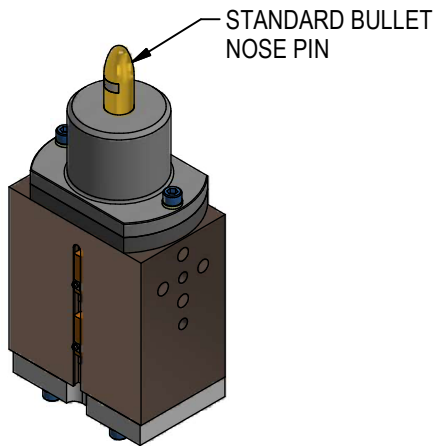


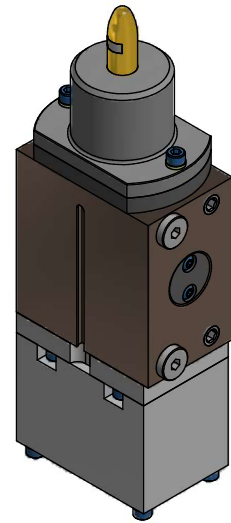
PIN CLAMP MAINTENANCE MANUAL

PCY

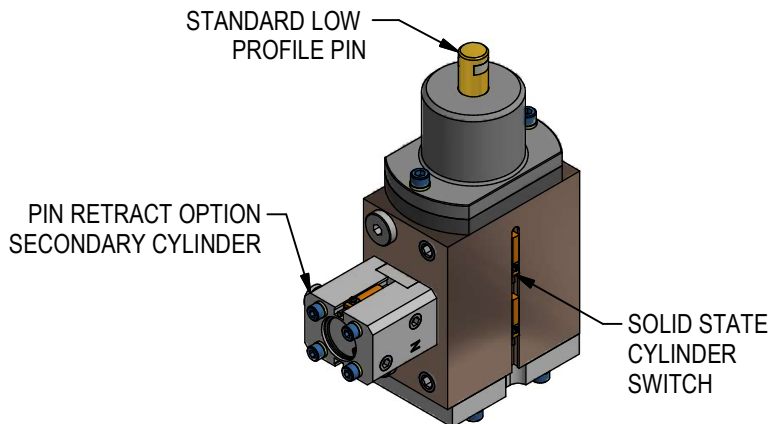
**NON-RETRACT UNIT
(ACTUATOR A)**



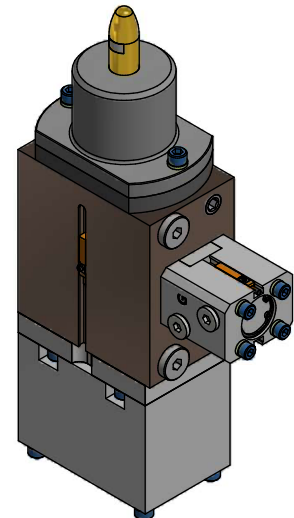
**NON-RETRACT UNIT
WITH SPRING
(ACTUATOR B)**



**RETRACT UNIT
(ACTUATOR V)**



**RETRACT UNIT WITH SPRING
(ACTUATOR W)**



RELEASED 4/29/24

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 REMOVED AND THAT THERE ARE NO "TRAPPED AIR" CONDITIONS.

GENERAL GUIDELINES: NEVER grab pin or fingers with pliers. NEVER strike pin with hammer or pipe. Pin is too small! If part is stuck - pull on part to help cylinder extend and retract fingers.

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.

CYLINDER: Welker pneumatic cylinder is integrated into PCY unit. 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.

PINS: Pins are subject to wear under normal operating conditions and should be replaced when worn.

SWITCH: Switches may fail and need replacement; it is recommended to keep a spare switch on hand.

SPRING: Recommended replacement is 1 million cycles.

WELKER RECOMMENDS IN-PLANT RECERTIFICATION AFTER SERVICE/REPAIR/REPLACEMENT.

