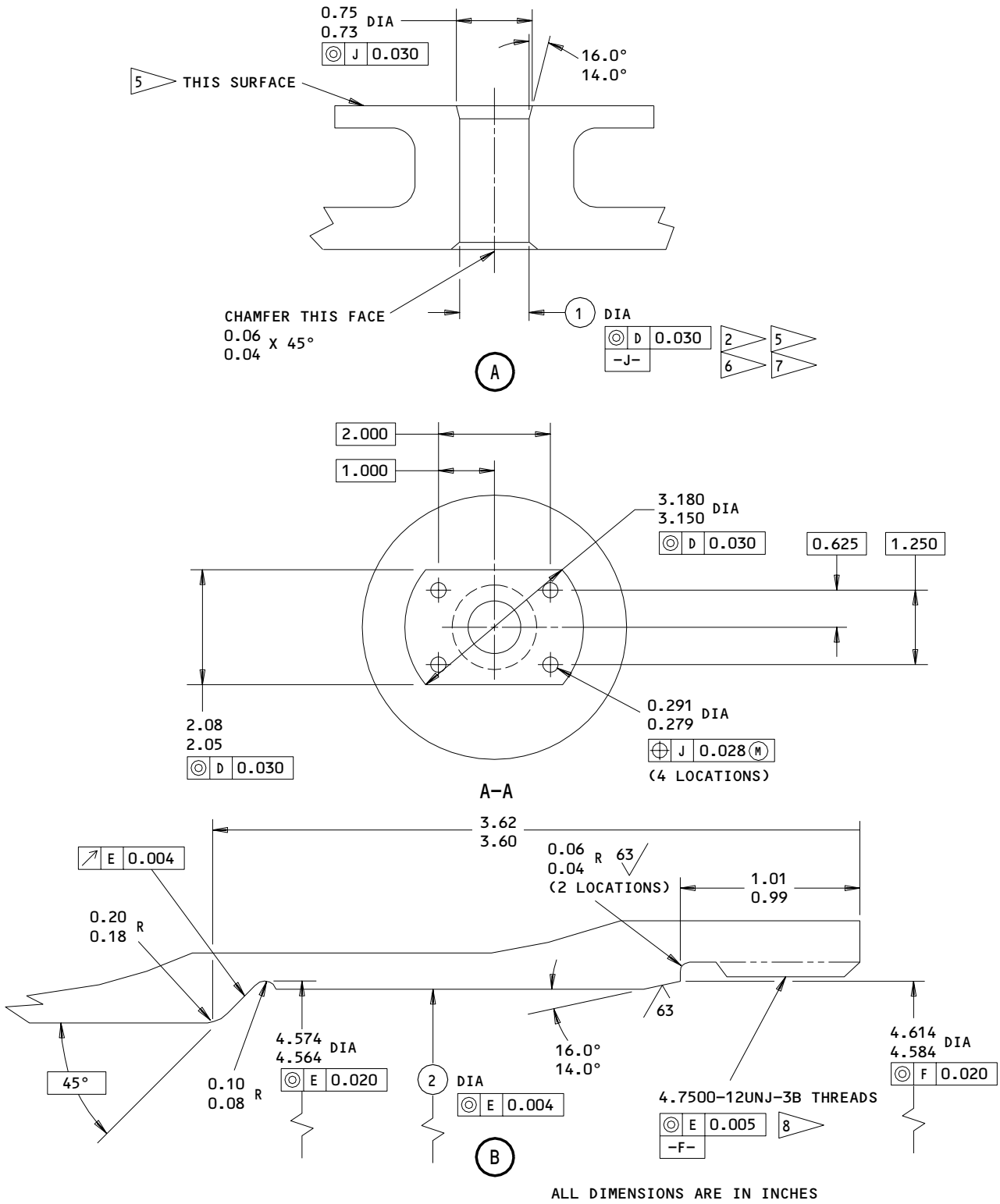
B. Shot peen. Nickel plate. Machine to design dimensions and finish.

C. Or shot peen, chrome plate, and grind to design dimensions and finish. Chrome plate thickness must not be more than 0.010 inch after the grind.



ALL DIMENSIONS ARE IN INCHES

163T2011-2
Barrel Repair
Figure 601 (Sheet 1)



163T2011-2
Barrel Repair
Figure 601 (Sheet 2)

	(1)	(2)
DESIGN DIM	0.6765 0.6750	4.495 4.493
REPAIR LIMIT	0.6965 ▷2	4.515 ▷1

REFINISH

APPLY NO FINISH (F-25.01) TO RECESSSED SEAL BOSS OR TO BARREL ID UNLESSS SHOWN DIFFERENTLY. CADMIUM-TITANIUM PLATE AND APPLY CHROMATE POST-PLATE TREATMENT (F-15.01) PLUS APPLY ONE COAT BMS 10-11, TYPE 1, PRIMER (F-20.02) UNLESS SHOWN DIFFERENTLY. NICKEL PLATE (0.003 MINIMUM THICK) (F-15.33) DIAMETER (1). CHROME PLATE (F-15.34, 0.003 THICK) DIAMETER (2).

PRIMER WIPE (F-19.45) CHROME PLATE, THREADS AND THREAD RELIEF. AFTER BUSHING AND LUBE FITTING INSTALLATION, APPLY BMS 10-60 GRAY GLOSS ENAMEL (F-14.9813, WHICH REPLACES SRF-14.9813) BUT NOT ON BUSHINGS, LUBE FITTINGS OR AS SHOWN BY ▷5.

▷1 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH. PUT A 0.08 PLATING RUNOUT AT EDGES AND RELIEFS

▷2 LIMIT FOR NICKEL PLATE BUILDUP AND MACHINE TO DESIGN DIMENSIONS AND FINISH. PUT A 0.08 PLATING RUNOUT

▷3 APPLY NO FINISH

▷4 DIMENSIONS AND FINISH APPLY AFTER SHOT PEEN

▷5 DO NOT APPLY ENAMEL

▷6 DO NOT APPLY PRIMER

▷7 32 MICROINCHES BEFORE PLATING; 16 MICROINCHES AFTER PLATING

▷8 DO NOT SHOT PEEN

REPAIR

REF ▷1 ▷2 ▷4

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES TO 0.06 R UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.006-0.010 A2 INTENSITY

MATERIAL: 4340M STEEL (275-300 KSI)

ALL DIMENSIONS ARE IN INCHES

163T2011-2
Barrel Repair
Figure 601 (Sheet 3)

