

 **BOEING**
COMPONENT
MAINTENANCE MANUAL

TO: ALL HOLDERS OF CONTROL STAND SPEEDBRAKE LEVER ASSEMBLY COMPONENT MAINTENANCE
MANUAL 27-62-46

REVISION NO. 1 DATED NOV 01/00

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 2-1
601

Added an optional material specification.

REPAIR 4-2
603

Added details of the corner relief.

REPAIR 5-1
603

Added a repair procedure for the inner diameter of the support.

801

Edited without technical change.

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HIGHLIGHTS

01.1

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CONTROL STAND SPEEDBRAKE LEVER ASSEMBLY

PART NUMBER 254W5001-1

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

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TITLE PAGE

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K38736



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

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REVISION RECORD

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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

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

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TR & SB RECORD

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BOEING
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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 | 4. List of Effective Pages |
| 2. Record of Revisions | 5. Table of Contents |
| 3. Temporary Revision &
Service Bulletin Record | 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:

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INTRODUCTION

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CONTROL STAND SPEEDBRAKE LEVER ASSEMBLY

DESCRIPTION AND OPERATION

1. Description

A. The speedbrake lever assembly has a crank assembly, a support, a spring, a stop, a knob, a sleeve, and a lever. The crank assembly is installed with a bearing, two spacers, a retainer, a bolt, a nut, and a washer. The stop and knob are installed with pins. The speedbrake lever assembly connects to a control rod assembly, which moves an autospeedbrake mechanism and a speedbrake control transducer.

2. Operation

A. The speedbrake lever assembly operates when the knob is pulled and the lever moves up. The spring is compressed when the knob is pulled. The lever moves back to its initial position when the knob is released.

3. Leading Particulars (Approximate)

- A. Length -- 4 inches
- B. Width -- 12 inches
- C. Height -- 2 inches
- D. Weight -- 3 pounds

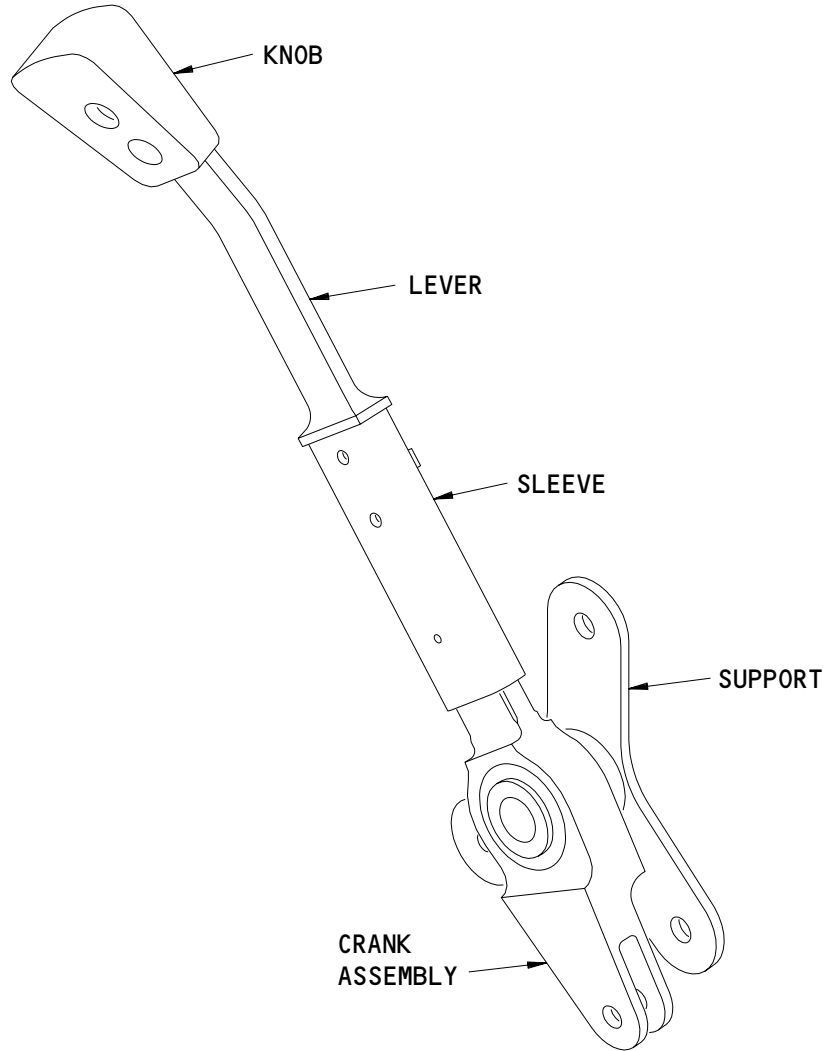
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DESCRIPTION & OPERATION

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Control Stand Speedbrake Lever Assembly
Figure 1

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DESCRIPTION & OPERATION

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DISASSEMBLY

1. General

- A. This procedure contains the data necessary to disassemble the speedbrake lever assembly.
- B. Disassemble this component sufficiently to isolate the defect, do the necessary repairs, and put the component back to a serviceable condition.
- C. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters identified in this procedure.

2. Speedbrake Lever Assembly Disassembly

A. Procedure

- (1) Use standard industry procedures to disassemble this component.

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DISASSEMBLY

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CLEANING1. General

- A. This procedure contains the data necessary to clean special parts.
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters identified in this procedure.
- C. Refer to IPL Fig. 1 for item numbers.

2. Cleaning

A. References

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

B. Procedure

- (1) Clean all the parts other than the bearings (25, 40) as specified by standard industry practices (SOPM 20-30-03).
- (2) Clean the sealed bearings (25, 40) as specified by the manufacturer's instructions.

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CLEANING
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CHECK1. General

- A. This procedure contains the data necessary to find defects in the material of specified parts.
- B. Refer to FITS AND CLEARANCES for the design dimension and wear limits.
- C. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters identified in this procedure.
- D. Refer to IPL Fig. 1 for item numbers.

2. Check

A. References

- (1) SOPM 20-20-01, Magnetic Particle Inspection
- (2) SOPM 20-20-02, Penetrant Methods of Inspection

B. Procedure

- (1) Use standard industry procedures to do a visual check of all the parts for defects.
- (2) Do a magnetic particle check (SOPM 20-20-01) of these parts:
 - (a) Retainer (20)
 - (b) Crank (45)
 - (c) Sleeve (80)
 - (d) Lever (85)
- (3) Do a penetrant check (SOPM 20-20-02) of these parts:
 - (a) Spacer (30, 50)

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CHECK
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REPAIR – GENERAL

1. General

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

<u>PART NUMBER</u>	<u>NAME</u>	<u>REPAIR</u>
---	REFINISH OF OTHER PARTS	1-1
253U5612	SLEEVE	2-1
254W5005	LEVER	3-1
254W5006	CRANK ASSEMBLY	4-1, 4-2
254W5007	SUPPORT	5-1
253T5423	RETAINER	6-1

2. Dimensioning Symbols

- A. Standard True Position Dimensioning Symbols used in the applicable repair procedures are shown in Fig. 601.

