TO: ALL HOLDERS OF AILERON CONTROL QUADRANT ROD ASSEMBLY MAINTENANCE MANUAL 27-11-05

REVISION NO. 2 DATED OCT 10/86

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
DESCRIPTION & OPERATION 1	Added assembly weight.
REPAIR 1-1 601-602 REPAIR 2-1 601-602 REPAIR 3-1 601 701	Revised Repair and Assembly instructions to reflect current practices.
1005,1007	Clarified assembly nomenclature.
1007	Revised bearing part number.

AILERON CONTROL QUADRANT ROD ASSEMBLY

PART NUMBER 251T1644-1,-2
251T1646-1,-2

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

143747

BOEING
COMPONENT
MAINTENANCE MANUAL

REVISION RECORD

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

REVISION NUMBER	REVISION DATE	DATE FILED	BY	REVISION NUMBER	REVISION DATE	DATE FILED	BY

COMPONENT
MAINTENANCE MANUAL

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

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

PAGE	DATE	CODE
27-11-05		
TITLE PAGE		
1	OCT 10/84	01
2	BLANK	
REVISION RECORD		
1	OCT 10/84	01
2	BLANK	
TR & SB RECORD		
1	OCT 10/84	01
2	BLANK	
LIST OF EFFECTIVE PAGES		
*1	OCT 10/86	01
THRU LAST PAGE		
CONTENTS		
1	JUL 10/85	01.1
2	BLANK	
INTRODUCTION		
1	OCT 10/84	01
2	BLANK	
DESCRIPTION & OPERATION		
*1	OCT 10/86	01.1
2	BLANK	
DISASSEMBLY		
*301	OCT 10/86	01.1
302	BLANK	
CLEANING		
401	JUL 10/85	01.1
402	BLANK	
CHECK		
501	JUL 10/85	01.1
502	BLANK	

PAGE	DATE	CODE
REPAIR-GENERAL		
601	OCT 10/84	01
602	BLANK	
REPAIR 1-1		
*601	OCT 10/86	01.1
*602	OCT 10/86	01.1
REPAIR 2-1		
*601	OCT 10/86	01.1
*602	OCT 10/86	01.1
REPAIR 3-1		
*601	OCT 10/86	01.1
602	BLANK	
ASSEMBLY		
*701	OCT 10/86	01.1
702	OCT 10/84	01
703	JUL 10/85	01.1
704	BLANK	
FITS AND CLEARANCES		
801	OCT 10/84	01
802	BLANK	
ILLUSTRATED PARTS LIST		
1001	OCT 10/84	01
1002	OCT 10/84	01
1003	BLANK	
1004	JUL 10/85	01.1
*1005	OCT 10/86	01.1
1006	OCT 10/84	01
*1007	OCT 10/86	01.1
1008	BLANK	

* = REVISED, ADDED OR DELETED

COMPONENT
MAINTENANCE MANUAL

TABLE OF CONTENTS

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.

AILERON CONTROL QUADRANT ROD ASSEMBLY

DESCRIPTION AND OPERATION

1. Description

   A. The aileron control quadrant rod assembly is a component of the aileron control system. The assembly consists of a tube, clevis assembly and a rod end bearing.

2. Leading Particulars (approximate)

   Length -- 13 inches
   Height -- 2 inches
   Width -- 1 inch
   Weight -- 0.25 pounds

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. Standard industry practices are sufficient to disassemble this component.

CLEANING

1. Clean all parts except bearings using standard industry practices (Ref 20-30-03).

2. Clean teflon sealed bearings (50, IPL Fig. 1; 35, IPL Fig. 2) per manufacturer's instructions.

CHECK

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

2. Penetrant check the following parts per 20-20-02.

   A. Clevis (35, IPL Fig. 1)

   B. Tube (55, IPL Fig. 1)

   C. Clevis (5, IPL Fig. 2)

   D. Tube (40, IPL Fig. 2)

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
251T1642	CLEVIS	1-1
251T1645	CLEVIS	2-1
- -	MISC PARTS REFINISH	3-1

2. Standard Practices

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

20-30-02 Stripping of Protective Finishes
20-30-03 General Cleaning Procedures
20-41-01 Decoding Table for Boeing Finish Codes
20-41-02 Application of Chemical and Solvent Resistant Finishes
20-42-05 Bright Cadmium Plating
20-43-01 Chromic Acid Anodizing

