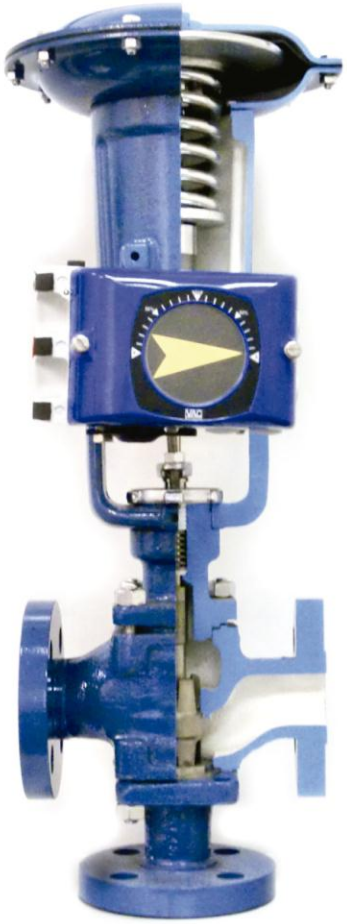
Instruction
D-1900-1NE
December 2010

NOR'EAST
CONTROLS, INC.
A DIVISION OF **ALLAGASH INTERNATIONAL**, INC.



Operator's Manual

SERIES 1900 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 Nor'East Controls 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 Nor'East Controls 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 Nor'East Controls 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 Nor'East Controls, as listed on the back cover. Recommended spare parts are listed on the assembly drawing. These parts should be stocked to minimize downtime.

Nor'East Controls Service

Nor'East Controls service personnel are available to install, maintain and repair all Nor'East Controls products. Nor'East Controls also offers customized training programs and consultation services.

For more information, contact your local Nor'East Controls sales representative or visit our website at www.Nor'East Controls.com.

Table of Contents

Description

The Series 1900 valve is a heavy duty, three-way globe valve for diverting applications with an available pneumatic diaphragm spring or springless 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.

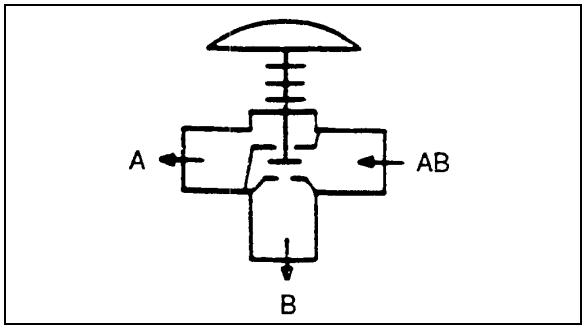


Figure 1: Flow Direction

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)	Carbon Steel & Stainless Steel (ANSI B16.34)
	Flanged Ends	Flanged Ends
3"	125 & 250 lbs	150, 300 & 600 lbs
4"		
6"		
8"		
10"		
12"		

Installation

CAUTION!

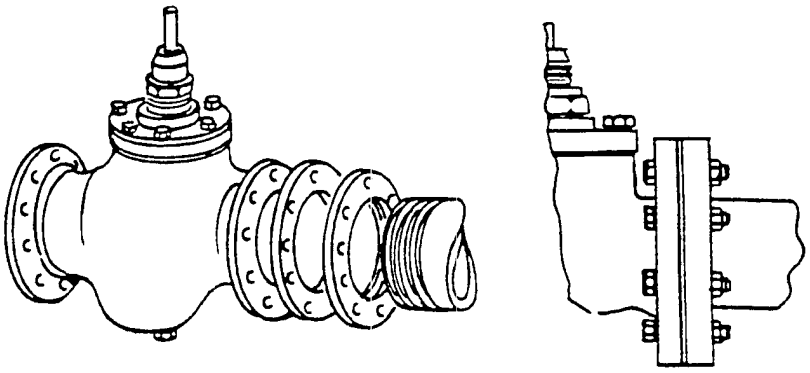
If valve is used in a water system, the water must be adequately treated to prevent the formation of rust, carbonates and other undesirable deposits on valve parts. Otherwise, deposit build ups can damage packing, seats or other internal valve parts.

- For maximum efficiency and minimum wear, install valve in the vertical position with valve stem pointing up.
- Be sure to leave a minimum of 4-1/4 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 flanged ends, tighten flange bolts evenly to prevent excessive stress and possible cracking.
- If the valve has welded ends, prevent plug and cage distortion by keeping excess heat from valve body. Position plug at mid-stroke during welding and heat-treating.

Installation *(Continued)*

Piping Tips for Valves with Flanged Ends

If possible, mount companion flange on pipe before mounting flange on the valve.



Do not apply pipe dope to valve flange, companion flange or gasket. Be sure face of companion flange is flush with face of valve-body flange and lined up square before tightening mounting nuts.

Note: If valve has welded ends, prevent plug and cage distortion by keeping excess heat from valve body.

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 ("NONE" means 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.

