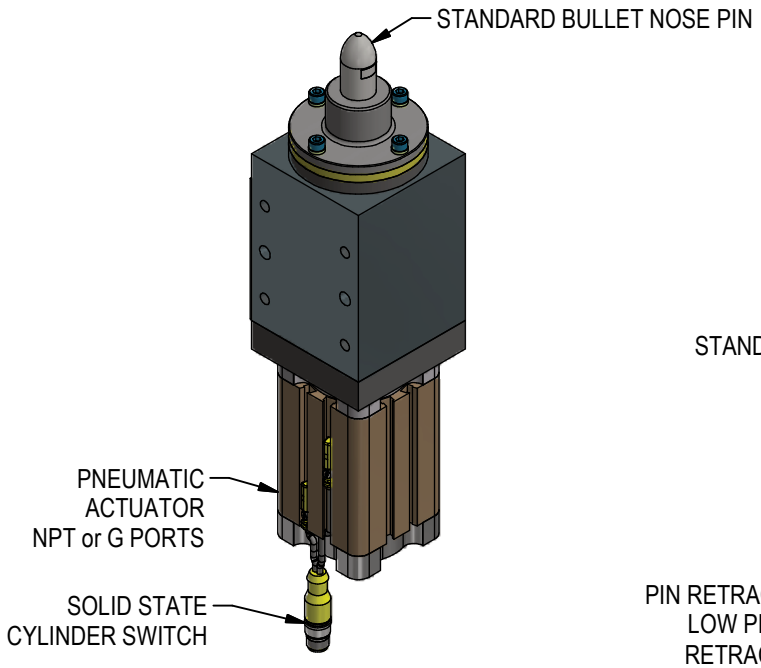
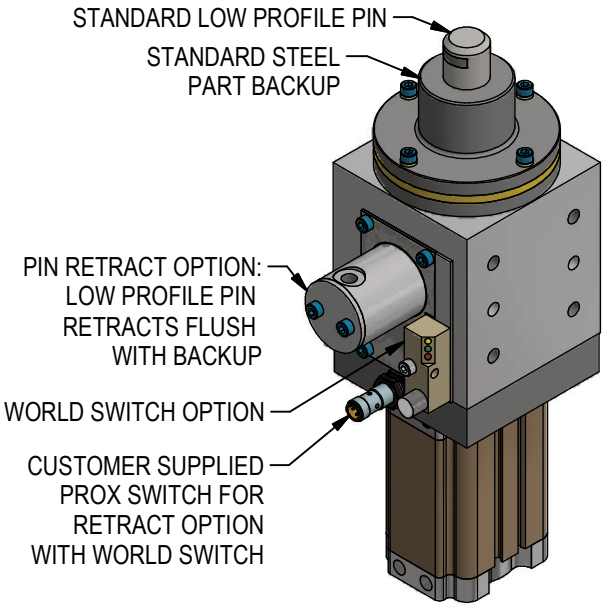
WELKER ENGINEERED PRODUCTS
ISO 9001 REGISTERED

PIN CLAMP MAINTENANCE MANUAL
PCS, PCT, PCM





Welker Engineered Products 1401 Piedmont Troy, MI 48083 (248) 528-2020 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 REMOVED 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 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 or repair kit on hand.

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

BACKUPS: Replace when damaged or worn.

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

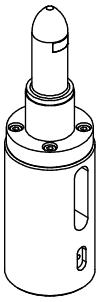
WELKER RECOMMENDS IN-PLANT RECERTIFICATION AFTER SERVICE/REPAIR/REPLACEMENT.

TROUBLESHOOTING

Failure	Possible Cause	Solution
Pin clamp does not clamp or unclamp	Insufficient air pressure or voltage	Check/confirm air pressure or voltage
	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/motor failure	Repair or replace cylinder/motor
Pin fails to extend Pin & fingers remain retracted	Too tight of fit on part hole	Proper pin size: 0.2mm minimum clearance.
	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.
	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 PIN CLAMP CARTRIDGES

SEE CATALOG FOR PIN TYPES AND FINGER ORIENTATION



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Series
- **T** PCT Body
- **C** PCS Body
- **M** PCM Body

Pin Diameter*
- **12.00-16.00** T Series
- **16.01-25.00** C Series
- **25.01-40.00** M Series

*Pin diameter to 2 decimal places

Pin Type
- **A** Bullet Nose Pin w/ fingers at 0°
- **B** Bullet Nose Pin w/ fingers at 90°
- **C** Bullet Nose 2-way Pin w/ fingers @ 0° **
- **D** Bullet Nose 2-way Pin w/ fingers @ 90° **
- **E** Low Profile Pin w/ fingers at 0°
- **F** Low Profile Pin w/ fingers at 90°
- **G** Low Profile 2-Way Pin w/ fingers @ 0° **
- **H** Low Profile 2-Way Pin w/ fingers @ 90° **

** Not available on PCT with pin diameters 12.00 - 12.99

Options
- **G** Electric actuator
- **T** Retractable cartridge

Backup
- **Std** Standard Backup
- **Long** Long Backup

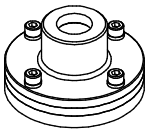
(Backups must be ordered separately)

Cartridge ordering examples:
C-CRT-16.00-A-STD
M-CRT-40.00-B-LONG
C-CRT-19.00-A-STD-T

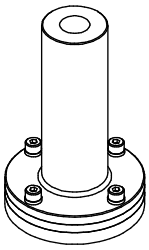
REPLACEMENT BACKUP

ALL BACKUPS INCLUDE A BACKUP, BACKUP RING WITH SEAL, SPACER & HARDWARE

OPTIONS **A** & **C**
STANDARD
BACKUP



OPTIONS **B** & **D**
LONG
BACKUP



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Series
- **T** PCT Body
- **C** PCS Body
- **M** PCM Body

Pin Diameter*
- **12.00-16.00** T Series
- **16.01-25.00** C Series
- **25.01-40.00** M Series

*Pin diameter to 2 decimal places

Backup Diameter
- **035-050** (Ø35-Ø50mm) C & T Series
- **051-075** (Ø51-Ø75mm) M Series

Backup ordering example:
CE06C-16.00-035-K-A

Options
- **A** Std Steel Backup
- **B** Steel Long Backup
- **C** Alum Bronze Backup
- **D** Alum Bronze Long Backup

Backup Distance
- **K** 14mm (for clamping range 0.1 - 4mm)
- **N** 17mm (for clamping range 4.1 - 7mm)

