COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

CFM-56 ENGINE MOUNT COMPONENTS

PART NUMBER 310A1020–1, –19, –3

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COMPONENT MAINTENANCE MANUAL

Revision No. 49
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To: All holders of CFM-56 ENGINE MOUNT COMPONENTS 71-21-13.

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.

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Location of Change	Description of Change
71-21-13	
REPAIR 5-1	Deleted the Consumable Materials list. Changed the data in the References list. Changed the procedure per the latest data.
REPAIR 6-1	Deleted the Consumable Materials list. Changed the data in the References list. Changed the procedure per the latest data.
REPAIR 7-1	Deleted the Consumable Materials list. Changed the data in the References list. Changed the procedure per the latest data.

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

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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR 33499	MAR 5/84
737-71-1177			JUN 5/87
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	71-07		MAR 5/89
737-71-1149R1			SEP 5/89

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

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Temporary Revision		Inserted		Removed	
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INTRODUCTION

1. General

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

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

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

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

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

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

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

CFM56-3 ENGINE MOUNT COMPONENTS - DESCRIPTION AND OPERATION

1. DESCRIPTION AND OPERATION

A. The CFM56-3 engine mount consists of thrust links and both forward and aft fitting assemblies necessary to attach the engine to the strut.

(NOT APPLICABLE)

DISASSEMBLY

1. **General**

   A. This procedure has the data necessary to do a test and fault isolation.

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

2. **Procedure**

   A. Disassemble this component using standard industry practices and the following procedures

      (1) Do not remove bushings or nutplates unless they require repair or replacement.

      (2) Do not disassemble thrust fitting assembly (255) and failsafe fittiing (280) unless repair is needed.

      NOTE: Thrust fitting assembly (255) and failsafe fitting (280) were matched drilled at the factory and should only be separated to facilitate bushing replacement or local blending. Matched fittings that are separated should be kept together during overhaul and reassembled when repairs are complete.

(NOT APPLICABLE)

CHECK

1. General

A. This procedure has the data necessary to do a check.

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

C. Refer to IPL Figure 2 and IPL Figure 2, 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

NOTE: Forward and aft engine mount bearings and bushings are required to be removed in order to facilitate a dye penetrant or magnetic particle check.

NOTE: The dye penetrant and magnetic particle checks are required to be accomplished only if a visual check shows possible damage or if damage is suspected.

(1) Check all parts for obvious defects in accordance with standard industry practices.

(2) Magnetic particle check the following parts per SOPM 20-20-01:

(a) Forward Engine Mount Installation (IPL Figure 2) – Fittings (50, 55, 270, 280, 315, 320), cone bolts (76), links (185, 190), bar (240).

(3) Penetrant check the following parts per SOPM 20-20-02:

(a) Forward Engine Mount Installation (IPL Figure 2) – Retainers (80, 85, 408, 413, 421A, 423), bolts (100, 125, 150, 195, 400) , bracket (406A), washer (411)

(b) Aft Engine Mount Installation (IPL Figure 3) – Retainers (5, 65, 65A, 70A), bolts (25A, 75), washers (35, 85, 152, 152A, 152B), hanger fitting (120) and link (100)

REPAIR

1. Content

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

Table 601:

P/N	NAME	REPAIR
310A1036	THRUST FITTING	1-1
310A1021	FAN CASE FITTING	2-1, 2-2
310A1041	CONE BOLT	3-1
310A1043	SHOULDER BOLT	4-1
310A1023	THRUST LINK	5-1, 5-2
310A1033	EVENER BAR	6-1, 6-2
310A1025	THRUST FITTING	7-1, 7-2
310A1032	LINK	8-1, 8-2
310T1036	SHOULDER BOLT	9-1
–	MISC PARTS REFINISH	10-1
310A1028	HANGER FITTING	11-1, 11-2
310A1026	FAILSAFE FITTING	12-1

2. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in applicable repair procedures are shown in REPAIR-GENERAL, Figure 601.

—	STRAIGHTNESS
▱	FLATNESS
⊥	PERPENDICULARITY (OR SQUARENESS)
//	PARALLELISM
○	ROUNDNESS
⌭	CYLINDRICITY
⌒	PROFILE OF A LINE
⌓	PROFILE OF A SURFACE
◎	CONCENTRICITY
≡	SYMMETRY
∠	ANGULARITY
↗	RUNOUT
↗↗	TOTAL RUNOUT
⌴	COUNTERBORE OR SPOTFACE
∨	COUNTERSINK
⌖	THEORETICAL EXACT POSITION OF A FEATURE (TRUE POSITION)
Ø	DIAMETER
S Ø	SPHERICAL DIAMETER
R	RADIUS
SR	SPHERICAL RADIUS
()	REFERENCE
BASIC (BSC) OR [DIM]	A THEORETICALLY EXACT DIMENSION USED TO DESCRIBE SIZE, SHAPE OR LOCATION OF A FEATURE FROM WHICH PERMISSIBLE VARIATIONS ARE ESTABLISHED BY TOLERANCES ON OTHER DIMENSIONS OR NOTES.
[-A-]	DATUM
Ⓜ	MAXIMUM MATERIAL CONDITION (MMC)
Ⓛ	LEAST MATERIAL CONDITION (LMC)
Ⓢ	REGARDLESS OF FEATURE SIZE (RFS)
Ⓟ	PROJECTED TOLERANCE ZONE
FIM	FULL INDICATOR MOVEMENT

EXAMPLES

[— | 0.002]	STRAIGHT WITHIN 0.002
[⊥ | 0.002 | B]	PERPENDICULAR TO B WITHIN 0.002
[// | 0.002 | A]	PARALLEL TO A WITHIN 0.002
[○ | 0.002]	ROUND WITHIN 0.002
[⌭ | 0.010]	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER
[⌒ | 0.006 | A]	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES 0.006 INCH APART RELATIVE TO DATUM PLANE A
[⌓ | 0.020 | A]	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.02 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
[◎ | Ø 0.0005 | C]	CONCENTRIC TO C WITHIN 0.0005 DIAMETER
[≡ | 0.010 | A]	SYMMETRICAL WITH A WITHIN 0.010
[∠ | 0.005 | A]	ANGULAR TOLERANCE 0.005 WITH A
[⌖ | Ø 0.002 Ⓢ | B]	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
[⊥ | Ø 0.010 Ⓜ | A] [0.510 Ⓟ]	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010-INCH DIAMETER, PERPENDICULAR TO, AND EXTENDING 0.510-INCH ABOVE, DATUM A, MAXIMUM MATERIAL CONDITION
[2.000] OR 2.000 BSC	THEORETICALLY EXACT DIMENSION IS 2.000

NOTE: DATUM MAY APPEAR AT EITHER SIDE OF TOLERANCE FRAME [0.020 | A] / [A | 0.020]

True Position Dimensioning Symbols
Figure 601

THRUST FITTING ASSEMBLY - REPAIR 1-1

310A1036–1, –2, –5, –6

1. General

A. This procedure has the data necessary to do a test and fault isolation.

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

C. Refer to IPL Figure 2, for item numbers.

2. Procedures

A. References

Reference	Title
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT

B. Bearing Replacement (REPAIR 1-1, Figure 601)

(1) Remove bearing (325, IPL Figure 2).

(2) Install and roller or anvil swage new bearing per SOPM 20-50-03. Install bearing race with slot orientation as shown in REPAIR 1-1, Figure 601.

(3) Install ball and secure in place with aluminum wire until fitting assembly is installed.

C. Refinish

(1) Fitting, thrust (315, 320,

IPL Figure 2) – Passivate (F-17.09) all over. Material: 15-5PH CRES

D. Surface Defect Blend Repair (REPAIR 1-1, Figure 602)

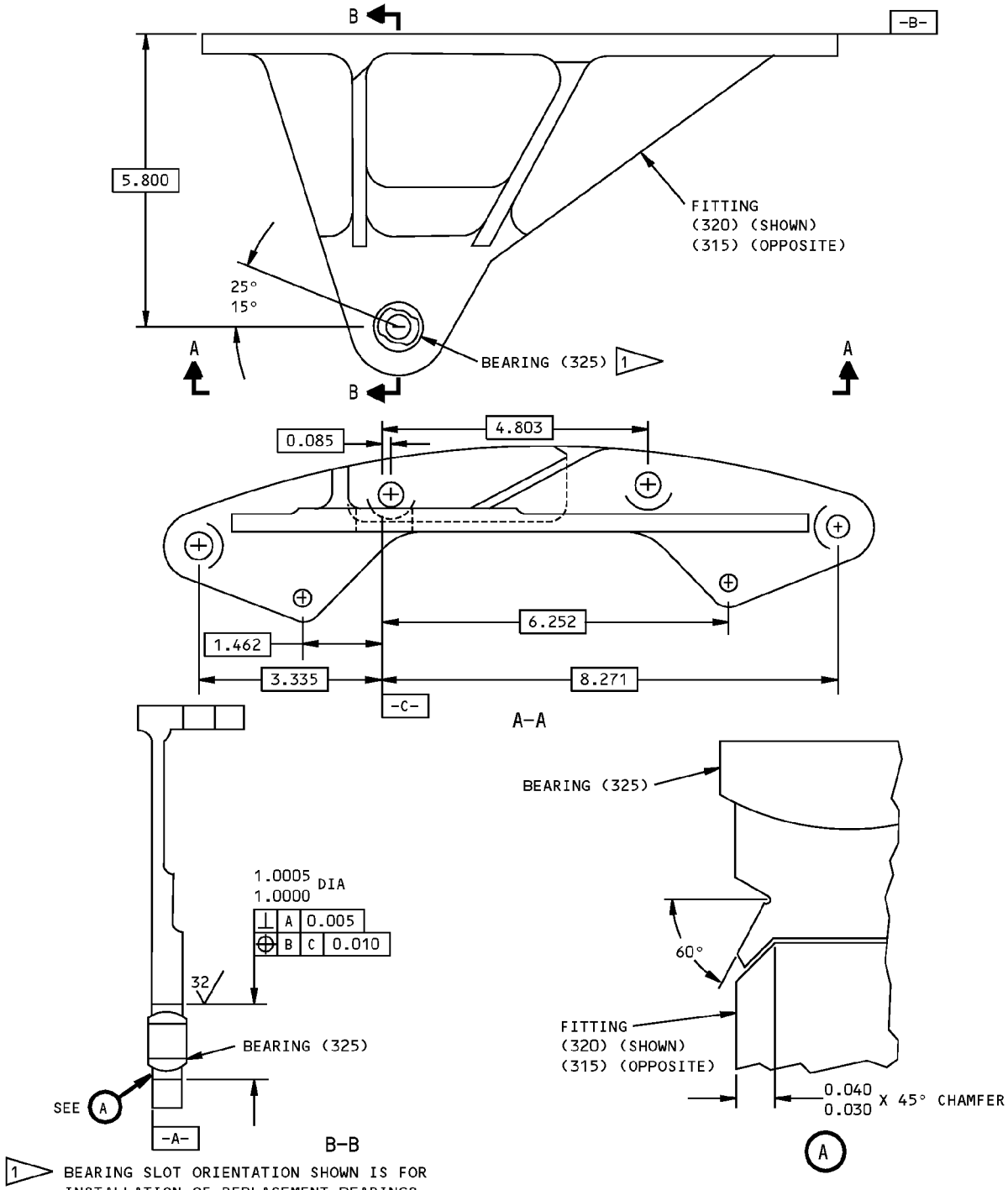
(1) Repair Limits and Locations are shown in REPAIR 1-1, Figure 602

(2) Remove defects by blending surface as shown in SOPM 20-10-01.

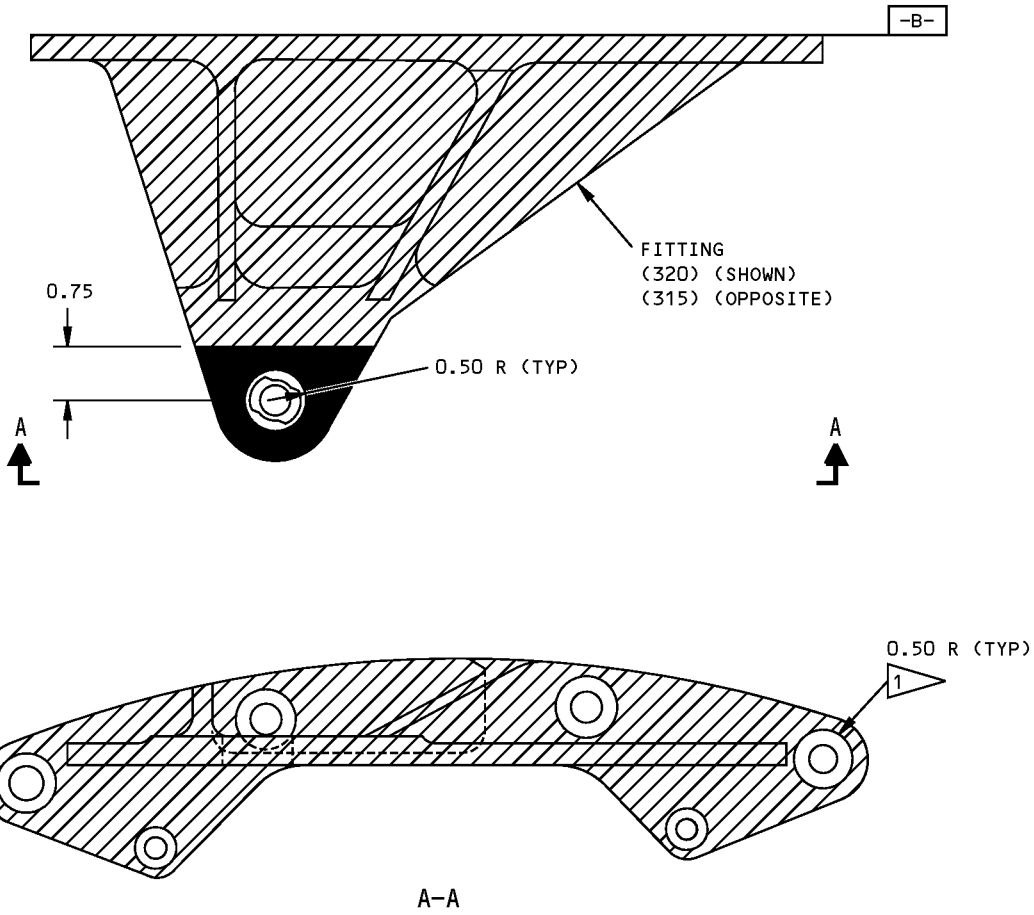
(3) Manetic particle check as shown in SOPM 20-10-01.

(4) Shot peen the repair areas. Shot size 0.0170-0.0330; Intensity 0.012A-0.023A; Coverage 2.0

(5) Passivate (F-17.25) the reworked areas.



310A1036-1,-2,-5,-6 Bearing Replacement
Figure 601



SURFACE DEFECT REMOVAL ALLOWED. MINIMUM LUG FACE THICKNESS IS 0.370 INCHES

SURFACE DEFECT REMOVAL ALLOWED FOR ALL OTHER PART SURFACES FURTHER THAN 0.50 INCHES FROM BOLT HOLE AXES. MAXIMUM BLEND DEPTH IS 0.010 INCHES

1 SURFACE DEFECT REMOVAL NOT ALLOWED IN AREA WITHIN RADIUS OF 0.50 INCH OF ALL BOLT HOLE CENTERS

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

310A1036-1,-2,-5,-6 Surface Defect Repairs
Figure 602

FAN CASE FITTING ASSEMBLY - REPAIR 2-1

310A1021–1, –2

1. General

A. This procedure has the data necessary to do a test and fault isolation.

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

C. Refer to IPL Figure 2, for item numbers.

2. Procedures

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00160	Sealant - Firewall - Hydraulic Fluid Resistant	BMS5-63

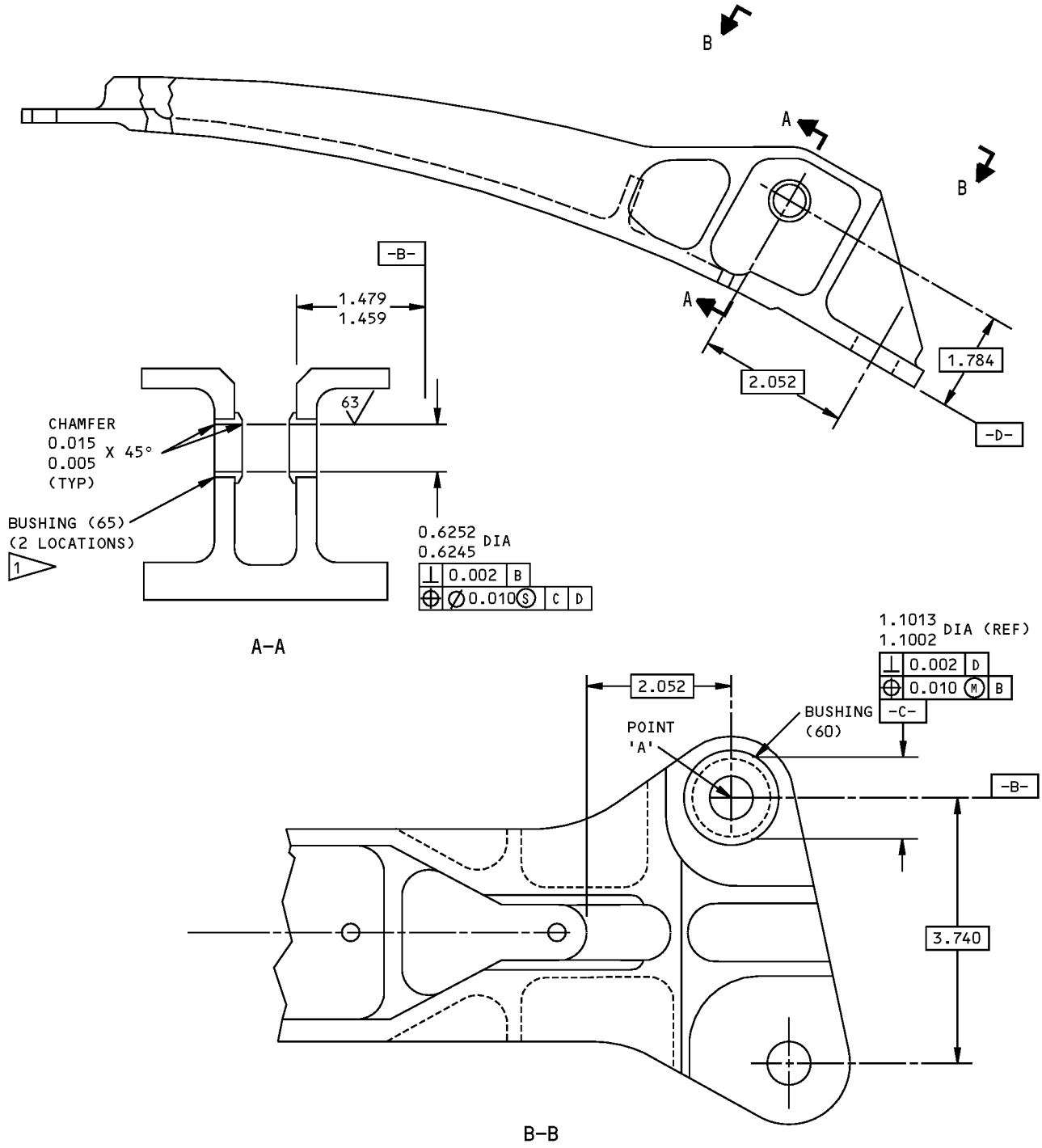
B. Bushing Replacement (REPAIR 2-1, Figure 601)

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

(1) Remove bushings (60, 65, IPL Figure 2).

(2) Install bushings using wet sealant, DC93-006 or wet sealant, A00160.

(3) Machine bushings (65) to dimensions shown and concentric to a common axis within 0.001 inch full indicator movement.



1 DO NOT APPLY FILLET SEAL ON BOTH ENDS OF THE BUSHING

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

310A1021-1,-2 Bushing Replacement
Figure 601

FAN CASE FITTING - REPAIR 2-2

310A1021–3, –4

1. General

A. This procedure has the data necessary to do a test and fault isolation.

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

2. Procedures

A. Bushed Hole Repair (REPAIR 2-2, Figure 601)

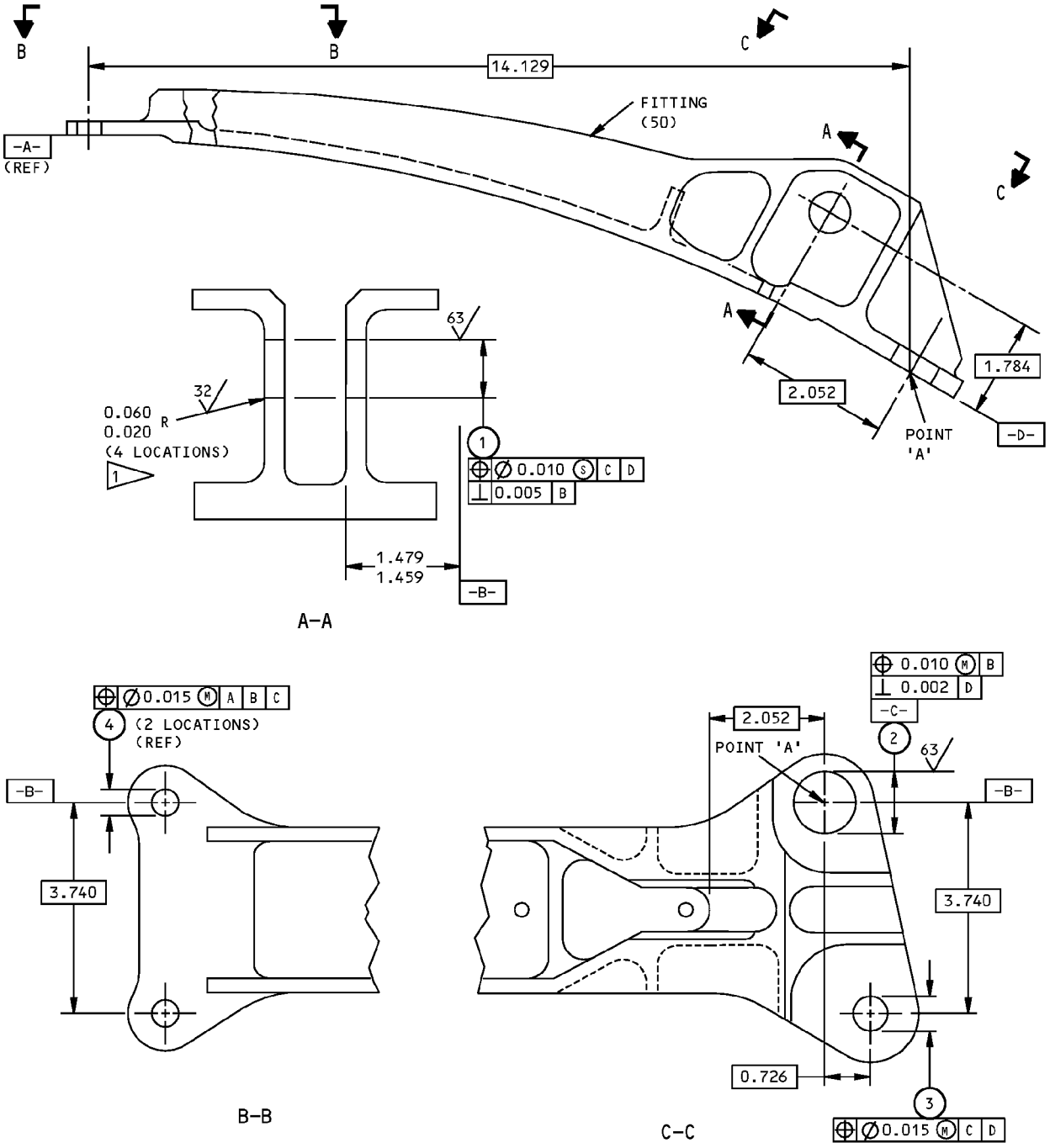
NOTE: Refer to REPAIR-GENERAL for list of applicable standard practices. For repair of surfaces which may require only restoration of original finish, refer to Refinish instructions, REPAIR 2-2, Figure 601.

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

(2) Shot peen.

(3) Manufacture oversized bushings (REPAIR 2-2, Figure 602, 603).

(4) Install bushings per REPAIR 2-1.