210042

INNER CYLINDER ASSEMBLY - REPAIR 2-1

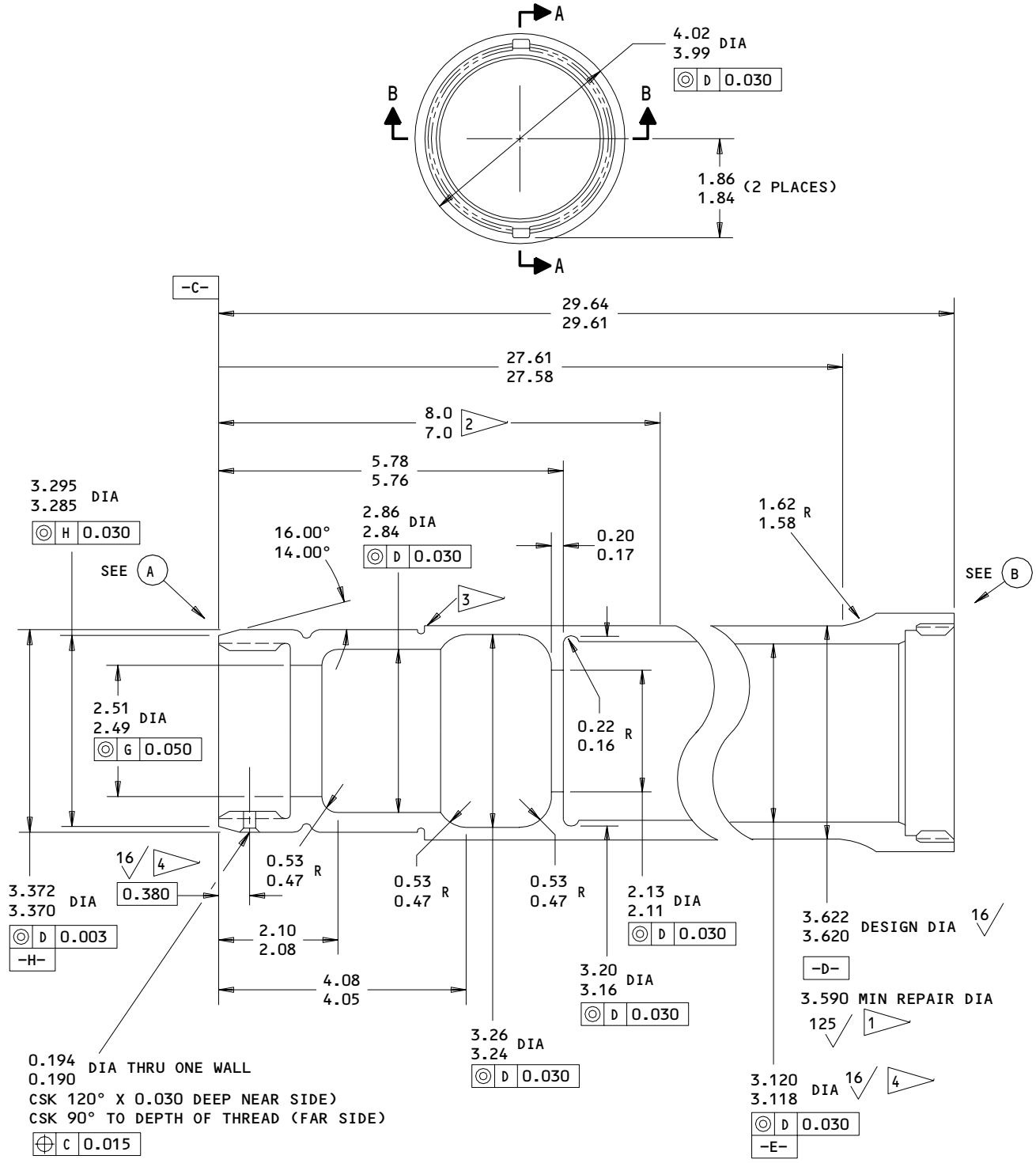
163T2003-1

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

1. Barrel Repairs (Fig. 601)

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

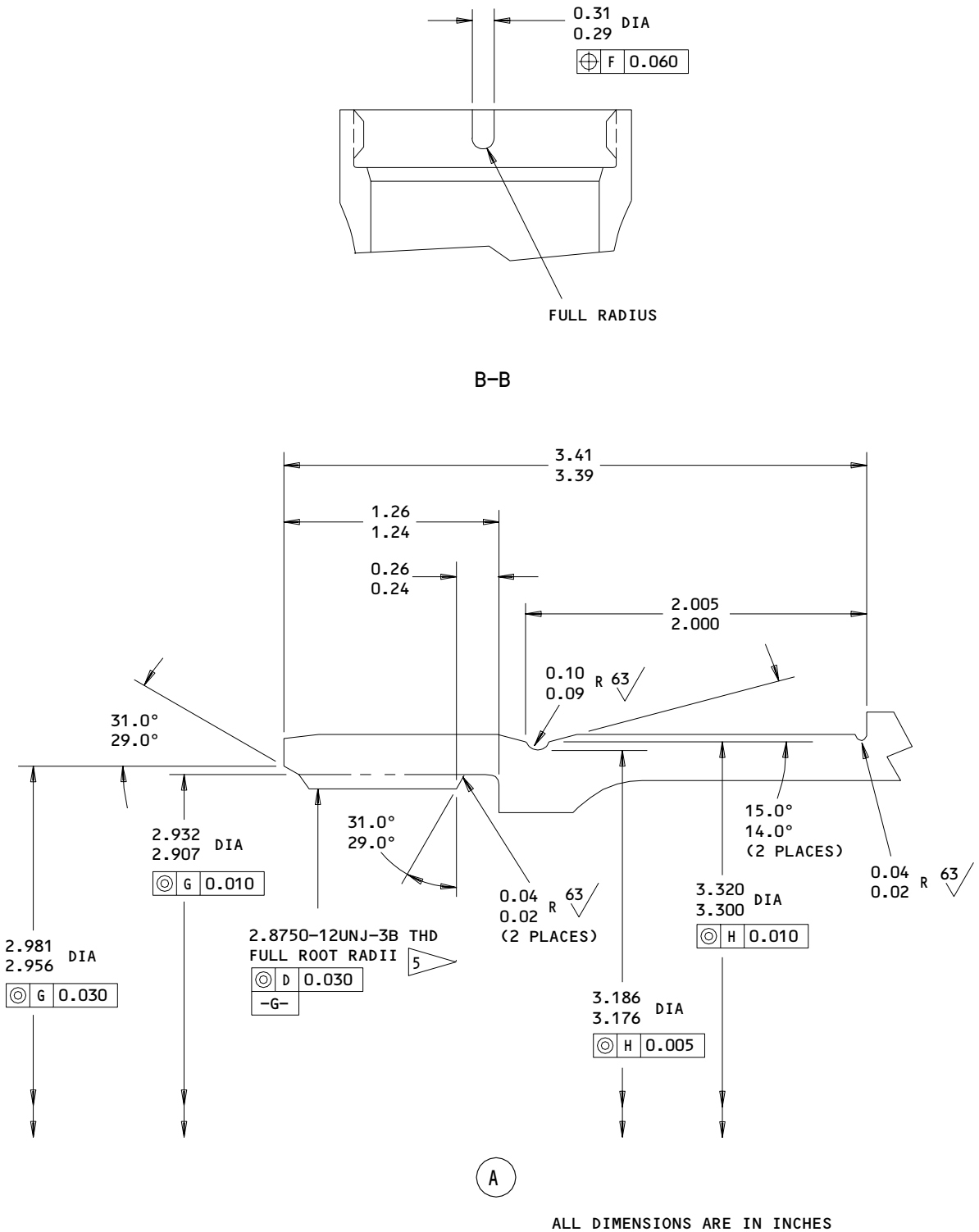
   B. Shot peen, chrome plate and grind surfaces noted to design dimensions and finish. Chrome plate should not exceed 0.010 after grinding.



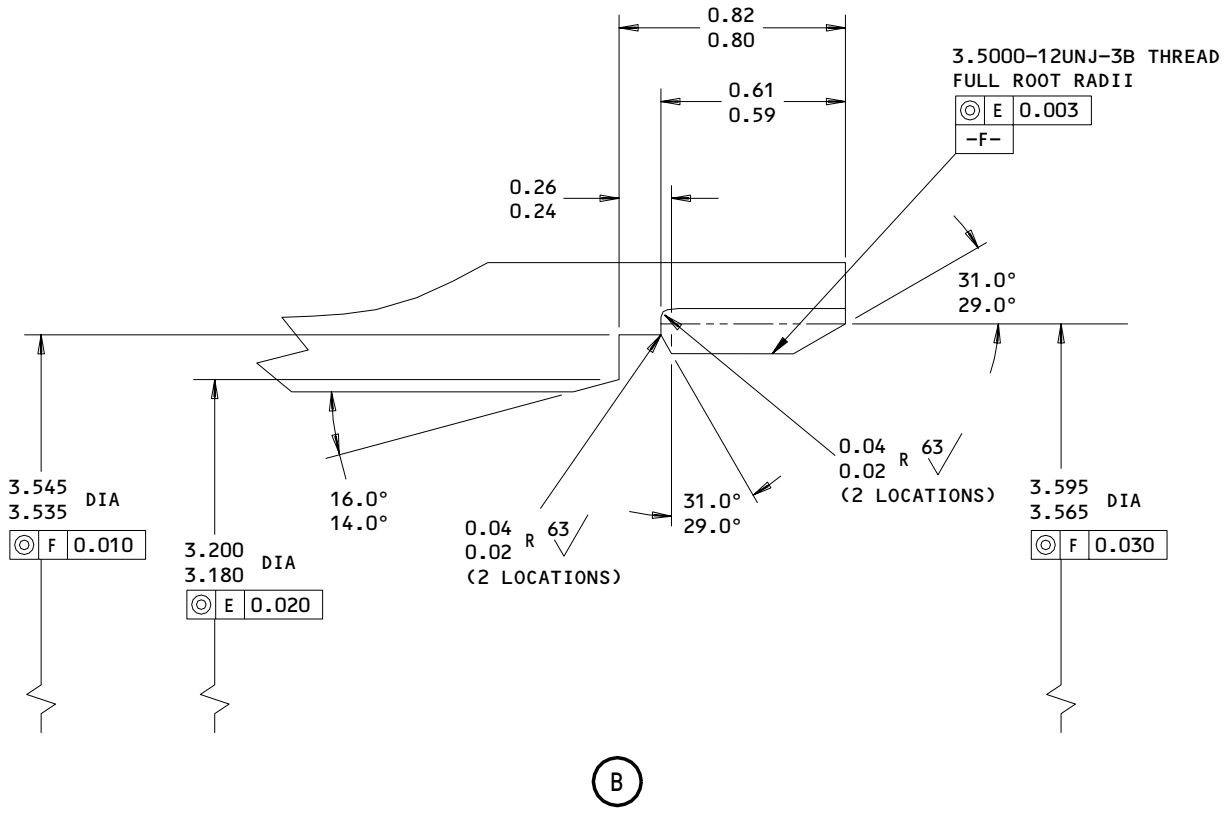
A-A

ALL DIMENSIONS ARE IN INCHES

163T2003-1
Barrel Repair
Figure 601 (Sheet 1)



163T2003-1
Barrel Repair
Figure 601 (Sheet 2)



REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09). CHROME PLATE (F-15.34) 0.003 MINIMUM THICK ON DIAMETER (D) UNLESS SHOWN BY 2.

1. LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH. PUT A 0.08 PLATING RUNOUT AT EDGES
2. NO CHROME PLATE OD THIS LENGTH
3. BREAK EDGE 0.005-0.010
4. DIMENSION AND SURFACE FINISH APPLY AFTER SHOT PEEN
5. DO NOT SHOT PEEN

REPAIR

REF 1 2

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK EDGES EQUIVALENT TO 0.03 R UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.017-0.046 SHOT SIZE
0.016 A2 INTENSITY

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

ALL DIMENSIONS ARE IN INCHES

163T2003-1
Barrel Repair
Figure 601 (Sheet 3)

