COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

ELEVATOR CONTROLS TUBE AND CRANK ASSEMBLY

PART NUMBER 251A2379–2, –3, –4

PUBLISHED BY BOEING COMMERCIAL AIRPLANES GROUP, SEATTLE, WASHINGTON, USA
A DIVISION OF THE BOEING COMPANY
PAGE DATE: Jul 01/2009

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COMPONENT MAINTENANCE MANUAL

Revision No. 8
Jul 01/2009

To: All holders of ELEVATOR CONTROLS TUBE AND CRANK ASSEMBLY 27-37-10.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

The COMPONENT MAINTENANCE MANUAL is furnished either as a printed manual, on microfilm, or digital products, or any combination of the three. This revision replaces all previous microfilm cartridges or digital products. All microfilm and digital products are reissued with all obsolete data deleted and all updated pages added.

For printed manuals, changes are indicated on the List of Effective Pages (LEP). The pages which are revised will be identified on the LEP by an R (Revised), A (Added), O (Overflow, i.e. changes to the document structure and/or page layout), or D (Deleted). Each page in the LEP is identified by Chapter-Section-Subject number, page number and page date.

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Location of Change	Description of Change
	NO HIGHLIGHTS

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A = Added, R = Revised, D = Deleted, O = Overflow

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COMPONENT MAINTENANCE MANUAL

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

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

All revisions to this manual will be accompanied by transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the revision date, the date filed and the initials of the person filing.

Revision		Filed		Revision		Filed	
Number	Date	Date	Initials	Number	Date	Date	Initials

Revision		Filed		Revision		Filed	
Number	Date	Date	Initials	Number	Date	Date	Initials

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All temporary revisions to this manual will be accompanied by a cover sheet bearing the temporary revision number. Enter the temporary revision number in numerical order, together with the temporary revision date, the date the temporary revision is inserted and the initials of the person filing.
When the temporary revision is incorporated or cancelled, and the pages are removed, enter the date the pages are removed and the initials of the person who removed the temporary revision.

Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

Temporary Revision		Inserted		Removed	
Date	Initials	Number	Date	Date	Initials

Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

Temporary Revision		Inserted		Removed	
Date	Initials	Number	Date	Date	Initials

INTRODUCTION

1. General

A. The instructions in this manual supply the data necessary to do the maintenance functions together with the test, fault isolation, repair, and replacement of the defective parts.

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

C. Components that can be repaired have a different repair number for each specified repair. To find the repair number location of a component, look in the Repair-General procedure at the beginning of the REPAIR section. The Repair-General procedure also has an explanation of the True Position Dimension symbols used.

D. All dimensions, measures, quantities and weights included are in English units. When metric equivalents are given they will be in the parentheses that follow the English units.

E. The introduction to the Illustrated Parts List (IPL) shows how the IPL data is used.

F. Design changes, optional parts, configuration differences and Service Bulletin modifications may cause different part numbers. These part numbers are identified in the IPL with an alphabetical letter which is added to the end of the basic item number. This new item number is referred to as an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless shown differently.

G. The tool reference numbers found in the individual procedures and in the Special Tools, Fixtures, and Equipment section are used to identify if a tool is a standard tool (STD-XXXX), a commercial tool (COM-XXXX), or a Special Tool (SPL-XXXX). This reference number is also used to distinguish between tools with similar names in the same procedure. These reference numbers are for use in the documentation only. They are not to be used for ordering tools.

ELEVATOR CONTROL FEEL AND CENTERING, TUBE AND CRANK ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. The tube and crank assembly consists of an aluminum tube assembly, crank assembly, crank clevis, and bearing housing. The tube assembly is comprised of two concentric, bonded tubes.

2. Operation

A. The tube and crank assembly provides input to the elevator feel and centering unit to establish a new neutral position following a change in stabilizer attitude.

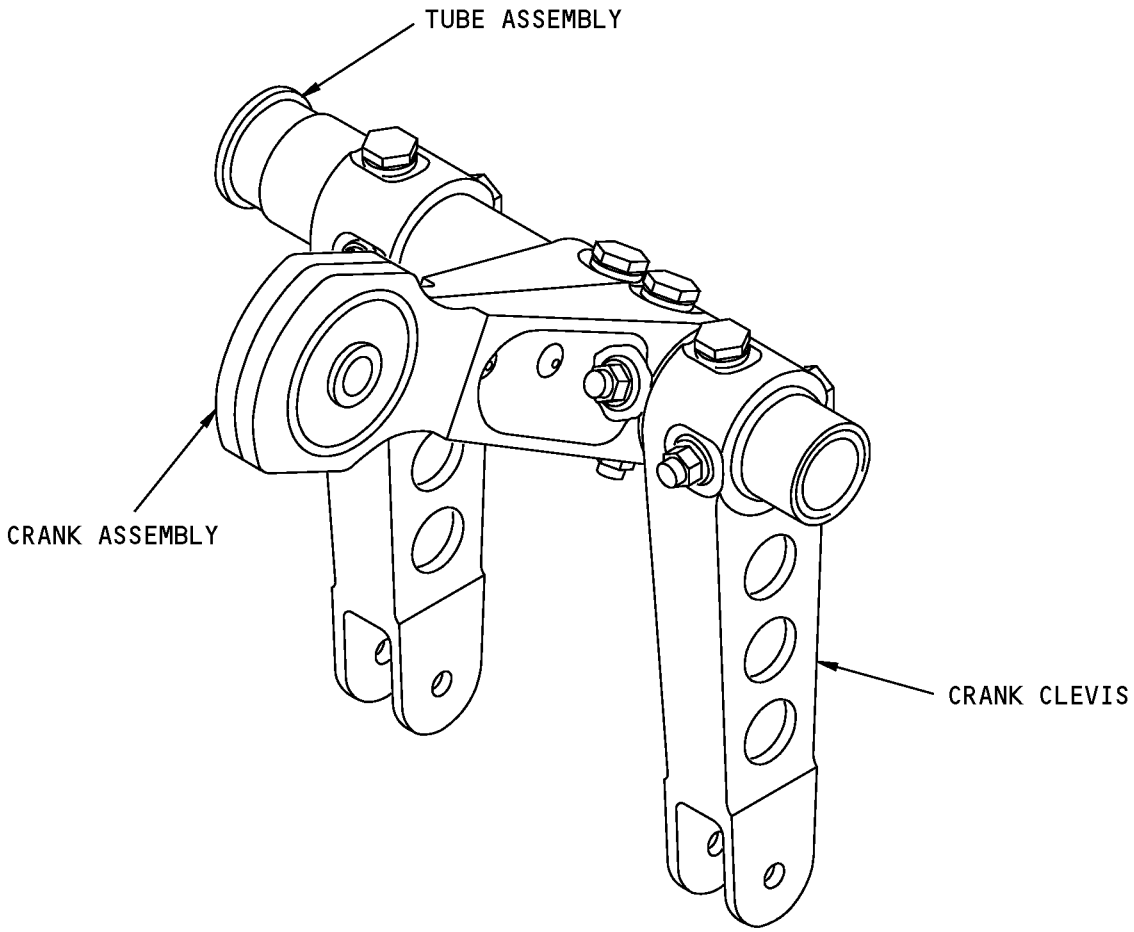
3. Leading Particulars (Approximate)

A. Length – 8 inches

B. Width – 8 inches

C. Height – 8 inches

D. Weight – 1.8 pounds



Elevator Control Feel and Centering Tube and Crank Assembly
Figure 1

(NOT APPLICABLE)

(NOT APPLICABLE)

(NOT APPLICABLE)

CHECK

1. General

A. This procedure has the data necessary to find defects in the material of the 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 SOPM identified in this procedure.

D. Refer to IPL Figure 1 for item numbers.

2. Check

A. References

Reference	Title
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. Do the penetrant check if the visual check shows possible damage or if you suspect possible damage on the parts listed below:

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

(a) Bearing housing (55)

(b) Crank assy (30)

(c) Tube assembly (70)

(d) Crank (25)

(e) Bearing retainer (65)

REPAIR

1. General

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

Table 601:

PART NUMBER	NAME	REPAIR
—	REFINISH OF OTHER PARTS	1-1
251A2389	CRANK ASSEMBLY	2-1, 2-2
65-60568	TUBE ASSEMBLY	3-1

2. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in the applicable repair procedures are shown in REPAIR-GENERAL, Figure 601.

