TO: ALL HOLDERS OF MLG DRAG STRUT ASSY COMPONENT MAINTENANCE MANUAL 32-11-60

REVISION NO. 35 DATED MAR 01/05

HIGHLIGHTS

All data that was in 767 CMM 32-11-61 is now included in this CMM 32-11-60. 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
REPAIR 1-2 603 REPAIR 2-2 603 REPAIR 3-2 603 REPAIR 5-2 603 REPAIR 6-2 603 REPAIR 7-2 602 REPAIR 10-1 601 REPAIR 11-1 601	Added clarifications and updated callouts.
REPAIR 1-2 603 REPAIR 2-2 603 REPAIR 3-2 603	Idenfified lug face dimensions that have the standard lug face machining requirements.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
REPAIR 5-2 603 REPAIR 6-2 603 REPAIR 7-2 602	HIGHLIGHT CONTINUED FROM PREVIOUS PAGE

MAIN LANDING GEAR DRAG STRUT ASSEMBLY

PART NUMBERS 161T6000-3,-4,-7 THRU -26

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

T21706

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

T21683

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR B10177	JUL 10/81
		PRR B11268-1	OCT 10/85
		PRR C12017	JAN 10/84
		MC B1321-003	OCT 10/84
51-7		MC B1031-025K	APR 10/85
		PRR B11692	APR 01/88
32-0110		PRR B11861	APR 01/93
		PRR B12042	APR 01/90
53-42		MC 0310MK6027	APR 01/91
53-48		MC 0310MK6027	JUL 01/91
32-96		MC 0310MK6095	JUL 01/91
		MC 0310MP6095	APR 01/93
32-0135		MC 0310MP6101	JUL 01/93
		MC 3209MP6003	JAN 01/94
32-0133		MC 0310MK6142	MAR 01/95
32-0145		MC 0310MK6101	JUN 01/96
32-0175		MC 0310MK6239	NOV 01/98
32-0187		MC 0310MK6251	NOV 01/00
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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 -- Nov 29/82
Assembly -- Nov 29/82

MAIN LANDING GEAR DRAG STRUT ASSEMBLY
DESCRIPTION AND OPERATION

1. The drag strut assembly consists of forged steel upper and lower drag struts and forged aluminum upper and lower jury struts. A steel spindle, on the upper drag strut, secures the assembly to the wing structure and another spindle on the upper jury strut secures the assembly to the main gear shock strut.

2. The drag struts brace and support the shock strut, and the jury struts stiffen and lock the drag struts in the extended position.

3. When the landing gear is lowered from the raised position, the downlock actuator extends and the jury struts and drag struts unfold. Movement to the DOWN position is assisted by springs. The downlock actuator positions the jury struts to the overcenter position, bracing the drag struts. The springs provide additional holding force to keep the jury struts locked. In emergency extension operation, the springs push the jury strut to overcenter position.

4. Leading Particulars (Approximate)

   A. Length -- 90 inches

   B. Height -- 26 inches (folded)

   C. Weight -- 275 lbs.

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 may be used.

   A. A32099-38 -- Spring extender tool (Replaces A32002-14, A32099-1, -25)

   B. A32002-14 -- Spring extender tool

   C. F70312-27 -- Crowfoot wrench adapter, seal nuts

   D. F70312-32 -- Crowfoot wrench adapter, nut (260)

2. Parts Replacement

   A. Cotter pins are recommended for replacement. Replacement of other parts can be by in-service experience.

3. Disassembly

   A. Disassemble the drag strut assembly by standard industry practices.

   B. Measure the thickness of shims (135, IPL Fig. 1) and make a note of the quantity and dimension 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 lubrication and pin retention holes for hairline cracks.

3. Magnetic particle check per 20-20-01 the following parts:

   A. Stop fitting (130, 215)

   B. Pins (30, 90, 165), bolt (250)

   C. Upper drag strut (340)

   D. Lower drag strut (315)

   E. Spindles (60, 110)

4. Penetrant check jury struts (210, 290) per 20-20-02.

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
161T6001	STRUT, LOWER DRAG	1-1, 1-2
161T6003	STRUT, UPPER DRAG	2-1, 2-2
161T6007	SPINDLE, UPPER	3-1, 3-2, 3-3
161T6009	BOLT, APEX	4-1
161T6011	STRUT, UPPER JURY	5-1, 5-2
161T6013	STRUT, LOWER JURY	6-1, 6-2
161T6015	SPINDLE	7-1, 7-2, 7-3
161T6018	PIN	8-1
161T6027	PIN	9-1
161T6030	PIN	9-1
- -	MISCELLANEOUS PARTS REFINISH	10-1
- -	BUSHING SEALING	11-1

2. Standard Practices

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

20-10-04 Grinding of Chrome Plated Parts
20-30-02 Stripping of Protective Finishes
20-30-03 General Cleaning Procedures
20-41-01 Decoding Table for Boeing Finish Codes
20-42-02 Low Hydrogen Embrittlement Cadmium-Titanium Alloy Plating
20-42-03 Hard Chrome Plating
20-42-05 Bright Cadmium Plating
20-43-05 Chemical Conversion Coatings for Aluminum
20-50-03 Bearing Installation and Retention
20-50-10 Application of Stencils, Insignia, Silk Screen, Part Numbering and Identification Marking
32-00-02 Landing Gear Attachment Parts Topcoat Application
32-00-03 Landing Gear Parts - Lubrication Fitting Replacement
32-00-05 Repair of High Strength Steel Landing Gear Parts

3. Materials

NOTE: Equivalent substitutes can be used.

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

B. Enamel -- BMS 10-60, color 701 black gloss (Ref 20-60-02)

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

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

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

F. Aliphatic Naphtha -- TT-N-95, Type 1 (Ref 20-60-01)

4. Dimensioning Symbols

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

STRUT ASSEMBLY, LOWER DRAG - REPAIR 1-1

161T6001-1

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. Install replacement bushings by the shrink-fit method.

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

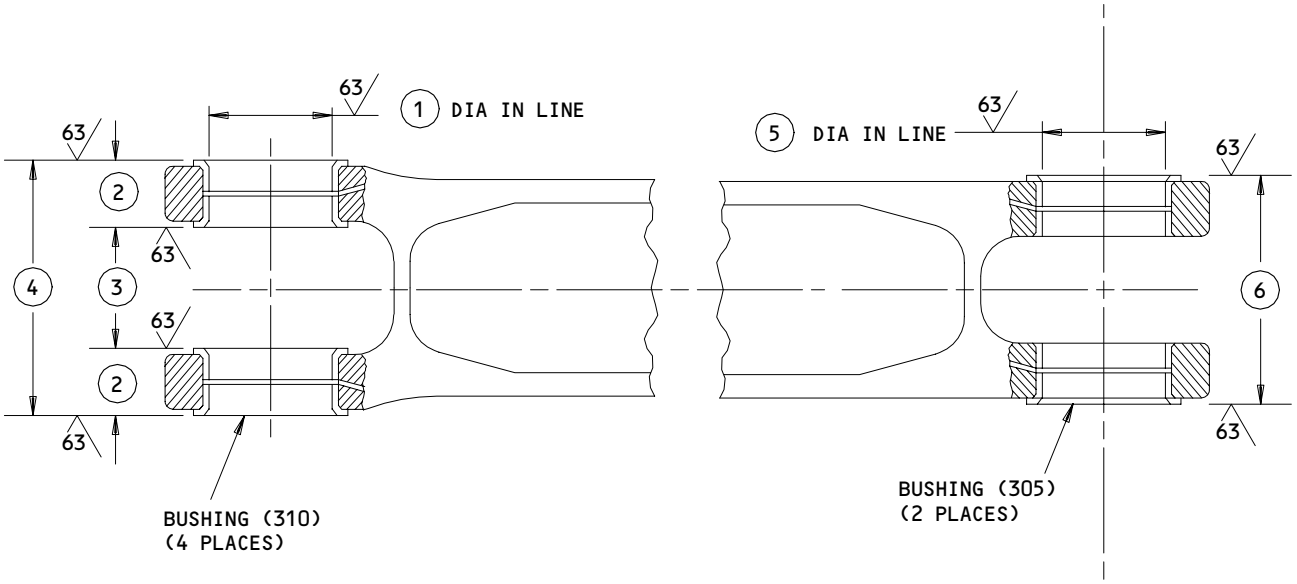
NOTE: Machining of bushings after installation is not normally required, since bushings and lug faces are premachined to provide dimensions shown.

D. Seal bushings per REPAIR 11-1.

E. Apply grease at the lube fittings until grease comes out on the bushing ID to make sure the lubrication passages are not blocked.

2. Lube Fitting Replacement

A. Replace lube fittings (300) per CMM 32-00-03.



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ALL DIMENSIONS ARE IN INCHES

161T6001-1

Bushing Replacement
Figure 601

T21684

STRUT, LOWER DRAG - REPAIR 1-2

161T6001-2

NOTE: Refer to REPAIR-GENERAL for a list of applicable standard practices, and to IPL Fig. 1 for item numbers. For repair of surfaces which may require only restoration of 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.

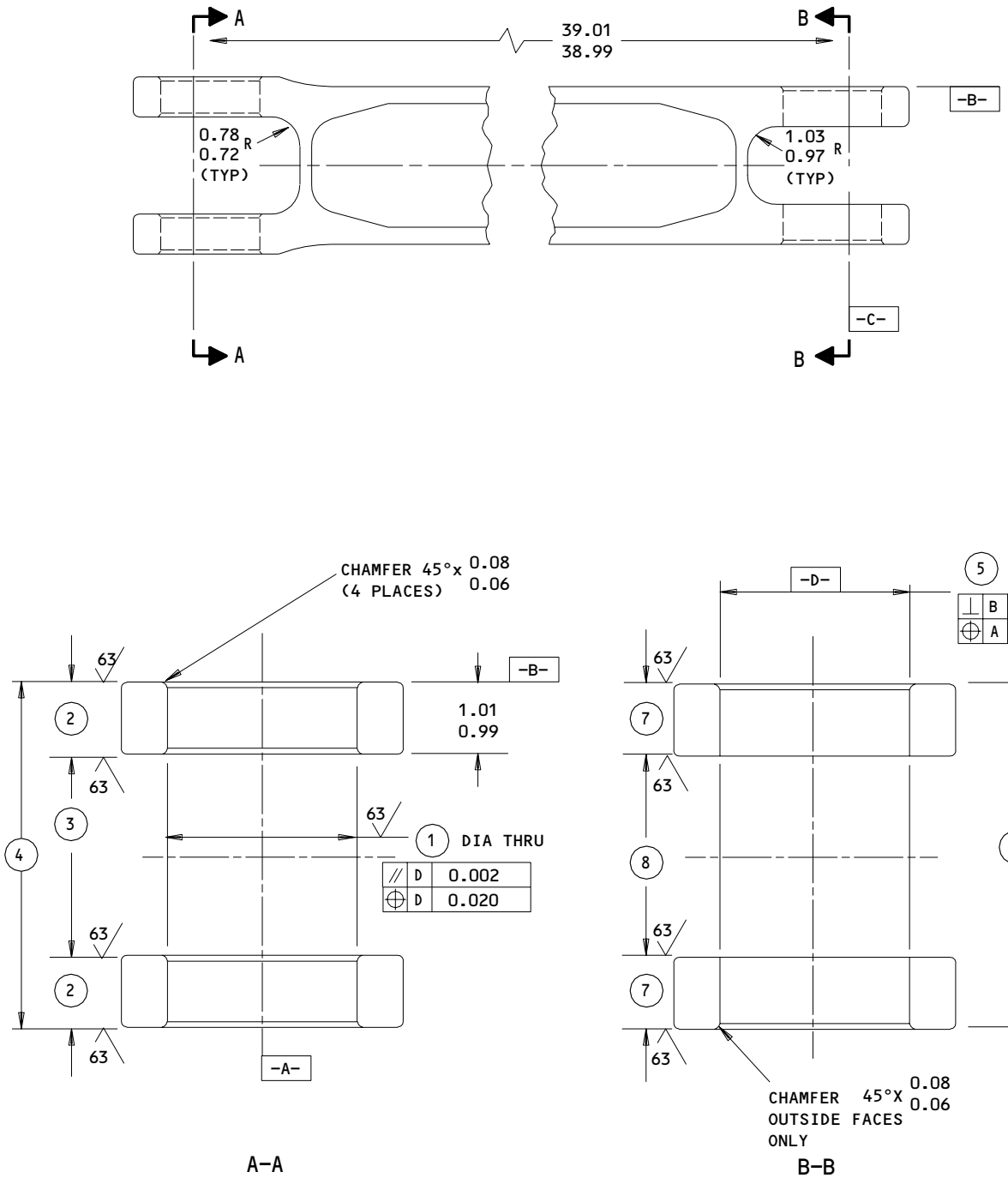
B. Method 2 -- Installation of Oversize Bushings

(1) Machine as required, within repair limits, 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 1-1.



A-A

B-B

ALL DIMENSIONS ARE IN INCHES

161T6001-2
Strut Repair and Refinish
Figure 601 (Sheet 1)

T21685

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DESIGN DIM	3.2415 3.2400	1.2454 1.2404	3.5096 3.5046	6.0004 5.9854	3.2415 3.2400	5.4954 5.4904	1.26 1.24	3.00 2.97
REPAIR LIMIT ▷1	3.3015	1.2104 ▷2	3.5396 ▷2	5.9554 ▷2	3.3015	5.4604 ▷2	1.225 ▷2	--- ▷2

REFINISH

CADMIUM-TITANIUM PLATE (F-15.01), 0.0005 MIN THICK (0.0005-0.0010 THICK IN BUSHING BORES) AND APPLY BMS 10-11, TYPE 1 PRIMER (F-20.02) ALL OVER. AFTER BUSHING INSTALLATION, APPLY BMS 10-60 ENAMEL (F-14.9813, WHICH REPLACES SRF-14.9813) ALL OVER BUT NOT ON BUSHINGS OR LUBE FITTING

▷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 0.03-0.07R

REPAIR

REF ▷1 ▷2

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

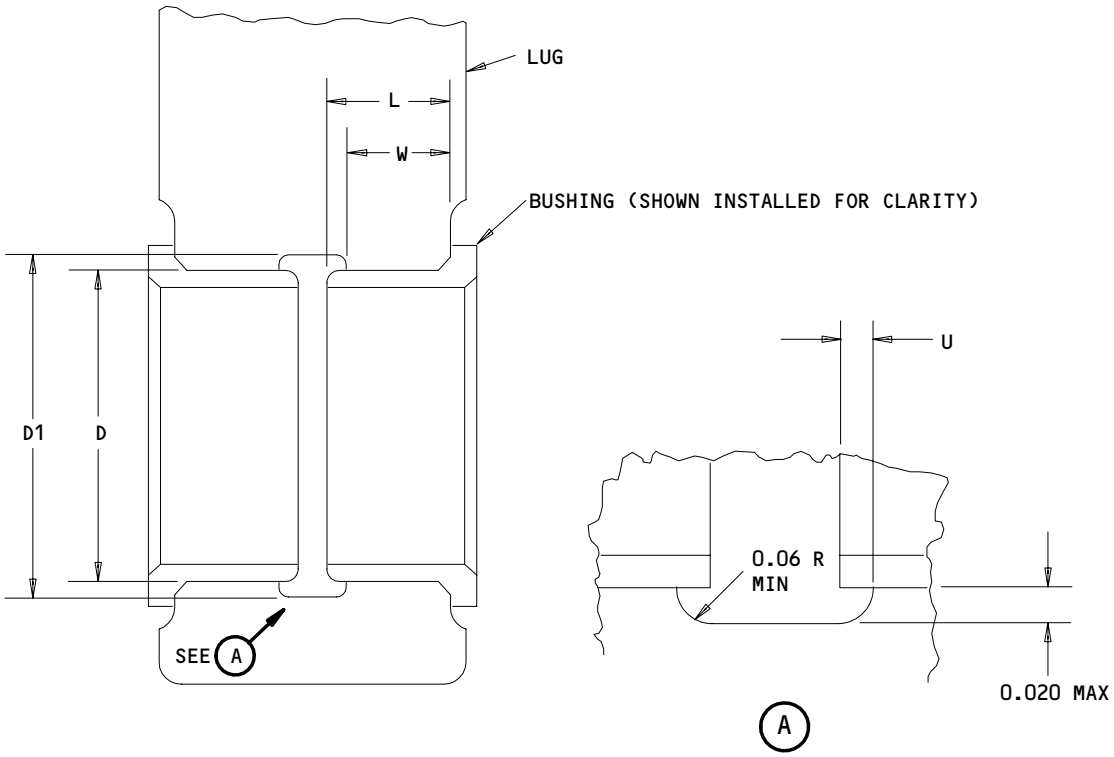
SHOT PEEN: 0.016-0.033 SHOT SIZE
0.014-0.018A2 INTENSITY

MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

161T6001-2
Strut Repair and Refinish
Figure 601 (Sheet 2)

13176



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

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

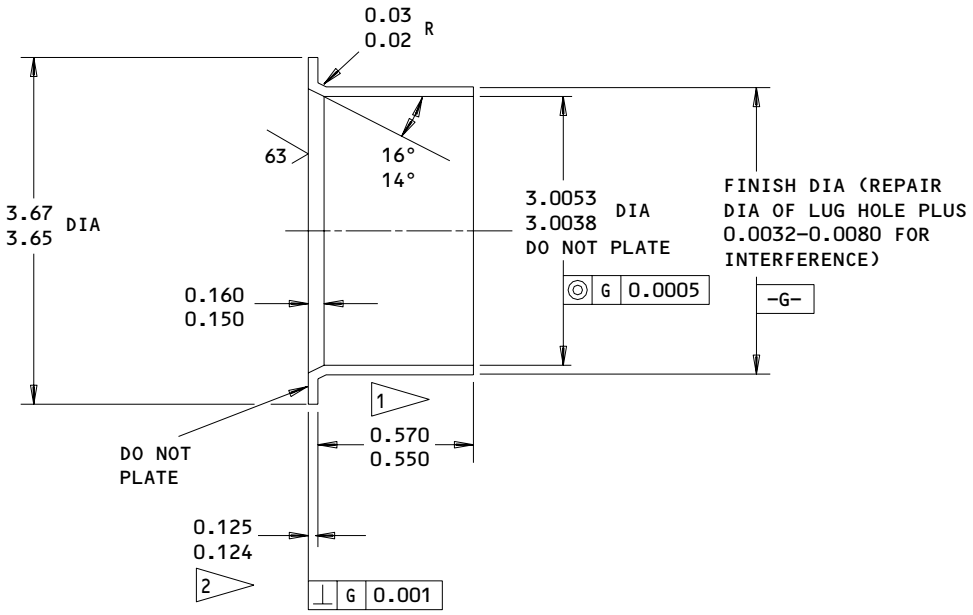
L = LENGTH OF BUSHING (SEE FIG. 603)

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



HOLE LOCATION (1) FIG. 601 – REPLACES BUSHING (310) 161T6040-3

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01–0.02R

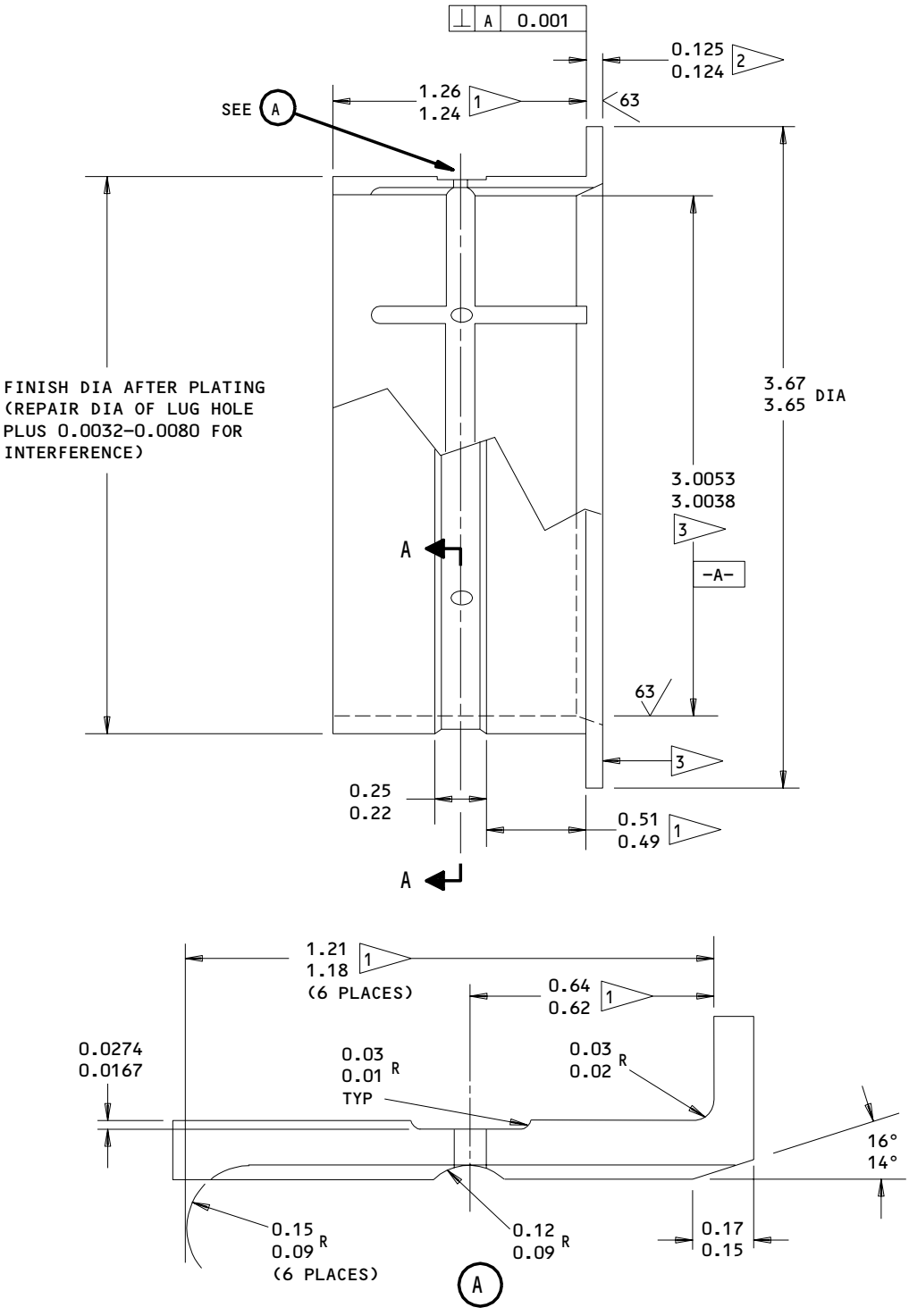
CADMIUM PLATE (0.0003–0.0005 THICK, F-15.06) ALL OVER, EXCEPT AS NOTED

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

ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

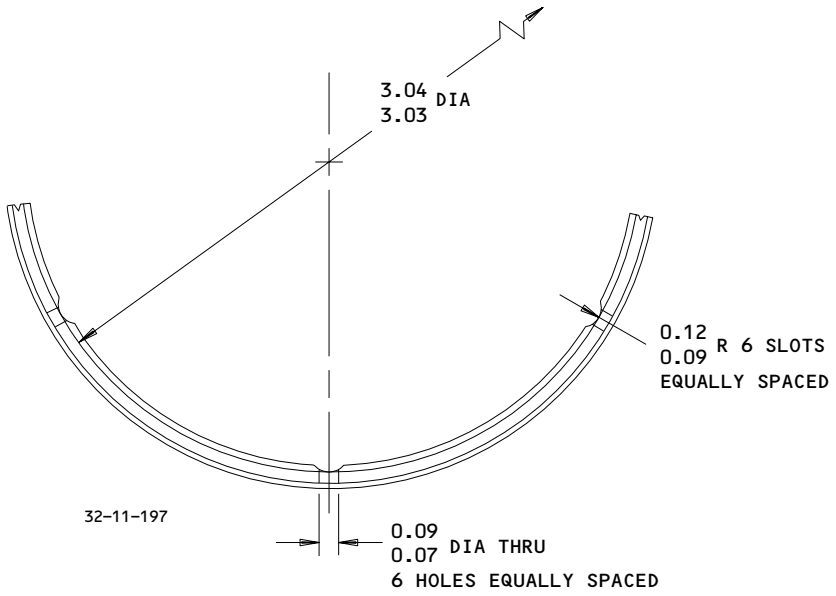
Oversize Bushing Details
Figure 603



HOLE LOCATION (5) FIG. 601 – REPLACES BUSHING (305) 161T6043-1

Oversize Bushing Details
Figure 604 (Sheet 1)

109290



A-A

HOLE LOCATION (5) FIG. 601 - REPLACES BUSHING (305) 161T6043-1

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

3 DO NOT PLATE

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

Oversize Bushing Details
Figure 604 (Sheet 2)

STRUT ASSEMBLY, UPPER DRAG - REPAIR 2-1

161T6003-1

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. Install replacement bushings by the shrink-fit method.

