

Click here for: Cycle Gard Valves in our Online Catalog



## Operation & Maintenance Manual

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



### Model CYCLE GARD® II, CI & CNA

#### YOUR PRODUCT INFORMATION:

Model Number: \_\_\_\_\_

Date: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Valve Size: \_\_\_\_\_

Factory Pilot Preset: \_\_\_\_\_ psi

*High Quality Valves Built to Last...*



15 PRUYNS ISLAND  
GLENS FALLS, NY 12801  
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MANUAL: CYCLE GARD  
REV: F (11/16)

## CYCLE GARD® VALVE

The Model Cycle Gard® Valve with external adjustable by-pass

Threaded Female x Female Connection  
150# Class  
Grooved Connection  
Pressure Reducing Pilot Factory Set @ 60 psi

**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® II is 250 PSI, Cycle Gard CI is 225 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. 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 on the outlet side of the main valve to about 1/4 open.
5. Slowly open main line shut-off valve on the inlet side.
6. 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.
7. The tank fill rate can be easily adjusted with the external by pass on opposite side of pilot valve. Adjust the by pass valve to full open lower the run time of pump or close valve slightly to increase run time (A minimum of 2 GPM is recommended for tank fill rate. **NOTE: Do not totally close the by pass valve.**

### OPERATION:

The Model Cycle Gard® with external adjustable 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 external adjustable by-pass allows higher pressure to by-pass around the valve seal at a controlled rate allowing the system to reach its desired shut off point. Adjusting the 1/4" test cock on the by-pass open shortens the run time of the pump until shut down. Adjusting the 1/4" test cock on the by-pass closed will lengthen the run time of the pump until shut down.