310A1021-3,-4 Fitting Repair
Figure 601 (Sheet 1 of 2)

	(1)	(2)	(3)	(4)
DESIGN DIM	0.7507 0.7500	1.1013 1.1002	0.610 0.591	0.541 0.529
REPAIR LIMIT	0.8107 	1.1613 		

REFINISH

PASSIVATE (F-17.09)

 LIMIT FOR INSTALLATION OF OVERSIZED BUSHINGS

REPAIR

MATERIAL: 15-5PH CRES PER AMS 5659

SHOT PEEN: 0.0170-0.0330 SHOT SIZE
0.016 A INTENSITY
2.0 COVERAGE

125 ALL MACHINED SURFACES EXCEPT AS NOTED

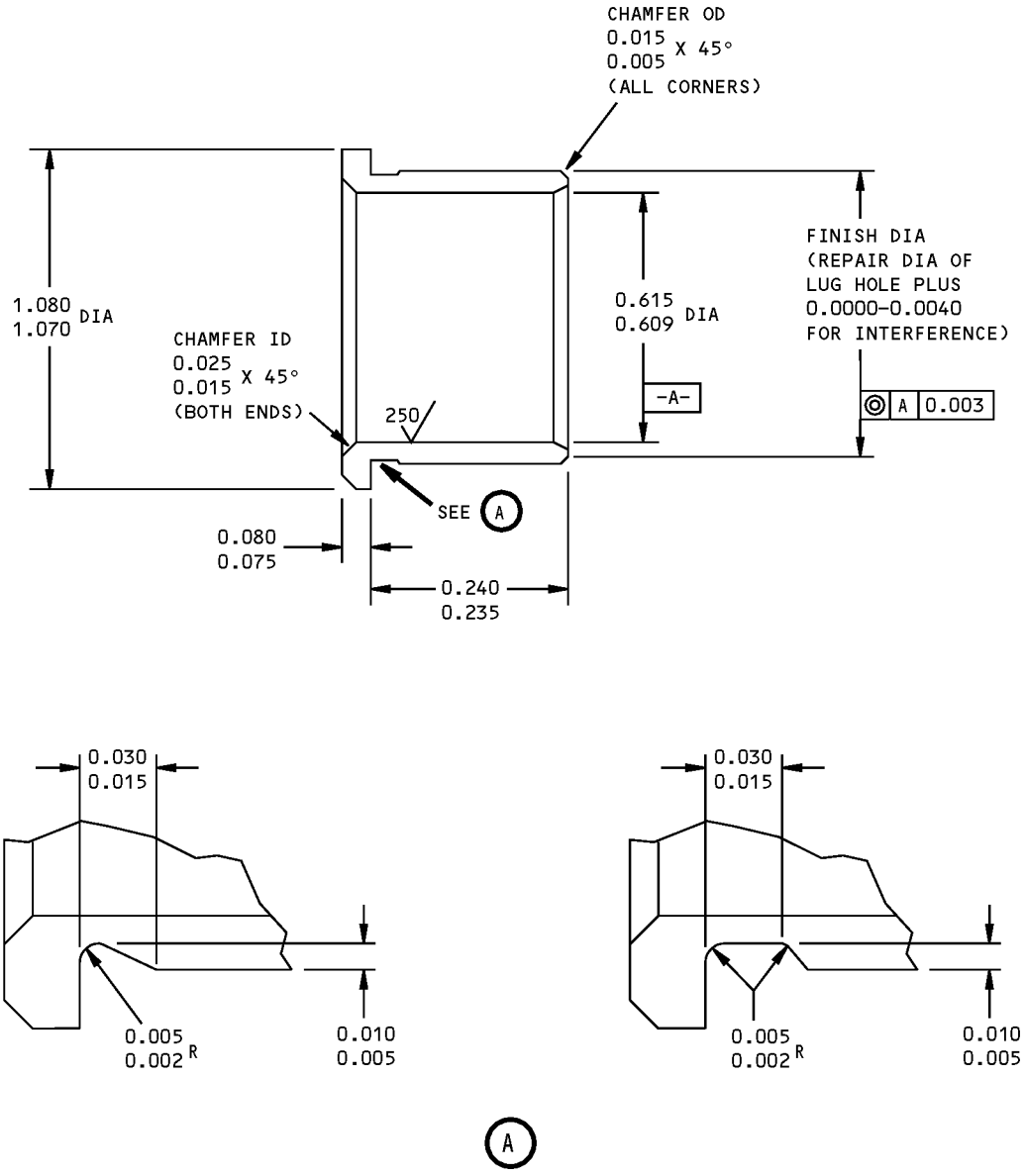
BREAK SHARP EDGES 0.030-0.040 R

BREAK HOLE EDGES 0.020-0.060 R 63 FINISH PRIOR TO SHOT PEEN

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

310A1021-3,-4 Fitting Repair
Figure 601 (Sheet 2 of 2)



63 MACHINED SURFACES EXCEPT AS NOTED

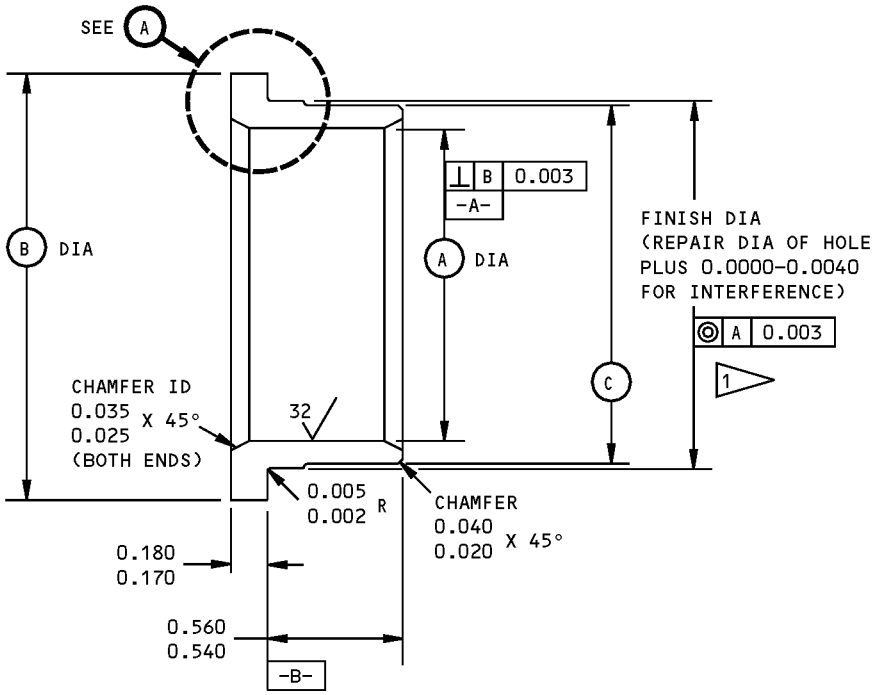
BREAK SHARP EDGES

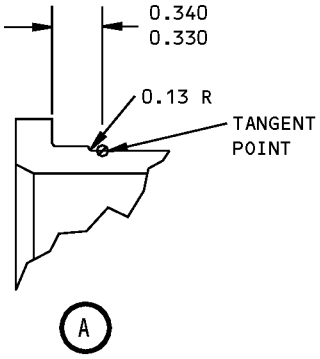
NO FINISH: OPTIONAL PASSIVATE (F-17.13)
CADMIUM PLATE (F-15.06)
PLATING IN BORE OPTIONAL

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

HOLE LOCATION (1) FIG. 601 - REPLACES BUSHING (65) BACB28AP10-024

Oversize Bushing Details
Figure 602





HOLE LOCATION (FIG. 601)	A	B	C
2	0.610 0.591	1.410 1.390	1.1024 1.1021

63 MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES

PASSIVATE (F-17.09) ALL OVER EXCEPT IN BORE

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

MAGNETIC PARTICLE CHECK

ALL DIMENSIONS ARE IN INCHES

1 NO PLATING ON OUTSIDE DIAMETER

HOLE LOCATION 2 FIG. 601 - REPLACES BUSHING (60) 302T0200-59

310A1021-3,-4 Oversize Bushing Detail
Figure 603

CONE BOLT ASSEMBLY - REPAIR 3-1

310A1041–1, –2, –5, –7

1. General

A. This procedure has the data necessary to do a repair.

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

C. Refer to IPL Figure 2, for item numbers.

2. Procedures

NOTE: For shot peening, refer to SOPM 20-10-03. For grinding of chrome plated parts, refer to SOPM 20-10-04.

A. References

Reference	Title
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT

B. Bearing Replacement (REPAIR 3-1, Figure 601)

(1) Remove bearing (78A, IPL Figure 2).

(2) Install new bearing and align within ±10 degrees as shown. Roller swage new bearing per SOPM 20-50-03.

(3) Install ball and secure in place with aluminum wire until cone bolt is installed.

C. Conical Surface Repair ( )

(1) If conical surface is pitted or galled over 20% of surface or a single defect extending 0.30 in any direction repair as follows:

(a) If conical surface is pitted or galled over 20% of surface or a single defect extending 0.30 in any direction repair as follows:

1) Grind surface to remove defects, 0.008 inch max.

2) Shot peen.

3) Chrome plate. Do not exceed 0.010 plate thickness.

4) Post plate grind to design dimensions.

D. Rolled Thread Repair

CAUTION: DO NOT REPAIR BELOW MINIMUM PITCH DIAMETER OF THREADS. DO NOT REPAIR IN THREAD RELIEF OR RUNOUT AREA.

(CAUTION PRECEDES)

(1) Wear and damage limits for the forward cone bolt threads must comply with the limits specified in MIL-S-8879 for a class 3 fit. The cone bolt threads should be checked with an applicable thread gauge to determine if the threads meet the MIL-SPEC class 3 fit. Cone bolts not meeting these requirements should be replaced. Nicks and gouges in the excess of 0.008 inch (0.2mm) in the thread area require bolt replacement. Lap and surface irregularities to a maximum depth of 0.007 inch (0.018mm) normal to the surface at the thread crest and on the thread crest and on the nonpressure flank of the thread are permissible.

(a) Repair damage in the region between minimum pitch diameter and major diameter by using a thread chaser that is:

1) Capable of cutting UNJF-3A threads.

2) Modified to prevent cutting threads below the minimum pitch diameter of 0.5854 inch for the 0.625-18 UNJF-3A thread.

(b) Rework of thread shall be uniform along entire thread length except for runout. After rework, the major diameter shall not be less than 0.6163 inch for the 0.625-18 UNJF-3A thread.

(c) Maintain a surface finish of 32 microinches on the flats of the major diameter and on the thread flanks.

E. Surface Defects Repair (REPAIR 3-1, Figure 601)

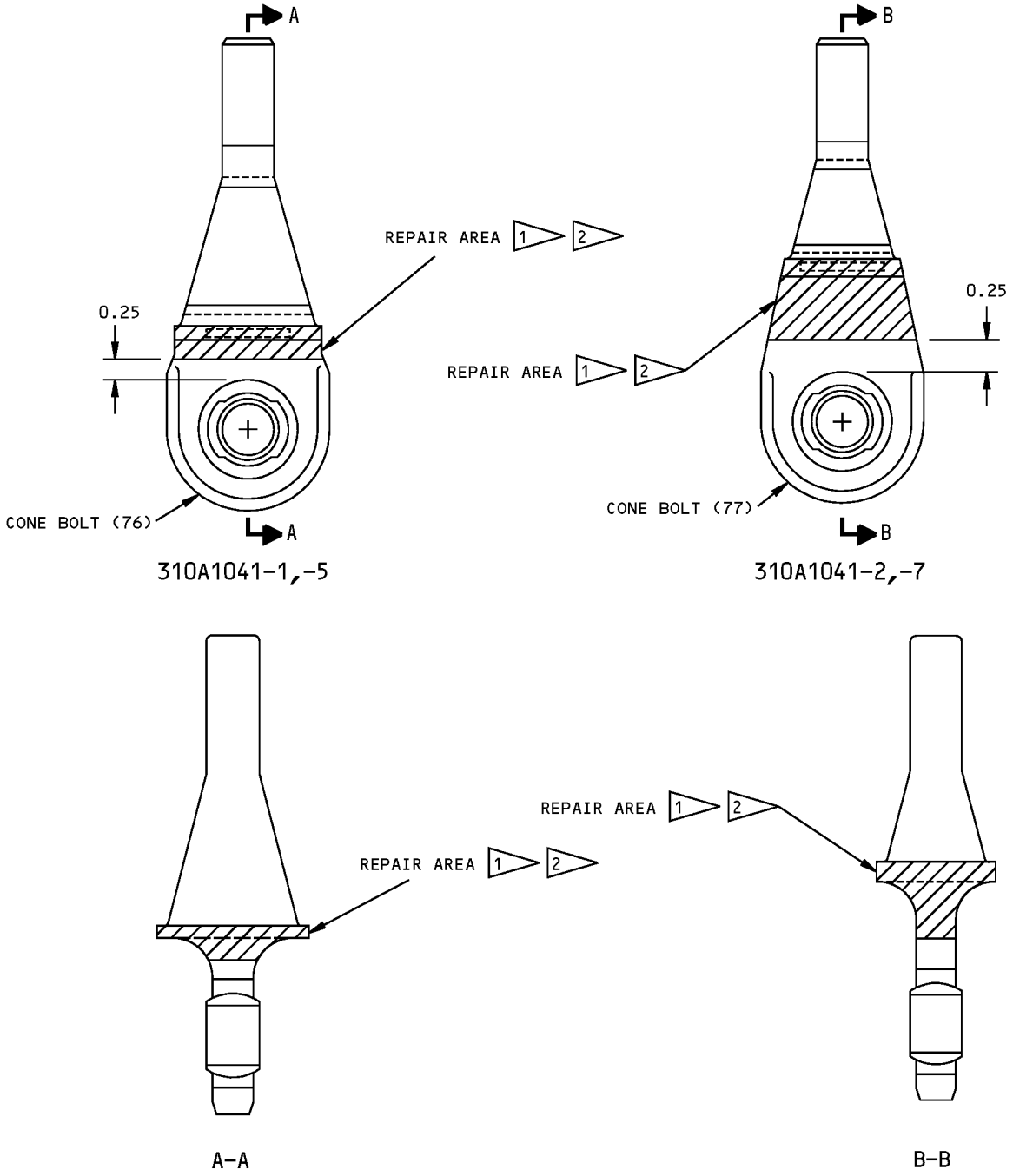
(1) Repair limits and locations are shown in REPAIR 3-1, Figure 601.

(2) Remove defects by blending surface at 10.1 ratio as shown in REPAIR 3-1, Figure 601 and SOPM 20-10-01.

(3) Magnetic particle check as shown in SOPM 20-20-01.

(4) Shot peen the repaired areas. Shot size 0.0170-0.0330; Intensity 0.016A; Coverage 2.0

(5) Passivate (F-17.25) the reworked areas.



1 SURFACE DEFECT REMOVAL IS ALLOWED. MAXIMUM BLEND DEPTH IN REPAIR AREA IS 0.025 INCHES

2 NO BLEND MAY EXTEND INTO RADIUS COMMON TO THE CONICAL SURFACE

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

310A1041-1,-2,-5,-7 Cone Bolt Repair
Figure 601

SHOULDER BOLT - REPAIR 4-1

310A1043 -1T–1, –2, –3

1. General

A. This procedure has the data necessary to do a repair.

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

2. Procedures

A. References

Reference	Title
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS

B. Shank Repair (REPAIR 4-1, Figure 601)

NOTE: For Grinding of chrome plated parts, refer to SOPM 20-10-04.

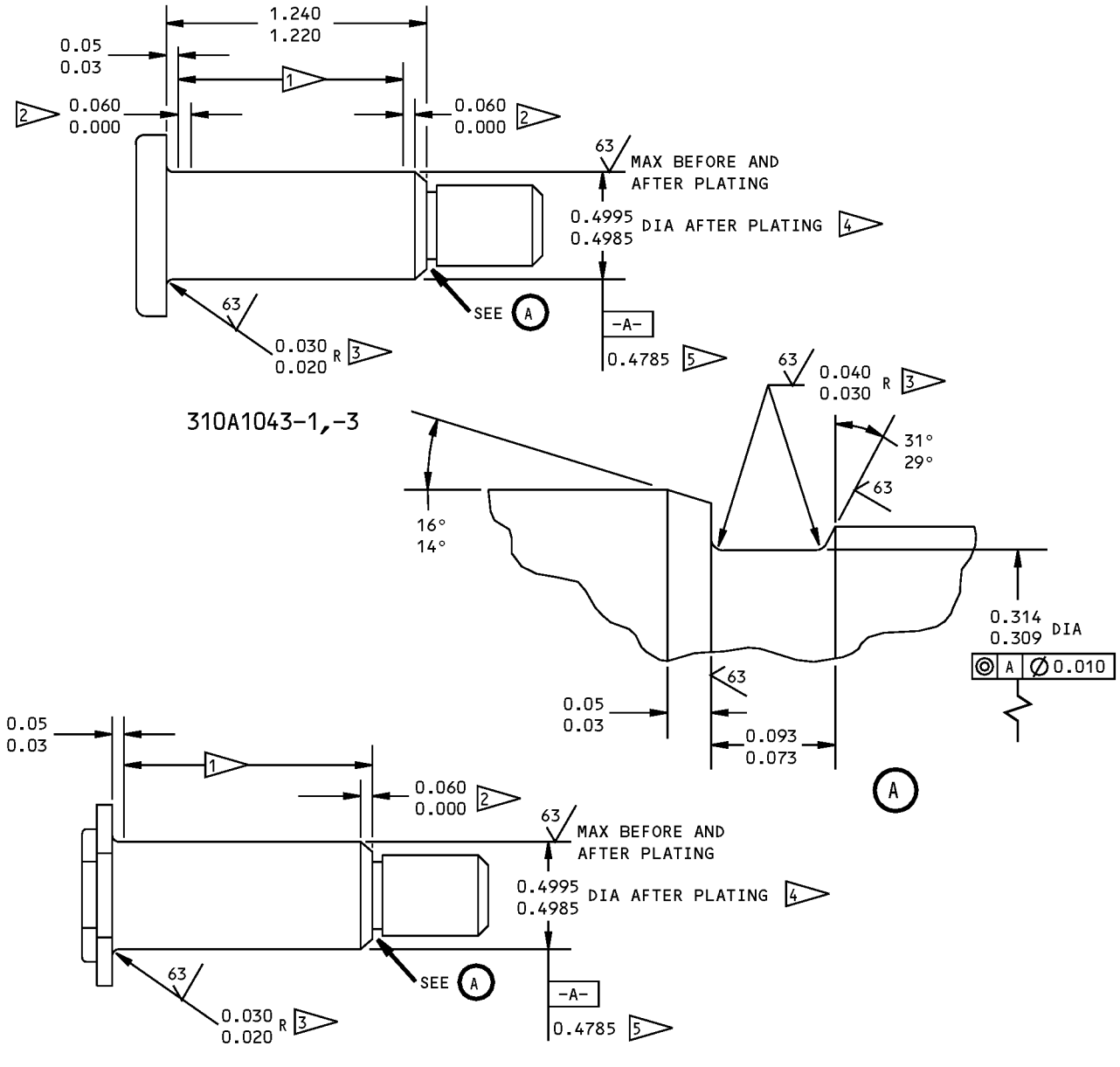
NOTE: Refer to REPAIR-GENERAL for list of applicable standard practices and to Refinish instructions, REPAIR 4-1, Figure 601.

NOTE: A 310A1043-1 bolt that was been inspected for a minimum Rockwell hardness of 39 can be repart marked to a 310A1043-1T or 310A1043-3. 310A1043-1T bolt is identical to 310A1043-3 bolt.

(1) Machine tool centers in bolts as required to facilitate repairs, 0.250 inch deep using a #2 center drill.

(2) Machine as required, within repair limits, to remove defects. Do not exceed repair dimension.

(3) Chrome plate and grind to design dimensions. Chrome plate thickness minimum 0.003 and maximum 0.010 inches.



REFINISH

CHROME PLATE IN AREA NOTED BY 1

1. CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS 0.010 MAX PLATE THICKNESS. NO CHROME PLATE PERMITTED IN FILLET AREA.
2. CHROME PLATE RUNOUT
3. PROTECT FILLET RADIUS FROM CHROME DEPOSIT
4. DESIGN DIMENSION
5. REPAIR LIMIT FOR REMOVING DEFECTS

REPAIR

2 3 4 5

MATERIAL: INCONEL 718 PER AMS 5662

ALL DIMENSIONS ARE IN INCHES

310A1043-1,-2,-3 Bolt Refinish
Figure 601

THRUST LINK ASSEMBLY - REPAIR 5-1

310A1023–1, –2

1. General

A. This procedure has the data necessary to do a test and fault isolation.

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

C. Refer to IPL Figure 2, for item numbers.

2. Procedures

NOTE: For machining of alloy steel, refer to SOPM 20-10-02. For bearing and bushing replacement, refer to SOPM 20-50-03.

A. References

Reference	Title
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT

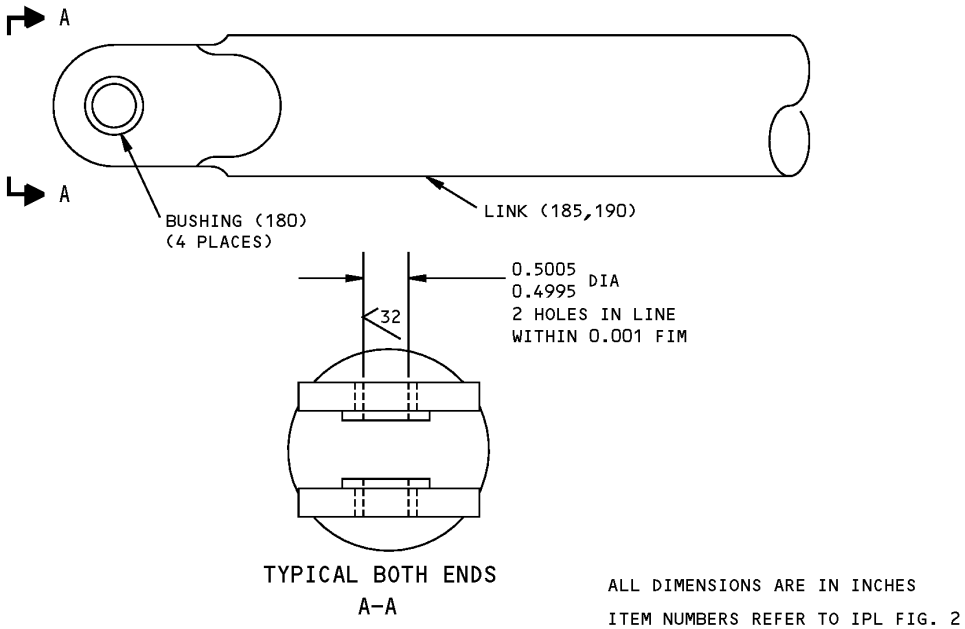
B. Bushing Replacement (REPAIR 5-1, Figure 601)

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

(1) Remove bushings (180, IPL Figure 2).

(2) Install bushings per SOPM 20-50-03. No installation finish is required.

(3) Machine bushings to dimensions shown and concentric to a common axis within 0.001 inch full indicator movement. Radius hole edges 0.010-0.020 inch at 32 microinch finish.



310A1023-1,-2 Bushing Replacement
Figure 601

THRUST LINK - REPAIR 5-2

310A1023–3, –4

1. General

A. This procedure has the data necessary to do a repair

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

C. Refer to IPL Figure 2, for item numbers.

2. Procedures

NOTE: For shot peen, refer to SOPM 20-10-03. For general cleaning procedures, refer to SOPM 20-30-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For bearing installation and retention, refer to SOPM 20-50-03.

A. References

Reference	Title
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-03	SHOT PEENING
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT

B. Lug Hole Repair (REPAIR 5-2, Figure 601)

(1) Remove material, as required, within repair limit to remove defects. Maintain concentricity shown.

(2) Shot peen.

(3) Manufacture bushings (REPAIR 5-2, Figure 602) as required to compensate for amount of material removed in step A.

(4) Install bushings per REPAIR 5-1.

