TO: ALL HOLDERS OF CONTROL STAND STABILIZER TRIM LEVER ASSEMBLY COMPONENT MAINTENANCE MANUAL 27-41-31

REVISION NO. 4 DATED JAN 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 the Revision No. and date to the Record of Revision Sheet.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
REPAIR 4-1 32 601-603	Added cam switch replacement information.
1004	Clarified without technical change.

CONTROL STAND STABILIZER TRIM LEVER ASSEMBLY

PART NUMBER 253T5425-1

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

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

PAGE	DATE	CODE
27-41-31		
TITLE PAGE		
1	JUL 10/83	01
2	BLANK	
REVISION RECORD		
1	JUL 10/83	01
2	BLANK	
TR & SB RECORD		
1	JUL 10/83	01
2	BLANK	
LIST OF EFFECTIVE PAGES		
*1	JAN 10/86	01
THRU LAST PAGE		
CONTENTS		
1	JUL 10/83	01
2	BLANK	
INTRODUCTION		
1	JUL 10/83	01
2	BLANK	
DESCRIPTION & OPERATION		
1	APR 10/85	01.1
2	BLANK	
DISASSEMBLY		
301	APR 10/85	01.1
302	BLANK	
CLEANING		
401	JUL 10/83	01
402	BLANK	
CHECK		
501	JUL 10/83	01
502	BLANK	

PAGE	DATE	CODE
REPAIR-GENERAL		
601	APR 10/85	01.1
602	APR 10/85	01.1
REPAIR 1-1		
601	JUL 10/83	01
602	BLANK	
REPAIR 2-1		
601	JUL 10/83	01
602	BLANK	
REPAIR 3-1		
601	JUL 10/83	01
602	BLANK	
REPAIR 4-1		
*601	JAN 10/86	01.1
*602	JAN 10/86	01.1
*603	JAN 10/86	01.1
*604	BLANK	
REPAIR 5-1		
601	JUL 10/83	01.1
602	BLANK	
ASSEMBLY		
701	JUL 10/83	01
702	BLANK	
ILLUSTRATED PARTS LIST		
1001	JUL 10/83	01
1002	JUL 10/83	01.1
1003	BLANK	
*1004	JAN 10/86	01.1
1005	JUL 10/83	01.1
1006	JUL 10/83	01.1
1007	JUL 10/83	01.1
1008	BLANK	

* = REVISED, ADDED OR DELETED

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.

Verification:

Disassembly
Assembly

CONTROL STAND STABILIZER TRIM LEVER ASSEMBLY

DESCRIPTION AND OPERATION

1. The control stand stabilizer trim lever assembly consists of two lever assemblies and a shaft assembly. Simultaneous movement of the lever assemblies in the forward or aft directions opens and closes the stabilizer trim hydraulic system valves which adjusts the stabilizer attitude to provide desired airplane trim in pitch.

2. Leading Particulars (Approximate)

   Height -- 8 inches
   Thickness -- 2 inches
   Weight -- 4 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. Disassemble this component using standard industry practices and the following special instructions.

   A. Do not remove rivet (90) or separate drum (105, IPL Fig. 1) from lever (85) unless necessary for repair or replacement.

   B. Do not remove the following parts unless necessary for repair or replacement.

      (1) Nutplate (30) from shaft (40).

      (2) Bearing (100) from drum (105).

      (3) Bearings (135, 140) from lever (145).

CLEANING

1. Clean all parts except bearings (100, 135, 140, IPL Fig. 1) using standard industry practices and information contained in 20-30-03.

2. Clean teflon sealed bearings (100, 135, 140) per special instructions in 20-30-01.

CHECK

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

2. Penetrant check per 20-20-02 -- cam (55), drum (105).

3. Magnetic particle check per 20-20-01 -- retainer (10), shaft (40), levers (85, 145).

REPAIR - GENERAL

1. Content

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

P/N	NAME	REPAIR
253T5411	LEVER	1-1
253T5412	LEVER	2-1
253T5425-2	LEVER ASSEMBLY	3-1
253T5425-3	LEVER ASSEMBLY	4-1
- - -	MISC PARTS REFINISH	5-1

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
   20-41-01 Decoding Table for Boeing Finish Codes
   20-41-02 Application of Chemical and Solvent Resistant Finishes
   20-50-03 Bearing Installation and Retention

3. Materials

   NOTE: Equivalent substitutes may be used.