TROUBLESHOOTING

Failure	Possible Cause	Solution
Pin clamp does not clamp or unclamp	Insufficient air pressure	Check/confirm air pressure
	Contamination build up on clamp fingers	Regularly clean particulate from unit by cycling pin up and down while applying compressed air. Do not use oil or lube. Replace pin cartridge if needed.
	Cylinder	Repair or replace unit
Pin fails to extend Pin & fingers remain retracted	Too tight of fit on part hole	Proper pin size: 0.25mm minimum clearance for geo applications; 0.5mm for material handling.
	Side load too high from improper shimming.	Correct shims to fit metal.
	Side load too high due to part shift when welding.	Better part control during process.
Clamp fingers do not actuate	Contamination build up on clamp fingers Fingers worn	Regularly clean particulate from unit by cycling pin up and down while applying compressed air. Do not use oil or lube. Replace pin cartridge if needed.
	Spring fatigue, failure (Actuators B, T, U)	Replace springs
	Part rest (backup) worn	Inspect under regular scheduled maintance. Wear item. Replace if needed.
Broken or worn locating pin	Improper application. Misalignment of tooling-to-part.	Inspect under regular scheduled maintance. Wear item. Replace pin cartridge if needed.
	Loose pin clamp mount to main bracket	Check pin clamp mount
Switch failure	Switch failure, loose wire	Check switch for proper operation and connection. Replace switch if required.

REPLACEMENT PARTS

Rebuild Kits & Replacement Parts		
QTY	DESCRIPTION	ORDER AS
2	GAS SPRING FOR ACTUATOR OPTIONS B, T, U OR W	R12-38.1-45BAR
1	SECONDARY (RETRACT) CYLINDER SEAL KIT	PCX-RC-CSK

Welker Cylinder Switch Chart

FOR PIN CLAMP ACTUATOR OPTION A & B

Option	QTY	Switch Part #	Wire	Output	Mfg
L3	1	SWITCH L3** Dual sensor, single connector switch: 1 switch required per cylinder	4	PNP	Welker
L5	2	MK5113 Single sensor, single connector switch: 2 switches required per cylinder	3	NPN	ifm Efector

FOR PIN CLAMP ACTUATOR OPTION V & W

Option	QTY	Switch Part #	Wire	Output	Mfg
L3	2	SWITCH L3**	4	PNP	Welker
	1	SWITCH L3S** Single sensor, single connector switch: 1 switch required for retract cylinder	3	PNP	
L5	5	MK5113	3	NPN	ifm Efector

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

All switches are DC M12 X 1, Quick Disconnect

**L3 switch is weld field immune, comparable to World Switches. Note that some mid and low frequency DC resistance applications (i.e. aluminum resistance welding applications) may cause a fault. In these applications, it is recommended that the sensor be ignored/bypassed during the welding cycle.

REPLACEMENT PIN CLAMP CARTRIDGES

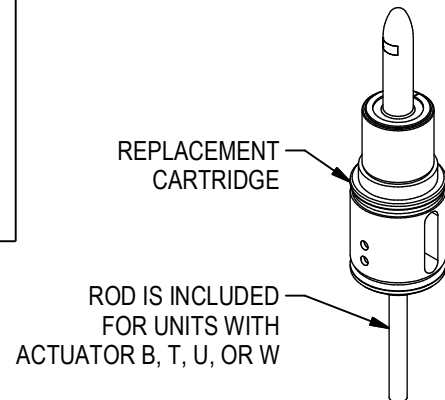
SEE CATALOG FOR PIN TYPES AND FINGER ORIENTATION

Y - **C R T** - [] [] [] [] [] []

Pin Diameter _____
08.00 - 26.00 to 2 Decimal Places

Pin Type _____
A Bullet Nose Pin with fingers at 0° (Shown)
B Bullet Nose Pin with fingers at 90°
E Low Profile Pin with fingers at 0°
F Low Profile Pin with fingers at 90°

Actuator _____
A Dbl Acting
B Dbl Acting w Spring
R Dbl Acting w Retractable Pin (Ports @ 90°)
S Dbl Acting w Retractable Pin (Ports @ 0°)
T Dbl Acting w Retractable Pin & Spring (Ports @ 0°)
U Dbl Acting w Retractable Pin & Spring (Ports @ 90°)
V Dbl Acting w Retractable Pin & Secondary Cyl Sensing (Ports @ 90°)
W Dbl Acting w Retractable Pin, Spring & Secondary Cyl Sensing (Ports @ 90°)