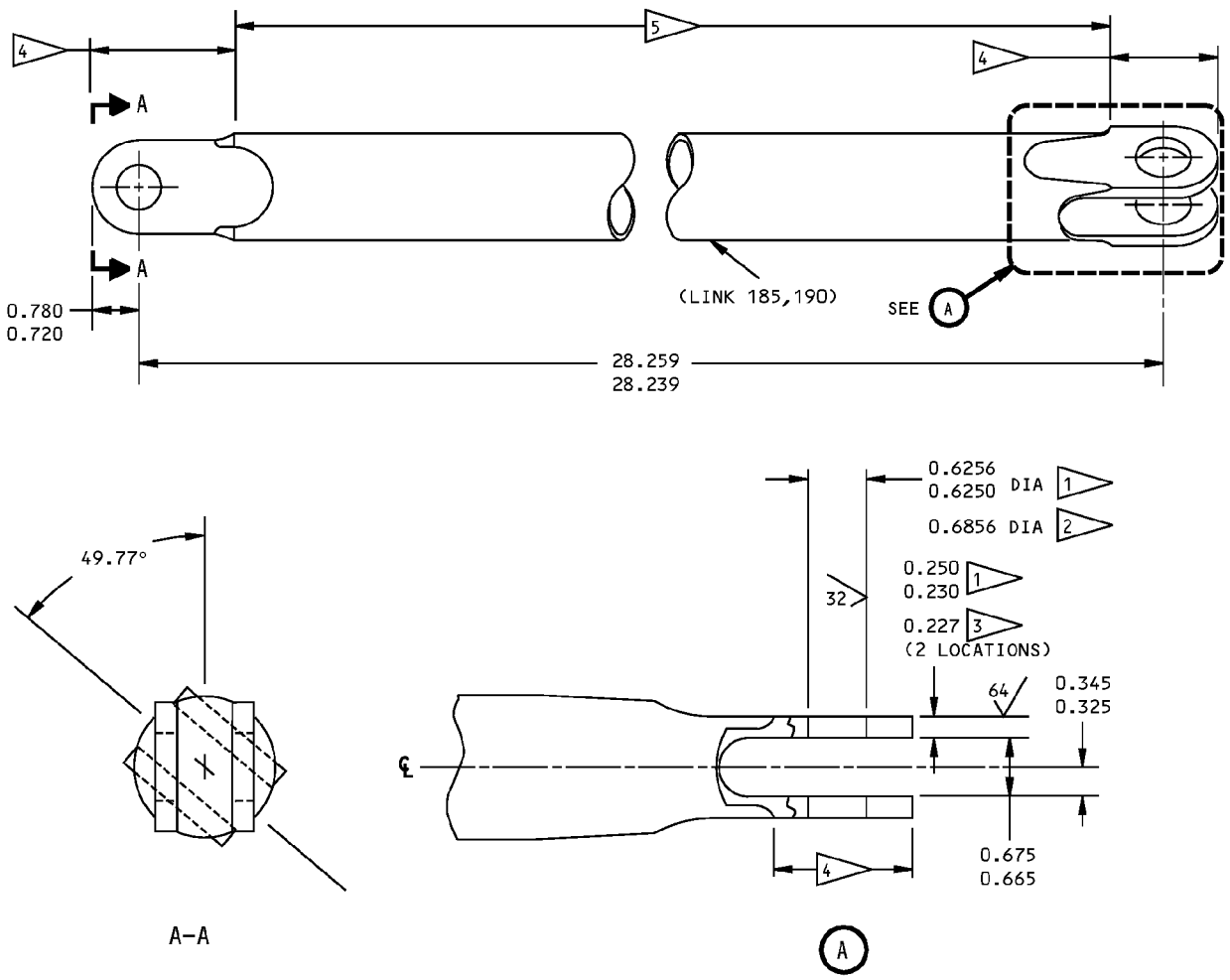
C. Lug Face/Link Repair (REPAIR 5-2, Figure 601)

(1) Remove discrepancies on lug face and link areas by blending as shown in REPAIR 5-2, Figure 601 and SOPM 20-10-01.

(2) Do a magnetic particle check as shown in SOPM 20-20-01.

(3) Shot peen reworked areas as shown in REPAIR 5-2, Figure 601.

(4) Passivate (F-17.09) reworked areas.



REFINISH

PASSIVATE (F-17.09)

1 DESIGN DIMENSION

2 REPAIR LIMIT FOR INSTALLATION OF OVERSIZED BUSHING

3 REPAIR LIMIT FOR REMOVAL OF DESCREPENCIES FROM LUG FACE WITHIN AREA 4 ONLY

4 DESCREPENCY REMOVAL BLENDING ALLOWED ON EACH SIDE OF THE LUG FACE BUT NOT TO EXCEED 0.012 INCHES IN DEPTH OR REPAIR LIMIT IN 3

5 DESCREPENCY REMOVAL BLENDING DEPTH NOT TO EXCEED 0.012 INCH IN THIS AREA.

REPAIR

REF 2 3

RADIUS ALL SHARP EDGES 0.02-0.03 UNLESS SHOWN DIFFERENTLY

RADIUS ALL HOLE EDGES 0.010-0.020 AT 32

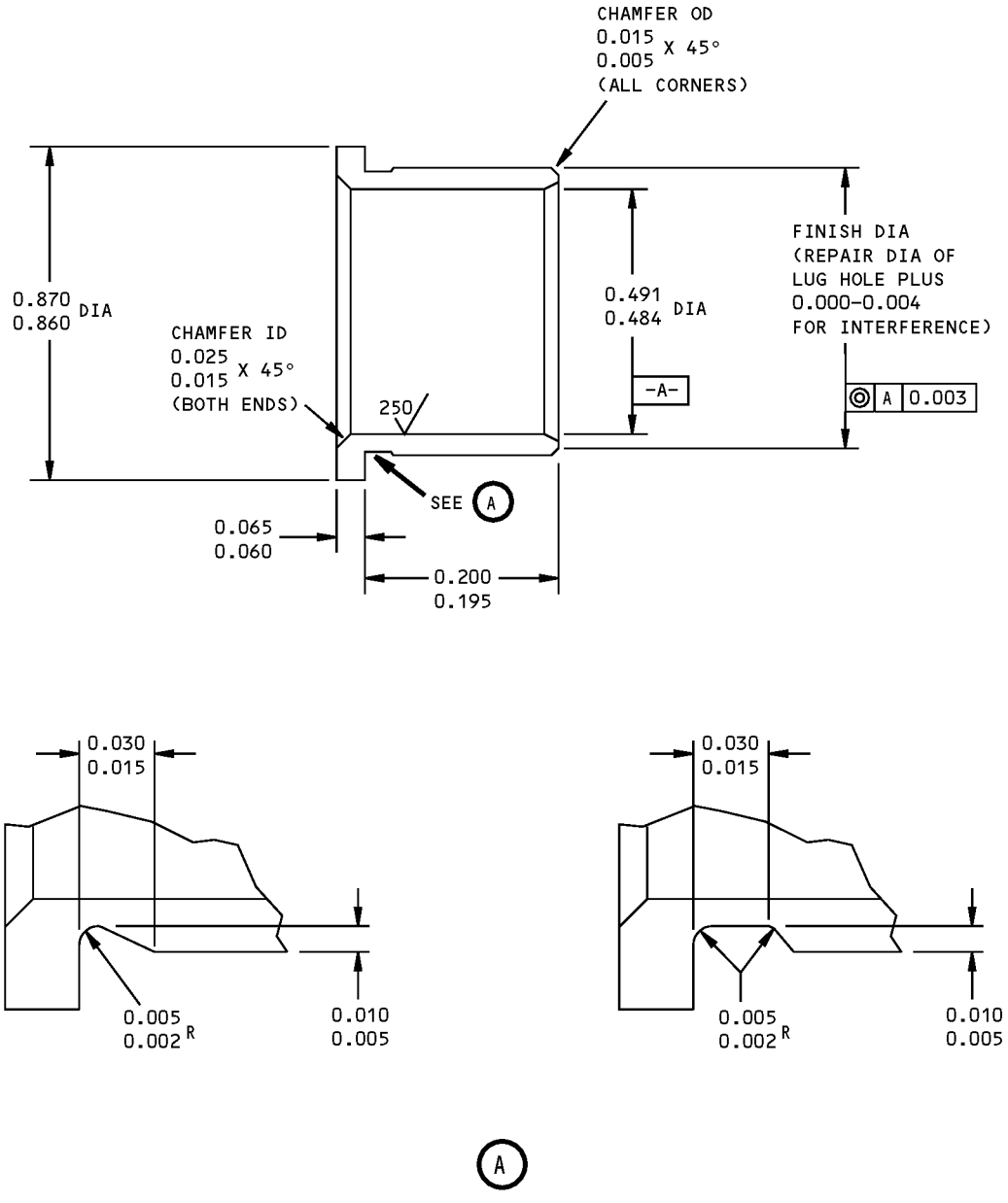
SHOT PEEN: 0.0170-0.0330 SHOT SIZE
0.016A INTENSITY
2.0 COVERAGE

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

ALL ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

310A1023-3,-4 Thrust Link Repair
Figure 601



NO FINISH: OPTIONAL PASSIVATE (F-17.03)
CADMIUM PLATE (F-15.06) IN
PLATING IN BORE OPTIONAL

63 MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES

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

REPLACES BUSHING (180) BACB28AP8-020 Oversize Bushing Details
Figure 602

EVENER BAR ASSEMBLY - REPAIR 6-1

310A1033–1, –3, –5

1. General

A. This procedure has the data necessary to do a repair.

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

C. Refer to IPL Figure 2, for item numbers.

2. Procedures

NOTE: For bearing and bushing installation, refer to SOPM 20-50-03. For machining of alloy steel, refer to SOPM 20-10-02

A. References

Reference	Title
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT

B. Bushing Replacement (REPAIR 6-1, Figure 601)

(1) Remove bushings (250, IPL Figure 2).

(2) Install bushings per SOPM 20-50-03. No installation finish is required.

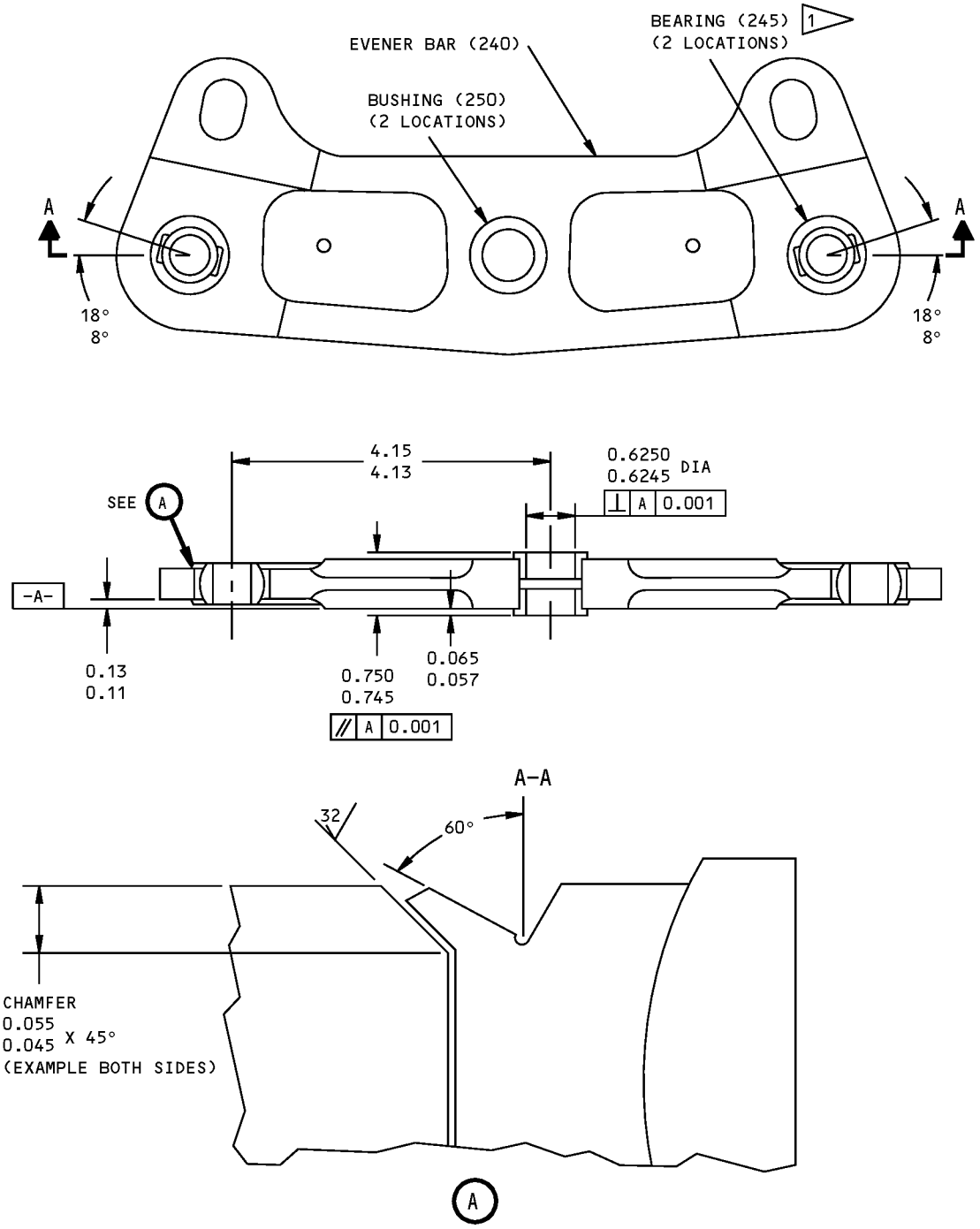
(3) Machine bushings to dimension shown.

C. Bearing Replacement (REPAIR 6-1, Figure 601)

(1) Remove bearings (245, IPL Figure 2).

(2) Orient bearing race as shown and roller swage per SOPM 20-50-03 using ST926A tool, or equivalent, with anvil.

(3) Install ball and secure in place with aluminum wire until bar is installed.



1 BEARING SLOT ORIENTATION SHOWN IS FOR INSTALLATION OF REPLACEMENT BEARINGS. IF THE BEARING IS OTHERWISE SERVICEABLE, DO NOT REPLACE SOLELY BECAUSE THE SLOT IS MISORIENTED

ITEM NUMBERS REFER TO IPL FIG. 2

ALL DIMENSIONS ARE IN INCHES

310A1033-1,-3 Bushing and Bearing Replacement
Figure 601

EVENER BAR - REPAIR 6-2

310A1033–2, –4

1. General

A. This procedure has the data necessary to do the evener bar repair.

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

2. Procedures

NOTE: For shot peening, refer to SOPM 20-10-03. For bearing and bushing installation, refer to SOPM 20-50-03. For machining of alloy steel, refer to SOPM 20-10-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

A. References

Reference	Title
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 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT

B. Bushed Hole Repair (REPAIR 6-2, Figure 601)

(1) Machine hole as required to remove discrepancies within repair limits.

(2) Shot peen.

(3) Manufacture oversized bushings (REPAIR 6-2, Figure 602).

(4) Install bushings per REPAIR 6-1.

C. Bearing Hole Repair (REPAIR 6-2, Figure 601)

(1) Remove discrepancies by machining to repair limits as shown in REPAIR 6-2, Figure 603.

(2) Shot peen bearing hole before installation of oversize bearing.

(3) Select appropriate oversize bearing from REPAIR 6-2, Figure 603.

(4) Install bearing per REPAIR 6-1.

D. Lug Face Repair (REPAIR 6-2, Figure 601)

(1) Remove bearing from area to be reworked.

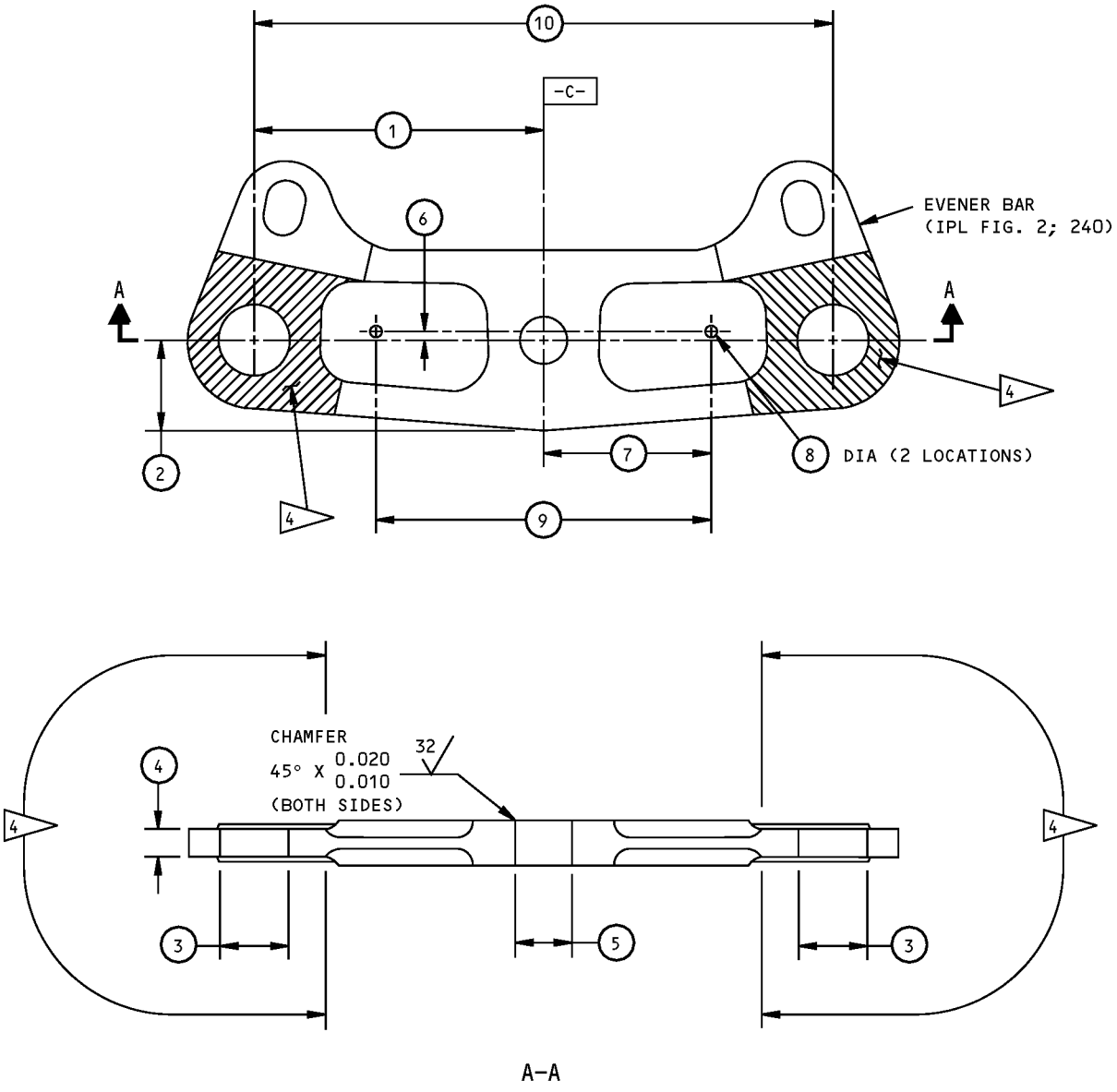
(2) Remove discrepancies on lug face area as shown in REPAIR 6-2, Figure 601 and SOPM 20-10-01.

(3) Do a magnetic particle check as shown in SOPM 20-20-01.

(4) Shot peen reworked areas as shown in REPAIR 6-2, Figure 601.

(5) Passivate (F-17.09) reworked areas.

(6) Install bearing per REPAIR 6-1.



ALL DIMENSIONS ARE IN INCHES

310A1033-2

Evener Bar Repair
Figure 601 (Sheet 1 of 2)

	1	2	3	4	5	6	7	8	9	10
DESIGN DIM.	4.150 4.130	1.290 1.270	1.0010 1.0005	3	0.7507 0.7500	0.080 0.060	2.310 2.290	0.229 0.218	4.61 4.59	8.29 8.27
REPAIR LIMIT			2	0.375 4	0.8107 1					

REFINISH

PASSIVATE (F-17.09)

1 REPAIR LIMIT FOR INSTALLATION OF OVERSIZED BUSHING

2 SEE FIG. 603 FOR OVERSIZE BEARING HOLE REPAIR LIMITS.

3 FOR EVENER BAR 310A1033-2 THE DESIGN DIMENSIONS ARE 0.385-0.395. FOR EVENER BAR 310A1033-4 THE DESIGN DIMENSIONS ARE 0.375-0.385.

4 DISCREPANCY REMOVAL BLENDING ON LUG FACES MUST BE COMPLETELY WITHIN THE AREA SHOWN.

REPAIR

REF 1 4

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

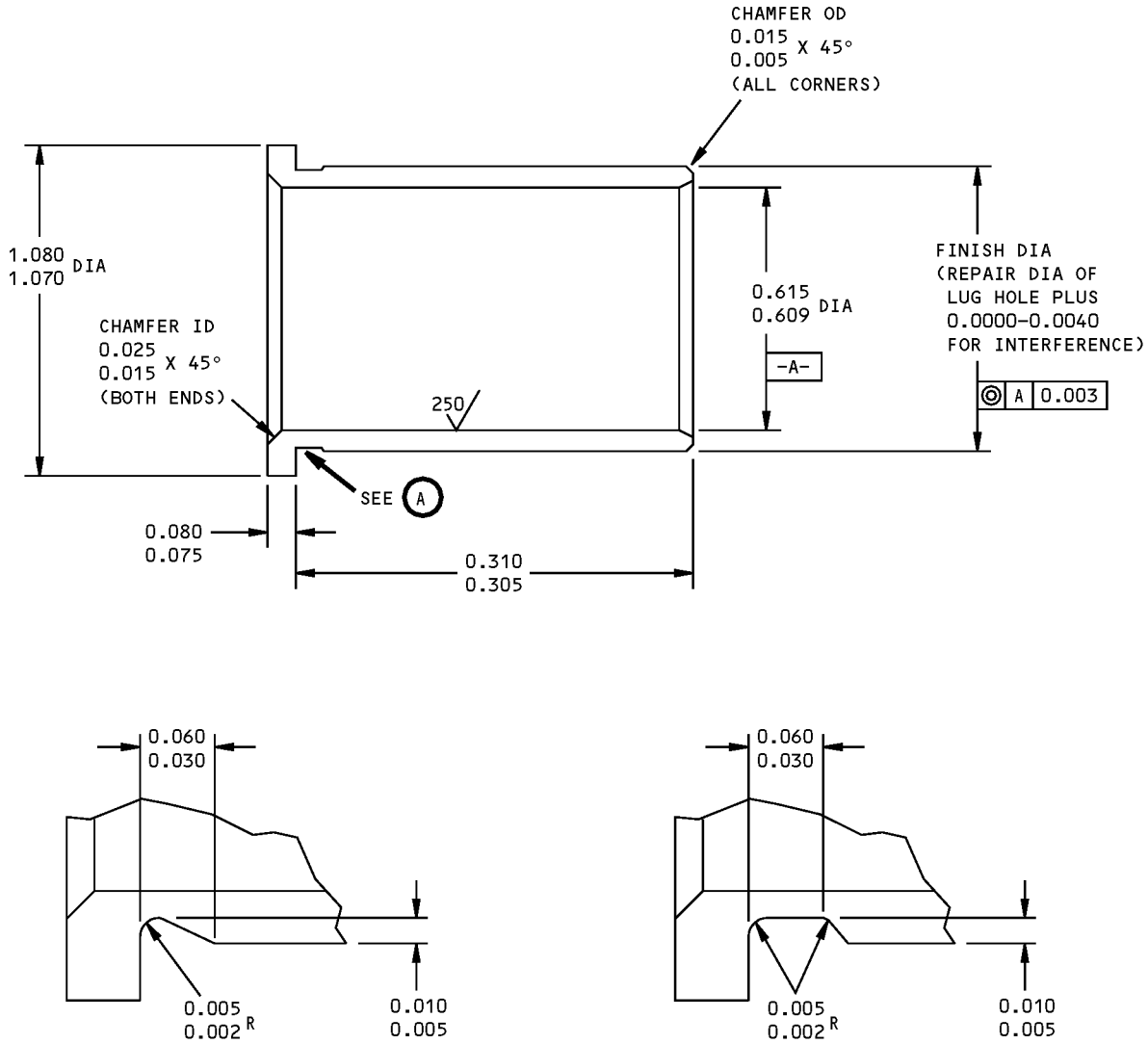
RADIUS SHARP EDGES 0.02-0.04 UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 170-330 SHOT SIZE
0.016A INTENSITY
2.0 COVERAGE

MATERIAL: 15-5PH CRES, AMS 5659; 180-200 KSI

806693 S00041008412_V3

Evener Bar Repair
Figure 601 (Sheet 2 of 2)



A

NO FINISH: OPTIONAL PASSIVATE (F-17.13),
CADMIUM PLATE (F-15.06) PLATING
IN BORE OPTIONAL

63 MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES

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

REPLACES BUSHING (250) BACB28AP10-31

Oversize Bushing Details
Figure 602

BEARING PART NUMBERS			BEARING RACE OD		BEARING HOLE ID 1 (AFTER SHOT PEEN)	
BOEING SPEC	VALLEY-TODECO CAGE CODE 06710	PSI CAGE CODE 06710	MIN	MAX	MIN	MAX
S302T001-303	VTB04510	P20680	0.9995	1.0000	1.0005	1.0010
S302T001-303P05	VTB04510P05	P20680P05	1.0045	1.0050	1.0055	1.0060
S302T001-303P10	VTB04510P10	P20680P10	1.0095	1.0100	1.0105	1.0110
S302T001-303P20	VTB04510P20	P20680P20	1.0195	1.0200	1.0205	1.0210
S302T001-303P30	VTB04510P30	P20680P30	1.0295	1.0300	1.0305	1.0310
S302T001-303P60	VTB04510P60	P20680P60	1.0595	1.0600	1.0605	1.0610
S302T001-309	VTB10660	P29240	0.9995	1.0000	1.0005	1.0010
S302T001-309	AMB8V4024 CAGE CODE 15860		0.9995	1.0000	1.0005	1.0010

CAGE CODE 15860:
NEW HAMPSHIRE BALL BEARINGS, INC ASTRO DIVISION
155 LEXINGTON AVENUE
LACONIA, NEW HAMPSHIRE 03246-2937

OVERSIZE BEARING DETAILS FOR BEARING (245, Fig 2)

1 REPAIR LIMIT FOR INSTALLATION OF OVERSIZED BEARING.

806869 S00041008414_V3

310A1033-2 Oversize Bearing Detail
Figure 603

BOEING

COMPONENT MAINTENANCE MANUAL

THRUST FITTING ASSEMBLY - REPAIR 7-1

310A1025–1

1. General

A. This procedure has the data necessary to do a repair.

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

C. Refer to IPL Figure 2, for item numbers.

2. Procedures

NOTE: For bearing and bushing installation, refer to SOPM 20-50-03. For machining of alloy steel, refer to SOPM 20-10-02.

