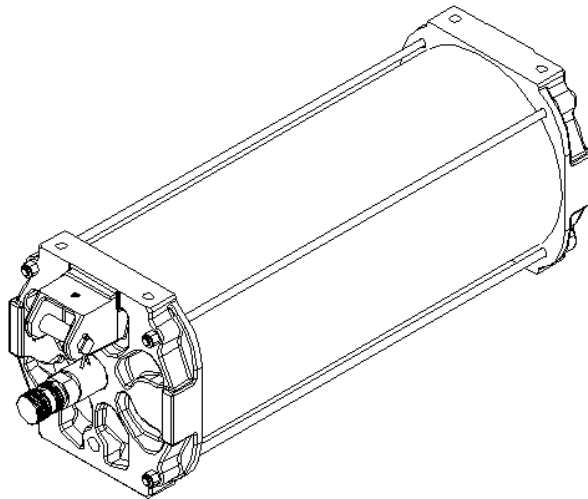


# Pneumatic Cylinder

## 12" Bore X 26" Stroke

Part No. R434001003 (formerly P -320271-00000)

### Service Information



#### Installation

Before installing this cylinder, all air lines in the system should be blown clean to remove any moisture or loose material. Also, the area in which the cylinder is to be mounted should be free of any foreign objects which may damage the cylinder barrel. To further ensure a long trouble-free service, an efficient air filter (40 micron or better) should be installed in the system's supply line.

Remove the thread protectors from each pipe port in the head and cap and connect the air lines from the directional control valve. Use the pipe thread sealant

on the airline fittings, not any kind of tape. Be sure no foreign matter enters the cylinder ports or air lines during the time they are open.

If the cylinder is to be painted, be sure the piston rod is covered, the ports are closed, and the clevis pin is covered where it rides in the clevis.

The supply air and atmospheric (ambient) condition must be maintained within a temperature range of -20°F to +160°F.

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# Installation and General Maintenance Recommendations



## **WARNING: INSTALLATION and MOUNTING**

The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

**INSTALLATION!** Do not attempt to install, operate or repair this device without proper training in the technique of working on pneumatic or hydraulic systems and devices, unless under trained supervision.

Compressed air and hydraulic systems contain high levels of stored energy. Do not attempt to connect, disconnect or repair these products when a system is under pressure. Always exhaust or drain the pressure from a system before performing any service work. Failure to do so can result in serious personal injury.

**MOUNTING!** Device should be mounted and positioned in such a manner that it cannot be accidentally operated.

## **INSTALLATION and GENERAL MAINTENANCE RECOMMENDATIONS**

### **Operation**

When the cylinder installation is completed correctly, air pressure delivered from the directional control valve to the port on the cap end of cylinder will extend the piston rod. A shift of the valve to exhaust that air and apply air pressure to the port on the head end will retract the piston rod.

### **Adjustments**

No adjustments are required after the cylinder is installed and properly aligned.

### **Maintenance**

It is recommended that this cylinder be completely disassembled approximately every five years for cleaning, inspection, and replacement of all rubber parts. The first examination on this particular application will determine if the period between service should be extended or shortened.

**Disassembly** – Use care not to destroy or scratch any parts during this procedure.

1. With the cylinder lying horizontal on the floor, loosen the four tie rod nuts (17).
2. Remove the tie rods (16).
3. Use a mallet, tap the cap (1) away from the tube (2) and remove the tube seal O-Ring (10).
4. Hold the end of the piston rod (12) and using a mallet, tap the head (3) carefully away from the tube (2) just far enough to allow your hand to reach between the head and tube to grab and support the piston rod. Now continue to tap the head off of the rod.

