Instruction
D-4900-1NE
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NOR'EAST CONTROLS, INC.
A DIVISION OF **ALLAGASH INTERNATIONAL**, INC.

Operator's Manual

SERIES 4900 THREE-WAY, GLOBE VALVES

Previously manufactured by Dezurik® and Honeywell®

Instructions

These instructions are intended for personnel who are responsible for installation, operation and maintenance of your DeZURIK Globe Valve.

Safety Messages

All safety messages in the instructions are flagged with the word Caution, Warning or Danger. These messages must be followed exactly to avoid equipment damage, personal injury or death.

Safety label(s) on the product indicate hazards that can cause equipment damage, personal injury or death. If a safety label becomes difficult to see or read, or if a label has been removed, please contact DeZURIK for replacement label(s).

WARNING!

Personnel involved in the installation or maintenance of valves should be constantly alert to potential emission of pipeline material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous pipeline materials. Handle valves, which have been removed from service with suitable protection for any potential pipeline material in the valve.

Inspection

Your DeZURIK Globe Valve has been packaged to provide protection during shipment. Carefully inspect the unit for damage upon arrival and file a claim with the carrier if damage is apparent.

Parts

Order parts from your local sales representative, or directly from DeZURIK, as listed on the back cover. Recommended spare parts are listed on the assembly drawing. These parts should be stocked to minimize downtime.

DeZURIK Service

DeZURIK service personnel are available to install, maintain and repair all DeZURIK products. DeZURIK also offers customized training programs and consultation services.

For more information, contact your local DeZURIK sales representative or visit our website at www.dezurik.com.

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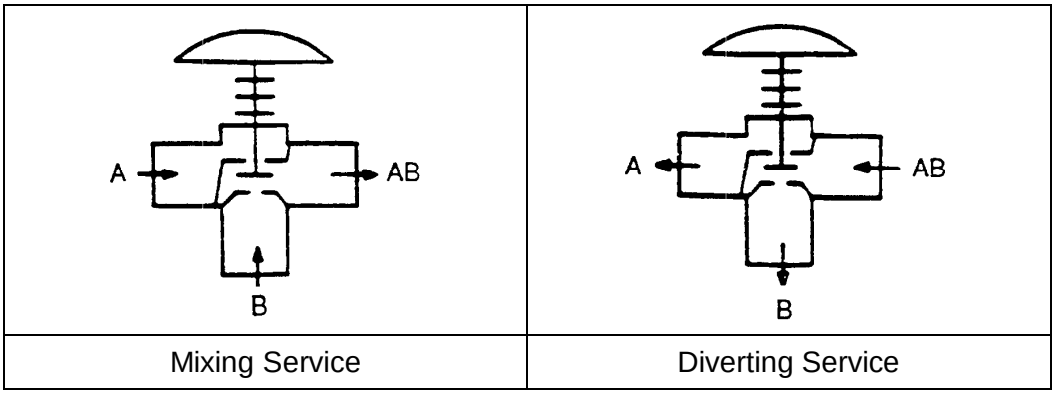
Description

The Series 4900 valve is a light duty, cast iron body, three-way globe valve for mixing and diverting applications with an available pneumatic diaphragm spring actuator or electric motor actuator. See Figure 1 for flow direction.

WARNING!

This valve is a pressure vessel. Failure to release pipeline pressure may result in personal injury and/or flow system damage. Completely release pipeline pressure before removing the actuator from the valve or removing the valve from the pipeline.



Mixing Service	Diverting Service

Figure 1: Flow Direction

Valve Pressure Ratings

See Table A for valve pressure ratings.

Table A: Valve Pressure Ratings

Valve Size	Pressure Rating (ANSI)
	Cast Iron (ANSI B16.1)
	Screwed Ends
1/2ò	125 lbs
3/4ò	
1ò	
1-1/4ò	
1-1/2ò	
2ò	

Installation

CAUTION!

If valve is used in a water system, the water must be adequately treated to prevent the formation of rust, carbonates and other undesirable deposits on valve parts. Otherwise, deposit build ups can damage packing, seats or other internal valve parts.

Installation *(Continued)*

- For maximum efficiency and minimum wear, install valve in the vertical position with valve stem pointing up.
- Be sure to leave a minimum of 4 inches clearance for actuator removal.
- Before installing, be sure valve and pipeline are clean inside and free of scale, chips and welding spatter.
- The valve must be installed with the fluid flow in the required by the application (mixing or diverting). Common port is stamped AB. This AB port is the outlet for mixing service and inlet for diverting service. Pipes must be lined squarely with the valve at each connection. If they are forced into the valve, the body may become twisted, causing improper seating. Be sure there are no pockets in the line where condensate could accumulate and cause an undesirable water hammer.
- Be sure that the flow medium and ambient temperature and the selected location will not exceed the maximum temperature limitations for the valve or actuator.
- If the valve has screwed ends, do not apply pipe dope or seal tape to the threads of the valve body or to the first two threads of the pipe.