A. References

Reference	Title
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT

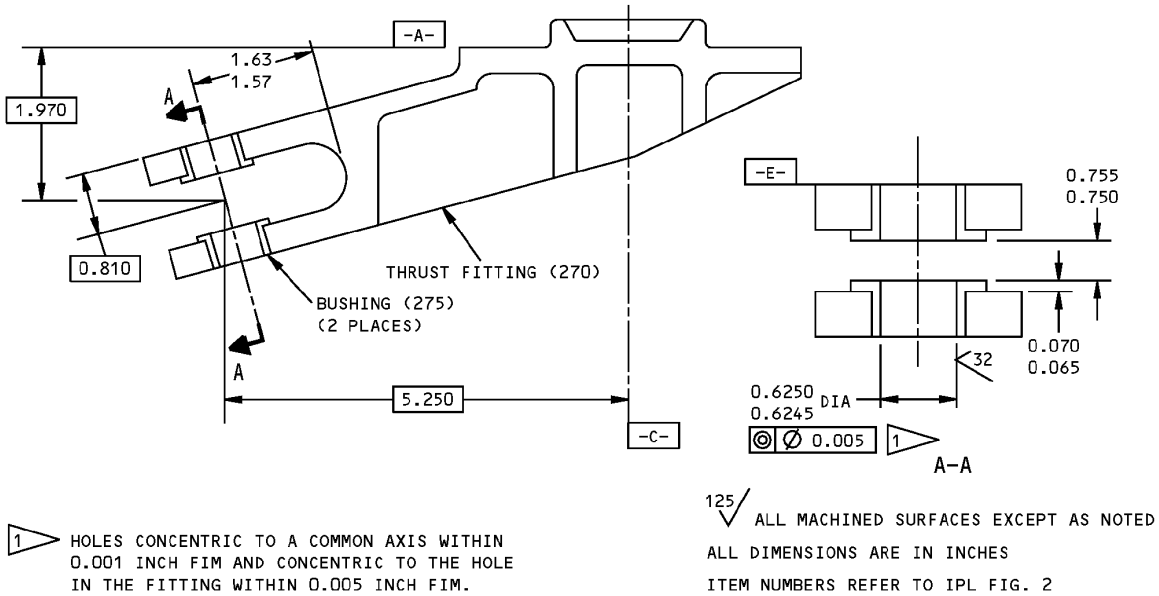
B. Bushing Replacement (REPAIR 7-1, Figure 601)

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

(1) Remove bushings (275, IPL Figure 2).

(2) Install bushings per SOPM 20-50-03. No installation finish is required.

(3) Machine bushings to dimensions shown.



310A1025-1 Bushing Replacement
Figure 601

THRUST FITTING - REPAIR 7-2

310A1025–2

1. General

A. This procedure has the data necessary to do a repair.

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

2. Procedures

NOTE: For shot peening, refer to SOPM 20-10-03. For bearing and bushing installation, refer to SOPM 20-50-03. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For general cleaning procedures, refer to SOPM 20-30-03

A. References

Reference	Title
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-03	SHOT PEENING
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT

B. Bushed Hole Repair (REPAIR 7-2, Figure 601)

(1) Remove material as required, within repair limit to remove defects. Two holes in lug concentric to common axis 0.001 FIM and concentric to hole in fitting within 0.005 FIM.

(2) Shot peen.

(3) Manufacture bushings (REPAIR 7-2, Figure 602) as required to compensate for amount of material removed in step A.

(4) Install bushing per REPAIR 7-1.

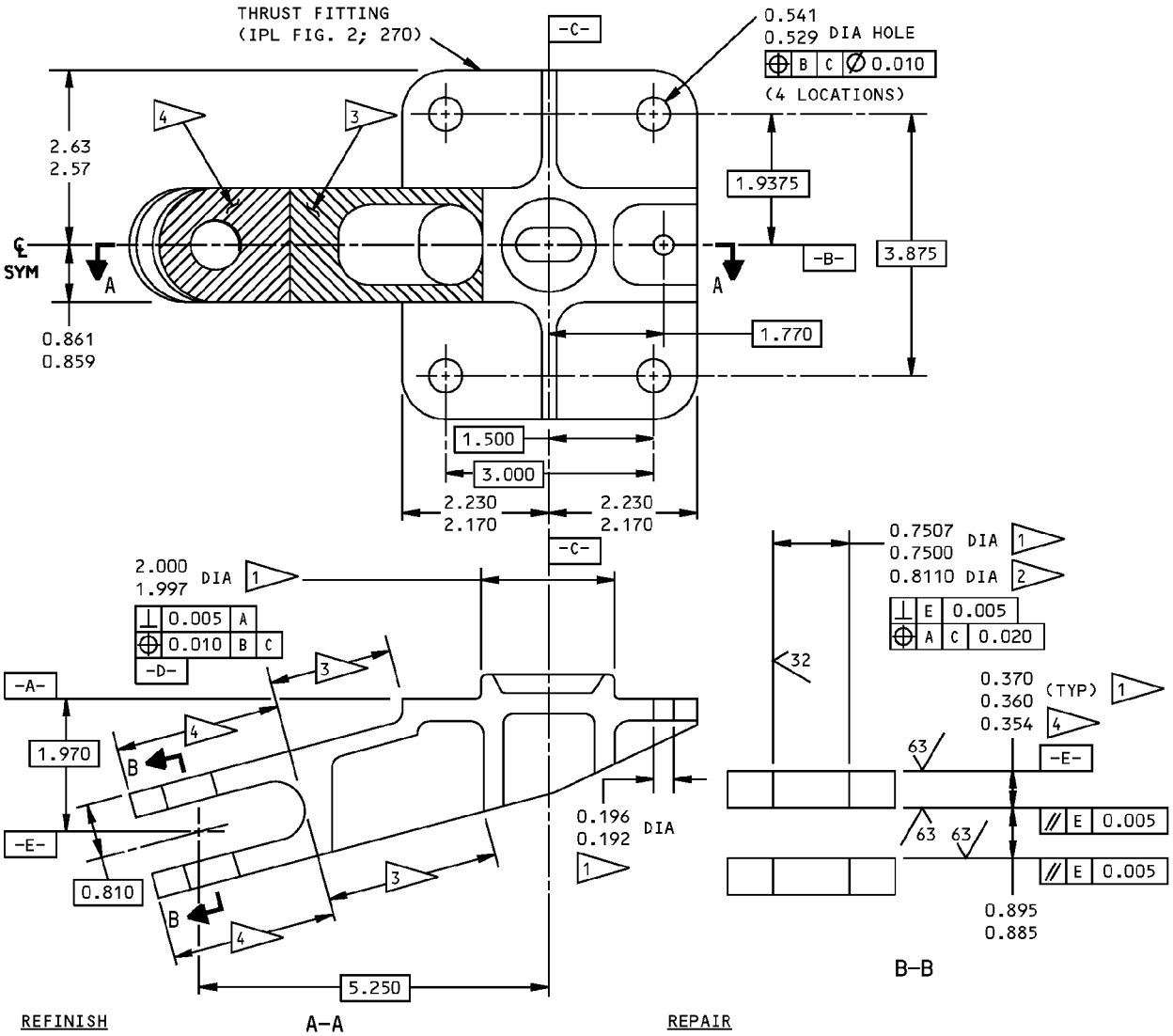
C. Bushing Lug Face Repair (REPAIR 7-2, Figure 601)

(1) Remove discrepancies from lug face area as shown in REPAIR 7-2, Figure 601 and SOPM 20-10-01.

(2) Do a magnetic particle check as shown in SOPM 20-20-01.

(3) Shot peen reworked areas as shown in REPAIR 7-2, Figure 601.

(4) Passivate (F-17.09) reworked area.



REFINISH

PASSIVATE (F-17.09)

1 DESIGN DIMENSIONS

2 REPAIR LIMIT FOR INSTALLATION OF OVERSIZED BUSHINGS

3 DESCREPENCY REMOVAL BLENDING MUST BE COMPLETELY WITHIN THE AREA SHOWN. MAXIMUM BLENDING DEPTH 0.05 INCH IN THIS AREA.

4 DESCREPENCY REMOVAL BLENDING MUST BE COMPLETELY WITHIN THE AREA SHOWN. MAXIMUM BLENDING DEPTH SUBJECT TO MINIMUM LUG THICHNESS REQUIREMENT IN THIS AREA.

REPAIR

REF 2

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

RADIUS ALL SHARP EDGES 0.030-0.040 UNLESS SHOWN DIFFERENTLY

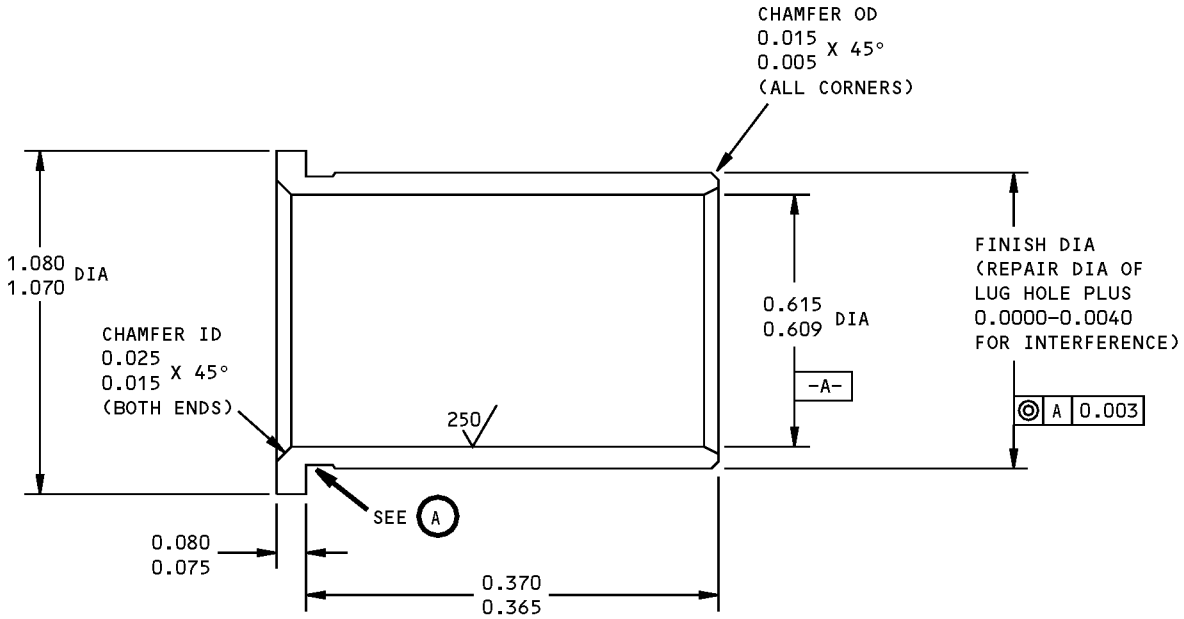
RADIUS ALL HOLE EDGES 0.010-0.020 UNLESS SHOWN DIFFERENTLY

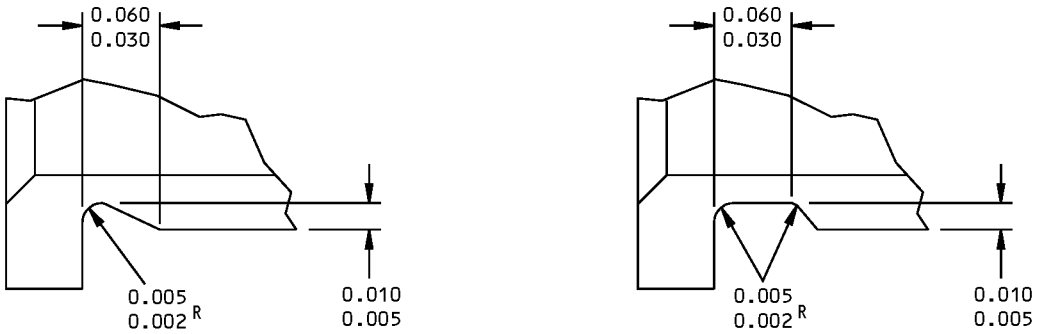
SHOT PEEN: 0.0170-0.0330 SHOT SIZE
0.016 A INTENSITY
2.0 COVERAGE

MATERIAL: 15-5PH CRES, AMS 5659

ALL DIMENSIONS ARE IN INCHES

310A1025-2 Thrust Fitting Repair
Figure 601





A

63 MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES

NO FINISH: OPTIONAL PASSIVATE (F-17.13)
CADMIUM PLATE (F-15.06) PLATING
IN BORE OPTIONAL

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

REPLACES BUSHING (275, IPL FIG. 2) BACB28AP10-037

Oversize Bushing Details
Figure 602

LINK ASSEMBLY - REPAIR 8-1

310A1032–3, –5

1. General

A. This procedure has the data necessary to do a repair.

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

C. Refer to IPL Figure 3, for item numbers.

2. Procedures

NOTE: For machining of alloy steel, refer to SOPM 20-10-02. For application of weather, fuel, oil, solvent and heat resistant protective coating, refer to SOPM 20-50-13

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00250	Coating - Inorganic, Heat, Weather And Oil Resistant Protective Coating (Elevated Temperature Cure)	BMS14-4, Type I
C00251	Coating - Inorganic, Heat, Weather And Oil Resistant Protective Coating (Room Temperature Catalytic Cure)	BMS14-4, Type II

B. References

Reference	Title
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-50-13	APPLICATION OF WEATHER, FUEL, OIL, SOLVENT, AND HEAT RESISTANT PROTECTIVE COATINGS

C. Bearing Replacement (REPAIR 8-1, Figure 601)

(1) Install outer race of bearing (110, IPL Figure 3) and roller swage per SOPM 20-50-03. OPTIONAL: Install race using coating, C00250 or coating, C00251, protective coating. Wipe off excess coating.

NOTE: Do not apply catalyst. Do not bake after installation.

(2) Install ball and secure with aluminum wire until link assembly is installed.

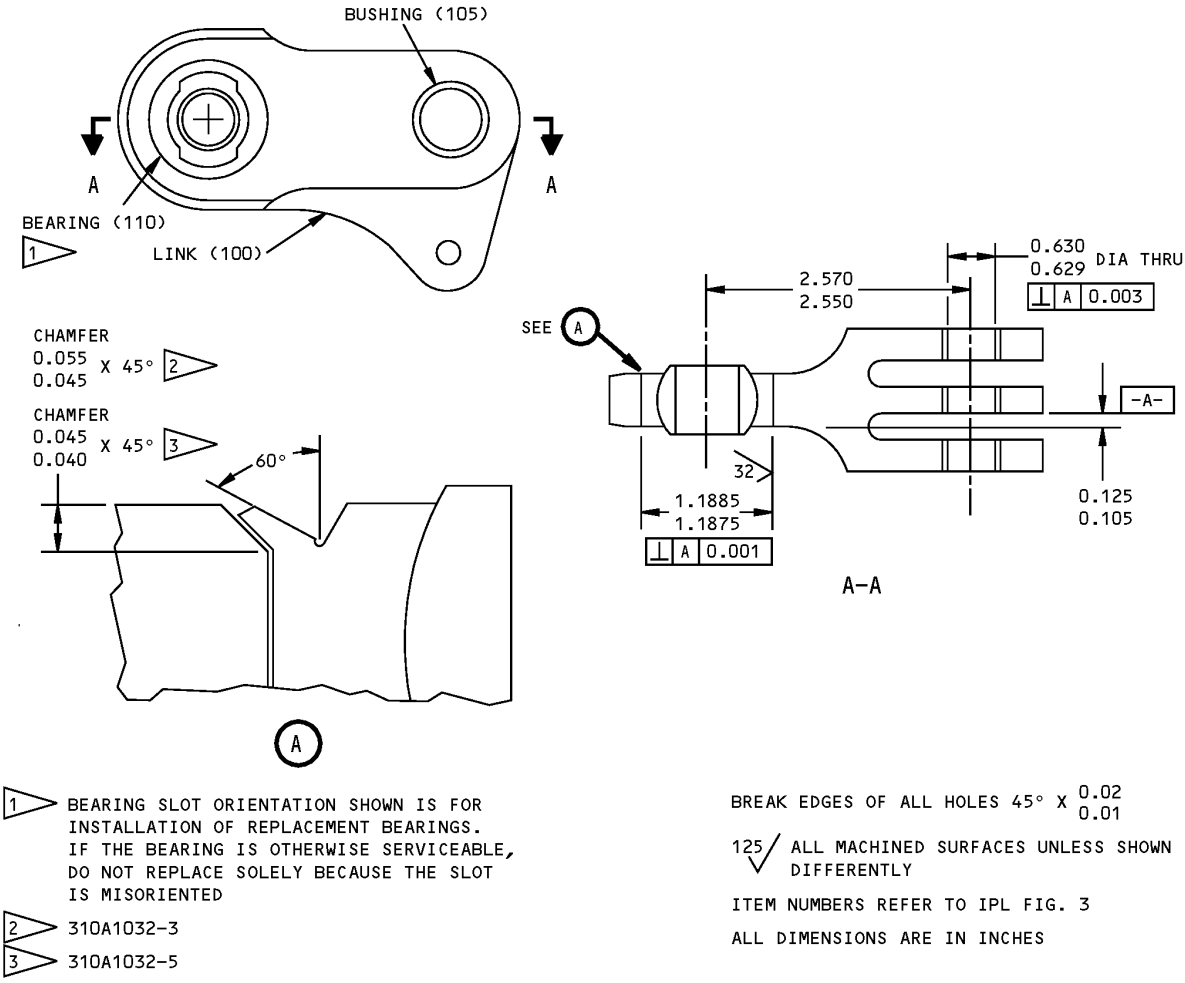
D. Bushing Replacement (REPAIR 8-1, Figure 601)

(1) Remove bushings (105, IPL Figure 3).

(2) Install new bushings using shrink fit method per SOPM 20-50-03. OPTIONAL: Install with coating, C00250 or coating, C00251, protective coating. Wipe off excess coating after installation.

NOTE: Do not apply catalyst. Do not bake after installation.

(3) Machine bushings to dimension and finish shown.



310A1032-3,-5 Bushing and Bearing Replacement
Figure 601

LINK - REPAIR 8-2

310A1032–2, –4

1. General

A. This procedure has the data necessary to do a test and fault isolation.

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

C. Refer to IPL Figure 2, for item numbers.

2. Procedures

NOTE: For shot peening, refer to SOPM 20-10-03. For grinding of chrome plated parts, refer to SOPM 20-10-04. For bearing and bushing installation, refer to SOPM 20-50-03. For machining of alloy steel, refer to SOPM 20-10-02.

A. References

Reference	Title
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-10-03	SHOT PEENING
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT

B. Bushed Hole Repair (REPAIR 8-2, Figure 601)

(1) Remove material, as required, within repair limit, to remove defects.

(2) Shot peen.

(3) Manufacture bushing (REPAIR 8-2, Figure 602) as required to compensate for amount of material removed in step A.

(4) Install bushing per REPAIR 8-1.

C. Bearing Hole Repair (REPAIR 8-2, Figure 601)

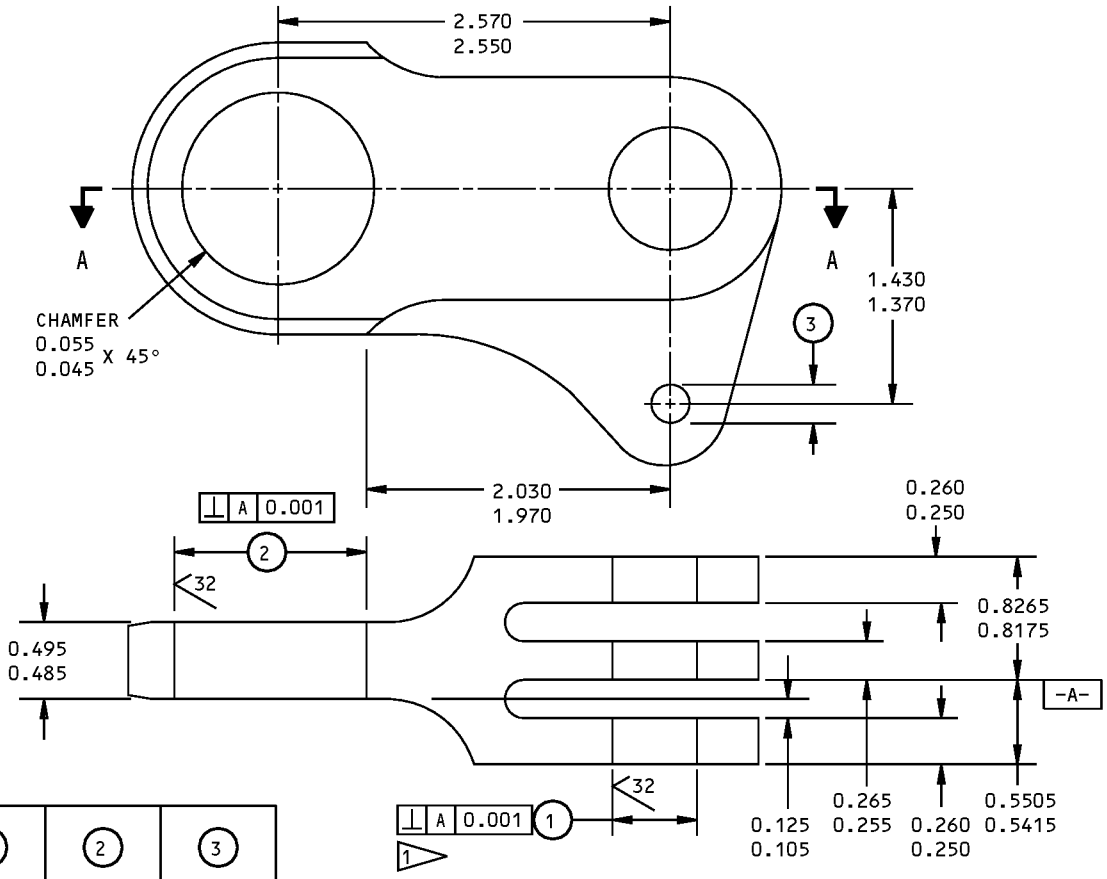
(1) Remove material as required, within repair limit, to remove defects.

(2) Shot peen.

(3) Chrome plate.

(4) Grind to design dimension. Do not exceed 0.010 maximum plate thickness.

(5) Install bearing per REPAIR 8-1.



	1	2	3
DESIGN DIM	0.7507 0.7500	1.1885 1.1875	0.261 0.250
REPAIR LIMIT	0.7807 2	1.2085 3	

REFINISH

NO FINISH

1 THREE HOLES IN LINE WITHIN 0.001

2 REPAIR LIMIT FOR INSTALLATION OF OVERSIZED BUSHING

3 REPAIR LIMIT FOR CHROME PLATE REPAIR

4 CHROME PLATE (F-15.03) BUILD UP AND GRIND TO DESIGN DIMENSION. SINGLE PLATE THICKNESS 0.010 MAX AFTER GRINDING

REPAIR

1 2 3 4

MATERIAL: INCONEL 718 PER AMS 5662
HEAT TREAT PER BAC 5616 COND II

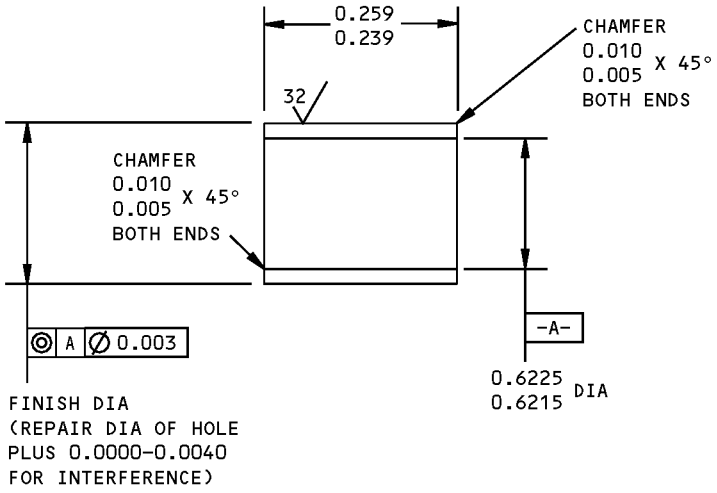
SHOT PEEN: 0.0170-0.0330 SHOT SIZE
0.016 A INTENSITY
2.0 COVERAGE

BREAK EDGES OF ALL HOLES 45° X 0.020 / 0.010

125 ALL SURFACES EXCEPT AS NOTED

ALL DIMENSIONS ARE IN INCHES

310A1032-2,-4 Link Repair
Figure 601



REPAIR

63 MACHINE FINISH EXCEPT AS SHOWN

NO FINISH

MATERIAL: INCONEL 718 PER AMS 5662 HEAT TREAT PER BAC 5616 COND II

PENETRANT CHECK

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION (1) FIG. 601 - REPLACES BUSHING (105, IPL. FIG. 3)

Oversize Bushing Details
Figure 602

SHOULDER BOLT - REPAIR 9-1

310T1036–6, –7, –10, –12

1. General

A. This procedure has the data necessary to do a repair.

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

2. Procedures

NOTE: For grinding chrome plated parts, refer to SOPM 20-10-04. For machining of alloy steel, refer to SOPM 20-10-02.