   A. Primer -- BMS 10-11, type 1 (Ref 20-60-03)

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
⌖	THEORETICAL EXACT POSITION OF A FEATURE (TRUE POSITION)
∅	DIAMETER
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)
Ⓢ	REGARDLESS OF FEATURE SIZE (RFS)
Ⓟ	PROJECTED TOLERANCE ZONE

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 IN RELATION 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 (FULL INDICATOR MOVEMENT)
⌯ 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 IN RELATION 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

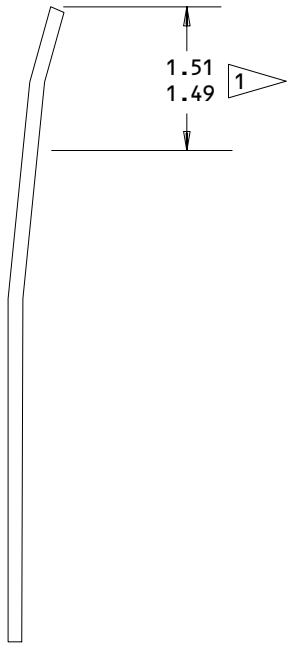
True Position Dimensioning Symbols
Figure 601

LEVER - REPAIR 1-1

253T5411-1

1. Plating Repair

NOTE: Repair consists of restoration of original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



