

FULL-CIRCLE SWIVELS

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JO-1 hose-end swivel

**Addendum to IS-JO1 Installation and Operation for
JO-series Hose-end Swivels**

This manual should be read before attempting to repair a JO-1 hose-end swivel and should be used in conjunction with the IS-JO1 repair manual to correctly repair a JO-1 hose-end swivel. This manual is visual in nature as an aid in the repair procedure. For complete text content refer to IS-JO1.

STEP 1.

Depressurize the delivery hose in accordance with acceptable procedures as outlined in your company policy book or described elsewhere. Consult NFPA-58 if required.

STEP 2.

Remove the JO-1 hose-end swivel from the filler gun and the hose.

STEP 3.

Carefully inspect the outside of the swivel for damage. Note if there are any obvious signs that the swivel has been dragged along the ground. In some cases, dragging can remove material from the swivel main body. If the swivel main body appears to have been ground flat in one or more areas, do not attempt to reuse the body. See Figure 1. In cases where the wear is severe, as shown in Figure 1., the entire swivel should be replaced.

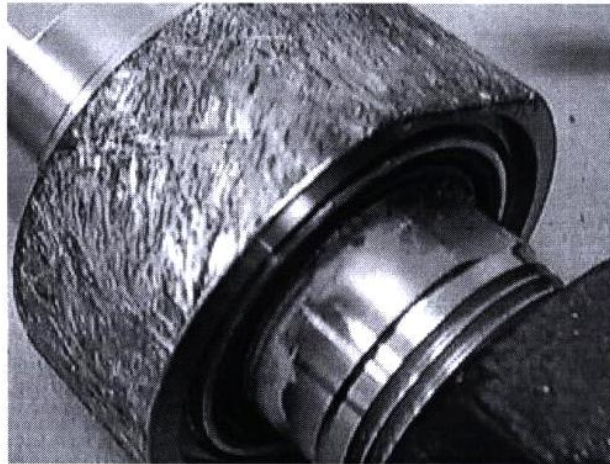


Figure 1. Severe main body wear due to dragging behind a delivery truck.
DO NOT REPAIR

STEP 4.

A spiral retaining ring holds the JO-1 components inside of the main body. To remove the spiral retaining ring, place the JO-1 in a vice as shown in Figure 2., and gently apply jaw pressure. Not much pressure is required.

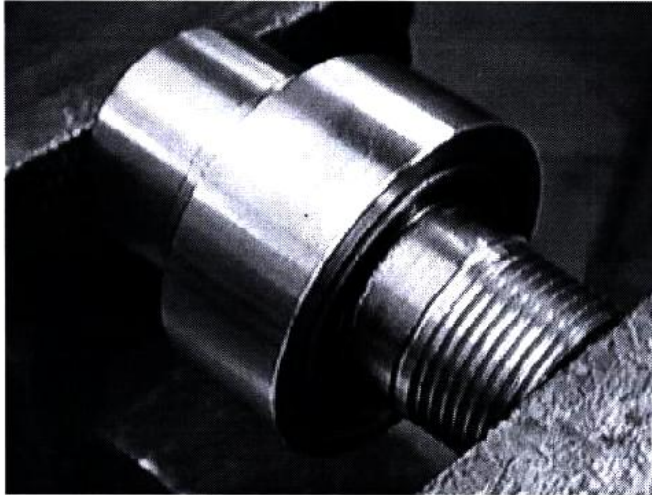


Figure 2. Apply light pressure in a suitable vise.

STEP 5.

Using a small slotted screwdriver, pry the spiral retaining ring tang up and out, and unwind the entire retaining ring from the groove in the main body. See Figure 3.