A. References

Reference	Title
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS

B. Plating Repair

(1) Refer to REPAIR-GENERAL for list of applicable standard practices and to Refinish instruction,

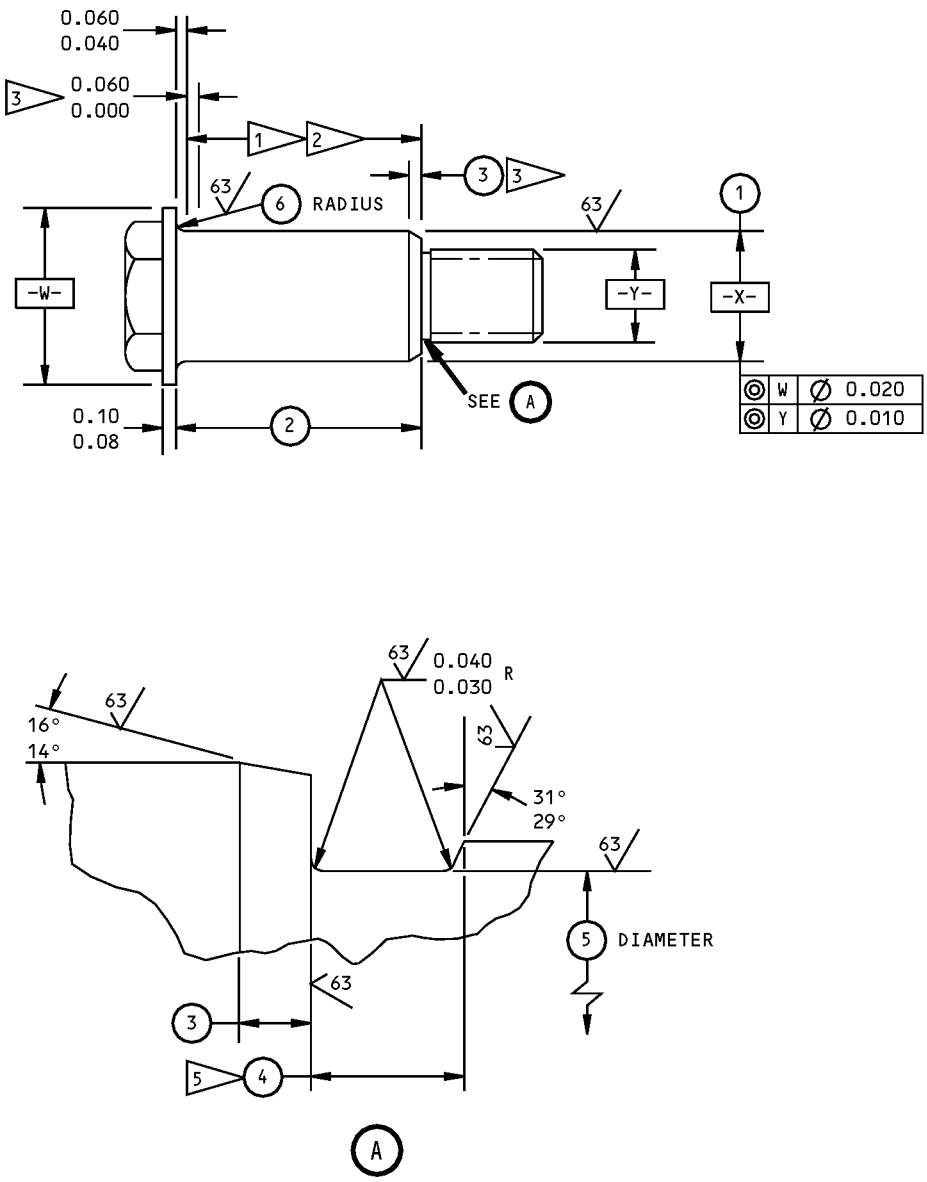
REPAIR 9-1, Figure 601

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

(1) Machine tool centers in bolts as required to facilitate repairs 0.250 inch deep using a #2 center drill.

(2) Machine as required, within repair limits to remove defects. Do not exceed repair dimension.

(3) Chrome plate and grind to design dimension. Chrome plate thickness minimum 0.003 and maximum 0.010 inches.



310T1036-6,-7,-10,-12 Bolt Repair
Figure 601 (Sheet 1 of 2)

		(1) AFTER PLATING	(2)	(3)	(4)	(5)	(6)
310T1036-6	DESIGN DIM 1	0.6240 0.6230	1.410 1.390	0.060 0.000	0.110 0.090	0.428 0.421	0.040 0.025
	REPAIR LIMIT	0.6030 4					
310T1036-7	DESIGN DIM 1	0.6240 0.6230	1.760 1.740	0.060 0.000	0.110 0.090	0.428 0.421	0.040 0.025
	REPAIR LIMIT	0.6030 4					
310T1036-10	DESIGN DIM 1	0.6240 0.6230	1.390 1.370	0.040 0.000	0.093 0.073	0.314 0.309	0.040 0.020
	REPAIR LIMIT	0.6030 4					
310T1036-12	DESIGN DIM 2	0.6285 0.6275	2.320 2.300	0.040 0.000	0.093 0.073	0.314 0.309	0.040 0.020
	REPAIR LIMIT						

REFINISH

CHROME PLATE AREA NOTED BY 1 2. NO FINISH ALL OTHER SURFACES

1 CHROME PLATE (F-15.03) 0.0004-0.0007 THICK.

2 CHROME PLATE (F-15.03) MINIMUM 0.003 THICK AFTER GRINDING 0.6215-0.6175 DIA PRIOR TO PLATING (310T1036-12 ONLY).

3 CHROME PLATE RUNOUT.

4 MACHINE TO REMOVING DEFECTS. CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIMENSIONS 0.010 MAX PLATE THICKNESS. NO CHROME PLATE PERMITTED IN FILLET AREAS.

5 NO CHROME PLATE ALLOWED ON THREAD RELIEF AREA.

REPAIR

MATERIAL: INCONEL 718 PER AMS 5662 HEAT TREAT PER BAC 5616 COND II

ALL DIMENSIONS ARE IN INCHES

310T1036-6,-7,-10,-12 Bolt Repair
Figure 601 (Sheet 2 of 2)

MISCELLANEOUS PARTS REFINISH - REPAIR 10-1

1. **General**

   A. This procedure has the data necessary to do a repair.

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

2. **Procedures**

   NOTE: For general cleaning procedures, refer to SOPM 20-30-03.

   A. Repair of parts listed in REPAIR 10-1, Table 601 consists of restoration of original finish.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 2		
Bolt, Shoulder (215A)	CRES A286	Passivate (F-17.09).
Washer (411)	CRES A286	Passivate (F-17.09).
Fig. 3		
Washer (35,85,150, 150A)	CRES A286	Passivate (F-17.09).

HANGER ASSEMBLY - REPAIR 11-1

310A1028–1, –5, –7

1. General

A. This procedure has the data necessary to do a repair.

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

C. Refer to IPL Figure 3, for item numbers.

2. Procedures

NOTE: For bearing and bushing installation, refer to SOPM 20-50-03. For machining of alloy steel, refer to SOPM 20-10-02. For application of weather, fuel, oil, solvent and heat resistant protective coating, refer to SOPM 20-50-13.

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00250	Coating - Inorganic, Heat, Weather And Oil Resistant Protective Coating (Elevated Temperature Cure)	BMS14-4, Type I
C00251	Coating - Inorganic, Heat, Weather And Oil Resistant Protective Coating (Room Temperature Catalytic Cure)	BMS14-4, Type II

B. References

Reference	Title
SOPM 20-10-02	MACHINING OF ALLOY STEEL
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-50-13	APPLICATION OF WEATHER, FUEL, OIL, SOLVENT, AND HEAT RESISTANT PROTECTIVE COATINGS

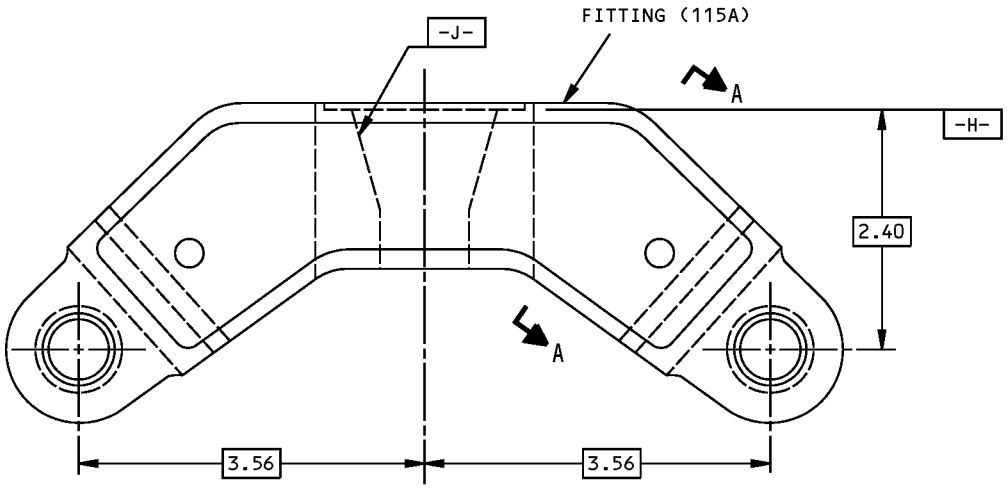
C. Bushing Replacement (REPAIR 11-1, Figure 601)

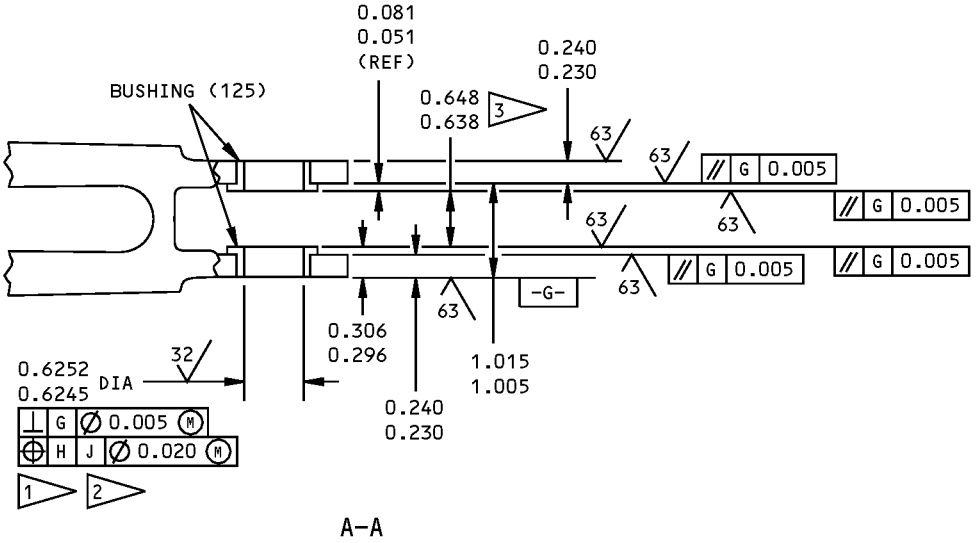
NOTE: Refer to REPAIR-GEN for list of applicable standard practices, and to IPL Figure 1 for item numbers . For repair of surfaces which may require only restoration of original finish, refer to Refinish instructions, REPAIR 11-1, Figure 601.

(1) Remove bushings (125, IPL Figure 3).

(2) Install bushings using coating, C00250 or coating, C00251. No catalyst or cure is required. Fillet sealing of flange is not required. The use of coating, C00250 or coating, C00251 is optional.

(3) Machine bushings to dimensions shown and concentric to a common axis within 0.001 FIM.





A-A

1. TWO HOLES CONCENTRIC TO COMMON AXIS WITHIN 0.001 FIM
2. RADIUS ALL HOLE EDGES 0.010-0.020 AT 32
3. RADIUS ALL SHARP EDGES 0.030-0.040

ITEM NUMBERS REFER TO IPL FIG. 3

ALL DIMENSIONS ARE IN INCHES

310A1028-1,-5,-7 Bushing Replacement
Figure 601

HANGER FITTING - REPAIR 11-2

310A1028–2, –6, –8

1. General

A. This procedure has the data necessary to do a repair.

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

C. Refer to IPL Figure 2, for item numbers.

2. Procedures

NOTE: For shot peening, refer to SOPM 20-10-03. For machining of alloy steel, refer to SOPM 20-10-02. For grinding of chrome plated parts, refer to SOPM 20-10-04.

A. References

Reference	Title
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

B. Conical Surface Repair (REPAIR 11-2, Figure 601)

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

(1) If conical surface is pitted or galled less than 20% of the surface or has a single defect extending less than 0.30 inch in any direction with a depth less than 0.005 inch, blending per SOPM 20-10-01 is recommended.

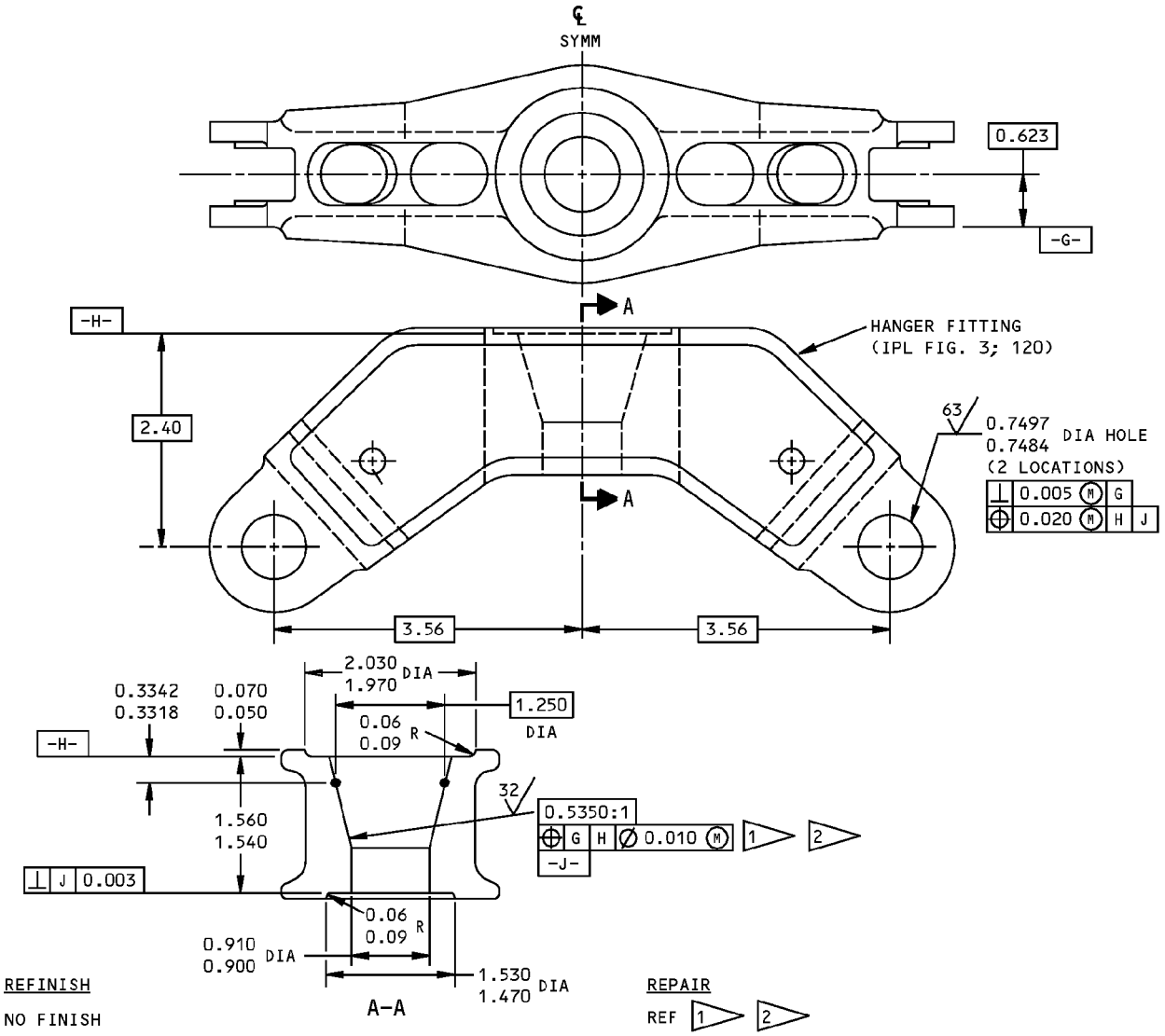
(2) If conical surface is pitted or galled more than 20% of the surface or has a single defect extending more than 0.30 in any direction with a depth more than 0.005 inch, repair as follows:

(a) Grind surface to remove defects, 0.008 inch maximum.

(b) Shot peen hanger fitting (120, 120A, 120B, IPL Figure 3) only.

(c) Chrome plate. Do not exceed 0.010 plate thickness.

(d) Post plate grind to design dimensions.



REFINISH

NO FINISH

1 CONICAL SURFACE. DO NOT EXCEED 0.008 MAX DEPTH TO REMOVE DEFECTS

2 CHROME PLATE (F-15.03) 0.010 MAX PLATE THICKNESS

REPAIR

REF 1 2

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK SHARP EDGES 0.030-0.040 UNLESS SHOWN DIFFERENTLY

BREAK ALL HOLE EDGES 0.010-0.020 UNLESS SHOWN DIFFERENTLY 32 FINISH

SHOT PEEN: 0.0170-0.0460
0.016A INTENSITY
2.0 COVERAGE
(120,120A ONLY)

MATERIAL: INCONEL 718, AMS 5662
HEAT TREAT PER BAC 5616 COND II

ALL DIMENSIONS ARE IN INCHES

310A1028-2,-6,-8 Hanger Fitting
Figure 601

FAILSAFE FITTING - REPAIR 12-1

310A1026–1

1. General

A. This procedure has the data necessary to do a repair.

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

2. Procedures

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

A. References

Reference	Title
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 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Wedge Surface Repair (REPAIR 12-1, Figure 601)

(1) If a wedge surface of the failsafe fitting (28, IPL Figure 2) is worn, pitted, or galled to a depth of 0.005 inch on 10 percent (or more) of the contact area, repair all four wedge surfaces as follows:0,

(a) Grind all wedge surfaces the minimum amount necessary to remove the defects as specified in SOPM 20-10-02. Do not grind the wedge surfaces more than 0.010 inch below the least material condition (REPAIR 12-1, Figure 601, View A).

(b) Shot peen the machined wedge surfaces as specified in SOPM 20-10-03.

(c) Chrome plate (F-15.03) the machined wedge surfaces as necessary and then grind the wedge surfaces to get the configuration shown in REPAIR 12-1, Figure 601 as specified in SOPM 20-10-04.

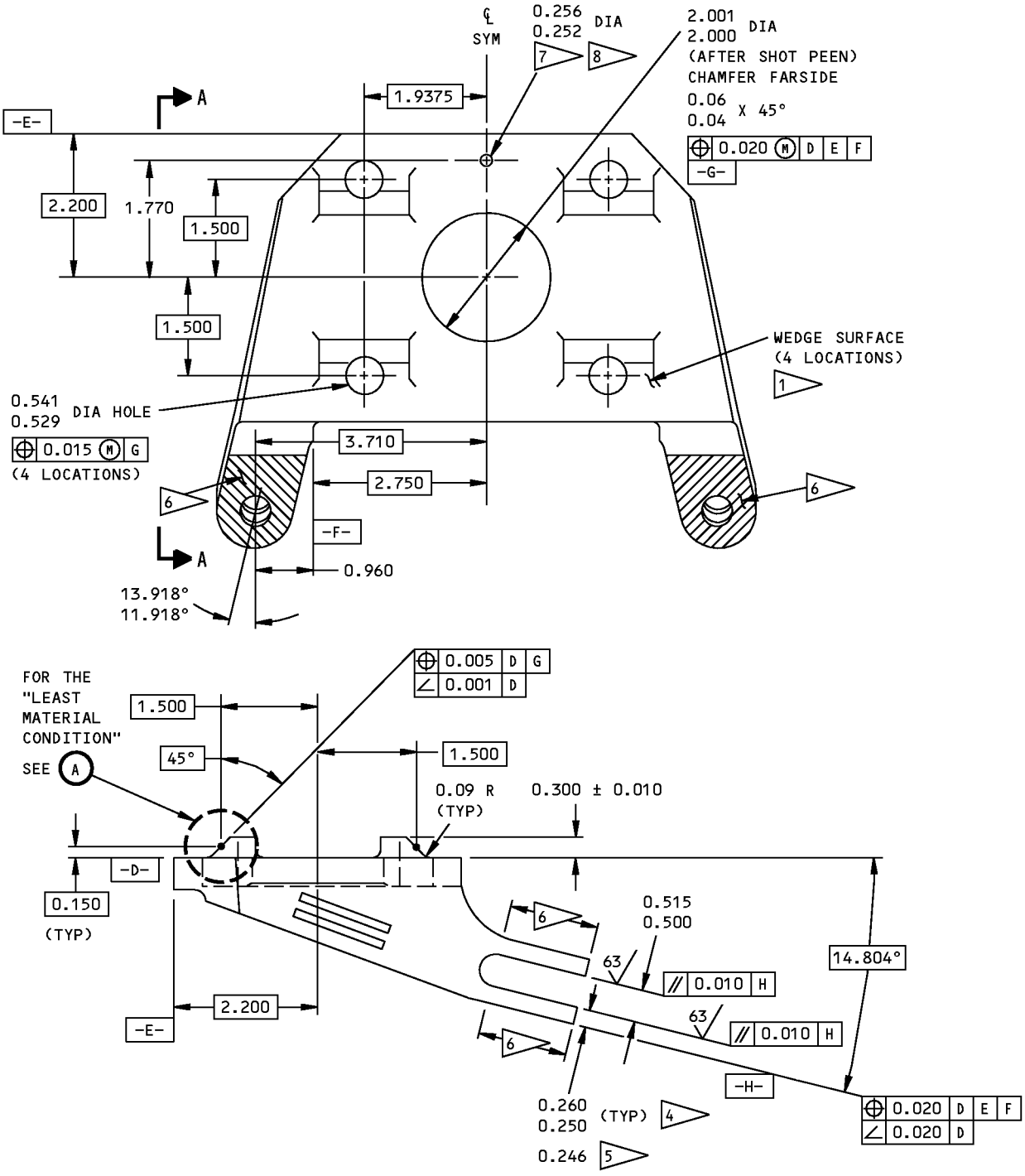
C. Lug Face Repair (REPAIR 12-1, Figure 601)

(1) Remove discrepancies on lug face areas as shown in REPAIR 12-1, Figure 601 and SOPM 20-10-01.

(2) Do a magnetic particle check as shown in SOPM 20-20-01.

(3) Shot peen reworked area as shown in REPAIR 12-1, Figure 601.

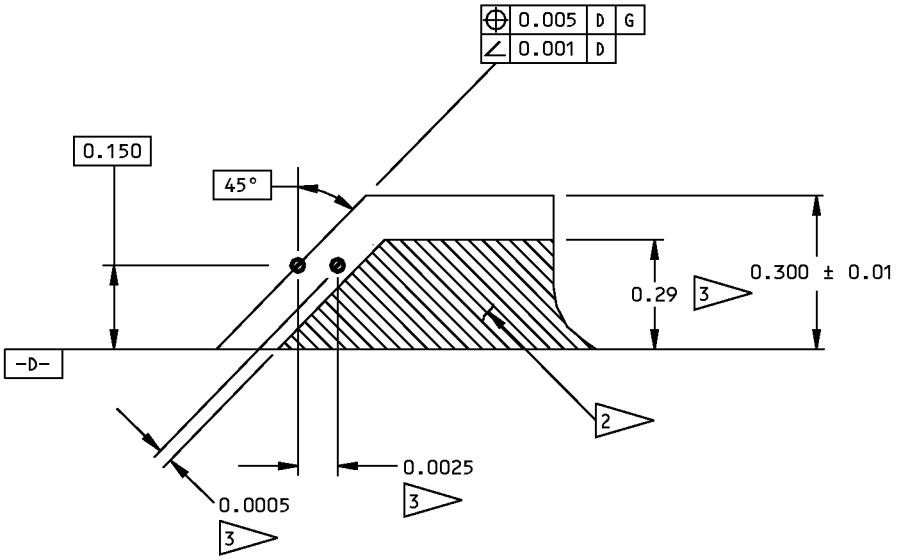
(4) Passivate (F-17.09) reworked area.



