TO: ALL HOLDERS OF CENTER SYSTEM HYDRAULIC RESERVOIR ASSEMBLY COMPONENT MAINTENANCE MANUAL 29-11-20

REVISION NO. 1 DATED NOV 01/03

HIGHLIGHTS

Pages which have been added or revised are outlined below together with the highlights of the revision. Remove and insert the affected pages as listed and enter Revision No. and date to the Record of Revision Sheet.

CHAPTER/SECTION AND PAGE NO.	DESCRIPTION OF CHANGE
ALL PAGES	Revised Header block.
401 701 901	Revised bonding meter part number for Avtron model T447W to T477W.

BOEING

COMPONENT
MAINTENANCE MANUAL

CENTER SYSTEM HYDRAULIC RESERVOIR ASSEMBLY

PART NUMBER 271T4521-1

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

K39405

REVISION RECORD

- Retain this record in front of manual. On receipt of revision, insert revised pages in the manual, and enter revision number, date inserted and initial.

REVISION NUMBER	REVISION DATE	DATE FILED	BY	REVISION NUMBER	REVISION DATE	DATE FILED	BY

K39409

TEMPORARY REVISION AND SERVICE BULLETIN RECORD

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

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*[1] Not Applicable.

INTRODUCTION

The instructions in this manual provide the information necessary to perform maintenance functions ranging from simple checks and replacement to complete shop-type repair.

This manual is divided into separate sections:

1. Title Page
2. Record of Revisions
3. Temporary Revision & Service Bulletin Record
4. List of Effective Pages
5. Table of Contents
6. Introduction
7. Procedures & IPL Sections

Refer to the Table of Contents for the page location of applicable sections.

The beginning of the REPAIR section includes a list of the separate repairs, a list of applicable standard Boeing practices, and an explanation of the True Position Dimensioning symbols used.

An explanation of the use of the Illustrated Parts List is provided in the Introduction to that section.

All weights and measurements used in the manual are in English units, unless otherwise stated. When metric equivalents are given they will be in parentheses following the English units.

Design changes, optional parts, configuration differences and Service Bulletin modifications create alternate part numbers. These are identified in the Illustrated Parts List (IPL) by adding an alphabetical character to the basic item number. The resulting item number is called an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless otherwise indicated.

Verification:

CENTER SYSTEM HYDRAULIC RESERVOIR ASSEMBLY

DESCRIPTION AND OPERATION

1. Description

   A. The center system hydraulic reservoir assembly is a pressure vessel that has an upper and lower weldment assembly. The lower weldment assembly contains a manifold, a quantity transmitter, a temperature transmitter, a fluid sampling valve, a drain valve, a G-trap ring, the lower shell, and associated parts. The upper weldment assembly contains a pressure relief valve, a support ring, the upper shell, and associated parts.

2. Operation

   A. Hydraulic fluid that is stored in the reservoir is pressurized by controlled engine bleed air to make a pressurized supply to the hydraulic pumps and to prevent foaming. A negative-G trap cover divides the reservoir into an upper and lower chamber. Fluid enters the reservoir through a diffuser into the upper chamber and leaves from the lower chamber supply ports. Flow between the chambers is controlled by the negative-G trap. The negative-G trap maintains a constant fluid supply to the pumps at all reservoir levels and flight attitudes.

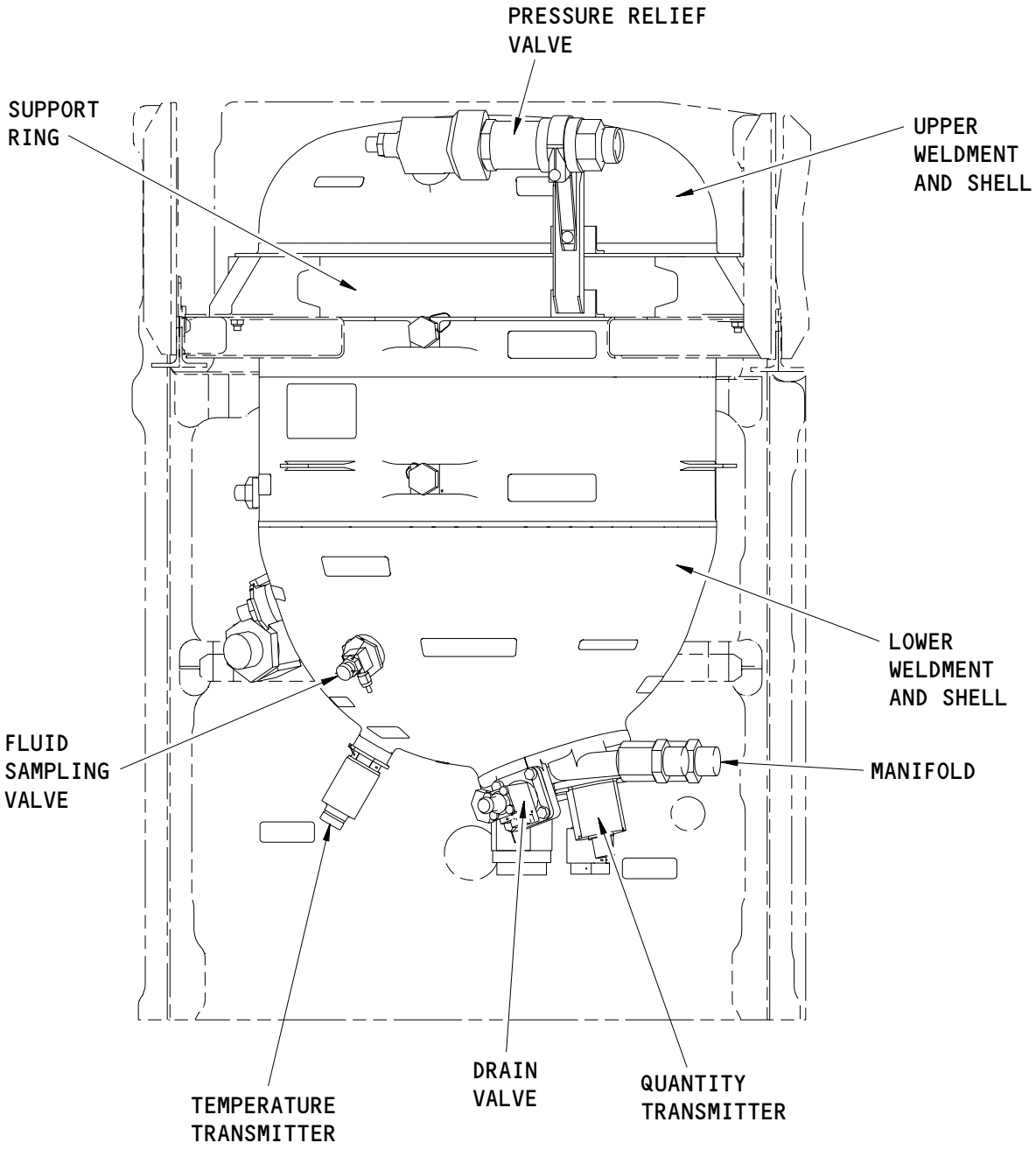
3. Leading Particulars (Approximate)

   A. Length -- 22 inches

   B. Width -- 22 inches

   C. Height -- 21 inches

   D. Weight -- 22 pounds



Center System Hydraulic Assembly
Figure 1

K67006

TESTING AND FAULT ISOLATION

1. General

   A. This procedure has the data necessary to do a test of the reservoir assembly after an overhaul or for fault ioslation. There are two tests:

      (1) Pressure Test

      (2) Negative G-Valve Test

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Reservoir Assembly Test

   A. General

      (1) To do these tests, it is necessary to set-up the reservoir assembly with hydraulic test equipment.

   B. Special Tools and Equipment

      NOTE: Equivalent equipment can be used.

      (1) Hydraulic Test Equipment capable of a 180 pounds per square inch pressure when a 15 micron filter is used.

   C. References

      (1) 29-11-20/501, Check

   D. Procedure

      (1) Do a pressure test:

         (a) Make sure the test fluid is continuously filtered by a 15 micron absolute filter.

         (b) Install skydrol resistant pressure caps in all openings.

         (c) Connect the reservoir assembly (1) to the hydraulic test equipment.

(d) Pressure test the reservoir assembly (1) with hydraulic fluid at 180 PSI gauge pressure for 5 minutes.

1) Make sure there is no external leakage or permanent set.

2) Do not flush or fully drain the reservoir after the pressure test.

(e) Remove the reservoir assembly (1) from the hydraulic test equipment.

(f) Remove the pressure caps.

(g) Do a penetrant check (29-11-20/501) on all the welds for surface cracks.

(2) Do a Negative-G valve test:

(a) Slowly invert the empty reservoir assembly (1) from its installed attitude.

(b) Listen for a noise indication that the ball valve has lifted.

(c) Slowly move the empty reservoir assembly (1) back to its installed attitude.

(d) Listen for a noise indication that the ball valve has reseated.

(e) If the negative-G valve is locked, the weld assembly must be replaced.

DISASSEMBLY

1. General

   A. This procedure has the data necessary to disassemble the reservoir assembly.

   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 IPL Fig. 1 for item numbers.

2. Disassembly

   A. Procedure

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

          NOTE: Do not disassemble the weld assembly (295). Replace the weld assembly (295) as a unit if it is damaged or defective.

CLEANING

1. General

   A. This procedure has the data necessary to clean the assembly.

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Clean

   A. Special Tools and Equipment

      NOTE: Equivalent equipment can be used.

      (1) Reservoir test stand capable of 20 gallons per minute at 55 pounds per square inch through a 15 micron absolute filter.

      (2) Avtron model T477W -- Bonding Meter

   B. Consumable Materials

      NOTE: Equivalent material can be used.

      (1) D00153 Lubricant - Skydrol Assembly Lube (SOPM 20-60-03)

      (2) D00183 Hydraulic Fluid - BMS 3-11 (SOPM 20-60-03)

      (3) G01505 Lockwire - MS20995NC32

   C. References

      (1) SOPM 20-11-03, Repair of Electrical Terminations and Electrical Bonding Areas

      (2) SOPM 20-30-03, General Cleaning Procedures

      (3) SOPM 20-50-02, Installation of Safetying Devices

      (4) SOPM 20-50-06, Installation of O-Rings and Teflon Seals

      (5) SOPM 20-60-03, Lubricants

D. Procedure

(1) Clean all the parts as specified by standard industry practices (SOPM 20-30-03).

(2) Flush the reservoir assembly (1) before installation in the airplane.

(a) Lubricate all the threaded fittings with skydrol assembly lube.

(b) Connect the supply line from the test stand to the return port union (140).

(c) Connect the pressure relief union (210) to the test stand reservoir.

(d) Connect the return line from the test stand to the supply port unions (5, 45) on the lower manifold.

NOTE: There are three ports on manifold casting to connect.

(e) Install a pressure cap in the reservoir pressurization connection.

(f) Make sure the drain valve (75) is closed.

(g) Remove the transmitter (35), packing (40), bolts (25), and washers (30).

(h) Install a pressure cap in the transmitter (35) opening.

(i) Install the pressure caps in the gear replenish and alternate gear supply openings.

