

Bailey**SECTION
P85-11****PRODUCT INSTRUCTIONS****DIAPHRAGM ACTUATORS
TYPE VFA & VBA****INDEX**

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The Type VBA and VFA Valve Actuators are diaphragm actuated. The diaphragm assembly acts in response to an incoming air pressure signal to reposition the stem of the controlled valve.

CROSS REFERENCES

<u>Instrument or Equipment</u>	<u>Instruction Section</u>
Bailey Positioner	P82-9
Removal of Class D1 Valve Cage	P86-11
Breach Block Packing	P86-12

BAILEY METER COMPANY • WICKLIFFE, OHIO 44092

Type VFA & VBA Diaphragm Actuators

CLASS			SEATS	BODY	STEM MOTION TO CLOSE	TRIM CHARACTERISTICS		TRIM MATERIALS
						GUIDING	DESIGN	
A	1	0	SINGLE	GLOBE	INWARD DOWN	CAUSE GUIDED	QUICK OPEN PLUG	A BRONZE CASE STD D SCB
A	1	2	SINGLE	GLOBE	INWARD DOWN	CAUSE GUIDED	THROTTLE PLUG	B BRONZE C RING SEATS
A	1	3	SINGLE	GLOBE	INWARD DOWN	CAUSE GUIDED	NEEDLE PLUG	C 316 STN C RING SEATS
A	2	0	SINGLE	GLOBE	INWARD DOWN	TOP AND BOTTOM	THROTTLE PLUG	D STAINLESS 300 SERIES
A	2	2	SINGLE	GLOBE	INWARD DOWN	TOP AND BOTTOM	THROTTLE PLUG	E STELLITE SEATS
A	2	3	SINGLE	GLOBE	INWARD DOWN	TOP AND BOTTOM	QUICK OPEN PLUG	F STELLITE GUIDES
A	2	4	SINGLE	GLOBE	INWARD DOWN	TOP AND BOTTOM	V PLUG 40	G STELLITE SEATS AND GUIDES
A	3	0	SINGLE	GLOBE	INWARD DOWN	PORT GUIDED	V PORT BAILEY	H STAINLESS 440 HARDENED
A	3	2	SINGLE	GLOBE	INWARD DOWN	PORT GUIDED	V PORT FISHER	I STELLITE PAGE 1" 4 PH PLUG
A	3	4	SINGLE	GLOBE	INWARD DOWN	PORT GUIDED	QUICK OPEN PLUG	J MONEL
A	4	1	SINGLE	GLOBE	INWARD DOWN	PORT GUIDED	V PORT BAILEY	K PH KEL
A	4	3	SINGLE	GLOBE	INWARD DOWN	PORT GUIDED	TAPERED PLUG	L 14 RISET 2
A	4	3	SINGLE	GLOBE	INWARD DOWN	TOP AND PORT	MICRO PLUG	M HASTELLO L
B	2	0	SINGLE	GLOBE	OUTWARD UP	TOP AND BOTTOM	V PLUG	
B	2	2	SINGLE	GLOBE	OUTWARD UP	TOP AND BOTTOM	THROTTLE PLUG	
B	2	3	SINGLE	GLOBE	OUTWARD UP	TOP AND BOTTOM	QUICK OPEN PLUG	
B	2	4	SINGLE	GLOBE	OUTWARD UP	TOP AND BOTTOM	V PLUG 40	
B	3	0	SINGLE	GLOBE	OUTWARD UP	PORT GUIDED	V PORT BAILEY	
B	3	2	SINGLE	GLOBE	OUTWARD UP	PORT GUIDED	V PORT FISHER	
B	3	3	SINGLE	GLOBE	OUTWARD UP	PORT GUIDED	QUICK OPEN PLUG	
B	3	4	SINGLE	GLOBE	OUTWARD UP	PORT GUIDED	V PLUG 40	
B	3	4	SINGLE	GLOBE	OUTWARD UP	PORT GUIDED	V PORT BAILEY	
C	2	0	DOUBLE	GLOBE	INWARD DOWN	TOP AND BOTTOM	V PLUG	
C	2	2	DOUBLE	GLOBE	INWARD DOWN	TOP AND BOTTOM	V PORT FISHER	
C	2	3	DOUBLE	GLOBE	INWARD DOWN	TOP AND BOTTOM	THROTTLE PLUG	
C	2	4	DOUBLE	GLOBE	INWARD DOWN	TOP AND BOTTOM	V PLUG 40	
C	3	0	DOUBLE	GLOBE	INWARD DOWN	PORT GUIDED	V PORT BAILEY	
C	3	1	DOUBLE	GLOBE	INWARD DOWN	PORT GUIDED	V PORT FISHER	
C	3	4	DOUBLE	GLOBE	INWARD DOWN	PORT GUIDED	V PORT BAILEY	
D	2	0	DOUBLE	GLOBE	OUTWARD UP	TOP AND BOTTOM	V PLUG	
D	2	2	DOUBLE	GLOBE	OUTWARD UP	TOP AND BOTTOM	V PORT FISHER	
D	2	3	DOUBLE	GLOBE	OUTWARD UP	TOP AND BOTTOM	THROTTLE PLUG	
D	2	4	DOUBLE	GLOBE	OUTWARD UP	TOP AND BOTTOM	V PLUG 40	
D	3	0	DOUBLE	GLOBE	OUTWARD UP	PORT GUIDED	V PORT BAILEY	
D	3	1	DOUBLE	GLOBE	OUTWARD UP	PORT GUIDED	V PORT FISHER	
D	3	2	DOUBLE	GLOBE	OUTWARD UP	PORT GUIDED	QUICK OPEN PLUG	
D	3	4	DOUBLE	GLOBE	OUTWARD UP	PORT GUIDED	V PORT BAILEY	
E	4	0	SINGLE	ANGLE	INWARD DOWN	TOP GUIDED	THROTTLE PLUG	
E	5	0	SINGLE	ANGLE	INWARD DOWN	TOP AND PORT	MICRO PLUG	

