

 **BOEING**
COMPONENT
MAINTENANCE MANUAL

TO: ALL HOLDERS OF ELEVATOR ACTUATOR BELLCRANK ASSY COMPONENT MAINTENANCE
MANUAL 27-31-66

REVISION NO. 5 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 on the Record of Revision Sheet.

CHAPTER/SECTION
AND PAGE NO.

DESCRIPTION OF CHANGE

REPAIR 1-1

Updated refinish information.

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REPAIR 2-1

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HIGHLIGHTS

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ELEVATOR ACTUATOR BELLCRANK ASSEMBLY

PART NUMBER 252T2118-1,-2

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

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TITLE PAGE

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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 |
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| 27-0052 27A0166 27-0129 | TR 27-26 | PRR C12257-2 | JAN 10/86 JUL 01/88 NOV 01/00 NOV 01/00 |

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TR & SB RECORD

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| 2 | BLANK | | 602 | BLANK | |
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| 2 | BLANK | | 602 | BLANK | |
| TR & SB RECORD | | | ASSEMBLY | | |
| 1 | NOV 01/00 | 01.1 | 701 | NOV 01/00 | 01.1 |
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| CHECK | | | | | |
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| 502 | BLANK | | | | |
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* = REVISED, ADDED OR DELETED

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*[1] Special instructions not required. Use standard industry practices.

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INTRODUCTION

The instructions in this manual provide the information necessary to perform maintenance functions including test, fault isolation, and replacement of defective components.

This manual is divided into separate sections:

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

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.

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ELEVATOR ACTUATOR BELLCRANK ASSY

DESCRIPTION AND OPERATION

1. Description

A. The elevator actuator bellcrank assy consists of an arm assy and bellcrank. The power control actuator summing arm is connected to the actuator bellcrank assy with special rivets to form a controlled shearout joint. The power control actuator drives the elevator to the desired trim position.

2. Leading Particulars (approximate)

Length -- 4 inches
Height -- 3 inches
Width -- 4 inches
Weight -- 1 pound

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DISASSEMBLY

NOTE: This assembly is a controlled shearout joint and should not be disassembled unless necessary for repair or replacement. 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. Use standard industry practices for disassembly of this component.

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CHECK

1. Check all parts for obvious defects in accordance with standard industry practices.
1. Penetrant check the following parts (Ref IPL Fig. 1) per 20-20-02.
 - A. Arm (20)
 - B. Arm (25)

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REPAIR – GENERAL1. Content

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

| <u>P/N</u> | <u>NAME</u> | <u>REPAIR</u> |
|--------------|-------------|---------------|
| 252T2173 | ARM | 1-1 |
| 252T2174 | ARM | 2-1 |
| BAC27TCT0114 | MARKER | 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
 20-43-01 Chromic Acid Anodizing
 20-50-03 Bearing Installation and Retention
 20-50-05 Application of Aluminum Foil and Other Markers

3. Materials

NOTE: Equivalent substitutes may be used.

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

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ARM ASSY - REPAIR 1-1

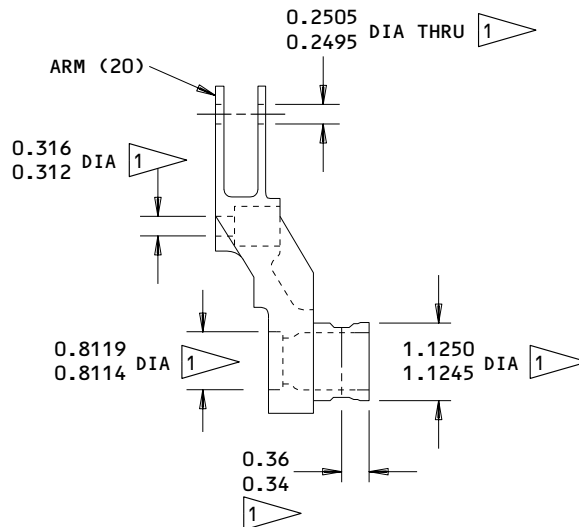
252T2173-1,-5

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, Fig. 601.

