IOM RAF 2080

Booster Pump Control Valve

2”- 12”

RAPHAEL

Apr-24

DESCRIPTION

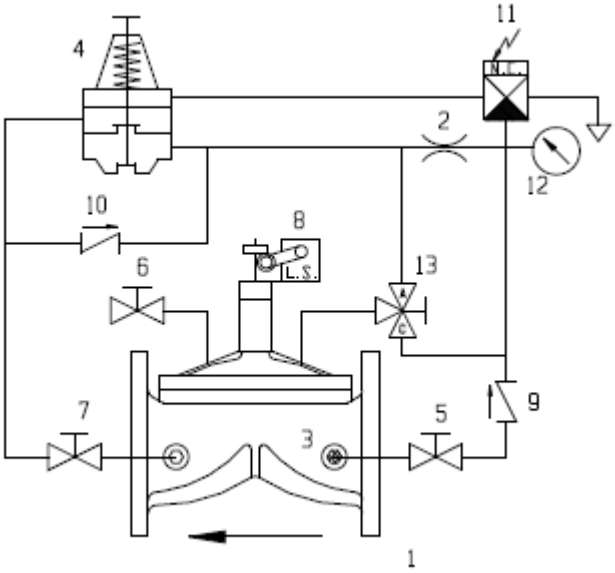
This electric booster pump and sustaining control valve is an automatic control valve designed to protect pump wear at startup and shut down while preventing pipeline surges. It also serves as a hydraulic check valve preventing back flow through the pump, by the action of a pilot the pump control valve is also used to regulate maximum flow during the pipe filling.

INSTALLATION

- Before installing the valve, flush the pipeline to remove scale, dirt and other particles that might affect the valve's performance.
- Install the valve as indicated by the arrow on the valve's cover, showing flow direction.
- It is recommended to install isolation valves (butterfly valves type B7G) upstream and downstream the control valve.
- Check for leaks; tighten bolts & fittings if necessary.

PARTS LIST

1. Body
2. 5 mm orifice restriction
3. Filter
4. 2-W metal pilot P181-3/4
5. Cock valve
6. Cock valve
7. Cock valve
8. Limit switch assembly
9. Check valve
10. Check valve
11. 3-W electric N.C. valve
12. Pressure gauge
13. 3-W cock valve



OPERATING INSTRUCTIONS

1. **Connecting electricity**: Please make sure you are using the proper voltage to the solenoid as ordered. Use the electric scheme in the back page to wire the valve in accordance with local codes and as recommended.

2. Set the 3-way selector 13 to "A" (automatic) position. Make sure valves 5 & 7 are open and valve #6 is close.
3. Energize the pump.
4. As the pump starts up the solenoid valve #11 will be energized, the RAF will open; confirm the discharge pressure and flow are typical. The RAF-2080 is factory set according to design definition.
   To confirm or change the setting:

   Increase the flow system according to the pump curve until the pump discharge pressure reduce, RAF2080 should prevent discharge pressure decreasing below setting even in a very high flow rate.

   To increase minimum upstream pressure, turn adjusting screw # 4 clockwise one (1) turn at a time, allowing some time between turns for the valve to respond. Check upstream pressure until required pressure is achieved. Tighten locking nut on the adjusting screw # 10.

   To decrease minimum upstream pressure, turn adjusting screw # 4 counterclockwise one (1) turn at a time, allowing some time between turns for the valve to respond. Check upstream pressure until required pressure is achieved. Tighten locking nut on the adjusting screw # 10.

5. Once the valve is fully open, the solenoid remains energized and the pump is running.
6. At the pump shut off, first the solenoid valve 11 is de-energized and causing the RAF to close hydraulically.
   Only after the RAF is reaching closing position, the limit switch indicator #8 will signal the pump to stop.

7. If there is a power failure, the solenoid will loose power to re-open as the pump stops. The water pressure upstream of the RAF will be directed into the RAF's control chamber to close it tight.

To manually open the valve completely, turn the 3-way selector # 13 to the "Open" position.

To manually close the valve, turn the 3-way selector # 13 to the "Close" position.

To operate the valve in automatic mode, turn the 3-way selector #13 to the "Auto" position.

MAINTENANCE

- No maintenance is required.
- It is recommended that the valve be easily accessible as well as clearly marked to prevent damage.
- In freezing climates, the valve should be dismantled, and water drained during the winter months or heat protected properly

TROUBLSHOOTING RAF 2080

PROBLEM	CAUSE	CHECK	SOLUTION
The valve does not open.	1. The 3-Way selector 13 is in the "Close" position, or valve 5 is turned off. 2. The solenoid 11 is not energized at pump startup. 3. The solenoid 11 is energized, but the RAF does not open.	1. Check state of selector 7 and isolation valve 5. 2. Check for loose wires or improper power supply. 3. Check coil by touching it with a small screwdriver. It should be magnetized when solenoid is energized. 4. check pilot calibration,	1. Turn selector to the "Auto" position. Open valve 7. 2. Wire properly and activate. 3. Replace coil if needed or turn off water supply to the valve. Dismantle and clean solenoid's vents. Reassemble and activate. 4. Turn adjusting screw pilot #4 counterclockwise
The Raf does not close or the pump will remain ON at shutdown.	1. The 3-Way selector 13 is in the "0pen" position or valve 5 is turned off. 2. Power supply is still on. 3. Power supply is off but the RAF does not close due to blocked or stuck solenoid 11. 4. Foreign object on sealing seat. 5. Damaged diaphragm 3. 6. The Limit Switch 8 will not signal the pump to stop . 7. Blocked self-flushing finger filter (3).	1. Check state of selector & valve 5. 2. Check electrical supply to the solenoid. 3. While pump is running, check by manually closing the valve with the 3 way selector 13(attention: do not "deadhead" the pump). 4. Small water back flow towards the pump. 5. Water is constantly vented from solenoid. 6. Check that the Raf came to a complete close. 7. No response to manually closing the valve.	1. Turn selector to the "Auto" position. Open valve 5. 2. Make sure it is being disconnected as the pump starts the shut down process. 3. Turn off water supply to the RAF. Dismantle and clean the solenoid's vents. Replace if necessary. Reassemble and activate. 4. & 5. Turn off water supply to the valve. Dismantle cover 2 and diaphragm 3. Remove foreign object. Check that diaphragm, body and cover are not damaged. Check the integrity of both non return valves 9 & 10. Replace if required. Make sure all trim ports are open and free of rust deposits. 6. Turn off water supply to the RAF. Check the integrity of the limit switch 8 & wires. Replace as necessary. Reassemble and activate. 7. Turn off water supply to the RAF. Disassemble filter, clean

			or replace it. Re-assemble and activate.