COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

HYDRAULIC SYSTEM A AND B PRESSURE MODULAR ASSEMBLY

PART NUMBER 276A2003–1, –2, 65-17821–18, –20, –21, 65-44580–15, –17, –19, 65C26873–3, –4, –5

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

COMPONENT MAINTENANCE MANUAL

Revision No. 13
Jul 01/2009

To: All holders of HYDRAULIC SYSTEM A AND B PRESSURE MODULAR ASSEMBLY 29-13-03.

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.

ATTENTION

IF YOU RECEIVE PRINTED REVISIONS, PLEASE VERIFY THAT YOU HAVE RECEIVED AND FILED THE PREVIOUS REVISION. BOEING MUST BE NOTIFIED WITHIN 30 DAYS IF YOU HAVE NOT RECEIVED THE PREVIOUS REVISION. REQUESTS FOR REVISIONS OTHER THAN THE PREVIOUS REVISION WILL REQUIRE A COMPLETE MANUAL REPRINT SUBJECT TO REPRINT CHARGES SHOWN IN THE DATA AND SERVICES CATALOG.

Location of Change	Description of Change
	NO HIGHLIGHTS

BOEING®

COMPONENT MAINTENANCE MANUAL

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

TABLE OF CONTENTS

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR 34907	DEC 05/90
29-1062			SEP 05/91

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	
Number	Date	Date	Initials

Revision		Filed	
Number	Date	Date	Initials

BOEING®

COMPONENT MAINTENANCE MANUAL

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.

HYDRAULIC SYSTEM A AND B PRESSURE MODULAR ASSEMBLY - DESCRIPTION AND OPERATION

1. Description

A. The different System A and System B pressure modular assemblies are built up from the same modular package assembly. The modular package assembly has a forged aluminum housing which contains two filters, two pressure switches, two cartridge-type check valves, and one cartridge-type relief valve.

B. Hydraulic fittings are installed on the modular package assembly so the unit can be connected to the airplane hydraulic system.

C. On the 737-600/-700/-800 System A and B modular assemblies 276A2003-XX, a pressure transducer is installed in Port 5 of the module housing. On the 737-600/-700/-800 System B modular assembly only, one more pressure switch is installed in Port 7 of the housing.

2. Operation

A. Hydraulic fluid from the airplane hydraulic pumps comes into the modular assembly through Ports 1 and 2. The fluid goes through the high pressure filters and the check valves, then goes out and into the airplane hydraulic system through the other ports. Refer to TESTING AND FAULT ISOLATION, Figure 101.

B. If the hydraulic pressure from one of the pumps decreases to less than a specified limit, the applicable pressure switch will operate. The switch causes a low pressure warning light to come on in the control cabin. Refer to TESTING AND FAULT ISOLATION.

C. If the pressure increases to more than the permitted maximum, the relief valve will open. Some of the high pressure fluid then goes through the relief valve and back to the reservoir. The pressure decreases, and damage to the modular assembly and the airplane components is prevented.

3. Leading Particulars (Approximate)

A. Length – 12 inches

B. Width – 6 inches

C. Height – 12 inches

D. Weight – 18.7 pounds

TESTING AND FAULT ISOLATION

1. General

A. This procedure contains the data necessary to do a test of the hydraulic system A and B pressure modular assembly 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 thru IPL Figure 5 for item numbers.

2. Test Equipment and Materials

NOTE: Equivalent substitutes may be used.

A. Hydraulic test stand which can supply BMS 3-11 hydraulic fluid, D00153 at 0-4500 psi

B. Continuity Tester (Ohmmeter, self-powered test light)

C. Power Supply, 28v dc

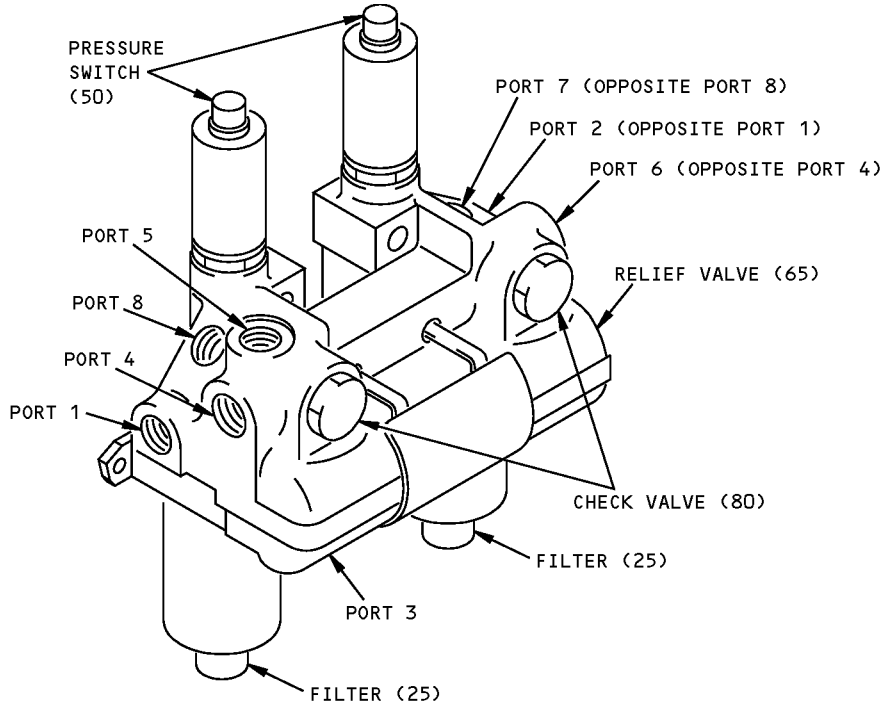
D. Ammeter, 0-20 ma

3. Preparation for the Tests

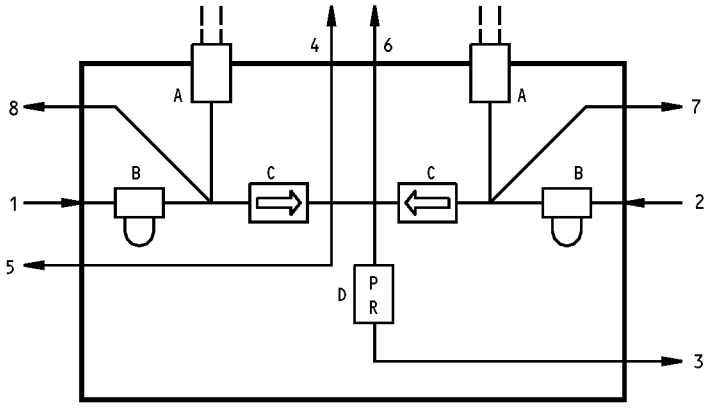
A. Do the tests at room temperature.

B. Fill the unit with hydraulic fluid, D00153. Bleed the air from the fluid.

C. If a port is not identified in the test procedure, it can be open or closed.



PORT DETAILS



A – PRESSURE SWITCH
B – FILTER
C – CHECK VALVE
D – RELIEF VALVE
1–8 – EXTERNAL CONNECTION PORTS

ITEM NUMBERS REFER TO IPL FIG. 5

Modular Package Assembly Port Details and Schematic Diagram
Figure 101

4. Test Procedures for Assemblies 65-44580-15, -17, -19, and 65C26873-3, -4, -5

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5424	Dummy Test Relief Valve (Part #: F72918-1, Supplier: 81205)

B. Proof Pressure Test

WARNING: REMOVE ALL AIR FROM THE UNIT 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.

NOTE: Do the tests on the applicable modular package assemblies 65-17821-18, 20, -21 (85, IPL Figure 1 and 2). Do the tests in the sequence shown. Refer to TESTING AND FAULT ISOLATION, Figure 101 for identification of the housing ports.

NOTE: Fluid flow through an open port is not external leakage.

(1) Remove the relief valve (65, IPL Figure 5). Install the Dummy Test Relief Valve, SPL-5424, to prevent flow across the valve hole in the housing.

(2) Open port 3 and put plugs in ports 4, 5, and 6. Apply 4500 psi to ports 1, 2, 7, and 8, and hold the pressure for 2 minutes. Make sure that there is no external leakage, permanent deformation, or other damage to the unit.

(3) Decrease the pressure to zero, then do the test again with 2 psi applied to ports 1, 2, 7, and 8 for 2 minutes. Make sure that there is no external leakage.

(4) Remove the Dummy Test Relief Valve, SPL-5424 and install the relief valve (65, IPL Figure 5).

(5) With the plugs in ports, 4, 5, and 6, apply 900 psi to port 3, and hold the pressure for 2 minutes. Make sure that there is no external leakage, permanent deformation, or other damage to the unit.

(6) Decrease the pressure to zero, then do the test again with 2 psi applied to port 3 for 2 minutes. Make sure that there is no external leakage.

C. Pressure Switch Test

(1) Attach continuity testers to pins 2 and 3 on the two pressure switches (50, IPL Figure 5).

(2) Open port 3 and put plugs in ports 4 thru 8. Apply hydraulic pressure to ports 1 and 2 at the same time, and slowly increase the pressure. Record the pressure at which the switches open. Make sure that the switches open at these pressures:

Table 101:

Pressure Switch	Pressure (Switch Opens)
10-60552-11,-22	1200 - 1500 psi
10-60552-31,-35	1400 - 1600 psi

(3) Slowly decrease the pressure at ports 1 and 2. Make sure that the pressure decreases by more than 100 psi from the pressure recorded in TESTING AND FAULT ISOLATION, Paragraph 4.C.(2) before the switches close. But the pressure must not be less than these limits:

Table 102:

Pressure Switch	Minimum Pressure (Switch Closes)
10-60552-11,-22	1100 psi
10-60552-31,-35	1300 psi

D. Continuity Test

(1) Open all of the ports.

