

**Essex Industries, Inc.**  
MANUFACTURING DIVISION  
6 SUNNEN ● ST. LOUIS, MO ● 63143-3903

**RESERVOIR VENT VALVE ASSEMBLY**

**PART NUMBER 0091520200-3  
BOEING P/N S271N301-3**

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**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 _____	Date _____
Disassembly	Verified _____	Date _____
Assembly	Verified _____	Date _____

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## 1. DESCRIPTION AND OPERATION

### A. Physical Description

1. The reservoir vent valve is designed to allow equal pressurization in a remote hydraulic fluid reservoir when in the normal mode (see Figure 2) and to release pressure when manually actuated to the vent mode (see Figure 3). This allows maintenance or repair of that reservoir without interrupting pressure to other reservoirs in the system.
2. 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 (30) toward the "in" port (see Figure 3) with a sharp motion.
2. When the valve is in the normal mode (see Figure 2), operation is automatic. Pressure enters the "in" port (see Figure 2) and passes through the fitting (60). If the slider (30) is actuated to the vent mode (see Figure 3), the pressure in the reservoir is released and the source pressure is closed.

### C. Leading Particulars

1.	Length:	3.213 ± .062 in.	81.610 ± 1.578mm
2.	Diameter:	∅1.320 ± .010 in.	∅33.528 ± .254 mm
3.	Weight:	0.34 lbs max.	0.154 kg max.

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## 2. TESTING AND FAULT ISOLATION

### A. Test Equipment - Equivalent Substitutes May Be Used

- (1) Pressure tight cap, 9/16-18 thread
- (2) 50 PSIG gaseous pressure source
- (3) Leak Detector (Snoop or equivalent)
- (4) Inlet Pressure Line, 1/4" line to mate with MS33514-4
- (5) BMS 3-11

### B. Functional Testing of Valve (Refer to IPL Figure 1)

- (1) Attach a pressure tight cap to the large fitting end of the Reservoir Vent Valve.
- (2) Apply 50 PSIG air pressure to the small fitting end.
- (3) Apply "Snoop" or other similar leak detector to the interface between the fitting (60) and cover (50). No leakage is allowed.
- (4) Apply "Snoop" or similar leak detector to the annular space between the slider (30) and cover (50). No leakage is allowed.
- (5) Actuate the slider (30) to the vent mode and apply a small amount of BMS 3-11 fluid to slider (30)/body (5) interface. No bubbles should be visible.

### C. Trouble Shooting

1. Use flow Chart Figure 1.

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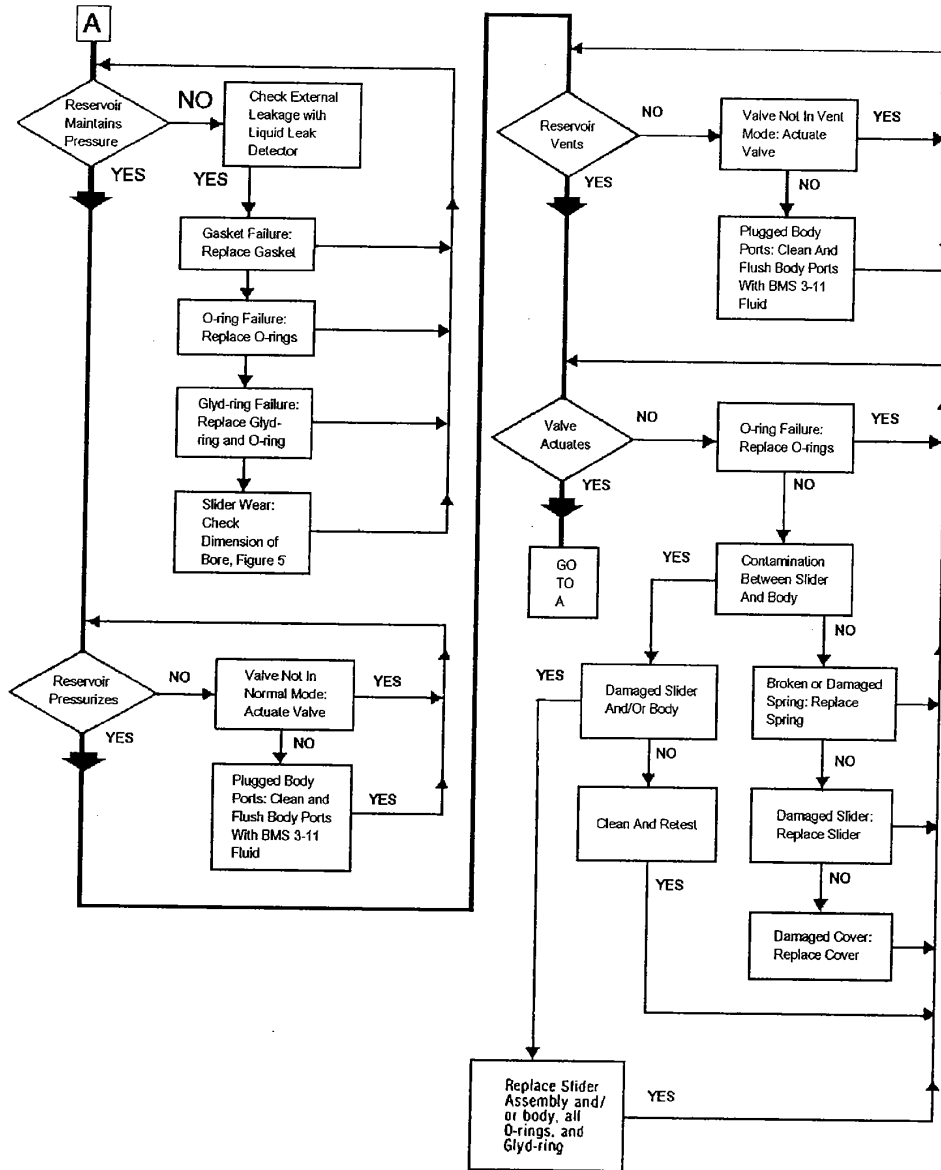


