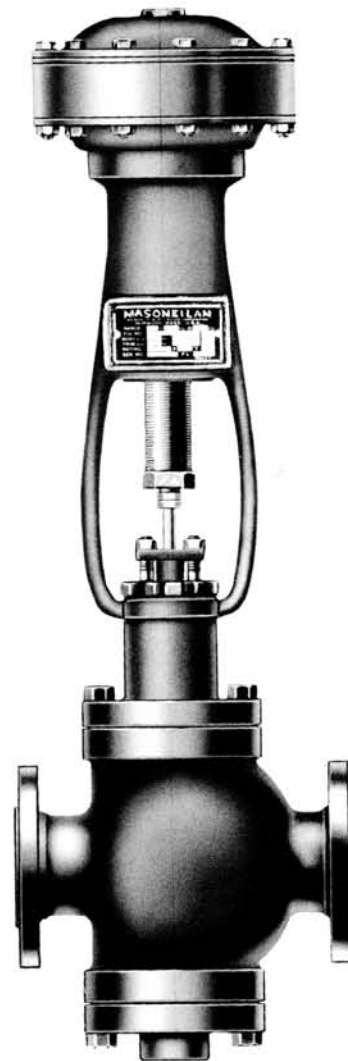


Masoneilan 500-50 Series Differential Pressure Regulator Instructions



These instructions apply to all Models of the 500-50 Series differential pressure regulators. For a complete parts list ask for the parts supplement to these instructions, No. FY5256E. Parts are obtainable through your Masoneilan Representative. When ordering parts, always include model and serial number of the unit being repaired

Installation and Operation

Warning: Pressure must be increased on both sides of the diaphragm at the same time in order to avoid diaphragm failure.

Before placing the regulator in pipe line, clean the line thoroughly of all dirt, welding chips, scale, oil or grease, and any other foreign material.

Install the regulator so that the fluid flows through the body in the direction indicated by the arrow on the body or the words IN and OUT on the connections. Where steam is to be piped to either or both sides of the diaphragm, the regulator should be installed with the diaphragm chamber *down* so that the diaphragm will be protected by a water seal. If installed otherwise, an adequate water seal or seals must be provided.

Pipe the HIGHER pressure fluid from a convenient point to the 1/2" NPT connection in the UPPER diaphragm case (i.e., to diaphragm chamber where pressure will oppose the spring). Pipe the LOWER pressure fluid to the LOWER diaphragm case. Install a needle valve and gauge in each of these control lines, sufficiently near each other so that both valves can be reached simultaneously. These valves permit shutting off both control lines and may be used as adjustable chokes to prevent cycling of the regulator as a result of pump pulsations. By adjusting both valves simultaneously, accidental overpressuring either side of the diaphragm can be avoided.

A three-valve bypass around the regulator permits removing the regulator from the line without shutting off the flow. In No. 525-50 and 535H-50, the spring holds the valve open; in No. 526-50, the spring holds the valve closed. An increase in differential above the set point causes No. 525-50 and 535H-50 valves to close or No. 526-50 valves to open.

Adjustment

Open stop valve on the outlet side of the regulator and partially open stop valve on the inlet side, allowing pressure in the system to build up slowly. Then open control line valves and check setting by means of the gauges.

To increase pressure differential, turn adjusting screw clockwise; to decrease the setting, turn adjusting screw counterclockwise. Fully open stop valve on the inlet side of the regulator.

Maintenance

No. 525-50 and 535H-50 Regulators

Failure to shut off: If there is excessive leakage through the valve when it is shut off, the cause may be foreign matter holding the plug off the seat. If so, disassemble and clean. If leakage is the result of normal wear, regrind the seating surfaces or, if necessary, replace the plug and/or seat ring(s).

Disassembly: To Clean: Close needle valves and open bypass valves. Disconnect high and low pressure control lines from differential head. Loosen and remove body stud nuts or cap screws (48) and lift actuator, bonnet (8), valve plug (4), and plug stem (5), from valve body (1). Clean seating surfaces with a clean soft cloth.

To grind seats: Loosen stem locknuts (27) and turn them down plug stem. Mark plug stem (5) where it enters actuator stem. With wrench applied over the locknuts, turn plug stem out of the actuator stem. Remove drive nut (9) and detach actuator from bonnet (8). Replace bonnet, with valve plug, on body and grind seats lightly, using bonnet as a guide. Grind only a small amount using a good grade of "fine" compound. Excessive grinding will only shoulder the seat ring and will not improve seating. Clean seat thoroughly and reassemble.

Reassembly: Replace actuator with drive nut on bonnet and turn plug stem into actuator stem as far as the witness mark. Replace actuator and bonnet on valve body. Run locknuts up plug stem and lock tightly to actuator stem.

