

VEW43 Pallet De-Coupling Valve VEW43P Continuous Connection Valve

L2708 Rev. D 07/2019

For Date Codes Beginning with the Letter "B"

To Protect Your Warranty, Use Only ENERPAC Hydraulic Oil.

Enerpac recommends that all kit components be installed to insure optimum performance of the repaired product.

Repair Parts List for Figure 1

Item	Part Number	Qty.	Description
1	B1331028	4	Bolt (VEW43 Only)
	B1327028	4	Bolt (VEW43P Only)
2	B1086066	4	Lock Washer
3	PA2753026	1	Decal, Valve
4	DC5142660	1	Control Valve Assembly
4A	---	1	Valve (included w/item #4)
4B	★ B1012203	4	O-Ring (included w/item #4)
5	PA2789840	1	Check Valve Body Assembly
5A	† PA2788661	2	Cartridge (order separately)
5B	---	1	Body (included w/item #5)
5C	---	2	Plate (incl w/item #5)
5D	---	2	Pin (included w/item #5)
5E	★ B1012203	4	O-Ring (included w/item #5)
6	CBE1027028-1A	4	Bolt
7	PA2738038	1	Adapter Block
8	★ B1111203	1	O-Ring
9A	★ B1011203	3	O-Ring
9B	★ B1011203	1	O-Ring
10	B1051057	1	Spring Pin
11	DC6177950	1	Manifold Assembly
12	★ DC9356037	1	Gasket
13	DC2749768	1	Pipe
14	★ B1012564	1	Ring, Back-Up
15	CBE837028-1A	4	Capscrew, Socket Head

★ Items included in Seal Kit VEW43K.

† Refer to Figure 8 for cartridge seals.

Notes (Figure 1):

- △ Torque to 60-72 in-lbs [6.8-8.1 Nm].
- △ O-Rings included in assembly.
- △ O-Rings, pin and plate included in assembly.
- △ Torque to 30-35 ft-lbs [40.6-47.4 Nm].
- △ Torque to 28-34 ft-lbs [37.9-46.0 Nm].
- △ Assemble with pin above surface 1/4 inch, ± 1/8 inch [6.35mm, ± 3.17mm].
- △ Torque to 16-19 ft-lbs [21.7-25.8 Nm].