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

EXAMPLES

— | 0.002	STRAIGHT WITHIN 0.002
⊥ | 0.002 | B	PERPENDICULAR TO DATUM B WITHIN 0.002
// | 0.002 | A	PARALLEL TO DATUM 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
⌒ | 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
⌓ | 0.020 | A	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.020 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
◎ | ∅ 0.0005 | C	CONCENTRIC TO DATUM C WITHIN 0.0005 DIAMETER
⌯ | 0.010 | A	SYMMETRICAL WITH DATUM A WITHIN 0.010
∠ | 0.005 | A	ANGULAR TOLERANCE 0.005 WITH DATUM A
⌖ | ∅ 0.002 Ⓢ | B	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
⊥ | ∅ 0.010 Ⓜ | A 0.510 Ⓟ	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
[2.000] OR 2.000 BSC	THEORETICALLY EXACT DIMENSION IS 2.000

True Position Dimensioning Symbols
Figure 601

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 Practice Manual (SOPM) for the SOPM subjects identified in this procedure.

C. Refer to IPL Figure 1 for item numbers.

2. Refinish of Other Parts

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-60-02	FINISHING MATERIALS

C. General

(1) Instructions for the repair of the parts listed in REPAIR 1-1, Table 601 is for repair of the initial finish.

D. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

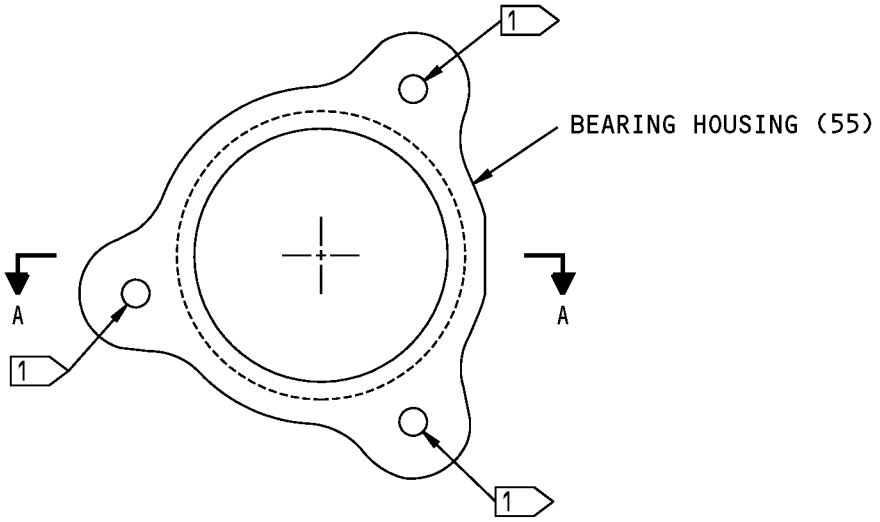
(1) Refer to REPAIR 1-1, Table 601 refinish details.

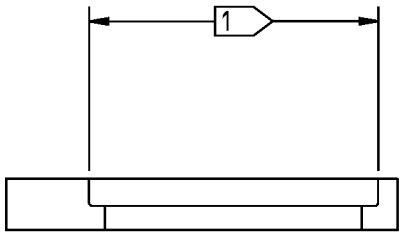
Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 1		
Bearing housing (55)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply primer, C00259 (F-20.02), except as noted in REPAIR 1-1, Figure 601 .
Bearing retainer (65)	Aluminum alloy	Chemical treat (SRF-2.30) and apply primer, C00259 (F-20.02).
Crank (50)	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply primer, C00259.

Table 601: Refinish Details (Continued)

IPL FIG. & ITEM	MATERIAL	FINISH
Crank (25) Clevis	Aluminum alloy	Chemical treat (F-2.940) and apply primer, C00259 (F-20.02), except as noted in REPAIR 1-1, Figure 602.
Crank (25A) Clevis	Aluminum alloy	Boric acid-sulfuric acid anodize or chromic acid anodize (F-17.31) and apply primer, C00259 (F-20.02), except as noted in REPAIR 1-1, Figure 602.





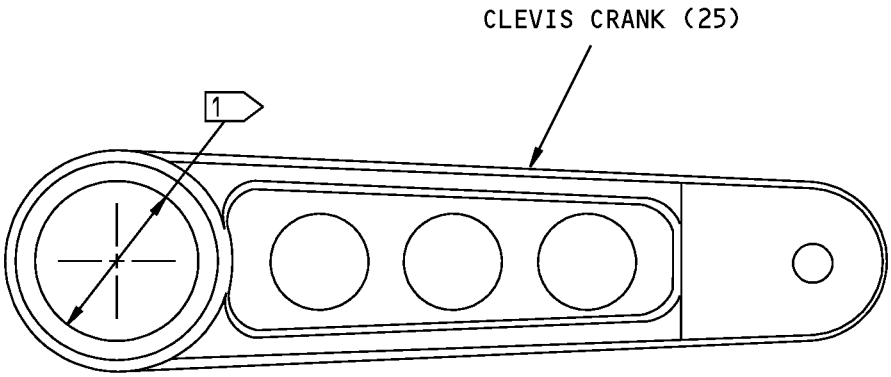
A–A

1 DO NOT APPLY PRIMER TO THIS SURFACE.

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

251A2380-5 Bearing Housing Refinish
Figure 601



1 DO NOT APPLY PRIMER IN THE HOLE.

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

65-60587-3, -501 Crank Refinish
Figure 602

CRANK ASSEMBLY - REPAIR 2-1

251A2389–1

1. General

A. This procedure has the data necessary to repair the crank assembly (30).

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

C. Refer to REPAIR-GENERAL, Figure 601 for the Standard True Position Dimensioning Symbols shown in the repair.

D. Refer to IPL Figure 1 for item numbers.

2. Bearing Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure (REPAIR 2-1, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02. For miscellaneous materials, refer to SOPM 20-60-04.

(1) Remove the bearing (35) and sleeve (40) from the crank assembly (SOPM 20-50-03).

