TO: ALL HOLDERS OF CF6-80C AFT ENGINE MOUNT ASSEMBLY COMPONENT MAINTENANCE MANUAL 71-21-14

REVISION NO. 23 DATED NOV 01/05

HIGHLIGHTS

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

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
REPAIR 3-2 608	Added additional oversize bearing part numbers to REPAIR 3-2.
801-803,805-806	Updated FITS AND CLEARANCES to eliminate interference data.

BOEING

COMPONENT
MAINTENANCE MANUAL

CF6-80C AFT ENGINE MOUNT ASSEMBLY

PART NUMBERS 310U2020-2 THRU -4,-6,-7,-8,-10, -13,-18

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

265588

REVISION RECORD

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

REVISION NUMBER	REVISION DATE	DATE FILED	BY

REVISION NUMBER	REVISION DATE	DATE FILED	BY

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRRB 13100-13 PRRB 12762 PRR 85243	JUN 01/96 JUL 01/00 JUL 01/00

PAGE	DATE	CODE
71-21-14		
TITLE PAGE		
1	JUL 01/00	01.1
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REVISION RECORD		
1	JUL 10/87	01
2	BLANK	
TR & SB RECORD		
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2	BLANK	
LIST OF EFFECTIVE PAGES		
*1	NOV 01/05	01
THRU LAST PAGE		
CONTENTS		
1	JUL 10/87	01
2	BLANK	
INTRODUCTION		
1	JUL 10/87	01
2	BLANK	
DESCRIPTION & OPERATION		
1	JUL 10/87	01
2	BLANK	
DISASSEMBLY		
301	JUL 10/87	01
302	BLANK	
CHECK		
501	JUL 01/00	01.1
502	MAR 01/95	01.1
REPAIR-GENERAL		
601	MAR 01/05	01.1
602	MAR 01/05	01.101

PAGE	DATE	CODE
REPAIR 1-1		
601	JUL 01/00	01.1
602	MAR 01/99	01.1
603	JUL 01/00	01.1
604	JUL 01/00	01.1
REPAIR 1-2		
601	JUL 01/00	01.1
602	MAR 01/05	01.1
603	JUL 01/00	01.1
604	JUL 01/00	01.1
605	MAR 01/05	01.1
606	NOV 01/02	01.1
607	MAR 01/99	01.1
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REPAIR 2-1		
601	MAR 01/05	01.1
602	MAR 01/05	01.1
REPAIR 2-2		
601	MAR 01/05	01.1
602	MAR 01/05	01.1
603	MAR 01/05	01.1
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REPAIR 3-1		
601	JUL 01/00	01.1
602	JUN 01/96	01.101
603	JUL 01/00	01.1
604	JUL 01/00	01.1
605	JUL 01/00	01.1
606	JUL 01/00	01.1
REPAIR 3-2		
601	JUL 01/00	01.1
602	JUL 01/00	01.1
603	MAR 01/05	01.1
604	JUL 01/00	01.1
605	MAR 01/05	01.1
606	JUL 01/00	01.1
607	MAR 01/05	01.1
*608	NOV 01/05	01.1

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PAGE	DATE	CODE
REPAIR 4-1		
601	OCT 01/87	01.1
602	BLANK	
REPAIR 5-1		
601	DEC 01/96	01.1
602	DEC 01/96	01.1
603	DEC 01/96	01.1
604	JUN 01/96	01.1
ASSEMBLY		
701	NOV 01/00	01.1
702	MAR 01/05	01.1
FITS AND CLEARANCES		
*801	NOV 01/05	01.1
*802	NOV 01/05	01.1
*803	NOV 01/05	01.1
804	JUL 01/00	01.1
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*806	NOV 01/05	01.1
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1002	JUL 01/00	01.1
1003	JUL 01/00	01.1
1004	NOV 01/00	01.1
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1015	NOV 01/00	01.1
1016	NOV 01/00	01.101
1017	NOV 01/00	01.101
1018	NOV 01/00	01.1

PAGE	DATE	CODE
ILLUSTRATED PARTS LIST		CONT.
1019	NOV 01/00	01.101
1020	NOV 01/00	01.1
1021	NOV 01/00	01.1
1022	NOV 01/00	01.101
1023	NOV 01/00	01.1
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* = REVISED, ADDED OR DELETED

TABLE OF CONTENTS

*[1] Special instructions not required. Use standard industry practices and information contained in 20-30-01 and 20-30-03.

INTRODUCTION

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

This manual is divided into separate sections:

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

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

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

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

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

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

Verification:

Disassembly
Assembly

CF6-80C AFT ENGINE MOUNT ASSEMBLY

DESCRIPTION AND OPERATION

1. The aft engine mount assembly consists of fitting assemblies, links and parts required to attach CF6-80C engine to the strut.

DISASSEMBLY

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

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

2. Do not remove spherical bearing outer races; bearing balls may be replaced, if necessary.

3. Do not remove flanged bushings and nutplate unless necessary for repair or replacement.

CHECK

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

2. For engine mount bolts (IPL Fig. 1; 20, 80, 320) - If defects are found during visual check, remove the chrome plate and perform a penetrant check.

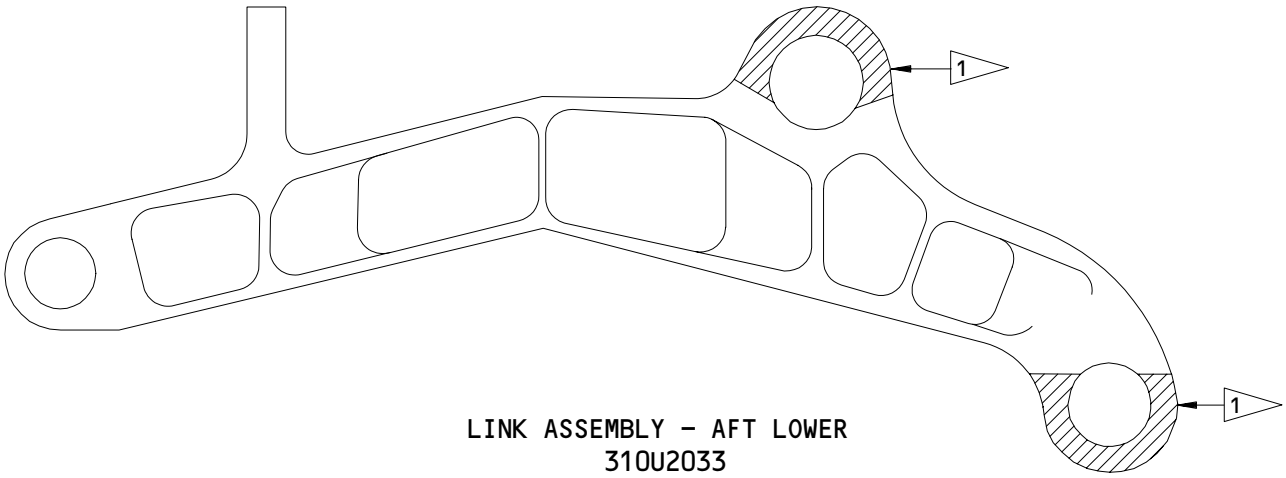
3. Magnetic particle check per 20-20-01 -- (IPL Fig. 1) fittings (140, 180 (except 180M, 180N)), shear pin (115).

4. Penetrant check per 20-20-02 -- (IPL Fig. 1) bolts (20, 80, 320), washers (30, 90), retainers (15, 67, 75), link (55), bushing (112), fitting (102A, 142, 180M, 180N).

5. Do a check for scratches and gouges on the engine mount components listed in Fig. 501. Repair damage within allowable depths per applicable repair section.

6. Do a check for corrosion on the shear pin (115) and in the shear pin mounting hole in fitting (140). Refer to REPAIR 1-2 for repair.

   NOTE: Shear pin (115) will have to be removed to perform check.



LINK ASSEMBLY - AFT LOWER
310U2033

NOMENCLATURE	PART NUMBER	MAXIMUM REPAIRABLE GOUGE DEPTH (INCHES)	
		GENERAL 2	RESTRICTED 3
FITTING ASSEMBLY - AFT UPPER	310U2031	0.03	--
LINK ASSEMBLY - AFT TANGENT	310U2032	0.03	--
FITTING ASSEMBLY - AFT LOWER	310U2033	0.03	0.005

NOTE: SEE APPLICABLE REPAIR SECTION FOR REPAIR PROCEDURE.

1 RESTRICTED AREA.
SEE CHART FOR MAXIMUM REPAIRABLE GOUGE DEPTH.

2 MAXIMUM REPAIRABLE GOUGE DEPTH ALL OVER EXCEPT IN RESTRICTED AREAS SHOWN.

3 MAXIMUM REPAIRABLE GOUGE DEPTH IN RESTRICTED AREAS SHOWN.

Scratch and Gouge Check
Figure 501

E07956

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
310U2031	FITTING, UPPER	1-1
310U2032	TANGENT LINK ASSEMBLY	2-1
310U2033	FITTING, LOWER	3-1
- - -	MISC PARTS REFINISH	4-1
310T1036	BOLT	5-1

2. Standard Practices

A. Refer to the following standard practices as applicable, for details of procedures in each individual repair.

20-10-01 Repair and Refinish of High Strength Steel Parts
20-10-02 Machining of Alloy Steel
20-30-02 Stripping of Protective Finishes
20-30-03 General Cleaning Procedures
20-41-01 Decoding Table For Boeing Finish Codes
20-42-09 Electrodeposited Nickel Plating
20-50-03 Bearing Installation and Retention
20-50-07 Lubrication
20-50-13 Application of Weather, Fuel, Oil, Solvent and Heat Resistant Protective Coatings

3. Materials

NOTE: Equivalent substitutes may be used.

A. Protective Coating -- BMS 14-4 type 1 (Ref 20-60-02)

B. Protective Coating -- BMS 14-4 type 2 (Ref 20-60-02)

C. Methyl Ethyl Ketone (Ref 20-60-01)

D. Topcoat -- Sermetal 985, Sermatech Inernational Inc., 155 S. Limerick Rd, Limerick, Pennsylvania 19468-1603

4. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in applicable repair procedures are shown in Fig. 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)
∅	DIAMETER
S∅	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
⊥ B 0.002	PERPENDICULAR TO B WITHIN 0.002
// A 0.002	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
⌒ A 0.006	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
⌓ A 0.020	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.02 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
◎ C ∅ 0.0005	CONCENTRIC TO C WITHIN 0.0005 DIAMETER
⌯ A 0.010	SYMMETRICAL WITH A WITHIN 0.010
∠ A 0.005	ANGULAR TOLERANCE 0.005 WITH A
⌖ B ∅ 0.002 Ⓢ	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
⊥ A ∅ 0.010 Ⓜ 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	EXACT DIMENSION IS 2.000

(NOTE THAT ⌓ A 0.020 MAY ALSO APPEAR AS ⌓ 0.020 A)

True Position Dimensioning Symbols
Figure 601

UPPER FITTING ASSEMBLY - REPAIR 1-1

310U2031-1, -3, -7, -9, -11, -13, -15, -17, -19, -21, -23, -26

CAUTION: BE CAREFUL WITH ION-VAPOR-DEPOSITED-ALUMINUM COATED PARTS. THIS COATING CAN BE DAMAGED EASILY.

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which require restoration of original finish, refer to Refinish instructions, REPAIR 1-2.

1. Bushing Replacement (Fig. 601)

   A. Press out old bushing.

   B. Measure hole diameter for bushing (105, 112, IPL Fig. 1). If diameter is greater than design diameter as shown in REPAIR 1-2, install oversize bushing per REPAIR 1-2.

   C. If bushing hole diameter is within design diameter limits, clean hole with double application of methyl ethyl ketone. Apply wet BMS 14-4 type 1 or 2, protective coating to hole and immediately install bushings. Use shrink-fit method per 20-50-03. Wipe off any excess protective coating immediately after installation.

      NOTE: For optional protective coating application procedure see Fig. 601, Repair 1-2.

      Do not apply catalyst. Do not bake after installation.

   D. Machine bushings to dimensions shown in Fig. 601.

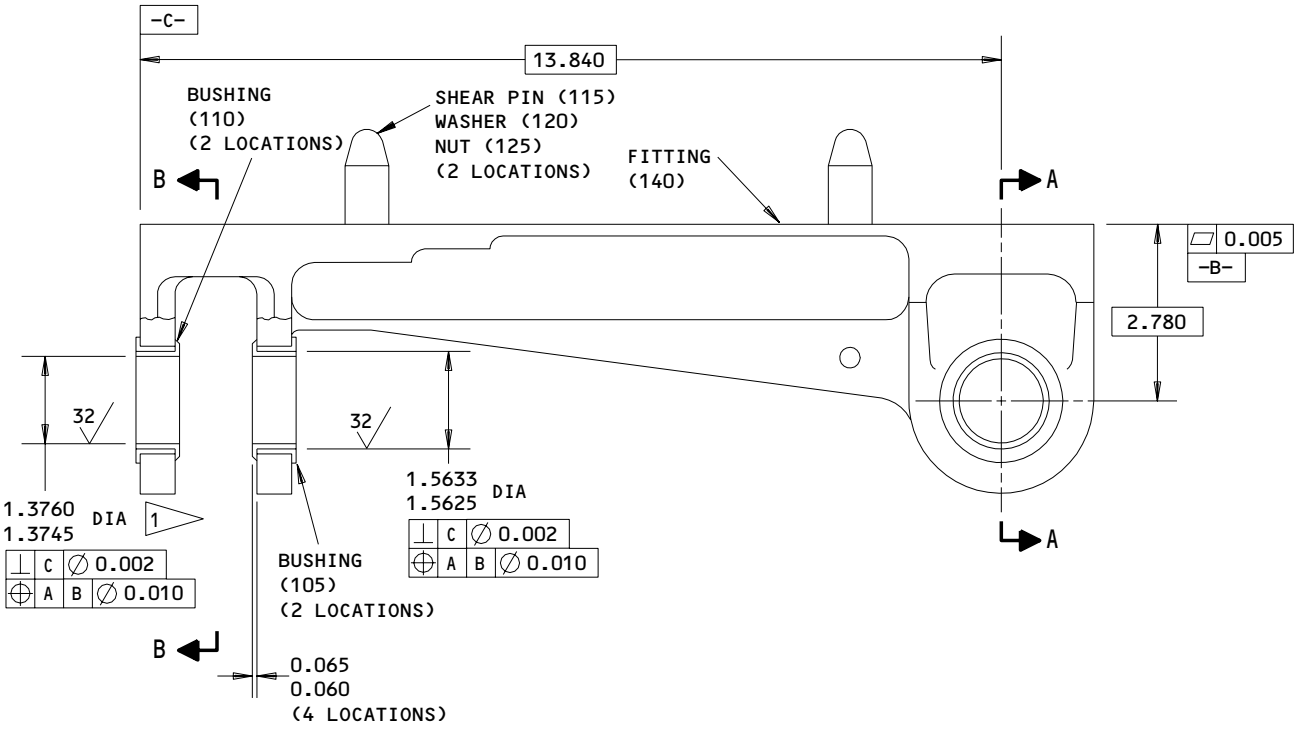
2. Shear Pin Replacement

   A. Remove shear pin (115), washer (120) and nut (125) from fitting (140).

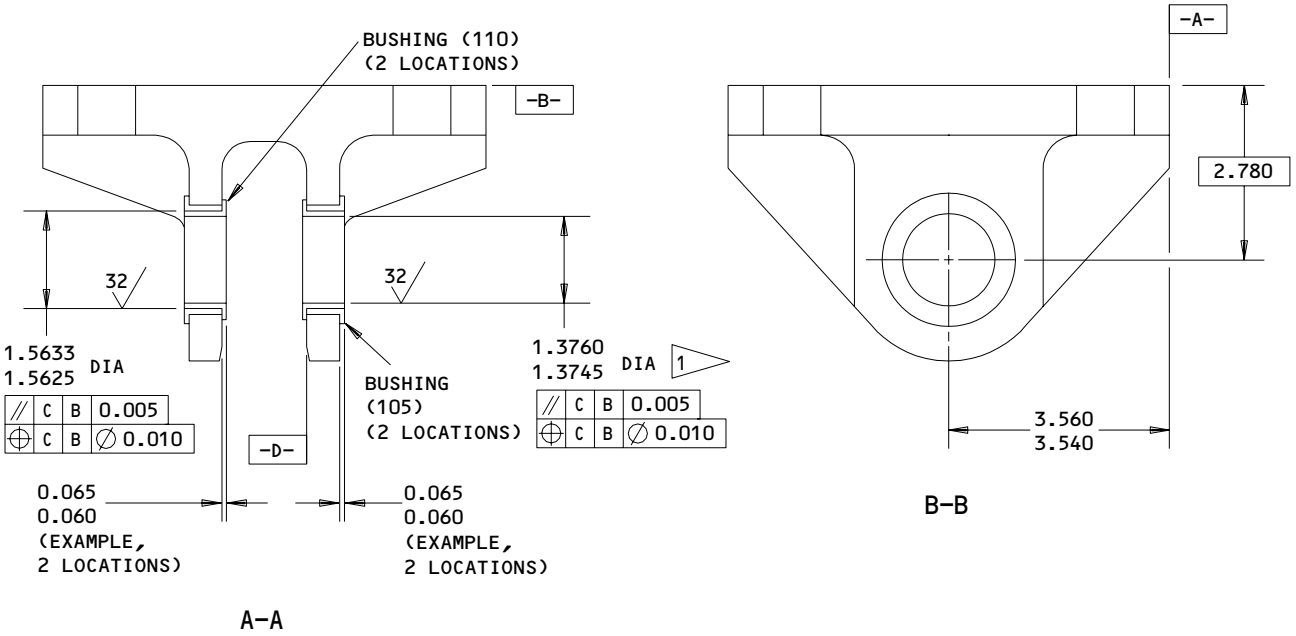
B. Remove corrosion found in the shear pin mounting hole of fitting (140) as required using REPAIR 1-2.