# Installation Instructions

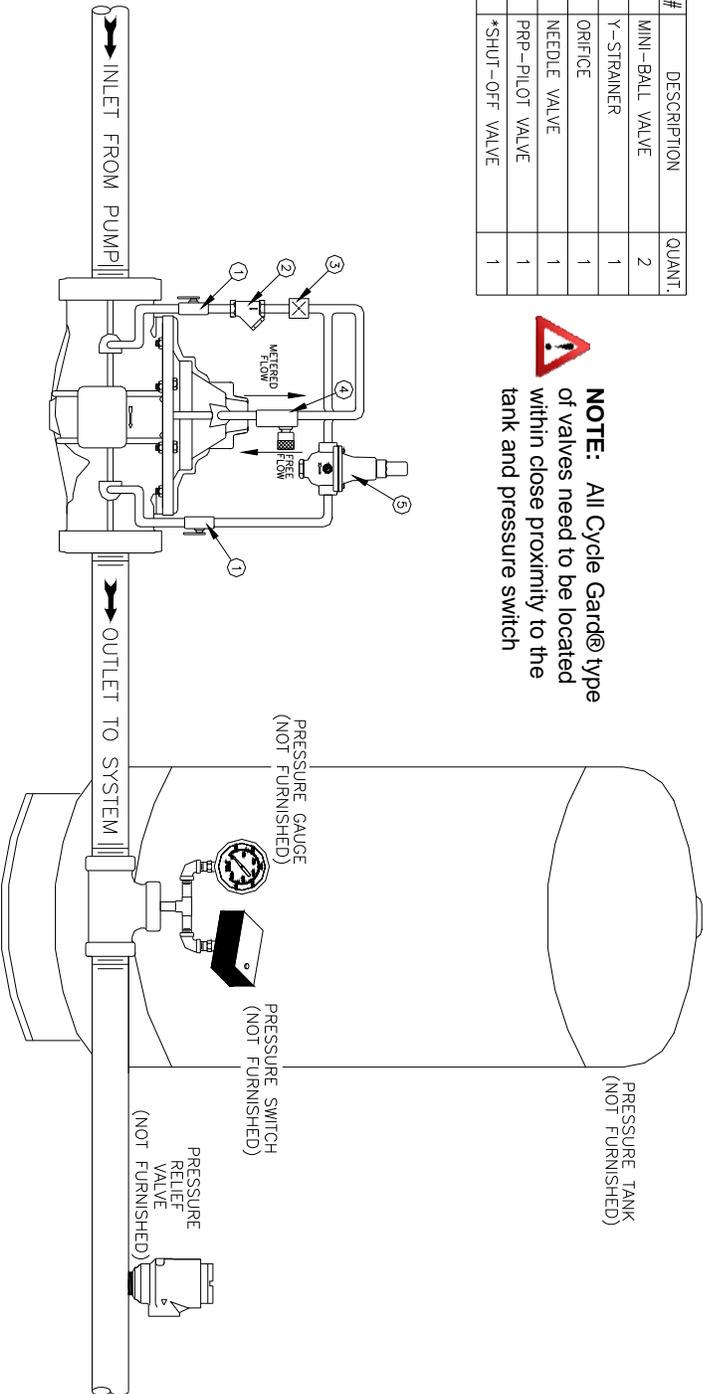
Model C101N

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## CYCLE GARD II PIPING SCHEMATIC

PART #	DESCRIPTION	QUANT.
1	MINI-BALL VALVE	2
2	Y-STRAINER	1
3	ORIFICE	1
4	NEEDLE VALVE	1
5	PRP-PILOT VALVE	1
6	*SHUT-OFF VALVE	1

**NOTE:** All Cycle Gard® type of valves need to be located within close proximity to the tank and pressure switch



\*NOT SHOWN THE SHUT-OFF VALVE LOCATED ON BACK OF VALVE (ADJUSTABLE BY-PASS LINE)

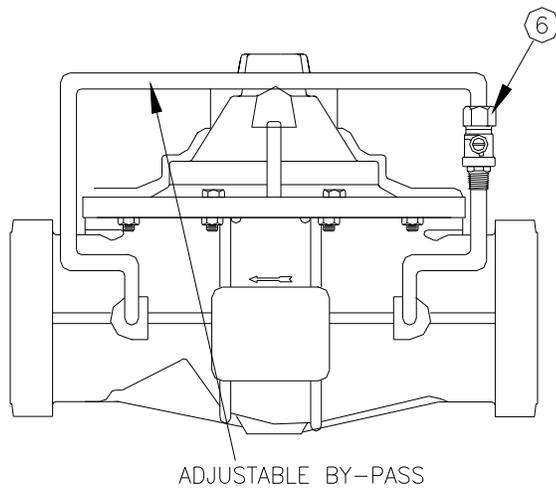
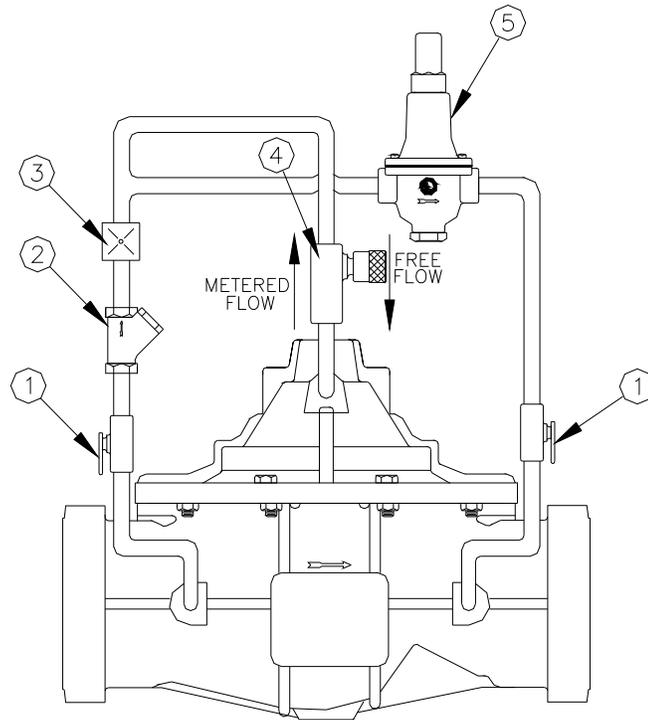
**WARNING:** INSTALL PRESSURE RELIEF VALVE IN SYSTEM PIPING