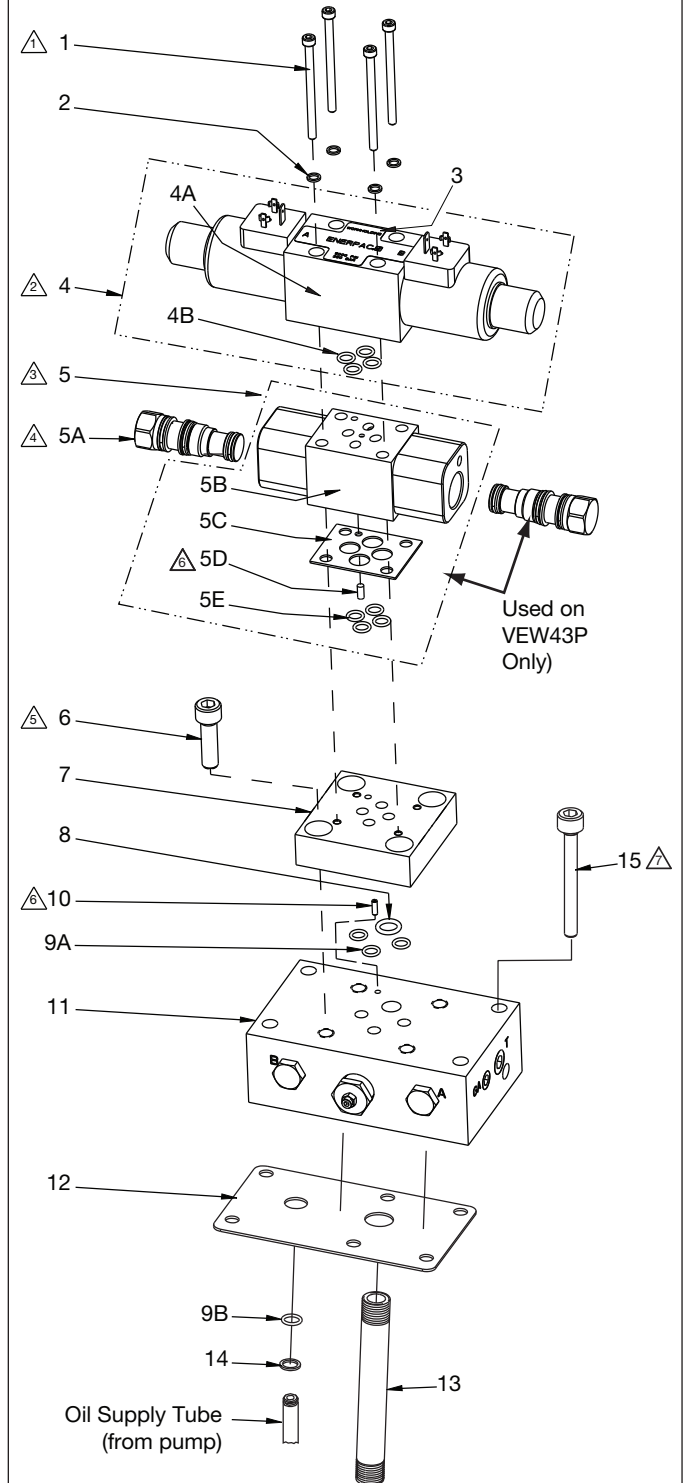


Figure 1, Valve Assembly, VEW43 & VEW43P

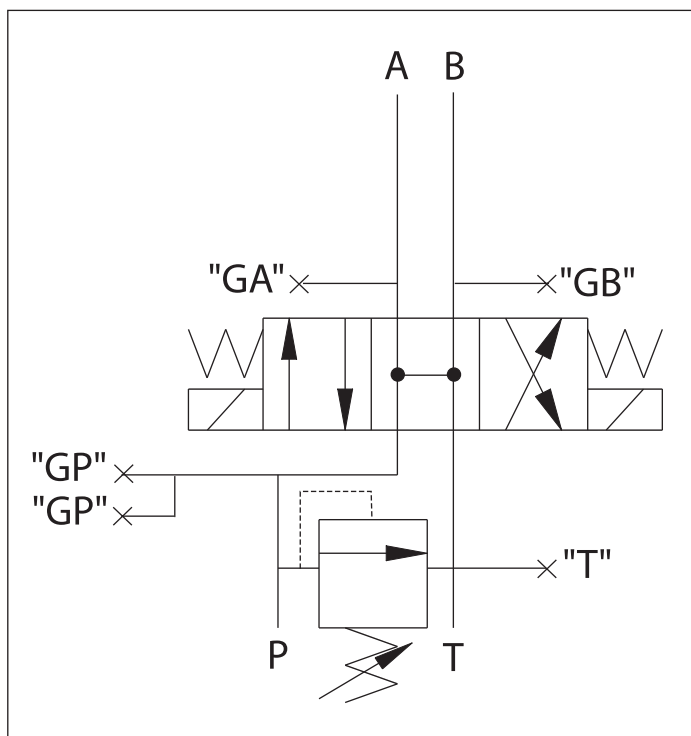


Figure 2, Hydraulic Schematic,
VEW43 Pallet De-Coupling Valve

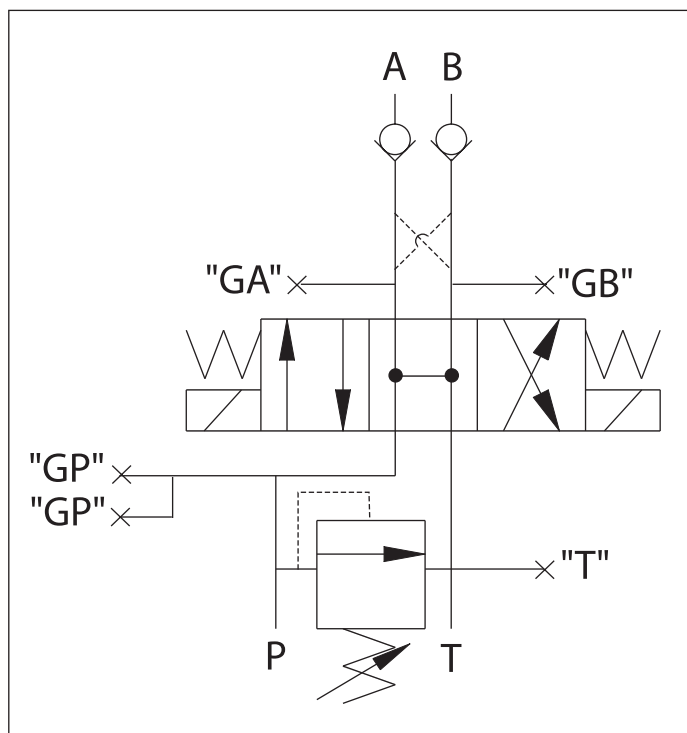


Figure 3, Hydraulic Schematic,
VEW43P Continuous Connection Valve

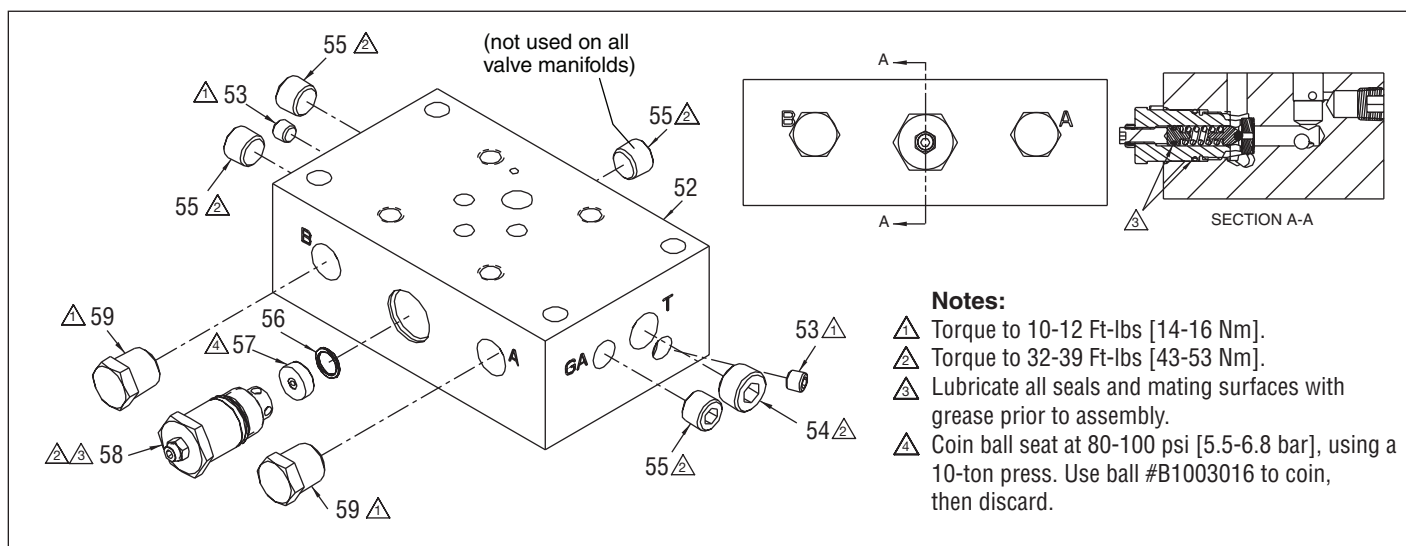


Figure 4, DC6177950SR, Valve Manifold Assembly

Repair Parts List for Figure 4							
Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
52	◆ DC6308038	1	Manifold Block	56	◆ P20037	1	Gasket
53	◆ DC6792245	2	Plug, 1/16"	57	◆ DC5124290	1	Seat, Ball
54	◆ DC6795245	1	Plug, 3/8"	58	◆ DC5139900SR	1	Relief Valve Assy (See Fig. 5)
55	◆ DC6794245	3 or 4	Plug, 1/4"	59	◆ R515245-2	2	Plug
◆ Items included in Repair Kit DC6177950SR.							

