COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

FLIGHT SPOILER ASSEMBLY NO. 3 AND 10

PART NUMBER 113A4300–1, –2, –3, –4

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COMPONENT MAINTENANCE MANUAL

Revision No. 7
Jul 01/2009

To: All holders of FLIGHT SPOILER ASSEMBLY NO. 3 AND 10 57-56-54.

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.

Pages replaced or made obsolete by this revision should be removed and destroyed.

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Location of Change	Description of Change
	NO HIGHLIGHTS

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

TABLE OF CONTENTS

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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.

NO. 3 AND 10 FLIGHT SPOILER ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. There are four flight spoiler assemblies, one outboard ground spoiler assembly, and one inboard ground spoiler assembly on each wing. The outboard ground spoiler assemblies are installed on the left and right wings in pair as No. 1 and 12. The spoiler assemblies are in pairs as No. 2 and 11, No. 3 and 10, No. 4 and 9, No. 5 and 8. The inboard ground spoiler assemblies are in pair as No. 6 and 7. The flight spoiler assembly has a panel bond assembly, two jumper assemblies, a center fitting, and two end ribs. The panel bond assembly is made from aluminum honeycomb core reinforced between two aluminum alloy panels. The center fitting and the two end ribs are made from aluminum alloy. The flight spoiler assemblies are attached to the hinges on the rear spar of the wings.

2. Operation

A. The flight spoiler assemblies are used together with the aileron assemblies for lateral control and speed brakes. The flight spoiler assemblies on the left and right wings can be raised alternately for lateral control during flight, or can be raised together as speed brakes during landing. The flight spoiler assemblies are controlled by actuators.

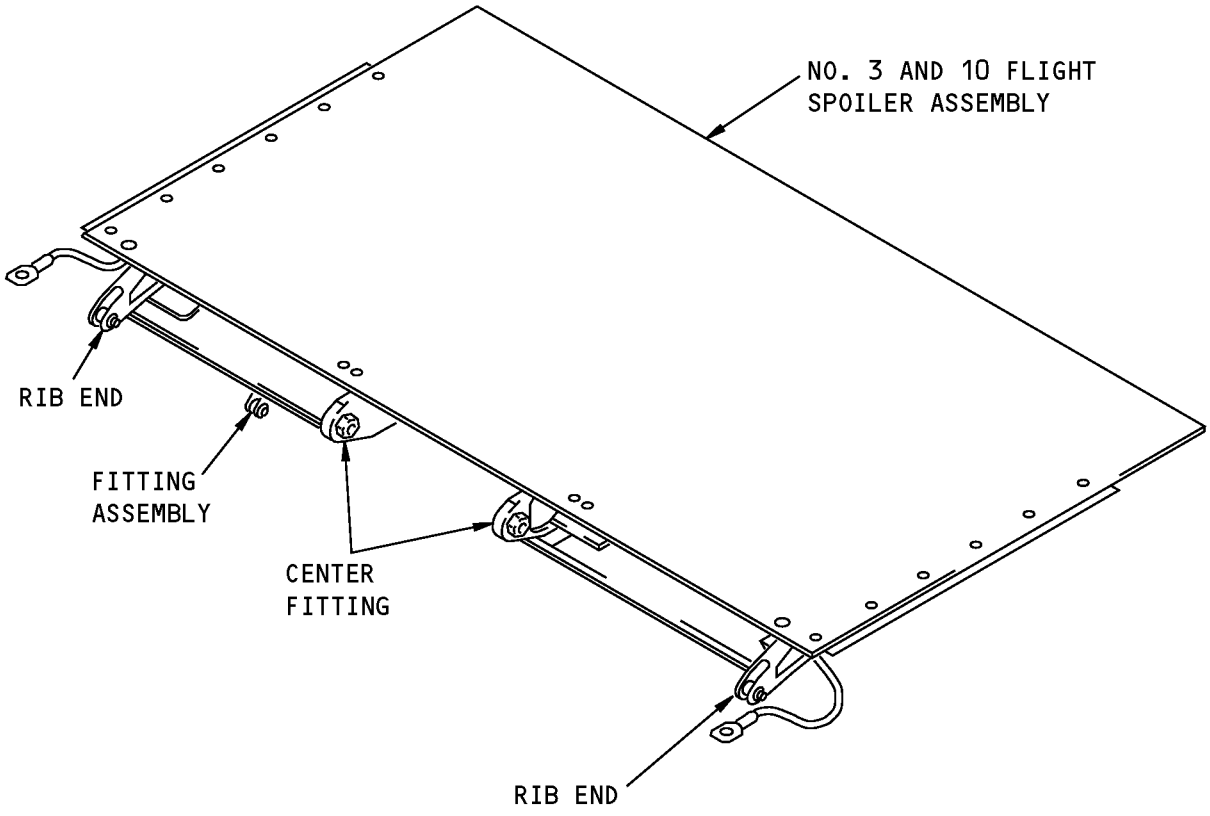
3. Leading Particulars (Approximate)

A. Length – 42 inches

B. Width – 25 inches

C. Height – 3 inches

D. Weight – 12 pounds



No. 3 and 10 Flight Spoiler Assembly
Figure 1

(NOT APPLICABLE)

DISASSEMBLY

1. General

A. This procedure has the data necessary to disassemble the No. 3 and 10 flight spoiler assembly (IPL Figure 1; 1A, 5).

B. Disassemble this component sufficiently to isolate the defects, 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 subject identified in this procedure.

2. Disassembly

A. References

Reference	Title
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT

B. Procedure

NOTE: For bearing removal, installation and retention, refer to SOPM 20-50-03.

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

CLEANING

1. General

A. This procedure has the data necessary to clean the No. 3 and 10 flight spoiler assembly (IPL Figure 1; 1A, 5).

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

2. Cleaning

A. References

Reference	Title
SOPM 20-30-01	CLEANING AND RELUBRICATING BEARINGS
SOPM 20-30-03	GENERAL CLEANING PROCEDURES

B. Procedure

(1) Clean the bearings (IPL Figure 1; 20) as specified in SOPM 20-30-01.

(2) Use standard industry procedures and refer to SOPM 20-30-03 to clean all parts.

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 the SOPM subjects 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
737 NDT Part 1, 51-01-01	Inspection of Repairs to Composite Structure
737 NDT Part 4, 51-00-02	Full Depth Honeycomb and Laminate Structure Inspection
737 NDT Part 9, 51-00-01	Non-Destructive Testing

B. Procedure

(1) Use standard industry procedures to do a visual check of all the parts for defects. Do the penetrant or magnetic particle check if the visual check shows possible damage or if you suspect possible damage on the parts listed below:

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

1) Fitting (75, 80)

2) End rib (170, 175, 180, 185)

3) Center fitting (190, 195)

(2) Do a check for cracks, corrosion, or missing potting and sealant at the ends of the panel bond assemblies.

(3) Do a check of the honeycomb structure and bonded parts for evidence of delamination, internal water, scratches, and contour defects.

(a) If you see delamination or impact damage when you do a visual check, do an ultrasonic inspection or a tap test to find all damage. Refer to the 737 NDT Part 4, 51-00-02.

NOTE: For the tap test, use a small solid metal disk and tap the surface area lightly but firmly. You will hear a sharp sound when you tap on solid bonded areas, and dull sound on void areas. Refer to the 737 NDT Part 1, 51-01-01.

(b) Do a check on areas you suspect of containing water with the radiographic or thermographic method. Refer to the 737 NDT Part 9, 51-00-01.

(c) Do a check on the edges of the panel carefully for cuts and abrasions. Delamination starts very easily from damage to an edgemember of honeycomb panel.

(4) Refer to the applicable 737 Structural Repair Manuals section for allowable damage and repair data.

REPAIR

1. General

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

PART NUMBER	NAME	REPAIR
—	REFINISH OF OTHER PARTS	1-1
113A4300	NO. 3 AND 10 FLIGHT SPOILER ASSEMBLY	2-1
113A4310	PANEL BOND ASSEMBLY	2-2

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 Practices 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
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79, Type III
C50075	Coating - Exterior Protective Enamel, Gray	BMS10-60, Type II, BAC707 Gray

B. References

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

C. Procedure

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

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

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
Seal retainer (100, 105)	Aluminum alloy	Chemical treat (F-17.07). Apply primer, C00175 (F-19.47). Apply enamel coating, C50075 (F-19.39-707).

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NO. 3 AND 10 FLIGHT SPOILER ASSEMBLY - REPAIR 2-1

113A4300–1, –2, –3, –4

1. General

A. This procedure has the data necessary to repair and refinish the No. 3 and 10 flight spoiler assembly (1A, 5).

B. Refer to the Standard Overhaul Practices 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. Repair procedures

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS 5-95
C50075	Coating - Exterior Protective Enamel, Gray	BMS10-60, Type II, BAC707 Gray

B. References

Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-03	BEARING AND BUSHING REPLACEMENT
SOPM 20-50-05	APPLICATION OF ALUMINUM FOIL AND OTHER MARKERS
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Bushing (10, 15) Replacement

NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the 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 bushing (10, 15) from the end rib (170, 175, 180, 185).

(2) Install the new bushing (10, 15) on the end rib (170, 175, 180, 185) with sealant, A00247. Use the shrink fit method (SOPM 20-50-03).

(3) Ream the inside diameter of the bushing (10, 15) to the dimensions shown in REPAIR 2-1, Figure 601.

(4) Break all sharp edges.

D. Bearing (20) Replacement

(1) Remove the bearing (20) from the center fitting (190, 195).

(2) Install the new bearing (20) on the center fitting (190, 195) with sealant, A00247 and roller swage (SOPM 20-50-03).

E. Bushing (25) Replacement

(1) Remove the bushing (25) from the center fitting (190, 195).

(2) Install the new bushing (25) on the center fitting (190, 195) with sealant, A00247. Use the shrink fit method (SOPM 20-50-03.