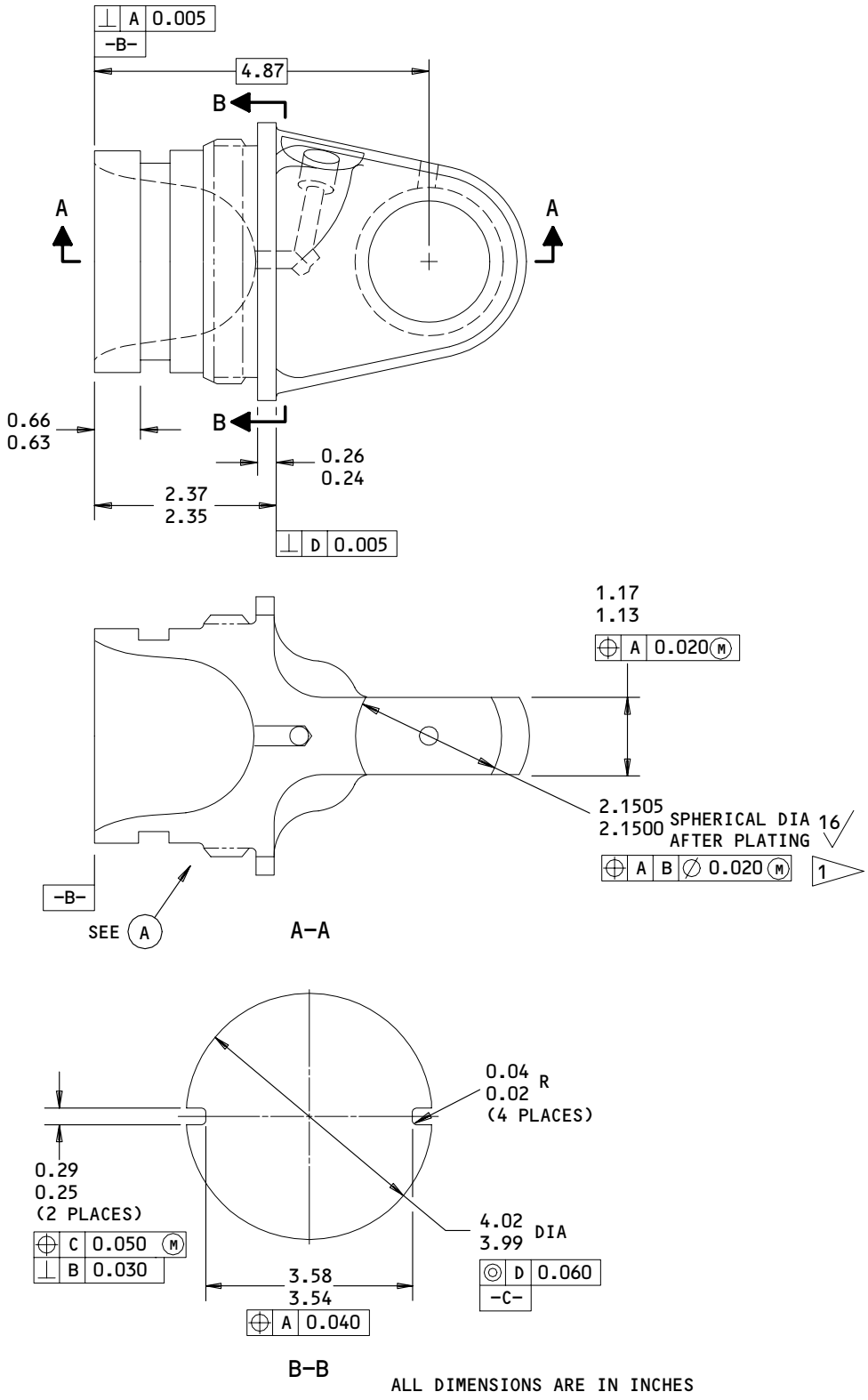
210067

ROD END ASSEMBLY - REPAIR 3-1

163T2001-5

1. Repair

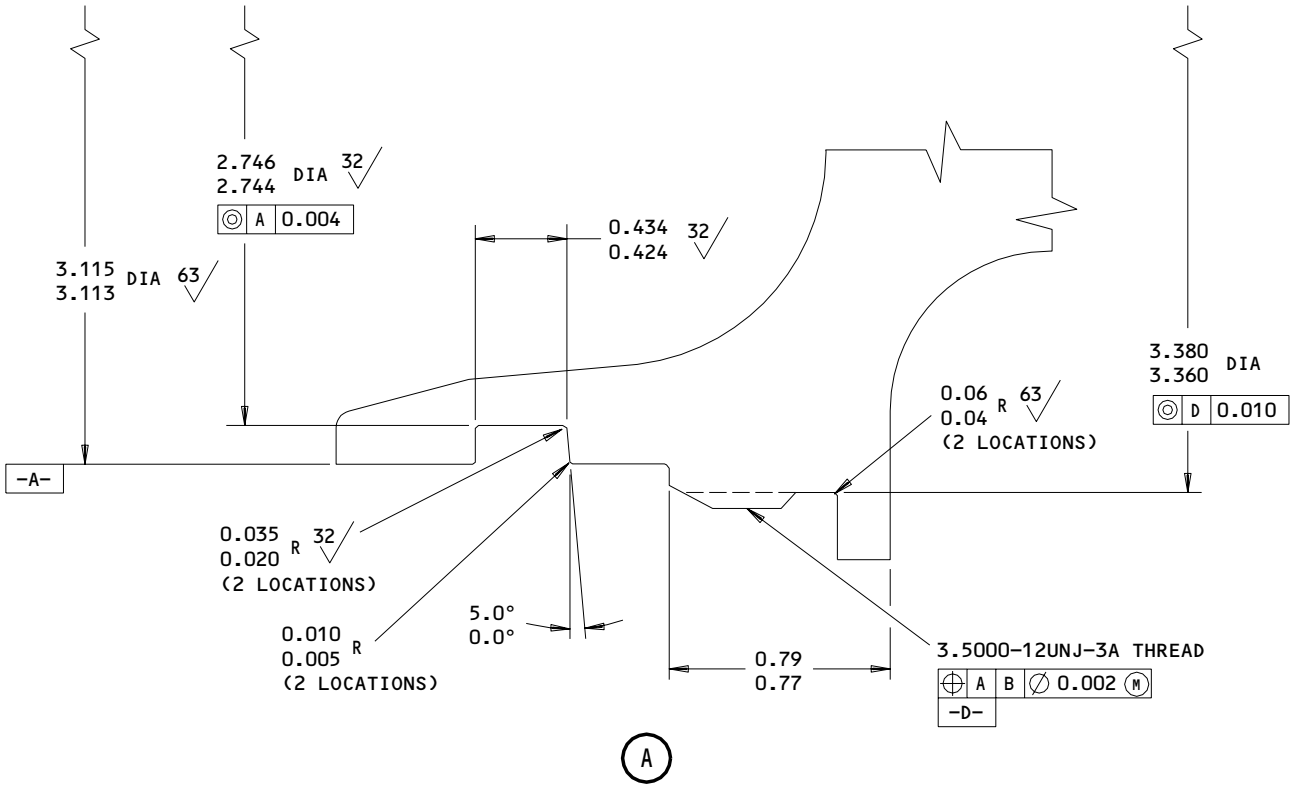
A. Repair consists of stripping and restoration of original finish. Refer to Refinish instructions in Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



ALL DIMENSIONS ARE IN INCHES

163T2001-5
Refinish Details
Figure 601 (Sheet 1)

210234



REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09) ROD END UNLESS SHOWN BY 1. CHROME PLATE (F-15.34, 0.0007-0.0010 THICK) THE SPERICAL DIAMETER. APPLY MIL-L-46010 LUBRICANT (F-19.81) TO THREADS.

1 CHROME PLATE (F-15.34), 0.007-0.0010 THICK

REPAIR

(SAME AS REFINISH)

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK EDGES EQUIVALENT TO 0.03 R UNLESS SHOWN DIFFERENTLY

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

ALL DIMENSIONS ARE IN INCHES

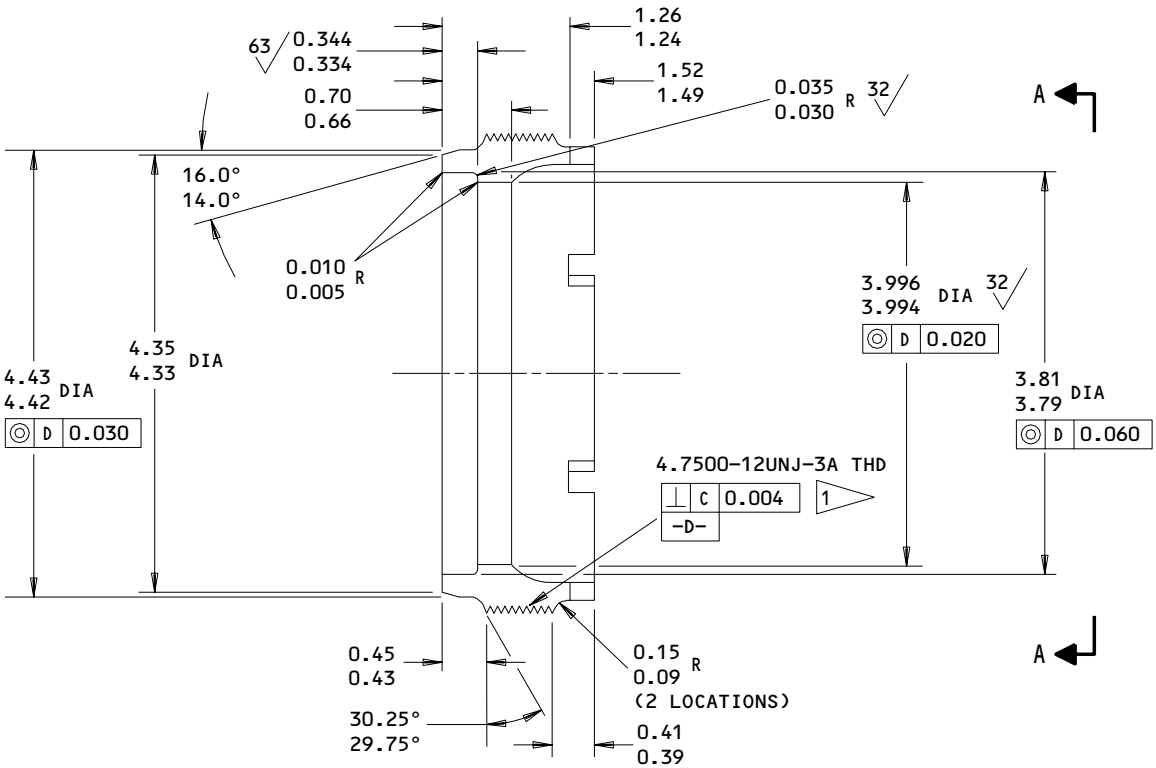
163T2001-5
Refinish Details
Figure 601 (Sheet 2)

GLAND NUT - REPAIR 4-1

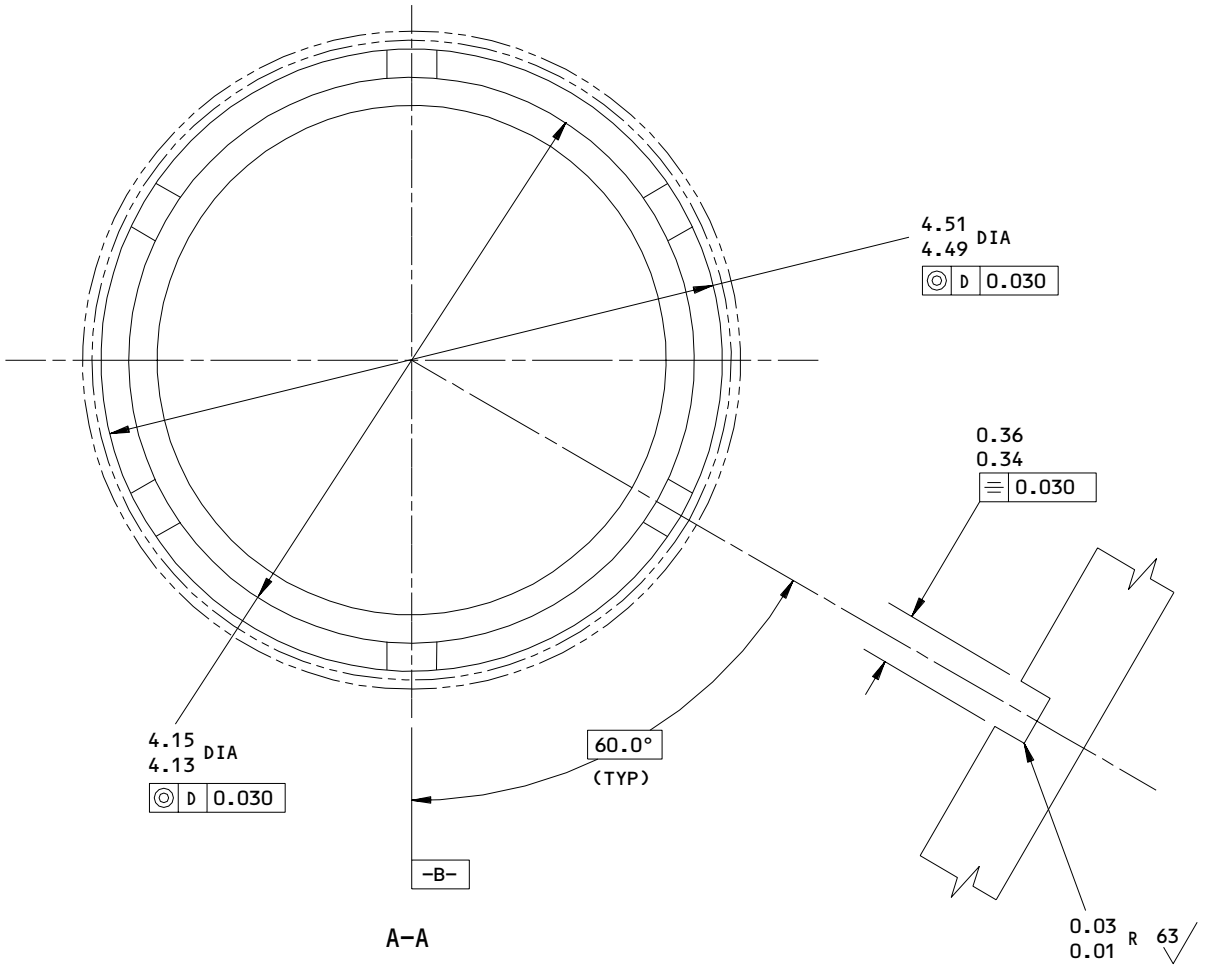
163T2004-1

1. Repair

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



163T2004-1
Refinish Details
Figure 601 (Sheet 1)



A-A

REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09) BUT NOT ON THREADS. CADMIUM PLATE (F-15.02) THE THREADS. WIPE THE PLATED THREADS WITH PRIMER (F-19.45).

