SINGER MODEL 106/206-PR-SC

Pressure Reducing and Solenoid Control Valve

SCHEMATIC A-0335C

DESCRIPTION:

Model 106/206-PR-SC is a pilot operated pressure reducing 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.

A solenoid valve in the pilot system closes the valve when de-energized (normally closed) and allows the valve to act as a pressure reducing valve when energized. A normally open solenoid is also available.

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), Solenoid Valve (10) and Pressure Reducing Pilot (7).

When there is no demand (and the downstream pressure is at the setting of the pilot), Pressure Reducing Pilot (7) 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 pressure and opens. Flow through the pilot is greater than flow through the fixed restriction. Bonnet pressure is reduced and the valve opens to supply the demand. 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 pressure to modulate 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.

If Solenoid Valve (10) is closed, the main valve closes as described above.

INSTALLATION:

1. Refer to 106/206-PG 'Installation'.
2. Loosely held piping and/or elbows close to the valve may cause the valve to pulsate.
3. Wire the solenoid coil as required. Check coil for correct voltage. Voltage information is on the side of the coil, not on the name plate.

Never energize an AC coil when it is removed from the solenoid valve; the coil will be destroyed in a matter of seconds

ADJUSTING PROCEDURE:

1. To adjust the valve, flow is required. To allow flow, Solenoid Valve (10) must be open. To open the solenoid valve, a normally closed solenoid valve must be energized; a normally open solenoid valve must be de-energized.
2. Open pilot line isolating valves (2), (6) and (8).
3. Crack outlet stop valve and slowly open inlet stop valve wide.
4. Bleed air from main valve bonnet. SEE 106/206-PG 'INSTALLATION'.
5. Open outlet stop valve wide.
6. Set reduced (downstream) pressure by turning pilot adjusting screw. To increase pressure, turn adjusting screw clockwise. To reduce pressure, turn adjusting screw counterclockwise.
7. **NOTE THAT THERE MUST BE FLOW THROUGH THE VALVE WHEN PRESSURE IS ADJUSTED.**
8. **IF THE VALVE DOES NOT OPEN** (pressure remains low), check that the solenoid valve is open [see (1) above], also check the adjustment of Model 26 Flow Control. SEE MODEL 26 INSTRUCTIONS.
9. **IF THE VALVE BEGINS TO OSCILLATE OR HUNT:** Bleed air from main valve bonnet. SEE 106/206-PG 'INSTALLATION'. Adjust Model 26 Flow Control. SEE MODEL 26 INSTRUCTIONS.

SERVICE SUGGESTIONS:

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

IF THE VALVE FAILS TO CLOSE:

Close pilot line isolating valve (8). If the main valve closes, the pilot is defective. If the valve does not close, 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.