TO: ALL HOLDERS OF MAIN LANDING GEAR DOORS - TRUNNION DOOR ASSEMBLY COMPONENT MAINTENANCE MANUAL 32-12-62.

REVISION NO. 2 DATED MAR 01/01

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 to the Record of Revision Sheet.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
CONTENTS	Added clarifications and updated callouts. Deleted details which are not necessary for repairs.
1	
DESCRIPTION & OPERATION	
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MAIN LANDING GEAR DOORS TRUNNION DOOR ASSEMBLY

PART NUMBERS 113T8304-1,-2

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

H99858

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

K03195

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL

PAGE	DATE	CODE
32-12-62		
TITLE PAGE		
1	MAR 01/99	01
2	BLANK	
REVISION RECORD		
1	JUL 01/99	01.1
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TR & SB RECORD		
1	JUL 01/99	01.1
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LIST OF EFFECTIVE PAGES		
*1	MAR 01/01	01
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*1	MAR 01/01	01.101
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*1	MAR 01/01	01.1
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DISASSEMBLY		
*301	MAR 01/01	01.1
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*603	MAR 01/01	01.1
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REPAIR 2-2		
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*604	MAR 01/01	01.1
*605	MAR 01/01	01.1
*606	MAR 01/01	01.1
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REPAIR 3-2		
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ASSEMBLY		
*701	MAR 01/01	01.1
702	BLANK	
ILLUSTRATED PARTS LIST		
1001	JUL 01/99	01.1
*1002	BLANK	
*1003	MAR 01/01	01.101
*1004	MAR 01/01	01.101
*1005	MAR 01/01	01.101
*1006	MAR 01/01	01.101

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ILLUSTRATED PARTS LIST		CONT.
*1007	MAR 01/01	01.1
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PAGE	DATE	CODE

* = REVISED, ADDED OR DELETED

TABLE OF CONTENTS

*[1] Not Applicable.

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.

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:

TRUNNION DOOR ASSEMBLY

DESCRIPTION AND OPERATION

1. Description

   A. The trunnion door assembly has a graphite/fiberglass epoxy door bonded assembly with a non-metallic honeycomb core and hinges.

2. Operation

   A. The trunnion door assembly is connected by a push/pull rod attached to the shock strut trunnion. The trunnion door, along with the shock strut door, covers the wing gear wheel well when the landing gear is fully retracted.

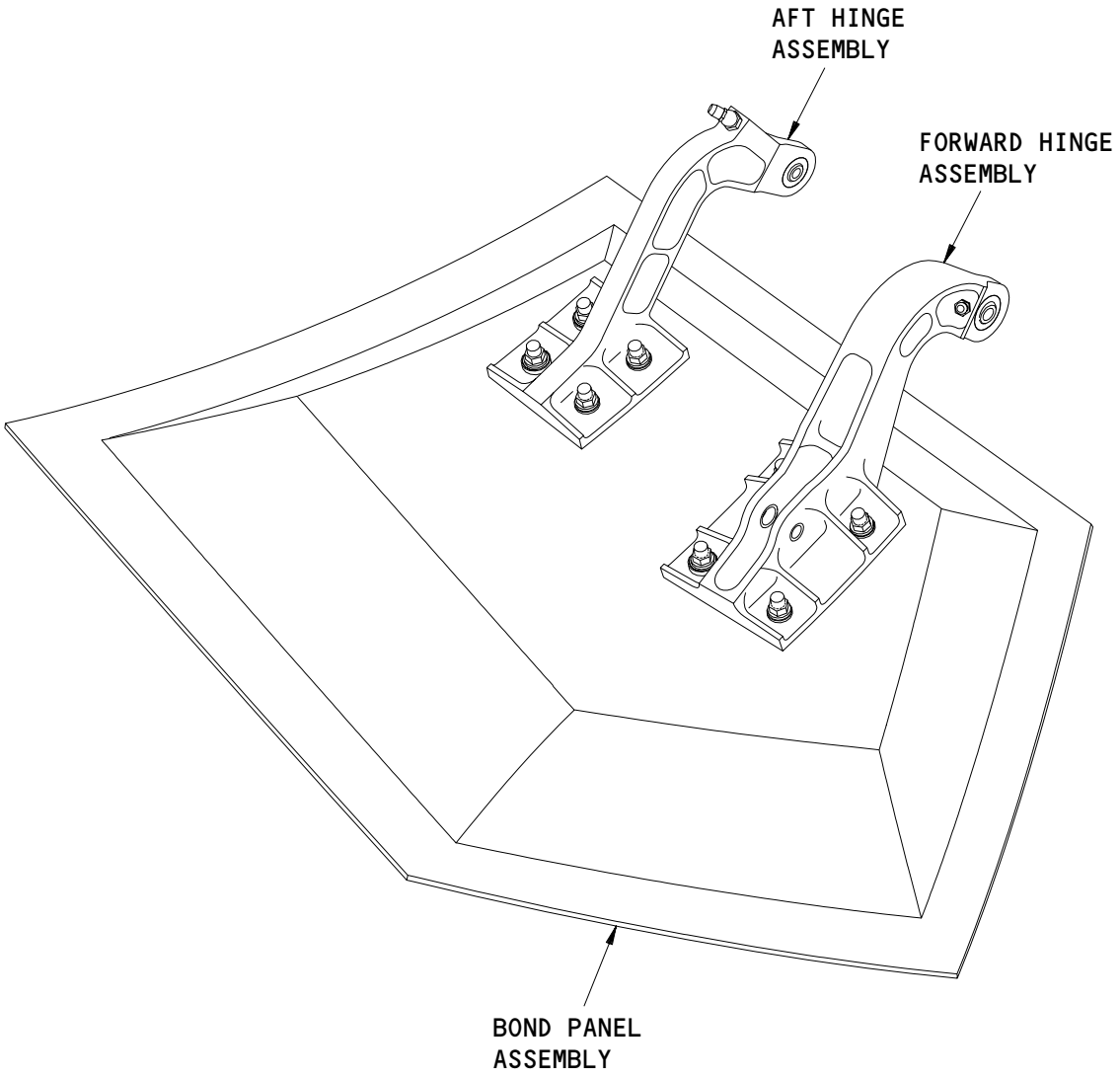
3. Leading Particulars (Approximate)

   A. Length -- 24 inches

   B. Width -- 18 inches

   C. Height -- 6 inches

   D. Weight -- 50 pounds



Main Landing Gear Doors – Trunnion Door Assembly
Figure 1

DISASSEMBLY

1. General

   A. This procedure has the data necessary to disassemble the trunnion door assembly.

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

2. Disassembly

   A. Procedures

      (1) Use standard industry procedures and the steps shown below to disassemble this component.

      (2) We recommend you locally make a support to hold the trunnion door assembly during disassembly.

      (3) Make a note of the thickness and location of the shims to help assembly.

      (4) Use a feeler gage to measure the thickness of the shims before you remove them because the shims can be damaged when removed. If the hinge assemblies or the beam assemblies are to be removed, we recommend you make a shop tool to locate the centerline of the bushings or bearings.