1 DO NOT SHOT PEEN

REPAIR

(SAME AS REFINISH)

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK EDGES EQUIVALENT TO 0.03 R UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.017-0.046 SHOT SIZE
0.014 A2 INTENSITY

MATERIAL: 15-5PH CRES PER AMS 5659
(180-200 KSI)

ALL DIMENSIONS ARE IN INCHES

163T2004-1
Refinish Details
Figure 601 (Sheet 2)

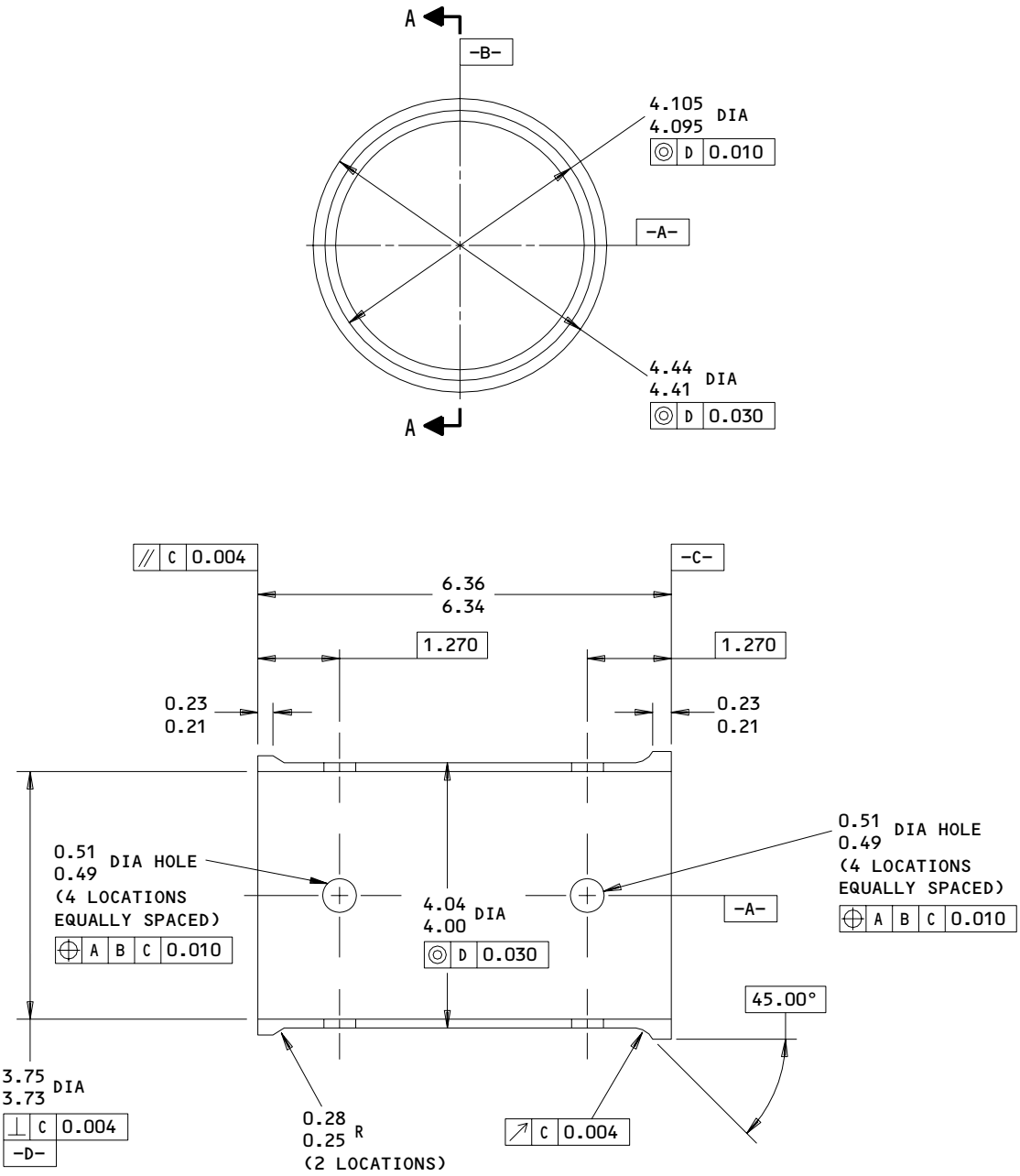
L98767

STOP TUBE - REPAIR 5-1

163T2008-1

1. Repair

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



A-A

REFINISH

SULFURIC ACID ANODIZE (F-17.03)

REPAIR

SAME AS REFINISH

125 ALL MACHINED SURFACES

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

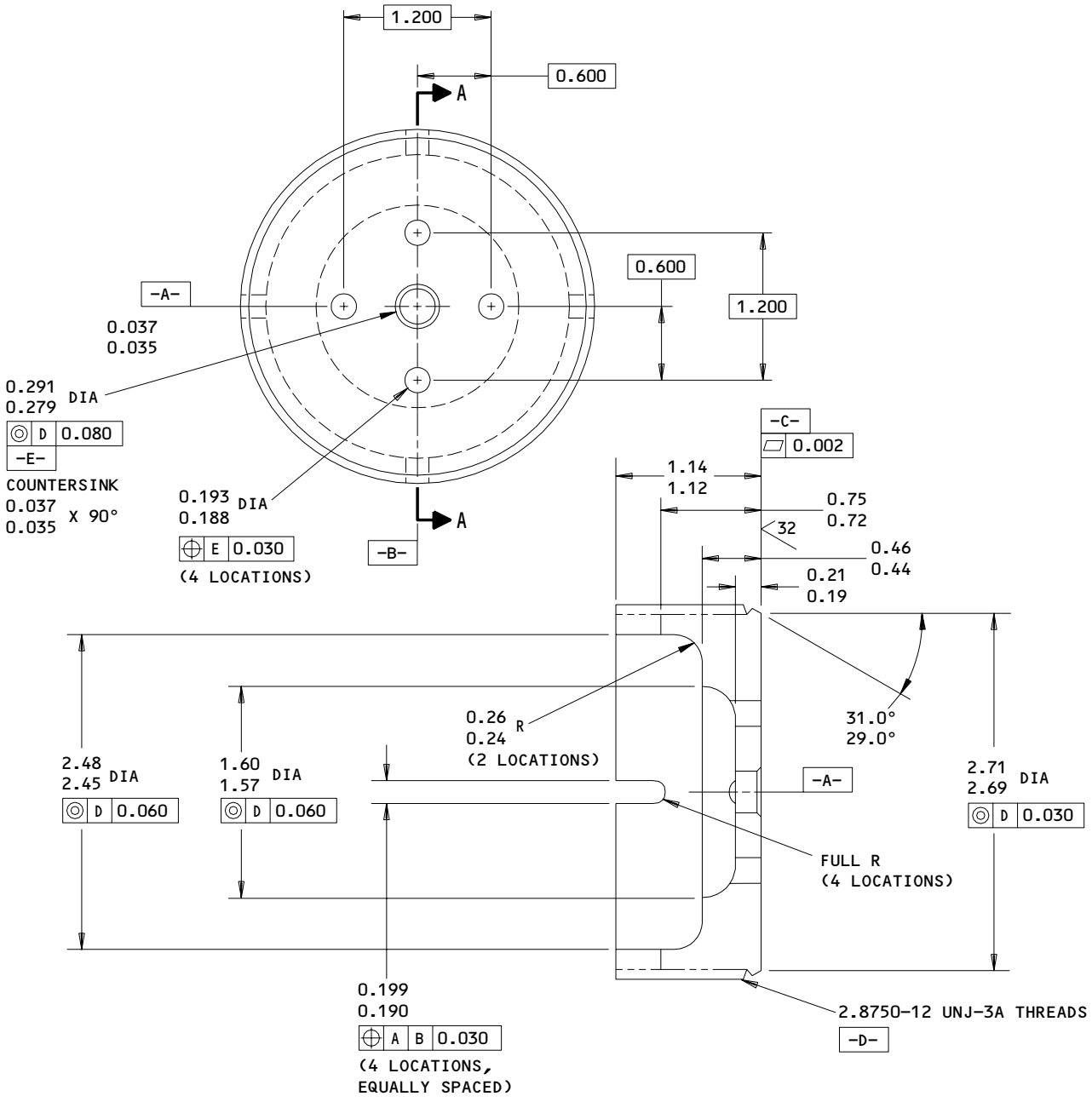
163T2008-1
Stop Tube Repair and Refinish
Figure 601

ORIFICE PLATE - REPAIR 6-1

163T2018-1

1. Repair

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



A-A

REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09). APPLY MIL-L-46010 LUBRICANT (F-19.81) TO THREADS

REPAIR

(SAME AS REFINISH)

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

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

ALL DIMENSIONS ARE IN INCHES

163T2018-1
Refinish Details
Figure 601

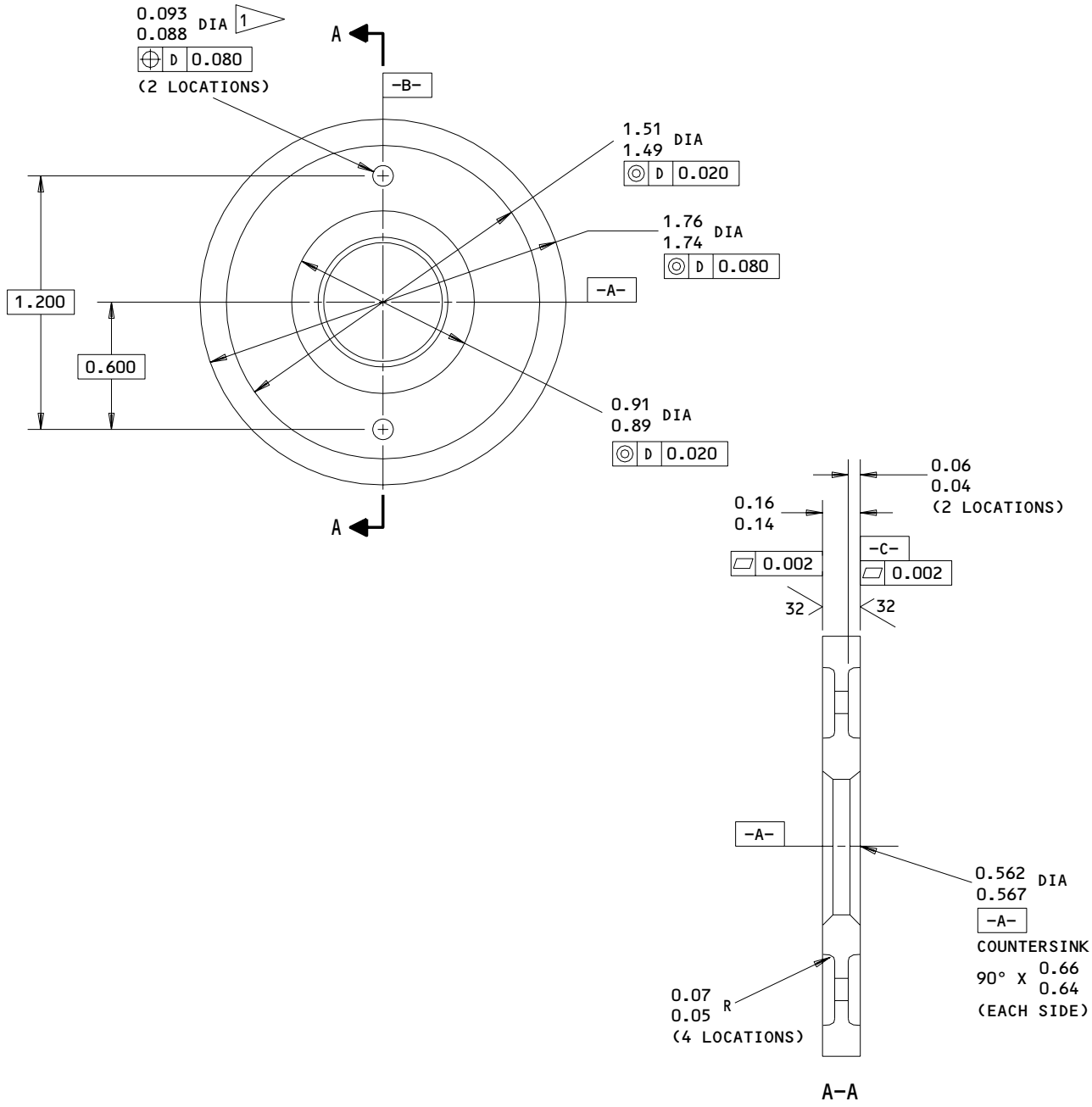
210226

REBOUND VALVE - REPAIR 7-1

163T2019-1

1. Repair

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



A-A

REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09).

