COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

TAIL SKID INSTALLATION

PART NUMBER 163A0001–1, –2

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COMPONENT MAINTENANCE MANUAL

Revision No. 4
Jul 01/2009

To: All holders of TAIL SKID INSTALLATION 32-71-16.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

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

For printed manuals, changes are indicated on the List of Effective Pages (LEP). The pages which are revised will be identified on the LEP by an R (Revised), A (Added), O (Overflow, i.e. changes to the document structure and/or page layout), or D (Deleted). Each page in the LEP is identified by Chapter-Section-Subject number, page number and page date.

Pages replaced or made obsolete by this revision should be removed and destroyed.

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A = Added, R = Revised, D = Deleted, O = Overflow

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COMPONENT MAINTENANCE MANUAL

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
	32-27	PRR 38610-3	Jul 01/06

All revisions to this manual will be accompanied by transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the revision date, the date filed and the initials of the person filing.

Revision		Filed		Revision		Filed	
Number	Date	Date	Initials	Number	Date	Date	Initials

Revision		Filed	
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COMPONENT MAINTENANCE MANUAL

All temporary revisions to this manual will be accompanied by a cover sheet bearing the temporary revision number. Enter the temporary revision number in numerical order, together with the temporary revision date, the date the temporary revision is inserted and the initials of the person filing.
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Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

Temporary Revision		Inserted		Removed	
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Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

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Date	Initials	Number	Date	Date	Initials

INTRODUCTION

1. General

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

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

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

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

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

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

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

DESCRIPTION AND OPERATION

1. **Description**

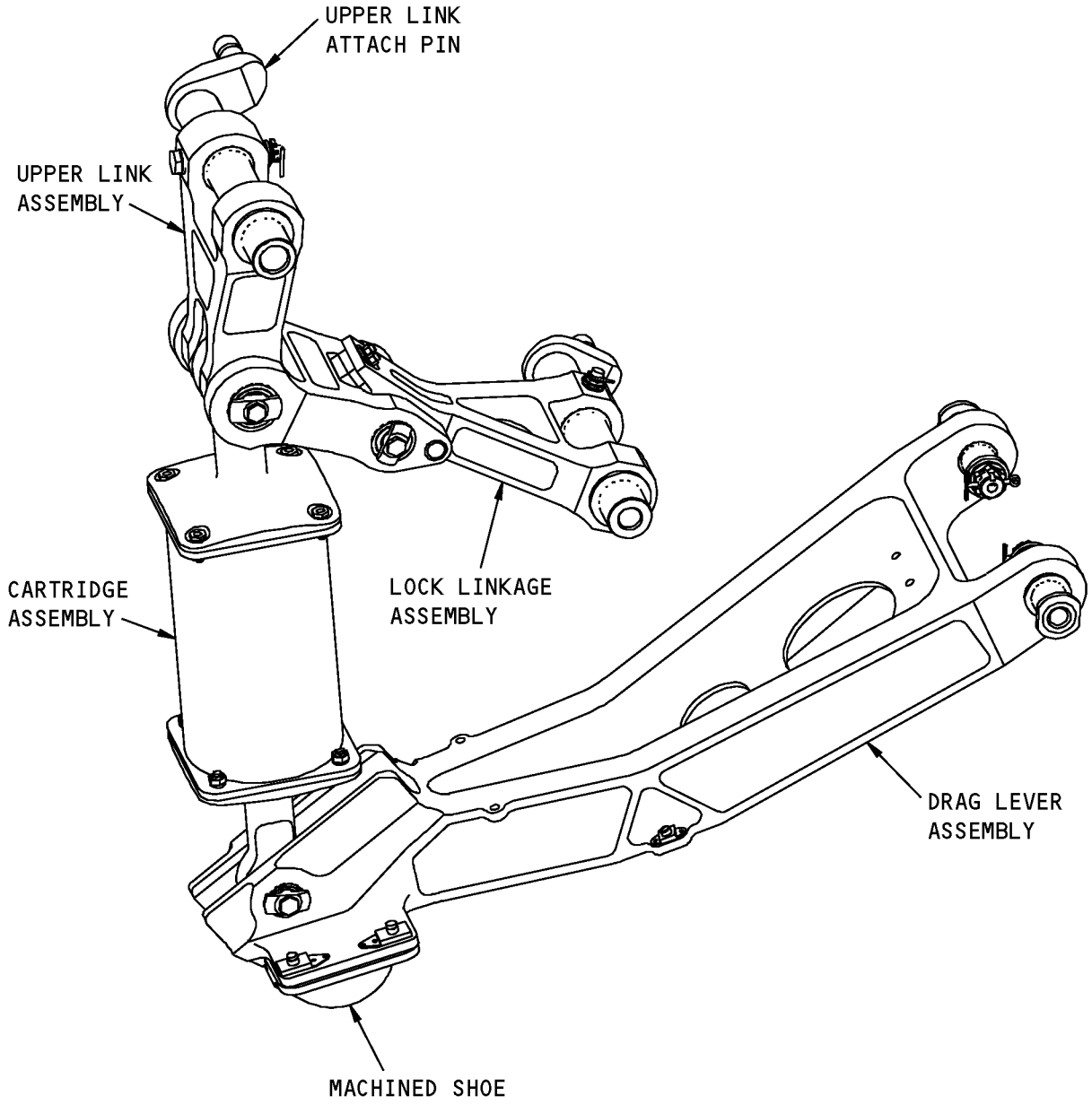
   A. The tail skid installation unit has an energy-absorbing cartridge, and a lock linkage and drag lever to connect the unit with the tail structure of the airplane.

   B. The cartridge assembly has a crushable energy absorber.

2. **Operation**

   A. When the tail of the airplane hits the ground when the airplane takes off or lands too steeply, the energy absorber crushes to absorb the forces. This saves the airplane structure from damage.

   B. Then the energy absorber is replaced at overhaul to let the airplane do it all again.



Tail Skid Installation
Figure 1

(NOT APPLICABLE)

DISASSEMBLY

1. General

A. This procedure tells how to disassemble the tail skid installation unit.

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

C. Refer to IPL Figure 1 for item numbers.

2. Disassembly

A. Special tools

(1) Reserved.

B. Parts Replacement

NOTE: These parts are recommended for replacement. Replacement of other parts can be by in-service experience.

(1) Cotter pins

C. Procedure

(1) Use standard industry practices and these steps.

(2) Do not disassemble these subassemblies unless necessary for repair or replacement. (Refer to REPAIR for procedures to overhaul these subassemblies.)

(a) Pin assemblies (25, 125)

(b) Lever assemblies (420, 425)

(c) Link assemblies (75, 185, 230)

(d) Lock linkage assembly (140)

(e) Cartridge assembly (315)

(f) Fitting assembly (350)

(g) Bearing assemblies (335, 365)

CLEANING

1. General

A. This procedure tells how to clean special parts.

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

2. Clean

A. References

Reference	Title
SOPM 20-30-03	GENERAL CLEANING PROCEDURES

B. Procedure

(1) Special instructions are not necessary. Clean all parts as specified by standard industry practices and SOPM 20-30-03.

CHECK

1. General

A. This procedure tells how to find defects in the specified parts.

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

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

D. Refer to IPL Figure 1 for item numbers.

2. Check

A. References

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

B. Procedure

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

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

(a) Pins (35, 70, 135, 170, 415)

(b) Links (100, 280)

(c) Fuse pins (310)

(d) Fittings (360, 380)

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

(a) Link (225)

(b) Bearing halves (340, 345, 370, 375)

(c) Shoe (395)

(d) Levers (460, 465)

(4) Examine the energy absorber (385). If it is crushed, discard it and get a new one to install during repair of the cartridge assembly.

REPAIR

1. General

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

Table 601:

PART NUMBER	NAME	REPAIR
—	REFINISH OF OTHER PARTS	1-1
163A1001	PIN	2-1
163A1002	PIN	3-1
163A1003	PIN ASSY	4-1, 4-2
163A1004	PIN ASSY	5-1, 5-2
163A1005	PIN	6-1
163A2001	LEVER ASSY	7-1, 7-2
163A2002	LINK ASSEMBLY	8-1, 8-2
163A2003	LOCK LINKAGE ASSEMBLY	9-1
163A2004	LINK ASSEMBLY	10-1, 10-2
163A2005	LINK ASSEMBLY	11-1, 11-2
163A2006	SHOE	12-1
163A2007	APEX PIN	13-1
163A3001	CARTRIDGE ASSEMBLY	14-1
163A3002	FITTING ASSEMBLY	15-1, 15-2
163A3003	FITTING	16-1
163A3004	BEARING ASSEMBLY	17-1

2. Dimensioning Symbols

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

REFINISH OF OTHER PARTS - REPAIR 1-1

1. General

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

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

C. Refer to IPL Figure 1 for item numbers.

2. Refinish

A. References

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

B. Procedure

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

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

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 1		
End cap (60, 65, 165, 305)	15-5PH CRES 180-200 ksi	Passivate (F-17.25).
Stop plate (205, 250)	15-5PH CRES 180-200 ksi	Passivate (F-17.25).
Washer (410)	15-5PH CRES 180-200 ksi	Passivate (F-17.25).

FUSE PIN - REPAIR 2-1

163A1001–1, –2

1. General

A. This procedure tells how to repair and refinish fuse pin (310).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: 15-5PH CRES, 77.33-89.94 ksi.

(2) Shot peen: 0.016A2 intensity

2. Pin Repair

A. Repair is only replacement of the original finish. Refer to REPAIR 2-1, Paragraph 3. for details.

B. If you think there are defects on important surfaces, see REPAIR 2-1, Figure 601 for dimension details.

3. Pin Refinish

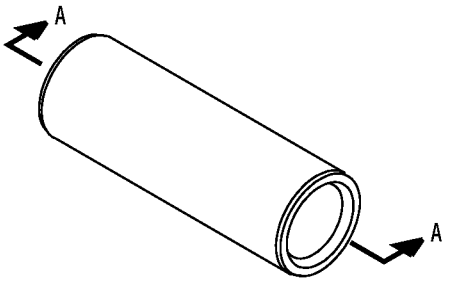
A. References

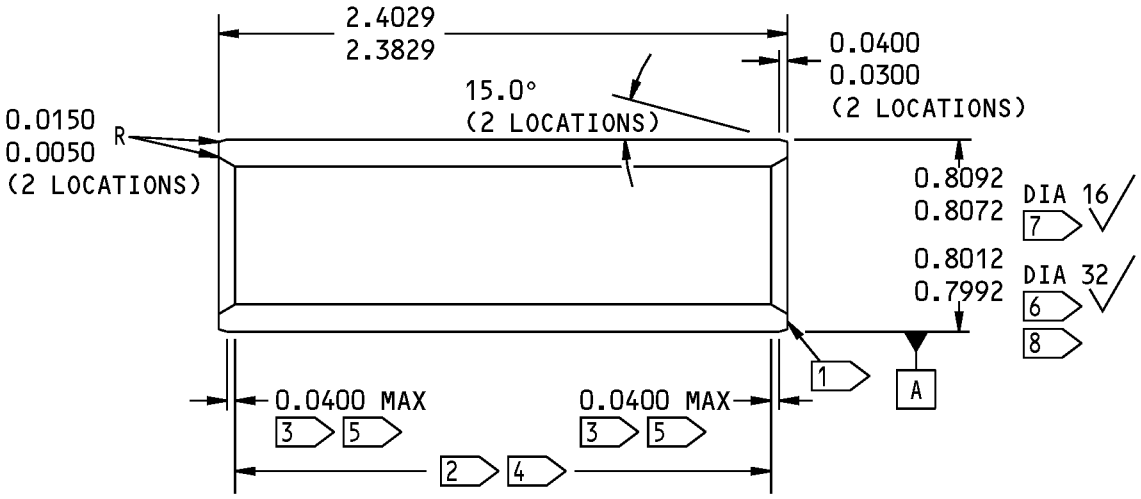
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

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

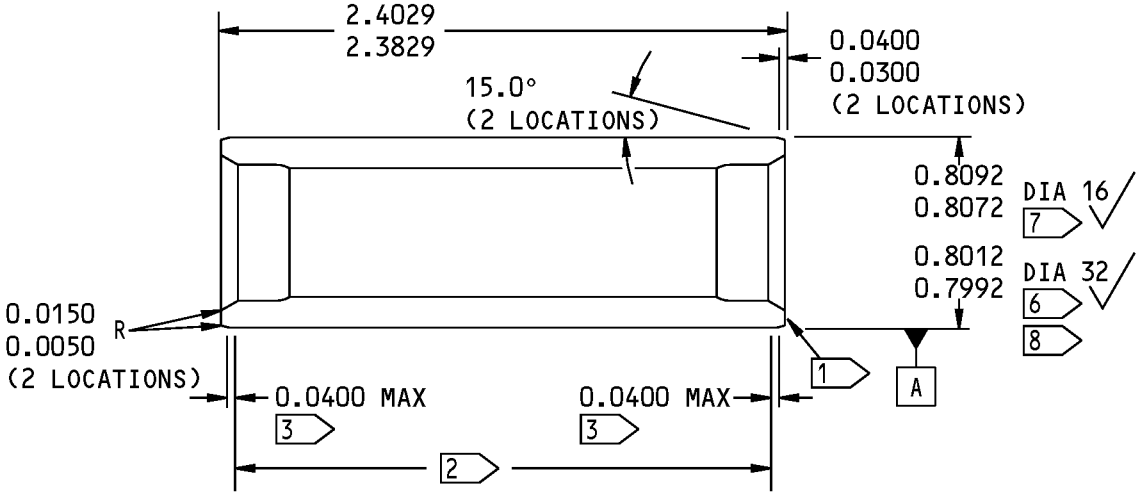
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Chrome plate (F-15.34) indicated surfaces. Passivate (F-17.25) other surfaces.



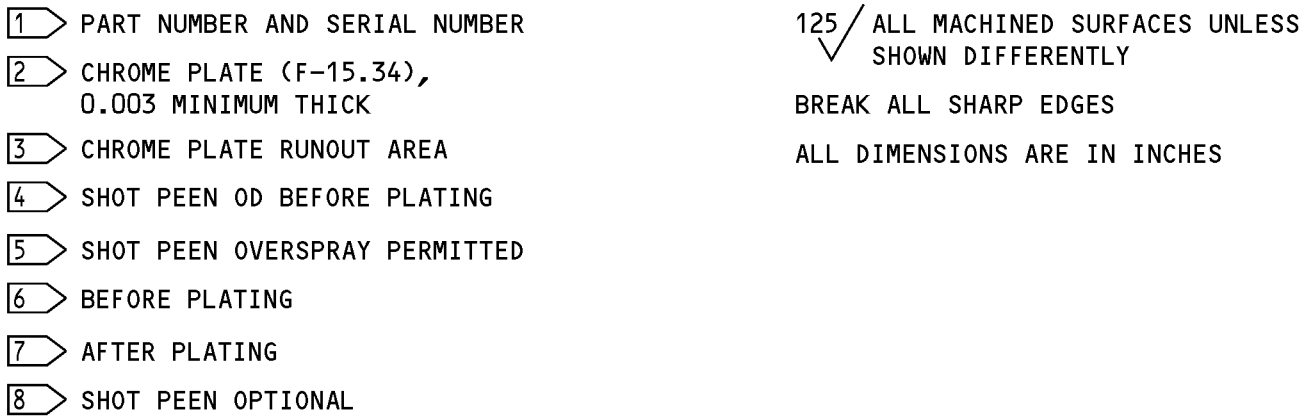


163A1001-1
A-A



163A1001-2
A-A

163A1001-1, -2 Fuse Pin Refinish
Figure 601 (Sheet 1 of 2)



163A1001-1, -2 Fuse Pin Refinish
Figure 601 (Sheet 2 of 2)

PIN - REPAIR 3-1

163A1002–1

1. General

A. This procedure tells how to repair and refinish pin (70).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

(2) Shot peen: 0.016A2 intensity

2. Pin Repair

A. References

Reference	Title
32-00-05	Repair of High Strength Steel Landing Gear Parts
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-42-03	HARD CHROME PLATING

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

(1) Machine as necessary, within repair limits, to remove defects (SOPM 20-10-01, SOPM 20-10-02, 32-00-05).

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

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

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

3. Pin Refinish

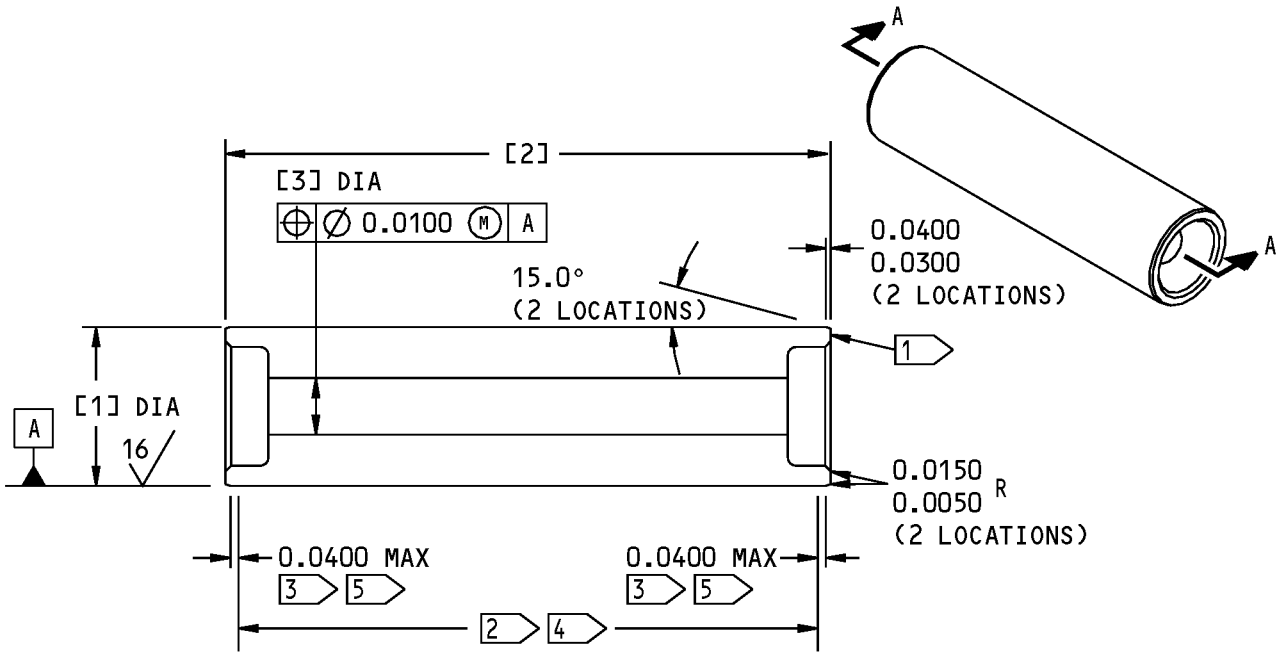
A. References

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

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

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

(1) Chrome plate (F-15.34) the indicated surfaces. Passivate (F-17.25) the other surfaces.



A–A

REFERENCE NUMBER	[1]	[2]	[3]
DESIGN DIMENSION	1.1215 1.1205 6	4.2820 4.2720	0.4100 0.3900
REPAIR LIMIT	1.0905 7	---	---

1 PART NUMBER LOCATION

2 CHROME PLATE (F-15.34)
0.003 THICK AFTER GRINDING

3 CHROME PLATE RUNOUT

4 SHOT PEEN BEFORE PLATING

5 SHOT PEEN OVERSPRAY PERMITTED

6 AFTER PLATING

7 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01–0.03 R

DIMENSIONS ARE BEFORE PLATING UNLESS SHOWN BY 6

ALL DIMENSIONS ARE IN INCHES

163A1002-1 Pin Repair and Refinish
Figure 601

PIN ASSEMBLY - REPAIR 4-1

163A1003–1

1. General

A. This procedure tells how to replace the bushing of pin assembly (25).

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

C. Refer to IPL Figure 1 for item numbers.

2. Bushing Replacement

A. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-03	LUBRICANTS

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

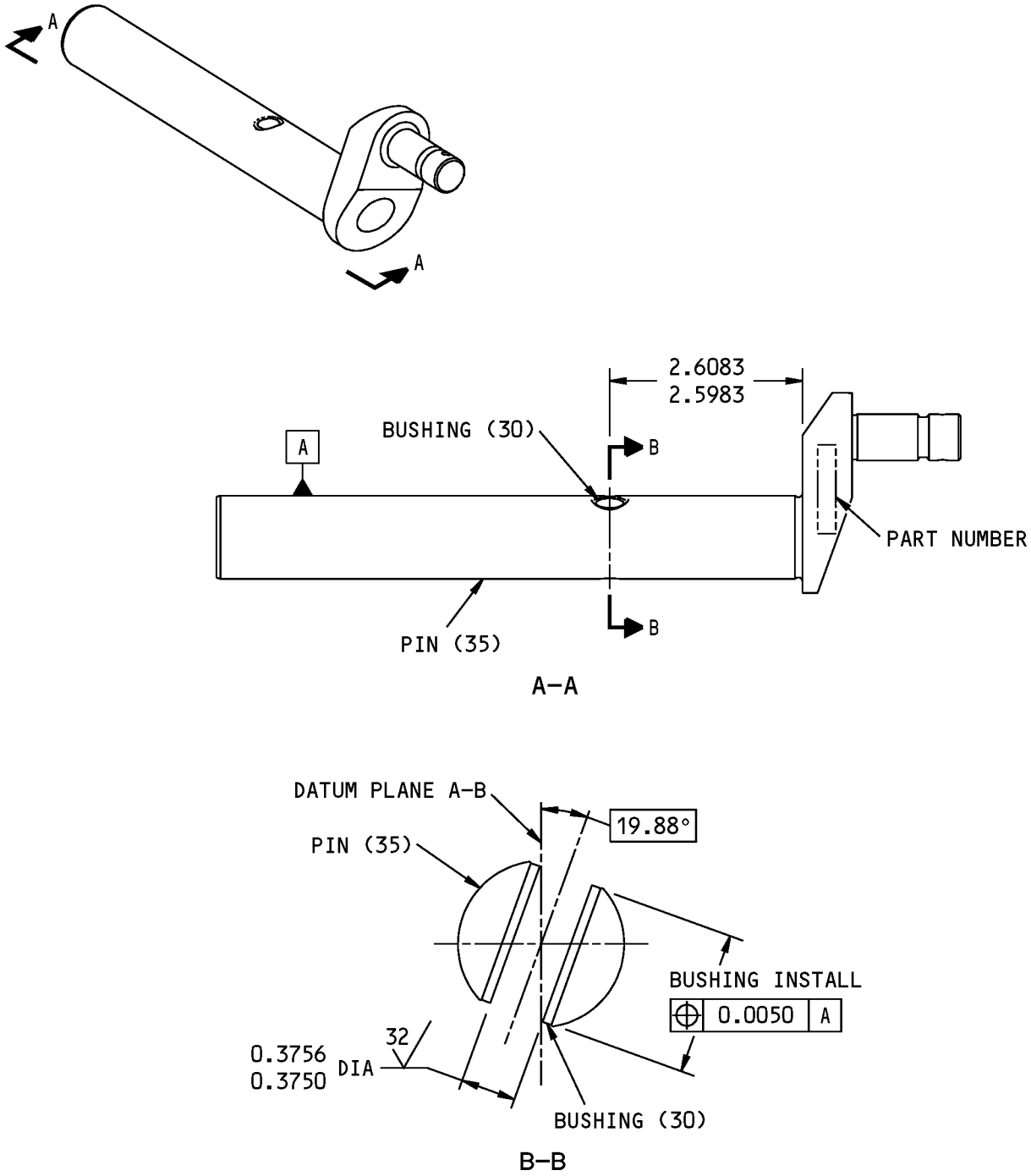
NOTE: For lubricants, refer to SOPM 20-60-03.

(1) Remove the old bushing.

(2) If you find defects on the pin surfaces, refer to REPAIR 4-2 for repair instructions.

(3) Install a replacement bushing by the shrink fit method (SOPM 20-50-03) with BMS 3-33 grease as the installation finish.

(4) Machine the bushing bore to design dimensions and finish.



ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

163A1003-1 Pin Assembly Bushing Replacement
Figure 601

PIN - REPAIR 4-2

163A1003–2

1. General

A. This procedure tells how to repair and refinish pin (35).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

(2) Shot peen: 0.016A2 intensity

2. Pin Repair

A. References

Reference	Title
32-00-05	Repair of High Strength Steel Landing Gear Parts
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-42-03	HARD CHROME PLATING

B. Procedure (REPAIR 4-2, Figure 601)

(1) Bore for bushing

(a) Machine as necessary, within repair limits, to remove defects (SOPM 20-10-01, SOPM 20-10-02, 32-00-05).

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

(c) Refinish as necessary.

(d) Make an oversize bushing (REPAIR 4-2, Figure 602) to adjust for the material removed.

(e) Install the bushing (REPAIR 4-1).

(2) Shank - Diameter A

(a) Machine as necessary, within repair limits, to remove defects (SOPM 20-10-01, SOPM 20-10-02, SOPM 20-10-02, 32-00-05).

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

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

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

3. Pin Refinish

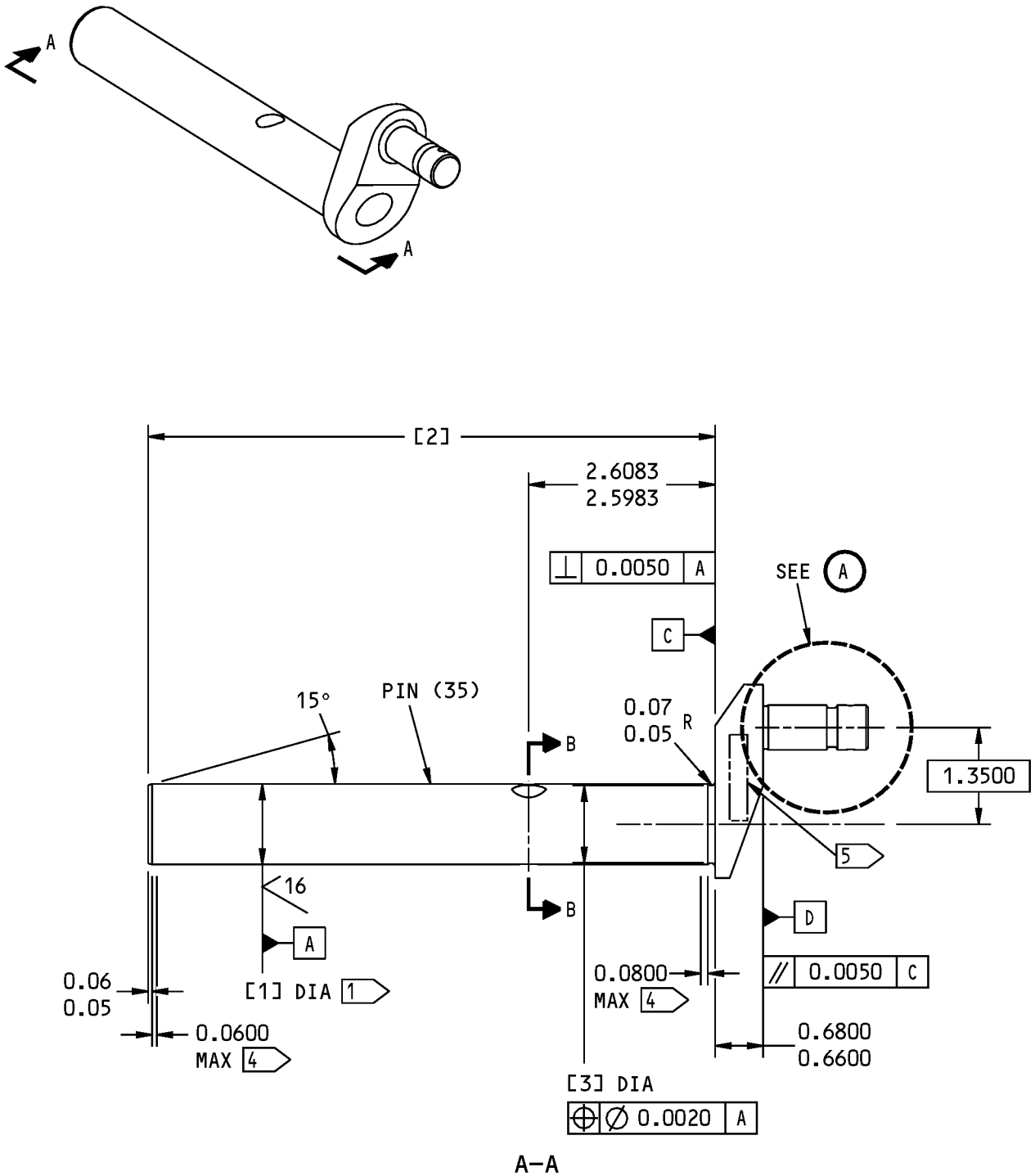
A. References

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

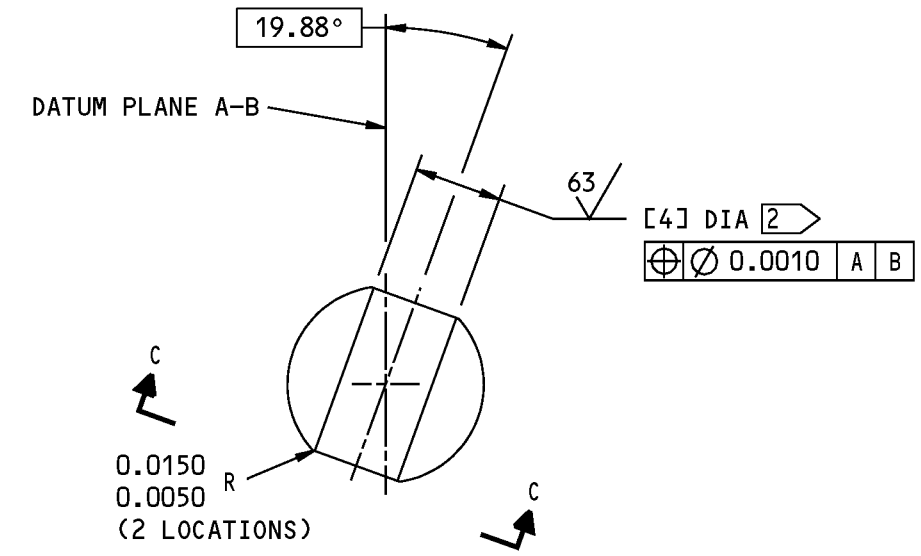
B. Procedure

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

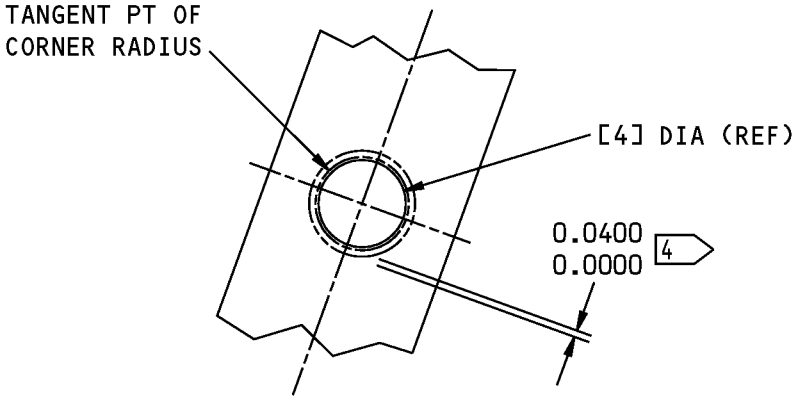
(1) Chrome plate (F-15.34) the surfaces shown. Passivate (F-17.25) the other surfaces.



