MAINTENANCE MANUAL
SB SERIES SIDE-BY-SIDE SHOT PINS

SB2
- WORLD SWITCH

SB4
- PNEUMATIC CYLINDER

SB6
- ALUMINUM BODY
- STEEL SHROUD
- STEEL RAM
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.

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 on hand.

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

WIPER: Welker recommends annual changing of urethane wiper. Wipers are maintenance items and are not covered under standard product warranty.

TROUBLESHOOTING

<table>
<thead>
<tr>
<th>FAILURE</th>
<th>POSSIBLE CAUSE</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit does not extend/retract.</td>
<td>Cylinder failure</td>
<td>Inspect unit for dirt/debris.</td>
</tr>
<tr>
<td></td>
<td>Switch failure</td>
<td>Check plant air supply for proper pressure; too little will result in lack of cylinder movement.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seals may be worn, damaged or deteriorating. Replace as needed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If cylinder has been serviced, be sure tie rod nuts have been tightened to torque specifications.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check switch for proper operation. Replace as needed.</td>
</tr>
</tbody>
</table>
## REPLACEMENT PARTS

<table>
<thead>
<tr>
<th>QTY</th>
<th>STOCK</th>
<th>DESCRIPTION</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>WORLD SWITCH (SB2 ONLY)</td>
<td>SEE CHART BELOW</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>SB2 WIPER</td>
<td>WIPER-24</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>SB2 PNEUMATIC CYLINDER SEAL KIT</td>
<td>WSMCYL-24-CSK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB2 PNEUMATIC CYLINDER, NPT PORTS</td>
<td>WSMCYL-24(STROKE-2mm)-A-SB2</td>
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<tr>
<td></td>
<td></td>
<td>SB2 PNEUMATIC CYLINDER, G PORTS</td>
<td>WCP-053-STROKE-SB2</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>SB4 WIPER</td>
<td>WIPER-40-KIT</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>SB4 PNEUMATIC CYLINDER SEAL KIT</td>
<td>SEE CHART BELOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB4 PNEUMATIC CYLINDER</td>
<td>SEE CHART BELOW</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>SB6 WIPER</td>
<td>WIPER-60</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>SB6 PNEUMATIC CYLINDER SEAL KIT</td>
<td>WC-1002-CSK</td>
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<tr>
<td></td>
<td></td>
<td>SB6 PNEUMATIC CYLINDER, NPT PORTS</td>
<td>WCP-1002-STROKE-SB6</td>
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<tr>
<td></td>
<td></td>
<td>SB6 PNEUMATIC CYLINDER, G PORTS</td>
<td>WCP-054-STROKE-SB6</td>
</tr>
</tbody>
</table>

*RECOMMENDED SPARE PARTS TO KEEP IN STOCK

## SB4 REPLACEMENT CYLINDERS & SEAL KITS

<table>
<thead>
<tr>
<th>CYLINDER ORDER NUMBER</th>
<th>DESCRIPTION</th>
<th>REPLACEMENT CYLINDER</th>
<th>SEAL KIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>PNEUMATIC CYLINDER, NON-LOCKING, NPT PORTS</td>
<td>WC-002-STROKE-SB4</td>
<td>WC-002-CSK</td>
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<tr>
<td>02</td>
<td>PNEUMATIC CYLINDER, NON-LOCKING, G PORTS</td>
<td>WC-032-STROKE-SB4</td>
<td>WC-002-CSK</td>
</tr>
<tr>
<td>03</td>
<td>PNEUMATIC CYLINDER, NON-LOCKING, NPT PORTS</td>
<td>WC-007-STROKE-SB4</td>
<td>WC-007-CSK</td>
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<tr>
<td>04</td>
<td>PNEUMATIC CYLINDER, NON-LOCKING, G PORTS</td>
<td>WC-056-STROKE-SB4</td>
<td>WC-007-CSK</td>
</tr>
<tr>
<td>05</td>
<td>HYDRAULIC CYLINDER, NPT PORTS</td>
<td>WC-003-STROKE-SB4</td>
<td>WC-003-CSK</td>
</tr>
<tr>
<td>06</td>
<td>HYDRAULIC CYLINDER, G PORTS</td>
<td>WC-2149-STROKE-SB4</td>
<td>WC-003-CSK</td>
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<tr>
<td>13</td>
<td>PNEUMATIC CYLINDER, LOCKING, NPT PORTS</td>
<td>WC-2129-STROKE-SB4</td>
<td>WC-2129-CSK</td>
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<tr>
<td>14</td>
<td>PNEUMATIC CYLINDER, LOCKING, G PORTS</td>
<td>WC-2130-STROKE-SB4</td>
<td>WC-2129-CSK</td>
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## Standard Switch Option - All other options may affect price and delivery