FIGURE 1

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NORMAL MODE

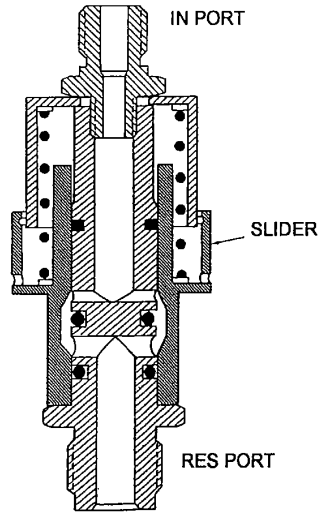


FIGURE 2

VENT MODE

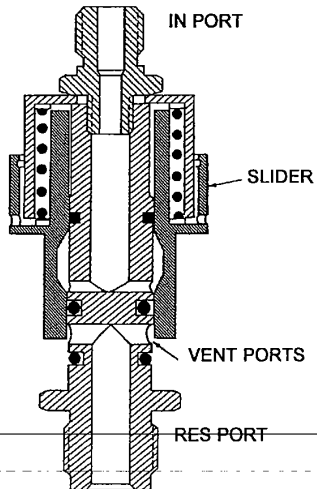


FIGURE 3

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## 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 the fitting (10) and discard gasket (15).
2. Remove the cover (20), spring (30), and washers (40).
3. Pull the slider assembly (45) off.
4. Remove and discard all O-rings, (50), (55), and Glyd-ring (60).

## 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.

## 5. CHECK

- A. If seals have not been removed, inspect all seals for nicks, cuts, or scratches. Remove and discard any damaged seals (50), (55).
- B. Inspect spring (30) for breakage or distortion. The spring should stand vertically on either end within 5°. Loads shall be as specified in Table 1 when measured with a suitable spring force gage. Replace spring (30) if damaged.
- C. Inspect slider (45) inside diameter for scratches or gouges. The inside diameter shall be as specified in Table 1 when measured with a suitable micrometer. Replace slider assembly (45) if damaged or showing excessive wear.
- D. Inspect slider (45) inside diameter and cover (20) for out-of-roundness by measuring diameter at two points 90° apart. The two measurements shall not vary more than that specified in Table 1. Replace slider assembly (45) and/or cover (20) if damaged.

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- E. Inspect threads on body (5) for visible damage. Replace body (5) if damaged.
- F. Inspect threads on fitting (10) for visible damage. Replace fitting (10) if damaged.
- G. Inspect internal sealing surface of fitting (10) 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 (50), O-rings
- Item (55), O-rings
- Item (60), Glyd-rings
- Item (15), Gasket

All item numbers refer to IPL Figure 1.

