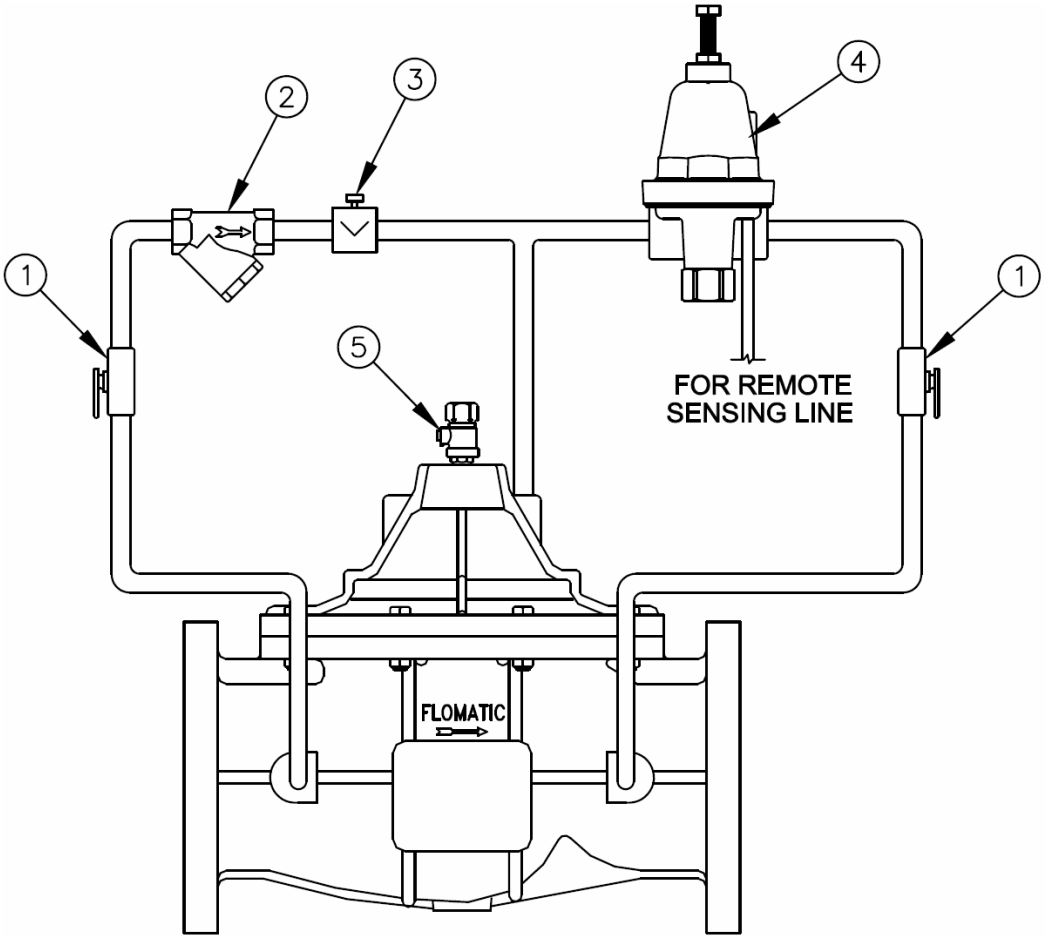
Operation & Maintenance Manual

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

Part List

1. Isolation Valve
2. Y-Strainer
3. Closing Speed Control
4. Pilot (Model AMP)
5. ¼" Air Bleeder



Model C/CA/CF/CFA 201-Single Acting (One-Way) Altitude Valve (modulating type)

YOUR PRODUCT INFORMATION:

Model Number: _____

Date: _____

Serial Number: _____

Valve Size: _____

Factory Pilot Preset: _____***psi/feet***

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SINGLE ACTING (ONE WAY) ALTITUDE VALVE (MODULATING TYPE)

The Model C/CA/CF/CFA 201 Single Acting Altitude Valve closes at a preset maximum water level to prevent overflow of a ground storage tank or reservoir and opens to refill when the water level in the tank or reservoir lowers.

This type of Altitude Valve should be used when the supply pressure is appreciably higher (15 psi+) than the head developed by a full ground storage tank or reservoir.

Flow from the tank or reservoir is usually to a zone of lower pressure or through a booster pump back to the supply in a by-pass around the control valve.

The modulating effect is evident only over the last few inches of filling so that a very gradual closure is achieved. Because of this modulating effect, the filling rate will be relatively slow as the tank or reservoir water level approaches shut off elevation.

