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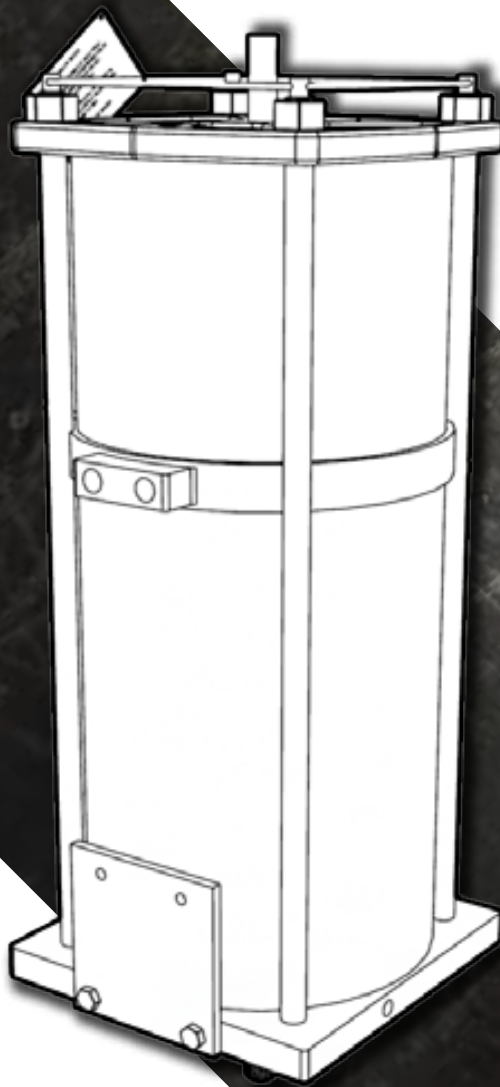
Install-Operate-Maintain

L8SR/L8SE SERIES LINEAR ACTUATORS

L8SR actuators are spring return, valve integrated type linear pneumatic actuators designed to attach to and operate specific gate valves. The actuator replaces original equipment components including the valve stem to form a robust, maintainable actuation package.

These actuators adhere to QTRCO design standards for long, maintenance free life.

This manual describes the proper methods for installation, operation, and repair maintenance.



NOTE:

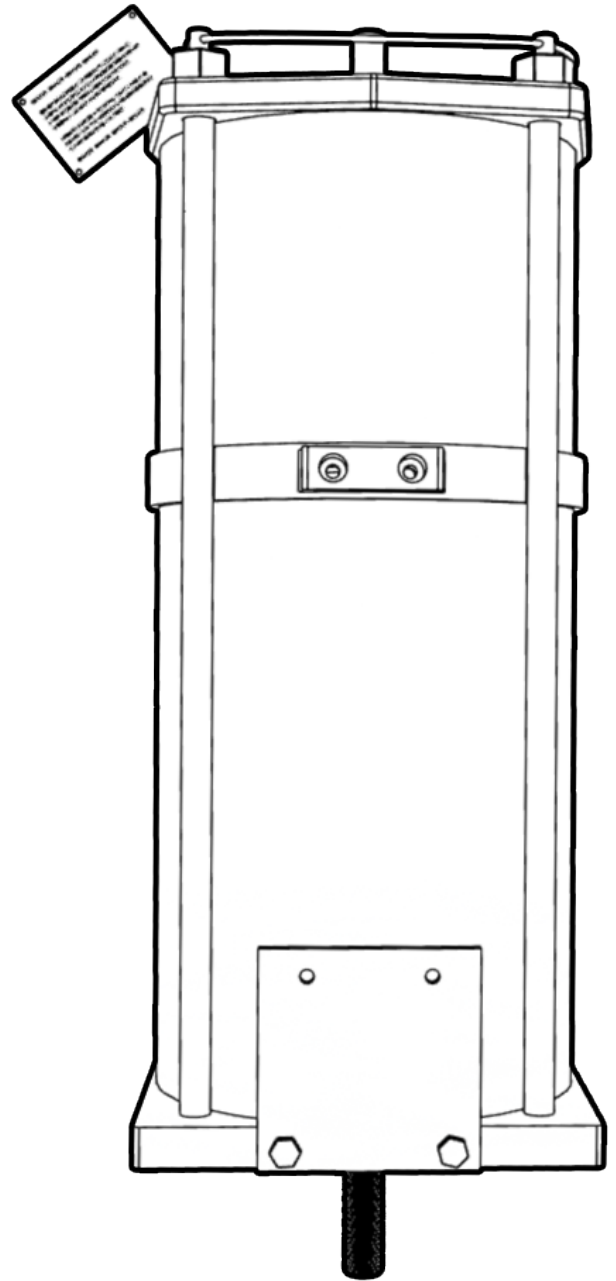
ALL ACTIVITIES MUST BE CARRIED OUT IN ORDER TO ENSURE PROPER ACTUATOR OPERATION.
ALWAYS READ ALL INSTRUCTIONS BEFORE BEGINNING MAINTENANCE.

