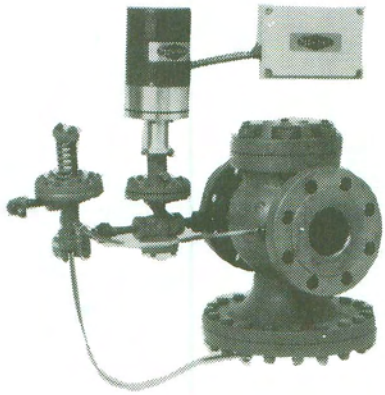
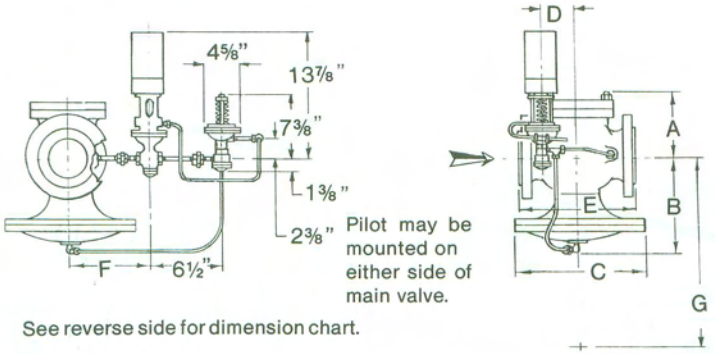
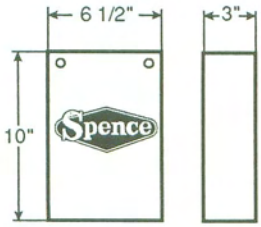
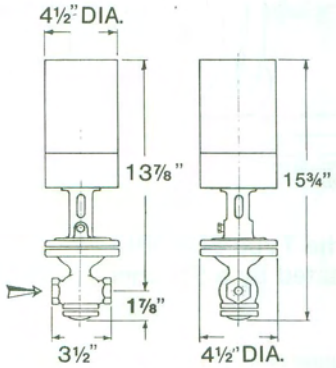




See reverse side for dimension chart.



Type D208 Electronic Time Controller



D208 PILOT

In order to insure smooth incremental response, main valves 4" and larger should be balanced.

Main valve and pilot bodies are suitable for maximum inlet conditions are as follows:

Iron	Screwed Ends	□250psi 450°F
	Flanged ANSI Cl. 125	□125psi 450°F
	Flanged ANSI Cl. 250	□250psi 450°F
Bronze	Screwed Ends	□250psi 400°F
Steel	Screwed Ends	□300psi 750°F
	Flanged ANSI Cl. 150	□170psi 500°F
	Flanged ANSI Cl. 300	□300psi 750°F

SPENCE ENGINEERING COMPANY, INC.
Walden, New York 12586
Tel. (914) 778 - 5566

Type ED208-D Electronically Controlled, Pilot Operated Pressure Regulator

The Spence Type ED208-D functions as a pressure regulator with several controlled action options.

The D208 Pilot provides controlled incremental positioning of the Type E Main Valve.

E Main Valve operates on a 10 psi minimum pressure drop.

Delivery pressure is controlled by the Type D Pilot, which has optional spring ranges.

TYPE D208 PILOT ACTUATOR

Electrical Requirements . . . 120VAC, 50-60HZ, .3 AMPS
Ambient Temperature Limits . . . . . 20 to 160°F
Explosion-proof actuator is available on special request.

ELECTRONIC TIME CONTROLLER

Electrical Requirements . . . . 120VAC, 50-60HZ, .3 AMPS
Ambient temperature limits . . . . . 20 to 120°F

Controlled Action Options:

□ Slow opening[(a)]
□ Slow closing[(b)]
□ Slow opening, Slow closing

(a) Closing time - 1 minute
(b) Opening time - 1 minute

Timing periods are selectable from 6-96 minutes in 6-minute increments by setting a binary dip-switch.

BACK-UP POWER SUPPLY

In the event of a power failure, the D208 Pilot will immediately stop in position. A Back-Up Power Supply can be furnished which will continue the uninterrupted operation of the Type D208 Pilot for up to 6 hours during a power failure. When power is restored, the Back-Up Power Supply will recharge.

Electrical Requirements . . . 120VAC, 60HZ, up to 6 AMPS (To maintain power pack)
Electric Capacity . . . . . 1.8 AMP HRS.

TYPE D-PILOT

Delivery pressure ranges determined by a choice of Control Springs as follows:

3 to 20 psi □
5 to 50 psi □
10 to 100 psi □
20 to 150 psi □

Other Materials:

Seats and Discs . . . . . SECO Metal
Stems . . . . . Stainless Steel
Diaphragms . . . . . Stainless Steel
Springs . . . . . Tempered Steel

SPENCE ENGINEERING COMPANY, INC.
150 Coldenham Road., P.O. Box 230
Walden, NY 12586-2035
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INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS TYPE ED208D ELECTRONICALLY CONTROLLED, PILOT OPERATED PRESSURE REGULATOR *

