H-13792M
March, 1998

# OPW INSTRUCTIONS

ASSEMBLY AND INSTALLATION INSTRUCTIONS FOR OPW 61-SOP POPPETTED COAXIAL (CARB) OVERFILL PREVENTION VALVES.

**IMPORTANT:**
**Please read these assembly and installation instructions completely and carefully before starting.**

## GENERAL INSTRUCTIONS

The OPW 61-SOP Overfill Prevention Valve is designed for tight fill, gravity drop applications to help prevent accidental or intentional overfilling of underground storage tanks. It is installed in the UST fill pipe in place of a coaxial drop tube.

The main 61SOP valve closes when liquid level is within 8" of the top of the tank. A small bypass valve remains open to allow the delivery hose to drain at 5 gallons per minute. If the delivery truck valve is not closed after initial shut-off, the bypass valve will close when the liquid level is within 3" of the top of the tank.

**IMPORTANT**

**Read these assembly and installation instructions completely and carefully prior to starting. Check to make sure all parts have been provided. Use on only the parts supplied, substitution of parts may cause product failure.**

Failure to follow instructions may cause improper product operation or premature failure which may permit storage tank overfill. An overfilled storage tank may create hazardous conditions and/or environmental contamination.

**CAUTION**

**Do not remove elastic band from around float until instructed to do so, as damage to valve may result.**

**WARNING**

Failure to properly connect delivery hose and elbow, and/or disconnecting a liquid filled delivery hose or elbow will result in a hazardous spill, which may result in personal injury, property damage, fire, explosion, and water and soil pollution.

- Make sure all connections, including the hose and elbow connections, between storage tank and transport are securely coupled.
- Make sure the lip seal and/or all gaskets in the delivery elbow are properly in place to prevent spills.
- Do not operate with damaged or missing parts which prevent tight connections.

Normal Operation: A Hose "Kick" and reduced flow signal that the tank is full.
Close transport delivery valve and drain hose into tank before disconnecting any hose fitting.

Overfilled Tank: Failure of the hose to drain after closing the delivery valve signals an overfilled tank. Do Not Disconnect any delivery hose fitting until the liquid level in the tank has been lowered to allow the hose to drain into the tank. Attention: In the event you are splashed, remove all wetted clothing immediately. Do not go into an enclosed area and stay away from ignition sources.

**IMPORTANT**

**Determine if the underground storage tank is equipped with a ball float vent valve similar to the OPW 53VM, as illustrated in *Figure 15, page 7.* To permit proper operation of the OPW 61-SO, the ball float vent valve nipple MUST NOT EXTEND more than 6" into the tank. If it does, either remove the ball float vent valve or adjust the installation of the 61-SOP by adding the difference between 6" and the actual installed length of the ball float vent valve nipple to the upper tube when marking the tube in STEP 2. In all cases, the shut-off point of the 61SO must be reached before the ball float reduces flow to ensure proper overfill valve operation.**

**TOOLS NEEDED FOR INSTALLATION AND ASSEMBLY:**

1. Drill
2. A sharp 1/8" pilot drill bit
3. A sharp 5/16" drill bit
4. Tape measure
5. Hacksaw or cut-off saw, fine tooth; 24 teeth/inch
6. Fine half round file
7. Screwdriver - flat blade
8. Two ½" Wrenches
9. 7/16 " Wrench
10. Two-part sealant (Supplied)
11. Alignment Tool (Supplied)

**WARNING**

Using electrically operated equipment near gasoline or gasoline vapors may result in fire or explosion, causing personal injury and property damage. Check to assure the working area is free from such hazards, and always use proper precautions.

## HOW TO INSTALL THE OPW 61-SOP IN VARIOUS SIZE TANKS

The shut-off point is determined by the length of the 61SOP upper tube. Following the standard instructions for the OPW 61-SO will provide for initial shutoff at 95% of capacity in most 8' diameter underground storage tanks. For other diameter tanks, follow the procedure below to determine proper length of the upper tube. In all cases, the upper tube length must be a minimum of 6-1/2" plus the length of the riser pipe. All length measurements are in inches.

### INSTRUCTIONS

1.) Find tank capacity (in gallons) from tank calibration chart provided by tank manufacturer.

2.) Calculate 95% of capacity.

3.) Locate the 95% volume number on the tank calibration chart.

4.) Find the dipstick number (X) which corresponds to the 95%volume number.