C. Check dimensions and machine as necessary.

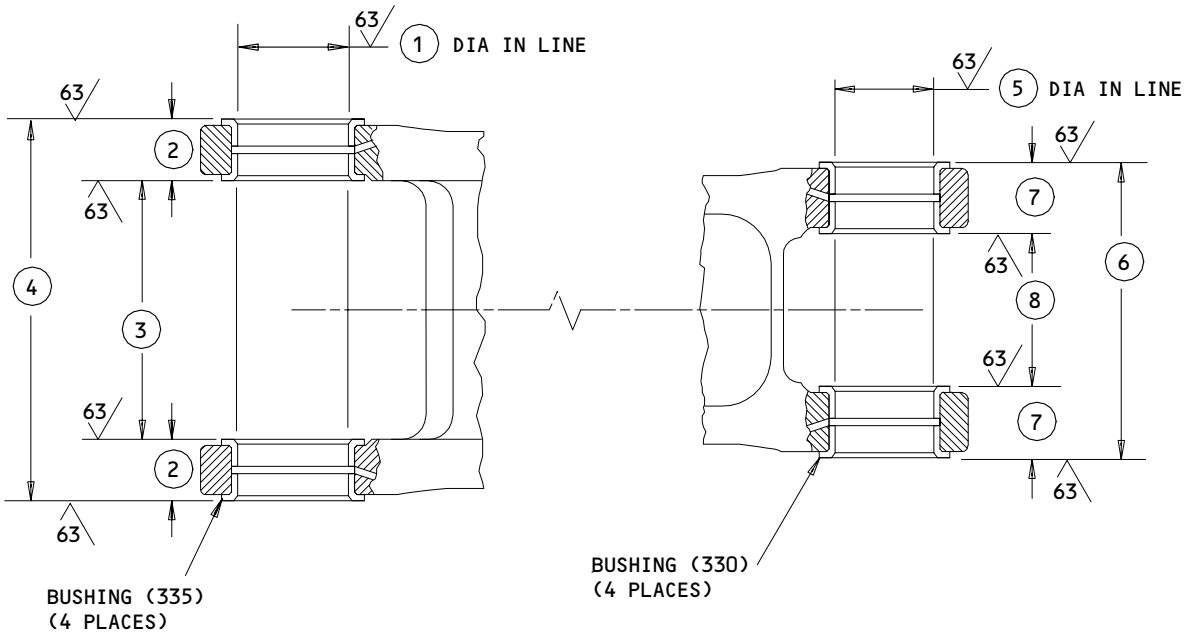
NOTE: Machining of bushings after installation is not normally required, since bushings and lug faces are premachined to provide dimensions shown.

D. Seal bushings per REPAIR 11-1.

E. Apply grease at the lube fittings until grease comes out on the bushing ID to make sure the lubrication passages are not blocked.

2. Lube Fitting Replacement

A. Replace lube fittings (325) per CMM 32-00-03.



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ALL DIMENSIONS ARE IN INCHES

161T6003-1
Bushing Replacement
Figure 601

T21687

STRUT, UPPER DRAG - REPAIR 2-2

161T6003-2

NOTE: Refer to REPAIR-GENERAL for a list of applicable standard practices, and to IPL Fig. 1 for item numbers. For repair of surfaces which may require only restoration of 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.

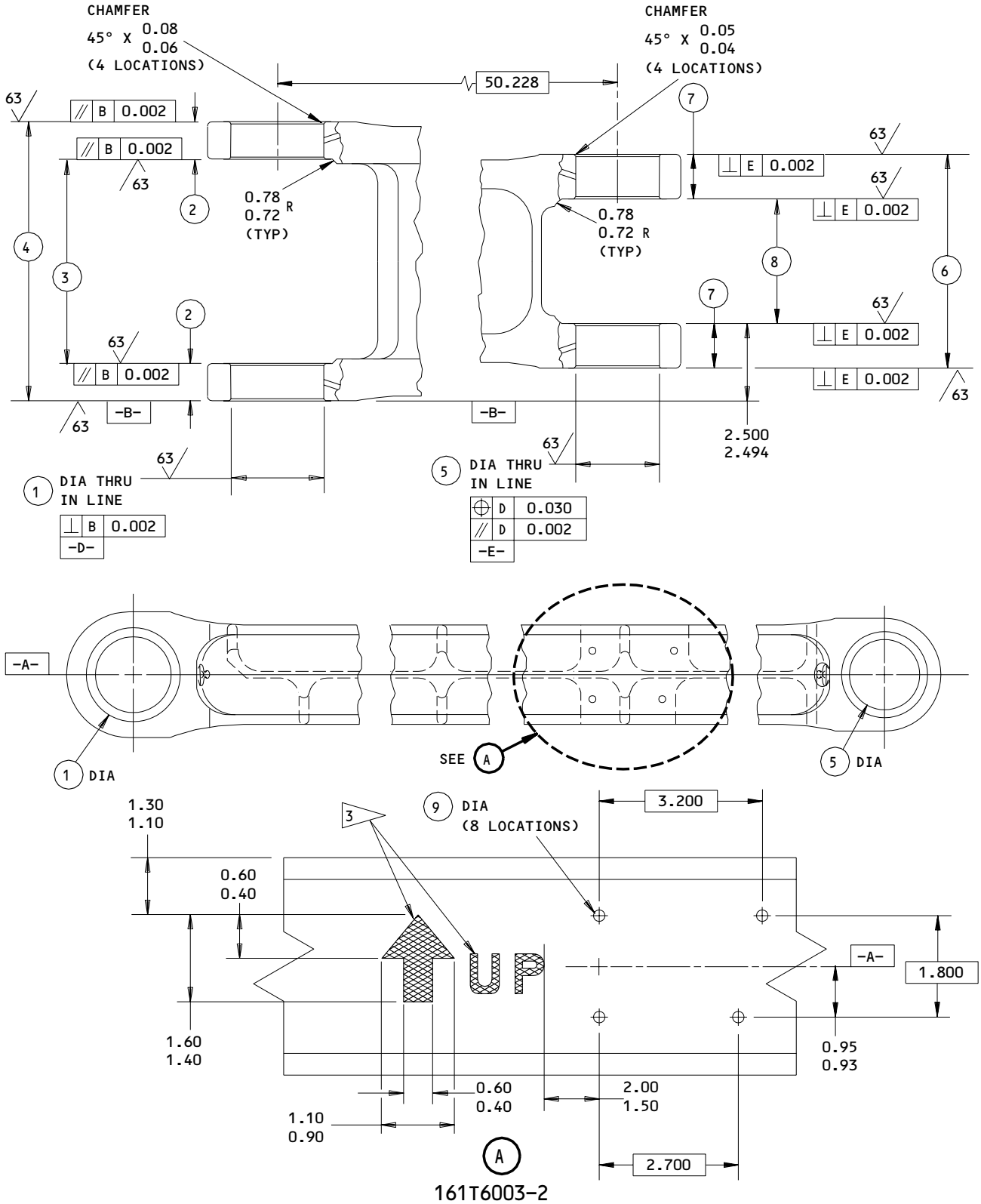
B. Method 2 -- Installation of Oversize Bushings or Repair Sleeves

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

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

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

(4) Install bushings or repair sleeves per REPAIR 2-1.



161T6003-2

Strut Repair and Refinish
Figure 601 (Sheet 1)

T21688

	1	2	3	4	5	6	7	8	9
DESIGN DIM	3.2415 3.2400	1.246 1.240	6.0096 6.0046	8.4954 8.4904	2.9515 2.9500	6.2454 6.2404	1.370 1.365	3.5096 3.5046	0.326 0.322
REPAIR LIMIT 1	3.3500	1.200 2	6.0396 2	8.4604 2	3.0115	6.2104 2	1.335 2	3.5396 2	0.400

REFINISH

CADMIUM-TITANIUM PLATE (F-15.01), 0.0005 MIN THICK (0.0005-0.0010 THICK IN BUSHING BORES) AND APPLY BMS 10-11, TYPE 1 PRIMER ALL OVER (F-20.02). AFTER BUSHING INSTALLATION, APPLY BMS 10-60 ENAMEL (F-14.9813, WHICH REPLACES SRF-14.9813) ALL OVER BUT NOT ON BUSHINGS OR LUBE FITTINGS.
STENCIL ARROW AND LETTERS BOTH SIDES OF STRUT PER 3.

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 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 R.

3. STENCIL ARROW AND 0.50 HIGH LETTERS BOTH SIDES OF STRUT IN LOCATION SHOWN WITH BLACK ENAMEL BMS 10-60 (F-14.9815-701, WHICH REPLACES SRF-14.9815-701).

REPAIR

REF 1 2

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

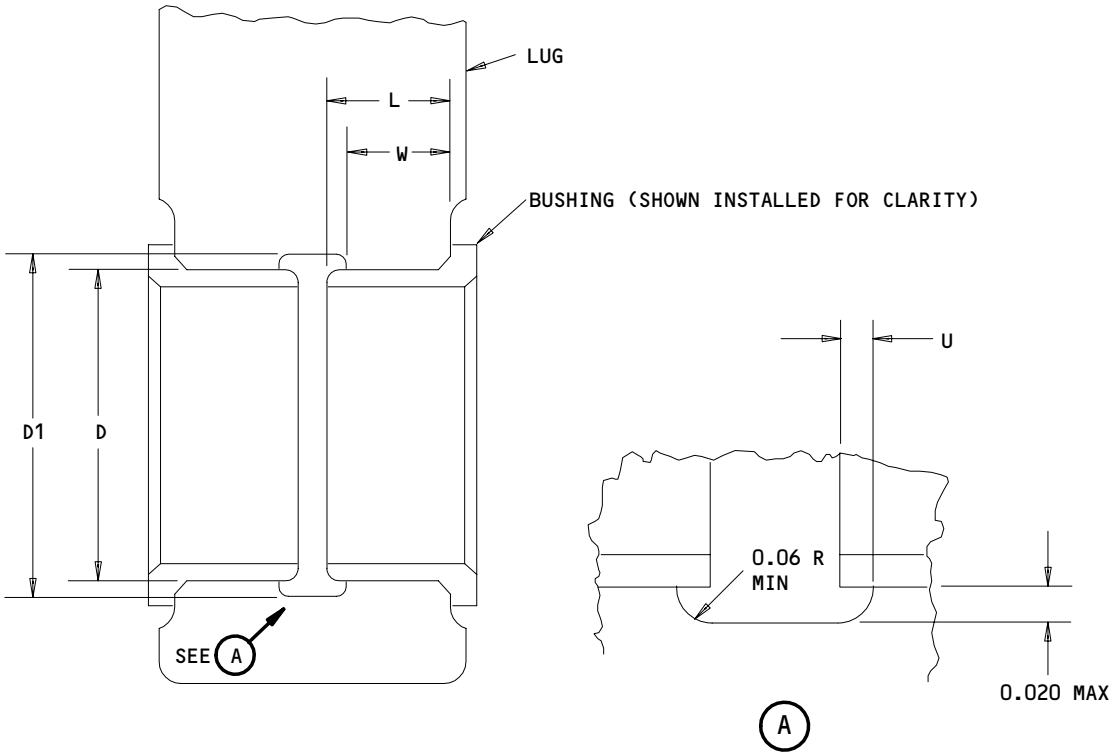
SHOT PEEN: 0.016-0.033 SHOT SIZE
0.014-0.018A2 INTENSITY

MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

161T6003-2

Strut Repair and Refinish
Figure 601 (Sheet 2)



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

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

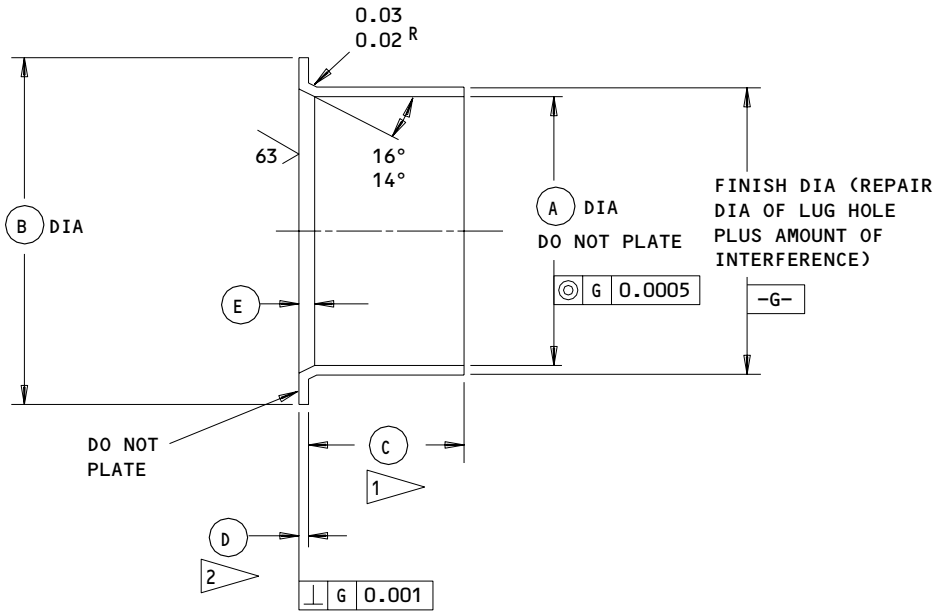
L = LENGTH OF BUSHING (SEE FIG. 603)

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



HOLE LOCATION (FIG. 601)	REPLACES BUSHING	A	B	C 1	D 2	E	INTERFERENCE
1	(335) 161T6040-3	3.0053 3.0038	3.67 3.65	0.57 0.55	0.125 0.124	0.16 0.15	0.0080 0.0032
5	(330) 161T6040-2	2.7552 2.7537	3.38 3.36	0.63 0.61	0.125 0.124	0.16 0.15	0.0081 0.0037

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01-0.02R

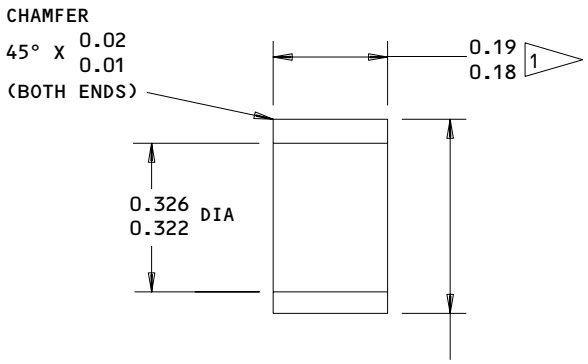
CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06) ALL OVER, EXCEPT AS NOTED

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

ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

Oversize Bushing Details
Figure 603



1 ADJUST LENGTH OF SLEEVE SO THAT THE SLEEVE IS FLUSH WITH OR 0.005 MAX BELOW SURFACE OF LUG

REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

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

MATERIAL: AL–NI–BRZ, AMS 4640

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (9) FIG. 601

Repair Sleeve Details
Figure 604

C38488

SPINDLE ASSEMBLY, UPPER - REPAIR 3-1

161T6007-1

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. Install replacement bushings by the shrink-fit method.

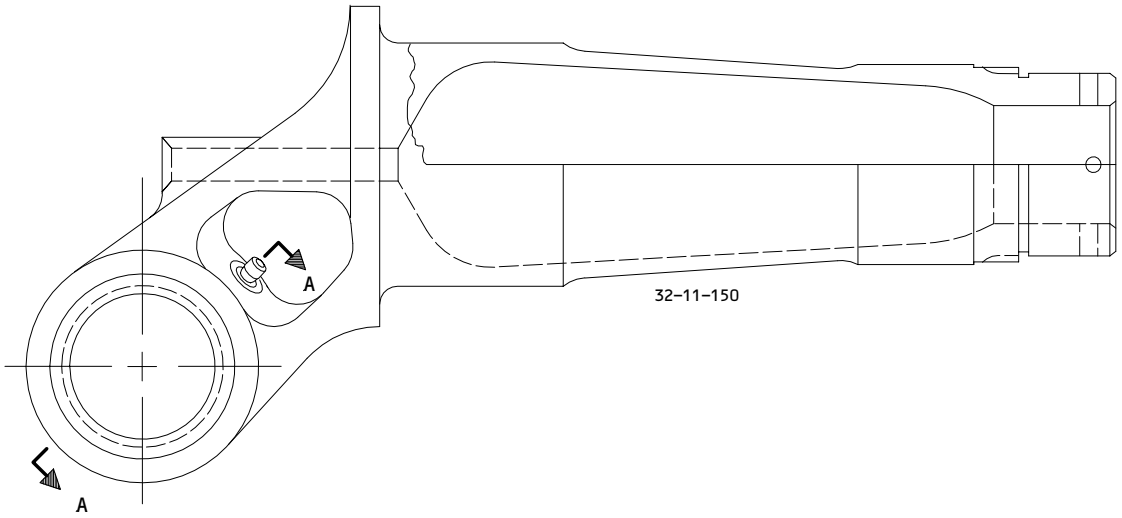
   C. Make a check of the dimensions and machine them as necessary.

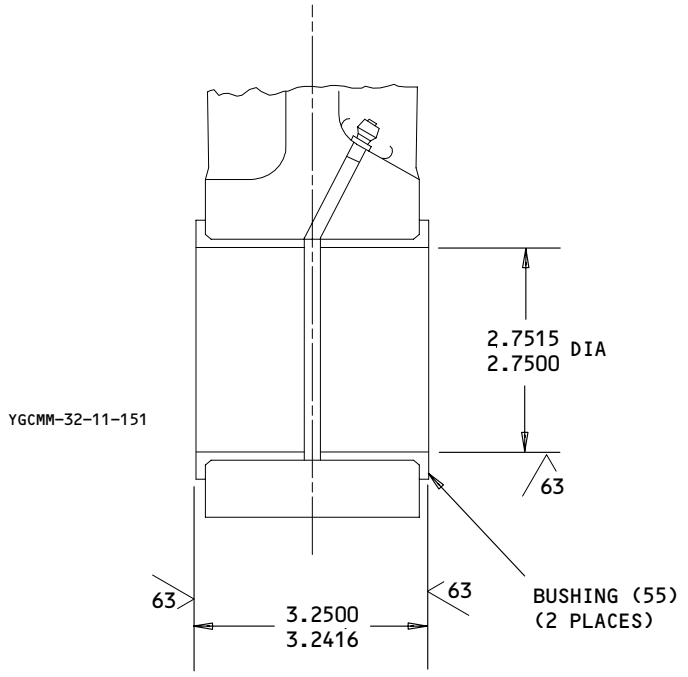
      NOTE: Machining of bushings after installation is not normally required, since bushings and lug faces are premachined to provide dimensions shown.

   D. Seal bushings per REPAIR 11-1.

2. Lube Fitting Replacement

   A. Replace lube fitting (50) per CMM 32-00-03.





A-A

ALL DIMENSIONS ARE IN INCHES

161T6007-1

Bushing Replacement
Figure 601

T21689

SPINDLE, UPPER - REPAIR 3-2

161T6007-2

NOTE: Refer to REPAIR - GENERAL for a list of applicable standard practices, and IPL Fig. 1 for item numbers. For repair of surfaces which may require only restoration of oringial finish, refer to Refinish instructions, Fig. 601, REPAIR 3-3.

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.

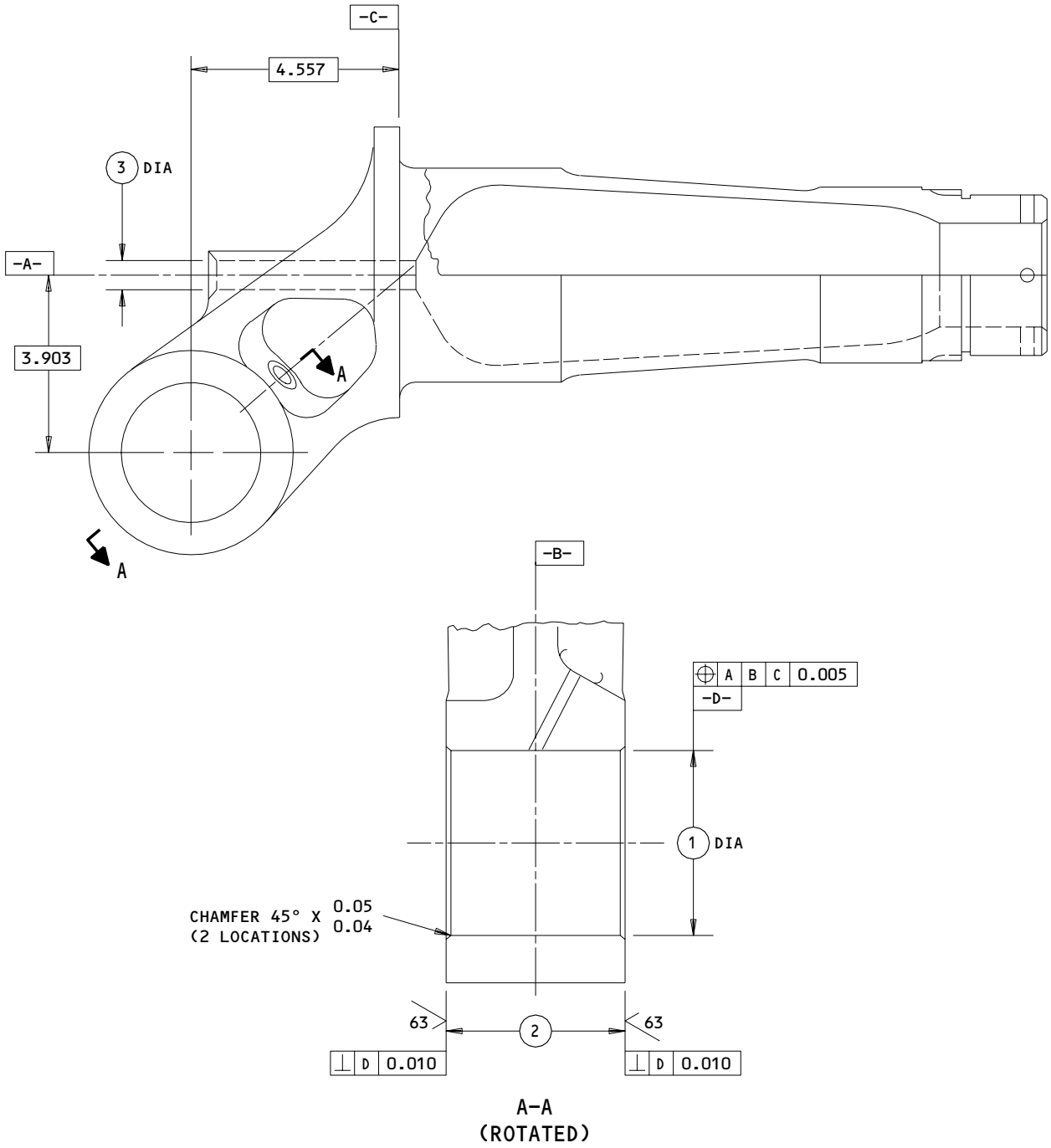
B. Method 2 -- Installation of Oversize Bushings

(1) Machine as required, within repair limits, 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.



