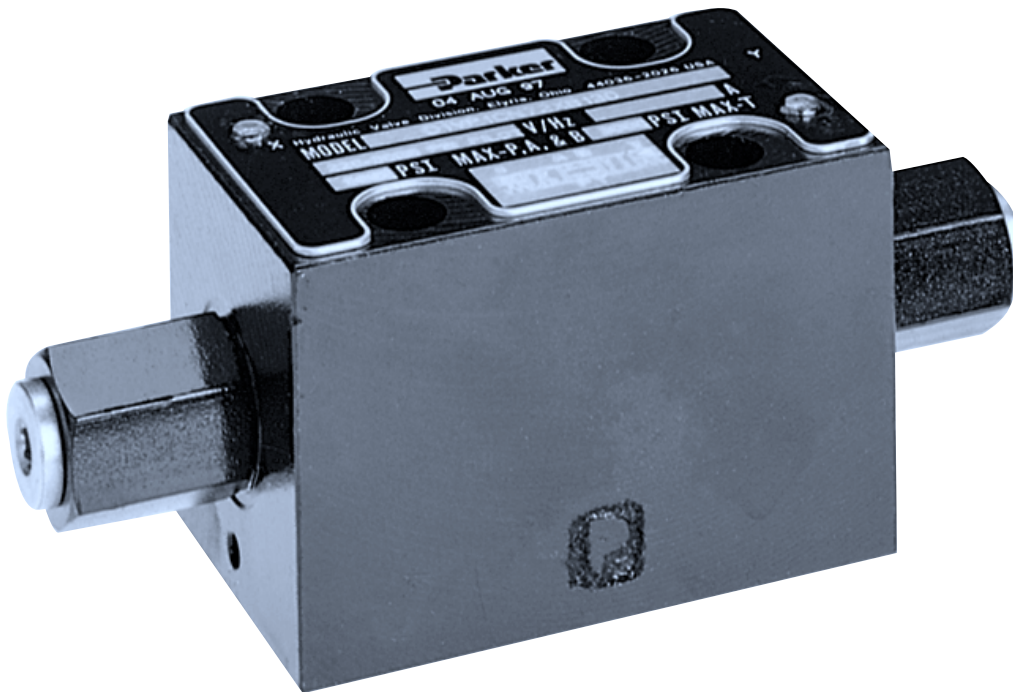




Bulletin 2531-M12/USA
Service Bulletin
Series D1VP

Effective: March 23, 1998



Model Code 1

Parts Data

 D1VP*B*** 2

 D1VP*C*** 3

 D1VP*D*** 4

 D1VP*E*** 5

 D1VP*H*** 6

 D1VP*K*** 7

Spool Chart 8

Troubleshooting Guide 9

 **WARNING**

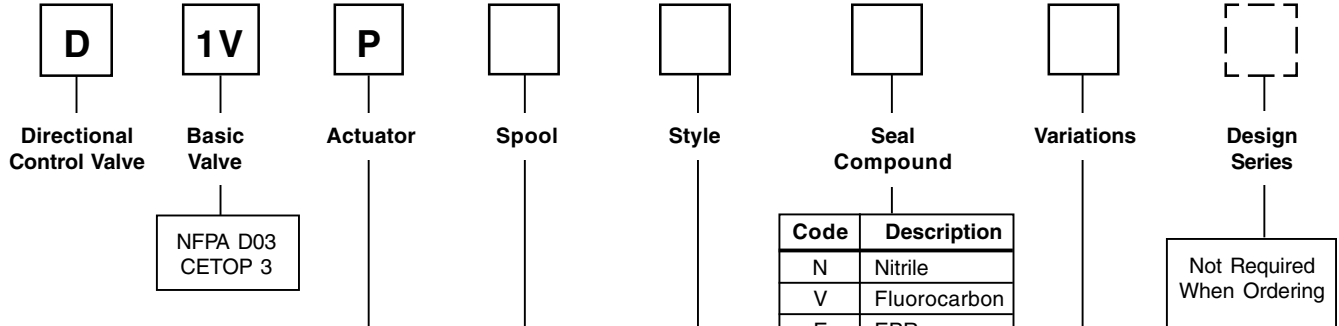
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NFPA D03
CETOP 3

| Code | Description |
|------|--------------|
| P | Oil Operator |

| Code | Description |
|------|--------------|
| N | Nitrile |
| V | Fluorocarbon |
| E | EPR |

| Code | Description |
|------|----------------|
| Omit | Standard |
| P10* | Monitor Switch |
| 90 | BSPB Threads |

* Available in B & H styles only.
Not CE or CSA approved.

| Code | Symbol |
|------|--------|
| 1 | |
| 2 | |
| 4 | |
| 8* | |
| 9** | |
| 20* | |
| 26* | |
| 30** | |

* 8, 20 and 26 spool have closed crossover.
** 9 and 30 spool have open crossover