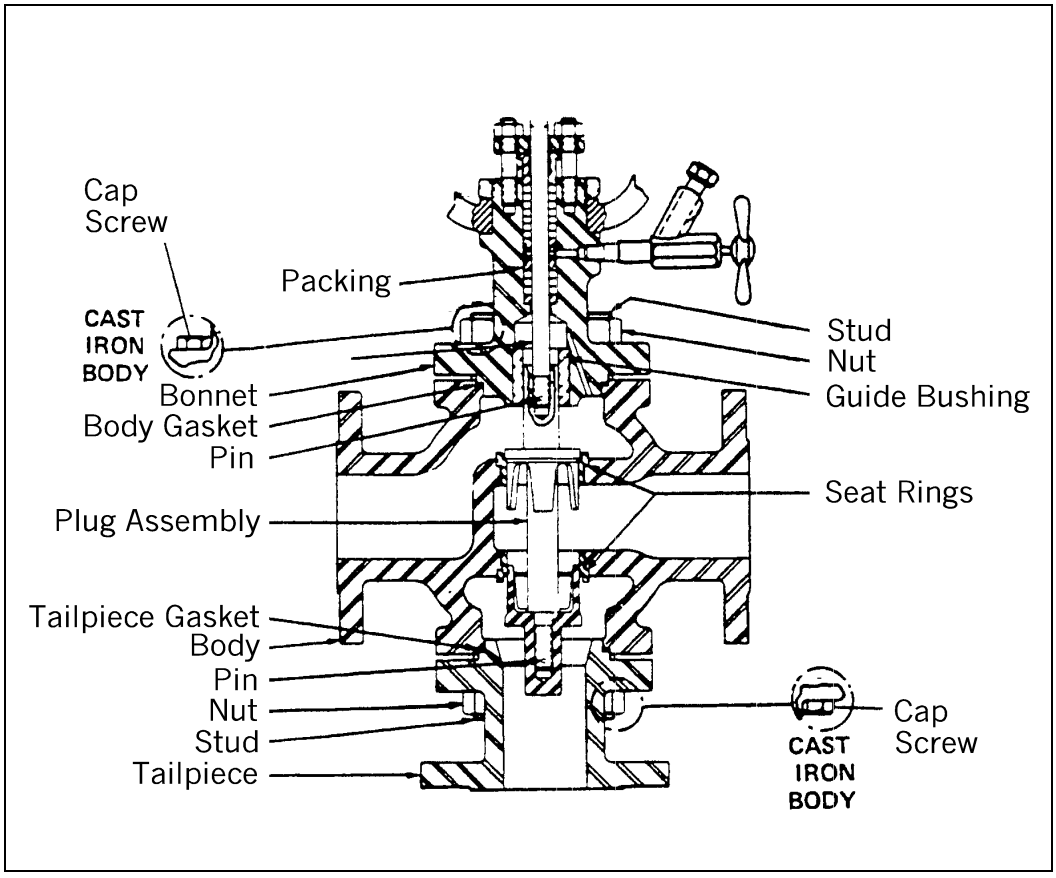


Figure 2: Parts Identification

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.
- With non spring-loaded packing, do not tighten packing flange beyond point required to stop leakage. If packing is too tight, excess stem friction is created due to the pressure of the packing against the stem. This excess stem friction may cause the diaphragm top to require several additional pounds of air to stroke valve. If tightening the packing flange nuts fails to stop the leakage, the packing box requires either additional packing or removal of old packing and installation of new packing. Occasional cleaning of the valve stem will keep dirt and grit from being carried into the packing.

If lubricated packing is supplied, make regular scheduled checks on lubrication. Replace lubricant as required. See Figure 3 for lubricating packing.

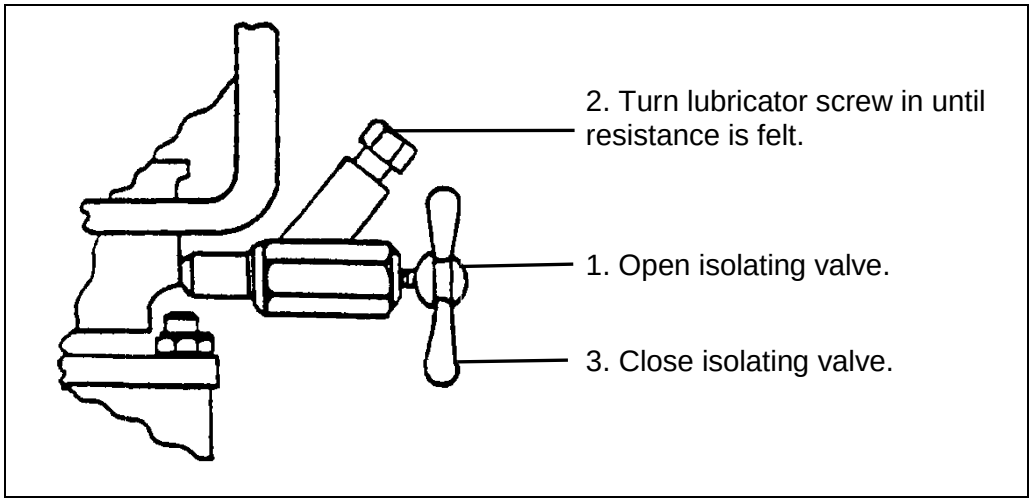


Figure 3: Lubricating Packing

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 4 for actuator removal.

