

DESCRIPTION

The Series 1-2275 is a two-way, single seated, pneumatically operated control valve which responds to a change in sensing instrument output pressure for on-off control of relatively clean fluids.

OPERATION

Valve operation is accomplished by either a reverse acting (normally closed) or a direct acting (normally open) spring-opposed diaphragm actuator. In both reverse and direct acting modes, there are two (2) basic actuator types. The type 9AA actuator (Style "T") has provision for spring adjustment and is generally used where shut-off requirements may change or where exact operating conditions are unknown. The type 9B actuator (Type "R" & "D") has factory preset, non-adjustable springs and is used where process conditions are known and in installations with limited space. The various spring combinations available for the 9B actuator are shown in the brochure.

VALVE IDENTIFICATION

Attached to each valve assembly on the upper diaphragm housing is the valve nameplate. The nameplate contains the Serial Number and the valve Model Number as well as other useful information unique to that particular valve assembly. The information is useful when preparing to perform maintenance or repairs because it identifies the internal components such as trim size, trim material, bonnet type and seal materials. By knowing such information, part procurement can be done in advance of valve disassembly. **ALWAYS REFER TO SERIAL NO. AND MODEL NO. WHEN ORDERING REPLACEMENT PARTS.**

SPECIFICATIONS

Specifications for Series 1-2275 valve assembly, actuator specifications, actuator operating characteristics, spring selection and maximum differential pressures (Delta P) are shown in catalog Section 2, Bulletin 2-8.

INSTALLATION

Maximum allowable pressures for the valve and actuator sub-assemblies and maximum allowable pressure at maximum temperature for the valve sub-assembly are shown on nameplate, which is mounted on actuator. If pressures to the units are capable of exceeding these limits, install relief valves or other overpressure protection devices in the pressure lines.

VALVE SUB-ASSEMBLY

1. Before installation, examine valve for any shipping damage and for any foreign material that may have collected during crating and shipment. Remove flange or thread protectors from body end connections.
2. Blow out all pipelines to remove pipe scale, chips, weld slag and other foreign materials.
3. Install valve in pipeline with direction of flow through body determined as follows:
 - i) For Quick Opening trim - direct flow over the seat.
 - ii) For Modified Percent trim - direct flow under the seat.
4. Install valve in pipeline using good piping practice, with the actuator vertical above the body. For flanged bodies, use a suitable gasket between body and pipeline flanges. For threaded (NPT) bodies, use TFE tape or pipe thread sealant on external pipe threads.

ACTUATOR SUB-ASSEMBLY

1. Remove thread protector from actuator supply connection located on lower diaphragm housing on reverse acting valves and upper diaphragm housing on direct acting valves.
2. Connect actuator air supply to .25-18 NPT connection on diaphragm housing.
3. Keep length of tubing or piping carrying supply air as short as possible to avoid transmission lag in the control signal.
4. If an accessory (such as a valve positioner or pressure controller) is used, make sure that the accessory is properly connected to the actuator.
5. Cycle actuator several times to check valve operation, which is signified by movement of the position indicator (Item 26).
6. The amount of indicator movement (valve stroke) will vary depending on the trim size installed in the valve. Refer to Table 1 for nominal valve stroke.

MAINTENANCE**WARNING**

To avoid personal injury or damage to property from sudden release of pressure or uncontrolled process fluid, before beginning disassembly:

1. Isolate the valve from the process.
2. Release captured process pressure.
3. Vent actuator supply pressure.
4. Relieve all actuator spring compression.

The maintenance instructions are divided into three sections: "9AA Reverse Actuator", "9B Director Actuator" and "Valve Sub-Assembly".

Each section describes how the actuator or valve sub-assembly can be completely disassembled and assembled. When inspection or repairs are required, disassemble only those parts necessary to accomplish the job; then start the assembly at the appropriate step. All Item numbers are keyed to the parts list at the end of this document.