CAUTION: DO NOT EXCEED 55 POUNDS PER SQUARE INCH IN THE RESERVOIR WHEN IT IS FLUSHED.

(j) Flush the reservoir assembly (1) for 10 minutes at 20 gallons per minute.

(k) Drain the hydraulic fluid from the reservoir assembly (1) at the drain valve (75).

(l) Remove the pressure cap from the transmitter (35) opening.

(m) Install the transmitter (35).

1) Prepare the faying surfaces of the transmitter (35) and the weld assembly (295) for electrical bonding (SOPM 20-11-03).

2) Lubricate the packing (40) with skydrol assembly lube (SOPM 20-50-06).

3) Install the transmitter (35), packing (40), bolts (25), and washers (30).

4) Install lockwire on the bolts (25) with the double twist method (SOPM 20-50-02).

5) Do a check that the maximum resistance across the bond is less than 0.008 ohms (SOPM 20-11-03).

NOTE: The resistance must be measured from the installed transmitter (35) to true ground with the bonding meter.

(n) Disconnect the flush lines from the reservoir assembly (1).

CAUTION: ALL THE PLUGS AND CAPS SHALL BE FLUSHED CLEAN BEFORE INSTALLATION.

(o) Install the BMS 3-11 resistant plugs and caps in all openings.

(p) Install transportation plugs as necessary to make sure that the reservoir is kept clean before installation in the airplane.

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.

   C. Refer to IPL Fig. 1 for item numbers.

2. Check

   A. References

      (1) SOPM 20-20-02, Penetrant Methods of Inspection

   B. Procedure

      (1) Use standard industry procedures to do a visual check of all the parts for defects. Do the penetrant 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 penetrant check (SOPM 20-20-02) on these parts:

         (a) Support (280, 285)

         (b) Support ring (310, 355)

         (c) Manifold (335)

         (d) Return boss (350)

      (3) Do a spring check (500):

         (a) Extend spring to 0.59 inch length.

         (b) Check that the load is 0.0054 to 0.0060 pounds.

         (c) Extend spring to 1.04 inch length.

         (d) Check that the load is 0.0022 to 0.0034 pounds.

REPAIR - GENERAL

1. General

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

PART NUMBER	NAME	REPAIR
---	REFINISH OF OTHER PARTS	1-1

2. Dimensioning Symbols

A. Standard True Position Dimensioning Symbols used in the applicable repair procedures are shown in Fig. 601.

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

EXAMPLES

— 0.002	STRAIGHT WITHIN 0.002
⊥ 0.002 B	PERPENDICULAR TO DATUM B WITHIN 0.002
// 0.002 A	PARALLEL TO DATUM A WITHIN 0.002
○ 0.002	ROUND WITHIN 0.002
⌭ 0.010	CYLINDRICAL SURFACE MUST LIE BETWEEN TWO CONCENTRIC CYLINDERS, ONE OF WHICH HAS A RADIUS 0.010 INCH GREATER THAN THE OTHER
⌒ 0.006 A	EACH LINE ELEMENT OF THE SURFACE AT ANY CROSS SECTION MUST LIE BETWEEN TWO PROFILE BOUNDARIES 0.006 INCH APART RELATIVE TO DATUM A
⌓ 0.020 A	SURFACES MUST LIE WITHIN PARALLEL BOUNDARIES 0.020 INCH APART AND EQUALLY DISPOSED ABOUT TRUE PROFILE
◎ ∅ 0.0005 C	CONCENTRIC TO DATUM C WITHIN 0.0005 DIAMETER
⌯ 0.010 A	SYMMETRICAL WITH DATUM A WITHIN 0.010
∠ 0.005 A	ANGULAR TOLERANCE 0.005 WITH DATUM A
⌖ ∅ 0.002 Ⓢ B	LOCATED AT TRUE POSITION WITHIN 0.002 DIA RELATIVE TO DATUM B, REGARDLESS OF FEATURE SIZE
⊥ ∅ 0.010 Ⓜ A 0.510 Ⓟ	AXIS IS TOTALLY WITHIN A CYLINDER OF 0.010 INCH DIAMETER, PERPENDICULAR TO DATUM A, AND EXTENDING 0.510 INCH ABOVE DATUM A, MAXIMUM MATERIAL CONDITION
2.000 OR 2.000 BSC	THEORETICALLY EXACT DIMENSION IS 2.000

True Position Dimensioning Symbols
Figure 601

K39410

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 details of the SOPM chapters identified in this procedure.

   C. Refer to IPL Fig. 1 for item numbers.

2. Refinish of Other Parts

   A. General

      (1) Instructions for the repair of the parts listed in Table 601 are for repair of the initial finish.

   B. Consumable Materials

      NOTE: Equivalent material can be used.

      (1) C00432 Primer -- BMS 10-11, Type 1 (SOPM 20-60-02)

   C. References

      (1) SOPM 20-30-02, Stripping of Protective Finishes

      (2) SOPM 20-30-03, General Cleaning Procedures

      (3) SOPM 20-41-01, Decoding Table for Boeing Finish Codes

      (4) SOPM 20-41-02, Application of Chemical and Solvent Resistant Finishes

      (5) SOPM 20-60-02, Finishing Materials

   D. Procedure

IPL FIG. & ITEM	MATERIAL	FINISH
IPL Fig. 1		
Filler (165) and Cup (505)	Aluminum alloy	Chromic acid anodize (F-17.02).
Bracket (240) and Support (245)	Aluminum alloy	Chemical treat and apply BMS 10-11, type 1 primer (F-18.06)
Support (280, 285)	Aluminum alloy	Chromic acid anodize and apply BMS 10-11, type 1 primer (F-18.13)
Clip (380) and Spring (500)	17-7 PH CRES Ht Trt 180-200 ksi	Passivate (F-17.25)

Refinish Details
Table 601

WELD ASSEMBLY - REPAIR 2-1

271T4522-1

1. General

   A. This procedure has the data necessary to repair and refinish the weld assembly (295).

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

   C. Refer to the REPAIR - GENERAL (29-11-20/601, REPAIR - GENERAL) for the Standard True Position Dimensioning Symbols shown in the repair.

   D. Refer to IPL Fig. 1 for item numbers.

2. Refinish

   A. Consumable Materials

      NOTE: Equivalent material can be used.

      (1) C00432 Primer -- BMS 10-11, Type 1 (SOPM 20-60-02)

   B. References

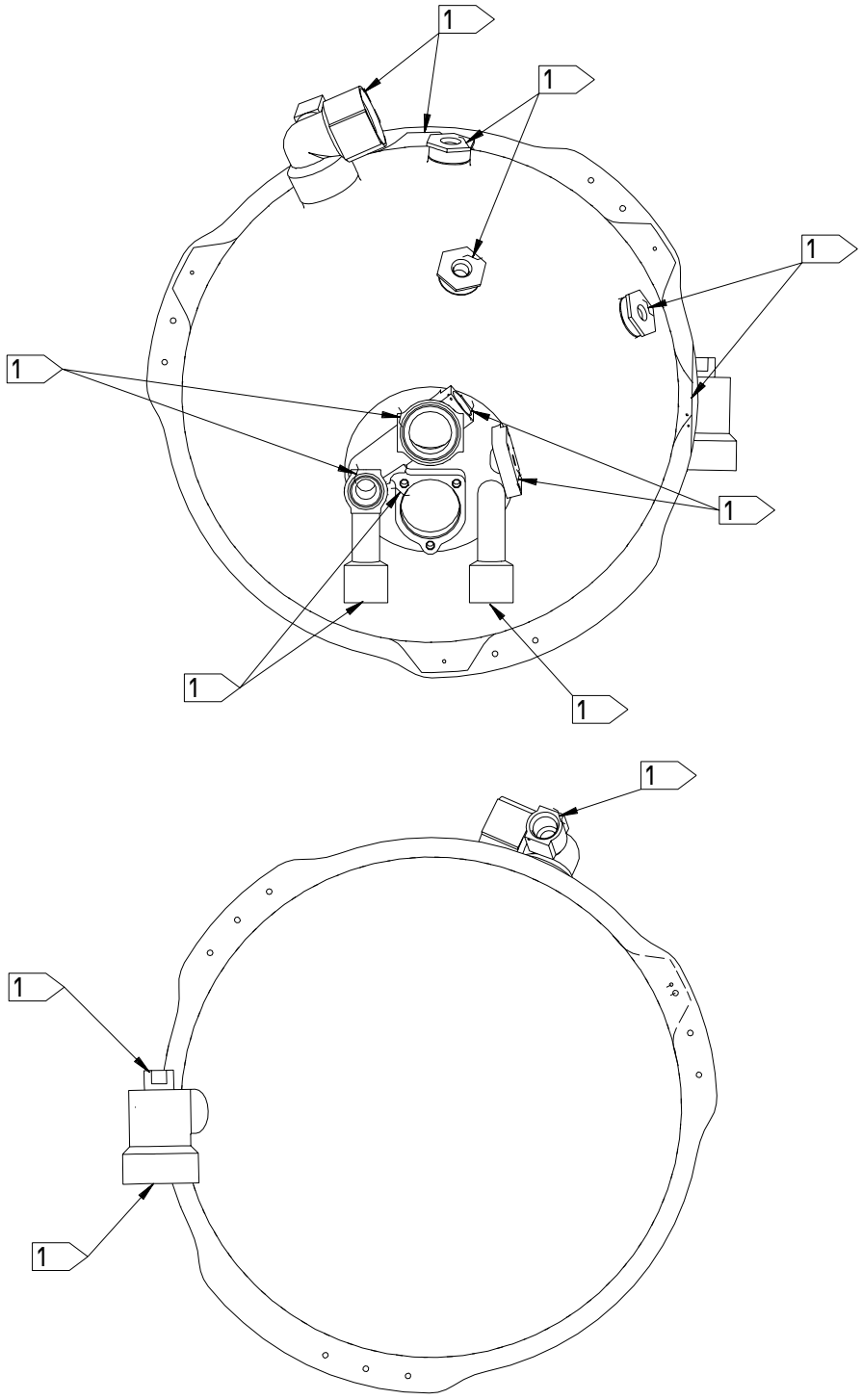
      (1) SOPM 20-41-01, Decoding Table for Boeing Finish Codes

      (2) SOPM 20-50-03, Bearing and Bushing Replacement

   C. Procedure

      (1) Boric acid - sulfuric acid anodize (F-17.31) as indicated in Fig. 601.

      (2) Apply BMS 10-11, Type 1 primer (F-20.03) all over.



1 BORIC ACID-SULFURIC ACID ANODIZE (F-17.31) TO INDICATED SURFACE

271T4522-1
Refinish Weld Assembly
Figure 601

K47060

ASSEMBLY

1. General

   A. This procedure has the data necessary to assemble the reservoir assembly. There are two parts:

      (1) Reservoir Assembly

      (2) Storage

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

   C. Refer to IPL Fig. 1 for item numbers.

2. Reservoir Assembly

   A. General

      (1) During assembly of the reservoir assembly, it is necessary to flush the reservoir.

   B. Special Tools and Equipment

      NOTE: Equivalent equipment can be used.

      (1) Avtron model T477W -- Bonding Meter

   C. Consumable Materials

      NOTE: Equivalent material can be used.

