

**MOD L30: Replacement Procedure**  
**Gas-Hyd Tanks – Hand Pump**  
05-04-11

# **Shafer Gas-Hydraulic Tanks - Hand Pump**

Replacement Procedure on a Linear Actuator

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The purpose of this procedure is to guide the installation of new Gas-Hydraulic Tanks to an existing Shafer Linear Actuator. If the system is using hydraulic latches mounted to the Gas-Hydraulic tanks, a replacement of the Hand Pump with a Shafer Hand Pump – Double Holding Valve combination will be required.

This procedure is to be used in conjunction with the following Maintenance and Service Manual.

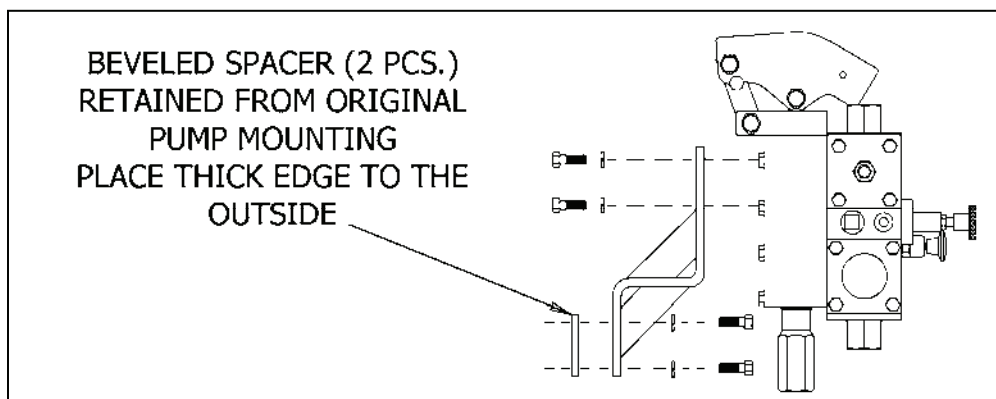
Shafer Hand Pump – Double Holding Valve	Bulletin HP/DHV

**NOTE:** With pressure in the pipeline, installation should be done with the valve in the OPEN position. With no pressure in the pipeline, installation should be done with the valve in the CLOSE position.

**WARNING:** 1. Turn power gas off (bleed down the power storage tank if applicable).  
2. Drain oil out of the gas hydraulic tanks.



1. Remove the OPEN and CLOSE gas tube lines from the Control Block to the Gas/Hydraulic tanks.
2. Remove the tubing from the bottom of the Gas/Hydraulic tanks to the suction ports of the Hand Pump, and to the Latches, if applicable.
3. Remove any other tubing to the Latches, if applicable.
4. Remove the Gas/Hydraulic tanks.
5. Remove tubing from Hand Pump to Actuator. (Only if replacing the Hand Pump.)  
**NOTE:** If the Actuator is in the open position you will get oil draining from the lower connection. All the oil will drain from under the piston.
6. Remove the old Hand Pump, if being replaced, and retain the two Beveled Spacers. If Hand Pump is not being replaced go to step 11.
7. Install the new universal Hand Pump Mounting Bracket using the mounting holes for the old Hand Pump and the two Beveled Spacers.
8. Install the new Hand Pump - Double Holding Valve on the mounting bracket.