Valve Overhaul *(Continued)*

Actuator Removal (Type 01 Pneumatic Actuator)

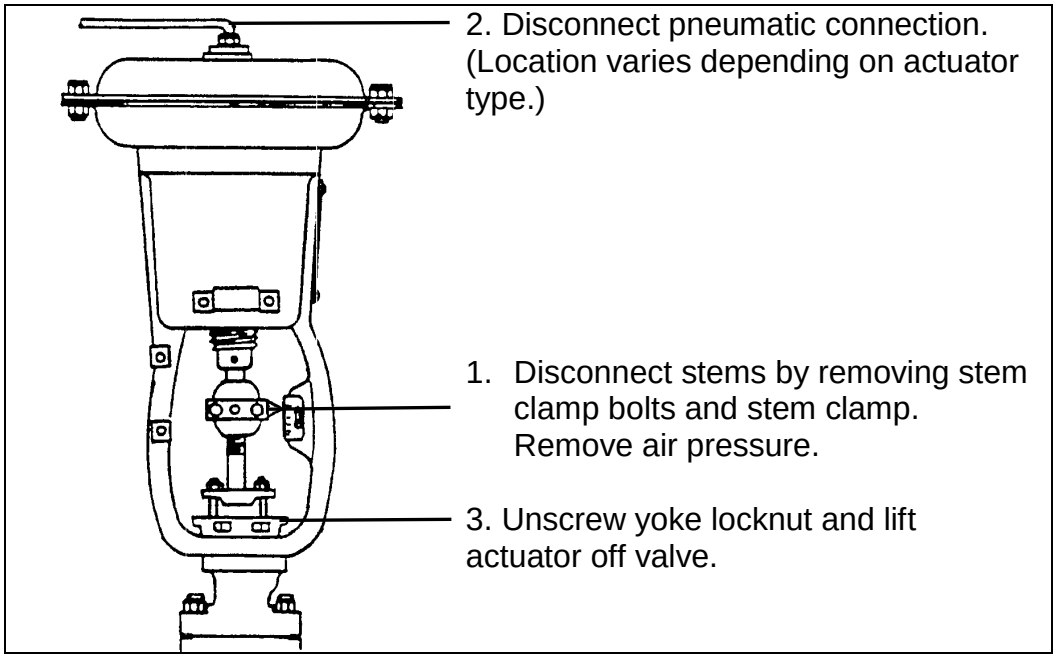


Figure 4: Actuator Removal (Type 01 Pneumatic Actuator)

Valve Overhaul *(Continued)*

Valve Disassembly

See Figure 5 for parts identification.

1. Loosen packing flange nuts or packing box nut.
2. Remove tailpiece and gasket from valve body.
3. Remove the lower seat ring and gasket from the valve body.

   1/2" thru 2-1/2" Valves: The lower seat ring is clamped between the tailpiece and valve body.

   3" thru 12" Valves: The lower seat ring is screwed into the tailpiece.
4. Rotate plug and stem out through bottom of valve body.

   1/2" thru 2-1/2" Valves with Bellows Seat Bonnet: Unscrew plug from plug stem and remove through bottom of valve body.

   3" thru 6" Valves with Bellows Seat Bonnet: Remove side cap on bellows seal bonnet and loosen pin. Turn locknuts and disengage stem from bellows assembly. Unscrew plug and stem assembly out through bottom of valve body.
5. Remove bonnet assembly and gasket from valve body.
6. Remove old packing from bonnet.
7. Unscrew upper seat ring from valve body. (Use tool if available shown in Figure 6 to remove seat ring.)
8. If the plug and seat rings are to be replaced, knock out pin securing the plug to the stem and unscrew plug from stem.

Valve Overhaul
(Continued)

