



INSTALLATION INSTRUCTIONS

Standard 4-Inch Pump Service Kit

Part No. 344-002-5

| | | | |
|---|--|----------------|---|
| The following defined terms are used throughout this literature to bring attention to the presence of hazards of various risk levels, or to important information concerning the life of the product. | | | |
| DANGER | indicates presence of a hazard which <i>will</i> cause <i>severe</i> personal injury, death or substantial property damage if ignored. | CAUTION | indicates presence of a hazard which <i>will</i> or <i>can</i> cause <i>minor</i> personal injury, death or substantial property damage if ignored. |
| WARNING | indicates presence of a hazard which <i>can</i> cause <i>severe</i> personal injury, death or substantial property damage if ignored. | NOTICE | indicates special instructions on installations, operation, or maintenance which are important but not related to personal injury hazards. |

The Standard 4-Inch Pump Service Kit #344-002-5 consists of the following parts:

- 1 — Adjustable Functional Element Assembly #223-032-4
- 1 — Check Valve #188-238-4
- 1 — Check Valve Spring #080-125-1
- 1 — Packer/Manifold Seal #144-193-1
- 1 — O-Ring #072-222-1

To service a pump, replacing the above listed parts, perform the following steps:

A. Disable the Pump



DANGER

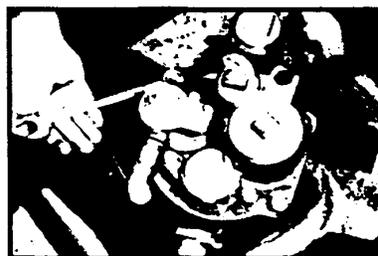
1. **ALWAYS DISCONNECT and LOCK or TAG OUT** the power before beginning to service the pump. Then bleed off any residual pressure from the system.



2. Backout bayonet electrical disconnect bolt.



3. Swing electrical connector aside.



4. Remove the two lockdown bolts. If **SYPHON SYSTEM**: Disconnect syphon tubing.

B. Replace the Quad Seal

1. Remove the two lock-down bolts. If syphon system is present disconnect the syphon tubing. Carefully lift packer.

CAUTION DO NOT damage surface above discharge port. The O-ring below the leak detector port seals on this surface.

2. Once the pump is lifted off of the manifold, remove the old quad seal from the base of the packer.
3. Clean the seating surface and the sealing surface of the 7-inch packer/manifold seal.
4. To install the new seal, place the top part of the seal (the top side has the retaining lip) into the base of the packer. The retaining lip is upward (see Figure 1).
5. Replace the packer unit carefully so that the seal is not damaged and tighten down the two lock-down bolts.

WARNING Proper replacement of the quad seal is critical for maintenance of product line pressure. An improper seal will allow the release of product inside the unit and back into the tank.

C. Replace the Check Valve, Spring and Functional Element

1. Remove the old functional element assembly by first disconnecting the syphon tubing (if syphon is installed).
2. Remove the two 3/8-inch cap screws.
3. Carefully lift the functional element and remove it from the packer.
4. The old check valve and spring will be resting on top of the packer. Remove both.
5. Position the new check valve and spring. The smaller end of spring fits against the check valve.
6. Carefully set the new functional element and the three new functional element O-rings into place then replace the two 3/8-inch cap screws.
7. If no syphon is used, make sure the vacuum port on the functional element is plugged with a 3/8-inch NPT plug and thread sealant.

Quad Seal (profile)

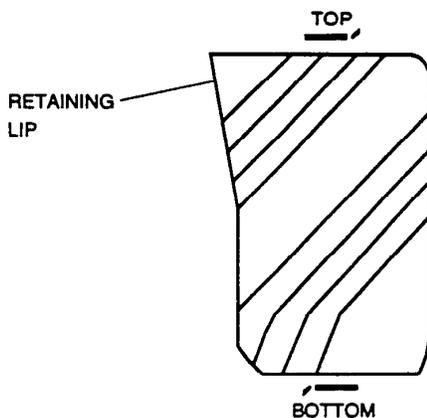


FIGURE 1

Functional Element (top view)