A. TYPE 9AA REVERSE ACTUATOR**1. Disassembly**

- 1.1. Bypass the control valve. Vent actuator supply pressure to atmospheric and remove tubing or piping from lower diaphragm housing (Item 16).
- 1.2. Loosen jam hex nut (Item 20) and unscrew square head spring adjusting screw (Item 19) a few turns out of upper diaphragm housing (Item 18) until all spring compression is relieved. Complete removal of the screw is not necessary.
- 1.3. Remove the 12 hex nuts (Item 30) and hex head screws (Item 29) which bolt together upper and lower diaphragm housing (Items 18 and 16).
- 1.4. Lift off upper diaphragm housing (Item 18); remove upper spring retainer (Item 22) and actuator springs (Item 23), exposing to (2) jam hex nuts on end of valve stem (Item 9).
- 1.5. With two (2) 9/16" open end wrenches, hold the lower jam hex nut (Item 28) firmly in place on top of the lock washer (Item 29) and unscrew upper jam hex nut (Item 28) from end of valve stem (Item 9).
- 1.6. Grasp outer edges of diaphragm plate (Item 21) and lift upward to the open position thereby gaining access to lowermost remaining hex nut (Item 28), located against underside of lower bearing washer (Item 25). Insert a 9/16" open-end wrench between underside of diaphragm and flange of lower diaphragm housing (Item 16) and hold hex nut in

place. Unscrew remaining upper jam nut from end of valve stem (Item 9).

- 1.7. Remove lock washer (Item 29); lower spring retainer (Item 24), upper bearing washer (Item 25), diaphragm plate (Item 21), o-ring (Item 27), diaphragm (Item 17) and lower bearing washer (Item 25).
- 1.8. Remove remaining hex nut from valve stem. If hex nut cannot be removed without the valve stem turning, thread the two (2) previously removed hex nuts (Item 28) on end of valve stem and tighten together to provide a wrench holding surface to facilitate hex nut removal.
- 1.9. Mark position of .25-18 NPT supply connection on outer surface of bonnet. Loosen bonnet lock nut (Item 10) by inserting a flat bladed screwdriver against a lost shoulder of nut and hitting end of screwdriver with a mallet, or loosen bonnet nut by placing a 2" socket over nut to loosen it. Unscrew bonnet lock nut from end of bonnet.
- 1.10. Lift off lower diaphragm housing (Item 16) and bonnet/housing gasket (Item 32) from end of bonnet (Item 4).

2. Assembly

- 2.1. Place bonnet/housing gasket (Item 32) over screw threads and against shoulder on upper end of bonnet (Item 4).
- 2.2. With dished portion facing upward, place lower diaphragm housing (Item 16) over bonnet threads and against bonnet/housing gasket (Item 32).
- 2.3. Align .25-18 NPT actuator supply connection in lower diaphragm housing with mark made on bonnet prior to disassembly. If location of air supply connection was not previously noted, align supply connection above lower port connection for globe body valve, or 180 degrees out from upper port connection for angle body valve. (See "Valve Sub-Assembly" procedure in the "Installation" section for valve body port identification.) If valve body (Item 1) and bonnet (Item 4) are disassembled at this stage of maintenance, it will be necessary to thread body and bonnet together hand tight to determine final orientation of actuator air supply connection once valve is completely assembled.
- 2.4. Thread bonnet lock nut (Item 10) onto upper end of bonnet (Item 4). Tighten lock nut. Check nut tightness by grasping outer edges of lower diaphragm housing (Item 16) and trying to turn by hand. Lower housing will not turn when bonnet lock is sufficiently tightened.
- 2.5. Screw hex nut (Item 28) all the way down to thread run-out.

- 2.6. Place remaining actuator components on the valve stem (Item 9) in the following order: lower bearing washer plate (Item 25), diaphragm (Item 17), o-ring (Item 27), diaphragm plate (Item 21) with dished portion facing downward, upper bearing washer (Item 25), lower spring retainer (Item 24) and lock washer (Item 29).
- 2.7. Thread one (1) of the remaining jam hex nuts (Item 28) onto the valve stem (Item 9) and make-up finger tight. Grasp outer edges of diaphragm plate (Item 21) and lift upward to raise valve stem and adjoining components to the open position thereby gaining access to the lowermost installed hex nut (Item 28), located against underside of lower bearing washer (Item 25). Insert a 9/16" open end wrench between underside of diaphragm (Item 17) and flange of lower diaphragm housing (Item 16) and hold lower hex nut in place. Tighten upper jam hex nut to 10 foot-pounds (14 Newton meters) torque.
- 2.8. Thread remaining jam hex nut (Item 28) onto valve stem (Item 9). With a 9/16" open end wrench, hold the jam nut firmly in place on top of lock washer (Item 29) and tighten uppermost jam nut to seven foot-pounds (9-10 Newton meters) torque.
- 2.9. Grasp outer edges of diaphragm plate (Item 21) and lift upward to raise valve stem (Item 9) and diaphragm (Item 17) to the open position. Align bolt holes in diaphragm with bolt holes in lower diaphragm housing flange (Item 16) and install the 12 hex head screws (Item 30) upward from the lower housing with the heads against underside of lower housing flange.
- 2.10. Install actuator spring (Item 23) on top of lower spring retainer (Item 24).
- 2.11. Apply a small amount of general purpose grease to adjusting screw bearing surface of upper spring retainer (Item 22) and install retainer on top of actuator spring (Item 23) with shoulder side fitting down into inside diameter of spring.
- 2.12. Unscrew square head spring adjusting screw (Item 19) and jam hex nut (Item 20) from upper diaphragm housing (Item 18). Remove jam nut from screw. Thread nut back onto screw and thread screw approximately .50" into the threads in upper diaphragm housing.
- 2.13. With dished portion facing downward, rotate upper diaphragm housing (Item 18) and align position indicator assembly (Item 26) above the .25-18 NPT supply connection in lower diaphragm housing (Item 16) and bring diaphragm housing flanges together. Be careful not to knock spring out of position. If housing flanges cannot be brought

