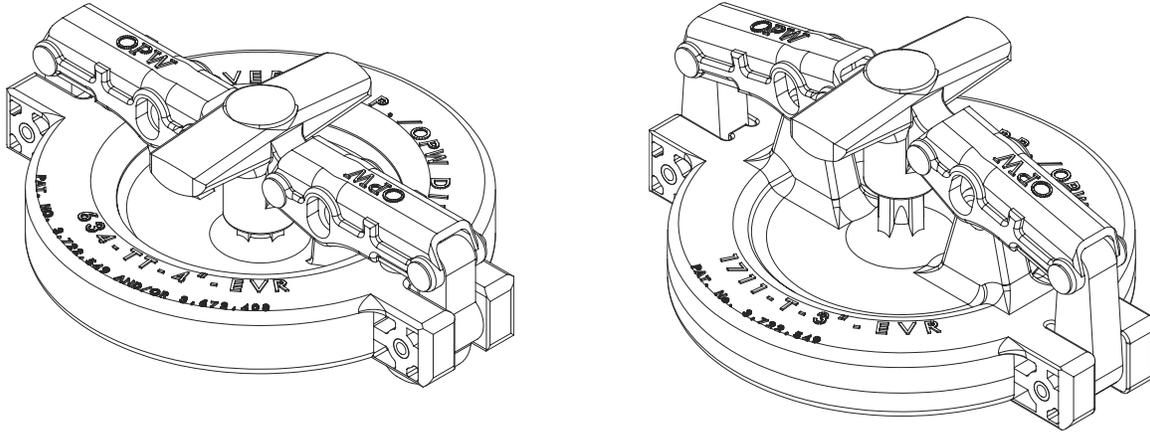


Figure 2K

**OPW 634TT-EVR and 1711T-EVR Dust Caps**



**Operation and Maintenance:**

Annually inspect seal for nicks, tears or deformations. If required replace with OPW P/N: H15005M for 634TT and H10886M for 1711T.

**Standard Product Warranty**

OPW warrants that products sold by it are free from defects in materials and workmanship for a period of one year from the date of manufacture by OPW (ECO products two years from date of manufacture.) Proof of purchase may be required. As the exclusive remedy under this limited warranty, OPW, will at its sole discretion, repair, replace, or issue credit for future orders for any product that may prove defective within the one year date of manufacture period (repairs, replacements, or credits may be subject to prorated warranty for remainder of the original warranty period, complete proper warranty claim documentation required.) This warranty shall not apply to any product that has been altered in any way, which has been repaired by any party other than a service representative authorized by OPW, or when failure is due to misuse, or improper installation or maintenance. OPW shall have no liability whatsoever for special, incidental or consequential damages to any party, and shall have no liability for the cost of labor, freight, excavation, clean up, downtime, removal, reinstallation, loss of profit, or any other cost or charges.

For any product certified to California 2001 standards, OPW warrants that product sold by it are free from defects in material and workmanship for a period of one year from date of manufacture or one year from date of registration of installation not to exceed 15 months from date of manufacture by OPW.

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.



P.O. Box 405003 \* Cincinnati, Ohio 45240-5003  
1-800-422-2525 Domestically  
513-870-3315 Internationally  
[www.opw-fc.com](http://www.opw-fc.com)

Figure 2L

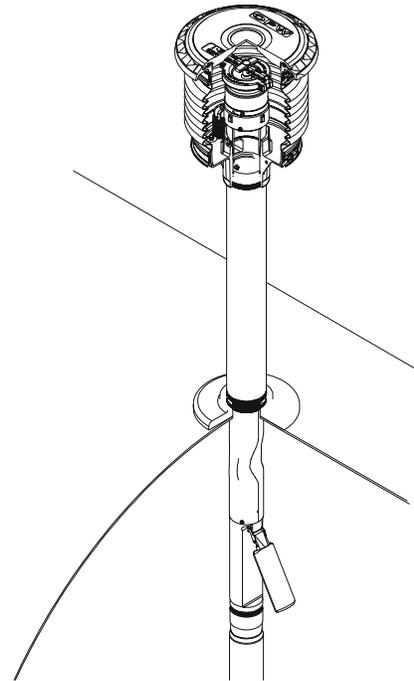
H14790PA  
September 2002



## ***OPW Installation & Maintenance Instructions***

ASSEMBLY, INSTALLATION, and  
MAINTENANCE INSTRUCTIONS FOR  
OPW 61SO-EVR VAPOR TIGHT, OVERFILL  
PREVENTION VALVES.