161T6007-2

Lug Face and Hole Repair
Figure 601 (Sheet 1)

	(1)	(2)	(3)
DESIGN DIM	2.9915 2.9900	2.9954 2.9904	0.640 0.620
REPAIR LIMIT	3.0515 1	2.9604 1 2	0.700 3

REFINISH

(SEE REFINISH INSTRUCTIONS, REPAIR 3-3)

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 0.03-0.07R

3 RESTORATION TO DESIGN DIMENSION NOT REQUIRED

REPAIR

REF 1 2 3

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

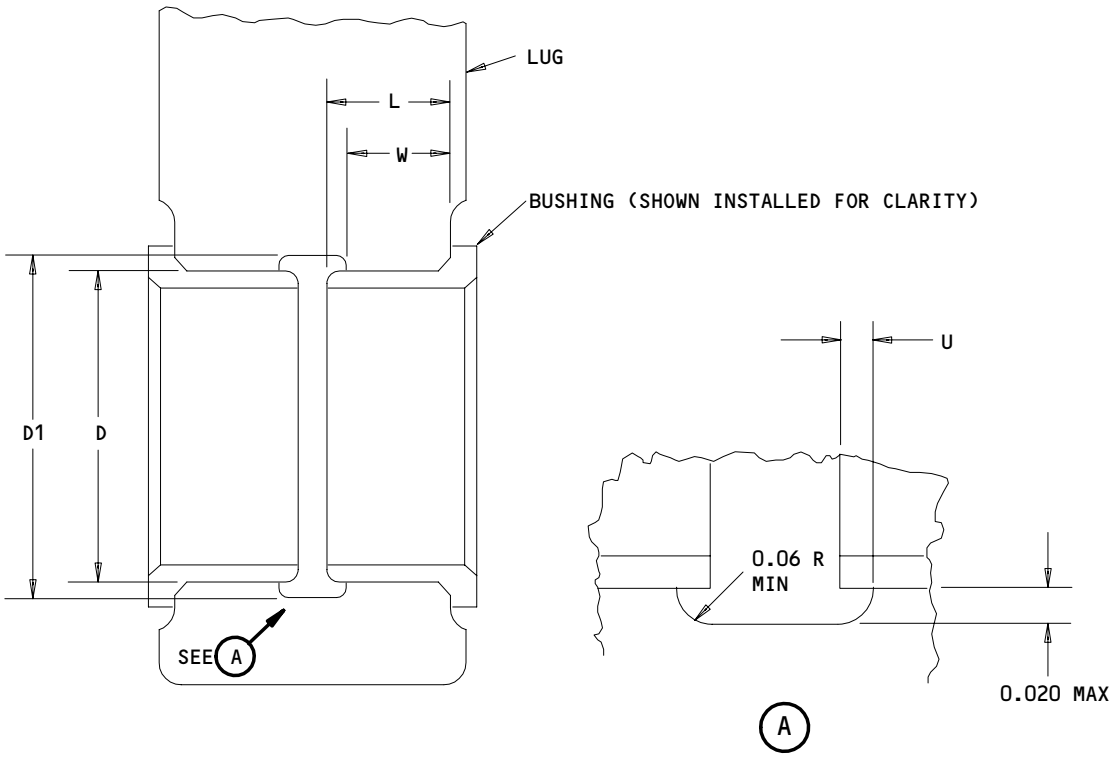
SHOT PEEN: RC 55-65 SHOT HEAT TREAT
0.016-0.033 SHOT SIZE
0.014-0.018A2 INTENSITY

MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

161T6007-2

Lug Face and Hole Repair
Figure 601 (Sheet 2)



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

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

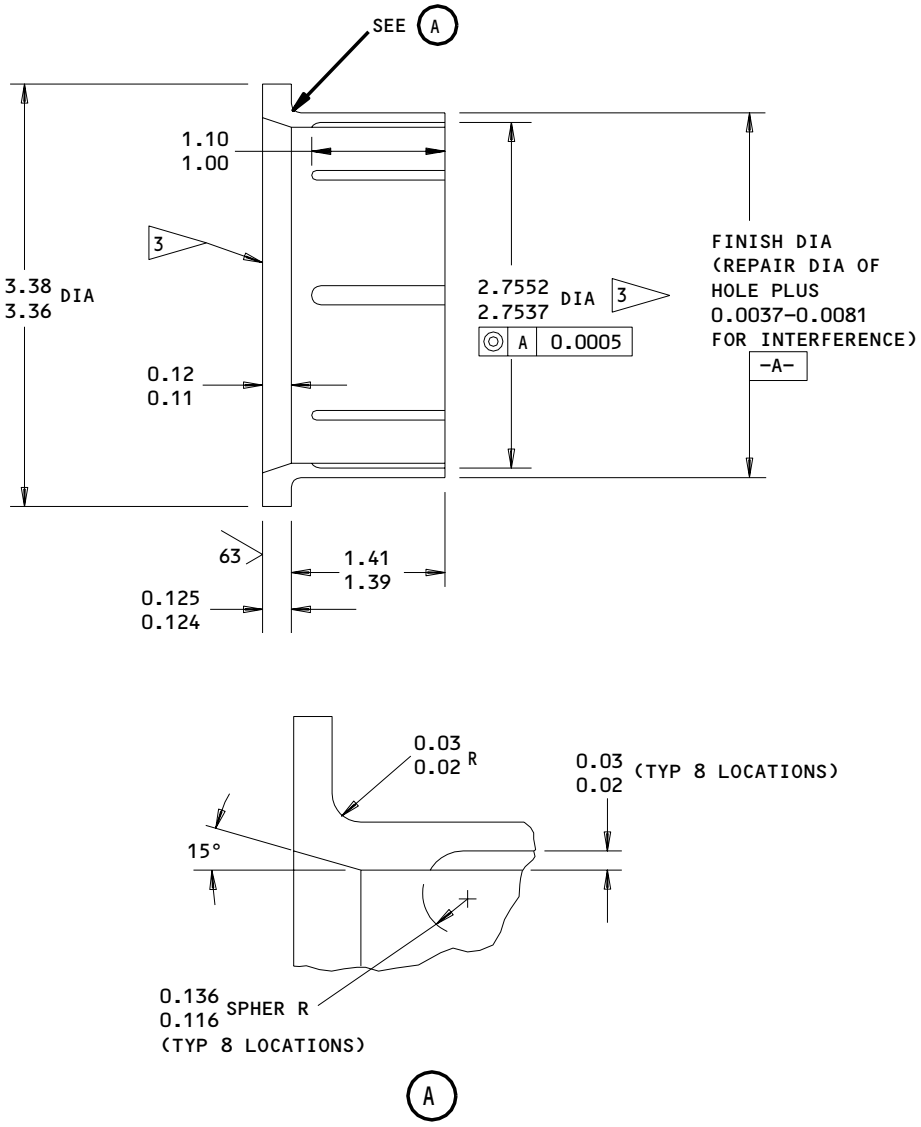
L = LENGTH OF BUSHING (SEE FIG. 603)

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



HOLE LOCATION (1) FIG. 601 - REPLACES BUSHING (55) 161T6044-2

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

3 DO NOT PLATE

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

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

Oversize Bushing Details
Figure 603

SPINDLE - REPAIR 3-3

161T6007-2

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 - Diameters E, H (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. Head Face (Fig. 601)

   A. Machine as required, within repair limits, to remove defects. Blend into shank-to-head radius.

   B. Shot peen, chrome plate, and grind to restore grip length. Do not chrome plate shank-to-head radius.

      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. Refinish as indicated.

4. Pin Retention Holes (Fig. 601)

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

   B. Cadmium-titanium plate. Apply primer.

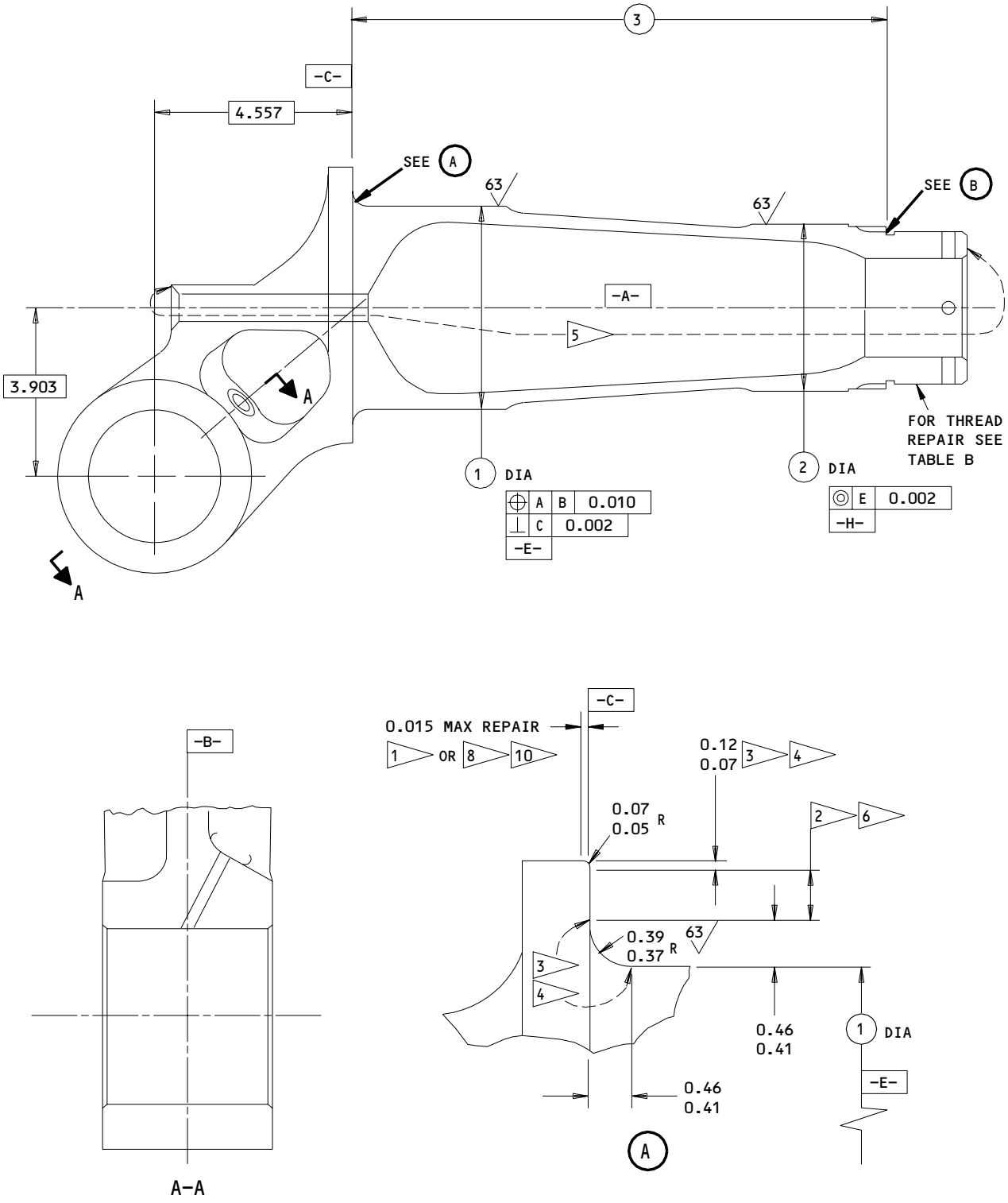
5. Threads (Fig. 601)

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

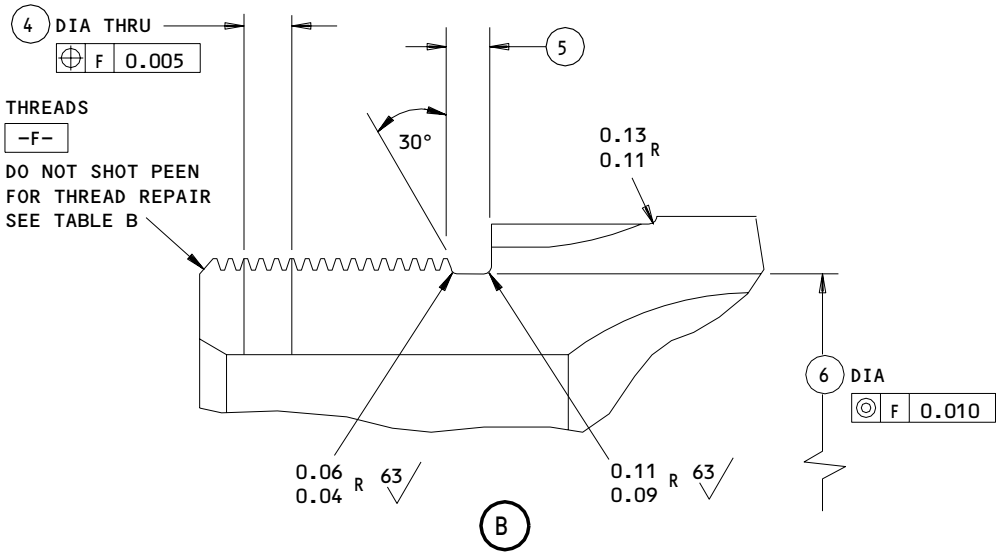
B. Cadmium-titanium plate the threads. Apply primer per 32-00-02.

C. Make an undersize nut (CMM 32-11-81, REPAIR 21-1).

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.



161T6007-2
Spindle Repair and Refinish
Figure 601 (Sheet 1)



	1	2	3	4	5	6
DESIGN DIM	4.749 4.747	3.999 3.997	12.34 12.32	0.270 0.264	0.230 0.210	3.505 3.495
REPAIR LIMIT	4.717 7	3.967 7	--	0.290 8	0.245 9	SEE TABLE B

TABLE A

UNJF-3A THREAD SIZE	3.625-12 (DESIGN) (REF)	3.500-12 (1/8 UNDERSIZE)
MAJOR DIA	3.5979 3.5879	3.4729 3.4629
PITCH DIA	3.5709 3.5661	3.4459 3.4411
MINOR DIA	3.5288 3.5190	3.4038 3.3940
ROOT RADIUS	0.0150 0.0125	0.0150 0.0125
THREAD RELIEF DESIGN DIA	3.505 3.495	3.380 3.370
THREAD RELIEF REPAIR LIMIT	3.475 8	—

TABLE B

161T6007-2
Spindle Repair and Refinish
Figure 601 (Sheet 2)

REFINISH

CHROME PLATE DIA -E-, -H- PER 1.

CHROME PLATE AREA NOTED 2. OBSERVE 0.08 MAX PLATING RUNOUT

CADMIUM-TITANIUM PLATE (F-15.01) ALL OTHER AREAS, 0.0005 MIN THICK, EXCEPT 0.0005-0.0010 IN HOLES. APPLY PRIMER, BMS 10-11, TYPE 1 (F-20.02) EXCEPT AS NOTED AND F-20.03 IN INTERNAL BORE

AFTER INSTL OF BUSHINGS & LUBE FITTINGS, APPLY ENAMEL, BMS 10-60 (SRF-14.9813) EXCEPT ON BUSHING BORES AND FACES, LUBE FITTING, CHROME PLATED AREAS, AND AS NOTED BY 6.

APPLY WIPE PRIMER TO CHROME PLATED & THREADED AREAS, AND AS NOTED BY 3, PER 32-00-02.

1. CHROME PLATE (F-15.34), 0.003 MIN THICK
2. FLASH CHROME PLATE (F-15.03) 0.0003-0.0005 THICK AND WIPE PRIMER PER 32-00-02
3. CADMIUM TITANIUM PLATE (F-15.01) AND WIPE PRIMER PER 32-00-02
4. NO CHROME PLATE

REPAIR

REF 7 9

125 MACHINE FINISH EXCEPT AS NOTED

SHOT PEEN: 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

5. AFTER CADMIUM-TITANIUM PLATING AND PRIMER, APPLY CORROSION PREVENTIVE COMPOUND MIL-C-11796 (F-19.03) ON INTERNAL BORE
6. NO ENAMEL
7. LIMIT FOR CHROME PLATE BUILDUP AND GRINDINGTO DIMENSIONS SHOWN. OBSERVE 0.08 MAXIMUM PLATING RUNOUT AT EDGES, HOLES, AND RELIEFS EXCEPT OTHERWISE NOTED
8. RESTORATION TO DESIGN DIM NOT REQUIRED
9. 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)
10. RESTORE GRIP LENGTH AT LOCATION (5)

161T6007-2
Spindle Repair and Refinish
Figure 601 (Sheet 3)

BOLT, APEX - REPAIR 4-1

161T6009-1, -2, -3, -4

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

1. Shank Repair - Diameters 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 shall not exceed 0.010 after grinding.

2. Head Face Repair

   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.

      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

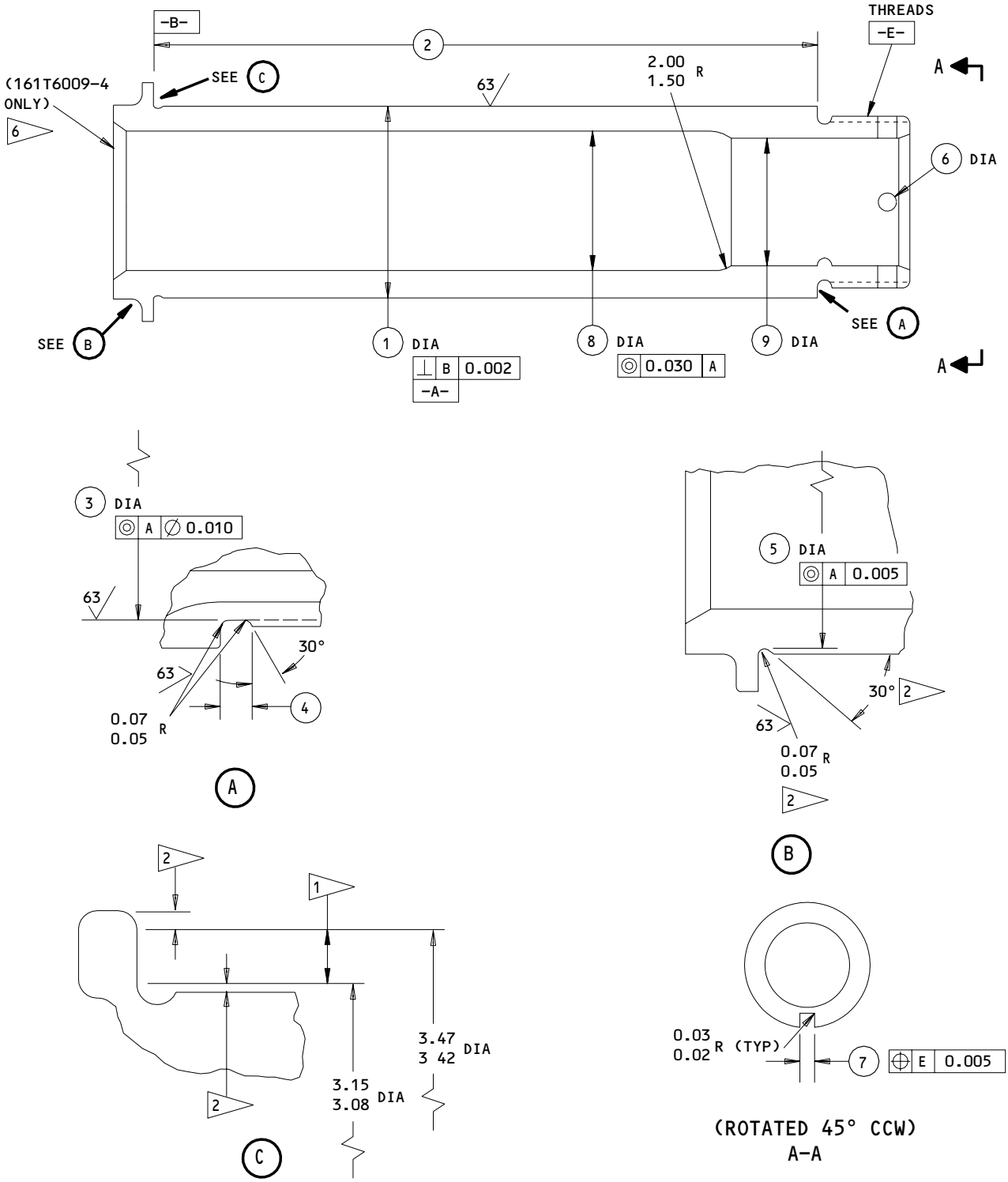
   A. Machine as required, within repair limits, to remove defects. If necessary to adjust grip length, machine shoulder at thread relief.

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

4. Pin Retention Hole

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

   B. Cadmium-titanium plate. Apply primer.



161T6009-1,-2,-3,-4
Bolt Repair and Refinish
Figure 601 (Sheet 1)

T21692

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
DESIGN DIM	2.999 2.998	11.025 11.020	2.633 2.623	0.177 0.157	2.945 2.940	0.270 0.264	0.39 0.38
REPAIR LIMIT	2.969 ▷3	---	2.603 ▷4	0.187 ▷5	2.920 ▷4	0.300 ▷4	0.41 ▷4

	(8) 161T6009-1	(8) 161T6009-2	(8) 161T6009-3	(8) 161T6009-4	(9)
DESIGN DIM	2.25 2.23	2.14 2.12	2.08 2.06	2.08 2.06	2.01 1.99
REPAIR LIMIT	2.28 ▷4	2.17 ▷4	2.11 ▷4	2.11 ▷4	---

REFINISH

CHROME PLATE (F-15.34) DIA -A-, 0.003 MIN THICK, WITH 0.08 MAX PLATING RUNOUT AROUND EDGES AND KEYWAY

CADMIUM TITANIUM PLATE (F-15.01), 0.0005 MIN THICK, ALL OTHER SURFACES, EXCEPT AS NOTED. APPLY CORROSION PREVENTIVE COMPOUND MIL-C-11796, CLASS 1 (F-19.03) ON ID. APPLY PRIMER AND ENAMEL PER CMM 32-00-02 EXCEPT AS NOTED

▷1 CHROME PLATE (F-15.34) 0.0015-0.0020 INCH THICK. DO NOT GRIND

▷2 NO CHROME PLATE

▷3 LIMIT FOR CHROME PLATE BUILDUP AND GRINDING TO DESIGN DIMENSION AND FINISH, WITH 0.08 MAX PLATING RUNOUT.

▷4 RESTORATION TO DESIGN DIM 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)

▷6 VIBRO ENGRAVE THE PART SERIAL NUMBER AND THE PART NUMBER ON NOTED AREA.

REPAIR

REF ▷3 ▷4 ▷5

125 MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.05-0.07R

SHOT PEEN: RC 55-65 SHOT HEAT TREAT
0.016-0.033 SHOT SIZE
0.014-0.018A2 INTENSITY

MATERIAL: 4340M STEEL, 275-300 KSI

ALL DIMENSIONS ARE IN INCHES

161T6009-1,-2,-3,-4
Bolt Repair and Refinish
Figure 601 (Sheet 2)

T21693

STRUT ASSEMBLY, UPPER JURY - REPAIR 5-1

161T6011-3

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. Install replacement bushings by the shrink-fit method. Swage bushings (200) per SOPM 20-50-03.

C. Check dimensions and machine as necessary.

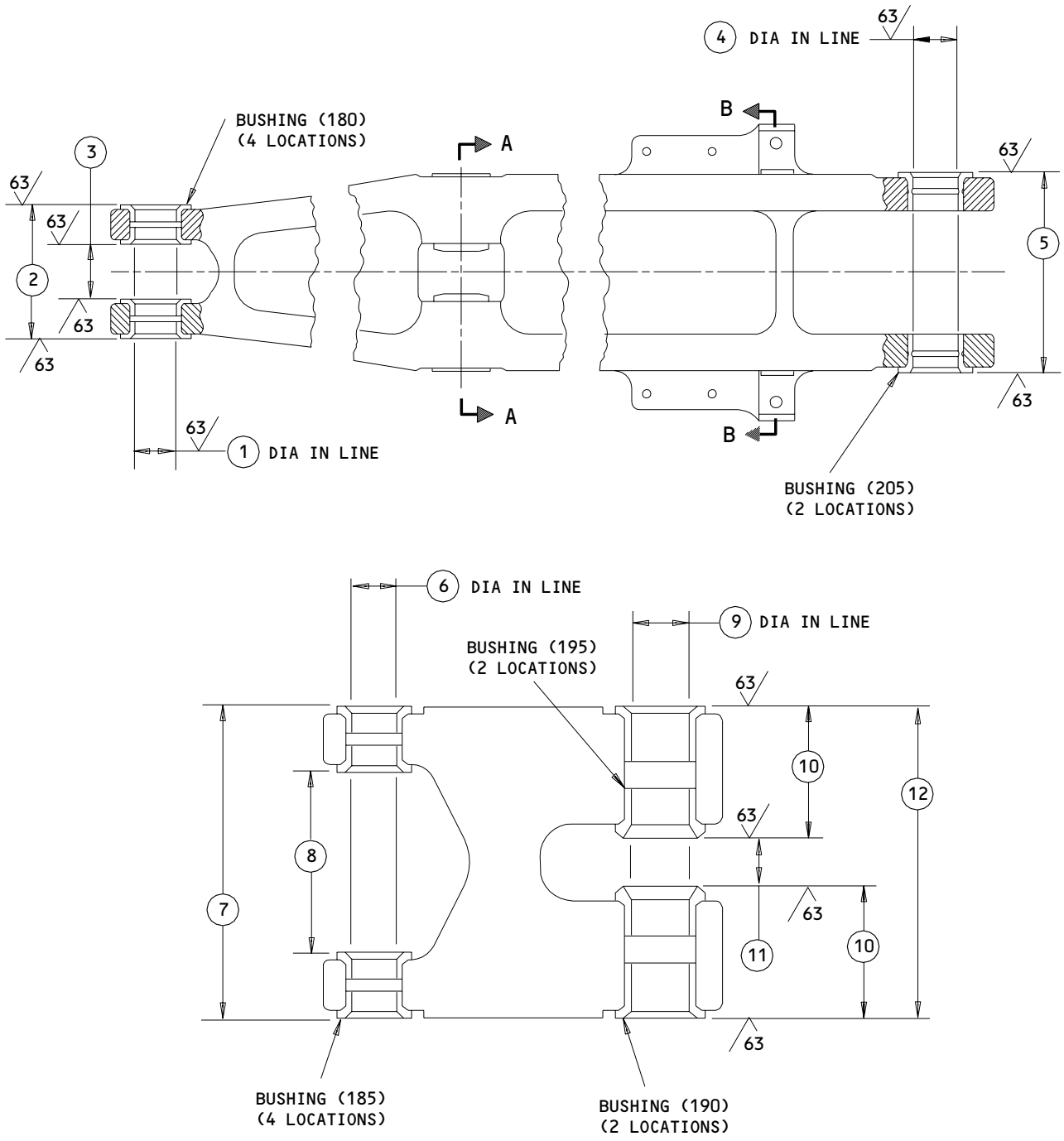
NOTE: Machining of bushings after installation is not normally required since bushings and lug faces are premachined to provide dimensions shown.

D. Seal bushings per REPAIR 11-1.

E. Apply grease at the lube fittings until grease comes out on the bushing ID to make sure lubrication passages are not blocked.

2. Lube Fitting Replacement

A. Replace lube fittings (175) per CMM 32-00-03.



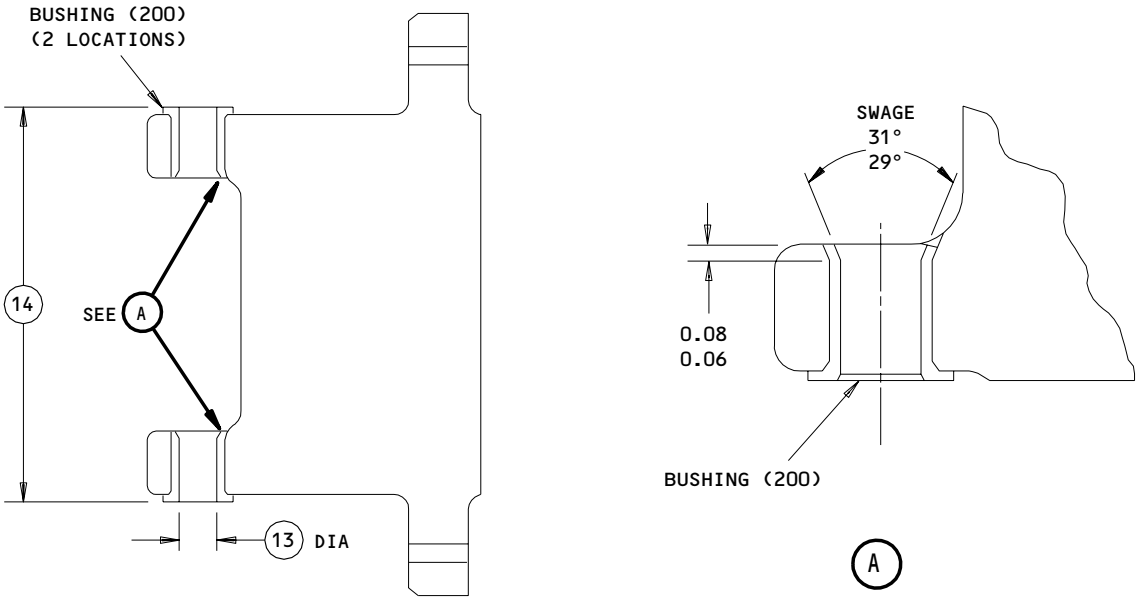
A-A

ALL DIMENSIONS ARE IN INCHES

161T6011-3

Bushing Replacement
Figure 601 (Sheet 1)

T21694



	1	2	3	4	5	6	7	8
DESIGN DIM	1.2515 1.2500	3.2572 3.2492	1.5080 1.5000	1.2515 1.2500	4.7500 4.7420	0.7540 0.7500	4.6250 4.6170	2.8830 2.8750

	9	10	11	12	13	14
DESIGN DIM	0.8790 0.8750	1.900 1.892	0.8330 0.8250	4.6250 4.6170	0.6580 0.6540	4.7400 4.6700

ITEM NUMBERS REFER TO IPL FIG. 1
ALL DIMENSIONS ARE IN INCHES

161T6011-3

Bushing Replacement
Figure 601 (Sheet 2)

T21695

STRUT, UPPER JURY - REPAIR 5-2

161T6011-4, -5

NOTE: Refer to REPAIR-GENERAL for a list of applicable standard practices, and to IPL Fig. 1 for item numbers. For repair of surfaces which may require only restoration of 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) 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.