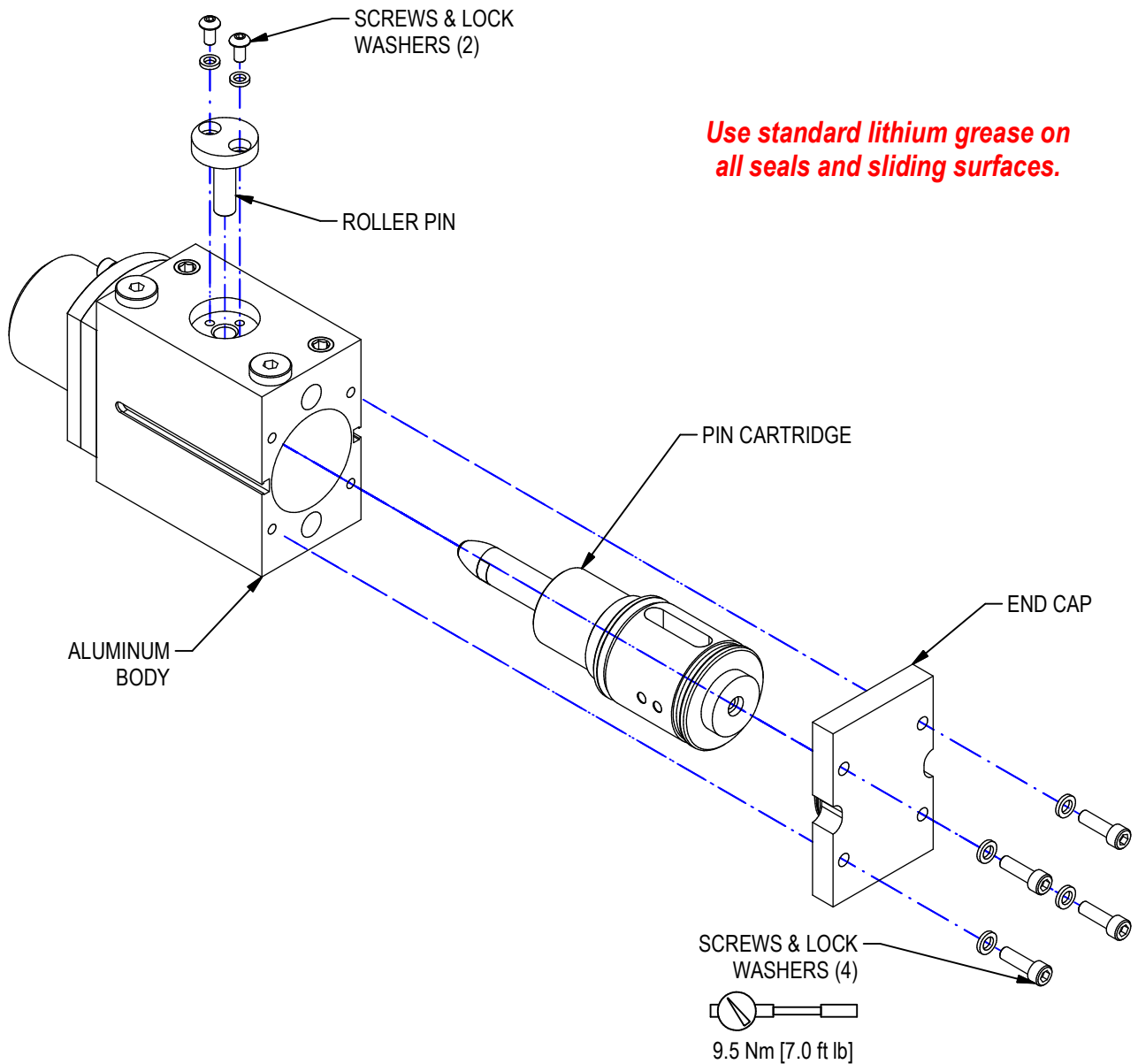
Welker Engineered Products 1401 Piedmont Troy, MI 48083 (248) 528-2020 www.welkerproducts.com

CARTRIDGE REPLACEMENT ~ ACTUATOR A

BEFORE REMOVAL, PIN MUST BE IN THE EXTENDED POSITION AND CLAMP FINGERS BELOW FLUSH.

1. Remove screws and lock washers from end cap. Remove end cap.
2. Remove screws and lock washers securing roller pin. Remove roller pin.
3. Remove cartridge.
4. Apply grease to tip of roller pin and inside pin clamp body.
5. When installing a new cartridge, make sure the fingers are flush to the pin and the slot is orientated as shown.
6. Reinstall components in reverse order.
7. Make sure cartridge moves freely up and down and the fingers extend and retract properly.
8. Tighten end cap screws to torque shown.