3. Materials

NOTE: Equivalent substitutes may be used

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

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

C. Epoxy -- BMS 5-28, type 6, (Ref 20-60-04)

D. Corrosion Preventive Compound -- BMS 3-23 (Ref 20-60-04)

CLEVIS ASSEMBLY - REPAIR 1-1

251T1642-1, -3

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

1. Hole Repair (IPL Fig. 1, Fig. 601)

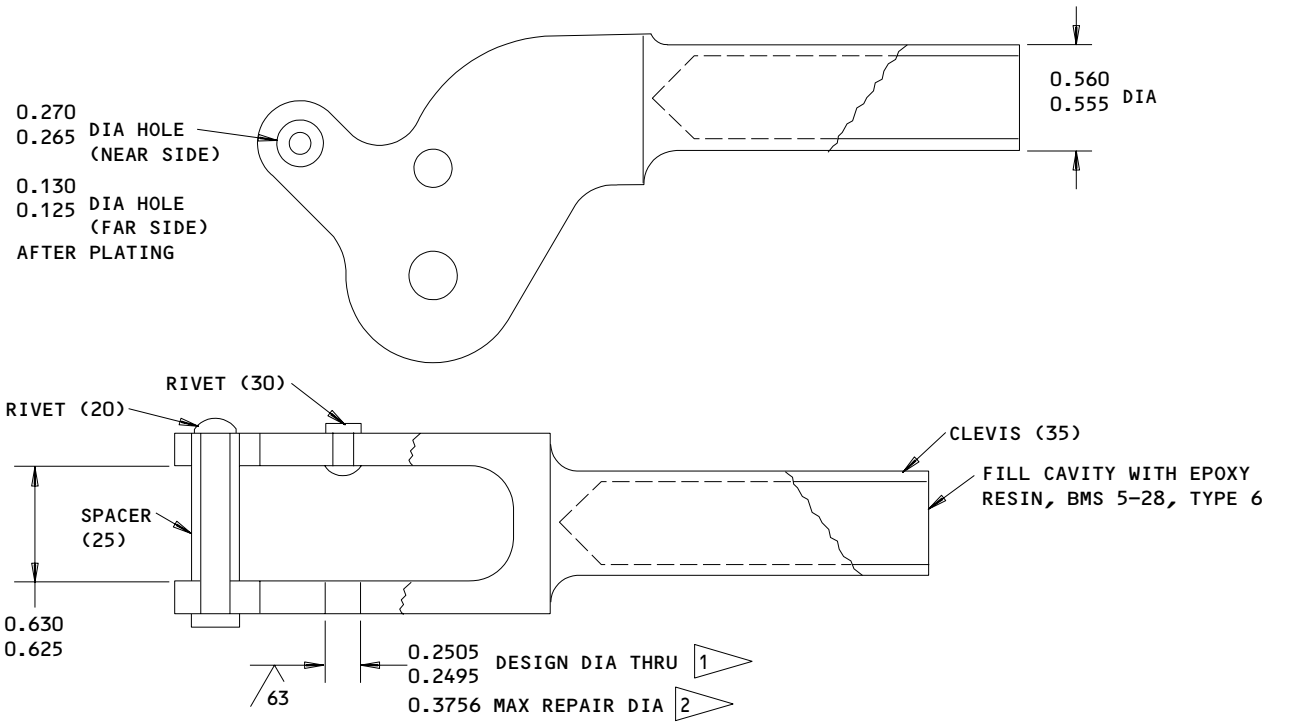
   A. Machine holes as required, within repair limit shown, to remove defects.

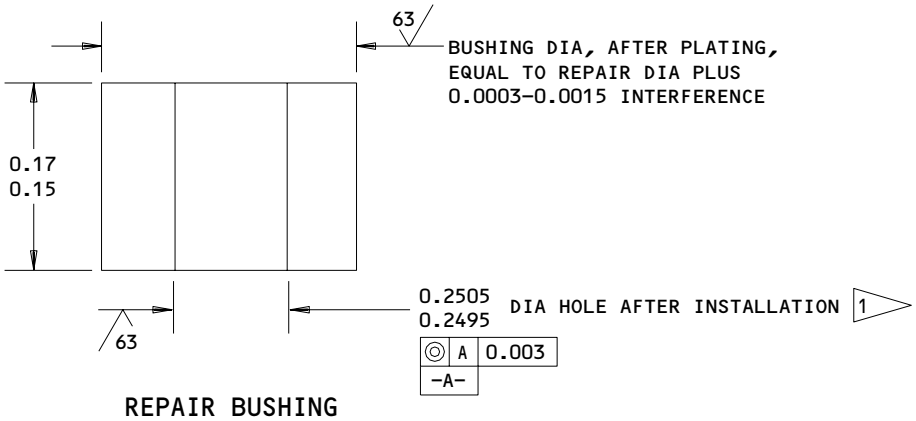
   B. Manufacture bushings per Fig. 601.

   C. Install bushing using wet BMS 5-95 sealant per 20-50-03. Bushing to be flush within +0.00 to -0.01 to inside leg of clevis.