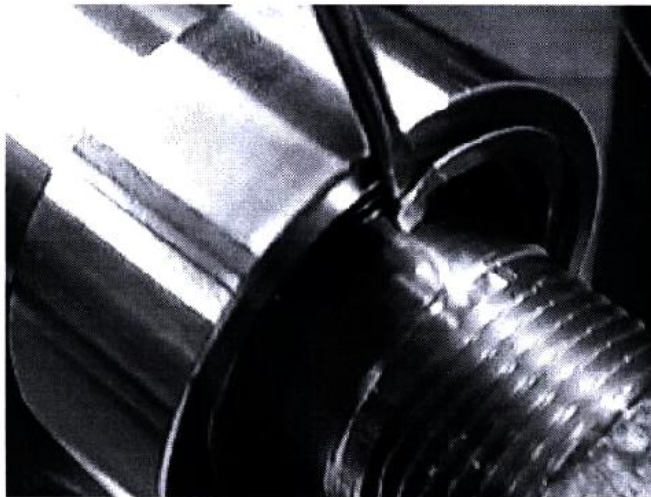


Figure 3. Pry the retaining ring out of the groove.

STEP 6.

Once the retaining ring is removed, hold the swivel body in the vice as shown in Figure 4. Pull on the male nipple while holding the main body stationary. The male nipple, bearing plate with lip seal, ball bearing, metallic seal w/wave spring will all come out. See Figure 5.



Figure 4. Pull on the male nipple

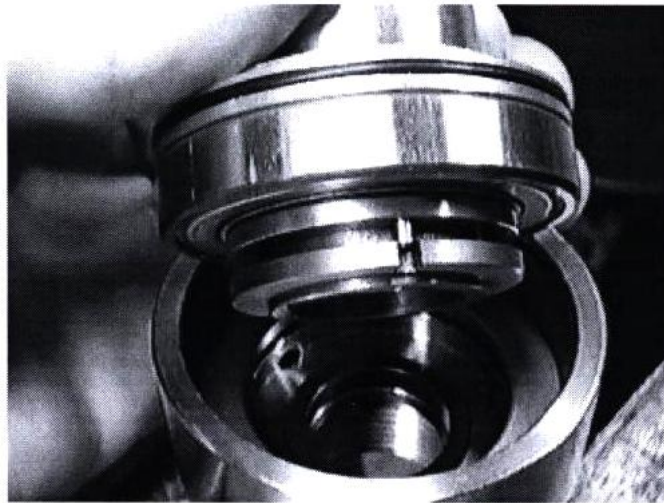


Figure 5. The male nipple, bearing plate, ball bearing, metallic seal, and wave spring will come out. The wave spring cannot be seen as it is inside the male nipple.

STEP 7.

Remove the thrust plate and bearing preload spring. See Figure 6.

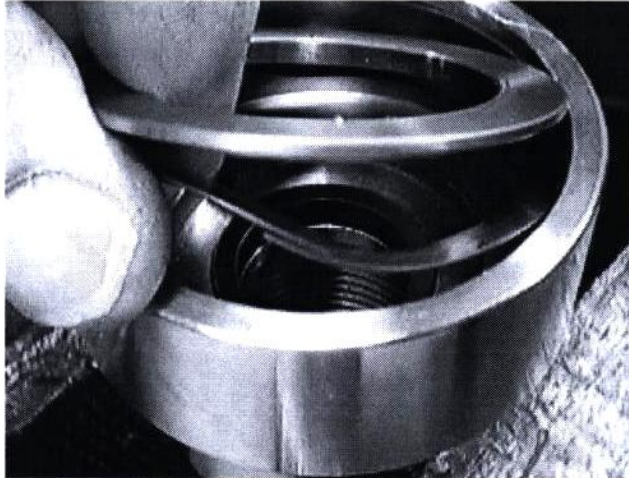


Figure 6. Remove the thrust plate and bearing preload spring

STEP 8.

Remove the seal ring at the bottom of the swivel body. This can be done by using a sharp, pointed instrument or small slotted screwdriver and pushing it out from the female end of the swivel. See Figure 7.