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



## **Vapor Tight Overfill Prevention Valves**

## GENERAL INSTRUCTIONS

The OPW 61SO 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 drop tube in place of a standard drop tube.

The main 61SO valve closes when liquid level is at 95% of the top of the tank. A small bypass valve remains open to allow the delivery hose to drain at 3-5 gallons per minute. If the delivery truck valve is not closed after initial shut-off, the bypass valve will close and will restrict all fuel delivery.

The 61SO-EVR models of the 61SO are designed to be installed with the following OPW products: FSA-400 Face Seal Adapter, 1-2100-EVR Series Spill Container or POMECA Multi-port, 61JSK Jack Screw Kit, 61SALP-EVR Series Rotatable Product Adaptor, and 634TT-EVR Series Product Cap.

### **IMPORTANT**

Read these assembly and installation instructions completely and carefully prior to starting. Check to make sure all parts have been provided. Use 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 16. In all systems, 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. 1/2" Wrench
9. Two-part sealant (Supplied)
10. Torque Wrench

### **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 LOCATE THE POSITION OF THE 61SO AT 95% TANK CAPACITY

The length of the upper tube and the placement of the 61SO valve body determine the shut-off point. Following the standard instructions for the OPW 61SO will provide for initial shutoff at 95%. 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% tank volume. And, find the dipstick number (Y) which corresponds to the 100% volume.
- 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 (Z) to find the upper tube depth (C).  
 $(Z) - 2" = C$
- 7.) Is C less than 6-1/2"?

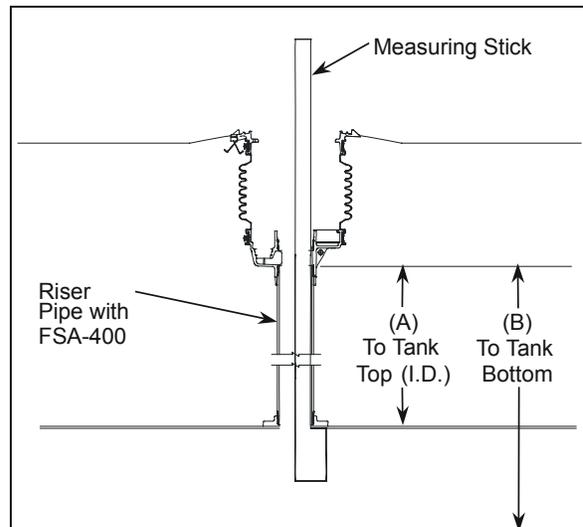
**NO** Upper tube length is C plus the distance from the top of the FSA-400 Face Seal Adaptor installed on the riser pipe to the inside, top lip of the storage (A).

$$\text{Upper Tube Length} = C + (A)$$

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

$$\text{Upper Tube Length} = 6\text{-}1/2" + (A)$$

**NOTE:** You must find the actual tank capacity number that correlates to the 6-1/2" + (A) depth for the station records. This number may also be used for the purposes of calibrating an electronic tank level system.



### EXAMPLE

- 1.) For an Owens-Corning Model G-3 Fiberglass® Tank Calibration Chart:  
Tank Capacity - 10,000 gal., nominal 9,403 gal.  
**NOTE: Use actual capacity only**
  - 2.) 95% of actual tank capacity =  $0.95 \times 9403 \text{ gal.} = 8933 \text{ gal.}$
  - 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"  
 $(X) - (Y) = (Z) \quad (92" - 82" = 10")$   
 $(Z) = 10"$
  - 6.)  $(Z) - 2" = C \quad (10" - 2" = 8")$   
 $C = 8"$
  - 7.) Is 8" less than 6-1/2"?
- NO** Measure the distance from the top of the FSA-400 Face Seal Adaptor installed on the riser pipe to the inside, top lip of the storage tank and obtain measurement (A).
- $$\text{Upper tube length} = C + (A)$$