163A1003-2 Pin Repair and Refinish
Figure 601 (Sheet 1 of 4)

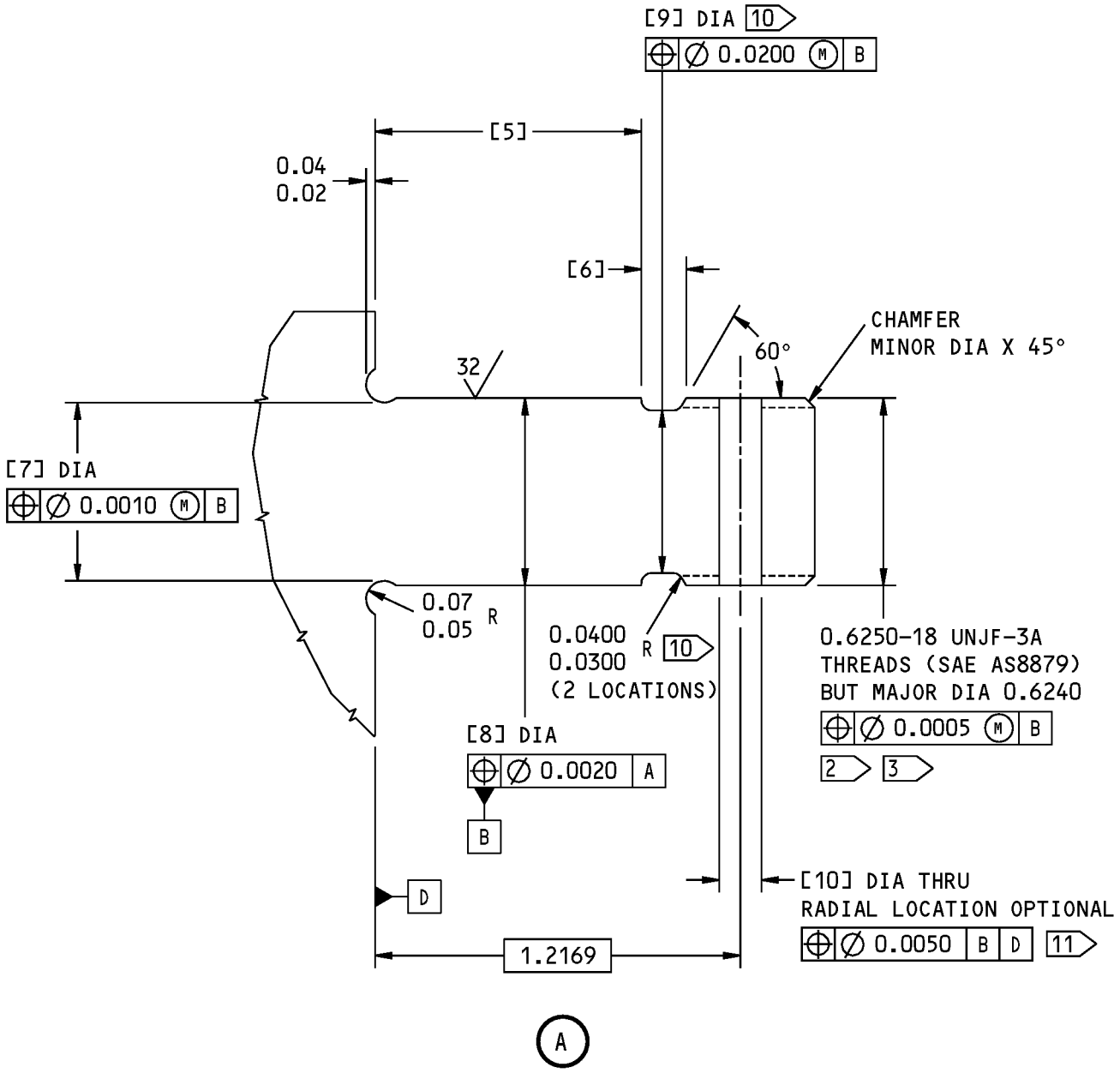


B-B



C-C

163A1003-2 Pin Repair and Refinish
Figure 601 (Sheet 2 of 4)



163A1003-2 Pin Repair and Refinish
Figure 601 (Sheet 3 of 4)

REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]	[6]	[7]
DESIGN DIMENSION	1.1215 1.1205 [6]	7.9205 7.9005	1.0825 1.0775	0.5006 0.5000	0.8915 0.8815	0.1350 0.1150	0.5945 0.5935
REPAIR LIMIT	1.1805 [7]	---	---	0.5606 [8]	---	---	---

REFERENCE NUMBER	[8]	[9]	[10]
DESIGN DIMENSION	0.6245 0.6235	0.5440 0.5370	0.1510 0.1310
REPAIR LIMIT	0.6035 [7]	---	0.1810 [9]

[1] CHROME PLATE (F-15.34), 0.003 MINIMUM THICKNESS

[2] DO NOT SHOT PEEN

[3] POSITION TOLERANCE APPLIES TO MAJOR DIAMETER OF THREADS

[4] CHROME PLATE RUNOUT

[5] PART NUMBER LOCATION

[6] AFTER PLATING

[7] LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH

[8] LIMIT FOR INSTALLATION OF OVERSIZE BUSHING

[9] RESTORATION TO DESIGN DIMENSIONS NOT NECESSARY

[10] SHOT PEEN OPTIONAL

[11] REMOVE ALL BURRS AT INTERSECTION OF HOLE AND THREADS

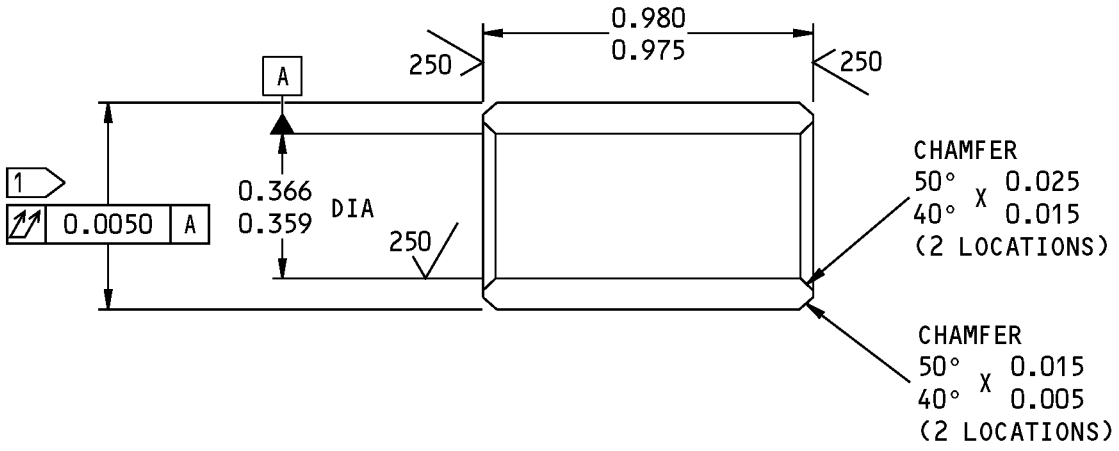
125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.03 R

DIMENSIONS ARE BEFORE PLATING UNLESS SHOWN BY [6]

ALL DIMENSIONS ARE IN INCHES

163A1003-2 Pin Repair and Refinish
Figure 601 (Sheet 4 of 4)



1 FINISH DIAMETER (REPAIR DIAMETER OF THE HOLE PLUS 0.0004-0.0015 INTERFERENCE)

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

MATERIAL: AL-NI-BRONZE (AMS 4640)

FINISH: NO FINISH

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION [4] FIG. 601 - REPLACES BUSHING (30) BACB28AW06B098A

Oversize Bushing Details
Figure 602

PIN ASSEMBLY - REPAIR 5-1

163A1004–1

1. General

A. This procedure tells how to replace the bushing of pin assembly (125).

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

C. Refer to IPL Figure 1 for item numbers.

2. Bushing Replacement

A. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-03	LUBRICANTS

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

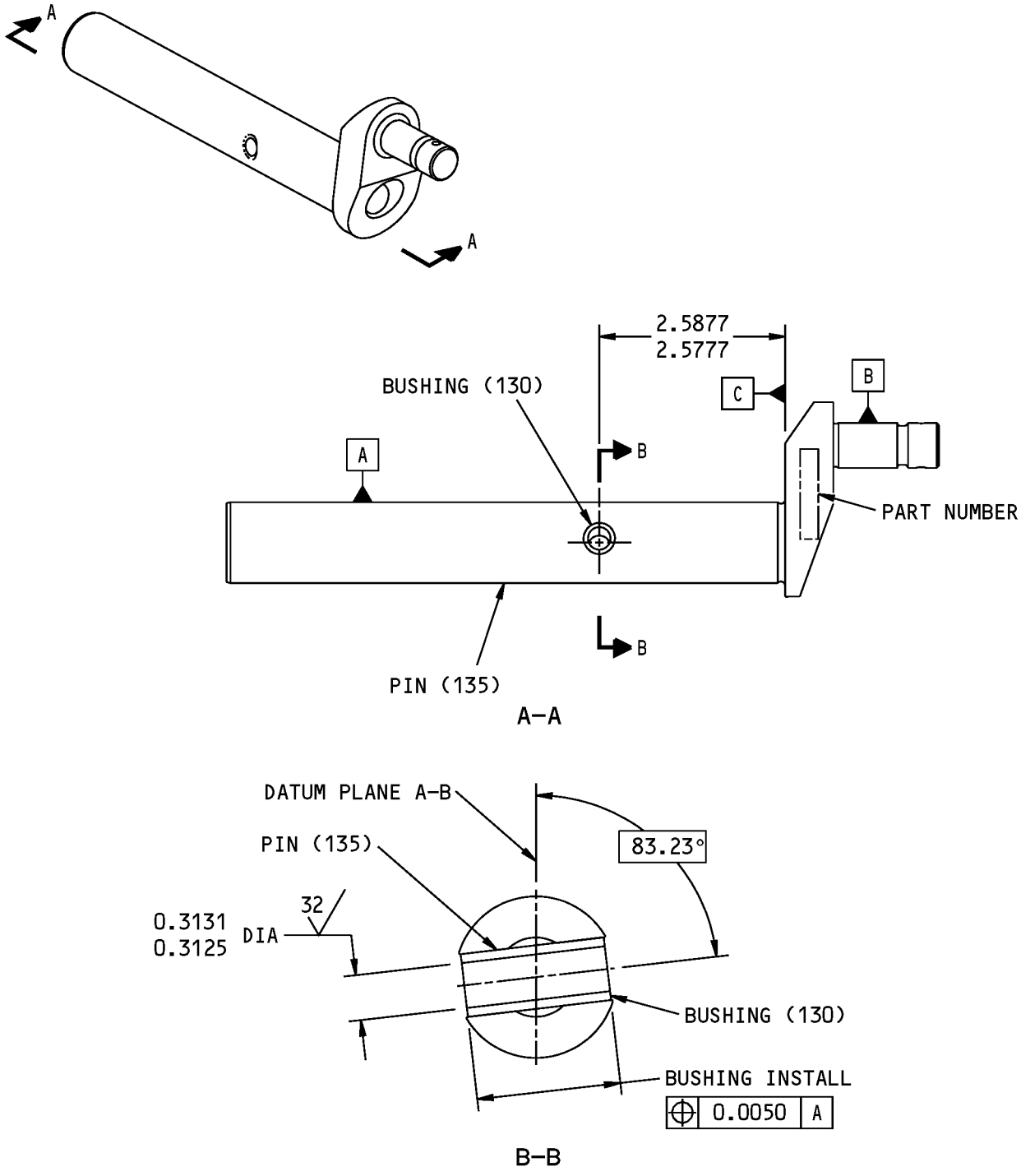
NOTE: For lubricants, refer to SOPM 20-60-03.

(1) Remove the old bushing.

(2) If you find defects on the pin surfaces, refer to REPAIR 5-2 for repair instructions.

(3) Install a replacement bushing by the shrink fit method (SOPM 20-50-03) with BMS 3-33 grease as the installation finish.

(4) Machine the bushing bore to design dimensions and finish.



ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

163A1004-1 Pin Assembly Bushing Replacement
Figure 601

PIN - REPAIR 5-2

163A1004–2

1. General

A. This procedure tells how to repair and refinish pin (135).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

(2) Shot peen: 0.016A2 intensity

2. Pin Repair

A. References

Reference	Title
32-00-05	Repair of High Strength Steel Landing Gear Parts
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-42-03	HARD CHROME PLATING

B. Procedure (REPAIR 5-2, Figure 601)

(1) Bore for bushing

(a) Machine as necessary, within repair limits, to remove defects (SOPM 20-10-01, SOPM 20-10-02, 32-00-05).

(b) Refinish as necessary (REPAIR 5-2, Paragraph 2.B.(2) below).

(c) Make an oversize bushing (REPAIR 5-2, Figure 602) to adjust for the material removed.

(d) Install the bushing (REPAIR 5-1).

(2) Shank - Diameter A

(a) Machine as necessary, within repair limits, to remove defects (SOPM 20-10-01, SOPM 20-10-02, 32-00-05).

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

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

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

3. Pin Refinish

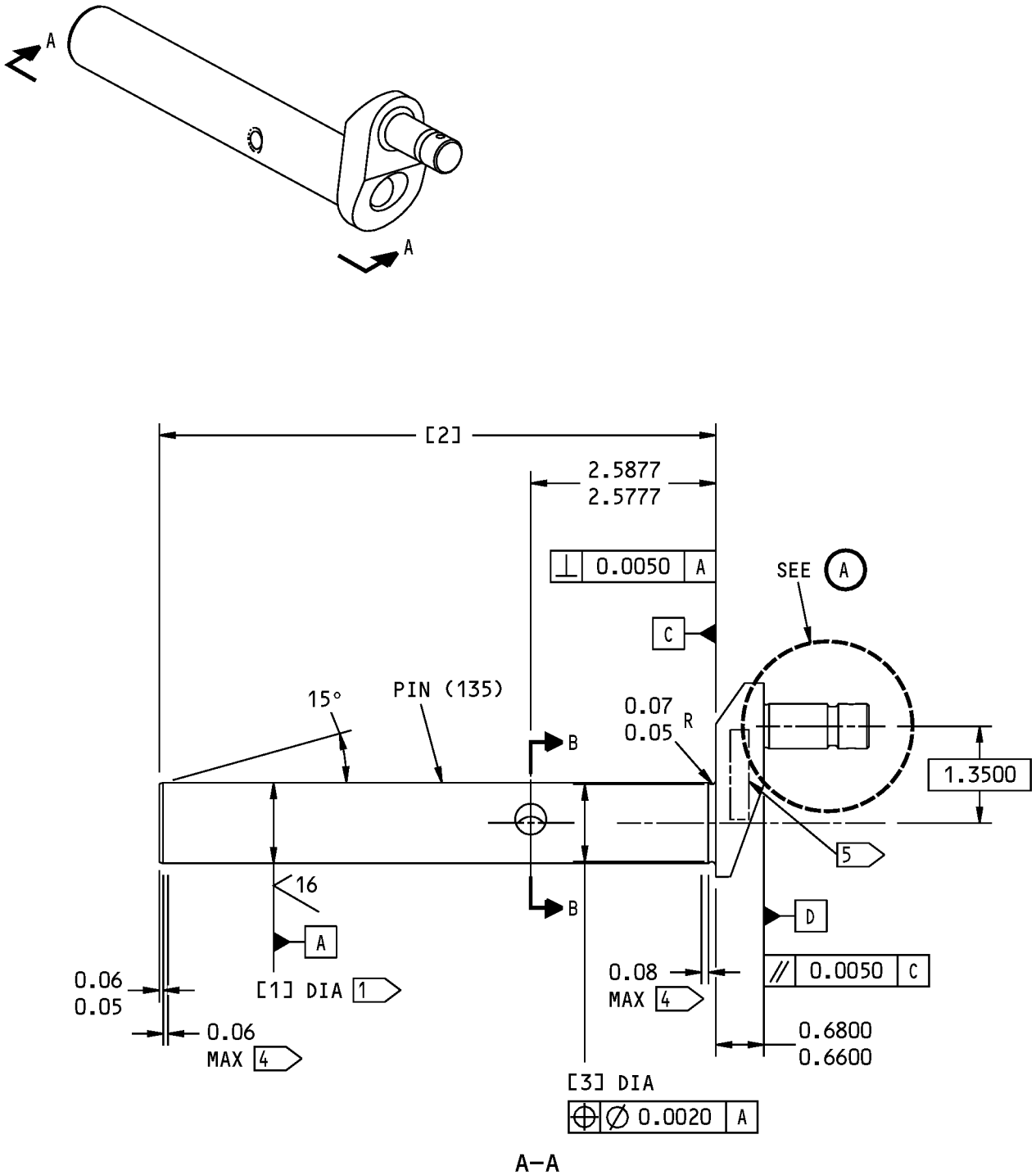
A. References

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

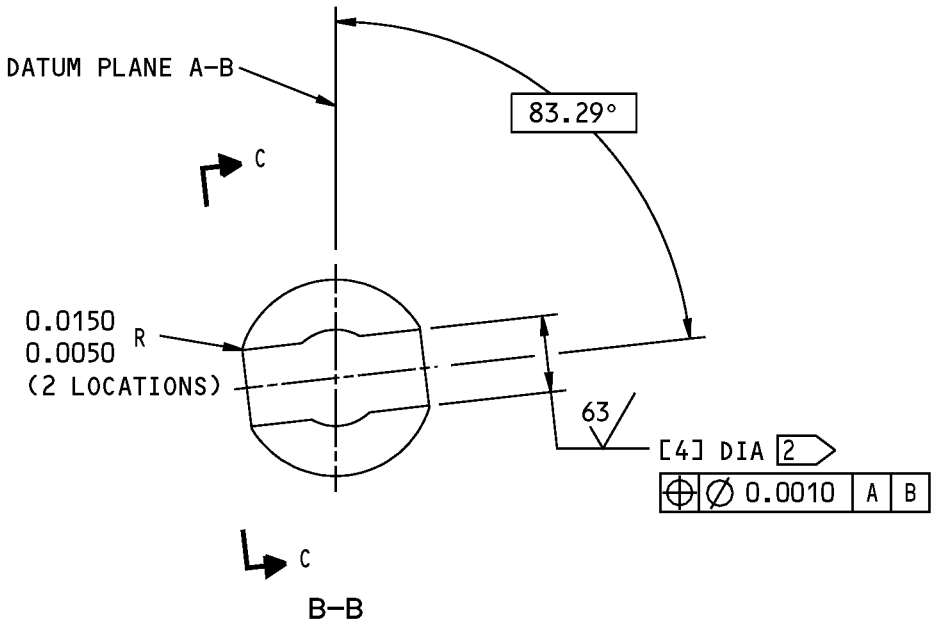
B. Procedure

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

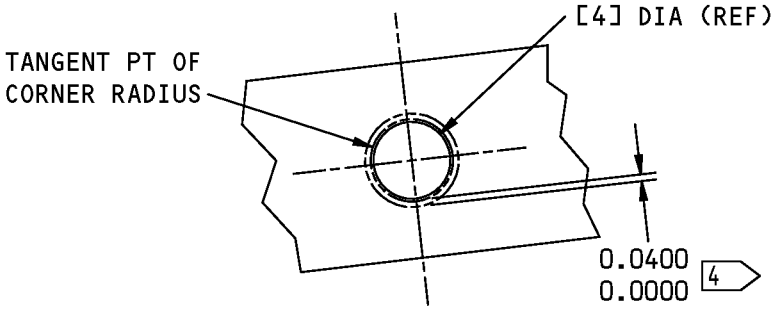
(1) Chrome plate (F-15.34) the surfaces shown. Passivate (F-17.25) the other surfaces.



163A1004-2 Pin Repair and Refinish
Figure 601 (Sheet 1 of 4)

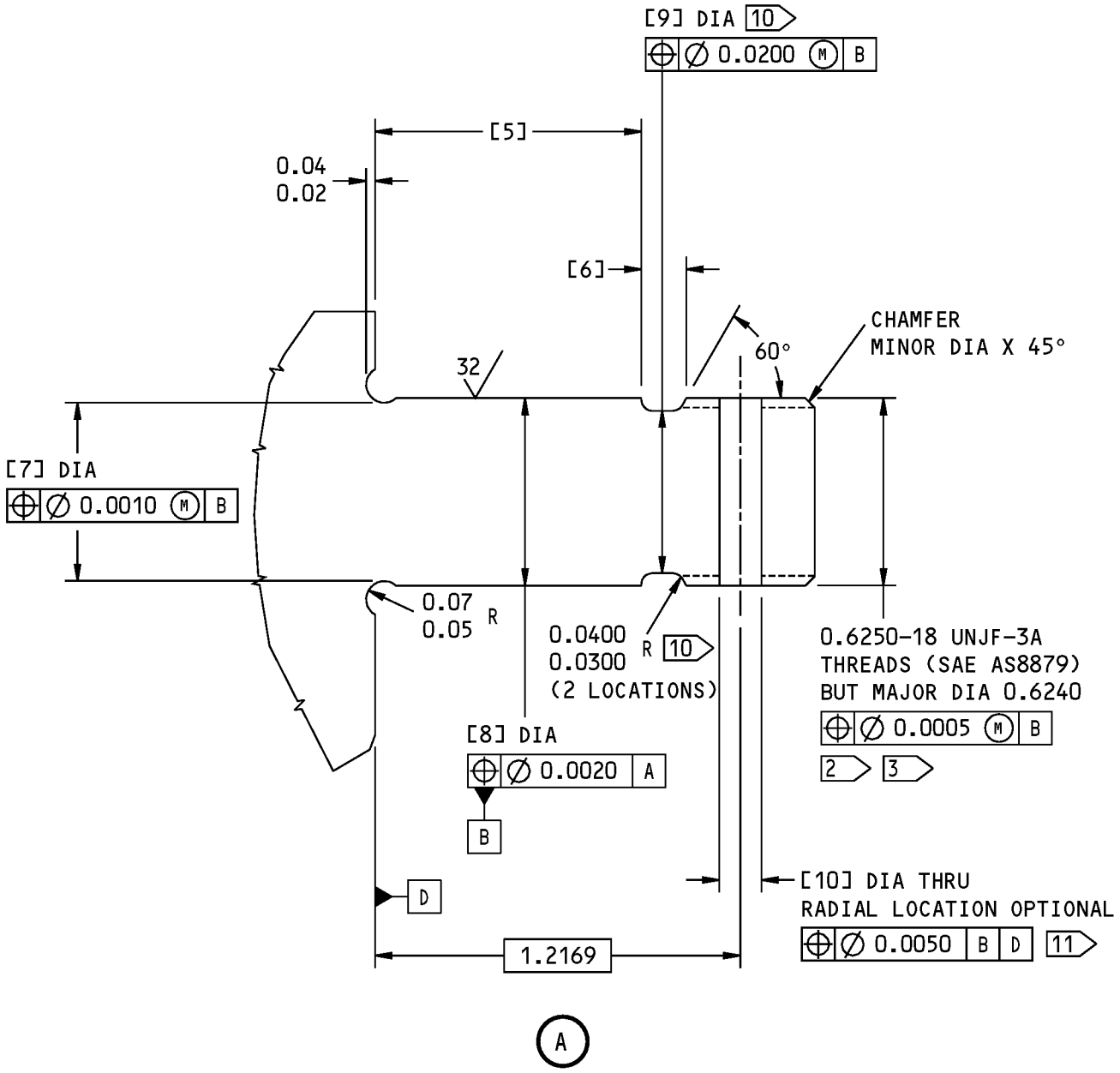


B–B



C–C

163A1004-2 Pin Repair and Refinish
Figure 601 (Sheet 2 of 4)



163A1004-2 Pin Repair and Refinish
Figure 601 (Sheet 3 of 4)

REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]	[6]	[7]
DESIGN DIMENSION	1.1215 1.1205 6	7.7655 7.7455	1.0825 1.0775	0.4381 0.4375	0.8915 0.8815	0.1350 0.1150	0.5945 0.5935
REPAIR LIMIT	1.0905 7	---	---	0.4981 8	---	---	---

REFERENCE NUMBER	[8]	[9]	[10]
DESIGN DIMENSION	0.6245 0.6235	0.5440 0.5370	0.1510 0.1310
REPAIR LIMIT	0.6035 7	---	0.1810 9

1 CHROME PLATE (F-15.34), 0.003 MINIMUM THICKNESS

2 DO NOT SHOT PEEN

3 POSITION TOLERANCE APPLIES TO MAJOR DIAMETER OF THREADS

4 CHROME PLATE RUNOUT

5 PART NUMBER LOCATION

6 AFTER PLATING

7 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH

8 LIMIT FOR INSTALLATION OF OVERSIZE BUSHING

9 RESTORATION TO DESIGN DIMENSIONS NOT NECESSARY

10 SHOT PEEN OPTIONAL

11 REMOVE ALL BURRS AT INTERSECTION OF HOLES AND THREADS

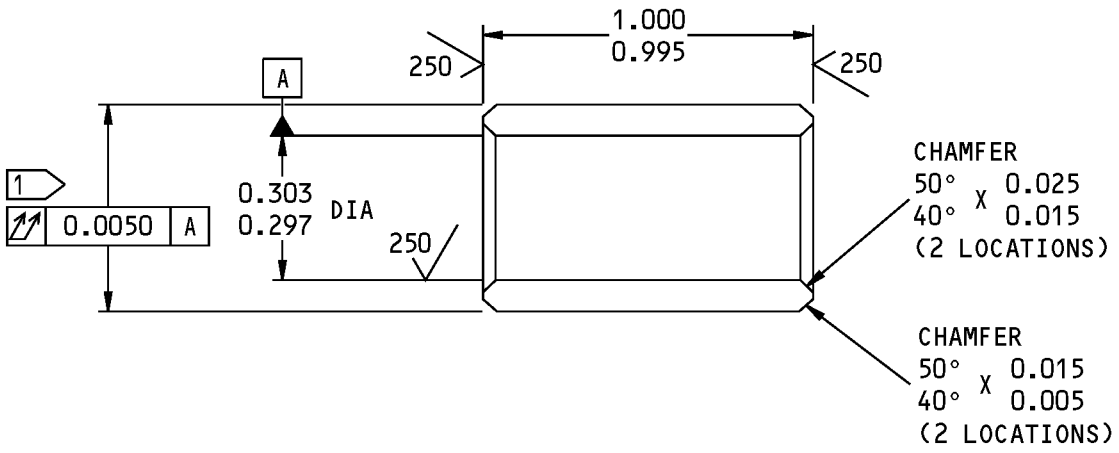
125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.03 R

DIMENSIONS ARE BEFORE PLATING UNLESS SHOWN BY 6

ALL DIMENSIONS ARE IN INCHES

163A1004-2 Pin Repair and Refinish
Figure 601 (Sheet 4 of 4)



1 FINISH DIAMETER (REPAIR DIAMETER OF THE HOLE PLUS 0.0003-0.0013 INTERFERENCE

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

MATERIAL: AL-NI-BRONZE (AMS 4640)

FINISH: NO FINISH

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION [4] FIG. 601 - REPLACES BUSHING (130)
BACB28AW05B100A

Oversize Bushing Details
Figure 602

PIN - REPAIR 6-1

163A1005–1

1. General

A. This procedure tells how to repair and refinish pin (185).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

(2) Shot peen: 0.016A2 intensity on the shank OD; optional on other surfaces, but not on threads

2. Pin Repair

A. References

Reference	Title
32-00-05	Repair of High Strength Steel Landing Gear Parts
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-10-03	SHOT PEENING
SOPM 20-42-03	HARD CHROME PLATING

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

(1) Shank OD

(a) Machine as necessary, within repair limits, to remove defects (SOPM 20-10-01, SOPM 20-10-02, 32-00-05).

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

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

(d) Grind the chrome plate to design dimensions and finish.

(2) Hole for cotter pin

(a) Machine as necessary, within repair limits, to remove defects. (SOPM 20-10-01, SOPM 20-10-02, 32-00-05).

(b) Refinish as necessary (REPAIR 6-1, Paragraph 3. below).

3. Pin Refinish

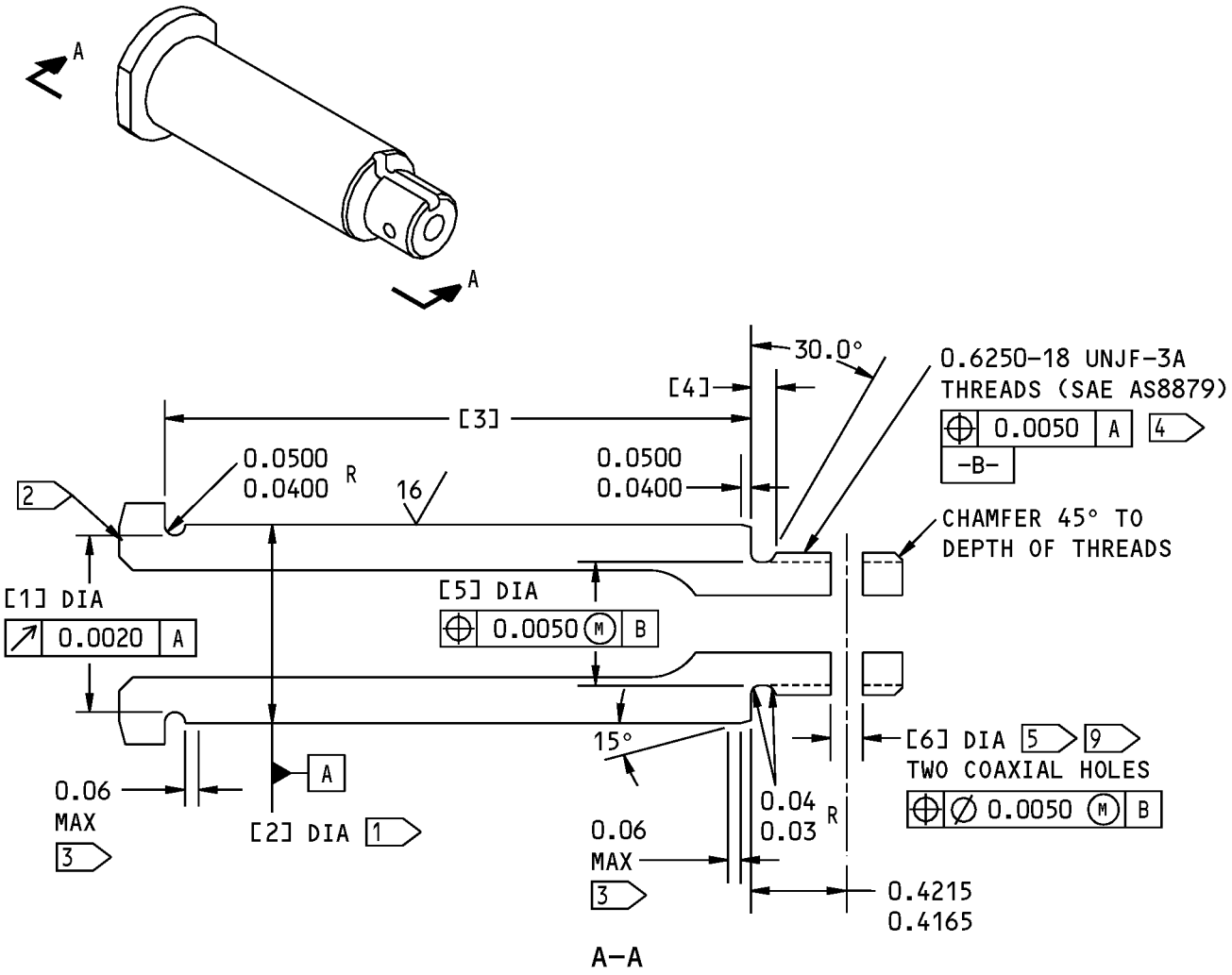
A. References

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

B. Procedure REPAIR 6-1, Figure 601

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

(1) Chrome plate (F-15.34) the surfaces shown. Passivate (F-17.25) the other surfaces.



REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]	[6]
DESIGN DIMENSION	0.7802 0.7702	0.8717 0.8707 6	2.5770 2.5670	0.1200 0.1000	0.5440 0.5370	0.1460 0.1360
REPAIR LIMIT	---	0.8407 7	---	---	---	0.1760 8

163A1005-1 Pin Repair and Refinish
Figure 601 (Sheet 1 of 2)

1 CHROME PLATE (F-15.34), 0.003 MINIMUM THICKNESS

2 PART NUMBER

3 CHROME PLATE RUNOUT

4 MASK THREADS BEFORE SHOT PEEN

5 REMOVE ALL BURRS AT INTERSECTION OF HOLES AND THREADS

6 AFTER PLATING

7 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESIGN DIMENSIONS AND FINISH

8 RESTORATION TO DESIGN DIMENSIONS IS NOT NECESSARY

9 SHOT PEEN OPTIONAL

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.03 R

DIMENSIONS ARE BEFORE PLATING UNLESS SHOWN BY 6

ALL DIMENSIONS ARE IN INCHES

163A1005-1 Pin Repair and Refinish
Figure 601 (Sheet 2 of 2)

DRAG LEVER ASSEMBLY - REPAIR 7-1

163A2001–1, –3

1. General

A. This procedure tells how to replace the parts of drag lever assembly (420, 425).

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

C. Refer to IPL Figure 1 for item numbers.

2. Bushing Replacement

A. References

Reference	Title
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

B. Bushing Replacement (REPAIR 7-1, Figure 601)

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

(1) Remove the old bushings.

(2) If you find defects on the lever surfaces, refer to REPAIR 7-2 for repair instructions.

(3) Install replacement bushings by the shrink fit method (SOPM 20-50-03) with BMS 5-95 sealant as the installation finish. Make sure the gap under each bushing flange is no larger than 0.002 inch.

(4) If necessary, machine the bushings to design dimensions and finish. These bushings have a self-lubricating liner. Do not remove more than 0.001 inch from each flange face or 0.002 inch from the bore of these bushings.

(5) Fillet seal the bushings with BMS 5-95 sealant.

C. Nutplate Replacement (REPAIR 7-1, Figure 601)

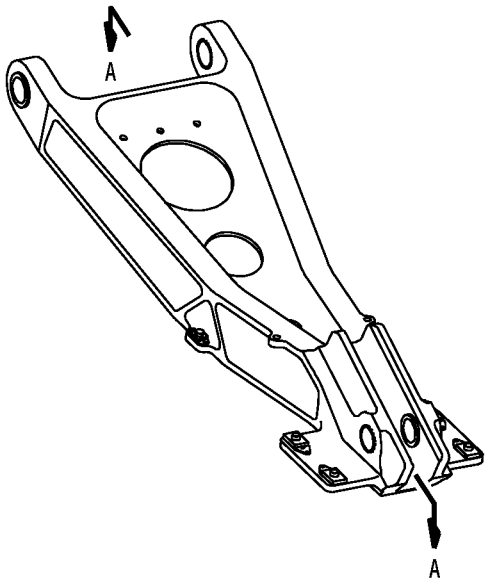
(1) Remove the rivets and the old nutplate.

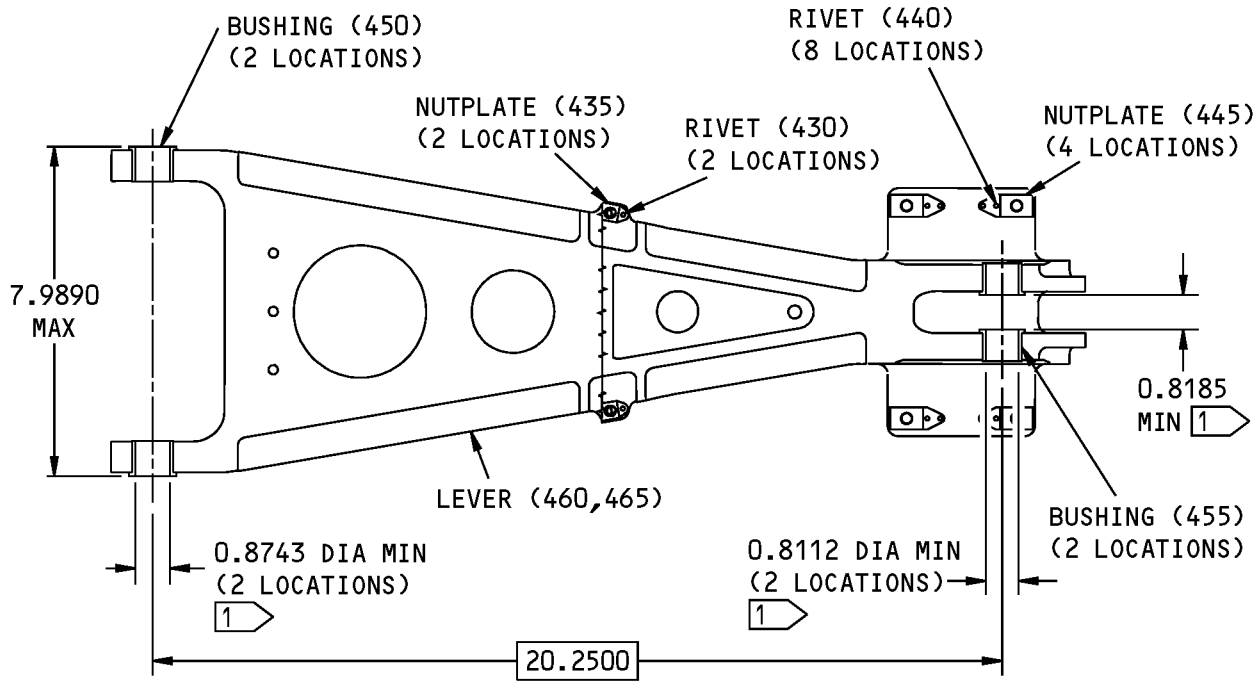
(2) Install a replacement nutplate with new rivets, and with BMS 3-38 corrosion preventive compound on the mating surfaces of the nutplate and the drag lever surface.

D. Refinish

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

(1) Apply BMS 10-60 Type 2 enamel (F-19.39-707) to the assembly, but not on bushing flange faces, bushing bores or nutplates.