(2) Apply pressure to port 1. Make sure that there is free flow from ports 4, 5, 6, and 8.

(3) Apply pressure to port 2. Make sure that there is free flow from ports 4, 5, 6, and 7.

(4) Apply pressure to port 3. Make sure that there is free flow from ports 4, 5, and 6.

E. Relief Valve Test

(1) Keep ports 1 and 3 open, and put plugs in all of the other ports.

(2) Apply hydraulic pressure to port 1, and slowly increase the pressure. Make sure that there is no flow from port 3 until the relief valve (65, IPL Figure 5) opens, as shown by a sudden flow from the port. The cracking pressure, at which the relief valve opens, must be more than 3450 psi.

(3) Continue to increase the pressure to 3800-3900 psi. The flow from port 3 will increase as the pressure increases.

(4) Decrease the pressure until the valve reseats and the flow from port 3 stops. The reseat pressure must not be less than 3150 psi. But for Pneudraulics relief valves P/N 1651, S/N 806 and on, the reseat pressure must not be less than 3400 psi.

F. Check Valve Test

(1) Put the plugs in ports 4 and 6.

(2) Apply 2000 psi to port 5, and hold the pressure for 2 minutes to let the check valves (80, IPL Figure 5) seal against their stops. Make sure that there is no check valve leakage from ports 1, 2, 7, or 8.

5. Test Procedures for Assemblies 276A2003-1, -2

WARNING: REMOVE ALL AIR FROM THE UNIT 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.

NOTE: Do not remove the fittings, packings, pressure transducer, or pressure switch (Items 5 thru 80, 90 thru 105, IPL Figure 3 and 4) from the modular assembly after you complete the test, unless replacement is necessary. Plug (75, IPL Figure 3 and 4) is installed in port 7 or 8, as applicable, during the tests.

NOTE: Do the tests in the sequence shown. Refer to TESTING AND FAULT ISOLATION, Figure 101 for identification of the housing ports.

A. Tools/Equipment

NOTE: Equivalent substitutes may be used.

Reference	Description
SPL-5424	Dummy Test Relief Valve (Part #: F72918-1, Supplier: 81205)

B. Proof Pressure Test

NOTE: Fluid flow through an open port is not external leakage.

(1) Remove the relief valve (65, IPL Figure 5). Install the Dummy Test Relief Valve, SPL-5424, to prevent flow across the valve hole in the housing.

(2) Open ports 1 and 2, and put caps on all of the other ports. Apply 4500 psi to ports 1 and 2, and hold the pressure for 2 minutes. Make sure that there is no external leakage, permanent deformation, or other damage to the unit.

(3) Decrease the pressure to zero, then do the test again with 5 psi applied to ports 1 and 2 for 2 minutes. Make sure that there is no external leakage.

(4) Remove the Dummy Test Relief Valve, SPL-5424 and install the relief valve (65, IPL Figure 5).

(5) Open ports 1, 2, and 3. With caps on all of the other ports, apply 900 psi to port 3, hold the pressure for 2 minutes. Make sure that there is no external leakage, permanent deformation, or other damage to the unit.

(6) Decrease the pressure to zero, then do the test again with 5 psi applied to port 3 for 2 minutes. Make sure that there is no external leakage.

C. Pressure Switch Test

(1) Attach continuity testers to pins 2 and 3 on the two 10-60552-31 or 35 pressure switches (50, IPL Figure 5).

(2) Open ports 1, 2, and 3 and put caps on the other ports. Apply hydraulic pressure to ports 1 and 2 at the same time, and slowly increase the pressure. Make sure that the switches open at 1400-1600 psi.

(3) Slowly decrease the pressure at ports 1 and 2. Make sure that the pressure decreases by more than 100 psi from the pressure in TESTING AND FAULT ISOLATION, Paragraph 5.C.(2) before the switches close, but the pressure must not be less than 1300 psi.

D. Pressure Switch Test (Modular Assembly 276A2003-2 only)

(1) Attach a continuity tester to pins 2 and 3 on the pressure switch (100, IPL Figure 4).

(2) Let ports 2 and 3 stay open, and put a cap on all of the other ports. Apply hydraulic pressure to port 2, and slowly increase the pressure. Record the pressure at which the switch opens. Make sure that the switch opens at 2550-2650 psi.

(3) Attach the tester to pins 1 and 2 on the switch. Make sure that the 1-2 circuit is closed.

(4) Slowly decrease the pressure at port 2. Record the pressure at which the 1-2 circuit changes to open. Make sure that the pressure decreases by more than 100 psi from the pressure recorded in TESTING AND FAULT ISOLATION, Paragraph 5.D.(2) before the 1-2 circuit opens. The pressure must not be less than 2350 psi.

(5) Attach the tester to pins 2 and 3 again. Make sure that the 2-3 circuit is closed.

E. Pressure Transducer Test

(1) Attach a 28v dc power source and an ammeter to the pressure transducer (90, IPL Figure 3 and IPL Figure 4).

(2) Let ports 1, 2, and 3 stay open, and put a cap on all of the other ports. Slowly apply 1000 psi hydraulic pressure to ports 1 and 2. The output current of the pressure transducer must be between 7.84 ma and 8.16 ma.

F. Relief Valve Test

(1) Open ports 1 and 3, and put caps on the other ports.

(2) Apply hydraulic pressure to port 1, and slowly increase the pressure. Make sure that there is no flow from port 3 until the relief valve (65, IPL Figure 5) opens, as shown by a sudden flow from the port. The cracking pressure, at which the relief valve opens, must be more than 3450 psi.

(3) Continue to increase the pressure to 3800-3900 psi. The flow from port 3 will increase as the pressure increases.

(4) Decrease the pressure until the valve reseats and the flow from port 3 stops. The reseat pressure must not be less than 3100 psi. But for Pneudraulics relief valves P/N 1651, S/N 806 and on, the reseat pressure must not be less than 3400 psi.

G. Check Valve Test

(1) Put a cap on port 4, and remove the caps from the other ports.

(2) Apply 2000 psi to port 6, and hold the pressure for 2 minutes to let the check valves (80, IPL Figure 5) seal against their stops. Make sure that there is no check valve leakage from the open ports during the subsequent 2 minutes.

H. Check Valve Test (Modular Assembly 276A2003-1 only)

(1) Remove the caps from all of the ports.

(2) Apply 2000 psi to port 8 through the check valve (65, IPL Figure 3). Hold the pressure for 2 minutes, then make sure that there is no check valve leakage from the open ports during the subsequent 2 minutes.

I. Flow Test

(1) Remove the caps from all of the ports.

(2) Apply pressure to port 2. Make sure that there is free flow from ports 4 and 6.

(3) Apply pressure to port 1. Make sure that there is free flow from ports 4, 6, and 8 on assembly 276A2003-1, and from ports 4 and 6 on assembly 276A2003-2.

6. Trouble Shooting (IPL Figure 5, unless shown differently)

A. Refer to TESTING AND FAULT ISOLATION, Table 103 for the trouble shooting procedures.

Table 103: Trouble Shooting Chart

TROUBLE	PROBABLE CAUSE	CORRECTIONS
External leakage at parts installed in housing (85).	Damaged packing or backup ring.	Remove part and replace packings and backup rings as necessary. Install part and tighten to specified torque.
Low flow rate through open ports.	Blocked flow passages.	Flush housing assembly.
Low flow rate through relief valve (65).	Defective relief valve.	Replace relief valve.
Incorrect operation of pressure switch (50).	Defective pressure switch.	Replace pressure switch.
Incorrect operation of pressure switch (100, IPL Fig. 4).	Defective pressure switch.	Replace pressure switch.

Table 103: Trouble Shooting Chart (Continued)

TROUBLE	PROBABLE CAUSE	CORRECTIONS
Incorrect output from pressure transducer (90, IPL Fig. 4).	Defective pressure transducer.	Replace pressure transducer.
Leakage through check valve (80).	Damaged packing or backup ring.	Remove valve and replace packings and backup rings as necessary. Install valve and tighten to specified torque.
	Defective check valve.	Replace check valve.
Incorrect operation of relief valve (65).	Damaged packing or backup ring.	Remove valve and replace packings and backup rings as necessary. Install valve and tighten to specified torque.
	Defective relief valve.	Replace relief valve.

7. Post-Test Procedures

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)
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜ C32 (QQ-N-281)

B. References

Reference	Title
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES
SOPM 20-60-03	LUBRICANTS
SOPM 20-60-04	MISCELLANEOUS MATERIALS

C. Procedure

NOTE: For lubricants, refer to SOPM 20-60-03. For miscellaneous materials, refer to SOPM 20-60-04.

(1) Install the plug (75, IPL Figure 1 thru 4) in the modular package assembly (85, IPL Figure 1 thru 4). Install lockwire, G01912 from the plug to the module housing (105, IPL Figure 5). Use the double-twist procedure. Refer to SOPM 20-50-02.

(2) Install lockwire, G01912 from the relief valve (65, IPL Figure 5) to the module housing. Use the double-twist procedure. Refer to SOPM 20-50-02.

(3) Put a volume of hydraulic fluid, D00153 in the unit. Do not fill the unit fully. Close the open ports with caps or plugs which are resistant to the hydraulic fluid.

(4) Write the test date on a tag, and attach the tag to the unit.