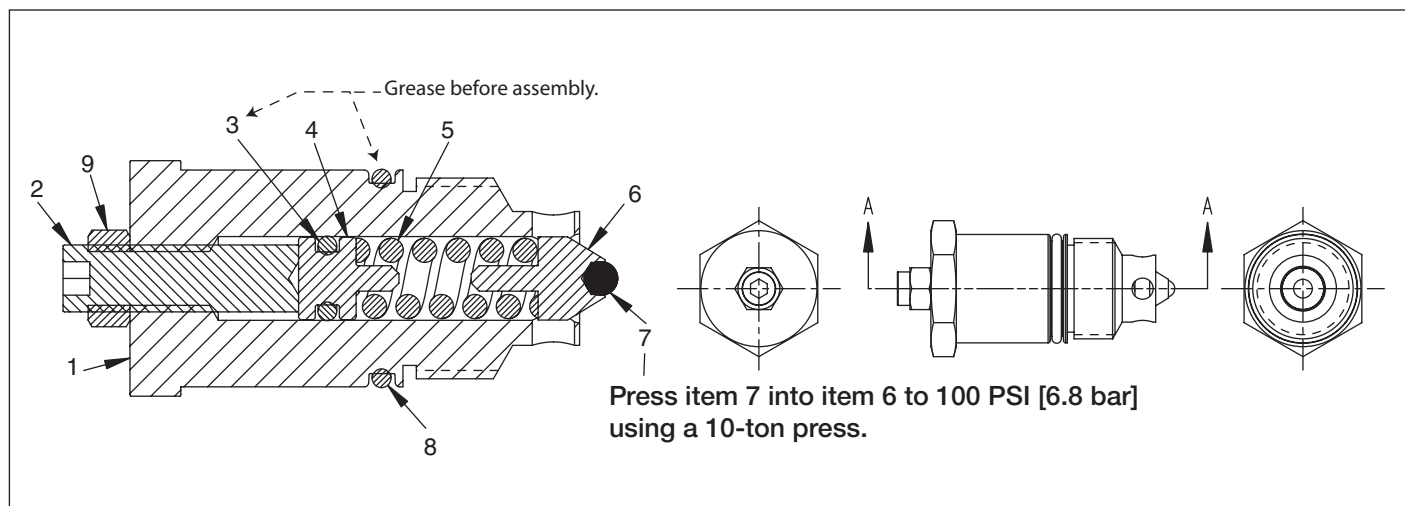


Figure 5, DC5139900SR, User Adjustable Relief Valve Assembly

Repair Parts List for Figure 5

Item	Part Number	Qty.	Description	Item	Part Number	Qty.	Description
1	* DC5138190	1	Body	7	* B1003016	1	1/8" Dia. Ball
2	* BC2512027FX	1	Set Screw	8	* B1223503	1	O-Ring
3	* B1003503	1	O-Ring	9	* B1001122	1	Lock Nut
4	* DC5127007	1	Plug	-	▲ P20037	1	Gasket
5	* A8126110	1	Spring	-	▲ DC5124290	1	Seat, Ball
6	* DC5125013	1	Guide				

* Items included in Repair Kit DC5139900SR. ▲ Not Shown - See Figure 4, Items 56 and 57.

Repair Parts List for Figure 6

Item	Part Number	Qty.	Description
6	† CBE1027028-1A	4	Bolt
7	† PA2738038	1	Adapter Block
8	★† B1111203	1	O-Ring
9A	★† B1011203	3	O-Ring
9B	★† B1011203	1	O-Ring
10	† B1051057	1	Spring Pin
11	DC6177950	1	Manifold Assembly
12	★ DC9356037	1	Gasket
13	DC2749768	1	Pipe
14	★ B1012564	1	Ring, Back-Up
15	★ CBE837028-1A	4	Capscrew, Socket Head

† Items included in Service Assembly PA2763900K.
★ Items included in Seal Kit VEW43K.

