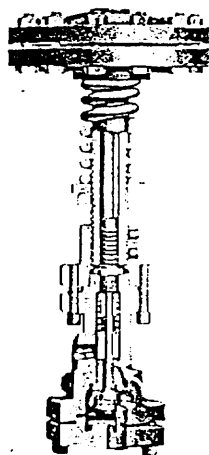


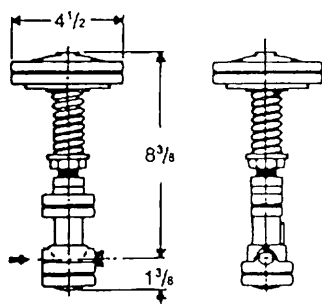


SPENCE ENGINEERING COMPANY, INC.  
Walden, NY 12586-2035

## PRESSURE SAFETY PILOT



Pressure Safety Pilot



Roughing-in Dimensions  
(weight 8 lb)

The Spence Pressure Safety Pilot is designed to prevent an accidental rise in delivery pressure from a reducing valve. It is applicable to all Spence Pressure Regulators utilizing Type E or C series Main Valves.

The Pressure Safety Pilot must not be considered as a substitute for a pop safety valve. Its function is to take over the pressure control in the event of failure of the pressure pilot. It is usually set 5 to 10 psi above the normal delivery pressure.

If the Main Valve is protected by an approved Strainer, a Pressure Safety Pilot makes it practically impossible for the Regulator to fail open.

Pilot Bodies are suitable for maximum inlet conditions as follows:

Cast Bronze .....	300 psi 500°F.
Cast Steel .....	600 psi 750°F.

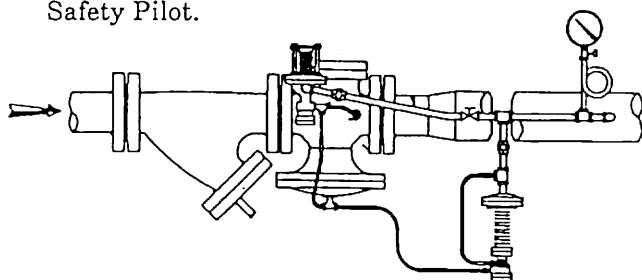
Other Materials:

Seats and Discs .....	Stainless Steel
Stems .....	Stainless Steel
Diaphragms .....	Laminated Bronze
Springs .....	Tempered Steel

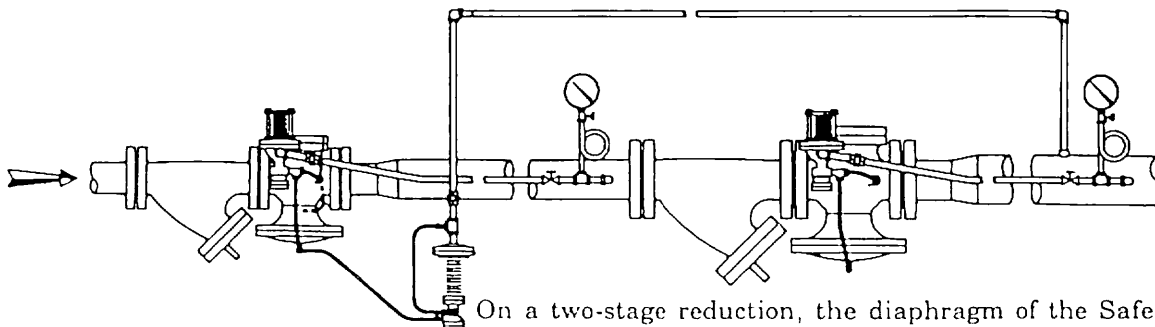
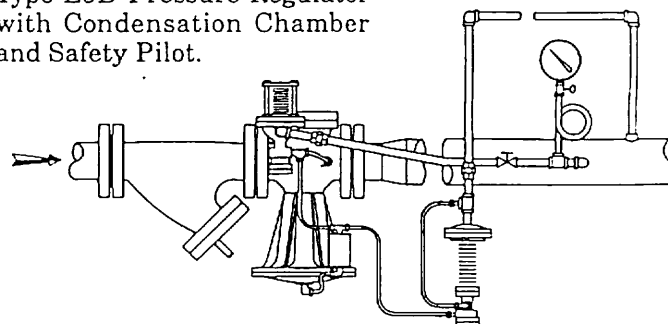
Operating pressure ranges, determined by choice of Control Spring, are as follows:

5 to 13 psi	31 to 65 psi
13 to 65 psi	66 to 175 psi

Type ED or C20D Pressure Regulator Installation with Safety Pilot.



