SINGER MODEL 106/206-PR-48
Pressure Reducing Valve with Low Flow By-Pass
Schematic A-8063D

DESCRIPTION:

Model 106-/206PR-48 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.

The main valve is pilot operated . For the low flow range, a ¾" direct acting pressure reducing valve is hard piped in by-pass around the main valve. The standard configuration is to have the by-pass valve piped into the ports on the opposite side of the pilot system. Isolation valves can be provided to allow for removal of the by-pass valve while the main valve is operational.

Unless otherwise specified, the valve will be assembled for service temperatures to 100 deg.F (40 deg.C). Higher temperature ratings are available - consult SINGER VALVE for details.

DESCRIPTION OF OPERATION:

The pilot operated main 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 a fixed restriction flow control and a pressure reducing valve.
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 the fixed restriction and the flow control valve. The main valve closes. When flow is required, the pilot senses a drop in pressure and opens. The flow through the pilot is greater than flow through the fixed restriction. The bonnet pressure is reduced and the valve opens to supply the demand. The speed of opening is determined by the setting of the flow control. 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.

The ¾" 106-PR by-pass valve functions the same as above for low flow pressure regulations. The by-passis usually set 5 psi higher than the main pilot-operated valve.

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 (standard on sizes 2-1/2" and larger).

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.

6. NOTE THAT THERE MUST BE FLOW THROUGH THE VALVE WHEN PRESSURE IS ADJUSTED.

7. IF THE VALVE DOES NOT OPEN (pressure remains low), check the adjustment of Model 26 Flow Control. SEE MODEL 26 INSTRUCTIONS.

8. IF THE VALVE BEGINS TO OSCILLATE OR HUNT:

- Bleed air from main valve bonnet. SEE 106-PG/206-PG 'INSTALLATION'.
- Adjust Model 26 Flow Control. SEE MODEL 26 INSTRUCTIONS.

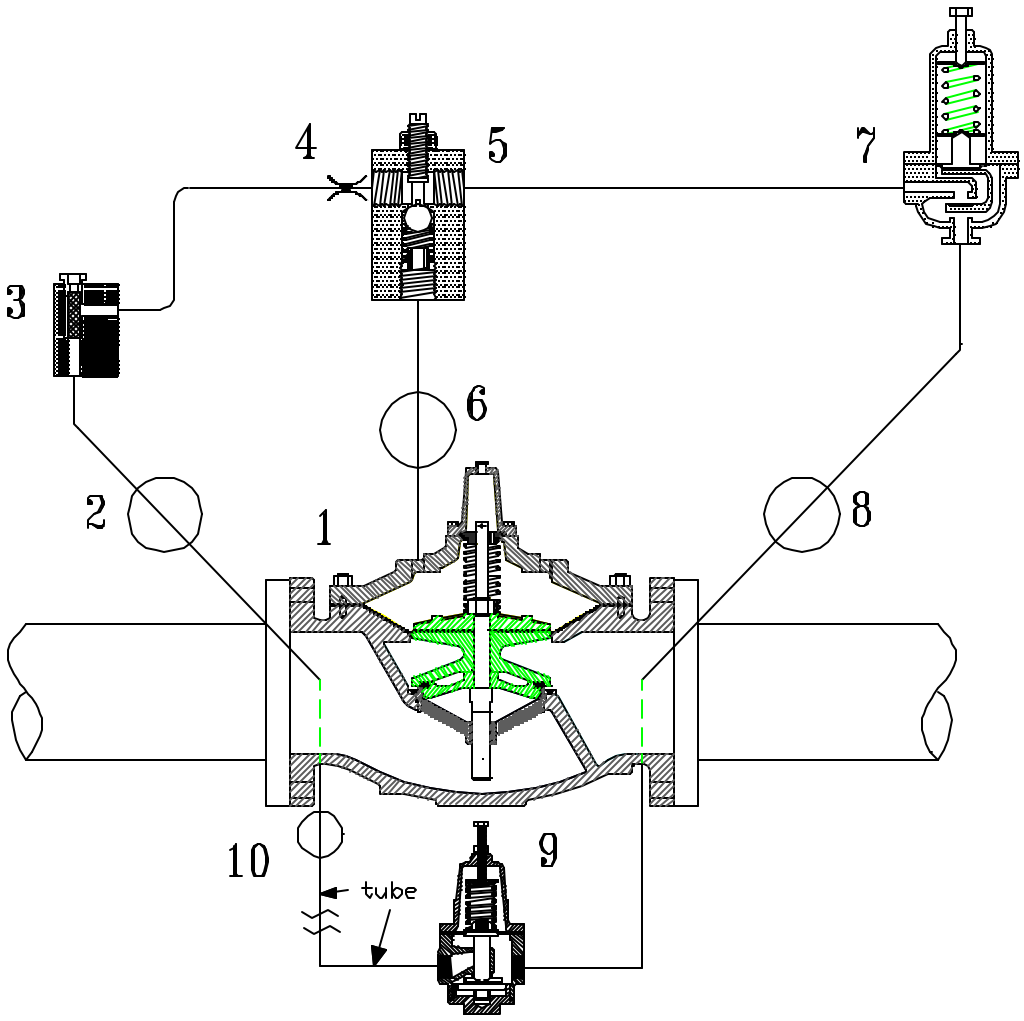
SERVICE SUGGESTIONS:

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

IF THE VALVE FAILS TO CLOSE:

Valves 2" and smaller: Close main line isolating (stop) valves and remove the pilot. Install a pipe plug in the connection of the Model 26 that is normally connected to the pilot. Open upstream isolating valve slowly. If the valve closes, the pilot is probably defective. If the valve does not close, remove the pipe plug carefully. If there is no flow from the Model 26, the upstream pilot piping is obstructed. If there is flow from the Model 26, close the upstream isolating valve and remove the inlet pilot piping and plug the upstream connection. Open the upstream isolating valve. If there is flow from the Model 26, the diaphragm is ruptured.

Valves 2-1/2" and larger: Close pilot isolating valve [between pilot and downstream connection in the main valve]. If the main valve closes, the pilot is defective. If the valve does not close,(sizes 2-1/2 to 3"), proceed as with small valve to determine the location of the problem. Also check the strainer. Sizes 4" and larger: Close upstream pilot isolating valve. 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.



1) Model 106/206–PG Main Valve.
2) Isolating Valve, J0044A – 4" and Larger.
3) Strainer, J0098A – 4" and Larger.
4) Fixed Restriction.
5) Model 26 Flow Stabilizer.
6) Isolating Valve, J0044A – 4" and Larger.
7) Model 160 Pressure Reducing Pilot
8) Isolating Valve – J0044A.
9) Model 36 By–pass Pressure Reducing Valve
10) Isolating Valve – 3/4" – J0046A.

SINGER MODEL 106/206–PR–48

Pressure Reducing Valve
with built–in by–pass valve.

SINGER VALVE INC.
12850–87th Ave
Surrey, BC V3W 3H9

4MAR99	DRAWN BY: SG	APPD BY: KO
106/206–PR–48	A–8063D	