Disassembly and Repair Instructions Of Type Over-The-Shaft (OTS™) Rotary Unions (3½˝)

NOTE: Please follow your company’s safety procedures whenever working on Kadant Johnson rotary unions and read all the instructions completely before proceeding.

Please refer to the assembly drawings supplied with your Kadant Johnson rotary union for part identification and torque specifications. If you have any questions, please contact your Kadant Johnson representative or Kadant Johnson LLC.

This procedure is written to ensure maximum possible life expectancy of the rotary union through proper assembly of critical components. The OTS rotary union must be reassembled using new O-ring seals.

REPAIR KITS ARE AVAILABLE CONSISTING OF:

<table>
<thead>
<tr>
<th>Item #</th>
<th>Qty.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>2</td>
<td>Seal Ring</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>Guide</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>Spring</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>Retaining Ring</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>Washer</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>O-Ring</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>O-Ring</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>Set Screw</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>Gasket</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>O-Ring Lube</td>
</tr>
</tbody>
</table>

DISASSEMBLY:

STEP 1.
Close the inlet and outlet valves.

STEP 2.
Remove all covers and drive components between the OTS rotary union and the end of the shaft.

STEP 3.
Remove flexible metal hose and torque restraint from the rotary union.

STEP 4.
Loosen the two set screws (13) on the nipple (4) securing the rotary union to the shaft. The rotary union can now be removed by sliding the rotary union off the shaft.

STEP 5.
Remove the set screws (13), from the nipple (4). Remove the two retaining rings (8), and the two washers (9) from each end of the nipple. Discard the set screws, retaining rings, and washers.

NOTE: When performing the next step, use caution, there is a spring force present inside the rotary union assembly. Placing the rotary union in a press is recommended.

STEP 6.
Loosen and remove the hex nuts (1B) and the cap screws (1A) holding the rotary union assembly together.

STEP 7.
Remove the two wear plate (2) assemblies from the body (1). Remove the guides (6) from the wear plates. Set the wear plates aside. Discard the two guides.

STEP 8.
Remove the two seal rings (5) from the nipple (4). Remove the nipple, the spring shoulders (3), and the spring (7) from the body (1). Discard the two seal rings.

STEP 9.
Remove the two spring shoulders (3) and the spring (7) from the nipple (4). Remove the O-rings (10) from the two spring shoulders. Discard the O-rings and the spring.

STEP 10.
Remove the four O-rings (11) located inside the nipple (4). Discard the O-rings.
CLEANING AND INSPECTION:

STEP 11. Clean and inspect the gasket surface on the two wear plates (2), and the body (1). Clean and inspect the seal ring contact surfaces and guide bores for damage. Replace the wear plates if they are damaged.

STEP 12. Thoroughly clean the nipple (4) using solvent and Scotch Brite® pad. The O-ring grooves inside the nipple can be difficult to clean, be certain that no debris remains in the grooves. Inspect the nipple on the outside diameter O-ring sealing surface, and the O-ring grooves inside the nipple for damage. Inspect the retaining ring grooves on the nipple for damage. Inspect both keys (12) on the nipple for damage. Replace the nipple if it is damaged.

STEP 13. Clean and inspect the two spring shoulder (3) seal ring contact surfaces, O-ring grooves, and the keyway slots for damage. Replace the spring shoulder if it is damaged.

STEP 14. Clean and inspect the body (1) internal cavity, gasket sealing surfaces, and inlet port for damage. Replace the body if it is damaged.

REASSEMBLY:

STEP 15. Using silicon lubricant, lubricate four new O-rings (11) and install into the nipple (4) grooves.

STEP 16. Using silicon lubricant, lubricate two new O-rings (10) and install into spring shoulder (3) grooves.

STEP 17. Using silicon lubricant, lubricate the O-ring sealing surface of the nipple (4) on the outside diameter.

NOTE: Lubricant must be applied on both sides of the nipple (4) ports.

STEP 18. Position and slide a spring shoulder (3) onto one end of the nipple (4) engaging the spring shoulder keyway slot with the key (12) on the nipple. Install a new spring (7) over the opposite end of the nipple, seating the spring on the spring shoulder. Position and slide the remaining spring shoulder onto the opposite end of the nipple engaging the spring shoulder keyway slot with the key on the nipple. Using Acetone or similar product, clean the seal ring contact surfaces of the spring shoulders after assembly.

NOTE: The keyway slot in the spring shoulder (3) may not stay engaged with the key (12) on the nipple (4) during this step due to spring force.

STEP 19. Carefully position the nipple assembly, consisting of nipple (4), two spring shoulders (3), and spring (7), into the body (1). The nipple assembly can be positioned inside the body in either direction.

STEP 20. Using a spray adhesive, coat one surface of both gaskets (14) and position the gaskets (one each) onto the gasket surface of each wear plate (2).

STEP 21. Using Acetone or similar product, clean and position a new seal ring (5) over the nipple (4) seating the flat face of the seal ring on the sealing surface of the spring shoulder (3). Repeat this step on the opposite side of the rotary union assembly.

STEP 22. Install a new guide (6) into the bore of the wear plate (2). Using Acetone or similar product, clean the wear plate seal ring contact surface. Repeat this step with the remaining wear plate.

NOTE: Use caution performing the next step, a spring force is present and damage to the seals can occur. Placing the rotary union in a press is recommended.

STEP 23. Install the two wear plate assemblies onto the ends of the nipple (4) seating the gaskets (14) on the body (1). Secure the assembly using cap screws (1A) and the hex nuts (1B) positioning the bolts through the holes in the wear plates (2). Carefully tighten the cap screws and nuts, compressing the seal rings (5), spring shoulders (3), and the spring (7). Alignment and engagement of the nipple key (12) with spring shoulder keyway slots can be viewed through the inlet port on the body. Tighten the fasteners with a torque wrench to 60 ft-lbs (81 Nm).

STEP 24. Position a new washer (9) over the nipple (4) seating the washer on the wear plate guide (6). Install a new retaining ring (8) onto the groove machined on the outside diameter of the nipple. Repeat this step on the opposite side of the rotary union assembly.

STEP 25. Install two new set screws (13) into the threaded holes machined on the end of the nipple (4).

The rotary union is now ready for installation.

NOTE: At the time of installation, check the outside surface of the shaft for burrs and defects that may damage the four O-rings (11) on the inside of the nipple (4).