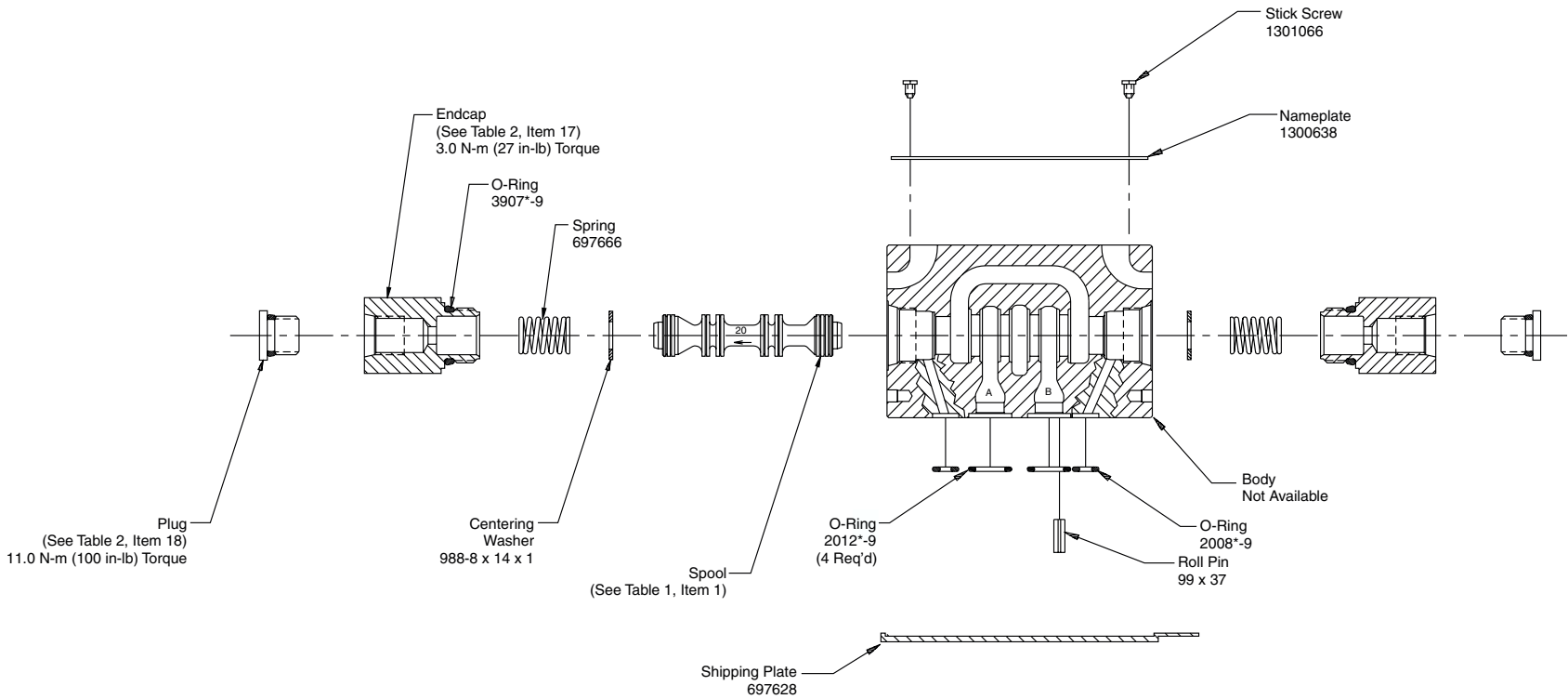
| Code | Description |
|------|---|
| B # | Single operator, two position spring offset. P to A and B to T in offset position. |
| C * | Double operator, three position, spring centered. |
| D # | Double operator, two position, detent. |
| E * | Two position, spring offset to center. P to B and A to T in offset position. |
| H # | Single operator, two position, spring offset. P to B and A to T in offset position. |
| K * | Two position, spring offset to center. P to A and B to T in offset position. |

* Not available with 20, 26 or 30 spools.
D available with 20 and 30 spools only.
B & H available with 20, 26 and 30 spools only.

This condition varies with spool code

| Code | Item | Part Number | Qty | Description |
|------|------|-------------|-----|-------------|
| 20 | 1 | 697620 | 1 | #20 Spool |
| 26 | 1 | 1300209 | 1 | #26 Spool |
| 30 | 1 | 697630 | 1 | #30 Spool |

| Code | Item | Part Number | Qty | Description |
|------|------|--------------|-----|---------------------|
| Omit | 17 | 1302107 | 2 | End Cap - SAE |
| | 18 | 4HP50*-S | 2 | SAE Plug (108 x 4*) |
| 90 | 17 | 1302108 | 2 | End Cap - BSPP |
| | 18 | VST11/4EDA3C | 2 | BSPP Plug |