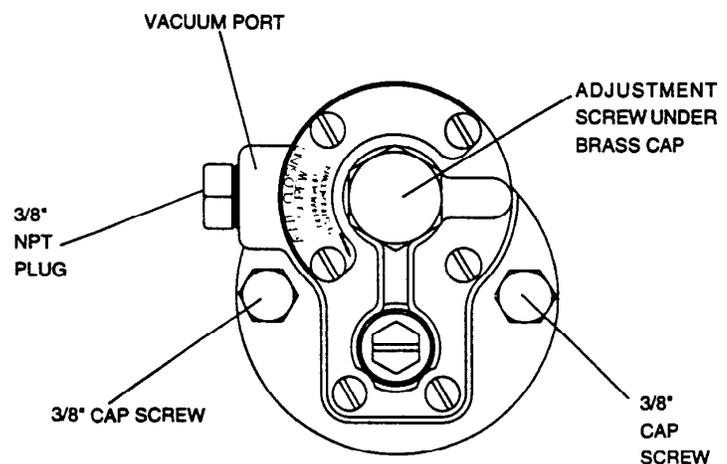


FIGURE 2

D. Adjusting the Functional Element Relief Pressure

WARNING Before beginning any service work, always disconnect and lock out power to the submersible pump.

The functional element #223-032-4 contained in the Pump Service Kit is an adjustable model. All new functional elements are factory set at relief pressures of 11.5 to 13.5 psi (80-93 kPa) but can be adjusted to a maximum of 30 psi (207 kPa) by turning down the adjusting screw.

This adjustment feature allows the use of the Red Jacket pump with electronic line leak detection systems that require higher relief pressures and enhances performance of the PPM and ST Series where field conditions have necessitated minor adjustments to the relief pressure.

To adjust the relief pressure:

1. Remove the brass cap by unscrewing it.
2. Turn down the adjustment screw. Tightening the screw clockwise will increase the pressure. When the adjusting screw is completely down, the relief pressure is approximately 30 psi (207 kPa). Positions in between completely up and completely down will result in relief pressures between 5 and 30 psi (35 and 207 kPa).

There are two methods to verify the relief pressure setting:

- a. The pressure reading can be taken from the control unit of an electronic line leak detection system if one is in operation. Observe the pressure that occurs after the pump turns off—this is the adjusted relief pressure.
- b. Pressure may be observed using a gauge attached at the impact valve or the line test port at the pump. Observe the pressure that occurs after the pump turns off—this is the adjusted relief pressure.

WARNING When the adjustable functional element is installed, the pump/motor unit(s) must operate at a pressure of 5 psi (35 kPa) greater than the relief (seating) pressure of the functional element. An improper pressure setting may cause mechanical damage and will void warranty.

NOTICE If a syphon system is being utilized, it is especially important to follow the 5 psi (35 kPa) rule, that is, the pump must create 5 psi (35 kPa) pressure greater than the relief pressure setting.

For example:

If a relief pressure of 25 psi (172 kPa) is desired, the pump in use must be capable of producing 30 psi (207 kPa) minimum.

For reference:

Red Jacket Pump Operating Pressures

| Model | 60 HZ | |
|---------------|-------|--------|
| | psi | |
| | Gas | Diesel |
| 1/3 HP | 25 | 31 |
| 3/4 HP | 27 | 34 |
| 1-1/2 HP | 29 | 36 |
| X3 - 1-1/2 HP | 44 | 50 |
| X5 - 1-1/2 HP | 44 | 50 |

| Model | 50 HZ | |
|-------------------------|-----------|----------|
| | psi (kPa) | |
| | Gas | Diesel |
| 3/4 HP (0.55 kw) | 30 (207) | 37 (255) |
| 1-1/2 HP (1.10 kw) | 32 (221) | 39 (269) |
| X4 - 1-1/2 HP (1.10 kw) | 38 (262) | 44 (303) |



by  VEEDED-ROOT

125 Powder Forest Drive • Simsbury, CT 06070
Tel: (860) 651-2700 • Fax: (860) 651-2719