F. Aluminum Foil Marker Replacement

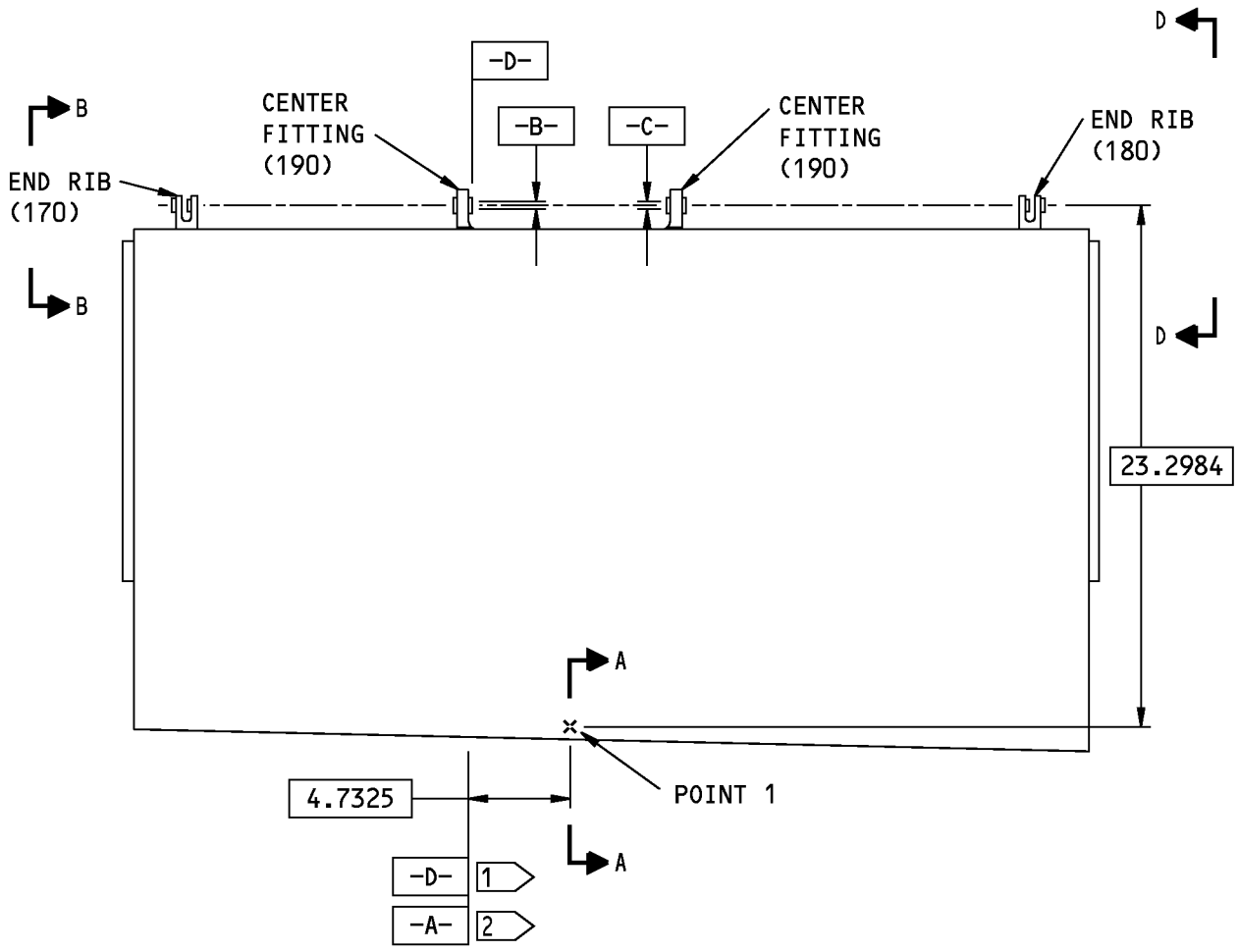
(1) Remove the damaged aluminum foil marker (210) from the panel bond assembly (130, 135).

(2) Clean the surface.

(3) Install the new aluminum foil marker (210) on the panel bond assembly (130, 135). See REPAIR 2-1, Figure 602 and SOPM 20-50-05.

G. No. 3 and 10 Flight Spoiler Assembly Refinish

(1) Apply enamel coating, C50075 (F-19.39-707). No finish on bearings (20), bushings (10, 15, 25), seals (110, 115), seal retainers (100, 105), and rub strip (140).



113A4300-1,-3 SHOWN
113A4300-2,-4 OPPOSITE

(THIS VIEW IS PERPENDICULAR TO DATUM -A-)

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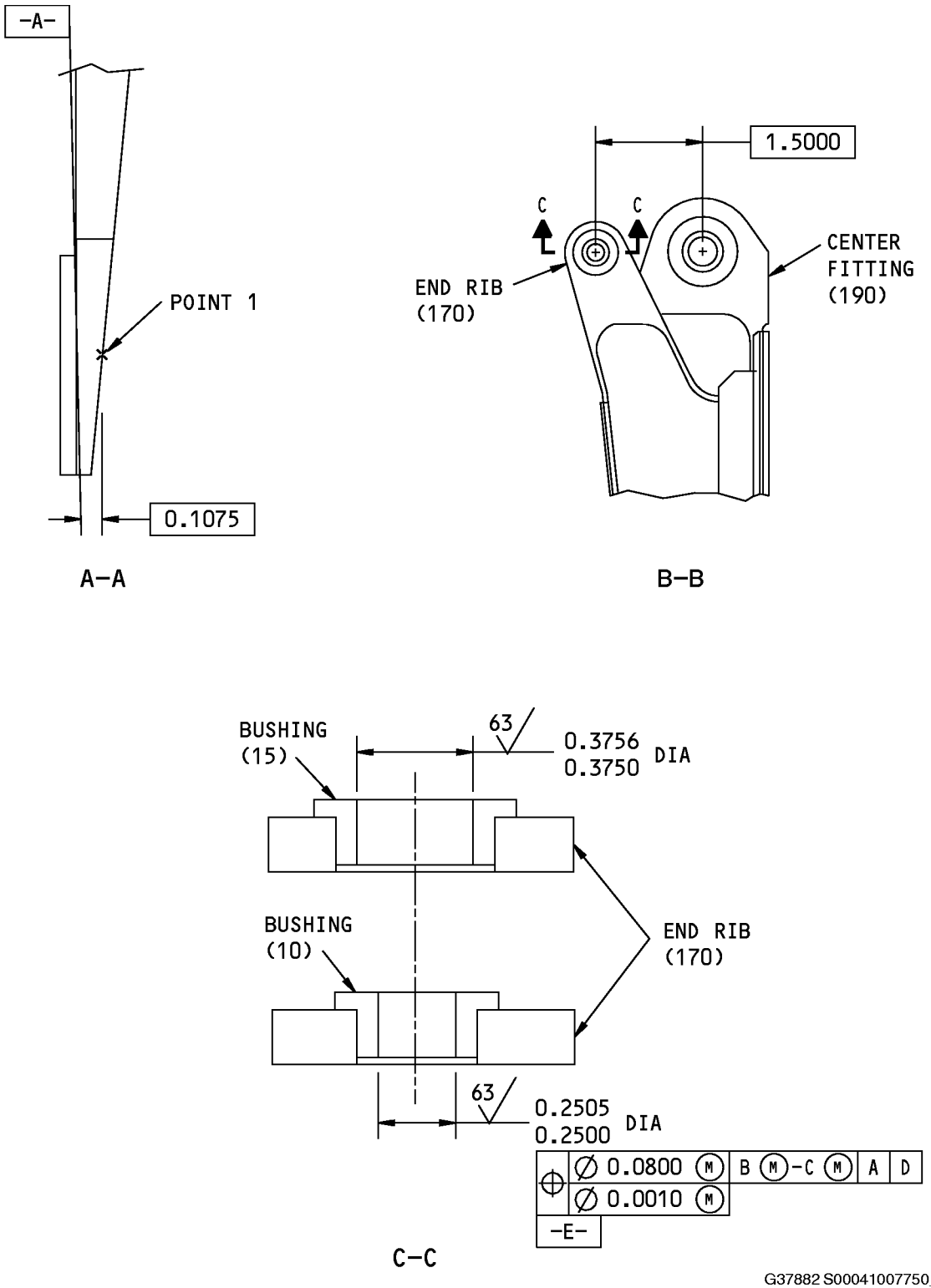
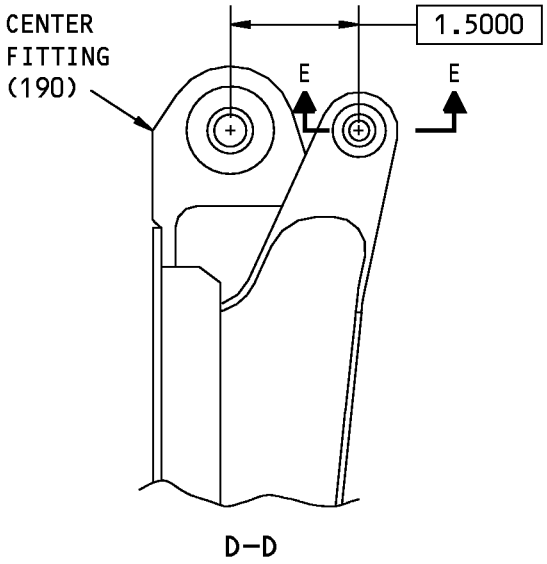
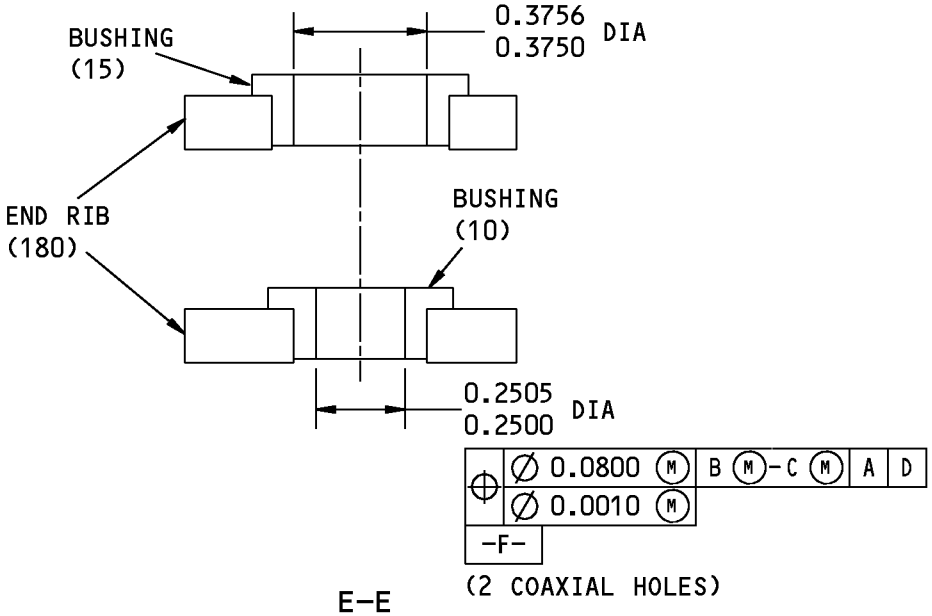
113A4300-1,-2,-3,-4 No. 3 and 10 Flight Spoiler Assembly Repair
Figure 601 (Sheet 1 of 3)



113A4300-1,-2,-3,-4 No. 3 and 10 Flight Spoiler Assembly Repair
Figure 601 (Sheet 2 of 3)