C. Install shear pin (115) in fitting (140) using washer (120) and nut (125).

D. Torque nut (125) to 290-510 pound-inches.

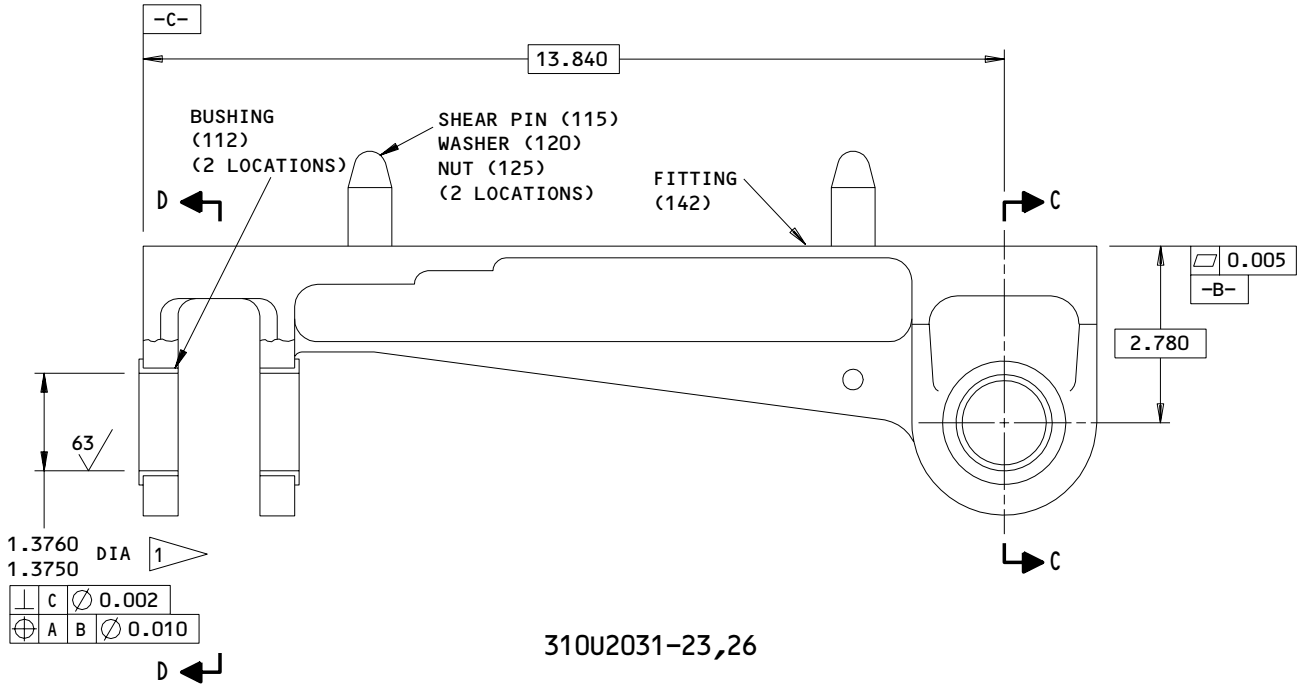


310U2031-1,-3,-7,-9,-11,-13,-15,-17,-19,-21



310U2031-1,-3,-7,-9,-11,-13,-15,-17,-19,-21,-23,-26
Upper Fitting Assembly Repair
Figure 601 (Sheet 1)

265634



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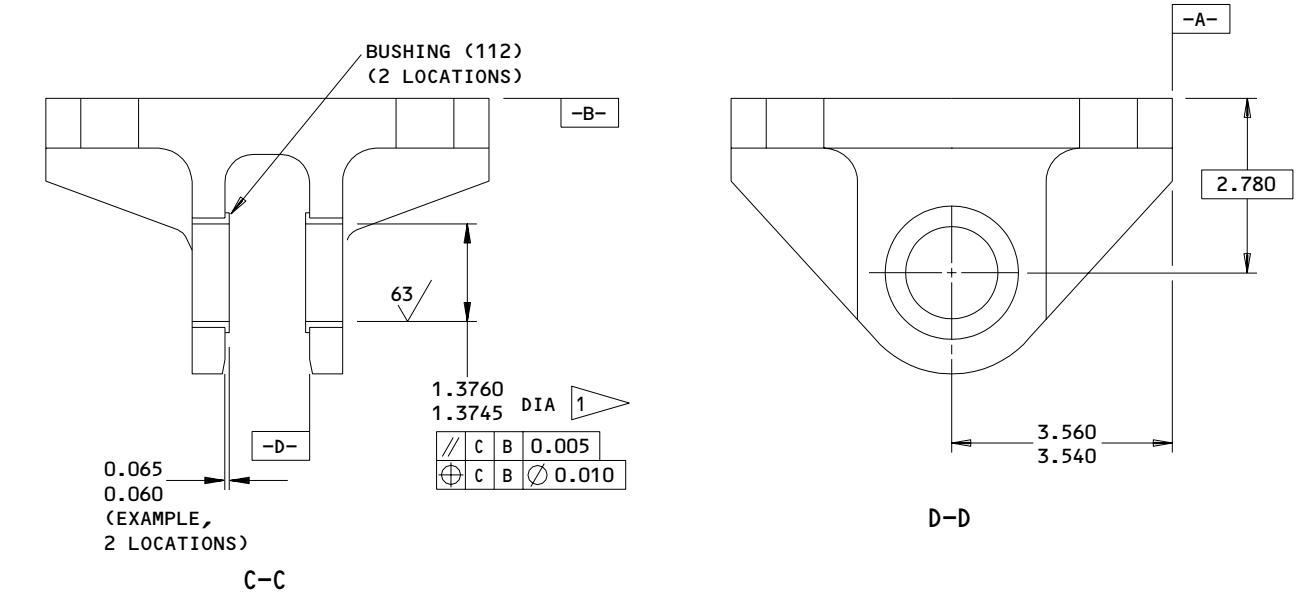


1 TWO HOLES CONCENTRIC TO COMMON AXIS WITHIN 0.001 FIM

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

310U2031-1,-3,-7,-9,-11,-13,-15,-17,-19,-21,-23,-26
Upper Fitting Assembly Repair
Figure 601 (Sheet 2)

L29098

FITTING, UPPER - REPAIR 1-2

310U2031-2, -4, -6, -8, -10, -12, -14, -16, -18, -20, -22, -24, -27

CAUTION: BE CAREFUL WITH ION-VAPOR-DEPOSITED-ALUMINUM COATED PARTS. THIS COATING CAN BE DAMAGED EASILY.

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

1. Installation of Oversize Bushing

   A. Machine the hole for the bushing as necessary to remove the defects, cracks and/or corrosion up to the repair limit as shown in Fig. 601.

   B. Manufacture bushing (Fig. 602), as required, to compensate for amount of material removed.

   C. Install bushing per Repair 1-1.

2. Shear Pin Fitting Hole Repair

   CAUTION: THE HOLE FOR THE BUSHING MUST BE MACHINED TO THE REPAIR DIMENSION IN ORDER TO GET THE CORRECT WALL THICKNESS FOR THE REPAIR BUSING.

   A. Remove defects in shear pin fitting holes by machining fitting (140) to the repair dimension as shown in Fig. 601.

   B. Break all hole edges to 0.010-0.020 inch radius at 32 microinches Ra.

   C. Dry abrasive blast the machined area and apply ion deposited aluminum coating (F-24.06) except for 310U2031-24, -27 (not required).

D. Manufacture repair bushing as shown in Fig. 603.

E. Install repair bushing into fitting (140) using the shrink-fit method shown in SOPM 20-50-03. The repair bushing shall be flush to the surface of the fitting within 0.000 to 0.003 inch.

3. Scratch and Gouge Repair

NOTE: See Fig. 501 for maximum repairable scratch and gouge depth.

A. Blend out scratches and gouges to 1.00-inch minimum blend radius.

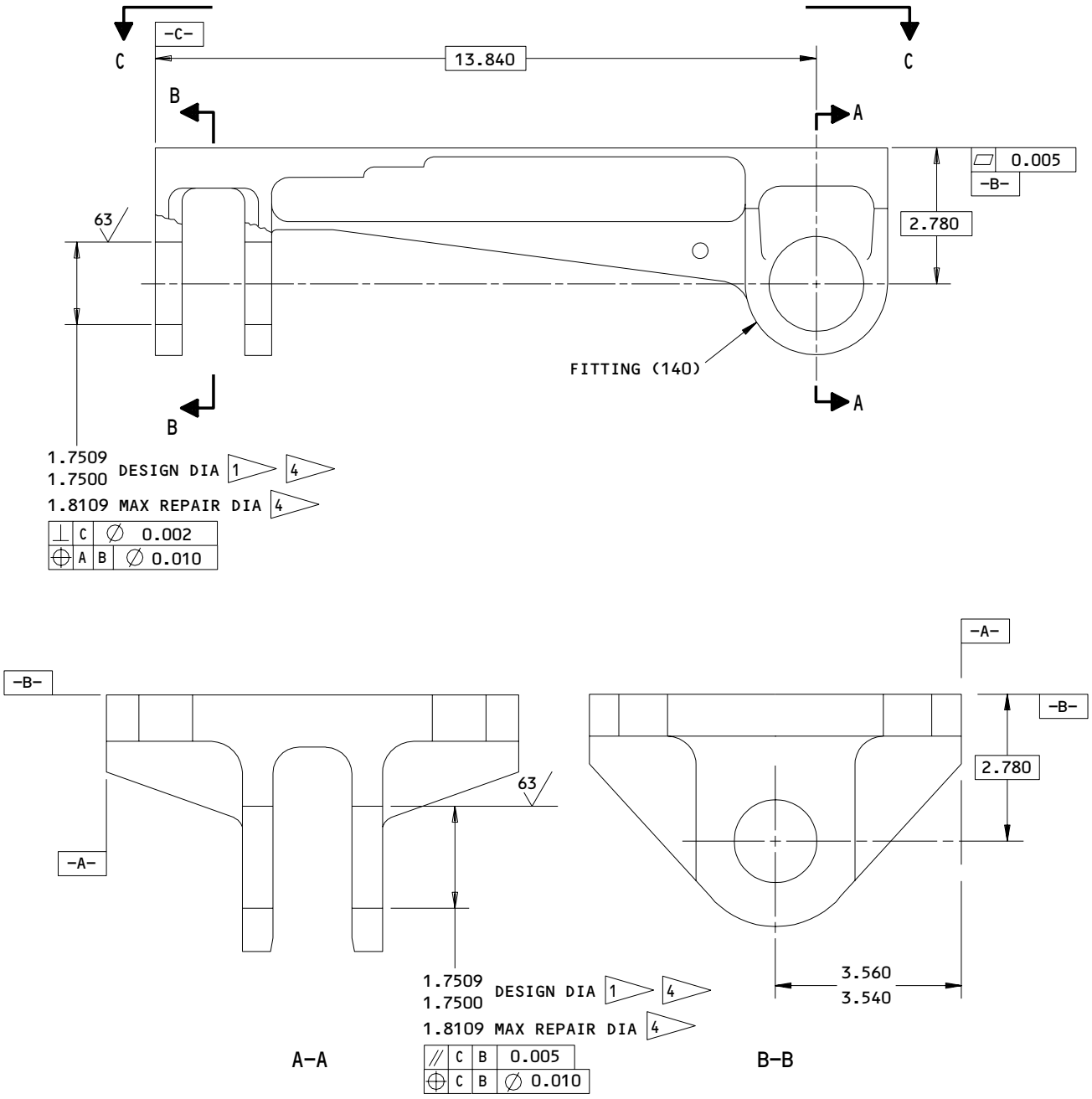
4. Corrosion Repair

A. Blend out corrosion to a maximum clean-up depth of 0.03 inches all over. No restricted areas.

5. Refinish - Except for 310U2031-24, -27 (not required (F-25.01))

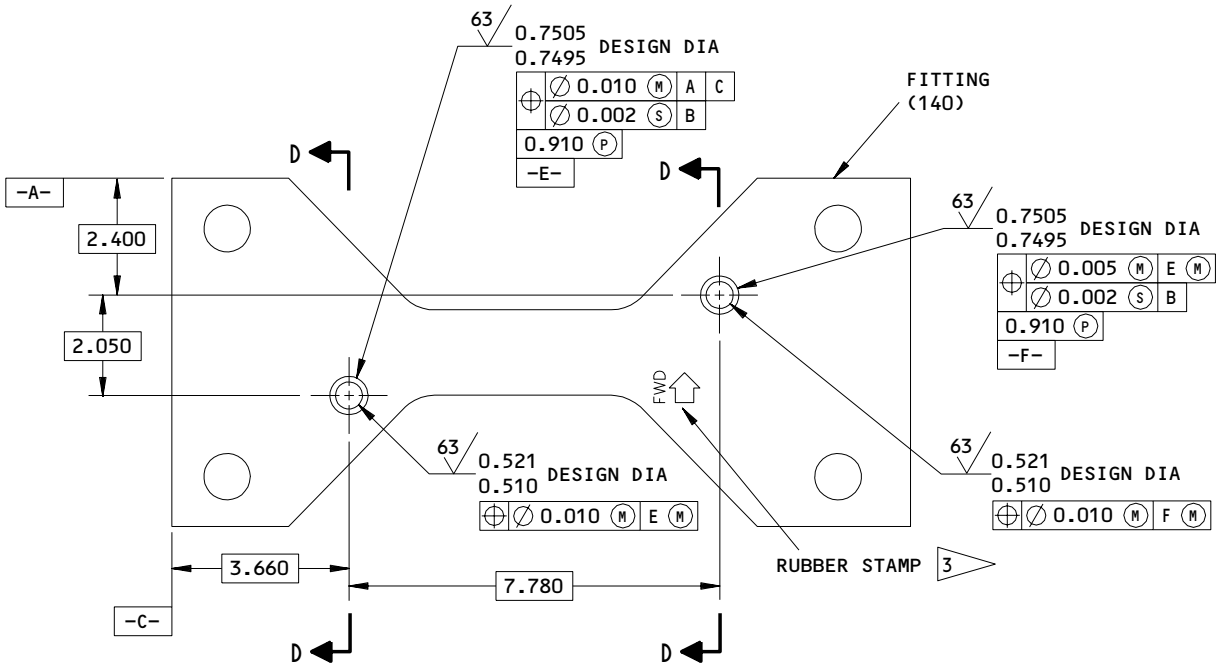
A. Mask bushing inner diameters, faces and faying surfaces prior to stripping. Locally strip the IVD coating per 20-30-02. Use 2 percent (by weight) sodium hydroxide with balance of water. Bake prior to strip not required.

B. Apply BMS 14-4 Type I, then bake to 325°F ±25°F for 4 hours.

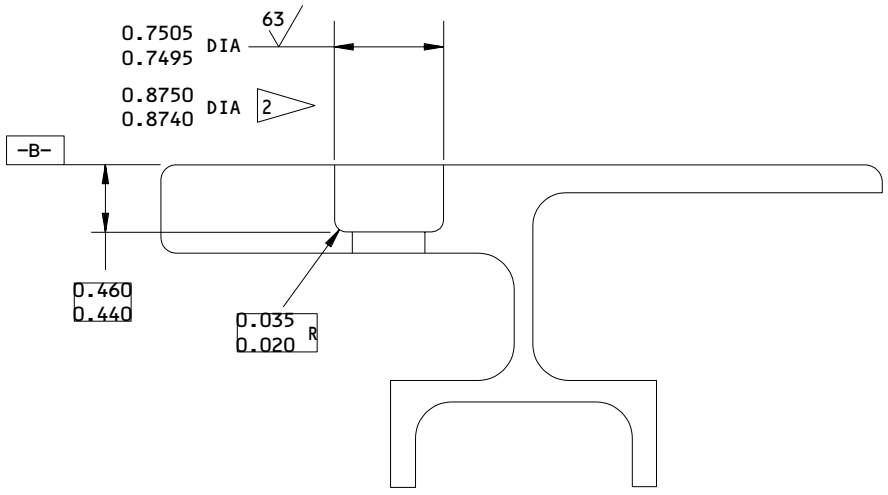


310U2031-2,-6,-8,-10,12,-14,-16,-18,-20,-22,-24,-27
Upper Fitting Repair
Figure 601 (Sheet 1)

277894



C-C



D-D

310U2031-2,-6,-8,-10,-12,-14,-16,-18,-20,-22,-24,-27
Upper Fitting Assembly Repair
Figure 601 (Sheet 2)

KD2336

CAUTION: OBSERVE ORIENTATION OF FITTING BEFORE RUBBER STAMPING.

REFINISH

310U2031-2,-6,-8,-10:
DRY ABRASIVE BLAST AS SHOWN IN SOPM 20-30-03 AND APPLY ION VAPOR DEPOSITED ALUMINUM COATING (F-24.06) ALL OVER EXCEPT IN BUSHING HOLES.

OPTION I:
COAT ONLY THE SURFACES OF THE FITTING WHICH WILL BE IN CONTACT WITH BUSHING FLANGES WITH BMS 14-4, TYPE 1 PROTECTIVE COATING. BAKE THE PART AND BURNISH AS REQUIRED. INSTALL INNER AND OUTER BUSHINGS (NESTED SET) AS SHOWN IN REPAIR 1-1. REMOVE EXCESS BMS 14-4, TYPE 1 PROTECTIVE COATING FROM EDGE OF BUSHING FLANGE AND SURROUNDING AREA TO ENSURE (F-24.06) FILLET SEAL WITH BUSHING FLANGE. BAKE AS REQUIRED. MACHINE BUSHING INSIDE DIAMETERS AS NECESSARY. MASK ALL BUSHING FLANGE FACES AND INSIDE DIAMETERS. DRY ABRASIVE BLAST AS SHOWN IN SOPM 20-30-03 AND APPLY ION VAPOR DEPOSITED ALUMINUM COATING (F-24.06) ALL OVER.

OPTION II:
APPLY BMS 14-4, TYPE I ALL OVER EXCEPT IN BUSHING HOLES. BAKE AT 650°F± 25°F FOR 30 MINUTES MINIMUM OR BAKE AT 375°F± 25°F FOR 26 HOURS MINIMUM. BURNISH CURED BMS 14-4, TYPE I COATING BY GRIT BLASTING AT 30 TO 40 PSI USING 320 MESH ALUMINUM OXIDE POWDER. APPLY SECOND COATING OF BMS 14-4, TYPE I COATING ALL OVER EXCEPT IN BUSHING HOLES. BAKE AT 650°F± 25°F FOR 30 MINUTES MINIMUM OR BAKE AT 375F± 25°F FOR 26 HOURS MINIMUM. INSTALL BUSHINGS AS SHOWN IN REPAIR 1-1 WITH WET BMS 14-4, TYPE I COATING AFTER COMPLETION OF SECOND BAKE. REMOVE EXCESS BMS 14-4, TYPE 1 COATING FROM THE EDGE OF BUSHING FLANGE AND SURROUNDING AREA TO INSURE FILLET SEAL WITH BUSHING FLANGE

310U2031-12,-14,-16,-18,-20,-22:
MASK ALL BUSHING FLANGE FACES AND INSIDE DIAMETERS. APPLY SERMETEL 985 TOPCOAT MANUFACTURES INSTRUCTIONS ALL OVER. CURED COATING SHALL NOT MARK OR CHIP WHEN SCRATCHED WITH FINGERNAIL.

310U2031-24,-27: NO FINISH (F-25.01)

OPTION I
REMOVE EXCESS BMS 14-4, TYPE PROTECTIVE COATING FROM EDGE OF BUSHING FLANGE AND SURROUNDING AREA TO ENSURE (F-24.07) FILLET SEAL OF BUSHING FLANGE. BAKE ASSEMBLY AS REQUIRED. MACHINE BUSHING INSIDE DIAMETERS AS NECESSARY. MASK ALL BUSHING FLANGE FACES AND INSIDE DIAMETERS. DRY ABRASIVE BLAST CLEAN AS SHOWN IN SOPM 20-30-03 AND APPLY ION VAPOR DEPOSITED ALUMINUM COATING (F-24.07) ALL OVER. APPLY SERMETEL 985 TOPCOAT PER MANUFACTURES INSTRUCTIONS ALL OVER. CURED COATING SHALL NOT MARK OR CHIP WHEN SCRATCHED WITH FINGERNAIL.