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October 4, 2001  
Dwg No. cycle2pipe Rev. E (6/11)

**FLOMATIC**



PART #	DESCRIPTION	QUANT.
1	MINI-BALL VALVE	2
2	Y-STRAINER	1
3	ORIFICE	1
4	NEEDLE VALVE	1
5	PRP-PILOT VALVE	1
6	SHUT-OFF VALVE	1

MODEL NO.: CYCLE GARD II

PROJECT: \_\_\_\_\_

PURCHASED BY: \_\_\_\_\_

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# Installation Instructions

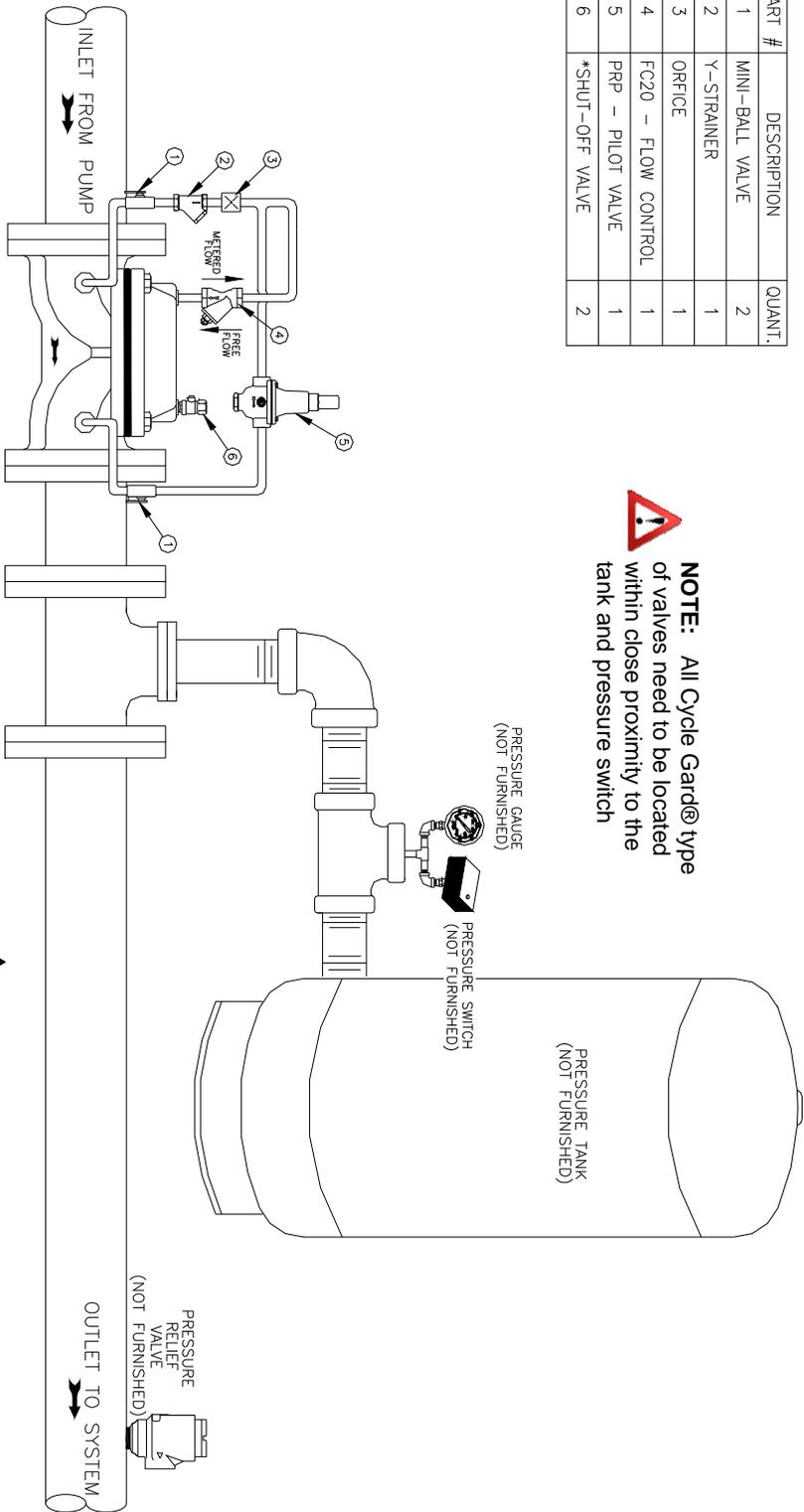