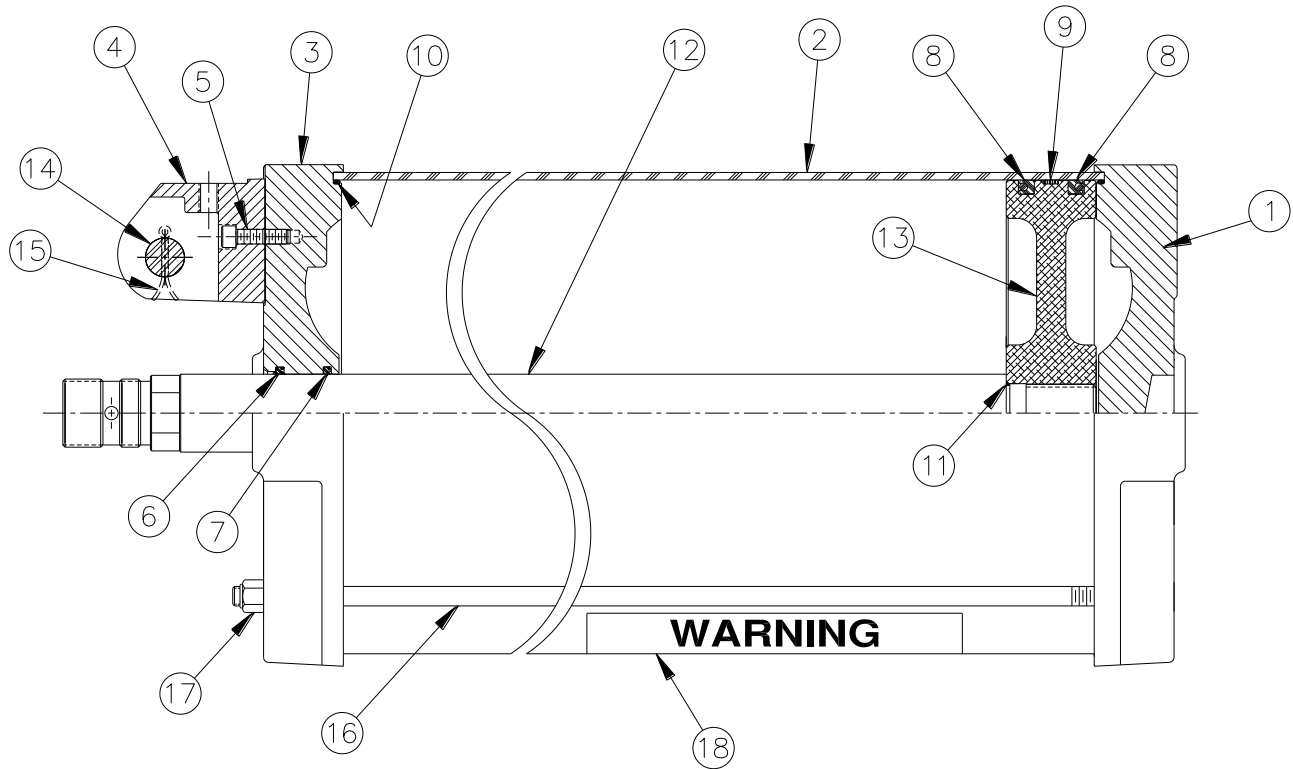
5. Pull the piston rod upright to a vertical position and then pull the tube (2) off of the piston rod assembly.
6. Remove the piston guide ring (9) and two piston seals (8).
7. Remove from the head (3) the tube seal O-Ring (10), the rod wiper (6), and the rod seal (7).

### **Cleaning & Inspection**

1. Clean all metal parts with a non-flammable solvent and wash all elastomer or rubber parts with soap and water. Rinse everything thoroughly and blow them dry with a low-pressure air jet.
2. Inspect all parts and throw away all those that are to be replaced due to damage, wear or age. Give particular attention to the recommended replacement parts as indicated on the parts list.