Piping Tips for Valves with Screwed Ends

Valve held by hex next to pipe. (no twist, no squeeze on valve body)

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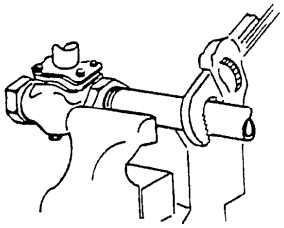
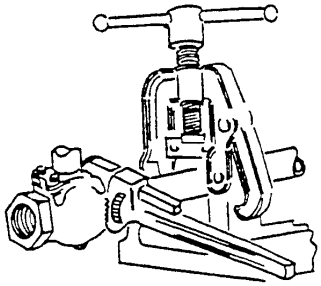


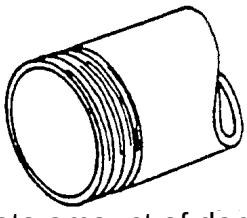
Vise grips hex end next to pipe.



Vise holds pipe securely against turning. Parallel ï jaw wrench grips hex or flats nest to pipe.

Pipe reamed and cleaned.

Pipe Size	Effective Length of Threads
1/2ò	1/2"
3/4"	9/16ò
1ò	11/16ò
1-1/4ò	11/16ò
1-1/2ò	11/16ò
2ò	3/4ò



Moderate amount of dope. (2 threads bare.)

Parts Identification

Nameplate Data

The nameplate gives vital information on valve construction and operation. Always reference the serial number when ordering spare parts.

The spring range (on spring diaphragm actuators) is factory set to specifications on the order. Note the type of trim material, packing and lubricant number (ñNONEòmeans packing does not require lubrication.) Remember that a change in operating conditions may mean a change in trim material, packing and lubricant type. Keep a permanent record of all nameplate information.

See Figure 2 for parts identification.

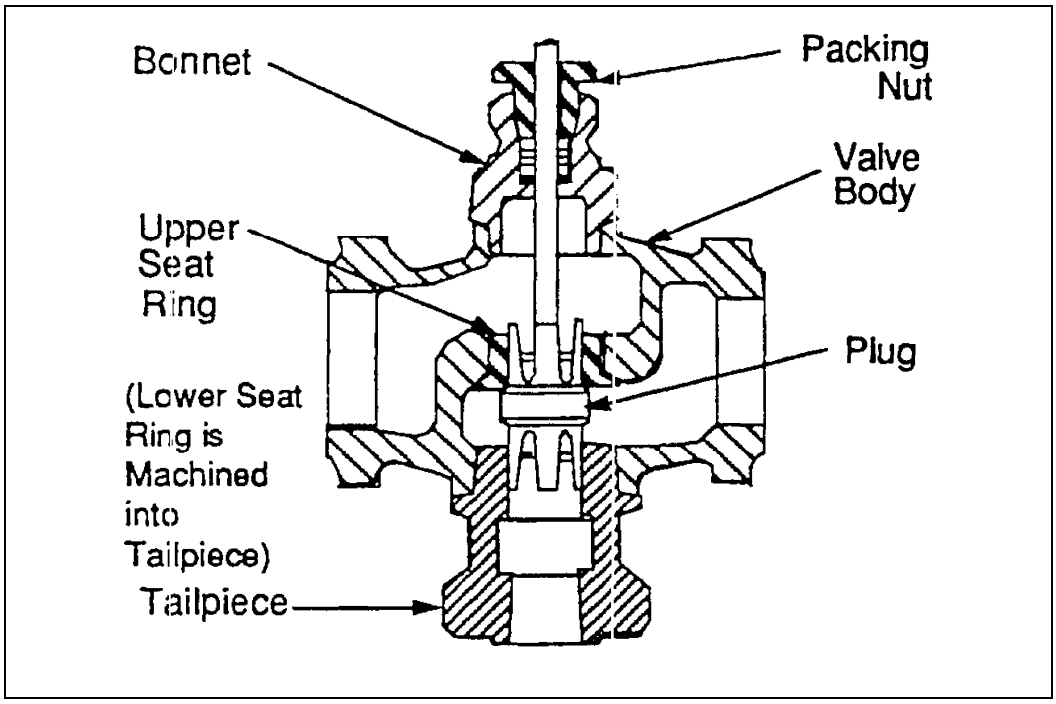


Figure 2: Parts Identification

Maintenance

Preventive maintenance consists of making a periodic visual inspection. This will reveal packing box leaks, loosening of air connections due to vibration and visible failures of valve parts and accessories.

Packing Box

Checking packing box for leakage. If leakage is evident;

- With spring-loaded Teflon packing, replace packing.

Connections

Check all mechanical and air connections. In some applications, particularly where the valve is located in a line near a pump, vibrations may cause both mechanical and air connections to work loose.

If possible, stroke the valve through several cycles, noting the operation, the pressure required to for stroking and the normal action of the valve.

Valve Overhaul

Generally, when a valve is overhauled the bonnet and actuator are removed from the valve body, the packing is removed from the packing box and all parts are cleaned. Make a thorough inspection of the plug, cage and stem to determine whether these parts should be re-used, re-worked or replaced. To minimize the possibility of leakage, always replace the bonnet and cage gaskets whenever the valve is disassembled.

Actuator Removal

- Stop pipeline flow and completely release pipe line pressure.

WARNING!