D–D



E–E

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

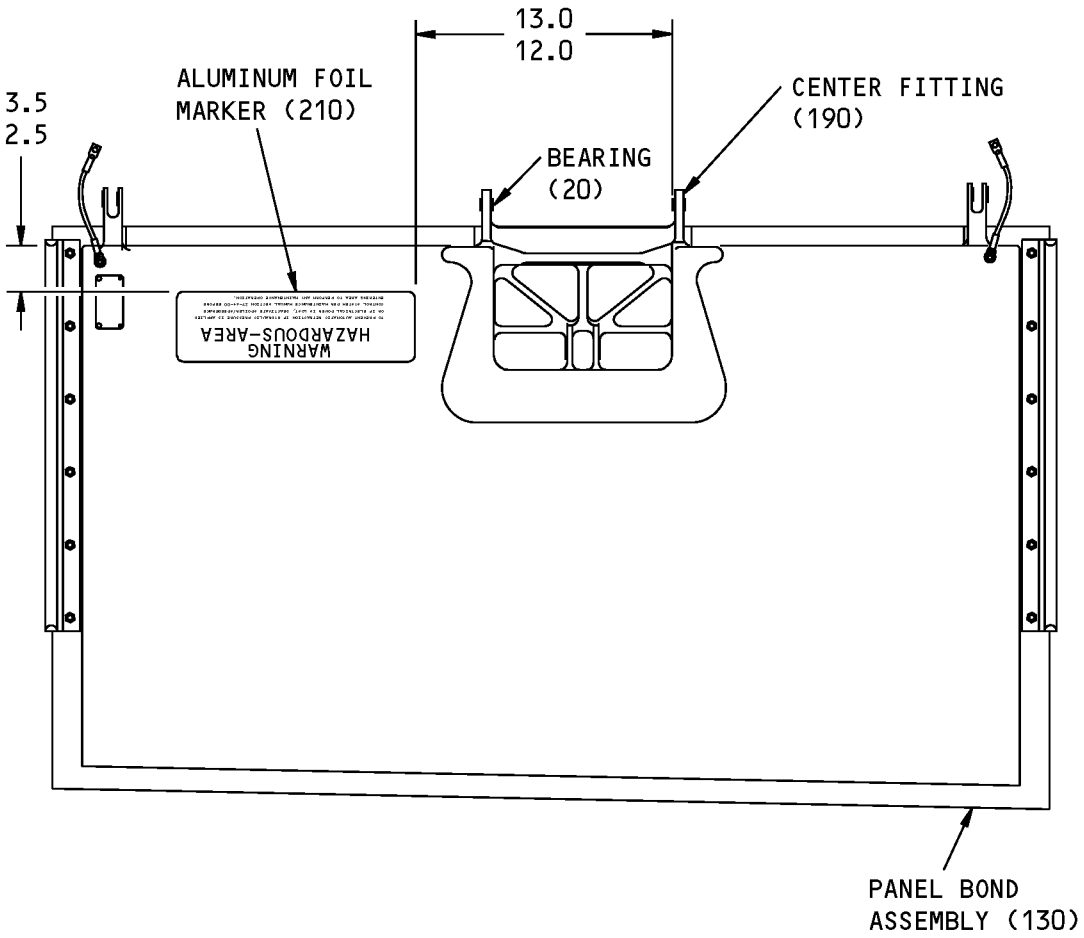
ALL DIMENSIONS ARE IN INCHES

1 > 113A4300-1,-2

2 > 113A4300-3,-4

G37897 S00041007751_V2

113A4300-1,-2,-3,-4 No. 3 and 10 Flight Spoiler Assembly Repair
Figure 601 (Sheet 3 of 3)



ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Miscellaneous Parts Replacement
Figure 602

PANEL BOND ASSEMBLY - REPAIR 2-2

113A4310–1, –2

1. General

A. This procedure has the data necessary to repair and refinish the panel bond assembly (130, 135).

B. Refer to the Standard Overhaul Practices 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.

E. General repair details:

(1) Material:

(a) End rib (170, 175, 180, 185): Aluminum alloy

(b) Center fitting (180, 185): Aluminum alloy

(2) Shot peen: Center fitting (180, 190):

(a) All repaired surfaces and bushing holes

(b) Intensity 0.012A-0.017A

(c) Coverage 1.0 automated, 2.0 manual

(d) Overspray is permitted

2. Repair procedures

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79, Type III

B. References

Reference	Title
SOPM 20-20-02	PENETRANT METHODS OF INSPECTION
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

C. End Rib Repair

NOTE: For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Ream the hole for the bushing (10, 15) to remove defects, cracks and/or corrosion up to the limit shown in REPAIR 2-2, Figure 601.

(2) Break all sharp edges.

(3) Do a penetrant check (SOPM 20-20-02) on the areas you reamed.

(4) Make the oversize bushing as shown in REPAIR 2-2, Figure 603 and the steps shown below.

(a) Bushing (10) material: 15-5PH or 17-4PH CRES.

(b) Bushing (15) material: Aluminum-nickel-bronze.

(c) Break all sharp edges.

(d) Bushing (10) finish: Zinc-nickel plate.

(e) Bushing (15) finish: Cadmium plate.

(5) Install the oversize bushing as shown in REPAIR 2-1, Paragraph 2.C.(2) thru REPAIR 2-1, Paragraph 2.C.(4).

D. Center Fitting Repair

(1) Ream the hole for the bushing (25) to remove defects, cracks and/or corrosion up to the limit shown in REPAIR 2-2, Figure 602.

(2) Break all sharp edges.

(3) Do a penetrant check (SOPM 20-20-02) on the areas you reamed.

(4) Make the oversize bushing as shown in REPAIR 2-2, Figure 603 and the steps shown below.

(a) Bushing (25) material: Aluminum-nickel-bronze

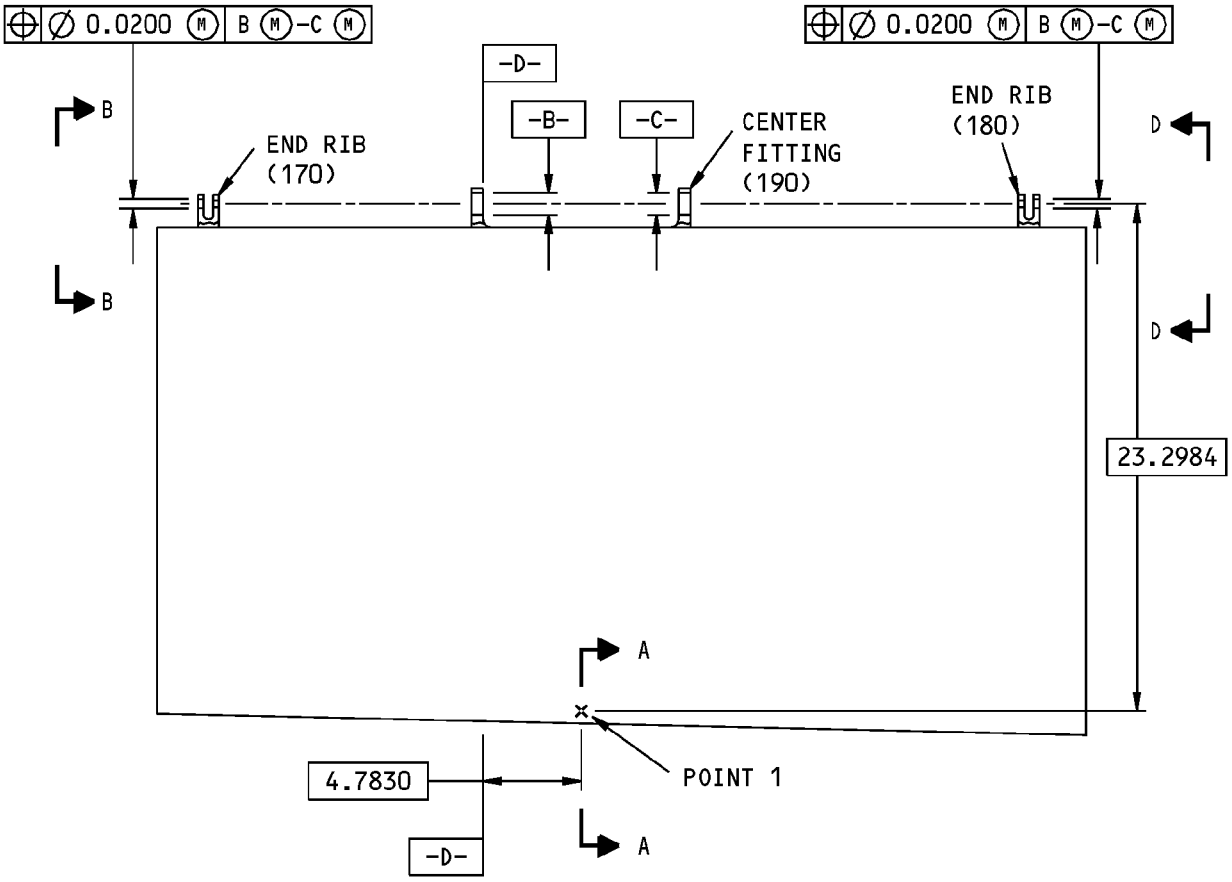
(b) Break all sharp edges.

(c) Bushing (25) finish: Cadmium plate all over but not in holes.

(5) Install the oversize bushing (25) as shown in REPAIR 2-1, Paragraph 2.E.(2).

E. Panel Bond Assembly Refinish

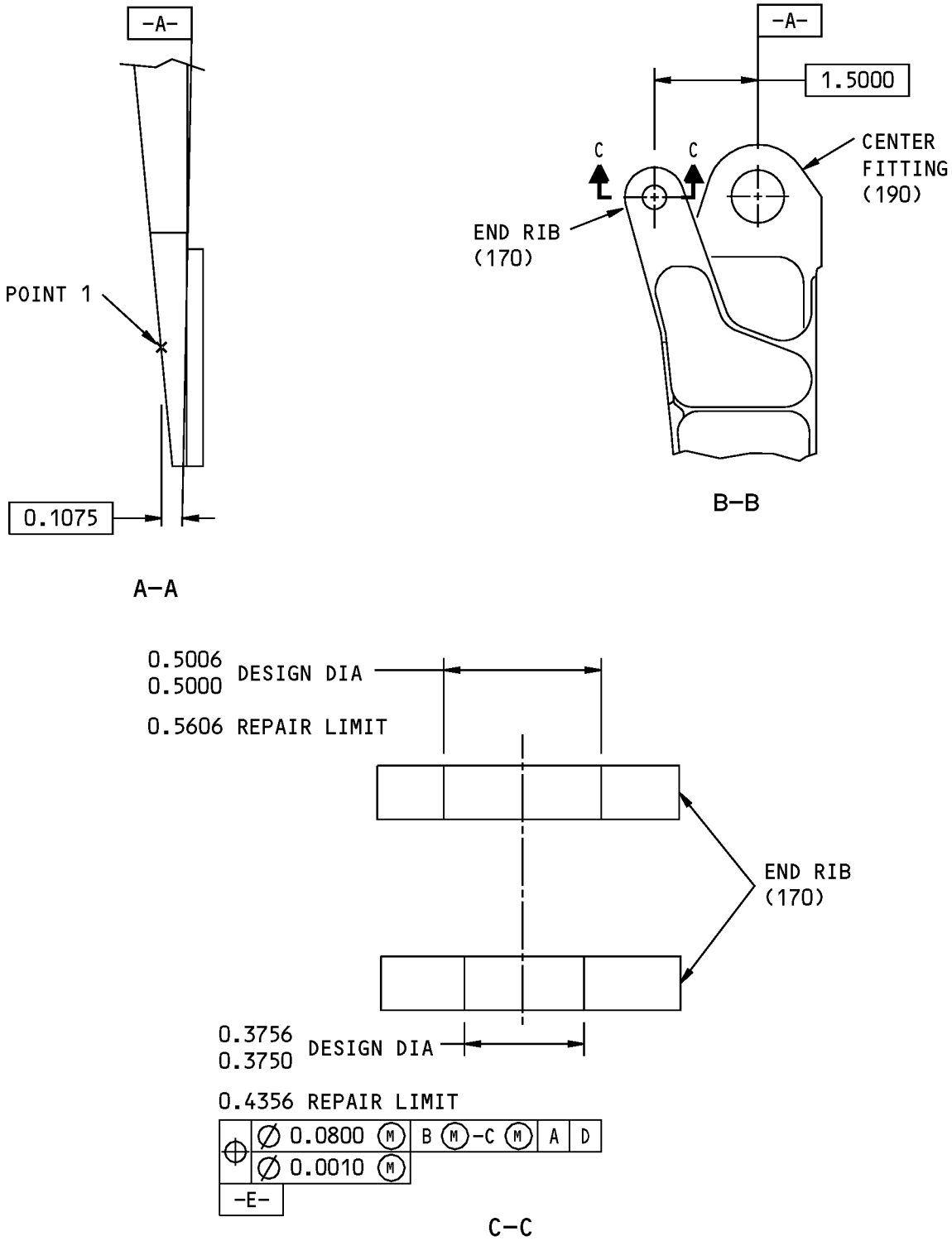
(1) Apply primer, C00175 (F-19.47).



