MATERIALS REQUIRED
- Seal Kit
- Lubricant (included in seal kit)
- Allen Wrenches
- Soft Hammer
- Socket Set & Ratchet
- O-Ring Pick
- Adjustable Wrench
- Torque Wrench
- Installation Tool (varies by bore size)
- Thread Adhesive

TIE ROD TORQUE GUIDE

Use only SAE Grade 8 bolts or stronger for cylinder mounting, socket head bolts are preferred. FF and CFF block mount cylinders should be mounted using shoulder screws matched in size to mounting holes in block. Shoulder screws should be torqued per screw manufacturers specification and checked periodically to ensure proper torque is maintained.

COARSE THREAD*  | FINENEEDLE THREAD
<table>
<thead>
<tr>
<th>Size (in)</th>
<th>Plain (lb)</th>
<th>Plated (lb)</th>
<th>Size (in)</th>
<th>Plain (lb)</th>
<th>Plated (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8-16</td>
<td>(375)</td>
<td>31</td>
<td>3/8-24</td>
<td>(375)</td>
<td>35</td>
</tr>
<tr>
<td>7/16-14</td>
<td>(437)</td>
<td>50</td>
<td>7/16-20</td>
<td>(437)</td>
<td>55</td>
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<tr>
<td>1/2-13</td>
<td>(500)</td>
<td>76</td>
<td>1/2-20</td>
<td>(500)</td>
<td>85</td>
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<tr>
<td>9/16-12</td>
<td>(562)</td>
<td>109</td>
<td>9/16-18</td>
<td>(562)</td>
<td>122</td>
</tr>
<tr>
<td>1/4-11</td>
<td>(625)</td>
<td>150</td>
<td>5/8-14</td>
<td>(625)</td>
<td>170</td>
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<tr>
<td>5/16-10</td>
<td>(750)</td>
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<td>5/8-16</td>
<td>(750)</td>
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<tr>
<td>3/8-9</td>
<td>(875)</td>
<td>490</td>
<td>1/2-16</td>
<td>(875)</td>
<td>374</td>
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<tr>
<td>1/8</td>
<td>(1,000)</td>
<td>644</td>
<td>3/8-18</td>
<td>(1,000)</td>
<td>706</td>
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</tbody>
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*FOR B18.2.6, multiply by 12.

*OHMA® cylinder tie rods are always fine thread. Coarse thread chart is provided for your convenience for mounting purposes only.

NOTE: Abbreviations used on standard OHMA® cylinders are plated. Refer to the plain chart values only when substituting unplated nuts.

OHMA® Piercing Cylinder SEAL REPLACEMENT

Installation Tool

Model shown: PSB24-538-CFF-.50-UR-2423
RE-ASSEMBLY
(REFER TO DIAGRAM ON REVERSE FOR ADDITIONAL INFORMATION)

STEPS 1-4 APPLY ONLY TO MODELS MAKING USE OF A TWO-PIECE WORKING PISTON ASSEMBLY

All pieces must be clean and dry; cleaning agents may damage seals.

Prior to installation, all seals must be lubricated using the lubricant provided with the seal kit.

Step 1
Clamp working piston rod vertically in a soft-jawed vise with tapped holes facing upwards.

Step 2
Using the grease provided with the seal kit, lubricate the working rod end seal and insert it into the inside groove of the working piston flange.

Step 3
Gently place the piston flange over the piston rod and engage the end of the rod into the working flange pocket. If necessary, rotate the flange to line up the counterbored holes with the tapped holes in the rod. Make sure that rod end flange are squared up properly before attempting to engage the two pieces.

Step 4
Install the working cylinder barrel seal (black) on the OD of the front block flange. Lubricate front block barrel seal and working rod seal.

Step 5
Next, install the front block barrel seal (black) on the OD of the front block flange. Lubricate front block barrel seal and working rod seal.

Step 6
Spread a generous amount of lubricant inside the working piston opening of the front block. Ensure that the entire inside surface is evenly coated with lubricant.