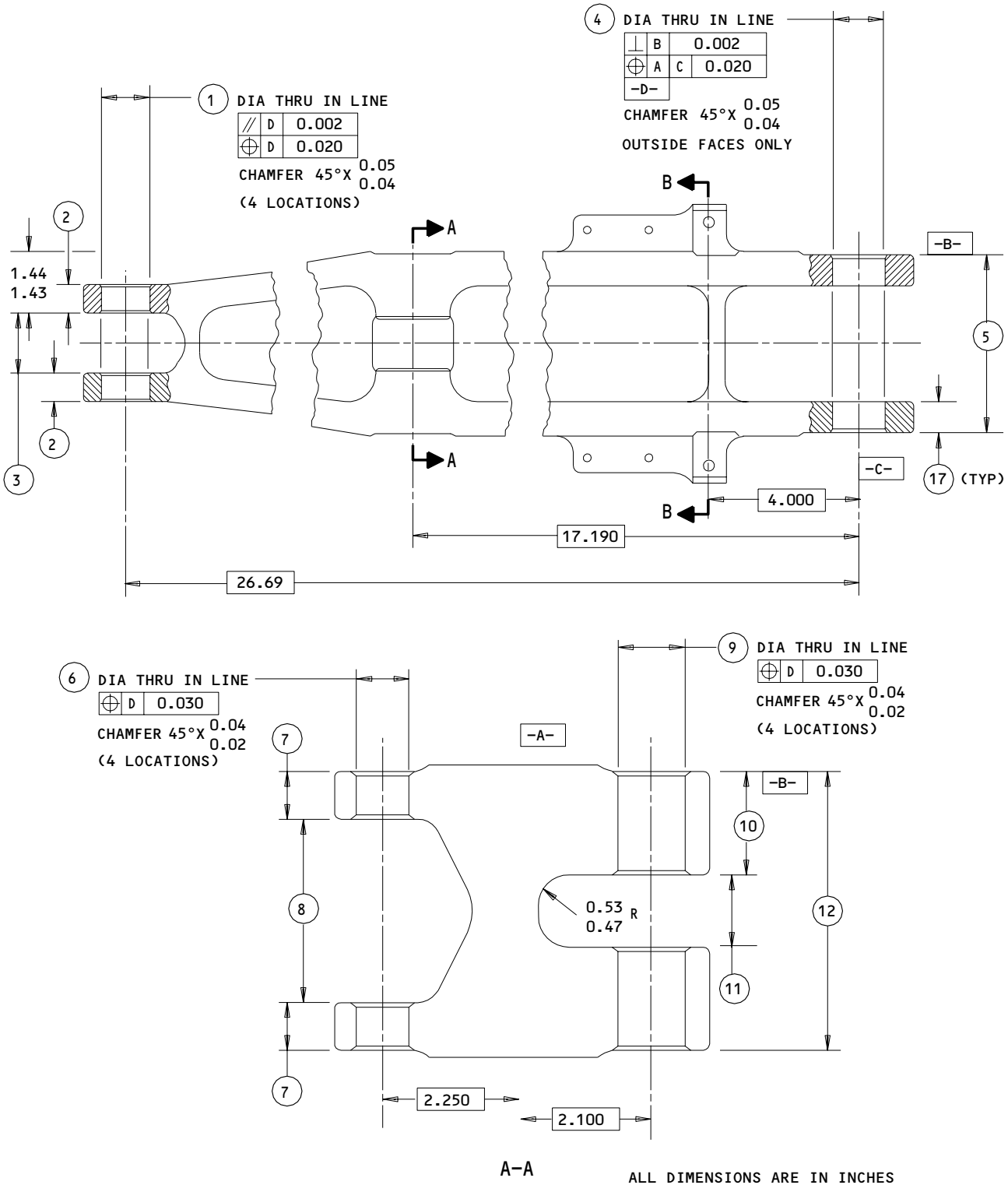
B. Method 2 -- Installation of Oversize Bushings or Repair Sleeves

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

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

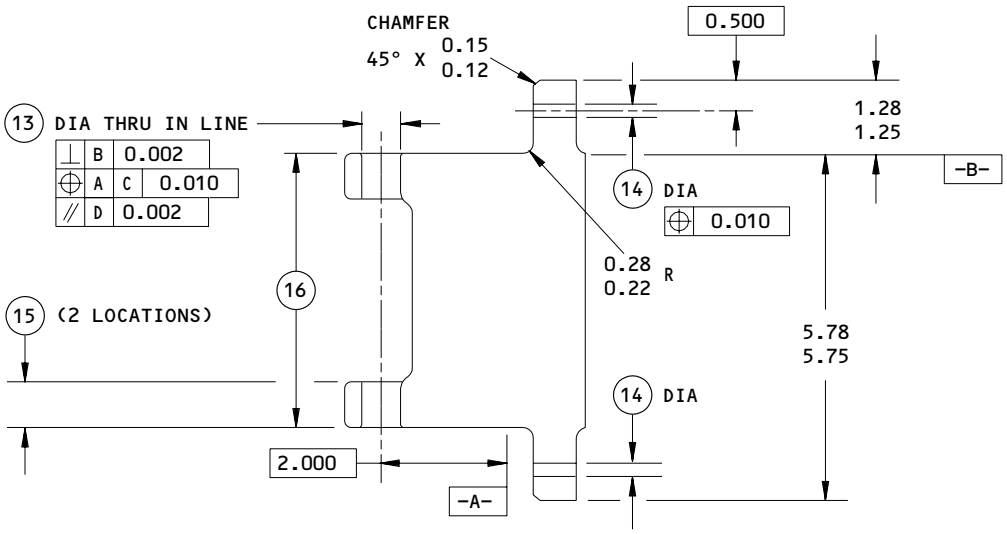
(3) Manufacture bushings or repair sleeves (Fig. 603 and on), as required, to make allowance for amount of material removed in step (1).

(4) Install bushings or sleeves per REPAIR 5-1.



161T6011-4,-5
Upper Jury Strut Repair and Refinish
Figure 601 (Sheet 1)

T21696



B-B

	1	2	3	4	5	6	7	8
DESIGN DIM	1.3765 1.3750	0.750 0.745	1.630 1.625	1.4165 1.4150	4.4968 4.4918	0.876 0.875	0.755 0.750	3.005 3.000
REPAIR LIMIT 1	1.4365	0.715 2	1.660 2	1.4765	4.4618 2	1.150	0.670	3.035

	9	10	11	12	13	14	15	16	17
DESIGN DIM	1.0015 1.0000	1.71 1.70	1.0832 1.0782	4.500 4.495	0.7805 0.7790	0.254 0.250	0.760 0.740	4.530 4.470	0.760 0.750
REPAIR LIMIT 1	1.150	1.600 2	1.1132 2	4.465 2	0.8405	0.550 0.350	0.720 2 3	4.440 3	0.723 3

REFINISH

CHROMIC ACID ANODIZE AND APPLY BMS 10-11, TYPE 1 PRIMER (F-18.13). AFTER BUSHING INSTALLATION, APPLY BMS 10-60 ENAMEL, (F-14.9813, WHICH REPLACES SRF-14.9813) ALL OVER BUT NOT ON BUSHINGS OR 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 DIM AND REPAIR LIMIT
2. FLAT SURFACE MUST BE MINIMUM OF 0.02 LARGER THAN FLANGE DIA OF BUSHING TO BE INSTALLED
3. BLEND MISMATCH STEPS TO 0.18-0.26 RADIUS, OR, IF WITHIN 0.10 OF LUG FILLET RADIUS, USE SAME RADIUS AS LUG FILLET. BREAK SHARP EDGES 0.03-0.07 R.

REPAIR

REF 1 THRU 4

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.025-0.033 SHOT SIZE
0.012 A2 INTENSITY

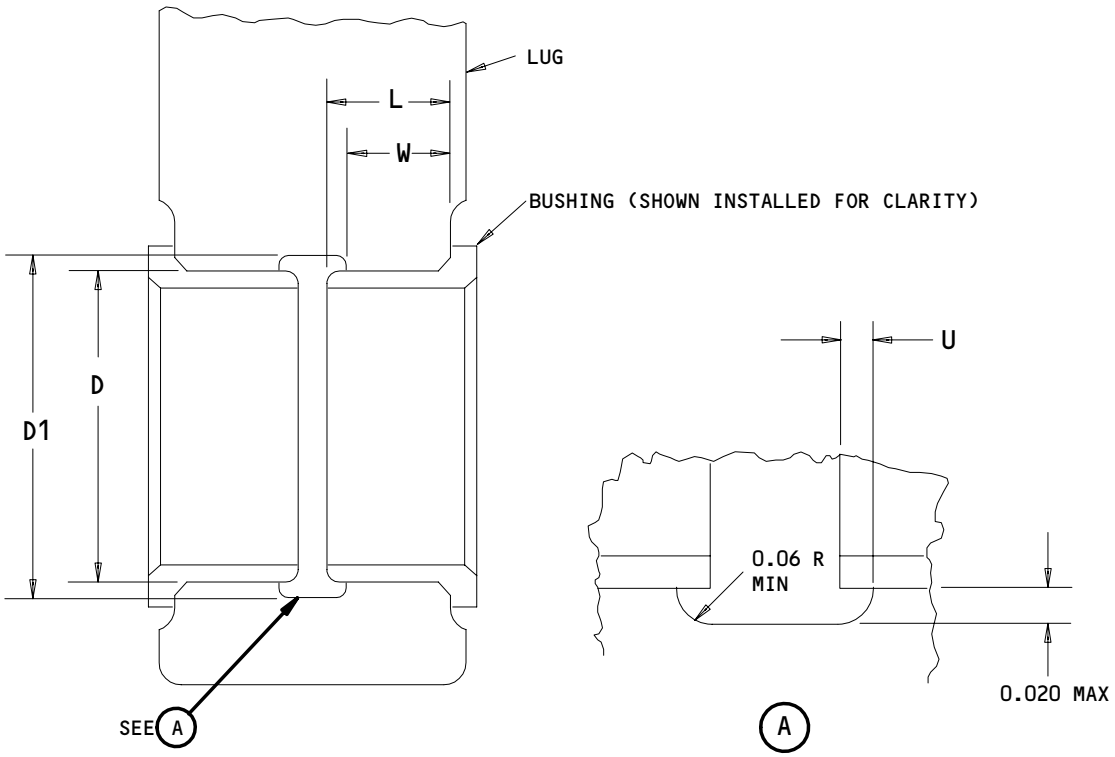
MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

3 MATERIAL REMOVED FROM EACH FACE OF THE LUG MUST NOT BE MORE THAN 0.015 INCH.

4 RANGE FOR INSTALLATION OF REPAIR SLEEVE

161T6011-4,-5
Upper Jury Strut Repair and Refinish
Figure 601 (Sheet 2)



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

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

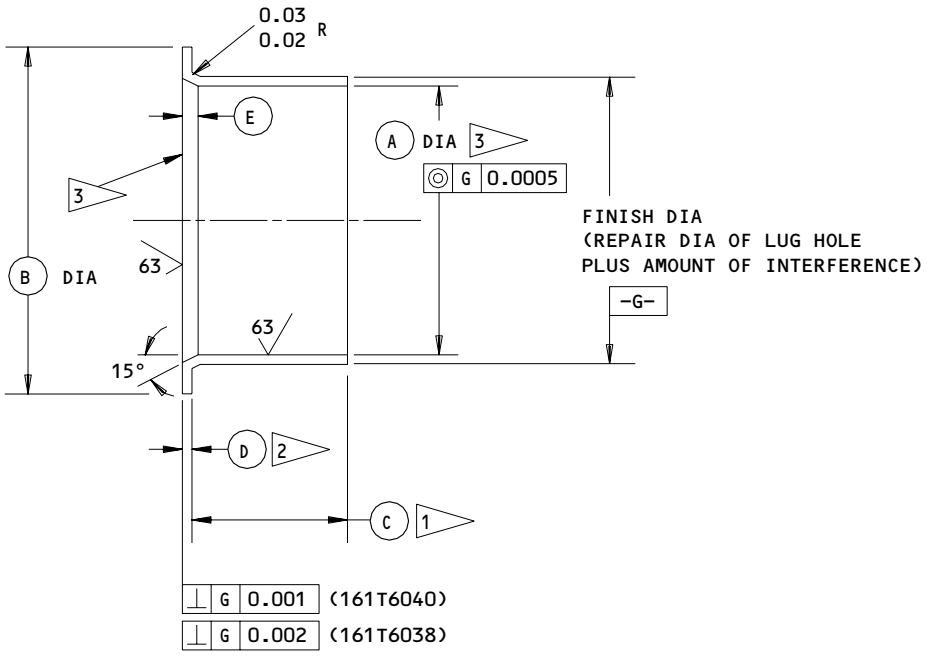
L = LENGTH OF BUSHING (SEE FIG. 603)

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)	REPLACES BUSHING	A 3	B	C 1	D 2	E	FINISH	INTERFERENCE	MATERIAL
1	(180) 161T6040-12	1.2542 1.2527	1.66 1.64	0.32 0.30	0.061 0.060	0.10 0.09	6	0.0042 0.0012	4
6	(185) 161T6038-1	0.7520 0.7505	7	0.32 0.30	0.061 0.060	0.09 0.07	NO FINISH	0.0036 0.0011	5
9 12	(190) 161T6040-9	0.8790 0.8775	1.32 1.30	0.66 0.64	0.061 0.060	0.10 0.09	6	0.0039 0.0009	4

1. MINUS AMOUNT REMOVED FROM LUG FACE
2. PLUS AMOUNT REMOVED FROM LUG FACE
3. DO NOT PLATE
4. AL-NI-BRZ, AMS 4640 OR 4880
5. OILITE SINTERED BRONZE, MIL-B-5687, TYPE 1, COMP. A OR B
6. CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06) ALL OVER, UNLESS SHOWN BY 3
7. DIAMETER -G- PLUS 0.240-0.260

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

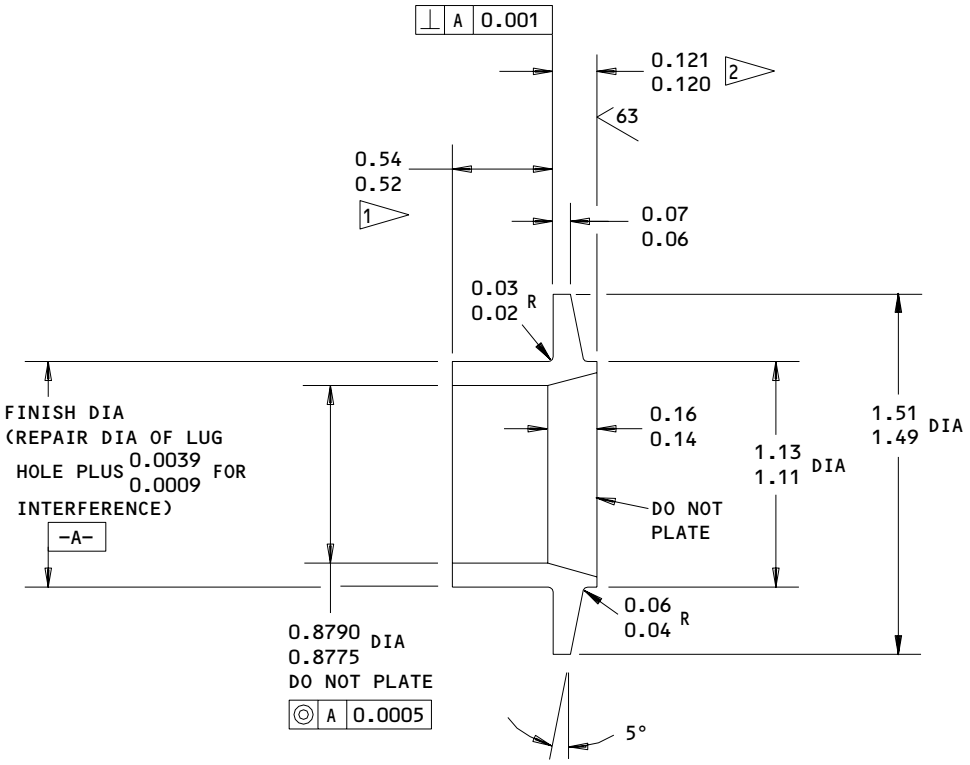
FINISH: AS SHOWN

MATERIAL: AS SHOWN

ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

Oversize Bushing Details
Figure 603



1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

125 MACHINED FINISH UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.02 R

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

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

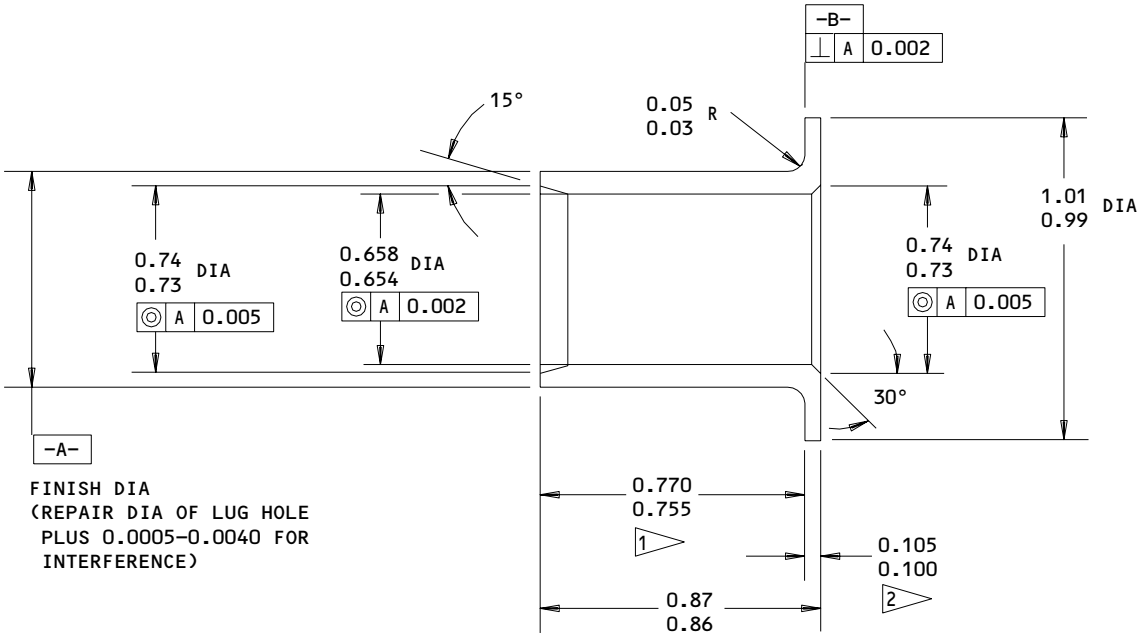
ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (9) (11) FIG. 601 - REPLACES BUSHING (195) 161T6041-1

Oversize Bushing Details
Figure 604

80358



125 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 ON ID.

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

1 MINUS AMOUNT REMOVED FROM LUG FACE

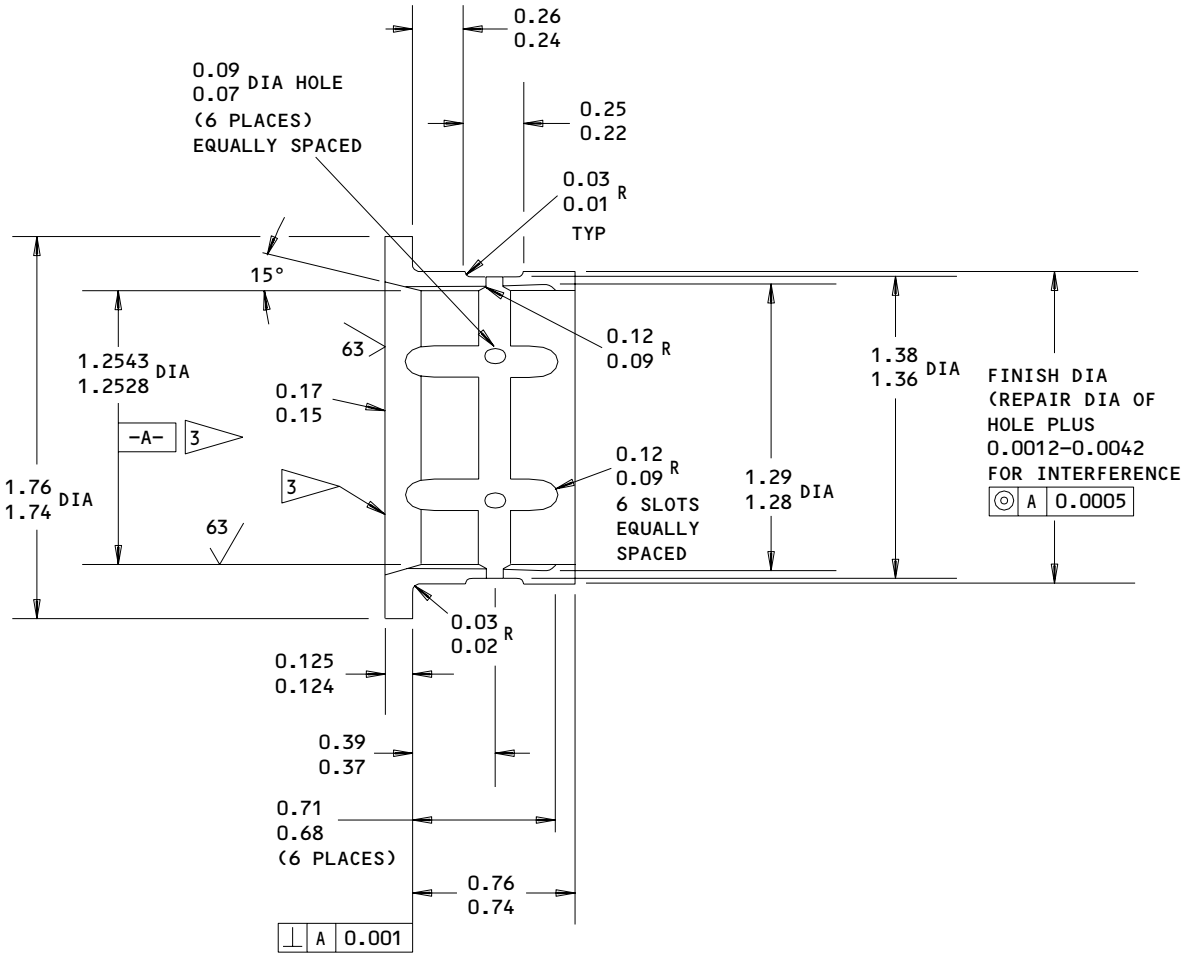
2 PLUS AMOUNT REMOVED FROM LUG FACE

ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (13) FIG. 601 - REPLACES BUSHING (200) 161T2043-3

Oversize Bushing Details
Figure 605



125 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

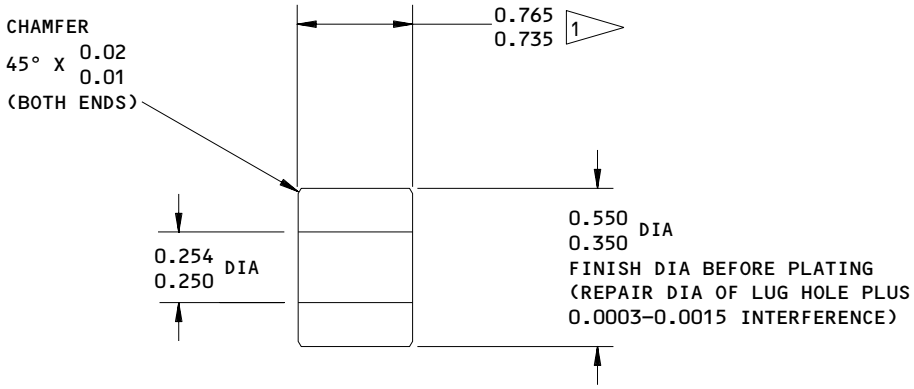
1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

3 DO NOT PLATE

LOCATION (4) FIG. 601 - REPLACES BUSHING (205) 161T6042-1

Oversize Bushing Details
Figure 606



REPAIR

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

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

MATERIAL: AL–NI–BRZ, AMS 4640

ALL DIMENSIONS ARE IN INCHES

1 ADJUST LENGTH OF SLEEVE SO THAT THE SLEEVE IS FLUSH WITH OR 0.005 MAX BELOW SURFACE OF LUG

HOLE LOCATION (14) Fig. 601

Repair Sleeve Details
Figure 607

F15236

STRUT ASSEMBLY, LOWER JURY - REPAIR 6-1

161T6013-1

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. Install replacement bushings by the shrink-fit method. Swage bushings (275) as shown.

