

Instruction
D-Type05A-1NE
December 2010

NOR'EAST

— CONTROLS, INC.
A DIVISION OF ALLGASH INTERNATIONAL, INC.



Operator's Manual

TYPE 05 AIR-O-MOTOR ACTUATOR,
USED WITH GLOBE VALVES

Previously manufactured by Dezurik® and Honeywell®

Nor' East

Type 05 Air-O-Motor Actuator Used With Globe Valves

Instructions

These instructions are intended for personnel who are responsible for installation, operation and maintenance of your Nor'East Controls Actuator.

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 Actuator 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	
Action - - - - -	2
Installation	
Thrust Model - - - - -	4
Lever Model - - - - -	4
Both Models - - - - -	4
Assembling Lever for Direct Action - - - - -	4
Changing to Reverse Lever Action - - - - -	5
Parts Identification - - - - -	6
Preventive Maintenance - - - - -	7
Diaphragm Replacement - - - - -	7
Gradutrol Positioner Adjustment - - - - -	7

Nor' East

Type 05 Air-O-Motor Actuator Used With Globe Valves

Description

The Type 05 Air-O-Motor actuator is a compact pneumatic power device which converts a signal pressure into mechanical motion. The force developed can exert either a straight upward or downward thrust, or operate a reversible lever working on a pivot. Travel is proportional to the amount of air pressure.

Two models are available – Thrust or Lever. Thrust models provide more force, but less travel. Lever models provide more travel, but less force. Refer to Tables A, C and C.

Action

Thrust models are direct acting which means the actuator stem moves downward with increasing air pressure. For lever models, the action can be either direct or reverse with increasing air pressure depending upon the lever mounting arrangement. See Figure 1.

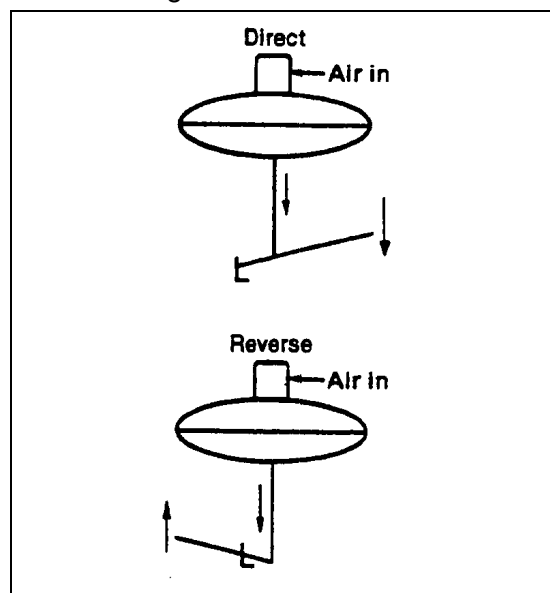


Figure 1 – Lever Action,
Direct and Reverse

Table A – Travel - mm (in.)

Thrust Model	38 mm (1.50)						
Lever Model							
Lever Hole							
A	B	C	D	E	F	G	H
82(3.24)	110(4.32)	137(5.40)	165(6.48)	192(7.57)	219(8.63)	247(9.72)	274(10.80)

Table B: Force kg (lbs)									
Spring Range kPa (psig)	Full Travel	Full Travel			Full Travel		Zero Travel		
	21-103 (3-15)	34-90 (5-13)			48-124 (7-18)		21-103 (3-15)	34-90 (5-13)	48-124 (7-18)
Air Pressure kPa (psig)	124 (18)	124 (18)	172 (25)	241 (35)	172 (25)	241 (35)	0	0	0
Thrust Model kg (lbs)	54 (120)	91 (200)	218 (480)	399 (880)	127 (280)	308 (680)	54 (120)	91 (200)	127 (280)
Lever Model	Full Travel					Zero Travel			
Lever Hole	Full Travel					Zero Travel			
A	25 (55)	41 (90)	100 (220)	184 (405)	59 (130)	141 (310)	25 (55)	41 (90)	59 (130)
B	19 (41)	32 (70)	75 (165)	138 (305)	43 (95)	107 (235)	19 (41)	32 (70)	43 (95)
C	15 (33)	25 (55)	59 (130)	111 (245)	36 (80)	86 (190)	15 (33)	25 (55)	36 (80)
D	13 (28)	20 (45)	50 (110)	91 (200)	29 (65)	70 (155)	13 (28)	20 (45)	29 (65)
E	11 (24)	18 (40)	43 (95)	79 (175)	25 (55)	61 (135)	11 (24)	18 (40)	25 (55)
F	10 (21)	16 (35)	36 (80)	68 (150)	23 (50)	52 (115)	10 (21)	16 (35)	23 (50)
G	8 (18)	14 (30)	34 (75)	61 (135)	20 (45)	48 (105)	8 (18)	14 (30)	20 (45)
H	7 (16)	11 (25)	29 (65)	54 (120)	18 (40)	43 (95)	7 (16)	11 (25)	18 (40)
NOTE: For rotary-actuated final control elements, determine available torque using brochure PIB-16, "Air-O-Motor Actuator Size Selection".									