This valve is a pressure vessel. The bonnet will blow off the actuator if the bonnet bolts are removed with pressure in the valve. Completely release pressure before disassembling the valve.

- Disconnect and lock out the pneumatic or electrical power to prevent accidental operation of the actuator.

WARNING!

Moving parts from accidental operation of power actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before removal.

- Remove actuator from valve. See Figures 3 and 4 for actuator removal.

Valve Overhaul *(Continued)*

Actuator Removal (Pneumatic Actuator)

1. Loosen stem lock nut.
2. **IMPORTANT:** For **Air-to-Close** action, apply enough air pressure to almost close the valve but not seat the plug, to prevent damage.

   For **Air-to-Open** action, apply air pressure to lift the plug slightly off the seat to prevent damage.
3. Unscrew stem connector from actuator stem.
4. Disconnect pneumatic connections.
5. Loosen hex socket head capscrew in yoke collar and lift actuator off valve.

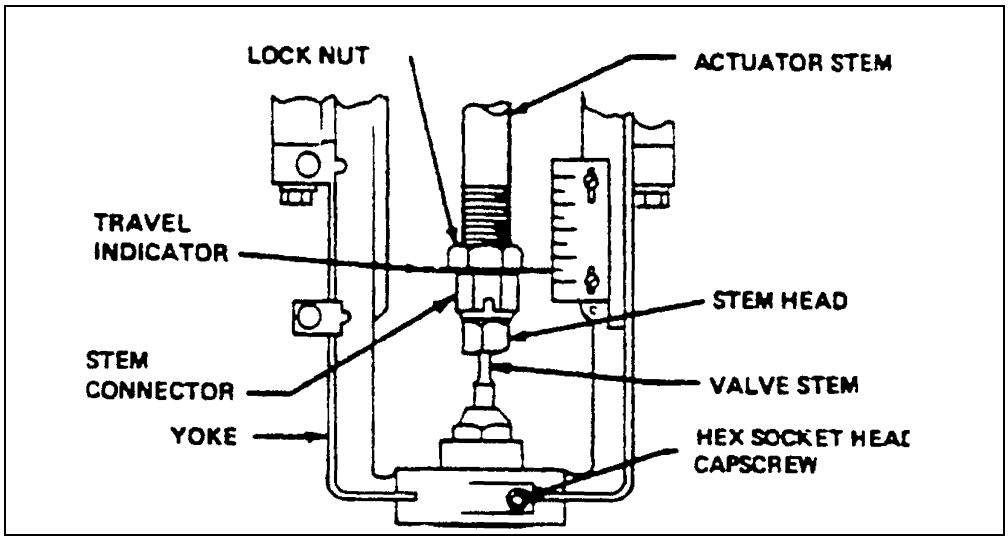
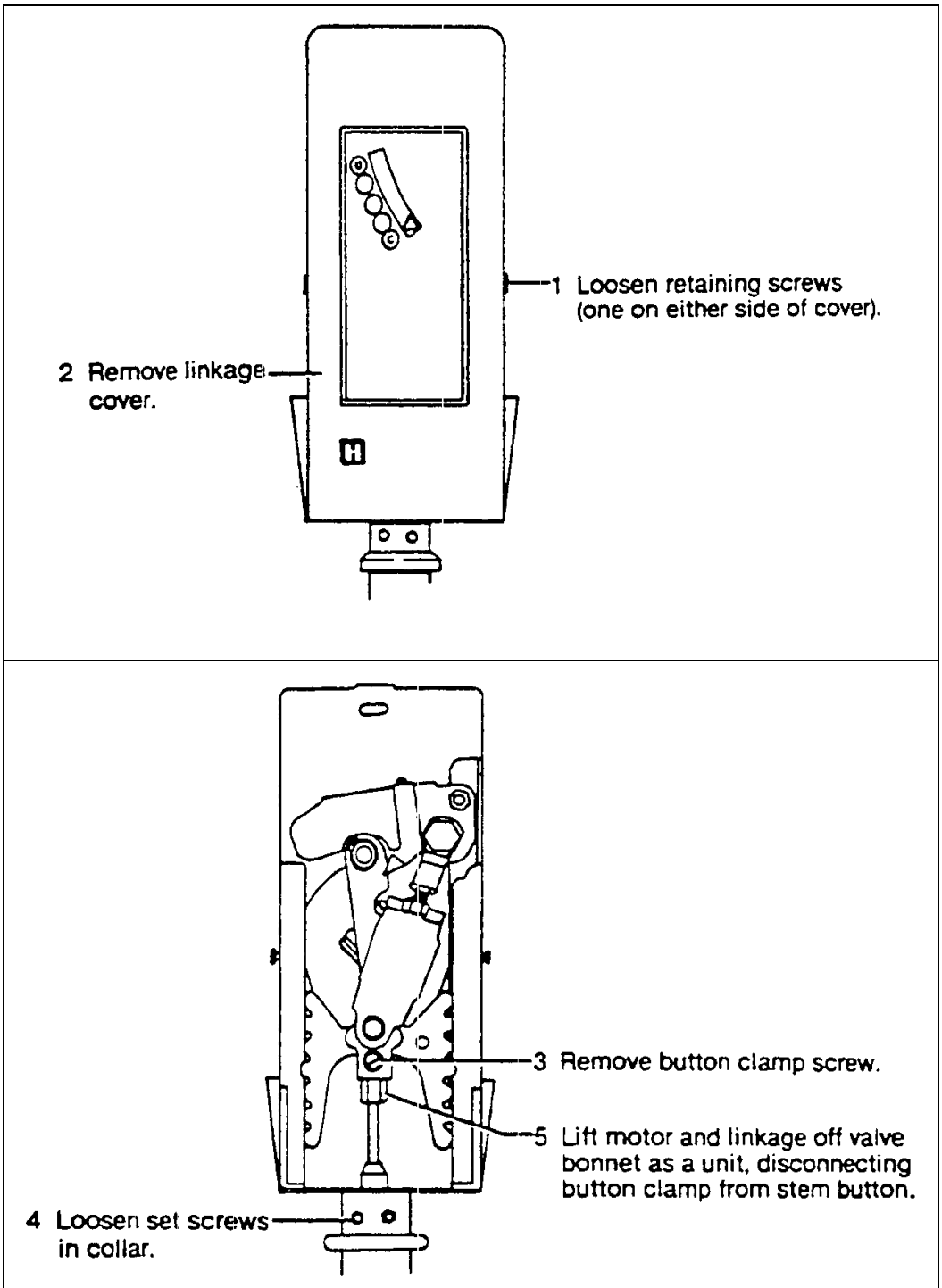