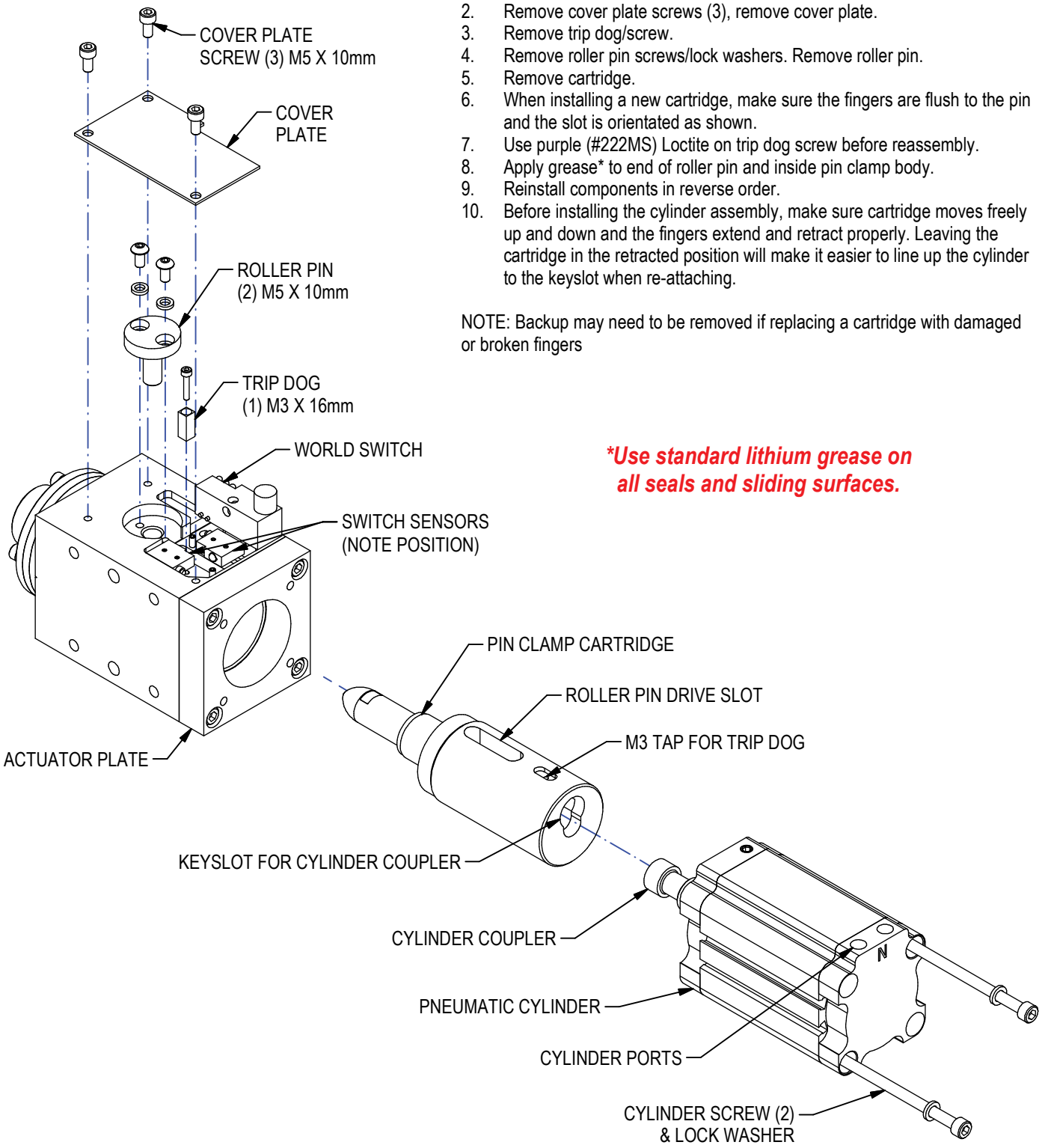
CARTRIDGE REPLACEMENT

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. Remove cylinder screws from actuator plate. Note port locations prior to removing cylinder. Slide cylinder to remove coupler from key slot.
2. Remove cover plate screws (3), remove cover plate.
3. Remove trip dog/screw.
4. Remove roller pin screws/lock washers. Remove roller pin.
5. Remove cartridge.
6. When installing a new cartridge, make sure the fingers are flush to the pin and the slot is orientated as shown.
7. Use purple (#222MS) Loctite on trip dog screw before reassembly.
8. Apply grease* to end of roller pin and inside pin clamp body.
9. Reinstall components in reverse order.
10. Before installing the cylinder assembly, make sure cartridge moves freely up and down and the fingers extend and retract properly. Leaving the cartridge in the retracted position will make it easier to line up the cylinder to the keyslot when re-attaching.

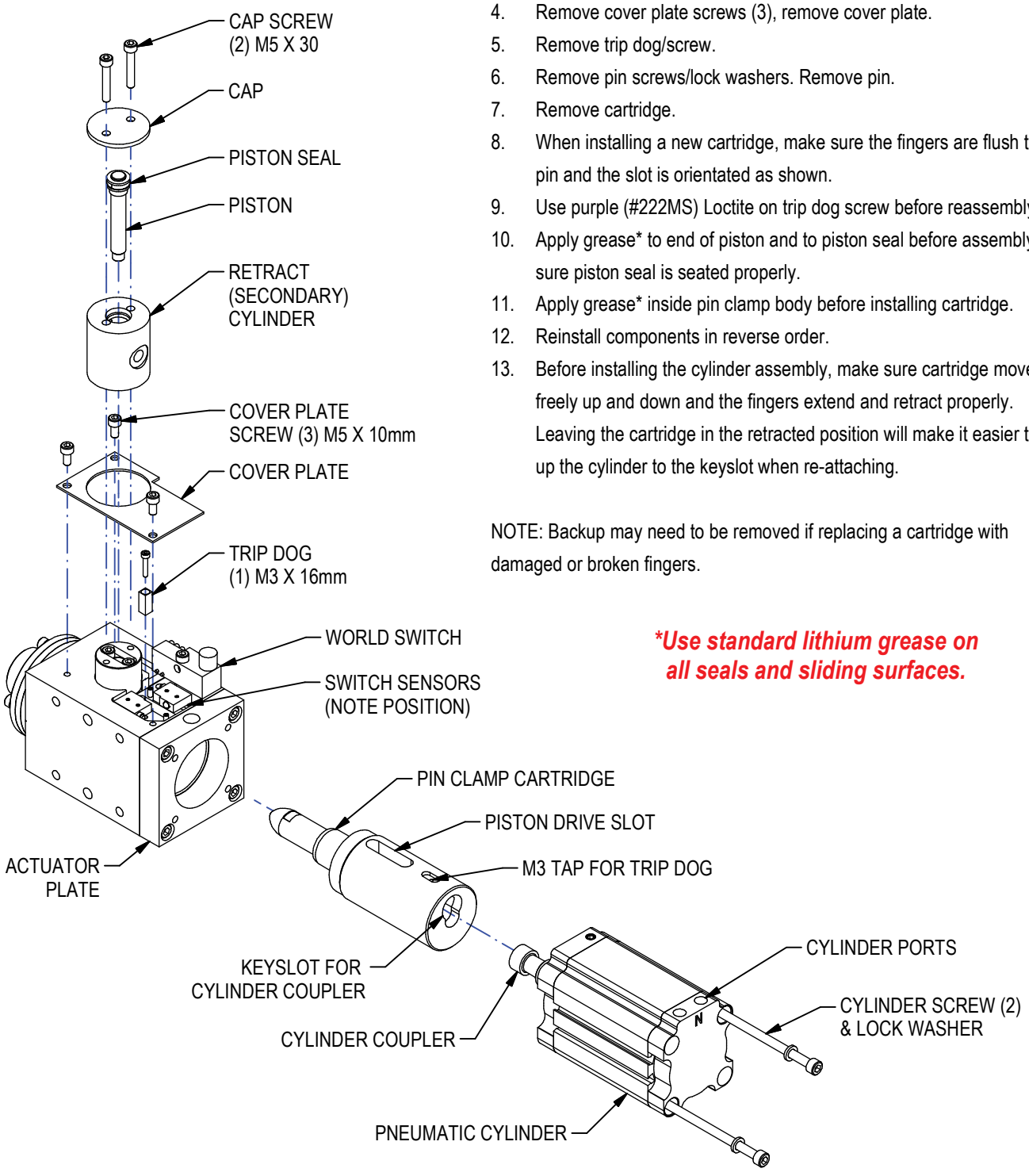
NOTE: Backup may need to be removed if replacing a cartridge with damaged or broken fingers