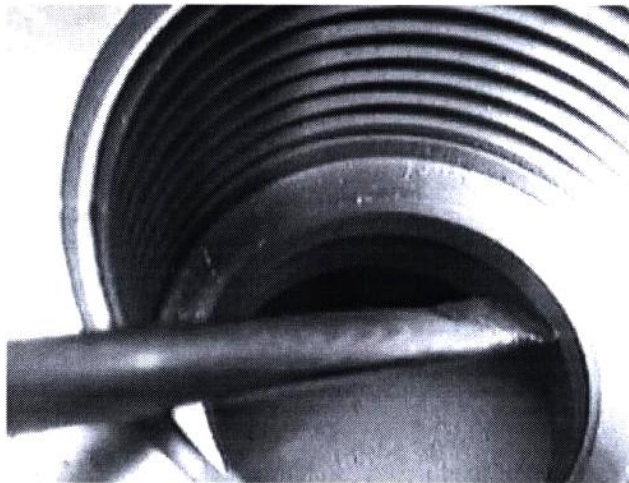


Figure 7. Remove the seal ring

STEP 9.

Once the seal ring is removed, notice the four small balls at the bottom of the swivel housing. These balls engage recesses in the seal ring that prevent it from turning. A standard seal replacement kit for the JO-1 hose-end swivel contains four replacement balls just in case one or more have become lost during the disassembly procedure. Make sure that all four balls have been installed before the seal ring is replaced. Tweezers can be used to facilitate the installation of the balls. See Figure 8.

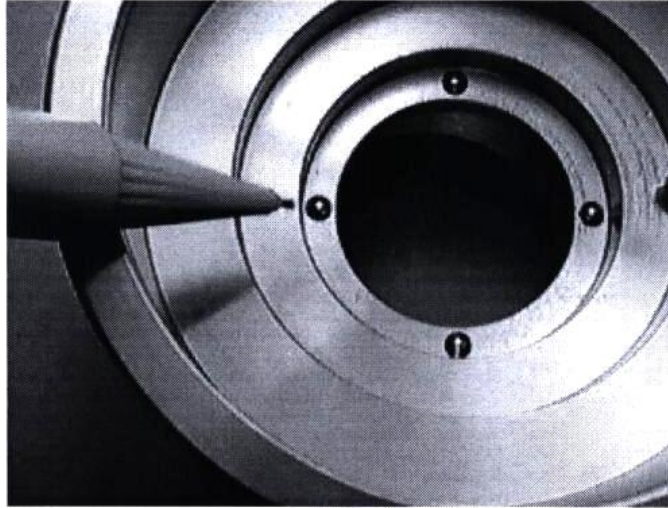


Figure 8. Installation of balls

STEP 10.

Thoroughly clean the inside of the swivel body. Do not oil or grease. If an air hose is used to blow off debris, recheck to make sure the pressurized air did not dislodge the balls. **MAKE SURE** that the retaining ring groove is clean and free of any dirt, grease, or grime.

STEP 11.

Replace the seal ring. Note the seal ring has an o-ring on the outside diameter. Make sure the o-ring is in place. Also note that there is a scratch mark on the inside diameter of the seal ring adjacent to one of the recesses. This is to help line-up the recess with the corresponding ball in the bottom of the swivel body. See Figure 9.

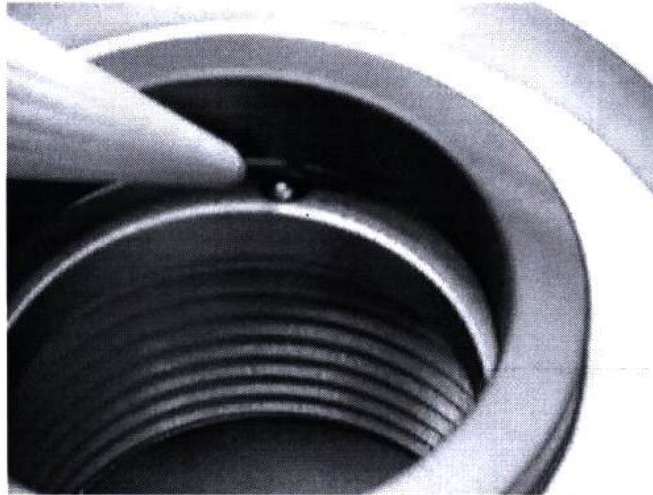


Figure 9. Lining up the scratch mark on the seal ring with a ball

Once aligned, gently press the seal ring down until it stops. **IMPORTANT.....**Only attempt this procedure with clean hands. Your fingers will be touching the lapped seal surface of the seal ring. Do not use any other instruments besides clean fingers to push the seal ring down into place. Wipe the seal face clean with tissue paper making sure that no fibers are left on the seal face. Now inspect to make sure the seal ring recesses have engaged with the balls. If not, the seal ring will appear to be lifted up and you will be able to see the balls. See Figures 10. and 11.