1. Bearing Replacment (Fig. 601)

A. Remove bearing (15).

B. Install bearing (15) and roller swage per 20-50-03 except use primer BMS 10-11, type 1 (F-20.06) in lieu of grease.



REFINISH

ARM (20) -- CHROMIC ACID ANODIZE (F-17.04).
 APPLY ONE COAT OF PRIMER BMS 10-11, TYPE 1
 (F-20.02) ALL OVER EXCEPT AS NOTED.

1 NO PRIMER THESE SURFACES

MATERIAL: AL ALLOY

ALL DIMENSIONS ARE IN INCHES

ITEM NUMBERS REFER TO IPL FIG. 1

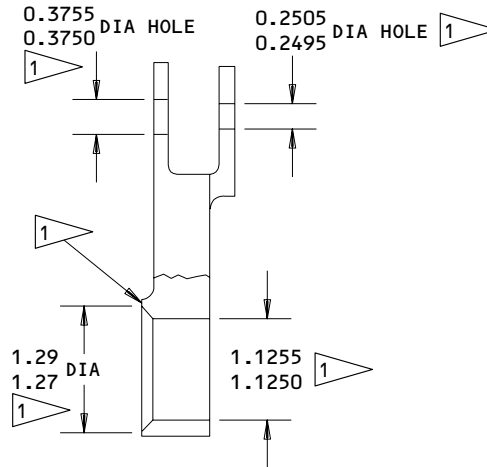
Arm Repair
 Figure 601

ARM - REPAIR 2-1

252T2174-1,-3,-5

1. Plating Repair

NOTE: Repair consists of stripping and restoration of original finish. Refer to Refinish instruction in Fig. 601 and to REPAIR-GEN for List of applicable standard practices.



REFINISH

252T2174-1
 CHROMIC ACID ANODIZE AND APPLY ONE COAT OF PRIMER BMS 10-11, TYPE 1 (F-18.13) ALL OVER EXCEPT AS NOTED

252T2174-3,-5
 CHROMIC ACID ANODIZE (F-17.04) AND APPLY ONE COAT OF PRIMER (YELLOW) BMS 10-11, TYPE 1 (F-20.09) ALL OVER EXCEPT AS NOTED

1 NO PRIMER ON THESE SURFACES

MATERIAL: AL ALLOY
 ALL DIMENSIONS ARE IN INCHES
 ITEM NUMBERS REFER TO IPL FIG. 1

252T2174-1,-3,-5

Arm Repair
 Figure 601

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NAMEPLATE - REPAIR 3-1

BAC27TCT0114

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

1. Nameplate Replacement (Ref IPL Fig. 1)

- A. Bond marker in place per 20-50-05.

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REPAIR 3-1

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ASSEMBLY1. Material

NOTE: Equivalent substitutes may be used.

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

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

A. Apply grease to faying surfaces of arm assy (10) and arm (25).

B. Position arm assy (10) into arm (25) per Fig. 701.

CAUTION: RIVETS (5) ARE CONTROLLED SHEAR OUT RIVETS. SUBSTITUTES ARE NOT ALLOWED.