CLEANING

1. General

   A. This procedure has the data necessary to clean the door bond assembly.

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Trunnion Door Bond Cleaning

   A. Consumable Materials

   B. NOTE: Equivalent materials can be used.

      (1) B00090 Cleaning Agent -- Trichloroethane (SOPM 20-60-01)

   C. References

      (1) SOPM 20-30-03, General Cleaning Procedures

      (2) SOPM 20-60-01, Cleaning Materials

   D. Procedure

      CAUTION: DO NOT USE CHLORINATED CLEANING AGENTS SUCH AS METHYLENE CHLORIDE, TRICHLOROETHYLENE, AND TRICHLOROETHANE TO REMOVE GREASE FROM THE GRAPHITE/ARAMID EPOXY STRUCTURES. CHLORINATED CLEANING AGENTS WILL CAUSE DAMAGE TO THE GRAPHITE/ARAMID EPOXY STRUCTURES.

      1,1,1-TRICHLOROETHANE CAN BE USED TO CLEAN COMPOSITE COMPONENTS. DO NOT PUT PARTS INTO THE SOLVENT OR LET THE SOLVENT STAY ON THE PARTS BECAUSE DAMAGE WILL OCCUR.

      (1) Clean all parts by standard industry procedures and the instructions in SOPM 20-30-03.

CHECK

1. General

A. This procedure has the data necessary to find defects in the specified parts.

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

C. Refer to IPL Fig. 1 for item numbers.

2. Check

A. Reference

(1) SOPM 20-20-02, Penetrant Methods of Inspection

B. Procedures

(1) Use standard industry procedures to do a visual check of all the parts for defects. Do the penetrant check if the visual check shows possible defects on the parts.

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

(a) Hinge (60, 65, 100, 105)

REPAIR - GENERAL

1. General

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

PART NUMBER	NAME	REPAIR
---	REFINISH OF OTHER PARTS	1-1
113T8317	FORWARD HINGE ASSEMBLY	2-1, 2-2
113T8318	AFT HINGE ASSEMBLY	3-1, 3-2

2. Dimensioning Symbols

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

REFINISH OF OTHER PARTS - REPAIR 1-1

1. General

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

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Refinish of Other Parts

   A. General

      (1) Instructions for the repair of the parts listed in Table 601 are for repair of the initial finish.

   B. Consumable Materials

      NOTE: Equivalent material can be used.

      (1) C00033 Enamel -- BMS 10-60, Type 2 (SOPM 20-60-02)

      (2) C00175 Primer -- BMS 10-79, Type 3 (SOPM 20-60-02)

      (3) C00766 Primer -- BMS 10-103, Type 1 (SOPM 20-60-02)

   C. References

      (1) SOPM 20-10-06, Repair of Conductive Coatings

      (2) SOPM 20-30-02, Stripping of Protective Finishes

      (3) SOPM 20-30-03, General Cleaning Procedures

      (4) SOPM 20-41-01, Decoding Table for Boeing Finish Codes

      (5) SOPM 20-44-04, Application of Urethane Compatible Primer

      (6) SOPM 20-60-02, Finishing Materials

   D. Procedure

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 1		
Trunnion door assembly (1A, 5)		Apply BMS 10-60, Type 2 gloss enamel, Boeing color 707 gray (F-19.39-707) to the external surface and edges. Wipe the overspray from the internal tedlar surface. Apply BMS 10-79, Type 3, primer (F-19.47) and BMS 10-60, Type 2 gloss enamel (F-19.39-707) to the fasteners on the internal surface of the part.
Bond panel assembly (110, 115)		Prepare the surface (F-14.679) and apply BMS 10-103, Type 1 primer (F-14.692).

Refinish Details
Table 601

FORWARD HINGE ASSEMBLY - REPAIR 2-1

113T8317-1, -2

1. General

   A. This procedure has the data necessary to repair and refinish the forward hinge assembly (70, 75).

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Bearing Replacement

   A. Consumable Materials

      NOTE: Equivalent material can be used.

      (1) D00633 Grease -- BMS 3-33 (SOPM 20-60-03)

   B. References

      (1) SOPM 20-41-01, Decoding Table for Boeing Finish Codes

      (2) SOPM 20-50-03, Bearing and Bushing Replacement

      (3) SOPM 20-60-03, Lubricants

   C. Procedure (Fig. 601)

      (1) Remove the old bearing (85) from the forward hinge (100, 105).

      (2) Install a replacement bearing (85) with BMS 3-33 grease and roller swage it (SOPM 20-50-03).

3. Bushing Replacement

A. Consumable Materials

NOTE: Equivalent material can be used.

(1) AOO247 Sealant -- BMS 5-95 (SOPM 20-60-04)

B. References

(1) SOPM 20-41-01, Decoding Table for Boeing Finish Codes

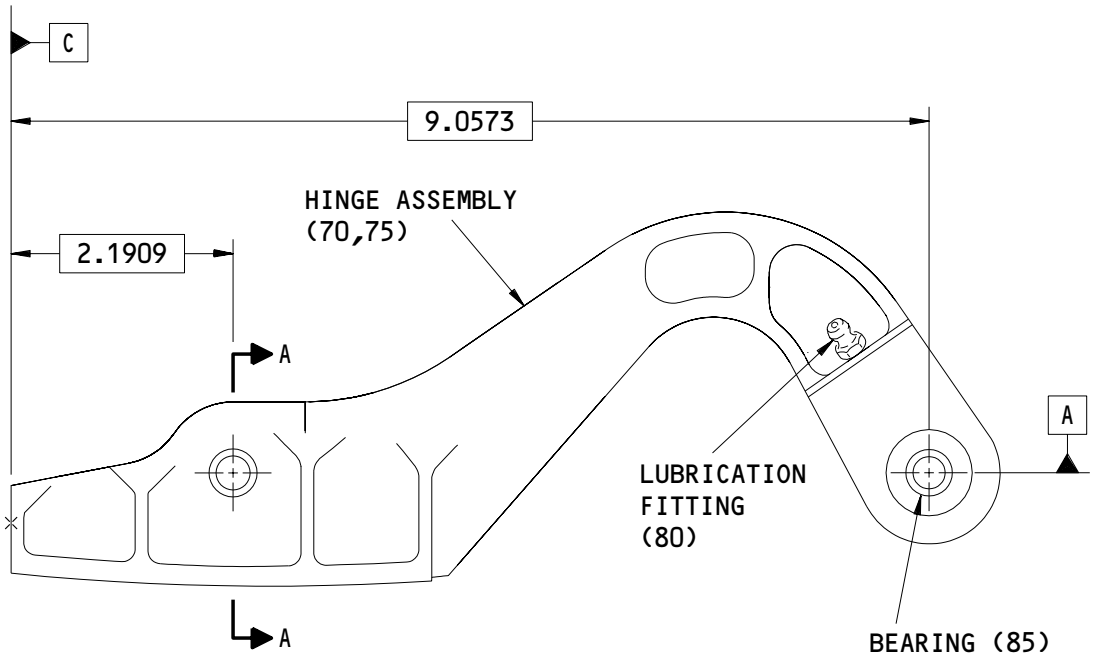
(2) SOPM 20-50-03, Bearing and Bushing Replacement

C. Procedure (Fig. 601)

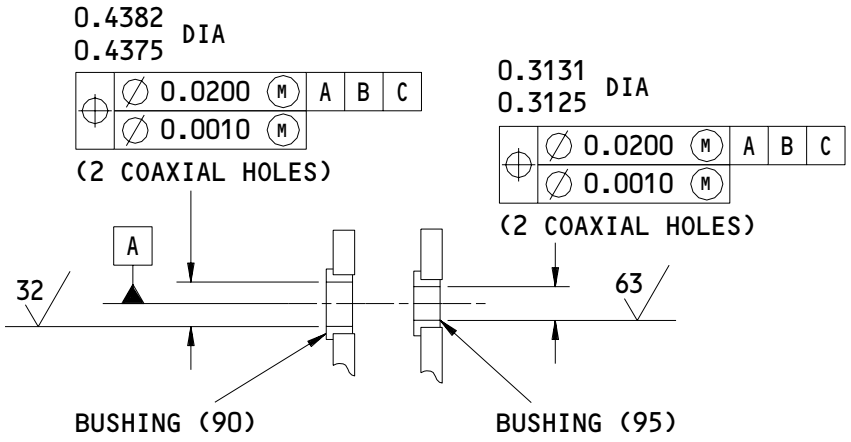
(1) Remove the old bushings (90, 95) from the forward hinge (100, 105).