Type E5D Pressure Regulator with Condensation Chamber and Safety Pilot.



On a two-stage reduction, the diaphragm of the Safety Pilot is connected to the final reduced pressure. If, for any reason, the Secondary Regulator should fail, the Safety Pilot will take over the control so that the Primary Regulator will make a one-stage reduction to the pressure for which the Safety Pilot is set.

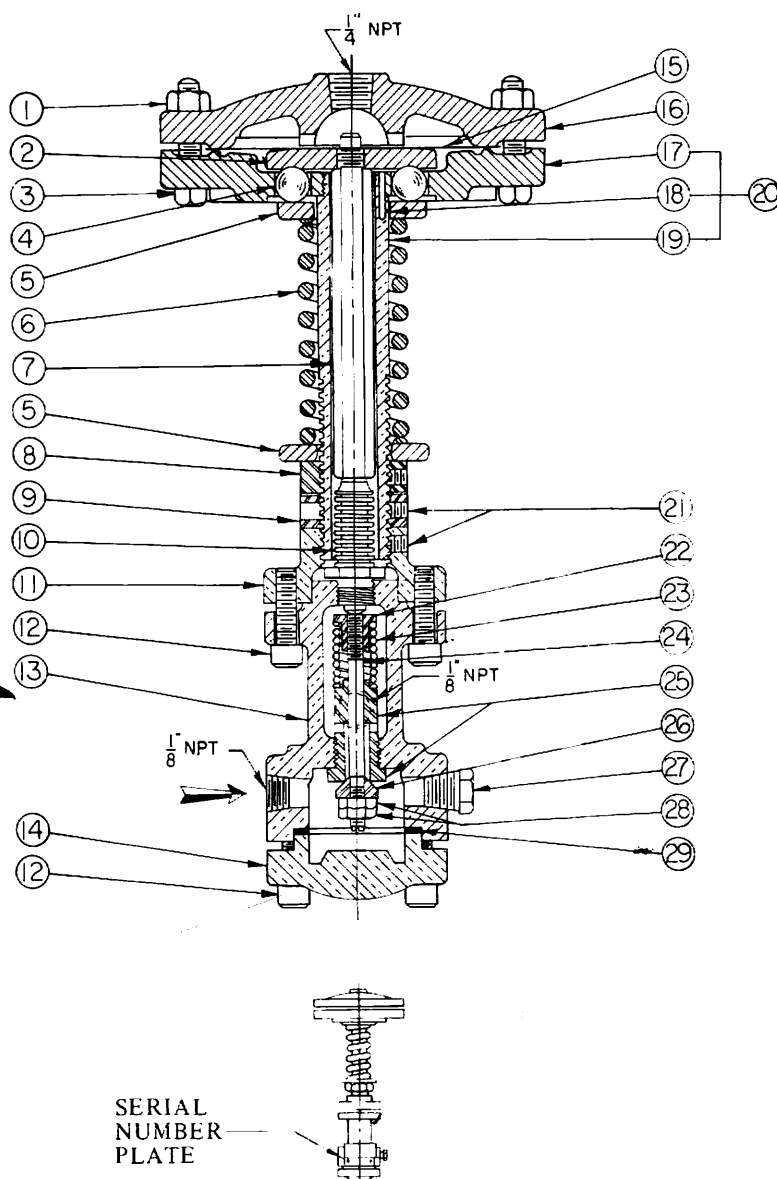


SPENCE ENGINEERING COMPANY, INC.  
Walden, New York 12586

## PARTS LIST PRESSURE SAFETY PILOT

When ordering parts it is essential that the pilot type, service and serial number be stated.

Select parts by item number but order by part numbers. Specify complete part numbers when ordering.