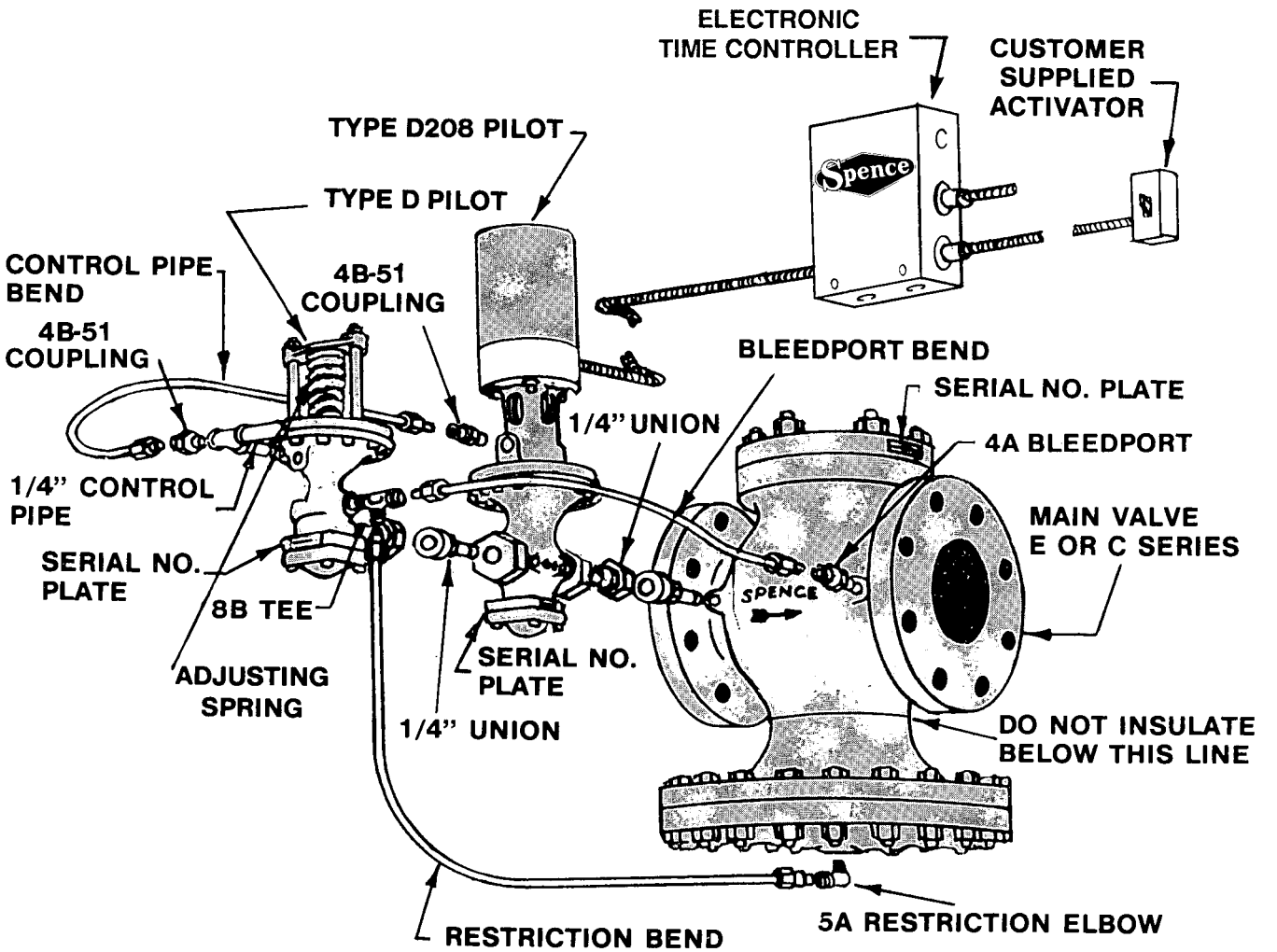
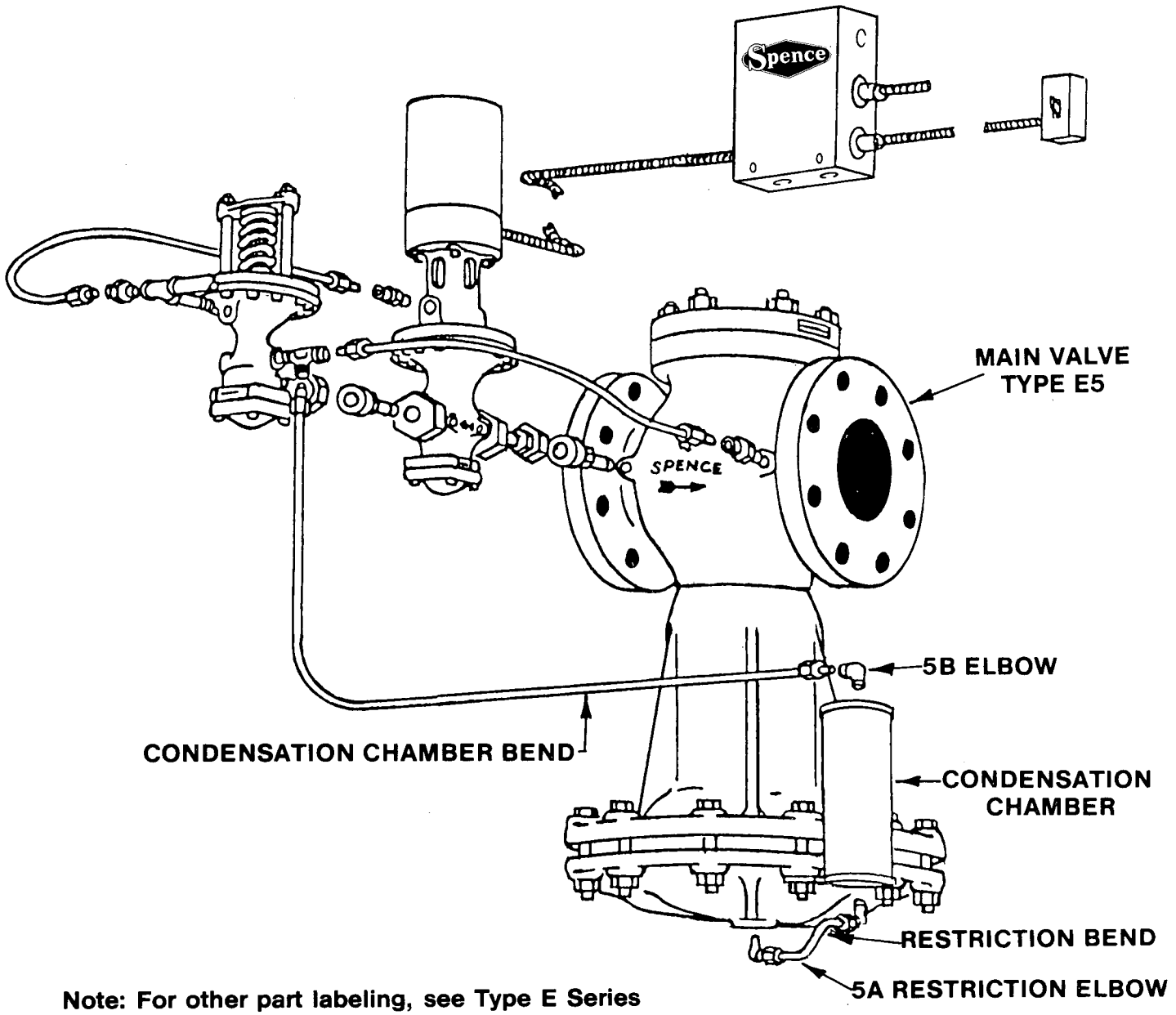


Fig. 1A

* This instruction is equally applicable to a specific installation that requires either the substitution of another E-Series or C-Series Main Valve or replacement of the D-Pilot with some other pilot that will provide the final control element desired.

A. INTENDED PURPOSE

The Spence ED 208D Regulator is designed to provide a pressure regulator with a controlled slow opening or controlled slow closing feature.



Note: For other part labeling, see Type E Series

Fig. 1B

* Interconnecting wiring is not supplied by Spence.

1. The complete regulator, Fig. 1A), consists of a D208 Pilot with an ETC. The D208 Pilot is installed in series between a Type E Main Valve and a Type D Pilot. It provides the controlled slow opening and/or closing function while the D Pilot directs the Main Valve to maintain the delivery pressure at a preset level.

2. The Main Valve is normally closed, held by an internal spring, and initial pressure acting on its disc. The D208 Pilot is controlled by the ETC. The D Pilot is opened by compressing its Adjusting Spring and throttles or closes when delivery pressure is satisfied.

3. When the steam pressure is turned on, it flows to the D208 Pilot. The steam pressure to the D Pilot is limited by the action of the D208 Pilot during the controlled slow opening and/or closing periods.

4. The D208 Pilot is directed by the ETC that generates a pulsed control signal over an incrementally adjustable pre-selected time period. The control signal is initiated by making contact between terminals 3 and 11 or 3 and 12 (Fig. 4A) of the ETC via a customer supplied Activating Switch (clock, thermostat, etc.).

5. During the period that the D208 Pilot is controlling the Main Valve, the Main Valve will either open or close in the same incremental manner as the D208 Pilot until the D Pilot assumes control.

6. Once the D208 Pilot permits the passage of steam pressure to the D Pilot, it flows thru the D Pilot into the 8B Tee and to the Restriction and Bleedport Bends. The 4A Bleedport restricts the flow, pressure builds under the Main Valve's Diaphragm and it opens.The 5A Restriction Elbow steadies the operation of the regulator.

7. The Main Valve having opened, delivery pressure builds and is fed to the diaphragms of both pilots by the 1/4" Control Pipe. In the D208 Pilot, the delivery pressure assists the pilot to open fully by easing the load on its Motor Operator. In the D Pilot, as the delivery pressure approaches a balance with the thrust of the Adjusting Spring, the D Pilot throttles the loading pressure. As a result of the D Pilot's action, the Main Valve takes a position established by the loading pressure, where just enough steam flows to maintain the set delivery pressure.

RECOMMENDED INSTALLATION OF REGULATOR WITH STRAINER

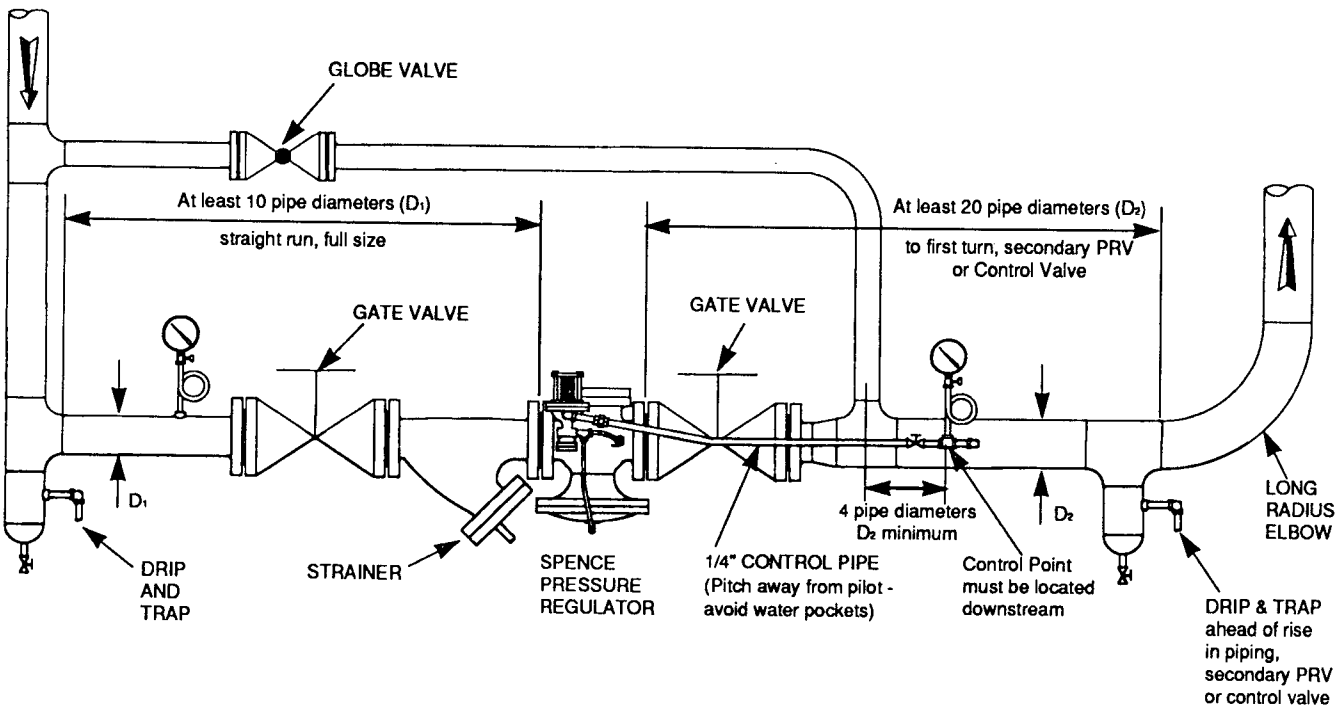


Fig. 2A

C. PLANNING THE INSTALLATION

1. Locate the valve in a straight run of horizontal pipe. See Fig. 2A.

2. Allow headroom above the Main Valve for access through the Blind Flange. Provide clearance for Stem withdrawal underneath.

