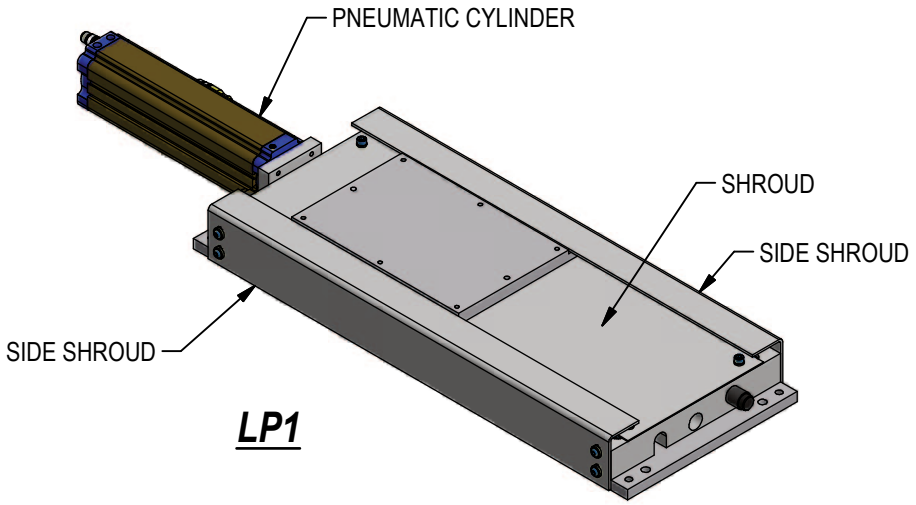
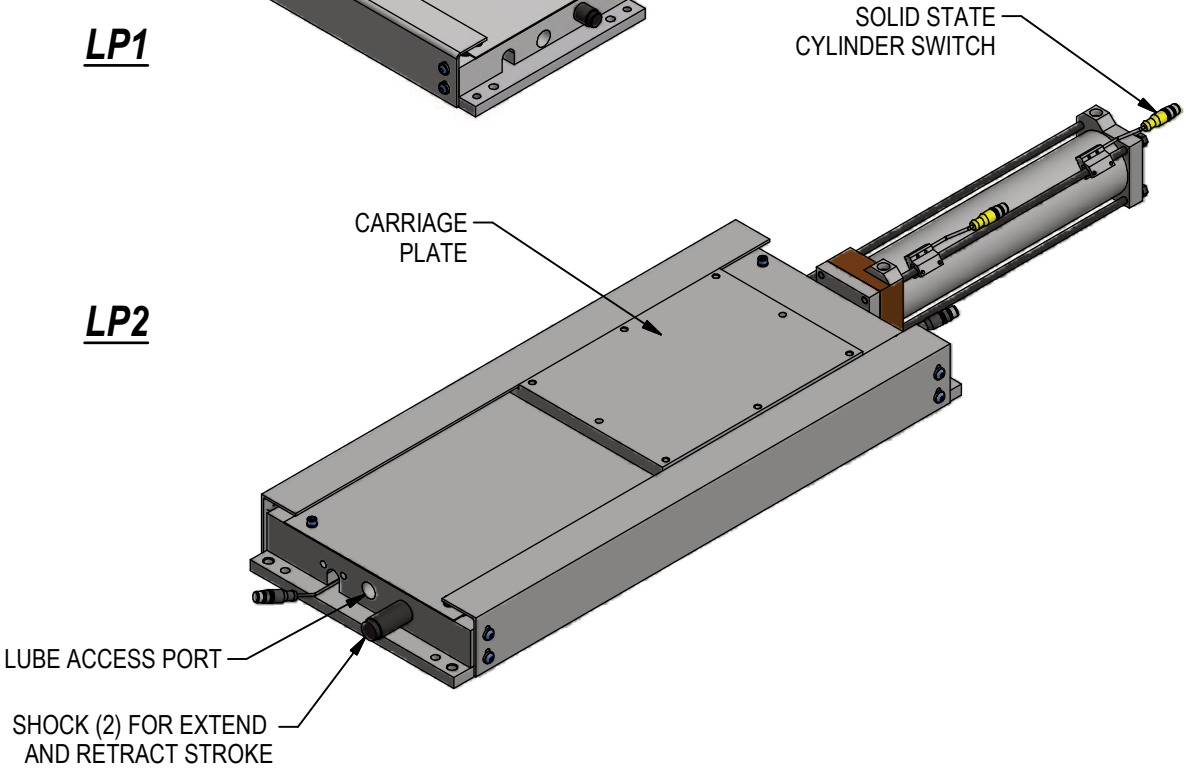
WELKER ENGINEERED PRODUCTS
ISO 9001 REGISTERED