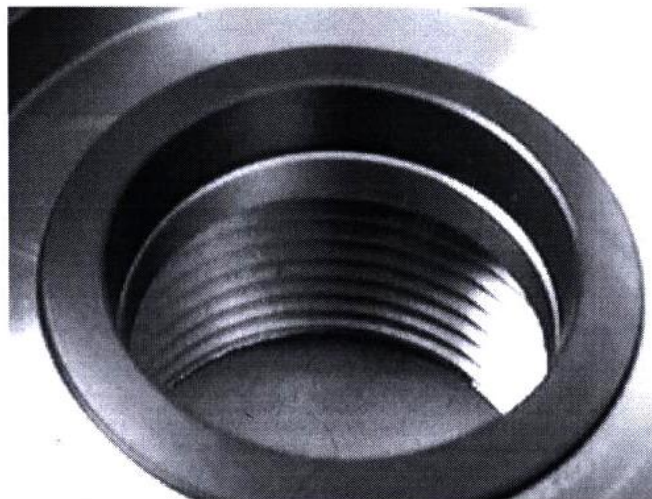


Figure 10. Proper seal/ball engagement

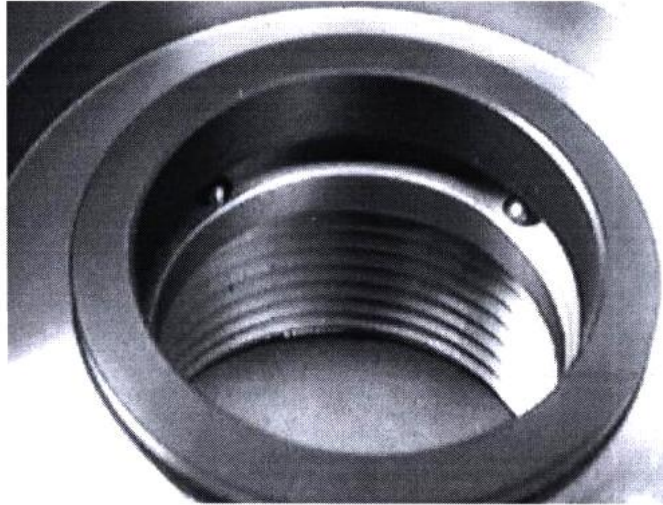


Figure 11. Incorrect seal/ball engagement

STEP 12.

Now install the bearing preload spring into the swivel body. Also install the thrust plate into the swivel body and push the thrust plate all the way down until it stops. See Figures 12. and 13.