3. Prevent water hammer and erratic operation by installing Traps to provide proper drainage before and after the Main Valve, and before a secondary PRV or Control Valve.

4. Avoid damaging effects of scale and dirt in pipe lines by using a Strainer as shown in Fig. 2A.

5. Provide a 3-Valve By-Pass to facilitate inspection without interrupting service.

6. To eliminate excessive noise and erratic regulation with steam and other compressible fluids, enlarge the delivery pipe size to effect a reasonable flow velocity at the reduced pressure. A concentric transition is recommended. If possible, avoid a sharp turn close to the regulator outlet and a bull-headed tee connection to a low pressure main.

7. Install Initial and Delivery Pressure gages to indicate performance. If the pressure rating of the delivery system or connected equipment is less than the initial steam pressure, provide a Safety Valve.

8. If it is anticipated that the ambient temperature at the Main Valve will be outside the 20° to 160°F limitations of the D208 Pilot, remote mounting of the D208 Pilot will be necessary. Fig 2B suggests a method of remote mounting the D208 Pilot. A wall bracket is also available.

9. The ETC has a temperature limitation of from 20°to 120°F and it should not be located in an area that is excessively moist.

10. In the event that hydrostatic testing of the installation is necessary, proceed as follows:

    a. Apply full compression to the Pilots' Springs.

    b. Before filling the system, open the Inlet and Outlet Stop Valves.

    c. Slowly - Fill the system from the inlet or high pressure side of the Regulator.

    d. Bleed off trapped air.

    e. Slowly - Develop Hydrostatic Test Pressure up to 1 and 1/2 times the Maximum Working Pressure. If a higher test pressure is necessary, contact the factory.

    f. Hydrostatic Type Test Pressures may cause normally acceptable leakage at the diaphragm joint.

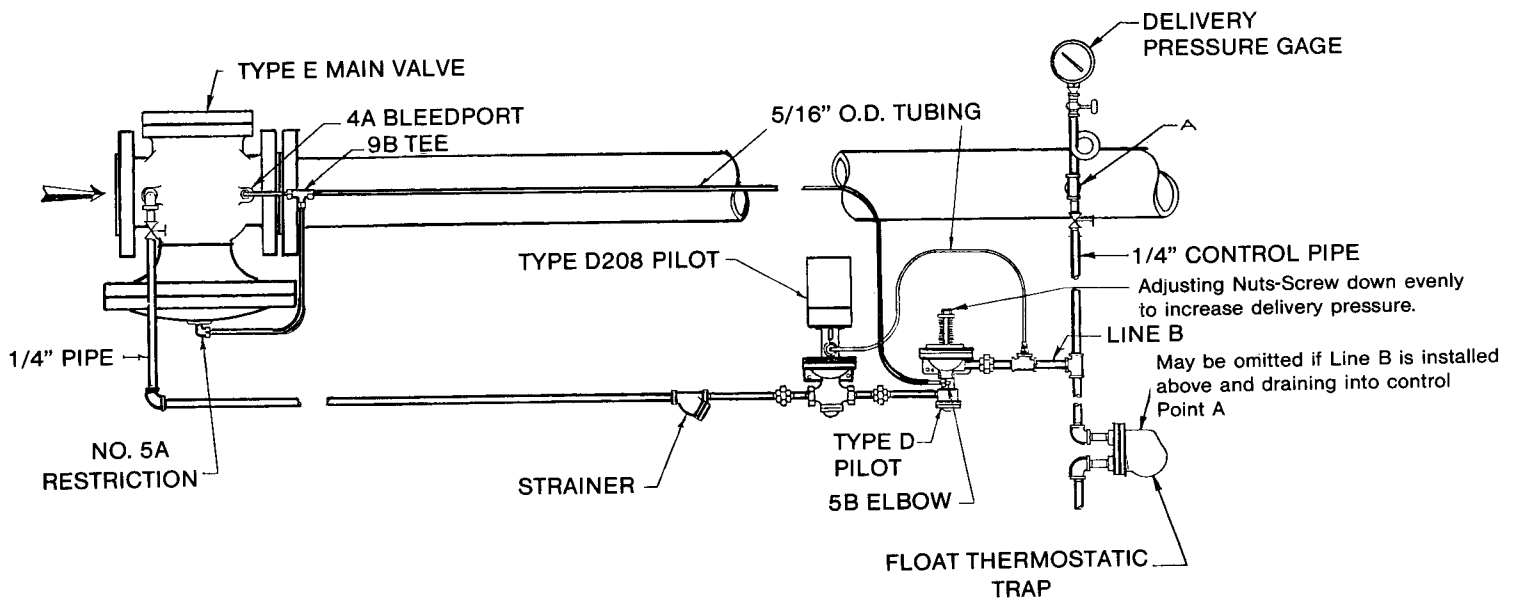


Fig. 2B-REMOTE MOUNTED D208D

D. INSTALLING THE MAIN VALVE

1. Flush the piping system thoroughly to clear it of welding beads, scale, sand, etc.
2. Mount the Main Valve with Diaphragm Chamber down and arrow on body pointing in the direction of flow.
3. Screwed end valves should be mounted in unions.
4. Insulation may be applied to the upper portion (globe and flanges) of the Main Valve. Do not insulate the Diaphragm Chamber, Condensation Chamber (if used) or any part of the Pilots. See Figs. 1A and 1B.

E. INSTALLING THE PILOTS

1. Mount the D208 Pilot with the arrow on the body pointing in the direction of flow, on either side of the Main Valve, by means of the 1/4" Nipple and Union provided. Make this connection to the 1/4" pipe tap at the inlet of the Main Valve as shown in Figs. 1A and 1B. Remote mounting of the D208 Pilot, as illustrated in Fig. 2B, is recommended when the ambient temperature at the Main Valve exceeds 160°F. Caution should be taken to protect the electrical portion of the D208 Pilot from any dripping condensate.
2. For convenience, the ETC should be located in close proximity to the Main Valve, but not in an area that is excessively moist or exceeds it's 20°F to 120°F temperature limitation. Wire the ETC to the D208 Pilot power supply, and customer supplied Activating Switch in accordance with the appropriate diagram in Figs. 4A and 4B.

   Note: The field wiring is to be to N.E.C. Class 1. No voltage is to be applied to terminals 3, 11, or 12.
3. Mount the D Pilot to the outlet side of the D208 Pilot by means of the 1/4" Nipple and Union provided as illustrated in Figs. 1A and 1B. In the event that the D208 Pilot was remotely mounted, Fig. 2B indicates how the D Pilot can be mounted.
4. Screw the 4A Bleedport fitting into the 1/8" pipe tap at the outlet of the Main Valve body.

   Note: The restriction orifice in this fitting is vital to the operation of the valve.
5. Screw the 8B Tee into the 1/8" pipe tap in the D Pilot. Select the 1/8" pipe tap facing downstream.
6. Screw the 5A Restriction Elbow containing a restriction orifice into the 1/8" pipe tap on the underside of the Main Valve Diaphragm Chamber. If the initial pressure or pressure drop is less than 15 psi, a 5B Open Elbow is used.
7. Establish the point of pressure control where turbulence is minimized. Placement immediately at the outlet of the Main Valve or after a turn should be avoided. When the delivery pipe expands in size, select a spot at least 4 pipe diameters beyond the point of enlargement.
8. Connect the 1/4" Control Pipe from the D Pilot Diaphragm Chamber to the point of pressure control. See Fig. 2A.
9. Pitch the 1/4" Control Pipe away from the D Pilot to avoid erratic operation, excessive fouling, and eliminate water pockets.
10. Locate a Delivery Pressure Gage in the Control Pipe to show the pressure actually reaching the Pilots' Diaphragms.
11. Connect the tubing bends as illustrated in Fig 1A. Valves with Condensation Chamber are fitted up according to Fig. 1B.

