TO: ALL HOLDERS OF MLG SIDE STRUT ASSY COMPONENT MAINTENANCE MANUAL 32-11-70

REVISION NO. 37 DATED NOV 01/05

HIGHLIGHTS

All data that was in 767 CMM 32-11-71 is now included in this manual 32-11-70. 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
DESCRIPTION & OPERATION 1	Added clarifications and updated callouts.
REPAIR 6-2 604	Changed a repair limit on fitting 161T2014-2 to agree with the actual material removal.

COMPONENT
MAINTENANCE MANUAL

MAIN LANDING GEAR SIDE STRUT ASSEMBLY

PART NUMBERS 161T2000-7 THRU -38

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

T21767

BOEING
COMPONENT
MAINTENANCE MANUAL

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

T21714

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
51-0007		MC B1031-025K	APR 10/85
		PRR B11692	APR 01/88
		PRR B11813	JAN 01/89
32-0110		PRR B11861	APR 01/93
		PRR B12042	APR 01/90
32-0180,Rev 1			NOV 01/02

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TR & SB RECORD		
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603	NOV 01/00	01.1
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TABLE OF CONTENTS

*[1] Special instructions are not necessary. Use standard industry practices and the instructions in SOPM 20-30-03.

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:

Disassembly -- Aug 28/81
Assembly -- Aug 28/81

MAIN LANDING GEAR SIDE STRUT ASSEMBLY

DESCRIPTION AND OPERATION

1. The side strut assembly includes steel upper and lower side struts, spindles and aluminum upper and lower lock links. The upper spindle, on the upper side strut, attaches the assembly to the airplane structure and another spindle on the upper lock link attaches the assembly to the main gear outer cylinder.

2. The side struts lock and support the main landing gear, and the lock links lock the side strut in the extended position.

3. During main landing gear extension, the side struts extend and the lock links move into the overcenter position, which locks the side strut.

4. Leading Particulars (Approximate)

   Length -- 88 inches
   Width -- 8 inches
   Height -- 38 inches
   Weight -- 207 pounds

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

NOTE: Equivalent substitutes can be used.

A. A32003-1 -- Spring compressor, main gear side strut

B. F70312-47 -- Crowfoot wrench adapter, nut 161T2018

2. Parts Replacement

NOTE: The following parts are recommended for replacement. Actual replacement may be based on in-service experience.

A. All cotter pins

3. Disassemble the side strut assembly by standard industry practices. Measure thickness of shim(s) (300, IPL Fig. 1) and make a note of the dimensions to help during assembly.

CHECK

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

2. Check all pin and bolt shanks for excessive wear. Carefully examine area around pin retention holes for hairline cracks.

3. Penetrant check per 20-20-02 (IPL Fig. 1):

   A. Fitting (90)

   B. Upper lock link (275)

   C. Lower lock link (380)

4. Magnetic particle check per 20-20-01:

   A. Upper side strut (405)

   B. Lower side strut (435)

   C. Spindles (55, 160 or 165)

   D. Nuts (125, 215, 335)

   E. Washers (120, 210, 330)

   F. Stop (230, 295)

   G. Eccentric (180)

   H. Pins (35, 115, 205, 325)

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
161T2002	STRUT, UPPER SIDE	1-1, 1-2
161T2004	STRUT, LOWER SIDE	2-1, 2-2
161T2006	SPINDLE, UPPER	3-1, 3-2, 3-3
161T2010	LINK, LOWER LOCK	4-1, 4-2
161T2012	LINK, UPPER LOCK	5-1, 5-2
161T2014	FITTING	6-1, 6-2
161T2017	PIN, SIDE STRUT TO SPINDLE	7-1
161T2020	PIN, SIDE STRUT CENTER JOINT	8-1
161T2021	PIN, LOCK LINK APEX JOINT	7-1
161T2030	ECCENTRIC	9-1, 9-2
161T2032	SPINDLE	10-1, 10-2, 10-3
161T6030	PIN, UPPER JURY STRUT	11-1
- -	MISCELLANEOUS PARTS REFINISH	12-1
- -	BUSHING SEALING	13-1

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 eening
SOPM 20-10-04 Grinding of Chrome Plated Parts
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 20-42-02 Low Hydrogen Embrittlement Cadmium Titanium Plating

NOTE: Low Hydrogen Embrittlement Cadmium Plating (SOPM 20-42-01) may be substituted for preferred Low Hydrogen Embrittlement Cadmium-Titanium Alloy Plating (SOPM 20-42-02).

SOPM 20-42-03 Hard Chrome Plating
SOPM 20-42-05 Bright Cadmium Plating
SOPM 20-42-09 Electrodeposited Nickel Plating
SOPM 20-43-01 Chromic Acid Anodizing
SOPM 20-43-03 Chemical Conversion Coatings for Aluminum
SOPM 20-50-03 Bearing and Bushing Replacement
SOPM 20-50-19 General Sealing
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
CMM 32-00-03 Landing Gear Attachment Parts Lubrication Fitting Replacement
CMM 32-00-05 Repair of High-Strength Steel Landing Gear Parts

3. Materials

NOTE: Equivalent substitutes can be used.

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

B. Enamel -- BMS 10-60, Color 707 gray gloss (SOPM 20-60-02)

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

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

E. Enamel -- BMS 10-11, Type 2, Color 301 (SOPM 20-60-02)

4. Dimensioning Symbols

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

STRUT ASSEMBLY, UPPER SIDE - REPAIR 1-1

161T2002-1

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

1. Bushing Replacement (Fig. 601)

   A. Remove the old bushings.

   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. Check dimensions and machine as necessary.

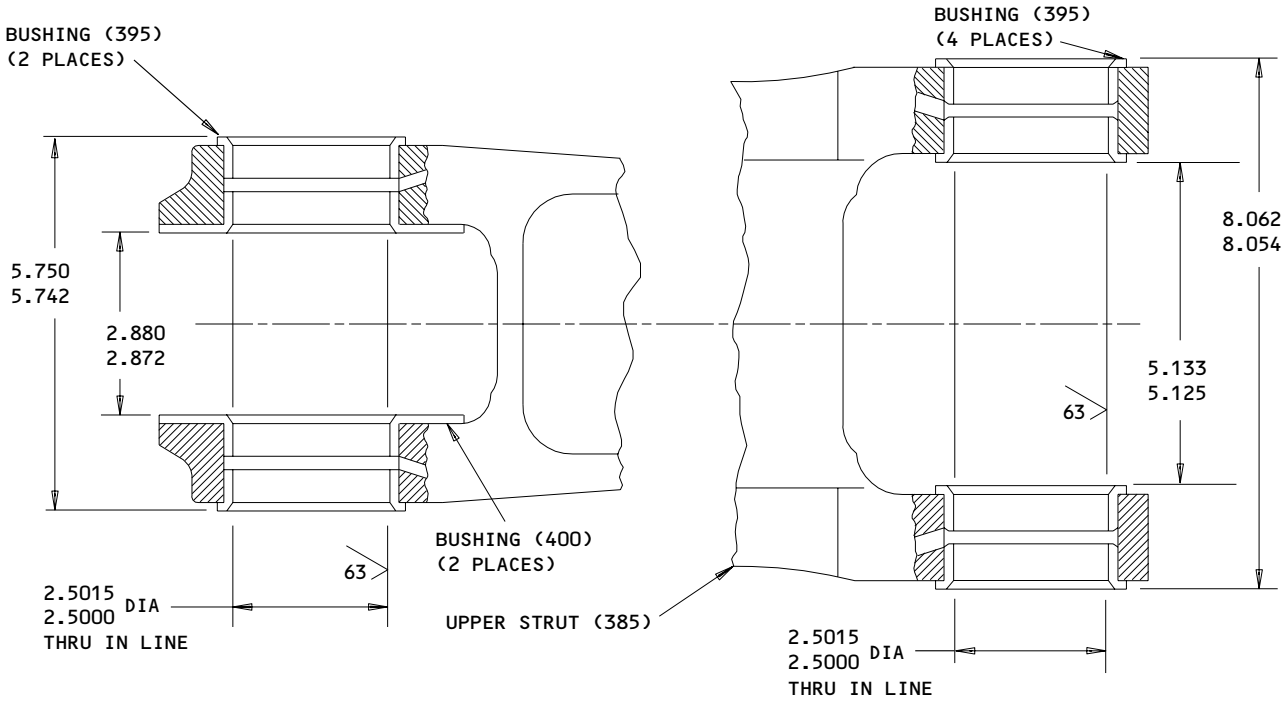
      NOTE: Machining of bushings after installation is not normally required, since bushings and lug faces are pre-machined to provide dimensions shown.

   E. Seal bushings per REPAIR 13-1.

   F. Apply grease to lube fitting until grease appears on bushing ID to ensure a clear lubrication passage.

2. Lube Fitting Replacement

   A. Replace lube fittings (390) per CMM 32-00-03.



161T2002-1

ALL DIMENSIONS ARE IN INCHES

Bushing Installation
Figure 601

T21715

STRUT, UPPER SIDE - REPAIR 1-2

161T2002-2

NOTE: Refer to REPAIR-GENERAL for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. Lug Faces and Holes (Fig. 601)

A. Method 1 -- Removal of Corrosion in Center of Lug ID

NOTE: This procedure enables corrosion to be removed without machining the entire bore oversize, if corrosion is localized at the center area which is exposed between two bushings.

(1) Determine repair diameter and width of groove required to remove corrosion (Fig. 602).

(2) Machine center area as required.

(3) Cadmium-titanium plate and apply primer, BMS 10-11, type 1.

(4) Install bushings per REPAIR 1-1.

(5) Completely fill cavity under and between bushings with grease.

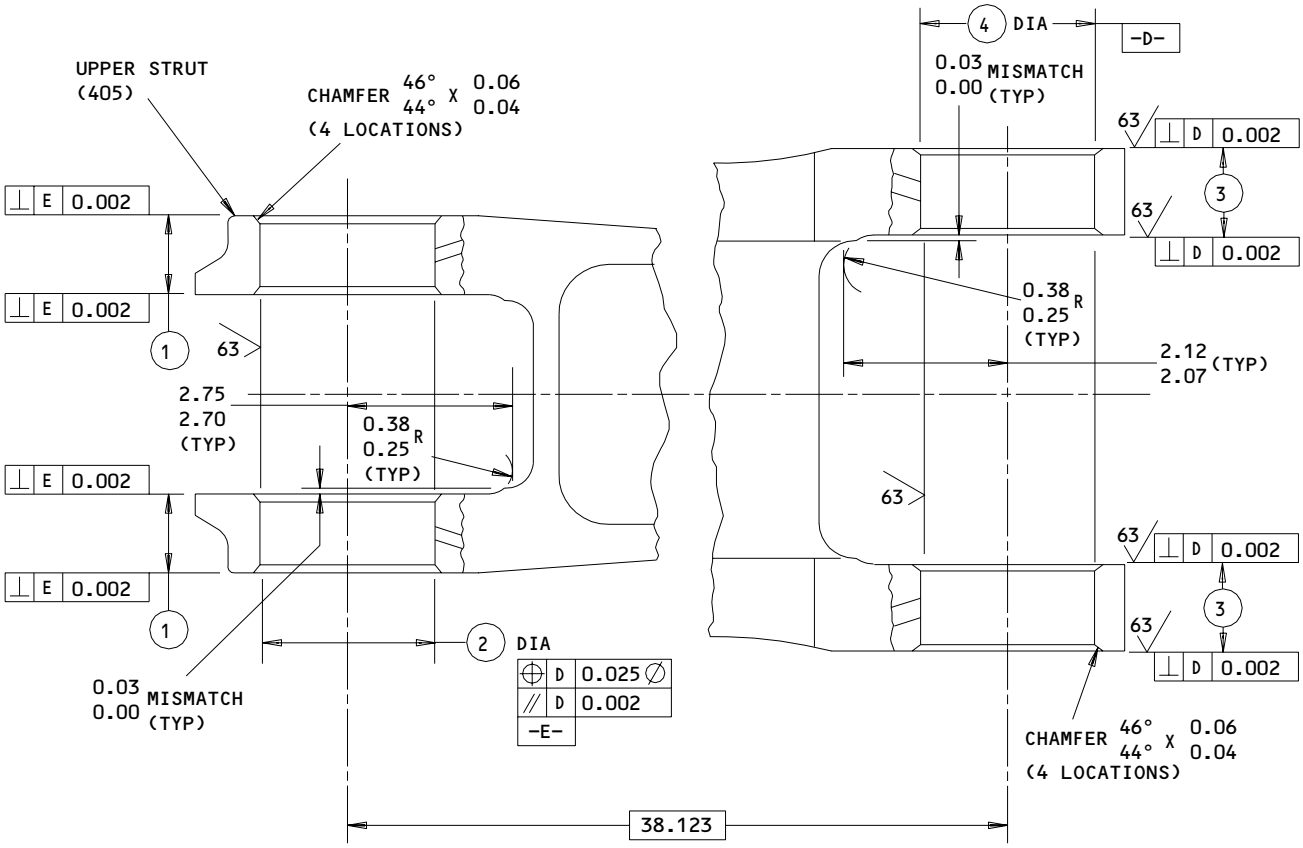
B. Method 2 -- Installation of Oversize Bushings

(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. 603), as required, to compensate for amount of material removed in step (1).

(4) Install bushings per REPAIR 1-1.



RERERENCE NUMBER	1 ▷2	2	3 ▷2	4
DESIGN DIMENSIONS	1.309 1.304	2.7015 2.7000	1.342 1.337	2.7015 2.7000
REPAIR LIMIT ▷1	1.235	2.7615	1.277	2.7615

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

161T2002-2

Lug Face and Hole Repair
Figure 601 (Sheet 1)

T21716

REFINISH

CADMIUM-TITANIUM PLATE (F-15.01). APPLY BMS 10-11, TYPE 1, PRIMER (F-20.02) ALL OVER. AFTER BUSHING AND LUBE FITTING INSTALLATION APPLY BMS 10-60 GREY GLOSS ENAMEL (F-14.9813, WHICH REPLACES SRF-14.9813) BUT NOT ON BUSHINGS AND LUBE FITTINGS

1 LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS.

2 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 RADIUS, OR IF WITHIN 0.10 OF LUG FILLET RADIUS, USE SAME RADIUS AS LUG FILLET. BREAK SHARP EDGES 0.03-0.07 RADIUS

REPAIR

REF 1 2

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.06 R

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.014-0.016 A2 INTENSITY

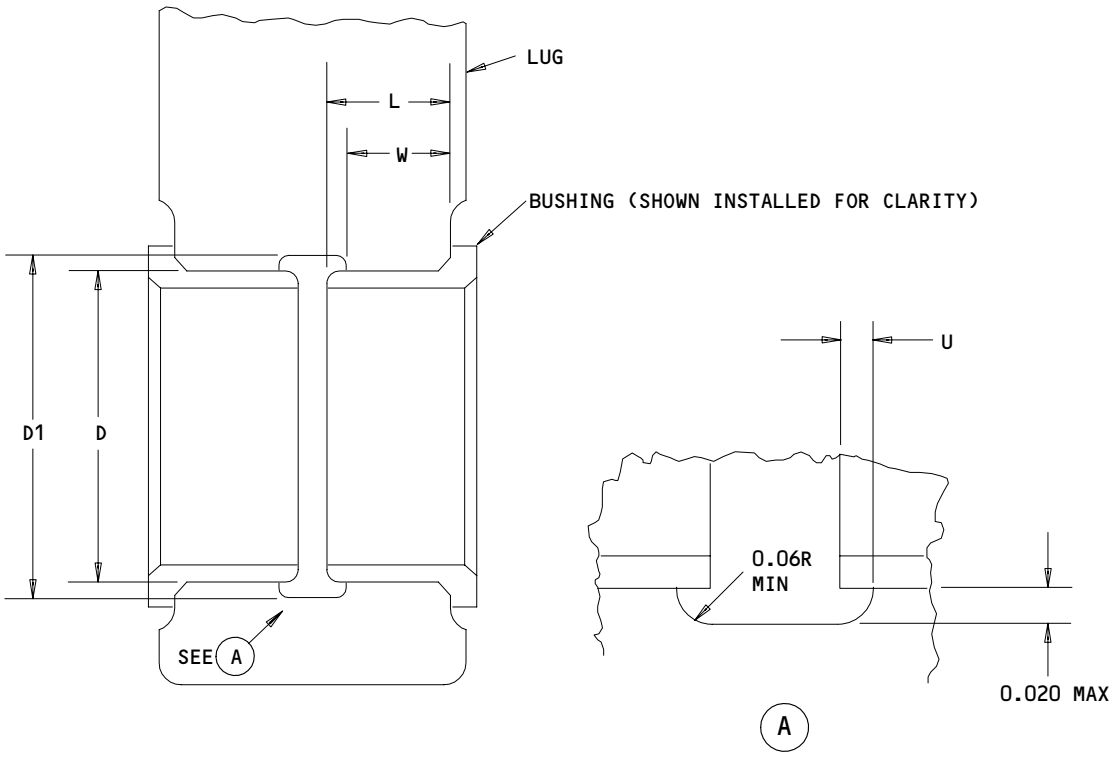
MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

161T2002-2

Lug Face and Hole Repair
Figure 601 (Sheet 2)

T21717



D = MAX REPAIR DIA OF HOLE (SEE FIG. 601)

D1 = MAX REPAIR DIA OF GROOVE = (D +0.040)

L = LENGTH OF BUSHING (SEE FIG. 603)

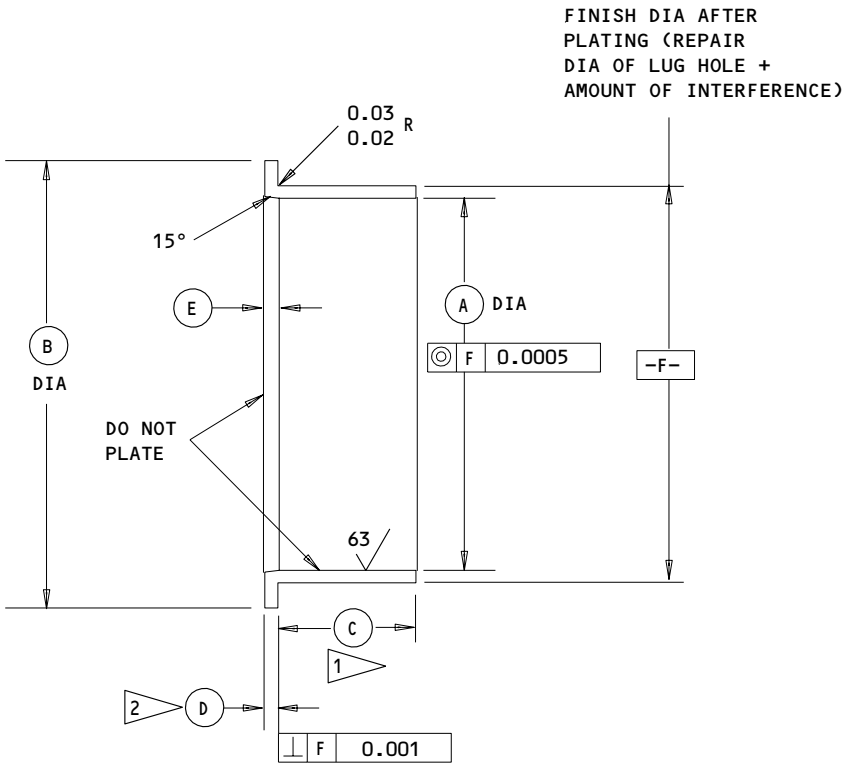
U = UNDERCUT = (L X 0.1) (0.06 MAX)

W = LUG DIM TO EDGE OF GROOVE = (L–U)

ALL DIMENSIONS ARE IN INCHES

Lug Hole Diameter – Corrosion Removal from Area Between Bushings
Figure 602

T21718



LOCATION (FIG.601)	A	B	C	D	E	INTERFERENCE
2 OUTER	2.5051	3.26	0.61	0.061	0.10	0.0043
4	2.5036	3.24	0.59	0.060	0.09	0.0013
2 INNER	2.5051	4.51	0.61	0.061	0.10	0.0043
	2.5036	4.49	0.59	0.060	0.09	0.0013

125 MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01-0.02R

CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06)
ALL OVER, EXCEPT AS NOTED

MATERIAL: AL-NI-BRZ PER AMS 4640 OR 4880

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 603

STRUT ASSEMBLY, LOWER SIDE - REPAIR 2-1

161T2004-1, -3, -5

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

1. Bushing Replacement (Fig. 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. Install replacement bushings by the shrink-fit method (SOPM 20-50-03).

D. Check dimensions and machine as necessary.

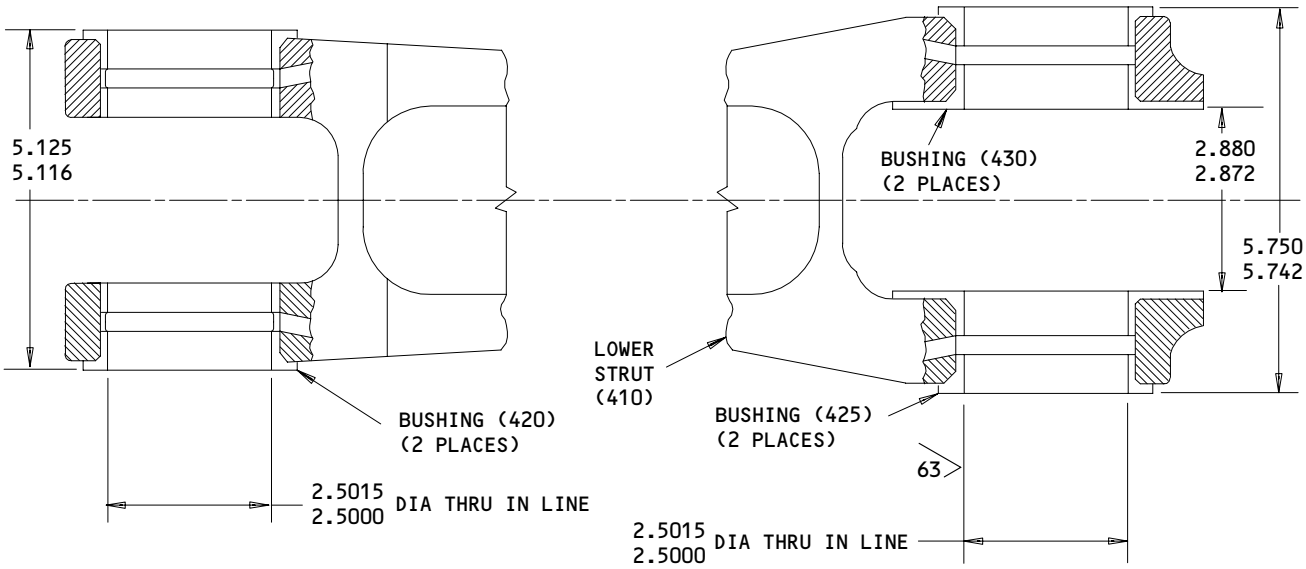
NOTE: Machining of bushings after installation is not normally required, since bushings and lug faces are premachined to provide dimensions shown.

E. Seal bushings per REPAIR 13-1.

F. Apply grease to lube fittings until grease appears on bushing ID to ensure clear lubrication passage.

2. Lube Fitting Replacement

A. Replace lube fittings (415) per CMM 32-00-03.



ALL DIMENSIONS ARE IN INCHES

161T2004-1,-3,-5
Bushing Installation
Figure 601

T21721

STRUT, LOWER SIDE - REPAIR 2-2

161T2004-2, -4, -6

NOTE: Refer to REPAIR-GENERAL for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. Lug Faces and Holes (Fig. 601)

A. Method 1 -- Removal of Corrosion in Center of Lug ID

NOTE: This procedure enables corrosion to be removed without machining the entire bore oversize, if corrosion is localized at the center area which is exposed between two bushings.

(1) Determine repair diameter and width of groove required to remove corrosion (Fig. 602).

(2) Machine center area as required.

(3) Cadmium-titanium plate and apply primer, BMS 10-11, type 1.

(4) Install bushings per REPAIR 2-1.

(5) Completely fill cavity under and between bushings with grease.

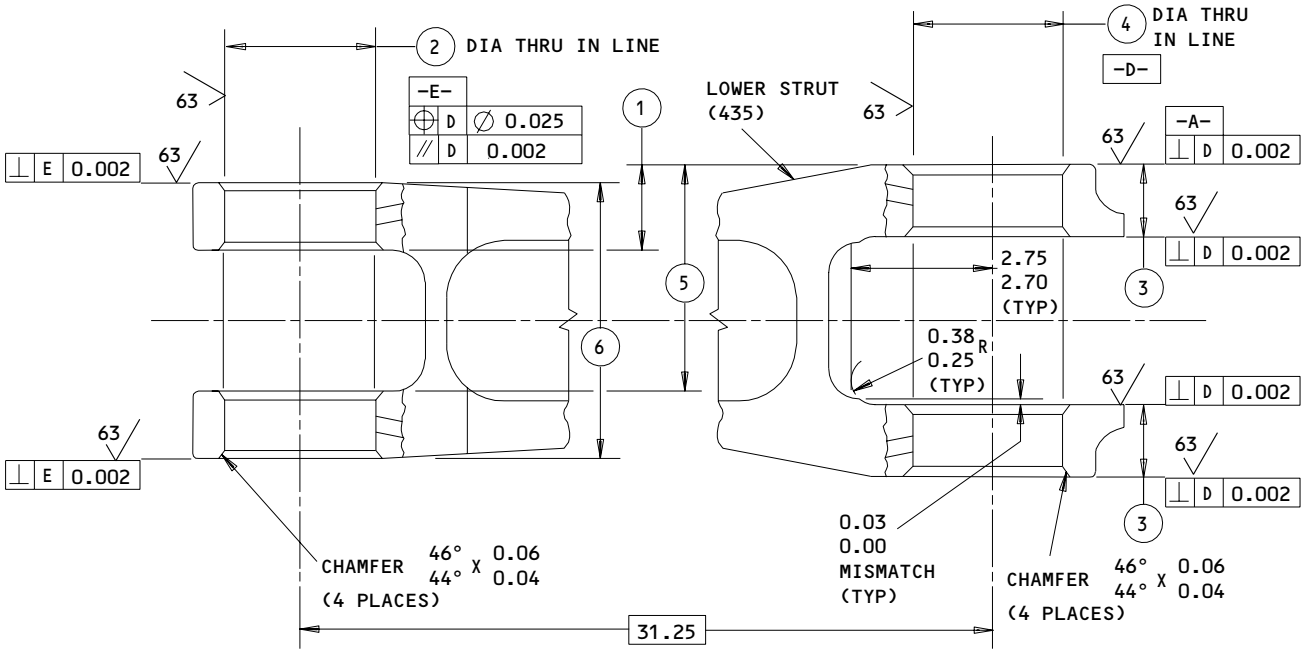
B. Method 2 -- Installation of Oversize Bushings

(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. 603 and on), as required, to compensate for amount of material removed in step (1).

(4) Install bushings per REPAIR 2-1.



ALL DIMENSIONS ARE IN INCHES

161T2004-2,-4,-6

Lug Face and Hole Repair
Figure 601 (Sheet 1)

T21722

	①	②	③	④	⑤	⑥
DESIGN DIM	1.57 1.55	2.7015 2.7000	1.300 1.295	2.7015 2.7000	4.07 4.05	4.9984 4.9934
REPAIR LIMIT 1	1.52 3 4	2.7615	1.265 3	2.7615	4.09 3 4	4.9334 3 4

REFINISH

CADMIUM-TITANIUM PLATE (F-15.01) AND APPLY ONE COAT OF BMS 10-11, TYPE 1 PRIMER (F-20.02). APPLY BMS 10-60 ENAMEL (SRF-14.9813) TO ALL SURFACES EXCEPT BUSHINGS AFTER BUSHING INSTALLATION

REPAIR

REF 1 3 4

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.06 R

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.014-0.016 A2 INTENSITY

MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

1 REPAIR LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS.

2 DELETED

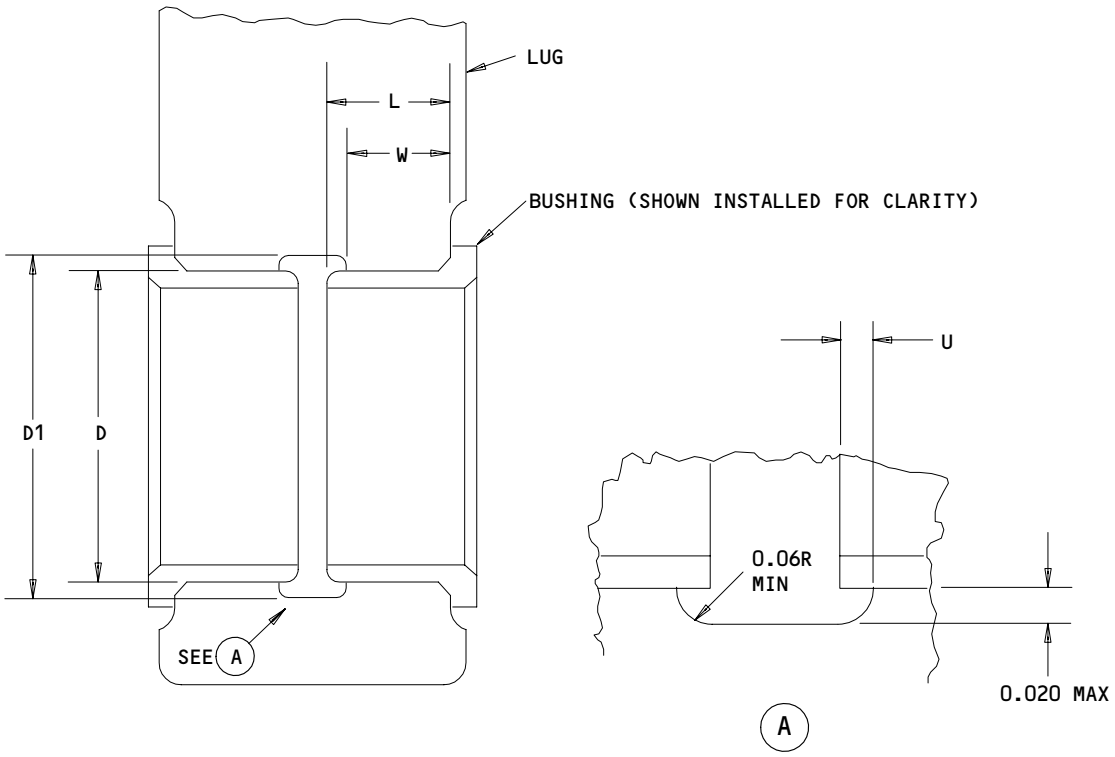
3 LUG FACE MACHINING REQUIREMENTS:
1. MATERIAL REMOVED FROM ANY FACE MUST NOT EXCEED HALF THE DIFFERENCE BETWEEN THE DESIGN DIM AND REPAIR LIMIT.
2. FLAT SURFACE MUST BE MINIMUM OF 0.02 LARGER THAN FLANGE DIA OF BUSHING TO BE INSTALLED.
3. BLEND MISMATCH STEPS TO 0.18-0.26 RADIUS, OR IF WITHIN 0.10 OF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

4 LUGS WITH ONE BUSHING INSTALLED MAY UTILIZE ENTIRE REPAIR ON EITHER LUG FACE.

161T2004-2,-4,-6

Lug Face and Hole Repair
Figure 601 (Sheet 2)

T21723



D = MAX REPAIR DIA OF HOLE (SEE FIG. 601)

D1 = MAX REPAIR DIA OF GROOVE = (D +0.040)

L = LENGTH OF BUSHING (SEE FIG. 603)

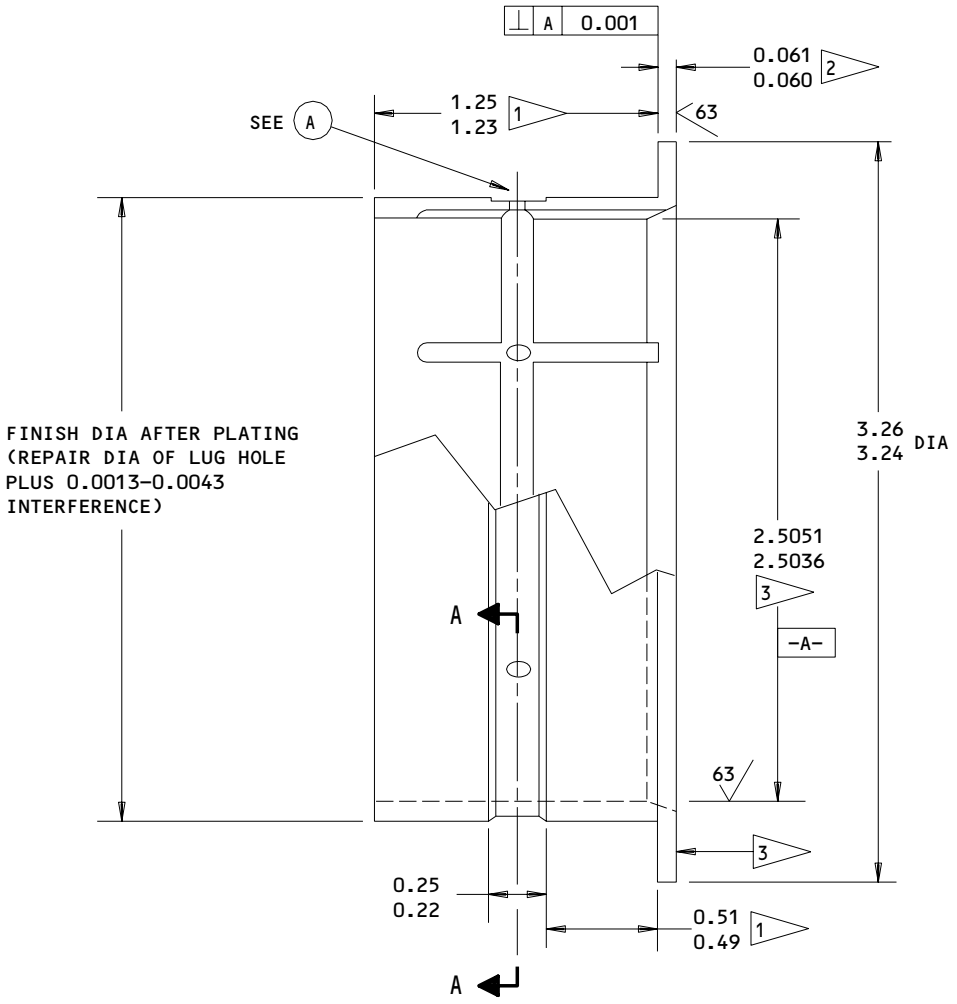
U = UNDERCUT = (L X 0.1) (0.06 MAX)

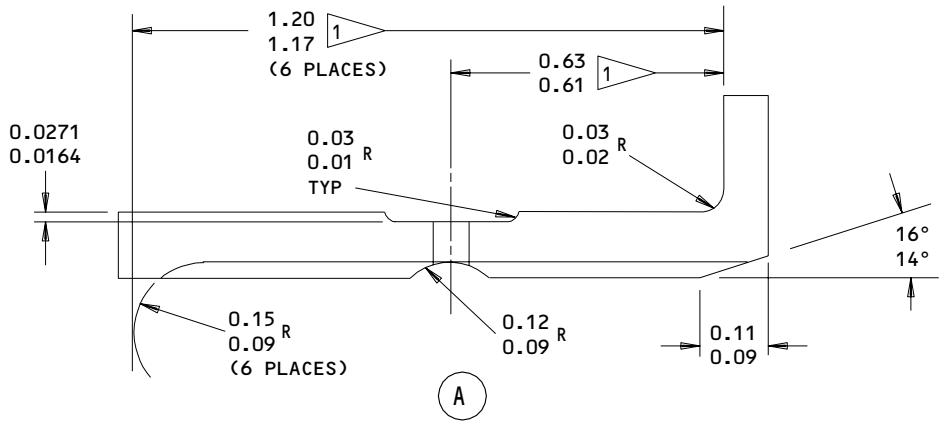
W = LUG DIM TO EDGE OF GROOVE = (L–U)