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REPAIR-GENERAL

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

EXAMPLES

$\boxed{-\ 0.002}$	STRAIGHT WITHIN 0.002	$\boxed{\text{◎} \text{∅} \ 0.0005 \ C}$	CONCENTRIC TO DATUM C WITHIN 0.0005 DIAMETER
$\boxed{\perp \ 0.002 \ B}$	PERPENDICULAR TO DATUM B WITHIN 0.002	$\boxed{\equiv \ 0.010 \ A}$	SYMMETRICAL WITH DATUM A WITHIN 0.010
$\boxed{\parallel \ 0.002 \ A}$	PARALLEL TO DATUM A WITHIN 0.002	$\boxed{\angle \ 0.005 \ A}$	ANGULAR TOLERANCE 0.005 WITH DATUM A
$\boxed{\bigcirc \ 0.002}$	ROUND WITHIN 0.002	$\boxed{\oplus \ \text{∅} \ 0.002 \ \text{Ⓢ} \ B}$	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
$\boxed{\bigcirc \ 0.010}$	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER	$\boxed{\perp \ \text{∅} \ 0.010 \ \text{Ⓜ} \ A}$ $\boxed{0.510 \ \text{Ⓟ}}$	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010 INCH DIAMETER, PERPENDICULAR TO DATUM A, AND EXTENDING 0.510 INCH ABOVE DATUM A, MAXIMUM MATERIAL CONDITION
$\boxed{\frown \ 0.006 \ A}$	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES 0.006 INCH APART RELATIVE TO DATUM A	$\boxed{2.000}$	THEORETICALLY EXACT DIMENSION IS 2.000
$\boxed{\smile \ 0.020 \ A}$	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.020 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE	OR	
		2.000	BSC

True Position Dimensioning Symbols
Figure 601

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REPAIR-GENERAL

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REFINISH OF OTHER PARTS - REPAIR 1-11. General

- A. This repair gives the data that is necessary to refinish the parts not given in the specified repairs.
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters 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 shown in Table 601 are for repair of the initial finish.

B. Consumable Materials

NOTE: Equivalent material can be used.

- (1) C00259 Primer -- BMS 10-11, Type 1

C. References

- (1) SOPM 20-30-02, Stripping of Protective Finishes
- (2) SOPM 20-30-03, General Cleaning Procedures
- (3) SOPM 20-41-01, Decoding Table for Boeing Finish Codes
- (4) SOPM 20-41-02, Application of Chemical and Solvent Resistant Finishes
- (5) SOPM 20-42-05, Bright Cadmium Plating
- (6) SOPM 20-43-01, Chromic Acid Anodizing
- (7) SOPM 20-60-02, Finishing Materials

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REPAIR 1-1

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D. Procedure

IPL FIG. & ITEM	MATERIAL	FINISH
<u>IPL Fig. 1</u> Spacer (30, 50) Stop (65)	Aluminum alloy 4130 Steel	Chromic acid anodize and apply one layer of BMS 10-11, Type 1 primer (F-18.13) all over. Cadmium plate (F-15.02) all over.

 Refinish Details
 Table 601

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REPAIR 1-1

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SLEEVE - REPAIR 2-1

253U5612-1

1. General

- A. This repair gives the data that is necessary to repair and refinish the sleeve (80).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters identified in this procedure.
- C. Refer to the REPAIR - GENERAL (27-62-46/601, REPAIR - GENERAL) for the Standard True Position Dimensioning Symbols shown in the repair.
- D. Refer to IPL Fig. 1 for item numbers.
- E. General repair details:

(1) Material: 15-5PH or 17-4PH CRES

2. Sleeve Refinish

A. Consumable Materials

NOTE: Equivalent material can be used.

(1) D00113 Lubricant - BMS 3-8, Type 1

B. References

- (1) SOPM 20-30-02, Stripping of Protective Finishes
- (2) SOPM 20-41-01, Decoding Table of the Boeing Finish Codes
- (3) SOPM 20-50-08, Application of Bonded Solid Film Lubricants

C. Procedure (Fig. 601)

- (1) Passivate (F-17.25).
- (2) Apply BMS 3-8, Type 1 solid dry film lubricant (F-19.10) to the surfaces as shown on Fig. 601.

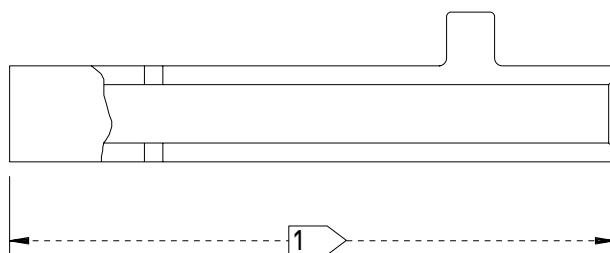
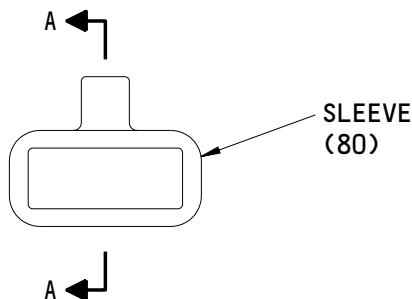
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REPAIR 2-1

01.1

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A-A

1 APPLY BMS 3-8, DRY FILM LUBRICANT (F-19.10) TO THE INTERNAL SURFACES IN THIS AREA.

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

253U5612-1
Sleeve Repair
Figure 601

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REPAIR 2-1
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LEVER - REPAIR 3-1

254W5005-1, -2

1. General

- A. This repair gives the data that is necessary to repair and refinish the lever (85).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters identified in this procedure.
- C. Refer to the REPAIR - GENERAL (27-62-46/601, REPAIR - GENERAL) for the Standard True Position Dimensioning Symbols shown in the REPAIR.
- D. Refer to IPL Fig. 1 for item numbers.
- E. General repair details:
 - (1) Material: 15-5PH or 17-4PH CRES
 - (2) Shot peen: Duralon nylon coating, with glass beads
Shot number: 70
Pressure: 20-30 psi

2. Lever Refinish

A. Consumable Materials

NOTE: Equivalent materials can be used.

- (1) B00280 Stripper -- TURCO 5351
- (2) C00259 Primer -- BMS 10-11, Type 1
- (3) C00802 Coating -- BAC5710, Type 49, Color BAC8924

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

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REPAIR 3-1

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- (4) SOPM 20-41-02, Application of Chemical and Solvent Resistant Finishes
- (5) SOPM 20-44-01, Application of Special Purpose Coatings and Finishes

C. Procedure (Fig. 601)

- (1) Apply BMS 10-11, type 1 primer (F-20.02) and apply Sherwin-Williams lacquer (F-14.903-8924) on the surfaces shown in Fig. 601. Do not apply primer or lacquer on the threaded holes. The finish is optional on the countersinks for the holes.
- (2) Optional finish: Apply a duralon nylon coating, as specified in SOPM 20-44-01 and in the steps that follow, to all surfaces unless shown differently on Fig. 601.

CAUTION: MAKE SURE THE PRIMER IS NOT FULLY CURED. THE NYLON COATING WILL NOT ADHERE CORRECTLY TO FULLY CURED PRIMER.

- (a) Apply the primer (0.1-0.4 mils thick) and permit to air dry for 20 minutes to 8 hours at 70 to 90°F (Do not bake the primer.).
- (b) Apply a topcoat (4.0-8.0 mils thick) by electrostatic spray and cure at 420-460°F for 3-5 minutes.

NOTE: Small pits in the topcoat, or a decrease in the thickness at the corners, are permitted if there is not a hole through the topcoat.

