



# **DEZURIK LIFT, TURN AND RESEAT G-SERIES USED ON PTW & PFW TAPERED PLUG VALVES**

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# DeZURIK

## LIFT, TURN AND RESEAT G-SERIES ACTUATORS USED ON PTW & PFW TAPERED PLUG VALVES

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### Instructions

These instructions provide information about Lift, Turn and Reseat G-Series Actuators. They are for use by personnel who are responsible for installation, operation and maintenance of Lift, Turn and Reseat G-Series Actuators.

### Safety Messages

All safety messages in the instructions are flagged with an exclamation symbol and the word Caution, Warning or Danger. These messages indicate procedures that 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.

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.**

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### Inspection

Your Lift, Turn and Reseat G-Series Actuator has been packaged to provide protection during shipment, however, it can be damaged in transport. Carefully inspect the unit for damage upon arrival and file a claim with the carrier if damage is apparent.

### Parts

Recommended spare parts are listed on the assembly drawing. These parts should be stocked to minimize downtime.

Order parts from your DeZURIK sales representative, or directly from DeZURIK. When ordering parts, please include the 7-digit part number and 4-digit revision number (example: **9999999R000**) located on the data plate attached to the valve assembly. Also include the part name, the assembly drawing number, the balloon number and the quantity stated on the assembly drawing.

### 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](http://www.dezurik.com).

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# DeZURIK

## LIFT, TURN AND RESEAT G-SERIES ACTUATORS USED ON PTW & PFW TAPERED PLUG VALVES

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### Description

The Lift, Turn and Reseat G-Series Actuator is designed to operate PTW and PFW Tapered Plug Valves.

### Operation

To operate the actuator, follow these steps:

1. Turn the operator (handwheel or chainwheel) on the top of the actuator counterclockwise one revolution. This lifts the plug off the seat.
2. Turn the operator (handwheel or chainwheel) on the side of the actuator to rotate the plug to the desired position.
3. Turn the operator on the top of the unit clockwise one revolution. This reseats the plug in the seat.

### Tools Required

This actuator is assembled using only standard SAE fasteners. To service this unit, you should have a full set of combination wrenches, Allen wrenches, several flat tipped screwdrivers and a dead blow hammer.

### Lubrication

Once a month, lubricate the fitting on the pointer using one of these lubricants:

- Keystone Zeniplex-1 (**recommended**)
- Amoco Amolith Grease #1-EP (alternate)
- Amsoil GHD (alternate)
- Mobil Mobilux EP 1 (alternate)
- Petro-Canada Vultrex MPG EP 1 (alternate)
- Shell Alvania EP 1 (alternate)
- Texaco Multifak EP 1 (alternate)

This unit requires no additional lubrication unless disassembled. If disassembled, lubricant the bearings, gear sector teeth and worm gear using one of the above lubricants.

### Stops

Valves ordered for 360° plug rotation (Combination Number 0) are not furnished with stops.

Valves ordered for 90°, 180° or 270° plug rotation (Combination Numbers 1 thru 4) have stops to limit valve travel in both the Clockwise and counterclockwise directions. These stops have been adjusted at the factory to coincide with the Combination Number specified on the purchase order and do not require adjustment unless the Combination Number is changed, or if the actuator has been disassembled. See the STOP ADJUSTMENTS Section of this Instruction for details on adjusting the stops.

## Stop Adjustments

The two stops are spacers and screws located in the actuator cover. When the pointer contacts one of the stops, the valve quits traveling in that direction. The two stop adjustments are directly related; changing one stop will change the other stop the same amount. To adjust the stops, follow these steps.

1. Turn the operator on the top of the actuator counterclockwise one revolution. This lifts the plug off the seat.
2. Loosen -DO NOT REMOVE - the four screws holding the cover dial in place.
3. Turn the operator on the side of the actuator until the pointer pushes against the stop, then continue turning the operator until the desired stop position is obtained. The pointer should be either perpendicular or parallel with the pipeline.

**Note:** If the operator does not turn easily when pushing on the stop, the cover has rusted to the housing. Use a hammer and chisel to move the cover until the desired stop setting is obtained.

4. Tighten the four screws loosened in Step 2.
5. Check the stop settings by turning the operator on the side of the actuator until the pointer contacts each stop; ensure the valve plug position is correct at both stop settings.
6. Turn the operator on the top of the actuator clockwise one revolution. This reseats the plug in the seat.

## Actuator Removal



### **WARNING!**

**When a tapered plug valve is mounted in a vertical pipeline—or mounted in a horizontal pipeline with the plug stem horizontal—gravity can cause the plug to swing to a lower position in the valve body when the actuator is removed. Place the plug in the lowest position before removing the actuator.**

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1. Discontinue system flow and relieve pipeline pressure.
2. Scribe a line on the valve bonnet and actuator adaptor to use for alignment during actuator installation.
3. Turn the operator on top of the actuator fully clockwise.
4. Loosen the set screw in the nut on the top of the actuator.
5. Remove the nut, then slide the operator off the sleeve. Do not lose the key.
6. Note the position of the pointer, then remove the screws fastening the pointer in place and lift the pointer off the actuator.
7. Unscrew the sleeve from the plug stud; this is a left hand thread.
8. Lift the flat bearing washer from actuator.
9. Note the stampings on the top of the valve plug stem. These stampings correspond with the plug face as shown in Figure 1. It is important that the plug position be noted to ensure it is in the correct position during ACTUATOR INSTALLATION.