Figure 3: Actuator Removal (Pneumatic Actuator)

Valve Overhaul *(Continued)*



NOTE: For quick inspection of valve trim, remove the bonnet from the valve body with actuator still mounted and attached to the valve stem. If required, cage and gaskets can be removed and replaced. See "*Disassembly of Plug and Cage*" section.

Figure 4: Actuator Removal (Electric Motor)

Valve Overhaul *(Continued)*

Valve Disassembly

See Figure 2 for parts identification.

1. Unscrew tailpiece from valve body.
2. Unscrew bonnet from valve body.
3. Lift bonnet, valve stem and plug assembly from body.
4. Unscrew upper seat ring from valve body. (Use tool if available shown in Figure 5 to remove seat ring.)
5. Loosen packing flange nuts.
6. Rotate plug and stem from bonnet.

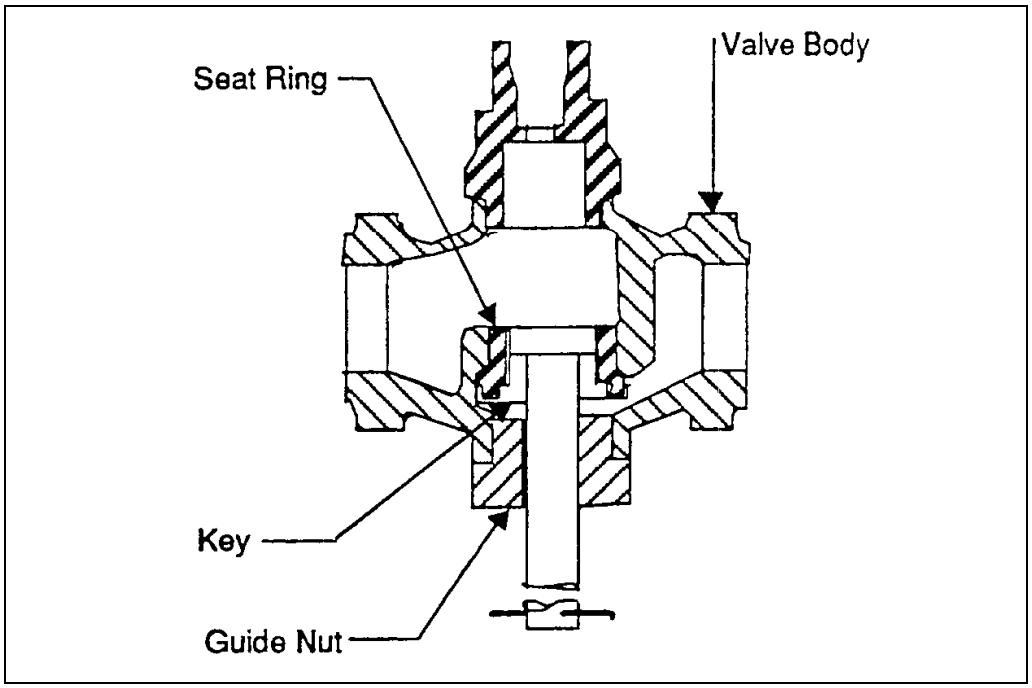


Figure 5: Seat Ring Removal

Valve Overhaul

(Continued)

Plug & Stem Disassembly

1/2" – 1" Valve Sizes - To replace plug in 1/2ò ï 1òvalve sizes, knock out pin securing plug to stem. To install a new plug, drill new pin hole through stem and plug at a 90° angle to old pin hole. See Figure 6.

1-1/4" – 2" Valve Sizes - To replace plug in 1-1/4ò ï 2òvalve sizes, loosen setscrew in plug and unscrew plug from stem.