REFINISH

PASSIVATE (F-17.09) EXCEPT AS NOTED IN 1

1 MATTE FINISH CHROME PLATE (F-14.111)

MATERIAL: 17-4PH CRES, 180 KSI MIN

ALL DIMENSIONS ARE IN INCHES

Lever Refinish
Figure 601

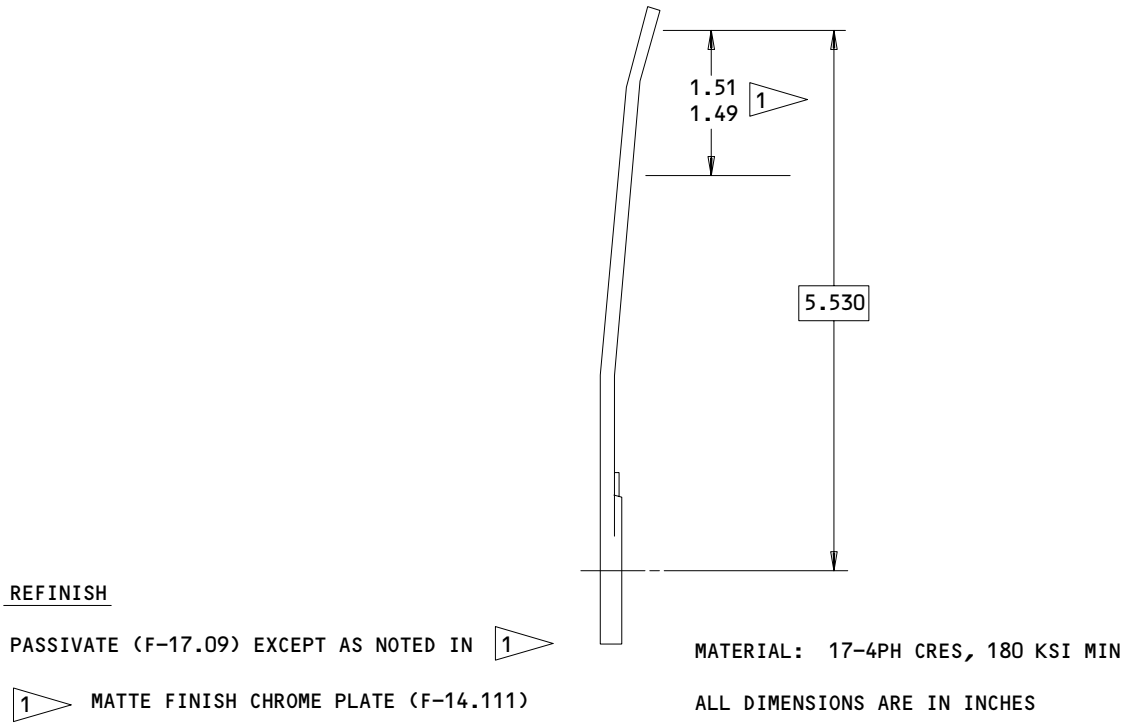
158

LEVER - REPAIR 2-1

253T5412-1

1. Plating Repair

NOTE: Repair consists of restoration of original finish. Refer to Refinish instructions, Fig. 601 and to REPAIR-GEN for list of applicable standard practices.