1 BREAK EDGES TO 0.005 R MAXIMUM

REPAIR

(SAME AS REFINISH)

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

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

ALL DIMENSIONS ARE IN INCHES

163T2019-1
Refinish Details
Figure 601

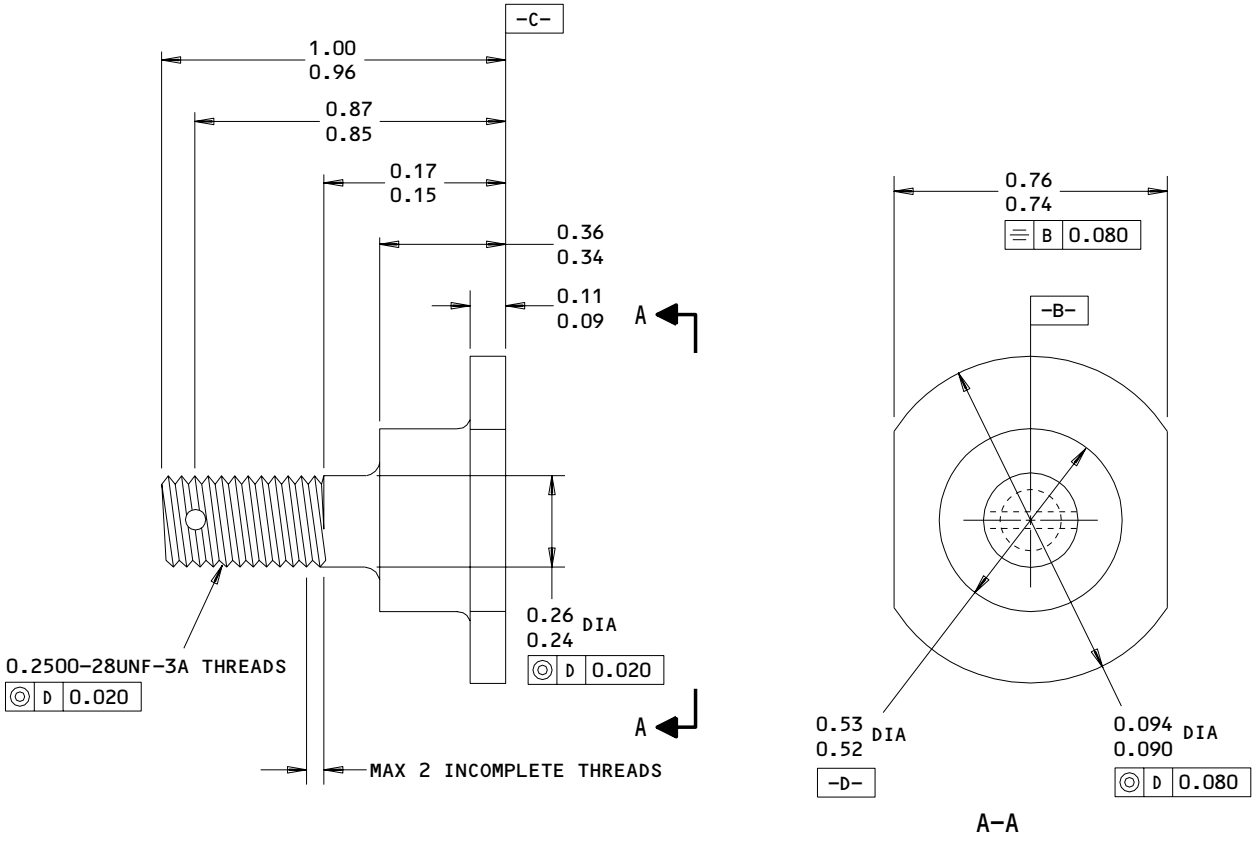
210229

ORIFICE PIN - REPAIR 8-1

163T2020-1

1. Repair

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



REFINISH

PASSIVATE (F-17.25, WHICH REPLACES F-17.09)

REPAIR

(SAME AS REFINISH)

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK EDGES TO 0.01-0.03 R

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

ALL DIMENSIONS ARE IN INCHES

163T2020-1
Refinish Details
Figure 601

NAMEPLATE - REPAIR 9-1

163T2023-1

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

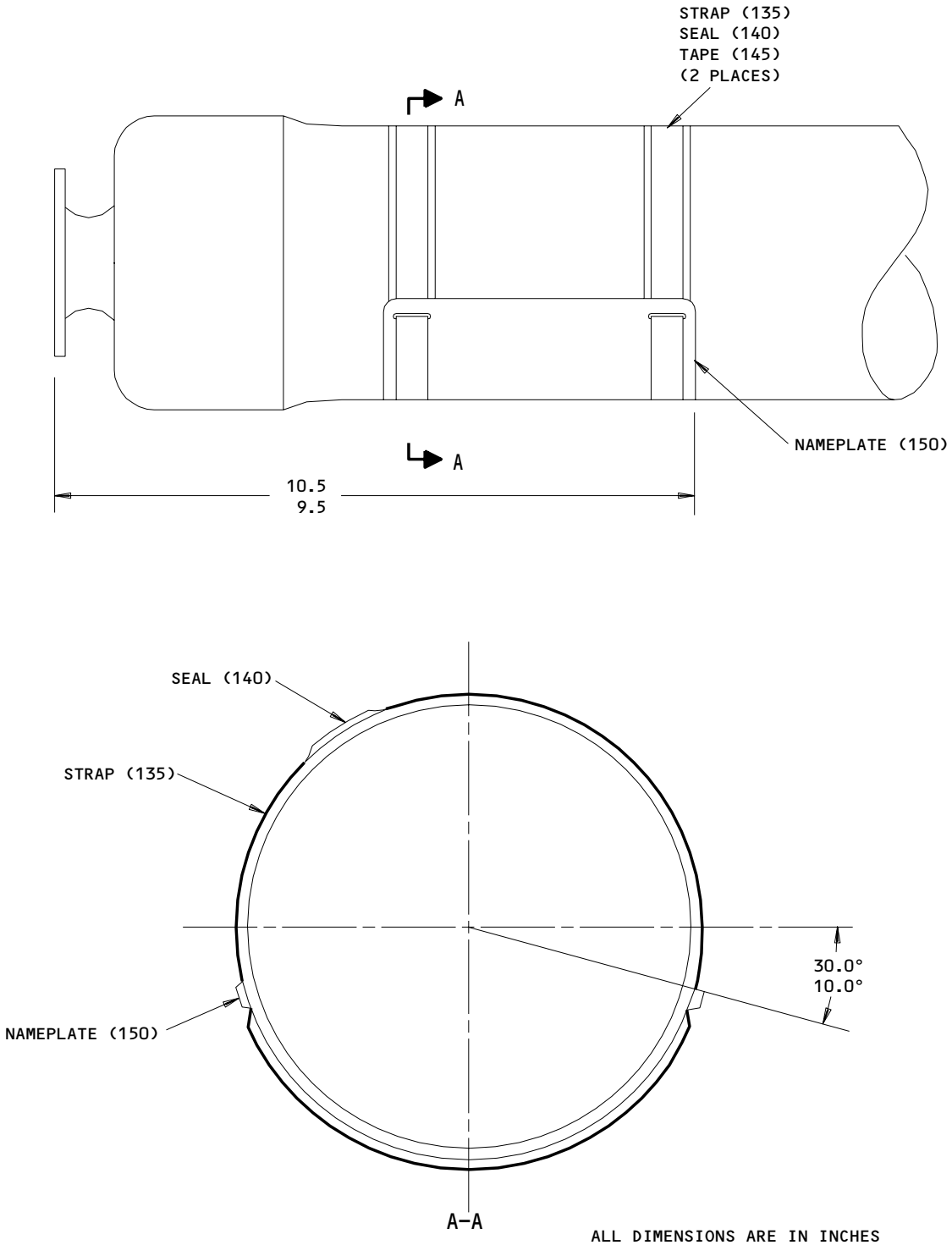
1. Nameplate Replacement (Fig. 601)

   A. Remove the old nameplate (150).

   B. Steel stamp the strut assembly identification data on the replacement nameplate (150) with 0.12-inch high characters.

   C. Clean the painted surface with solvent and install one wrap of mylar tape at each strap location. Overlap the ends of the tape approximately 1 inch. Tape must extend 0.125 inch out from the strap edge.

   D. Install the replacement nameplate with new straps (135) and seals (140).



163T2023-1

Nameplate Replacement
Figure 601

MISCELLANEOUS PARTS REFINISH - REPAIR 10-1

1. Repair of these parts is only replacement of the original finish. Refer to REPAIR - GENERAL for a list of applicable standard practices.

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Tube assembly (70)	Titanium	No finish.
Nameplate (150)	Al alloy	Apply BMS 10-11, Type 1 primer (F-20.03) to back of plate only.
Plate (170)	15-5PH CRES 180-200 ksi	Cadmium plate and apply BMS 10-11, Type 1 primer (F-16.01) and BMS 10-60 enamel (F-14.9813, which replaces SRF-14.9813).
Ring (255)	17-7PH CRES CH900	Passivate (F-17.25, which replaces F-17.09).
Upper bearing (260, 262), ring halves 265,268), lower bearing (295), bearing halves (360,365)	Al-Ni-Bronze	No finish.
Clip (267)	302 CRES	Passivate (F-17.25, which replaces F-17.09).
Piston (405)	Al alloy	Sulfuric acid anodize (F-17.03).

Refinish Details
Figure 601 (Sheet 1)

ASSEMBLY

1. Materials

NOTE: Equivalent substitutes can be used.

A. Assembly Lube - MCS 352 (SOPM 20-60-03)

B. Hydraulic Fluid -- BMS 3-11 (SOPM 20-60-03)

C. Grease -- BMS 3-33 or MIL-G-23827 (SOPM 20-60-03)

D. Lockwire -- MS20995C47 (SOPM 20-60-04)

E. Tamper Proof Putty -- BMS 8-45 (SOPM 20-60-04)

F. Mylar Tape -- Mystik No. 7355 (Replaced by Scotch 8412) (SOPM 20-60-04)

2. Equipment

NOTE: Equivalent substitutes can be used.

A. A32045-76 -- Orifice Plate Wrench

B. A32045-77 -- Rod End Wrench

C. A32045-78 -- Spanner Wrench

3. Lubrication

A. Before installation, put T-rings in hydraulic fluid.

B. Apply a thin layer of assembly lube on T-ring seals, backup rings and the scraper ring.

C. Wipe with hydraulic fluid the surfaces mating with T-ring seals, backup rings and scraper ring slide.

CAUTION: BE CAREFUL TO KEEP OUT DIRT AND UNWANTED MATTER AS YOU ASSEMBLE THIS STRUT.

4. Assembly (IPL Fig. 1)

A. Install internal parts in inner cylinder (410).

(1) Install T-ring seals (385) and backup rings (380) on separator piston (405).

(2) Slide separator piston (405) in inner cylinder (410).

(3) Install T-ring seal (385) and backup rings (375) on rod end (390).

(4) With rod end wrench A32045-77, install lockwasher (370) and rod end in inner cylinder (410). Tighten rod end to 50-75 lb-ft.

(5) With a square punch, bend the flange of lockwasher (370) into the two slots of the rod end (400). The bend must be complete.

(6) Install pressure indicator (340) and packing (350) on rod end (390). Tighten to 22-25 lb-ft.

(7) Install air valve (345), cap (347) and packing (350) on rod end (390). Tighten to 22-25 lb-ft and install lockwire between valve (345) and pressure indicator (340) per 20-50-02 by the double-twist method.

(8) Test inner cylinder subassembly (Ref TESTING/TROUBLE SHOOTING).

(9) Install valve pin (240), rebound valve (245), washer (230) and nut (235) on orifice plate (250). Tighten per 20-50-01. Install cotter pin (225) per 20-50-02.

(10) With orifice plate wrench A32045-76, install orifice plate (250) in inner cylinder (335) and tighten to 40-50 lb-ft. Back off if necessary to permit lockbolt (210) to be installed.

(11) Install bolt (210), washers (215) and nut (220). Tighten per 20-50-01.

B. Install external parts on inner cylinder.

(1) Carefully slide gland nut (330) and scraper ring (320) over inner cylinder.

(2) Install T-ring seals (305, 315) and backup rings (300, 310) on lower bearing (295) and carefully slide down bearing over inner cylinder.

(3) Slide stop tube (290) over inner cylinder.

(4) Install T-ring seals (275, 285) and backup rings (270, 280) on upper bearing (260) and carefully slide upper bearing over inner cylinder.

