COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

TE FLAP CONTROL VALVE ASSEMBLY

PART NUMBER 256A3580–1

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COMPONENT MAINTENANCE MANUAL

Revision No. 8
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To: All holders of TE FLAP CONTROL VALVE ASSEMBLY 27-55-85.

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
27-55-85 TESTING AND FAULT ISOLATION	Changed text.

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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	
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Temporary Revision		Inserted		Removed	
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Temporary Revision		Inserted		Removed	
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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.

TRAILING EDGE FLAP CONTROL VALVE ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. The trailing edge flap control valve assembly is made of a slide assembly installed in a housing assembly. The housing assembly has a pressure supply port, a return port, and two control ports. A solenoid valve is installed on the housing assembly.

B. The trailing edge flap control valve assembly is part of the flap control unit, which is used to control the movement of the trailing edge flaps.

2. Operation

A. As the slide moves out of the neutral position, the pressure supply port connects to one of the control ports. The return port connects to the other control port. When the slide moves in the other direction, the opposite connections are made. This controls the flow of hydraulic power to the trailing edge flap power drive unit (PDU).

B. When the solenoid valve is energized, the pressure port and the cylinder port of the solenoid valve are connected. The sleeve then moves in the housing assembly. At the flaps 30 or 40 positions, this lets the flaps retract by one position to reduce high aerodynamic loads.

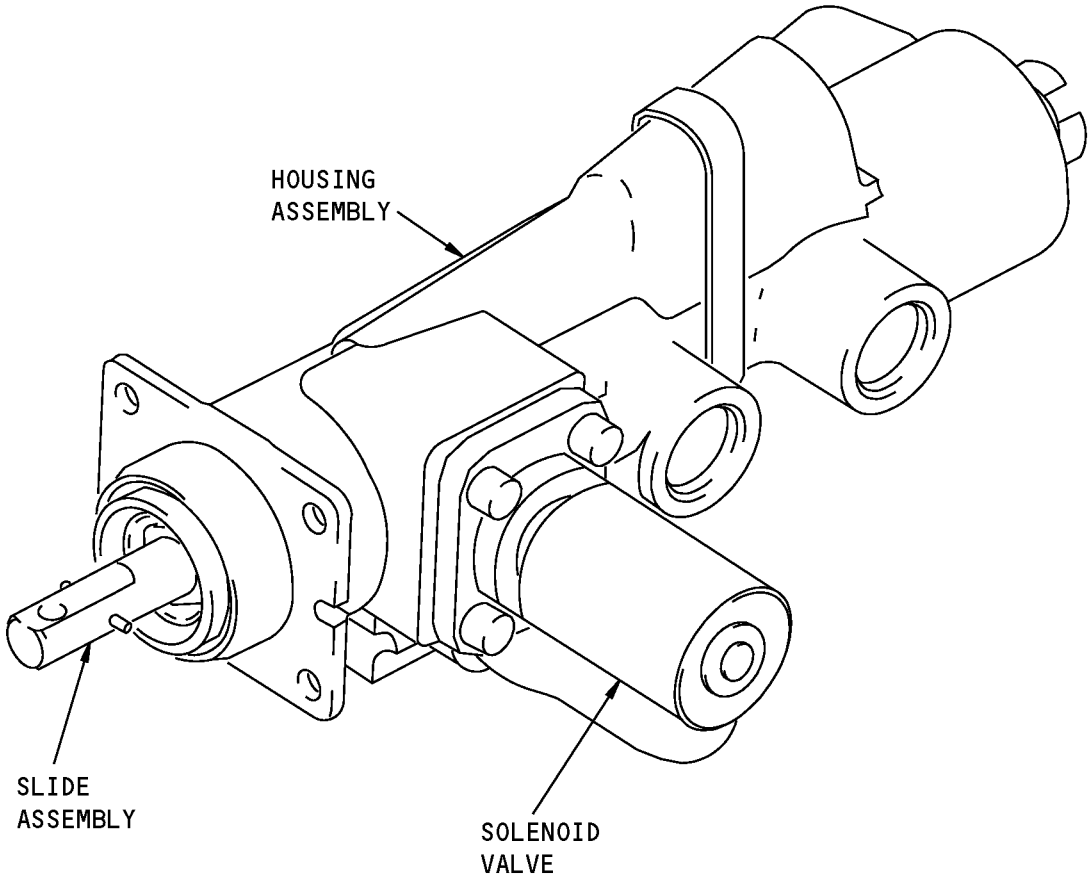
3. Leading Particulars (Approximate)

A. Length – 11.5 inches

B. Width – 4.0 inches

C. Height – 6.5 inches

D. Weight – 3 pounds



Trailing Edge Flap Control Valve Assembly
Figure 1

TESTING AND FAULT ISOLATION

1. General

A. This procedure has the data necessary to do a test of the mechanism after an overhaul or for fault isolation.

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.

D. Do the tests at room temperature. Fill the PCU assembly with BMS 3-11, Type 4 hydraulic fluid, D00153. Bleed all air from the fluid

E. Do not apply compressed air to the hydraulic ports.

2. Testing

NOTE: For lubricants, refer to SOPM 20-60-03. For disassembly instructions, refer to DISASSEMBLY. For assembly instructions, refer to ASSEMBLY.

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5436	T.E. Flap Control Valve Assembly, Test Fixture (Part #: F80232-1, Supplier: 81205)
STD-5481	Hydraulic Power Supply (0-5000 psi) which can supply 15 gal/min at 3000 psi.

B. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

C. References

Reference	Title
SOPM 20-60-03	LUBRICANTS

D. Pre-Test Procedure

(1) Install the trailing edge flap control valve in the F80232 Test Fixture, SPL-5436.

(2) Connect the trailing edge flap control valve to the Hydraulic Power Supply, STD-5481. Refer to TESTING AND FAULT ISOLATION, Figure 101 for the identification of ports.

E. Component Functional Tests

WARNING: REMOVE ALL AIR FROM THE COMPONENTS BEFORE YOU DO THESE TESTS. BLEED THE AIR FROM THE FLUID AND KEEP THE TEST UNIT FULL DURING ALL OF THE TESTS. DO NOT APPLY COMPRESSED AIR TO THE PORTS DURING THE TESTS.

(1) Do a test of the free flow through the control valve.

(a) With the solenoid valve (135) de-energized, move the input end of the slide (115) to its maximum extended position.

NOTE: The input end of the slide has the pin (105) installed in it.

1) Apply hydraulic pressure to port A. Make sure that the hydraulic fluid flows freely from the return port. Remove the hydraulic pressure.

2) Apply hydraulic pressure to port B. Make sure that the hydraulic fluid flows freely from the pressure port. Remove the hydraulic pressure.

(b) With the solenoid valve (135) de-energized, move the input end of the slide (115) to its maximum retracted position.

1) Apply hydraulic pressure to port A. Make sure that the hydraulic fluid flows freely from the pressure port. Remove the hydraulic pressure.

2) Apply hydraulic pressure to port B. Make sure that the hydraulic fluid flows freely from the return port. Remove the hydraulic pressure.

(2) Do a test of the free flow through the control valve.

(a) With the solenoid valve (135) de-energized, move the input end of the slide (115) to its maximum extended position.

NOTE: The input end of the slide has the pin (105) installed in it.

1) Apply hydraulic pressure to port A. Make sure that the hydraulic fluid flows freely from the return port. Remove the hydraulic pressure.

2) Apply hydraulic pressure to port B. Make sure that the hydraulic fluid flows freely from the pressure port. Remove the hydraulic pressure.

(3) Do the proof pressure tests.

(a) Do a proof pressure test of the pressure side of the unit.

1) Install plugs in ports A and B.

2) Apply 3000 psi hydraulic pressure to the pressure port, and energize the solenoid valve (135) with 28 v dc.

3) Put the slide in the hydraulic neutral position.

NOTE: At the hydraulic neutral position, the end of the slide (115) opposite the input end is flush with the edge of the sleeve (120).

CAUTION: DO NOT MOVE THE SLIDE (115) WHILE 4500 PSI IS APPLIED, OR THE UNIT CAN BE DAMAGED.

4) Move the slide 0.060 inch in either direction from the neutral position, and apply 4500 psi hydraulic pressure for 2 minutes.

5) Reduce the pressure to 2 psi for 2 minutes. Make sure that there is no external leakage, permanent deformation, or other damage to the unit.

6) De-energize the solenoid valve (135). Do the proof pressure test again with the slide (115) moved 0.060 inch from hydraulic neutral in the opposite direction from before.

(b) Do a proof pressure test of the return side of the unit.

1) Keep the plugs in ports A and B. Keep the solenoid valve (135) de-energized.

2) Move the slide (115) 0.060 inch in either direction from the neutral position, and apply 3000 psi hydraulic pressure to the return port for 2 minutes.

3) Reduce the pressure to 2 psi for 2 minutes. Make sure that there is no external leakage, permenent deformation, or other damage to the unit.

(4) Set the hydraulic null position.

(a) Attach pressure gages at port A and port B.

(b) Apply 3000 psi hydraulic pressure to the pressure port, with the return port open.

(c) Extend and retract the slide (115) until the pressures at port A and port B are equal, and less than 200 psi. This is the null position.

(d) Make sure that the leakage at the return port is not more than 30 cc/min at the null position.

(e) Apply 3000 psi to the pressure port with the return port open.

(f) Very slowly move the slide 0.005 inch in each direction from the null position, and monitor the pressure differential between port A and port B.

(g) Record the slide position where the pressure differential between port A and port B is 1000 psi and is decreasing.

(h) Move the slide to the position where the pressure differential between port B and port A is 1000 psi and is decreasing.

(i) Make sure that the distance between the two positions is not more than 0.002 inch.

(5) Do a check of the internal leakage.

(a) Install plugs in ports A and B.

(b) With the solenoid valve (135) de-energized, pull the input end of the slide (115) to its maximum extended position.

(c) Apply 3000 psi hydraulic pressure to the pressure port. Make sure that the leakage at the return port is not more than 20 cc/min.

(d) Push the input end of the slide (115) to its maximum retracted position, and do the check again.

(e) Make sure that the leakage at the return port is not more than 20 cc/min.

(6) Measure the force to operate the slide.

(a) Install plugs in ports A and B, then apply 3000 psi hydraulic pressure to the pressure port.

(b) Extend and retract the slide for at least 5 cycles. Make sure that there is no indication of binding, rough movement, external leakage, or other unsatisfactory operation.