C. Check dimensions and machine as necessary.

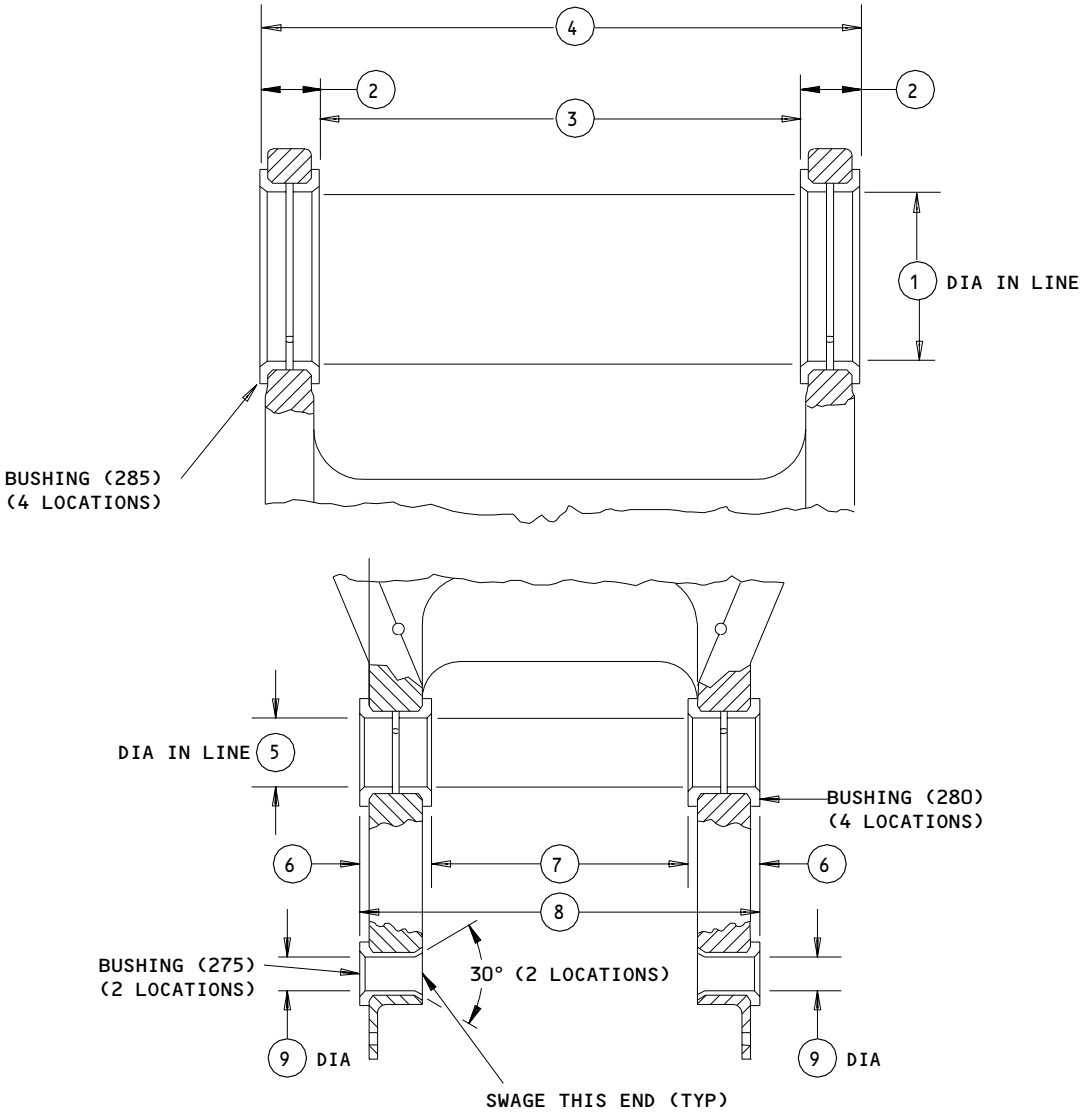
NOTE: Machining of bushings after installation is not normally required, since bushings and lug faces are premachined to provide dimensions shown.

D. Seal bushings per REPAIR 11-1.

E. Apply grease at the lube fittings until grease comes out on the bushing ID to make sure a clear lubrication passages are not blocked.

2. Lube Fitting Replacement

A. Replace lube fittings (270) per CMM 32-00-03.



	1	2	3	4	5	6	7	8	9
DESIGN DIM	3.001 3.000	1.000 0.993	8.7602 8.7500	10.7614 10.7434	1.2515 1.2500	1.255 1.248	4.760 4.750	7.266 7.258	0.658 0.654

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

161T6013-1
Bushing Replacement
Figure 601

T21698

STRUT, LOWER JURY - REPAIR 6-2

161T6013-2

NOTE: Refer to REPAIR-GENERAL for a list of applicable standard practices, and to IPL Fig. 1 for item numbers. For repair of surfaces which may require only restoration or 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) 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.

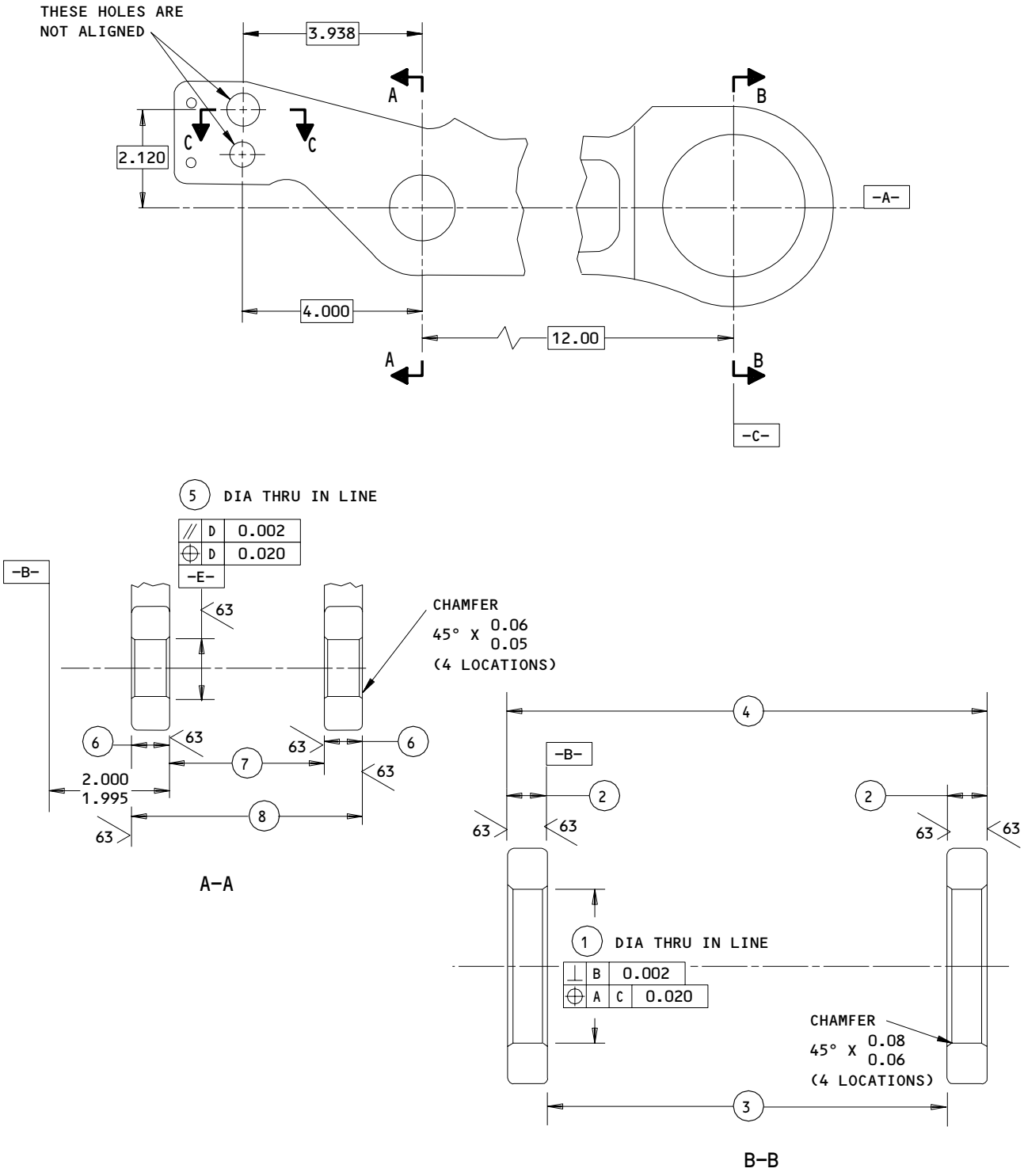
B. Method 2 -- Installation of Oversize Bushings

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

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

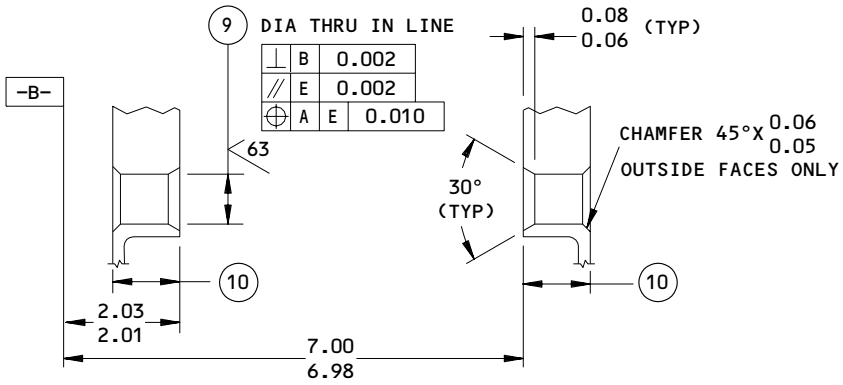
(3) Manufacture bushings (Fig. 603 and on), as required, to compensate for amount of material removed in step (1).

(4) Install bushings per REPAIR 6-1.



161T6013-2
Strut Repair and Refinish
Figure 601 (Sheet 1)

13343



C-C

	1	2	3	4	5	6	7	8	9	10
DESIGN DIM	3.2415 3.2400	0.750 0.745	9.0082 9.0032	10.5082 10.4932	1.4165 1.4150	1.005 1.000	5.008 5.003	7.013 7.008	0.7805 0.7790	1.06 1.04
REPAIR LIMIT 1	3.3015	0.715 2	9.0382 2	10.4632 2	1.4765	0.970 2	5.038 2	6.978 2	0.8405	1.0225 2

REFINISH

CHROMIC ACID ANODIZE AND APPLY BMS 10-11, TYPE 1 PRIMER (F-18.13) ALL OVER

AFTER BUSHING INSTALLATION APPLY BMS 10-60 ENAMEL (F-14.9813, WHICH REPLACES SRF-14.9813) ALL OVER BUT NOT ON BUSHING BORES OR FACES OR 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 R

REPAIR

REF 1 2

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

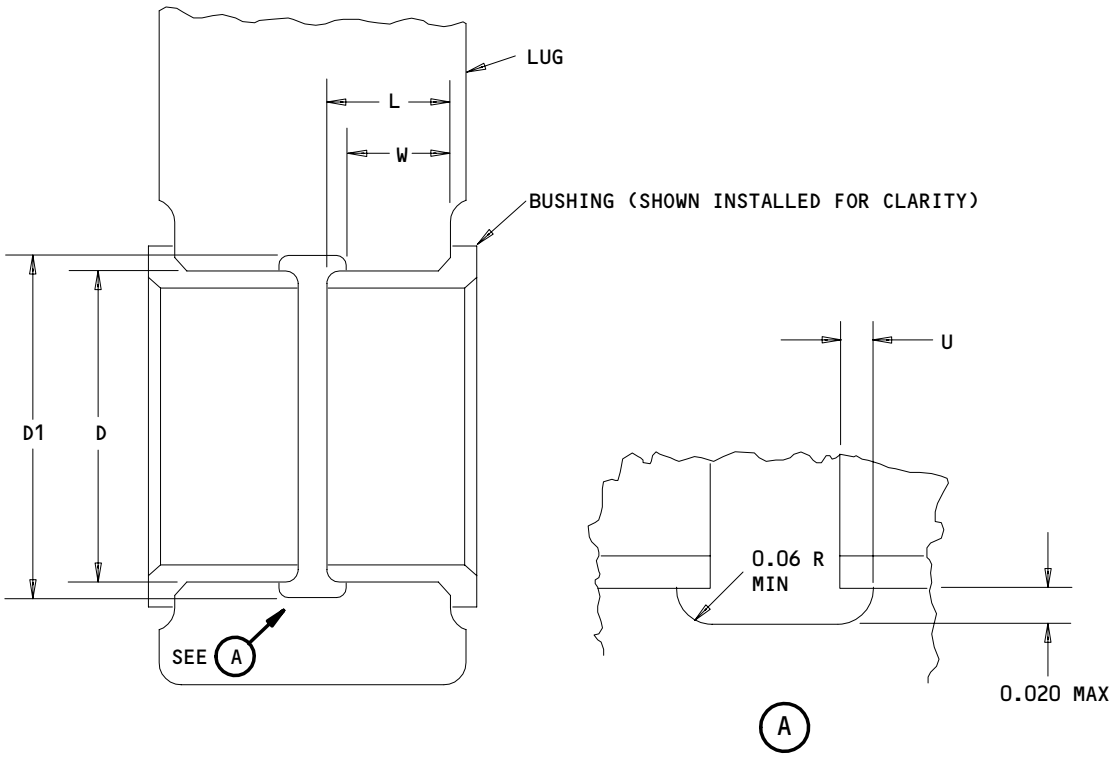
SHOT PEEN: 0.025-0.033 SHOT SIZE
0.012 A2 INTENSITY

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

161T6013-2
Strut Repair and Refinish
Figure 601 (Sheet 2)

13344



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

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

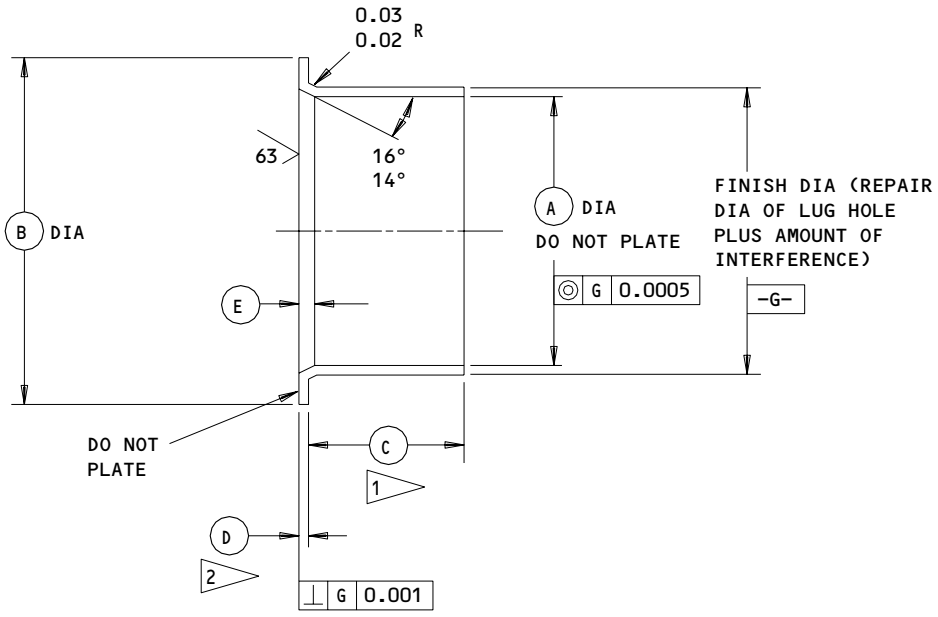
L = LENGTH OF BUSHING (SEE FIG. 603)

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



HOLE LOCATION (FIG. 601)	REPLACES BUSHING	A	B	C 1	D 2	E	INTERFERENCE
1	(285) 161T6040-5	3.0053 3.0038	3.67 3.65	0.33 0.31	0.125 0.124	0.16 0.15	0.0092 0.0047
5	(280) 161T6040-8	1.2543 1.2528	1.76 1.74	0.45 0.43	0.125 0.124	0.16 0.15	0.0078 0.0034

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

125 ALL MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES 0.01-0.02 R

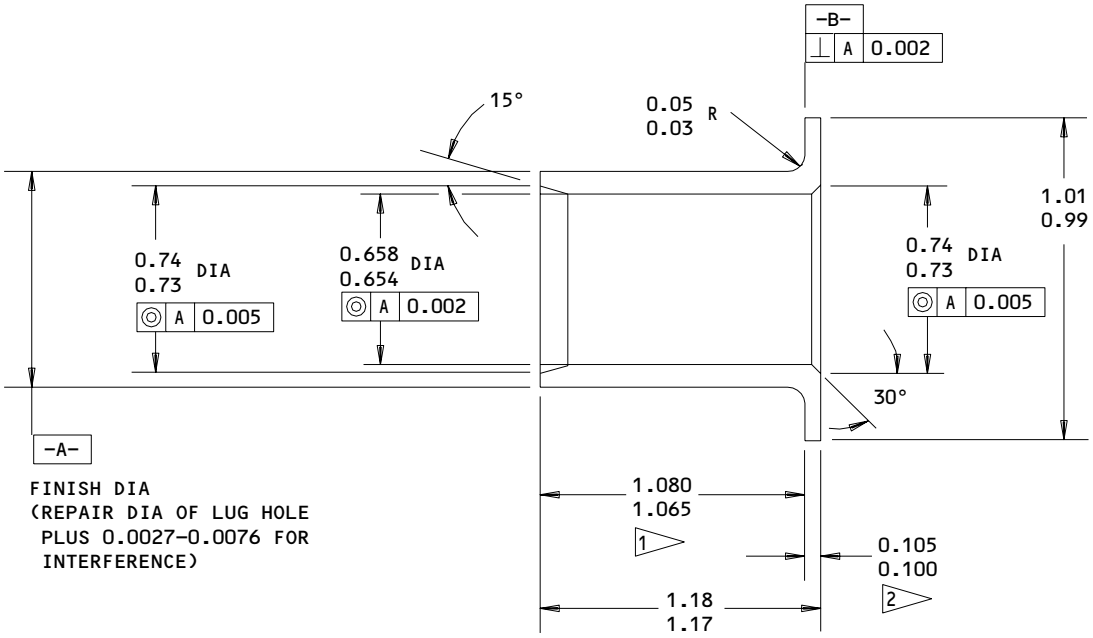
CADMIUM PLATE (0.0003-0.0005 THICK, F-15.06) ALL OVER, EXCEPT AS NOTED

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

ALL DIMENSIONS APPLY BEFORE PLATING

ALL DIMENSIONS ARE IN INCHES

Oversize Bushing Details
Figure 603



125 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 ON ID

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

1 MINUS AMOUNT REMOVED FROM LUG FACE

2 PLUS AMOUNT REMOVED FROM LUG FACE

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (9) FIG. 601 - REPLACES BUSHING (275) 161T2043-4

Oversize Bushing Details
Figure 604

109042

SPINDLE ASSEMBLY - REPAIR 7-1

161T6015-1, -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. Install replacement bushings to the shrink-fit method.

   C. Check dimensions and machine as necessary.

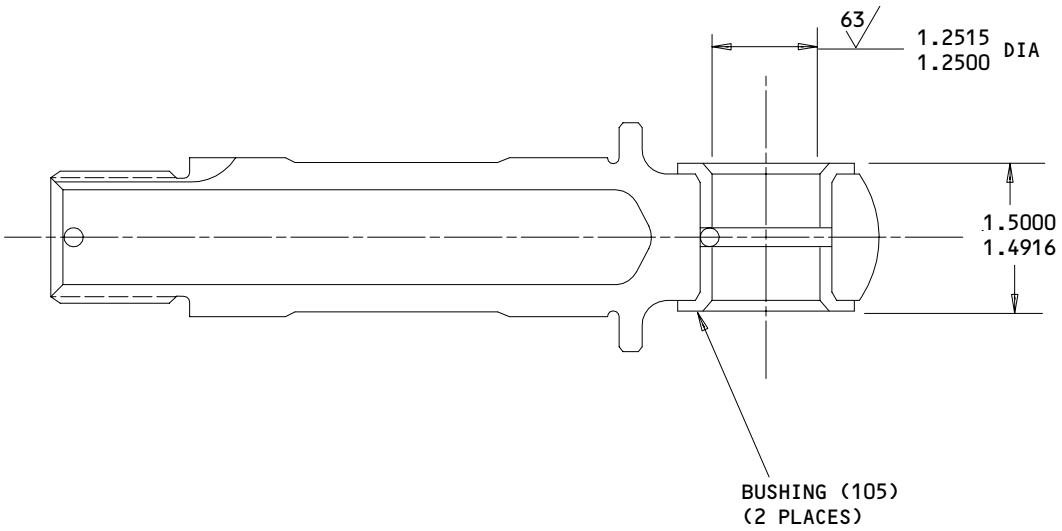
      NOTE: Machining of bushings after installation is not normally required, since bushings and lug faces are premachined to provide dimensions shown.

   D. Seal bushings per REPAIR 11-1.

   E. Apply grease at the lube fitting until grease comes out on the bushing ID to make sure the lubrication passage is not blocked.

2. Lube Fitting Replacement

   A. Replace lube fitting (100) per CMM 32-00-03.



ALL DIMENSIONS ARE IN INCHES

Bushing Replacement
Figure 601

T21700

SPINDLE - REPAIR 7-2

161T6015-2, -4

NOTE: Refer to REPAIR - GENERAL for a list of applicable standard practices, and to IPL Fig. 1 for item numbers. For repair of surfaces which may require only restoration of original finish, refer to Refinish instructions, Fig. 601, REPAIR 7-3.

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 7-1.

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

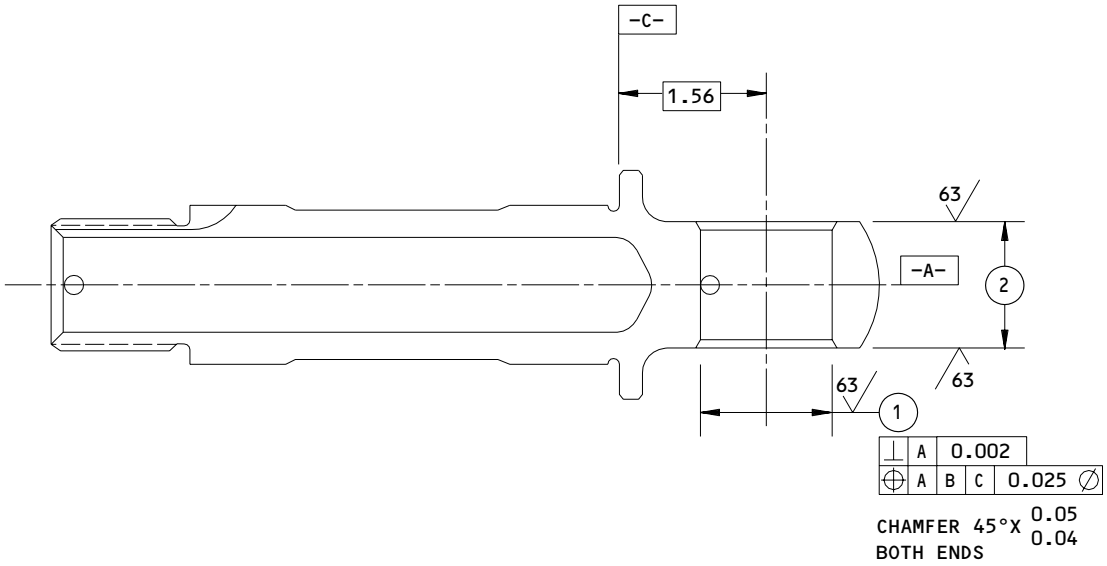
B. Method 2 -- Installation of Oversize Bushings

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

(2) Shot peen, 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 7-1.