DISASSEMBLY

1. **General**
   A. This procedure has the data necessary to disassemble the pressure modular assembly (1A, IPL Figure 1 thru 4).
   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 details of the SOPM chapters identified in this procedure.
   D. Refer to the IPL figures shown to identify the item numbers.
2. **Parts Replacement**
   A. Packings (10, 20, 30, 40, 50, 60, 70, 80, IPL Figure 1 thru IPL Figure 4)
   B. Packings (95, IPL Figure 3)
   C. Packings (95, 105, IPL Figure 4)
   D. Packings (15, 30, 45, 55, 70, 85, 95, IPL Figure 5)
   E. Backup rings (20, 35, 60, 75, 90, 100, IPL Figure 5)
3. **Disassembly**
   A. Remove all of the lockwire from the modular assembly.
   B. Disassemble the pressure modular assembly.

      NOTE: Item numbers refer to IPL Figure 1 thru IPL Figure 4 unless shown differently.

      (1) Remove the pressure transducer (90, IPL Figure 3, IPL Figure 4) from the modular package assembly (85, IPL Figure 3, IPL Figure 4). Remove the packing (95, IPL Figure 3, IPL Figure 4) from the transducer.

         NOTE: Refer to the manufacturer's instructions for overhaul of the pressure transducer.

      (2) Remove the pressure switch (100, IPL Figure 4) from the modular package assembly (85, IPL Figure 4). Remove the packing (105, IPL Figure 4) from the switch.

         NOTE: Refer to the manufacturer's instructions for overhaul of the pressure switch.

      (3) Remove the hydraulic fittings and packings (5 thru 80) from the modular package assembly (85). Remove the packings from the fittings.

   C. Disassemble the modular package assembly (IPL Figure 5).
      (1) Remove the filters.
         (a) Remove the filter bowls (10) and the filters (25) from the housing (105).
         (b) Remove the packings (15) and backup rings (20) from the housing.
         (c) Remove the packings (30) and backup rings (35) from the filters.
         (d) Remove the fittings (40) from the housing. Remove the packings (45) from the fittings.
      (2) Remove the pressure switches (50) from the housing. Remove the packings (55) and backup rings (60) from the switches.
      (3) Remove the relief valve (65) from the housing. Remove the packings (70) and backup rings (75) from the valve.

(4) Remove the check valves (80) from the housing. Remove the packings (85, 95) and backup rings (90, 100) from the valves.

NOTE: Do not remove the nameplate (110) from the housing unless repair or replacement is necessary.

CLEANING

1. General

A. This procedure has the data necessary to clean the pressure modular assembly (1A, IPL Figure 1 thru IPL Figure 4).

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

2. Cleaning

A. References

Reference	Title
SOPM 20-30-03	GENERAL CLEANING PROCEDURES

B. Procedure

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

CHECK

1. General

A. This procedure has the data necessary to find defects in the material of the specified parts.

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

2. Check

A. References

Reference	Title
SOPM 20-20-02	PENETRANT METHODS OF INSPECTION

B. Procedures

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

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

(a) Filter bowl (10, IPL Figure 5)

(b) Housing (105, IPL Figure 5)

REPAIR

1. General

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

Table 601:

P/N	NAME	REPAIR
BACN27DHY0279	NAMEPLATE	1-1
–	REFINISH OF OTHER PARTS	2-1

—	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 WHICH 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
TIR	TOTAL INDICATOR READING

EXAMPLES

[— | 0.002]	STRAIGHT WITHIN 0.002
[⊥ | 0.002 | B]	PERPENDICULAR TO B WITHIN 0.002
[// | 0.002 | A]	PARALLEL TO A WITHIN 0.002
[○ | 0.002]	ROUND WITHIN 0.002
[⌭ | 0.010]	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER
[⌒ | 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 PLANE A
[⌓ | 0.020 | A]	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.02 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
[◎ | Ø 0.0005 | C]	CONCENTRIC TO C WITHIN 0.0005 DIAMETER
[⌯ | 0.010 | A]	SYMMETRICAL WITH A WITHIN 0.010
[∠ | 0.005 | A]	ANGULAR TOLERANCE 0.005 WITH 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, AND EXTENDING 0.510-INCH ABOVE, DATUM A, MAXIMUM MATERIAL CONDITION
[2.000] OR 2.000 BSC	THEORETICALLY EXACT DIMENSION IS 2.000

NOTE: DATUM MAY APPEAR AT EITHER SIDE OF TOLERANCE FRAME [0.020 | A] [A | 0.020]

True Position Dimensioning Symbols
Figure 601

NAMEPLATE - REPAIR 1-1

BAC27DHY0279

1. General

A. This procedure has the data necessary to replace the nameplate (110).

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

C. Refer to IPL Figure 5 for item numbers.

2. Nameplate (110) 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 nameplate.

(2) Steel stamp the serial number and assembly dash number on the nameplate. Refer to SOPM 20-50-10.

(3) Bend the new nameplate to match the housing (105) contour.

(4) Install the nameplate on the housing (105).

REFINISH OF OTHER PARTS - REPAIR 2-1

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 details of the SOPM chapters identified in this procedure.

C. Refer to the IPL figures shown for the 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
SOPM 20-43-03	CHEMICAL CONVERSION COATINGS FOR ALUMINUM

B. Procedure

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

(1) Repair of parts listed in REPAIR 2-1, Table 601 consists of restoration of the original finish.

Table 601: Refinish Details

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 3, 4		
Modular package assy (85)		Chemical treat the mounting surface (MIL-C-5541, Class 3). Refer to SOPM 20-43-03.
IPL Fig. 5		
Filter bowl (10) Filter fitting (40)		Chromic acid anodize (F-2.26).
Housing (105)		Chromic acid or sulfuric acid anodize (F-17.05).

ASSEMBLY

1. General

A. This procedure has the data necessary to assemble the pressure modular assembly (1A, IPL Figure 1 thru 4).

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

2. Procedure

A. Consumable Materials

NOTE: Equivalent substitutes may be used.

Reference	Description	Specification
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)
G01912	Lockwire - Monel (0.032 In. Dia.)	NASM20995N˜C32 (QQ-N-281)

B. References

Reference	Title
SOPM 20-11-03	REPAIR OF ELECTRICAL TERMINATIONS AND ELECTRICAL BONDING AREAS
SOPM 20-50-02	INSTALLATION OF SAFETYING DEVICES

C. Lubrication

(1) Lubricate the packings and the threads on the parts with a small amount of hydraulic fluid, D00153 or MCS 352B fluid, D00054 before installation.

D. Assemble the modular package assembly)IPL Figure 5)

(1) Install the check valves (80).

(a) Install the packings (85, 95) and backup rings (90, 100) on the check valves (80).

(b) Install the check valves in the housing (105). Tighten the check valves to 200-250 pound-inches.

(2) Install the relief valve (65).

(a) Install the packings (70) and backup rings (75) on the relief valve (65).

(b) Install the relief valve in the housing (105). Tighten the relief valve to 350-375 pound-inches.

(3) Install the pressure switches (50).

(a) Install the packings (55) and backup rings (60) on the pressure switches (50).

(b) Install the pressure switches in the housing (105). Tighten the pressure switches to 350-375 pound-inches.

(4) Install the filters.

(a) Install the packings (45) on the filter fittings (40), then install the fittings in the housing.

NOTE: Be careful not to damage the seal surface on the fittings.

(b) Install the packings (15) and backup rings (20) for the filter bowls in the housing.

(c) Install the packings (30) and backup rings (35) in the filters (25), then install the filters in the housing.

(d) Install the filter bowls (10) on the housing. Tighten the filter bowls to 350-375 pound-inches.

(5) Install lockwire, G01912 from the filter bowls, pressure switches, and check valves to the housing. Use the double-twist procedure (SOPM 20-50-02).

NOTE: The lockwire will be installed on the relief valve after the functional test is completed.

E. Functional Test

(1) Do the functional test on the modular package assembly (85, IPL Figure 1, IPL Figure 2) for pressure modular assemblies 65-44580-15, -17, -19 and 65C26873-3, 4, -5. Refer to TESTING AND FAULT ISOLATION.

F. Assemble the pressure modular assembly

NOTE: (Refer to IPL Figure 1 thru IPL Figure 4 for the item numbers, unless shown differently).

(1) Install the packings (10, 20, 30, 40, 50, 60, 70, 80) on the hydraulic fittings (5, 15, 25, 35, 45, 55, 65, 75), then install the parts on the modular package assembly (85).

(2) Install the packing (105, IPL Figure 4) on the pressure switch (100, IPL Figure 4). Clean and prepare the faying surfaces of the switch and the module housing for the electrical bond. Refer to SOPM 20-11-03. Install the switch on the modular package assembly.

(3) Install the packing (95, IPL Figure 3, 4) on the pressure transducer (90, IPL Figure 3, IPL Figure 4). Clean and prepare the faying surfaces of the transducer and the module housing for the electrical bond. Refer to SOPM 20-11-03. Install the transducer on the modular package assembly.

(4) Do a check of the electrical bond at the pressure switch and at the pressure transducer. Make sure that the resistances across the interfaces are less than 0.005 ohm.

G. Functional test on pressure modular assemblies 276A2003-1, -2

(1) Do the functional test on pressure modular assemblies 276A2003-1, -2. Refer to TESTING AND FAULT ISOLATION.

H. Post-test Procedure

(1) Install lockwire, G01912 from the pressure switch (100, IPL Figure 4) and the pressure transducer (90, IPL Figure 3, 4) to the housing. Use the double-twist procedure (SOPM 20-50-02).