Step 7
Install the working barrel by pushing it over the front block barrel seal on the front block. A rubber mallet may be used to help the barrel to engage fully. Be careful to not pinch the O-ring seal.

Step 8
Place the intensifier flange over the top of the energizer ring. Lubricate the deeper groove in the intensifier piston flange. Install the black intensifier piston seal energizer ring into the deeper groove of the flange.

Step 9
Next, place the working piston rod end through the working piston and into the front block. Avoid touching the inside of the barrel with the rod end as this may scratch the smooth sealing surface of the barrel. In the case of “nonrotating” rods, the rod may only be in one orientation in the front block. It may need to be rotated 180° to get it engaged. Check the alignment markings on the working piston rod end and the front block to verify proper port orientation. Before the piston flange covers the end of the working barrel, apply additional lubricant to the ID of the barrel. Make sure the barrel surfaces are fully coated.

Step 10
Use a rubber mallet to tap the working piston assembly into the barrel until the blue working piston seal is partially inserted. NOTE: The seal will be fully engaged once the cylinder is tightened at the final stage of the assembly.

Step 11
Using a rubber mallet, tap the piston into the barrel until it is fully inserted. Remove the seal installation tool and install intensifier piston completely inside the intensifier barrel.

Step 12
On the side of the middle separator stamped with a “P” or “PZ,” lubricate 6 inches of the high pressure seal into the groove. With lips towards working piston, squeeze the seal on the sides to form a saddle shape. Insert one end into the groove. Gently work the seal into the groove and run your finger along the seal to ensure proper installation. A dull tool may be used to properly seat the seal. Be careful not to damage the seal.

Step 13
Install the intensifier rod end seal and insert it into the inside groove of the intensifier barrel. Lubricate the O-ring supplied with the seal installation tool.

Step 14
Install the barrel end seal on both sides of the middle separator to the large face grooves. In case of the 8" bore cylinders, one seal will be a face seal and one will be an OD seal (the same ID as the one found on the OD of the front block.)

Step 15
Mark the cylinder’s port facing upwards. Unscrew manifold -- total of 4 screws.

Step 16
Install the intensifier barrel end seal. Grasp the seal installation tool and place it over the top of the intensifier barrel. Lubricate the O-ring supplied with the seal installation tool.

Step 17
Next, install the white sealing ring over the top of the energizer ring. Slowly ease the white sealing ring into place by pulling the seal over the energizer ring using an old O-ring as an aid.

Step 18
Some intensifier incorporating a wear band, install the alternating cross pattern, and install the intensifier piston wear band.

Step 19
Using a rubber mallet, tap the working piston assembly into the barrel until the blue working piston seal is partially inserted. NOTE: The seal will be fully engaged once the cylinder is tightened at the final stage of the assembly.

Step 20
Plug all ports until the cylinder is ready for use.

Step 21
Position the middle separator block so the side stamped with a “P” or “PZ” faces the working piston flange flange chamber. Once the middle separator is in position, mount the intensifier piston through the opposite side of the rod stamp and tighten with a “P” or “PZ.” When guiding the barrel into the groove, make sure that you do not pinch the O-ring seal. NOTE: The working piston is counterbored to allow the intensifier piston to be fully inverted into the assembly.

Step 22
Verify proper orientation of the ports (fluid, return and exhaust) to match the marking that were made during disassembly.

Step 23
Using two (2) diagonally opposite tie rods and a pipe wrench, torque the tie rods in an alternating fashion to bring the cylinder components together. This action will cause the working piston to lift off of the working barrel. With the working piston seal and wear band are re-attached or cut. They should be eased into the barrel, not forced.

Step 24
With the cylinder firmly clamped, install remaining tie rods and tighten to the specified torque (refer to the torque chart) to make sure you are using the alternating cross pattern, and install the intensifier piston wear band.

Step 25
Install the seal installation tool. Clamp

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OHMA® Piercing Cylinder
Seal Replacement

DISASSEMBLY

Step 1
Position the cylinder on a flat surface with the manifold facing upwards. Unscrew manifold – total of 4 screws. Note: Some custom piercing cylinders do not have manifolds.

