SINGER VALVE
Result-Based Solutions. Globally.™

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SINGER MODEL 160-RF

Rate of Flow Pilot Schematic A0709E
Installation, Operation and Maintenance Instructions

DESCRIPTION AND OPERATION:

Model 160-RF is a direct acting, spring and diaphragm type normally open pilot. The valve is held open by the spring. The spring force is combined with pressure connected to the upper sensing port acting on the diaphragm to push the valve open. Pilot outlet pressure acting on the underside of the diaphragm pushes the pilot closed.

In a typical application, the outlet of the pilot is also the upstream side of an orifice plate and the downstream side of the orifice plate is connected to the sensing connection of the pilot. The pilot senses the differential pressure produced by the orifice. When this differential pressure becomes equal to the setpoint of the pilot, the pilot closes.

INSTALLATION:

1. Install the valve as shown in the enclosed schematic or drawing.
2. Note the direction of flow and install the valve accordingly.
3. **The valve must be installed with the adjusting screw pointing up.**
4. **After pressurizing, bleed air from the spring casing by loosening Bleed Screw (22).**

ADJUSTMENT:

Turn the adjusting screw clockwise for increased flow, counterclockwise for reduced flow setting. Range of adjustment is shown on the name plate.

DISMANTLING:

1. Close upstream and downstream isolating valves.
2. Remove the valve from the pilot system.
3. Remove Adjusting Screw and Thread Seal.
4. Remove the body screws (11) and remove the spring casing assembly.
5. Loosen the diaphragm if it adheres to the body and remove the Stem/Yoke assembly. Be careful to avoid damage to the stem as any interference or friction between the Stem (4) and Guide Bushing (10) can cause problems.

INNER VALVE REPLACEMENT:

Hold the inner valve (5) HEX in a vise and use a screwdriver or similar tool to turn the Yoke (6).

DIAPHRAGM REPLACEMENT:

Note the orientation of the diaphragm to help install the replacement diaphragm properly.

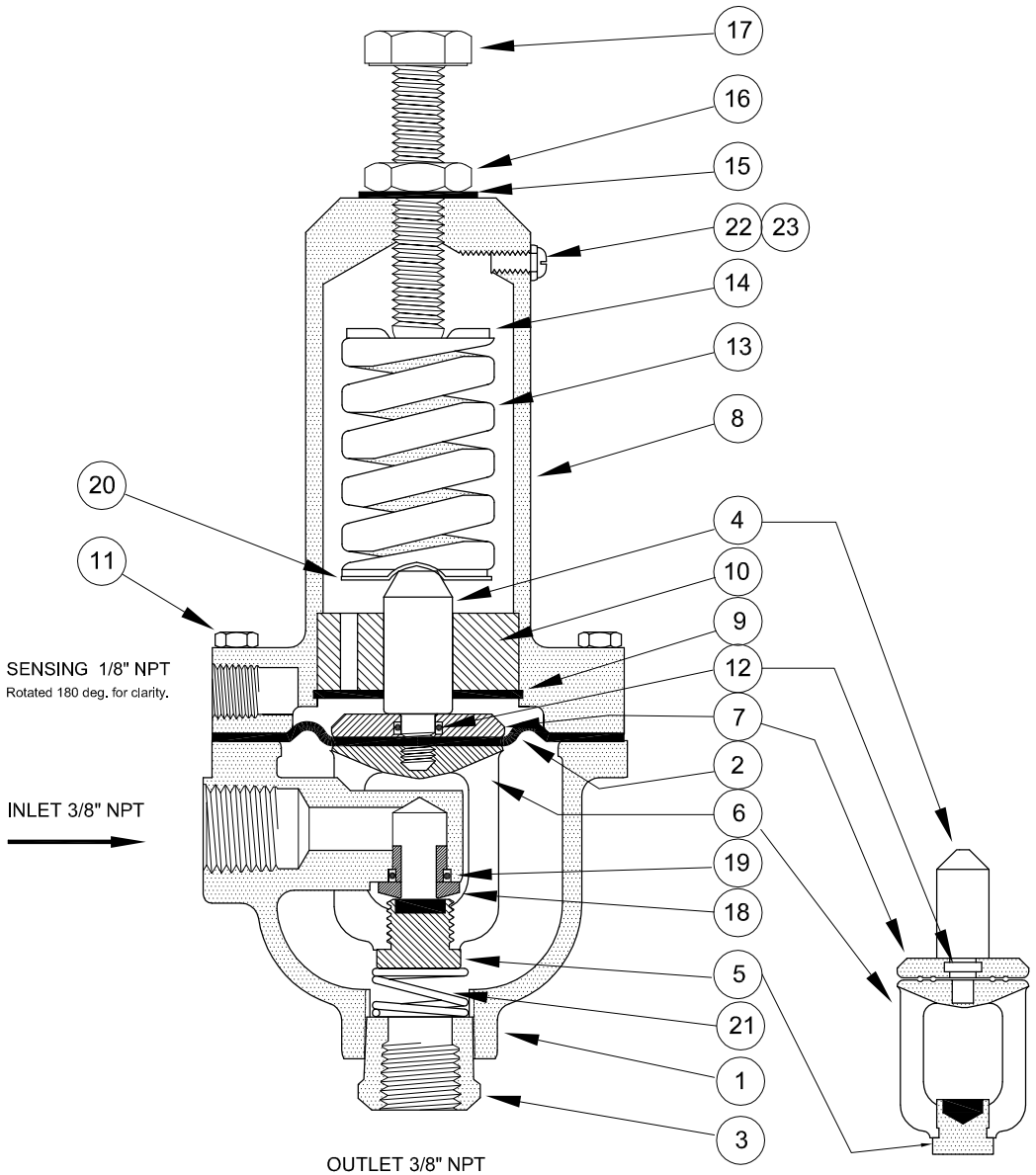
Hold the inner valve (5) HEX in a wise and use a **3/16" Allen Key** (Hex Drive) on top of the stem (4) to turn the stem counterclockwise. If required, use a second screwdriver or similar tool at the Yoke (6) to prevent the yoke from turning. **BE CAREFUL NOT TO DAMAGE THE STEM GUIDING SURFACE.**

Replace the diaphragm and orient it to straddle the legs of the yoke.

REASSEMBLY:

Reassembly is the reverse of disassembly. Ensure that parts are replaced in the sequence shown on the drawing.

Rate of Flow Pilot



Item	Description	Material
1.	Body	Bronze
* **2.**	**Diaphragm**	**EPDM**
3.	Outlet Connector	Brass
4.	Stem	Stainless Steel
* **5.**	**Inner Valve**	**Stainless Steel & EPDM**
6.	Yoke	Silicon Bronze
7.	Clamp Plate	Brass
8.	Spring Casing	Bronze
9.	Retaining Ring	Stainless Steel
10.	Guide Bushing	DELRIN
11.	Casing Screw (8)	Stainless Steel
* **12.**	**Clamp Plate Seal**	**Buna-N**
13.	Spring	Spring Steel
14.	Upper Spring Step	Stainless Steel
15.	Thread Seal	Steel & Buna-N
16.	Locknut	Stainless Steel
17.	Adjusting Screw	Stainless Steel
18.	Seat Ring	Stainless Steel
19.	Seat Ring Seal	Buna-N
20.	Lower Spring Step	Stainless Steel
** 21.	Bucking Spring	Stainless Steel
** 22.	Bleed Screw	Stainless Steel
** 23.	Bleed Screw Seal	Stainless Steel and Neoprene

*** Recommended Spare Parts - supplied in Parts KIT.**

**** Range 2 - 20 psid. only.**

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Date:	Drawing:
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