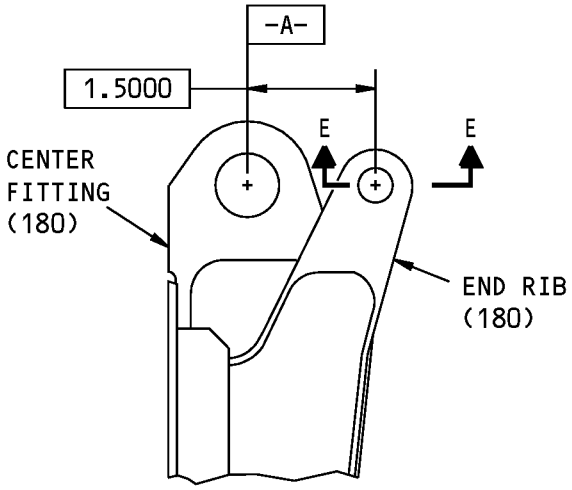
113A4310-1 SHOWN
113A4310-2 OPPOSITE

(THIS VIEW IS PERPENDICULAR TO DATUM -A)

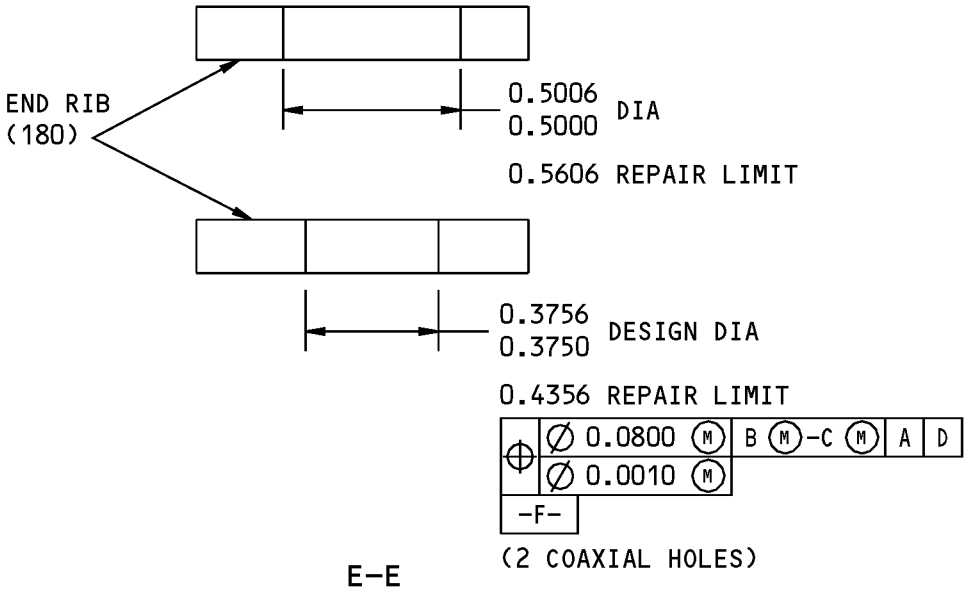
113A4310-1,-2 Bond Panel Assembly Repair
Figure 601 (Sheet 1 of 3)



113A4310-1,-2 Bond Panel Assembly Repair
Figure 601 (Sheet 2 of 3)



D–D



E–E

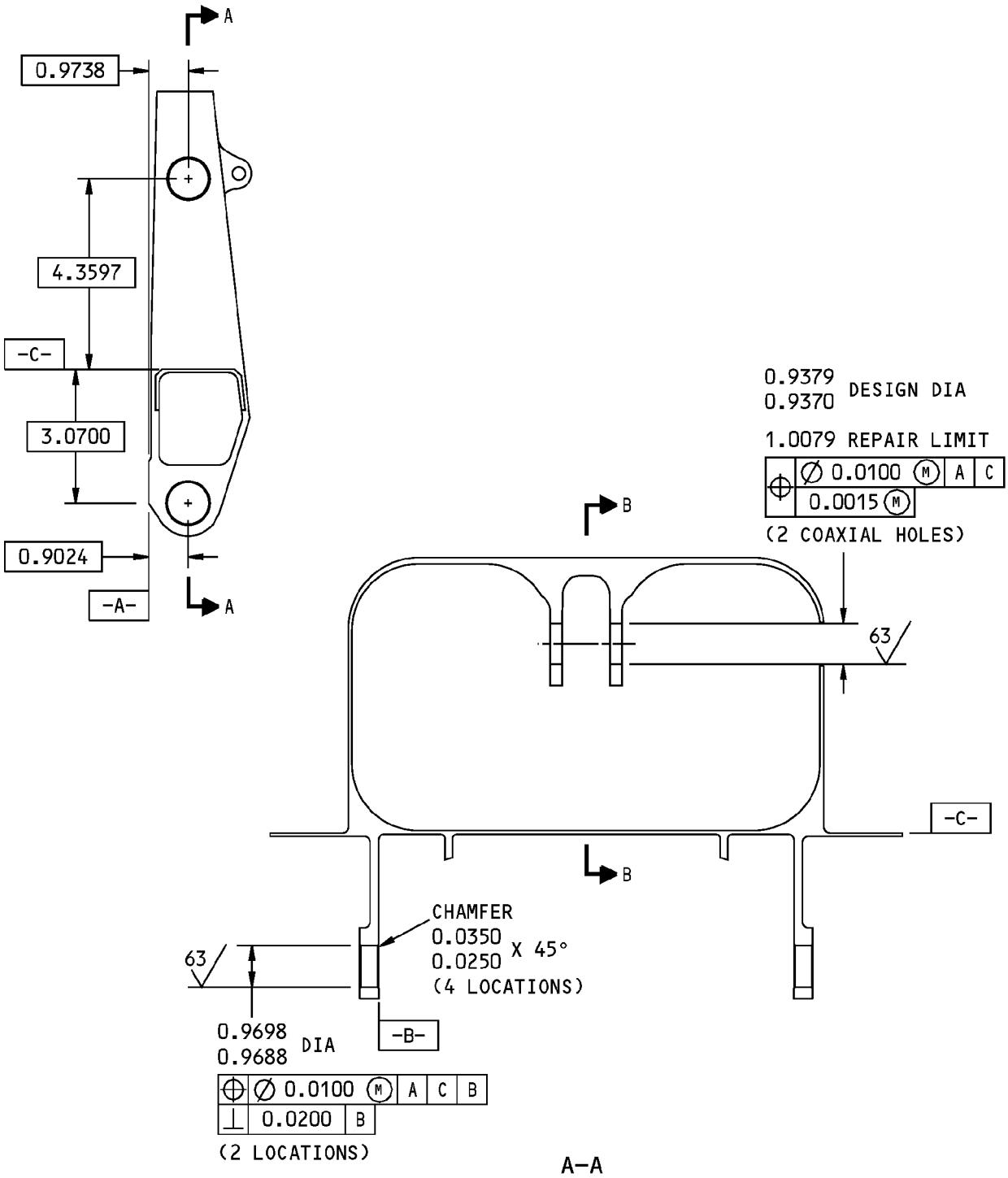
63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

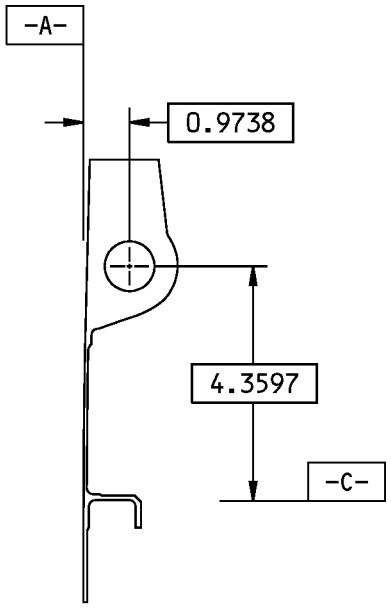
ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

113A4310-1,-2 Bond Panel Assembly Repair
Figure 601 (Sheet 3 of 3)



113A4320-1 Center Fitting Repair
Figure 602 (Sheet 1 of 2)



B–B

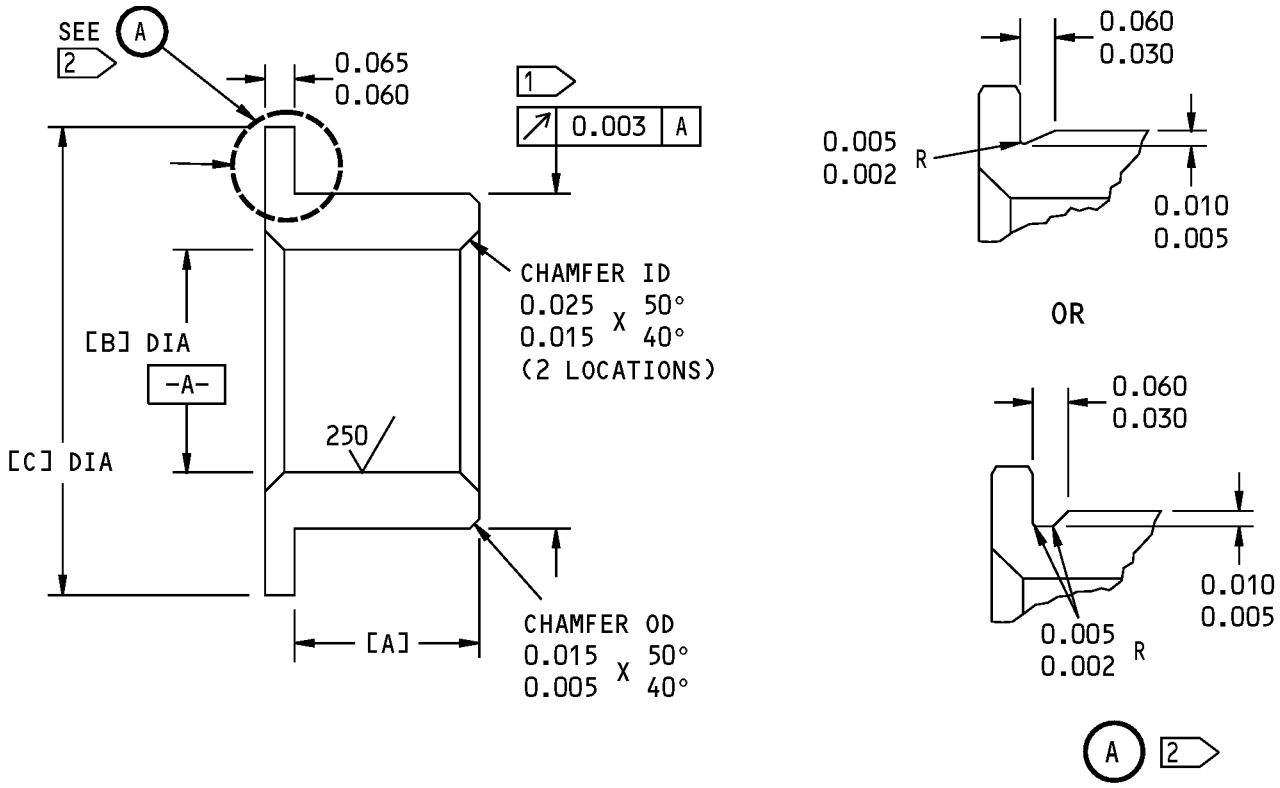
63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

113A4320-1 Center Fitting Repair
Figure 602 (Sheet 2 of 2)



BUSHING TO BE REPLACED (IPL FIG. 1)	[A]	[B]	[C]	INTERFERENCE
10	0.140 0.135	0.2505 0.2500	0.540 0.530	0.0015 0.0003
15	0.140 0.135	0.3756 0.3750	0.630 0.620	0.0016 0.0004
25	0.290 0.285	0.7515 0.7500	1.260 1.240	0.0023 0.0004

1 THE OUTSIDE DIAMETER OF THE BUSHING AFTER PLATING IS EQUAL TO THE INSIDE DIAMETER OF THE LUG HOLE PLUS THE INTERFERENCE

2 FOR BUSHING (25) ONLY.

63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Oversize Bushing Details
Figure 603

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the No. 3 and 10 flight spoiler assembly (1A, 5).