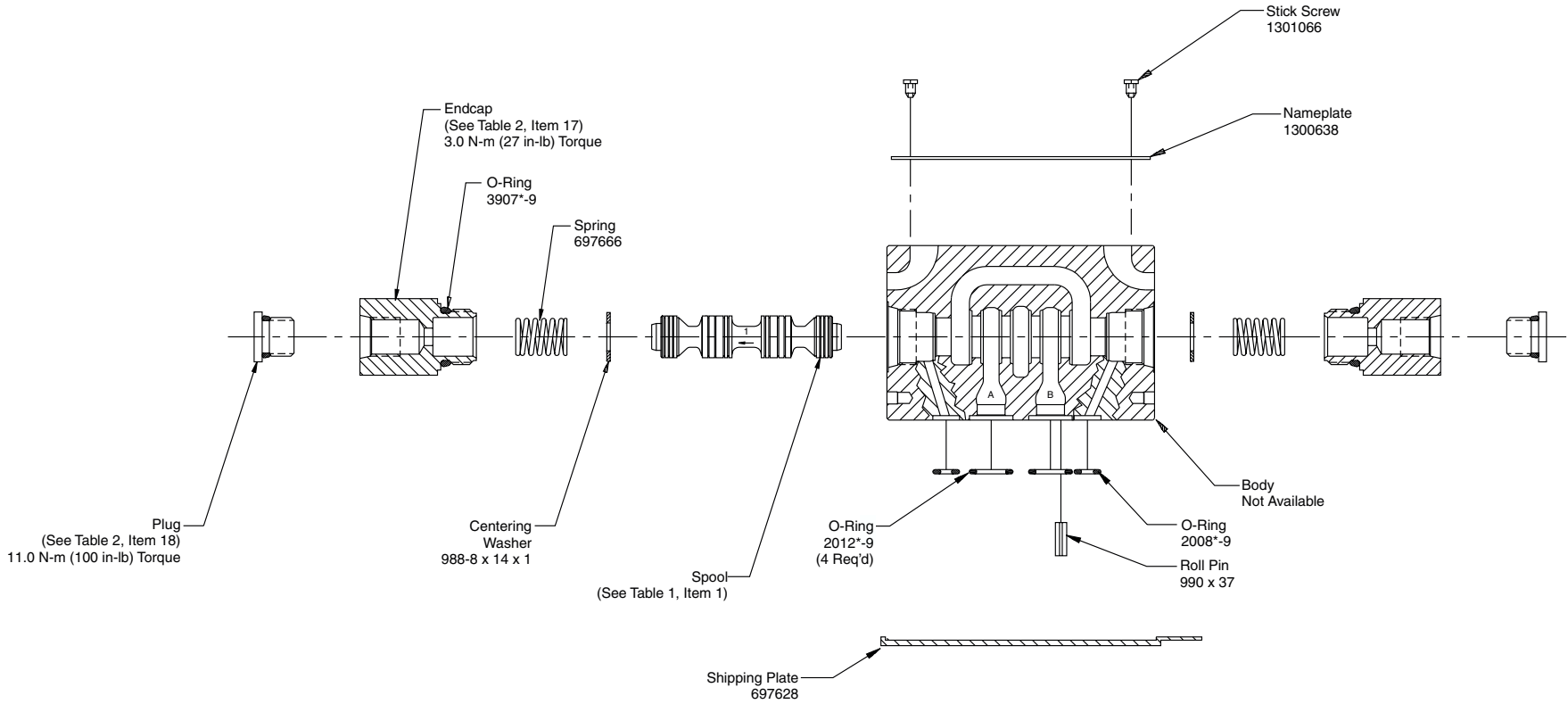
Oil Pilot Operated Model

NOTES:

1) * Indicates Seal Compound. N-Nitrile, V-Fluorocarbon, E-EPR.

| Code | Item | Part Number | Qty | Description |
|------|------|--------------|-----|---------------------|
| Omit | 17 | 1302107 | 2 | End Cap - SAE |
| | 18 | 4HP50*-S | 2 | SAE Plug (108 x 4*) |
| 90 | 17 | 1302108 | 2 | End Cap - BSPP |
| | 18 | VST11/4EDA3C | 2 | BSPP Plug |

| Code | Item | Part Number | Qty | Description |
|------|------|-------------|-----|-------------|
| 1 | 1 | 697601 | 1 | #1 Spool |
| 2 | 1 | 697602 | 1 | #2 Spool |
| 4 | 1 | 697604 | 1 | #4 Spool |
| 8 | 1 | 697608 | 1 | #8 Spool |
| 9 | 1 | 1302128 | 1 | #9 Spool |