MAINTENANCE MANUAL
LP SERIES RAIL SLIDES



LP1



LP2

Welker Engineered Products 1401 Piedmont Troy, MI 48083 (800) 229-0890 www.welkerproducts.com

MAINTENANCE

SAFETY FIRST!

MAINTENANCE SHOULD ONLY BE PERFORMED BY QUALIFIED PERSONNEL. PROPER SAFETY GEAR AND PROCEDURES MUST BE USED AT ALL TIMES.

BEFORE PERFORMING MAINTENANCE, CUT OFF AIR SUPPLY TO THE UNIT, ENSURE THAT ALL AIR IS EXHAUSTED FROM THE SYSTEM AND THAT THERE ARE NO "TRAPPED AIR" CONDITIONS.

PREVENTATIVE MAINTENANCE: Regularly inspect unit to verify proper operation. Check for debris build up and clean as needed. Inspect all pneumatic, electrical, and mounting connections, making sure all connections are tight and secure. Routine replacement of cylinder seals is recommended.

CYLINDER: Welker pneumatic cylinders are lube free and require very little maintenance. Check rod and cylinder surfaces for abnormal wear or damage. Plant air supply to the cylinder should be free of contaminants, filtered to a minimum of 50micron and have a water separator. Be sure fittings are in good condition. Seals are subject to wear under normal operating conditions. It is recommended to keep a spare cylinder seal kit on hand.

STOPS: Shims (if applicable) may require adjustments; be sure to make adjustments to each location equally under operating pressure. Welker Smart Stop requires replacement upon failure. Welker Smart Stops use standard NAAMS (3) hole shims and spacers.

SHROUDS: Inspect for damage and debris. Replace when damaged.

BEARING ASSEMBLY & RAIL: Inspect rails for damage and debris. Rail bearings must be lubricated on a scheduled basis. Lubrication access port is located on extended end of slide unit.

TROUBLESHOOTING

FAILURE	POSSIBLE CAUSE	SOLUTION
Slide carriage does not move or does not fully extend/retract	Cylinder/actuator failure	Check plant air supply for proper pressure; too little will result in lack of cylinder movement. Seals may be worn, damaged or deteriorating. Replace as needed. If cylinder has been serviced, be sure tie rod nuts have been tightened to torque specifications.
	Debris/contamination in slide	Inspect unit for dirt/debris. Clean, remove debris. Inspect shroud, replace if damaged.
	Stray metal parts in slide	Remove.
Bent, broken, or worn cylinder rod	Misaligned load or load in excess of capacity	Make sure load is properly aligned and within design limits.
Rail damage	Bearing failure Contaminants inside bearing assembly	Replace bearing assembly (includes 1 rail and 2 carriages)
Rail noise	Lack of bearing lubrication	Lubricate bearings.
Welker Smart Stop LEDs do not light up	Cylinder/actuator stroke not completing	Inspect unit for debris blocking full cylinder stroke. Clean, remove debris. Check cylinder operation.
	Switch failure	Check switch for proper operation and secure connection. Replace if required.