CAUTION: A separate static pressure sensing line is recommended to be installed between the altitude pilot valve and the tank or reservoir to insure that the altitude pilot valve accurately senses the true head pressure. If the altitude valve is not installed immediately adjacent to the tank, reservoir, or basin; or if a high filling rate is anticipated; or if the tank has as overhead fill, a separate static pressure sensing line should be installed between the altitude pilot valve and the tank or reservoir to insure that the altitude pilot valve accurately senses the true head pressure. The pressure sensing line should be a minimum of ¾" I.D. with a slope from the valve to the reservoir to avoid air pockets.

SHIPMENT:

When shipped, controls are usually mounted on the main valve. If control sub-assemblies are shipped separately, all connections are tagged to insure correct assembly.

INSTALLATION:

1. Flush the pipeline before inserting the valve.
2. **Exercise caution to prevent dirt/debris from entering valve and control piping.**
3. Install the valve with the "arrow" on body pointing in the direction of flow (usually towards the tank or reservoir).
4. Attach sub-assemblies to main valve if necessary.
5. Allow enough clearance above valve for removal of diaphragm assembly.
6. Connect sensing line to the tank or reservoir. The sensing line should be connected directly to the tank or reservoir and not the system piping. Be sure to open ¼" valve at sensing line connection. If no sensing line is utilized, head pressure will be detected at downstream side of pilot, but may be inaccurate due to flow velocities and turbulence.
7. Install altitude gauge to piping system on outlet side of main valve (optional).

START-UP:

1. Install pressure gauges to inlet and outlet (optional).
2. Open both isolation valves on the control assembly.
3. Open 1/4" air bleeder at the top of the main valve.
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 of the main valve.
6. Close ¼" air bleeder when **all air has been removed** from the valve cover.
7. Slowly open main line shut-off valve on the outlet side the remainder of the way.
8. Watch the altitude gauge and note the level where the valve closes.
9. If the level requires adjustment turn the adjusting screw of the altitude pilot counter-clockwise to decrease the level or clockwise to increase the level.

CAUTION: any adjustment should be done slowly.

OPERATION:

The Model C/CA/CF/CFA 201 Single Acting (One Way) Altitude Valve maintains a preset fill level in a tank or reservoir by sensing the water column pressure through the altitude pilot and correspondingly opening or closing the main valve body. The valve allows for normal forward flow to fill the tank or reservoir and closes fully at the high water set point. When the level in the tank or reservoir drops below the high water setting of the pilot control the control valve will open to re-fill the system. Please note, this control valve does not act as a check valve to prevent backwards flow.

The valve is hydraulically controlled and pilot operated. The pilot operates on head pressure from the tank or reservoir which is connected via a separate sensing line. The desired fill level of the tank or reservoir is obtained by adjusting the spring tension on the pilot control.

When the head pressure drops below the pressure setting of the pilot, the pilot will open allowing for the pressure above the valve diaphragm to be released therefore allowing the main valve to open. As the level in the tank or reservoir reaches the pilot setting, the spring tension in the pilot will be overcome by the force of the head and will close directing the upstream pressure to the top cover of the diaphragm causing the main valve to close tight.

TROUBLE SHOOTING GUIDE

A. PROBLEM : Valve fails to close on high water level	
CAUSE	CORRECTION
1. Main valve is air bound.	1. Open ¼" air bleeder located on the top cover of valve to release air. Close when all air has been removed and water flows freely.
2. AMP set too high.	2. Lower setting of AMP by turning adjusting screw counter-clockwise to decrease level.
3. Isolation valve on inlet side of AMP is closed.	3. Open isolation valve.
4. Closing speed control closed tight.	4. Open ½ turn or as required
5. Pilot sensing not connected or is air bound.	5. Check the connection and make sure that sensing line valve is open. Confirm adequate slope to tank to avoid air pockets in line.

B. PROBLEM: Valve fails to open	
CAUSE	CORRECTION
1. AMP is set too low.	1. Increase setting of AMP by turning adjusting screw clockwise to increase level.
2. Isolation valve on outlet side of AMP is closed.	2. Open isolation valve.
3. Pilot sensing not connected or is air bound.	3. Check the connection and make sure that sensing line valve is open. Confirm adequate slope to tank to avoid air pockets in line.

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

1. With the main line gate valves open and the altitude valve pressurized, close the control isolation valve at the outlet side of the AMP. THE MAIN VALVE SHOULD CLOSE.

If the valve remains fully open the source of the problem could be:
(A) fouled closing speed control; (B) fouled y-strainer; (C) control isolation 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) AMP out of adjustment; (B) damaged pilot valve stem or set ring; (C) partially fouled y-strainer or closing speed control.

2. With the main line gate valves open and the altitude valve pressurized, close both isolation valves and open the ¼" air bleeder to release water out of the chamber above the diaphragm of the altitude valve. Water will flow from the air bleeder 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.