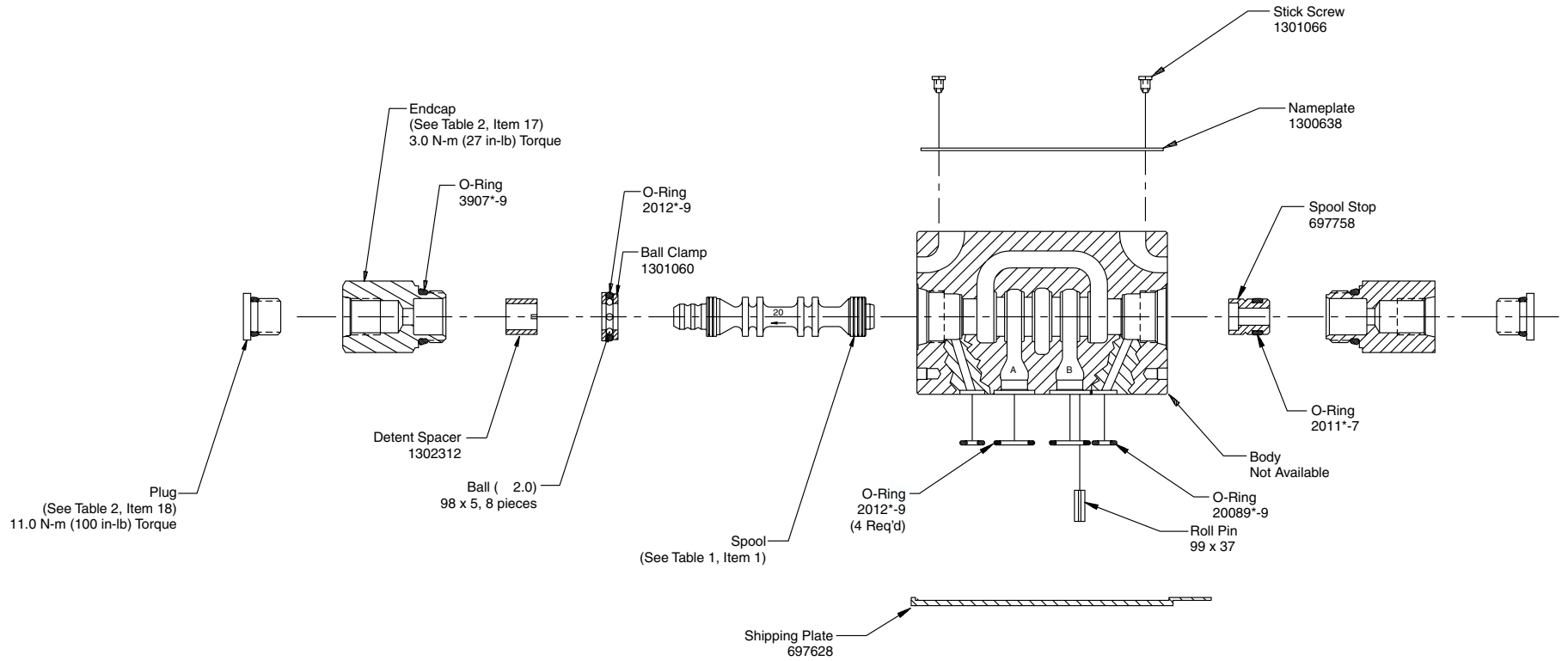
Oil Pilot Operated Model

NOTES:

1) * Indicates Seal Compound. N-Nitrile, V-Fluorocarbon, E-EPR.

| Code | Item | Part Number | Qty | Description |
|------|------|-------------|-----|-------------|
| 20 | 1 | 697620 | 1 | #20 Spool |
| 30 | 1 | 697630 | 1 | #30 Spool |

| Code | Item | Part Number | Qty | Description |
|------|------|--------------|-----|---------------------|
| Omit | 17 | 1302107 | 2 | End Cap - SAE |
| | 18 | 4HP50*-S | 2 | SAE Plug (108 x 4*) |
| 90 | 17 | 1302108 | 2 | End Cap - BSPP |
| | 18 | VST11/4EDA3C | 2 | BSPP Plug |



