

**For Single-Acting (57346755 Type)
and Double-Acting (58230328 Type)
Cylinders**

This bulletin provides a step-by-step overhaul procedure for Vapor pneumatic cylinders using Vapor Repair Kits - Part Nos. 57321042 and 58220750. Vapor recommends that the cylinder be overhauled after 250,000 cycles or 3 to 4 years of operation, whichever comes first.



Recommended Tools and Materials

- 1/2" open-end wrench
- Ratchet and 7/16" socket
- Strap wrench or soft-jawed wrench
- Screwdriver
- Torque wrench

Grease: Vapor P/N 67110070–Syn-Tech NS-4405-FG
Loctite Threadlocker No. 222

Parts List for 57321042 Kit

Item #	Part #	Description	Qty
1	56711082	Gasket, Cylinder	2
2	45528345-22	"O" Ring, 1 3/4" dia.	1
3	56510355	"U" Seal	1
4	56910147	Piston, Small	1
5	45528345-16	"O" Ring, 5/16" dia.-thin	1
6	45528345	"O" Ring, 5/8" dia.	1
7	56610027	Ring, Packing	1
8	45528345-39	"O" Ring, 1/4" dia.	2
9	0015	Bulletin	1
10	45528345-79	"O" Ring, 5/16" dia.-thick	2
11	97710329-08	Nut-Lock	1

Parts List for 58220750 Kit

Item #	Part #	Description	Qty
1	56711082	Gasket, Cylinder	2
2	57716973-01	Piston	1
3	45528345-39	"O" Ring, 1/4" dia.	2
4	45528345	"O" Ring, 5/8" dia.	1
5	56610027	Ring, Packing	1
6	0015	Bulletin	1
7	45528345-79	"O" Ring, 5/16" dia.-thick	2
8	50810140	Washer, Seal	1



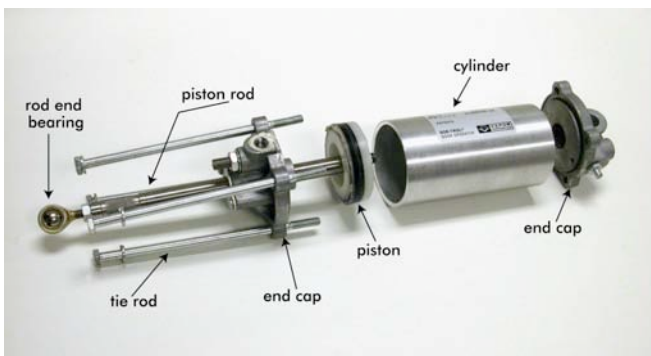
Disassembly

1. Disconnect air and electrical connections to the cylinder assembly and remove the cylinder from the bus.
2. Remove and retain air lines and any other accessory items (solenoid valve, flow controls, etc.) from the cylinder assembly.

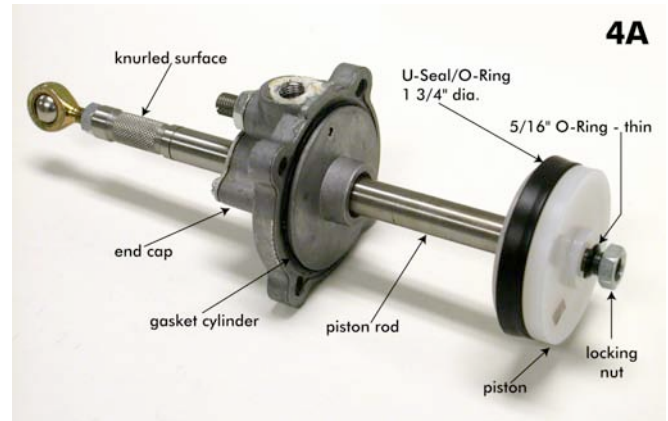
Scribe an index mark on both end caps to show orientation to each other. These marks will assist when re-assembling the cylinder



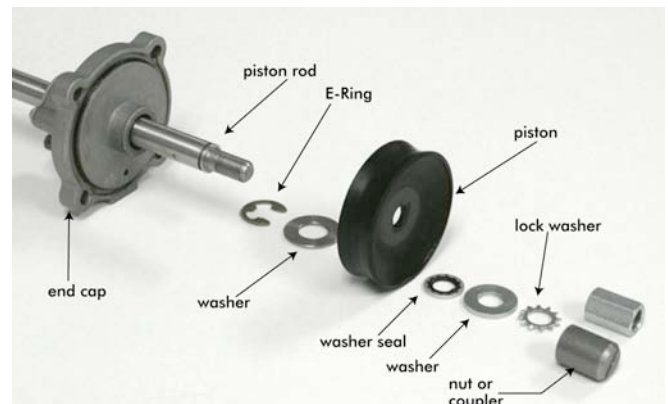
3. Remove and retain all tie rod nuts, lock washers and tie rods from the cylinder end caps. Remove the end caps from the cylinder tube and discard the cylinder gaskets.



4. For Single-Acting Cylinders: Use a strap wrench or soft-jaw wrench to hold the piston rod at the knurled surface. Remove and discard the self-locking nut, O-ring, and piston.