2. Resin Replacement (Fig. 601)

   A. Fill cavity with epoxy resin BMS 5-28, type 6, as required.





REPAIR BUSHING

REFINISH

CLEVIS (35) -- CHROMIC ACID ANODIZE (F-17.04)

CLEVIS ASSEMBLY (10) -- APPLY TWO COATS OF BMS 10-11, TYPE 1, PRIMER (F-20.03) EXCEPT AS NOTED

1 NO PRIMER THIS SURFACE

2 REPAIR LIMIT FOR INSTALLATION OF REPAIR BUSHINGS

REPAIR 2

BUSHING MATERIAL: AL-NI-BRONZE

CADMIUM PLATE (F-15.06) ALL OVER

CLEVIS MATERIAL: AL ALLOY

BREAK ALL SHARP EDGES 0.01-0.03 R

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

251T1642-1,-3
Clevis Assembly - Repair
Figure 601

143749

CLEVIS ASSEMBLY - REPAIR 2-1

251T1645-1, -2

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

1. Hole Repair (IPL Fig. 2, Fig. 601)

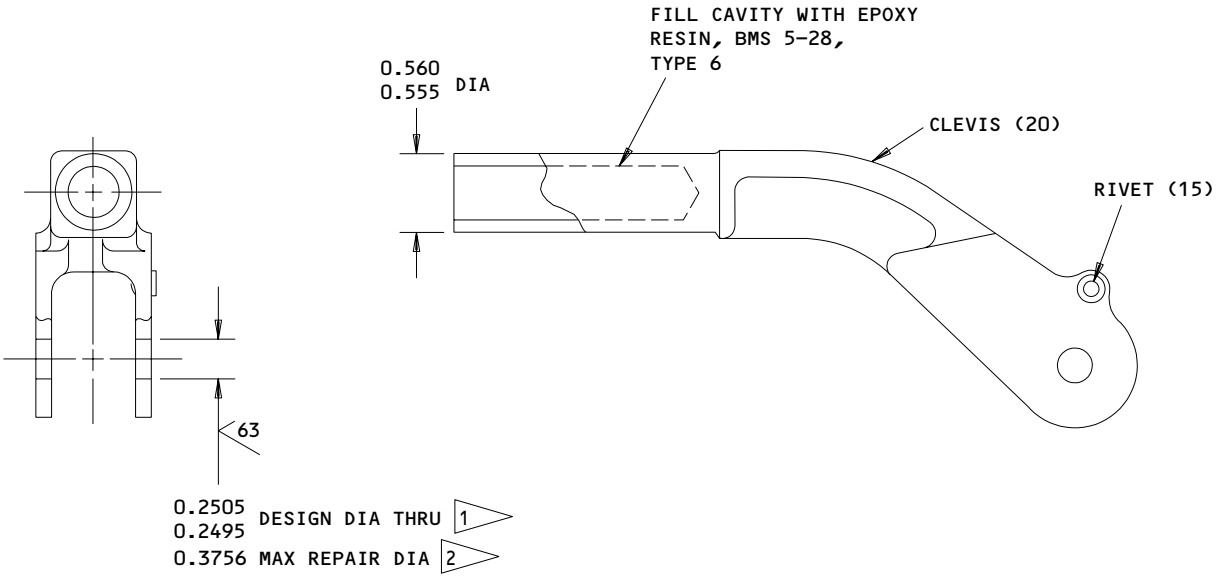
   A. Machine holes as required, within repair limit shown, to remove defects.

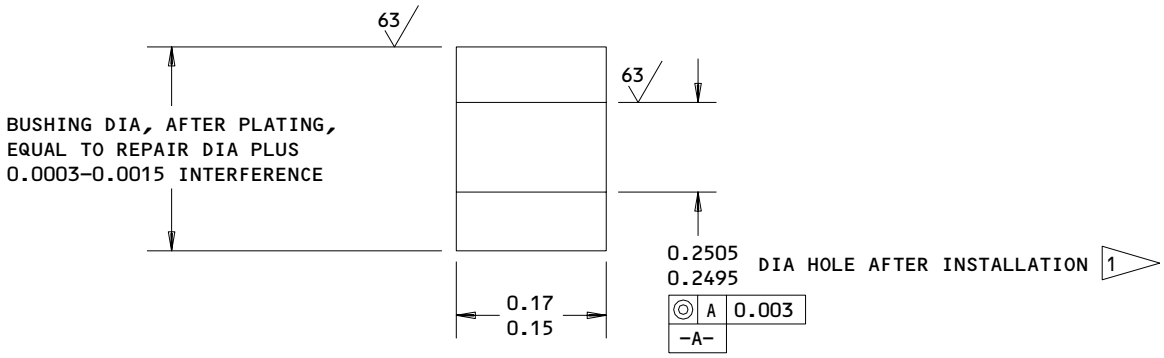
   B. Manufacture bushings per Fig. 601.