Every actuator assembled by QTRCO is tested prior to shipment to our customers.
Order specific documentation may be available upon request.

Contact QTRCO with any questions at info@qtrco.com or 281-516-0277.

TABLE OF CONTENTS

1. INSTALLATION _____	4
2. TRAVEL ADJUSTMENT _____	5
3. OPERATION _____	7
4. MAINTENANCE _____	8
5. APPENDIX _____	11



1. INSTALLATION



1.

1. QTRCO actuators may be installed in any position / orientation.
2. All QTRCO Linear SR series actuators have a threaded pushrod that extends out of the bottom of the actuator to mount to the output device.
3. Looking up at the actuator from below there are two sets of mounting holes located on the lower end cap which correspond to standard valve mounting bracket sizes.
4. The separator plate port on the QTRCO L8SE actuator allows the user to double air thrust by applying pressure to two pistons simultaneously.
5. All QTRCO Linear SR and SE series actuators include a side plate for mounting accessories to i.e., pressure regulators, position switch, limit switch,
6. QTRCO Linear SR and SE actuators require no user lubrication.

NOTE:

ALWAYS ENSURE THE ACTUATOR IS MOUNTED SECURELY TO THE BRACKET AND THE PUSH ROD IS PARALLEL TO THE STEM OF THE OUTPUT DEVICE. FAILURE TO DO SO COULD RESULT IN DAMAGE TO THE ACTUATOR.

WARNING

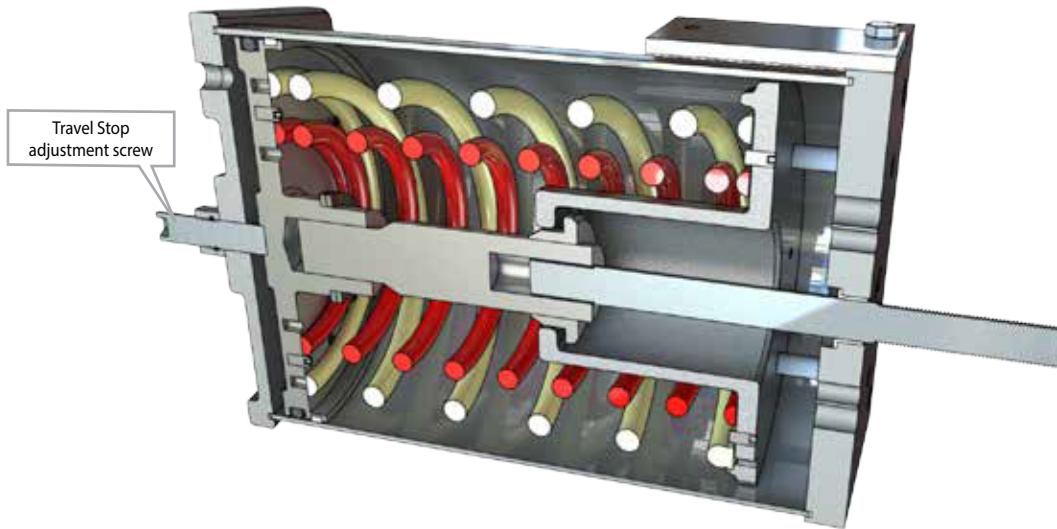
WARNING: L8SR AND L8SE MODELS HAVE THE CAPABILITY TO PROVIDE OVER 6000 LBS AND 12000 LBS OF THRUST RESPECTIVELY. KEEP HANDS AND OTHER OBJECTS CLEAR OF THE PUSH ROD AT ALL TIMES.