OPTION II:

APPLY BMS 14-4, TYPE I ALL OVER EXCEPT IN BUSHING HOLES. BAKE AT 650°F± 25°F FOR 30 MINUTES MINIMUM OR BAKE AT 375°F± 25°F FOR 26 HOURS MINIMUM. BURNISH CURED BMS 14-4, TYPE I COATING BY GRIT BLASTING AT 30 TO 40 PSI USING 320 MESH ALUMINUM OXIDE POWDER. APPLY SECOND COATING OF BMS 14-4, TYPE I COATING ALL OVER EXCEPT IN BUSHING HOLES. BAKE AT 650°F± 25°F FOR 30 MINUTES MINIMUM OR BAKE AT 375F± 25°F FOR 26 HOURS MINIMUM. INSTALL BUSHINGS AS SHOWN IN REPAIR 1-1 WITH WET BMS 14-4, TYPE I COATING AFTER COMPLETION OF SECOND BAKE. REMOVE EXCESS BMS 14-4, TYPE 1 COATING FROM THE EDGE OF BUSHING FLANGE AND SURROUNDING AREA TO INSURE FILLET SEAL WITH BUSHING FLANGE

1 TWO HOLES CONCENTRIC TO COMMON AXIS WITHIN 0.001 FIM

2 DIMENSION FOR SHEAR PIN HOLE REPAIR

3 RUBBER STAMP AS SHOWN IN SOPM 20-50-10, CODE M 0.36 POINT ARROW, 0.48 LONG, 0.19 HIGH LETTERS

4 FOR 310U2031-24,-27 DESIGN DIAMETER 1.5625-1.5633 MAXIMUM REPAIR DIAMETER 1.6233

BREAK ALL SHARP EDGES

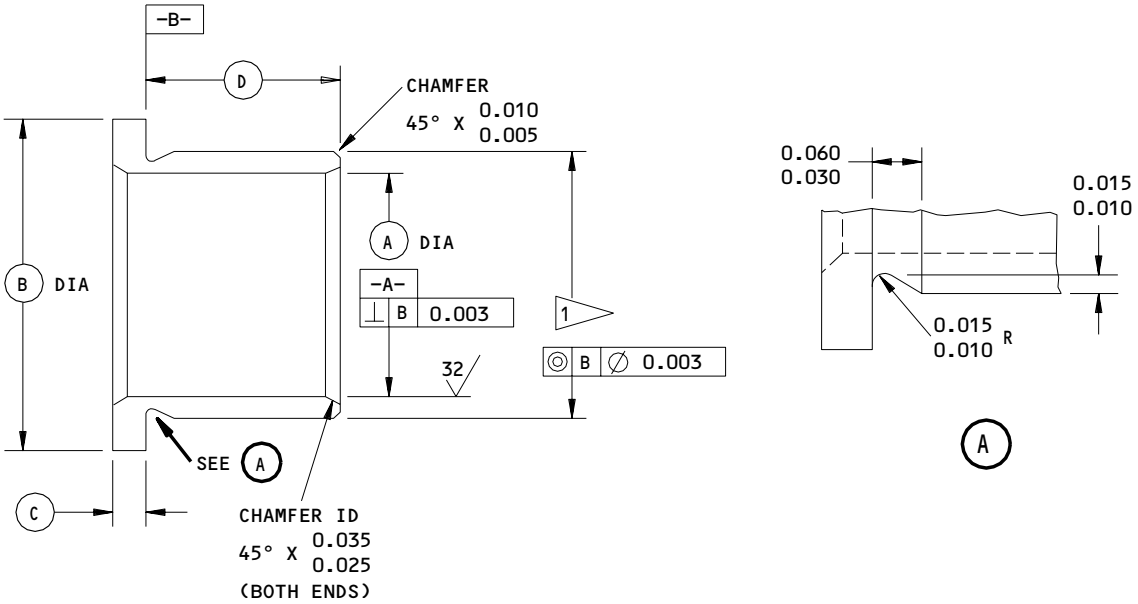
MATERIAL: 9NI-4CO-.3C STEEL, 220 KSI MIN EXCEPT FOR 310U2031-24,-27 MATERIAL FOR 310U2031-24,-27 IS NICKEL ALLY AS SHOWN IN AMS 5662

MAGNETIC PARTICLE CHECK PER SOPM 20-20-01

ALL DIMENSIONS ARE IN INCHES

310U2031-2,-6,-8,-10,-12,-14,-16,-18,-20,-22,-24,-27
Upper Fitting Assembly Repair
Figure 601 (Sheet 3)

277895



ORIGINAL BUSHING NO. (REF)	A	B	C	D	INTERFERENCE
105, FIG. 1	1.549 1.531	2.060 2.040	0.065 0.060	0.490 0.480	0.0029 0.0011
112, FIG. 1	1.3730 1.3718	1.850 1.830	0.065 0.060	0.5530 0.5430	0.0027 0.0011

63 MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES

APPLY NO FINISH

MATERIAL: NICKLE ALLOY 718 PER AMS 5662

HEAT TREAT: PER BAC 5616 CONDITION II

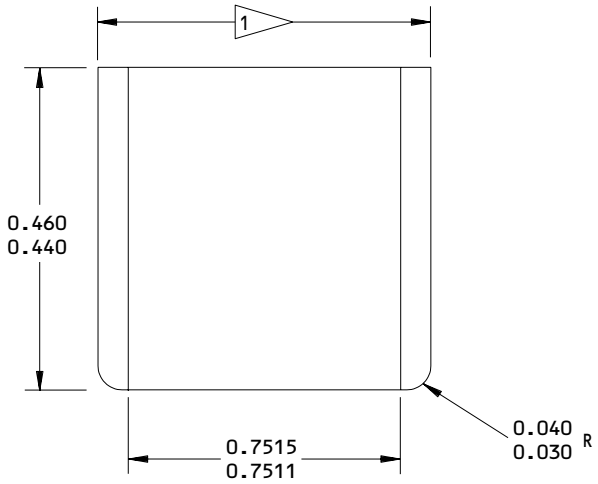
PENETRANT CHECK PER 20-20-02

ALL DIMENSIONS ARE IN INCHES

1 FINAL BUSHING OUTSIDE DIAMETER EQUALS REPAIR DIAMETER OF FITTING PLUS INTERFERENCE

Oversize Bushing Detail
Figure 602

278071



1 FINAL BUSHING OUTSIDE DIAMETER EQUALS REPAIR DIAMETER OF FITTING PLUS AN INTERFERENCE OF 0.0011 TO 0.0015 INCH

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

PASSIVATE PER QQ-P-35

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

PENETRANT CHECK PER SOPM 20-20-02

ALL DIMENSIONS ARE IN INCHES

Replacement Bushing Details
Figure 603

TANGENT LINK ASSEMBLY - REPAIR 2-1

310U2032-1, -3

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

1. Bearing Replacement (Fig. 601)

   A. Remove bearing (45) as shown in SOPM 20-50-03.

   B. Check hole diameter and repair as required.

   C. Clean hole with double application of methyl ethyl ketone. Apply wet BMS 14-4 Type 1 or 2, protective coating to hole and immediately install bearing race. Roller swage per 20-50-03. Wipe off excess protective coating immediately after swaging. Slot in race must be positioned as shown.

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

   D. Install ball and hold in place with aluminum wire until unit is installed.

2. Bushing Replacement (Fig. 601)

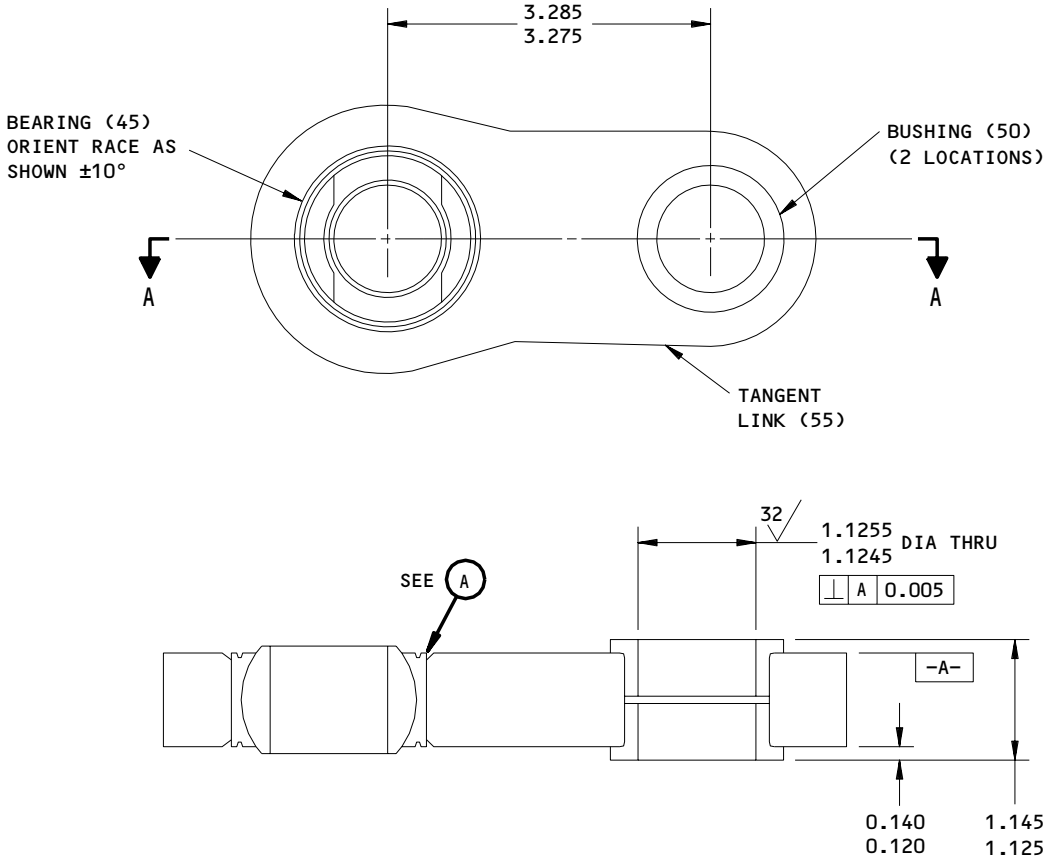
   A. Press out old bushings (50).

   B. Measure hole diameter for bushing (50, IPL Fig. 1). If diameter is greater than design diameter as shown in Repair 2-2, install oversize bushing per Repair 2-2.

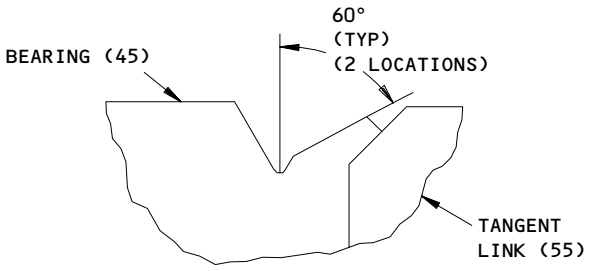
   C. If bushing hole diameter is within design diameter limits, clean hole with double application of methyl ethyl ketone. Apply wet BMS 14-4 type 2, protective coating to hole and immediately install bushings. Use shrink-fit method per 20-50-03. Wipe off any excess protective coating immediately after installation.

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

   D. Machine bushings to dimension shown in Fig. 601.



A-A



SWAGING DETAIL
A

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

310U2032-1,-3
Bushing and Bearing Replacement
Figure 601

TANGENT LINK - REPAIR 2-2

310U2032-2

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

1. Installation of Oversize Bushing

   A. Remove defects by machining to repair limits as shown in Fig. 601.

   B. Manufacture bushing (Fig. 602), as required, to compensate for amount of material removed.

   C. Install bushing per Repair 2-1.

2. Installation of Oversize Bearings (Fig. 601, 602)

   A. Remove defects by machining to repair limits as shown in Fig. 602.

   B. Select appropriate oversize bearing from Fig. 602.

   C. Install bearing per Repair 2-1.

3. Scratch and Gouge Repair

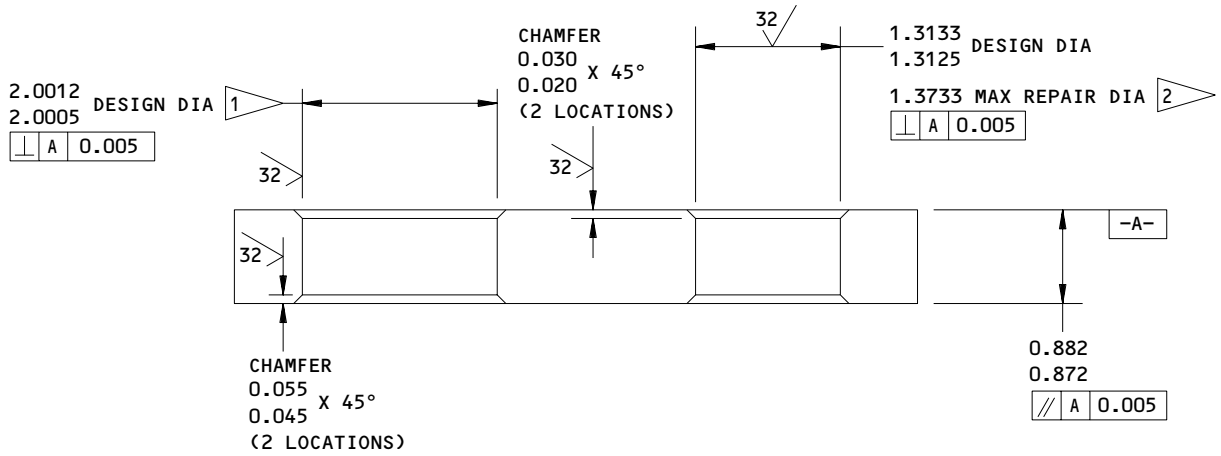
   NOTE: See Fig. 501 for maximum repairable scratch and gouge depth.

   A. Blend out scratches and gouges to 1.00-inch minimum blend radius.

4. Corrosion Repair

   A. Blend out corrosion to a maximum cleanup depth of 0.03 inch all over. No restricted areas.

5. Refinish -- DELETED



REFINISH

APPLY NO FINISH

1 SEE FIGURE 602 FOR OVERSIZE BEARING REPAIR LIMITS

2 REPAIR LIMIT FOR INSTALLATION OF OVERSIZE BUSHING

REPAIR

REF 1 2

MATERIAL: INCONEL 718, AMS 5662

ALL DIMENSIONS ARE IN INCHES

310U2032-2
Tangent Link Repair
Figure 601

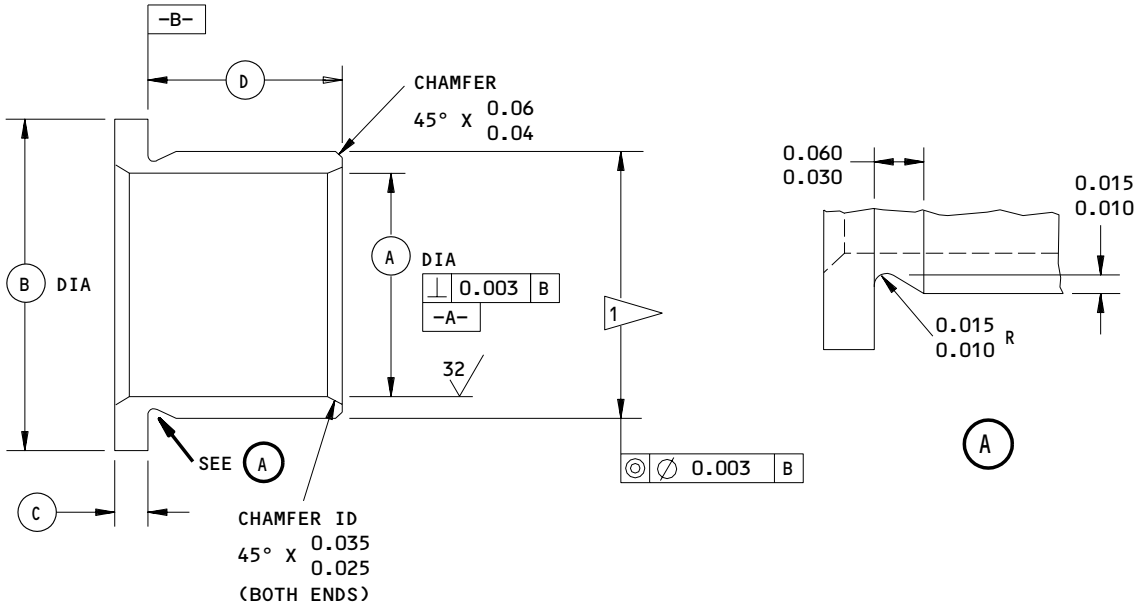
REPAIR LIMIT	OVERSIZE BEARING OD	NEW HAMPSHIRE BALL BEARING
2.0112 2.0105	2.0100 2.0095	AMB18V4015P10
2.0212 2.0205	2.0200 2.0195	AMB18V4015P20
2.0312 2.0305	2.0300 2.0295	AMB18V4015P30
2.0612 2.0605	2.0600 2.0595	AMB18V4015P60

OVERSIZE BEARING DETAILS FOR BEARING (45)

266296

Oversize Bearing and Bushing Details
Figure 602 (Sheet 1)

C41791



ORIGINAL BUSHING NO. (REF)	(A)	(B)	(C)	(D)	INTERFERENCE
FIG. 1, 50	1.112 1.094	1.780 1.760	0.130 0.125	0.430 0.420	0.0024 0.0008

1 FINAL BUSHING OUTSIDE DIAMETER EQUALS REPAIR DIAMETER OF FITTING PLUS INTERFERENCE

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

APPLY NO FINISH

MATERIAL: INCONEL 718, AMS 5662

HEAT TREAT: PER BAC5616 CONDITION II

PENETRANT CHECK AS SHOWN IN SOPM 20-20-02

ALL DIMENSIONS ARE IN INCHES

Oversize Bearing and Bushing Details
Figure 602 (Sheet 2)

278073

LOWER FITTING ASSEMBLY - REPAIR 3-1

310U2033-1, -3, -5, -7, -9, -11, -13, -15, -17, -19, -21, -23, -25, -27

CAUTION: BE CAREFUL WITH ION-VAPOR-DEPOSITED-ALUMINUM COATED PARTS. THIS COATING CAN BE DAMAGED EASILY.

NOTE: Refer to REPAIR-GEN for list of applicable standard practices. For repair of surfaces which may only require restoration of original finish, refer to Refinish instructions, REPAIR 3-2.

1. Bearing Replacement (Fig. 601)

   A. Remove bearings (170, 175).

   B. Check hole diameter and repair as required.

   C. Clean hole with double application of methyl ethyl ketone. Apply wet BMS 14-4 type 1, protective coating to hole and immediately install bearing race. Roller swage per 20-50-03. Wipe off excess protective coating immediately after swaging. Slot in race must be positioned as shown.

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

   D. Give bearing (170 or 175) a push out load test per 20-50-03. The required push out load of 5300 pounds for bearing (170) and 4700 pounds for bearing (175).

