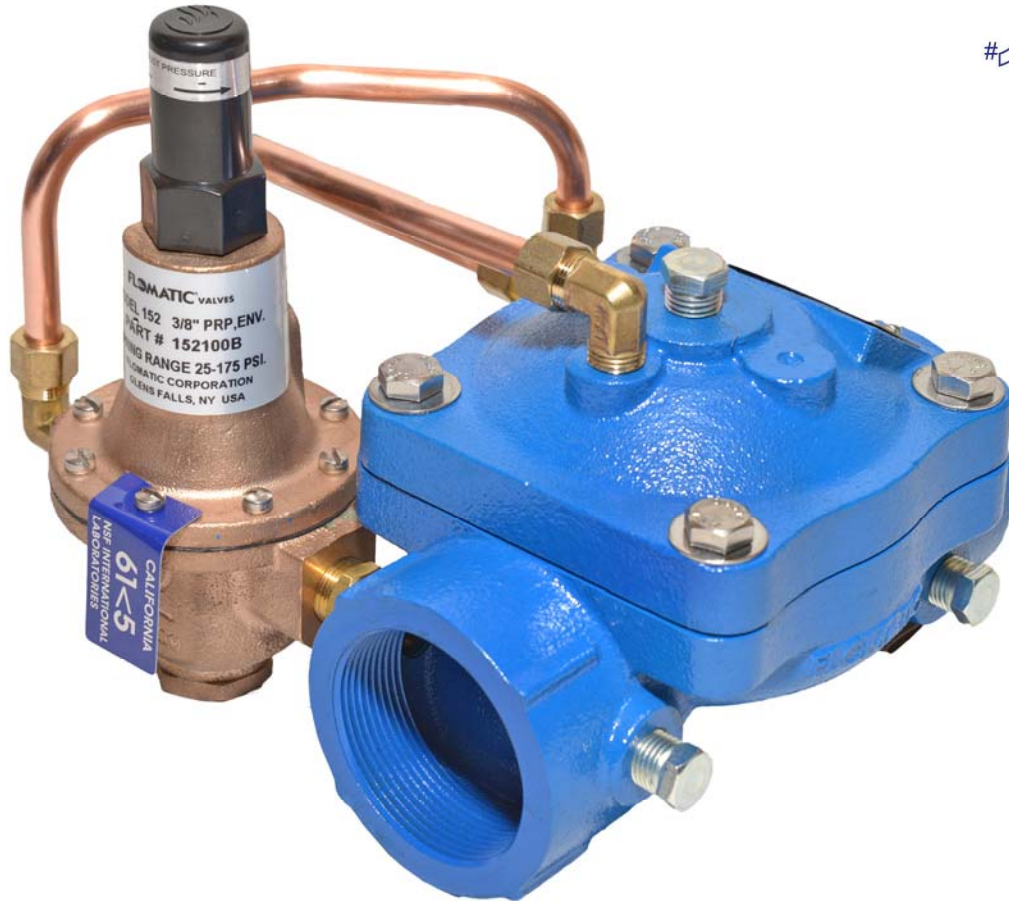


Operation & Maintenance Manual

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



Model CYCLE GARD® CI²

YOUR PRODUCT INFORMATION:

Model Number: _____

Date: _____

Serial Number: _____

Valve Size: _____

Factory Pilot Preset: _____ psi

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CYCLE GARD® VALVE

The Model Cycle Gard® CI² Valve with fixed internal by-pass at 5 gpm

Threaded Female x Female Connection
Pressure Reducing Pilot Factory Set @ 50 psi
Easy Field Adjustability

NOTE: Submersible motor manufacturers recommend using a flow inducer sleeve to be sure the motor is properly cooled at low flows. Do not exceed 125 psi pressure differential across the 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 and turn power off.
2. Install the valve with the "arrow" on body pointing in the direction of flow (usually towards the tank or reservoir).
3. Attach sub-assemblies to main valve if necessary, pressure switch and controls should be installed close to the tank.
4. Allow enough clearance above valve for removal of diaphragm assembly.

CAUTION: The maximum pressure rating of the standard Cycle Gard CI² is 250 psi. If the inlet pressure (or pump shut off head) is higher, a second pressure relief valve Model C401, with greater capacity, will be required. A relief valve shall be installed to protect the tank from excessive pressure.