PIPING GUIDELINES:

Single and Tandem Cylinder models are identical except for the cylinder quantity and the supply and exhaust port location



2. TRAVEL ADJUSTMENT



Set Retracted Push-Rod Distance (All Types):

The travel adjustment screw is located on the end cap and is preset as ordered.

Before attempting to adjust the travel stop, loosen the sealing nut. Take care not to misplace the travel stop o-ring.

Apply regulated low pressure air to the actuator and adjust the screw three turns at a time, removing pressure intermittently to check adjustments.

Set Extended Push-Rod Distance

Maximum push-rod distance is set at the factory as ordered, and is controlled by several factors, including push-rod length, engagement, and the four set screws in the actuator base plate. Do not attempt to adjust maximum push-rod distance on bracket mounted actuators. Improper adjustment of four set screws at the base of the actuator could damage the actuator. If adjustment is needed, call QTRCO first: 281-516-0277.

CAUTION

ADJUSTING THE TRAVEL STOP TOO FAR OUT CAN CAUSE AIR PRESSURE TO PUSH THE TRAVEL STOP OUT OF THE END CAP. IF THIS OCCURS, REMOVE AIR PRESSURE IMMEDIATELY. REPLACE THE TRAVEL STOP SCREW WITH NO PRESSURE APPLIED, AND TURN THE TRAVEL STOP INWARD UNTIL IT CONTACTS THE FACE OF THE PISTON.

Clockwise screw rotation results in a starting rod position further from the actuator base, counter-clockwise rotation results in a starting rod position closer to the actuator base.

When travel adjustment is complete, tighten the seal nut until no air leak can be detected.

Set retracted push-rod distance with end cap travel stop

3. OPERATION

Water and hydraulic fluids may be used to pressure L8SR/L8SE actuators provided the seal materials were selected accordingly.

Air driven L8SE or L8SR stainless steel actuators with stainless steel or Amalgon cylinders are not harmed by wet air (so long as freezing does not occur). Aluminum and chrome plated steel cylinders may be harmed by the presence of water.

Once the actuator has been mounted and the travel adjusted properly, operation is the same as any common spring return air cylinder.

If a jackscrew is attached, it may be used to override the springs when air pressure is lost. **The jackscrew is not intended as a permanent replacement for an air source.** Excessive use of the jackscrew may lead to heavy wear on the actuator end cap.

Applying air to the pressure ports will cause the push-rod to extend; relieving air pressure will cause the push-rod to retract. Always adhere to the label on the actuator in regards to maximum air pressure.

4. MAINTENANCE

WARNING

TAKE A MOMENT TO VIEW THE SPRINGPAQ™ IMAGE. NOTE HOW THE SPRINGPAQ™ CANNOT EXPAND WHEN THE END CAP AND CYLINDER ARE REMOVED FROM THE ACTUATOR. THE PISTON AND SPRING RETAINER CONTAIN THE SPRING IN ITS INITIAL COMPRESSED POSITION.