(5) Install ring halves (265) between upper bearing (260) and stop tube (290).

C. Assemble inner and outer cylinders.

(1) Carefully install inner cylinder in outer cylinder.

(2) Lubricate threads of gland nut (330) with grease and install gland nut in outer cylinder. With spanner wrench A32045-78, tighten nut to 75-100 lb-ft and, if necessary, back off to align nearest nut slot with stop plate (170).

(3) Install stop plate (170) with bolts (155), washers (160) and nuts (165). Tighten per 20-50-01.

(4) Apply BMS 8-45 putty to nuts (165) such that any external adjustment of the nuts will break the putty.

D. Do a test of the shock strut assembly (130) (Ref TESTING/TROUBLE SHOOTING)

E. Install blocker valve (115) and tube assembly (70).

(1) Install blocker valve (115), backup ring (120) and packing (125) on outer cylinder (175). Install packing (125) per 20-50-06.

(2) Install bolts (95), washers (100, 105) and nuts (110). Lubricate bolt shanks, threads and washer faces with grease.

(3) Install unions (45), reducer (85) and packings (55, 90) on blocker valve (115). Install packings per 20-50-06. Cover open ports with protective caps.

(4) Install adapter (50), backup ring (60) and packings (55, 65) on retract port of outer cylinder. Install packings per 20-50-06.

(5) Install tube assembly (70) on blocker valve (115) and shock strut (130) retract port.

(6) Install clamp (20), bolts (5), washer (10), nuts (25) and blocks (15) on clamp (30). Make sure blocks (15) are installed correctly.

(7) Clean the painted surface of outer cylinder where clamp is to be installed (Fig. 701) with solvent.

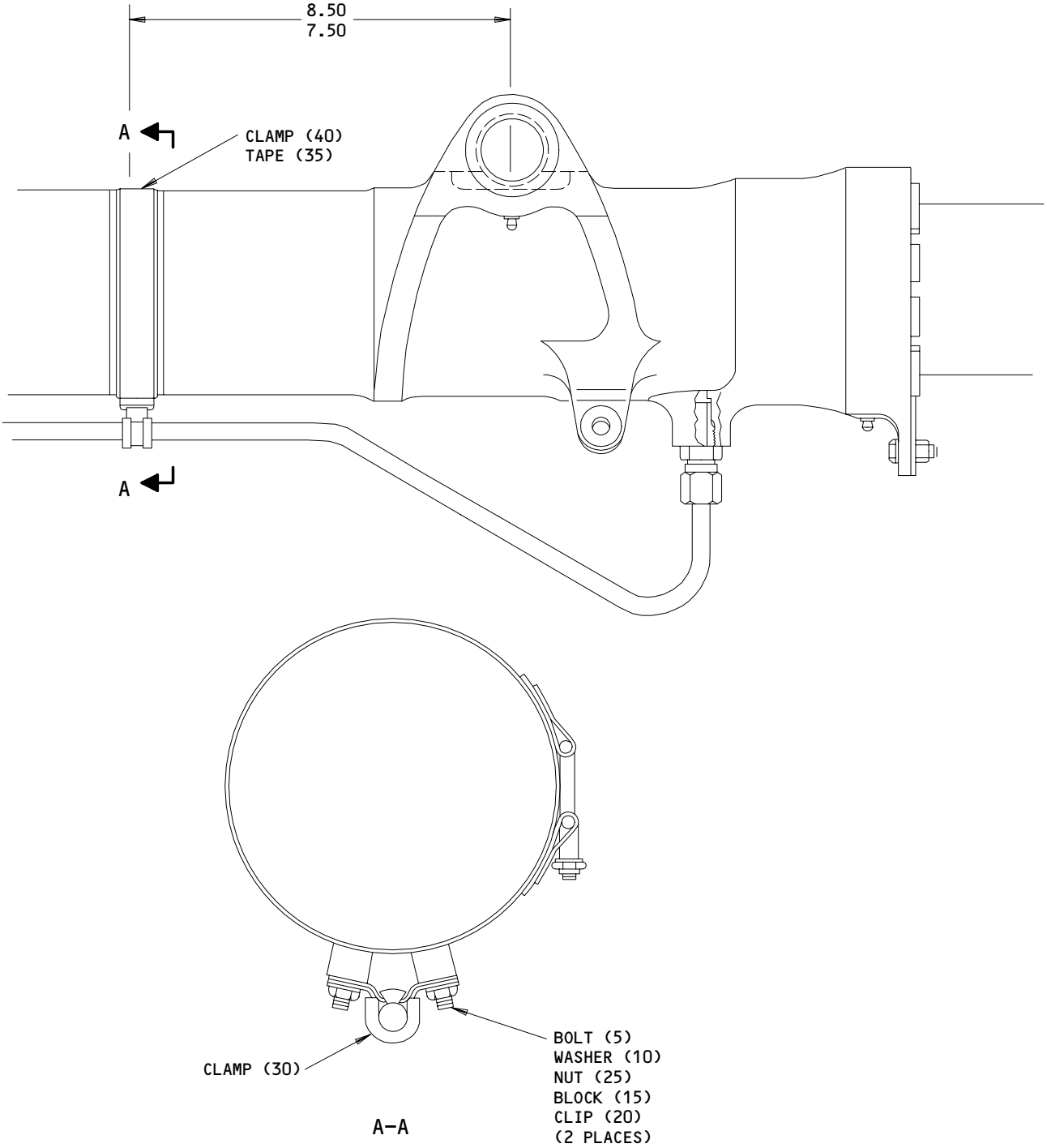
(8) Install clamp (40) on outer cylinder (175) with one wrap of tape (35) under clamp. Overlap the ends of the tape approximately one inch. Tape must extend 0.125 inch beyond clamp edge.

F. Lubricate bearing (355) with grease and install in rod end. Tie the bearing to keep it in position until the unit is installed in the airplane.

5. Storage

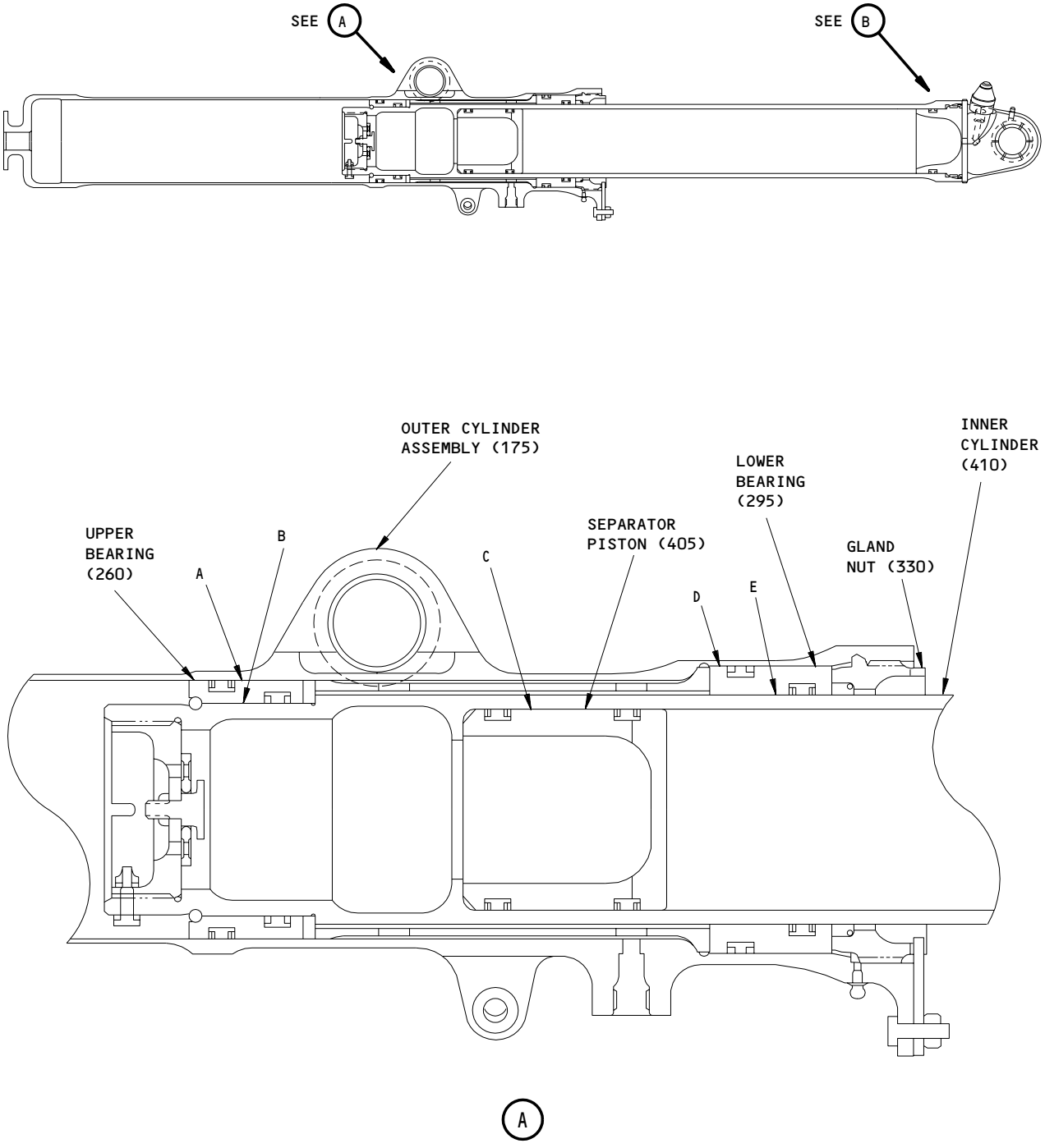
A. After the test, open the air valve.

B. Retract the strut. Fill the unit with hydraulic fluid, but let sufficient air space stay for thermal expansion. Plug the open ports.

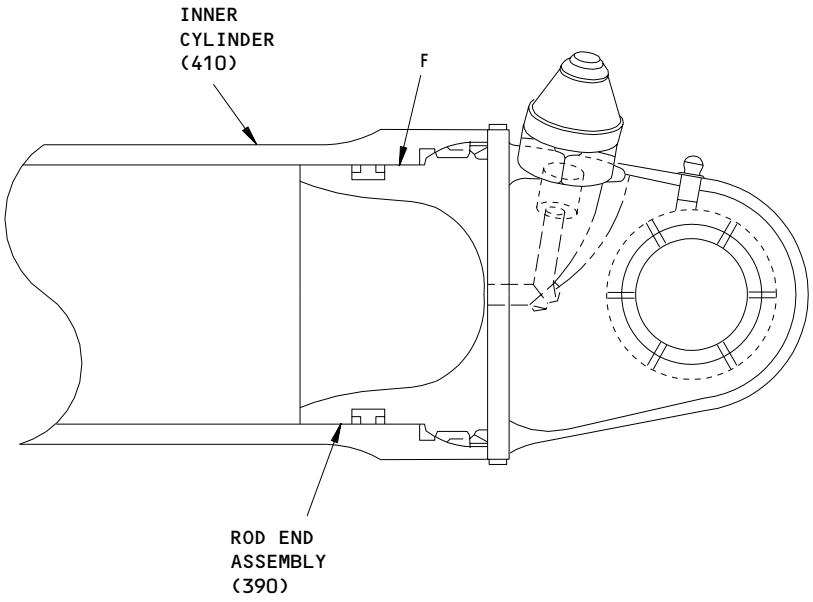


ALL DIMENSIONS ARE IN INCHES

Tube Assembly Clamp Installation
Figure 701



Fits and Clearances
Figure 801 (Sheet 1)



B

Fits and Clearances
Figure 801 (Sheet 2)

Ref Letter Fig.801	Mating Item No. IPL Fig.1	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
A	ID 175 OD 260	4.118 4.113	4.120 4.115	0.003	0.007	4.109	4.126	0.011
B	ID 260 OD 410	3.375 3.370	3.377 3.372	0.003	0.007			
C	ID 410 OD 405	3.118 3.111	3.120 3.113	0.005	0.009	3.108	3.125	0.012
C	ID 410 OD 405A	3.118 3.105	3.120 3.107	0.011	0.015	3.102	3.131	0.018
D	ID 175 OD 295	4.493 4.487	4.495 4.489	0.004	0.008			
E	ID 295 OD 410	3.625 3.620	3.627 3.622	0.003	0.007	3.616	3.633	0.011
F	ID 410 OD 390	3.118 3.113	3.120 3.115	0.003	0.007			

Fits and Clearances
Figure 801 (Sheet 3)

210043

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO SOPM 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
250	ORIFICE PLATE		40-50
330	GLAND NUT		75-100
340	PRESSURE INDICATOR		22-25
345	AIR VALVE		22-25
390	ROD END		50-75

Torque Table
Figure 802

SPECIAL TOOLS, FIXTURES AND EQUIPMENT

NOTE: Equivalent substitutes can be used.