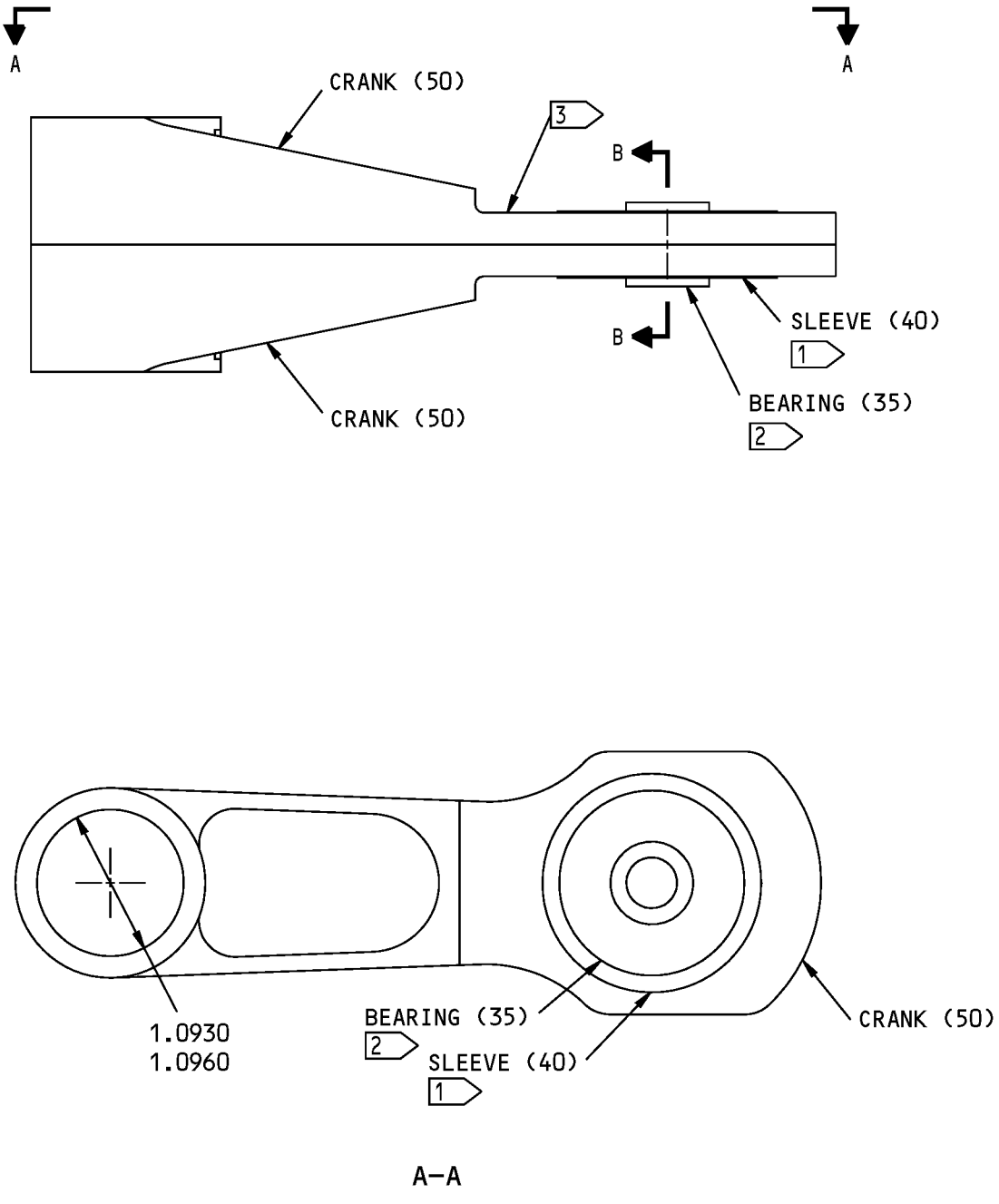
(2) Apply sealant, A00247 to ID of sleeve; install bearing (35) into sleeve.

(3) Apply sealant, A00247 to ID of crank.

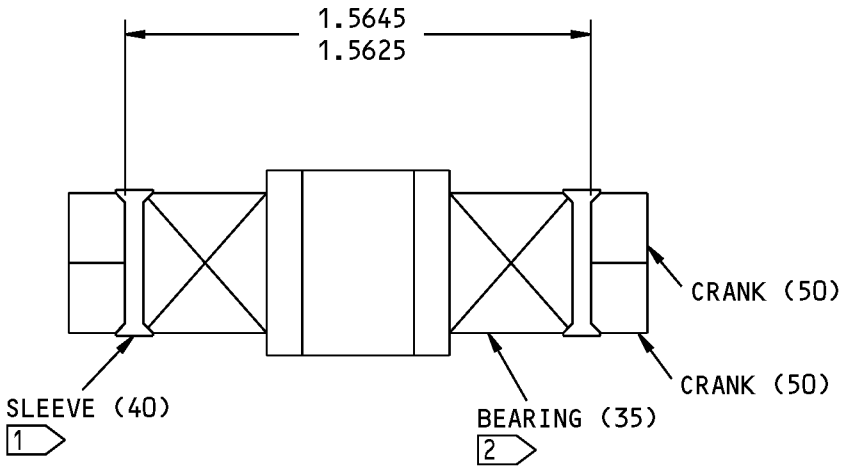
(4) Install sleeve with bearing into crank and roller swage per SOPM 20-50-03.

(5) Check that bearing rotates with a breakout torque of 0.25 inch-pounds or less.

(6) Touchup finish with chemical treat (F-17.10) and primer, C00259 (F-20.02).



251A2389-1 Crank Assembly Repair
Figure 601 (Sheet 1 of 2)



B–B

1 INSTALL THE SLEEVE WET WITH BMS 5-95 SEALANT ON BOTH INSIDE AND OUTSIDE SURFACES. USE THE ROLLER SWAGE METHOD PER SOPM 20-50-03 TO INSTALL BOTH ENDS OF THE SLEEVE TO THE CRANK.

2 AFTER BEARING INSTALLATION, MAXIMUM BREAKOUT TORQUE SHALL NOT EXCEED 0.25 INCH-POUNDS.

3 IF REQUIRED APPLY TOUCH-UP FINISH PER F-17.10 AND F-20.02.

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

251A2389-1 Crank Assembly Repair
Figure 601 (Sheet 2 of 2)

CRANK ASSEMBLY - REPAIR 2-2

251A2389–1

1. General

A. This procedure has the data necessary to refinish the crank assembly (30).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details:

(1) Material: Aluminum Alloy

2. Housing Refinish

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-43-03	CHEMICAL CONVERSION COATINGS FOR ALUMINUM
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

NOTE: Crank assembly (30) is a bonded assembly.

(1) Fay surface seal cranks (50) using sealant, A00247.

(2) Chemical treat (F-17.10) per SOPM 20-43-03.

(3) Apply primer, C00259 (F-20.02) on all exterior surfaces, except in holes.

TUBE ASSEMBLY - REPAIR 3-1

65-60568–1, –6

1. General

A. This procedure has the data necessary to refinish the tube assembly (70).

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

C. Refer to IPL Figure 1 for item numbers.

D. General repair details

(1) Material: Aluminum alloy

2. Tube Assembly

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

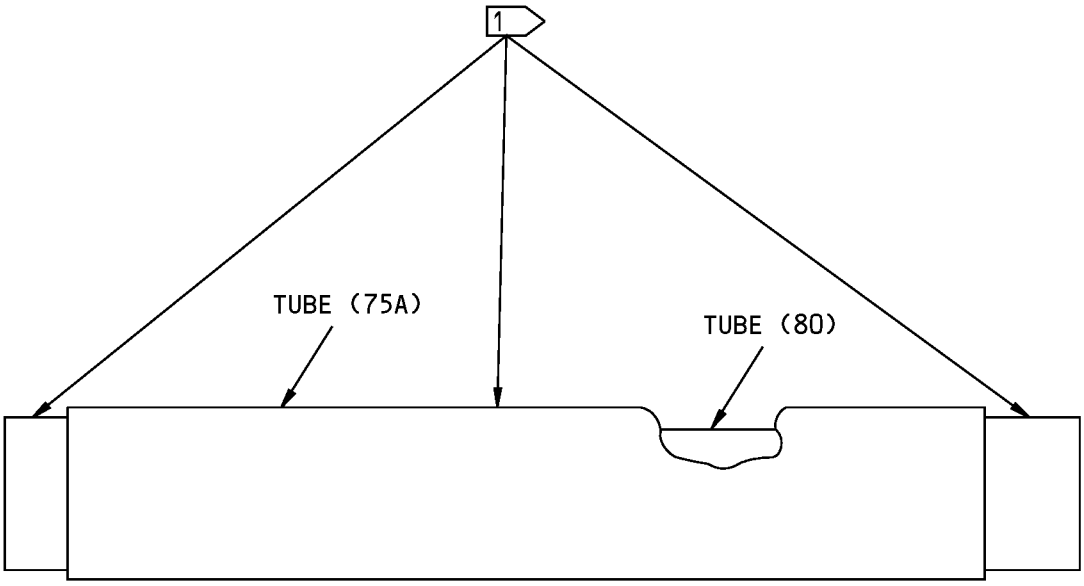
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-43-03	CHEMICAL CONVERSION COATINGS FOR ALUMINUM
SOPM 20-60-02	FINISHING MATERIALS

C. Procedure (REPAIR 3-1, Figure 601)

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For general cleaning procedures, refer to SOPM 20-30-03. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02.

NOTE: Tube assembly (70) is a bonded assembly.

(1) Do a manual application of colorless chemical coating (F-17.10) as shown in SOPM 20-43-03 and apply primer, C00259 (F-20.02) to all surfaces, unless noted by flagnote 1.