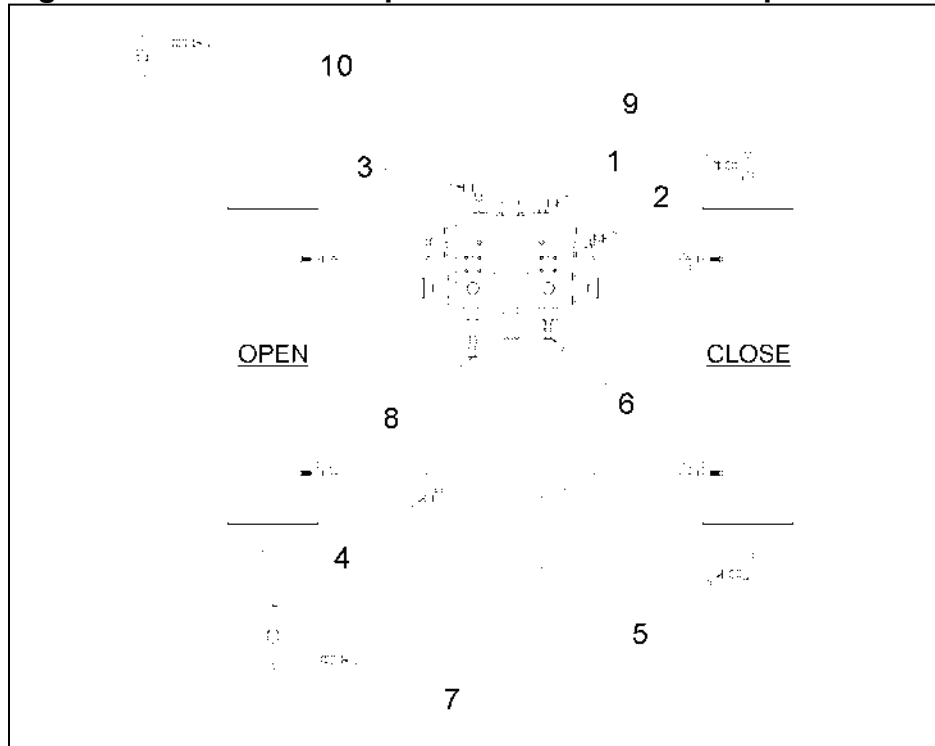


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**Figure 1: Universal Pump Bracket and Hand Pump**



**Figure 2: Install Gas/Hydraulic Tanks and Run Tubing**

9. Install the new Gas/Hydraulic tanks.
10. Install Swagelok® fitting in the Hand Pump, Actuator and Tanks.
11. If the Hand Pump was replaced run tubing from the discharge ports located on top of the Hand Pump. (1) The right side of the pump runs to (2) the upper head of the Actuator. (3) The left side of the pump runs to (4) the lower head of the actuator.
12. Run tubing from the Gas/Hydraulic Tanks to the suction ports located at the bottom of the Hand Pump. (5) Right tank (close) to (6) the right suction port and (7) the left tank (open) to (8) the left suction port.
13. Connect the CLOSE line from the Control Block to (9) the upper fitting in the Close Gas/Hydraulic Tank and connect the OPEN line from the Control Block to (10) the upper fitting in the Open Gas/Hydraulic Tank.
14. Fill Gas/Hydraulic Tanks with clean hydraulic fluid:
  - a. Hand Pump replaced - Actuator in the Open position  
The fluid will drain from the fitting in the lower head, so the cylinder will be empty. Fill both tanks to within two inches of the upper weld ring.
  - b. Hand Pump replaced - Actuator in Closed position  
The Actuator Cylinder will retain the fluid above the piston. Fill the Open tank to within two inches of the upper weld ring and check to see the Close tank is at the lower weld ring. (See Figure 2)
  - c. Hand Pump was not replaced - Actuator in the Open position  
Fill the Close tank to within two inches of the upper weld ring and check to see the Open tank is at the lower weld ring. (See Figure 2)

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- d. Hand Pump was not replaced - Actuator in the Close position  
Fill the Open tank to within two inches of the upper weld ring and check to see the Close tank is at the lower weld ring. (See Figure 2)
15. Use the Hand Pump to close or open the Actuator to purge the Actuator and hydraulic lines.
16. Turn power gas on.
17. Stroke the Actuator in both directions using power gas pressure.
18. Leave the Actuator in the desired position.

If any further information is required, please feel free to contact:

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Please visit our website for up to date product data. [www.shafervalve.com](http://www.shafervalve.com)

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