C. Apply grease to all surfaces of rivets (5) except omit grease from inside diameter hole.

D. Install rivets (5) to secure arm (25) to arm assy (10).

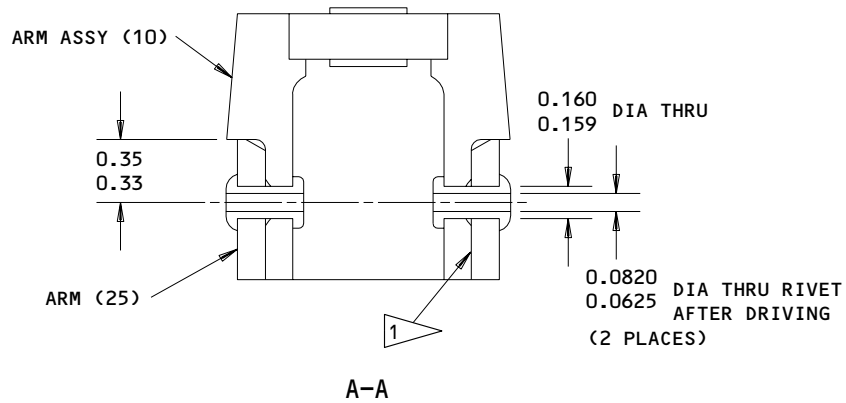
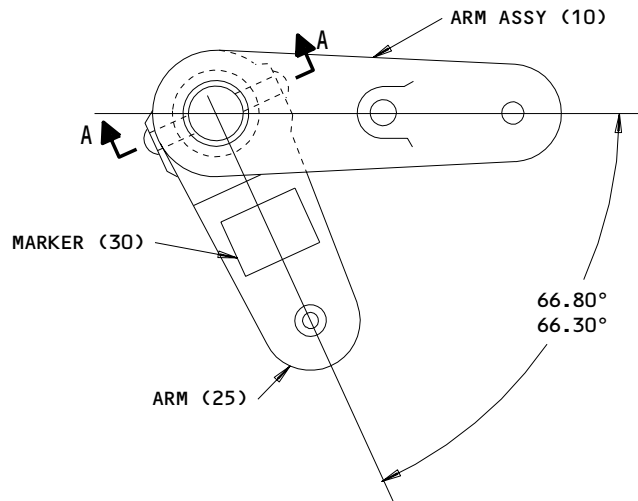
CAUTION: MACHINED HOLES THROUGH RIVETS MUST BE CONCENTRIC TO EXISTING BORE WITHIN 0.005 INCH DIAMETER.

E. Machine inside diameter hole of rivets (5) to 0.0625-0.0820 inch per Fig. 701.

3. Prepare and store component in accordance with standard industry practices.

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1 APPLY GREASE TO FAYING SURFACES

Bellcrank Assembly Detail
 Figure 701

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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 are 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.