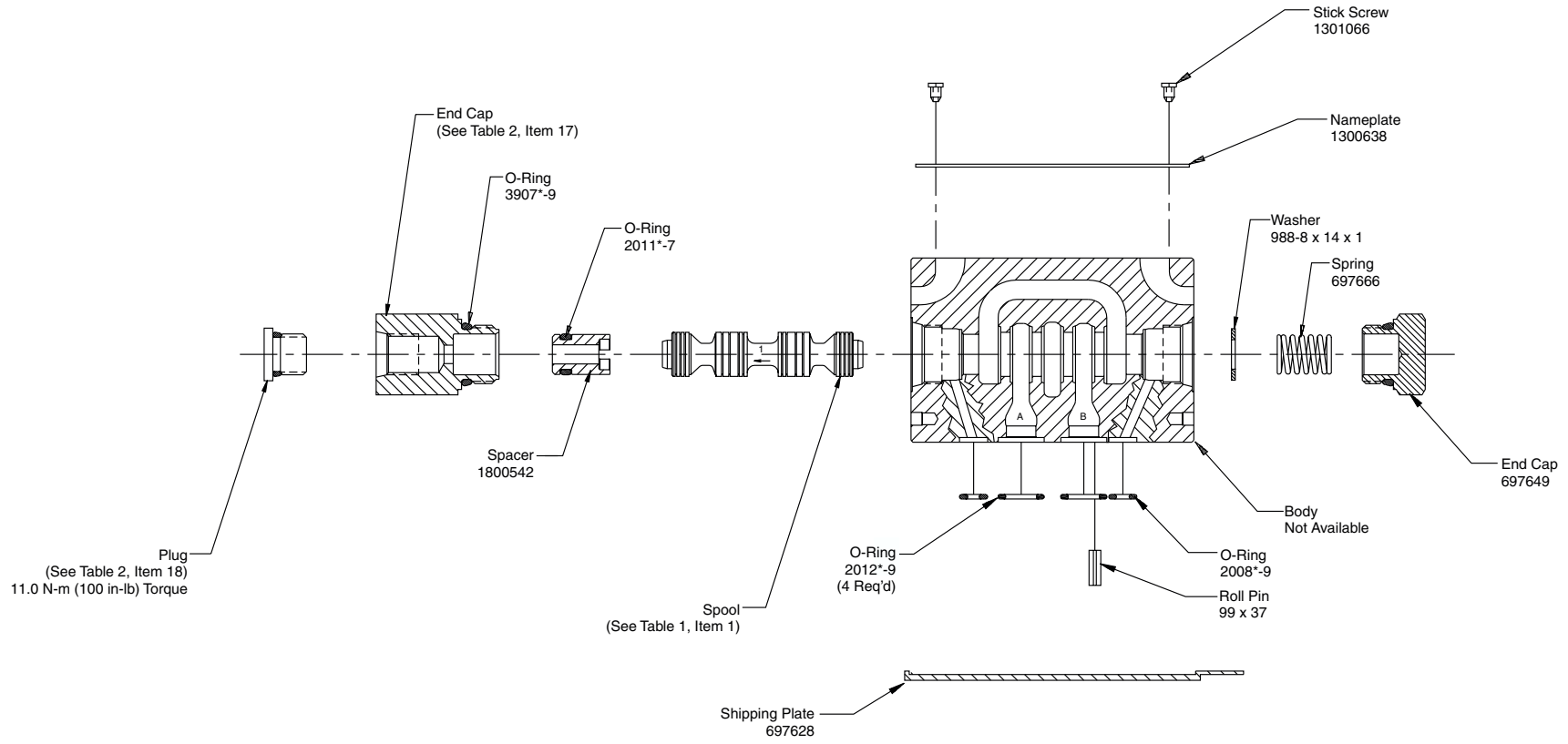
Oil Pilot Operated Model

NOTES:

1) * Indicates Seal Compound. N-Nitrile, V-Fluorocarbon, E-EPR.

| Code | Item | Part Number | Qty | Description |
|------|------|-------------|-----|-------------|
| 1 | 1 | 697601 | 1 | #1 Spool |
| 2 | 1 | 697602 | 1 | #2 Spool |
| 4 | 1 | 697604 | 1 | #4 Spool |
| 8 | 1 | 697608 | 1 | #8 Spool |
| 9 | 1 | 1302128 | 1 | #9 Spool |

| Code | Item | Part Number | Qty | Description |
|------|------|--------------|-----|---------------------|
| Omit | 17 | 1302107 | 2 | End Cap - SAE |
| | 18 | 4HP50*-S | 2 | SAE Plug (108 x 4*) |
| 90 | 17 | 1302108 | 2 | End Cap - BSPP |
| | 18 | VST11/4EDA3C | 2 | BSPP Plug |