REPLACEMENT PARTS

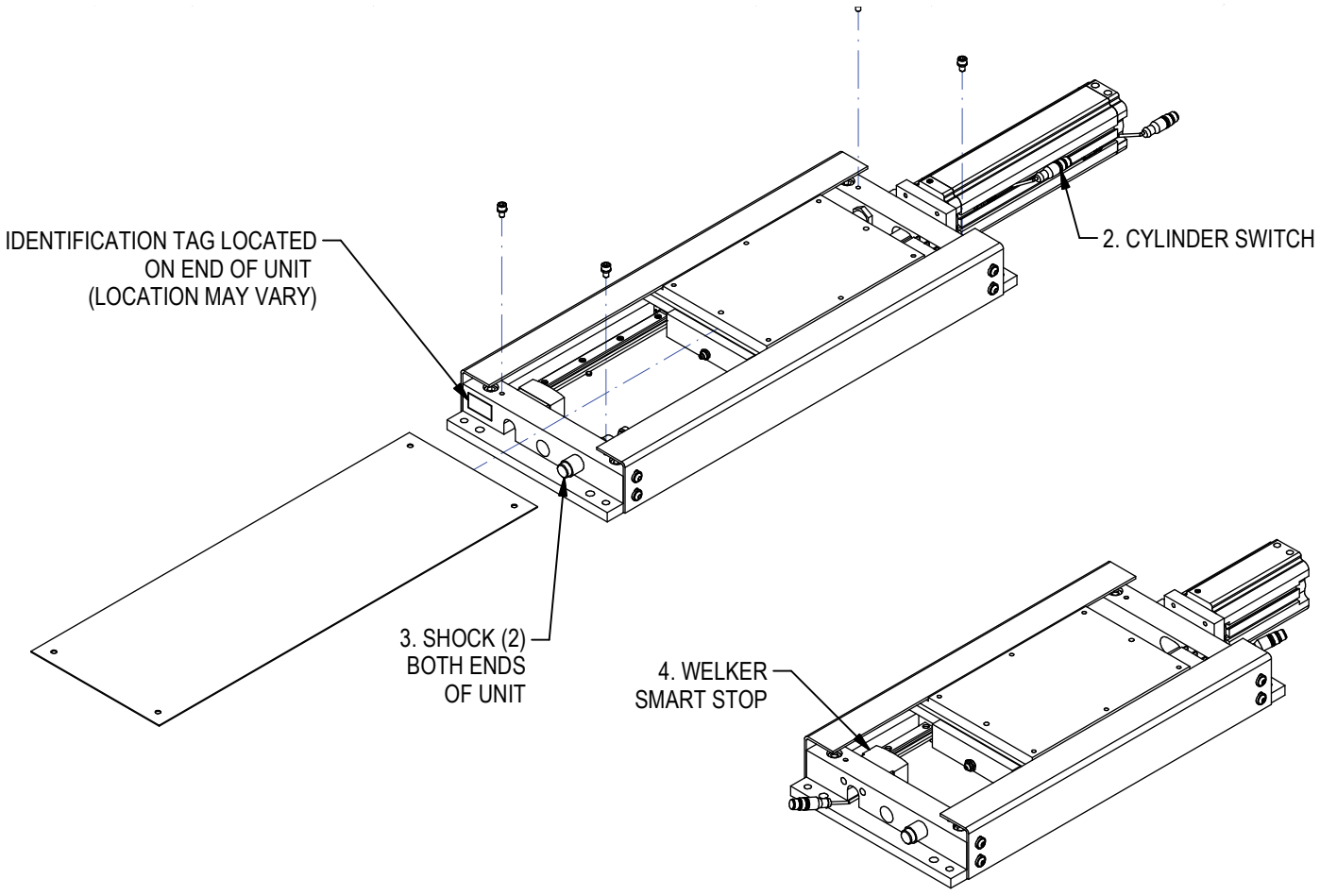
NOTE A: When ordering replacement cylinders and bearing assemblies, please have the Welker Job Number available and/or the cylinder model & serial number (from the unit's identification tag).