1. A32045-76 -- Orifice Plate Wrench
2. A32045-77 -- Rod End Wrench
3. A32045-78 -- Spanner Wrench

ILLUSTRATED PARTS LIST

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

2. Indentures show parts relationships as follows:

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

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

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

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

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

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

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

6. Parts Interchangeability

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

VENDORS

VF0218 LBFS LE BOZEC FILTRATION ET SYSTEMS
2 RUE DE LA PATURE
CARRIERES SUR SEINE F-78420
FRANCE

V09257 BUSAK AND SHAMBAN, INC.
SHAMBAN SEALS DIVISION
2531 BREMER DRIVE
FORT WAYNE, INDIANA 46803-3014

V72902 PALMETTO, INC.
25 ENGERMAN AVENUE
DENTON, MARYLAND 21629
FORMERLY GREENE TWEED AND CO. INC.

V76381 MINNESOTA MINING AND MANUFACTURING CO.
3M CENTER BLDG 224-5S-04
ST. PAUL, MINNESOTA 55144-1000

V88301 MYSTIK TAPE DIV OF BORDEN CHEMICAL CORP
1700 WINNETKA AVENUE
NORTHFIELD, ILLINOIS 60093
OR
7800 SOUTH WOODLAWN
CHICAGO, ILLINOIS 60619

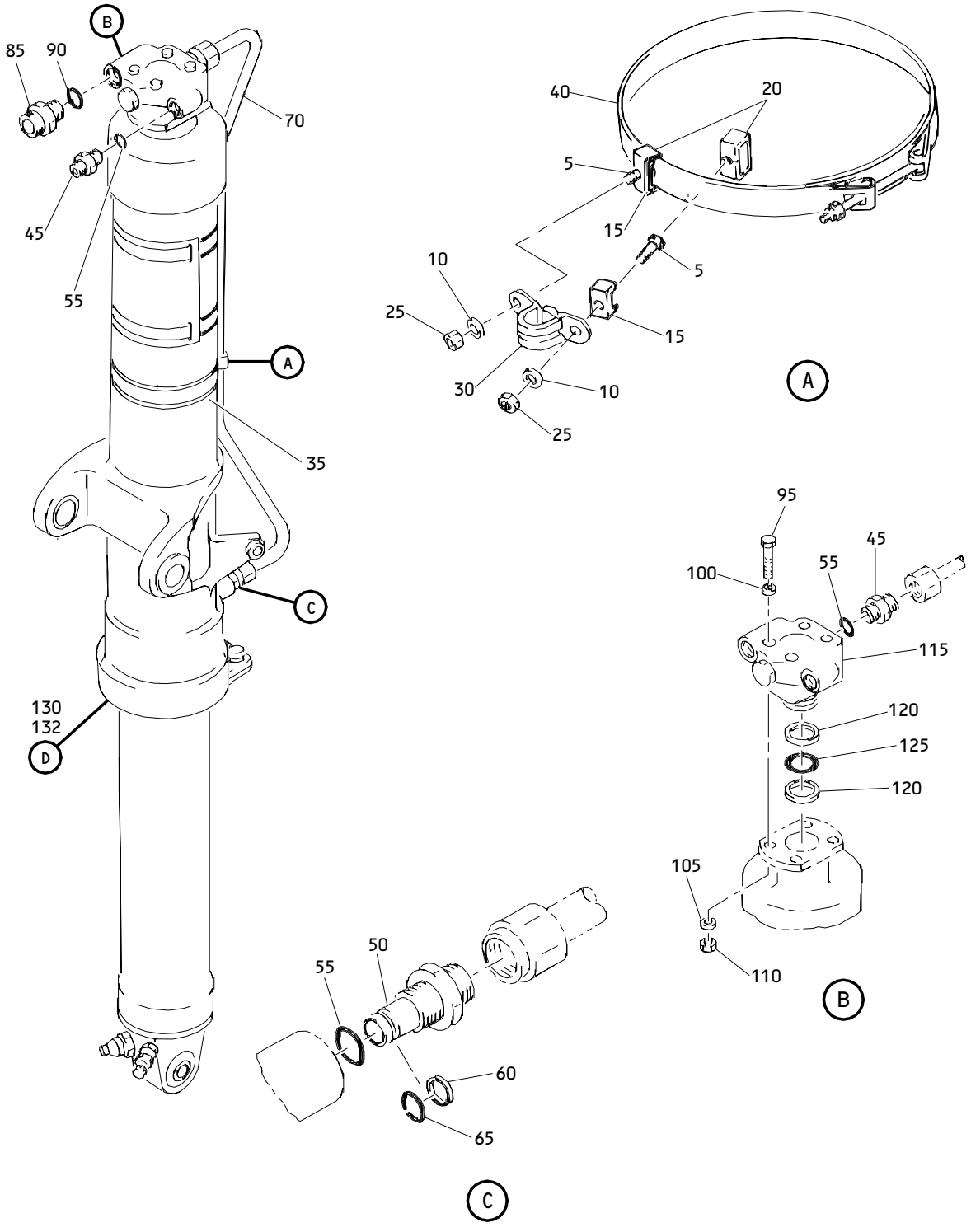
V97820 SHAMBAN POLYMER TECH GROUP
711 MITCHELL ROAD
NEWBURY PARK, CALIFORNIA 91320-2214

V99643 EATON AEROSPACE LLC
4690 COLORADO BLVD
LOS ANGELES, CALIFORNIA 90039-1106

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AN960-416L		1	105	4
AN960C10		1	215	2
AN960C416L		1	160	2
AN960D10L		1	10	2
AN960PD416L		1	100	4
AN960416		1	230	1
AS1581T06		1	75	2
BACA14AZ6AT		1	50	1
BACB19F10		1	15	2
BACB30NE3-4		1	5	2
BACB30NF4-28		1	95	4
BACC10FY043S		1	40	1
BACC10HB06C		1	30	1
BACC15AN10		1	20	2
BACN10JC3		1	220	1
BACN10JC4		1	165	2
		1	235	1
BACN10NR6		1	80	2
BACR12BM011		1	60	1
BACR17E10-8		1	85	1
BACS11AK1		1	140	2
BACS38E8-14		1	135	2
BACU24K6		1	45	2
BACV10T1		1	345	1
MS15001-1		1	195	2
		1	395	1
MS20813-1		1	347	1
MS21042L3		1	25	2
MS21042L4		1	110	4
MS24665-170		1	225	1
MS28774-112		1	120	2
NAS1611-011		1	65	1
NAS1611-112		1	125	1
NAS1612-6		1	55	3
		1	350	2
NAS1612-8		1	90	1
NAS6703-9		1	210	1
NAS6704-7		1	155	2
S273T463-1		1	115	1
S34859		1	325	1
1231-000		1	340	
1231-100		1	340A	1
163T0000-020		1	1	RF
163T0000-021		1	1A	RF
163T0000-100		1	70	1
163T2000-021		1	335	1
163T2000-022		1	335A	1

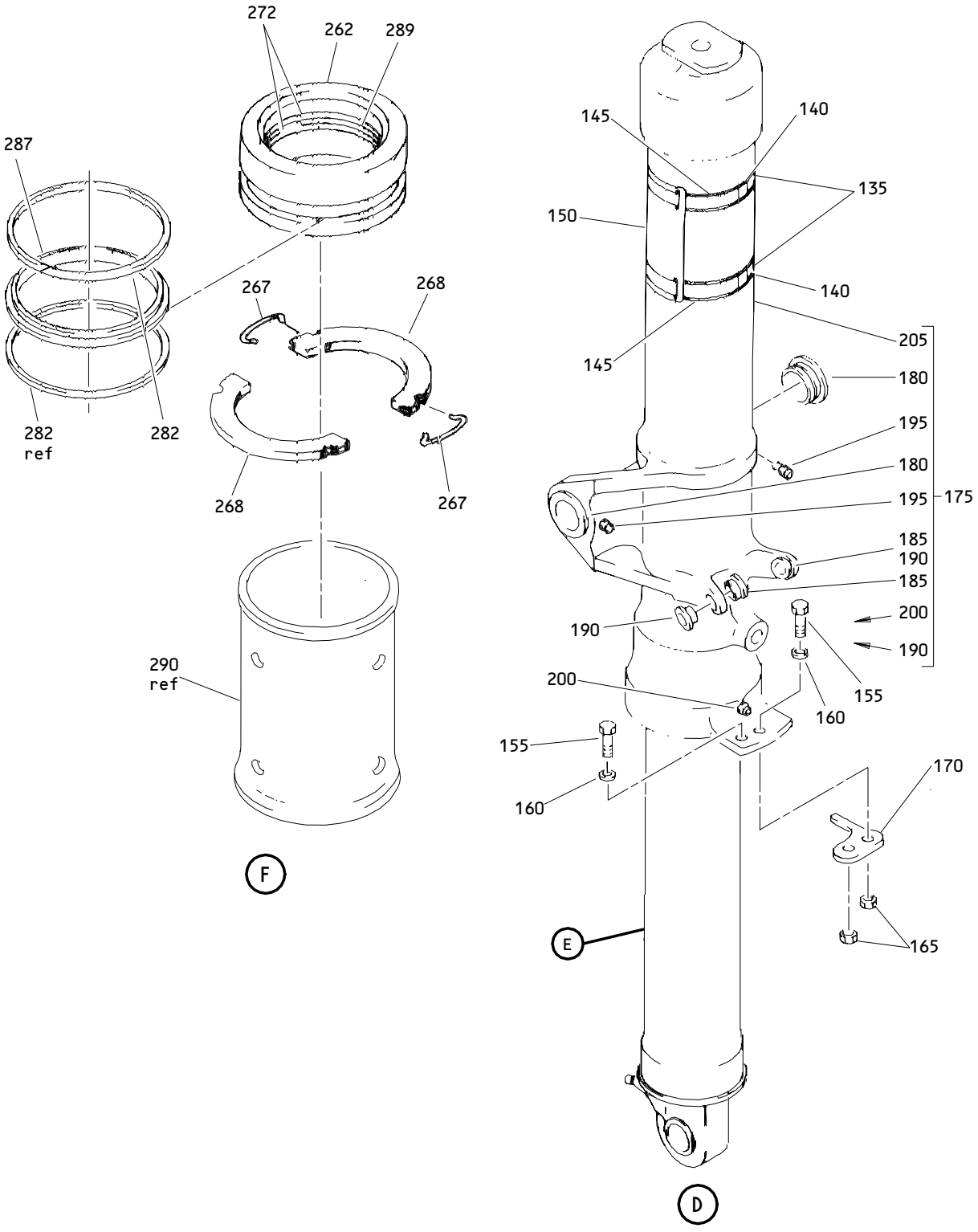
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
163T2000-2		1	130	1
163T2000-3		1	132	1
163T2001-5		1	390	1
163T2001-6		1	400	1
163T2002-1		1	355	1
163T2002-2		1	360	1
163T2002-3		1	365	1
163T2003-1		1	410	1
163T2004-1		1	330	1
163T2005-1		1	295	1
163T2006-1		1	405	1
163T2006-2		1	405A	1
163T2008-1		1	290	1
163T2009-1		1	260	1
163T2009-2		1	262	1
163T2011-1		1	175	1
163T2011-2		1	205	1
163T2013-1		1	170	1
163T2015-1		1	255	1
163T2016-1		1	370	1
163T2018-1		1	250	1
163T2019-1		1	245	1
163T2020-1		1	240	1
163T2021-4		1	265	2
163T2021-5		1	268	2
163T2023-1		1	150	1
163T2024-1		1	267	2
163T3001-10		1	190	2
163T3001-11		1	185	2
163T3001-2		1	180	2
3016		1	200	1
353-34200-318C		1	320A	1
353-342001-3180		1	320	
70267		1	115	1
7335MT2N		1	375	2
7335MT4780		1	380	2
7335MT952		1	385	3
7340FT2N		1	272	2
		1	280	2
7340FT952		1	285	1
		1	289	1
7342FT4780		1	310	1
7342FT952		1	315	1
7343MT4780		1	270	1
		1	282	1
7343MT952		1	275	1
		1	287	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
7346MT2N		1	300	2
7346MT952		1	305	1
7355		1	35	AR
		1	145	AR
8412		1	35A	AR
		1	145A	AR