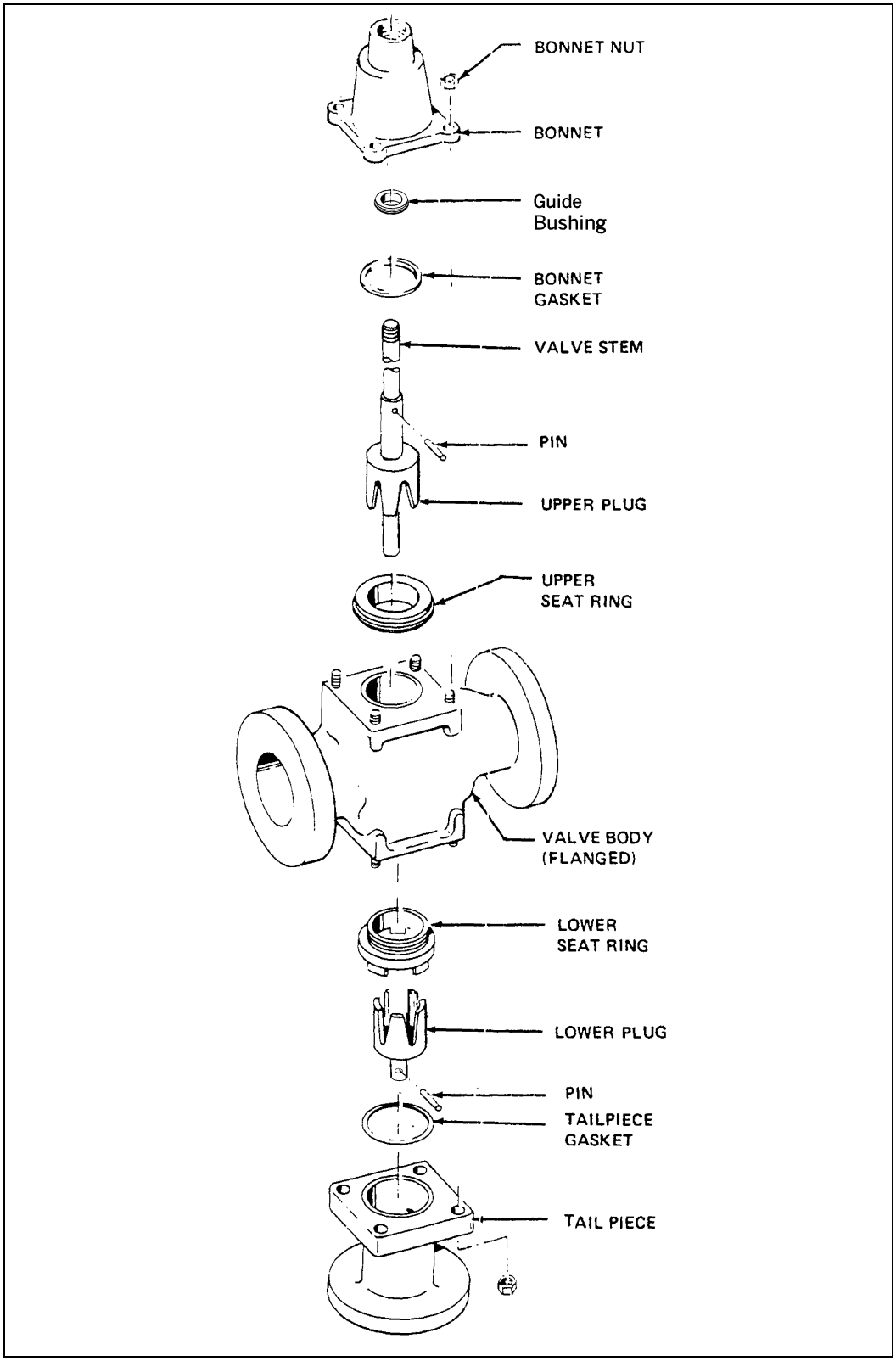


Figure 5: Disassembly of Valve

Valve Overhaul

(Continued)