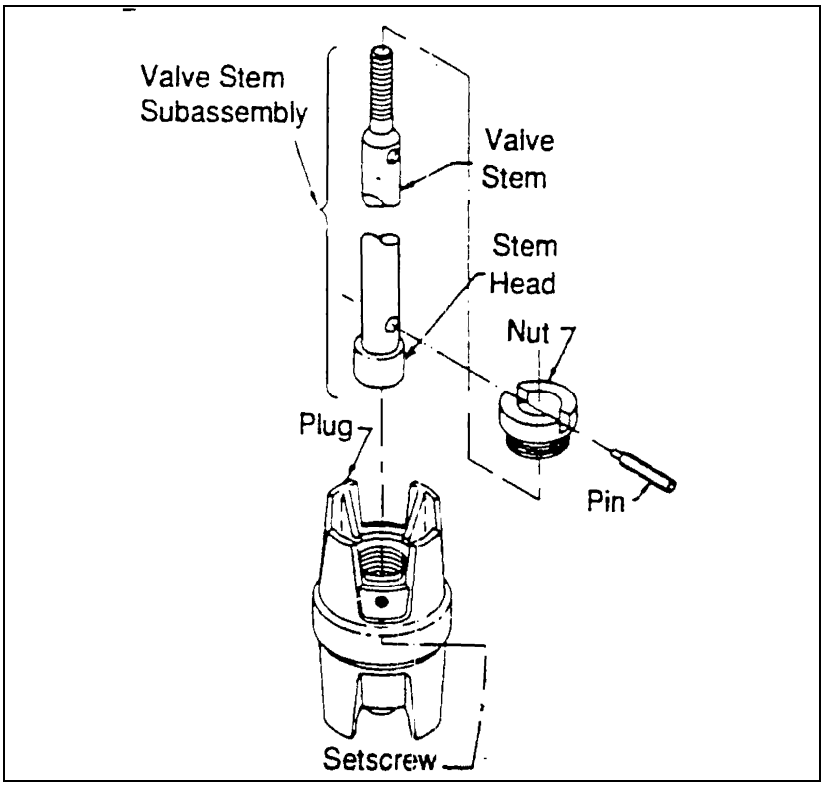


Figure 6: Plug & Stem Disassembly

Valve Re-assembly

NOTE: A new plug and seat ring should be installed at the same time to insure tight shutoff. Always replace required gaskets whenever the valve is disassembled to prevent leakage.

1. Screw seat ring into valve body.
2. Screw tailpiece into valve body.
3. If a new plug and seat rings are installed, lap plug. (See *"Lapping Plug"* section.)
4. Insert the plug and stem assembly into bonnet.
5. Screw bonnet to the valve body.
6. Install new packing. (See ñPacking Replacementòsection.)
7. Return valve to service and check for leaks before installing actuator.

Valve Overhaul *(Continued)*

Lapping Plug

See Figure 7 for lapping plug.

1. Apply lapping compound to the upper and lower seat rings as well as the seating surfaces of the plug.
2. Lap plug against lower seat ring. Then raised valve stem until plug contacts upper seat ring and lap in this position. Do not remove too much metal from the plug. Stop lapping after a seating surface 1/32 inch (0.8mm) wide is obtained.
3. Be sure to remove all traces of the lapping compound from the plug and seat rings.

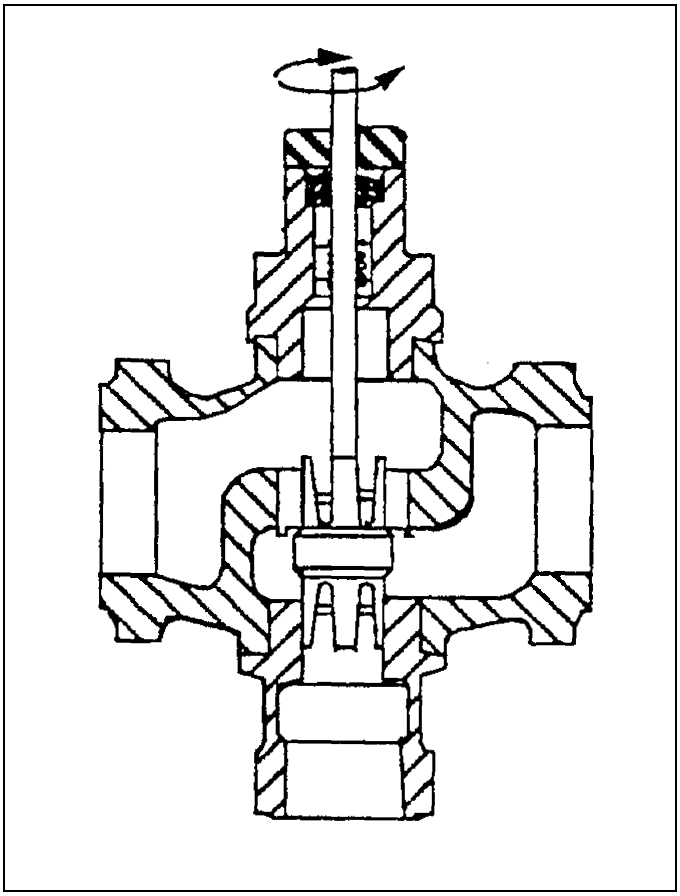


Figure 7: Lapping Plug

Valve Overhaul *(Continued)*

Packing Replacement

Spring-Loaded Teflon - To replace this packing, it is necessary to remove the actuator from valve and stem clamp from valve stem. See ñ*Actuator Removal*ò section for instructions to remove actuator.