ALL DIMENSIONS ARE IN INCHES

Lug Hole Diameter – Corrosion Removal from Area Between Bushings
Figure 602

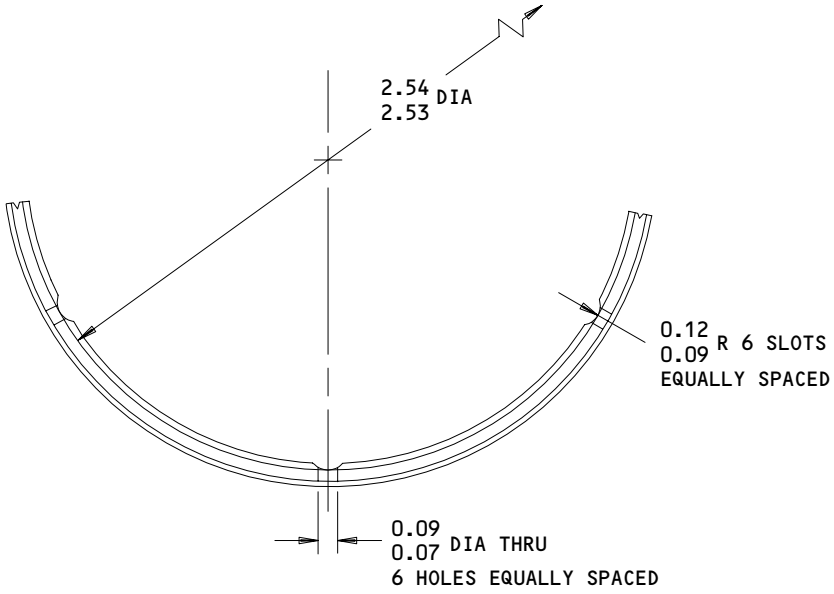
T21724





Oversize Bushing Details
Figure 603 (Sheet 1)

T21725



A–A

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01–0.02R

CADMIUM PLATE (0.0003–0.0005 THICK, F–15.06)
ALL OVER, EXCEPT AS NOTED

MATERIAL: AL–NI–BRZ PER AMS 4640 OR 4880

ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

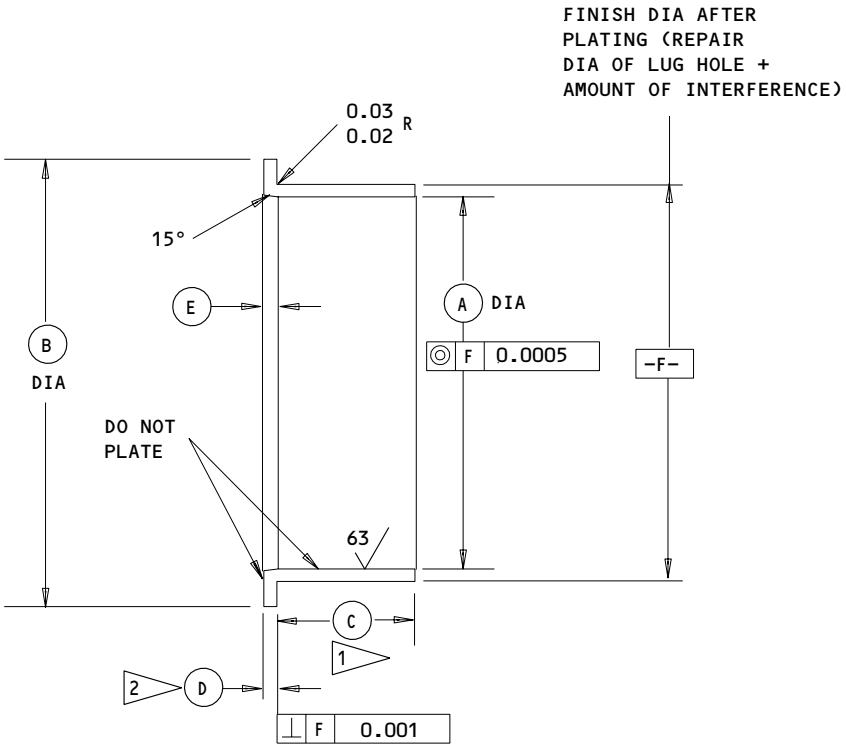
1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

3 DO NOT PLATE

HOLE LOCATION (2)

Oversize Bushing Details
Figure 603 (Sheet 2)



LOCATION (FIG.601)	A	B	C	D	E	INTERFERENCE
4 INNER	2.5036	4.51	0.61	0.061	0.10	0.0043
	2.5015	4.49	0.59	0.060	0.09	0.0013
4 OUTER	2.5036	3.26	0.61	0.061	0.10	0.0043
	2.5015	3.24	0.59	0.060	0.09	0.0013

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01-0.02R

CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06) ALL OVER, EXCEPT AS NOTED

MATERIAL: AL-NI-BRZ PER AMS 4640 OR 4880

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

T21726

SPINDLE ASSEMBLY, UPPER - REPAIR 3-1

161T2006-3, -4

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

1. Bushing Replacement (Fig. 601)

   A. Remove the old bushings.

   B. If you find defects on lug faces or hole surfaces, refer to REPAIR 3-2 for repair instructions.

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

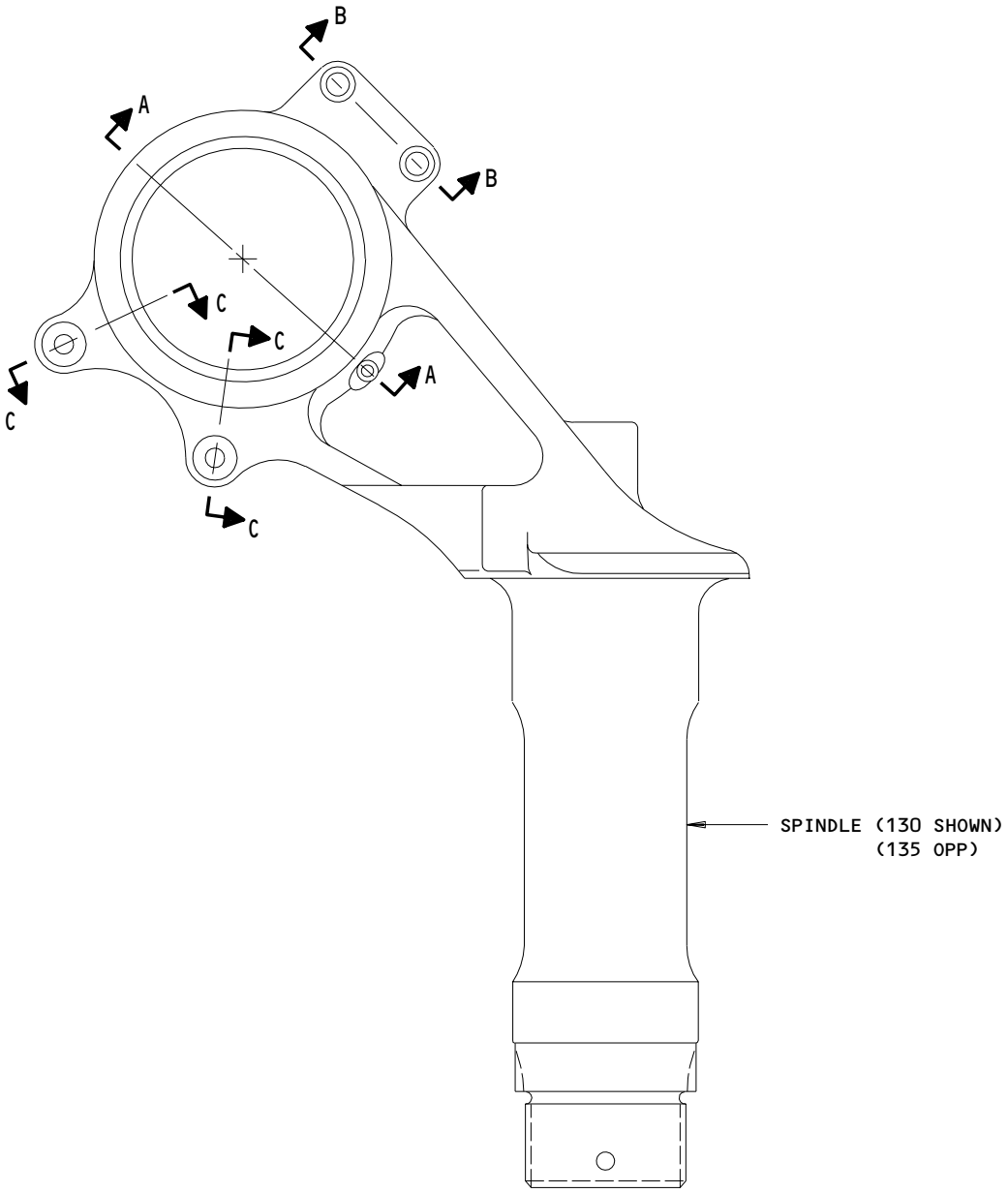
   D. Check dimensions and machine as necessary.

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

   E. Seal bushings per REPAIR 13-1.

2. Lube Fitting Replacement

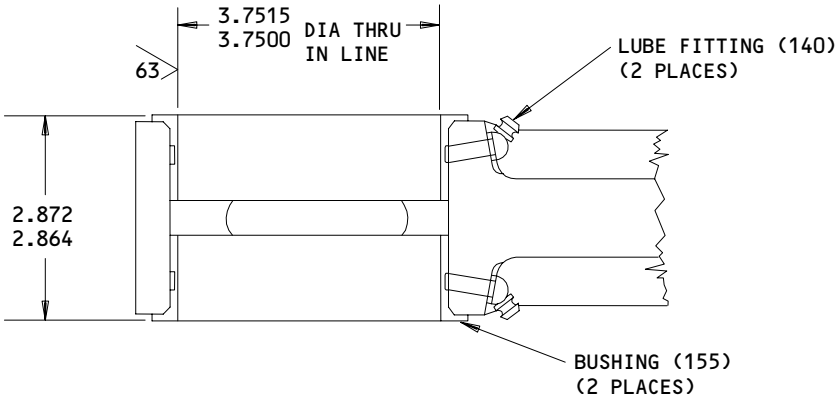
   A. Replace lube fittings (140) per CMM 32-00-03.



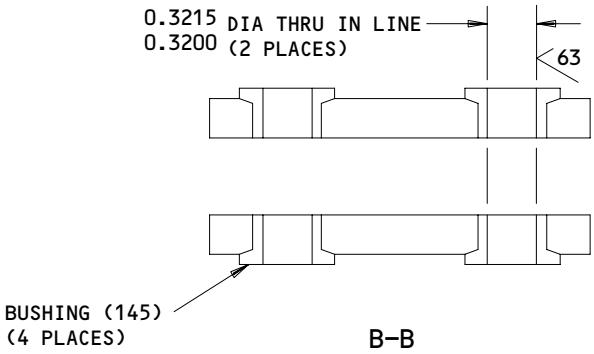
161T2006-3 (SHOWN)
161T2006-4 (OPP)

Bushing Installation
Figure 601 (Sheet 1)

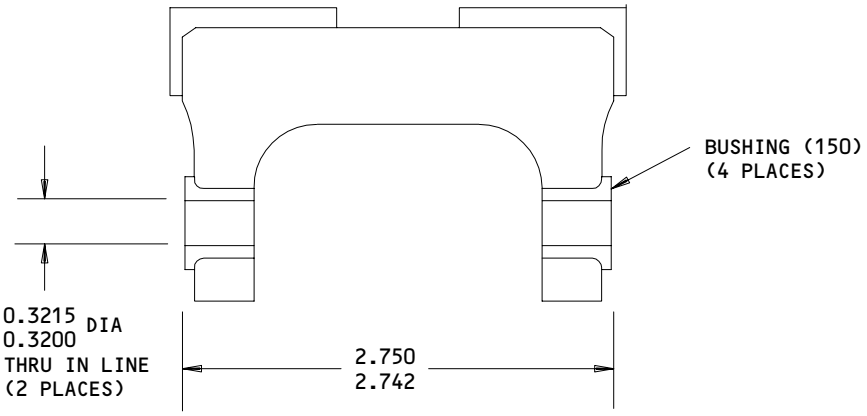
14388



A–A



B–B



C–C

161T2006-3 (SHOWN)
161T2006-4 (OPP)

Bushing Installation
Figure 601 (Sheet 2)

14391

SPINDLE, UPPER - REPAIR 3-2

161T2006-5, -6

NOTE: Refer to REPAIR-GENERAL for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. Lug Faces and Holes (Fig 601)

A. Method 1 -- Removal of Corrosion in Center of Lug ID

NOTE: This procedure enables corrosion to be removed without machining the entire bore oversize, if corrosion is localized at the center area which is exposed between two bushings.

(1) Determine repair diameter and width of groove required to remove corrosion (Fig. 602).

(2) Machine center area as required.

(3) Cadmium-titanium plate and apply primer, BMS 10-11, type 1.

(4) Install bushings per REPAIR 3-1.

(5) Completely fill cavity under and between bushings with grease.

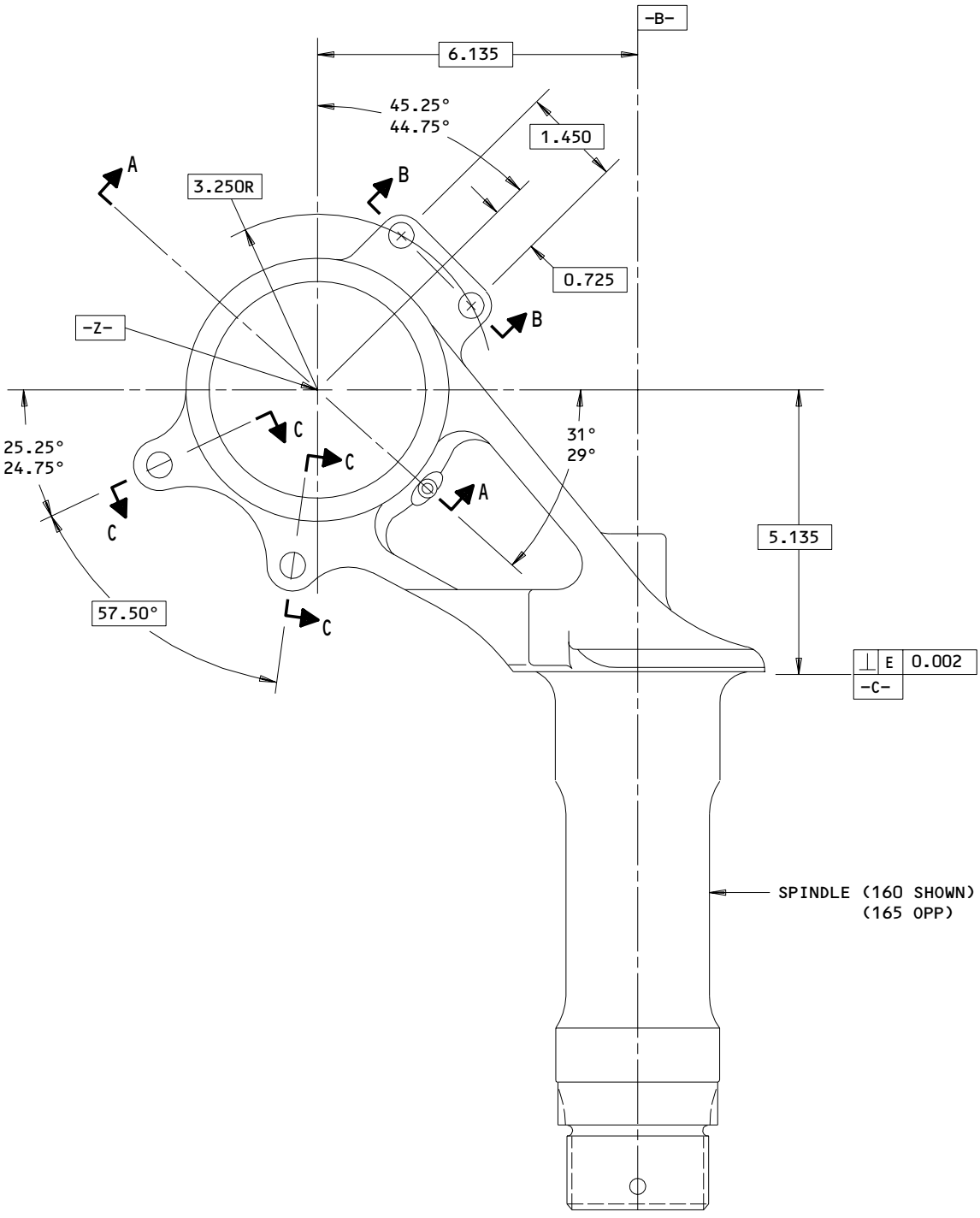
B. Method 2 -- Installation of Oversize Bushings

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

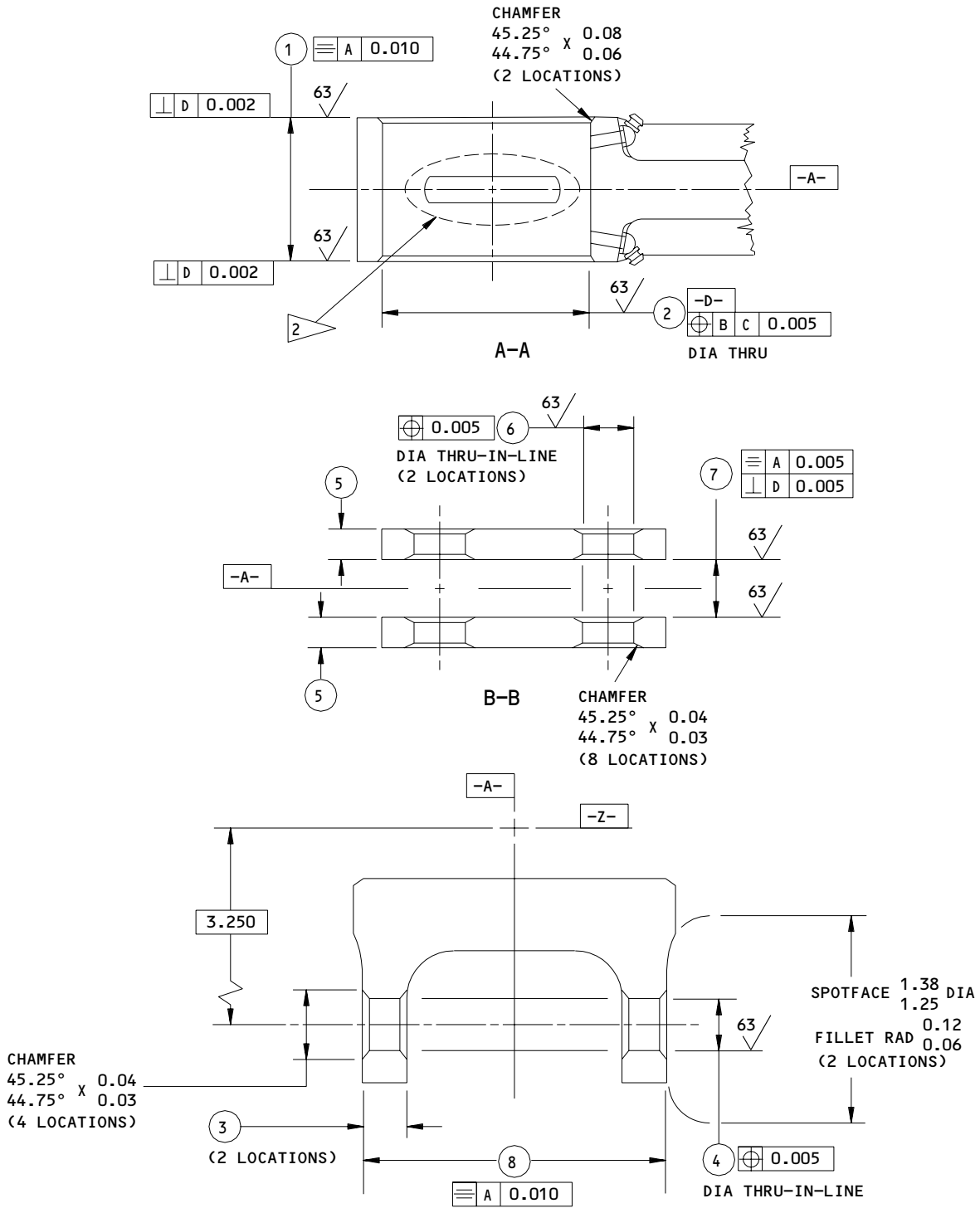
(2) Shot-peen, cadmium-titanium plate and apply primer, BMS 10-11, type 1.

(3) Manufacture bushings (Fig. 603 and on), as required, to compensate for amount of material removed in step (1).

(4) Install bushings per REPAIR 3-1.



161T2006-5 (SHOWN)
161T2006-6 (OPP)
Lug Face and Hole Repair
Figure 601 (Sheet 1)



161T2006-5 (SHOWN)
161T2006-6 (OPP)
Lug Face and Hole Repair
Figure 601 (Sheet 2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DESIGN DIM	2.7054 2.7004	3.9915 3.9900	0.39 0.37	0.4465 0.4450	0.26 0.24	0.4465 0.4450	0.505 0.500	2.6234 2.6184
REPAIR LIMIT ▷1	2.6704 ▷3	4.0515	0.34 ▷4	0.5000	0.21 ▷4	0.4765	---	2.5584 ▷4

REFINISH

REFER TO REPAIR 3-3 FOR REFINISH INSTRUCTIONS

▷1 REPAIR LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS.

▷2 BREAK SHARP EDGES 0.06 R THIS AREA.

▷3 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. 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.

▷4 MATERIAL CAN BE REMOVED ONLY FROM THE OUTSIDE LUG FACES

REPAIR

REF ▷1 THRU ▷4

125√ ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.09-0.15 R

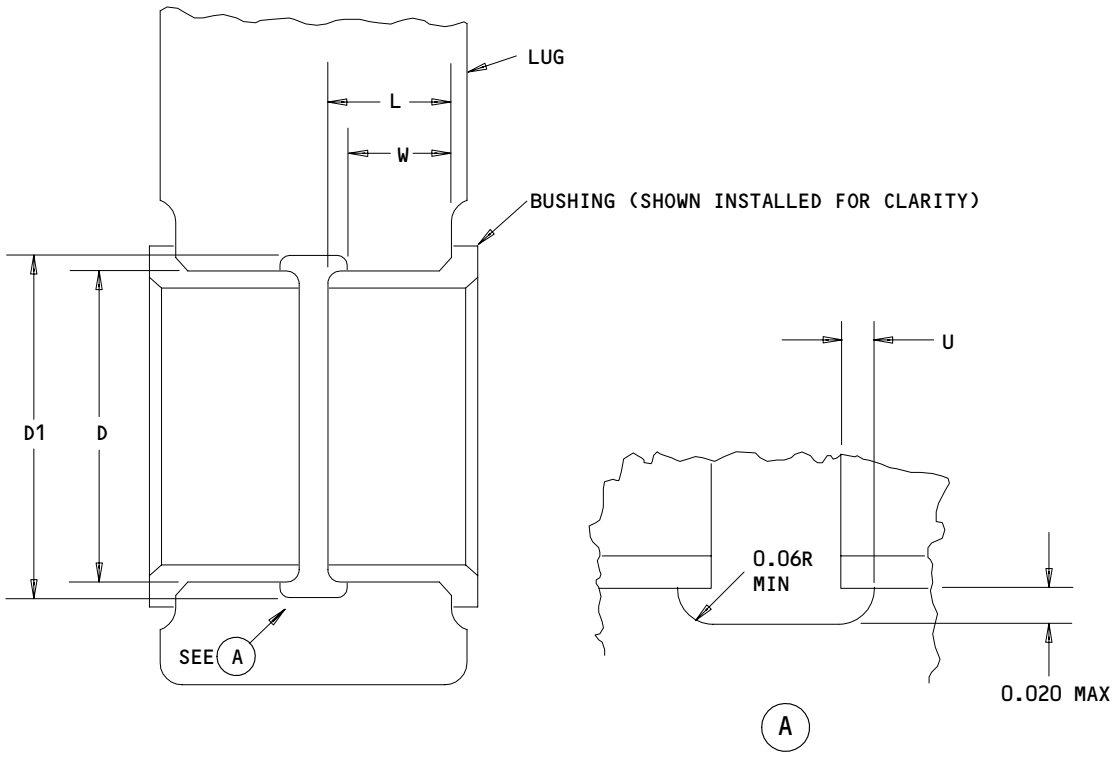
SHOT PEEN: (SOPM 20-10-03)
0.016-0.033 SHOT SIZE
0.014-0.016 A2 INTENSITY

MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

161T2006-5 (SHOWN)
161T2006-6 (OPP)
Lug Face and Hole Repair
Figure 601 (Sheet 3)

T21729



D = MAX REPAIR DIA OF HOLE (SEE FIG. 601)

D1 = MAX REPAIR DIA OF GROOVE = (D +0.040)

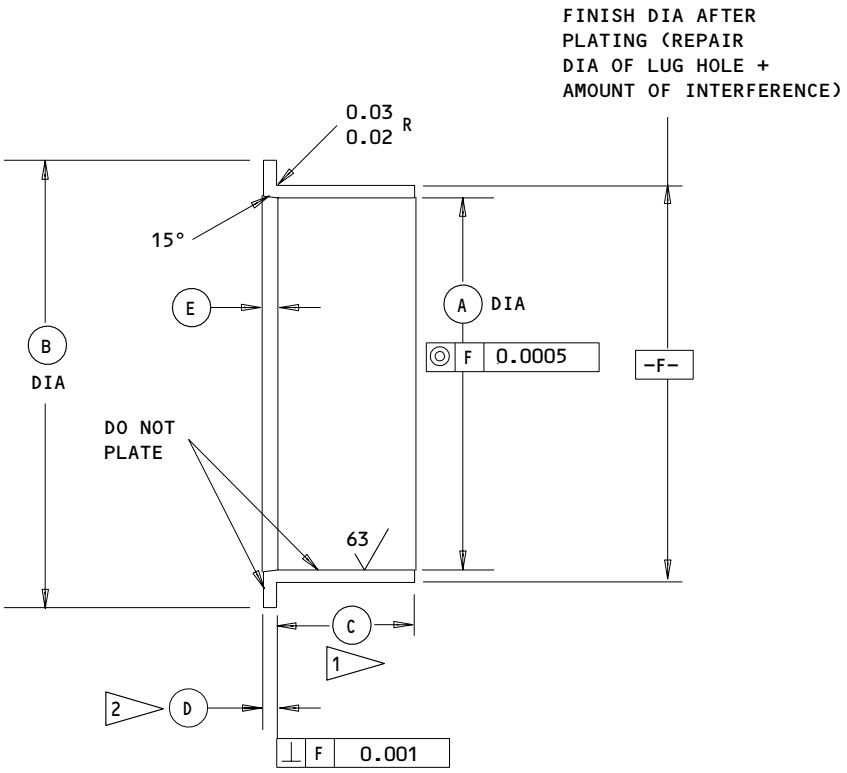
L = LENGTH OF BUSHING (SEE FIG. 603)

U = UNDERCUT = (L X 0.1) (0.06 MAX)

W = LUG DIM TO EDGE OF GROOVE = (L–U)

ALL DIMENSIONS ARE IN INCHES

Lug Hole Diameter – Corrosion Removal from Area Between Bushings
Figure 602



LOCATION (FIG.601)	A	B	C	D	E	INTERFERENCE
4	0.3244	0.64	0.38	0.061	0.10	0.0034
	0.3229	0.62	0.36	0.060	0.09	0.0004
6	0.3244	0.64	0.25	0.061	0.10	0.0034
	0.3229	0.62	0.23	0.060	0.09	0.0004

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01–0.02R

CADMIUM PLATE (0.0003–0.0005 THICK, F–15.06) ALL OVER, EXCEPT AS NOTED

MATERIAL: AL–NI–BRZ PER AMS 4640 OR 4880

ALL DIMENSIONS APPLY BEFORE PLATING

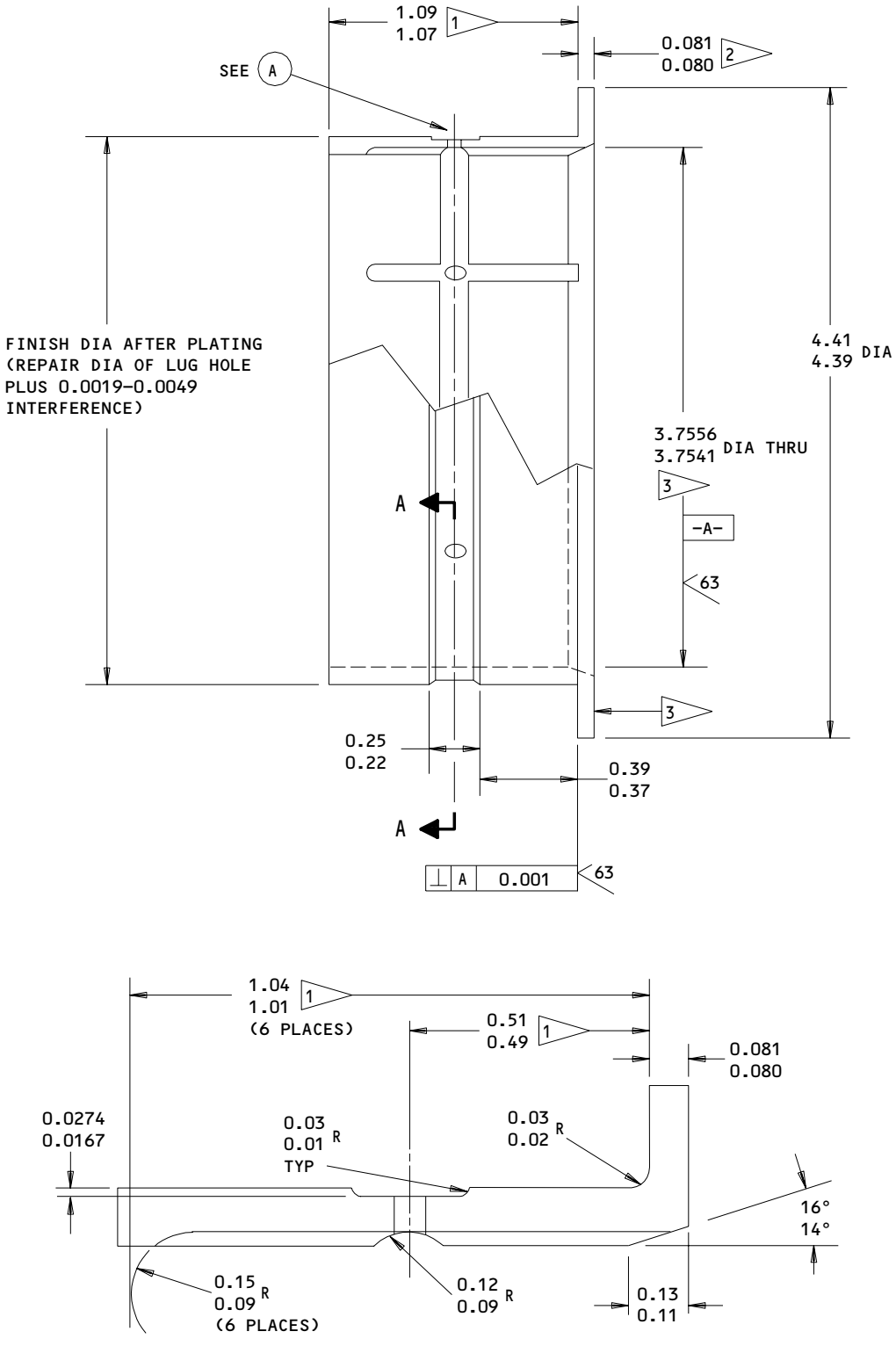
1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

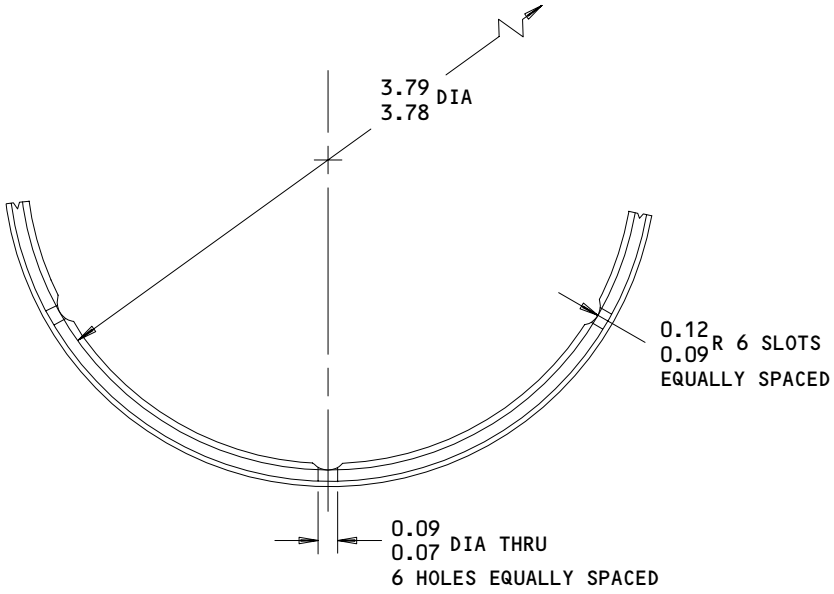
ALL DIMENSIONS ARE IN INCHES

Oversize Bushing Details
Figure 603

14421



Oversize Bushing Details
Figure 604 (Sheet 1)



A–A

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01–0.02R

CADMIUM PLATE (0.0003–0.0005 THICK, F–15.06)
ALL OVER, EXCEPT AS NOTED

MATERIAL: AL–NI–BRZ PER AMS 4640 OR 4880

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 DO NOT PLATE

HOLE LOCATION (2)

Oversize Bushing Details
Figure 604 (Sheet 2)

SPINDLE, UPPER - REPAIR 3-3

161T2006-5, -6

NOTE: Refer to REPAIR-GEN for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. Shank Repair - Diameter E and G (Fig. 601)

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

   B. Shot-peen, chrome plate and grind to design dimensions and finish. Chrome plate thickness must not be more than 0.015 inch after grinding.

2. Shoulder Repair (Fig. 601)

   A. Machine as required, within repair limits, to remove defects. Blend into relief groove if necessary.

   B. Shot-peen, chrome plate and grind to restore grip length. Do not chrome plate the relief groove.

      NOTE: As an alternative to this chrome plate buildup, machine the shoulder face at the thread end to restore grip length.

3. Relief Grooves (Fig. 601)

   A. Machine as required, within repair limits to remove defects. To adjust the grip length, machine the shoulder at the thread relief.

