

Essex Industries, Inc.
7700 GRAVOIS AVE. ● ST. LOUIS, MO. 63123

**RESERVOIR VENT VALVE ASSEMBLY
PART NUMBER 0091520200-1**

**COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST**

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INTRODUCTION

The instructions contained in this manual provide information necessary to understand the valve operation and allow the mechanic to perform maintenance functions consisting of: testing, disassembly, assembly, inspection and complete shop-type repair.

The manual is divided into separate sections. Refer to the Table of Contents for the page location of a particular section.

Some assembly tools are special in nature and are listed by part number in the Assembly section of this manual. The balance of assembly tools and all test equipment are universally applicable and are commercially available. Where a particular item of non-special equipment includes a manufacturer and model number, equal or better equipment may be substituted.

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

The manual will be revised as necessary to reflect current information.

Verification

Testing	Verified	<u>09-14-81</u>
Disassembly	Verified	<u>09-14-81</u>
Assembly	Verified	<u>09-14-81</u>

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1. DESCRIPTION AND OPERATION

A. Physical Description

1. The reservoir vent valve is a vent valve incorporating an integral check valve. The valve is designed to retain pressure in a remote hydraulic fluid reservoir when in the normal mode (see Figure 1) and to release pressure when manually actuated to the vent mode (see Figure 2). This allows maintenance or repair of that reservoir without interrupting pressure to other reservoirs in the system.
2. The unit incorporates a "Lift and Twist to Lock" feature to hold the valve in the vent mode (see Figure 2).
3. There are four replaceable seals in the valve. They consist of:
 - a. The normal mode O-ring (10) seal
 - b. The vent mode O-ring (10) seal
 - c. The slider seal consisting of the Glyd-ring (20) and O-ring (15)
 - d. The body/fitting gasket (50)

NOTE: All item numbers refer to IPL, Figure 1.

B. Operation

1. The valve is actuated by pushing the slider (25) toward the "in" port (see Figure 2) with a sharp motion and rotating the slider (25) 90° to lock in this position.
2. After reservoir servicing is completed, rotate the slider (25) 90° in the opposite direction of paragraph 1 and release. Check the slider (25) to make certain it has resealed against the face of the body (5) hex as shown Figure 1.
3. When the valve is in the normal mode (see Figure 1), operation is automatic. Pressure enters the "in" port (see Figure 1) and passes through the check valve incorporated in the fitting assembly (55). If the pressure is reduced or removed from the "in" port, the check valve will maintain pressure at the "res" port (see Figure 1).

2. TESTING AND TROUBLESHOOTING

A. Functional Testing of Valve

1. Perform Internal Leakage Test as follows:
2. Install unit in suitable test fixture.
3. Apply 50 psig air pressure to fixture inlet.
4. Leakage shall not exceed 24 SCCM.
5. With unit in "normal" mode, apply 25 psig liquid pressure to "res" port.
6. Wait one (1) minute then measure leakage.

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7. Leakage from "in" port shall not exceed 1 drop/minute of BMS 3-11 fluid.
8. No external wetting is allowed.