# Model CIN101 FLOMATIC®

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CYCLE GARD CI PIPING SCHEMATIC

PART #	DESCRIPTION	QUANT.
1	MINI-BALL VALVE	2
2	Y-STRAINER	1
3	ORFICE	1
4	FC20 - FLOW CONTROL	1
5	PRP - PILOT VALVE	1
6	*SHUT-OFF VALVE	2

**NOTE:** All Cycle Gard® type of valves need to be located within close proximity to the tank and pressure switch



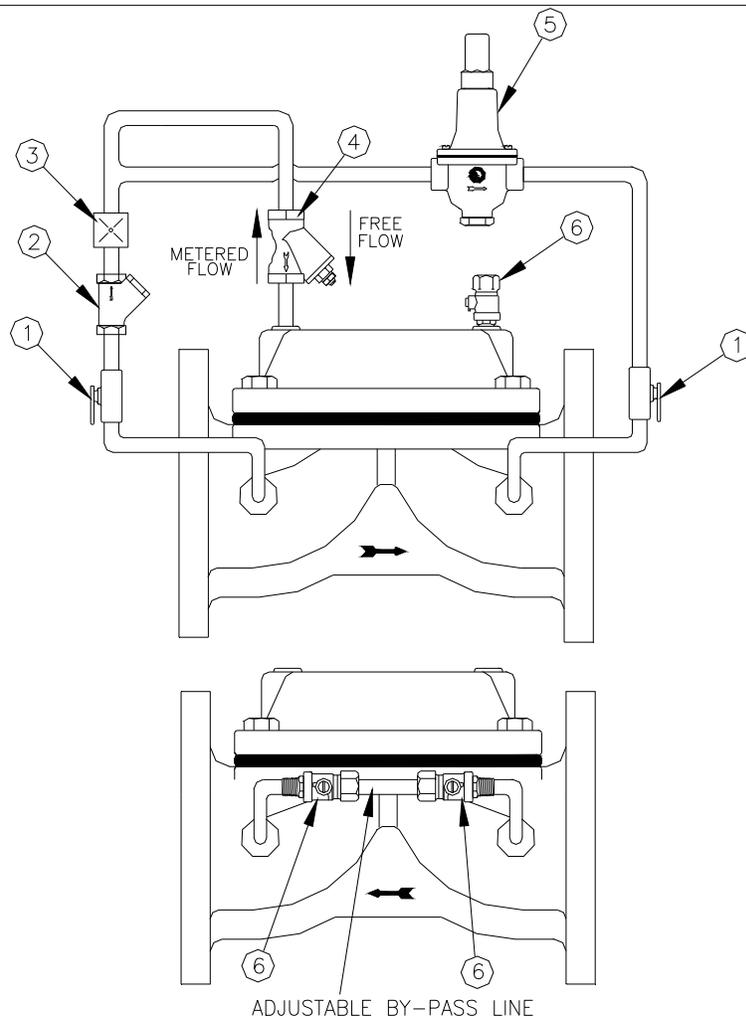
\*NOT SHOWN THE SHUT-OFF VALVE LOCATED ON BACK OF VALVE (ADJUSTABLE BY-PASS LINE)