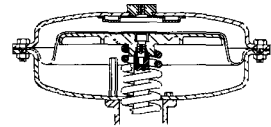
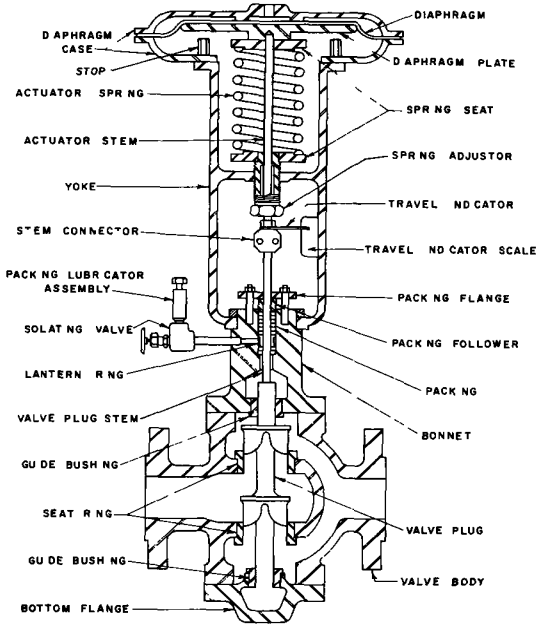
OPERATION

Diaphragm type Valve Actuators are available as top-connected or bottom-connected assemblies. Top-connected Actuators act in response to air pressure applied to the top of the diaphragm case to extend the Actuator stem. Bottom-connected Actuators retract the Actuator stem on an increase in air pressure.

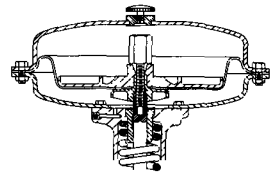
The diaphragm travel (and resultant valve stem travel) and the operating pressure span required to produce this travel are preset at the factory in accordance with the customer's specifications for a particular service. For any given diaphragm and spring assembly, this relationship cannot be changed. However, the required air pressure at which the diaphragm starts to move may be varied by turning the spring adjuster (Figure 1), refer to 'Adjustment and Calibration' on page 4.

Three internal fixed overtravel stops are built into each Actuator diaphragm case to prevent excessive overtravel of the diaphragm. If an air failure should occur, the Actuator spring (Figure 1) will move the valve plug stem to its upper travel limit on top connected Actuators or to the lower travel limit for bottom-connected Actuators.

Adjustable travel stops are also available for the Diaphragm Valve Actuators as shown in Figures 2 and 3. In addition, the handjack, if provided, may be set at some desired position to act as a travel limit stop (Figure 4). The positioning of the adjustable travel limit stops is covered under 'Adjustment and Calibration' on page 4.



TOP CONNECTED DIAPHRAGM ACTUATOR



BOTTOM CONNECTED DIAPHRAGM ACTUATOR

FIGURE 1 Typical Diaphragm Type Valve Actuator

ADJUSTMENT AND CALIBRATION

Valve Actuators are normally shipped in place on the Control Valve. The Actuator has the spring adjustor (Figure 1) set so that, with no pressure on the valve body, the valve plug stem will make full travel when some operating pressure span (depending on service conditions) is applied to the Diaphragm Valve Actuator. In each pressure span, the valve would remain at its zero position with the minimum range pressure value applied, and would travel to the 100% position with the maximum range pressure value applied.