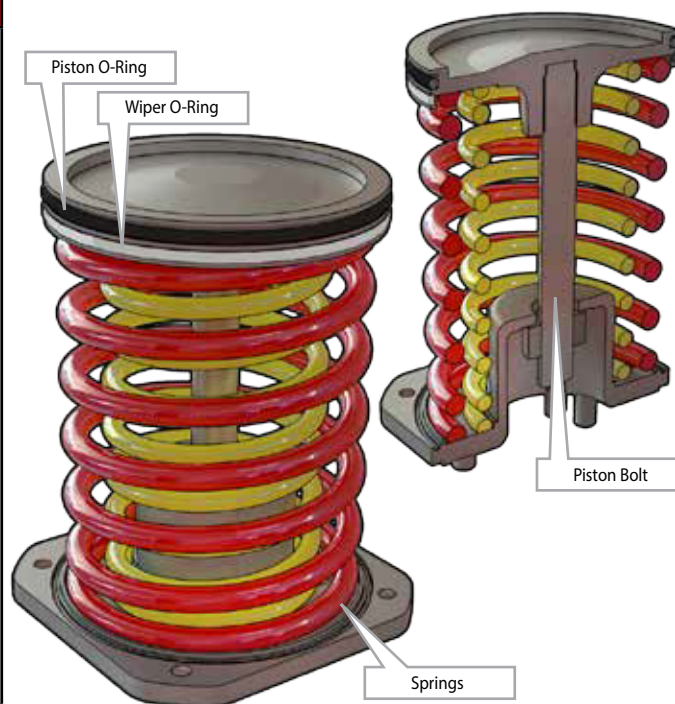
THE SPRING COMPRESSES FURTHER DURING ACTUATOR OPERATION. THE PISTON BOLT EXTENDS FROM THE PISTON TO THE SPRING RETAINER AND IS SECURED BY THE SAFETY COLLAR. THE SAFETY COLLAR IS RECESSED BELOW THE SURFACE OF THE SPRING RETAINER INTENTIONALLY TO PREVENT THE DISASSEMBLY OF THE SPRINGPAQ™.

DO NOT ATTEMPT TO DISASSEMBLE THE SPRINGPAQ™.

DISASSEMBLY OF THE SPRINGPAQ™ MAY EXPOSE YOU TO EXTREME DANGER, THE RESULT OF WHICH COULD BE SEVERE INJURY OR DEATH.

THERE IS NO REASON TO TAKE APART A SPRINGPAQ™.

IF A SPRING IS BROKEN,
REPLACE THE ENTIRE SPRINGPAQ™.



WARNING

DO NOT REMOVE/LOOSEN TIE ROD NUTS UNLESS CYLINDER IS FULLY DE-PRESSURIZED

COMPONENTS MAY EXIT THE ACTUATOR DANGEROUSLY IF DISASSEMBLY IS ATTEMPTED UNDER PRESSURE.

ENSURE THAT ALL PROCESS LINES ARE SAFE / READ ALL MAINTENANCE INSTRUCTIONS BEFORE STARTING WORK.

WARNING

WHEN UNTHREADING TIE ROD NUTS, FIRST UNTHREAD ALL NUTS UNTIL THEY ARE FLUSH WITH THE ENDS OF THE TIE RODS. IF THERE IS STILL FORCE PUSHING OUTWARD ON THE ENDCAP AT THIS POINT, A DANGEROUS CONDITION MAY EXIST. A TRAVEL STOP OR OVERRIDE DEVICE MAY BE PUTTING PRESSURE ON THE SPRINGS, OR THERE MAY BE COMPONENT DAMAGE. FULLY REMOVING THE TIE ROD NUTS IN THIS CONDITION MAY ALLOW THE SPRINGS TO DANGEROUSLY DECOMPRESS. DO NOT CONTINUE FURTHER UNTIL IT IS ASSURED THAT THE UNIT IS SAFE TO DISASSEMBLE.