(c) Measure the force to move the slide in each direction over the full range of slide movement. Make sure that the force is not more than the following limits:

1) 25 pounds when the slide is more than 0.65 inch away from hydraulic null;

2) 20 pounds when the slide is less than 0.65 inch away from hydraulic null;

3) 10 pounds in the last 0.02 inch of travel in the direction of hydraulic null.

(7) Measure the flow against the slide displacement (position).

(a) Interconnect ports A and B, then apply 3000 psi hydraulic pressure to the pressure port.

(b) Slowly retract the slide and make a plot of flow versus slide displacement. Make sure that the flow curve is between the limits shown in TESTING AND FAULT ISOLATION, Figure 102.

(c) Do the test again with the slide moved in the opposite direction. Make sure that the flow curve stays between the limits shown in the figure.

(8) Do a check of the sleeve operation.

(a) Install plugs in ports A and B, then apply 3000 psi hydraulic pressure to the pressure port.

(b) Move the slide (115) to the hydraulic neutral position and hold it in position. Energize the solenoid valve (135) with 28v dc.

(c) Move the slide (115) until you get the hydraulic null position again. Make sure that the slide travel is 0.080 to 0.090 inch.

(d) De-energize the solenoid valve (135). Make sure that the sleeve (120) goes back to the initial position.

(9) Measure the distance the slide can travel.

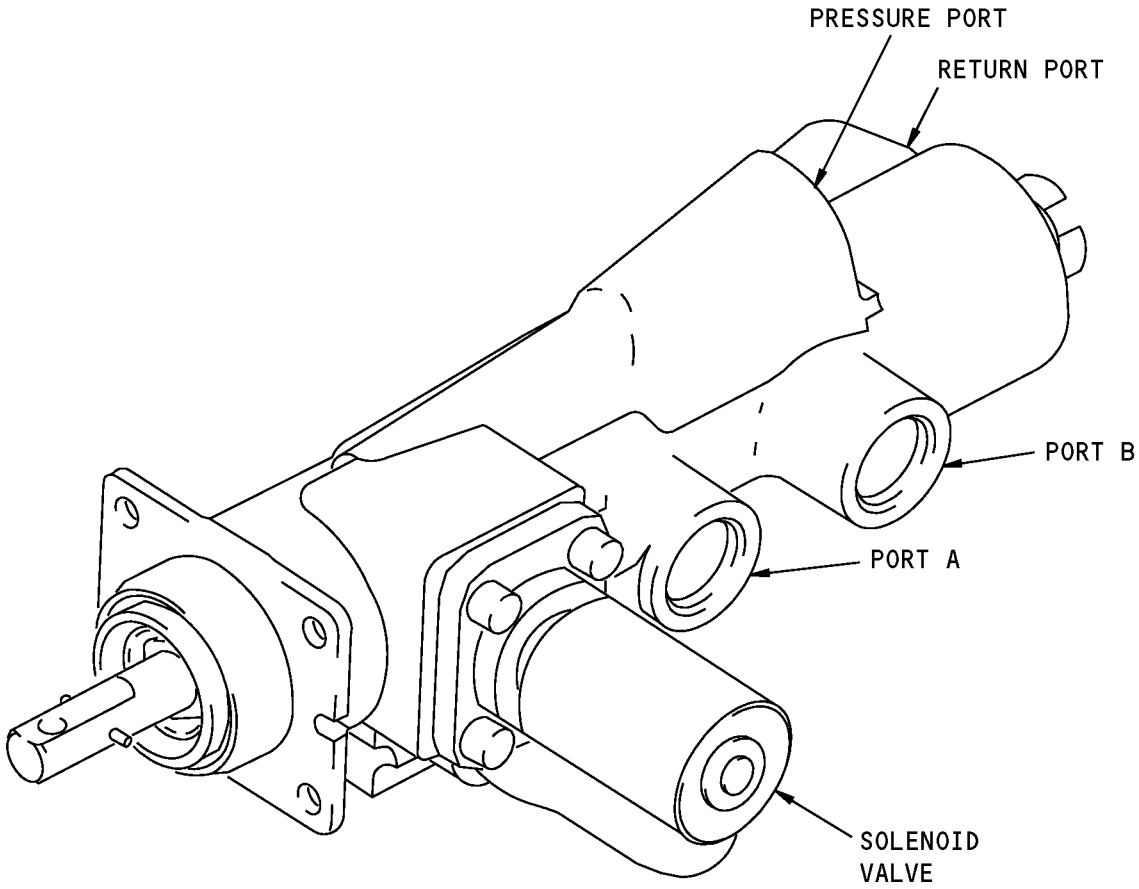
(a) Set the slide (115) at hydraulic null, then pull the input end of the slide out to its maximum extended position. Make sure that the slide travel is not less than 0.680 inch from hydraulic null.

(b) Set the slide (115) back to hydraulic null, then push the input end of the slide in to its maximum retracted position. Make sure that the slide travel is not less than 0.680 inch from hydraulic null.

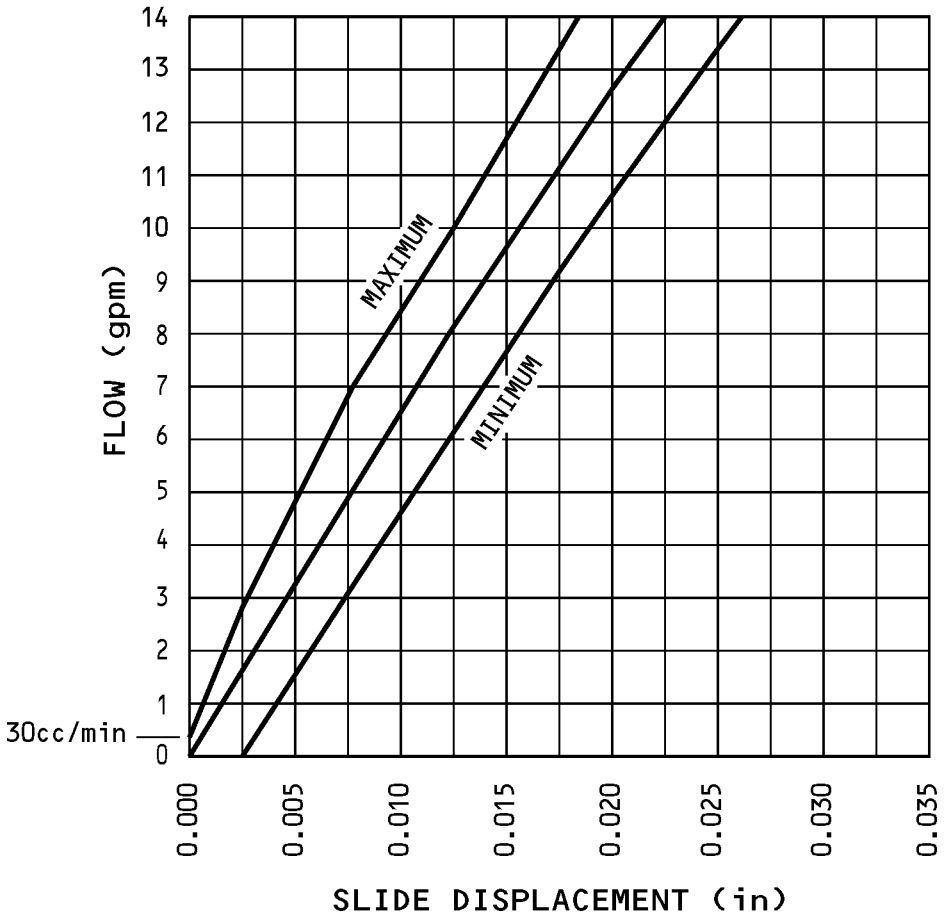
F. Post-test Procedures:

(1) Inspect all of the ports and examine the unit for damage.

(2) Flush and fill the unit with hydraulic fluid, D00153.



Identification of Hydraulic Ports
Figure 101



Flow-Slide Displacement Diagram
Figure 102

3. **Fault Isolation Procedures**

A. Refer to TESTING AND FAULT ISOLATION, Table 101 to do fault isolation with the test results.

Table 101: Trouble Shooting Chart

TROUBLE	PROBABLE CAUSE	CORRECTIONS
Limited flow through the unit	Blocked flow passages	Clean flow passages in the housing assembly (175)
External leakage	Defective packings (20,30,50,60,70), rings (35A,55,65, 75A), or gasket plate (165)	Replace defective parts
High return leakage, high A,B pressure, or incorrect pressure gain at null position	Defective packings (40), rings (45), or slide assembly (110)	Replace packings, rings, as necessary, or replace the slide assembly as a matched set
High internal leakage	Defective packings (40) or rings (45)	Replace packings or rings, as necessary
High force to operate the slide (115)	Contamination in the slide assembly (110)	Clean the slide assembly
	Defective slide assembly (110)	Replace the slide assembly as a matched set
Incorrect flow rates	Defective slide assembly (110)	Replace the slide assembly as a matched set
Incorrect sleeve operation	Defective slide assembly (110) or defective solenoid valve (135)	Replace the slide assembly as a matched set, or replace the solenoid valve

DISASSEMBLY

1. General

A. This procedure has the data necessary to disassemble the flap control valve assembly (1A).

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 subjects identified in this procedure.

D. Refer to IPL Figure 1 for item numbers.

E. Drain the hydraulic fluid from the unit.

F. Cut and remove all lockwire from the control valve assembly (1A).

2. Disassembly

A. Parts Replacement

NOTE: The parts which follow are recommended for replacement. Unless a procedure tells you to replace a part, replacement is optional.

(1) Packings (20, 30, 40, 50, 60, 70, 85, 140)

(2) Rings (35A, 45, 55, 65, 75A)

B. Procedure

(1) Remove the screws (125A), solenoid valve (135), packing (140), and gasket plate (165A) from the control valve assembly (1A).

NOTE: Refer to the vendor's CMM for overhaul procedures for the solenoid valve.

CAUTION: THE SLIDE ASSEMBLY (110) IS A PRECISION PART. TO PREVENT DAMAGE, DO NOT TOUCH THE ASSEMBLY MORE THAN IS NECESSARY.

(2) Remove the nuts (15, 100), then remove the slide assembly (110) with the bushing (80) from the housing assembly (175). Remove the bushing from the slide assembly.

