

DEZURIK PNEUMATIC CYLINDER OPERATOR FOR T-SERIES ACTUATORS

Instruction **D10006**
August 2012

Instructions

These instructions are for use by personnel who are responsible for the installation, operation and maintenance of DeZURIK valves, actuators or accessories.

Safety Messages

All safety messages in the instructions are identified by a general warning sign and the signal word CAUTION, WARNING or DANGER. These messages indicate procedures to avoid injury or death.

Safety label(s) on the product indicate hazards that can cause 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 product has been packaged to provide protection during shipment; however, items 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

Replaceable wear parts are listed on the assembly drawing. These parts can be stocked to minimize downtime. Order parts from your local DeZURIK sales representative or directly from DeZURIK. When ordering parts please provide the following information:

If the valve has a data plate: please include the 7-digit part number with either 4-digit revision number (example: 9999999R000) or 8-digit serial number (example: S1900001) whichever is applicable. The data plate will be 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.

If there isn't any data plate visible on the valve: please include valve model number, part name, and item number from the assembly drawing. You may contact your local DeZURIK Representative to help you identify your valve.

DeZURIK Service

DeZURIK service personnel are available to 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 DeZURIK.com.

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DeZURIK

Pneumatic Cylinder Operator for T-Series Actuators

Description

This is a Double Acting Cylinder intended for pneumatic service.



WARNING!

This is a PRESSURE CONTAINING VESSEL. Release the pressure from both ends of the cylinder before attempting any disassembly or repair.

Air Supply

Maximum cylinder supply pressure is 100 psi (689 kPa). For maximum cylinder life, the air should be filtered and dry.

Lubrication

If the cylinder is disassembled, lubricate the cylinder wall, piston seal, O-ring and O-ring groove using one of these lubricants.

- Dow Corning Molykote No. 44 (**recommended**)
- Shell Retinax AM (alternate)
- Shell Lithall MDS (alternate)

Adjustment

The set screw in the end of the cylinder is used to limit the stroke of the cylinder. Adjust the set screw so the piston rod contacts it when the valve is in the closed position. Lock the set screw in place with the nut. Be sure the thread seal is positioned properly.

Disassembly

1. Shut off the air supply to the cylinder.
2. Relieve the pressure in the cylinder.



WARNING!

Accidental operation of power actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing.

3. Disconnect the cylinder tubing.
4. Remove the nuts and washers from the tie rods and remove the cylinder cap.
5. Remove the O-ring from the cylinder cap.
6. Remove the cylinder tube, rotating it while pulling it off the piston.
7. Remove the nut on the piston rod and remove the piston.
8. Remove the piston seal and its O-ring. Clean the O-ring, seal and groove.
9. Remove the four screws fastening the cylinder head to the actuator housing, then slide the cylinder head off the piston rod.
10. Remove the rod seal and O-ring from the cylinder head.

Reassembly

NOTE: It is recommended to use new seals and o-rings when reassembling the cylinder.

1. Lubricate the rod seal, then push it into place in the cylinder head as shown in Figure 1. The backup rings are cut with a bevel; be sure the ends match up and do not overlap.