   E. Install balls and hold in place with nylon ties until unit is installed.

2. Bushing Replacement (Fig. 601)

   A. Press out old bushings.

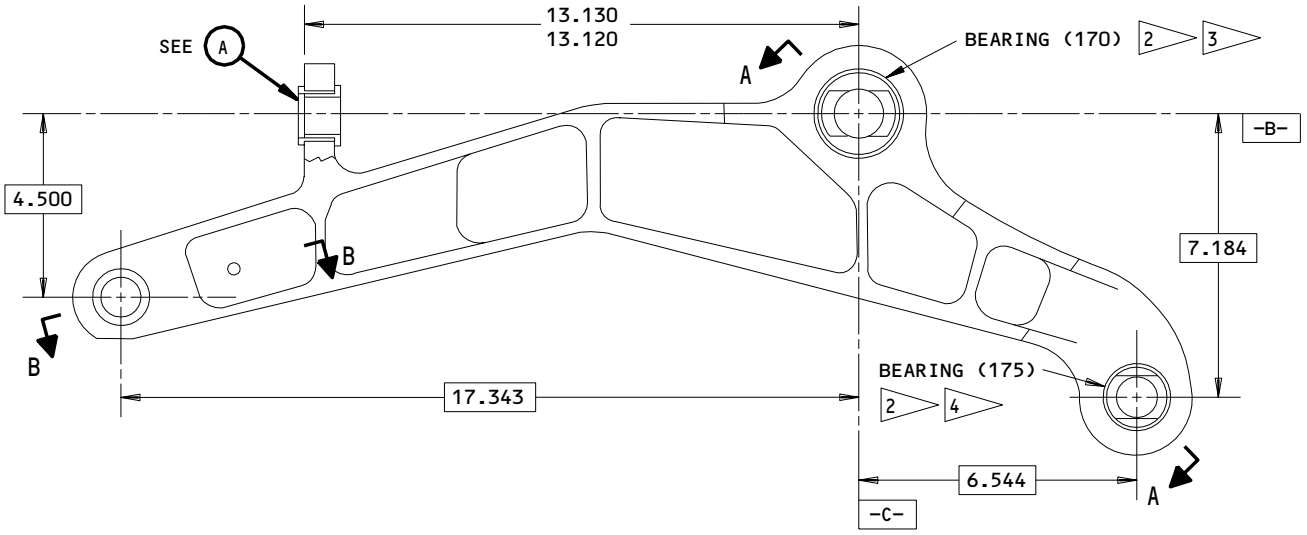
   B. Measure hole diameters for bushings (155, 165, 167, IPL Fig. 1). If diameter is greater than design diameter as shown in Repair 3-2, install oversize bushing per Repair 3-2.

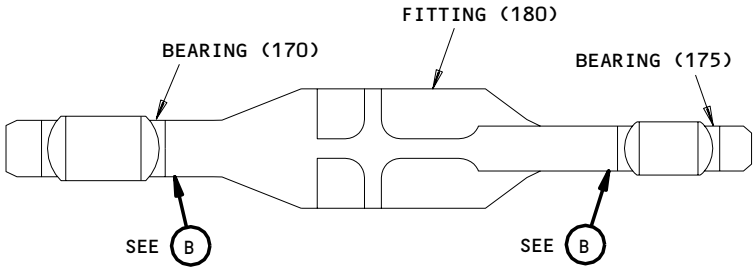
   C. If bushing hole diameter is within design diameter limits, clean hole with double application of methyl ethyl ketone. Apply wet BMS 14-4 type 1, protective coating to hole and immediately install bushings. Use shrink-fit method per 20-50-03. Wipe off any excess protective coating immediately after installation.

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

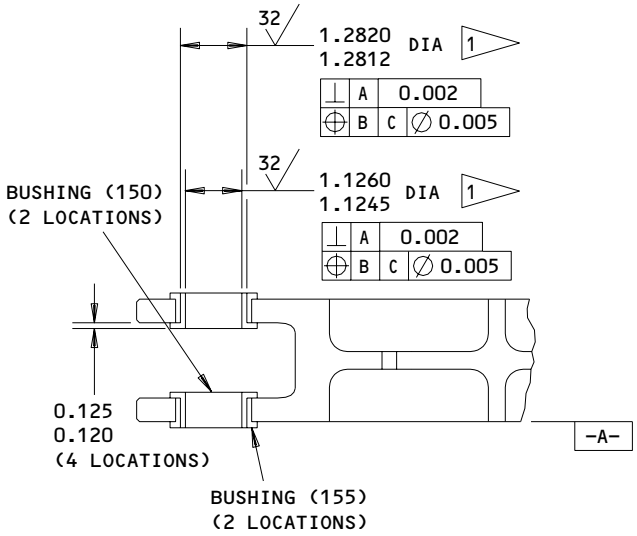
      For optional protective coating application procedure see Fig. 601, Repair 3-2.

D. Machine bushings to dimension shown in Fig. 601.





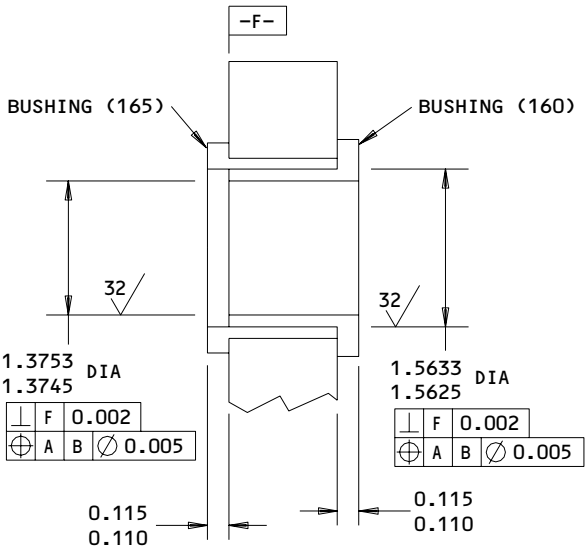
A-A



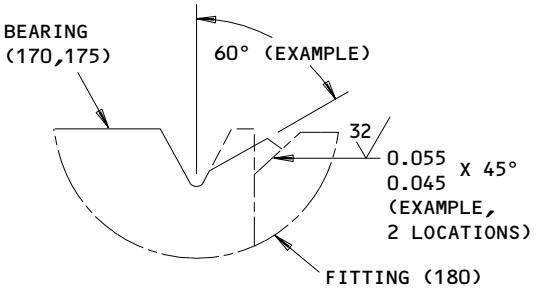
B-B

310U2033-1,-3,-5,-7,-9,-11,-13,-15,-17,-19,-21,-23
Bushing and Bearing Replacement
Figure 601 (Sheet 1)

265637



A



SWAGING DETAIL

B

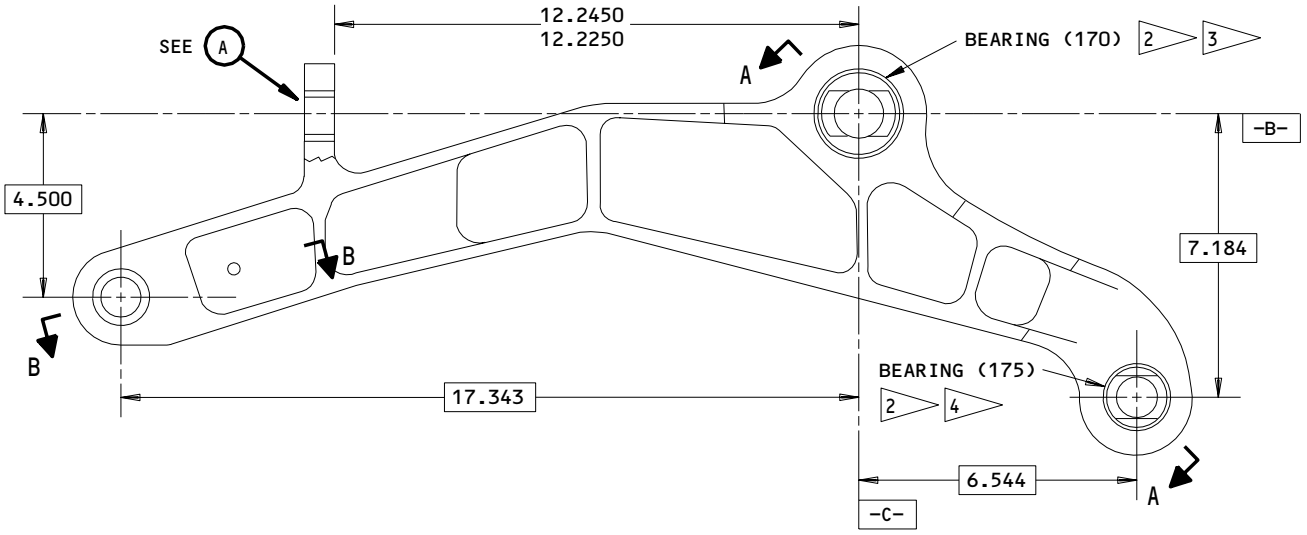
1. TWO HOLES CONCENTRIC TO COMMON AXIS WITHIN 0.001 FIM
2. ORIENT OUTER RACE TO WITHIN ±10°
3. PUSH OUT LOAD 5300 POUNDS
4. PUSH OUT LOAD 4700 POUNDS

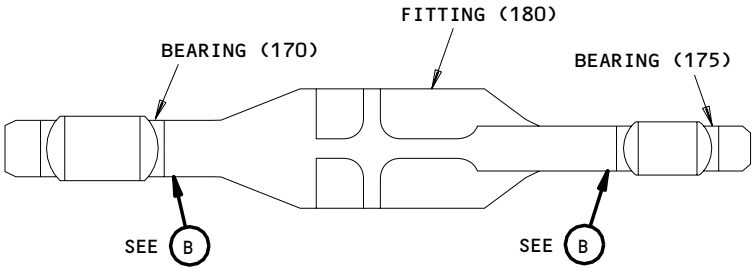
ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

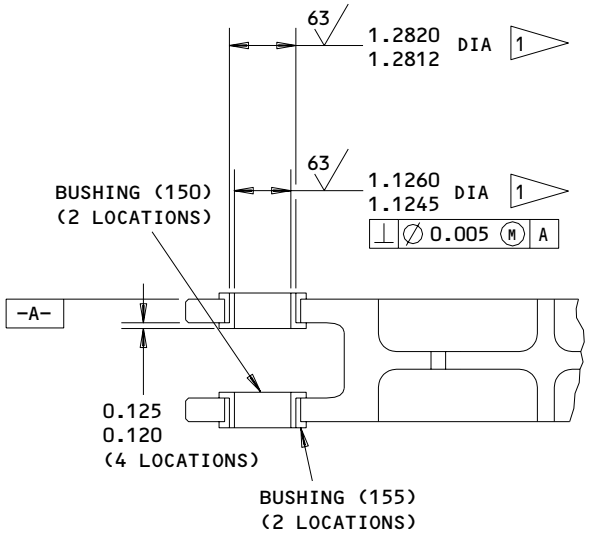
310U2033-1,-3,-5,-7,-9,-11,-13,-15,-17,-19,-21,-23
Bushing and Bearing Replacement
Figure 601 (Sheet 2)

F79016





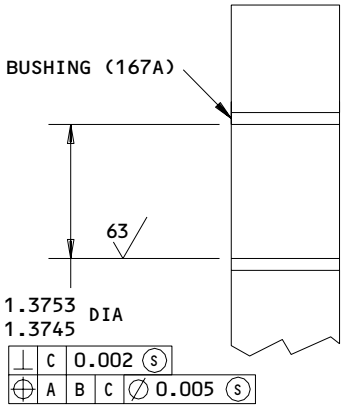
A-A



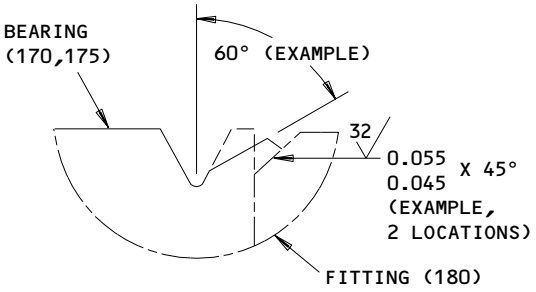
B-B

310U2033-25,-27
Bushing and Bearing Replacement
Figure 602 (Sheet 1)

L31377



A



SWAGING DETAIL

B

1. TWO HOLES CONCENTRIC TO COMMON AXIS WITHIN 0.001 FIM
2. ORIENT OUTER RACE TO WITHIN ±10°
3. PUSH OUT LOAD 5300 POUNDS
4. PUSH OUT LOAD 4700 POUNDS

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

310U2033-25,-27
Bushing and Bearing Replacement
Figure 602 (Sheet 2)

L31378

FITTING, LOWER - REPAIR 3-2

310U2033-2, -4, -6, -8, -10, -12, -14, -16, -18, -20, -22, -24, -26, -28

CAUTION: BE CAREFUL WITH ION-VAPOR-DEPOSITED-ALUMINUM COATED PARTS. THIS COATING CAN BE DAMAGED EASILY.

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

1. Installation of Oversize Bushing

   A. Remove defects by machining to repair limits as shown in Fig. 601.

   B. Manufacture bushing (Fig. 602), as required, to compensate for amount of material removed.

   C. Install bushing per Repair 3-1.

2. Installation of Oversize Bearings (Fig. 603)

   A. Remove defects by machining to repair limits as shown in table (Fig. 603) and surface finish as shown in Fig. 601.

   B. Restore chamfer to hole as shown in Repair 3-1 Fig. 601.

   C. Select oversize bearing from table in Fig. 603.

   D. Install oversize bearing per Repair 3-1.

3. Scratch and Gouge Repair

   NOTE: See Fig. 501 for maximum repairable gouge depth all over and in restricted areas.

   A. Blend out scratches and gouges to 1.00-inch minimum blend radius.

4. Corrosion Repair

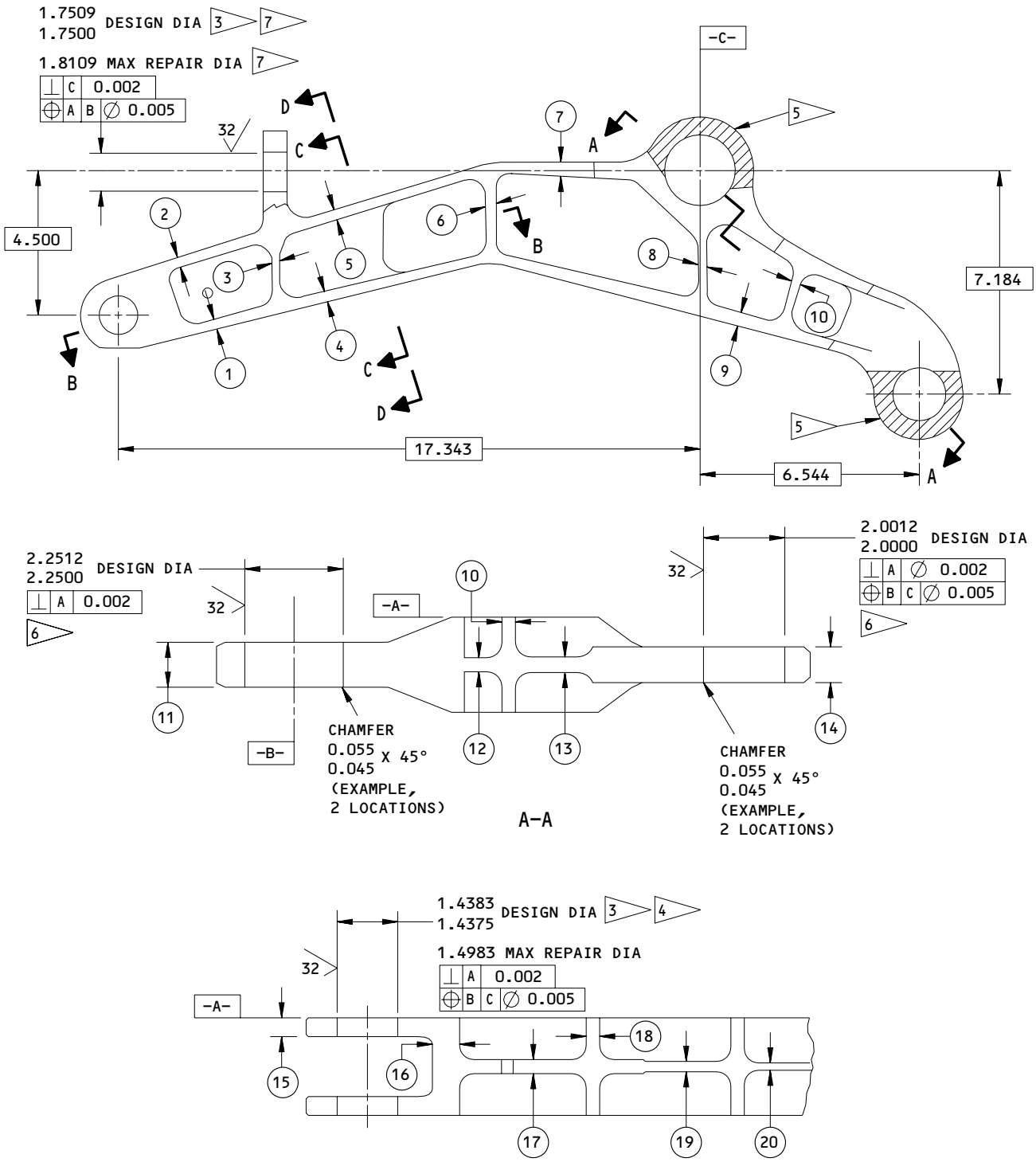
A. Maximum corrosion clean up depth in restricted areas on Fig. 601 is 0.005 inch.

B. Blend out corrosion as shown in Fig. 601. For the typical maximum clean-up depth on the faces, on the edges, and on the webs of the fitting, refer to Fig. 601.

5. Refinish - Except 310U2033-26, -28 (not required (F-25.01))

A. Mask bushing inner diameters, faces and faying surfaces prior to stripping. Locally strip the IVD coating per 20-30-02. Use 2 percent (by weight) sodium hydroxide with balance of water. Bake prior to strip not required.