CAUTION: BE CAREFUL WHEN YOU REMOVE THE PACKINGS AND RINGS, OR DAMAGE TO THE GROOVES IN THE SLIDE ASSEMBLY (110) CAN OCCUR.

(3) Remove the packings (40, 50, 70) and rings (45, 55, 75A) from the sleeve (120).

(4) Remove the nut (5), washer (10), and pin (105) from the slide (115), then remove the slide from the sleeve (120).

(5) Remove the plug (95), seal retainer (90), and packings (20, 85) from the sleeve (120).

CAUTION: THE SLIDE (115) AND THE SLEEVE (120) ARE A MATCHED SET. KEEP THE PARTS TOGETHER TO MAKE SURE THAT THE CONTROL VALVE ASSEMBLY CAN BE ASSEMBLED CORRECTLY.

(6) Install the slide (115) back in the sleeve (120). Put the assembly in a container and seal the container. Use a rubber stamp on a tag to identify the assembly as follows: "ASSEMBLY 256A3581, MATCHED SET. KEEP THE PARTS TOGETHER AND INSTALL AS A UNIT."

(7) Remove the packing (60) and rings (65) from the housing assembly (175).

(8) Remove the seal retainer (25), packing (30) and ring (35A) from the housing assembly (175).

NOTE: Do not remove the following parts from the housing assembly (175) unless necessary for repair or replacement.

- Screws (130), snap ring (145), and connectors (150, 170).
- Nameplate (195) and strap (190)
- Inserts (180)

CLEANING

1. General

A. This procedure has the data necessary to clean the flap control valve 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. Cleaning

A. References

Reference	Title
SOPM 20-30-03	GENERAL CLEANING PROCEDURES

B. Procedure

(1) Use standard industry porcedures and refer to SOPM 20-30-03 to clean the parts of the control valve assembly.

NOTE: Before you clean the housing assembly (175), put a mask or cover over the electrical connectors (150, 170), if they are installed.

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 dimensions 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. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜able & intermixable with Type V)

B. References

Reference	Title
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-20-02	PENETRANT METHODS OF INSPECTION
SOPM 20-60-03	LUBRICANTS

C. Procedures

NOTE: For lubricants, refer to SOPM 20-60-03

(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:

(2) Do a magnetic particle check (SOPM 20-20-01) of these parts:

(a) Slide (115)

(b) Sleeve (120)

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

(a) Nut (15, 100)

(b) Seal retainer (25, 90)

(c) Bushing (80)

(d) Plug (95)

(e) Housing (185)

(4) Do a check of the sleeve (120) and the slide (115) for signs of damage to the edges of grooves, passages, or lands.

(5) Do a check of the friction in the slide assembly (110).

(a) Lubricate the slide (115) and the sleeve (120) with hydraulic fluid, D00153.

(b) Put the slide assembly (110) in a vertical position.

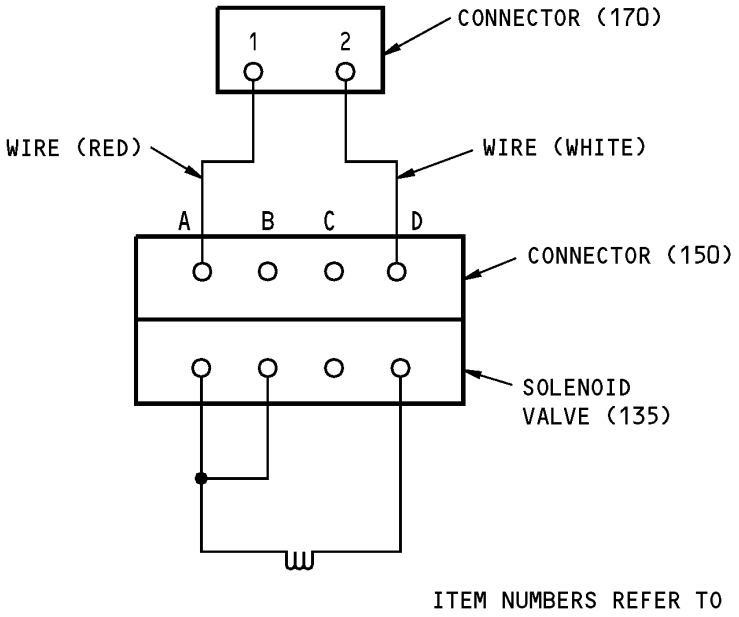
(c) Make sure that the slide (115) can fall freely in the sleeve (120).

(d) Do the check two more times, with the slide turned approximately 120 degrees each time in relation to the sleeve.

(6) Do a check of the electrical continuity between the connectors (150, 170). Refer to CHECK, Figure 501.

(7) Make sure that you can read the information on the nameplate (195).

(8) Refer to the vendor's CMM for the check procedures for the solenoid valve (135).



Electrical Diagram
Figure 501

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
256A3582	SLEEVE	2-1
69-54629 69-54634	SEAL RETAINER SEAL RETAINER	3-1
69-54632	SLIDE	4-1
69-54636	BUSHING	5-1
000100-0113 AS203-20001 BACC45FN10-20P	CONNECTOR CONNECTOR CONNECTOR	6-1
BAC27DHY373	MARKER	7-1

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)
Ø	DIAMETER
S Ø	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
◎ | Ø 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
⌖ | Ø 0.002 Ⓢ | B	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
⊥ | Ø 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. References

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

B. General

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

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.

(1) Refer to REPAIR 1-1, Table 601 for the refinish of other parts.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
Nut (15,100) Plug (95) Housing (185)	Aluminum alloy	Chromic acid anodize (F-17.02)

SLEEVE - REPAIR 2-1

256A3582–1

1. General

CAUTION: THE SLEEVE (120) IS A PRECISION PART. TO PREVENT DAMAGE, DO NOT TOUCH THE SLEEVE MORE THAN IS NECESSARY.

CAUTION: IF THE SLEEVE (120) NEEDS REPLACEMENT, REPLACE THE SLEEVE WITH THE SLIDE (115) AS A MATCHED SET.

A. This procedure has the data necessary to repair and refinish the sleeve (120).

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: Nitralloy Steel, Core Strength - 150-200 ksi, 52100 Steel (optional)

2. Sleeve Repair

A. References

Reference	Title
SOPM 20-10-01	REPAIR AND REFINISH OF HIGH STRENGTH STEEL PARTS
SOPM 20-10-04	GRINDING OF CHROME PLATED PARTS
SOPM 20-20-01	MAGNETIC PARTICLE INSPECTION
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

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

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.

(1) Machine the sleeve (120) OD as necessary to remove damage or defects, but only on the surfaces shown in REPAIR 2-1, Figure 601 (SOPM 20-10-01). Do not decrease the diameters to less than the repair limits shown in the figure.

(2) Break all sharp edges.

(3) Do a magnetic particle check (SOPM 20-20-01) of the machined areas.

(4) Stress relieve the part at 25-75 deg F less than the initial tempering temperature, approximately 1075 deg F, for 3 hours.

(5) Build up the machined areas with chrome plate (F-15.03) as shown in REPAIR 2-1, Figure 601.

(6) Grind the chrome plate (SOPM 20-10-04) to the design dimensions. Make sure to keep the surface finish shown in the figure.

3. Sleeve Refinish

A. References

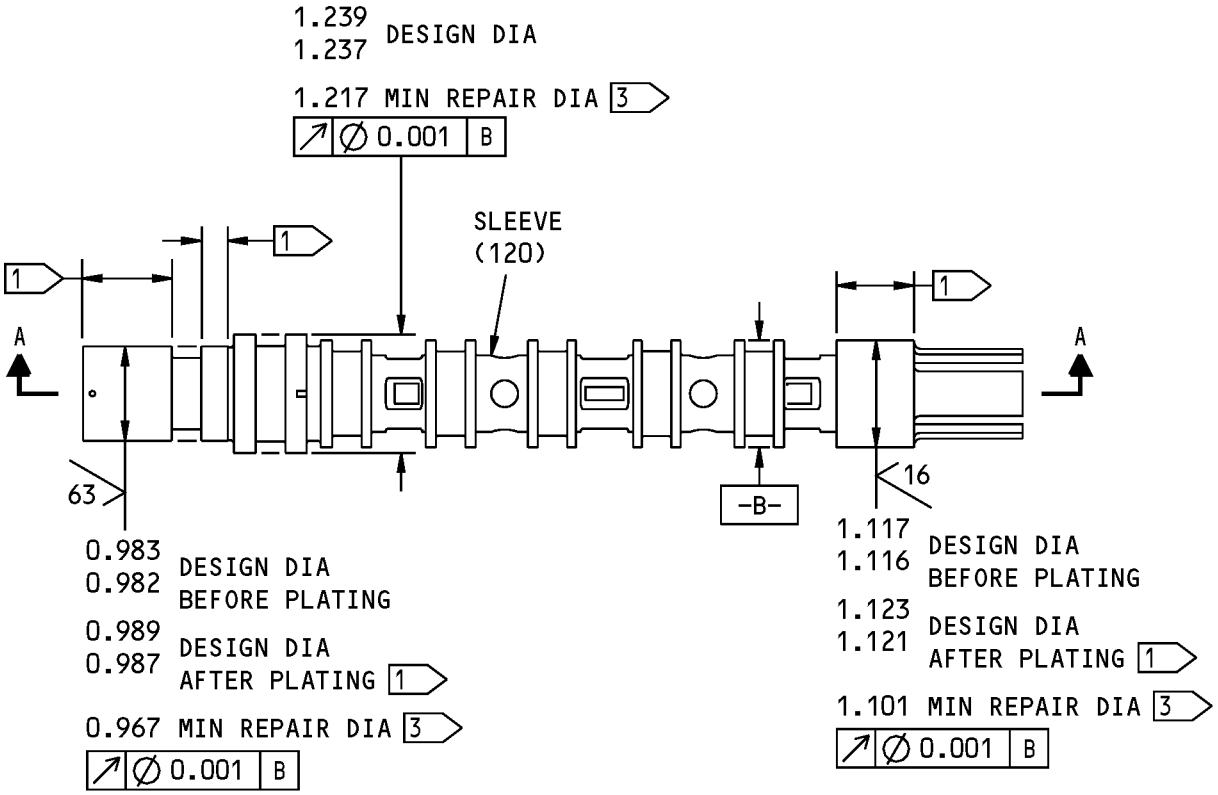
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