B. Troubleshooting

1. Use flow Chart Figure 4.

NORMAL MODE

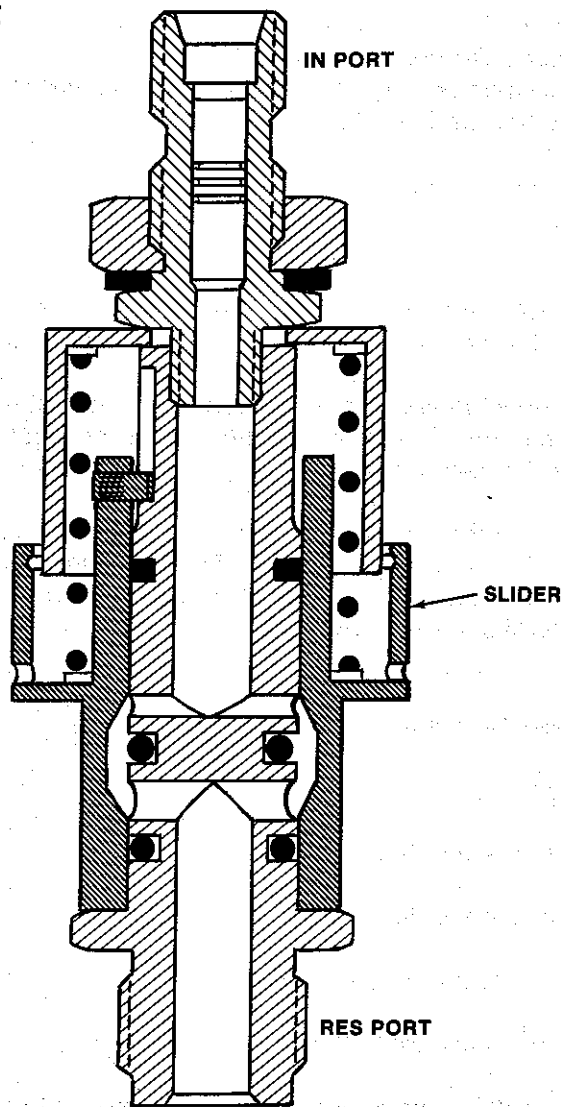


FIGURE 1

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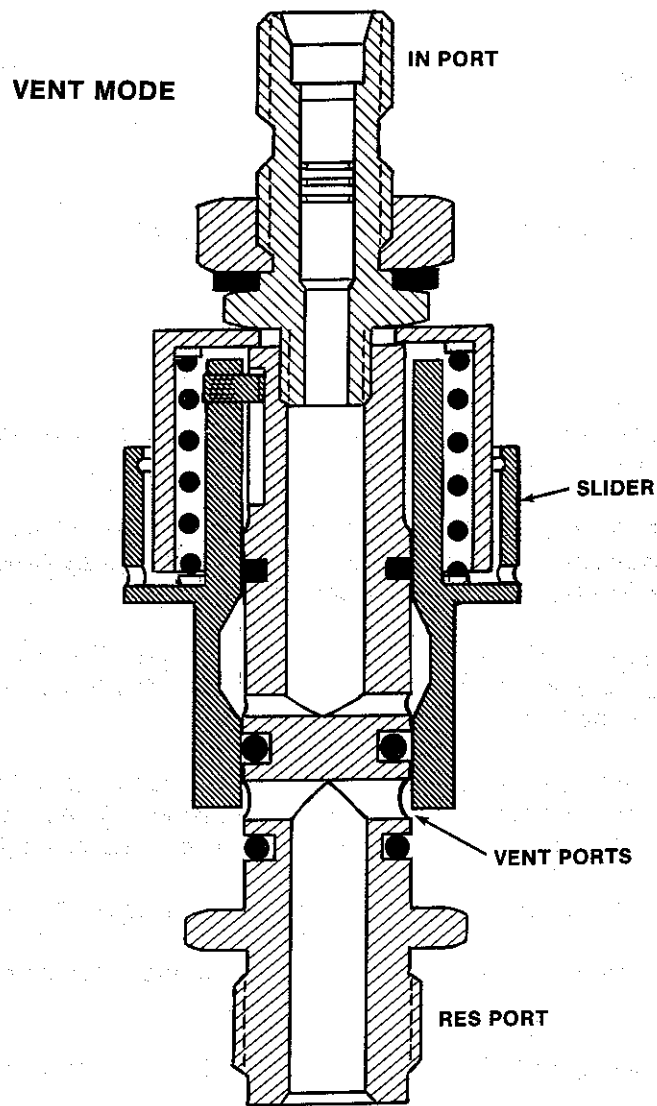


FIGURE 2

3. DISASSEMBLY

See testing and trouble shooting to determine extent of disassembly required for repair.