ITEM	QTY	STOCK*	DESCRIPTION	PART NUMBER
1	1	1	LP1 CYLINDER SEAL KIT	LP1-CSK
1	2	1	LP2 CYLINDER SEAL KIT	LP2-CSK
2	2	2	CYLINDER SWITCH	SEE CHART BELOW
3	2	1	LP1 SHOCK (NOT REQ'D FOR 75mm STROKE)	SC300-9M
3	2	1	LP2 SHOCK (NOT REQ'D FOR 75mm STROKE)	SC650M-9
4	2	1	WELKER SMART STOP	ASC020-PD

* RECOMMENDED SPARE PARTS TO KEEP IN STOCK

	Reorder #	Mfr. Part Number	Manufacturer	Description
Cylinder Switches	**SWITCH L3S**	SWITCH L3S L3 switch is weld field immune, comparable to World Switches	Welker	3-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect
	SWITCH L5S	MK5113	ifm Efector	3-Wire, 4-Pin, DC M12 X 1 (NPN) Quick Disconnect

Standard Switch Option - All other options may affect price and delivery



RAIL BEARING LUBRICATION

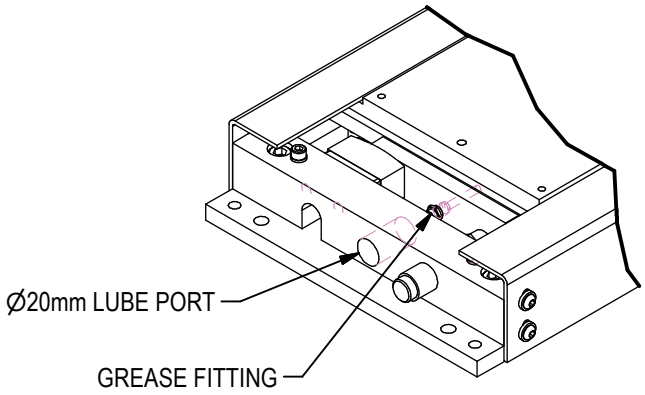
Rail bearings require lubrication for long life, frequency depends upon usage and environment. Manual lubrication is recommended every six months.

1. Extend cylinder so carriage is positioned near lube port.

2. A 1/8" NPT grease fitting is provided, accessible via lube port.

3. Apply 1.1 cubic centimeters of grease.
Mobil XHP 222 is recommended.

(UNIT SHROUD NOT SHOWN FOR CLARITY)



REPLACING SHOCK

1. Extend or retract cylinder so carriage plate is opposite of shock to be replaced.

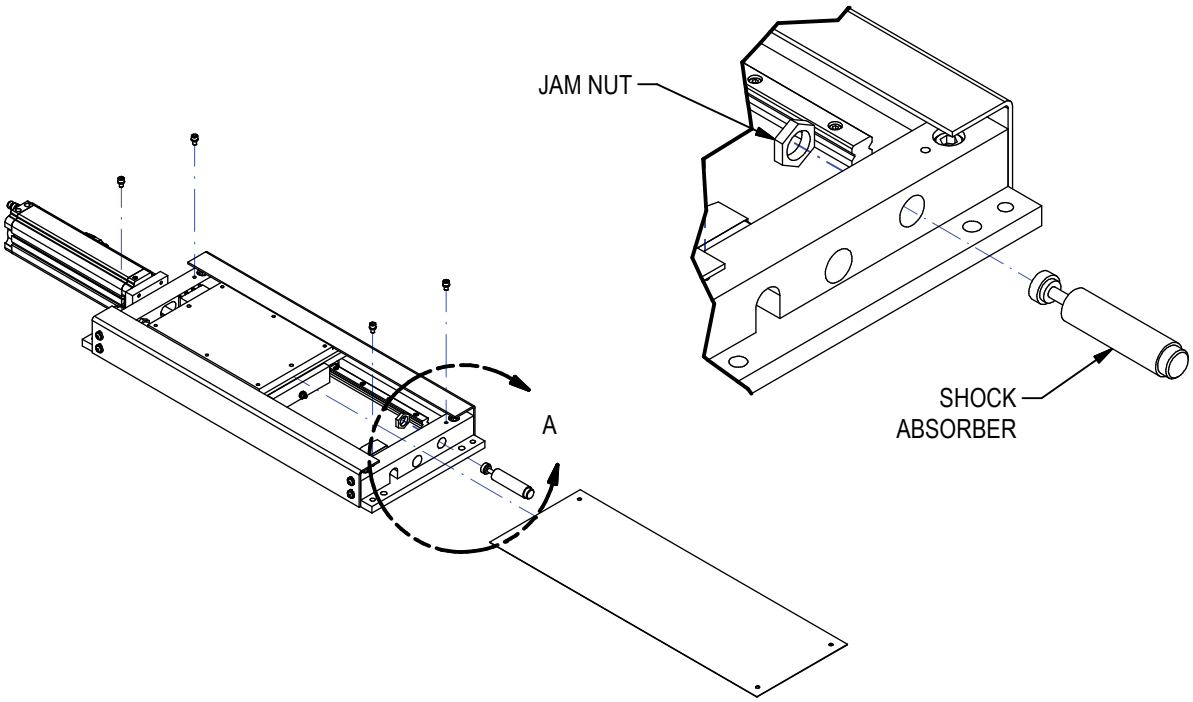
2. Remove fasteners & lock washers securing metal shroud. Slide shroud out to remove.