3. Storage

A. References

Reference	Title
SOPM 20-44-02	TEMPORARY PROTECTIVE COATINGS

B. Procedure

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

FITS AND CLEARANCES

FOR TORQUE VALUES OF STANDARD FASTENERS, REFER TO 20-50-01			
ITEM NO. (IPL FIG. 5)	NAME	TORQUE	
		POUND-INCHES	POUND-FEET
10	Filter bowl	350-375	
50	Pressure switch	350-375	
65	Relief valve	350-375	
80	Check valve	200-250	

Torque Table
Figure 801

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-5424	Dummy Test Relief Valve	F72918-1	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
01673	AIRDROME PRECISION COMPONENTS 3251 E AIRPORT WAY LONG BEACH, CALIFORNIA 90806-2407 FORMERLY AIRDROME PARTS CO
02107	FLOUROCARBON CO OHIO DIV DOVER, OHIO 44622 CANCELLED NO REPLACEMENT FORMERLY SPARTA MANUFACTURING CO
02750	EATON AEROSPACE ENGINEERED SENSORS 15 DURANT AVENUE BETHEL, CONNECTICUT 06801-1901 FORMERLY CONSOLIDATED CONTROLS; FORMERLY EATON CORP PRESSURE SENSORS DIV
05228	PTI TECHNOLOGIES INC 501 DEL NORTE BLVD OXNARD, CALIFORNIA 93030-7983 FORMERLY PUROLATOR TECH; PTI TECH; TEXTRON FILTRATION SYS; FORMERLY IN NEWBURY PARK, CA
06177	PNEUDRAULICS INC 8575 HELMS AVENUE RANCHO CUCAMONGA, CALIFORNIA 91730-4519 FORMERLY IN MONTCLAIR, CALIFORNIA
07128	TETRAFLUOR INC 2051 EAST MAPLE AVENUE EL SEGUNDO, CALIFORNIA 90245-5009 FORMERLY ROYAL IND TETRAFLUOR DIV V0667B ENGLEWOOD CALIF

Code	Name
09049	CUSTOM CONTROL SENSORS INC 21111 PLUMMER STREET CHATSWORTH, CALIFORNIA 91311-4905 FORMERLY CUSTOM COMPONENT SWITCHES INC
11328	Replaced: [V11328] AEROQUIP SEE EATON AEROQUIP V00624 LINAIR ENG A TELEDYNE CO SEE TELEDYNE LINAIR ENGINEERING TELEDYNE INC SEE LINAIR ENGINEERING TELEDYNE LINAIR ENG SEE AEROQUIP CORP LINAIR DIV by Code: Name and Address below 00624: EATON AEROQUIP INC ENGINEERED SYSTEMS DIV 300 S EAST AVE JACKSON, MICHIGAN 49203-1972 FORMERLY AEROQUIP ELBEE PLANT V99879 OR WESTERN PLANT V70128; FORMERLY AEROQUIP AEROSP DIV JACKSON PLANT; FORMERLY V11328 AEROQUIP LINAIR DIV
14397	FABER ENTERPRISES, INCORPORATED 6606 VARIEL AVE CANOGA PARK, CALIFORNIA 91303-2808
14798	DEUTSCH CO METAL COMPONENTS DIV 14800 SOUTH FIGUEROA STREET GARDEN, CALIFORNIA 90248-1795 FORMERLY WEATHERHEAD V79470 FOR AEROSPACE PROD V 61498 DEUSCH CO THE DEUTSCH AEROSPACE FITTINGS CO DIV
18350	PALL AEROPOWER CORP 5775 RIO VISTA DR CLEARWATER, FLORIDA 33760-3114 FORMERLY V01414; FORMERLY AIRCRAFT POROUS MEDIA INC FORMERLY IN PINELLAS PARK, FL; FORMERLY V60047; FORMERLY MECTRON IND V10989
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

Code	Name
26879	CORONADO MFG INC 11069 PENROSE AVENUE SUN VALLEY, CALIFORNIA 90352-2722 FORMERLY CORONADO PLASTICS INC IN BURBANK, CALIFORNIA
30974	AEROFIT PRODUCTS INC 6460 DALE STREET BUENA PARK, CALIFORNIA 90621-3115
50808	UNITED SUPPLY CO INC 3676 S BROADWAY PLACE LOS ANGELES, CALIFORNIA 90007-4432
50948	PARKER-HANNIFIN CORP HUNTSVILLE AIRCRAFT FACILITY 9400 SOUTH MEMORIAL PARKWAY HUNTSVILLE, ALABAMA 35802 FORMERLY PARKER-HANNIFIN CORP TUBE FITTINGS DIV
73197	HI-SHEAR TECHNOLOGY CORP 2600 SKYPARK DRIVE TORRANCE, CALIFORNIA 90509
81982	CRANE COMPANY HYDRO-AIRE DIV 3000 WINONA AVENUE PO BOX 7722 BURBANK, CALIFORNIA 91510 FORMERLY HYDRO-AIRE DIV CRANE CO AND ADEL VALVE V00502
83533	ESSEX IND INC ESSEX MFG. DIV 6 SUNNEN DR SAINT LOUIS, MISSOURI 63143-3903 FORMERLY FILM-SOL CORP V27340 FORMERLY ESSEX CRYOGENICS IND INC
88334	DANA CORP WAREHOUSE OPERATIONS WESTERN REGION WAREHOUSE 8140 WEBB AVE PO BOX 9657 NORTH HOLLYWOOD, CALIFORNIA 91605-1507

Code	Name
92003	PARKER-HANNIFIN CORPORATION 14300 ALTON PKWY IRVINE, CALIFORNIA 92618 FORMERLY PARKER AIRCRAFT V02689;FORMERLY SCHULZ TOOL & MFG V82267; FORMERLY PARKER-BERTEA AEROSPACE GROUP
94878	RAYBESTOS-MANHATTAN INC PACIFIC COAST DIV FULLERTON, CALIFORNIA 92631 BUSINESS DISCONTINUED
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
98087	ITT INDUSTRIES DBA ITT AEROSPACE CONTROLS 28150 INDUSTRY DRIVE VALENCIA, CALIFORNIA 91355 FORMERLY ITT NEO-DYN INC; FORMERLY IN CHATSWORTH, CA
99240	CRISSAIR, INCORPORATED 38905 10TH STREET EAST PALMDALE, CALIFORNIA 93550-4000 FORMERLY IN EL SEGUNDO, CALIFORNIA
U0427	DRUCK LTD FIR TREE LANE GROBY LEICS LE6 OFH, UK

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
0121520600-13		3	65	1
10-60491-3		5	80	2
		5	80A	2
10-60551-2		5	65	1
		5	65A	1
10-60552-1		5	50L	2
10-60552-11		5	50	2
		5	50G	2
10-60552-22		5	50B	2
		5	50H	2
10-60552-31		5	50C	2
		5	50F	2
		5	50K	2
10-60552-35		5	50D	2
		5	50E	2
		5	50J	2
10-60592-1		5	25A	2
		5	25B	2
10-60592-5		5	25	2
10-60592-6		5	25C	2
1225P6-1		5	50B	2
		5	50H	2
1225P6-2		5	50D	2
		5	50E	2
		5	50J	2
1651		5	65	1
		5	65A	1
1C3512		3	65	1
1C4196		5	80B	2
2-01075T10-8		3	15A	1
		3	25A	1
		4	5A	1
2-01075T12-10		3	5A	1
		3	35A	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
2-01075TR12-10		4	15A	1
2100-228		5	20	4
211C223-275		4	100	1
		4	100A	1
		4	100B	1
211C223-324		4	100	1
		4	100A	1
		4	100B	1
211C223-526		4	100	1
		4	100A	1
		4	100B	1
276A2003-1		1	1G	RF
		3	1A	RF
276A2003-2		1	1H	RF
		4	1A	RF
31778-10-8		3	15A	1
		3	25A	1
		4	5A	1
31778-12-10		3	5A	1
		3	35A	1
31778R12-10		4	15A	1
65-17821-18		1	85	1
		2	85	1
		5	1A	RF
65-17821-20		1	85A	1
		2	85A	1
		5	1B	RF
65-17821-21		1	85B	1
		2	85B	1
		3	85	1
		4	85	1
		5	1C	RF
65-17989-10		5	10A	2
		5	10B	2
65-17989-8		5	10	2

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
65-44580-15		1	1A	RF
65-44580-17		1	1B	RF
65-44580-19		1	1C	RF
65-44674-7		5	105	1
65C26873-3		1	1D	RF
		2	1A	RF
65C26873-4		1	1E	RF
		2	1B	RF
65C26873-5		1	1F	RF
		2	1C	RF
66-12196-1		5	40	2
7513122		5	25A	2
7513128		5	25	2
90G183		5	50	2
		5	50G	2
90G223		5	50C	2
		5	50F	2
		5	50K	2
90G235		5	50C	2
		5	50F	2
		5	50K	2
90G37		5	50L	2
A61499		5	65	1
		5	65A	1
AC7681E1		5	25B	2
AC7681E1Y2		5	25C	2
AFP23210-8		3	15A	1
		3	25A	1
		4	5A	1
AFP23212-10		3	5A	1
		3	35A	1
AFP232R12-10		4	15A	1
AN814-8DL		3	75A	1
		4	75A	1
AN893-12T		3	55	1