B. Apply BMS 14-4 Type I, then bake to 325°F ±25°F for 4 hours.

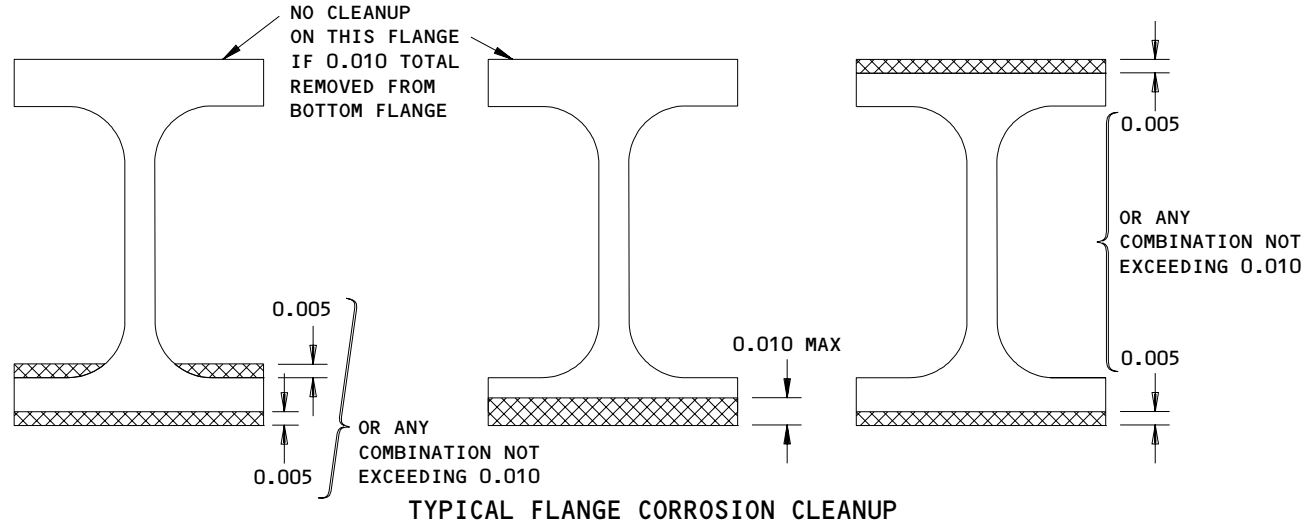


310U2033-2,-4,-6,-8,-10,-12,-14,-16,-18,-20,-22,-24,-26,-28
Fitting Repair
Figure 601 (Sheet 1)

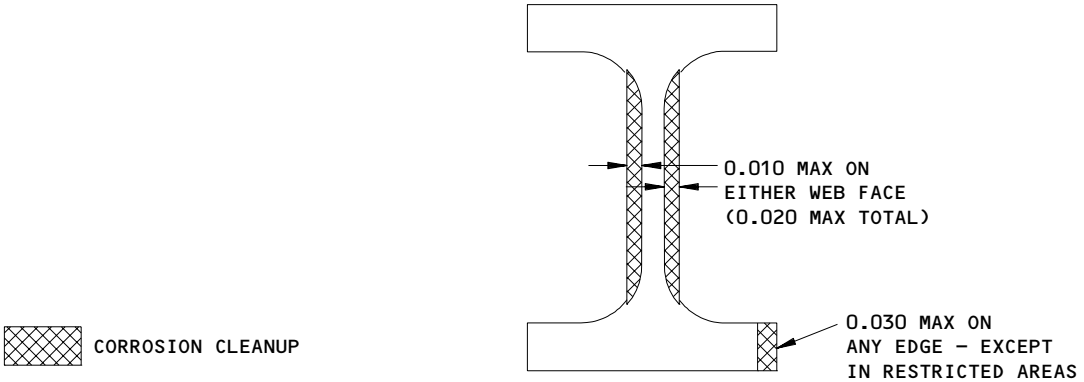
277898

	1	2	3	4	5	6	7	8	9	10
DESIGN DIM	SEE FLANGE CLEANUP	SEE FLANGE CLEANUP	0.260 0.240	SEE FLANGE CLEANUP	SEE FLANGE CLEANUP	0.170 0.150	SEE FLANGE CLEANUP	0.260 0.240	SEE FLANGE CLEANUP	0.210 0.190

	11	12	13	14	15	16	17	18	19	20
DESIGN DIM	1.050 1.040	0.410 0.390	0.430 0.410	0.882 0.872	0.500 0.490	SEE WEB CLEANUP	0.410 0.390	0.260 0.240	0.310 0.290	0.260 0.240



TYPICAL FLANGE CORROSION CLEANUP
(OUTSIDE RESTRICTED AREAS)
C-C



TYPICAL WEB CORROSION CLEANUP
D-D

310U2033-2,-4,-6,-8,-10,-12,-14,-16,-18,-20,22,-24,-26,-28
Fitting Repair
Figure 601 (Sheet 2)

F75135

REFINISH

310U2033-2,-4,-6,-8:
DRY ABRASIVE BLAST AS SHOWN IN SOPM 20-30-03 AND APPLY ION VAPOR DEPOSITED ALUMINUM COATING (F-24.06) ALL OVER EXCEPT IN BUSHING/BEARING HOLES.

OPTION I:
COAT ONLY THE SURFACES OF THE FITTING WHICH WILL BE IN CONTACT WITH BUSHING FLANGES WITH BMS 14-4, TYPE 1 PROTECTIVE COATING. BAKE THE PART AND BURNISH AS REQUIRED. INSTALL INNER AND OUTER BUSHINGS (NESTED SET) AS SHOWN IN REPAIR 3-1. REMOVE EXCESS BMS 14-4, TYPE 1 PROTECTIVE COATING FROM EDGE OF BUSHING FLANGE AND SURROUNDING AREA TO ENSURE (F-24.06) FILLET SEAL WITH BUSHING FLANGE. BAKE AS REQUIRED. MACHINE BUSHING INSIDE DIAMETERS AS NECESSARY. MASK ALL BUSHING FLANGE FACES, INSIDE DIAMETERS, AND EXPOSED BEARING SURFACES. DRY ABRASIVE BLAST AS SHOWN IN SOPM 20-30-03 AND APPLY ION VAPOR DEPOSITED ALUMINUM COATING (F-24.06) ALL OVER.

OPTION II:

APPLY BMS 14-4, TYPE I ALL OVER EXCEPT IN BUSHING HOLES. BAKE AT 650°F± 25°F FOR 30 MINUTES MINIMUM OR BAKE AT 375°F± 25°F FOR 26 HOURS MINIMUM. BURNISH CURED BMS 14-4, TYPE I COATING BY GRIT BLASTING AT 30 TO 40 PSI USING 320 MESH ALUMINUM OXIDE POWDER. APPLY SECOND COATING OF BMS 14-4, TYPE I COATING ALL OVER EXCEPT IN BUSHING HOLES. BAKE AT 650°F± 25°F FOR 30 MINUTES MINIMUM OR BAKE AT 375F± 25°F FOR 26 HOURS MINIMUM. INSTALL BUSHINGS AS SHOWN IN REPAIR 1-1 WITH WET BMS 14-4, TYPE I COATING AFTER COMPLETION OF SECOND BAKE. REMOVE EXCESS BMS 14-4, TYPE 1 COATING FROM THE EDGE OF BUSHING FLANGE AND SURROUNDING AREA TO INSURE FILLET SEAL WITH BUSHING FLANGE

310U2033-10,-12,-14,-16,-18,-20:
BAKE ASSEMBLY AFTER INSTALLATION OF BUSHINGS. DRY ABRASIVE BLAST AS SHOWN IN SOPM 20-30-03 AND APPLY ION VAPOR DEPOSITED ALUMINUM COATING (F-24.08) ALL OVER EXCEPT IN BUSHING HOLES. MASK ALL BUSHING FLANGE FACES, INSIDE DIAMETERS, AND EXPOSED BEARING SURFACES. APPLY SERMETEL 985 TOPCOAT PER MANUFACTURERS INSTRUCTIONS ALL OVER. CURED COATING SHALL NOT MARK OR CHIP WHEN SCRATCHED WITH FINGERNAIL.
OPTION I:

COAT ONLY THE SURFACES OF THE FITTING WHICH WILL BE IN CONTACT WITH BUSHING FLANGES WITH BMS 14-4, TYPE 1 PROTECTIVE COATING. BAKE THE PART AND BURNISH AS REQUIRED. INSTALL INNER AND OUTER BUSHINGS (NESTED SET) AS SHOWN IN REPAIR 3-1. REMOVE EXCESS BMS 14-4, TYPE 1 PROTECTIVE COATING FROM EDGE OF BUSHING FLANGE AND SURROUNDING AREA TO ENSURE (F-24.08) FILLET SEAL OF BUSHING FLANGE.

BAKE ASSEMBLY AS REQUIRED. MACHINE BUSHING INSIDE DIAMETERS AS NECESSARY. MASK ALL BUSHING FLANGE FACES, INSIDE DIAMETERS, AND EXPOSED BEARING SURFACES. DRY ABRASIVE BLAST CLEAN AS SHOWN IN SOPM 20-30-03 AND APPLY ION VAPOR DEPOSITED ALUMINUM COATING (F-24.08) ALL OVER. APPLY SERMETEL 985 TOPCOAT PER MANUFACTURERS INSTRUCTIONS ALL OVER. CURED COATING SHALL NOT MARK OR CHIP WHEN SCRATCHED WITH FINGERNAIL.

OPTION II:

APPLY BMS 14-4, TYPE I ALL OVER EXCEPT IN BUSHING HOLES. BAKE AT 650°F± 25°F FOR 30 MINUTES MINIMUM OR BAKE AT 375°F± 25°F FOR 26 HOURS MINIMUM. BURNISH CURED BMS 14-4, TYPE I COATING BY GRIT BLASTING AT 30 TO 40 PSI USING 320 MESH ALUMINUM OXIDE POWDER. APPLY SECOND COATING OF BMS 14-4, TYPE I COATING ALL OVER EXCEPT IN BUSHING HOLES. BAKE AT 650°F± 25°F FOR 30 MINUTES MINIMUM OR BAKE AT 375F± 25°F FOR 26 HOURS MINIMUM. INSTALL BUSHINGS AS SHOWN IN REPAIR 1-1 WITH WET BMS 14-4, TYPE I COATING AFTER COMPLETION OF SECOND BAKE. REMOVE EXCESS BMS 14-4, TYPE 1 COATING FROM THE EDGE OF BUSHING FLANGE AND SURROUNDING AREA TO INSURE FILLET SEAL WITH BUSHING FLANGE

REPAIR

REF 3 4 5

MATERIAL: 9NI-4CO-.3C STEEL, 220 KSI MINIMUM EXCEPT FOR 310U2033-26,-28

MATERIAL FOR 310U2033-26,-28 IS NICKLE ALLOY 718 PER AMS 5662

ALL DIMENSIONS ARE IN INCHES

1 DELETED

2 DELETED

3 SEE FIG. 602 FOR OVERSIZE BUSHING REPAIR LIMITS

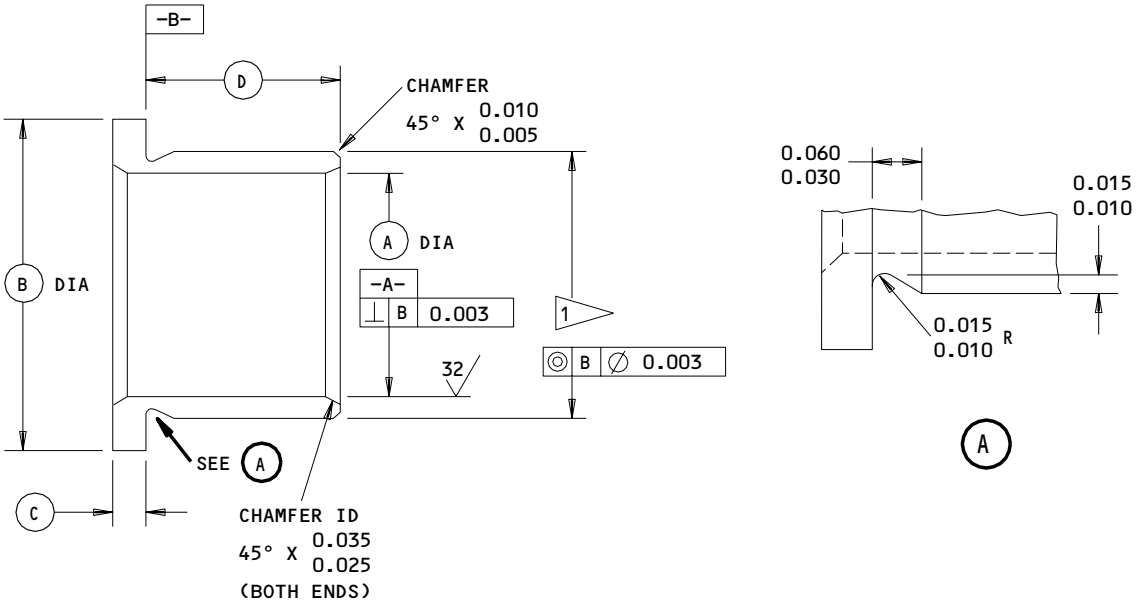
4 TWO HOLES CONCENTRIC TO COMMON AXIS WITHIN 0.001 FIM

5 RESTRICTED AREA FOR SCRATCH, GOUGE, AND CORROSION. MAXIMIUM BLEND DEPTH 0.005

6 SEE FIG. 603 FOR OVERSIZE BEARING REPAIR LIMITS

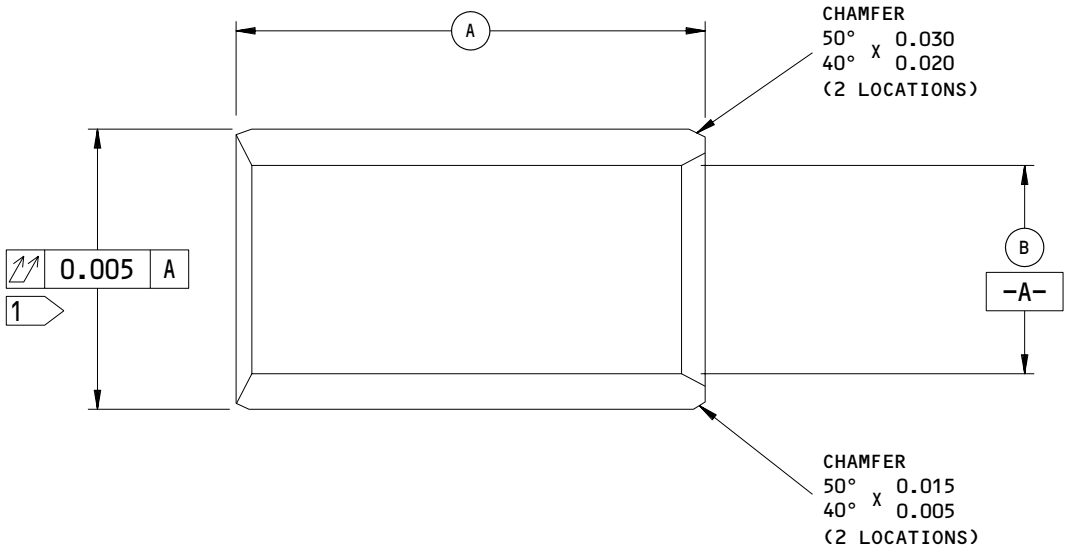
7 FOR 310U2033-26,-28 DESIGN DIAMETER 1.5631-1.5638 MAXIMIUM REPAIR DIAMETER 1.6238

310U2033-2,-4,-6,-8,-10,-12,-14,-16,-18,-20,-22,-24,-26,-28
Fitting Repair
Figure 601 (Sheet 3)



ORIGINAL BUSHING NO. (REF)	A	B	C	D	INTERFERENCE
155, FIG. 1	1.237 1.218	1.780 1.760	0.125 0.120	0.490 0.480	0.0026 0.0009
165, FIG. 1	1.549 1.543	2.070 2.050	0.115 0.110	0.880 0.870	0.0029 0.0011

Oversize Bushing Detail
Figure 602 (Sheet 1)



ORIGINAL BUSHING NO. (REF)	(A)	(B)	INTERFERENCE
167, FIG. 1	0.870 0.865	1.5657 1.5649	0.0011 0.0026

1 FINAL BUSHING OUTSIDE DIAMETER EQUALS REPAIR DIAMETER OF FITTING PLUS INTERFERENCE

63 MACHINED SURFACES EXCEPT AS NOTED

BREAK SHARP EDGES

APPLY NO FINISH

MATERIAL: NICKLE ALLOY 718 PER AMS 5662

HEAT TREAT: PER BAC 5616 CONDITION II

PENETRANT CHECK PER 20-20-02

ALL DIMENSIONS ARE IN INCHES

Oversize Bushing Detail
Figure 602 (Sheet 2)

REPAIR LIMIT	OVERSIZE BEARING OD	VALLEY TODECO P/N	PSI P/N
2.2526 2.2514	2.2510 2.2505	VTB0114OP01	P2297OP1
2.2536 2.2524	2.2520 2.2515	VTB0114OP02	P2297OP2
2.2566 2.2554	2.2550 2.2545	VTB0114OP05	P2297OP5
2.2616 2.2604	2.2600 2.2595	VTB0114P10	P2297OP10
2.2666 2.2654	2.2650 2.2645	VTB0114OP15	P2297OP15
2.2716 2.2704	2.2700 2.2695	VTB0114OP20	P2297OP20
2.2816 2.2804	2.2800 2.2795	VTB0114OP30	P2297OP30

OVERSIZE BEARING DETAILS FOR BEARING (170) REPLACEMENT

REPAIR LIMIT	OVERSIZE BEARING OD	NEW HAPSHIRE BALL BEARING	VALLEY TODECO BEARING	PSI BEARING
2.0112 2.0100	2.0100 2.0095	AMB18V4015/010	VTB12080P10	P2A212OP10
2.0212 2.0200	2.0200 2.0195	AMB18V4015/020	VTB12080P20	P2A212OP20
2.0312 2.0300	2.0300 2.0295	AMB18V4015/030	VTB12080P30	P2A212OP30

OVERSIZE BEARING DETAILS FOR BEARING (175) REPLACEMENT

Oversize Bearing Details
Figure 603

C78280

MISCELLANEOUS PARTS REFINISH - REPAIR 4-1

1. Repair of parts listed in Fig. 601 consists of restoration of original finish.

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Retainers (15,67,75)	INCONEL 625	Passivate (F-17.09).
Washers (25,30,90,120)	A286 CRES	Passivate (F-17.09).
Pin (115)	15-5PH CRES, 180-200 ksi	Passivate (F-17.09).

Refinish Details
Figure 601

BOLT - REPAIR 5-1

310T1036-14, -16, -20

1. Repair

A. Unless otherwise specified in these repair instructions, remove minor pits, nicks and scratches with a fine stone. Blend repairs smoothly into parent material.

B. Bolt Repair

NOTE: When repair by machining is necessary, tool centers 0.250 inch deep may be used in the heads and shank ends of the bolts.

(1) Repair rolled threads of bolts as follows:

CAUTION: NO REPAIR PERMITTED BELOW MINIMUM PITCH DIAMETER OF THREADS. NO REPAIR PERMITTED IN THREAD RELIEF OR RUNOUT AREA.

(a) Repair damage in the region between minimum pitch diameter and major diameter by using thread chasers conforming to the following:

1) Capable of cutting UNJF-3A.

2) Modified to preclude cutting threads below the following minimum pitch diameters:

Thread Size	Minimum Pitch Diameter (inches)
0.625-18 UNJF-3A	0.5854

(b) Rework of threads shall be uniform along entire thread length except for runout. After rework, major diameters of threads shall not be less than the following:

Thread Size	Major Diameter (inches)
0.625-18 UNJF-3A	0.6163

(c) Maintain surface finish of 63 microinches on flats of major diameter and on thread flanks.

(2) Minor repair of bolt shanks

(a) Minor repair is defined as the blending out of damage or wear by grinding, honing or machining within specified limits. Buildup to original design dimensions is not required. Stripping, repairing, or replating of chrome or silver plating is not required.

(b) Limits for minor repair

1) Wear or damage not exceeding a depth of 0.004 inch. The sum of all reworked area lengths, measured axially along length of bolt, shall not exceed 10% of bolt grip length.

2) No rework in head-to-shank relief area. See Fig. 601.

3) Repaired areas shall have a surface roughness of 16 microinches maximum.

(c) After repair, visual check repaired area for cracks, nicks or damage.

(3) Major repair of bolt (Fig. 601).

(a) Strip plating per 20-30-02.

CAUTION: NO REPAIR OF THE SHOULDER FILLET OR SHOULDER BEARING SURFACE. IS PERMITTED. MINOR FRETTING MAY BE POLISHED OUT TO A DEPTH 0.002 INCH ON BOLTHEAD BEARING SURFACE.

(b) Machine per 20-10-02 as required to eliminate defects, but do not exceed dimensions shown in Fig. 601.

(c) Perform penetrant check per 20-20-02.

(d) All bolts

1) Mask threads and shot peen machined area, including thread runout, per 20-10-03, using 0.0165-0.0331 shot and 0.012A2 intensity.

2) Build up shank with hard chrome plate as follows.

CAUTION: NO CHROME PLATE PERMITTED ON THREADS OR IN THREAD ROUNOUT. AFTER FINISH GRINDING, PLATING THICKNESS MUST NOT EXCEED 0.010 INCH.

a) Vapor degrease or solvent clean.

b) Mask threads, thread runout, fillets and relief, as required.

c) Vacu-blast abrasive clean.

d) Alkaline clean and rinse to remove abrasive residue.