START-UP:

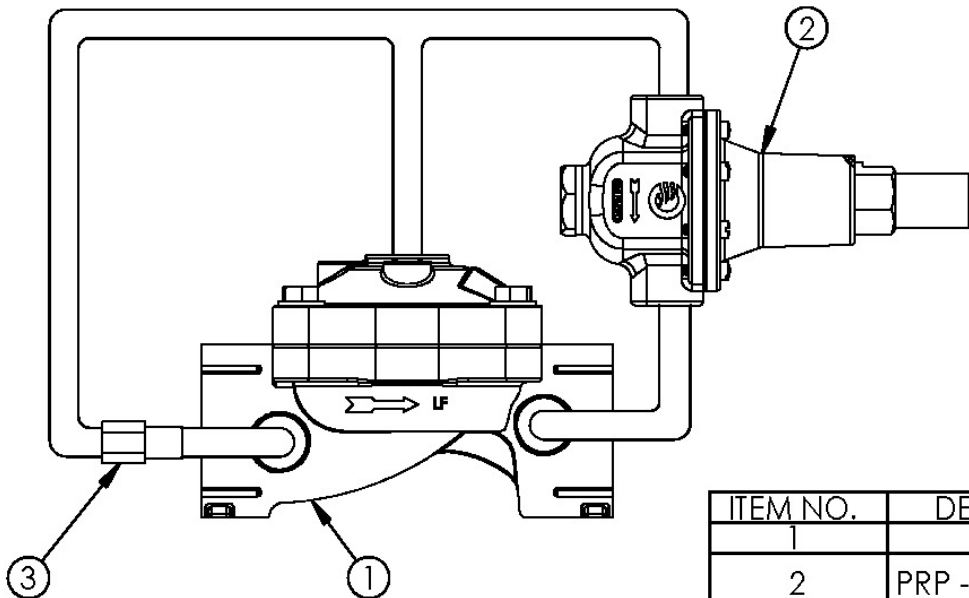
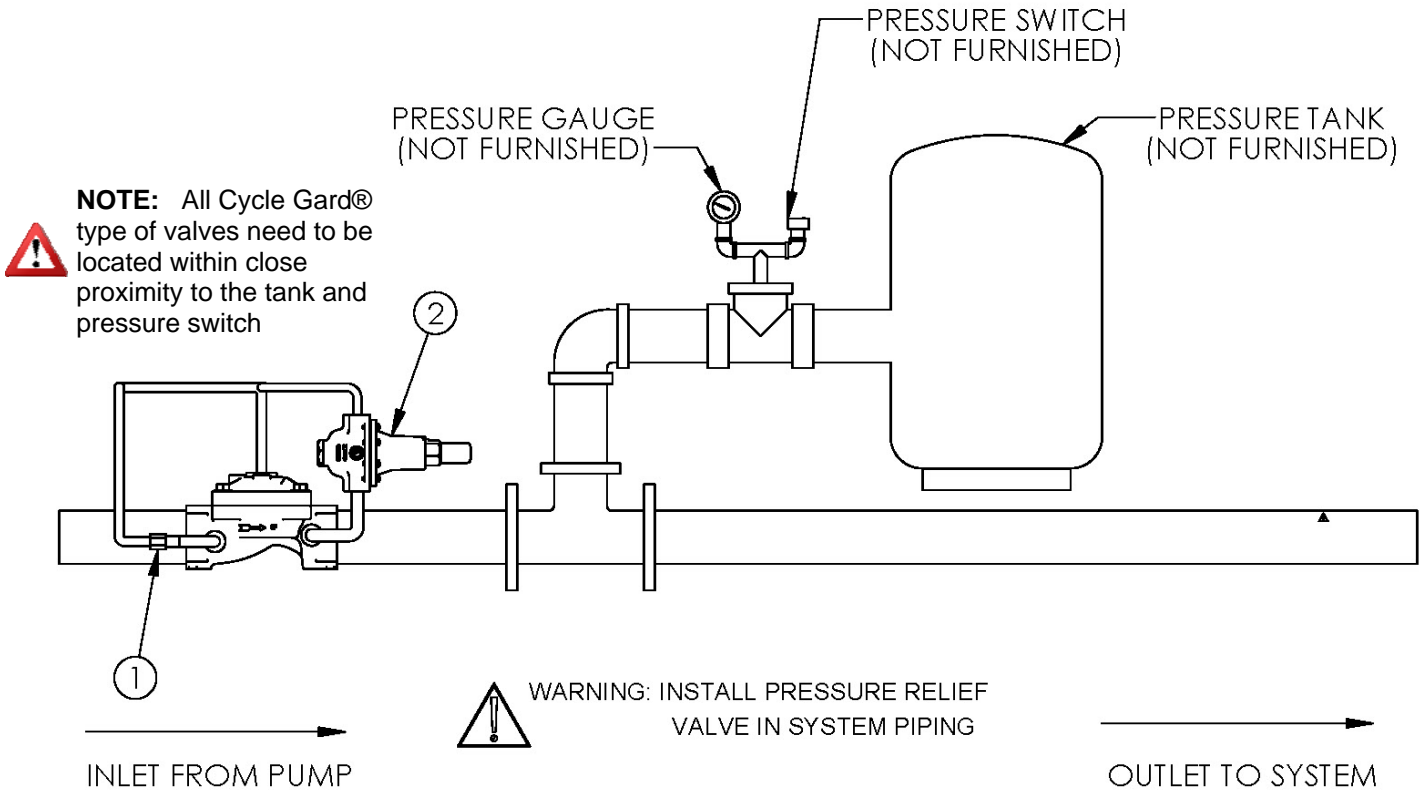
1. Install pressure gauges to inlet and outlet (optional).
2. Unscrew 3/8" plug at the top of the valve until steady stream of water flow. (Re-close after step 3 or step 4.)
3. Open main line shut-off valve on the outlet side of the main valve to about 1/4 open.
4. Slowly open main line shut-off valve on the inlet side.
5. Pre-charge pressure in the tank should be 5-10 PSI lower than pressure switch turn on pressure. All valves are factory pre-set to 60 PSI. To re-adjust reduced pressure loosen outer jam nut on the pilot valve and turn adjustment screw clockwise (into cover) to increase downstream pressure, or turn counterclockwise (out of cover) to lower downstream pressure. **CAUTION:** any adjustment should be done slowly. Open a line downstream and allow the pump to turn on. Slowly close supply valve downstream until demand is approximately 6-10 GPM (about 3/4" line). Then adjust the valve to the desired downstream constant pressure, at least 5 PSI lower than the cut off pressure of the pressure switch setting.
6. The tank fill rate can be easily based on the pressure setting on the valve. If the pump is still cycling after installing this valve adjust the pressure setting on valve closer to the turn on pressure setting on pump by turning the nut on pilot valve counterclockwise. If the pump is running too long (over 1 minute run time) then adjust pilot. Setting closer to the turn off pressure or turning nut on pilot counterclockwise. Note: A minimum of 5 GPM is flowing thru the valve when valve goes closed.