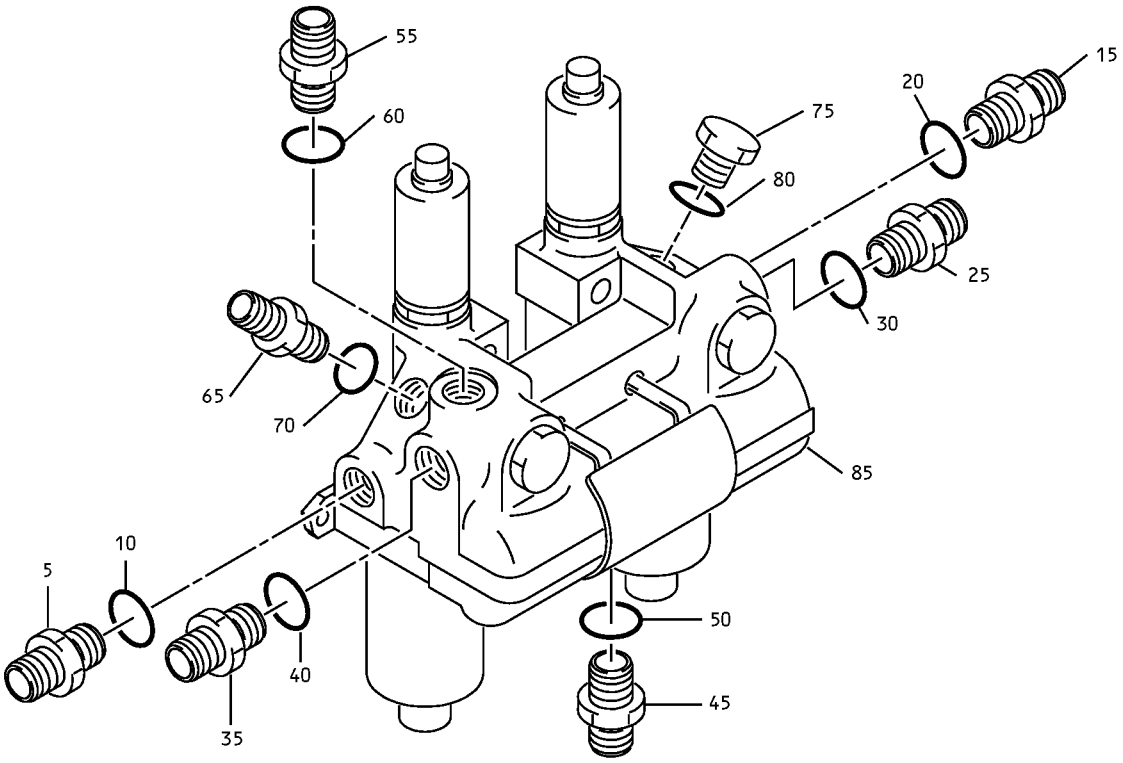
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		4	55	1
		4	65	1
AP102710-8		3	15A	1
		3	25A	1
		4	5A	1
AP102712-10		3	5A	1
		3	35A	1
AP1027R12-10		4	15A	1
BAC27DHY0279		5	110	1
BACR12BM228		5	20	4
BACR17E10-8		3	15A	1
		3	25A	1
		4	5A	1
BACR17E12-10		3	5A	1
		3	35A	1
BACR17ER12-10		4	15A	1
BACV10CE13		3	65	1
BACV10CE3		1	65	1
BC916T10-8		3	15A	1
		3	25A	1
		4	5A	1
BC916T12-10		3	5A	1
		3	35A	1
BC916TR12-10		4	15A	1
C11236-228B		5	20	4
DB0R17E10-8		3	15A	1
		3	25A	1
		4	5A	1
DB0R17E12-10		3	5A	1
		3	35A	1
DB0R17ER12-10		4	15A	1
ER21916T10-8		3	15A	1
		3	25A	1
		4	5A	1
ER21916T12-10		3	5A	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		3	35A	1
ER21916TR12-10		4	15A	1
ER31916-10-8		3	15A	1
		3	25A	1
		4	5A	1
ER31916-12-10		3	5A	1
		3	35A	1
ER31916R12-10		4	15A	1
F23-10-8		3	15A	1
		3	25A	1
		4	5A	1
F23-12-10		3	5A	1
		3	35A	1
F23R12-10		4	15A	1
H61C0552M1		5	80	2
		5	80A	2
MS21902-10		1	5	1
		2	15	1
MS21902-12		2	35	1
MS21902-12T		4	35	1
MS21902-8		2	25	1
		2	65	1
MS21902-8T		4	25	1
MS21902D12		1	45	1
		2	45	1
		3	45	1
		4	45	1
MS21916-10-8		1	15	1
		1	25	1
		2	5	1
MS21916-10-8T		3	15	1
		3	25	1
		4	5	1
MS21916-12-10		1	35	1
MS21916-12-10T		3	5	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		3	35	1
		4	15	1
MS21916-8-4		1	55	1
		2	55	1
MS24391D8L		1	75	1
		2	75	1
		3	75	1
		4	75	1
MS28782-11		5	60	4
MS28782-13		5	100	4
MS28782-19		5	35	2
		5	90	4
MS28782-30		5	75	4
MS28783-6		5	20A	4
NAS1611-113		5	55	2
NAS1611-115		5	95	2
NAS1611-214		5	30	2
		5	85	2
NAS1611-228		5	15	2
NAS1611-327		5	70	2
NAS1611-327A		5	70A	2
NAS1612-10		1	10	1
		1	20	1
		2	10	1
		2	20	1
		3	10	1
		3	20	1
		4	10	1
		4	20	1
		5	45	2
NAS1612-12		1	40	1
		1	50	1
		2	40	1
		2	50	1
		3	40	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		3	50	1
		4	40	1
		4	50	1
NAS1612-6		3	95	1
		4	95	1
		4	105	1
NAS1612-8		1	30	1
		1	60	1
		1	70	1
		1	80	1
		2	30	1
		2	60	1
		2	70	1
		2	80	1
		3	30	1
		3	60	1
		3	70	1
		3	80	1
		4	30	1
		4	60	1
		4	70	1
		4	80	1
PTX300-8009-1		3	90	1
		3	90A	1
		3	90B	1
		4	90	1
		4	90A	1
		4	90B	1
PTX300-8009-2		3	90	1
		3	90A	1
		3	90B	1
		4	90	1
		4	90A	1
		4	90B	1
PTX300-8009-3		3	90	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		3	90A	1
		3	90B	1
		4	90	1
		4	90A	1
		4	90B	1
RMR12BM228		5	20	4
S12766-228		5	20B	4
S271A002-1		5	80B	2
S271T452-16		4	100	1
		4	100A	1
		4	100B	1
S271W731-1		3	90	1
		3	90A	1
		3	90B	1
		4	90	1
		4	90A	1
		4	90B	1
S30294-228-1		5	20	4
STF800-228		5	20	4
TF450-228A		5	20	4
US2114-10-8		3	15A	1
		3	25A	1
		4	5A	1
US2114-12-10		3	5A	1
		3	35A	1
US2114R12-10		4	15A	1



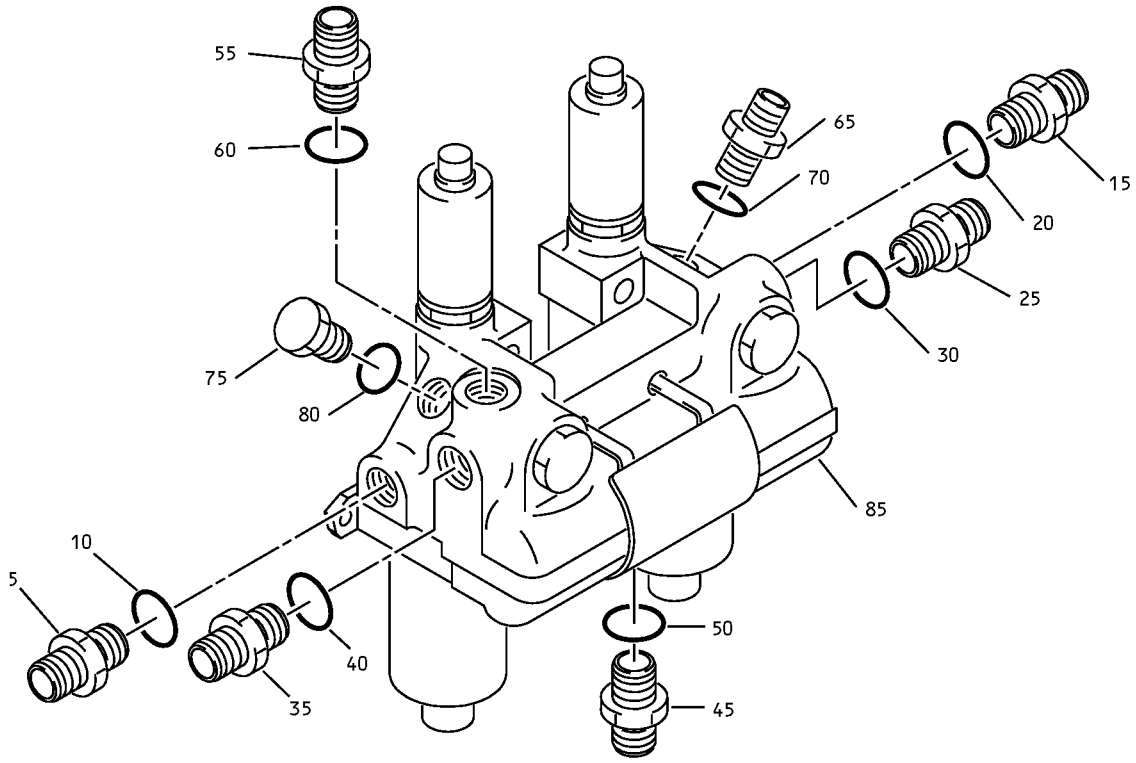
System A Pressure Modular Assembly
IPL Figure 1

