Disassembly and Repair of Large S, SN and SJ Joints

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

Please refer to the assembly drawings supplied with your Kadant Johnson rotary joint for part identification. If you have any further questions, please contact your Representative or Kadant Johnson.

STEP 1
Disconnect the flexible hose from head (2). Remove the bolts that secure the head and remove head.

STEP 2
Disconnect the flexible hose from the body (1).

STEP 3
Disconnect the anti-rotation device as required.

STEP 4
If the joint is equipped with a rotating horizontal pipe loosen packing gland nuts to relieve compression on packing. Or, if the joint is equipped with a fixed horizontal pipe disconnect it from the head (2). In some cases the fixed horizontal pipe may be connected to the assembly plate (31), please see step 6.

STEP 5
Prepare the joint for removal before proceeding further. Make sure the weight of the joint will be adequately supported. Remove the nuts that secure the Q nipple flange (5) and move the flange back towards the joint. Remove the split wedges (55) and set aside.

STEP 6
Remove the joint from the machine. Use caution during this operation to avoid damage to the horizontal pipe. On some joints the horizontal pipe is attached to the assembly plate (31), the horizontal pipe should come out along with the joint.

STEP 7
Support the joint in a vertical position, resting it on the wear plate (16). The support structure will need a hole in it to provide clearance for the nipple (4).

STEP 8
During this operation it will be necessary to contain the spring force that is present within the joint. The spring tension will be relieved when the assembly plate (31) is removed. Using a piece of bar stock, drill two holes in it that match the bolt circle that is used to attach the head to the body. Straddle the bar stock across the assembly plate. Install a piece of 5” long all thread rod through the holes in the bar. Using two nuts, tighten the bar against the assembly plate. Remove the screws that secure the assembly plate. Back off the nuts on the all thread rod and the assembly plate, rear guide (6A), spring shoulder (81) (with rotating horizontal pipe only) and spring (7) should come out of the body. Sometimes the gasket between the assembly plate and body causes the assembly plate to stick. If this is the case, loosen the assembly plate with the appropriate tool.

STEP 9
Remove the front guide (6B), nipple and seal ring (6).
STEP 10
Inspect the body (1) for damage. The bearing surfaces where the guides ride should be smooth. Clean and inspect all gasket surfaces. Replace the body if any of these areas are damaged.

STEP 11
Inspect the wear plate (16) for damage. If it is worn or scored it must be replaced. If the wear plate gasket is leaking it should be replaced at this time. Do so by removing the bolts (16A) and remove the wear plate. Clean all gasket surfaces. Install a new gasket (8) and wear plate, if necessary. Lubricate the bolts with never seize compound. Install and tighten the bolts using a star pattern and the proper torque.

STEP 12
Place a new seal ring, flat face first, down into the body letting it rest on the wear plate.

STEP 13
Inspect the nipple for wear. The spherical face should be smooth, not worn or scored. The bearing surfaces should be smooth, not worn or scored. Inspect the end of the nipple where it seals against the copper gasket in the journal flange. It should be smooth and not steam cut. If any of these areas are damaged replace the nipple. If equipped with a packing gland (10) and packing (35) remove them.

STEP 14
Place the nipple into the body, through the hole in the seal ring and wear plate. Gently lower it into position against the seal ring.

STEP 15
Place a new guide around the nipple and slide it down into the body with the slot in it facing up.

STEP 16
Inspect the spring. If it is stress cracked or broken replace it. Install the spring over the nipple and place the end of it into the slot in the guide that was previously installed.

STEP 17
If equipped with a rotating horizontal pipe, remove the o-ring (81A) from the spring shoulder. Inspect the o-ring groove for steam cutting or pitting. Check the flat sealing face of the spring shoulder. It should be smooth, not worn or scored. If any of these areas are damaged, replace the spring shoulder.

Install a new o-ring into the groove and lubricate it with silicon o-ring lubricant. Place the spring shoulder on the spring and align the slot in it with the key on the nipple. Place the rear guide onto the spring shoulder.

STEP 17A
Place a new guide over the end of the spring. Make sure the end of the spring is in the slot on the guide.

STEP 18
Inspect the flat surface of the assembly plate where the guide rides against it. It should be smooth, not worn or scored. Clean the gasket surfaces of the assembly plate. If any of these areas are damaged replace the assembly plate. If necessary, install the horizontal pipe at this time using a new gasket or o-ring (25).

STEP 19
Place a new gasket (8) onto the body. Place the assembly plate over the guide. Using the bar stock and the all thread rod, compress the assembly plate, guide and spring towards the body until the assembly plate is in its proper position. Carefully align the gasket to the assembly plate during this operation. Lubricate and install the screws that attach the assembly plate to the body and tighten. Remove the bar stock and all thread rods.

STEP 20
Inspect the copper gasket sealing area in the journal flange. If damaged replace the journal flange.

STEP 21
Install a new copper gasket into the journal flange.

STEP 22
Place the Q nipple flange over the end of the nipple with the taper facing away from the joint. Install the split wedges into the recess in the nipple and slide the Q nipple flange over them.

STEP 23
Inspect the wear plate (16) for damage. If it is worn or scored it must be replaced. If the wear plate gasket is leaking it should be replaced at this time. Place a new gasket (8) and wear plate, if necessary. Lubricate the bolts with never seize compound. Install and tighten the bolts provided. Tighten the Q nipple flange using a star pattern. Tighten it evenly. Note that the Q nipple flange will not seat tightly against the face of the journal flange. When properly tightened, there will be 1/8” to 3/16” space left between the flanges.

STEP 24
If equipped with a rotating horizontal pipe install new packing (35). Install the packing gland (10), lubricate and tighten the bolts that secure it to 35 ft/lbs.

STEP 24A
Install a head new gasket (8) and install the head. Secure into position using the bolts provided.

STEP 25
If equipped with a threaded horizontal pipe, install it into the head at this time. Place a new gasket onto the head and install the assembly. Secure the head to the body using the bolts provided.

STEP 26
Install the anti-rotation device.

STEP 27
Using new gaskets install the inlet and outlet hoses.

The Kadant Johnson Rotary Joint is now ready for service.

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.