5.) Subtract the dipstick number (X) from the tank diameter (Y) to find the upper tube reference number (Z).

(Y) - (X) = (Z)

6.) Subtract 2" from the upper tube reference number (Z) to find the upper tube depth number (C).

(Z) - 2" = C

7.) Is C less than 6-1/2"?

**NO** Upper tube length is the upper tube depth number C plus the riser pipe measurement (A).
Upper Tube Length = C + (A)

**YES** Upper tube length is 6-1/2" plus the riser pipe measurement (A).
Upper Tube Length = 6-1/2" + (A)

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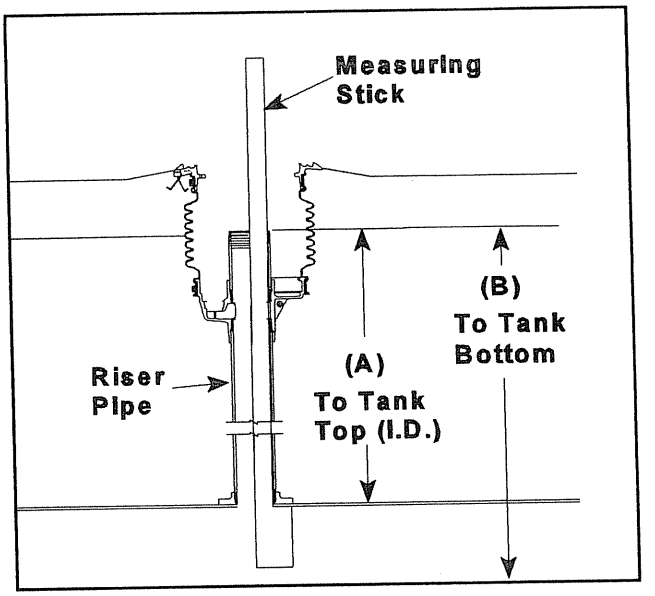



### EXAMPLE

1.) For an Owens-Corning Model G-3 Fiberglass® Tank Calibration Chart:
Tank Capacity - 10,000 gal. nominal (9,403 gal. actual)

2.) 95% of actual tank capacity = 0.95 x 9403 gal. = 8933 gal.

3.) The closest number which is **less** than 8933 gal. Is 8910 gal. Choosing the closest number **less** than 95% of actual capacity ensures that the initial shutoff will occur when the tank is no more than 95% full.

4.) The calibration chart reading of 8910 gal. corresponds to a dipstick measurement of 82".

5.) Dipstick number (X) = 82"
Tank diameter (Y) = 92"
(X) - (Y) = (Z) 92 "- 82" = 10"
Upper tube reference number (Z) = 10"

6.) (Z) = 10" (from Step 5)
(Z) - 2" = C 10" - 2" = 8"
C = 8"

7.) Is C = 8" (from Step 6) less than 6-1/2"?

**NO** Measure the riser pipe length (A).
Upper tube length = C + (A)
C = 8" (from Step 6)
Upper tube length = 8" + riser pipe length (A).

## ASSEMBLY INSTRUCTIONS

**IMPORTANT:** Each of the numbered steps in the installation instructions are designed as a CHECKLIST to insure proper installation and trouble free operation of the OPW 61-SOP Overfill Prevention Valve.

Read and follow these steps carefully, checking them off as you proceed.

Figure numbers correspond to step numbers for easy reference.

**STEP 1 ❑ MEASURE**
Remove the tight fill cap and adaptor and the existing drop tube from the tank riser pipe. Measure the distance form the top of the riser pipe to the inside of the tank Dim. (A) using the measuring stick supplied. For new construction, take the measurement of dimension "A" **after** the pipe nipple has been installed in the spill container. Insert the measuring stick through the riser pipe and hook it under the inside of the tank in the lengthwise direction. Mark the stick at the top of the riser pipe. (For riser pipe configurations other than that shown, consult installation drawings or use other necessary means to measure dimension "A").

Using a tape measure, measure the distance from the top of the riser to the bottom of the tank (Dim. "B").

**IMPORTANT:** Inspect the riser pipe for any foreign material. Over spray from tank relining or any internal burrs inside of pipe must be removed prior to installation. Failure to have an unobstructed riser pipe may prevent proper installation and operation of the valve. The 61SOP is designed to be installed into schedule 40 riser pipes. The 61SOP can not be installed into schedule 80 riser pipes.