## ASSEMBLY INSTRUCTIONS

**IMPORTANT:** Each of the numbered steps in the installation instructions are designed as a CHECK LIST to insure proper installation and trouble free operation of the OPW 61SO 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

Install the OPW FSA-400 Face Seal Adaptor and the 1-2100-EVR Series Thread-on Spill Container on the Fill Riser (Refer to the Installation Instructions Supplied with the 1-2100-EVR Series Spill Container). Insert the 61SO measuring stick through the riser pipe and hook it under the inside of the tank in the lengthwise direction. Mark the measuring stick at the top of the FSA-400 threads inside the base of the spill container bucket just below the drain valve outlet window (See Figure 1 & 1A). The top flange on the 61SO will rest on the FSA-400 just below the drain valve outlet, and be locked in place between the FSA-400 and the 4" nipple that is installed in the spill container with the 61JSK-4400 Jack Screw Kit (See Figure 1A). (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 FSA-400 in the spill container 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 61SO is designed to be installed into schedule 40 riser pipes. The 61SO cannot be installed into schedule 80 riser pipes.

### STEP 2: MARK THE TUBE

Use the result from STEP 1 and HOW TO LOCATE THE POSITION OF THE 61SO AT 95% TANK CAPACITY to mark the upper tube. Measure the distance from the point where the upper tube and valve body meets as shown in Figure 2.

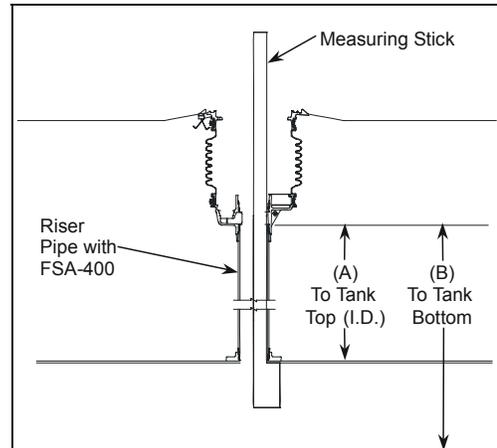


Figure 1

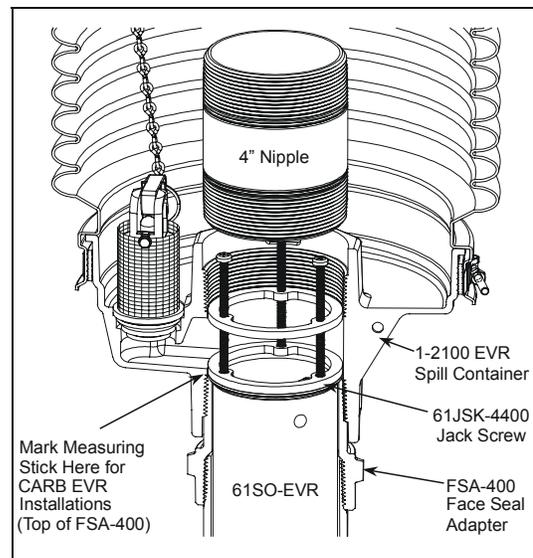


Figure 1A

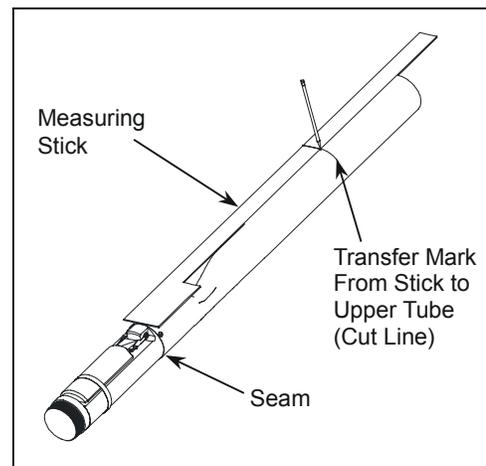


Figure 2

### 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. A piece of paper, taped square with the tube or a hose clamp can be used as guides for making a square 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.

