Installation and Operation Instructions for JO-Series Hose-End Swivels

WARNING: The JO-series swivel connector contains a two-piece balanced mechanical seal that will eventually leak product. Before leakage occurs, either replace the swivel with a new one or replace all seal components as per the instructions in this and other publications. Conduct periodic leakage tests with an approved LP-GAS leak detector. Do not use for indoors – for outdoor use only.

Your JO-series swivel contains a state-of-the-art, highly advanced two-piece, balanced mechanical seal. The housing and nipple are fabricated from Stainless Steel, and all springs and retaining rings are also supplied in Stainless Steel. The JO-series swivels are designed to rotate simply and easily during high pressure product transfer. Because the two-piece seal is balanced, the JO-series swivel will rotate easily at any pressure. Unique to the JO-series is the lip seal designed into the bearing plate. This wiper seal effectively eliminates on-the-road contamination that may enter the ball-bearing area causing corrosion or uneven rotation.

WARNING: Should any leakage occur, vapor or liquid will flow from the end of the swivel where the male nipple protrudes from the main housing. Should this occur, replace all recommended seal components as outlined in this publication or others, or replace the entire swivel. If the leakage is sporadic, replace all recommended seal components as outlined in this publication or others, or replace the entire swivel.

Installation

The swivel can be installed as shown in FIGURE 1. Use industry accepted practices for thread sealing paste or tape.

Once installed, there is no break-in period required. Periodic checks for seal leakage and to ensure that the swivel is rotating freely are essential. Also, please instruct any personnel that may be using the JO-series swivel to periodically check the outside of the swivel for any obvious signs of damage. If the retaining ring or lip seal are damaged, they should be immediately replaced.

Repair Procedure

1.) Depressurize the delivery hose in accordance with acceptable procedures as outlined in your company policy book or described elsewhere, such as NFPA-58.
2.) Remove the swivel from the filler gun AND delivery hose. A tight-clearance open-end wrench, 1-5/16” size is recommended to remove swivel from filler valve.
3.) Place the swivel into a vice as shown in FIGURE 4 and *gently* apply pressure. The nipple will not move down into the housing very much. Once tension is relieved from the retaining ring, the retaining ring can be removed by simply placing a screwdriver underneath the end-tang and winding the retaining ring out of its groove. Remove the swivel from the vice. Remove 1-1/4” adaptor before placing in a vice for models containing 1-1/4” MNPT threads (models JO-114M, JO-114MLN, JO-114MFC)

4.) Pull on the male nipple to remove the bearing plate with lip seal. The bearing plate will come out along with the ball bearing and bearing thrust plate. The rotating metallic seal will also come out and will be attached to the bearing holder. Note that the bearing preload spring is still installed in the bottom of the main housing. Unless you notice damage to the preload spring, it can be reused again.

5.) Remove the stationary seal from the bottom of the main housing. Once removed, notice the four small Stainless Steel balls. These balls keep the stationary seal from rotating. Care should be taken to ensure that these balls are in place before replacing the stationary seal.

6.) Remove the metallic seal from the bearing holder. Note that the metallic seal has a notch in it that is aligned with a pin that is pressed into the face of the bearing holder. When a new metallic seal is installed, the notch must be aligned with the pin. Once the metallic seal is removed, notice the wave spring that applies tension to this seal. Unless the wave spring is damaged, it can be reused again.

Installing New Replacement Parts

1.) Install the stationary seal with o-ring first. Care must be taken to ensure that the four small Stainless Steel balls are in place. Align the shallow-drilled holes on the back side of the stationary seal with the balls in the main housing and press gently into the recess in the main housing. Make sure that your hands are clean when doing this procedure and try not to touch the lapped seal face on the stationary seal.

2.) Install the wave spring into the bearing holder and then install the metallic seal into the bearing holder. This can be accomplished by placing the metallic seal in the bearing holder part-way, then rotate the metallic seal until the notch is aligned with the pin pressed into the bearing holder. Do not touch the lapped seal face of the metallic seal. Once aligned, push the metallic seal all the way into the bearing holder until it engages the wave spring. Once engaged, relieve tension and let the metallic seal bounce back up. The bearing holder is now ready to be installed into the main housing.

3.) Before the bearing holder is installed into the main housing, make sure that the stationary seal, the bearing preload spring, and the bearing thrust plate have been installed into the main housing. Holding the male nipple end of the bearing holder, place the ball bearing into the main housing and gently push the assembly into place. Push the assembly as far down into the housing as it will go. Note that the side of the bearing thrust plate with the step must be installed over the preload spring.