A–A

1 INSTALLED DIMENSION. ADJUST TO THIS SIZE IF NECESSARY.

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

163A2001-1, -3 Drag Lever Assembly Parts Replacement
Figure 601

LEVER - REPAIR 7-2

163A2001–2, –4

1. General

A. This procedure tells how to repair and refinish levers (460, 465).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: Al alloy

(2) Shot peen: not necessary

2. Lever Repair

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

(1) Bores for bushings

(a) Repair is only replacement of the original finish, because oversize equivalents of the mating bushings are not available.

(b) If you find defects on the hole surfaces beyond design dimensions, ask Boeing for help.

3. Lever Refinish

A. References

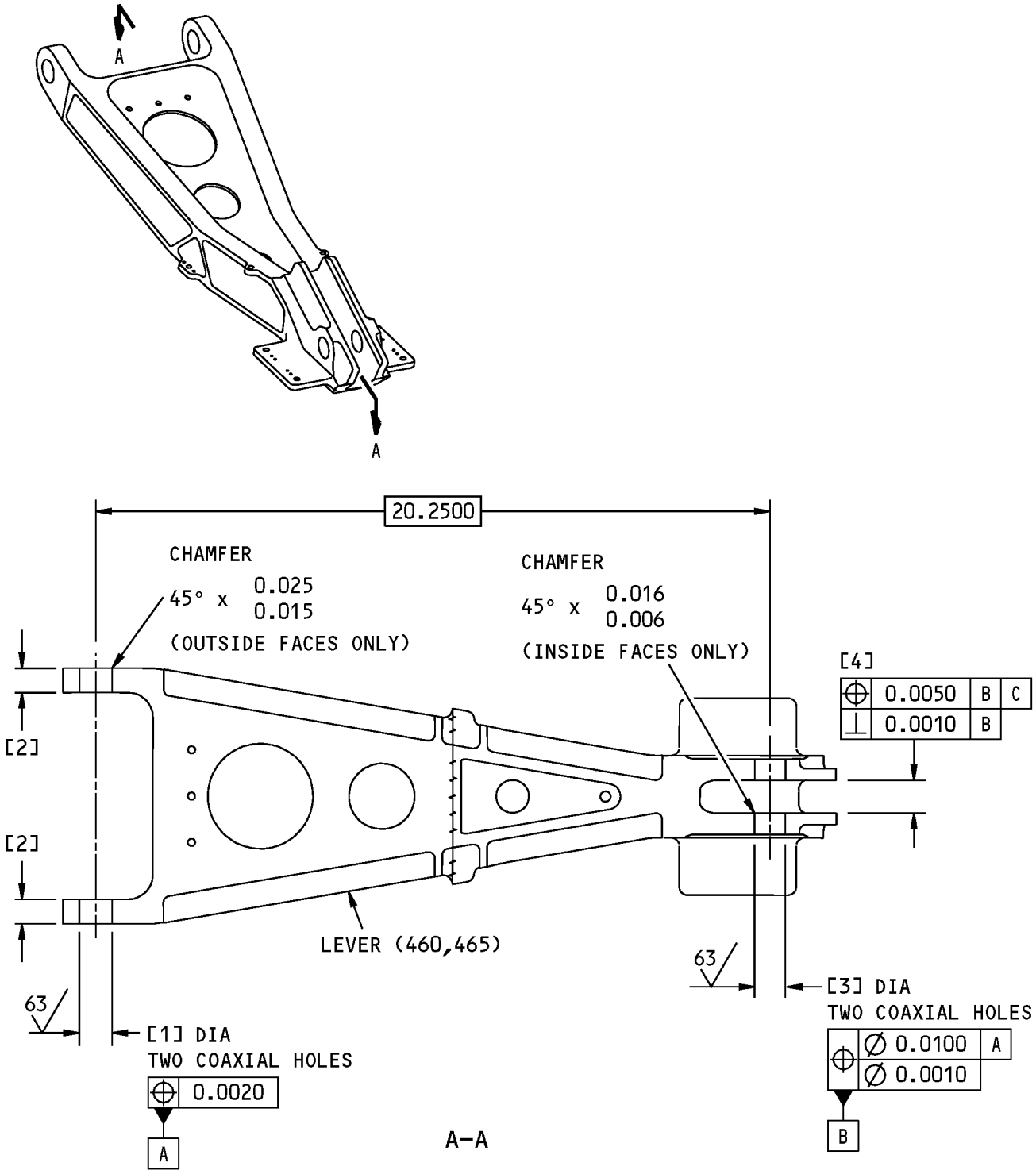
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

B. Procedure

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

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

(2) Apply BMS 10-79, Type 3 primer (F-19.47).



163A2001-2, -4 Drag Lever Repair and Refinish
Figure 601 (Sheet 1 of 2)

REFERENCE NUMBER	[1]	[2]	[3]	[4]
DESIGN DIMENSION	1.0007 1.0000	0.7500 0.7450	0.9382 0.9375	1.0055 1.0005
REPAIR LIMIT	---	---	---	---

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES 1.01–1.03 R UNLESS SHOWN DIFERENTLY

ALL DIMENSIONS ARE IN INCHES

163A2001-2, -4 Drag Lever Repair and Refinish
Figure 601 (Sheet 2 of 2)

UPPER LINK ASSEMBLY - REPAIR 8-1

163A2002–1

1. General

A. This procedure tells how to replace the bushings of upper link assembly (75).

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

C. Refer to IPL Figure 1 for item numbers.

2. Bushing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00633	Grease - Aircraft General Purpose	BMS3-33

B. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-03	LUBRICANTS

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

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

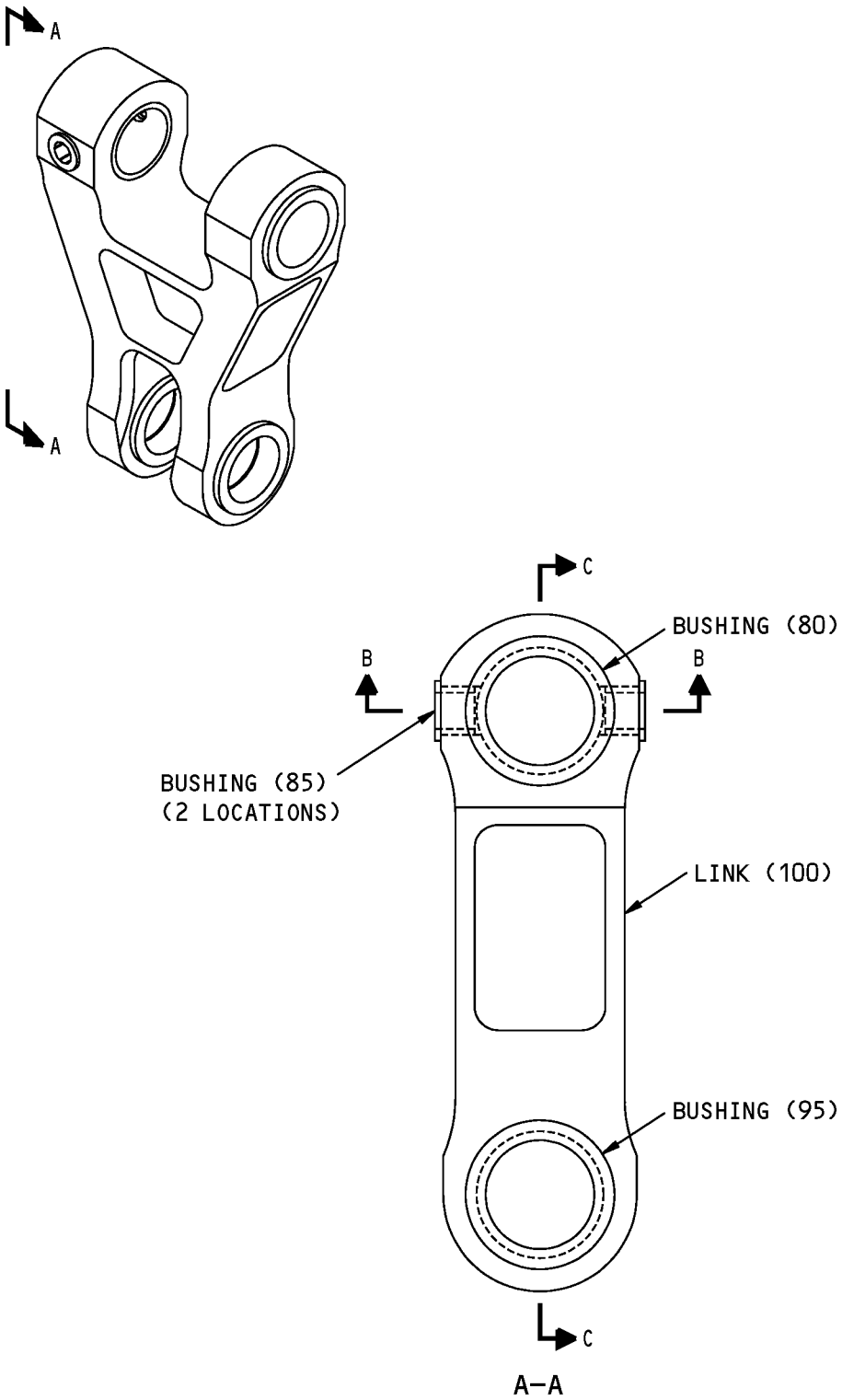
(1) Remove the old bushings.

(2) If you find defects on the link surfaces, refer to REPAIR 8-2 for repair instructions.

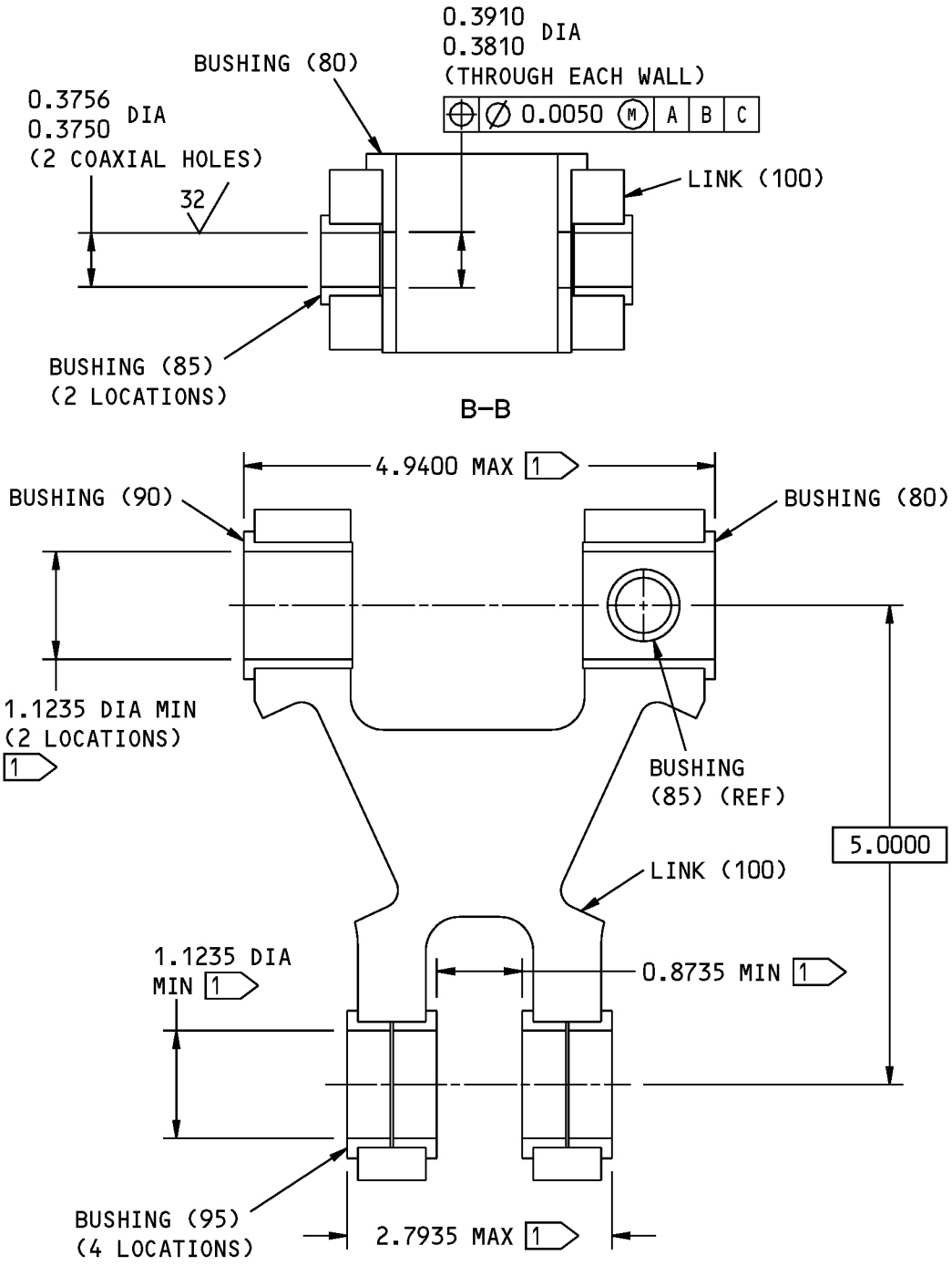
(3) Install replacement bushings by the shrink fit method (SOPM 20-50-03) with BMS 3-33 grease, D00633 as the installation finish.

(4) If necessary, machine the bushings to design dimensions and finish. Bushings (80, 90, 95) have a self-lubricating liner. Do not remove more than 0.001 inch from each flange face or 0.002 inch from the bore of these bushings.

(5) Be sure to drill the holes through the walls of bushing (80) as shown.



163A2002-1 Upper Link Assembly Bushing Replacement
Figure 601 (Sheet 1 of 2)



1 INSTALLED DIMENSIONS. ADJUST TO THIS SIZE IF NECESSARY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

163A2002-1 Upper Link Assembly Bushing Replacement
Figure 601 (Sheet 2 of 2)

UPPER LINK - REPAIR 8-2

163A2002–2

1. General

A. This procedure tells how to repair and refinish the upper link (100).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

(2) Shot peen: not necessary

2. Link Repair

A. Procedure (REPAIR 8-2, Figure 601)

(1) Bores for bushing (85)

(a) Machine as necessary, within repair limits, to remove defects (SOPM 20-10-01, SOPM 20-10-02, 32-00-05).

(b) Refinish as necessary.

(c) Make oversize bushings (REPAIR 8-2, Figure 602) to adjust for the material removed.

(d) Install the bushings (REPAIR 8-1).

(2) Bores for other bushings

(a) Repair is only replacement of the original finish, because oversize equivalents of the mating bushings are not available.

(b) If you find defects on the hole surfaces beyond design dimensions, ask Boeing for help.

3. Link Refinish

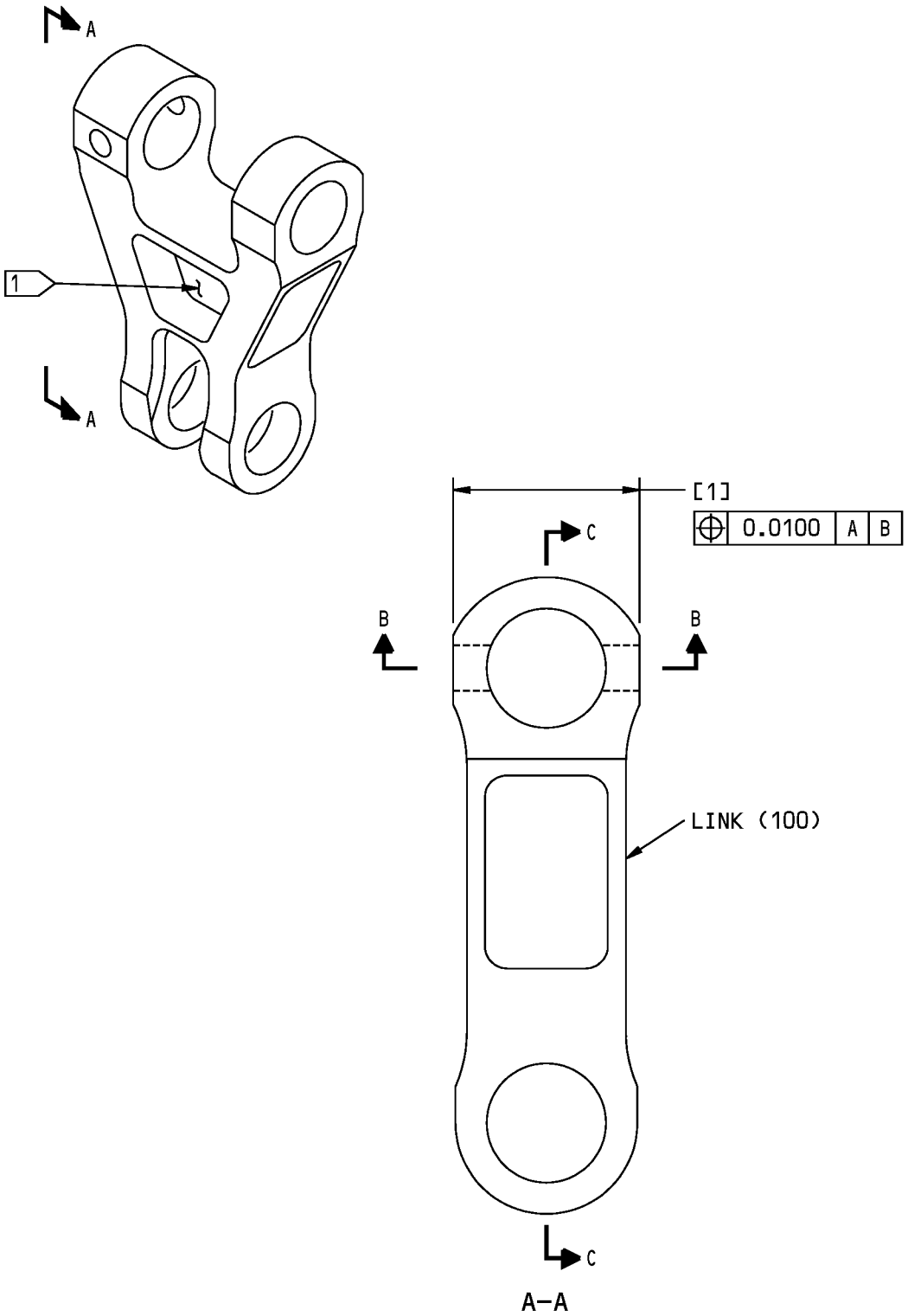
A. References

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

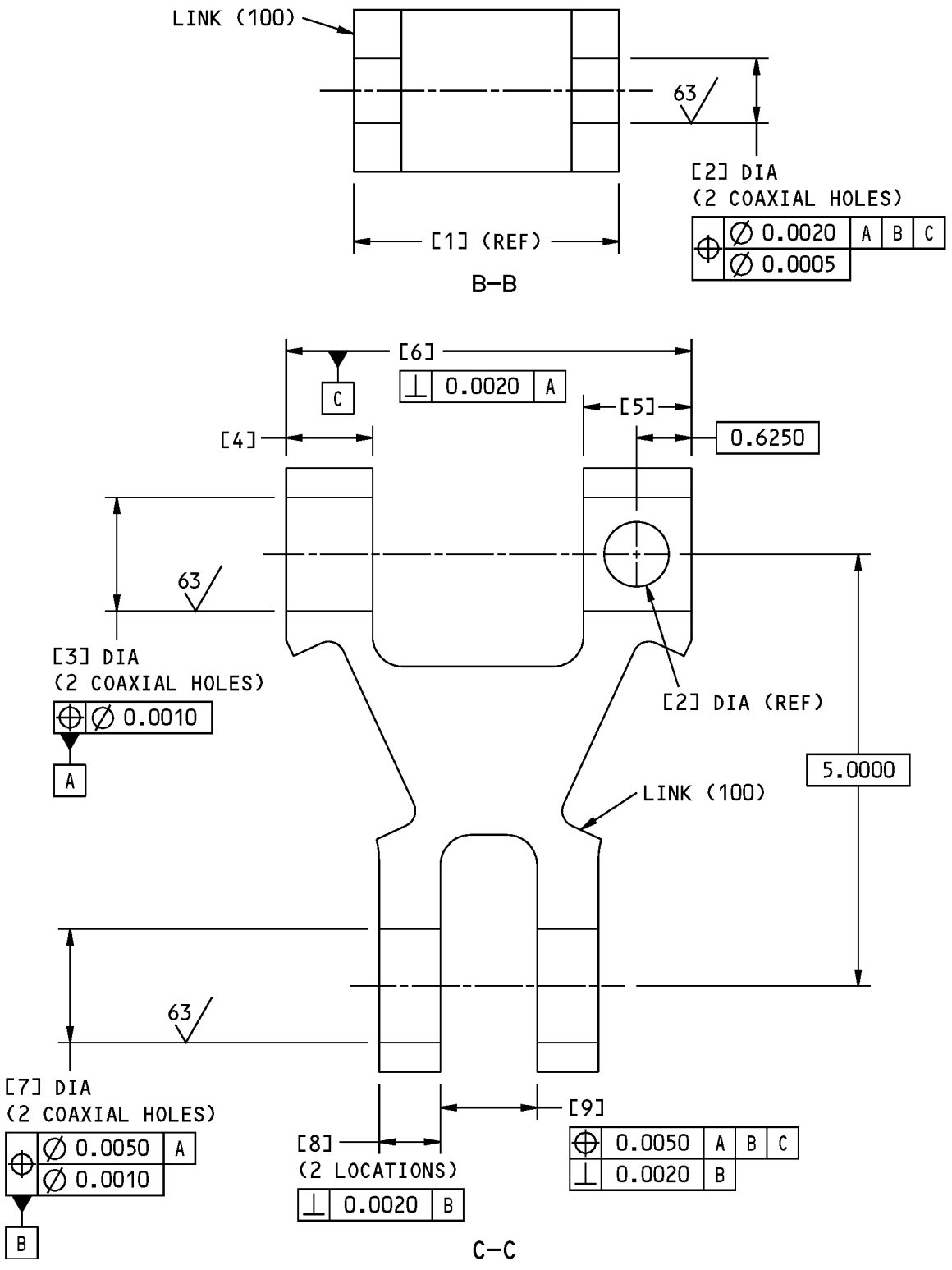
B. Procedure

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

(1) Passivate (F-17.25)



163A2002-2 Upper Link Repair and Refinish
Figure 601 (Sheet 1 of 3)



163A2002-2 Upper Link Repair and Refinish
Figure 601 (Sheet 2 of 3)

REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
DESIGN DIMENSION	2.0600 2.0400	0.5006 0.5000	1.3133 1.3125	1.0050 0.9950	1.2550 1.2450	4.6970 4.6920	1.3133 1.3125	0.7150 0.7050	1.1215 1.1165
REPAIR LIMIT	1.9800 2	0.5606 2	---	---	---	---	---	---	---

1 PART NUMBER

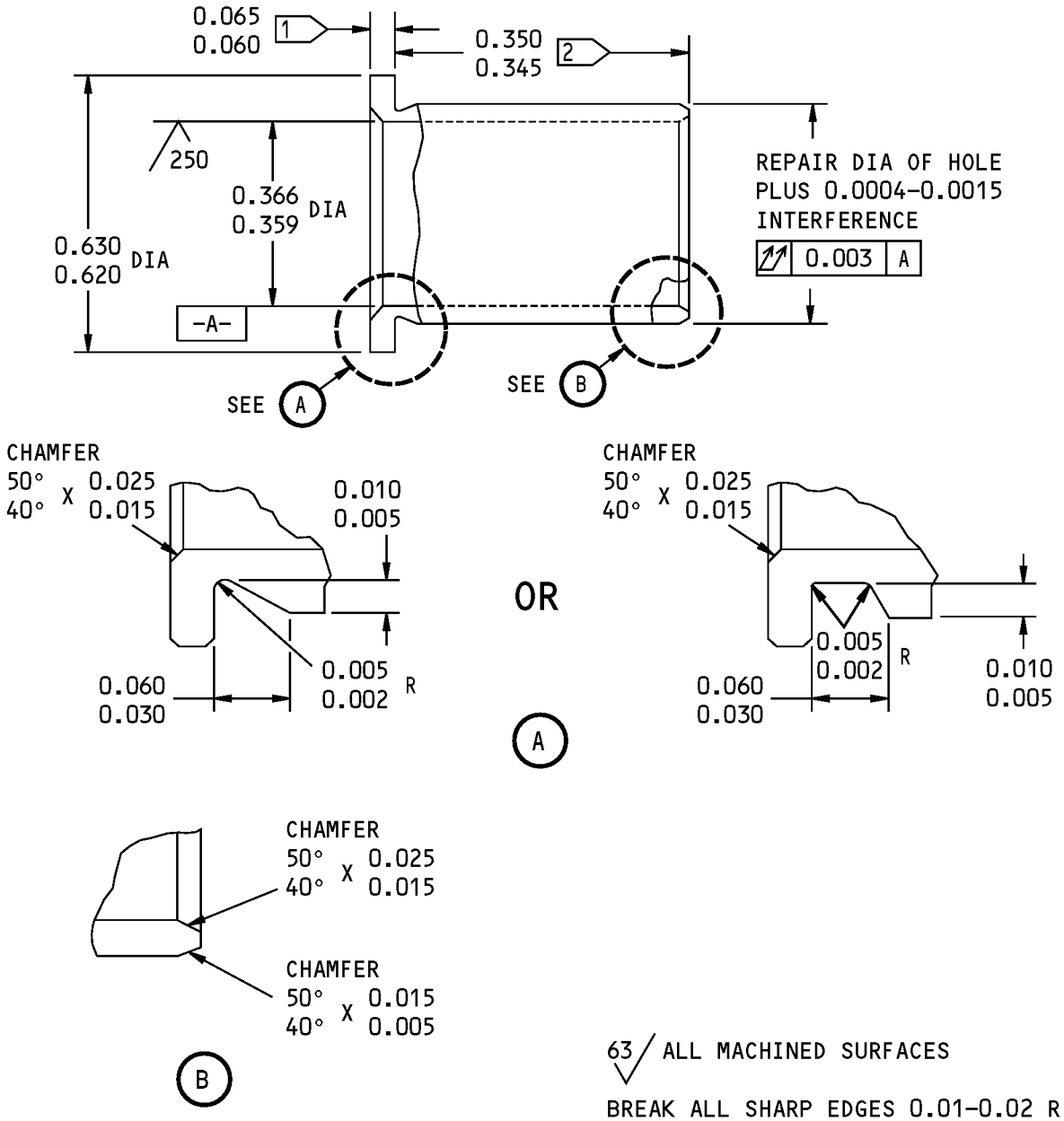
2 LIMIT FOR INSTALLATION OF OVERSIZE BUSHING

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01–0.03 R UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

163A2002-2 Upper Link Repair and Refinish
Figure 601 (Sheet 3 of 3)



63 ALL MACHINED SURFACES

BREAK ALL SHARP EDGES 0.01-0.02 R

MATERIAL: AL-NI-BRONZE (AMS 4640)

FINISH: NO FINISH

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

1 PLUS AMOUNT REMOVED FROM LUG FACE

2 MINUS AMOUNT REMOVED FROM LUG FACE

HOLE LOCATION [2] FIG. 601 -- REPLACES BUSHING (85)
BACB28AT06B035A

Oversize Bushing Details
Figure 602

LOCK LINKAGE ASSEMBLY - REPAIR 9-1

163A2003–1

1. General

A. This procedure tells how to replace the parts of lock linkage assembly (140).

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

C. Refer to IPL Figure 1 for item numbers.

2. Parts Replacement

A. References

Reference	Title
SOPM 20-50-01	BOLT AND NUT INSTALLATION
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES

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

(1) If the unit has them, remove nut (180) and bolt (175).

(2) Remove cotter pin (145), nut (160), washer (155) and bolt (150), end caps (165) and apex pin (170). Remove aft lock link assembly (185) from forward lock link assembly (230).

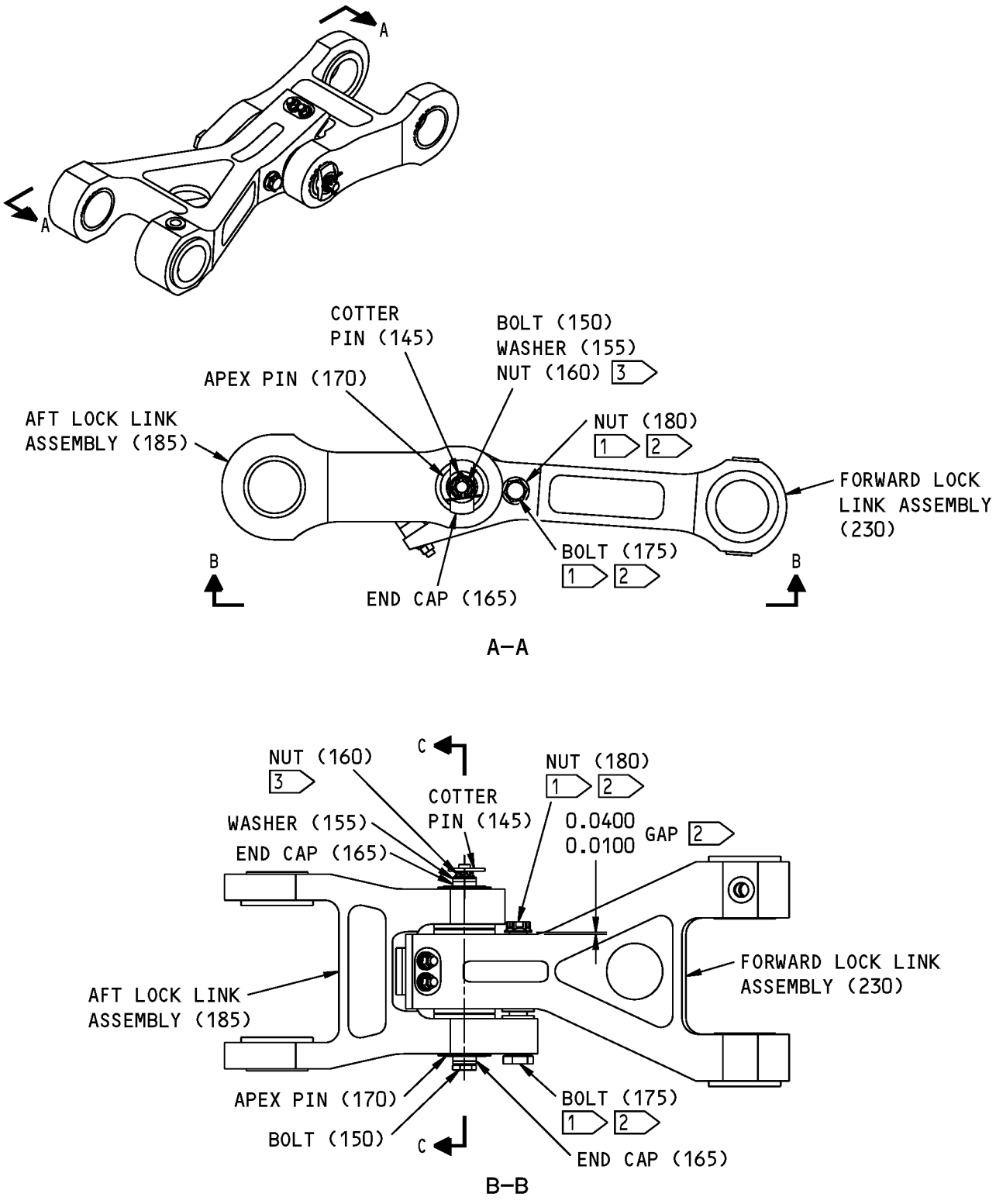
(3) If you find defects on the end caps, the lock link assemblies or the apex pin, refer to REPAIR 1-1, REPAIR 10-1, REPAIR 11-1 and REPAIR 13-1 for repair instructions.

(4) Connect the lock link assemblies with a replacement apex pin (170). Install end caps (165), bolt (150), washer (155) and nut (160).

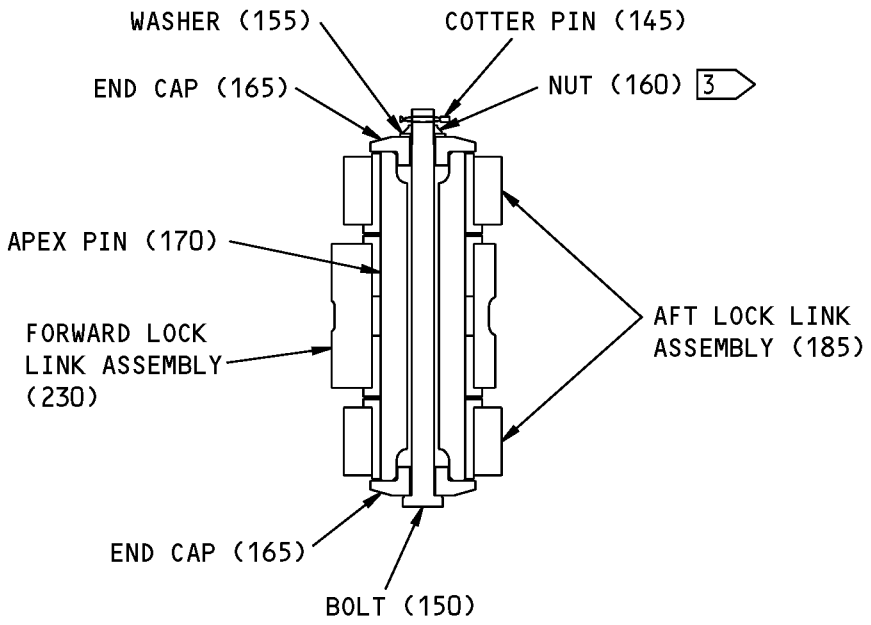
(5) Tighten nut (160) to 20-24 pound-inches above run-on torque (SOPM 20-50-01). Then back it off as necessary to align the castellations with the cross-drilled hole in the pin.

(6) Install cotter pin (145) (SOPM 20-50-02).

(7) If you have them, install bolt (175) and nut (180). Tighten the bolt or nut only to get the gap shown.



163A2003-1 Lock Linkage Assembly Parts Replacement
Figure 601 (Sheet 1 of 2)



1 THIS PART IS FOR TRANSPORTATION ONLY. REMOVE AT INSTALLATION

2 TIGHTEN THE BOLT HEAD OR NUT ONLY TO GET THE GAP SHOWN. IT IS NOT NECESSARY FOR THREADS TO EXTEND OUT FROM THE END OF THE NUT. DO NOT TIGHTEN TO MAKE THE JOINT TIGHT OR DAMAGE CAN OCCUR

3 TIGHTEN THIS NUT TO 20–24 POUND–INCHES ABOVE RUN–ON TORQUE. IF NECESSARY, BACK OFF TO NEAREST CASTELLATION AND INSTALL THE COTTER PIN

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

163A2003-1 Lock Linkage Assembly Parts Replacement
Figure 601 (Sheet 2 of 2)

FORWARD LOCK LINK ASSEMBLY - REPAIR 10-1

163A2004–1

1. General

A. This procedure tells how to replace the parts of forward lock link assembly (230).

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

C. Refer to IPL Figure 1 for item numbers.

2. Parts Replacement

A. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

B. Bushing Replacement (REPAIR 10-1, Figure 601)

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

(1) Remove the old bushings.