3. Remove jam nut from shock absorber.

4. Unscrew shock from unit.

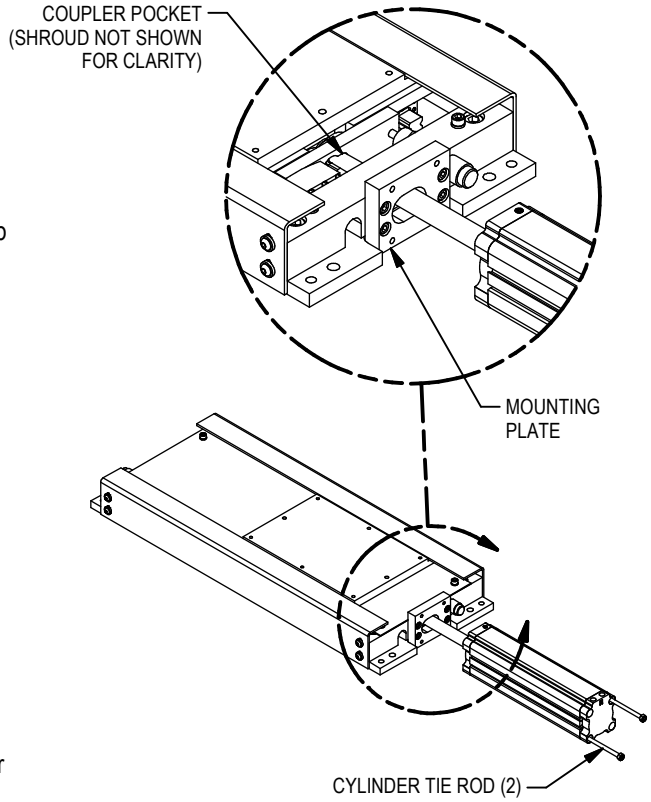
5. Install new shock absorber. Set the shock absorber so that it is fully compressed when the slide is against it then back it off 1/32".