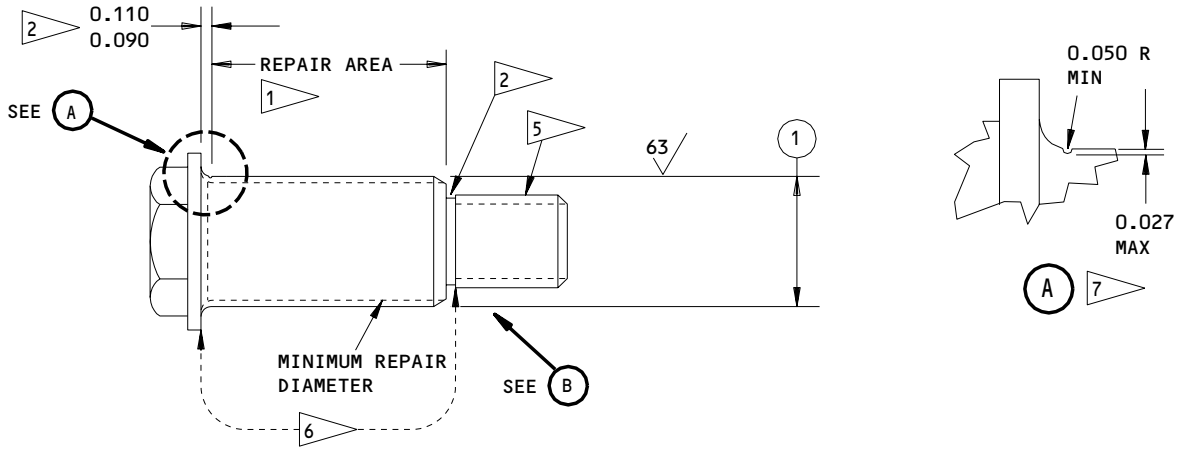
e) Nickel strike anodically for 15 to 45 seconds at 30 ASF. Instantly follow with cathodic current for 4 minutes at 30 to 60 ASF. Strike bath is 32 Oz/gal. NiC12, 16 oz/gal HC1 at room temperature.

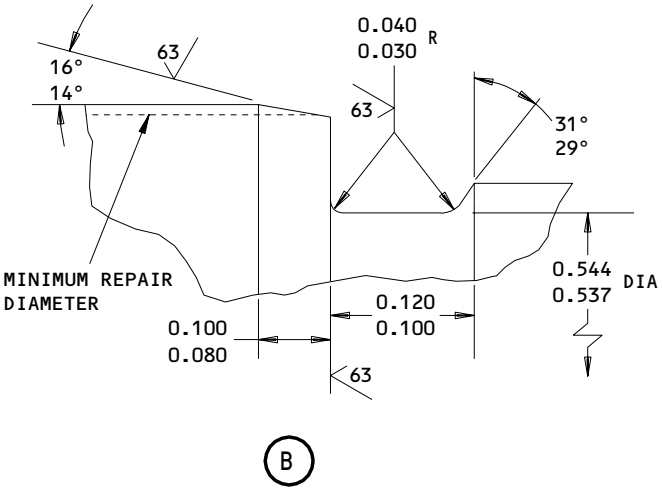
f) Rise and immediately proceed to the chromium plating bath.

g) Chromium plate at 1-1/2 to 2 ASI to deposit required plate thickness.

h) Rinse and dry.

(e) Grind chrome plate per 20-10-04 to finish dimensions. Maintain surface finish of 63 microinches.





		(1)
BOLT (20, FIG. 1) 310T1036-14	DESIGN DIM	1.1240 1.1225 ▷3
	REPAIR LIMIT	1.1025 ▷4
BOLT (80, FIG. 1) 310T1036-16	DESIGN DIM	1.3740 1.3725 ▷3
	REPAIR LIMIT	1.3525 ▷4
BOLT (320, FIG. 1) 310T1036-20	DESIGN DIM	1.1240 1.1225 ▷3
	REPAIR LIMIT	1.1025 ▷4

REFINISH

CHROME PLATE AREA NOTED BY ▷1◁. NO CHROME PLATE ALLOWED ON THREAD RELIEV AREA. NO FINISH ALL OTHER SURFACES

▷1◁ MACHINE MINIMUM MATERIAL TO REMOVE DEFECTS UP TO MINIMUM REPAIR DIAMETER ▷4◁. BUILD UP WITH CHROME PLATE (F-15.03) AND GRIND TO DESIGN DIM. SINGLE PLATE THICKNESS 0.003 MINIMUM AFTER GRINDING

▷2◁ NO REWORK OR CHROME PLATE IN THESE FILLETS.

▷3◁ DIMENSION AFTER PLATING

▷4◁ MINIMUM REPAIR DIAMETER PRIOR TO CHROME PLATING.

▷5◁ NO SHOT PEENING OR CHROME PLATE ON COMPLETE THREADS. NO REWORK OR CHROME PLATE ON THREAD RUNOUT.

REPAIR

REF ▷1◁

MATERIAL: INCONEL 718

ALL DIMENSIONS ARE IN INCHES

▷6◁ SHOT PEEN AREA. FULLY SHOT PEEN FILLETS OR RELIEF.

▷7◁ BOLTS WITH WEAR GROOVES IN FILLET RELIEF AREA AND SHANK MAY BE USED WITHOUT ADDITIONAL REWORK IF LIMITS SHOWN ABOVE ARE MET. THE 0.027 MAXIMUM DEPTH RELATES TO DESIGN DIMENSION FOR (1).

310T1036-14,-16,-20
Bolt Repair
Figure 601

278217

ASSEMBLY

1. Materials

   A. Antiseize Compound - Never-Seez, Pure Nickel Special Grade (Ref 20-60-03)

2. Assemble Aft Engine Mount (IPL Fig. 1)

   A. Install shear pins (115, IPL Fig. 1) on upper fitting (140) and secure with washers (120), nuts (125). Tighten nut to 290-510 pound-inches.

   B. Apply antiseize compound to threads and shank of bolts (80). Position lower fitting (145) on upper fitting (100) and install bolts (80) (bolthead facing outboard as shown on IPL), washer (85) under bolthead, washer (90) under nut, and nut (95). Tighten nut to 660-980 pound-inches (55.0-81.7 pound-feet). Do not turn bolt to tighten nut.

      NOTE: When bolt (80A) is installed, do not install washer (85) under the head of bolt (80A).

   C. Apply antiseize compound to the threads and shank of bolt (61). Install retainer (67) on bolthead (80) and secure retainer to upper fitting (100) with bolt (61), washer (62) (under bolthead), washer (62) (under nut) and nut (65).

   D. Apply antiseize compound to threads and shank of bolt (70). Install retainer (75) on bolthead (80) and secure retainer to nutplate (135) on upper fitting (100) with bolt (70) and washer (73).

   E. Apply antiseize compound to threads and shank of bolt (20). Position link (40) on lower fitting (145) and install bolt (20) and washer (25) through bushing holes in link and lower fitting. Install washer (30) and nut (35). Tighten nut to 1000-1200 pound-inches (83.3-100.0 pound-feet). Do not turn bolt to tighten nut.

      NOTE: When bolt (20A) is installed, do not install washer (25) under the head of bolt (20A).

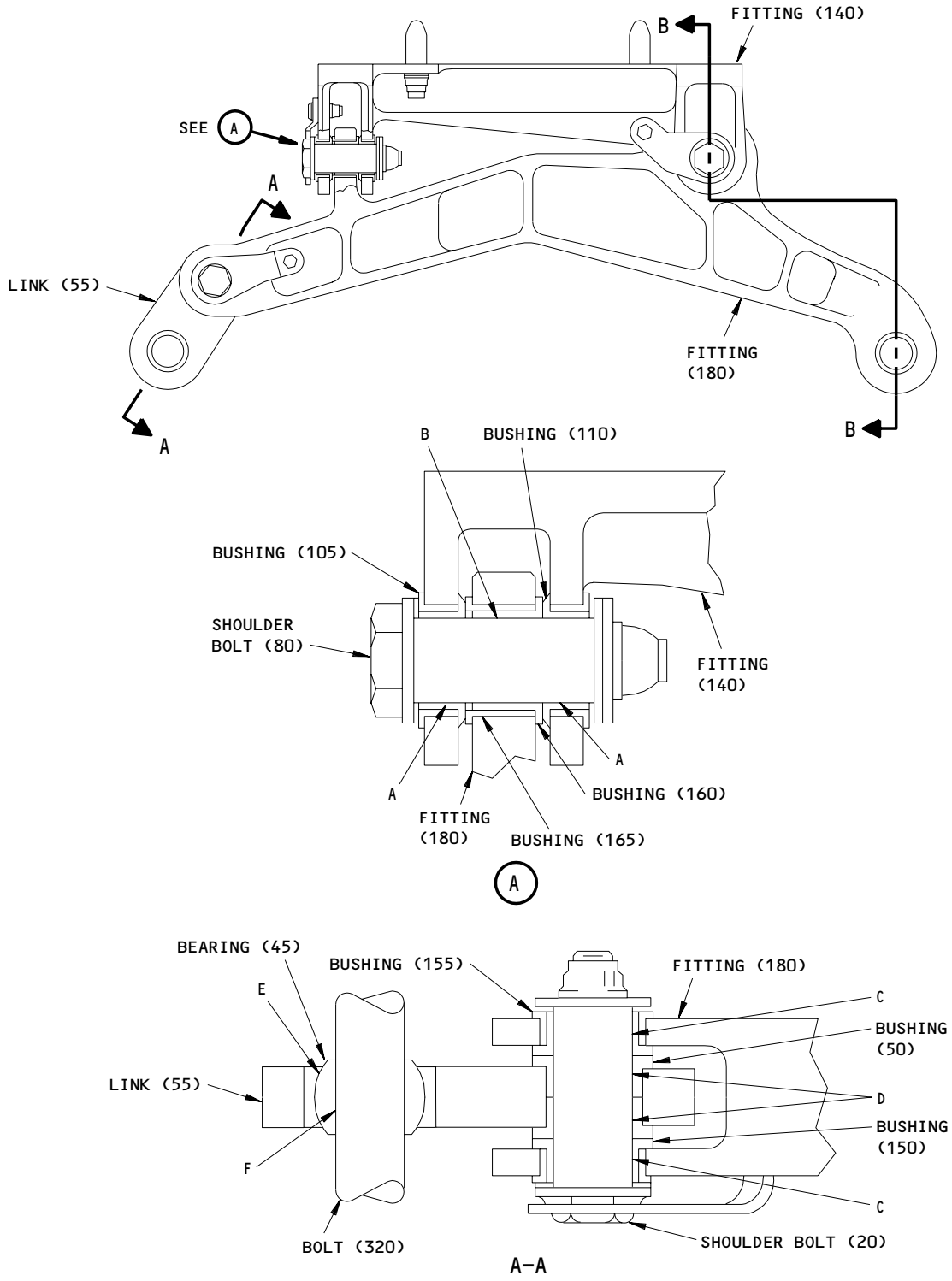
   F. Apply antiseize compound to the threads and shank of bolt (5). Install retainer (15) on bolthead (20) and secure retainer to lower fitting with bolt (5), washer (7) (under bolthead), washer (7) (under nut) and nut (10).

G. Bolts (290, 320), retainers (300), washers (285A, 310, 315, 315A), and nuts (280, 305) are installation parts used only upon installation.

NOTE: When bolt (320B, 320C) is installed, do not install washer (315) under the head of bolt (320B, 320C).

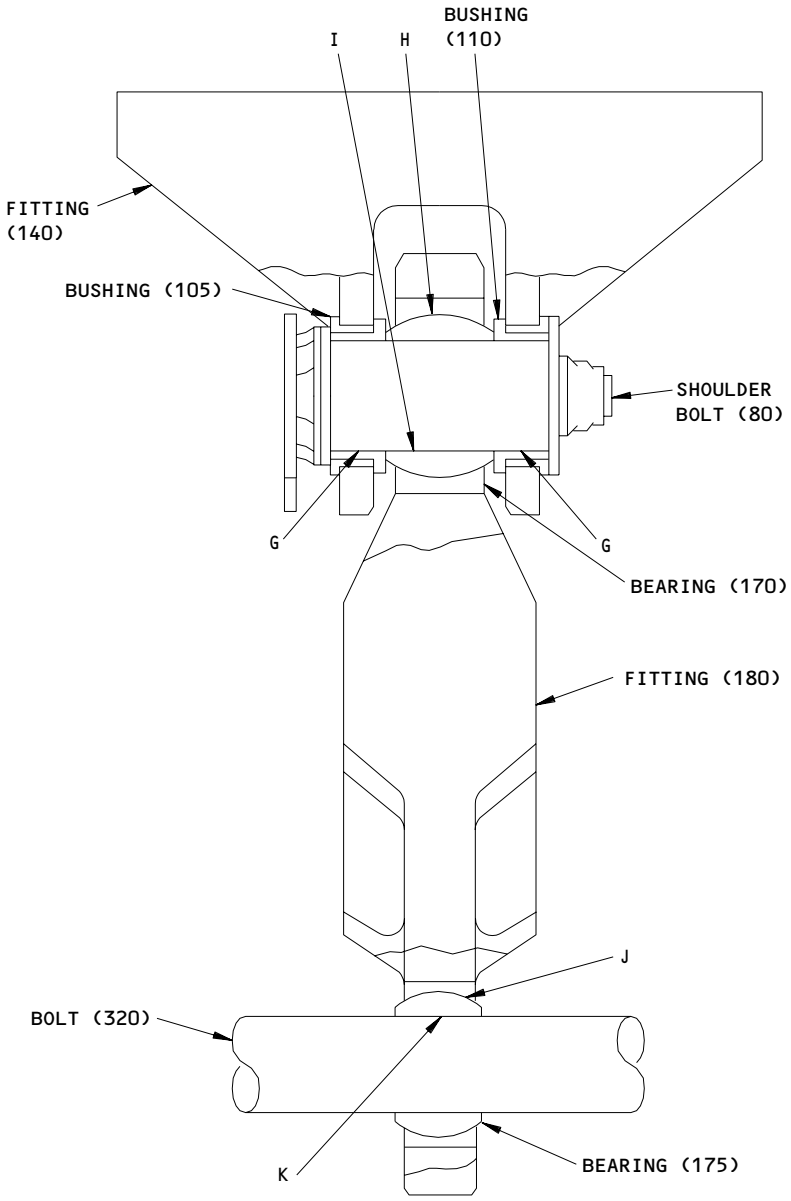
H. Store this component using standard industry practices.

FITS AND CLEARANCES



Fits and Clearances
Figure 801 (Sheet 1)

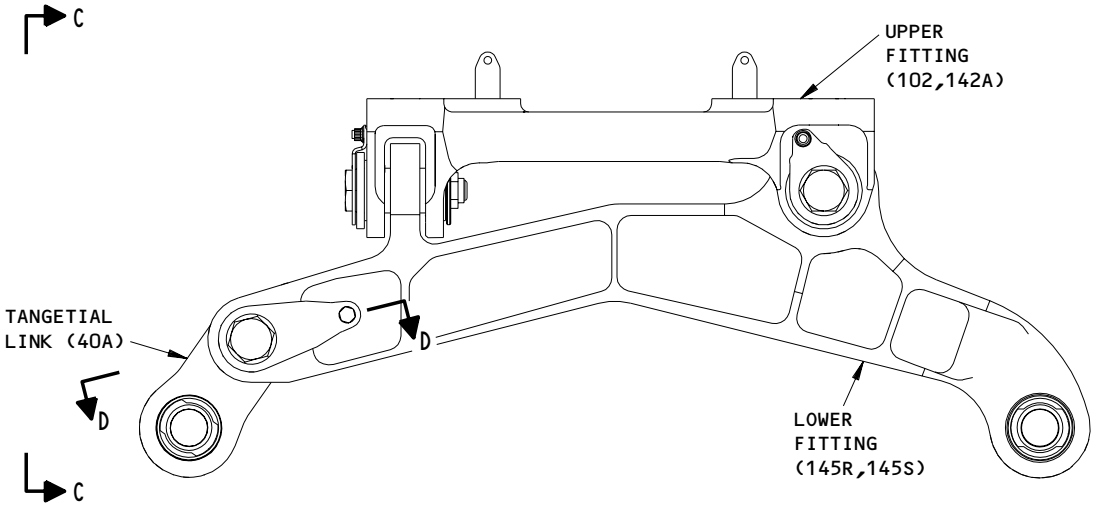
266028



B-B

Fits and Clearances
Figure 801 (Sheet 2)

266029



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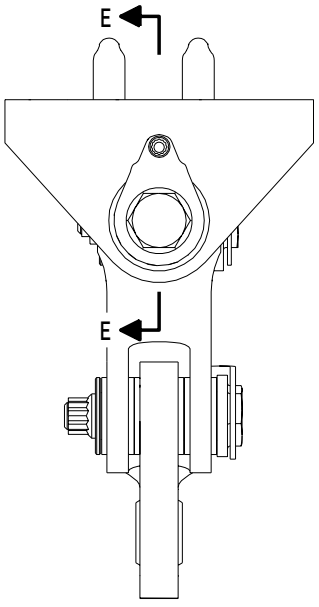
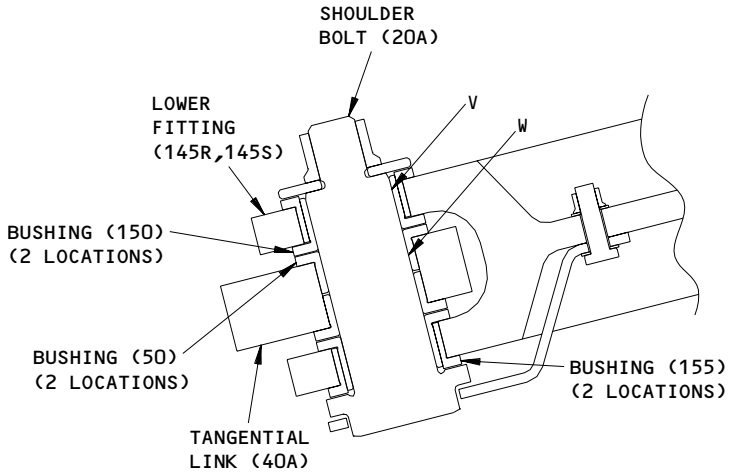


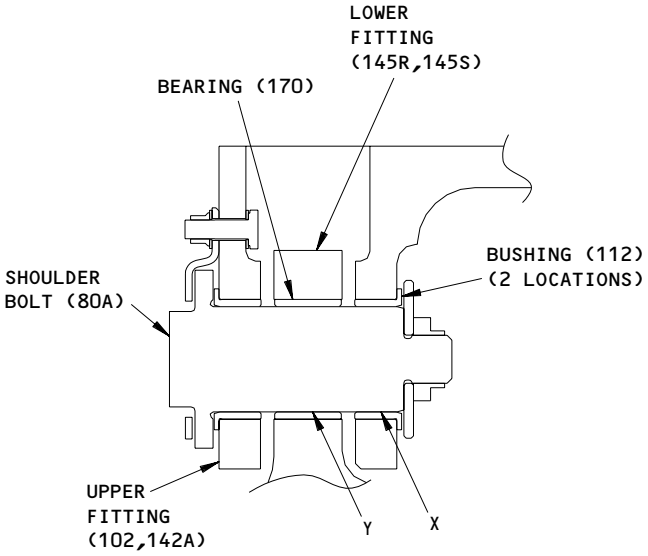
C-C

Fits and Clearances
Figure 801 (Sheet 3)

