PIN CLAMP MAINTENANCE MANUAL
PCY

NON-RETRACT UNIT (ACTUATOR A)

NON-RETRACT UNIT WITH SPRING (ACTUATOR B)

STANDARD BULLET NOSE PIN

RETRACT UNIT (ACTUATORS R/S)

RETRACT UNIT WITH SPRING (ACTUATORS T/U)

STANDARD LOW PROFILE PIN

PIN RETRACT OPTION SECONDARY CYLINDER

SOLID STATE CYLINDER SWITCH
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

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

<table>
<thead>
<tr>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L3 CYLINDER SWITCH: 4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect</td>
<td>SWITCH L3</td>
</tr>
<tr>
<td>1</td>
<td>L3 RETRACT CYLINDER SWITCH: 3-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect</td>
<td>SWITCH L3S</td>
</tr>
<tr>
<td>2</td>
<td>L5 CYLINDER SWITCH: 3-Wire, 4-Pin, DC M12 X 1 (NPN) Quick Disconnect</td>
<td>SWITCH L5</td>
</tr>
<tr>
<td>1</td>
<td>L5 RETRACT CYLINDER SWITCH: 3-Wire, 4-Pin, DC M12 X 1 (NPN) Quick Disconnect</td>
<td>SWITCH L5</td>
</tr>
<tr>
<td>2</td>
<td>GAS SPRING FOR ACTUATOR OPTIONS B, T, U</td>
<td>R12-38.1-45BAR</td>
</tr>
</tbody>
</table>

REPLACEMENT PIN CLAMP CARTRIDGES
SEE CATALOG FOR PIN TYPES AND FINGER ORIENTATION

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 @ 90deg)
S Dbl Acting w Retractable Pin (Ports @ 0deg Shown)
T Dbl Acting w Retractable Pin & Spring (Ports @ 0deg)
U Dbl Acting w Retractable Pin & Spring (Ports @ 90deg)
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, 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

*FOR ACTUATORS R & S

*For units with retract option, Actuators R & S: Remove screws & lock washers. Remove cap, roller pin and retract (secondary) cylinder.

Use standard lithium grease on all seals and sliding surfaces.
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, 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 units with retract option, Actuators T & U: Remove screws & lock washers. Remove cap, roller pin, and retract (secondary) cylinder.

Use standard lithium grease on all seals and sliding surfaces.