On application of service pressure to the valve, certain unbalanced forces are introduced at the inner valve. These forces are larger in single seat design valves, but are also present in double seat design valves. On spring opening valves, after the valve is under service pressure, make the following adjustments

- 1 Connect a variable air pressure supply with an accurate 0 to 40 psig pressure gage to diaphragm connection on Valve Actuator

2. Make certain that handjack, if supplied, is stroked to a position where it does not interfere with diaphragm travel. If adjustable stops are included in unit, check that they do not interfere with diaphragm travel

- 3 Apply 5 psig air pressure to diaphragm casing of Valve Actuator. Turn spring adjustor (Figure 1) so that inner valve just reaches its seated position with 5 psig pressure applied

NOTE By adjusting spring opening valves in this way, sufficient force (5 psig times effective diaphragm area) is available for tight seating since Positioner output to Actuator at closed valve position drops to zero

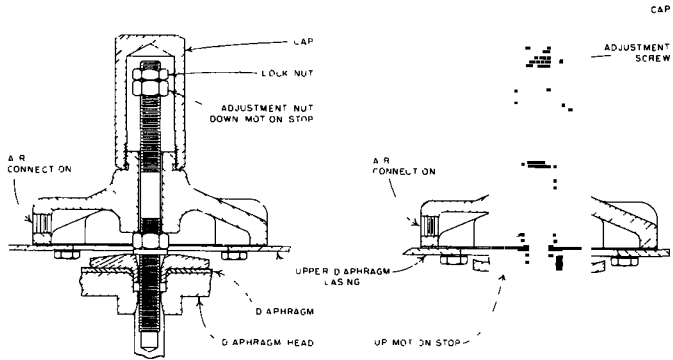


FIGURE 2 - Adjustable Stops for Top-Connected Valve Actuators

Spring-closing valves must have sufficient initial compression applied to seat the valve against the maximum shut-off pressure of the system This value will depend upon the conditions encountered in each particular application and no generalized figure can be given

Adjustable Travel Stops

An adjustable up-motion or down motion stop may be used in addition to the fixed overtravel stops which are built into the diaphragm case. Four different styles of adjustable travel stops

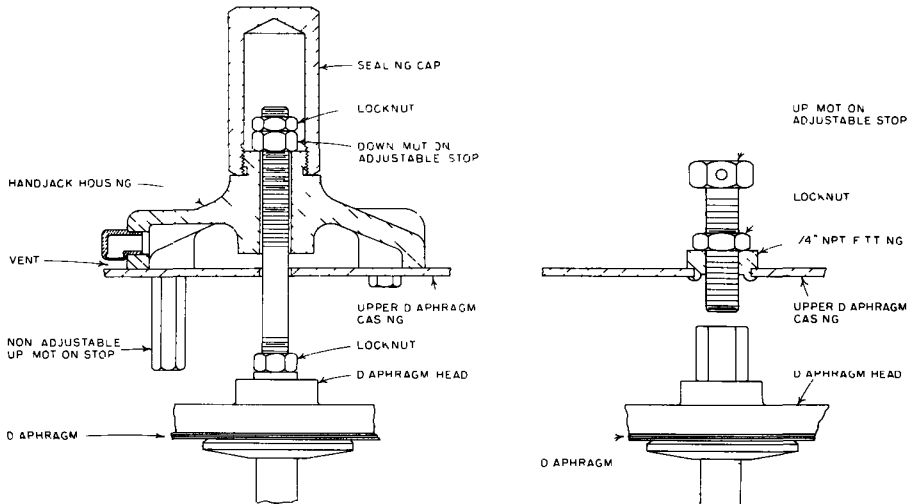


FIGURE 3 Adjustable Stops for Bottom-Connected Valve Actuators

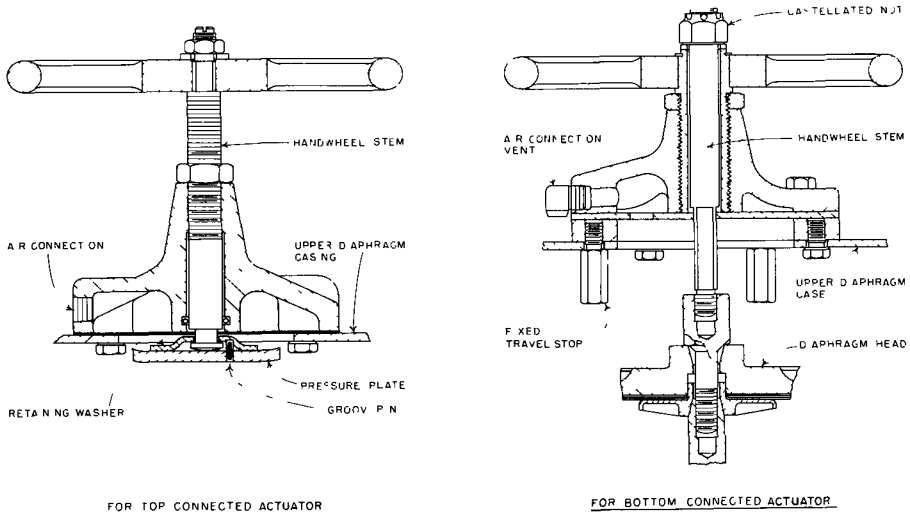


FIGURE 4 Handjack Assemblies

are illustrated in Figures 2 and 3, two for top connected Actuators and two for bottom-connected Actuators. These stops may be adjusted as desired to limit travel of the diaphragm (and the valve stem). In addition to the adjustable stops, the handjack, if provided, may be set at any point in its travel to act as an adjustable stop as shown in Figure 4.