   B. Shot-peen and apply cadmium-titanium plate followed by primer.

4. Pin Retention Holes; Small Bore (Fig. 601)

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

   B. Cadmium-titanium plate. Apply primer.

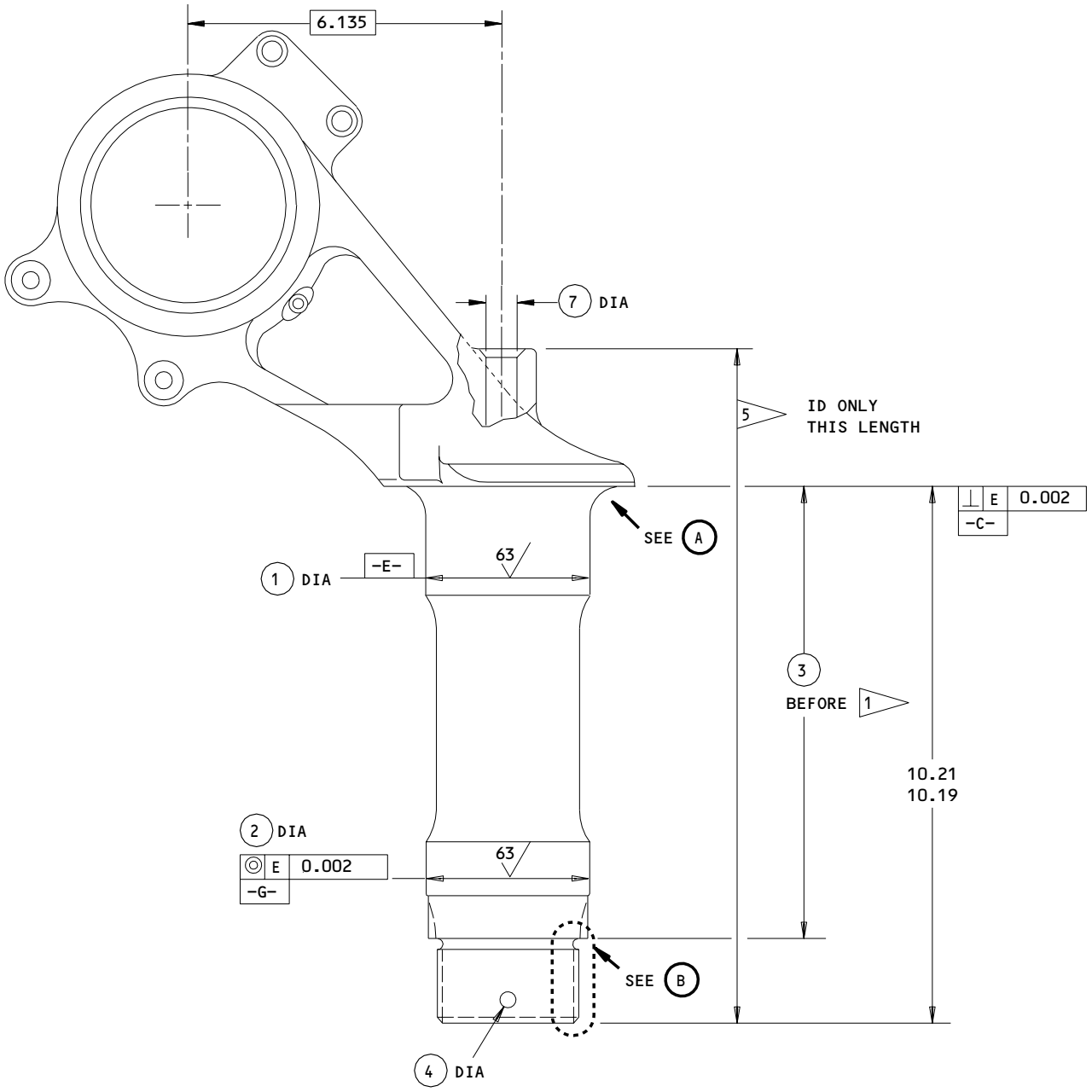
5. Threads (Fig. 601)

A. Cut the threads to a smaller size, as shown.

B. Cadmium-titanium plate the threads. Apply primer per 32-00-02.

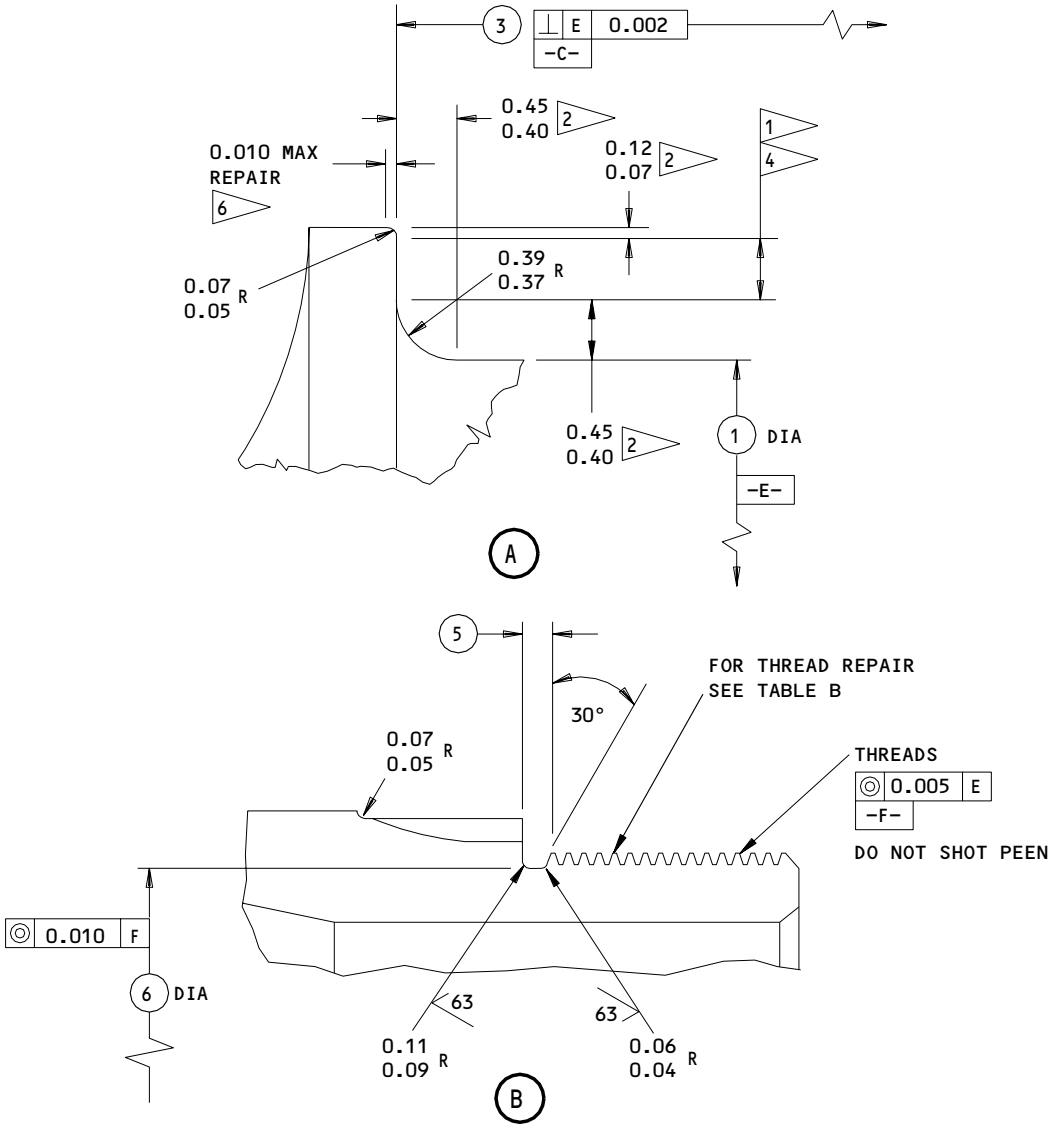
C. Make an undersize nut (Fig. 602).

D. Be sure to identify the spindle and the nut as matched parts. We recommend that you vibro-engrave MATCHED SET - DO NOT SEPARATE on the spindle and the nut, and paint these parts with yellow BMS 10-60 enamel.



161T2006-5 (SHOWN)
161T2006-6 (OPPOSITE)
Spindle Repair and Refinish
Figure 601 (Sheet 1)

T21732



(ROTATED 90° CCW)

REFERENCE NUMBER	1	2	3	4	5	6	7
DESIGN DIMENSION	3.249 3.246	3.186 3.183	8.641 8.636	0.290 0.270	0.23 0.21	2.63 2.62	0.640 0.620
REPAIR LIMIT	3.216 6	3.153 6	--	0.300 7	0.300 3	SEE TABLE B	0.645 7

TABLE A

161T2006-5 (SHOWN)
161T2006-6 (OPPOSITE)
Spindle Repair and Refinish
Figure 601 (Sheet 2)

14454

UNJ-3A THREAD SIZE	2.750-12 (DESIGN)	2.625-12 (1/8 UNDERSIZE)
MAJOR DIA	2.7229 2.7129	2.5979 2.5879
PITCH DIA	2.6959 2.6913	2.5709 2.5663
MINOR DIA	2.6538 2.6442	2.5288 2.5192
ROOT RADIUS	0.0150 0.0125	0.0150 0.0125
THREAD RELIEF DESIGN DIA	2.630 2.620	2.505 2.495
THREAD RELIEF REPAIR LIMIT	2.600 7	---

TABLE B

REFINISH

CHROME PLATE (F-15.34) DIAS -E-, -G-, 0.003 MIN THICK AND APPLY WIPE PRIMER (F-19.45).

ON SHOULDER, FLASH CHROME PLATE PER 1 2 AND APPLY WIPE PRIMER (F-19.45).

ON ALL OTHER SURFACES CADMIUM-TITANIUM PLATE (F-15.01), 0.0005-0.0010 THICK. APPLY WIPE PRIMER (F-19.45) TO THREADS, SPLINES, AND RELIEFS. APPLY PRIMER (F-20.02) TO OTHER CADMIUM-TITANIUM PLATED SURFACES, EXCEPT FINISH INTERIOR PER 5

AFTER BUSHING AND LUBE FITTING INSTALLATION, APPLY BMS 10-60 GRAY GLOSS ENAMEL (SRF-14.9813) ALL OVER, EXCEPT ON BUSHINGS, LUBE FITTINGS, CHROME PLATED AREAS, THREADS, SPLINES, RELIEFS, AND INTERIOR BORE

1 FLASH CHROME PLATE 0.0003-0.0005 IN. THICK

2 NO CHROME PLATE

3 LIMIT FOR RESTORING GRIP LENGTH WHEN HEAD FACE IS MACHINED BUT NOT RESTORED TO DESIGN DIM BY CHROME PLATE BUILDUP. (RESTORATION OF GROOVE WIDTH TO DESIGN DIM IS NOT REQUIRED.)

4 WIPE WITH PRIMER (F-19.45)

REPAIR

REF 3 6 7

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.09-0.15 R

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.009-0.015 A2 INTENSITY
DO NOT SHOT PEEN THREADS

MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

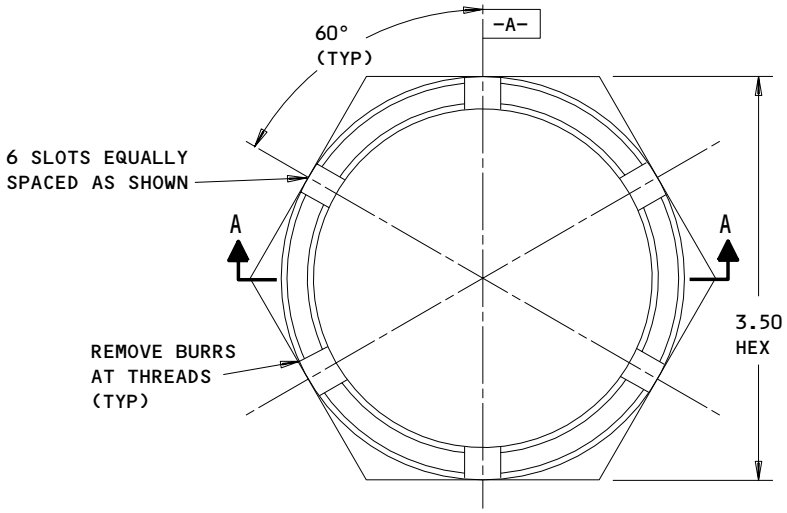
5 AFTER CADMIUM-TITANIUM PLATING INTERIOR, APPLY BMS 10-11, TYPE 1 PRIMER (F-20.03), FOLLOWED BY CORROSION PREVENTIVE COMPOUND, MIL-C-11796, CLASS 1 (F-19.03)

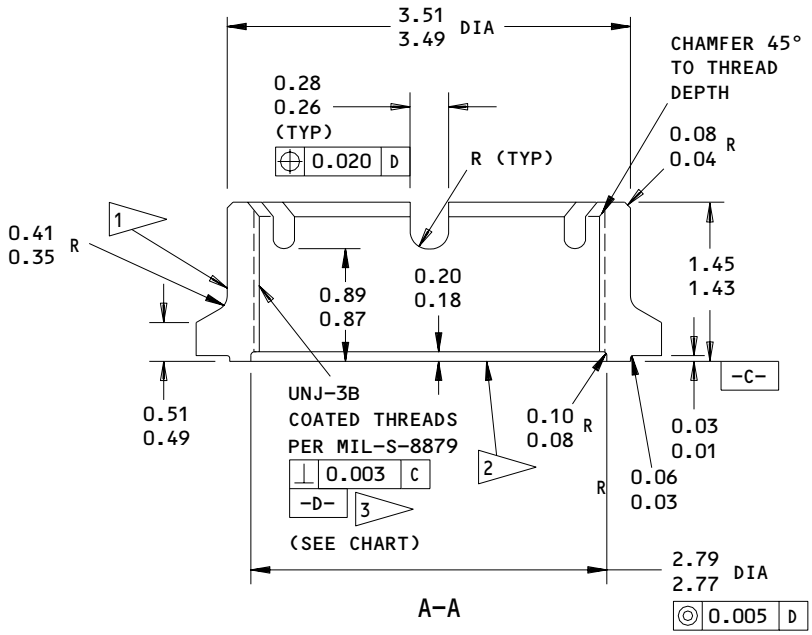
6 LIMIT FOR CHROME PLATE BUILDUP AND GRINDING TO DESIGN DIM AND FINISH. OBSERVE 0.06 PLATING RUNOUT AT EDGES, AND RELIEFS

7 RESTORATION TO DESIGN DIMENSION NOT REQUIRED

161T2006-5 (SHOWN)
161T2006-6 (OPPOSITE)
Spindle Repair and Refinish
Figure 601 (Sheet 3)

T21733





UNJ-3B THREAD SIZE	2.750-12 (DESIGN) (REF)	2.625-12 (1/8 UNDERSIZE)
MAJOR DIA	2.7506 2.7380	2.6256 2.6130
PITCH DIA	2.7035 2.6959	2.5769 2.5709
MINOR DIA	2.6788 2.6688	2.5539 2.5439

REFINISH

CADMIUM-TITANIUM PLATE (F-15.01). APPLY BMS 10-11, TYPE 1 (F-20.02) PRIMER AND ENAMEL, BMS 10-60 (SRF-14.9813), EXCEPT USE YELLOW ENAMEL ON NUTS WITH UNDERSIZE THREADS. WIPE THREADS AND THREAD RELIEF WITH PRIMER (F-19.45).

1 ON NUTS WITH UNDERSIZE THREADS, VIBRO-ENGRAVE "MATCHED SET - DO NOT SEPARATE" IN THIS LOCATION.

2 APPLY PRIMER BMS 10-11, TYPE 1 (F-20.03) TO THIS SURFACE.

3 DO NOT SHOT PEEN.

REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.02 R EXCEPT AS NOTED

MAGNETIC PARTICLE EXAMINE, CLASS B (SOPM 20-20-01)

SHOT PEEN (SOPM 20-10-03):
Rc 55-65 SHOT HEAT TREAT
0.016-0.033 SHOT SIZE
0.014-0.018 A2 INTENSITY

MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

REPLACES 161T2015-1
Undersize Nut Details
Figure 602

F39399

LINK ASSEMBLY, LOWER LOCK - REPAIR 4-1

161T2010-5, -7

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

1. Bushing Replacement (Fig. 601)

   A. Remove the old bushings.

   B. If you find defects on lug faces or hole surfaces, refer to REPAIR 4-2 for repair instructions.

   C. Install replacement bushings by the shrink-fit method (SOPM 20-50-03). Swage bushings (355) per SOPM 20-50-03.

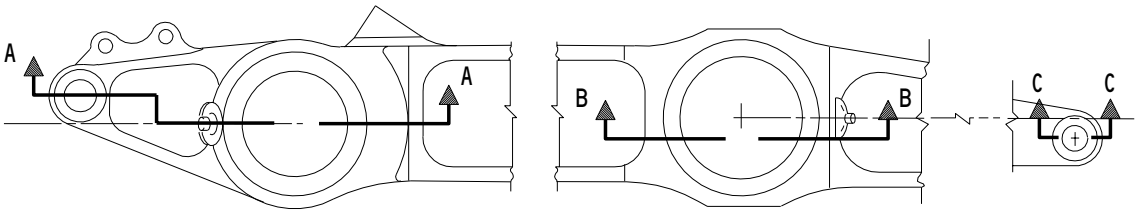
   D. Check dimensions and machine as necessary.

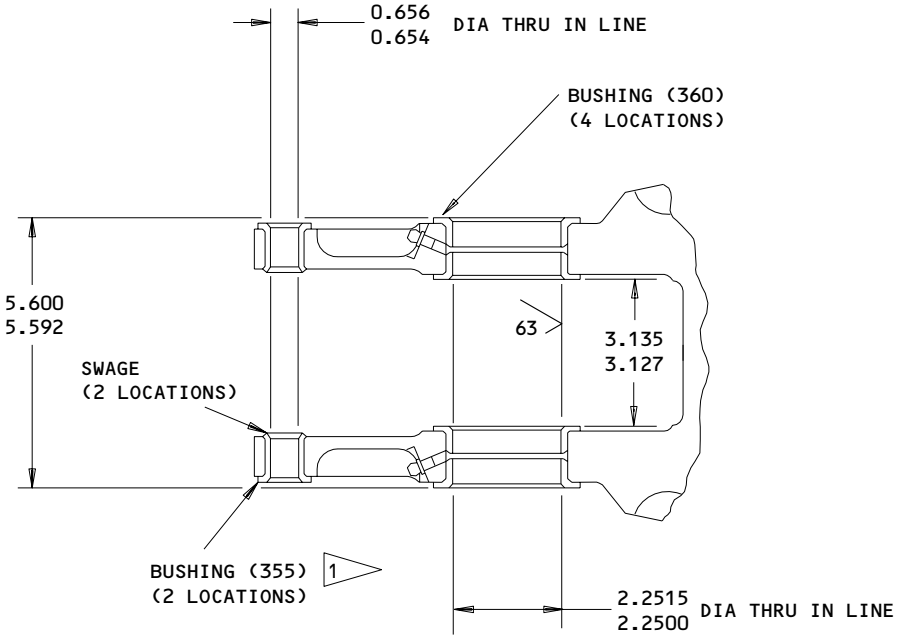
      NOTE: Machining of bushings after installation is not normally required, since bushings and lug faces are premachined to provide dimensions shown. However, bushings (370, 375) are specifically intended to be machined after installation.

   E. Seal bushings per REPAIR 13-1.

2. Lube Fitting Replacement

   A. Replace lube fittings (345) per CMM 32-00-03.



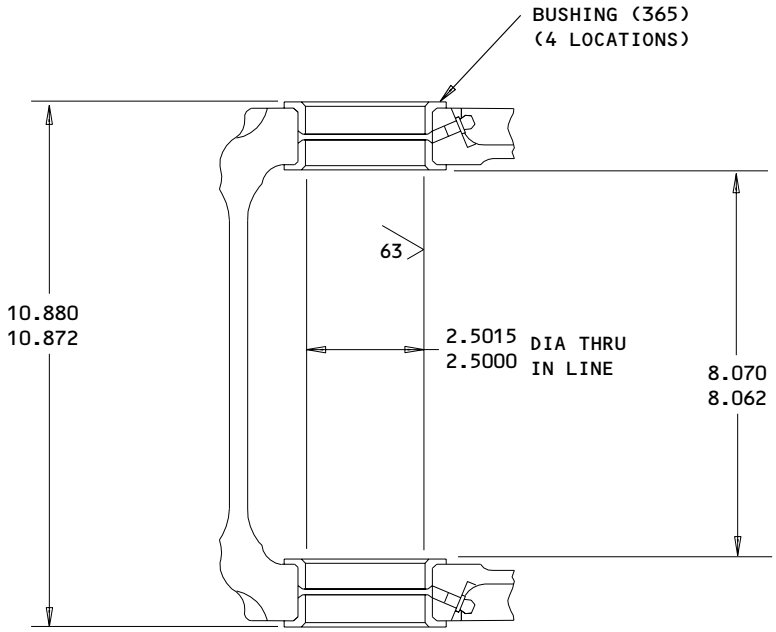


A-A

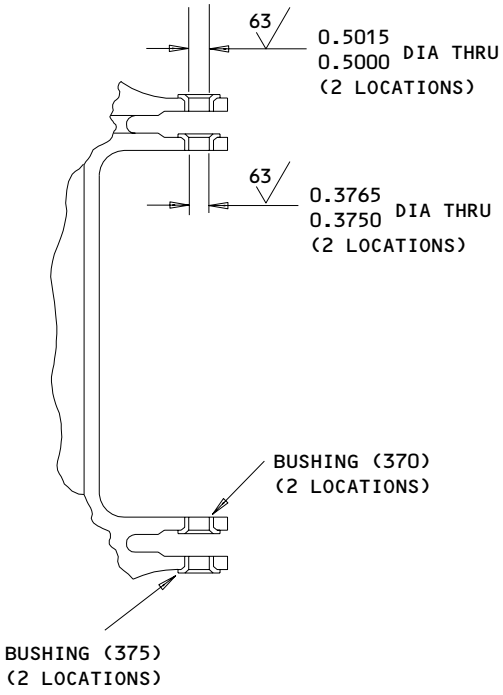
1 APPLY ENAMEL, BMS 10-11, TYPE 2 (F-21.28-301, WHICH REPLACES SRF 14.905-301) TO OUTER FACES OF BUSHING

161T2010-5,-7
Bushing Installation
Figure 601 (Sheet 1)

T21734



B–B



C–C

161T2010-5,-7
Bushing Installation
Figure 601 (Sheet 2)

T21735

LINK, LOWER LOCK - REPAIR 4-2

161T2010-6, -8

NOTE: Refer to REPAIR - GENERAL for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. Lug Faces and Holes (Fig. 601)

A. Method 1 -- Removal of Corrosion in Center of Lug ID

NOTE: This procedure enables corrosion to be removed without machining the entire bore oversize, if corrosion is localized at the center area which is exposed between two bushings.

(1) Determine repair diameter and width of groove required to remove corrosion (Fig. 602).

(2) Machine center area as required.

(3) Shot peen machined surfaces. Chemical treat and apply primer, BMS 10-11, type 1.

(4) Install bushings per REPAIR 4-1.

(5) Completely fill cavity under and between bushings with grease.

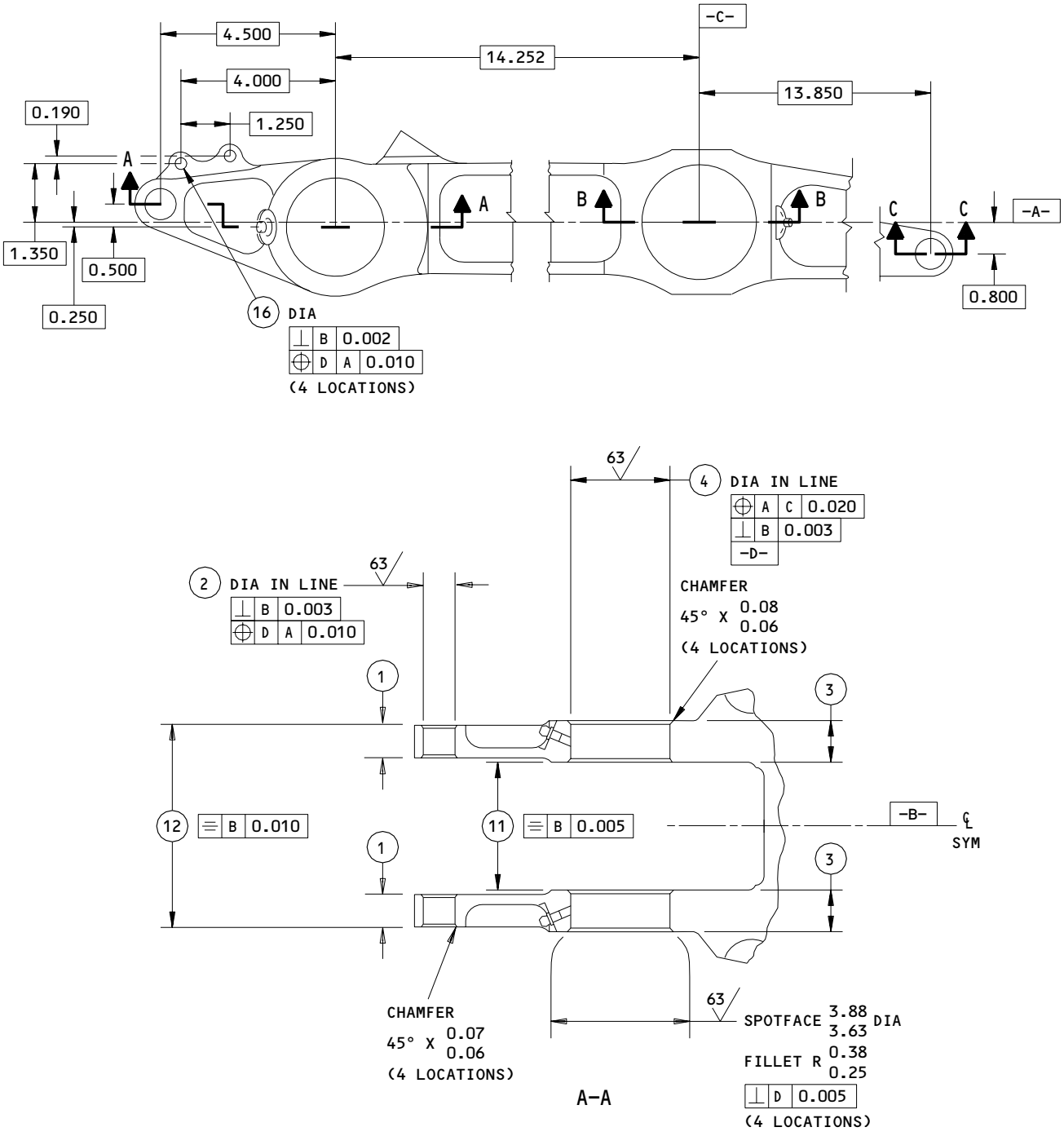
B. Method 2 -- Installation of Oversize Bushings or Repair Sleeves

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

(2) Shot peen machined surfaces. Chemical treat and apply primer, BMS 10-11, type 1.

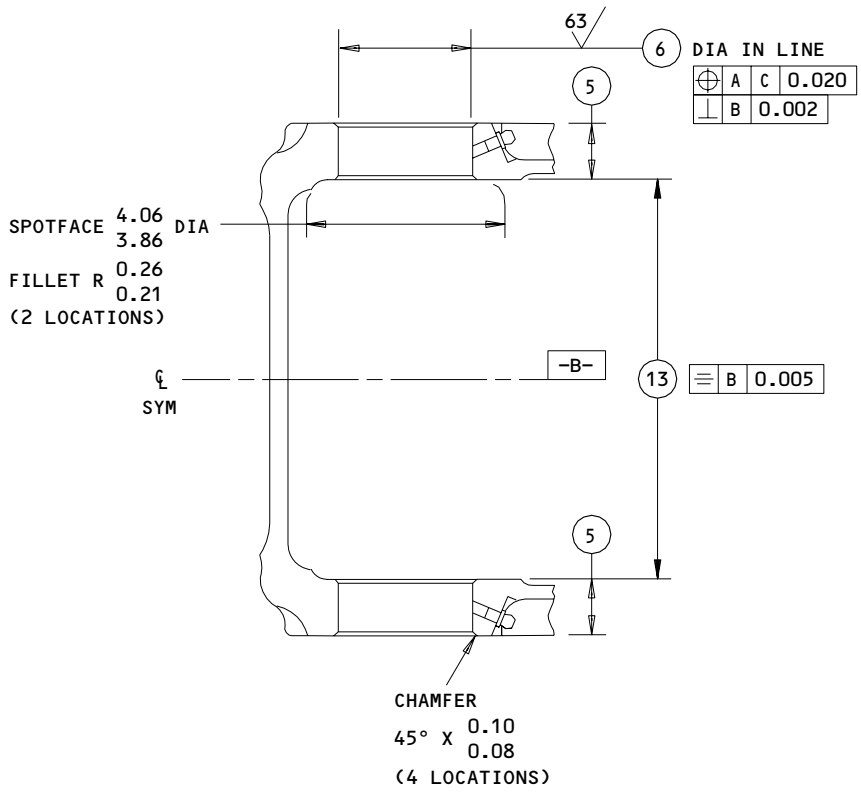
(3) Make oversize bushings or repair sleeves as required, to make allowance for amount of material removed in step (1) (Fig. 603 and on).

(4) Install bushings or sleeves per REPAIR 4-1.

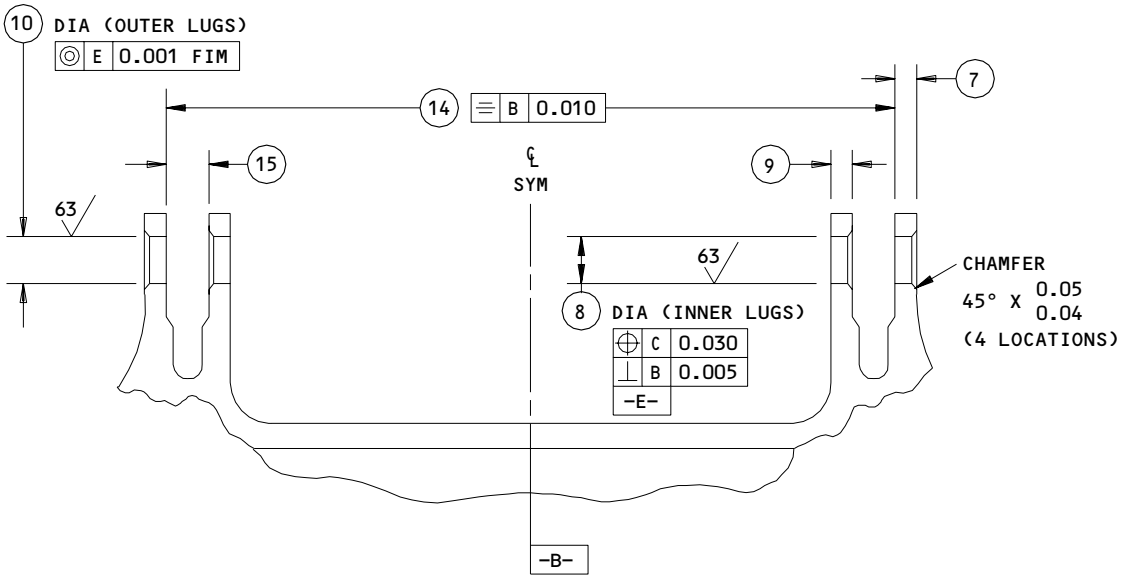


161T2010-6,-8
Lug Face and Hole Repair
Figure 601 (Sheet 1)

T21736



B-B



C-C

161T2010-6,-8
Lug Face and Hole Repair
Figure 601 (Sheet 2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) ▷4	(8) ▷5
DESIGN DIMENSION	0.93 0.90	0.780 0.779	1.105 1.100	2.4115 2.4100	1.2838 1.2788	2.7015 2.7000	0.26 0.24	0.5015 0.5000	0.5006 0.5000
REPAIR LIMIT ▷1	0.87 ▷2 ▷3	0.940	1.070 ▷2	2.4715	1.2488	2.7615	0.21 ▷2 ▷3	0.5615	0.5615

	(9)	(10) ▷4	(10) ▷5	(11)	(12)	(13)	(14)	(15)	(16)
DESIGN DIMENSION	0.26 0.24	0.6265 0.6250	0.6265 0.6250	3.2572 3.2522	5.28 5.27	8.1922 8.1872	9.23 9.21	0.578 0.573	0.196 0.193
REPAIR LIMIT ▷1	0.21 ▷2 ▷3	0.6865	0.6865	3.2872 ▷2	5.24 ▷2	8.2222 ▷2	9.26 ▷2 ▷3	0.608 ▷2 ▷3	0.275

REFINISH

CHROMIC ACID ANODIZE AND APPLY BMS 10-11, TYPE 1 PRIMER (F-18.13) ALL OVER. AFTER BUSHING AND LUBE FITTING INSTALLATION, APPLY BMS 10-60 ENAMEL (F-14.9813, WHICH REPLACES SRF-14.9813) ALL OVER EXCEPT ON BUSHINGS AND LUBE FITTINGS. BE SURE TO PAINT THE BUSHING FLANGES SHOWN IN REPAIR 4-1, FIG. 601.