together, back-out square head spring adjusting screw (Item 19) slightly from upper diaphragm housing.

- 2.14. Install the 12 regular hex nuts (Item 31) on hex head screws (Item 30). Tighten in a crisscross pattern to 30 foot-pounds (41 Newton meters) torque.
- 2.15. Perform indicator and actuator spring adjustments in accordance with "Indicator" and "Spring" procedures in "Adjustments" section.

B. TYPE 9B REVERSE ACTUATOR

1. Disassembly

- 1.1. Bypass the control valve. Vent actuator supply pressure to atmospheric and remove tubing or piping from lower diaphragm housing (Item 16).
- 1.2. Remove the 12 hex nuts (Item 31) and hex head screws (Item 30) which bolt together upper and lower diaphragm housings (Items 36 and 16).
- 1.3. Lift off upper diaphragm housing (Item 36) and remove actuator springs (Item 35). Some actuators will contain two (2) springs, while others will have four (4), depending on the exact service conditions.
- 1.4. With two (2) 9/16" open end wrenches, hold the lower jam hex nut (Item 28) firmly in place on top of lock washer (Item 29) and unscrew upper jam hex nut (Item 28) from end of valve stem (Item 9).
- 1.5. Grasp outer edges of diaphragm plate (Item 21) and lift upward to raise valve stem to the open position thereby gaining access to lowermost remaining upper jam hex nut (Item 28), located against underside of bearing washer (Item 25). Insert a 9/16" open end wrench between underside of diaphragm (Item 17) and flange of lower diaphragm housing (Item 17) and flange of lower diaphragm housing (Item 16) and hold hex nut in place. Unscrew remaining upper jam nut from end of valve stem.
- 1.6. Remove lock washer (Item 29), lower spring retainer (Item 34), diaphragm plate (Item 21), o-ring (Item 27), diaphragm (Item 17) and bearing washer (Item 25).
- 1.7. Remove remaining hex nut from valve stem. If hex nut cannot be removed without the valve stem turning, thread the two (2) previously removed hex nuts (Item 28) on end of valve stem and tighten together to provide a wrench holding surface to facilitate hex nut removal.

- 1.8. Mark position of .25-18 NPT supply connection on outer surface of bonnet. Loosen bonnet lock nut (Item 10) by inserting a flat bladed screwdriver against a lost shoulder of nut and hitting end of screwdriver with a mallet, or loosen bonnet nut by placing a 2" socket over nut to loosen it. Unscrew bonnet lock nut from end of bonnet.
- 1.9. Lift off lower diaphragm housing (Item 16) and bonnet/housing gasket (Item 32) from end of bonnet (Item 4).