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
C00862	Coating - Chemical Conversion - Alodine 600	

B. References

Reference	Title
SOPM 20-11-03	REPAIR OF ELECTRICAL TERMINATIONS AND ELECTRICAL BONDING AREAS
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-41-02	APPLICATION OF CHEMICAL AND SOLVENT RESISTANT FINISHES
SOPM 20-43-03	CHEMICAL CONVERSION COATINGS FOR ALUMINUM
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For repair of electrical terminations and electrical bonding areas, refer to SOPM 20-11-03. For the decoding table of Boeing finish codes, refer to SOPM 20-41-01. For finishing materials, refer to SOPM 20-60-02. For lubricants, refer to SOPM 20-60-03. For miscellaneous materials, refer to SOPM 20-60-04.

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

(2) Install the jumper assemblies (45) on the panel bond assembly (130, 135).

(a) Remove the finish, if necessary, in areas where you will install the jumper assemblies (45).

(b) Apply Alodine 600 coating, C00862 (SOPM 20-43-03) by hand, brush, swab, or spray application (F-17.28) in areas you just removed the finish.

(c) Install the jumper assemblies (45) on the panel bond assembly (130, 135) with screws (30), washers (35), and nuts (40). Use three washers for installation, one washer (35) under the screw head, and one washer (35) on each side of the jumper assembly (45).

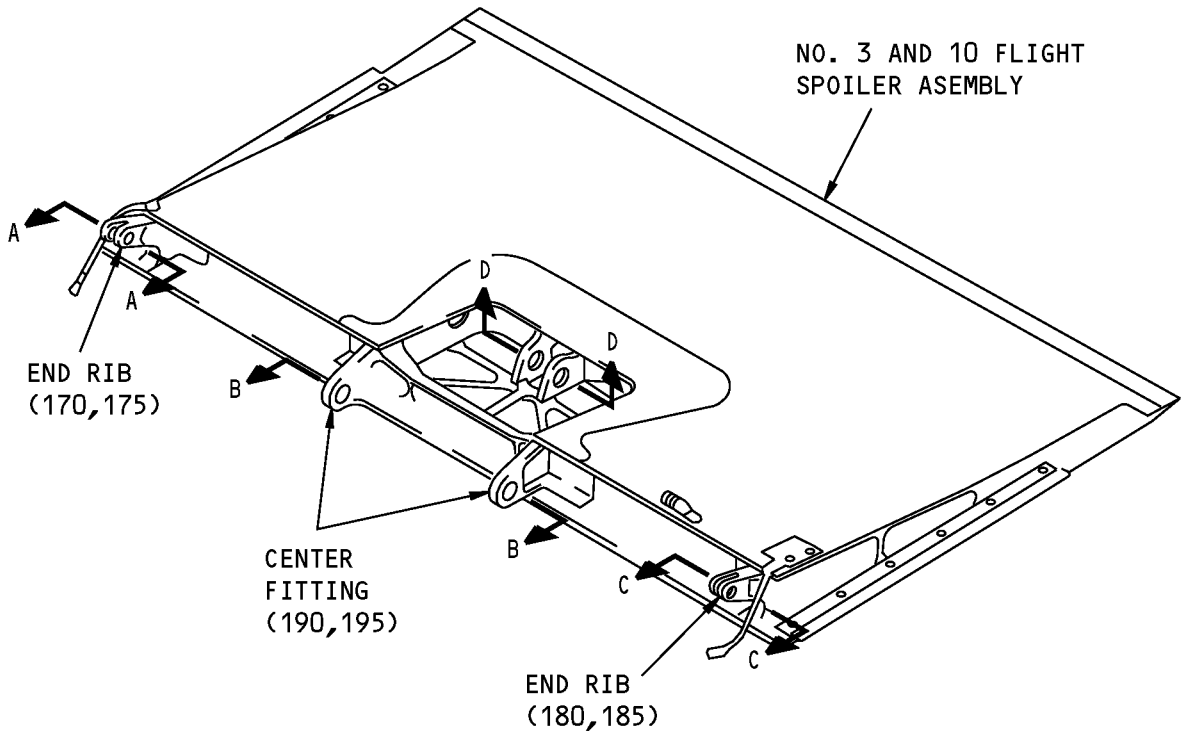
(d) Fillet seal the ends of the jumper assemblies (45) with sealant, A00247.

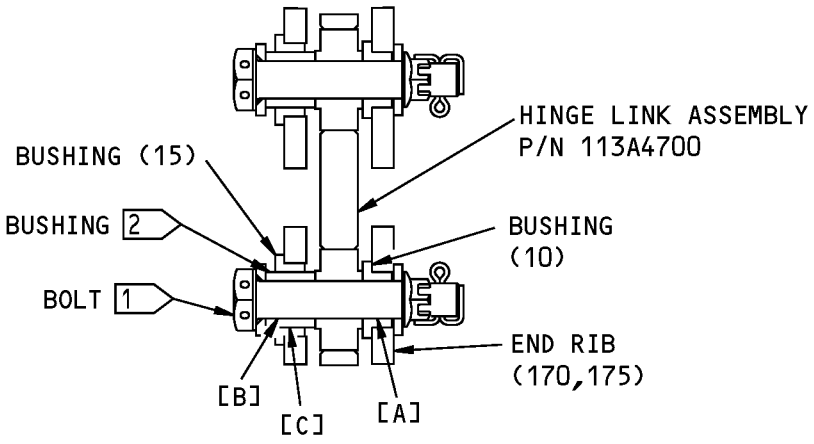
(3) Install the seals (110, 115) on the panel bond assembly (130, 135).

(a) In areas around the holes for bolts (85), apply primer, C00259 (SOPM 20-41-02) to all areas of the holes and countersink, counterbore, or other recess.

NOTE: Do the next step immediately after you complete this step.

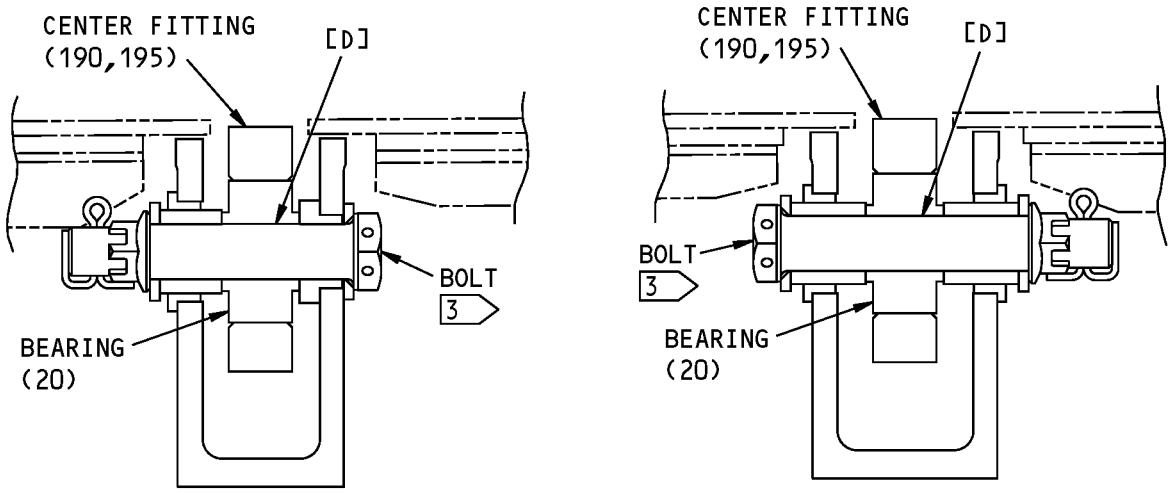
(b) Install the seals (110, 115) and seal retainer (100, 105) on the panel bond assembly (130, 135) with bolts (85), washers (90), and nuts (95).



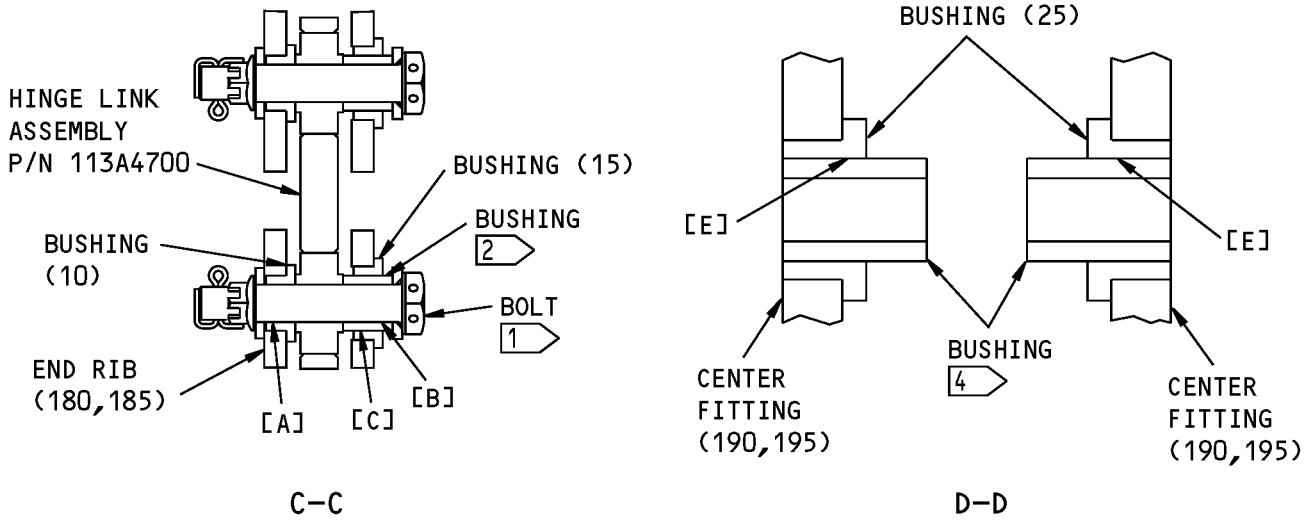


A–A

Fits and Clearances
Figure 801 (Sheet 1 of 3)