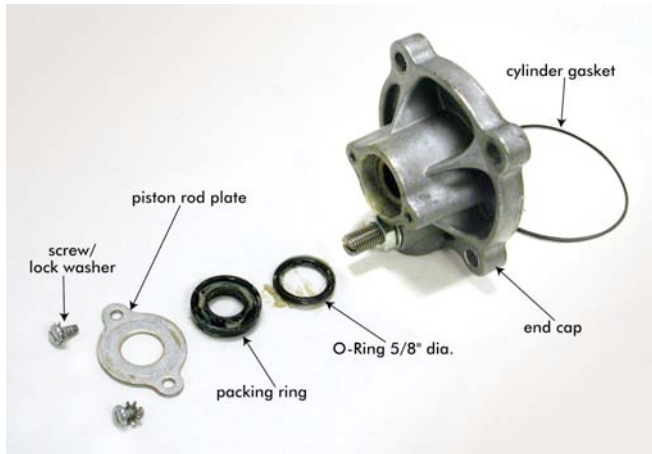
For Double-Acting Cylinders: Use a strap wrench or soft-jaw wrench to hold the piston rod and remove and retain the nut and washers. Note 2 different styles of piston nut in figure below. Discard the piston.



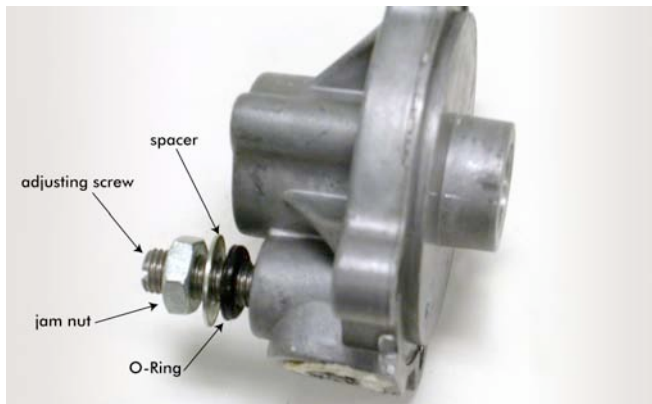
5. Remove and retain the E-ring and miscellaneous hardware from the piston rod and pull the front end cap from the piston rod.

CAUTION: Prior to removing the end cap, remove any burrs or nicks from the piston rod surface with fine emery cloth (400 grit). Remove all emery dust before removing the front end cap.

- Remove and retain the two screws, lock washers and the piston rod plate from the front end cap. Remove and discard the packing ring and the O-ring.



- Remove and retain the jam nut and spacer from the speed adjusting screw in the front end cap. Do not remove the adjusting screw. Remove and discard the O-ring.



Some rear end caps on single-acting cylinders may contain speed adjusting screws. If so, remove and retain the jam nut and spacer from both adjusting screws. Do not remove the adjusting screws. Remove and discard the O-rings.



- Clean all metallic parts thoroughly with a solvent (mineral spirits recommended).
- Do not soak parts in solvent. Do not clean the spherical rod end bearing with solvent as this will remove lubricant from the bearing.

CAUTION: Do not use trichlorethylene or chlorinated hydrocarbon solvents. Do not clean or soak O-rings or other rubber components in solvent.

- Inspect the inside surface of the cylinder tube and replace the cylinder if the I.D. is worn to more than 2.270 inches or if there are deep scratches or grooves on the inner surface.

Re-Assembly

- Install a new O-ring to the speed adjusting screw on the front end cap. Replace the spacer and jam nut. Note: If adjusting screw is 1/4" dia. use 45528345-39 O-ring. If screw is 5/16" dia. use 45528345-79 O-ring.

If equipped with speed adjusting screws on the rear end cap, install new O-rings. Replace the spacers and jam nuts.

- Install a new packing ring and O-ring and attach the piston rod plate to the front end cap with lock washers and screws.

3. Be sure the piston rod is free of nicks and burrs. Slide the front end cap onto the rod and install the E-ring.
4. For 57346755 type cylinder: Assemble the new U-seal and O-ring on the piston, then mount the piston and O-ring on the piston rod and secure with a new lock nut. See photo 4A on page 2.

For 58230328 type cylinder: Mount E-ring, washer, piston, washer seal, washer and lock washer on the piston rod. The rubber face of the piston should face toward the rod end bearing. Apply Loctite Threadlocker No. 222 to the threads on the piston rod. Secure with the piston rod nut. See photo 4B on page 2. Torque to 60 in/lbs.

5. Apply a light coat of grease (Vapor P/N 67110070, Syn-Tech NS-4405 FC) to the cylinder tube I.D., completely around the U-seal, (if double-acting, apply around piston edge), the front end cap gasket, and working length of the piston rod.
6. Install new cylinder gaskets on the end caps.
7. Assemble the cylinder tube, rear end cap and front end cap assembly. Install the tie rods, tie rod nuts and lock washers. Finger tighten the nuts. Then cross tighten the nuts equally to 20-25 in. lbs. and then to a final torque of 40-50 in. lbs.



CAUTION: Before tightening the nuts, be sure the tie rods are parallel to the long axis of the cylinder. Tie rods must be positioned properly to obtain a good seal at both end caps.

8. Re-attach accessory items and air lines to the cylinder.
9. Re-install the cylinder in the bus and connect air and electrical lines.
10. Verify proper operation of the cylinder.

Testing the Cylinder

1. Apply air to the inlet port on the front end cap. Use a brush with a soap and water solution to check for leaks. Do not submerge the cylinder.
2. With air applied to the speed fitting and the piston rod fully extended, open the air passage in the speed fitting and observe that the piston moves to the rear cap. Check for leakage at the front cap adjustment screw; at the front cap piston rod seal; at the rear cap adjustment screw and adjacent ports (if equipped); from the piping between the speed fitting and the front end cap; from both ends of the cylinder at the cap gaskets; and from the speed fitting exhaust port. Repair any leaks and recheck.

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