**STEP 2 ❑ MARK THE TUBE**
Align the end of the measuring "stick" with seam where upper tube and valve body meet as shown in Figure 2. Mark the tube at the mark on the measuring stick made in Step. 1.

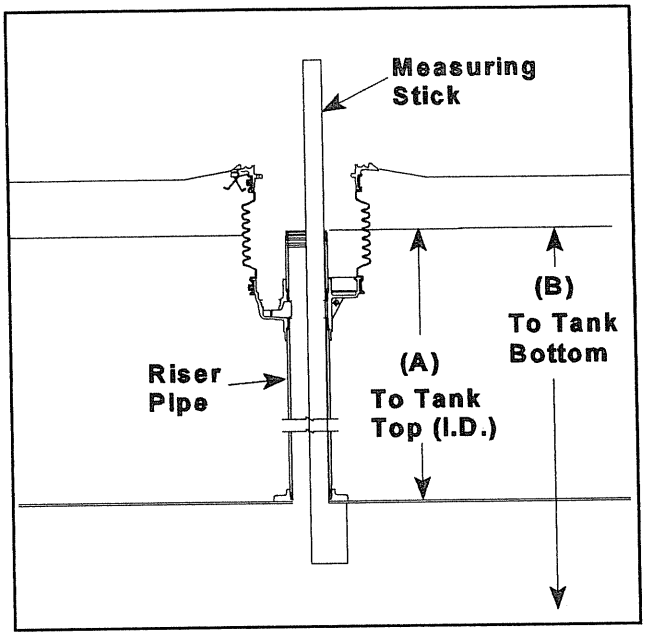


Figure 1

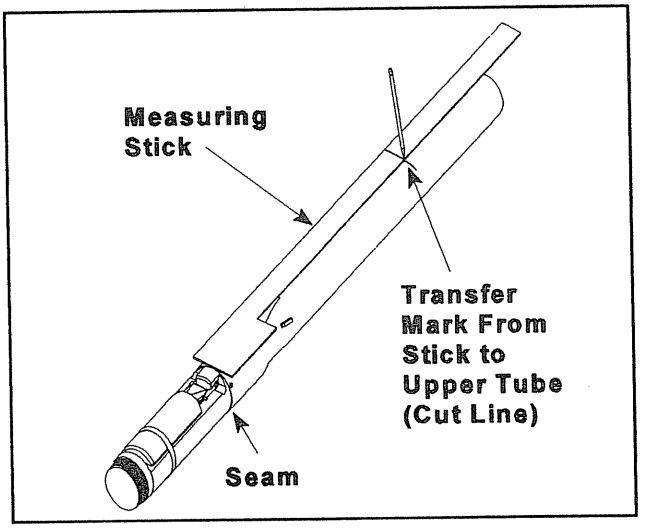


Figure 2

**STEP 3 ❑ CUT THE UPPER DROP TUBE**
Carefully saw through the tube squarely, at the mark made in Step 2. Use a hacksaw with a new fine-tooth blade. Rotating the upper tube as the sawing progresses will minimize run out and ensure a square 90 degree cut.
**CAUTION** -DO NOT use a pipe or tubing cutter to cut the upper drop tube, this may damage the tube, causing it to be out of round thereby prohibiting assembly of the unit.

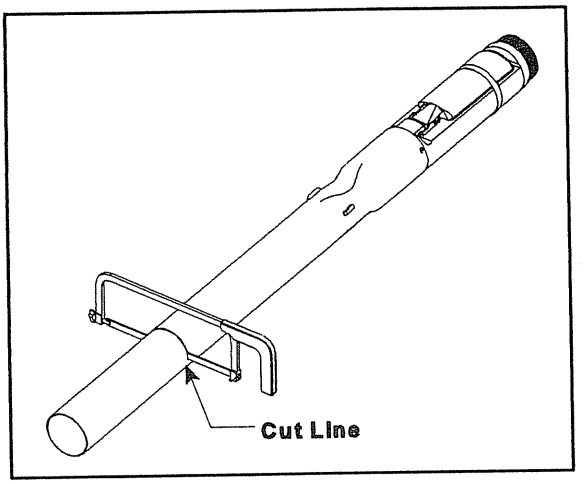


Figure 3

**STEP 4 ❑ FILE THE DROP TUBE**

File the upper tube square, and remove any burrs or rough edges. Make sure the cut is flat and square.