L21731



D-D



E-E

Fits and Clearances
Figure 801 (Sheet 4)

L21729

REF LETTER FIG.801	MATING ITEM NO.	IPL FIG. NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT* 8		
			DIMENSION		ASSEMBLY CLEARANCE		DIMENSION LIMITS		MAXIMUM ALLOWABLE CLEARANCE
			MIN	MAX	Min	Max	Min	Max	
A	ID 110 OD 80	1	1.3745 1.3725	1.3760 1.3740	0.0005	0.0035	1.3702	1.3783	0.0058
B	ID 160 OD 80	1	1.3745 1.3725	1.3753 1.3740	0.0005	0.0028	1.3702	1.3776	0.0051
C	ID 150 OD 20	1	1.1245 1.1225	1.1260 1.1240	0.0005	0.0035	1.1204	1.1281	0.0056
D	ID 50 OD 20	1	1.1245 1.1225	1.1255 1.1240	0.0005	0.0030	1.1204	1.1276	0.0051
E	ID 1 OD 2	1	1.7510 1.7495	1.7515 1.7500	0.0010	0.0020		1.7541	7
F	ID 2 OD 320	1	1.1245 1.1225	1.1250 1.1240	0.0005	0.0025	1.1204	1.1271	7
G	ID 110 OD 80	1	1.3745 1.3725	1.3760 1.3740	0.0005	0.0035	1.3702	1.3783	0.0058
H	ID 3 OD 4	1	2.0010 1.9995	2.0015 2.0000	0.0010	0.0020		2.0043	7
I	ID 4 OD 80	1	1.3745 1.3725	1.3750 1.3740	0.0005	0.0025	1.3702	1.3773	0.0048
J	ID 5 OD 6	1	1.7510 1.7495	1.7515 1.7500	0.0010	0.0020		1.7541	7
K	ID 6 OD 320	1	1.1245 1.1225	1.1250 1.1240	0.0005	0.0025	1.1204	1.1271	0.0046

Fits and Clearances
Figure 801 (Sheet 5)

265591

REF LETTER FIG.801	MATING ITEM NO.	IPL FIG. NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT* 8		
			DIMENSION		ASSEMBLY CLEARANCE		DIMENSION LIMITS		MAXIMUM ALLOWABLE CLEARANCE
			MIN	MAX	MIN	MAX	MIN	MAX	
V	ID 145R,145S OD 20A	1	1.1245 1.1225	1.260 1.240	0.0005	0.0035	1.1210	1.1275	0.0050
W	ID 40A OD 20A	1	1.1245 1.1225	1.1255 1.1240	0.0005	0.0030	1.1205	1.1275	0.0050
X	ID 102,142A OD 80A	1	1.3750 1.3725	1.3760 1.3740	0.0010	0.0035	1.3700	1.3785	0.0060
Y	ID 145R,145S OD 80A	1	1.3745 1.3725	1.3753 1.3740	0.0005	0.0028	1.3693	1.3785	0.0060

*ALL DIMENSIONS ARE IN INCHES

1 BEARING (45) RACE
2 BEARING (45) BALL
3 BEARING (170) RACE
4 BEARING (170) BALL
5 BEARING (175) RACE
6 BEARING (175) BALL
7 BALL TO BOLT AND BALL TO RACE COMBINED MAXIMUM CLEARANCES = 0.006 (RADIAL) PLUS 0.008 (AXIAL)
8 FOR SERVICE WEAR LIMIT, BOTH DIMENSIONAL AND CLEARANCE LIMITS MUST BE MET.

Fits and Clearances
Figure 801 (Sheet 6)

A45194

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. IPL FIG. 1	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
35	NUT	1000-1200	83.3-100.0
95	NUT	660-980	55.1-81.7
125	NUT	290-510	

Torque Table
Figure 802

ILLUSTRATED PARTS LIST

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

2. Indentures show parts relationships as follows:

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

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

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

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

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

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

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

6. Parts Interchangeability

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

VENDORS

06710 LAMSON AND SESSIONS CO THE VALLEY-TODECO
12975 BRADLEY AVENUE
SYLMAR, CALIFORNIA 91342-3830

11815 CHERRY AEROSPACE FASTENERS DIV OF TEXTRON
1224 EAST WARNER AVENUE PO BOX 2157
SANTA ANA, CALIFORNIA 92707-0157

15653 KAYNAR TECHNOLOGY KAYNAR DIV
800 SOUTH STATE COLLEGE BLVD PO BOX 3001
FULLERTON, CALIFORNIA 92831-3001

15860 NEW HAMPSHIRE BALL BEARINGS, INCORPORATED ASTRO DIVISION
155 LEXINGTON AVENUE
LACONIA, NEW HAMPSHIRE 03246-2937

52828 REPUBLIC FASTENER MFG CORP
1300 RANCHO CONEJO BLVD
NEWBURY PARK, CALIFORNIA 91320-1405

56878 SPS TECHNOLOGIES INC AEROSPACE AND INDUSTRIAL PRODUCTS DIV
HIGHLAND AVENUE
JENKINTOWN, PENNSYLVANIA 19046

57606 REXNORD CORP
2175 UNION PL
SIMI VALLEY, CALIFORNIA 93065-1661

72962 HARVARD INDUSTRIES INC
3 WERNER WAY SUITE 210
LEBANON, NEW JERSEY 08833

80539 SPS TECHNOLOGIES INC AEROSPACE PRODUCTS DIV
2701 SOUTH HARBOR BOULEVARD PO BOX 1259
SANTA ANA, CALIFORNIA 92702-1259

VENDORS

92215 FAIRCHILD IND INC FAIRCHILD AEROSPACE FASTENER DIV
3010 W LOMITA BLVD
TORRANCE, CALIFORNIA 90505-5102

97928 DEUTSCH FASTENER CORP
3969 PARAMONT BOULEVARD
LAKEWOOD, CALIFORNIA 90712-4193

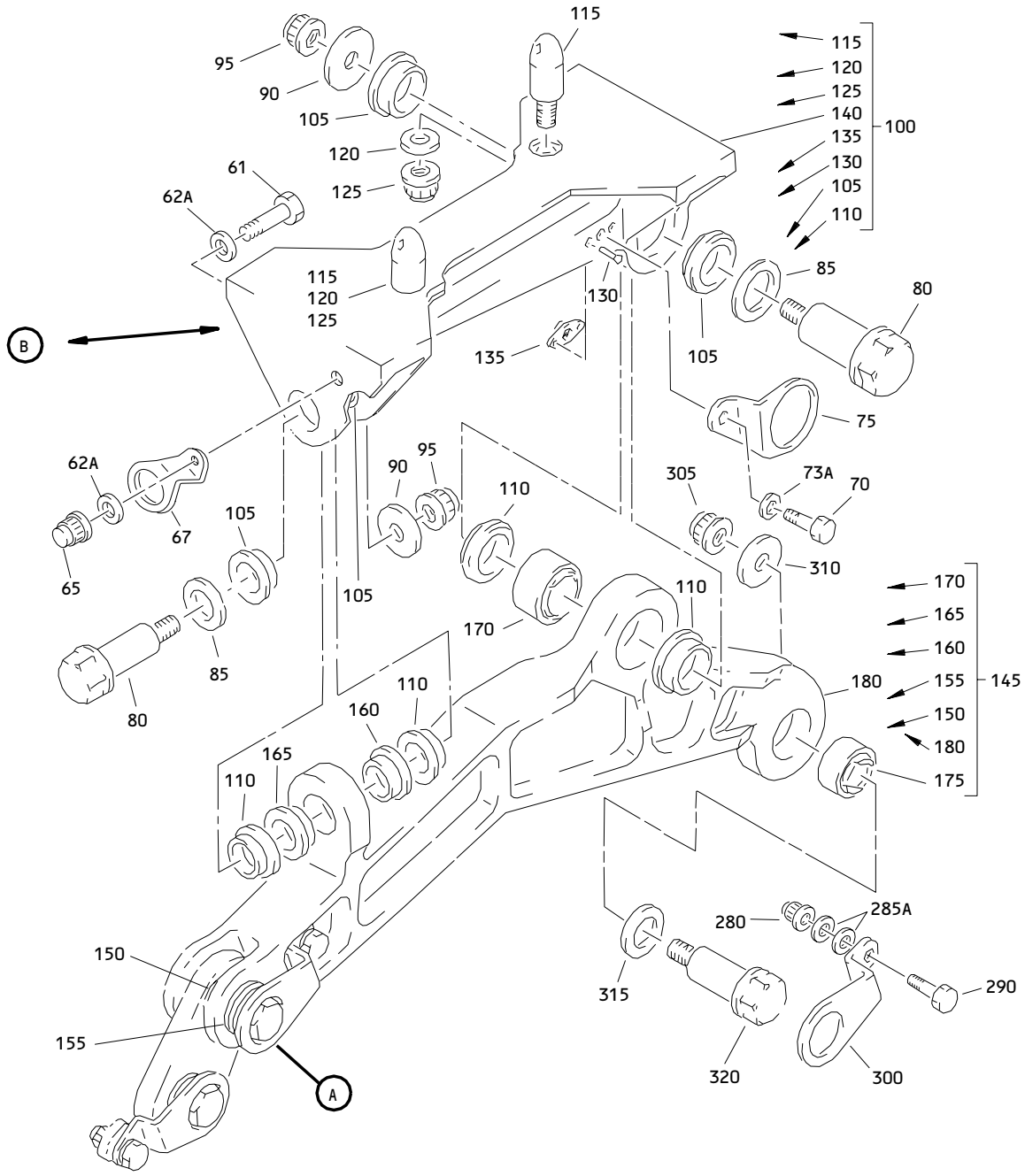
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AMB18V4015		1	45D	1
		1	45F	
		1	175F	1
		1	175H	
AMB22-1001		1	170B	1
AN960C416L		1	7	
		1	62	
		1	63	
		1	73	
		1	285	
BACB28AW22N085A		1	167	
BACB28AW22N087A		1	167A	1
BACB30LJ4U4		1	70	1
BACB30LJ4U6		1	60	
		1	61	1
BACB30LJ4U7		1	76	2
		1	290	2
		1	60A	
BACB30LJ4U8		1	5	1
BACN10JC10C		1	95	2
BACN10JC8C		1	125	2
BACN10JN4C		1	135	1
BACW10BP18ACU		1	25	1
		1	315	2
		1	315B	2
BACW10BP22ACU		1	85	2
		1	85B	2
BACW10BP8APU		1	120	2
BMN4122C1S10		1	95	2
BMN4122C1S8		1	125	2
BRFM20C4		1	135	1
H31-10BAC		1	95	2
H31-8BAC		1	125	2
MF1031-4BAC		1	135	1
MS20427M3		1	130	2
NAS1149C0432R		1	7A	2
		1	77	4
		1	62A	2
		1	73A	1
		1	285A	4
NAS1805-10P		1	35	1
		1	305	2
NAS1805-4P		1	10	1
		1	65	1
		1	78	2
		1	280	2
NS103218S048		1	135	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
P2A2120		1	45D	1
		1	175F	1
P21760		1	45A	1
		1	175A	1
		1	175C	
P21761		1	46A	1
		1	176A	1
P21762		1	47A	1
		1	177A	1
P22970		1	170A	1
		1	170D	1
S302T001-820		1	45B	
		1	45C	
		1	45D	1
		1	175D	
		1	175E	
		1	175F	1
T8126C4C		1	135	1
		1	135	1
VN252B048		1	135	1
VTB01140		1	170	1
		1	170C	1
VTB08590		1	45	1
		1	175	1
		1	175B	
VTB08591		1	46	1
		1	176	1
VTB08592		1	47	1
		1	177	1
VTB12080		1	45D	1
		1	45E	
		1	45G	
		1	175F	1
		1	175G	
		1	175J	
101F9201M4		1	135	1
101LH9074-10		1	95	2
101LH9074-8		1	125	2
302T0200-101		1	155	2
302T0200-102		1	160	1
302T0200-103		1	165	1
302T0200-104		1	50	2
302T0200-105		1	105	4
302T0200-106		1	110	4
302T0200-99		1	150	2
310T1036-14		1	20	1
		1	20B	1

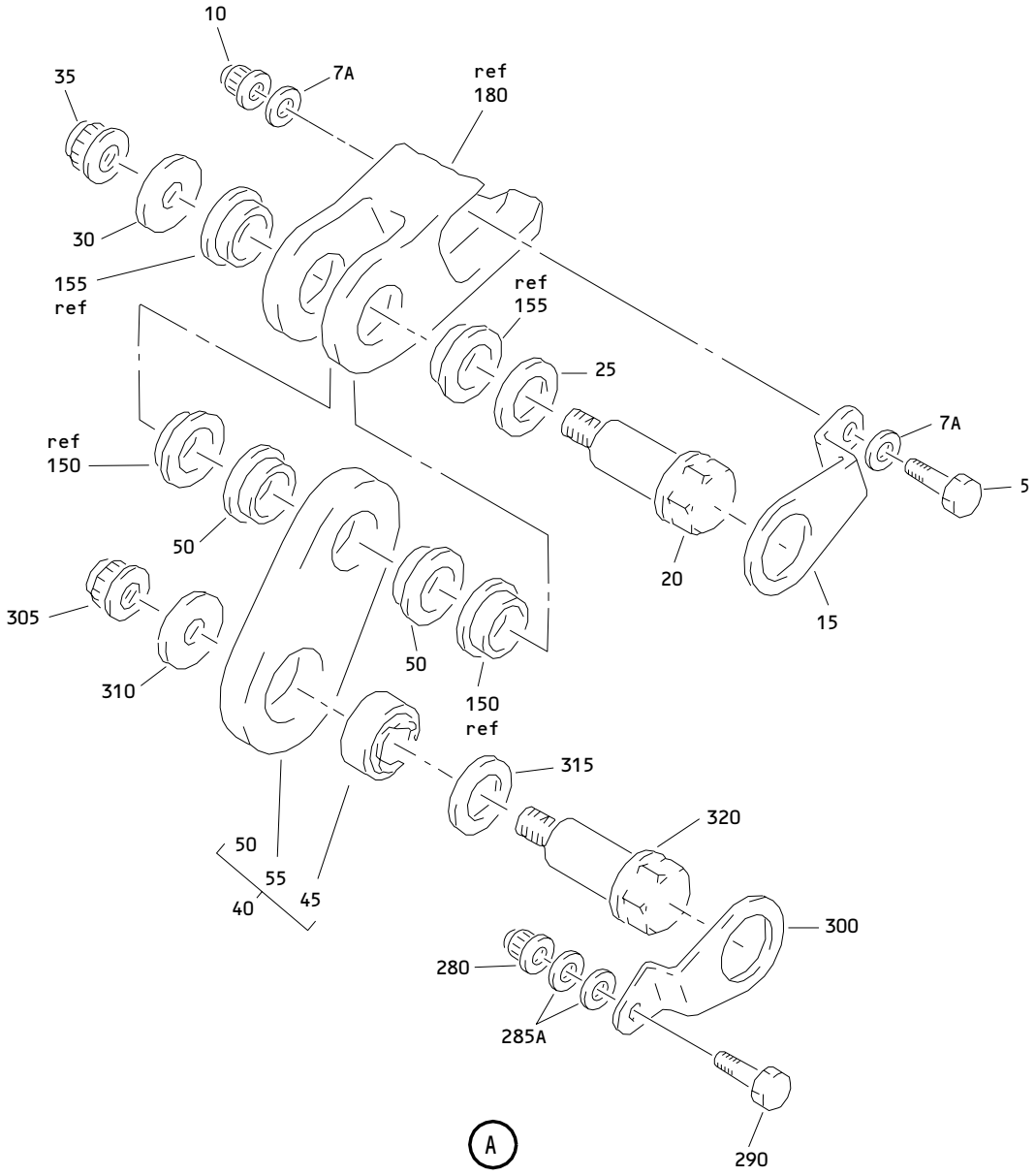
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
310T1036-16		1	80	2
		1	80B	2
310T1036-20		1	320	2
		1	320A	2
		1	320D	2
310T1036-22		1	20A	1
310T1036-23		1	80A	2
310T1036-24		1	320B	2
		1	320C	2
310T3037-2		1	115	2
310T3151-18		1	90	2
310T3151-19		1	30A	1
		1	310	2
310T3151-20		1	30	1
310U2020-10		1	1F	RF
310U2020-13		1	1G	RF
310U2020-18		1	1H	RF
310U2020-2		1	1	RF
310U2020-3		1	1A	RF
310U2020-4		1	1B	RF
310U2020-6		1	1C	RF
310U2020-7		1	1D	RF
310U2020-8		1	1E	RF
310U2031-1		1	100	1
		1	100D	1
310U2031-10		1	140D	1
310U2031-11		1	100H	1
310U2031-12		1	140E	1
310U2031-13		1	100J	1
310U2031-14		1	140F	1
310U2031-15		1	100K	1
310U2031-16		1	140G	1
310U2031-17		1	100L	1
310U2031-18		1	140H	1
310U2031-19		1	100N	1
310U2031-2		1	140	1
310U2031-20		1	140K	1
310U2031-21		1	100M	1
		1	100P	1
310U2031-22		1	140J	1
310U2031-23		1	102	1
310U2031-24		1	142	1
310U2031-25		1	112	4
310U2031-26		1	102A	1
310U2031-27		1	142A	1
310U2031-3		1	100A	1
		1	100E	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
310U2031-4		1	140A	
310U2031-6		1	140B	1
310U2031-7		1	100B	1
		1	100F	1
310U2031-8		1	140C	1
310U2031-9		1	100C	1
		1	100G	1
310U2032-1		1	40	1
310U2032-2		1	55	1
310U2032-3		1	40A	1
310U2033-1		1	145	1
		1	145D	1
310U2033-10		1	180G	1
310U2033-11		1	145H	1
310U2033-12		1	180D	1
310U2033-13		1	145J	1
310U2033-14		1	180E	1
310U2033-15		1	145K	1
310U2033-16		1	180F	1
310U2033-17		1	145M	1
310U2033-18		1	180H	1
310U2033-19		1	145N	1
310U2033-2		1	180	1
310U2033-20		1	180J	1
310U2033-21		1	145P	1
310U2033-22		1	180K	1
310U2033-23		1	145Q	1
310U2033-24		1	180L	1
310U2033-25		1	145R	1
310U2033-26		1	180M	1
310U2033-27		1	145S	1
310U2033-28		1	180N	1
310U2033-3		1	145A	1
		1	145E	1
310U2033-4		1	180A	1
310U2033-5		1	145B	1
		1	145F	1
310U2033-6		1	180B	1
310U2033-7		1	145C	1
		1	145G	1
310U2033-8		1	180C	1
310U2033-9		1	145L	1
310U2039-1		1	300	2
310U2039-2		1	15	1
310U2039-3		1	67	1
310U2039-4		1	75	1
310U2039-5		1	79	2

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
311A1099-18		1	25A	1
		1	25B	1
		1	315A	2
		1	315C	2
311A1099-22		1	85A	2
48FT820		1	125	2
69235-1018C		1	95	2