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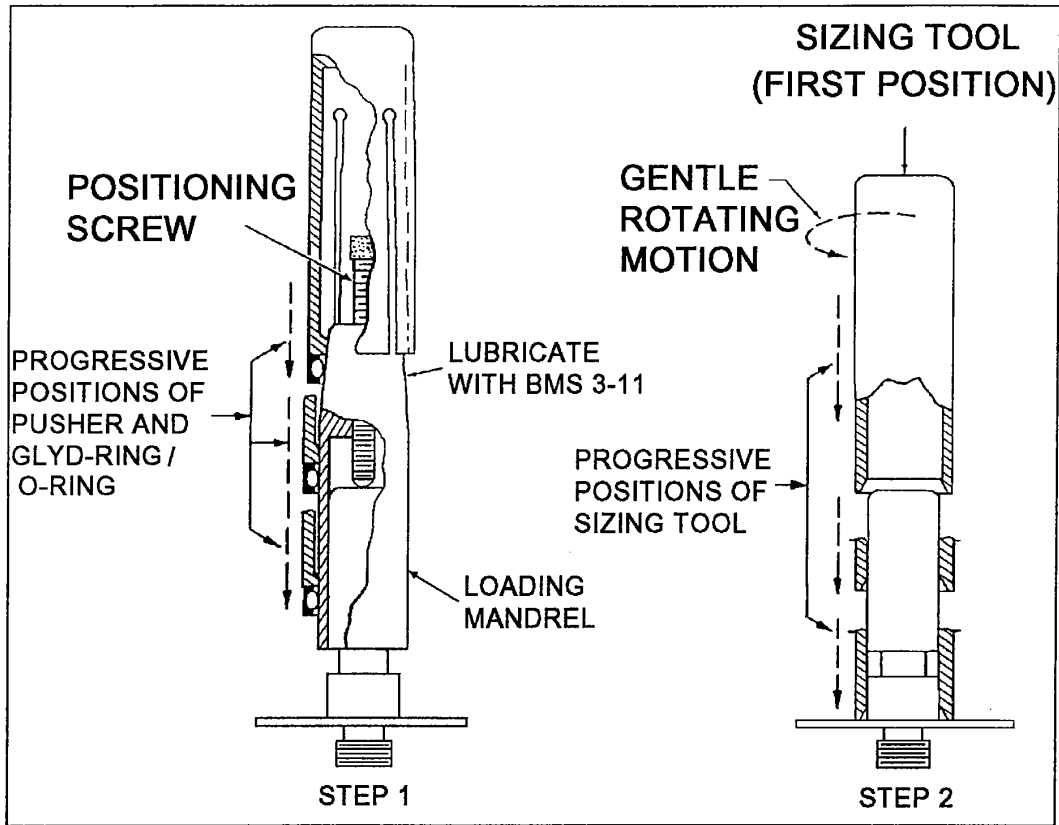


FIGURE 4

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## 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 4. Lightly lubricate all seals (50), (55), (60) with BMS 3-11 fluid. Place O-ring (55) over expander and pusher. Place Glyd-ring (60) over expander and push into narrow groove using pusher. Remove expander and size Glyd-ring (60) with sizer as shown in Figure 3. Replace expander and install one O-ring (50) into each remaining groove. Do not slide pusher past the Glyd-ring (60). Extreme care must be taken not to scratch or gouge the Glyd-ring.
2. Install scraper ring (35) into I.D. groove in slider (45).
3. Gently push slider assembly (45) with a twisting motion onto body (5) until it bottoms out.
4. Place one washer (40) in cavity of slider assembly (45). Install spring (40) into the slider assembly (45).
5. Place the gasket (15) onto the fitting (10). Apply one drop of Loctite Grade A to small threads. Slide cover over the gasket (15). Place one washer (40) into the cavity of the cover (20).

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6. Place cover (20) and fitting (10) over spring (30) and start fitting threads into body (5). Slowly screw the fitting (10) into the body (5) to make certain the scraper (35) does not jam against the cover.