**IMPORTANT:** Carefully file a **good chamfer** on the inside of the drop tube to provide a lead-in for the o-ring and inlet tube to be installed in Step 6.

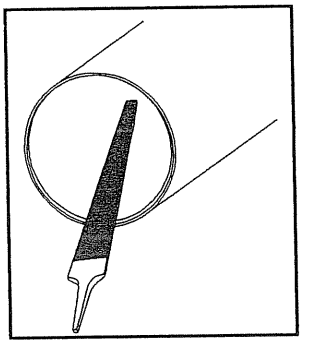


Figure 4

**STEP 5 ❑ APPLY SEALANT**
Prepare sealant by thoroughly mixing 1/3 of each packet together until color is uniform. Generously apply sealant to the inside diameter of the upper drop tube. Make sure coverage is completely around the tube as shown in Fig. 5.

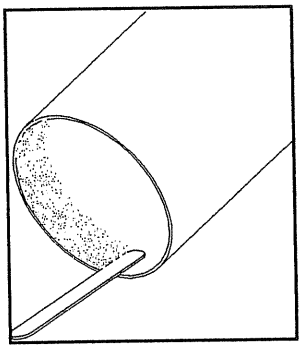


Figure 5

**STEP 6 ❑ INSTALL INLET TUBE**
Install O-ring in the O-ring groove of inlet tube (DO NOT USE GREASE). Insert the inlet tube/adaptor assembly into the upper tube until it seats against the stop on the inlet tube. Note: The legs on the locator ring are located on the outside diameter of the upper tube. The tip of the locator ring should be touching the upper tube.

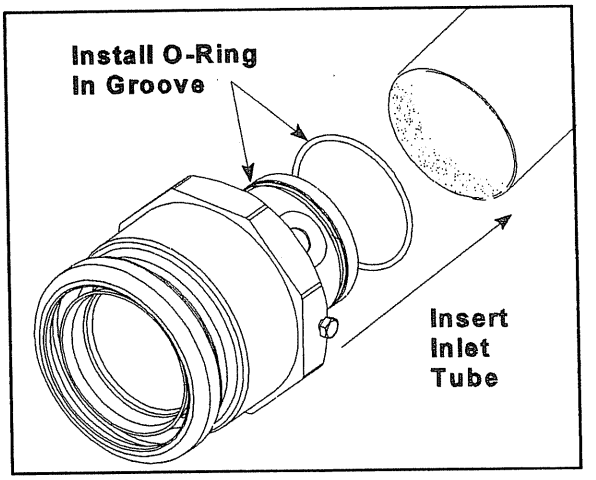


Figure 6

**STEP 7 ❑ DRILL HOLES**
With the inlet tube in place, carefully drill (3) 1/8" diameter pilot holes through the drop tube and inlet tube at three locations at 120 degree intervals around the tube, 1 inch below the bottom of the adaptor. Using the pilot holes, drill (3) 5/16" dia. holes through the tubes. Remove the burrs from the drilling operation from the inside of the drop tube assembly with a fine half round file.
**IMPORTANT** A 5/16" drill bit must be used. Do not substitute any other size drill bit.

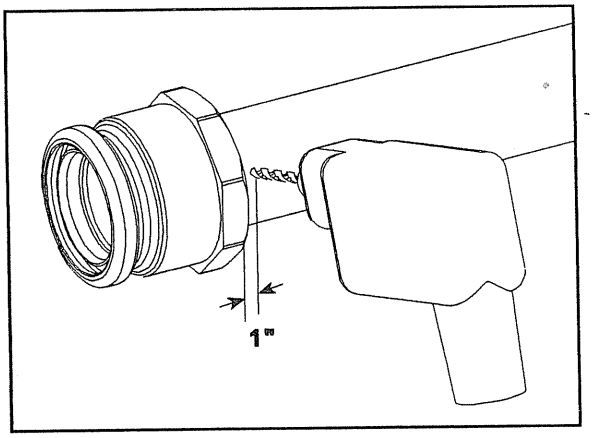


Figure 7

**STEP 8 ❑ ASSEMBLE AND SEAL BOLTS**
Rotate the locator ring so that one of the drilled holes is located between the locator ring's legs. Loosely assemble the three (3) 5/16" bolts and nuts in holes.