F. INITIAL START UP AND SETTING

CAUTION: Steam is potentially dangerous and should be treated with respect. Any steam line which is being filled and pressurized will form condensate. The steam system must be adequately trapped to remove the condensate as it forms. ***Never*** open a reducing valve without positive indication that the high side is clear of condensate. The D208 Pilot, by opening the Main Valve slowly, will limit the rate at which condensate forms and thus minimizing the dangers of water hammer. It is not, however, a substitute for properly sized and maintained traps.

1. Using the By-Pass, slowly fill the delivery system and raise the pressure to slightly below that which is required. Note the time necessary to perform this operation.
2. Close the D Pilot by releasing the compression of the Adjusting Spring. See Fig. 1A.
3. Establish the initial time setting for the ETC as 50% greater than the time taken to perform Step 1 above. In accordance with the chart on the inside cover of the ETC, set the ETC's Time Selector Switch to this initial time setting.
4. Fully open the D208 Pilot, by activating the ETC and waiting for the timing cycle to complete itself

   Note: Changing the ETC's Time Selector Switch setting to the minimum will speed up this step. Return the ETC to it's initial time setting once the D208 Pilot is fully open.
5. Open the 1/4" Control Pipe Valve. Crack open the Outlet Valve.
6. Crack open the Inlet Stop Valve. Blow down the Strainer.
7. Open the Inlet Stop Valve and gradually compress the D Pilot Adjusting Spring, Fig. 1A, until the Main Valve opens and takes control at the desired pressure.
8. Alternately choke down the By-Pass and open the Outlet Stop Valve until the regulator is on the line.

9. Now that the steam system is on line with the D Pilot controlling the delivery pressure, break the connection between Terminals 3 and 11 of the ETC and make connection between Terminals 3 and 12 to permit the D208 Pilot to close the Main Valve. Let the delivery pressure drop to zero, then remake the connection between Terminals 3 and 11, permitting the D208 Pilot to start up the system. Repeat this step several times.

   CAUTION: The ETC's Time Selector Switch Setting should be restored to the initial time setting established in Step 4 above.

10. In time, as experience is gained with the system, the initial time setting can be gradually reduced until a safe minimum start-up time is established for a cold system.

G. TROUBLE SHOOTING

1. Failure to open or sagging delivery pressure.

   a. Adjusting Spring, Fig. 1A, may have been tampered with.

   b. Initial pressure may be down due to partially closed Supply Valve, clogged Strainer or other obstruction.

   c. Orifice in No. 5A Restriction Elbow, Fig 1A, maybe plugged. No. 4A Bleedport, Fig. 1A, may have been omitted and an open coupling substituted.

   d Control Pipe may be plugged. Most likely points of obstruction are at shutoff valve and the entrance to delivery main.

   e. Main Valve Diaphragm (20, Fig. 3C), may be broken. Test with air or water before dismantling. See Fig. 5 for method of applying pressure.

   f. D208 Pilot may be inoperative.

      1. Check power supply.
      2. Check customer supplied Activating Switch.
      3. Check D208 Pilot as follows:

         A. Close Inlet and Outlet Valves.

         B. Disconnect Terminals 1, 2, and 3.

         C. Attach a common 120 VAC line to Terminal 1. When the hot 120 VAC line is connected to Terminal 3, the D208 Pilot should open, if not already so. When the hot 120 VAC line is connected to Terminal 2, the D208 Pilot should close.

         D. If the D208 Pilot fails to open or close, check for the following:

            1. Burned out Motor.
            2. Burned out Capacitor.
            3. Limit switch failure.
            4. Stripped gear in gear train.
            5. Stripped threads in Spring Button.

      4. Check ETC as follows:

         A. Close Inlet and Outlet Valves.

         B. Remove covers from ETC and D208.

         C. Disconnect 120 VAC from ETC.

         D. Disconnect the customer supplied activating switch, terminals 3, 11 and 12. Place a temporary jumper between terminals 3 and 11. Reconnect 120 VAC to ETC. The D208 Pilot, if not already open, should open. Current should flow between terminals 5 and 7 and, assuming neither have failed, two LED's will be lit on the circuit board.

         E. Disconnect 120 VAC from ETC and place the temporary jumper between terminals 3 and 12. Reconnect 120 VAC to ETC. The D208 Pilot should close. Current should flow between terminals 5 and 10 and, assuming neither have failed, two LED's will be lit on the circuit board.

   CAUTION: 120 VAC should be disconnected from ETC whenever terminal 3 on the ETC is ***not*** connected to either terminal 11 or terminal 12.

2. Failure to close or overriding delivery pressure:

   a. Adjusting Spring, Fig. 1A, may have been tampered with.

   b. Orifice in 4A Bleedport may be plugged.

   c. By-Pass Valve may be leaking.

   d. Dust sifted on to D Pilot Pressure Plate (10, Fig. 3A), may prevent closure. See maintenance section.

   e. Main Valve or D Pilot may be held open by foreign matter in seat. To determine which valve leaks:

      1. Close Stop Valves and 1/4" Control Pipe Valve.
      2. Remove Bleedport Bend Fig. 1A, so D Pilot will exhaust to atmosphere.
      3. Crack Inlet Stop Valve. Steam will issue from No. 8B Tee. Release compression on the Adjusting Spring to see if D Pilot closes tight. Open and close several times to wash seat.
      4. Steam blowing back from 4A Bleedport means Main Valve Disc is held open by foreign matter.
      5. Steam may wash the obstruction from the seat if the valve is made to open wide. This can be accomplished, even at light loads, if the control point is beyond the Outlet Stop Valve as shown in Fig. 2A. Reassemble Bleedport Bend and place regulator in operation. Then, slowly open and close Outlet Stop Valve.
      6. Leakage of either valve requires dismantling to correct. See maintenance section.

   f. D208 Pilot may be inoperative, check Sect G-1-f.

3. Erratic regulation may be caused by:

   a. Partial clogging of 4A Bleedport

   b. Water pocket in Control Pipe.

   c. Excessive turbulence at control point See Sect E-7.

   d. Sticking or binding of D Pilot Stem (16, Fig 3A). Look for deposits of compound or bits of scale on it and in bushing (15, Fig 3A).

   e. Loose connections in D208 Pilot/ETC wiring or dirty contacts in switches.

4. Power Failure

   a. In the event of a power failure, the D208 Pilot stops in position. When power is restored, the D208 Pilot will resume the mode that it was in when the power failed, unless the customer supplied Activating Switch has reversed position.

   b. An optional Back-up Power Supply is available. It will continue the operation of the D208 Pilot for up to six hours. Fig. 4B indicates how the Back-up Power Supply is installed.

H. MAINTENANCE

1. Inspection

   a. Under normal conditions, complete dismantling at regular intervals is not recommended. A valve kept relatively free of dirt will function for years with minimum attention.

   b. After the first few days of operation and twice a year thereafter:

      1. Inspect for dirt collected at 4A Bleedport, and 5A Restriction Elbow. See Fig. 1A.

      2. Inspect all joints for leakage. Keep bolts tight Never allow a leak to persist.

      3. Check for dust or other air borne material which may have sifted onto the upper face of the D Pilot Pressure Plate (10, Fig. 3a). An accumulation here can obstruct closure of the D Pilot In a very dusty atmosphere an enclosed spring chamber should be used.

      4. Using a high temperature lubricant, lubricate output shaft of the D208 Pilot's Motor operator to prevent seizing of the Spring Button (1).

2. Dismantling

   a. D Pilot - Fig. 3A

      1. Remove compression on Adjusting Spring (4).

      2. Remove Diaphragm Bolts (12) and take off Cowl (6) and Diaphragm (7).

      3. Hold Pusher Plate (13) with a socket wrench while turning off Stem Nuts (22).

   b. D208 Pilot - Fig. 3B and 3D

      1. Remove compression on Spring (3, Fig. 3B) by making sure that the Motor Operator is in the closed (up) position (See Sect G-1-f-3 A thru C).

      2. Remove Motor Operator Bolts (2, Fig. 3B). Take off Motor Operator, Spring (3, Fig. 3B) and Spring Button (4, Fig. 3B).

Note: The Spring Button (1, Fig. 3B) is positioned such that when the Motor Operator is in the closed (up) position that the Spring (3, Fig. 3 B) is precompressed to the point just short of opening the Pilot Valve Assembly. Carefully noting the positions of the Spring Button (1, Fig 3B) to the Cowl (5, Fig. 3B), and the Motor Operator to the Cowl (5, Fig. 3B) and reassembling them in the same position will save the necessity of reestablishing the correct Spring Button position by Assembly.

If further disassembling of the Motor Operator is necessary, refer to the explosion diagram. Fig. 3B.