▷1 LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS OR REPAIR SLEEVES

▷2 LUG FACE MACHINING REQUIREMENTS:

1. MATERIAL REMOVED FROM ANY FACE MUST NOT EXCEED 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 RADIUS, OR IF WITHIN 0.10 OF LUG FILLET RADIUS USE SAME RADIUS AS LUG FILLET. BREAK SHARP EDGES 0.03-0.07 RD

▷3 LUGS WITH ONLY ONE BUSHING INSTALLED CAN USE ENTIRE REPAIR ON EITHER LUG FACE

▷4 161T2010-6

▷5 161T2010-8

REPAIR

REF ▷1 ▷2 ▷3

125 √ ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.02-0.04 R

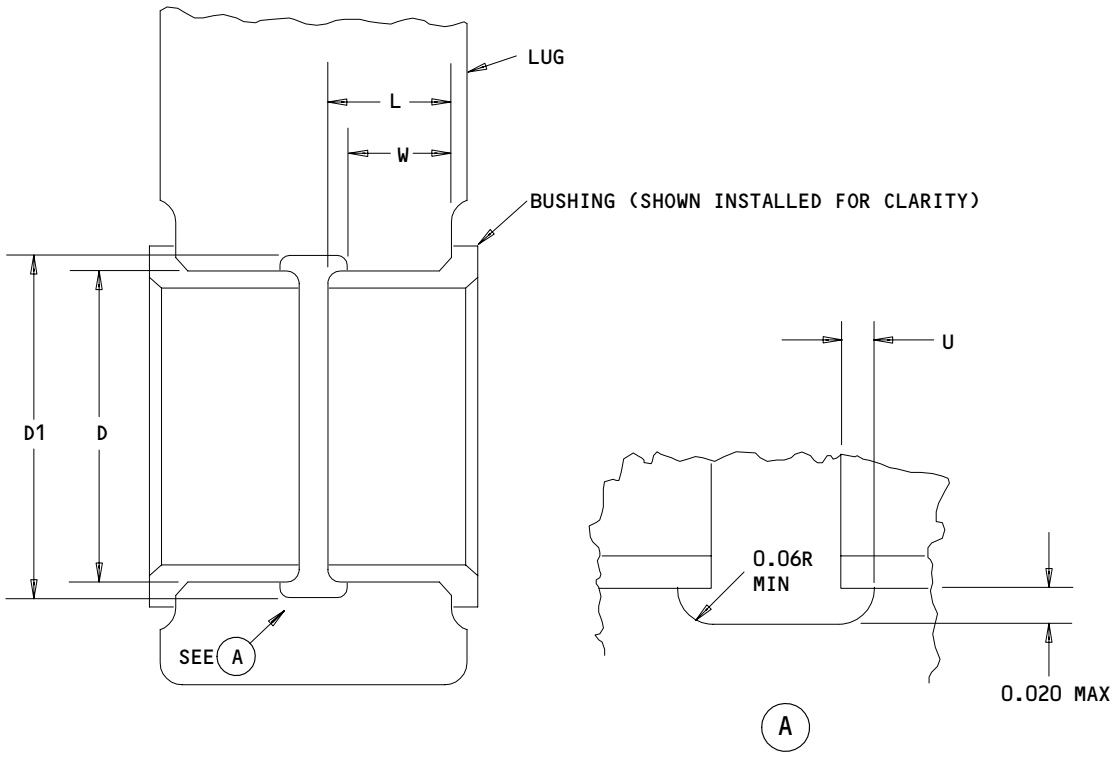
SHOT PEEN: 0.023-0.046 SHOT SIZE
0.010 A2 INTENSITY

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

161T2010-6,-8
Lug Face and Hole Repair
Figure 601 (Sheet 3)

14545



D = MAX REPAIR DIA OF HOLE (SEE FIG. 601)

D1 = MAX REPAIR DIA OF GROOVE = (D +0.040)

L = LENGTH OF BUSHING (SEE FIG. 603)

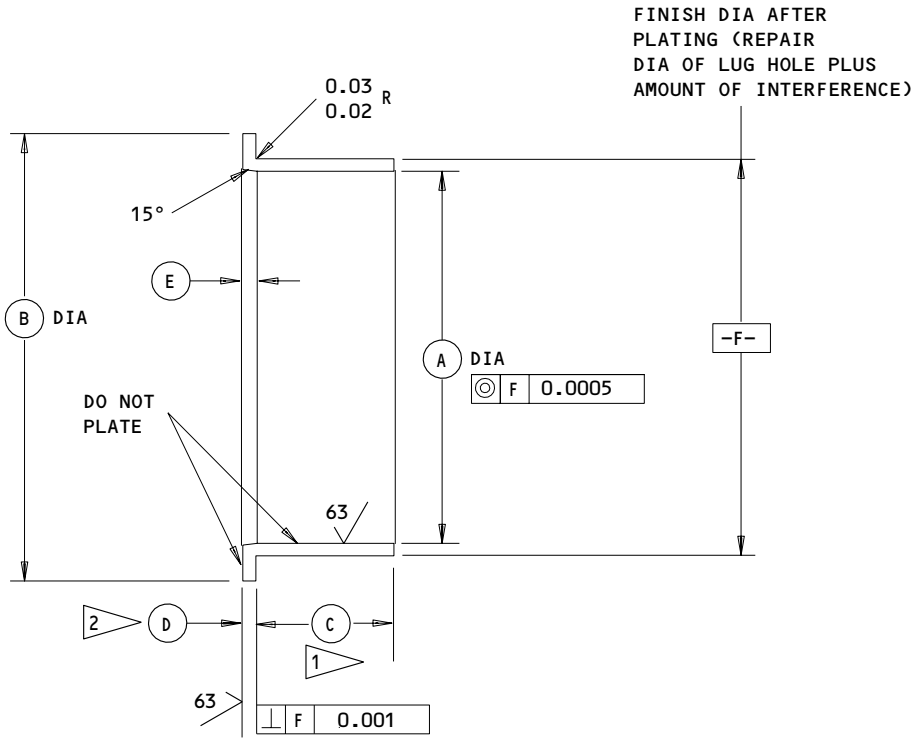
U = UNDERCUT = (L X 0.1) (0.06 MAX)

W = LUG DIM TO EDGE OF GROOVE = (L–U)

ALL DIMENSIONS ARE IN INCHES

Lug Hole Diameter – Corrosion Removal from Area Between Bushings
Figure 602

T21739



HOLE LOCATION (FIG. 601)	REPLACES BUSHING	A	B	C	D	E	INTERFERENCE
4	161T6040-16 (360)	2.2548 2.2533	2.76 2.74	0.51 0.49	0.061 0.060	0.10 0.09	0.0050 0.0020
6	161T6040-14 (365)	2.5050 2.5035	3.26 3.24	0.59 0.57	0.061 0.060	0.10 0.09	0.0052 0.0022

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06) ALL OVER, UNLESS SHOWN DIFFERENTLY

MATERIAL: AL-NI-BRZ PER AMS 4640 OR 4880

ALL DIMENSIONS APPLY BEFORE PLATING

ITEM NUMBERS REFER TO IPL FIG. 1

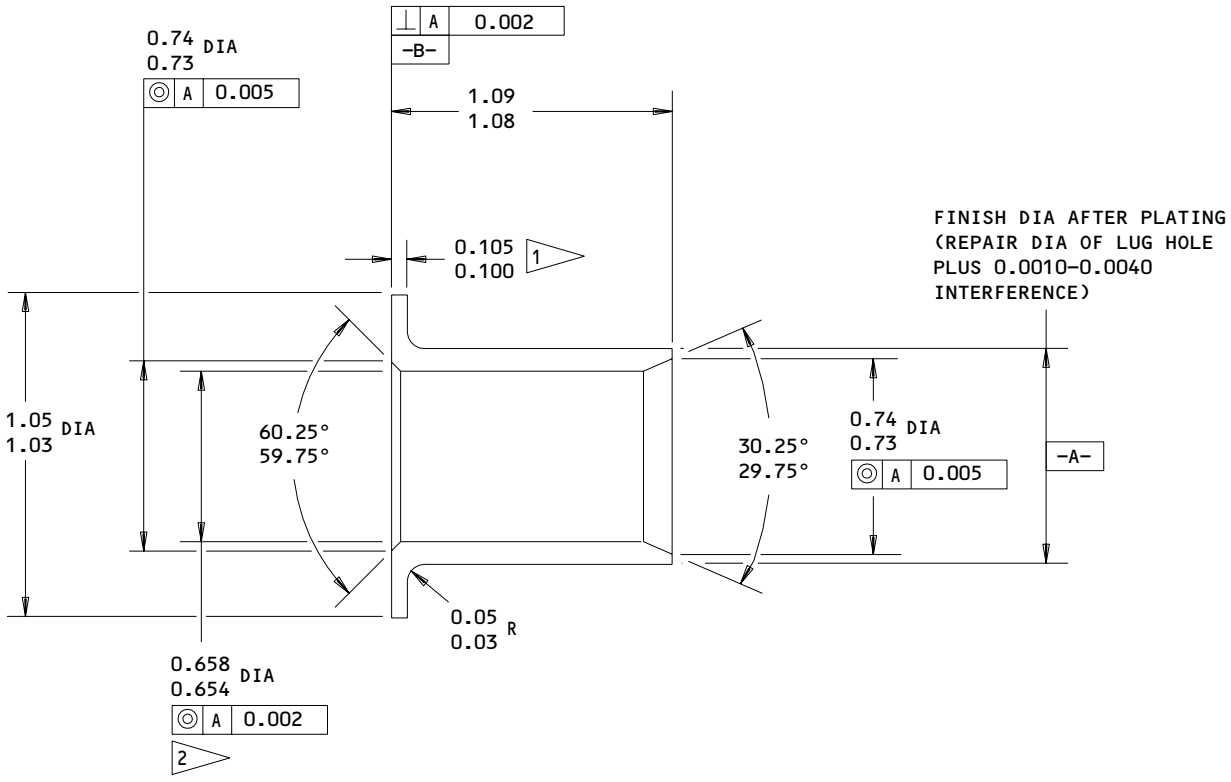
ALL DIMENSIONS ARE IN INCHES

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

Oversize Bushing Details
Figure 603

14427



125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.02-0.04 R

CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06) ALL OVER, UNLESS SHOWN DIFFERENTLY

MATERIAL: AL-NI-BRZ PER AMS 4640 OR 4880

ALL DIMENSIONS APPLY BEFORE PLATING

ITEM NUMBERS REFER TO IPL FIG. 1

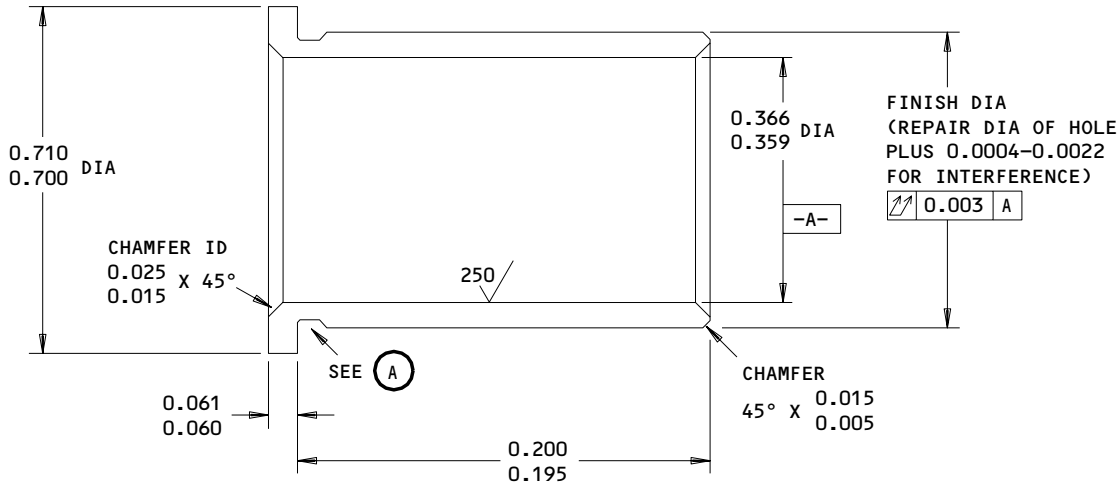
ALL DIMENSIONS ARE IN INCHES

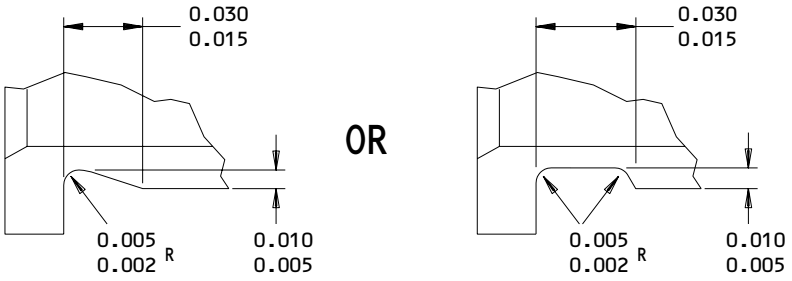
1 PLUS AMOUNT REMOVED FROM LUG FACE

2 DO NOT PLATE

HOLE LOCATION (2) FIG. 601 - REPLACES BUSHING (355) 161T2043-1

Oversize Bushing Details
Figure 604





A

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES

NO FINISH

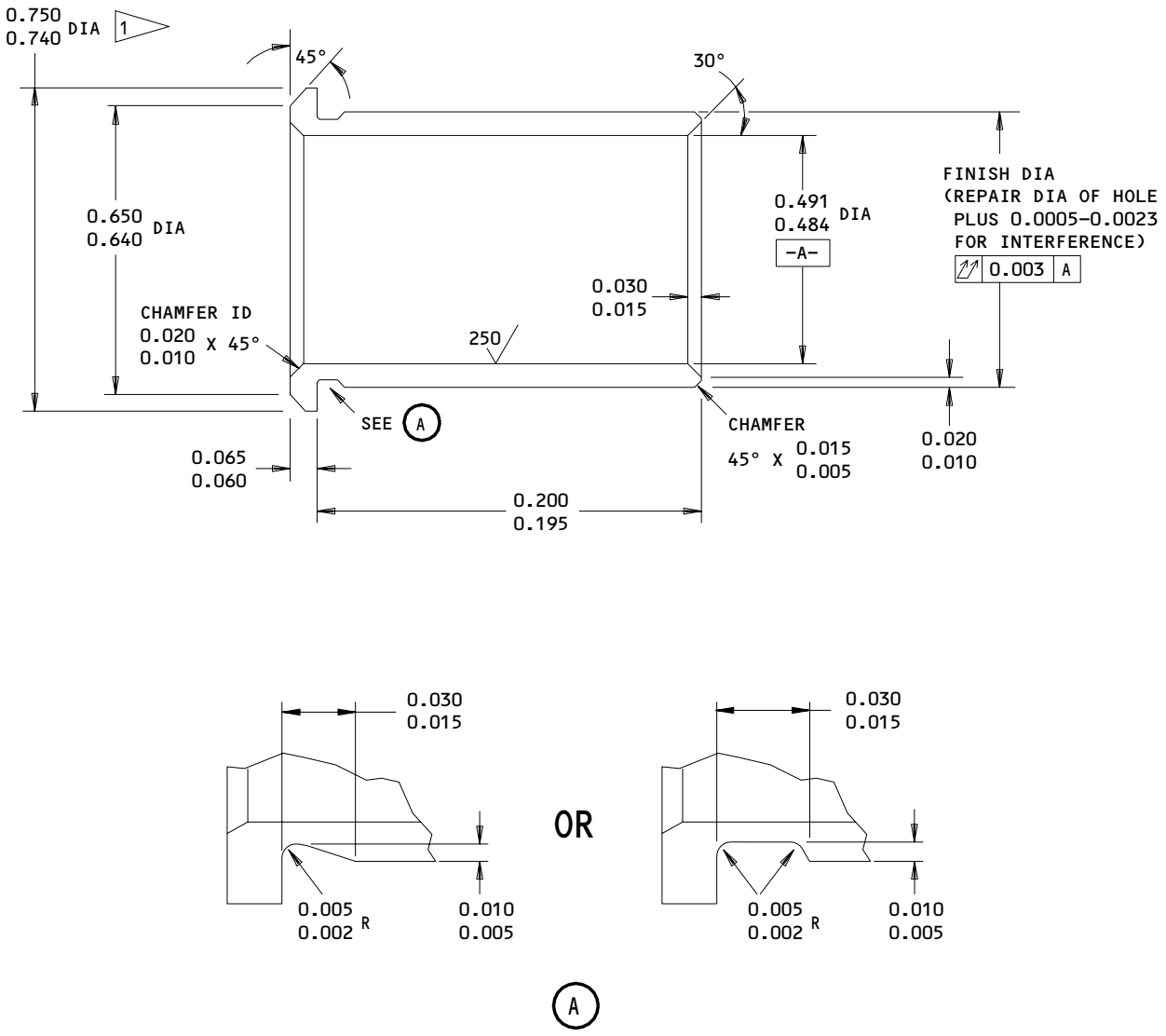
MATERIAL: 15-5 PH CRES (180-200 KSI)

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (8) FIG. 601 - REPLACES BUSHING (370) BACB28AP06-020

Oversize Bushing Details
Figure 605

14548



1 PLUS AMOUNT OF HOLE OVERSIZE

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES

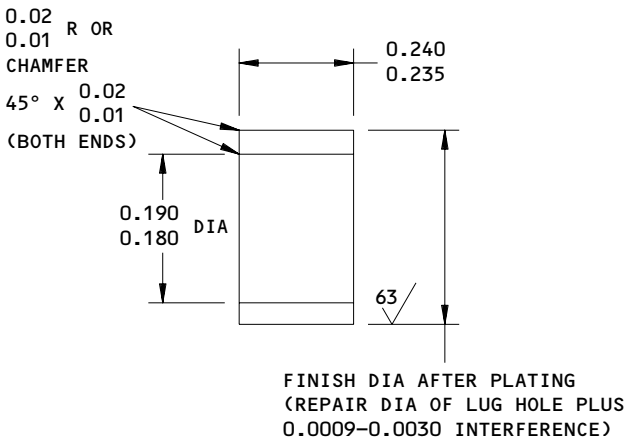
NO FINISH

MATERIAL: AL-BRZ PER QQ-C-465, COMP 642

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (10) FIG. 601 - REPLACES BUSHING (375) BACB28AM08A020

Oversize Bushing Details
Figure 606



REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

CADMIUM PLATE PER 20-42-05 (OPTIONAL ON ID)

MATERIAL: AL-NI-BRZ PER AMS 4640

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (16) FIG. 601

Repair Sleeve Details
Figure 607

LINK ASSEMBLY, UPPER LOCK - REPAIR 5-1

161T2012-1, -3, -5, -7

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

1. Bushing Replacement (Fig. 601)

   A. Remove the old bushings.

   B. If you find defects on lug faces or hole surfaces, refer to REPAIR 5-2 for repair instructions.

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

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

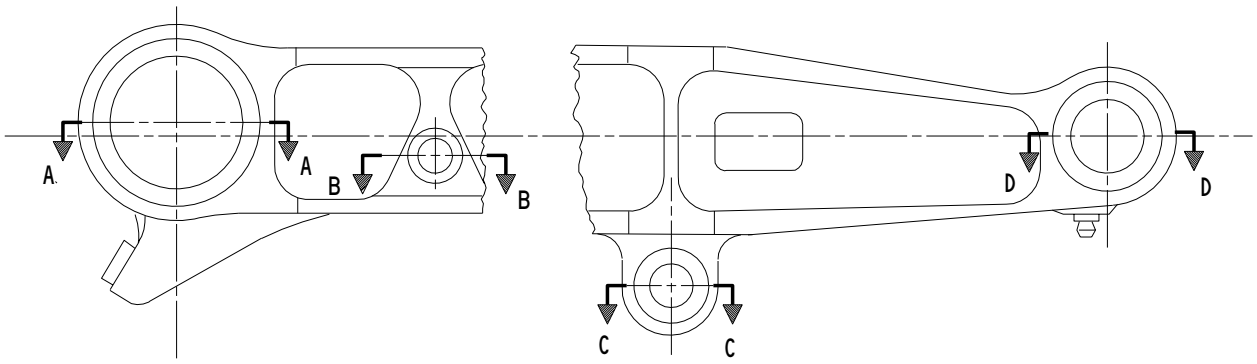
      NOTE: Machining of bushings after installation is not normally required, since bushings and lug faces are premachined to provide dimensions shown.

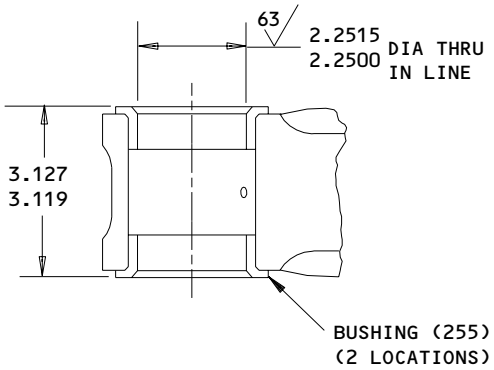
   E. Seal bushings per REPAIR 13-1.

   F. Apply grease at the lube fittings until you see grease at the bushing ID, to be sure the lubrication passages are clear.

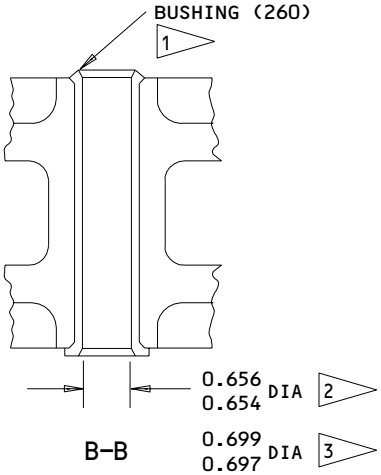
2. Lube Fitting Replacement

   A. Replace lube fittings (225) per CMM 32-00-03.

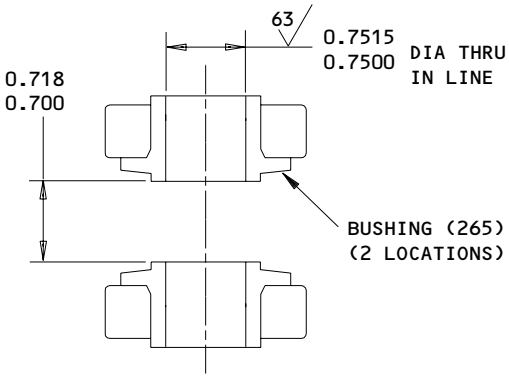




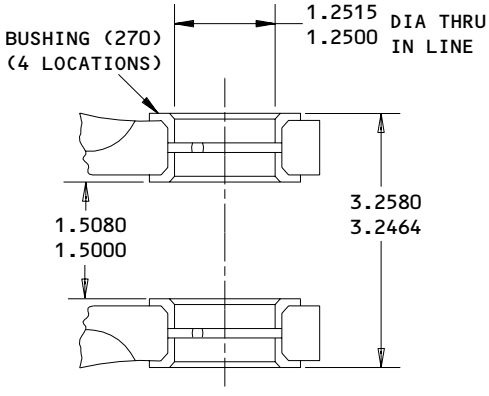
A–A



B–B



C–C



D–D

1 SWAGE AS SHOWN IN SOPM 20-50-03

2 161T2012-1,-3

3 161T2012-5,-7

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

161T2012-1,-3,-5,-7
Bushing Installation
Figure 601

T21741

LINK, UPPER LOCK - REPAIR 5-2

161T2012-2, -4, -6 -8

NOTE: Refer to REPAIR - GENERAL for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, to Refinish instructions, Fig. 601.

1. Lug Faces and Holes (Fig. 601)

A. Method 1 -- Removal of Corrosion in Center of Lug ID

NOTE: This procedure lets you remove defects without machining the entire bore oversize, if the defects are only at the center area between two bushings.

(1) Calculate the repair diameter and width of groove required to remove defects (Fig. 602).

(2) Machine the center area as required.

(3) Shot peen machined surfaces, chemical treat and apply primer, BMS 10-11, type 1.

(4) Install bushings per REPAIR 5-1.

(5) Completely fill cavity under and between bushings with grease.

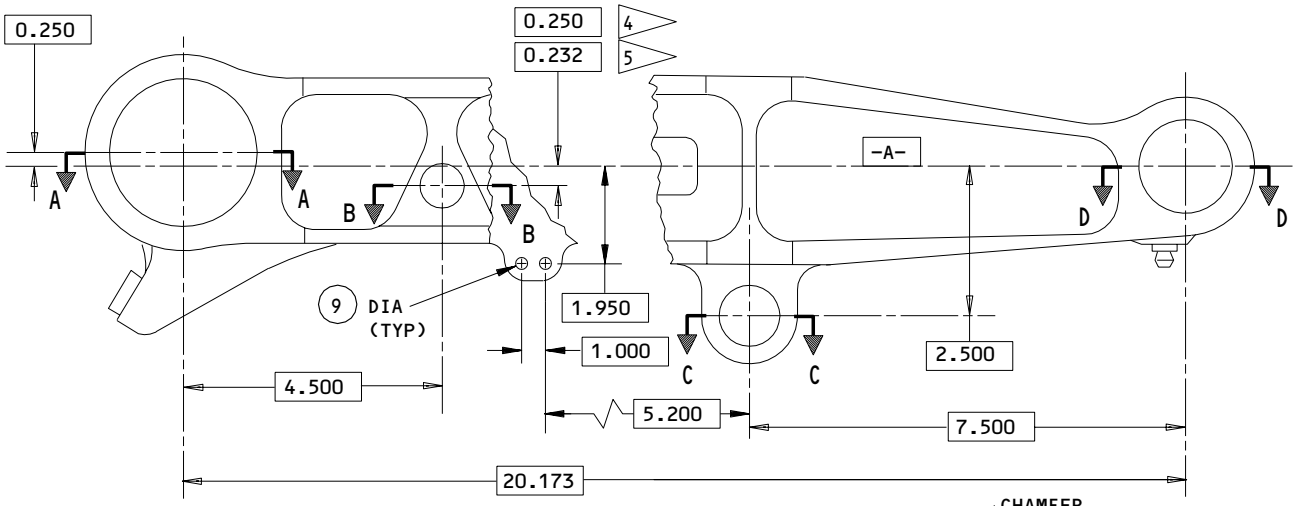
B. Method 2 -- Installation of Oversize Bushings or Repair Sleeves

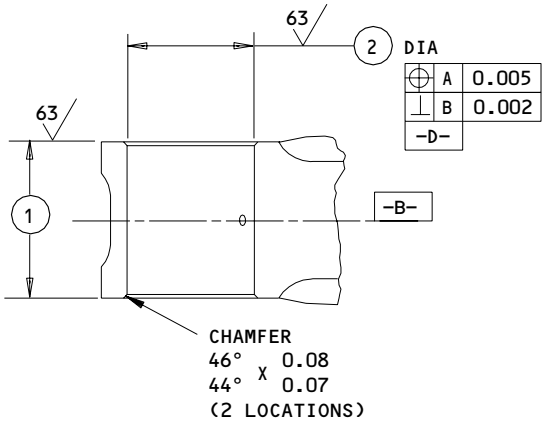
(1) Machine as required, within repair limits, to remove defects.

(2) Shot peen the machined surfaces, chemical treat and apply primer, BMS 10-11, Type 1.

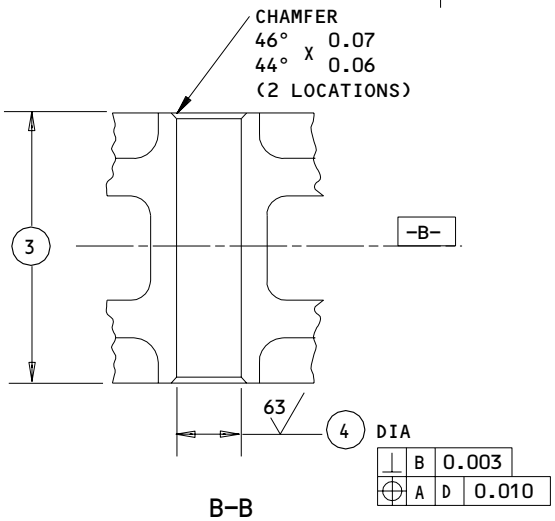
(3) Make oversize bushings, as required, to adjust for the material removed in step (1) (Fig. 603 and on).

(4) Install the bushings per REPAIR 5-1.

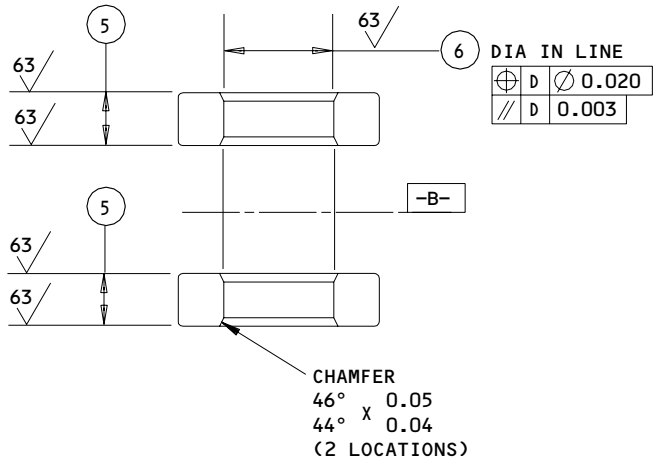




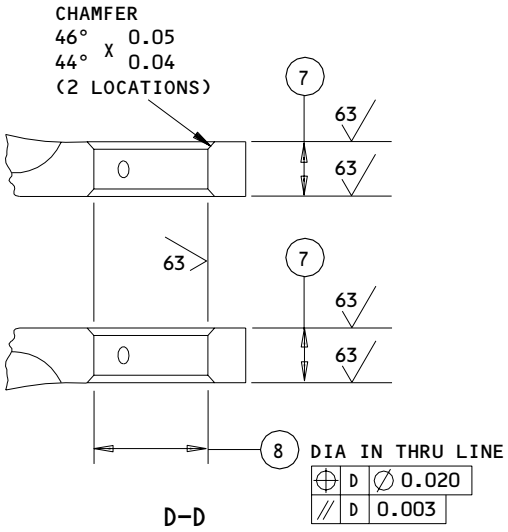
A-A



B-B



C-C



D-D

161T2012-2,-4,-6,-8
Lock Link Repair and Refinish
Figure 601 (Sheet 1)

T21742

REFERENCE NUMBER	(1)	(2)	(3)	(4) 4	(4) 5	(5)	(6)	(7)	(8)	(9)
DESIGN DIMENSION	3.0018 2.9968	2.4115 2.4100	3.05 3.03	0.780 0.779	0.823 0.822	0.43 0.41	0.9165 0.9150	0.763 0.755	1.3765 1.3750	0.196 0.193
REPAIR LIMIT 1	2.960 2	2.490	3.00 2 3	0.900	0.900	0.38 2	0.9765 3	0.715 2	1.4365	0.256 0.246

REFINISH

CHROMIC ACID ANODIZE AND APPLY BMS 10-11, TYPE 1 PRIMER (F-18.13) ALL OVER. AFTER BUSHING INSTALLATION, APPLY BMS 10-60 GRAY GLOSS ENAMEL (F-14.9813 WHICH REPLACES SRF-14.9813) ALL OVER BUT NOT ON BUSHINGS AND LUBE FITTINGS

1. LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS OR REPAIR SLEEVES
2. 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. 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
3. LUGS WITH ONLY ONE BUSHING INSTALLED MAY UTILIZE ENTIRE REPAIR ON EITHER LUG FACE
4. 161T2012-2,-4
5. 161T2012-6,-8

REPAIR

REF 1 2 3

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.02-0.04 R

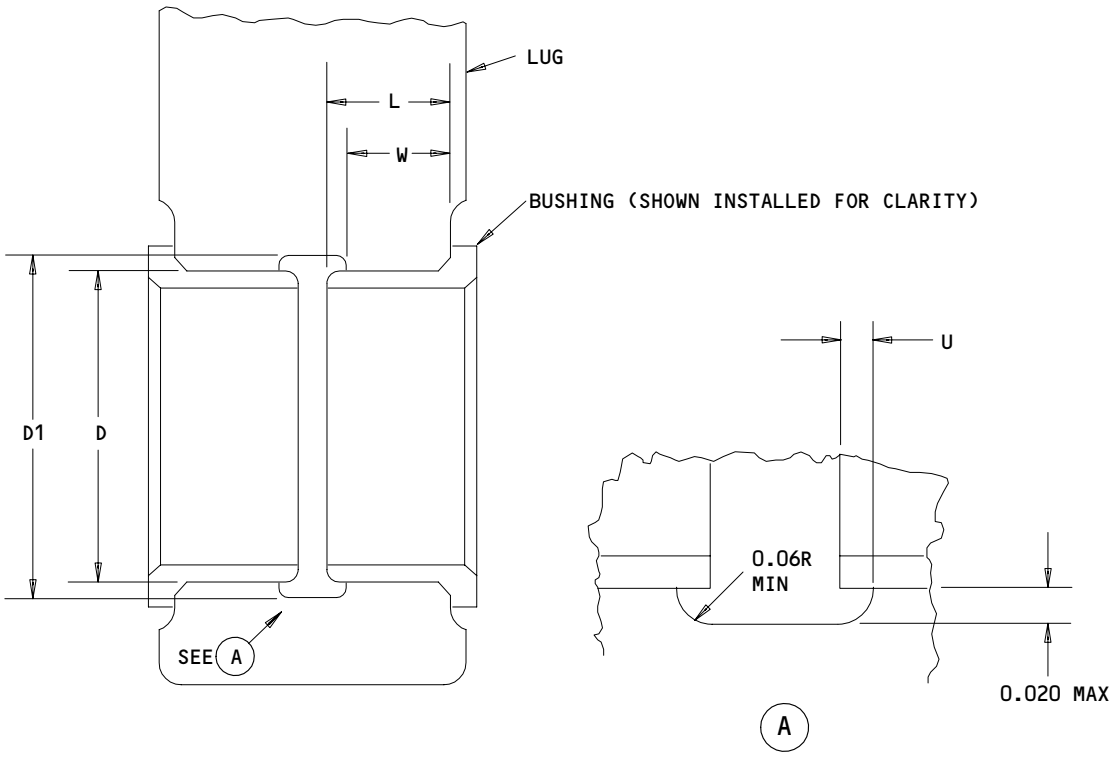
SHOT PEEN: 0.016-0.033 SHOT SIZE
0.014-0.016 A2 INTENSITY

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

161T2012-2,-4,-6,-8
Lock Link Repair and Refinish
Figure 601 (Sheet 2)

T21743



D = MAX REPAIR DIA OF HOLE (SEE FIG. 601)

D1 = MAX REPAIR DIA OF GROOVE = (D +0.040)

L = LENGTH OF BUSHING (SEE FIG. 603)

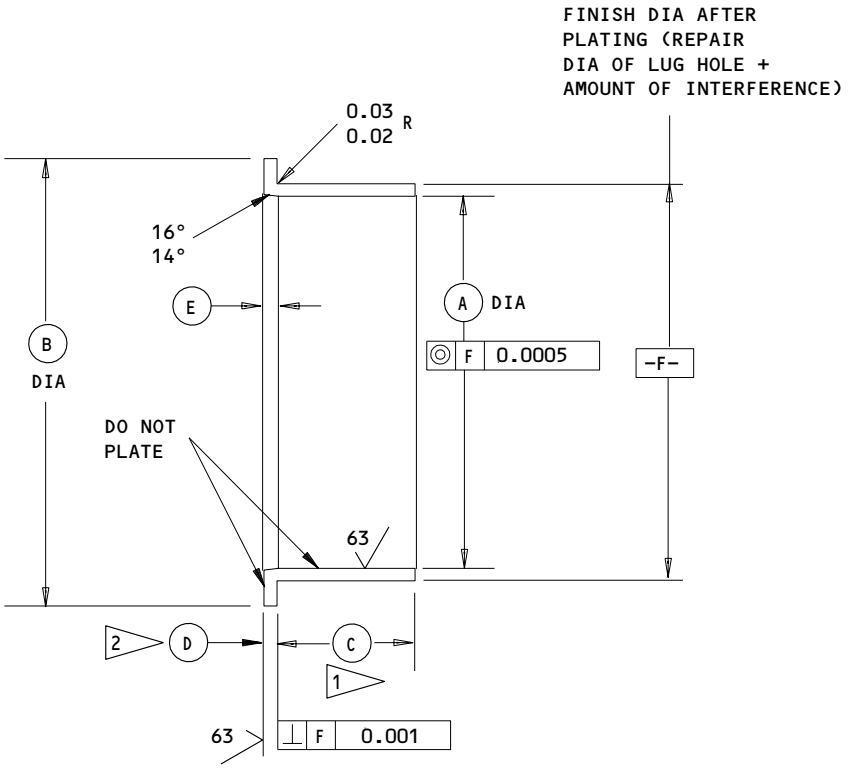
U = UNDERCUT = (L X 0.1) (0.06 MAX)

W = LUG DIM TO EDGE OF GROOVE = (L–U)

ALL DIMENSIONS ARE IN INCHES

Lug Hole Diameter – Corrosion Removal from Area Between Bushings
Figure 602

T21744



HOLE LOCATION (FIG. 601)	REPLACES BUSHING	A	B	C	D	E	INTERFERENCE
2	(255)	2.2548	2.76	1.01	0.061	0.10	0.0050
	161T6040-18	2.2533	2.74	0.99	0.060	0.09	0.0020
8	(270)	1.2542	1.66	0.32	0.061	0.10	0.0042
	161T6040-12	1.2527	1.64	0.30	0.060	0.09	0.0012

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01-0.02 R

CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06) ALL OVER, EXCEPT AS NOTED

MATERIAL: AL-NI-BRZ PER AMS 4640 OR 4880

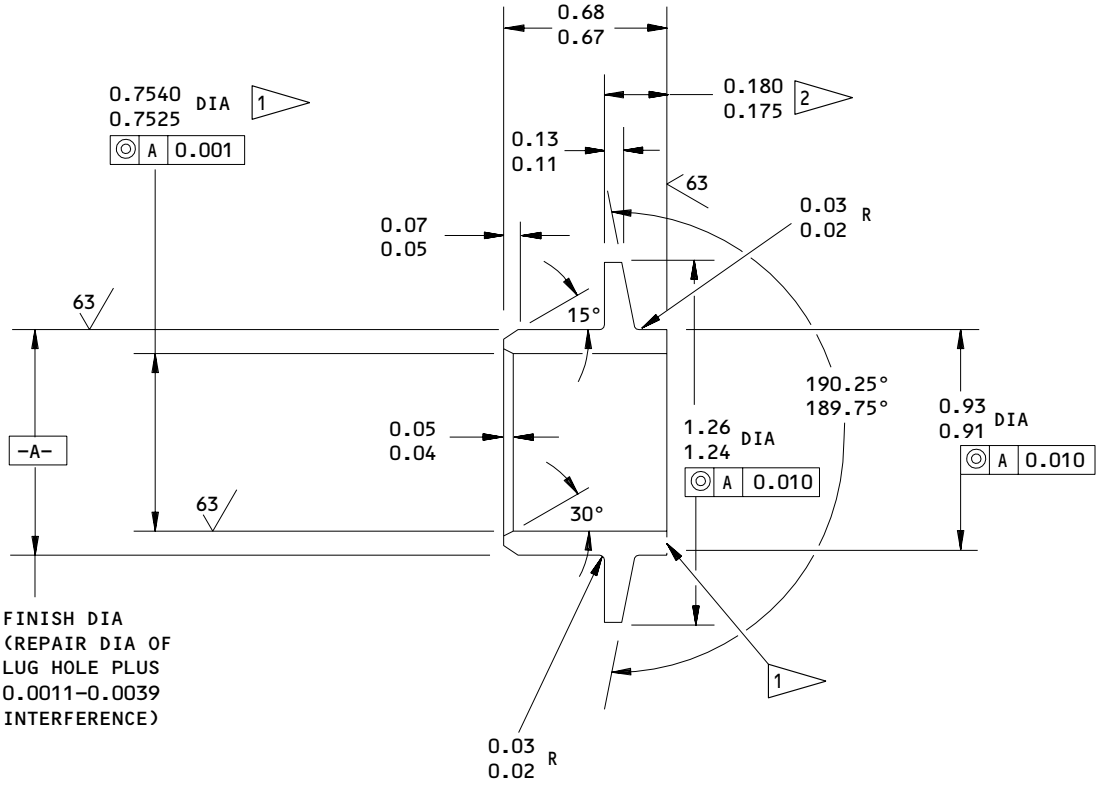
ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

Oversize Bushing Details
Figure 603



1 DO NOT PLATE

2 PLUS AMOUNT REMOVED FROM LUG FACE

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.02-0.04 R

CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06) ALL OVER, EXCEPT AS NOTED

MATERIAL: AL-NI-BRZ PER AMS 4640 OR 4880

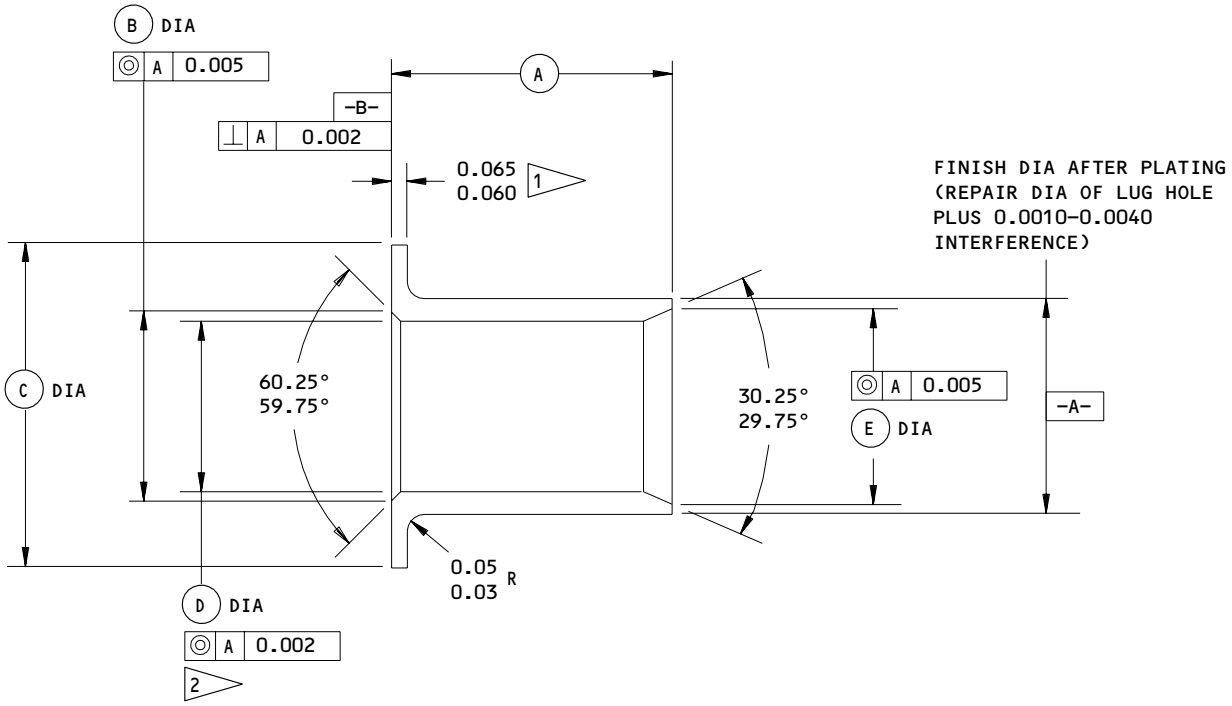
ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (6) FIG. 601 - REPLACES BUSHING (265) 161T2044-1

Oversize Bushing Details
Figure 604

T21746



HOLE LOCATION (FIG. 601)	REPLACES BUSHING	A	B	C	D	E
4	(260) 161T2043-2	3.17 3.16	0.74 0.73	1.01 0.99	0.658 0.654	0.74 0.73
4	(260A) 161T2043-5	3.14 3.13	0.74 0.73	1.01 0.99	0.658 0.654	0.74 0.73
4	(260B) 161T2043-6	3.17 3.16	0.78 0.77	1.05 1.03	0.701 0.697	0.78 0.77
4	(260C) 161T2043-7	3.14 3.13	0.78 0.77	1.05 1.03	0.701 0.697	0.78 0.77

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.02-0.04R

CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06)
ALL OVER, EXCEPT AS NOTED

MATERIAL: AL-NI-BRZ PER AMS 4640 OR 4880

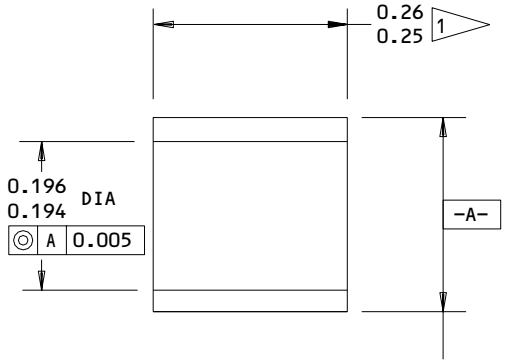
ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

1 PLUS AMOUNT REMOVED FROM LUG FACE

2 DO NOT PLATE

Oversize Bushing Details
Figure 605



REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

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

MATERIAL: AL-NI-BRZ, AMS 4640 OR 4880

DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

1 ADJUST LENGTH OF SLEEVE FOR A FIT FLUSH WITH OR 0.010 MAX BELOW SURFACE OF LUG

HOLE LOCATION (9) FIG. 601

Repair Sleeve Details
Figure 606

FITTING ASSEMBLY - REPAIR 6-1

161T2014-1

1. Bushing Replacement (Fig. 601)

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

A. Remove the old bushings.

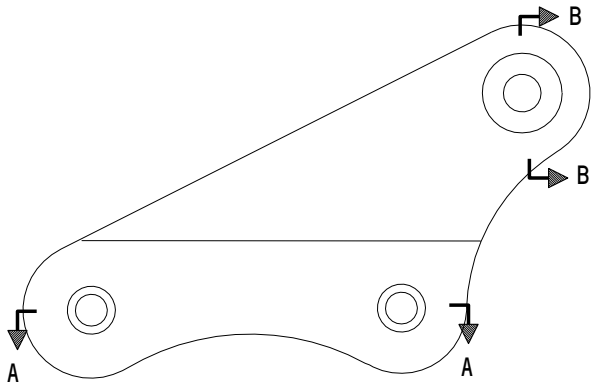
B. If you find defects on lug faces or hole surfaces, refer to REPAIR 6-2 for repair instructions.