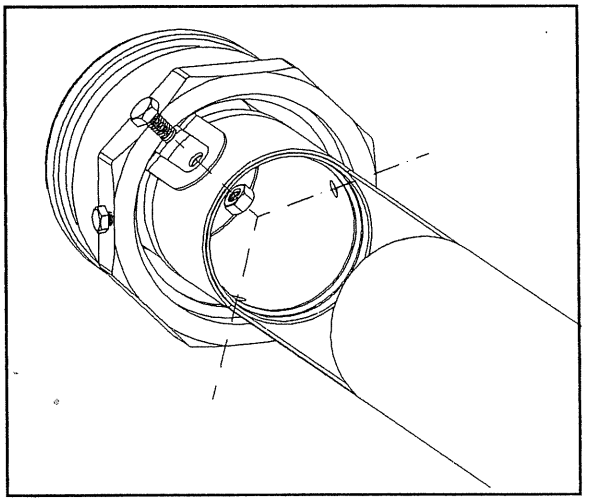


**Figure 8**

**STEP 9 ❑ APPLY SEALANT AND TIGHTEN BOLTS**
Mix up a small amount of sealant. **Generously apply sealant underneath each bolt head, each nut, and on the outside of the tube around the holes.** Tighten bolts securely with two ½" wrenches. Use only the stainless steel bolts and nuts that are supplied with the unit. Recommended seating torque is 150 inch-lbs. Do not over tighten. NOTE: The locator ring must be free to slide. Be sure it is not pinched between the bolt head and tube and that excess epoxy does not interfere with its movement.

**Note: Failure to properly apply the sealant may result in a failure of a pressure decay leak test.**

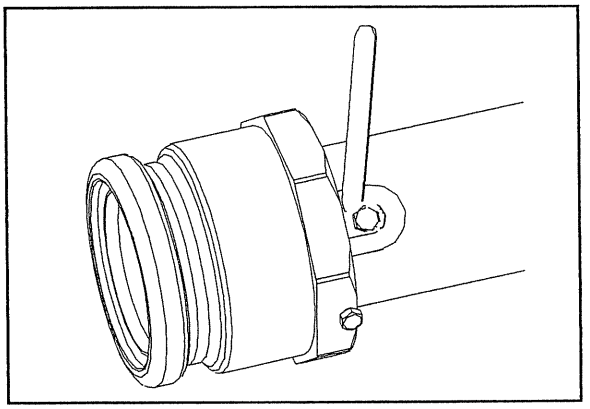


**Figure 9**

**STEP 10 ❑ LOWER TUBE ASSEMBLY**
If a vise is used, clamp on valve body casting only to avoid damage to the float. Mix the remaining sealant until the color is uniform. Using the mixing stick, **generously apply sealant to the first 6 male threads on the valve body** as shown in figure 10. Make sure coverage is complete around the threads, and work the sealant down into the thread profile. Quickly thread the lower tube onto the valve body. Tighten the tube securely by hand or with a strap wrench. Remove excess sealant and smooth sealant bead with a water moistened mixing stick. Allow sealant to cure for 30 minutes before installing into tank.

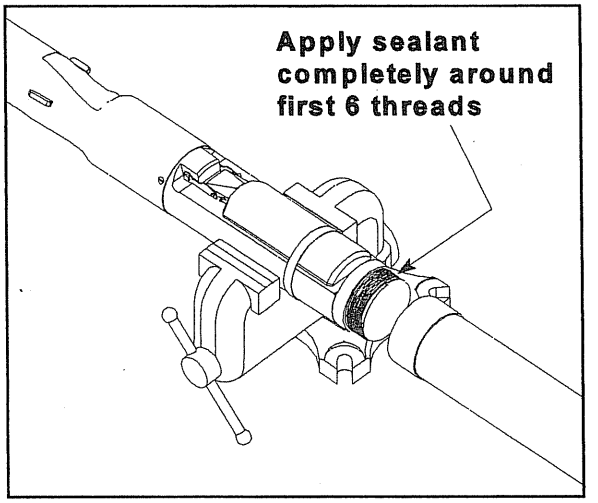



**Figure 10**

**Note:** Before installing the valve in the tank, a pressure test can be performed on the valve to check for vapor tightness. Seal off both ends of the tube with inflatable plumber's plugs. Apply a maximum 10" W.C. (1/3 PSI) air pressure. If pressure does not hold, locate leak with soap solution and repair before installing valve in tank.