TUBE ASSEMBLY (70)

1 DO NOT APPLY PRIMER TO THIS SURFACE

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

65-60568-1, -6 Tube Assembly Repair
Figure 601

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the elevator feel and centering tube and crank assembly.

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

C. Refer to IPL Figure 1 for item numbers.

2. Assembly

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I

B. References

Reference	Title
SOPM 20-30-03	GENERAL CLEANING PROCEDURES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-01	BOLT AND NUT INSTALLATION
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure (ASSEMBLY, Figure 701)

NOTE: For general cleaning procedures, refer to SOPM 20-30-03. For decoding table for Boeing finish codes, refer to SOPM 20-41-01. For bolt and nut installation, refer to SOPM 20-50-01. For finishing materials, refer to SOPM 20-60-02. For miscellaneous materials, refer to SOPM 20-60-04.

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

(a) Install bearing (60) as noted by flagnote 1 (SOPM 20-50-03).

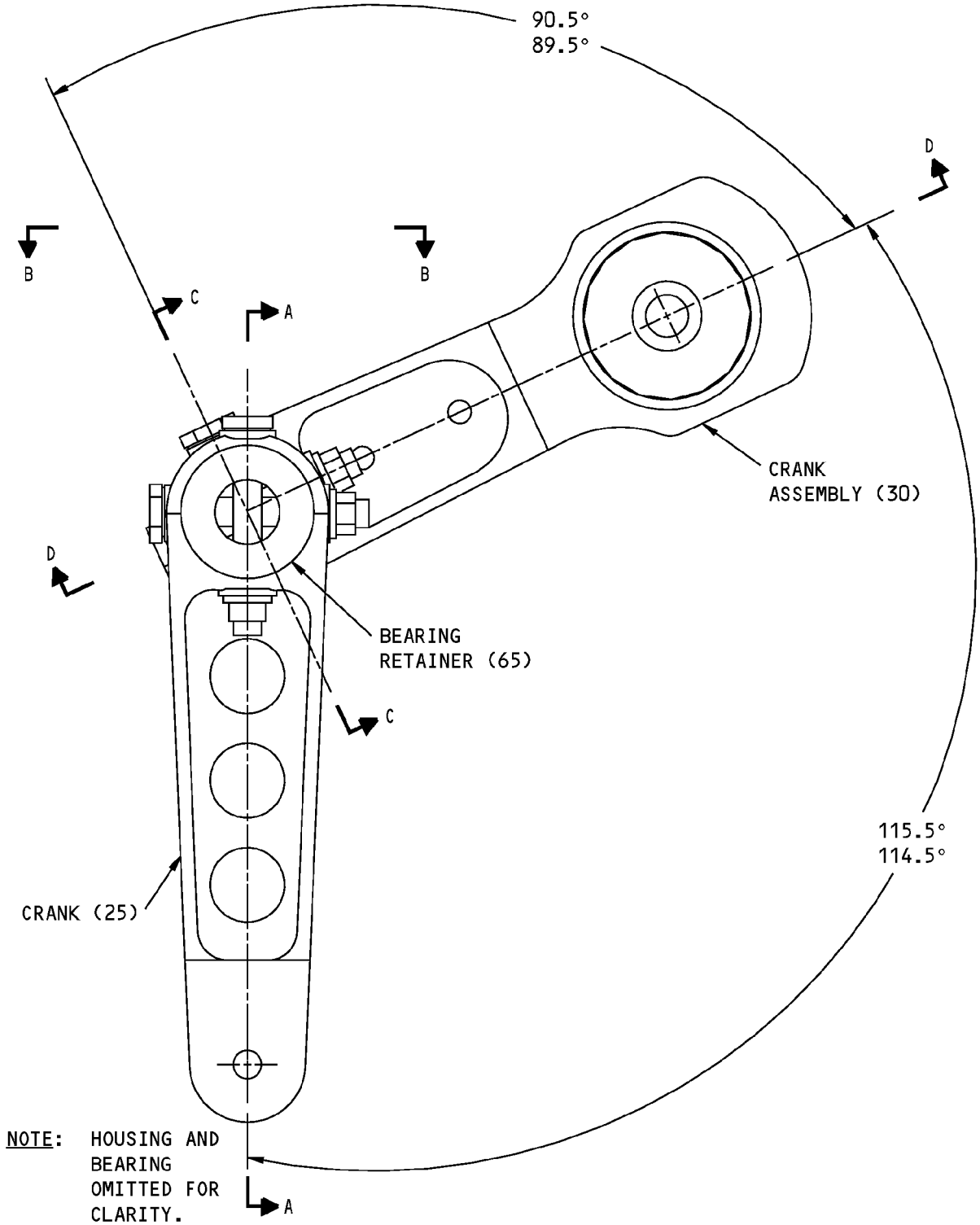
(b) Apply chemical colored coating (F-17.10) and apply primer, C00259 (F-20.02) on the spot face areas noted by flagnote 2.

(c) For surfaces noted by flagnote 3, apply chemical colored coating (F-17.10) in all drilled holes.

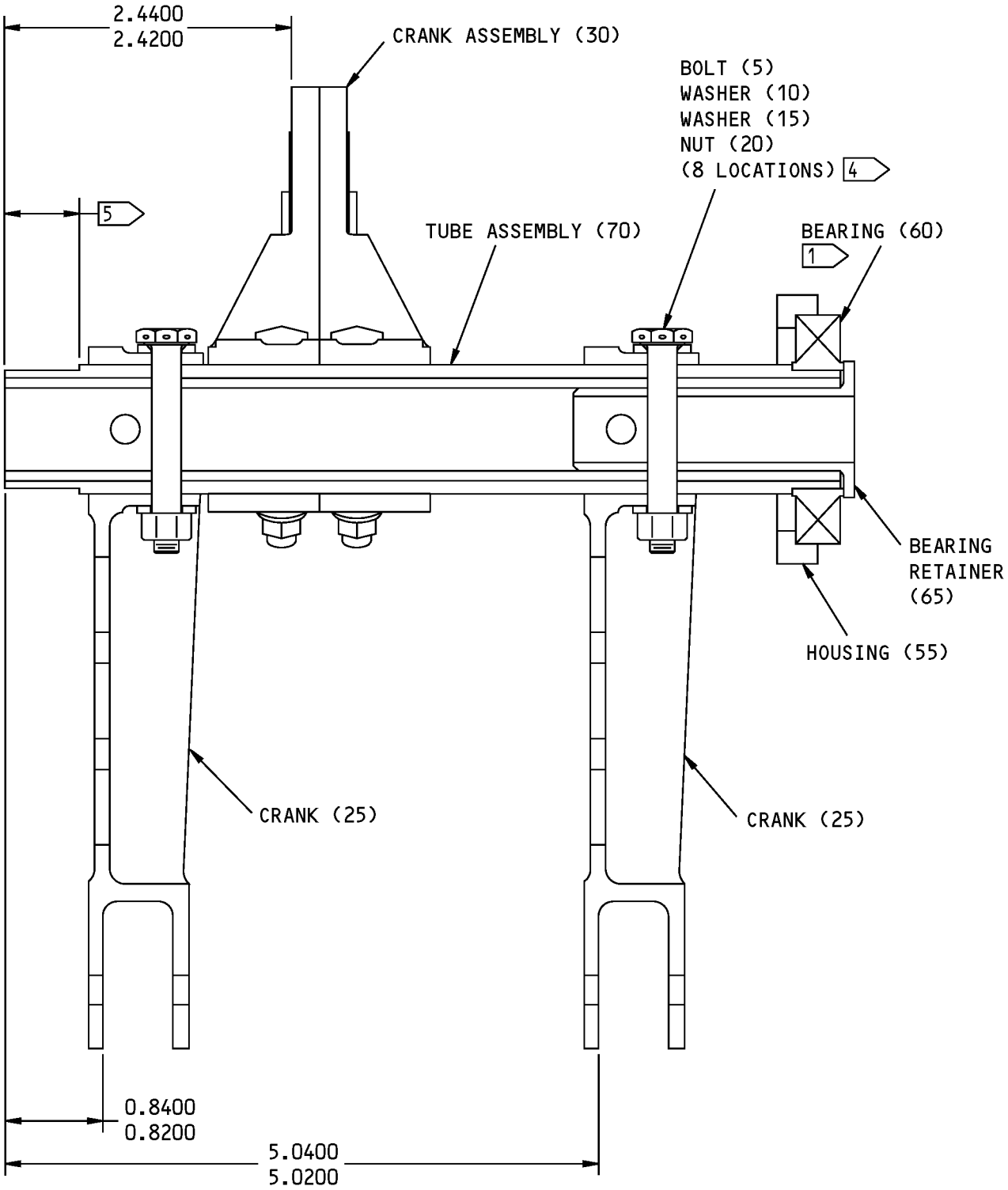
(d) For fasteners noted by flagnote 4, install the fasteners wet with sealant, A00247 (F-19.48).