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1A	65-44580-15		MODULAR ASSY-PRESSURE SYS A	A	RF
–1B	65-44580-17		MODULAR ASSY-PRESSURE SYS A	B	RF
–1C	65-44580-19		MODULAR ASSY-PRESSURE SYS A	C	RF
–1D	65C26873-3		MODULAR ASSY-PRESSURE SYS B (FOR DETAILS SEE FIG. 2)	D	RF
–1E	65C26873-4		MODULAR ASSY-PRESSURE SYS B (FOR DETAILS SEE FIG. 2)	E	RF
–1F	65C26873-5		MODULAR ASSY-PRESSURE SYS B (FOR DETAILS SEE FIG. 2)	F	RF
–1G	276A2003-1		MODULAR ASSY-PRESSURE SYS A (FOR DETAILS SEE FIG. 3)	G	RF
–1H	276A2003-2		MODULAR ASSY-PRESSURE SYS B (FOR DETAILS SEE FIG. 4)	H	RF
5	MS21902-10		. UNION	A-C	1
10	NAS1612-10		. PACKING	A-C	1
15	MS21916-10-8		. REDUCER	A-C	1
20	NAS1612-10		. PACKING	A-C	1
25	MS21916-10-8		. REDUCER	A-C	1
30	NAS1612-8		. PACKING	A-C	1
35	MS21916-12-10		. REDUCER	A-C	1
40	NAS1612-12		. PACKING	A-C	1
45	MS21902D12		. UNION	A-C	1
50	NAS1612-12		. PACKING	A-C	1
55	MS21916-8-4		. REDUCER	A-C	1
60	NAS1612-8		. PACKING	A-C	1
65	BACV10CE3		. VALVE	A-C	1
70	NAS1612-8		. PACKING	A-C	1
75	MS24391D8L		. PLUG	A-C	1
80	NAS1612-8		. PACKING	A-C	1
85	65-17821-18		. PACKAGE ASSY (FOR DETAILS SEE FIG. 5)	A	1
–85A	65-17821-20		. PACKAGE ASSY (FOR DETAILS SEE FIG. 5)	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–					
–85B	65-17821-21		. PACKAGE ASSY (FOR DETAILS SEE FIG. 5)	C	1

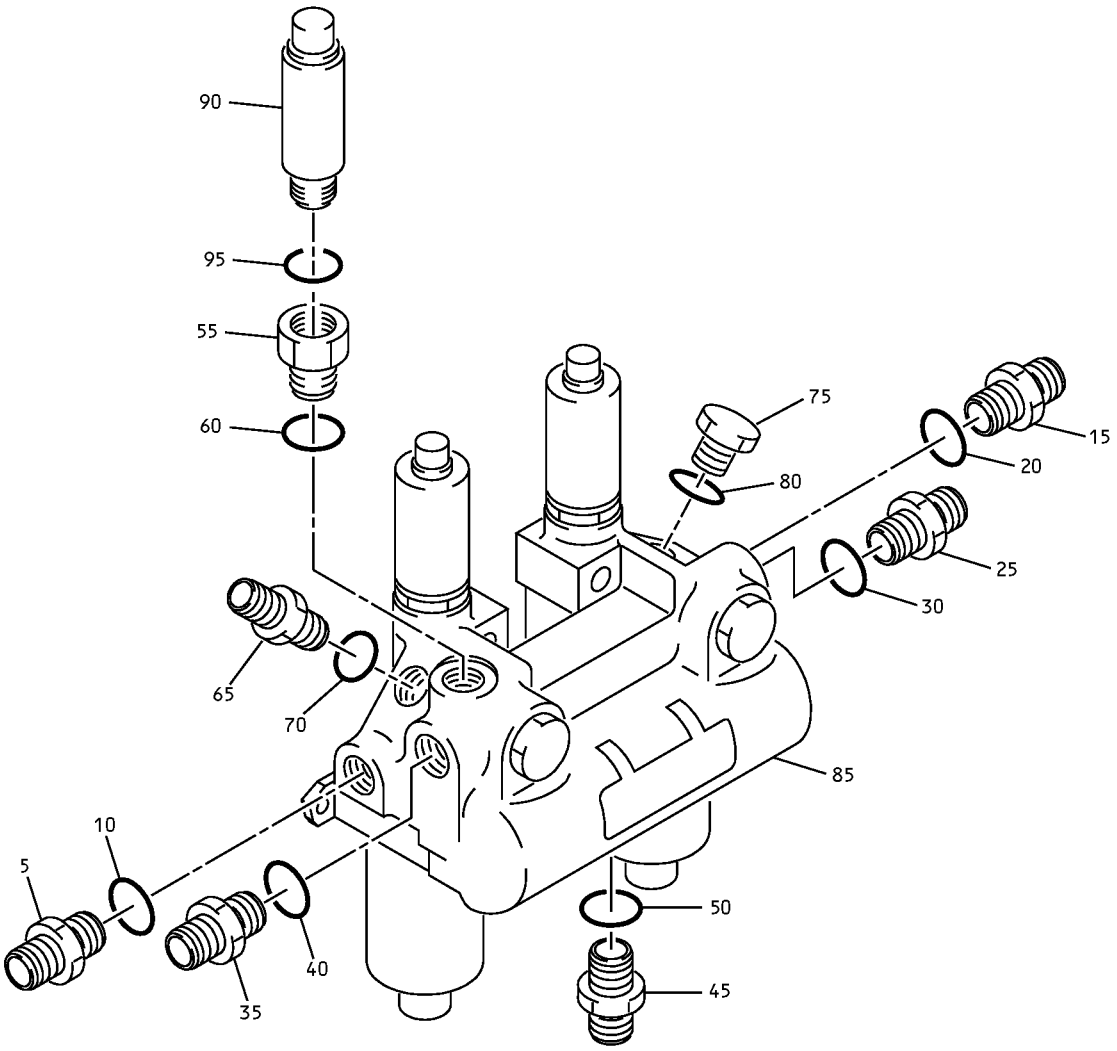
–Item not Illustrated



System B Pressure Modular Assembly
IPL Figure 2

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
2–					
–1A	65C26873-3		MODULAR ASSY-PRESSURE SYS B	D	RF
–1B	65C26873-4		MODULAR ASSY-PRESSURE SYS B	E	RF
–1C	65C26873-5		MODULAR ASSY-PRESSURE SYS B	F	RF
5	MS21916-10-8		. REDUCER	D-F	1
10	NAS1612-10		. PACKING	D-F	1
15	MS21902-10		. UNION	D-F	1
20	NAS1612-10		. PACKING	D-F	1
25	MS21902-8		. UNION	D-F	1
30	NAS1612-8		. PACKING	D-F	1
35	MS21902-12		. UNION	D-F	1
40	NAS1612-12		. PACKING	D-F	1
45	MS21902D12		. UNION	D-F	1
50	NAS1612-12		. PACKING	D-F	1
55	MS21916-8-4		. REDUCER	D-F	1
60	NAS1612-8		. PACKING	D-F	1
65	MS21902-8		. UNION	D-F	1
70	NAS1612-8		. PACKING	D-F	1
75	MS24391D8L		. PLUG	D-F	1
80	NAS1612-8		. PACKING	D-F	1
85	65-17821-18		. PACKAGE ASSY (FOR DETAILS SEE FIG. 5)	D	1
–85A	65-17821-20		. PACKAGE ASSY (FOR DETAILS SEE FIG. 5)	E	1
–85B	65-17821-21		. PACKAGE ASSY (FOR DETAILS SEE FIG. 5)	F	1

–Item not Illustrated



System A Pressure Modular Assembly
IPL Figure 3

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
3–					
–1A	276A2003-1		MODULAR ASSY-PRESSURE SYS A	G	RF
5	MS21916-12-10T		. REDUCER (OPT ITEM 5A)	G	1
–5A	AFP23212-10		. REDUCER (V30974) (SPEC BACR17E12-10) (OPT AP102712-10 (V01673)) (OPT BC916T12-10 (V50948)) (OPT DB0R17E12-10 (V14798)) (OPT ER21916T12-10 (V88334)) (OPT ER31916-12-10 (V88334)) (OPT F23-12-10 (V73197)) (OPT 2-01075T12-10 (V11328)) (OPT 31778-12-10 (V14397)) (OPT US2114-12-10 (V50808)) (OPT ITEM 5)	G	1
10	NAS1612-10		. PACKING	G	1
15	MS21916-10-8T		. REDUCER (OPT ITEM 15A)	G	1
–15A	AFP23210-8		. REDUCER (V30974) (SPEC BACR17E10-8) (OPT AP102710-8 (V01673)) (OPT BC916T10-8 (V50948)) (OPT DB0R17E10-8 (V14798)) (OPT ER21916T10-8 (V88334)) (OPT ER31916-10-8 (V88334)) (OPT F23-10-8 (V73197)) (OPT 2-01075T10-8 (V11328)) (OPT 31778-10-8 (V14397)) (OPT US2114-10-8 (V50808)) (OPT ITEM 15)	G	1
20	NAS1612-10		. PACKING	G	1
25	MS21916-10-8T		. REDUCER (OPT ITEM 25A)	G	1