Trapping or Vent Valves

For various applications of Valve Actuators, where there is a need for air failure locking, quick opening and quick closing, etc., trapping or vent valves are furnished. These valves may be solenoid or pneumatic type, depending on the service requirements, and are mounted on the Valve Actuator as shown in Figure 5 and 7.

The solenoid type valve shown in Figure 6 is electrically operated and is set to open or close when energized, as required by the particular application.

The pneumatic type valve shown in Figure 7 is operated by means of air pressure to its diaphragm. It may be arranged to open, close or lock the Valve Actuator on loss of control air pressure, as required. The spring of the pneumatic type valve may be adjusted so that the

valve will trip at any desired pressure to the diaphragm, between zero and 30 psig.

Alarm or Signal Switches

Either one or both microswitches shown in Figure 5 are furnished when an alarm or signal is required as the valve approaches its full open or full closed position. The switch brackets may be moved up or down to position the switches so that they will make contact as the desired point of valve travel.

Switches are rated at

125 volts a-c,	15 amps
250 volts d-c,	15 amps
460 volts a-c,	15 amps

Switches are not recommended for d-c service, other than to operate a signal lamp.

Position Transmitter or Positioner

A Position Transmitter can be installed on a Valve Actuator which includes a Positioner by mounting the Transmitter on the opposite side of the yoke, provided that no other yoke-mounted accessories are required (such as limit switches or a side mounted handjack). Adjustments for the Positioner are outlined in Instruction Section P92 9. The Position Transmitter is covered in Instruction Section P99 35.

MAINTENANCE

For successful operation of the Diaphragm Valve Actuator, the valve stem must move freely in response to an air pressure change to the diaphragm casing. If operation of the Valve Actuator is unsatisfactory, check for correct stroke, freedom from friction, proper flow direction thru body and that the correct action (air to-close, air-to-open) to match the control system has been used. Make certain that Valve Actuator is correctly adjusted for service as outlined under "Adjustment and Calibration" on page 4

To insure continued proper operation, the following points will require attention:

- 1 Air supply to Valve Actuator assembly must be clean. Check system air filters at regular intervals and clean or replace as required to maintain clean air supply
- 2 All air connections must be kept air tight. A leak in any line may give impression that Valve Actuator is not functioning properly, even a slight leak may cause considerable trouble. With air supplied to Actuator, check all pressurized joints and connections with a soapuds solution. Check carefully around diaphragm joint of housing assembly. Tighten or replace leaking fittings as required.

3 Perform calibration check and routine maintenance procedures for Positioner or Position Transmitter, if included, as outlined in Instruction Section P92 9

Packing Lubricator

Packing lubricators are available. However, Type VFA Actuators normally use Teflon packing which does not require additional lubrication

When furnished, these lubricators will be similar to that shown in Figure 8 The lubrica-

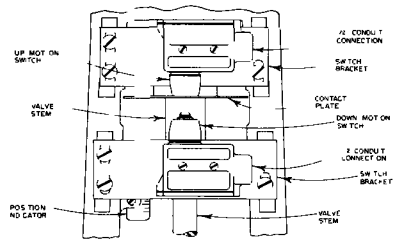
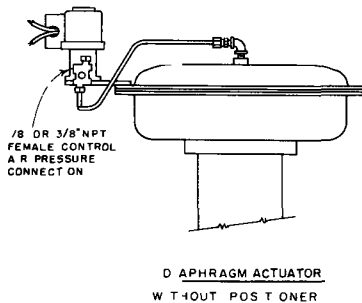
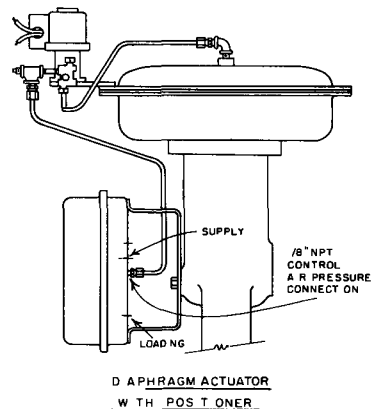


