Follow your company’s safety procedures whenever working on Kadant Johnson products. Read all of the instructions before proceeding with the installation or repair.

Please refer to the Kadant Johnson assembly drawing for part identification. Assembly drawings are available on request from Kadant Johnson.

Lubricate all fasteners with anti-seize compound. Tighten all fasteners in a star pattern. Torque specifications are listed on the product assembly drawing and are available from Kadant Johnson.

NOTE: Do not use anti-seize or petroleum-based products on O-rings. Only lubricate the O-rings with the silicone lubricant supplied with the Kadant Johnson repair kit. Prior to handling lubricants, consult MSDS information.

**REPAIR KITS ARE AVAILABLE CONSISTING OF:**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1</td>
<td>Seal Ring</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>Bushing</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>Gasket</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>Energized Seal</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>Head Gasket</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>Lip Seal</td>
</tr>
<tr>
<td>-</td>
<td>1</td>
<td>CSS800-3, Seal Ring Fluid</td>
</tr>
<tr>
<td>-</td>
<td>1</td>
<td>CSS800-1, O-Ring Lube</td>
</tr>
</tbody>
</table>

**REMOVAL AND DISASSEMBLY:**

**STEP 1.**
Release residual pressure in the system. Disconnect the inlet and outlet piping from the rotary joint.

**STEP 2.**
Remove the head bolts (2A) and carefully disengage head (2) from internal horizontal pipe (23). Clean gasket surface of the head and inspect for any damage, scoring, or pitting. If using a two-piece head, remove screws (17) and pipe adapter (5) assembly. Remove and discard bushing (9), lip seal (13), and gasket (10).

If using a one-piece head, place head in a vice so that the bushing (9) and lip seal (13) are exposed. Break the bushing by placing a punch through the holes located on the outside of the head (2) where the bushing is located. **CAUTION:** The bushing will shatter. Use protective eye wear and other safety gear as required by your company while performing this rebuild.

Clean the entire head with a solvent.

**STEP 3.**
Remove the nuts (1A) that secure the body (1) to the bracket (19). While this is being done, the body will push away from the ring bracket. Holding on to the seal ring (6), remove body and capture the seal ring.

**SERVICING THE ROTARY JOINT:**

**STEP 4.**
Inspect the sealing surface of the wear plate (3). If it is scored, steam cut, or otherwise damaged, it must be replaced. Do so by removing the bolts (3A) that fasten the wear plate to the journal. Remove the gasket or O-ring and clean the surface. Install a new gasket or O-ring and reattach the wear plate. Please refer to rotary joint assembly drawing for part identification. Tighten the bolts evenly using a star pattern and the proper torque. The wear plate, gasket, or O-ring are not part of the repair kit and are purchased separately.

**STEP 5.**
Be aware that there is spring force present during this operation. Place the body (1) and nipple (4) assembly into a press with the flat face of the nipple facing up. Place a block of wood on the flat face of the nipple to protect it. Push the nipple into the body and remove the retaining ring (8). Release the press, spring force will
push the nipple out of the body most of the way. Once the spring force is relaxed, separate the nipple from the body.

**STEP 6.**
Clean the body (1) using solvent and a Scotch Brite® pad. Inspect the following areas for wear: the bore where the energized seal (11) rides, the inlet and outlet connections, and the groove pins (14). If any area is worn or steam cut, the body should be replaced. The body is not part of the repair kit and is purchased separately.

**STEP 7.**
Remove the energized seal (11) from the nipple (4). Clean the nipple using a Scotch Brite pad and solvent. Inspect the energized seal groove for wear, scoring, or steam cuts. Inspect the flat faced sealing area of the nipple for wear, scoring, or steam cuts. If either surface is damaged, the nipple must be replaced. The nipple is not part of the repair kit and is purchased separately.

**STEP 8.**
Install a new energized seal (11) onto the nipple (4) with the cup or U shaped portion facing the end of the nipple. See Figure 1 for orientation.

**STEP 9.**
Place the body (1) back into the press with the body flange facing up. Install springs (7) into the spring guide holes. Lubricate the energized seal (11) and bore of the body with silicone lubricant. Place the nipple (4) into the body and guide into position with the press aligning the groove pins (14) with the appropriate holes in the nipple flange. Make sure the cup or U-shape portion of the energized seal does not fold during this operation. Install the retaining ring (8) and release the press. The energized seal can be viewed from the back side of the body to make sure it is not folded. If the seal lip is damaged during installation, replace it with a new one. Do not reuse the damaged part.

**REASSEMBLY AND REINSTALLATION:**

**STEP 10.**
If horizontal pipe (23) was removed, insert it into journal according to the machine manufacturer’s instructions.

**STEP 11.**
Place three drops of seal ring installation fluid (supplied), equally spaced, on the spherical face of the seal ring (6). The installation fluid will allow the seal ring to stick to the wear plate (3) long enough to install the body (1). Place the seal ring onto the wear plate, making sure that it is centered. Make sure that the seal ring does not fall from the wear plate.

**STEP 12.**
Place the body assembly (1) over the horizontal pipe (23) and onto the bracket (19), making sure that the nipple (4) inside of the body lines up with the flat face of the seal ring (6). Line up the holes in the body with the studs on the bracket. Make sure that the inlet connection is in the desired orientation. Fasten the body to the bracket using nuts (1A). Tighten fasteners evenly using a star pattern to 110 to 130 ft-lbs (149 to 176 Nm).

**STEP 13.**
**TWO-PIECE HEAD**
Install a new bushing (9) and lip seal (13) into the pipe adapter (5), making sure the lip of the seal is facing away from the head. Place a new gasket (10) over the pipe adapter and attach a new pipe adapter assembly (consisting of items 5, 9, and 10) to the head (2) using six screws (17). Tighten screws evenly using a star pattern and the proper torque.

**STEP 14.**
**ONE-PIECE HEAD**
Heat head (2) using either a torch or an oven. If using an oven, heat the head (2) at 400°F (205°C) for approximately one hour. If using a torch, heat the head in and around the area where the bushing (9) will be inserted.

**STEP 14A.**
After heating the head, place it into a press and insert the bushing (9) using bushing installation tool JC2598-IT for 3/4” pipe or JC2598-IT-1 for a 1” pipe. Press the bushing into the head until it bottoms out in the head.

**STEP 14B.**
Let head cool. Place the lip seal (13) on the head (2) with the Teflon seal facing away from the head. Press the seal into the head with even pressure using the lip seal installation tool JC2599-IT for a 3/4” pipe or JC2599-IT-1 for a 1” pipe. Press the lip seal into the head until it bottoms out on the bushing (9).

**STEP 15.**
In order to make installing the head (2) over the horizontal pipe (23) and onto the body (1) easier, the lip on the lip seal (13) needs to be stretched. Using a smooth handled tool, insert it into the lip of the seal and spread by running the tool around the lip several times. Lubricate the seal with O-ring lubricant.

**STEP 16.**
Orient the outlet connection in desired position and place a new gasket (12) over the head (2) and carefully slide head over the horizontal pipe (23). Insert pipe into bushing (9) and attach head to body (1) using fasteners (2A). Tighten the fasteners evenly in a star pattern to 30 to 42 ft-lbs (41 to 57 Nm).

The rotary joint is now ready to accept flexible hose piping.

*Dimensions are for reference only and subject to change. Certified drawings are available on request. Please refer to Kadant Johnson Drawing Number A37640 for torque specifications.*