      3. Remove Diaphragm Bolts (12 Fig. 3B) and take off Cowl (6 Fig. 3B) and Diaphragm (7 Fig. 3B).

      4. Hold Pusher Plate (13 Fig. 3B) with socket wrench while turning off Stem Nuts (20)Fig. 3B) .

   c. Main Valve - Fig. 3C

      1. Connect a source of air or water pressure which can be adjusted by hand to the 5A Restriction Elbow. See Fig. 5.

      2. Apply pressure to jack valve open and prevent Stem (11) from turning while moving Stem Nuts (5 and 6). Usually 50 to 60 psi will suffice. Use paraffin candle wax or penetrating oil on the threads.

   d. Replacement of Seat Rings, Main Valve or Pilot.

      1. These joints should be made up with Copaltite, Permatex or equal plastic gasket compound.

      2. Remove old compound from Body and Seat Ring with a wire brush. Apply new compound sparingly to both parts, threads and shoulders. Let stand until tacky before assembling.

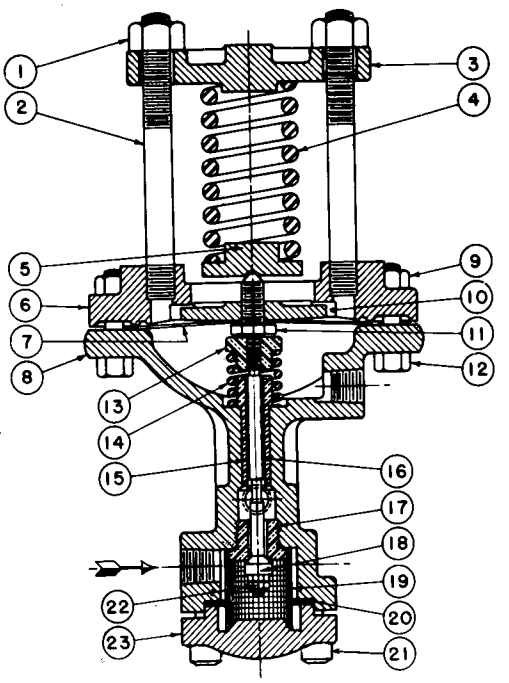


Fig. 3A - TYPE D PILOT

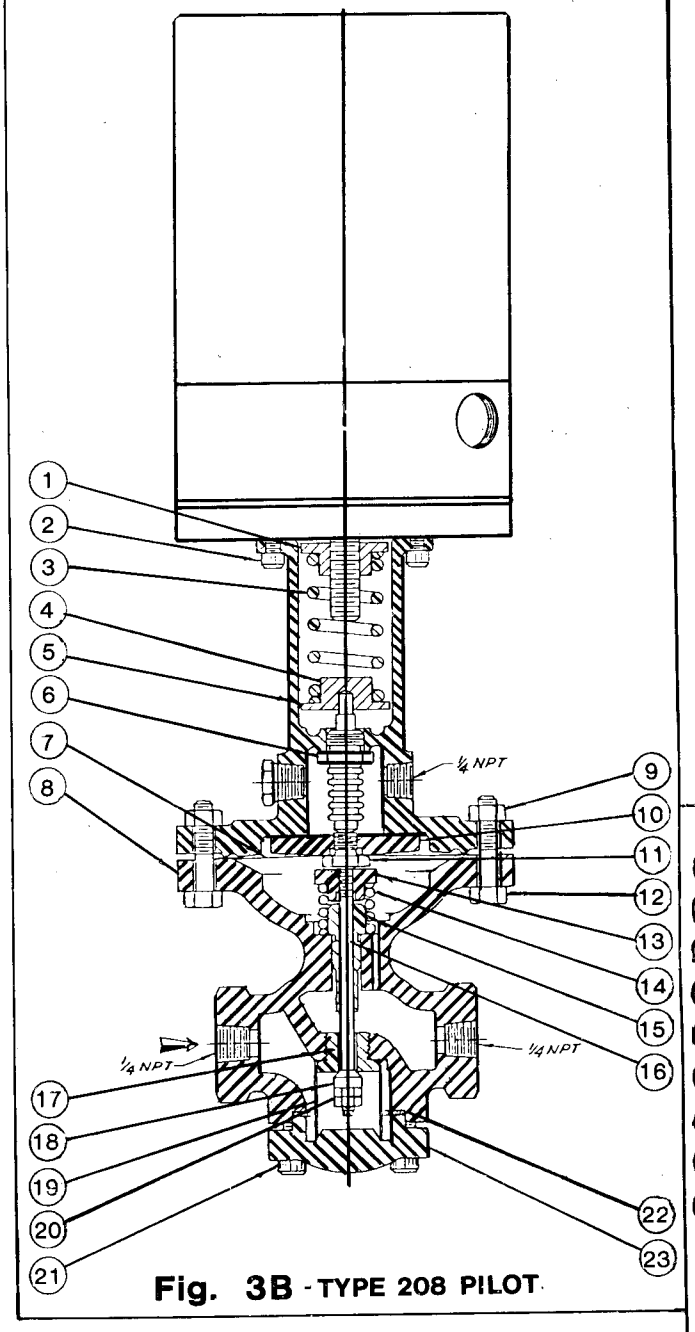


Fig. 3B - TYPE 208 PILOT

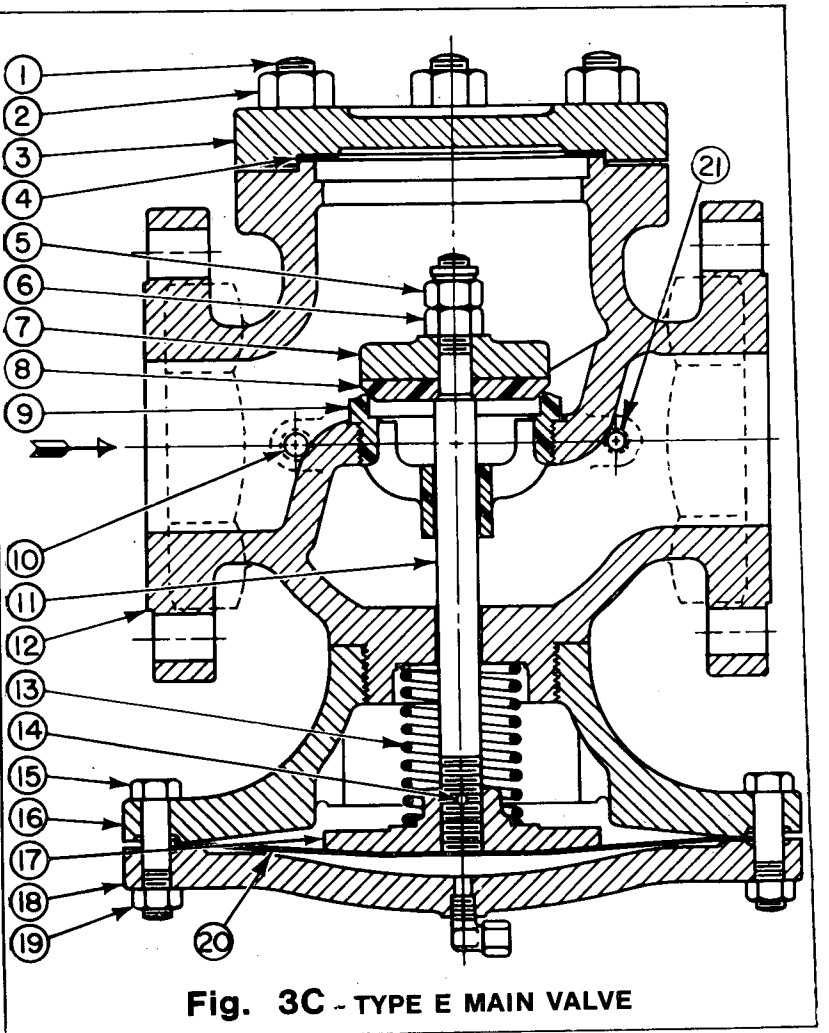


Fig. 3C - TYPE E MAIN VALVE

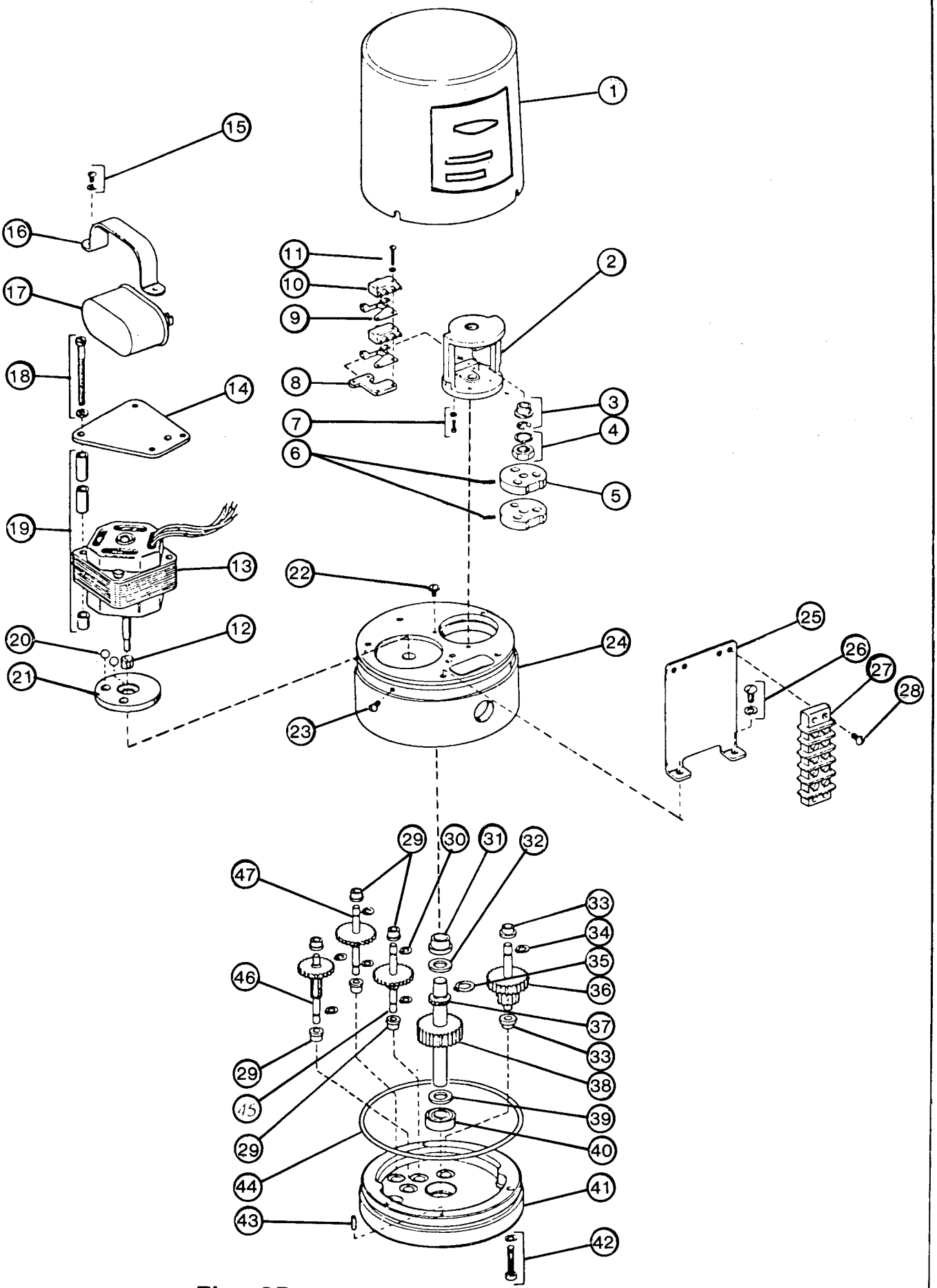


Fig. 3D - TYPE D208 MOTOR OPERATOR

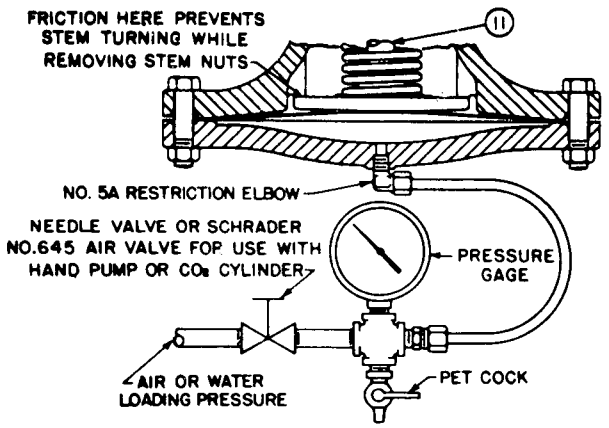


Fig. 5— AIR LOADING ARRANGEMENT FOR REMOVING STEM NUTS

e. Grinding In

1. Seats and Discs should never require more than the lightest touch up with very fine (400 grit) grinding compound. Heavy grinding will produce galling, wider seating surface and a groove in the Disc, all of which tend to cause leakage. Reface a damaged surface before attempting to grind it in. Grind sparingly.
2. Pilot and Main Valve Stems (16) and (11) are slotted for rotation with a screwdriver. Valve Spring (14) or Pilot Spring is omitted from the assembly during grinding.