Item No.	Part Name	Material	Part No.
1	Diaphragm Nut	Steel	5-02871-0
2	Pressure Plate	Iron	4-03654-0
3	Diaphragm Bolt	Steel	5-04764-0
4	Pressure Plate Balls	Steel	5-00553-0
5	Spring Buttons	Steel	4-01059-0
6	Adj. Spring 5-30 psi	Steel	5-05007-0
	Adj. Spring 31-65 psi	Steel	5-05003-0
	Adj. Spring 66-120 psi	Steel	5-05005-0
	Adj. Spring 121-175 psi	Steel	5-05012-0
7	Pressure Stem	Brass	4-05425-0
8	Barrel Adj. Nut	Steel	4-02908-0
9	Barrel Locknut	Steel	4-02910-0
10	Bellows Assy. †	Bronze	4-00010-0
	Bellows Assy.	St. Stl.	4-00011-0
11	Bonnet	Bronze	4-00979-0
	Bonnet	Steel	4-00980-0
12	Bl. Flg. & Bonnet Bolts	Steel	5-04803-0
13	Body	Bronze	4-00856-0
	Body	Steel	4-00857-0
14	Blind Flange	Bronze	4-02153-0
	Blind Flange	Steel	4-02152-0
15	Diaphragm* †	St. Stl.	4-01626-0
16	Hood	Iron	4-02563-0
17	Cowl	Iron	4-01543-0
18	Groove Pin	Steel	5-03243-0
19	Barrel	Alum.	4-01262-0
20	Cowl Assy. (incl. items	Iron	0-00317-0
21	Barrel Lock Set Ser.	Steel	5-04874-0
22	Pusher Plate †	Steel	4-03726-0
23	Valve Spring †	Inconel	5-04982-0
24	Valve Stem †	St. Stl.	4-05379-0
25	Seat Ring †	St. Stl.	4-04380-0
26	Disc †	St. Stl.	4-01780-0
27	Pipe Plug-1/8" NPT	Brass	4-03770-0
	Pipe Plug-1/8" NPT	Steel	4-03769-0
28	Stem Nuts †	Steel	5-02888-0
29	Gasket †	Asbestos	5-02378-0

\* Use 2 diaphragms for delivery pressures up to 65 psi,  
3 diaphragms for 66-175 psi.

† These parts furnished in a repair kit — 8-09117-0 Brz.  
8-09118-0 Steel

SPENCE ENGINEERING COMPANY, INC.  
Walden, New York  
INSTRUCTIONS FOR SPENCE PRESSURE SAFETY PILOT

INTENDED PURPOSE

The Spence Pressure Safety Pilot is designed to be used with any of the Spence pressure reducing valves and is designed to position the main valve to maintain the delivery pressure in case of failure of the controlling D pilot or secondary regulator installation.

INSTALLATION

The safety pilot is installed as shown in Drawings 8215B (single stage installation) or Drawing 9847 Two Stage Installation. In each case it is connected to the outlet of the 7A restriction tee and its control pipe is connected to control pipe of the system being protected.

OPERATION

Under normal operating conditions the regulator operates as a standard ED but if the delivery pressure rises to the setting of the safety pilot it opens and due to the fact the 7C tee to which it is connected has a restriction on the D pilot side, it is able to bleed the pressure from under the main valve diaphragm faster than it can be supplied by the D and the main valve takes a position to satisfy the safety pilot setting.

SETTING

The safety pilot is factory set at the pressure shown on the order. Should it be necessary to change the setting in the field proceed as follows:

1. While the valve is passing steam and controlling the downstream pressure at the desired level, check the safety pilot setting. To do this, decrease the tension of the safety pilot adjusting spring by backing off the barrel adjusting nut slowly and at the same time keep a close watch on the delivery pressure gauge. When the indicated pressure starts to drop, the safety pilot is taking over control from the D pilot.
2. Increase the tension on the D pilot adjusting spring by turning down on the adjusting nuts. Then increase the tension of the safety pilot spring, all the time watching the delivery pressure gauge closely. When this pressure stops rising, it equals the D pilot setting and that is the point at which the safety pilot will take over control in case of D pilot failure.
3. When the desired safety pilot setting is reached, decrease the tension on the D pilot adjusting spring until it is controlling the downstream pressure at the desired point.

Please note the above method is a bit difficult to follow when a two-stage installation is involved since the safety pilot is mounted on and takes over control of the primary valve, but itself is controlled from downstream of the secondary valve. Hence, the secondary D pilot adjusting spring tension has to be changed (Paragraph #2 above) while the intermediate gauge must be watched as closely as the final pressure gauge to determine at what point the safety pilot cuts in.