<table>
<thead>
<tr>
<th>Reorder #</th>
<th>Manufacturer Part Number</th>
<th>Manufacturer</th>
<th>Description</th>
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<tbody>
<tr>
<td>SWA</td>
<td>Ni2-Q6.5-AP6-0.1-FS 4.4X3/S304</td>
<td>Turck</td>
<td>4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect</td>
</tr>
<tr>
<td>SWB</td>
<td>Ni2-Q6.5-ADZ32-0.1-FSB 5.4X4/S304</td>
<td>Turck</td>
<td>4-Wire, 5-Pin, A/C/DC 1/2-20 (N.O.) Quick Disconnect</td>
</tr>
<tr>
<td>SWD</td>
<td>NBN2-F581-100S6-E8-V1</td>
<td>Pepperl &amp; Fuchs</td>
<td>4-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect</td>
</tr>
<tr>
<td>SWJ</td>
<td>IN5374</td>
<td>Elecor</td>
<td>3-Wire, 4-Pin, DC M12 X 1 (PNP) Quick Disconnect</td>
</tr>
</tbody>
</table>

Note: Available with 25mm & 50mm stroke SB2 units only

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

SHEET 3  REV 3/31/2021
REPLACING WORLD SWITCH

1. Disengage plant air from unit. Disconnect M12 connector.
2. Remove screws from switch housing (4).
3. Remove switch screw, remove switch and sensors noting sensor location in unit body. Sensors are marked S1 and S2 or S01 and S02.
4. Thread new switch sensors thru switch housing, install to unit body.
5. Wrap wires behind sensors in slot.
6. Secure switch to switch housing. Mount switch housing to unit body using screws (4).
7. Test to check new switch and verify sensor position.
RAM WIPER MAINTENANCE

Welker recommends annual changing of urethane wiper. Wipers are maintenance items and are not covered under standard product warranty. Steam cleaning or wiping contamination off during the course of normal machine maintenance is desirable.

1. Disengage plant air from unit. Remove tooling from unit ram.
2. Remove shroud screws. Remove shroud.
3. Remove wiper screws. Remove wiper retainer (SB4 only). Remove wiper.
4. Clean ram, removing residual debris.
5. Install new wiper using a small amount of Maganalube G grease.
6. Replace wiper retainer (SB4 only).
7. Install wiper screws.
8. Install shroud with shroud screws.
9. Install tooling on unit ram.
10. Engage plant air, making sure lines are free of contaminants.

SB4, SB6

END RAM MAINTENANCE: ALL SBs

1. Disengage plant air from unit. Remove ram screws securing ram to tie bar.
2. Pull ram out of pocket in tie bar.
3. Remove tie bar, sliding to side to disengage from coupler. Note placement of rigid adapter if present.
4. Remove wiper screws. Remove wiper retainer (SB4 only). Remove wiper.
5. Clean ram, removing residual debris.
6. Install new wiper using a small amount of Maganalube G grease.
7. Replace wiper retainer (SB4 only). Install wiper screws.
8. Engage tie bar with coupler.
9. Insert ram into pocket in the tie bar and secure with screw.
10. Engage plant air, making sure lines are free of contaminants.
CYLINDER / SEAL MAINTENANCE

TO REMOVE/REPLACE OR ROTATE CYLINDER:

1. Remove screw securing ram to tie bar.
2. Pull ram out of pocket in tie bar.
3. Remove tie bar, sliding to side to disengage from coupler. Note placement of rigid adapter if present.
4. Loosen cylinder tie rods completely.
5. Hold cylinder in one hand.
6. Remove cylinder. KEEP CYLINDER ASSEMBLED
7. Replace cylinder or rotate cylinder to desired orientation.
8. Secure tie rods evenly. Tighten in an “X” pattern to torque specifications.
10. Insert ram into pocket in the tie bar and secure with screw.
11. Check for leaks.

TO REPLACE CYLINDER SEALS:

1. Remove cylinder following steps above.
2. Remove end caps from tube. Clean seal grooves thoroughly.
3. Remove piston seals using plastic or brass tool.
   NOTE ORIENTATION OF SEALS. Inspect parts for wear. Clean piston and install new seals.
4. Lightly coat the piston seals and tube I.D. with Magnalube G grease.
5. Remove the coupler from cylinder rod using gentle heat, being careful not to melt seals. Remove rod cartridge.
6. Replace rod cartridge seals noting orientation when removing. Inspect for excessive wear or scoring. Install rod cartridge to cylinder rod. Install coupler to cylinder rod using permanent thread locker.
7. Reassemble unit. Make sure tube seals are seated properly in grooves and are not being pinched.
8. Return cylinder to unit.
10. Engage tie bar with coupler.
11. Insert ram into pocket in the tie bar and secure with screw.
12. Check for leaks.

<table>
<thead>
<tr>
<th>Shot Pin Series</th>
<th>Thread</th>
<th>ft-lbf</th>
<th>in-lbf</th>
<th>N-m</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>1/4-28&quot;</td>
<td>6.5</td>
<td>78</td>
<td>8.8</td>
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<tr>
<td>40</td>
<td>5/16-24&quot;</td>
<td>12</td>
<td>144</td>
<td>16.3</td>
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<tr>
<td>60</td>
<td>3/8-24&quot;</td>
<td>22</td>
<td>264</td>
<td>29.8</td>
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