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

(3) Install replacement bushings with BMS 5-95 sealant by the shrink-fit method (SOPM 20-50-03).



113T8317-1 SHOWN
113T8317-2 OPPOSITE



A-A

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

113T8317-1,-2
Forward Hinge Assembly - Bearing and Bushing Replacement
Figure 601

K00352

FORWARD HINGE - REPAIR 2-2

113T8317-3, -4

1. General

A. This procedure has the data necessary to repair and refinish the forward hinge (100, 105).

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

C. Refer to IPL Fig. 1 for item numbers.

D. General repair details:

(1) Material: Aluminum alloy

(2) Shot peen: Shot size 0.023-0.055
Intensity 0.007A2
Overspray is permitted

2. Lug Holes (Fig. 601)

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

B. Chemical treat and apply BMS 10-11, Type 1 primer.

C. Make oversize bushings (Fig. 602 and on) to adjust for the material removed.

D. Install the bushings per REPAIR 2-1.

3. Forward Hinge Refinish

A. Consumable Materials

NOTE: Equivalent material can be used.

(1) C00033 Enamel -- BMS 10-60, Type 2 (SOPM 20-60-02)

(2) C00175 Primer -- BMS 10-79, Type 3 (SOPM 20-60-02)

B. References

(1) SOPM 20-10-03, Shot Peening

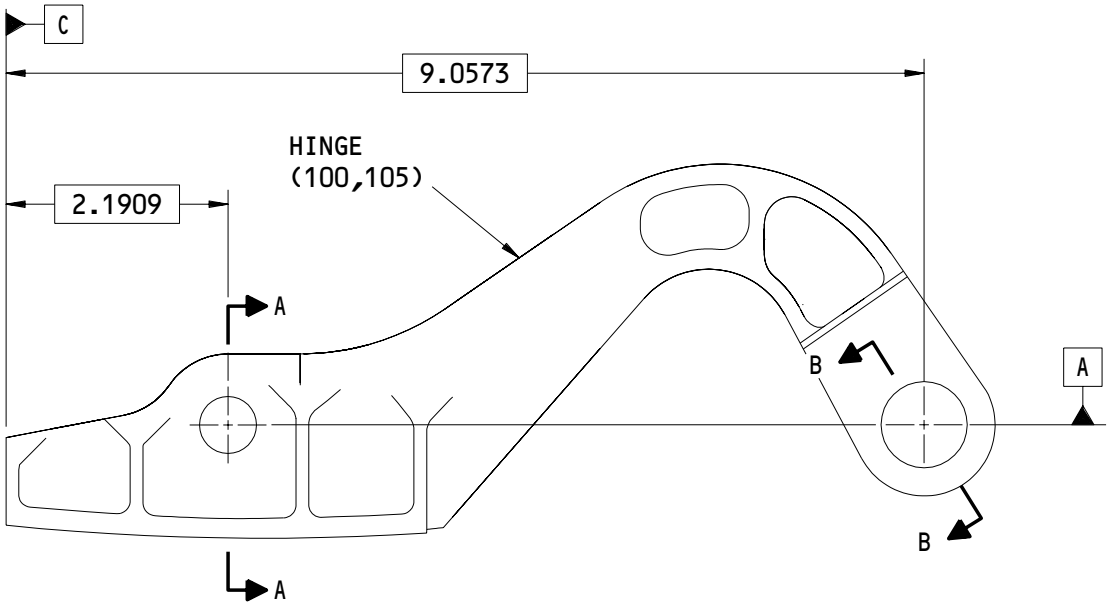
(2) SOPM 20-30-02, Stripping of Protective Finishes

(3) SOPM 20-41-01, Decoding Table For Boeing Finish Codes

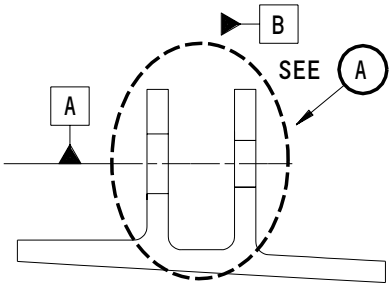
(4) SOPM 20-60-02, Finishing Materials

C. Procedure (Fig. 601)

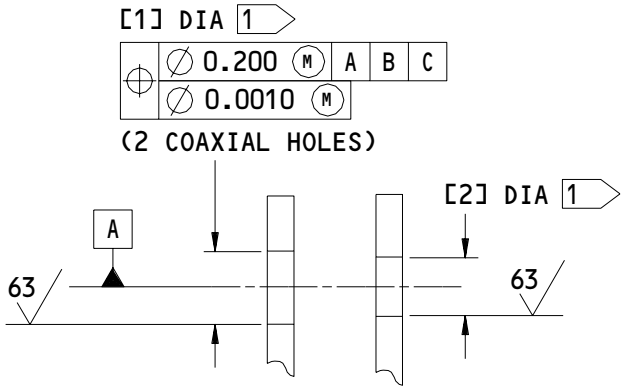
(1) Boric acid - sulfuric acid anodize (F-17.31). Apply BMS 10-79, Type 3 primer (F-19.47) and BMS 10-60, Type 2 gloss enamel (F-19.39-707).



113T8317-3 SHOWN
113T8317-4 OPPOSITE

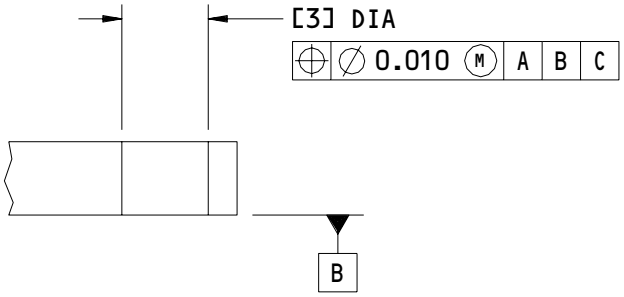


A-A



A

113T8317-3,-4
Forward Hinge Repair
Figure 601 (Sheet 1)