A. Disassemble the Reservoir Vent Valve as follows:

1. Remove fitting assembly (55) and discard gasket (50).
2. Remove cover (45), spring (40) and washer (35).
3. Pull slider assembly (25) back as far as possible, rotate 90° and remove slider assembly (25) from body (5).
4. Remove and discard all O-rings, (10), (15), and Glyd-ring (20).

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4. CLEANING

- A. Immerse and agitate parts in Freon 113 or equivalent. Do not use petroleum based solvent.
- B. Blow dry parts with filtered, compressed air.
- C. Flush fitting assembly with BMS 3-11 fluid and shake dry.

5. CHECK

- A. If seals have not been removed, inspect all seals for nicks, cuts, or scratches. Remove and discard any damaged seals (10), (15).
- B. Inspect spring (40) for breakage or distortion. The spring should stand vertically on either end within 5°. Loads shall be as specified in Figure 5 when measured with a suitable spring force gage. Replace spring (40) if damaged.
- C. Inspect slider (25) inside diameter for scratches or gouges. The inside diameter shall be as specified in Figure 5 when measured with a suitable micrometer. Replace slider assembly (25) if damaged or showing excessive wear.
- D. Inspect slider (25) outside diameter and cover (45) for out-of-roundness by measuring diameter at two points 90° apart. The two measurements shall not vary more than that specified in Figure 5. Replace slider assembly (25) and/or cover (45) if damaged.
- E. Inspect threads on body (5) for visible damage. Replace body (5) if damaged.
- F. Inspect threads on fitting assembly (55) for visible damage. Replace fitting assembly (55) if damaged.
- G. Inspect internal sealing surface of fitting assembly (55) inlet for scoring and damage. Replace if damaged.

6. REPAIR

- A. Repairs consist of replacement of parts or assemblies.
- B. All seals should be replaced whenever the valve is repaired. The following seals are affected:
 - Item (10), O-ring
 - Item (15), O-ring
 - Item (20), Glyd-ring
 - Item (50), Gasket

All item numbers refer to IPL, Figure 1.

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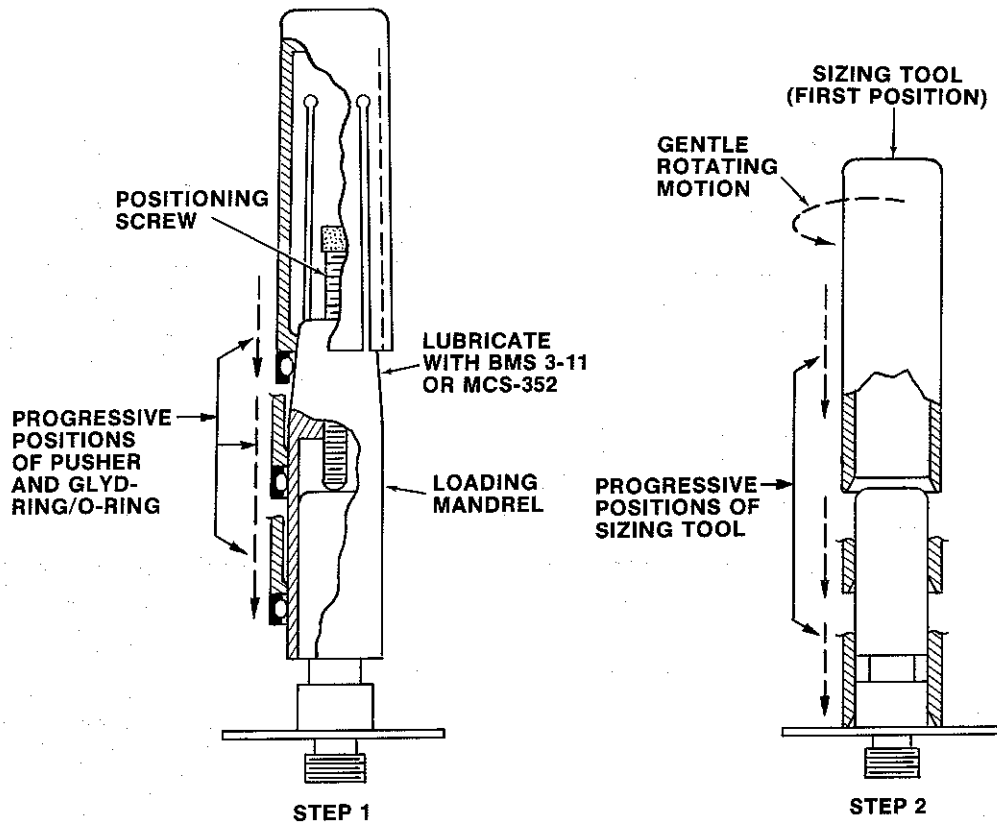