**WARNING:** INSTALL PRESSURE RELIEF VALVE IN SYSTEM PIPING

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April 1, 1999  
 Dwg No: cycle\_ci\_pipe Rev: E (5/11)



PART #	DESCRIPTION	QUANT.
1	MINI-BALL VALVE	2
2	Y-STRAINER	1
3	ORFICE	1
4	FC20 - FLOW CONTROL	1
5	PRP - PILOT VALVE	1
6	SHUT-OFF VALVE	3

MODEL NO.: CYCLE GARD CI  
 PROJECT: \_\_\_\_\_  
 PURCHASED BY: \_\_\_\_\_

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# Installation Instructions

# Model CNA101 FLOMATIC®

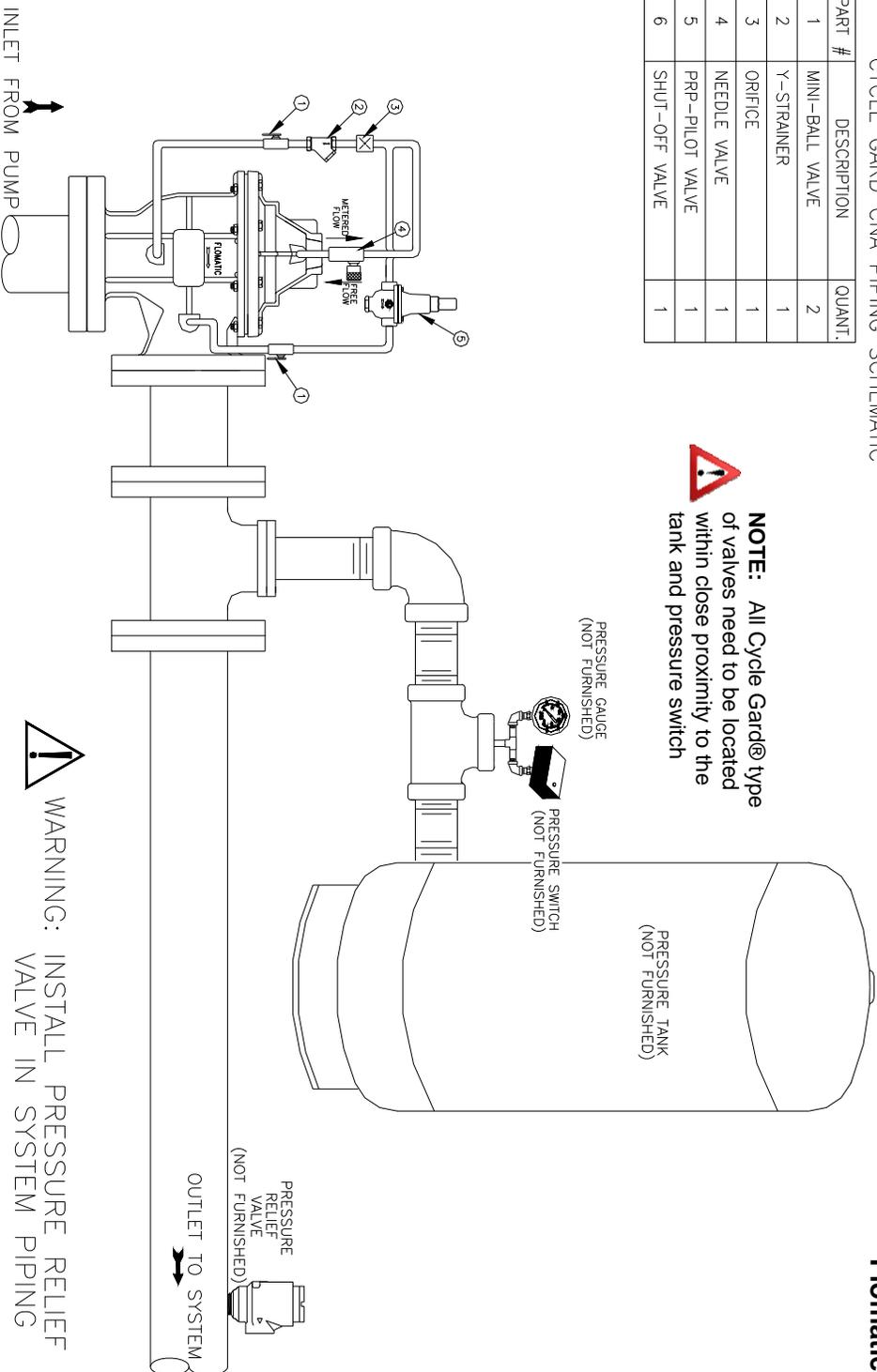