B–B

REFERENCE NUMBER	[1]	[2]	[3]
DESIGN DIMENSION	0.5631 0.5625	0.4381 0.4375	0.8448 0.8436
REPAIR LIMIT 2	0.6231	0.4981	--

1 BORIC ACID–SULFURIC ACID ANODIZE (F–17.31) THE SURFACES SHOWN

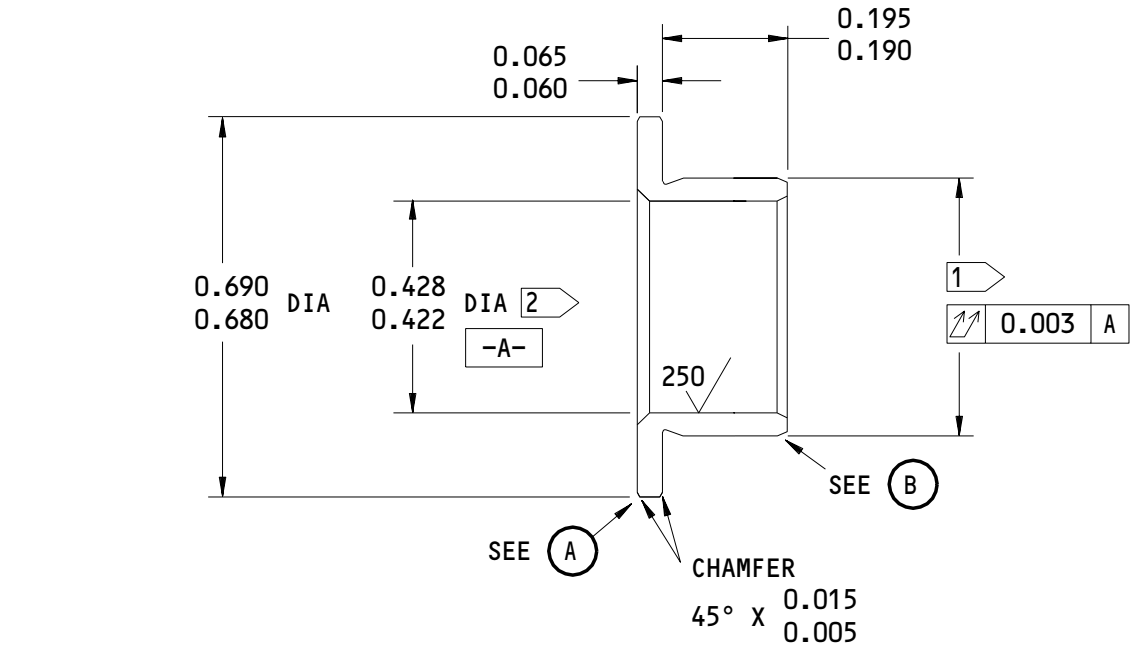
2 LIMIT FOR INSTALLATION OF OVERSIZE BUSHINGS

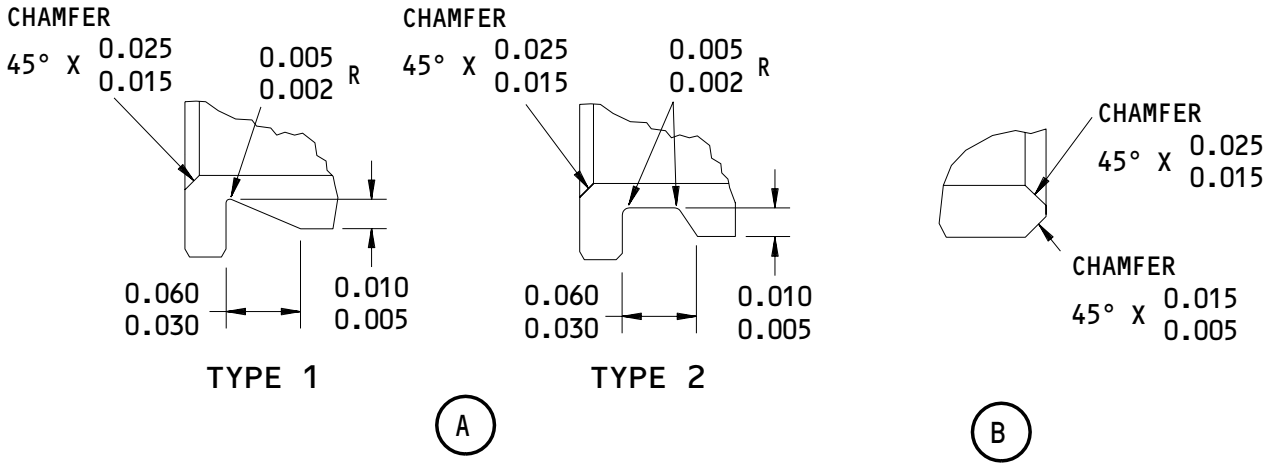
125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

113T8317–3,–4
Forward Hinge Repair
Figure 601 (Sheet 2)





1 THE OUTSIDE DIAMETER OF THE BUSHING AFTER PLATING IS EQUAL TO THE INSIDE DIAMETER OF THE BUSHING HOLE PLUS THE INTERFERENCE OF 0.0005-0.0016

2 THE DIMENSION SHOWN IS BEFORE PLATING

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE AFTER PLATING UNLESS SHOWN DIFFERENTLY

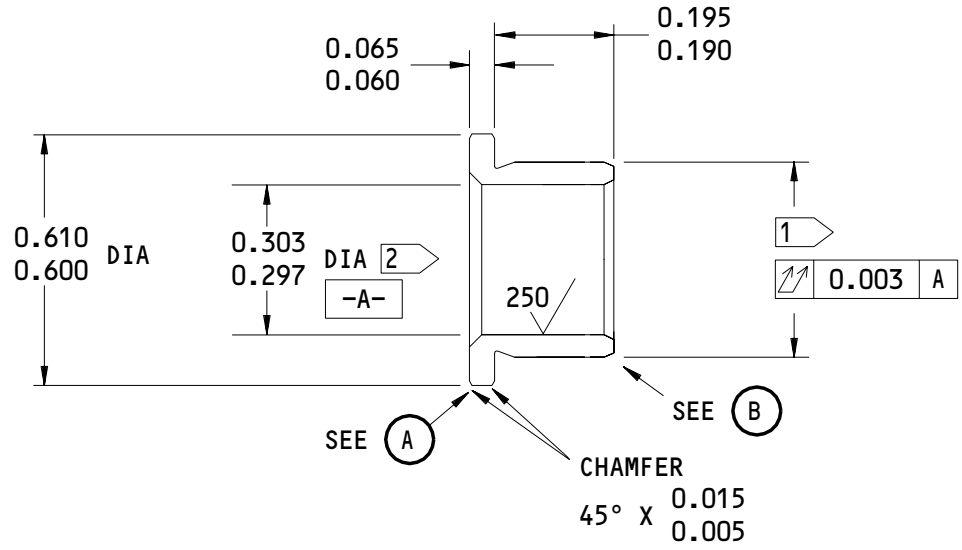
ITEM NUMBERS REFER TO IPL FIG. 1

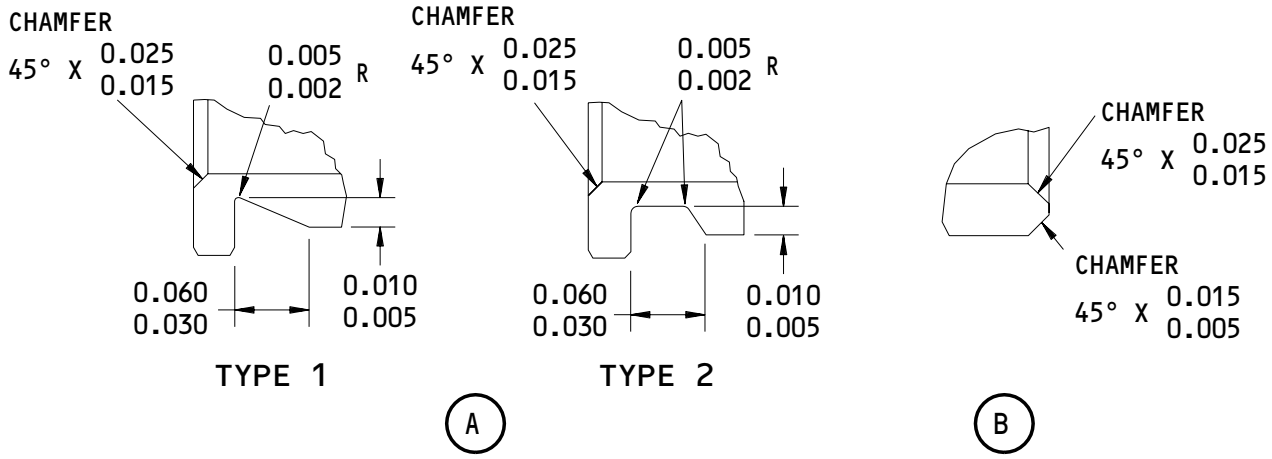
ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION [1] FIG. 601 -- REPLACES BUSHING (90)

