

SINGER MODEL 106/206-PRC Pressure Reducing Valve Schematic A0309A

DESCRIPTION:

Model 106/206-PRC is a pilot operated pressure reducing and check valve designed to automatically reduce a high inlet pressure into a lower outlet pressure. The valve will maintain a relatively steady downstream pressure regardless of fluctuations in the supply pressure or flow rate. The valve acts as a check valve to prevent reverse flow.

NOTE: With any manufactured product there is a risk of malfunction in service, whether by operating conditions such as a plugged strainer or normal wear and tear. Singer Valve recommends regular maintenance with frequency to suit the importance to customers application. We draw attention to our warranty which limits our responsibility to defects in workmanship and materials only. See Singer Valve Inc. Warranty IOM 613 attached and forming part of this Instruction and Operating Manual.

Unless otherwise specified, the valve will be assembled for service temperatures to 180°F (80°C). Higher temperature ratings are available - consult SINGER VALVE for details.

DESCRIPTION OF OPERATION:

The valve is normally open when pressure is applied to the valve inlet. When the same pressure is applied to the bonnet, the valve closes tight. Refer to 106/206-PG 'Description of Operation'. By controlling the pressure in the bonnet, the valve can be made to open fully, close tight or open partially.

The bonnet pressure (and therefore the position of the valve) is controlled by a pilot circuit consisting of Fixed Restriction (5) and Pressure Reducing Pilot (7). Two Check Valves (9) and (10) in the pilot circuit assure that the highest pressure is directed to the bonnet and is kept in the bonnet. Under reverse pressure conditions this assures that the valve closes to prevent reverse flow.

When there is no demand (and the downstream pressure is at the setting of the pilot), the pressure reducing pilot is closed. Pressure from the inlet side of the valve is directed to the bonnet through Fixed Restriction (5) and Flow Stabilizer (4). The main valve closes. When flow is required, Pilot (7) senses a drop in downstream pressure and opens. The flow through Pilot (7) is greater than flow through Fixed Restriction (5). The bonnet pressure is reduced and the valve opens to supply the demand. The speed of opening is determined by the setting of Flow Stabilizer (4). Refer to Model 26 instructions for details and adjustment.

Under flowing conditions the pilot reacts to small changes in downstream pressure and modulates the bonnet pressure (and valve position) as required to keep the downstream pressure constant. Note that the main valve position follows the position of the pilot. When the pilot closes, the main valve closes. When the pilot opens, the main valve opens.

INSTALLATION:

1. Refer to 106/206-PG 'Installation'.
2. Installation where there is loosely held piping and/or elbows close to the valve may cause the valve to pulsate.

ADJUSTING PROCEDURE:

1. Open pilot line isolating valves (2), (6) and (8).
2. Crack outlet stop valve and slowly open inlet stop valve wide.
3. Bleed air from main valve bonnet. SEE 106/206-PG 'INSTALLATION'.
4. Open outlet stop valve wide.
5. Set reduced (downstream) pressure by turning pilot adjusting screw: To increase pressure, turn adjusting screw clockwise. - To reduce pressure, turn adjusting screw counterclockwise. **NOTE THAT THERE MUST BE FLOW THROUGH THE VALVE WHEN PRESSURE IS ADJUSTED.**
6. IF THE VALVE DOES NOT OPEN (pressure remains low), check the adjustment of Model 26 Flow Stabilizer. SEE MODEL 26 INSTRUCTIONS.
7. IF THE VALVE BEGINS TO OSCILLATE OR HUNT:
 - Bleed air from main valve bonnet. SEE 106-PG/206-PG 'INSTALLATION'.
 - Adjust Model 26 Flow Stabilizer. SEE MODEL 26 INSTRUCTIONS.

SERVICE SUGGESTIONS:

In addition to service suggestions listed in the 106-PG/206-PG instruction, we suggest the following:

IF THE VALVE FAILS TO CLOSE:

Check that isolating valves (2) and (6) are open (if so equipped). Close isolating valve (8). If the main valve closes, Pilot (7) or Check Valve (10) is defective.

If the valve does not close, [sizes 1/2 to 3" without isolating valves (2) and (6)], leave isolating valve (8) closed and close main line isolating valves. Remove the copper line between the inlet of the main valve and the fixed restriction (5). Plug the upstream body connection. Open upstream isolating valve slowly to pressurize the valve. If there is continuous flow from the Fixed Restriction (5), main valve diaphragm is ruptured.

If the valve does not close, [sizes 4" and larger]: Close upstream pilot isolating valve (2). Remove the copper tube between the strainer and Model 26. If there is flow from the Model 26, the diaphragm is ruptured. If there is no flow from the Model 26, open the upstream pilot line isolating valve slowly. If there is no flow, the strainer is plugged.