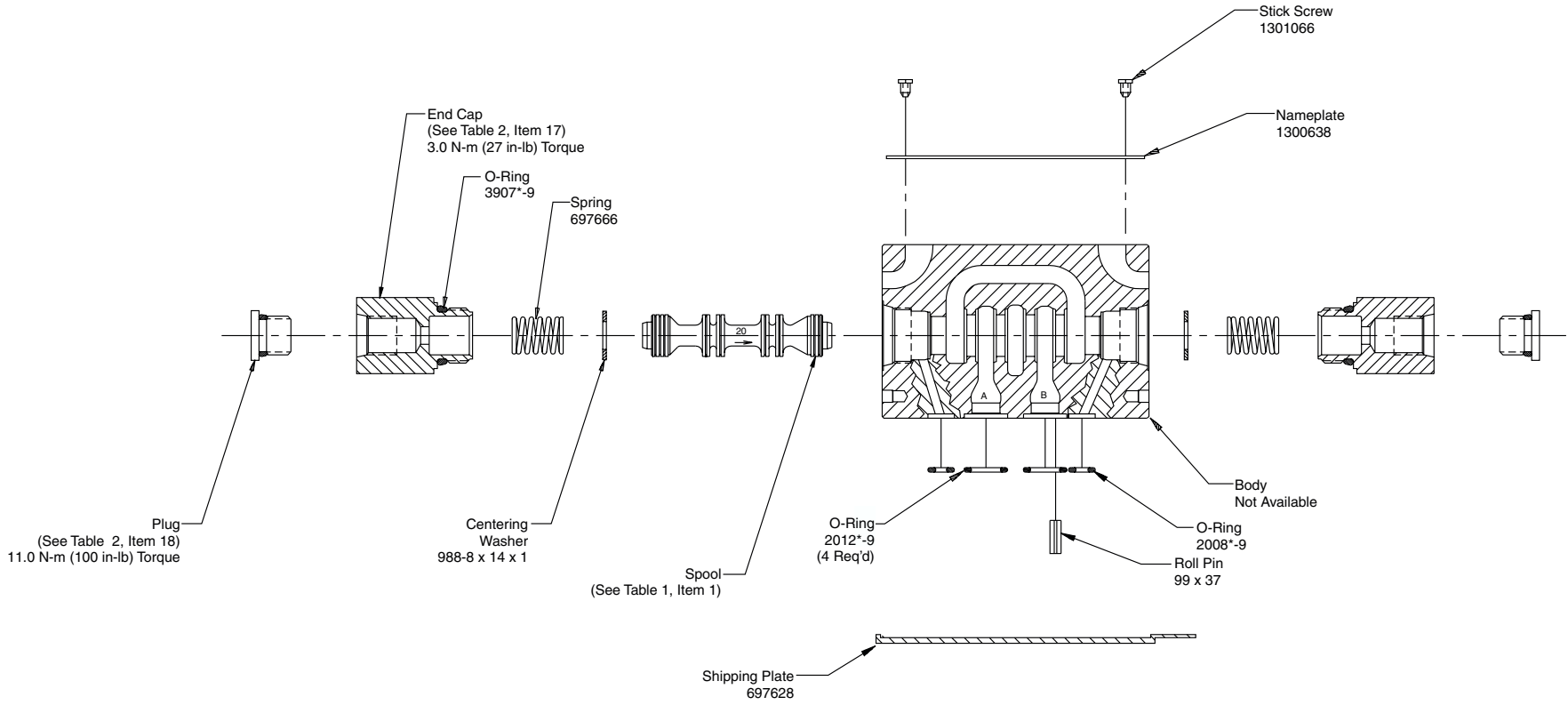


Oil Pilot Operated Model

NOTES:
1) * Indicates Seal Compound. N-Nitrile, V-Fluorocarbon, E-EPR.

| Code | Item | Part Number | Qty | Description |
|------|------|-------------|-----|-------------|
| 20 | 1 | 697620 | 1 | #20 Spool |
| 26 | 1 | 1300209 | 1 | #26 Spool |
| 30 | 1 | 697630 | 1 | #30 Spool |

| Code | Item | Part Number | Qty | Description |
|------|------|--------------|-----|---------------------|
| Omit | 17 | 1302107 | 2 | End Cap - SAE |
| | 18 | 4HP50*-S | 2 | SAE Plug (108 x 4*) |
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| | 18 | VST11/4EDA3C | 2 | BSPP Plug |