PERIODIC MAINTENANCE SCHEDULE

General service actuators do not require periodic maintenance. Severe service actuators may require periodic maintenance based on operating conditions. Severe service may include but is not limited to high speed, high cycle, highly corrosive, explosive atmosphere, and others. Special applications may require individual maintenance schedules. Contact QTRCO for help developing a maintenance schedule for your application.

LUBRICATION

QTRCO actuators are lubricated for life. For special applications grease fittings may be provided. Use the grease fittings (if applicable) incorporated into the torque module of your actuator to apply additional lubricant. The frequency of this lubrication will depend on the application of the actuator. For any questions regarding the frequency of this operation or appropriate lubrication compounds contact your QTRCO distributor.

Piston seal replacement:

All QTRCO actuator piston seals may be replaced while the actuator remains in line. This offers the advantage of not having to remove the actuator from the valve and eliminates concern about valve damage as a result of having to disengage the actuator and valve stems.

It also is beneficial because accessory settings are not disrupted and therefore should not require subsequent adjustment / calibration post repair.

Single and tandem cylinder models require identical procedures for piston seal replacement. Tandem cylinders should be repaired in the same manner as the main cylinder.

WARNING

DO NOT DISASSEMBLE TIE ROD NUTS UNLESS TRAVEL STOP OR JACKSCREW IS FULLY REMOVED FROM END CAP. IF NOT REMOVED, SPRING FORCE MAY RELEASE SUDDENLY, CAUSING INJURY OR DEATH.

1. Exhaust pressure from all pressure ports.
2. Remove tubing/piping.
3. Remove the travel stop or jack screw prior to removing the safety wire.
4. Remove tie rod nuts (tie rods should remain in place for convenience, but no harm occurs should they be removed as well), then follow the below sequence. For tandem cylinder types, complete service on both cylinders before reassembly, treating each cylinder as a single cylinder model.
5. Remove end cap. Do not lose end cap cylinder seal.
6. Remove cylinder.

CAUTION

THE SURFACE OF THE TANDEM PISTON BOLT IS A FINE FINISH TO REDUCE FRICTION AND GUARANTEE A PROPER SEAL WITH THE SEPARATOR PLATE BUSHING AND CUP SEAL. BE SURE NOT TO MAR THE SURFACE OF THE TANDEM PISTON BOLT DURING MAINTENANCE.

NOTE:

IF THE ACTUATOR IS MOUNTED WITH THE END CAP DOWN, THE CYLINDERS, TANDEM PISTON, SEPARATOR PLATE, AND SPRINGPAQ MAY FALL FROM THE BASE PLATE ONCE THE END CAP IS REMOVED. REPLACE COMPONENTS IN ORIGINAL ORIENTATION.