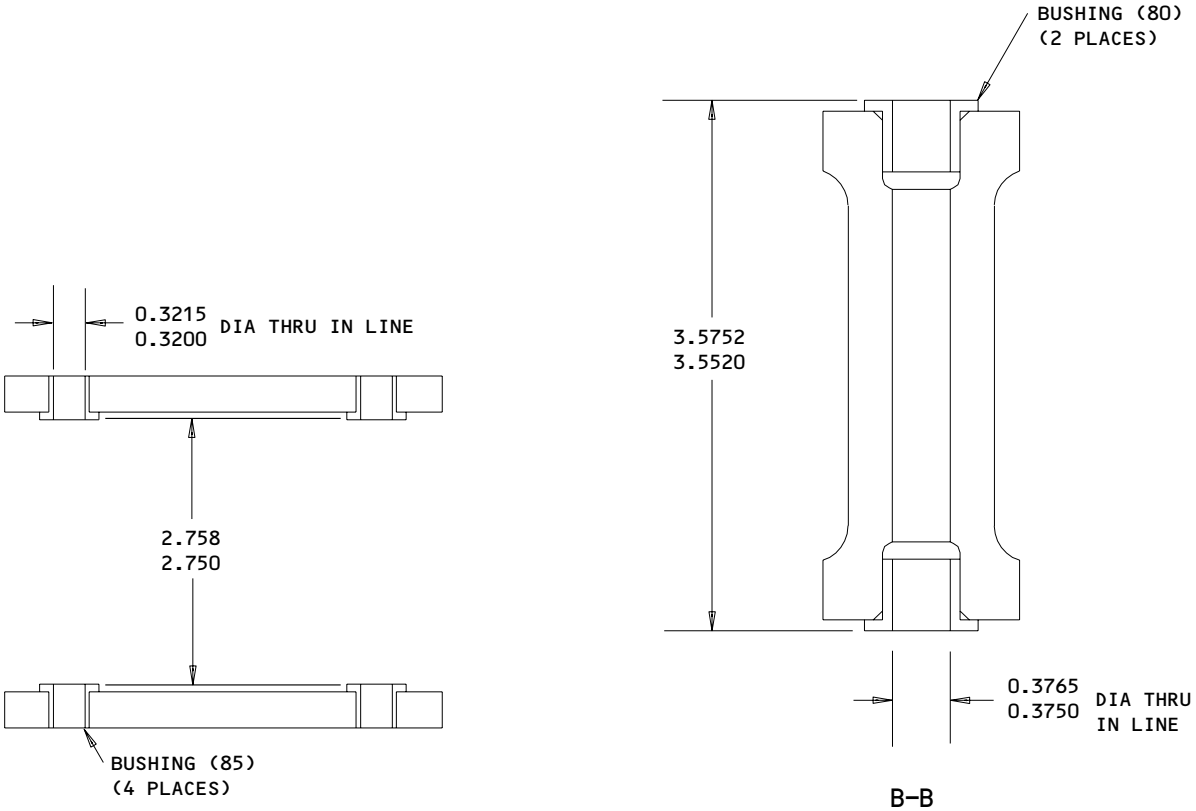
C. Install replacement bushings by the shrink-fit method (SOPM 20-50-03).

D. Check dimensions and machine 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 bushings per REPAIR 13-1.





161T2014-1
Bushing Installation
Figure 601

T21747

FITTING - REPAIR 6-2

161T2014-2

NOTE: Refer to REPAIR-GEN for a list of applicable standard practices. For repair of surfaces is only replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. Lug Faces and Holes (Fig. 601)

A. Method 1 -- Removal of Corrosion in Center of Lug ID

NOTE: This procedure lets you remove corrosion without machining the entire bore oversize, if corrosion is only at the center area between two bushings.

(1) Calculate the repair diameter and width of groove required to remove corrosion (Fig. 602).

(2) Machine the center area as required.

(3) Shot-peen machined surfaces, chemical treat, and apply primer, BMS 10-11, type 1.

(4) Install bushings per REPAIR 6-1.

(5) Completely fill cavity under and between bushings with grease.

B. Method 2 -- Installation of Oversize Bushings

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

(2) Shot-peen machined surfaces, chemical treat, and apply primer, BMS 10-11, type 1.

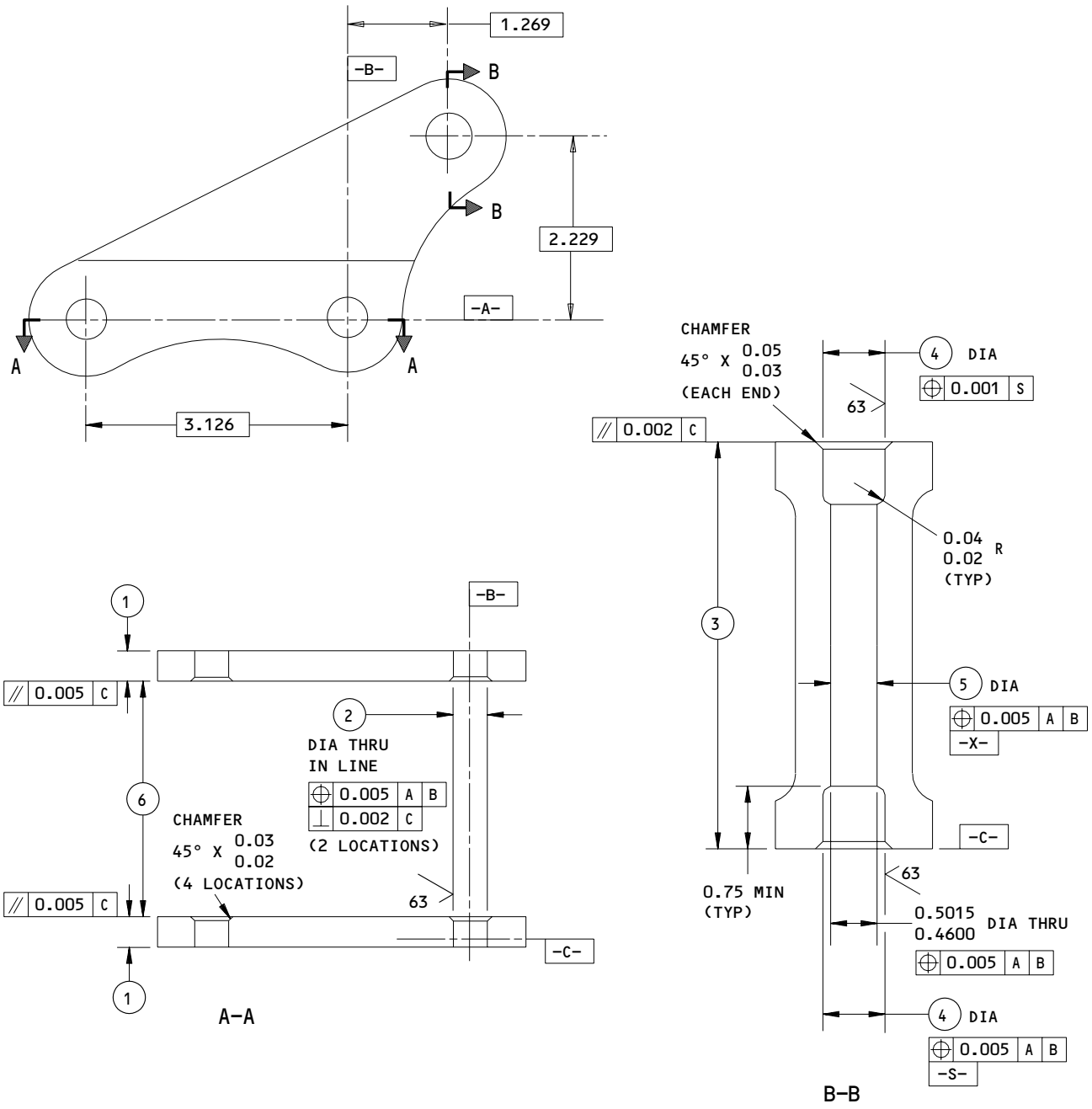
(3) Make oversize bushings (Fig. 603) as required, to adjust for amount of material removed in step (1).

(4) Install bushings per REPAIR 6-1.

C. Method 3 -- Bore Between Bushings

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

(2) Refinish as indicated.



ALL DIMENSIONS ARE IN INCHES

161T2014-2
Fitting Repair and Refinish
Figure 601 (Sheet 1)

T21748

	(1)	(2)	(3)	(4)	(5)	(6)
DESIGN DIM	0.39 0.37	0.4465 0.4450	3.450 3.445	0.5015 0.5000	0.5015 0.4600	2.8802 2.8752
REPAIR LIMIT	0.34 1 3	0.5065 1	3.395 1 2	0.5680 1	0.5680 4	2.9402 1 3

REFINISH

CHROMIC ACID ANODIZE AND APPLY BMS 10-11, TYPE 1 PRIMER (F-18.13) ALL OVER. AFTER BUSHING INSTALLATION, APPLY ENAMEL BMS 10-60 (SRF-14.9813) ALL OVER BUT NOT ON BUSHINGS OR IN LONG BORE -X-

1 LIMIT FOR INSTALLATION OF OVERSIZED 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 0.03-0.07R

3 LUGS WITH ONLY ONE BUSHING INSTALLED CAN HAVE ALL THE REPAIR ON ONE LUG FACE

4 RESTORATION TO DESIGN DIMENSIONS NOT REQUIRED

REPAIR

REF 1 THRU 4

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.023-0.046 SHOT SIZE
0.014 A2 INTENSITY

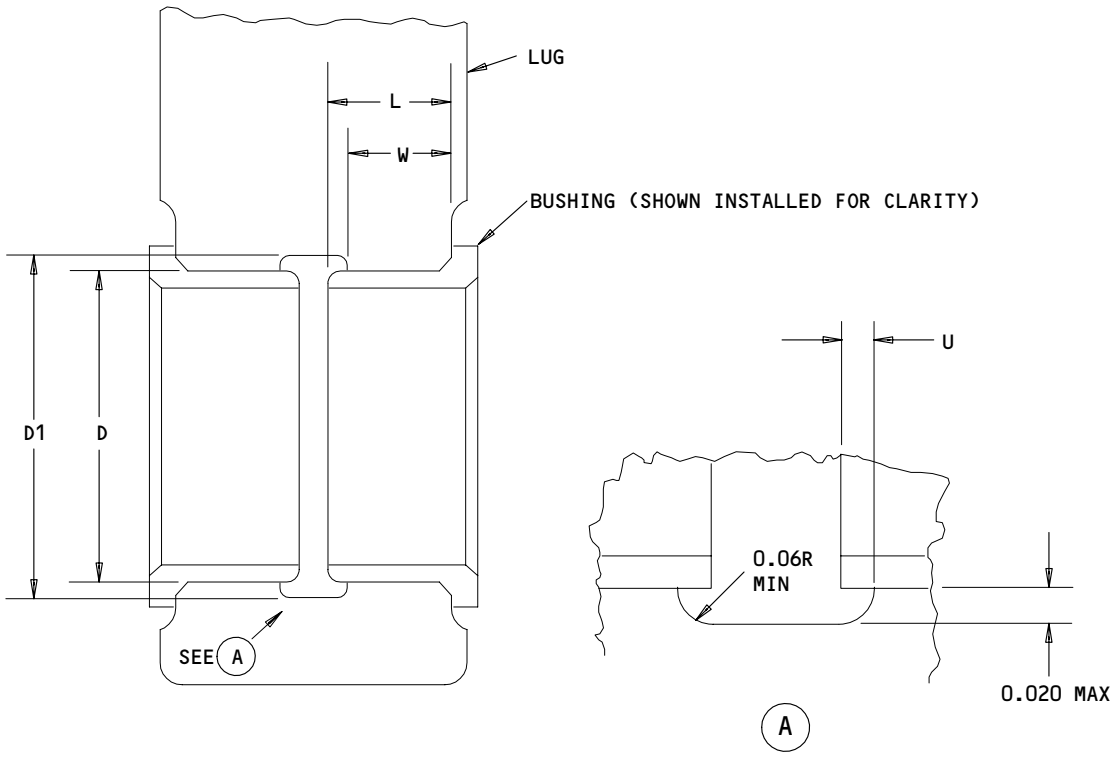
BREAK SHARP EDGES 0.03-0.06 R

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

161T2014-2
Fitting Repair and Refinish
Figure 601 (Sheet 2)

T21749



D = MAX REPAIR DIA OF HOLE (SEE FIG. 601)

D1 = MAX REPAIR DIA OF GROOVE = (D +0.040)

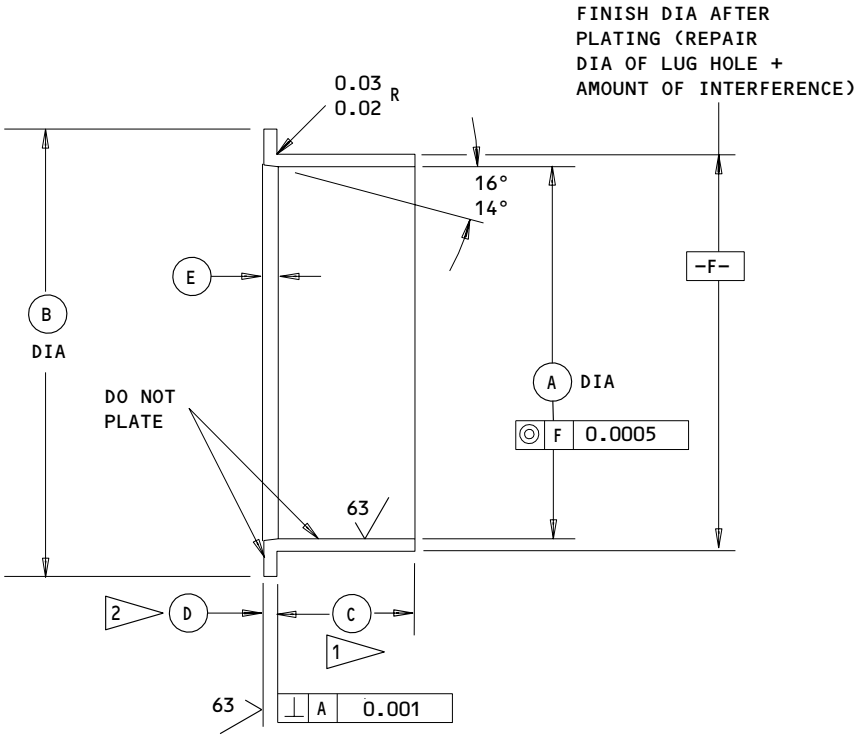
L = LENGTH OF BUSHING (SEE FIG. 603)

U = UNDERCUT = (L X 0.1) (0.06 MAX)

W = LUG DIM TO EDGE OF GROOVE = (L–U)

ALL DIMENSIONS ARE IN INCHES

Lug Hole Diameter – Corrosion Removal from Area Between Bushings
Figure 602



LOCATION (FIG.601)	A	B	C	D	E	INTERFERENCE
2	0.3244	0.64	0.38	0.061	0.10	0.0034
	0.3229	0.62	0.36	0.060	0.09	0.0004
4	0.3787	0.76	0.45	0.061	0.10	0.0036
	0.3772	0.74	0.43	0.060	0.09	0.0006

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01-0.02R

CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06)
ALL OVER, EXCEPT AS NOTED

MATERIAL: AL-NI-BRZ PER AMS 4640 OR 4880

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 603

PIN - REPAIR 7-1

161T2017-1, -2
161T2021-1

NOTE: Refer to REPAIR - GENERAL for a list of applicable standard practices. For of surfaces which is only require replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. Shank Repair - Diameter D (Fig. 601)

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

   B. Shot-peen, chrome plate and grind to design dimensions and finish. Chrome plate thickness must not be more than 0.010 after grinding.

2. Head Face Repair (Fig. 601)

   A. Machine, as required, within repair limits to remove defects. Blend into the relief groove if necessary.

   B. Shot-peen, chrome plate and grind to restore the grip length. Do not chrome plate the relief groove.

      NOTE: As an alternative to this chrome plate buildup, you can machine the shoulder face at the thread relief to restore the grip length.

3. Relief Grooves (Fig. 601)

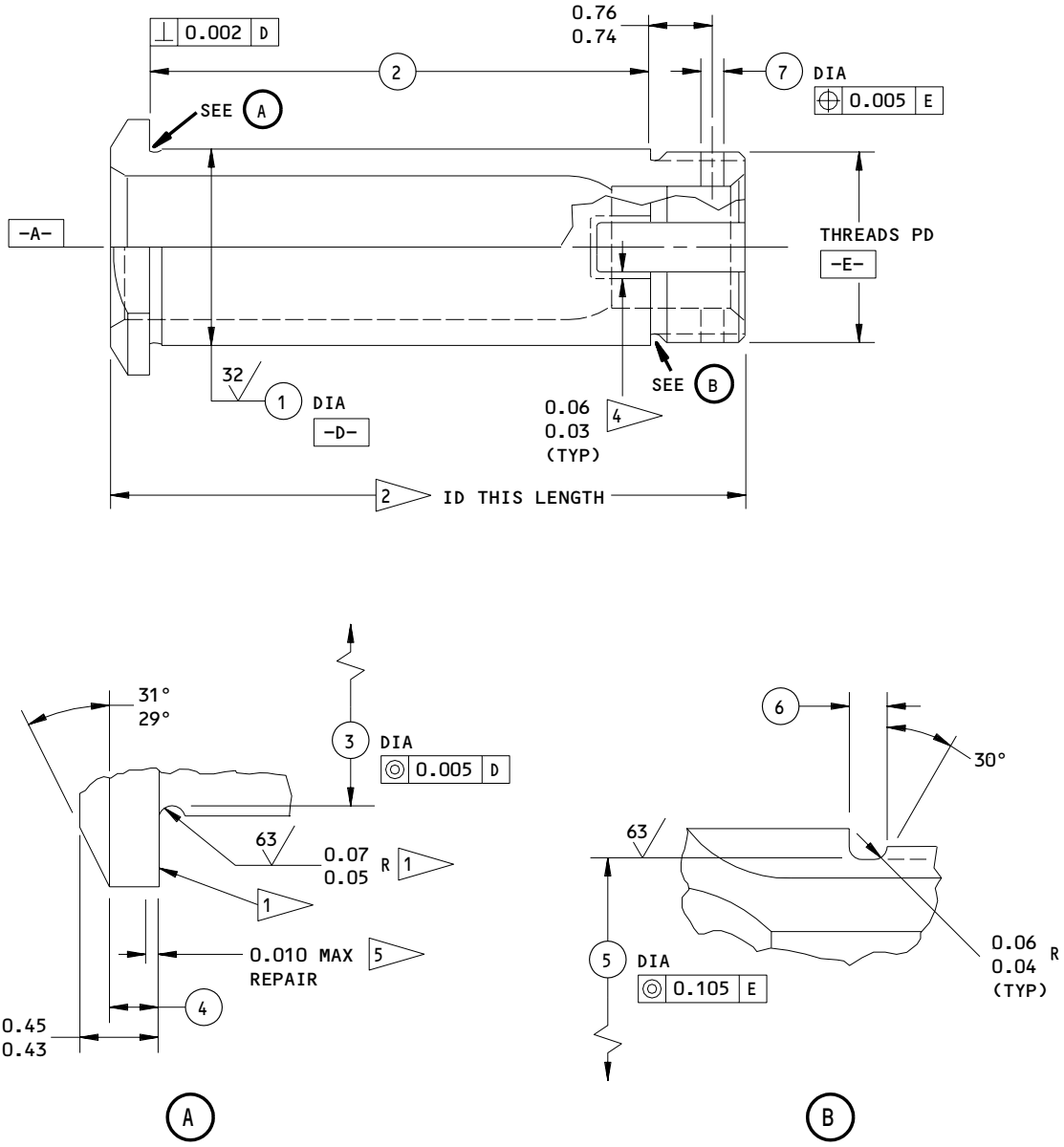
   A. Machine as required, within repair limits to remove defects. To adjust the grip length, machine the shoulder at the thread relief.

   B. Shot-peen. Cadmium-titanium plate. Apply primer.

4. Pin Retention Holes (Fig. 601)

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

   B. Cadmium-titanium plate and apply primer.



161T2017-1,-2
161T2021-1
Pin Repair and Refinish
Figure 601 (Sheet 1)

T21752

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
161T2017	DESIGN DIM	2.499 2.497	6.005 6.000	2.445 2.440	0.26 0.24	2.130 2.120	0.20 0.18	0.270 0.264
	REPAIR LIMIT	2.477 ▷5	—	2.420 ▷6	0.23 ▷6	2.100 ▷6	0.21 ▷7	0.300 ▷6
161T2021	DESIGN DIM	2.249 2.247	5.842 5.837	2.195 2.190	0.32 0.30	1.88 1.87	0.19 0.17	0.270 0.264
	REPAIR LIMIT	2.227 ▷5	—	2.170 ▷6	0.29 ▷6	1.85 ▷6	0.20 ▷7	0.300 ▷6

REFINISH

CHROME PLATE (F-15.34) DIA -D-, 0.003 THICK WITH A 0.08 MAXIMUM PLATING RUN OUT. WIPE CHROME PLATE WITH PRIMER (F-19.45).

CADMIUM-TITANIUM PLATE AND APPLY PRIMER AND CORROSION PREVENTIVE COMPOUND PER ▷1 ▷2 ▷3.

APPLY BMS 10-60 GRAY GLOSS ENAMEL (F-14.9813, WHICH REPLACES SRF-14.9813) TO ALL OTHER SURFACES.

▷1 CADMIUM-TITANIUM PLATE (F-15.01) AND APPLY BMS 10-11, TYPE 1 PRIMER (F-20.03)

▷2 CADMIMUM-TITANIUM PLATE (F-15.01) AND APPLY BMS 10-11, TYPE 1 PRIMER (F-20.02). CLEAN INTERIOR SURFACES AND APPLY MIL-C-11796, CLASS 1 CORROSION PREVENTIVE COMPOUND (F-19.03)

▷3 DELETED

▷4 NO CHROME PLATE

▷5 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH. PUT A 0.08 MAXIMUM PLATING RUNOUT AT EDGES, HOLES AND RELIEFS. DO NOT PLATE RELIEF RADII

▷6 RESTORATION TO DESIGN DIMENSION NOT REQUIRED

▷7 LIMIT FOR RESTORING GRIP LENGTH WHEN HEAD FACE IS MACHINED BUT NOT RESTORED TO DESIGN DIMENSION BY CHROME PLATE BUILDUP. (RESTORATION OF GROOVE WIDTH TO DESIGN DIMENSION IS NOT REQUIRED.)

REPAIR

REF ▷5 ▷6 ▷7

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.03 R

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.014-0.016 A2 INTENSITY

MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

161T2017-1,-2
161T2021-1
Pin Repair and Refinish
Figure 601 (Sheet 2)

T21753

PIN, SIDE STRUT CENTER JOINT - REPAIR 8-1

161T2020-1, -2

NOTE: Refer to REPAIR - GENERAL for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. Shank - Diameter A (Fig. 601)

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

   B. Shot-peen, chrome plate and grind to design dimensions and finish. Chrome plate thickness must not be more than 0.010 inch after grinding.

2. Head Face (Fig. 601)

   A. Machine, as required, within repair limits to remove defects. Blend into relief groove if necessary.

   B. hrome plate and grind to restore grip length. Do not chrome plate the relief groove.

      NOTE: As an alternative to chrome plate buildup, you can machine the shoulder face at the thread end as necessary to adjust the grip length.

3. Relief Grooves (Fig. 601)

   A. Machine as required, within repair limits, to remove defects. If necessary to adjust the grip length, machine the shoulder at the thread relief.

   B. Shot-peen and apply cadmium-titanium plate followed by primer.

4. Lubrication and Pin Retention Holes (Fig. 601)

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

   B. Cadmium-titanium plate and apply primer.

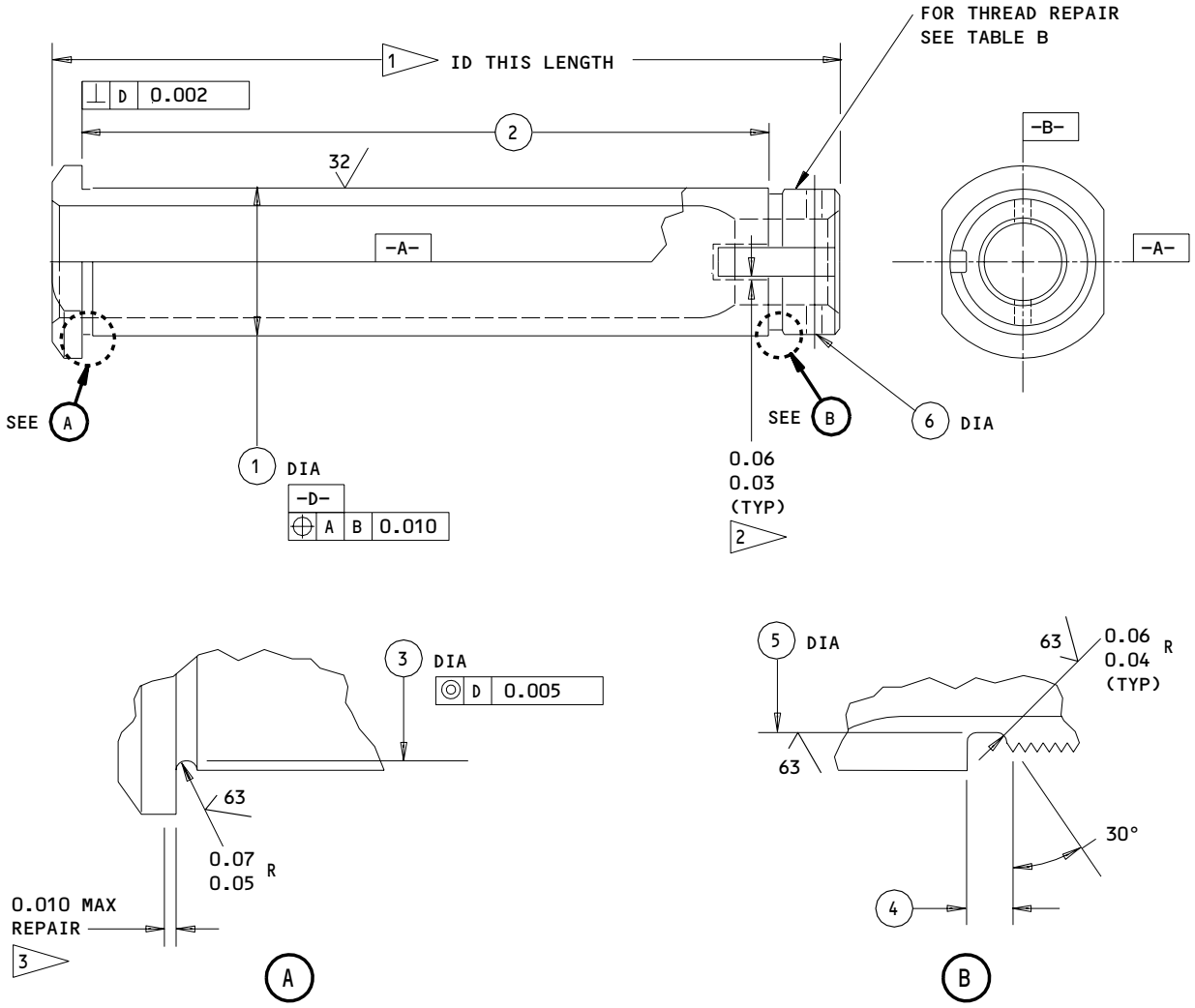
5. Threads (Fig. 601)

   A. Cut the threads to a smaller size, as shown.

   B. Cadmium-titanium plate the threads. Apply primer per CMM 32-00-02.

   C. Make an undersize nut (Fig. 602).

   D. Be sure to identify the pin and the nut as matched parts. We recommend that you vibro-engrave MATCHED SET - DO NOT SEPARATE on the pin and the nut, and paint these parts with yellow BMS 10-60 enamel.



	1	2	3	4	5	6
DESIGN DIM	2.499 2.497	11.135 11.130	2.445 2.440	0.20 0.18	2.130 2.120	0.290 0.270
REPAIR LIMIT	2.477 3	-----	2.400 4	0.21 5	SEE TABLE B	0.300 4

TABLE A

161T2020-1,-2

Pin Repair and Refinish
Figure 601 (Sheet 1)

T21754

UNJF-3A THREAD SIZE	2.250-12 (DESIGN)	2.125-12 (1/8 UNDERSIZE)
MAJOR DIA	2.2229 2.2129	2.0979 2.0879
PITCH DIA	2.1959 2.1903	2.0709 2.0653
MINOR DIA	2.1538 2.1431	2.0288 2.0181
ROOT RADIUS	0.0150 0.0125	0.0150 0.0125
THREAD RELIEF DESIGN DIA	2.130 2.120	2.005 1.995
THREAD RELIEF REPAIR LIMIT	2.100 4	—

TABLE B

REFINISH

CHROME PLATE (F-15.34), DIA -D-, 0.003 MIN THICK. CADMIUM-TITANIUM PLATE (F-15.01, 0.0005 MIN THICK) ALL OTHER SURFACES. APPLY PRIMER AND ENAMEL AS SHOWN IN CMM 32-00-02, AND CORROSION PREVENTIVE COMPOUND PER 1.

1. COAT ID WITH CORROSION PREVENTIVE COMPOUND, MIL-C-11796, CLASS 1 (F-19.03).
2. NO CHROME PLATE
3. LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH SHOWN, WITH 0.08 MAX PLATING RUNOUT AT EDGES, HOLES AND RELIEFS. DO NOT PLATE RELIEF RADII.
4. RESTORATION TO DESIGN DIMENSION NOT REQUIRED.
5. LIMIT FOR RESTORING GRIP LENGTH WHEN HEAD FACE IS MACHINED BUT NOT RESTORED TO DESIGN DIM BY CHROME PLATE BUILDUP. (RESTORATION OF GROOVE WIDTH TO DESIGN DIM IS NOT REQUIRED.)

