

DEZURIK ANSI/AWWA C540 PNEUMATIC CYLINDER FOR G-SERIES ACTUATORS

Instruction **D10295**
March 2017

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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Description

The ANSI/AWWA C540 Hydraulic Cylinder for use with G-Series Actuators is intended for water hydraulic service. This cylinder can be used with Pumpcheck accessories.

Supply

The maximum cylinder supply pressure is 150 psi.

Required Tools

The cylinder is assembled with SAE fasteners. Tools required for adjustment and disassembly include a set of combination wrenches, a flat-tipped screwdriver and a small hammer.



WARNING!

This cylinder is a pressure vessel. Supply pressure must be disconnected from the cylinder and the cylinder completely relieved of pressure before disassembling the cylinder. Failure to release pressure may result in personal injury and/ or damage to other equipment.

Lubrication

If the cylinder is disassembled, lubricate the cylinder wall, piston seal, sealing rings and ring grooves 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 cylinder stroke.

1. Turn the set screw in the end of the cylinder counterclockwise about five turns.
2. Close the valve. See Valve Instructions to determine closed position.
3. Turn the set screw clockwise until you feel resistance as it contacts the piston rod.
4. Lock the set screw in place with the nut. Be sure the thread seal is positioned properly.

Disassembly

Follow the steps below to disassemble the cylinder.



WARNING!

- **Servicing the actuator while the pipeline is under pressure can cause personal injury or equipment damage. Relieve pipeline pressure before servicing the actuator.**
 - **Accidental operation of power actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing.**
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Disassembly *(continued)*

1. Shut off the air supply to the cylinder.
2. Relieve pressure in the cylinder.
3. If the actuator is powered, disconnect and lock out the pneumatic, hydraulic, or electrical power to prevent accidental operation of the actuator.
4. Disconnect the cylinder tubing.
5. Remove nuts and washers from the tie rods, and remove cylinder cap.
6. Rotate the cylinder tube while pulling it from the piston.
7. Remove the nut on the piston rod.
8. Remove the piston.
9. Remove extension cap from other end of gear box housing.
10. Remove nuts and spring washers from the rack rod.
11. Pull the piston rod, complete with rack rod, from the cylinder head.
12. Take out the four screws and separate the cylinder head from the actuator housing.
13. Remove the seal in the cylinder head.

Reassembly

1. Install the piston rod sealing ring and Teflon backing rings as shown in Figure 1.

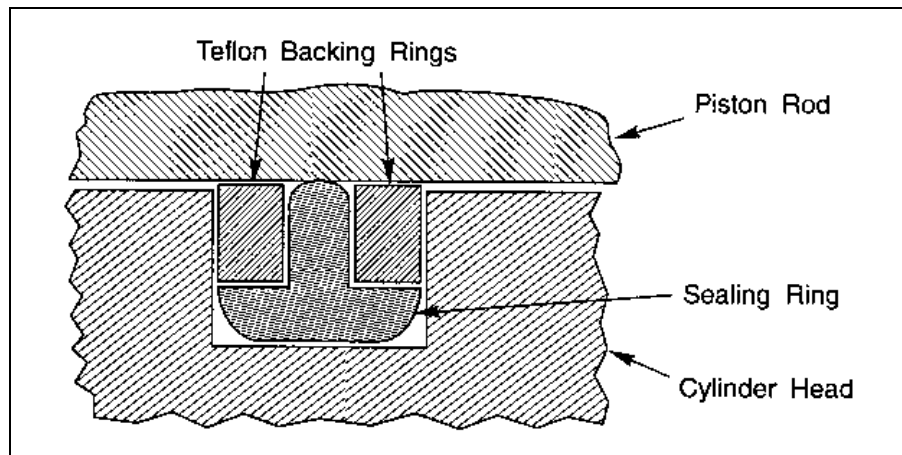


Figure 1—Piston Rod Seal Placement

- a. Clean the groove in the cylinder head and lubricate all the parts.
- b. Insert the seal ring in the groove. Make sure the seal ring lies flat in the groove.
- c. Insert the Teflon backing rings. The backing rings are cut with a bevel. Be sure the ends match and do not overlap.