2. Assembly

- 2.1. Place bonnet/housing gasket (Item 32) over screw threads and against shoulder on upper end of bonnet (Item 4).
- 2.2. With dished portion facing upward, place lower diaphragm housing (Item 16) over bonnet threads and against bonnet/housing gasket (Item 32).
- 2.3. Align .25-18 NPT actuator supply connection in lower diaphragm housing with mark made on bonnet prior to disassembly. If location of air supply connection was not previously noted, align supply connection above lower port connection for globe body valve, or 180 degrees out from upper port connection for angle body valve. (See "Valve Sub-Assembly" procedure in the "Installation" section for valve body port identification.) If valve body (Item 1) and bonnet (Item 4) are disassembled at this stage of maintenance, it will be necessary to thread body and bonnet together hand tight to determine final orientation of actuator air supply connection once valve is completely reassembled.
- 2.4. Thread bonnet lock nut (Item 10) onto upper end of bonnet (Item 4). Tighten lock nut. Check nut tightness by grasping outer edges of lower diaphragm housing (Item 16) and trying to turn by hand. Lower housing will not turn when bonnet lock is sufficiently tightened.
- 2.5. Screw jam hex nut (Item 28) all the way down to thread run-out on valve stem (Item 9). Place remaining actuator components on the valve stem in the following order: bearing washer (Item 25), diaphragm (Item 17), o-ring (Item 27), diaphragm plate (Item 21) with dished portion facing upward, spring retainer (Item 34) and lock washer (Item 29).
- 2.6. Thread one (1) of the remaining jam hex nuts (Item 28) onto the valve stem (Item 9) and make-up finger tight. Grasp outer edges of diaphragm plate (Item 21) and lift upward to raise valve stem and adjoining components to the open position thereby gaining access to the lowermost installed hex nut (Item 28), located against underside of bearing washer (Item 25). Insert a 9/16" open end wrench between underside of diaphragm (Item 17) and flange of lower diaphragm housing (Item 16) and hold lower hex nut in place. Tighten upper jam hex nut to 10 foot-pounds (14 Newton meters) torque.
- 2.7. Thread remaining jam hex nut (Item 28) onto valve stem (Item 9). With a 9/16" open end wrench, hold the jam nut firmly in place on top of lock washer and tighten uppermost jam nut to seven foot-pounds (9-10 Newton meters) torque.
- 2.8. Grasp outer edges of diaphragm plate (Item 21) and lift upward to raise valve stem (Item 9) and adjoining components to the open position. Align bolt holes in diaphragm with bolt holes in lower diaphragm housing flange (Item 16) and install the 12 hex head screws (Item 30) upward from the lower housing with the heads against underside of lower housing flange.
- 2.9. Install actuator springs (Item 35) in spring retainer (Item 34) in combinations of two (2) or four (4). If only two (2) springs are used, they must be placed 180 degrees apart for proper valve operation.
- 2.10. With dished portion facing downward, rotate upper diaphragm housing (Item 36) and align position indicator assembly (Item 26) above the .25-18 NPT supply connection in lower diaphragm housing (Item 16) and bring diaphragm housing flanges together as close as possible. Be careful not to knock spring out of position. There will be an approximate .25" gap between the diaphragm housing flanges which will result in compression of the actuator springs once the housings are bolted together.
- 2.11. Install the 12 regular hex nuts (Item 31) finger tight with equal engagement of screws. Gradually tighten each nut a few turns at a time in a crisscross pattern bringing diaphragm housing flanges together evenly. Tighten nuts to 30 foot-pounds (41 Newton meters) torque.
- 2.12. Perform indicator adjustment in accordance with "Indicator" procedures in "Adjustment" section.

9BA2 DIRECT ACTUATOR

Assembly of 9BA2 Direct Actuator

- Repeat steps (2.1) through (2.4.) in section B 2. Assembly Type 9B Reverse Actuator.
- Screw jam hex nut (Item #28) 7/8" down from top of valve stem (Item #9). Place remaining actuator components on the valve stem in the following order:
 - (Item #34) Spring retainer (with two holes)
 - (Item #35) White spring(two)
 - (Item #21) Plate diaphragm(dished side down)
 - (Item #27) O-ring
 - (Item #17) Diaphragm
 - (Item #25) Washer bearing
 - (Item #29) Lock washer
 - (Item #28) 3/8" Jam nut
- Using two C-clamps one on each side of stem and lower housing (Item 16) compress spring down by tightening clamps until stem sticks through the diaphragm. Put lock washer (Item 29) and 3/8" jam nut (Item 28) onto stem then release C-clamps.
- Using two 9/16" open end wrenches, place one on 3/8" jam nut (Item 28) on top of diaphragm and inserting the other 9/16" wrench between the underside of diaphragm plate (Item 21) and flange of lower diaphragm housing (Item 16) and hold lower hex nut in place. Tighten upper jam hex nut to 10 ft. lbs. torque.
- Repeat steps 2.10 through 2.12 of Section B.2., Assembly Type 9B Reverse Actuator.
- Thread indicator assembly into 1/4" NPT hole on the bottom housing (Item 16) Using the open end of a 1/4" NPT bull plug, knock the white Teflon ring in the indicator assembly down to the hex retainer screwed into the 1/4" NPT hole.