(e) For surfaces noted by flagnote 5, do not let finish touch this surface.

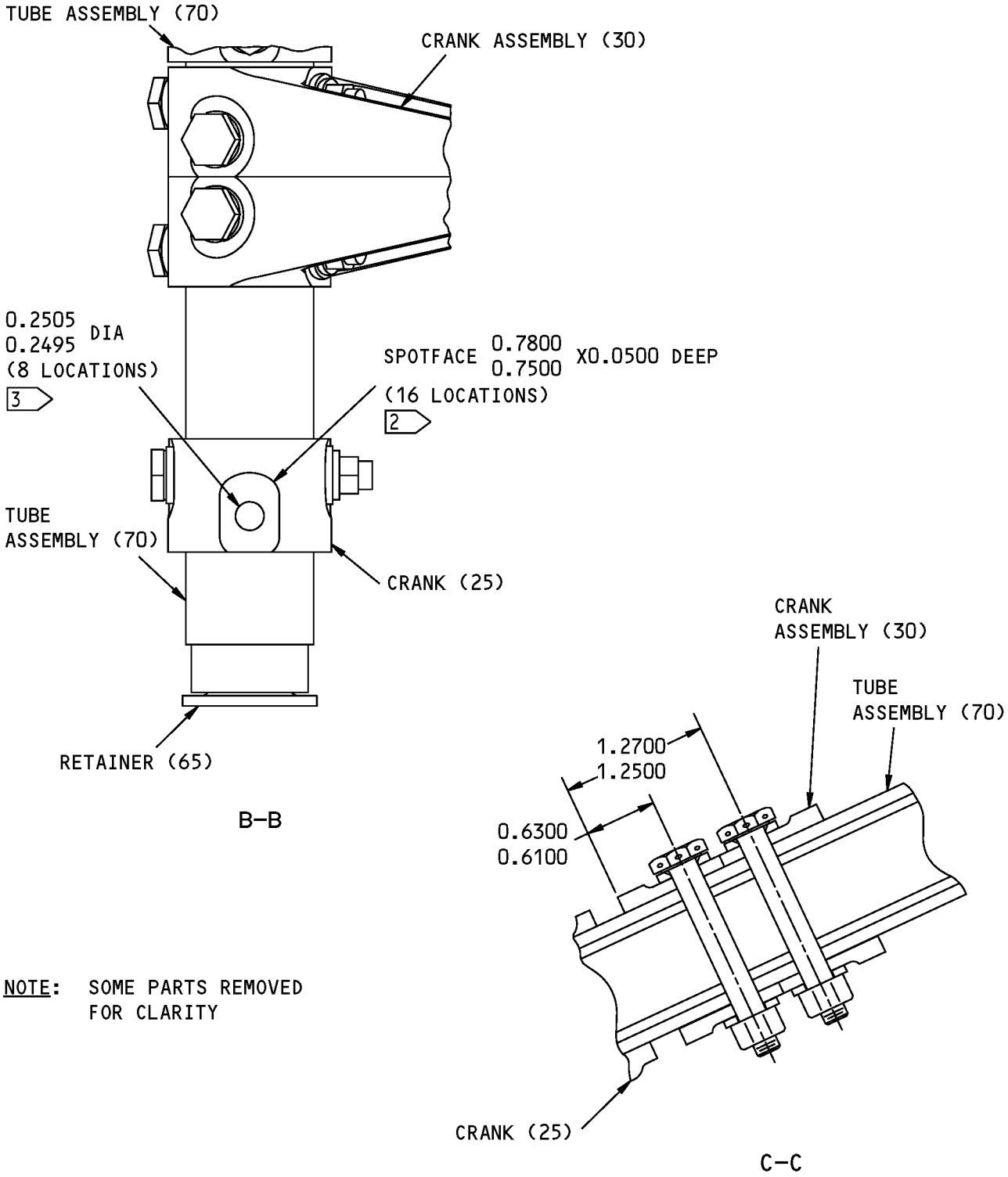
(f) Make sure the dimensions on ASSEMBLY, Figure 701 are met.



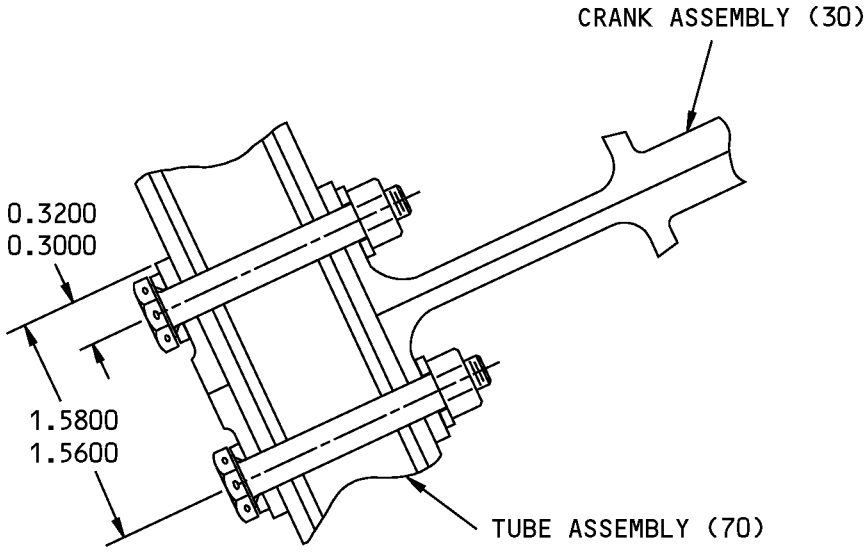
Elevator Feel and Centering Tube and Crank Assembly
Figure 701 (Sheet 1 of 4)



Elevator Feel and Centering Tube and Crank Assembly
Figure 701 (Sheet 2 of 4)



Elevator Feel and Centering Tube and Crank Assembly
Figure 701 (Sheet 3 of 4)



D–D

1 INSTALL THE BEARING AS SHOWN IN SOPM 20–50–03.

2 APPLY CHEMICAL COLORED COATING (F–17.10) AND APPLY ONE COAT OF BMS 10–11 TYPE 1 PRIMER (F–20.02) ON THE SPOTFACE AREAS.