Use standard lithium grease on all seals and sliding surfaces.



CARTRIDGE REPLACEMENT FOR UNITS WITH RETRACT CYLINDER

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.

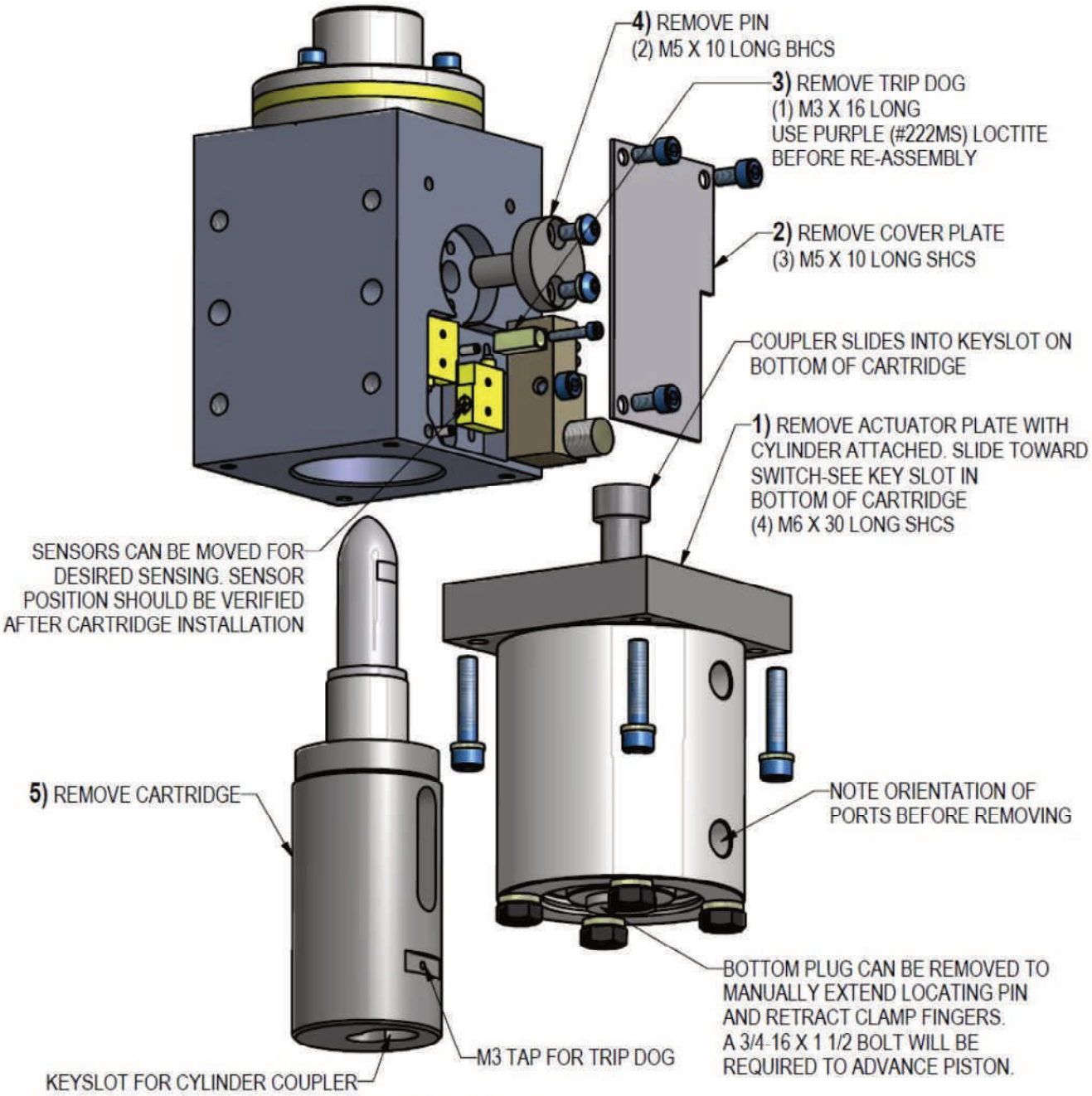


1. Remove cylinder screws from actuator plate. Note port locations prior to removing cylinder. Slide cylinder to remove coupler from key slot.
2. Remove cap screws (2). Remove cap. Remove piston.
3. Remove retract cylinder.
4. Remove cover plate screws (3), remove cover plate.
5. Remove trip dog/screw.
6. Remove pin screws/lock washers. Remove pin.
7. Remove cartridge.
8. When installing a new cartridge, make sure the fingers are flush to the pin and the slot is orientated as shown.
9. Use purple (#222MS) Loctite on trip dog screw before reassembly.
10. Apply grease* to end of piston and to piston seal before assembly. Be sure piston seal is seated properly.
11. Apply grease* inside pin clamp body before installing cartridge.
12. Reinstall components in reverse order.
13. Before installing the cylinder assembly, make sure cartridge moves freely up and down and the fingers extend and retract properly. Leaving the cartridge in the retracted position will make it easier to line up the cylinder to the keyslot when re-attaching.

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.

CARTRIDGE REPLACEMENT: LEGACY CYLINDERS



PIN CLAMP CARTRIDGE REMOVE AND REPLACE:

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. IF AIR CANNOT BE MAINTAINED, REMOVAL OF THE BOTTOM PLUG MAY BE REQUIRED TO KEEP PISTON ADVANCED. SEE CALLOUT AT BOTTOM PLUG.

