

## **SINGER MODEL 106/206-A-TYPE 4 Altitude Valve, One Way Flow with Differential Control**

Schematic A-0415C

Installation, Operating and Maintenance Instructions

### **DESCRIPTION:**

Model 106/206-A-Type 4 controls water level in elevated tanks, stand pipes and storage reservoirs. The valve senses the hydrostatic head of the reservoir to close on high water level. When the reservoir level drops a preset amount below the high water level, the valve opens to fill the reservoir.

**This valve does not prevent reverse flow.**

### **DESCRIPTION OF OPERATION:**

When the bonnet of Main Valve (1) is vented to atmosphere, the Main Valve opens fully. When the inlet pressure is directed to the bonnet, Main Valve (1) closes. Refer to 106/206-PG 'Description of Operation'.

When the reservoir head is high enough to overcome the spring force of Altitude Pilot (5), Pilot (5) connects port 'K' to port 'X'. This connects the inlet pressure of Main Valve (1) to its bonnet and closes the Main Valve. Closing speed is determined by the setting of Closing Speed Control (4).

When the reservoir level drops enough to open Differential Pilot (6), Pilot (6) opens and drops the sensing pressure of Altitude Pilot (5). Pilot (5) connects port 'K' to drain (port 'E') and opens Main Valve (1) to fill the reservoir.

**NOTE: This valve does not act as a check valve to prevent reverse flow.**

### **INSTALLATION:**

1. Refer to 106/206-PG 'Installation'.
2. Connect pilot sensing line (8) to reservoir as shown on schematic A-0415C. For best control, the sensing line should be connected directly to the reservoir. If this is inconvenient, it may be possible to connect to the pipe between Main Valve (1) and the reservoir.
3. Connect pilot exhaust to drain. It is recommended that the pilot exhaust be connected in a manner that makes the flow visible. This helps in adjusting the pilots.

### **ADJUSTING PROCEDURE:**

1. Open sensing line Isolating Valve (9) and pilot Isolating Valves (2) and (12).

2. **PRESSURIZE THE VALVE SLOWLY** and vent air from the bonnet of the Main Valve by using the bleed valve on top of the position indicator.
3. Open main line isolating valves to let the valve fill the reservoir. Observe the altitude gauge and note the level where the valve closes.
4. To increase reservoir level, turn adjusting nut of Altitude Pilot (5) clockwise. To decrease reservoir level, turn adjusting nut counterclockwise.
5. To adjust Differential Pilot (6), turn the adjusting screw clockwise for increased differential. This differential pressure setting determines how much the reservoir level drops before the Main Valve opens.

### **SERVICE SUGGESTIONS:**

In addition to service suggestions listed under individual components, the following points should be considered:

**PROBLEM: VALVE FAILS TO CLOSE ON HIGH WATER LEVEL.**

#### **Possible Cause / Remedy**

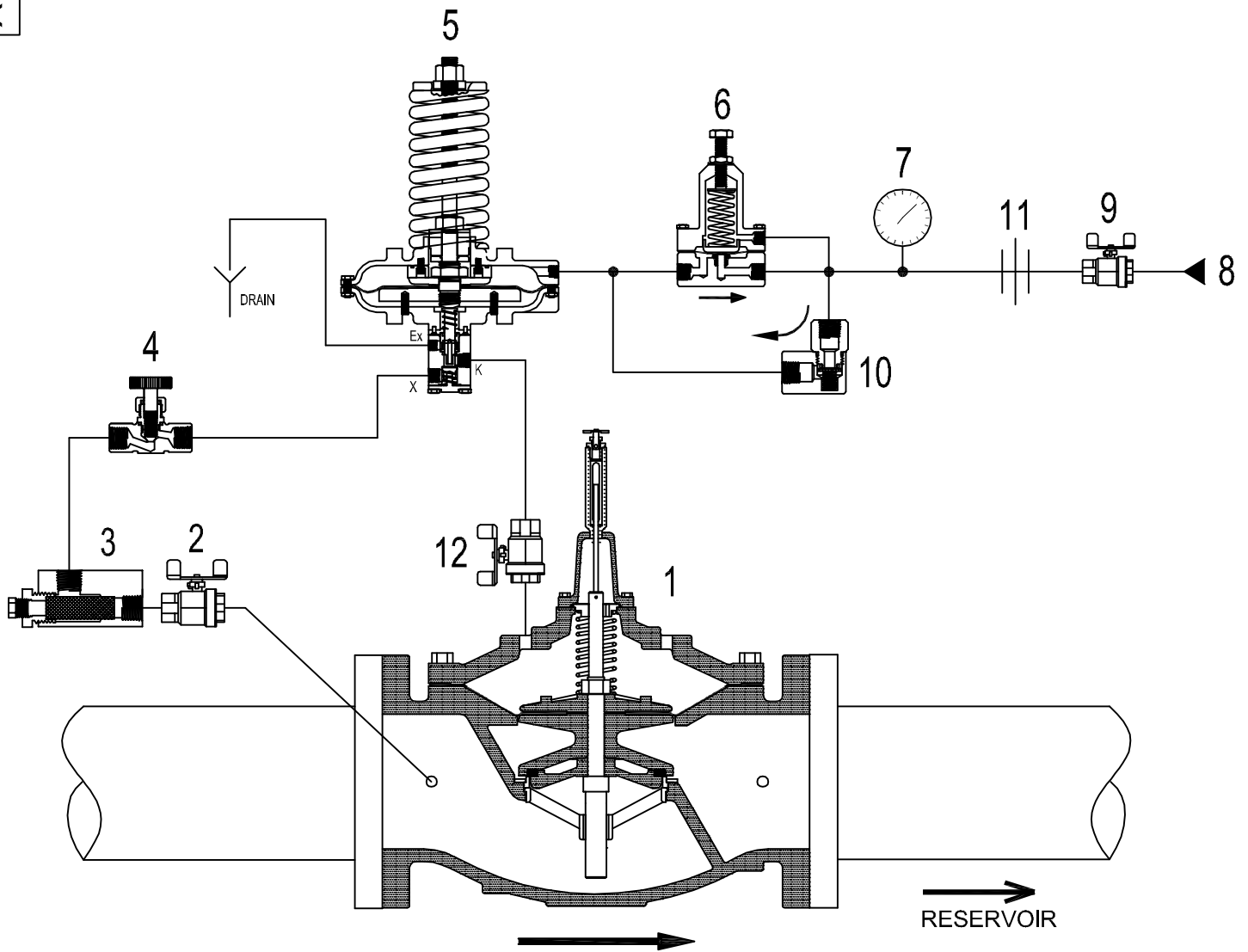
1. Altitude Pilot (5) set too high. / Lower setting. See 'Adjusting Procedures' above and 301-4 Instructions.
2. Isolating Valve (2) or (12) closed. / Open valve.
3. Closing Speed Control (4) closed tight. / Open 1/2 turn or as required.
4. Pilot sensing (8) not connected. / Check connection and make sure that sensing line Isolating Valve (9) is open.

**PROBLEM: VALVE FAILS TO OPEN.**

1. Altitude Pilot (5) set too low. / Adjust as required. See 'Adjusting Procedure' above and 301-4 Instructions.
2. Differential Pilot (6) set too high. / Reduce setting.
3. Dirt or scale in the pilot or pilot piping. / Clean as required.
4. Isolating Valve (12) or (9) closed. / Open valve.

**PROBLEM: VALVE OPENS TOO EARLY (NO DIFFERENTIAL CONTROL).**

1. Differential Pilot (6) set too low. / Increase setting.
2. Differential Pilot (6) or Check Valve (10) leaks. / Inspect and clean or repair as required.



1. Main Valve - Model 106/206-PG c/w X107 Position Indicator.
2. Isolating Valve.
3. Strainer - 40 mesh - J0098A.
4. Closing Speed Control - Model 852-B.
5. Altitude Pilot - Model 301-4.
6. Differential Pilot - Model 106-RD.
7. Altitude Gauge.
8. SENSING CONNECTION TO RESERVOIR.
9. Isolating Valve.
10. Check Valve - Model 10.
11. Union.
12. Isolating Valve.

## One-Way Flow Altitude Valve with Differential Control.

Does not prevent reverse flow.



[www.singervalve.com](http://www.singervalve.com) 12850-87th Avenue, Surrey, B.C. V3W 3H9

Drawn By:	Kari Oksanen	Approved By:	Kari Oksanen
Date:	October 19, 1995	Drawing:	<b>A-0415C</b>
<b>Model 106 or 206-A Type 4</b>			