- Disconnect and lock out the pneumatic or electrical power to prevent accidental operation of the actuator.

WARNING!

Moving parts from accidental operation of power actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing valve.

See Figure 8 for Spring-Loaded Teflon packing identification.

1. Unscrew packing box nut.
2. Remove old Teflon packing, lower stem wiper, upper spring seat, packing spring and lower spring seat from bonnet.
3. Clean lower stem wiper, upper spring seat, packing spring, lower spring seat, packing well and valve stem.
4. Place a small amount of Plasti-Lube #2 on the Teflon rings, the upper half of the valve stem and the packing box nut.
5. Replace lower spring seat, spring, upper spring seat and lower stem wiper.
6. Insert new Teflon packing into packing chamber. Be careful not to scratch or tear the Teflon rings while sliding over the valve stem.
7. Replace packing box nut. Turn the packing box down tight on the bonnet.
8. Mount actuator on valve and reconnect power. Turn on system and check valve for leaks.

Valve Overhaul *(Continued)*

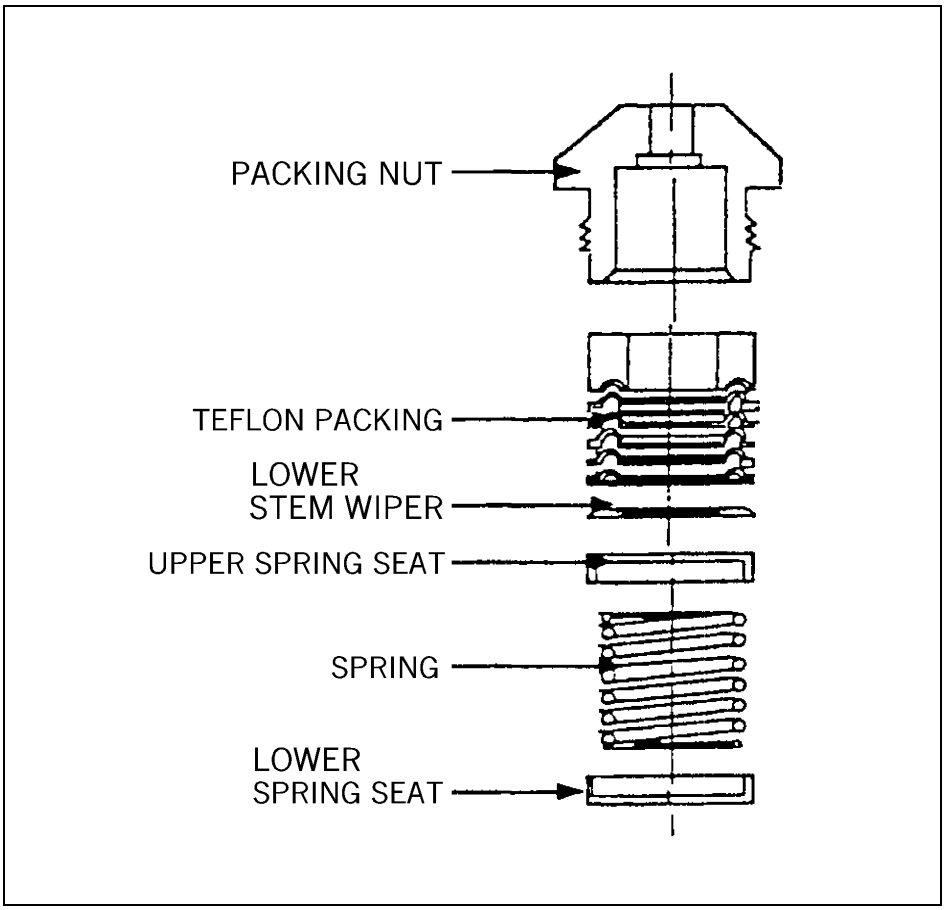


Figure 8 – Spring-Loaded Teflon Packing

Mounting Actuator

NOTE: Refer to nameplate to determine actuator and valve combination. See Figure 9 for actuator mounting and Figure 10 for stem connection.

Air-to-Close (Bottom Port ñBò) Actuator

1. Screw locknut onto actuator stem.
2. Place stem connector onto stem head.
3. Mount actuator onto bonnet and lock in place with hex socket head cap screw.
4. Insert travel indicator and raise valve stem to contact actuator stem.
5. Screw stem connector onto actuator stem until stem head is tight against actuator stem.
6. Hold stem connector with wrench and tighten locknut against travel indicator and stem connector.