FIGURE 3

7. ASSEMBLY

Assembly tools required, equivalent substitutes may be used for listed items.

- 11/16" Open End Wrench
- 13/16" Socket (Drive to Fit Torque Wrench)
- Torque Wrench, 0-250 in — lbs.
- BMS 3-11 Fluid Loctite Grade A

Essex Industries, Inc. Tools

- #EB 0091520200-1, Expander
- #EB 0091520200-2, Pusher
- #EB 0091520200-3, Sizer

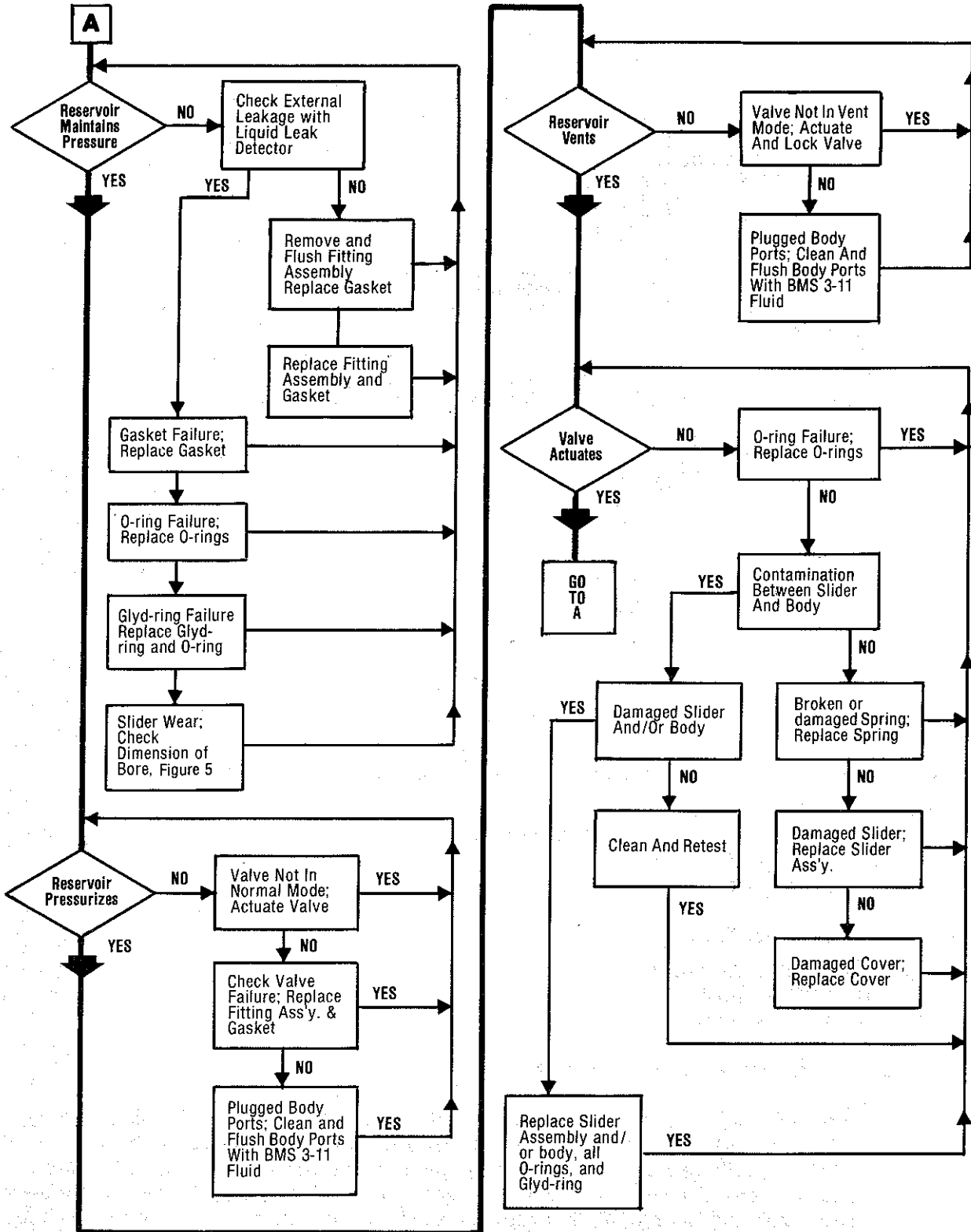
A. Assemble the Reservoir Vent Valve as follows:

1. Place expander over body as shown in Figure 3. Lightly lubricate all seals (10), (15), (20) with BMS 3-11 fluid. Place O-ring (15) over expander and pusher. Place Glyd-ring (20) over expander and push into narrow groove using pusher. Remove expander and size Glyd-ring (20) with sizer as shown in Figure 3. Replace expander and install one O-ring (10) into each remaining groove. Do not slide pusher past the Glyd-ring (20). Extreme care must be taken not to scratch or gouge the Glyd-ring.
2. Install scraper ring (30) into I.D. groove in slider (25).

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Fault Isolation Diagram
Figure 4

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3. Gently push slider assembly with a twisting motion onto body (5) until the pin makes contact with the body (5). Rotate slider assembly (25) until the pin lines up with the groove in the body (5). Push slider assembly (25) onto body (5) until the pin bottoms in the groove. Rotate slider assembly (25) 90° to stop and push the slider assembly (25) the rest of the way onto the body (5).
4. Place one washer (35) in cavity of slider assembly (25). Install spring (40) into the slider assembly (25).
5. Place the gasket (50) onto the fitting assembly (55). Apply one drop of Loctite Grade A to threads. Slide cover (45) over the gasket (50). Place one washer (35) into the cavity of the cover (45).
6. Place cover (45) and fitting (55) over spring (40) and start fitting threads into body (5). Slowly screw the fitting (55) into the body (5) to make certain the scraper (30) does not jam against the cover.
7. Actuate the slider several times to ensure proper operation of the reservoir vent valve.
8. Torque fitting assembly (55) to body (5) to 140 ± 10 in. — lb.
9. If the valve is not to be installed immediately, seal in a plastic bag or install dust caps on fittings.

8. FITS AND CLEARANCES

FIGURE 5

Spring (9) Parameters

Load @ 1.225 Length	5 lb. \pm .5 lb.
Load @ .895 Length	5.8 lb. \pm .5 lb.
Outside Diameter	.975 \pm .010

Slider (6) Parameters

Inside Diameter	.552/.551
Out-Of-Roundness	.001

Cover (10) Parameter

Out-Of-Roundness	.010
------------------	------

9. SPECIAL TOOLS

The following special tools are required for assembly of the reservoir vent valve:

- EB #0091520200-1 — Expander
- EB #0091520200-2 — Pusher
- EB #0091520200-3 — Sizer

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10. ILLUSTRATED PARTS LIST

1.0 INTRODUCTION

A. Purpose

- (1) This section provides illustrations and parts breakdown of all parts of the assembly shown on the title page which can be disassembled, repaired or replaced and reassembled.

