



**DeZURIK LIFT, TURN AND  
RESEAT G-SERIES  
ACTUATORS**

**USED ON PTW & PFW TAPERED PLUG VALVES**

Instruction **D10189**  
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# DeZURIK

## LIFT, TURN AND RESEAT G-SERIES ACTUATORS USE 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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### 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

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### **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.

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### 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.

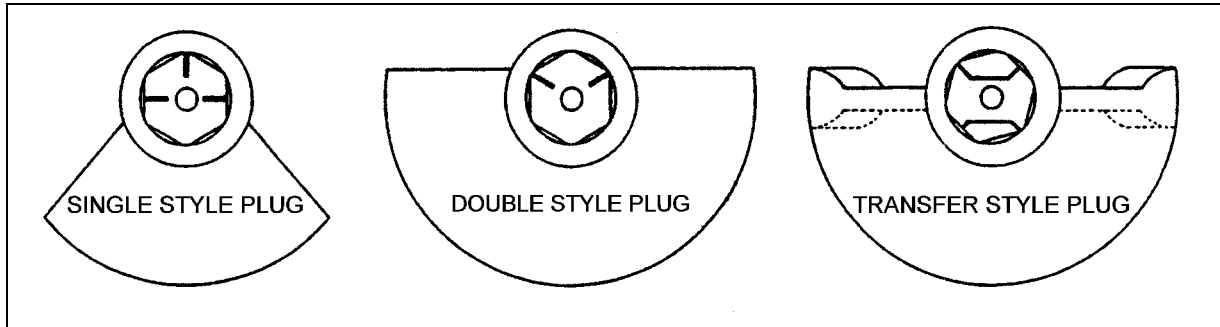


Figure 1— Plug Stem Stampings

### 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.

## **Bearing and Seal Replacement**

As with any rotating seal, the seals in this actuator are subject to wear and will require replacement should leakage occur. At the time of seal replacement it is also recommended that the gear sector bearing also be replaced.

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### **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. 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.
10. Note the position of the gear sector in relationship to the valve stem, then lift the gear sector out of the actuator.
11. 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), then lift the actuator assembly from the valve.
12. Scribe a line between the actuator housing and adaptor, then remove the screws and separate these components.
13. Remove the seals and bearings from the top cover and adaptor.
14. Scrape the old gasket material from the top cover, the actuator housing and the adaptor.
15. Grease the new seals and bearings and slide them into place in the top cover and adaptor.
16. Place a new gasket on the adaptor, line up the scribe marks on the actuator housing and adaptor, then fasten the adaptor to the housing.
17. Line up the scribe marks on the valve and adaptor, then fasten the adaptor to the valve.
18. Pack the gear sector teeth with lubricant, then slide the gear sector down the valve stem, making sure it is in the position noted before it was removed.

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### Bearing and Seal Replacement *(continued)*

19. Place a new gasket on the actuator housing, then set the cover on the unit.
20. Set the dial cover in place. Install, but do not tighten, the four screws.
21. Slide the bearing washer onto the plug stud until it rests on the gear sector.
22. Screw the sleeve onto the plug stud until it contacts the bearing washer. This is a left hand thread.
23. Slide the pointer over the sleeve and fasten in place.
24. Place a key in the sleeve keyseat, then slide the operator onto the sleeve.
25. Install and tighten the nut against the operator; secure the nut in place by tightening the set screw in the nut.
26. Check the stop settings and readjust if necessary. The correct adjustment procedure is described in the STOP ADJUSTMENT Section of this Instruction.
27. Make sure the four screws securing the dial cover are tight.
28. Pipeline flow and pressure may now be restored.

### 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.