      (1) D00013 Grease -- MIL-G-23827 (SOPM 20-60-03)

      (2) G01505 Lockwire - MS20995NC32 (SOPM 20-50-02)

      (3) D00153 Lubricant - Skydrol Assembly Lube (SOPM 20-60-03)

      (4) C00259 Primer - BMS 10-11, Type 1 (SOPM 20-60-02)

      (5) B00571 Coating - BAC5710, Type 41 (SOPM 20-60-02)

   D. References

      (1) 29-12-23/401, Cleaning

(2) SOPM 20-11-03, Repair of Electrical Terminations and Electrical Bonding Areas

(3) SOPM 20-50-01, Bolt and Nut Installation

(4) SOPM 20-50-02, Installation of Safetying Devices

(5) SOPM 20-50-06, Installation of O-Rings and Teflon Seals

(6) SOPM 20-60-02, Finishing Materials

(7) SOPM 20-60-03, Lubricants

E. Procedure

(1) Use standard industry procedures for the assembly of this component and the added procedures as follows.

(2) Lubricate all the threaded fittings with skydrol assembly lube.

(3) Install and lubricate all the packings and seals with skydrol assembly lube (SOPM 20-50-06).

(4) Install the sampling valve (85) and lockwire valve to boss as shown in Fig. 701.

(5) Close the sampling valve (85) and lockwire the knob with the double twist method (SOPM 20-50-02).

(6) Lockwire the bolts (65, 130, 260) with the double twist method (SOPM 20-50-02).

(7) Lockwire the sight gauge (130) and the plugs (15, 55) with the double twist method (SOPM 20-50-02).

(8) Flush the reservoir assembly (29-11-20/401).

NOTE: The flushing procedure is to be performed before installation of the reservoir in the airplane.

(9) Install the transmitter (100) as shown in Fig. 701.

(a) Prepare the faying surfaces of the transmitter (245) and the weld assembly (320) for electrical bonding (SOPM 20-11-03).

(b) Install the transitter (100) and the packing (105) with skydrol assembly lube (SOPM 20-50-06).

(c) Do a check that the maximum resistance across the bond is less than 0.008 ohms (SOPM 20-11-03).

NOTE: The resistance must be measured from the installed transmitter (100) to true ground with the bonding meter.

(d) Install lockwire on the transmitter (100) with the double twist method (SOPM 20-50-02).

(10) Install the transmitter (35) as shown in Fig. 701.

(a) Prepare the faying surfaces of the transmitter (35) and the weld assembly (320) for electrical bonding (SOPM 20-11-03).

(b) Install the transmitter (35), packing (40), bolts (25), and washers (30).

(c) Install lockwire on the bolts (25) with the double twist method (SOPM 20-50-02).

(d) Do a check that the maximum resistance across the bond is less than 0.008 ohms (SOPM 20-11-03).

NOTE: The resistance must be measured from the installed transmitter (35) to true ground with the bonding meter.

(11) Install the aluminum foil markers (515, 520, 525, 530, 535, 540, 545, 550, 555, 560, 565, 570, 575, 580, 585, 590) as shown in Fig. 701 (SOPM 20-50-05).

(12) Apply a layer of BMS 3-11 resistant coating to the aluminum foil markers (515, 520, 525, 530, 535, 540, 545, 550, 555, 560, 565, 570, 575, 580, 585, 590) after installation (SOPM 20-44-01, type 41). Coating must extend a minimum of 0.38 inches beyond edge of marker.

3. Storage

A. References

(1) SOPM 20-44-02, Temporary Protective Coating

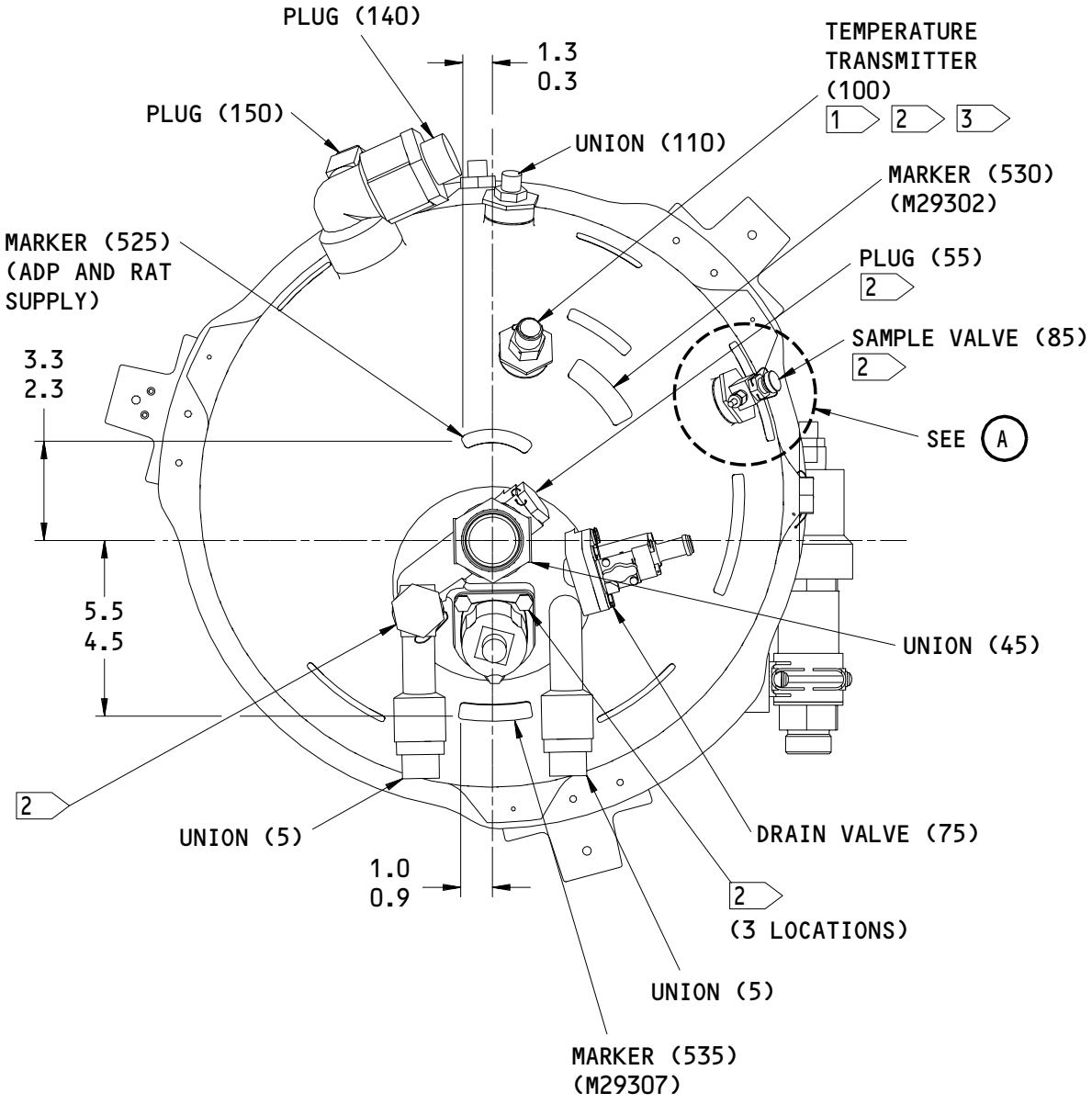
B. Procedure

(1) Use standard industry practices and information to store this component (SOPM 20-44-02).

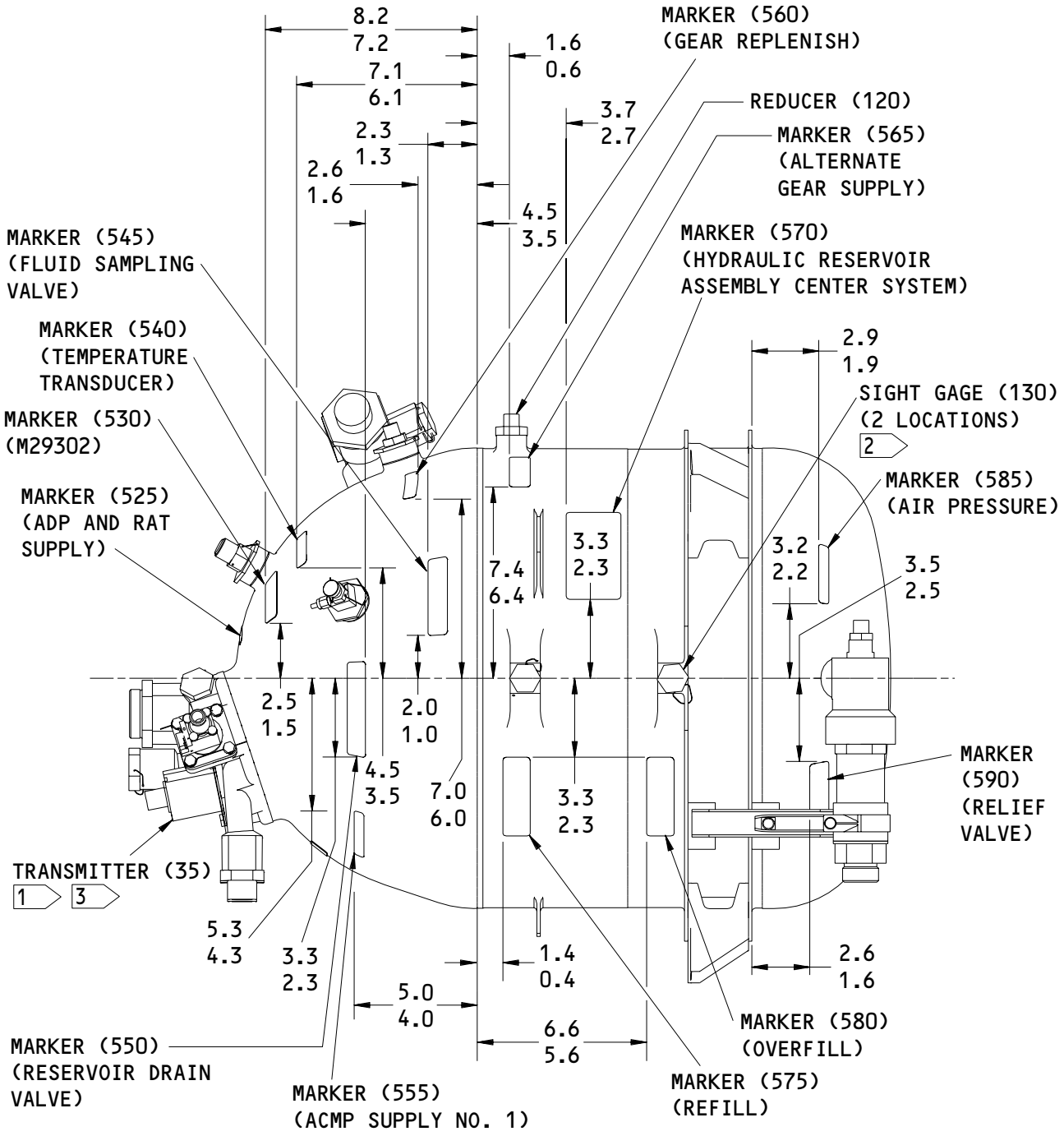
CAUTION: ALL THE PLUGS AND CAPS SHALL BE FLUSHED CLEAN BEFORE INSTALLATION.