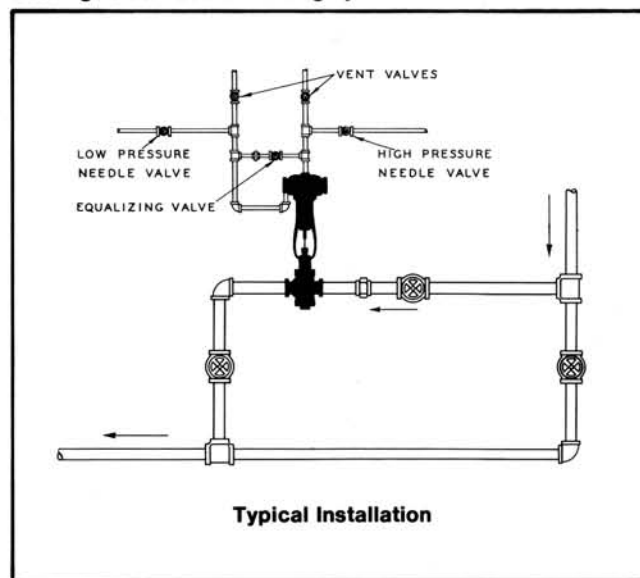
Maintenance

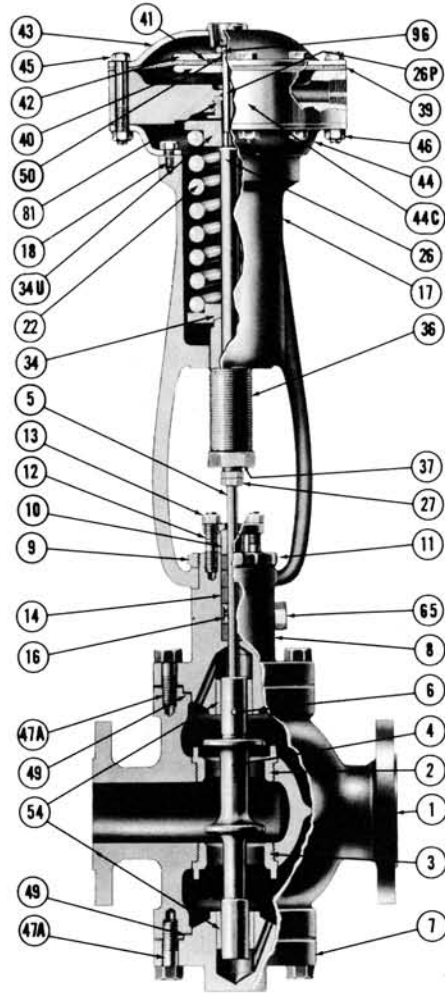
No. 526-50 Regulators

Failure to shut off: If there is excessive leakage through the valve when it is shut off, the cause may be foreign matter holding the plug off the seat. If so, disassemble and clean. If leakage is the result of normal wear, regrind the seating surfaces or, if necessary, replace the plug and/or seat ring(s).

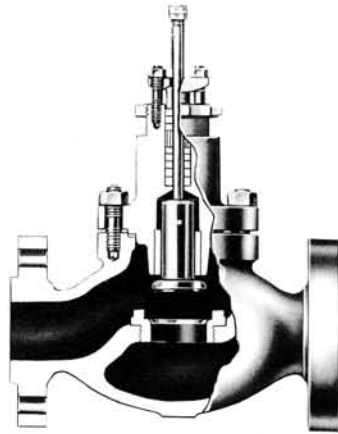
Disassembly: Close needle valves and open bypass valves. Disconnect high and low pressure control lines from differential head. Remove bottom flange (7). Loosen stem locknuts (27) and turn them down plug stem (5). With wrench applied over the locknuts, turn plug stem out of actuator stem. Remove stem locknuts from plug stem and pull plug and plug stem from body. Clean seating surfaces with a clean soft cloth.

To grind seats: Remove drive nut (9) and detach actuator from bonnet. Reinsert plug (4) and plug stem and grind seats lightly, using bonnet as a guide. Grind only a small amount using a good grade of "fine" compound. Excessive grinding will only shoulder the seat ring and will not improve seating. Clean seats thoroughly and reassemble.

