

**MIS L10: Replacing Hydraulic Fluid
Service Linear G-H Tank**
05-09-11

Shafer Gas-Hydraulic Tanks

Replacing Hydraulic Fluid Procedure on an Existing Actuator

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The purpose of this procedure is to guide the operation of cleaning and refilling the gas-hydraulic tanks on an existing actuator.

This procedure is to be used in conjunction with one of the following Maintenance and Service Manuals.

Shafer Linear Actuator Installation and Service	Bulletin LSM-01102001
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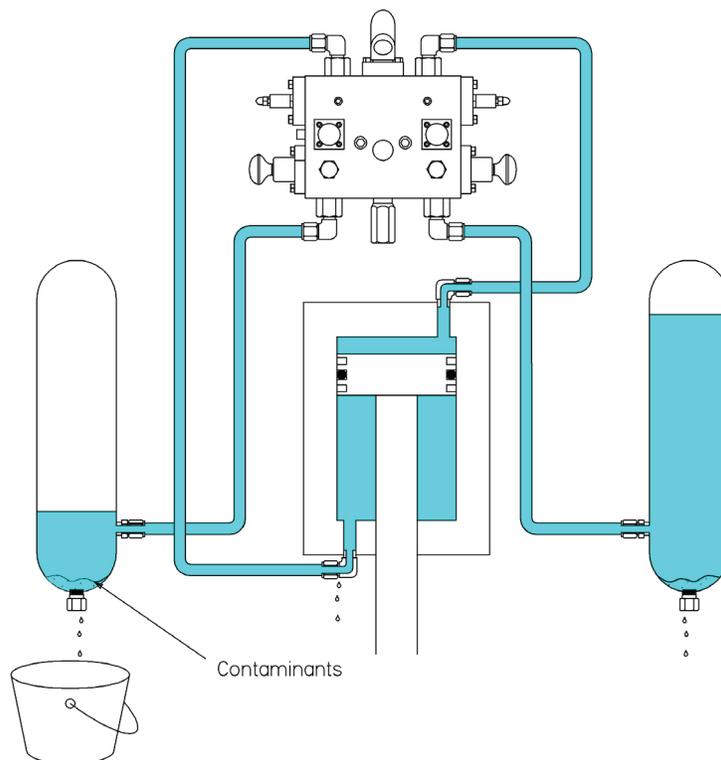
NOTE: With pressure in the pipeline, procedure should be done with the valve in the OPEN position. With no pressure in the pipeline, procedure should be done with the valve in the CLOSE position.

WARNING: 1. Turn power gas off.



2. Bleed off the pressure in the control by operating the manual Handles on the poppet block control until the gauge in the poppet block reads 0 PSI.

1. Carefully remove the bull plug or open drain plug in the bottom of the gas hydraulic tank and drain the oil out of the tank into an open container. This fluid will be full of contaminants and should be disposed of properly.



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2. Remove the bull plug or gas diffuser at the top of the tank.
3. Spray clean the interior of the tank using pressurized parts cleaner such as mineral spirits. The cleaning nozzle will need a wand attached to reach the lower portions of the tank. While spraying move the wand up and down and around to cover the entire interior surface of the tank.

WARNING:



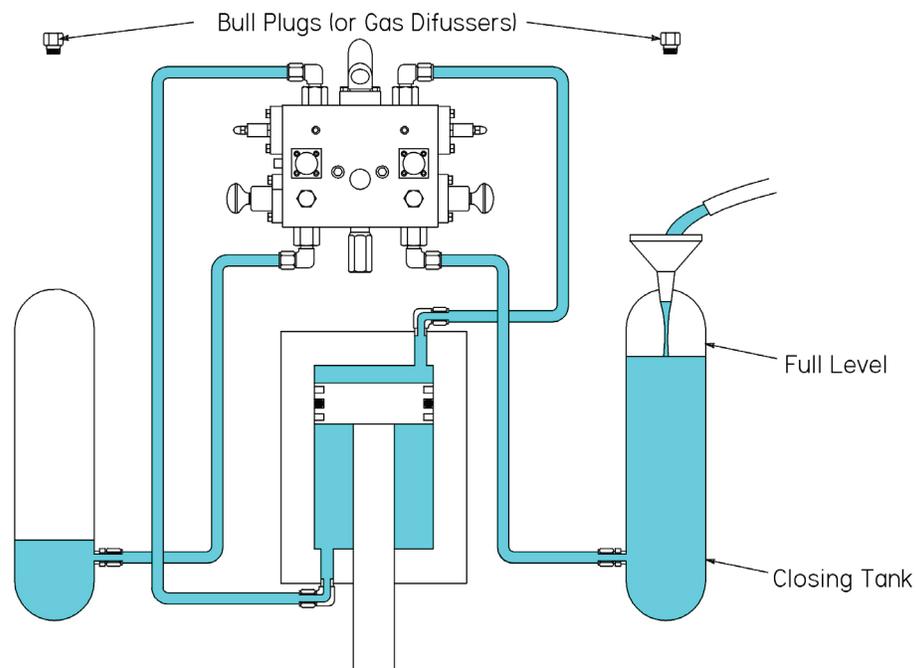
Handle any spraying device with care.

Do not allow the spray to hit your skin. Fluid under pressure can inject into the skin and cause severe damage or death.

Do not inhale fumes or mist produced by the spray nozzle. Use breathing protection if need be.

Wear proper protection including safety goggles or full-face mask while performing this task.

4. Clean until clear cleaning fluid drains from the tank.
5. Leave the tank open to allow the interior to completely air-dry before replacing the closures at the top and bottom of the tank.
6. Replace the closures.
7. Clean the other tank using the same procedures Steps 1 through 6.
8. Loosen the hydraulic tubing at the bottom of the operator and allow the condensation and contaminants to drain. Allow all of the old hydraulic fluid to drain and dispose of properly.
9. Retighten the fitting at the bottom of the operator.
10. Use the following procedure to fill both of the gas-hydraulic tanks to proper level with recommended clean hydraulic fluid. (See Hydraulic Specifications Chart below.)



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Operator Initially In The Open Position

- a. With the operator in the fully open position fill the closing tank to the upper weld ring. (See NOTE at the beginning of the document.)
- b. Stand facing the manual pump on the operator; the closing tank will be the one to your right and the opening tank to your left.
- c. Use the hand pump to close the actuator.
- d. Fill the opening gas/hydraulic tank to the upper weld ring.
- e. Use the hand pump to open and close the operator to purge the operator and hydraulic lines.

Operator Initially In The Close Position

- a. With the operator in the fully close position fill the opening tank to the upper weld ring. (See NOTE at the beginning of the document.)
- b. Stand facing the manual pump on the operator the opening tank will be the one to your left and the closing tank to your right.
- c. Use the hand pump to open the actuator.
- d. Fill the closing gas/hydraulic tank to the upper weld ring.
- e. Use the hand pump to open and close the operator to purge the operator and hydraulic lines.

11. Turn power gas on.

12. Stroke the actuator in both directions using power gas pressure and the operation handles of the poppet valve.

13. Leave the actuator in the desired position.

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Hydraulic Fluid Specifications

The following table shows recommended hydraulic fluids for all Shafer Actuators

For Warm Weather: 20°F to 120°F		For Cold Weather: -40°F to 100°F	
Chevron Texaco	Rando [®] HDZ 22	Chevron Texaco	Aircraft Hydraulic Oil (Code 1537)
Mobil	DTE 22	Mobil	Aero HFA
Exxon	Univis J26	Exxon	Univis J013 or J26
		Shell	AeroShell Fluid 4
Note: 1. Consult factory for temperatures below -40° 2. Viscosity of fluid does not usually affect actuator motion, but may restrict hand pump suction. For this reason the above fluid specifications are recommended.			

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

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