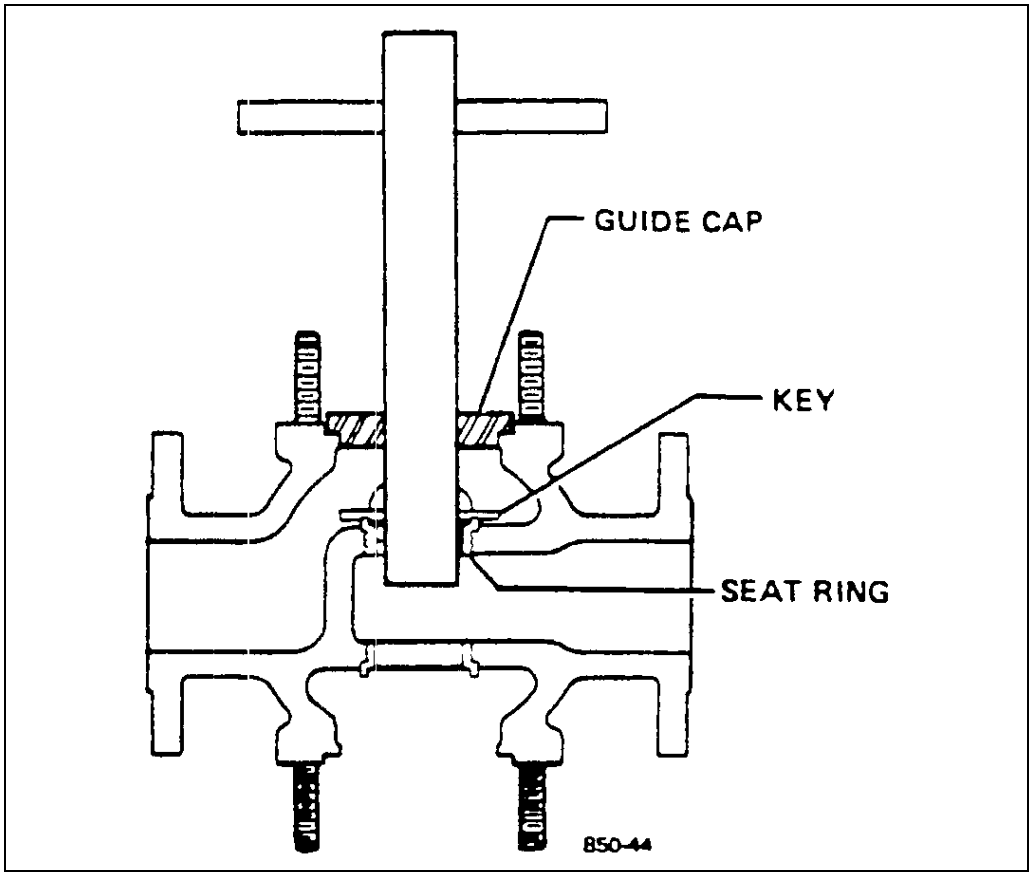


Figure 6: Seat Ring Removal

Valve Overhaul *(Continued)*

Valve Re-assembly

NOTE: A new plug and seat rings 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 upper seat ring into valve body.
2. Screw tailpiece into valve body.

   1/2" thru 2-1/2" Valves: Place a new gasket on the lower seat ring, a new gasket on the tailpiece and secure the tailpiece to the valve body.

   3" thru 12" Valves: Place a new gasket in the tailpiece and screw the lower seat ring into the tailpiece Place a new gasket on the lower seat ring and secure the tailpiece to the valve body.
3. If a new plug and seat rings are installed, screw new plug onto stem. Drill new hole through plug and stem and insert new pin. Lap plug. (See *"Lapping Plug"* section.)
4. Insert the plug and stem through bottom of valve.

   1/2" thru 2-1/2" Valves with Bellows Seat Bonnet: Screw plug onto stem through bottom of valve body.

   3" thru 6" Valves with Bellows Seat Bonnet: Install plug and stem assembly through bottom of valve body, screwing stem into bellows assembly until it bottoms. Tighten locknuts against bellows assembly and tighten pin. Replace side cap.
5. Place a new bonnet gasket on valve body and finger tighten the bonnet to the valve body. Alternate tightening of the bonnet nuts or capscrews until the bonnet raised face contacts the body on all sides. Tighten to the appropriate torque listed in Table C and Table D.
6. Install new packing. (See "Packing Replacement" section.)
7. Return valve to serivce and check for leaks before installing actuator.

Valve Overhaul

(Continued)

Table C: Bonnet Nuts Torque – Steel and Alloy Steel Bodies

Stud Size (Inches-UNC)	Recommended Torque	
	Lbs.-ft.	N-m
7/16-14	40-50	54-67
1/2-13	50-60	68-81
9/16-12	70-80	95-108
5/8-11	100-120	136-162
3/4-10	175-210	237-284
7/8-9	275-320	373-433
1-8	460-500	624-677
1-1/8-8	525-600	712-813

Table D: Bonnet Capscrews Torque – Cast Iron and Bronze Bodies

Stud Size (Inches-UNC)	Recommended Torque	
	Lbs.-ft.	N-m
7/16-14	15-25	21-33
1/2-13	30-40	41-54
9/16-12	50-70	68-94
5/8-11	70-100	95-135
3/4-10	120-170	163-230

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.