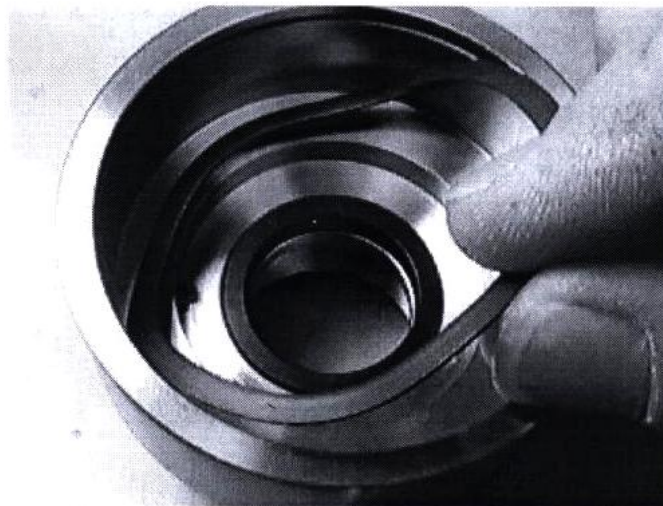


Figure 12. Install the bearing preload spring

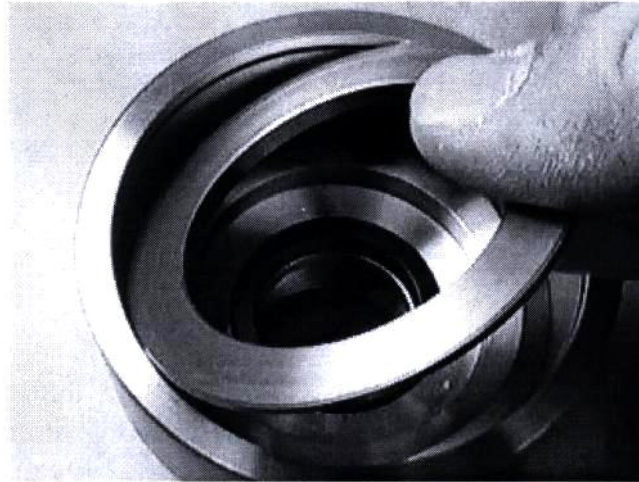


Figure 13. Install the thrust plate

STEP 13.

Install the wave spring into the bearing holder. See Figure 14.



Figure 14. Install the wave spring

STEP 14.

Install the metallic seal into the bearing holder. The metallic seal has an o-ring around the outside diameter. Make sure that the o-ring is present. Note the notch on the metallic seal. This notch must be lined-up with the pin pressed into the bearing holder. Once the notch and pin are aligned, gently press on the outside of the metallic seal with downward pressure until you feel the spring exerting force. DO NOT touch the lapped seal face

while pushing down. Now relieve the downward pressure and the metallic seal will spring back up slightly. See Figures 15. and 16.

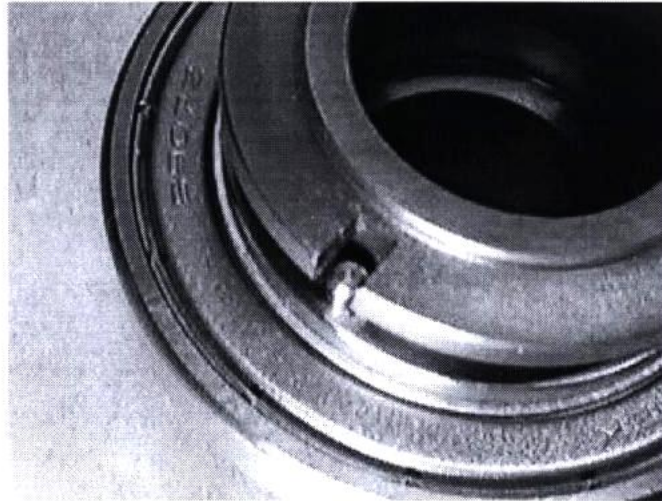


Figure 15. Notch and pin properly aligned

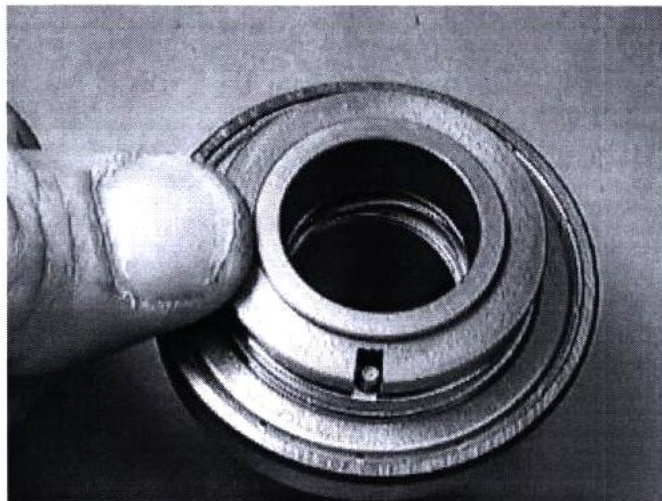


Figure 16. Push metallic seal into place using gentle pressure while keeping fingers away from the lapped seal face.