4.) Place the bearing plate and retaining ring over the male nipple and put back into the vice. Apply a slight pressure so that the retaining ring can be installed into its groove. Wind the retaining ring into its groove. Once installed correctly, relieve tension in the vice. Note that it is important that the bearing plate is installed correctly. The side of the bearing plate that has a recess machined into it is the side that goes into the swivel main housing first. The flat side of the bearing plate should be facing to the outside. See FIGURE 3.

5.) Remove the swivel from the vice and carefully examine the end of the swivel where the male nipple protrudes from the main housing. Make sure that the retaining ring is installed in its groove and make sure that the lip seal is in excellent condition. Should the lip seal have to be replaced, simply remove the damaged one and press a replacement seal into position with your thumb and forefinger. It is very important that the lip seal is installed correctly as shown in FIGURE 3. A new lip seal can be replaced without taking the swivel apart. For models containing 1-1/4" MNPT threads (JO-114M, JO-114MLN, JO-114MFC) install with new o-ring Full-Circle part# 6227-25. Apply a small amount of threadlock on 4 set screws before installing adaptor.

6.) Rotate the swivel once or twice by hand to ensure it is freely rotating and install as per company policy.

7.) Should a leak develop after the repair, follow the procedure again or replace with a new swivel.

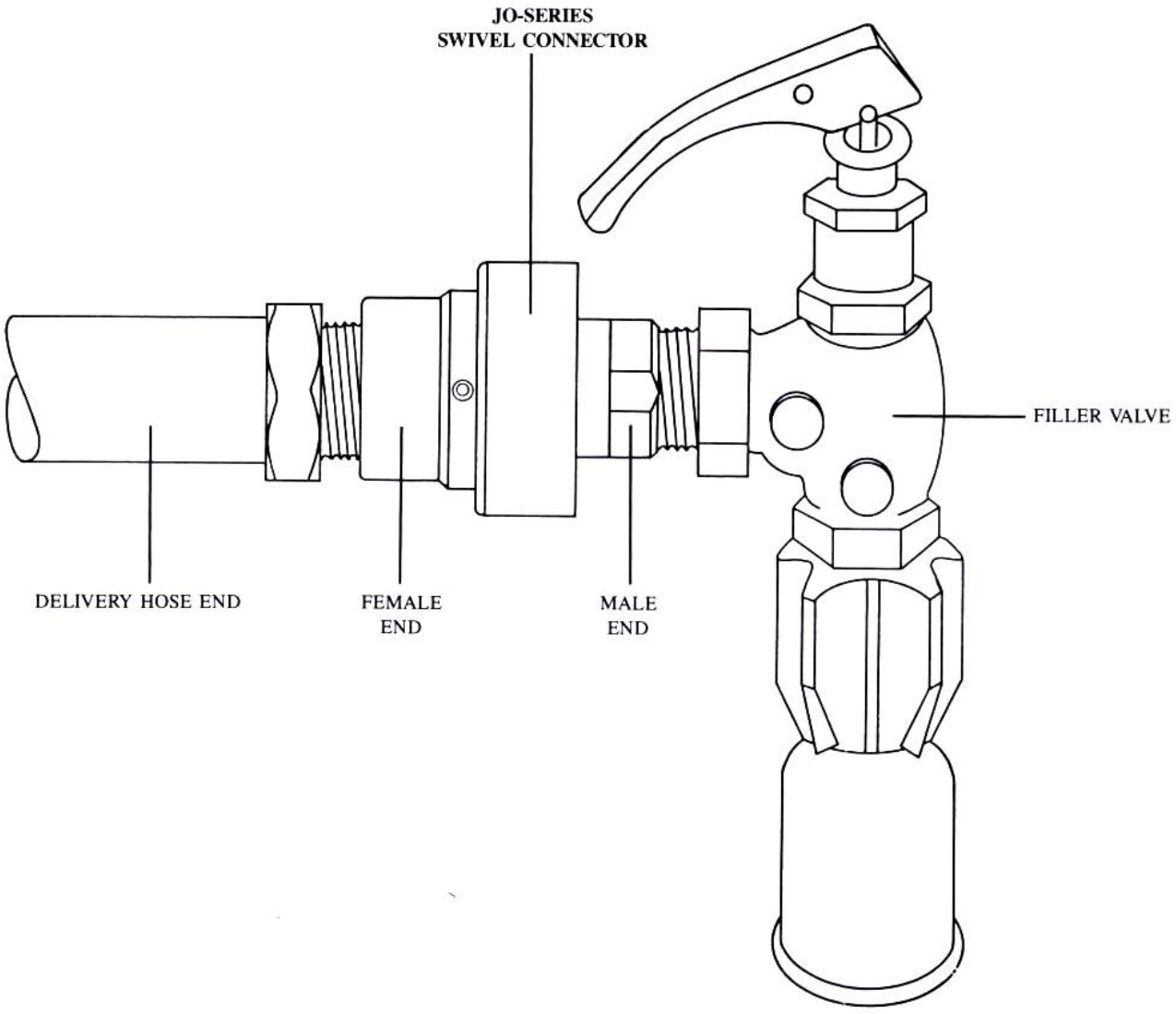
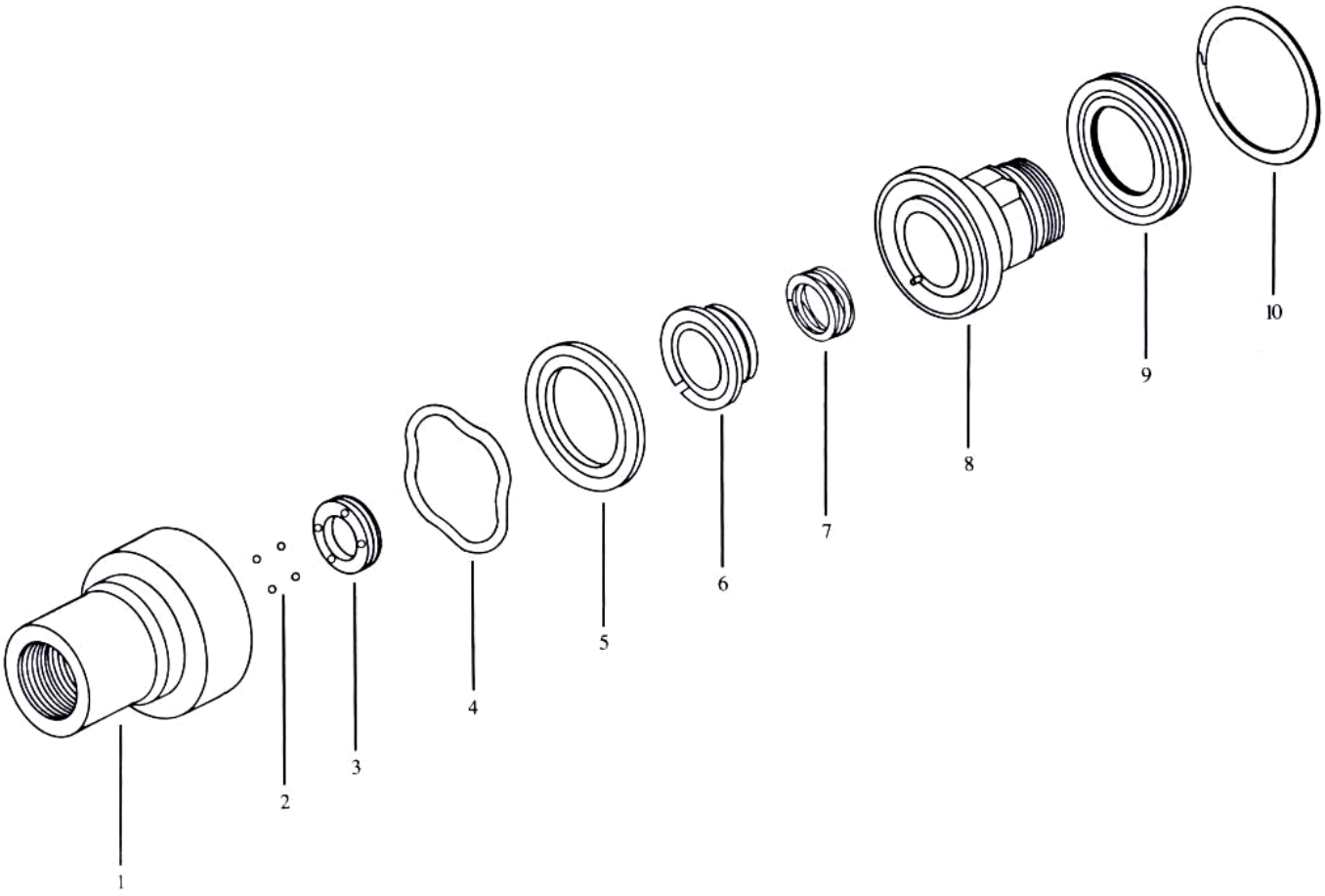