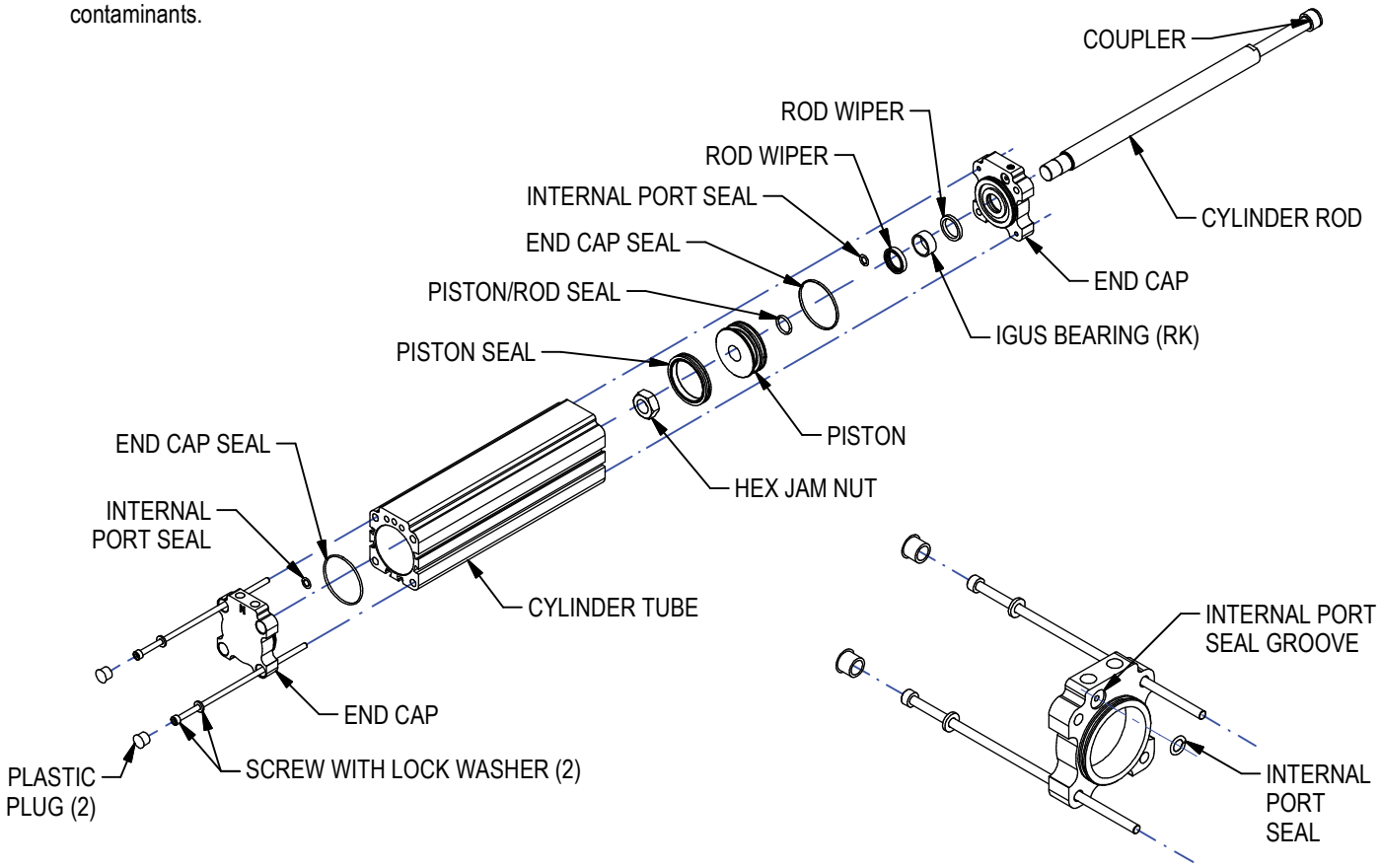
6. Tighten jam nut.