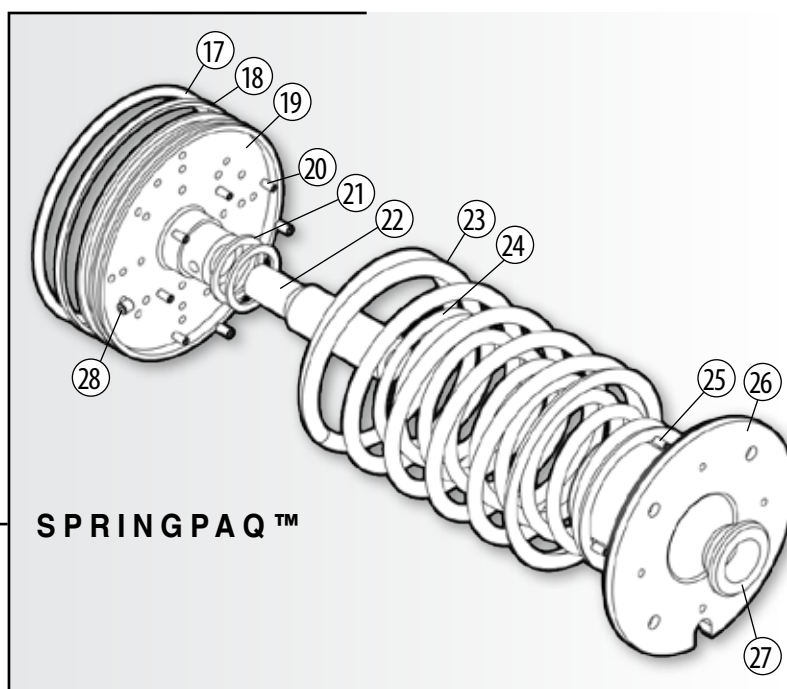
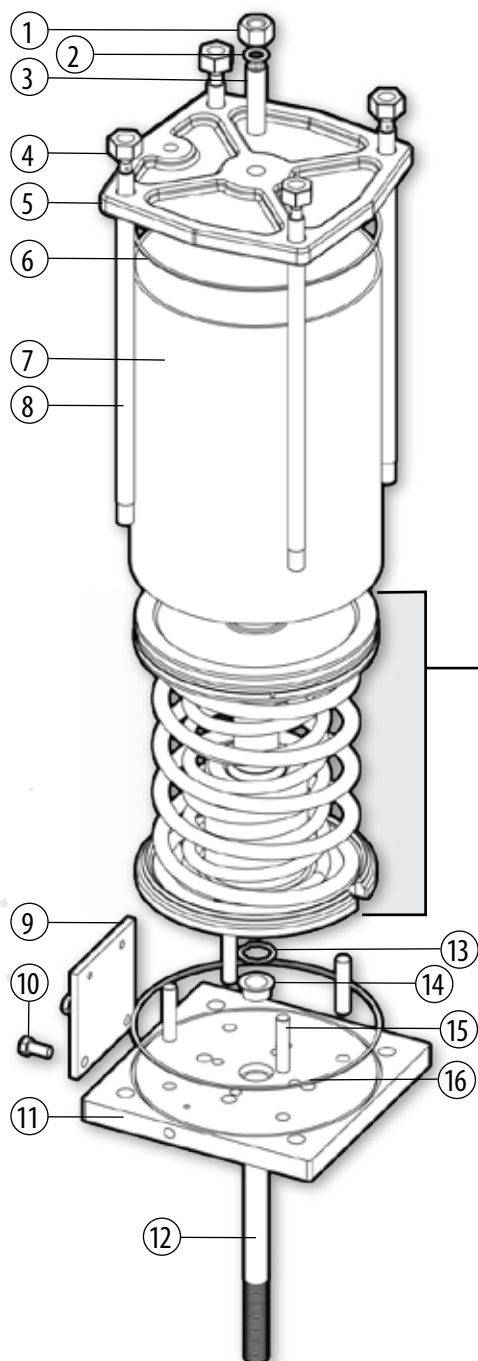
7. Remove and replace o-ring and wiper ring as necessary, after cleaning piston grooves and lubricating the o-ring with QTRCO approved lubricant (DOW 55 standard).
8. On L8SE models, carefully apply a light coat of lubricant to the tandem piston bolt.
9. Replace cleaned and lubricated cylinder.
10. Replace end cap with seal seated in cylinder groove.
11. Replace tie rod nuts. Torque nuts to 25 lbft in an alternating pattern. If leaks are detected at the end cap, tie rods may be torqued to a maximum of 45 lbft.

WARNING

THE SPRINGPAQ ASSEMBLY IS A SELF CONTAINED UNIT, DESIGNED AND TO BE SAFELY REPLACED IF NECESSARY. NEVER ATTEMPT TO DISASSEMBLE A SPRINGPAQ. SPRINGS ARE UNDER CONSIDERABLE INITIAL LOAD. DISASSEMBLY OF THE SPRINGPAQ MAY LEAD TO SERIOUS INJURY OR DEATH. IF SPRINGPAQ REPAIR IS NEEDED, CALL QTRCO AT 281-516-0277.