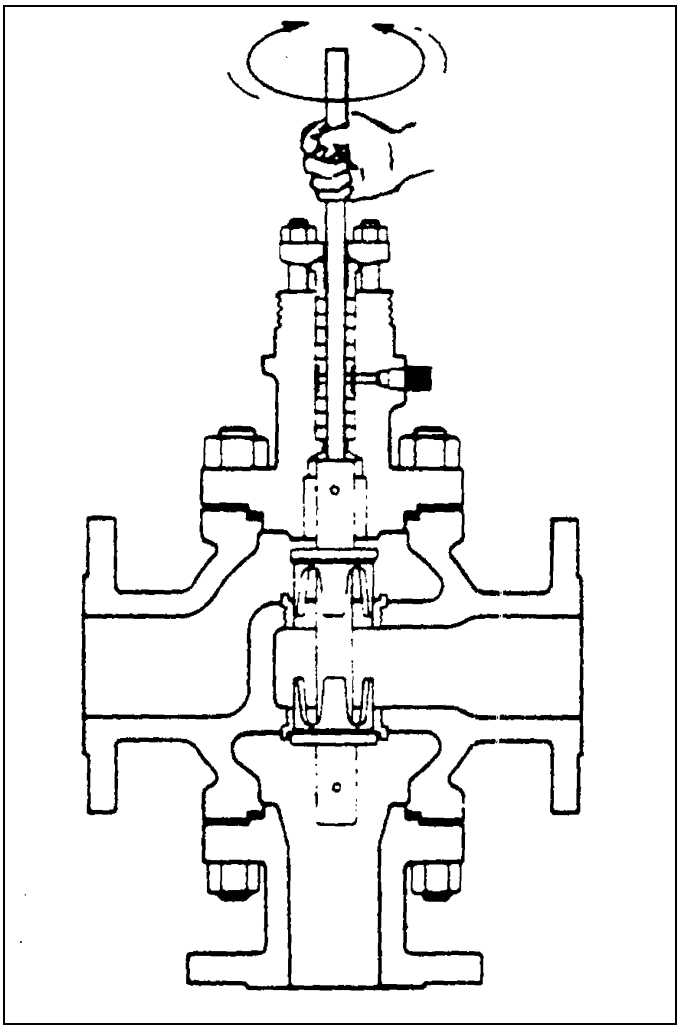


Figure 7: Lapping Plug

Valve Overhaul *(Continued)*

Packing Replacement

Teflon Graphite or Die Molded Laminated Graphite – To replace this packing, it is not necessary to remove the actuator from 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 servicing valve.

See Figure 8 for Teflon Graphite or Die Molded Laminated Graphite packing identification.

1. Unscrew packing flange nuts.
2. Raise packing flange and packing follower.
3. Remove all packing with standard packing hook.
4. Replace stem if severely scored. (See Disassembly of Plug and Cage section.)
5. Insert new packing into packing chamber. Make sure retaining ring is still in place, then push in 2 Teflon rings, the lantern ring and then 6 more Teflon rings with packing follower.
6. Replace the packing follower and packing flange. Finger tighten the packing flange nuts.
7. Re-connect power to the actuator. Turn on system and check valve for leaks.

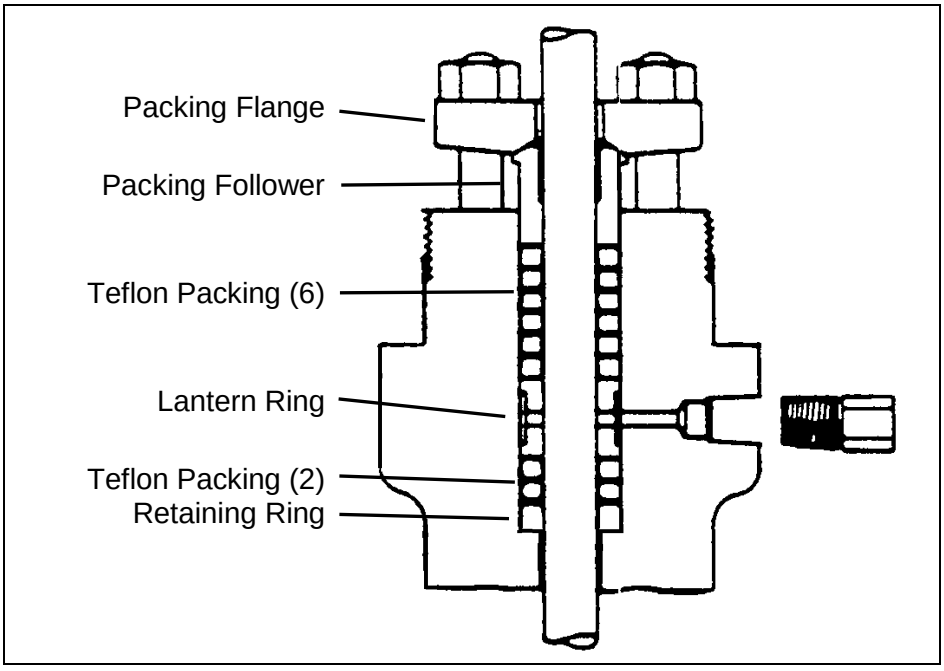


Figure 8: Teflon Graphite or Die Molded Laminated Graphite

Valve Overhaul *(Continued)*

Shredded Teflon - To replace this packing, it is necessary to remove the actuator from valve and stem clamp from valve stem. See "*Actuator Removal*" 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 9 for Shredded Teflon packing identification.

1. Unscrew packing flange nuts.
2. Lift packing flange and packing follower off valve stem.
3. Remove all packing with standard packing hook. Do not remove lantern ring.
4. Insert new packing into packing chamber. Push in 5 Teflon spacers and 4 Teflon packing rings (alternating spacer and packing rings) with packing follower.
5. Replace the packing follower and packing flange. Finger tighten the packing flange nuts.
6. Mount actuator on valve and reconnect power. Turn on system and check valve for leaks.