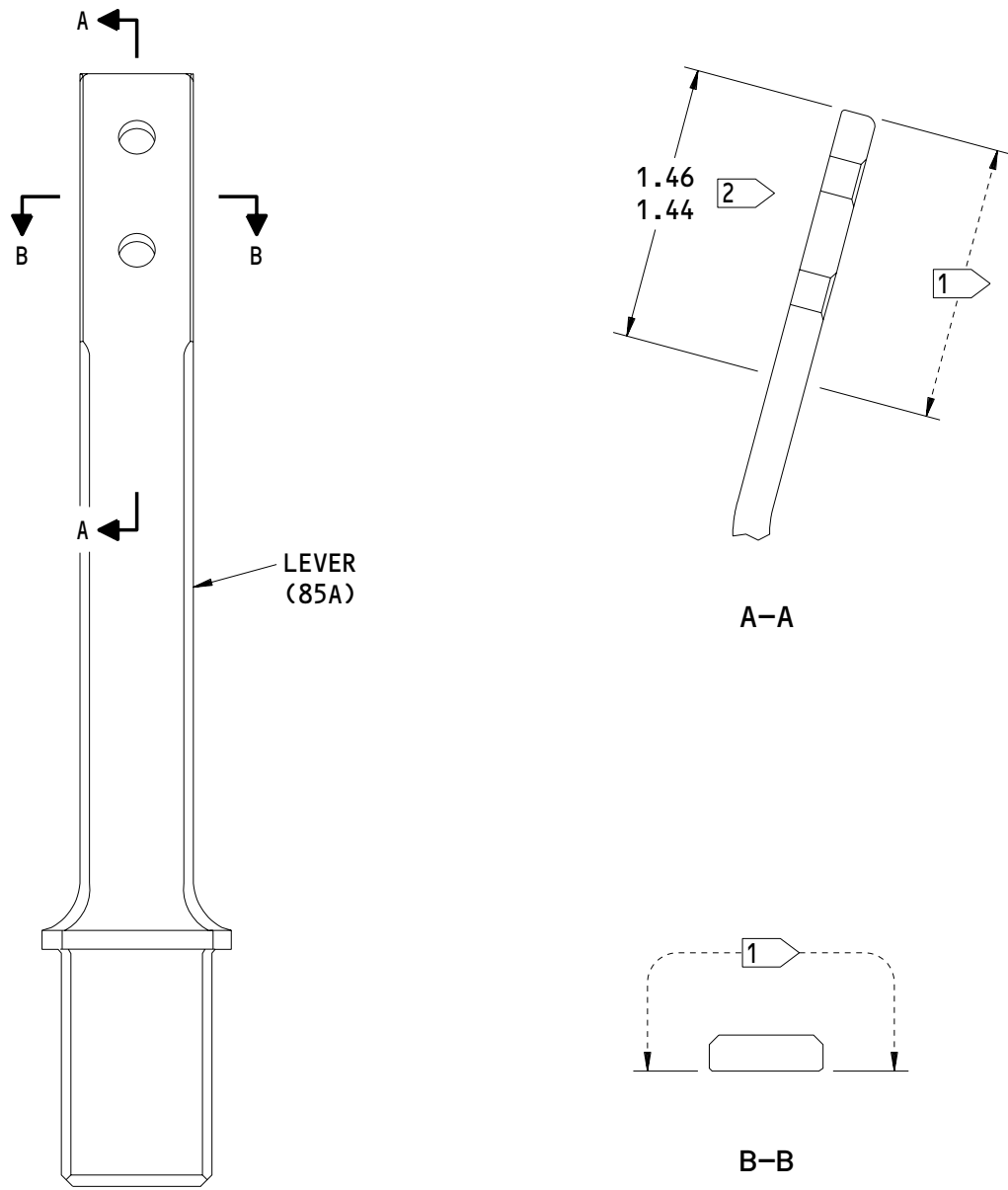
- (c) After the part has cooled, glass bead peen to get a constant matte finish. Refer to SOPM 20-10-03.
- (d) Remove the nylon coating from the fastener holes and countersinks.
- (e) Remove the duralon nylon coating by immersion strip with TURCO 5351 for any rework.

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REPAIR 3-1

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- 1 NO NYLON COATING ON THIS SURFACE
- 2 APPLY PRIMER AND LACQUER IN THIS AREA

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

254W5005-1,-2
 Lever Repair
 Figure 601

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REPAIR 3-1
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CRANK ASSEMBLY – REPAIR 4-1

254W5006-1

1. General

- A. This repair gives the data that is necessary to repair and refinish the crank assembly (35).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters identified in this procedure.
- C. Refer to the REPAIR – GENERAL (27-62-46/601, REPAIR – GENERAL) for the Standard True Position Dimensioning Symbols shown in the repair.
- D. Refer to IPL Fig. 1 for item numbers.
- E. General repair details:
 - (1) Material: 15-5PH CRES

2. Crank Assembly Repair

A. Consumable Materials

NOTE: Equivalent materials can be used.

- (1) D00015 Grease -- BMS 3-24

B. References

- (1) SOPM 20-50-03, Bearing and Bushing Replacement
- (2) SOPM 20-60-03, Lubricants

C. Procedure (Fig. 601)

- (1) Remove the bearing (40) from the crank assembly (35).
- (2) Install the new bearing (40) (SOPM 20-50-03) with BMS 3-24 grease (SOPM 20-60-03) as shown in Fig. 601.
- (3) Roller swage the housing over the bearing (40) to a swage depth of 0.003-0.005 inch (SOPM 20-50-03).

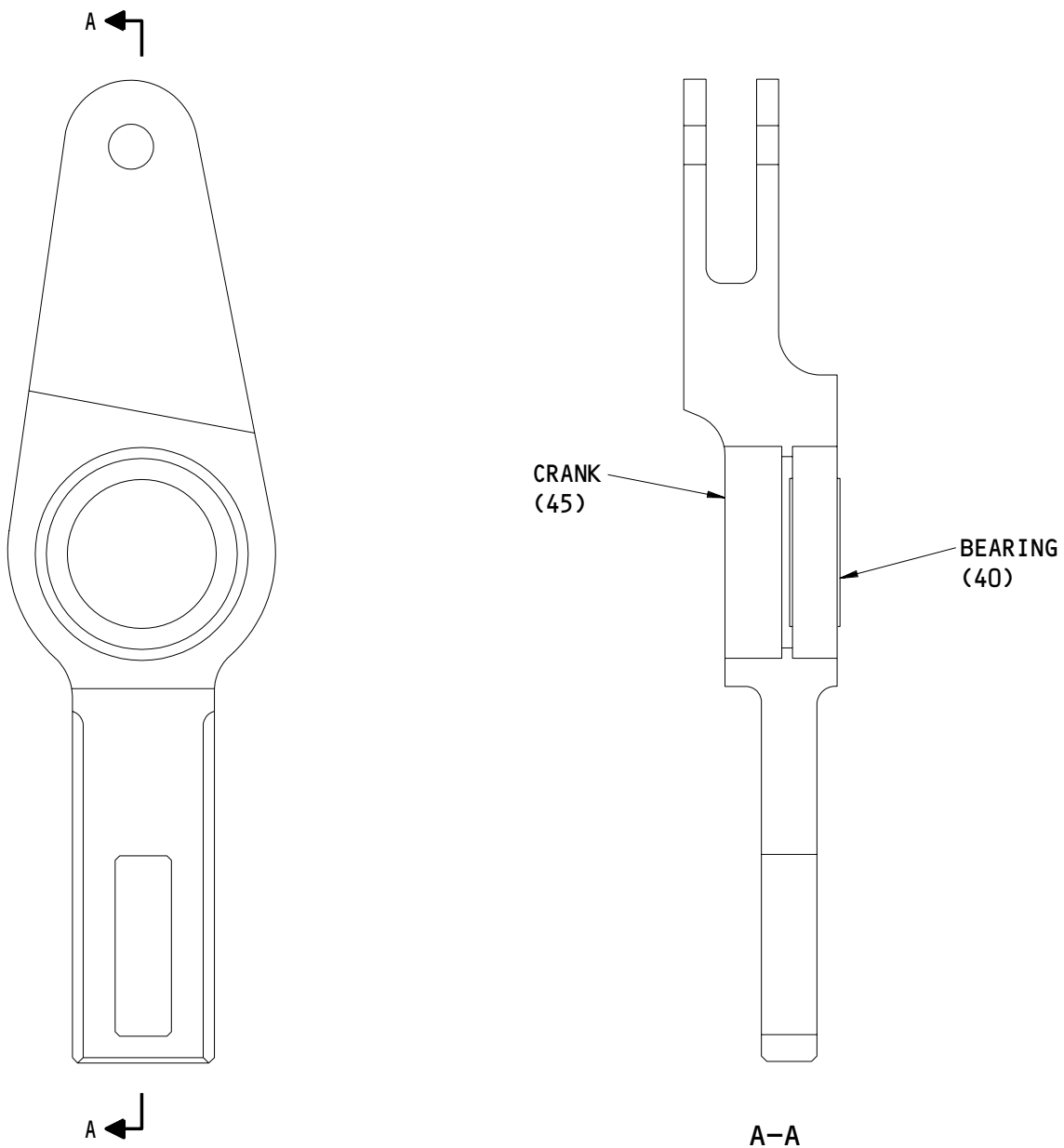
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REPAIR 4-1