FIGURE 5 Alarm or Signal Switches



D IAPHRAGM ACTUATOR
W TOUT POS TONER



D IAPHRAGM ACTUATOR
W TH POS TONER

FIGURE 6 Solenoid Valve Mounted on Actuator

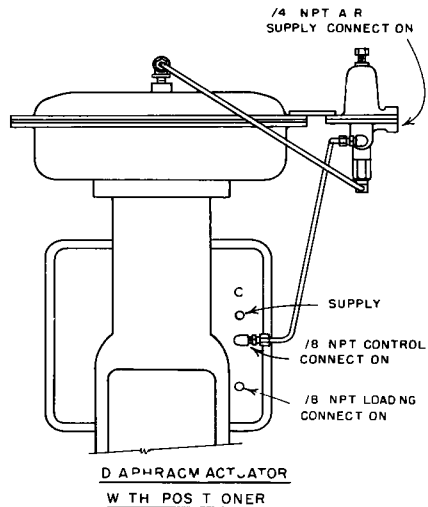
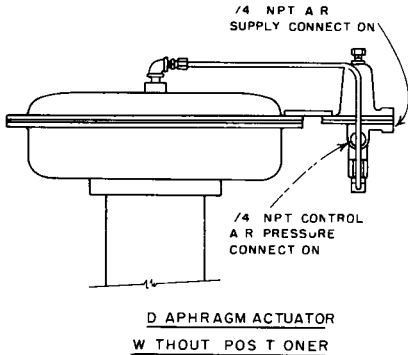


FIGURE 7 Pneumatic Trapping or Vent Valves

tor valve should be closed at all times, except when lubricating the valve stem.

The lubrication of the packing should be checked at approximately one month intervals in normal service and lubricant applied when ever necessary. Tubes of stem packing lubri cant, Part No 19984 1, may be obtained from the Bailey Meter Company. However, any good grade of silicon lubricating grease should be satisfactory.

Stem Packing

Whenever leakage occurs with the stem pack ing flange plate nuts properly tightened, stem packing must be replaced. Before changing stem packing, however, check whether leakage can be stopped by slightly tightening the packing flange plate nuts.

Type VBA Diaphragm Valve Actuators

For temperatures up to 300F, Chevron pack ing is used, for this packing, the packing flange plate nuts should only be drawn up finger tight to prevent leakage. For temperatures between 300F and 700F, square graphited asbestos pack ing is recommended, the packing flange follower

plate nuts should only drawn up as tight as nec essary to stop leakage under service operating conditions. For temperatures above 750F, me tallic stem packing is recommended, the pack ing flange follower plate nuts should be drawn up as tight as required to stop leakage under service operating conditions.

Type VFA Diaphragm Valve Actuators

Teflon packing is supplied for steam up to 665 psig (saturation temperature approximately 450F) or for water at temperatures to 450F, the packing follower flange nuts should be drawn up only finger tight when using this type of packing and wrenches should never be used on the valve plug stem. For fluids at temperatures above 450F, metallic packing is recommended, the packing follower plate nuts should be drawn up as tight as required to stop leakage under oper ating conditions.

NOTE When Teflon packing fails, it is normal ly because of damage to the valve plug stem. Since the valve stem must have a 6 to 8 micro finish or better when this type of stem packing is used, the stem packing and valve plug (in cluding stem) should be replaced at the same time.

Type VFA & VBA Diaphragm Actuators

Diaphragm Replacement

A diaphragm which is no longer pliable or which is ruptured must be replaced. To check the diaphragm, the upper diaphragm casing must be removed as follows:

NOTE: This procedure is applicable for all Diaphragm Valve Actuators with the exception of Types VBA1 and VBF1 (These Actuators, which use the size 512 diaphragm assembly, require a different disassembly procedure. The correct procedure is outlined under "Diaphragm Replacement, Type VBA1 and VFA1 Valve Actuators" Following this standard procedure.)

1 Remove handjack wheel, if included, on bottom-connected Actuators only. Handwheel may be removed by unscrewing castellated nut above wheel. Refer to Figure 4.

2 Disconnect air lines to top of Actuator diaphragm casing.

3 Loosen and remove nuts and bolts which clamp the upper and lower diaphragm casings together. Remove upper casing.

4 Check condition and replace diaphragm if required.

5 Reassemble diaphragm and casing assembly by reversing steps 1 thru 4 above. Tighten diaphragm assembly bolts and nuts evenly. Make certain that they are tight.

6 Apply air pressure to diaphragm casing assembly and check all joints carefully for leakage with a soapsuds solution. Tighten diaphragm nuts and bolts as required to stop any leaks.

Diaphragm Replacement, Type VBA1 and VFA1 Valve Actuators

1 If Actuator is equipped with a handwheel, perform steps 2 thru 5 below. If handwheel is not provided, proceed directly to step 6. Refer to Figure 9 for item numbers given in the following procedure.