(2) If you find defects on the link surfaces, refer to REPAIR 10-2 for repair instructions.

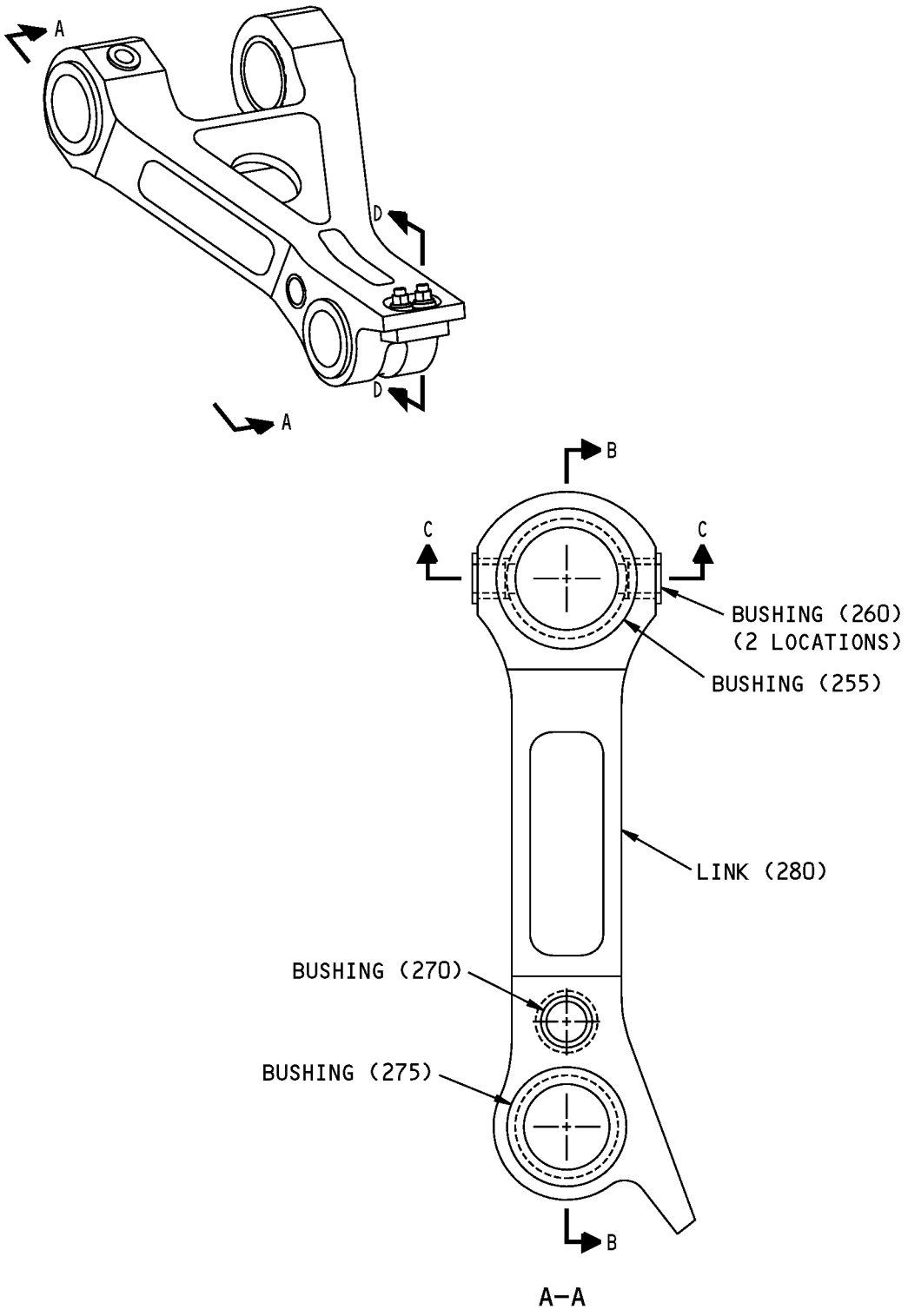
(3) Install replacement bushings by the shrink fit method (SOPM 20-50-03) with BMS 3-33 grease as the installation finish. Make sure the gap under each bushing flange is no larger than 0.002 inch.

(4) If necessary, machine the bushings to design dimensions and finish. Bushings (255, 265, 275) have a self-lubricating liner. Do not remove more than 0.001 inch from each flange face or 0.002 inch from the bore of these bushings.

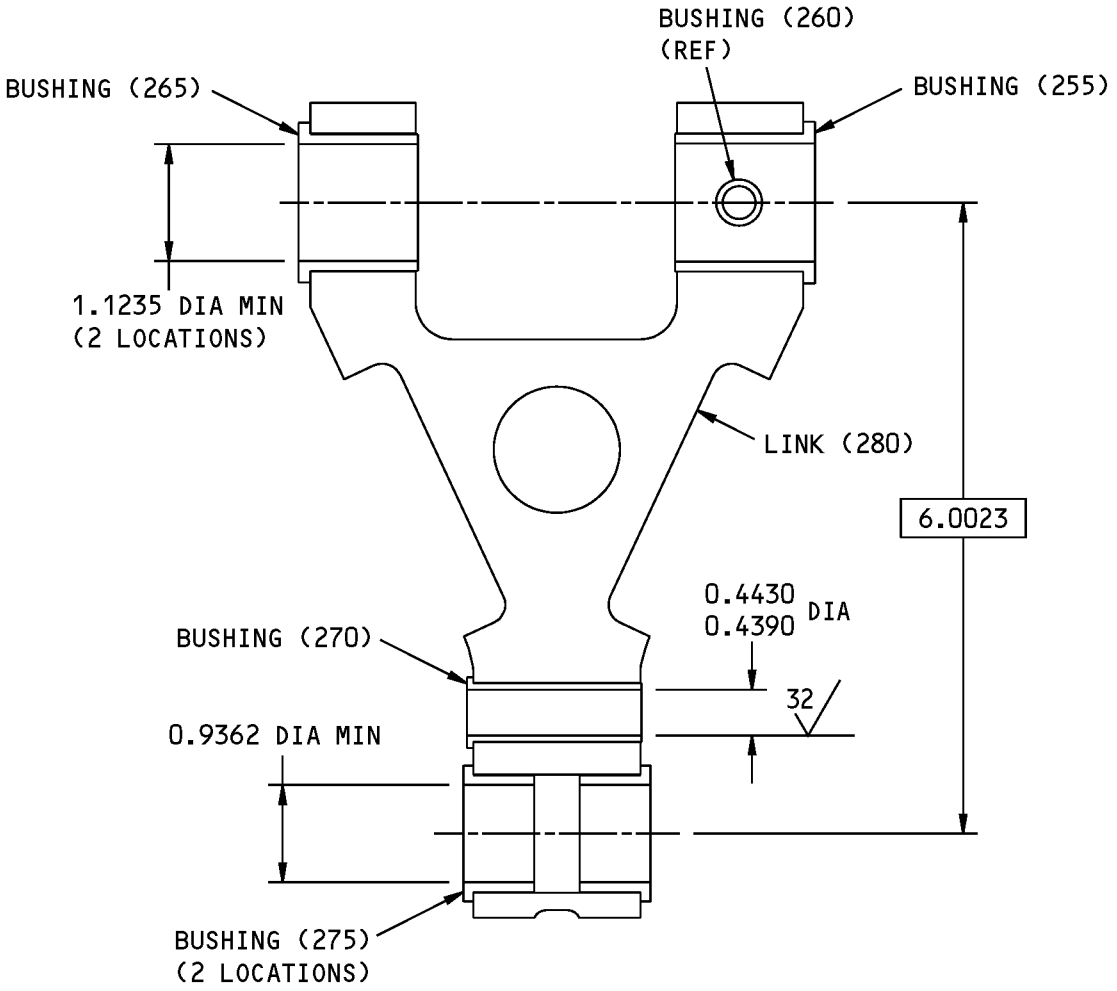
C. Stop Plate Replacement (REPAIR 10-1, Figure 601)

(1) Remove nuts (245), washers (240), bolts (235), and the old stop plate (250).

(2) Install a replacement stop plate with the bolts, washers, and nuts.

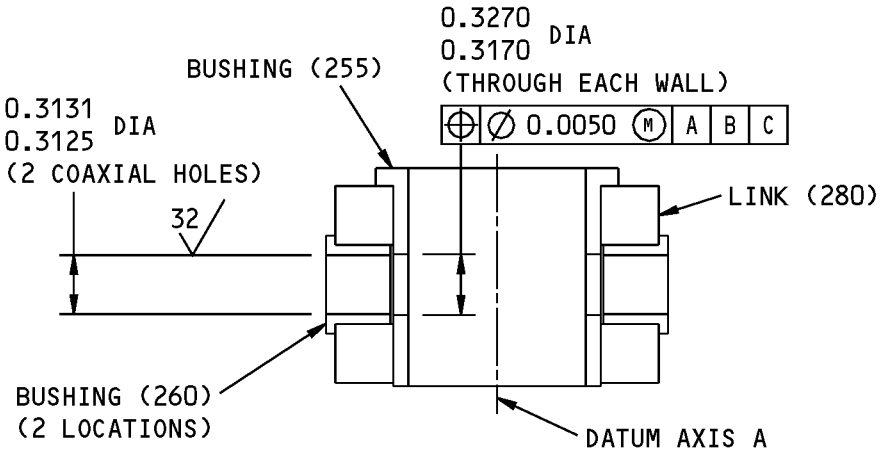


163A2004-1 Forward Lock Link Assembly Parts Replacement
Figure 601 (Sheet 1 of 3)

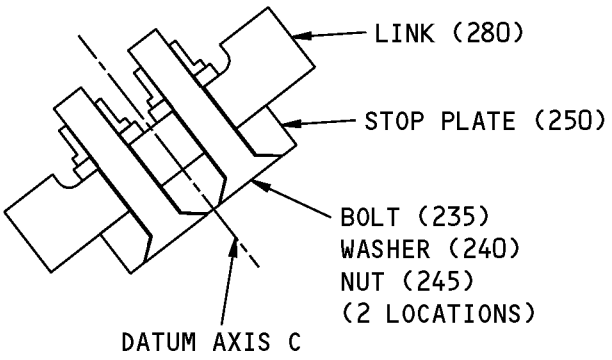


B–B

163A2004-1 Forward Lock Link Assembly Parts Replacement
Figure 601 (Sheet 2 of 3)



C–C



D–D

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

163A2004-1 Forward Lock Link Assembly Parts Replacement
Figure 601 (Sheet 3 of 3)

FORWARD LOCK LINK - REPAIR 10-2

163A2004–2

1. General

A. This procedure tells how to repair and refinish forward lock link (280).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

(2) Shot peen: All surfaces, 0.016A2 intensity

2. Link Repair

A. References

Reference	Title
32-00-05	Repair of High Strength Steel Landing Gear Parts
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-10-03	SHOT PEENING

B. Procedure (REPAIR 10-2, Figure 601)

(1) Bores for bushing (260, 270)

(a) Machine as necessary, within repair limits, to remove defects (SOPM 20-10-01, SOPM 20-10-02, 32-00-05).

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

(c) Refinish as necessary.

(d) Make oversize bushings (REPAIR 10-2, Figure 602) to adjust for the material removed.

(e) Install the bushings (REPAIR 10-1).

(2) Bores for other bushings

(a) Repair is only replacement of the original finish, because oversize equivalents of the mating bushings are not available.

(b) If you find defects on the hole surfaces beyond design dimensions, ask Boeing for help.

3. Link Refinish

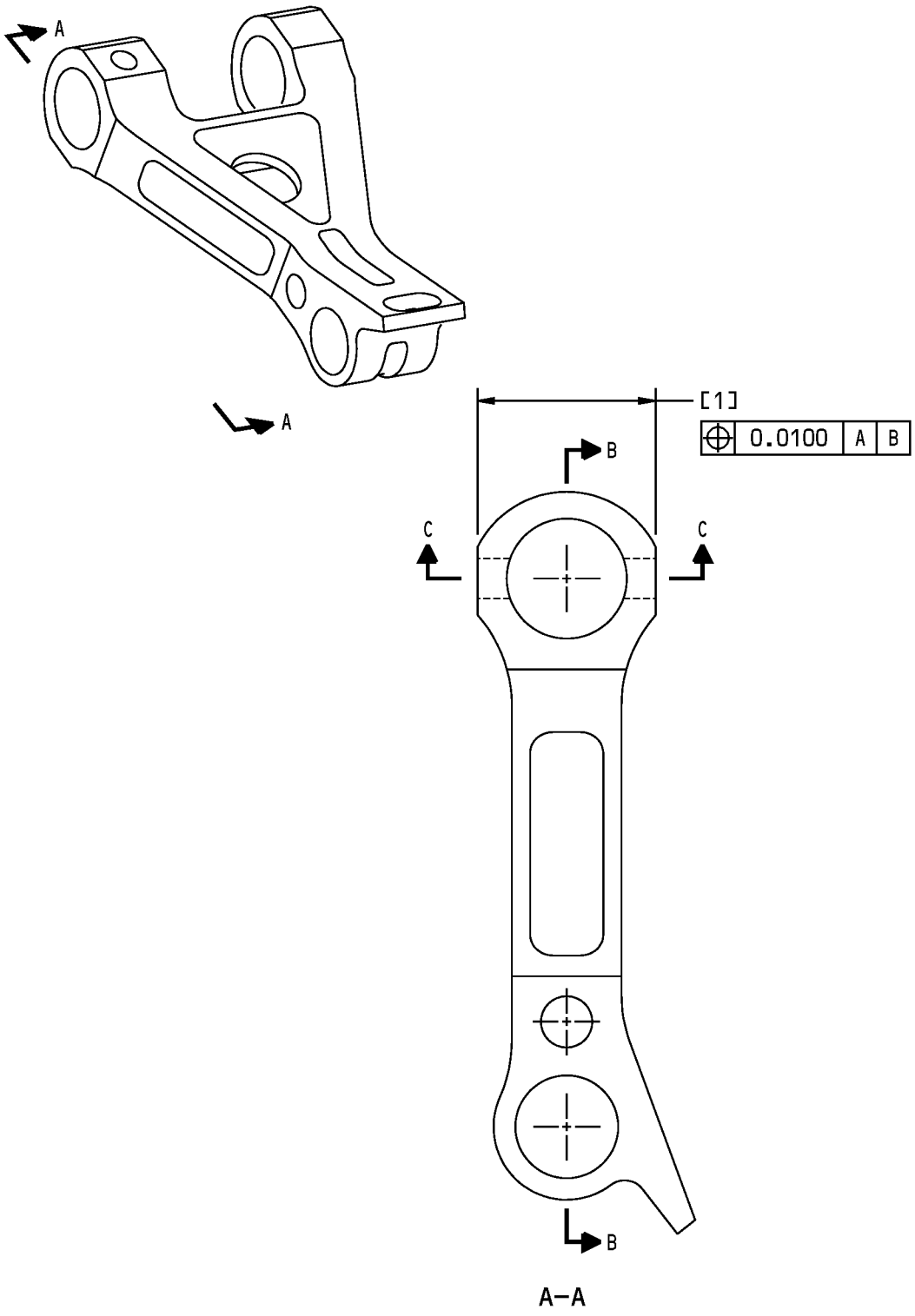
A. References

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

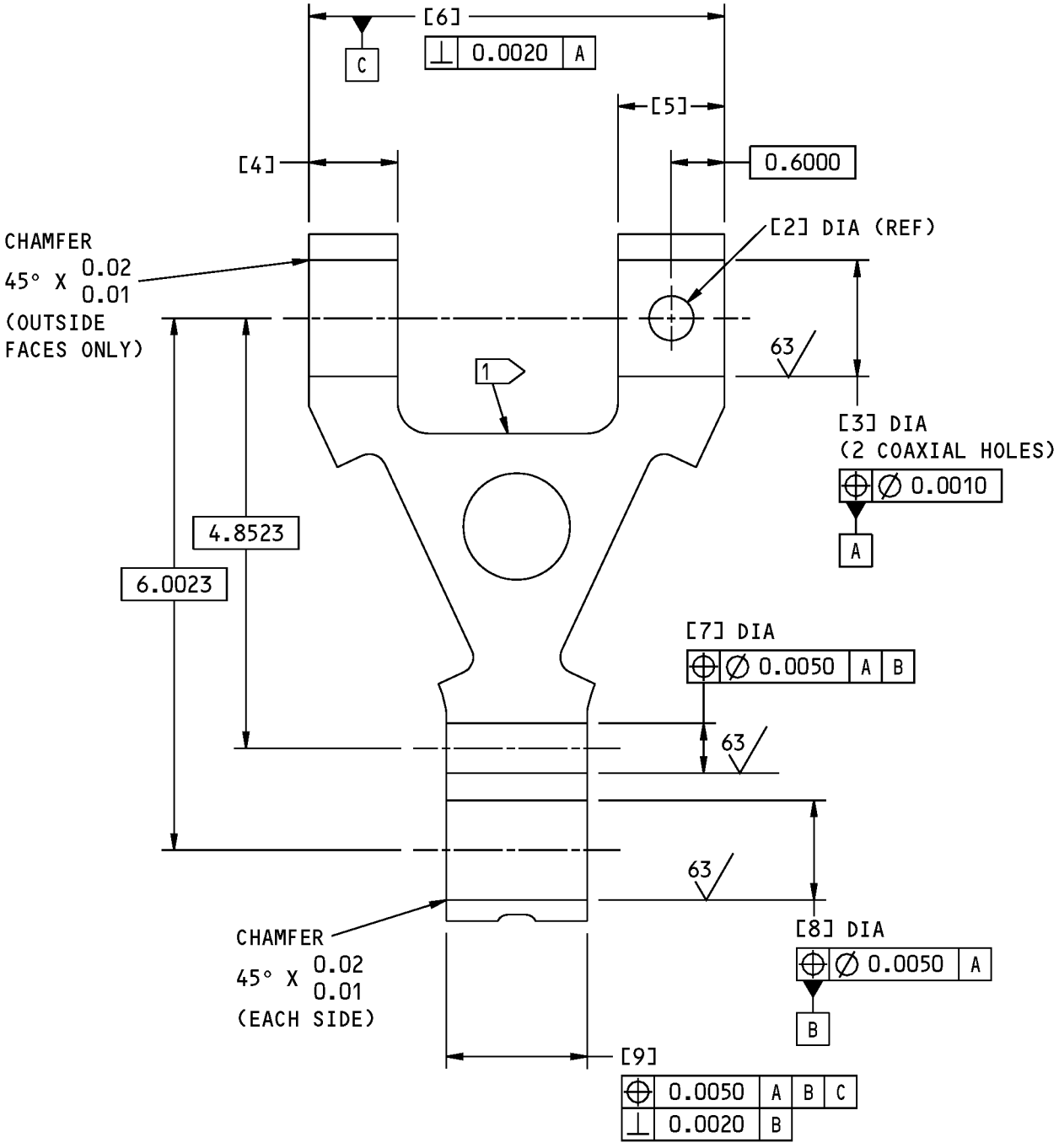
B. Procedure

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

(1) Passivate (F-17.25).

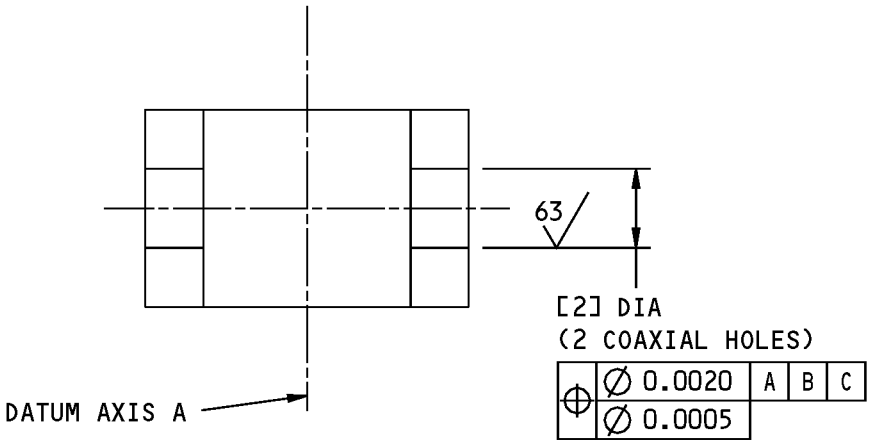


163A2004-2 Forward Lock Link Repair and Refinish
Figure 601 (Sheet 1 of 3)



B–B

163A2004-2 Forward Lock Link Repair and Refinish
Figure 601 (Sheet 2 of 3)



C–C

REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
DESIGN DIMENSION	1.9600 1.9400	0.4381 0.4375	1.3133 1.3125	1.0100 0.9900	1.2100 1.1900	4.6880 4.6830	0.5631 0.5625	1.1257 1.1250	1.5935 1.5885
REPAIR LIMIT	1.8800 2	0.4981 2	---	---	---	---	0.6231 2	---	---

1 PART NUMBER

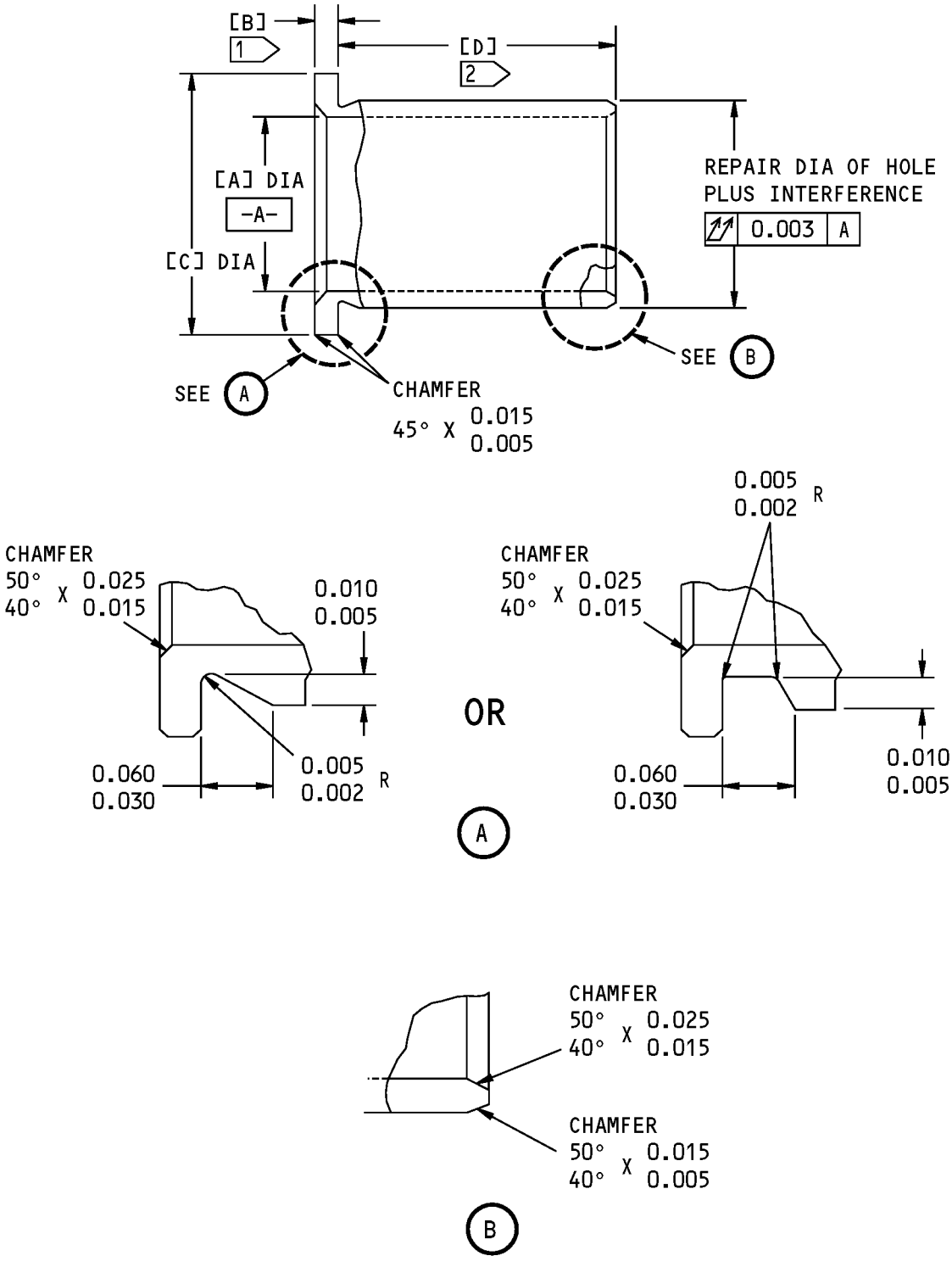
2 LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01–0.03 R UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

163A2004-2 Forward Lock Link Repair and Refinish
Figure 601 (Sheet 3 of 3)



Oversize Bushing Details
Figure 602 (Sheet 1 of 2)

HOLE LOCATION (FIG. 601)	REPLACES BUSHING (IPL FIG. 1)	[A]	[B]	[C]	[D]	INTER-FERENCE	MATERIAL
[2]	(260) BACB28AT05B030A	0.303 0.297	0.065 0.060	0.560 0.550	0.300 0.235	0.0014 0.0003	3
[7]	(270) BACB28AT07B160A	0.428 0.422	0.065 0.060	0.690 0.680	1.600 1.595	0.0016 0.0005	3

1 PLUS AMOUNT REMOVED FROM LUG FACE

2 MINUS AMOUNT REMOVED FROM LUG FACE

3 ALUMINUM-BRONZE (AMS 4640)

63 ALL MACHINED SURFACES

BREAK ALL SHARP EDGES

FINISH: NO FINISH

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Oversize Bushing Details
Figure 602 (Sheet 2 of 2)

AFT LOCK LINK ASSEMBLY - REPAIR 11-1

163A2005–1

1. General

A. This procedure tells how to replace the parts of aft lock link assembly (185).

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

C. Refer to IPL Figure 1 for item numbers.

2. Parts Replacement

A. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

B. Bushing Replacement (REPAIR 11-1, Figure 601)

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

(1) Remove the old bushings.

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

(3) Install replacement bushings by the shrink fit method (SOPM 20-50-03) with BMS 5-95 sealant as the installation finish. Make sure the gap under the bushing flange is no larger than 0.002 inch.

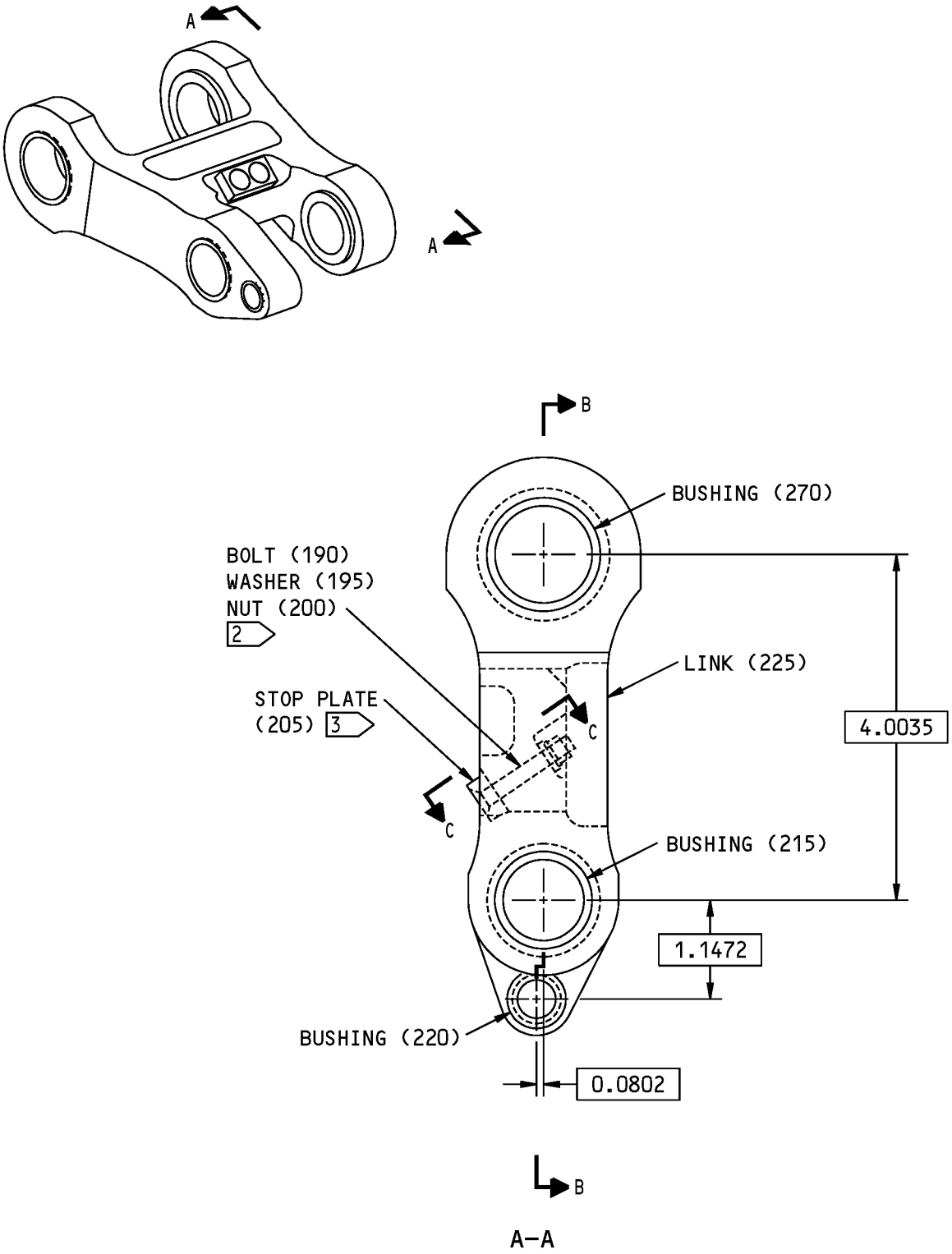
(4) If necessary, machine the bushings to design dimensions and finish. Bushings (210, 215) have a self-lubricating liner. Do not remove more than 0.001 inch from each flange face or 0.002 inch from the bore of these bushings.

C. Stop Plate Replacement (REPAIR 11-1, Figure 601)

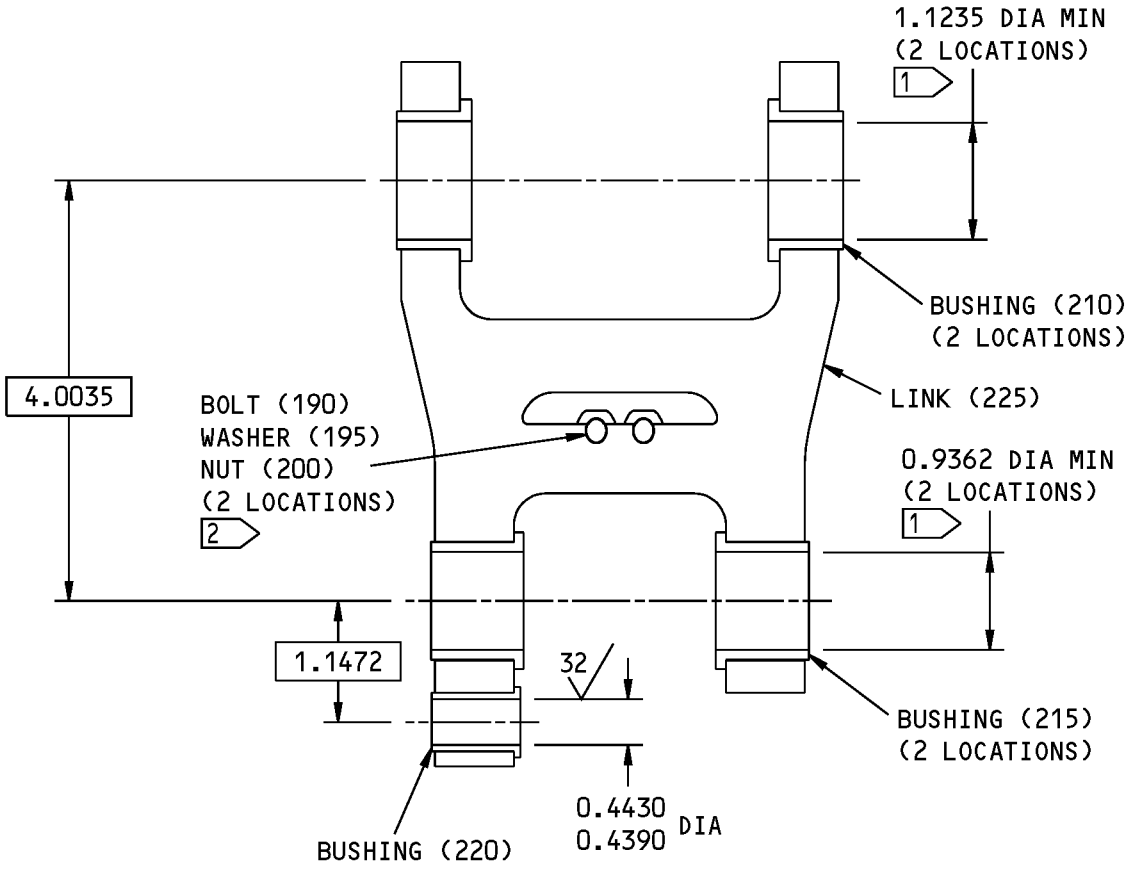
(1) Remove nuts (200), washers (195), bolts (190), and the old stop plate (205).

(2) Install a replacement stop plate with BMS 5-95 sealant on the mating surfaces of the plate and the link.

(3) Install the bolts, washers, and nuts with BMS 3-38 corrosion preventive compound as shown.