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ITEM NUMBERS REFER TO IPL FIG. 1

254W5006-1
Crank Assembly Repair
Figure 601

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REPAIR 4-1
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CRANK - REPAIR 4-2

254W5006-2

1. General

- A. This repair gives the data that is necessary to repair and refinish the crank (45).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters identified in this procedure.
- C. Refer to the REPAIR - GENERAL (27-62-46/601, REPAIR - GENERAL) for the Standard True Position Dimensioning Symbols shown in the repair.
- D. Refer to IPL Fig. 1 for item numbers.
- E. General repair details:
 - (1) Material: 15-5PH CRES
 - (2) Shot peen: All repaired surfaces (Refer to SOPM 20-10-03).

2. Crank Repair

A. References

- (1) SOPM 20-10-01, Repair and Refinish of High Strength Steel Parts
- (2) SOPM 20-10-02, Machining of Alloy Steel
- (3) SOPM 20-10-03, Shot Peening
- (4) SOPM 20-10-04, Grinding of Chrome Plated Parts
- (5) SOPM 20-20-01, Magnetic Particle Inspection
- (6) SOPM 20-41-01, Decoding Table for Boeing Finish Codes
- (7) SOPM 20-42-03, Hard Chrome Plating

B. Procedure (Fig. 601)

- (1) Machine the crank (45) as necessary to remove damage or defects. Do not machine more than the limit shown.

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REPAIR 4-2

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- (2) Break all sharp edges.
- (3) Do a magnetic particle check of the machined area. Refer to SOPM 20-20-01.
- (4) Shot peen the machined area. Refer to SOPM 20-10-03.
- (5) Build up the machined surface with chrome plate (F-15.03). Chrome plate is not permitted in the fillet radii or on the edges of the part.
- (6) Grind the chrome plate to the design dimensions and finish shown. Make sure that the thickness of the chrome plate is 0.003-0.015 inch after grinding. Refer to SOPM 20-10-04.
- (7) Do a magnetic particle check of the repaired surface. Refer to SOPM 20-20-01.

3. Crank Refinish

A. Consumable Materials

NOTE: Equivalent materials can be used.

- (1) D00113 Lubricant -- BMS 3-8, Type 1

B. References

- (1) SOPM 20-30-02, Stripping of Protective Finishes
- (2) SOPM 20-41-01, Decoding Table for Boeing Finish Codes
- (3) SOPM 20-50-08, Application of Bonded Solid Film Lubricants

C. Procedure (Fig. 601)

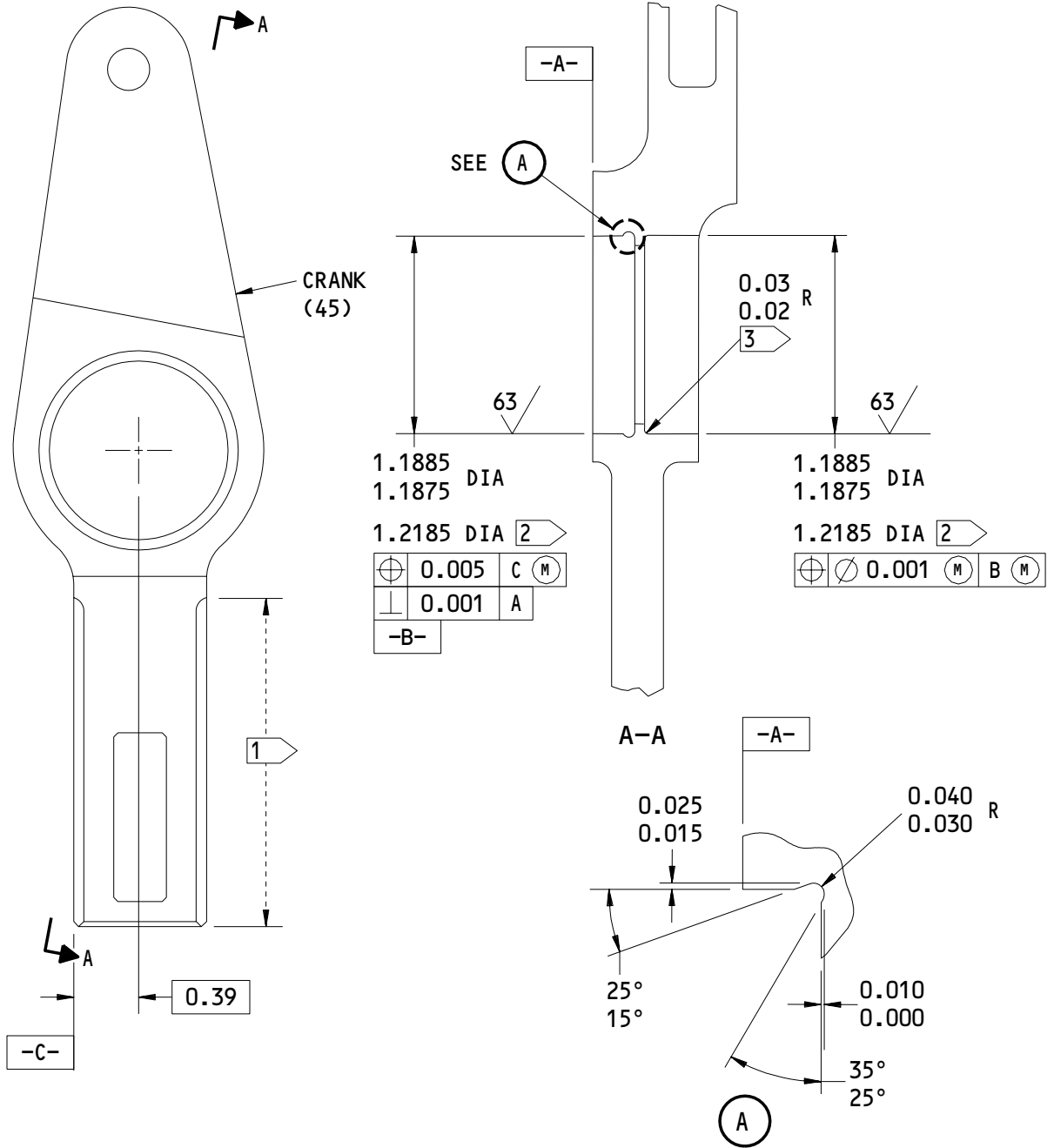
- (1) Passivate all over (F-17.25).
- (2) Apply BMS 3-8, Type 1 solid dry film lubricant (F-19.10) to the surfaces as shown in Fig. 601.