Lever Refinish
Figure 601

159

LEVER ASSY - REPAIR 3-1

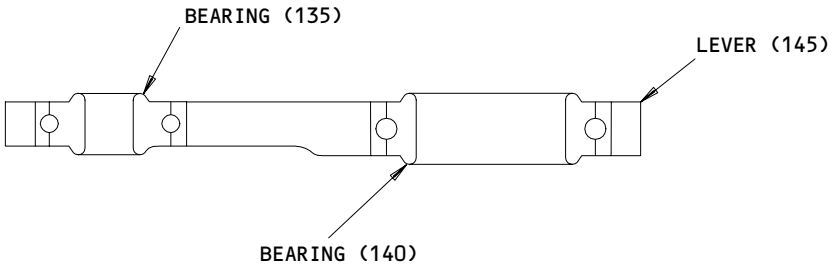
253T5425-2

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

1. Bearing Replacement (Fig. 601)

   A. Remove existing bearings.

   B. Install bearings and roller swage per 20-50-03 except use wet primer instead of grease.



Bearing Replacement
Figure 601

160

LEVER ASSY - REPAIR 4-1

253T5425-3

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

1. Bearing Replacement (Fig. 601)

   A. Remove existing bearing.

   B. Install new bearing and roller swage per 20-50-03 except use wet primer instead of grease.

2. Drum Replacement (Ref IPL Fig. 1, Fig. 601)

   A. Position lever (85) on drum (105) as shown.

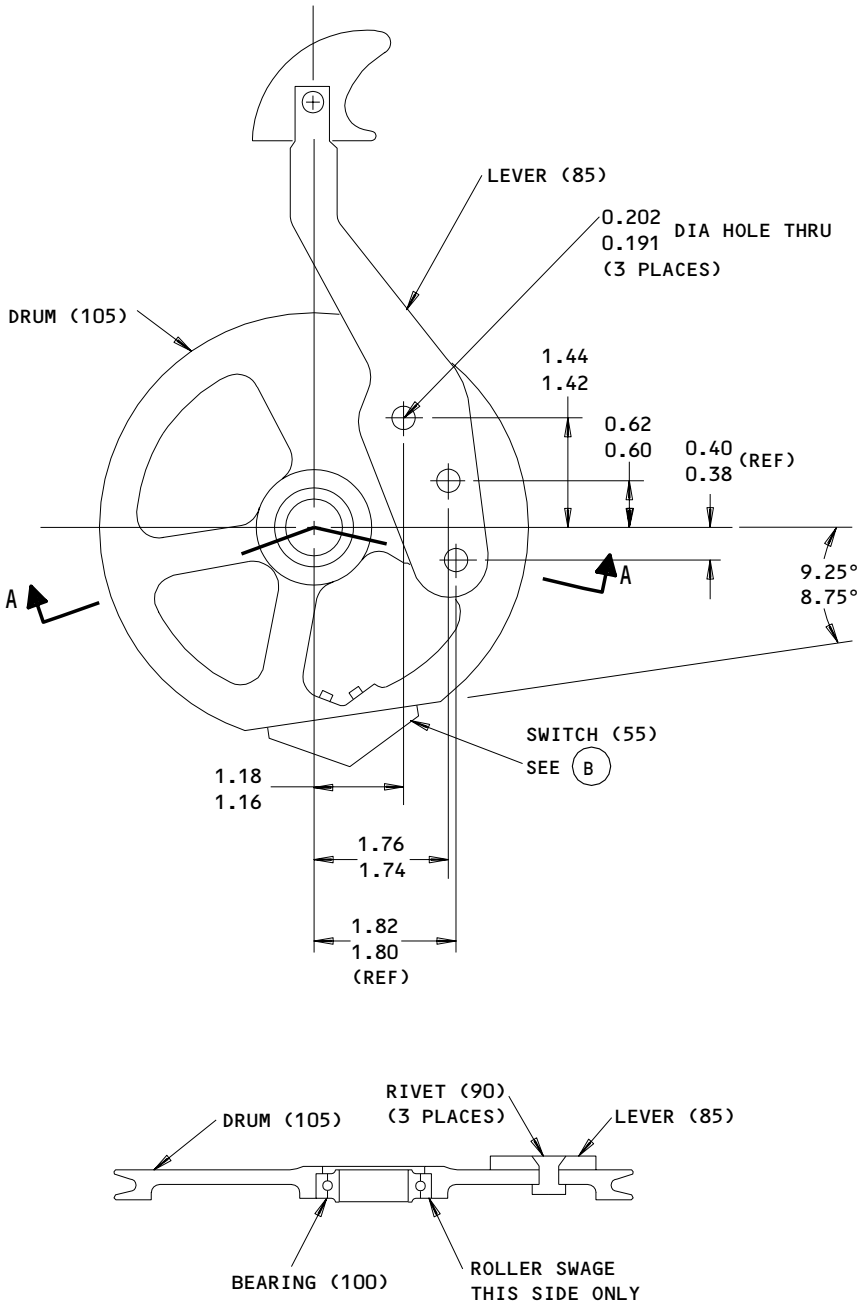
   B. Drill 0.191-0.202 inch diameter holes in drum (105) thru existing holes in lever (85).

   C. Install drum (105) on lever (85) with wet BMS 10-11, type 1 primer applied to faying surfaces and secure with rivets (90). Install rivets with wet BMS 10-11, type 1 primer.

   D. Position cam switch (55) on drum (105) as shown.

   E. Drill 0.114-0.119 inch diameter holes in drum (105) thru existing holes in cam switch (55). If switch (55) is also being replaced, countersink holes as shown.