NOTE: Backup may need to be removed if replacing a cartridge with damaged or broken fingers



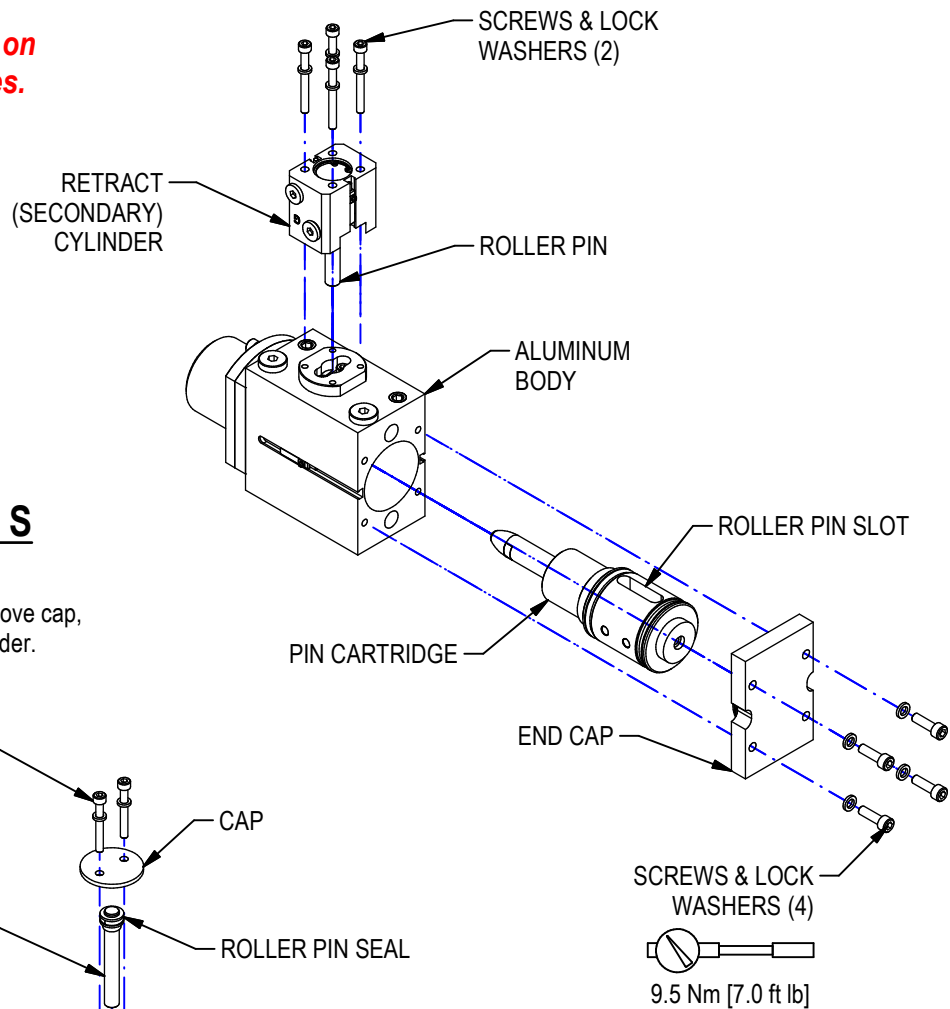
CARTRIDGE REPLACEMENT ~ ACTUATOR V

BEFORE REMOVAL, PIN MUST BE IN THE EXTENDED POSITION AND CLAMP FINGERS BELOW FLUSH.

1. Remove screws and lock washers from end cap. Remove end cap.
2. Remove screws and lock washers from retract (secondary) cylinder. Remove cylinder with roller pin.
3. Remove cartridge.
4. Apply grease to tip of roller pin, roller pin seal, and inside pin clamp body.
5. When installing a new cartridge, make sure the fingers are flush to the pin and the slot is orientated as shown.
6. Reinstall components in reverse order.
7. Make sure cartridge moves freely up and down and the fingers extend and retract properly.
8. Tighten end cap screws to torque shown.