3 APPLY CHEMICAL COLORED COATING (F–17.10) IN ALL DRILLED HOLES.

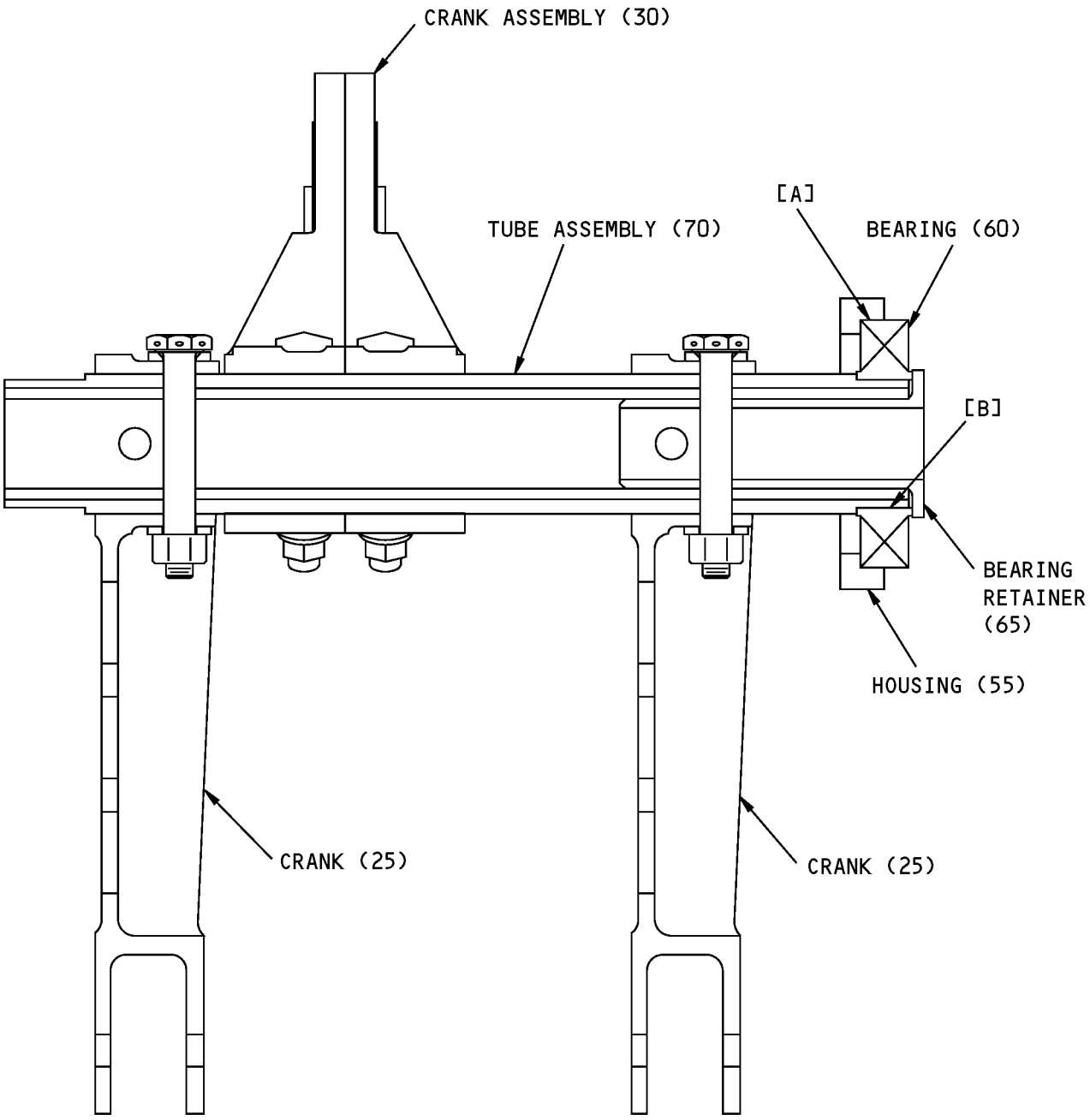
4 INSTALL THE FASTENERS WET WITH BMS 5–95 SEALANT (F–19.48).

5 DO NOT APPLY ANY FINISH TO THIS SURFACE WHILE ASSEMBLING THE PARTS.

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Elevator Feel and Centering Tube and Crank Assembly
Figure 701 (Sheet 4 of 4)



A–A

Fits and Clearances
Figure 801 (Sheet 1 of 2)

REF LETTER	REF IPL FIG. 1, MATING ITEM NO.	DESIGN DIMENSION*				SERVICE WEAR LIMIT*		
		DIMENSION		ASSEMBLY CLEARANCE 1		DIMENSION		MAXIMUM CLEARANCE
		MIN	MAX	MIN	MAX	MIN	MAX	
[A]	ID 55	1.9375	1.9385	0.0000	0.0020			
	OD 60	1.9365	1.9375					
[B]	ID 60	0.9995	1.0000	0.0005	0.0015			
	OD 70	0.9985	0.9990					

* ALL DIMENSIONS ARE IN INCHES

Fits and Clearances
Figure 801 (Sheet 2 of 2)

(NOT APPLICABLE)

ILLUSTRATED PARTS LIST

1. Introduction

A. The Illustrated Parts List (IPL) contains an illustration and a list of component parts you can repair or replace. The Illustrated Parts Catalog (IPC) shows how to use the Boeing part number system.

B. This shows how parts are related: The relation of each item to its next higher assembly (NHA) is shown in the NOMENCLATURE column. Use the indenture system that follows:

1 2 3 4 5 6 7

. Assembly

. Attaching parts for assembly

. . Detail parts for assembly

. . Subassembly

. . Attaching parts for subassembly

. . . Detail parts for subassembly

. . . Sub-subassembly

. . . Attaching parts for subassembly

. . . . . Details parts for sub-subassembly

Detail Installation Parts (Included only if installation parts may be sent to the shop as part of assembly)

C. Each top assembly is given one use code letter (A, B, C, etc.) in the USAGE CODE column. All subsequent component parts in the list can have one or more of the use code letters to show effectivity to top assemblies. A component part without a use code applies to all top assemblies.

D. An alphabetical letter is added after the item number for optional parts, parts changed by a Service Bulletin, configuration differences (except left-handed and right-handed parts), last engineering releases, and parts added between item numbers in a sequence. The alphabetical letter will not be shown on the illustration for equivalent parts of the same part number.

E. Color-coded parts are identified with a single digit alpha following the dash number or with ''SP'' suffix. If the ''SP'' suffix is used, it represents consolidation of all color codes applicable for a given usage which are not separately listed. Orders for color-coded parts should include the registry number of the airplane for which the parts are ordered.

F. If a part number is 15 characters long but will not fit in the part number column, the part number will be displayed with a ''~'' at the end of the line and will be continued on the next line. The ''~'' denotes that the part number continues on the next line.

G. Parts changed by a Service Bulletin are shown by PRE SB XXXX and POST SB XXXX added to the NOMENCLATURE column.

(1) When a new top assembly is added by a Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the top assembly level only. The configuration differences at the detail part level are shown by use code letters.

(2) When the top assembly part number is not changed by the Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the detail level.

H. Interchangeable Parts

Optional (OPT)	The part is optional to and interchangeable with other parts that have the same item number.
Replaces, Replaced by and not interchangeable with (REPLACES, REPLACED BY AND NOT INTCHG/W)	The part replaces and is not interchangeable with the initial part.
Replaces, Replaced by (REPLACES, REPLACED BY)	The part replaces and is interchangeable with, or is an alternative to, the initial part.