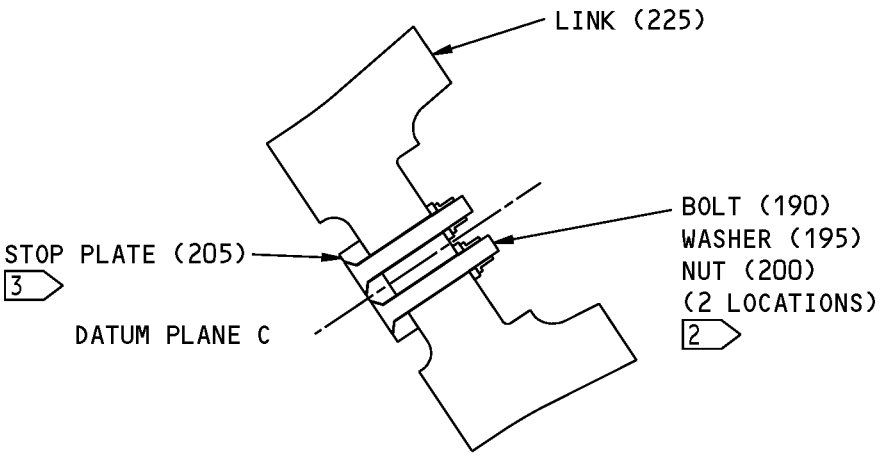


163A2005-1 Aft Lock Link Assembly Parts Replacement
Figure 601 (Sheet 1 of 3)



B–B

163A2005-1 Aft Lock Link Assembly Parts Replacement
Figure 601 (Sheet 2 of 3)



C–C

1 INSTALLED DIMENSION. ADJUST TO THIS SIZE IF NECESSARY

2 APPLY BMS 3-38 CORROSION PREVENTIVE COMPOUND TO BOLT SHANK, AND MATING SURFACES OF WASHERS AND LINK. WIPE OFF UNWANTED COMPOUND

3 APPLY BMS 5-95 SEALANT TO MATING SURFACES OF STOP PLATE AND LINK. FILLET SEAL WITH BMS 5-95 SEALANT (SOPM 20-50-19)

ALL DIMENSIONS ARE IN INCHES

163A2005-1 Aft Lock Link Assembly Parts Replacement
Figure 601 (Sheet 3 of 3)

AFT LOCK LINK - REPAIR 11-2

163A2005–2

1. General

A. This procedure tells how to repair and refinish aft lock link (225).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: Al alloy

(2) Shot peen: 0.006A2 intensity (not necessary on bores or faces mating with bushings, but overspray is acceptable)

2. Link Repair

A. References

Reference	Title
SOPM 20-10-03	SHOT PEENING

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

(1) Bore for bushing (220)

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

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

(c) Refinish as necessary.

(d) Make an oversize bushing (REPAIR 11-2, Figure 602) to adjust for the material removed.

(e) Install the bushing (REPAIR 11-1).

(2) Bores for other bushings

(a) Repair is only replacement of the original finish, because oversize equivalents of the mating bushings are not available.

(b) If you find defects on the hole surfaces beyond design dimensions, ask Boeing for help.

3. Link Refinish

A. References

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

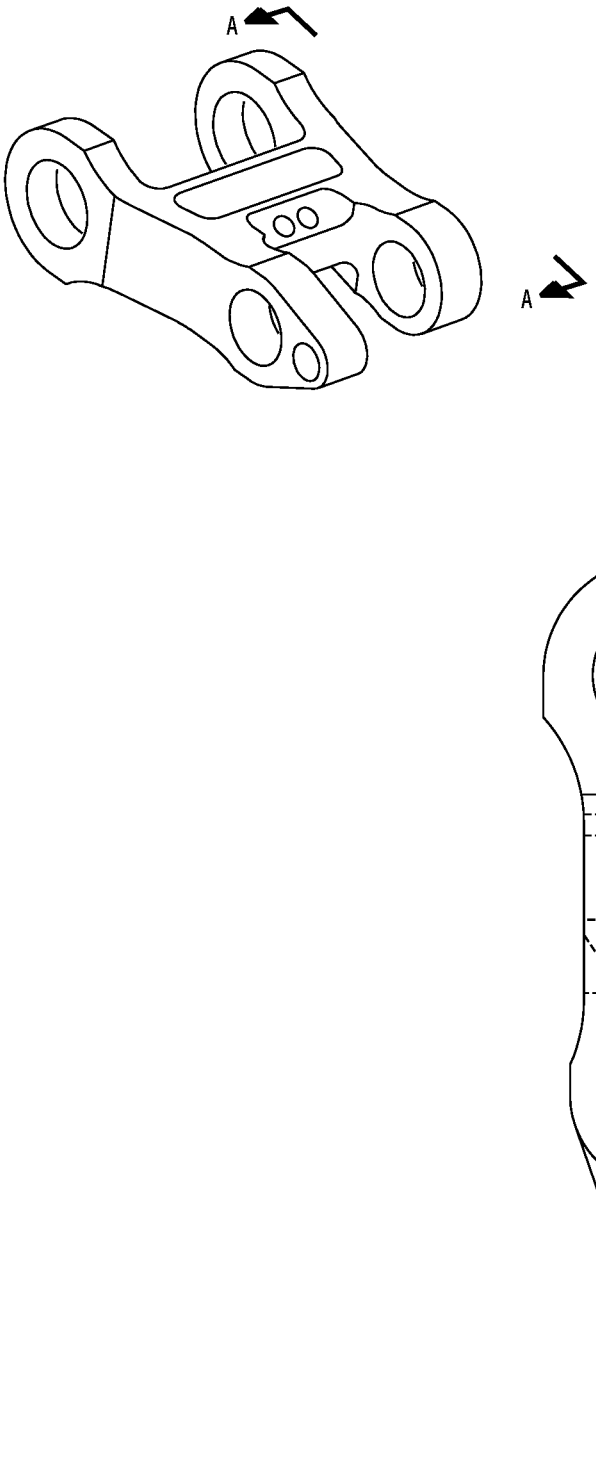
B. Procedure

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

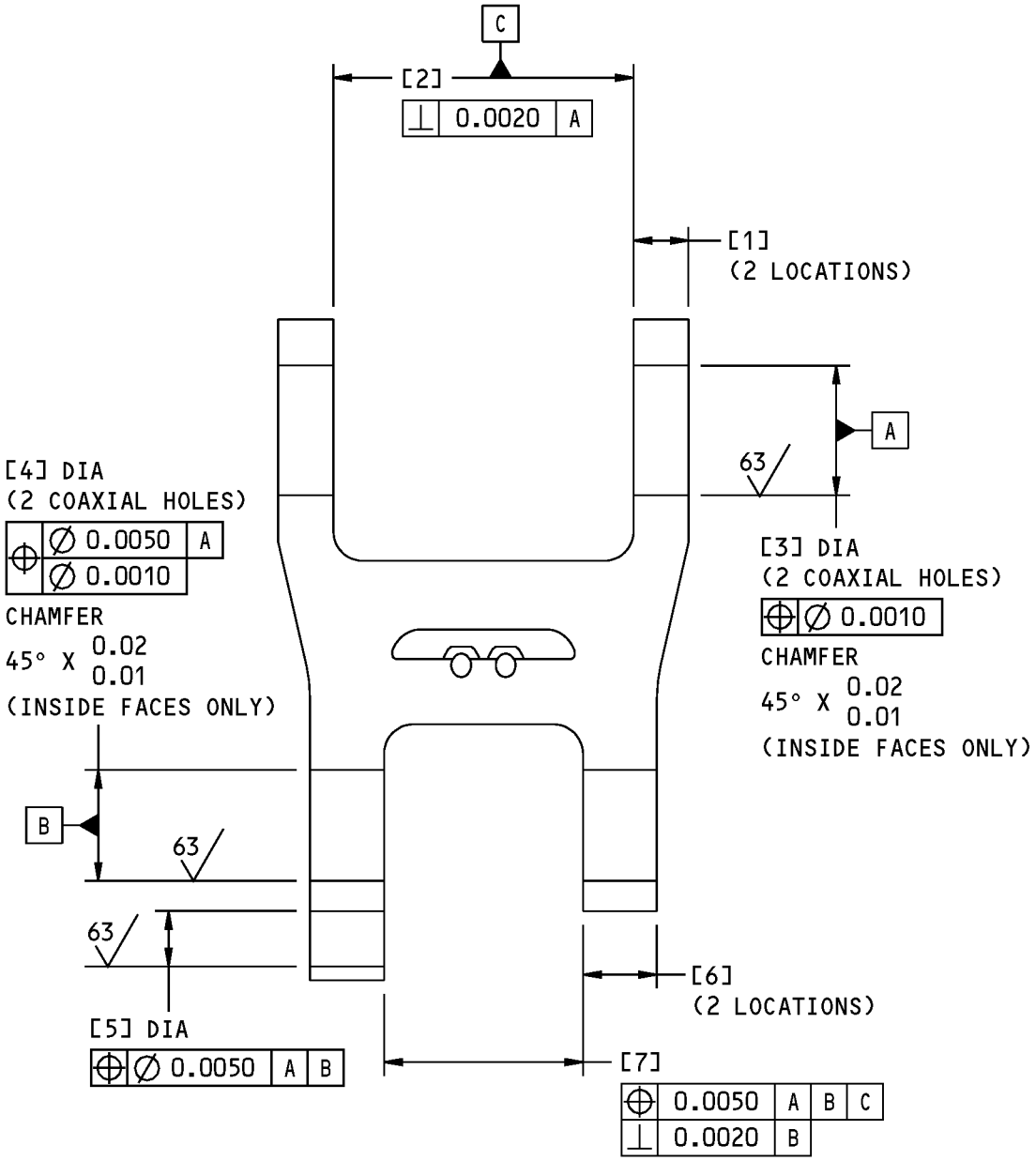
(1) Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31).

(2) Apply BMS 10-79, Type 3 primer (F-19.47)

(3) After parts installation (REPAIR 11-1), apply BMS 10-60, Type 2 enamel (F-19.39-707) all over, but not on bushing flange faces or bores, or the stop plate or its fasteners.



163A2005-2 Aft Lock Link Repair and Refinish
Figure 601 (Sheet 1 of 3)



B–B

163A2005-2 Aft Lock Link Repair and Refinish
Figure 601 (Sheet 2 of 3)

REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]	[6]	[7]
DESIGN DIMENSION	0.5600 0.5550	3.0455 3.0405	1.3133 1.3125	1.1257 1.1250	0.5631 0.5625	0.7550 0.7450	2.0195 2.0145
REPAIR LIMIT	---	---	---	---	0.6231 2	---	---

1 PART NUMBER

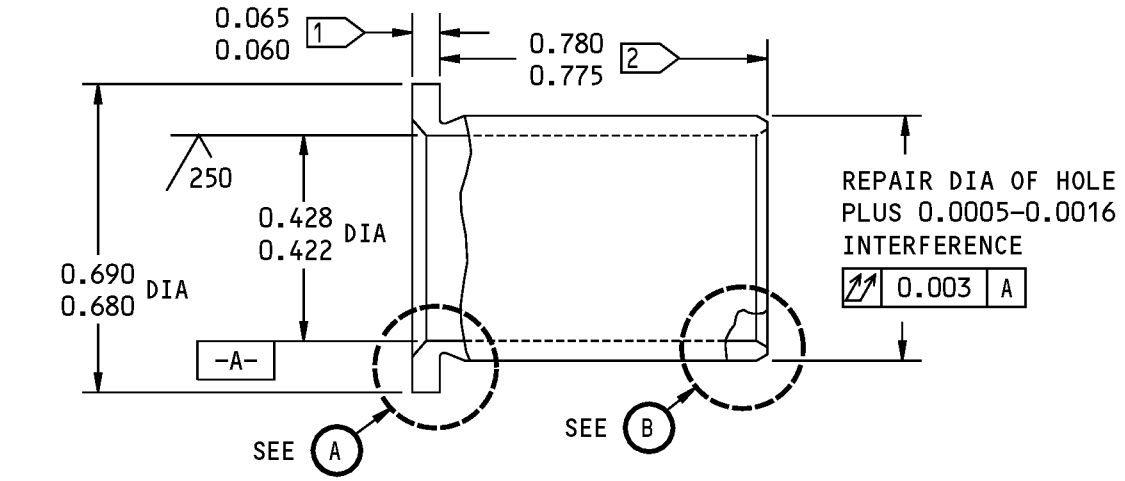
2 LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS

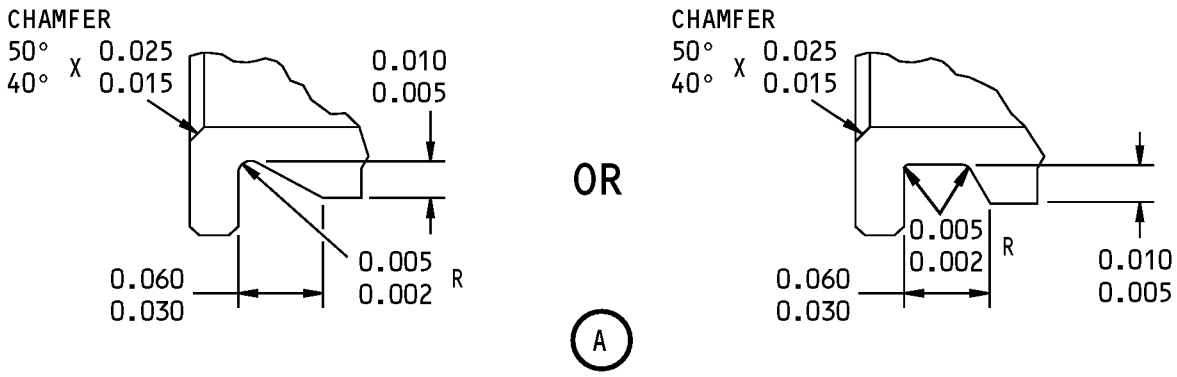
125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

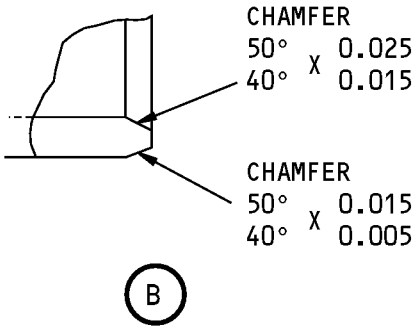
BREAK SHARP EDGES 0.02-0.04 R UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

163A2005-2 Aft Lock Link Repair and Refinish
Figure 601 (Sheet 3 of 3)







1 PLUS AMOUNT REMOVED FROM LUG FACE

2 MINUS AMOUNT REMOVED FROM LUG FACE

63 ALL MACHINED SURFACES

BREAK ALL SHARP EDGES 0.01-0.02 R

MATERIAL: 15-5PH CRES (AMS 5659) OR 17-4PH CRES (AMS 5643), 180-200 KSI

FINISH: CADMIUM PLATE (F-15.06) OR ZINC-NICKEL PLATE (F-15.40) (OPT IN ID). PLATING CAN RUN OUT IN THE BORE

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS APPLY AFTER PLATING, BUT THE BORE IS NOT PLATED

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION [5] FIG. 601 -- REPLACES BUSHING (220)
BACB28AT07B078C

Oversize Bushing Details
Figure 602

SHOE - REPAIR 12-1

163A2006–1, –2

1. General

A. This procedure tells how to repair and refinish shoe (395).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: Nickel alloy 718

(2) Shot peen: Not necessary

2. Shoe Repair

A. References

Reference	Title
SOPM 20-20-02	PENETRANT METHODS OF INSPECTION

B. Procedure (REPAIR 12-1, Figure 601 or REPAIR 12-1, Figure 602)

(1) Repair is only replacement of a worn or defective shoe. If the shoe is worn, the finish will have defects, and the wear indicator holes will have local material removal and possibly different dimensions than shown. If there is wear beyond design dimensions, replace the shoe.

(2) If the wear indication holes are within design dimensions, penetrant examine (SOPM 20-20-02) the shoe to look for defects. If there are no defects, refer to REPAIR 12-1, Paragraph 3.B.(1) below for refinish instructions.

3. Shoe Refinish

A. References

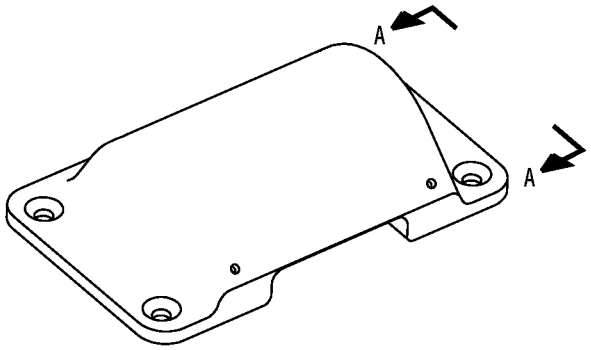
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

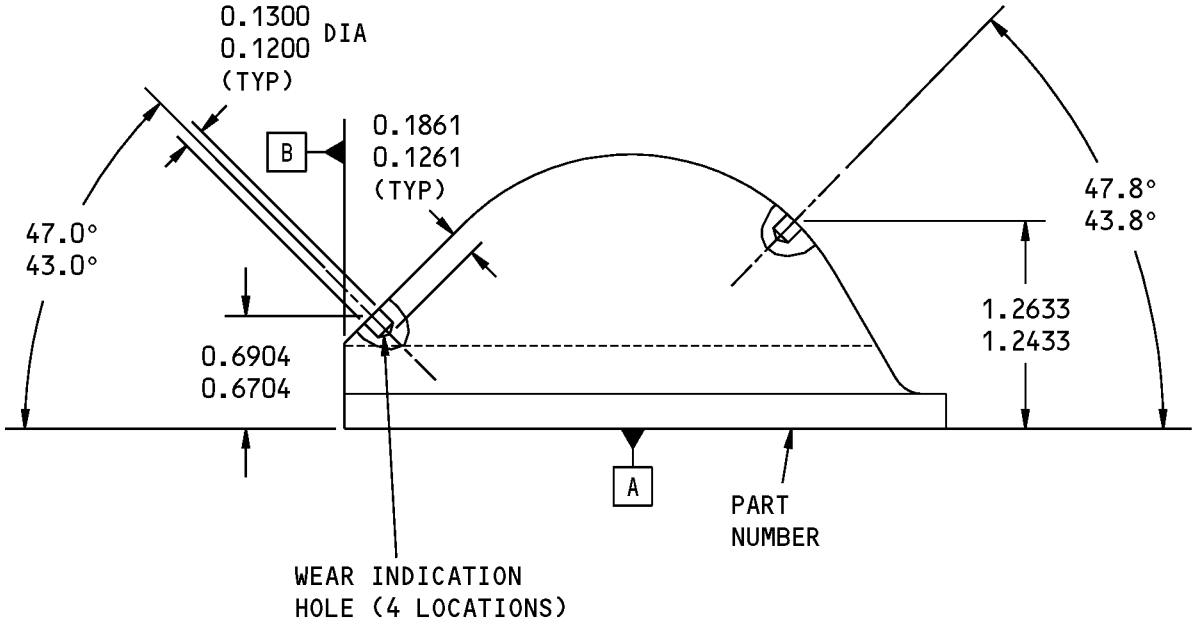
B. Procedure

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

(1) Cadmium plate (F-15.06). Plating is not necessary in the holes for the fasteners, but plating throw-in is permitted.

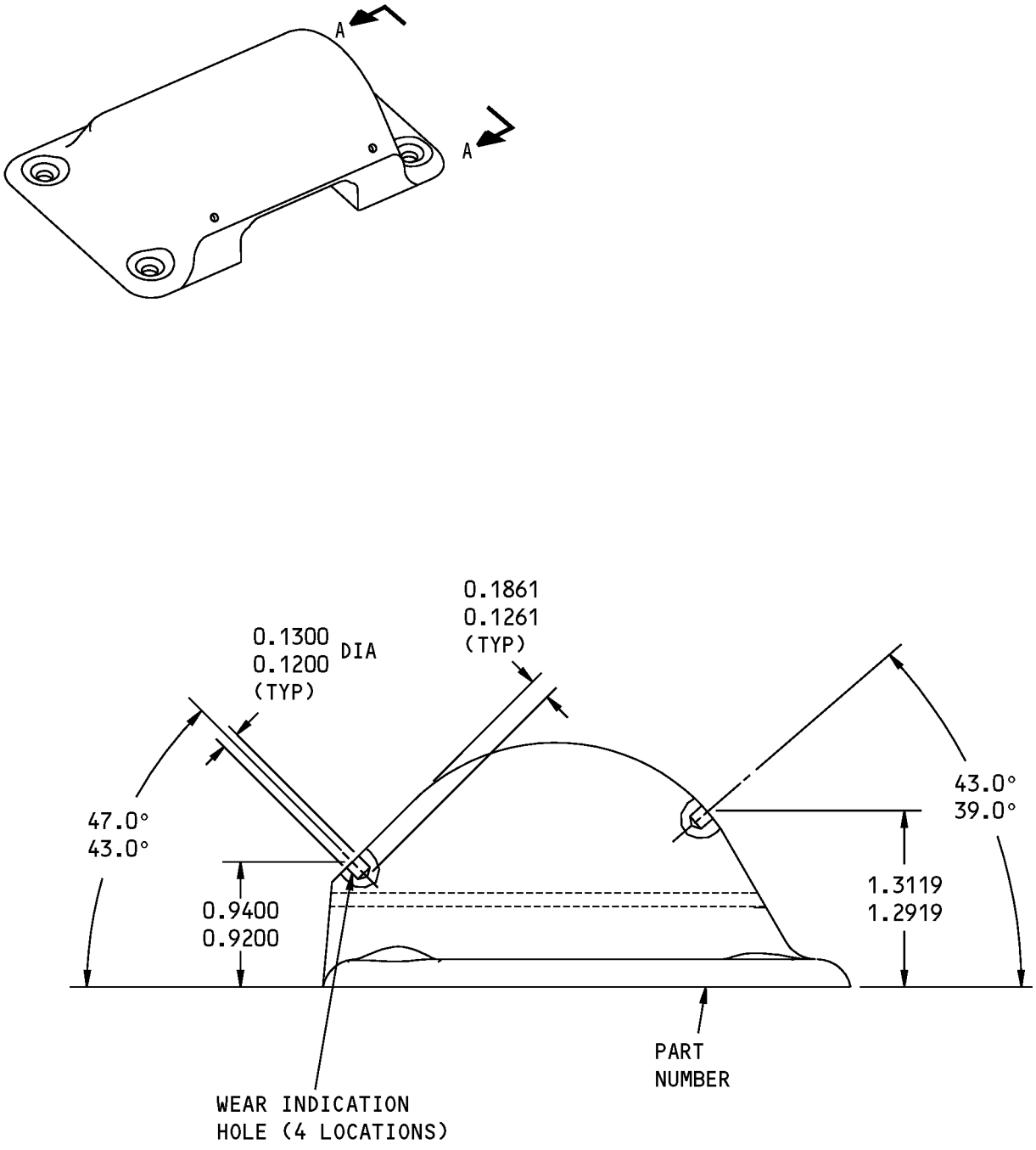
(2) Apply BMS 10-79, Type 3 primer (F-19.47) and BMS 10-60, Type 1 enamel (F-14.9813), but not in the holes for the fasteners.





A–A

163A2006-1 Shoe Details
Figure 601



163A2006-2 Shoe Details
Figure 602

APEX PIN - REPAIR 13-1

163A2007–1

1. General

A. This procedure tells how to repair and refinish apex pin (170).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

(2) Shot peen: 0.016A2 intensity

2. Pin Repair

A. References

Reference	Title
32-00-05	Repair of High Strength Steel Landing Gear Parts
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-42-03	HARD CHROME PLATING

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

(1) Machine as necessary, within repair limits, to remove defects (SOPM 20-10-01, SOPM 20-10-02, 32-00-05).

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

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

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

3. Pin Refinish

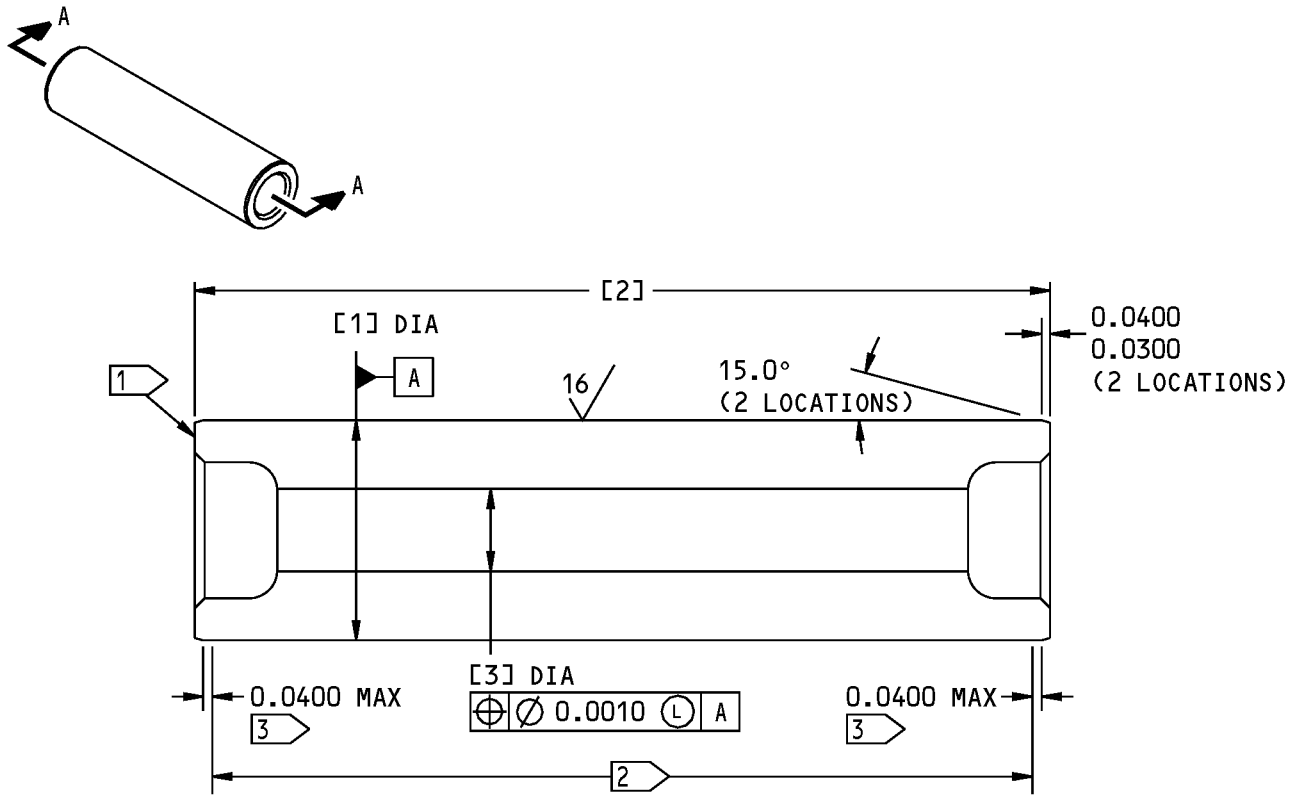
A. References

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

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

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

(1) Chrome plate (F-15.34) the surfaces shown. Passivate (F-17.25) the other surfaces.



A–A

REFERENCE NUMBER	[1]	[2]	[3]
DESIGN DIMENSION	0.9342 0.9332 4	3.6370 3.6270	0.3600 0.3400
REPAIR LIMIT	0.9032 5	---	---

1 PART NUMBER

2 CHROME PLATE (F-15.34), 0.003 MINIMUM THICK AFTER GRINDING

3 CHROME PLATE RUNOUT

4 AFTER PLATING

5 LIMIT FOR CHROME PLATE BUILDUP AND GRIND TO DESINGN DIMENSIONS AND FINISH

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.01-0.03 R UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

163A2007-1 Apex Pin Repair and Refinish
Figure 601

CARTRIDGE ASSEMBLY - REPAIR 14-1

163A3001–1, –2

1. General

A. This procedure tells how to replace the parts of cartridge assembly (315).

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

C. Refer to IPL Figure 1 for item numbers.

2. Parts Replacement

A. References

Reference	Title
SOPM 20-60-02	FINISHING MATERIALS

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

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

(1) Before you disassemble the unit, measure the length between bearing centers as shown. If the actual length is less than that shown, look for damage to the shock absorbing cartridge, which could be a sign that the unit absorbed energy during an accidental tail strike. Then further disassembly is necessary for replacement of the cartridge and inspection for damage on mating parts.

(2) Remove nuts (330), washers (325) and bolts (320).

(3) Pull upper fitting assembly (350) from lower fitting (380) and remove cartridge (385).

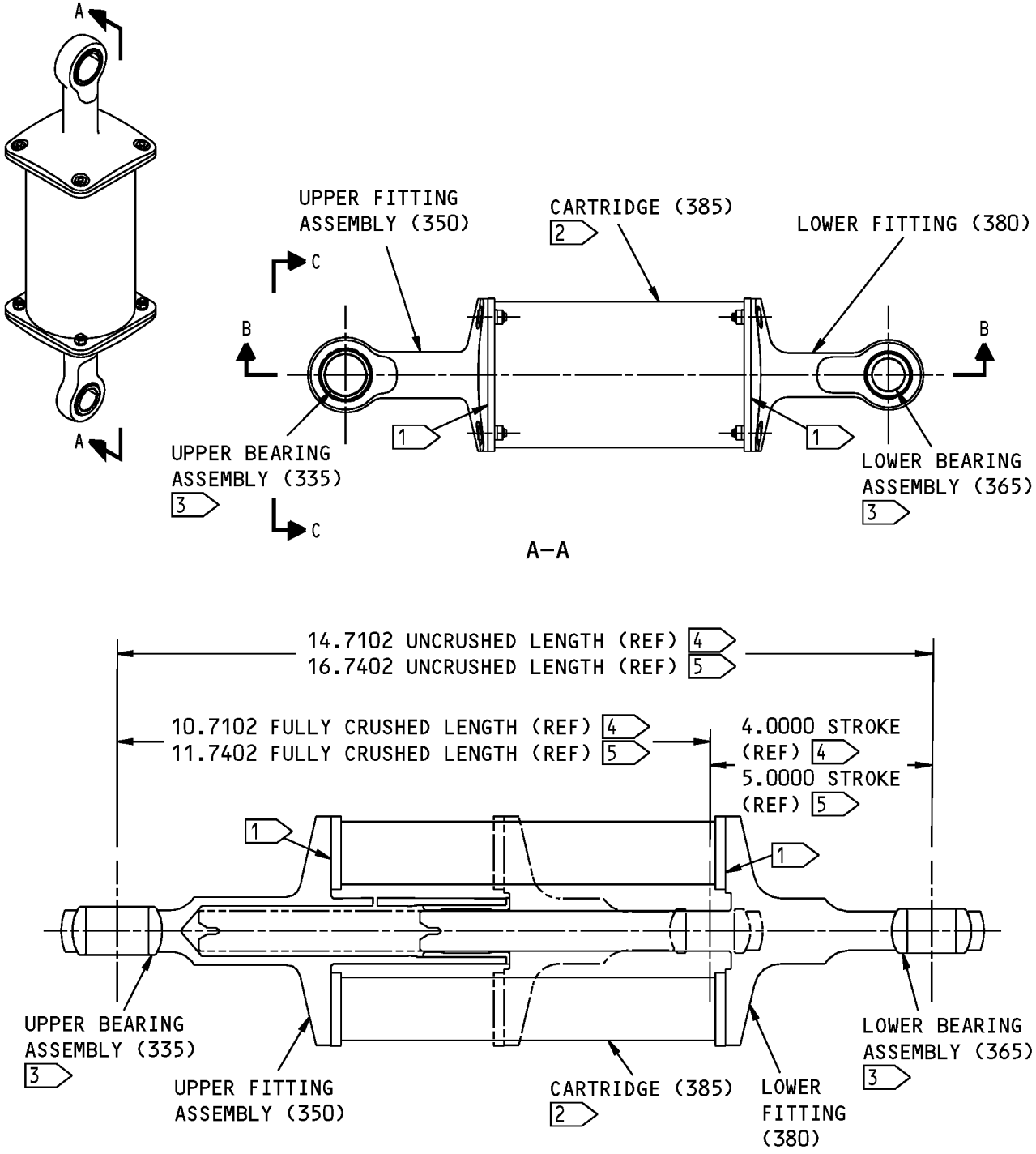
(4) Remove upper bearing assembly (335) and lower bearing assembly (365). Each of these bearing assembly is a matches set of bearing halves. Be sure to keep the halves of each set together, and do not mix them with halves of other sets.

(5) If you find defects on the bearing assemblies, the fitting assemblies or the cartridge, refer to REPAIR 15-1, REPAIR 16-1, and REPAIR 17-1 for repair instructions.

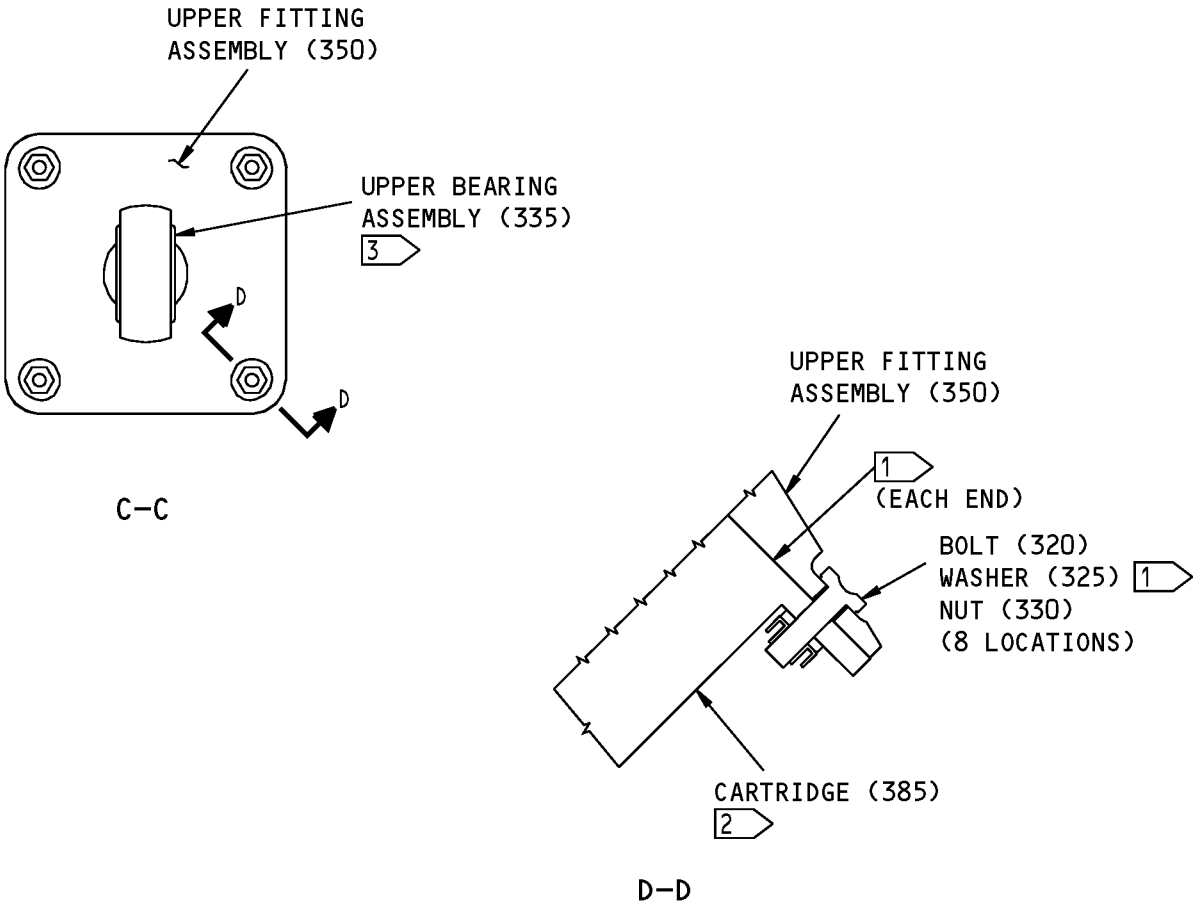
(6) Apply BMS 3-38 corrosion preventive compound to the mating surfaces of upper fitting assembly (350), lower fitting (380) and the replacement cartridge (385). Put these parts together with the precrushed end of the cartridge against the upper fitting.