A-A

310A1026-1

Failsafe Fitting-Wedge Repair
Figure 601 (Sheet 1 of 2)



LEAST MATERIAL CONDITION
(SHADED AREA)

A

REFINISH

PASSIVATE (F-17.09)

1 CHROME PLATE (F-15.03) THE MACHINED WEDGE SURFACES AS NECESSARY. THEN GRIND THE WEDGE SURFACES TO THE CONFIGURATION SPECIFIED.

2 SHADED AREA IS THE "LEAST MATERIAL CONDITION (LMC)"

3 DIMENSIONS ARE LMC DIMENSIONS

4 DESIGN DIMENSIONS

5 REPAIR LIMIT FOR LUG FACE REPAIR WITHIN AREA 6

6 DESCREPENCY REMOVAL BLENDING MUST BE COMPLETELY WITHIN THIS AREA ON BOTH SIDES OF LUG FACES

7 DRILL TO MATCH THRUST FITTING ASSEMBLY 310A1025-1

8 COUNTERSINK NEAR SIDE 100° X 0.404 INCH DIAMETER

REPAIR

REF 1 2 3 5 6

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

RADIUS SHARP EDGES: 0.030-0.040

RADIUS HOLE EDGES; 0.020-0.030 AT 32 UNLESS SHOWN DIFFERENTLY

SHOT PEEN: 170-330 SHOT NUMBER;
0.016A INTENSITY;
2.0 COVERAGE

MATERIAL: 15-5PH; 180-200 KSI

ALL DIMENSIONS ARE IN INCHES

310A1026-1

Failsafe Fitting-Wedge Repair
Figure 601 (Sheet 2 of 2)

ASSEMBLY

1. General

A. This procedure has the data necessary to do a repair.

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

C. Refer to IPL Figure 2, for item numbers.

2. Procedures

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00013	Grease - Aircraft And Instrument Grease	MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827)
D00014	Grease - Molybdenum Disulfide, Low & High Temperature	MIL-G-21164 (NATO G-353)
D00015	Grease - Aircraft Bearing (Use BMS 3-24 until existing stocks are depleted, BMS 3-33 supersedes BMS 3-24)	BMS3-24 (Superseded by BMS 3-33)
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

B. Assemble Forward Engine Mounts (IPL Figure 2)

(1) Attach forward thrust fitting assemblies (285, 290) to fan case using bolts (295, 300) and washers (305, 310) respectively. Tighten bolts (295) to 620-760 lb-in. Tighten bolts (300) to 180-220 lb-in. lockwire, G01048 each pair of bolts.

(2) Apply thin coat of grease, D00013, grease, D00014, grease, D00015 or BMS 3-14 grease to OD and head of bolt (100).

(3) Install cone bolt assy (70) in fitting assembly (40, 45) respectively with snubber (120), bolt (100), washers (105, 110) and nut (115). Tighten nuts (115) to 250-430 lb-in. Wipe off excess grease.

(4) Install bolt retainer (80) over head of bolt (100) and attach with bolt (90) and washer (95).

(5) Attach support assembly (5, 10) to fan case using bolts (15, 20, 25) and washers (30, 35, 36). Use washers (35, 36) under bolt (15) or washer (35) under bolt (15A). Tighten bolts (15) to 960-1180 lb-in. lockwire, G01048 by running lockwire, G01048 from bolt (15) on LH fan case to adjacent bolt (15) on RH fan case (2 places). Tighten bolts (20, 25) to 1320-1620 lb-in. lockwire, G01048 bolt (20) to bolt (25).

(6) Thrust fitting (255) and failsafe fitting assembly (280):

(a) For matched thrust fitting assembly (255) and failsafe fitting (280):

1) Apply a light coat of antiseize compound to the mating cylindrical surfaces of the thrust fittiing assembly (255) and the failsafe fitting (280).

2) Attach the thrust fitting assembly (255) to the failsafe fitting (280) with bolt (260) and collar (265).

(b) For unmatched thrust fitting assembly (255) and failsafe fitting (280):

1) Assemble the thrust fitting assembly (255) and the failsafe fitting (280) aligning the four mounting holes.

2) Install temporary fasteners through at least two of the four mounting holes.

3) Using the thrust fitting assembly (255) for hole location, match drill a 0.252-0.256 inch diameter hole through the thrust fitting assembly (255) and failsafe fitting (280).

4) Countersink the failsafe fitting (280) 100 degrees by 0.404 inch diameter.

5) Remove the temporary fasteners from the thrust fitting assembly (255) and failsafe fitting (280).

6) Apply a light coat of antiseize compound to the mating cylindrical surfaces of the thrust fitting assembly (255) and the failsafe fitting (280).

7) Attach the thrust fitting assembly (255) to the failsafe fitting (280) using bolt (260A) and collar (265A).

8) Attach evener bar assembly (238) to failsafe fitting (280) with bolt (215), washers (225, 230), and nut (220). Tighten to 150-275 lb-in.

9) Apply thin coat of grease, D00013, grease, D00014, grease, D00015 or BMS 3-14 grease to OD and under head of bolt (195).

10) Attach evener bar assembly (238) to fitting assembly (255) with bolt (195), washers (205, 210), and nut (200). Tighten to 250-430 lb-in. Wipe off excess grease.

(7) Attach thrust link assemblies (170, 175) to evener bar assembly (238) with bolt (150) washers (160), and nuts (155). Tighten to 90-165 lb-in.

(8) Attach remaining loose end of thrust link assys (170, 175) to forward fan case fittings (285, 290) with bolts (125), washers (135, 140) and nuts (130). Tighten to 90-165 lb-in.

CAUTION: RESTRAIN THRUST LINKS TO PREVENT CONTACT WITH DEFLECTOR ASSEMBLY.

(9) Attach subassembly of angle (235C) and vertical deflector (235B), and subassembly of bracket (232, 234) and bracket (233, 235A) to evener bar assembly (235) by loosely installing bolts (281), washers (283) and nuts (282). Install bolts (235F), washers (235D) and nuts (235E) and tighten. Tighten bolts (281).

C. Assemble Aft Engine Mounts (IPL Figure 3)

(1) Attach link assys (95) to hanger assembly (115) using shoulder bolts (75), washers (85, 90), and nuts (80). Tighten nuts (80) to 90-165 pound-inches.

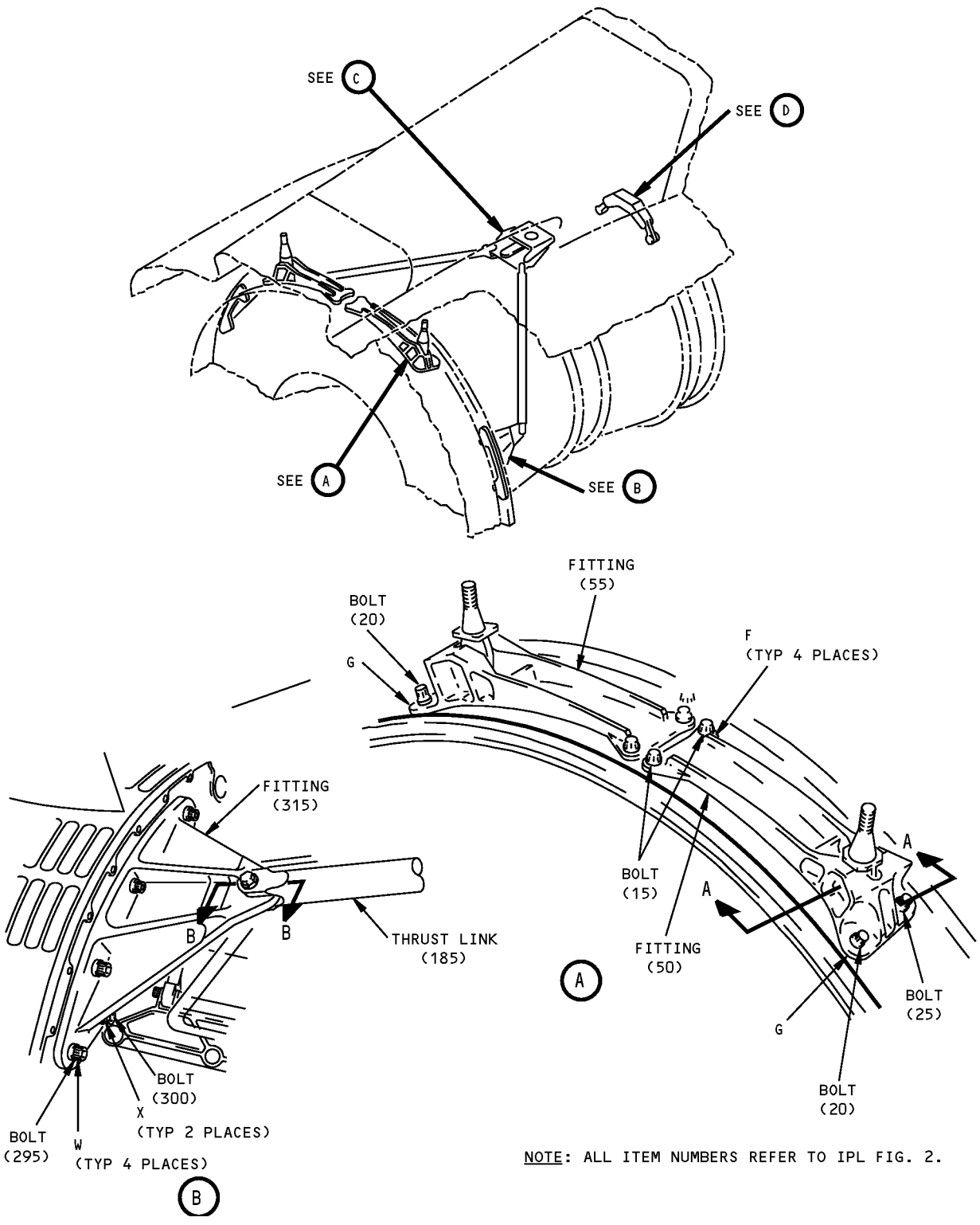
(2) Install bolt retainers (65, 70) with bolts (50), washers (60), and nuts (55). Tighten nuts (55) to run on torque plus 25-30 pound-inches.

(3) Apply thin coat of grease, D00013, grease, D00014, grease, D00015 or BMS 3-14 grease to OD and under head of bolt (25A).

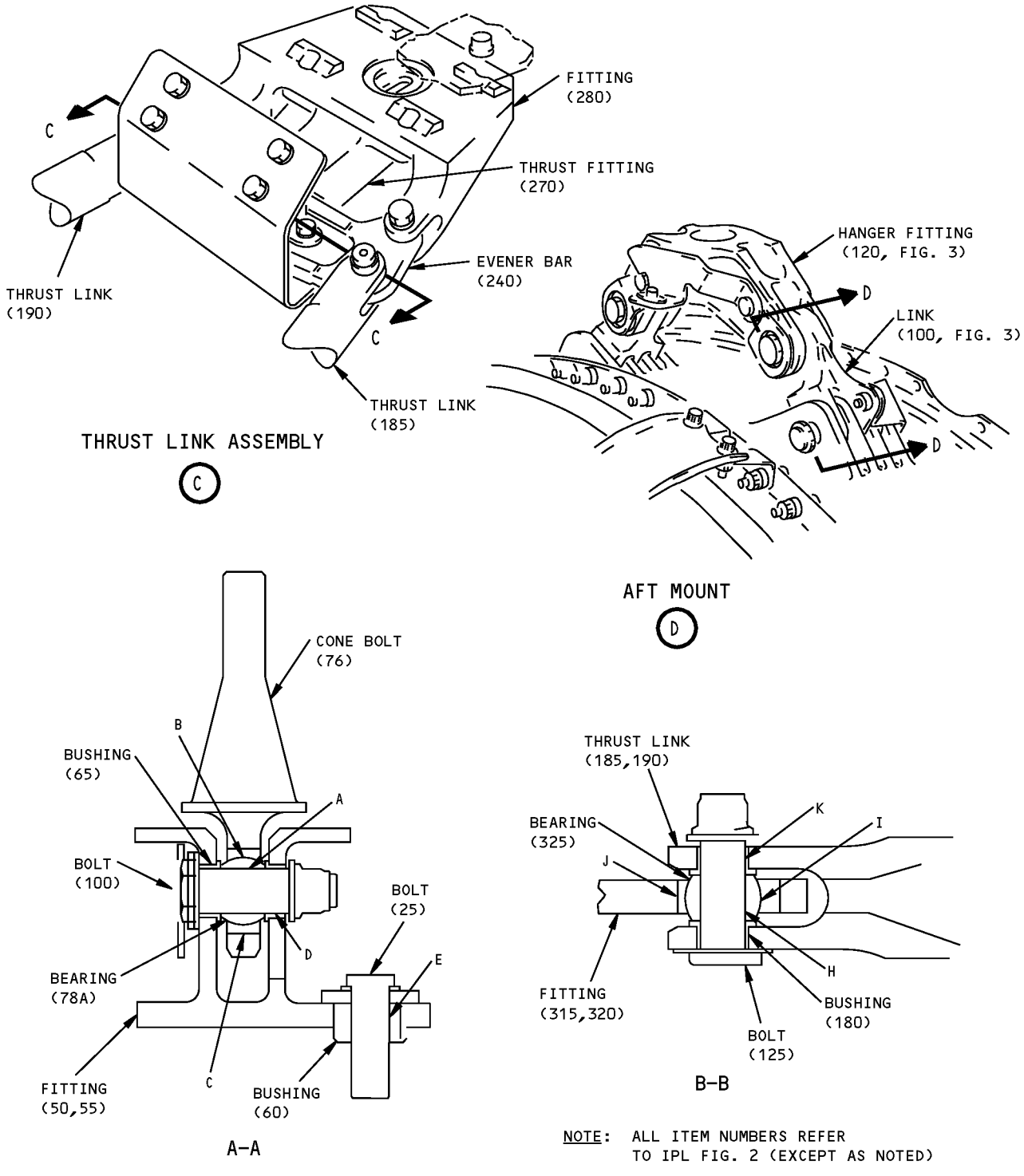
(4) Install hanger assembly (115) with link assys (95) on turbine frame lugs with bolts (25A), washers (35, 40), and nuts (30). Tighten nuts (30) to 90-165 pound-inches. Wipe off excess grease.

(5) Install bolt retainer (5) over bolt (25A) and attach with bolt (10), washers (20), and nuts (15). Tighten nuts (15) to 50-80 pound-inches.

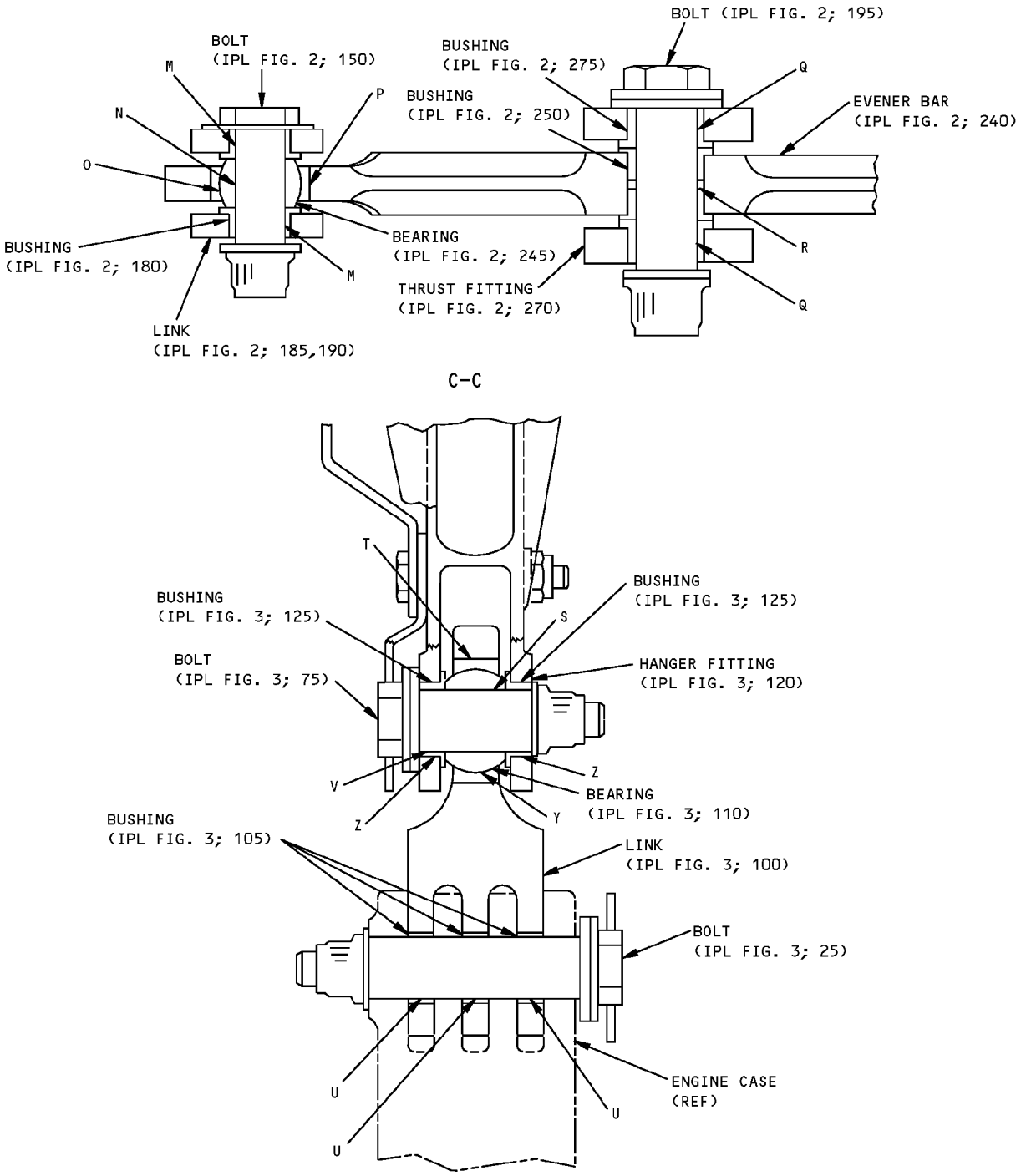
FITS AND CLEARANCES



Fits and Clearances
Figure 801 (Sheet 1 of 6)



Fits and Clearances
Figure 801 (Sheet 2 of 6)



Fits and Clearances
Figure 801 (Sheet 3 of 6)

Ref Letter Fig.801	Mating Item No.	IPL Fig. No.	Design Dimension				Service Wear Limit		
			Dimension		Assembly Clearance		Dimension Limits		Maximum Allowable Clearance
			Min	Max	Min	Max	Min	Max	
A	ID 78A	2	0.6245	0.6250	0.0005	0.0020		0.6266	0.0036
	OD 100	2	0.6230	0.6240			0.6214		
B	ID 1	2	0.9690	0.9695	0.0010	0.0020		0.9725	7
	OD 2	2	0.9675	0.9680					
C	ID 76	2	1.1875	1.1880	0.0000	0.0010		1.1890	0.0020
	OD 1	2	1.1870	1.1875			1.1860		
D	ID 65	2	0.6245	0.6252	0.0005	0.0022		0.6268	0.0038
	OD 100	2	0.6230	0.6240			0.6214		
E	ID 60	2	0.5910	0.6100	0.0295	0.0490		0.6115	0.0505
	OD 25	2	0.5610	0.5615			0.5595		
F	ID 50,55	2	0.5290	0.541	0.0295	0.0420			
	OD 15	2	0.4990	0.4995					
G	ID 50,55	2	0.5910	0.6100	0.0295	0.0490			
	OD 20	2	0.5610	0.5615					
H	ID 325	2	0.4995	0.5000	0.0000	0.0015		0.5014	0.0029
	OD 125	2	0.4985	0.4995			0.4971		
I	ID 3	2	0.8135	0.8140	0.0010	0.0020		0.8170	7
	OD 4	2	0.8120	0.8125					
J	ID 315,320	2	1.0000	1.0005	0.0000	0.0010			0.0020
	OD 4	2	0.9995	1.0000					
K	ID 180	2	0.4995	0.5005	0.0000	0.0020		0.5019	0.0034
	OD 125	2	0.4985	0.4995			0.4971		

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 4 of 6)

Ref Letter Fig.801	Mating Item No.	IPL Fig. No.	Design Dimension				Service Wear Limit		
			Dimension		Assembly Clearance		Dimension Limits		Maximum Allowable Clearance
			Min	Max	Min	Max	Min	Max	
M	ID 180 OD 150	2 2	0.4995 0.4985	0.5005 0.4995	0.0000	0.0020	0.4971	0.5019	0.0034
N	ID 5 OD 150	2 2	0.4995 0.4985	0.5000 0.4995	0.0000	0.0015	0.4971	0.5014	0.0029
N	ID 12 OD 150	2 2	0.5002 0.4985	0.5007 0.4995	0.0000	0.0022			
O	ID 6 OD 5	2 2	0.8135 0.8120	0.8140 0.8125	0.0010	0.0020		0.8170	7
P	ID 240 OD 245	2 2	1.0005 0.9995	1.0010 1.0000	0.0005	0.0015			0.0020
Q	ID 275 OD 195	2 2	0.6245 0.6230	0.6250 0.6240	0.0005	0.0020	0.6214	0.6266	0.0036
R	ID 250 OD 195	2 2	0.6245 0.6230	0.6250 0.6240	0.0005	0.0020	0.6214	0.6266	0.0036
S	ID 110 OD 75	3 3	0.6245 0.6230	0.6250 0.6240	0.0005	0.0020	0.6214	0.6266	0.0036
T	ID 100 OD 110	3 3	1.1875 1.1870	1.1885 1.1875	0.0000	0.0015			0.0020
U	ID 105 OD 25	3 3	0.6290 0.6275	0.6300 0.6285	0.0005	0.0025	0.6259	0.6316	0.0041
V	ID 115 10 OD 75	3 3	0.6245 0.6230	0.6250 0.6240	0.0005	0.0020	0.6214	0.6266	0.0036
V	ID 115A 11 OD 75	3 3	0.6245 0.6230	0.6252 0.6240	0.0005	0.0022	0.6214	0.6268	0.0038
W	ID 315,320 OD 295	2 2	0.4490 0.4365	0.4650 0.4370	0.0120	0.0285			
X	ID 315,320 OD 300	2 2	0.3420 0.3115	0.3540 0.3120	0.0300	0.0425			

Fits and Clearances
Figure 801 (Sheet 5 of 6)

Ref Letter Fig.801	Mating Item No.	IPL Fig. No.	Design Dimension				Service Wear Limit		
			Dimension		Assembly Clearance		Dimension Limits		Maximum Allowable Clearance
			Min	Max	Min	Max	Min	Max	
Y	ID 8	3	0.9690	0.9695	0.0010	0.0020		0.9725	7
	OD 9	3	0.9675	0.9680					
Z	ID 120	3	0.7484	0.7497	-0.0009	-0.0025			
	OD 125	3	0.7506	0.7509					

1 BEARING RACE FOR ITEM NO. 78A BEARING

2 BEARING BALL FOR ITEM NO. 78A BEARING

3 BEARING RACE FOR ITEM NO. 325 BEARING

4 BEARING BALL FOR ITEM NO. 325 BEARING

5 BEARING BALL FOR ITEM NO. 245 BEARING

6 BEARING RACE FOR ITEM NO. 245 BEARING

7 0.0060 RADIAL PLUS 0.0080 AXIAL

8 BEARING RACE FOR ITEM NO. 110 BEARING

9 BEARING BALL FOR ITEM NO. 110 BEARING

10 S302A004-5 WITH BUSHING ITEM NO. 125

11 310A1028-1, -5, -7 WITH BUSHING ITEM NO. 125

12 BEARING BALL FOR ITEM 245A BEARING

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 6 of 6)

IPL FIG. & ITEM NO.	NAME	TORQUE POUND-INCHES
2-15	BOLT	960-1180
2-20,25	BOLT	1320-1620
2-295	BOLT	620-760
2-300	BOLT	180-220
2-115,200	NUT	250-430
2-130,155	NUT	90-165
2-220	NUT	150-275
3-15	NUT	50-80
3-30	NUT	90-165
3-55	NUT	25-30
3-80	NUT	90-165

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
06710	LAMSON AND SESSIONS CO THE VALLEY-TODECO 12975 BRADLEY AVENUE SYLMAR, CALIFORNIA 91342-3830 FORMERLY VALLEY BOLT CORP VB0097 IN NORTH HOLLYWOOD, CA
13636	BARRY WRIGHT CORP CONTROL DIV 2323 VALLEY STREET BURBANK, CALIFORNIA 91505-1336 FORMERLY BARRY DIVISION OF BARRY WRIGHT CORP
57606	REXNORD CORP PSI BEARINGS DIV 2175 UNION PL SIMI VALLEY, CALIFORNIA 93065-1661 FORMERLY PSI BEARINGS