   C. Install bushing using wet BMS 5-95 sealant per 20-50-03. Bushing to be flush within +0.00 to -0.01 to inner clevis leg.

2. Resin Replacement (Fig. 601)

   A. Fill cavity with epoxy resin BMS 5-28, type 6, as required.





REPAIR BUSHING

REFINISH

CLEVIS (20) -- CHROMIC ACID ANODIZE (F-17.04) AND APPLY TWO COATS OF BMS 10-11, TYPE 1, PRIMER (F-20.03) EXCEPT AS NOTED

1 NO PRIMER THIS SURFACE

2 REPAIR LIMIT FOR INSTALLATION OF REPAIR BUSHINGS

REPAIR 2

BUSHING MATERIAL: AL-NI-BRONZE

CADMIUM PLATE (F-15.06) ALL OVER

CLEVIS MATERIAL: AL ALLOY

BREAK ALL SHARP EDGES 0.01-0.03 R

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 2

251T1645-1,-2
Clevis Assembly - Repair
Figure 601

143750

MISCELLANEOUS PARTS REFINISH - REPAIR 3-1

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

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1 Tube (55A), Tube (40, IPL Fig. 2)	Al alloy	Chemical treat interior and exterior surfaces and apply one coat of BMS 10-11, type 1, primer (F-18.07). Apply water displacing corrosion preventive compound (F-19.26) to interior only. Omit primer and compound from threads.

Refinish Details
Figure 601

ASSEMBLY

1. Materials

NOTE: Equivalent substitutes may be used.

A. Deleted.

B. Grease -- BMS 3-24 (Ref 20-60-03)

2. Assembly (IPL Fig. 1, Fig. 701)

A. Install spacer (25) and rivets (20, 30) in clevis (35).

B. Install clevis assembly (10) in tube (55) with rivets (15). Locate flat area of clevis parallel to slot within two degrees.

NOTE: See Fig. 701 for position of drain hole.

C. Apply BMS 3-24 grease to threads of rod end bearing (50). Install nut (45), washer (60) and rod end bearing (50) into tube (55).

D. Adjust length per Fig. 701.

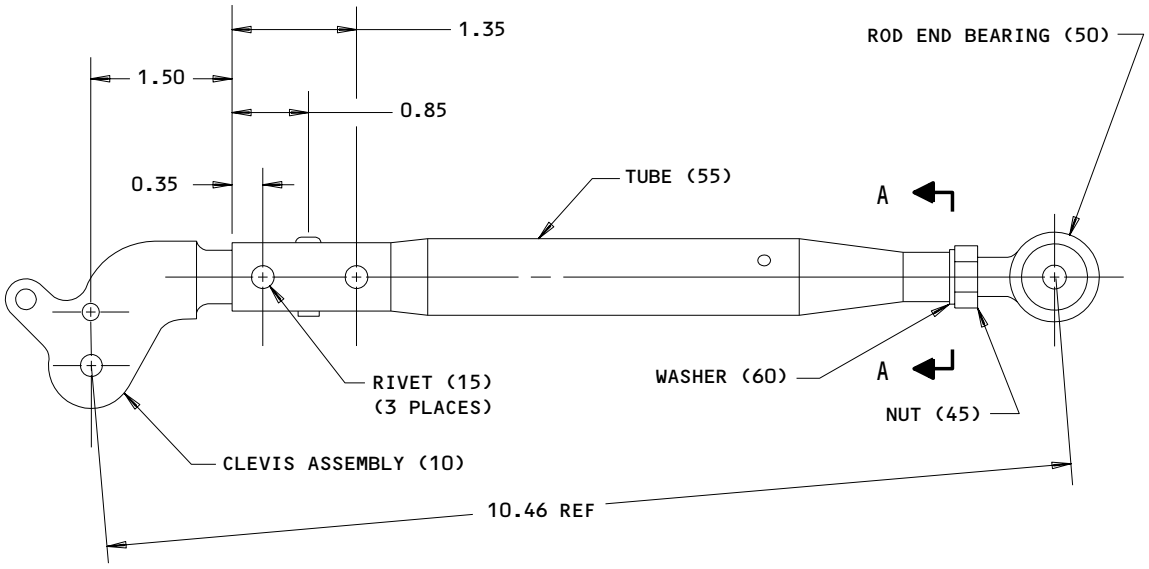
3. Assembly (IPL Fig. 2, Fig. 702)