Oversize Bushing Details
Figure 602

K00551





1 THE OUTSIDE DIAMETER OF THE BUSHING AFTER PLATING IS EQUAL TO THE INSIDE DIAMETER OF THE BUSHING HOLE PLUS THE INTERFERENCE OF 0.0003-0.0014

2 THE DIMENSION SHOWN IS BEFORE PLATING

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ALL DIMENSIONS ARE AFTER PLATING UNLESS SHOWN DIFFERENTLY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

HOLE LOCATION [2] FIG. 601 -- REPLACES BUSHING (95)

Oversize Bushing Details
Figure 603

KD055D

AFT HINGE ASSEMBLY - REPAIR 3-1

113T8318-1, -2

1. General

   A. This procedure has the data necessary to repair and refinish the aft hinge assembly (40, 45).

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Bearing Replacement

   A. Consumable Materials

      NOTE: Equivalent material can be used.

      (1) D00633 Grease -- BMS 3-33 (SOPM 20-60-03)

   B. References

      (1) SOPM 20-41-01, Decoding Table for Boeing Finish Codes

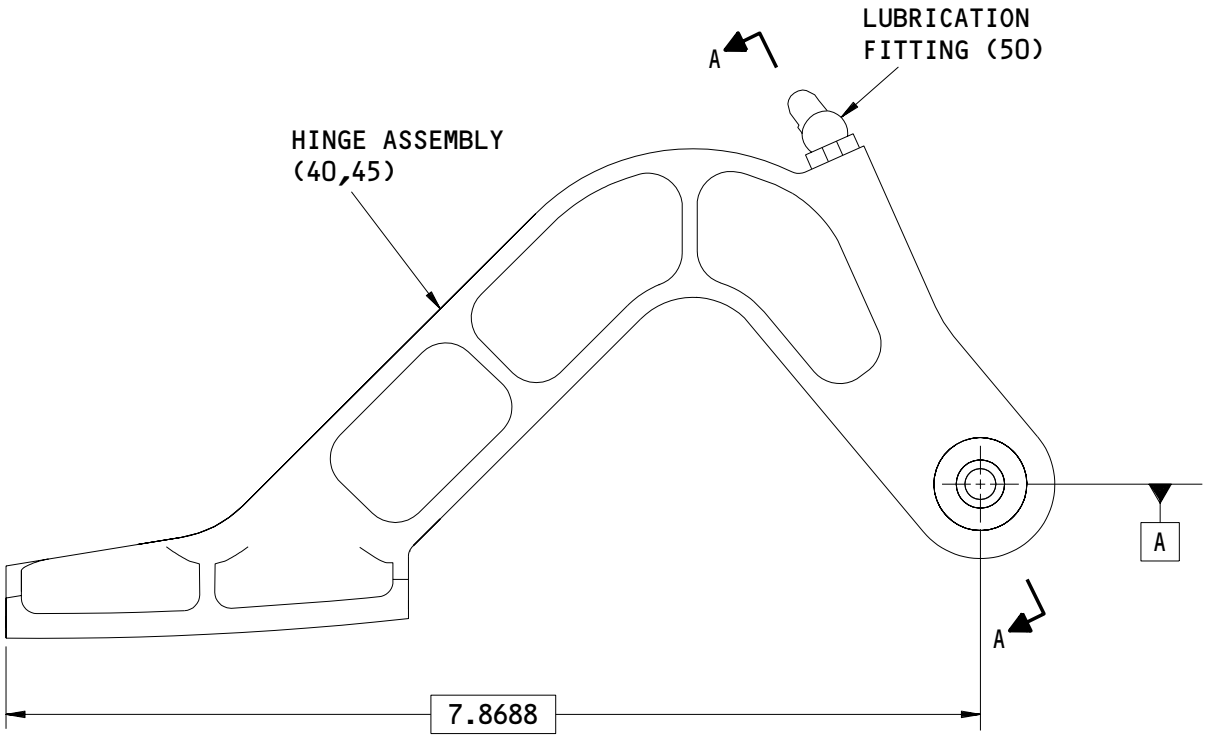
      (2) SOPM 20-50-03, Bearing and Bushing Replacement

      (3) SOPM 20-60-03, Lubricants

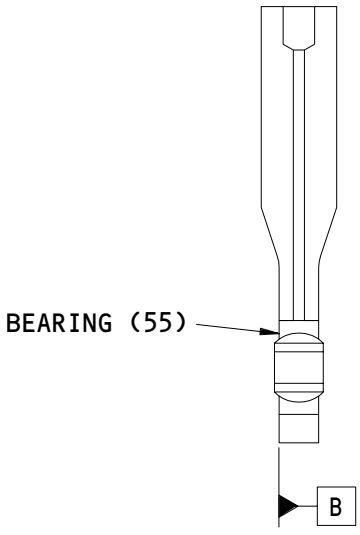
   C. Procedure (Fig. 601)

      (1) Remove the old bearing (55) from the forward hinge (60, 65).

      (2) Install a replacement bearing (55) with BMS 3-33 grease and roller swage it (SOPM 20-50-03).



113T8318-1 SHOWN
113T8318-2 OPPOSITE



A-A

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

113T8318-1,-2
Aft Hinge Assembly - Bearing Replacement
Figure 601

AFT HINGE - REPAIR 3-2

113T8318-3, -4

1. General

A. This procedure has the data necessary to repair and refinish the aft hinge (60, 65).

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

C. Refer to IPL Fig. 1 for item numbers.

D. General repair details:

(1)	Material:	Aluminum alloy
(2)	Shot peen:	Shot size 0.023-0.055 Intensity 0.007A2 Overspray is permitted

2. Aft Hinge Refinish

A. Consumable Materials

NOTE: Equivalent material can be used.