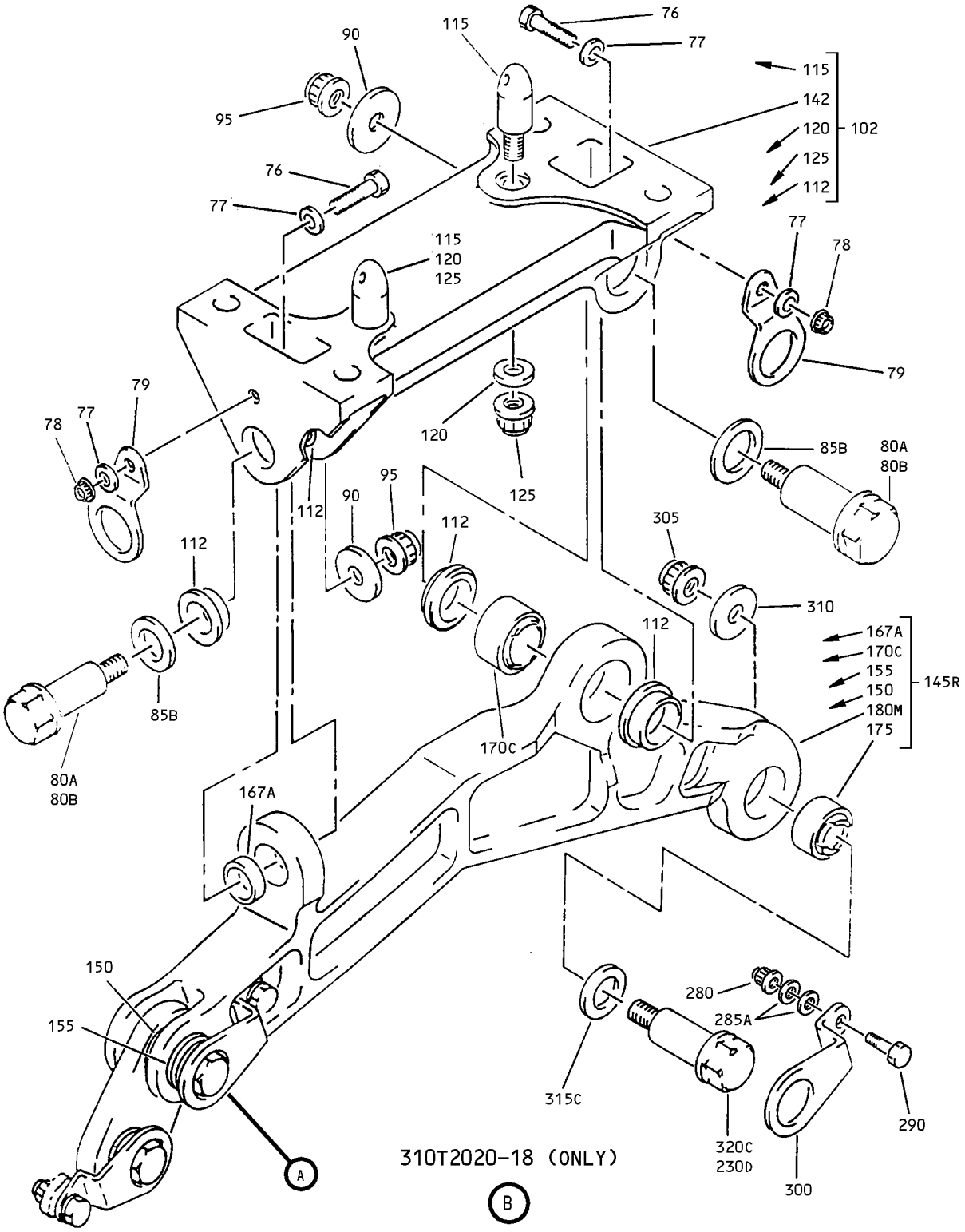


CF6-80C Aft Engine Mount Assembly
Figure 1 (Sheet 1)



CF6-80C Aft Engine Mount Assembly
Figure 1 (Sheet 2)

F79047



CF6-80C Aft Engine Mount Assembly
Figure 1 (Sheet 3)

L21723

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	310U2020-2		MOUNT ASSY-CF6-80C AFT ENG	A	RF
-1A	310U2020-3		MOUNT ASSY-CF6-80C AFT ENG	B	RF
-1B	310U2020-4		MOUNT ASSY-CF6-80C AFT ENG	C	RF
-1C	310U2020-6		MOUNT ASSY-CF6-80C AFT ENG	D	RF
-1D	310U2020-7		MOUNT ASSY-CF6-80C AFT ENG	E	RF
-1E	310U2020-8		MOUNT ASSY-CF6-80C AFT ENG	F	RF
-1F	310U2020-10		MOUNT ASSY-CF6-80C AFT ENG	G	RF
-1G	310U2020-13		MOUNT ASSY-CF6-80C AFT ENG	H	RF
-1H	310U2020-18		MOUNT ASSY-CF6-80C AFT ENG	J	RF
5	BACB30LJ4U8		.BOLT		1
-7	AN960C416L		DELETED		
7A	NAS1149C0432R		.WASHER		2
10	NAS1805-4P		.NUT		1
15	310U2039-2		.RETAINER-BOLT		1
20	310T1036-14		.BOLT-SHOULDER	A-E	1
-20A	310T1036-22		.BOLT-SHOULDER *[3]	F-J	1
-20B	310T1036-14		.BOLT-SHOULDER *[3]	F-J	1
25	BACW10BP18ACU		.WASHER	A,B	1
-25A	311A1099-18		.WASHER-SPECIAL	C-E	1
-25B	311A1099-18		.WASHER-SPECIAL *[3]	F-J	1
30	310T3151-20		.WASHER-SPECIAL	A-H	1
-30A	310T3151-19		.WASHER-SPECIAL	J	1
35	NAS1805-10P		.NUT		1
40	310U2032-1		.LINK ASSY-TANGENT	A-F	1
-40A	310U2032-3		.LINK ASSY-TANGENT	G-J	1
45	VTB08590		..BEARING ASSY- (V06710) (OPT ITEMS 45A, 45D) *[1]	A-J	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-45A	P21760		..BEARING ASSY- (V57606) (OPT ITEMS 45, 45D) *[1]	A-J	1
-45B	S302T001-820		DELETED		
-45C	S302T001-820		DELETED		
-45D	AMB18V4015		..BEARING ASSY- (V15860) (SPEC S302T001-820) (OPT P2A2120 (V57606)) (OPT VTB12080 (V06710, V15860)) (OPT ITEMS 45, 45A) (PREF) *[1]	A-J	1
-45E	VTB12080		DELETED		
-45F	AMB18V4015		DELETED		
-45G	VTB12080		DELETED		
-46	VTB08591		...RACE-INNER (V06710) (USED ON ITEM 45)	A-F	1
-46A	P21761		...RACE-INNER (V57606) (USED ON ITEM 45A)	A-F	1
-47	VTB08592		...RACE-OUTER (V06710) (USED ON ITEM 45)	A-F	1
-47A	P21762		...RACE-OUTER (V57606) (USED ON ITEM 45A)	A-F	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
50	302T0200-104		..BUSHING		2
55	310U2032-2		..LINK-TANGENT		1
60	BACB30LJ4U6		DELETED		
60A	BACB30LJ4U7		DELETED		
61	BACB30LJ4U6		.BOLT	A-H	1
62	AN960C416L		DELETED		
62A	NAS1149C0432R		.WASHER	A-H	2
63	AN960C416L		DELETED		
65	NAS1805-4P		.NUT	A-H	1
67	310U2039-3		.RETAINER-BOLT	A-H	1
70	BACB30LJ4U4		.BOLT	A-H	1
73	AN960C416L		DELETED		
73A	NAS1149C0432R		.WASHER	A-H	1
75	310U2039-4		.RETAINER-BOLT	A-H	1
76	BACB30LJ4U7		.BOLT	J	2
77	NAS1149C0432R		.WASHER	J	4
78	NAS1805-4P		.NUT	J	2
79	310U2039-5		.RETAINER-BOLT	J	2
80	310T1036-16		.BOLT-SHOULDER	A-E	2
-80A	310T1036-23		.BOLT-SHOULDER *[4]	F-J	2
-80B	310T1036-16		.BOLT-SHOULDER *[4]	F-J	2
85	BACW10BP22ACU		.WASHER	A,B	2
-85A	311A1099-22		.WASHER-SPECIAL	C-E	2
-85B	BACW10BP22ACU		.WASHER *[4]	F-J	2
90	310T3151-18		.WASHER-SPECIAL		2
95	H31-10BAC		.NUT- (V15653) (SPEC BACN10JC10C) (OPT 101LH9074-10 (V72962)) (OPT 69235-1018C (V56878)) (OPT BMN4122C1S10 (V97928))		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-100	310U2031-1		.FITTING ASSY-UPR (OPT ITEM 100A)	A	1
-100A	310U2031-3		.FITTING ASSY-UPR (OPT ITEM 100)	A	1
-100B	310U2031-7		.FITTING ASSY-UPR (OPT ITEM 100C)	B	1
-100C	310U2031-9		.FITTING ASSY-UPR	B	1
-100D	310U2031-1		.FITTING ASSY-UPR (OPT ITEMS 100E, 100F, 100G)	C	1
-100E	310U2031-3		.FITTING ASSY-UPR (OPT ITEMS 100D, 100F, 100G)	C	1
-100F	310U2031-7		.FITTING ASSY-UPR (OPT ITEMS 100D, 100E, 100G)	C	1
-100G	310U2031-9		.FITTING ASSY-UPR (OPT ITEMS 100D, 100E, 100F)	C	1
-100H	310U2031-11		.FITTING ASSY-UPR (OPT ITEMS 100J, 100K, 100L, 100M)	D	1
-100J	310U2031-13		.FITTING ASSY-UPR (OPT ITEMS 100H, 100K, 100L, 100M)	D	1
-100K	310U2031-15		.FITTING ASSY-UPR (OPT ITEMS 100H, 100J, 100L, 100M)	D	1
-100L	310U2031-17		.FITTING ASSY-UPR (OPT ITEMS 100H, 100J, 100K, 100M)	D	1
-100M	310U2031-21		.FITTING ASSY-UPR (OPT ITEMS 100H, 100J, 100K, 100L)	D	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-100N	310U2031-19		.FITTING ASSY-UPR (OPT ITEM 100P)	E-H	1
-100P	310U2031-21		.FITTING ASSY-UPR (OPT ITEM 100N)	E-H	1
102	310U2031-23		.FITTING ASSY-UPR (OPT ITEM 102A)	J	1
-102A	310U2031-26		.FITTING ASSY-UPR (OPT ITEM 102)	J	1
105	302T0200-105		..BUSHING	A-H	4
110	302T0200-106		..BUSHING	A-H	4
112	310U2031-25		..BUSHING	J	4
115	310T3037-2		..PIN-SHEAR		2
120	BACW10BP8APU		..WASHER		2
125	BMN4122C1S8		..NUT- (V97928) (SPEC BACN10JC8C) (OPT 48FT820 (V56878)) (OPT 101LH9074-8 (V72962)) (OPT H31-8BAC (V15653))		2
130	MS20427M3		..RIVET- (SIZE DETERMINE ON INST)	A-H	2
135	BRFM20C4		..NUTPLATE- (V52828) (SPEC BACN10JN4C) (OPT MF1031-4BAC (V15653)) (OPT NS103218S048 (V80539)) (OPT VN252B048 (V92215)) (OPT 101F9201M4 (V72962)) (OPT T8126C4C (V11815)) (OPT T8126C4C (V11815))	A-H	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
140	310U2031-2		..FITTING- (USED ON ITEMS 100, 100D)	A,C	1
-140A	310U2031-4		DELETED		
-140B	310U2031-6		..FITTING- (USED ON ITEMS 100A, 100E)	A,C	1
-140C	310U2031-8		..FITTING- (USED ON ITEMS 100B, 100F)	B,C	1
-140D	310U2031-10		..FITTING- (USED ON ITEMS 100C, 100G)	B,C	1
-140E	310U2031-12		..FITTING- (USED ON ITEM 100H)	D	1
-140F	310U2031-14		..FITTING- (USED ON ITEM 100J)	D	1
-140G	310U2031-16		..FITTING- (USED ON ITEM 100K)	D	1
-140H	310U2031-18		..FITTING- (USED ON ITEM 100L)	D	1
-140J	310U2031-22		..FITTING- (USED ON ITEMS 100M, 100P)	D-H	1
-140K	310U2031-20		..FITTING- (USED ON ITEM 100N)	E-H	1
142	310U2031-24		..FITTING- (USED ON ITEM 102)	J	1
-142A	310U2031-27		..FITTING- (USED ON ITEM 102A)	J	1
145	310U2033-1		.FITTING ASSY-LWR (OPT ITEM 145A)	A	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-145A	310U2033-3		.FITTING ASSY-LWR (OPT ITEM 145)	A	1
-145B	310U2033-5		.FITTING ASSY-LWR (OPT ITEM 145C)	B	1
-145C	310U2033-7		.FITTING ASSY-LWR (OPT ITEM 145B)	B	1
-145D	310U2033-1		.FITTING ASSY-LWR (OPT ITEMS 145E, 145F, 145G)	C	1
-145E	310U2033-3		.FITTING ASSY-LWR (OPT ITEMS 145D, 145F, 145G)	C	1
-145F	310U2033-5		.FITTING ASSY-LWR (OPT ITEMS 145D, 145E, 145G)	C	1
-145G	310U2033-7		.FITTING ASSY-LWR (OPT ITEMS 145D, 145E, 145F)	C	1
-145H	310U2033-11		.FITTING ASSY-LWR (OPT ITEMS 145J, 145K, 145L)	D	1
-145J	310U2033-13		.FITTING ASSY-LWR (OPT ITEMS 145H, 145K, 145L)	D	1
-145K	310U2033-15		.FITTING ASSY-LWR (OPT ITEMS 145H, 145J, 145L)	D	1
-145L	310U2033-9		.FITTING ASSY-LWR (OPT ITEMS 145H, 145J, 145K)	D	1
-145M	310U2033-17		.FITTING ASSY-LWR (OPT ITEM 145N)	E,F	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-145N	310U2033-19		.FITTING ASSY-LWR (OPT ITEM 145M)	E,F	1
-145P	310U2033-21		.FITTING ASSY-LWR (OPT ITEM 145Q)	G,H	1
-145Q	310U2033-23		.FITTING ASSY-LWR (OPT ITEM 145P)	G,H	1
-145R	310U2033-25		.FITTING ASSY-LWR (OPT ITEM 145S)	J	1
-145S	310U2033-27		.FITTING ASSY-LWR (OPT ITEM 145R)	J	1
150	302T0200-99		..BUSHING		2
155	302T0200-101		..BUSHING		2
160	302T0200-102		..BUSHING	A-H	1
165	302T0200-103		..BUSHING	A-H	1
167	BACB28AW22N085A		DELETED		
-167A	BACB28AW22N087A		..BUSHING- (USED ON ITEMS 145R, 145S)	J	1
170	VTB01140		..BEARING- (V06710) (OPT ITEMS 170A, 170B)	A-F	1
-170A	P22970		..BEARING- (V57606) (OPT ITEMS 170, 170B)	A-F	1
-170B	AMB22-1001		..BEARING- (V15860) (OPT ITEMS 170, 170A)	A-F	1
-170C	VTB01140		..BEARING- (V06710) (OPT ITEM 170D)	G-J	1
-170D	P22970		..BEARING- (V57606) (OPT ITEM 170D)	G-J	1
175	VTB08590		..BEARING ASSY- (V06710) (OPT ITEM 175A, 175F) *[1]	A-J	1
-175A	P21760		..BEARING ASSY- (V57606) (OPT ITEM 175, 175F) *[1]	A-J	1
-175B	VTB08590		DELETED		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-175C	P21760		DELETED		
-175D	S302T001-820		DELETED		
-175E	S302T001-820		DELETED		
-175F	AMB18V4015		..BEARING ASSY- (V15860) (SPEC S302T001-820) (OPT P2A2120 (V57606)) (OPT VTB12080 (V06710, V15860)) (PREF) *[1]	A-J	1
-175G	VTB12080		DELETED		
-175H	AMB18V4015		DELETED		
-175J	VTB12080		DELETED		
-176	VTB08591		...RACE-INNER (V06710) (USED ON ITEM 175)	A-D	1
-176A	P21761		...RACE-INNER (V57606) (USED ON ITEM 175A)	A-D	1
-177	VTB08592		...RACE-OUTER (V06710) (USED ON ITEM 175)	A-D	1
-177A	P21762		...RACE-OUTER (V57606) (USED ON ITEM 175A)	A-D	1
180	310U2033-2		..FITTING- (USED ON ITEMS 145, 145D)	A,C	1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-180A	310U2033-4		..FITTING- (USED ON ITEMS 145A, 145E)	A,C	1
-180B	310U2033-6		..FITTING- (USED ON ITEMS 145B, 145F)	B,C	1
-180C	310U2033-8		..FITTING- (USED ON ITEMS 145C, 145G)	B,C	1
-180D	310U2033-12		..FITTING- (USED ON ITEM 145H)	D	1
-180E	310U2033-14		..FITTING- (USED ON ITEM 145J)	D	1
-180F	310U2033-16		..FITTING- (USED ON ITEM 145K)	D	1
-180G	310U2033-10		..FITTING- (USED ON ITEM 145L)	D	1
-180H	310U2033-18		..FITTING- (USED ON ITEM 145M)	E,F	1
-180J	310U2033-20		..FITTING- (USED ON ITEM 145N)	E,F	1
-180K	310U2033-22		..FITTING- (USED ON ITEM 145P)	G,H	1
-180L	310U2033-24		..FITTING- (USED ON ITEM 145Q)	G,H	1
-180M	310U2033-26		..FITTING- (USED ON ITEM 145R)	J	1
-180N	310U2033-28		..FITTING- (USED ON ITEM 145S)	J	1
			INSTALLATION PARTS		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
280	NAS1805-4P		NUT		2
285	AN960C416L		DELETED		
285A	NAS1149C0432R		WASHER		4
290	BACB30LJ4U7		BOLT		2
300	310U2039-1		RETAINER		2
305	NAS1805-10P		NUT		2
310	310T3151-19		WASHER-SPECIAL		2
315	BACW10BP18ACU		WASHER- (LIMITED) (REPLD BY ITEM 315A)	E,F	2
-315A	311A1099-18		WASHER-SPECIAL (LIMITED) *[2] (REPLS ITEM 315)	E,F	2
-315B	BACW10BP18ACU		WASHER	A-D	2
-315C	311A1099-18		WASHER-SPECIAL *[2]	G-J	2
320	310T1036-20		BOLT-SHOULDER	A-D	2
-320A	310T1036-20		BOLT-SHOULDER (LIMITED) *[2]	E,F	2
-320B	310T1036-24		BOLT-SHOULDER (LIMITED) *[2]	E,F	2
-320C	310T1036-24		BOLT-SHOULDER *[2]	G-J	2
-320D	310T1036-20		BOLT-SHOULDER *[2]	G-J	2

- Item Not Illustrated

*[1] Bearing assembly, specification number S302T001-820 can replace but not be replaced by bearing assembly, part numbers P21760 or VTB08590.

*[2] Shoulder bolt, part number 310T1036-24 can replace or be replaced by shoulder bolt, part number 310T1036-20, plus special washer, part number 311A1099-18.

*[3] Shoulder bolt, part number 310T1036-22 can replace or be replaced by shoulder bolt, part number 310T1036-14, plus special washer, part number 311A1099-18.

*[4] Shoulder bolt, part number 310T1036-23 can replace or be replaced by shoulder bolt, part number 310T1036-16, plus special washer, part number 311A1099-22.