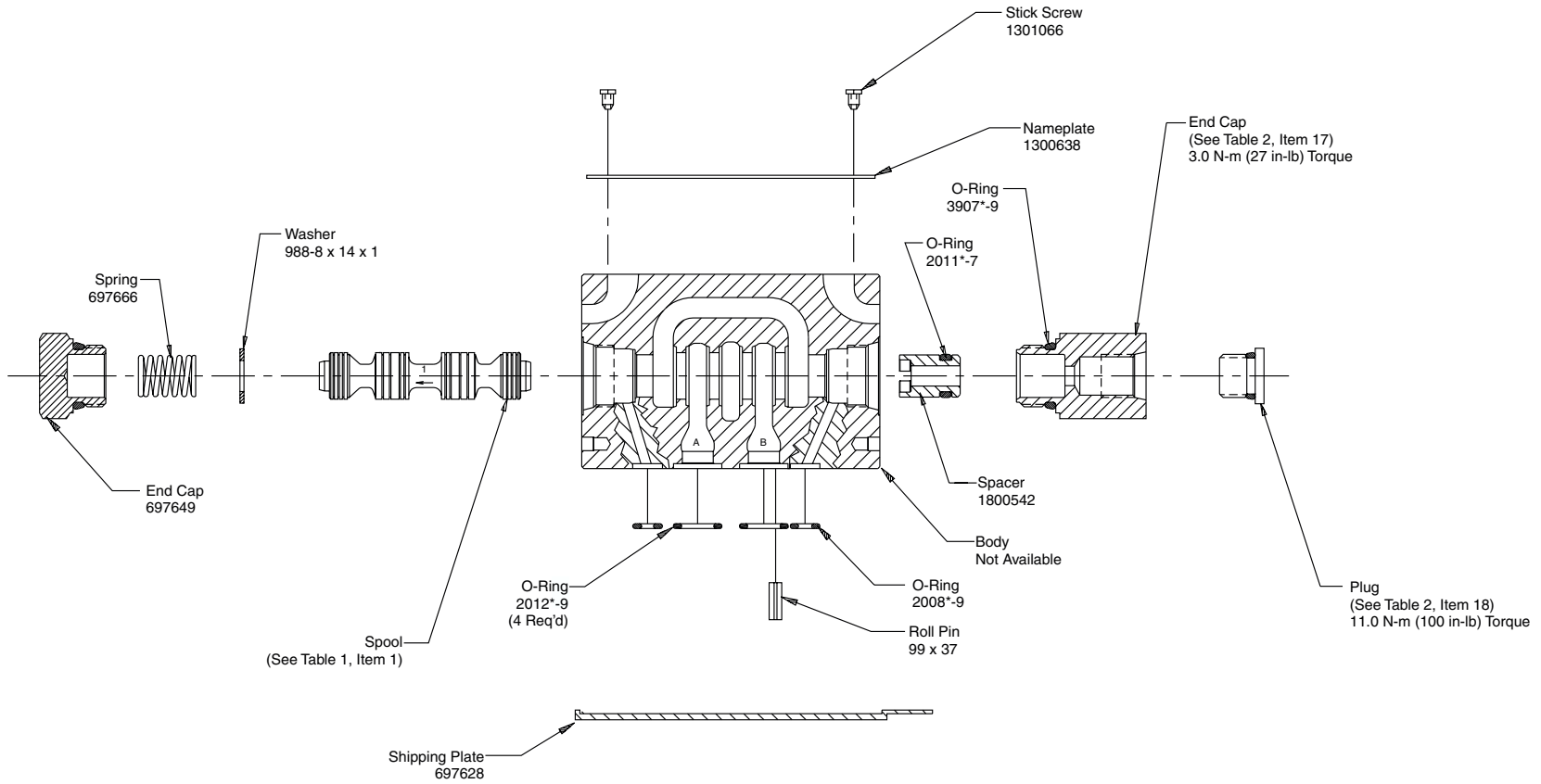
Oil Pilot Operated Model

NOTES:

1) * Indicates Seal Compound. N-Nitrile, V-Fluorocarbon, E-EPR.

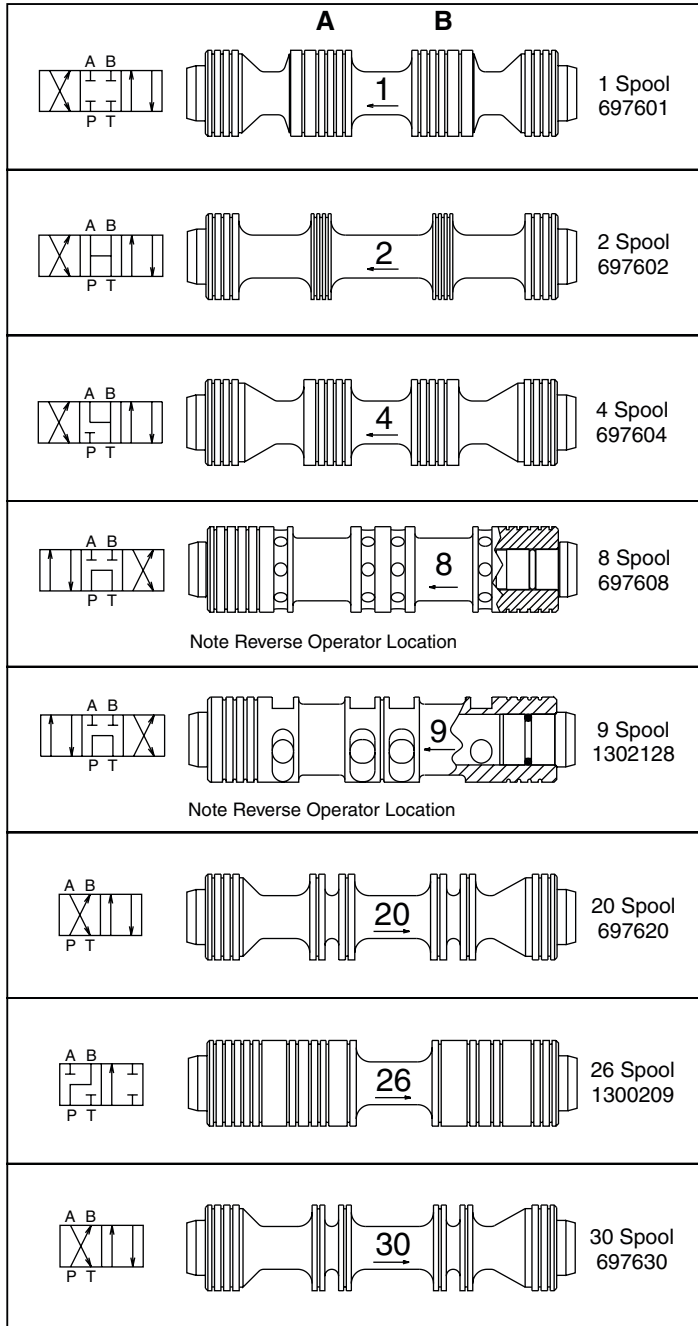
| Code | Item | Part Number | Qty | Description |
|------|------|-------------|-----|-------------|
| 1 | 1 | 697601 | 1 | #1 Spool |
| 2 | 1 | 697602 | 1 | #2 Spool |
| 4 | 1 | 697604 | 1 | #4 Spool |
| 8 | 1 | 697608 | 1 | #8 Spool |
| 9 | 1 | 1302128 | 1 | #9 Spool |