(1) C00033 Enamel -- BMS 10-60, Type 2 (SOPM 20-60-02)

(2) C00175 Primer -- BMS 10-79, Type 3 (SOPM 20-60-02)

B. References

(1) SOPM 20-10-03, Shot Peening

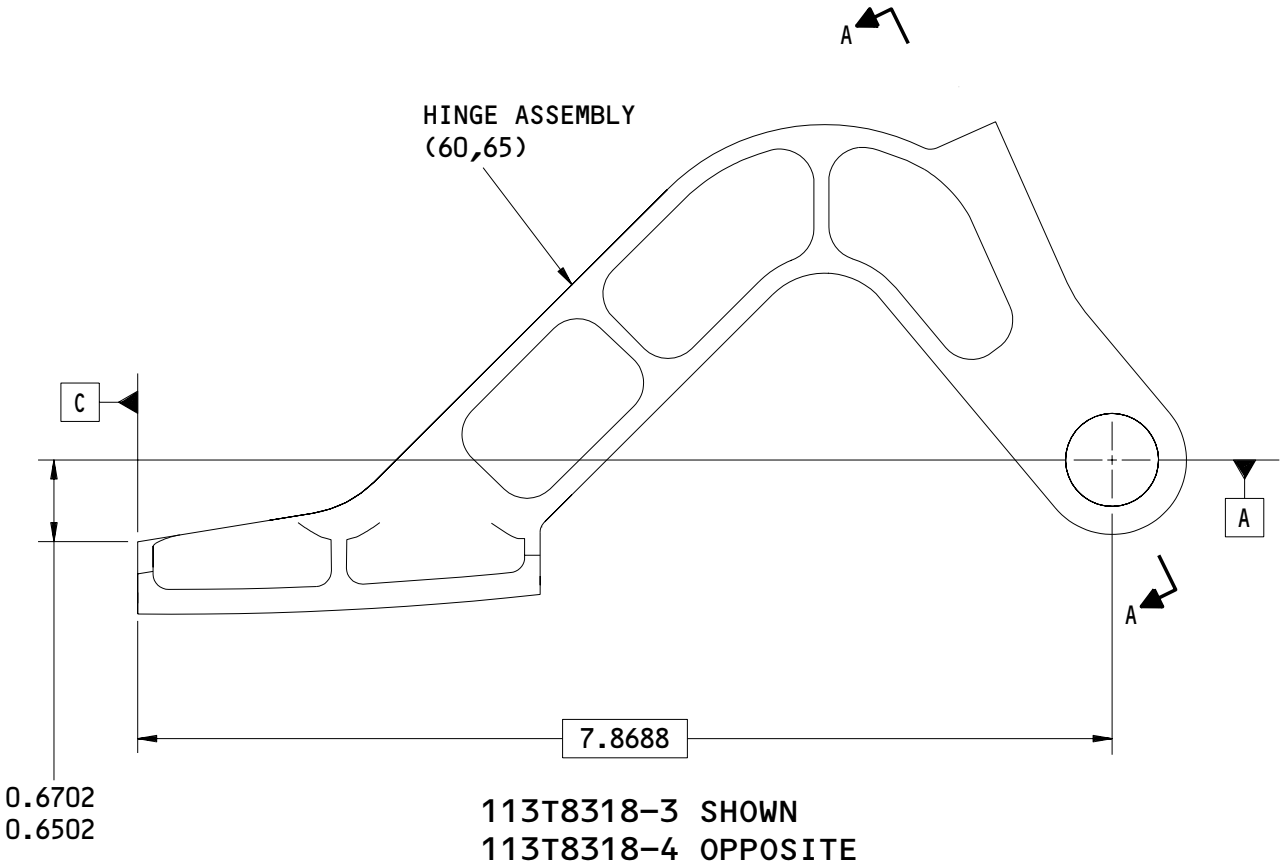
(2) SOPM 20-30-02, Stripping of Protective Finishes

(3) SOPM 20-41-01, Decoding Table For Boeing Finish Codes

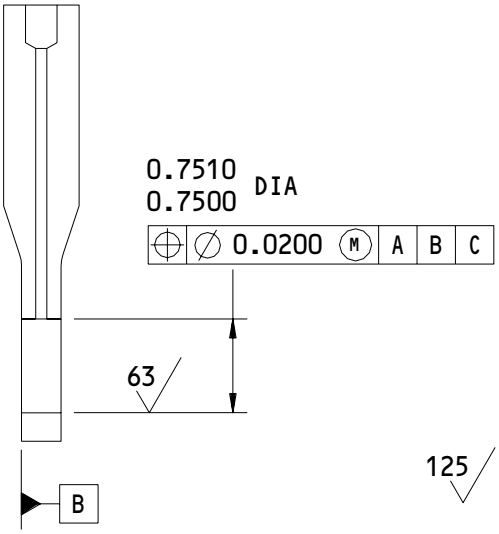
(4) SOPM 20-60-02, Finishing Materials

C. Procedure (Fig. 601)

(1) Boric acid - sulfuric acid anodize (F-17.31). Apply BMS 10-79, Type 3 primer (F-19.47) and BMS 10-60, Type 2 gloss enamel (F-19.39-707).



113T8318-3 SHOWN
113T8318-4 OPPOSITE



A-A

125 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

113T8318-3,-4
Aft Hinge Repair
Figure 601

K00543

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the trunnion door assembly.

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

C. Refer to IPL Fig. 1 for item numbers.

2. Trunnion Door Assembly

A. Consumable Materials

NOTE: Equivalent material can be used.

(1) A00247 Sealant -- BMS 5-95 (SOPM 20-60-04)

B. References

(1) SOPM 20-50-01, Bolt and Nut Installation

(2) SOPM 20-50-18, Fastener Installation in Composite Structures

(3) SOPM 20-60-04, Miscellaneous Materials

C. Procedure

(1) Use standard industry procedures and the steps shown below to assemble this component.

(2) Install the bolts (10, 15), the washers (25, 30) and the nuts (35) with wet BMS 5-95 sealant.

(3) Tighten the nuts (35) to 50-75 pound-inches.

(4) Before the sealant is cured, tighten the nuts (35) again to 75 pound-inches.

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.

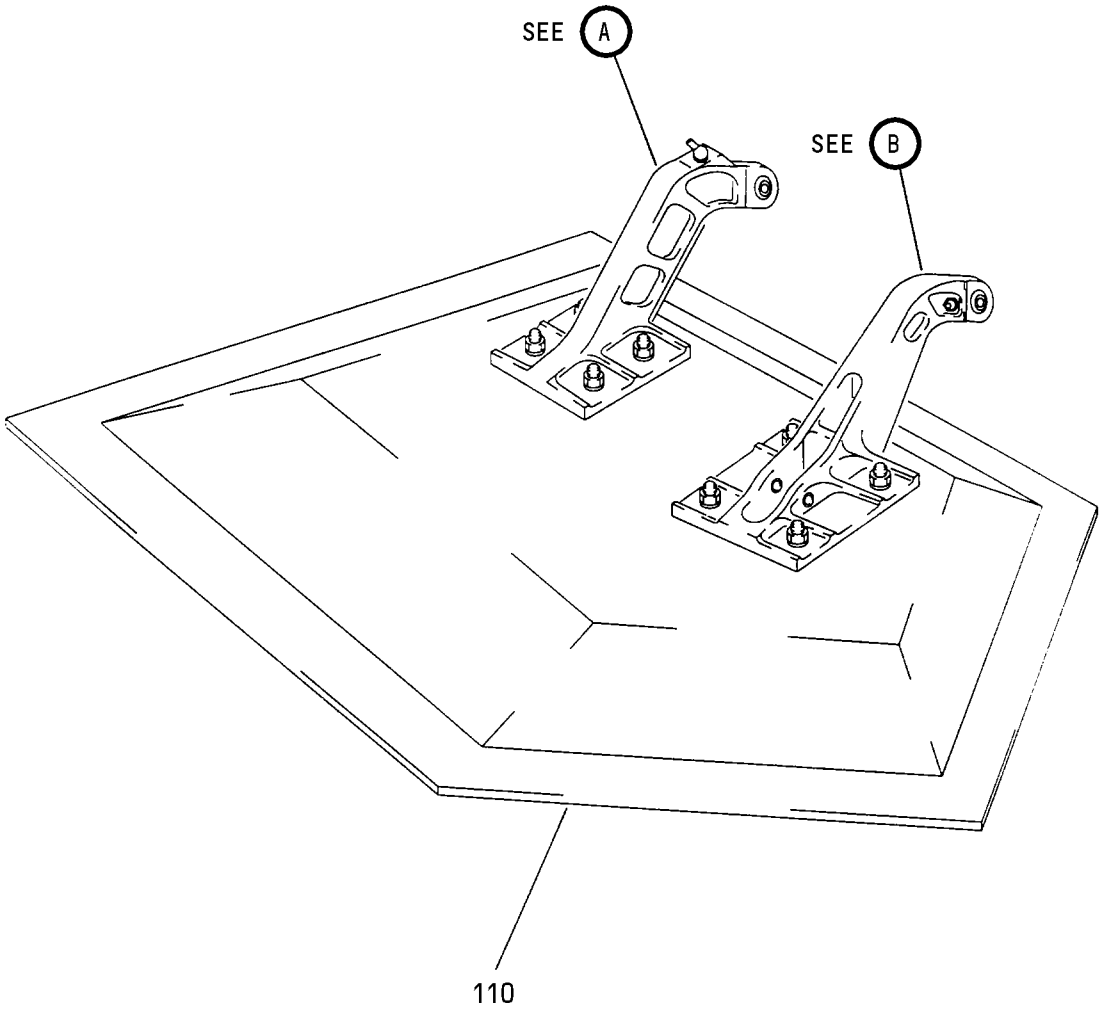
5. Service Bulletin modifications are shown by the notations PRE SB XXXX and POST SB XXXX.