STEP 15.

With the metallic seal installed into the bearing holder, this entire assembly should now be installed into the swivel body. Care must be taken because the inside diameter of the swivel body is designed for a slight ball bearing slip-fit. Make sure that the ball bearing is not cocked to one side before the assembly is placed into the swivel body. See Figure 17.

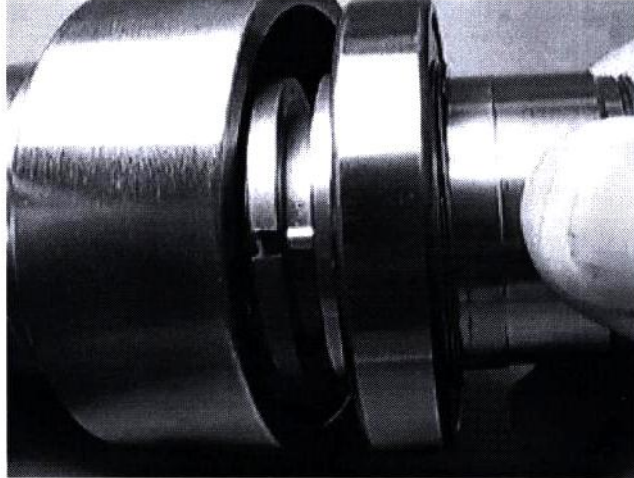


Figure 17. Assemble the ball bearing assembly into the swivel body.

STEP 16.

Now place the bearing plate w/lip seal over the male nipple and push it into the swivel body. The bearing plate has an o-ring on the outside diameter. Make sure that the o-ring is present. Also make sure that the correct face of the bearing plate is facing outwards. The outwards face has a machined lip that helps to support the lip seal. See Figure 18.

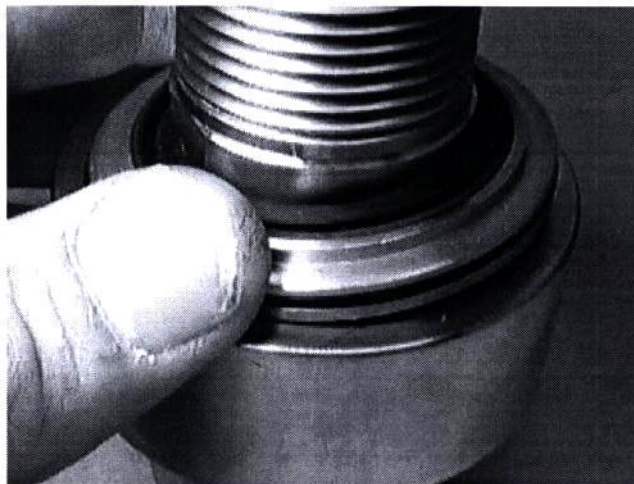


Figure 18. Installation of the bearing plate

STEP 17.

Now take the swivel to a vice as pressure must be exerted to install the spiral retaining ring. Install the retaining ring over the male nipple before the swivel is installed in the vice. Gently apply vice pressure which will push the male nipple into the swivel housing.

Push the bearing plate into the swivel housing until it stops. Care should be taken to make sure that the bearing plate is not cocked to one side before applying pressure to install it. Once the bearing plate is all the way in, place the tang of the retaining ring into the retaining ring groove and wind the ring into the groove. See Figures 19., 20, and 21.