Nor' East

Type 05 Air-O-Motor Actuator Used With Globe Valves

Installation Thrust Model

This unit is usually shipped completely assembled. The base plate has four 9/16 (14 mm) diameter mounting holes. The clevis is screwed onto the actuator stem and locked with a set screw. To attach the clevis to the valve linkage, remove the pin. For wall mounting, a 90° bracket is supplied with mounting holes to match the base plate.

Lever Model

This unit is usually shipped with lever unassembled (see Assembling Lever for Direct Action). If reverse action is desired, see Changing to Reverse Lever Action. The base plate has four 9/16 (14 mm) diameter mounting holes. Attach valve linkage, etc. to proper lever hole (hole is 3/8 (10 mm) diameter). For wall mounting, a 90 bracket is supplied with mounting holes to match the base plate.

Both Models

Air connections for the actuator are 1/4 NPT. Gradutrol positioner connections are 1/8 NPT. 1/4" ID tubing and fittings are recommended for the rest of the line.

Connect instrument air signal to "P" port and regulated air supply (max 25 psig) to "M" port, when installing a Gradutrol positioner.

Assembling Lever for Direct Action

1. Loosen two set screws in clevis and one in pivot point.
2. Remove pins.
3. Turn clevis, insert lever and insert clevis pin.
4. Line up lever in pivot point and insert pivot pin.
5. Tighten set screws in clevis and pivot point.

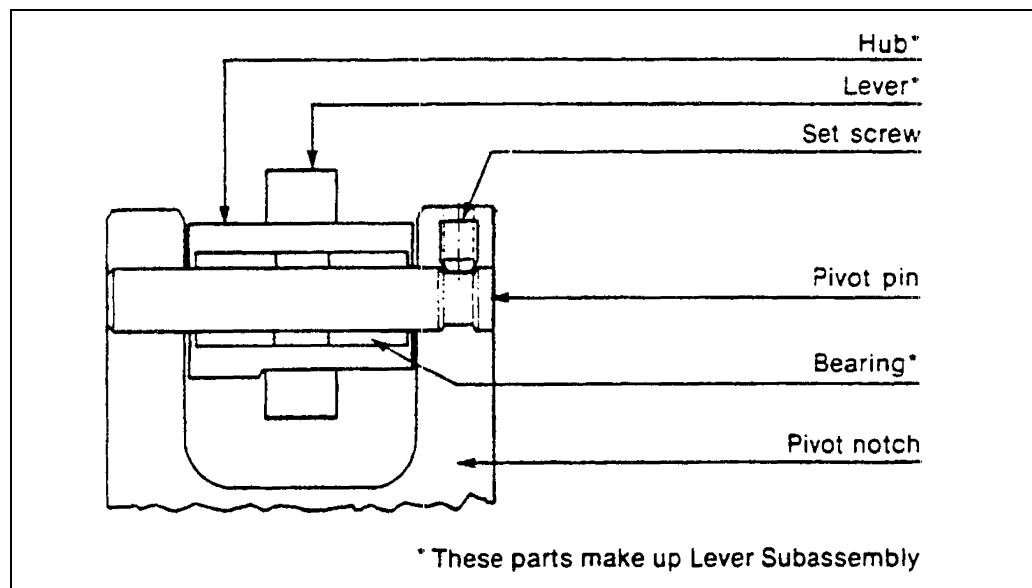


Figure 2 – Cutaway View of Lever Secured in Pivot Notch

Installation
(continued)

Changing to Reverse Lever Action

1. Unscrew set screw in pivot point.
2. Unscrew and remove pivot point. See Figure 3.

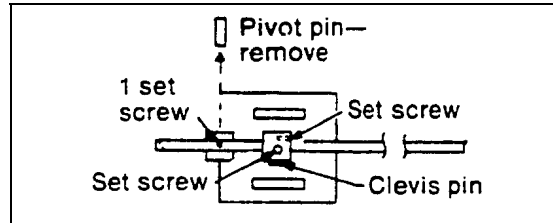


Figure 3 – Remove Pivot Point

3. Lift lever from pivot notch and place in position shown in Figure 4. It may be necessary to loosen set screw in top of clevis.