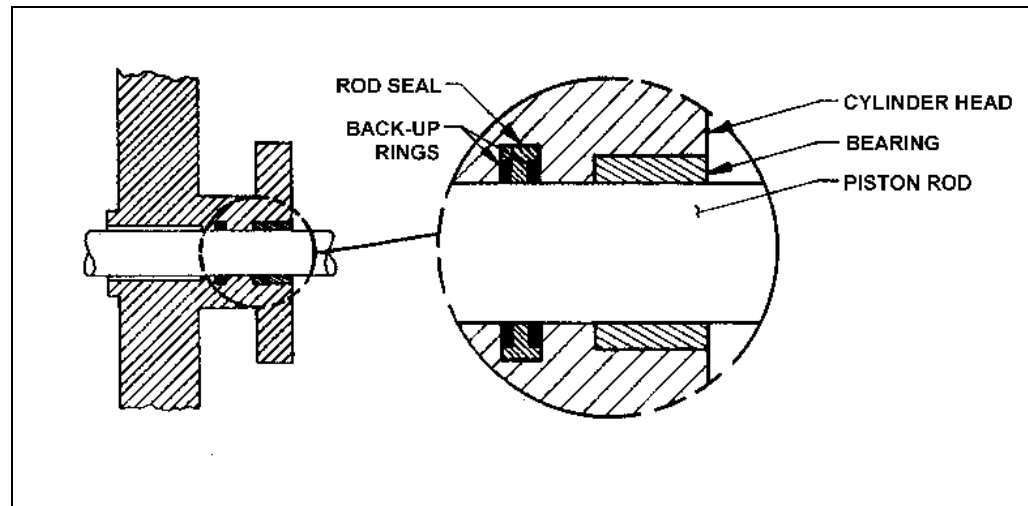


Figure 1 – Cylinder Component Identification

2. Carefully slide the cylinder head over the piston rod until it contacts the actuator housing. Fasten the cylinder head to the housing with the four screws removed earlier.
3. Thoroughly lubricate the piston groove, new O-ring, new piston seal and inside of cylinder tube.
4. Slide the small size lubricated O-ring into the counterbore in the piston.
5. Slide the piston onto the piston rod so the O-ring in the piston faces the cylinder head.
6. Install the nut to hold the piston in place and tighten nut to 45 ft. lbs.
7. Slide the medium size lubricated O-ring over the piston until it fits in the groove. See Figure 2.
8. Slide the lubricated piston seal over the piston without stretching it any more than necessary. The seal should fit into the groove over the O-ring. See Figure 2.

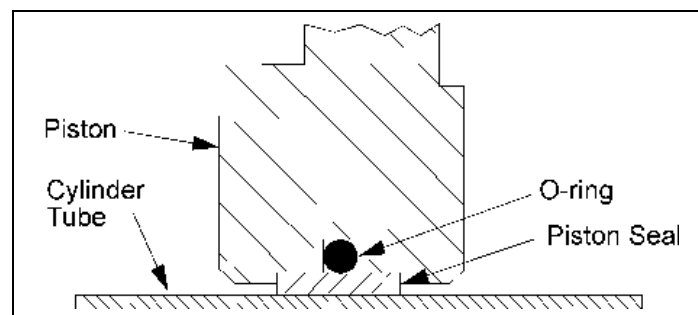


Figure 2 – Piston Seal Installation

Reassembly *(Continued)*

9. Stretch one of the large size lubricated O-rings into the groove in the cylinder head.
10. Carefully slide the lubricated cylinder tube over the piston seal. Start with the tube at a 45° angle to the piston, and rotate the tube onto the piston.

Note: On 6 inch and larger cylinders, remove tie rods as needed to allow positioning the cylinder tube at a 45° angle. See Figure 3. Replace tie rods after installing the cylinder tube.

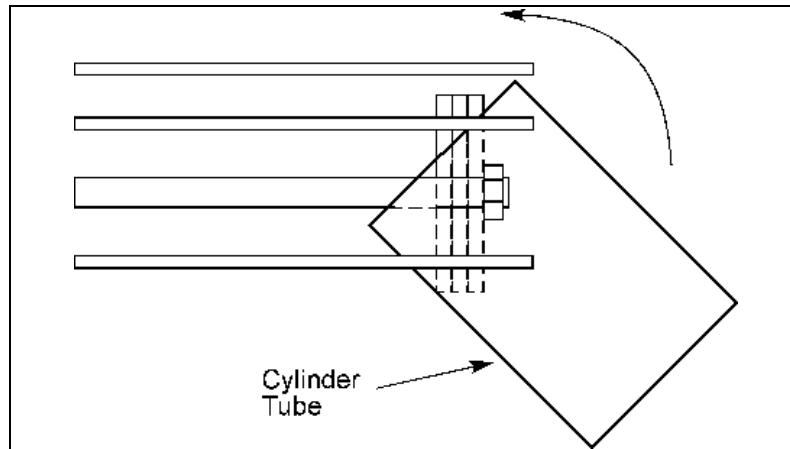


Figure 3 – Installing Cylinder Tube

11. Clean the O-ring groove in the cylinder cap.
12. Lubricate and install the O-ring in the cylinder cap.
13. Slide the cylinder cap over the tie rods and push it in until the O-ring slides into the cylinder tube.
14. Install the lock washers and nuts on the tie rods. Tighten the nuts to the torque specified in Table A.

Table A: Tie Rod Nut Torques

Cylinder Size	Torque		
	(ft lbs)	(cm/kg)	(Nm)
4"	12	175	16
6" & 8"	16	225	22
10" & 12"	20	275	27

15. Reconnect the cylinder tubing.

Note: When using flexible tubing, install only one swivel connector per piece of tubing. If the actuator has an accessory piped to the cylinder, place the swivel connector on the accessory port end of the tubing. Otherwise, place the swivel connector on the cylinder port end of the tubing.
16. Reconnect the air supply to the actuator.
17. Check the open and closed position stops and readjust if necessary. See the *Adjustment* section of these Instructions and the *Open Position Adjustment* section of the *Actuator Instructions* for the correct stop adjustment procedures.

Limited Warranty

DeZURIK, Inc. ("Seller") manufactured products, auxiliaries and parts thereof that we manufacture 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 may 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 or part, 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.

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Sales and Service

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

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