(a) Install the BMS 3-11 resistant plugs and caps in all openings.

(b) Install transportation plugs as necessary to make sure that the reservoir is kept clean before installation in the airplane.

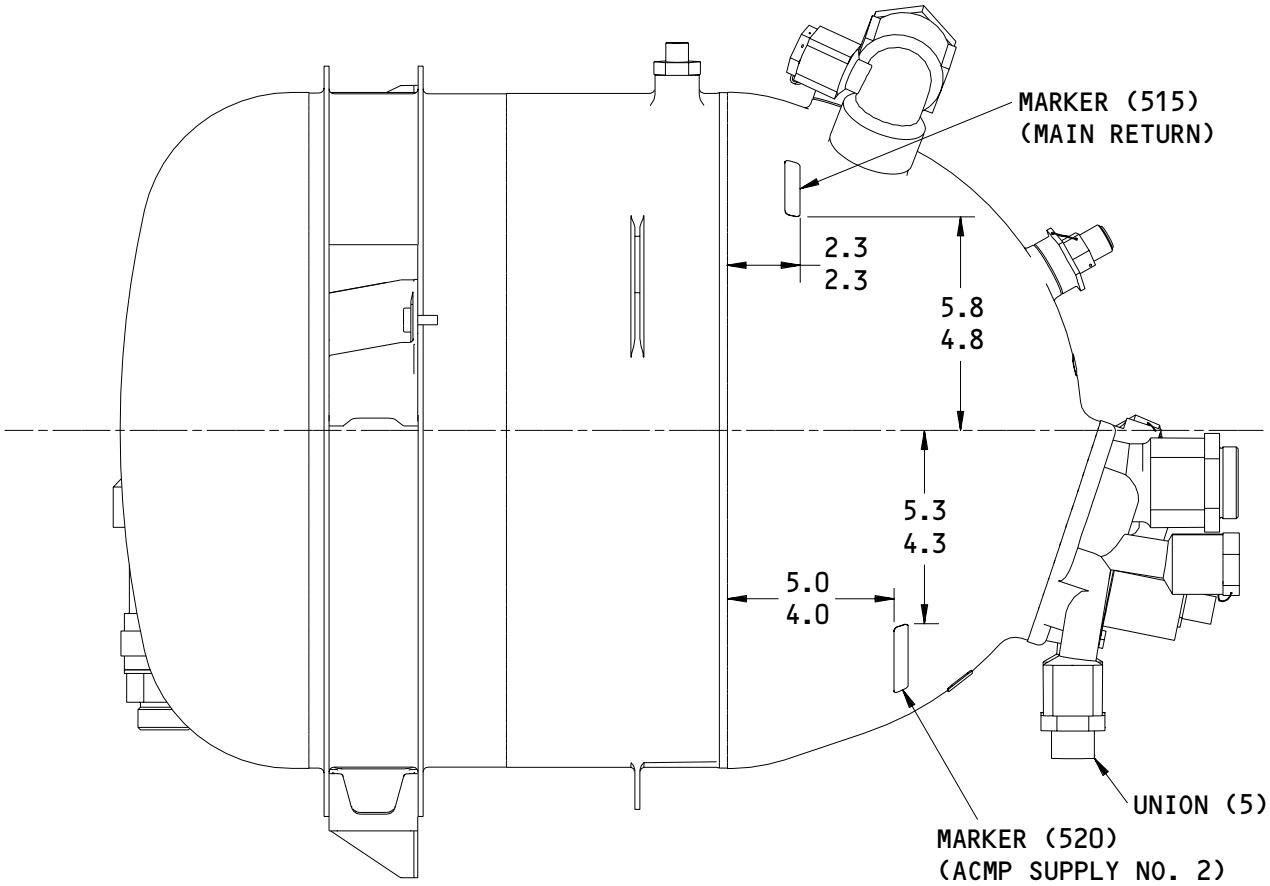


Reservoir Assembly
Figure 701 (Sheet 1)

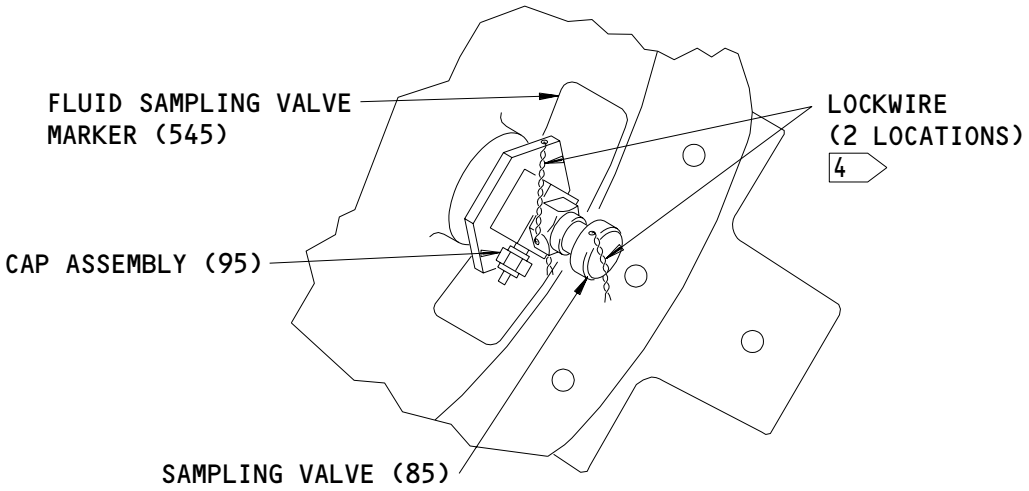


Reservoir Assembly
Figure 701 (Sheet 2)

K47285



Reservoir Assembly
Figure 701 (Sheet 3)



1 PREPARE THE FAYING SURFACES FOR ELECTRICAL BON SOPM 20-11-03 BEFORE INSTALLATION

2 LOCKWIRE MS2995NC20

3 MAXIMUM RESISTANCE ACROSS BOND SHALL BE 0.008 OHM

4 USING DOUBLE TWIST METHOD AS SHOWN IN SOPM 20-50-02

ITEM NUMBERS REFER TO IPL FIG. 1

ALL DIMENSIONS ARE IN INCHES

Reservoir Assembly
Figure 701 (Sheet 4)

K47308

SPECIAL TOOLS

NOTE: Equivalent substitutes can be used.

1. T477W -- Bonding Meter

2. Hydraulic Test Equipment capable of a 180 pounds per square inch pressure when a 15 micron filter is used.

ILLUSTRATED PARTS LIST

1. This section lists and illustrates replaceable or repairable component parts. The Illustrated Parts Catalog contains a complete explanation of the Boeing part numbering system.

2. Indentures show parts relationships as follows:

    Assembly
      Detail Parts for Assembly
      Subassembly
      Attaching Parts for Subassembly
        Detail Parts for Subassembly

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

3. One use code letter (A, B, C, etc.) is assigned in the EFF CODE column for each variation of top assembly. All listed parts are used on all top assemblies except when limitations are shown by use code letter opposite individual part entries.

4. Letter suffixes (alpha-variants) are added to item numbers for optional parts, Service Bulletin modification parts, configuration differences (Except left- and right-hand parts), product improvement parts, and parts added between two sequential item numbers. The alpha-variant is not shown on illustrations when appearance and location of all variants of the part is the same.

5. Service Bulletin modifications are shown by the notations PRE SB XXXX and POST SB XXXX.

    A. When a new top assembly part number is assigned by Service Bulletin, the notations appear at the top assembly level only. The configuration differences at detail part level are then shown by use code letter.

    B. When the top assembly part number is not changed by the Service Bulletin, the notations appear at the detail part level.

6. Parts Interchangeability

Optional (OPT)	The parts are optional to and interchangeable with other parts having the same item number.
Supersedes, Superseded By (SUPSDS, SUPSD BY)	The part supersedes and is not interchangeable with the original part.
Replaces, Replaced By (REPLS, REPLD BY)	The part replaces and is interchangeable with, or is an alternate to, the original part.

VENDORS

06177 PNEUDRAULICS INC
8575 HELMS AVENUE
RANCHO CUCAMONGA, CALIFORNIA 91730-4519

27545 HARTFORD BALL CO A VIRGINIA INDUSTRIES INC CO
1022 ELM STREET
ROCKY HILL, CONNECTICUT 06067-1809

35918 LEWIS ENGINEERING CO
238 WATER STREET
NAUGATUCK, CONNECTICUT 06770-2803

52676 SKF INDUSTRIES INC
1100 FIRST AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406-1312

92003 PARKER-HANNIFIN CORPORATION
18321 JAMBOREE BOULEVARD PO BOX C-19510
IRVINE, CALIFORNIA 92713

97484 VICKERS INC
24 EAST GLENHOLDEN AVENUE
GLENHOLDEN, PENNSYLVANIA 19036-2107

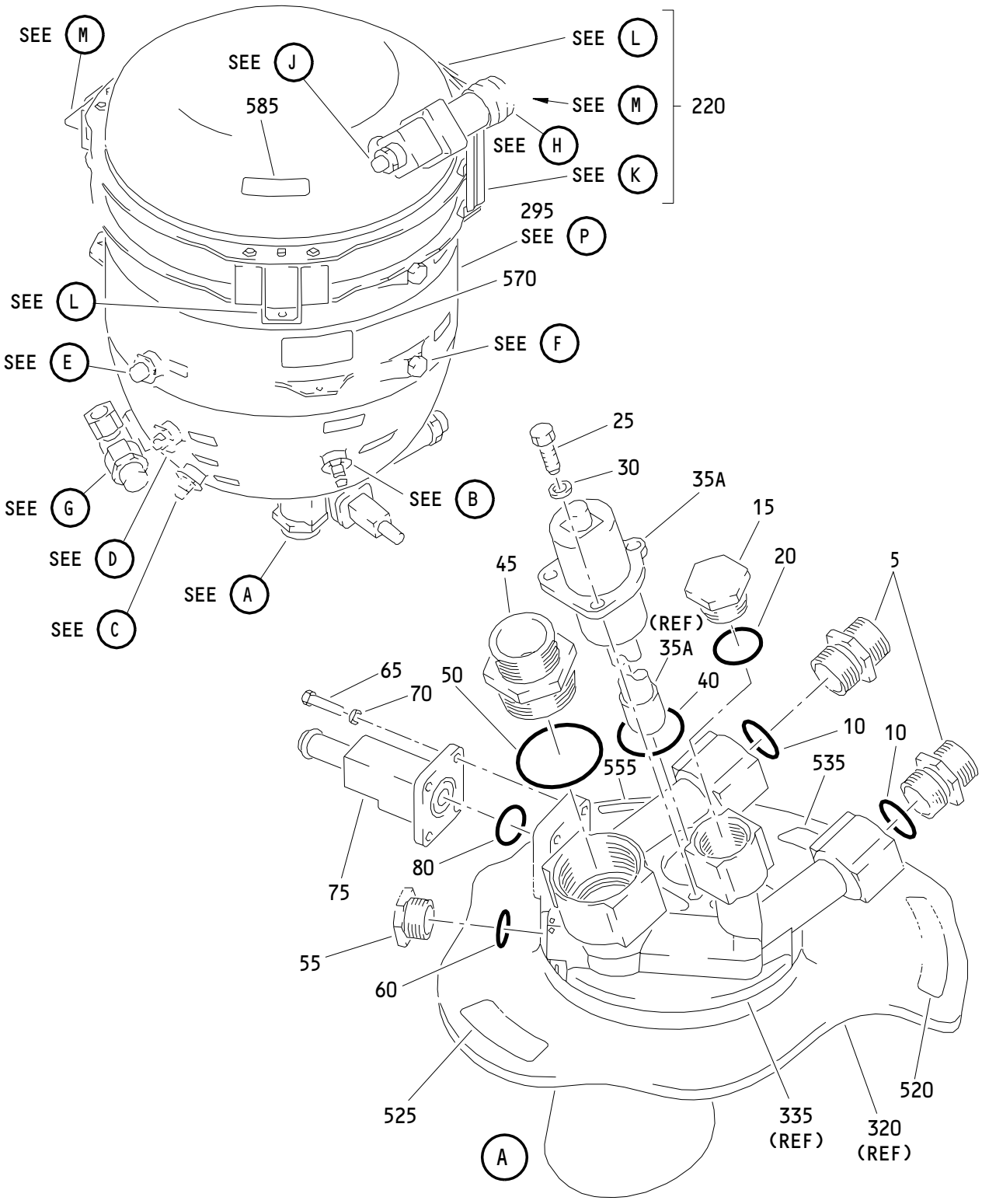
98939 FLUID REGULATORS CORPORATION
313 GILLETTE STREET
PAINESVILLE, OHIO 44077-2918