JO-SERIES
SWIVEL CONNECTOR
FILLER VALVE
DELIVERY HOSE END
FEMALE
END
MALE
END

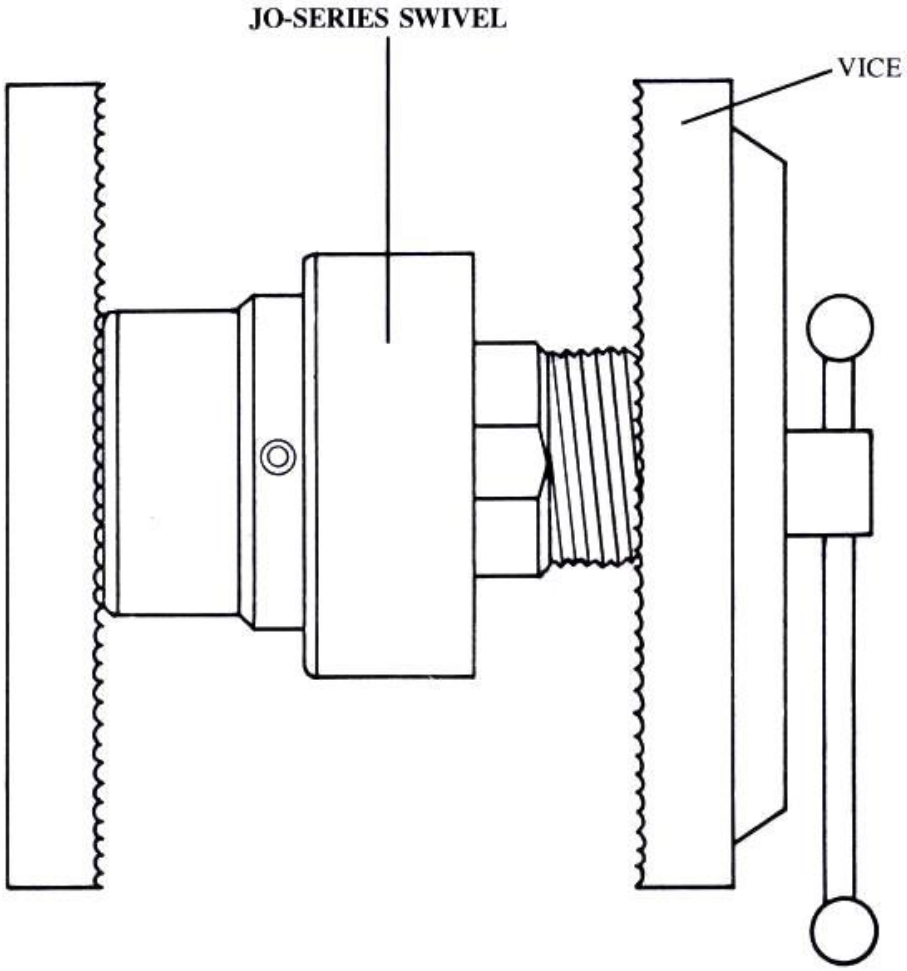
FIGURE 1



1 - MAIN HOUSING
2 - RETAINING BALLS FOR STATIONARY SEAL
3 - STATIONARY SEAL W/O-RING
4 - PRELOAD SPRING
5 - BEARING THRUST PLATE
6 - METALLIC SEAL W/O-RING
7 - WAVE SPRING
8 - BEARING HOLDER W/BALL BEARING
9 - BEARING PLATE W/LIP SEAL AND O-RING
10 - RETAINING RING

NOT SHOWN: 1-1/4" ADAPTOR, SET SCREWS, O-RING FOR MODELS JO-114M, JO-114MLN, JO-114MFC

FIGURE 2



NOTE: APPLY *GENTLE* PRESSURE TO REMOVE
THE RETAINING RING

FIGURE 4: REPAIR PROCEDURE

ADDITIONAL WARNINGS

1.) Do not drag the JO-series swivel along the ground.
2.) Do not use the JO-series swivel as a lever arm when securing the filler gun to a tank
3.) Do not use the JO-series swivel if a leak develops or the swivel does not rotate freely.
4.) Do not use the JO-series swivel for any other swivel application other than for hose end use.
5.) Do not repeatedly drop the JO-series swivel to the ground.
6.) Do not use the JO-series swivel for any other transfer product than what it is stamped for on the main housing.
7.) Do not use the JO-1 swivel if it appears to be heavily damaged on the outside.
8.) Make sure that the retaining ring has been installed after repairs have been made and it is securely fastened in groove.

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