**Reassembly-** Use the sectional view as a guide and lubricate all seals and grooves with AERO Shell # 14 Grease.

1. Assemble the rod seal (7) into the head (3~5), making sure the concave side of the seal faces the inside of the cylinder.
2. Install the rod wiper (6) in the head (3) with the sharp edge facing the outside.
3. Install the piston seals (8) and the guide ring (9) onto the piston (13) with the flat side of the seals facing the inside of the piston.
4. Set the piston rod assembly on end, protecting the rod's surface. Slide the head (3) down over the piston rod (10) being careful not to cut or damage the wiper (6) or rod seals (7).
5. Lay the piston rod over towards its side and push it through the head until the piston is about four inches from the head.
6. Set the tube (2) on end and wipe some grease on the inside at the very top.
7. Insert the tube seal O-Ring (10) into the head (3) and the cap (1).
8. Fit the greased end of the tube on the piston. Carefully run a screwdriver around the first seal to assist the entry into the tube. Push the tube forward until it enters the groove in the head (3).
9. Slide the tie rods (16) through the holes in the head with the shortest threaded end toward the cap.
10. Install the cap (1) onto the tube and thread the tie rods all the way into the cap.
11. Using a torque wrench, tighten the nuts (17) alternately on opposite sides to 50 ft.-lbs. DO NOT tighten one side first.
12. The reassembly is complete; therefore test the cylinder for correct operation and any evidence of leakage. DO NOT exceed 150 psig air pressure.



**Parts List**  
 Complete Cylinder Part No. R434001003 (formerly P -320271-00000)

Ref. No.	Description	Qty.	Pc. No.
1	Cap	1	R434001030
2	Tube	1	R434001020
	Assembly: Head and Clevis (includes items 3 to 5)	1	R434004736
3	Head	1	
4	Clevis	1	
5	Bolt	2	
	Kit: Piston, Tube & Rod Seal (includes items 6 to 11)		R434003594
6	Rod Wiper	1	
7	Rod Seal	1	
8	Piston Seal	2	
9	Guide Ring	1	
10	O-ring, Tube Seal	2	
11	O-ring, Piston	1	
	Assembly: Piston & Piston Rod (includes items 11 to 13)	1	R434003595
12	Piston Rod	1	
13	Piston	1	
14	Clevis Pin	1	R434002051
15	Cotter Pin	2	R433014313
16	Tie Rod	4	R434004727
17	Nut	4	R431001891
18	Warning Decal	1	R434002283

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# NOTICE TO PRODUCT USERS

## 1. WARNING: FLUID MEDIA

AVENTICS pneumatic devices are designed and tested for use with filtered, clean, dry, chemical free air at pressures and temperatures within the specified limits of the device. For use with media other than air or for human life support systems, AVENTICS must be consulted. Hydraulic cylinders are designed for operation with filtered, clean, petroleum based hydraulic fluid; operation using fire-resistant or other special types of fluids may require special packing and seals. Consult the factory.

## 2. WARNING: MATERIAL COMPATIBILITY

Damage to product seals or other parts caused by the use of noncompatible lubricants, oil additives or synthetic lubricants in the air system compressor or line lubrication devices voids AVENTICS warranty and can result in product failure or other malfunction. See lubrication recommendations below.

**AIR LINE LUBRICANTS!** In service higher than 18 cycles per minute or with continuous flow of air through the device, an air line lubricator is recommended.\* (Do not use line lubrication with vacuum products.) However, the lubricator must be maintained since the oil will wash out the grease, and lack of lubrication will greatly shorten the life expectancy. The oils used in the lubricator must be compatible with the elastomers in the device. The elastomers are normally BUNA-N, NEOPRENE, VITON, SILICONE and HYTREL. AVENTICS recommends the use of only petroleum based oils without synthetic additives, and with an aniline point between 180° F and 210° F.

**COMPRESSOR LUBRICANTS!** All compressors (with the exception of special "oil free" units) pass oil mist or vapor from the internal crankcase lubricating system through to the compressed air. Since even small amounts of non-compatible lubricants can cause severe seal deterioration (which could result in component and system failure) special care should be taken in selecting compatible compressor lubricants.