## CYCLE GARD CNA PIPING SCHEMATIC

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PART #	DESCRIPTION	QUANT.
1	MINI-BALL VALVE	2
2	Y-STRAINER	1
3	ORIFICE	1
4	NEEDLE VALVE	1
5	PRP-PILOT VALVE	1
6	SHUT-OFF VALVE	1



**NOTE:** All Cycle Gard® type of valves need to be located within close proximity to the tank and pressure switch



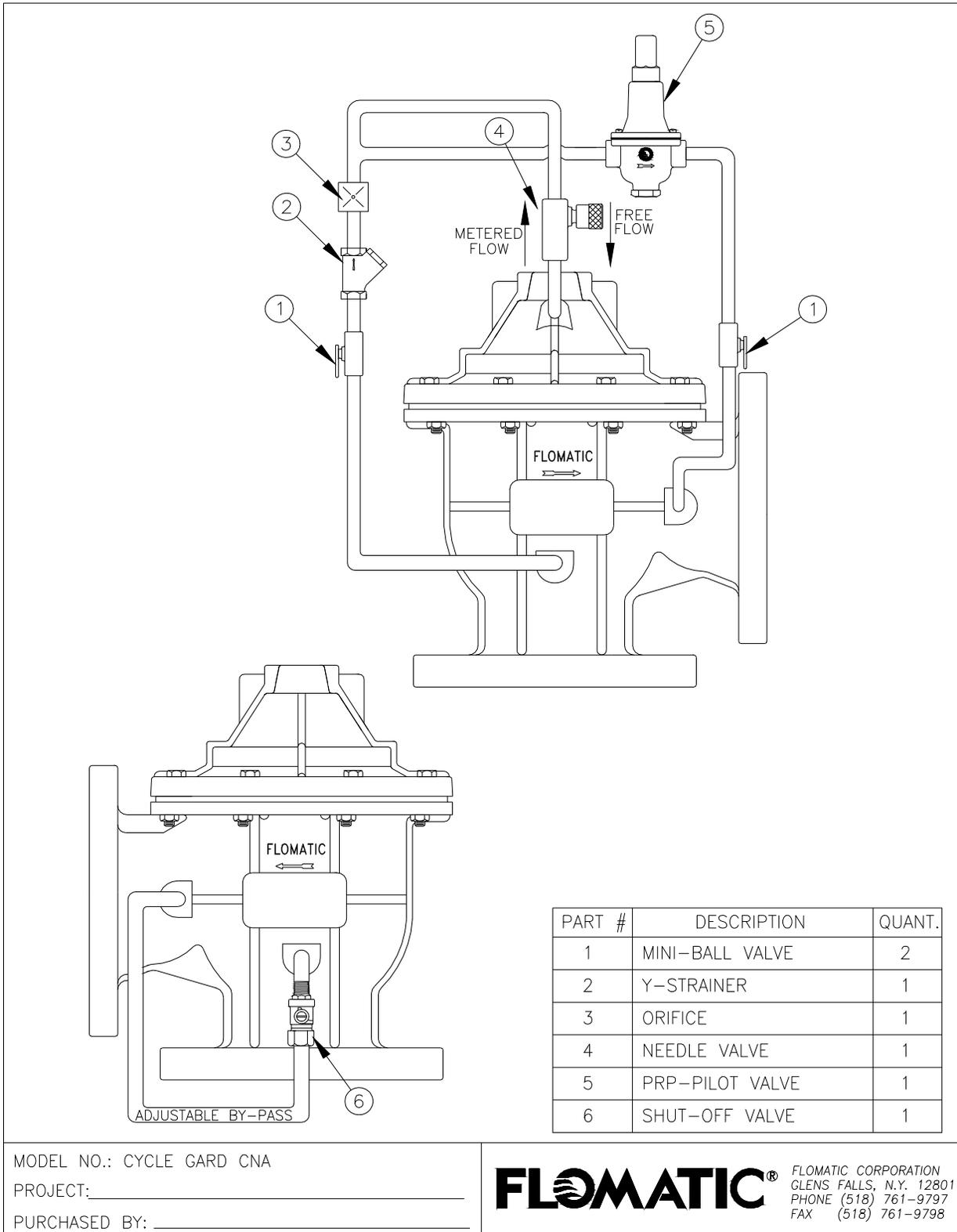
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October 19, 2006  
 Dwg No: cycle\_cna\_pipe Rev. D (5/11)