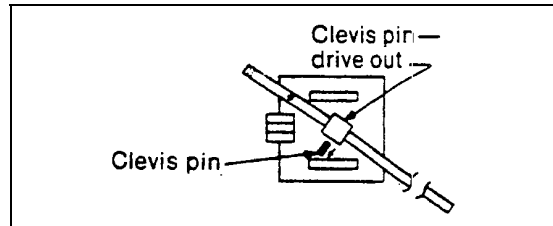


Figure 4 – Lever Position

4. Remove lever set screw and drive out clevis pin with punch.
5. Remove lever from clevis and yoke.
6. Turn lever 180° and insert through yoke. See Figure 5.

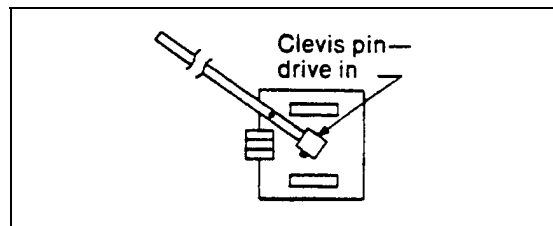


Figure 5 – Lever in Yoke

7. Drive clevis pin in until near end is flush and other end protrudes 1/8" (0.9 mm). See Figure 5.
8. Replace set screws.

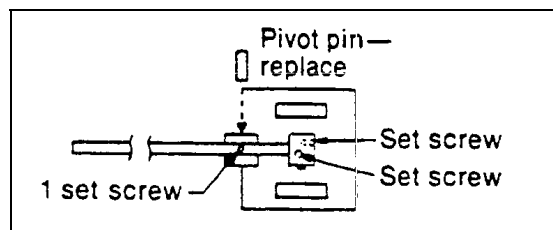


Figure 6 – Lever in Yoke

Nor' East

Type 05 Air-O-Motor Actuator Used With Globe Valves

Parts Identification

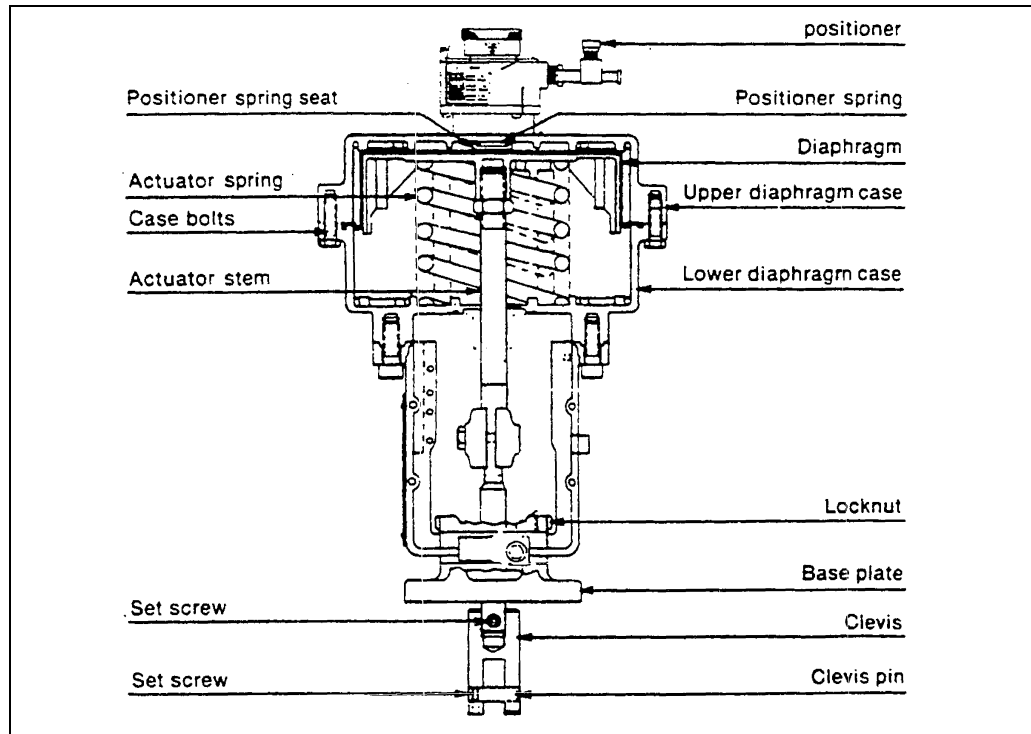


Figure 7 – Thrust Model (Direct Acting)