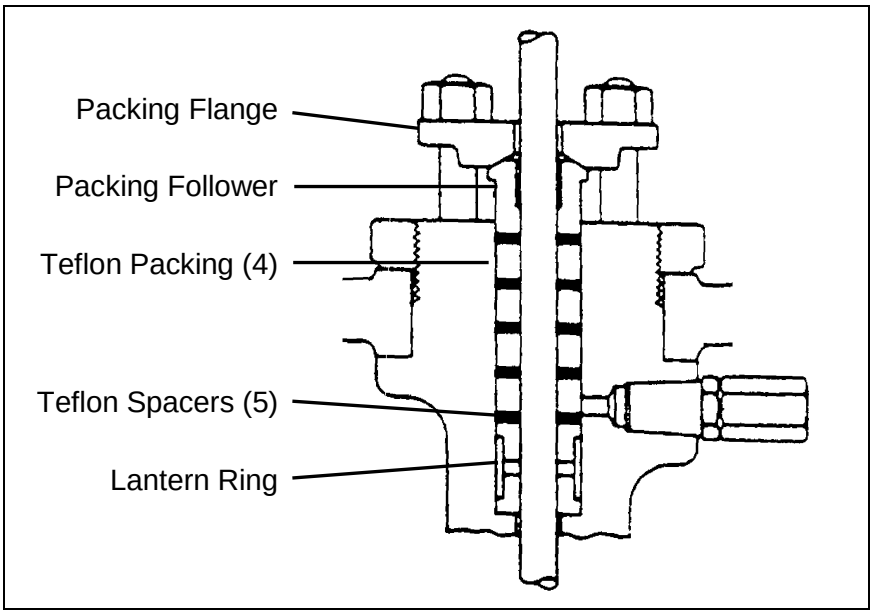


Figure 9: Shredded Teflon Packing

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 "*Actuator Removal*" 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 10 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)*

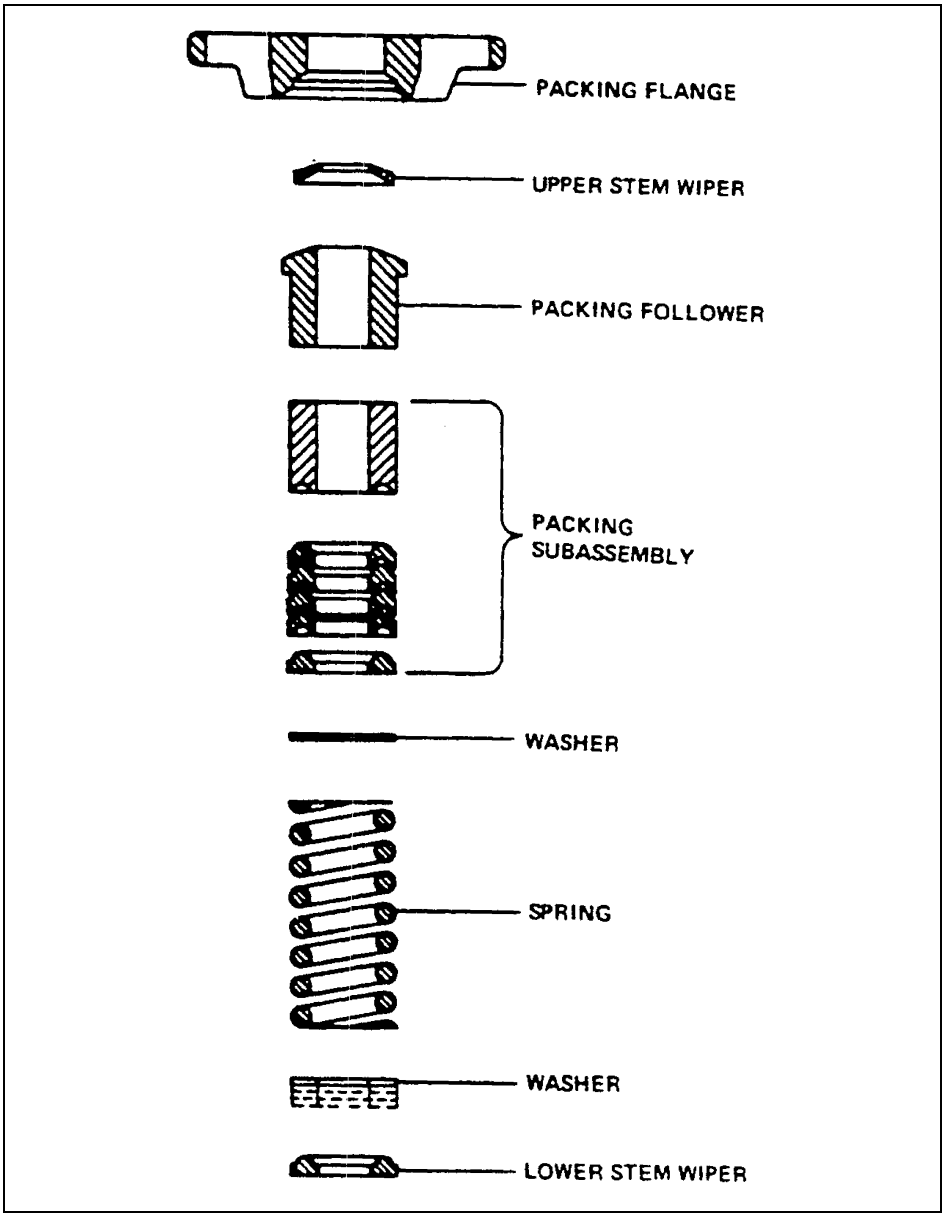


Figure 10: Spring-Loaded Teflon Packing

Mounting Actuator

NOTE: Refer to nameplate to determine actuator and valve combination. See Figure 11 for stem connection.