2 Remove cap screws (24A) that hold handwheel body (34) to Valve Actuator assembly.

3 Rotate handwheel (39) clockwise until threads on handwheel screw (35) are free of handwheel nut (47).

4 Handwheel and handwheel body will now lift off Actuator assembly.

5 Using an Allen wrench, 3/8 inch with a long shank, engage socket head in travel bolt (45) and unscrew. While doing this, hold stem nut (5) so that it does not turn and tear sealing diaphragm (7).

6 Remove Actuator assembly from valve body by loosening stem nuts (32 and 33), unscrewing valve plug from Actuator rod (13). If Actuator is reverse acting, pressure diaphragm to move valve plug off seat. Remove yoke locknut.

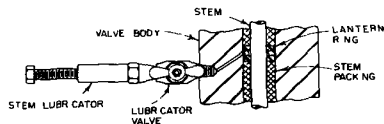


FIGURE 8 Packing Lubricator

7 Take yoke (4) off spring case (3) by removing four cap screws (24).

8 Actuator cap is removed by taking out four screws (23).

NOTE: Actuator cap is not used on units which include a handwheel assembly.

9 Insert a rod of 1/4 inch (or less) diameter into one of holes drilled into spring adjuster (16). Decompress spring by rotating adjuster counterclockwise.

10 Remove diaphragm case assembly (1) by removing eight screws (25).

11, Diaphragm case (1) now lifts off spring case (3) and exposes Items 14, 15, 16 and 17, permitting their removal.

12 Remove four screws (26) and slide diaphragm flange (10) off stem nut (5).

13 Hold Actuator stem (13) so that it cannot turn, and insert a 3/16 inch Allen wrench into set screw (23) inside stem nut (5). Back set screw out several turns, so that stem nut and Actuator stem are unlocked.

14 Still holding Actuator stem, apply a wrench to flat surface machined on stem nut (5) and unscrew stem nut.

15. Remove sealing diaphragm (7), diaphragm case (1), diaphragm spacer (8), gasket (9), diaphragm plate (11), diaphragm (2), diaphragm head (12) and Actuator rod (13)

16. Inspect diaphragm and replace if necessary.

When reassembling, hold the Actuator rod from turning to protect the sealing diaphragm

Do not use a pipe wrench on the valve stem which might mar the valve stem finish

Also, it is important to make sure that both the sealing diaphragm and the main diaphragm are cupped into proper shape. Dust the main diaphragm with talcum powder to assist in lining it into the spring case. Make certain the stem nut (5) is down tight, before locking the set screw (28)

REPLACEMENT PARTS

Figures 9 thru 11 are parts drawings for the Diaphragm Valve Actuators. These drawings give the proper part names for each Actuator. However, there may be individual differences in specific assemblies due to

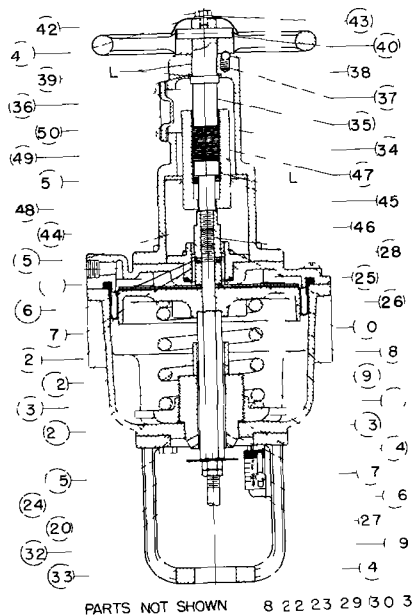
a. Design changes made since the printing of this Instruction Section

b. Special design of the equipment furnished for a particular application

Therefore, when ordering individual parts, assure the receipt of correct replacements by specifying on the order:

1. Complete Nomenclature (Type, Style, and Class) and Serial Number of the unit for which parts are desired

2. Parts Drawing on which each part is illustrated (The Parts Drawing Number is given in the title of the Figure)

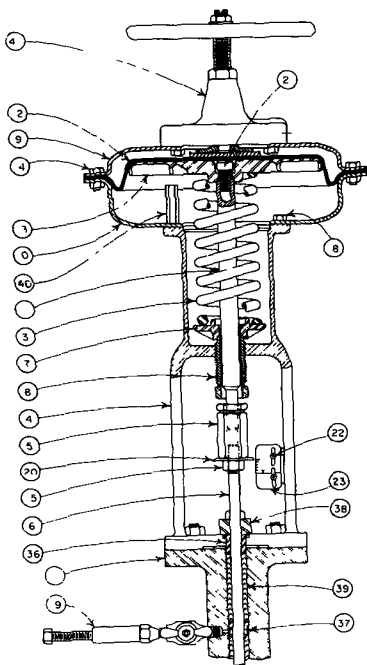


ITEM	PART NAME	ITEM	PART NAME
1	DIAPHRAGM CASE	27	MAIN SPRING
2	DIAPHRAGM	28	SET SCREW
3	DIAPHRAGM CASE	29	WASHER
4	VALVE STEM	30	SEAL PLATE
5	STEM NUT	31	DRIVE SCREW
6	WASHER	32	HEAT TREAT
7	SEAL DIAPHRAGM	33	JAM NUT
8	DIAPHRAGM SPACER	34	DIAPHRAGM HEAD
9	GASKET	35	DIAPHRAGM HEAD
10	DIAPHRAGM PLATE	36	WASHER
11	DIAPHRAGM HEAD	37	DIAPHRAGM HEAD
12	DIAPHRAGM HEAD	38	DIAPHRAGM HEAD
13	ACTUATOR ROD	39	DIAPHRAGM HEAD
14	SPRING	40	DIAPHRAGM HEAD
15	SPRING SEAT	41	DIAPHRAGM HEAD
16	DIAPHRAGM HEAD	42	DIAPHRAGM HEAD
17	DIAPHRAGM HEAD	43	DIAPHRAGM HEAD
18	DIAPHRAGM HEAD	44	DIAPHRAGM HEAD
19	DIAPHRAGM HEAD	45	DIAPHRAGM HEAD
20	DIAPHRAGM HEAD	46	DIAPHRAGM HEAD
21	DIAPHRAGM HEAD	47	DIAPHRAGM HEAD
22	DIAPHRAGM HEAD	48	DIAPHRAGM HEAD
23	DIAPHRAGM HEAD	49	DIAPHRAGM HEAD
24	DIAPHRAGM HEAD	50	DIAPHRAGM HEAD
25	DIAPHRAGM HEAD	51	DIAPHRAGM HEAD
26	DIAPHRAGM HEAD	52	DIAPHRAGM HEAD
27	DIAPHRAGM HEAD	53	DIAPHRAGM HEAD
28	DIAPHRAGM HEAD	54	DIAPHRAGM HEAD
29	DIAPHRAGM HEAD	55	DIAPHRAGM HEAD
30	DIAPHRAGM HEAD	56	DIAPHRAGM HEAD
31	DIAPHRAGM HEAD	57	DIAPHRAGM HEAD
32	DIAPHRAGM HEAD	58	DIAPHRAGM HEAD
33	DIAPHRAGM HEAD	59	DIAPHRAGM HEAD

NOTE: LIST OF PARTS FOR TYPE VDA1 VALVE ACTUATOR IS LISTED BY ITEM IN DIAPHRAGM CASE AND SPRING CASE PARTS LIST.

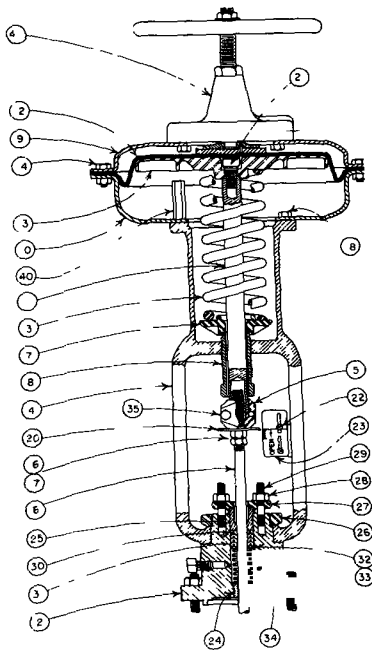
FIGURE 9 Parts Drawing P88 19, Type VDA1 Valve Actuators

Type VFA & VBA Diaphragm Actuators



TOP WORK FOR BALL VALVES

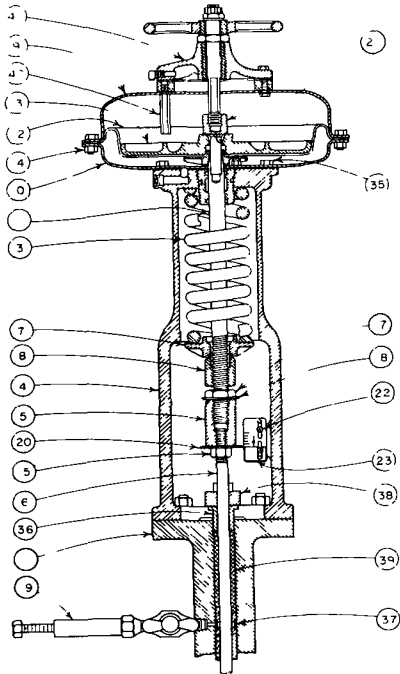
- VALVE BODY
- 2 BONNET GUNDE BUSHING AND INSERT FOR SKIRT WELDED CONSTRUCTION
- 3 ACTUATOR SPRING
- 4 YOKE
- 5 STEM CONNECTOR
- 6 STEM
- 7 LOWER SPRING SEAT
- 8 SPRING ADJUSTOR
- 9 UPPER DIAPHRAGM CASING
- 10 LOWER DIAPHRAGM CASING
- 11 ACTUATOR STEM
- 12 DIAPHRAGM
- 13 DIAPHRAGM PLATE
- 14 DIAPHRAGM BOLTS AND NUTS
- 15 STEM LOCK NUT
- 16 STEM JAM NUT
- 17 STEM LOCK NUT
- 18 LOWER CASING CAPSCREWS
- 19 STEM LUBRICATOR NOT USED WITH TEFLON PACKING
- 20 TRAVEL INDICATOR DISC



