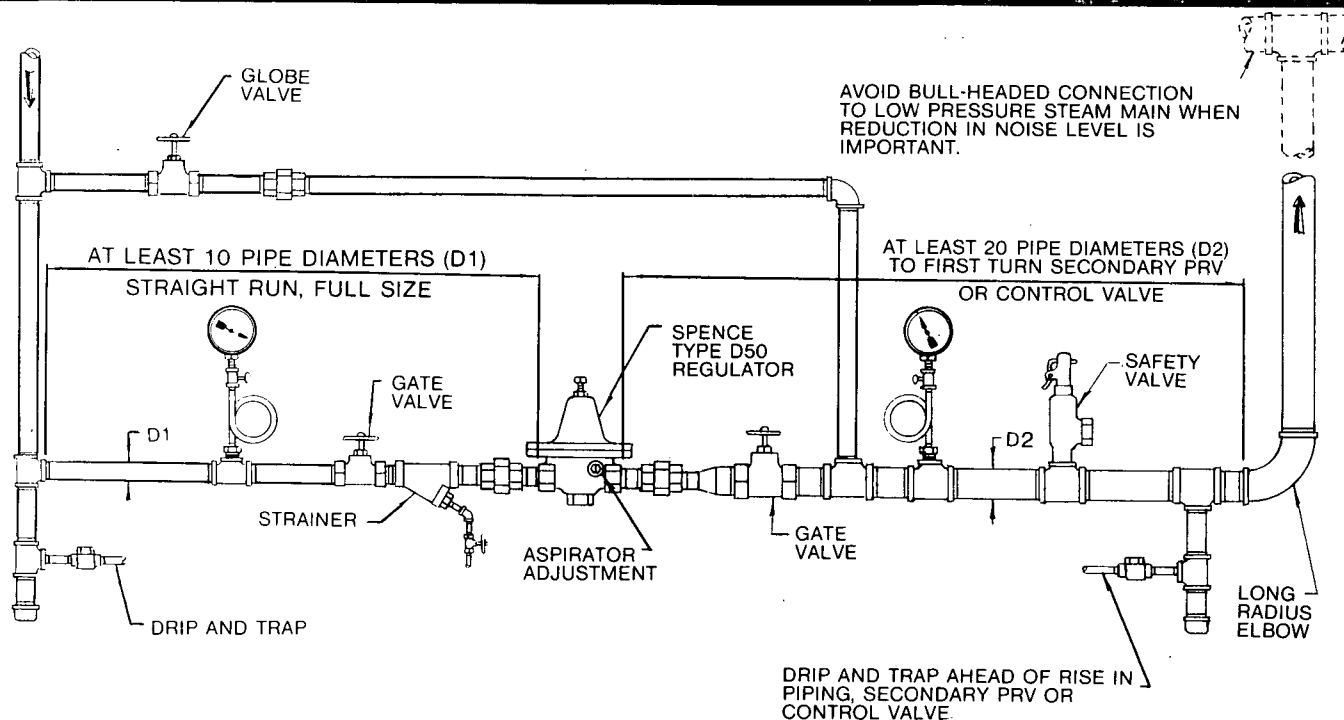


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## INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS TYPE D50 SERIES PRESSURE REGULATORS



**Fig. 1 - RECOMMENDED INSTALLATION OF REGULATION**

**Caution: Steam, or other hazardous fluids, may be handled by this valve. Only qualified personnel who are familiar with your installation should be permitted to install, readjust, inspect or maintain valve.**

### A. INTENDED PURPOSE

The Spence Type D50 Direct Acting Pressure Regulator is a compact, moderately priced steam, water or gas regulator intended to satisfy most fundamental requirements for pressure reduction.

### B. PLANNING THE INSTALLATION

1. Locate the Pressure Regulator in a straight run of the horizontal pipe. (See Fig. 1).
2. Allow access room above and below the valve for inspection and maintenance.
3. For steam service, in order to prevent water hammer and erratic operation, install properly sized traps to provide proper drainage of condensate before and after the Pressure Regulator.
4. Avoid the damaging effects of scale and dirt in pipe lines by installing a Spence Y Type Strainer as shown in Fig. 1.
5. Provide a 3-valve by-pass to facilitate inspection and maintenance without interrupting service.
6. If the pressure rating of the downstream piping or connected equipment is less than the initial pressure, install a safety valve as shown in Fig. 1.
7. Install initial and delivery pressure gauges to indicate performance. When long runs of piping are involved, the delivery pressure gauge should be located as close to the process or equipment controlled as is practical.

8. To eliminate excessive noise and enhance stability with steam and other compressible fluids:
  - a. Avoid single pressure reduction in excess of 5 to 1 ratio.
  - b. Enlarge the delivery pipe size to effect a reasonable flow velocity at the reduced pressure. A concentric tapered transition is recommended.
  - c. Avoid sharp turns close to the regulator outlet as well as bull-headed tee connections to low pressure mains.

### C. INSTALLING THE VALVE

1. Flush the piping system thoroughly to clear it of any debris.
2. Mount the valve between unions with the arrows under the diaphragm flange pointing in the direction of the flow.