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REPAIR 4-2

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- 1 APPLY BMS 3-8, TYPE 1 SOLID DRY FILM LUBRICANT (F-19.10) TO ALL SURFACES IN THIS AREA.
- 2 REPAIR LIMIT
- 3 SEE DETAIL A FOR OPTIONAL RELIEF

125/ ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

254W5006-2
 Crank Repair
 Figure 601

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REPAIR 4-2

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SUPPORT – REPAIR 5-1

254W5007-1

1. General

- A. This repair gives the data that is necessary to repair and refinish the support (55).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters identified in this procedure.
- C. Refer to the REPAIR – GENERAL (27-62-46/601, REPAIR – GENERAL) for the Standard True Position Dimensioning Symbols shown in the repair.
- D. Refer to IPL Fig. 1 for item numbers.
- E. General repair details:
 - (1) Material: 15-5PH CRES
 - (2) Shot peen: All repaired surfaces (Refer to SOPM 20-10-03).

2. Support Repair

A. References

- (1) SOPM 20-10-01, Repair and Refinish of High Strength Steel Parts
- (2) SOPM 20-10-02, Machining of Alloy Steel
- (3) SOPM 20-10-03, Shot Peening
- (4) SOPM 20-10-04, Grinding of Chrome Plated Parts
- (5) SOPM 20-20-01, Magnetic Particle Inspection
- (6) SOPM 20-41-01, Decoding Table for Boeing Finish Codes
- (7) SOPM 20-42-03, Hard Chrome Plating

B. Procedure (Fig. 601)

- (1) Machine the support (55) as necessary to remove damage or defects. Do not machine more than the limit shown.

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REPAIR 5-1

01

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- (2) Break all sharp edges.
- (3) Do a magnetic particle check of the machined area. Refer to SOPM 20-20-01.
- (4) Shot peen the machined area. Refer to SOPM 20-10-03.
- (5) Build up the machined surface with chrome plate (F-15.03). Chrome plate is not permitted in the fillet radii or on the edges of the part.
- (6) Grind the chrome plate to the design dimensions and finish shown. Make sure that the thickness of the chrome plate is 0.003-0.015 inch after grinding. Refer to SOPM 20-10-04.
- (7) Do a magnetic particle check of the repaired surface. Refer to SOPM 20-20-01.

3. Support Refinish

A. Consumable Materials

NOTE: Equivalent materials can be used.

- (1) C00259 Primer -- BMS 10-11, Type 1

B. References

- (1) SOPM 20-30-02, Stripping of Protective Finishes
- (2) SOPM 20-41-01, Decoding Table for Boeing Finish Codes
- (3) SOPM 20-41-02, Application of Chemical and Solvent REsistant Finshes
- (4) SOPM 20-42-05, Bright Cadmium Plating

C. Procedure (Fig. 601)

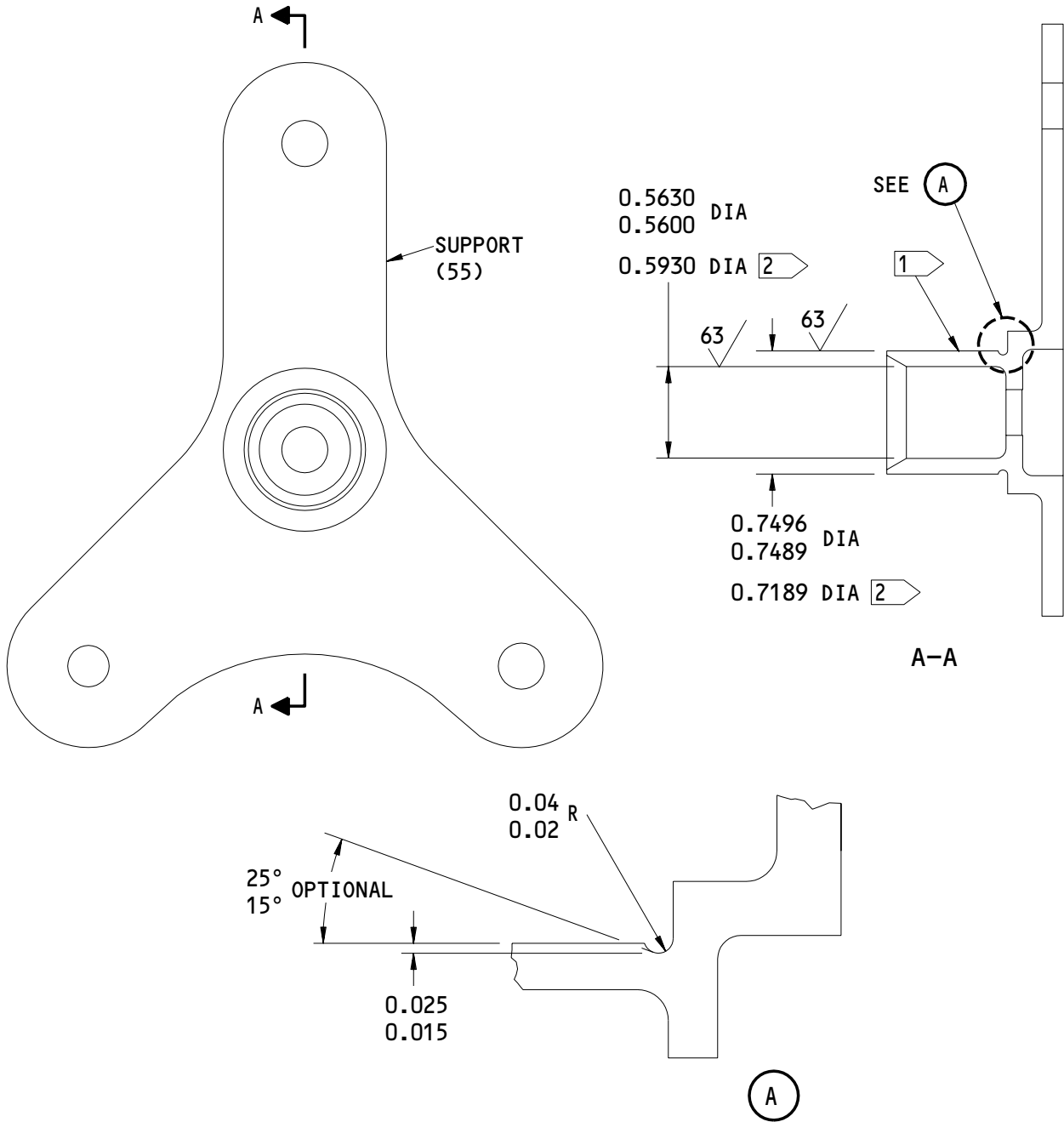
- (1) Cadmium plate (F-16.06) all over.
- (2) Apply one layer of BMS 10-11, Type 1 primer (F-20.02) to all surfaces unless shown differently on Fig. 601.