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
AN814-10DL		1	55	1
		1	150	1
AN814-12DL		1	15	1
AN929A2		1	95	1
AS4665W2424		1	45	1
BACB10TC2-32A		1	495	1
BACB30NM3HK5		1	65	4
BACB30NR4HK5		1	25	3
BACB30NT3K38		1	180	1
BACB30UB5K3		1	225	1
BACB30UB5K4		1	230	4
BACB30UB6K4		1	270	12
BACC10AA32-44		1	195	1
BACC30BF		1	235	5
		1	275	12
BACN10JC3CD		1	175	1
		1	190	1
BACR10AN5-2CD		1	255	1
BACR15BA4AD6C		1	250	2
BACR15BB4A		1	405	6
		1	420	20
		1	455	2
BACR15BB4ADC		1	365	4
BAC27THY0045		1	580	1
BAC27THY0046		1	575	1
BAC27THY0137		1	585	1
BAC27THY0148		1	555	1
BAC27THY0149		1	520	1
BAC27THY210		1	570	1
BAC27THY30		1	515	1
BAC27THY35		1	550	1
BAC27THY36		1	545	1
BAC27WHY37		1	540	1
BAC27WHY38		1	525	1
BAC27WHY41		1	565	1
BAC27WHY42		1	560	1
BAC27WHY51		1	535	1
BAC27WHY52		1	530	1
BAC27WHY54		1	590	1
MS20470D		1	375	1
MS21209F1-20P		1	330	4
MS21209F4-15P		1	325	3

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
MS21902D12		1	5	2
MS21902D6		1	110	1
		1	210	1
MS21916D24-16		1	140	1
MS21916D8-6		1	120	1
MS24391D12L		1	15A	1
MS90354U6-3		1	265	6
NAS1149D0363J		1	70	4
		1	170	2
		1	185	2
NAS1149D0463J		1	30	3
NAS1611-213A		1	80	1
NAS1611-224A		1	40	1
NAS1612-10A		1	60	1
		1	155	1
NAS1612-12A		1	10	2
		1	20	1
NAS1612-20A		1	205	1
NAS1612-24A		1	50	1
		1	145	1
NAS1612-4A		1	90	1
NAS1612-6A		1	105	1
		1	115	1
		1	215	1
NAS1612-8A		1	125	1
		1	135	2
NAS623-3-7		1	160	1
NAS6704-4		1	260	1
PS53J		1	130	2
S1105-01		1	85	1
S270T245-3		1	100	1
S271T455-21		1	35	1
S271W322-1		1	200	1
10-60561-1		1	75	1
1122493		1	100	1
2612		1	200	1
271T0115-3		1	245	2
271T0115-4		1	290	3
271T0115-5		1	240	1
271T4521-1		1	1A	RF
271T4521-2		1	220	1

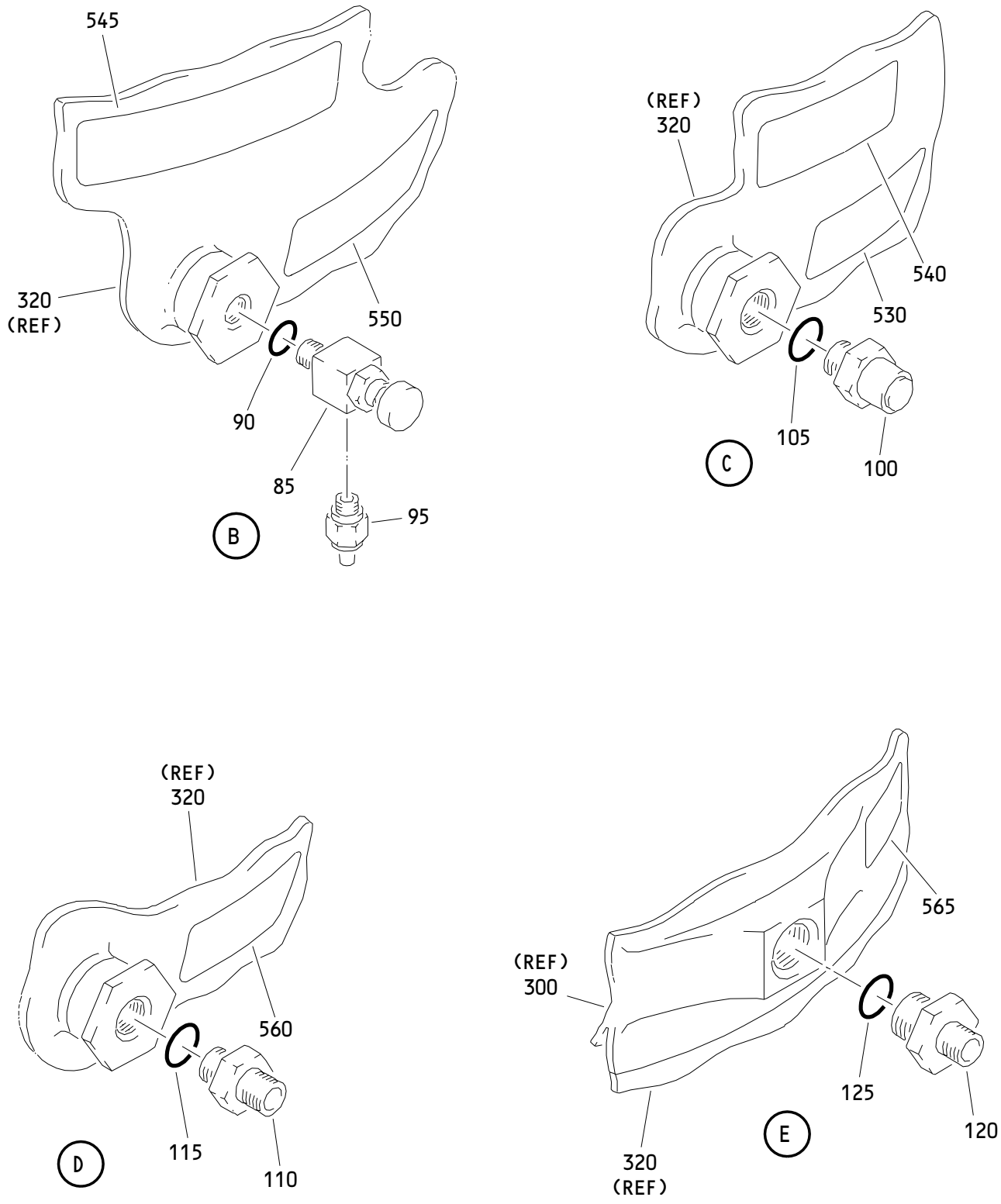
PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
271T4522-1		1	295	1
271T4522-2		1	300	1
271T4522-3		1	320	1
271T4523-1		1	315	1
271T4523-2		1	360	1
271T4524-1		1	310	1
271T4524-2		1	355	1
271T4525-1		1	305	1
271T4553-1		1	280	2
271T4553-3		1	285	1
271T4558-1		1	345	2
271W3106-1		1	390	1
271W3106-2		1	425	1
271W3106-3		1	425A	1
271W3122-1		1	460	1
271W3124-2		1	395	1
271W3125-2		1	480	1
271W3126-2		1	475	1
271W3127-2		1	400	1
271W3128-2		1	465	1
271W3128-4		1	470	1
271W3129-2		1	445	1
271W3130-2		1	450	1
271W3131-3		1	410	1
271W3131-4		1	415	1
271W3132-3		1	430	1
271W3132-4		1	435	1
271W3132-5		1	430A	1
271W3132-6		1	435A	1
271W3135-2		1	335	1
271W3136-2		1	350	1
3-111794		1	75	1
69B80388-1		1	380	1
69B80826-1		1	165	1
69B80834-1		1	485	1
69B80835-1		1	490	1
69B80845-1		1	440	1
69B80850-1		1	340	1
69B80850-2		1	340A	1
69B80851-1		1	505	1