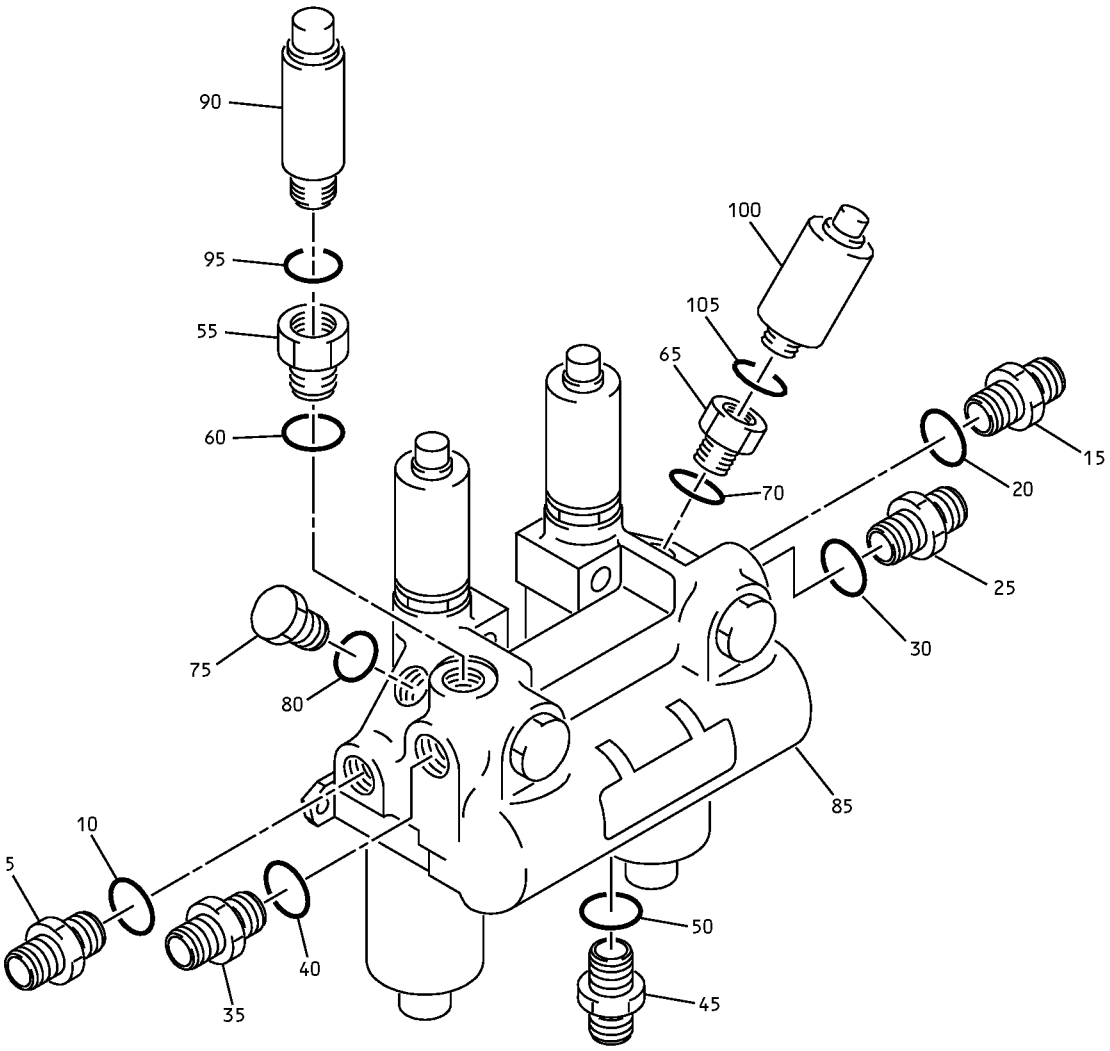
–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
3–					
–25A	AFP23210-8		. REDUCER (V30974) (SPEC BACR17E10-8) (OPT AP102710-8 (V01673)) (OPT BC916T10-8 (V50948)) (OPT DB0R17E10-8 (V14798)) (OPT ER21916T10-8 (V88334)) (OPT ER31916-10-8 (V88334)) (OPT F23-10-8 (V73197)) (OPT 2-01075T10-8 (V11328)) (OPT 31778-10-8 (V14397)) (OPT US2114-10-8 (V50808)) (OPT ITEM 25)	G	1
30	NAS1612-8		. PACKING	G	1
35	MS21916-12-10T		. REDUCER (OPT ITEM 35A)	G	1
–35A	AFP23212-10		. REDUCER (V30974) (SPEC BACR17E12-10) (OPT AP102712-10 (V01673)) (OPT BC916T12-10 (V50948)) (OPT DB0R17E12-10 (V14798)) (OPT ER21916T12-10 (V88334)) (OPT ER31916-12-10 (V88334)) (OPT F23-12-10 (V73197)) (OPT 2-01075T12-10 (V11328)) (OPT 31778-12-10 (V14397)) (OPT US2114-12-10 (V50808)) (OPT ITEM 35)	G	1
40	NAS1612-12		. PACKING	G	1
45	MS21902D12		. UNION	G	1
50	NAS1612-12		. PACKING	G	1
55	AN893-12T		. BUSHING	G	1
60	NAS1612-8		. PACKING	G	1
65	1C3512		. VALVE (V99240) (SPEC BACV10CE13) (OPT 0121520600-13 (V83533))	G	1
70	NAS1612-8		. PACKING	G	1
75	MS24391D8L		. PLUG (OPT ITEM 75A)	G	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
3–					
–75A	AN814-8DL		. PLUG (OPT ITEM 75)	G	1
80	NAS1612-8		. PACKING	G	1
85	65-17821-21		. PACKAGE ASSY (FOR DETAILS SEE FIG. 5)	G	1
90	PTX300-8009-1		. TRANSDUCER-PRESSURE (VU0427) (SPEC S271W731-1) (OPT PTX300-8009-2 (VU0427)) (OPT PTX300-8009-3 (VU0427))	G	1
–90A	PTX300-8009-2		. TRANSDUCER-PRESSURE (VU0427) (SPEC S271W731-1) (OPT PTX300-8009-1 (VU0427)) (OPT PTX300-8009-3 (VU0427))	G	1
–90B	PTX300-8009-3		. TRANSDUCER-PRESSURE (VU0427) (SPEC S271W731-1) (OPT PTX300-8009-1 (VU0427)) (OPT PTX300-8009-2 (VU0427))	G	1
95	NAS1612-6		. PACKING	G	1

–Item not Illustrated



System B Pressure Modular Assembly
IPL Figure 4

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
4–					
–1A	276A2003-2		MODULAR ASSY-PRESSURE SYS B	H	RF
5	MS21916-10-8T		. REDUCER (OPT ITEM 5A)	H	1
–5A	AFP23210-8		. REDUCER (V30974) (SPEC BACR17E10-8) (OPT AP102710-8 (V01673)) (OPT BC916T10-8 (V50948)) (OPT DB0R17E10-8 (V14798)) (OPT ER21916T10-8 (V88334)) (OPT ER31916-10-8 (V88334)) (OPT F23-10-8 (V73197)) (OPT 2-01075T10-8 (V11328)) (OPT 31778-10-8 (V14397)) (OPT US2114-10-8 (V50808)) (OPT ITEM 5)	H	1
10	NAS1612-10		. PACKING	H	1
15	MS21916-12-10T		. REDUCER (OPT ITEM 15A)	H	1
–15A	AFP232R12-10		. REDUCER (V30974) (SPEC BACR17ER12-10) (OPT AP1027R12-10 (V01673)) (OPT BC916TR12-10 (V50948)) (OPT DB0R17ER12-10 (V14798)) (OPT ER31916R12-10 (V88334)) (OPT ER21916TR12-10 (V88334)) (OPT F23R12-10 (V73197)) (OPT 31778R12-10 (V14397)) (OPT 2-01075TR12-10 (V11328)) (OPT US2114R12-10 (V50808)) (OPT ITEM 15)	H	1
20	NAS1612-10		. PACKING	H	1
25	MS21902-8T		. UNION	H	1
30	NAS1612-8		. PACKING	H	1
35	MS21902-12T		. UNION	H	1
40	NAS1612-12		. PACKING	H	1
45	MS21902D12		. UNION	H	1
50	NAS1612-12		. PACKING	H	1