REMOVE COMPONENTS PER STEPS 1-5.

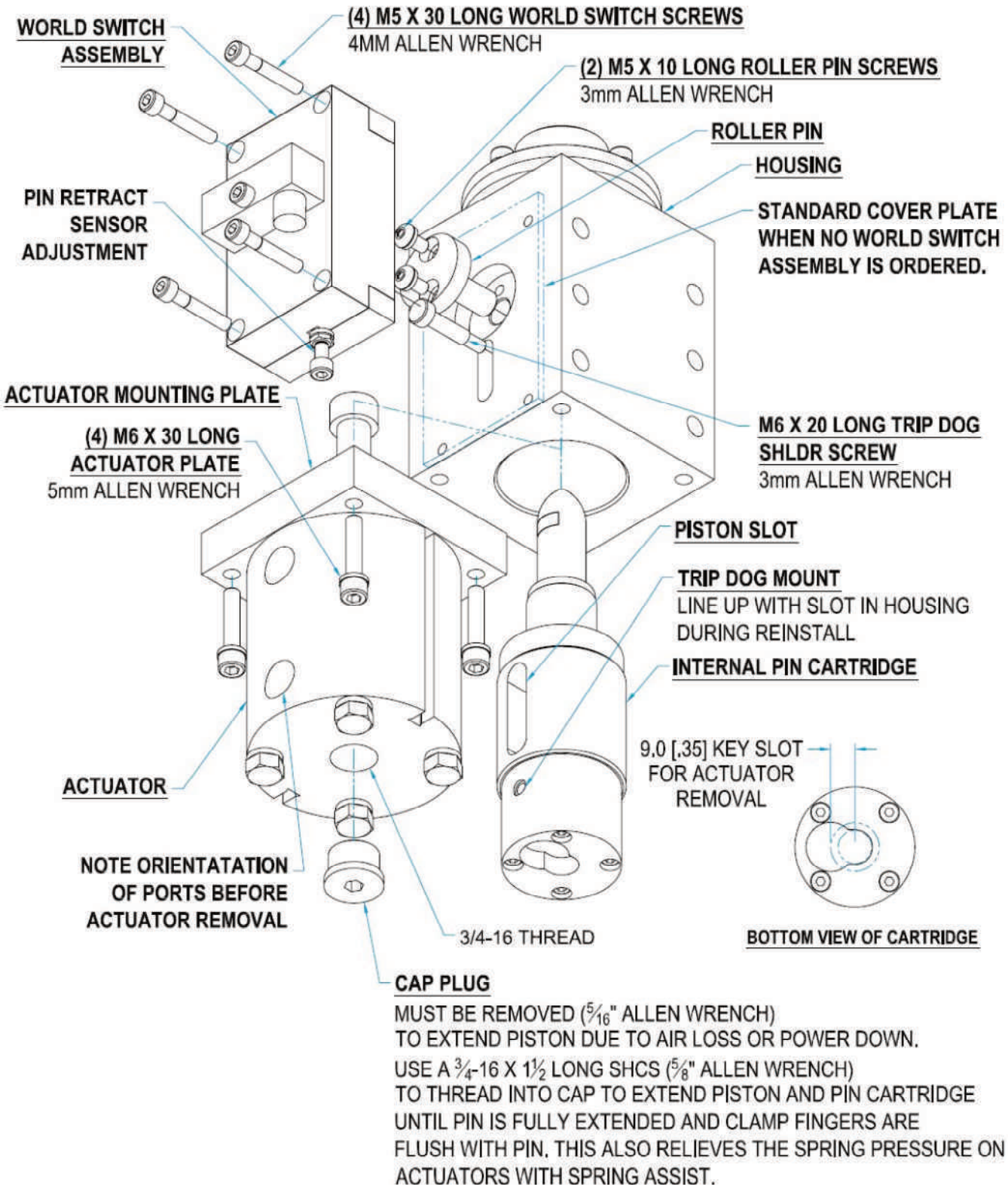
WHEN INSTALLING A NEW CARTRIDGE, MAKE SURE THE FINGERS ARE FLUSH TO THE PIN AND THE SLOT IS ORIENTATED AS SHOWN.

REINSTALL COMPONENTS IN REVERSE ORDER. BEFORE INSTALLING THE CYLINDER ASSEMBLY, MAKE SURE CARTRIDGE MOVES FREELY UP & DOWN AND THE FINGERS EXTEND AND RETRACT PROPERLY. LEAVING THE CARTRIDGE IN THE RETRACTED POSITION WILL MAKE IT EASIER TO LINE UP THE CYLINDER TO THE KEYSLOT WHEN RE-ATTACHING.