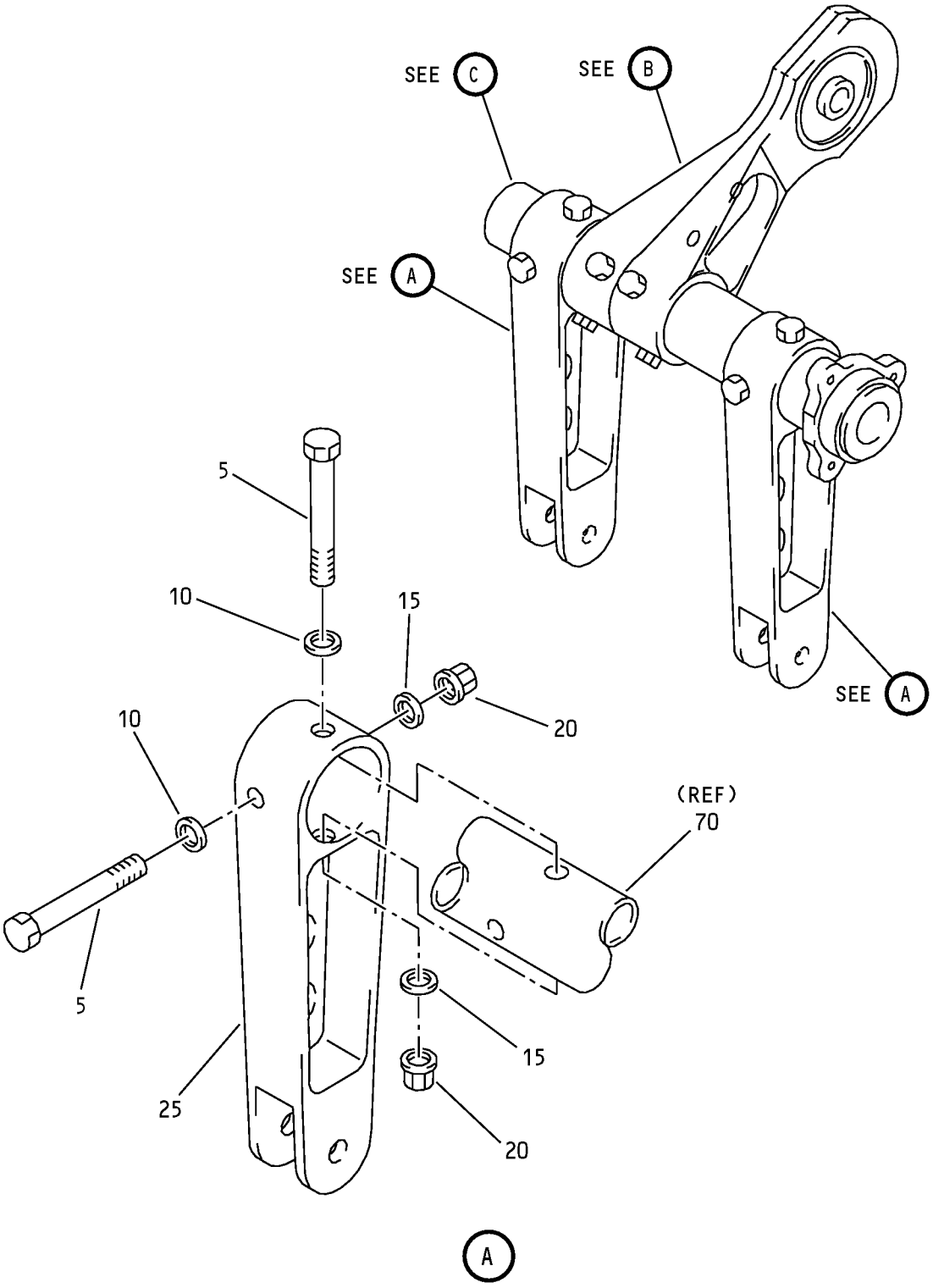
VENDOR CODES

Code	Name
06144	INDUSTRIAL TECTONICS BEARING CORP 18301 SOUTH SANTA FE AVENUE RANCHO DOMINGUEZ, CALIFORNIA 90221 FORMERLY IN COMPTON, CALIFORNIA
15653	ALCOA GLOBAL FASTENERS INC DIV KAYNAR PRODUCTS 800 S STATE COLLEGE BLVD FULLERTON, CALIFORNIA 92831-3001 FORMERLY VK6405 MICRODOT AEROSP LTD; FORMERLY KAYNAR TECH FORMERLY FAIRCHILD FASTENERS KAYNAR DIV
21335	TIMKEN US CORPORATION DIV FAFNIR 336 MECHANIC STREET LEBANON, NH 03766-0267 FORMERLY FAFNIR BRG AND TEXTRON INC FAFNIR DIV IN NEW BRITAIN, CONNECTICUT ; FORMERLY TORRINGTON CO THE SPECIAL PRODUCTS DIV SUB OF THE INGERSOLL-RAND CO V8D210 FORMERLY TORRINGTON CO FAFNIR BEARING DIV IN TORRINGTON, CT
40920	MPB MINIATURE PRECISION BEARING DIV PRECISION PARK PO BOX 547 KEENE, NEW HAMPSHIRE 03431 FORMERLY MPB CORP AND MINIATURE BRG DIV MPB CORP
62554	SIMMONDS MECAERO FASTENERS INC 1734 SEQUOIA AVENUE ORANGE, CALIFORNIA 92668
83086	NEW HAMPSHIRE BALL BEARING, INC HITECH DIVISION 172 JAFFREY ROAD PETERBOROUGH, NEW HAMPSHIRE 03458

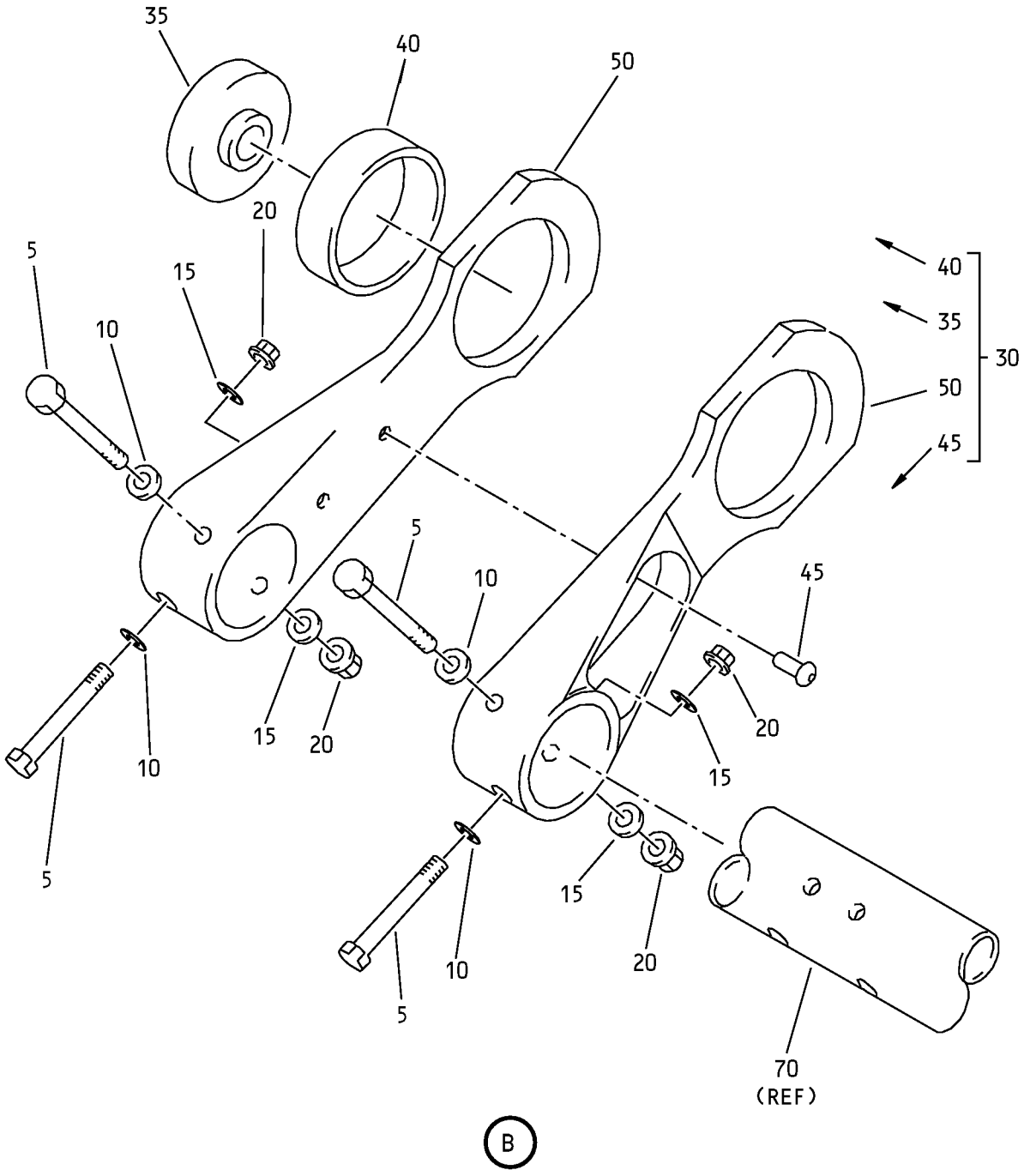
NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
251A2379-2		1	1A	RF
251A2379-3		1	1B	RF
251A2379-4		1	1C	RF
251A2380-5		1	55	1
251A2388-1		1	50	2
251A2389-1		1	30	1
65-60568-1		1	70	1
65-60568-2		1	80	1
65-60568-501		1	75A	1
65-60568-6		1	70A	1
65-60568-7		1	80A	1
65-60587-3		1	25A	2
65-60587-501		1	25	2
69-38919-18		1	40	1
69-48217-1		1	65	1
ACMKP16BS006M		1	60	1
ACMKSP6A3908		1	35A	1
ACMKSP6FS428		1	35A	1
AMKP16BSNJC		1	60A	1
BACB10FP6		1	35A	1
BACB10FP6G		1	35	1
BACB10FV16		1	60	1
BACB10FV16J		1	60A	1
BACB30NR4K22		1	5	8
BACN10YR4CD		1	20	8
BACR15BB5D7C		1	45	2
BACW10BN4AC		1	10	8
H52732-4CD		1	20	8
NAS1149D0463J		1	15	8
PACMKP16BSA3908		1	60	1
PACMKP16BSFS428		1	60	1
		1	60A	1
		1	60A	1
PLH54CD		1	20	8

