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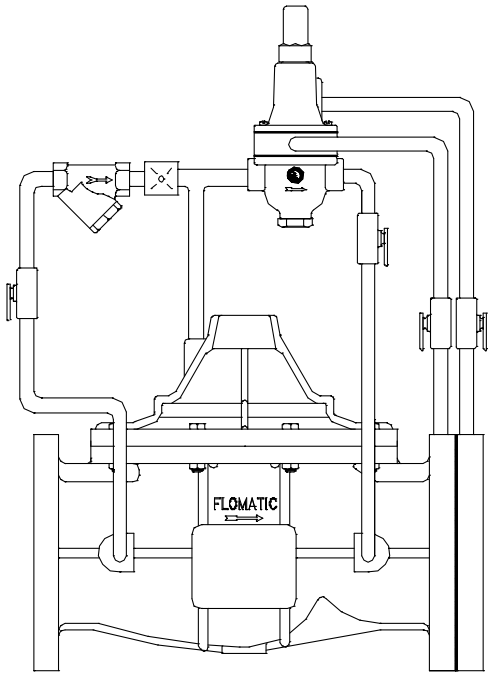
Operation & Maintenance Manual

Place this manual with the valve or person responsible for maintenance of the valve



Model 901 Flow Control Valve

YOUR PRODUCT INFORMATION:

Model Number: _____

Date: _____

Serial Number: _____

Valve Size: _____

Factory Pilot Preset: _____***psi***

Orifice Size: _____

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MANUAL: C901
REV: 4

FLOW CONTROL VALVE

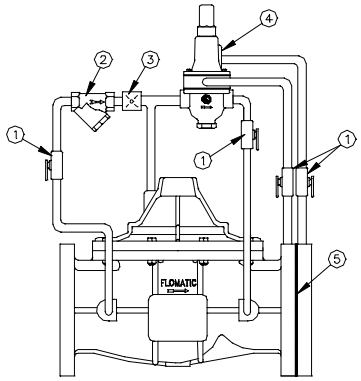
The Model 901 Flow Control Valve is hydraulically operated and throttled to maintain a preset flow rate and/or limit the maximum flow rate regardless of changing upstream and downstream pressures.

The throttled position of the main valve is controlled by a adjustable pilot valve which senses pressure across an orifice palte.

As the flow rates tend to vary because of changing line pressures or downstream demand, the differential pressure across the orifice plate also tends to vary. When this occurs, the pilot valve repositions to compensate and changes the throttled position of the main valve piston to control and maintain the desired flow rate.

Part List

1. Shut-Off Valve
2. Strainer
3. Orifice
4. Pilot Valve
5. Orifice Plate



SHIPMENT:
When shipped, controls are usually mounted on the main valve. If control subassemblies are shipped separately, all connections are tagged to insure correct assembly.

INSTALLATION:
1. Flush the pipeline before inserting the valve.
2. Install the valve with the "arrow" on body pointing in the direction of flow (usually towards the tank or reservoir).
3. Attach subassemblies to main valve if necessary.
4. Allow enough clearance above valve for removal of the diaphragm assembly.

START-UP:
1. Install pressure gauges to inlet and outlet (optional).
2. Open both shut-off valves on the control assembly.
3. Open 1/8" air bleeder at the top of the valve. (Re-close after step 4 or step 5.)
4. Open main line shut-off valve (usually a gate or butterfly valve) on the outlet side of the main valve about 1/4 open.
5. Slowly open main line shut-off valve on the inlet side.
6. If the outlet pressure requires adjustment, turn the adjusting screw of the PRP pilot valve counter clockwise to decrease, clockwise to increase. CAUTION: any adjustment should be done slowly.
7. If the inlet pressure requires adjustment, turn the adjusting screw of the BPP pilot valve counter clockwise to decrease, clockwise to increase. CAUTION: any adjustment should be done slowly.

OPERATION:
The Model 901 Flow Control Valve

TROUBLE SHOOTING GUIDE

A. PROBLEM : Valve opens and will not close.	
CAUSE	CORRECTION
1. Main valve is air bound. 2. Shut-off (isolation) valve at the outlet side of control is closed. 3. Indicator stuffing box or sight glass is leaking. 4. Ruptured diaphragm in pilot valve. (Evidenced by leak from vent hole in spring chamber.) 5. Fouled orifice or needle valve. 6. Fouled strainer. 7. Damaged pilot valve seat. 8. Ruptured diaphragm in main valve. 9. Sticks or stones lodged under seat of main valve. 10. Worn seat packing and/or seat ring in main valve. 11. Incorrect adjustment of BPP pilot valve (set too low). 12. Leakage from one or more fittings in the controls. 13. Damaged O-ring stem seal.	1. Open 1/8" air bleeder at the top of valve to release air. 2. Open shut-off valve. 3. Tighten packing nut or replace packing seals. 4. Replace diaphragm. 5. Open needle valve wide (counter clockwise) to flush seat, & after 4 or 5 seconds return to original setting, or remove and clean orifice. 6. Disassemble, clean or replace screen. 7. Disassemble, clean and replace damaged parts. 8. Disassemble and replace diaphragm. 9. Disassemble and remove. Replace damaged parts. 10. Disassemble and replace damaged parts. 11. For back pressure valve BPP turn adjusting screw clockwise slowly until valve resumes control and the desired inlet pressure is obtained. 12. Tighten or replace fitting. 13. Disassemble and replace O-ring.
B. PROBLEM: Valve is closed and will not open.	
1. Incorrect adjustment of FC pilot valve. (Set too low) 2. Needle valve (if installed) open too far. 3. Shut off (isolation) valve at the outlet side of the controls is closed. 4. Fouled pilot valve 5. Worn or eroded orifice (or needle valve seat).	1. Turn FC pilot valve adjusting screw clockwise slowly until the valve opens and the desired outlet pressure is reached. 2. Turn adjusting cap clockwise slowly until valve opens. 3. Open shut-off (isolation) valve. 4. Disassemble and clean, replace seat ring/packing is necessary. 5. Replace orifice (or needle valve).
C. PROBLEM: Valve hunts or chatters.	
1. Flow control valve (or needle-valve at the outlet side of controls) is out of adjustment of may be clogged with debris. 2. Pilot valve seat seal is damaged.	1. Slowly turn adjusting cap and/or remove to inspect for debris. 2. Replace seat seal.

Test To Isolate Source Of Problem
(After visual inspection of external leaks)

1. With the main line gate valves open and the valve pressurized, close the control shut-off (isolation) valve at the outlet side of the pressure reducing pilot control. THE MAIN VALVE SHOULD CLOSE.

If the valve remains fully open the source of the problem could be:
(A) fouled orifice or needle; (B) fouled strainer; (C) control shut off valve at inlet is closed; (D) ruptured main valve diaphragm.

If the valve is partially closed the source of the problem could be:
(A) damaged: main valve seat packing or seat ring; (B) debris under seat; (C) main valve is air-bound; (D) damaged stem O-ring.

If the valve closes fully, the source of the problem could be:
(A) pilot valve out of adjustment; (B) damaged pilot valve stem or set ring; (C) partially fouled strainer or needle valve.

2. With the main line gate valves open and the reducing valve pressurized, close both shut-off (isolation) valves and open the air bleeder pet cock to release water out of the power chamber above the diaphragm of the reducing valve. Water will flow from the pet cock as the valve moves to the full open position.

If water continues to flow, the source of the problem could be:
(A) damaged: main valve diaphragm or stem seal O-ring; (B) loose locknut.