TOOLS REQUIRED

2 1/2mm, 3mm, 4mm, 5mm
HEX KEY WRENCHES
NEEDLE NOSE PLIERS
PURPLE LOCTITE #222MS

CARTRIDGE REPLACEMENT: LEGACY CYLINDER WITH BOLT ON SWITCH



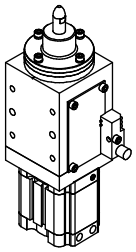
SEE FOLLOWING PAGE FOR INSTRUCTIONS >>>

CARTRIDGE REPLACEMENT: LEGACY CYLINDER WITH BOLT ON SWITCH

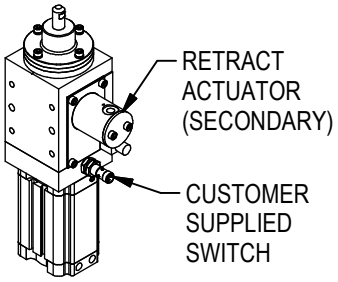
1. BEFORE REMOVAL, PIN MUST BE IN THE EXTENDED POSITION AND CLAMP FINGERS AT OR BELOW FLUSH OF PIN. FOR EASE OF ASSEMBLY, REMOVE ENTIRE PIN CLAMP FROM ANY MOUNTING SURFACE AND PLACE ON A TABLE HORIZONTALLY. THE UNIT MAY STAY MOUNTED IF THERE IS AT LEAST 8'OF CLEARANCE AT THE REAR OF THE UNIT TO REMOVE ACTUATOR & REPLACE CARTRIDGE. THERE MUST ALSO BE AT LEAST 4" OF CLEARANCE ON THE SWITCH SIDE. THE UNIT SHOULD REMAIN MOUNTED TO AVOID REVALIDATION OF THE PART REST SURFACE.
2. AIR MUST BE TURNED OFF.IN MOST CASES, AIR LINES MAY NOT HAVE TO BE REMOVED FROM ACTUATOR.
3. THE CAP PLUG AT REAR OF ACTUATOR MUST BE REMOVED (o/,6 ALLEN WRENCH) TO EXTEND PISTON DUE TO AIR LOSS OR POWER DOWN. USE A 3/4-16 X 1-1/2, LONG SHCS TO THREAD INTO CAP TO EXTEND PISTON AND PIN CARTRIDGE UNTIL PIN IS FULLY EXTENDED AND CLAMP FINGERS ARE FLUSH WITH PIN. THIS ALSO RELIEVES THE SPRING PRESSURE ON ACTUATORS WITH SPRING ASSIST.
4. IF UNIT HAS A WORLD SWITCH ASSEMBLY, REMOVE THE (4) SHCS. REMOVE ENTIRE WORLD SWITCH ASSEMBLY, NOTE ITS ORIENTATION AND SET ASIDE. REMOVE THE M6 TRIP DOG AND SET ASIDE.
5. IF THERE IS NO SWITCH ASSEMBLY, THEN REMOVE THE STANDARD COVER PLATE. THIS WILL EXPOSE THE ROLLER PIN. SOME UNITS HAVE (2) COVER PLATES THAT WILL NEED TO BE REMOVED BECAUSE THEY HAVE A SECOND ROLLER PIN. MOST UNITS ONLY HAVE (1) ROLLER PIN.
6. REMOVE (2) ROLLER PIN BHCS WITH LOCKWASHERS AND THEN REMOVE THE ROLLER PIN(S) WITH NEEDLE NOSE PLIERS.
7. REMOVE (4) M6 ACTUATOR MOUNTING PLATE SHCS. WITH LOCATING PIN AT FULL EXTEND AND CLAMP FINGERS FLUSH, THE ENTIRE CARTRIDGE AND ACTUATOR CAN NOW BE REMOVED FROM THE BOTTOM OF THE UNIT (NOTE PORT POSITION BEFORE REMOVING). ACTUATOR HAS A COUPLER MOUNTED ON THE ROD END AND IS SLID INTO A KEY SLOT LOCATED ON THE BOTTOM OF THE CARTRIDGE (SEE BOTTOM VIEW OF CARTRIDGE). THE CARTRIDGE CAN NOW BE SLID OFF COUPLER AND DISCARDED.
8. THE NEW CARTRIDGE CAN NOW BE INSTALLED INTO HOUSING MAKING SURE THE TRIP DOG MOUNT LINES UP WITH THE SLOT IN THE HOUSING AND SLOT ON CARTRIDGE PISTON LINES UP WITH ROLLER PIN HOLE.
9. REINSTALL THE ROLLER PIN IN HOLE. SLIGHT ROTATION OF THE CARTRIDGE MAY BE NECESSARY FOR ROLLER TO FIND THE CARTRIDGE SLOT AND SLIGHT MOVEMENT UP AND DOWN MAY BE NECESSARY TO ALLOW THE ROLLER HEAD TO FULLY SEAT BELOW THE HOUSING COUNTERBORE. REINSTALL ROLLER PIN BHCS WITH LOCKWASHERS. THE SECOND ROLLER PIN (IF PRESEND CANNOT BE REINSTALLED AND MUST BE DISCARDED. MANUALLY PUSH CARTRIDGE UP AND DOWN TO ENSURE FINGER OPERATION AND FLUSHNESS.
10. RETRACT CARTRIDGE TO MORE EASILY ALIGN ACTUATOR COUPLER WITH BOTTOM OF CARTRIDGE. INSERT COUPLER IN CARTRIDGE KEY SLOT AND PUSH ACTUATOR AND CARTRIDGE TO EXTENDED POSITION TO MATE ACTUATOR PLATE TO HOUSING. ASSURE PORTS ARE IN THEIR CORRECT POSITION. REINSTALL THE (4) M6 ACTUATOR MOUNTING PLATE SHCS.
11. LOOSEN 3/4-16 BOLT ABOUT 1/2". PUSH CARTRIDGE TO RETRACT AGAINST BOLT. TIGHTEN BOLT AGAIN TO RESEAT CATRIDGE UP IN EXTENDED POSITION. RECHECK CLAMP FINGER FLUSHNESS. FINGERS MUST BE FLUSH OR JUST BELOW. IF NOT,REPEAT RETRACTING AND EXTENDING THE CARTRIDGE 2 MORE TIMES. IF FINGERS REMAIN BEYOND FLUSH, CONTACT WELKER FOR PROCEDURE TO TUNE IN FINGERS TO CORRECT FLUSHNESS.
12. REINSTALL TRIP DOG SCREW INTO MOUNTTHRU HOUSING SLOT. BLUE LOCTITE **MUST** BE USED. REINSTALL WORLD SWITCH ASSEMBLY MAKING SURE NO SENSOR WIRES OR SENSORS INTERFERE WITH TRIP DOG SCREW. WIRES MUST ALSO BE POSITIONED BELOW 2mm GUIDE RODS.
13. IF THERE IS NO WORLD SWITCH ASSEMBLY, RE-INSTALL STANDARD COVER PLATE OVER ROLLER PIN.IF UNIT HAS (2) COVER PLATES, RE-INSTALL BOTH.
14. REMOVE 3/4-16 BOLT AND REINSTALL CAP PLUG.
15. PIN CLAMP IS FINISHED AND CAN BE REMOUNTED TO ITS BRACKET. IF AIR FITTINGS WERE REMOVED FROM ACTUATOR, USE TEFLON TAPE WHEN REINSTALLING. VERIFY OPERATION AND FLUSHNESS OF CLAMP FINGERS. AT FULL EXTEND, CLAMP FINGERS SHOULD BE AT FLUSH OR ABOUT .001'BELOW FLUSH. IF THEY ARE ABOVE FLUSH OR TOO FAR BELOW FLUSH, PLEASE CONTACT WELKER. FINALLY,VERIFY SWITCH OPERATION.