**Caution:** Do not over-pressure. Excess pressure can damage the valve seals.

**STEP 11 ❑ CUT LOWER TUBE AT 45° ANGLE**
Measuring from the underside of the inlet tube flange, mark the overall length of the drop tube a distance of (B) minus 6" or as per local codes or requirements. Determine dimension (B) from the measurements taken in Step 1, Figure 1 (Top of the riser pipe to the bottom of the tank). Saw off the excess tube at a 45 degree angle and file off any sharp burrs (Refer to Figure 15).

**STEP 12 ❑ PREPARE FILL RISER FOR VALVE INSERTION**
Remove the tight fill adaptor and existing drop tube from the tank riser pipe.

**IMPORTANT:** Inspect the riser pipe for any foreign material. Over spray from tank relining or any internal burrs inside of pipe must be removed prior to installation. Failure to have an unobstructed riser pipe may prevent proper installation or operation of the valve.

**STEP 13 ❑ REMOVE ELASTIC BAND**
Remove the elastic band securing the float to the valve body. The float will move into an outward position.

**STEP 14 ❑ INSERT DROP TUBE**
Hold the float down against the valve body and slowly insert the drop tube overfill valve into the riser pipe. The float will swing out into the operating position as it passes into the tank. Do not force valve into the riser pipe. If any obstruction or foreign matter interferes with smooth insertion of the valve, the riser pipe must be cleared.

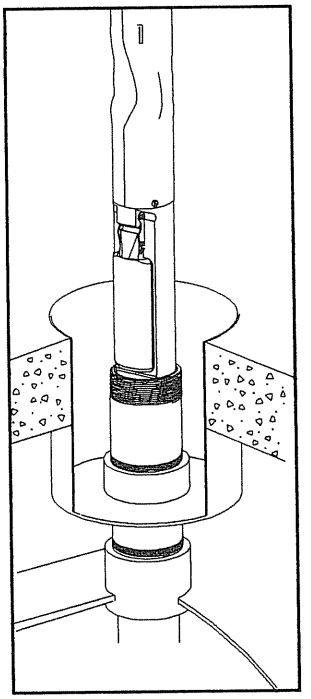


Figure 14

**WARNING**
**Failure to follow the assembly and installation instructions or use of excessive force to insert the OPW 61-SO will VOID THE WARRANTY!**

Difficulty in removing the existing fill tube (if there is one) means there may be an obstruction in the riser pipe. Look for burrs, deformations, excess tank lining material or other projections that may interfere with easy insertion of the OPW 61-SOP. The 61SOP is designed for insertion into schedule 40 pipe. If schedule 80 pipe has been used for the riser, the 61SOP can not be installed. If seamed pipe has been used, the internal weld bead may interfere with the OPW 61-SOP and prevent installation. If the OPW 61-SOP won't slip in easily DON'T FORCE IT! Damage to the valve may result if excess force is used. Examine the riser pipe carefully; determine the nature of the obstruction; take appropriate steps to remove it.

**STEP 15 ❑ ALIGN VALVE**
Make sure that the float is aligned along the length of the tank by visually aligning the deflector. The length of the tank can easily be determined by locating other manholes or pump boxes that are installed around other tank fittings. Look into the drop tube and align the deflector with the length of the tank. **CAUTION**: No obstruction in the tank can be within 13" from the center of the riser pipe or the valve may not operate properly.

