SINGER VALVE
Result-Based Solutions. Globally.™

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SINGER MODEL 106/206-BPC-PR

Pump Control and Pressure Reducing Valve Schematic A-7155C
Installation, Operating and Maintenance Instructions

DESCRIPTION:

Model 106/206-BPC-PR is installed in the outlet of a pump to prevent starting and stopping surges and to act as a pressure reducing valve.

The valve acts as a check valve to prevent reverse flow.

DESCRIPTION OF OPERATION:

Refer to schematic A-7155C. For operation of Main Valve (1), refer to 106/206-PG 'Operation'.

The pump is started against a closed valve. Solenoid Valve (8) is energized and opens. Main Valve (1) starts opening. Opening speed is determined by the setting of Opening Speed Control (6).

Pressure Reducing Pilot (9) senses the downstream pressure. If the downstream pressure is below the setpoint of Pilot (9), Pilot (9) is open and Main Valve (1) keeps opening. When the downstream pressure reaches the setpoint of Pilot (9), Pilot (9) closes and starts closing the Main Valve. Pilot (9) then modulates the Main Valve to keep the downstream pressure at the setpoint of Pilot (9).

On shutdown, Solenoid Valve (8) is de-energized and closes. High pressure from the upstream closes the Main Valve slowly. Closing speed is determined by the setting of Closing Speed Control (5). While the Main Valve closes, the pump continues to run. When the Main Valve is almost closed, Limit Switch (12) stops the pump.

Check Valves (4) and (10) cause the valve to act as a check valve.

INSTALLATION:

1. See 106/206-PG 'Installation'.
2. Connect Solenoid Valve (8) and Limit Switch (12) to electrical system. Check Solenoid Valve name plate for correct pressure and side of coil for correct voltage. Connect Limit Switch using common and normally closed terminals. See suggested wiring diagram A0408D.
3. After installation, pressurize the valve and vent air from the bonnet of Main Valve (1). See 106/206-PG instructions for details. Note that there is a vent screw at the Limit Switch bushing.

ADJUSTING PROCEDURE:

1. Close Opening Speed Control (6) and Closing Speed Control (5).
2. Start the pump.
3. Open Opening Speed Control (6) slowly until desired opening speed is achieved.
4. Main Valve (1) should open until the downstream pressure reaches the setting of Pressure Reducing Pilot (9).
5. To adjust Pressure Reducing Pilot (9) (downstream pressure), turn the adjusting screw of Pilot (9) clockwise for increased pressure, counterclockwise for reduced pressure.
6. Turn pump switch to off position. The pump should continue to run.
7. Open Closing Speed Control (5) slowly until desired closing speed is achieved.
8. When the valve is almost fully closed, Limit Switch (12) should stop the pump. If the pump does not stop, adjust the Limit Switch so it is tripped just before the valve is completely closed.

NOTE: Excessively slow opening and closing speeds should be avoided. The speeds should be just slow enough to prevent objectionable starting and stopping surges.

SERVICE SUGGESTIONS:

In addition to service suggestions listed under Model 106/206-PG, we list the following:

TROUBLE: Fails to Open

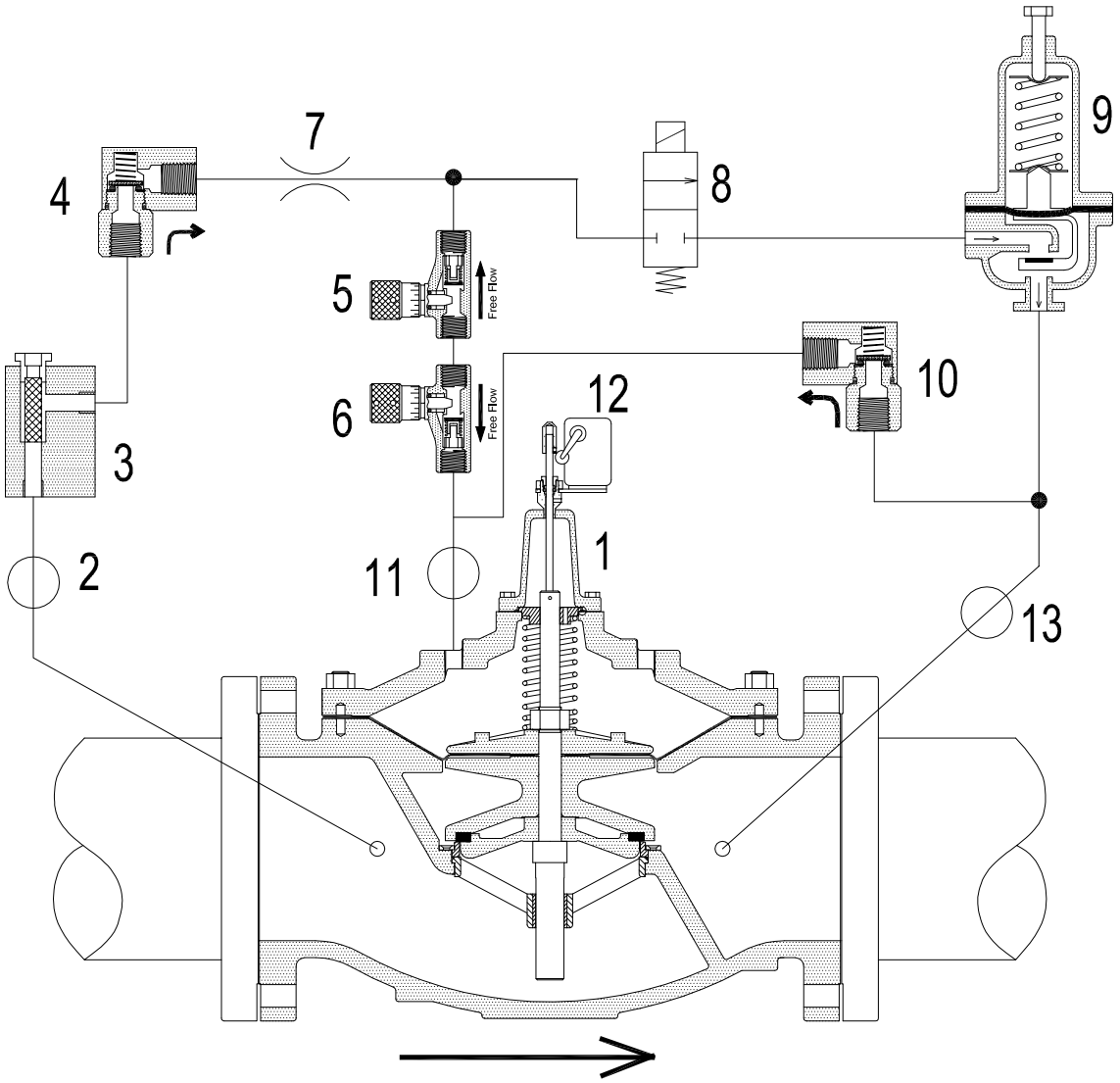
1. Opening Speed Control (6) closed tight.
2. Solenoid Valve (8) does not open. - Check solenoid and wiring.
3. Isolating Valve (11 or 13) closed.

TROUBLE: Fails to Close

To determine possible location of the problem, close Isolating Valve (13). If the valve closes, the problem is Check Valve (10) stuck open or Solenoid Valve (8) not closing. If the valve failed to control downstream pressure, Pilot (9) is not closing when it should.

If the valve fails to close above, open both speed controls fully. If the valve now closes, clean the speed controls. If the valve still fails to close, the problem probably is (a) high pressure side of pilot line obstructed i.e. (2) (3) (4) (6) (5) into the bonnet, (b) ruptured diaphragm in the Main Valve, or (c) Main Valve obstructed.

A-7155C



1. Main Valve - Model 106/206-PG.
2. Isolating Valve .
3. Strainer - 40 mesh - J0098A.
4. Check Valve - Model 10.
5. Closing Speed Control - Micrometer Flow Control.
6. Opening Speed Control - Micrometer Flow Control.
7. Fixed Restriction - 1/8".
8. Solenoid Valve - Normally Closed.
9. Pressure Reducing pilot - Model 160.
10. Check Valve - Model 10.
11. Isolating Valve.
12. Limit Switch - S.P.D.T.
13. Isolating Valve.

Pump Control and Pressure Reducing Valve.

Built-in, mechanical check (sliding inner valve or 'drop check') is available as an option.

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Date:	Drawing:
October 30, 1995	A-7155C

Model 106 or 206-BPC-PR