| Code | Item | Part Number | Qty | Description |
|------|------|--------------|-----|---------------------|
| Omit | 17 | 1302107 | 2 | End Cap - SAE |
| | 18 | 4HP50*-S | 2 | SAE Plug (108 x 4*) |
| 90 | 17 | 1302108 | 2 | End Cap - BSPP |
| | 18 | VST11/4EDA3C | 2 | BSPP Plug |



Oil Pilot Operated Model

1) "*" Indicates Seal Compound. N-Nitrile, V-Fluorocarbon, E-EPR.
NOTES:



Note: Spool 8 has closed crossover.
Spool 9 has open crossover.

Warning

Before any circuit connection is broken, be sure to turn off all power and relieve system pressure. Lower all vertical loads and cylinders, lock any load which could produce pressure and discharge any accumulators. Plug and cap all lines and openings to prevent contamination from entering the system.

Cleaning and Inspection

1. Proper cleaning is a critical part of preventive maintenance in the use of directional control valves. All parts should be cleaned with a solvent that is compatible with the system fluid. Compressed air may also work well when cleaning orifices and passage ways, but proper filtration must be employed to remove water and contamination.

NOTE: Always make sure all parts have been cleaned before reassembling.

2. Inspection

- a. Inspect all passage ways for obstructions.
- b. Inspect all washers, push pins, plungers and pole faces for signs of wear and/or mushrooming. Inspect all springs for signs of distortion. Replace parts as necessary.
- c. Look for nicks and burrs on the spool and bore lands. Nicks in these areas indicate likely contamination of the system fluid.

3. If there are no signs of nicks or burrs on the spool and bore, check the spool clearance as follows:

- a. Lubricate the spool and bore with clean system fluid.
- b. Insert the spool back into the body and slowly move the spool back and forth. The spool should move freely. If there is any sticking between the spool and the bore, remove the spool and repeat 2b.
- c. The spool clearance can also be checked by placing the valve body on end and inserting the spool. Gravity will pull the spool to the other end if there is no sticking.
- d. After several attempts have been made without resolution, replace the valve.

Troubleshooting

Problem: Valve spool fails to move

| Cause | Recommendation |
|-----------------------------------|---|
| Recommended flow exceeded | Check maximum flow rate for appropriate spool by spool function. |
| Recommended pressure exceeded | Check maximum pressure rating for valve. |
| Improper installation connections | Check installation drawings. |
| Contamination in system | Disassemble, inspect, clean and flush. |
| Improper assembly | Check proper assembly. Refer to drawing for appropriate model. |
| Valve has silted. | Disassemble and clean valve. |
| Pilot supply off. | Turn supply on. |
| Inadequate pilot pressure. | Check pilot pressure specifications for valve model. Check pilot/connections for leak. |

Problem: Valve produces undesirable response

| Cause | Recommendation |
|---|---|
| Recommended flow exceeded | Check maximum flow rate for appropriate spool by spool function. |
| Recommended pressure exceeded | Check maximum pressure rating for valve. |
| Improper installation connections | Check installation drawings. |
| Contamination in system | Disassemble, inspect, clean and flush. |
| Improper assembly | Check proper assembly. Refer to drawing for appropriate model. |
| Improper fluid | Check fluid recommendations. |
| Recommended temperature exceeded (indicated by fluid discoloration or spool tarnishing) | Check maximum temperature recommendations. |
| Inadequate pilot pressure | Check pilot pressure specifications for valve. Check pilot/connections for leak. |



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Bulletin 2531-M12/USA,
5M, 3/98, PHD