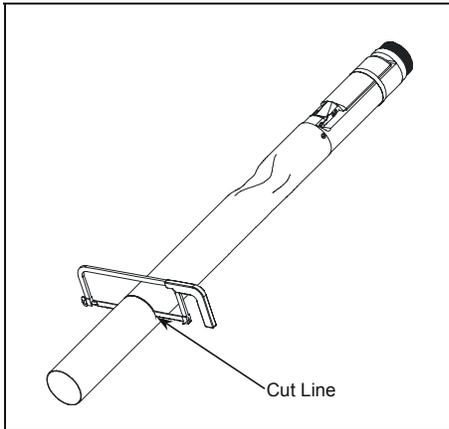


Figure 3

### 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.

**Caution:** Failure to properly apply and cure sealant may result in a failure of a pressure decay leak test.

### 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

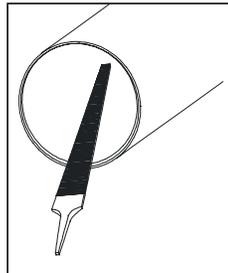


Figure 4

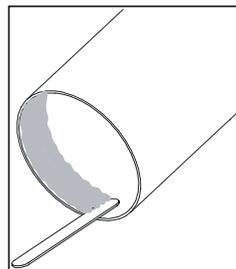


Figure 5

sure coverage is completely around the tube as shown in Fig. 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 into the upper tube until it seats against the flange on the upper inlet tube.

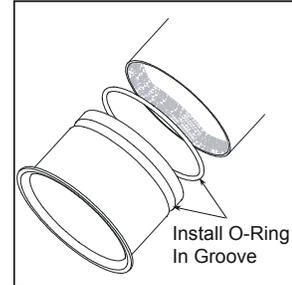


Figure 6

### 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 flange. 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.

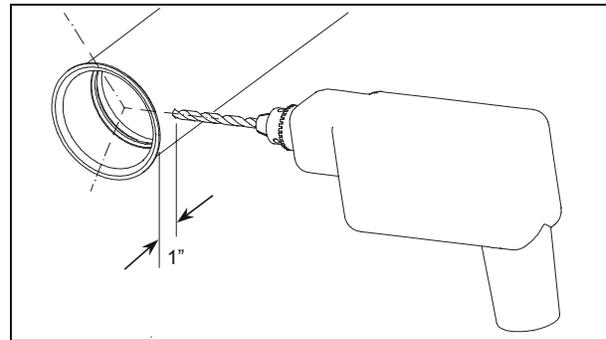


Figure 7

### STEP 8: ASSEMBLE AND SEAL CLINCH STUDS

Loosely assemble the three (3) clinch studs, lock washers, and nuts in holes. Do not tighten at this time. Mix up a small amount of sealant. Generously apply sealant underneath each clinch stud head, each nut, and on the outside of the tube around the holes.

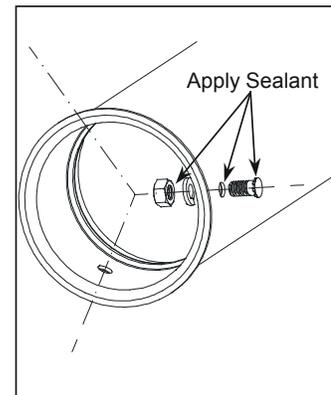


Figure 8

### STEP 9: TIGHTEN SELF-CLINCHING STUDS

Tighten clinch studs securely with a ½" wrench. Use only the self-clinching studs that are supplied with the unit. Seating torque is 11.5 ft-lbs min. to 13.5 ft-lbs max. Do not over tighten.

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

### STEP 10: LOWER TUBE ASSEMBLY

If a vise is used, clamp on the 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 completely 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 water moistened mixing stick.