   F. Install cam switch (55) on drum (105) using fasteners (57 thru 63).

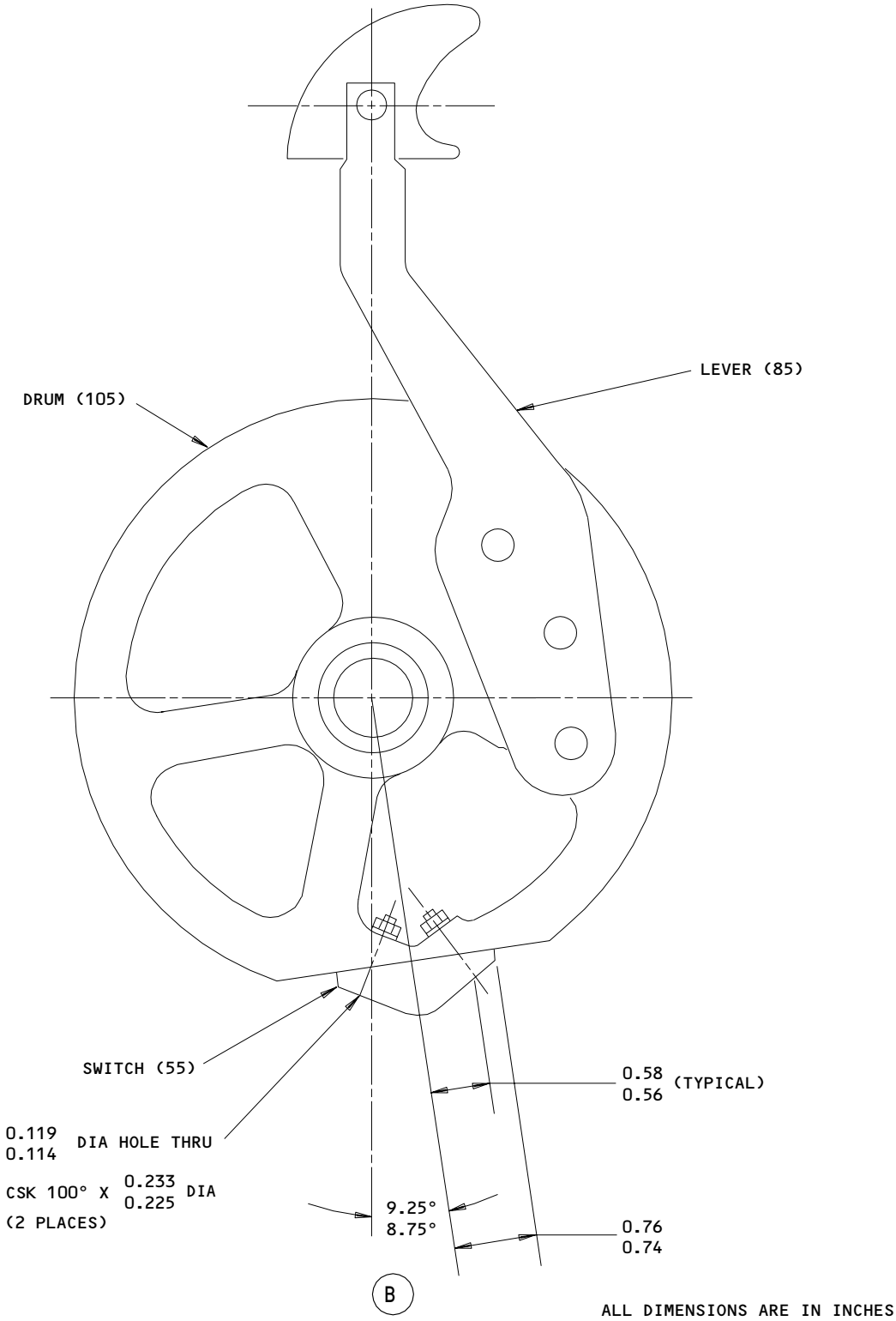


ALL DIMENSIONS ARE IN INCHES

A-A

253T5425-3

Bearing and Drum Replacement
Figure 601 (Sheet 1)



253T5425-3
Cam Switch Replacement
Figure 601 (Sheet 2)

199345

MISC PARTS REFINISH - REPAIR 5-1

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

IPL FIG. & ITEM	MATERIAL	FINISH
Fig. 1		
Retainer (10), shaft (40)	15-5PH CRES	Passivate (F-17.09).
Cam (55)	Al alloy	Hard anodize (F-17.06) all over.
Drum (105)	Al alloy	Anodize (F-17.05) and apply 2 coats of BMS 10-11, type 1 primer (F-20.03) all over.

Refinish Details
Figure 601

ASSEMBLY

1. Material

   NOTE: Equivalent substitutes may be used.

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

2. Assembly (IPL Fig. 1)

   A. Assemble this component using standard industry practices and the following special instruction.

      (1) Install knob assemblies (65, 115) on lever (85, 145) with screws (70, 120). Install screws with wet primer.

