SINGER VALVE
Result-Based Solutions. Globally.™

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SINGER MODEL 106/206-RPS-D

Differential Pressure Sustaining Valve Schematic A0428B
Installation, Operating and Maintenance Instructions

DESCRIPTION:

The 106/206-RPS-D is a pilot operated differential pressure sustaining valve, designed to open when the pressure differential across the valve exceeds the set point of Differential Sustaining Pilot (6).

DESCRIPTION OF OPERATION:

Main Valve (1) is normally open when pressure is applied to the valve inlet. When the same pressure is applied to the bonnet, the valve closes tight because the area of the diaphragm is greater than the area of the seat. Pressure above the diaphragm determines the position of the Main Valve - whether it be open, closed or in intermediate position.

Unless otherwise specified, the valve will be assembled for service temperatures to 180°F (80°C).

Main Valve bonnet pressure is controlled with a pilot circuit consisting mainly of Closing Speed Control (5) and Differential Sustaining Pilot (6). Pilot (6) senses the differential pressure between the inlet and the outlet of Main Valve (1). When the differential pressure is below the setpoint of Pilot (6), Pilot (6) is closed. The upstream pressure is directed to the bonnet; Main Valve (1) closes. When the differential pressure exceeds the setpoint of Pilot (6), Pilot (6) opens and the Main Valve opens.

INSTALLATION:

1. See 106/206PG "Installation". **Pressurize the valve slowly and vent air as described in 106/206-PG Instructions.**
2. Model 106/206-RPS-D is normally factory assembled to sense the pressures at the inlet and the outlet of the Main Valve. Accuracy of control is improved if the sensing is done remotely.
3. If the valve is to be used to limit flow through a pump, low pressure sensing (1/8 NPT) of Pilot (6) must be connected to pump suction.

ADJUSTING PROCEDURE:

1. **SEE 'INSTALLATION' ABOVE.**
2. Open isolating valves (2), (7) and (8).
3. Set Closing Speed Control (5) one to two turns open, depending on valve size.
4. Install upstream and downstream pressure gauges.
5. Slowly open main inlet stop valve wide.
6. Note the pressure differential.
7. To change the differential pressure, loosen the Pilot Adjusting Screw Locknut and turn the adjusting screw on Pilot (6) clockwise to increase the differential pressure, counterclockwise to decrease it.
8. Lock adjusting screw in place when the desired setting is complete.
9. Adjust Closing Speed Control (5):

- To close the Main Valve faster – Turn Closing Speed Control (5) counterclockwise.
- To close the Main Valve slower – Turn Closing Speed Control (5) clockwise. Do not close tight.

10. If the valve is equipped with optional Opening Speed Control (9), adjust the opening speed as required. If the valve is unstable at low flow, increase the closing speed and decrease the opening speed.

TROUBLESHOOTING AND MAINTENANCE:

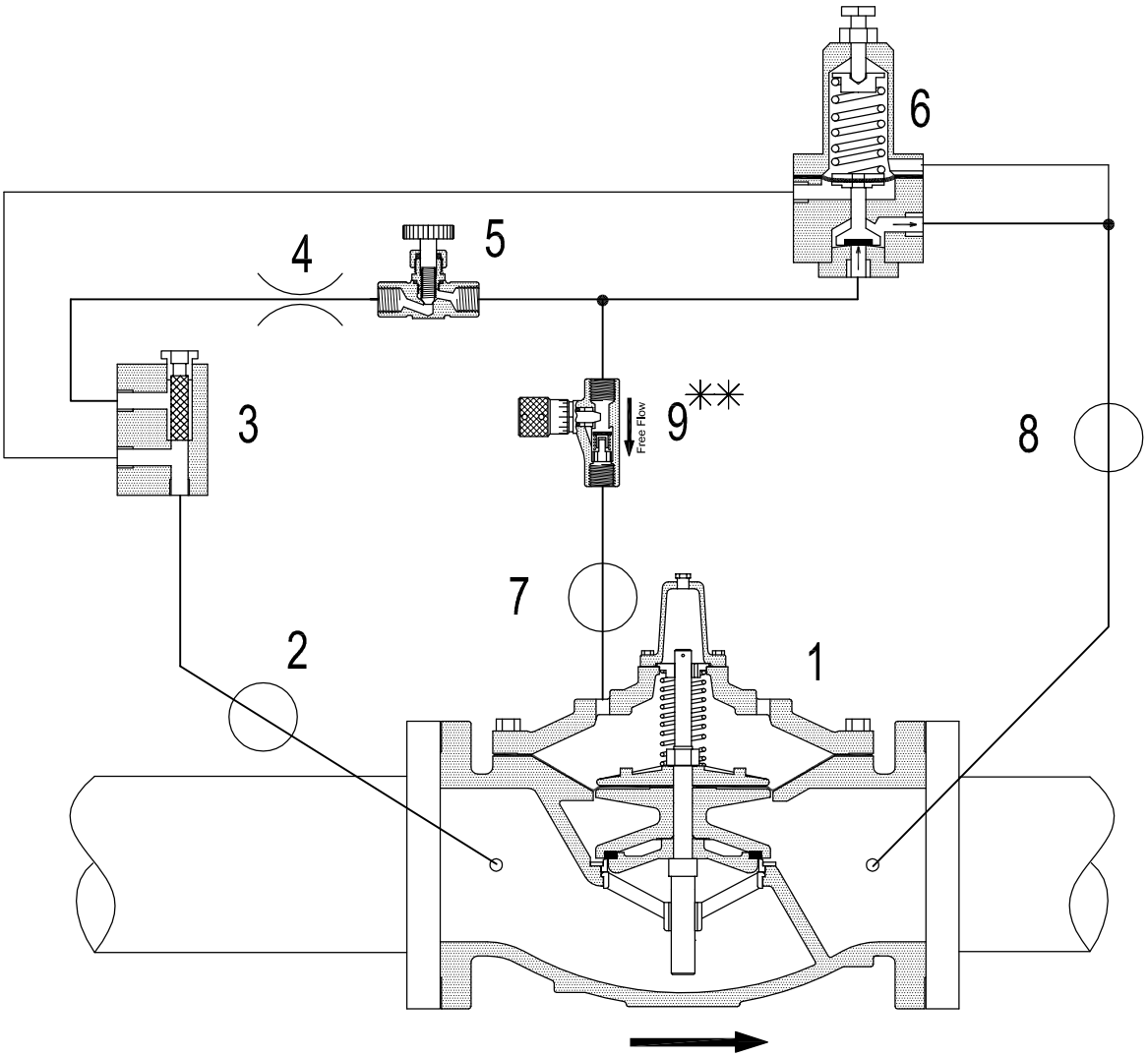
Unstable operation: Bleed air from the Bonnet. Connect sensing line to header. Install Opening Speed Control.

Valve does not open: Pilot set too high. Isolating Valve(s) closed. Opening Speed Control closed. Pilot Diaphragm ruptured. Not enough pressure drop on the Main Valve.

Valve does not close: Closing Speed Control (5) closed. Strainer (3) plugged. Other obstruction in the line from inlet to bonnet. Main Valve Diaphragm ruptured. Obstruction in the Main Valve.

Maintenance: Clean Strainer. Frequency depends on local conditions. Clean Main Valve and Pilot as required. Lubricate the Body Seal in the Pilot. No other lubrication is required. Check condition of Main Valve and Pilot Diaphragms and other resilient parts. Replace when required.

A-0428B



1. Main Valve - Model 106/206-PG.
2. Isolating Valve - 4" and larger only.
3. Strainer - J0097A - 4" and larger only.
4. Fixed Restriction - 1/8".
5. Closing Speed Control - Model 852-B.
6. Differential Sustaining Pilot - Model 81-RPD.
7. Isolating Valve - 4" and larger only.
8. Isolating Valve - standard on all sizes.

**9. Opening Speed Control - OPTIONAL.

NOTE: Item 9 is required for low flow stability (less than 1 ft/s)

Differential Pressure Sustaining Valve.

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Date:	Drawing:
March 11, 1995	A-0428B

Model 106 or 206-RPS-D