    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.

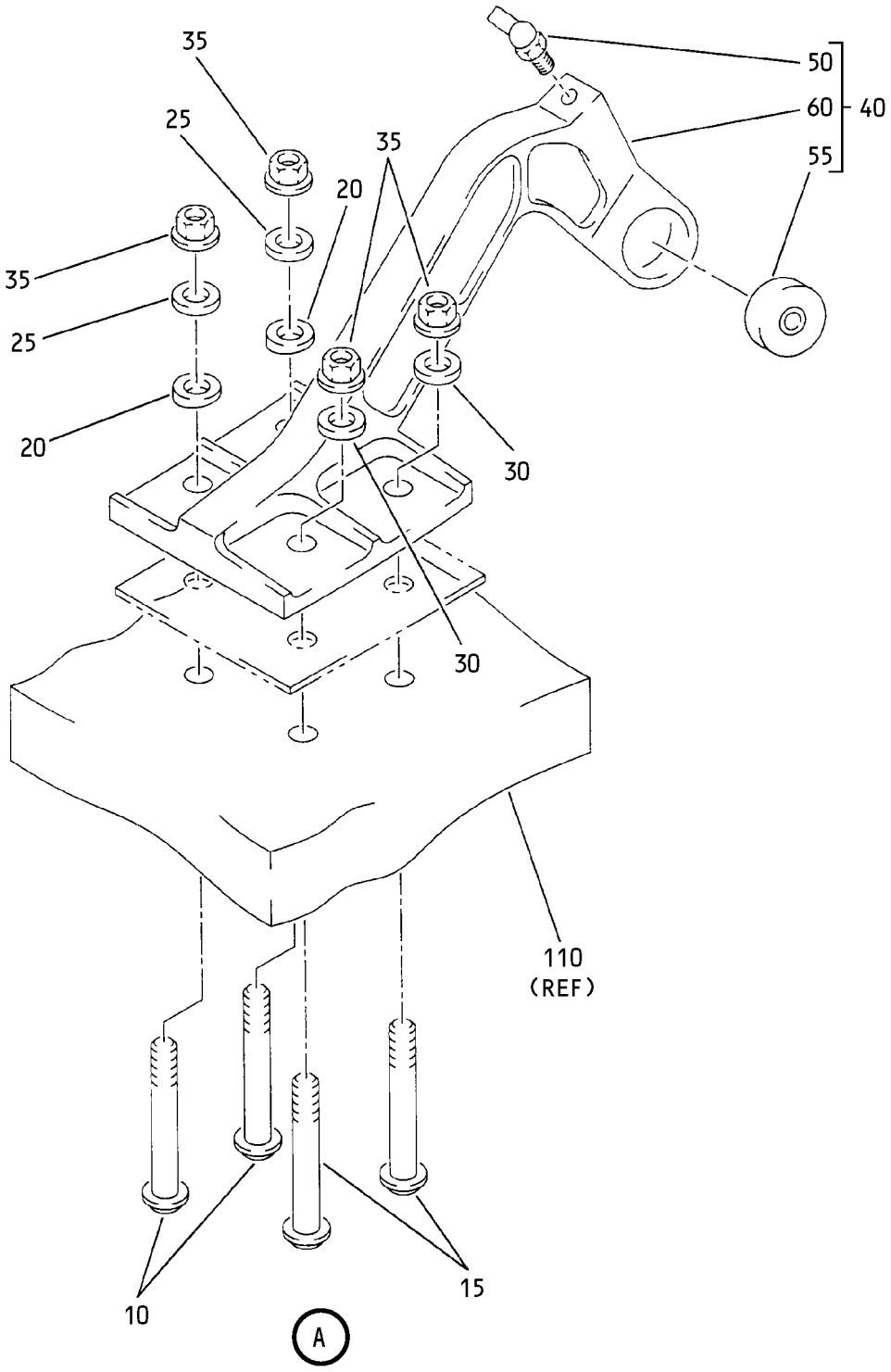
6. Parts Interchangeability

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.