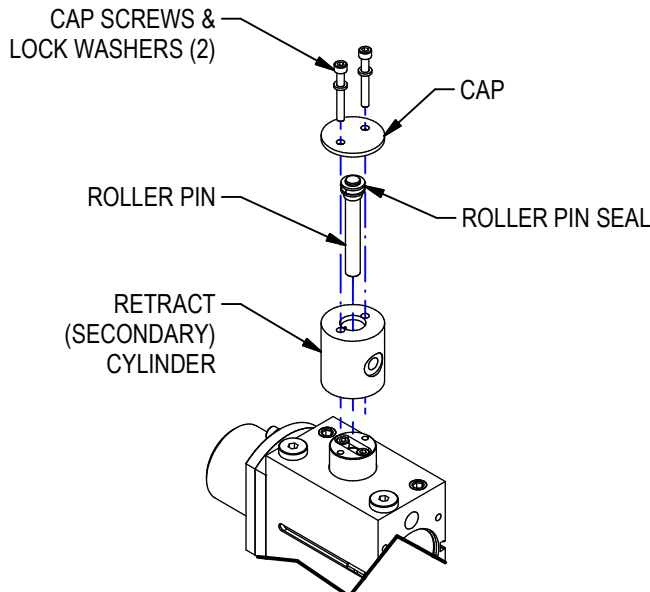
NOTE: Backup may need to be removed if replacing a cartridge with damaged or broken fingers

Use standard lithium grease on all seals and sliding surfaces.



FOR ACTUATORS R & S

For actuator options R & S:
Remove screws & lock washers. Remove cap, roller pin and retract (secondary) cylinder.