Air-to-Close (Direct Acting) 01 Pneumatic Actuator

1. Mount actuator onto bonnet and lock in place with yoke locknut.
2. Apply sufficient air pressure to actuator to lower actuator stem 1/6".
3. Pull valve stem up until valve plug seatrs.
4. Lock valve stem to actuator stem with stem clamp.
5. Reposition travel indicator scale if necessary.

Mounting Actuator *(Continued)*

Air-to-Close (Reverse Acting) 01 Pneumatic Actuator

1. Push valve stem down until plug seats.
2. Mount actuator onto bonnet and lock in place with yoke locknut.
3. Apply sufficient air pressure to actuator to raise actuator stem 1/6".
4. Lock valve stem to actuator stem with stem clamp.
5. Reposition travel indicator scale if necessary.

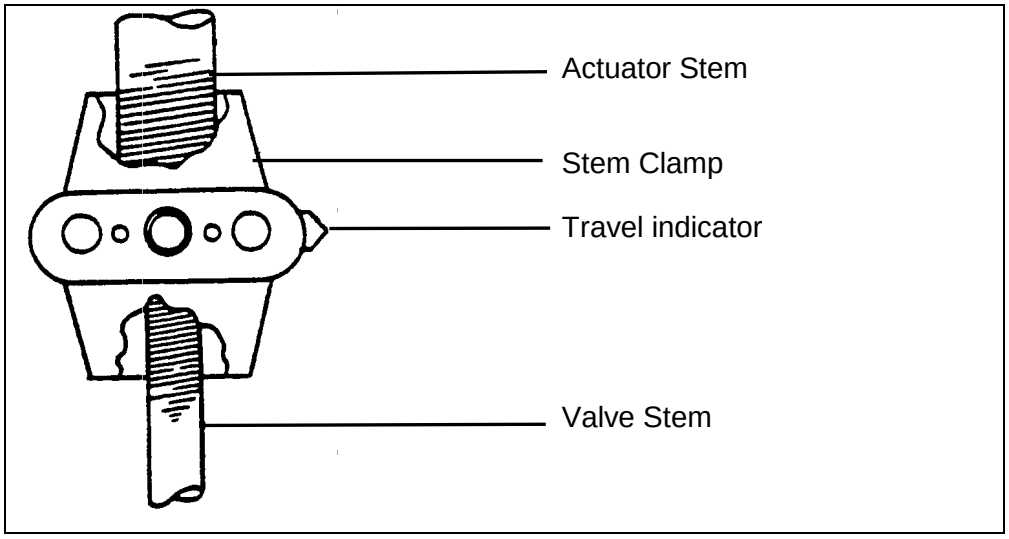


Figure 11: Stem Connection

NOTE: Refer to nameplate to determine actuator and valve combination. See Figure 11 for stem connection.

Air-to-Close (Direct Acting) 05 Pneumatic 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.

Guarantee

Products, auxiliaries and parts thereof, of Nor'East Controls' 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 Nor'East Controls' recommendations. Replacement for items of Nor'East Controls' 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 Nor'East Controls be liable in this respect. Equipment or parts manufactured by others but furnished by Nor'East Controls will be repaired or replaced, only to the extent provided in the original manufacturer's warranty to Nor'East Controls. Nor'East Controls does not guarantee resistance to corrosion, erosion, abrasion or other sources of failure, nor does Nor'East 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 Nor'East 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 Nor'East 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 Nor'East 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 Nor'East Controls, anything to the contrary contained in the purchase order, or represented by any agent or employee of Nor'East Controls, in writing or otherwise, notwithstanding, including but not limited to implied warranties.

THE FOREGOING OBLIGATIONS ARE IN LIEU OF ALL OTHER OBLIGATIONS AND LIABILITIES INCLUDING WARRANTIES OF FITNESS OR MERCHANTABILITY OR OTHERWISE, EXPRESSED OR IMPLIED IN FACT OR BY LAW, AND STATE NOR'EAST CONTROLS AND EXCLUSIVE LIABILITY AND PURCHASER'S EXCLUSIVE REMEDY FOR ANY CLAIM IN CONNECTION WITH THIS SALE OR FURNISHING OF SERVICES, GOODS, OR PARTS, THEIR OWN DESIGN, SUITABILITY FOR USE, INSTALLATION OR OPERATION.

Limitation of Liability

In no event shall Nor'East Controls be liable for any direct, indirect, special or consequential damages whatsoever, and Nor'East Controls' liability, under no circumstances, will exceed the contract price for the goods and/or services for which liability is claimed. Any action for breach of contract must be commenced within 1 year after the cause of the action has occurred.

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

Sales and Service

Nor' East Controls representatives are located in major cities throughout the world.
For the name of the representative nearest you, contact:

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

Nor' East reserves the right to incorporate our latest design and material changes without notice or obligation. Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing by Nor' East Controls. Certified drawings are available upon request.