3. Slip the Stem into its normal position. Apply compound to the disc, place it on the Stem and tighten with one Stem Nut.
4. After grinding, disassemble and clean all parts with a cleaning solvent.

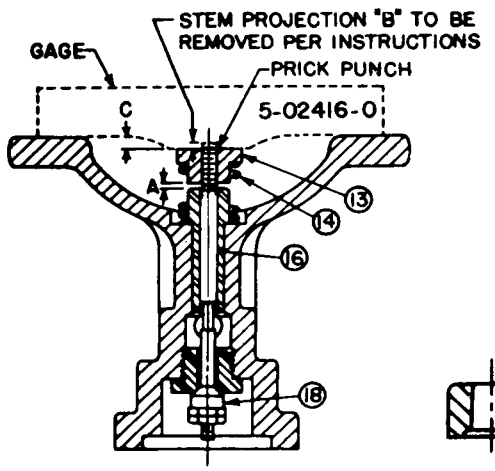


Fig. 6 VALVE SETTING, TYPE D PILOT

f. Valve Setting

1. Pilots - Fig. 6
   a. Valve setting is gaged at "C" to establish correct stem length and diaphragm position. Dimension "C" = 11/64".
   b. Valve travel "A" = 3/64". This movement should be checked roughly but need not be exact.
   c. To install new Stem (16) omit Spring (14) and assemble other parts shown.
   d. Hold Valve Disc (18) tight against its seat and screw Pusher Plate (13) down until dimension "C" = 11/64"
   e. Grind off Stem projection "B" flush with upper face of Pusher Plate (13).
   f. Check dimension "C" and if correct lock the position by prick punching the thread at several points.

CAUTION: Burrs raised by prick punching should be scraped away. Upper face of Pusher Plate must be smooth and flat.

2. Main Valve - Fig. - 7
   a. Valve setting is gaged at K to establish correct stem Length and diaphragm position. Dimension K is supplied with each replacement Stem. For metal diaphragm valves, K is cast on the upper face of Pressure Plate (17).
   b. To install new stem (11) grind in joint with disc (8) and fasten Disc firmly on Stem with Stem Nut.
   c. Insert Stem and Disc assembly in valve and screw on Pressure Plate (17). Omit Spring (13) for this operation.
   d. Hold Disc (8) on Seat and adjust position of Pressure Plate (17) until valve setting K is reached.
   e. Push Pressure Plate (17) against stops in Base (16).
   f. Remove Disc (8), drop out Pressure Plate and Stem, drill and insert Dowel Pin (14) to lock the joint.
   g. Grind off stem projection flush with face of Pressure Plate (17).
   h. Install disc and nuts.