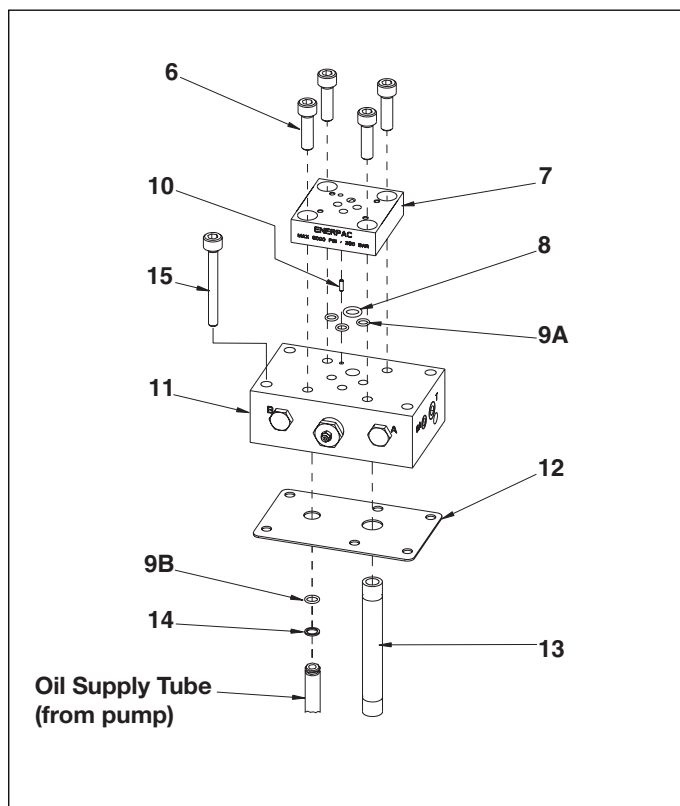


Figure 6, Single Station DO3 Assembly
(user-supplied control valve)

TROUBLESHOOTING AND REPAIR OF VEW43 and VEW43P SOLENOID VALVES

TROUBLESHOOTING



CAUTION: Standard safety procedures are to be followed during assembly to minimize any possibility of injury.

1. Inability to obtain any pressure may be the result of a damaged connector seal on the pump (item 9B, figure 1), failed relief valve components (items 6, 7, figure 5), a damaged pilot-operated check valve (items 5A-5E, figure 1) or a damaged directional control valve (item 4A, figure 1). These problems are usually a symptom of contaminated hydraulic oil. The system should be drained and refilled with fresh ENERPAC hydraulic oil.
2. Pressure leaks that are consistent and increase proportionately with increasing pressure ranges are usually the result of leaking gaskets or threaded surfaces such as NTPF fittings or plugs.
3. Leakage observed on the external surfaces around the relief valve body (item 1, figure 5) is an indication that the o-ring (item 8, figure 5) needs to be replaced.

VALVE DISASSEMBLY

Refer to figure 1 during the following steps:

1. If necessary, replace the cartridge valve seals and back-up rings. Refer to the "Cartridge Valve Seal Replacement" procedure at the end of this document.
2. Remove the socket head capscrews (item 15) from the manifold (item 11) and remove the valve assembly from the pump.
3. Remove the oil return tube (item 13) and gasket (item 12).
4. Remove bolts (item 1) and lock washers (item 2) securing the control valve (item 4A).
5. Remove the control valve (item 4A) and o-rings (item 4B).
6. Model VEW43P only: remove the check valve body (item 5B), plate (item 5C) and o-rings (item 5E). Locator pin (item 5D) will be removed with valve body (item 5B).
7. Remove socket head bolts (item 6), adapter block (item 7), o-ring (item 8) and o-rings (item 9A). Spring pin (item 10) will be removed with adapter block (item 7).
8. If worn or damaged, remove the back-up ring (item 14) and o-ring (item 9B) from the pump oil supply tube.
9. If worn or damaged, remove the spring pin (item 10) from adapter block (item 7).
10. If necessary, disassemble, inspect and reassemble the manifold (item 11). Refer to the "Manifold Disassembly" and "Manifold Reassembly" procedures later in this document.

VALVE REASSEMBLY

Important: Apply oil or grease to all o-ring seals before installation. Be sure all mating surfaces are clean and free of nicks, scratches, dirt and grit.

Refer to figure 1 during the following steps:

1. If removed during disassembly, install a new spring pin (item 10) in adapter block (item 7).
2. If removed during disassembly, install a new o-ring (item 9B) and back-up ring (item 14) onto the pump oil supply tube.
3. On the bottom side of the adapter block (item 7), install o-rings (items 8 and 9A) in the correct ports.
4. Secure the adapter block (item 7) to the manifold (item 11) with socket head bolts (item 6). Torque bolts to 28-34 ft-lbs [37.9-46.0 Nm].
5. Model VEW43 only:
 - a. Install o-rings (item 4B) in the ports of the control valve (item 4A).
 - b. Align bolt holes in control valve (item 4A) with bolt holes in adapter block (item 7). Secure with socket head bolts (item 1) and lock washers (item 2). Torque bolts to 60-72 in-lbs [6.8-8.1 Nm].
 - c. Skip step 6 and go to step 7.
6. Model VEW43P only:
 - a. If installing a **new** check valve body, install a new locator pin (item 5D) into hole on bottom of check valve body (item 5B). **Note:** Locator pin (item 5D) is shipped loose for new check valve bodies.
 - b. Install o-rings (item 5E) in holes of plate (item 5C).
 - c. Position check valve body (item 5B) upside down. Align locator hole in plate (item 5C) with locator pin (item 5D) on check valve body (item 5B).
 - d. Position the plate (item 5C) against the check valve body (item 5B). Be sure that holes in plate are aligned with ports in valve body.
Note: During steps 6e and 6f, hold plate (item 5C) in place so it remains aligned and does not drop. Be sure that o-rings (item 5E) remain installed.
 - e. Turn over check valve body (item 5B). Align locator pin (item 5D) on valve body with mating hole in adapter block (item 7).
 - f. Position check valve body (item 5B) and plate (item 5C) on adapter block (item 7).
 - g. Install o-rings (item 4B) in the ports of the control valve (item 4A).
 - h. Align bolt holes in control valve (item 4A) with bolt holes in check valve body (item 5B). Position control valve on check valve body.
 - i. Secure valve components with socket head bolts (item 1) and lock washers (item 2). Torque bolts to 60-72 in-lbs [6.8-8.1 Nm].
7. Reinstall the oil return tube (item 13). Place the gasket (item 12) under the manifold (item 11).
8. Secure the valve assembly to the pump with socket head capscrews (item 15). Torque capscrews to 16-19 ft-lbs [21.7-25.8 Nm].

MANIFOLD DISASSEMBLY

Refer to figures 4 and 5 during the following steps:

1. Loosen lock nut (item 9, figure 5) and unscrew the set screw (item 2).
2. Using a 7/8" socket, loosen and remove the relief valve assembly (item 58, figure 4) from the manifold block (item 52, figure 4).
3. Remove the seat (item 57, figure 4) from the manifold block (item 52, figure 4).
4. Inspect the seat (item 57, figure 4) for damage, such as nicks or dents on the sharp edge of the internal diameter. Replace if necessary.
5. Inspect the o-ring (item 8, figure 5) for damage and replace if necessary.
6. Inspect the ball (item 7, figure 5) and guide (item 6, figure 5). Replace if necessary.
7. Remove the pipe plugs (items 53, 54, 55, figure 4) and clean the manifold block (item 52, figure 4). Inspect for damage.

MANIFOLD REASSEMBLY

Refer to figures 4 and 5 during the following steps:

1. Apply Teflon tape to threads. Install new pipe plugs (item 53, figure 4) and torque to 10-12 ft-lbs [14-16 Nm]. Install pipe plugs (items 54, 55, figure 4) and torque to 32-39 ft-lbs [43-52 Nm].
2. Install copper gasket (item 56, figure 4) onto seat (item 57, figure 4), with round edges facing away from the seat.
3. Place seat (item 57, figure 4) onto the bottom counter bore in the manifold block (item 52, figure 4), with the gasket side down. **Note:** make sure that the seat is firmly seated and not crooked.
4. Grease o-ring (item 8, figure 5) on relief valve assembly (item 58, figure 4) and insert the assembly into cavity in the manifold block (item 52, figure 4).
5. Torque relief valve assembly (item 58, figure 4) to 32-39 ft-lbs [43-53 Nm].

RELIEF VALVE ADJUSTMENT

The VEW43 and VEW43P valve assemblies are equipped with a user-adjustable relief valve.

Adjust pressure as follows:

1. If the valve is mounted on an Enerpac Z-Class pump, be sure that AUTOMODE is OFF. On Pallet De-Coupling pumps only, set the pump to DWELL OFF Mode.
2. Install a 0-6,000 psi [0-400 bar] pressure gauge in the "A" port (see figure 7).
3. Place a 3/8" pipe plug in the "B" port and torque to 25 ft-lbs [33 Nm].
4. Loosen the relief valve locknut to permit adjustment of set screw.

5. Start the pump and allow the oil to warm.

Note: The control valve is shifted electrically via solenoids. On some pumps, the pump motor will start automatically when the valve is shifted. If electrical power to the valve is not available, the valve may be shifted manually using the pushbuttons located at each end of the valve housing.