Mounting Actuator *(Continued)*

Air-to-Close (Top Port ñAò) Actuator

1. Push valve stem down and seat plug.
2. Screw locknut onto actuator stem.
3. Place stem connector onto stem head.
4. Mount actuator onto bonnet.
5. Insert travel indicator and screw stem connector onto actuator stem until stem head is tight against actuator stem. ***Note:*** Be sure there is clearance between bottom of yoke and top of bonnet.
6. Tighten locknut against travel indicator and stem connector.
7. Apply air pressure to raise stems and permit actuator to seat on bonnet.
8. Lock actuator in place with hex socket head capscrew in yoke collar.

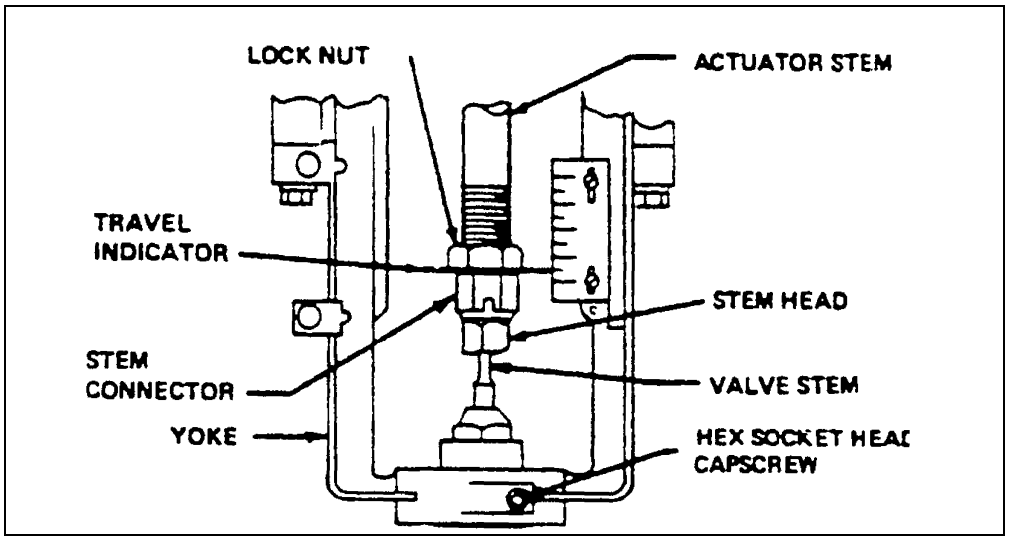


Figure 9: Actuator Mounting (Pneumatic Actuator)

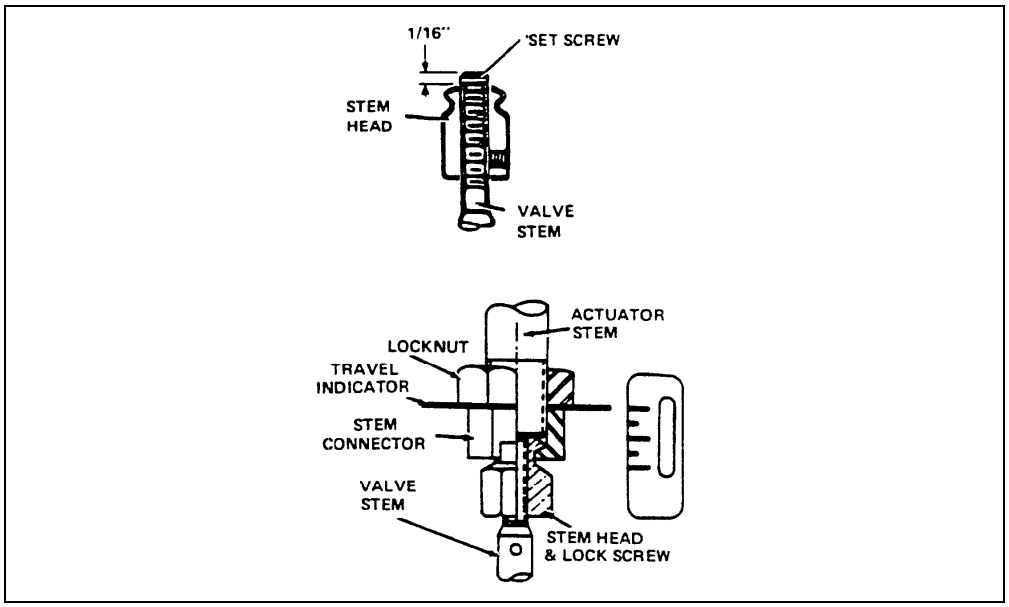


Figure 10: Stem Connection

Mounting Actuator *(Continued)*

Electric Motor Actuator

See Figure 11 for mounting electric motor.

1. Slide motor and linkage assembly onto valve bonnet and attach button clamp to valve stem.
2. Tighten hex set screws in collar.
3. Tighten button clamp screw.
4. Replace linkage cover and tighten cover retaining screws.