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1		1
		1		1
302T0200-123		3	125	4
302T0200-59		2	60	1
302T0200-61		3	105	3
310A1020-1		1	5	1
		2	1	RF
310A1020-11		3	45A	1
310A1020-13		2	145A	1
310A1020-14		3	45B	1
310A1020-17		2	5A	1
		2	5B	1
310A1020-18		2	10A	1
		2	10B	1
310A1020-19		1	5A	1
		2	1A	RF
310A1020-20		2	145C	1
		2	145D	1
310A1020-21		3	45C	1
310A1020-22		3	45D	1
310A1020-23		2	145E	1
310A1020-26		3	45E	1
310A1020-29		2	5C	1
310A1020-3		1	10	1
		3	1	RF
310A1020-30		2	10C	1
310A1020-32		2	145F	1
310A1020-33		2	145G	1
310A1020-7		2	5	1
310A1020-8		2	10	1
310A1021-1		2	45	1
310A1021-2		2	40	1
310A1021-3		2	55	1
310A1021-4		2	50	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
310A1023-1		2	170	1
310A1023-2		2	175	1
310A1023-3		2	185	1
310A1023-4		2	190	1
310A1025-1		2	255	1
310A1025-2		2	270	1
310A1026-1		2	280	1
310A1028-1		3	115A	1
310A1028-2		3	120	1
310A1028-5		3	115B	1
310A1028-6		3	120A	1
310A1028-7		3	115C	1
310A1028-8		3	120B	1
310A1032-2		3	100	1
310A1032-3		3	95	2
310A1032-4		3	100A	1
310A1032-5		3	95A	2
310A1033-1		2	238	1
310A1033-2		2	240	1
310A1033-3		2	238A	1
310A1033-4		2	240A	1
310A1033-5		2	238B	1
310A1036-1		2	290	1
310A1036-2		2	285	1
310A1036-3		2	320	1
310A1036-4		2	315	1
310A1036-5		2	290A	1
310A1036-6		2	285A	1
310A1039-1		3	65	1
310A1039-11		3	152B	1
310A1039-3		3	5	2
310A1039-4		3	152	1
310A1039-5		3	66	1
310A1039-6		3	70A	2
310A1039-7		3	65A	1

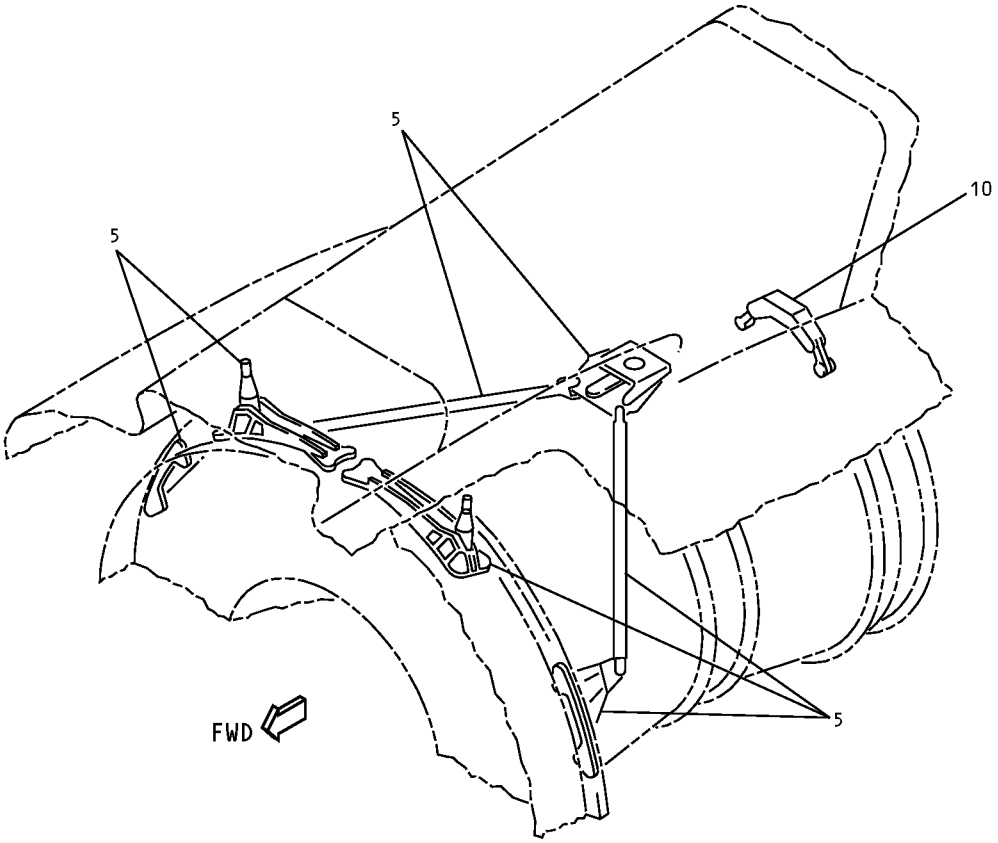
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
310A1039-8		3	66A	1
310A1039-9		3	152A	1
310A1041-1		2	70	1
310A1041-2		2	70C	1
310A1041-3		2	76	1
310A1041-4		2	76B	1
310A1041-5		2	70A	1
		2	70B	1
		2	70D	1
		2	70F	1
310A1041-6		2	76A	1
310A1041-7		2	70E	1
310A1041-8		2	76C	1
310A1042-1		2	80	1
310A1042-13		2	413	1
310A1042-14		2	408	1
310A1042-15		2	406	1
310A1042-16		2	406A	1
310A1042-2		2	85	1
310A1042-29		2	423	2
310A1042-30		2	421	2
310A1042-32		2	421A	1
310A1042-36		2	423A	2
310A1043-1		2	125	2
		2	125D	2
		2	150	2
310A1043-1T		2	125C	2
		2	150C	2
310A1043-2		2	125A	2
		2	150A	2
310A1043-3		2	125B	2
		2	150B	2
310A1044-1		3	150	1
310A1044-2		3	150A	1
310A1045-1		2	120	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
310A1046-1		3	151	1
310T1036-10		3	75	2
310T1036-12		3	25A	2
310T1036-19		2	215A	2
310T1036-6		2	100	1
310T1036-7		2	195	1
310T3151-10		2	411	1
310T3151-13		3	35	2
		3	85	2
311A1099-10		2	210A	1
		2	210B	1
		3	90A	2
		3	90B	2
311A1099-101		3	40B	2
311A1099-8		2	230A	2
		2	230B	2
332A1908-29		2	232	1
332A1908-30		2	233	1
332A1908-31		2	234	1
332A1908-32		2	235A	1
332A1908-33		2	235B	1
332A1908-34		2	231	1
		2	231B	1
332A1908-47		2	235L	1
332A1908-48		2	231C	1
332A1908-49		2	235J	1
332A1908-50		2	235K	1
332A1908-51		2	235H	1
332A1908-52		2	235I	1
332A1908-53		2	235M	1
332A1908-54		2	231D	1
332A1908-9		2	235C	2
9155-8RET		2	403	1
		2	404	2
93853-05		3	115	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
AN960C10L		2	235D	4
		2	235N	6
		2	283	2
AN960C416		3	20	2
		3	60	2
AN960C416L		2	95	1
		2	409	1
		2	414	1
		2	417	2
		2	420	2
		2	424	2
		3	153	1
AN960C916L		2	135	2
		2	165	2
B12854-080		2	402	1
B12854-8		2	405	2
BACB28AP08-020		2	180	4
BACB28AP10-024		2	65	2
BACB28AP10-031		2	250	2
BACB28AP10-037		2	275	2
BACB30FN6A13U		2	260	1
BACB30FN8A13U		2	260A	1
BACB30LJ4U19		3	50	2
BACB30LJ4U2		2	418	2
BACB30LJ4U3		2	410	1
		2	415	1
		3	154	1
BACB30LJ4U4		3	10	2
BACB30LJ4U6		2	90	1
BACB30LJ4US		2	416	2
BACB30PN5H6		2	300	4
BACB30PN7H21		2	295	8
BACB30PN8-26		2	400	5
BACB30PN8H4		2	15A	4
BACB30PN8H5		2	15	4

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACB30PN9H12		2	25	2
BACB30PN9H6		2	20	2
BACB30PU8-19		2	215	2
BACC30AB6S		2	265	1
BACC30AB8S		2	265A	1
BACJ40E20-28		2	419	2
BACN10HR10CS		2	407	1
		2	412	1
		2	422	2
BACN10JB4C		3	67	1
BACN10JC3CM		2	235E	4
BACN10JC4C		3	15	2
		3	55	2
BACN10JC4CD		2	425	2
BACN10JP4ACM		2	406B	1
		2	421B	1
BACN10YH10C		2	422A	2
BACN10YR3C		2	235P	4
		2	235Q	6
BACW10BN6UP		2	140A	2
		2	160	2
BACW10BN7UP		2	225	2
BACW10BN8UP		2	110	1
		2	205	1
BACW10BP101ACU		3	40	2
BACW10BP10ACU		2	105	1
		2	210	1
		3	40A	2
		3	90	2
BACW10BP5ACU		2	310	4
BACW10BP7ACU		2	305	8
BACW10BP8ACU		2	35	4
		2	230	2
		2	401	5
BACW10BP8APU		2	36	4

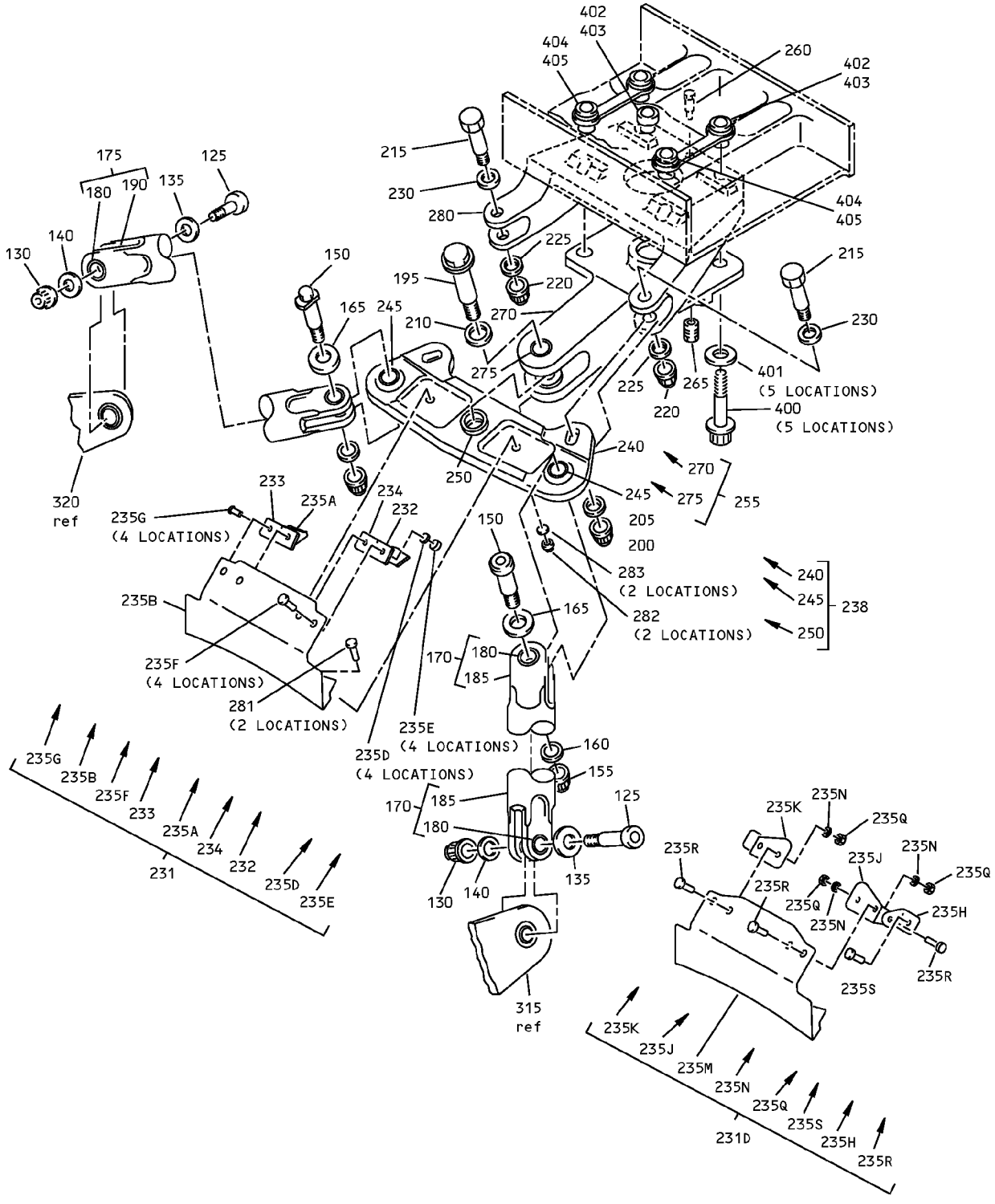
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACW10BP9ACU		2	30	4
MS20427		3	68	2
MS20615-5M		2	235G	8
		2	235S	6
NAS1805-3P		2	282	2
NAS1805-6		2	130	2
		2	155	2
NAS1805-6P		3	30	2
		3	80A	2
NAS1805-7		2	220	2
NAS1805-8		2	115	1
		2	200	1
NAS6703U2		2	235F	4
		2	235R	6
NAS6703U4		2	281	2
P21920		3	110A	1
P21920-1		3	100C	1
S302A004-5		3	115	1
S302T001-214		2	78A	1
S302T001-303		2	245	2
		2	325	1
S302T001-309		2	245A	2
		2	325A	1
SL4068-8		2	402B	1
SL4086C8-30		2	405A	2
SL4089C8		2	402A	1
SL4115		2	405B	2
SLR414C8		2	403A	1
SLR414N8		2	403B	1
VB13025-080		2	402C	1
VB13025-8		2	405C	2
VTB08550		3	110	1
VTB08550-1		3	110B	1



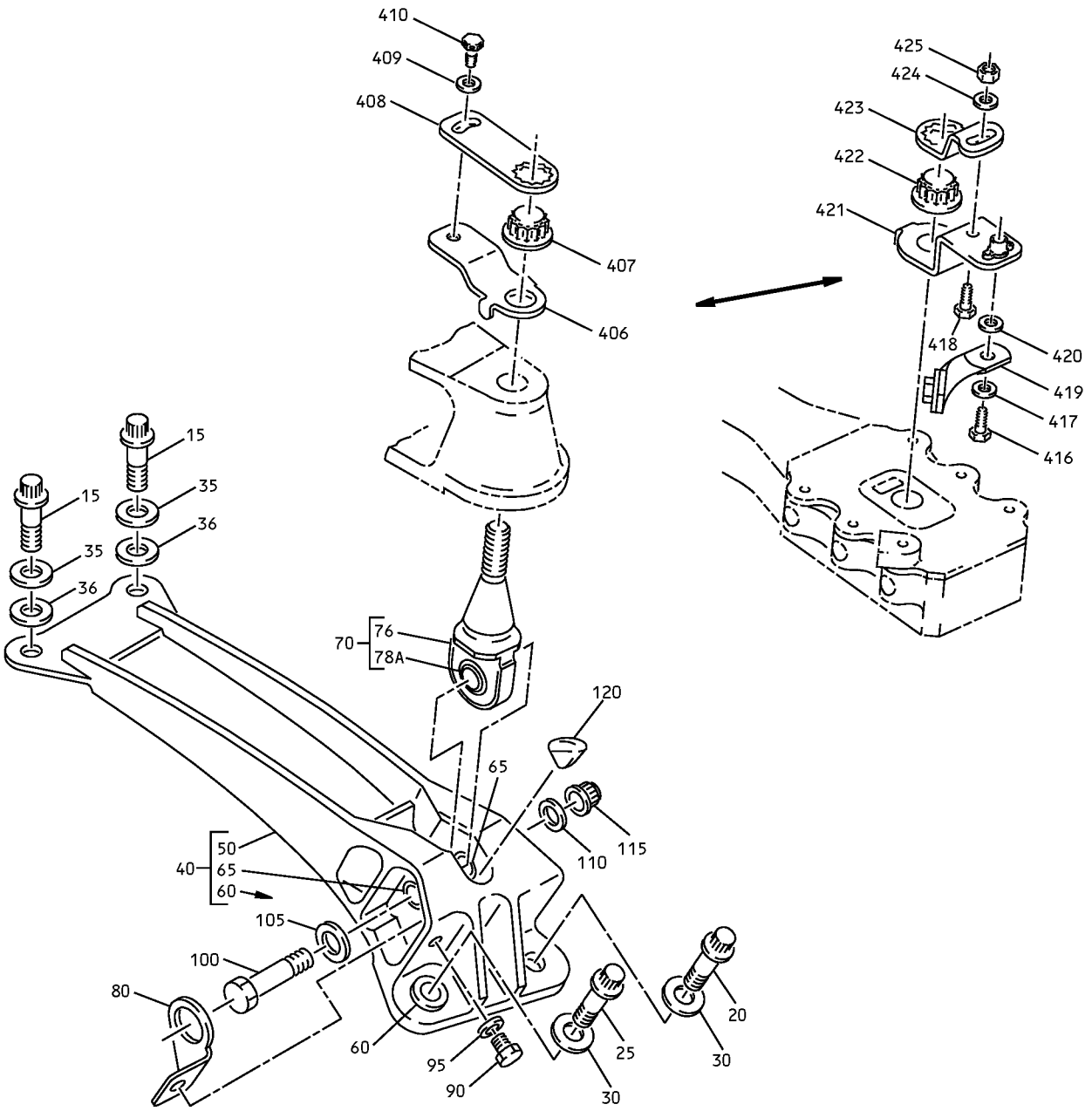
CFM-56 Engine Mount Components
IPL Figure 1

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
			CFM56-3 ENGINE MOUNT		
			COMPONENTS		
5	310A1020-1		. MOUNT INSTL-ENG-FWD (FOR DETAILS SEE FIG. 2)		1
–5A	310A1020-19		. MOUNT INSTL-ENG-FWD (FOR DETAILS SEE FIG. 2)		1
10	310A1020-3		. MOUNT INSTL-ENG-AFT (FOR DETAILS SEE FIG. 3)		1

–Item not Illustrated

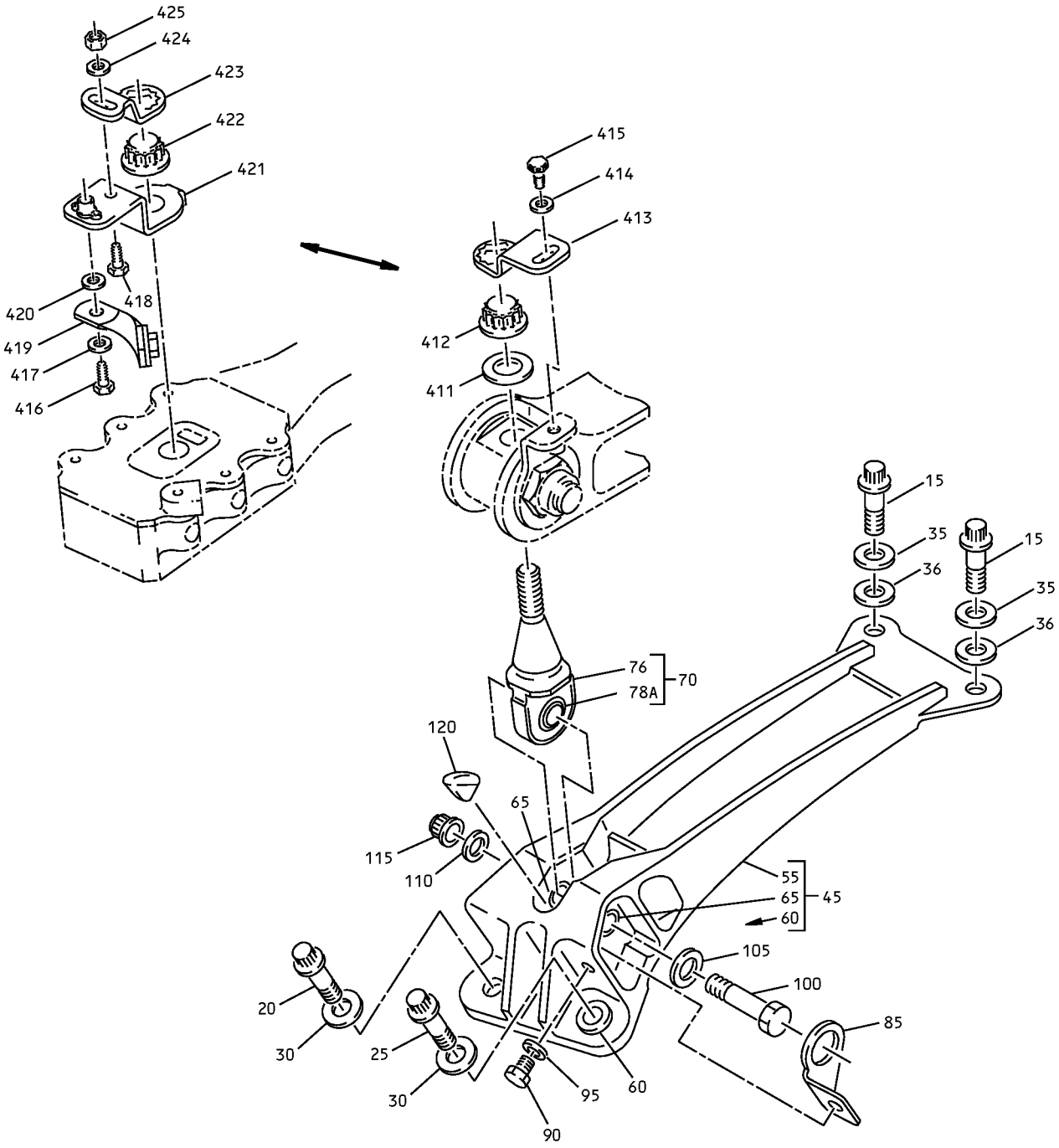


Forward Engine Mount Installation
IPL Figure 2 (Sheet 1 of 4)



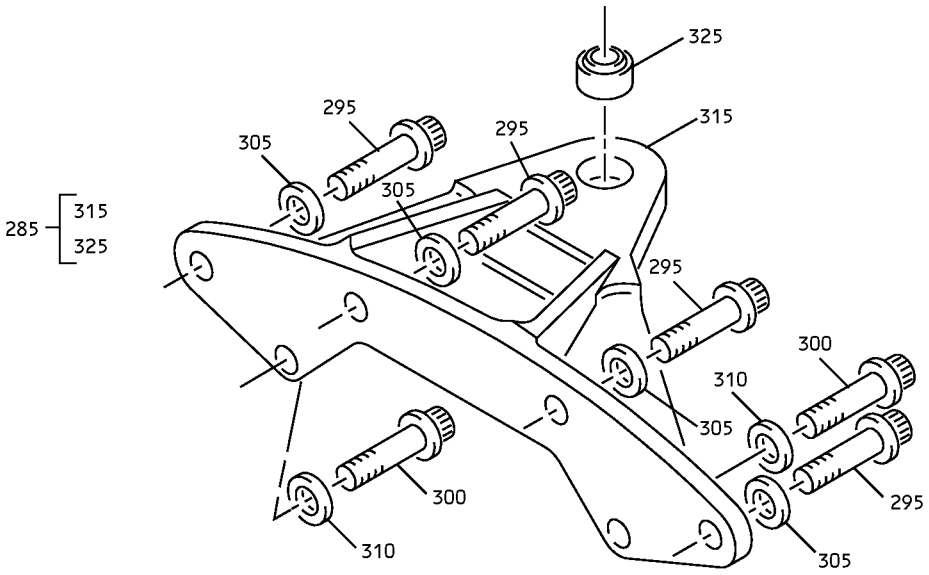
FAN CASE SUPPORT ASSEMBLY
LEFT SHOWN

Forward Engine Mount Installation
IPL Figure 2 (Sheet 2 of 4)



FAN CASE SUPPORT ASSEMBLY
RIGHT SHOWN

Forward Engine Mount Installation
IPL Figure 2 (Sheet 3 of 4)