B. VALVE SUB-ASSEMBLY

WARNING

To avoid personal injury or damage to property from sudden release of pressure or uncontrolled process fluid, before beginning disassembly:

- Isolate the valve from the process.
- Release captured process pressure.
- Vent actuator supply pressure.
- Relieve all actuator spring compression.

The maintenance instructions in this section explain the procedure for trim (plug and seal) removal, inspection, restoration and installation, which does not require disassembly of the actuator. These maintenance procedures

assume that the valve body (Item 1) will remain installed in the pipeline.

1. Trim Removal

1.1. Type 9AA Actuator

- (i) Loosen jam hex nut (Item 20) located on top of upper diaphragm housing (Item 18).
- (ii) Turn square head spring adjusting screw (Item 19) out of upper housing until all spring compression is relieved.

1.2. Type 9B Reverse Actuator

- (i) Connect a regulated air supply source to the lower diaphragm housing (Item 16).
- (ii) Pressurize lower diaphragm housing to 30 psig to raise valve plug (Item 2) to the open position. Maintain pressurized condition.

1.3. All Actuator Types

- (i) With the actuator remaining assembled to the bonnet (Type 9B Reverse Actuator under pressure also), unscrew the bonnet (Item 4) from the valve body (Item 1).

1.4. Type 9AA Reverse Actuator

- (i) Turn square head spring adjusting screw (Item 19) into upper diaphragm housing (Item 18) until valve plug (Item 2) and roll pin (Item 33) are extended out from lower end of the bonnet (Item 4).

1.5. Type 9B Reverse Actuator

- (i) Vent actuator supply pressure which will extend valve plug (Item 2) and roll pin (Item 33) from lower end of the bonnet (Item 4).

1.6. All Actuator Types

- (i) Drive out roll pin (Item 33) from valve plug (Item 2).

CAUTION

When removing roll pin (Item 33) and valve plug (Item 2) use extreme care not to bend valve stem (Item 9) or scratch hemispherical surface of plug.

- (ii) Unscrew valve plug (Item 2) from end of valve stem (Item 9).
- (iii) To remove valve seat (Item 3) and o-ring (Item 12), place 1" socket over seat and loosen it. Remove it from valve body (Item 1). Remove o-ring from valve seat.

2. Trim Inspection

- 2.1. Visually inspect valve plug (Item 2) and seat (Item 3) for signs of erosion, pitting, scratches and damage from corrosion. A magnifying glass can be

helpful in determining the type and severity of any damage that may be present.

- 2.2. Fit the plug and the seat together. While looking into the bottom of the seat, hold the trim set against a bright light. Any light seen between plug and seat contact surfaces is indicative of a poor seal.
- 2.3. Determine the magnitude of any wear or corrosion damage. Many times the plug and seat contact surfaces can be fully restored by re-lapping, thereby extending service life. (See "Trim Restoration" procedure below.) If damage is too extensive for restoration, replacement seats, which are lapped, vacuum tested and ready for installation, are readily available from the factory.

3. Trim Restoration

- 3.1. Clean plug and seat in solvent and wipe dry.
- 3.2. If trim material being restored is 316 stainless steel, apply a thin coat of 600-grit boron-carbide lapping compound along the seating diameter of the valve plug. If trim material is carbide, apply a thin bead of No. 15 medium grade diamond compound along the seating diameter of the valve plug. These compounds are readily available from the factory in both small and large quantities.
- 3.3. Fit the plug into the seat and begin lapping by applying hand pressure to the ends of the parts and rotating them against each other, reversing the direction of rotation. A spare valve stem or a 3/8-24 UNF screw threaded into the end of the plug can be helpful in holding and rotating the plug against the seat. Continue lapping trim together stopping periodically to check results. The length of time required to restore seating surfaces will depend on the trim condition prior to lapping. 316 stainless steel trim will generally require about 3-5 minutes of lapping if damage is not too severe, whereas carbide will take about twice as long.
- 3.4. Valve trim will be sufficiently lapped when the plug takes on a continuous dull frosty band extending above and below the seating diameter with no definite beginning or end to the lapped area. Stainless steel seats will have an approximate .03125" wide continuous band around the bottom of the 30 degree seating angle. Carbide seats will have an uninterrupted bright appearance around the bottom of the 30-degree seating angle. If skips or pits are still present in the lapped seating areas of the plug or seat, repeat step 3 until satisfactory results are obtained.
- 3.5. Wash plug and seat in solvent to remove ALL lapping compound. Wipe dry.