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

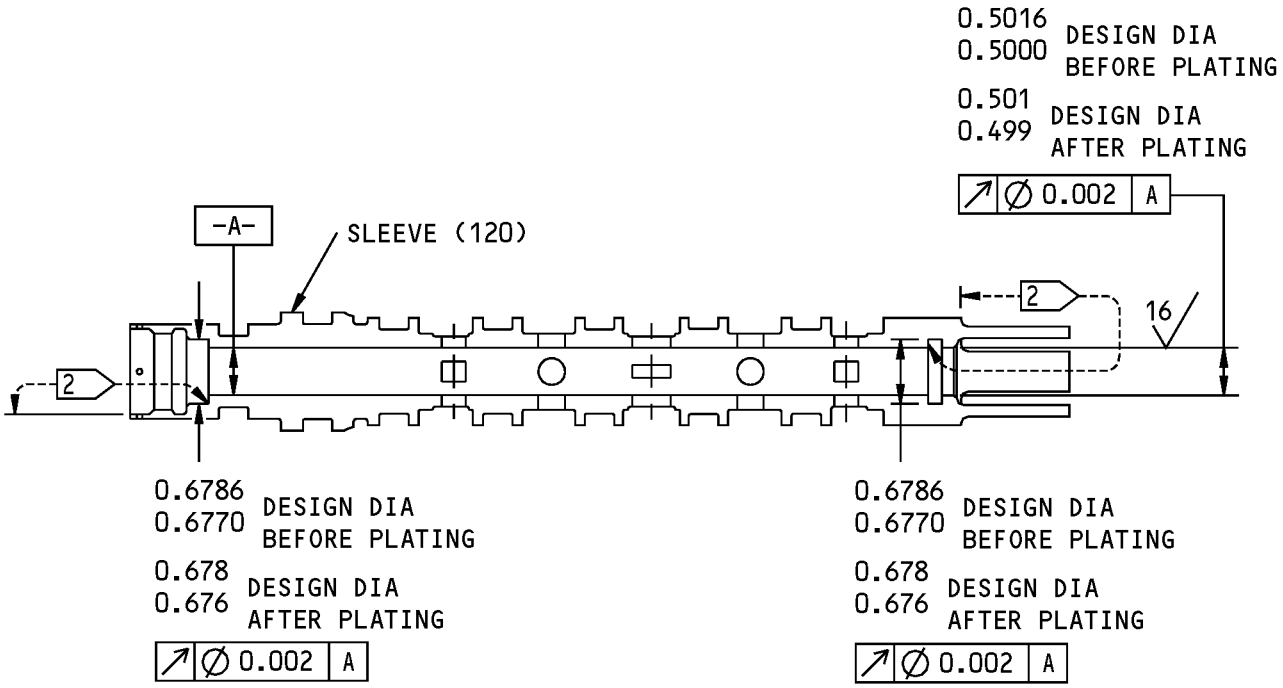
NOTE: For stripping of protective finishes, refer to SOPM 20-30-02. For the decoding table for Boeing finish codes, refer to SOPM 20-41-01.

(1) Apply cadmium plate (F-1.32) to the surfaces shown in REPAIR 2-1, Figure 601.

(2) Apply chrome plate (F-15.03) to the surfaces shown in REPAIR 2-1, Figure 601.



256A3582-1 Control Valve Sleeve Repair
Figure 601 (Sheet 1 of 2)



A–A

1 CHROME PLATE (F-15.03) ON THESE SURFACES ONLY. SINGLE PLATING THICKNESS 0.003-0.005

2 CADMIUM PLATE (F-1.32) ON THESE SURFACES ONLY. SINGLE PLATING THICKNESS 0.0003-0.0005

3 BUILD UP WITH CHROME PLATE (F-15.03). GRIND TO DESIGN DIMENSION AND FINISH SHOWN. 0.010 MAXIMUM THICKNESS OF CHROME PLATE AFTER GRINDING

BREAK ALL SHARP EDGES

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

256A3582-1 Control Valve Sleeve Repair
Figure 601 (Sheet 2 of 2)

SEAL RETAINER - REPAIR 3-1

69-54629–1, 69-54634–1

1. General

A. This procedure has the data necessary to replace or refinish the seal retainer (25, 90).

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: Aluminum-Nickel-Bronze

2. Replacement

A. Measure the ID of the seal retainer (25, 90).

B. Replace the seal retainer if the ID is larger than the service wear limit shown in REPAIR 3-1, Figure 601.

3. Refinish

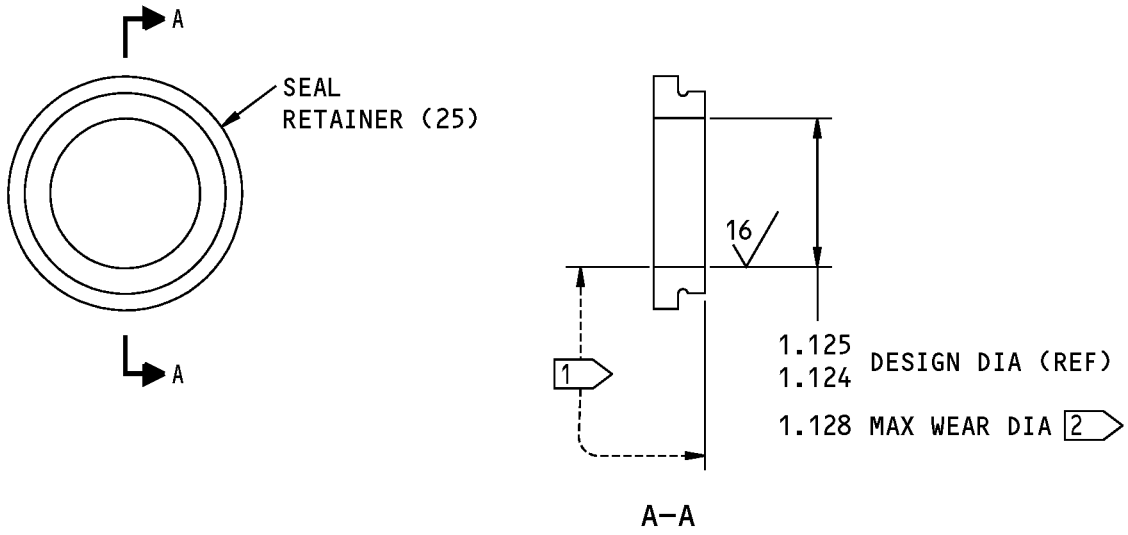
A. References

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

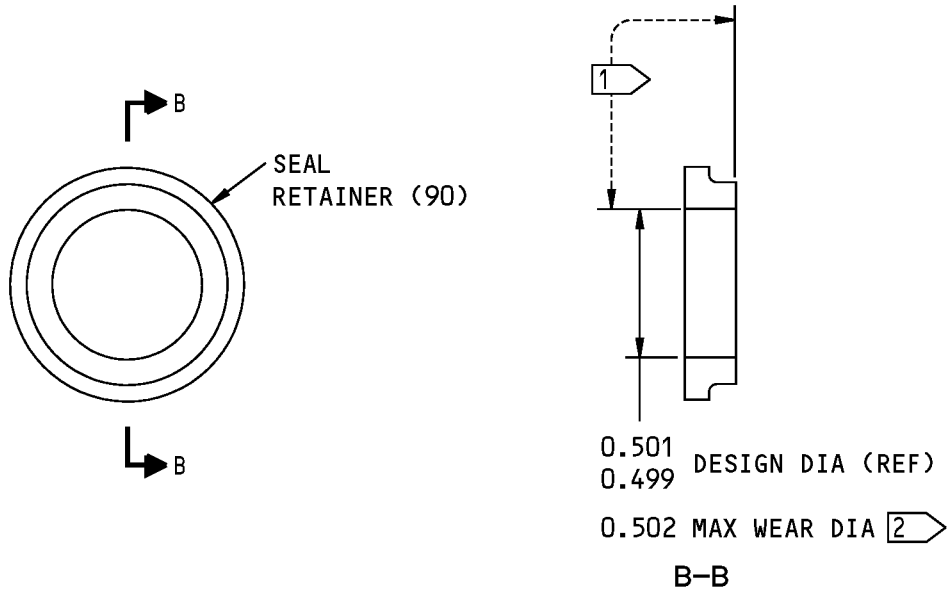
B. Procedure (REPAIR 3-1, Figure 601)

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.

(1) Apply cadmium plate (F-4.201), with single plating thickness of 0.0003-0.0005 inch, to the surfaces shown in REPAIR 3-1, Figure 601.



69–54629–1



69–54634–1

1 CADMIUM PLATE (F–4.201) ON THESE SURFACES ONLY. SINGLE PLATING THICKNESS 0.0003–0.0005

2 REPLACE PART IF WEAR IS MORE THAN THE LIMIT

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

69-54629-1,69-54634-1 Seal Retainer Refinish or Replacement
Figure 601

SLIDE - REPAIR 4-1

69-54632–1

1. General

CAUTION: THE SLIDE (115) IS A PRECISION PART. TO PREVENT DAMAGE, DO NOT TOUCH THE SLIDE MORE THAN IS NECESSARY.

CAUTION: IF THE SLIDE (115) NEEDS REPLACEMENT, REPLACE THE SLIDE WITH THE SLEEVE (120) AS A MATCHED SET. NO REWORK OF THE SLIDE IS PERMITTED.

A. This procedure has the data necessary to refinish the slide (115).

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.