IDENTIFYING PNEUMATIC ACTUATORS

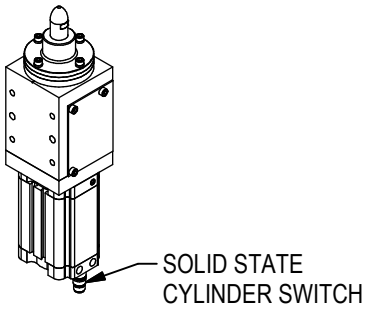
PCT WITH
ACTUATOR OPTION A



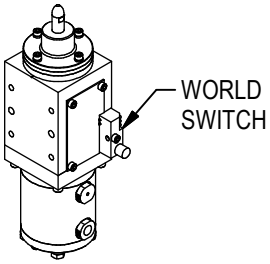
PCT WITH
ACTUATOR OPTION T



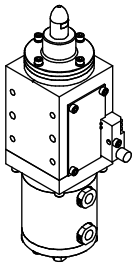
PCS WITH
ACTUATOR OPTION B



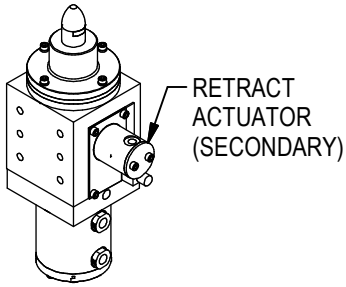
PCT WITH LEGACY
ACTUATOR OPTION A



PCS WITH LEGACY
ACTUATOR OPTION B

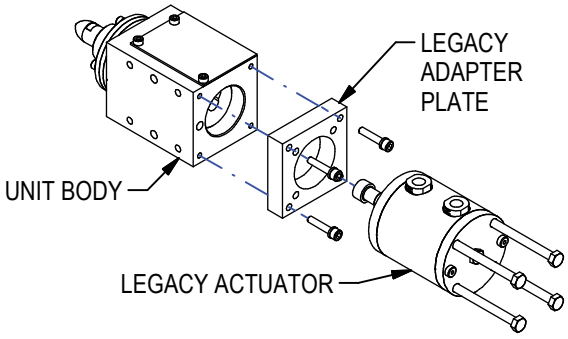


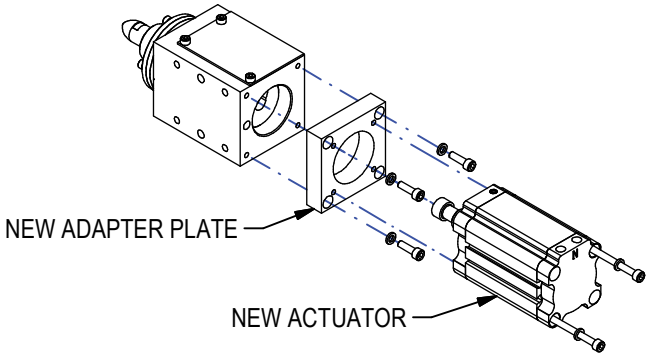
PCM WITH LEGACY
ACTUATOR OPTION T



REPLACING LEGACY ACTUATOR WITH NEW ACTUATOR

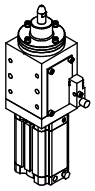
1. For spring assist actuators (B and T), extend coupler using air.
2. Disconnect air lines to cylinder, release any trapped air conditions.
3. Remove cylinder screws from actuator plate. Note port locations prior to removing cylinder. Slide cylinder to remove coupler from key slot.
4. Remove legacy actuator plate.
5. Clean body surface.
6. For spring assist actuators (B and T) extend coupler of new cylinder using air, prior to installation.
7. Install new adapter plate to unit body.
8. Align new actuator coupler to key slot.
9. Install new actuator to adapter plate with (2) screws & lock washers, noting port location.



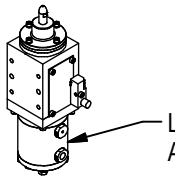


PCT REPLACEMENT ACTUATORS

*CYLINDER SEAL KIT AVAILABLE
ORDER #WCW2163-CSK



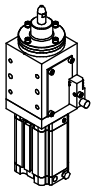
PCT PIN CLAMP ACTUATORS:					
ACTUATOR OPTION	DESCRIPTION	PORT OPTION	PORT TYPE	ACTUATOR (PRIMARY)	RETRACT ACTUATOR (SECONDARY)
A*	DOUBLE ACTING AIR CYLINDER	A,B,C,D	1/4 NPT	WCN-2164-N-26 W COUPLER	N/A
		J,K,L,M	1/4 G	WCN-2164-N-26 W COUPLER	N/A
B*	DOUBLE ACTING AIR CYLINDER W/ SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2163-W-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2163-G-26 W/COUPLER	N/A
T*	DBL ACTING AIR CYL W/ SPRING ASSIST & RETRACTABLE PIN	A,B,C,D	1/4 NPT	WCW-2163-N-26	PCX-T-N
		J,K,L,M	1/4 G	WCW-2163-G-26	PCX-T-G



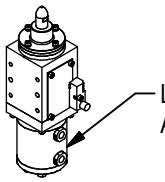
PCT PIN CLAMP ACTUATORS: LEGACY					
ACTUATOR OPTION	DESCRIPTION	PORT OPTION	PORT TYPE	ACTUATOR (PRIMARY)	RETRACT ACTUATOR (SECONDARY)
A	DOUBLE ACTING AIR CYLINDER	A,B,C,D	1/4 NPT	WCN-2108-19 W COUPLER	N/A
		J,K,L,M	1/4 G	WCN-2108-19 W COUPLER	N/A
B	DOUBLE ACTING AIR CYLINDER W/ SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2094-W-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2094-G-26 W/COUPLER	N/A
C	DOUBLE ACTING - DOUBLE ROD AIR CYLINDER	A,B,C,D	1/4 NPT	WCN-2110-19 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCN-2110-19 W/COUPLER	N/A
D	DOUBLE ACTING AIR CYLINDER W/ DOUBLE ROD & SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2104-N-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2104-G-26 W/COUPLER	N/A
E	DOUBLE ACTING AIR CYLINDER WITH LINEAR TRANSDUCER	A,B,C,D	1/4 NPT	WCN-2109-19 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCN-2109-19 W/COUPLER	N/A
F	DBL ACTING AIR CYL W/LINEAR TRANSDUCER & SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2100-N-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2100-G-26 W/COUPLER	N/A
G	DC STEPPER MOTOR WITH 5/8-8 LEAD SCREW-SIZE 23 FRAME	N,P,R,S	N/A	CP-IE-WELKER-13148 PROFILE 10	N/A
T	DBL ACTING AIR CYL W/ SPRING ASSIST & RETRACTABLE PIN	A,B,C,D	1/4 NPT	WCW-2094-N-26	PCX-T-N
		J,K,L,M	1/4 G	WCW-2094-G-26	PCX-T-G

PCS REPLACEMENT ACTUATORS

*CYLINDER SEAL KIT AVAILABLE
ORDER #WCW-2163-CSK



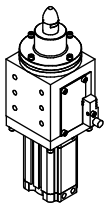
PCS PIN CLAMP ACTUATORS:					
ACTUATOR OPTION	DESCRIPTION	PORT OPTION	PORT TYPE	ACTUATOR (PRIMARY)	RETRACT ACTUATOR (SECONDARY)
B*	DOUBLE ACTING AIR CYLINDER W/ SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2163-N-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2163-G-26 W/COUPLER	N/A
T*	DBL ACTING AIR CYL W/ SPRING ASSIST & RETRACTABLE PIN	A,B,C,D	1/4 NPT	WCW-2163-N-26	PCX-T-N
		J,K,L,M	1/4 G	WCW-2163-G-26	PCX-T-G