REPAIR

REF 3 4 5

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.03R

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.014-0.016 A2 INTENSITY

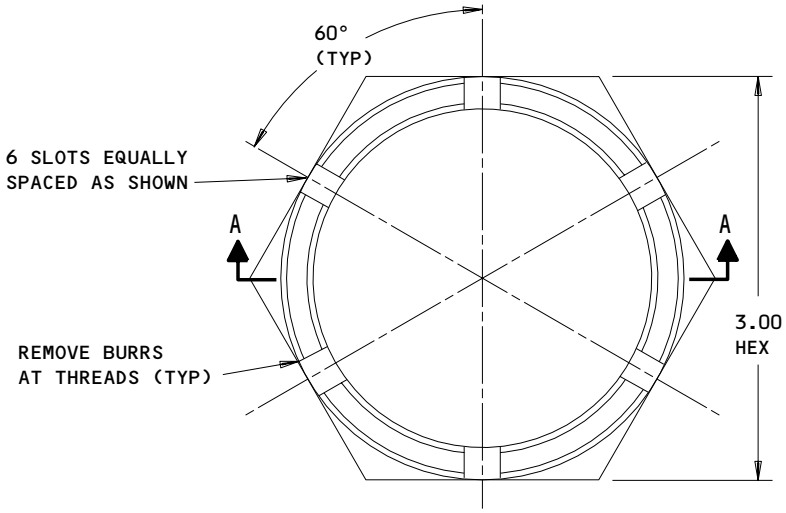
MATERIAL: 4340M STEEL, 275-300 KSI

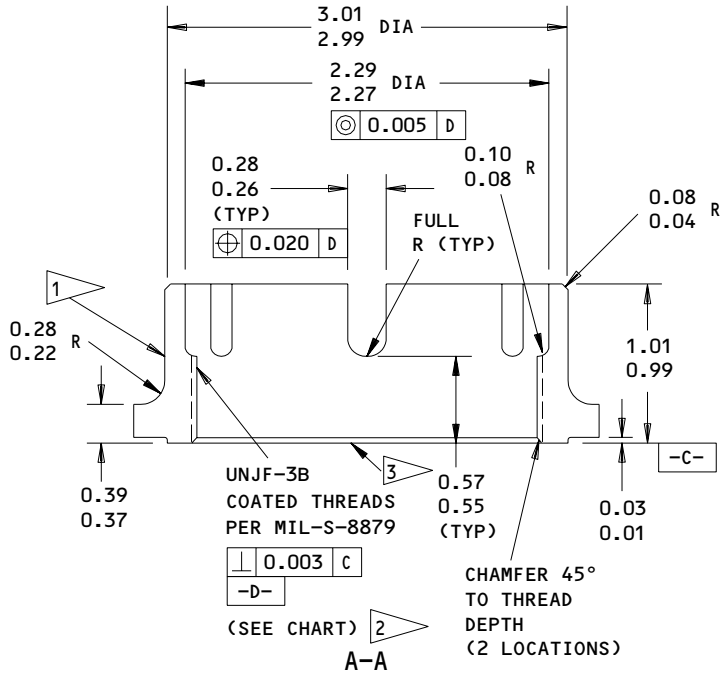
ALL DIMENSIONS ARE IN INCHES

161T2020-1,-2

Pin Repair and Refinish
Figure 601 (Sheet 2)

T21755





UNJF-3B THREAD SIZE	2.250-12 (DESIGN) (REF)	2.125-12 (1/8 UNDERSIZE)
MAJOR DIA	2.2504 2.2380	2.1254 2.1130
PITCH DIA	2.2033 2.1959	2.0783 2.0709
MINOR DIA	2.1788 2.1688	2.0538 2.0438

REFINISH

CADMIUM PLATE AND APPLY PRIMER BMS 10-11, TYPE 1 (F-16.01) AND ENAMEL BMS 10-60 (SRF-14.9813) UNLESS SHOWN BY 2 3. USE YELLOW ENAMEL ON NUTS WITH UNDERSIZE THREADS.

1 ON NUTS WITH UNDERSIZE THREADS, VIBRO-ENGRAVE "MATCHED SET - DO NOT SEPARATE" IN THIS LOCATION.

2 WIPE THREADS WITH PRIMER (F-19.45)

3 NO ENAMEL THIS AREA

REPAIR

125 MACHINE FINISH

BREAK SHARP EDGES 0.02-0.03 R EXCEPT AS NOTED

MAGNETIC PARTICLE EXAMINE, CLASS B (SOPM 20-20-01)

MATERIAL: 4340 STEEL, 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

REPLACES 161T2018-1
Undersize Nut Details
Figure 602

E08352

ECCENTRIC ASSEMBLY - REPAIR 9-1

161T2030-1

1. Bushing Replacement (Fig. 601)

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

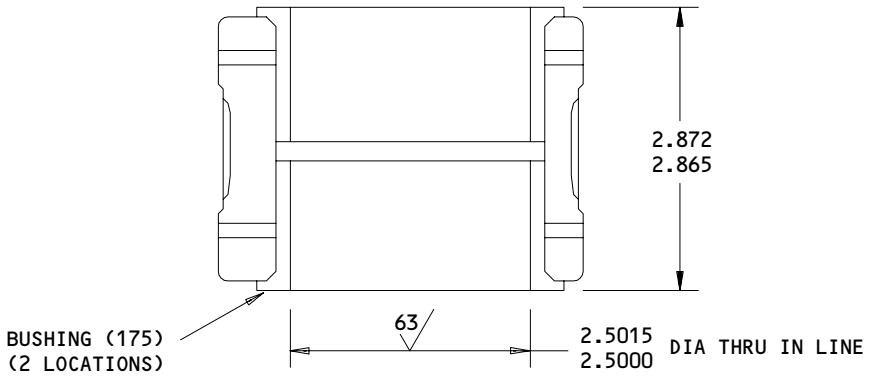
A. Remove the old bushings.

B. If you find defects on the eccentric, refer to REPAIR 9-2 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 usually necessary because bushings and lug faces are machined to give the installed dimensions.



125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

161T2030-1

Bushing Replacement
Figure 601

T21756

ECCENTRIC - REPAIR 9-2

161T2030-2

NOTE: Refer to REPAIR-GENERAL for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, to Refinish instructions, Fig. 601.

1. Lug Faces and Holes (Fig. 601)

A. Method 1 -- Removal of Corrosion in Center of Lug ID

NOTE: This procedure enables corrosion to be removed without machining the entire bore oversize, if corrosion is localized at the center area which is exposed between two bushings.

(1) Determine repair diameter and width of groove required to remove corrosion (Fig. 602).

(2) Machine center area as required.

(3) Refinish as indicated.

(4) Install bushings per REPAIR 9-1.

(5) Completely fill cavity under and between bushings with grease.

B. Method 2 -- Installation of Oversize Bushings

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

(2) Shot peen. Refinish as indicated.

(3) Make bushings (Fig. 603), as necessary, to make allowance for the amount of material removed in step (1).

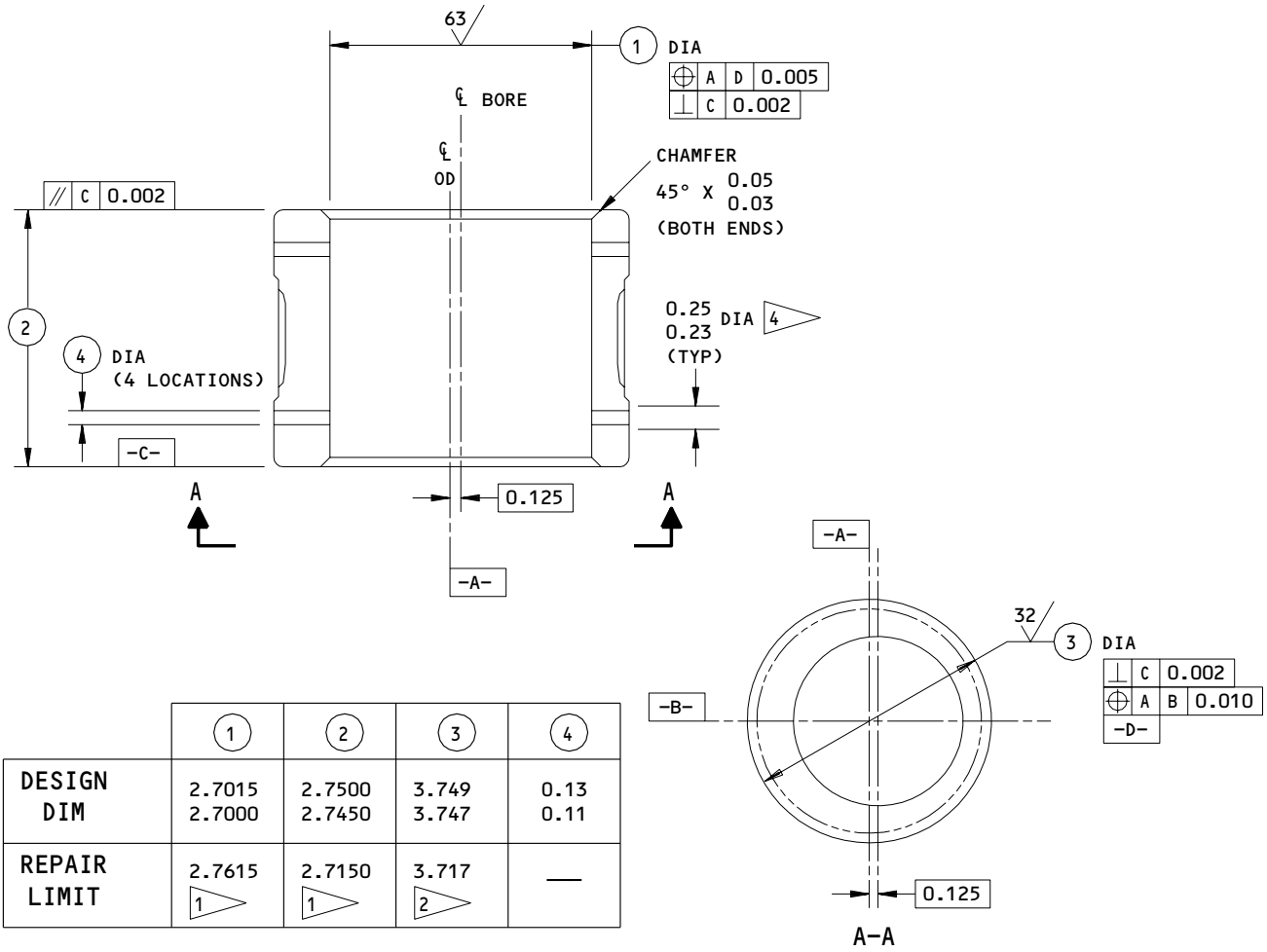
(4) Install bushings per REPAIR 9-1.

2. OD - Diameter D (Fig. 601)

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

B. Shot peen as indicated.

C. Build up machined surfaces with chrome plate. Grind to design dimensions and finish.



	1	2	3	4
DESIGN DIM	2.7015 2.7000	2.7500 2.7450	3.749 3.747	0.13 0.11
REPAIR LIMIT	2.7615 ▷1	2.7150 ▷1	3.717 ▷2	—

REFINISH

PASSIVATE (F-17.09) ALL OVER AND CHROME PLATE (F-15.34) 0.003 MIN PLATING THICKNESS ON DIA -D-.

▷1 LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS

▷2 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH

▷3 LUG FACE MACHINING REQUIREMENTS:

1. MATERIAL REMOVED FROM ANY FACE MUST NOT EXCEED 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.

▷4 NO CHROME PLATE THIS AREA

REPAIR

REF ▷1 ▷2 ▷3

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.02-0.03 R

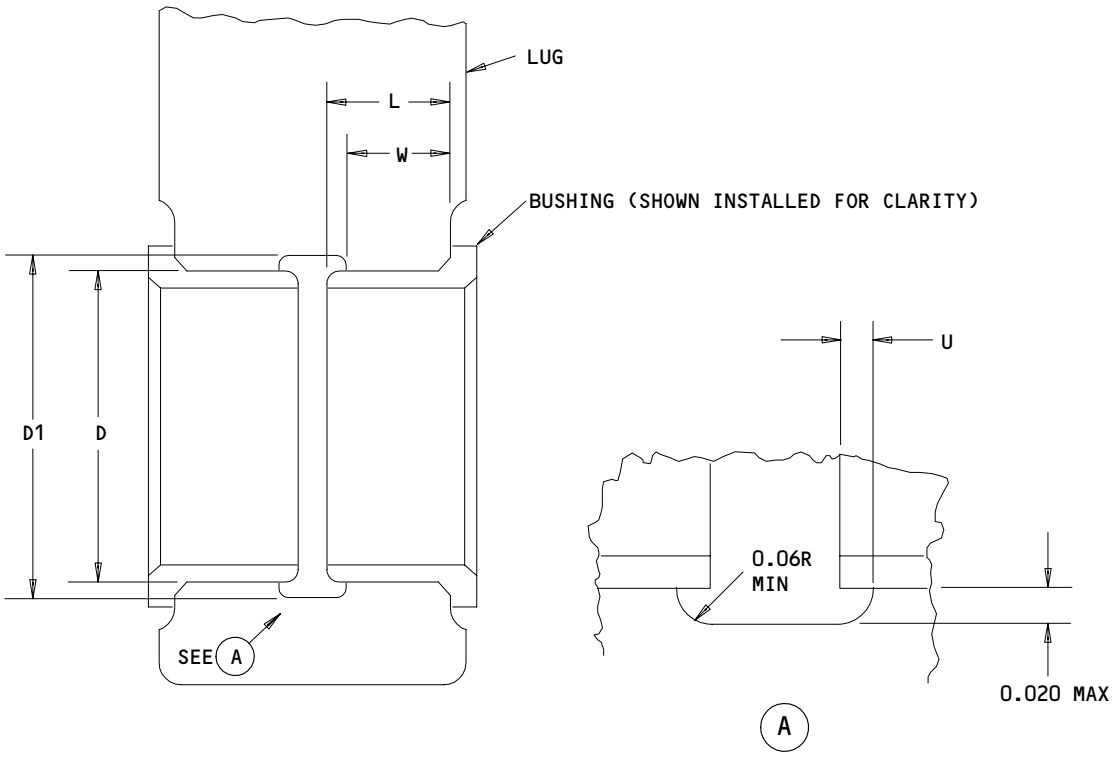
SHOT PEEN: 0.017-0.046 SHOT SIZE
0.014 A2 INTENSITY

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

ALL DIMENSIONS ARE IN INCHES

161T2030-2
Eccentric Repair and Refinish
Figure 601

T17101



D = MAX REPAIR DIA OF HOLE (SEE FIG. 601)

D1 = MAX REPAIR DIA OF GROOVE = (D +0.040)

L = LENGTH OF BUSHING (SEE FIG. 603)

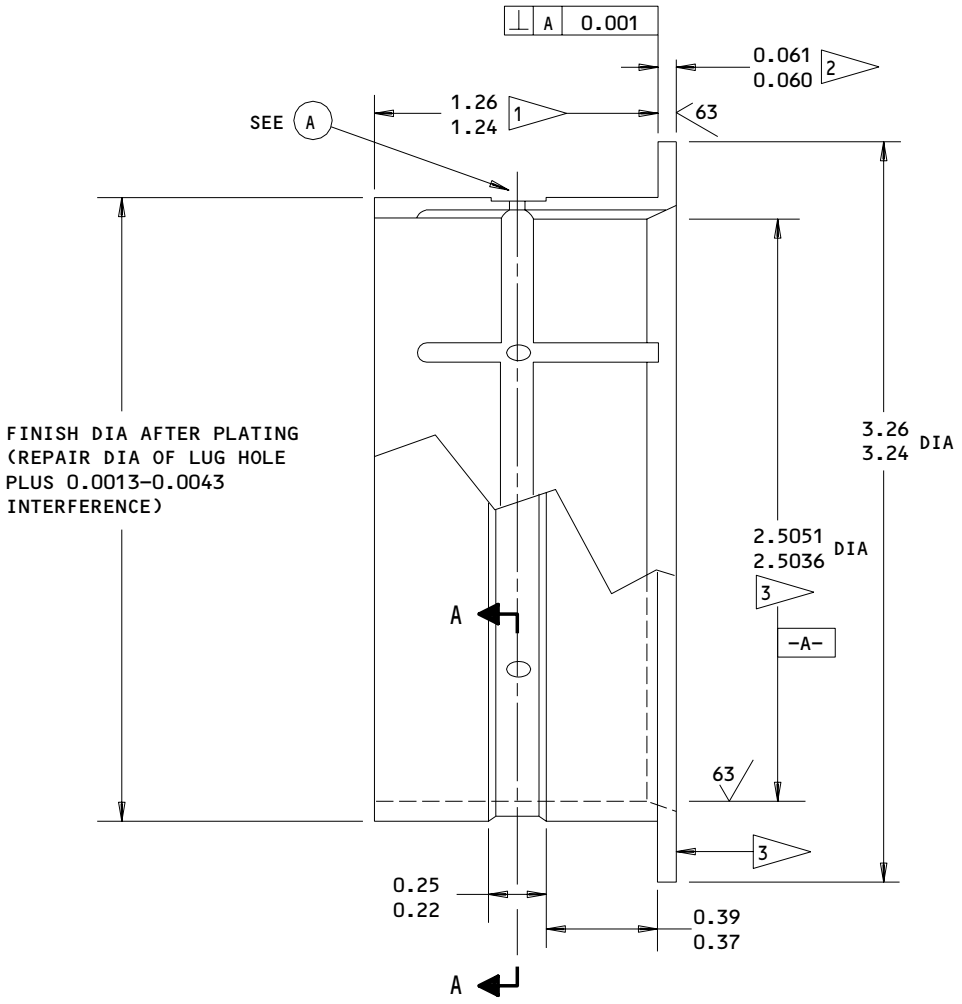
U = UNDERCUT = (L X 0.1) (0.06 MAX)

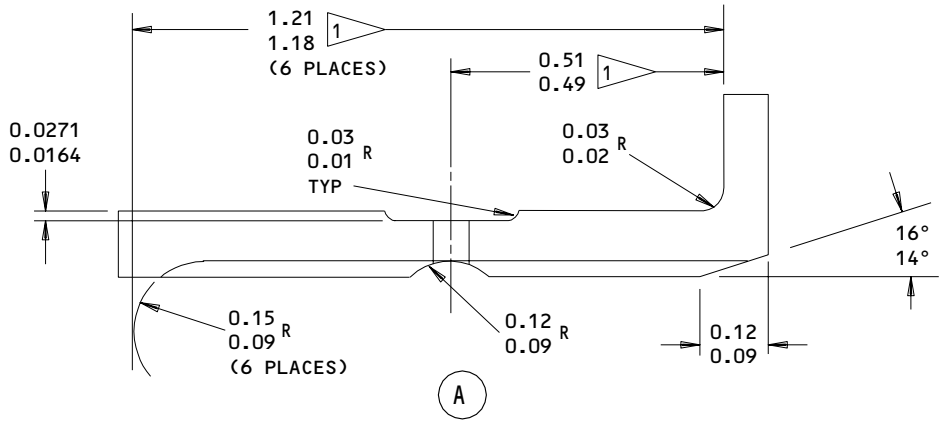
W = LUG DIM TO EDGE OF GROOVE = (L–U)

ALL DIMENSIONS ARE IN INCHES

Lug Hole Diameter – Corrosion Removal from Area Between Bushings
Figure 602

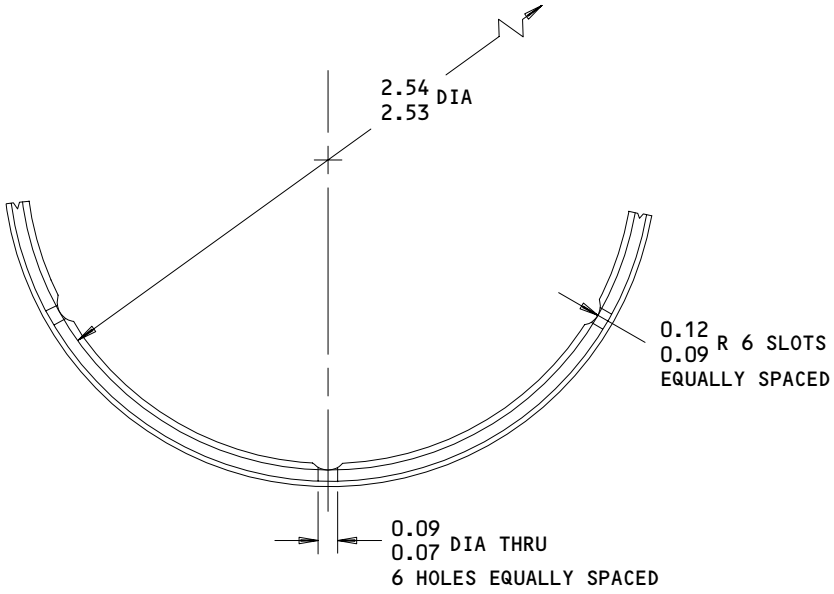
T21757





Oversize Bushing Details
Figure 603 (Sheet 1)

T21758



A–A

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01–0.02R

CADMIUM PLATE (0.0003–0.0005 THICK, F–15.06)
ALL OVER, EXCEPT AS NOTED

MATERIAL: AL–NI–BRZ PER AMS 4640 OR 4880

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 DO NOT PLATE

HOLE LOCATION (1)

Oversize Bushing Details
Figure 603 (Sheet 2)

SPINDLE ASSEMBLY - REPAIR 10-1

161T2032-1, -3

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

1. Bushing Replacement (Fig. 601)

A. Remove the old bushings.

B. If you find defects on lug faces or hole surfaces, refer to REPAIR 10-2 for repair instructions.

C. Install replacment bushings using shrink-fit method (SOPM 20-50-03).

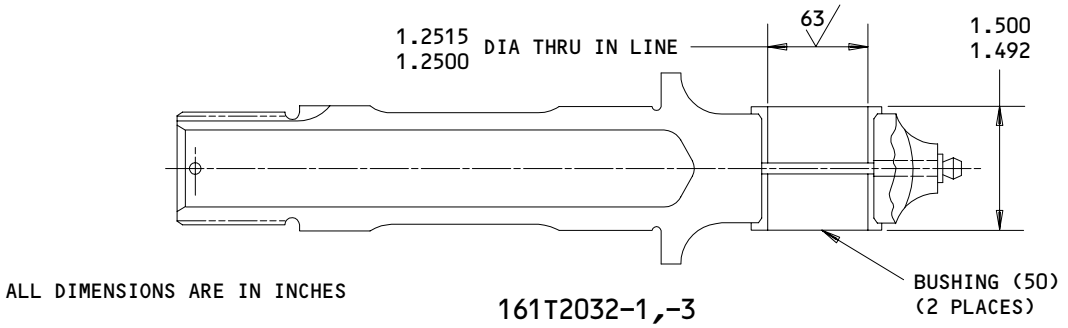
D. Check dimensions and machine as necessary.

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

E. Seal bushings per REPAIR 13-1.

2. Lube Fitting Replacement

A. Replace lube fitting (45) per CMM 32-00-03.



161T2032-1,-3
Bushing Installation
Figure 601

T21759

SPINDLE - REPAIR 10-2

161T2032-2, -4

NOTE: Refer to REPAIR-GENERAL for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. Lug Faces and Holes (Fig. 601)

A. Method 1 -- Removal of Corrosion in Center of Lug ID

NOTE: This procedure enables corrosion to be removed without machining the entire bore oversize, if corrosion is localized at the center area which is exposed between two bushings.

(1) Determine repair diameter and width of groove required to remove corrosion (Fig. 602).

(2) Machine center area as required.

(3) Cadmium-titanium plate and apply primer, BMS 10-11, type 1.

(4) Install bushings per REPAIR 10-1.

(5) Completely fill cavity under and between bushings with grease.

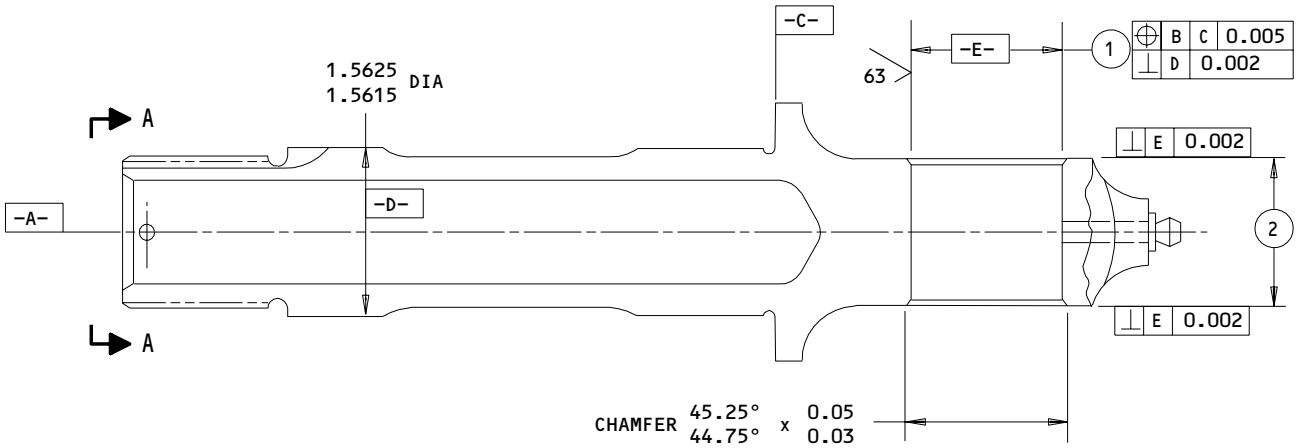
B. Method 2 -- Installation of Oversize Bushings

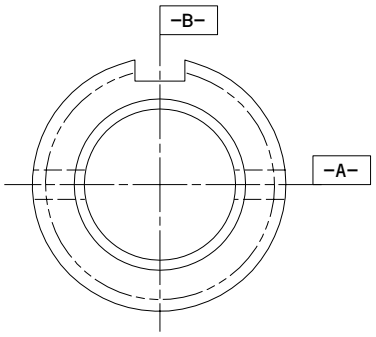
(1) Machine, as required, within repair limits shown to remove defects.

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

(3) Manufacture bushings (Fig. 603), as required, to compensate for amount of material removed in step (1).

(4) Install bushings per REPAIR 10-1.





A-A

	1	2
DESIGN DIM	1.3765 1.3750	1.3734 1.3684
REPAIR LIMIT 1	1.4465	1.3054

REFINISH

REFER TO REPAIR 10-3 FOR REFINISH INSTRUCTIONS

1 REPAIR LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS

2 DELETED

3 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 0.03-0.07R.

REPAIR

REF 1 3

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.02-0.04R

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.014-0.016 A2 INTENSITY

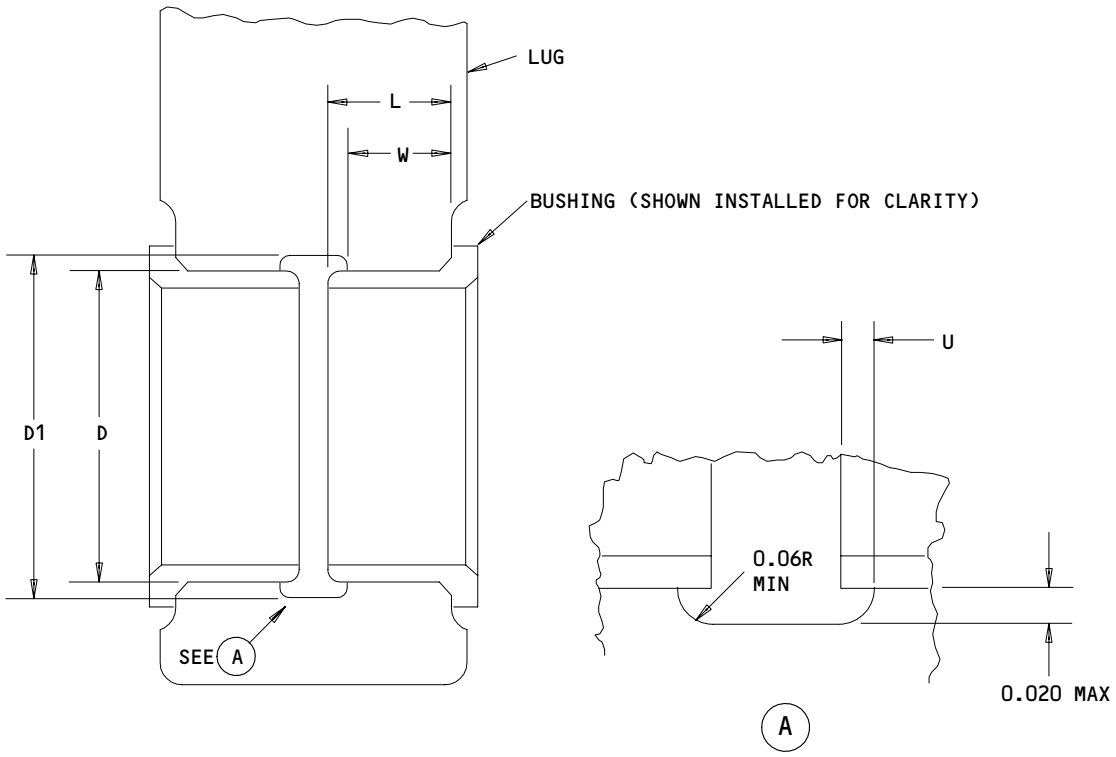
MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

161T2032-2,-4

Lug Face and Hole Repair
Figure 601

T21760



D = MAX REPAIR DIA OF HOLE (SEE FIG. 601)

D1 = MAX REPAIR DIA OF GROOVE = (D +0.040)

L = LENGTH OF BUSHING (SEE FIG. 603)

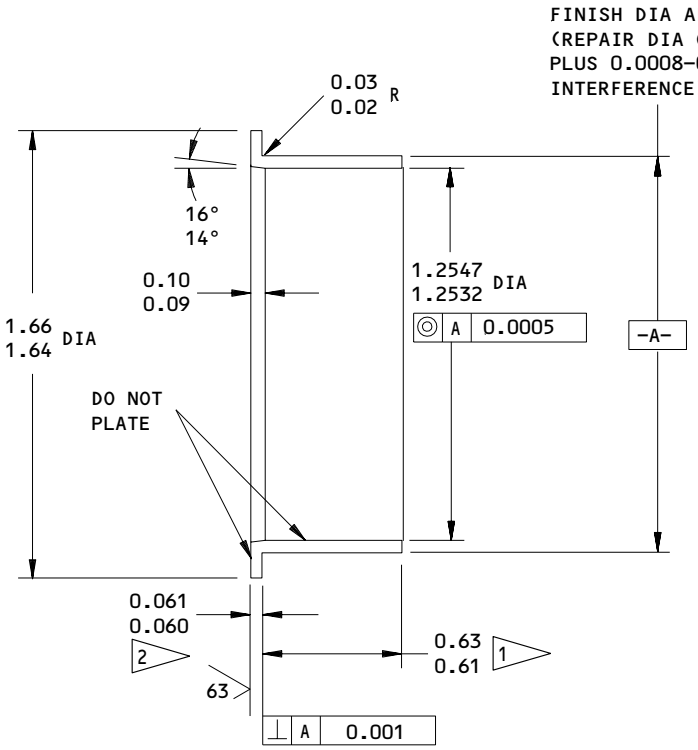
U = UNDERCUT = (L X 0.1) (0.06 MAX)

W = LUG DIM TO EDGE OF GROOVE = (L–U)

ALL DIMENSIONS ARE IN INCHES

Lug Hole Diameter – Corrosion Removal from Area Between Bushings
Figure 602

T21761



1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01–0.02 R

CADMIUM PLATE (F–15.06) 0.0003–0.0005 THICK, ALL OVER, UNLESS SHOWN DIFFERENTLY

MATERIAL: AL–NI–BRZ PER AMS 4640 OR 4880

ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

Oversize Bushing Details
Figure 603

T21762

SPINDLE - REPAIR 10-3

161T2032-2, -4

NOTE: Refer to REPAIR-GEN for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. Shank - Diameter A (Fig. 601)

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

   B. Shot peen, chrome plate and grind to design dimensions and finish. Chrome plate thickness must not be more than 0.010 inch after grinding.

2. Head Face (Fig. 601)

   A. Machine as required, within repair limits, to remove defects. Blend into relief groove if necessary.

   B. Shot peen, chrome plate and grind to restore grip length. Do not chrome plate relief groove. Chrome plate thickness must not be more than 0.015 after grinding.

      NOTE: As an option, chrome plate buildup may be omitted and shoulder face at thread end machined accordingly to restore grip length.

3. Relief Grooves (Fig. 601)

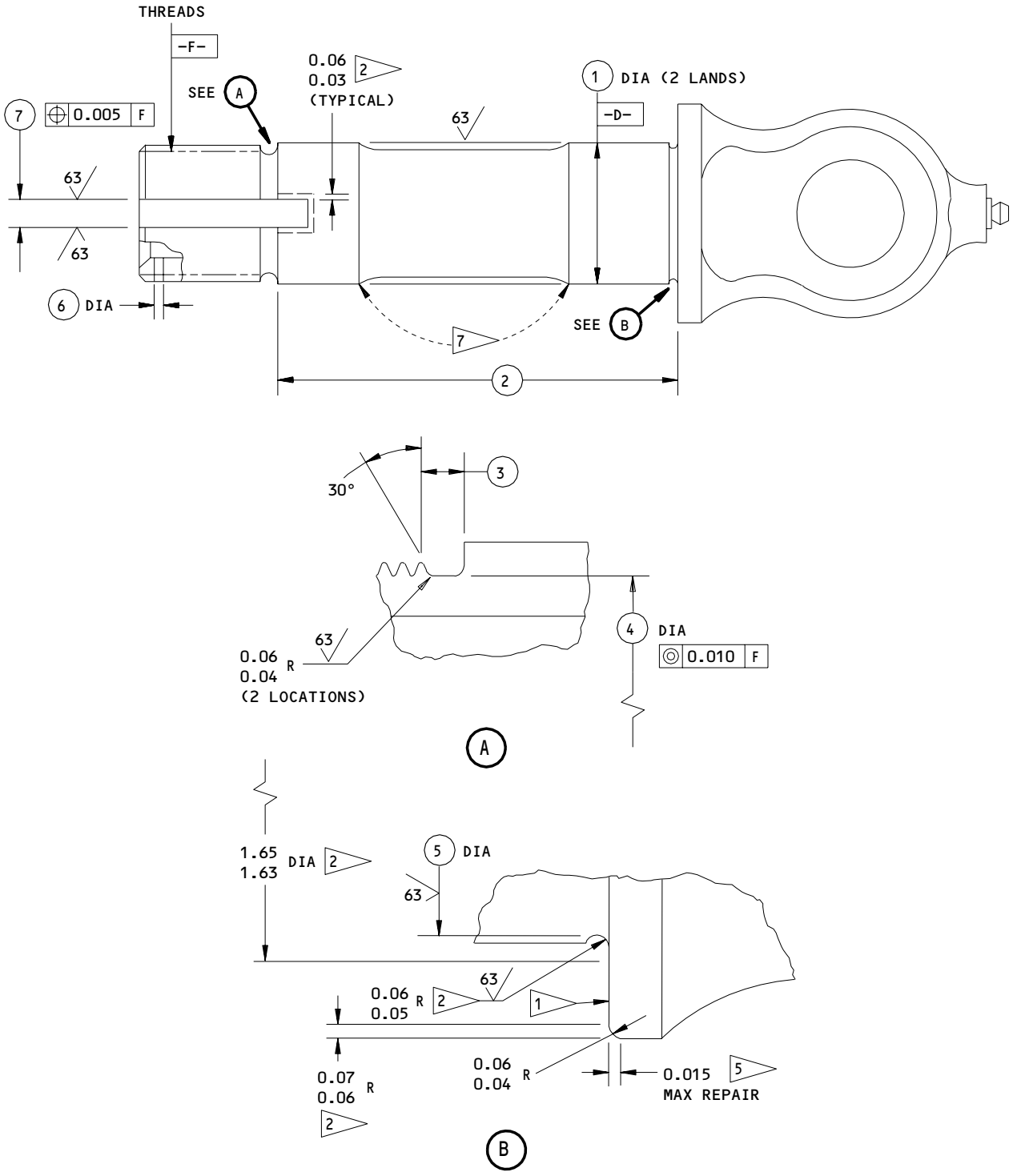
   A. Machine as required, within repair limits, to remove defects. If necessary to adjust grip length, machine shoulder at thread relief.

   B. Shot peen. Cadmium-titanium plate. Apply primer.

4. Lubrication and Pin Retention Holes (Fig. 601)

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

   B. Cadmium-titanium plate. Apply primer in retention holes only..



161T2032-2,-4

Spindle Repair and Refinish
Figure 601 (Sheet 1)

T21763

REFERENCE NUMBER	(1)	(2)	(3)	(4)	(5)	(6)	(7)
DESIGN DIMENSION	1.5625 1.5615	4.553 4.548	0.20 0.18	1.26 1.25	1.509 1.504	0.158 0.147	0.255 0.250
REPAIR LIMIT	1.5415 ▷5◁	----	0.21 ▷3◁	1.20 ▷6◁	1.494 ▷6◁	0.178 ▷6◁	----

REFINISH

CHROME PLATE (F-15.34) DIA -D-, 0.003 IN. THICK. WIPE CHROME PLATE WITH BMS 10-11, TYPE 1 PRIMER (F-19.45). FLASH CHROME PLATE SHOULDER FACE PER ▷1◁. ON OTHER EXTERIOR SURFACES, CADMIUM-TITANIUM PLATE (15.01), 0.0005 MIN THICK AND APPLY BMS 10-11, TYPE 1 PRIMER (F-20.02)(UNLESS SHOWN BY ▷7◁), BUT APPLY WIPE PRIMER (F-19.45) TO THREADS AND RELIEF GROOVES. REFINISH INTERIOR PER ▷4◁.