PART NUMBER	AIRLINE PART NO.	FIG.	ITEM	TTL REQ
69B80852-1		1	500	1
69B80860-1		1	370	1
69B80860-2		1	385	1



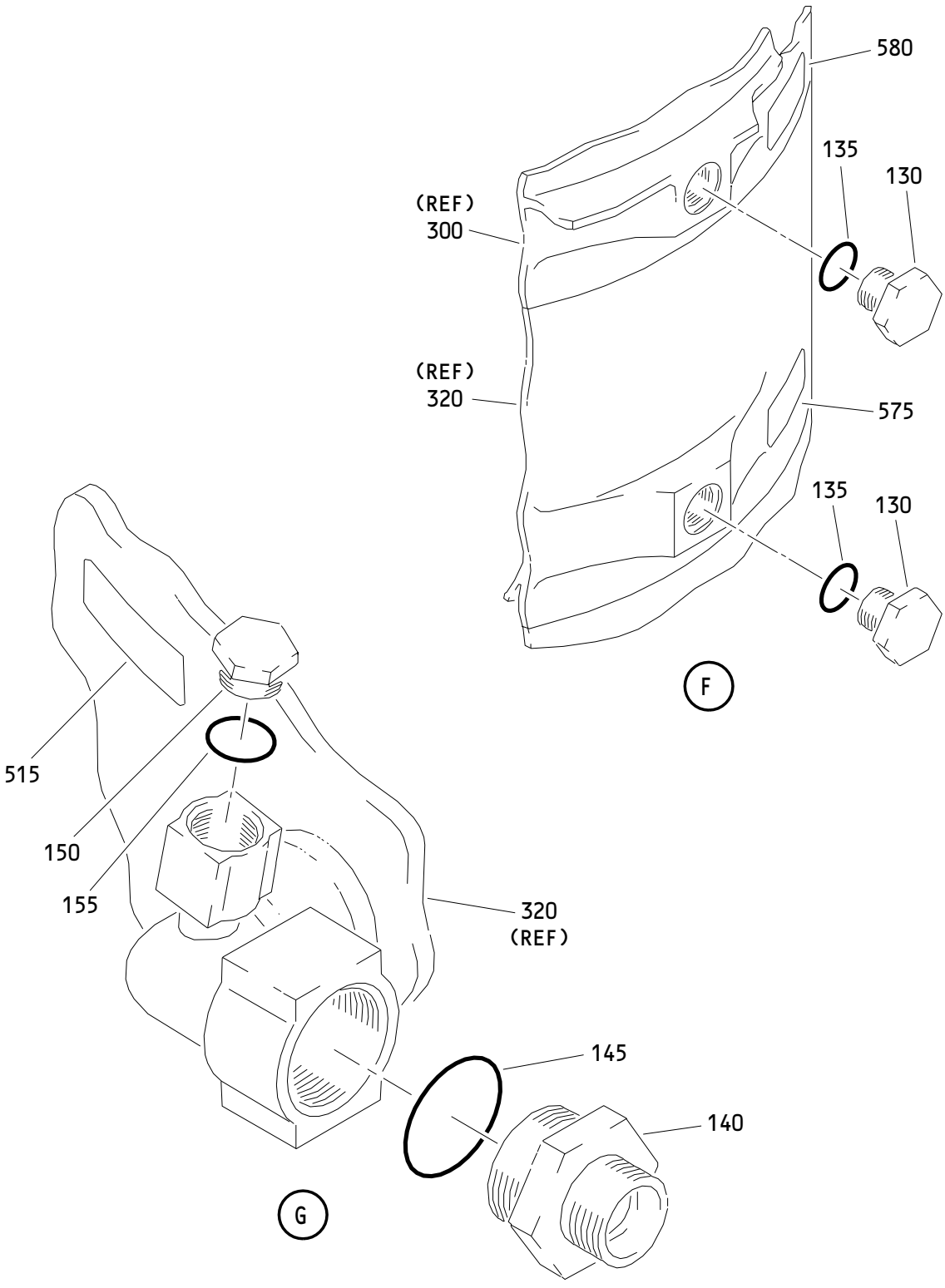
Center System Hydraulic Reservoir Assembly
Figure 1 (Sheet 1)

K39414



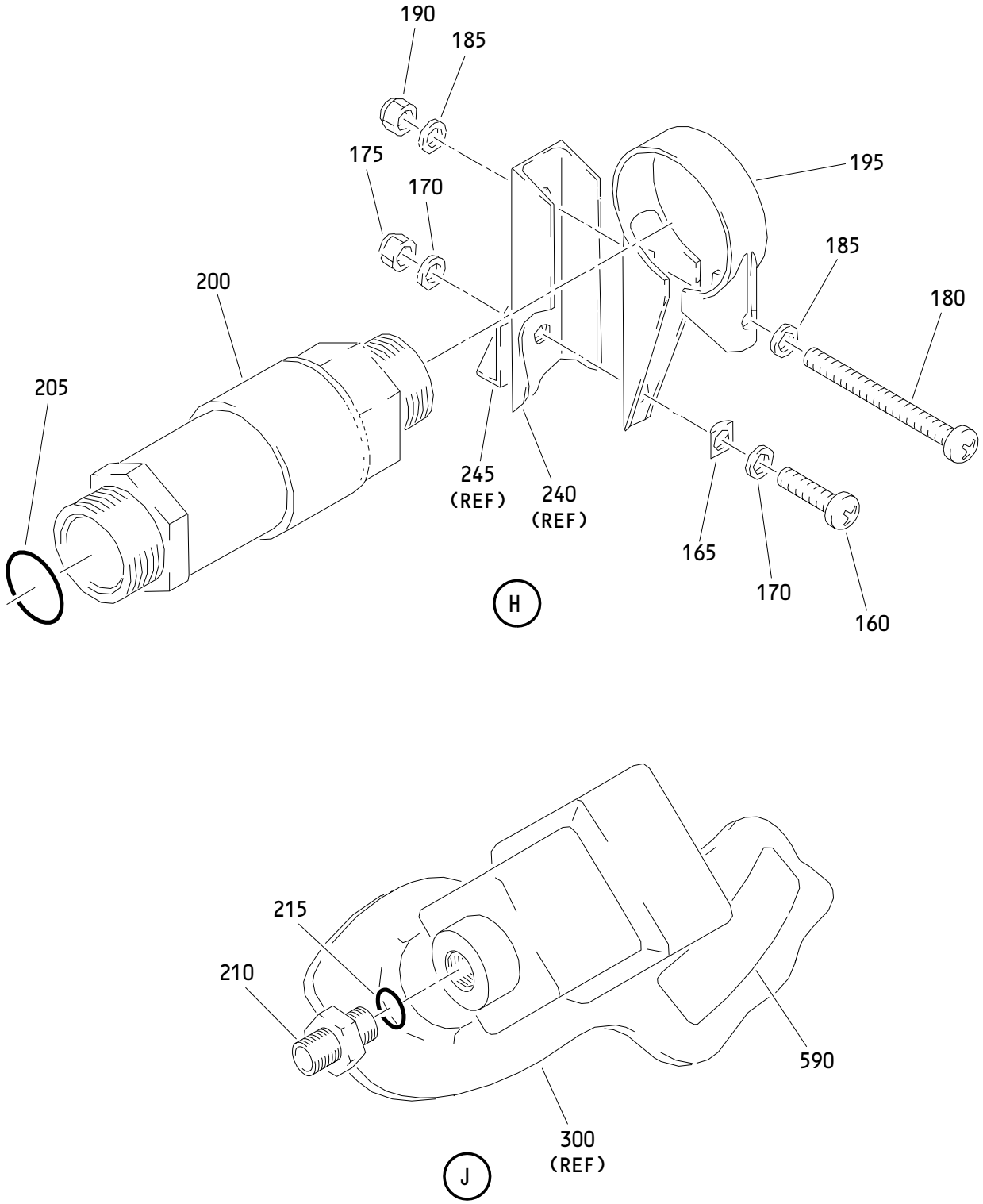
Center System Hydraulic Reservoir Assembly
Figure 1 (Sheet 2)

K39577



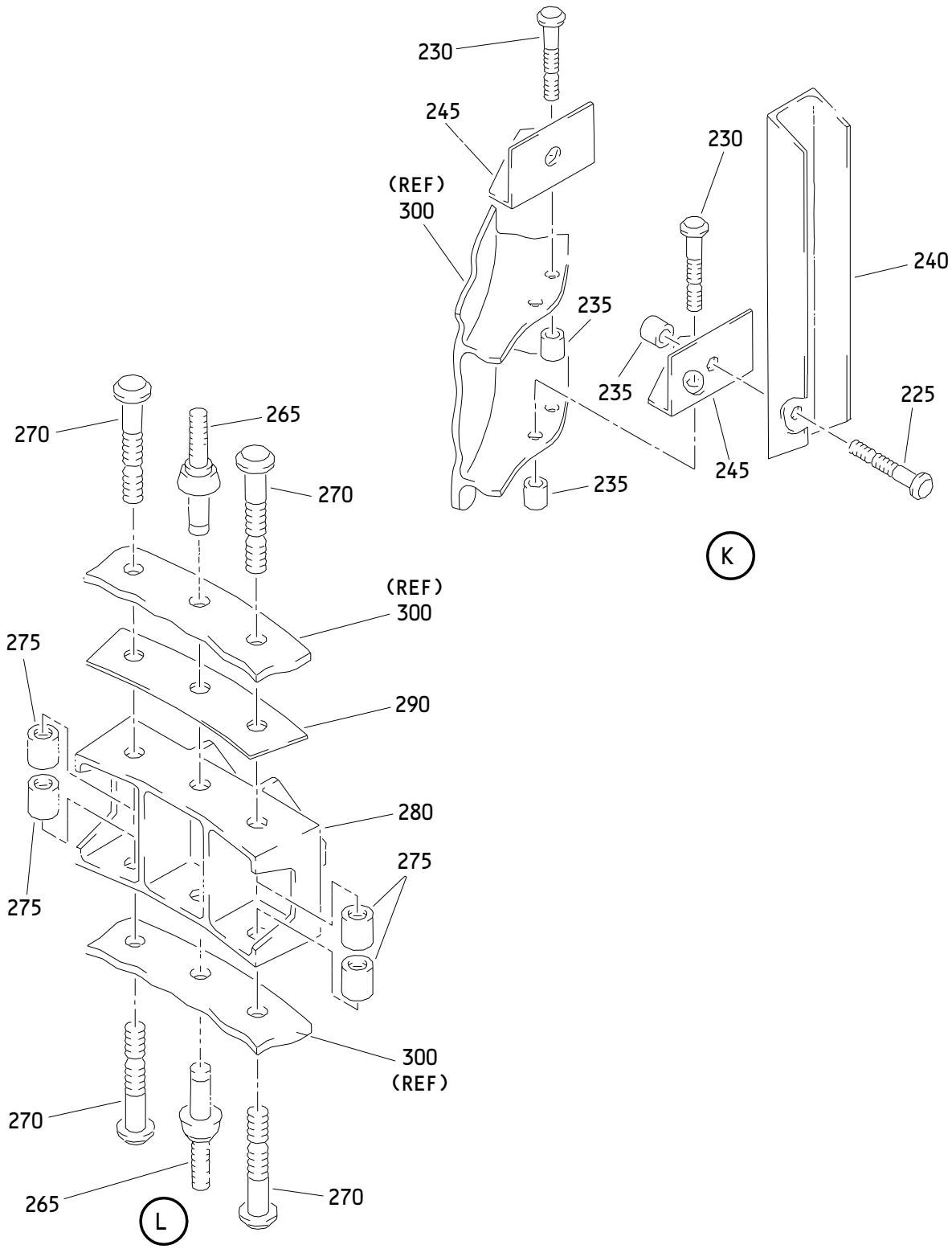
Center System Hydraulic Reservoir Assembly
Figure 1 (Sheet 3)