### Actuator Removal *(continued)*

10. Take out the screws fastening the actuator adaptor to the adaptor plate (3" and 4" valves) or to the valve bonnet (5" thru 16" valves). Lift the complete actuator assembly from the valve.

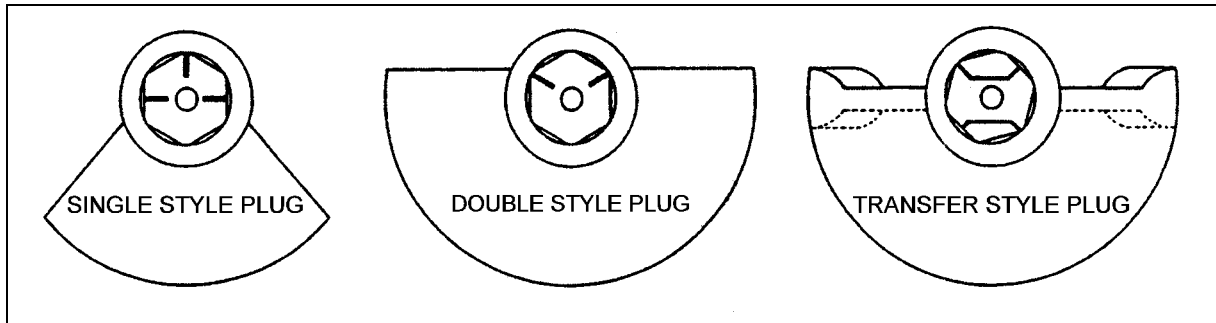


Figure 1— Plug Stem Stampings

### Actuator Installation

1. Place the valve plug in the position noted in ACTUATOR REMOVAL.
2. Line up the scribe marks made during actuator removal, then slide the actuator onto the valve so the hex in the plug stem engages in the actuator gear sector.
3. Fasten the actuator to the valve.
4. Slide the bearing washer onto the plug stud until it rests on the gear sector.
5. Screw the sleeve onto the plug stud until it contacts the bearing washer. This is a left hand thread.
6. Slide the pointer over the sleeve and turn it to the position noted in ACTUATOR REMOVAL. Fasten the pointer in place with the screws removed earlier.
7. Place a key in the sleeve keyseat, then slide the operator onto the sleeve.
8. Install and tighten the nut against the operator; secure in place by tightening the set screw in the nut.
9. Check the stop settings and readjust if necessary. The correct adjustment procedure is described in the STOP ADJUSTMENT Section of this Instruction.
10. Pipeline flow and pressure may now be restored.

## Recommended Spare Parts Replacement

Follow these steps to replace the recommended spare parts in this actuator.



### **WARNING!**

**When a tapered plug valve is mounted in a vertical pipeline—or mounted in a horizontal pipeline with the plug stem horizontal—gravity can cause the plug to swing to a lower position in the valve body when the actuator is removed. Place the plug in the lowest position before removing the actuator.**

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1. Remove the actuator from the valve as described in the ACTUATOR REMOVAL Section of this Instruction.
2. Scribe corresponding lines on the actuator cover and housing, then remove the four screws and lift the dial cover (outer ring) and cover from the actuator.  
*Note:* It may be necessary to drive a chisel between the cover and actuator housing to loosen the cover.
3. Note the position of the gear sector in in the housing, then lift the gear sector out of the actuator.
4. Remove the pipe plug in the side of the housing that lines up with the worm gear pin.
5. Using a pin punch, reach in thru the hole where the pipe plug was, drive out the pin connecting the worm gear to the actuator drive shaft. Take the pin out of the housing.
6. Slide the drive shaft (complete with operator) out of the actuator.
7. Reach into the housing and remove the worm gear, thrust bearing(s) and bearing races. The Size 6 actuator has one thrust bearing and two bearing races; the Size 12 has two bearings and four bearing races.
8. Remove the gear sector seals from the top cover and adaptor.
9. Remove the drive shaft seal from the housing.
10. Scrape the old gasket material from the top cover and the actuator housing.
11. Grease the new seals and press them into the top cover and adaptor.
12. Push a new drive shaft seal into the housing.
13. **Size 6 Actuators** – Slide the drive shaft into the housing and thru these components in the following order: bearing race, bearing, bearing race, worm gear and then into the bearing in the housing.  
**Size 12 Actuators** - Slide the drive shaft into the housing and thru these components in the following order: bearing race, bearing, bearing race, worm gear, bearing race, bearing, bearing race and then into the bearing in the housing .
14. Turn the drive shaft and worm gear until the holes in them line up with the pipe plug hole in the housing.
15. From the large opening in the gear housing, insert the pin into the worm gear and hammer it in thru the worm gear and shaft until flush with the worm gear.
16. Screw the pipe plug into the hole in the housing.

