



**2V02 FIRE SAFETY VALVE
MODEL FV-1
OPERATION MANUAL
MANUAL # OMP – 2V02 - 01 - 07
(SEE SPEC. SHEET 2V02)**

I. PRINCIPLE OF OPERATION

The Ruelco ‘FV-1’ is a multi-function control valve. It is designed to remove the hydraulic signal to a surface controlled subsurface safety valve in the event of a fire and stop any well fluid returns due to packing leaks in the SCSSV. The FV-1 also acts as a B.O.P. and provides protection from well fluid returns thru the control line during normal operating conditions.

The FV-1’s operation as a fire safety valve and its operation as a B.O.P. are completely independent of each other. When a fire activates the FV-1, it blocks and bleeds the hydraulic pressure going to the SCSSV allowing it to close. After a fixed time has elapsed, the FV-1 will close off any further returns from the SCSSV. When operating as a B.O.P., the FV-1 will allow returns from the hydraulic control line for the same elapsed time as if exposed to a fire. It will then block any further flow from the SCSSV, thus minimizing any well fluids from flowing back to the hydraulic control system.

II. INSTALLATION

The ‘FV-1’ can be mounted either vertically, horizontally, or supported by piping from any of its ports. If it is supported by piping, care should be taken that the strength of the pipe fittings used is adequate to prevent the fitting from breaking off in the valve body should the valve be inadvertently struck.

Proper pipe thread sealant should be used on any pipe fittings threaded into the valve ports. If stainless steel fittings are used, a sealant that will prevent galling is required.

III. DISASSEMBLY (REFER TO SPEC. SHEET 2V02)

All Control Pressure should be vented before Disassembly

- Set of Standard Allen wrenches.
- Spanner Wrench
- Suitable adjustable wrenchs

Note: All Item Numbers Refer to the 2V02 Model unless otherwise Noted.

Spool Seals

- 1) To replace O-rings on the Timer spool assembly (Item 26), the Cap (Item 1) must be removed.
- 2) Unthread the cap (Item 1) using the spanner wrench.
- 3) Pull the spool assembly (Item 26) out of the Body (Item 2). Be careful not to lose the springs.
- 4) The seals on the spool assembly may now be replaced as per instructions given in the repair section of this manual.

Block and Bleed Seals

- 1) Unthread the Block and Bleed Cap (Item 33) and remove the eutectic (Item 32).
- 2) The Block and Bleed Piston (Item 34) and Stem (Item 35) can now be removed and the o-rings can be replaced.

Body O-rings

- 1) The Inlet Fitting (Item 27) can be unscrewed and the o-ring replaced.
- 2) The Timer Body (Item 2) can also be unscrewed and the Timer Body seal can be replaced.
- 3) Loosen the two Crossover Bolts (Item 14) and the Crossover Plate seal can be replaced.
- 4) Remove the Shut off Screws (Item 10 & 11). Make sure not to lose the Shut off Spring (Item 12). The Shut off Poppet (Item 13) will then easily fall out of the Body (Item 29).

IV. REPAIR AND ASSEMBLY

- 1) Follow all above steps on disassembly to replace all o-rings.
- 2) Using an appropriate safety solvent, clean all parts.
- 3) Inspect the shaft assembly for any major damage such as burrs, nicks. Also, inspect it for straightness. Replace the shaft assembly if damaged.

- 4) Examine the valve body for any damage such as burrs, nicks, etc. Replace if damaged.
- 5) Closely examine the Shut off Poppet (Item 13) and the Block and Bleed Poppet (Item 30), to ensure they are free of nick and wear. Replace if damaged.
- 6) To reassemble, first reinstall the Block and Bleed Stem and Piston (Item 34 & 35). Place the Eutectic (Item 32) over the Piston and then screw the Block and Bleed Cap (Item 33) until it stops fully.
- 7) The Block and Bleed Poppet can now be placed in the bore, followed by the Inlet Fitting (Item 27).
- 8) The Timer Body can be screwed into the Body. The Timer Spool (Item 21) can now be gently placed into the Timer Body. Make sure that both springs are installed over the Timer Orifice and the Flow control stem. The Cap (Item 1) can now be threaded into the Body until Flush.
- 9) If the valve is being used as a Fire only valve, the Lock Open Eutectic (Item 40) can now be installed, followed by the crossover plate. Tighten the two Bolts (14).
- 10) Place the Shut off Poppet into the bore, followed by the spring, spring guide, and the lock screw. Make sure to tighten the Spring guide (Item 11) until it stops.
- 11) Finally, fill the Timer body with Oil. Make sure that the timer body is completely filled with oil.

VI. RECOMMENDED MAINTENANCE

PROCEDURE

Operate Manually.
Disassemble, inspect and lubricate.
Replace all seals.

INTERVAL

Every 30 days.
Yearly or as required.
Every two (2) years or as required.