**Important: Allow sealant (epoxy) to cure for 24 hours before installing into tank.**

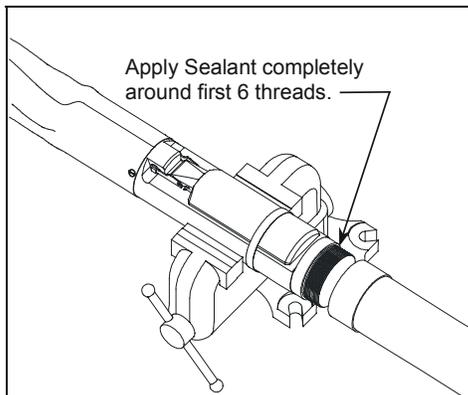


Figure 10

**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 and a leak can be located with soap solution, do not install the valve. Send the valve back to OPW for warranty evaluation.

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

### 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 FSA-400 below the drain valve outlet in the spill container 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 16). Optional: Install the OPW/POMECO Tank Bottom Protector on the lower tube (Refer to Installation instructions supplied with the 6110 Tank Bottom Protector).

### STEP 12: PREPARE FILL RISER FOR VALVE INSERTION

**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. Thoroughly clean top of riser pipe.

**Important: Before installing the valve, allow sealant to cure for 24 hours.**

### 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

Make sure the O-Ring gasket is under the flange of the inlet tube. Hold the float down against the valve body and slowly insert the drop tube overfill valve into the riser pipe. 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.

### WARNING

**Failure to follow the assembly and installation instructions or use of excessive force to insert the OPW 61SO 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 61SO. The 61SO is designed for insertion into schedule 40 pipe. If

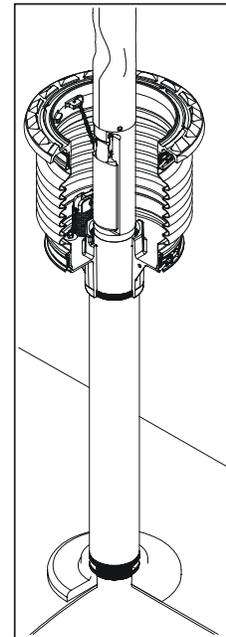


Figure 14

schedule 80 pipe has been used for the riser, the 61SO can not be installed. If seamed pipe has been used, the internal weld bead may interfere with the OPW 61SO and prevent installation. If the OPW 61SO 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: CHECK INSTALLATION**

Insert the drop tube all the way into the tank until the flange and gasket seat onto the top of the FSA-400. The float will swing out into the operating position as it passes into the tank. Make sure that the float is aligned along the length of the tank. 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.

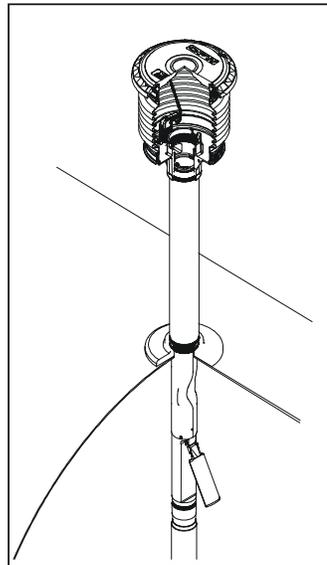


Figure 15

**STEP 16: ALIGN VALVE**

Install the OPW JSK-4400 Jack Screw Kit and a 4" nipple to lock the valve in place. Refer to the Installation Instructions supplied with the Jack Screw Kit. Install the 61SALP-EVR Rotatable Product Adaptor (Refer to Installation Instructions supplied with the 61SALP-EVR.) 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 as in Step 15.** Repeat this step as necessary to assure proper valve alignment.