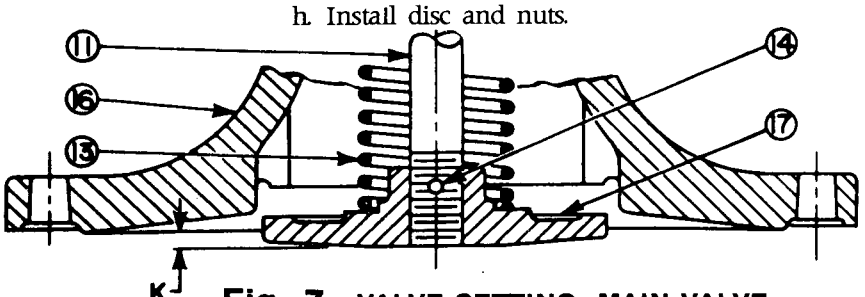


Fig. 7—VALVE SETTING, MAIN VALVE

Fig. 4A SLOW START-UP & SLOW CLOSE

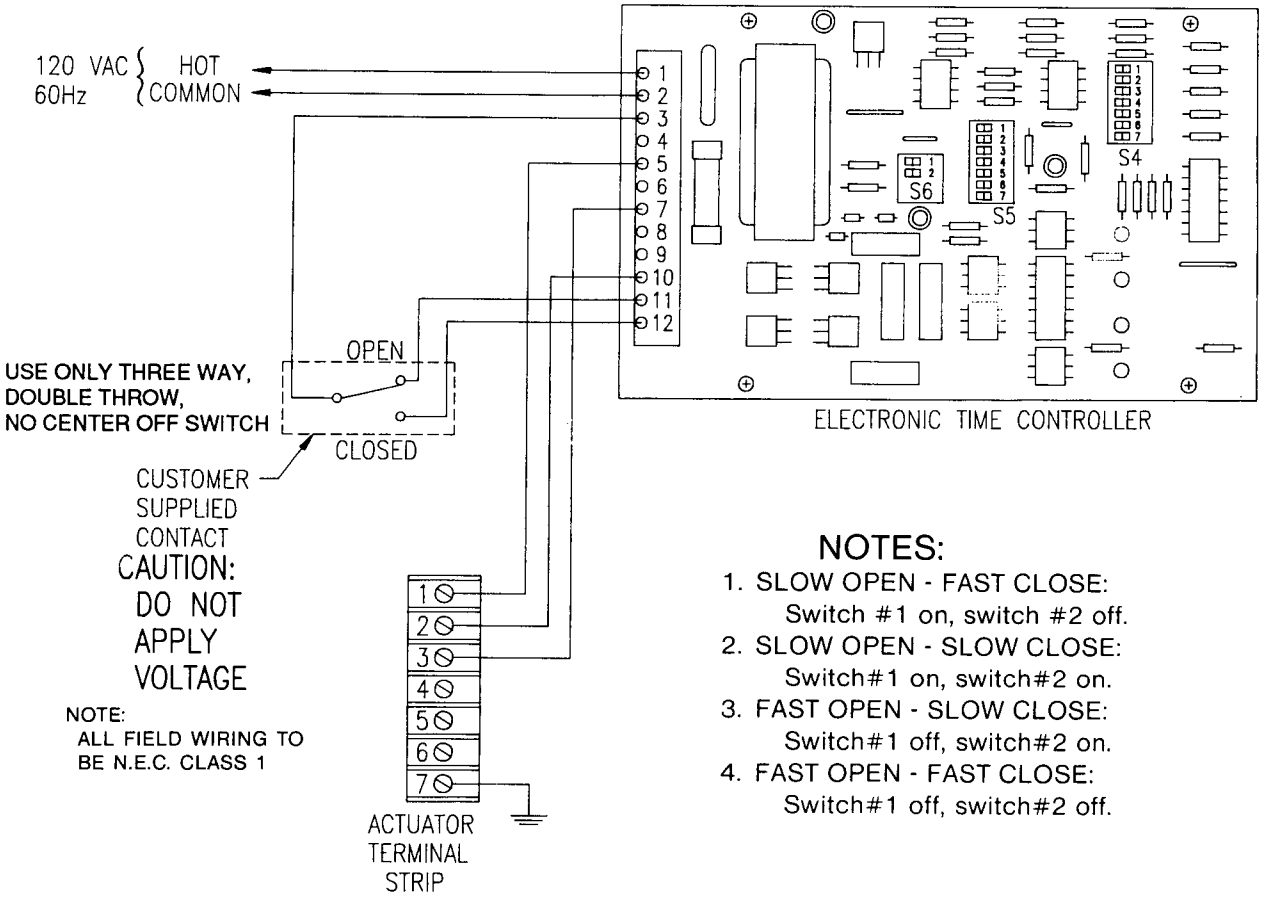
SWITCHES:
S4 Opens
S5 Closes

SWITCHING CHART
OPENING & CLOSING TIMES
TIMERS S4 & S5
O-OFF X-ON

SHIFT TIME MIN:SEC	CONTACTS 1	2	3	4	5	6	7
1:30	X	X	X	X	X	X	X
2:30	O	X	X	X	X	X	X
3:00	X	O	X	X	X	X	X
6:00	O	O	O	X	X	X	X
12:00	O	O	O	O	X	X	X
18:00	O	O	O	X	O	X	X
24:00	O	O	O	O	O	X	X
30:00	O	O	O	X	X	O	X
36:00	O	O	O	O	X	O	X
42:00	O	O	O	X	O	O	X
48:00	O	O	O	O	O	O	X
54:00	O	O	O	X	X	X	O
60:00	O	O	O	O	X	X	O
66:00	O	O	O	X	O	X	O
72:00	O	O	O	O	O	X	O
78:00	O	O	O	X	X	O	O
84:00	O	O	O	O	X	O	O
90:00	O	O	O	X	O	O	O
96:00	O	O	O	O	O	O	O

SWITCHING CHART
OPENING & CLOSING TIMES
TIMER S6
O-OFF X-ON

FUNCTION	CONTACTS 1	2
Cont. Power	O	O
Pulsed Power	X	X



NOTES:

1. SLOW OPEN - FAST CLOSE:
   Switch #1 on, switch #2 off.
2. SLOW OPEN - SLOW CLOSE:
   Switch#1 on, switch#2 on.
3. FAST OPEN - SLOW CLOSE:
   Switch#1 off, switch#2 on.
4. FAST OPEN - FAST CLOSE:
   Switch#1 off, switch#2 off.

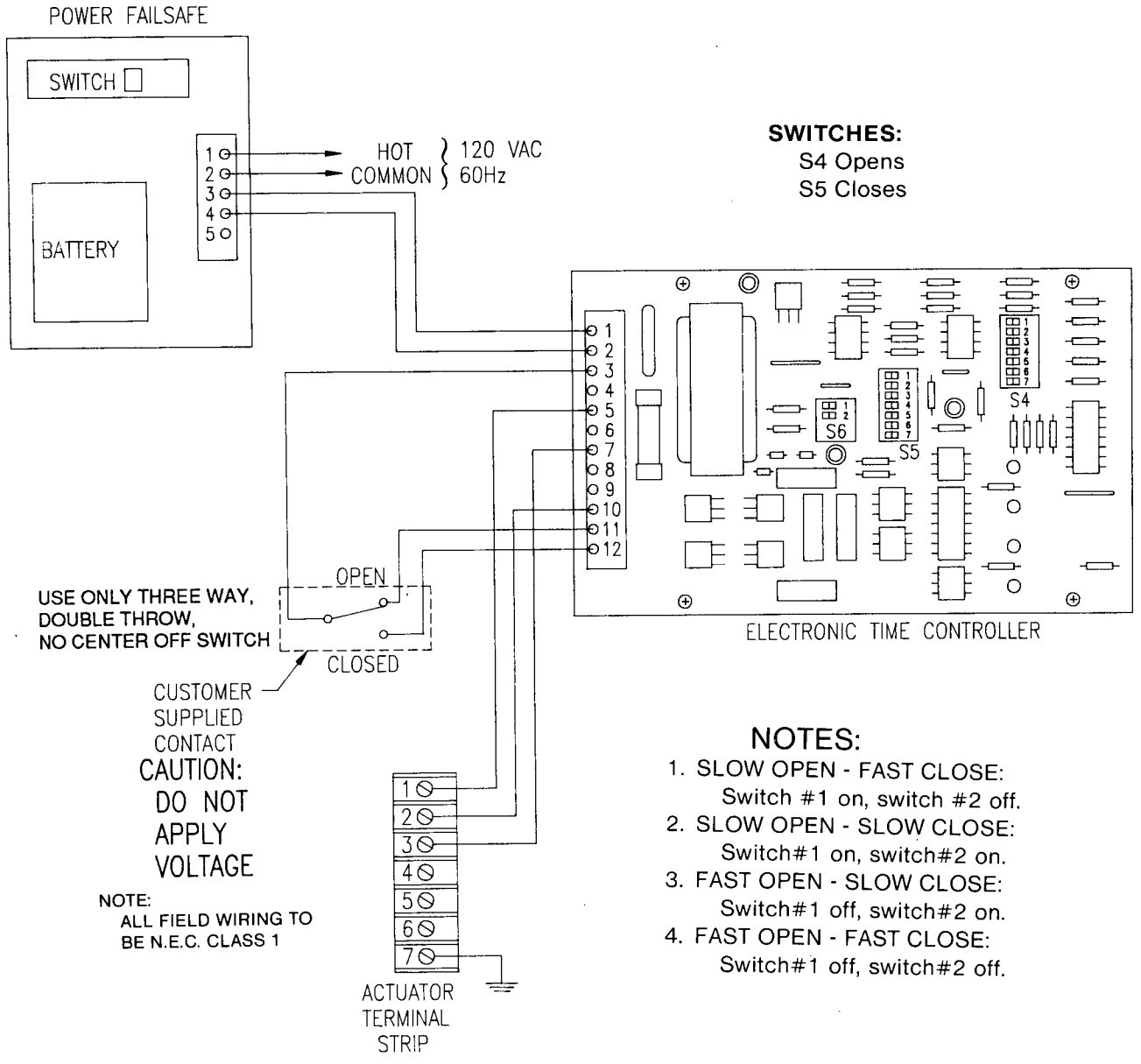
Fig. 4B WIRING FOR POWER FAILSAFE

SWITCHING CHART
OPENING & CLOSING TIMES
TIMERS S4 & S5
O-OFF X-ON

SHIFT TIME MIN:SEC	CONTACTS 1	2	3	4	5	6	7
1:30	X	X	X	X	X	X	X
2:30	O	X	X	X	X	X	X
3:00	X	O	X	X	X	X	X
6:00	O	O	O	X	X	X	X
12:00	O	O	O	O	X	X	X
18:00	O	O	O	X	O	X	X
24:00	O	O	O	O	O	X	X
30:00	O	O	O	X	X	O	X
36:00	O	O	O	O	X	O	X
42:00	O	O	O	X	O	O	X
48:00	O	O	O	O	O	O	X
54:00	O	O	O	X	X	X	O
60:00	O	O	O	O	X	X	O
66:00	O	O	O	X	O	X	O
72:00	O	O	O	O	O	X	O
78:00	O	O	O	X	X	O	O
84:00	O	O	O	O	X	O	O
90:00	O	O	O	X	O	O	O
96:00	O	O	O	O	O	O	O