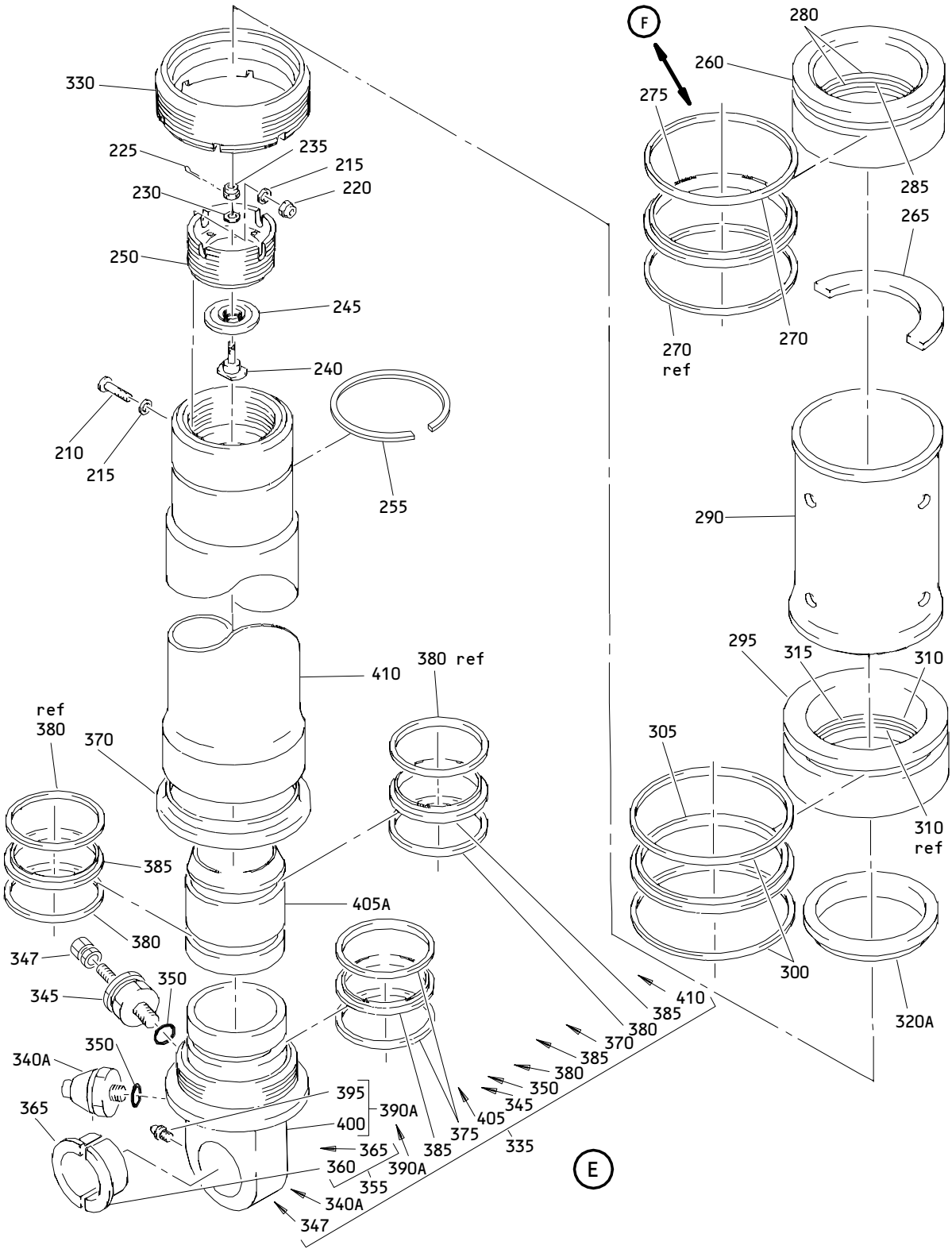


Tail Skid Complete Shock Strut Assembly
Figure 1 (Sheet 1)

U8133



Tail Skid Complete Shock Strut Assembly
Figure 1 (Sheet 2)



Tail Skid Complete Shock Strut Assembly
Figure 1 (Sheet 3)

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	163T0000-020		STRUT ASSY-TAIL SKID COMPLETE SHOCK (PRE SB 32-0058)	A	RF
-1A	163T0000-021		STRUT ASSY-TAIL SKID COMPLETE SHOCK (POST SB 32-0058)	B	RF
5	BACB30NE3-4		.BOLT		2
10	AN960D10L		.WASHER		2
15	BACB19F10		.BLOCK		2
20	BACC15AN10		.CLIP		2
25	MS21042L3		.NUT		2
30	BACC10HB06C		.CLAMP		1
35	7355		.TAPE-MYSTIK (REPLACED BY ITEM 35A)(V88301)		AR
-35A	8412		.TAPE-3M (REPLACES ITEM 35) (V76381)		AR
40	BACC10FY043S		.CLAMP		1
45	BACU24K6		.UNION		2
50	BACA14AZ6AT		.ADAPTER		1
55	NAS1612-6		.PACKING		3
60	BACR12BM011		.RING		1
65	NAS1611-011		.PACKING		1
70	163T0000-100		.TUBE ASSY		1
-75	AS1581T06		..SLEEVE		2
-80	BACN10NR6		..NUT		2
85	BACR17E10-8		.REDUCER		1
90	NAS1612-8		.PACKING		1
95	BACB30NF4-28		.BOLT		4
100	AN960PD416L		.WASHER		4
105	AN960-416L		.WASHER		4
110	MS21042L4		.NUT		4
115	70267		.VALVE-BLOCKER (V99643) (SPEC S273T463-1)		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
120	MS28774-112		.RING		2
125	NAS1611-112		.PACKING		1
130	163T2000-2		.STRUT ASSY	A	1
132	163T2000-3		.STRUT ASSY	B	1
135	BACS38E8-14		..STRAP		2
140	BACS11AK1		..SEAL		2
145	7355		..TAPE-MYSTIK (REPLACES ITEM 145A)(V88301)		AR
-145A	8412		..TAPE-3M (REPLACED BY ITEM 145)(V76381)		AR
150	163T2023-1		..NAMEPLATE		1
155	NAS6704-7		..BOLT		2
160	AN960C416L		..WASHER		2
165	BACN10JC4		..NUT		2
170	163T2013-1		..PLATE-STOP		1
175	163T2011-1		..CYLINDER ASSY-OUTER		1
180	163T3001-2		...BUSHING		2
185	163T3001-11		...BUSHING		2
190	163T3001-10		...BUSHING		2
195	MS15001-1		...FITTING		2
200	3016		...FITTING-LUBE (V95879)		1
205	163T2011-2		...CYLINDER		1
210	NAS6703-9		..BOLT		1
215	AN960C10		..WASHER		2
220	BACN10JC3		..NUT		1
225	MS24665-170		..PIN-COTTER		1
230	AN960416		..WASHER		1
235	BACN10JC4		..NUT		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
240	163T2020-1		..PIN-ORIFICE		1
245	163T2019-1		..VALVE-REBOUND		1
250	163T2018-1		..PLATE-ORIFICE		1
255	163T2015-1		..RING-RTNR		1
260	163T2009-1		..BEARING-UPR (USED ON ITEM 130)		1
262	163T2009-2		..BEARING-UPR (USED ON ITEM 132)		1
265	163T2021-4		..RING-HALF (USED ON ITEM 130)		2
267	163T2024-1		..RETAINER CLIP (USED ON ITEM 132)		2
268	163T2021-5		..RING-HALF (USED ON ITEM 132)		2
270	7343MT4780		..RING-BACKUP SET (V72902) (USED ON ITEM 130)		1
272	7340FT2N		..RING-BACKUP (V72902) (USED ON ITEM 132)		2
275	7343MT952		..RING-T-SEAL (V72902) (USED ON ITEM 130)		1
280	7340FT2N		..RING-BACKUP (V72902) (USED ON ITEM 130)		2
282	7343MT4780		..RING-BACKUP SET (V72902) (USED ON ITEM 132)		1
285	7340FT952		..RING-T-SEAL (V72902) (USED ON ITEM 130)		1
287	7343MT952		..RING-T-SEAL (V72902) (USED ON ITEM 132)		1
289	7340FT952		..RING-T-SEAL (V72902) (USED ON ITEM 132)		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
290	163T2008-1		..TUBE-STOP		1
295	163T2005-1		..BEARING-LWR		1
300	7346MT2N		..RING-BACKUP (V72902)		2
305	7346MT952		..RING-T-SEAL (V72902)		1
310	7342FT4780		..RING-BACKUP SET (V72902)		1
315	7342FT952		..RING-T-SEAL (V72902)		1
320	353-342001-3180		DELETED		
320A	353-34200-318C		..RING-SCRAPER (V72902) (OPT ITEM 325)		1
325	S34859		..RING-SCRAPER (V09257) (OPT ITEM 320)		1
330	163T2004-1		..NUT-GLAND		1
335	163T2000-021		..CYLINDER ASSY-INNER (USED ON ITEM 130)		1
-335A	163T2000-022		..CYLINDER ASSY-INNER (USED ON ITEM 132)		1
340	1231-000		DELETED		
340A	1231-100		...INDICATOR-PRESSURE (VF0218)		1
345	BACV10T1		...VALVE-AIR		1
347	MS20813-1		...CAP		1
350	NAS1612-6		...PACKING		2
355	163T2002-1		...BEARING ASSY-SPLIT SPHER		1
360	163T2002-2		....BEARING-HALF		1
365	163T2002-3		....BEARING-HALF		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
370	163T2016-1		...LOCKWASHER-CUP		1
375	7335MT2N		...RING-BACKUP (V72902)		2
380	7335MT4780		...RING-BACKUP SET (V72902)		2
385	7335MT952		...RING-T-SEAL (V72902)		3
390	163T2001-5		...END ASSY-ROD		1
395	MS15001-1		....FITTING		1
400	163T2001-6		....END		1
405	163T2006-1		...PISTON-SEPARATOR (USED ON ITEM 335)		1
-405A	163T2006-2		...PISTON-SEPARATOR (USED ON ITEM 335A)		1
410	163T2003-1		...CYLINDER-INNER		1