B. Explanation and Usage of Section

(1) Assembly Order Indenture System

The Indenture system used in the parts list shows the relationship of one part to another. For a given item, the number of indentures depicts the relationship of the item to the associated next higher assembly as follows:

1 2 3

Assembly

 Detail Parts for Assembly

 Subassembly

 Attaching Parts for Subassembly

 Detail Parts for Subassembly

(2) Effective Code

- (a) Reference letters (A, B, C, etc.) are assigned in the EFF CODE column to each top assembly. The reference letter of the applicable top assembly is also shown in the EFF CODE column for each detail part and subassembly except that no reference letter is shown for detail parts and subassemblies used on all top assemblies.

(3) Quantity Per Assembly

- (a) The UNIT PER ASSY column shows the total number of units required per assembly, per subassembly, as applicable. For bulk items, the letters AR indicate "as required." The letters RF indicate the item is listed for reference purposes.

(4) Parts Replacement Data

- (a) The interchangeability relationship between parts, where applicable, is identified in the NOMENCLATURE column of the parts list. A list of the terms used to show interchangeability and their definition is as follows:

Term	Parts List Abbreviation	Definition
Optional	OPT	This part is optional to and interchangeable with other parts in the same item number variant group or other item number if designated.
Superseded by	SUPSD BY	The part in the part number column is replaced by and is not interchangeable with the item number shown in the notation.
Supersedes	SUPSDS	The part in the part number column replaces and is not interchangeable with the item number shown in the notation.

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Term	Parts List Abbreviation	Definition
Replaced by	REPLD BY	The part in the part number column is replaced by and interchangeable with the item number shown in the notation.
Replaces	REPLS	The part in the part number column replaces and is interchangeable with the item number shown in the notation.

(5) Service Bulletin Incorporation

- (a) Except as indicated below, assemblies, subassemblies and detail parts subject to modification, deletion, addition or replacement by an issued service bulletin are annotated to show both pre- and post-service bulletin configuration. The term (PRE SB XXXX) in the Nomenclature column designates the original configuration, and the term (POST SB XXXX) identifies assemblies and parts after the service bulletin modification has been completed.
- (b) Subassemblies and detail parts used on assemblies bearing the pre- or post-service-bulletin notation will not carry the same notation themselves if the use code(s) assigned to them clearly reflect(s) their pre- or post-service bulletin status.
- (c) Top assemblies subject to modification by a service bulletin without assignment of a new part number (no production equivalent of the modified assembly) are not annotated with pre- or post-service-bulletin information.
- d. If a subassembly or detail part is modified by a service bulletin without a new part number being assigned, the original part number is listed with an alpha-variant item number and the term (POST SB XXXX). The effectivity code remains the same as for the pre-service bulletin configuration.

(6) Items Not Illustrated

- (a) Alpha variants A-Z (except 1 and 0) are assigned to existing item number when necessary to show:
 - 1) Added items
 - 2) Service bulletin modifications
 - 3) Configuration differences
 - 4) Optional parts
 - 5) Product improvement parts (non-service bulletin)
- (b) Alpha variant item numbers are not shown on the exploded view when the appearance and location of the alpha variant item is the same as the basic item.