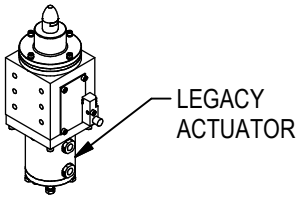
PCS PIN CLAMP ACTUATORS: LEGACY					
ACTUATOR OPTION	DESCRIPTION	PORT OPTION	PORT TYPE	ACTUATOR (PRIMARY)	RETRACT ACTUATOR (SECONDARY)
A	DOUBLE ACTING AIR CYLINDER	A,B,C,D	1/4 NPT	WCN-2108-19 W COUPLER	N/A
		J,K,L,M	1/4 G	WCN-2108-19 W COUPLER	N/A
B	DOUBLE ACTING AIR CYLINDER W/ SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2094-W-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2094-G-26 W/COUPLER	N/A
C	DOUBLE ACTING - DOUBLE ROD AIR CYLINDER	A,B,C,D	1/4 NPT	WCN-2110-19 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCN-2110-19 W/COUPLER	N/A
D	DOUBLE ACTING AIR CYLINDER W/ DOUBLE ROD & SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2104-N-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2104-G-26 W/COUPLER	N/A
E	DOUBLE ACTING AIR CYLINDER WITH LINEAR TRANSDUCER	A,B,C,D	1/4 NPT	WCN-2109-19 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCN-2109-19 W/COUPLER	N/A
F	DBL ACTING AIR CYL W/LINEAR TRANSDUCER & SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2100-N-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2100-G-26 W/COUPLER	N/A
G	DC STEPPER MOTOR WITH 5/8-8 LEAD SCREW-SIZE 23 FRAME	N,P,R,S	N/A	CP-IE-WELKER-13148 PROFILE 10	N/A
T	DBL ACTING AIR CYL W/ SPRING ASSIST & RETRACTABLE PIN	A,B,C,D	1/4 NPT	WCW-2094-N-26	PCX-T-N
		J,K,L,M	1/4 G	WCW-2094-G-26	PCX-T-G

PCM REPLACEMENT ACTUATORS

*CYLINDER SEAL KIT AVAILABLE
ORDER #WCW-2163-CSK



PCM PIN CLAMP ACTUATORS:					
ACTUATOR OPTION	DESCRIPTION	PORT OPTION	PORT TYPE	ACTUATOR (PRIMARY)	RETRACT ACTUATOR (SECONDARY)
B*	DOUBLE ACTING AIR CYLINDER W/ SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2163-N-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2163-G-26 W/COUPLER	N/A
T*	DBL ACTING AIR CYL W/ SPRING ASSIST & RETRACTABLE PIN	A,B,C,D	1/4 NPT	WCW-2163-N-26	PCX-T-N
		J,K,L,M	1/4 G	WCW-2163-G-26	PCX-T-G



PCM PIN CLAMP ACTUATORS: LEGACY					
ACTUATOR OPTION	DESCRIPTION	PORT OPTION	PORT TYPE	ACTUATOR (PRIMARY)	RETRACT ACTUATOR (SECONDARY)
A	DOUBLE ACTING AIR CYLINDER	A,B,C,D	1/4 NPT	WCN-2091-19 W COUPLER	N/A
		J,K,L,M	1/4 G	WCN-2091-19 W COUPLER	N/A
B	DOUBLE ACTING AIR CYLINDER W/ SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2094-W-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2094-G-26 W/COUPLER	N/A
C	DOUBLE ACTING - DOUBLE ROD AIR CYLINDER	A,B,C,D	1/4 NPT	WCN-2102-19 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCN-2102-19 W/COUPLER	N/A
D	DOUBLE ACTING AIR CYLINDER W/ DOUBLE ROD & SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2102-N-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2102-G-26 W/COUPLER	N/A
E	DOUBLE ACTING AIR CYLINDER WITH LINEAR TRANSDUCER	A,B,C,D	1/4 NPT	WCN-2098-19 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCN-2098-19 W/COUPLER	N/A
F	DBL ACTING AIR CYL W/LINEAR TRANSDUCER & SPRING RETRACT	A,B,C,D	1/4 NPT	WCW-2097-N-26 W/COUPLER	N/A
		J,K,L,M	1/4 G	WCW-2097-G-26 W/COUPLER	N/A
G	DC STEPPER MOTOR WITH 5/8-8 LEAD SCREW-SIZE 23 FRAME	N,P,R,S	N/A	CP-IE233-2-13470 PROFILE 8	N/A
T	DBL ACTING AIR CYL W/ SPRING ASSIST & RETRACTABLE PIN	A,B,C,D	1/4 NPT	WCW-2094-N-26	PCX-T-N
		J,K,L,M	1/4 G	WCW-2094-G-26	PCX-T-G

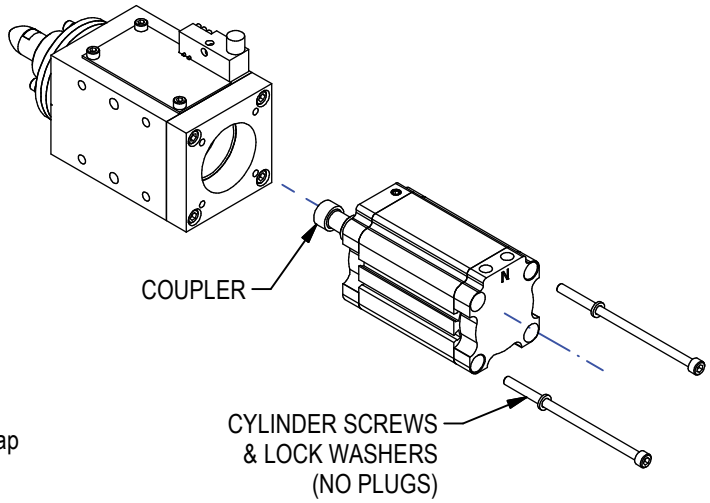
CYLINDER SEAL REPLACEMENT: WCW2163-CSK

Cylinder seal kit includes end cap seals (2), rod wipers (2), piston seal (1), internal port seal (2), Igus rod bearing. Seals should be replaced routinely to avoid cylinder failure.

For spring assist actuators (B and T) extend coupler using air.

Disconnect air lines to cylinder, release any trapped air conditions.

