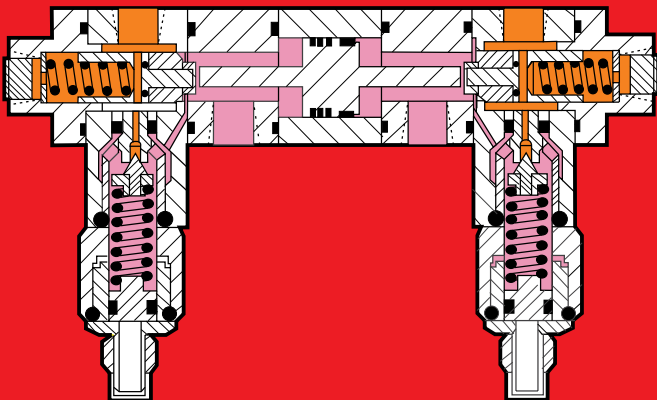
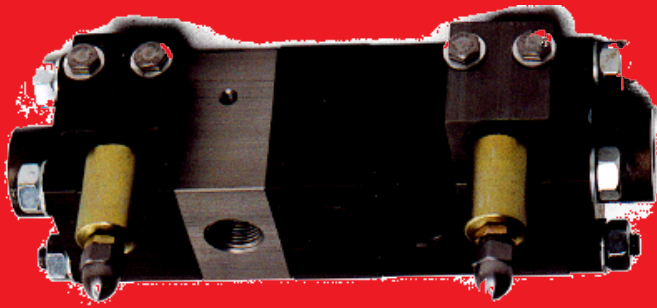


Shafer™

DHV

Double Holding Valve



The Shafer linear actuator uses special valving to trap hydraulic fluid on both sides of the piston in order to maintain position. Older models use a pair of valves called latches for this purpose. Newer models (after S/N 20000, in late 1976) use a single valve called a Double Holding Valve.

The Shafer Double Holding Valve (DHV) is a specially designed double pilot operated check valve with double thermal relief valves. The valve is designed in various sizes and pressure capacities to match the requirements of each application. All reference and return springs and other critical internal components are constantly submerged in hydraulic fluid which eliminated corrosion problems.

DOUBLE HOLDING VALVE

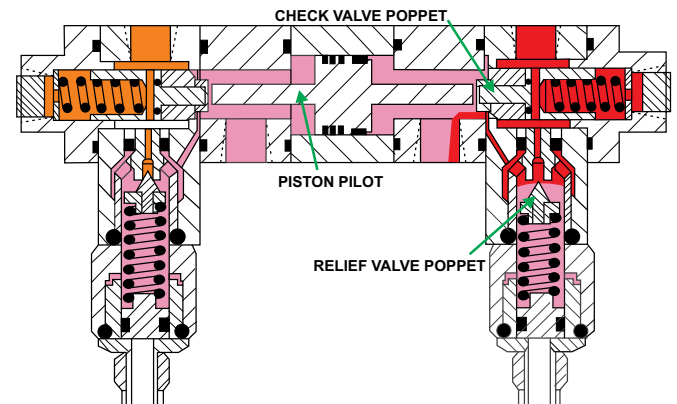
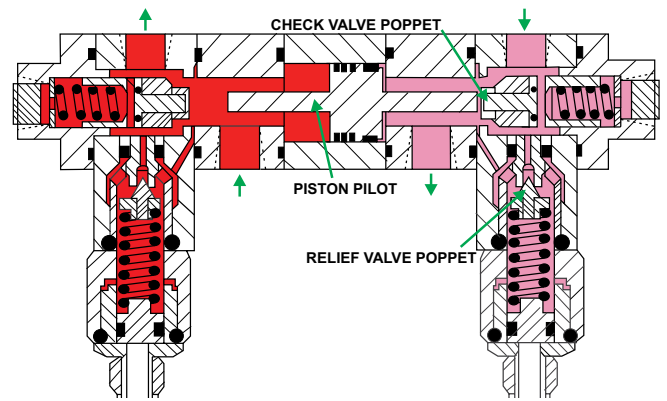
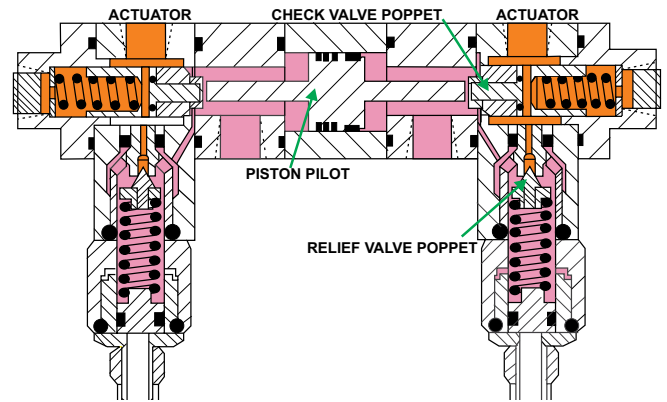
Basic Operation And Adjustment

Figure 1 shows the DHV in its normal position. Resident hydraulic fluid is being trapped in the Shafer Linear Operator by both check valve poppets and relief valve poppets. The relief valves should be adjusted to maintain a pressure high enough to: first, allow stroking the operator with the hand pump without relieving and second, lock the operator in any desired position against the natural upward thrust of the pipeline valve. The relief valves should not be set so high that thermal expansion pressure could damage the operator.

Figure 2 shows the DHV during normal powered operation. High pressure hydraulic fluid from the tanks or the control is entering the left hand pressure port. This high pressure fluid has opened the left hand check valve poppet against its return spring and the fluid is passing through the DHV and on to the Shafer operator. The pressure required to pen the check valve poppet is approximately 30 PSIG. The high pressure fluid also has pushed the pilot piston to the right, thereby opening the right hand check valve poppet. This allows resident oil from the operator to escape and return to the tank or reservoir.

Figure 3 shows the DHV with the right hand relief valve in operation. For some reason the pressure trapped by the right hand check valve poppet had exceeded the relief valve set pressure. The relief valve poppet has opened and trapped hydraulic fluid is escaping back to the tank or reservoir. As soon as the pressure falls to a safe level, the relief valve poppet will close.

Caution! No disassembly of the DHV should be started unless the operator and valve are in the open position or the operator is somehow blocked in position.



- Non-Pressurized Hydraulic Fluid
- Resident Trapped Hydraulic Fluid Gas
- Operating Pressure Hydraulic Fluid

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