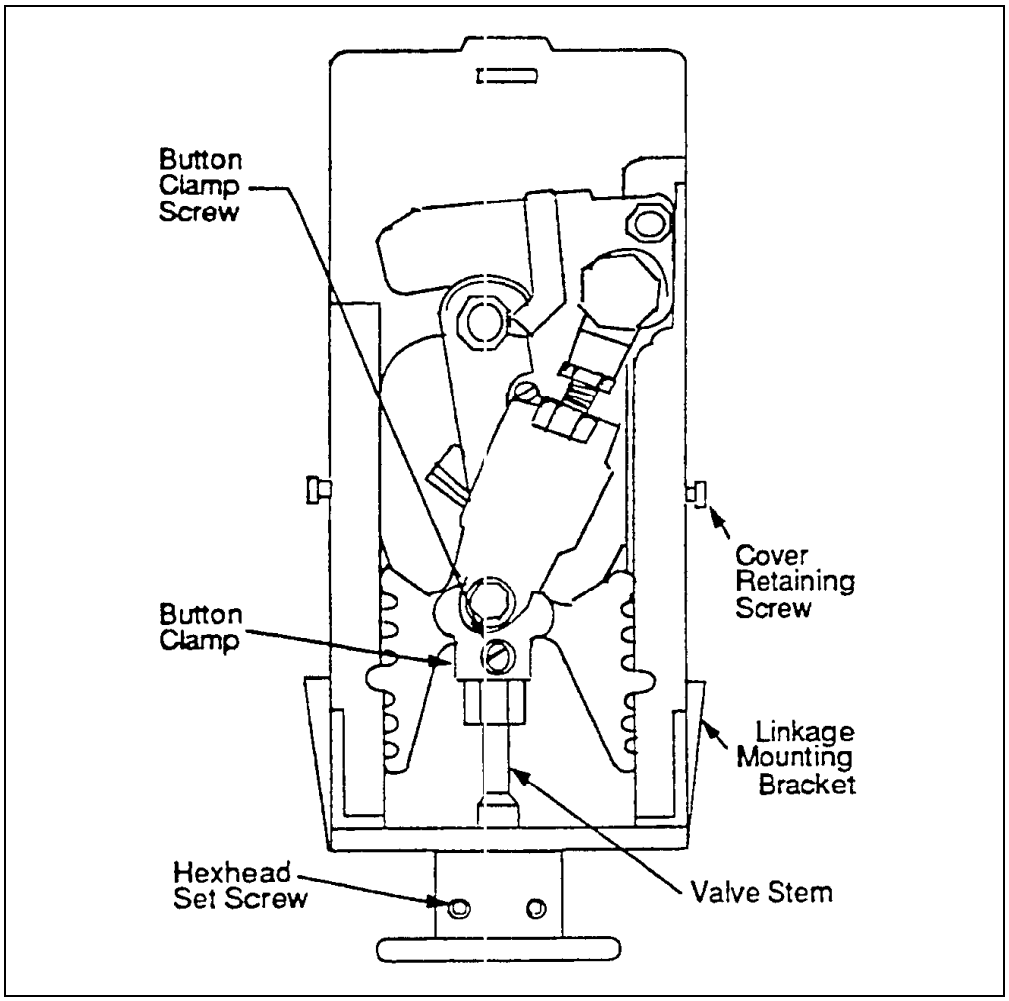


Figure 11: Actuator Mounting (Electric Motor)

Guarantee

Products, auxiliaries and parts thereof, of NorôEast Controlsô manufacture, are guaranteed for a period of one year from the date of shipment against defective workmanship and material only, when properly installed, operated and serviced in accordance with NorôEast Controlsô recommendations. Replacement for items of NorôEast Controlsô manufacture will be made free of charge if proved to be defective within such time. No claim for special or consequential damages, transportation, or labor shall be allowed. Purchaser shall be solely responsible for determining suitability for use and in no event shall NorôEast Controls be liable in this respect. Equipment or parts manufactured by others but furnished by NorôEast Controls will be repaired or replaced, only to the extent provided in the original manufacturerôs warranty to NorôEast Controls. NorôEast Controls does not guarantee resistance to corrosion, erosion, abrasion or other sources of failure, nor does NorôEast Controls guarantee a minimum length of service. Failure of the purchaser to give prompt written notice of any alleged defect under this guarantee forthwith upon its discovery, or use and possession thereof after an attempt has been made and completed by someone other than NorôEast Controls or an authorized representative to remedy defects therein, or failure to return products or parts for replacement as herein provided, of failure to install, operate, and maintain said products or parts according to instructions provided by NorôEast Controls, of failure to pay the entire contract price when due, shall be a waiver of all rights under these representations.

The foregoing guarantee shall be null and void, if, after shipment from our factory, the item is modified in any way or component of another manufacturer, such as but not limited to; an actuator is attached to the item by valves & controls other than a NorôEast Controls Factory Service Personnel. All orders accepted shall be deemed accepted subject to this guarantee, which shall be exclusive of any other previous guarantee, and this shall be the only effective guarantee or warranty binding on NorôEast Controls, anything to the contrary contained in the purchase order, or represented by any agent or employee of NorôEast Controls, in writing or otherwise, notwithstanding, including but not limited to implied warranties.

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1000 Riverside Street, Portland, Maine 04103
Ph: 207-781-8831 Fax: 207-781-8830

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For the name of the representative nearest you, contact:

Web site:www.allagashinternational.com **E-Mail:**sales@allagashinternational.com

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