4. Trim Installation

- 4.1. Install o-ring (Item 12) in groove of valve seat (Item 3). Apply a thin coat of general purpose grease around outside of o-ring.
- 4.2. Install valve seat (Item 3) into valve body using #1 socket and tighten firmly into valve bridge.
- 4.3. **Type 9AA Reverse Actuator**
Turn square head spring adjusting screw (Item 19) into upper diaphragm housing (Item 18) until roll pinhole in valve stem (Item 9) is extended from lower end of bonnet (Item 4).
- 4.4. **Type 9B Reverse Actuator**
Vent actuator supply pressure from lower diaphragm housing (Item 16) which will extend valve stem (Item 9) and pin hole from end of bonnet (Item 4).
- 4.5. **All Actuator Types**
 - (i) Thread valve plug (Item 2) onto end of valve stem (Item 9) engaging the least number of threads required to align pinholes.
 - (ii) Using a punch or a drift pin and a mallet, drive pin into stem/plug junction.

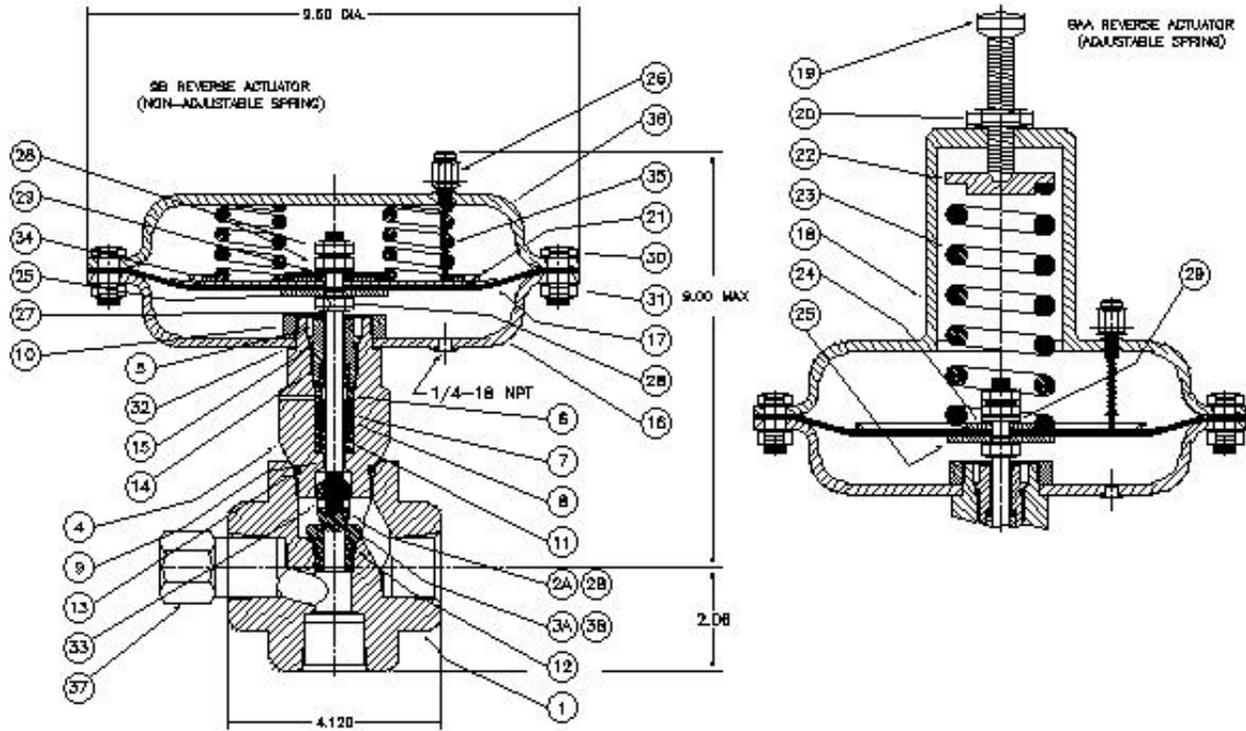
CAUTION

When installing roll pin (Item 32), use extreme care not to bend valve stem (Item 9) or scratch hemispherical surface of plug (Item 2). Be certain that roll pin does not extend beyond outer surface of plug on either side.