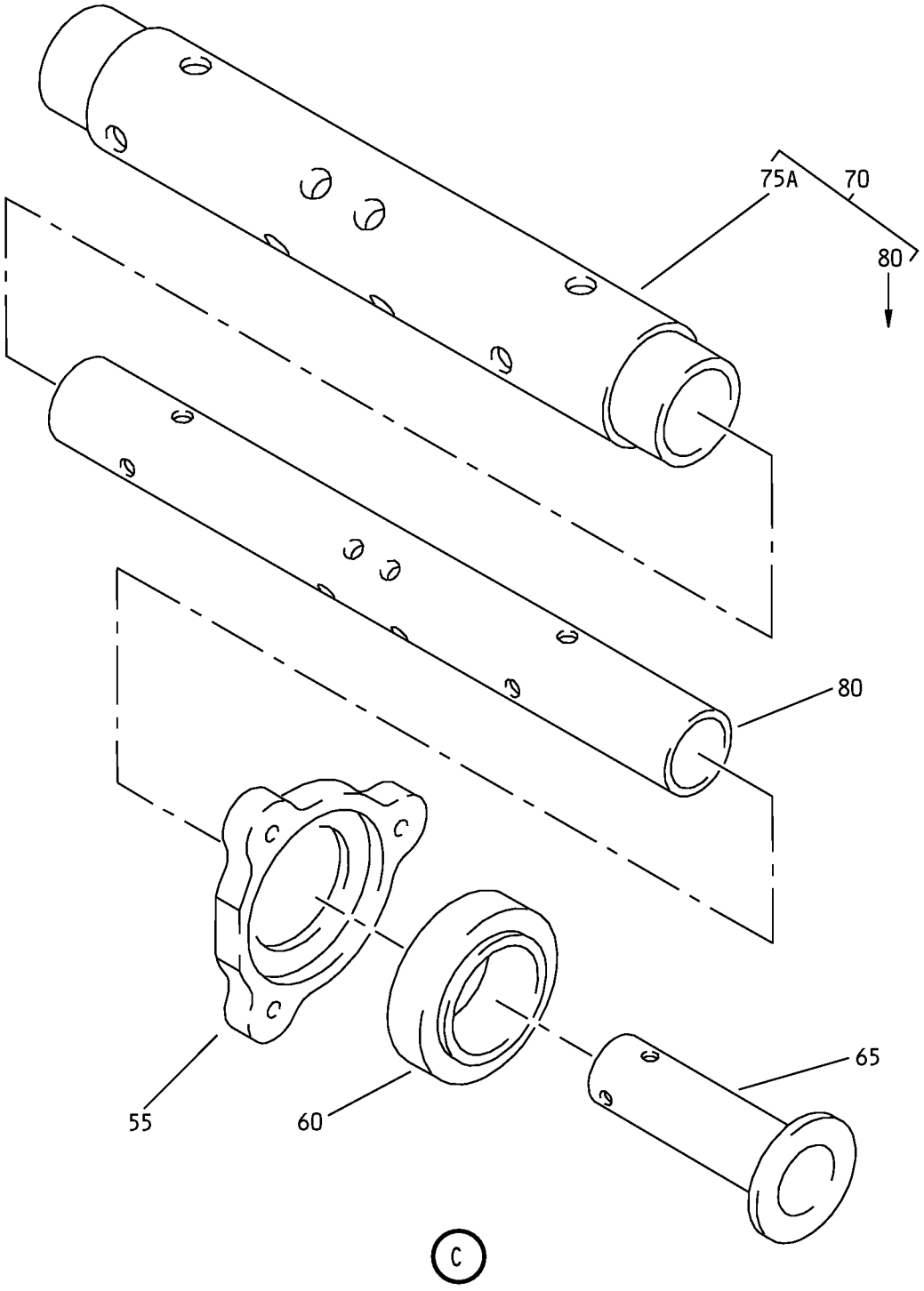
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
SSMKP16BSSD706		1	60	1
SSMKSP6SD705		1	35A	1



Tube and Crank Assembly
IPL Figure 1 (Sheet 1 of 3)



Tube and Crank Assembly
IPL Figure 1 (Sheet 2 of 3)



Tube and Crank Assembly
IPL Figure 1 (Sheet 3 of 3)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1A	251A2379-2		TUBE AND CRANK ASSY-FEEL AND CENTERING ELEVATOR CONT	A	RF
–1B	251A2379-3		TUBE AND CRANK ASSY-FEEL AND CENTERING ELEVATOR CONT	B	RF
–1C	251A2379-4		TUBE AND CRANK ASSY-FEEL AND CENTERING ELEVATOR CONT	C	RF
5	BACB30NR4K22		. BOLT		8
10	BACW10BN4AC		. WASHER		8
15	NAS1149D0463J		. WASHER		8
20	H52732-4CD		. NUT (V15653) (SPEC BACN10YR4CD) (OPT PLH54CD (V62554))		8
25	65-60587-501		. CRANK-CLEVIS	A, B	2
–25A	65-60587-3		. CRANK-CLEVIS	C	2
30	251A2389-1		. CRANK ASSY		1
35	BACB10FP6G		. . BEARING (OPT ITEM 35A)		1
–35A	ACMKSP6FS428		. . BEARING (V21335) (SPEC BACB10FP6) (OPT ACMKSP6A3908 (V21335)) (OPT SSMKSP6SD705 (V83086)) (OPT ITEM 35)		1
40	69-38919-18		. . SLEEVE (MAKE FROM SH AL QQ-A-327 OR 6061-0 PER WW-T-789 OPT 6061-T6 ROD QQ-A-225/8 F2.10 .062 IN .624 IN 4.92 IN)		1
45	BACR15BB5D7C		. . RIVET		2
50	251A2388-1		. . CRANK		2
55	251A2380-5		. HOUSING-BEARING		1
60	ACMKP16BS006M		. BEARING (V40920) (SPEC BACB10FV16) (OPT PACMKP16BSA3908 (V21335)) (OPT SSMKP16BSSD706 (V83086)) (OPT PACMKP16BSFS428 (V21335))	A	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–60A	PACMKP16BSF˜ S428		. BEARING (V21335) (SPEC BACB10FV16J) (OPT AMKP16BSNJC (V06144)) (OPT PACMKP16BSFS428 (V06144))	B, C	1
65	69-48217-1		. RETAINER-BEARING		1
70	65-60568-1		. TUBE ASSY	A	1
–70A	65-60568-6		. TUBE ASSY	B, C	1
75	65-60568-3		DELETED		
75A	65-60568-501		. . TUBE-OUTER		1
80	65-60568-2		. . TUBE-INNER	A	1
–80A	65-60568-7		. . TUBE-INNER	B, C	1

–Item not Illustrated