B–B



C–C

D–D

ITEM NUMBERS REFER TO IPL FIG. 1

Fits and Clearances
Figure 801 (Sheet 2 of 3)

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 BUSHING (10)	0.2500	0.2505	0.0005	0.0020		0.2530	0.005
	OD BOLT 1	0.2485	0.2495			0.2480		
[B]	ID BUSHING 2	0.2500	0.2505	0.0005	0.0020		0.2530	0.005
	OD BOLT 1	0.2485	0.2495			0.2480		
[C]	ID BUSHING (15)	0.3750	0.3756	0.0005	0.0016		0.3795	0.005
	OD BUSHING 2	0.3740	0.3745			0.3700		
[D]	ID BEARING (20)	0.3750	0.3755	0.0005	0.0020		0.3780	0.005
	OD BOLT 3	0.3735	0.3745			0.3730		
[E]	ID BUSHING (25)	0.7500	0.7515	0.0010	0.0030		0.7775	0.005
	OD BUSHING 4	0.7485	0.7490			0.7465		

* ALL DIMENSIONS ARE IN INCHES

1 INSTALLATION BOLT, P/N BACB30NM4DK16

2 INSTALLATION BUSHING, P/N BACB28AK04-034

3 INSTALLATION BOLT, P/N BACB30NM6DK22

4 INSTALLATION BUSHING, P/N BACB28BA1012063

Fits and Clearances
Figure 801 (Sheet 3 of 3)

(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

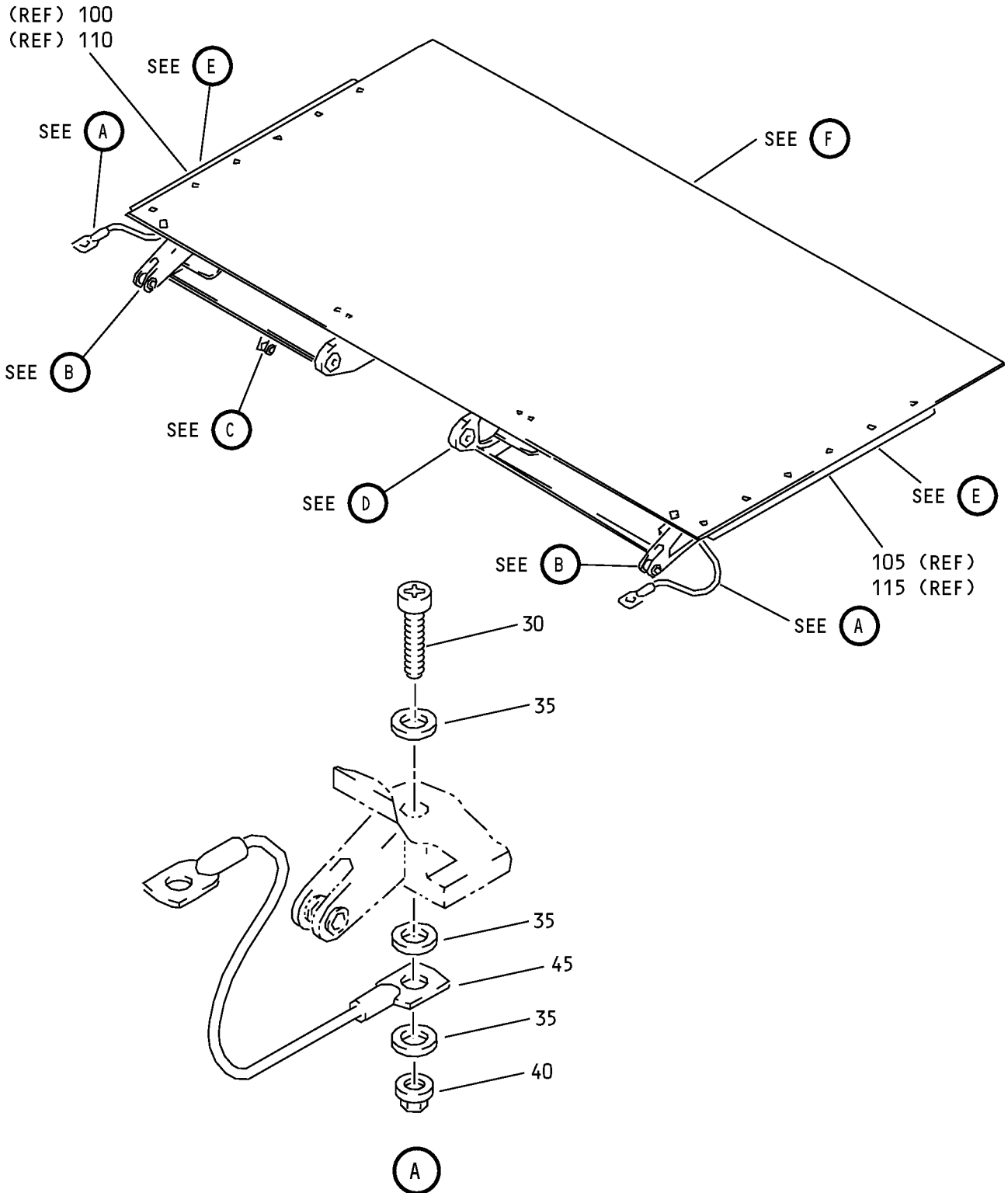
Code	Name
15653	ALCOA GLOBAL FASTENERS INC DIV KAYNAR PRODUCTS 800 S STATE COLLEGE BLVD FULLERTON, CALIFORNIA 92831-3001 FORMERLY VK6405 MICRODOT AEROSP LTD; FORMERLY KAYNAR TECH FORMERLY FAIRCHILD FASTENERS KAYNAR DIV
15860	NEW HAMPSHIRE BALL BEARINGS, INC ASTRO DIVISION 155 LEXINGTON AVENUE LACONIA, NEW HAMPSHIRE 03246-2937 FORMERLY ASTRO BEARING CORP, LOS ANGELES, CALIF.
1FF12	CIRCUIT SYSTEMS CO 2621 COLORADO CIR PO BOX 171322 ARLINGTON, TEXAS 76017
1GK47	R AND B ELECTRONICS INC 2374 NW DALLAS STREET GRAND PRAIRIE, TEXAS 75050
50632	KAMATICS CORP SUB OF KAMAN CORP 1335 BLUE HILLS ROAD BLOOMFIELD, CONNECTICUT 06002-1304
62554	SIMMONDS MECAERO FASTENERS INC 1734 SEQUOIA AVENUE ORANGE, CALIFORNIA 92668

Code	Name
73134	ROLLER BEARING COMPANYOF AMER DBA HEIM BEARINGS DIV 60 ROUND HILL RD FAIRFIELD, CONNECTICUT 06430-0000 FORMERLY INCOM INTL HEIM DIV; HEIM UNIVERSAL CORP INCOM; FORMERLY HEIM DIV INCOM INTL; IMO IND HEIM BEARINGS DIV
81376	SMITH ACQUISITION COMPANY 2240 BUENA VISTA BALDWIN PARK, CALIFORNIA 91706
91812	ESTERLINE MASON 13955 BALVOA ROAD SYLMAR, CALIFORNIA 91342 FORMERLY JANCO CORPORATION
97613	SARGENT CONTROLS & AEROSPACE/KAHR BEARING DIV 5675 W BURLINGAME RD TUCSON, ARIZONA 85743 FORMERLY AETNA STEEL PROD KAHR BEARING DIV V96579 FORMERLY SARGENT IND KAHR BEARING DIV, BURBANK, CALIFORNIA
S0352	NIPPON MINIATURE BEARING CO LTD TOKYO, JAPAN

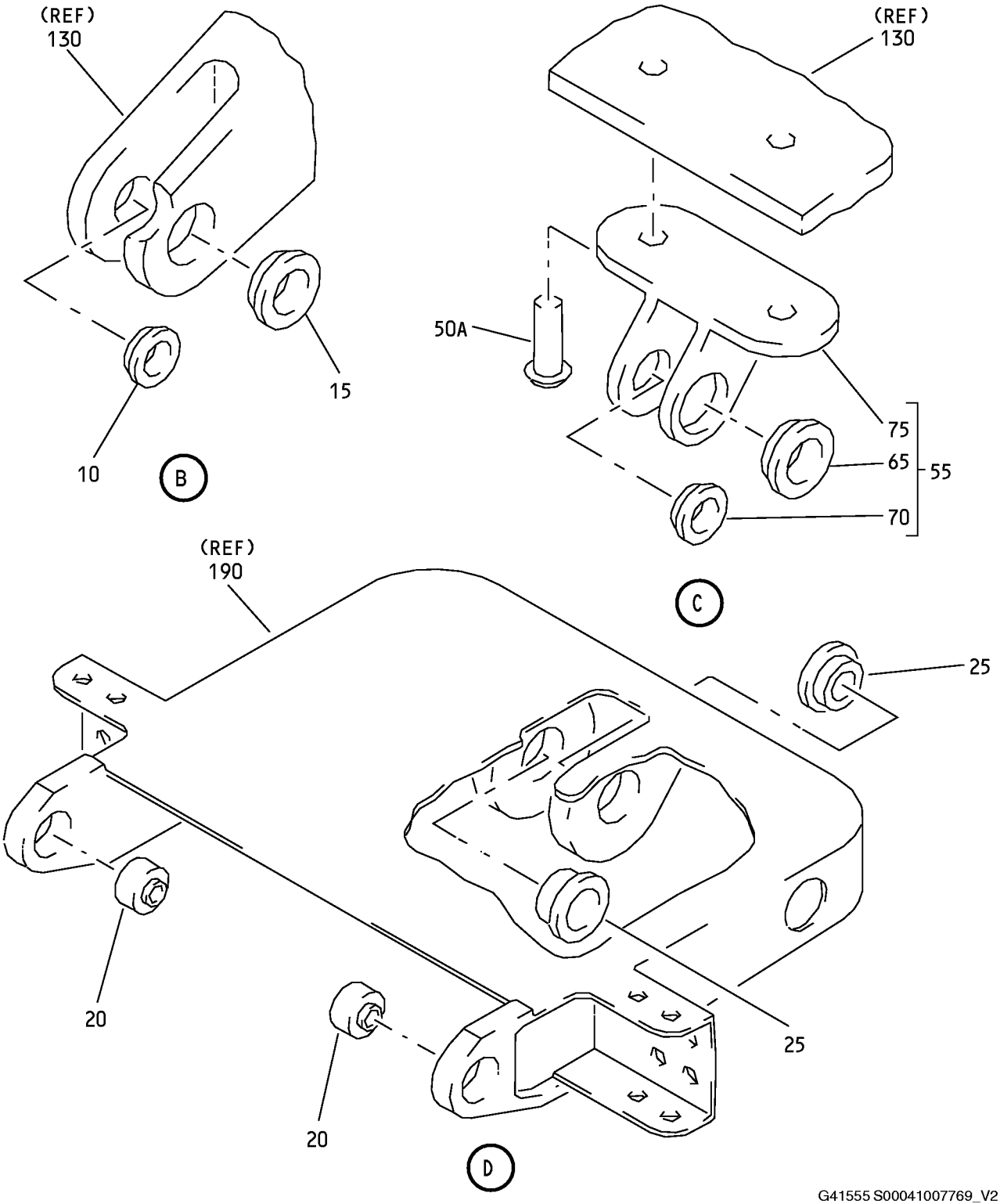
NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
100220-7		1	45	2
113A4111-7		1	160	2
113A4112-10		1	175	1
113A4112-11		1	180	1
113A4112-12		1	185	1
113A4112-9		1	170	1
113A4114-3		1	140	1
113A4150-11		1	110	1
113A4150-9		1	115	1
113A4160-1		1	105	1
113A4160-11		1	100A	1
113A4160-3		1	100	1
113A4160-9		1	105A	1
113A4180-1		1	55	1
113A4180-2		1	60	1
113A4180-3		1	75	1
113A4180-4		1	80	1
113A4300-1		1	1A	RF
113A4300-2		1	5	RF
113A4300-3		1	1B	RF
113A4300-4		1	5A	RF
113A4310-1		1	130	1
113A4310-2		1	135	1
113A4310-3		1	145	1
113A4310-4		1	150	1
113A4320-1		1	190	1
113A4320-2		1	195	1
940CW20-7		1	45	2
ADW06V301NC		1	20	2
BAC27NCT0217		1	210	1
BACB10FA06GC		1	20	2
BACB28AP04P014		1	10	2
BACB28AT06B014C		1	15	2
BACB28W3C009		1	70	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
BACB28W5B009		1	65	1
BACB28X12K029		1	25A	2
BACB28X12M029		1	25	2
BACB30VF08K4		1	85	12
BACJ40AB20-7		1	45	2
BACN10JC08CD		1	95	12
BACN10YR3CD		1	40	2
BACR15BB3D		1	200	2
BACR15BB3D4C		1	200A	2
BACR15CE6D		1	120	4
BACR15FT5D6		1	50A	2
BACR15FT6D		1	125	8
		1	155	16
BACR15GF6D7		1	120A	4
BACS12GU3K7		1	30	2
BACS40R008B018F		1	165	AR
H52732-3CD		1	40	2
KSC152200BZ06GC		1	20	2
KWDB06-35		1	20	2
MS27253-1		1	205	1
NAS1149D0316J		1	35	6
NAS1149DN832J		1	90	12
PLH53CD		1	40	2
RBEJ40AB20-7		1	45	2
SWKRS06-350SC		1	20	2
WES06FAGC		1	20	2
WHTFA06VC		1	20	2