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- 1 NO PRIMER ON THIS SURFACE
- 2 REPAIR LIMIT

125 / ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

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

254W5007-1
 Support Repair
 Figure 601

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REPAIR 5-1
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01.1

RETAINER – REPAIR 6-1

253T5423-1

1. General

- A. This repair gives the data that is necessary to repair and refinish the retainer (20).
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters identified in this procedure.
- C. Refer to the REPAIR – GENERAL (27-62-46/601, REPAIR – GENERAL) for the Standard True Position Dimensioning Symbols shown in the repair.
- D. Refer to IPL Fig. 1 for item numbers.
- E. General repair details:
 - (1) Material: 15-5PH CRES
 - (2) Shot peen: All repaired surfaces (Refer to SOPM 20-10-03).

2. Retainer Repair

A. References

- (1) SOPM 20-10-01, Repair and Refinish of High Strength Steel Parts
- (2) SOPM 20-10-02, Machining of Alloy Steel
- (3) SOPM 20-10-03, Shot Peening
- (4) SOPM 20-10-04, Grinding of Chrome Plated Parts
- (5) SOPM 20-20-01, Magnetic Particle Inspection
- (6) SOPM 20-41-01, Decoding Table for Boeing Finish Codes
- (7) SOPM 20-42-03, Hard Chrome Plating

B. Procedure (Fig. 601)

- (1) Machine the retainer (20) as necessary to remove damage or defects. Do not machine more than the limit shown.

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REPAIR 6-1

01

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- (2) Break all sharp edges.
- (3) Do a magnetic particle check of the machined area. Refer to SOPM 20-20-01.
- (4) Shot peen the machined area. Refer to SOPM 20-10-03.
- (5) Build up the machined surface with chrome plate (F-15.03). Chrome plate is not permitted in the fillet radii or on the edges of the part.
- (6) Grind the chrome plate to the design dimensions and finish shown. Make sure that the thickness of the chrome plate is 0.003-0.015 inch after grinding. Refer to SOPM 20-10-04.
- (7) Do a magnetic particle check of the repaired surface. Refer to SOPM 20-20-01.

3. Retainer Refinish

A. References

- (1) SOPM 20-30-03, General Cleaning Procedures
- (2) SOPM 20-41-01, Decoding of Boeing Finish Codes

B. Procedure (Fig. 601)

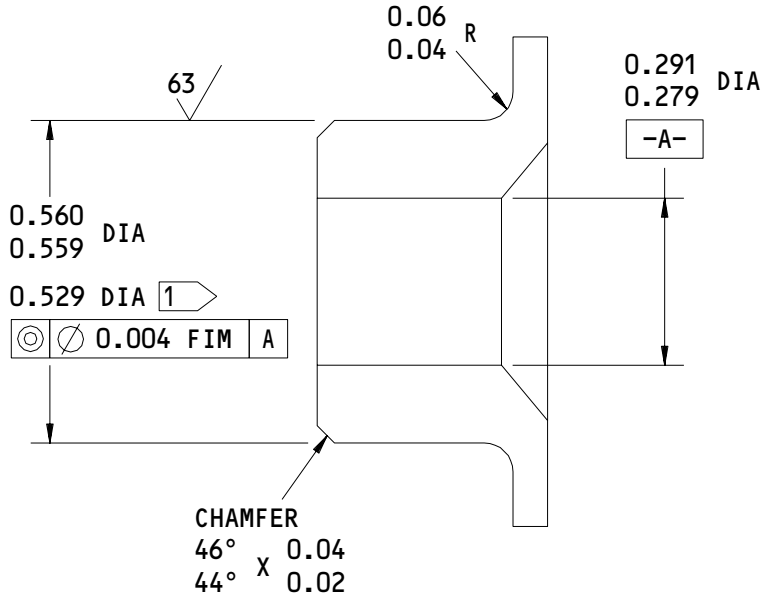
- (1) Passivate (F-17.25, which replaces F-17.09).

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REPAIR 6-1

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125 / ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

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

1 REPAIR LIMIT

253T5423-1
 Retainer Repair and Refinish
 Figure 601

27-62-46

REPAIR 6-1
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ASSEMBLY1. General

- A. This procedure contains the data necessary to assemble the speedbrake lever assembly. There are two parts:
 - (1) Speedbrake Lever Assembly
 - (2) Storage
- B. Refer to the Standard Overhaul Practices Manual (SOPM) for the SOPM chapters identified in this procedure.
- C. Refer to IPL Fig. 1 for item numbers.

2. Speedbrake Lever Assembly

A. General

- (1) To assemble the speedbrake lever assembly, it is necessary to check the spring force.

B. Consumable Materials

NOTE: Equivalent material can be used.

- (1) D00013 Grease -- MIL-G-23827 (SOPM 20-60-03)

C. References

- (1) SOPM 20-50-01, Bolt and Nut Installation
- (2) SOPM 20-50-03, Bearing and Bushing Replacement
- (3) SOPM 20-60-03, Lubricants

D. Procedure (Fig. 701)

- (1) Install the knob (95) on the lever (85) with the bolts (90).
- (2) Make sure the bolts (90) do not extend more than 0.005 inch above the knob (95) surface. If necessary, machine the ends of the bolts.
- (3) Install the lever (85) in the sleeve (80) with the bolts (75A) and the collars (77).

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- (4) Install the lever (85) and the sleeve (80) on the crank assembly (35) with the pin (60), the stop (65), and the spring (70).
- (5) Ball stake the sleeve (80) at one place on each side of the pin (60) hole. Distortion of the plated surface is permitted. Optional: Install lockwire through the hole in the pin and around the crank assembly. Refer to SOPM 20-50-02.
- (6) Install the bolt (5), washer (10), nut (15), retainer (20), bearing (25), spacer (30, 50), and support (55) in the crank assembly (35) as shown in Fig. 701.
 - (a) Install the bearing (25) with MIL-G-23827 grease (SOPM 20-50-03).
- (7) Tighten the nut (15) to 50-80 pound-inches (SOPM 20-50-01). Make sure that you can turn the support (55) 360 degrees in each direction with not more than 5.0 pound-inches of torque.
- (8) Do a spring (70) check on the fully assembled speedbrake lever assembly (1A).
 - (a) Raise the lever (85) until the dimension A is 3.47 inches , as shown in Fig. 701.
 - (b) Make sure that the force required to raise the lever (85) is not less than 1.5 pounds.
 - (c) Raise the lever (85) until the dimension A is 3.75 inches.
 - (d) Make sure that the force required to fully raise the lever (85) does not exceed 6.5 pounds.
 - (e) Make sure that the handle assembly (70) returns to its initial position when released.