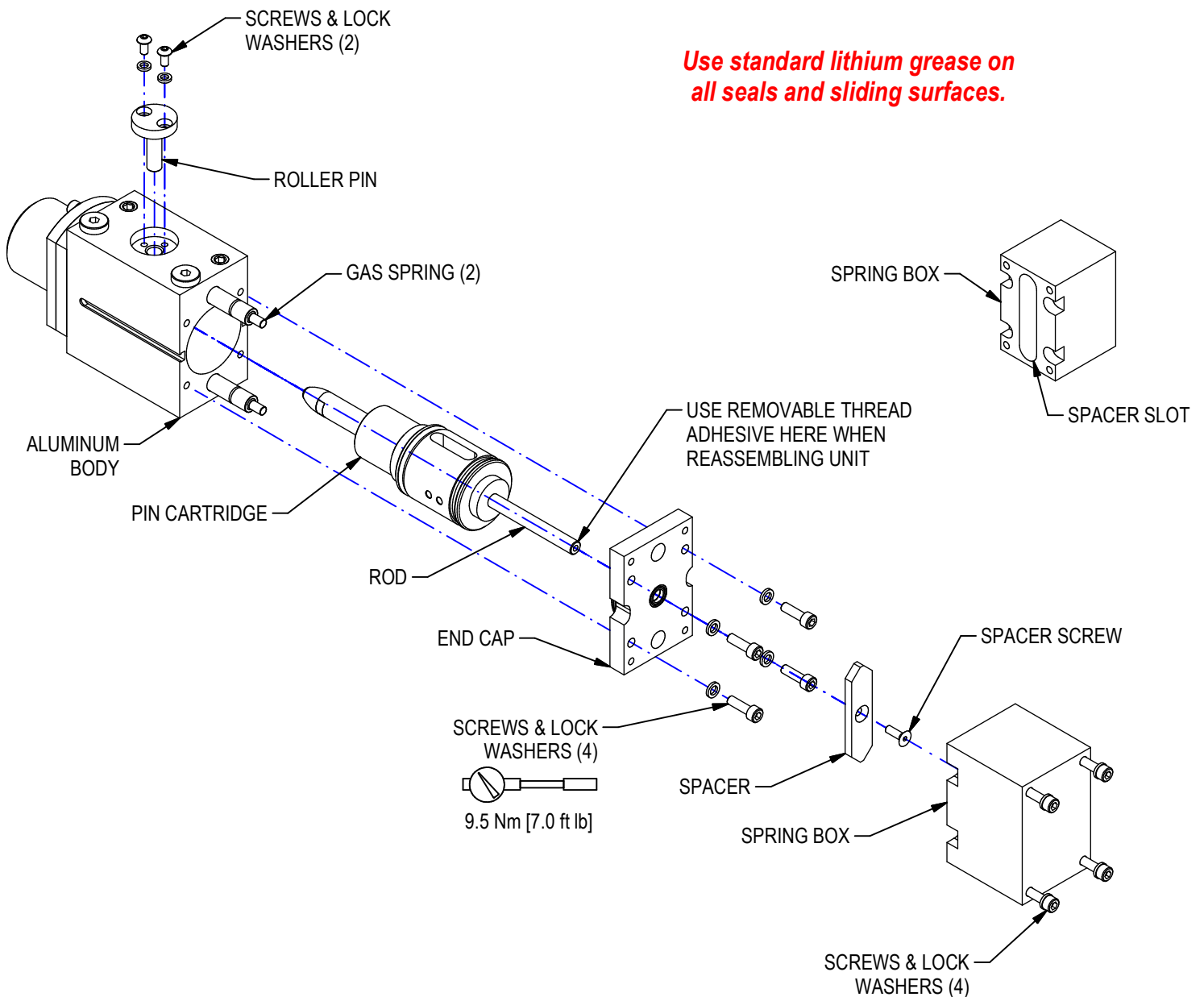


CARTRIDGE REPLACEMENT ~ ACTUATOR B

BEFORE REMOVAL, PIN MUST BE IN THE EXTENDED POSITION AND CLAMP FINGERS BELOW FLUSH. MAINTAINING AIR ON THE CYLINDER HELPS OPERATION, ESPECIALLY WITH A SPRING RETRACT CYLINDER.

1. Loosen screws securing spring box to unit. Remove spring box.
2. Remove screw securing spacer to rod. Remove spacer.
3. Remove screws and lock washers from end cap. Remove end cap.
4. Remove screws and lock washers securing roller pin. Remove roller pin.
5. Remove cartridge.
6. Apply grease to tip of roller pin and inside of pin clamp body.
7. When installing a new cartridge, make sure the fingers are flush to the pin and the slot is orientated as shown.
8. Reinstall components in reverse order. Use removable thread adhesive when installing spacer screw.
9. Make sure cartridge moves freely up and down and the fingers extend and retract properly.
10. Tighten end cap screws to torque shown.

NOTE: Backup may need to be removed if replacing a cartridge with damaged or broken fingers

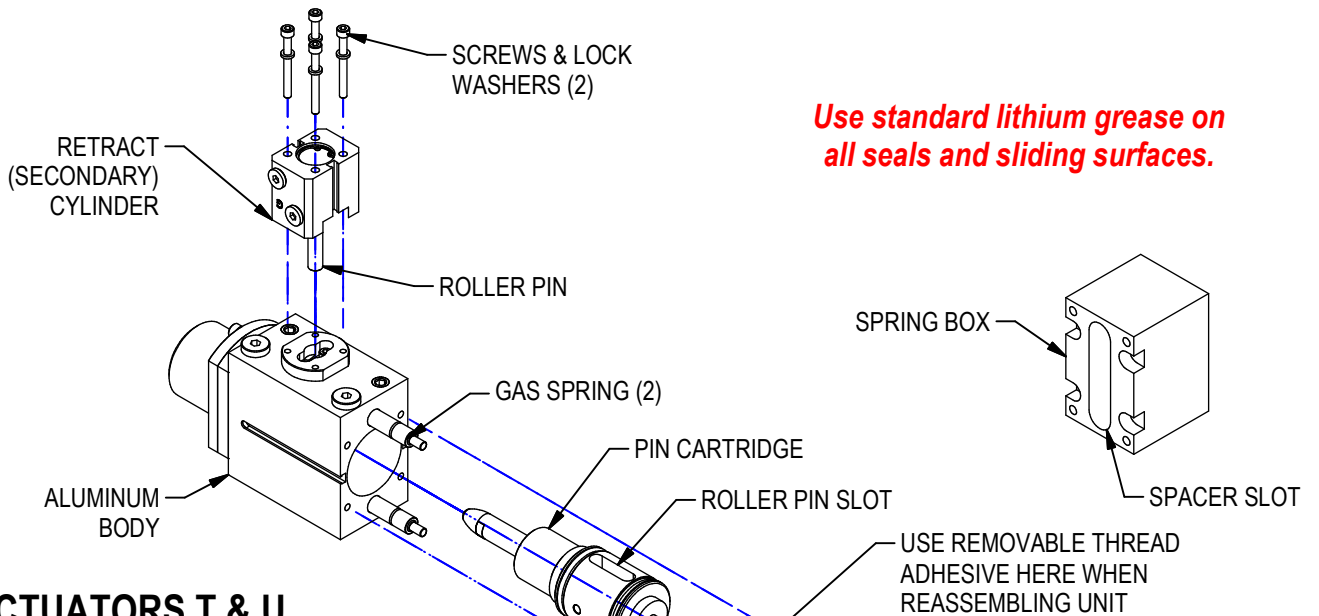


CARTRIDGE REPLACEMENT ~ ACTUATOR W

BEFORE REMOVAL, PIN MUST BE IN THE EXTENDED POSITION AND CLAMP FINGERS BELOW FLUSH. MAINTAINING AIR ON THE CYLINDER HELPS OPERATION, ESPECIALLY WITH A SPRING RETRACT CYLINDER.

