

SINGER MODEL 106/206-PTC

Power Globe Valve with Double Acting Actuator and Built in Check Valve

SIZES: 106 - 2-1/2" to 8" DWG. A0515H 206 - 4" to 10" DWG. A0717B

Installation, Operation and Maintenance Instructions

DESCRIPTION:

Singer Model 106/206-PTC is a hydraulically operated, diaphragm actuated valve with two operating chambers and a sliding inner valve to check reverse flow regardless of stem position.

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

DESCRIPTION OF OPERATION:

The valve is normally open when the operating chambers are vented to atmosphere and inlet pressure exceeds the outlet pressure.

When the top side of the diaphragm is pressurized and the bottom side of the diaphragm is vented to atmosphere, the valve will close.

By varying the operating pressures in the operating chambers with a SINGER Automatic Pilot Circuit the valve can be made to modulate.

The operating pressure may be either line pressure or external pressure. If external pressure is used, it must be equal to or greater than line pressure.

The sliding inner valve is free to close regardless of stem position when pressure reversal occurs.

INSTALLATION:

Use washers under nuts when bolting valve flanges to pipe flanges to protect the Epoxy Coating.

1. For the most convenient operation and maintenance, manual shut off valves should be installed.
2. A suitable bypass should be provided to allow for servicing of the valve without interrupting the flow stream.

3. Install pressure gauges upstream and/or downstream of valve as appropriate. This will make it easier to set the pilot system.
4. A strainer with a suitable basket should be installed ahead of the valve to protect it from foreign material.
5. Sufficient space should be provided around the valve for disassembly.
6. Flush system of all foreign matter before installing the valve.
7. Check direction of flow (arrow in the body shows flow direction) and install the valve accordingly.
8. It is possible that seals and diaphragms may take a set after being in storage. If leaks are observed on gasket surfaces, **de-pressurize the valve** and tighten the screws or bolts.
9. After installation, and when the valve is pressurized, loosen fittings at high points to vent air. Note the bleed screw at the side of the limit switch adapter (item 63 on drawing A0707A).

SERVICE SUGGESTIONS

TROUBLE: Fails to Open

POSSIBLE CAUSE / REMEDY

1. Insufficient inlet pressure.
2. Pressure in the top chamber is not released or lack of pressure in the bottom chamber due to:
 - a) Isolating valves on pilot lines closed.
 - b) Pilot components not functioning. / Refer to specific instructions on pilot components.
 - c) Foreign material in pilot system.
 - d) Ruptured diaphragm.

Service Suggestions (Cont.):

TROUBLE: Fails to Close

1. Lack of pressure in the top chamber or pressure in bottom chamber is not released due to:
 - Isolating valves on pilot lines closed.
 - Pilot components not functioning.
 - Foreign material in pilot system.
 - Ruptured diaphragm.
2. Obstruction in valve.
3. Worn main valve disc.

MAINTENANCE:

The SINGER Model 106/206-PTC requires a minimum of maintenance. All parts are accessible for inspection and repair without removing the valve from the line.

DISASSEMBLY: Refer to drawing A0515H/A0717B for main valve and drawing A0707A for limit switch details.

1. Isolate the valve.
2. Disconnect pilot lines.
3. Remove limit switch assembly. Refer to drawing A0707A.
4. Refer to drawing A0515H/A0717B. Remove bonnet. If bonnet does not come free readily, it can be pried loose with a small pry-bar. Check that diaphragm does not adhere to the bonnet. If required, loosen the diaphragm completely from the bonnet to avoid damaging the diaphragm.
5. Loosen the diaphragm from the adapter to avoid damage to the diaphragm. Pull the stem/diaphragm assembly straight up to remove it.
6. Remove adapter. Loosen the Body Gasket from the adapter to avoid damage to the Body Gasket.

7. Remove inner valve. **NOTE: Avoid damaging seat when removing inner valve.**
8. Do not attempt to remove seat ring unless inspection shows that seat is damaged. When necessary to remove seat ring on size 2-1/2" (threaded in), make a wrench out of a length of pipe. Cut three notches into one end to engage the spokes of the seat ring. Insert the wrench and turn counterclockwise. On sizes 3" and over, the seat ring is held by Seat Ring Screws and Retaining Washers. To remove seat ring, remove Seat Ring Screws and Retaining Washers.

CLEANING AND INSPECTION:

1. Clean all parts, paying particular attention to resilient disc, diaphragm, 'O' rings, 'O' ring grooves and guiding and sealing surfaces.
2. Use suitable lubricant such as silicon lubricant when assembling 'O' rings.
3. Assure that parts are assembled as shown in the enclosed drawing.
4. Assure that pilot piping is assembled as shown in the enclosed drawings or schematics.

NOTE REGARDING FREEZING:

This valve does not drain completely when inlet and outlet pipes are drained. Where freezing conditions are expected, one of the following must be performed:

1. Drain valve and pilot system completely.
2. Provide insulation and/or heating to keep the valve from freezing.