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

15653 KAYNAR MFG COMPANY INC KAYLOCK DIV
PO BOX 3001 800 SOUTH STATE COLLEGE BLVD
FULLERTON, CALIFORNIA 92634

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

22599 ESNA DIV OF AMERACE CORPORATION
16150 STAGG STREET
VAN NUYS, CALIFORNIA 91407

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

43991 FAG BEARING INCORPORATED
HAMILTON AVENUE
STAMFORD, CONNECTICUT 06904

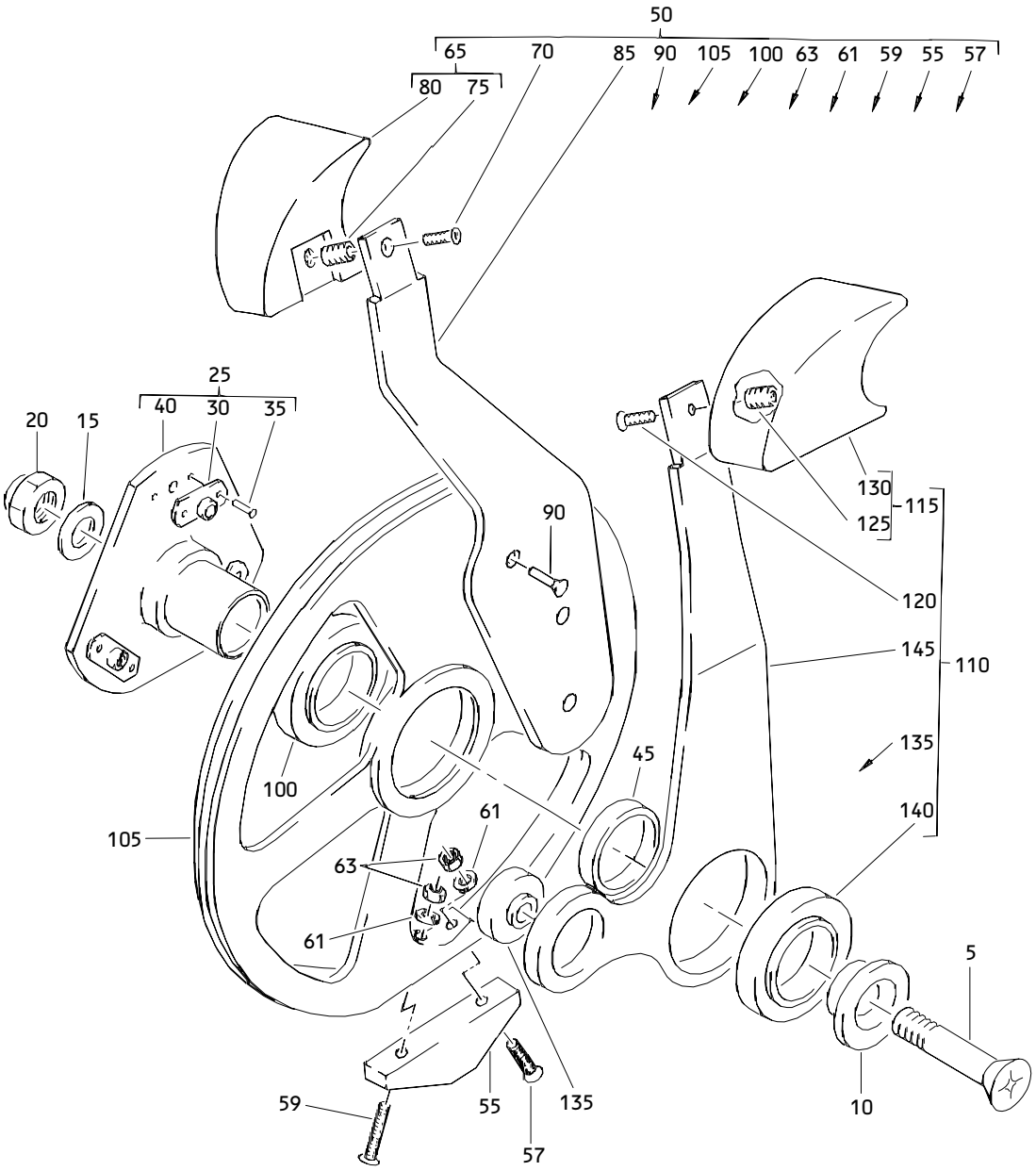
52828 REPUBLIC FASTENER MFG CORP
1300 RANCHO CONEJO BLVD
NEWBURY PARK, CALIFORNIA 91320