K39665



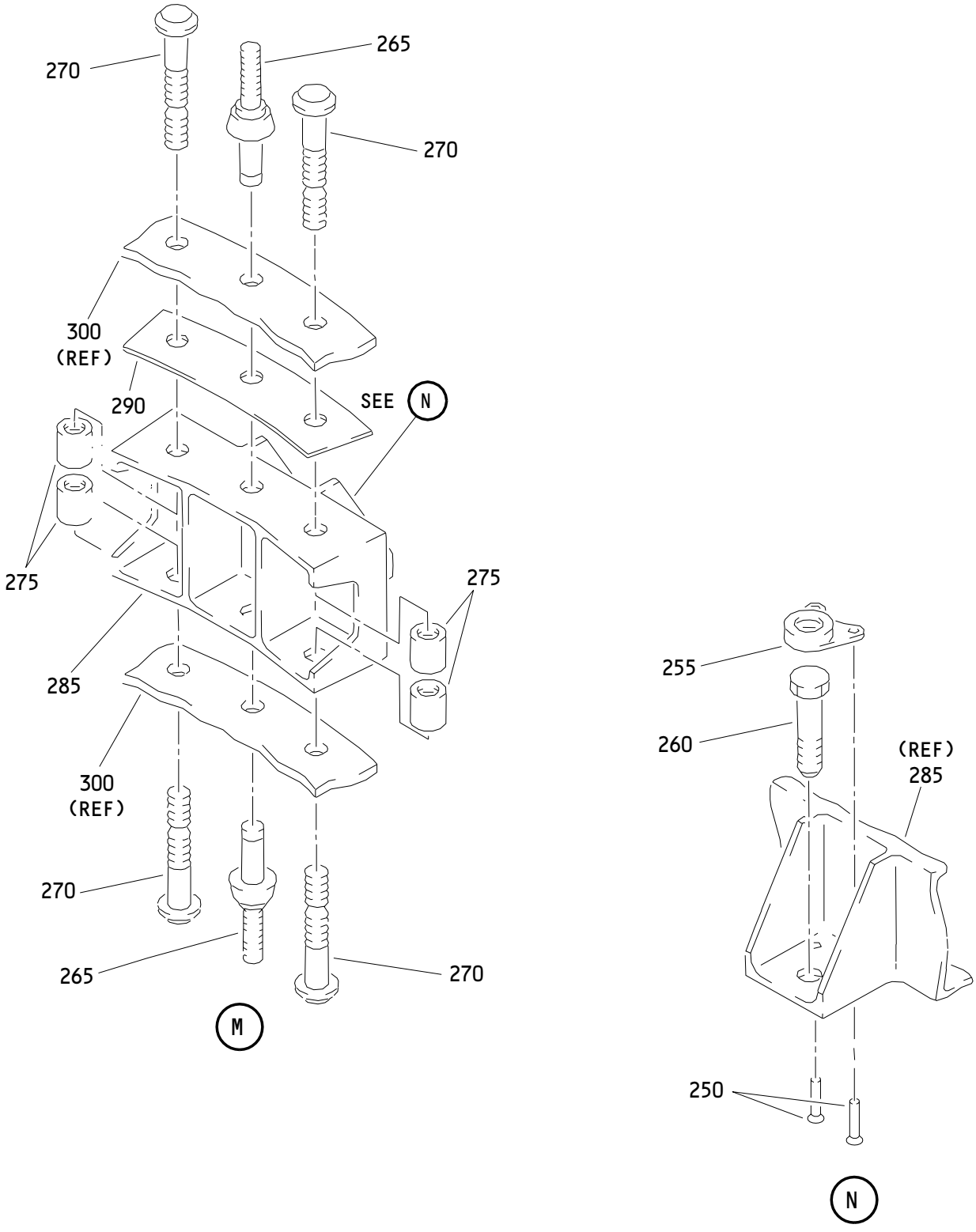
Center System Hydraulic Reservoir Assembly
Figure 1 (Sheet 4)

K39712



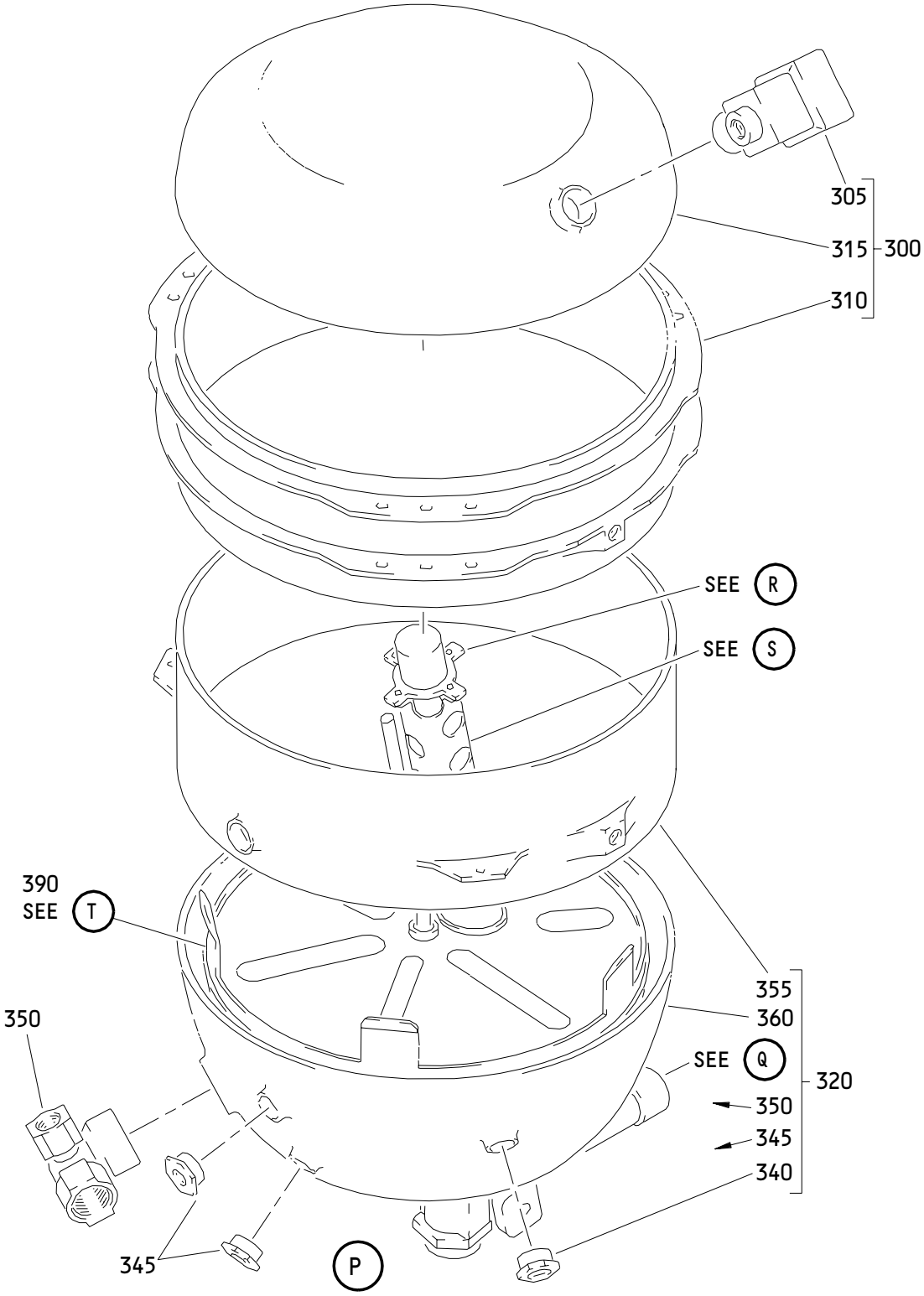
Center System Hydraulic Reservoir Assembly
Figure 1 (Sheet 5)

K39831



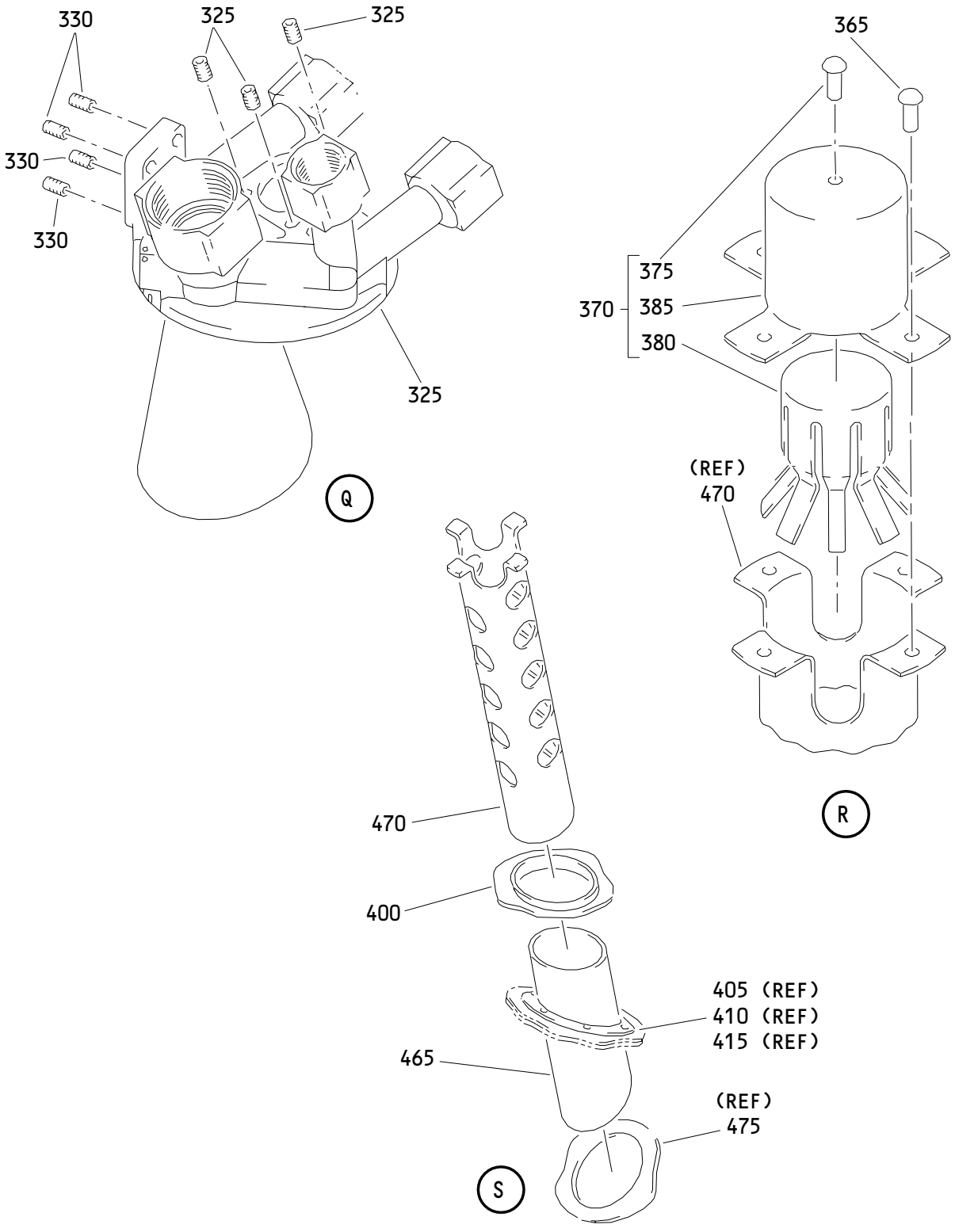
Center System Hydraulic Reservoir Assembly
Figure 1 (Sheet 6)