D. General repair details:

(1) Material: Nitralloy Steel, Core Strength - 150-200 ksi, 52100 Steel (optional)

2. Refinish

A. References

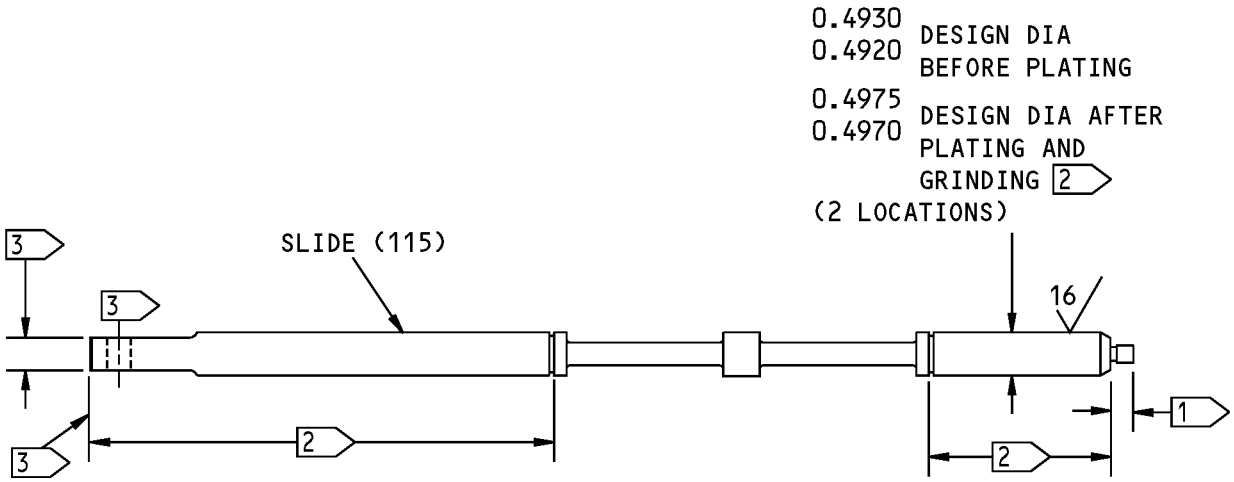
Reference	Title
SOPM 20-30-02	STRIPPING OF PROTECTIVE FINISHES
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES

B. Procedure (REPAIR 4-1, Figure 601)

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.

(1) Apply cadmium plate (F-1.32), with single plating thickness of 0.0003-0.0005 inch, to the areas shown in REPAIR 4-1, Figure 601.

(2) Apply chrome plate (F-1.90), with single plating thickness of 0.003-0.005 inch, to the areas shown in REPAIR 4-1, Figure 601.



1 CADMIUM PLATE (F-1.32) SINGLE PLATING THICKNESS 0.0003-0.0005

2 CHROME PLATE (F-1.90). SINGLE PLATING THICKNESS 0.003-0.005

3 CADMIUM PLATE (F-1.32) OPTIONAL ON FLATS, HOLE, AND END FACE. SINGLE PLATING THICKNESS 0.0003-0.0005

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

69-54632-1 Control Valve Slide Refinish
Figure 601

BUSHING - REPAIR 5-1

69-54636–1

1. General

A. This procedure has the data necessary to replace or refinish the bushing (80).

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: Aluminum-Nickel-Bronze

2. Replacement

A. Measure the ID of the bushing (80).

B. Replace the bushing if the ID is larger than the service wear limit shown in REPAIR 5-1, Figure 601.

3. Refinish

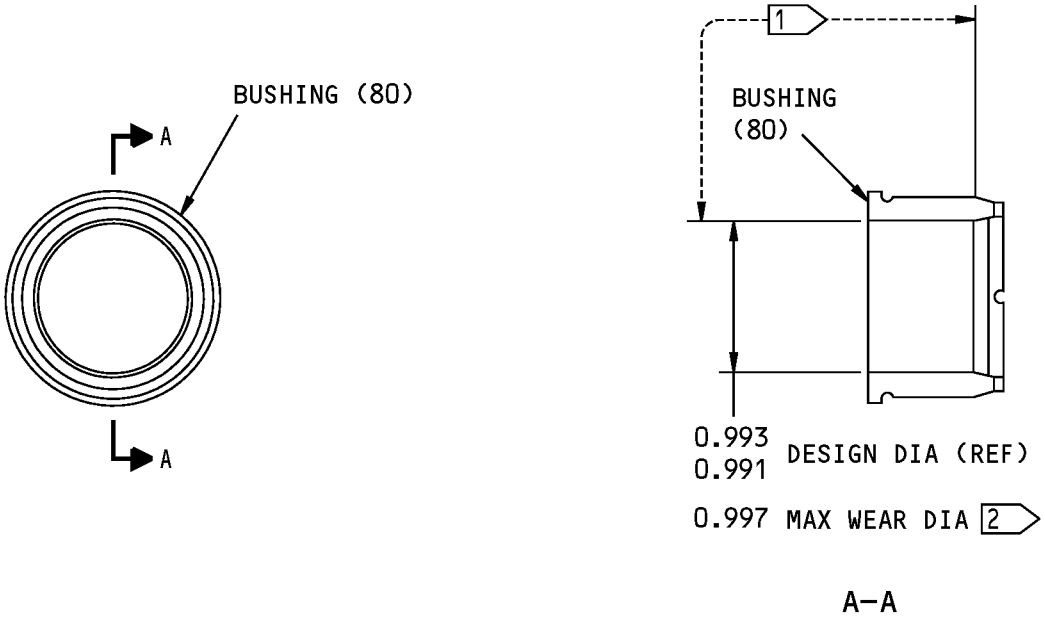
A. References

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

B. Procedure (REPAIR 5-1, Figure 601)

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.

(1) Apply cadmium plate (F-4.201), with single plating thickness of 0.0003-0.0005 inch, to the surfaces shown in REPAIR 5-1, Figure 601.



1 CADMIUM PLATE (F-4.201) ON THESE SURFACES ONLY. SINGLE PLATING THICKNESS 0.0003-0.0005

2 REPLACE PART IF WEAR IS MORE THAN THE LIMIT

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

69-54636-1 Bushing Refinish
Figure 601

CONNECTOR - REPAIR 6-1

000100-0113, AS203-20001, BACC45FN10-20P

1. General

A. This procedure has the data necessary to replace the electrical connectors (150, 170) on the housing assembly (175).

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. Replacement

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
A00209	Compound - Silicone Rubber - Dow Corning RTV3110	

B. References

Reference	Title
SOPM 20-11-02	REPAIR OF ELECTRICAL CONNECTORS

C. Procedure

(1) Remove the screws (130), connector (170), snap ring (145) and connector (150) from the housing assembly (175). Cut the wires (157, 158) to remove the connectors.

NOTE: Remove some of the potting compound from the space between the connectors to make the parts removal easier. Be careful not to damage the connectors or the housing assembly.

(2) Clean the hole in the housing assembly (175) where the electrical wire connections are installed.

(3) Install new wires (157, 158) and tubing (155) between the connectors (150, 170) and through the housing assembly (175), as shown in REPAIR 6-1, Figure 601 (SOPM 20-11-02).

(4) Do a check of the electrical continuity between the connectors (150, 170) (CHECK).

(5) Install the connector (170) on the housing assembly (175) with the screws (130). Tighten the screws to 25-35 pound-inches.

(6) Install the connector (150) and the snap ring (145) on the housing assembly.

(7) Fill the hole in the housing assembly (175) with Dow Corning 3110 RTV silicone rubber compound, A00209, as follows:

(a) Mix 100 parts, by weight, of Silastic RTV 3110 rubber with 4 parts, by weight, of 3110 catalyst in a clean container.

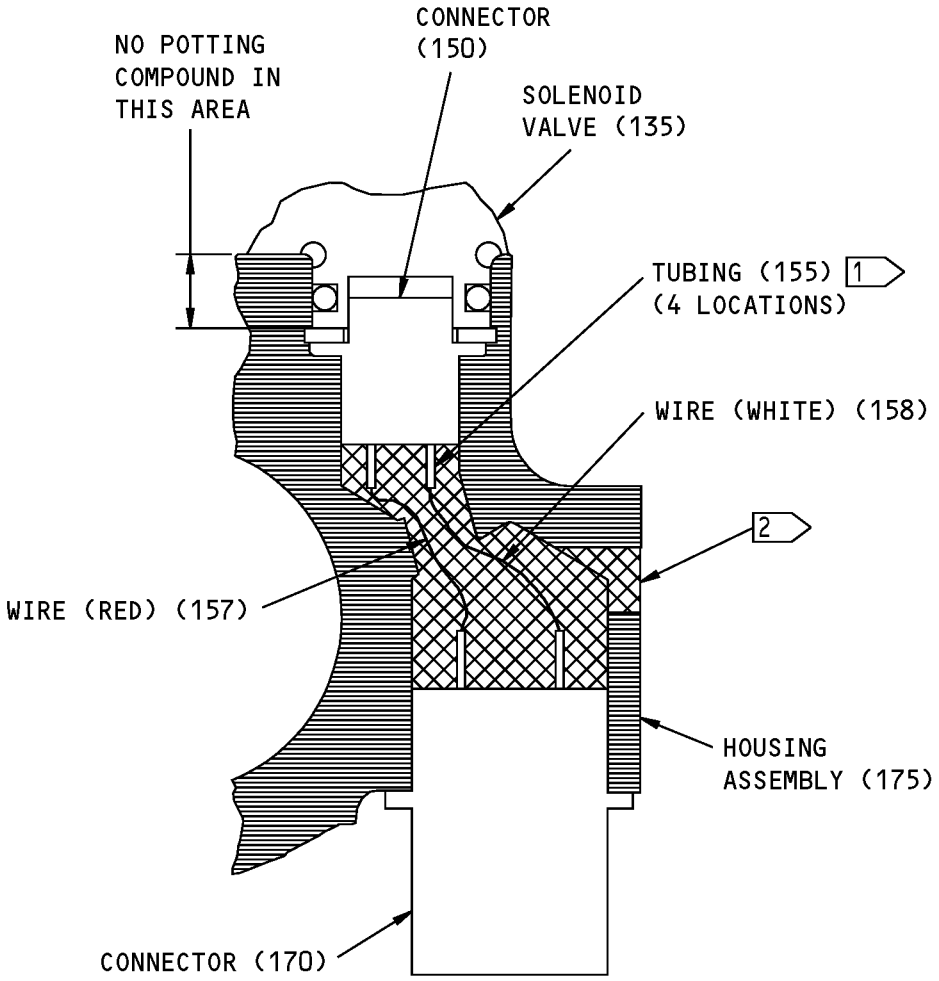
(b) Use a vacuum of 25 inches of mercury or more to remove air from the mixed compound.

(c) Slowly put the compound into the hole in the housing assembly (175). Let the air come out through the hole.

(d) If there is too much compound, remove it so the surface of the compound is flush with the housing assembly (175).

(e) Cure the compound for 24 hours at room temperature, until the material is set up. As an alternative, cure the compound for 5 hours at 100 deg F, or for 45 minutes at 150 deg F.

(8) Do a check again of the electrical continuity between the connectors (150, 170) (CHECK).



