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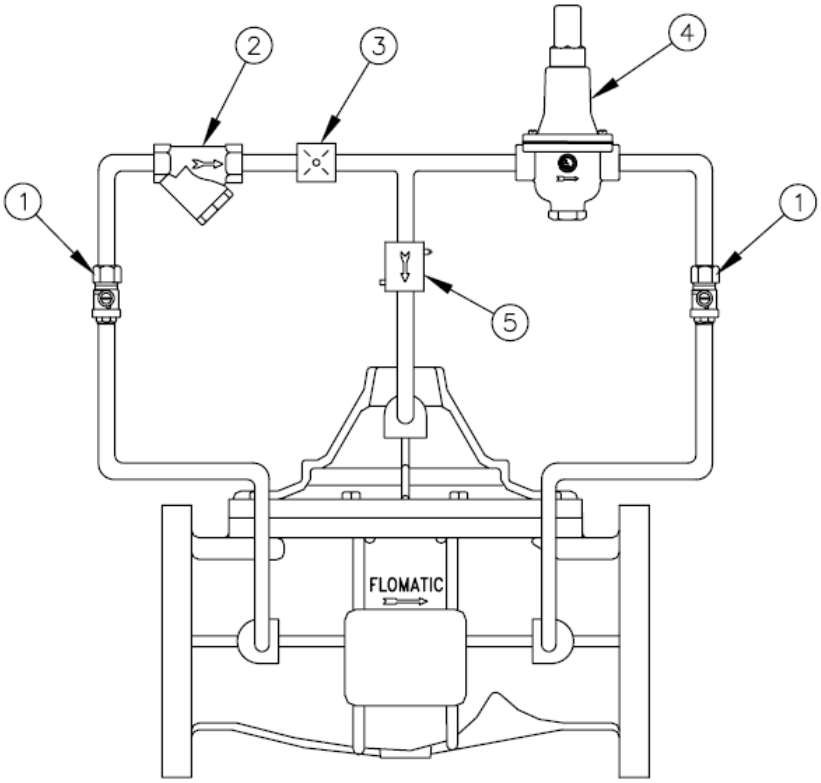
Operation & Maintenance Manual

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



Model C/CA101-Pressure Reducing Valve

YOUR PRODUCT INFORMATION:
Model Number: _____
Date: _____
Serial Number: _____
Valve Size: _____
Factory Pilot Preset: _____ ***psi***

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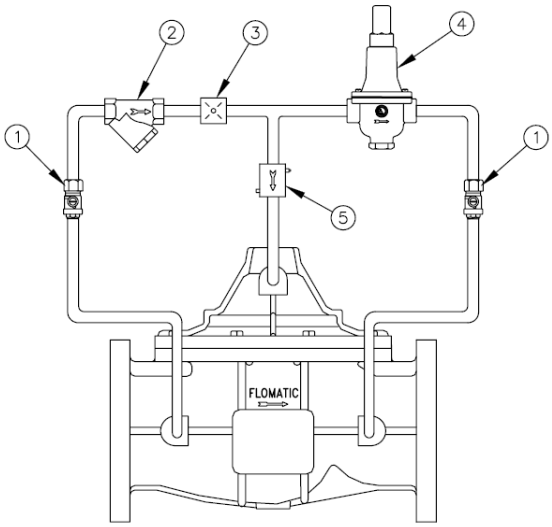
MANUAL: C101
REV: 4

PRESSURE REDUCING VALVE

The Model C/CA101 Pressure Reducing Valve maintains a preset constant downstream outlet pressure regardless of variations in the flow rate and/or inlet upstream pressure.

Part List

1. Test Cock
2. Y-Strainer
3. Orifice
4. Pilot
5. Flow Control Valve



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 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 1/4" 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 pilot valve counter clockwise to decrease downstream pressure, clockwise to increase downstream pressure. CAUTION: any adjustment should be done slowly.

OPERATION:
The Model C101/CA101 Pressure Reducing Valve with external check valve feature controls and maintains a preset, reduced downstream (outlet) pressure by causing the main valve piston to throttle and sustain the desired reduced pressure regardless of variations in demand and upstream (inlet) pressure. The throttled position of the main valve diaphragm assembly is controlled by an adjustable pilot valve operating in conjunction with an orifice (or needle valve). The pilot valve sense the downstream (outlet) pressure and reacts immediately to reposition the diaphragm assembly as the outlet pressure tends to increase or decrease with varying flow demand. The pilot valve piston will automatically sense changes inflow of the system as it continuously controls the main valve to throttle or to open maintain the desired, preset reduced outlet pressure.

TROUBLE SHOOTING GUIDE

Problem: Valve opens and will not close resulting in excessive outlet pressure	
Cause:	Solution:
1. Main valve is air bound.	1. Open ¼" air bleeder located on top cover of valve to release air.
2. Shut off valve at the outlet side is closed.	2. Open shut off valve
3. Indicator stuffing box or sight glass is leaking.	3. Tighten packing nut or replace packing seals.
4. Ruptured diaphragm in pilot valve, evidenced by leak from vent hole in spring chamber.	4. Replace pilot diaphragm
5. Fouled orifice (or needle valve).	5. Remove and clean orifice, or open needle valve wide (counter clockwise) to flush seat, & after 4 or 5 seconds return to original setting.
6. Fouled strainer.	6. Disassemble, clean or replace screen.
7. Damaged pilot valve seat.	7. Disassemble, clean and replace damaged parts.
8. Ruptured diaphragm in main valve.	8. Disassemble and replace diaphragm.
9. Sticks or stones lodged under seat of main valve.	9. Disassemble & remove. Replace damaged parts.
10. Worn seat packing and/or seat ring in main valve.	10. Disassemble and replace damaged parts.
11. Incorrect adjustment of pilot valve. (Set too high)	11. For back pressure valve turn adjusting screw counter clockwise slowly until valve resumes control and the desired outlet pressure is obtained.
12. Leakage from one or more fittings in the controls.	12. Tighten or replace fitting.
13. Damaged o-ring stem seal.	13. Disassemble and replace o-ring.
Problem: Valve is closed and will not open	
1. Incorrect adjustment of pilot valve. (Set too low)	1. Turn pilot valve adjusting screw clockwise slowly until the valve opens and the desired outlet pressure is obtained.
2. Needle valve (if installed) open too far.	2. Turn adjusting cap clockwise slowly until valve opens and reduced outlet pressure is observed. Lock in position.
3. Shut-off valve at the outlet side is closed.	3. Open shut-off valve.
4. Fouled pilot valve.	4. Disassemble and clean, replace seat ring/packing if necessary.
5. Worn or eroded orifice (or needle valve seat).	5. Replace orifice (or needle valve).
Problem: Valve hunts or chatters.	
1. Valve is oversized.	1. Install a smaller pressure reducing valve in a bypass around the oversized valve to handle low flows and provide better control.
2. Flow control valve (or needle valve at the outlet side) is out of adjustment.	2. Slowly turn adjusting cap counter clockwise until the outlet pressure becomes steady.
3. Pilot valve seat packing is damaged.	3. Replace seat packing

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

1. With the main line gate valves open and the reducing 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.