K40121



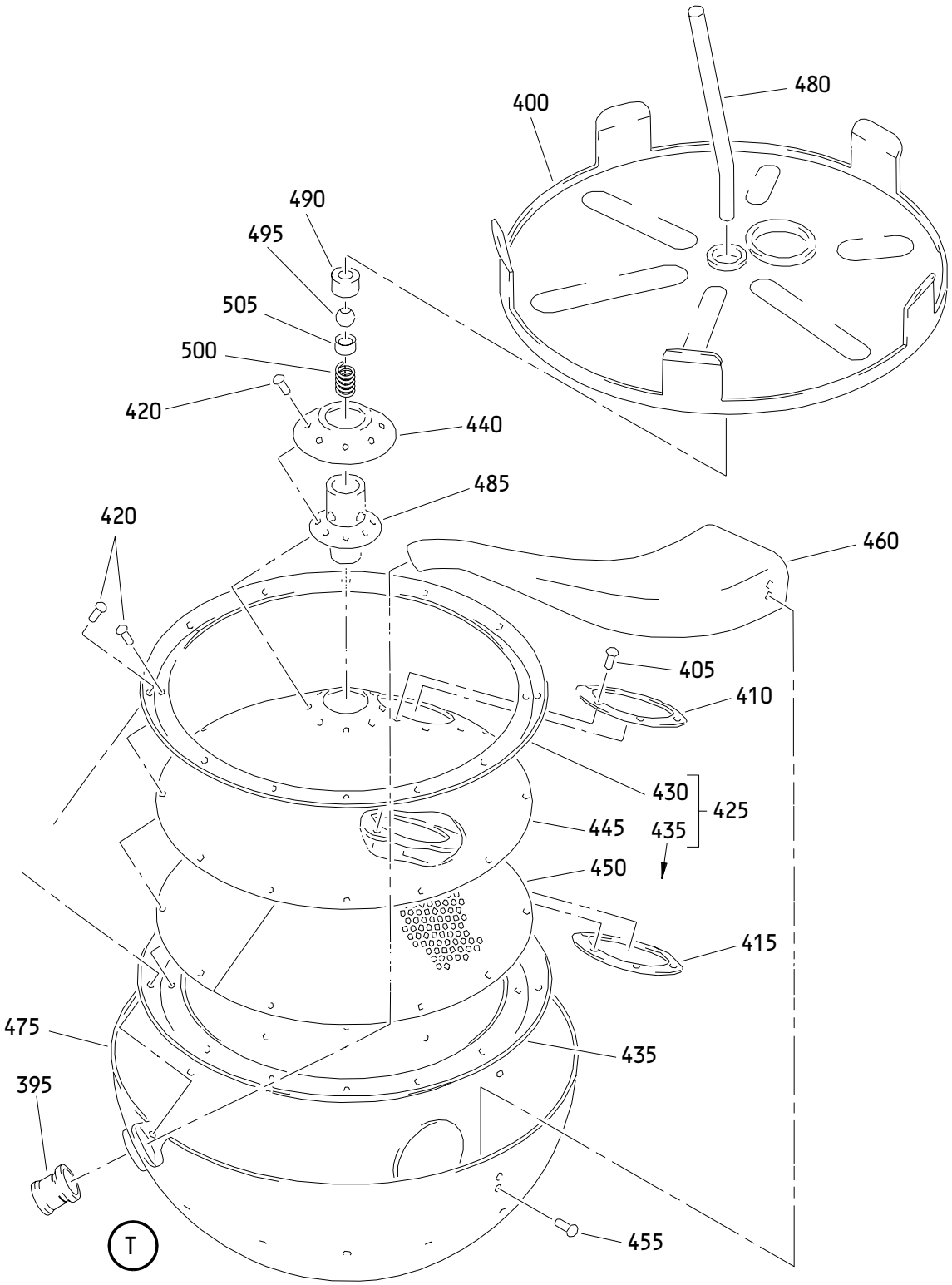
Center System Hydraulic Reservoir Assembly
Figure 1 (Sheet 7)

K40164



Center System Hydraulic Reservoir Assembly
Figure 1 (Sheet 8)

K40239



Center System Hydraulic Reservoir Assembly
Figure 1 (Sheet 9)

K40374

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
1A	271T4521-1		RESERVOIR ASSY-HYDR CTR SYS		RF
5	MS21902D12		.UNION		2
10	NAS1612-12A		.PACKING		2
15	AN814-12DL		.PLUG- (OPT ITEM 15A)		1
-15A	MS24391D12L		.PLUG- (OPT ITEM 15)		1
20	NAS1612-12A		.PACKING		1
25	BACB30NR4HK5		.BOLT		3
30	NAS1149D0463J		.WASHER		3
35	S271T455-21		.TRANSMITTER		1
40	NAS1611-224A		.PACKING		1
45	AS4665W2424		.UNION		1
50	NAS1612-24A		.PACKING		1
55	AN814-10DL		.PLUG		1
60	NAS1612-10A		.PACKING		1
65	BACB30NM3HK5		.BOLT		4
70	NAS1149D0363J		.WASHER		4
75	3-111794		.VALVE ASSY-DRAIN (V92003) (SPEC 10-60561-1)		1
80	NAS1611-213A		.PACKING		1
85	S1105-01		.VALVE-SAMPLE (V98939)		1
90	NAS1612-4A		.PACKING		1
95	AN929A2		.CAP ASSY		1
100	1122493		.TRANSMITTOR-TEMP (V35918) (SPEC S270T245-3)		1
105	NAS1612-6A		.PACKING		1
110	MS21902D6		.UNION		1
115	NAS1612-6A		.PACKING		1
120	MS21916D8-6		.REDUCER		1
125	NAS1612-8A		.PACKING		1
130	PS53J		.GAUGE-SIGHT (V97484)		2

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
135	NAS1612-8A		.PACKING		2
140	MS21916D24-16		.REDUCER		1
145	NAS1612-24A		.PACKING		1
150	AN814-10DL		.PLUG		1
155	NAS1612-10A		.PACKING		1
160	NAS623-3-7		.SCREW		1
165	69B80826-1		.FILLER		1
170	NAS1149D0363J		.WASHER		2
175	BACN10JC3CD		.NUT		1
180	BACB30NT3K38		.BOLT		1
185	NAS1149D0363J		.WASHER		2
190	BACN10JC3CD		.NUT		1
195	BACC10AA32-44		.CLAMP		1
200	2612		.VALVE-RELIEF (V06177) (SPEC S271W322-1)		1
205	NAS1612-20A		.PACKING		1
210	MS21902D6		.UNION		1
215	NAS1612-6A		.PACKING		1
220	271T4521-2		.SUPPORT ASSY		1
225	BACB30UB5K3		..BOLT		1
230	BACB30UB5K4		..BOLT		4
235	BACC30BF		..COLLAR		5
240	271T0115-5		..BRACKET-CHAN		1
245	271T0115-3		..SUPPORT-ANGLE		2
250	BACR15BA4AD6C		..RIVET		2
255	BACR10AN5-2CD		..RETAINER		1
260	NAS6704-4		..BOLT		1
265	MS90354U6-3		..SCREW		6
270	BACB30UB6K4		..BOLT		12
275	BACC30BF		..COLLAR		12
280	271T4553-1		..SUPPORT		2
285	271T4553-3		..SUPPORT		1
290	271T0115-4		..SHIM		3
295	271T4522-1		.WELD ASSY		1
300	271T4522-2		..WELDMENT ASSY-UPR		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
305	271T4525-1		...BOSS-PRESSURE/RELIEF		1
310	271T4524-1		...RING-SPRT		1
315	271T4523-1		...SHELL-UPR		1
320	271T4522-3		..WELDMENT ASSY-LWR		1
325	MS21209F4-15P		...INSERT		3
330	MS21209F1-20P		...INSERT		4
335	271W3135-2		...MANIFOLD		1
340	69B80850-1		...BOSS-FLUID SAMPLING (OPT ITEM 340A)		1
-340A	69B80850-2		...BOSS-FLUID SAMPLING (OPT ITEM 340)		1
345	271T4558-1		...BOSS-THRM BYPASS		2
350	271W3136-2		...BOSS-RETURN		1
355	271T4524-2		...RING-SPRT		1
360	271T4523-2		...SHELL-LWR		1
365	BACR15BB4ADC		..RIVET- (SIZE DETERMINE ON INST)		4
370	69B80860-1		..COVER ASSY		1
375	MS20470D		...RIVET		1
380	69B80388-1		...CLIP		1
385	69B80860-2		...COVER		1
390	271W3106-1		..TRAP ASSY-NEG G		1
395	271W3124-2		...INSERT		1
400	271W3127-2		...COVER		1
405	BACR15BB4A		...RIVET- (SIZE DETERMINE ON INST)		6
410	271W3131-3		...COLLAR-UPR		1
415	271W3131-4		...COLLAR-LWR		1
420	BACR15BB4A		...RIVET- (SIZE DETERMINE ON INST)		20
425	271W3106-2		...KIT ASSY-SUBSTITUTE (OPT ITEM 425A)		1
-425A	271W3106-3		...KIT ASSY-SUBSTITUTE (OPT ITEM 425)		1
430	271W3132-3		....FLANGE-UPR (USED ON ITEM 425)		1
-430A	271W3132-5		....FLANGE-UPR (USED ON ITEM 425A)		1
435	271W3132-4		....FLANGE-LWR (USED ON ITEM 425)		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
-435A	271W3132-6		....FLANGE-LWR (USED ON ITEM 425A)		1
440	69B80845-1		...COLLAR-SCREEN		1
445	271W3129-2		...SCREEN		1
450	271W3130-2		...SUPPORT-SCREEN		1
455	BACR15BB4A		...RIVET- (SIZE DETERMINE ON INST)		2
460	271W3122-1		...DIFFUSER		1
465	271W3128-2		...TUBE-PROBE LWR		1
470	271W3128-4		...TUBE-PROBE UPR		1
475	271W3126-2		...PAN		1
480	271W3125-2		...TUBE-VENT		1
485	69B80834-1		...BODY		1
490	69B80835-1		...CAP		1
495	BACB10TC2-32A		...BALL- (V27545) (SPEC BACB10TC2-32A) (OPT BACB10TC2-32A (V52676))		1
500	69B80852-1		...SPRING		1
505	69B80851-1		...CUP		1
515	BAC27THY30		.MARKER-MAIN RETURN		1
520	BAC27THY0149		.MARKER-ACMP SUPPLY NO. 2		1
525	BAC27WHY38		.MARKER-ADP AND RAT SUPPLY		1
530	BAC27WHY52		.MARKER-M29302		1
535	BAC27WHY51		.MARKER-M29307		1
540	BAC27WHY37		.MARKER-TEMP TRANSDUCER		1
545	BAC27THY36		.MARKER-FLUID SAMPLING VALVE		1
550	BAC27THY35		.MARKER-RSVR DRAIN VALVE		1
555	BAC27THY0148		.MARKER-ACMP SUPPLY NO.1		1
560	BAC27WHY42		.MARKER-GEAR REPLENISH		1
565	BAC27WHY41		.MARKER-ALTNTR GEAR SUPPLY		1
570	BAC27THY210		.MARKER-HYDR RSVR ASSY CTR SYS		1
575	BAC27THY0046		.MARKER-REFILL		1

FIG. & ITEM	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1234567	EFF CODE	QTY PER ASSY
01-					
580	BAC27THY0045		.MARKER-OVERFILL		1
585	BAC27THY0137		.MARKER-AIR PRESSURE		1
590	BAC27WHY54		.MARKER-RELIEF VALVE		1

- Item Not Illustrated