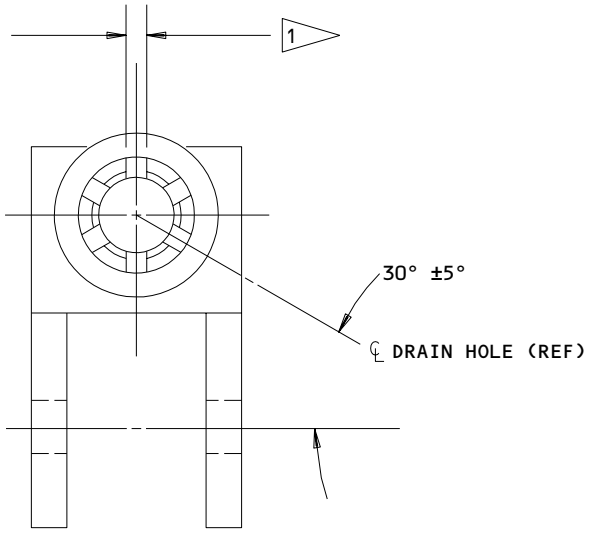
A. Install clevis assembly (5) in tube (40) with rivets (10).

NOTE: See Fig. 702 for position of drain hole.

B. Apply BMS 3-24 grease to threads of rod end bearing (35). Install nut (30) and rod end bearing (35) into tube (40).

C. Adjust length per Fig. 702.



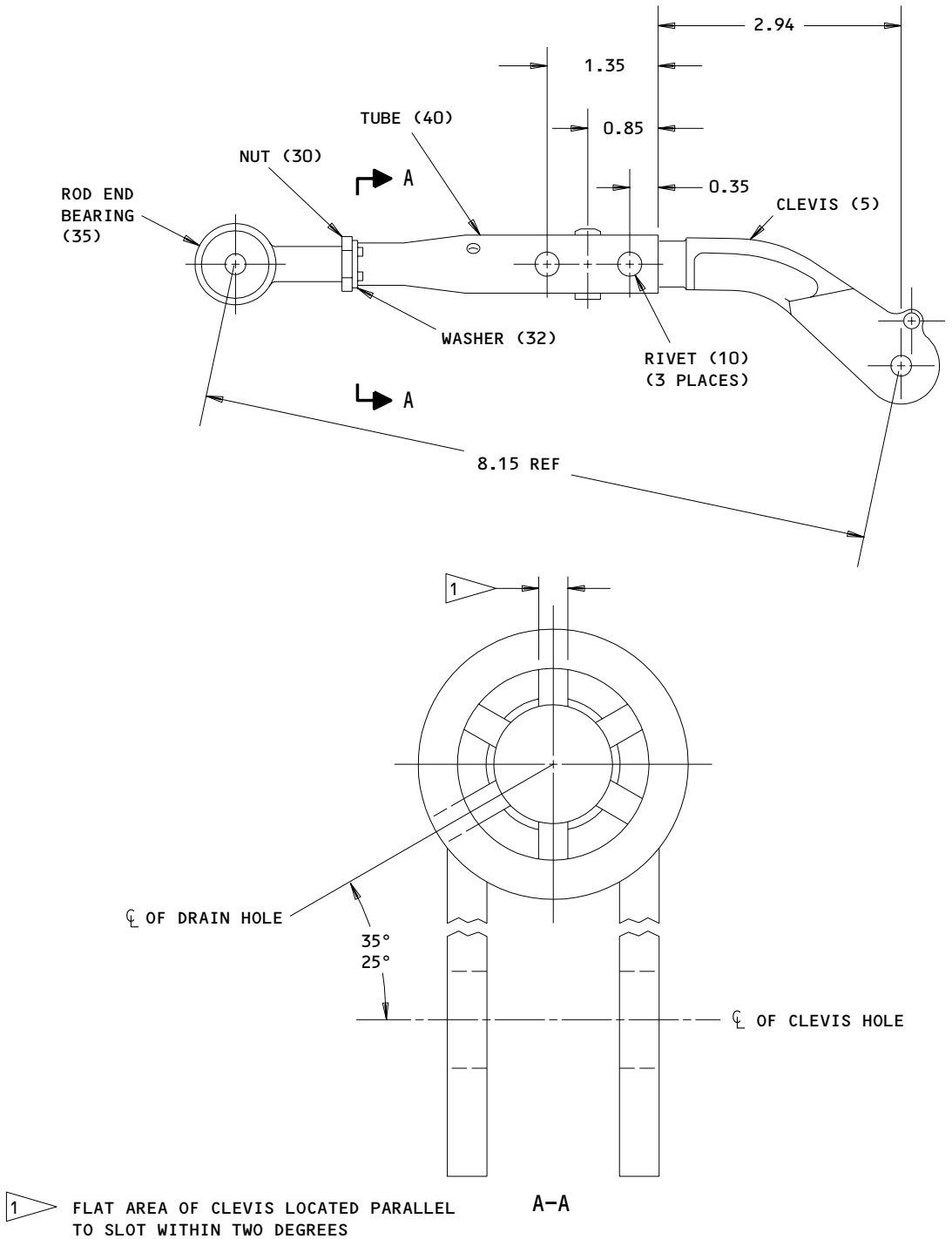


A-A

1 FLAT AREA OF CLEVIS LOCATED PARALLEL TO SLOT WITHIN TWO DEGREES

Aileron Control Quadrant Rod Asembly
Figure 701

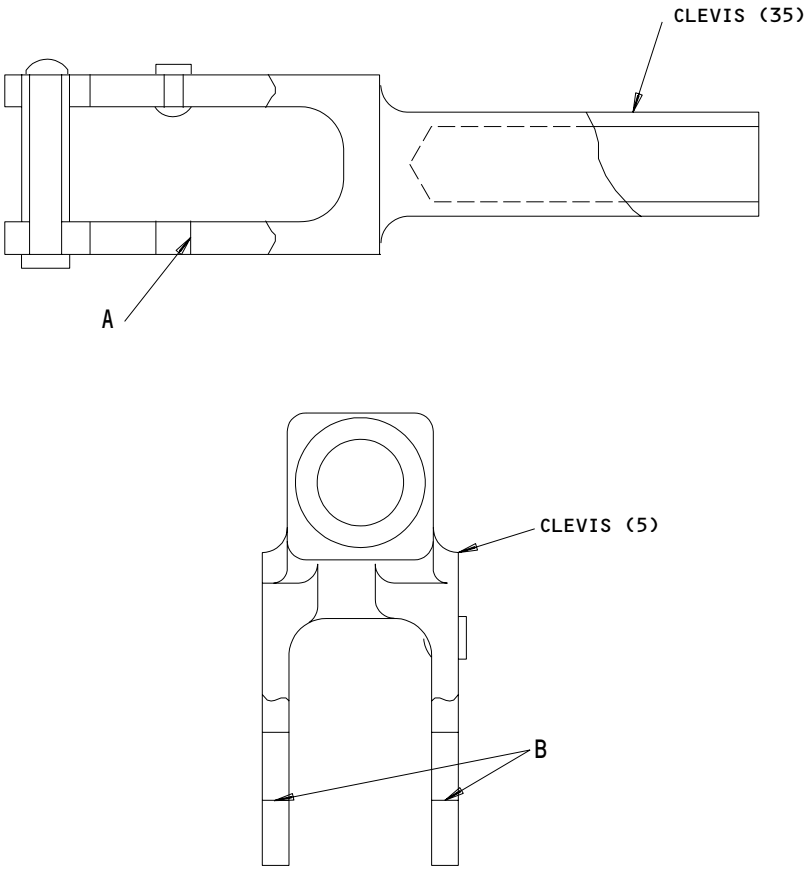
143751



Right Aileron Control Quadrant Rod Asembly
Figure 702

143752

FITS AND CLEARANCES



Ref Letter Fig.801	Mating Item No. IPL Fig.	Design Dimension				Service Wear Limit		
		Dimension		Assembly Clearance		Dimension		Maximum Clearance
		Min	Max	Min	Max	Min	Max	
A	IPL FIG. 1 ID 35	0.2495	0.2505				0.2535	
B	IPL FIG. 2 ID 5	0.2495	0.2505				0.2535	

*[1] INTERFERENCE FIT

ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801

143754

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.