	1	2
DESIGN DIM	1.3765 1.3750	1.3734 1.3684
REPAIR LIMIT 1	1.4365	1.3384 2

REFINISH

(SEE REFINISH INSTRUCTIONS, REPAIR 2-3)

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 R

REPAIR

REF 1 2

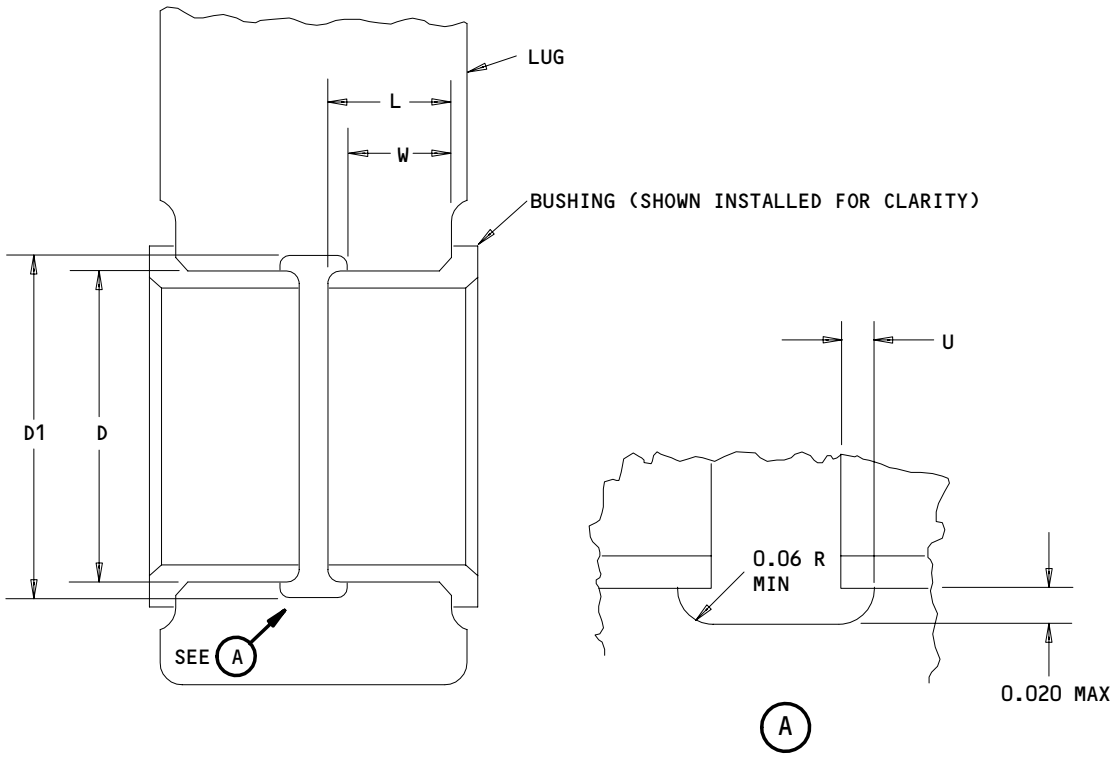
125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 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

161T6015-2,-4
Lug Face and Hole Repair
Figure 601



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

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

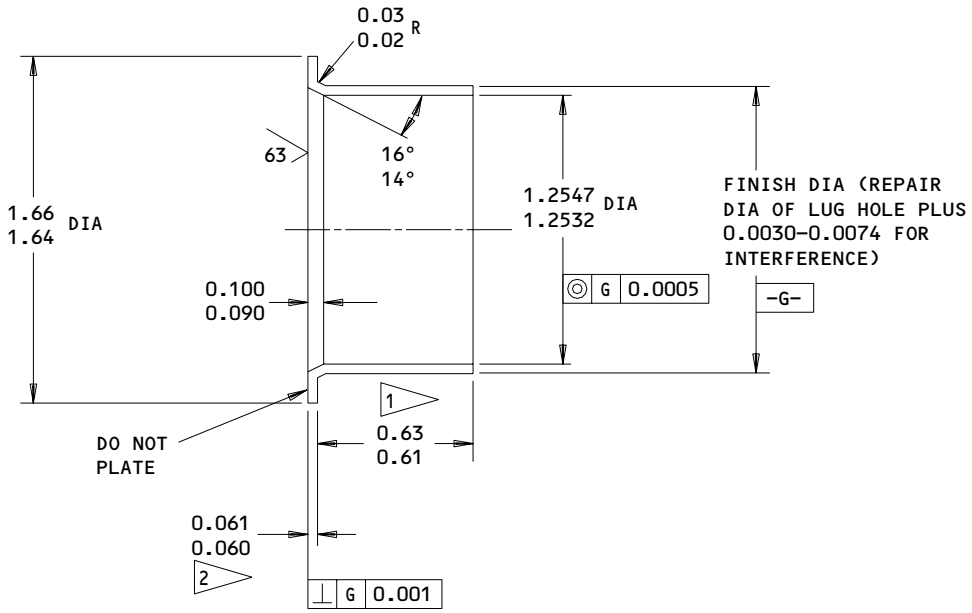
L = LENGTH OF BUSHING (SEE FIG. 603)

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



HOLE LOCATION (1) FIG. 601 – REPLACES BUSHING (105) 161T6040–13

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, 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

109047

SPINDLE - REPAIR 7-3

161T6015-2, -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. Shank - Diameters E, H (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 shank-to-head radius.

   B. Shot peen, chrome plate, and grind to restore grip length. Do not chrome plate shank-to-head radius. Chrome plate thickness must not be more than 0.015 inch after grinding.

      NOTE: If head face is not plated to design dimension, grip length can be adjusted by machining shoulder at thread end per par. 3.

3. Relief Grooves (Fig. 601)

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

   B. Shot peen. Refinish as indicated.

4. Pin Retention Holes (Fig. 601)

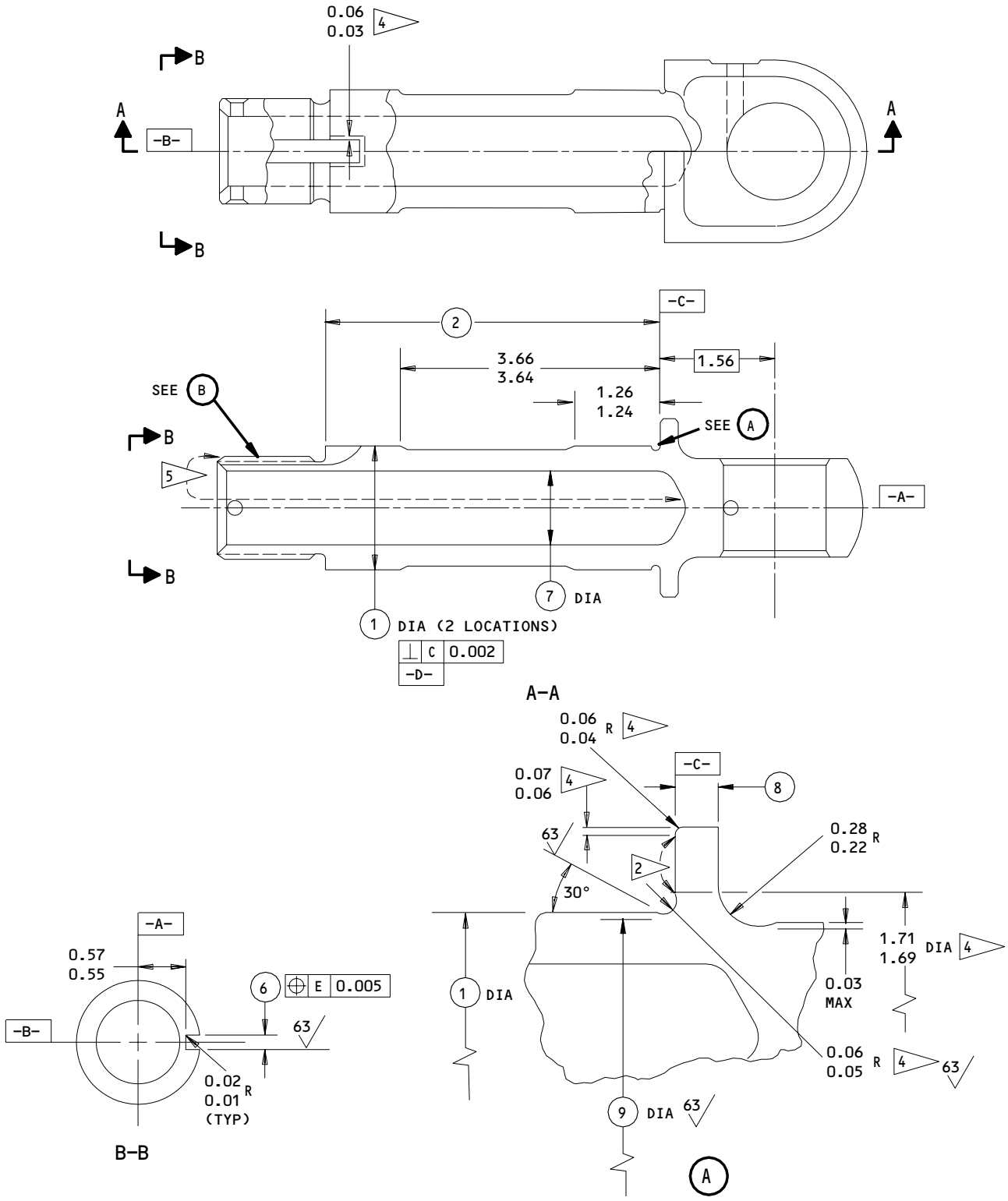
   A. Machine as required, within repair limits, to remove defects.

   B. Cadmium-titanium plate. Apply primer.

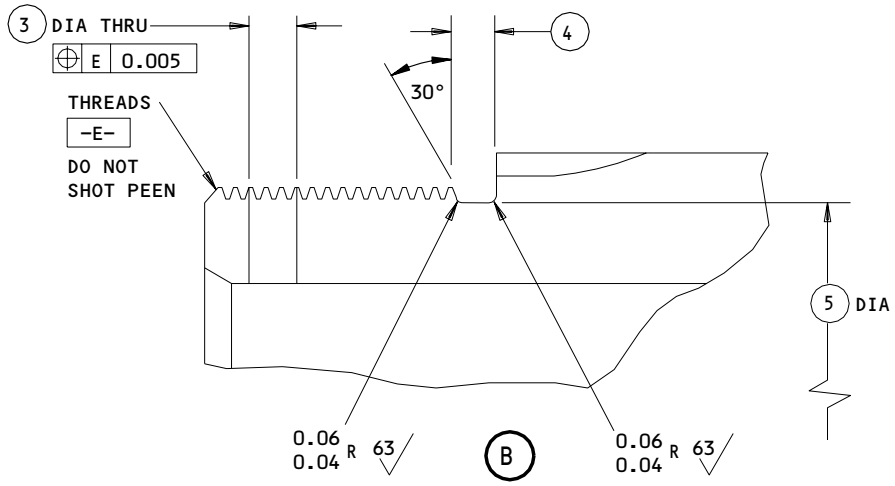
5. Bore (Fig. 601)

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

B. Refinish as indicated.



161T6015-2,-4
Spindle Repair and Refinish
Figure 601 (Sheet 1)



	1	2	3	4	5	6	7	8	9
DESIGN DIM	1.624 1.623	4.553 4.548	0.158 0.147	0.21 0.19	1.26 1.25	0.255 0.250	0.98 0.96	0.260 0.240	1.570 1.565
REPAIR LIMIT	1.603 ▷6	-----	0.178 ▷7	0.22 ▷8	1.23 ▷7	0.275 ▷7	1.00 ▷7	0.225 ▷9	1.535 ▷7

REFINISH

CHROME PLATE DIAMETER -D- PER ▷1

CHROME PLATE AREA NOTED ▷2, WITH 0.08 MAXXIMUM PLATING RUNOUT

CADMIUM-TITANIUM PLATE (F-15.01) ALL OTHER AREAS, 0.0005 MINIMUM THICK, EXCEPT 0.0005-0.0010 IN HOLES. APPLY PRIMER, BMS 10-11, TYPE 1 (F-20.02) EXCEPT AS NOTED AND F-20.03 IN INTERNAL BORE

AFTER INSTALLATION OF BUSHINGS AND LUBE FITTINGS, APPLY ENAMEL, BMS 10-60 (SRF-14.9813) EXCEPT ON BUSHING BORES AND FACES, LUBE FITTING, CHROME PLATED AREAS

APPLY WIPE PRIMER (F-19.45) TO CHROME PLATED AND THREADED AREAS, AND AS NOTED BY ▷3

▷1 CHROME PLATE (F-15.34), 0.003 MINIMUM THICK

▷2 FLASH CHROME PLATE (F-15.03) 0.0003-0.0005 THICK AND WIPE PRIMER (F-19.45)

▷3 CADMIUM TITANIUM PLATE (F-15.01) AND WIPE PRIMER (F-19.45)

▷4 NO CHROME PLATE

▷5 AFTER CADMIUM-TITANIUM PLATING AND PRIMER, APPLY CORROSION PREVENTIVE COMPOUND MIL-C-11796 (F-19.03) ON INTERNAL BORE

REPAIR

REF ▷6 ▷8 ▷9

125 ALL MACHINED SURFACES UNLESS SHOWN OTHERWISE

SHOT PEEN: 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

▷6 LIMIT FOR CHROME PLATE BUILDUP AND GRINDING TO DIMENSIONS SHOWN, WITH 0.08 MAXIMUM WITH PLATING RUNOUT AT EDGES, HOLES, AND RELIEFS EXCEPT OTHERWISE NOTED

▷7 RESTORATION TO DESIGN DIMENSION NOT REQUIRED

▷8 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)

▷9 LIMIT FOR RESTORING GRIP LENGTH WHEN HEAD FACE IS MACHINED AND CHROME PLATED

161T6015-2,-4
Spindle Repair and Refinish
Figure 601 (Sheet 2)

FUSE PIN - REPAIR 8-1

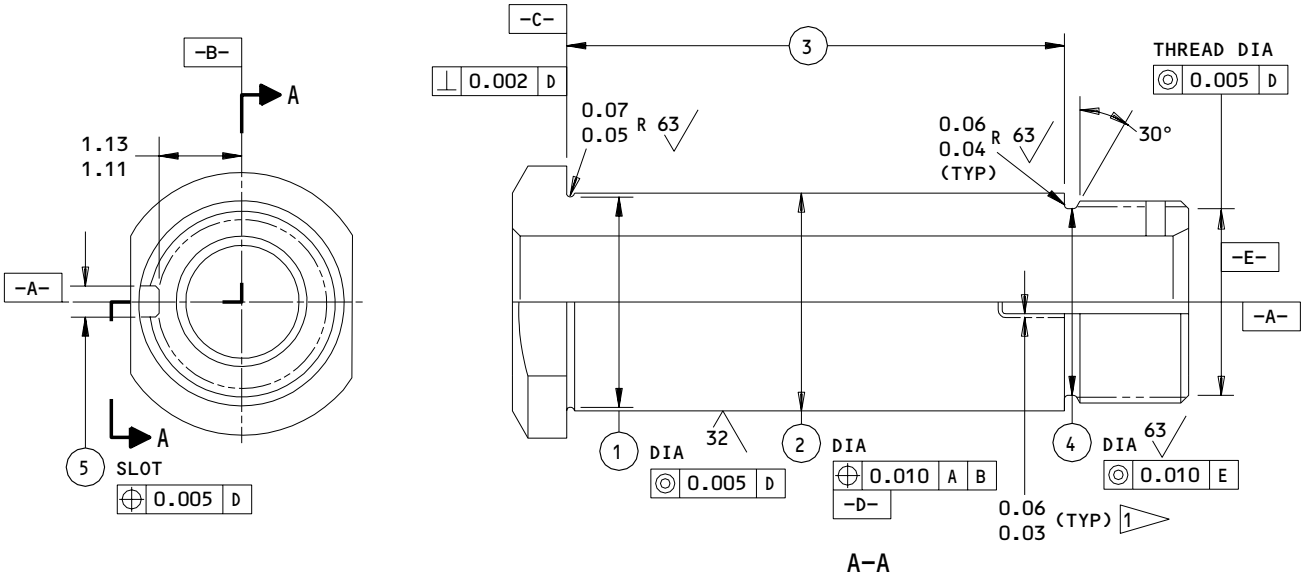
161T6018-2, -4 THRU -9

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

1. Head Relief Diameter, Head and Shoulder Faces (Fig. 601)

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

   B. Refinish as indicated.



A-A

REFERENCE NUMBER	1	2	3	4	5
DESIGN DIMENSION	2.695 2.690	2.749 2.747 4	6.769 6.764	2.38 2.37	0.380 0.375
REPAIR LIMIT	2.675 3	2.739 2	6.755 3	---	---

REFINISH

CHROME PLATE (F-15.34) DIA -D-, 0.003 MIN THICK, WITH 0.08 MAX PLATING RUNOUT. CADMIUM PLATE (F-15.06) 0.0005 MIN THICK ALL OTHER SURFACES. APPLY PRIMER AND ENAMEL AS IN CMM 32-00-02. COAT ID WITH CORROSION PREVENTIVE COMPOUND, MIL-C-11796, CLASS 1 (F-19.03).

1 NO CHROME PLATE THIS AREA

2 LIMIT FOR PLATING REPAIR. DO NOT MACHINE BASE METAL.

3 RESTORATION TO DESIGN DIMENSIONS NOT REQUIRED

4 DIMENSION AFTER PLATING

REPAIR

REF 2 3

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 0.017-0.046 SHOT SIZE
0.016 A2 INTENSITY

DIMENSIONS APPLY BEFORE PLATING UNLESS SHOWN DIFFERENTLY

MATERIAL: 4330M STEEL Rc 34-38 (EQUIVALENT TO 152-171 KSI)

NOTE: PINS Rc 35.8-38 (EQUIVALENT TO 160-171 KSI) MUST BE BAKED AFTER PLATING. IT IS ACCEPTABLE TO BAKE THE OTHERS ALSO.

ALL DIMENSIONS ARE IN INCHES

161T6018-2,-4 Thru -9
Fuse Pin Repair and Refinish
Figure 601

13508

PIN - REPAIR 9-1

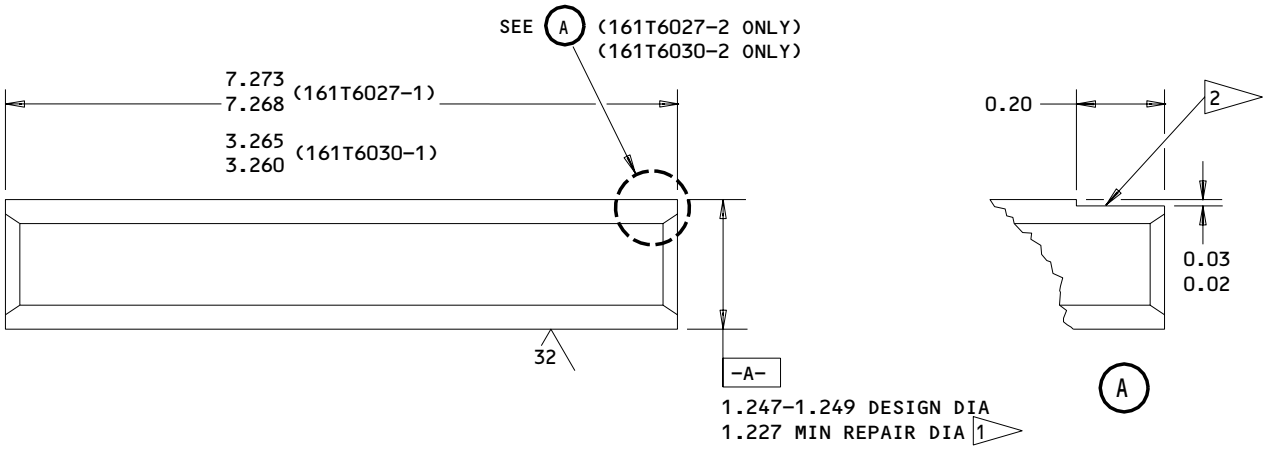
161T6027-1, -2
161T6030-1, -2

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may require only restoration of original finish, refer ro 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 shall not exceed 0.010 inch after grinding.



REFINISH

CHROME PLATE (F-15.34) DIA -A-, 0.003 MIN THICK. OBSERVE 0.08 MAX PLATING RUNOUT. WIPE CHROME PLATE WITH PRIMER (F-19.45)

CADMIUM-TITANIUM PLATE (F-15.01), 0.0005 MIN THICK AND APPLY PRIMER, BMS 10-11, TYPE 1 (F-20.03) ALL OTHER SURFACES

ON 161T6027-1 PIN, APPLY CORROSION PREVENTIVE COMPOUND MIL-C-11796 (F-19.03) ON ID

1 LIMIT FOR CHROME PLATE BUILDUP AND GRINDING TO DESIGN DIM & FINISH. OBSERVE 0.08 MAX PLATING RUNOUT

2 VIBRO ENGRAVE PART SERIAL NUMBER AND MACHINE PART NUMBER ON NOTED AREA

REPAIR

REF 1

125 MACHINED SURFACES EXCEPT AS NOTED

SHOT PEEN: 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

161T6027-1,-2
161T6030-1,-2

Pin Repair
Figure 601

T21704

MISCELLANEOUS PARTS REFINISH - REPAIR 10-1

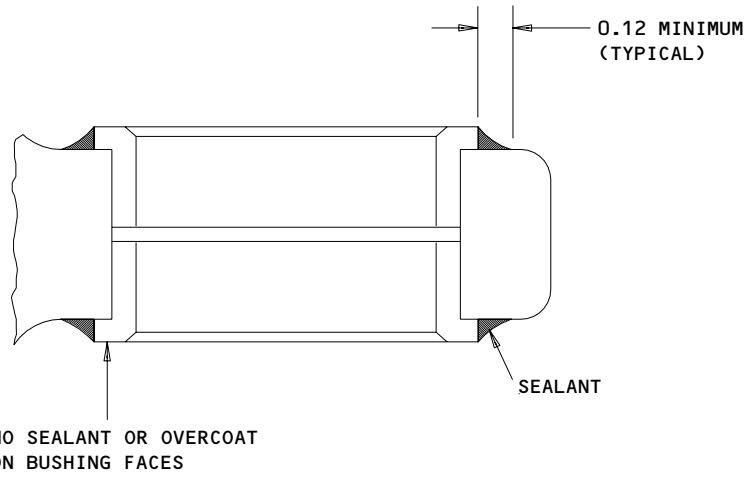
1. Repair of these parts is only replacement of the original finish. Refer to REPAIR - GENERAL for a list of applicable standard practices.

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Drag strut assembly (1, 5)		Apply BMS 10-11, Type 1 primer (F-20.02) and BMS 10-60 enamel (F-14.9813, which replaces SRF-14.9813) on all unpainted surfaces except lube fittings, bushing surfaces and threaded areas.
End caps (85, 160)	4340 Steel, 180-200 ksi	Cadmium plate and apply BMS 10-11, Type 1 primer (F-16.01) all over. Apply BMS 10-60 enamel (F-14.9813, which replaces SRF-14.9813) all over, but not on ID and 0.865 in. diameter.
Washers (35, 255)	4340 Steel, 180-200 ksi	Cadmium titanium plate (F-15.01) and apply primer and enamel (CMM 32-00-02).
Nuts (40, 260)	4340 Steel, 180-200 ksi	Cadmium titanium plate (F-15.01) all over and apply primer and enamel (CMM 32-00-02).
Stops (130, 215)	15-5PH CRES, 180-200 ksi	Cadmium plate and apply BMS 10-11, Type 1 primer (F-16.01) all over.
Washer (800)	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) on OD only.

Refinish Details
Figure 601

BUSHING SEALING - REPAIR 11-1

1. Seal all flanged bushings after installation per Fig. 601.



1. CLEAN AREAS OF SEALANT APPLICATION WITH SOLVENT.
2. APPLY FILLET OF SEALANT TO EDGES OF BUSHINGS AS SHOWN, OR AS SHOWN IN SOPM 20-50-19.
3. APPLY COATING OF GRAY GLOSS ENAMEL, BMS 10-60 OVER SEALANT AND AREAS AROUND SEALANT.

Bushing Sealant Application
Figure 601

T21705

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)

2. Equipment

NOTE: Equivalent substitutes can be used.

A. A32099-38 -- Spring extender tool (Replaces A32002-14, A32099-1, -25) (Limited)

B. A32002-14 -- Spring extender tool

C. F70312-27 -- Crowfoot wrench adapter, seal nut

D. F70312-32 -- Crowfoot wrench adapter, nut (260)

3. Assembly (IPL Fig. 1)

CAUTION: LEFT SIDE ASSEMBLY IS SHOWN IN IPL. RIGHT HAND ASSEMBLY IS IDENTICAL EXCEPT FASTENERS AT PIN JOINTS ARE INSTALLED FACING OPPOSITE DIRECTION.

A. Assemble jury struts.

(1) Apply sealant to faying surfaces of stops (215) and lower jury strut (265) and install stops on lower jury strut using bolts (220) and nut (225). Install fasteners with sealant.

(2) Position shims (135) under stop (130) on upper jury strut (170) and install parts (115 thru 125).

NOTE: Use shims (135) with same thickness as noted at disassembly. Shim may be correct thickness and readjustment of jury struts will be avoided.

(3) Mate upper jury strut (170) with lower jury strut (265) and install pin (165). Install end caps (160), bolt (145), washer (150) and nut (155). Install cotter pin (140).

(4) Check that overcenter position is within limits shown in Fig. 701. Adjust thickness of shim (135) if required to obtain correct position.

(5) Apply sealant to faying surfaces of shims (135), stops (130), upper jury strut (170), bolts (115), washers (120) and nut (125).

B. Assemble side struts and jury struts.

(1) Apply liberal amount of grease to threads and shank of bolt (250), faying surfaces of washer (255) and threads of nut (260).

(2) Mate upper and lower drag struts (295, 320) and lower jury strut (265) and install parts lubricated in step (1), bolt head outboard. Using adapter F70312-32, tighten nut (260) to 110-120 lb-ft and back off, if necessary, to align nearest castellation. Install bolts (235), washers (240), nuts (245).

C. Install upper spindle assembly (45).

(1) Apply liberal amount of grease to threads and shank of bolt (30), faying surfaces of washer (35) and threads of nut (40).

(2) Mate spindle assembly (45) to upper drag strut (320) and install parts lubricated in step (1), bolthead inboard. Using adapter F70312-27, tighten nut (40) to 110-120 lb-ft and back off, if necessary, to align nearest castellation. As applicable, install bolts (15), washers (20) and nuts (25), or bolt (17), washer (22), nut (27) and cotter pin (28).

D. Install jury strut spindle assembly (95).

(1) Apply liberal amount of grease to pin (90) and end caps (85).