71087 BOOTS ACFT NUT DIV TOWNSEND CO SEE TEXTRON INC CHERRY
FASTENER TOWNSEND DIV V11815

72962 ESNA DIV OF AMERACE CORP
2330 VAUXHALL ROAD
UNION, NEW JERSEY 07083

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

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



Control Stand Stabilizer Trim Lever Assembly
Figure 1

T55271

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-1	253T5425-1		LEVER ASSY-CONT STAND STAB. TRIM		RF
5	BACB30LU4-13		.BOLT		1
10	253T5423-1		.RETAINER-BRG		1
15	AN960C416L		.WASHER		1
20	BRH10-4		.NUT- (V52828) (SPEC BACN10JC4) (OPT H10-4BAC (V15653)) (OPT NS202101-048 (V80539)) (OPT RMLH9075-4W (V72962)) (OPT T6S428J (V71087)) (OPT VN303A048 (V92215)) (OPT 96-048 (V80539))		1
25	253T5422-1		.SHAFT ASSY		1
30	T8124S3S		..NUTPLATE- (V71087) (SPEC BACN10JN3) (OPT BRFM20A3 (V52828)) (OPT MF1000-3BAC (V15653)) (OPT NS103218-02 (V80539)) (OPT RMF9201M3 (V22599)) (OPT RMF9201M3 (V72962)) (OPT VN252A02 (V92215)) ATTACHING PARTS		3

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
35	BACR15BA3D		..RIVET		6
			-------*-------		
40	253T5422-4		..SHAFT		1
45	253T4006-1		.SPACER		1
50	253T5425-3		.LEVER ASSY-(LEFT)		1
55	253T5424-1		..SWITCH-CAM		1
			ATTACHING PARTS		
57	NAS514P440-14		..SCREW		1
59	NAS514P440-16		..SCREW		1
61	AN960PD4		..WASHER		2
63	92-1660-40		..NUT-		2
			(V72962)		
			(SPEC BACN10DN40)		
			(OPT 92-1660-440		
			(V15653))		
			-------*-------		
65	65B82423-12		..KNOB ASSY		1
			ATTACHING PARTS		
70	NAS514P832-6P		..SCREW		1
			-------*-------		
75	65B82423-5		...INSERT-		1
			(OPT ITEM 75A)		
-75A	65B82423-6		...INSERT-		1
			(OPT ITEM 75)		
80	65B82423-14		...KNOB		1
85	253T5411-1		..LEVER		1
			ATTACHING PARTS		
90	BACR15BA6AD		..RIVET		3
			-------*-------		
100	MB539DD		..BEARING-		1
			(V38443)		
			(SPEC BACB10AS12)		
			(OPT LLMB539		
			(V38443))		
			(OPT MB539-2TS		
			(V43991))		
			(OPT MB539DDFS428		
			(V21335))		
			(OPT MB539TT		
			(V43991))		

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
105	253T5413-1		..DRUM		1
110	253T5425-2		.LEVER ASSY-(RIGHT)		1
115	65B82423-11		..KNOB ASSY		1
			ATTACHING PARTS		
120	NAS514P832-6P		..SCREW		1
			-------*-------		
125	65B82423-5		...INSERT-		1
			(OPT ITEM 125A)		
-125A	65B82423-6		...INSERT-		1
			(OPT ITEM 125)		
130	65B82423-13		...KNOB		1
135	MKP4A		..BEARING-		1
			(V38443)		
			(SPEC BACB10AP4)		
			(OPT LLMKP4A		
			(V38443))		
			(OPT MKP4AFS428		
			(V21335))		
			(OPT MKP4ATT		
			(V43991))		
			(OPT MKP4A2TS		
			(V43991))		
			(OPT MKP4E6531		
			(V21335))		
140	MB539DD		..BEARING-		1
			(V38443)		
			(SPEC BACB10AS12)		
			(OPT LLMB539		
			(V38443))		
			(OPT MB539-2TS		
			(V43991))		
			(OPT MB539DDFS428		
			(V21335))		
			(OPT MB539TT		
			(V43991))		
145	253T5412-1		..LEVER		1