SWITCHING CHART
OPENING & CLOSING TIMES
TIMER S6
O-OFF X-ON

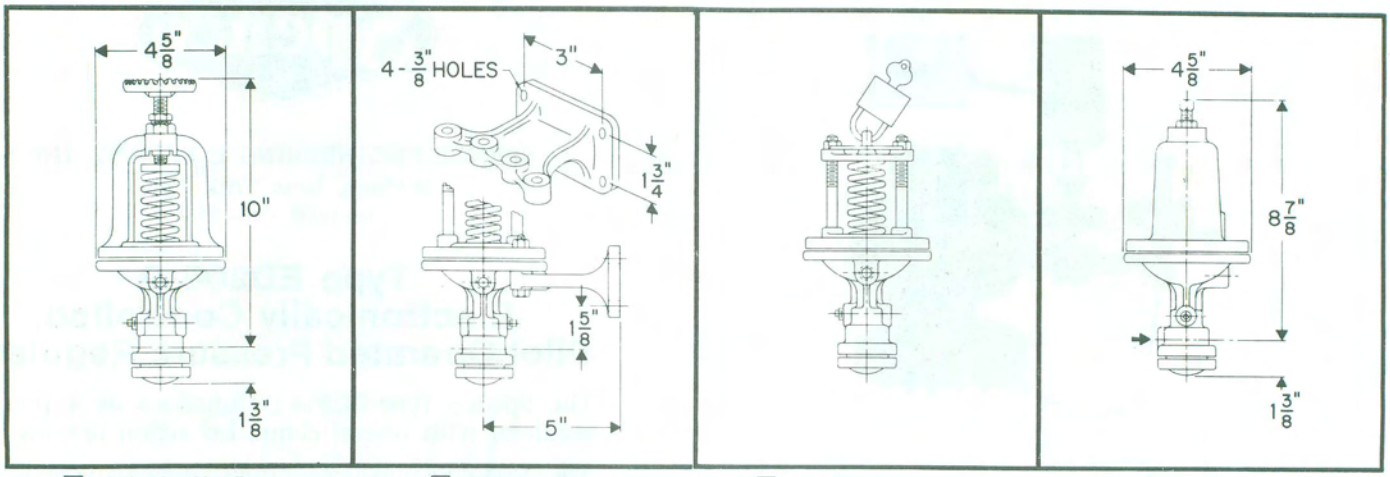
FUNCTION	CONTACTS 1	2
Cont. Power	O	O
Pulsed Power	X	X



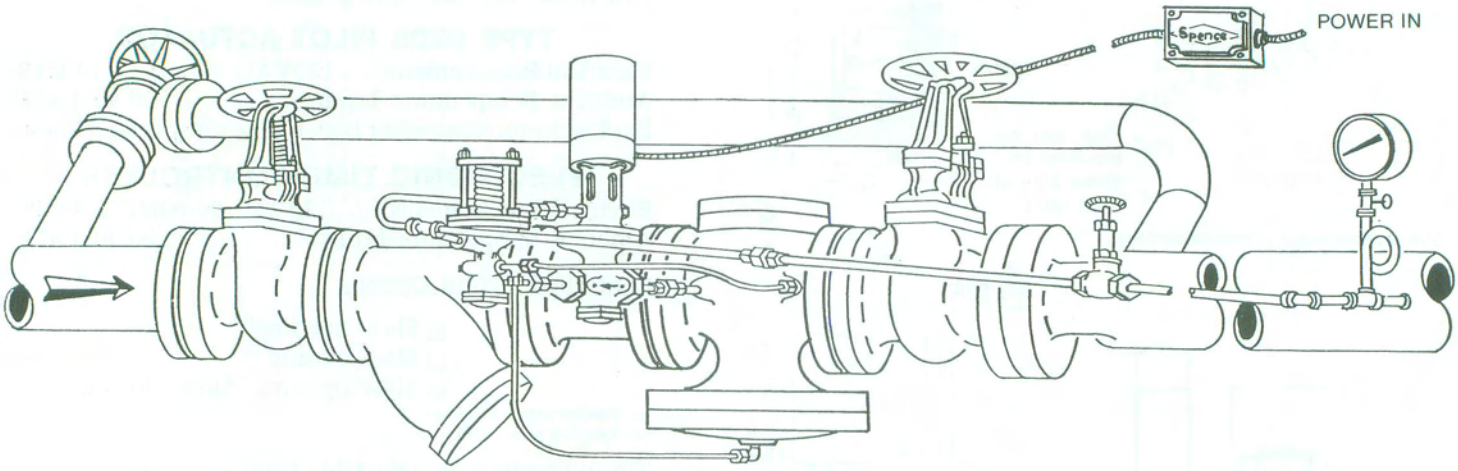
NOTES:

1. SLOW OPEN - FAST CLOSE:
   Switch #1 on, switch #2 off.
2. SLOW OPEN - SLOW CLOSE:
   Switch#1 on, switch#2 on.
3. FAST OPEN - SLOW CLOSE:
   Switch#1 off, switch#2 on.
4. FAST OPEN - FAST CLOSE:
   Switch#1 off, switch#2 off.

D Pilot Modifications:



☐ Adjusting Handle ☐ Wall Bracket ☐ Locking Device ☐ Spring Chamber



Typical Installation of the Type ED208D Pressure Regulator protected by a Strainer

WEIGHTS AND DIMENSIONS – TYPE E MAIN VALVE

Size	E-Face to Face In.					DIMENSIONS, INCHES						* Approx. Wt. Lbs.				
	C.I. Brz. Stl.	Iron		Steel								C.I. Brz. Stl.	Iron		Steel	
	Scr. Ends	125 Class	250 Class	150 Class	300 Class	A	B	C	D	F	G	Scr. Ends	125 Class	250 Class	150 Class	300 Class
3/8	4 3/8					2 3/4	5 1/4	5 7/8	1 1/4	5 3/8	7 3/8	12				
1/2	4 3/8					2 3/4	5 1/4	5 7/8	1 1/4	5 3/8	7 3/8	13				
3/4	4 3/8					2 7/8	5 1/2	6 1/2	1 3/8	5 5/8	7 7/8	19				
1	5 3/8	5 1/2	6	5 1/2	6 1/2	3 5/8	6 1/4	7	1 1/2	5 3/4	8 7/8	24	24	27	26	31
1 1/4	6 1/2	6 3/4	7 1/4	6 3/4	7 7/8	4 1/8	6 1/2	7 7/8	1 7/8	6	9 1/8	33	36	40	37	41
1 1/2	7 1/4	6 7/8	7 3/8	6 7/8	8	4 3/8	7 1/8	8 3/4	2	6 1/4	9 3/4	42	45	51	47	53
2	7 1/2	8 1/2	9	8 1/2	10 1/4	5 1/4	7 5/8	9 7/8	2 1/8	6 5/8	11 1/4	62	70	72	70	78
2 1/2		9 3/8	10	9 3/8	11 1/4	5 3/4	8 3/8	10 7/8	2 3/8	6 3/4	12 1/8		78	91	95	100
3		10	10 3/4	10	12 1/4	6 5/8	9 1/4	11 3/4	2 3/4	7 1/4	14 5/8		112	134	125	143
4		11 7/8	12 1/2	11 7/8	12 1/2	7 5/8	11 7/8	14 3/4	3 1/2	8	18 1/4		200	235	210	230
5		13 5/8	14 1/2	13 5/8	14 1/2	8 1/2	12 1/2	16 7/8	3 1/2	9	20 1/8		280	315	295	310
6		15 1/8	16	15 1/8	16	10	14 1/8	19 3/4	4	9 7/8	22 3/8		385	455	420	470
8		19	20	19	20	11 1/2	17 1/4	22 1/2	6 1/4	10 1/2	27 3/4		657	735	700	710
10		23 5/8	25	23 5/8	25	13 3/4	23 3/8	28	6	12 1/2	36 1/4		1260	1430	1240	1300
12		26 1/2	28	26 1/2	28	15 7/8	25 1/4	33	8 1/2	14	41 1/2		2070	2145	2060	2140

*Add 27 lbs. for pilots and fittings.

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