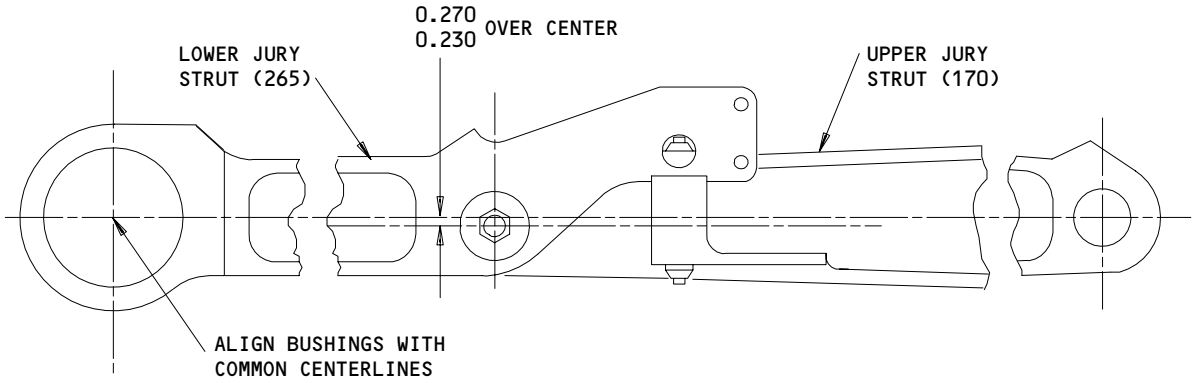
(2) Mate jury strut spindle (95) to upper jury strut (170) and install pin (90) and end caps (85). Install bolt (70), washer (75), nut (80) with bolt head facing right. Install cotter pin (65).

E. Assembly check

(1) With drag strut assembly 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 procedure several times. There shall be no interference or binding of any parts throughout travel.

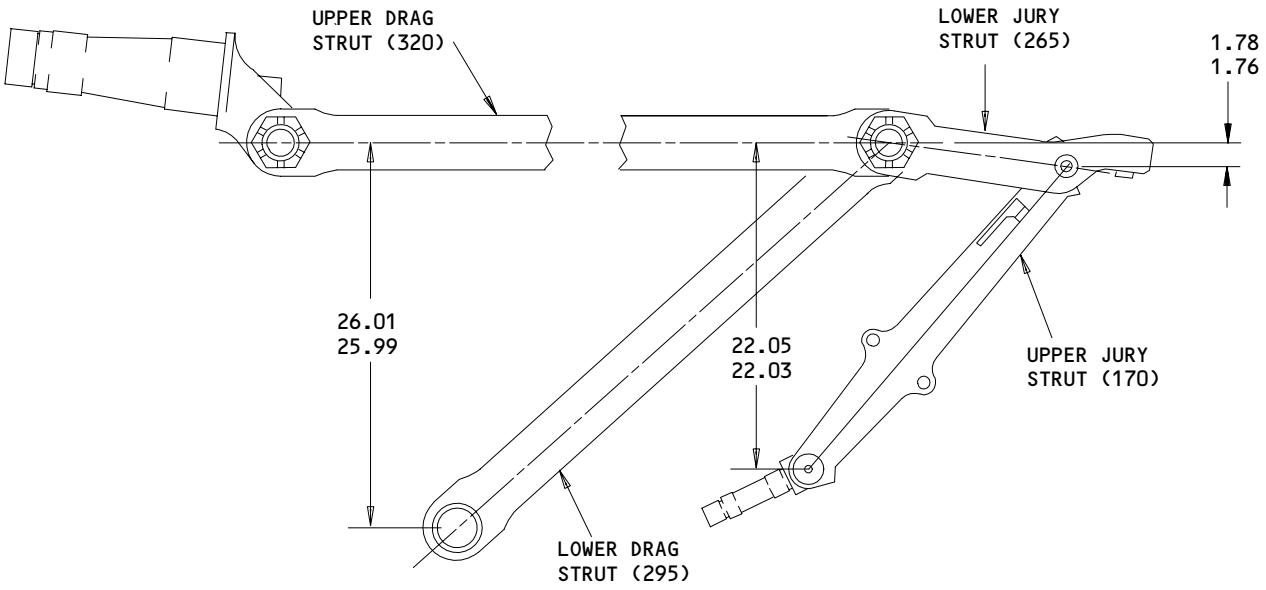
F. Lubricate joints at all lube fittings with grease.



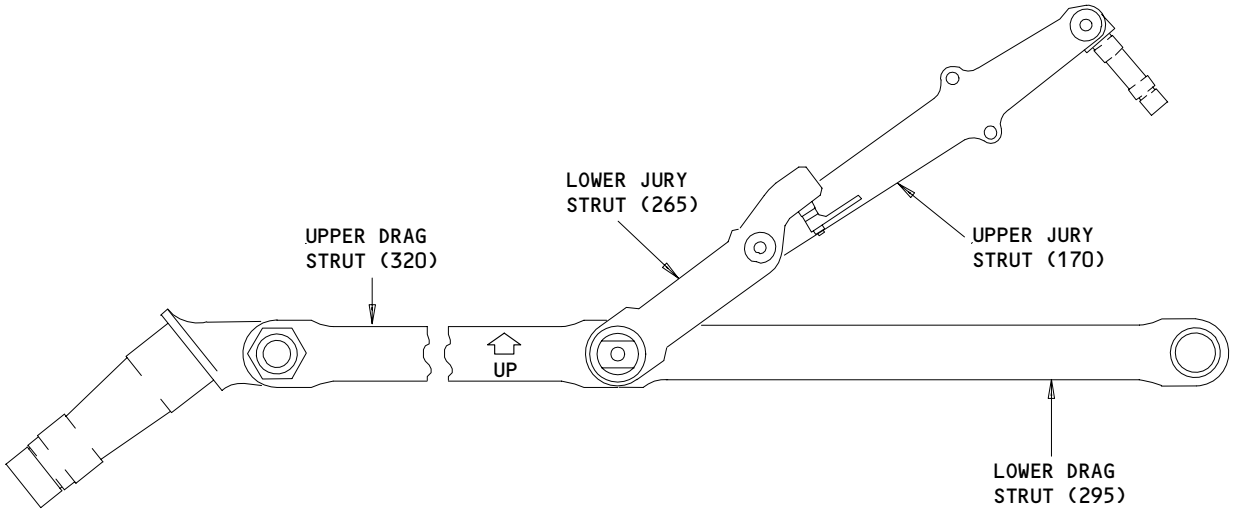
ALL DIMENSIONS ARE IN INCHES

Jury Strut Overcenter Adjustment
Figure 701

T21712



MAXIMUM FOLD POSITION



EXTENDED POSITION

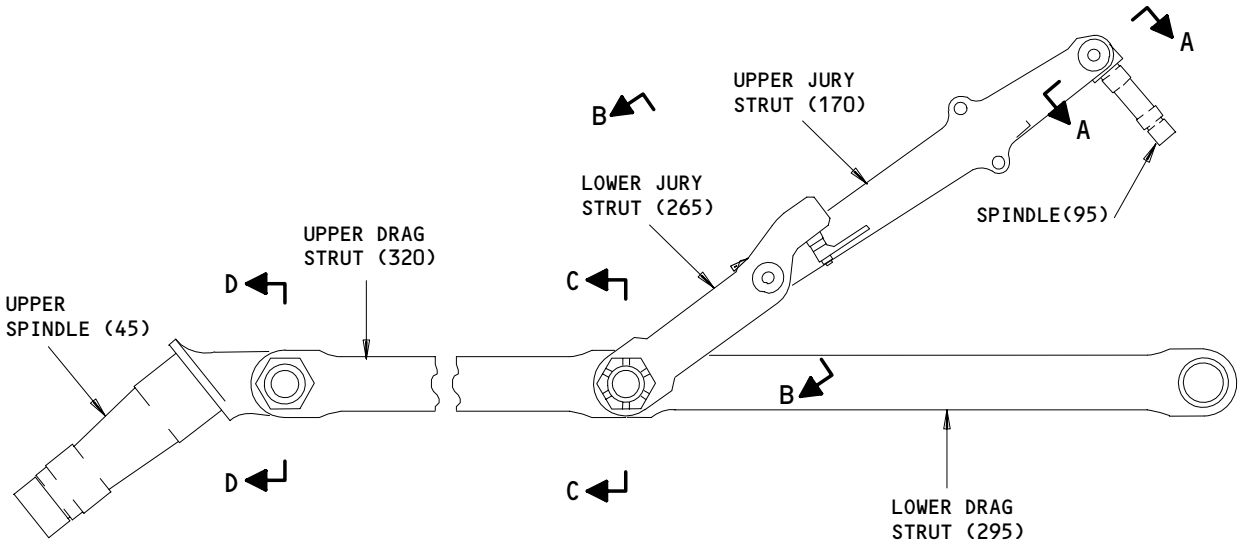
ITEM NUMBERS REFER TO IPL FIG. 1

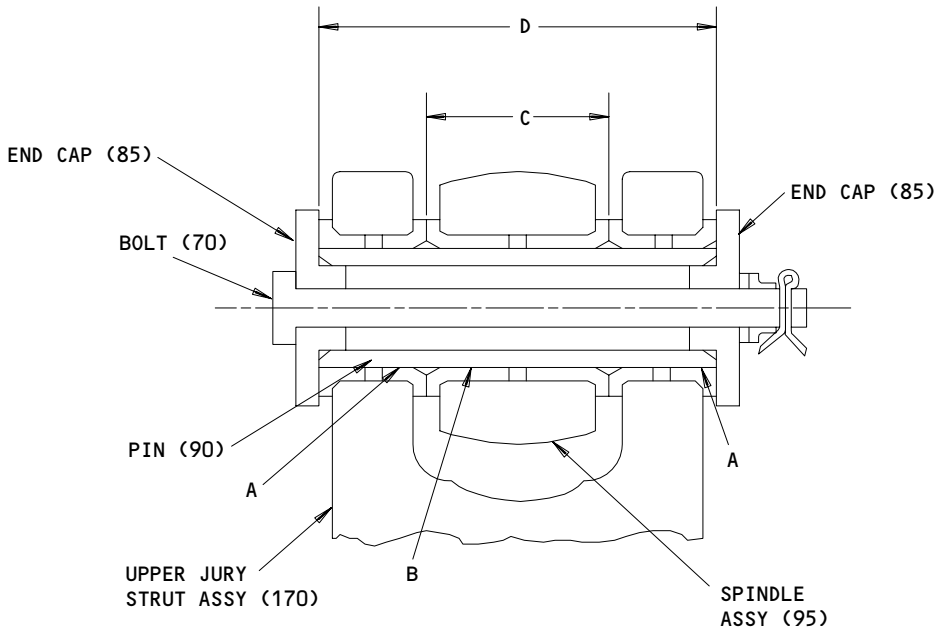
ALL DIMENSIONS ARE IN INCHES

Functional Test Diagram
Figure 702

T21713

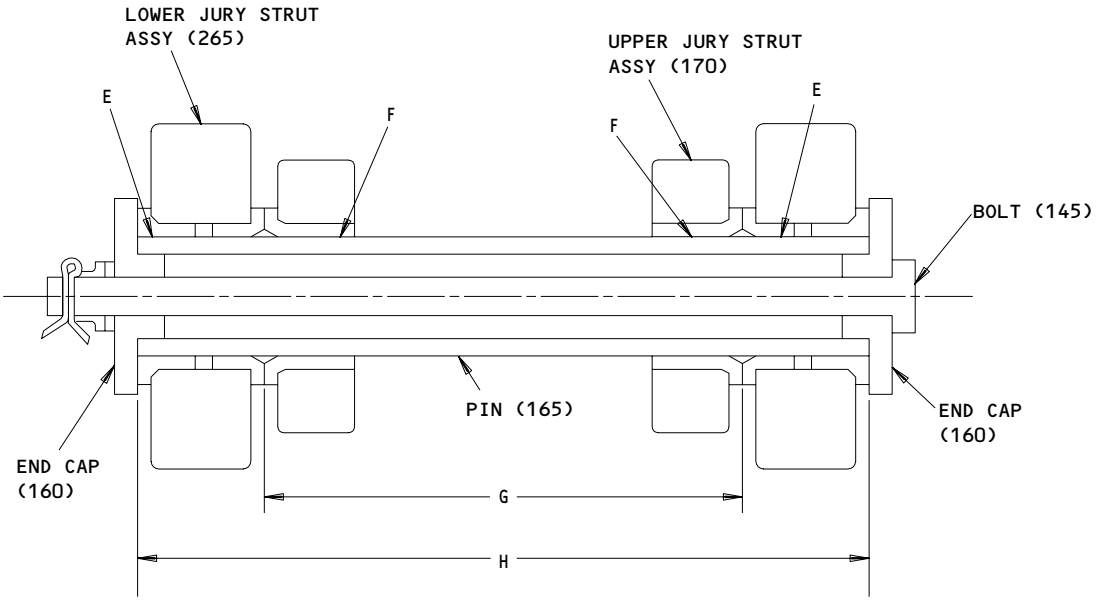
FITS AND CLEARANCES



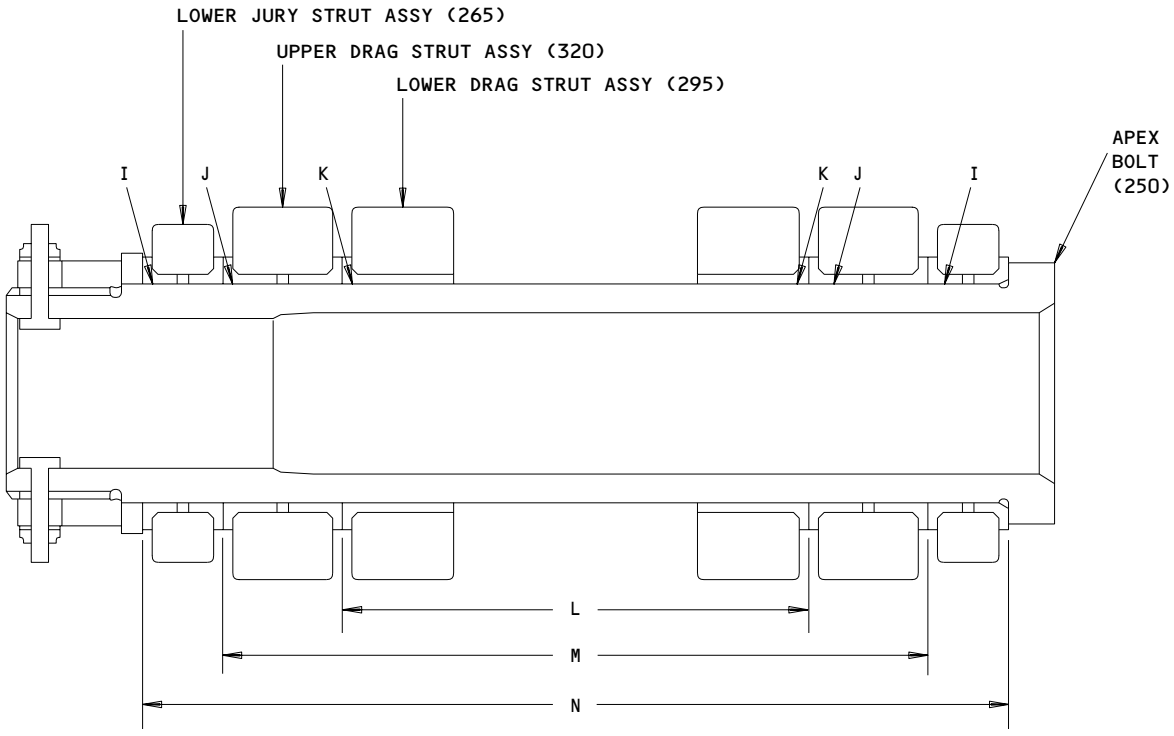


A-A

Fits and Clearances
Figure 801 (Sheet 1)



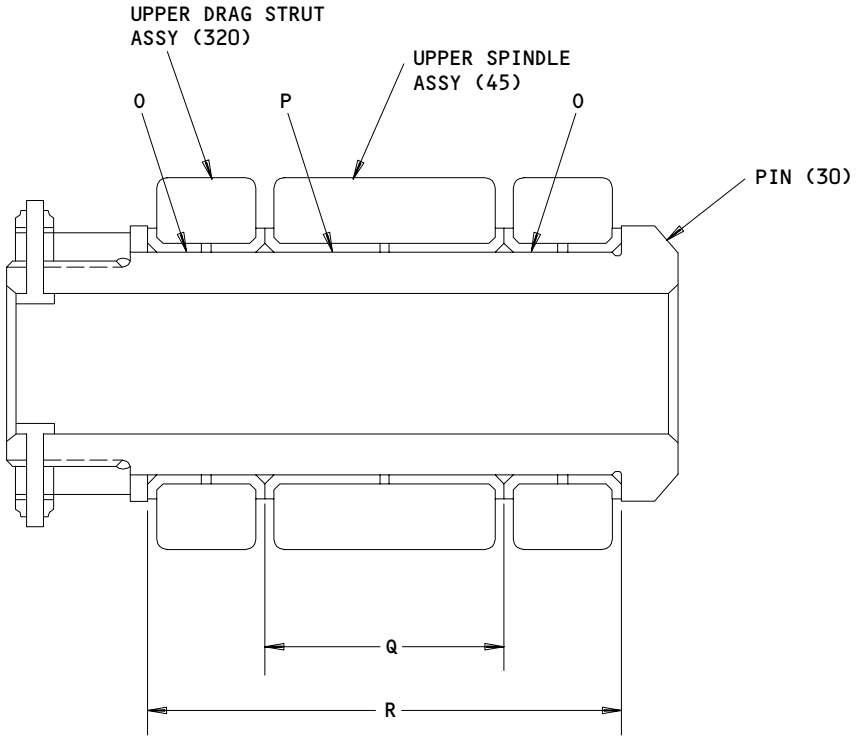
B–B



C–C

Fits and Clearances
Figure 801 (Sheet 2)

19621



D–D
(2–CROSSBOLT CONFIG SHOWN)

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 170 OD 90	1.2500 1.2470	1.2515 1.2490	0.0010	0.0045	1.2448	1.2557	0.0067
B	ID 95 OD 90	1.2500 1.2470	1.2515 1.2490	0.0010	0.0045	1.2448	1.2557	0.0067
C	*[2] 170 *[1] 95	1.5000 1.4916	1.5080 1.5000	0.0	0.0164	1.4752	1.5328	0.0328
D	*[1] 170	3.2492	3.2572					
E	ID 265 OD 165	1.2500 1.2470	1.2515 1.2490	0.0010	0.0045	1.2448	1.2557	0.0067
F	ID 170 OD 165	1.2500 1.2470	1.2515 1.2490	0.0010	0.0045	1.2448	1.2557	0.0067
G	*[2] 265 *[1] 170	4.7500 4.7420	4.7600 4.7500	0.0	0.0180	4.7240	4.7860	0.0360
H	*[1] 265	7.2580	7.2660					
I	ID 265 OD 250	3.0000 2.9980	3.0010 2.9990	0.0010	0.0030	2.9945	3.0060	0.0070
J	ID 320 OD 250	3.0000 2.9980	3.0015 2.9990	0.0010	0.0035	2.9945	3.0060	0.0070
K	ID 295 OD 250	3.0000 2.9980	3.0015 2.9990	0.0010	0.0035	2.9945	3.0060	0.0070
L	*[2] 320 *[1] 295	5.7500 5.7416	5.7584 5.7500	0.0	0.0168	5.7248	5.7836	0.0336
M	*[2] 265 *[1] 320	8.7500 8.7416	8.7602 8.7500	0.0	0.0186	8.7230	8.7872	0.0372
N	*[1] 265	10.7434	10.7614					

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	
O	ID 320 OD 30	2.7500 2.7470	2.7515 2.7490	0.0010	0.0045	2.7437	2.7568	0.0078
P	ID 45 OD 30	2.7500 2.7470	2.7515 2.7490	0.0010	0.0045	2.7437	2.7568	0.0078
Q	*[1] 45 *[2] 320	3.2416 3.2500	3.2500 3.2584	0.0	0.0168	3.2248	3.2836	0.0336
R	*[1] 320	6.4916	6.5000					

*[1] DIMENSION ACROSS OUTER FLANGES OF BUSHINGS

*[2] DIMENSION BETWEEN INNER FLANGES OF BUSHING

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 5)

L43270

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

Torque Table
Figure 802

19687

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

NOTE: Equivalent substitutes can be used.

1. A32099-38 -- Spring extender tool (Replaces A32002-14, A32099-1, -25) (Limited)

2. A32002-14 -- Spring extender tool

3. F70312-27 -- Crowfoot wrench adapter, seal nuts

4. F70312-32 -- Crowfoot wrench adapter, nut (260)

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 E WARNER AVENUE
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

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

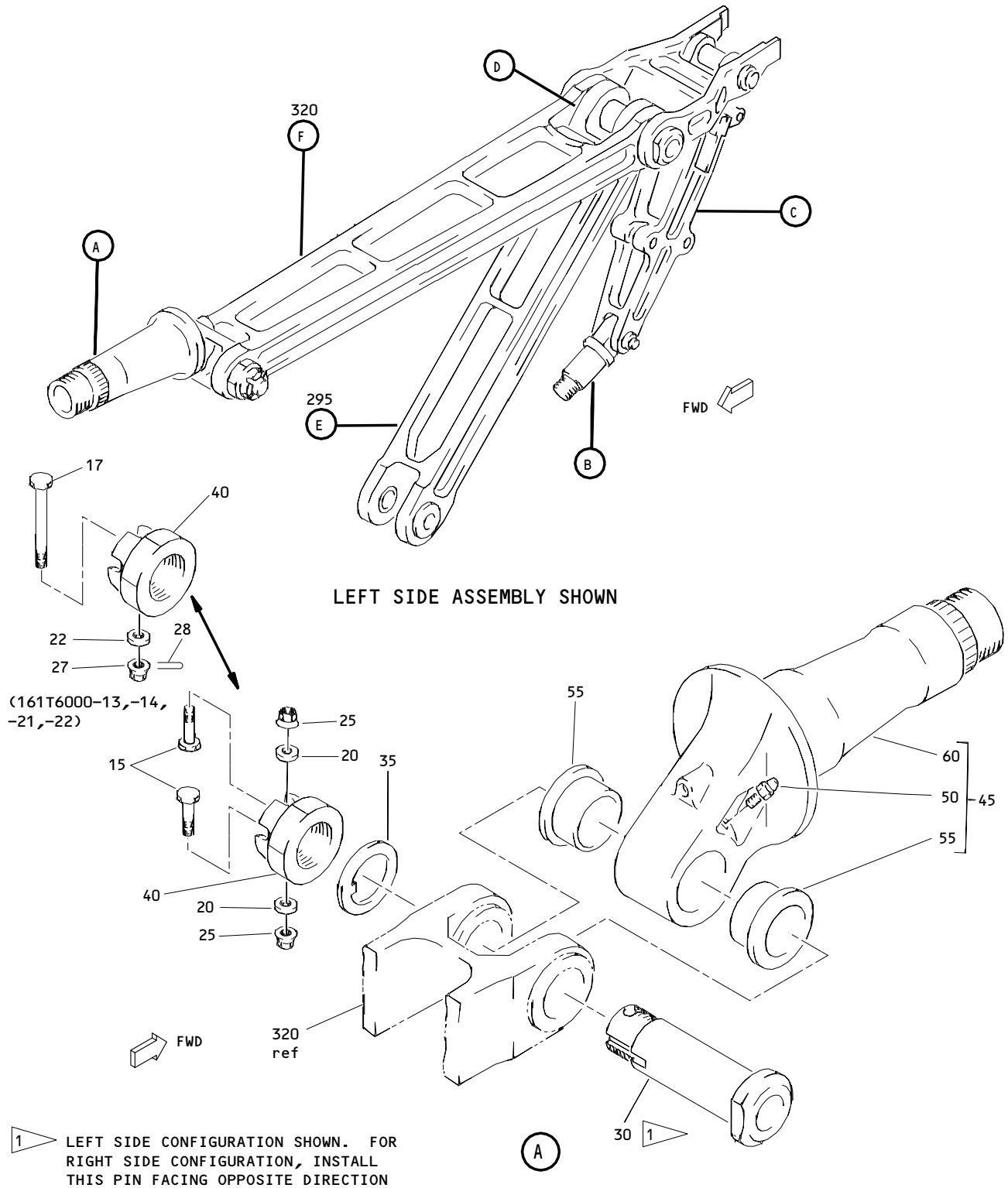
95879 ALEMITE DIVISION OF STEWART WARNER CORP
1826 DIVERSEY PARKWAY
CHICAGO, ILLINOIS 60614

97393 SHUR-LOK CORPORATION
2541 WHITE ROAD
IRVINE, CALIFORNIA 92713

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AN960-416		1	20	2
		1	22	1
		1	240	2
AN960-416L		1	120	2
AN960-616		1	75	1
		1	150	1
BACB30NN4K11		1	220A	2
BACB30NN4K12		1	220	
BACB30NN4K19		1	115	2
BACN10HC4		1	225	2
BACN10JC22		1	805	1
BACN10JC4		1	25	2
		1	27	1
		1	125	2
		1	245	2
BACN10JC6		1	80	1
		1	155	1
BACW10CR22		1	803	1
BRH10A4		1	25	2
		1	27	1
		1	125	2
		1	245	2
BRH10A6		1	80	1
		1	80	1
		1	155	1
H10-4BAC		1	25	2
H10-6BAC		1	80	1
LH8065-048		1	225	2
MS21042L4		1	25A	2
MS21042L6		1	80A	1
MS24655-134		1	28	1
MS24665-287		1	65	1
		1	140	1
MS24665-360		1	810	1
NAS6604-12		1	15	2
		1	235	2
NAS6604D52		1	17	1
NAS6606D124		1	145	1
NAS6606D61		1	70	1
NS202101-048		1	25	2
RMLH9075-4W		1	25	2
RMLH9075-6		1	80	1
SL414-4		1	225	2
T6S428J		1	25	2
VN303A048		1	25	2
161T2043-3		1	200	2
161T2043-4		1	275	2