LP1 CYLINDER SEAL MAINTENANCE

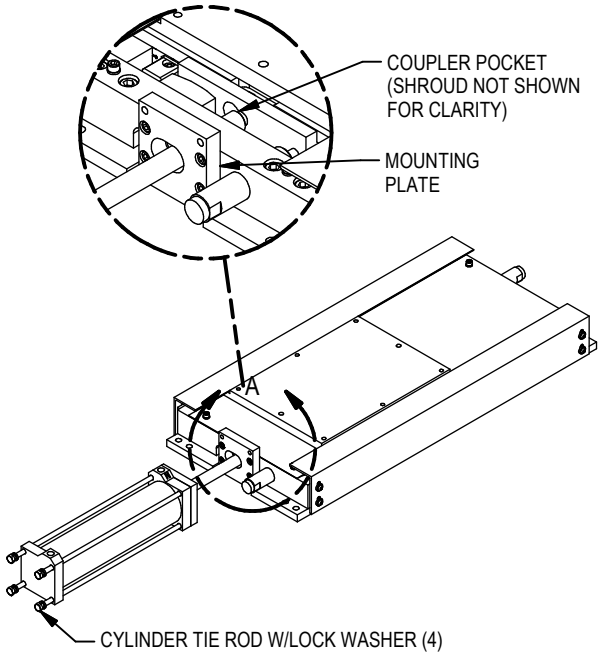
1. Disconnect air lines to cylinder, release any trapped air conditions.
2. Remove cylinder tie rods (2, without plastic plug) to free cylinder from mounting plate. Pull cylinder back to extend rod out. Slide unit to left to release cylinder rod coupling from pocket. Remove cylinder.
3. Remove plastic plugs (2). Loosen screws enough to release tube/end cap assembly.
4. Replace end cap seals (2). Replace piston seal. Replace internal port seals (2). Use standard lithium grease on all seals and sliding surfaces.
5. To replace piston/rod seal, remove hex jam nut. Hex jam nut is affixed to cylinder rod with permanent thread locker. To remove, first extend the cylinder rod to move the jam nut away from unit body. Then apply gentle heat to the jam nut to soften the thread locker. Use caution so as not to overheat the piston or seals! Piston/rod seal is located inside piston. Remove piston from rod and replace seal. Grease with standard lithium grease. Reinstall hex jam nut to cylinder rod using permanent thread locker.
6. Replace Igus bearing and rod wipers. Note wiper direction.
7. Reassemble unit making sure internal port seals are in place and cylinder tube is aligned correctly. Use permanent thread locker on cylinder hex nuts. Using torque wrench tighten cylinder fasteners to 14 ft.lb.
8. Install plastic plugs. Install air lines, making sure they are free of contaminants.