PART #	DESCRIPTION	QUANT.
1	MINI-BALL VALVE	2
2	Y-STRAINER	1
3	ORIFICE	1
4	NEEDLE VALVE	1
5	PRP-PILOT VALVE	1
6	SHUT-OFF VALVE	1

MODEL NO.: CYCLE GARD CNA  
 PROJECT: \_\_\_\_\_  
 PURCHASED BY: \_\_\_\_\_

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## TROUBLE SHOOTING GUIDE

A. PROBLEM : Pump cycles or valve opens and will not close	
<b>CAUSE</b> 1. Main valve is air bound. 2. Shut-off valve at the outlet side of control is closed. 3. Ruptured diaphragm in pilot valve. (Evidenced by leak from vent hole in cover.) 4. Fouled orifice or flow control valve. 5. Fouled strainer. 6. Pressure switch or valve not set properly  7. Damaged pilot valve seat. 8. Debris lodged under seal of main valve. 9. Leakage from one or more fittings in the controls. 10. Water tank has become waterlogged. 11. More than 125 psi pressure differential across valve	<b>CORRECTION</b> 1. Open 1/4" air bleeder at the top of valve to release air. 2. Open shut-off valve. 3. Replace diaphragm.  4. Flush flow control valve or remove and clean orifice. 5. Disassemble, clean or replace screen. 6. Change valve or pressure switch so switch setting is higher than valve. 7. Disassemble and remove debris replace damaged parts. 8. Disassemble and replace damaged parts. 9. Tighten or replace fitting. 10. Recharge tank or replace. 11. 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. 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 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. Open shut-off (isolation) valve. 4. Disassemble and clean, replace seat ring and seat seal if 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 seal is damaged. 3. Pressure tank is too far away from valve 4. Air pressure in tank too high	1. Slowly turn adjusting screw and/or remove to inspect for debris. 2. Replace seal 3. Locate tank and valve closer or an additional smaller tank closer to the valve. 4. Make sure tank pressure is 5-10 PSI lower than pressure switch turn on pressure.
<b>Test To Isolate Source Of Problem</b> (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. <b>THE MAIN VALVE SHOULD CLOSE.</b> <b>If the valve remains fully open the source of the problem could be:</b> <i>(A) fouled orifice or needle; (B) fouled strainer; (C) control shut off valve at inlet is closed; (D) ruptured main valve diaphragm.</i> <b>If the valve is partially closed the source of the problem could be:</b> <i>(A) damaged: main valve seat packing or seat ring; (B) debris under seat; (C) main valve is air-bound; (D) damaged stem O-ring.</i> <b>If the valve closes fully, the source of the problem could be:</b> <i>(A) pilot valve out of adjustment; (B) damaged pilot valve stem or set ring; (C) partially fouled strainer or needle valve.</i>	
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. <b>If water continues to flow, the source of the problem could be:</b> <i>(A) damaged: main valve diaphragm or stem seal O-ring; (B) loose locknut.</i>	