(7) Install bolts (320), washers (325) and nuts (330).

(8) Install bearing assemblies (335, 365) in the rod ends of the fittings, with the index lines on the bearing halves aligned.



163A3001-1,-2 Cartridge Assembly Parts Replacement
Figure 601 (Sheet 1 of 2)



1 INSTALL WITH BMS 3-38 CORROSION PREVENTIVE COMPOUND ON MATING SURFACES

2 BE SURE TO ATTACH THE PRECRUSHED END OF THE CARTRIDGE TO THE UPPER FITTING

3 BE SURE TO ALIGN THE INDEX MARKS ON THE BEARING HALVES

4 163A3001-1

5 163A3001-2

163A3001-1,-2 Cartridge Assembly Parts Replacement
Figure 601 (Sheet 2 of 2)

UPPER FITTING ASSEMBLY - REPAIR 15-1

163A3002–1, –5

1. General

A. This procedure tells how to replace the bushing of upper fitting assembly (350).

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

C. Refer to IPL Figure 1 for item numbers.

2. Bushing Replacement

A. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-03	LUBRICANTS

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

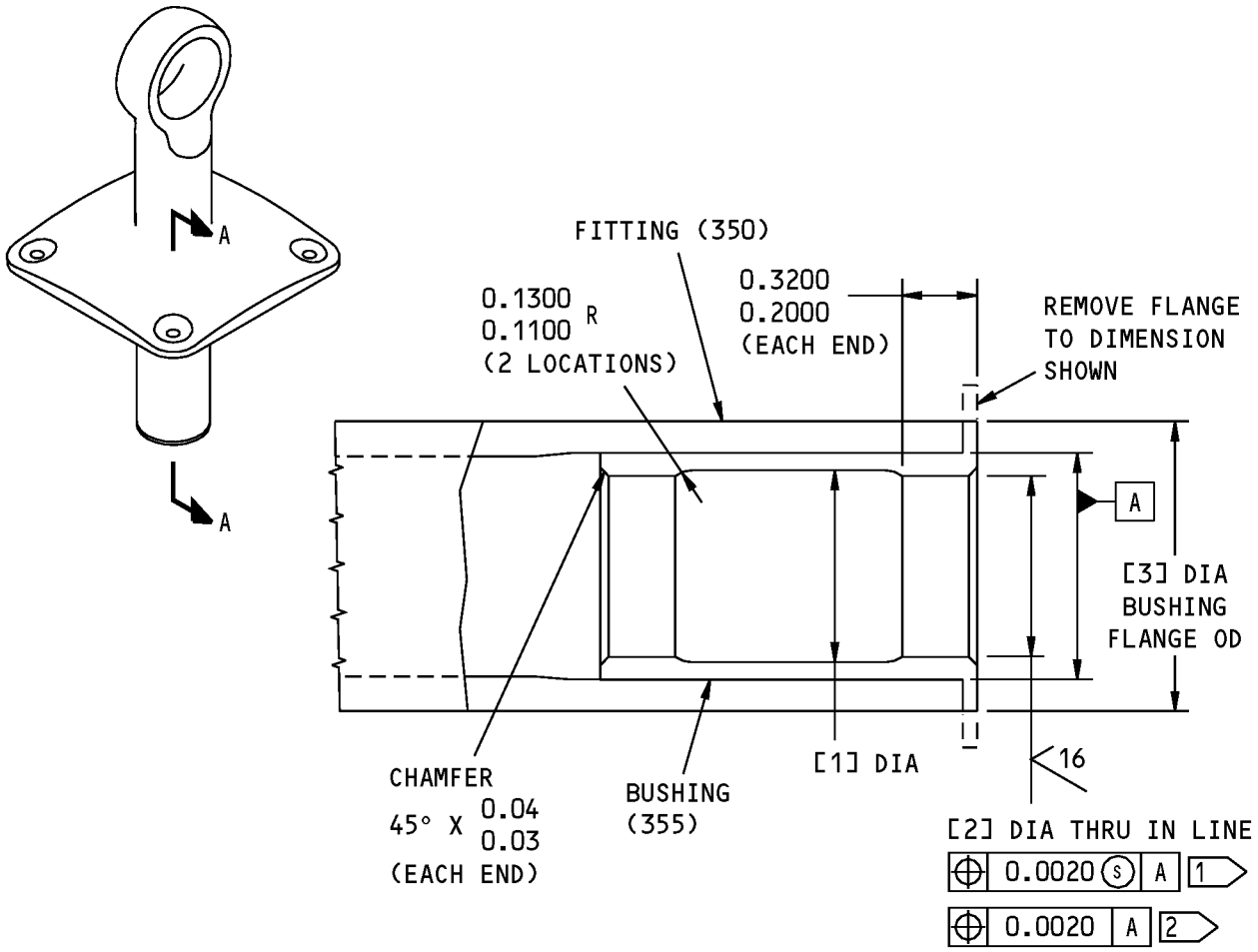
NOTE: For lubricants, refer to SOPM 20-60-03.

(1) Remove the old bushing.

(2) If you find defects on the fitting surfaces, refer to REPAIR 15-2 for repair instructions.

(3) Install a replacement bushing by the shrink fit method (SOPM 20-50-03) with BMS 3-33 grease as the installation finish.

(4) Machine the bushing to the dimensions and finish shown.



A–A

PART NUMBER	REFERENCE NUMBER	[1]	[2]	[3]
163A3002-1	DESIGN DIMENSION	0.8100 0.7800	0.7505 0.7495	1.2100 1.1900
163A3002-5	DESIGN DIMENSION	1.0600 1.0300	1.0005 0.9995	1.4600 1.4400

1 > 163A3002-1

2 > 163A3002-5

163A3002-1, -5 Upper Fitting Assembly Bushing Replacement
Figure 601

UPPER FITTING - REPAIR 15-2

163A3002–2, –4, –6

1. General

A. This procedure tells how to repair and refinish upper fitting (360).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

(2) Shot peen: not necessary

2. Upper Fitting Repair

A. Repair is only replacement of the original finish. Refer to REPAIR 15-2, Paragraph 3. for details.

B. If you think there are defects on important surfaces, see REPAIR 15-2, Figure 601 or REPAIR 15-2, Figure 602 for dimension details.

3. Upper Fitting Refinish

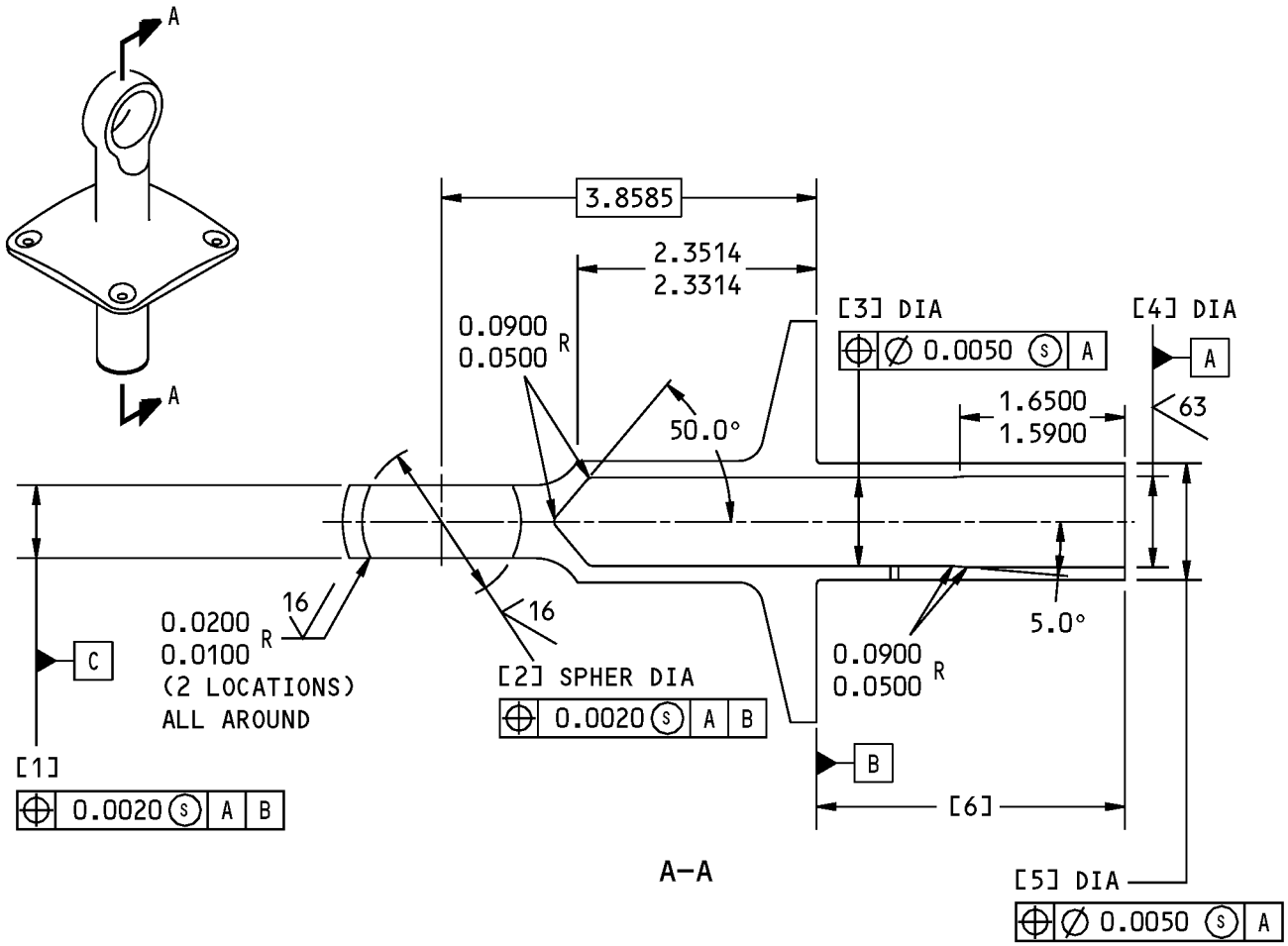
A. References

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

B. Procedure

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

(1) Passivate (F-17.25).



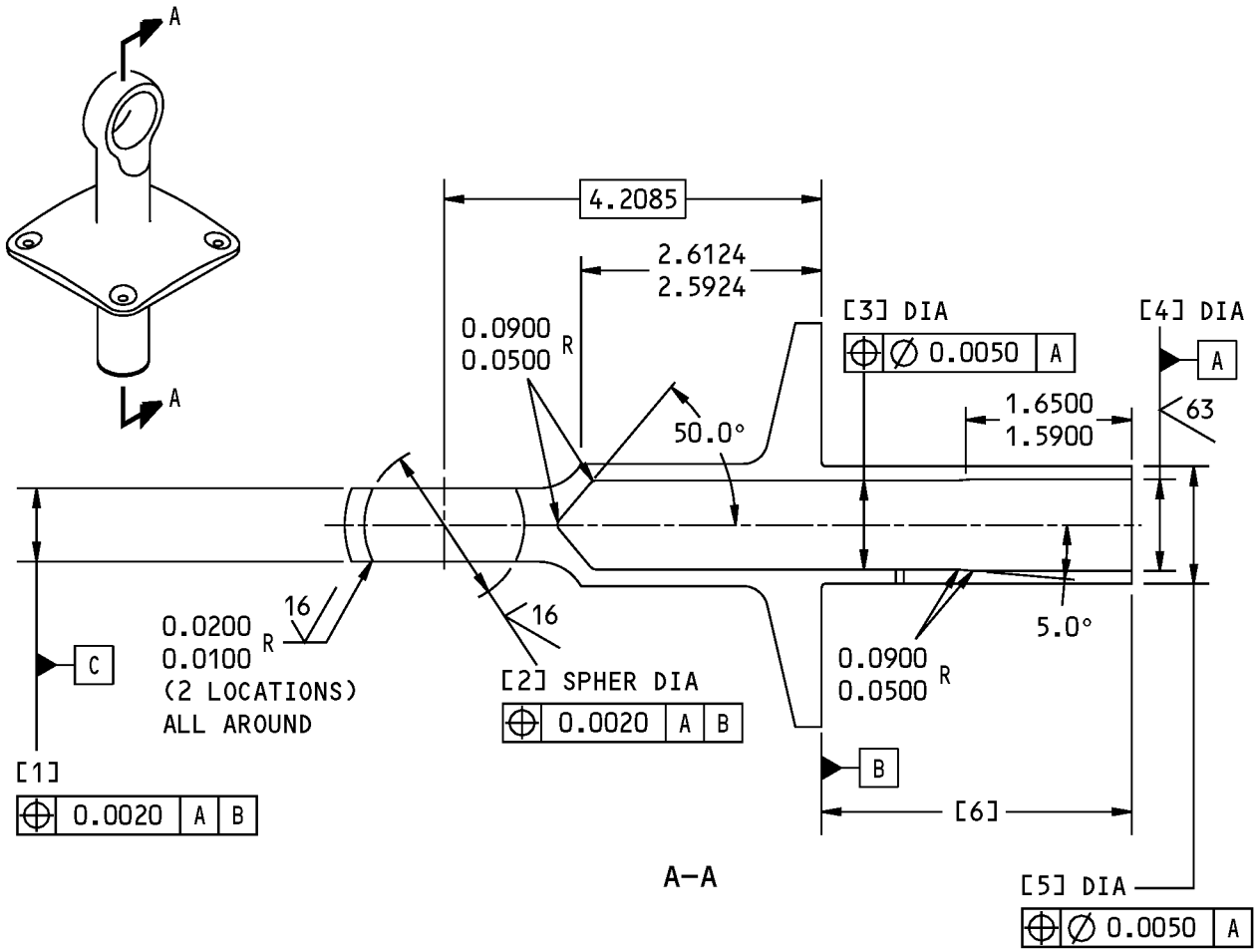
REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]	[6]
DESIGN DIMENSION	0.7525 0.7475	1.6360 1.6350	0.9200 0.9000	0.9378 0.9373	1.2100 1.1300	3.1800 3.1600
REPAIR LIMIT	---	---	---	---	---	---

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES 0.02–0.04 R UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

163A3002-2, -4 Upper Fitting Repair and Refinish
Figure 601



REFERENCE NUMBER	[1]	[2]	[3]	[4]	[5]	[6]
DESIGN DIMENSION	0.7525 0.7475	1.6360 1.6350	1.1323 1.1123	1.1880 1.1873	1.4600 1.4400	3.3400 3.3200
REPAIR LIMIT	---	---	---	---	---	---

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES 0.02–0.04 R UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE IN INCHES

163A3002-6 Upper Fitting Repair and Refinish
Figure 602

LOWER FITTING - REPAIR 16-1

163A3003–1, –2, –3

1. General

A. This procedure tells how to repair and refinish lower fitting (380).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

(2) Shot peen: not necessary

2. Lower Fitting Repair

A. Repair is only replacement of the original finish. Refer to REPAIR 16-1, Paragraph 3. for details.

B. If you think there are defects on important surfaces, see REPAIR 16-1, Figure 601 or REPAIR 16-1, Figure 602 for dimension details.

3. Lower Fitting Refinish

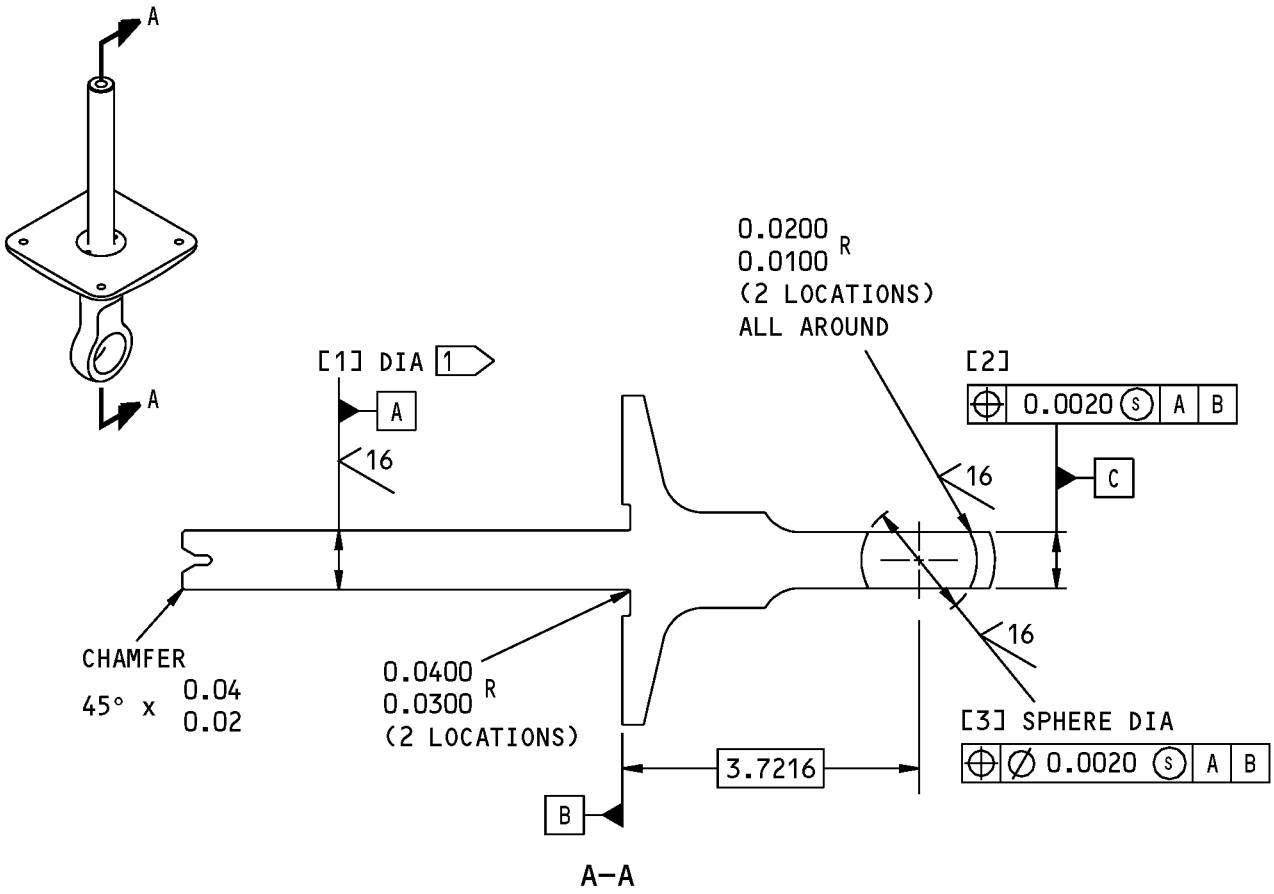
A. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-03	LUBRICANTS

B. Procedure (REPAIR 16-1, Figure 601 or REPAIR 16-1, Figure 602)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For lubricants, refer to SOPM 20-60-03.

(1) Passivate (F-17.25). Apply BMS 3-8 solid film lubricant (F-19.10) to the surfaces shown.



A–A

REFERENCE NUMBER	[1]	[2]	[3]
DESIGN DIMENSION	0.7440 0.7432	0.7025 0.6975	1.4520 1.4510
REPAIR LIMIT	---	---	---

1 APPLY BMS 3-8 SOLID FILM LUBRICANT (F-19.10)

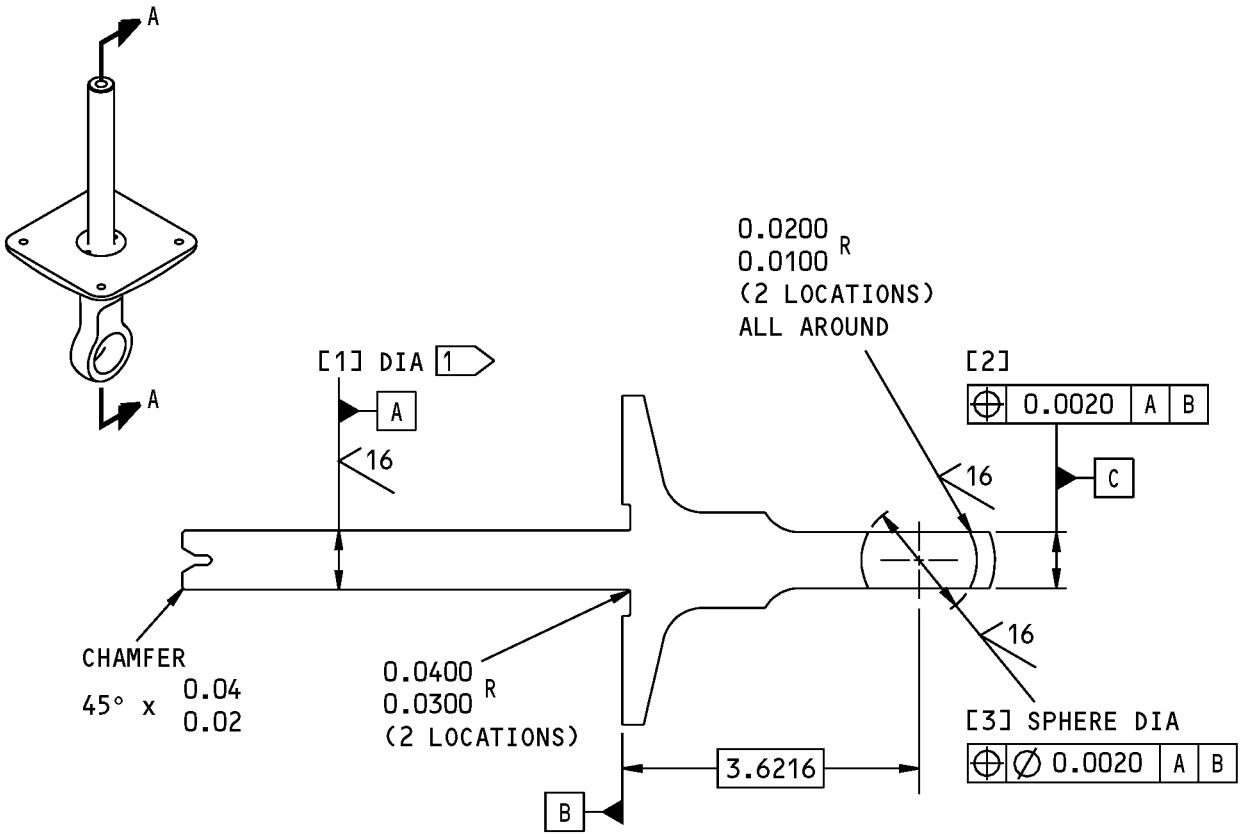
125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES 0.02-0.04 R UNLESS SHOWN DIFFERENTLY

DIMENSIONS ARE BEFORE FINISH

ALL DIMENSIONS ARE IN INCHES

163A3003-1, -2 Lower Fitting Repair and Refinish
Figure 601



A–A

REFERENCE NUMBER	[1]	[2]	[3]
DESIGN DIMENSION	0.9940 0.9932	0.7025 0.6975	1.4520 1.4510
REPAIR LIMIT	---	---	---

1 APPLY BMS 3-8 SOLID FILM LUBRICANT (F-19.10)

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES 0.02-0.04 R UNLESS SHOWN DIFFERENTLY

DIMENSIONS ARE BEFORE FINISH

ALL DIMENSIONS ARE IN INCHES

163A3003-3 Lower Fitting Repair and Refinish
Figure 602

BEARING ASSEMBLY - REPAIR 17-1

163A3004–1, –5

1. General

A. This procedure tells how to repair and refinish upper and lower bearing assemblies (335, 365).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

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

(2) Shot peen: not necessary

2. Bearing Repair

A. Repair is only replacement of the original finish. Refer to REPAIR 17-1, Paragraph 3. for details.

B. If you think there are defects on important surfaces, see REPAIR 17-1, Figure 601 or REPAIR 17-1, Figure 602 for dimension details. Note that each bearing assembly is a matched set of bearing halves and can be replaced only as a set. Replacement halves are not available separately. Do not mix the bearing halves of one set with those of other sets.

3. Bearing Refinish

A. References

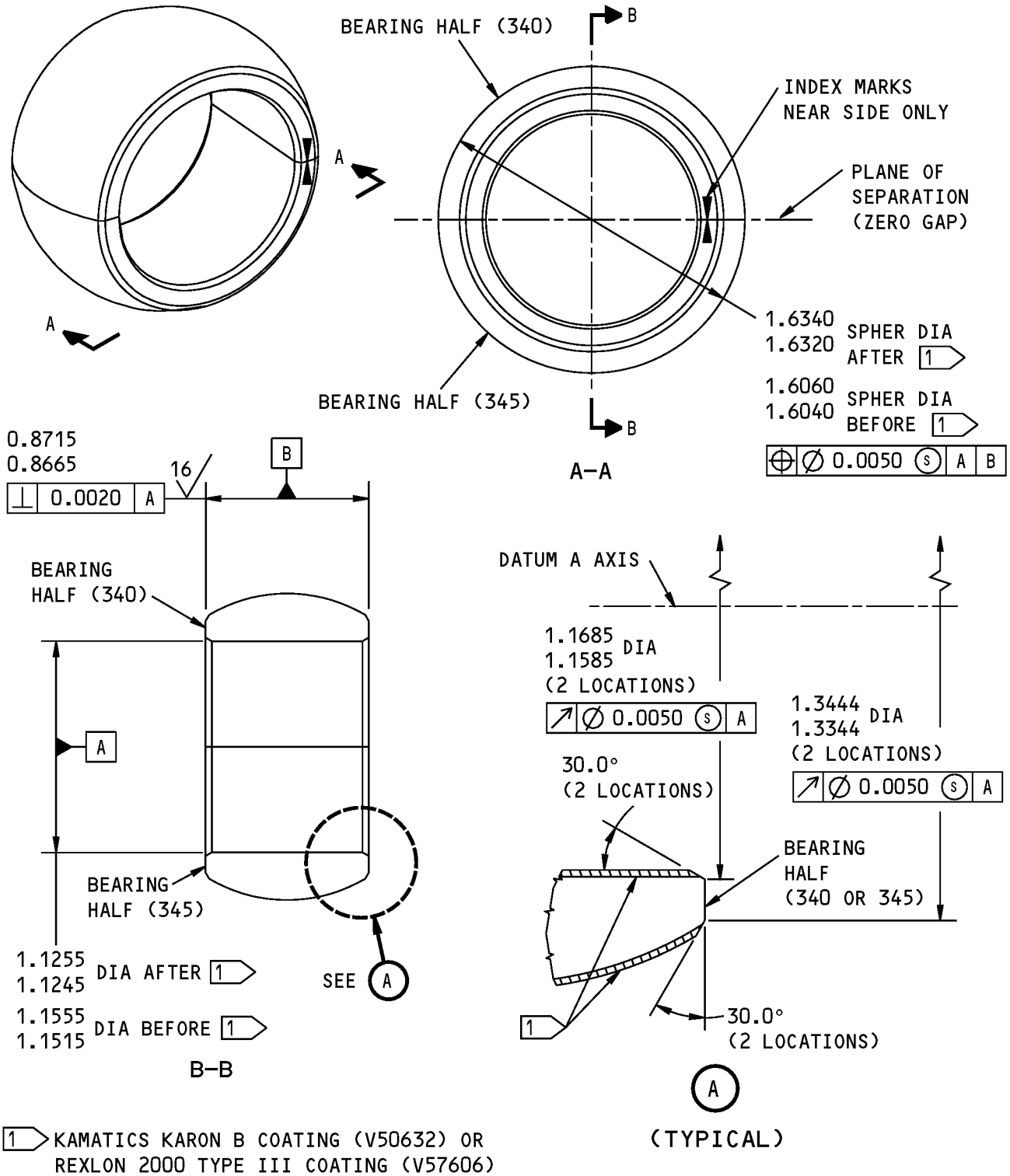
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Procedure (REPAIR 17-1, Figure 601 or REPAIR 17-1, Figure 602)

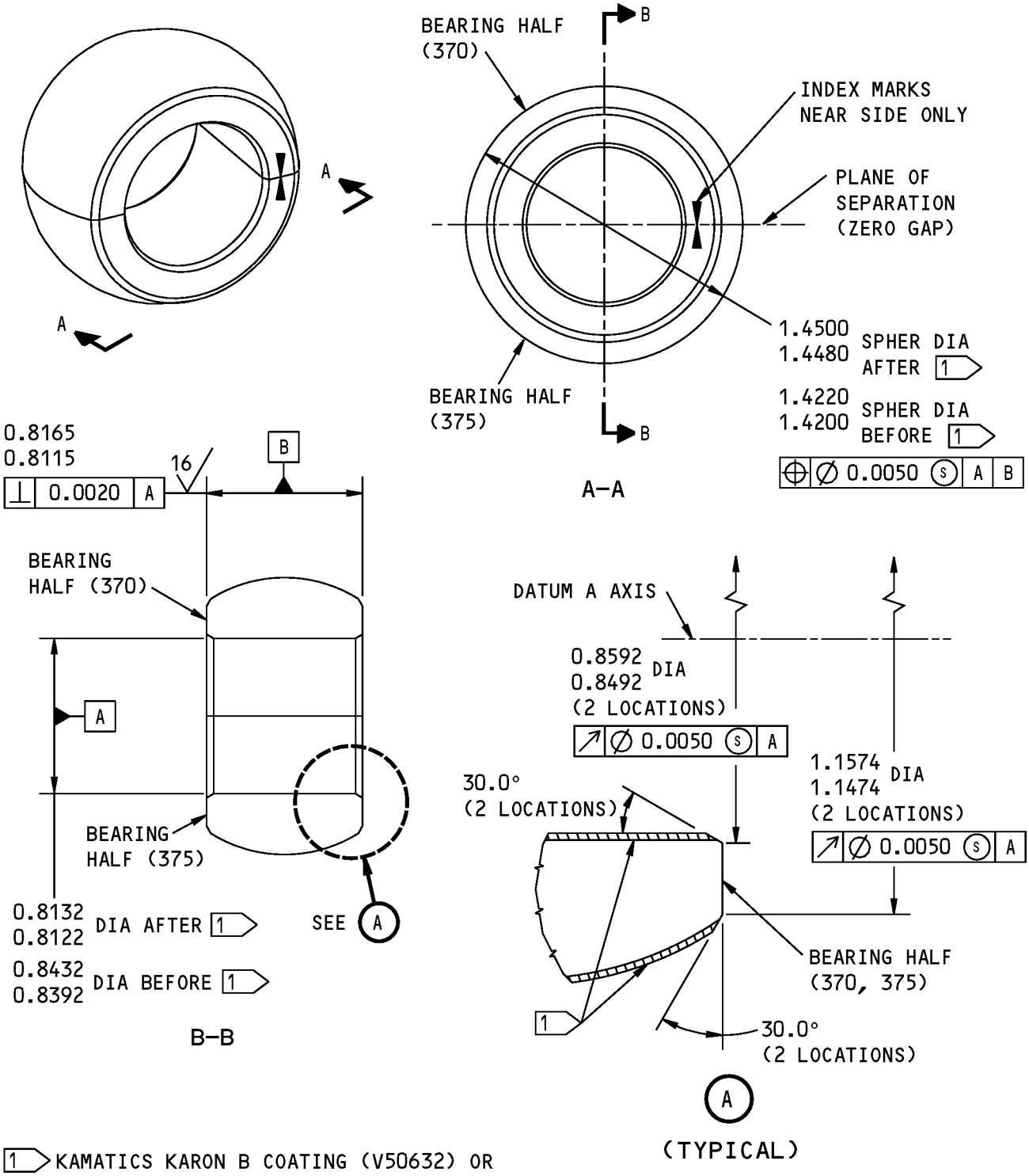
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Bearing halves (340, 345) or (370, 375) - - Passivate (F-17.25). Then send the matched set of bearing halves to Kamatics Corp. (V50632) or PSI Bearing (V57606), as applicable, for application of the self-lubricating coating shown by flagnote 1.

(2) Bearing assembly - - No finish (F-25.01).



163A3004-1 Bearing Assembly Repair and Refinish
Figure 601



163A3004-5 Bearing Assembly Repair and Refinish
Figure 602

ASSEMBLY

1. General

A. This procedure tells how to assemble the tail skid installation unit.

B. Refer to the Standard Overhaul Practices Manual (SOPM) for details of the standard practices specified in the procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Assembly

A. References

Reference	Title
SOPM 20-50-01	BOLT AND NUT INSTALLATION
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES
SOPM 20-60-02	FINISHING MATERIALS

B. Procedure (ASSEMBLY, Figure 701)

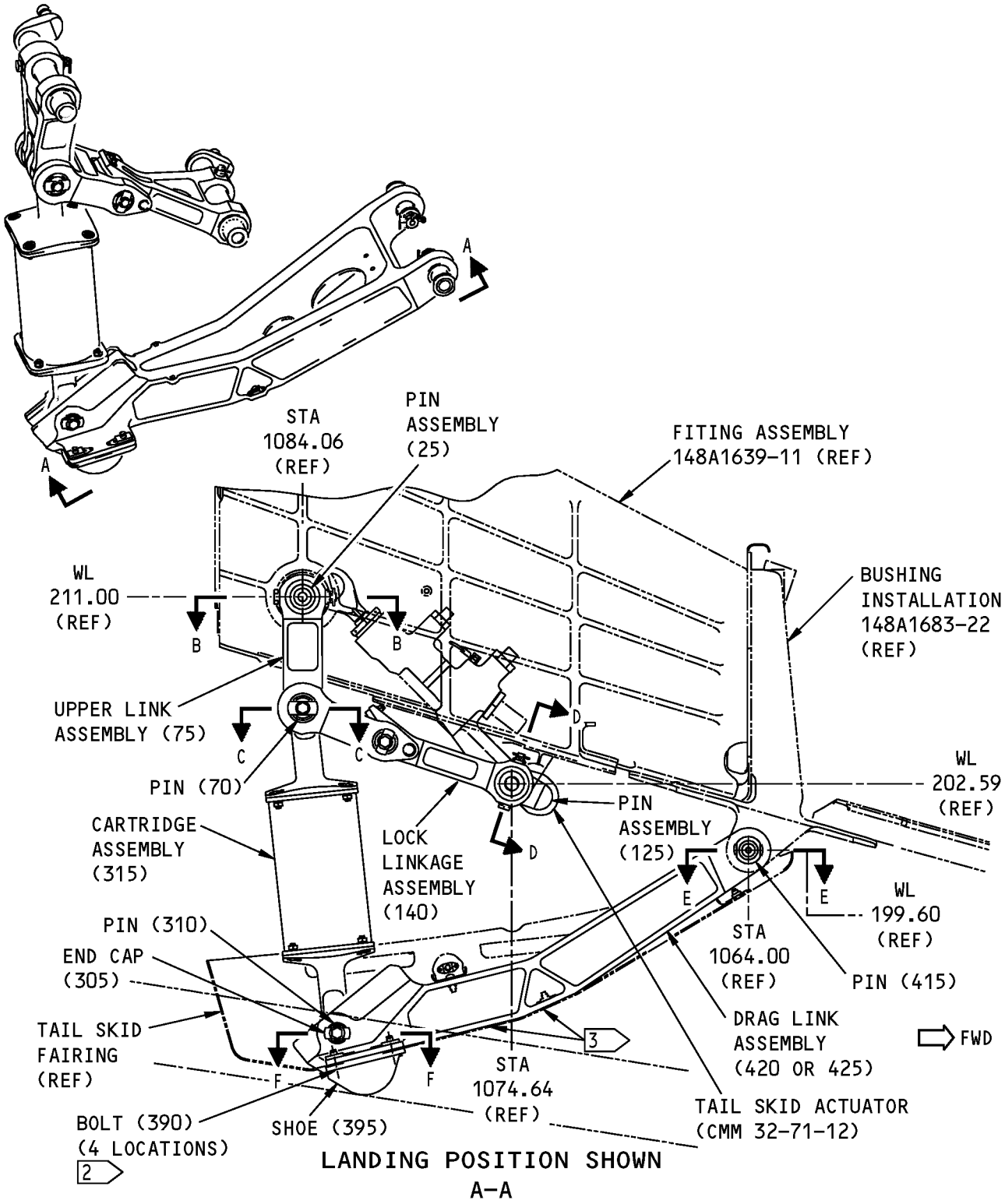
NOTE: For finishing materials, refer to SOPM 20-60-02.