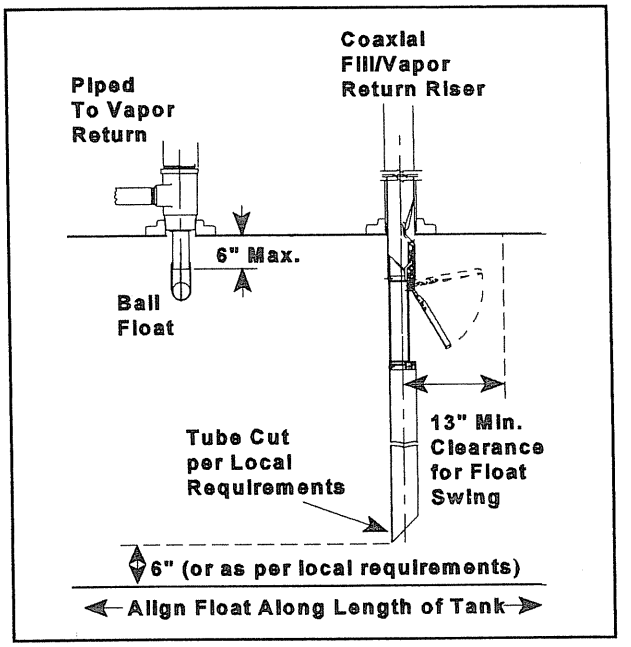



Figure 15

**STEP 16 ❑ TIGHTEN ADAPTOR ASSEMBLY**
While maintaining the proper alignment, fit the supplied alignment tool into the adaptor assembly, and position it so it seats in the three (3) nuts. This tool helps maintain proper valve alignment by holding open the poppet so the adaptor can be tightened without rotating the entire valve. Place a screwdriver across the top of the tool between the two notches. Grasp the screwdriver securely to hold the valve in proper alignment. While pushing down on the tool, rotate the adaptor clockwise until the gasket seats against the riser pipe. Tighten securely.

Confirm correct deflector and float alignment and tighten the locking bolt on the side of the adaptor with a 7/16" wrench to hold the adaptor in place..

Make sure that the valve does not rotate while tightening the adaptor by observing the position of the deflector. **The valve must remain aligned along the length of the tank.**

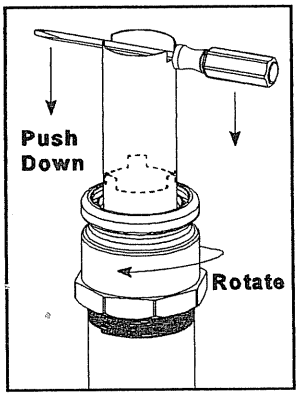


Figure 16A

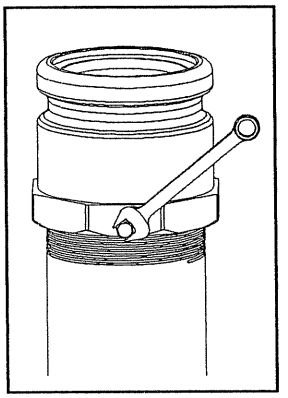
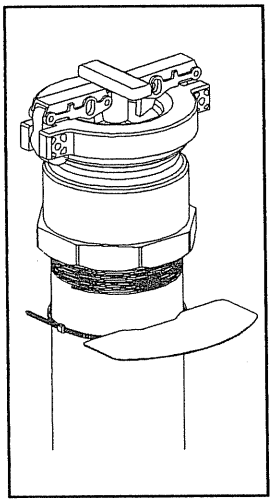


Figure 16B

**STEP 17 ❑ INSTALL WARNING PLATE**
Slide the tie wrap over the warning plate ears and position warning plate against riser pipe approximately 1" below the adaptor. Tighten the tie wrap securely. The valve is now fully installed and in operating position.



**STEP 18 ❑ VALVE REMOVAL**
The valve can be removed for tank leak testing, inspection, etc., like any ordinary drop tube. Reinstall per the above instructions.

**PREVENTATIVE MAINTENANCE:** No maintenance is required for normal operating conditions. It is advisable, however, to periodically inspect the valve for damage, contamination, and freedom of movement of the float. It is also advisable to check the drop tube for weakening due to wear or corrosion. Please leave these instructions and maintenance procedures with the tank owner/operator.

**WARNING**: OPW products should be used in compliance with applicable federal, state and local laws and regulations. Product selection should be based on physical specifications and limitations and compatibility with the environment and material to be handled. **OPW MAKES NO WARRANTY OF FITNESS FOR A PARTICULAR USE.**

**PRODUCT WARRANTY**
All OPW parts and products are thoroughly inspected and tested from the time raw material is received at our plant until the product is completed. We guarantee that all products are free from defects in materials and workmanship for a period of one year form the date of shipment. Any products that may prove defective within said one year period will, at OPW's option, be promptly repaired or replaced or credit given for future orders. This warranty shall not apply to any product which has been altered in any way, which has been repaired by any party other than an authorized OPW service representative or when such failure is due to misuse or conditions of use.

OPW shall have no liability for special or consequential damages to any party, and shall have no liability for labor costs, freight costs, or any other cost or charges in excess of the amount of the invoice for the products.

**THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND SPECIFICALLY THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.**

OPW reserves the right to change specifications at any time without incurring obligations.

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