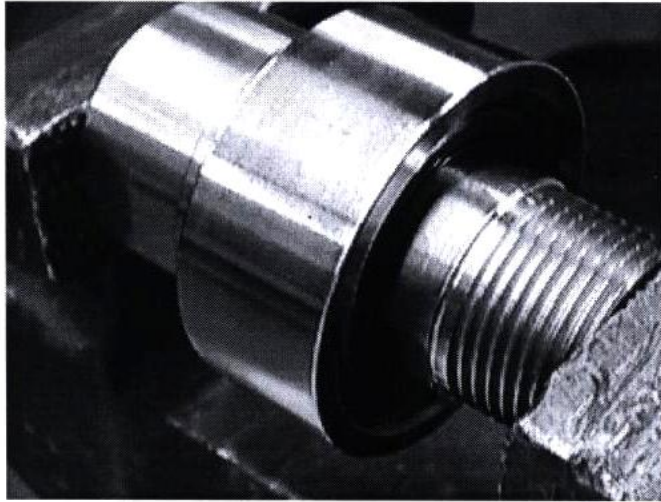


Figure 19. Place swivel in vice and apply slight pressure

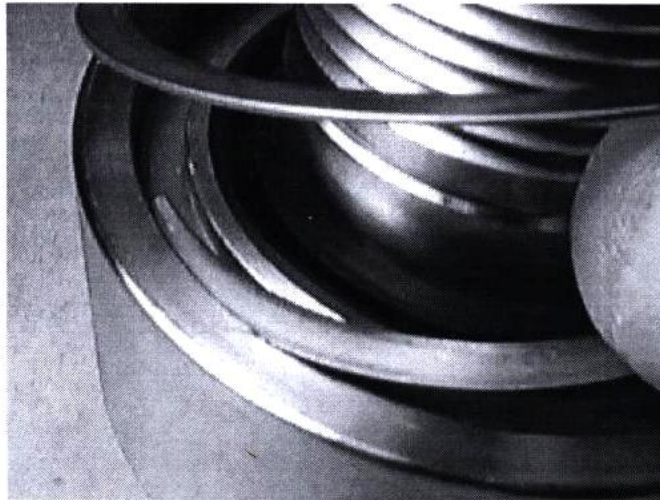


Figure 20. Install the retaining ring by starting one tang

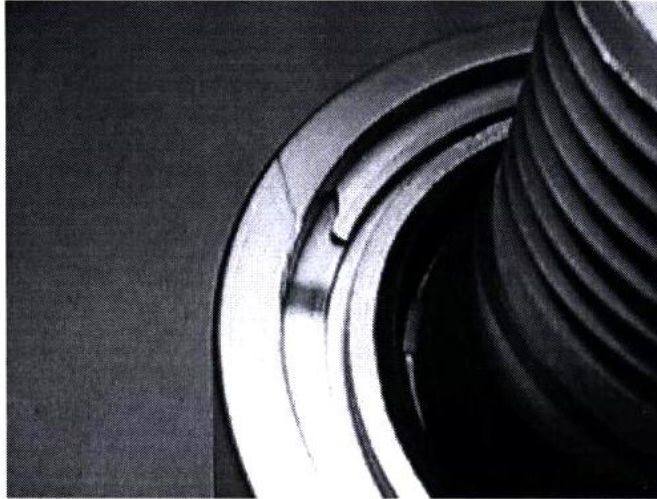


Figure 21. Wind the retaining ring into the groove until a snap is heard

IMPORTANT: If the retaining ring is installed properly, you will hear a snap. Do not attempt to force the retaining ring into the groove with a screwdriver or other instrument. If the retaining ring does not freely go into the groove, then check to make sure the bearing plate is all the way down. The retaining ring **MUST** be installed properly. **AN INCORRECTLY INSTALLED RETAINING RING COULD ALLOW THE SWIVEL TO COME APART IN SERVICE.** If the retaining ring does not freely go into the groove after repeated attempts, call us for assistance.

STEP 18.

Rotate the swivel several times to ensure smooth movement and reinstall on the delivery truck using practices consistent with your company policy book or described elsewhere. Check the swivel for leaks using an approved LP-GAS leak detector.

Note there is no “break-in” period required. If the swivel leaks product, the repair was not successful and will have to be done again. Check to make sure there is no debris on the seal faces. Clean accordingly and follow the steps as outlined in this manual and IS-JO1. Call us if you have any questions or encounter any difficulties.

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