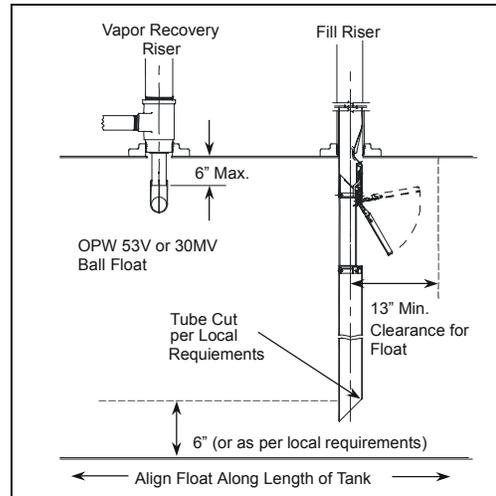


Figure 16

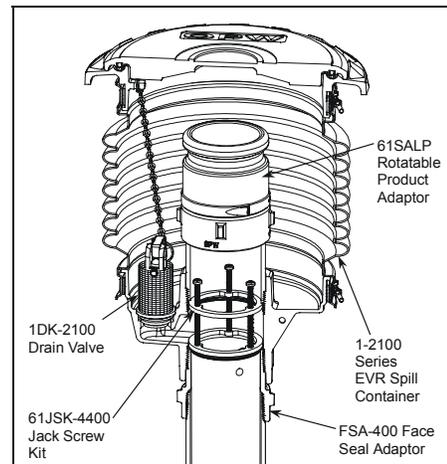


Figure 16A

**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.

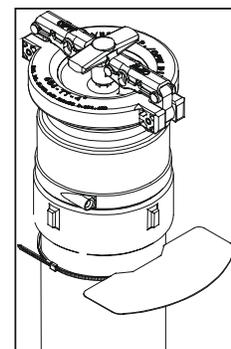


Figure 17

**STEP 18: VALVE REMOVAL**

The valve can be removed for tank leak testing, inspection, etc., by removing the 61SALP-EVR Rotatable Product Adaptor, the 4" nipple, and the 61JSK-4400 Jack Screw Kit. Reinstall per the above instructions.

### Step 19: Electronic Liquid Level Monitoring

If an electronic level monitor is installed, it must be calibrated to match the top of the 61SO valve body, which must correlate with 95% of the actual tank capacity.

### PREVENTATIVE MAINTENANCE

Annually, inspect the flapper in the 61SO to see that it is open by looking down the drop tube opening.

**CAUTION:** Do not insert any foreign object into drop tube if flapper is in the closed position. For example a tank level measuring stick. This will damage the valve and void the Warranty. ALWAYS check flapper location before “sticking” the tank. If flapper is in the closed position the tank is either over filled and you need to wait until the liquid level goes down or the 61SO is damaged and needs to be replaced.

### 61SO Performance Specifications:

This Overfill Prevention Valve has been manufactured and tested to, and met the following California specifications. Performance Requirement: Leak rate at 0.17 @ 2.0"W.C.

### Torque Specification:

Self-Clinching Studs, 5/16-8 UN thread, 11.5 ft-lbs minimum to 13.5 ft-lbs maximum.

**Important:** Leave these installation instructions and maintenance procedures with the station operator.

**Notice:** OPW products must 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. All illustrations and specifications in this literature are based on the latest production information available at the time of publication. Prices, materials, and specification are subject to change at any time, and models may be discontinued at any time, in either case, without notice or obligation.

### Standard Product Warranty

OPW warrants that products sold by it are free from defects in materials and workmanship for a period of one year from the date of manufacture by OPW (ECO products two years from date of manufacture.) Proof of purchase may be required. As the exclusive remedy under this limited warranty, OPW, will at its sole discretion, repair, replace, or issue credit for future orders for any product that may prove defective within the one year date of manufacture period (repairs, replacements, or credits may be subject to prorated warranty for remainder of the original warranty period, complete proper warranty claim documentation required.) This warranty shall not apply to any product that has been altered in any way, which has been repaired by any party other than a service representative authorized by OPW, or when failure is due to misuse, or improper installation or maintenance. OPW shall have no liability whatsoever for special, incidental or consequential damages to any party, and shall have no liability for the cost of labor, freight, excavation, clean up, downtime, removal, reinstallation, loss of profit, or any other cost or charges.

For any product certified to California 2001 standards, OPW warrants that product sold by it are free from defects in material and workmanship for a period of one year from date of manufacture or one year from date of registration of installation not to exceed 15 months from date of manufacture by OPW.

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.



P.O. Box 405003 \* Cincinnati, Ohio 45240-5002  
1-800-422-2525 Domestically  
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