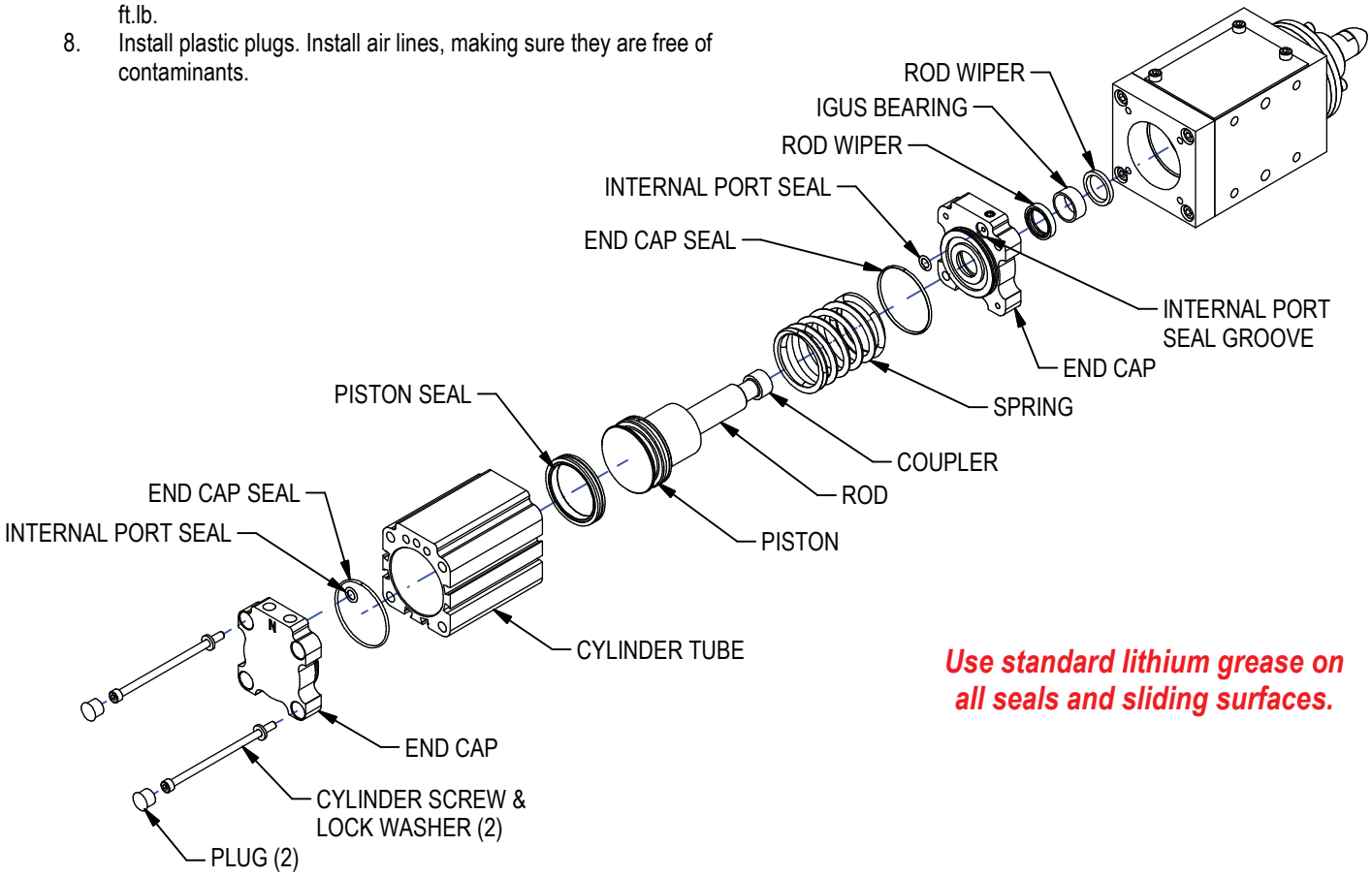
Remove cylinder screws from actuator plate. Note port locations prior to removing cylinder. Slide cylinder to remove coupler from key slot. (See cartridge replacement sheet for detail)



TO REPLACE SEALS

Use standard lithium grease on all seals and sliding surfaces.

1. Remove plastic plugs (2). Loosen screws enough to release tube/end cap assembly.
2. Replace end cap seals (2).
3. Replace piston seal.
4. Replace internal port seals (2).
5. Remove and replace piston seal.
6. Remove Igus bearing and wipers via front of end cap, noting orientation. Replace.
7. Reassemble unit making sure internal port seals are in place and cylinder tube is aligned correctly. Using torque wrench tighten cylinder screws to 14 ft.lb.
8. Install plastic plugs. Install air lines, making sure they are free of contaminants.



Use standard lithium grease on all seals and sliding surfaces.

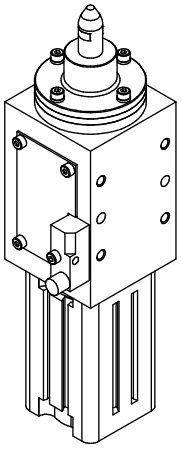
SWITCH INFORMATION

	Reorder #	Mfr. Part Number	Manufacturer	Description All switches Quick Disconnect
World Switches	**SWA**	Ni2-Q6.5-AP6-0.1-FS 4.4X3/S304	Turck	4-Wire, 4-Pin, DC M12 X 1 (PNP)
	SWB	Ni2-Q6.5-ADZ32-0.1-FSB 5.4X4/S304	Turck	4-Wire, 5-Pin, AC/DC 1/2-20 (N.O.)
	SWC	Ni2-Q6.5-AN6-0.1-FS 4.4X3/S304	Turck	4-Wire, 4-Pin, DC M12 X 1 (NPN)
	SWD	NBN2-F581-100S6-E8-V1	Pepperl & Fuchs	4-Wire, 4-Pin, DC M12 X 1 (PNP)
	SWE	BES-Z02KR2-PSC20F-P100-S04-V	Balluff	3-Wire, 4-Pin, DC M12 X 1 (PNP)
	SWJ	IN5374	Efector	3-Wire, 4-Pin, DC M12 X 1 (PNP)
	SWZ	WWS001A	Welker	4-Wire, 4-Pin, DC M12 X 1 (PNP)
Cylinder Switches	**SWITCH L3**	SWITCH L3: Weld field immune*, comparable to World Switches. Dual sensor	Welker	4-Wire, 4-Pin, DC M12 X 1 (PNP)
	SWITCH L3S	SWITCH L3S: Weld field immune*. Single sensor switch for retract cylinder	Welker	3-Wire, 4-Pin, DC M12 X 1 (PNP)
	SWITCH L5	MK5113 Single switch: 2 required per cylinder; 1 required for retract cylinder	ifm Efector	3-Wire, 4-Pin, DC M12 X 1 (NPN)

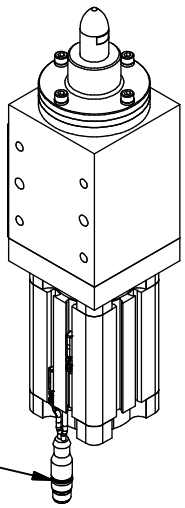
Standard Switch Option - All other options may affect price and delivery

*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.

PCS WITH ACTUATOR B
AND WORLD SWITCH



PCS WITH ACTUATOR B
AND L3 SWITCH



PCM WITH ACTUATOR T
(RETRACT OPTION)
AND L3 SWITCHES