3. Storage

A. Reference

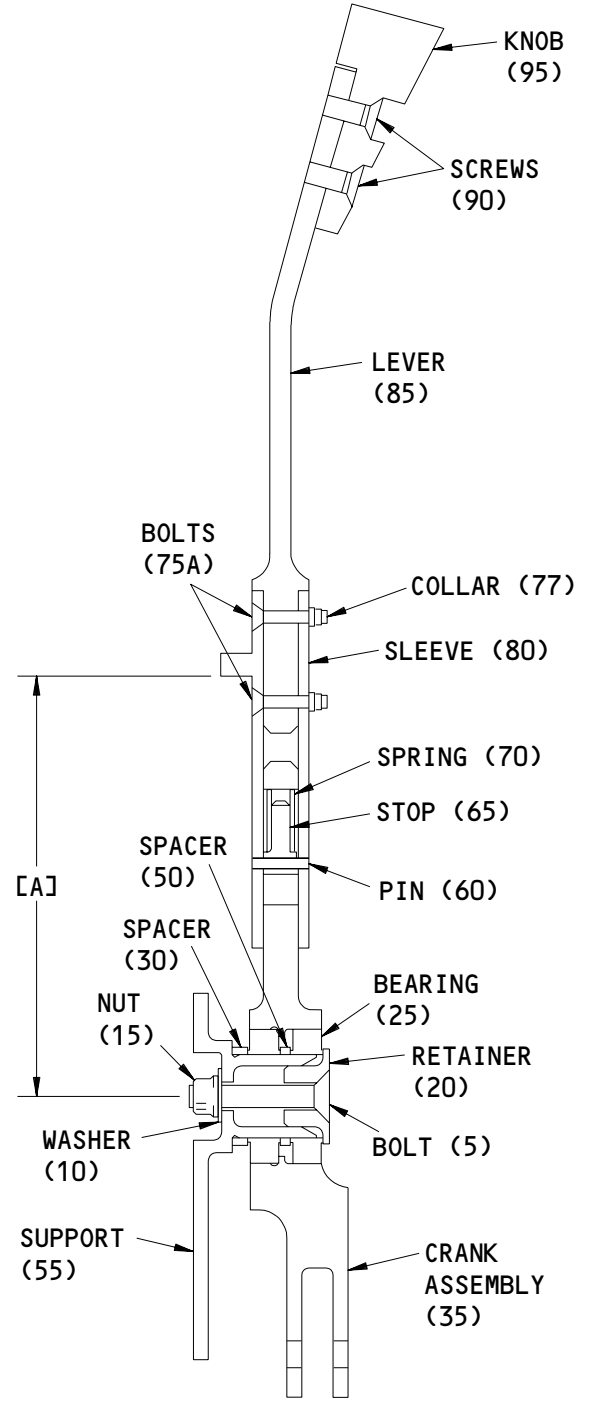
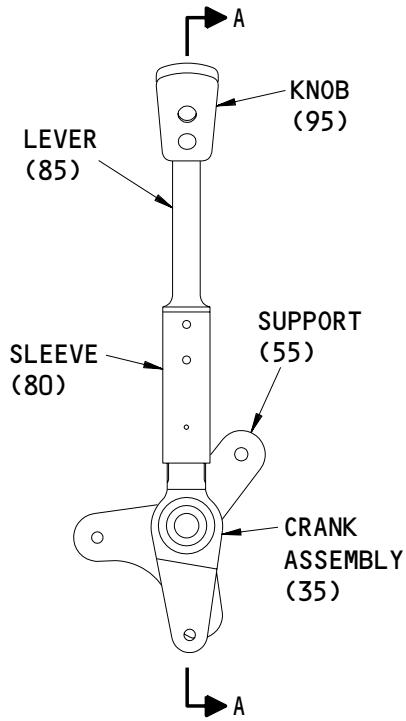
- (1) SOPM 20-44-02, Temporary Protective Coating

B. Procedure

- (1) Use standard industry practices and the information in SOPM 20-44-02 to store this component.

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UPWARD FORCE ON LEVER (85) (LBS)	DIMENSION [A] (INCHES)
1.5 MIN	3.47 MAX
6.5 MAX	3.75 MIN

TABLE A

A-A

ITEM NUMBERS REFER TO IPL FIG. 1

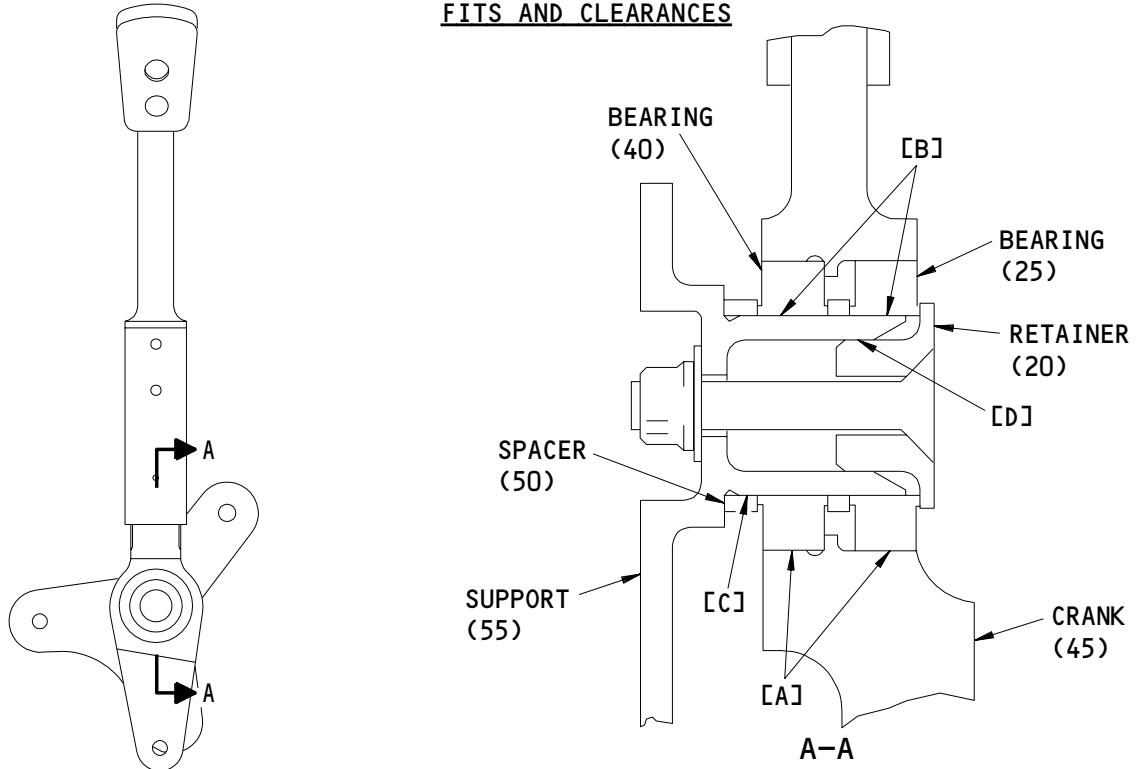
Assembly Details
 Figure 701

27-62-46

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ASSEMBLY
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FITS AND CLEARANCES



REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[A]	ID 45	1.1875	1.1885	0.0000	0.0015	1.1867	1.1895	0.0028
	OD 25,40	1.1870	1.1875					
[B]	ID 25,40	0.7495	0.7500	-0.0001	0.0011	0.7484	0.7503	0.0018
	OD 55	0.7489	0.7496					
[C]	ID 50	0.7520	0.7570	0.0024	0.0081	0.7484	0.7670	
	OD 55	0.7489	0.7496					
[D]	ID 55	0.5600	0.5630	0.0000	0.0040	0.5570	0.5650	
	OD 20	0.5590	0.5600					

* ALL DIMENSIONS ARE IN INCHES

NEGATIVE VALUES SHOW INTERFERENCE FIT.

ITEM NUMBERS REFER TO IPL FIG. 1

Fits and Clearances
 Figure 801

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FITS AND CLEARANCES
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REF IPL		NAME	TORQUE*	
FIG. NO.	ITEM NO.		POUND-INCHES	POUND-FEET
1	15	Nut	50-80	

* REFER TO SOPM 20-50-01 FOR TORQUE VALUES OF STANDARD FASTENERS.