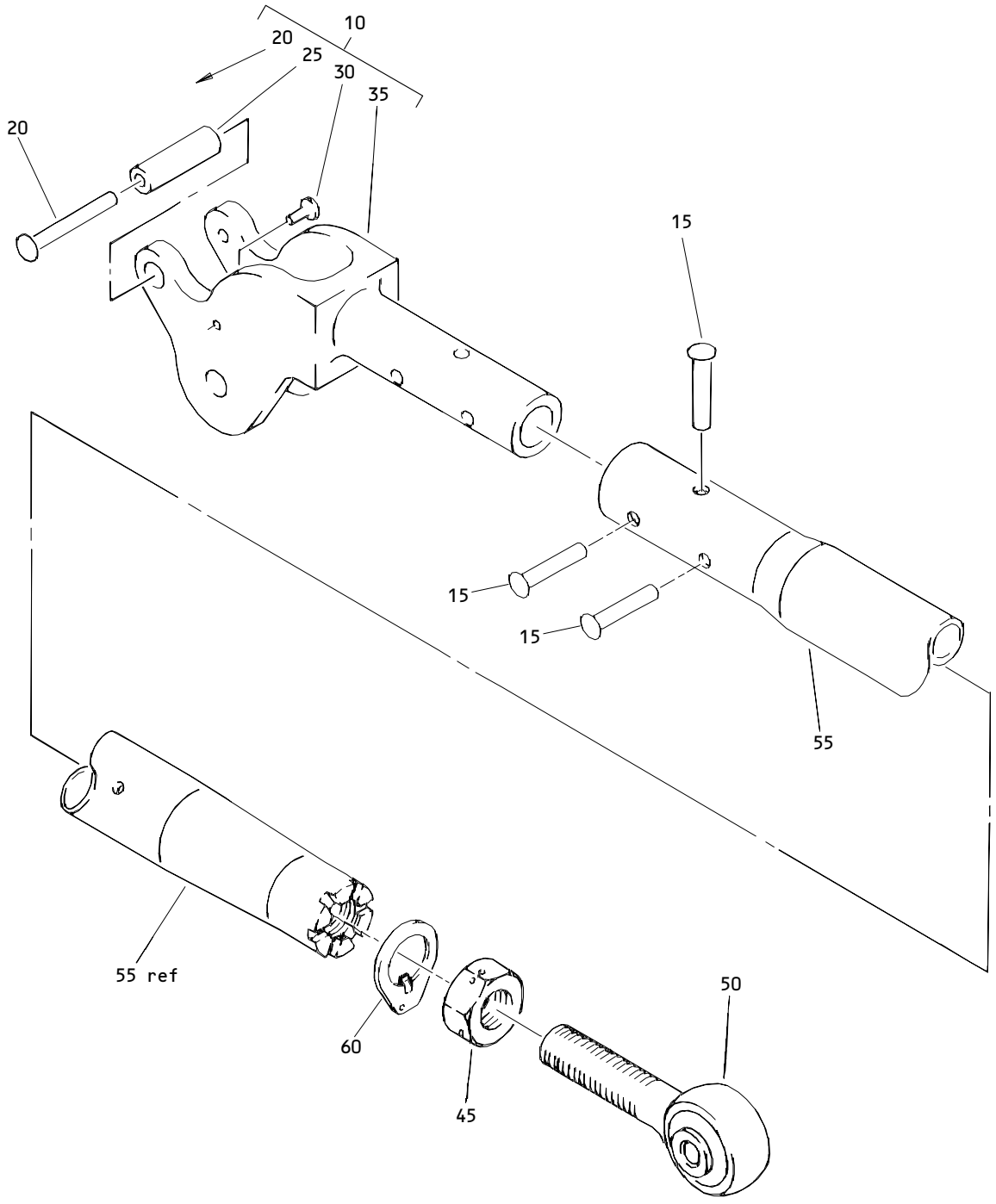
6. Parts Interchangeability

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

21335 TEXTRON INC FAFNIR BEARING DIVISION
37 BOOTH STREET
NEW BRITAIN, CONNECTICUT 06050

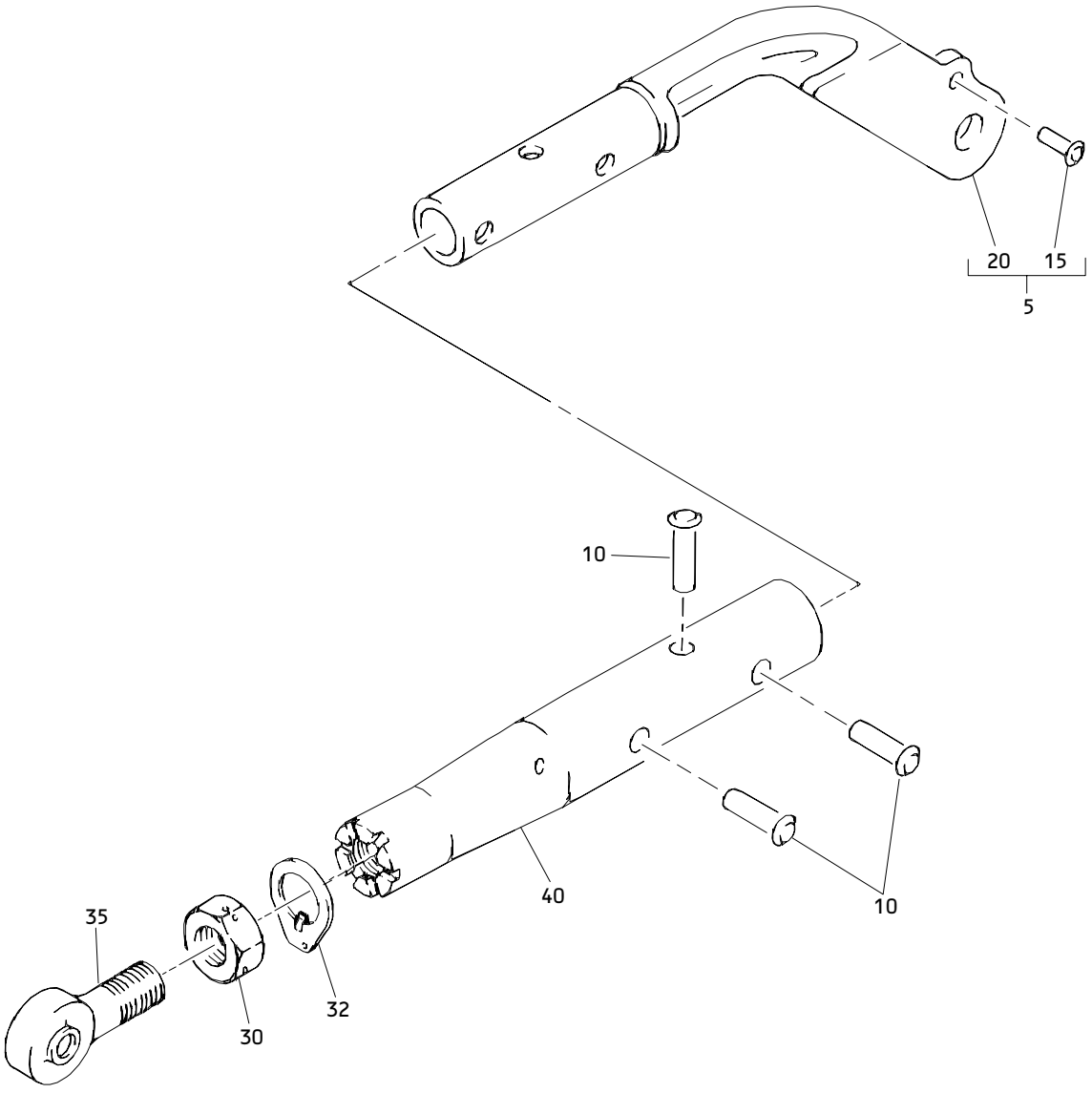
38443 TRW INC BEARING DIV
402 CHANDLER STREET
JAMESTOWN, NEW YORK 14701