No. 3 and No. 10 Flight Spoiler Assembly
IPL Figure 1 (Sheet 1 of 6)



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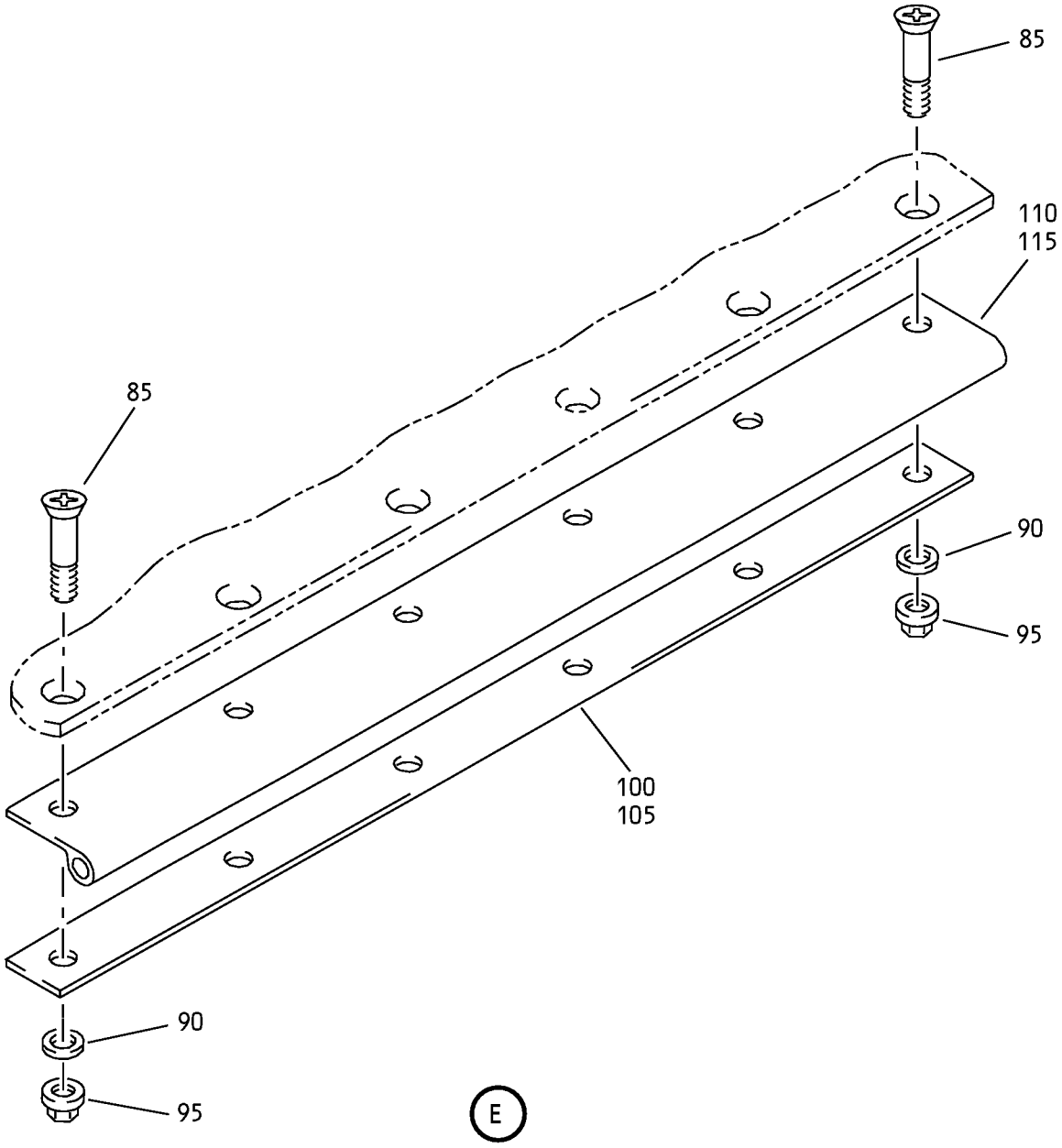
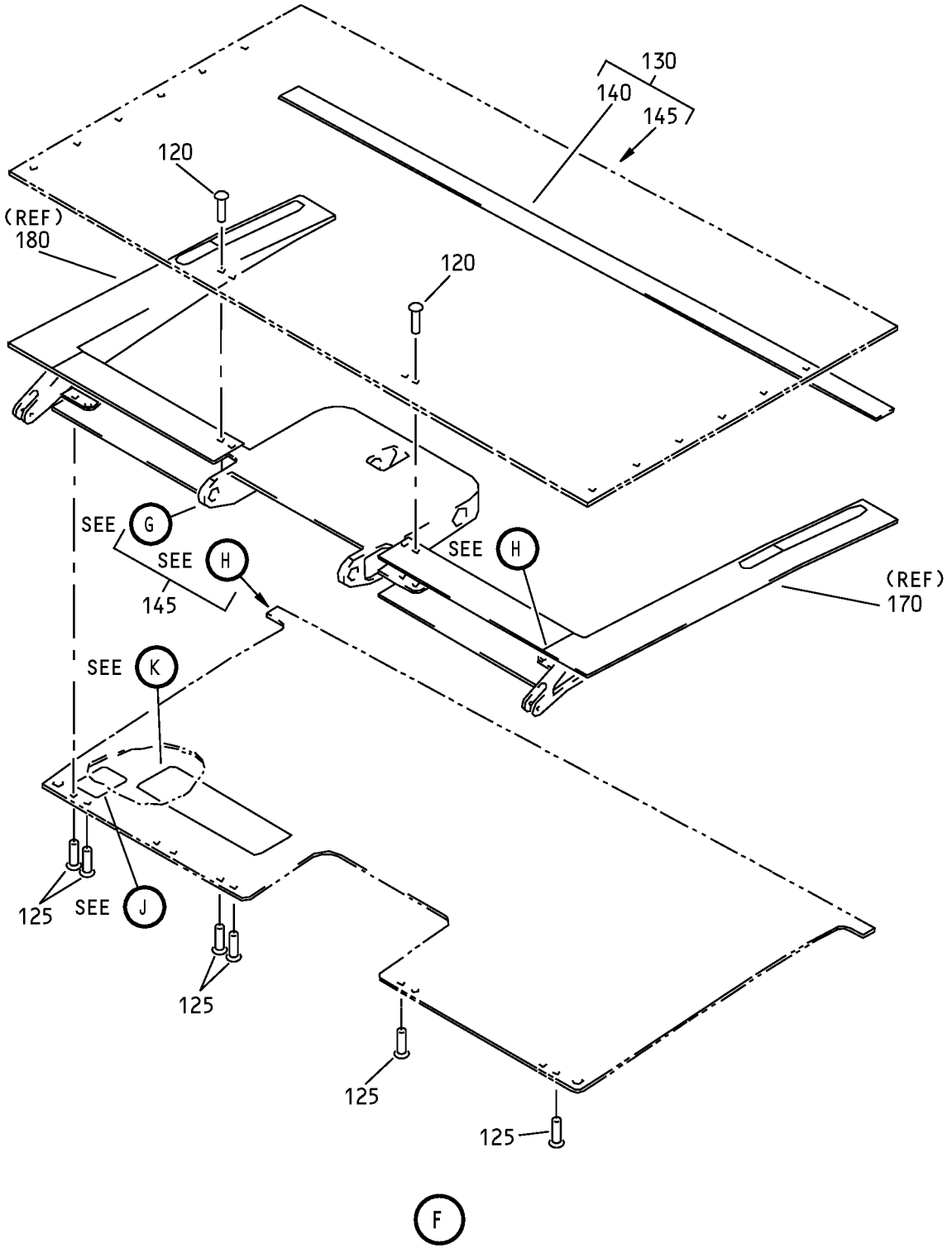
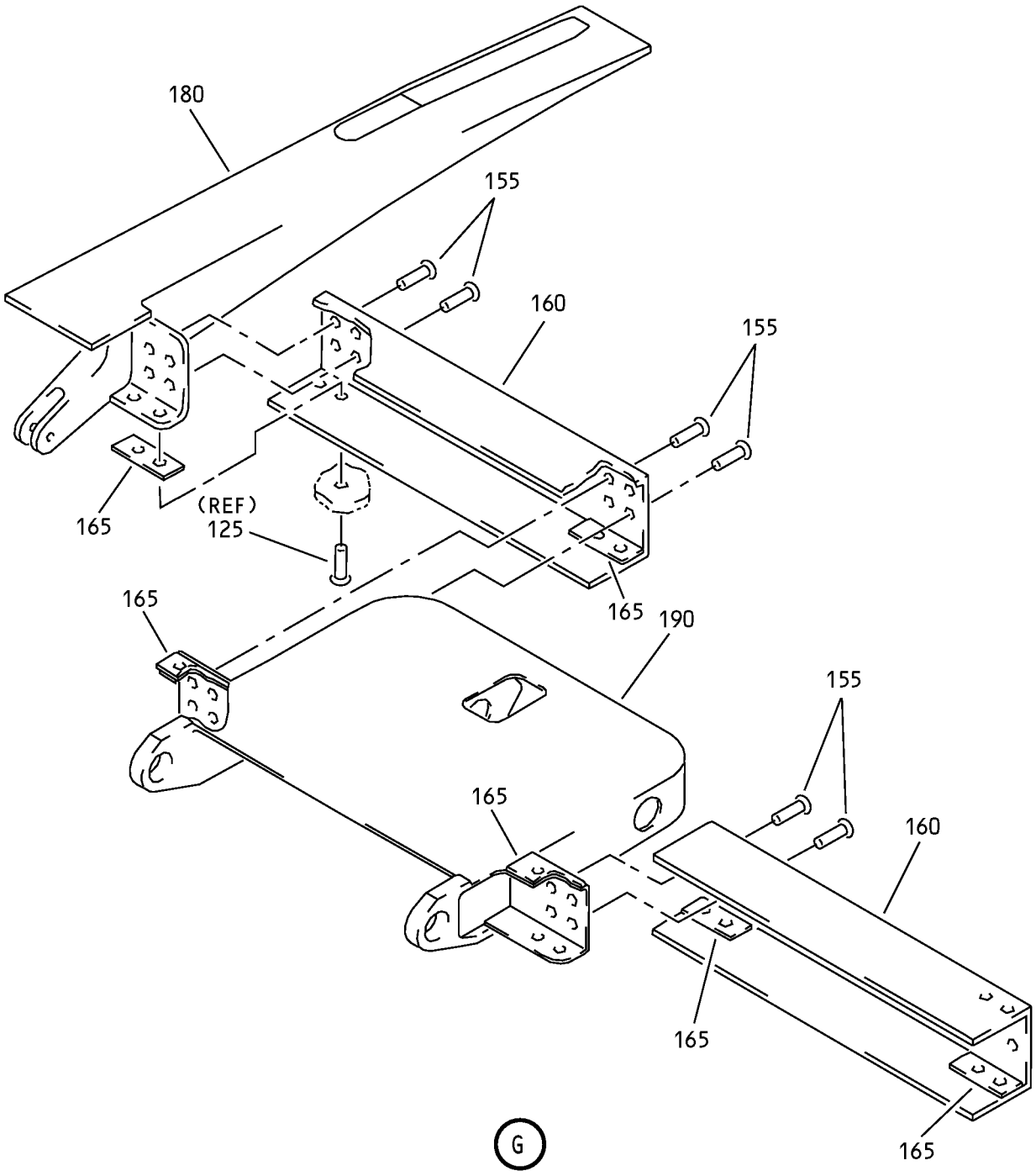
No. 3 and No. 10 Flight Spoiler Assembly
IPL Figure 1 (Sheet 2 of 6)