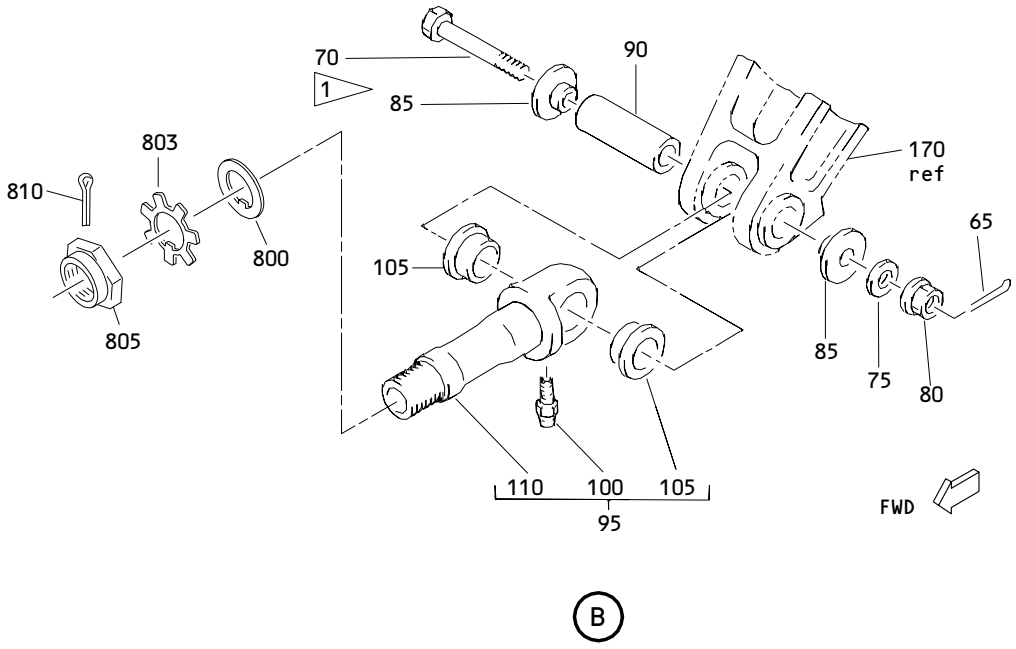
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
161T6000-1		1	1	
161T6000-10		1	5C	RF
161T6000-11		1	1D	RF
161T6000-12		1	5D	RF
161T6000-13		1	1E	RF
161T6000-14		1	5E	RF
161T6000-15		1	1F	RF
161T6000-16		1	5F	RF
161T6000-17		1	1G	RF
161T6000-18		1	5G	RF
161T6000-19		1	1H	RF
161T6000-2		1	5	
161T6000-20		1	5H	RF
161T6000-21		1	1J	RF
161T6000-22		1	5J	RF
161T6000-23		1	1K	RF
161T6000-24		1	5K	RF
161T6000-25		1	1L	RF
161T6000-26		1	5L	RF
161T6000-3		1	1A	RF
161T6000-4		1	5A	RF
161T6000-7		1	1B	RF
161T6000-8		1	5B	RF
161T6000-9		1	1C	RF
161T6001-1		1	295	1
161T6001-2		1	315	1
161T6003-1		1	320	1
161T6007-1		1	45	1
161T6007-2		1	60	1
161T6009-1		1	250	1
161T6009-2		1	250A	1
161T6009-3		1	250B	1
161T6009-4		1	250C	1
161T6011-1		1	170	
161T6011-2		1	210	
161T6011-3		1	170A	1
161T6011-4		1	210B	1
161T6011-5		1	210A	1
161T6013-1		1	265	1
161T6013-2		1	290	1
161T6015-1		1	95	1
161T6015-2		1	110	1
161T6015-3		1	95A	1
161T6015-4		1	110A	1
161T6016-1		1	800	1
161T6018-2		1	30	1
161T6018-4		1	30A	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
161T6018-5		1	30B	1
161T6018-6		1	30C	1
161T6018-7		1	30D	1
161T6018-8		1	30E	1
161T6018-9		1	30F	1
161T6023-1		1	35	1
161T6024-1		1	40	1
161T6025-1		1	255	1
161T6026-1		1	260	1
161T6027-1		1	165	1
161T6027-2		1	165A	1
161T6029-1		1	85	2
		1	160	2
161T6030-1		1	90	1
161T6030-2		1	90A	1
161T6034-1		1	215	2
161T6035-1		1	130	2
161T6036-1		1	135	2
161T6036-2		1	135A	4
161T6038-1		1	185	4
161T6040-12		1	180	4
161T6040-13		1	105	2
161T6040-3		1	310	4
161T6040-5		1	285	4
161T6040-8		1	280	4
161T6040-9		1	190	2
161T6041-1		1	195	2
161T6042-1		1	205	2
161T6043-1		1	305	2
161T6044-2		1	55	2
1646B		1	100A	1
1728B		1	50	1
		1	100	1
		1	175	4
		1	270	4
		1	300	4
96-048		1	25	2
96-064		1	80	1



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

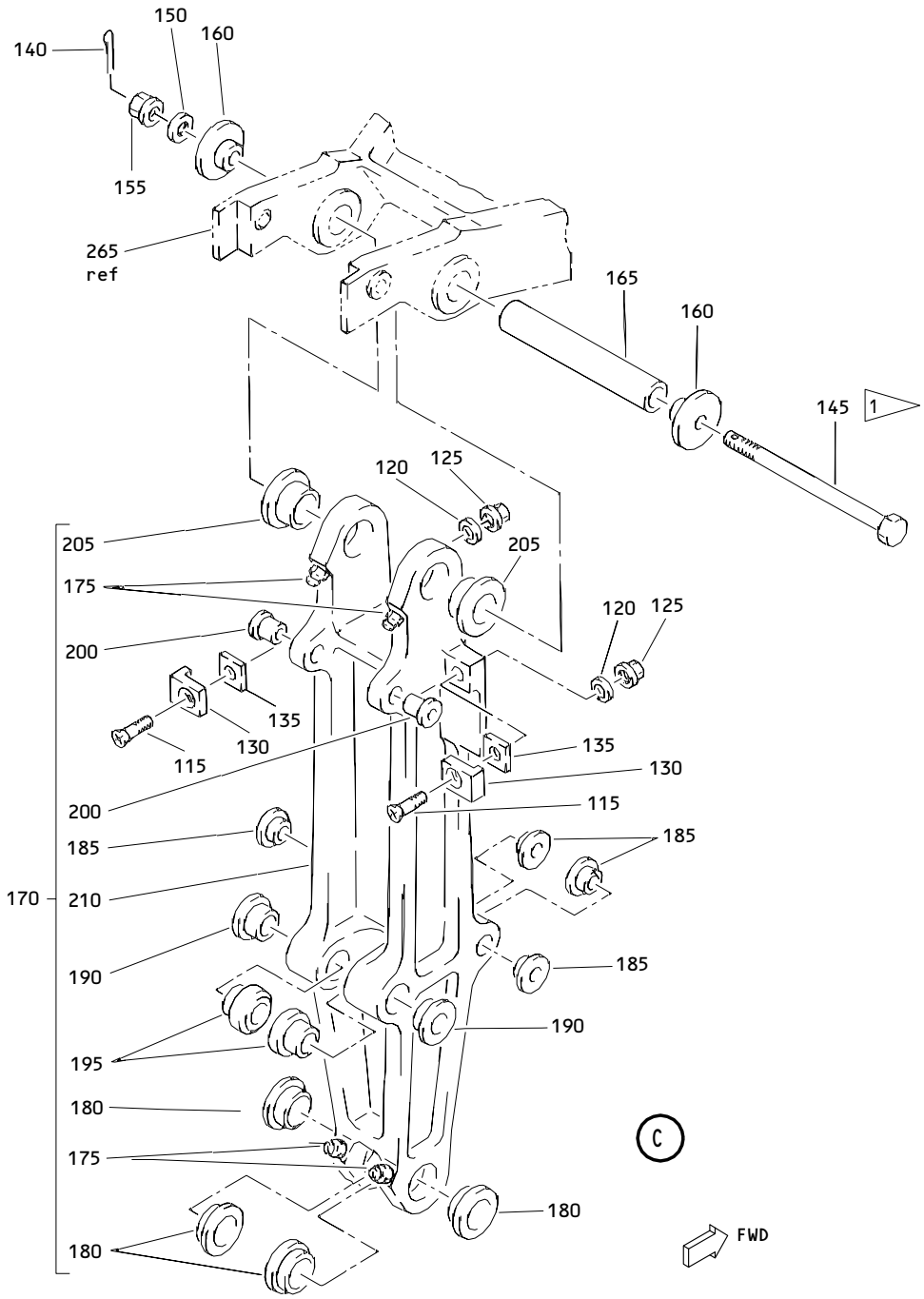
T55350



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

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

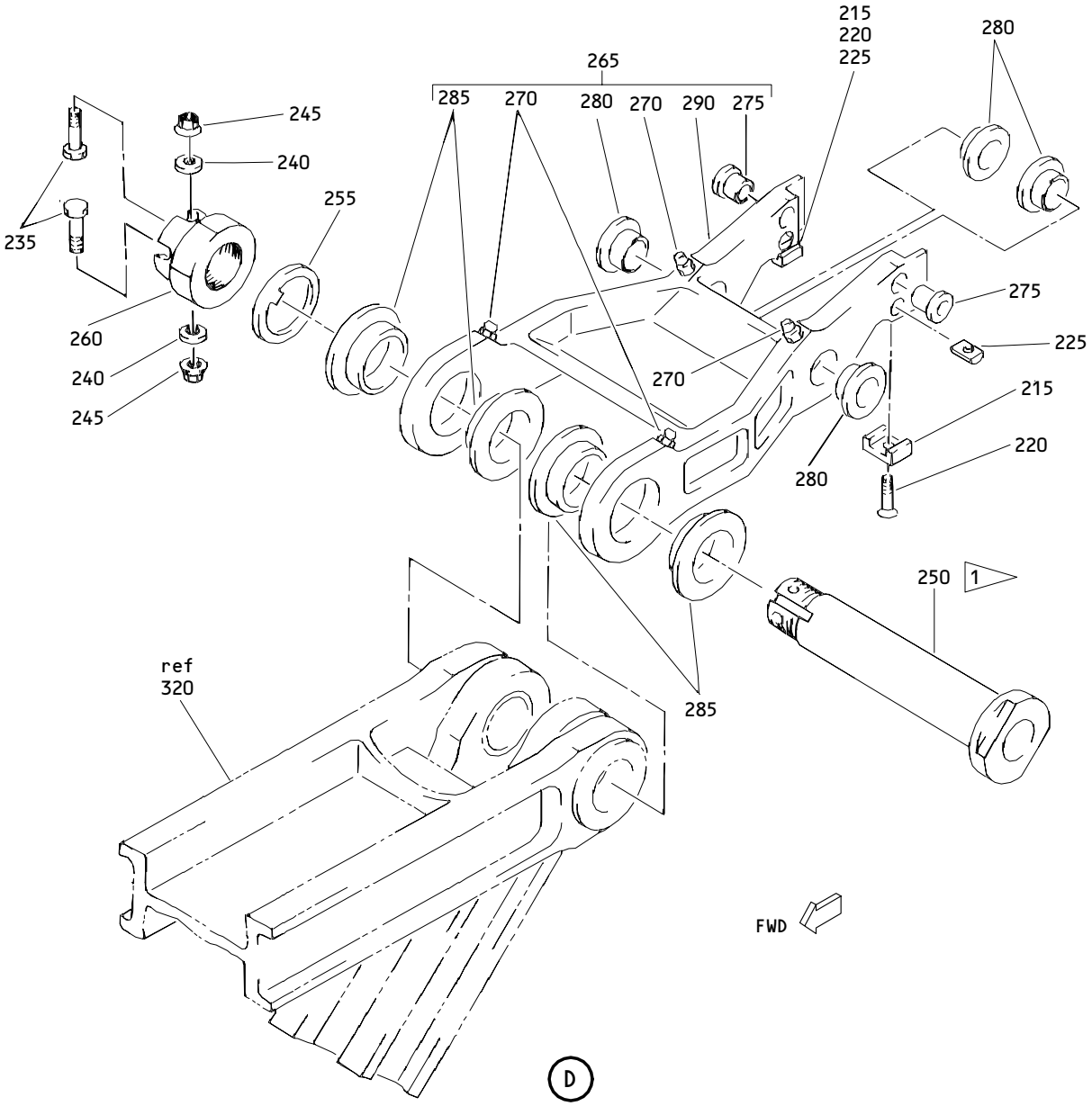
T21708



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

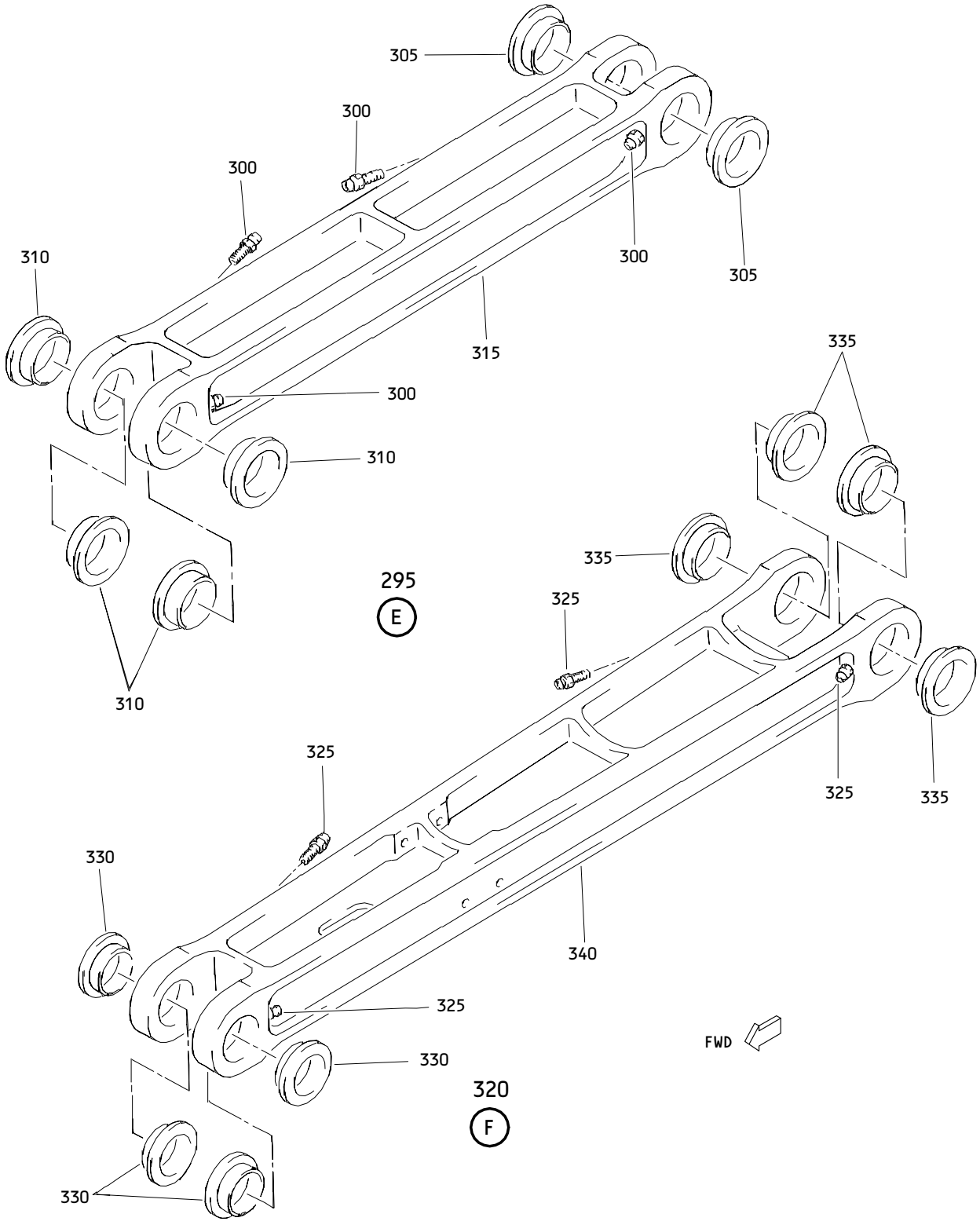
Main Landing Gear Drag Strut Assembly
Figure 1 (Sheet 3)

T73756



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

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



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

T21710

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	161T6000-1		DELETED		
-1A	161T6000-3		STRUT ASSY-MLG DRAG (LH) (PRE SB 51-7)	A	RF
-1B	161T6000-7		STRUT ASSY-MLG DRAG (LH) (POST SB 51-7) (PRE SB 53-42,53-48)	C	RF
-1C	161T6000-9		STRUT ASSY-MLG DRAG (LH) (POST SB 53-42)	E	RF
-1D	161T6000-11		STRUT ASSY-MLG DRAG (LH)	G	RF
-1E	161T6000-13		STRUT ASSY-MLG DRAG	I	RF
-1F	161T6000-15		STRUT ASSY-MLG	K	RF
-1G	161T6000-17		STRUT ASSY-MLG	M	RF
-1H	161T6000-19		STRUT ASSY-MLG	O	RF
-1J	161T6000-21		STRUT ASSY-MLG	Q	RF
-1K	161T6000-23		STRUT ASSY-MLG DRAG	S	RF
-1L	161T6000-25		STRUT ASSY-MLG DRAG	U	RF
-5	161T6000-2		DELETED		
-5A	161T6000-4		STRUT ASSY-MLG DRAG (RH) (PRE SB 51-7)	B	RF
-5B	161T6000-8		STRUT ASSY-MLG DRAG (RH) (POST SB 51-7) (PRE SB 53-42,53-48)	D	RF
-5C	161T6000-10		STRUT ASSY-MLG DRAG (RH) (POST SB 53-42)	F	RF
-5D	161T6000-12		STRUT ASSY-MLG DRAG (RH)	H	RF
-5E	161T6000-14		STRUT ASSY-MLG DRAG	J	RF
-5F	161T6000-16		STRUT ASSY-MLG	L	RF
-5G	161T6000-18		STRUT ASSY-MLG	N	RF
-5H	161T6000-20		STRUT ASSY-MLG	P	RF
-5J	161T6000-22		STRUT ASSY-MLG	R	RF
-5K	161T6000-24		STRUT ASSY-MLG DRAG	T	RF
-5L	161T6000-26		STRUT ASSY-MLG DRAG	V	RF
15	NAS6604-12		.BOLT	A-H K-PST UV	2
17	NAS6604D52		.BOLT (USED WITH ITEM 30D)	IJQR	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
20	AN960-416		.WASHER	A-H K-PST UV	2
22	AN960-416		.WASHER (USED WITH ITEM 30D)	IJQR	1
25	BRH10A4		.NUT- (V52828) (SPEC BACN10JC4) (OPT H10-4BAC (V15653)) (OPT NS202101-048 (V80539)) (OPT RMLH9075-4W (V72962)) (OPT T6S428J (V11815)) (OPT VN303A048 (V92215)) (OPT 96-048 (V80539)) (OPT ITEM 25A)	A-H L-P	2
-25A	MS21042L4		.NUT (PREF)	A-H L-P	2
27	BRH10A4		.NUT (USED WITH ITEM 30D) (V52828) (SPEC BACN10JC4) (FOR OPTIONAL PARTS REFER TO ITEM 25)	IJQR	1
28	MS24655-134		.PIN-COTTER (USED WITH ITEM 27)	IJQR	1
30	161T6018-2		.PIN-FUSE	ABKL	1
-30A	161T6018-4		.PIN-FUSE (PRE SB 53-42, 53-48,32-96)	CD	1
-30B	161T6018-5		.PIN-FUSE (POST SB 53-42, 53-48,32-96)	EFMN	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-30C	161T6018-6		.PIN-FUSE (PRE SB 32-0133, 32-0187) (POST SB 32-0201, 32-0203)	GHOP	1
-30D	161T6018-7		.PIN-FUSE (PRE SB 32-0135, 32-0145,32-0175) (POST SB 31-0187)	IJQR	1
-30E	161T6018-8		.PIN-FUSE (POST SB 32-0135, 32-0145,32-0175, 32-0187, MC 3209MP6003) (PRE SB 32-0201, 32-0203)		1
-30F	161T6018-9		.PIN-FUSE (POST SB 32-0133)		1
35	161T6023-1		.WASHER		1
40	161T6024-1		.NUT		1
45	161T6007-1		.SPINDLE ASSY-UPR	*[1]	1
50	1728B		..FITTING-LUBE (V95879)		1
55	161T6044-2		..BUSHING		2
60	161T6007-2		..SPINDLE		1
65	MS24665-287		.PIN-COTTER		1
70	NAS6606D61		.BOLT		1
75	AN960-616		.WASHER		1
80	BRH10A6		.NUT- (V52828) (SPEC BACN10JC6) (OPT H10-6BAC (V15653)) (OPT RMLH9075-6 (V72962)) (OPT 96-064 (V80539)) (OPT ITEM 80A)		1
-80A	MS21042L6		.NUT (PREF)		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
80	BRH10A6		.NUT-		1
85	161T6029-1		.CAP-END		2
90	161T6030-1		.PIN	A-T	1
-90A	161T6030-2		.PIN	UV	1
95	161T6015-1		.SPINDLE ASSY-JURY STRUT	A-R	1
-95A	161T6015-3		.SPINDLE ASSY-JURY STRUT	STUV	1
100	1728B		..FITTING-LUBE (OPT ITEM 100A) (V95879)		1
-100A	1646B		..FITTING-LUBE (PREF)		1
105	161T6040-13		..BUSHING		2
110	161T6015-2		..SPINDLE (USED ON ITEM 95)		1
-110A	161T6015-4		..SPINDLE (USED ON ITEM 95A)		1
115	BACB30NN4K19		.BOLT		2
120	AN960-416L		.WASHER		2
125	BRH10A4		.NUT- (V52828) (SPEC BACN10JC4) (FOR OPTIONAL PARTS REFER TO ITEM 25)		2
130	161T6035-1		.FITTING-STOP		2
135	161T6036-1		.SHIM	A-J	2
-135A	161T6036-2		.SHIM	K-TUV	4
140	MS24665-287		.PIN-COTTER		1
145	NAS6606D124		.BOLT		1
150	AN960-616		.WASHER		1
155	BRH10A6		.NUT- (V52828) (SPEC BACN10JC6) (FOR OPTIONAL PARTS REFER TO ITEM 80)		1
160	161T6029-1		.CAP-END		2
165	161T6027-1		.PIN		1
-165A	161T6027-2		.PIN	UV	1
170	161T6011-1		DELETED		
170A	161T6011-3		.STRUT ASSY-UPR JURY		1
175	1728B		..FITTING-LUBE (V95879)		4
180	161T6040-12		..BUSHING		4
185	161T6038-1		..BUSHING		4
190	161T6040-9		..BUSHING		2
195	161T6041-1		..BUSHING		2
200	161T2043-3		..BUSHING		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
205	161T6042-1		..BUSHING		2
210	161T6011-2		DELETED		
210A	161T6011-5		..STRUT (OPT ITEM 210B)		1
210B	161T6011-4		..STRUT (OPT ITEM 210A)		1
215	161T6034-1		.FITTING-STOP ATTACHING PARTS		2
220	BACB30NN4K12		DELETED		
220A	BACB30NN4K11		.BOLT		2
225	LH8065-048		.NUT-CYLINDRICAL (V72962) (SPEC BACN10HC4) (OPT SL414-4 (V97393)) -------*-------		2
235	NAS6604-12		.BOLT		2
240	AN960-416		.WASHER		2
245	BRH10A4		.NUT- (V52828) (SPEC BACN10JC4) (FOR OPTIONAL PARTS REFER TO ITEM 25)		2
250	161T6009-1		.BOLT-APEX	ABKL	1
-250A	161T6009-2		.BOLT-APEX	C-FMN	1
-250B	161T6009-3		.BOLT-APEX	G-J O-T	1
-250C	161T6009-4		.BOLT-APEX	UV	1
255	161T6025-1		.WASHER		1
260	161T6026-1		.NUT		1
265	161T6013-1		.STRUT ASSY-LWR JURY		1
270	1728B		..FITTING-LUBE (V95879)		4
275	161T2043-4		..BUSHING		2
280	161T6040-8		..BUSHING		4
285	161T6040-5		..BUSHING		4
290	161T6013-2		..STRUT		1
295	161T6001-1		.STRUT ASSY-LWR		1
300	1728B		..FITTING-LUBE (V95879)		4
305	161T6043-1		..BUSHING		2
310	161T6040-3		..BUSHING		4
315	161T6001-2		..STRUT		1
320	161T6003-1		.STRUT ASSY-UPR		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
325	1728B		..FITTING-LUBE (V95879)		4
330	161T6040-2		..BUSHING		4
335	161T6040-3		..BUSHING		4
340	161T6003-2		..STRUT		1
			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

*[1] A-R. FOR DRAG STRUTS CODED S AND ON, THIS SPINDLE ASSEMBLY IS PART OF THE MAIN LANDING GEAR INSTALLATION (161T0000).