1 HEAT-SHRINK THE TUBING (SOPM 20-11-02)

2 FILL WITH POTTING COMPOUND. MAKE THE SURFACE FLUSH

ITEM NUMBERS REFER TO IPL FIG. 1

Connector Installation
Figure 601

MARKER - REPAIR 7-1

BAC27DHY373

1. General

A. This procedure has the data necessary to replace the marker (195).

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. Marker Replacement

A. References

Reference	Title
SOPM 20-50-10	APPLICATION OF STENCILS, INSIGNIA, SILK SCREEN, PART NUMBERING AND IDENTIFICATION MARKINGS

B. Procedure

(1) Remove the damaged or defective marker (195).

(2) Steel stamp the assembly dash number and serial number on the new marker (195) (SOPM 20-50-10).

(3) Bend the marker (195) to the contour of the housing assembly (175).

(4) Install the marker (195) on the housing assembly. Put the strap (190) through the slots in the marker and bend back the strap to get a tight fit.

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the flap control valve assembly (1A).

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
C00259	Primer - Chemical And Solvent Resistant Finish, Epoxy Resin	BMS10-11, Type I
D00054	Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B)	
D00153	Fluid - Hydraulic, Erosion Arresting, Fire Resistant	BMS3-11 Type IV (interchange˜ able & intermixable with Type V)
G01048	Lockwire - Corrosion Resistant Steel (0.032 In. Dia.)	NASM20995˜ C32

B. References

Reference	Title
SOPM 20-41-01	DECODING TABLE FOR BOEING FINISH CODES
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES
SOPM 20-50-06	INSTALLATION OF O-RINGS AND TEFLON SEALS
SOPM 20-60-02	FINISHING MATERIALS
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For the decoding table for Boeing finish codes, refer to SOPM 20-41-01. For installation of o-rings and teflon seals, refer to SOPM 20-50-06. 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) Lubricate the packings (20, 30, 40, 50, 60, 70, 60) and rings (35A, 45, 55, 65, 75A) with a small quantity of hydraulic fluid, D00153 or MCS 352B fluid, D00054 before installation.

(3) Lubricate the threads on the parts with hydraulic fluid, D00153 or MCS 352B fluid, D00054 before assembly.

CAUTION: THE SLIDE ASSEMBLY (110) IS A PRECISION PART. TO PREVENT DAMAGE, DO NOT TOUCH THE ASSEMBLY MORE THAN IS NECESSARY.

(4) Remove the slide (115) from the sleeve (120).

(5) Install the packings (20, 85), seal retainer (90), and plug (95) in the sleeve (120). Tighten the plug to 20-30 pound-inches.

(6) Install lockwire, G01048 between the plug (95) and the sleeve (120). Use the double-twist procedure (SOPM 20-50-02).

(7) Install the pin (105) in the input end of the slide (115) with wet primer, C00259(SRF-12.46).

CAUTION: THE SLIDE ASSEMBLY (110) IS A PRECISION PART. BE CAREFUL WHEN YOU INSTALL THE SLIDE IN THE SLEEVE. THE PARTS CAN BE DAMAGED EASILY.

(8) Apply a small quantity of hydraulic fluid, D00153 or MCS 352B fluid, D00054 to the slide (115), then install the slide in the sleeve (120). Install the washer (10) and nut (5) on the slide.

(9) Install the packings (30, 60), rings (35A, 65), seal retainer (25), and nut (15) in the housing assembly (175). Tighten the nut (15) to 50-60 pound-inches.

(10) Install the packings (40, 50, 70), rings (45, 55, 75A) and bushing (80) on the slide assembly (110), then install the slide assembly into the housing assembly (175).

(11) Install the nut (100) in the housing assembly (175). Tighten the nut to 50-60 pound-inches.

(12) Install the packing (140) on the solenoid valve (135). Install the solenoid valve and the gasket plate (165A) on the housing assembly (175) with the screws (125A). Tighten the screws to 25-35 pound-inches.

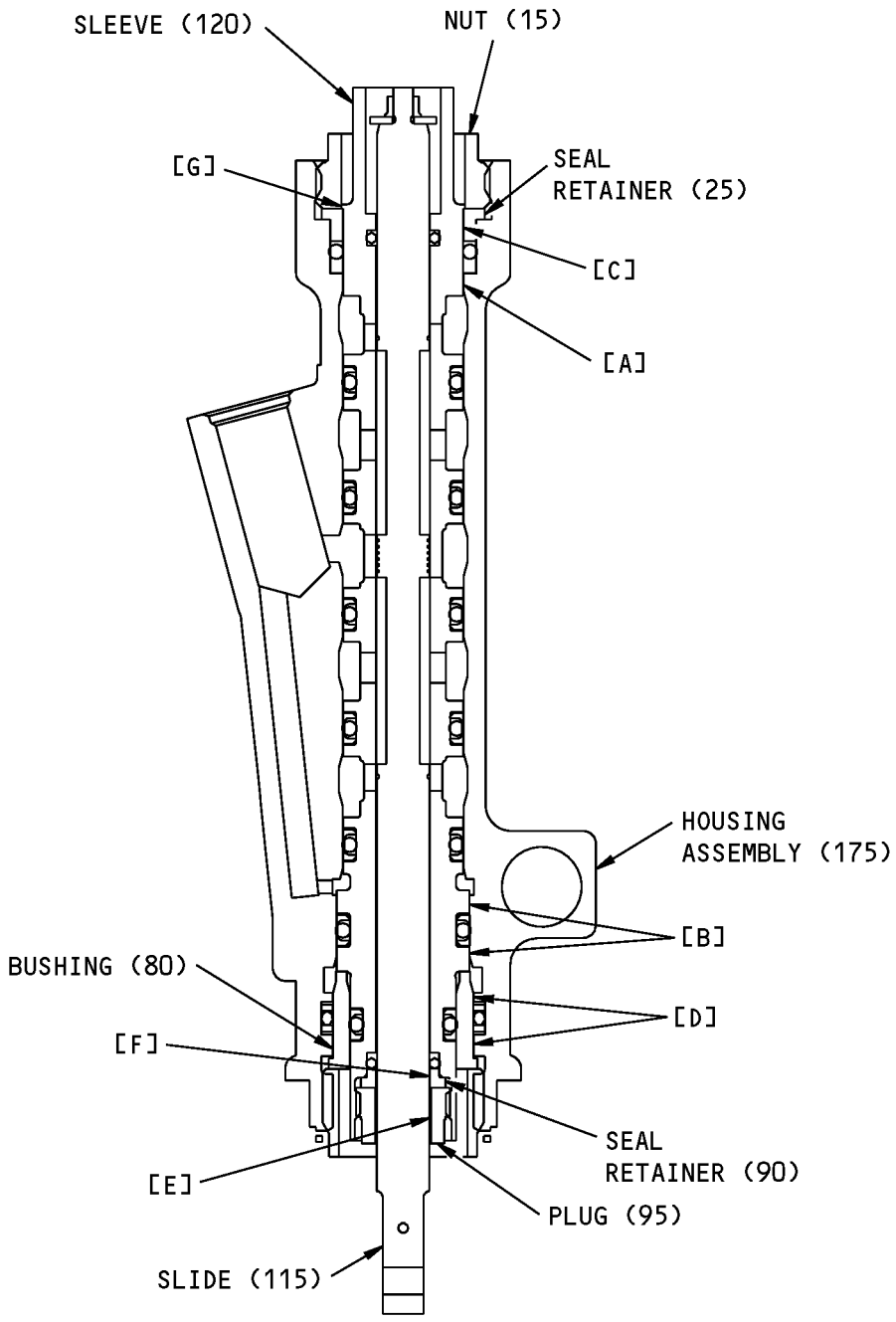
(13) Do a component functional test of the flap control valve assembly. Refer to TESTING AND FAULT ISOLATION.

(14) Install lockwire, G01048 between parts, as follows. Use the double-twist procedure (SOPM 20-50-02).

(a) Nuts (15, 100) to the housing assembly (175)

(b) Screws (125A) to each other, in pairs

(c) Screws (130) to each other, in pairs



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 175	1.125	1.127	0.002	0.006		1.131	0.008
	OD 120	1.121	1.123			1.119		
[B]	ID 175	1.241	1.243	0.002	0.006		1.247	0.008
	OD 120	1.237	1.239			1.235		
[C]	ID 25	1.124	1.125	0.001	0.004		1.128	0.005
	OD 120	1.121	1.123			1.120		
[D]	ID 80	0.991	0.993	0.002	0.006		0.997	0.007
	OD 120	0.987	0.989			0.985		
[E]	ID 95	0.510	0.530	0.0125	0.0330		0.540	0.043
	OD 115	0.4970	0.4975			0.4965		
[F]	ID 90	0.499	0.501	0.0015	0.0040		0.502	0.006
	OD 115	0.4970	0.4975			0.4965		
[G]	ID 15	1.140	1.160	0.017	0.039		1.170	0.045
	OD 120	1.121	1.123			1.120		

* ALL DIMENSIONS ARE IN INCHES

1 NEGATIVE VALUES ARE FOR INTERFERENCE FIT

Fits and Clearances
Figure 801 (Sheet 2 of 2)

REF IPL		NAME	TORQUE*	
FIG. NO.	ITEM NO.		POUND-INCHES	POUND-FEET
1	15	Nut	50-60	
1	95	Plug	20-30	
1	100	Nut	50-60	
1	125A	Screw	25-35	

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

Torque Table
Figure 802

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

1. General

A. This section lists the special tools, fixtures, and equipment necessary for maintenance.

NOTE: Equivalent substitutes may be used.