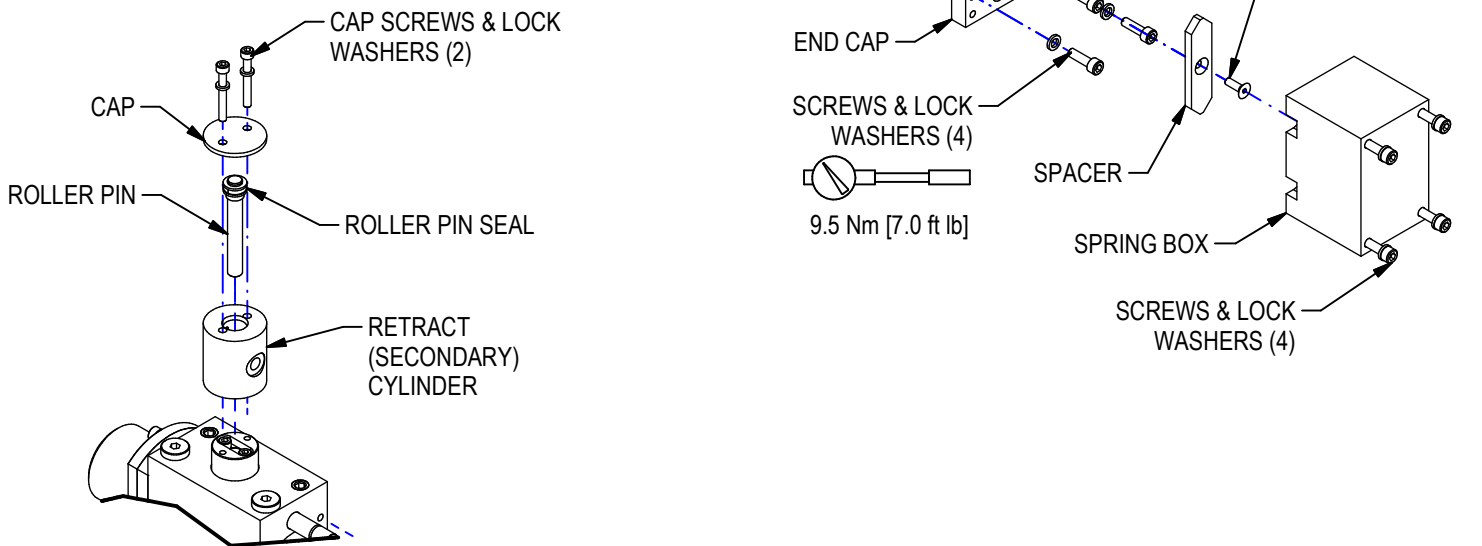
1. Loosen screws securing spring box to unit. Remove spring box.
2. Remove screw securing spacer to rod. Remove spacer.
3. Remove screws and lock washers from end cap. Remove end cap.
4. Remove screws and lock washers securing retract (secondary) cylinder. Remove cylinder with roller pin.
5. Remove cartridge.
6. Apply grease to tip of roller pin, roller pin seal, and inside of pin clamp body.
7. When installing a new cartridge, make sure the fingers are flush to the pin and the slot is orientated as shown.
8. Reinstall components in reverse order. Use removable thread adhesive when installing spacer screw.
9. Make sure cartridge moves freely up and down and the fingers extend and retract properly.
10. Tighten end cap screws to torque shown.

NOTE: Backup may need to be removed if replacing a cartridge with damaged or broken fingers



FOR ACTUATORS T & U

For actuator options T & U:
Remove screws & lock washers. Remove cap, roller pin, and retract (secondary) cylinder.



RETRACT CYLINDER SEAL REPLACEMENT: PCX-RC-CSK

Before retract cylinder removal, pin must be in extended position.