AFTER BUSHING INSTALLATION, APPLY BMS 10-60 ENAMEL (SRF-14.9813) ALL OVER BUT NOT ON AREA ▷7◁, BUSHINGS, THREADS, LUBE FITTING OR CHROME PLATED SURFACES.

▷1◁ FLASH CHROME PLATE 0.0003-0.0005 THICK ON THIS AREA

▷2◁ NO CHROME THIS AREA

▷3◁ LIMIT FOR RESTORING GRIP LENGTH WHEN HEAD FACE IS MACHINED BUT NOT RESTORED TO DESIGN DIM BY CHROME PLATE BUILDUP. (RESTORATION OF GROOVE WIDTH TO DESIGN DIM IS NOT REQUIRED.)

▷4◁ ON INTERIOR, CADMIUM-TITANIUM PLATE (F-15.01) AND APPLY BMS 10-11, TYPE 1 PRIMER (F-20.03) FOLLOWED BY CORROSION PREVENTIVE COMPOUND MIL-C-11796 (F-19.03)

▷5◁ LIMIT FOR CHROME PLATE BUILDUP AND GRINDING TO DESIGN DIM AND FINISH, WITH 0.08 PLATING RUNOUT AT EDGES AND RELIEFS UNLESS OTHERWISE NOTED.

▷6◁ RESTORATION TO DESIGN DIMENSION NOT REQUIRED.

▷7◁ APPLY BMS 10-11, TYPE 1 PRIMER (F-20.03) ON THIS AREA.

REPAIR

REF ▷3◁ ▷5◁ ▷6◁

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.02-0.04 R

SHOT PEEN: 0.016-0.033 SHOT SIZE
0.014-0.016 A2 INTENSITY

MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

161T2032-2,-4

Spindle Repair and Refinish
Figure 601 (Sheet 2)

T21764

PIN, UPPER JURY STRUT - REPAIR 11-1

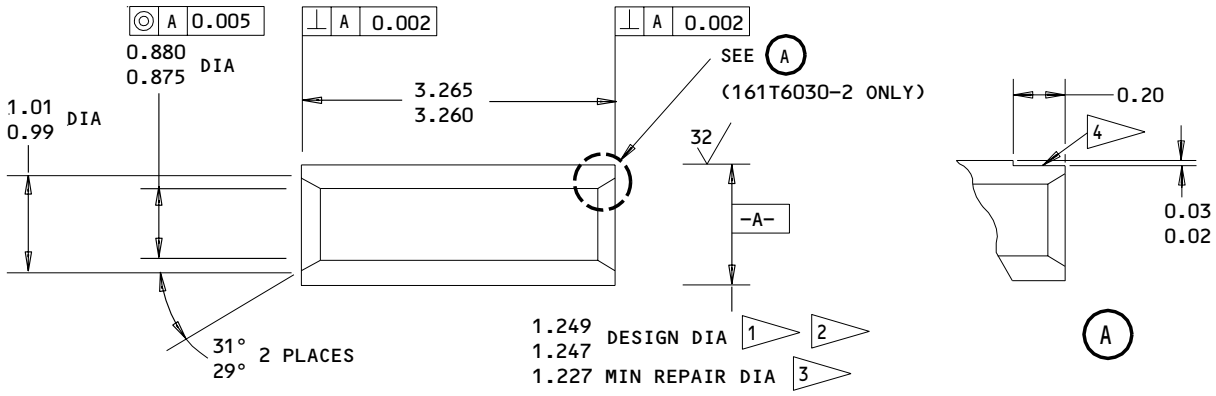
161T6030-1, -2

NOTE: Refer to REPAIR-GENERAL for a list of applicable standard practices. For repair of surfaces which is only replacement of the original finish, refer to Refinish instructions, Fig. 601.

1. OD Repair (Fig. 601)

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

   B. Shot-peen, chrome plate and grind to design dimensions and finish. Chrome plate thickness must not be more than 0.010 inch after grinding.



REFINISH

CADMIUM-TITANIUM ALLOY PLATE (F-15.01) 0.0005 MIN AND APPLY 2 COATS OF BMS 10-11,TYPE 1 PRIMER EXCEPT AS NOTED IN 1 2

1 CHROME PLATE (F-15.34)

2 APPLY WIPE PRIMER (F-19.45)

3 CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSION AND FINISH SHOWN. OBSERVE 0.00-0.08 CHROME PLATE RUNOUT

4 VIBRO ENGRAVE PART SERIAL NUMBER AND MACHINE PART NUMBER ON NOTED AREA.

REPAIR

REF 3

125 MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.03R

SHOT PEEN: RC 55-65 SHOT HEAT TREAT
0.016-0.033 SHOT SIZE
0.014-0.016A2 INTENSITY

MATERIAL: 4340M STEEL,275-300 KSI

ALL DIMENSIONS ARE IN INCHES

161T6030-1,-2
Pin Repair and Refinish
Figure 601

T21765

MISCELLANEOUS PARTS REFINISH - REPAIR 12-1

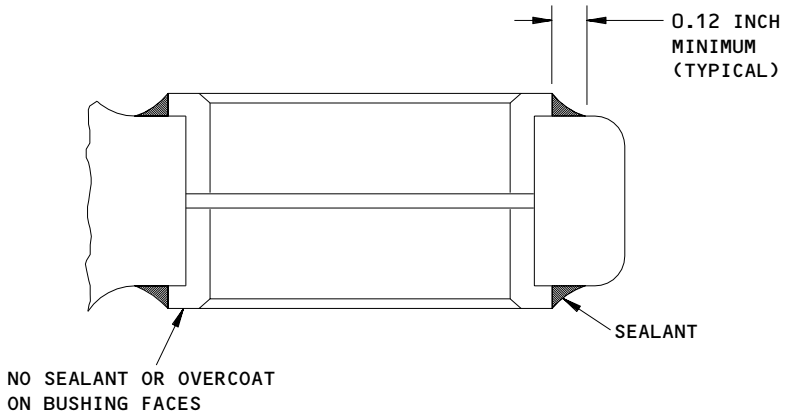
1. Repair of these parts is only replacement of the original finish.

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
End cap (30)	4340 Steel, 180-200 ksi	Cadmium plate and apply BMS 10-11, type 1 primer (F-16.01). Apply BMS 10-60 enamel (F-14.9813, which replaces SRF-14.9813) but not on ID and 0.865 inch diameter. Apply BMS 10-11, type 1 primer (F-20.02) on ID and 0.865 inch diameter surface.
Washers (120, 210, 330)	4340 Steel, 180-200 ksi	Cadmium plate and apply BMS 10-11, type 1 primer (F-16.01). Apply BMS 10-11, type 1 primer (F-20.02) on ID and washer faces and apply BMS 10-60 enamel (F-14.9813, which replaces SRF-14.9813) on OD surface.
Nuts (125,215,335)	4340 Steel, 180-200 ksi	Cadmium plate and apply BMS 10-11, type 1 primer (F-16.01). Apply enamel BMS 10-60 (F-14.9813, which replaces SRF-14.9813), but wipe threads with primer (F-19.45) on threads and apply BMS 10-11, type 1 primer (F-20.02) on nut face.
Washer (800)	4340 Steel, 180-200 ksi	Cadmium plate and apply primer, BMS 10-11, Type 1 (F-16.01). Apply enamel BMS 10-60 (F-14.9813, which replaces SRF-14.9813) on OD only.
Side strut assembly (1,5)		Apply BMS 10-11, type 1 primer (F-20.02) BMS 10-60 enamel (F-14.9813, which replaces SRF-14.9813) on all unpainted external surfaces but not lube fittings, bushings surfaces, or thread areas.

Refinish Details
Figure 601

BUSHING SEALING - REPAIR 13-1

1. Seal all flanged bushings after installation per Fig. 601, or per SOPM 20-50-19.



1. CLEAN AREAS OF SEALANT APPLICATION WITH SOLVENT.
2. APPLY FILLET OF SEALANT TO EDGES OF BUSHINGS AS SHOWN.
3. APPLY COATING OF GRAY GLOSS ENAMEL, BMS 10-60 OVER SEALANT AND AREAS AROUND SEALANT.

Bushing Sealant Application
Figure 601

T21766

ASSEMBLY

1. Materials

NOTE: Equivalent substitutes can be used.

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

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

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

2. Equipment

NOTE: Equivalent substitutes may be used.

A. A32003-1 -- Spring compressor, main gear side strut

B. A32086-1 -- Downlock stop shim adjustment jig (consists of A32086-2 jig, A32086-6 fitting, and A32086-3 storage box).

C. F70312-47 -- Crowfoot wrench adapter, nut 161T2018

3. Assembly (IPL Fig. 1)

CAUTION: LEFT SIDE ASSEMBLY IS SHOWN IN IPL. BOLTS AT PIN JOINTS ARE INSTALLED FACING OPPOSITE DIRECTION FOR RIGHT SIDE ASSEMBLY.

A. Assemble lock links.

(1) Install stop (230) on upper lock link (275) using fasteners (240 thru 250). Apply primer to faying surface of stop and install fasteners with primer.

(2) Apply sealant to faying surfaces of shim(s) (300) and stop (295) and install parts on lower link (340). Secure with fasteners (280 thru 290). Install fasteners with sealant.

NOTE: Use shims (300) of same quantity and thickness as noted at disassembly. Shims may be correct thickness and readjustment of jury struts may be avoided.

(3) Apply liberal amount of grease to shank and threads of pin (205), faces of washer (210) and threads of nut (215).

(4) Mate upper lock link (220) to lower lock link (340) and install parts lubricated in step (3) with bolt head positioned as shown. Tighten nut (215) to 90-100 lb-ft. Back off to the nearest castellation, if necessary, and install parts (185 thru 200).

B. Overcenter adjustment (Fig. 701).

(1) Install fitting A32086-6 and jig A32086-2 on assembly, as shown.

(2) Check that dimension H between A32086-6 fitting and A32086-2 jig is within limits shown in Fig. 701. Adjust thickness of shim(s) (300) as required to attain dimension H.

NOTE: Lock link overcenter dimension will be within dimension A limits after proper shim adjustment.

C. Assemble side struts and lock links.

(1) Apply liberal amount of grease to shank and threads of pin (325), faces of washer (330) and threads of nut (335).

(2) Mate upper side strut (385), lower side strut (410) and lock links and install parts lubricated in step (1) with bolt head forward. Using adapter F70312-47, tighten nut (335) to 110-120 lb-ft, back off to the nearest castellation, if necessary, and install parts (305 thru 320).

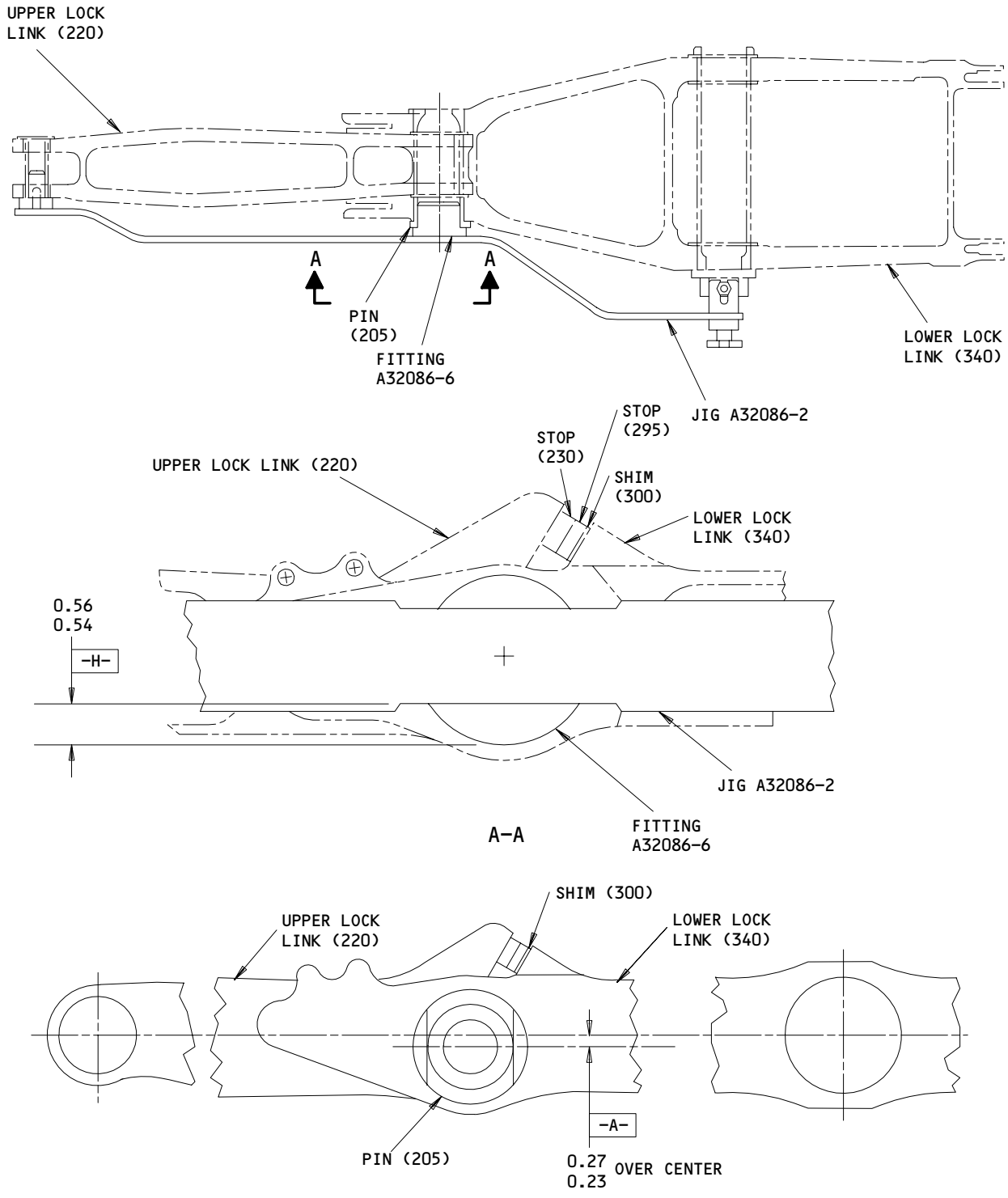
D. Install fitting (60) on upper spindle (130) and secure with fasteners (65, 70, 75). Install fasteners with sealant.

CAUTION: SPINDLE (130) AND ITS MATING NUT COULD HAVE UNDERSIZE THREADS AND BE MATCHED PARTS.

E. Install upper spindle (130).

(1) Apply liberal amount of grease to shank and threads of pin (115), faces of washer (120) and threads of nut (125).

(2) Install eccentric (170) inside bore of spindle (130) and mate spindle with upper side strut (385). Install parts lubricated in step (1). Using adapter F70312-47, tighten nut (125) to 110-120 lb-ft, back off nut to nearest castellation, if necessary, and install bolt (100), washer (105), nut (110). Install cotter pin (95).



LOCK LINK AFTER SHIM ADJUSTMENT

ALL DIMENSIONS ARE IN INCHES

Lock Link Overcenter Adjustment
Figure 701

T21774

F. Install upper lock link spindle (40).

(1) Apply liberal amount of grease to OD of pin (35).

(2) Mate spindle (40) with upper lock link (220) and insert pin (35) thru lugs of upper lock link and spindle.

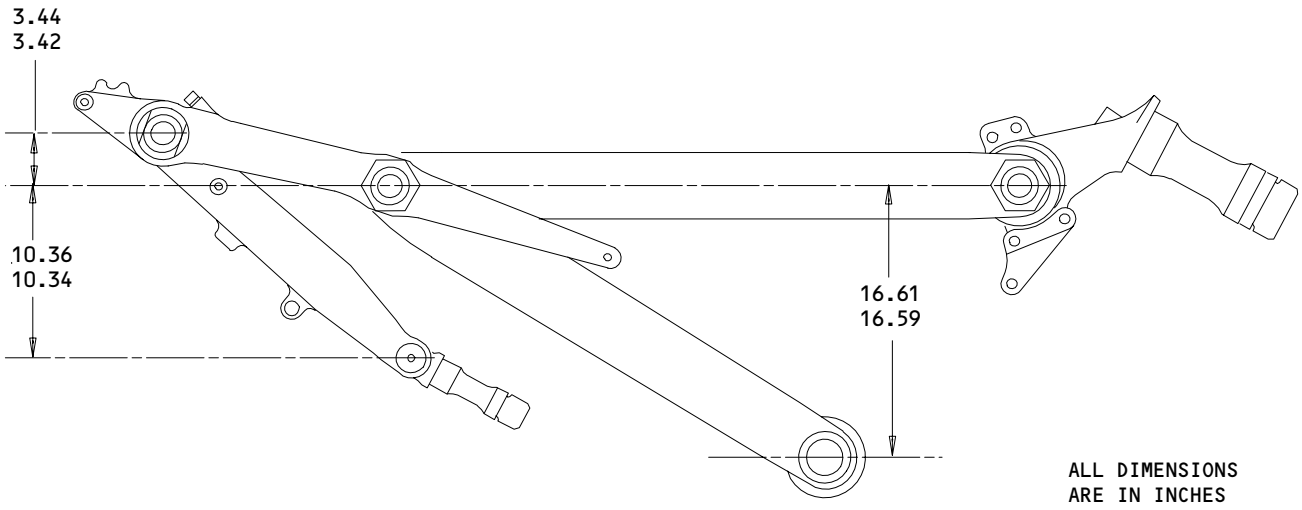
(3) Install end caps (3) and install bolt (15), washer (20), nut (25). Install cotter pin (10). On struts 161T2000-2 and on, do not tighten nut (25) to final torque or completely bend cotter pin (10), because these parts will be removed later to permit installation of an electrical swivel bracket when the strut is installed on the airplane.

G. Assembly check.

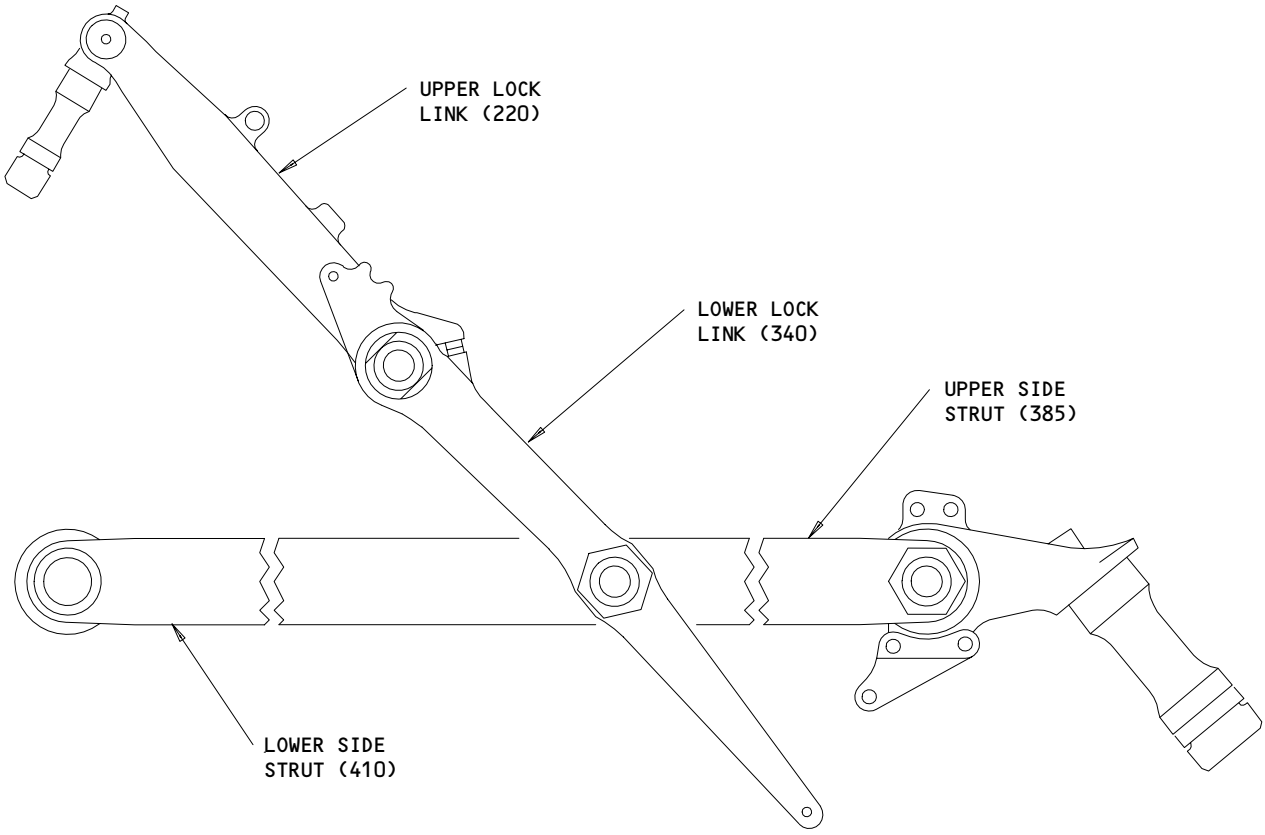
(1) With side strut in extended position, fold until dimensions shown in Fig. 702 for maximum fold position are obtained.

(2) Unfold assembly to original position. Repeat folding and unfolding several times. There shall be no interference or binding of any parts throughout travel.

H. Apply grease to all lube fittings.



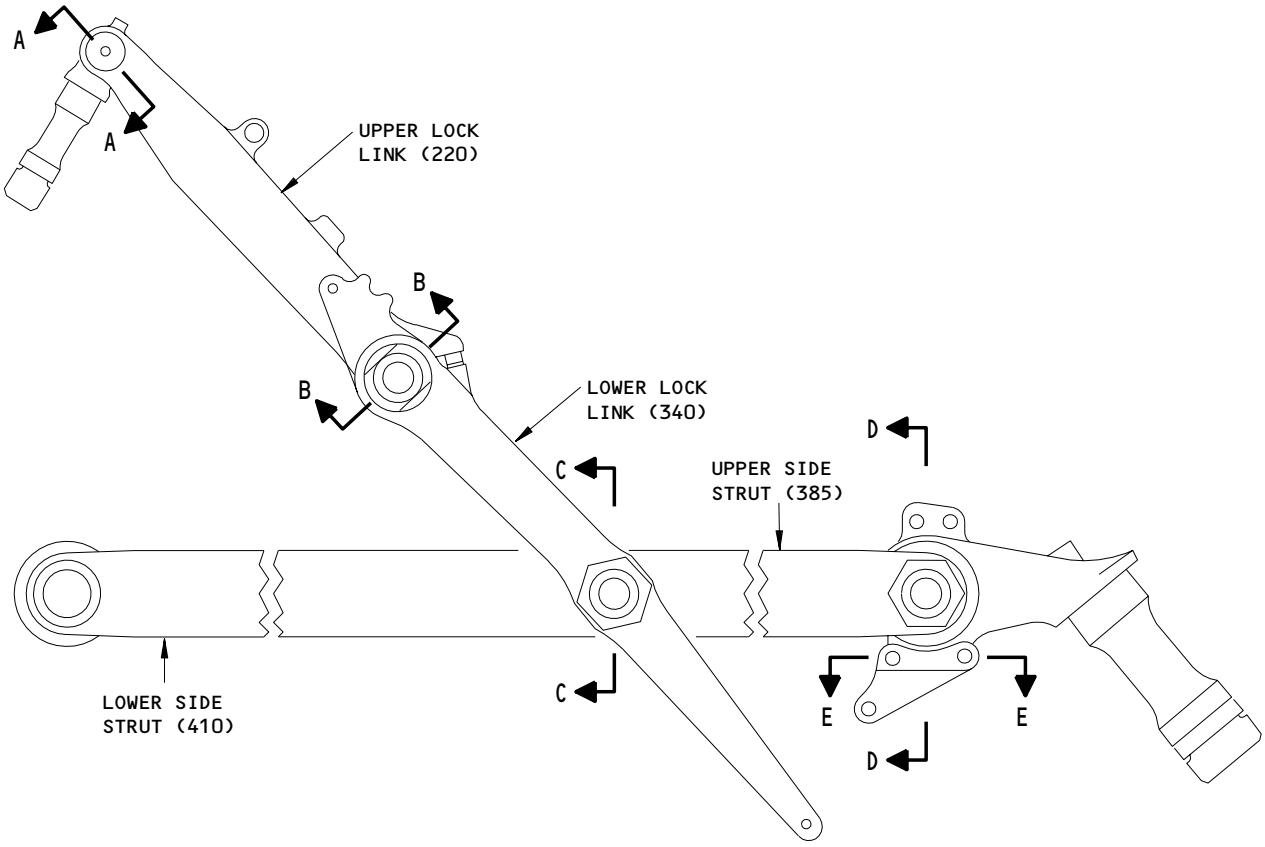
MAXIMUM FOLD POSITION

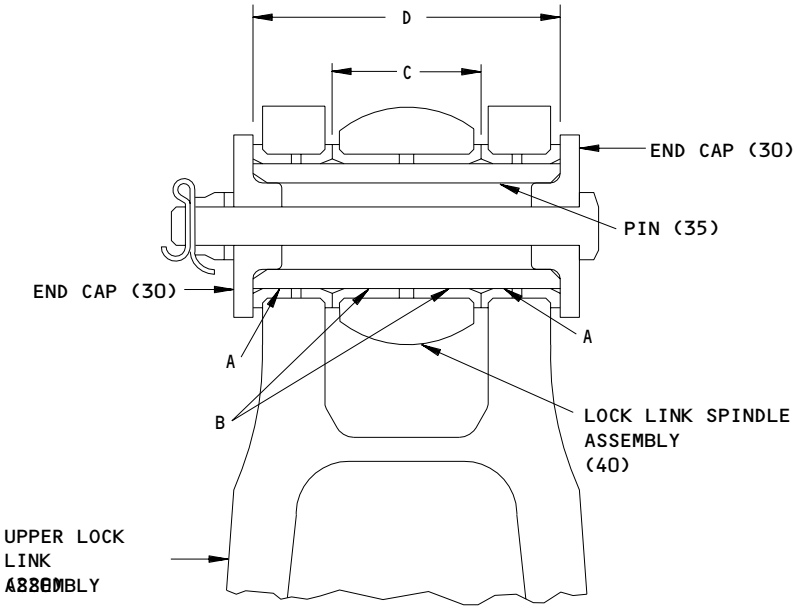


EXTENDED POSITION

Functional Test Diagram
Figure 702

FITS AND CLEARANCES

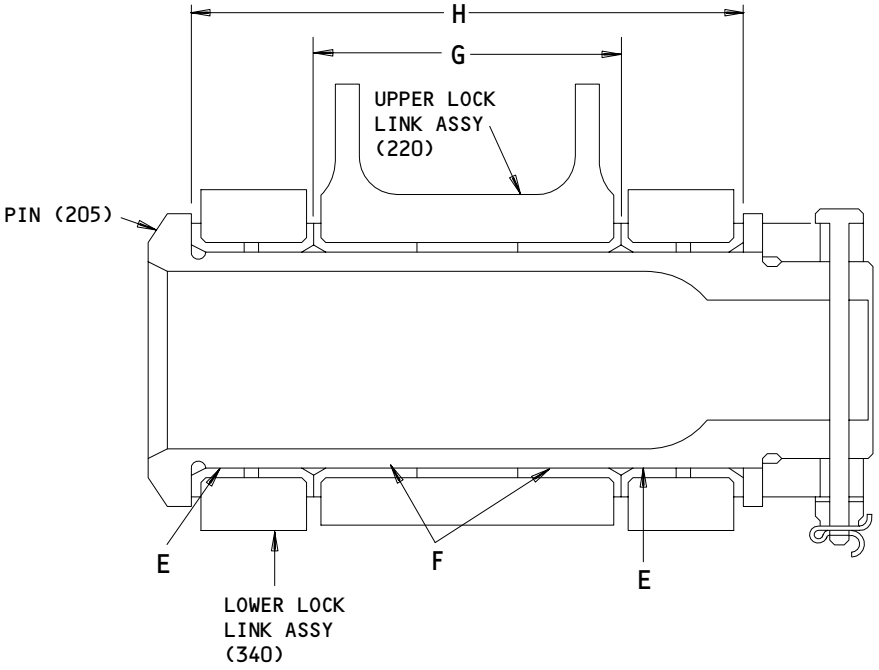




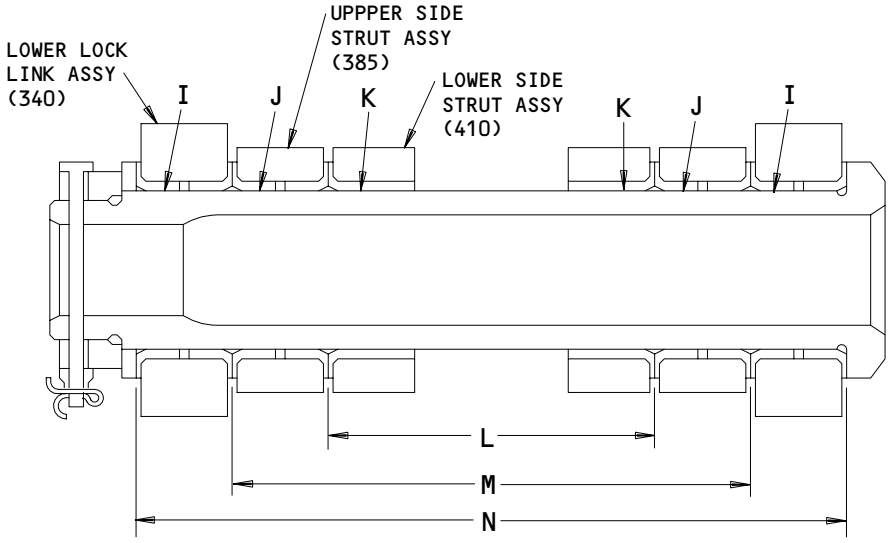
A-A

Fits and Clearances
Figure 801 (Sheet 1)

19521

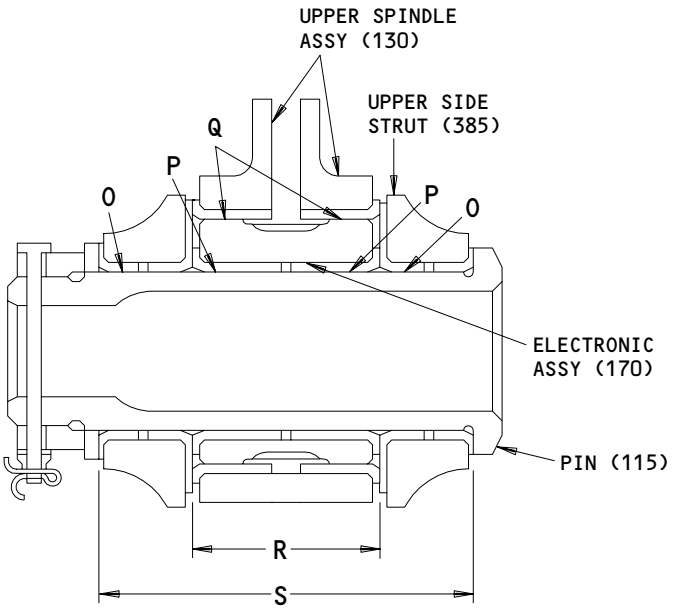


B–B

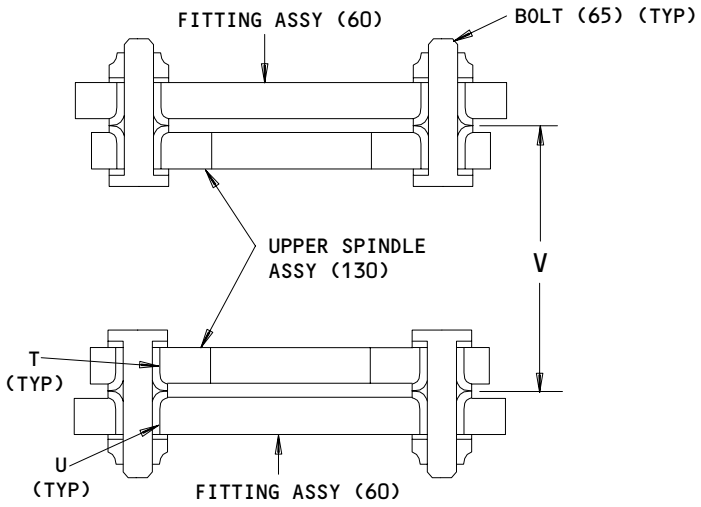


C–C

Fits and Clearances
Figure 801 (Sheet 2)



D–D



E–E

Fits and Clearances
Figure 801 (Sheet 3)

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 220 OD 35	1.2500 1.2470	1.2515 1.2490	0.0010	0.0045	1.2448	1.2557	0.0067
B	ID 40 OD 35	1.2500 1.2470	1.2515 1.2490	0.0010	0.0045	1.2448	1.2557	0.0067
C	*[1] 40 *[2] 220	1.4920 1.5000	1.5000 1.5080	0.0	0.0160	1.4760	1.5320	0.0320
D	*[1] 220	3.2464	3.2580					
E	ID 340 OD 205	2.2500 2.2470	2.2515 2.2490	0.0010	0.0045	2.2440	2.2565	0.0075
F	ID 220 OD 205	2.2500 2.2470	2.2515 2.2490	0.0010	0.0045	2.2440	2.2565	0.0075
G	*[1] 220 *[2] 340	3.119 3.127	3.127 3.135	0.0	0.016	3.103	3.159	0.0320
H	*[1] 340	5.592	5.600					
I	ID 340 OD 325	2.5000 2.4970	2.5015 2.4990	0.0010	0.0045	2.4938	2.5067	0.0077
J	ID 385 OD 325	2.5000 2.4970	2.5015 2.4990	0.0010	0.0045	2.4938	2.5067	0.0077
K	ID 410 OD 325	2.5000 2.4970	2.5015 2.4990	0.0010	0.0045	2.4938	2.5067	0.0077
L	*[1] 410 *[2] 385	5.116 5.125	5.125 5.133	0.0	0.017	5.099	5.159	0.034

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 4)

Ref Letter Fig.801	Mating Item No. IPL Fig.	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
M	*[1] 385	8.054	8.062	0.0	0.016	8.038		0.0320
	*[2] 340	8.062	8.070				8.094	
N	*[1] 340	10.872	10.880					
O	ID 385	2.5000	2.5015	0.0010	0.0045		2.5067	0.0077
	OD 115	2.4970	2.4990			2.4938		
P	ID 170	2.5000	2.5015	0.0010	0.0045		2.5067	0.0077
	OD 115	2.4970	2.4990			2.4938		
Q	ID 130	3.7500	3.7515	0.0010	0.0045		3.7574	0.0084
	OD 170	3.7470	3.7490			3.7431		
R	*[1] 130	2.864	2.872	0.0	0.016	2.848		0.320
	*[2] 385	2.872	2.880				2.904	
R	*[1] 170	2.865	2.872	0.0	0.015	2.850		0.0300
	*[2] 385	2.872	2.880				2.902	
S	*[1] 385	5.742	5.750					
T	ID 130	0.3200	0.3215	0.0080	0.0105		0.3236	0.0116
	OD 65	0.3110	0.3120			0.3099		
U	ID 60	0.3200	0.3215	0.0080	0.0105		0.3236	0.0116
	OD 65	0.3110	0.3120			0.3099		
V	*[1] 130	2.742	2.750	0.0	0.016	2.726		0.0320
	*[2] 60	2.750	2.758				2.782	

*[1] Dimension across outer flanges of bushings
*[2] Dimension between inner flanges of bushings

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 5)

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
215	NUT		90 - 100
335, 125	NUT		110 - 120
805	NUT	1220 - 1340	

Torque Table
Figure 802

19683

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

NOTE: Equivalent substitutes may be used.