OPERATION:

The Model Cycle Gard® CI² with fixed internal by-pass maintains a preset, reduced downstream (outlet) pressure by causing the diaphragm to throttle and sustain the desired reduced pressure regardless of variations in demand and upstream (inlet) pressure. The throttled position of the diaphragm 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. The fixed internal by-pass allows higher pressure to by-pass the valve seal at a controlled rate allowing the system to reach its desired shut off point. Adjusting the pilot valve pressure setting closer to the cut-in (turn on) pressure setting lengthens the run time of the pump until shut down. Adjusting the pilot valve pressure setting closer to the cut-out (turn off) pressure will shorten the run time of the pump until shut down.

PART #	DESCRIPTION	QUANTITY
1	ORIFICE	1
2	PRV-PILOT VALVE	1



ITEM NO.	DESCRIPTION	QTY
1	BODY	1
2	PRP - PILOT VALVE	1
3	ORIFICE	1

TROUBLE SHOOTING GUIDE

A. PROBLEM : Pump cycles or valve opens and will not close	
CAUSE 1. Main valve is air bound. 2. Ruptured diaphragm in pilot valve. (Evidenced by leak from vent hole in cover.) 3. Fouled orifice. 4. Fouled strainer in pilot control valve. 5. Pressure switch or valve not set properly 6. Damaged pilot valve seat. 7. Debris lodged under seal of main valve. 8. Leakage from one or more fittings in the controls. 9. Water tank has become waterlogged. 10. More than 125 psi pressure differential across valve	CORRECTION 1. Loosen 3/8" plug at the top of valve to release air. 2. Replace diaphragm. 3. Remove and clean orifice. 4. Disassemble, clean or replace screen. 5. Change valve or pressure switch so switch setting is higher than valve. 6. Disassemble and remove debris replace damaged parts. 7. Disassemble and replace damaged parts. 8. Tighten or replace fitting. 9. Recharge tank or replace. 10. Add a second valve in series "2 staging pressure drop"
B. PROBLEM: Valve is closed and will not open.	
1. Incorrect adjustment of pilot valve. (Set too high) 2. Flow control valve (if installed) open too far. 3. Fouled pilot valve 4. Worn or eroded orifice (or needle valve seat).	1. Turn pilot valve adjusting screw counter clockwise slowly until the valve opens and the desired reservoir level is reached. 2. Turn adjusting screw clockwise slowly until valve opens. 3. Disassemble and clean, replace seat ring and seat seal if necessary. 4. Replace orifice (or needle valve).
C. PROBLEM: Valve hunts or chatters.	
1. Pilot valve seal is damaged. 2. Pressure tank is too far away from valve 3. Air pressure in tank too high	1. Replace seal 2. Locate tank and valve closer or an additional smaller tank closer to the valve. 3. Make sure tank pressure is 5-10 PSI lower than pressure switch turn on pressure.