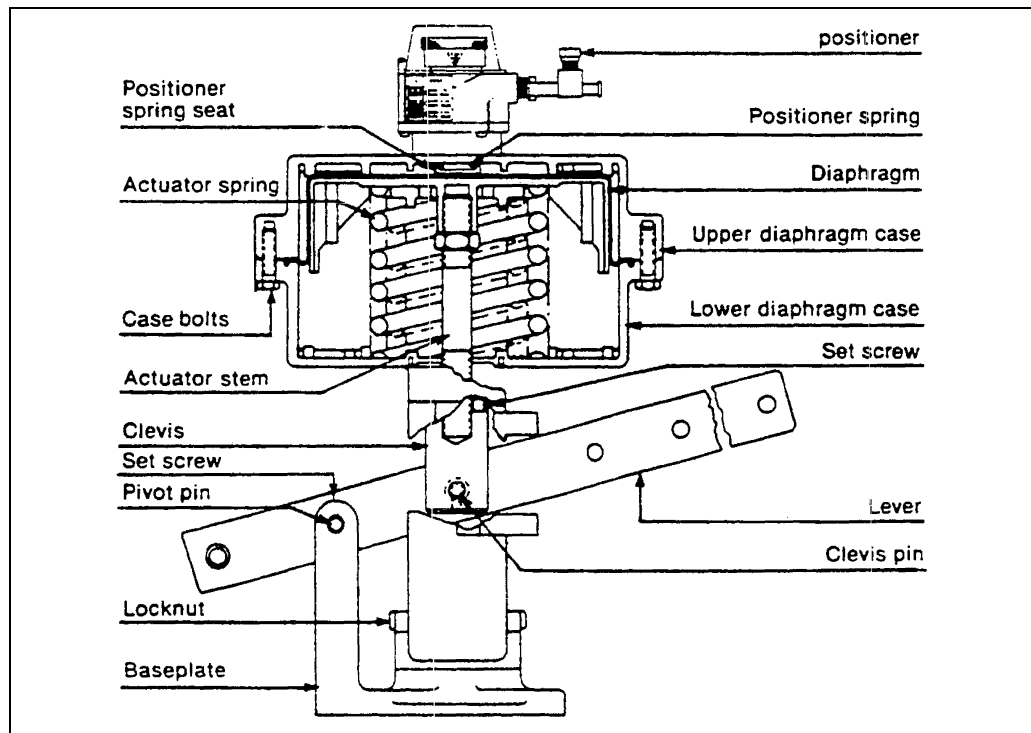


Figure 8 – Lever Model (Direct Acting)

Preventive Maintenance

The most important part of preventive maintenance is a visual inspection at regular intervals. A suggested inspection folloes:

1. All air connections are tight.
2. Diaphragm case bolts are tight.
3. Stem is locked into stem locking slide.
4. Actuator is firmly fastened to yoke or base plate.
5. Actuator set screws are tight.
6. Clevis pin is fully engaged in clevis.

Diaphragm Replacement

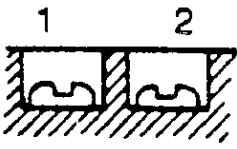
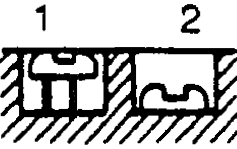
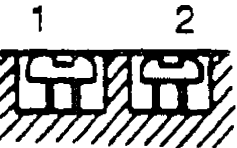
Direct Acting Actuator

1. Alternately loosen diaphragm case bolts.
2. Remove the diaphragm case and replace the diaphragm.
3. Replace diaphragm case and alternately tighten case bolts.

NOTE: If the actuator has a top-mounted Gradutrol positioner, remove the positioner's spring seat from the old diaphragm and glue it to the new diaphragm with a light coat of pliobond, Ambroid, 3M brand EC847 or other suitable bonding glue. Assemble the actuator and screw the positioner out of the upper case. Place the spring seat onto the diaphragm, locating it in center of the positioner mounting hole.

Gradutrol Positioner Adjustment

Range adjustment is changed by the six adjustment screws (1) and (2). Refer to Figures 7 and 8. The start point is adjusted by turning the knob on top of the positioner. The graduations of the external calibration scale on the knob represent values within the different ranges. Refer to Table C for adjustment. All positioners are factory set for 3 psi start point and 12 psi range.

Table C: Range and Start Point Adjustments			
Operating Range	Range djustment		Start Point Adjustment
12 psi	All screws "1" and "2" tightened		One graduation of scale on start point adjustment knob represents a start point change of 1 psi. One complete turn of the start point adjustment knob represents a start point change of 10 psi.
6 psi	Three screws "1" backed off to friction stop		One graduation of scale on start point adjustment knob represents a start point change of 0.5 psi. Two complete turn of the start point adjustment knob represents a start point change of 10 psi.
3.6 psi	All screws "1" and "2" backed off to friction stop		One graduation of scale on start point adjustment knob represents a start point change of 0.3 psi. Three complete turn of the start point adjustment knob represents a start point change of 9 psi.

Nor' East

Type 05 Air-O-Motor Actuator Used With Globe Valves

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: 207-210-6633 Fax: 207-210-6634

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.