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VENDORS

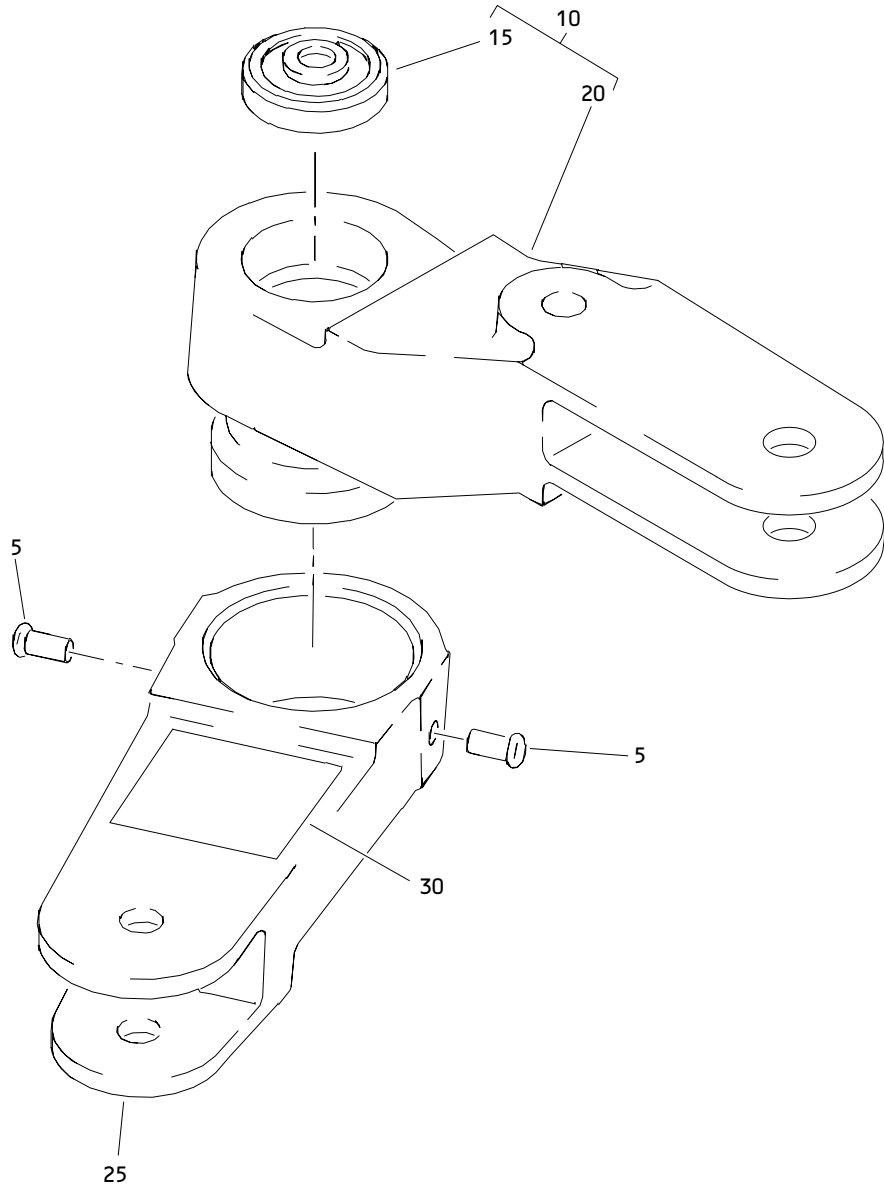
21335 TEXTRON INC FAFNIR BEARING DIVISION
 37 BOOTH STREET
 NEW BRITAIN, CONNECTICUT 06050

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

43991 FAG BEARING INCORPORATED
 HAMILTON AVENUE
 STAMFORD, CONNECTICUT 06904

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Elevator Actuator Bellcrank Assembly
Figure 1

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| FIG. & ITEM | PART NO. | AIRLINE PART NUMBER | NOMENCLATURE 1234567 | EFF CODE | QTY PER ASSY |
|-------------|--------------|---------------------|---|----------|--------------|
| 01- -1 | 252T2118-1 | | BELLCRANK ASSY-ELEV ACTR (PRE SB 27-0052) (PRE SB 27-0129) | A | RF |
| -1A | 252T2118-2 | | BELLCRANK ASSY-ELEV ACTR (POST SB 27-0052) (POST SB 27-0129) | B | RF |
| 5 | 252T3139-3 | | .RIVET | | 2 |
| 10 | 252T2173-1 | | .ARM ASSY- | A | 1 |
| -10A | 252T2173-1 | | .ARM ASSY- (OPT ITEM 10B) | B | 1 |
| -10B | 252T2173-5 | | .ARM ASSY- (OPT ITEM 10A) | B | 1 |
| 15 | MKP5A | | ..BEARING- (V38443) (SPEC BACB10AP5) (OPT LLMKP5A (V38443)) (OPT MKP5AFS428 (V21335)) (OPT MKP5ATT (V43991)) (OPT MKP5A2TS (V43991)) (OPT MKP5E6531 (V21335)) | | 1 |
| 20 | 252T2173-2 | | ..ARM- (USED ON ITEMS 10,10A) | | 1 |
| -20A | 252T2173-6 | | ..ARM- (USED ON ITEM 10B) | | 1 |
| 25 | 252T2174-1 | | .ARM-LOWER | A | 1 |
| -25A | 252T2174-3 | | .ARM-LOWER (OPT ITEM 25B) | B | 1 |
| -25B | 252T2174-5 | | .ARM-LOWER (OPT ITEM 25A) | B | 1 |
| 30 | BAC27TCT0114 | | .MARKER-ALUMINUM FOIL | | 1 |

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