Step 2
Mark the cylinder’s port orientation with scribe or soft marker for use as a reference during reassembly stage.

Step 3
Remove tie rods, then remove the end cap.

Step 4
Take working piston with flange facing upwards and clamp it into a soft-jawed vise. Remove the 8 allen screws. A pipe may be required for additional leverage since these screws are installed with a thread lock.

Step 5
Some cylinders have a single-piece working piston construction. If this pertains to your cylinder, skip to step 9.

Step 6
Using a removable thread adhesive, install the 8 bolt head cap screws. Using an alternating cross pattern, tighten to the torque value specified on the chart found on the reverse. DO NOT start at one screw and work your way around the pattern as this may result in a misalignment of the rod and flange.

Step 7
Slide out intensifier piston and barrel. Clamp

Step 8
Separate working piston and flange by tapping it apart.

Step 9
Remove all visible seals and thoroughly clean all components, especially any thread adhesive that has been used on bolt threads before cylinder disassembly. NOTE: a) Keep one used O-ring as an assembly aid for the installation of new seals. b) Seal components should be repaired or replaced. Contact Centerline for additional assistance.

Step 10
If necessary, rotate the flange to line up the counterbored holes with the tapped holes in the rod. Make sure that rod end flange are squared up properly before attempting to engage the two pieces.

Step 11
Install the intensifier rod end seal and insert it into the inside groove of the intensifier barrel. Lubricate the O-ring supplied with the seal installation tool.

Step 12
With the cylinder firmly clamped, install remaining tie rods and tighten to the specified torque (refer to the torque chart) to make sure you are using the alternating cross pattern, and install the intensifier piston wear band.

Step 13
Using a rubber mallet, tap the piston into the barrel until it is fully inserted. Remove the seal installation tool and install intensifier piston completely inside the intensifier barrel.

Step 14
Position the middle separator block so the side stamped with a “P” or “PZ” faces the working piston flange flange chamber. Once the middle separator is in position, mount the intensifier piston through the opposite side of the rod stamp and tighten with a “P” or “PZ.” When guiding the barrel into the groove, make sure that you do not pinch the O-ring seal. NOTE: The working piston is counterbored to allow the intensifier piston to be fully inverted into the assembly.

Step 15
Verify proper orientation of the ports (fluid, return and exhaust) to match the marking that were made during disassembly.

Step 16
Using two (2) diagonally opposite tie rods and a pipe wrench, torque the tie rods in an alternating fashion to bring the cylinder components together. This action will cause the working piston to lift off of the working barrel. With the working piston seal and wear band are re-attached or cut. They should be eased into the barrel, not forced.

Step 17
With the cylinder firmly clamped, install remaining tie rods and tighten to the specified torque (refer to the torque chart) to make sure you are using the alternating cross pattern, and install the intensifier piston wear band.

Step 18
Install the seal installation tool. Clamp

Step 19
Using a rubber mallet, tap the piston into the barrel until it is fully inserted. Remove the seal installation tool and install intensifier piston completely inside the intensifier barrel.

Step 20
Plug all ports until the cylinder is ready for use.

Step 21
Position the middle separator block so the side stamped with a “P” or “PZ” faces the working piston flange flange chamber. Once the middle separator is in position, mount the intensifier piston through the opposite side of the rod stamp and tighten with a “P” or “PZ.” When guiding the barrel into the groove, make sure that you do not pinch the O-ring seal. NOTE: The working piston is counterbored to allow the intensifier piston to be fully inverted into the assembly.

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Step 24
With the cylinder firmly clamped, install remaining tie rods and tighten to the specified torque (refer to the torque chart) to make sure you are using the alternating cross pattern, and install the intensifier piston wear band.

Step 25
Install the seal installation tool. Clamp

Step 26
Remove by applying air on one port at a time and feel for leaks.

Step 27
Plug all ports until the cylinder is ready for use.