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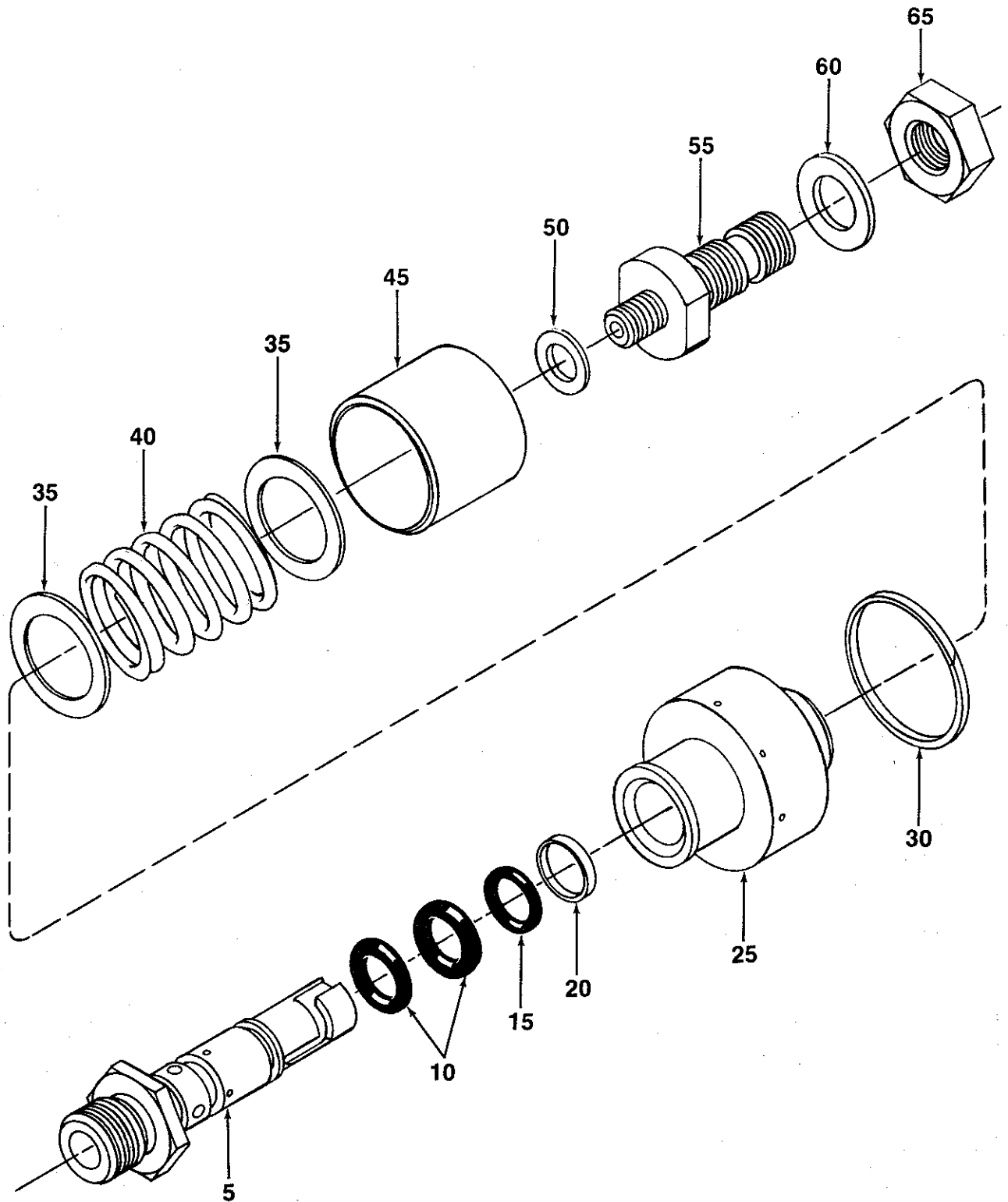
FIG. ITEM	PART NO.	AIRLINE PART NO.	NOMENCLATURE							EFF. CODE	UNITS PER ASS'Y.
			1	2	3	4	5	6	7		
1-1	0091520200-1		Valve-Reservoir Vent							A	RF
5	0091520201-1		* Body								1
10	NAS 1611-110		* O-Ring								2
15	NAS 1611-012		* O-Ring								1
20	S12068-013		* Glyd-Ring								1
25	00915202 C1-1		* Slider Assembly								1
30	MS 28774-024		* Scraper								1
35	0091520207-1		* Washer								1
40	0091520208-1		* Spring								1
45	0091520204-1		* Cover								1
50	0091520205-1		* Gasket								1
55	00915202B1-1		* Fitting Assembly								1
60	AN 960-716		* Washer								1
65	AN 924-4S		* Nut								1

- Items not illustrated

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Reservoir Vent Valve Assembly — Exploded View
IPL Figure 1