TOP WORK FOR FISCHER VALVES

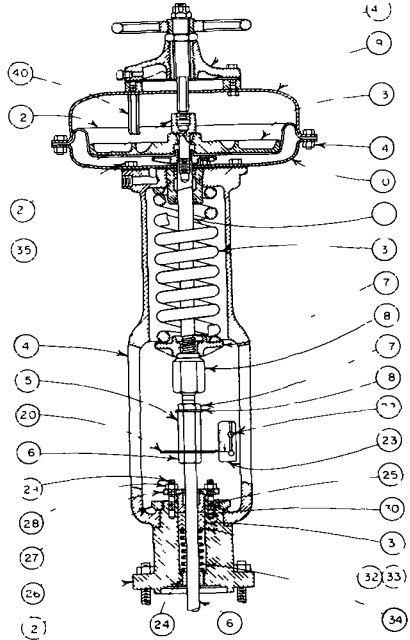
- 2 HEX SOCKET HD CAP SCREW
- 22 INDICATOR SCALE SCREWS
- 23 TRAVEL INDICATOR SCALE
- 24 STEM GUNDE BUSHING
- 25 GLAND
- 26 YOKER LOCK NUT
- 27 STUFFING BOX FLANGE
- 28 HEX NUT
- 29 STUD BOLT
- 30 TEFLON FEMALE ADAPTER
- 31 TEFLON PACKING
- 32 TEFLON MALE ADAPTER
- 33 WASHER
- 34 STUFFING BOX SPRING
- 35 HEX HD CAP SCREW
- 36 STUFFING BOX GLAND/PACKING FLANGE
- 37 STUFFING BOX LANTERN RING
- 38 STUFFING BOX NUT/PACKING FLANGE PLATE
- 39 STEM PACKING (NOT TEFLON)
- 40 STOP
- 4 HANDWHEEL

FIGURE 10 Parts Drawing P88-17, Top Connected Valve Actuators



TOPWORK FOR BAILEY VALVES

- VALVE BODY
- 2 BONNET GUIDE BUSHING AND INSERT FOR RIGHT GUIDED CONSTRUCTION
 - 3 ACTUATOR SPRING
 - 4 YOKE
 - 5 STEM CONNECTOR
 - 6 STEM
 - 7 LOWER SPRING SEAT
 - 8 SPRING ADJUSTOR
 - 9 UPPER DIAPHRAGM CASING
 - 0 LOWER DIAPHRAGM CASING
 - ACTUATOR STEM
 - 2 DIAPHRAGM
 - 3 DIAPHRAGM PLATE
 - 4 DIAPHRAGM BOLTS AND NUTS
 - 5 STEM LOCK NUT
 - 6 STEM LOCK NUT
 - 7 STEM NUT
 - 8 STAR LOCK WASHER
 - 9 STEM LUBRICATOR (NOT USED WITH TEFLON PKG)
 - 20 TRAVEL INDICATOR DISC



TOPWORK FOR FISHER VALVES

- 2 EXTENSION ON ROD LONGER THAN JACKET TO MOTOR
- 22 INDICATOR SCALE SCREW
- 23 TRAVEL INDICATOR SCALE
- 24 STEM GUIDE BUSHING
- 25 GLAND
- 26 YOKE LOCK NUT
- 27 STUFFING BOX FLANGE
- 28 HEX NUT
- 29 STUD BOLT
- 30 TEFLON FEMALE ADAPTER
- 31 TEFLON PACKING
- 32 TEFLON MALE ADAPTER
- 33 WASHER
- 34 STUFFING BOX SPRING
- 35 LOWER LASHING CAPSCREWS
- 36 STUFFING BOX GLAND (OR PACKING FLANGE)
- 37 STUFFING BOX LANTERN RING
- 38 STUFFING BOX NUT (OR PACKING FLANGE PLATE)
- 39 STEM PACKING (NOT TEFLON)
- 40 STOP
- 41 HANDLE

FIGURE 11 Parts Drawing P88-18, Bottom Connected Valve Actuators