5. APPENDIX

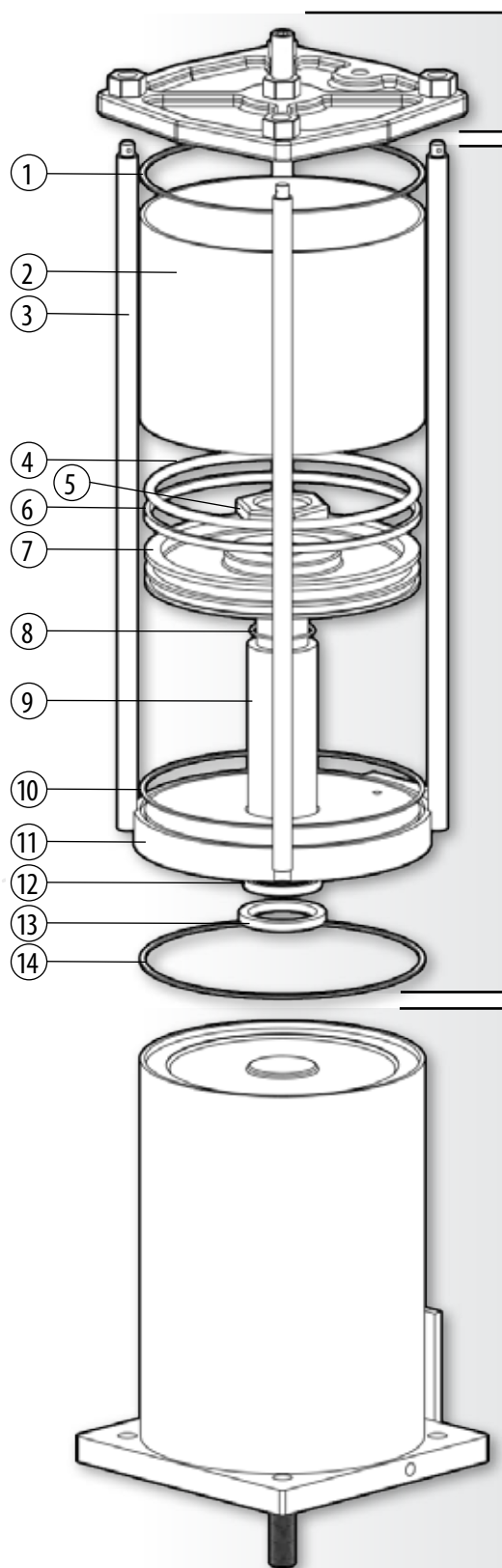
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NUMBER	PART
1	O-Ring Nut
2	O-Ring
3	Travel Stop
4	Hex Nut
5	End Cap
6	Cylinder Seal
7	Cylinder
8	Tie Rod
9	Accessory Mounting Plate
10	Accessory Mounting Bolt
11	Base Plate
12	Push Rod
13	Rod Bushing Retainer
14	Rod Bushing

NUMBER	PART
15	Socset Leveling Screw
16	Cylinder Seal
17	Piston O-Ring
18	Wiper Ring
19	Piston
20	Spring Alignment Socset
21	Washer
22	Piston Bolt
23	Outer Spring
24	Inner Spring
25	Socset
26	Spring Retainer
27	Safety Collar
28	Piston Set Screw

*not applicable to all models



REFER TO: L8SR

L8SE TANDEM PISTON

NUMBER	PART
1	Cylinder Seal
2	Cylinder
3	Tie Rod
4	Piston O-Ring
5	Piston Rod Nut
6	Wiper Ring
7	Piston
8	Piston Rod O-Ring
9	Piston Rod
10	Cylinder Seal
11	Seperator Plate
12	Piston Rod Bushing
13	Piston Rod Seal
14	Cylinder Seal

*not applicable to all models

REFER TO: L8SR

For three years we provide replacement seals free of charge regardless of the number of cycles.



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