1. A32003-1 -- Spring compressor, main gear side strut

2. A32086-1 -- Downlock stop shim adjustment jig (consists of A32086-2 jig, A32086-6 fitting, and A32086-3 storage box)

3. F70312-47 -- Crowfoot wrench adapter, nut 161T2018

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

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

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

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

56878 SPS TECHNOLOGIES INC
HIGHLAND AVENUE
JENKINTOWN, PENNSYLVANIA 19046

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

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

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

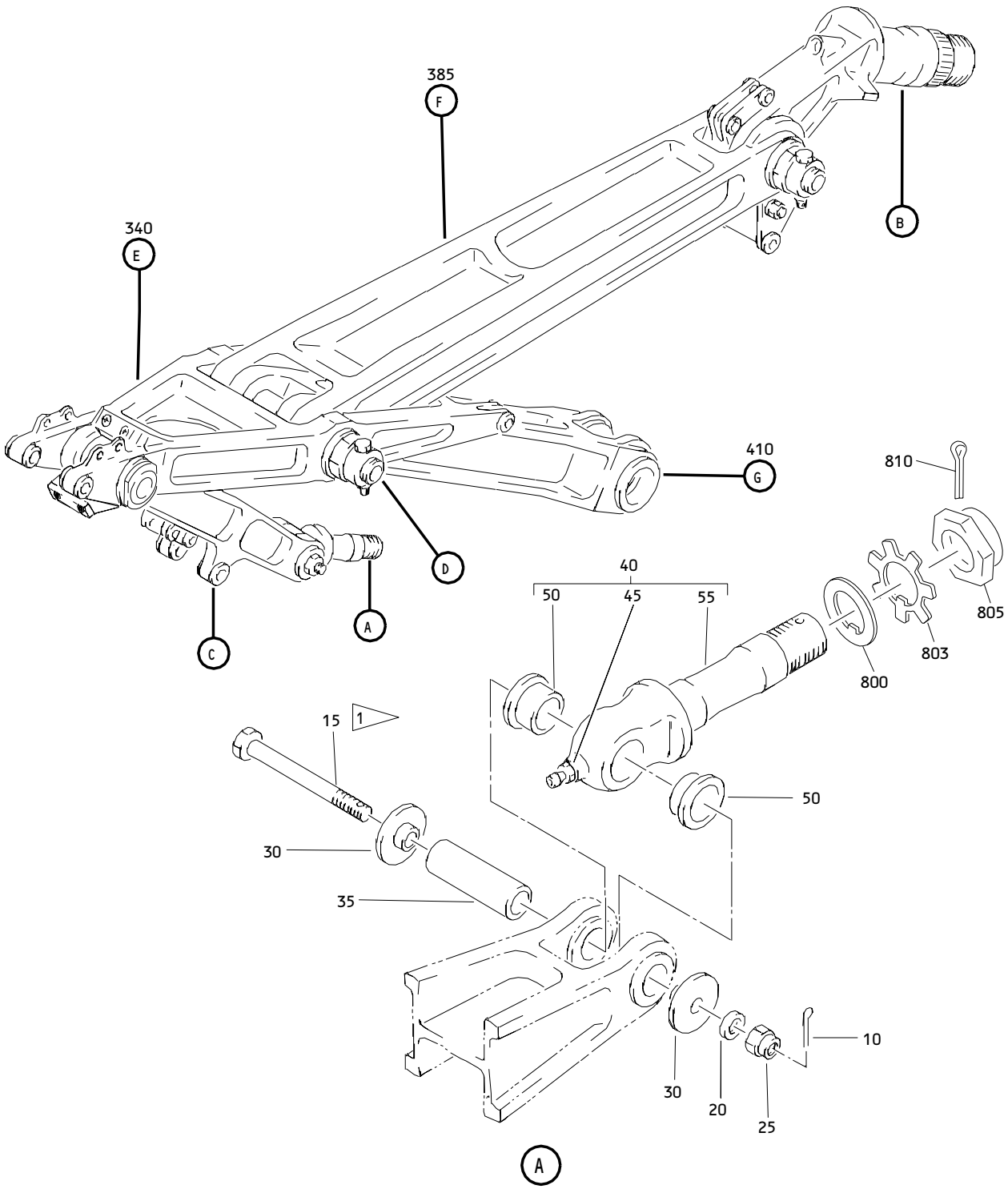
95879 ALEMITE DIVISION OF STEWART WARNER CORP
1826 DIVERSEY PARKWAY
CHICAGO, ILLINOIS 60614

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AN960-416		1	105	1
		1	195	1
		1	285	2
		1	315	1
AN960-516L		1	70	8
AN960-616		1	20	1
AN960PD416		1	245	2
BACB28AM08A020		1	375	2
BACB28AP06-020		1	370	2
BACB30NN4K8		1	240	2
		1	280	2
BACN10JC4		1	290	2
		1	250A	2
BACN10JC4CD		1	250C	2
BACN10JC5		1	75	4
BACN10JC6		1	25	1
BACN10JD4		1	250	
BACP18BC02C06P		1	95A	1
		1	185A	1
		1	305A	1
BACP18BC03C10P		1	10A	1
LCN12-428		1	110	1
		1	200	1
		1	320	1
MS21042L4		1	250B	2
		1	290A	2
MS21042L5		1	75B	4
MS21042L6		1	25A	1
MS24665-134		1	95	1
		1	185	1
		1	305	1
MS24665-136		1	235	
MS24665-287		1	10	1
NAS1149F0463P		1	105A	1
		1	195A	1
		1	245A	2
		1	245B	2
		1	285A	2
		1	315A	1
NAS1149F0663P		1	20A	1
NAS6604D45		1	190	1
NAS6604D49		1	100	1
		1	310	1
NAS6606D61		1	15	1
NAS6606D64		1	15A	1
NAS6705-15		1	65	4

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
161T2000-1		1	1	
161T2000-10		1	5D	RF
161T2000-11		1	1E	RF
161T2000-12		1	5E	RF
161T2000-13		1	1F	RF
161T2000-14		1	5F	RF
161T2000-15		1	1G	RF
161T2000-16		1	5G	RF
161T2000-17		1	1H	RF
161T2000-18		1	5H	RF
161T2000-19		1	1J	RF
161T2000-2		1	5	
161T2000-20		1	5J	RF
161T2000-21		1	1K	RF
161T2000-22		1	5K	RF
161T2000-23		1	1L	RF
161T2000-24		1	5L	RF
161T2000-25		1	1M	RF
161T2000-26		1	5M	RF
161T2000-27		1	1N	RF
161T2000-28		1	5N	RF
161T2000-29		1	1P	RF
161T2000-30		1	5P	RF
161T2000-31		1	1Q	RF
161T2000-32		1	5Q	RF
161T2000-33		1	1R	RF
161T2000-34		1	5R	RF
161T2000-35		1	1S	RF
161T2000-36		1	5S	RF
161T2000-37		1	1T	RF
161T2000-38		1	5T	RF
161T2000-7		1	1C	RF
161T2000-8		1	5C	RF
161T2000-9		1	1D	RF
161T2002-1		1	385	1
161T2002-2		1	405	1
161T2002-3		1	385A	
161T2002-4		1	405A	
161T2004-1		1	410	1
161T2004-11		1	410E	
161T2004-3		1	410A	1
161T2004-5		1	410B	1
161T2004-7		1	410C	
161T2004-9		1	410D	
161T2006-10		1	165A	
161T2006-3		1	130	1
161T2006-4		1	135	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
161T2006-5		1	160	1
161T2006-6		1	165	1
161T2006-7		1	130A	
161T2006-8		1	135A	
161T2006-9		1	160A	
161T2010-1		1	340	
161T2010-2		1	380	
161T2010-5		1	340B	1
161T2010-6		1	380B	1
161T2010-7		1	340C	1
161T2010-8		1	380C	1
161T2012-1		1	220	1
161T2012-2		1	275	1
161T2012-3		1	220A	1
161T2012-4		1	275A	1
161T2012-5		1	220B	1
161T2012-6		1	275B	1
161T2012-7		1	220C	1
161T2012-8		1	275C	1
161T2014-1		1	60	1
161T2014-2		1	90	1
161T2017-1		1	115	1
161T2017-2		1	115A	1
161T2018-1		1	125	1
		1	335	1
161T2019-1		1	120	1
		1	330	1
161T2020-1		1	325	1
161T2020-2		1	325A	1
161T2021-1		1	205	1
161T2022-1		1	215	1
161T2023-1		1	210	1
161T2028-1		1	230	1
		1	295	1
161T2029-1		1	300	1
161T2029-2		1	300A	2
161T2030-1		1	170	1
161T2030-2		1	180	1
161T2032-1		1	40	1
161T2032-2		1	55	1
161T2032-3		1	40A	1
161T2032-4		1	55A	1
161T2043-1		1	355	2
161T2043-2		1	260	1
161T2043-5		1	260A	1
161T2043-6		1	260B	1
161T2043-7		1	260C	1

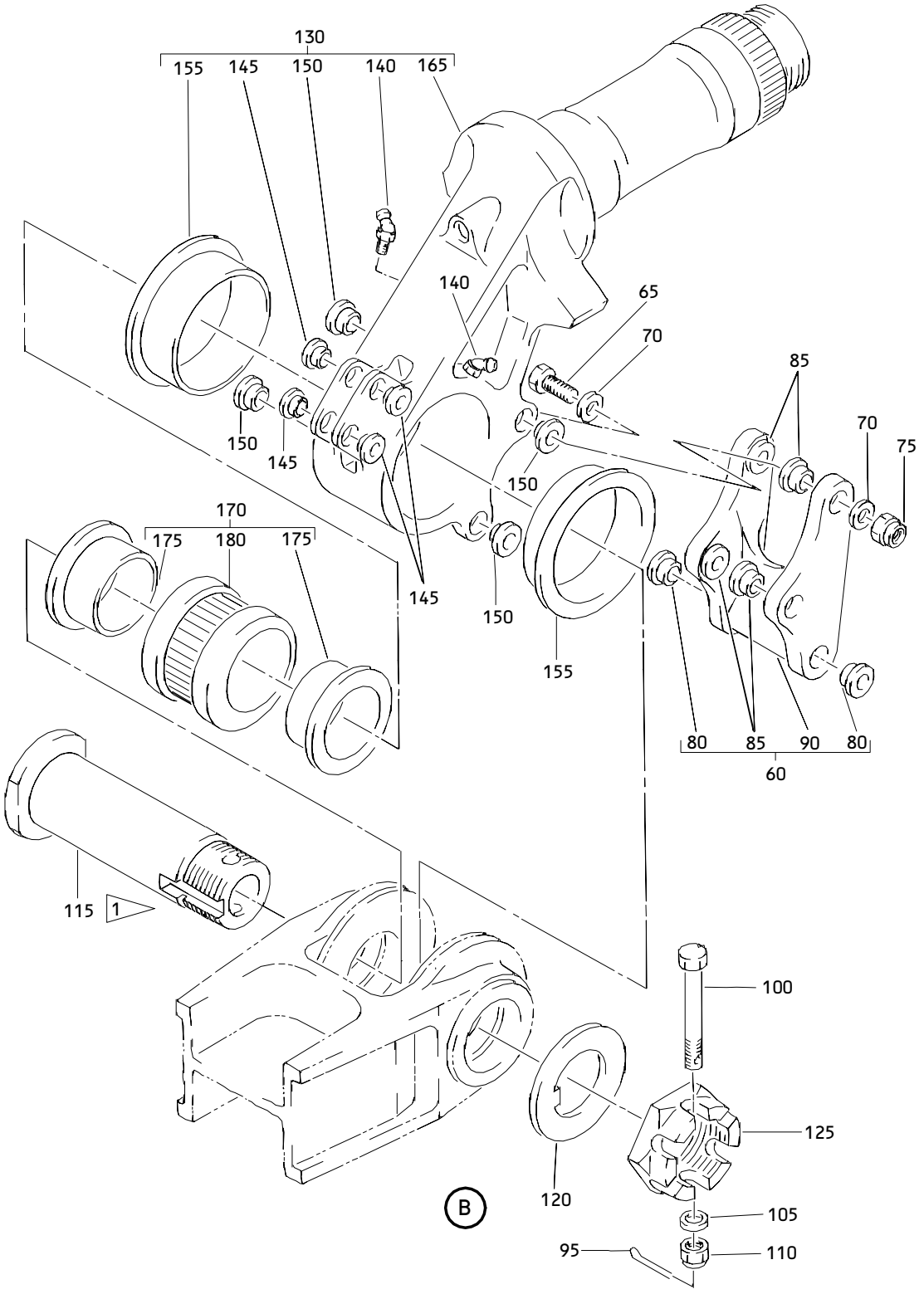
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
161T2044-1		1	265	2
161T2049-1		1	155	2
161T2050-1		1	175	2
161T6029-1		1	30	2
161T6030-1		1	35	1
161T6030-2		1	35A	1
161T6040-10		1	400	2
161T6040-11		1	145	4
161T6040-12		1	270	4
161T6040-13		1	50	2
161T6040-14		1	365	4
161T6040-16		1	360	4
161T6040-18		1	255	2
161T6040-19		1	80	2
161T6040-4		1	395	6
161T6040-7		1	85	4
		1	150	4
1728B		1	45	1
		1	225	3
		1	345	4
		1	390	4
		1	415	4
1992B		1	140	2
58703-428-7		1	110A	1
		1	200A	1
		1	320A	1



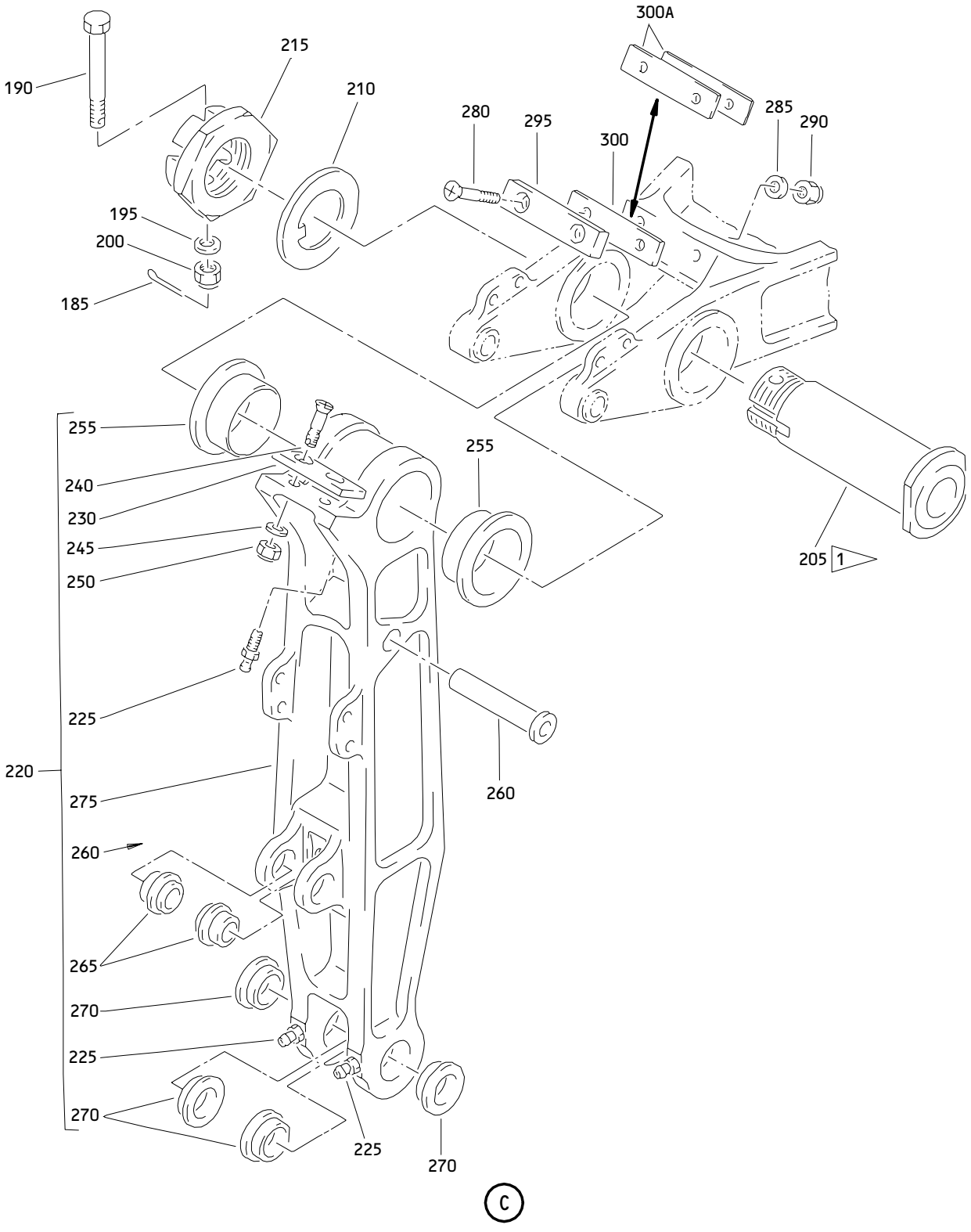
LEFT ASSEMBLY SHOWN

Main Landing Gear Side Strut Assembly
Figure 1 (Sheet 1)

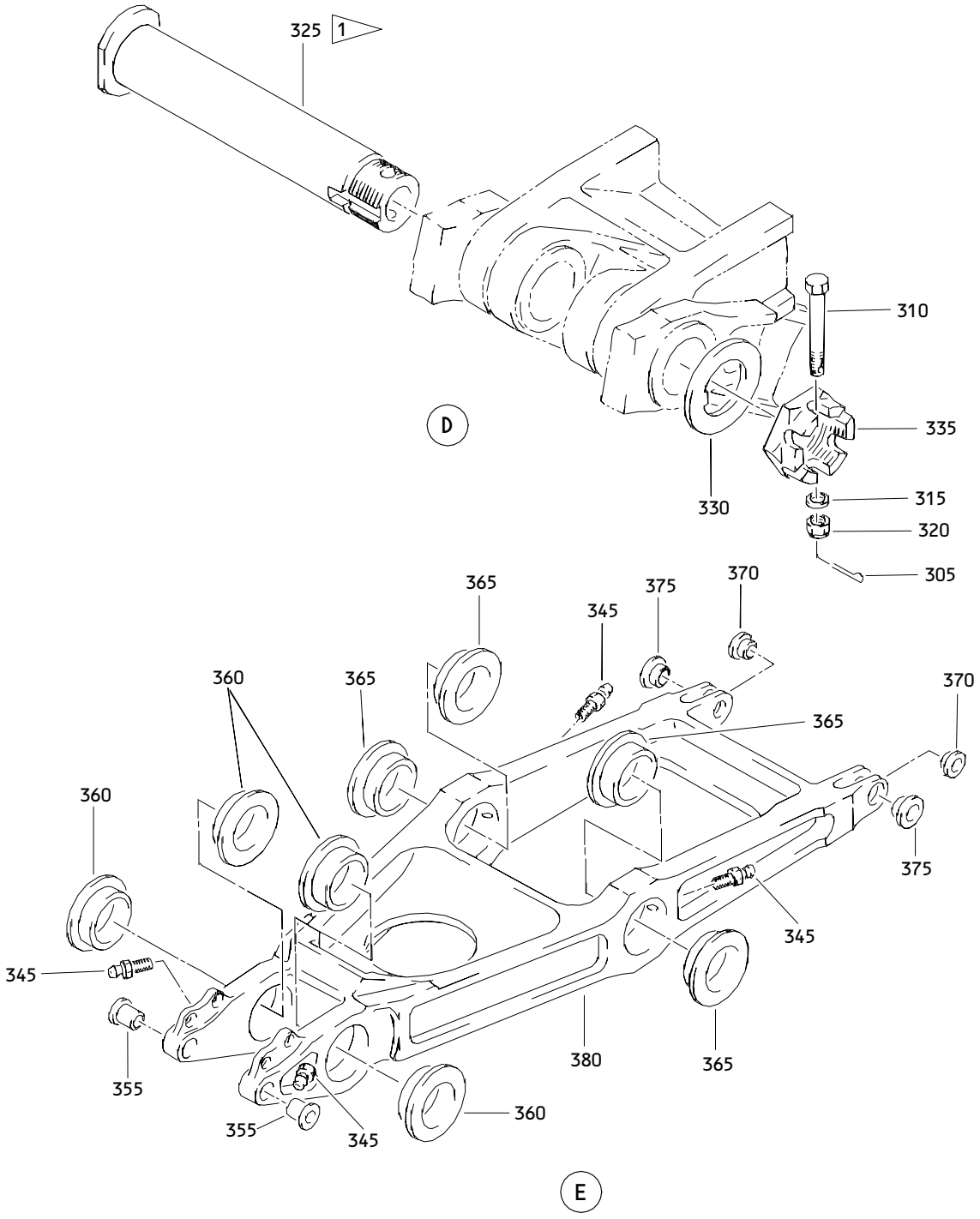
T55955



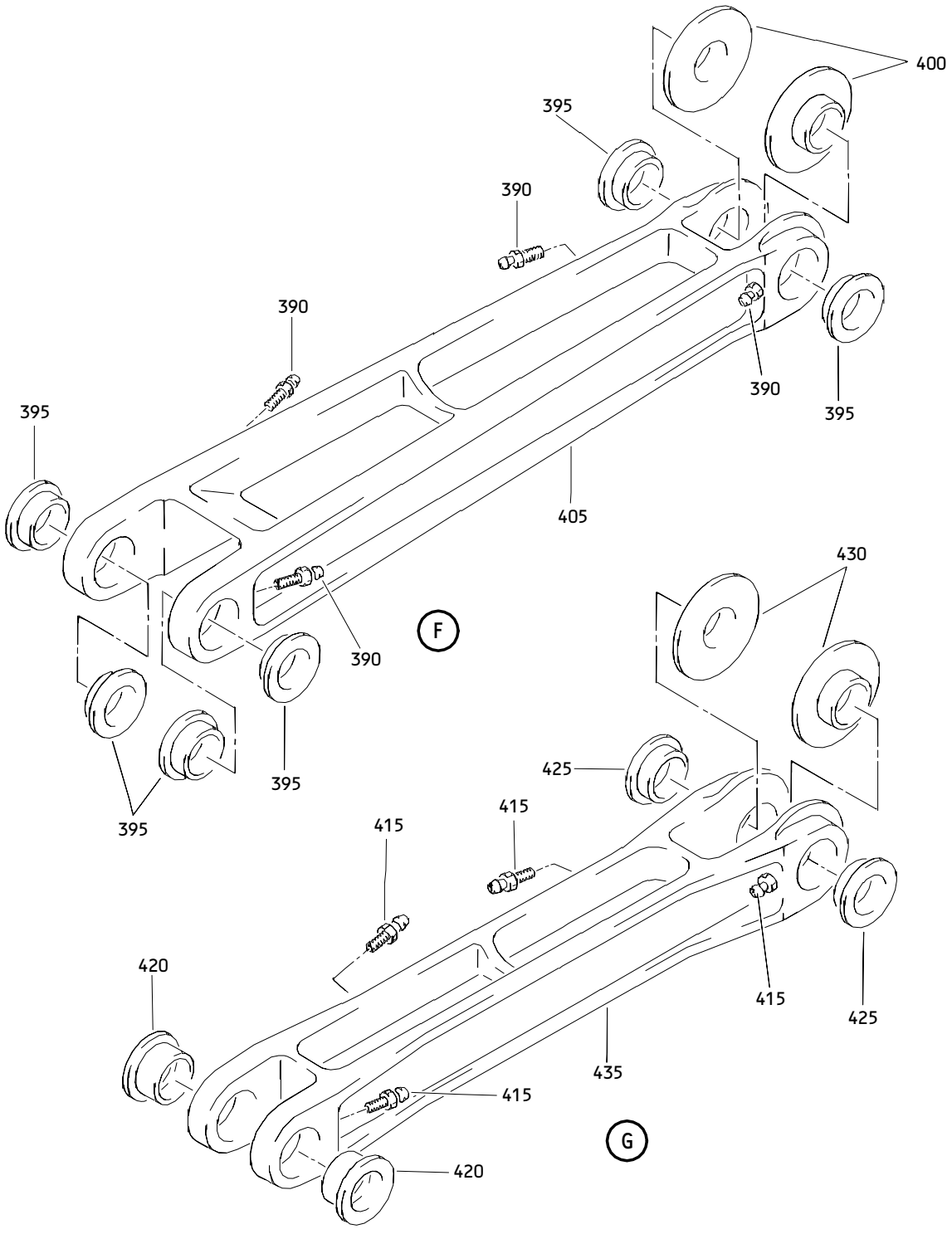
Main Landing Gear Side Strut Assembly
Figure 1 (Sheet 2)



Main Landing Gear Side Strut Assembly
Figure 1 (Sheet 3)



Main Landing Gear Side Strut Assembly
Figure 1 (Sheet 4)



1 LEFT SIDE CONFIGURATION SHOWN.
FOR RIGHT SIDE CONFIGURATION,
INSTALL BOLT IN OPPOSITE DIRECTION.

Main Landing Gear Side Strut Assembly
Figure 1 (Sheet 5)

T55959

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	161T2000-1		DELETED		
-1C	161T2000-7		STRUT ASSY-MLG SIDE (LH) (PRE SB 51-7)	A	RF
-1D	161T2000-9		STRUT ASSY-MLG SIDE (LH) (POST SB 51-7)	C	RF
-1E	161T2000-11		STRUT ASSY-MLG SIDE (LH)	E	RF
-1F	161T2000-13		STRUT ASSY-MLG SIDE (LH)	G	RF
-1G	161T2000-15		STRUT ASSY-MLG SIDE (LH)	I	RF
-1H	161T2000-17		STRUT ASSY-MLG SIDE (LH)	K	RF
-1J	161T2000-19		STRUT ASSY-MLG SIDE (LH)	M	RF
-1K	161T2000-21		STRUT ASSY-MLG SIDE (LH)	O	RF
-1L	161T2000-23		STRUT ASSY-MLG SIDE (LH)	Q	RF
-1M	161T2000-25		STRUT ASSY-MLG SIDE (LH)	S	RF
-1N	161T2000-27		STRUT ASSY-MLG SIDE (LH)	U	RF
-1P	161T2000-29		STRUT ASSY-MLG SIDE (LH)	W	RF
-1Q	161T2000-31		STRUT ASSY-MLG SIDE (LH)	Y	RF
-1R	161T2000-33		STRUT ASSY-MLG SIDE (LH)	BA	RF
-1S	161T2000-35		STRUT ASSY-MLG SIDE (LH)	DA	RF
-1T	161T2000-37		STRUT ASSY-MLG SIDE (LH) (POST-SB 32-0180)	FA	RF
-5	161T2000-2		DELETED		
-5C	161T2000-8		STRUT ASSY-MLG SIDE (RH) (PRE SB 51-7)	B	RF
-5D	161T2000-10		STRUT ASSY-MLG SIDE (RH) (POST SB 51-7)	D	RF
-5E	161T2000-12		STRUT ASSY-MLG SIDE (RH)	F	RF
-5F	161T2000-14		STRUT ASSY-MLG SIDE (RH)	H	RF
-5G	161T2000-16		STRUT ASSY-MLG SIDE (RH)	J	RF
-5H	161T2000-18		STRUT ASSY-MLG SIDE (RH)	L	RF
-5J	161T2000-20		STRUT ASSY-MLG SIDE (RH)	N	RF
-5K	161T2000-22		STRUT ASSY-MLG SIDE (RH)	P	RF
-5L	161T2000-24		STRUT ASSY-MLG SIDE (RH)	R	RF
-5M	161T2000-26		STRUT ASSY-MLG SIDE (RH)	T	RF
-5N	161T2000-28		STRUT ASSY-MLG SIDE (RH)	V	RF
-5P	161T2000-30		STRUT ASSY-MLG SIDE (RH)	X	RF
-5Q	161T2000-32		STRUT ASSY-MLG SIDE (RH)	Z	RF
-5R	161T2000-34		STRUT ASSY-MLG SIDE (RH)	CA	RF
-5S	161T2000-36		STRUT ASSY-MLG SIDE (RH)	EA	RF
-5T	161T2000-38		STRUT ASSY-MLG SIDE (RH) (POST-SB 32-0180)	GA	RF

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
10	MS24665-287		.PIN-COTTER		1
-10A	BACP18BC03C10P		.PIN-COTTER		1
			(REPLS ITEM 10)		
15	NAS6606D61		.BOLT	A-P	1
-15A	NAS6606D64		.BOLT	Q-GA	1
20	AN960-616		.WASHER		1
-20A	NAS1149F0663P		.WASHER		1
			(REPLS ITEM 20)		
25	BACN10JC6		.NUT-		1
			(OPT)		
-25A	MS21042L6		.NUT		1
30	161T6029-1		.CAP-END		2
35	161T6030-1		.PIN	A-Z	1
35A	161T6030-2		.PIN	BA-GA	1
40	161T2032-1		.SPINDLE ASSY-LOCK LINK	A-X	1
-40A	161T2032-3		.SPINDLE ASSY-LOCK LINK	Y-GA	1
45	1728B		..FITTING-LUBE		1
			(V95879)		
50	161T6040-13		..BUSHING		2
55	161T2032-2		..SPINDLE (USED ON ITEM 40)		1
-55A	161T2032-4		..SPINDLE		1
			(USED ON ITEM 40A)		
60	161T2014-1		.FITTING ASSY-LOCK LINKS		1
			SPR ATTACH		
			ATTACHING PARTS		
65	NAS6705-15		.BOLT		4
70	AN960-516L		.WASHER		8
75	BACN10JC5		.NUT-		4
			(OPT)		
-75B	MS21042L5		.NUT		4
			-------*-------		
80	161T6040-19		..BUSHING		2
85	161T6040-7		..BUSHING		4
90	161T2014-2		..FITTING		1
95	MS24665-134		.PIN-COTTER		1
-95A	BACP18BC02C06P		.PIN-COTTER		1
			(REPLS ITEM 95)		
100	NAS6604D49		.BOLT		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
105	AN960-416		.WASHER		1
-105A	NAS1149F0463P		.WASHER (REPLS ITEM 105)		1
110	LCN12-428		.NUT-LOCK (V56878) (OPT ITEM 110A)		1
-110A	58703-428-7		.NUT-LOCK (V56878) (OPT ITEM 110)		1
115	161T2017-1		.PIN	ABIJ	1
115A	161T2017-2		.PIN	C-H K-GA	1
120	161T2019-1		.WASHER		1
125	161T2018-1		.NUT		1
130	161T2006-3		.SPINDLE ASSY-UPR	ACEGI KMOQS UWY BA DA FA	1
-130A	161T2006-7		DELETED		
-135	161T2006-4		.SPINDLE ASSY-UPR	BDFHJ LNPRT VXZ CA EA GA	1
-135A	161T2006-8		DELETED		
140	1992B		..FITTING-LUBE (V95879)		2
145	161T6040-11		..BUSHING		4
150	161T6040-7		..BUSHING		4
155	161T2049-1		..BUSHING		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
160	161T2006-5		..SPINDLE (USED ON ITEM 130)		1
160A	161T2006-9		DELETED		
-165	161T2006-6		..SPINDLE (USED ON ITEM 135)		1
-165A	161T2006-10		DELETED		
170	161T2030-1		.ECCENTRIC ASSY		1
175	161T2050-1		..BUSHING		2
180	161T2030-2		..ECCENTRIC		1
185	MS24665-134		.PIN-COTTER		1
-185A	BACP18BC02C06P		.PIN-COTTER (OPT ITEM 185)		1
190	NAS6604D45		.BOLT		1
195	AN960-416		.WASHER		1
-195A	NAS1149F0463P		.WASHER (OPT ITEM 195)		1
200	LCN12-428		.NUT-LOCK (V56878) (OPT ITEM 200A)		1
-200A	58703-428-7		.NUT-LOCK (V56878) (OPT ITEM 200)		1
205	161T2021-1		.PIN		1
210	161T2023-1		.WASHER		1
215	161T2022-1		.NUT		1
220	161T2012-1		.LINK ASSY-UPPER LOCK	A-EA	1
220A	161T2012-3		.LINK ASSY-UPPER LOCK (OPT)	BA CA	1
220B	161T2012-5		.LINK ASSY-UPPER LOCK	FA GA	1
220C	161T2012-7		.LINK ASSY-UPPER LOCK (OPT)	FA GA	1
225	1728B		..FITTING-LUBE (V95879)		3
230	161T2028-1		..STOP-DOWN LOCK ATTACHING PARTS		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
235	MS24665-136		DELETED		
240	BACB30NN4K8		.BOLT		2
245	AN960PD416		.WASHER		2
-245A	NAS1149F0463P		.WASHER (REPLS ITEM 245) (USED ON ITEMS 220,220A)		2
-245B	NAS1149F0463P		.WASHER (USED ON ITEMS 220B, 220C)		2
250	BACN10JD4		DELETED		2
250A	BACN10JC4		.NUT (USED ON ITEMS 220,220A)		2
-250B	MS21042L4		.NUT (REPLS ITEM 250A) (USED ON ITEMS 220,220A)		2
-250C	BACN10JC4CD		..NUT (USED ON ITEMS 220B, 220C) -------*-------		2
255	161T6040-18		..BUSHING		2
260	161T2043-2		..BUSHING (USED ON ITEMS 220,220A)		1
-260A	161T2043-5		..BUSHING (OPT) (USED ON ITEMS 220A, 220B)		1
-260B	161T2043-6		..BUSHING (USED ON ITEMS 220B, 220C)		1
-260C	161T2043-7		..BUSHING (OPT) (USED ON ITEMS 220B, 220C)		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
265	161T2044-1		..BUSHING		2
270	161T6040-12		..BUSHING		4
275	161T2012-2		..LINK		1
			(USED ON ITEM 220)		
-275A	161T2012-4		..LINK		1
			(USED ON ITEM 220A)		
-275B	161T2012-6		..LINK		1
			(USED ON ITEM 220B)		
-275C	161T2012-8		..LINK		1
			(USED ON ITEM 220C)		
280	BACB30NN4K8		.BOLT		2
285	AN960-416		.WASHER		2
-285A	NAS1149F0463P		.WASHER		2
			(REPLS ITEM 285)		
290	BACN10JC4		.NUT		2
			(OPT)		
-290A	MS21042L4		.NUT		2
295	161T2028-1		.STOP		1
300	161T2029-1		.SHIM	A-H	1
-300A	161T2029-2		.SHIM	I-GA	2
305	MS24665-134		.PIN-COTTER		1
-305A	BACP18BC02C06P		.PIN-COTTER		1
			(REPLS ITEM 305)		
310	NAS6604D49		.BOLT		1
315	AN960-416		.WASHER		1
-315A	NAS1149F0463P		.WASHER		1
			(REPLS ITEM 315)		
320	LCN12-428		.NUT-LOCK		1
			(V56878)		
			(OPT ITEM 320A)		
-320A	58703-428-7		.NUT-LOCK		1
			(V56878)		
			(OPT ITEM 320)		
325	161T2020-1		.PIN	ABIJ	1
-325A	161T2020-2		.PIN	C-H K-GA	1
330	161T2019-1		.WASHER		1
335	161T2018-1		.NUT		1
340	161T2010-1		DELETED		
-340B	161T2010-5		.LINK ASSY-LWR LOCK	A-CA	1
-340C	161T2010-7		.LINK ASSY-LWR LOCK	DA-GA	1
345	1728B		..FITTING-LUBE		4
			(V95879)		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
355	161T2043-1		..BUSHING		2
360	161T6040-16		..BUSHING		4
365	161T6040-14		..BUSHING		4
370	BACB28AP06-020		..BUSHING		2
375	BACB28AM08A020		..BUSHING		2
380	161T2010-2		DELETED		
-380B	161T2010-6		..LINK (USED ON ITEM 340B)		1
-380C	161T2010-8		..LINK (USED ON ITEM 340C)		1
385	161T2002-1		.STRUT ASSY-UPR		1
385A	161T2002-3		DELETED		
390	1728B		..FITTING-LUBE (V95879)		4
395	161T6040-4		..BUSHING		6
400	161T6040-10		..BUSHING		2
405	161T2002-2		..STRUT		1
405A	161T2002-4		DELETED		
410	161T2004-1		.STRUT ASSY-LWR	A-D I-L	1
-410A	161T2004-3		.STRUT ASSY-LWR	EFMN	1
-410B	161T2004-5		.STRUT ASSY-LWR	GH O-GA	1
-410C	161T2004-7		DELETED		
-410D	161T2004-9		DELETED		
-410E	161T2004-11		DELETED		
415	1728B		..FITTING-LUBE (V95879)		4
420	161T2048-1		..BUSHING		2
425	161T6040-4		..BUSHING		2
430	161T6040-10		..BUSHING		2
435	161T2004-2		..STRUT		1
-435A	161T2004-4		..STRUT (USED ON ITEM 410A)		1
-435B	161T2004-6		..STRUT (USED ON ITEM 410B)		1
435C	161T2004-8		DELETED		
435D	161T2004-10		DELETED		
435E	161T2004-12		DELETED		
			INSTALLATION PARTS		
800	161T6016-1		WASHER		1
803	BACW10CR22		WASHER (POST SB 32-0110)		1
805	BACN10JC22		NUT		1
810	MS24665-360		PIN-COTTER		1

- ITEM NOT ILLUSTRATED