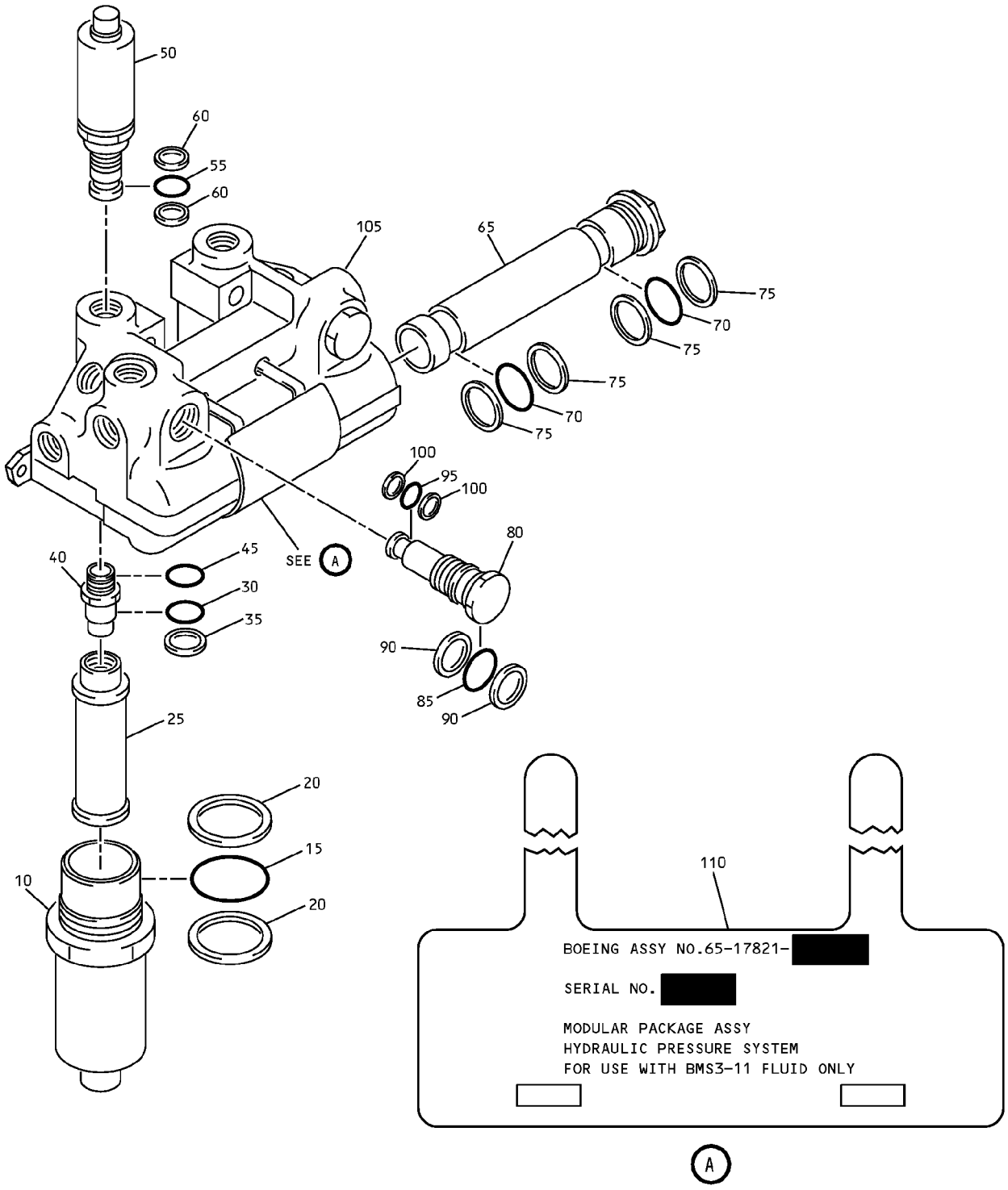
–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
4–					
55	AN893-12T		. BUSHING	H	1
60	NAS1612-8		. PACKING	H	1
65	AN893-12T		. BUSHING	H	1
70	NAS1612-8		. PACKING	H	1
75	MS24391D8L		. PLUG (OPT ITEM 75A)	H	1
–75A	AN814-8DL		. PLUG (OPT ITEM 75)	H	1
80	NAS1612-8		. PACKING	H	1
85	65-17821-21		. PACKAGE ASSY (FOR DETAILS SEE FIG. 5)	H	1
90	PTX300-8009-1		. TRANSDUCER-PRESSURE (VU0427) (SPEC S271W731-1) (OPT PTX300-8009-2 (VU0427)) (OPT PTX300-8009-3 (VU0427))	H	1
–90A	PTX300-8009-2		. TRANSDUCER-PRESSURE (VU0427) (SPEC S271W731-1) (OPT PTX300-8009-1 (VU0427)) (OPT PTX300-8009-3 (VU0427))	H	1
–90B	PTX300-8009-3		. TRANSDUCER-PRESSURE (VU0427) (SPEC S271W731-1) (OPT PTX300-8009-1 (VU0427)) (OPT PTX300-8009-2 (VU0427))	H	1
95	NAS1612-6		. PACKING	H	1
100	211C223-275		. SWITCH-PRESSURE (V02750) (SPEC S271T452-16) (OPT 211C223-324 (V02750)) (OPT 211C223-526 (V02750)) (OPT ITEM 100A, 100B)	H	1
–100A	211C223-324		. SWITCH-PRESSURE (V02750) (SPEC S271T452-16) (OPT 211C223-275 (V02750)) (OPT 211C223-526 (V02750)) (OPT ITEM 100, 100B)	H	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
4–					
–100B	211C223-526		. SWITCH-PRESSURE (V02750) (SPEC S271T452-16) (OPT 211C223-275 (V02750)) (OPT 211C223-324 (V02750)) (OPT ITEM 100, 100A)	H	1
105	NAS1612-6		. PACKING	H	1

–Item not Illustrated



Hydraulic Pressure System Modular Package Assembly
IPL Figure 5

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
5–					
–1A	65-17821-18		PACKAGE ASSY-MODULAR	A, D	RF
–1B	65-17821-20		PACKAGE ASSY-MODULAR	B, E	RF
–1C	65-17821-21		PACKAGE ASSY-MODULAR	C, F, G, H	RF
10	65-17989-8		. BOWL-FILTER (PRE SB 737-29-1062)	A, B, D, E	2
–10A	65-17989-10		. BOWL-FILTER (POST SB 737-29-1062)	A, B, D, E	2
–10B	65-17989-10		. BOWL-FILTER	C, F-H	2
15	NAS1611-228		. PACKING	A-H	2
20	C11236-228B		. RING (V26879) (SPEC BACR12BM228) (OPT RMR12BM228 (V94878)) (OPT STF800-228 (V02107)) (OPT S30294-228-1 (V97820)) (OPT TF450-228A (V07128)) (OPT 2100-228 (V26303)) (PREFERED) (OPT ITEM 20A, 20B)	A-H	4
–20A	MS28783-6		. RING (OPT ITEM 20, 20B)	A-H	4
–20B	S12766-228		. RING (V97820) (OPT ITEM 20, 20A)	A-H	4
25	7513128		. FILTER (V05228) (SPEC 10-60592-5) (OPT ITEM 25A, 25B, 25C)	A-H	2
–25A	7513122		. FILTER (V05228) (SPEC 10-60592-1) (OPT ITEM 25, 25B, 25C)	A-H	2
–25B	AC7681E1		. FILTER (V05228) (SPEC 10-60592-1) (OPT ITEM 25, 25A, 25C)	A-H	2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
5–					
–25C	AC7681E1Y2		. FILTER (V18350) (SPEC 10-60592-6) (OPT ITEM 25, 25A, 25B)	A-H	2
30	NAS1611-214		. PACKING	A-H	2
35	MS28782-19		. RING	A-H	2
40	66-12196-1		. FITTING	A-H	2
45	NAS1612-10		. PACKING	A-H	2
50	90G183		. SWITCH (V09049) (SPEC 10-60552-11) (OPT ITEM 50B, 50E, 50L)	A, D	2
–50A	S90G183		DELETED		
–50B	1225P6-1		. SWITCH (V98087) (SPEC 10-60552-22) (OPT ITEM 50, 50E, 50L)	A, D	2
–50C	90G223		. SWITCH (V09049) (SPEC 10-60552-31) (OPT ITEM 50D) (OPT 90G235 (V09049))	B, E	2
–50D	1225P6-2		. SWITCH (V98087) (SPEC 10-60552-35) (OPT ITEM 50C, 50F)	B, E	2
–50E	1225P6-2		. SWITCH (V98087) (SPEC 10-60552-35) (OPT ITEM 50, 50B, 50L)	A, D	2
–50F	90G235		. SWITCH (V09049) (SPEC 10-60552-31) (OPT ITEM 50D) (OPT 90G223 (V09049))	B, E	2
50G	90G183		. SWITCH (V09049) (SPEC 10-60552-11) (OPT ITEM 50H, 50J, 50K)	C, F, G, H	2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
5–					
–50H	1225P6-1		. SWITCH (V98087) (SPEC 10-60552-22) (OPT ITEM 50G, 50J, 50K)	C, F, G, H	2
–50J	1225P6-2		. SWITCH (V98087) (SPEC 10-60552-35) (OPT ITEM 50G, 50H, 50K)	C, F, G, H	2
–50K	90G223		. SWITCH (V09049) (SPEC 10-60552-31) (OPT ITEM 50G, 50H, 50J) (OPT 90G235 (V09049))	C, F, G, H	2
–50L	90G37		. SWITCH (V09049) (SPEC 10-60552-1) (OPT ITEM 50, 50B, 50E)	A, D	2
55	NAS1611-113		. PACKING	A-H	2
60	MS28782-11		. RING	A-H	4
65	A61499		. VALVE-PRESSURE RELIEF (V81982) (SPEC 10-60551-2) (OPT 1651 (V06177))	A-H	1
–65A	1651		. VALVE-PRESSURE RELIEF (V06177) (SPEC 10-60551-2) (OPT A61499 (V81982))	A-H	1
70	NAS1611-327		. PACKING	A, B, D, E	2
–70A	NAS1611-327A		. PACKING	C, F-H	2
75	MS28782-30		. RING	A-H	4
80	H61C0552M1		. VALVE (V92003) (SPEC 10-60491-3)	A, B, D, E	2
–80A	H61C0552M1		. VALVE (V92003) (SPEC 10-60491-3) (OPT ITEM 80B)	C, F, G, H	2

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
5–					
–80B	1C4196		. VALVE (V99240) (SPEC S271A002-1) (OPT ITEM 80A)	C, F, G, H	2
85	NAS1611-214		. PACKING	A-H	2
90	MS28782-19		. RING	A-H	4
95	NAS1611-115		. PACKING	A-H	2
100	MS28782-13		. RING	A-H	4
105	65-44674-7		. HOUSING	A-H	1
110	BAC27DHY0279		. NAMEPLATE	A-H	1

–Item not Illustrated