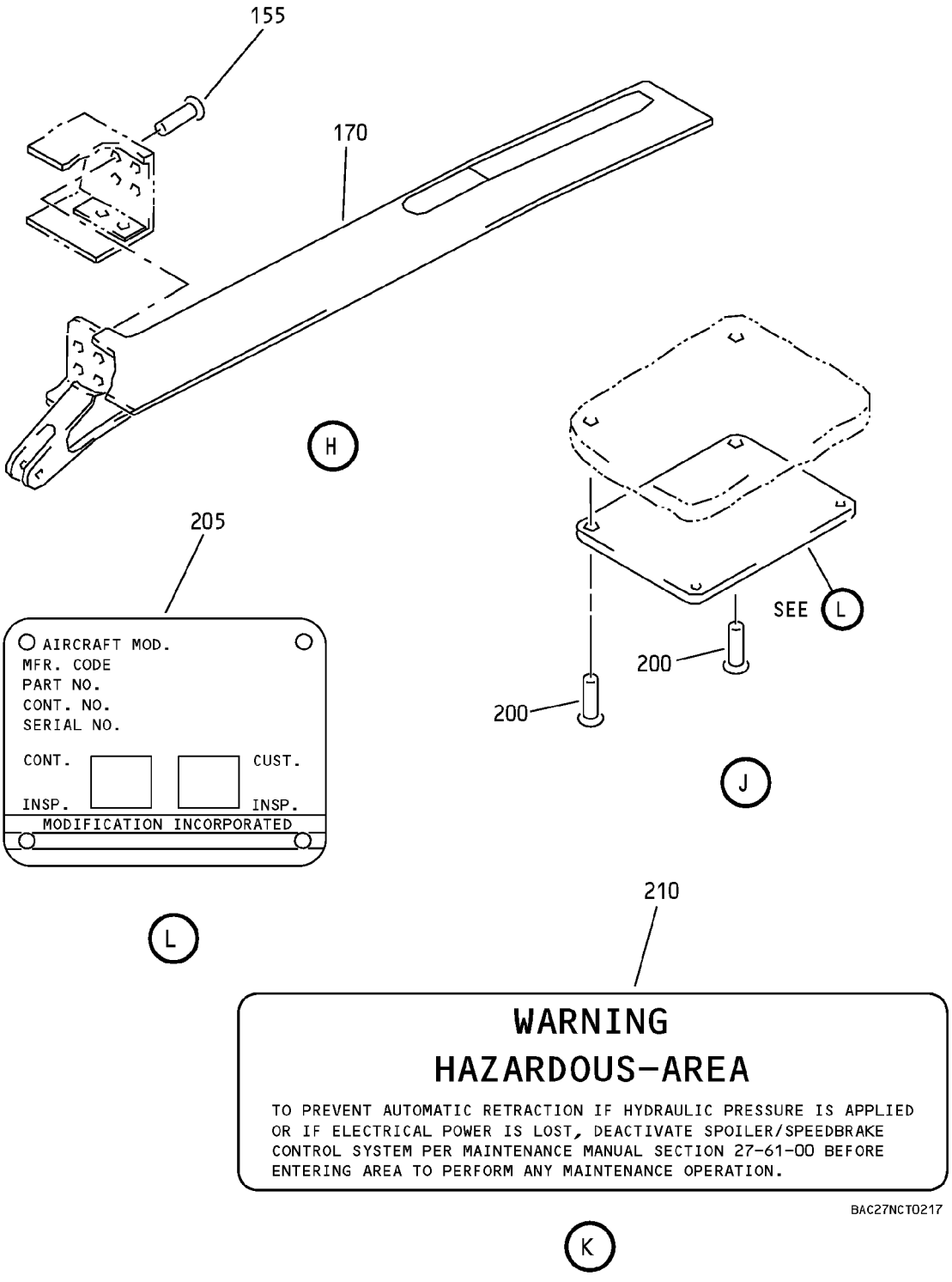
No. 3 and No. 10 Flight Spoiler Assembly
IPL Figure 1 (Sheet 3 of 6)



No. 3 and No. 10 Flight Spoiler Assembly
IPL Figure 1 (Sheet 4 of 6)



No. 3 and No. 10 Flight Spoiler Assembly
IPL Figure 1 (Sheet 5 of 6)



No. 3 and No. 10 Flight Spoiler Assembly
IPL Figure 1 (Sheet 6 of 6)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1A	113A4300-1		SPOILER ASSY-NO. 3 AND NO. 10, FLIGHT	A	RF
–1B	113A4300-3		SPOILER ASSY-NO. 3 AND NO. 10, FLIGHT	C	RF
–5	113A4300-2		SPOILER ASSY-NO. 3 AND NO. 10, FLIGHT	B	RF
–5A	113A4300-4		SPOILER ASSY-NO. 3 AND NO. 10, FLIGHT	D	RF
10	BACB28AP04P014		. BUSHING		2
15	BACB28AT06B014C		. BUSHING		2
20	ADW06V301NC		. BEARING (V15860) (SPEC BACB10FA06GC) (OPT SWKRS06-350SC (V81376)) (OPT KSC152200BZ06GC (V50632)) (OPT KWDB06-35 (V97613)) (OPT WES06FAGC (V73134)) (OPT WHTFA06VC (VS0352))		2
25	BACB28X12M029		. BUSHING	A, B	2
–25A	BACB28X12K029		. BUSHING	C, D	2
30	BACS12GU3K7		. SCREW		2
35	NAS1149D0316J		. WASHER		6
40	H52732-3CD		. NUT (V15653) (SPEC BACN10YR3CD) (OPT PLH53CD (V62554))		2
45	940CW20-7		. JUMPER ASSY (V91812) (SPEC BACJ40AB20-7) (OPT 100220-7 (V1FF12)) (OPT RBEJ40AB20-7 (V1GK47))		2
–50	BACR15FT5D		DELETED		
50A	BACR15FT5D6		. RIVET		2
55	113A4180-1		. FITTING ASSY	A, C	1
–60	113A4180-2		. FITTING ASSY	B, D	1
65	BACB28W5B009		. . BUSHING		1
70	BACB28W3C009		. . BUSHING		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–					
75	113A4180-3		. . FITTING	A, C	1
–80	113A4180-4		. . FITTING	B, D	1
85	BACB30VF08K4		. BOLT		12
90	NAS1149DN832J		. WASHER		12
95	BACN10JC08CD		. NUT		12
100	113A4160-3		. RETAINER-SEAL	A, B	1
–100A	113A4160-11		. RETAINER-SEAL	C, D	1
105	113A4160-1		. RETAINER-SEAL	A, B	1
–105A	113A4160-9		. RETAINER-SEAL	C, D	1
110	113A4150-11		. SEAL (MAKE FROM SECT RUBBER FABRIC COVERED PER BMS1-57, ALTER BAC1530-3 X 16.1)		1
115	113A4150-9		. SEAL (MAKE FROM SECT RUBBER FABRIC COVERED PER BMS1-57, ALTER BAC1530-3 X 14.9)		1
120	BACR15CE6D		. RIVET (SIZE DETERMINED ON INST)	A, B	4
–120A	BACR15GF6D7		. RIVET	C, D	4
125	BACR15FT6D		. RIVET (SIZE DETERMINED ON INST)		8
130	113A4310-1		. BOND ASSY-PNL	A, C	1
–135	113A4310-2		. BOND ASSY-PNL	B, D	1
140	113A4114-3		. . STRIP-RUB		1
145	113A4310-3		. . FRAME ASSY	A, C	1
–150	113A4310-4		. . FRAME ASSY	B, D	1
155	BACR15FT6D		. . . RIVET (SIZE DETERMINED ON INST)		16
160	113A4111-7		. . . CHANNEL		2
165	BACS40R008B018F		. . . SHIM		AR
170	113A4112-9		. . . RIB-END	A, C	1
–175	113A4112-10		. . . RIB-END	B, D	1
180	113A4112-11		. . . RIB-END	A, B	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–					
–185	113A4112-12		. . . RIB-END	B, D	1
190	113A4320-1		. . . FITTING-CTR	A, C	1
–195	113A4320-2		. . . FITTING-CTR	B, D	1
200	BACR15BB3D		. RIVET (SIZE DETERMINED ON INST)	A, B	2
–200A	BACR15BB3D4C		. RIVET	C, D	2
205	MS27253-1		. PLATE		1
210	BAC27NCT0217		. MARKER-ALUMINUM FOIL		1

–Item not Illustrated