Special Tools

Reference	Description	Part Number	Supplier
SPL-5436	T.E. Flap Control Valve Assembly, Test Fixture	F80232-1	81205

Tool Supplier Information

CAGE Code	Supplier Name	Supplier Address
81205	THE BOEING COMPANY	17930 INTERNATIONAL BLVD. SOUTH SEATAC, WA 98188-4321 Telephone: 206-662-6650 Facsimile: 206-662-7145

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
02107	FLOUROCARBON CO OHIO DIV DOVER, OHIO 44622 CANCELLED NO REPLACEMENT FORMERLY SPARTA MANUFACTURING CO
02886	DODGE-WASMUND MFG CO INC 9607 BEVERLY ROAD PICO RIVERA, CALIFORNIA 90660-2136
05574	VIKING ELECTRONICS INC. 5455 ENDEAVOUR CT MOORPARK, CALIFORNIA 93021 FORMERLY VIKING IND DATACON DIV; VIKING SPECIAL PROD V53156; FORMERLY VIKING CONN SUB OF CRITON CORP; ARIZONA INTEGRATED ELEC V0P9C6; FORMERLY IN CHATSWORTH, CA
05939	FURON CO MECHANICAL SEAL DIV 7301 ORANGEWOOD AVE GARDEN GROVE, CALIFORNIA 92841-1411 FORMERLY FLUOROCARBON CO; FORMERLY IN LOST ALAMITOS, CA
07128	TETRAFLUOR INC 2051 EAST MAPLE AVENUE EL SEGUNDO, CALIFORNIA 90245-5009 FORMERLY ROYAL IND TETRAFLUOR DIV V0667B ENGLEWOOD CALIF
09257	BUSAK AND SHAMBAN INC SEALS DIV 2531 BREMER DR PO BOX 176 FORT WAYNE, INDIANA 46801 FORMERLY SHAMBAN, W S AND CO

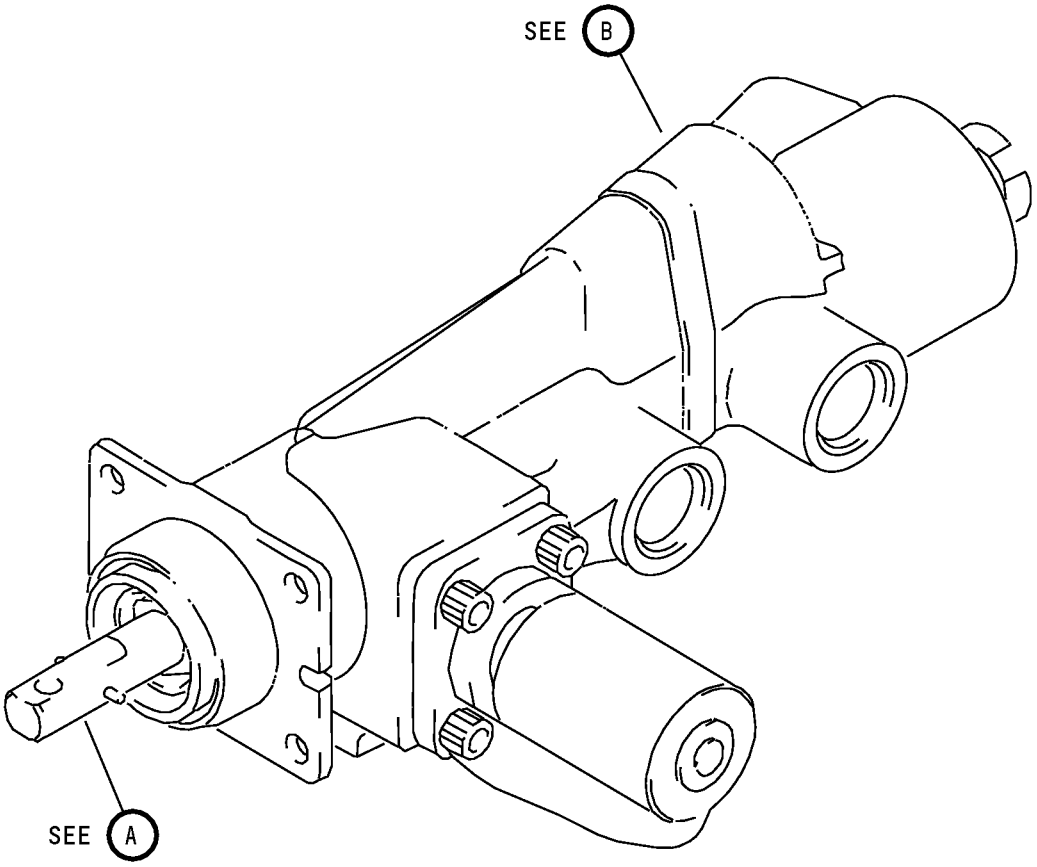
Code	Name
21183	ASTRO SEAL INC 827-B PALMYRITA AVENUE RIVERSIDE, CALIFORNIA 92507-1805 FORMERLY IN SOUTH EL MONTE, CALIFORNIA
26303	GREENE TWEED IND INC ADVANTEC DIV 7101 PATTERSON DRIVE PO BOX 5037 GARDEN GROVE, CALIFORNIA 92645-5037 FORMERLY OHIO AIRCRAFT SUPPLIES INC IN INGLEWOOD, CALIFORNIA FORMERLY ADVANTEC DIV OF IFP INC, LOS ANGELES, CA V5P801
26879	CORONADO MFG INC 11069 PENROSE AVENUE SUN VALLEY, CALIFORNIA 90352-2722 FORMERLY CORONADO PLASTICS INC IN BURBANK, CALIFORNIA
5P801	Replaced: [V5P801] SEE GREENE TWEED IND INC ADVANTEC DIV V26303 by Code: Name and Address below 26303: GREENE TWEED IND INC ADVANTEC DIV 7101 PATTERSON DRIVE PO BOX 5037 GARDEN GROVE, CALIFORNIA 92645-5037 FORMERLY OHIO AIRCRAFT SUPPLIES INC IN INGLEWOOD, CALIFORNIA FORMERLY ADVANTEC DIV OF IFP INC, LOS ANGELES, CA V5P801
80756	SPIROLOX DIV OF KAYDON CORP 29 CASSENS COURT FENTON, MISSOURI 63026-2543 FORMERLY RAMSEY CORP, TRW INC RAMSEY CORP IN MANCHESTER MO.
83259	PARKER-HANNIFIN CORP O-SEAL DIV 10567 JEFFERSON BLVD CULVER CITY, CALIFORNIA 90232-3513 FORMERLY PARKER SEAL CO DIV OF PARKER-HANNIFIN CORP
92003	PARKER-HANNIFIN CORPORATION 14300 ALTON PKWY IRVINE, CALIFORNIA 92618 FORMERLY PARKER AIRCRAFT V02689;FORMERLY SCHULZ TOOL & MFG V82267; FORMERLY PARKER-BERTEA AEROSPACE GROUP

Code	Name
94878	RAYBESTOS-MANHATTAN INC PACIFIC COAST DIV FULLERTON, CALIFORNIA 92631 BUSINESS DISCONTINUED
95272	STILLMAN SEL CORP 6020 AVENIDA ENCINAS CARLSBAD, CALIFORNIA 92009-1001 FORMERLY SARGENT IND
97820	BUSAK AND SHAMBAN INC BEARING DIV 711 MITCHELL ROAD PO BOX 665 NEWBURY PARK, CALIFORNIA 91320-2214 FORMERLY IN CULVER CITY, CALIF; FORMERLY SHAMBAN W S & CO
99643	EATON AEROSPACE LLC 4690 COLORADO BLVD LOS ANGELES, CALIFORNIA 90039 FORMERLY VICKERS INC.

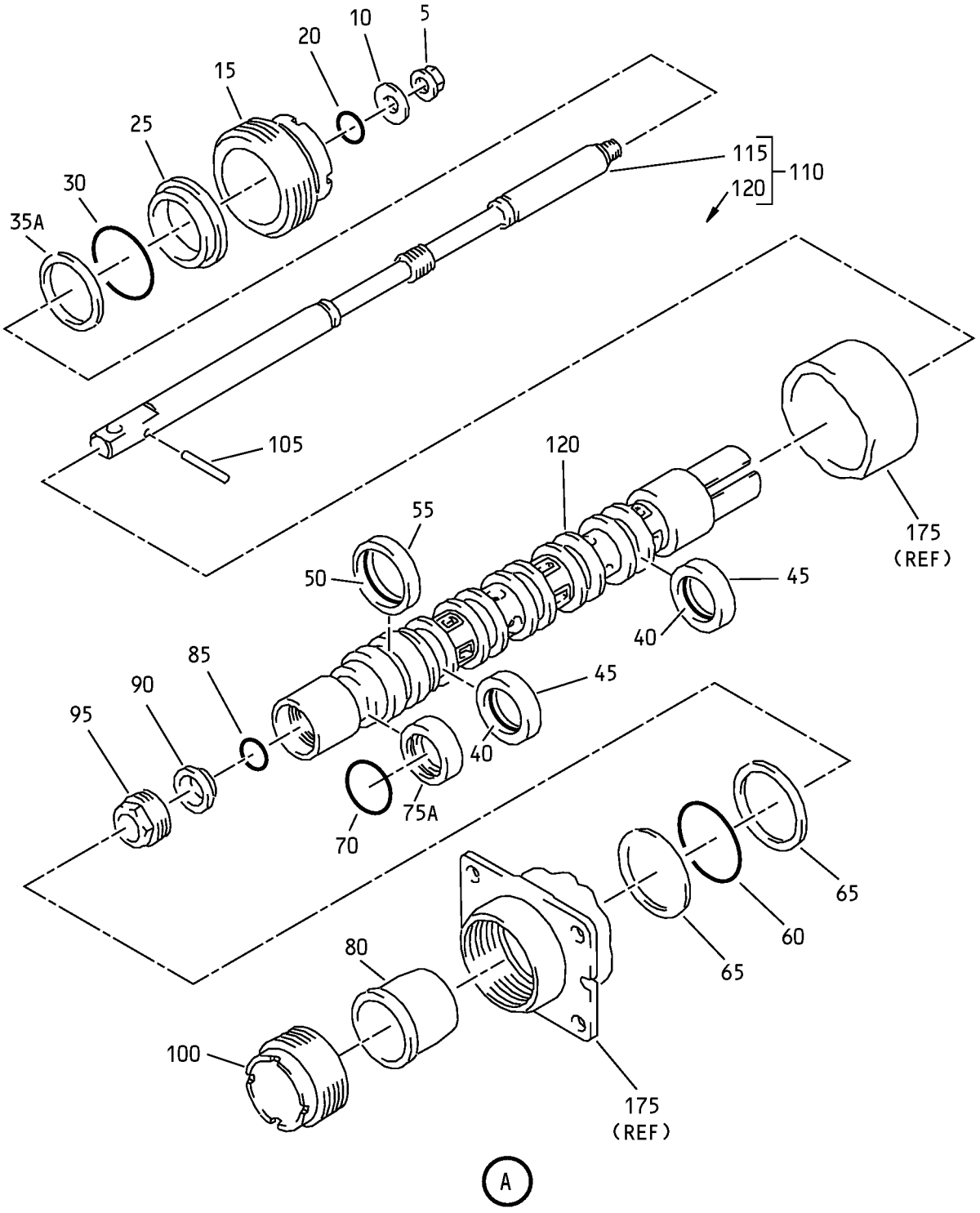
NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
000100-0113		1	150	1
069000197-1		1	165A	1
071261		1	165A	1
071261-1		1	165A	1
10-60811-1		1	135D	1
10-60811-13		1	135	1
10-60811-3		1	135C	1
10-60811-8		1	135A	1
10-60811-9		1	135B	1
11298-216		1	35A	1
2097-216A		1	35A	1
2097-216A6-1		1	35A	1
256A3580-1		1	1A	RF
256A3581-1		1	110	1
256A3582-1		1	120	1
256A3583-1		1	175	1
256A3583-2		1	185	1
45080-1		1	135A	1
59600-5003		1	135D	1
59600-5007		1	135C	1
59600-5011		1	135B	1
65-44631-2		1	157	1
65-44631-3		1	158	1
65-44631-4		1	155	4
69-20184-1		1	165A	1
69-35587-6		1	190	1
69-54540-210		1	75A	1
69-54540-212		1	45	5
69-54540-214		1	55	1
69-54629-1		1	90	1
69-54630-1		1	95	1
69-54632-1		1	115	1
69-54633-1		1	15	1
69-54634-1		1	25	1