FORWARD THRUST FITTING ASSEMBLY
LEFT SHOWN, RIGHT OPPOSITE

Forward Engine Mount Installation
IPL Figure 2 (Sheet 4 of 4)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–1	310A1020-1		MOUNT INSTL, ENG-FWD	A	RF
–1A	310A1020-19		MOUNT INSTL, ENG-FWD	B	RF
–5	310A1020-7		. SUPPORT ASSY-LH FAN CASE (PRE SB 737-71-1149R1)	A	1
–5A	310A1020-17		. SUPPORT ASSY-LH FAN CASE (LIMITED USAGE)	B	1
–5B	310A1020-17		. SUPPORT ASSY-LH FAN CASE (POST SB 737-71-1149R1)	A	1
–5C	310A1020-29		. SUPPORT ASSY-LH FAN CASE (LIMITED USAGE)	B	1
–10	310A1020-8		. SUPPORT ASSY-RH FAN CASE (PRE SB 737-71-1149R1)	A	1
–10A	310A1020-18		. SUPPORT ASSY-RH FAN CASE (LIMITED USAGE)	B	1
–10B	310A1020-18		. SUPPORT ASSY-RH FAN CASE (POST SB 737-71-1149R1)	A	1
–10C	310A1020-30		. SUPPORT ASSY-RH FAN CASE (LIMITED USAGE)	B	1
			ATTACHING PARTS		
15	BACB30PN8H5		. BOLT (OPT ITEM 15A) (USED WITH ITEMS 35,36)		4
–15A	BACB30PN8H4		. BOLT (OPT ITEM 15) (USED WITH ITEM 35)	A	4
20	BACB30PN9H6		. BOLT		2
25	BACB30PN9H12		. BOLT		2
30	BACW10BP9ACU		. WASHER-CSK		4
35	BACW10BP8ACU		. WASHER-CSK		4
36	BACW10BP8APU		. WASHER (USED WITH ITEM 15)	A	4
			- - - - - - - * - - - - - - -		
40	310A1021-2		. . FITTING ASSY-LH FAN CASE (USED ON ITEMS 5 THRU 5C)		1
45	310A1021-1		. . FITTING ASSY-RH FAN CASE (USED ON ITEMS 10 THRU 10C)		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
50	310A1021-4		. . . FITTING (USED ON ITEM 40)		1
55	310A1021-3		. . . FITTING (USED ON ITEM 45)		1
60	302T0200-59		. . . BUSHING-FLANGED		1
65	BACB28AP10-024		. . . BUSHING-FLANGED		2
70	310A1041-1		. . CONE BOLT ASSY (USED ON ITEM 5) (PRE SB 737-71-1149R1)		1
–70A	310A1041-5		. . CONE BOLT ASSY (USED ON ITEMS 5A,5B,5C)		1
–70B	310A1041-5		. . CONE BOLT ASSY (USED ON ITEM 5) (POST SB 737-71-1149R1)		1
–70C	310A1041-2		. . CONE BOLT ASSY (USED ON ITEM 10) (OPT ITEM 70E) (PRE SB 737-71-1149R1)		1
–70D	310A1041-5		. . CONE BOLT ASSY (USED ON ITEMS 10A,10B,10C)		1
–70E	310A1041-7		. . CONE BOLT ASSY (USED ON ITEM 10)		1
–70F	310A1041-5		. . CONE BOLT ASSY (POST SB 737-71-1149R1)		1
76	310A1041-3		. . . CONE BOLT (USED ON ITEM 70)		1
–76A	310A1041-6		. . . CONE BOLT (USED ON ITEMS 70A,70D)		1
–76B	310A1041-4		. . . CONE BOLT (USED ON ITEM 70C)		1
–76C	310A1041-8		. . . CONE BOLT (USED ON ITEM 70E)		1
–78	S320T001-214		DELETED		
78A	S302T001-214		. . . BEARING, SPHERICAL		1
80	310A1042-1		. . RETAINER, BOLT (USED ON ITEMS 5 THRU 5C)		1
85	310A1042-2		. . RETAINER, BOLT (USED ON ITEMS 10 THRU 10C)		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
90	BACB30LJ4U6		. . BOLT		1
95	AN960C416L		. . WASHER		1
100	310T1036-6		. . BOLT-SHOULDER		1
105	BACW10BP10ACU		. . WASHER-CSK		1
110	BACW10BN8UP		. . WASHER		1
115	NAS1805-8		. . NUT		1
120	310A1045-1		. . SNUBBER		1
125	310A1043-1		. BOLT-SHOULDER	A	2
–125A	310A1043-2		. BOLT-SHOULDER (OPT ITEM 125,125D)		2
–125B	310A1043-3		. BOLT-SHOULDER (OPT ITEM 125C) (LIMITED USAGE) (A 310A1043-1 BOLT THAT HAS BEEN INSPECTED FOR A MINIMUM ROCKWELL HARDNESS OF 39 AND IS REPART-MARKED TO A 310A1043-1T OR 310A1043-3. 310A1043-1T BOLT IS IDENTICAL TO A 310A1043-3 BOLT.)	B	2
–125C	310A1043-1T		. BOLT-SHOULDER (OPT ITEM 125B) (LIMITED USAGE) (A 310A1043-1 BOLT THAT HAS BEEN INSPECTED FOR A MINIMUM ROCKWELL HARDNESS OF 39 AND IS REPART-MARKED TO A 310A1043-1T OR 310A1043-3. 310A1043-1T BOLT IS IDENTICAL TO A 310A1043-3 BOLT.)		2
–125D	310A1043-1		. BOLT-SHOULDER B (LIMITED USAGE)		
130	NAS1805-6		. NUT		2
135	AN960C916L		. WASHER		2
140	BAC10BN6UP		DELETED		2
140A	BACW10BN6UP		. WASHER		2
–145	310A1020-5		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–145A	310A1020-13		. FITTING ASSY (LIMITED USAGE) (PRE SB 737-71-1149)	A	1
–145B	310A1020-12		DELETED		
–145C	310A1020-20		. FITTING ASSY (LIMITED USAGE) (POST SB 737-71-1149)	A	1
–145D	310A1020-20		. FITTING ASSY (LIMITED USAGE)	B	1
–145E	310A1020-23		. FITTING ASSY (LIMITED USAGE)	B	1
–145F	310A1020-32		. FITTING ASSY (LIMITED USAGE)	B	1
–145G	310A1020-33		. FITTING ASSY (LIMITED USAGE)	B	1
150	310A1043-1		. . BOLT-SHOULDER (USED ON ITEMS 145D,145E,145F)		2
–150A	310A1043-2		. . BOLT-SHOULDER (OPT ITEM 150) (USED ON ITEMS 145D,145E,145F)		2
–150B	310A1043-3		. . BOLT-SHOULDER (OPT ITEM 150C) (USED ON ITEMS 145E,145G) (A 310A1043-1 BOLT THAT HAS BEEN INSPECTED FOR A MINIMUM ROCKWELL HARDNESS OF 39 AND IS REPART-MARKED TO A 310A1043-1T OR 310A1043-3. 310A1043-1T BOLT IS IDENTICAL TO A 310A1043-3 BOLT.)		2
–150C	310A1043-1T		. . BOLT-SHOULDER (OPT ITEM 150B) (USED ON ITEMS 145E,145G) (LIMITED USAGE) (A 310A1043-1 BOLT THAT HAS BEEN INSPECTED FOR A MINIMUM ROCKWELL HARDNESS OF 39 AND IS REPART-MARKED TO A 310A1043-1T OR 310A1043-3. 310A1043-1T BOLT IS IDENTICAL TO A 310A1043-3 BOLT.)		2
155	NAS1805-6		. . NUT		2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
160	BACW10BN6UP		. . WASHER		2
165	AN960C916L		. . WASHER		2
170	310A1023-1		. . LINK ASSY-THRUST (LH)		1
175	310A1023-2		. . LINK ASSY-THRUST (RH)		1
180	BACB28AP08-020		. . . BUSHING		4
185	310A1023-3		. . . LINK-THRUST (USED ON ITEM 170)		1
190	310A1023-4		. . . LINK-THRUST (USED ON ITEM 175)		1
195	310T1036-7		. . BOLT-SHOULDER		1
200	NAS1805-8		. . NUT		1
205	BACW10BN8UP		. . WASHER		1
210	BACW10BP10ACU		. . WASHER (USED ON ITEM 145A,145C,145D)		1
–210A	311A1099-10		. . WASHER (USED ON ITEM 145C,145D) (OPT ITEM 210)		1
–210B	311A1099-10		. . WASHER (USED ON ITEM 145E,145F,145G)		1
215	BACB30PU8-19		. . BOLT-SHOULDER (USED ON ITEMS 145A)	A	2
–215A	310T1036-19		. . BOLT-SHOULDER (USED ON ITEM 145C THRU 145G)		2
220	NAS1805-7		. . NUT		2
225	BACW10BN7UP		. . WASHER		2
230	BACW10BP8ACU		. . WASHER (USED ON ITEMS 145C,145D)		2
–230A	311A1099-8		. . WASHER (USED ON ITEMS 145C,145D) (OPT ITEM 230)		2
–230B	311A1099-8		. . WASHER (USED ON ITEMS 145E,145F,145G)		2
231	332A1908-34		. . VERTICAL DEFLECTOR ASSY-PRECOOLER EXHAUST (USED ON ITEMS 145A)		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–231A	332A1908-26		DELETED		
–231B	332A1908-34		. . VERTICAL DEFLECTOR ASSY-PRECOOLER EXHAUST (USED ON ITEMS 145C THRU 145G) (OPT ITEM 231D)		1
–231C	332A1908-48		. . VERTICAL DEFLECTOR ASSY-PRECOOLER EXHAUST (USED ON ITEMS 145C THRU 145G) (OPT ITEM 231D)		1
–231D	332A1908-54		. . VERTICAL DEFLECTOR ASSY-PRECOOLER EXHAUST (USED ON ITEMS 145C THRU 145G)		1
232	332A1908-29		. . . BRACKET (USED ON ITEMS 231,231B,231C) (OPPOSITE ITEM 233)		1
233	332A1908-30		. . . BRACKET (USED ON ITEM 231,231B,231C) (OPPOSITE ITEM 232)		1
234	332A1908-31		. . . ANGLE (USED ON ITEMS 231,231B,231C) (OPPOSITE ITEM 235A)		1
–235	310A1033-1		DELETED		
235A	332A1908-32		. . . ANGLE (USED ON ITEMS 231,231B,231C) (OPPOSITE ITEM 234)		1
235B	332A1908-33		. . . VERTICAL DEFLECTOR (USED ON ITEMS 231,231B)		1
–235C	332A1908-9		. . . ANGLE		2
235D	AN960C10L		. . . WASHER (USED ON ITEMS 231,231B,231C)		4
235E	BACN10JC3CM		. . . NUT (USED ON ITEMS 231,231B)		4
235F	NAS6703U2		. . . BOLT (USED ON ITEMS 231,231B,231C)		4
235G	MS20615-5M		. . . RIVET (USED ON ITEMS 231,231B,231C)		8
235H	332A1908-51		. . . ANGLE (USED ON ITEM 231D) (OPPOSITE ITEM 235I)		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
235I	332A1908-52		. . . ANGLE (USED ON ITEM 231D) (OPPOSITE ITEM 235H)		1
235J	332A1908-49		. . . ANGLE (USED ON ITEM 231D) (OPPOSITE ITEM 235K)		1
235K	332A1908-50		. . . ANGLE (USED ON ITEM 231D) (OPPOSITE ITEM 235J)		1
235L	332A1908-47		. . . VERTICAL DEFLECTOR (USED ON ITEM 231C)		1
235M	332A1908-53		. . . VERTICAL DEFLECTOR (USED ON ITEM 231D)		1
235N	AN960C10L		. . . WASHER (USED ON ITEM 231D)		6
235P	BACN10YR3C		. . . NUT (USED ON ITEM 231C)		4
235Q	BACN10YR3C		. . . NUT (USED ON ITEM 231D)		6
235R	NAS6703U2		. . . BOLT (USED ON ITEM 231D)		6
235S	MS20615-5M		. . . RIVET (USED ON ITEM 231D)		6
238	310A1033-1		. . BAR ASSY-EVENER (USED ON ITEMS 145A,145C,145D,145F)		1
–238A	310A1033-3		. . BAR ASSY-EVENER (USED ON ITEM 145E) (PREFERED) (OPT ITEM 238B)		1
–238B	310A1033-5		. . BAR ASSY-EVENER (USED ON ITEMS 145E,145G)		1
240	310A1033-2		. . . BAR-EVENER (USED ON ITEMS 238,238A)		1
–240A	310A1033-4		. . . BAR-EVENER (USED ON ITEM 238B)		1
245	S302T001-303		. . . BEARING (USED ON ITEM 238)		2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–245A	S302T001-309		. . . BEARING (USED ON ITEMS 238A,238B)		2
250	BACB28AP10-031		. . . BUSHING		2
255	310A1025-1		. . FITTING ASSY-THRUST		1
260	BACB30FN6A13U		. . BOLT		1
260A	BACB30FN8A13U		. . BOLT		1
265	BACC30AB6S		. . COLLAR		1
265A	BACC30AB8S		. . COLLAR		1
270	310A1025-2		. . . FITTING-THRUST (USED ON ITEM 255)		1
275	BACB28AP10-037		. . . BUSHING (USED ON ITEM 255)		2
280	310A1026-1		. . FITTING-FAILSAFE		1
281	NAS6703U4		. . BOLT		2
282	NAS1805-3P		. . NUT		2
283	AN960C10L		. . WASHER		2
285	310A1036-2		. FITTING ASSY-THRUST, FWD ENG MOUNT (LH) (LIMITED USAGE)		1
–285A	310A1036-6		. FITTING ASSY-THRUST, FWD ENG MOUNT (LH) (LIMITED USAGE)	B	1
–290	310A1036-1		. FITTING ASSY-THRUST, FWD ENG MOUNT (RH) (LIMITED USAGE)		1
–290A	310A1036-5		. FITTING ASSY-THRUST, FWD ENG MOUNT (RH) (LIMITED USAGE)	B	1
			ATTACHING PARTS		
295	BACB30PN7H21		. BOLT		8
300	BACB30PN5H6		. BOLT		4
305	BACW10BP7ACU		. WASHER		8

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
310	BACW10BP5ACU		. WASHER		4
			- - - - - - - * - - - - - - -		
315	310A1036-4		. . FITTING-THRUST, FWD ENG MOUNT (LH) (USED ON ITEM 285,285A)		1
–320	310A1036-3		. . FITTING-THRUST, FWD ENG MOUNT (RH) (USED ON ITEM 290,290A)		1
325	S302T001-303		. . BEARING-SPHERICAL (USED ON ITEMS 285,285A,290,290A)		1
–325A	S302T001-309		. . BEARING-SPHERICAL (USED ON ITEMS 285A,290A)		1
			INSTALLATION PARTS		
400	BACB30PN8-26		BOLT		5
401	BACW10BP8ACU		WASHER-CSK		5
402	B12854-080		NUT-BARREL (OPT ITEM 402A,402B)		1
–402A	SL4089C8		NUT-BARREL (OPT ITEM 402,402B)		1
–402B	SL4068-8		NUT-BARREL (OPT ITEM 402,402A)		1
–402C	VB13025-080		NUT-BARREL		1
403	9155-8RET		RETAINER (OPT ITEM 403A,403B)		1
–403A	SLR414C8		RETAINER (OPT ITEM 403,403B)		1
–403B	SLR414N8		RETAINER (OPT ITEM 403,403A)		1
404	9155-8RET		RETAINER (USED WITH ITEM 405) (OPT ITEM 405A,405B)		2
405	B12854-8		NUT-BARREL TANDUM (USED WITH ITEM 404) (OPT ITEM 405A,405B)		2
–405A	SL4086C8-30		NUT-BARREL TANDUM (OPT ITEM 405B,405 WHEN USED WITH ITEM 404)		2

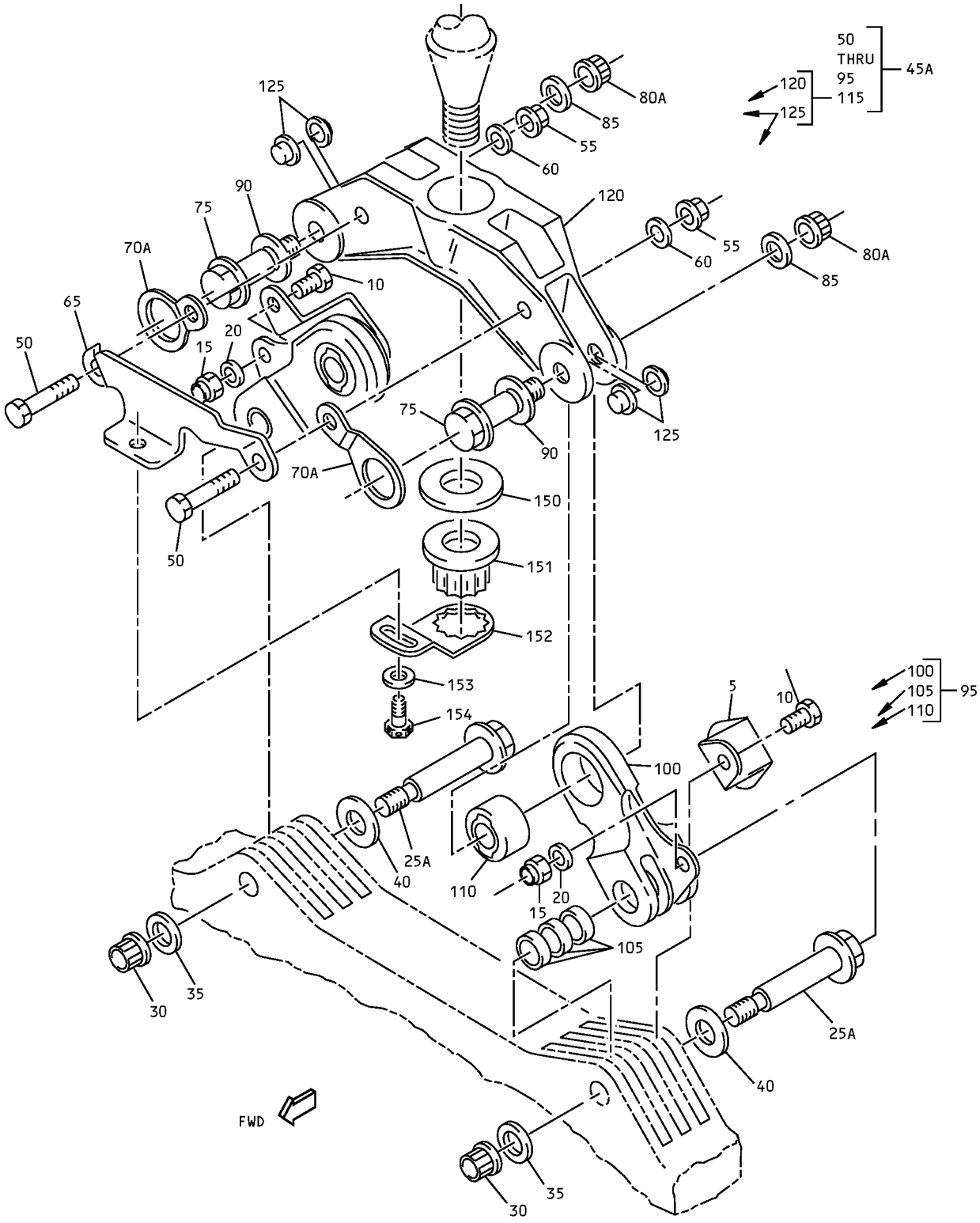
–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–405B	SL4115		NUT-BARREL TANDUM (OPT ITEM 405B,405 WHEN USED WITH ITEM 404)		2
–405C	VB13025-8		NUT-BARREL TANDUM	B	2
406	310A1042-15		BRACKET ASSY		1
–406A	310A1042-16		. BRACKET		1
–406B	BACN10JP4ACM		. NUTPLATE		1
407	BACN10HR10CS		NUT-12 PT		1
408	310A1042-14		NUT RETAINER		1
409	AN960C416L		WASHER		1
410	BACB30LJ4U3		BOLT		1
411	310T3151-10		WASHER-SPECIAL		1
412	BACN10HR10CS		NUT-12 PT		1
413	310A1042-13		NUT RETAINER		1
414	AN960C416L		WASHER		1
415	BACB30LJ4U3		BOLT		1
416	BACB30LJ4US		BOLT		2
417	AN960C416L		WASHER		2
418	BACB30LJ4U2		BOLT		2
419	BACJ40E20-28		BONDING JUMPER		2
420	AN960C416L		WASHER		2
421	310A1042-30		BOLT RETAINER ASSY		2
–421A	310A1042-32		. BOLT RETAINER		1
–421B	BACN10JP4ACM		. NUTPLATE		1
422	BACN10HR10CS		NUT-12 PT (BACN10HR10CS, PLUS 310A1042-29 IS OPTIONAL TO BACN10YH10C, PLUS 310A1042-36.)		2
422A	BACN10YH10C		NUT-12 PT (BACN10HR10CS, PLUS 310A1042-29 IS OPTIONAL TO BACN10YH10C, PLUS 310A1042-36.)		2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
423	310A1042-29		BOLT RETAINER (BACN10HR10CS, PLUS 310A1042-29 IS OPTIONAL TO BACN10YH10C, PLUS 310A1042-36.)		2
423A	310A1042-36		BOLT RETAINER (BACN10HR10CS, PLUS 310A1042-29 IS OPTIONAL TO BACN10YH10C, PLUS 310A1042-36.)		2
424	AN960C416L		WASHER		2
425	BACN10JC4CD		NUT		2

–Item not Illustrated



Aft Engine Mount Installation
IPL Figure 3

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
3–					
–1	310A1020-3		MOUNT INSTL-ENG-AFT		RF
5	310A1039-3		. RETAINER-BOLT		2
10	BACB30LJ4U4		. BOLT		2
15	BACN10JC4C		. NUT		2
20	AN960C416		. WASHER		2
–25	310T1036-11		DELETED		
25A	310T1036-12		. BOLT-SHOULDER (REPLACES ITEM 25)		2
30	NAS1805-6P		. NUT		2
35	310T3151-13		. WASHER-SPECIAL		2
40	BACW10BP101ACU		. WASHER-CSK (LIMITED USAGE)		2
–40A	BACW10BP10ACU		. WASHER-CSK (LIMITED USAGE) (OPT ITEM 40)		2
–40B	311A1099-101		. WASHER-SPECIAL (LIMITED USAGE)		2
–45	310A1020-9		DELETED		
45A	310A1020-11		. MOUNT ASSY-AFT (LIMITED USAGE)		1
–45B	310A1020-14		. MOUNT ASSY-AFT (OPT ITEM NO. 45A) (LIMITED USAGE)		1
–45C	310A1020-21		. MOUNT ASSY-AFT (LIMITED USAGE)		1
–45D	310A1020-22		. MOUNT ASSY-AFT (LIMITED USAGE)		1
–45E	310A1020-26		. MOUNT ASSY-AFT (LIMITED USAGE)		1
50	BACB30LJ4U19		. . BOLT		2
55	BACN10JC4C		. . NUT		2
60	AN960C416		. . WASHER		2
65	310A1039-1		. . RETAINER ASSY-NUT (USED ON ITEMS 45A, 45B)		1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
3–					
–65A	310A1039-7		. . RETAINER ASSY-NUT (USED ON ITEMS 45C, 45D, 45E)		1
–66	310A1039-5		. . . RETAINER-NUT (USED ON ITEM 65)		1
–66A	310A1039-8		. . . RETAINER-NUT (USED ON ITEM 65A)		1
–67	BACN10JB4C		. . . NUTPLATE		1
–68	MS20427		. . . RIVET (SIZE DETERMINED ON INSTALLATION)		2
–70	310A1039-2		DELETED		
70A	310A1039-6		. . BOLT-RETAINER		2
75	310T1036-10		. . BOLT-SHOULDER		2
–80	BACN10HR6C		DELETED		
80A	NAS1805-6P		. . NUT		2
85	310T3151-13		. . WASHER-SPECIAL		2
90	BACW10BP10ACU		. . WASHER (USED ON ITEMS 45A THRU 45D)		2
–90A	311A1099-10		. . WASHER-SPECIAL (USED ON ITEM 45D) (OPT ITEM 90)		2
–90B	311A1099-10		. . WASHER-SPECIAL (USED ON ITEM 45E)		2
95	310A1032-3		. . LINK ASSY		2
–95A	310A1032-5		. . LINK ASSY (USED ON ITEM 45E) (OPT ITEM 95)		2
100	310A1032-2		. . . LINK (USED ON ITEM 95)		1
–100A	310A1032-4		. . . LINK (USED ON ITEM 95A)		1
105	302T0200-61		. . . BUSHING		3
110	VTB08550		. . . BEARING-SPHERICAL (V06710) (USED ON ITEM 95) (OPT ITEM 110A)		1

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
3–					
–110A	P21920		. . . BEARING-SPHERICAL (V57606) (USED ON ITEM 95)		1
–110B	VTB08550-1		. . . BEARING-SPHERICAL (V06710) (USED ON ITEM 95A) (OPT ITEM 110C)		1
–100C	P21920-1		. . . BEARING-SPHERICAL (V57606) (USED ON ITEM 95A)		1
115	93853-05		. . HANGER ASSY (V13636) (SPEC S302A004-5) (USED ON ITEM 45A)		1
–115A	310A1028-1		. . HANGER ASSY (USED ON ITEMS 45B,45C)		1
–115B	310A1028-5		. . HANGER ASSY (USED ON ITEMS 45B,45C) (OPT ITEM 115A)		1
–115C	310A1028-7		. . HANGER ASSY (USED ON ITEMS 45D,45E)		1
120	310A1028-2		. . . HANGER FITTING (USED ON ITEM 115A)		1
–120A	310A1028-6		. . . HANGER FITTING (USED ON ITEM 115B)		1
–120B	310A1028-8		. . . HANGER FITTING (USED ON ITEM 115C)		1
125	302T0200-123		. . . BUSHING		4
			INSTALLATION PARTS		
150	310A1044-1		WASHER-SPECIAL		1
–150A	310A1044-2		WASHER-SPECIAL		1
151	310A1046-1		NUT-SPECIAL		1
152	310A1039-4		NUT RETAINER		1
–152A	310A1039-9		NUT RETAINER		1
–152B	310A1039-11		NUT RETAINER		1
153	AN960C416L		WASHER		1
154	BACB30LJ4U3		BOLT		1

–Item not Illustrated