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7. Actuate the slider several times to ensure proper operation of the reservoir vent valve.
8. Torque fitting (10) 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

TABLE 1

### Spring (30) Parameters

Load @ 1.225 Length	5 lb +/- .5 lb
Load @ .895 Length	5.8 lb +/- .5 lb
Outside Diameter	.975 +/- .010

### Slider (45) Parameters

Inside Diameter	.522/.551
Out-Of-Roundness	.001

### Cover (20) Parameter

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

## 9. SPECIAL TOOLS

The following 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 the indentures depicts the relationship of the item to the associated next higher assembly as follows:  
1      2      3

- **Assembly**
  - Detail Parts for Assembly
  - Subassemblies
  - Attaching parts for Subassemblies
    - Detail Parts for Subassemblies

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

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## (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	Defintion
Optional	OPT	This part is optional to and interchangeable with other parts in the same item number variant group or other item number designated.
Superceded 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.
Supercedes	SUPSDS	The part in the part number column replaces and is not interchangeable with the item number shown in the notation.
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-sevice bulletin configuration. The term (PRE SB XXX) in the Nomenclature column designates the original configuration, and the term (POST SB XXXX) identifies assemblies and parts after the

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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 alph-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 I and O) are assigned to existing item numbers when necessary to show:
    - 1) Added items
    - 2) Service bulletin modification
    - 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.

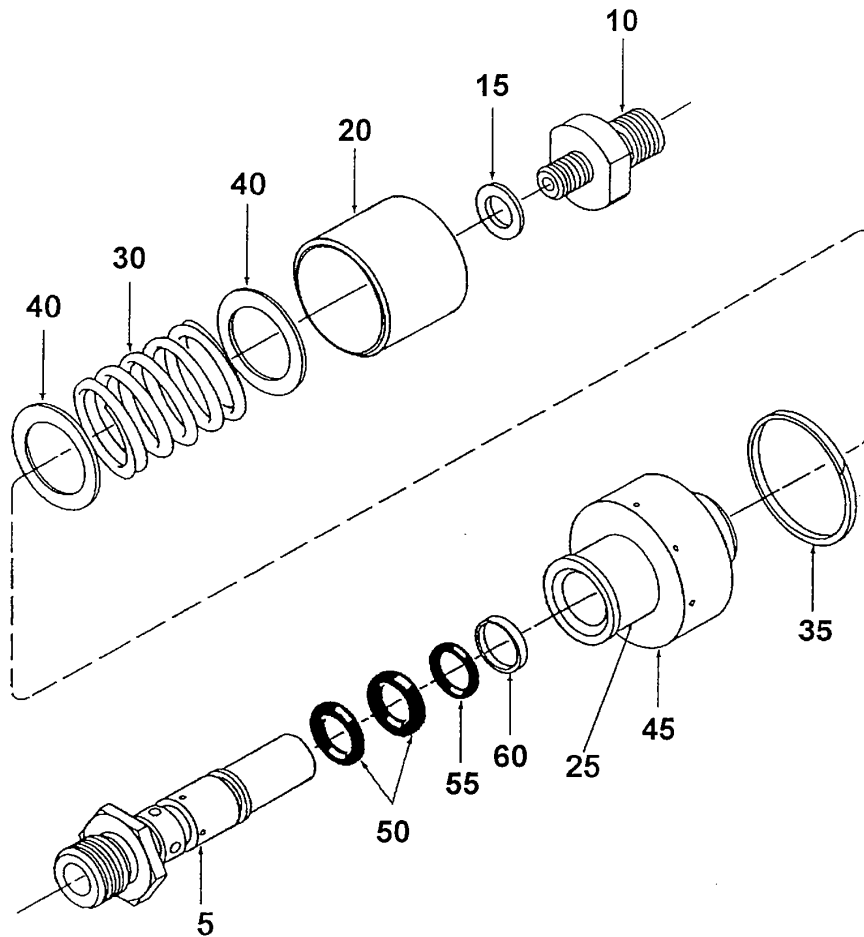
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Reservoir Vent Valve Assembly - Exploded View  
IPL Figure 1

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**TABLE 2**

FIG. ITEM	PART NO.	AIRLINE PART NO.	NOMENCLATURE							EFF CODE	UNITS PER ASSY
			1	2	3	4	5	6	7		
1-1	0091520200-3									A	RF
5	0091520201-2										1
50	NAS1611-110										2
55	NAS1611-012										1
60	S12068-013										1
25	0091520209-3										1
45	0091520203-2										1
35	MS28774-024										1
40	0091520207-1										2
30	0091520208-1										1
20	0091520204-1										1
15	0091520205-1										1
10	0091520215-1										1

All part numbers in the above list are Essex Industries, Inc. part numbers except NAS1611-110, NAS1611-012, and MS28774-024.

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