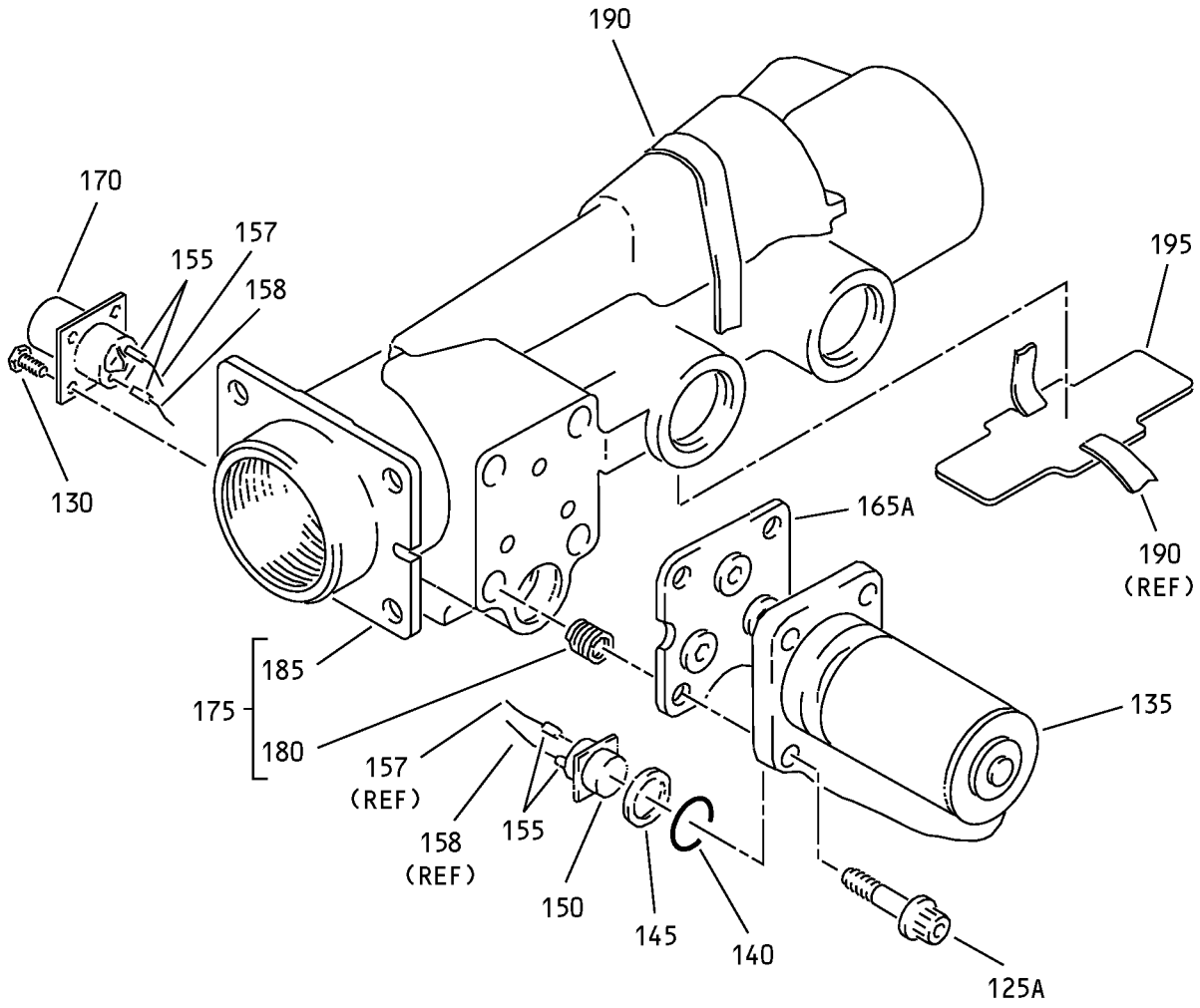
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
69-54635-1		1	100	1
69-54636-1		1	80	1
828108-1		1	165A	1
881600-1001		1	135	1
AN500AD4-4		1	130	4
AS203-20001		1	150A	1
BA1837		1	165A	1
BAC27DHY373		1	195	1
BACC45FN10-20P		1	170	1
BACN10GW3		1	5	1
BACR12BJ216A		1	35A	1
BACW10P42S		1	10	1
C2121011-216B		1	35A	1
CS1250-216-1		1	35A	1
DW96901216A		1	35A	1
MS212909F4-15		1	180	4
MS28782-24		1	65	2
MS51923-164		1	105	1
NAS1351N4H10P		1	125A	4
NAS1611-112		1	20	1
		1	85	1
		1	140	1
NAS1611-210		1	70	1
NAS1611-212		1	40	5
NAS1611-214		1	50	1
NAS1611-216		1	30	1
NAS1611-219		1	60	1
S30010-216-1		1	35A	1
S33157-210-5		1	75B	1
S33157-216-5		1	35B	1
TF451-216A		1	35A	1
UR50		1	145	1



Trailing Edge Flap Control Valve Assembly
IPL Figure 1 (Sheet 1 of 3)



Trailing Edge Flap Control Valve Assembly
IPL Figure 1 (Sheet 2 of 3)



Trailing Edge Flap Control Valve 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	256A3580-1		VALVE ASSY-CONT TRAILING EDGE FLAP		RF
5	BACN10GW3		. NUT		1
10	BACW10P42S		. WASHER		1
15	69-54633-1		. NUT		1
20	NAS1611-112		. PACKING		1
25	69-54634-1		. RETAINER-SEAL		1
30	NAS1611-216		. PACKING		1
35	S33157-216		DELETED		
35A	2097-216A		. RING-CAP (V5P801) (SPEC BACR12BJ216A) (OPT S30010-216-1 (V09257)) (OPT 2097-216A6-1 (V26303)) (OPT 11298-216 (V94878)) (OPT TF451-216A (V07128)) (OPT DW96901216A (V02886)) (OPT C2121011-216B (V26879)) (OPT CS1250-216-1 (V02107)) (OPT ITEM 35B)		1
–35B	S33157-216-5		. SEAL-II PLUS (V97820) (OPT ITEM 35A)		1
40	NAS1611-212		. PACKING		5
45	69-54540-212		. RING-CHANNEL SEAL		5
50	NAS1611-214		. PACKING		1
55	69-54540-214		. RING-CHANNEL SEAL		1
60	NAS1611-219		. PACKING		1
65	MS28782-24		. RING-PACKING		2
70	NAS1611-210		. PACKING		1
75	S33157-210		DELETED		
75A	69-54540-210		. RING-CHANNEL SEAL (OPT ITEM 75B)		1
–75B	S33157-210-5		. SEAL-II PLUS (V97820) (OPT ITEM 75A)		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–					
80	69-54636-1		. BUSHING		1
85	NAS1611-112		. PACKING		1
90	69-54629-1		. RETAINER-SEAL		1
95	69-54630-1		. PLUG		1
100	69-54635-1		. NUT		1
105	MS51923-164		. PIN		1
110	256A3581-1		. SLIDE ASSY		1
115	69-54632-1		. . SLIDE		1
120	256A3582-1		. . SLEEVE		1
125	NAS1351-4H10P		DELETED		
125A	NAS1351N4H10P		. SCREW		4
130	AN500AD4-4		. SCREW		4
135	881600-1001		. SOLENOID ASSY (V92003) (SPEC 10-60811-13) (OPT ITEM 135A,135B, 135C,135D)		1
–135A	45080-1		. SOLENOID ASSY (V99643) (SPEC 10-60811-8) (OPT ITEM 135, 135B, 13BC,135D)		1
–135B	59600-5011		. SOLENOID ASSY (V92003) (SPEC 10-60811-9) (OPT ITEM 135, 135A, 135C,135D)		1
–135C	59600-5007		. SOLENOID ASSY (V92003) (SPEC 10-60811-3) (OPT ITEM 135, 135A, 135B, 135D)		1
–135D	59600-5003		. SOLENOID ASSY (V92003) (SPEC 10-60811-1) (OPT ITEM 135, 135A, 13BB,135C)		1
140	NAS1611-112		. PACKING		1
145	UR50		. RING-SNAP (V80756)		1
150	000100-0113		. CONNECTOR-ELEC (V05574) (OPT ITEM 150A)		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–					
–150A	AS203-20001		. CONNECTOR-ELEC (V21183) (OPT ITEM 150)		1
155	65-44631-4		. TUBING		4
157	65-44631-2		. WIRE-RED		1
158	65-44631-3		. WIRE-WHITE		1
160	65-44532-1		DELETED		
165	69-20184-1		DELETED		
165A	069000197-1		. PLATE-GASKET (V05939) (SPEC 69-20184-1) (OPT 071261 (V83259)) (OPT 071261-1 (V83259)) (OPT 828108-1 (V83259)) (OPT BA1837 (V95272))		1
170	BACC45FN10-20P		. CONNECTOR		1
175	256A3583-1		. HOUSING ASSY		1
180	MS212909F4-15		. . INSERT		4
185	256A3583-2		. . HOUSING		1
190	69-35587-6		. STRAP		1
195	BAC27DHY373		. NAMEPLATE		1

–Item not Illustrated