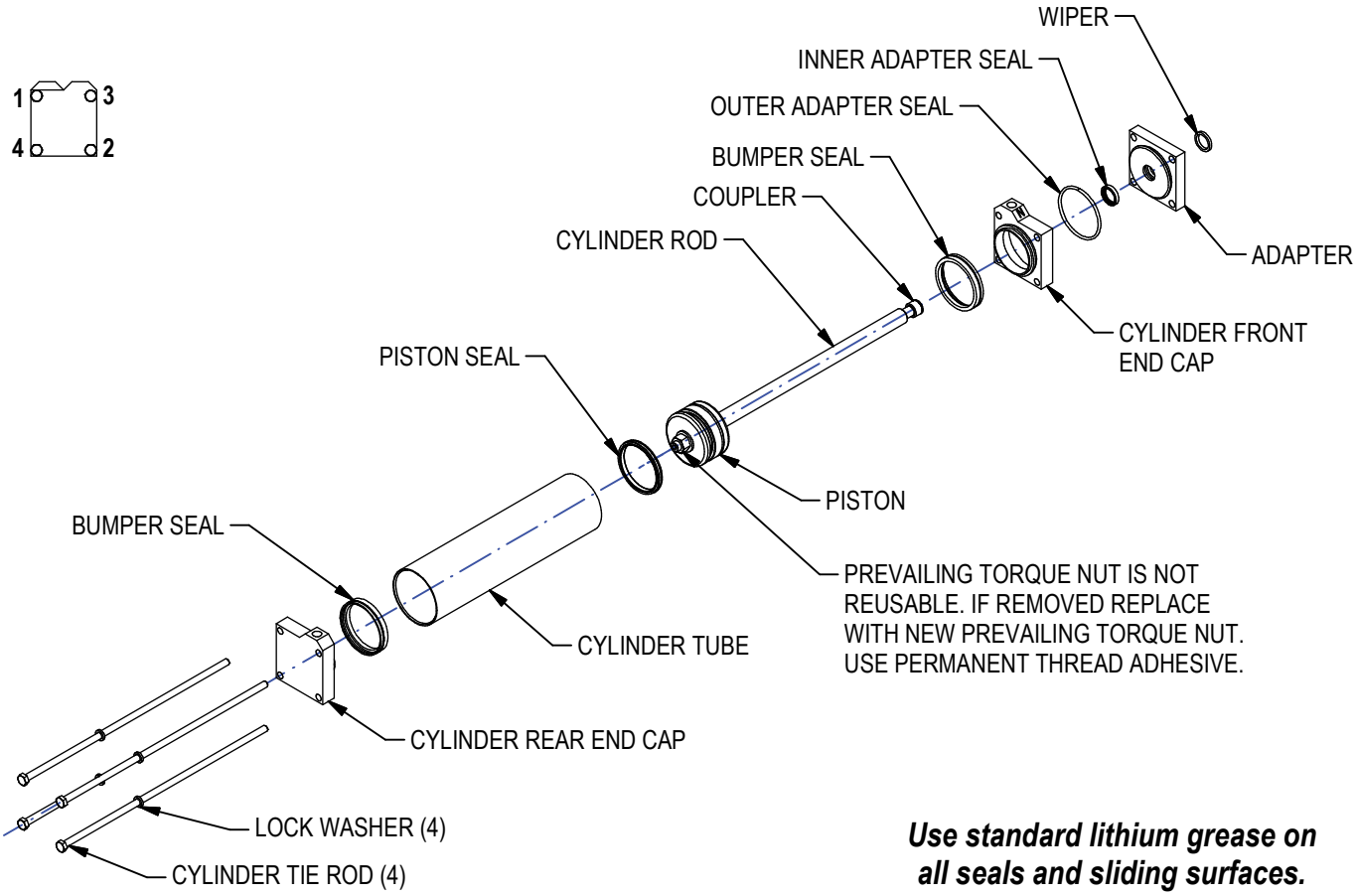




LP2 CYLINDER SEAL MAINTENANCE

1. Disconnect air lines to cylinder, release any trapped air conditions. Remove cylinder switch if applicable.
2. Loosen cylinder tie rods about an inch, to free cylinder from mounting plate. Pull cylinder back to extend rod out. Slide unit to left to release cylinder rod coupling from pocket. Remove cylinder.
3. Remove cylinder tie rods & lock washers. Remove end caps, adapter & tube.
4. Remove piston seal using plastic or brass tool. NOTE ORIENTATION OF SEAL. Clean seal grooves thoroughly. Inspect parts for wear. Clean piston and install new seal. Replace bumper seals (2). Replace outer adapter seal. Use standard lithium grease on all seals and sliding surfaces.
5. Remove adapter plate, replace inner seal, greasing with standard lithium grease.
6. Align adapter, front end cap, bumper seals and rear end cap on cylinder rod and install to mounting plate with cylinder tie rods & lock washers. Be sure cylinder ports are in proper position. Using torque wrench tighten tie rods to pattern shown. Tighten to 15 ft.lbs.
7. Install cylinder switch if applicable. Install air lines, making sure they are free of contaminants.





Use standard lithium grease on all seals and sliding surfaces.

REPLACING TIE ROD CYLINDER SWITCH

1. BEFORE REMOVING OLD SWITCH: NOTE SENSOR PLACEMENT! FOR SWITCHES WITH TWO SENSORS, EACH WILL BE TAGGED WITH A BAND AROUND THE WIRE INDICATING S1 AND S2 (OR S01 AND S02).
2. TO REMOVE SWITCH, REMOVE BOLTS AND WASHERS FROM BRACKET. SLIDE BRACKET OUT FROM TIE ROD.
3. SENSOR IS SNAPPED INTO BRACKET. REMOVE.
4. INSTALL NEW SWITCH SENSOR FLUSH INTO BRACKET, BEING CAREFUL TO MATCH SENSOR CORRECTLY TO LOCATION ON CYLINDER.
5. LOCATE BRACKET TO CYLINDER, SLIDE ON TO TIE ROD. SECURE WITH BOLTS & WASHERS.