Aileron Control Quadrant Rod Assembly
Figure 1

T93730

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	251T1644-1		ROD ASSY-L QUADRANT, AIL. CONT	C	RF
-1A	251T1644-2		ROD ASSY-L QUADRANT, AIL. CONT	A	RF
-5	251T1646-2		ROD ASSY-R QUADRANT, AIL. CONT (FOR DETAILS SEE FIG. 2)	B	RF
-5A	251T1646-1		ROD ASSY-R QUADRANT, AIL. CONT (FOR DETAILS SEE FIG. 2)	D	RF
10	251T1642-1		.CLEVIS ASSY-FXD (OPT ITEM 10A)		1
-10A	251T1642-3		.CLEVIS ASSY-FXD (OPT ITEM 10)		1
			ATTACHING PARTS		
15	BACR15FT5KE		.RIVET		3
			-------*-------		
20	BACR15BB4D13		..RIVET		1
25	NAS42DD4-54		..SPACER		1
30	MS20615-3M		..RIVET		1
35	251T1642-2		..CLEVIS- (USED ON ITEM 10)		1
-35A	251T1642-4		..CLEVIS- (USED ON ITEM 10A)		1
40	NAS513-6		.WASHER-ROD END	C	1
45	NAS1423-6		.NUT	C	1
-45A	AN316-6R		.NUT	A	1
50	REP4M6-4FS428		.BEARING- (SPEC BACB10AD5K)	C	1
-50A	REP4M6-5FS428		.BEARING- (V21335) (SPEC BACB10AD12) (OPT HHRE4M6-2 (V38443)) (OPT REP4M6-5E9171B (V21335))	A	1
55	251T0101-226		.TUBE	C	1
-55A	251T0101-232		.TUBE	A	1
60	NAS513-6		.WASHER	C	1



Right Aileron Control Quadrant Rod Assembly
Figure 2

T93731

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
02-					
-1	251T1646-1		ROD ASSY-R QUADRANT, AIL. CONT	D	RF
-1A	251T1646-2		ROD ASSY-R QUADRANT, AIL. CONT	B	RF
5	251T1645-1		.CLEVIS ASSY- (OPT ITEM 5A)		1
-5A	251T1645-2		.CLEVIS ASSY- (OPT ITEM 5)		1
			ATTACHING PARTS		
10	BACR15FT5KE( )C		.RIVET		3
			-------*-------		
15	MS20615-3M		..RIVET		1
20	251T1645-3		..CLEVIS- (USED ON ITEM 5)		1
-25	251T1645-4		..CLEVIS- (USED ON ITEM 5A)		1
30	AN316-6R		.NUT	B	1
30A	NAS1423-6		.NUT	D	1
32	NAS513-6		.WASHER-ROD END	D	1
35	REP4M6-5FS428		.BEARING- (V21335) (SPEC BACB10AD12) (OPT HHRE4M6-2 (V38443)) (OPT REP4M6-5E9171B (V21335))	B	1
35A	REP4MS6-5FS428		.BEARING- (V21335) (SPEC BACB10AD12K)	D	1
40	251T0101-233		.TUBE	B	1
40A	251T0101-227		.TUBE	D	1