Torque Table
 Figure 802

27-62-46

FITS AND CLEARANCES
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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 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.

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ILLUSTRATED PARTS LIST

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VENDORS

K8455 RHP BEARINGS PLC RHP AEROSPACE
OLDENDS LANE
STONEHOUSE GL10 3RM UK

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

15653 MICRODOT INC AEROSPACE FASTENING SYS KAYNAR MFG DIV
800 SOUTH STATE COLLEGE BLVD PO BOX 3001
FULLERTON, CALIFORNIA 92634-3001

21335 TORRINGTON CO FAFNIR BEARING DIV
59 FIELD STREET
TORRINGTON, CONNECTICUT 06790-4942

38443 MRC BEARINGS
402 CHANDLER STREET
JAMESTOWN, NEW YORK 14701-3802

43991 FAG BEARING INCORPORATED
118 HAMILTON AVENUE
STAMFORD, CONNECTICUT 06904

72962 ELASTIC STOP NUT A DIV OF HARTFORD INDUSTRIES INC
2330 VAUXHALL ROAD
UNION, NEW JERSEY 07083-5038

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

92215 VOI-SHAN DIV OF VSI CORP SUB OF FAIRCHILD INDUSTRIAL INC
8463 HIGUERA STREET
CULVER CITY, CALIFORNIA 90230

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ILLUSTRATED PARTS LIST
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BOEING
 COMPONENT
 MAINTENANCE MANUAL

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AN960C416L		1	10	1
BACB10AS12		1	25	1
		1	40	1
BACB30LH3-2		1	90	2
BACB30NN4K13		1	5	1
BACN10JC4CM		1	15	1
MS16562-213		1	60	1
MS20427M6-12		1	75	2
MS24585-1166		1	70	1
253T4006-2		1	30	1
253T4006-3		1	50	1
253T5423-1		1	20	1
253U5612-1		1	80	1
254W5001-1		1	1A	RF
254W5005-1		1	85	1
254W5005-2		1	85A	1
254W5006-1		1	35	1
254W5006-2		1	45	1
254W5007-1		1	55	1
65C14183-43		1	95	1
66-14222-1		1	65	1

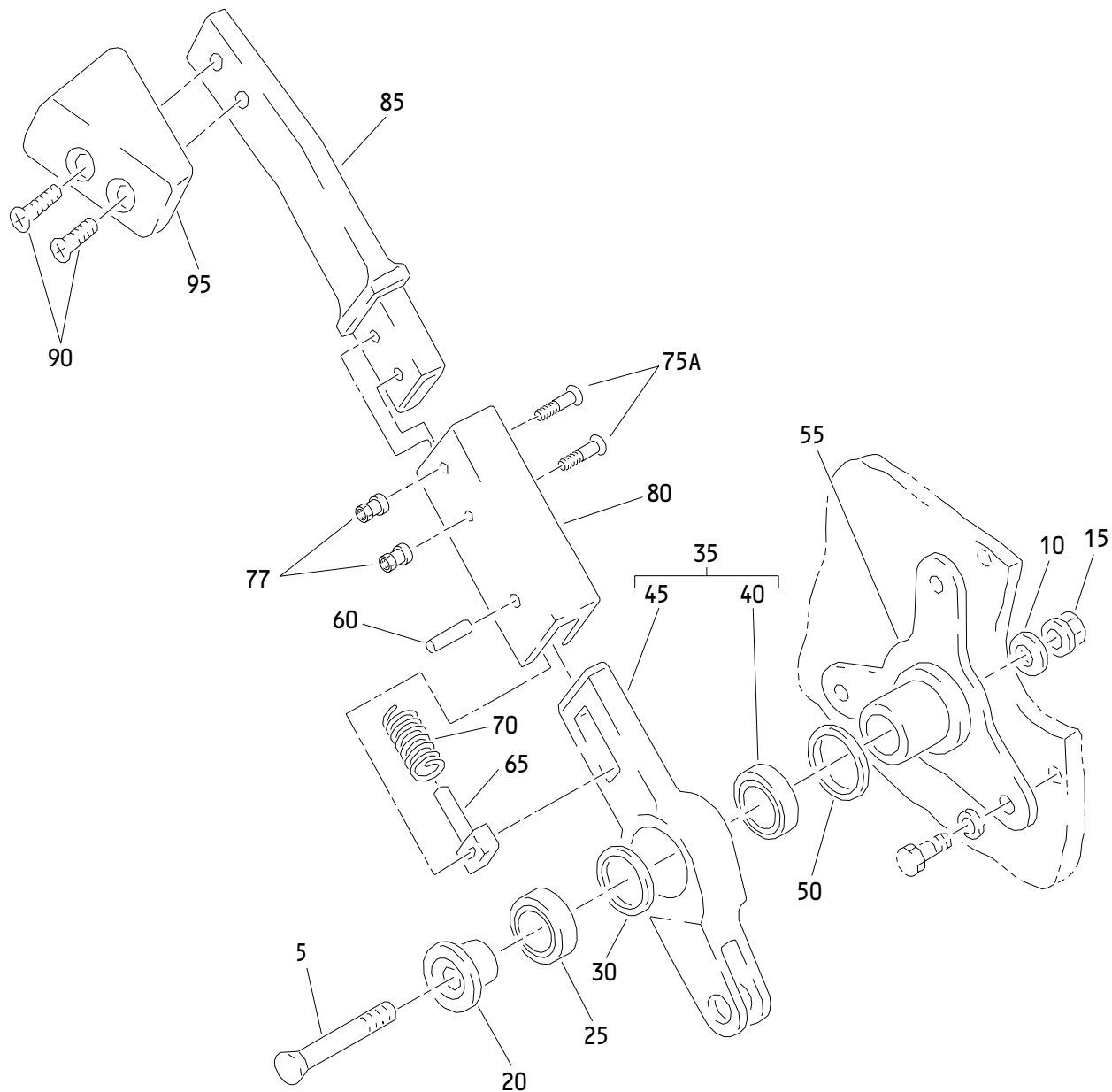
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ILLUSTRATED PARTS LIST

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Control Stand Speedbrake Lever Assembly
Figure 1

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BOEING
 COMPONENT
 MAINTENANCE MANUAL

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
1A	254W5001-1		LEVER ASSY		RF
5	BACB30NN4K13		.BOLT		1
10	AN960C416L		.WASHER		1
15	BACN10JC4CM		.NUT		1
20	253T5423-1		.RETAINER		1
25	BACB10AS12		.BEARING		1
30	253T4006-2		.SPACER		1
35	254W5006-1		.CRANK ASSY		1
40	BACB10AS12		..BEARING		1
45	254W5006-2		..CRANK		1
50	253T4006-3		.SPACER		1
55	254W5007-1		.SUPPORT		1
60	MS16562-213		.PIN-ROLL		1
65	66-14222-1		.STOP		1
70	MS24585-1166		.SPRING		1
75	MS20427M6-12		DELETED		
75A	BACB30VU5K8		.BOLT		2
77	BACC30BS5S		.COLLAR		2
80	253U5612-1		.SLEEVE		1
85	254W5005-1		.LEVER		1
			(OPT ITEM 85A)		
-85A	254W5005-2		.LEVER		1
			(OPT ITEM 85)		
90	BACB30LH3-2		.SCREW		2
95	65C14183-43		.KNOB		1

- Item Not Illustrated

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ILLUSTRATED PARTS LIST

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