(1) Use standard industry practices and these steps.

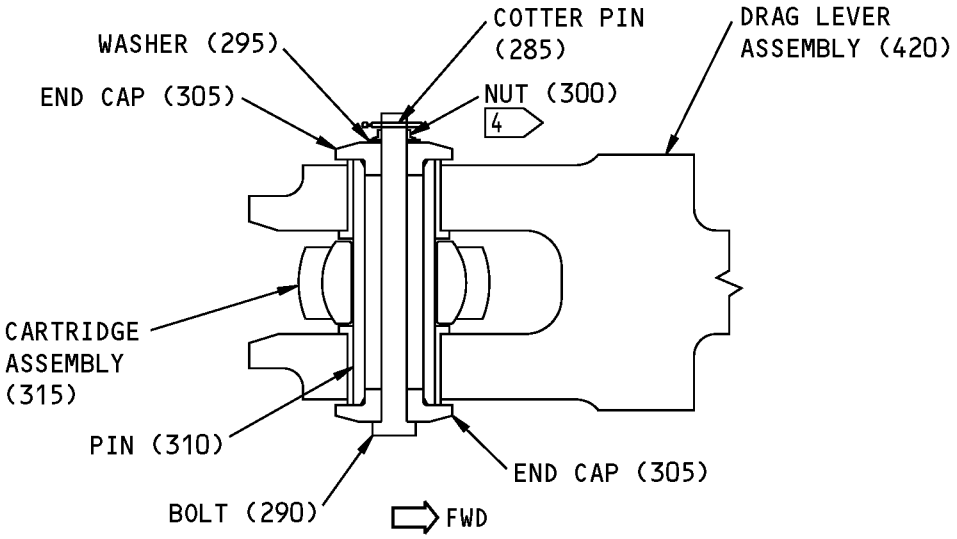
(2) Install the noted fasteners with BMS 3-38 corrosion preventive compound (SOPM 20-60-02).

(3) Tighten the noted fasteners and install cotter pins (SOPM 20-50-02).

(4) Tighten the other noted fasteners only hand-tight, because the tail skid parts will be adjusted and the fasteners will be tightened to standard torque (SOPM 20-50-01) when the tail skid unit is installed on the airplane along with the 148A7240 skirt fairing installation. Attach a note to tell the installers this.



Tail Skid Installation Details
Figure 701 (Sheet 1 of 4)



F–F

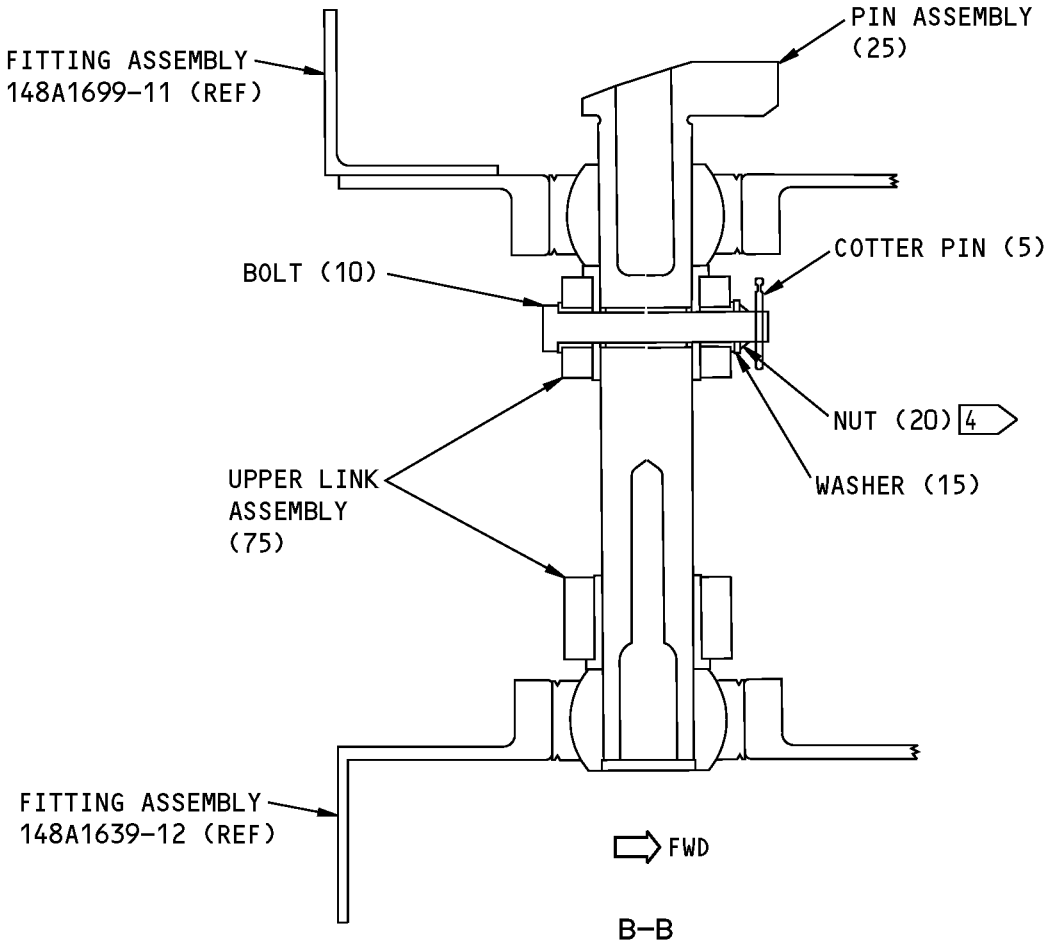
1 TIGHTEN THE NUT TO 160–190 POUND–INCHES ABOVE DRIVE TORQUE. IF NECESSARY, BACK OFF TO NEAREST CASTELLATION TO INSTALL COTTER PIN.

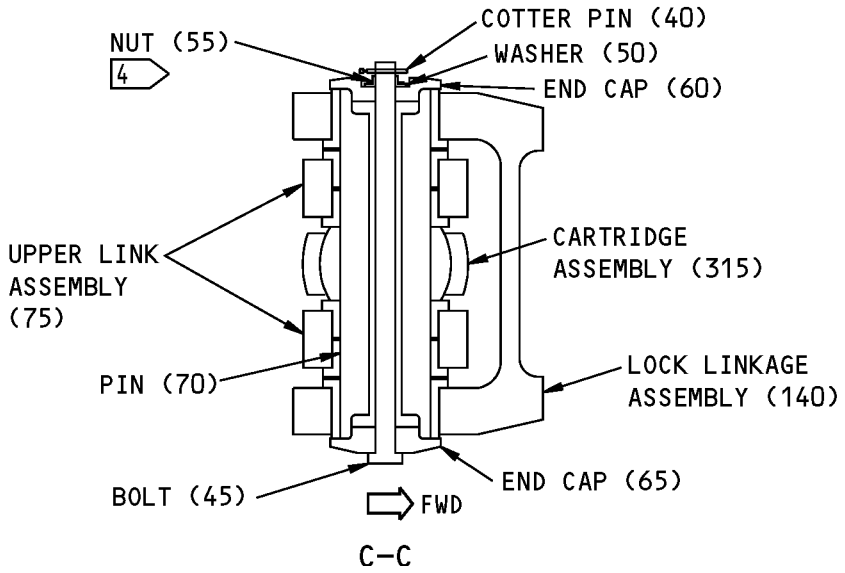
2 TIGHTEN ONLY HAND–TIGHT. THESE PARTS WILL BE ADJUSTED WHEN THEY ARE INSTALLED ON THE AIRPLANE.

3 APPLY BMS 3–38 CORROSION PREVENTIVE COMPOUND TO MATING SURFACES.

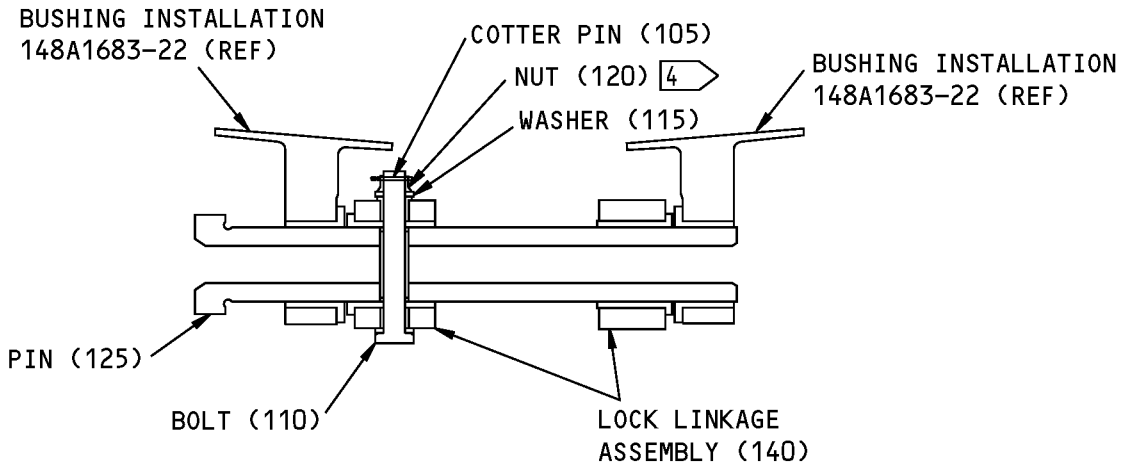
4 TIGHTEN THE NUT TO 20–24 POUND–INCHES ABOVE DRIVE TORQUE. IF NECESSARY, BACK OFF TO NEAREST CASTELLATION TO INSTALL COTTER PIN.

Tail Skid Installation Details
Figure 701 (Sheet 2 of 4)

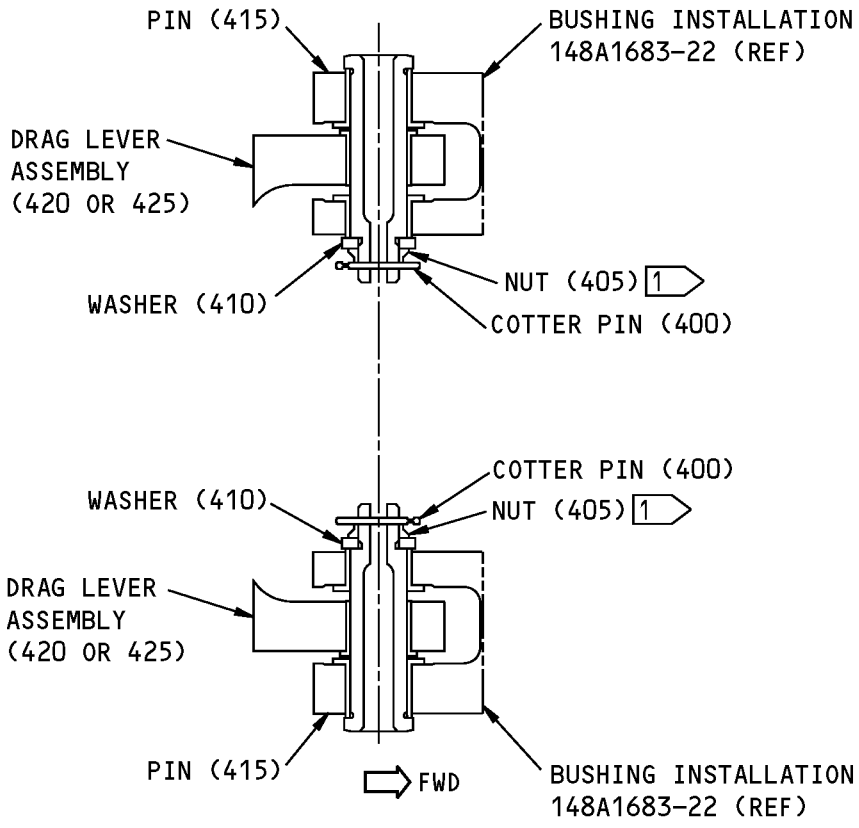




Tail Skid Installation Details
Figure 701 (Sheet 3 of 4)

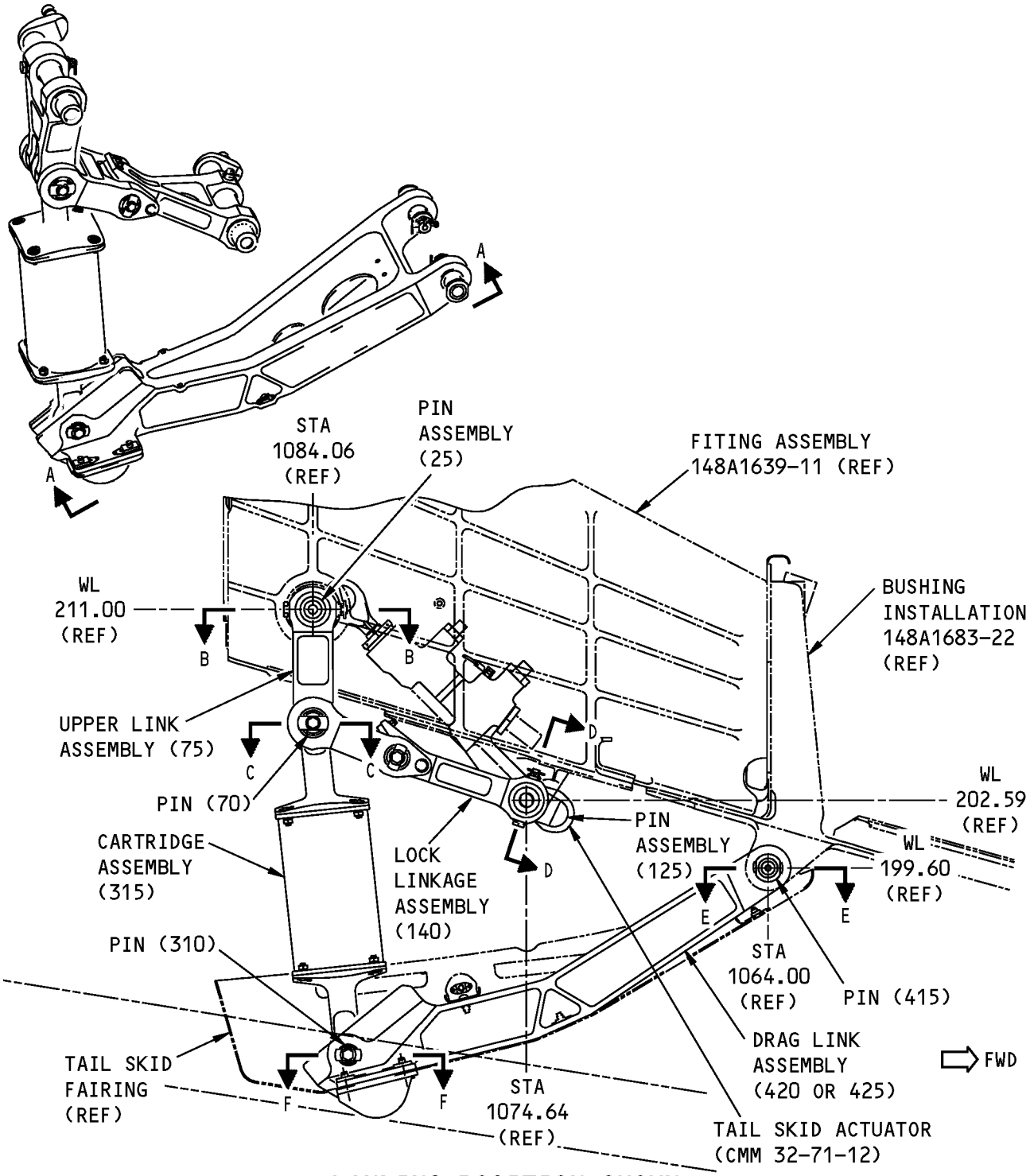


D-D



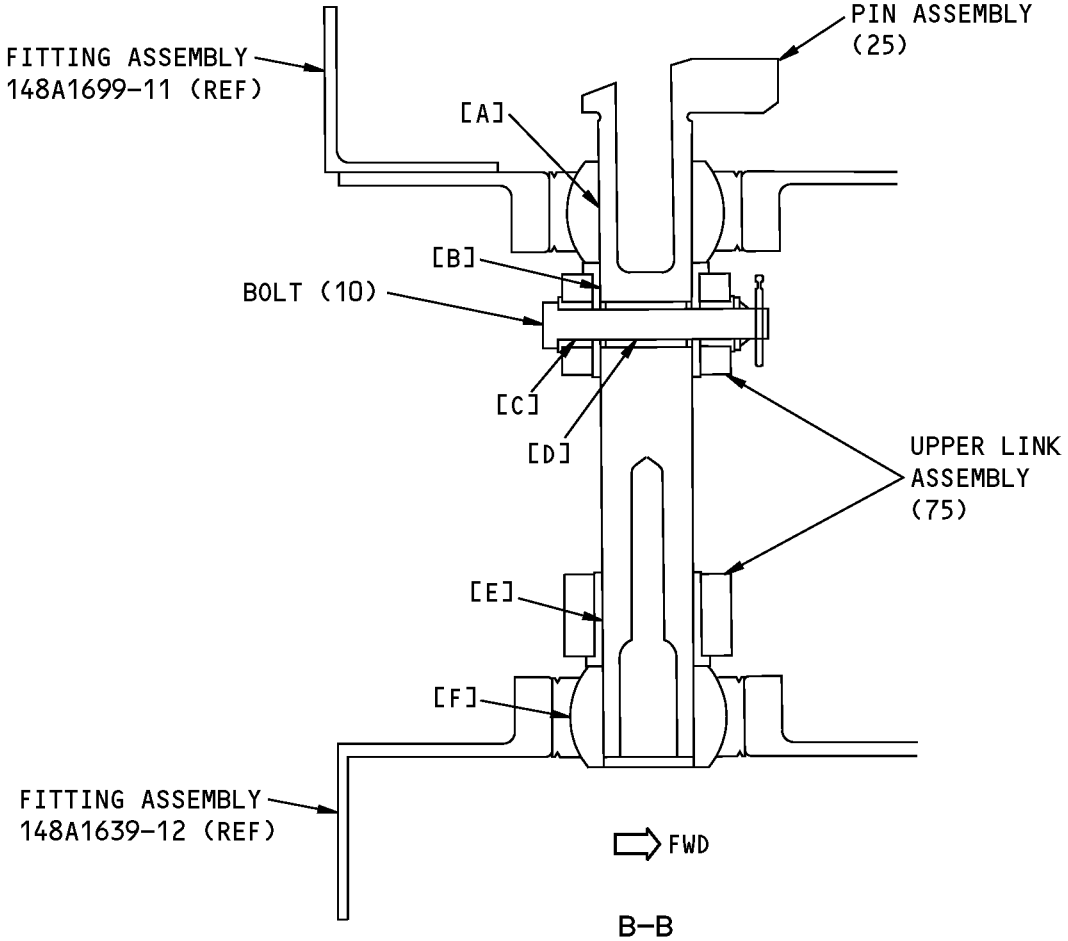
E-E

Tail Skid Installation Details
Figure 701 (Sheet 4 of 4)

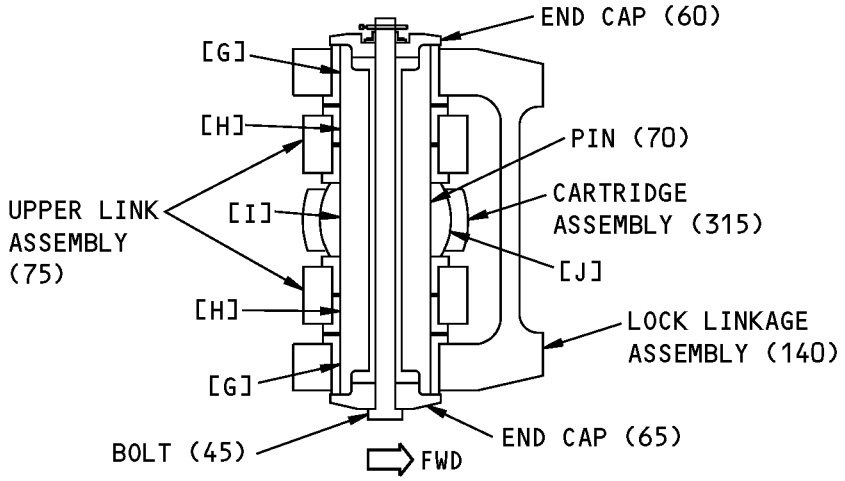


LANDING POSITION SHOWN
A-A

Fits and Clearances
Figure 801 (Sheet 1 of 7)

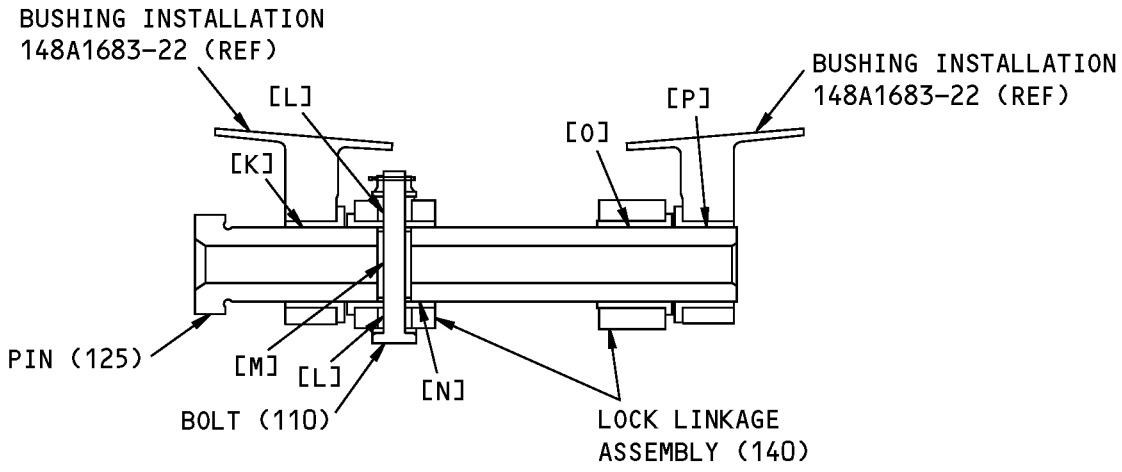


B-B

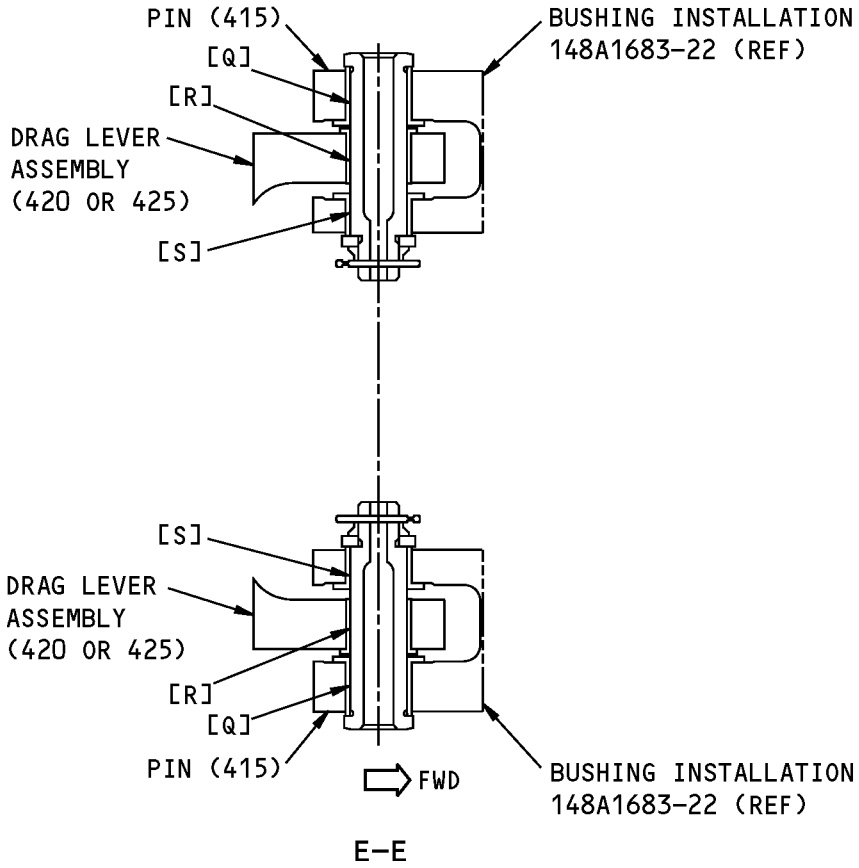


C-C

Fits and Clearances
Figure 801 (Sheet 2 of 7)

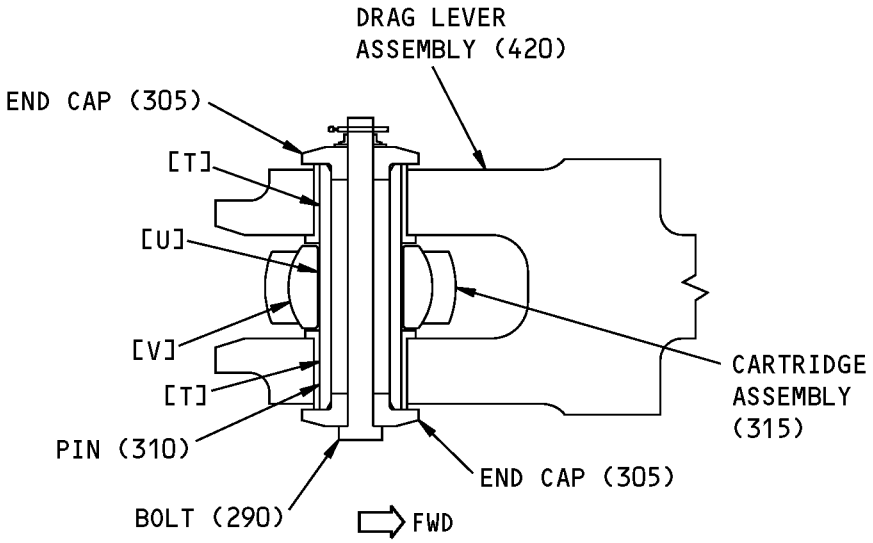


D-D



E-E

Fits and Clearances
Figure 801 (Sheet 3 of 7)



Fits and Clearances
Figure 801 (Sheet 4 of 7)

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[A]	ID 1 OD 25	1.1250 1.1205	1.1260 1.1215	0.0035	0.0055	1.1184	1.1291	0.0076
[B]	ID 80 OD 25	1.1235 1.1205	1.1251 1.1215	0.0020	0.0046	1.1184	1.1282	0.0067
[C]	ID 85 OD 10	0.3750 0.3735	0.3756 0.3745	0.0005	0.0021	0.3723	0.3778	0.0033
[D]	ID 30 OD 10	0.3750 0.3735	0.3756 0.3745	0.0005	0.0021	0.3723	0.3778	0.0033
[E]	ID 90 OD 25	1.1235 1.1205	1.1251 1.1215	0.0020	0.0046	1.1184	1.1282	0.0067
[F]	ID 2 OD 25	1.1250 1.1205	1.1260 1.1215	0.0035	0.0055	1.1184	1.1291	0.0076
[G]	ID 210 OD 70	1.1235 1.1205	1.1251 1.1215	0.0020	0.0046	1.1184	1.1282	0.0067
[H]	ID 95 OD 70	1.1235 1.1205	1.1251 1.1215	0.0020	0.0046	1.1184	1.1282	0.0067
[I]	ID 335 OD 70	1.1245 1.1205	1.1255 1.1215	0.0030	0.0050	1.1184	1.1286	0.0071
[J]	ID 350 OD 335	1.6350 1.6320	1.6360 1.6340	0.0010	0.0040	1.6294	1.6406	0.0066

Fits and Clearances
Figure 801 (Sheet 5 of 7)

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[K]	ID 3 OD 125	1.1250 1.1205	1.1255 1.1215	0.0035	0.0050	1.1184	1.1286	0.0071
[L]	ID 260 OD 110	0.3125 0.3115	0.3131 0.3120	0.0005	0.0016	0.3104	0.3147	0.0027
[M]	ID 130 OD 110	0.3125 0.3115	0.3131 0.3120	0.0005	0.0016	0.3104	0.3147	0.0027
[N]	ID 255 OD 125	1.1235 1.1205	1.1251 1.1215	0.0020	0.0046	1.1184	1.1282	0.0067
[O]	ID 265 OD 125	1.1235 1.1205	1.1251 1.1215	0.0020	0.0046	1.1184	1.1282	0.0067
[P]	ID 3 OD 125	1.1250 1.1205	1.1270 1.1215	0.0035	0.0065	1.1184	1.1301	0.0086
[Q]	ID 4 OD 415	0.8750 0.8707	0.8770 0.8717	0.0033	0.0063	0.8688	0.8799	0.0082
[R]	ID 450 OD 415	0.8743 0.8707	0.8751 0.8717	0.0026	0.0044	0.8688	0.8770	0.0063
[S]	ID 5 OD 415	0.8750 0.8707	0.8770 0.8717	0.0033	0.0063	0.8688	0.8799	0.0082
[T]	ID 455 OD 310	0.8112 0.8072	0.8131 0.8092	0.0020	0.0059	0.8054	0.8169	0.0077

Fits and Clearances
Figure 801 (Sheet 6 of 7)

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[U]	ID 365	0.8122	0.8132	0.0030	0.0060		0.8170	0.0078
	OD 310	0.8072	0.8092			0.8054		
[V]	ID 380	1.4510	1.4520	0.0010	0.0040		1.4564	0.0064
	OD 365	1.4480	1.4500			1.4456		
[W]	ID 355	0.7495	0.7505	0.0055	0.0073		0.7530	0.0090
	OD 380	0.7432	0.7440			0.7415		
[W]	ID 355A	0.9995	1.0005	0.0055	0.0073		1.0013	0.0093
	OD 380A	0.9932	0.9940			0.9912		

* ALL DIMENSIONS ARE IN INCHES

1 BEARING BACB10GD18G IN FITTING ASSEMBLY 148A1639-11

2 BEARING BACB10GD18G IN FITTING ASSEMBLY 148A1639-12

3 BUSHING BACB28BB18A079C IN INSTALLATION 148A1683-22

4 BUSHING BACB28BB14A079C IN INSTALLATION 148A1683-22

5 BUSHING BACB28BB14A054C IN INSTALLATION 148A1683-22

Fits and Clearances
Figure 801 (Sheet 7 of 7)

REF IPL		NAME	TORQUE*	
FIG. NO.	ITEM NO.		POUND-INCHES	POUND-FEET
1	20	Nut	20-24 1> 2>	
1	55	Nut	20-24 1> 2>	
1	120	Nut	20-24 1> 2>	
1	160	Nut	20-24 1> 2>	
1	175	Bolt	3>	
1	180	Nut	3>	
1	300	Nut	20-24 1> 2>	
1	390	Nut	4>	
1	405	Nut	4>	

* REFER TO SOPM 20-50-01 FOR TORQUE VALUES OF STANDARD FASTENERS.