Reassembly *(continued)*

2. Attach the cylinder head to the actuator. See Figure 2.

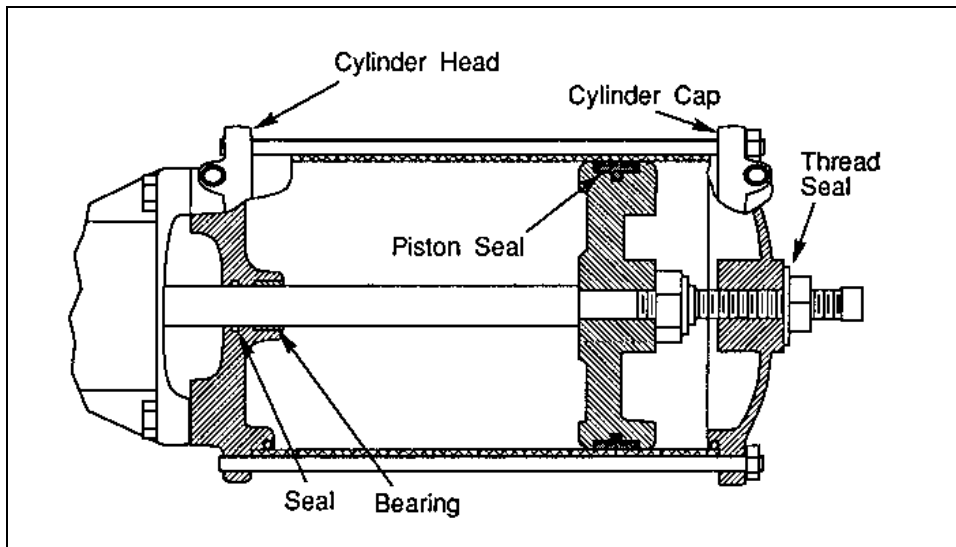


Figure 2—Cylinder Parts Location

3. Carefully install the rack rod and piston rod.
4. **Eccentric valves:** Install the spacer, spring washers and nuts on the rack rod. See Table B for spring washer arrangement.
All other valves: Install the jam nuts on the rack rod.
5. **Eccentric valves:** Tighten the nut until the spring washers are completely compressed, and then back off until they return to their normal uncompressed shape.
All other valves: Tighten the first nut.
6. Tighten the second nut.
7. Install the extension cap.
8. Put the piston on the piston rod and install the nut.
9. Remove the piston seal and its O-ring. Clean the O-ring, seal and groove. Lubricate the O-ring and seal and replace. Use new O-ring and seal if necessary.
10. Lubricate the cylinder tube.
11. Carefully slide the cylinder over the piston. The seal and the cylinder must be well lubricated.
12. On 6-inch and larger cylinders, remove one or two of the tie rods.

Reassembly *(continued)*

13. Start the tube at a 45-degree angle and rotate the tube onto the piston. See Figure 3.

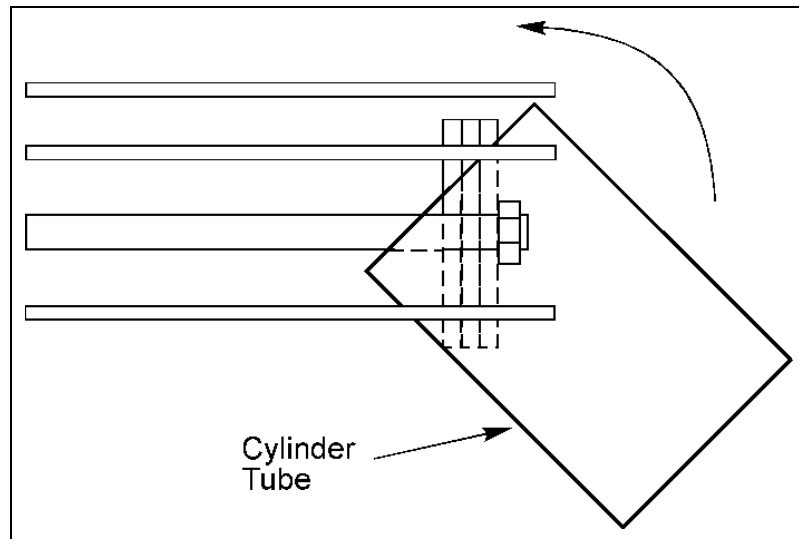


Figure 3—Installing Cylinder Tube

14. Clean the O-ring groove in the cylinder cap.
15. Lubricate and install the O-ring in the cylinder cap. Use a new O-ring if necessary.
16. Assemble the cylinder cap, lock washers and nuts. Tighten the nuts on the tie rods to the torque specified in Table A.

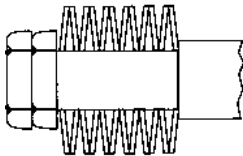
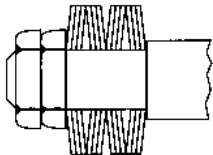
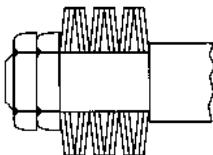
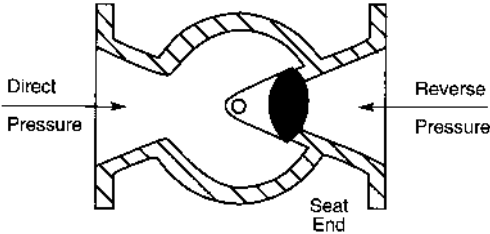
Table A: Tie Rod Nut Torques

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

17. If the actuator is a powered actuator, reconnect power to the actuator.

Reassembly *(continued)*

Table B: Rack Rod Spring Washer Arrangement

Valve Size	Actuator Size	Direct Pressure	Reverse Pressure
4	All	A	A
5	All	B	B
6	All	B	B
8	G6 G12	B A	B A
10	G6 G12	B A	B B
12	G6 G12 G16	B B A	B B A
14	G12 G16	B A	B A
16	All	B	B
18	All	B	B
20	All	B	B
24	G16-C8 G16-C10 G16-C12	B B B	C B C
30	G16-C8 G16-C10 G16-C12	C B B	C B C
 <p>Arrangement A</p>  <p>Arrangement B</p>  <p>Arrangement C</p>		 <p>Reverse Pressure: When the higher-pressure is at the seat end. Direct Pressure: When the higher-pressure is opposite the seat.</p>	

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.

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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.

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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.

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Sales and Service

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

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