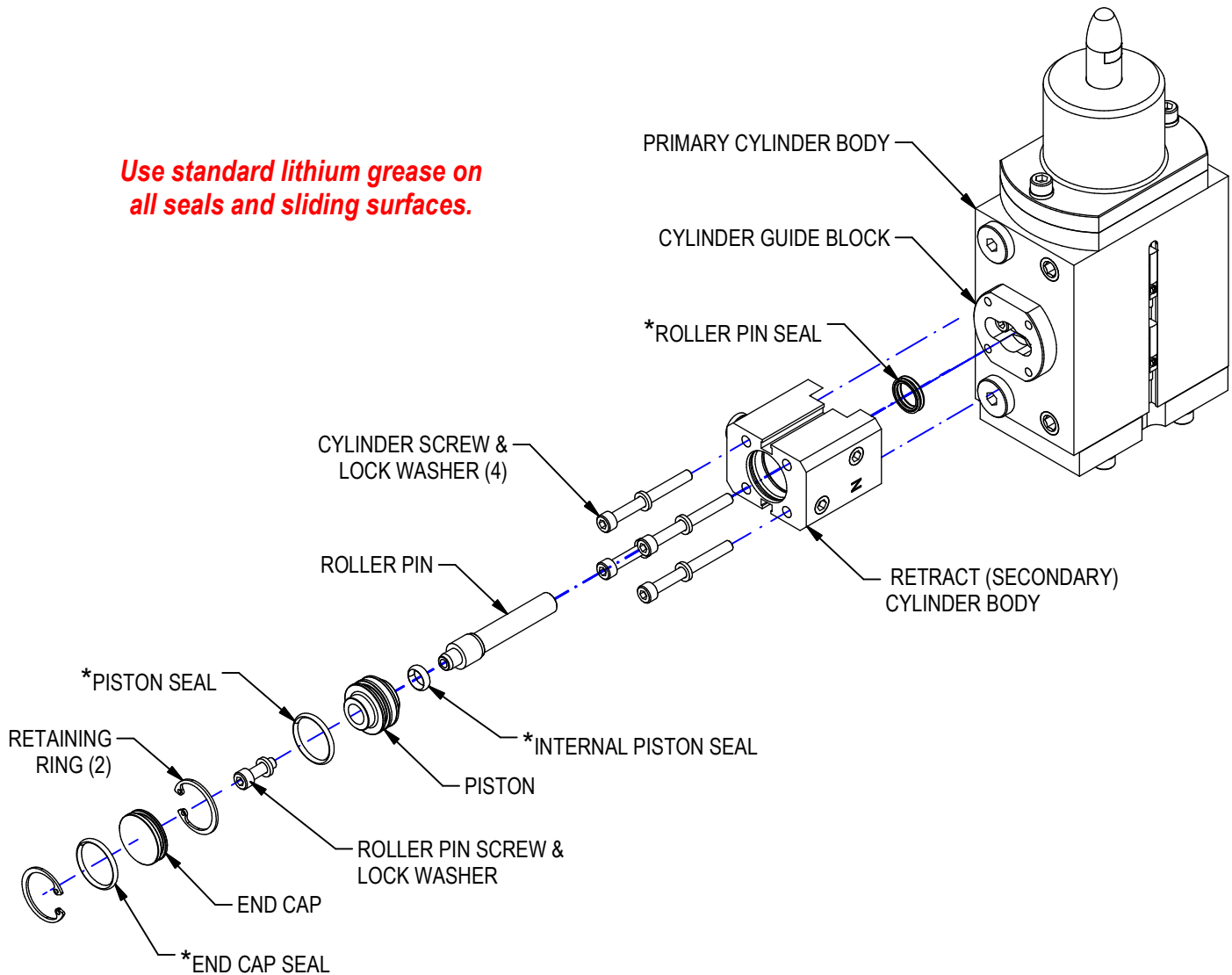
For spring assist actuators (W), remove screws and lock washers holding spring box, spring box, spacer screw, spacer and gas springs. Push cartridge into primary cylinder body to put pin in extended position. (See cartridge replacement sheet for detail)

Disconnect all air lines to primary and retract cylinder to release any trapped air.

TO REPLACE SEALS IN RETRACT (SECONDARY) CYLINDER

Use standard lithium grease on all seals and sliding surfaces.

1. Remove screws and lock washers from cylinder body. Remove cylinder body from cylinder guide block, note port locations before removing cylinder
2. Remove first retaining ring from cylinder body.
3. Remove end cap and replace end cap seal, note orientation of end cap in cylinder body.
4. Remove second retaining ring.
5. Remove piston and attached roller pin from cylinder body.
6. Remove roller pin screw and lock washer.
7. Install new piston seals in piston and roller pin seal in cylinder body.
8. Reinstall components in reverse order.



* INCLUDED IN SEAL KIT