### D. ADJUSTING THE DELIVERY PRESSURE

1. When received, the Type D50 Pressure Regulator is preset to the delivery pressure listed on the box label.  
 To change the delivery pressure:
  - a) Loosen the lock nut on the adjusting screw.
  - b) Turn adjusting screw clockwise to increase the delivery pressure (or)
  - c) Turn the adjusting screw counterclockwise to decrease the delivery.
  - d) Retighten the lock nut.

## E. TROUBLE-SHOOTING

1. Failure to open or excessive delivery pressure fall-off:
  - a. Adjusting Spring, Fig. 3, may have been tampered with, or broken.
  - b. Initial pressure may be down due to partially closed supply valve, clogged strainer, or other obstruction.
2. Failure to close or over-riding delivery pressure:
  - a. Adjusting Spring, Fig. 3, may have been tampered with.
  - b. By-Pass Valve may be leaking or open.
  - c. Valve Diaphragm may be broken.
  - d. Valve may be held open by foreign matter.
3. Valve chatter or noise.

Certain critical flow conditions may create valve chatter as evidenced by a humming noise as the valve closes. Readjustment of the Aspirator Adjustment feature of the Type D50 Pressure Regulator permits the user to desensitize the valve in order to reduce or eliminate valve chatter. When received, Fig. 2, the Aspirator Adjustment is in the vertical position. If adjusting is necessary, loosen the locking nut and turn the adjusting screw slowly within the range shown in Fig. 2, until the valve chatter is eliminated or minimized.

Do not over-adjust.

Note: When replacing the Aspirator Assembly, PC No. 14, Fig. 3, the Aspirator Location Mark, Fig. 2, should face the valve outlet when completed.

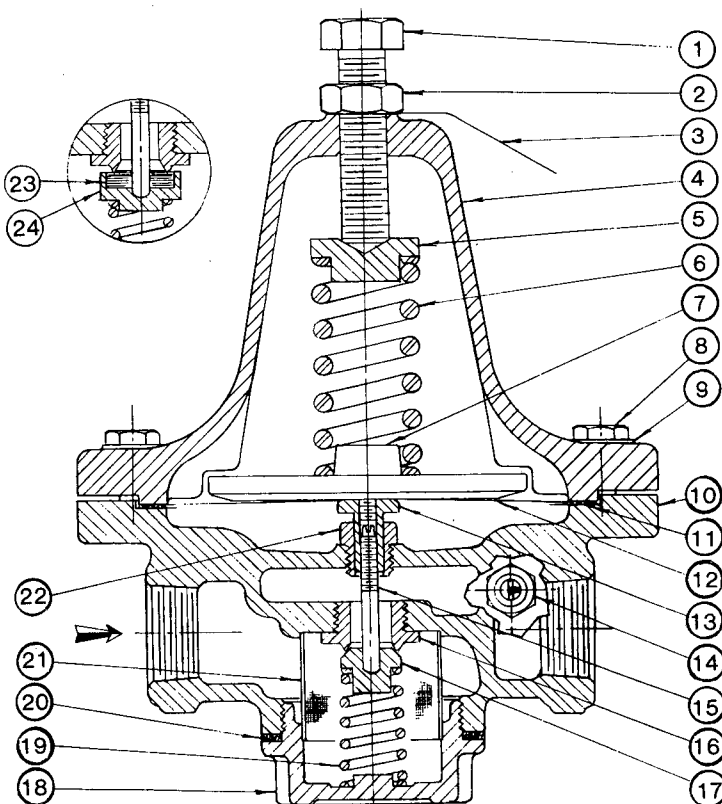


Fig. 3

## F. MAINTENANCE

1. Under normal operating conditions, complete dismantling at regular intervals is not recommended.
2. Before inspection, cleaning or replacement of worn or broken parts, make certain that the Pressure Regulator has been isolated from the initial and delivery pressures. Make sure also that any internal pressure in the regulator has been relieved.  
If a hot or otherwise hazardous fluid is handled by the valve, appropriate precaution should be taken prior to disassembling the valve or removing it from the line.
3. When disassembling the valve, first remove the compression from the adjusting spring.
4. Minor damage to the seat ring and disc may be repaired by light grinding with 400 grit or finer lapping compound.
5. Before reassembling the valve, the old gasket material and sealing compound should be removed. Metal to metal joints should be sealed with Copalite, Permatex or equal plastic gasket compound compatible with the service of the valve.
6. When ordering replacement parts, refer to the parts list (Fig. 3). Order parts by part name, valve size and include the Item Number from the Name Plate (PC No. 3, Fig. 3).



NORMAL POSITION      Fig. 2      ADJUSTED POSITION

PC NO.	NAME
1	Adjusting Scr.
2	Lock Nut
3	Name Plate
4	Spring Chamber
5	Spring Button
6	Adjusting Spring
7	Pressure Plate
8	Flange Screw
9	Lock Washer
10	Body
11	Gasket
12	Diaphragm
13	Pusher Plate
14	Aspirator Assembly
15	Stem
16	Seat Ring
17	Integral Disc
18	End Cap
19	Valve Spring
20	Gasket
21	Screen
22	Guide Bushing
23	Composition Disc
24	Disc Holder