## 3. WARNING: INSTALLATION AND MOUNTING

The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

**INSTALLATION !** Do not attempt to install, operate or repair these devices without proper training in the technique of working on pneumatic or hydraulic systems and devices, unless under trained supervision. Compressed air and hydraulic systems contain high levels of stored energy. Do not attempt to connect, disconnect or repair these products when a system is under

pressure. Always exhaust or drain the pressure from a system before performing any service work. Failure to do so can result in serious personal injury.

**MOUNTING!** Devices should be mounted and positioned in such a manner that they cannot be accidentally operated.

## 4. WARNING: APPLICATION AND USE OF PRODUCTS

The possibility does exist for any device or accessory to fail to operate properly through misuse, wear or malfunction. The user must consider these possibilities and should provide appropriate safe guards in the application or system design to prevent personal injury or property damage in the event of a malfunction.

## 5. WARNING: CONVERSION, MAINTENANCE AND REPAIR

When a device is disassembled for conversion to a different configuration, maintenance or repair, the device must be tested for leakage and proper operation after being reassembled and prior to installation.

**MAINTENANCE AND REPAIR!** Maintenance periods should be scheduled in accordance with frequency of use and working conditions. All AVENTICS products should provide a minimum of 1,000,000 cycles of maintenance free service when used and lubricated as recommended. However, these products should be visually inspected for defects and given an "in system" operating performance and leakage test once a year. Where devices require a major repair as a result of the one million cycles, one year, or routine inspection, the device must be disassembled, cleaned, inspected, parts replaced as required, rebuilt and tested for leakage and proper operation prior to installation. See individual catalogs for specific cycle life estimates.

## 6. PRODUCT CHANGES

Product changes including specifications, features, designs and availability are subject to change at any time without notice. For critical dimensions or specifications, contact factory.

\*Many AVENTICS pneumatic valves and cylinders can operate with or without air line lubrication; see individual sales catalogs for details.

## LIMITATIONS OF WARRANTIES & REMEDIES

AVENTICS warrants its products sold by it to be free from defects in material and workmanship to the following:

For twelve months after shipment AVENTICS will repair or replace (F.O.B. our works), at its option, any equipment which under normal conditions of use and service proves to be defective in material or workmanship at no charge to the purchaser. No charge will be made for labor with respect to defects covered by this Warranty, provided that the work is done by AVENTICS or any of its authorized service facilities. However, this Warranty does not cover expenses incurred in the removal and reinstallation of any product, nor any downtime incurred, whether or not proved defective.

All repairs and replacement parts provided under this Warranty policy will assume the identity, for warranty purposes, of the part replaced, and the warranty on such replacement parts will expire when the warranty on the original part would have expired. Claims must be submitted within thirty days of the failure or be subject to rejection.

This Warranty is not transferable beyond the first using purchaser. Specifically, excluded from this Warranty are failures caused by misuse, neglect, abuse, improper operation or filtration, extreme temperatures, or unauthorized service or parts. This Warranty also excludes the use of lubricants, fluids or air line additives that are not compatible with seals or diaphragms used in the products. This Warranty sets out the purchaser's exclusive remedies with respect to products covered by it, whether for negligence or otherwise. Neither, AVENTICS nor any of its affiliates will be liable for consequential or incidental damages or other losses or expenses incurred by reason of the use or sale of such products. Our liability (except as to title) arising out of the sale, use or operation of any product or parts, whether on warranty, contract or negligence (including claims for consequential or incidental damage) shall not in any event exceed the cost of replacing the defective products and, upon expiration of the warranted period as herein provided, all such liability is terminated. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHETHER FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. No attempt to alter, amend or extend this Warranty shall be effective unless authorized in writing by an officer of AVENTICS Corporation.

AVENTICS reserves the right to discontinue manufacture of any product, or change product materials, design or specifications without notice.

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