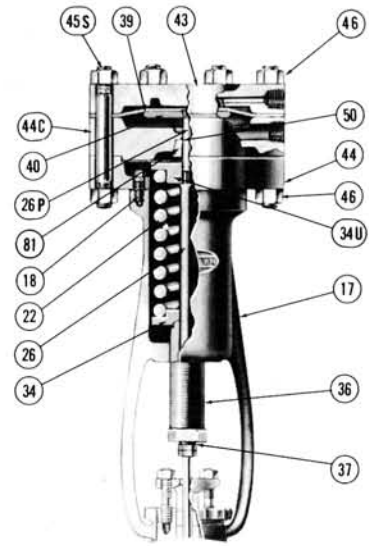




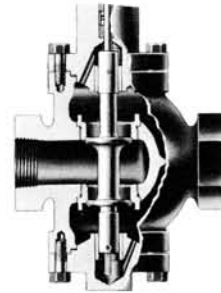
**No. 525-50 Double Seated
Differential Pressure Regulator**



**No. 535H-50 Single Seated
Differential Pressure
Regulator**



High Pressure Case Sizes 4 and 5



**No. 526-50 Double Seated
Differential Pressure Regulator**

PARTS REFERENCE

| Ref. No. | Part Name | Ref. No. | Part Name | Ref. No. | Part Name |
|----------|-----------------------------|----------|----------------------------|----------|--------------------------------------|
| 1 | Valve Body | 22 | Actuator Spring | 46 | Nut (diaphragm case) |
| • 2 | Seat Ring | 26 | Actuator Stem | 47 | Body Stud |
| • 3 | Small Bore Seat Ring | 26P | Plunger | 47A | Body Cap Screw |
| • 4 | Valve Plug | 27 | Stem Locknuts | 48 | Nut (body stud) |
| • 5 | Valve Plug Stem | 34U | Spring Seat (upper) | • 49 | Body Gasket |
| • 6 | Plug Pin | 34 | Spring Seat (lower) | • 50 | O-Ring |
| 7 | Bottom Flange | 36 | Spring Adjustor | 54 | Guide Bushing |
| 8 | Bonnet Assembly | 37 | Bushing | 62 | Serial Plate |
| 9 | Drive Nut | • 39 | Diaphragm | 63 | Serial Plate Screw |
| 10 | Packing Follower | 40 | Diaphragm Plate | 65 | Pipe Plug |
| 11 | Packing Flange | 41 | Diaphragm Washer | 66 | Lubricator |
| 12 | Packing Flange Studs | 42 | Upper Diaphragm Plate | 67 | Isolating Valve } Packing Lubricator |
| 13 | Packing Flange Stud Nuts | 43 | Diaphragm Case (upper) | 68 | Nipple |
| • 14 | Packing | 44 | Diaphragm Case (lower) | 81 | O-Ring Retainer |
| 16 | Lantern Ring | 44C | Diaphragm Chamber | 95 | Adapter (case press. conn.) |
| 17 | Yoke | 45 | Cap Screw (diaphragm case) | 96 | Locknut |
| 18 | Cap Screw (L. case to yoke) | 45S | Stud (diaphragm case) | | |

• Recommended spare part.

Reassembly: Replace actuator, plug and plug stem. Replace locknuts and turn plug stem into actuator stem until plug is seated. Apply sufficient pressure to upper diaphragm case to move plug off seat. Turn plug stem one full turn into actuator stem. Run locknuts up plug stem and lock to actuator stem. Relieve pressure on diaphragm and replace bottom flange.

Maintenance All Valves

To replace diaphragm: Relieve all spring compression by turning adjusting screw counterclockwise. Remove upper diaphragm case (43), reducing ring (range 60-125 psi only), locknut (96), diaphragm washer (41), "O" rings and diaphragm (39). Install new diaphragm and reassemble. Replace "O" ring if necessary. Readjust spring compression.

To replace "O" ring: Relieve all spring compression and remove upper diaphragm case, locknut, diaphragm washer, "O" ring (50), diaphragm plunger and diaphragm plate (40) and lower diaphragm case. With a wrench applied over "O"

ring retainer (81), turn retainer out of lower diaphragm case. Remove "O" ring, being careful not to mar plunger. Install new "O" ring and replace and tighten "O" ring retainer. Reassemble and readjust spring compression.

CAUTION: Uniformly tighten all diaphragm case cap screws when reassembling differential head.

Packing: Packing box gland should be held firmly against packing—but not too tightly. Be sure that both ends of the bolted flange exert equal pressure on the gland.

If necessary to renew packing, disassemble regulator as directed previously, remove locknuts and turn plug stem out through packing box. Remove packing box flange and gland, push out old packing together with lubricant ring, by working from underside of bonnet.

Insert new ring packing to one-half inch depth, then lubricant ring, then more packing rings to fill packing box. In an emergency, string packing may be inserted without removing old packing, after first taking regulator out of service.

Copyright 2004, Dresser, Inc. All rights reserved.

Facilities: Belgium, Brazil, Canada, China, France, Germany, India, Italy, Japan, Korea, Kuwait, Malaysia, Mexico, Netherlands, Nigeria, Russia, Saudi Arabia, Singapore, South Africa, Spain, United Arab Emirates, United Kingdom, United States

Masoneilan
85 Bodwell Street
Avon, MA 02322-1190
Phone: 508-586-4600
Fax: 508-427-8971