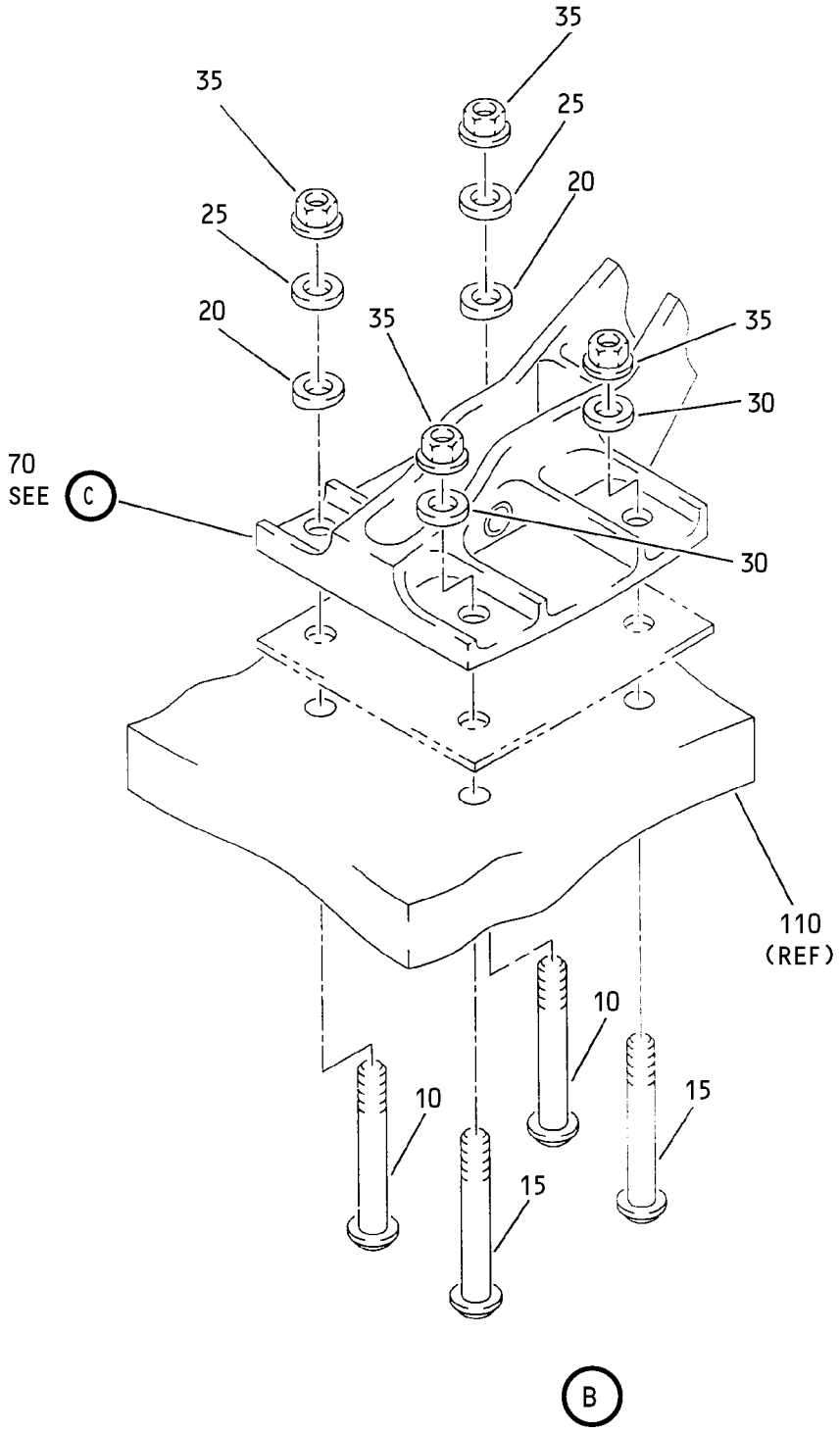
MLG Doors - Trunnion Door Assembly
Figure 1 (Sheet 1)

H99913



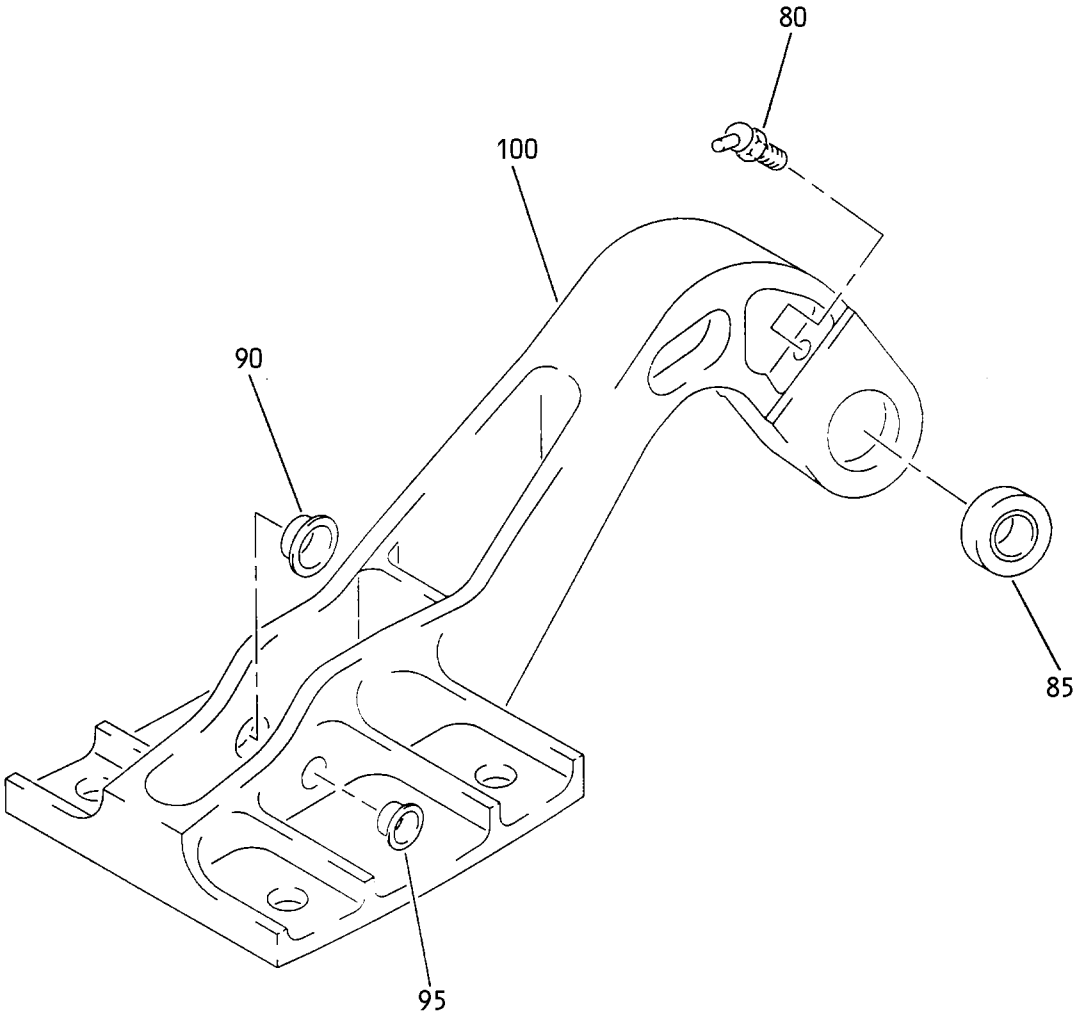
MLG Doors - Trunnion Door Assembly
Figure 1 (Sheet 2)

H99931



MLG Doors - Trunnion Door Assembly
Figure 1 (Sheet 3)

H99968



MLG Doors - Trunnion Door Assembly
Figure 1 (Sheet 4)

H99986

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1A	113T8304-1		DOOR ASSY-TRUN	A	RF
-5	113T8304-2		DOOR ASSY-TRUN	B	RF
10	BACB30VG10K32		.BOLT		4
15	BACB30VG10K30		.BOLT		4
20	BACW10CA5CC		.WASHER		4
25	BACW10CA5CV		.WASHER		4
30	NAS1149D0563J		.WASHER		4
35	BACN10YR5CD		.NUT		8
40	113T8318-1		.HINGE ASSY-AFT	A	1
-45	113T8318-2		.HINGE ASSY-AFT	B	1
50	MS15001-3		..FITTING		1
55	BACB10FH04GC		..BEARING		1
60	113T8318-3		..HINGE (USED ON ITEM 40)		1
-65	113T8318-4		..HINGE (USED ON ITEM 45)		1
70	113T8317-1		.HINGE ASSY-FWD	A	1
-75	113T8317-2		.HINGE ASSY-FWD	B	1
80	MS15001-1		..FITTING		1
85	BACB10FH05GC		..BEARING		1
90	BACB28AT07B019C		..BUSHING		1
95	BACB28AP05P019		..BUSHING		1
100	113T8317-3		..HINGE (USED ON ITEM 70)		1
-105	113T8317-4		..HINGE (USED ON ITEM 75)		1
110	113T8305-1		.PANEL ASSY-BOND	A	1
-115	113T8305-2		.PANEL ASSY-BOND	B	1

- Item Not Illustrated