6. Shift the control valve to the "A" position. Allow pressure to build.
7. To increase pressure: SLOWLY turn the relief valve set screw clockwise until pressure increases to the desired setting.
8. To decrease pressure:
 - a. Turn the relief valve set screw counter-clockwise one turn.
 - b. Shift the control valve to the "A" position. Allow pressure to build.
 - c. SLOWLY turn the relief valve set screw clockwise until pressure increases to the desired setting.
9. When the desired pressure setting is reached, lock the set screw with the locknut. DO NOT overtighten.
10. To check the pressure setting, shift the control valve several times from the "B" position to the "A" position while observing the pressure gauge. Verify that the setting remains correct.
11. •VEW43 only: Shift the control valve to the "neutral" position.
•VEW43P only: Before turning off pump, rapidly shift the control valve to the "B" position and back to the "neutral" position (without allowing pressure to build). This will relieve pressure at the "A" port. "B" port pressure will also be reduced, although some trapped pressure will remain (see Caution, below).
12. Check that "A" port gauge indicates zero (0) psi.
13. Stop the pump.



CAUTION (VEW43P Only): Use caution when removing pipe plug from the "B" port. Pressures of up to 5000 psi [350 bar] can remain trapped in the "B" line even when "A" port pressure gauge indicates zero (0) psi [bar] and pump is turned-off.

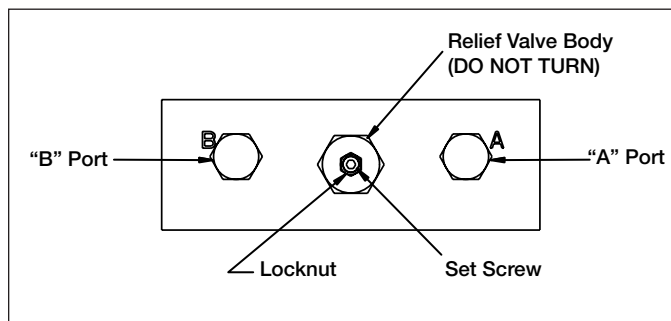
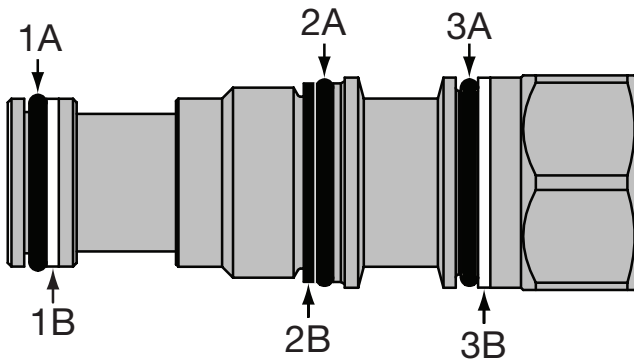
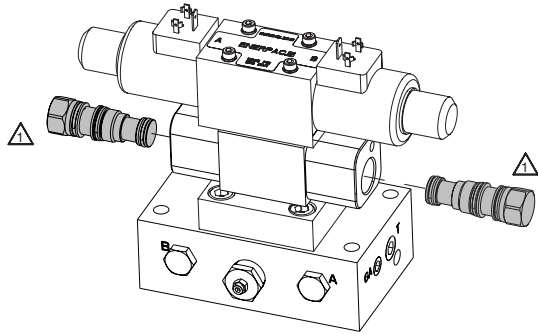


Figure 7, Relief Valve

Note:

⚠ Torque to 30-35 Ft-lbs [40.6-47.4 Nm].



**Figure 8, Cartridge Valve Seals and Back-up Rings
(VEW43P only)**

Repair Parts List for Figure 8

Item	Part Number	Qty.	Description
1A	★B1015203	1	O-Ring
1B	★B1015565	1	Back-Up Ring (white)
2A	★B1017203	1	O-Ring
2B	★PA2790565	1	Back-Up Ring (black)
3A	★B1017203	1	O-Ring
3B	★B1017565	1	Back-Up Ring (white)

★ Items included in Seal Kit VEW43K.

Note: Items 2A and 3A are the same part number. A replacement cartridge valve (part number PA2788661) includes all seals listed above.

CARTRIDGE VALVE SEAL REPLACEMENT (VEW43P ONLY)

Refer to figure 8 for cartridge valve seal arrangement. Be certain that new seals and back-up rings are installed in the proper locations and positions. See parts list (above) for part numbers and descriptions.



CAUTION: Disconnect hoses from manifold and be certain that hydraulic pressure is completely relieved (0 psi/bar) before loosening cartridge valves.

[illegible]