- 4.6. **Type 9AA Reverse Actuator**
Turn square head spring adjusting screw (Item 19) out of upper diaphragm housing (Item 18) while pushing inward on the end of the plug (Item 2) to retract plug into lower end of bonnet (Item 4).
- 4.7. **Type 9B Reverse Actuator**
Pressurize lower diaphragm housing (Item 16) to 30 psig which will retract plug (Item 2) into lower end of bonnet (Item 4).
- 4.8. **All Actuator Types**
 - (i) Apply a thin coat of general purpose grease around outside of bonnet o-ring (Item 13).
 - (ii) With the actuator remaining assembled to the bonnet (Type 9B Reverse also under pressure), screw bonnet (Item 4) into valve body (Item 1).
- 4.9. **Type 9AA Reverse Actuator**
Perform actuator spring adjustment in accordance with "Spring" procedure in "Adjustments" section.
- 4.10. **Type 9B Reverse Actuator**
Vent actuator supply pressure from lower diaphragm housing (Item 16).

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9AA & 9B Reverse Actuator

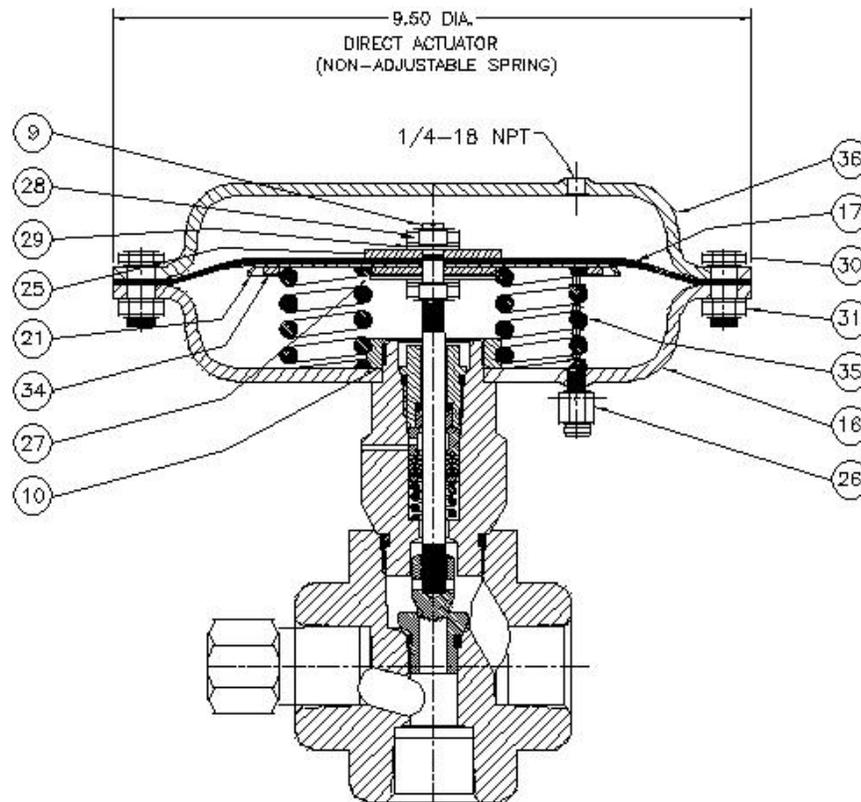


ITEM NO.	GENL. CODE	MATERIAL	VALVE PART DESCRIPTION	QTY
1	4902278118	A350 LF2	TEE 1" THD, 90 NPT	1
A	4902278100	316 SST	PLUG VALVE QO 0.125-.25 DRIF	1
	4902278101	316 SST	PLUG VALVE QO 0.375 DRIF	
	4902278102	316 SST	PLUG VALVE QO 0.50 DRIF	
B	4902278121	316 SST CARB	PLUG VALVE QO 0.125-.20 DRIF	1
	4902278127	316 SST CARB	PLUG VALVE QO 0.375 DRIF	
	4902278110	316 SST CARB	PLUG VALVE QO 0.50 DRIF	
A	4902278104	316 SST	SEAT VALVE .25	1
	4902278103	316 SST	SEAT VALVE .375	
	4902278106	316 SST	SEAT VALVE .50	
B	4902278122	316 SST CARB	SEAT VALVE .25	1
	4902278128	316 SST CARB	SEAT VALVE .375	
	4902278120	316 SST CARB	SEAT VALVE .50	
4	4902278111	A350 DR. D	BONNET VALVE T/PACKING	1
5	4902278110	316 SST	RETAINER F/PACKING BONNET	1
6	4902278112	316 SST	RING LANTERN F/PACKING BONNET	1
7	4902282220	TEFLON	PACKING SET	1
8	4902282217	304 SST	RETAINER PACKING	1
9	4902278107	316 SST	STEM VALVE	1
10	4902278109	C12L14	NUT LOCK HOUSING	1
11	4902282216	302 SST	SPRING PACKING	1
12	4902278115	VTON	O-RING SEAT	1
13	4902282151	VTON	O-RING BONNET/BODY	1
14	4902282132	VTON	O-RING RETAINER/STEM	1