1> ABOVE DRIVE TORQUE (RUN-ON TORQUE) (SOPM 20-50-01)

2> LOOSEN TO NEAREST CASTELLATION, IF NECESSARY, TO LET YOU INSTALL THE COTTER PIN

3> TIGHTEN ONLY TO GET THE GAP SHOWN (REPAIR 9-1)

4> HAND-TIGHT

Torque Table
Figure 802

(NOT APPLICABLE)

ILLUSTRATED PARTS LIST

1. Introduction

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

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

1 2 3 4 5 6 7

. Assembly

. Attaching parts for assembly

. . Detail parts for assembly

. . Subassembly

. . Attaching parts for subassembly

. . . Detail parts for subassembly

. . . Sub-subassembly

. . . Attaching parts for subassembly

. . . . . Details parts for sub-subassembly

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

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

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

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

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

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

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

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

H. Interchangeable Parts

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

VENDOR CODES

Code	Name
11815	CHERRY AEROSPACE FASTENERS DIV OF TEXTRON 1224 EAST WARNER AVENUE PO BOX 2157 SANTA ANA, CALIFORNIA 92707-0157 FORMERLY IN LOS ANGELES, CALIF , FORMERLY CHERRY FASTENERS TOWNSEND DIV OF TEXTRON INC V71087
15653	ALCOA GLOBAL FASTENERS INC DIV KAYNAR PRODUCTS 800 S STATE COLLEGE BLVD FULLERTON, CALIFORNIA 92831-3001 FORMERLY VK6405 MICRODOT AEROSP LTD; FORMERLY KAYNAR TECH FORMERLY FAIRCHILD FASTENERS KAYNAR DIV
51344	HEXCEL CORP VALLEY INDUSTRIAL PARK GILABEND HWY PO BOX 66 CASA GRANDE, ARIZONA 85222
52828	REPUBLIC FASTENER MFG CORP 1300 RANCHO CONEJO BLVD NEWBURY PARK, CALIFORNIA 91320-1405 FORMERLY IN SYLMAR, CALIFORNIA
62554	SIMMONDS MECAERO FASTENERS INC 1734 SEQUOIA AVENUE ORANGE, CALIFORNIA 92668
72962	HARVARD INDUSTRIES INC 3 WERNER WAY SUITE 210 LEBANON, NEW JERSEY 08833 FORMERLY ESNA V7A079 FORMERLY ELASTIC STOP NUT IN UNION, NJ

Code	Name
80539	SPS TECHNOLOGIES INC DIV AERPSOACE - SANTA ANA 2701 SOUTH HARBOR BOULEVARD SANTA ANA, CALIFORNIA 92704-5803 FORMERLY NUTT-SHEL DIV OF SPC WESTERN CO V80539 AND STANDARD PRESSED STEEL WESTERN DIV V17279

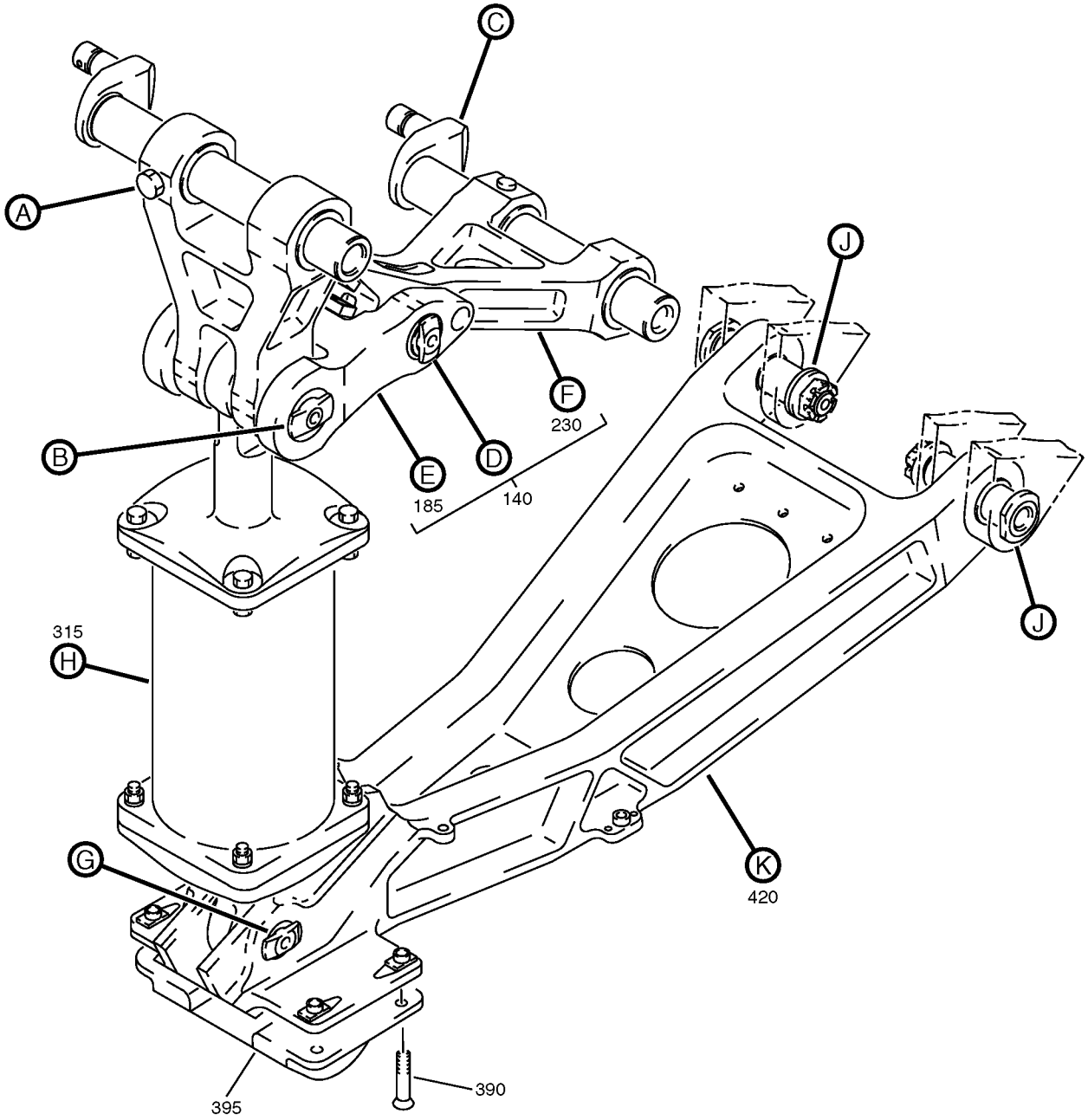
NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
10-62168-1		1	385	1
10-62168-2		1	385A	1
102F9201-3		1	435	2
102F9207P4		1	445	4
102LH9075-3W		1	330	8
161W4121-1		1	205	1
		1	250	1
162N3115-24		1	410	2
163A0001-1REVA		1	1A	RF
163A0001-2REVA		1	1B	RF
163A1001-1		1	310	1
163A1001-2		1	310A	1
163A1002-1		1	70	1
163A1003-1		1	25	1
163A1003-2		1	35	1
163A1004-1		1	125	1
163A1004-2		1	135	1
163A1005-1		1	415	2
163A1006-1		1	60	1
163A1006-2		1	65	1
163A1006-3		1	165	2
		1	305	2
163A2001-1		1	420	1
163A2001-2		1	460	1
163A2001-3		1	425	1
163A2001-4		1	465	1
163A2002-1		1	75	1
163A2002-2		1	100	1
163A2003-1		1	140	1
163A2004-1		1	230	1
163A2004-2		1	280	1
163A2005-1		1	185	1
163A2005-2		1	225	1
163A2006-1		1	395	1

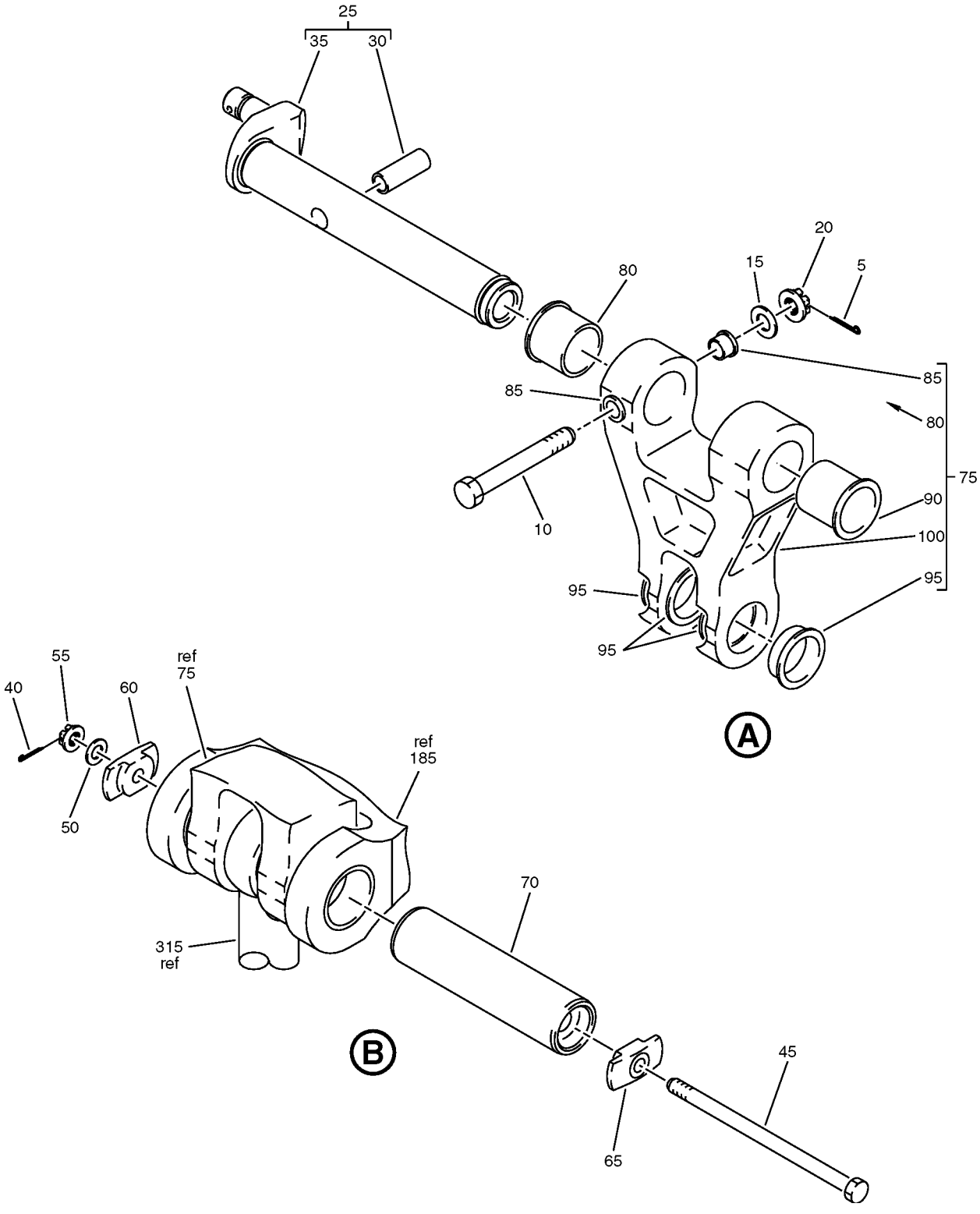
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
163A2006-2		1	395A	1
163A2007-1		1	170	1
163A3001-1		1	315	1
163A3001-2		1	315A	1
163A3002-1		1	350	1
163A3002-2		1	360A	1
163A3002-4		1	360	1
163A3002-5		1	350A	1
163A3002-6		1	360B	1
163A3003-1		1	380A	1
163A3003-2		1	380	1
163A3003-3		1	380B	1
163A3004-1		1	335	1
163A3004-2		1	340	1
163A3004-3		1	345	1
163A3004-5		1	365	1
163A3004-6		1	370	1
163A3004-7		1	375	1
BACB28AA12F150		1	355	1
BACB28AA16F150		1	355A	1
BACB28AT05B030A		1	260	2
BACB28AT06B035A		1	85	2
BACB28AT07B078C		1	220	1
BACB28AT07B160A		1	270	1
BACB28AW05B100A		1	130	1
BACB28AW06B098A		1	30	1
BACB28AY13A068C		1	455	2
BACB28AY14A076C		1	450	2
BACB28AY15A058B		1	275	2
BACB28AY15A079C		1	215	2
BACB28AY18A034B		1	95	4
BACB28AY18A060C		1	210	2
BACB28AY18A102B		1	90	1
		1	265	1
BACB28AY18A122B		1	255	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACB28AY18A127B		1	80	1
BACB30LH3-15		1	190	2
BACB30LH3U8		1	235	2
BACB30LH4-8		1	390	4
BACB30LJ4DU42		1	290	1
BACB30LJ4DU70		1	45	1
BACB30LJ5DU32		1	110	1
BACB30LJ5DU62		1	150	1
BACB30LJ6-38		1	175	1
BACB30LJ6DU34		1	10	1
BACB30LM3-5		1	320	8
BACB30LM6-36		1	175A	1
BACB30LT6DK34		1	10A	1
BACN10JC3CD		1	330	8
BACN10JR3CFD		1	435	2
BACN10KB4CFD		1	445	4
BACN10YR3CD		1	200	2
BACN10YR3CM		1	245	2
BACN11N104CS		1	55	1
		1	160	1
		1	300	1
BACN11N105CS		1	120	1
BACN11N106CS		1	20	1
		1	180	1
BACN11N110CS		1	405	2
BACP18BC02A06P		1	40	1
		1	105	1
		1	145	1
		1	285	1
BACP18BC03A10P		1	5	1
BACP18BC04A12P		1	400	2
BACR15BA3ADC		1	430	4
		1	440	8
BACW10BP3APU		1	240	2
BACW10BP3DP		1	195	2

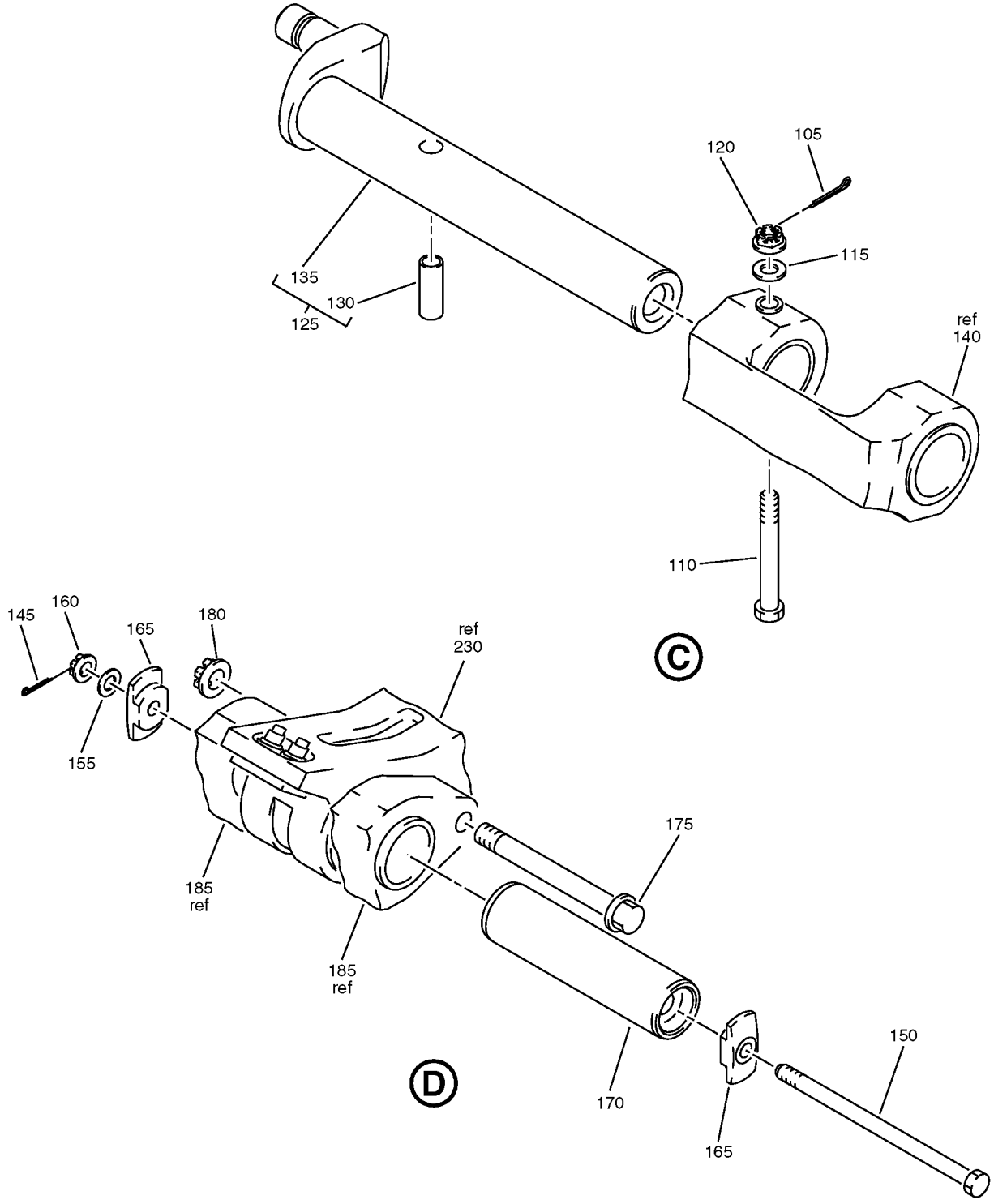
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1	325	8
BACW10BP5APU		1	115	1
BACW10BP6APU		1	15	1
BRF100C4D		1	445	4
BRF200C3D		1	435	2
BRH10C3D		1	330	8
CP0120-1		1	385	1
CU8238		1	385A	1
F51604-4		1	445	4
H51650-3BAC		1	330	8
H52732-3CD		1	200	2
H52732-3CM		1	245	2
K51602-3BAC		1	435	2
M0DREF271605		1	1A	RF
M0DREF282850		1	1B	RF
NAS1149C0432R		1	50	1
		1	155	1
		1	295	1
NS202476-02		1	435	2
NS202478-048		1	445	4
NS202486-02		1	330	8
PLH53CD		1	200	2
PLH53CM		1	245	2
T6C1032JCD		1	330	8
T8092C1032CD		1	435	2



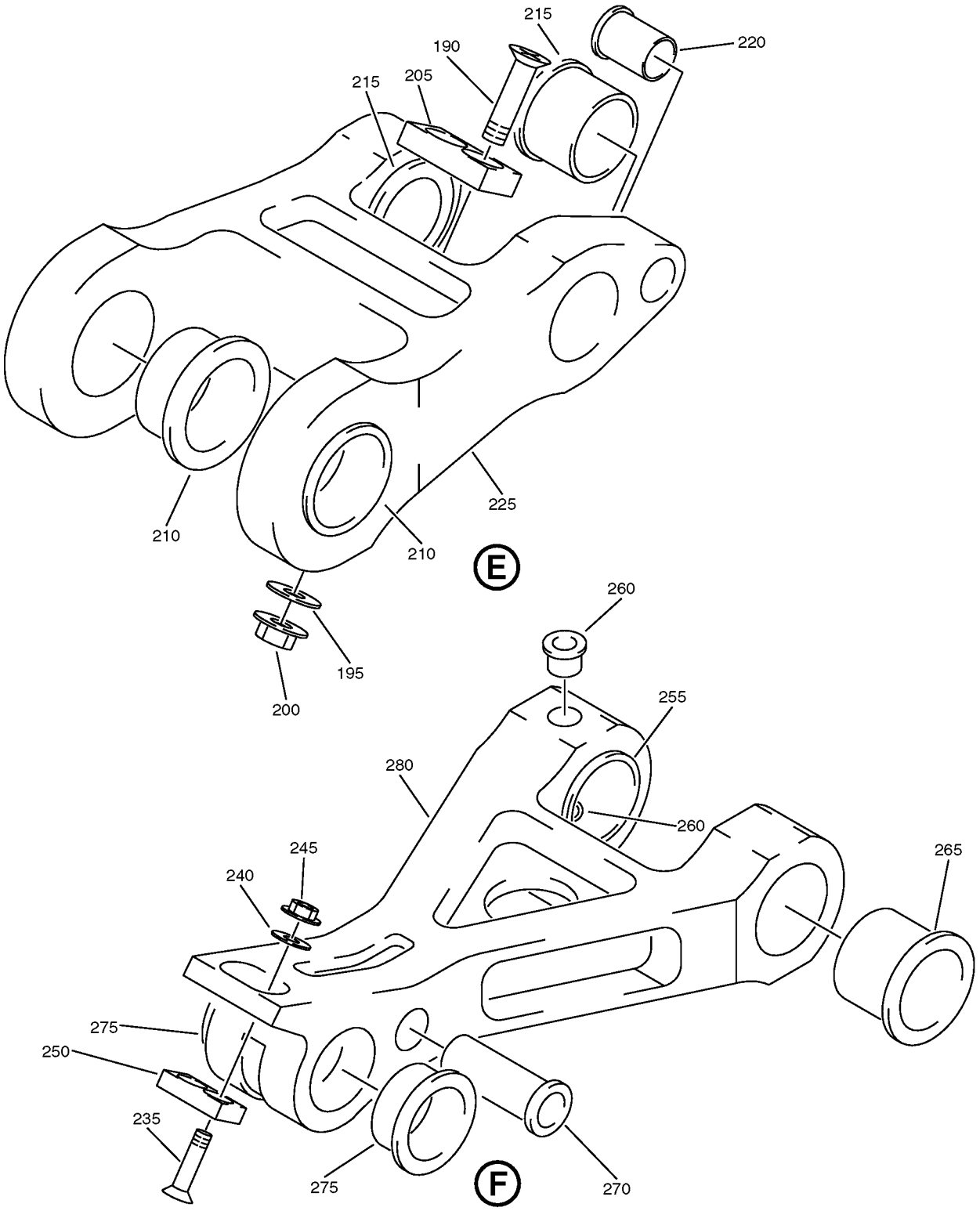
Tail Skid Installation
IPL Figure 1 (Sheet 1 of 6)



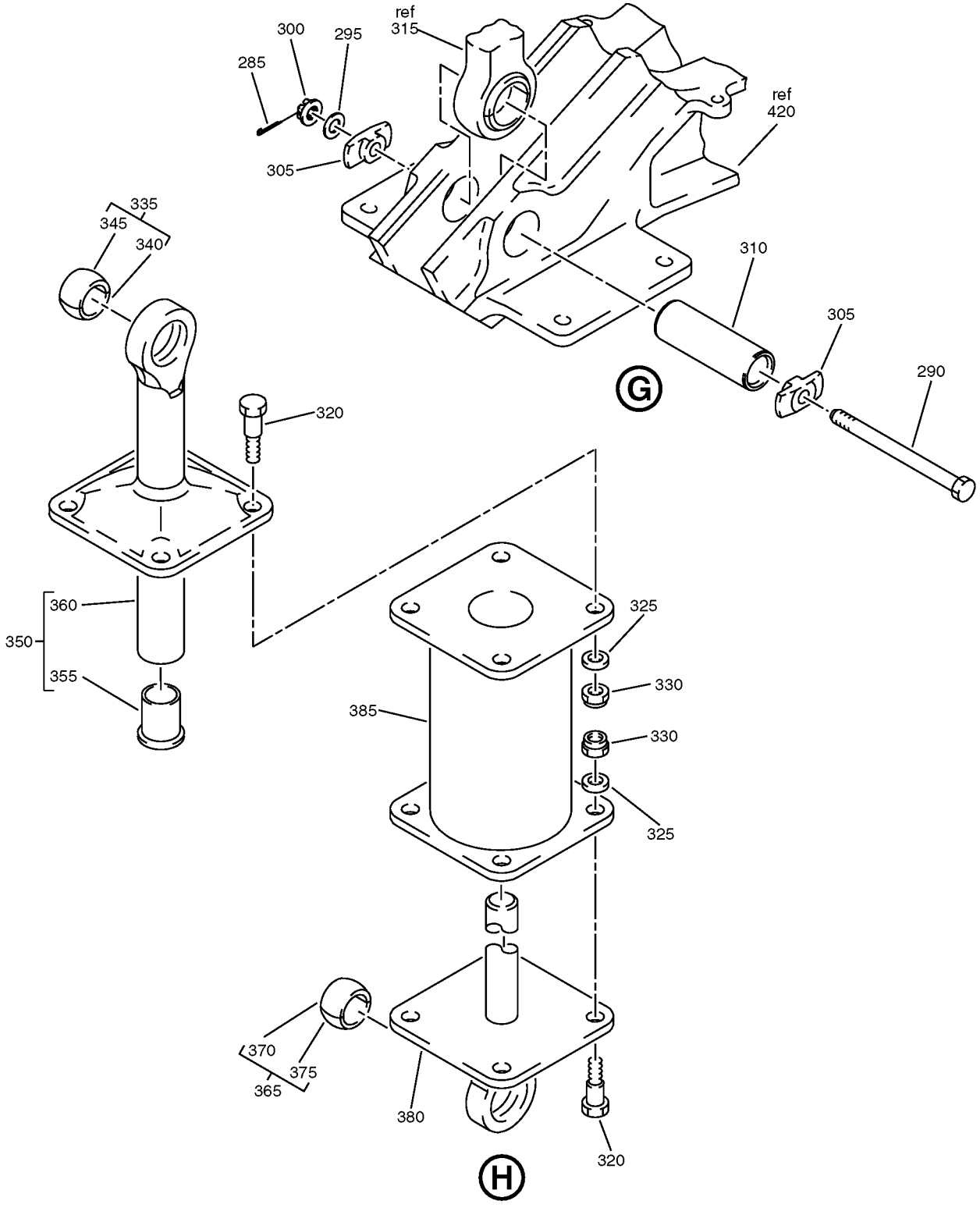
Tail Skid Installation
IPL Figure 1 (Sheet 2 of 6)



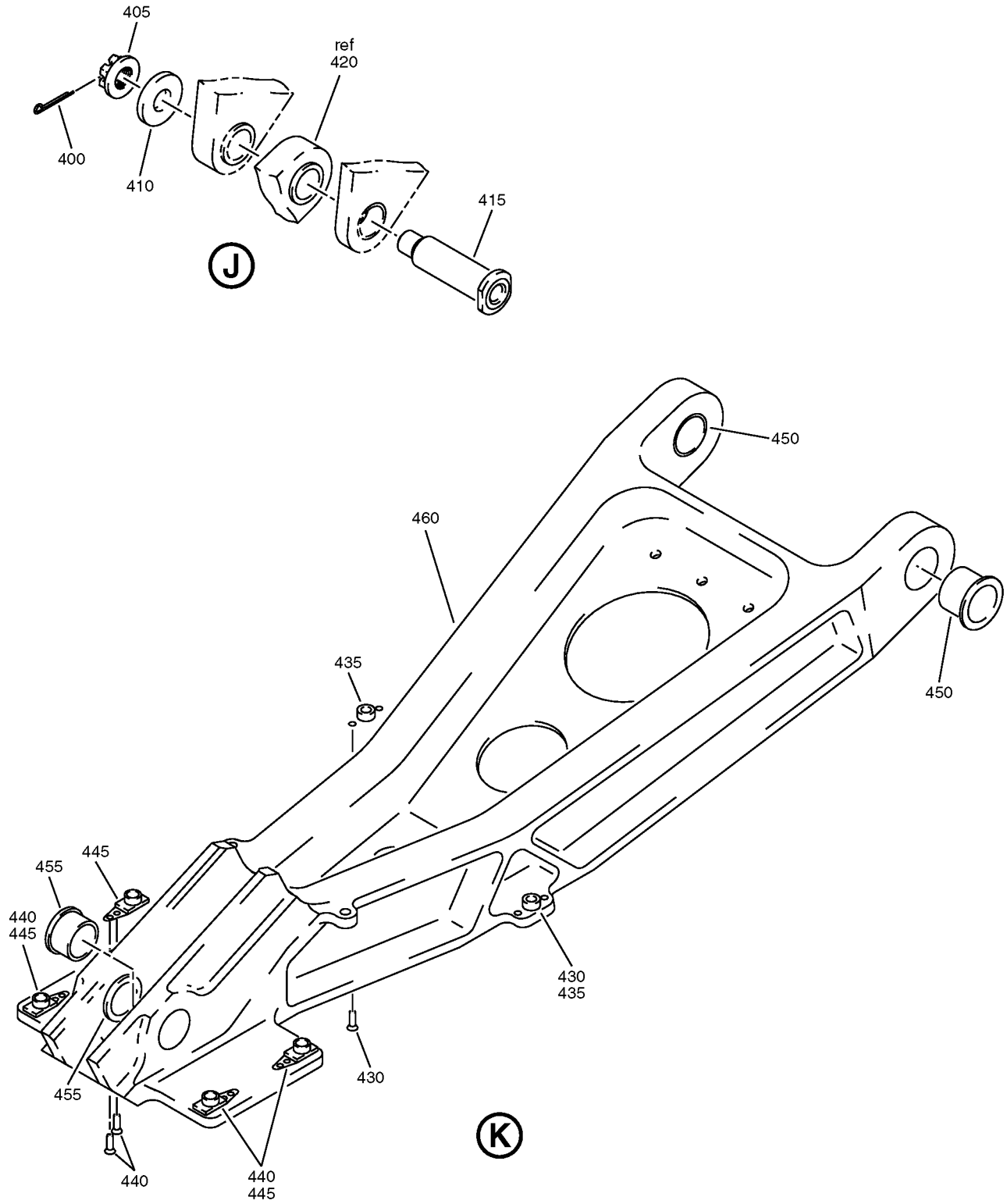
Tail Skid Installation
IPL Figure 1 (Sheet 3 of 6)



Tail Skid Installation
IPL Figure 1 (Sheet 4 of 6)



Tail Skid Installation
IPL Figure 1 (Sheet 5 of 6)



Tail Skid Installation
IPL Figure 1 (Sheet 6 of 6)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1A	M0DREF271605		SKID INSTL-TAIL (163A0001-1REVA)	A	RF
–1B	M0DREF282850		SKID INSTL-TAIL (163A0001-2REVA)	B	RF
5	BACP18BC03A10P		. PIN-COTTER		1
10	BACB30LJ6DU34		. BOLT (OPT ITEM 10A)		1
–10A	BACB30LT6DK34		. BOLT (OPT ITEM 10)		1
15	BACW10BP6APU		. WASHER		1
20	BACN11N106CS		. NUT		1
25	163A1003-1		. PIN ASSY-UPR LINK ATTACH		1
30	BACB28AW06˜ B098A		. . BUSHING		1
35	163A1003-2		. . PIN		1
40	BACP18BC02A06P		. PIN-COTTER		1
45	BACB30LJ4DU70		. BOLT		1
50	NAS1149C0432R		. WASHER		1
55	BACN11N104CS		. NUT		1
60	163A1006-1		. CAP-END, PIN RETENTION		1
65	163A1006-2		. CAP-END, PIN RETENTION		1
70	163A1002-1		. PIN-UPR CARTRIDGE ATTACH		1
75	163A2002-1		. LINK ASSY-UPR		1
80	BACB28AY18A127B		. . BUSHING		1
85	BACB28AT06B035A		. . BUSHING		2
90	BACB28AY18A102B		. . BUSHING		1
95	BACB28AY18A034B		. . BUSHING		4
100	163A2002-2		. . LINK		1
105	BACP18BC02A06P		. PIN-COTTER		1
110	BACB30LJ5DU32		. BOLT		1
115	BACW10BP5APU		. WASHER		1
120	BACN11N105CS		. NUT		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
125	163A1004-1		. PIN ASSY-FWD LOCK LINK ATTACH		1
130	BACB28AW05˜ B100A		. . BUSHING		1
135	163A1004-2		. . PIN		1
140	163A2003-1		. LINKAGE ASSY-LOCK		1
145	BACP18BC02A06P		. . PIN-COTTER		1
150	BACB30LJ5DU62		. . BOLT		1
155	NAS1149C0432R		. . WASHER		1
160	BACN11N104CS		. . NUT		1
165	163A1006-3		. . CAP-END, PIN RETENTION		2
170	163A2007-1		. . PIN-APEX		1
175	BACB30LJ6-38		. . BOLT (OPT ITEM 175A)		1
–175A	BACB30LM6-36		. . BOLT (OPT ITEM 175)		1
180	BACN11N106CS		. . NUT		1
185	163A2005-1		. . LINK ASSY-AFT		1
190	BACB30LH3-15		. . . BOLT		2
195	BACW10BP3DP		. . . WASHER		2
200	PLH53CD		. . . NUT (V62554) (SPEC BACN10YR3CD) (OPT H52732-3CD (V15653))		2
205	161W4121-1		. . . PLATE-STOP		1
210	BACB28AY18A060C		. . . BUSHING		2
215	BACB28AY15A079C		. . . BUSHING		2
220	BACB28AT07B078C		. . . BUSHING		1
225	163A2005-2		. . . LINK		1
230	163A2004-1		. . LINK ASSY-FWD		1
235	BACB30LH3U8		. . . BOLT		2
240	BACW10BP3APU		. . . WASHER		2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
245	PLH53CM		. . . NUT (V62554) (SPEC BACN10YR3CM) (OPT H52732-3CM (V15653))		2
250	161W4121-1		. . . PLATE-STOP		1
255	BACB28AY18A122B		. . . BUSHING		1
260	BACB28AT05B030A		. . . BUSHING		2
265	BACB28AY18A102B		. . . BUSHING		1
270	BACB28AT07B160A		. . . BUSHING		1
275	BACB28AY15A058B		. . . BUSHING		2
280	163A2004-2		. . . LINK		1
285	BACP18BC02A06P		. PIN-COTTER		1
290	BACB30LJ4DU42		. BOLT		1
295	NAS1149C0432R		. WASHER		1
300	BACN11N104CS		. NUT		1
305	163A1006-3		. CAP-END, PIN RETENTION		2
310	163A1001-1		. PIN-FUSE	A	1
–310A	163A1001-2		. PIN-FUSE	B	1
315	163A3001-1		. CARTRIDGE ASSY	A	1
–315A	163A3001-2		. CARTRIDGE ASSY	B	1
320	BACB30LM3-5		. . BOLT		8
325	BACW10BP3DP		. . WASHER		8
330	BRH10C3D		. . NUT (V52828) (SPEC BACN10JC3CD) (OPT T6C1032JCD (V11815)) (OPT NS202486-02 (V80539)) (OPT 102LH9075-3W (V72962)) (OPT H51650-3BAC (V15653))		8
335	163A3004-1		. . BEARING ASSY-UPR		1
340	163A3004-2		. . . BEARING-HALF		1
345	163A3004-3		. . . BEARING-HALF		1
350	163A3002-1		. . FITTING ASSY-UPR	A	1
–350A	163A3002-5		. . FITTING ASSY-UPR	B	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
355	BACB28AA12F150		. . . BUSHING	A	1
–355A	BACB28AA16F150		. . . BUSHING	B	1
360	163A3002-4		. . . FITTING (OPT ITEM 360A)	A	1
–360A	163A3002-2		. . . FITTING (OPT ITEM 360)	A	1
–360B	163A3002-6		. . . FITTING	B	1
365	163A3004-5		. . BEARING ASSY-LWR		1
370	163A3004-6		. . . BEARING-HALF		1
375	163A3004-7		. . . BEARING-HALF		1
380	163A3003-2		. . FITTING-LWR (OPT ITEM 380A)	A	1
–380A	163A3003-1		. . FITTING-LWR (OPT ITEM 380)	A	1
–380B	163A3003-3		. . FITTING-LWR	B	1
385	CP0120-1		. . CARTRIDGE-ENERGY ABSORBER (V51344) (SPEC 10-62168-1)	A	1
–385A	CU8238		. . CARTRIDGE-ENERGY ABSORBER (V51344) (SPEC 10-62168-2)	B	1
390	BACB30LH4-8		. SCREW		4
395	163A2006-1		. SHOE	A	1
–395A	163A2006-2		. SHOE	B	1
400	BACP18BC04A12P		. PIN-COTTER		2
405	BACN11N110CS		. NUT		2
410	162N3115-24		. WASHER		2
415	163A1005-1		. PIN-DRAG LEVER ATTACH		2
420	163A2001-1		. LEVER ASSY-DRAG	A	1
–425	163A2001-3		. LEVER ASSY-DRAG	B	1
430	BACR15BA3ADC		. . RIVET (SIZE DETERMINED ON INST)	A	4

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
435	BRF200C3D		. . NUTPLATE (V52828) (SPEC BACN10JR3CFD) (OPT K51602-3BAC (V15653)) (OPT NS202476-02 (V80539)) (OPT 102F9201-3 (V72962)) (OPT T8092C1032CD (V11815))	A	2
440	BACR15BA3ADC		. . RIVET (SIZE DETERMINED ON INST)		8
445	BRF100C4D		. . NUTPLATE (V52828) (SPEC BACN10KB4CFD) (OPT NS202478-048 (V80539)) (OPT 102F9207P4 (V72962)) (OPT F51604-4 (V15653))		4
450	BACB28AY14A076C		. . BUSHING		2
455	BACB28AY13A068C		. . BUSHING		2
460	163A2001-2		. . LEVER	A	1
–465	163A2001-4		. . LEVER	B	1

–Item not Illustrated