### **Recommended Spare Parts Replacement** *(continued)*

17. Pack the gear sector teeth with lubricant, then slide the gear sector into the bearing, making sure it is in the position noted before it was removed.
18. Place a new gasket on the actuator housing, then set the cover on the unit, lining up the scribe lines made during disassembly.
19. Set the dial cover in place. Install, but do not tighten, the four screws.
20. Install the actuator on the valve as described in the ACTUATOR INSTALLATION Section of this Instruction.
21. Check the stop settings and readjust if necessary. The correct adjustment procedure is described in the STOP ADJUSTMENT Section of this Instruction.

### **Changing Actuator Mounting Positions**

The actuator can be mounted in 60° increments around the valve stem. To change the actuator mounting position, follow these steps.

1. Remove the actuator from the valve as described in the ACTUATOR REMOVAL section of this Instruction.
2. Rotate the actuator to the desired position.
3. Install the actuator on the valve as described in Steps 3 thru 10 of the ACTUATOR INSTALLATION section of this Instruction.

### **Changing Combination Numbers on PTW Valve**

If combination number needs to be changed, call field service to request Instruction Y99722.



## Limited Warranty

DeZURIK, Inc. ("Seller") manufactured products, auxiliaries and parts for a period of twenty-four (24) months from date of shipment from Seller's factory, are warranted to the original purchaser only against defective workmanship and material, but only if properly stored, installed, operated, and serviced in accordance with Seller's recommendations and instructions.

For items proven to be defective within the warranty period, your exclusive remedy under this limited warranty is repair or replacement of the defective item, at Seller's option, FCA Incoterms 2020 Seller's facility with removal, transportation, and installation at your cost.

Products or parts manufactured by others but furnished by Seller are not covered by this limited warranty. Seller will provide repair or replacement for other's products or parts only to the extent provided in and honored by the original manufacturer's warranty to Seller, in each case subject to the limitations contained in the original manufacturer's warranty.

No claim for transportation, labor, or special or consequential damages or any other loss, cost or damage is being provided in this limited warranty. You shall be solely responsible for determining suitability for use and in no event shall Seller be liable in this respect.

This limited warranty does not warrant that any Seller product or part is resistant to corrosion, erosion, abrasion or other sources of failure, nor does Seller warrant a minimum length of service.

Your failure to give written notice to us of any alleged defect under this warranty within twenty (20) days of its discovery, or attempts by someone other than Seller or its authorized representatives to remedy the alleged defects therein, or failure to return product or parts for repair or replacement as herein provided, or failure to store, install, or operate said products and parts according to the recommendations and instructions furnished by Seller shall be a waiver by you of all rights under this limited warranty.

This limited warranty is voided by any misuse, modification, abuse or alteration of Seller's product, accident, fire, flood or other Act of God, or your failure to pay entire contract price when due.

The foregoing limited warranty shall be null and void if, after shipment from our factory, the item is modified in any way or a component of another manufacturer, such as but not limited to, an actuator is attached to the item by anyone other than a Seller factory authorized service personnel.

All orders accepted shall be deemed accepted subject to this limited warranty, which shall be exclusive of any other or previous Warranty, and this shall be the only effective guarantee or warranty binding on Seller, despite anything to the contrary contained in the purchase order or represented by any agent or employee of Seller in writing or otherwise, notwithstanding, including but not limited to implied warranties.

THE FOREGOING REPAIR AND REPLACEMENT LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, OBLIGATIONS AND LIABILITIES, INCLUDING ALL WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR OF MERCHANTABILITY OR OTHERWISE, EXPRESSED OR IMPLIED IN FACT OR BY LAW, AND STATE SELLER'S ENTIRE AND EXCLUSIVE LIABILITY AND YOUR EXCLUSIVE REMEDY FOR ANY CLAIM IN CONNECTION WITH THE SALE AND FURNISHING OF SERVICES, GOODS OR PARTS, THEIR DESIGN, SUITABILITY FOR USE, INSTALLATION OR OPERATIONS.

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## Limitation of Liability

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES WHATSOEVER, AND SELLER'S 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 BY YOU, OTHER THAN RIGHTS RESPECTING OUR LIMITED WARRANTY DESCRIBED ABOVE, MUST BE COMMENCED WITHIN 12 MONTHS AFTER THE DATE OF SALE.

## Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

Web site: [www.dezurik.com](http://www.dezurik.com) E-Mail: [info@dezurik.com](mailto:info@dezurik.com)



250 Riverside Ave. N., Sartell, MN 56377 • Phone: 320-259-2000 • Fax: 320-259-2227

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