ITEM NO.	GENL. CODE	MATERIAL	VALVE PART DESCRIPTION	QTY
15	4902278113	VTON	O-RING RETAINER	1
18	4902278002	CSTL	HOUSING LOWER #9	1
17 A	4902282128	NEG/NYLON	DIAPHRAGM #9	1
	4902282124	VTON	DIAPHRAGM #9 OPT	
18	4902282183	CSTL	HOUSING UPPER #8 REVERSE ADJUST	1
19	4902282185	GR. 5	SCREW ADJUST 1/2-13 X 3 PLATED	1
20	4902282184	GR. 5	NUT HEX JAW 1/2-13	1
21	4902282118	CSTL	PLATE DIAPHRAGM #8	1
22	4902282122	CSTL	RETAINER SPRING UPPER #8 REVERSE	1
23	4902282117	CSTL	SPRING ACTUATOR "3-15"	1
24	4902282170	CSTL	RETAINER SPRING LOWER #8 REVERSE	1
28	4902282121	CSTL	WASHER BEARING	1
26	4902282123	303 SST	INDICATOR/VENT	1
15	4902282133	BUNA-N	O-RING DIAPHRAGM	1
B	4902282142	VTON	O-RING DIAPHRAGM OPT	1
28	4902282118	GR. 5	NUT HEX 3/8-24	3
28	4902282118	CSTL	WASHER LOCK .30	1
30	4902282183	GR. 5	SCREW CAP HEX 3/8-10 X 1"	12
31	4902282182	GR. 5	NUT HEX RED 3/8-16	12
32	4902278108	CHLT	GASKET BONNET/HOUSING	1
33	4902278117	316 SST	PIN DRIVE	1
34	4902282226	1018 CSTL	RETAINER SPRING LOWER #9BA4	1
35	4902282219	CSTL	SPRING ACTUATOR #9BA4	4
38	4902282224	CSTL	HOUSING DIAPHRAGM #9BA4	1
37	4902282148	A356 CSTL	PLUG 1" NPT	1

 EDMOND ALBERTA Phone (780) 434-6568
 9520 - 63 Ave. T6E 0G1 Fax: (780) 434-4287

9BA2 Direct Actuator



ITEM NO.	COMM. CODE	MATERIAL	VALVE PART DESCRIPTION	QTY
9	490227B107	316 SST	STEM VALVE	1
10	490227B109	C12L14	NUT LOCK HOUSING	1
16	190227B002	CSTL	HOUSING LOWER #9	1
17 A	490222A126	NEO/NYLON	DIAPHRAGM #9	1
B	490222A124	VITON	DIAPHRAGM #9 OPT	
21	490222A116	CSTL	PLATE DIAPHRAGM #9	1
25	490222A121	CSTL	WASHER BEARING	1
26	490222A123	303 SST	INDICATOR/VENT	1
27 A	490222A133	BUNA-N	O-RING DIAPHRAGM	1
B	490222A142	VITON	O-RING DIAPHRAGM OPT	
28	490222A118	GR. 5	NUT HEX 3/8-24	3
29	490222A119	CSTL	WASHER LOCK .38	1
30	490222A183	GR. 5	SCREW CAP HEX 3/8-16 X 1"	12
31	490222A182	GR. 5	NUT HEX REG 3/8-16	12
34	490222E225	1018 CSTL	RETAINER SPRING LOWER #9BA4	1
35	490222E219	CSTL	SPRING ACTUATOR #9BA4	4
36	490222E224	CSTL	HOUSING DIAPHRAGM #9BA4	1

EDMONTON, ALBERTA Phone (780) 434-8568
9530 - 80 Ave. T8E 0C1 Fax (780) 434-4267

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